

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



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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.

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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.

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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 reexcavated 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.

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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

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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

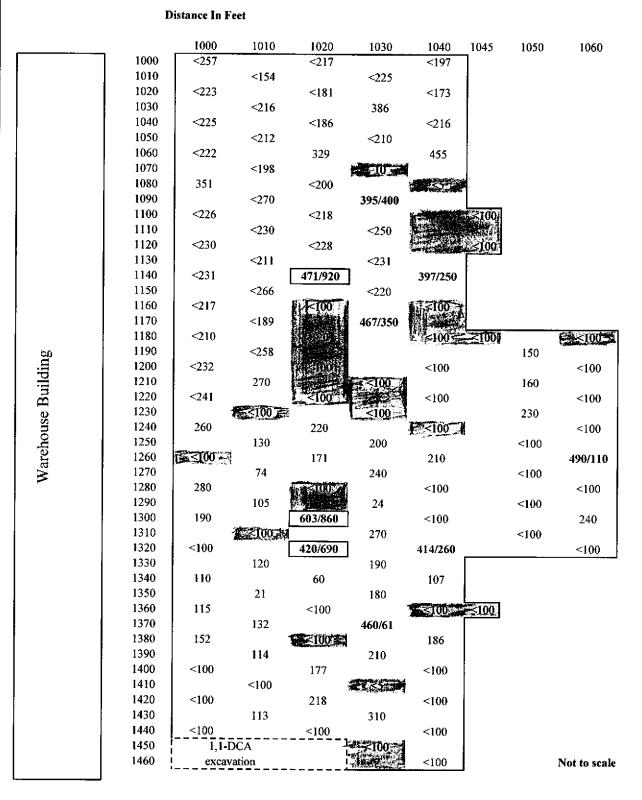
Sample No.	[mg/kg] XRF	EPA 6010	6010 Re-Test	SPLP [mg/L]
1020 1140	471	020		<1
1020, 1140	471	920	10	
1060, 1070	387	2100	10	
1030, 1090	395	400		
1030, 1170	467	350		
1040, 1080	524	2400	<5	
1040, 1140	397	250		
1020, 1300	603	860		<1
1020, 1320	420	690		1.4
1030, 1370	460	61		
1030, 1410	523	1400	<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.

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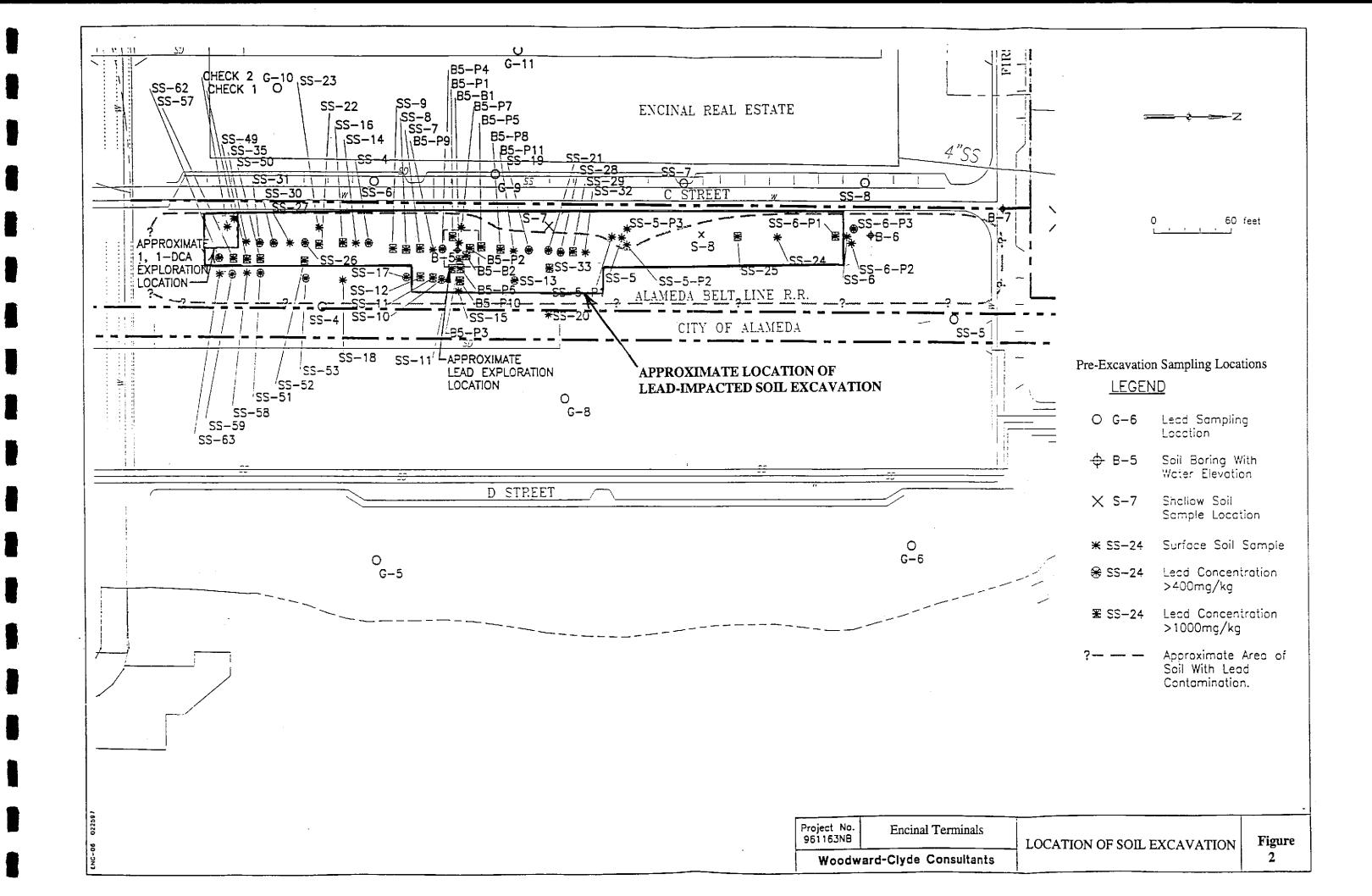
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ENCINAL LEAD IMPACTED SOIL CONFIRMATION TEST RESULTS Lead (mg/kg) in samples collected at base of final excavation (1 to 2 feet deep)

Figure 1

Woodward-Clyde Consultants

10/97 11,40 AM



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	SCA		95% Conf	
Sample ID	Lab ID	Lead (ppm)	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	

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	SCA		95% Conf	
Sample ID	Lab ID	Lead (ppm)	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

Date: 8/28/97

Approved By: Chuck Siu

Date: 8/28/97

Woodward-Clyde Consultants Chain of Custody Record 500 12th Street, Suite 200 • Oakland, CA 94607-4014 (510) 893-3600 PROJECT NO. **ANALYSES** 961163NA Number of Containers SAMPLERS: (Signature) REMARKS JOHN WHAPPEN (Sample preservation. EPA Method EPA Method DATE TIME SAMPLE NUMBER handling procedures, etc.) 12 1000 1000 1000 1020 logo, 1040 QUESTIAUS 1060 & RESULTS: 10001080 1100 AL RIDLEY (510) 874-3125 (510) 874-3265 (FAX) 1000 1 (20 1000. 1148 1160 1000, 1180. 10001200 ∞ 1220 1020 ١ď 1000 1020, 1020 1020, 1040 1020 1060 1020 080 1020 lloo 1020 1120 1020, 1140 1020 1160 1020 1180 NUMBER OF CONTAINERS RELINQUISHED BY: DATE/TIME RECEIVED BY: (Signature) RELINQUISHED BY: DATE/TIME RECEIVED BY: (Signature) (Signature) (Signature) METHOD OF SHIPMENT SHIPPED BY: COURIER: Chris Game RECEIVED FOR LAB BY DATE/TIME (Signature) (Signature)

Woodward-Clyde Consultants 500 12th Street, Suite 200 • Oakland, CA 94607-4014 **Chain of Custody Record** (510) 893-3600 PROJECT NO. **ANALYSES** 961163NA Number of Containers SAMPLERS: (Signature) REMARKS JOHN WHARTON (Sample preservation. DATE TIME SAMPLE NUMBER handling procedures, etc.) 100 1010 QUESTIONS 1010 1030 1010, 1050 & RESULTS: loió. 1070 1010 AL REDLEY 1090 loto, 1110 (510)874-3125 (510) 874-3268 (FAX) loió. 1130 1016, 1150 loto. 1170 1010 1190 1030, 1010 S *NO 1010, 1170 1030 1030 1030 1050 BUT TWO 1030 1070 1010,11905 1030 1090 1030 1110 1030 1130 1030 1150 1030, 1170 TOTAL NUMBER OF 19 CONTAINERS RELINQUISHED BY: DATE/TIME RECEIVED BY: (Signature) RELINQUISHED BY: DATE/TIME RECEIVED BY: (Signature) (Signature) 8/4 (Signature) METHOD OF SHIPMENT: SHIPPED BY: COURIER: RECEIVED FOR LAB BY DATE/TIME (Signature) (Signature)

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

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Company Woodward Clyde

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Fax Number 610 - 874-3268 Phone Number 510-874-3111

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

Garth Voigt

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Remarks:

Results per your request



5D059D.RPT

Analytical Laboratory Report XRF

COC #: Date Sampled:

Lab Number: Date Reported: NA

8/28/97 3/28/97

Date Received: Date Analyzed: Report Number:

8/28/97 5D059.rpt 5D059 8/29/97

Proj Mgr:

Al Ridley

Client: Project: Woodward Clyde 961163NA

Matrix: Units Soil: mg/Kg

Soil

Lab ID No.	Field ID No.	Pb
50059-01	1000, 1200	סא
SD059-02	1000, 1220	170
5D059-03	1000, 1240	226
5D059-04	1000, 1260	1030
\$D059-05	1000, 1280	280
50059-06	1000, 1300	190
50059-07	1000, 1320	ND
5D059-08	1000, 1340	316
5D059-09	1010, 1210	270
SD059-10	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
SD059-16	1010, 1350	2.J
5D(159-17	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
NO - New respectant
CVE - Chains of Councily
ND - Analyses and delection at ... or already the repairing limit
notes - Analysis and delection at ... or already the repairing limit
notes - Analysis are delection limit. Pagends determine that the loss the deletion thater.
IVE, - Practical Councilistics Limit, Pagends determine that the loss the deletion thater.

PHOCE DURING XRF - This entity



SD059E RPT

Analytical Laboratory Report **XRF**

COC #:

NA

Date Sampled: Date Received: 8/28/97 8/28/97

Date Analyzed: Report Number: Lab Number:

Date Reported:

8/28/97 5D059.rpt

5D059 8/29/97 Proj Mgr:

At Ridley

Client:

Woodward Clyde

Project: Matrix:

961163NA Soil

Units Soil: mg/Kg

Lab ID No.	Field ID Ns.	Pb
5Du59-21	1020, 1280	807
5D059-22	1020, 1300	603
5D059-23	1920, 1320	420
5D059-24	1020, 1340	60
5D059-25	1030, 1210	1500
5D059-26	1030, 1230	820
5D059-27	1030, 1250	200
\$10059-28	1030, 1270	240
5D059-29	1030, 1290	24
5D059-30	1030, 1310	270
5D059-31	1030, 1530	190
\$D0\$9-32	1030, 1350	ND
50059-33	1040, 1200	מא
5D059-34	1040, 1220	QN
5D059-35	1040_1240	12m
5D059-36	1040, 1260	210
50059-37	1040, 1280	ND
50059-38	1040, 1300	ND
5D059-39	1040, 1320	319
5D059-4I)	1040, 1340	ND

Reporting Limits SOIL mg/Kg 100

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50059F,RPT

Analytical Laboratory Report XRF

COC #: Date Sampled: NA

8/28/97 Date Received: 8/28/97

Date Analyzed: Report Number: 5D059.rpt

8/28/97

Lab Number: 5D059 Date Reported: 8/29/97 Proj Mgr:

Al Ridley

Client: Project: Woodward Clyde

Matrix:

961163NA

Units Soil: mg/Kg

Soil

Lab ID No.	Field ID No.	Pb
5D059-41	1050, 1210	160
5D059-42	10\$6, 1230	230
· SD059-43	1050, 1250	סא
5D059-44	1050, 1270	ND
5D059-45	1056, 1290	ДN
SD059-46	1050, 1310	CIM
5D059-47	1050, 1190	150
5D059-48	1060, 1180	941)
5D059-49	1060, 1200	ND
5D059-50	1060, 1220	NO
5D059-51	1060, 1240	ND
5D059-52	1060, 1260	490
5D059-53	1060, 1280	ND
5D059-54	1060, 1300	24()
5D059-55	1060, 1320	NO

Reporting Limits SOIL mg/Kg 100

Neuro gaste.
NR. - Neur requested.
U. C. - Achies of Caratady.
NR. - Apply non-leavaged int. no alternat fine important libraria.
NR. - Apply non-leavaged int. no alternat fine important libraria.
NR. - Milligeous for Citemann (1994).
14.1. - Practical Quantitations Limit. Francis defending light importing filled interest trades.

PROCEDURES



50080.RPT

Analytical Laboratory Report XRF

COC#: Date Sampled:

Report Number:

NA

8/28/97 Date Received: Date Analyzed:

8/28/97 8/28/97

Lab Number: Date Reported:

Client:

5D060/5D061 Units Soil: 5D061-rpt

8/29/97

Proj Mgr:

Al Ridley

Project:

Woodward Clyde 961163NA

Matrix:

Soil mg/Kg

Lab ID No.	Field ID No.	_ Pb	
SD061-2	1910, 1230A	ND	
SD061-1	1060, 1180A	ND	
5D061-3	1040, 1160A	ND	
SD061-4	1040, 1180A	ND	
5D061-5	1045, 1080A	ND	
5D061-6	1045, LJOÔA	ND	
SD061-7	1645, 1120A	סמ	
5D061-8	1020, 1160A	ND	_
5D061-9	1020, 1180A	120	
5D061-10	1030, 1450A	ИD	
50061-11	1030, \230A	УD	
50(61-12	1020, 1280A	מא	
5D061-13	1040, 1240A	ตัด	
5DX161-14	1030, 1210A	ON	
50061-15	Retest, Bulk 3	טא	
5!)061-16	RBS-1	NO	
50061-17	RBS-2	240	
5D061-18	RBLI	320	
SD061-19	RBL-2	130	
50060-1	1020, 1200A	ON	

Reporting Limits SOIL mg/Kg 100

POPTES:

PAG: - Mad requireded

CNS: - Chains of Europaly

No 3- considers in the Africans of the requireling limit

regific. - Milligrams pur histogram (NPA)

PQ[-. Processor Quantifation Limit. Liquals detection failed these the Administrations.

THERCHOLINES:

NET - This applyes was postered succeding to thesic SALP, SCHNEFAZ, Rev 2-Az

21 AS composites

 v^{c}

Laboratory Director

Date



50060A,RPT

Analytical Laboratory Report **XRF**

COC#:

NA

Date Sampled: Date Received: Date Analyzed: 8/28/97 8/28/97

8/29/97

Report Number: Lab Number: Date Reported:

8/28/97 5D060/5D061 5D061-rpt

Proj Mgr:

Al Ridley

Client: Project: Woodward Clyde 961163NA

Matrix:

Soil mg/Kg

Units Soil:

No

Lah ID No.	Field ID Nn.	Pb
50060-2	1020, 1220A ·	מא
50060-3	1040, 1360A	МĎ
512060-4	1046, 1360 4	סא
50060-5	1010, 1310A	ND
5D060-6	1000, 1260A	ND
50060-7	1020, 1380A	ND
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		-
	 	
Reporting Limits SOIL mg/	Kg	100

MOTES:
NN. - Man appressed
C.C.R. - Claim of Contact)
NN. - Arestytes and absoluted at, or above the reporting limit.

nug K.; · Millyr spur per Cingrath (1994) PCI - Procing Chamila fun Lavis, Riggsky detrecky figur ligher the alfolian Foarst.

PROPERTY OF THE STUDY SHAPE FOR THE PROPERTY OF THE STUDY OF THE STUDY

Laboratory Director

Date

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

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Woodward-Clyde Consultants

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

PROJE	CT NO.	SNA			· · · · · ·			1A	VAL'	/SE	s	,		,		ers.				
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					Signature)					(Signature)								(Signature)		
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Woodward-Clyde Consultants500 12th Street, Suite 200 • Oakland, CA 94607-4014
(510) 893-3600

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50058A.RPT

Analytical Laboratory Report XRF

COC #:

Date Sampled: 8/26/97

Date Received: 8/27/97

Reporting Limits SOIL mg/Kg

Date Analyzed: 8/27/97 Report Number: 50058

Lab Number:

Date Reported: \$/27/97

Proj Mgr: Al Ridley

Client: Woodward Clyde

961163NA Project:

Soil

Matrix:

Units Soil: mg/Kg

Pb	Field ID Nn.	Lab ID No.
 ND	1000, 1320	3D058-01
טא	1000, 1340	5D058-02
115	1000, 1360	\$D058-03
152	1000, 1380	\$D058-04
מא	1000, 1400	5D058-05
СИN	1000, 1420	5D058-06
מא	1000, 1440	5D058-07
3%	1020, 1320	5D058-08
И О	1020, 1340	SD058-09
ND	1020, 1360	50058-10
1340	1020, 1380	510058-11
177	1020, 1400	5D058-12
218	1020, 1420	SD058-13
ND	1020, 1440	SD058-14
414	1640, 1320	5D058-15
107	1040, 1340	512058-16
 1140	1040, 1360	513()58-17
186	1040, 1380	5D058-18
ND	1040, 1400	5D058-19
NTD	1040, 1420	5D058-20

NOTES:

Not - Note responsed

CYX: (Chain of Causary

NI) - Amorphy must detected these aboves the repositing tensil

note K - Milligenery par hilogram (PPM)

NOTE: (PM)

NOTE: (PM)

NOTE: (PM)

NOTE: (PM)

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AUG 2 9 1997

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60058.RPT

Analytical Laboratory Report

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: Project: Woodward Clyde 961163NA

Matrix:

Soil

Units Soil: mg/Kg

Lab ID No.	Field ID No.	РЪ	
SD058-21	1()4(),]44()	מא	
5D058-22	1040, 1460	ND	
5D058-23	1010, 1330	118	
5D058-24	1010, 1350	CIN	
SD058-25	1010, 1370	132	
5D058-26	1010, 1390	114	
SD058-27	1010, 1410	שא	
SD058-28	(010, 1430	113	
SD058-29	1050, 1330	מא	
SD05&30	1030, 1350	180	
SD058-31	10501370	46()	
5D058-32	1030, 1390	210	
SD058-33	1030, 1410	573	
5D058-34	1030, 1430	310	
SD058-35	1030, 1450	287	
	-		
7.4			
Reporting Limits SQLL mg/i	ζ _ε	100	

POPES:
Not - Not requested
CON' - Post requested
NOT - Amely on the detected of an advance the represent finish
regists: Whitigrows per helogram (PPM)
PQN - Proposed Quantifaction I shall. Negata detection like a times the diffusion flustee

PROCEDINGS

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Laboratory Director

AUG 2 9 1997

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PROJE	CT NO.	UCOSIA		13	1 8		~~~	AN/	ALYSE	≣S			ွ			
SAMPI		Signature)	-	d									Containers		(Sa	ARKS mple
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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

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Lab Number:		Project Numi	ber:	961	HINEON	•						*			
									Anal	ysis R	eque	sted			
Sample Identification	Date Sampled	Time Sampled	Matrix	Sampled & Relinquished By:	Time Relinquished:		D (pr	TRPH (418.1AZ)	BIEX (8021) TPH - Gas (8015M)	TPH - Diesel (8015M)	XXCOB			No. Containers	Remarks
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1745 HVXXX	1 . 104			4	16-14	7,0				\sqcup	X	\bot			-62
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Woodward-Clyde Consultants

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

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Environmental Services (SDB)

September 3, 1997

Submission #: 9709018

WOODWARD-CLYDE OAKLAND

Atten: Marco Lobascio, Naomi Walker

Project: 961163NA

Received: September 2, 1997

Project#: 961163NA

re: One sample for Miscellaneous Metals analysis.

Method: EPA 3010A/3050A/6010A Nov 1990

Client Sample ID: 1020,1140

Spl#: 145861 Sampled: August 26, 1997

Matrix: SOIL

Extracted: September 3, 1997

Run#: 8442

10

Analyzed: September 3, 1997

RESULT (mq/Kq)

920

REPORTING LIMIT (mq/Kg)

BLANK RESULT BLANK DILUTION SPIKE FACTOR

(mq/Kkg)

96.4

10

Christopher Aradt

Chemist

ANALYTE LEAD,

Supervisor (norganies

Environmental Services (SDB)

September 3, 1997

Submission #: 9709018

WOODWARD-CLYDE OAKLAND

Atten: Marco Lobascio, Naomi Walker

Project: 961163NA

Received: September 2, 1997

Project#: 961163NA

re: One sample for Miscellaneous Metals analysis.

Method: EPA 3010A/3050A/6010A Nov 1990

Client Sample ID: 1030,1070

Spl#: 145862

Sampled: August 26, 1997

Matrix: SOIL Run#: 8442

Extracted: September 3, 1997

Analyzed: September 3, 1997

REPORTING BLANK BLANK DILUTION RESULT LIMIT RESULT SPIKE FACTOR **ANALYTE** (mg/Kg) (mg/Kg) (mq/xq)(%) LEAD 2100 10 10

Christon Arndt

Inorganios Supervisor

Environmental Services (SDB)

September 3, 1997

Submission #: 9709018

WOODWARD-CLYDE OAKLAND

Atten: Marco Lobascio, Naomi Walker

Project: 961163NA

Received: September 2, 1997

Project#: 961163NA

re: One sample for Miscellaneous Metals analysis.

Method: EPA 3010A/3050A/6010A Nov 1990

Client Sample ID: 1030,1090

Spl#: 145863 Sampled: August 26, 1997 Matrix: SOIL

Run#: 8442

Extracted: September 3, 1997

Analyzed: September 3, 1997

RESULT LIMIT RESULT SPIKE FACTOR

ANALYTE (mq/Kq) (mq/Kq) (mq/Kq) (%)

LEAD 400 1.0 N.D. 96.4 1

Christopher Arnet

Chemia

John S. Labash

Inorganics \$upervisor

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 Sampled: August 26, 1997 Run#: 8442

Extracted: September 3, 1997

Analyzed: September 3, 1997

RESULT

BLANK RESULT BLANK DILUTION SPIKE FACTOR

LIMIT (mg/Kg) (mg/kkg)

REPORTING

(mg/Kg) 350

Chemist

norgahids Subervisor

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 Sampled: August 26, 1997 Matrix: SOIL Run#: 8442 Extracted: September 3, 1997

Analyzed: September 3, 1997

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

ANALYTE LEAD

// f. la. ///

christopher Arna

Chemist

Johns Labash

Inorganics Subgrvisor

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 Sampled: August 26, 1997 Matrix: SOIL Run#: 8442

250

Extracted: September 3, 1997

Analyzed: September 3, 1997

.

RESULT LIMIT (mq/Kq) (mg/Kq)

REPORTING

1.0

BLANK RESULT

(mq/Kq)

BLANK DILUTION SPIKE FACTOR

(%)

ANALYTE LEAD

//h/h/h/

heist war Arndt

Chemist

odhn B. | Labash | \ Inorganics | Supervisor

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

Sampled: August 26, 1997

Extracted: September 3, 1997 Matrix: SOIL

Analyzed: September 3, 1997 Run#: 8442

BLANK DILUTION BLANK REPORTING SPIKE FACTOR RESULT LIMIT RESULT (mg/Kg) (mq/Kg) (mq/Kg)10

10

860

Chemist

Supervisor brganics

96.4

Environmental Services (SDB)

September 3, 1997

Submission #: 9709019

WOODWARD-CLYDE OAKLAND

Atten: Marco Lobascio, Naomi Walker

Project: 961163NA

961163NA Project#:

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

Analyzed: September 3, 1997

Sampled: August 26, 1997

Run#: 8442

REPORTING

BLANK

BLANK DILUTION

RESULT

(mq/Kq)690

LIMIT (mq/Kq)10

RESULT

FACTOR SPIKE

(mg/Rd)

96.4

10

enfistopher

Chemist

<u>ANALYT</u>E

LEAD

Super

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

RESULT

REPORTING LIMIT (mq/Kg)

BLANK RESULT (mg/Kg)

BLANK DILUTION FACTOR SPIKE

(%)

<u>ANALYTE</u> LEAD

(mq/Kq)

96.4

Labash horganics

N.D.

Environmental Services (SDB)

September 3, 1997

Submission #: 9709019

WOODWARD-CLYDE OAKLAND

Atten: Marco Lobascio, Naomi Walker

Project: 961163NA

961163NA Project#:

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

Analyzed: September 3, 1997 Run#: 6442 Sampled: August 26, 1997

RESULT

REPORTING LIMIT

BLANK RESULT, SPIKE

BLANK DILUTION FACTOR

(%)

(mq/Kq)(mg/Kd)N.D

<u>ANALYTE</u> LEAD

(mg/Kg) 1400

10

96.4

10

Chemişt

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

BLANK DILUTION BLANK REPORTING

RESULT (mq/Kq)

LIMIT (mq/Kq) RESULT'

(mq/Kq)

FACTOR SPIKE

(%)

96.4

ANALYTE

LEAD

260

dhn S. Labash

Inorganica Supervisor

Chemist

Environmental Services (SDB)

September 3, 1997

Submission #: 9709019

WOODWARD-CLYDE OAKLAND

Atten: Marco Lobascio, Naomi Walker

Project: 961163NA

961163NA Project#:

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

RESULT

110

REPORTING LIMIT

BLANK RESULV

BLANK DILUTION FACTOR SPIKE

(mg/Kg (mq/Kq)

(%)

ANALYTE

LEAD

Labash

Ihorganics Supervisor

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 146110 1030,1410A	LEAD (ELET/Kg)	REPORTING LIMIT (mg/Kg)	RESULT (mg/kg)	BLANK SPIKE (%)	DILUTION FACTOR
146111 1040,1080) 146112 1030,10761	N.D. 10	5.0 5.0 5.0	и.D. и.D. и.D.	104 104 104	1 1 1

Chemist

s Supervisor

Woodward-Clyde Consultants

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

Chain of Custody Record

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METHOD OF SHIPMENT:	SHIPPED (Signature)			f			URIE					CEIVEI gnature)		LAB BY	DATE/TIME

Woodward-Clyde Consultants

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

Chain of Custody Record

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Woodward-Clyde Consultants Chain of Custody Record 500 12th Street, Suite 100, Oakland, CA 94607-4014 (510) 893-3600 PROJECT NO. **ANALYSES** 961163NA Number of Containers 601D. ŞAMPLERS: (Signature) **REMARKS** (Sample Sample Matrix (S)oil, (W)ater, (preservation. EPA Method handling EPA Method **EPA Method** procedures, etc.) DATE TIME SAMPLE NUMBER FROM WCC 1020 1140 030 1070/ 1030 1090 ١ 030 Ì 11701 1 10801 90 1040 1140 Naoni Wally 5W) 874 3111 TOTAL NUMBER OF CONTAINERS RELINQUISHED BY: RECEIVED BY: DATE/TIME RELINQUISHED BY: DATE/TIME RECEIVED BY: (Signature) (Signature) (Signature) (Signature) 9/3/00/12/15 SHIPPED BY METHOD OF SHIPMENT COURIER -RECEIVED FOR LAB BY : DATE/TIME (Signature) (Signature) (Signature)

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Environmental Services (SDB)

September 9, 1997

Submission #: 9709101

961163NA

WOODWARD-CLYDE OAKLAND

Atten: Naomi Walker

Project: Not provided

Received: September 2, 1997

re: 1 sample for SPLP Lead analysis.

Method: EPA 3010A/7420A/1312

Matrix: SOIL #un#: 8559

Sampled: August 26, 1997

Extracted: September 9, 1997

Analyzed: September 9, 1997

REPORTING BLANK BLANK DILUTION LEAD LIMIT RESULT SPIKE FACTOR CLIENT SPL ID (mg/L) (mq/L) (mq/L)

146633 1020,1320

1.4

1.0

Project#:

Chemist

Spl#

Supervisor Inorganics

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

REPORTING BLANK BLANK DILUTION LEAD LIMIT RESULT SPIRE FACTOR Spl# CLIENT SPL ID $(I \setminus D \cap L)$ (mq/L)(mg/L) 146425 1020,1140 146426 1020,1396 <u>, d. vi</u> 1.0 N.D. 107 1 ₩.D. 1.0 N.D. 107 1

Federal ID #68-0140157

Shafi/Barekzai Chemist

John S. Habash

Inorganids Supervisor

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:	we		
FROM:	Suzanne Haus	PHONE NO.:	(510) 426-2657
DATE:	9/2/91	-	
Number of Pag	es (including cover sheet):		
If you do not reassistance.	eceive the number of pages sp	pecified, please ca	ll (510) 426-2600 for
	CO	MMENTS	

WE APPRECIATE YOUR BUSINESS!

- ser-- - Missen - Mandred - Mandrels - Indianapolis

San Francisco Regional Office

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



10:0104200100

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,

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

HAH/las

Attachments

Page 2 of 5

Analytical Results

for

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

Sample Identification: See Below

08/28/97

08/29/97

Lab Number:

9708285

Date Received: Date Digested: 08/28/97

Date Analyzed:

Sample Matrix/Media: Digestion Method:

SOIL EPA 3050A

Method Reference:

EPA 6010A

Lab Number	Sample Identification		Date Sampled	Lead (mg/kg)	Method Detection Limit (mg/kg)
-05 -10 -15 -20 -21	COMP BS-1.2,3,4 COMP BS-5,6,7.8 COMP BL-1,2,3,4 COMP BL-5.6,7,8 METHOD BLANK	4:1 4:1	08/27/97 08/27/97 08/27/97 08/27/97	1100 590 950 700 <1	1 1 1 1

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

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

Page 3 of 5

Analytical Results

for

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

Sample Identification: See Below

9708285

Date Received: 08/28/97

Lab Number: Sample Matrix/Media: SOIL

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

Date Analyzed: 09/01/97

Digestion Method: EPA 3010A Preparation Method: EPA 1312 Method Reference: EPA 6010A

Lab Number	Sample Identification		Date Sampled	SPLP Lead (mg/L)	Method Detection Limit (mg/L)
-05 -10 -15 -20 -21	COMP BS-1,2,3.4 COMP BS-5,6,7,8 COMP BL-1,2,3.4 COMP BL-5,6,7,8 METHOD BLANK	4:1 4:1	08/27/97 08/27/97 08/27/97 08/27/97	0.4 <0.1 0.2 0.1 <0.1	0.1 0.1 0.1 0.1 0.1

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

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بدين وعادت ENVIRONMENTAL CONSULTANTS

Page 4 of 5

Analytical Results

for

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

Sample Identification: See Below

Date Received: 08/28/97

Lab Number:

9708285

Date Digested: 09/01/97

Sample Matrix/Media: SOIL

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

Digestion Method: EPA 3010A Preparation Method: CAM WET Method Reference: EPA 6010A

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
-10 -15 -20	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

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

PAGE 6/7 ENVIRONMENTAL CONSULTANTS

Page 5 of 5

Analytical Results

for

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

Sample Identification: See Below

Lab Number:

9708285

TO THE PROPERCHALION PLEASURION

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 -10 -15 -20 -21	COMP BS-1.2.3.4 COMP BS-5.6.7.8 COMP BL-1.2.3.4 COMP BL-5.6.7.8 METHOD BLANK	4:1	08/27/97 08/27/97 08/27/97 08/27/97	3.7 3.4 8.5 3.7 <0.1	0.1 0.1 0.1 0.1

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

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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		
Please confirm	nges (including cover sheet): 5		
If yo do not r	eceive the number of pages specified,	please call (51)	0) 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,

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

HAH/las

Attachments

SENT BY: Xerox Telecopier 7020 ; 9-10-97 ;10:43AM ; CLAYTON PLEAS LAB→

510 874 3258;# 3

Clayton ENVIRONMENTAL CONSULTANTS

of 3

Analytical Results for

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

Sample Identification: RHLK-3

Lab Number:

9708325-01

Sample Matrix/Media:

SOIL

Date Sampled:

08/28/97

Date Received: 08/29/97

Analy	yte	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

SENT BY:Xerox Telecopier 7020 ; 9-10-97 ;10:44AM ; CLAYTON PLEAS LAB→

510 874 3268;# 4

Clayton ENVIRONMENTAL CONSULTANTS

Page 3 of 3

Analytical Results for

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

Sample Identification: METHOD BLANK

Lab Number:

9708325-02

Sample Matrix/Media: SOIL

Date Sampled:

Date Received: --

Analy	yte	Concentration	Method Detection Limit	Unite	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.										ANALYSES							35			
PROJECT NO. 961163NA				4								-					aine	REMARKS		
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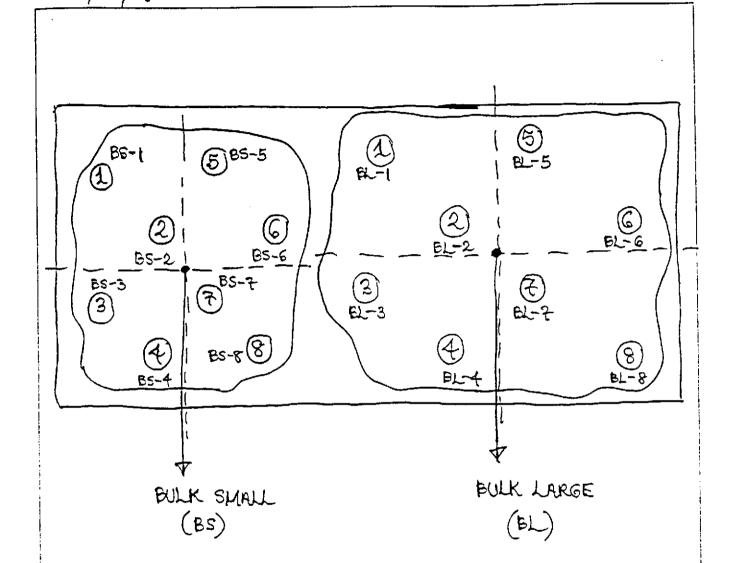
K CONFIRMATION SHIPES

Project No. 961163NA

Task No. ENCINAL TERMINALS

File No. 96116NA 6400

- JOHN WHARION Checked By Date 8/28/97 Sheet ____ of ___ Date



CONFIRMATION BULK SAMPLES WERE TAKEN ON AUGUST 25, 1997 AT APROXIMATELY 2 AM. THE SAMPLES WERE SENT TO CLAYTON ENVERONMENTAL FOR SAMPLING.

APPENDIX B COMPACTION CURVE AND DENSITY TEST

Woodward-C	-							test forn
					JCLEAR GUA	GE		
Project Name:	ENSINA	L Tromis			9-04-97			
Project Number:	941163	NA- Lole DI	0 F		resentative:	<u>r'ktore</u>	E	
Project Location:	HLAME	DA CA.	E	arthworl	Type-Grading,	Backfill, Utili	ty, Street, etc.:	· · · · · · · · · · · · · · · · · ·
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MOISTURE RATIO	194	184						
MOISTURE, PCF	n.b	9.5		•				
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DENSITY RATIO	421	415		<u> </u>			 	
WET DENSITY, PCF							<u> </u>	
	1370	137.5		ļ		 	 	
DRY DENSITY, PCF	127.0	128.0						
MOISTURE, %	7,8	7,4						
LAB TEST NO.	2	7						
LAB TEST DATE				l				
MAX. DRY DENSITY, PCF	140.9	140,9						
OPTIMUM MOISTURE, %	58	5.8					-	
% COMPACTION	901	90.8						
% REQUIRED	90.0	90.0						
RETEST OF NO.	1216/		······································	 		-		
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REMARKS: MET						Cont	ractor 12	
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						- 4		
						SHEET NO	1	
Guage Serial No.] < 3			Stand	lard Density C	SHEET NO.	2777	

Boring No. : BULK Sample No. : 2

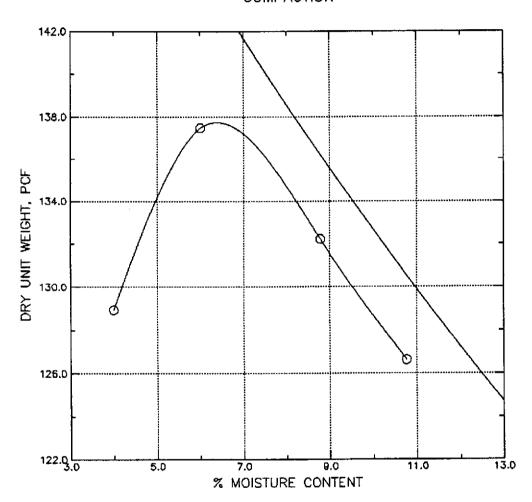
Tested by : C. WASON Filename : BULK-2

Project No.: 961163NA-6600 Location : ALAMEDA, CA

Project : ENCINAL TERMINALS

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 %

Woodward-Clyde

Filename : BULK-2

Checked by : C. CAPPS

Elevation: NA Tested by : C. WASON

Mon Aug 25 07:22:18 1997

Page: 1

GEOTECHNICAL LABORATORY TEST DATA

Project : ENCINAL TERMINALS

Project No.: 961163NA-6600

Boring No. : BULK

Sample No. : 2

Depth : NA Test Date : 08/22/97

Test Method: ASTM D1557-C

Location : ALAMEDA, CA Soil Description : GRAY BROWN SANDY GRAVELLY CLAY

Remarks :

COMPACTION TEST

Mold ID : 6-2
Nethod 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)	
		************	4				
	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	
_		4== =					

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

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

$$Z = Gs \text{ of } + 3/4" =$$

$$T = \frac{\text{M.D.D.}}{62.4} = \frac{137.7 \text{ pcf}}{62.4}$$

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

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

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

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

= <u>5.78%</u> ADJUSTED O.M.C.