429262

500360

Facsimile Cover Page

Analytica Environmental Laboratories, Inc.
325 Interlocken Parkway Suite 200
Broomfield, CO 80021

Voice: (303) 469-8868 **Fax:** (303) 469-5254

Sender: Jeanine Camp
Sent: Tuesday, Apr 21, 1998 10:23 a.m.

To:

Company: URS Operating Services
Phone:
FAX: 291-8296

Please Deliver to:

Kent Alexander

99.18.05

Pages: 14

Message:

The documents accompanying this transmission may contain information which is legally privileged and/or confidential. The information is intended only for the use of the individual or entity named above. If you are not the intended recipient, you are hereby notified that any disclosure, copying, distribution, or use of any of the information contained in this transmission is strictly prohibited. If you have received this transmission in error, please immediately notify us by telephone and mail the orginal transmission to us. Thank you for your cooperation and assistance.

ãõõÃãB

à

URS Operating Services, Inc.
1099 18th Street #710
Denver CO 80202-1908

Attn: Kent Alexander

Order #: 98-04-074
Date: 04/21/98 10:14
Work ID: RJ Refinery
Date Received: 04/10/98
Date Completed: 04/17/98

à

SAMPLE IDENTIFICATION

Sample Number	Client Description	Sample Number	Client Description
01	RJ-SO-01	05	RJ-SO-05
02	RJ-SO-02	06	RJ-PR-01
03	RJ-SO-03	07	RJ-PR-02
04	RJ-SO-04		

This is an ammended report, including lead.

à Enclosed are the analytical results for the submitted sample(s). Please review the CASE NARRATIVE for a discussion of any data and/or quality control issues. A listing of data qualifiers and analytical codes is located on the TEST METHODOLOGIES page at the end of the report.

à If you have any questions regarding the analyses, please feel free to call.

Sincerely,

Jeanine M. Camp
Project Manager

Samples were prepared and analyzed according to methods outlined in the following references:

- Test Methods for Evaluating Solid Waste, USEPA SW-846, Third Edition, Revision 3, January 1995.
- Standard Methods for the Examination of Water and Wastewater, 17th Edition, 1989.

Problems encountered with the analyses are discussed in the following narrative.

Please note that the BTEX results for sample RJ-PR-02 show elevated reporting limits. This is due to the medium level analysis due to high concentration of hydrocarbons in this sample.

à Order # 98-04-074 URS Operating Services, Inc. Page 3
ANALYTICA, INC. TEST RESULTS by SAMPLE

à

à Sample: 01A RJ-SO-01 Collected: 04/08/98 Matrix: SOIL

	Test Description	Method	Result	Q	Limit	Units	Analyzed
à	ICP Metals, Total	SW 6010A					
à	Aluminum		5600		5.4	mg/Kg-DRY	04/14/98
à	Antimony		ND		5.4	mg/Kg-DRY	04/14/98
à	Barium		170		0.43	mg/Kg-DRY	04/14/98
à	Beryllium		0.36		0.22	mg/Kg-DRY	04/14/98
à	Cadmium		1.1		0.54	mg/Kg-DRY	04/14/98
à	Calcium		29000		11	mg/Kg-DRY	04/14/98
à	Chromium		210		1.1	mg/Kg-DRY	04/14/98
à	Cobalt		6.7		1.1	mg/Kg-DRY	04/14/98
à	Copper		17		0.54	mg/Kg-DRY	04/14/98
à	Iron		17000		5.4	mg/Kg-DRY	04/14/98
à	Lead		19		5.4	mg/Kg-DRY	04/14/98
à	Magnesium		19000		11	mg/Kg-DRY	04/14/98
à	Manganese		420		1.1	mg/Kg-DRY	04/14/98
à	Nickel		81		1.1	mg/Kg-DRY	04/14/98
à	Potassium		2300		110	mg/Kg-DRY	04/14/98
à	Silver		ND		0.54	mg/Kg-DRY	04/14/98
à	Sodium		ND		320	mg/Kg-DRY	04/14/98
à	Vanadium		15		1.1	mg/Kg-DRY	04/14/98
à	Percent Moisture	ASTM D2216	7.60		0.1	WT%	04/13/98

à Order # 98-04-074 URS Operating Services, Inc. Page 4
ANALYTICA, INC. TEST RESULTS by SAMPLE

à

à Sample: 02A RJ-SO-02 Collected: 04/08/98 Matrix: SOIL

	Test Description	Method	Result	Q	Limit	Units	Analyzed
à	ICP Metals, Total	SW 6010A					
à	Aluminum		17000		6.8	mg/Kg-DRY	04/14/98
à	Antimony		ND		6.8	mg/Kg-DRY	04/14/98
à	Barium		210		0.54	mg/Kg-DRY	04/14/98
à	Beryllium		1.1		0.27	mg/Kg-DRY	04/14/98
à	Cadmium		ND		0.68	mg/Kg-DRY	04/14/98
à	Calcium		49000		14	mg/Kg-DRY	04/14/98
à	Chromium		24		1.4	mg/Kg-DRY	04/14/98
à	Cobalt		6.4		1.4	mg/Kg-DRY	04/14/98
à	Copper		27		0.68	mg/Kg-DRY	04/14/98
à	Iron		21000		6.8	mg/Kg-DRY	04/14/98
à	Lead		23		6.8	mg/Kg-DRY	04/14/98
à	Magnesium		20000		14	mg/Kg-DRY	04/14/98
à	Manganese		810		1.4	mg/Kg-DRY	04/14/98
à	Nickel		18		1.4	mg/Kg-DRY	04/14/98
à	Potassium		6300		140	mg/Kg-DRY	04/14/98
à	Silver		ND		0.68	mg/Kg-DRY	04/14/98
à	Sodium		1500		410	mg/Kg-DRY	04/14/98
à	Vanadium		55		1.4	mg/Kg-DRY	04/14/98
à	Percent Moisture	ASTM D2216	26.6		0.1	WT%	04/13/98

à

à Sample: 03A RJ-SO-03 Collected: 04/08/98 Matrix: SOIL

Test Description	Method	Result	Q	Limit	Units	Analyzed
ICP Metals, Total	SW 6010A					
Aluminum		14000		6.7	mg/Kg-DRY	04/14/98
Antimony		ND		6.7	mg/Kg-DRY	04/14/98
Barium		150		0.53	mg/Kg-DRY	04/14/98
Beryllium		0.72		0.27	mg/Kg-DRY	04/14/98
Cadmium		ND		0.67	mg/Kg-DRY	04/14/98
Calcium		76000		13	mg/Kg-DRY	04/14/98
Chromium		19		1.3	mg/Kg-DRY	04/14/98
Cobalt		5.3		1.3	mg/Kg-DRY	04/14/98
Copper		17		0.67	mg/Kg-DRY	04/14/98
Iron		14000		6.7	mg/Kg-DRY	04/14/98
Lead		6.8		6.7	mg/Kg-DRY	04/14/98
Magnesium		24000		13	mg/Kg-DRY	04/14/98
Manganese		500		1.3	mg/Kg-DRY	04/14/98
Nickel		12		1.3	mg/Kg-DRY	04/14/98
Potassium		4800		130	mg/Kg-DRY	04/14/98
Silver		ND		0.67	mg/Kg-DRY	04/14/98
Sodium		840		400	mg/Kg-DRY	04/14/98
Vanadium		27		1.3	mg/Kg-DRY	04/14/98
Percent Moisture	ASTM D2216	25.0		0.1	WT%	04/13/98

à Sample: 04A RJ-SO-04 Collected: 04/08/98 Matrix: SOIL

Test Description	Method	Result	Q	Limit	Units	Analyzed
ICP Metals, TCLP Extracted	SW 3010/6010					
Arsenic		ND		0.050	mg/L	04/14/98
Barium		0.94		0.020	mg/L	04/14/98
Cadmium		0.0056		0.0050	mg/L	04/14/98
Chromium		ND		0.010	mg/L	04/14/98
Lead		ND		0.050	mg/L	04/14/98
Selenium		ND		0.10	mg/L	04/14/98
Silver		ND		0.010	mg/L	04/14/98
Mercury, TCLP Extracted	SW 7470	ND		0.0020	mg/L	04/16/98

à Order # 98-04-074 URS Operating Services, Inc. Page 6
ANALYTICA, INC. TEST RESULTS by SAMPLE

à

à Sample: 04B RJ-SO-04 Collected: 04/08/98 Matrix: SOIL

	Test Description	Method	Result	Q	Limit	Units	Analyzed
à	ICP Metals, Total	SW 6010A					
à	Aluminum		4100		5.5	mg/Kg-DRY	04/14/98
à	Antimony		ND		5.5	mg/Kg-DRY	04/14/98
à	Barium		72		0.44	mg/Kg-DRY	04/14/98
à	Beryllium		0.25		0.22	mg/Kg-DRY	04/14/98
à	Cadmium		ND		0.55	mg/Kg-DRY	04/14/98
à	Calcium		18000		11	mg/Kg-DRY	04/14/98
à	Chromium		6.8		1.1	mg/Kg-DRY	04/14/98
à	Cobalt		2.7		1.1	mg/Kg-DRY	04/14/98
à	Copper		6.1		0.55	mg/Kg-DRY	04/14/98
à	Iron		7200		5.5	mg/Kg-DRY	04/14/98
à	Lead		ND		5.5	mg/Kg-DRY	04/14/98
à	Magnesium		2900		11	mg/Kg-DRY	04/14/98
à	Manganese		180		1.1	mg/Kg-DRY	04/14/98
à	Nickel		4.9		1.1	mg/Kg-DRY	04/14/98
à	Potassium		1100		110	mg/Kg-DRY	04/14/98
à	Silver		ND		0.55	mg/Kg-DRY	04/14/98
à	Sodium		ND		330	mg/Kg-DRY	04/14/98
à	Vanadium		12		1.1	mg/Kg-DRY	04/14/98
à	Percent Moisture	ASTM D2216	9.40		0.1	WT%	04/13/98

à Order # 98-04-074 URS Operating Services, Inc. Page 7
ANALYTICA, INC. TEST RESULTS by SAMPLE

à

à Sample: 05A RJ-SO-05 Collected: 04/08/98 Matrix: SOIL

	Test Description	Method	Result	Q	Limit	Units	Analyzed
à	ICP Metals, Total	SW 6010A					
à	Aluminum		3100		5.6	mg/Kg-DRY	04/14/98
à	Antimony		ND		5.6	mg/Kg-DRY	04/14/98
à	Barium		110		0.45	mg/Kg-DRY	04/14/98
à	Beryllium		0.27		0.22	mg/Kg-DRY	04/14/98
à	Cadmium		ND		0.56	mg/Kg-DRY	04/14/98
à	Calcium		72000		11	mg/Kg-DRY	04/14/98
à	Chromium		7.1		1.1	mg/Kg-DRY	04/14/98
à	Cobalt		2.5		1.1	mg/Kg-DRY	04/14/98
à	Copper		6.1		0.56	mg/Kg-DRY	04/14/98
à	Iron		8900		5.6	mg/Kg-DRY	04/14/98
à	Lead		10		5.6	mg/Kg-DRY	04/14/98
à	Magnesium		13000		11	mg/Kg-DRY	04/14/98
à	Manganese		260		1.1	mg/Kg-DRY	04/14/98
à	Nickel		5.2		1.1	mg/Kg-DRY	04/14/98
à	Potassium		950		110	mg/Kg-DRY	04/14/98
à	Silver		ND		0.56	mg/Kg-DRY	04/14/98
à	Sodium		ND		340	mg/Kg-DRY	04/14/98
à	Vanadium		10		1.1	mg/Kg-DRY	04/14/98
à	Percent Moisture	ASTM D2216	10.9		0.1	WT%	04/13/98

à

à Sample: 06A RJ-PR-01 Collected: 04/08/98 Matrix: LIQUID

	Test Description	Method	Result	Q	Limit	Units	Analyzed
à	Volatiles by GC/MS	SW 8260B					
à	Dichlorodifluoromethane		ND		2500	ug/L	04/17/98
à	Chloromethane		ND		2500	ug/L	04/17/98
à	Vinyl Chloride		ND		500	ug/L	04/17/98
à	Bromomethane		ND		2500	ug/L	04/17/98
à	Chloroethane		ND		2500	ug/L	04/17/98
à	Trichlorofluoromethane		ND		2500	ug/L	04/17/98
à	1,1-Dichloroethene		ND		1300	ug/L	04/17/98
à	Trichlorotrifluoroethane		ND		750	ug/L	04/17/98
à	Methylene Chloride		ND		2500	ug/L	04/17/98
à	trans-1,2-Dichloroethene		ND		750	ug/L	04/17/98
à	1,1-Dichloroethane		ND		1300	ug/L	04/17/98
à	2,2-Dichloropropane		ND		1300	ug/L	04/17/98
à	cis-1,2-Dichloroethene		ND		750	ug/L	04/17/98
à	Bromochloromethane		ND		1300	ug/L	04/17/98
à	Chloroform		ND		750	ug/L	04/17/98
à	1,1,1-Trichloroethane		ND		1300	ug/L	04/17/98
à	Carbon Tetrachloride		ND		2500	ug/L	04/17/98
à	1,1-Dichloropropene		ND		1300	ug/L	04/17/98
à	Benzene		ND		250	ug/L	04/17/98
à	1,2-Dichloroethane		ND		1300	ug/L	04/17/98
à	Trichloroethene		ND		750	ug/L	04/17/98
à	1,2-Dichloropropane		ND		750	ug/L	04/17/98
à	Dibromomethane		ND		750	ug/L	04/17/98
à	Bromodichloromethane		ND		750	ug/L	04/17/98
à	cis-1,3-Dichloropropene		ND		750	ug/L	04/17/98
à	Toluene		1200	D	250	ug/L	04/17/98
à	trans-1,3-Dichloropropene		ND		1300	ug/L	04/17/98
à	1,1,2-Trichloroethane		ND		750	ug/L	04/17/98
à	Tetrachloroethene		ND		750	ug/L	04/17/98
à	1,3-Dichloropropane		ND		750	ug/L	04/17/98
à	Dibromochloromethane		ND		750	ug/L	04/17/98
à	1,2-Dibromoethane		ND		750	ug/L	04/17/98
à	Chlorobenzene		ND		750	ug/L	04/17/98
à	Ethylbenzene		8300	D	250	ug/L	04/17/98
à	1,1,1,2-Tetrachloroethane		ND		750	ug/L	04/17/98

Sample: 06A RJ-PR-01 Collected: 04/08/98 Matrix: LIQUID

Test Description	Method	Result	Q	Limit	Units	Analyzed
Volatiles by GC/MS	SW 8260B	(continued from previous page)				
m,p-Xylenes		41000	D	250	ug/L	04/17/98
o-Xylene		20000	D	250	ug/L	04/17/98
Styrene		ND		750	ug/L	04/17/98
Bromoform		ND		1300	ug/L	04/17/98
Isopropylbenzene		ND		500	ug/L	04/17/98
Bromobenzene		ND		750	ug/L	04/17/98
n-Propylbenzene		ND		1300	ug/L	04/17/98
1,1,2,2-Tetrachloroethane		ND		1300	ug/L	04/17/98
1,2,3-Trichloropropane		ND		750	ug/L	04/17/98
2-Chlorotoluene		180	DJ	250	ug/L	04/17/98
1,3,5-Trimethylbenzene		ND		1300	ug/L	04/17/98
4-Chlorotoluene		ND		250	ug/L	04/17/98
tert-Butylbenzene		ND		1300	ug/L	04/17/98
1,2,4-Trimethylbenzene		ND		1300	ug/L	04/17/98
sec-Butylbenzene		ND		1300	ug/L	04/17/98
4-Isopropyltoluene		ND		1300	ug/L	04/17/98
1,3-Dichlorobenzene		ND		500	ug/L	04/17/98
1,4-Dichlorobenzene		ND		500	ug/L	04/17/98
n-Butylbenzene		ND		1300	ug/L	04/17/98
1,2-Dichlorobenzene		ND		1300	ug/L	04/17/98
1,2-Dibromo-3-chloropropane		ND		2500	ug/L	04/17/98
1,2,4-Trichlorobenzene		ND		1300	ug/L	04/17/98
Hexachlorobutadiene		ND		1300	ug/L	04/17/98
Napthalene		ND		1300	ug/L	04/17/98
1,2,3-Trichlorobenzene		ND		1300	ug/L	04/17/98
Acetone		ND		13000	ug/L	04/17/98
Acrylonitrile		ND		2500	ug/L	04/17/98
2-Butanone		ND		13000	ug/L	04/17/98
Carbon Disulfide		ND		1300	ug/L	04/17/98
trans-1,4-Dichloro-2-butene		ND		2500	ug/L	04/17/98
2-Chloroethyl Vinyl Ether		ND		2500	ug/L	04/17/98
2-Hexanone		ND		5000	ug/L	04/17/98
Iodomethane		ND		1300	ug/L	04/17/98
4-Methyl-2-pentanone		ND		5000	ug/L	04/17/98
Vinyl Acetate		ND		1300	ug/L	04/17/98
tert-Butyl methyl ether		ND		1300	ug/L	04/17/98
SURROGATES, % Recovery						
Dibromofluoromethane		100		Min: 82	Max: 122	
Toluene d-8		92.3		Min: 89	Max: 113	
p-Bromofluorobenzene		92.3		Min: 87	Max: 113	

à Order # 98-04-074 URS Operating Services, Inc. Page 10
ANALYTICA, INC. TEST RESULTS by SAMPLE

à

à Sample: 07A RJ-PR-02 Collected: 04/08/98 Matrix: LIQUID

	Test Description	Method	Result	Q	Limit	Units	Analyzed
à	BTEX	SW 8021B					
à	Benzene		ND		500	ug/L	04/15/98
à	Toluene		ND		500	ug/L	04/15/98
à	Ethylbenzene		ND		500	ug/L	04/15/98
à	Xylenes, Total		ND		1000	ug/L	04/15/98
à	SURROGATES, % Recovery						
	p-Bromofluorobenzene		107		Min: 76	Max: 112	

Analytical Solutions, Inc.
325 Interlocken Parkway
Suite 200
Broomfield, CO 80021
(303) 469-8868
(800) 873-8707
FAX: (303) 469-5254

RESULTS OF BULK ASBESTOS SAMPLE ANALYSIS BY POLARIZED LIGHT MICROSCOPY (PLM)

Client: UOS URS Operating Services, Inc. LGN: 328737

Project ID: 7580402/RJ Refinery Page: 1 of 1

Sample Description:

Sample Number	Sample Date	Description
RJ-AS-01 — South loading facility	04/09/98	8248 [white fibrous insulation]
RJ-AS-02* — pipe insulation. Process Area	04/09/98	8249 [insulation (2 parts)]
RJ-AS-02 [A]	04/09/98	[grayish white mud insulation]
RJ-AS-02 [B]	04/09/98	[black felt wrap]

Results of PLM Analysis: Visual Area Estimation: Percentages Detected

Sample Number:	RJ-AS-01	RJ-AS-02*	RJ-AS-02 [A]	RJ-AS-02 [B]	
Asbestiform Minerals:					
Amosite					
Anthophyllite					
Chrysotile		3.0		50.0	
Crocidolite					
Tremolite-Actinolite					
TOTAL ASBESTOS	0	3.0	0	50.0	
Other Fibrous Materials:					
Fibrous Glass		14.9	15.0	15.0	
Cellulose	10.0	Trace <1%	Trace <1%		
Synthetics	10.0				
Other:					
Percent Nonfibrous Material	80.0	82.0	84.9	35.0	

* Composite analysis (multilayered sample, see individual layer analyses).

Analyst: Mike Scales Date: 04/16/98

Post-it® Fax Note 7671	Date	# of pages ▶ 1
To Joyce A.	From Jerry G.	
Co./Dept.	Co.	
Phone # ~~Joyce A.~~	Phone #	
Fax # RJ Refinery	Fax #	

Rec'd. 5/18/98 1625 hrs CMJ