Woodward-Clyde

Engineering & sciences applied to the earth & its environment

September 10, 1997
961163NA

Ms. Madhulla Logan
Hazardous Materials Specialist
Alameda County Department of Environmental Health
1131 Harbor Bay Parkway
Alameda, CA 94503

Subject: Closure Documentation Report for Lead-Impacted Soil
Alameda Belt Line Site, Alameda, California

Dear Ms. Logan:

Woodward-Clyde Consultants (WCC), on behalf of Encinal Real Estate, Inc., is pleased to submit this Closure Documentation Report which documents the excavation of lead-impacted soil followed by backfilling at the planned Encinal Real Estate site in Alameda, California (the site). The work was performed in accordance with the June 13, 1997 Removal Action Workplan, and included soil excavation, stockpile characterization, soil sampling, field and confirmation laboratory analysis, remediation by off-site disposal of the excavated soil, and site restoration. A commercial development is planned for future use of the site.

PREVIOUS INVESTIGATIONS

Previous investigations performed by WCC for the site include an Environmental Summary Report, dated August 14, 1996 (WCC, 1996), and a Site Characterization Report and Remediation Plan, dated April 1997 (WCC, 1997). The laboratory results indicated that lead was previously detected at concentrations above the commercial use scenario Preliminary Remediation Goal (PRG) of 1,000 mg/kg for lead in soil.

CLEANUP GOAL FOR THE SOIL EXCAVATION

The cleanup goal for lead was 1,000 mg/kg in the approved Remedial Action Workplan. The soil excavated was that impacted by lead at concentration above 1,000 mg/kg, as described in that plan.

REMOVAL ACTIONS

Remedial Solutions, Inc. a licensed hazardous waste contractor was retained to perform the excavation work. Soil in areas where lead was detected at concentration exceeding the 1,000 mg/kg goal was excavated during the weeks of August 25 to 29, and September 2 to 5. The

Woodward-Clyde Consultants • A subsidiary of Woodward-Clyde Group, Inc.
500 12th Street, Suite 200 • Oakland, California 94607-4014
(510) 893-3600 • Fax (510) 874-3268

the central part of the excavation about 60 feet wide. Water was applied using a fire hose to control dust.

Excavated soil was screened to separate the rock larger than 1/2-inch from soil and rock smaller than 1/2 inch. Previously stockpiled soil (Lead 96) on the west side of the warehouse was also screened. Two stockpiles, one containing larger rock and one containing smaller sized material were created on-site. Two, 4-point composite soil samples were collected from each stockpile and submitted to the laboratory for characterization tests. The composite samples were analyzed for; total lead, soluble lead using the California Waste Extraction Test (CAM WET, or STLC), the Toxic Characteristics Leaching Procedure test (TCLP), and the Synthetic Precipitation Leaching Procedure test (SPLP). Since the total lead concentration of the stockpile containing rock greater than 1/2-inch did not exceed the 1,000 mg/kg cleanup concentration, and the SPLP test results were less than the 5 mg/L criteria for soil to remain on site, the large sized rock was approved for placement as backfill.

The stockpile of soil less than 1/2-inch in diameter will be disposed off-site based on the analytical results. The soil is scheduled to be loaded onto rail cars on September 11th for transport to the ECDC Environmental facility in Utah. The soil is not a RCRA hazardous waste and therefore may be disposed outside of California as non-hazardous waste.

During excavation activities, one soil sample was collected on sidewalls every 20 feet along the perimeter and one for every 400 square feet at the bottom of the excavation pit, as shown in Figure 1. Excavation activities were terminated when the confirmation soil sample analyses detected lead concentration is less than 1,000 mg/kg total lead. In addition, about three soil samples with relatively high lead concentration were also tested for leachability. Soil within approximately two feet of the water table was left undisturbed.

HEALTH AND SAFETY PLAN

A WCC site-Specific Health and Safety Plan (HSP) was developed for removal actions at the site. The HSP included discussion of anticipated hazards and risks, an exposure monitoring plan for dust, dust control measures, general health and safety requirements, area control, reports, emergency procedures, and references. The route from the site to the nearest hospital was also provided in the HSP.

SAMPLING AND ANALYSIS

In-Situ Soil Samples

Following excavation of the area on Figure 1 to a depth of about one foot about 130 confirmation soil samples were analyzed for total lead using a portable laboratory equipped with an X-Ray Fluorescence (XRF) Spectrophotometer from ONSITE Laboratories, Fremont, California. The samples were laid out on a grid with a beginning point of 1,000 and 1,000 at the northwest corner of the excavation (Figure 1). North-South rows were established at 10 foot intervals eastward of the starting point. Samples were collected at 20 foot North-South intervals. Samples were labeled with the row and north-south distance to identify each sample point. Because of the need to analyze a large number of soil samples about 50 samples were sent to SCA Environmental in Berkeley, California for XRF analyses. The XRF analyses showed about 15 locations with concentrations at or above the cleanup goal of 1,000 mg/kg. Soil in these locations were excavated 1-foot deeper (shaded areas on Figure 1) and resampled and analyzed by XRF to confirm that the remaining soil had a concentration below the 1,000 mg/kg cleanup level. The resampled soil samples were labeled with and A at the end of the sample number to designate it was a resample. Laboratory reports are included in Appendix A.

Twelve of the XRF confirmation samples collected, with the highest XRF lead concentrations, were sent to Chromalab, Inc. to be analyzed using EPA 6010 methods for total lead. The 6010 analyses (Table 1), showed that three of the soil samples (Sample 1030, 1070; 1040, 1080; and 1030, 1410) had reported lead exceeding 1,000 mg/kg. These areas were excavated 1 foot deeper and new soil confirmation samples were analyzed at Chromalab. Lead was at 10 mg/kg in resample number 1030, 1070A; and not detected above the reporting limit of 5 mg/kg in 1040, 1080A, and 1030, 1410A as shown in Figure 1.

Samples 1020, 1140 (920 mg/kg total lead), 1020, 1300 (860 mg/kg total lead), and 1020, 1320 (total lead 690 mg/kg) were selected for SPLP analysis (EPA 1312 Method) as requested in the July 21, 1997 approval letter for the workplan from Alameda County (see Table 1). The laboratory reports no detection of lead above the 1 mg/L reporting limit for samples 1020, 1140 and 1020, 1300, and 1.4 mg/L lead for sample 1020, 1320. The SPLP results are well below the allowable criteria of 5 mg/L soluble lead described in the July 21, 1997 approval letter from Alameda County.

STOCKPILE SOIL SAMPLES

The excavated soil was segregated into two stockpiles using a screen to create a smaller than 1/2 inch stockpile and a larger than 1/2-inch diameter rock stockpile. Four four-point composite sample were collected to evaluate the disposal of the stockpiled soil, as shown in Table 2. The total lead (TTLC) results of one composite sample (COMP BS-1,2,3,4) from the smaller than 1/2 inch stockpile was reported at 1,100 mg/kg, which exceeds the TTLC of 1,000 mg/kg for lead, making that soil a California Hazardous Waste. The total lead results for the remaining composite samples (COMP BS-5,6,7,8; COMP BL-1,2,3,4; and COMP BL-5,6,7,8) were less than 1,000 mg/kg, as shown in Table 2.

The four, four-point composite samples (Table 2) were analyzed at Clayton Environmental Laboratories for soluble lead using the California Waste Extraction Test method (CWET). The CWET test results exceeded the Soluble Threshold Limit Concentration (STLC) of 5 mg/L for lead for each of the four composite stockpile soil samples, as shown in Table 2. Toxicity Characteristic Leaching Procedure (TCLP) tests showed soluble lead less than 5 mg/L indicating the small diameter stockpile is not a RCRA (Federal) hazardous waste. The soluble lead SPLP analyses reported for each of the four composite samples were less than the 5 mg/kg criteria for soil to remain on site. As approved by Alameda County the large diameter stockpiled soil was placed as backfill in the excavation, leaving only the small diameter soil stockpile for disposal. XRF analysis of a 4 point composite (RBLK-3, Table 2) of a small stockpile of re-excavated soil showed no detection (<100 mg/kg) of lead. Since the SPLP results for this sample showed no detection of soluble lead (<0.1 mg/L), this soil was also placed as backfill.

DISPOSAL OF STOCKPILED SOIL

About 300 cubic yards (400 tons) of soil passing the 1/2-inch screen was stockpiled for disposal off site. The analytical results of the two composite samples of this small diameter stockpile showed that the soil was a California Hazardous Waste (exceeding the TTLC of 1,000 mg/kg and exceeding the STLC of 5 mg/L lead). However, this stockpiled soil is not a RCRA (Federal) hazardous waste since the TCLP results are less than 5 mg/L soluble lead. Therefore the soil is scheduled for disposal at the ECDC facility in Utah. The soil will be transported by rail from the site to the ECDC facility under manifest.

Our subcontractor Remedial Solutions, Inc., Fremont, California will load the stockpiled soil onto the rail cars at the site. The anticipated schedule is for this soil to be loaded on September 11, 1997. Copies of bills of lading and manifests will be provided to Alameda County to document the disposal of these soils.

SITE RESTORATION

Backfilling and site restoration activities were performed as described below. The approximate location of the excavation is shown on Figure 2.

The large diameter rock stockpiled soil was placed in lifts less than 6-inches thick to backfill the excavation. A Woodward-Clyde engineer observed the placement of the lifts and documented that the dozer track-walked each lift sufficiently for compaction. About 700 cubic yards of the large diameter rock stockpile was placed in the southern two-thirds of the excavation to bring the grade up to the original grade (about 1-foot of fill). Existing brown sandy gravel soil from immediately west of the excavation, and adjacent to the east side of the warehouse was borrowed and placed as fill in the northern one-third of the excavation using the same track walking procedure. This borrowed soil has been previously sampled and analyzed for metals, organics and petroleum hydrocarbons and none of the detections exceed allowable concentrations for use as fill for this development.

Backfill activities were performed on September 3rd and 4th. Mr. Lewis Krause, Woodward-Clyde field technician performed field density tests using a nuclear gage on September 4th. The results of the two tests show 90.1 and 90.8 percent density as compared to the maximum dry density measured in the laboratory using method ASTM D1557-C. The compacted backfill was placed to bring the fill up to the original grade (about 1-foot of fill). A compaction curve and field density test results are included in Appendix B.

Work that was not a part of this remedial action workplan was also performed. Because of possible safety issues the approximately 25 foot by 25 foot, 8-foot deep excavation (Figure 2) that remained from previous volatile organic soil remediation was backfilled with borrowed soil from adjacent to the warehouse. Because of the wet conditions the soil was placed in the lower 5 feet of the excavation with little compaction effort using a dozer. The upper 3 feet of soil was track walked using the dozer and placing lifts of about 1 foot in thickness. Density tests were not performed on this backfilled soil. It is likely that settlement may occur during the winter months as this backfilled soil is saturated by rains. In addition stockpiled clay (Bay Mud) soils (DCA96, OLD DCA) on the west side of the warehouse were placed in a loose lift on top of the compacted backfill. The stockpiled clay soils have been previously approved by Alameda County for use as fill, and have been analyzed for lead and for organics and do not exceed allowable concentrations. The loose clay soil layer may act as a topsoil to reduce infiltration of precipitation. The additional soil also acts to raise the grade so that drainage will be provided away from the backfilled area. If additional fill is to be placed in this area the clay layer will

need to be recompacted or handled as recommended by the soils engineer for the planned development.

CONCLUSIONS

It is our opinion that the excavation and soil removal activities have been performed and documented in accordance with the approved Removal Action Workplan dated June 13, 1997. We believe that no further actions are needed with respect to lead-impacted soil at this site. Copies of waste manifests will be provided documenting the arrival of the disposed soil at the ECDC facility in Utah.

We appreciate the opportunity to work with you. If you have any questions, or if we can offer any further assistance, please call Al Ridley at (510) 874-3125 or Marco at (510) 874-3254.

Sincerely,

Marco C. Lobascio, P.E., R.E.A.
Assistant Project Engineer

Albert P. Ridley, C.E.G.
Senior Consultant

cc: Richard Kraber
Peter Wang

Attachments: Table 1- Total Lead Results
Table 2- Composite Sample Results
Figure 1- Confirmation Soil Sample Lead Results
Figure 2 - Location of Soil Excavation
Appendix A Laboratory Reports
Appendix B Compaction Curve and Density Tests

TABLE 1
TOTAL LEAD RESULTS

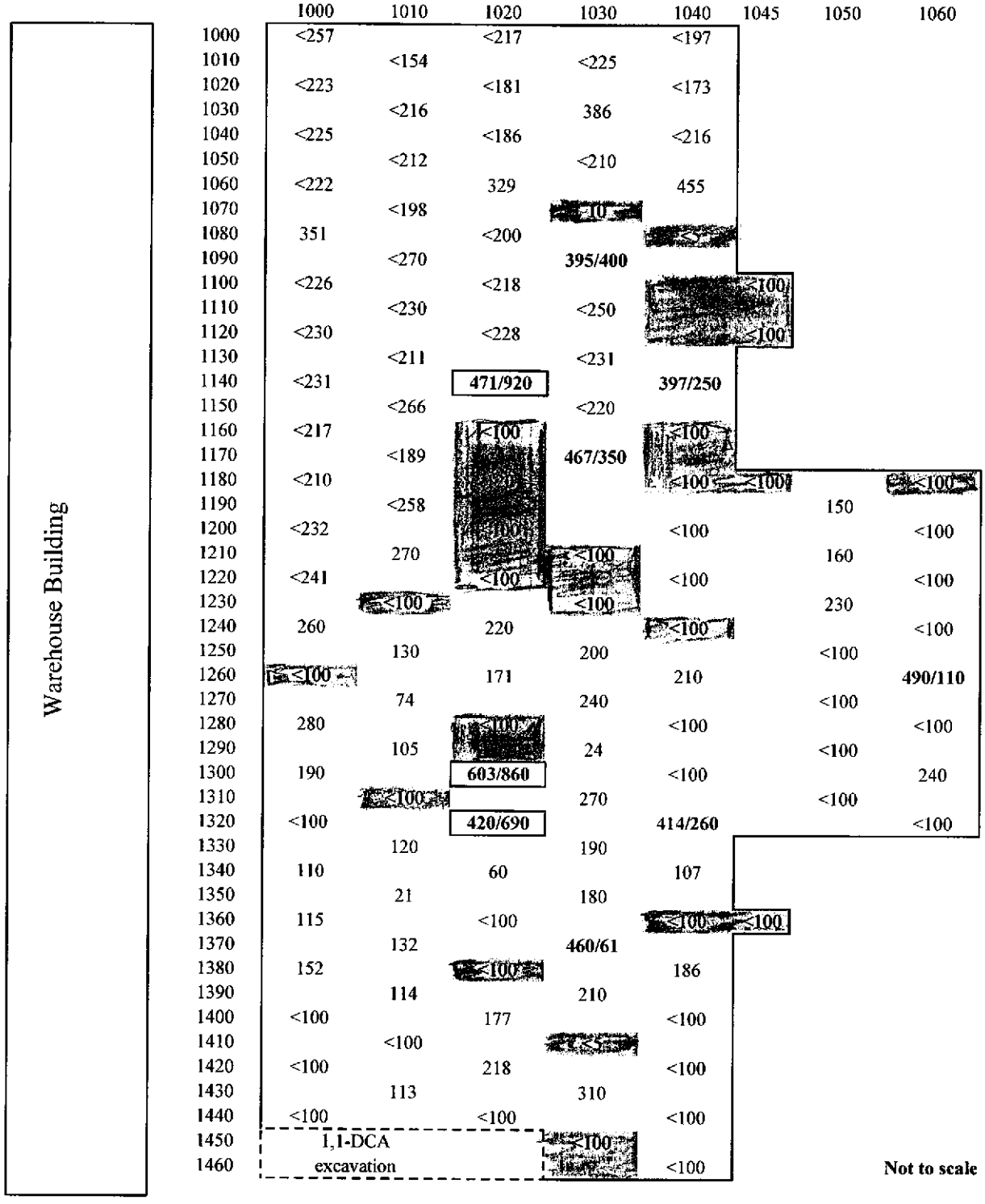
Sample No.	[mg/kg] XRF	EPA 6010	6010 Re-Test	SPLP [mg/L]
1020, 1140	471	920		<1
1060, 1070	387	2100	10	
1030, 1090	395	400		
1030, 1170	467	350		
1040, 1080	524	2400	<5	
1040, 1140	397	250		
1020, 1300	603	860		<1
1020, 1320	420	690		1.4
1030, 1370	460	61		
1030, 1410	523	1400	<5	
1040, 1320	310	260		
1060, 1260	490	110		

TABLE 2

ENCINAL COMPOSITE SAMPLES FROM STOCKPILES RESULTS				
Sample i.d.	**Lead[(1)] [mg/kg]**	**SPLP lead [mg/kg]**	**STLC lead [mg/L]**	**TCLP lead [mg/L]**
COMP BS-1,2,3,4	1,100	0.4	74	3.7
COMP BS-5,6,7,8	590	<0.1	43	3.4
COMP BL-1,2,3,4	950	0.2	40	8.5
COMP BL-5,6,7,8	700	0.1	46	3.7
RBLK-3	<100	<0.1	na	na

Notes:

(1) COMP samples analyzed by EPA Method 6010. RBLK-3 sample analyzed by XRF.



Notes:

Areas excavated to 2 feet or to clay layer.

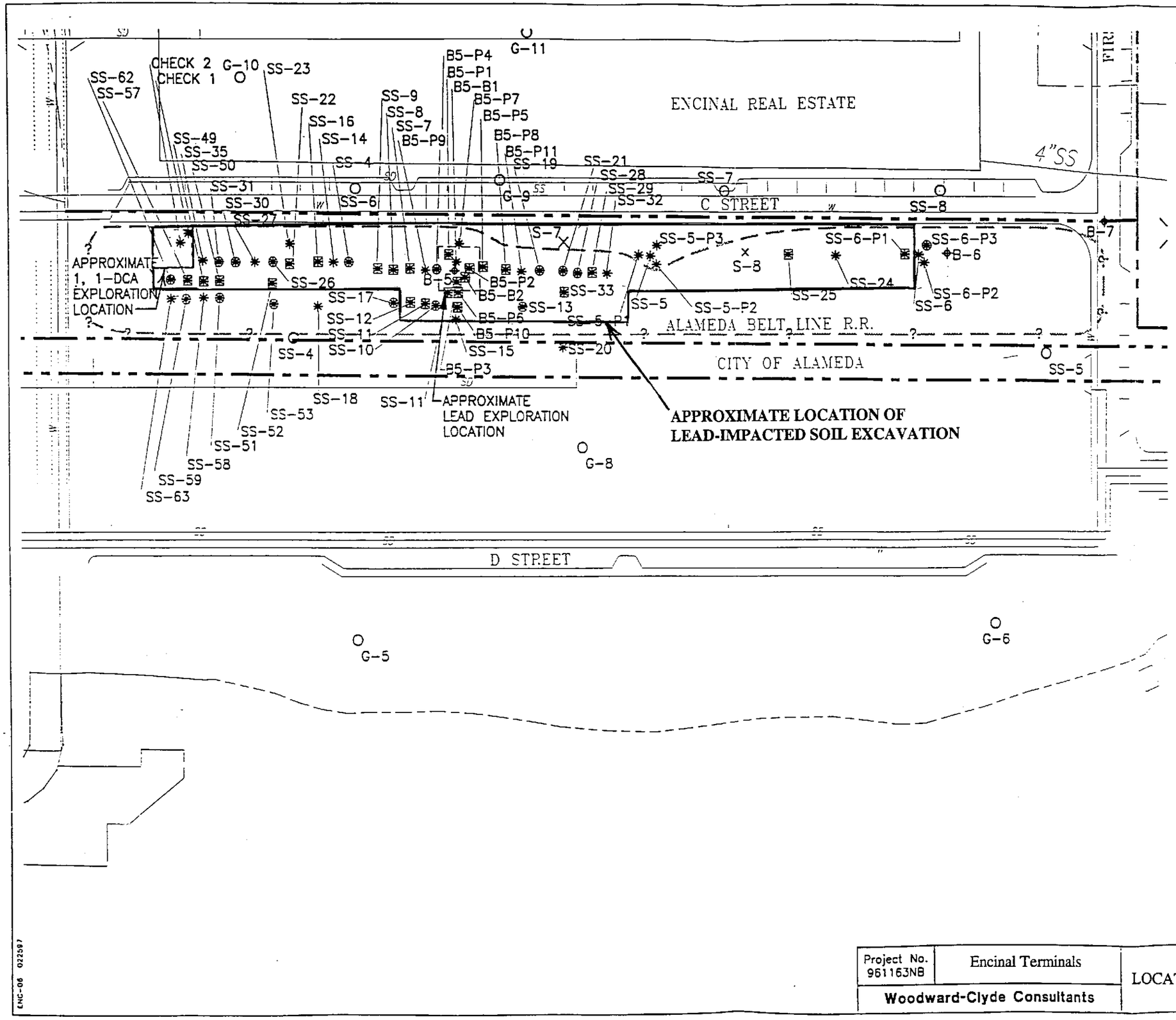
Samples selected for SPLP analysis (2).

420/690 Confirmation samples: XRF result / EPA Method 6010 result. A total of 12 confirmation samples were taken. Only 8 are shown because 4 were in re-excavated areas.

Project No. 961163NA	ENCINAL	ENCINAL LEAD IMPACTED SOIL CONFIRMATION TEST RESULTS Lead (mg/kg) in samples collected at base of final excavation (1 to 2 feet deep)	Figure 1
Woodward-Clyde Consultants			

x:/naomi/project/encinal/FIGURE.XLS

9/10/97 11:40 AM



ENC-06 022597

Project No. 961163NB	Encinal Terminals	LOCATION OF SOIL EXCAVATION	Figure 2
Woodward-Clyde Consultants			

APPENDIX A

LABORATORY REPORTS

SCA Environmental, Inc.
2114 Berkeley Way
Berkeley, CA 94704
Tel: 510-848-0390
Fax: 510-848-3328

SCA Project #: B2281
Client Project #: 961163NA
SCA Batch #: 82897-1
Date Rec'd by Lab: 8/28/97
Client: WCC, 500 12th Street, Suite 200, Oakland, CA 94607

LABORATORY ANALYSIS REPORT
LEAD IN SOIL SCREENING ANALYSIS
VIA X-RAY FLUORESCENCE SPECTRUM ANALYZER

Client Sample ID	SCA Lab ID	Lead (ppm)	95% Conf Interval (ppm)	Comments
1010, 1010	82897-1	<154	na	
1010, 1030	82897-2	<216	na	
1010, 1050	82897-3	<212	na	
1010, 1070	82897-4	<198	na	
1010, 1090	82897-5	<270	na	
1010, 1110	82897-6	<230	na	
1010, 1130	82897-7	<211	na	
1010, 1150	82897-8	<266	na	
1010, 1190	82897-9	<189	na	both samples labelled
1010, 1190	82897-10	<258	na	as 1010, 1190
1000, 1000	82897-11	<257	na	
1000, 1020	82897-12	<223	na	
1000, 1040	82897-13	<225	na	
1000, 1060	82897-14	<222	na	
1000, 1080	82897-15	351	210	
1000, 1100	82897-16	<226	na	
1000, 1120	82897-17	<230	na	
1000, 1140	82897-18	<231	na	
1000, 1160	82897-19	<217	na	
1000, 1180	82897-20	<210	na	
1000, 1200	82897-21	<232	na	
1000, 1220	82897-22	<241	na	
1020, 1000	82897-23	<217	na	
1020, 1020	82897-24	<181	na	
1020, 1040	82897-25	<186	na	
1020, 1060	82897-26	329	188	
1020, 1080	82897-27	<200	na	
1020, 1100	82897-28	<218	na	
1020, 1120	82897-29	<228	na	
1020, 1140	82897-30	471	223	
1020, 1160	82897-31	638	217	
1020, 1180	82897-32	699	233	
1030, 1010	82897-33	<225	na	

33

SCA Environmental, Inc.
2114 Berkeley Way
Berkeley, CA 94704
Tel: 510-848-0390
Fax: 510-848-3328

SCA Project #: B2281
Client Project #: 961163NA
SCA Batch #: 82897-1
Date Rec'd by Lab: 8/28/97
Client: WCC, 500 12th Street, Suite 200, Oakland, CA 94607

LABORATORY ANALYSIS REPORT
LEAD IN SOIL SCREENING ANALYSIS
VIA X-RAY FLUORESCENCE SPECTRUM ANALYZER

Client Sample ID	SCA Lab ID	Lead (ppm)	95% Conf Interval (ppm)	Comments
1030, 1030	82897-34	386	211	
1030, 1050	82897-35	<210	na	
1030, 1070	82897-36	387	217	
1030, 1090	82897-37	395	227	
1030, 1110	82897-38	<250	na	
1030, 1130	82897-39	<231	na	
1030, 1150	82897-40	<220	na	
1030, 1170	82897-41	467	201	
1040, 1000	82897-42	<197	na	
1040, 1020	82897-43	<173	na	
1040, 1040	82897-44	<216	na	
1040, 1060	82897-45	455	221	
1040, 1080	82897-46	524	194	
1040, 1100	82897-47	1160	233	
1040, 1120	82897-48	615	207	
1040, 1140	82897-49	397	195	
1040, 1160	82897-50	755	224	
1040, 1180	82897-52	2280	377	

Method: None referenced. Samples were analyzed using an XRF-analyzer as a screening tool.

Analyzed By: Chris Yama **Approved By:** Chuck Siu
Date: 8/28/97 **Date:** 8/28/97

Woodward-Clyde Consultants
500 12th Street, Suite 200 • Oakland, CA 94607-4014
(510) 893-3600

Chain of Custody Record

PROJECT NO. 96116 3NA

SAMPLERS: (Signature) JOHN WHARTON

DATE	TIME	SAMPLE NUMBER	Sample Matrix (Soil, (W)ater, (A)ir	EPA Method	EPA Method	EPA Method	EPA Method	Number of Containers
12		1000, 1000	S					1
		1000, 1020						1
		1000, 1040						1
		1000, 1060						1
		1000, 1080						1
		1000, 1100						1
		1000, 1120						1
		1000, 1140						1
		1000, 1160						1
		1000, 1180						1
		1000, 1200						1
		1000, 1220	↓					1
	18	1020, 1000	S					1
		1020, 1020						1
		1020, 1040						1
		1020, 1060						1
		1020, 1080						1
		1020, 1100						1
		1020, 1120						1
		1020, 1140						1
		1020, 1160						1
		1020, 1180	↓					1

ANALYSES

REMARKS (Sample preservation, handling procedures, etc.)

QUESTIONS & RESULTS:

AL RIDLEY
(510) 874-3125
(510) 874-3268 (FAX)

TOTAL NUMBER OF CONTAINERS: 22

RELINQUISHED BY: (Signature)	DATE/TIME	RECEIVED BY: (Signature)	RELINQUISHED BY: (Signature)	DATE/TIME	RECEIVED BY: (Signature)
		8/28/97			
METHOD OF SHIPMENT:		SHIPPED BY: (Signature) 8/28/97	COURIER: (Signature)	RECEIVED FOR LAB BY (Signature)	DATE/TIME

Woodward-Clyde Consultants
500 12th Street, Suite 200 • Oakland, CA 94607-4014
(510) 893-3600

Chain of Custody Record

PROJECT NO. 961163NA

SAMPLERS: (Signature) JOHN WHARTON J.W.

DATE	TIME	SAMPLE NUMBER	Sample Matrix (S)oil, (W)ater, (A)ir	EPA Method	EPA Method	EPA Method	EPA Method	Number of Containers
		1010, 1010	S					1
		1010, 1030						1
		1010, 1050						1
		1010, 1070						1
		1010, 1090						1
		1010, 1110						1
		1010, 1130						1
		1010, 1150						1
		1010, 1170						1
		1010, 1190	↓					1
		1030, 1010	S					1
		1030, 1030						1
		1030, 1050						1
		1030, 1070						1
		1030, 1090						1
		1030, 1110						1
		1030, 1130						1
		1030, 1150						1
		1030, 1170	↓					1

ANALYSES

REMARKS (Sample preservation, handling procedures, etc.)

- QUESTIONS & RESULTS:
AL RIDLEY
(510) 874-3125
(510) 874-3268 (FAX)
~~NEED~~ ~~NOT~~.
* NO 1010, 1170
BUT TWO
~~NEED~~ 1010, 1190's

TOTAL NUMBER OF CONTAINERS: 19

RELINQUISHED BY: (Signature)	DATE/TIME	RECEIVED BY: (Signature)	RELINQUISHED BY: (Signature)	DATE/TIME	RECEIVED BY: (Signature)
John Wharton	8/27	[illegible] 8/29/97			
METHOD OF SHIPMENT:		SHIPPED BY: (Signature) Chris Yana 8/28/97	COURIER: (Signature)	RECEIVED FOR LAB BY (Signature)	DATE/TIME

Woodward-Clyde Consultants
500 12th Street, Suite 200 • Oakland, CA 94607-4014
(510) 893-3600

Chain of Custody Record

PROJECT NO. 961163NA

SAMPLERS: (Signature) JOHN WHARTON

DATE 1997	TIME	SAMPLE NUMBER	Sample Matrix (Soil), (Water), (Air)	ANALYSES: EPA Method → FY XRF	Number of Containers	REMARKS (Sample preservation, handling procedures, etc.)
8/27	10	1040, 1000	S	X	1	
		1040, 1020		X	1	
		1040, 1040		X	1	
		1040, 1060		X	1	
		1040, 1080		X	1	
		1040, 1100		X	1	
		1040, 1120		X	1	
		1040, 1140		X	1	
		1040, 1160		X	1	
↓		1040, 1180	↓	X	1	

QUESTIONS / RESULTS:

AL RIDLEY
(510) 874-3125
(510) 874-3268 (FAX)

TOTAL NUMBER OF CONTAINERS: 10

RELINQUISHED BY: (Signature)	DATE/TIME	RECEIVED BY: (Signature)	RELINQUISHED BY: (Signature)	DATE/TIME	RECEIVED BY: (Signature)
John Wharton	8/27	8/28/97			

METHOD OF SHIPMENT:	SHIPPED BY: (Signature)	COURIER: (Signature)	RECEIVED FOR LAB BY (Signature)	DATE/TIME
	Chris Yamasaki 8/28/97	UPS NEXT DAY		

ONSITE
ENVIRONMENTAL
LABORATORIES, INC.
[redacted]

5500 Boscell Common
Fremont, CA 94538
(510) 490-8571
(510) 490-8572/Fax

FACSIMILE TRANSMISSION

Date 9/2 **Time**

Company Woodward Clyde

Attention Naomi

Fax Number 510-874-3268 **Phone Number** 510-874-3111

Number of Pages in this Transmittal (including this page) 4

From Garth Voigt

Remarks: Results per your request.

ONSITE
ENVIRONMENTAL LABORATORIES, INC.

5D059D.RPT

Analytical Laboratory Report
XRF

COC #: NA
Date Sampled: 8/28/97
Date Received: 8/28/97
Date Analyzed: 8/28/97
Report Number: 5D059.rpt
Lab Number: 5D059
Date Reported: 8/29/97

Proj Mgr: Al Ridley
Client: Woodward Clyde
Project: 961163NA
Matrix: Soil
Units Soil: mg/Kg

Lab ID No.	Field ID No.	Pb
5D059-01	1000, 1200	ND
5D059-02	1000, 1220	170
5D059-03	1000, 1240	226
5D059-04	1000, 1260	1030
5D059-05	1000, 1280	280
5D059-06	1000, 1300	190
5D059-07	1000, 1320	ND
5D059-08	1000, 1340	110
5D059-09	1010, 1210	270
5D059-10	1010, 1230	560
5D059-11	1010, 1250	130
5D059-12	1010, 1270	74
5D059-13	1010, 1290	105
5D059-14	1010, 1310	786
5D059-15	1010, 1330	120
5D059-16	1010, 1350	21
5D059-17	1020, 1200	732
5D059-18	1020, 1220	610
5D059-19	1020, 1240	220
5D059-20	1020, 1260	171

Reporting Limits SOIL mg/Kg	100

NOTES:
NR - Not requested
COC - Chain of Custody
ND - Analyte not detected at, or above the reporting limit
mg/Kg - Milligrams per kilogram (PPM)
PQL - Practical Quantitation Limit, Equals detection limit times the dilution factor.

PROCEDURES:
XRF - This analysis was performed according to Onsite S.O.P. SOPXRFAZ Rev 2-A.

Laboratory Director

Date 9/2/97

Printed on recycled paper.

ONSITE
ENVIRONMENTAL
LABORATORIES, INC.
[redacted]

SD059E.RPT

Analytical Laboratory Report
XRF

COC #:	NA		
Date Sampled:	8/28/97	**Proj Mgr:**	Al Ridley
Date Received:	8/28/97	**Client:**	Woodward Clyde
Date Analyzed:	8/28/97	**Project:**	961163NA
Report Number:	5D059.rpt	**Matrix:**	Soil
Lab Number:	5D059	**Units Soil:**	mg/Kg
Date Reported:	8/29/97		

Lab ID No.	Field ID No.	Pb
5D059-21	1020, 1280	807
5D059-22	1020, 1300	603
5D059-23	1020, 1320	428
5D059-24	1020, 1340	60
5D059-25	1030, 1210	1500
5D059-26	1030, 1230	820
5D059-27	1030, 1250	200
5D059-28	1030, 1270	240
5D059-29	1030, 1290	24
5D059-30	1030, 1310	270
5D059-31	1030, 1330	190
5D059-32	1030, 1350	ND
5D059-33	1040, 1200	ND
5D059-34	1040, 1220	ND
5D059-35	1040, 1240	1200
5D059-36	1040, 1260	210
5D059-37	1040, 1280	ND
5D059-38	1040, 1300	ND
5D059-39	1040, 1320	310
5D059-40	1040, 1340	ND

Reporting Limits SOIL mg/Kg	100

NOTES:
ND = Not reported
COC = Chain of Custody
ND = Analytes not detected at, or above the reporting limit
mg/Kg = Milligrams per kilogram (PPM)
PQL = Practical Quantitation Limit. Typical detection limit times the dilution factor.

PROCEDURES:
XRF - This analysis was performed according to Onsite S.O.P. [illegible] Rev. [illegible]

Gareth Voigt
Laboratory Director

9/2/97
Date

ONSITE
ENVIRONMENTAL
LABORATORIES, INC.

5D059F.RPT

Analytical Laboratory Report
XRF

COC #: NA
Date Sampled: 8/28/97
Date Received: 8/28/97
Date Analyzed: 8/28/97
Report Number: 5D059.rpt
Lab Number: 5D059
Date Reported: 8/29/97

Proj Mgr: Al Ridley
Client: Woodward Clyde
Project: 961163NA
Matrix: Soil
Units Soil: mg/Kg

Lab ID No.	Field ID No.	Pb
5D059-41	1050, 1210	160
5D059-42	1050, 1230	230
5D059-43	1050, 1250	ND
5D059-44	1050, 1270	ND
5D059-45	1050, 1290	ND
5D059-46	1050, 1310	ND
5D059-47	1050, 1190	150
5D059-48	1060, 1180	940
5D059-49	1060, 1200	ND
5D059-50	1060, 1220	ND
5D059-51	1060, 1240	ND
5D059-52	1060, 1260	490
5D059-53	1060, 1280	ND
5D059-54	1060, 1300	240
5D059-55	1060, 1320	ND

Reporting Limits SOIL mg/Kg	100

NOTES:
NR - Not requested
COC - Chain of Custody
ND - Analytes not detected at, or above the reporting limit
mg/Kg - Milligrams per Kilogram (PPM)
PQL - Practical Quantitation Limit. Equals detection limit times the dilution factor.

PROCEDURES:
XRF - This analysis was performed according to Onsite S.O.P. [illegible], Rev 2-A

Garth Voigt
Laboratory Director

9/2/97
Date

ONSITE
ENVIRONMENTAL
LABORATORIES, INC.
[redacted]

5D060.RPT

Analytical Laboratory Report
XRF

COC #:	NA		
Date Sampled:	8/28/97	**Proj Mgr:**	Al Ridley
Date Received:	8/28/97	**Client:**	Woodward Clyde
Date Analyzed:	8/28/97	**Project:**	961163NA
Report Number:	5D060/5D061	**Matrix:**	Soil
Lab Number:	5D061-rpt	**Units Soil:**	mg/Kg
Date Reported:	8/29/97		

Lab ID No.	Field ID No.	Pb
5D061-2	1010, 1230A	ND
5D061-1	1060, 1180A	ND
5D061-3	1040, 1160A	ND
5D061-4	1040, 1180A	ND
5D061-5	1045, 1080A	ND
5D061-6	1045, 1100A	ND
5D061-7	1045, 1120A	ND
5D061-8	1020, 1160A	ND
5D061-9	1020, 1180A	120
5D061-10	1030, 1450A	ND
5D061-11	1030, 1230A	ND
5D061-12	1020, 1280A	ND
5D061-13	1040, 1240A	ND
5D061-14	1030, 1210A	ND
5D061-15	Retest, Bulk 3	ND
5D061-16	RBS-1	ND
5D061-17	RBS-2	240
5D061-18	RBL-1	320
5D061-19	RBL-2	330
5D060-1	1020, 1200A	ND

Reporting Limits SOIL mg/Kg	100

20

NOTES:
ND = Not recorded
COC = Chain of Custody
ND = Analytes not detected at, or above the reporting limit
mg/Kg = Milligrams per kilogram (PPM)
PQL = Practical Quantitation Limit. Equals detection limit times the dilution factor.

PROCEDURES:
XRF = This analysis was performed according to Onsite S.O.P. #OPXRFAZ, Rev 2-Az

21 As
5 composites

Laboratory Director

Date

ONSITE
ENVIRONMENTAL
LABORATORIES, INC.

5D060A.RPT

Analytical Laboratory Report
XRF

COC #:	**NA**		
Date Sampled:	**8/28/97**	**Proj Mgr:**	**Al Ridley**
Date Received:	**8/28/97**	**Client:**	**Woodward Clyde**
Date Analyzed:	**8/28/97**	**Project:**	**961163NA**
Report Number:	**5D060/5D061**	**Matrix:**	**Soil**
Lab Number:	**5D061-rpt**	**Units Soil:**	**mg/Kg**
Date Reported:	**8/29/97**		

Lab ID No.	Field ID No.	Pb
5D060-2	1020, 1220A	ND
5D060-3	1040, 1360A	ND
5D060-4	1046, 1360A	ND
5D060-5	1010, 1310A	ND
5D060-6	1000, 1260A	ND
5D060-7	1020, 1380A	ND

Reporting Limits SOIL mg/Kg	100

NOTES:
NR = Not requested
COC = Chain of Custody
ND = Analytes not detected at, or above the reporting limit
mg/Kg = Milligrams per kilogram (PPM)
PQL = Practical Quantitation Limit. Equals detection limit times the dilution factor.

PROCEDURES:
XRF = This analysis was performed according to Onsite SOP: WOPXRFA2, Rev 2.0.

Laboratory Director

Date

Woodward-Clyde Consultants
500 12th Street, Suite 200 • Oakland, CA 94607-4014
(510) 893-3600

Chain of Custody Record

PROJECT NO. 96116.NA

SAMPLERS: (Signature) NANCI WINKLER

DATE 1997	TIME	SAMPLE NUMBER	Sample Matrix (S)oil, (W)ater, (A)ir	ANALYSES: EPA Method → FY XRF	Number of Containers	REMARKS (Sample preservation, handling procedures, etc.)
8/26		1000, 1200	S	X	1	
		1000, 1220		X	1	
		1000, 1240		X	1	
		1000, 1260		X	1	
		1000, 1280		X	1	
		1000, 1300		X	1	
		1000, 1320		X	1	
		1000, 1340		X	1	
		1010, 1210		X	1	
		1010, 1230		X	1	
		1010, 1250		X	1	
		1010, 1270		X	1	
		1010, 1290		X	1	
		1010, 1310		X	1	
		1010, 1330		X	1	
		1010, 1350		X	1	
		1020, 1200		X	1	
		1020, 1220		X	1	
		1020, 1240		X	1	
		1020, 1260		X	1	
		1020, 1280		X	1	
		1020, 1300		X	1	
		1020, 1320		X	1	
		1020, 1340		X	1	

QUESTIONS/ RESULTS:
AL FITLEY
(510) 874-[illegible]
(510) 874-[illegible] (FAX)

			TOTAL NUMBER OF CONTAINERS	24	

RELINQUISHED BY: (Signature)	DATE/TIME	RECEIVED BY: (Signature)	RELINQUISHED BY: (Signature)	DATE/TIME	RECEIVED BY: (Signature)
[signature]	8/27 1100	[signature]			

METHOD OF SHIPMENT:	SHIPPED BY: (Signature)	COURIER: (Signature)	RECEIVED FOR LAB BY (Signature)	DATE/TIME
	[signature]			

Woodward-Clyde Consultants
500 12th Street, Suite 200 • Oakland, CA 94607-4014
(510) 893-3600

Chain of Custody Record

PROJECT NO. 961162NA

SAMPLERS: (Signature) [signature]

DATE	TIME	SAMPLE NUMBER	Sample Matrix (S)oil, (W)ater, (A)ir	EPA Method → FPXRF	EPA Method	EPA Method	EPA Method	Number of Containers	REMARKS (Sample preservation, handling procedures, etc,)
9/23		1030, 1210	S	X				1	
		1030, 1230	↓	↓				1	
		1030, 1250						1	
		1030, 1270						1	
		1030, 1290						1	
		1030, 1310						1	
		1030, 1330						1	
		1030, 1350	↓	↓				1	
		1040, 1200						1	
		1040, 1220						1	
		1040, 1240						1	
		1040, 1260						1	
		1040, 1280						1	
		1040, 1300						1	
		1040, 1320						1	
		1040, 1340	↓	↓				1	
		1050, 1210						1	QUESTIONS/ RESULTS:
		1050, 1230						1	AL [illegible]
		1050, 1250						1	(510) 874-[illegible]
		1050, 1270						1	(510) 874-[illegible]
		1050, 1290						1	
		1050, 1310						1	
		1050, 1190						1	
		~~1050~~	↓	↓					
								1	

TOTAL NUMBER OF CONTAINERS: 23

RELINQUISHED BY: (Signature)	DATE/TIME	RECEIVED BY: (Signature)	RELINQUISHED BY: (Signature)	DATE/TIME	RECEIVED BY: (Signature)
[signature]	9/23 11:00	[signature]			

METHOD OF SHIPMENT:	SHIPPED BY: (Signature)	COURIER: (Signature)	RECEIVED FOR LAB BY (Signature)	DATE/TIME

Woodward-Clyde Consultants
500 12th Street, Suite 200 • Oakland, CA 94607-4014
(510) 893-3600

Chain of Custody Record

PROJECT NO. 96116 ONA

SAMPLERS: (Signature) John Vickland [illegible]

ANALYSES: TV XLF

DATE	TIME	SAMPLE NUMBER	Sample Matrix (S)oil, (W)ater, (A)ir	EPA Method	EPA Method	EPA Method	EPA Method	Number of Containers	REMARKS (Sample preservation, handling procedures, etc,)
1997									
8/4		1060, 1180	S	X				1	
		1060, 1200	↓	↓				1	
		1060 / 1220	↓	↓				1	
		1060 / 1240	↓	↓				1	
		1060 / 1260	↓	↓				1	
		1060 12[illegible]	↓	↓				1	
		1060 / 1[illegible]	↓	↓				1	
		1060 1[illegible]0	↓	↓				1	- QUESTIONS/ RESULTS:
									KL RIPLEY
									(510) 874-[illegible]
									(510) 874-[illegible]

TOTAL NUMBER OF CONTAINERS: 8

RELINQUISHED BY: (Signature)	DATE/TIME	RECEIVED BY: (Signature)	RELINQUISHED BY: (Signature)	DATE/TIME	RECEIVED BY: (Signature)
[illegible signature]	8/4 1150				

METHOD OF SHIPMENT:	SHIPPED BY: (Signature)	COURIER: (Signature)	RECEIVED FOR LAB BY (Signature)	DATE/TIME

ONSITE
ENVIRONMENTAL
LABORATORIES, INC.
[redacted]

5D058A.RPT

Analytical Laboratory Report
XRF

COC #:
Date Sampled: 8/26/97
Date Received: 8/27/97
Date Analyzed: 8/27/97
Report Number: 5D058
Lab Number:
Date Reported: 8/27/97

Proj Mgr: Al Ridley
Client: Woodward Clyde
Project: 961163NA
Matrix: Soil
Units Soil: mg/Kg

Lab ID No.	Field ID No.	Pb	
5D058-01	1000, 1320	ND	
5D058-02	1000, 1340	ND	
5D058-03	1000, 1360	115	
5D058-04	1000, 1380	152	
5D058-05	1000, 1400	ND	
5D058-06	1000, 1420	ND	
5D058-07	1000, 1440	ND	
5D058-08	1020, 1320	396	X
5D058-09	1020, 1340	ND	
5D058-10	1020, 1360	ND	
5D058-11	1020, 1380	1340	
5D058-12	1020, 1400	177	
5D058-13	1020, 1420	218	
5D058-14	1020, 1440	ND	
5D058-15	1040, 1320	414	X
5D058-16	1040, 1340	107	
5D058-17	1040, 1360	1140	
5D058-18	1040, 1380	186	
5D058-19	1040, 1400	ND	
5D058-20	1040, 1420	ND	

Reporting Limits SOIL mg/Kg	100

NOTES:
NR = Not reported
COC = Chain of Custody
ND = Analyte not detected at or above the reporting limit
mg/Kg = Milligrams per kilogram (PPM)
PQL = Practical Quantitation Limit. Reports detection limit times the dilution factor.

PROCEDURES:
XRF = This analysis was performed according to Onsite SOP: XRFPAZ Rev 2.4x

Laboratory Director

AUG 2 9 1997
Date

ONSITE
ENVIRONMENTAL
LABORATORIES, INC.
[redacted]

5D058.RPT

Analytical Laboratory Report
XRF

COC #:
Date Sampled: 8/26/97
Date Received: 8/27/97
Date Analyzed: 8/27/97
Report Number: 5D058
Lab Number:
Date Reported: 8/27/97

Proj Mgr: Al Ridley
Client: Woodward Clyde
Project: 961163NA
Matrix: Soil
Units Soil: mg/Kg

Lab ID No.	Field ID No.	Pb	
5D058-21	1040, 1440	ND	
5D058-22	1040, 1460	ND	
5D058-23	1010, 1330	118	
5D058-24	1010, 1350	ND	
5D058-25	1010, 1370	132	
5D058-26	1010, 1390	114	
5D058-27	1010, 1410	ND	
5D058-28	1010, 1430	113	
5D058-29	1030, 1330	ND	
5D058-30	1030, 1350	180	
5D058-31	10301370	460	X
5D058-32	1030, 1390	210	
5D058-33	1030, 1410	523	X
5D058-34	1030, 1430	310	
5D058-35	1030, 1450	287	

Reporting Limits SOIL mg/Kg	100

NOTES:
NR - Not Requested
COC - Chain of Custody
ND - Analyte not detected at or above the reporting limit
mg/Kg - Milligrams per kilogram (PPM)
PQL - Practical Quantitation Limit. Equals detection limit times the dilution factor

PROCEDURES:
XRF - This analysis was performed according to Onsite S.O.P. [illegible] Rev 2-A.

Laboratory Director

AUG 29 1997
Date

Woodward-Clyde Consultants
500 12th Street, Suite 200 • Oakland, CA 94607-4014
(510) 893-3600

Chain of Custody Record

PROJECT NO. 961163NA

SAMPLERS: (Signature) N Waller

DATE	TIME	SAMPLE NUMBER	Sample Matrix (S)oil, (W)ater, (A)ir	EPA Method [illegible]	EPA Method	EPA Method	EPA Method	Number of Containers	REMARKS (Sample preservation, handling procedures, etc.)
5/26		1000, 1220	S	X				1	
		1000, 1240		X				1	
		1000' 1260		X				1	
		1000' 1350		X				1	
		1000' 1400		X				1	
		1000' 1420		X				1	
		1000' 1440		X				1	
		1020, 1320		X				1	
		1020, 1240		X				1	
		1020' 1360		X				1	
		1020' 1350		X				1	
		1020, 1400		X				1	
		1020, 1420		X				1	
		1020, 1440		X				1	
		1040, 1320		X				1	
		1040' 1340		X				1	
		1040' 1360		X				1	
		1040' 1350		X				1	
		1040' 1400		X				1	
		1040 1420		X				1	
		1040' 1440		X				1	Questions / Results Al Ridley (510) 574 3125 (510) 574 3268
		1040, 1460		X				1	

TOTAL NUMBER OF CONTAINERS: 22

RELINQUISHED BY: (Signature)	DATE/TIME	RECEIVED BY: (Signature)	RELINQUISHED BY: (Signature)	DATE/TIME	RECEIVED BY: (Signature)
N Waller	8/11 1500	[illegible]			

METHOD OF SHIPMENT:	SHIPPED BY: (Signature)	COURIER: (Signature)	RECEIVED FOR LAB BY (Signature)	DATE/TIME

Woodward-Clyde Consultants
500 12th Street, Suite 200 • Oakland, CA 94607-4014
(510) 893-3600

Chain of Custody Record

PROJECT NO. 961163NA

SAMPLERS: (Signature) [signature]

DATE 1996	TIME	SAMPLE NUMBER	Sample Matrix (S)oil, (W)ater, (A)ir	EPA Method Local by XRF	EPA Method	EPA Method	EPA Method									Number of Containers	REMARKS (Sample preservation, handling procedures, etc,)
8/26		1010, 1330	S	X												1	
↓		1010, 1350	↓	X												1	
		1010, 1370		X												1	
		1010, 1390		X												1	
		1010, 1410		X												1	
↓		1010, 1430	↓	X												1	
↓		1030, 1330-190	↓	X												1	
		1030, 1350-ND		X												1	
		1030, 1370		X												1	
		1030, 1390		X												1	
		1030, 1410		X												1	
		1030, 1430		X												1	
↓		1030, 1450	↓	X												1	

Questions/results
Al Ridley
(510) 874 3125
(510) 874 3768 (fax)

TOTAL NUMBER OF CONTAINERS: 13

RELINQUISHED BY: (Signature)	DATE/TIME	RECEIVED BY: (Signature)	RELINQUISHED BY: (Signature)	DATE/TIME	RECEIVED BY: (Signature)
[signature]	8/26 1500	[signature]			

METHOD OF SHIPMENT:	SHIPPED BY: (Signature)	COURIER: (Signature)	RECEIVED FOR LAB BY (Signature)	DATE/TIME

CHAIN OF CUSTODY RECORD AND ANALYSIS REQUEST

ONSITE ENVIRONMENTAL LABORATORIES, INC. 2121 W. UNIVERSITY SUITE 124 TEMPE, AZ 85281 602-731-7255 602-731-7226 FAX

ONSITE ENVIRONMENTAL LABORATORIES, INC.

[redacted]

Date:	[illegible]
Page:	of
Laboratory:	
Lab Number:	

Project Manager:	[illegible]
Client Name:	[illegible]
Address:	500 12TH STREET, SUITE 200
City, State ZIP	OAKLAND, CA 94607
Phone:	(510) 874-3125
Fax:	(510) 874-3268

Bill to:	
Company:	
Address:	
City, State ZIP	
Phone:	
Fax:	

Project Name:	FINCINAL TERMINALS
Project Number:	96116.2NA

P.O. No.:	

Analysis Requested

Sample Identification	Date Sampled	Time Sampled	Matrix	Sampled & Relinquished By:	Time Relinquished:	Received By:	Lab ID	TRPH (418.1AZ)	BTEX (8021)	TPH - Gas (8015M)	TPH - Diesel (8015M)	XMC 6b				No. Containers	Remarks
[illegible]	[illegible]	15:[illegible]	[illegible]	GV	3:33	GV	[illegible]					X					SV0061-2
[illegible]	[illegible]	1:[illegible]0	↓	↓	↓	GV	↓					X					-1
[illegible]	[illegible]	16:[illegible]0	[illegible]	[illegible]	16:[illegible]	GV	[illegible]					X					-3
[illegible]	[illegible]	11:[illegible]0	[illegible]	[illegible]	[illegible]	GV	[illegible]					X					-4
[illegible]	[illegible]	1[illegible]:[illegible]	[illegible]	[illegible]	[illegible]	GV	[illegible]					X					-5
[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	GV	[illegible]					X					-6
[illegible]	[illegible]	↓	↓	[illegible]	[illegible]	GV	[illegible]					X					-7
[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	GV	[illegible]					X					-8
[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	16:45	GV	[illegible]					X					-9
1030, 1450	8/28/97	16:50	S	GV	16:55	GV	[illegible]					X					-10
1030 1230A	8/28/97	17:30	S	GV	17:35	GV	↓					X					-11
1020 1230A	8/28/97	17:30	S	GV	17:35	GV	[illegible]					X					-12
1040 1240A	8/28/97	17:30	S	GV	17:35	GV	[illegible]					X					-13
1030 1210A	8/28/97	17:30	S	GV	17:35	GV	[illegible]					X					-14
RETEST BOLK3	↓	17:[illegible]	S	GV	17:[illegible]	GV	[illegible]					X					[illegible]

Initials:	Printed Name:	Signature:
GV	Gareth Voigt	Gareth Voigt

Date:	
Start Time:	
Stop Time:	
Hours:	
Client Sign-off:	

Total Containers:	
Received Intact:	
Received Cold:	
Custody Seals:	

CHAIN OF CUSTODY RECORD AND ANALYSIS REQUEST

ONSITE ENVIRONMENTAL LABORATORIES, INC. 2121 W. UNIVERSITY SUITE 124 TEMPE, AZ 85281 602-731-7255 602-731-7226 FAX

ONSITE ENVIRONMENTAL LABORATORIES, INC.

Project Manager:	AL Riglay
Client Name:	Woodward-Clyde
Address:	500 12th St. Suite 200
City, State ZIP	Oakland CA 94607
Phone:	510-874-3125
Fax:	510-874-3268

Bill to:	
Company:	
Address:	
City, State ZIP	
Phone:	
Fax:	

Date:	8/28/97
Page:	of
Laboratory:	
Lab Number:	

Project Name:	Encinal Terminals
Project Number:	961163NA

P.O. No.:	

Analysis Requested

Sample Identification	Date Sampled	Time Sampled	Matrix	Sampled & Relinquished By:	Time Relinquished:	Received By:	Lab ID	TRPH (418.1AZ)	BTEX (8021)	TPH - Gas (8015M)	TPH - Diesel (8015M)	Pb XRF				No. Containers	Remarks
RBS-1	8/28/97	17 50				GV	[illegible]					X				1	-11
RBS-2	"	"	"	"	"	"						X				1	-17
RB2-1	"	"	"	"	"	"						X				1	-16
RB2-2	"	"	"	"	"	"						X				1	-19

Initials:	Printed Name:	Signature:
GV	Garth Voigt	[signature]

Date:	
Start Time:	
Stop Time:	
Hours:	
Client Sign-off:	

Total Containers:	
Received Intact:	
Received Cold:	
Custody Seals:	

Woodward-Clyde Consultants
500 12th Street, Suite 100, Oakland, CA 94607-4014
(510) 893-3600

Chain of Custody Record

PROJECT NO. 961163NA

SAMPLERS: (Signature) [illegible]

DATE	TIME	SAMPLE NUMBER	Sample Matrix (S)oil, (W)ater, (A)ir	EPA Method Pb	EPA Method	EPA Method	EPA Method	XRF						Number of Containers	REMARKS (Sample preservation, handling procedures, etc.)
1997 2/20		1020 1200A	S											1	
		1020 1200A												1	
		1040 1260A												1	QUESTIONS & RESULTS:
		1046 1360A												1	
		1010 1210A												1	[illegible]
		1000 1260A												1	(510) [illegible]
		1020 150A												1	(510) [illegible]

TOTAL NUMBER OF CONTAINERS: 7

RELINQUISHED BY: (Signature)	DATE/TIME	RECEIVED BY: (Signature)	RELINQUISHED BY: (Signature)	DATE/TIME	RECEIVED BY: (Signature)
[illegible signature]	2/[illegible]	[illegible signature]			

METHOD OF SHIPMENT:	SHIPPED BY: (Signature)	COURIER: (Signature)	RECEIVED FOR LAB BY: (Signature)	DATE/TIME

CHROMALAB, INC.

Environmental Services (SDB)

September 3, 1997 *Submission #:* 9709018

WOODWARD-CLYDE OAKLAND

Atten: Marco Lobascio, Naomi Walker

Project: 961163NA *Project#:* 961163NA
Received: September 2, 1997

re: One sample for Miscellaneous Metals analysis.
Method: *EPA 3010A/3050A/6010A Nov 1990*

Client Sample ID: 1020,1140
Spl#: 145861 *Matrix:* SOIL *Extracted:* September 3, 1997
Sampled: August 26, 1997 *Run#:* 8442 *Analyzed:* September 3, 1997

ANALYTE	RESULT (mg/Kg)	REPORTING LIMIT (mg/Kg)	BLANK RESULT (mg/Kg)	BLANK SPIKE (%)	DILUTION FACTOR
LEAD	920	10	N.D.	96.4	10

Christopher Arndt
Chemist

John S. Labash
Inorganics Supervisor

1220 Quarry Lane • Pleasanton, California 94566-4756
(510) 484-1919 • Facsimile (510) 484-1096

CHROMALAB, INC.

Environmental Services (SDB)

September 3, 1997 *Submission #:* 9709018

WOODWARD-CLYDE OAKLAND

Atten: Marco Lobascio, Naomi Walker

Project: 961163NA *Project#:* 961163NA
Received: September 2, 1997

re: One sample for Miscellaneous Metals analysis.
Method: *EPA 3010A/3050A/6010A Nov 1990*

Client Sample ID: 1030,1070
Spl#: 145862 *Matrix:* SOIL *Extracted:* September 3, 1997
Sampled: August 26, 1997 *Run#:* 8442 *Analyzed:* September 3, 1997

ANALYTE	RESULT (mg/Kg)	REPORTING LIMIT (mg/Kg)	BLANK RESULT (mg/Kg)	BLANK SPIKE (%)	DILUTION FACTOR
LEAD	2100	10	N.D.	96.4	10

Christopher Arndt
Chemist

John S. Labash
Inorganics Supervisor

CHROMALAB, INC.

Environmental Services (SDB)

September 3, 1997 *Submission #:* 9709018

WOODWARD-CLYDE OAKLAND

Atten: Marco Lobascio, Naomi Walker

Project: 961163NA *Project#:* 961163NA
Received: September 2, 1997

re: One sample for Miscellaneous Metals analysis.
Method: *EPA 3010A/3050A/6010A Nov 1990*

Client Sample ID: 1030,1090
Spl#: 145863 *Matrix:* SOIL *Extracted:* September 3, 1997
Sampled: August 26, 1997 *Run#:* 8442 *Analyzed:* September 3, 1997

ANALYTE	RESULT (mg/Kg)	REPORTING LIMIT (mg/Kg)	BLANK RESULT (mg/Kg)	BLANK SPIKE (%)	DILUTION FACTOR
LEAD	400	1.0	N.D.	96.4	1

Christopher Arndt
Chemist

John S. Labash
Inorganics Supervisor

CHROMALAB, INC.

Environmental Services (SDB)

September 3, 1997 *Submission #:* 9709018

WOODWARD-CLYDE OAKLAND

Atten: Marco Lobascio, Naomi Walker

Project: 961163NA *Project#:* 961163NA
Received: September 2, 1997

re: One sample for Miscellaneous Metals analysis.
Method: *EPA 3010A/3050A/6010A Nov 1990*

Client Sample ID: 1030,1170
Spl#: 145864 *Matrix:* SOIL *Extracted:* September 3, 1997
Sampled: August 26, 1997 *Run#:* 8442 *Analyzed:* September 3, 1997

ANALYTE	RESULT (mg/Kg)	REPORTING LIMIT (mg/Kg)	BLANK RESULT (mg/Kg)	BLANK SPIKE (%)	DILUTION FACTOR
LEAD	350	1.0	N.D.	96.4	1

Christopher Arndt
Chemist

John S. Labash
Inorganics Supervisor

CHROMALAB, INC.

Environmental Services (SDB)

September 3, 1997 *Submission #:* 9709018

WOODWARD-CLYDE OAKLAND

Atten: Marco Lobascio, Naomi Walker

Project: 961163NA *Project#:* 961163NA
Received: September 2, 1997

re: One sample for Miscellaneous Metals analysis.
Method: *EPA 3010A/3050A/6010A Nov 1990*

Client Sample ID: **1040,1080**
Spl#: 145865 *Matrix:* SOIL *Extracted:* September 3, 1997
Sampled: August 26, 1997 *Run#:* 8442 *Analyzed:* September 3, 1997

ANALYTE	RESULT (mg/Kg)	REPORTING LIMIT (mg/Kg)	BLANK RESULT (mg/Kg)	BLANK SPIKE (%)	DILUTION FACTOR
LEAD	2400	20	N.D.	96.4	20

Christopher Arndt
Chemist

John S. Labash
Inorganics Supervisor

1220 Quarry Lane • Pleasanton, California 94566-4756
(510) 484-1919 • Facsimile (510) 484-1096

LEV2
M010 0:000406 J0WN 18.23

CHROMALAB, INC.

Environmental Services (SDB)

September 3, 1997 *Submission #:* 9709018

WOODWARD-CLYDE OAKLAND

Atten: Marco Lobascio, Naomi Walker

Project: 961163NA *Project#:* 961163NA
Received: September 2, 1997

re: One sample for Miscellaneous Metals analysis.
Method: *EPA 3010A/3050A/6010A Nov 1990*

Client Sample ID: 1040,1140
Spl#: 145866 *Matrix:* SOIL *Extracted:* September 3, 1997
Sampled: August 26, 1997 *Run#:* 8442 *Analyzed:* September 3, 1997

ANALYTE	RESULT (mg/Kg)	REPORTING LIMIT (mg/Kg)	BLANK RESULT (mg/Kg)	BLANK SPIKE (%)	DILUTION FACTOR
LEAD	250	1.0	N.D.	96.4	1

Christopher Arndt
Chemist

John S. Labash
Inorganics Supervisor

CHROMALAB, INC.

Environmental Services (SDB)

September 3, 1997 *Submission #:* 9709019

WOODWARD-CLYDE OAKLAND

Atten: Marco Lobascio, Naomi Walker

Project: 961163NA *Project#:* 961163NA
Received: September 2, 1997

re: One sample for Miscellaneous Metals analysis.
Method: *EPA 3010A/3050A/6010A Nov 1990*

Client Sample ID: 1020,1300
Spl#: 145867 *Matrix:* SOIL *Extracted:* September 3, 1997
Sampled: August 26, 1997 *Run#:* 8442 *Analyzed:* September 3, 1997

ANALYTE	RESULT (mg/Kg)	REPORTING LIMIT (mg/Kg)	BLANK RESULT (mg/Kg)	BLANK SPIKE (%)	DILUTION FACTOR
LEAD	860	10	N.D.	96.4	10

Christopher Arndt
Chemist

John S. Labash
Inorganics Supervisor

CHROMALAB, INC.

Environmental Services (SDB)

September 3, 1997 *Submission #:* 9709019

WOODWARD-CLYDE OAKLAND

Atten: Marco Lobascio, Naomi Walker

Project: 961163NA *Project#:* 961163NA
Received: September 2, 1997

re: One sample for Miscellaneous Metals analysis.
Method: *EPA 3010A/3050A/6010A Nov 1990*

Client Sample ID: 1020,1320
Spl#: 145868 *Matrix:* SOIL *Extracted:* September 3, 1997
Sampled: August 26, 1997 *Run#:* 8442 *Analyzed:* September 3, 1997

ANALYTE	RESULT (mg/Kg)	REPORTING LIMIT (mg/Kg)	BLANK RESULT (mg/Kg)	BLANK SPIKE (%)	DILUTION FACTOR
LEAD	690	10	N.D.	96.4	10

Christopher Arndt
Chemist

John S. Labash
Inorganics Supervisor

CHROMALAB, INC.

Environmental Services (SDB)

September 3, 1997 *Submission #:* 9709019

WOODWARD-CLYDE OAKLAND

Atten: Marco Lobascio, Naomi Walker

Project: 961163NA *Project#:* 961163NA
Received: September 2, 1997

re: One sample for Miscellaneous Metals analysis.
Method: *EPA 3010A/3050A/6010A Nov 1990*

Client Sample ID: 1030,1370
Spl#: 145869 *Matrix:* SOIL *Extracted:* September 3, 1997
Sampled: August 26, 1997 *Run#:* 8442 *Analyzed:* September 3, 1997

ANALYTE	RESULT (mg/Kg)	REPORTING LIMIT (mg/Kg)	BLANK RESULT (mg/Kg)	BLANK SPIKE (%)	DILUTION FACTOR
LEAD	61	1.0	N.D.	96.4	1

Christopher Arndt
Chemist

John S. Labash
Inorganics Supervisor

CHROMALAB, INC.

Environmental Services (SDB)

September 3, 1997 *Submission #:* 9709019

WOODWARD-CLYDE OAKLAND

Atten: Marco Lobascio, Naomi Walker

Project: 961163NA *Project#:* 961163NA
Received: September 2, 1997

re: One sample for Miscellaneous Metals analysis.
Method: *EPA 3010A/3050A/6010A Nov 1990*

Client Sample ID: 1030,1410
Spl#: 145870 *Matrix:* SOIL *Extracted:* September 3, 1997
Sampled: August 26, 1997 *Run#:* 8442 *Analyzed:* September 3, 1997

ANALYTE	RESULT (mg/Kg)	REPORTING LIMIT (mg/Kg)	BLANK RESULT (mg/Kg)	BLANK SPIKE (%)	DILUTION FACTOR
LEAD	1400	10	N.D.	96.4	10

Christopher Arndt
Chemist

John S. Labash
Inorganics Supervisor

CHROMALAB, INC.

Environmental Services (SDB)

September 3, 1997 *Submission #:* 9709019

WOODWARD-CLYDE OAKLAND

Atten: Marco Lobascio, Naomi Walker

Project: 961163NA *Project#:* 961163NA
Received: September 2, 1997

re: One sample for Miscellaneous Metals analysis.
Method: *EPA 3010A/3050A/6010A Nov 1990*

Client Sample ID: 1040,1320
Spl#: 145871 *Matrix:* SOIL *Extracted:* September 3, 1997
Sampled: August 27, 1997 *Run#:* 8442 *Analyzed:* September 3, 1997

ANALYTE	RESULT (mg/Kg)	REPORTING LIMIT (mg/Kg)	BLANK RESULT (mg/Kg)	BLANK SPIKE (%)	DILUTION FACTOR
LEAD	260	1.0	N.D.	96.4	1

Christopher Arndt
Chemist

John S. Labash
Inorganics Supervisor

CHROMALAB, INC.

Environmental Services (SDB)

September 3, 1997 *Submission #:* 9709019

WOODWARD-CLYDE OAKLAND

Atten: Marco Lobascio, Naomi Walker

Project: 961163NA *Project#:* 961163NA
Received: September 2, 1997

re: One sample for Miscellaneous Metals analysis.
Method: *EPA 3010A/3050A/6010A Nov 1990*

Client Sample ID: 1060,1260
Spl#: 145872 *Matrix:* SOIL *Extracted:* September 3, 1997
Sampled: August 27, 1997 *Run#:* 8442 *Analyzed:* September 3, 1997

ANALYTE	RESULT (mg/Kg)	REPORTING LIMIT (mg/Kg)	BLANK RESULT (mg/Kg)	BLANK SPIKE (%)	DILUTION FACTOR
LEAD	110	1.0	N.D.	96.4	1

Christopher Arndt
Chemist

John S. Labash
Inorganics Supervisor

CHROMALAB, INC.

Environmental Services (SDB)

September 4, 1997

Submission #: 9709055

WOODWARD-CLYDE OAKLAND

Atten: Al Ridley/Naomi Walker

Project: Not provided
Received: September 3, 1997

Project#: 961163NB

re: 3 samples for Lead analysis.
Method: EPA 3050A/7420A

Sampled: September 3, 1997 *Matrix:* SOIL *Run#:* 8472 *Extracted:* September 4, 1997 *Analyzed:* September 4, 1997

Spl#	CLIENT SPL ID	LEAD (mg/Kg)	REPORTING LIMIT (mg/Kg)	BLANK RESULT (mg/Kg)	BLANK SPIKE (%)	DILUTION FACTOR
146110	1030,1410A	N.D.	5.0	N.D.	104	1
146111	1040,1080A	N.D.	5.0	N.D.	104	1
146112	1030,1070A	10	5.0	N.D.	104	1

Shafi Barekzai
Chemist

John S. Labash
Inorganics Supervisor

510-874-3268

1220 Quarry Lane • Pleasanton, California 94566-4756
(510) 484-1919 • Facsimile (510) 484-1096
Federal ID #68-0140157

Woodward-Clyde Consultants
500 12th Street, Suite 200 • Oakland, CA 94607-4014
(510) 893-3600

Chain of Custody Record

PROJECT NO. 961163NB

SAMPLERS: (Signature) [signature]

DATE	TIME	SAMPLE NUMBER	Sample Matrix (S)oil, (W)ater, (A)ir	ANALYSES: EPA Method 8010	EPA Method	EPA Method	EPA Method	Number of Containers	REMARKS (Sample preservation, handling procedures, etc.)
9/3		1030, 1410A	S	X				1	24 hour TAT unless otherwise notified!
↓		1040, 1080A	S	X				1	
↓		1030, 1070A	S	X				1	

Questions and Results to Al Ridley (510) 874 3125 or Naomi Walker (510) 874 3111

TOTAL NUMBER OF CONTAINERS: 3

RELINQUISHED BY: (Signature)	DATE/TIME	RECEIVED BY: (Signature)	RELINQUISHED BY: (Signature)	DATE/TIME	RECEIVED BY: (Signature)
[signature]	9/3 1715	[signature] 7/4			

METHOD OF SHIPMENT:	SHIPPED BY: (Signature)	COURIER: (Signature)	RECEIVED FOR LAB BY (Signature)	DATE/TIME

Woodward-Clyde Consultants
500 12th Street, Suite 100, Oakland, CA 94607-4014
(510) 893-3600

Chain of Custody Record

PROJECT NO. 9611 t3NA

SAMPLERS: (Signature)

DATE 97	TIME	SAMPLE NUMBER	Sample Matrix (S)oil, (W)ater, (A)ir	ANALYSES: EPA Method 8010	EPA Method	EPA Method	EPA Method							Number of Containers	REMARKS (Sample preservation, handling procedures, etc.)
8/16		1010, 1300 ✓	S	✓										1	FROM ONSITE
8/16		1020, 1320 ✓		✓										1	
8/16		1030, 1370 ✓		✓										1	24 HOUR
8/16		1030 1410 ✓		✓										1	TAT!
8/17		1040, 1320 ✓		✓										1	
8/17		1060, 1260 ✓	↓	✓										1	

Questions & Results
Al Ridley (510) 574 3125
Naomi Walker (510) 574 3111

TOTAL NUMBER OF CONTAINERS: 6

RELINQUISHED BY : (Signature)	DATE/TIME	RECEIVED BY : (Signature)	RELINQUISHED BY : (Signature)	DATE/TIME	RECEIVED BY : (Signature)

METHOD OF SHIPMENT :	SHIPPED BY : (Signature)	COURIER : (Signature)	RECEIVED FOR LAB BY : (Signature)	DATE/TIME

Woodward-Clyde Consultants
500 12th Street, Suite 100, Oakland, CA 94607-4014
(510) 893-3600

Chain of Custody Record

PROJECT NO. 96116 3NA

SAMPLERS: (Signature)

DATE	TIME	SAMPLE NUMBER	Sample Matrix (S)oil, (W)ater, (A)ir	ANALYSES: EPA Method 6010 Pb	EPA Method	EPA Method	EPA Method							Number of Containers	REMARKS (Sample preservation, handling procedures, etc.)
97															
3/26		1020, 1140 ✓	S	X										1	FROM WCC
↓		1030, 1070 ✓	↓	X										1	
		1030, 1090 ✓		X										1	24 hour TAT!
		1030, 1170 ✓		X										1	
		1040, 1080 ✓		X										1	
↓		1040, 1140 ✓	↓	X										1	

Questions & Results
H Ridley (510) 874 3125
or
Naoni Walker (510) 874 3111

TOTAL NUMBER OF CONTAINERS: 6

RELINQUISHED BY: (Signature)	DATE/TIME	RECEIVED BY: (Signature)	RELINQUISHED BY: (Signature)	DATE/TIME	RECEIVED BY: (Signature)
	9/1 1215	9/2/97 12:15			

METHOD OF SHIPMENT:	SHIPPED BY: (Signature)	COURIER: (Signature)	RECEIVED FOR LAB BY: (Signature)	DATE/TIME

Woodward-Clyde Consultants
500 12th Street, Suite 100, Oakland, CA 94607-4014
(510) 893-3600

Chain of Custody Record

PROJECT NO. 9E1163NA

SAMPLERS: (Signature)

DATE 97	TIME	SAMPLE NUMBER	Sample Matrix (S)oil, (W)ater, (A)ir	EPA Method 6010 (Cd)	EPA Method	EPA Method	EPA Method	Number of Containers	REMARKS (Sample preservation, handling procedures, etc.)
9/2(?)		1020' 1140	S	X				1	From WCC
		1030' 1070		X				1	
		1030' 1090		X				1	
		1030' 1170		X				1	24 hour
		1040' 1080		X				1	TAT !
		1040' 1140		X				1	

Remarks: Questions & Results Al Ridley (510) 874 7125 or Naomi Walker (510) 874 3111

TOTAL NUMBER OF CONTAINERS: 6

RELINQUISHED BY: (Signature)	DATE/TIME	RECEIVED BY: (Signature)	RELINQUISHED BY: (Signature)	DATE/TIME	RECEIVED BY: (Signature)
[signature]	9/1 1215	[signature] 9/2/97 12:15			

METHOD OF SHIPMENT:	SHIPPED BY: (Signature)	COURIER: (Signature)	RECEIVED FOR LAB BY: (Signature)	DATE/TIME

CHROMALAB, INC.

Environmental Services (SDB)

September 9, 1997

Submission #: 9709101

WOODWARD-CLYDE OAKLAND

Atten: Naomi Walker

Project: Not provided
Received: September 2, 1997

Project#: 961163NA

re: 1 sample for SPLP Lead analysis.
Method: EPA 3010A/7420A/1312

Matrix: SOIL
Sampled: August 26, 1997
Run#: 8559
Extracted: September 9, 1997
Analyzed: September 9, 1997

Spl#	CLIENT SPL ID	LEAD (mg/L)	REPORTING LIMIT (mg/L)	BLANK RESULT (mg/L)	BLANK SPIKE (%)	DILUTION FACTOR
146633	1020,1320	1.4	1.0	N.D.	107	1

Shafi Barekzai
Chemist

John S. Labash
Inorganics Supervisor

510-874-3268 cc 08/10

1220 Quarry Lane • Pleasanton, California 94566-4756
(510) 484-1919 • Facsimile (510) 484-1096
Federal ID #68-0140157

LEV2
M820 0:0C0405 MSOFFICE\WINWOR 16:25

CHROMALAB, INC.

Environmental Services (SDB)

September 9, 1997

Submission #: 9709081

WOODWARD-CLYDE OAKLAND

Atten: Naomi Walker

Project: 961163NA
Received: September 2, 1997

Project#: 961163NA

re: 2 samples for SPLP Lead analysis.
Method: EPA 3010A/7420A/1312

Sampled: August 26, 1997
Matrix: SOIL
Run#: 8559
Extracted: September 9, 1997
Analyzed: September 9, 1997

Spl#	CLIENT SPL ID	LEAD (mg/L)	REPORTING LIMIT (mg/L)	BLANK RESULT (mg/L)	BLANK SPIKE (%)	DILUTION FACTOR
146425	1020,1140	N.D.	1.0	N.D.	107	1
146426	1020,1300	N.D.	1.0	N.D.	107	1

~~Shafi Barekzai~~
Chemist

John S. Labash
Inorganics Supervisor

1220 Quarry Lane • Pleasanton, California 94566-4756
(510) 484-1919 • Facsimile (510) 484-1096
Federal ID #68-0140157

San Francisco Regional Office

1252 Quarry Lane
P.O. Box 9019
Pleasanton, CA 94566
(510) 426-2600
Fax (510) 426-0106

Clayton
ENVIRONMENTAL
CONSULTANTS

FACSIMILE COVER SHEET

TO:	Al Ridley	FAX NO.:	874-3268
COMPANY:	WCA		
FROM:	Suzanne Haus	PHONE NO.:	(510) 426-2657
DATE:	9/2/97		

Number of Pages (including cover sheet):

If you do not receive the number of pages specified, please call (510) 426-2600 for assistance.

COMMENTS

WE APPRECIATE YOUR BUSINESS!

San Francisco Regional Office

1252 Quarry Lane
P.O. Box 9019
Pleasanton, CA 94566
(510) 426-2600
Fax (510) 426-0106

Clayton
ENVIRONMENTAL
CONSULTANTS

September 2, 1997

Mr. Al Ridley
WOODWARD-CLYDE CONSULTANTS
500 12th Street; Suite 200
Oakland, CA 94607-4014

Client Ref.: 961163NA
Clayton Project No.: 97082.85

Dear Mr. Ridley:

Attached is our analytical laboratory report for the samples received on August 28, 1997. Also enclosed is a copy of the Chain-of-Custody record acknowledging receipt of these samples.

Please note that any unused portion of the samples will be discarded after October 2, 1997, unless you have requested otherwise.

We appreciate the opportunity to assist you. If you have any questions concerning this report, please contact Suzanne Haus, Client Services Supervisor, at (510) 426-2657.

Sincerely,

Andrew Bradeen for
Harriotte A. Hurley, CIH
Director, Laboratory Services
San Francisco Regional Office

HAH/las

Attachments

Analytical Results
for
Woodward-Clyde Consultants
Client Reference: 961163NA
Clayton Project No. 97082.85

Sample Identification: See Below
Lab Number: 9708285
Sample Matrix/Media: SOIL
Digestion Method: EPA 3050A
Method Reference: EPA 6010A

Date Received: 08/28/97
Date Digested: 08/28/97
Date Analyzed: 08/29/97

Lab Number	Sample Identification		Date Sampled	Lead (mg/kg)	Method Detection Limit (mg/kg)
-05	COMP BS-1,2,3,4	4:1	08/27/97	1100	1
-10	COMP BS-5,6,7,8	4:1	08/27/97	590	1
-15	COMP BL-1,2,3,4	4:1	08/27/97	950	1
-20	COMP BL-5,6,7,8	4:1	08/27/97	700	1
-21	METHOD BLANK		--	<1	1

ND: Not detected at or above limit of detection
--: Information not available or not applicable

Results are reported on a wet-weight basis, as received.

Analytical Results
for
Woodward-Clyde Consultants
Client Reference: 961163NA
Clayton Project No. 97082.85

Sample Identification: See Below
Lab Number: 9708285
Sample Matrix/Media: SOIL
Digestion Method: EPA 3010A
Preparation Method: EPA 1312
Method Reference: EPA 6010A

Date Received: 08/28/97
Date Digested: 09/01/97
Date Prepared: 08/28/97
Date Analyzed: 09/01/97

Lab Number	Sample Identification	Date Sampled	SPLP Lead (mg/L)	Method Detection Limit (mg/L)
-05	COMP BS-1,2,3,4 4:1	08/27/97	0.4	0.1
-10	COMP BS-5,6,7,8 4:1	08/27/97	<0.1	0.1
-15	COMP BL-1,2,3,4 4:1	08/27/97	0.2	0.1
-20	COMP BL-5,6,7,8 4:1	08/27/97	0.1	0.1
-21	METHOD BLANK	--	<0.1	0.1

ND: Not detected at or above limit of detection
--: Information not available or not applicable

Analytical Results
for
Woodward-Clyde Consultants
Client Reference: 961163NA
Clayton Project No. 97082.85

Sample Identification: See Below
Lab Number: 9708285
Sample Matrix/Media: SOIL
Digestion Method: EPA 3010A
Preparation Method: CAM WET
Method Reference: EPA 6010A

Date Received: 08/28/97
Date Digested: 09/01/97
Date Prepared: 08/28/97
Date Analyzed: 09/01/97

Lab Number	Sample Identification	Date Sampled	STLC Lead (mg/L)	Method Detection Limit (mg/L)
-05	COMP BS-1,2,3,4 4:1	08/27/97	74	0.2
-10	COMP BS-5,6,7,8 4:1	08/27/97	43	0.2
-15	COMP BL-1,2,3,4 4:1	08/27/97	40	0.2
-20	COMP BL-5,6,7,8 4:1	08/27/97	46	0.2
-21	METHOD BLANK	--	<0.2	0.2

ND: Not detected at or above limit of detection
--: Information not available or not applicable

Analytical Results
for
Woodward-Clyde Consultants
Client Reference: 961163NA
Clayton Project No. 97082.85

Sample Identification: See Below
Lab Number: 9708285
Sample Matrix/Media: SOIL
Digestion Method: EPA 3010A
Preparation Method: EPA 1311
Method Reference: EPA 6010A

Date Received: 08/28/97
Date Digested: 09/01/97
Date Prepared: 08/28/97
Date Analyzed: 09/01/97

Lab Number	Sample Identification		Date Sampled	TCLP Lead (mg/L)	Method Detection Limit (mg/L)
-05	COMP BS-1,2,3,4	4:1	08/27/97	3.7	0.1
-10	COMP BS-5,6,7,8	4:1	08/27/97	3.4	0.1
-15	COMP BL-1,2,3,4	4:1	08/27/97	8.5	0.1
-20	COMP BL-5,6,7,8	4:1	08/27/97	3.7	0.1
-21	METHOD BLANK		--	<0.1	0.1

ND: Not detected at or above limit of detection
--: Information not available or not applicable

Woodward-Clyde Consultants
500 12th Street, Suite 200 • Oakland, CA 94607-4014
(510) 893-3600

Chain of Custody Record

9708285

PROJECT NO. 961163NA

SAMPLERS: (Signature) JOHN WHARTON

DATE 1997	TIME	SAMPLE NUMBER	Sample Matrix (S)oil, (W)ater, (A)ir	ANALYSES: EPA Method	EPA Method	EPA Method	EPA Method	TOTAL LEAD	CWET (Pb)	TCLP (Pb)	EPA 1312 (SPLP) Pb	Number of Containers	REMARKS (Sample preservation, handling procedures, etc.)
8/27		BS-1	S	01								1	2, 4-point composite samples (BL- large rocks)
		BS-2		02								1	
		BS-3		03								1	
		BS-4		04								1	
		BS-5		05	06							1	
		BS-6		06	07							1	
		BS-7		07	08							1	
▽		BS-8	▽	08	09	▽						1	
8/27		BL-1	S	11								1	2, 4-point composite samples (BS- fine size rocks)
		BL-2		12								1	
		BL-3		13								1	
		BL-4		14								1	
		BL-5		15	16							1	
		BL-6		16	17							1	
		BL-7		17	18							1	
▽		BL-8	▽	18	19	▽						1	

Please crush larger size rocks and include in sample

QUESTIONS:

RL RIDLEY
(510) 874-3125
(510) 874-3268 (FAX)

TOTAL NUMBER OF CONTAINERS: 16

RELINQUISHED BY: (Signature)	DATE/TIME	RECEIVED BY: (Signature)	RELINQUISHED BY: (Signature)	DATE/TIME	RECEIVED BY: (Signature)
John Wharton	8/28 8:50				
METHOD OF SHIPMENT:		SHIPPED BY: (Signature)	COURIER: (Signature)	RECEIVED FOR LAB BY (Signature): Carol Hammerbeck	DATE/TIME: 8/29/97 8:58

San Francisco Regional Office

1252 Quarry Lane
P.O. Box 9019
Pleasanton, CA 94566
(510) 426-2600
Fax (510) 426-0106

Clayton
ENVIRONMENTAL
CONSULTANTS

FACSIMILE COVER SHEET

TO: Al Ridley FAX NO: 874-3268

COMPANY: Woodward Clyde DATE: 9-10-97

FROM: Client Services

Number of Pages (including cover sheet): 5

Please confirm receipt ( ) Yes (X) No

If yo do not receive the number of pages specified, please call (510) 426-2600 for assistance.

COMMENTS

San Francisco Regional Office

1252 Quarry Lane
P.O. Box 9019
Pleasanton, CA 94566
(510) 426-2600
Fax (510) 426-0106

Clayton
ENVIRONMENTAL
CONSULTANTS

September 10, 1997

Mr. John Wharton
WOODWARD-CLYDE CONSULTANTS
500 12th Street; Suite 200
Oakland, CA 94607-4014

Client Ref.: 961163NA
Clayton Project No.: 97083.26

Dear Mr. Wharton:

Attached is our analytical laboratory report for the samples received on August 29, 1997. Also enclosed is a copy of the Chain-of-Custody record acknowledging receipt of these samples.

Please note that any unused portion of the samples will be discarded after October 10, 1997, unless you have requested otherwise.

We appreciate the opportunity to assist you. If you have any questions concerning this report, please contact Suzanne Haus, Client Services Supervisor, at (510) 426-2657.

Sincerely,

Andrew Bradley for

Harriotte A. Hurley, CIH
Director, Laboratory Services
San Francisco Regional Office

HAH/las

Attachments

Clayton
ENVIRONMENTAL
CONSULTANTS

Analytical Results
for
Woodward-Clyde Consultants
Client Reference: 961163NA
Clayton Project No. 97083.26

Sample Identification: RBLK-3
Lab Number: 9708326-01
Sample Matrix/Media: SOIL

Date Sampled: 08/28/97
Date Received: 08/29/97

Analyte	Concentration	Method Detection Limit	Units	Date Prepared	Date Analyzed	Prep Method	Method Reference
SPLP Lead	<0.1	0.1	mg/L	09/08/97	09/09/97	EPA 1312	EPA 6010A

ND: Not detected at or above limit of detection
--: Information not available or not applicable

Clayton
ENVIRONMENTAL
CONSULTANTS

Analytical Results
for
Woodward-Clyde Consultants
Client Reference: 961163NA
Clayton Project No. 97083.26

Sample Identification: METHOD BLANK
Lab Number: 9708326-02
Sample Matrix/Media: SOIL

Date Sampled: --
Date Received: --

Analyte	Concentration	Method Detection Limit	Units	Date Prepared	Date Analyzed	Prep Method	Method Reference
SPLP Lead	<0.1	0.1	mg/L	09/08/97	09/09/97	EPA 1312	EPA 6010A

ND: Not detected at or above limit of detection
--: Information not available or not applicable

9708326

Woodward-Clyde Consultants
500 12th Street, Suite 200 • Oakland, CA 94607-4014
(510) 893-3600

Chain of Custody Record

PROJECT NO. 961163NA

SAMPLERS: (Signature) JOHN WHARTON

DATE	TIME	SAMPLE NUMBER	Sample Matrix (S)oil, (W)ater, (A)ir	EPA Method	EPA Method	EPA Method	EPA Method	Number of Containers	REMARKS (Sample preservation, handling procedures, etc.)
1997									
8/28	12:00	RBLK-3 -01A	S						-01A EPA 1312 SPLP (LEAD)
		Ziploc bag							

TOTAL NUMBER OF CONTAINERS

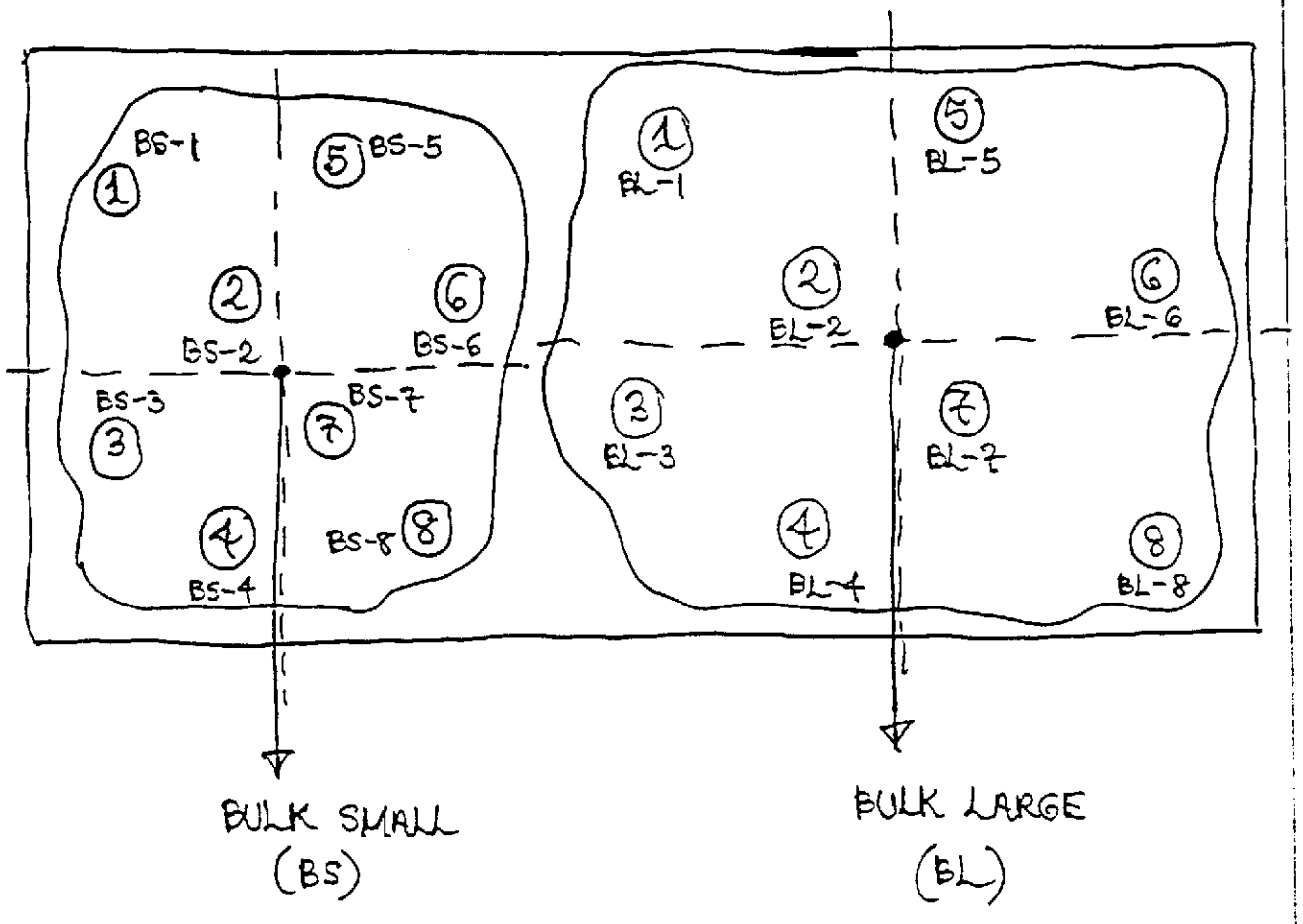
RELINQUISHED BY: (Signature)	DATE/TIME	RECEIVED BY: (Signature)	RELINQUISHED BY: (Signature)	DATE/TIME	RECEIVED BY: (Signature)
John Wharton	8/29 14:30	[signature] 8/29/97 14:40	[signature]	8/29/97 16:10	Cheryl Allen 8/29/97 16:10

METHOD OF SHIPMENT:	SHIPPED BY: (Signature)	COURIER: (Signature)	RECEIVED FOR LAB BY (Signature)	DATE/TIME

K CONFIRMATION SAMPLES

Project No. 961163NA
Task No. ENCINAL TERMINALS
File No. 96116NA.6400
Sheet _____ of _____

JOHN WHARTON Checked By
Date 8/28/97 Date



CONFIRMATION BULK SAMPLES WERE TAKEN ON AUGUST 27, 1997 AT APPROXIMATELY 2 PM. THE SAMPLES WERE SENT TO CLAYTON ENVIRONMENTAL FOR SAMPLING.

APPENDIX B

COMPACTION CURVE AND DENSITY TEST

Woodward-Clyde test form

FIELD DRY DENSITY TEST-NUCLEAR GUAGE

Project Name:	ENSINAL TERMINAL	Date:	9-04-97
Project Number:	961163NA-10600	Field Representative:	L.KRAUSE
Project Location:	ALAMEDA CA.	Earthwork Type-Grading, Backfill, Utility, Street, etc.:	
Weather:	CLEAR 80s		

Show FDT Location and Area Limits

FSG- Finish Subgrade

FIELD DENSITY TESTS

TEST NO.	1	2						
LOCATION	EAST SIDE OF EXISTING STRUCTURE							
ELEVATION	FSG	FSG						
MOISTURE COUNT	125	119						
MOISTURE RATIO	.194	.184						
MOISTURE, PCF	10.0	9.5						
PROBE DEPTH	8"	8"						
DENSITY COUNT	1170	1153						
DENSITY RATIO	.421	.415						
WET DENSITY, PCF	137.0	137.5						
DRY DENSITY, PCF	127.0	128.0						
MOISTURE, %	7.8	7.4						
LAB TEST NO.	2	2						
LAB TEST DATE								
MAX. DRY DENSITY, PCF	140.9	140.9						
OPTIMUM MOISTURE, %	5.8	5.8						
% COMPACTION	90.1	90.8						
% REQUIRED	90.0	90.0						
RETEST OF NO.								

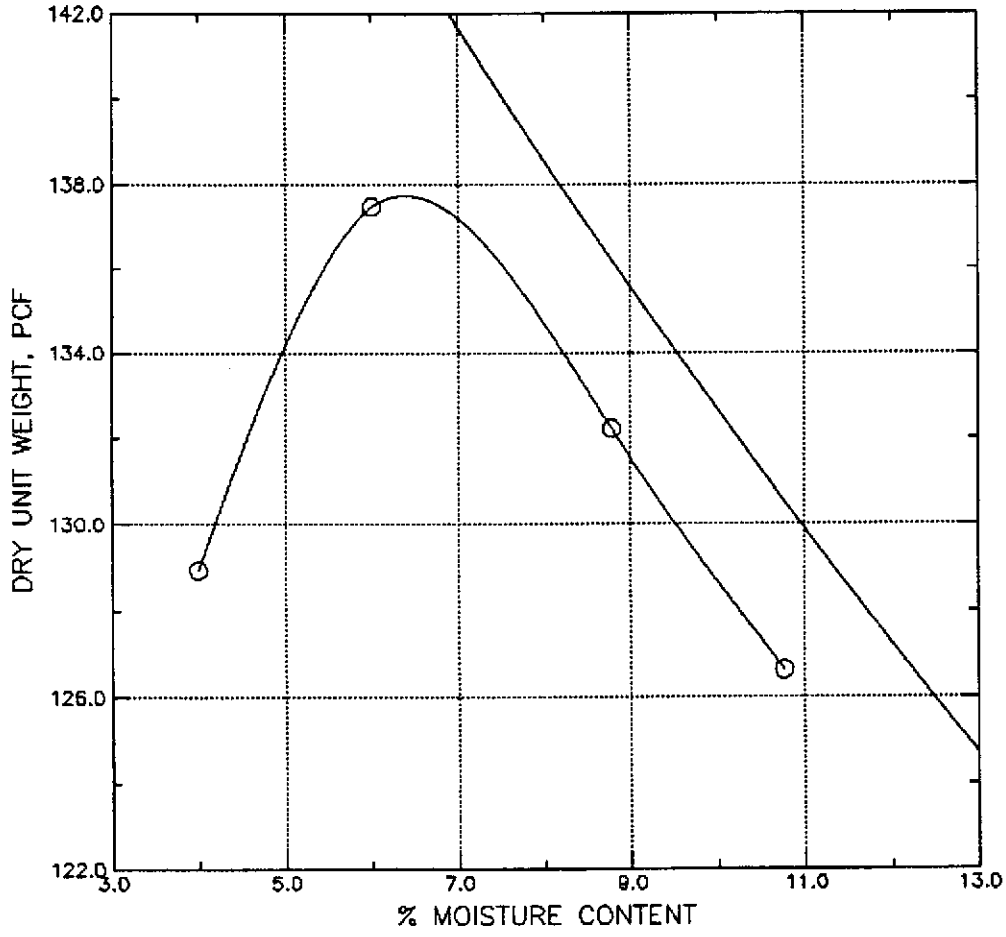
REMARKS: MET NADMI WALKER at proj. site. Contractor is placing Brown SANDY gravelly CLAY on the EAST Side of existing WAREhouse. Contractor placed approx 1' OF fill in 3 seperate lifts. Compacted lifts with D8 CAT. dozer & 966 Loader. Performed 2 FDTs tests reflected a relative compaction of 90.1 & 90.8. Informed A. Ridley of field tests. Will return to site upon request only.

SHEET NO.

Guage Serial No.	13531	Standard Density Count	2777
Moisture Correction		Standard Moisture Count	644

	Boring No. : BULK Sample No. : 2 Tested by : C. WASON Filename : BULK-2	Project : ENCINAL TERMINALS Project No.: 961163NA-6600 Location : ALAMEDA, CA Date: Mon Aug 25 1997

COMPACTION



Sample Description	: GRAY BROWN SANDY GRAVELLY CLAY
Compaction Test Designation	: ASTM D1557-C
Maximum Dry Density	: 137.7 PCF
Optimum Moisture Content	: 6.4 %

Figure 1

Mon Aug 25 07:22:18 1997

GEOTECHNICAL LABORATORY TEST DATA

Project : ENCINAL TERMINALS
Project No. : 961163NA-6600
Boring No. : BULK
Sample No. : 2
Location : ALAMEDA, CA
Soil Description : GRAY BROWN SANDY GRAVELLY CLAY
Remarks :

Depth : NA
Test Date : 08/22/97
Test Method : ASTM D1557-C

Filename : BULK-2
Elevation : NA
Tested by : C. WASON
Checked by : C. CAPPS

COMPACTION TEST

Mold ID : 6-2
Method Used : ASTM D1557-C
Volume of Mold : 0.07524 ft^3
Mass of Mold : 2691.6 gm
Specific Gravity : 2.7

Moisture Content ID	Mass of Container (gm)	Mass of Container + Moist Soil (gm)	Mass of Container + Dry Soil (gm)	Mass of Mold + Specimen (gm)	Moisture Content (%)	Dry Density (PCF)
	0.00	4573.60	4397.90	7268.00	4.0	128.9
	0.00	4964.30	4683.00	7664.90	6.0	137.5
	0.00	4905.80	4509.90	7600.10	8.8	132.2
	0.00	4779.60	4315.10	7478.70	10.8	126.6

Optimum Dry Density = 137.7 PCF
Optimum Moisture Content = 6.4 %

Woodward-Clyde

PROJECT NAME **ENCINAL TERMINALS** DATE 8/25/97

PROJ. NO. 961163NA-6600 SAMPLE NO. BULK-2 METHOD ASTM D1557-C

TESTED BY: C. WASON REVIEWED BY: C. CAPPS

CORRECTION FOR OVERSIZE MATERIAL

WT. of + 3/4" + Tare = 4544.0 WEIGHT - 3/4" + Tare = 27612.0

Tare = 350.0 Tare = 360.0

WEIGHT OF + 3/4" = 4194.0 WEIGHT of - 3/4" = 27252.0

TOTAL WEIGHT of + 3/4" and - 3/4" = 31446.0 Grams

$$X = \%\ \text{of} + 3/4" = \frac{\text{wt. + 3/4"}}{\text{Total wt.}} \times 100 = \frac{4194.0}{31446.0} = 13.3\ \%$$

$$Y = \%\ \text{of} - 3/4" = \frac{\text{wt. - 3/4"}}{\text{Total wt.}} \times 100 = \frac{27252.0}{31446.0} = 86.7\ \%$$

$$Z = Gs\ \text{of} + 3/4" = \_\_\_\_\_ \qquad T = \frac{\text{M.D.D.}}{62.4} = \frac{137.7\ \text{pcf}}{62.4} = 2.207$$

r =

X	r	X	r
< 20	1.00	46 - 50	0.94
21 - 25	0.99	51 - 55	0.92
26 - 30	0.98	56 - 60	0.89
31 - 35	0.97	61 - 65	0.86
36 - 40	0.96	66 - 70	0.83
41 - 45	0.95		

$$\text{CORRECTED DENSITY} = \frac{100}{\frac{X}{Z} + \frac{Y}{r\,T}} \times 62.4 = \frac{6240}{\frac{13.3}{2.65} + \frac{86.7}{1 \times 2.207}}$$

$$= \frac{6240}{5.019 + 39.284} = 140.85\ \text{Pcf}$$

$$\text{ADJUSTED O. M. C.} = [(X \times \%\ \text{m.c.} + 3/4") + (Y \times \text{O.M.C.})]\ 100$$

$$= [(0.133 \times 0.0169) + (0.867 \times 0.064)]\ 100$$

$$= [(0.0023) + (0.0555)] \times 100$$

$$= 5.78\%\ \text{ADJUSTED O.M.C.}$$