EPA Region 5 Records Ctr.
206927

TECHNICAL MEMORANDUM NO. 3A
REMEDIAL INVESTIGATION
PHASE 1, TASK 2

LENZ OIL SERVICES, INC.
LEMONT, ILLINOIS

VOLUME 3 OF 3

SUBMITTED BY:

LENZ OIL SETTLING RESPONDENTS

JULY 2, 1991

PREPARED BY:

ENVIRONMENTAL RESOURCES MANAGEMENT- NORTH CENTRAL, INC.
102 WILMOT ROAD, SUITE 300
DEERFIELD, IL 60015

PROJECT NUMBER: 0252

QUALITY ASSURANCE REVIEW

OF THE LENZ OIL SITE

VOLUME II

June 28, 1991

Prepared for:

ERM-NORTH CENTRAL, INC.
102 Wilmot Road
Suite 300
Deerfield, IL 60015

Prepared by:

ENVIRONMENTAL STANDARDS, INC.
1220 Valley Forge Road
P.O. Box 911
Valley Forge, PA 19481

SECTION 4

INORGANIC DATA SUPPORT DOCUMENTATION

A. CASE 111897

SDG 111677

PROJECT NAME: Lenz Oil

SUPPORT DOCUMENTATION FOR THE REVIEW OF INORGANIC ANALYTICAL DATA PACKAGE

TYPE OF ANALYSIS: Metals, CN
CONTRACT LABORATORY: ARDL

REVIEWER: Ruth Forman
REVIEW DATE: June, 1991

APPLICABLE SAMPLE NO's.: See Table 1 of Report

THE FOLLOWING TABLE INDICATES AREAS WHICH WERE EXAMINED IN DETAIL, THE IDENTIFIED PROBLEM AREAS, AND SUPPORT DOCUMENTATION ATTACHMENTS:

	AREAS EXAMINED IN DETAIL (CHECK (✓) IF YES OR FOOTNOTE LETTER FOR COMMENTS BELOW)					PROBLEM AREAS IDENTIFIED (CHECK (✓) IF YES OR FOOTNOTE NUMBER FOR COMMENTS BELOW)					SUPPORT DOCUMENTATION ATTACHMENTS (CHECK (✓) IF YES OR IDENTIFY ATTACHMENT NO.)				
	ALL APPLICABLE ANALYSES	ICP OR A.A. METALS	FURNACE METALS	COLD VAPOR MERCURY	CYANIDE	ALL APPLICABLE ANALYSES	ICP OR A.A. METALS	FURNACE METALS	COLD VAPOR MERCURY	CYANIDE	ALL APPLICABLE ANALYSES	ICP OR A.A. METALS	FURNACE METALS	COLD VAPOR MERCURY	CYANIDE
HOLDING TIMES	✓									✓	✓				
BLANK ANALYSIS RESULTS	✓														
MATRIX SPIKES (PRE-DIGESTION)	✓						✓	✓							
DUPLICATES	✓						✓								
QUANTITATION OF RESULTS	✓														
DETECTION LIMITS/SENSITIVITY	✓														
INITIAL CALIBRATIONS	✓						✓								
CONTINUING CALIBRATIONS	✓						✓								
LABORATORY CONTROL STANDARDS	✓						✓								
ICP LINEAR RANGE ANALYSIS	✓														
ICP INTERFERENCE CHECKS	✓						✓								
ICP SERIAL DILUTIONS	✓						✓								
GFAA POST-DIGESTION SPIKES	✓						✓								
GFAA DUPLICATE BURNS	✓														
GFAA STANDARD ADDITIONS	✓						✓								
OTHERS															

COMMENTS:

BLANK ANALYSIS RESULTS FOR INORGANICS

PARAMETER	TYPE/ MATRIX	SAMPLE #	SOURCE	CONTAMINANT (CONCENTRATION)
Metals	ICAL / Aq	Initial Calibration Dissolved	ARDL	None Reported
Metals	CCAL / Aq	Continuing Calibration Dissolved	ARDL	None Reported
Metals	PB / Aq	Prep Blank Dissolved	ARDL	None Reported
Metals	FB / Aq	LO-16W-FB Dissolved		None Reported
Metals	ICAL / Aq	Initial Calibration Total	ARDL	None Reported
Metals	CCAL / Aq	Continuing Calibration Total	ARDL	None Reported
Metals	PB / Aq	Prep Blank Total	ARDL	None Reported
Metals	FB / Aq	LO-16W-FB Total		None Reported

LABORATORY REPORTED FIELD BLANK IS COMPARED WITH THE SAMPLE DATA IN A TABULATION FORM WITHIN THE SAMPLE ANALYTICAL DATA SUMMARY.

COMMENTS:

(1) RESULT REPORTED BY THE LABORATORY AND CONFIRMED BY REVIEWER

(2) RESULT INFERED FROM INSTRUMENT PRINTOUTS AND/OR SUPPORTING DATA

FORM IIA

INITIAL AND CONTINUING CALIBRATION VERIFICATION METALS

Lab Name ARDL, Inc. Contract No. 111897

Initial Calibration Source LAB PREPARED

Continuing Calibration Source LAB PREPARED

Concentration Units: ug/L

Analyte	Initial Calibration True	Initial Calibration Found	Initial Calibration %R(1)	Continuing Calibration True	Continuing Calibration Found	Continuing Calibration %R(1)	Continuing Calibration Found	Continuing Calibration %R(1)	M
Aluminum	5000	4960	99	5000	4970	100	4590	92	P
Antimony	1000	926	93	1000	926	93	900	90	P
Arsenic	4.0	4.0	100	4.0	3.9	98	4.0	100	
Barium	500	515	103	500	495	99	484	97	P
Berylium	500	502	100	500	477	95	456	91	P
Cadmium	1000	1010	101	1000	968	97	954	95	P
Calcium	5000	5500	110 X	5000	5380	108	5200	104	P
Chromium	1250	1280	102	1250	1250	100	1260	101	P
Cobalt	1000	1020	102	1000	971	97	951	95	P
Copper	1000	1080	108	1000	1020	102	1060	106	P
Iron	750	761	101	750	748	100	696	93	P
Lead	10	9.8	98	10	9.5	95	9.4	94	F
Magnesium	5000	5260	105	5000	4730	95	4560	91	P
Manganese	500	511	102	500	486	97	468	94	
Mercury	4.0	4.4	107	4.0	4.0	100	4.2	105	CV
Nickel	2500	2570	103	2500	2480	99	2470	99	P
Potassium	8000	7800	98	8000	7900	99	7900	99	A
Selenium	4.0	3.6	90	2.0	1.9	95	1.9	95	BH
Silver	150	148	99	150	155	103	157	105	A
Sodium	8000	7950	99	8000	7580	95	7580	95	A
Thallium	25	24	96	25	26	104	24	96	F
Vanadium	500	514	103	500	495	99	481	96	P
Zinc	1000	1020	102	1000	991	99	993	99	P

(1) Control Limits: Mercury 80-120; Other Metals 90-110

FORM IIA

INITIAL AND CONTINUING CALIBRATION VERIFICATION
METALS

Lab Name ARDL, Inc. Contract No. 111897

Initial Calibration Source LAB PREPARED

Continuing Calibration Source LAB PREPARED

Concentration Units: ug/L

Analyte	Initial Calibration True	Initial Calibration Found	Initial Calibration %R(1)	Continuing Calibration True	Continuing Calibration Found	Continuing Calibration %R(1)	Continuing Calibration Found	Continuing Calibration %R(1)	M
Aluminum				5000	5410	108			P
Antimony				1000	905	90			P
Arsenic				40	44	110	39	98	BH
Barium				500	482	96			P
Beryllium				500	455	91			P
Cadmium				1000	955	96			P
Calcium				5000	5080	102			P
Chromium				1250	1260	101			P
Cobalt				1000	948	95			P
Copper				1000	1030	103			P
Iron				750	804	107			P
Lead				10	9.3	93	11	110	F
Magnesium				5000	4810	96			P
Manganese				500	468	94			P
Mercury				4.0	4.1	102	4.3	108	CV
Nickel				2500	2470	99			P
Potassium				8000	7700	96	7800	98	A
Selenium				2.0	1.8				BH
Silver									P
Sodium				8000	7580	95	7550	94	A
Thallium				25	24	96	24	96	P
Vanadium				500	485	97			P
Zinc				1000	1000	100			P

(1) Control Limits: Mercury 80-120; Other Metals 90-110

INITIAL AND CONTINUING CALIBRATION VERIFICATION
METALS

Lab Name ARDL, Inc. Contract No. 111897

Initial Calibration Source LAB PREPARED

Continuing Calibration Source LAB PREPARED

Concentration Units: ug/L

Analyte	Initial Calibration True	Initial Calibration Found	Initial Calibration %R(1)	Continuing Calibration True	Continuing Calibration Found	Continuing Calibration %R(1)	Continuing Calibration Found	Continuing Calibration %R(1)	M
Aluminum									P
Antimony									P
Arsenic				4.0	4.1	102	3.9	98	BF
Barium									P
Beryllium									P
Cadmium									P
Calcium									P
Chromium									P
Cobalt									P
Copper									P
Iron									P
Lead				10	9.9	99	9.6	96	F
Magnesium									P
Manganese									P
Mercury				4.0	4.0	100	4.2	105	CV
Nickel									P
Potassium									P
Selenium									BH
Silver									P
Sodium				8000	7580	95	7590	95	A
Thallium				25	26	104	24	96	P
Vanadium									P
Zinc									P

(1) Control Limits: Mercury 80-120; Other Metals 90-110

INITIAL AND CONTINUING CALIBRATION VERIFICATION
METALS

Name ARDL, Inc. Contract No. 111897

Initial Calibration Source LAB PREPARED

Continuing Calibration Source LAB PREPARED

Concentration Units: ug/L

Analyte	Initial Calibration True	Found	%R(1)	Continuing Calibration True	Found	%R(1)	Found	%R(1)	M
Aluminum									P
Antimony									P
Arsenic									BH
Barium									P
Beryllium									P
Cadmium									P
Calcium									P
Chromium									P
Cobalt									P
Copper									P
Iron									P
Lead				10	10	100			F
Magnesium									P
Manganese									P
Mercury									CV
Nickel									P
Potassium									P
Selenium									BH
Silver									P
Sodium									P
Thallium				25	26	104			F
Vanadium									P
Zinc									P

1) Control Limits: Mercury 80-120; Other Metals 90-110

FORM IIA

INITIAL AND CONTINUING CALIBRATION VERIFICATION
METALS

Lab Name ARDL, Inc. Contract No. 111897

Initial Calibration Source LAB PREPARED

Continuing Calibration Source LAB PREPARED

Concentration Units: ug/L

TOTAL

Analyte	Initial Calibration True	Initial Calibration Found	Initial Calibration %R(1)	Continuing Calibration True	Continuing Calibration Found	Continuing Calibration %R(1)	Continuing Calibration Found	Continuing Calibration %R(1)	M
Aluminum	5000	4500	90	5000	4800	96	4600	92	P
Antimony	1000	914	91	1000	910	91	904	90	P
Arsenic	4.0	3.7	92	4.0	3.6	90	4.0	100	
Barium	500	514	103	500	485	97	500	100	P
Beryllium	500	503	101	500	484	97	488	98	P
Cadmium	1000	998	100	1000	979	98	991	99	P
Calcium	5000	5270	105	5000	5310	106	5230	105	P
Chromium	1250	1270	102	1250	1260	101	1270	102	P
Cobalt	1000	1000	100	1000	1000	100	1010	101	P
Copper	1000	1010	101	1000	972	97	990	99	P
Iron	750	784	105	750	747	100	812	108	P
Lead	10	11	110	10	10	100	9.7	97	F
Magnesium	5000	5000	100	5000	4580	92	5410	108	P
Manganese	500	505	101	500	501	100	508	102	
Mercury									CV
Nickel	2500	2520	101	2500	2510	100	2570	103	P
Potassium									P
Selenium	4.0	4.3	108	2.0	1.8	90	1.8	90	BH
Silver	2500	2490	100	2500	2420	97	2450	98	P
Sodium									P
Thallium									P
Vanadium	500	508	102	500	493	99	499	100	P
Zinc	1000	1000	100	1000	990	99	1010	101	P

Control Limits: Mercury 80-120; Other Metals 90-110

FORM IIA

INITIAL AND CONTINUING CALIBRATION VERIFICATION
METALS

Lab Name ARDL, Inc. Contract No. 111897

Initial Calibration Source LAB PREPARED

Continuing Calibration Source LAB PREPARED

Concentration Units: ug/L

TOTAL

Analyte	Initial Calibration True	Initial Calibration Found	Initial Calibration %R(1)	Continuing Calibration True	Continuing Calibration Found	Continuing Calibration %R(1)	Continuing Calibration Found	Continuing Calibration %R(1)	M
Aluminum				5000	5100	102			P
Antimony				1000	902	90			P
Arsenic				4.0	3.6	90	3.7	92	BH
Barium				500	490	98			P
Berylium				500	477	95			P
Cadmium				1000	975	98			P
Calcium				5000	5420	108			P
Chromium				1250	1250	100			P
Cobalt				1000	997	100			P
Copper				1000	969	97			P
Iron				750	808	108			P
Lead				10	10	100			F
Magnesium				5000	5100	102			P
Manganese				500	500	100			P
Mercury									CV
Nickel				2500	2540	102			P
Potassium									P
Selenium				2.0	2.0	100			BH
Silver				2500	2480	99			P
Sodium									P
Thallium									P
Vanadium				500	498	100			P
Zinc				1000	991	99			P

(1) Control Limits: Mercury 80-120; Other Metals 90-110

100029

FORM IIA

INITIAL AND CONTINUING CALIBRATION VERIFICATION
METALS

Lab Name ARDL, Inc. Contract No. 111897

Initial Calibration Source Lab Prepared

Continuing Calibration Source Lab Prepared

Concentration Units: ug/L

TOTAL

Analyte	Initial Calibration True	Initial Calibration Found	Initial Calibration %R(1)	Continuing Calibration True	Continuing Calibration Found	Continuing Calibration %R(1)	Continuing Calibration Found	Continuing Calibration %R(1)	M
Aluminum									P
Antimony									
Arsenic									BH
Barium									P
Beryllium									P
Cadmium									P
Calcium									P
Chromium									P
Cobalt									P
Copper									P
Iron									P
Lead	10	9.6	96	10	9.9	99	9.2	92	F
Magnesium									P
Manganese									P
Mercury									CV
Nickel									P
Potassium									P
Selenium									BH
Silver									P
Sodium									P
Thallium									F
Vanadium									P
Zinc									P

(1) Control Limits: Mercury 80-120; Other Metals 90-110

FORM IIA

INITIAL AND CONTINUING CALIBRATION VERIFICATION
METALS

Lab Name ARDL, Inc. Contract No. 111897

Initial Calibration Source Lab Prepared

Continuing Calibration Source Lab Prepared

Concentration Units: ug/L

TOTAL

Analyte	Initial Calibration True	Found	%R(1)	Continuing Calibration True	Found	%R(1)	Found	%R(1)	M
Aluminum									P
Antimony									
Arsenic									BH
Barium									P
Beryllium									P
Cadmium									P
Calcium									P
Chromium									P
Cobalt									P
Copper									P
Iron									P
Lead				10	9.7	97	11	110	F
Magnesium									P
Manganese									P
Mercury									CV
Nickel									P
Potassium									P
Selenium									BH
Silver									P
Sodium									P
Thallium									F
Vanadium									P
Zinc									P

(1) Control Limits: Mercury 80-120; Other Metals 90-110

FORM IIA

INITIAL AND CONTINUING CALIBRATION VERIFICATION
METALS

Lab Name ARDL, Inc. Contract No. 111897

Initial Calibration Source Lab Prepared

Continuing Calibration Source Lab Prepared

Concentration Units: ug/L

Analyte	Initial Calibration True	Found	%R(1)	Continuing Calibration True	Found	%R(1)	Found	%R(1)	M
Aluminum									P
Antimony									
Arsenic									BH
Barium									P
Beryllium									P
Cadmium									P
Calcium									P
Chromium									P
Cobalt									P
Copper									P
Iron									P
Lead				10	10	100			F
Magnesium									P
Manganese									P
Mercury									CV
Nickel									P
Potassium									P
Selenium									BH
Silver									P
Sodium									P
Thallium									F
Vanadium									P
Zinc									P

(1) Control Limits: Mercury 80-120; Other Metals 90-110

U.S. EPA - CLP

2B
CRDL STANDARD FOR AA AND ICP

Lab Name: ABDL, INC. Contract: 111897

Lab Code: _____ Case No.: _____ SAS No.: _____ SDG No.: _____

AA CRDL Standard Source: LAB PREPARED

ICP CRDL Standard Source: Lab prepared

Concentration Units: DISSOLVED ug/L

Analyte	CRDL Standard for AA			CRDL Standard for ICP				
					Initial		Final	
	True	Found	%R	True	Found	%R	Found	%R
Aluminum				400	1100	275	1100	275
Antimony				150	130	87	57	38
Arsenic	1.0	0.90	90					
Barium				400	380	95	360	90
Beryllium				10	8	80	6	60
Cadmium				10	6	60	<5	0
Calcium				10000	10300	103	10200	102
Chromium				20	18	90	17	85
Cobalt				100	90	90	83	83
Copper				50	56	112	48	96
Iron				200	220	110	160	80
Lead	6.0	6.7	112					
Magnesium				10000	9200	92	7500	75
Manganese				30	14	47	14	47
Mercury	0.20	0.19	95					
Nickel				80	70	88	58	72
Potassium	1000	850	85	All				
Selenium	1.0	1.1	110					
Silver	10	10	100					
Sodium	1000	890	89	All				
Thallium	10	9.8	98					
Vanadium				100	93	93	91	91
Zinc				40	33	82	40	100

U.S. EPA - CLP

2B
CRDL STANDARD FOR AA AND ICP

Lab Name: ARDL, INC. Contract: 111897

Lab Code: _____ Case No.: _____ SAS No.: _____ SDG No.: _____

AA CRDL Standard Source: LAB PREPARED

ICP CRDL Standard Source: LAB PREPARED

Concentration Units: ug/L (TOTAL)

Analyte	CRDL Standard for AA True	Found	%R	CRDL Standard for ICP True	Initial Found	%R	Final Found	%R
Aluminum				400	<200	0	521	130
Antimony				150	119	79	47	31
Arsenic	1.0	0.93	93					
Barium				400	380	95	367	92
Beryllium				10	8.0	80	7.0	70
Cadmium				10	10	100	12	120
Calcium				10000	10100	101	10000	100
Chromium				20	17	85	17	85
Cobalt				100	92	92	92	92
Copper				50	47	94	47	94
Iron				200	192	96	189	95
Lead	10.0	7.2	120					
Magnesium				10000	9310	93	8520	85
Manganese				30	13	43	17	57
Mercury								
Nickel				70	77	98	65	81
Potassium								
Selenium	1.0	0.90	90					
Silver				20	<10	0	<10	0
Sodium								
Thallium								
Vanadium				100	88	88	90	90
Zinc				40	33	83	41	103

U.S. EPA - CLP

2B
CRDL STANDARD FOR AA AND ICP

Lab Name: ARDL, INC. Contract: 111897

Lab Code: _____ Case No.: _____ SAS No.: _____ SDG No.: _____

AA CRDL Standard Source: Lab Prepared

ICP CRDL Standard Source: _____

Concentration Units: Total ug/L

Analyte	CRDL Standard for AA			CRDL Standard for ICP				
					Initial		Final	
	True	Found	%R	True	Found	%R	Found	%R
Aluminum								
Antimony								
Arsenic								
Barium								
Beryllium								
Cadmium								
Calcium								
Chromium								
Cobalt								
Copper								
Iron								
Lead	3.0	3.6	120					
Magnesium								
Manganese								
Mercury								
Nickel								
Potassium								
Selenium								
Silver								
Sodium								
Thallium								
Vanadium								
Zinc								

FORM IIIA
BLANKS
METALS

Lab Name ARDL, Inc. Contract No. 111897

Preparation Blank Matrix (soil/water) WATER

Preparation Blank Concentration Units (ug/L or mg/kg) ug/l

DISSOLVED

Analyte	Initial Calib. Blanks (ug/L)	Continuing Calibration Blank (ug/L) C	1	C	2	C	3	C	Prepar-ation Blank	C	M
Aluminum	200	U	200	U	200	U	200	U	200	U	P
Antimony	60	U	60	U	60	U	60	U	60	U	P
Arsenic	0.90	U	0.90	U	0.90	U	0.90	U	0.90	U	BH
Barium	50	U	50	U	50	U	50	U	50	U	P
Berylium	5.0	U	5.0	U	5.0	U	5.0	U	5.0	U	E
Cadmium	5.0	U	5.0	U	5.0	U	5.0	U	5.0	U	P
Calcium	1000	U	1000	U	1000	U	1000	U	1000	U	P
Chromium	10	U	10	U	10	U	10	U	10	U	P
Cobalt	50	U	50	U	50	U	50	U	50	U	P
Copper	25	U	25	U	25	U	25	U	25	U	P
Iron	50	U	50	U	50	U	50	U	50	U	P
Lead	2.0	U	2.0	U	2.0	U	2.0	U	2.0	U	F
Magnesium	1000	U	1000	U	1000	U	1000	U	1000	U	P
Manganese	15	U	15	U	15	U	15	U	15	U	P
Mercury	0.20	U	0.20	U	0.20	U	0.20	U	0.20	U	CV
Nickel	40	U	40	U	40	U	40	U	40	U	P
Potassium	500	U	500	U	500	U	500	U	500	U	A
Selenium	0.90	U	0.90	U	0.90	U	0.90	U	0.90	U	BH
Silver	10	U	10	U	10	U			10	U	A
Sodium	500	U	500	U	500	U	500	U	500	U	A
Thallium	5.0	U	5.0	U	5.0	U	5.0	U	5.0	U	F
Vanadium	50	U	50	U	50	U	50	U	50	U	P
Zinc	20	U	20	U	20	U	20	U	20	U	P

FORM IIIA
BLANKS
METALS

Lab Name ARDL, Inc. Contract No. 111897

Preparation Blank Matrix (soil/water) WATER

Preparation Blank Concentration Units (ug/L or mg/kg) UG/L

DISSOLVED

Analyte	Initial Calib. Blanks (ug/L)	C	Continuing Calibration Blank (ug/L) 1	C	2	C	3	C	Prepar-ation Blank	C	M
Aluminum											P
Antimony											P
Arsenic			0.90	U	0.90	U	0.90	U			BH
Barium											P
Beryllium											P
Cadmium											P
Calcium											P
Chromium											P
Cobalt											P
Copper											P
Iron											P
Lead			2.0	U	2.0	U	2.0	U			F
Magnesium											P
Manganese											P
Mercury			0.20	U	0.20	U	0.20	U			CV
Nickel											P
Potassium			500	U					500	U	
Selenium			0.90	U	0.90	U	0.90	U	0.90	U	BH
Silver											P
Sodium			500	U	500	U	500	U	500	U	
Thallium			5.0	U	5.0	U	5.0	U	5.0	U	F
Vanadium											P
Zinc											P

FORM IIIA
BLANKS
METALS

Lab Name ARDL, Inc. Contract No. 111897

Preparation Blank Matrix (soil/water) WATER

Preparation Blank Concentration Units (ug/L or mg/kg) UG/L

DISSOLVED

Analyte	Initial Calib. Blanks (ug/L)	Continuing Calibration Blank (ug/L) C	1	C	2	C	3	C	Prepar-ation Blank	C	M
Aluminum											P
Antimony											
Arsenic											BH
Barium											P
Beryllium											P
Cadmium											P
Calcium											P
Chromium											P
Cobalt											P
Copper											P
Iron											P
Lead			2.0	U							F
Magnesium											P
Manganese											P
Mercury											CV
Nickel											P
Potassium											P
Selenium			0.90	U	0.90	U			0.90	U	BH
Silver											P
Sodium											P
Thallium			5.0	U							F
Vanadium											P
Zinc											P

FORM IIIA
BLANKS
METALS

Lab Name ARDL, Inc. Contract No. 111897

Preparation Blank Matrix (soil/water) WATER

Preparation Blank Concentration Units (ug/L or mg/kg) UG/L

TOTAL

Analyte	Initial Calib. Blanks (ug/L)	C	Continuing Calibration Blank (ug/L) 1	C	2	C	3	C	Prepar-ation Blank	C	M
Aluminum	200	U	200	U	200	U	200	U	200	U	P
Antimony	60	U	60	U	60	U	60	U	60	U	P
Arsenic	0.90	U	0.90	U	0.90	U	0.90	U	0.90	U	BH
Barium	50	U	50	U	50	U	50	U	50	U	P
Beryllium	5.0	U	5.0	U	5.0	U	5.0	U	5.0	U	P
Cadmium	5.0	U	5.0	U	5.0	U	5.0	U	5.0	U	P
Calcium	1000	U	1000	U	1000	U	1000	U	1000	U	P
Chromium	10	U	10	U	10	U	10	U	10	U	P
Cobalt	50	U	50	U	50	U	50	U	50	U	P
Copper	25	U	25	U	25	U	25	U	25	U	P
Iron	50	U	50	U	50	U	50	U	50	U	P
Lead	2.0	U	2.0	U	2.0	U	2.0	U	2.0	U	F
Magnesium	1000	U	1000	U	1000	U	1000	U	1000	U	P
Manganese	15	U	15	U	15	U	15	U	15	U	P
Mercury											CV
Nickel	40	U	40	U	40	U	40	U	40	U	P
Potassium											P
Selenium	0.90	U	0.90	U	0.90	U	0.90	U	0.90	U	BH
Silver	10	U	10	U	10	U	10	U	10	U	P
Sodium											P
Thallium											F
Vanadium	50	U	50	U	50	U	50	U	50	U	P
Zinc	20	U	20	U	20	U	20	U	20	U	P
Cyanide									10	U	C

FORM IIIA
BLANKS
METALS

Lab Name ARDL, Inc. Contract No. 111897

Preparation Blank Matrix (soil/water) WATER

Preparation Blank Concentration Units (ug/L or mg/kg) UG/L

Analyte	Initial Calib. Blanks (ug/L)	Continuing Calibration Blank (ug/L) C	1	C	2	C	3	C	Prepar-ation Blank	C	M
Aluminum											P
Antimony											P
Arsenic		0.90	U								BH
Barium											P
Beryllium											P
Cadmium											P
Calcium											P
Chromium											P
Cobalt											P
Copper											P
Iron											P
Lead											F
Magnesium											P
Manganese											P
Mercury											CV
Nickel											P
Potassium											P
Selenium											BH
Silver											P
Sodium											P
Thallium											F
Vanadium											P
Zinc											P

U.S. EPA - CLP
13
PREPARATION LOG

Lab Name: ARDL, INC. Contract: 111897

Lab Code: _____ Case No.: _____ SAS No.: _____ SDG No.: _____

Method: F

EPA Sample No.	Preparation Date	Weight (gram)	Volume (mL)
LO-1G102D-GW	5-8-91		100
LO-1G102D-GWD	5-8-91		100
LO-1G102D-GWS	5-8-91		100
LO-1G102L-GW	5-8-91		100
LO-1G101D-GW	5-8-91		100
LO-1G101M-GW	5-8-91		100
LO-1G101L-GW	5-8-91		100
LO-1MW01D-GW	5-8-91		100
LO-1MW01S-GW	5-8-91		100
LO-1MW03S-GW	5-8-91		100
LO-1MW03D-GW	5-8-91		100
LO-1MW3S-FD	5-8-91		100
LO-1GW1-FB	5-8-91		100
LO-1GW1-FBD	5-8-91		100
LCSW	5-8-91		100
PBW	5-8-91		100

FORM XIII - IN 7/88

100065

U.S. EPA - CLP
13
PREPARATION LOG

Lab Name: ARDL, INC. Contract: 111897

Lab Code: _____ Case No.: _____ SAS No.: _____ SDG No.: _____

Method: F

EPA Sample No.	Preparation Date	Weight (gram)	Volume (mL)
LO-IG102D-GW	5-8-91		100
LO-IG102D-GWD	5-8-91		100
LO-IG102D-GWS	5-8-91		100
LO-IG102L-GW	5-8-91		100
LO-IG101D-GW	5-8-91		100
LO-IG101M-GW	5-8-91		100
LO-IG101L-GW	5-8-91		100
LO-IMW01D-GW	5-8-91		100
LO-IMW01S-GW	5-8-91		100
LO-IMW03S-GW	5-8-91		100
LO-IMW03D-GW	5-8-91		100
LO-IMW3S-FD	5-8-91		100
LO-IGW1-FB	5-8-91		100
LO-IGW1-FBD	5-8-91		100
LCSW	5-8-91		100
PBW	5-8-91		100

FORM XIII - IN 7/88

FORM 12

ICP Linear Ranges (Quarterly)

Lab Name: ARDL, Inc. ICP ID Number: JA965W/GRID Date: 04/16/91

Analyte	Integ. Time (sec.)	Concentration (ug/L)	M
Aluminum	10	500000	P
Antimony	10	100000	P
Arsenic	--	--	P
Barium	10	100000	P
Beryllium	10	5000	P
Cadmium	10	50000	P
Calcium	10	500000	P
Chromium	10	100000	P
Cobalt	10	5000	P
Copper	10	100000	P
Iron	10	200000	P
Lead	10	100000	P
Magnesium	10	500000	P
Manganese	10	50000	P
Mercury	--	--	P
Nickel	10	250000	P
Potassium	--	--	P
Selenium	--	--	P
Silver	10	100000	P
Sodium	--	--	P
Thallium	--	--	P
Vanadium	10	100000	P
Zinc	10	5000	P

Comments:

FORM 11A

ICP Interelement Correction Factors

ıb Name: ARDL, Inc. ICP ID Number: JA965W/Grid Date: 01/16/91

Analyte	Wave-length (nm)	Interelement Correction Factors for: Al	Ca	Fe	Mg	--
Aluminum	308.22	--	0.000338	0.000751	0.000525	
Antimony	217.58	0.000451	0.000000	0.000000	0.000711	
Arsenic	--	--	--	--	--	
Barium	493.41	0.000000	0.000082	0.000006	0.000000	
Beryllium	234.86	0.000000	0.000005	0.000474	0.000000	
Cadmium	228.80	0.000000	0.000013	0.000005	0.000001	
Calcium	396.85	0.000138	--	0.000134	0.000000	
Chromium	205.55	0.000015	0.000015	0.000000	0.000012	
Cobalt	228.62	0.000000	0.000011	0.000008	0.000000	
Copper	324.75	0.000011	0.000015	0.000013	0.000004	
Iron	259.94	0.000120	0.000110	--	0.000664	
Lead	220.35	0.000000	0.000017	0.000091	0.000004	
Magnesium	279.07	0.000008	0.000749	0.000225	--	
Manganese	257.61	0.000051	0.000000	0.000261	0.000000	
Mercury	--	--	--	--		
Nickel	231.60	0.000011	0.000029	0.000011	0.000000	
Potassium	--	--	--	--	--	
elenium	--	--	--	--	--	
ɔilver	328.07	0.000031	0.000026	0.000000	0.000005	
Sodium	--	--	--	--	--	
Thallium	--	--	--	--	--	
Vanadium	292.40	0.000002	0.000000	0.000132	0.000000	
Zinc	213.86	0.000051	0.000028	0.000086	0.000010	

Comments:

U.S. EPA - CLP

12
ICP LINEAR RANGES (QUARTERLY)

Lab Name: ARDL, INC. Contract: 111897

Lab Code: _____ Case No.: _____ SAS No.: _____ SDG No.: _____

ICP ID Number: JA965w/Grid Date: 4-16-91

Analyte	Integ. Time (Sec.)	Concentration (ug/L)	M
Aluminum	10	500000	P
Antimony	10	100000	P
Arsenic	--	--	P
Barium	10	100000	P
Beryllium	10	5000	P
Cadmium	10	50000	P
Calcium	10	500000	P
Chromium	10	100000	P
Cobalt	10	5000	P
Copper	10	100000	P
Iron	10	200000	P
Lead	10	100000	P
Magnesium	10	500000	P
Manganese	10	50000	P
Mercury	--	--	P
Nickel	10	250000	P
Potassium	--	--	P
Selenium	--	--	P
Silver	10	100000	P
Sodium	--	--	P
Thallium	--	--	P
Vanadium	10	100000	P
Zinc	10	5000	P

Comments:

U.S. EPA - CLP

11A

ICP INTERELEMENT CORRECTION FACTORS (ANNUALLY)

Lab Name: ARDL, INC. Contract: 111897

Lab Code: _____ Case No.: _____ SAS No.: _____ SDG No.: _____

ICP ID Number: JA965w/Grid Date: 1-16-91

Analyte	Wave-length (nm)	Interelement Correction Factors for: Al	Ca	Fe	Mg	---
Aluminum	308.22	--	0.000338	0.000751	0.000525	
Antimony	217.58	0.000451	0.000000	0.000000	0.000711	
Arsenic	--	--	--	--	--	
Barium	493.41	0.000000	0.000082	0.000006	0.000000	
Beryllium	234.86	0.000000	0.000005	0.000474	0.000000	
Cadmium	228.80	0.000000	0.000013	0.000005	0.000001	
Calcium	396.85	0.000138	--	0.000134	0.000000	
Chromium	205.55	0.000015	0.000015	0.000000	0.000012	
Cobalt	228.62	0.000000	0.000011	0.000008	0.000000	
Copper	342.75	0.000011	0.000015	0.000013	0.000004	
Iron	259.94	0.000120	0.000110	--	0.000664	
Lead	220.35	0.000000	0.000017	0.000091	0.000004	
Magnesium	279.07	0.000008	0.000749	0.000225	--	
Manganese	257.61	0.000051	0.000000	0.000261	0.000000	
Mercury	--	--	--	--	--	
Nickel	231.60	0.000011	0.000029	0.000011	0.000000	
Potassium	--	--	--	--	--	
Selenium	--	--	--	--	--	
Silver	328.07	0.000031	0.000026	0.000000	0.000005	
Sodium	--	--	--	--	--	
Thallium	--	--	--	--	--	
Vanadium	292.40	0.000002	0.000000	0.000132	0.000000	
Zinc	213.86	0.000051	0.000028	0.000086	0.000010	

Comments:

U.S. EPA - CLP

10
INSTRUMENT DETECTION LIMITS (QUARTERLY)

Lab Name: ARDL, Inc. Contract: 11897

Lab Code: _____ Case No.: _____ SAS No.: _____ SDG No.: _____

ICP ID Number: _____

Flame AA ID Number: _____

Furnace AA ID Number: Spectra AA 20

Analyte	Wave-length (nm)	Back-ground	CRDL (ug/L)	IDL (ug/L)	M
Aluminum			200		
Antimony	217.60	BD	60	5.0	F
Arsenic	193.70	BD	10	3.0	F
Barium			200		
Beryllium			5		
Cadmium			5		
Calcium			5000		
Chromium	357.90	BD	10	2.0	F
Cobalt			50		
Copper			25		
Iron			100		
Lead	283.30	BD	3	2.0	F
Magnesium			5000		
Manganese			15		
Mercury			0.2		
Nickel			40		
Potassium			5000		
Selenium	196.03	BD	5	3.0	F
Silver			10		
Sodium			5000		
Thallium	276.80	BD	10	5.0	F
Vanadium			50		
Zinc			20		

Comments:

FORM X - IN

U.S. EPA - CLP

10
INSTRUMENT DETECTION LIMITS (QUARTERLY)

Lab Name: ARDL, Inc. Contract: 111897

Lab Code: _____ Case No.: _____ SAS No.: _____ SDG No.: _____

ICP ID Number: _____

Flame AA ID Number: _____

Furnace AA ID Number: Spectra AA 300

Analyte	Wave-length (nm)	Back-ground	CRDL (ug/L)	IDL (ug/L)	M
Aluminum			200		
Antimony	217.60	BD	60	5.0	F
Arsenic	193.70	BD	10	3.0	F
Barium			200		
Beryllium			5		
Cadmium			5		
Calcium			5000		
Chromium	357.90	BD	10	2.0	F
Cobalt			50		
Copper			25		
Iron			100		
Lead	283.30	BD	3	2.0	F
Magnesium			5000		
Manganese			15		
Mercury			0.2		
Nickel			40		
Potassium			5000		
Selenium	196.03	BD	5	3.0	F
Silver			10		
Sodium			5000		
Thallium	276.80	BD	10	5.0	F
Vanadium			50		
Zinc			20		

Comments:

U.S. EPA - CLP

10
INSTRUMENT DETECTION LIMITS (QUARTERLY)

Lab Name: ARDL, Inc. Contract: 111897

Lab Code: _____ Case No.: _____ SAS No.: _____ SDG No.: _____

ICP ID Number: JA965w/Grid Neb.

Flame AA ID Number: _____

Furnace AA ID Number: _____

Analyte	Wave-length (nm)	Back-ground	CRDL (ug/L)	IDL (ug/L)	M
Aluminum	308.22		200	200.0	P
Antimony	217.58		60	60.0	P
Arsenic			10		
Barium	493.41		200	50.0	P
Beryllium	234.86		5	5.0	P
Cadmium	228.80		5	5.0	P
Calcium	396.85		5000	1000.0	P
Chromium	205.55		10	10.0	P
Cobalt	228.62		50	50.0	P
Copper	324.75		25	25.0	P
Iron	259.94		100	50.0	P
Lead	220.35		3	60.0	P
Magnesium	279.07		5000	1000.0	P
Manganese	257.61		15	15.0	P
Mercury			0.2		
Nickel	231.60		40	40.0	P
Potassium			5000		
Selenium			5		
Silver	328.07		10	10.0	P
Sodium			5000		P
Thallium			10		
Vanadium	292.40		50	50.0	P
Zinc	213.86		20	20.0	P

Comments:

FORM X - IN

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U.S. EPA - CLP

10
INSTRUMENT DETECTION LIMITS (QUARTERLY)

Lab Name: ARDL, Inc. Contract: 111897

Lab Code: _____ Case No.: _____ SAS No.: _____ SDG No.: _____

ICP ID Number: _____

Flame AA ID Number: Spectra AA 20

Furnace AA ID Number: _____

Analyte	Wave-length (nm)	Back-ground	CRDL (ug/L)	IDL (ug/L)	M
Aluminum	523.80		200	100.0	A
Antimony			60		
Arsenic	193.70		10	0.9	BH
Barium	553.60		200	200.0	A
Beryllium			5		
Cadmium	228.80		5	5.0	A
Calcium	422.70		5000	500.0	A
Chromium			10		
Cobalt	240.70		50	50.0	A
Copper	324.75		25	25.0	A
Iron	248.30		100	100.0	A
Lead	217.00		3	30.0	A
Magnesium	285.20		5000	1000.0	A
Manganese	295.70		15	15.0	A
Mercury	253.70		0.2	0.2	CV
Nickel	231.60		40	40.0	A
Potassium	766.49		5000	500.0	A
Selenium	196.03		5	0.9	BH
Silver	328.07		10	10.0	A
Sodium	589.00		5000	500.0	A
Thallium			10		
Vanadium			50		
Zinc	213.86		20	20.0	A

Comments:

Lead does not meet CRDL.

FORM X - IN

FORM IX

STANDARD ADDITION RESULTS

Name ARDL, Inc. Contract 111897

Concentration Units: ug/L

EPA Sample No. TOTAL	An	Dil	0 ADD ABS	CON	1 ADD ABS	CON	2 ADD ABS	CON	3 ADD ABS	Final Conc.	r	Q
1MW01S-GW	Pb	20.0	0.222	5	0.297	10	0.322	15	0.461	290	0.9596	+
1MW01S-GW		20.0	0.50		0.261		0.370		0.477	59	0.9838	+
1MW03S-GW		10.0	0.082		0.184		0.309		0.364	47	0.989	+
1MW03S-GW		10.0	0.089		0.173		0.269		0.336	54	0.997	
MW3S-FO		10.0	0.091		0.171		0.258		0.332	50	0.999	
Dissolved												
1MW03D-GW	Pb	1.0	0.039	5	0.122	10	0.210	15	0.302	2.3	1.00	

100056

FORM VIII

ICP SERIAL DILUTIONS

b Name ARDL

Site Inventory No.

Date 5/10/91

Matrix (soil/water) Water

Level (low/med.)

Concentration Units: ug/L

Total

Analyte	Initial Sample Result (I)	C	Serial Dilution Result (S)	C	% Difference	Q	M
Aluminum	51000		52000		1.9		P
Antimony	60	U	300	U			
Arsenic							
Barium	350		370				
Beryllium	13		25	U			
Cadmium	5.0	U	25	U			
Calcium	1270000		1370000		7.6		
Chromium	67		72				
Cobalt	180		180				
Copper	120		110				
Iron	162000		180000		10.5	E	
Lead							
Magnesium	710000		750000		5.5		
Manganese	3700		4100		10		
Mercury							
Nickel	130		200	U			
Potassium							
Selenium							
Silver							
Sodium							
Thallium							
Vanadium	77		250	U			
Zinc	320		370				V

FORM VIII

ICP SERIAL DILUTIONS

Name ARDL, INC. Site Inventory No. _____

Date 5/8/91 Matrix (soil/water) WATER

Level (low/med.) _____

Concentration Units: ug/L

DISSOLVED

Analyte	Initial Sample Result (I)	C	Serial Dilution Result (S)	C	% Difference	Q	M
Aluminum	200	U	1000	U			P
Antimony	60	U	300	U			
Arsenic							
Barium	79		250	U			
Beryllium	5.0	U	25	U			
Cadmium	5.0	U	25	U			
Calcium	125000		130000		3.9		
Chromium	10	U	50	U			
Cobalt	50	U	250	U			
Copper	25	U	125	U			
Iron	2600		2600		0		
Lead							
Magnesium	61000		66000		7.9		
Manganese	90		130				
Mercury							
Nickel	40	U	200	U			
Potassium							
Selenium							
Silver	10	U	50	U			
Sodium							
Thallium							
Vanadium							
Zinc	20	U	100	U			✓

FORM VIIA

LABORATORY CONTROL SAMPLE
METALS

Lab Name ARDL, Inc. Contract No. 111897

Solid LCS Source _____

Aqueous LCS Source Lab Prepared

Analyte	Aqueous (ug/L) True	Found	%R	Solid (mg/kg) True	Found	C	Limits	%R
Aluminum								
Antimony								
Arsenic								
Barium								
Beryllium								
Cadmium								
Calcium								
Chromium								
Cobalt								
Copper								
Iron								
Lead	10	11	110					
Magnesium								
Manganese								
Mercury								
Nickel								
Potassium								
Selenium								
Silver								
Sodium								
Thallium								
Vanadium								
Zinc								

FORM VIIA

LABORATORY CONTROL SAMPLE
METALS

.b Name ARDL, Inc. Contract No. 111297

Solid LCS Source

Aqueous LCS Source LAB PREPARED

TOTAL

Analyte	Aqueous (ug/L) True	Found	%R	Solid (mg/kg) True	Found	C	Limits	%R
Aluminum	10000	9900	99					
Antimony	1000	982	98					
Arsenic	5.0	4.6	92					
Barium	1000	973	97					
Berylium	1000	988	99					
Cadmium	2000	1960	98					
Calcium	10000	10900	109					
Chromium	2500	2510	100					
Cobalt	2000	1940	97					
Copper	2000	1950	98					
Iron	1500	1500	100					
Lead	10	11	110					
Magnesium	10100	10100	101					
Manganese	1000	1000	100					
Mercury	4.0	4.3	108					
Nickel	5000	4970	99					
Potassium	12500	12100	97					
Selenium	5.0	5.9	118					
Silver	5000	4770	96					
Sodium	12500	12400	99					
Thallium	20	21	105					
Vanadium	1000	1020	102					
Zinc	2000	1930	96					
Cyanide	100	83	83					

FORM VIIA

LABORATORY CONTROL SAMPLE
METALS

Lab Name ARDL, Inc. Contract No. 111897

Solid LCS Source

Aqueous LCS Source LAB PREPARED

DISSOLVED

Analyte	Aqueous (ug/L) True	Found	%R	Solid (mg/kg) True	Found	C	Limits	%R
Aluminum	10000	10700	107					
Antimony	1000	1010	101					
Arsenic	5.0	5.4	108					
Barium	1000	884	88					
Berylium	1000	880	88					
Cadmium	2000	1770	88					
Calcium	10000	9740	97					
Chromium	2500	2280	91					
Cobalt	2000	1730	86					
Copper	2000	1820	91					
Iron	1500	1310	87					
Lead	10	12	120					
Magnesium	10000	8180	82					
Manganese	1000	872	87					
Mercury	5.0	5.2	104					
Nickel	5000	4510	90					
Potassium	12500	12300	98					
Selenium	5.0	4.6	92					
Silver	2500	2830	113					
Sodium	12500	12000	96					
Thallium	20	20	100					
Vanadium	1000	927	93					
Zinc	2000	1770	88					

LAB ID # [illegible]
IEPA ID # [illegible]

FORM VIA

DUPLICATES
METALS

Lab Name ARDL, Inc. Contract No. 111897

Matrix (soil/water) Water Level (low/med)

% Solids for Sample 0.0 % Solids for Duplicate 0.0

Concentration Units (ug/L or mg/kg dry weight) Mg/l

TOTAL

Analyte	Control Limit	Sample (S)	C	Duplicate (D)	C	RPD	Q	M
Aluminum	20%	1500		1200		22	*	P
Antimony	± 60	60	U	60	U			P
Arsenic	± 10	8.2	B	8.8	B	7.1		BH
Barium	± 50	56	B	52	B	7.4		P
Berylium	± 5.0	5.0	U	5.0	U			P
Cadmium	± 5.0	7.0		5.0	U			P
Calcium	20%	170000		170000		0		P
Chromium	20%	230		230		0		P
Cobalt	± 50	50	U	50	U			P
Copper	± 25	25	U	25	U			P
Iron	20%	9400		9000		4.9		P
Lead	±3.0	6.9		7.6		9.7		F
Magnesium	20%	82000		82000		2.4		P
Manganese	20%	24[illegible]		[illegible]		4.3		P
Mercury	±0.20	0.20	U	0.20	U			CV
Nickel	± 40	110		100		9.5		P
Potassium	±5000	6300		6300		0		A
Selenium	±5.0	4.5	U	4.5	U			BH
Silver	± 10	10	U	10	U			P
Sodium	20%	150000		150000		0		A
Thallium	±5.0	5.0	U	5.0	U			F
Vanadium	± 50	50	U	50	U			P
Zinc	± 20	20	U	20	U			P
Cyanide	± 10	10	U	10	U			C

FORM VIA

DUPLICATES
METALS

ab Name ARDL, Inc. Contract No. 111897

Matrix (soil/water) WATER Level (low/med)

% Solids for Sample 0.0 % Solids for Duplicate 0.0

Concentration Units (ug/L or mg/kg dry weight) UG/L

DISSOLVED

Analyte	Control Limit	Sample (S)	C	Duplicate (D)	C	RPD	Q	M
Aluminum								P
Antimony								P
Arsenic								BH
Barium								P
Beryllium								P
Cadmium								P
Calcium								P
Chromium								P
Cobalt								P
Copper								P
Iron								P
Lead	±3.0	2.0	U	2.0	U			F
Magnesium								P
Manganese								[illegible]
Mercury								CV
Nickel								P
Potassium								P
Selenium								BH
Silver								P
Sodium								P
Thallium								F
Vanadium								P
Zinc								P

IEPA ID # LO-1G102D-GW

FORM VIA

DUPLICATES
METALS

Lab Name ARDL, Inc. Contract No. 111897

Matrix (soil/water) WATER Level (low/med)

% Solids for Sample 0.0 % Solids for Duplicate 0.0

Concentration Units (ug/L or mg/kg dry weight) ug/l

DISSOLVED

Analyte	Control Limit	Sample (S)	C	Duplicate (D)	C	RPD	Q	M
Aluminum	±200	200	U	200	U			P
Antimony	±60	60	U	60	U			P
Arsenic	±10	5.6	B	5.8	B	3.5		BH
Barium	±50	50	U	50	U			P
Berylium	±5.0	5.0	U	5.0	U			P
Cadmium	±5.0	5.0	U	5.0	U			P
Calcium	20%	110000		110000		0		P
Chromium	±10	10	U	10	U			P
Cobalt	±50	50	U	50	U			P
Copper	±25	25	U	25	U			P
Iron	20%	1600		1600		0		P
Lead								F
Magnesium	20%	55000		55000		0		P
Manganese	±15	37		36		2.7		P
Mercury	±0.20	0.20	U	0.20	U			CV
Nickel	±40	46		48		4.3		P
Potassium	±5000	5900		5900		0		A
Selenium	±5.0	4.5	U	4.5	U			BH
Silver	±10	10	U	10	U			A
Sodium	20%	140000		140000		0		A
Thallium	±5.0	5.0	U	5.0	U			F
Vanadium	±50	50	U	50	U			P
Zinc	±20	20	U	20	U			P

LAB ID # 111897-2
IEPA ID # LO-1G102L-GW

FORM VA

SPIKE SAMPLE RECOVERY
METALS

Lab.Name ARDL, Inc. Contract No. 111897

Matrix (soil/water) WATER Level (low/med) _____

Concentration Units (ug/L or mg/kg dry weight ug/L

TOTAL

Analyte	Control Limit %R	Spiked Sample Result (SSR)	C	Sample Result (SR)	C	Spike Added (SA)	%R	Q	M
Aluminum	75-125								P
Antimony	75-125								
Arsenic	75-125								BH
Barium	75-125								P
Beryllium	75-125								P
Cadmium	75-125								P
Chromium	75-125								P
Cobalt	75-125								P
Copper	75-125								P
Iron	75-125								P
Lead	75-125								
Manganese	75-125								P
Mercury	75-125								CV
Nickel	75-125								P
Selenium	75-125								BH
Silver	75-125								P
Thallium	75-125								F
Vanadium	75-125								P
Zinc	75-125								P
CYANIDE	75-125	86		10	u	100	86		C
	75-125								

IEPA ID # LD-1G102D-6

FORM VA

SPIKE SAMPLE RECOVERY
METALS

Lab Name ARDL, Inc. Contract No. 111897

Matrix (soil/water) water Level (low/med)

Concentration Units (ug/L or mg/kg dry weight) ug/l

TOTAL -

Analyte	Control Limit %R	Spiked Sample Result (SSR)	C	Sample Result (SR)	C	Spike Added (SA)	%R	Q	M
Aluminum	75-125	4300		1500		4000	70	N	P
Antimony	75-125	1340		60	U	1000	134	N	P
Arsenic	75-125	18		2.2	B	10	98		B
Barium	75-125	3500		56	B	4000	86		P
Berylium	75-125	89		5.0	U	100	89		P
Cadmium	75-125	89		7.0		100	82		P
Calcium	75-125								P
Chromium	75-125	570		230		400	85		P
Cobalt	75-125	850		50	U	1000	85		P
Copper	75-125	450		25	U	500	90		P
Iron	75-125	9700		8400		2000	65	N	P
Lead	75-125	36		6.9		20	146	N	F
Magnesium	75-125								P
Manganese	75-125	1100		240		1000	86		P
Mercury	75-125	1.2		0.20	U	1.0	120		C
Nickel	75-125	990		110		1000	88		P
Potassium	75-125								P
Selenium	75-125	9.8		4.5	U	10	98		B
Silver	75-125	14		10	U	100	14	N	P
Sodium	75-125								P
Thallium	75-125	37		5.0	U	50	74	N	F
Vanadium	75-125	870		50	U	1000	87		P
Zinc	75-125	880		20	U	1000	88		P

LAB ID # 111897-2
IEPA ID # LO-16102L-GW

FORM VA

SPIKE SAMPLE RECOVERY
METALS

Lab Name ARDL, Inc. Contract No. 111897

Matrix (soil/water) WATER Level (low/med) _____

Concentration Units (ug/L or mg/kg dry weight ug/L

DISSOLVED

Analyte	Control Limit %R	Spiked Sample Result (SSR)	C	Sample Result (SR)	C	Spike Added (SA)	%R	Q	M
Aluminum	75-125								P
Antimony	75-125								
Arsenic	75-125								BH
Barium	75-125								P
Beryllium	75-125								P
Cadmium	75-125								P
Chromium	75-125								P
Cobalt	75-125								P
Copper	75-125								P
Iron	75-125								P
Lead	75-125	19		2.0	u	20	95		F
Manganese	75-125								P
Mercury	75-125								CV
Nickel	75-125								P
Selenium	75-125								BH
Silver	75-125								P
Thallium	75-125	40		5.0	u	50	80		F
Vanadium	75-125								P
Zinc	75-125								P
	75-125								
	75-125								

FORM VA

SPIKE SAMPLE RECOVERY
METALS

Lab Name ARDL, Inc. Contract No. 111897

Matrix (soil/water) WATER Level (low/med)

Concentration Units (ug/L or mg/kg dry weight) ug/l

DISSOLVED

Analyte	Control Limit %R	Spiked Sample Result (SSR)	C	Sample Result (SR)	C	Spike Added (SA)	%R	Q	M
Aluminum	75-125	2500		200	U	2000	125		P
Antimony	75-125	450		60	U	500	90		P
Arsenic	75-125	16		5.6	B	10	104		BH
Barium	75-125	1600		50	U	2000	80		P
Beryllium	75-125	46		5.0	U	50	92		P
Cadmium	75-125	43		5.0	U	50	86		P
Calcium	75-125								P
Chromium	75-125	160		10	U	200	80		P
Cobalt	75-125	450		50	U	500	90		P
Copper	75-125	200		25	U	250	80		P
Iron	75-125	2500		1600		1000	90		P
Lead	75-125								
Magnesium	75-125								P
Manganese	75-125	480		37		500	89		P
Mercury	75-125	1.1		0.20	U	1.0	110		CV
Nickel	75-125	510		46		500	93		P
Potassium									P
Selenium	75-125	8.0		4.5	U	10	80		BH
Silver	75-125	51		10	U	50	102		A
Sodium	75-125								P
Thallium	75-125								F
Vanadium	75-125	410		50	U	500	82		P
Zinc	75-125	440		20	U	500	88		P

Form IV

ICP INTERFERENCE CHECK SAMPLE

Lab Name ARDL, Inc. Contract No. 111897

ICP ID Number JA965

ICP Source ICF Technology

Concentration Units: ug/L

TOTAL

Analyte	True Sol. A	True Sol. AB	Initial Found Sol. A	Initial Found Sol. AB	%R	Final Found Sol. A	Final Found Sol. AB	%R
Aluminum	481000	469700	522000	547000		555100	598100	
Antimony								
Arsenic								
Barium		456		415	91		423	93
Beryllium		472		444	94		462	98
Cadmium		958		819	85		821	86
Calcium	448250	445800	433000	453000		454000	477000	
Chromium	25	525		447	85		447	85
Cobalt		494		473	96		483	98
Copper		523		437	84		438	84
Iron	182650	178650	175000	182000		183000	192000	
Lead		470						
Magnesium	450900	445200	445000	464000		474000	506000	
Manganese	16	530		452	86		481	91
Mercury								
Nickel		940		780	83		796	85
Potassium								
Selenium								
Silver		990		803	81		868	87
Sodium								
Thallium								
Vanadium		471		401	85		416	88
Zinc		1026		874	85		899	88
Cyanide								

Form IV

ICP INTERFERENCE CHECK SAMPLE

Lab Name ARDL, Inc. Contract No. 111897

ICP ID Number TA 0.5

ICP Source ICF Technology

Concentration Units: ug/L

DISSOLVED

Analyte	True Sol. A	True Sol. AB	Initial Found Sol. A	Initial Found Sol. AB	%R	Final Found Sol. A	Final Found Sol. AB	%R
Aluminum	481000	469700	592000	609000		614000	636000	
Antimony								
Arsenic								
Barium		456		414	91		408	89
Berylium		472		473	100		488	103
Cadmium		958		821	86		807	84
Calcium	448250	445800	437000	458000		444000	461000	
Chromium	251	525		452	86		455	87
Cobalt		494		475	96		470	95
Copper		523		551	105		491	94
Iron	182650	178650	175000	182000		176000	183000	
Lead		4700		4040	86		4170	89
Magnesium	450900	445200	463000	491000		490000	504000	
Manganese	16	530		431	81		437	82
Mercury								
Nickel		940		787	84		783	83
Potassium								
Selenium								
Silver		990		857	87		902	91
Sodium								
Thallium								
Vanadium		471		413	88		413	88
Zinc		1026		883	86		905	88
Cyanide								

FORM IIIA
BLANKS
METALS

Lab Name ARDL, Inc. Contract No. 111897

Preparation Blank Matrix (soil/water) WATER

Preparation Blank Concentration Units (ug/L or mg/kg) ug/L

Analyte	Initial Calib. Blanks (ug/L)	Continuing Calibration Blank (ug/L)							Prepar-ation Blank		M
		C	1	C	2	C	3	C		C	
Aluminum											P
Antimony											
Arsenic											BH
Barium											P
Beryllium											P
Cadmium											P
Calcium											P
Chromium											P
Cobalt											P
Copper											P
Iron											P
Lead	2.0	u	2.0	u	2.0	u	2.0	u	2.0	u	F
Magnesium											P
Manganese											P
Mercury											CV
Nickel											P
Potassium											P
Selenium											BH
Silver											P
Sodium											P
Thallium											F
Vanadium											P
Zinc											P

U.S. EPA - CLP
13
PREPARATION LOG

Lab Name: ARDL, INC. Contract: 111897

Lab Code: _____ Case No.: _____ SAS No.: _____ SDG No.: _____

Method: P

EPA Sample No.	Preparation Date	Weight (gram)	Volume (mL)
LO-IG102D-GW	5-8-91		100
LO-IG102D-GWD	5-8-91		100
LO-IG102D-GWS	5-8-91		100
LO-IG102L-GW	5-8-91		100
LO-IG101D-GW	5-8-91		100
LO-IG101M-GW	5-8-91		100
LO-IG101L-GW	5-8-91		100
LO-IMW01D-GW	5-8-91		100
LO-IMW01S-GW	5-8-91		100
LO-IMW03S-GW	5-8-91		100
LO-IMW03D-GW	5-8-91		100
LO-IMW3S-FD	5-8-91		100
LO-IGW1-FB	5-8-91		100
LO-IGW1-FBD	5-8-91		100
ICSW	5-8-91		100
PBW	5-8-91		100

U.S. EPA - CLP
13
PREPARATION LOG

Lab Name: ABDL, INC. Contract: 111897

Lab Code: _____ Case No.: _____ SAS No.: _____ SDG No.: _____

Method: CV

EPA Sample No.	Preparation Date	Weight (gram)	Volume (mL)
LO-IG102D-GW	5-14-91		100
LO-IG102D-GWD	5-14-91		100
LO-IG102D-GWS	5-14-91		100
LO-IG102L-GW	5-14-91		100
LO-IG101D-GW	5-14-91		100
LO-IG101M-GW	5-14-91		100
LO-IG101L-GW	5-14-91		100
LO-IMW01D-GW	5-14-91		100
LO-IMW01S-GW	5-14-91		100
LO-IMW03S-GW	5-14-91		100
LO-IMW03D-GW	5-14-91		100
LO-IMW3S-FD	5-14-91		100
LO-IGW1-FB	5-14-91		100
LO-IGW1-FBD	5-14-91		100
LCSW	5-14-91		100
DBW	5-14-91		100

FORM XIII - IN 7/88

100087

U.S. EPA - CLP
13
PREPARATION LOG

Lab Name: ARDL, INC Contract: 111897

Lab Code: _____ Case No.: _____ SAS No.: _____ SDG No.: _____

Method: CN

EPA Sample No.	Preparation Date	Weight (gram)	Volume (mL)
LD-1G1020-GW	5-23-91		250
LD-1G1020-GWDup			250
LD-1G1021-GW			250
LD-1G1021-GWsp			250
LD-1G101D-GW			250
LD-1G101M-GW			250
LD-1G101L-GW			250
LD-1MW01D-GW			250
LD-1MW01S-GW			250
LD-1MW03S-GW			250
LD-1MW03D-GW			250
LD-1M3S-FD			250
LD-1GW1-FB			250
LD-1GW1-FB			250
LCSW			500
PBW			500

FORM XIII - IN 7/88

100083

ANALYSIS RUN LOG

Lab Name: ARDL Contract: 111897 (DISS)

Lab Code: _____ Case No.: _____ SAS No.: _____ SDG No.: _____

Instrument ID Number: JA965 Method: P

Start Date: 05/08/91 End Date: 05/08/91

EPA Sample No.	D/F	Time	% R	Analytes																						
				AL	SB	AS	BA	BE	CD	CA	CR	CO	CU	FE	PB	MG	MN	HG	NI	K	SE	AG	NA	TL	V	ZN	CN
So	1.00	710		X	X		X	X	X	X	X	X	X	X		X	X		X						X	X	
ICP1	1.00	712																									
ICP2	1.00	715			X																						
ICP3	1.00	718								X				X		X											
ICV2	1.00	720			X																						
ICV1	1.00	728		X			X	X	X	X	X	X	X	X		X	X		X						X	X	
ICV1-1	1.00	730								X			X	X													
BLANK	1.00	739		X	X		X	X	X	X	X	X	X	X		X	X		X						X	X	
ICB	1.00	740																									
PBW	1.00	742																									
LCSW1	1.00	745																									
LCSW2	1.00	748			X																						
ICSA	1.00	750		X						X				X		X											
ICSAB	1.00	753		X			X	X	X	X	X	X	X	X		X	X		X						X	X	
ICSAB	1.00	756															X										
CRI	1.00	814		X	X		X	X	X	X	X	X	X	X		X	X		X						X	X	
LO-IG102D-GW	1.00	817																									
" -D	1.00	820																									
" -S	1.00	825																									
LO-IG102L-GW	1.00	829																									
-IG101D-GW	1.00	832																									
CCV1	1.00	839																									
CCV1-1	1.00	840								X																	
CCV2	1.00	846			X																						
CCB	1.00	853		X	X		X	X	X	X	X	X	X	X		X	X		X						X	X	
LO-IG101M-GW	1.00	856																									
-IG101L-GW	1.00	858																									
-IMW01D-GW	1.00	901																									
-IMW01S-GW	1.00	903																									
-IMW03S-GW	1.00	905																									
-IMW03D-GW	1.00	1043																									
-IMW35SD	1.00	1046																									
-IGW1-FB	1.00	1048																									

ANALYSIS RUN LOG

Lab Name: ARDL Contract: 111897 (DISS)

Lab Code: _____ Case No.: _____ SAS No.: _____ SDG No.: _____

Instrument ID Number: JA965 Method: P

Start Date: 05/08/91 End Date: 05/08/91

EPA Sample No.	D/F	Time	% R	Analytes																							
				AL	SB	AS	BA	BE	CD	CA	CR	CO	CU	FE	PB	MG	MN	HG	NI	K	SE	AG	NA	TL	V	ZN	CN
LO-16W1-FBD	1.00	1051		X	X		X	X	X	X	X	X	X	X		X	X		X						X	X	
-S	1.00	1054																									
CCV1	1.00	1057																									
CCV1-1	1.00	1059		X						X																	
CCV1-2	1.00	1101								X																	
CCV2	1.00	1104			X																						
CCB	1.00	1112		X	X		X	X	X	X	X	X	X	X		X	X		X						X	X	
PBW	1.00	1114																									
ZZZZZ	1.00	1117																									
ZZZZZ	1.00	1119																									
LCSW1	1.00	1121		X			X	X	X	X	X	X	X	X		X	X		X						X	X	
LCSW2	1.00	1124			X																						
LO-1mWELSGW-L	5.00	1135		X	X		X	X	X	X	X	X	X	X		X	X		X						X	X	
ZZZZZ	1.00	1138																									
ZZZZZ	1.00	1140																									
ZZZZZ	1.00	1143																									
CRI	1.00	1153		X	X		X	X	X	X	X	X	X	X		X	X		X						X	X	
ICSA	1.00	1156		X						X				X		X											
ICSAB	1.00	1158		X			X	X	X	X	X	X	X	X		X	X		X						X	X	
CCV1	1.00	1212		X																							
CCV1-1	1.00	1214		X						X																	
CCV1-2	1.00	1216		X						X																	
CCV2	1.00	1219			X																						
CCB	1.00	1231		X	X		X	X	X	X	X	X	X	X		X	X		X						X	X	

ANALYSIS RUN LOG

Lab Name: ARDL Contract: 111897 (TOTAL)

Lab Code: _____ Case No.: _____ SAS No.: _____ SDG No.: _____

Instrument ID Number: JA965 Method: P

Start Date: 05/10/91 End Date: 05/11/91

EPA Sample No.	D/F	Time	% R	Analytes																							
				AL	SB	AS	BA	BE	CD	CA	CR	CO	CU	FE	PB	MG	MN	HG	NI	K	SE	AG	NA	TL	V	ZN	CN
S0	1.00	700		X	X		X	X	X	X	X	X	X	X	X	X	X		X			X			X	X	
S1	1.00	703		X			X	X	X	X	X	X	X	X	X	X	X		X			X			X	X	
S2	1.00	705			X																						
S3	1.00	710								X				X		X											
ICV2	1.00	731			X																						
ICV1	1.00	743		X			X	X	X	X	X	X	X	X	X	X	X		X			X			X	X	
ICV1-1	1.00	745								X																	
BLANK	1.00	754		X	X		X	X	X	X	X	X	X	X	X	X	X		X			X			X	X	
ICB	1.00	756																									
PBW	1.00	800																									
CRI	1.00	802																									
LCSW1	1.00	810																									
LCSW2	1.00	812			X																						
ICSA	1.00	815		X						X				X		X											
ICSAB	1.00	817		X			X	X	X	X	X	X	X	X	X	X	X		X			X			X	X	
LO-IG102D-GW	1.00	837			X																						
" -D	1.00	840																									
" -S	1.00	842																									
LO-IG102L-GW	1.00	847																									
-IG101D-GW	1.00	850																									
CCV2	1.00	855			X																						
CCV1	1.00	907		X			X	X	X	X	X	X	X	X	X	X	X		X			X			X	X	
CCV1-1	1.00	909								X																	
CCB	1.00	1033		X	X		X	X	X	X	X	X	X	X	X	X	X		X			X			X	X	
LO-IG102D-GWA104		1038																									
LO-IG101M-GW	1.00	1047																									
-IG101L-GW	1.00	1049																									
-IMW01D-GW	1.00	1051																									
-IMW01S-GW	1.00	1054																									
-IMW03S-GW	1.00	1056																									
-IMW03D-GW	1.00	1059																									
-IMW3S-FD	1.00	1101																									
-IGW1-FD	1.00	1112																									

ANALYSIS RUN LOG

Lab Name: ARDL Contract: 111897 (TOTAL)

Lab Code: _____ Case No.: _____ SAS No.: _____ SDG No.: _____

Instrument ID Number: JA965 Method: P

Start Date: 05/10/91 End Date: 05/10/91

EPA Sample No.	D/F	Time	% R	Analytes																						
				AL	SB	AS	BA	BE	CD	CA	CR	CO	CU	FE	PB	MG	MN	HG	NI	K	SE	AG	NA	TL	V	ZN	CN
LO1GW1-FB	1.00	1114		X	X		X	X	X	X	X	X	X	X	X	X	X		X			X			X	X	
-1MW01S-GWL	5.00	1121																									
CCV2	1.00	1130			X																						
CCV1	1.00	1137		X			X	X	X	X	X	X	X	X	X	X	X		X			X			X	X	
CCV1-1	1.00	1138								X																	
CCB	1.00	1158		X	X		X	X	X	X	X	X	X	X	X	X	X		X			X			X	X	
PBW	1.00	1200																									
LCSW1	1.00	1203																									
LCSW2	1.00	1205			X																						
CRI	1.00	1217		X	X		X	X	X	X	X	X	X	X	X	X	X		X			X			X	X	
ICSA	1.00	1219		X						X				X		X											
ICSAB	1.00	1222		X			X	X	X	X	X	X	X	X	X	X	X		X			X			X	X	
CCV2	1.00	1237			X																						
CCV1	1.00	1244		X			X	X	X	X	X	X	X	X	X	X	X		X			X			X	X	
CCV1-1	1.00	1246		X						X																	
BLANK	1.00	1305		X	X		X	X	X	X	X	X	X	X	X	X	X		X			X			X	X	
CCB	1.00	1307																									

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ANALYSIS RUN LOG

Lab Name: ARDL Contract: 111897

Lab Code: _____ Case No.: _____ SAS No.: _____ SDG No.: _____

Instrument ID Number: AA-20 Method: BH

Start Date: 5-10-91 End Date: 5-10-91

DISSOLVED

EPA Sample No.	D/F	Time	% R	Analytes																						
				AL	SB	AS	BA	BE	CD	CA	CR	CO	CU	FE	PB	MG	MN	HG	NI	K	SE	AG	NA	TL	V	ZN	CN
S0	1.00	1630				X																					
S1.00	1.00	1632																									
S3.00	1.00	1634																									
S5.00	1.00	1636																									
S7.00	1.00	1638																									
ICV	1.00	1640																									
ICB	1.00	1642																									
CRA	1.00	1644																									
LCSW	1.00	1646																									
PBW	1.00	1648																									
ZZZZZ	5.00	1650																									
ZZZZZ	5.00	1652																									
ZZZZZ	5.00	1654																									
ZZZZZ	5.00	1656																									
ZZZZZ	5.00	1658																									
ZZZZZ	5.00	1700																									
ZZZZZ	5.00	1702																									
CCV	1.00	1704																									
CCB	1.00	1706																									
ZZZZZ	5.00	1708																									
ZZZZZ	5.00	1710																									
ZZZZZ	5.00	1712																									
ZZZZZ	5.00	1714																									
ZZZZZ	1.00	1716																									
ZZZZZ	5.00	1718																									
ZZZZZ	5.00	1720																									
ZZZZZ	25.00	1722																									
ZZZZZ	25.00	1724																									
CCV	1.00	1726																									
CCB	1.00	1728																									
ZZZZZ	5.00	1730																									
ZZZZZ	5.00	1732																									
ZZZZZ	5.00	1734				X																					

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ANALYSIS RUN LOG

Lab Name: ARDL Contract: 111897

Lab Code: _____ Case No.: _____ SAS No.: _____ SDG No.: _____

Instrument ID Number: AA-20 Method: BH

Start Date: 5-10-91 End Date: 5-10-91

EPA Sample No.	D/F	Time	% R	Analytes																						
				AL	SB	AS	BA	BE	CD	CA	CR	CO	CU	FE	PB	MG	MN	HG	NI	K	SE	AG	NA	TL	V	ZN	CN
zzzzz	25.00	1736				X																					
zzzzz	25.00	1738																									
zzzzz	25.00	1740																									
zzzzz	5.00	1742																									
zzzzz	50.00	1744																									
CCV	1.00	1746																									
CCB	1.00	1748																									
zzzzz	5.00	1750																									
zzzzz	5.00	1752																									
zzzzz	5.00	1754																									
zzzzz	1.00	1756																									
zzzzz	1.00	1758																									
zzzzz	500.00	1800																									
zzzzz	125.00	1802																									
zzzzz	125.00	1804																									
zzzzz	125.00	1806																									
CCV	1.00	1808																									
CCB	1.00	1810																									
20-16020-GW	5.00	1812																									
20-16020D-GWD	5.00	1814																									
20-16020-GWS	5.00	1816																									
20-16020-GW	5.00	1818																									
20-16010-GW	5.00	1820																									
20-16101m-GW	5.00	1822																									
20-16010-GW	5.00	1824																									
20-1mw010-GW	5.00	1826																									
20-1mw015-GW	5.00	1828																									
20-mw035-GW	5.00	1830																									
CCV	1.00	1832																									
CCB	1.00	1834																									
20-1mw030-GW	5.00	1836																									
20-1mw035-FD	5.00	1838																									
20-1SW1-FB	5.00	1840				X																					

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ANALYSIS RUN LOG

Lab Name: ARDL Contract: 111897

Lab Code: ______ Case No.: ______ SAS No.: ______ SDG No.: ______

Instrument ID Number: AA-20 Method: BH

Start Date: 5-10-91 End Date: 5-10-91

EPA Sample No.	D/F	Time	% R	Analytes																							
				AL	SB	AS	BA	BE	CD	CA	CR	CO	CU	FE	PB	MG	MN	HG	NI	K	SE	AG	NA	TL	V	ZN	CN
L016W1-FBD	5.00	842				X																					
CCV	1.00	1844																									
CCB	1.00	1846																									
ZZZZZ	5.00	1848																									
ZZZZZ	5.00	1850																									
ZZZZZ	5.00	1852																									
ZZZZZ	5.00	1854																									
ZZZZZ	5.00	1856																									
ZZZZZ	5.00	1858																									
ZZZZZ	5.00	1900																									
ZZZZZ	5.00	1902																									
ZZZZZ	5.00	1904																									
ZZZZZ	5.00	1906																									
ZZZZZ	5.00	1908																									
ZZZZZ	5.00	[illegible]																									
ZZZZZ	5.00	[illegible]																									
ZZZZZ	5.00	[illegible]																									
ZZZZZ	5.00	[illegible]																									
ZZZZZ	5.00	[illegible]																									
ZZZZZ	5.00	[illegible]																									
ZZZZZ	5.00	1922																									
ZZZZZ	5.00	[illegible]																									
ZZZZZ	5.00	[illegible]																									
ZZZZZ	5.00	[illegible]																									
ZZZZZ	5.00	[illegible]																									
ZZZZZ	5.00	[illegible]																									
ZZZZZ	5.00	1934																									
ZZZZZ	5.00	[illegible]																									
ZZZZZ	5.00	[illegible]																									
ZZZZZ	25.00	[illegible]																									
ZZZZZ	5.00	[illegible]																									
ZZZZZ	5.00	[illegible]																									
						X																					

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ANALYSIS RUN LOG

Lab Name: ARDL Contract: 111897

Lab Code: _____ Case No.: _____ SAS No.: _____ SDG No.: _____

Instrument ID Number: AA20 Method: BH

Start Date: 5-22-91 End Date: 5-22-91

TOTAL

EPA Sample No.	D/F	Time	% R	Analytes																						
				AL	SB	AS	BA	BE	CD	CA	CR	CO	CU	FE	PB	MG	MN	HG	NI	K	SE	AG	NA	TL	V	ZN	CN
SO	1.00	1620				X																					
S 1.00	1.00	1622																									
S 3.00	1.00	1624																									
S 5.00	1.00	1626																									
S 7.00	1.00	1628																									
ICV	1.00	1630																									
ICB	1.00	1632																									
CRA	1.00	1634																									
LCSW	1.00	1636																									
PBW	1.00	1638																									
ZZZZZZ	5.00	1640																									
ZZZZZZ	5.00	1642																									
ZZZZZZ	5.00	1644																									
ZZZZZZ	5.00	1646																									
ZZZZZZ	5.00	1648																									
ZZZZZZ	5.00	1650																									
ZZZZZZ	5.00	1652																									
CCV	1.00	1654																									
CCB	1.00	1656																									
ZZZZZZ	5.00	1658																									
ZZZZZZ	5.00	1700																									
ZZZZZZ	5.00	1702																									
ZZZZZZ	5.00	1704																									
ZZZZZZ	5.00	1706																									
ZZZZZZ	5.00	1708																									
LO-161020-GW	5.00	1710																									
LO-161020-GW D	5.00	1712																									
LO-161020-GW S	5.00	1714																									
LO-161021-GW	5.00	1716																									
CCV	1.00	1718																									
CCB	1.00	1720																									
LO-161021-GW	20.00	1722																									
LO-161018-GW	5.00	1724				X																					

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ANALYSIS RUN LOG

Lab Name: ARDL Contract: 111897

Lab Code: _____ Case No.: _____ SAS No.: _____ SDG No.: _____

Instrument ID Number: AA20 Method: BH

Start Date: 5-22-91 End Date: 5-22-91

EPA Sample No.	D/F	Time	% R	Analytes																						
				AL	SB	AS	BA	BE	CD	CA	CR	CO	CU	FE	PB	MG	MN	HG	NI	K	SE	AG	NA	TL	V	ZN	CN
LO-1GW1M-GW	5.00	1726				X																					
LO-1GW01S-GW	5.00	1728																									
LO-1MW01D-GW	5.00	1730																									
LO-1MW01S-GW	5.00	1732																									
LO-1MW03S-GW	5.00	1734																									
LO-1MW03D-GW	5.00	1736																									
LO-1MW35-FD	5.00	1738																									
LO-1GW1-FB	5.00	1740																									
CCV	1.00	1742																									
CCB	1.00	1744																									
LO-1GW1-FB D	5.00	1746																									
LO-1GW01M-GW	10.00	1748																									
LO-1MW01S-GW	25.00	1750																									
LO-1MW03S-GW	25.00	1752																									
LO-1MW35-FD	25.00	1754																									
CCV	1.00	1756																									
CCB	1.00	1758																									
LCS W	1.00	1800																									
PBW	1.00	1802																									
ZZZZZZ	5.00	1804																									
ZZZZZZ	5.00	1806																									
ZZZZZZ	5.00	1808																									
ZZZZZZ	20.00	1810																									
ZZZZZZ	5.00	1812																									
ZZZZZZ	5.00	1814																									
ZZZZZZ	5.00	1816																									
ZZZZZZ	25.00	1818																									
ZZZZZZ	5.00	1820																									
ZZZZZZ	5.00	1822																									
ZZZZZZ	5.00	1824																									
ZZZZZZ	5.00	1826																									
ZZZZZZ	5.00	1828																									
ZZZZZZ	5.00	1830				X																					

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ANALYSIS RUN LOG

Lab Name: ARDL Contract: 111807

Lab Code: _____ Case No.: _____ SAS No.: _____ SDG No.: _____

Instrument ID Number: AA20 Method: BH

Start Date: 5-22-91 End Date: 5-22-91

EPA Sample No.	D/F	Time	% R	Analytes																						
				AL	SB	AS	BA	BE	CD	CA	CR	CO	CU	FE	PB	MG	MN	HG	NI	K	SE	AG	NA	TL	V	ZN	CN
22222	5.00	1832				X																					
22222	5.00	1834																									
22222	5.00	1836																									
22222	5.00	1838																									
22222	5.00	1840																									
22222	25.00	1842				X																					

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ANALYSIS RUN LOG

Lab Name: ARDL, INC Contract: 111897

Lab Code: _____ Case No.: _____ SAS No.: _____ SDG No.: _____

Instrument ID Number: AA300 Method: F

Start Date: 5/31/91 End Date: 5/31/91

DISSOLVED

EPA Sample No.	D/F	Time	% R	Analytes																						
				AL	SB	AS	BA	BE	CD	CA	CR	CO	CU	FE	PB	MG	MN	HG	NI	K	SE	AG	NA	TL	V	ZN	CN
S0.00	1.00	0845													X												
S3.00	1.00	0850																									
S10.00	1.00	0855																									
S15.00	1.00	0900																									
S20.00	1.00	0905																									
ICV	1.00	0910																									
ICB	1.00	0915																									
CRA	1.00	0925																									
LCSW	1.00	0930																									
LCSWA	1.00	0937	86.8																								
PBW	1.00	0942																									
PBWA	1.00	0950	105.2																								
LD-IG102D-GW	1.00	0955																									
LD-IG102D-GWA	1.00	1000	94.2																								
LD-IG102L-GW	1.00	1005																									
LD-IG102L-GWA	1.00	1010	102.0																								
CCV	1.00	1015																									
CCB	1.00	1020																									
LD-IG102L-GWD	1.00	1025																									
LD-IG102L-GWDA	1.00	1025																									
LD-IG102L-GWDR	1.00	1040	95.8																								
LD-IG102L-GWS	1.00	1050																									
LD-IG101D-GW	1.00	1055																									
LD-IG101D-GWA	1.00	1100	105.7																								
LD-IG101M-GW	1.00	1105																									
LD-IG101M-GWA	1.00	1110	96.7																								
LD-IG101L-GW	1.00	1115																									
LD-IG101L-GWA	1.00	1120	50.5																								
CCV	1.00	1125																									
CCB	1.00	1130																									
LD-IMW01D-GW	1.00	1235																									
LD-IMW01D-GWA	1.00	1240	91.5																								
LD-IMW01S-GW	1.00	1245													X												

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ANALYSIS RUN LOG

Lab Name: ARDL, INC Contract: 111897

Lab Code: _____ Case No.: _____ SAS No.: _____ SDG No.: _____

Instrument ID Number: AA300 Method: F

Start Date: 5/31/91 End Date: 5/31/91

EPA Sample No.	D/F	Time	% R	Analytes																					
				AL	SB	AS	BA	BE	CD	CA	CR	CO	CU	FE	PB	MG	MN	HG	NI	K	SE	AG	NA	TL	V	ZN	CN
LO-1mw035-GW	1.00	1250	95.3												X												
LO-1mw035-GW	1.00	1255																									
LO-1mw035-GW	1.00	1300	86.2																								
LO-1mw030-GW	1.00	1305																									
LO-1mw030-GW	1.00	1310	76.2																								
LO-1mw35-FD	1.00	1320																									
LO-1mw35-FD	1.00	1325	100.2																								
CCV	1.00	1335																									
CCB	1.00	1340																									
LO-1GW1-FB	1.00	1345																									
LO-1GW1-FBA	1.00	1350	98.5																								
LO-1GW1-FBD	1.00	1400																									
LO-1GW1-FBDA	1.00	1405	99.8																								
ZZZZZ	1.00	1410																									
ZZZZZ	1.00	1415	99.0																								
ZZZZZ	1.00	1420																									
ZZZZZ	1.00	1425																									
ZZZZZ	1.00	1430	33.8																								
CCV	1.00	1435																									
CCB	1.00	1440																									
ZZZZZ	1.00	1450																									
ZZZZZ	1.00	1455	103.0																								
ZZZZZ	1.00	1500																									
ZZZZZ	1.00	1505	103.5																								
ZZZZZ	1.00	1510																									
ZZZZZ	1.00	1515																									
ZZZZZ	1.00	1520	83.2																								
ZZZZZ	1.00	1525																									
ZZZZZ	1.00	1530	103.3																								
CCV	1.00	1540																									
CCB	1.00	1545																									
ZZZZZ	1.00	1555																									
ZZZZZ a	1.00	1557													X												

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ANALYSIS RUN LOG

Lab Name: ARDL, INC Contract: 111897

Lab Code: _____ Case No.: _____ SAS No.: _____ SDG No.: _____

Instrument ID Number: AA300 Method: F

Start Date: 5/31/91 End Date: 5/31/91

EPA Sample No.	D/F	Time	% R	Analytes																							
				AL	SB	AS	BA	BE	CD	CA	CR	CO	CU	FE	PB	MG	MN	HG	NI	K	SE	AG	NA	TL	V	ZN	CN
ZZZZZ 3	1.00	1559													X												
ZZZZZ 0	1.00	1602																									
ZZZZZ	1.00	1607																									
ZZZZZ	1.00	1612	52.2																								
ZZZZZ 1	1.00	1620																									
ZZZZZ 2	1.00	1623																									
ZZZZZ 3	1.00	1625																									
ZZZZZ 1	1.00	1630																									
ZZZZZ 2	1.00	1633																									
ZZZZZ 3	1.00	1635																									
ZZZZZ 0	1.00	1638																									
ZZZZZ 1	1.00	1641																									
ZZZZZ 2	1.00	1644																									
ZZZZZ 3	1.00	1647																									
ZZZZZ 0	1.00	1650																									
CCV	1.00	1700																									
CCB	1.00	1705																									
40-lmw030-GW1	1.00	1710																									
40-lmw030-GW2	1.00	1715																									
40-lmw030-GW3	1.00	1720																									
40-lmw030-GW0	1.00	1725																									
ZZZZZ	1.00	1730																									
ZZZZZ	1.00	1735																									
ZZZZZ	1.00	1740																									
ZZZZZ	1.00	1745																									
ZZZZZ	1.00	1750																									
ZZZZZ	2.00	1755																									
ZZZZZ	1.00	1800																									
CCV	1.00	1805																									
CCB	1.00	1810													X												

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ANALYSIS RUN LOG

Lab Name: ARDL, Inc. Contract: 111897

Lab Code: _____ Case No.: _____ SAS No.: _____ SDG No.: _____

Instrument ID Number: AA300 Method: F

Start Date: 6/4/91 End Date: 6/4/91

EPA Sample No.	D/F	Time	% R	Analytes																						
				AL	SB	AS	BA	BE	CD	CA	CR	CO	CU	FE	PB	MG	MN	HG	NI	K	SE	AG	NA	TL	V	ZN	CN
S0.00	1.00	9:00													X												
S3.00	1.00	9:05													X												
S10.00	1.00	9:10													X												
S15.00	1.00	9:15													X												
S20.00	1.00	9:20													X												
ICV	1.00	9:25													X												
ICB	1.00	9:30													X												
CRA	1.00	9:35													X												
LCS	1.00	9:40													X												
LCSA	1.00	9:45	106												X												
PB	1.00	9:50													X												
PBA	1.00	9:55	94												X												
ZZZZZ	1.00	10:00													X												
ZZZZZ	2.00	10:05													X												
CCV	1.00	10:10													X												
CCB	1.00	10:15													X												
LO-16102D-GW	1.00	10:20													X												
LO-16102D-GWA	1.00	10:25	105												X												
LO-16102D-GWD	1.00	10:30													X												
LO-16102D-GWDA	1.00	10:35	96												X												
LO-16102D-GWS	2.00	10:40													X												
LO-16102L-GW	1.00	10:45													X												
LO-16102L-GWA	1.00	10:50	99												X												
CCV	1.00	10:55													X												
CCB	1.00	11:00													X												
LO-16101D-GW	1.00	11:00													X												
LO-16101D-GWA	1.00	11:05	112												X												
LO-16101M-GW	5.00	11:10													X												
LO-16101M-GWA	5.00	11:15	86												X												
LO-16101L-GW	1.00	11:20													X												
LO-16101L-GWA	1.00	11:25	89												X												
LO-1MW01D-GW	1.00	11:30													X												
LO-1MW01D-GWA	1.00	11:35	103												X												

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ANALYSIS RUN LOG

Lab Name: ARDL, Inc Contract: 111897

Lab Code: _____ Case No.: _____ SAS No.: _____ SDG No.: _____

Instrument ID Number: AA Method: F

Start Date: 6/4/91 End Date: 6/4/91

EPA Sample No.	D/F	Time	% R	Analytes																							
				AL	SB	AS	BA	BE	CD	CA	CR	CO	CU	FE	PB	MG	MN	HG	NI	K	SE	AG	NA	TL	V	ZN	CN
CCV	1.00	11:40													X												
CCB	1.00	11:45													X												
ZZZZZ	1.00	11:50													X												
ZZZZZ	1.00	11:55													X												

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ANALYSIS RUN LOG

Lab Name: ARDL, Inc. Contract: 111897 (total)

Lab Code: _____ Case No.: _____ SAS No.: _____ SDG No.: _____

Instrument ID Number: AA300 Method: F

Start Date: 6/5/91 End Date: 6/5/91

EPA Sample No.	D/F	Time	% R	Analytes																						
				AL	SB	AS	BA	BE	CD	CA	CR	CO	CU	FE	PB	MG	MN	HG	NI	K	SE	AG	NA	TL	V	ZN	CN
S0.00	1.00	9:00													X												
S3.00	1.00	9:05													X												
S10.00	1.00	9:10													X												
S15.00	1.00	9:15													X												
S20.00	1.00	9:20													X												
ICV	1.00	9:25													X												
ICB	1.00	9:30													X												
CRA	1.00	9:35													X												
LCS	1.00	9:40													X												
LCSA	1.00	9:45	113.8												X												
PB	1.00	9:50													X												
PBA	1.00	10:00	112.2												X												
ZZZZZ	1.00	10:05													X												
ZZZZZ	1.00	10:10													X												
CCV	1.00	10:15													X												
CCB	1.00	10:20													X												
LO-1MW01S-GW	1.00	10:25													X												
ZZZZZ	20.00	10:30													X												
LO-1MW01S-GW	20.00	10:35													X												
LO-1MW01S-GWA	20.00	10:40	92.2												X												
ZZZZZ	1.00	10:45													X												
LO-1MW03S-GW	1.00	10:50													X												
LO-1MW03S-GWA	1.00	10:55	99.9												X												
LO-1MW03S-GW	4.00	11:00													X												
LO-1MW03S-GWA	4.00	11:05	83.5												X												
LO-1MW03D-GW	1.00	11:10													X												
LO-1MW03D-GWA	1.00	11:15	92.2												X												
CCV	1.00	11:20													X												
CCB	1.00	11:25													X												
LO-1MW3S-FD	1.00	11:30													X												
LO-1MW3S-FD	4.00	11:35													X												
LO-1MW3S-FDA	4.00	11:40	78.5												X												
LO-1GW1-FB	1.00	11:45													X												

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ANALYSIS RUN LOG

Lab Name: ARDL Contract: 111897

Lab Code: _____ Case No.: _____ SAS No.: _____ SDG No.: _____

Instrument ID Number: AA-300 Method: F

Start Date: 6-5-91 End Date: 6-5-91

EPA Sample No.	D/F	Time	% R	Analytes																						
				AL	SB	AS	BA	BE	CD	CA	CR	CO	CU	FE	PB	MG	MN	HG	NI	K	SE	AG	NA	TL	V	ZN	CN
LO-16W1-FBA	1.00	11:50	126.0												X												
LO-16W1FB0	1.00	11:55																									
LO-16W1FB0A	1.00	12:00	129.0																								
CCV	1.00	12:05																									
CCB	1.00	12:10																									
ZZZZZ 1	1.00	12:15																									
ZZZZZ2	1.00	12:20																									
LO-1MW01S-GW1	20.00	12:25																									
LO-1MW01S-GW2	20.00	12:26																									
LO-1MW01S-GW3	20.00	1227																									
LO-1MW01S-GW0	20.00	1228																									
LO-1MW02K-GW1	20.00	1230																									
LO-1MW01S-GW2	20.00	1231																									
LO-1MW01S-GW3	20.00	1232																									
LO-1MW01S-GW0	20.00	1233																									
ZZZZZ 1	20.00	1239																									
ZZZZZ2	20.00	1240																									
CCV	1.00	1245																									
CCB	1.00	1250																									
ZZZZZ 1	10.00	1256																									
ZZZZZ 2	10.00	1257																									
ZZZZZ 3	10.00	1258																									
ZZZZZ0	10.00	1259																									
LO-1MW03S-GW1	10.00	1300																									
LO-1MW03S-GW2	10.00	1301																									
LO-1MW03S-GW3	10.00	1302																									
LO-1MW03S-GW0	10.00	1303																									
LO-1MW03S-GW1	10.00	1310																									
LO-1MW03S-GW2	10.00	1311																									
LO-1MW03S-GW3	10.00	1312																									
LO-1MW03S-GW0	10.00	1313																									
LO-1MW3S-FD1	10.00	1314																									
LO-1MW3S-FD2	10.00	1315													X												

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ANALYSIS RUN LOG

Lab Name: AROL Contract: 111897

Lab Code: _____ Case No.: _____ SAS No.: _____ SDG No.: _____

Instrument ID Number: AA-300 Method: F

Start Date: 6-5-91 End Date: 6-5-91

EPA Sample No.	D/F	Time	% R	Analytes																							
				AL	SB	AS	BA	BE	CD	CA	CR	CO	CU	FE	PB	MG	MN	HG	NI	K	SE	AG	NA	TL	V	ZN	CN
1mw35-f03	10.00	1316													X												
1mw35-f01	10.00	1317													X												
CCV.	1.00	1320													X												
CCB	1.00	1325													X												

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ANALYSIS RUN LOG

Lab Name: ARDL, INC. Contract: 111897

Lab Code: _____ Case No.: _____ SAS No.: _____ SDG No.: _____

Instrument ID Number: AA300 Method: CV

Start Date: 5/10/91 End Date: 5/10/91

EPA Sample No.	D/F	Time	% R	Analytes																							
				AL	SB	AS	BA	BE	CD	CA	CR	CO	CU	FE	PB	MG	MN	HG	NI	K	SE	AG	NA	TL	V	ZN	CN
S0.00	1.00	1230																X									
S0.50	1.00	1232																									
S1.00	1.00	1234																									
S3.00	1.00	1236																									
S5.00	1.00	1238																									
S10.00	1.00	1240																									
ICV	1.00	1242																									
ICB	1.00	1244																									
CRA	1.00	1246																									
WSW	1.00	1248																									
PBW	1.00	1250																									
ICSW	1.00	1252																									
ZZZZZ	1.00	1254																									
ZZZZZ	1.00	1256																									
ZZZZZ	1.00	1258																									
ZZZZZ	1.00	1300																									
ZZZZZ	1.00	1302																									
ZZZZZ	1.00	1304																									
CCV	1.00	1306																									
CCB	1.00	1308																									
ZZZZZ	1.00	1310																									
ZZZZZ	1.00	1312																									
ZZZZZ	1.00	1314																									
ZZZZZ	1.00	1316																									
ZZZZZ	1.00	1318																									
ZZZZZ	1.00	1320																									
ZZZZZ	1.00	1322																									
LO-16103D-GW	1.00	1324																									
LO-16103D-GWD	1.00	1326																									
LO-16103D-GWS	1.00	1328																									
CCV	1.00	1330																									
CCB	1.00	1332																									
LO-16102L-GW	1.00	1334																X									

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ANALYSIS RUN LOG

Lab Name: ARDL, INC. Contract: 111897

Lab Code: _____ Case No.: _____ SAS No.: _____ SDG No.: _____

Instrument ID Number: AA300 Method: CV

Start Date: 5/10/91 End Date: 5/10/91

EPA Sample No.	D/F	Time	% R	Analytes																						
				AL	SB	AS	BA	BE	CD	CA	CR	CO	CU	FE	PB	MG	MN	HG	NI	K	SE	AG	NA	TL	V	ZN	CN
LO-1G101D-GW	1.00	1336																X									
LO-1G101M-GW	1.00	1338																									
LO-1G101L-GW	1.00	1340																									
LO-1MW01D-GW	1.00	1342																									
LO-1MW01S-GW	1.00	1344																									
LO-1MW03S-GW	1.00	1346																									
LO-1MW03D-GW	1.00	1348																									
LO-1MW35-FD	1.00	1350																									
LO-1GW1-FB	1.00	1352																									
CCV	1.00	1354																									
CCB	1.00	1356																									
LO-1GW1-FBD	1.00	1358																									
LO-1G102D-GW	1.00	1400																									
LO-1G102D-GWD	1.00	1402																									
LO-1G102D-GWS	1.00	1404																									
LO-1G102L-GW	1.00	1406																									
LO-1G101D-GW	1.00	1408																									
LO-1G101M-GW	1.00	1410																									
LO-1G101L-GW	1.00	1412																									
LO-1MW01D-GW	1.00	1414																									
LO-1MW01S-GW	1.00	1416																									
CCV	1.00	1418																									
CCB	1.00	1420																									
LO-1MW03S-GW	1.00	1422																									
LO-1MW03D-GW	1.00	1424																									
LO-1MW35-FD	1.00	1426																									
LO-1GW1-FB	1.00	1428																									
LO-1GW1-FBD	1.00	1430																									
ZZZZZ	1.00	1432																									
ZZZZZ	1.00	1434																									
ZZZZZ	1.00	1436																									
ZZZZZ	1.00	1438																									
ZZZZZ	1.00	1440																X									

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ANALYSIS RUN LOG

Lab Name: ARDL, INC. Contract: 111897

Lab Code: _____ Case No.: _____ SAS No.: _____ SDG No.: _____

Instrument ID Number: AA300 Method: CV

Start Date: 5/10/91 End Date: 5/10/91

EPA Sample No.	D/F	Time	% R	Analytes																						
				AL	SB	AS	BA	BE	CD	CA	CR	CO	CU	FE	PB	MG	MN	HG	NI	K	SE	AG	NA	TL	V	ZN	CN
CCV	1.00	1442																X									
CCB	1.00	1444																									
ZZZZZ	1.00	1446																									
ZZZZZ	1.00	1448																									
ZZZZZ	1.00	1450																									
ZZZZZ	1.00	1452																									
ZZZZZ	1.00	1454																									
ZZZZZ	1.00	1456																									
ZZZZZ	1.00	1458																									
CCV	1.00	1500																									
CCB	1.00	1502																X									

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ANALYSIS RUN LOG

Lab Name: ARDL Contract: 111897

Lab Code: _____ Case No.: _____ SAS No.: _____ SDG No.: _____

Instrument ID Number: AA20 Method: BH

Start Date: 5-10-91 End Date: 5-10-91

EPA Sample No.	D/F	Time	% R	Analytes																							
				AL	SB	AS	BA	BE	CD	CA	CR	CO	CU	FE	PB	MG	MN	HG	NI	K	SE	AG	NA	TL	V	ZN	CN
S0	1.00	1300																			X						
S3.00	1.00	1302																									
S5.00	1.00	1304																									
S2.00	1.00	1306																									
S10.00	1.00	1308																									
ICV	1.00	1310																									
ICB	1.00	1312																									
CRA	1.00	1314																									
LCSW	1.00	1316																									
PRIN	1.00	1318																									
ZZZZZ	5.00	1320																									
ZZZZZ	5.00	1322																									
ZZZZZ	5.00	1324																									
ZZZZZ	25.00	1326																									
ZZZZZ	1.00	1328																									
ZZZZZ	1.00	1330																									
ZZZZZ	25.00	1332																									
CCV	1.00	1334																									
CCB	1.00	1336																									
ZZZZZ	25.00	1338																									
ZZZZZ	25.00	1340																									
L0-1G1020-GW	5.00	1342																									
L0-1G1020-GWD	5.00	1344																									
L0-1G1020-GWS	5.00	1346																									
L0-1G1020-GW	5.00	1348																									
L0-1G1010-GW	5.00	1350																									
L0-1G1010-GW	5.00	1352																									
L0-1G1010-GW	5.00	1354																									
L0-1MW010-GW	5.00	1356																									
CCV	1.00	1358																									
CCB	1.00	1400																									
L0+1MW015-GW	5.00	1402																									
L0+1MW035-GW	5.00	1404																			X						

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ANALYSIS RUN LOG

Lab Name: APDL, INC. Contract: 111897

Lab Code: _____ Case No.: _____ SAS No.: _____ SDG No.: _____

Instrument ID Number: AA20 Method: BH

Start Date: 5/10/91 End Date: 5/10/91

	EPA Sample No.	D/F	Time	% R	Analytes																					
					AL	SB	AS	BA	BE	CD	CA	CR	CO	CU	FE	PB	MG	MN	HG	NI	K	SE	AG	NA	TL	V	ZN	CN
	40-1MW03D-FB	5.00	1406																			X						
10	40-1MW03S-FB	5.00	1408																									
11	40-1GW1-FB	5.00	1410																									
12	40-GW6-TB	5.00	1412																									
	CCV	1.00	1414																									
	CCB	1.00	1416																									
	ZZZZZ	5.00	1418																									
	ZZZZZ	5.00	1420																									
	ZZZZZ	5.00	1422																									
	ZZZZZ	5.00	1424																									
	ZZZZZ	5.00	1426																									
	ZZZZZ	5.00	1428																									
	ZZZZZ	5.00	1430																									
	ZZZZZ	5.00	1432																									
	ZZZZZ	5.00	1434																									
	ZZZZZ	5.00	1436																									
	ZZZZZ	1.00	1438																									
	ZZZZZ	1.00	1440																									
	ZZZZZ	5.00	1442																									
	ZZZZZ	1.00	1444																									
	ZZZZZ	1.00	1446																									
	ZZZZZ	25.00	1448																									
	ZZZZZ	5.00	1450																									
	ZZZZZ	5.00	1452																									
	ZZZZZ	5.00	1454																									
	ZZZZZ	5.00	1456																									
	ZZZZZ	5.00	1458																									
	ZZZZZ	5.00	1500																									
	ZZZZZ	1.00	1502																									
	ZZZZZ	1.00	1504																									
	ZZZZZ	5.00	1506																									
	ZZZZZ	5.00	1508																									
	ZZZZZ	5.00	1510																			X						

ANALYSIS RUN LOG

Lab Name: ARDL, INC. Contract: 111897

Lab Code: _____ Case No.: _____ SAS No.: _____ SDG No.: _____

Instrument ID Number: AA20 Method: BH

Start Date: 5/10/91 End Date: 5/10/91

EPA Sample No.	D/F	Time	% R	Analytes																							
				AL	SB	AS	BA	BE	CD	CA	CR	CO	CU	FE	PB	MG	MN	HG	NI	K	SE	AG	NA	TL	V	ZN	CN
ZZZZZ	5.00	1512																			X						
ZZZZZ	5.00	1514																									
ZZZZZ	5.00	1516																									
ZZZZZ	5.00	1518																									
ZZZZZ	5.00	1520																									
ZZZZZ	5.00	1522																									
ZZZZZ	5.00	1524																									
ZZZZZ	1.00	1526																									
ZZZZZ	1.00	1528																									
ZZZZZ	5.00	1530																									
ZZZZZ	5.00	1532																									
ZZZZZ	5.00	1534																									
ZZZZZ	5.00	1536																									
ZZZZZ	5.00	1538																									
ZZZZZ	5.00	1540																									
ZZZZZ	5.00	1542																									
ZZZZZ	5.00	1544																									
ZZZZZ	5.00	1546																									
ZZZZZ	5.00	1548																									
ZZZZZ	1.00	1550																									
ZZZZZ	1.00	1552																									
ZZZZZ	5.00	1554																									
ZZZZZ	1.00	1556																									
ZZZZZ	1.00	1558																									
ZZZZZ	1.00	1600																									
ZZZZZ	1.00	1602																									
ZZZZZ	5.00	1604																									
ZZZZZ	5.00	1606																									
ZZZZZ	5.00	1608																			X						

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ANALYSIS RUN LOG

Lab Name: ARDL, INC. Contract: 111897

Lab Code: _____ Case No.: _____ SAS No.: _____ SDG No.: _____

Instrument ID Number: AA 20 Method: BH

Start Date: 5-22-91 End Date: 5-22-91

EPA Sample No.	D/F	Time	% R	Analytes																						
				AL	SB	AS	BA	BE	CD	CA	CR	CO	CU	FE	PB	MG	MN	HG	NI	K	SE	AG	AN	TL	V	ZN	CN
S 0.00	1.00	1400																			X						
S 3.00	1.00	1402																									
S 7.00	1.00	1404																									
S 10.00	1.00	1406																									
ICV	1.00	1408																									
ICB	1.00	1410																									
CRA	1.00	1412																									
LCS	1.00	1414																									
PBLK	1.00	1416																									
ZZZZZ	5.00	1418																									
ZZZZZ	5.00	1420																									
ZZZZZ	5.00	1422																									
ZZZZZ	5.00	1424																									
ZZZZZ	5.00	1426																									
ZZZZZ	5.00	1428																									
ZZZZZ	5.00	1430																									
ICV	1.00	1432																									
ICB	1.00	1434																									
ZZZZZ	1.00	1436																									
LO-IG102D-GW	5.00	1438																									
LO-IG102D-GWD	5.00	1440																									
LO-IG102D-GWS	5.00	1442																									
LO-IG102L-GW	5.00	1444																									
LO-IG101D-GW	5.00	1446																									
LO-IG101M-GW	5.00	1448																									
LO-IG101L-GW	5.00	1450																									
LO-IMW01D-GW	5.00	1452																									
LO-IMW01S-GW	5.00	1454																									
ICV	1.00	1456																									
ICB	1.00	1458																									
LO-IMW03S-GW	5.00	1500																									
LO-IMW03D-GW	5.00	1502																									
LO-IMW03S-FD	5.00	1504																			X						

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ANALYSIS RUN LOG

Lab Name: ABOL, INC. Contract: 111897

Lab Code: _____ Case No.: _____ SAS No.: _____ SDG No.: _____

Instrument ID Number: AA20 Method: BH

Start Date: 5-22-91 End Date: 5-22-91

EPA Sample No.	D/F	Time	% R	Analytes																						
				AL	SB	AS	BA	BE	CD	CA	CR	CO	CU	FE	PB	MG	MN	HG	NI	K	SE	AG	NA	TL	V	ZN	CN
LO-IGWI-FB	5.00	1506																			X						
LO-IGWI-FB D	5.00	1508																									
ICV	1.00	1510																									
ICCB	1.00	1512																									
ILCS	1.00	1514																									
PBLK	1.00	1516																									
ZZZZZ	5.00	1518																									
ZZZZZ	5.00	1520																									
ZZZZZ	5.00	1522																									
ZZZZZ	5.00	1524																									
ZZZZZ	5.00	1526																									
ZZZZZ	5.00	1528																									
ZZZZZ	5.00	1530																									
ZZZZZ	5.00	1532																									
ZZZZZ	5.00	1534																									
ZZZZZ	5.00	1536																									
ZZZZZ	5.00	1538																									
ZZZZZ	5.00	1540																									
ZZZZZ	5.00	1542																									
ZZZZZ	5.00	1544																									
ZZZZZ	5.00	1546																									
ZZZZZ	5.00	1548																									
ZZZZZ	5.00	1550																			X						

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ANALYSIS RUN LOG

Lab Name: ARDL, INC. Contract: 111897

Lab Code: _____ Case No.: _____ SAS No.: _____ SDG No.: _____

Instrument ID Number: AA20 Method: A

Start Date: 5/22/91 End Date: 5/22/91

EPA Sample No.	D/F	Time	% R	Analytes																						
				AL	SB	AS	BA	BE	CD	CA	CR	CO	CU	FE	PB	MG	MN	HG	NI	K	SE	AG	NA	TL	V	ZN	CN
S0.00	1.00	1110																		X							
S5.00	1.00	1111																									
S10.00	1.00	1112																									
S15.00	1.00	1113																									
S20.00	1.00	1114																									
ICV	1.00	1115																									
ICB	1.00	1116																									
CRA	1.00	1117																									
LCSW	1.00	1118																									
PBW	1.00	1119																									
ZZZZZZ	1.00	1120																									
ZZZZZZ	1.00	1121																									
ZZZZZZ	1.00	1122																									
ZZZZZZ	1.00	1123																									
ZZZZZZ	1.00	1124																									
ZZZZZZ	1.00	1125																									
ZZZZZZ	1.00	1126																									
CCV	1.00	1127																									
CCB	1.00	1128																									
ZZZZZZ	1.00	1129																									
LO-1G102D-GW	1.00	1130																									
LO-1G102D-GWD	1.00	1131																									
LO-1G102L-GW	1.00	1132																									
LO-1G101D-GW	1.00	1133																									
LO-1G101M-GW	1.00	1134																									
LO-1G101L-GW	1.00	1135																									
LO-1MW01D-GW	1.00	1136																									
LO-1MW01S-GW	1.00	1137																									
LO-1MW03S-GW	1.00	1138																									
CCV	1.00	1139																									
CCB	1.00	1140																									
LO-1MW03D-GW	1.00	1141																									
LO-1MW35-FD	1.00	1142																									

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ANALYSIS RUN LOG

Lab Name: ARDL, INC. Contract: 111897

Lab Code: _____ Case No.: _____ SAS No.: _____ SDG No.: _____

Instrument ID Number: AA 20 Method: A

Start Date: 5/22/91 End Date: 5/22/91

EPA Sample No.	D/F	Time	% R	Analytes																							
				AL	SB	AS	BA	BE	CD	CA	CR	CO	CU	FE	PB	MG	MN	HG	NI	K	SE	AG	NA	TL	V	ZN	CN
LO-1GW1-FB	1.00	1143																		✓							
LO-1GW1-FBD	1.00	1144																									
LCSW	1.00	1145																									
PBW	1.00	1146																									
LO-1G102D-GW	1.00	1147																									
LO-1G103D-GWD	1.00	1148																									
LO-1G102L-GW	1.00	1149																									
LO-1G101D-GW	1.00	1150																									
CCV	1.00	1151																									
CCB	1.00	1152																									
LO-1G101M-GW	1.00	1153																									
LO-1G101L-GW	1.00	1154																									
LO-1MW01D-GW	1.00	1156																									
LO-1MW01S-GW	1.00	1157																									
LO-1MW03S-GW	1.00	1158																									
LO-1MW03D-GW	1.00	1159																									
LO-1MW35-FD	1.00	1200																									
LO-1GW1-FB	1.00	1201																									
LO-1GW1-FBD	1.00	1202																									
CCV	1.00	1203																									
CCB	1.00	1204																									
ZZZZZ	1.00	1205																									
ZZZZZZ	1.00	1206																									
ZZZZZZ	1.00	1207																									
ZZZZZZ	1.00	1208																									
ZZZZZZ	1.00	1209																									
ZZZZZZ	1.00	1210																									
ZZZZZZ	1.00	1211																									
ZZZZZZ	1.00	1212																									
ZZZZZZ	1.00	1213																									
ZZZZZZ	1.00	1214																									
ZZZZZZ	1.00	1215																									
ZZZZZZ	1.00	1216																		↓							

U.S. EPA - CLP

14

ANALYSIS RUN LOG

Lab Name: ABDL INC. Contract: 111897

Lab Code: _____ Case No.: _____ SAS No.: _____ SDG No.: _____

Instrument ID Number: AA20 Method: A

Start Date: 5/22/91 End Date: 5/22/91

EPA Sample No.	D/F	Time	% R	Analytes																							
				AL	SB	AS	BA	BE	CD	CA	CR	CO	CU	FE	PB	MG	MN	HG	NI	K	SE	AG	NA	TL	V	ZN	CN
ZZZZZZ	1.00	1217																		X							
ZZZZZZ	1.00	1218																									
ZZZZZZ	1.00	1219																									
ZZZZZZ	1.00	1220																									
ZZZZZZ	1.00	1221																									

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100097

U.S. EPA - CLP

14

ANALYSIS RUN LOG

Lab Name: ARDL, INC Contract: 111897

Lab Code: _____ Case No.: _____ SAS No.: _____ SDG No.: _____

Instrument ID Number: AA20 Method: A

Start Date: 5/17/91 End Date: 5/17/91

EPA Sample No.	D/F	Time	% R	Analytes																						
				AL	SB	AS	BA	BE	CD	CA	CR	CO	CU	FE	PB	MG	MN	HG	NI	K	SE	AG	NA	TL	V	ZN	CN
S0	1.00	0915																				X					
S50	1.00	0916																									
S100	1.00	0917																									
S200	1.00	0918																									
S500	1.00	0919																									
ICV	1.00	0920																									
ICB	1.00	0921																									
CRA	1.00	0922																									
LCSW	1.00	0923																									
LCSW	10.00	0924																									
PBW	1.00	0925																									
LD-1G102D-GW	1.00	0926																									
LD-1G102D-GWD	1.00	0927																									
LD-1G102D-GWS	1.00	0928																									
LD-1G102L-GW	1.00	0929																									
LD-1G101D-GW	1.00	0930																									
LD-1G101M-GW	1.00	0931																									
CCV	1.00	0932																									
CCB	1.00	0933																									
LD-1G101L-GW	1.00	0934																									
LD-1MW01D-GW	1.00	0935																									
LD-1MW01S-GW	1.00	0936																									
LD-1MW03S-GW	1.00	0937																									
LD-1MW03D-GW	1.00	0938																									
LD-1MW3S-FD	1.00	0939																									
LD-1GW1-FB	1.00	0940																									
LD-1GW1-FBD	1.00	0950																									
CCV	1.00	0951																									
CCB	1.00	0952																									
ZZZZZ	10.00	0953																									
ZZZZZ	1.00	0954																									
ZZZZZ	1.00	0955																									
ZZZZZ	1.00	0957																				X					

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U.S. EPA - CLP

14

ANALYSIS RUN LOG

Lab Name: ARDL, INC Contract: 111897

Lab Code: _____ Case No.: _____ SAS No.: _____ SDG No.: _____

Instrument ID Number: AA20 Method: A

Start Date: 5/17/91 End Date: 5/17/91

EPA Sample No.	D/F	Time	% R	Analytes																							
				AL	SB	AS	BA	BE	CD	CA	CR	CO	CU	FE	PB	MG	MN	HG	NI	K	SE	AG	NA	TL	V	ZN	CN
ZZZZZ	1.00	0957																				X					
ZZZZZ	1.00	0958																									
ZZZZZ	1.00	0959																									
ZZZZZ	1.00	1000																									
ZZZZZ	1.00	1001																									
ZZZZZ	1.00	1002																									
ZZZZZ	1.00	1003																									
ZZZZZ	1.00	1004																									
ZZZZZ	1.00	1005																				X					

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14

ANALYSIS RUN LOG

Lab Name: ARDL, INC Contract: 111897

Lab Code: _____ Case No.: _____ SAS No.: _____ SDG No.: _____

Instrument ID Number: AA20 Method: A

Start Date: 5/22/91 End Date: 5/22/91

EPA Sample No.	D/F	Time	% R	Analytes																							
				AL	SB	AS	BA	BE	CD	CA	CR	CO	CU	FE	PB	MG	MN	HG	NI	K	SE	AG	NA	TL	V	ZN	CN
S0.00	1.00	0910																					X				
S5.00	1.00	0911																									
S10.00	1.00	0912																									
S15.00	1.00	0913																									
S20.00	1.00	0914																									
ICV	1.00	0915																									
ICB	1.00	0916																									
CRA	1.00	0917																									
LCSW	1.00	0918																									
PBW	1.00	0919																									
ZZZZZ	1.00	0920																									
ZZZZZ	1.00	0921																									
ZZZZZ	1.00	0922																									
ZZZZZ	1.00	0923																									
ZZZZZ	1.00	0924																									
ZZZZZ	1.00	0925																									
ZZZZZ	1.00	0926																									
CCV	1.00	0927																									
CCB	1.00	0928																									
ZZZZZ	1.00	0929																									
ZZZZZ	1.00	0930																									
ZZZZZ	1.00	0931																									
ZZZZZ	1.00	0932																									
ZZZZZ	1.00	0933																									
LO-161020-GW	1.00	0934																									
LO-161021-GWD	1.00	0935																									
LO-161021-GW	1.00	0936																									
LO-161011-GW	1.00	0937																									
LO-161011M-GW	1.00	0938																									
CCV	1.00	0939																									
CCB	1.00	0940																									
LO-161020-GW	10.00	0941																									
LO-161020-GWD	10.00	0942																					X				

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100100

U.S. EPA - CLP

14

ANALYSIS RUN LOG

Lab Name: ARDL, INC Contract: 111897

Lab Code: _____ Case No.: _____ SAS No.: _____ SDG No.: _____

Instrument ID Number: AA2D Method: A

Start Date: 5/22/91 End Date: 5/22/91

EPA Sample No.	D/F	Time	% R	Analytes																						
				AL	SB	AS	BA	BE	CD	CA	CR	CO	CU	FE	PB	MG	MN	HG	NI	K	SE	AG	NA	TL	V	ZN	CN
LO-1G102L-GW	10.00	0943																					X				
LO-1G101L-GW	1.00	0944																									
LO-1MW01D-GW	1.00	0945																									
LO-1MW01D-GW	2.00	0946																									
LO-1G101L-GW	100.00	0947																									
LO-1MW01S-GW	1.00	0948																									
LO-1MW03S-GW	1.00	0949																									
LO-1MW03D-GW	1.00	0950																									
CCV	1.00	0951																									
CCB	1.00	0952																									
LO-1MW3S-FD	1.00	0953																									
LO-1GW1-FB	1.00	0954																									
LO-1GW1-FBD	1.00	0955																									
LO-1MW01S-GW	100.00	0956																									
LO-1MW03S-GW	2.00	0957																									
LO-1MW03D-GW	2.00	0958																									
LO-1MW3S-FD	2.00	0959																									
LO-1G102D-GW	1.00	1000																									
LO-1G102D-GW	1.00	1001																									
LO-1G102L-GW	1.00	1002																									
CCV	1.00	1003																									
CCB	1.00	1004																									
LO-1G102D-GW	50.00	1005																									
LO-1G102D-GW	50.00	1006																									
LO-1G102L-GW	50.00	1007																									
LO-1G101D-GW	1.00	1008																									
LO-1G101M-GW	1.00	1009																									
LO-1G101L-GW	1.00	1010																									
LO-1MW01D-GW	1.00	1011																									
LO-1MW01S-GW	1.00	1012																									
LCSW	1.00	1013																									
PBW	1.00	1014																									
CCV	1.00	1015																					X				

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100101

U.S. EPA - CLP

14

ANALYSIS RUN LOG

Lab Name: ARDL, INC. Contract: 111897

Lab Code: _____ Case No.: _____ SAS No.: _____ SDG No.: _____

Instrument ID Number: AA20 Method: A

Start Date: 5/22/91 End Date: 5/22/91

EPA Sample No.	D/F	Time	% R	Analytes																						
				AL	SB	AS	BA	BE	CD	CA	CR	CO	CU	FE	PB	MG	MN	HG	NI	K	SE	AG	NA	TL	V	ZN	CN
CCB	1.00	1016																					X				
LO-1MW01D-GW	2.00	1017																									
LO-1MW01S-GW	50.00	1018																									
LO-1MW03S-GW	1.00	1019																									
LO-1MW03D-GW	1.00	1020																									
LO-1MW3S-FD	1.00	1021																									
LO-1GW1-FB	1.00	1022																									
LO-1GW1-FBD	1.00	1023																									
LO-1MW03S-GW	2.00	1024																									
LO-1MW03D-GW	5.00	1025																									
LO-1MW3S-FD	2.00	1026																									
CCV	1.00	1027																									
CCB	1.00	1028																									
ZZZZZ	1.00	1029																									
ZZZZZ	1.00	1030																									
ZZZZZ	1.00	1031																									
ZZZZZ	1.00	1032																									
ZZZZZ	1.00	1033																									
ZZZZZ	1.00	1034																									
ZZZZZ	1.00	1035																									
ZZZZZ	1.00	1036																									
ZZZZZ	1.00	1037																									
ZZZZZ	1.00	1038																									
ZZZZZ	1.00	1039																									
ZZZZZ	1.00	1040																									
ZZZZZ	1.00	1041																									
ZZZZZ	1.00	1042																									
ZZZZZ	1.00	1043																									
ZZZZZ	1.00	1044																									
ZZZZZ	1.00	1045																									
ZZZZZ	1.00	1046																									
ZZZZZ	2.00	1047																									
ZZZZZ	2.00	1048																					X				

FORM XIV - IN 7/88

100102

U.S. EPA - CLP

14

ANALYSIS RUN LOG

Lab Name: ARDL, INC Contract: 111897

Lab Code: _____ Case No.: _____ SAS No.: _____ SDG No.: _____

Instrument ID Number: AA20 Method: A

Start Date: 5/22/91 End Date: 5/22/91

EPA Sample No.	D/F	Time	% R	Analytes																							
				AL	SB	AS	BA	BE	CD	CA	CR	CO	CU	FE	PB	MG	MN	HG	NI	K	SE	AG	NA	TL	V	ZN	CN
ZZZZZ	1.00	1049																					X				
ZZZZZ	1.00	1050																									
ZZZZZ	1.00	1051																									
ZZZZZ	1.00	1052																					X				

FORM XIV - IN 7/88

100103

U.S. EPA - CLP

14

ANALYSIS RUN LOG

Lab Name: ARDL, Inc Contract: 111897

Lab Code: _____ Case No.: _____ SAS No.: _____ SDG No.: _____

Instrument ID Number: AA20 Method: F

Start Date: 5-30-91 End Date: 5-30-91

EPA Sample No.	D/F	Time	% R	Analytes																						
				AL	SB	AS	BA	BE	CD	CA	CR	CO	CU	FE	PB	MG	MN	HG	NI	K	SE	AG	AN	TL	V	ZN	CN
S 0.00	1.00	0735																						X			
S 10.00	1.00	0740																									
S 20.00	1.00	0745																									
S 30.00	1.00	0750																									
S 50.00	1.00	0755																									
ICV	1.00	0800																									
ICB	1.00	0805																									
CRA	1.00	0810																									
LCSW	1.00	0815																									
LCSWA	1.00	0820	98.8																								
PBW	1.00	0825																									
PBWA	1.00	0830	87.4																								
40-16102D-GW	1.00	0840																									
40-16102D-GWA	1.00	0845	76.2																								
40-16102L-GW	1.00	0850																									
40-16102L-GWA	1.00	0855	71.2																								
40-16102L-GW-S	1.00	0910																									
CCV	1.00	0915																									
CCB	1.00	0920																									
40-16102L-GW-D	1.00	0925																									
40-16102LGWDA	1.00	0935	73.5																								
40-16101D-GW	1.00	0940																									
40-16101D-GWA	1.00	0945	117.8																								
40-16101M-GW	1.00	0955																									
40-16101M-GWA	1.00	1000	71.6																								
40-16101L-GW	1.00	1010																									
40-16101L-GWA	1.00	1015	90.0																								
40-1MW01D-GW	1.00	1025																									
40-1MW01D-GWA	1.00	1030	72.8																								
CCV	1.00	1035																									
CCB	1.00	1045																									
40-1MW01S-GW	1.00	1050																									
40-1MW01S-GWA	1.00	1100	72.0																								

U.S. EPA - CLP

14

ANALYSIS RUN LOG

Lab Name: ARDL INC Contract: 111897

Lab Code: _____ Case No.: _____ SAS No.: _____ SDG No.: _____

Instrument ID Number: AA20 Method: F

Start Date: 5-30-91 End Date: 5-30-91

EPA Sample No.	D/F	Time	% R	Analytes																						
				AL	SB	AS	BA	BE	CD	CA	CR	CO	CU	FE	PB	MG	MN	HG	NI	K	SE	AG	NA	TL	V	ZN	CN
AO-1MW03S-GW	1.00	1110																						X			
AO-1MW03S-GWA	1.00	1115	79.8																								
AO-1MW03D-GW	1.00	1120																									
AO-1MW03D-GWA	1.00	1125	71.8																								
AO-1MW35-FD	1.00	1135																									
AO-1MW35-FDA	1.00	1145	86.2																								
AO-1GW1-FB	1.00	1215																									
AO-1GW1-FBA	1.00	1220	97.0																								
CCV	1.00	1220																									
CCB	1.00	1225																									
AO-1GW1FB-D	1.00	1240																									
AO-1GW1FB-DA	1.00	1245	84.8																								
AO-1G102D-GW	1.00	1300																									
AO-1G102D-GWA	1.00	1315	66.4																								
AO-1G102D-GWD	1.00	1320																									
AO-1G102D-GWDA	1.00	1325	[illegible]																								
AO-1G102D-GWS	1.00	1335																									
AO-1G102L-GW	1.00	1340																									
AO-1G102L-GWA	1.00	1345	71.9																								
CCV	1.00	1350																									
CCB	1.00	1355																									
AO-1G101D-GW	1.00	1400																									
AO-1G101D-GWA	1.00	1410	74.6																								
AO-1G101M-GW	1.00	1415																									
AO-1G101M-GWA	1.00	1425	54.9																								
AO-1G101L-GW	1.00	1430																									
AO-1G101LGWA	1.00	1445	76.3																								
AO-1MW01D-GW	1.00	1450																									
AO-1MW01D-GWA	1.00	1455	70.9																								
AO-1MW01S-GW	1.00	1510																									
AO-1MW01S-GWA	1.00	1515	105.1																								
CCV		1505																									
CCB		1510																									

ANALYSIS RUN LOG

Lab Name: ARDL INC Contract: 111897

Lab Code: _____ Case No.: _____ SAS No.: _____ SDG No.: _____

Instrument ID Number: AA20 Method: F

Start Date: 5-30-91 End Date: 5-30-91

EPA Sample No.	D/F	Time	% R	Analytes																							
				AL	SB	AS	BA	BE	CD	CA	CR	CO	CU	FE	PB	MG	MN	HG	NI	K	SE	AG	NA	TL	V	ZN	CN
40-1MW03S-GW	1.00	1530																						X			
40-1MW03S-GWA	1.00	1535	93.3																								
40-1MW03D-GW	1.00	1545																									
40-1MW03D-GWA	1.00	1600	91.0																								
40-1MW35-FD	1.00	1605																									
40-1MW35-FDA	1.00	1610	91.7																								
40-GW1-FB	1.00	1615																									
40-GW1-FBA	1.00	1620	102.7																								
40-GW1-FB-D	1.00	1625																									
40-GW1-FB-DA	1.00	1630	100.0																								
CCV	1.00	1635																									
CCB	1.00	1640																									
LCS W	1.00	1645																									
LCS WA	1.00	1650	96.1																								
PB W	1.00	1655																									
PB WA	1.00	1700	100.3																								
CCV	1.00	1710																									
CCB	1.00	1715																									

B. CASE 111908

SDG 111908

PROJECT NAME: Lenz Oil

SUPPORT DOCUMENTATION FOR THE REVIEW OF INORGANIC ANALYTICAL DATA PACKAGE

TYPE OF ANALYSIS: Metals, CN

CONTRACT LABORATORY: ARDL

REVIEWER: Ruth Forman

REVIEW DATE: June, 1991

APPLICABLE SAMPLE NO's.: See Table 1 of Report

THE FOLLOWING TABLE INDICATES AREAS WHICH WERE EXAMINED IN DETAIL, THE IDENTIFIED PROBLEM AREAS, AND SUPPORT DOCUMENTATION ATTACHMENTS:

	AREAS EXAMINED IN DETAIL (CHECK (✓) IF YES OR FOOTNOTE LETTER FOR COMMENTS BELOW)					PROBLEM AREAS IDENTIFIED (CHECK (✓) IF YES OR FOOTNOTE NUMBER FOR COMMENTS BELOW)					SUPPORT DOCUMENTATION ATTACHMENTS (CHECK (✓) IF YES OR IDENTIFY ATTACHMENT)				
	ALL APPLICABLE ANALYSES	ICP OR A.A. METALS	FURNACE METALS	COLD VAPOR MERCURY	CYANIDE	ALL APPLICABLE ANALYSES	ICP OR A.A. METALS	FURNACE METALS	COLD VAPOR MERCURY	CYANIDE	ALL APPLICABLE ANALYSES	ICP OR A.A. METALS	FURNACE METALS	COLD VAPOR MERCURY	CYANIDE
HOLDING TIMES	✓									✓	✓				
BLANK ANALYSIS RESULTS	✓						✓				✓				
MATRIX SPIKES (PRE-DIGESTION)	✓						✓				✓				
DUPLICATES	✓										✓				
QUANTITATION OF RESULTS	✓														
DETECTION LIMITS/SENSITIVITY	✓														
INITIAL CALIBRATIONS	✓						✓				✓				
CONTINUING CALIBRATIONS	✓						✓				✓				
LABORATORY CONTROL STANDARDS	✓						✓				✓				
ICP LINEAR RANGE ANALYSIS	✓										✓				
ICP INTERFERENCE CHECKS	✓										✓				
ICP SERIAL DILUTIONS	✓						✓				✓				
GFAA POST-DIGESTION SPIKES	✓							✓							
GFAA DUPLICATE BURNS	✓														
GFAA STANDARD ADDITIONS	✓										✓				
OTHERS															

COMMENTS:

PARAMETER	TYPE/ MATRIX	SAMPLE #	SOURCE	CONTAMINANT (CONCENTRATION)
Metals	ICAL / Aq	Initial Calibration Diss.	ARDL	None Reported
Metals	CCAL / Aq	Continuing Calibration Diss.	ARDL	None Reported
Metals	PB / Aq	Prep Blank Diss.	ARDL	None Reported
Metals	ICAL / Aq	Initial Calibration Tot.	ARDL	None Reported
Metals	CCAL / Aq	Continuing Calibration Total	ARDL	None Reported
Metals	PB / Aq	Prep Blank Tot	ARDL	None Reported
Metals	FB / Aq	LO-1GW2-FB Dissolved		None Reported
Metals	FB / Aq	LO-1GW2-FB Total		6300 ug/L Calcium 31,500 150 ug/L Iron 750 3300 ug/L magnesium 16,500 2400 ug/L sodium 12,000 22 ug/L zinc 110

LABORATORY REPORTED FIELD BLANK IS COMPARED WITH THE SAMPLE DATA IN A TABULATION FORM WITHIN THE SAMPLE ANALYTICAL DATA SUMMARY.

COMMENTS:

(1) RESULT REPORTED BY THE LABORATORY AND CONFIRMED BY REVIEWER

(2) RESULT INFERED FROM INSTRUMENT PRINTOUTS AND/OR SUPPORTING DATA

FORM IIA

INITIAL AND CONTINUING CALIBRATION VERIFICATION METALS

Lab Name ARDL, Inc. Contract No. 111908

Initial Calibration Source LAB PREPARED

Continuing Calibration Source LAB PREPARED

Concentration Units: ug/L

DISSOLVED

Analyte	Initial Calibration True	Initial Calibration Found	Initial Calibration %R(1)	Continuing Calibration True	Continuing Calibration Found	Continuing Calibration %R(1)	Continuing Calibration Found	Continuing Calibration %R(1)	M
Aluminum	5000	4500	90 ✓	5000	4960	99	5410	108	P
Antimony	1000	934	93 ✓	1000	904	90	941	94	P
Arsenic	4.0	2.7	92	2.0	2.0	100	1.9	95	
Barium	500	501	100	500	494	99	490	98	P
Beryllium	500	488	98	500	475	95	453	91	P
Cadmium	1000	984	98	1000	954	95	917	92	P
Calcium	5000	5120	102 ✓	5000	5270	105	5060	101	P
Chromium	1250	1250	100	1250	1210	97	1150	92	P
Cobalt	1000	980	98	1000	959	95	971	97	P
Copper	1000	1040	104	1000	965	97	1030	103	P
Iron	750	757	101	750	733	98	705	94	P
Lead	10	10.56	100	10	10	100	[illegible]	[illegible]	S
Magnesium	5000	4950	99	5000	4950	99	5190	104	P
Manganese	500	491	98	500	480	96	479	96	P
Mercury	6.0	6.1	102	4.0	3.9	98	3.8	95	CV
Nickel	2500	2470	99	2500	2460	98	2660	106	P
Potassium	3000	2900	99	3000	3000	100	3150	105	A
Selenium	4.0	4.2	105	2.0	2.0	100	1.9	95	BH
Silver	2500	2520	101	2500	2520	101	2570	103	P
Sodium	8000	7700	96	8000	7600	95	7800	98	A
Thallium	25	24	96	25	27	108	23	92	P
Vanadium	500	498	100	500	492	98	502	100	P
Zinc	1000	970	98 ✓	1000	971	97	1000	100	P
[illegible]									

(1) Control Limits: Mercury 80-120; Other Metals 90-110

FORM IIA

INITIAL AND CONTINUING CALIBRATION VERIFICATION
METALS

Lab Name ARDL, Inc. Contract No. 111908

Initial Calibration Source LAB PREPARED

Continuing Calibration Source LAB PREPARED

Concentration Units: ug/L

DISSOLVED

Analyte	Initial Calibration True	Initial Calibration Found	Initial Calibration %R(1)	Continuing Calibration True	Continuing Calibration Found	Continuing Calibration %R(1)	Continuing Calibration Found	Continuing Calibration %R(1)	M
Aluminum				5000	4650	93			P
Antimony				1000	999	100			P
Arsenic				2.0	1.9	95	2.1	105	BH
Barium				500	495	99			P
Beryllium				500	468	94			P
Cadmium				1000	943	94			P
Calcium				5000	5130	103			P
Chromium				1250	1160	93			P
Cobalt				1000	1010	101			P
Copper				1000	1020	102			P
Iron				750	732	98			P
Lead				10	10	100	11	110	F
Magnesium				5000	5410	108			P
Manganese				500	506	101			P
Mercury									CV
Nickel				2500	2460	98			P
Potassium				2000	8600	108	8300	04	A
Selenium				2.0	1.9	95	1.9	95	BH
Silver				2500	2370	95			P
Sodium				8000	7700	96	7700	96	A
Thallium				25	27	108	23	92	F
Vanadium				500	525	105			P
Zinc				1000	1040	104			P
Cyanide									

(1) Control Limits: Mercury 80-120; Other Metals 90-110

FORM IIA

INITIAL AND CONTINUING CALIBRATION VERIFICATION
METALS

Lab Name ARDL, Inc. Contract No. 111908

Initial Calibration Source LAB PREPARED

Continuing Calibration Source LAB PREPARED

Concentration Units: ug/L

Analyte	Initial Calibration True	Found	%R(1)	Continuing Calibration True	Found	%R(1)	Found	%R(1)	M
Aluminum									P
Antimony									
Arsenic									BH
Barium									P
Beryllium									P
Cadmium									P
Calcium									P
Chromium									P
Cobalt									P
Copper									P
Iron									P
Lead									
Magnesium									P
Manganese									P
Mercury									CV
Nickel									P
Potassium				8000	7300	91	8200	102	A
Selenium				2.0	1.8	90			BH
Silver									P
Sodium				8000	7700	96	7800	98	A
Thallium				[illegible]	[illegible]	98	23	92	F
Vanadium									P
Zinc									P

(1) Control Limits: Mercury 80-120; Other Metals 90-110

FORM IIA

INITIAL AND CONTINUING CALIBRATION VERIFICATION
METALS

Lab Name ARDL, Inc. Contract No. 111908

Initial Calibration Source LAB PREPARED

Continuing Calibration Source LAB PREPARED

Concentration Units: ug/L

Analyte	Initial Calibration True	Initial Calibration Found	Initial Calibration %R(1)	Continuing Calibration True	Continuing Calibration Found	Continuing Calibration %R(1)	Continuing Calibration Found	Continuing Calibration %R(1)	M
Aluminum									P
Antimony									
Arsenic									BH
Barium									P
Beryllium									P
Cadmium									P
Calcium									P
Chromium									P
Cobalt									P
Copper									P
Iron									P
Lead									
Magnesium									P
Manganese									P
Mercury									CV
Nickel									P
Potassium				8000	8100	101			A
Selenium									BH
Silver									P
Sodium				8000	7700	96	7800	98	A
Thallium				25	25	100	33	132	F
Vanadium									P
Zinc									P

(1) Control Limits: Mercury 80-120; Other Metals 90-110

FORM IIA

INITIAL AND CONTINUING CALIBRATION VERIFICATION
METALS

Lab Name ARDL, Inc. Contract No. 111908

Initial Calibration Source LAB PREPARED

Continuing Calibration Source LAB PREPARED

Concentration Units: ug/L

Analyte	Initial Calibration True	Initial Calibration Found	Initial Calibration %R(1)	Continuing Calibration True	Continuing Calibration Found	Continuing Calibration %R(1)	Continuing Calibration Found	Continuing Calibration %R(1)	M
Aluminum									P
Antimony									
Arsenic									SH
Barium									P
Beryllium									P
Cadmium									P
Calcium									P
Chromium									P
Cobalt									P
Copper									P
Iron									P
Lead									
Magnesium									P
Manganese									P
Mercury									CV
Nickel									P
Potassium									P
Selenium									BH
Silver									P
Sodium				8000	7700	96	7800	98	A
Thallium									F
Vanadium									P
Zinc									P

(1) Control Limits: Mercury 80-120; Other Metals 90-110

INITIAL AND CONTINUING CALIBRATION VERIFICATION
METALS

Lab Name ABDL, Inc. Contract No. 11908

Initial Calibration Source LAB PREPARED

Continuing Calibration Source LAB PREPARED

Concentration Units: ug/L

Total

Analyte	Initial Calibration True	Initial Calibration Found	Initial Calibration %R(1)	Continuing Calibration True	Continuing Calibration Found	Continuing Calibration %R(1)	Continuing Calibration Found	Continuing Calibration %R(1)	M
Aluminum	5000	5320	106	5000	4620	92	4670	93	P
Antimony	1000	961	96	1000	914	91	929	93	P
Arsenic									BH
Barium	500	509	102	500	506	101	498	100	P
Beryllium	500	494	99	500	490	98	469	94	P
Cadmium	1000	979	98	1000	984	98	934	93	P
Calcium	5000	5230	105	5000	5150	103	5290	106	P
Chromium	1250	1260	101	1250	1290	103	1240	99	P
Cobalt	1000	995	100	1000	999	100	949	95	P
Copper	1000	1030	103	1000	1020	102	1010	101	P
Iron	750	815	109	750	756	101	681	91	P
Lead	10	11	110	10	11	110	11	110	F
Magnesium	5000	5300	106	5000	5150	103	5270	105	P
Manganese	500	500	100	500	500	100	478	96	P
Mercury	6.0	6.6	110	4.0	4.1	102	4.2	105	CV
Nickel	2500	2510	100	2500	2540	102	2440	98	P
Potassium									P
Selenium									BH
Silver	2500	2440	97	2500	2520	101	2620	105	P
Sodium									P
Thallium									P
Vanadium	500	502	100	500	512	102	492	98	P
Zinc	1000	991	100	1000	1020	102	971	97	P

1) Control Limits: Mercury 80-120; Other Metals 90-110

INITIAL AND CONTINUING CALIBRATION VERIFICATION
METALS

Lab Name ARDL, Inc. Contract No. 111908

Initial Calibration Source Lab prepared

Continuing Calibration Source Lab prepared

Concentration Units: ug/L

Total

Analyte	Initial Calibration True	Initial Calibration Found	Initial Calibration %R(1)	Continuing Calibration True	Continuing Calibration Found	Continuing Calibration %R(1)	Continuing Calibration Found	Continuing Calibration %R(1)	M
Aluminum				5000	5380	108			P
Antimony				1000	962	96			P
Arsenic									BH
Barium				500	489	98			P
Beryllium				500	464	93			P
Cadmium				1000	943	94			P
Calcium				5000	5040	101			P
Chromium				1250	1220	98			P
Cobalt				1000	936	94			P
Copper				1000	1030	103			P
Iron				750	725	97			P
Lead				10	11	110	11	110	F
Magnesium				5000	4840	97			P
Manganese				500	463	93			P
Mercury				4.0	4.2	105			C
Nickel				2500	2430	97			P
Potassium									P
Selenium									BH
Silver				2500	2480	99			P
Sodium									P
Thallium									P
Vanadium				500	498	100			P
Zinc				1000	969	97			P

1) Control Limits: Mercury 80-120; Other Metals 90-110

FORM IIA

INITIAL AND CONTINUING CALIBRATION VERIFICATION
METALS

Lab Name ARDL, Inc. Contract No. 111908

Initial Calibration Source Lab Prepared

Continuing Calibration Source Lab Prepared

Concentration Units: ug/L

Analyte	Initial Calibration True	Found	%R(1)	Continuing Calibration True	Found	%R(1)	Found	%R(1)	M
Aluminum									P
Antimony									
Arsenic									BH
Barium									P
Beryllium									P
Cadmium									P
Calcium									P
Chromium									P
Cobalt									P
Copper									P
Iron									P
Lead				10	11	110			F
Magnesium									P
Manganese									P
Mercury									CV
Nickel									P
Potassium									P
Selenium									BH
Silver									P
Sodium									P
Thallium									F
Vanadium									P
Zinc									P

(1) Control Limits: Mercury 80-120; Other Metals 90-110

U.S. EPA - CLP

2B
CRDL STANDARD FOR AA AND ICP

Lab Name: ARDL, INC. Contract: 111908

Lab Code: _____ Case No.: _____ SAS No.: _____ SDG No.: _____

AA CRDL Standard Source: LAB PREPARED

ICP CRDL Standard Source: LAB PREPARED

Concentration Units: ug/L

Analyte	CRDL Standard for AA True	Found	%R	CRDL Standard for ICP Total True	Initial Found	%R	Final Found	%R
Aluminum				400	<200	0	579	145
Antimony				150	137	91	168	112
Arsenic								
Barium				400	374	94	366	92
Beryllium				10	9	90	9	90
Cadmium				10	9	90	8	80
Calcium				10000	10000	100	9930	99
Chromium				20	20	100	18	90
Cobalt				100	91	91	87	87
Copper				50	46	92	41	82
Iron				200	195	98	189	95
Lead	6.0	6.0	100					
Magnesium				10000	8220	82	8200	82
Manganese				30	<15	0	<15	0
Mercury	0.20	0.18	90					
Nickel				80	80	100	75	94
Potassium								
Selenium								
Silver				20	<10	0	<10	0
Sodium								
Thallium								
Vanadium				100	97	97	98	98
Zinc				40	41	103	35	88

U.S. EPA - CLP

2B
CRDL STANDARD FOR AA AND ICP

Lab Name: ARDL, INC. Contract: 111908

Lab Code: _____ Case No.: _____ SAS No.: _____ SDG No.: _____

AA CRDL Standard Source: Lab Prepared

ICP CRDL Standard Source: Lab Prepared

Concentration Units: ug/L

DISS

Analyte	CRDL Standard for AA True	Found	%R	CRDL Standard for ICP True	Initial Found	%R	Final Found	%R
Aluminum				400	<160	0	<160	0
Antimony				150	108	72	97	65
Arsenic	1.0	0.93	93					
Barium				400	370	93	344	86
Beryllium				10	8	80	8	80
Cadmium				10	9	90	<5	0
Calcium				10000	10100	101	11300	113
Chromium				20	20	100	30	150
Cobalt				100	88	88	85	85
Copper				50	47	94	48	96
Iron				200	237	119	257	129
Lead	6.0	6.4	107					
Magnesium				10000	7900	79	8010	80
Manganese				30	15	50	12	40
Mercury	0.20	0.16	80					
Nickel				80	77	96	53	66
Potassium	500	410	82					
Selenium	1.0	0.94	94					
Silver				20	12	60	31	155
Sodium	1000	910	91					
Thallium	10	8.0	80					
Vanadium				100	90	90	93	93
Zinc				40	40	100	460	1150

FORM IIIA
BLANKS
METALS

Lab Name ARDL, Inc. Contract No. 111908

Preparation Blank Matrix (soil/water) Water

Preparation Blank Concentration Units (ug/L or mg/kg) ug/l

DISS

Analyte	Initial Calib. Blanks (ug/L)	C	Continuing Calibration Blank (ug/L) 1	C	2	C	3	C	Preparation Blank	C	M
Aluminum	200	U	200	U	200	U	200	U	200	U	P
Antimony	60	U	60	U	60	U	60	U	60	U	
Arsenic	0.90	U	0.90	U	0.90	U	0.90	U	0.90	U	BH
Barium	50	U	50	U	50	U	50	U	50	U	P
Beryllium	5.0	U	5.0	U	5.0	U	5.0	U	5.0	U	P
Cadmium	5.0	U	5.0	U	5.0	U	5.0	U	5.0	U	P
Calcium	1000	U	1000	U	1000	U	1000	U	1000	U	P
Chromium	10	U	10	U	10	U	10	U	10	U	P
Cobalt	50	U	50	U	50	U	50	U	50	U	P
Copper	25	U	25	U	25	U	25	U	25	U	P
Iron	50	U	50	U	50	U	50	U	50	U	P
Lead	2.0	U	2.0	U	2.0	U	2.0	U	2.0	U	
Magnesium	1000	U	1000	U	1000	U	1000	U	1000	U	P
Manganese	15	U	15	U	15	U	15	U	15	U	P
Mercury	0.20	U	0.20	U	0.20	U			0.20	U	CV
Nickel	40	U	40	U	40	U	40	U	40	U	P
Potassium	500	U	500	U	500	U	500	U	500	U	A
Selenium	0.90	U	0.90	U	0.90	U	0.90	U	0.90	U	BH
Silver	10	U	10	U	10	U	10	U	10	U	P
Sodium	500	U	500	U	500	U	500	U	500	U	A
Thallium	50	U	50	U	50	U	50	U	50	U	F
Vanadium	50	U	50	U	50	U	50	U	50	U	P
Zinc	20	U	20	U	20	U	20	U			P

FORM IIIA
BLANKS
METALS

Lab Name ARDL, Inc. Contract No. 111908

Preparation Blank Matrix (soil/water) WATER

Preparation Blank Concentration Units (ug/L or mg/kg) UG/L

Diss

Analyte	Initial Calib. Blanks (ug/L)	C	Continuing Calibration Blank (ug/L) 1	C	2	C	3	C	Prepar-ation Blank	C	M
Aluminum											P
Antimony											
Arsenic			0.90	U							BH
Barium											P
Beryllium											P
Cadmium											P
Calcium											P
Chromium											P
Cobalt											P
Copper											P
Iron											P
Lead			2.0	U							F
Magnesium											P
Manganese											P
Mercury											CV
Nickel											P
Potassium			500	U	500	U	500	U	500	U	A
Selenium			0.90	U	0.90	U			0.90	U	BH
Silver											P
Sodium			500	U	500	U	500	U	500	U	A
Thallium			5.0	U	5.0	U	5.0	U	5.0	U	F
Vanadium											P
Zinc											P

FORM IIIA
BLANKS
METALS

Lab Name ARDL, Inc. Contract No. 111908

Preparation Blank Matrix (soil/water) WATER

Preparation Blank Concentration Units (ug/L or mg/kg) UG/L

Diss.

Analyte	Initial Calib. Blanks (ug/L)	Continuing Calibration Blank (ug/L) C	1	C	2	C	3	C	Prepar-ation Blank	C	M
Aluminum											P
Antimony											
Arsenic											BH
Barium											P
Beryllium											P
Cadmium											P
Calcium											P
Chromium											P
Cobalt											P
Copper											P
Iron											P
Lead											
Magnesium											P
Manganese											P
Mercury											CV
Nickel											P
Potassium			500	U							A
Selenium											BH
Silver											P
Sodium			500	U	500	U	500	U	500	U	A
Thallium			50	U	50	U					F
Vanadium											P
Zinc											P

FORM IIIA
BLANKS
METALS

Lab Name ARDL, Inc. Contract No. 11902

Preparation Blank Matrix (soil/water) WATER

Preparation Blank Concentration Units (ug/L or mg/kg) UG/L

Diss

Analyte	Initial Calib. Blanks (ug/L)	Continuing Calibration Blank (ug/L) C	1	C	2	C	3	C	Prepar-ation Blank	C	M
Aluminum											P
Antimony											
Arsenic											BH
Barium											P
Beryllium											P
Cadmium											P
Calcium											P
Chromium											P
Cobalt											P
Copper											P
Iron											P
Lead											
Magnesium											P
Manganese											P
Mercury											CV
Nickel											P
Potassium											P
Selenium											BH
Silver											P
Sodium			500	u							A
Thallium											F
Vanadium											P
Zinc											P

FORM IIIA
BLANKS
METALS

Lab Name ARDL, Inc. Contract No. 111908

Preparation Blank Matrix (soil/water) WATER

Preparation Blank Concentration Units (ug/L or mg/kg) UG/L

Total

Analyte	Initial Calib. Blanks (ug/L)	C	Continuing Calibration Blank (ug/L) 1	C	2	C	3	C	Prepar-ation Blank	C	M
Aluminum	200	U	200	U	200	U	200	U	200	U	P
Antimony	60	U	60	U	60	U	60	U	60	U	
Arsenic											BH
Barium	50	U	50	U	50	U	50	U	50	U	P
Beryllium	5.0	U	5.0	U	5.0	U	5.0	U	5.0	U	P
Cadmium	5.0	U	5.0	U	5.0	U	5.0	U	5.0	U	P
Calcium	1000	U	1000	U	1000	U	1000	U	1000	U	P
Chromium	10	U	10	U	10	U	10	U	10	U	P
Cobalt	50	U	50	U	50	U	50	U	50	U	P
Copper	25	U	25	U	25	U	25	U	25	U	P
Iron	50	U	50	U	50	U	50	U	50	U	P
Lead	2.0	U	2.0	U	2.0	U	2.0	U	2.0	U	F
Magnesium	1000	U	1000	U	1000	U	1000	U	1000	U	P
Manganese	15	U	15	U	15	U	15	U	15	U	P
Mercury	0.20	U	0.20	U	0.20	U	0.20	U	0.20	U	CV
Nickel	40	U	40	U	40	U	40	U	40	U	P
Potassium											P
Selenium											BH
Silver	10	U	10	U	10	U	10	U	10	U	P
Sodium											P
Thallium											F
Vanadium	50	U	50	U	50	U	50	U	50	U	P
Zinc	20	U	20	U	21	U	20	U	20	U	P
Cyanide									10	U	C

FORM IIIA
BLANKS
METALS

Lab Name ARDL, Inc. Contract No. 111908

Preparation Blank Matrix (soil/water) WATER

Preparation Blank Concentration Units (ug/L or mg/kg) ug/L

Analyte	Initial Calib. Blanks (ug/L)	C	Continuing Calibration Blank (ug/L) 1	C	2	C	3	C	Preparation Blank	C	M
Aluminum											P
Antimony											
Arsenic											BH
Barium											P
Beryllium											P
Cadmium											P
Calcium											P
Chromium											P
Cobalt											P
Copper											P
Iron											P
Lead			2.0	u	2.0	u					F
Magnesium											P
Manganese											P
Mercury											CV
Nickel											P
Potassium											P
Selenium											BH
Silver											P
Sodium											P
Thallium											F
Vanadium											P
Zinc											P

Form IV

ICP INTERFERENCE CHECK SAMPLE

Lab Name ARDL, Inc. Contract No. 111908

ICP ID Number JA 965

ICP Source ICF Technology

Concentration Units: ug/L

Diss

Analyte	True Sol. A	True Sol. AB	Initial Found Sol. A	Initial Found Sol. AB	%R	Final Found Sol. A	Final Found Sol. AB	%R
Aluminum	481000	469700	673000	672000		684000	805000	
Antimony								
Arsenic								
Barium		456		418	92		395	87
Berylium		472	50	499	106	207	484	103
Cadmium		958	7	813	85		785	82
Calcium	448250	445800	464000	464000		449000	572000	
Chromium	35	525	25	442	84	17	422	80
Cobalt		494	10	479	97		543	110
Copper		523		480	92		478	91
Iron	182650	178650	197000	177000		174000	231000	
Lead		4700						
Magnesium	450900	445200	501000	499000		509000	576000	
Manganese	16	530	127	522	98	304	573	108
Mercury								
Nickel		940		798	85		924	98
Potassium								
Selenium								
Silver		990		892	90		1030	104
Sodium								
Thallium								
Vanadium		471		409	87		471	100
Zinc		1026		878	86	108	1000	97
Cyanide								

Form IV

ICP INTERFERENCE CHECK SAMPLE

Lab Name ARDL, Inc. Contract No. 111968

ICP ID Number JA 965

ICP Source ICF Technology

Concentration Units: ug/L

Total

Analyte	True Sol. A	True Sol. AB	Initial Found Sol. A	Initial Found Sol. AB	%R	Final Found Sol. A	Final Found Sol. AB	%R
Aluminum	481000	469700	502000	521000		516000	547000	
Antimony								
Arsenic								
Barium		456		426	93		416	91
Beryllium		472		459	97	20	459	97
Cadmium		958		820	86		793	83
Calcium	448250	445800	450000	464000		433000	457000	
Chromium	25	525	18	464	88	15	440	84
Cobalt		494	84	480	97	50	461	93
Copper		523		502	96		467	89
Iron	182650	178650	181000	176000		172000	182000	
Lead		4700						
Magnesium	450900	445200	475000	487000		487000	511000	
Manganese	16	530	115	568	107	72	487	92
Mercury								
Nickel		940		811	86		775	82
Potassium								
Selenium								
Silver		990		866	87		924	93
Sodium								
Thallium								
Vanadium		471		424	90		417	89
Zinc		1026		904	88		872	85
Cyanide								

IEPA ID # _____

FORM VA

SPIKE SAMPLE RECOVERY
METALS

Lab Name ARDL, Inc. Contract No. 111908

Matrix (soil/water) WATER Level (low/med) _____

Concentration Units (ug/L or mg/kg dry weight) UG/L

Analyte	Control Limit %R	Spiked Sample Result (SSR)	C	Sample Result (SR)	C	Spike Added (SA)	%R	Q	M
				DISS					
Aluminum	75-125	650		200	U	2000	33	N	P
Antimony	75-125	470		60	U	500	94		P
Arsenic	75-125	10		4.5	U	10	100		BH
Barium	75-125	2000		50	U	2000	100		P
Berylium	75-125	45		5.0	U	50	90		
Cadmium	75-125	47		7.0		50	80		P
Calcium	75-125								P
Chromium	75-125	190		10	U	200	95		P
Cobalt	75-125	430		50	U	500	86		P
opper	75-125	150		25	U	250	60	N	P
Iron	75-125	2700		1900		1000	80		P
Lead	75-125								
Magnesium	75-125								P
Manganese	75-125	400		15	U	500	80		P
Mercury	75-125								CV
Nickel	75-125	480		40	U	500	96		
Potassium									P
Selenium	75-125	9.8		4.5	U	10	98		BH
Silver	75-125	31		10	U	50	62	N	P
Sodium	75-125								P
Thallium	75-125								P
Vanadium	75-125	490		50	U	500	98		P
Zinc	75-125	460		20	U	500	92		P

IEPA ID # [illegible]

FORM VA

SPIKE SAMPLE RECOVERY
METALS

Lab Name ARDL, Inc. Contract No. 111908

Matrix (soil/water) WATER Level (low/med) _____

Concentration Units (ug/L or mg/kg dry weight) UG/L

Diss.

Analyte	Control Limit %R	Spiked Sample Result (SSR)	C	Sample Result (SR)	C	Spike Added (SA)	%R	Q	M
Aluminum	75-125								P
Antimony	75-125								P
Arsenic	75-125								BH
Barium	75-125								P
Berylium	75-125								P
Cadmium	75-125								P
Calcium	75-125								P
Chromium	75-125								P
Cobalt	75-125								P
Copper	75-125								P
Iron	75-125								P
Lead	75-125								
Magnesium	75-125								P
Manganese	75-125								P
Mercury	75-125	0.83		0.20	U	1.0	83		CV
Nickel	75-125								P
Potassium									P
Selenium	75-125								BH
Silver	75-125								P
Sodium	75-125								P
Thallium	75-125								F
Vanadium	75-125								P
Zinc	75-125								P

LAB ID # 111908-3
IEPA ID # LD-IGW2-FB

FORM VA

SPIKE SAMPLE RECOVERY
METALS

Lab Name ARDL, Inc. Contract No. 111908

Matrix (soil/water) WATER Level (low/med) _____

Concentration Units (ug/L or mg/kg dry weight UG/L

Diss.

Analyte	Control Limit %R	Spiked Sample Result (SSR)	C	Sample Result (SR)	C	Spike Added (SA)	%R	Q	M
Aluminum	75-125								P
Antimony	75-125								
Arsenic	75-125								BH
Barium	75-125								P
Beryllium	75-125								P
Cadmium	75-125								P
Chromium	75-125								P
Cobalt	75-125								P
Copper	75-125								P
Iron	75-125								P
Lead	75-125	22		2.0	U	20	110		F
Manganese	75-125								P
Mercury	75-125								CV
Nickel	75-125								P
Selenium	75-125								BH
Silver	75-125								P
Thallium	75-125	52		2.0	U	50	104		F
Vanadium	75-125								P
Zinc	75-125								P
	75-125								
	75-125								

LAB ID # 111908-1
IEPA ID # LO-1MW040-GW

FORM VA

SPIKE SAMPLE RECOVERY
METALS

Lab Name ARDL, Inc. Contract No. 111908

Matrix (soil/water) water Level (low/med) _____

Concentration Units (ug/L or mg/kg dry weight ug/L

Total

Analyte	Control Limit %R	Spiked Sample Result (SSR)	C	Sample Result (SR)	C	Spike Added (SA)	%R	Q	M
Aluminum	75-125	3900		1200		4000	68	N	P
Antimony	75-125	800		60	U	1000	80		
Arsenic	75-125	14		4.5	U	10	140	N	BH
Barium	75-125	3100		50	U	4000	78		P
Beryllium	75-125	83		5.0	U	100	83		P
Cadmium	75-125	80		6.0		100	80		P
Chromium	75-125	310		10	U	400	78		P
Cobalt	75-125	770		50	U	1000	77		P
Copper	75-125	300		25	U	500	60	N	P
Iron	75-125	6900		5200		2000	85		P
Lead	75-125	20		4.7		20	76		F
Manganese	75-125	840		45		1000	80		P
Mercury	75-125								CV
Nickel	75-125	810		40	U	1000	81		P
Selenium	75-125	10		4.5	U	10	100		BH
Silver	75-125	85		10	U	100	85		P
Thallium	75-125	37		5.0	U	30	94	N	F
Vanadium	75-125	780		50	U	1000	78		P
Zinc	75-125	820		54		1000	77		P
	75-125								
	75-125								

LAB ID # 111908-2
IEPA ID # LO-16104D-GW

FORM VA

SPIKE SAMPLE RECOVERY
METALS

Lab Name ARDL, Inc. Contract No. 111908

Matrix (soil/water) WATER Level (low/med) _____

Concentration Units (ug/L or mg/kg dry weight UG/L

Analyte	Control Limit %R	Spiked Sample Result (SSR)	C	Sample Result (SR)	C	Spike Added (SA)	%R	Q	M
Aluminum	75-125								P
Antimony	75-125								
Arsenic	75-125								BH
Barium	75-125								P
Beryllium	75-125								P
Cadmium	75-125								P
Chromium	75-125								P
Cobalt	75-125								P
Copper	75-125								P
Iron	75-125								P
Lead	75-125								
Manganese	75-125								P
Mercury	75-125								CV
Nickel	75-125								P
Selenium	75-125								BH
Silver	75-125								P
Thallium	75-125								F
Vanadium	75-125								P
Zinc	75-125								P
Cyanide	75-125	100		10	U	110	91		C
	75-125								

LAB ID # 111908-3
IEPA ID # LO-16W2-FB

FORM VA

SPIKE SAMPLE RECOVERY
METALS

Lab Name ARDL, Inc. Contract No. 111908

Matrix (soil/water) WATER Level (low/med) _____

Concentration Units (ug/L or mg/kg dry weight UG/L

Total

Analyte	Control Limit %R	Spiked Sample Result (SSR)	C	Sample Result (SR)	C	Spike Added (SA)	%R	Q	M
Aluminum	75-125								P
Antimony	75-125								
Arsenic	75-125								BH
Barium	75-125								P
Beryllium	75-125								P
Cadmium	75-125								P
Chromium	75-125								P
Cobalt	75-125								P
Copper	75-125								P
Iron	75-125								P
Lead	75-125								
Manganese	75-125								P
Mercury	75-125	[illegible]		0.20		[illegible]	100		CV
Nickel	75-125								P
Selenium	75-125								BH
Silver	75-125								P
Thallium	75-125								F
Vanadium	75-125								P
Zinc	75-125								P
	75-125								
	75-125								

LAB ID # 111908-1
IEPA ID # LO-1MW04D-SW

FORM VIA

DUPLICATES
METALS

Lab Name ARDL, Inc. Contract No. 111908

Matrix (soil/water) WATER Level (low/med) _____

% Solids for Sample 0.0 % Solids for Duplicate 0.0

Concentration Units (ug/L or mg/kg dry weight) UG/L

DISS

Analyte	Control Limit	Sample (S)	C	Duplicate (D)	C	RPD	Q	M
Aluminum	±200	200	U	200	U			P
Antimony	±60	60	U	60	U			P
Arsenic	±10	4.5	U	4.5	U			BH
Barium	±200	50	U	50	U			P
Beryllium	±5.0	5.0	U	5.0	U			P
Cadmium	±5.0	7.0		5.0	U			P
Calcium	20%	170000		170000		0		P
Chromium	±10	10	U	10	U			P
Cobalt	±50	50	U	50	U			P
Copper	±25	25	U	25	U			P
Iron	20%	1900		1900		0		P
Lead								
Magnesium	20%	87000		86000		1.2		P
Manganese	±15	15	U	15	U			P
Mercury								CV
Nickel	±40	40	U	40	U			P
Potassium	±5000	5300		5700		7		A
Selenium	±4.5	4.5	U	4.5	U			BH
Silver	±10	10	U	10	U			P
Sodium	20%	[illegible]000		[illegible]000		0		A
Thallium								F
Vanadium	±50	50	U	50	U			P
Zinc	±20	20	U	20	U			P

IEPA ID = LO-G 140-GW

FORM VIA

DUPLICATES
METALS

Lab Name ARDL, Inc. Contract No. 111908

Matrix (soil/water) WATER Level (low/med)

% Solids for Sample 0.0 % Solids for Duplicate 0.0

Concentration Units (ug/L or mg/kg dry weight) UG/L

Dissolved

Analyte	Control Limit	Sample (S)	C	Duplicate (D)	C	RPD	Q	M
Aluminum								P
Antimony								P
Arsenic								BH
Barium								P
Beryllium								P
Cadmium								P
Calcium								P
Chromium								P
Cobalt								P
Copper								P
Iron								P
Lead								
Magnesium								P
Manganese								P
Mercury	I0.20	0.20	U	0.20	U			CV
Nickel								P
Potassium								P
Selenium								BH
Silver								P
Sodium								P
Thallium								P
Vanadium								P
Zinc								P

FORM VIA

DUPLICATES
METALS

L Name ARDL, Inc. Contract No. 111908

atrix (soil/water) WATER Level (low/med) _____

% Solids for Sample 0.0 % Solids for Duplicate 0.0

Concentration Units (ug/L or mg/kg dry weight) UG/L

Diss.

Analyte	Control Limit	Sample (S)	C	Duplicate (D)	C	RPD	Q	M
Aluminum								P
Antimony								P
Arsenic								P
Barium								P
Beryllium								P
Cadmium								P
Calcium								P
Chromium								P
Cobalt								P
Copper								P
Iron								P
Lead	±3.0	2.0	U	2.0	U			F
Magnesium								P
Manganese								
Mercury								CV
Nickel								P
Potassium								P
Selenium								BH
Silver								P
Sodium								P
Thallium	±5.0	5.0	U	5.0	U			F
Vanadium								P
Zinc								P

IEPA ID = [illegible]

FORM VIA

DUPLICATES
METALS

Lab Name ARDL, Inc. Contract No. 111908

Matrix (soil/water) Water Level (low/med)

% Solids for Sample 0.0 % Solids for Duplicate 0.0

Concentration Units (ug/L or mg/kg dry weight) ug/l

Total

Analyte	Control Limit	Sample (S)	C	Duplicate (D)	C	RPD	Q	M
Aluminum	20%	1200		1200		0		P
Antimony	±60	60	U	60	U			P
Arsenic	±10	4.5	U	4.5	U			BF
Barium	±200	50	U	50	U			P
Beryllium	±5.0	5.0	U	5.0	U			P
Cadmium	±5.0	6.0		5.0	U			P
Calcium	20%	230000		240000		4.3		P
Chromium	±10	10	U	10	U			P
Cobalt	±50	50	U	50	U			P
Copper	±25	25	U	25	U			P
Iron	20%	5200		5600		7.4		P
Lead	±3.0	4.7		5.7		19		F
Magnesium	20%	130000		130000		0		P
Manganese	±15	45		52		14		P
Mercury								CV
Nickel	±40	40	U	40	U			P
Potassium	±5000	5900		6300		6.6		A
Selenium	±5.0	4.5	U	4.5	U			BF
Silver	±10	10	U	10	U			P
Sodium	20%	100000		100000		0		A
Thallium	±5.0	5.0	U	5.0	U			P
Vanadium	±50	50	U	50	U			P
Zinc	±20	54		50		7.7		P
Cyanide	±10	10	U	10	U			C

IEPA ID # [illegible]

FORM VIA

DUPLICATES
METALS

.b Name ARDL, Inc. Contract No. 111908

Matrix (soil/water) WATER Level (low/med)

% Solids for Sample 0.0 % Solids for Duplicate 0.0

Concentration Units (ug/L or mg/kg dry weight) UG/L

Total

Analyte	Control Limit	Sample (S)	C	Duplicate (D)	C	RPD	Q	M
Aluminum								P
Antimony								P
Arsenic								BH
Barium								P
Beryllium								P
Cadmium								P
Calcium								P
hromium								P
Cobalt								P
Copper								P
Iron								P
Lead								
Magnesium								P
Manganese								P
Mercury	I0.20	0.20	U	0.20	U			CV
Nickel								P
Potassium								P
Selenium								BH
Silver								P
Sodium								P
Thallium								P
Vanadium								P
Zinc								P

FORM VIIA

LABORATORY CONTROL SAMPLE
METALS

Lab Name ARDL, Inc. Contract No. 111908

Solid LCS Source

Aqueous LCS Source LAB PREPARED

Diss

Analyte	Aqueous (ug/L) True	Found	%R	Solid (mg/kg) True	Found	C	Limits	%R
Aluminum	10000	9600	96					
Antimony	1000	1000	100					
Arsenic	5.0	5.3	106					
Barium	1000	911	91					
Beryllium	1000	900	90					
Cadmium	2000	1800	90					
Calcium	10000	10000	100					
Chromium	2500	2300	92					
Cobalt	2000	1740	87					
Copper	2000	1780	89					
Iron	1500	1330	89					
Lead	10	10	100					
Magnesium	10000	8010	80					
Manganese	1000	884	88					
Mercury	5.0	5.1	102					
Nickel	5000	4550	91					
Potassium	12500	12000	96					
Selenium	5.0	5.0	100					
Silver	5000	4870	97					
Sodium	10000	13000	104					
Thallium	20	19	95					
Vanadium	1000	937	94					
Zinc	2000	1790	90					
Cyanide	100	86	86					

FORM VIIA

LABORATORY CONTROL SAMPLE
METALS

Lab Name ARDL, Inc. Contract No. 111908

Solid LCS Source

Aqueous LCS Source LAB PREPARED

Analyte	Aqueous (ug/L) True	Found	%R	Solid (mg/kg) True	Found	C	Limits	%R
Aluminum	10000	9700	97					
Antimony	1000	1020	102					
Arsenic								
Barium	1000	925	93					
Berylium	1000	920	92					
Cadmium	2000	1830	92					
Calcium	10000	10200	102					
Chromium	2500	2380	95					
Cobalt	2000	1800	90					
Copper	2000	1840	92					
Iron	1500	1370	91					
Lead	10	12	120					
Magnesium	10000	9450	95					
Manganese	1000	910	91					
Mercury	50	49	98					
Nickel	5000	4670	93					
Potassium								
Selenium								
Silver	5000	4850	97					
Sodium								
Thallium								
Vanadium	1000	964	96					
Zinc	2000	1840	92					
Cyanide	100	92	92					

FORM VIII

ICP SERIAL DILUTIONS

Lab Name ARDL, INC.

Site Inventory No. _____

Date 5/15/91

Matrix (soil/water) WATER

Level (low/med.) _____

Concentration Units: ug/L

Analyte	Initial Sample Result (I)	C	Serial Dilution Result (S)	C	% Difference	Q	M
				Diss			
Aluminum	200	U	1000	U			
Antimony	60	U	300	U			
Arsenic							
Barium	50	U	250	U			
Berylium	5.0	U	25	U			
Cadmium	5.0	U	25	U			
Calcium	170000		170000		0		
Chromium	10	U	50	U			
Cobalt	50	U	250	U			
Copper	25	U	125	U			
Iron	1100		1100		0		
Lead							
Magnesium	93000		95000		2.1		
Manganese	15	U	75	U			
Mercury							
Nickel	40	U	200	U			
Potassium							
Selenium							
Silver	10	U	50	U			
Sodium							
Thallium							
Vanadium	50	U	250	U			
Zinc	20	U	100				

FORM VIII

ICP SERIAL DILUTIONS

Lab Name ARDL Site Inventory No. _____

Date 5/23/91 Matrix (soil/water) water

Level (low/med.) _____

Concentration Units: ug/L

Total

Analyte	Initial Sample Result (I)	C	Serial Dilution Result (S)	C	% Difference	Q	M
Aluminum	31000		29000		6.7		P
Antimony	60	U	300	U			
Arsenic							
Barium	560		500				
Beryllium	11		25	U			
Cadmium	5.0	U	25	U			
Calcium	1590000		1370000		14	E	
Chromium	53		52				
Cobalt	210		250	U			
Copper	68		125	U			
Iron	150000		130000		14	E	
Lead							
Magnesium	750000		710000		4.8		
Manganese	450		3900				
Mercury							
Nickel	140		200	U			
Potassium							
Selenium							
Silver	10	U	50	U			
Sodium							
Thallium							
Vanadium	50	U	250	U			
Zinc	230		200				

FORM IX

STANDARD ADDITION RESULTS

Lab Name ARDL INC Contract 111908

Concentration Units: ug/L

EPA Sample No.	An	Dil	0 ADD ABS	CON	1 ADD ABS	CON	2 ADD ABS	CON	3 ADD ABS	Final Conc.	r	Q
-5	Pb	1	0.147	5	0.198	10	0.250	15	0.298	15	0.9999	
-11D		1	0.098		0.196		0.237		0.289	9.2	0.9804	+
-11D	↓	1	0.101	↓	0.179	↓	0.244	↓	0.313	7.4	0.9993	

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INSTRUMENT DETECTION LIMITS (QUARTERLY)

Lab Name: ARDL, INC. Contract: 111908

Lab Code: _____ Case No.: _____ SAS No.: _____ SDG No.: _____

ICP ID Number: JA965w/Grid Neb.

Flame AA ID Number: _____

Furnace AA ID Number: _____

Analyte	Wave-length (nm)	Back-ground	CRDL (ug/L)	IDL (ug/L)	M
Aluminum	308.22		200	200	P
Antimony	217.58		60	60	P
Arsenic			10		
Barium	493.41		200	50	P
Beryllium	234.86		5	5	P
Cadmium	228.80		5	5	P
Calcium	396.85		5000	1000	P
Chromium	205.55		10	10	P
Cobalt	228.62		50	50	P
Copper	324.75		25	25	P
Iron	259.94		100	50	P
Lead	220.35		3	60	P
Magnesium	279.07		5000	1000	P
Manganese	257.61		15	15	P
Mercury			0.2		
Nickel	231.60		40	40	P
Potassium			5000		
Selenium			5		
Silver	328.07		10	10	P
Sodium			5000		P
Thallium			10		
Vanadium	292.40		50	50	P
Zinc	213.86		20	20	P

Comments:

Lead does not meet CRDL.

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INSTRUMENT DETECTION LIMITS (QUARTERLY)

Lab Name: ARDL, INC. Contract: 111908

Lab Code: _____ Case No.: _____ SAS No.: _____ SDG No.: _____

ICP ID Number: _____

Flame AA ID Number: _____

Furnace AA ID Number: SPECTRA AA 300

Analyte	Wave-length (nm)	Back-ground	CRDL (ug/L)	IDL (ug/L)	M
Aluminum			200		
Antimony	217.60	BD	60	5.0	F
Arsenic	193.70	BD	10	3.0	F
Barium			200		
Beryllium			5		
Cadmium			5		
Calcium			5000		
Chromium	357.90	BD	10	2.0	F
Cobalt			50		
Copper			25		
Iron			100		
Lead	283.30	BD	3	2.0	F
Magnesium			5000		
Manganese			15		
Mercury			0.2		
Nickel			40		
Potassium			5000		
Selenium	196.03	BD	5	3.0	F
Silver			10		
Sodium			5000		
Thallium	276.80	BD	10	5.0	F
Vanadium			50		
Zinc			20		

Comments:

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INSTRUMENT DETECTION LIMITS (QUARTERLY)

Lab Name: ARDL, INC. Contract: 111908

Lab Code: _____ Case No.: _____ SAS No.: _____ SDG No.: _____

ICP ID Number: _____

Flame AA ID Number: SPECTRA AA 300

Furnace AA ID Number: _____

Analyte	Wave-length (nm)	Back-ground	CRDL (ug/L)	IDL (ug/L)	M
Aluminum	309.3		200	100	A
Antimony			60		
Arsenic	193.70		10	0.9	BH
Barium	553.60		200	200	A
Beryllium	234.86		5	5	A
Cadmium	228.80		5	5	A
Calcium	422.70		5000	500	A
Chromium			10		
Cobalt	240.70		50	50	A
Copper	324.75		25	25	A
Iron	248.30		100	100	A
Lead	217.00		3	30	A
Magnesium	285.20		5000	1000	A
Manganese	279.50		15	15	A
Mercury	253.70		0.2	0.2	CV
Nickel	232.0		40	40	A
Potassium	766.49		5000	500	A
Selenium	196.03		5	0.9	BH
Silver	328.07		10	10	A
Sodium	589.00		5000	500	A
Thallium			10		
Vanadium	318.5		50	110	A
Zinc	213.86		20	20	A

Comments:

Lead and vanadium do not meet CRDL.

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INSTRUMENT DETECTION LIMITS (QUARTERLY)

Lab Name: ARDL, INC. Contract: 111908

Lab Code: _____ Case No.: _____ SAS No.: _____ SDG No.: _____

ICP ID Number: _____

Flame AA ID Number: _____

Furnace AA ID Number: SPECTRA AA 20

Analyte	Wave-length (nm)	Back-ground	CRDL (ug/L)	IDL (ug/L)	M
Aluminum					
Antimony	217.60	BD	60	5.0	F
Arsenic	193.70	BD	10	3.0	F
Barium			200		
Beryllium			5		
Cadmium			5		
Calcium			5000		
Chromium	357.90	BD	10	2.0	F
Cobalt			50		
Copper			25		
Iron			100		
Lead	283.30	BD	3	2.0	F
Magnesium			5000		
Manganese			15		
Mercury			0.2		
Nickel			40		
Potassium			5000		
Selenium	196.03	BD	5	3.0	F
Silver			10		
Sodium			5000		
Thallium	276.80	BD	10	5.0	F
Vanadium			50		
Zinc			20		

Comments:

U.S. EPA - CLP

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INSTRUMENT DETECTION LIMITS (QUARTERLY)

Lab Name: ARDL, INC. Contract: 111908

Lab Code: _____ Case No.: _____ SAS No.: _____ SDG No.: _____

ICP ID Number: _____

Flame AA ID Number: SPECTRA AA 20

Furnace AA ID Number: _____

Analyte	Wave-length (nm)	Back-ground	CRDL (ug/L)	IDL (ug/L)	M
Aluminum	309.30		200	100	A
Antimony			60		
Arsenic	193.70		10	0.9	BH
Barium			200		A
Beryllium	234.86		5	5	A
Cadmium	228.80		5	5	A
Calcium	422.70		5000	500	A
Chromium			10		
Cobalt	240.70		50	50	A
Copper	324.75		25	25	A
Iron	248.30		100	100	A
Lead	217.00		3	30	A
Magnesium	285.20		5000	1000	A
Manganese	279.50		15	15	A
Mercury	253.70		0.2	0.2	CV
Nickel	232.00		40	40	A
Potassium	766.49		5000	500	A
Selenium	196.03		5	0.9	BH
Silver	328.07		10	10	A
Sodium	589.00		5000	500	A
Thallium			10		
Vanadium			50		
Zinc	213.86		20	20	A

Comments:

Lead does not meet CRDL.

ICP Interelement Correction Factors

Lab Name: ARDL, Inc. ICP ID Number: JA965W/Grid Date: 01/16/91

Analyte	Wave-length (nm)	Interelement Correction Factors for: Al	Ca	Fe	Mg	--
Aluminum	308.22	--	0.000338	0.000751	0.000525	
Antimony	217.58	0.000451	0.000000	0.000000	0.000711	
Arsenic	--	--	--	--	--	
Barium	493.41	0.000000	0.000082	0.000006	0.000000	
Beryllium	234.86	0.000000	0.000005	0.000474	0.000000	
Cadmium	228.80	0.000000	0.000013	0.000005	0.000001	
Calcium	396.85	0.000138	--	0.000134	0.000000	
Chromium	205.55	0.000015	0.000015	0.000000	0.000012	
Cobalt	228.62	0.000000	0.000011	0.000008	0.000000	
Copper	324.75	0.000011	0.000015	0.000013	0.000004	
Iron	259.94	0.000120	0.000110	--	0.000664	
Lead	220.35	0.000000	0.000017	0.000091	0.000004	
Magnesium	279.07	0.000008	0.000749	0.000225	--	
Manganese	257.61	0.000051	0.000000	0.000261	0.000000	
Mercury	--	--	--	--		
Nickel	231.60	0.000011	0.000029	0.000011	0.000000	
Potassium	--	--	--	--	--	
Selenium	--	--	--	--	--	
Silver	328.07	0.000031	0.000026	0.000000	0.000005	
Sodium	--	--	--	--	--	
Thallium	--	--	--	--	--	
Vanadium	292.40	0.000002	0.000000	0.000132	0.000000	
Zinc	213.86	0.000051	0.000028	0.000086	0.000010	

Comments:

FORM 12

ICP Linear Ranges (Quarterly)

Lab Name: ARDL, Inc. ICP ID Number: JA965W/GRID Date: 04/16/91

Analyte	Integ. Time (sec.)	Concentration (ug/L)	M
Aluminum	10	500000	P
Antimony	10	100000	P
Arsenic	--	--	P
Barium	10	100000	P
Beryllium	10	5000	P
Cadmium	10	50000	P
Calcium	10	500000	P
Chromium	10	100000	P
Cobalt	10	5000	P
Copper	10	100000	P
Iron	10	200000	P
Lead	10	100000	P
Magnesium	10	500000	P
Manganese	10	50000	P
Mercury	--	--	P
Nickel	10	250000	P
Potassium	--	--	P
Selenium	--	--	P
Silver	10	100000	P
Sodium	--	--	P
Thallium	--	--	P
Vanadium	10	100000	P
Zinc	10	5000	P

Comments:

FORM XII - IN

U.S. EPA - CLP
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PREPARATION LOG

Lab Name: ARDL, INC. Contract: 111908

Lab Code: _____ Case No.: _____ SAS No.: _____ SDG No.: _____

Method: P

EPA Sample No.	Preparation Date	Weight (gram)	Volume (mL)
LO-1MW04D-GW	5-10-91		100
LO-1MW04D-GWD	5-10-91		100
LO-1MW04D-GWS	5-10-91		100
LO-1GW042-GW	5-10-91		100
LO-1GW2-FR	5-10-91		100
LO-1MW072-GW	5-10-91		100
LO-1MW075-GW	5-10-91		100
LO-1MW022-GW	5-10-91		100
LO-1MW055-GW	5-10-91		100
LO-1GW055-FD	5-10-91		100
LO-1GW04L-GW	5-10-91		100
LO-1MW052-GW	5-10-91		100
LO-1GW06DR-GW	5-10-91		100
LO-1GW06DR-GWD	5-10-91		100
PBLK	5-10-91		100
LCS	5-10-91		100

FORM XIII - IN 7/88

100064

U.S. EPA - CLP
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PREPARATION LOG

Lab Name: ARDL, Inc. Contract: 111908

Lab Code: _____ Case No.: _____ SAS No.: _____ SDG No.: _____

Method: F

EPA Sample No.	Preparation Date	Weight (gram)	Volume (mL)
LO-1MW042-GW	5-10-91		100
LO-1MW042-GWD	5-10-91		100
LO-1MW042-GWS	5-10-91		100
LO-1GI042-GW	5-10-91		100
LO-1GW2-FB	5-10-91		100
LO-1MW072-GW	5-10-91		100
LO-1MW07S-GW	5-10-91		100
LO-1MW022-GW	5-10-91		100
LO-1MW05S-GW	5-10-91		100
LO-1GI05S-FD	5-10-91		100
LO-1GI04L-GW	5-10-91		100
LO-1MW05D-GW	5-10-91		100
LO-1GI06DR-GW	5-10-91		100
LO-1GI06DR-GWD	5-10-91		100
PBLK	5-10-91		100
LCS	5-10-91		100

FORM XIII - IN 7/88

U.S. EPA - CLP
13
PREPARATION LOG

Lab Name: ARDL, Inc. Contract: 111908

Lab Code: _____ Case No.: _____ SAS No.: _____ SDG No.: _____

Method: CV

EPA Sample No.	Preparation Date	Weight (gram)	Volume (mL)
LO-1MW042-GW	5-30-91		50
LO-1G1042-GW	5-30-91		50
LO-1GW2-FB	5-30-91		100
LO-1GW2-FB D	5-30-91		100
LO-1GW2-FB S	5-30-91		100
LO-1MW072-GW	5-30-91		100
LO-1MW075-GW	5-30-91		100
LO-1MW022-GW	5-30-91		100
LO-1MW055-GW	5-30-91		100
LO-1G1055-FD	5-30-91		100
LO-1G104L-GW	5-30-91		100
LO-1MW050-GW	5-30-91		100
LO-1G106DR-GW	5-30-91		100
LO-1G106DR-GW D	5-30-91		100
PBLK	5-30-91		100
LCS	5-30-91		100

U.S. EPA - CLP
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PREPARATION LOG

Lab Name: ARDL, INC Contract: 111908

Lab Code: _____ Case No.: _____ SAS No.: _____ SDG No.: _____

Method: CN

EPA Sample No.	Preparation Date	Weight (gram)	Volume (mL)
20-1MW04D-GW	5-24-91		250
20-1MW04D-GWD			250
20-1G104D-GW			450
20-1G104D-GWS			450
20-1GW2-FB			500
20-1MW07D-GW			500
20-1MW07S-GW			
20-1MW02D-GW			
20-1MW05S-GW			
20-1G105S-FD			
20-1G104L-GW			
20-1MW05D-GW			500
20-1G106DR-GW			250
20-1G106DR-GWD			250
LCS			500
LCS			500
Prep Blank			
Prep Blank			

FORM XIII - IN 7/88

100067

ANALYSIS RUN LOG

Lab Name: ARDL Contract: III 908 (Diss)

Lab Code: _____ Case No.: _____ SAS No.: _____ SDG No.: _____

Instrument ID Number: JA 965 Method: P

Start Date: 05/15/91 End Date: 05/15/91

Dissolved

EPA Sample No.	D/F	Time	% R	Analytes																						
				AL	SB	AS	BA	BE	CD	CA	CR	CO	CU	FE	PB	MG	MN	HG	NI	K	SE	AG	NA	TL	V	ZN	CN
S0	1.00	720		X	X		X	X	X	X	X	X	X	X		X	X		X			X			X	X	
S1	1.00	722																									
S2	1.00	725			X																						
S3	1.00	730								X				X		X											
ICV2	1.00	749			X																						
ICV1	1.00	806		X			X	X	X	X	X	X	X	X		X	X		X			X			X	X	
ICV1-1	1.00	808	low	X						X																	
BLANK	1.00	824		X	X		X	X	X	X	X	X	X	X		X	X		X			X			X	X	
ICB	1.00	826																									
PBW	1.00	828																									
LCSW1	1.00	830																									
LCSW2	1.00	833			X																						
ICSA	1.00	835		X						X				X		X											
ICSAB	1.00	837		X			X	X	X	X	X	X	X	X		X	X		X			X			X	X	
CRI	1.00	855			X																						
LO-1MW04D-GW	1.00	857																									
-D	1.00	900																									
-S	1.00	902																									
LO-1G104D-GW	1.00	906																									
-1GW2-FB	1.00	908																									
CCV1	1.00	910	✓																								
CCV1-1	1.00	912							X																		
CCV1-2	1.00	914		X																							
CCV2	1.00	917	✓		X																						
CCB	1.00	1122		X	X		X	X	X	X	X	X	X	X		X	X		X			X			X	X	
LO-1MW02D-GW	1.00	1125																									
-1MW07S-GW	1.00	1127																									
-1MW02D-GW	1.00	1130																									
-1MW05S-GW	1.00	1132																									
-1G105S-FD	1.00	1153																									
-1G104L-GW	1.00	1156																									
-1MW05D-GW	1.00	1159																									
-1G106DR-GW	1.00	1200																									

ANALYSIS RUN LOG

Lab Name: ARDL Contract: 111908 (DISS)

Lab Code: _____ Case No.: _____ SAS No.: _____ SDG No.: _____

Instrument ID Number: JA965 Method: P

Start Date: 05/15/91 End Date: 05/15/91

EPA Sample No.	D/F	Time	% R	AL	SB	AS	BA	BE	CD	CA	CR	CO	CU	FE	PB	MG	MN	HG	NI	K	SE	AG	NA	TL	V	ZN	CN
				Analytes																							
LO-IG106DR-GWD1.00		1202		X	X		X	X	X	X	X	X	X	X		X	X		X			X			X	X	
-IMW07D-GWL5.00		1210																									
CCV2	1.00	1213			X																						
CCV1	1.00	1224		X			X	X	X	X	X	X	X	X		X	X		X			X			X	X	
CCV1-1	1.00	1226																				X					
CCV1-2	1.00	1228								X																	
CCB	1.00	1235			X																						
PBW	1.00	1237																									
LCSW1	1.00	1241																									
LCSW1-1	1.00	1244		X																							
LCSW2	1.00	1246			X																						
22222	1.00	1251																									
22222	1.00	1342																									
CRI	1.00	1345		X	X		X	X	X	X	X	X	X	X		X	X		X			X			X	X	
ICSA	1.00	1348		X						X				X		X											
ICSAB	1.00	1352		X			X	X	X	X	X	X	X	X		X	X		X			X			X	X	
ICSAB	1.00	1358						X									X										
CCV1	1.00	1410																									
CCV1-1	1.00	1412		X					X																		
CCV1-2	1.00	1413																	X			X					
CCV1-3	1.00	1415																									
CCV2	1.00	1419			X																						
CCB	1.00	1426		X	X		X	X	X	X	X	X	X	X		X	X		X			X			X	X	

ANALYSIS RUN LOG

Lab Name: ARDL Contract: 111908 (TOTAL)

Lab Code: _____ Case No.: _____ SAS No.: _____ SDG No.: _____

Instrument ID Number: JA965 Method: P

Start Date: 05/23/91 End Date: 05/23/91

EPA Sample No.	D/F	Time	% R	Analytes																					
				AL	SB	AS	BA	BE	CD	CA	CR	CO	CU	FE	PB	MG	MN	HG	NI	K	SE	AG	NA	TL	VZN
S0	1.00	700		X	X		X	X	X	X	X	X	X	X	X	X	X		X			X		X	X
S1	1.00	705																							
S2	1.00	710			X																				
S3	1.00	715								X				X		X									
ICV2	1.00	726			X																				
ICV1	1.00	738		X			X	X	X	X	X	X	X	X		X	X		X			X		X	X
ICV1	1.00	740								X															
BLANK	1.00	759			X																				
ICB	1.00	801																							
PBW	1.00	803																							
CRI	1.00	805																							
LCSW1	1.00	808																							
LCSW2	1.00	810			X																				
ICSA	1.00	812		X						X				X		X									
ICSAB	1.00	815		X			X	X	X	X	X	X	X	X		X	X		X			X		X	X
22222	1.00	837																							
22222	1.00	839																							
22222	1.00	843																							
22222	1.00	851																							
22222	1.00	853																							
CCV2	1.00	857			X																				
CCV1	1.00	902		X			X	X	X	X	X	X	X	X		X	X		X			X		X	X
CCV1-1	1.00	905								X															
CCB	1.00	1035			X																				
22222	1.00	1038																							
LO-1MW01D-GW	1.00	1048		X	X		X	X	X	X	X	X	X	X		X	X		X			X		X	X
" -D	1.00	1052																							
" -S	1.00	1055																							
LO-1G104D-GW	1.00	1101																							
-1GW2-GW	1.00	1108																							
-1MW07D-GW	1.00	1110																							
-1MW07S-GW	1.00	1113																							
-1MW02D-GW	1.00	1115																							

ANALYSIS RUN LOG

Lab Name: ARDL Contract: 1119081 (TOTAL)

Lab Code: _____ Case No.: _____ SAS No.: _____ SDG No.: _____

Instrument ID Number: JA965 Method: P

Start Date: 05/23/91 End Date: 05/23/91

EPA Sample No.	D/F	Time	% R	AL	SB	AS	BA	BE	CD	CA	CR	CO	CU	FE	PB	MG	MN	HG	NI	K	SE	AG	NA	TL	V	ZN
				Analytes																						
-1MW05S-GW	1.00	1117		X	X		X	X	X	X	X	X	X	X		X	X		X			X			X	X
CCV2	1.00	1126			X																					
CCV1	1.00	1133		X			X	X	X	X	X	X	X	X		X	X		X			X				X
CCV1-1	1.00	1136								X				X												
CCB	1.00	1149			X																					
PBW	1.00	1151																								
LCSW1	1.00	1153																								
LCSW2	1.00	1156			X																					
LO-1G105S-GW	1.00	1210		X	X		X	X	X	X	X	X	X	X		X	X		X			X			X	X
-1G104L-GW	1.00	1214																								
-1MW05D-GW	1.00	1216																								
-1G110DR-GW	1.00	1219																								
" -D	1.00	1221																								
ZZZZZ	1.00	1226	TIV																							
LO-1MW05S-GW	5.10	1230	NO	X	X		X	X	X	X	X	X	X	X		X	X		X			X			X	X
CRI	1.00	1240	NO																							
ICSA	1.00	1249		X						X				X		X										
ICSAB	1.00	1252		X			X	X	X	X	X	X	X	X		X	X		X			X			X	X
LO-1MW04D-GW	1.00	1255			X																					
CCV2	1.00	1458			X																					
CCV1	1.00	1505		X			X	X	X	X	X	X	X	X		X	X		X			X			X	X
CCV1-1	1.00	1507								X																
CCB	1.00	1517			X																					

ANALYSIS RUN LOG

Lab Name: ARDL INC Contract: 111908

Lab Code: _____ Case No.: _____ SAS No.: _____ SDG No.: _____

Instrument ID Number: AA2D Method: BH

Start Date: 6-5-91 End Date: 6-5-91

EPA Sample No.	D/F	Time	% R	Analytes																						
				AL	SB	AS	BA	BE	CD	CA	CR	CO	CU	FE	PB	MG	MN	HG	NI	K	SE	AG	NA	TL	V	ZN	CN
S 0.00	1.00	1530				X																					
S 1.00	1.00	1532																									
S 3.00	1.00	1534																									
S 5.00	1.00	1536																									
S 7.00	1.00	1538																									
ICV	1.00	1540																									
ICB	1.00	1542																									
CRA	1.00	1544																									
LCS W	1.00	1546																									
PB W	1.00	1548																									
ZZZZZ	1.00	1550																									
40-1MW04D-GW	5.00	1552																									
40-1MW04D-GW	5.00	1554																									
40-1MW04D-GW	5.00	1556																									
40-16104D-GW	5.00	1558																									
40-16W2-FP	5.00	1600																									
40-1MW07D-GW	5.00	1602																									
CCV	1.00	1604																									
CCB	1.00	1606																									
40-1MW07S-GW	5.00	1608																									
40-1MW02D-GW	5.00	1610																									
40-1MW05SGW	5.00	1612																									
40-16105S-FO	5.00	1614																									
40-16104L-GW	5.00	1616																									
40-1MW05D-GW	5.00	1618																									
40-16106DP-GW	5.00	1620																									
40-16106DB-GW	5.00	1622																									
40-1MW04D-GW	5.00	1624																									
40-1MW04D-GW	5.00	1626																									
CCV	1.00	1628																									
CCB	1.00	1630																									
40-1MW04D-GW	5.00	1632																									
40-16104D-GW	5.00	1634																									

ANALYSIS RUN LOG

Lab Name: ARDL Contract: 111908

Lab Code: _____ Case No.: _____ SAS No.: _____ SDG No.: _____

Instrument ID Number: AA20 Method: B4

Start Date: 6-5-91 End Date: 6-5-91

EPA Sample No.	D/F	Time	% R	Analytes																					
				AL	SB	AS	BA	BE	CD	CA	CR	CO	CU	FE	PB	MG	MN	HG	NI	K	SE	AG	NA	TL	V	ZN	CN
LO-1GW2-FB	5.00	1636				X																					
LO-1MW07D-GW	5.00	1638																									
LO-1MW07S-GW	5.00	1640																									
LO-1MW02D-GW	5.00	1642																									
LO-1MW10SS-GW	5.00	1644																									
LO-1G105S-FB	5.00	1646																									
LO-1G104L-GW	5.00	1648																									
LO-1MW05D-GW	5.00	1650																									
CCV	1.00	1652																									
CCB	1.00	1654																									
LO-G106DRGW	5.00	1656																									
LO-G106DRGW-D	5.00	1658																									
LCS W	1.00	1700																									
PB W	1.00	1702																									
CCV	1.00	1704																									
CCB	1.00	1706																									

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ANALYSIS RUN LOG

Lab Name: ARDY, INC. Contract: 111908

Lab Code: _____ Case No.: _____ SAS No.: _____ SDG No.: _____

Instrument ID Number: AA300 Method: F

Start Date: 6-1-91 End Date: 6-1-91

EPA Sample No.	D/F	Time	% R	Analytes																						
				AL	SB	AS	BA	BE	CD	CA	CR	CO	CU	FE	PB	MG	MN	HG	NI	K	SE	AG	NA	TL	V	ZN	CN
50.00	1.00	0910													X												
53.00	1.00	0915																									
50.00	1.00	0920																									
545.00	1.00	0925																									
520.00	1.00	0930																									
ICV	1.00	0935																									
ICB	1.00	0940																									
CRA	1.00	0945																									
LCSW	1.00	0950																									
LCSWA	1.00	0955	106.7																								
PBW	1.00	1000																									
PBWA	1.00	1005	111.5																								
ZZZZZ	1.00	1010																									
ZZZZZ	4.00	1015																									
ZZZZZ	1.00	1020	107.0																								
ZZZZZ	1.00	1025																									
CCV	1.00	1030																									
CCB	1.00	1035																									
LO-IG1040-GW	1.00	1040																									
LO-IG1040-GWA	1.00	1045	97.5																								
LO-IGW2-FB	1.00	1050																									
LO-IGW2-FBA	1.00	1055	100.7																								
LO-IGW2-FBD	1.00	1100																									
LO-IGW2-FBDA	1.00	1105	105.5																								
LO-IGW2-FBS	1.00	1110																									
LO-IMW070-GW	1.00	1115																									
LO-IMW070-GWA	1.00	1120	86.8																								
CCV	1.00	1125																									
CCB	1.00	1130																									
LO-IMW075-GW	1.00	1135																									
LO-IMW075-GWA	1.00	1140	100.3																								
LO-IMW020-GW	1.00	1145																									
LO-IMW020-GWA	1.00	1150	95.2												X												

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ANALYSIS RUN LOG

Lab Name: ARDL, INC. Contract: 111908

Lab Code: _____ Case No.: _____ SAS No.: _____ SDG No.: _____

Instrument ID Number: AA300 Method: F

Start Date: 6-1-91 End Date: 6-1-91

EPA Sample No.	D/F	Time	% R	Analytes																							
				AL	SB	AS	BA	BE	CD	CA	CR	CO	CU	FE	PB	MG	MN	HG	NI	K	SE	AG	NA	TL	V	ZN	CN
LO-MW055-GW	1.00	1155													X												
LO-MW055-GWA	1.00	1200	90.5																								
LO-IG105S-FD	1.00	1300																									
LO-IG105S-FDA	1.00	1305	106.8																								
LO-IG104L-GW	1.00	1310																									
LO-IG104L-GWA	1.00	1315	101.0																								
CCV	1.00	1320																									
CCB	1.00	1325																									
LO-MW050-GW	1.00	1330																									
LO-MW050-GWA	1.00	1335	91.7																								
LO-IG106R-GW	1.00	1340																									
LO-IG106R-GWA	1.00	1345	132.5																								
LO-IG106DR-GW	1.00	1350																									
LO-IG106DR-GWA	1.00	1355	109.8																								
CCV	1.00	1400																									
CCB	1.00	1405																									
ZZZZZ	1.00	1410																									
ZZZZZ	1.00	1415																									
ZZZZZ	1.00	1420																									
ZZZZZ	1.00	1425																									
ZZZZZ	1.00	1430																									
ZZZZZ	1.00	1435																									
ZZZZZ	1.00	1440																									
ZZZZZ	1.00	1445													X												

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ANALYSIS RUN LOG

Lab Name: ARDL, Inc. Contract: 111908

Lab Code: _____ Case No.: _____ SAS No.: _____ SDG No.: _____

Instrument ID Number: AA300 Method: F

Start Date: 6/3/91 End Date: 6/3/91

EPA Sample No.	D/F	Time	% R	Analytes																							
				AL	SB	AS	BA	BE	CD	CA	CR	CO	CU	FE	PB	MG	MN	HG	NI	K	SE	AG	NA	TL	V	ZN	CN
S0.00	1.00	0855													X												
S3.00	1.00	0900																									
S10.00	1.00	0905																									
S15.00	1.00	0910																									
S20.00	1.00	0915																									
ICV	1.00	0920																									
ICB	1.00	0925																									
CRA	1.00	0930																									
LCS	1.00	0935																									
LCSA	1.00	0940	97.0																								
PBIK	1.00	0945																									
PBIKA	1.00	0950	91.7																								
LO-1MW04D-GW	1.00	0955																									
LO-1MW04D-GWA	1.00	1000	95.5																								
LO-1MW04D-GW	1.00	1010																									
LO-1MW04D-GWA	1.00	1015	111.1																								
CCV	1.00	1020																									
CCB	1.00	1025																									
LO-1MW04D-GWD	1.00	1030																									
LO-1MW04D-GWDA	1.00	1035	99.0																								
LO-1MW04D-GWS	1.00	1040																									
LO-16W04D-GW	1.00	1045																									
LO-16W04D-GWA	1.00	1050	111.5																								
LO-16W2-FB	1.00	1055																									
LO-16W2-FBA	1.00	1100	70.5																								
LO-1MW07D-GW	1.00	1105																									
LO-1MW07D-GWA	1.00	1110	113.2																								
CCV	1.00	1115																									
CCB	1.00	1120																									
LO-1MW07S-GW	1.00	1230																									
LO-1MW07S-GWA	1.00	1235	116.2																								
LO-1MW02D-GW	1.00	1240																									
LO-1MW02D-GWA	1.00	1245	47.5												X												

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ANALYSIS RUN LOG

Lab Name: ARDL, INC. Contract: 111908

Lab Code: _____ Case No.: _____ SAS No.: _____ SDG No.: _____

Instrument ID Number: AA300 Method: F

Start Date: 6/03/91 End Date: 6/03/91

EPA Sample No.	D/F	Time	% R	Analytes																					
				AL	SB	AS	BA	BE	CD	CA	CR	CO	CU	FE	PB	MG	MN	HG	NI	K	SE	AG	NA	TL	V	ZN	CN
LD-1MW055-GW	1.00	1250													X												
LD-1MW055-GW	40.00	1255																									
LD-1MW055-GWA	40.00	1300	95.0																								
LD-1G1055-FD	1.00	1305																									
CCV	1.00	1310																									
CCB	1.00	1315																									
LD-1G1055-FD	40.00	1320																									
LD-1G1055-FDA	40.00	1325	100.7																								
ZZZZZ	2.00	1330																									
LD-1G1041-GW	1.00	1335																									
LD-1G1041-GWA	1.00	1340	90.5																								
LD-1MW05D-GW	1.00	1345																									
LD-1MW05D-GWA	1.00	1350	93.7																								
LD-1G1061DR-GW	1.00	1355																									
LD-1G1061DR-GWA	1.00	1400	97.5																								
CCV	1.00	1405																									
CCB	1.00	1410																									
LD-1G1061DR-GW	1.00	1415																									
LD-1G1061DR-GWA	1.00	1420	83.3																								
LD-1MW07S-GW1	1.00	1430																									
LD-1MW07S-GW2	1.00	1432																									
LD-1MW07S-GW3	1.00	1434																									
LD-1MW07S-GW0	1.00	1436																									
LD-1G1061DR-GW1	1.00	1440																									
LD-1G1061DR-GW2	1.00	1442																									
LD-1G1061DR-GW3	1.00	1444																									
LD-1G1061DR-GW0	1.00	1446																									
LD-1G1061DR-GW1	1.00	1450																									
LD-1G1061DR-GW2	1.00	1452																									
LD-1G1061DR-GW3	1.00	1454																									
LD-1G1061DR-GWA	1.00	1456																									
CCV	1.00	1500																									
CCB	1.00	1505													X												

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ANALYSIS RUN LOG

Lab Name: ARDL, INC Contract: 111908

Lab Code: _____ Case No.: _____ SAS No.: _____ SDG No.: _____

Instrument ID Number: AA300 Method: F

Start Date: 6/03/91 End Date: 6/03/91

EPA Sample No.	D/F	Time	% R	Analytes																						
				AL	SB	AS	BA	BE	CD	CA	CR	CO	CU	FE	PB	MG	MN	HG	NI	K	SE	AG	NA	TL	V	ZN	CN
ZZZZZ	1.00	1530													X												
ZZZZZ	1.00	1535																									
ZZZZZ	1.00	1540																									
ZZZZZ	1.00	1545																									
ZZZZZ	1.00	1550																									
ZZZZZ	1.00	1555																									
ZZZZZ	1.00	1600																									
ZZZZZ	4.00	1605																									
ZZZZZ	4.00	1610																									
ZZZZZ	4.00	1615																									
ZZZZZ	4.00	1620																									
ZZZZZ	4.00	1625																									
ZZZZZ	4.00	1630																									
ZZZZZ	4.00	1635													X												

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ANALYSIS RUN LOG

Lab Name: ARDL, INC. Contract: 111908

Lab Code: _____ Case No.: _____ SAS No.: _____ SDG No.: _____

Instrument ID Number: AA20 Method: CV

Start Date: 5-28-91 End Date: 5-28-91

EPA Sample No.	D/F	Time	% R	Analytes																							
				AL	SB	AS	BA	BE	CD	CA	CR	CO	CU	FE	PB	MG	MN	HG	NI	K	SE	AG	NA	TL	V	ZN	CN
50.00	1.00	1330																X									
53.00	1.00	1332																									
510.00	1.00	1334																									
515.00	1.00	1336																									
520.00	1.00	1338																									
ICV	1.00	1340																									
ICB	1.00	1342																									
CRA	1.00	1344																									
LCS	1.00	1346																									
PB	1.00	1348																									
LO-1MW040-GW	1.00	1350																									
LO-1G1040-GW	1.00	1352																									
LO-1G1040-GWD	1.00	1354																									
LO-1G1040-GWS	1.00	1356																									
LO-1GW2-FB	1.00	1358																									
LO-1MW070-GW	1.00	1400																									
LO-1MW075-GW	1.00	1402																									
CCV	1.00	1404																									
CCB	1.00	1406																									
LO-1MW020-GW	1.00	1408																									
LO-1MW055-GW	1.00	1410																									
LO-1G1052-FD	1.00	1412																									
LO-1G1041-GW	1.00	1414																									
LO-1MW050-GW	1.00	1416																									
LO-1G1008-GW	1.00	1418																									
LO-1G1008-GWD	1.00	1420																									
CCV	1.00	1422																									
CCB	1.00	1424																									
ZZZZZ	1.00	1426																									
ZZZZZ	1.00	1428																									
ZZZZZ	1.00	1430																									
ZZZZZ	1.00	1432																									
ZZZZZ	1.00	1434																X									

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ANALYSIS RUN LOG

Lab Name: ARDL, INC. Contract: 11908

Lab Code: _____ Case No.: _____ SAS No.: _____ SDG No.: _____

Instrument ID Number: AA20 Method: CV

Start Date: 5-28-91 End Date: 5-28-91

EPA Sample No.	D/F	Time	% R	Analytes																							
				AL	SB	AS	BA	BE	CD	CA	CR	CO	CU	FE	PB	MG	MN	HG	NI	K	SE	AG	NA	TL	V	ZN	CN
ZZZZZ	1.00	1436																X									
ZZZZZ	1.00	1438																									
ZZZZZ	1.00	1440																									
ZZZZZ	1.00	1442																									
ZZZZZ	1.00	1444																									
ZZZZZ	1.00	1446																									
ZZZZZ	1.00	1448																									
ZZZZZ	1.00	1450																X									

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ANALYSIS RUN LOG

Lab Name: ARDL, INC Contract: 111908

Lab Code: _____ Case No.: _____ SAS No.: _____ SDG No.: _____

Instrument ID Number: AA20 Method: CV

Start Date: 5-30-91 End Date: 5-30-91

EPA Sample No.	D/F	Time	% R	Analytes																							
				AL	SB	AS	BA	BE	CD	CA	CR	CO	CU	FE	PB	MG	MN	HG	NI	K	SE	AG	NA	TL	V	ZN	CN
50.00	1.00	1730																X									
53.00	1.00	1732																									
510.00	1.00	1734																									
515.00	1.00	1736																									
520.00	1.00	1738																									
ICV	1.00	1740																									
ICB	1.00	1742																									
CRA	1.00	1744																									
CCS	1.00	1746																									
DB	1.00	1748																									
ZZZZZ	1.00	1750																									
ZZZZZ	1.00	1752																									
ZZZZZ	1.00	1754																									
LO-1MW10-GW	1.00	1756																									
LO-1GW10-GW	1.00	1758																									
LO-1GW2-FD	1.00	1800																									
LO-1GW2-FBD	1.00	1802																									
CCV	1.00	1804																									
CCB	1.00	1806																									
LO-1GW2-FBS	1.00	1808																									
LO-1MW07D-GW	1.00	1810																									
LO-1MW07S-GW	1.00	1812																									
LO-1MW02D-GW	1.00	1814																									
LO-1MW05S-GW	1.00	1816																									
LO-1GW05S-FD	1.00	1818																									
LO-1GW04L-GW	1.00	1820																									
LO-1MW05D-GW	1.00	1822																									
CCV	1.00	1824																									
CCB	1.00	1826																									
LO-1GW08R-GW	1.00	1828																									
LO-1GW08R-GWD	1.00	1830																									
CCV	1.00	1832																									
CCB	1.00	1834																X									

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ANALYSIS RUN LOG

Lab Name: ARDL, INC. Contract: 111908

Lab Code: _____ Case No.: _____ SAS No.: _____ SDG No.: _____

Instrument ID Number: AA20 Method: CV

Start Date: 5-30-91 End Date: 5-30-91

EPA Sample No.	D/F	Time	% R	Analytes																							
				AL	SB	AS	BA	BE	CD	CA	CR	CO	CU	FE	PB	MG	MN	HG	NI	K	SE	AG	NA	TL	V	ZN	CN
ZZZZZ	1.00	1836																X									
ZZZZZ	1.00	1838																									
ZZZZZ	1.00	1840																									
ZZZZZ	1.00	1842																									
ZZZZZ	1.00	1844																									
ZZZZZ	1.00	1846																									
ZZZZZ	1.00	1848																X									

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ANALYSIS RUN LOG

Lab Name: ARDL Inc Contract: 111908

Lab Code: _____ Case No.: _____ SAS No.: _____ SDG No.: _____

Instrument ID Number: AA20 Method: A

Start Date: 5-31-91 End Date: 5-31-91

EPA Sample No.	D/F	Time	% R	Analytes																							
				AL	SB	AS	BA	BE	CD	CA	CR	CO	CU	FE	PB	MG	MN	HG	NI	K	SE	AG	NA	TL	V	ZN	CN
S0 0.00	1.00	1030																		X							
S1 5.00	1.00	1031																									
S2 10.00	1.00	1032																									
S3 15.00	1.00	1033																									
S4 20.00	1.00	1034																									
ICV	1.00	1035																									
ICB	1.00	1036																									
CRA	1.00	1037																									
LCSW	1.00	1038																									
PBW	1.00	1039																									
40-1MW04D-GW	1.00	1040																									
40-1MW04D-GW-D	1.00	1041																									
40-1G104D-GW	1.00	1042																									
40-1GW2-F3	1.00	1043																									
40-1MW07D-GW	1.00	1044																									
40-1MW07S-GW	1.00	1045																									
40-1MW02D-GW	1.00	1046																									
CCV	1.00	1047																									
CCB	1.00	1048																									
40-1MW05S-GW	1.00	1049																									
40-1MW05S-GW-D	1.00	1050																									
40-1G104L-GW	1.00	1051																									
40-1G104L-GW-D	2.00	1052																									
40-1MW06D-GW	1.00	1053																									
40-1G106DR-GW	1.00	1054																									
40-1G106DR-GW-D	1.00	1055																									
40-1MW04D-GW	1.00	1056																									
40-1MW04D-GW-D	1.00	1057																									
40-1G104D-GW	1.00	1058																									
CCV	1.00	1059																									
CCB	1.00	1100																									
40-1GW2-F3	1.00	1101																									
40-1MW07S-GW	1.00	1102																									

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ANALYSIS RUN LOG

Lab Name: ARDL INC. Contract: 111908

Lab Code: _____ Case No.: _____ SAS No.: _____ SDG No.: _____

Instrument ID Number: AA20 Method: A

Start Date: 5-31-91 End Date: 5-31-91

EPA Sample No.	D/F	Time	% R	Analytes																							
				AL	SB	AS	BA	BE	CD	CA	CR	CO	CU	FE	PB	MG	MN	HG	NI	K	SE	AG	NA	TL	V	ZN	CN
LD-1MW07S-GW	1.00	1103																		X							
LD-1MW02D-GW	1.00	1104																									
LD-1MW05S-GW	1.00	1105																									
LD-1G105S-FD	1.00	1106																									
LD-1G104L-GW	1.00	1107																									
LD-1G104L-GW	2.00	1108																									
LD-1MW05D-GW	1.00	1109																									
LD-1G106DR-GW	1.00	1110																									
CCV	1.00	1111																									
CCB	1.00	1112																									
LD1G106DRGW-3	1.00	1113																									
ZZZZZ	1.00	1114																									
ZZZZZ	1.00	1115																									
ZZZZZ	1.00	1116																									
ZZZZZ	50.00	1117																									
ZZZZZ	1.00	1118																									
ZZZZZ	1.00	1119																									
ZZZZZ	1.00	1120																									
ZZZZZ	1.00	1121																									
ZZZZZ	50.00	1122																									
CCV	1.00	1123																									
CCB	1.00	1124																									
ZZZZZ	1.00	1125																									
ZZZZZ	1.00	1126																									
ZZZZZ	1.00	1127																									
ZZZZZ	50.00	1128																									
ZZZZZ	1.00	1129																									
ZZZZZ	10.00	1130																									
ZZZZZ	1.00	1131																									
ZZZZZ	1.00	1132																									
ZZZZZ	2.00	1133																									
ZZZZZ	1.00	1134																									
CCV	1.00	1135																									

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ANALYSIS RUN LOG

Lab Name: ARDL INC. Contract: 111908

Lab Code: _____ Case No.: _____ SAS No.: _____ SDG No.: _____

Instrument ID Number: AA20 Method: A

Start Date: 5-31-91 End Date: 5-31-91

EPA Sample No.	D/F	Time	% R	Analytes																							
				AL	SB	AS	BA	BE	CD	CA	CR	CO	CU	FE	PB	MG	MN	HG	NI	K	SE	AG	NA	TL	V	ZN	CN
CCB	1.00	1136																		X							
ZZZZZ	2.00	1137																									
LCSW	1.00	1138																									
PBW	1.00	1139																									
ZZZZZ	1.00	1140																									
ZZZZZ	1.00	1141																									
ZZZZZ	1.00	1142																									
ZZZZZ	1.00	1143																									
ZZZZZ	1.00	1144																									
ZZZZZ	2.00	1145																									
CCV	1.00	1146																									
CCB	1.00	1147																									
LCSW	1.00	1148																									
PBW	1.00	1149																									
CCV	1.00	1150																									
CCB	1.00	1151																									

ANALYSIS RUN LOG

Lab Name: ARDL Inc Contract: 111951

Lab Code: _____ Case No.: _____ SAS No.: _____ SDG No.: _____

Instrument ID Number: AA 20 Method: A

Start Date: 5-31-91 End Date: 5-31-91

EPA Sample No.	D/F	Time	% R	Analytes																							
				AL	SB	AS	BA	BE	CD	CA	CR	CO	CU	FE	PB	MG	MN	HG	NI	K	SE	AG	NA	TL	V	ZN	C
S 0.00	1.00	0815																					X				
S 5.00	1.00	0816																									
S 10.00	1.00	0817																									
S 15.00	1.00	0818																									
S 20.00	1.00	0819																									
ICV	1.00	0820																									
ICB	1.00	0821																									
LCSW	1.00	0822																									
PBW	1.00	0823																									
CRA	1.00	0824																									
LD-1MW04D-GW	1.00	0825																									
LD-1MW04D-GW-D	1.00	0826																									
LD-1G104D-GW	1.00	0827																									
LD-1GW2-FB	1.00	0828																									
LD-1MW07D-GW	1.00	0829																									
LD-1MW07S-GW	1.00	0830																									
LD-1MW02D-GW	1.00	0831																									
CCV	1.00	0832																									
CCB	1.00	0833																									
LD-1MW05S-GW	1.00	0834																									
LD-1G105S-FD	1.00	0835																									
LD-1G104L-GW	1.00	0836																									
LD-1MW06D-GW	1.00	0837																									
LD-1G106DR-GW	1.00	0838																									
LD-1G106DR-GWD	1.00	0839																									
LD-1MW04D-GW	1.00	0840																									
LD-1MW04D-GWD	1.00	0841																									
LD-1G104D-GW	1.00	0842																									
LD-1GW2-FB	1.00	0843																									
CCV	1.00	0844																									
CCB	1.00	0845																									
LD-1MW07D-GW	1.00	0846																									
LD-1MW07S-GW	1.00	0847																									

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ANALYSIS RUN LOG

Lab Name: ARDL Inc Contract: 111908

Lab Code: _____ Case No.: _____ SAS No.: _____ SDG No.: _____

Instrument ID Number: AA20 Method: A

Start Date: 5-31-91 End Date: 5-31-91

EPA Sample No.	D/F	Time	% R	Analytes																							
				AL	SB	AS	BA	BE	CD	CA	CR	CO	CU	FE	PB	MG	MN	HG	NI	K	SE	AG	NA	TL	V	ZN	CN
40-1MW02D-GW	1.00	0848																					X				
40-1MW05S-GW	1.00	0849																									
40-1G05S-FD	1.00	0850																									
40-1G104L-GW	1.00	0851																									
40-1MW05D-GW	1.00	0852																									
40-1G106DR-GW	1.00	0853																									
40-1G106DR-GWD	1.00	0854																									
CCV	1.00	0855																									
CCB	1.00	0856																									
40-1MW04D-GW	10.00	0857																									
40-1MW04D-GWD	10.00	0858																									
40-1G104D-GW	10.00	0859																									
40-1MW07D-GW	5.00	0900																									
40-1MW07S-GW	50.00	0901																									
40-1MW02D-GW	10.00	0902																									
40-1MW05S-GW	10.00	0903																									
40-1G104L-GW	10.00	0904																									
40-1G104L-GW	10.00	0905																									
CCV	1.00	0906																									
CCB	1.00	0907																									
40-1MW05D-GW	10.00	0908																									
40-1G106DR-GW	10.00	0909																									
40-1G106DR-GWD	10.00	0910																									
40-1MW04D-GW	10.00	0911																									
40-1MW04D-GWD	10.00	0912																									
40-1G104D-GW	10.00	0913																									
40-1MW07D-GW	10.00	0914																									
40-1MW07S-GW	50.00	0915																									
40-1MW02D-GW	10.00	0916																									
40-1MW05S-GW	10.00	0917																									
CCV	1.00	0918																									
CCB	1.00	0919																									
40-1G105S-FD	10.00	0920																									

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ANALYSIS RUN LOG

Lab Name: ARDL INC Contract: 111908

Lab Code: _____ Case No.: _____ SAS No.: _____ SDG No.: _____

Instrument ID Number: AA20 Method: A

Start Date: 5-31-91 End Date: 5-31-91

EPA Sample No.	D/F	Time	% R	Analytes																						
				AL	SB	AS	BA	BE	CD	CA	CR	CO	CU	FE	PB	MG	MN	HG	NI	K	SE	AG	NA	TL	V	ZN	CN
~~Lo-16104L-GW~~	10.00	0921																					X				
~~Lo-1MW05D-GW~~	10.00	0922																									
~~Lo-G106DR-GW~~	10.00	0923																									
~~Lo-G106DR-GWD~~	10.00	0924																									
LCS W	1.00	0925																									
PBW	1.00	0926																									
ZZZZZ	1.00	0927																									
~~ZZZZZ~~	1.00	0928																									
ZZZZZ	1.00	0929																									
CCV	1.00	0930																									
CCB	1.00	0931																									
~~ZZZZZ~~	1.00	0932																									
ZZZZZ	1.00	0933																									
ZZZZZ	1.00	0934																									
ZZZZZ	1.00	0935																									
ZZZZZ	1.00	0936																									
ZZZZZ	1.00	0937																									
ZZZZZ	1.00	0938																									
ZZZZZ	1.00	0939																									
ZZZZZ	1.00	0940																									
CCV	1.00	0941																									
CCB	1.00	0942																									
ZZZZZ	1.00	0943																									
ZZZZZ	10.00	0944																									
ZZZZZ	10.00	0945																									
ZZZZZ	50.00	0946																									
ZZZZZ	20.00	0947																									
ZZZZZ	5.00	0948																									
ZZZZZ	50.00	0949																									
ZZZZZ	10.00	0950																									
ZZZZZ	10.00	0951																									
ZZZZZ	50.00	0952																									
CCV	1.00	0953																									

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ANALYSIS RUN LOG

Lab Name: ARDL INC Contract: 111908

Lab Code: _____ Case No.: _____ SAS No.: _____ SDG No.: _____

Instrument ID Number: AA20 Method: A

Start Date: 5-31-91 End Date: 5-31-91

EPA Sample No.	D/F	Time	% R	Analytes																							
				AL	SB	AS	BA	BE	CD	CA	CR	CO	CU	FE	PB	MG	MN	HG	NI	K	SE	AG	NA	TL	V	ZN	CN
CCB	1.00	0954																					X				
ZZZZZ	50.00	0955																									
ZZZZZ	50.00	0956																									
ZZZZZ	50.00	0957																									
ZZZZZ	1.00	0958																									
ZZZZZ	1.00	0959																									
ZZZZZ	1.00	1000																									
ZZZZZ	1.00	1001																									
LCSW	1.00	1002																									
PBW	1.00	1003																									
CCV	1.00	1004																									
CCB	1.00	1005																									
ZZZZZ	20.00	1006																									
ZZZZZ	20.00	1007																									
CCV	1.00	1008																									
CCB	1.00	1009																									

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ANALYSIS RUN LOG

Lab Name: ARDL Contract: 111908

Lab Code: _____ Case No.: _____ SAS No.: _____ SDG No.: _____

Instrument ID Number: AA20 Method: BH

Start Date: 6-4-91 End Date: 6-4-91

EPA Sample No.	D/F	Time	% R	Analytes																							
				AL	SB	AS	BA	BE	CD	CA	CR	CO	CU	FE	PB	MG	MN	HG	NI	K	SE	AG	NA	TL	V	ZN	CN
SO	1.00	0830																			X						
S3.00	1.00	0832																									
S5.00	1.00	0834																									
S7.00	1.00	0836																									
S10.00	1.00	0838																									
ICV	1.00	0840																									
ICB	1.00	0842																									
CRA	1.00	0844																									
LCSW	1.00	0846																									
PBW	1.00	0848																									
ZZZZZ	5.00	0850																									
LO-1MW040-GW	5.00	0852																									
LO-1MW040-GWD	5.00	0854																									
LO-1MW040-GWS	5.00	0856																									
LO-1G1040-GW	5.00	0858																									
LO-1GW2-FB	5.00	0900																									
LO-1MW070-GW	5.00	0902																									
CCV	1.00	0904																									
CCB	1.00	0906																									
LO-1MW075-GW	5.00	0908																									
LO-1MW020-GW	5.00	0910																									
LO-1MW055-GW	5.00	0912																									
LO-1G1055-FD	5.00	0914																									
LO-1G1042-GW	5.00	0916																									
LO-1MW050-GW	5.00	0918																									
LO-1G1060R-GW	5.00	0920																									
LO-1G1060R-GWD	5.00	0922																									
LO-1MW040-GW	5.00	0924																									
LO-1MW040-GWD	5.00	0926																									
CCV	1.00	0928																									
CCB	1.00	0930																									
LO-1MW040-GWS	5.00	0932																									
LO-1G1040-GW	5.00	0934																			X						

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ANALYSIS RUN LOG

Lab Name: AROL Contract: 111908

Lab Code: _____ Case No.: _____ SAS No.: _____ SDG No.: _____

Instrument ID Number: AA20 Method: BH

Start Date: 6-4-91 End Date: 6-4-91

EPA Sample No.	D/F	Time	% R	Analytes																						
				AL	SB	AS	BA	BE	CD	CA	CR	CO	CU	FE	PB	MG	MN	HG	NI	K	SE	AG	NA	TL	V	ZN	CN
LD-1GW2-FB	5.00	0936																									
LD-1MW070-GW	5.00	0938																									
LD-1MW057-GW	5.00	0940																									
LD-1MW020-GW	5.00	0942																									
LD-1MW055-GW	5.00	0944																									
LD-161055-FD	5.00	0946																									
LD-161046-GW	5.00	0948																									
LD-1MW050-GW	5.00	0950																									
CCV	1.00	0952																									
CCB	1.00	0954																									
LD-161060R-GW	5.00	0956																									
LD-161060R-GW D	5.00	0958																									
ZZZZZ	5.00	1000																									
ZZZZZ	5.00	1002																									
ZZZZZ	5.00	1004																									
CCV	1.00	1006																									
CCB	1.00	1008																									
CCW	1.00	1010																									
PB W	1.00	1012																									
CCV	1.00	1014																									
CCB	1.00	1016																									

U.S. EPA - CLP

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ANALYSIS RUN LOG

Lab Name: ARDL, INC Contract: 111908

Lab Code: _____ Case No.: _____ SAS No.: _____ SDG No.: _____

Instrument ID Number: AA20 Method: E

Start Date: 6-3-91 End Date: 6-3-91

EPA Sample No.	D/F	Time	% R	Analytes																							
				AL	SB	AS	BA	BE	CD	CA	CR	CO	CU	FE	PB	MG	MN	HG	NI	K	SE	AG	NA	TL	V	ZN	CN
S 0.00	1.00	0730																						X			
S 10.00	1.00	0735																									
S 20.00	1.00	0740																									
S 30.00	1.00	0745																									
S 50.00	1.00	0750																									
ICV	1.00	0755																									
ICB	1.00	0800																									
ZZZZZ	1.00	0810																									
CRA	1.00	0815																									
LCS W	1.00	0820																									
LCS WA	1.00	0825	96.3																								
PB W	1.00	0830																									
PB WA	1.00	0835	89.1																								
LO-1MW04D-GW	1.00	0840																									
LO-1MW04D-GWA	1.00	0845	70.0																								
LO-1G104D-GW	1.00	0550																									
LO-1G104D-GWA	1.00	0855	62.4																								
CCV	1.00	0900																									
CCB	1.00	0905																									
LO-1GW2-FB	1.00	[illegible]																									
LO-1GW2-FBA	1.00	[illegible]	93.5																								
LO-1GW2-FB-D	1.00	[illegible]																									
LO-1GW2-FB-DA	1.00	[illegible]	93.2																								
LO-1GW2-FB-S	1.00	[illegible]																									
LO-1MW07D-GW	1.00	[illegible]																									
LO-1MW07D-GWA	1.00	0940	93.4																								
LO-1MW07S-GW	1.00	0945																									
LO-1MW07S-GWA	1.00	[illegible]	94.2																								
CCV	1.00	[illegible]																									
CCB	1.00	1000																									
LO-1MW02D-GW	1.00	[illegible]																									
LO-1MW02D-GWA	1.00	[illegible]	118.9																								
LO-1MW05S-GW	1.00	[illegible]																									

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ANALYSIS RUN LOG

Lab Name: ARDL INC Contract: 111908

Lab Code: _____ Case No.: _____ SAS No.: _____ SDG No.: _____

Instrument ID Number: AA20 Method: E

Start Date: 6-3-91 End Date: 6-3-91

EPA Sample No.	D/F	Time	% R	Analytes																							
				AL	SB	AS	BA	BE	CD	CA	CR	CO	CU	FE	PB	MG	MN	HG	NI	K	SE	AG	NA	TL	V	ZN	CN
LO-1MW05S-GWA	1.00	1020	75.0																					X			
LO-1G105S-FD	1.00	1025																									
LO-1G105S-FDA	1.00	1030	85.0																								
LO-1G104D-GW	1.00	1035																									
LO-1G104D-GWA	1.00	1040	82.7																								
LO-1MW05D-GW	1.00	1045																									
LO-1MW05D-GWA	1.00	1050	80.0																								
CCV	1.00	1055																									
CCB	1.00	1100																									
LO-1G106DRGW	1.00	1105																									
LO-1G106DRGWA	1.00	1110	98.4																								
LO-1G106DRGWD	1.00	1115																									
LO-1G106DRGWDA	1.00	1120	84.7																								
LO-1MW04D-GW	1.00	1125																									
LO-1MW04D-GWA	1.00	1130	73.2																								
LO-1MW04D-GWD	1.00	1135																									
LO-1MW04D-GWDA	1.00	1140	70.8																								
LO-1MW04D-GWS	1.00	1145																									
ZZZZZ	1.00	1150																									
CCV	1.00	1155																									
CCB	1.00	1200																									
LO-1GL04D-GW	1.00	1205																									
LO-1GL04DGWA	1.00	1210	108.3																								
LO-1GW2-FB	1.00	1215																									
LO-1GW2-FBA	1.00	1220	123.2																								
LO-1MW07D-GW	1.00	1225																									
LO-1MW07D-GWA	1.00	1230	91.3																								
LO-1MW07S-GW	1.00	1235																									
LO-1MW07S-GWA	1.00	1240	115.2																								
LO-1MW02D-GW	1.00	1245																									
LO-1MW02D-GWA	1.00	1250	97.4																								
CCV	1.00	1255																									
CCB	1.00	1300																									

ANALYSIS RUN LOG

Lab Name: ARDL INC Contract: 111908

Lab Code: _____ Case No.: _____ SAS No.: _____ SDG No.: _____

Instrument ID Number: HA20 Method: F

Start Date: 6-3-91 End Date: 6-3-91

EPA Sample No.	D/F	Time	% R	Analytes																							
				AL	SB	AS	BA	BE	CD	CA	CR	CO	CU	FE	PB	MG	MN	HG	NI	K	SE	AG	NA	TL	V	ZN	CN
40-1MW05S-GW	1.00	1305																						X			
40-1MW05S-GWA	1.00	1310	100.0																								
40-1G105SAD	1.00	1315																									
40-1G105SFDA	1.00	1320	99.8																								
40-1G104L-GW	1.00	1325																									
40-1G104LGWA	1.00	1330	84.0																								
40-1MW05D-GW	1.00	1335																									
40-1MW05D-GWA	1.00	1340	97.6																								
40-1G106DR-GW	1.00	1345																									
40-1G106DR-GWD	1.00	1350	96.4																								
CCV	1.00	1355																									
CCB	1.00	1400																									
40-1G106DR-GWD	1.00	1405																									
40-1G106DR-GWDA	1.00	1410	96.0																								
LCSW	1.00	1415																									
LCSWA	1.00	1420																									
PBW	1.00	1425																									
PBWA	1.00	1430																									
ZZZZZ	1.00	1435																									
ZZZZZ	1.00	1440																									
ZZZZZ	1.00	1445																									
ZZZZZ	1.00	1450																									
CCV	1.00	1455																									
CCB	1.00	1500																									
ZZZZZ	1.00	1505																									
ZZZZZ	1.00	1510																									
ZZZZZ	1.00	1515																									
CCV	1.00	1520																									
CCB	1.00	1525																									
ZZZZZ	1.00	1530																									
ZZZZZ	1.00	1535																									
ZZZZZ	1.00	1540																									
ZZZZZ	1.00	1545																									

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ANALYSIS RUN LOG

Lab Name: ARDL INC Contract: 111908

Lab Code: _____ Case No.: _____ SAS No.: _____ SDG No.: _____

Instrument ID Number: AA20 Method: F

Start Date: 6-3-91 End Date: 6-3-91

EPA Sample No.	D/F	Time	% R	Analytes																								
				AL	SB	AS	BA	BE	CD	CA	CR	CO	CU	FE	PB	MG	MN	HG	NI	K	SE	AG	NA	TL	V	ZN	CN
ZZZZZ	1.00	1550																						X			
ZZZZZ	1.00	1555																						X			

FORM XIV - IN 7/88

C. CASE 111918

Case 111918

PROJECT NAME: Lenz Oil

SUPPORT DOCUMENTATION FOR THE REVIEW OF INORGANIC ANALYTICAL DATA PACKAGE

TYPE OF ANALYSIS: Metals, CN

CONTRACT LABORATORY: ARDL

REVIEWER: Ruth Forman

REVIEW DATE: June, 1991

APPLICABLE SAMPLE NO's.: See Table 1 of report

THE FOLLOWING TABLE INDICATES AREAS WHICH WERE EXAMINED IN DETAIL, THE IDENTIFIED PROBLEM AREAS, AND SUPPORT DOCUMENTATION ATTACHMENTS:

	AREAS EXAMINED IN DETAIL — CHECK (✓) IF YES OR FOOTNOTE LETTER FOR COMMENTS BELOW					PROBLEM AREAS IDENTIFIED — CHECK (✓) IF YES OR FOOTNOTE NUMBER FOR COMMENTS BELOW					SUPPORT DOCUMENTATION ATTACHMENTS — CHECK (✓) IF YES OR IDENTIFY ATTACHMENT				
	ALL APPLICABLE ANALYSES	ICP OR A.A. METALS	FURNACE METALS	COLD VAPOR MERCURY	CYANIDE	ALL APPLICABLE ANALYSES	ICP OR A.A. METALS	FURNACE METALS	COLD VAPOR MERCURY	CYANIDE	ALL APPLICABLE ANALYSES	ICP OR A.A. METALS	FURNACE METALS	COLD VAPOR MERCURY	CYANIDE
HOLDING TIMES	✓										✓				
BLANK ANALYSIS RESULTS	✓						✓	✓			✓				
MATRIX SPIKES (PRE-DIGESTION)	✓						✓				✓				
DUPLICATES	✓						✓				✓				
QUANTITATION OF RESULTS	✓														
DETECTION LIMITS/SENSITIVITY	✓										✓				
INITIAL CALIBRATIONS	✓										✓				
CONTINUING CALIBRATIONS	✓						✓				✓				
LABORATORY CONTROL STANDARDS	✓						✓				✓				
ICP LINEAR RANGE ANALYSIS	✓										✓				
ICP INTERFERENCE CHECKS	✓										✓				
ICP SERIAL DILUTIONS	✓						✓				✓				
GFAA POST-DIGESTION SPIKES	✓						✓								
GFAA DUPLICATE BURNS	✓														
GFAA STANDARD ADDITIONS	✓						✓				✓				
OTHERS															

COMMENTS:

BLANK ANALYSIS RESULTS FOR INORGANICS

PARAMETER	TYPE/ MATRIX	SAMPLE #	SOURCE	CONTAMINANT (CONCENTRATION)
Metals	ICAL/Aq	Initial Calibration	ARDL	None Reported
Metals	CCAL/Aq	Continuing Calibration	ARDL	None Reported
Metals	PB/Aq	Prep Blank	ARDL	None Reported
Metals	FB/Aq	LO-16W3-FB dissolved		None Reported
Metals	FB/Aq	LO-16W3-FB Total		1200 ug/L aluminum 38000 ug/L calcium 4400 ug/L iron 2.2 ug/L lead 21,000 ug/L magnesium 73 ug/L manganese 790 ug/L sodium 47 ug/L zinc

LABORATORY REPORTED FIELD BLANK IS COMPARED WITH THE SAMPLE DATA IN A TABULATION FORM WITHIN THE SAMPLE ANALYTICAL DATA SUMMARY.

COMMENTS :

(1) RESULT REPORTED BY THE LABORATORY AND CONFIRMED BY REVIEWER

(2) RESULT INFERED FROM INSTRUMENT PRINTOUTS AND/OR SUPPORTING DATA

FORM IIA

INITIAL AND CONTINUING CALIBRATION VERIFICATION METALS

Lab Name ARDL, Inc. Contract No. 111918

Initial Calibration Source LAB PREPARED

Continuing Calibration Source LAB PREPARED

Concentration Units: ug/L

Analyte	Initial Calibration True	Initial Calibration Found	Initial Calibration %R(1)	Continuing Calibration True	Continuing Calibration Found	Continuing Calibration %R(1)	Continuing Calibration Found	Continuing Calibration %R(1)	M
Aluminum	5010	5000	100	5000	4980	100	4900	98	P
Antimony	1000	938	94	1000	926	93	1010	101	P
Arsenic	4.0	3.8	95	2.0	2.0	100	2.2	110	F
Barium	500	485	97	500	481	96	476	95	P
Beryllium	510	478	96	500	467	93	461	92	P
Cadmium	1000	962	96	1000	942	94	940	94	P
Calcium	5000	5500	110	5000	5260	105	5090	102	P
Chromium	1250	1230	98	1250	1230	98	1260	101	P
Cobalt	1000	973	97	1000	956	96	965	97	P
Copper	1000	1040	104	1000	953	95	993	99	P
Iron	750	733	98	750	720	96	726	97	P
Lead	10	9.8	98	10	9.5	95	9.4	94	F
Magnesium	5000	4880	98	5000	4590	92	4740	95	P
Manganese	500	490	98	500	476	95	485	97	P
Mercury	4.0	5.8	97	4.0	4.0	100	4.0	100	CV
Nickel	2500	2450	98	2500	2420	97	2470	99	P
Potassium	8000	7900	99	8000	8000	100	7400	95	A
Selenium	2.0	1.9	95	2.0	2.0	100	1.8	90	BH
Silver	2500	2430	97	2500	2390	96	2450	98	P
Sodium	8000	7700	96	8000	7600	95	7800	98	A
Thallium	25	26	104	25	22	88	25	100	P
Vanadium	500	492	98	500	486	97	497	99	P
Zinc	1000	978	98	1000	961	96	987	99	P
Cyanide									-S

(1) Control Limits: Mercury 80-120; Other Metals 90-110

FORM IIA

INITIAL AND CONTINUING CALIBRATION VERIFICATION
METALS

Lab Name ABDL, Inc. Contract No. 111918

Initial Calibration Source LAB PREPARED

Continuing Calibration Source LAB PREPARED

Concentration Units: ug/L

Analyte	Initial Calibration True	Initial Calibration Found	Initial Calibration %R(1)	Continuing Calibration True	Continuing Calibration Found	Continuing Calibration %R(1)	Continuing Calibration Found	Continuing Calibration %R(1)	M
Aluminum				5000	4510	90			P
Antimony				1000	942	94			P
Arsenic				2.0	2.1	105			BH
Barium				500	485	97			P
Berylium				500	466	93			P
Cadmium				1000	947	95			P
Calcium				5000	5140	103			P
Chromium				1250	1260	101			P
Cobalt				1000	967	97			P
Copper				1000	1000	100			P
Iron				750	719	96			P
Lead				10	9.3	93	11	110	F
Magnesium				5000	4950	99			P
Manganese				500	485	97			P
Mercury				4.0	4.0	100			CV
Nickel				2500	2500	100			P
Potassium				2000	2300	98	2300	[illegible]	A
Selenium									BH
Silver				2500	2540	102			P
Sodium				2000	7700	96	7700	96	A
Thallium				25	24	96	24	96	P
Vanadium				500	501	100			P
Zinc				1000	977	100			P
Cyanide									[illegible]

1) Control Limits: Mercury 80-120; Other Metals 90-110

100015

FORM IIA

INITIAL AND CONTINUING CALIBRATION VERIFICATION
METALS

Lab Name ARDL, Inc. Contract No. 111918

Initial Calibration Source LAB PREPARED

Continuing Calibration Source LAB PREPARED

Concentration Units: ug/L

Analyte	Initial Calibration True	Initial Calibration Found	Initial Calibration %R(1)	Continuing Calibration True	Continuing Calibration Found	Continuing Calibration %R(1)	Continuing Calibration Found	Continuing Calibration %R(1)	M
Aluminum									P
Antimony									
Arsenic									BH
Barium									P
Beryllium									P
Cadmium									P
Calcium									P
Chromium									P
Cobalt									P
Copper									P
Iron									P
Lead				10	9.9	99	9.6	96	F
Magnesium									P
Manganese									P
Mercury									CV
Nickel									P
Potassium				8000	7300	91	8200	103	A
Selenium									BH
Silver									P
Sodium				8000	7700	96	7800	98	A
Thallium									F
Vanadium									P
Zinc									P

(1) Control Limits: Mercury 80-120; Other Metals 90-110

FORM IIA

INITIAL AND CONTINUING CALIBRATION VERIFICATION
METALS

Lab Name ARDL, Inc. Contract No. 111718

Initial Calibration Source LAB PREPARED

Continuing Calibration Source LAB PREPARED

Concentration Units: ug/L

Analyte	Initial Calibration True	Initial Calibration Found	Initial Calibration %R(1)	Continuing Calibration True	Continuing Calibration Found	Continuing Calibration %R(1)	Continuing Calibration Found	Continuing Calibration %R(1)	M
Aluminum									P
Antimony									
Arsenic									BH
Barium									P
Beryllium									P
Cadmium									P
Calcium									P
Chromium									P
Cobalt									P
Copper									P
Iron									P
Lead				10	10	100			F
Magnesium									P
Manganese									P
Mercury									CV
Nickel									P
Potassium				5000	5100	01			A
Selenium									BH
Silver									P
Sodium				7000	7700	96	7800	98	A
Thallium									F
Vanadium									P
Zinc									P

(1) Control Limits: Mercury 80-120; Other Metals 90-110

FORM IIA

INITIAL AND CONTINUING CALIBRATION VERIFICATION
METALS

Lab Name ARDL, Inc. Contract No. 11918

Initial Calibration Source LAB PREPARED

Continuing Calibration Source LAB PREPARED

Concentration Units: ug/L

Analyte	Initial Calibration True	Initial Calibration Found	Initial Calibration %R(1)	Continuing Calibration True	Continuing Calibration Found	Continuing Calibration %R(1)	Continuing Calibration Found	Continuing Calibration %R(1)	M
Aluminum									P
Antimony									
Arsenic									BH
Barium									P
Beryllium									P
Cadmium									P
Calcium									P
Chromium									P
Cobalt									P
Copper									P
Iron									P
Lead									
Magnesium									P
Manganese									P
Mercury									CV
Nickel									P
Potassium									P
Selenium									BH
Silver									P
Sodium				8000	7700	96	7800	98	A
Thallium									F
Vanadium									P
Zinc									P

(1) Control Limits: Mercury 80-120; Other Metals 90-110

FORM IIA

INITIAL AND CONTINUING CALIBRATION VERIFICATION
METALS

Lab Name ARDL, Inc. Contract No. 111918

Initial Calibration Source LAB PREPARED

Continuing Calibration Source LAB PREPARED

Concentration Units: ug/L

Analyte	Initial Calibration True	Initial Calibration Found	Initial Calibration %R(1)	Continuing Calibration True	Continuing Calibration Found	Continuing Calibration %R(1)	Continuing Calibration Found	Continuing Calibration %R(1)	M
Aluminum									P
Antimony									
Arsenic									BH
Barium									P
Beryllium									P
Cadmium									P
Calcium									P
Chromium									P
Cobalt									P
Copper									P
Iron									P
Lead	10	10	100	10	11	110	10	100	F
Magnesium									P
Manganese									P
Mercury									CV
Nickel									P
Potassium									P
Selenium									BH
Silver									P
Sodium									P
Thallium	25	24	96	25	27	108	23	92	F
Vanadium									P
Zinc									P

(1) Control Limits: Mercury 80-120; Other Metals 90-110

FORM IIA

INITIAL AND CONTINUING CALIBRATION VERIFICATION
METALS

Lab Name ARDL, Inc. Contract No. 111918

Initial Calibration Source LAB PREPARED

Continuing Calibration Source LAB PREPARED

Concentration Units: ug/L

Analyte	Initial Calibration True	Initial Calibration Found	Initial Calibration %R(1)	Continuing Calibration True	Continuing Calibration Found	Continuing Calibration %R(1)	Continuing Calibration Found	Continuing Calibration %R(1)	M
Aluminum									P
Antimony									
Arsenic									BH
Barium									P
Beryllium									P
Cadmium									P
Calcium									P
Chromium									P
Cobalt									P
Copper									P
Iron									P
Lead				10	9.6	96			F
Magnesium									P
Manganese									P
Mercury									CV
Nickel									P
Potassium									P
Selenium									BH
Silver									P
Sodium									P
Thallium				25	27	108	23	92	F
Vanadium									P
Zinc									P

(1) Control Limits: Mercury 80-120; Other Metals 90-110

FORM IIA

INITIAL AND CONTINUING CALIBRATION VERIFICATION
METALS

Lab Name ARDL, Inc. Contract No. 111918

Initial Calibration Source LAB PREPARED

Continuing Calibration Source LAB PREPARED

Concentration Units: ug/L

Analyte	Initial Calibration True	Initial Calibration Found	Initial Calibration %R(1)	Continuing Calibration True	Continuing Calibration Found	Continuing Calibration %R(1)	Continuing Calibration Found	Continuing Calibration %R(1)	M
Aluminum									P
Antimony									
Arsenic									BH
Barium									P
Beryllium									P
Cadmium									P
Calcium									P
Chromium									P
Cobalt									P
Copper									P
Iron									P
Lead									F
Magnesium									P
Manganese									P
Mercury									CV
Nickel									P
Potassium									P
Selenium									BH
Silver									P
Sodium									P
Thallium				25	27	108	23	92	F
Vanadium									P
Zinc									P

(1) Control Limits: Mercury 80-120; Other Metals 90-110

FORM IIA

INITIAL AND CONTINUING CALIBRATION VERIFICATION
METALS

Lab Name ARDL, Inc. Contract No. 111918

Initial Calibration Source LAB PREPARED

Continuing Calibration Source LAB PREPARED

Concentration Units: ug/L

Analyte	Initial Calibration True	Initial Calibration Found	Initial Calibration %R(1)	Continuing Calibration True	Continuing Calibration Found	Continuing Calibration %R(1)	Continuing Calibration Found	Continuing Calibration %R(1)	M
Aluminum									P
Antimony									
Arsenic									BH
Barium									P
Beryllium									P
Cadmium									P
Calcium									P
Chromium									P
Cobalt									P
Copper									P
Iron									P
Lead									F
Magnesium									P
Manganese									P
Mercury									CV
Nickel									P
Potassium									P
Selenium									BH
Silver									P
Sodium									P
Thallium				25	25	100	23	92	F
Vanadium									P
Zinc									P

(1) Control Limits: Mercury 80-120; Other Metals 90-110

U.S. EPA - CLP

2B
CRDL STANDARD FOR AA AND ICP

Lab Name: ABDL, INC. Contract: 111918

Lab Code: _____ Case No.: _____ SAS No.: _____ SDG No.: _____

AA CRDL Standard Source: LAB PREPARED

ICP CRDL Standard Source: LAB PREPARED

Concentration Units: ug/L

Analyte	CRDL Standard for AA True	Found	%R	CRDL Standard for ICP True	Initial Found	%R	Final Found	%R
Aluminum				400	<200	0	260	65
Antimony				150	110	7	<60	0
Arsenic	1.0	0.90	90					
Barium				400	360	90	370	92
Beryllium				10	8	80	8	80
Cadmium				10	5	50	<5	0
Calcium				10000	9500	95	10000	100
Chromium				20	23	115	22	110
Cobalt				100	87	87	88	88
Copper				50	44	88	51	102
Iron				200	190	95	190	95
Lead	6.0	6.7	112					
Magnesium				10000	8000	80	9200	92
Manganese				30	<15	0	<15	0
Mercury	0.20	0.24	120					
Nickel				80	76	95	65	81
Potassium	500	410	82					
Selenium	1.0	1.2	120					
Silver				20	<10	0	11	55
Sodium	1000	910	91					
Thallium	10	10	100					
Vanadium				100	95	95	100	100
Zinc				40	36	90	45	112

NO impact

U.S. EPA - CLP

2B
CRDL STANDARD FOR AA AND ICP

Lab Name: ARDL, INC. Contract: 111918

Lab Code: _____ Case No.: _____ SAS No.: _____ SDG No.: _____

AA CRDL Standard Source: LAB PREPARED

ICP CRDL Standard Source: LAB PREPARED

Concentration Units: ug/L

Analyte	CRDL Standard for AA			CRDL Standard for ICP				
					Initial		Final	
	True	Found	%R	True	Found	%R	Found	%R
Aluminum								
Antimony								
Arsenic								
Barium								
Beryllium								
Cadmium								
Calcium								
Chromium								
Cobalt								
Copper								
Iron								
Lead	6.0	5.7	95					
Magnesium								
Manganese								
Mercury								
Nickel								
Potassium								
Selenium								
Silver								
Sodium								
Thallium	10	8.0	80					
Vanadium								
Zinc								

FORM IIIA
BLANKS
METALS

Lab Name ARDL, Inc. Contract No. 111918

Preparation Blank Matrix (soil/water) WATER

Preparation Blank Concentration Units (ug/L or mg/kg) UG/L

Analyte	Initial Calib. Blanks (ug/L)	C	Continuing Calibration Blank (ug/L) 1	C	2	C	3	C	Prepar-ation Blank	C	M
Aluminum	200	U	200	U	200	U	200	U	200	U	P
Antimony	60	U	60	U	60	U	60	U	60	U	
Arsenic	0.90	U	0.90	U	0.90	U	0.90	U	0.90	U	BH
Barium	50	U	50	U	50	U	50	U	50	U	P
Beryllium	5.0	U	5.0	U	5.0	U	5.0	U	5.0	U	P
Cadmium	5.0	U	5.0	U	5.0	U	5.0	U	5.0	U	P
Calcium	1000	U	1000	U	1000	U	1000	U	1000	U	P
Chromium	10	U	10	U	10	U	10	U	10	U	P
Cobalt	50	U	50	U	50	U	50	U	50	U	P
Copper	25	U	25	U	25	U	25	U	25	U	P
Iron	50	U	50	U	50	U	50	U	50	U	P
Lead	2.0	U	2.0	U	2.0	U	2.0	U	2.0	U	F
Magnesium	1000	U	1000	U	1000	U	1000	U	1000	U	P
Manganese	15	U	15	U	15	U	15	U	15	U	P
Mercury	0.20	U	0.20	U	0.20	U	0.20	U	0.20	U	CV
Nickel	40	U	40	U	40	U	40	U	40	U	P
Potassium	500	U	500	U	500	U	500	U	500	U	A
Selenium	0.90	U	0.90	U	0.90	U			0.90	U	BH
Silver	10	U	10	U	10	U	10	U	10	U	P
Sodium	500	U	500	U	500	U	500	U	500	U	A
Thallium	5.0	U	5.0	U	5.0	U	5.0	U	5.0	U	F
Vanadium	50	U	50	U	50	U	50	U	50	U	P
Zinc	20	U	20	U	20	U	20	U	20	U	P
Cyanide									10	U	C

FORM IIIA
BLANKS
METALS

Lab Name ARDL, Inc. Contract No. 111918

Preparation Blank Matrix (soil/water) WATER

Preparation Blank Concentration Units (ug/L or mg/kg) UG/L

Analyte	Initial Calib. Blanks (ug/L)	C	Continuing Calibration Blank (ug/L) 1	C	2	C	3	C	Prepar-ation Blank	C	M
Aluminum											P
Antimony											
Arsenic											BH
Barium											P
Beryllium											P
Cadmium											P
Calcium											P
Chromium											P
Cobalt											P
Copper											P
Iron											P
Lead			2.0	U	2.0	U	2.0	U			F
Magnesium											P
Manganese											P
Mercury											CV
Nickel											P
Potassium			500	U	500	U	500	U	500	U	A
Selenium											BH
Silver											P
Sodium			500	U	500	U	500	U	500	U	A
Thallium			5.0	U							F
Vanadium											P
Zinc											P
Cyanide									12	4	C

FORM IIIA
BLANKS
METALS

Lab Name ARDL, Inc. Contract No. 111918

Preparation Blank Matrix (soil/water) WATER

Preparation Blank Concentration Units (ug/L or mg/kg) UG/L

Analyte	Initial Calib. Blanks (ug/L)	C	Continuing Calibration Blank (ug/L) 1	C	2	C	3	C	Prepar-ation Blank	C	M
Aluminum											P
Antimony											
Arsenic											BH
Barium											P
Beryllium											P
Cadmium											P
Calcium											P
Chromium											P
Cobalt											P
Copper											P
Iron											P
Lead			2.0	U							F
Magnesium											P
Manganese											P
Mercury											CV
Nickel											P
Potassium			500	U							A
Selenium											BH
Silver											P
Sodium			500	U	500	U	500	U	500	U	A
Thallium											F
Vanadium											P
Zinc											P

FORM IIIA
BLANKS
METALS

Lab Name ARDL, Inc. Contract No. 11912

Preparation Blank Matrix (soil/water) WATER

Preparation Blank Concentration Units (ug/L or mg/kg) UG/L

Analyte	Initial Calib. Blanks (ug/L)	Continuing Calibration Blank (ug/L) C	1	C	2	C	3	C	Prepar-ation Blank	C	M
Aluminum											P
Antimony											
Arsenic											BH
Barium											P
Beryllium											P
Cadmium											P
Calcium											P
Chromium											P
Cobalt											P
Copper											P
Iron											P
Lead											
Magnesium											P
Manganese											P
Mercury											CV
Nickel											P
Potassium											P
Selenium											BH
Silver											P
Sodium			500	U							A
Thallium											F
Vanadium											P
Zinc											P

FORM IIIA
BLANKS
METALS

Lab Name ARDL, Inc. Contract No. 111918

Preparation Blank Matrix (soil/water) WATER

Preparation Blank Concentration Units (ug/L or mg/kg) ug/L

Analyte	Initial Calib. Blanks (ug/L)	Continuing Calibration Blank (ug/L) C	1	C	2	C	3	C	Prepar-ation Blank	C	M
Aluminum											P
Antimony											
Arsenic											BH
Barium											P
Beryllium											P
Cadmium											P
Calcium											P
Chromium											P
Cobalt											P
Copper											P
Iron											P
Lead	2.0	U	2.0	U	2.0	U	2.0	U	2.0	U	F
Magnesium											P
Manganese											P
Mercury											CV
Nickel											P
Potassium											P
Selenium											BH
Silver											P
Sodium											P
Thallium	5.0	U	5.0	U	5.0	U	5.0	U	5.0	U	F
Vanadium											P
Zinc											P

FORM IIIA
BLANKS
METALS

Lab Name ARDL, Inc. Contract No. 111918

Preparation Blank Matrix (soil/water) WATER

Preparation Blank Concentration Units (ug/L or mg/kg) UG/L

Analyte	Initial Calib. Blanks (ug/L)	C	Continuing Calibration Blank (ug/L) 1	C	2	C	3	C	Prepar-ation Blank	C	M
Aluminum											P
Antimony											
Arsenic											BH
Barium											P
Beryllium											P
Cadmium											P
Calcium											P
Chromium											P
Cobalt											P
Copper											P
Iron											P
Lead											
Magnesium											P
Manganese											P
Mercury											CV
Nickel											P
Potassium											P
Selenium											BH
Silver											P
Sodium											P
Thallium			5.0	U	5.0	U	5.0	U	5.0	U	F
Vanadium											P
Zinc											P

FORM IIIA
BLANKS
METALS

Lab Name ARDL, Inc. Contract No. 111918

Preparation Blank Matrix (soil/water) WATER

Preparation Blank Concentration Units (ug/L or mg/kg) UG/L

Analyte	Initial Calib. Blanks (ug/L)	Continuing Calibration Blank (ug/L) C	1	C	2	C	3	C	Prepar-ation Blank	C	M
Aluminum											P
Antimony											
Arsenic											BH
Barium											P
Beryllium											P
Cadmium											P
Calcium											P
Chromium											P
Cobalt											P
Copper											P
Iron											P
Lead											F
Magnesium											P
Manganese											P
Mercury											CV
Nickel											P
Potassium											P
Selenium											BH
Silver											P
Sodium											P
Thallium			5.0	U	5.0	U					F
Vanadium											P
Zinc											P

Form IV

ICP INTERFERENCE CHECK SAMPLE

Lab Name ARDL, Inc. Contract No. 111918

ICP ID Number JA 965

ICP Source ICF Technology

Concentration Units: ug/L

Analyte	True Sol. A	True Sol. AB	Initial Found Sol. A	Initial Found Sol. AB	%R	Final Found Sol. A	Final Found Sol. AB	%R
Aluminum	481000	419700	545000	572000		599000	609000	
Antimony								
Arsenic								
Barium		456		422	93		411	90
Berylium		472		461	98		464	98
Cadmium		958		812	85		800	84
Calcium	448250	445200	439000	460000		465000	474000	
Chromium	251	525		479	91		464	88
Cobalt		494		493	100		478	97
Copper		523		503	96		474	91
Iron	182650	178650	176000	174000		187000	190000	
Lead		4700		3700	81		4050	86
Magnesium	450900	445200	456000	475000		494000	501000	
Manganese	16	530		545	103		601	113
Mercury								
Nickel		940		830	88		799	85
Potassium								
Selenium								
Silver		990		862	87		915	92
Sodium								
Thallium								
Vanadium		471		422	90		426	90
Zinc		1026		896	87		905	88
Cyanide								

LAB ID # 111918-1
IEPA ID # LO-1MW0612-GW

FORM VA

SPIKE SAMPLE RECOVERY
METALS

Lab Name ARDL, Inc. Contract No. 111918

Matrix (soil/water) Water Level (low/med) _____

Concentration Units (ug/L or mg/kg dry weight ug/L

Dissolved

Analyte	Control Limit %R	Spiked Sample Result (SSR)	C	Sample Result (SR)	C	Spike Added (SA)	%R	Q	M
Aluminum	75-125	7400		200	u	2000	370	N	P
Antimony	75-125	9100		60	u	500	190	N	
Arsenic	75-125	12		4.5	u	10	120		BH
Barium	75-125	580		150	u	2000	29	N	P
Beryllium	75-125	49		5.0	u	50	98		P
Cadmium	75-125	44		5.0	u	50	88		P
Chromium	75-125	200		10	u	200	100		P
Cobalt	75-125	470		50	u	500	94		P
Copper	75-125	150		25	u	250	100	N	P
Iron	75-125	8900		2400		1000	650	N	P
Lead	75-125								
Manganese	75-125	550		15	u	500	110		P
Mercury	75-125								CV
Nickel	75-125	480		40	u	500	96		P
Selenium	75-125	6.4		4.5	u	10	64	N	BH
Silver	75-125	31		10	u	50	62	N	P
Thallium	75-125								F
Vanadium	75-125	470		50	u	500	94		P
Zinc	75-125	430		20	u	500	86		P
Cyanide	75-125								AS
	75-125								

LAB ID # LO-1mw04S-FD
IEPA ID # 111918-2

FORM VA

SPIKE SAMPLE RECOVERY
METALS

Lab Name ARDL, Inc. Contract No. 111918

Matrix (soil/water) WATER Level (low/med) _____

Concentration Units (ug/L or mg/kg dry weight ug/L

D.S.

Analyte	Control Limit %R	Spiked Sample Result (SSR)	C	Sample Result (SR)	C	Spike Added (SA)	%R	Q	M
Aluminum	75-125								P
Antimony	75-125								
Arsenic	75-125								BH
Barium	75-125								P
Beryllium	75-125								P
Cadmium	75-125								P
Chromium	75-125								P
Cobalt	75-125								P
Copper	75-125								P
Iron	75-125								P
Lead	75-125								
Manganese	75-125								P
Mercury	75-125	0.99		0.20	u	1.0	99		CV
Nickel	75-125								P
Selenium	75-125								BH
Silver	75-125								P
Thallium	75-125								F
Vanadium	75-125								P
Zinc	75-125								P
	75-125								
	75-125								

LAB ID # 111918-3
IEPA ID # 2-MW02S-GW

FORM VA

SPIKE SAMPLE RECOVERY
METALS

Lab Name ARDL, Inc. Contract No. 111918

Matrix (soil/water) WATER Level (low/med) _____

Concentration Units (ug/L or mg/kg dry weight UG/L

DISSOLVED

Analyte	Control Limit %R	Spiked Sample Result (SSR)	C	Sample Result (SR)	C	Spike Added (SA)	%R	Q	M
Aluminum	75-125								P
Antimony	75-125								
Arsenic	75-125								BH
Barium	75-125								P
Beryllium	75-125								P
Cadmium	75-125								P
Chromium	75-125								P
Cobalt	75-125								P
Copper	75-125								P
Iron	75-125								P
Lead	75-125	14		20	U	20	70	N	F
Manganese	75-125								P
Mercury	75-125								CV
Nickel	75-125								P
Selenium	75-125								BH
Silver	75-125								P
Thallium	75-125	42		50	U	50	84		F
Vanadium	75-125								P
Zinc	75-125								P
	75-125								
	75-125								

LAB ID # 111918-1
IEPA ID # LO-1MW60-GW

FORM VA

SPIKE SAMPLE RECOVERY
METALS

Lab Name ARDL, Inc. Contract No. 111918

Matrix (soil/water) WAter Level (low/med) _____

Concentration Units (ug/L or mg/kg dry weight ug/L

TOTAL

Analyte	Control Limit %R	Spiked Sample Result (SSR)	C	Sample Result (SR)	C	Spike Added (SA)	%R	Q	M
Aluminum	75-125	6900		6000		2000	45	N	P
Antimony	75-125	810		60		500	150	N	P
Arsenic	75-125	14		4.5	U	10	140	N	BH
Barium	75-125	1800		67	B	2000	87		P
Beryllium	75-125	44		5.0	U	50	88		P
Cadmium	75-125	40		5.0	U	50	80		P
Chromium	75-125	100		12		200	89		P
Cobalt	75-125	450		50	U	500	90		P
Copper	75-125	220		25	U	250	88		P
Iron	75-125	9000		7400		1000	160	N	P
Lead	75-125	22		2.2	B	20	99		F
Manganese	75-125	540		80		500	92		P
Mercury	75-125								CV
Nickel	75-125	440		40	U	500	88		P
Selenium	75-125	7.3		4.5	U	10	73	N	BH
Silver	75-125	33		10	U	50	66	N	P
Thallium	75-125	39		5.0	U	50	78		F
Vanadium	75-125	450		50	U	500	90		P
Zinc	75-125	460		30		500	86		P
CYANIDE	75-125								
	75-125								

NO

LAB ID # 111918-2
IEPA ID # LO-110110-S-FD

FORM VA

SPIKE SAMPLE RECOVERY
METALS

Lab Name ARDL, Inc. Contract No. 111918

Matrix (soil/water) WATER Level (low/med) _____

Concentration Units (ug/L or mg/kg dry weight UG/L

Total

Analyte	Control Limit %R	Spiked Sample Result (SSR)	C	Sample Result (SR)	C	Spike Added (SA)	%R	Q	M
Aluminum	75-125								P
Antimony	75-125								
Arsenic	75-125								BH
Barium	75-125								P
Beryllium	75-125								P
Cadmium	75-125								P
Chromium	75-125								P
Cobalt	75-125								P
Copper	75-125								P
Iron	75-125								P
Lead	75-125								
Manganese	75-125								P
Mercury	75-125	.3		0.37		1.0	93		CV
Nickel	75-125								P
Selenium	75-125								BH
Silver	75-125								P
Thallium	75-125								F
Vanadium	75-125								P
Zinc	75-125								P
Cyanide	75-125	140		73		170	39	N	C
	75-125								

FORM VIA

DUPLICATES
METALS

Lab Name ARDL, Inc. Contract No. 111918

Matrix (soil/water) Water Level (low/med)

% Solids for Sample 0.0 % Solids for Duplicate 0.0

Concentration Units (ug/L or mg/kg dry weight) mg/L

DISSOLVED

Analyte	Control Limit	Sample (S)	C	Duplicate (D)	C	RPD	Q	M
Aluminum	±200	200	U	200	U			P
Antimony	±60	60		60	U			P
Arsenic	±10	4.5	U	4.5	U			BH
Barium	±200	50	U	50	U			P
Beryllium	±5.0	5.0	U	5.0	U			P
Cadmium	±5.0	5.0	U	5.0	U			P
Calcium	20%	180000		180000		0		P
Chromium	±10	10	U	10	U			P
Cobalt	±50	50	U	50	U			P
Copper	±25	25	U	25	U			P
Iron	20%	2400		2400		0		P
Lead								
Magnesium	20%	88000		88000		0		P
Manganese	±15	15	U	15	U			P
Mercury								
Nickel	±40	40	U	40	U			P
Potassium	±5000	6400		6300		1.6		A
Selenium	±5.0	4.5	U	4.5	U			BH
Silver	±10	10	U	10	U			P
Sodium	20%	62000		62000		0		A
Thallium								
Vanadium	±50	50	U	50	U			P
Zinc	±20	20	U	20	U			P

LAB ID # 111918-2
IEPA ID # LO-1MW04S-FD

FORM VIA

DUPLICATES
METALS

Lab Name ARDL, Inc. Contract No. 111918

Matrix (soil/water) WATER Level (low/med) _____

% Solids for Sample 0.0 % Solids for Duplicate 0.0

Concentration Units (ug/L or mg/kg dry weight) UG/L

Dissolved

Analyte	Control Limit	Sample (S)	C	Duplicate (D)	C	RPD	Q	M
Aluminum								P
Antimony								P
Arsenic								BH
Barium								P
Berylium								P
Cadmium								P
Calcium								P
Chromium								P
Cobalt								P
Copper								P
Iron								P
Lead								
Magnesium								P
Manganese								P
Mercury	≥0.20	0.20	U	0.20	U			CV
Nickel								P
Potassium								P
Selenium								BH
Silver								P
Sodium								P
Thallium								F
Vanadium								P
Zinc								P
Cyanide								-

FORM VIA

DUPLICATES
METALS

Lab Name: ARDL, Inc. Contract No.: 119 2

Matrix (soil/water): WATER Level (low/med):

% Solids for Sample: 0.0 % Solids for Duplicate: 0.0

Concentration Units (ug/L or mg/kg dry weight): UG/L

Dissolved

Analyte	Control Limit	Sample (S)	C	Duplicate (D)	C	RPD	Q	M
Aluminum								P
Antimony								P
Arsenic								BH
Barium								P
Beryllium								P
Cadmium								P
Calcium								P
Chromium								P
Cobalt								P
Copper								P
Iron								P
Lead	±3.0	2.0	U	2.0	U			F
Magnesium								P
Manganese								P
Mercury								CV
Nickel								P
Potassium								P
Selenium								BH
Silver								P
Sodium								P
Thallium	±10	5.0	U	5.0	U			F
Vanadium								P
Zinc								P

LAB ID # 111918-1
IEPA ID # LO-MW04-D-3.1

FORM VIA

DUPLICATES
METALS

Lab Name ARDL, Inc. Contract No. 111918

Matrix (soil/water) WATER Level (low/med)

% Solids for Sample 0.0 % Solids for Duplicate 0.0

Concentration Units (ug/L or mg/kg dry weight) UG/L

Total

Analyte	Control Limit	Sample (S)	C	Duplicate (D)	C	RPD	Q	M
Aluminum	20%	6000		2700		76	*	P
Antimony	±60	60	U	60	U			P
Arsenic	±10	4.5	U	4.5	U			BH
Barium	±200	67	B	56	B	18		P
Beryllium	±5.0	5.0	U	5.0	U			P
Cadmium	±5.0	5.0	U	5.0	U			P
Calcium	20%	220000		250000		13		P
Chromium	±10	12		11		9.7		P
Cobalt	±50	50	U	50	U			P
Copper	±25	25	U	25	U			P
Iron	20%	7400		7900		6.5		P
Lead	±3.0	2.2	B	2.0	B	9.5		F
Magnesium	20%	120000		130000		8.0		P
Manganese	20%	90		93		15		P
Mercury								CV
Nickel	±40	40	U	40	U			P
Potassium	±5000	9100		7900		14		A
Selenium	±5.0	4.5	U	4.5	U			BH
Silver	±10	10	U	10	U			P
Sodium	20%	58000		60000		3.9		A
Thallium	±10	5.0	U	5.0	U			F
Vanadium	±50	50	U	50	U			P
Zinc	±20	30		36		18		P
Cyanide	±10	10	U	10	U			C

FORM VIA

DUPLICATES
METALS

Lab Name ARDL, Inc. Contract No. 11912

Matrix (soil/water) WATER Level (low/med)

% Solids for Sample 0.0 % Solids for Duplicate 0.0

Concentration Units (ug/L or mg/kg dry weight) UG/L

Total

Analyte	Control Limit	Sample (S)	C	Duplicate (D)	C	RPD	Q	M
Aluminum								P
Antimony								P
Arsenic								BH
Barium								P
Beryllium								P
Cadmium								P
Calcium								P
Chromium								P
Cobalt								P
Copper								P
Iron								P
Lead								
Magnesium								P
Manganese								P
Mercury	I0.20	0.37		0.35		5.6		C
Nickel								P
Potassium								P
Selenium								BH
Silver								P
Sodium								P
Thallium								P
Vanadium								P
Zinc								P

FORM VIIA

LABORATORY CONTROL SAMPLE
METALS

Lab Name ARDL, Inc. Contract No. 111918

Solid LCS Source

Aqueous LCS Source LAB PREPARED

Analyte	Aqueous (ug/L) True	Found	%R	Solid (mg/kg) True	Found	C	Limits	%R
Aluminum	10000	9570	96					
Antimony	1000	996	100					
Arsenic	5.0	5.0	100					
Barium	1000	886	89					
Berylium	1000	891	89					
Cadmium	2000	1770	89					
Calcium	10000	9870	99					
Chromium	2500	2320	93					
Cobalt	2000	1770	89					
Copper	2000	1760	88					
Iron	1500	1320	88					
Lead	10	12	120					
Magnesium	10000	8110	81					
Manganese	1000	893	89					
Mercury	5.0	4.9	98					
Nickel	5000	4570	91					
Potassium	12500	12000	96					
Selenium	5.0	4.7	94					
Silver	5010	4680	94					
Sodium	12500	12000	9[illegible]					
Thallium	20	22	110					
Vanadium	1000	942	94					
Zinc	2000	1790	90					
Cyanide	100	82	82					

FORM VIIA

LABORATORY CONTROL SAMPLE
METALS

Lab Name ARDL, Inc. Contract No. 111918

Solid LCS Source

Aqueous LCS Source LAB PREPARED

Analyte	Aqueous (ug/L) True	Aqueous (ug/L) Found	Aqueous (ug/L) %R	Solid (mg/kg) True	Solid (mg/kg) Found	C	Limits	%R
Aluminum								
Antimony								
Arsenic								
Barium								
Berylium								
Cadmium								
Calcium								
Chromium								
Cobalt								
Copper								
Iron								
Lead	10	8.8	88					
Magnesium								
Manganese								
Mercury								
Nickel								
Potassium								
Selenium								
Silver								
Sodium								
Thallium	20	19	95					
Vanadium								
Zinc								
Cyanide	100	83	83					

FORM VIII

ICP SERIAL DILUTIONS

b Name ARCL INC. Site Inventory No. _____

Date 5-28-91 Matrix (soil/water) Water

Level (low/med.) _____

Concentration Units: ug/L

Diss

Analyte	Initial Sample Result (I)	C	Serial Dilution Result (S)	C	% Difference	Q	M
Aluminum	200	U	1000	U			
Antimony	60	U	300	U			
Arsenic							
Barium	50	U	250	U			
Beryllium	5.0	U	25	U			
Cadmium	5.0	U	25	U			
Calcium	190000		190000		5.4		
Chromium	10	U	50	U			
Cobalt	50	U	250	U			
Copper	25	U	125	U			
Iron	99		270				
Lead							
Magnesium	94000		91000		3.2		
Manganese	440		420				
Mercury							
Nickel	40	U	200	U			
Potassium							
Selenium							
Silver	10	U	50	U			
Sodium							
Thallium							
Vanadium	50	U	250	U			
Zinc	20	U	100	U			

FORM VIII

ICP SERIAL DILUTIONS

Lab Name ARDL, INC. Site Inventory No. _____

Date 5-28-91 Matrix (soil/water) WATER

Level (low/med.) _____

Concentration Units: ug/L

Total

Analyte	Initial Sample Result (I)	C	Serial Dilution Result (S)	C	% Difference	Q	M
Aluminum	170 000		170 000		0		
Antimony	60		300	U			
Arsenic							
Barium	520		510				
Berylium	33		43				
Cadmium	9.0		25	U			
Calcium	3700000		3700000		0		
Chromium	240		290				
Cobalt	560		500				
Copper	430		390				
Iron	540000		540000		0		
Lead							
Magnesium	3050000		2120000		36	E	
Manganese	11000		11000		0		
Mercury							
Nickel	400		330				
Potassium							
Selenium							
Silver	10		50	U			
Sodium							
Thallium							
Vanadium	340		320				
Zinc	1300		1300		0		

FORM IX

STANDARD ADDITION RESULTS

Lab Name ARDL, INC. Contract 111918

Concentration Units: ug/L

EPA Sample No.	An	Dil	0 ADD ABS	CON	1 ADD ABS	CON	2 ADD ABS	CON	3 ADD ABS	Final Conc.	r	Q
LO-1MW04S-FD1	Pb	1	0.032	5	0.062	10	0.096	15	0.137	4.2	0.9975	
LO-1MW04S-[illegible]	Pb	1	0.056	5	0.070	10	0.120	15	0.195	4.3	0.9996	+
LO-1MW04S-GW	Pb	1	0.065	5	0.098	10	0.155	15	0.213	5.8	0.9928	+

U.S. EPA - CLP

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INSTRUMENT DETECTION LIMITS (QUARTERLY)

Lab Name: ARDL, INC. Contract: 111918

Lab Code: _____ Case No.: _____ SAS No.: _____ SDG No.: _____

ICP ID Number: JA965w/Grid Neb.

Flame AA ID Number: _____

Furnace AA ID Number: _____

Analyte	Wave-length (nm)	Back-ground	CRDL (ug/L)	IDL (ug/L)	M
Aluminum	308.22		200	200	P
Antimony	217.58		60	60	P
Arsenic			10		
Barium	493.41		200	50	P
Beryllium	234.86		5	5	P
Cadmium	228.80		5	5	P
Calcium	396.85		5000	1000	P
Chromium	205.55		10	10	P
Cobalt	228.62		50	50	P
Copper	324.75		25	25	P
Iron	259.94		100	50	P
Lead	220.35		3	60	P
Magnesium	279.07		5000	1000	P
Manganese	257.61		15	15	P
Mercury			0.2		
Nickel	231.60		40	40	P
Potassium			5000		
Selenium			5		
Silver	328.07		10	10	P
Sodium			5000		P
Thallium			10		
Vanadium	292.40		50	50	P
Zinc	213.86		20	20	P

Comments:

Lead does not meet CRDL.

U.S. EPA - CLP

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INSTRUMENT DETECTION LIMITS (QUARTERLY)

Lab Name: ARDL, INC. Contract: 11918

Lab Code: _____ Case No.: _____ SAS No.: _____ SDG No.: _____

ICP ID Number: _____

Flame AA ID Number: _____

Furnace AA ID Number: SPECTRA AA 300

Analyte	Wave-length (nm)	Back-ground	CRDL (ug/L)	IDL (ug/L)	M
Aluminum			200		
Antimony	217.60	BD	60	5.0	F
Arsenic	193.70	BD	10	3.0	F
Barium			200		
Beryllium			5		
Cadmium			5		
Calcium			5000		
Chromium	357.90	BD	10	2.0	F
Cobalt			50		
Copper			25		
Iron			100		
Lead	283.30	BD	3	2.0	F
Magnesium			5000		
Manganese			15		
Mercury			0.2		
Nickel			40		
Potassium			5000		
Selenium	196.03	BD	5	3.0	F
Silver			10		
Sodium			5000		
Thallium	276.80	BD	10	5.0	F
Vanadium			50		
Zinc			20		

Comments:

U.S. EPA - CLP

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INSTRUMENT DETECTION LIMITS (QUARTERLY)

Lab Name: ARDL, INC. Contract: 111918

Lab Code: _____ Case No.: _____ SAS No.: _____ SDG No.: _____

ICP ID Number: _____

Flame AA ID Number: _____

Furnace AA ID Number: SPECTRA AA 20

Analyte	Wave-length (nm)	Back-ground	CRDL (ug/L)	IDL (ug/L)	M
Aluminum					
Antimony	217.60	BD	60	5.0	F
Arsenic	193.70	BD	10	3.0	F
Barium			200		
Beryllium			5		
Cadmium			5		
Calcium			5000		
Chromium	357.90	BD	10	2.0	F
Cobalt			50		
Copper			25		
Iron			100		
Lead	283.30	BD	3	2.0	F
Magnesium			5000		
Manganese			15		
Mercury			0.2		
Nickel			40		
Potassium			5000		
Selenium	196.03	BD	5	3.0	F
Silver			10		
Sodium			5000		
Thallium	276.80	BD	10	5.0	F
Vanadium			50		
Zinc			20		

Comments:

U.S. EPA - CLP

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INSTRUMENT DETECTION LIMITS (QUARTERLY)

Lab Name: ARDL, INC. Contract: 111918

Lab Code: _____ Case No.: _____ SAS No.: _____ SDG No.: _____

ICP ID Number: _____

Flame AA ID Number: SPECTRA AA 20

Furnace AA ID Number: _____

Analyte	Wave-length (nm)	Back-ground	CRDL (ug/L)	IDL (ug/L)	M
Aluminum	309.30		200	100	A
Antimony			60		
Arsenic	193.70		10	0.9	BH
Barium			200		A
Beryllium	234.86		5	5	A
Cadmium	228.80		5	5	A
Calcium	422.70		5000	500	A
Chromium			10		
Cobalt	240.70		50	50	A
Copper	324.75		25	25	A
Iron	248.30		100	100	A
Lead	217.00		3	30	A
Magnesium	285.20		5000	1000	A
Manganese	279.50		15	15	A
Mercury	253.70		0.2	0.2	CV
Nickel	232.00		40	40	A
Potassium	766.49		5000	500	A
Selenium	196.03		5	0.9	BH
Silver	328.07		10	10	A
Sodium	589.00		5000	500	A
Thallium			10		
Vanadium			50		
Zinc	213.86		20	20	A

Comments:

Lead does not meet CRDL.

ICP Interelement Correction Factors

Lab Name: ARDL, Inc. ICP ID Number: JA965W/Grid Date: 01/16/91

Analyte	Wave-length (nm)	Interelement Correction Factors for: Al	Ca	Fe	Mg	--
Aluminum	308.22	--	0.000338	0.000751	0.000525	
Antimony	217.58	0.000451	0.000000	0.000000	0.000711	
Arsenic	--	--	--	--	--	
Barium	493.41	0.000000	0.000082	0.000006	0.000000	
Beryllium	234.86	0.000000	0.000005	0.000474	0.000000	
Cadmium	228.80	0.000000	0.000013	0.000005	0.000001	
Calcium	396.85	0.000138	--	0.000134	0.000000	
Chromium	205.55	0.000015	0.000015	0.000000	0.000012	
Cobalt	228.62	0.000000	0.000011	0.000008	0.000000	
Copper	324.75	0.000011	0.000015	0.000013	0.000004	
Iron	259.94	0.000120	0.000110	--	0.000664	
Lead	220.35	0.000000	0.000017	0.000091	0.000004	
Magnesium	279.07	0.000008	0.000749	0.000225	--	
Manganese	257.61	0.000051	0.000000	0.000261	0.000000	
Mercury	--	--	--	--		
Nickel	231.60	0.000011	0.000029	0.000011	0.000000	
Potassium	--	--	--	--	--	
Selenium	--	--	--	--	--	
Silver	328.07	0.000031	0.000026	0.000000	0.000005	
Sodium	--	--	--	--	--	
Thallium	--	--	--	--	--	
Vanadium	292.40	0.000002	0.000000	0.000132	0.000000	
Zinc	213.86	0.000051	0.000028	0.000086	0.000010	

Comments:

FORM XI (Part 1) - IN

FORM 12

ICP Linear Ranges (Quarterly)

Lab Name: ARDL, Inc. ICP ID Number: JA965W/GRID Date: 04/16/91

Analyte	Integ. Time (sec.)	Concentration (ug/L)	M
Aluminum	10	500000	P
Antimony	10	100000	P
Arsenic	--	--	P
Barium	10	100000	P
Beryllium	10	5000	P
Cadmium	10	50000	P
Calcium	10	500000	P
Chromium	10	100000	P
Cobalt	10	5000	P
Copper	10	100000	P
Iron	10	200000	P
Lead	10	100000	P
Magnesium	10	500000	P
Manganese	10	50000	P
Mercury	--	--	P
Nickel	10	250000	P
Potassium	--	--	P
Selenium	--	--	P
Silver	10	100000	P
Sodium	--	--	P
Thallium	--	--	P
Vanadium	10	100000	P
Zinc	10	5000	P

Comments:

U.S. EPA - CLP
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PREPARATION LOG

Lab Name: ARDL, Inc Contract: 111918

Lab Code: _____ Case No.: _____ SAS No.: _____ SDG No.: _____

Method: D

EPA Sample No.	Preparation Date	Weight (gram)	Volume (mL)
LO-1MW01D-GW	5-13-91		100
LO-1MW02D-GWD	5-13-91		100
LO-1MW06D-GWS	5-13-91		100
LO-1MW04S-FD	5-13-91		100
LO-1MW02S-GW	5-13-91		100
LO-1GW3-FD	5-13-91		100
LO-1MW06S-GW	5-13-91		100
LO-1MW04S-GW	5-13-91		100
PBLK	5-13-91		100
LCS	5-13-91		100

U.S. EPA - CLP
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PREPARATION LOG

Lab Name: ARDL, INC. Contract: 111912

Lab Code: _____ Case No.: _____ SAS No.: _____ SDG No.: _____

Method: F

EPA Sample No.	Preparation Date	Weight (gram)	Volume (mL)
LO-1MW01-D-GW	5-13-91		100
LO-1MW06D-GWG	5-13-91		100
LO-1MW06D-GWS	5-13-91		100
LO-1MW04S-FD	5-13-91		100
LO-1MW02S-GW	5-13-91		100
LO-1GW3-FB	5-13-91		100
LO-1MW06S-GW	5-13-91		100
LO-1MW04S-GW	5-13-91		100
PBLK	5-13-91		100
LCS	5-13-91		100

FORM XIII - IN 7/88

100055

U.S. EPA - CLP
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PREPARATION LOG

Lab Name: ARDL Inc. Contract: 111918

Lab Code: _____ Case No.: _____ SAS No.: _____ SDG No.: _____

Method: CV

EPA Sample No.	Preparation Date	Weight (gram)	Volume (mL)
LO-1MW06D-GW	5-16-91		100
LO-1MW04S-FD	5-16-91		100
LO-1MW04S-FD D	5-16-91		100
LO-1MW04S-FD S	5-16-91		100
LO-1MW02S-GW	5-16-91		100
LO-1GW3-FD	5-16-91		100
LO-1MW06S-GW	5-16-91		100
LO-1MW04S-GW	5-16-91		100
LO-1MW06D-GW	5-16-91		100
LO-1MW04S-FD	5-16-91		100
LO-1MW04S-FD D	5-16-91		100
LO-1MW04S-FD S	5-16-91		100
LO-1MW02S-GW	5-16-91		100
LO-1GW3-FD	5-16-91		100
LO-1MW06S-GW	5-16-91		100
LO-1MW04S-GW	5-16-91		100
CBLK	5-16-91		100
LCS	5-16-91		100

FORM XIII - IN 7/88

100056

U.S. EPA - CLP
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PREPARATION LOG

Lab Name: AROL, INC. Contract: 111 518

Lab Code: _____ Case No.: _____ SAS No.: _____ SDG No.: _____

Method: CN

EPA Sample No.	Preparation Date	Weight (gram)	Volume (mL)
LO-1MW060-GW	5-22-91		300
LO-1MW060-GWD			300
LO-1MW045-FD			300
LO-1MW045-FDS			300
LO-1MW025-GW			300
LO-1GW3-FB			500
LO-1MW065-GW			500
LO-1MW045-GW			500
LCS			500
Prep Blank			500

FORM XIII - IN 7/88

100057

ANALYSIS RUN LOG

Lab Name: ARDL Contract: 111918

Lab Code: _____ Case No.: _____ SAS No.: _____ SDG No.: _____

Instrument ID Number: JA965 Method: P

Start Date: 05/28/91 End Date: 05/28/91

EPA Sample No.	D/F	Time	% R	Analytes																						
				AL	SB	AS	BA	BE	CD	CA	CR	CO	CU	FE	PB	MG	MN	HG	NI	K	SE	AG	NA	TL	V	ZN	CN
S_0	1.00	700		X	X		X	X	X	X	X	X	X	X		X	X		X			X			X	X	
S_1	1.00	705		X			X	X	X	X	X	X	X	X		X	X		X			X			X	X	
S_2	1.00	710			X																						
S_3	1.00	715								X				X		X											
ICV2	1.00	739			X																						
ICV1	1.00	756		X			X	X	X	X	X	X	X	X		X	X		X			X			X	X	
BLANK	1.00	810			X																						
ICB	1.00	812																									
PBW	1.00	814																									
CRI	1.00	817																									
LCSW1	1.00	819																									
LCSW2	1.00	822			X																						
ICSA	1.00	824		X						X				X		X											
ICSAB	1.00	827		X			X	X	X	X	X	X	X	X		X	X		X			X			X	X	
LO-1MW06D-GW	1.00	844			X																						
" -D	1.00	847																									
" -S	1.00	849																									
LO-1MW04S-GW	1.00	853																									
-1MW02S-GW	1.00	855																									
CCB	1.00	906																									
CCV1	1.00	908																									
CCV1-1	1.00	910																									
CCV2	1.00	913			X																						
LO-1GW3-GW	1.00	1052		X	X		X	X	X	X	X	X	X	X		X	X		X			X			X	X	
-1MW06S-GW	1.00	1055																									
-1MW04S-GW	1.00	1057																									
-1MW06D-GW	1.00	1100																									
" -D	1.00	1102																									
" -S	1.00	1105	TOTAL																								
LO-1MW04S-GW	1.00	1108																									
-1MW02S-GW	1.00	1110																									
-1GW3-GW	1.00	1119																									
-1MW06S-GW	1.00	1122																									

ANALYSIS RUN LOG

Lab Name: ARDL Contract: 111918

Lab Code: _____ Case No.: _____ SAS No.: _____ SDG No.: _____

Instrument ID Number: JA965 Method: P

Start Date: 05/28/91 End Date: 05/28/91

EPA Sample No.	D/F	Time	% R	Analytes																						
				AL	SB	AS	BA	BE	CD	CA	CR	CO	CU	FE	PB	MG	MN	HG	NI	K	SE	AG	NA	TL	V	ZN	CN
CCB	1.00	1143		X	X		X	X	X	X	X	X	X	X		X	X		X			X			X	X	
PBW	1.00	1145																									
CCV1	1.00	1147																									
CCV1	1.00	1149																									
CCV2	1.00	1154			X																						
LCSW2	1.00	1156			X																						
LCSW1	1.00	1158		X			X	X	X	X	X	X	X	X		X	X		X			X			X	X	
LO-1MW025-GW	1.00	1206			X																						
-1MW025-FGW	5.00	1223	TOTAL																								
-1MW025-GWL	5.00	1226																									
CRI	1.00	1248																									
ICSA	1.00	1323		X						X				X		X											
ICSAB	1.00	1326		X			X	X	X	X	X	X	X	X		X			X			X			X	X	
CCB	1.00	1349			X																						
CCV1	1.00	1352																									
CCV1	1.00	1354																									
CCV2	1.00	1357			X																						

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ANALYSIS RUN LOG

Lab Name: ARDL, INC. Contract: 111918

Lab Code: _____ Case No.: _____ SAS No.: _____ SDG No.: _____

Instrument ID Number: AA20 Method: BH

Start Date: 5/31/91 End Date: 5/31/91

EPA Sample No.	D/F	Time	% R	Analytes																							
				AL	SB	AS	BA	BE	CD	CA	CR	CO	CU	FE	PB	MG	MN	HG	NI	K	SE	AG	NA	TL	V	ZN	CN
S0	1.00	1540				X																					
S1.00	1.00	1542																									
S3.00	1.00	1544																									
S5.00	1.00	1546																									
S 7.00	1.00	1548																									
ICV	1.00	1550																									
ICB	1.00	1552																									
CRA	1.00	1554																									
LCSW	1.00	1556																									
PBW	1.00	1558																									
LO-1MW06D-GW	5.00	1600																									
LO-1MW06D-GWD	5.00	1602																									
LO-1MW06D-GWS	5.00	1604																									
LO-1MW04S-FD	5.00	1606																									
LO-1MW02S-GW	5.00	1608																									
LO-1GW3-FB	5.00	1610																									
LO-1MW06S-GW	5.00	1612																									
CCV	1.00	1614																									
CCB	1.00	1616																									
LO-1MW04S-GW	5.00	1618																									
LO-1MW06D-GW	5.00	1620																									
LO-1MW06D-GWD	5.00	1622																									
LO-1MW06D-GWS	5.00	1624																									
LO-1MW04S-FD	5.00	1626																									
LO-1MW02S-GW	5.00	1628																									
LO-1GW3-FB	5.00	1630																									
LO-1MW06S-GW	5.00	1632																									
LO-1MW04S-GW	5.00	1634																									
ZZZZZ	5.00	1636																									
CCV	1.00	1638																									
CCB	1.00	1640																									
ZZZZZ	5.00	1642																									
ZZZZZ	5.00	1644				X																					

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ANALYSIS RUN LOG

Lab Name: ABDL, INC Contract: 111918

Lab Code: _____ Case No.: _____ SAS No.: _____ SDG No.: _____

Instrument ID Number: AA20 Method: BIt

Start Date: 5/31/91 End Date: 5/31/91

EPA Sample No.	D/F	Time	% R	Analytes																							
				AL	SB	AS	BA	BE	CD	CA	CR	CO	CU	FE	PB	MG	MN	HG	NI	K	SE	AG	NA	TL	V	ZN	CN
LO-1MW04S-FD	5.00	1646				X																					
LO-1MW02S-GW	5.00	1648																									
LO-1MW04S-GW	5.00	1650																									
CCV	1.00	1652																									
CCB	1.00	1654				X																					

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ANALYSIS RUN LOG

Lab Name: ARDL, INC Contract: 111918

Lab Code: _____ Case No.: _____ SAS No.: _____ SDG No.: _____

Instrument ID Number: AA300 Method: F

Start Date: 5/31/91 End Date: 5/31/91

EPA Sample No.	D/F	Time	% R	Analytes																						
				AL	SB	AS	BA	BE	CD	CA	CR	CO	CU	FE	PB	MG	MN	HG	NI	K	SE	AG	NA	TL	V	ZN	CN
S0.00	1.00	0845													X												
S3.00	1.00	0850																									
S10.00	1.00	0855																									
S15.00	1.00	0900																									
S20.00	1.00	0905																									
ICV	1.00	0910																									
ICB	1.00	0915																									
CRA	1.00	0925																									
LCSW	1.00	0930																									
LCSWA	1.00	0937	86.8																								
PBW	1.00	0942																									
PBWA	1.00	0950	105.2																								
ZZZZZ	1.00	0955																									
ZZZZZ	1.00	1000	94.2																								
ZZZZZ	1.00	1005																									
ZZZZZ	1.00	1010	102.0																								
CCV	1.00	1015																									
CCB	1.00	1020																									
ZZZZZ	1.00	1025																									
ZZZZZ	1.00	1030																									
ZZZZZ	1.00	1040	95.8																								
ZZZZZ	1.00	1050																									
ZZZZZ	1.00	1055																									
ZZZZZ	1.00	1100	105.7																								
ZZZZZ	1.00	1105																									
ZZZZZ	1.00	1110	96.7																								
ZZZZZ	1.00	1115																									
ZZZZZ	1.00	1120	50.5																								
ICV	1.00	1125																									
CCB	1.00	1130																									
ZZZZZ	1.00	1235																									
ZZZZZ	1.00	1240	91.5																								
ZZZZZ	1.00	1245													X												

ANALYSIS RUN LOG

Lab Name: ARDL, INC Contract: 111918

Lab Code: _____ Case No.: _____ SAS No.: _____ SDG No.: _____

Instrument ID Number: AA300 Method: F

Start Date: 5/31/91 End Date: 5/31/91

EPA Sample No.	D/F	Time	% R	Analytes																							
				AL	SB	AS	BA	BE	CD	CA	CR	CO	CU	FE	PB	MG	MN	HG	NI	K	SE	AG	NA	TL	V	ZN	CN
ZZZZZ	1.00	1250	95.3												X												
ZZZZZ	1.00	1255																									
ZZZZZ	1.00	1300	86.2																								
ZZZZZ	1.00	1305																									
ZZZZZ	1.00	1310	76.2																								
ZZZZZ	1.00	1320																									
ZZZZZ	1.00	1325	100.2																								
CCV	1.00	1335																									
CCB	1.00	1340																									
ZZZZZ	1.00	1345																									
ZZZZZ	1.00	1350	98.5																								
ZZZZZ	1.00	1400																									
ZZZZZ	1.00	1405	99.8																								
LO-1MW060-GW	1.00	1410																									
LO-1MW060-GWA	1.00	1415	99.0																								
ZZZZZ	1.00	1420																									
ZZZZZ	1.00	1425																									
ZZZZZ	1.00	1430	33.9																								
CCV	1.00	1435																									
CCB	1.00	1440																									
LO-1MW025-GW	1.00	1450																									
LO-1MW025-GWA	1.00	1455	103.0																								
LO-1MW025-GWD	1.00	1500																									
LO-1MW025-GWDA	1.00	1505	103.5																								
LO-1MW025-GWS	1.00	1510																									
LO-1GW3-FB	1.00	1515																									
LO-1GW3-FBA	1.00	1520	33.0																								
LO-1MW065-GW	1.00	1525																									
LO-1MW065-GWA	1.00	1530	103.3																								
CCV	1.00	1540																									
CCB	1.00	1545																									
LO-1MW045-FD1	1.00	1555																									
LO-1MW045-FD2	1.00	1557													X												

ANALYSIS RUN LOG

Lab Name: ARDL, INC Contract: 111918

Lab Code: _____ Case No.: _____ SAS No.: _____ SDG No.: _____

Instrument ID Number: AA300 Method: F

Start Date: 5/31/91 End Date: 5/31/91

EPA Sample No.	D/F	Time	% R	Analytes																						
				AL	SB	AS	BA	BE	CD	CA	CR	CO	CU	FE	PB	MG	MN	HG	NI	K	SE	AG	NA	TL	V	ZN	CN
LO-IMW045-F03	1.00	1559													X												
LO-IMW045-F00	1.00	1602																									
LO-IMW045-GW1	1.00	1607																									
LO-IMW045-GW2	1.00	1612	52.2																								
ZZZZZ 1	1.00	1620																									
ZZZZZ 2	1.00	1623																									
ZZZZZ 3	1.00	1625																									
LO-IMW045-GW1	1.00	1630																									
LO-IMW045-GW2	1.00	1633																									
LO-IMW045-GW3	1.00	1635																									
LO-IMW045-GW0	1.00	1638																									
LO-IMW045-GW1	1.00	1641																									
LO-IMW045-GW2	1.00	1644																									
LO-IMW045-GW3	1.00	1647																									
LO-IMW045-GW0	1.00	1650																									
CCV	1.00	1700																									
CCB	1.00	1705																									
ZZZZZ 1	1.00	1710																									
ZZZZZ 2	1.00	1715																									
ZZZZZ 3	1.00	1720																									
ZZZZZ D	1.00	1725																									
ZZZZZ	1.00	1730																									
ZZZZZ	1.00	1735																									
ZZZZZ	1.00	1740																									
ZZZZZ	1.00	1745																									
ZZZZZ	1.00	1750																									
ZZZZZ	2.00	1755																									
ZZZZZ	1.00	1800																									
CCV	1.00	1805																									
CCB	1.00	1810													X												

ANALYSIS RUN LOG

Lab Name: ARDL INC Contract: 111917

Lab Code: _____ Case No.: _____ SAS No.: _____ SDG No.: _____

Instrument ID Number: AA20 Method: F

Start Date: 6-6-91 End Date: 6-6-91

EPA Sample No.	D/F	Time	% R	Analytes																						
				AL	SB	AS	BA	BE	CD	CA	CR	CO	CU	FE	PB	MG	MN	HG	NI	K	SE	AG	NA	TL	V	ZN	CN
S 0.00	1.00	1335													X												
S 3.00	1.00	1340																									
S 10.00	1.00	1345																									
S 15.00	1.00	1350																									
S 20.00	1.00	1355																									
ICV	1.00	1400																									
ICB	1.00	1410																									
CRA	1.00	1415																									
LCS W	1.00	1420																									
LCS WA	1.00	1425																									
PB	1.00	1430																									
PB A	1.00	1435																									
20-1MW06D-GW	1.00	1445																									
20-1MW06D-GWA	1.00	1455	95.0																								
20-1MW06D-GW-D	1.00	1500																									
20-1MW06D-GW-DA	1.00	1505	105.9																								
20-1MW06D-GW S	1.00	1515																									
CCV	1.00	1520																									
CCB	1.00	1525																									
20-1MW04S-FD	1.00	1530																									
20-1MW04S-FD	50.00	1540																									
20-1MW04S-FD	100.00	1545																									
20-1MW04S-FDA	100.00	1555	93.2																								
20-1MW02S-GW	1.00	1605																									
20-1MW02S-GWA	100.00	1610	111.2																								
20-1GW3-FB	1.00	1615																									
20-1GW3-FB	1.00	1620	105.0																								
20-1MW06S-GW	1.00	1625																									
CCV	1.00	1630																									
CCB	1.00	1635																									
20-1MW06S-GW	10.00	1640																									
20-1MW06S-GWA	10.00	1650	110.7																								
20-1MW04S-GW	1.00	1655																									

ANALYSIS RUN LOG

Lab Name: ARDL INC Contract: 11191

Lab Code: _____ Case No.: _____ SAS No.: _____ SDG No.: _____

Instrument ID Number: AA20 Method: F

Start Date: 6-6-91 End Date: 6-6-91

EPA Sample No.	D/F	Time	% R	Analytes																							
				AL	SB	AS	BA	BE	CD	CA	CR	CO	CU	FE	PB	MG	MN	HG	NI	K	SE	AG	NA	TL	V	ZN	CN
20-1MW045GW	100.00	1700													X												
20-1MW045GWA	100.00	1710	87.8																								
CCV	1.00	1715																									
CCB	1.00	1720													X												

ANALYSIS RUN LOG

Lab Name: ARDL, INC. Contract: 111918

Lab Code: _____ Case No.: _____ SAS No.: _____ SDG No.: _____

Instrument ID Number: AA20 Method: CV

Start Date: 5-16-91 End Date: 5-16-91

EPA Sample No.	D/F	Time	% R	Analytes																						
				AL	SB	AS	BA	BE	CD	CA	CR	CO	CU	FE	PB	MG	MN	HG	NI	K	SE	AG	NA	TL	V	ZN	CN
50.00	1.00	1225																X									
53.00	1.00	1226																									
510.00	1.00	1227																									
515.00	1.00	1228																									
520.00	1.00	1229																									
ICV	1.00	1230																									
ICB	1.00	1231																									
CRA	1.00	1232																									
LCS	1.00	1233																									
PB	1.00	1234																									
ZZZZZ	1.00	1235																									
ZZZZZ	1.00	1236																									
ZZZZZ	1.00	1237																									
LO-1MW060-GW	1.00	1238																									
LO-1MW045-FD	1.00	1239																									
LO-1MW045-FDD	1.00	1240																									
CCV	1.00	1241																									
CCB	1.00	1242																									
LO-1MW046-FDS	1.00	1243																									
LO-1MW025-GW	1.00	1244																									
LO-1GW3-FB	1.00	1245																									
LO-1MW065-GW	1.00	1246																									
LO-1MW045-GW	1.00	1247																									
LO-1MW060-GW	1.00	1248																									
LO-1MW045-FD	1.00	1249																									
LO-1MW046-FDD	1.00	1250																									
LO-1MW045-FDS	1.00	1251																									
LO-1MW025-GW	1.00	1252																									
CCV	1.00	1253																									
CCB	1.00	1254																									
LO-1GW3-FB	1.00	1255																									
LO-1MW065-GW	1.00	1256																									
LO-1MW045-GW	1.00	1257																X									

ANALYSIS RUN LOG

Lab Name: ARDL, INC. Contract: 111918

Lab Code: _____ Case No.: _____ SAS No.: _____ SDG No.: _____

Instrument ID Number: AA20 Method: CV

Start Date: 5-16-91 End Date: 5-16-91

EPA Sample No.	D/F	Time	% R	Analytes																						
				AL	SB	AS	BA	BE	CD	CA	CR	CO	CU	FE	PB	MG	MN	HG	NI	K	SE	AG	NA	TL	V	ZN	CN
ZZZZZ	1.00	1258																X									
ZZZZZ	1.00	1259																									
ZZZZZ	1.00	1300																									
CCV	1.00	1301																									
CCB	1.00	1302																X									

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ANALYSIS RUN LOG

Lab Name: ARDL Inc Contract: 111918

Lab Code: _____ Case No.: _____ SAS No.: _____ SDG No.: _____

Instrument ID Number: AA20 Method: A

Start Date: 5-31-91 End Date: 5-31-91

EPA Sample No.	D/F	Time	% R	Analytes																							
				AL	SB	AS	BA	BE	CD	CA	CR	CO	CU	FE	PB	MG	MN	HG	NI	K	SE	AG	NA	TL	V	ZN	CN
S0 0.00	1.00	1030																		X							
S1 5.00	1.00	1031																									
S2 10.00	1.00	1032																									
S3 15.00	1.00	1033																									
S4 20.00	1.00	1034																									
ICV	1.00	1035																									
ICB	1.00	1036																									
CRA	1.00	1037																									
LCSW	1.00	1038																									
PBW	1.00	1039																									
ZZZZZ	1.00	1040																									
ZZZZZ	1.00	1041																									
ZZZZZ	1.00	1042																									
ZZZZZ	1.00	1043																									
ZZZZZ	1.00	1044																									
ZZZZZ	1.00	1045																									
ZZZZZ	1.00	1046																									
CCV	1.00	1047																									
CCB	1.00	1048																									
ZZZZZ	1.00	1049																									
ZZZZZ	1.00	1050																									
ZZZZZ	1.00	1051																									
ZZZZZ	2.00	1052																									
ZZZZZ	1.00	1053																									
ZZZZZ	1.00	1054																									
ZZZZZ	1.00	1055																									
ZZZZZ	1.00	1056																									
ZZZZZ	1.00	1057																									
ZZZZZ	1.00	1058																									
CCV	1.00	1059																									
CCB	1.00	1100																									
ZZZZZ	1.00	1101																									
ZZZZZ	1.00	1102																									

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ANALYSIS RUN LOG

Lab Name: ARDL INC. Contract: 111918

Lab Code: _____ Case No.: _____ SAS No.: _____ SDG No.: _____

Instrument ID Number: AA20 Method: A

Start Date: 5-31-91 End Date: 5-31-91

EPA Sample No.	D/F	Time	% R	Analytes																						
				AL	SB	AS	BA	BE	CD	CA	CR	CO	CU	FE	PB	MG	MN	HG	NI	K	SE	AG	NA	TL	V	ZN	CN
ZZZZZ	1.00	1103																		X							
ZZZZZ	1.00	1104																									
ZZZZZ	1.00	1105																									
ZZZZZ	1.00	1106																									
ZZZZZ	1.00	1107																									
ZZZZZ	2.00	1108																									
ZZZZZ	1.00	1109																									
ZZZZZ	1.00	1110																									
CCV	1.00	1111																									
CCB	1.00	1112																									
ZZZZZ	1.00	1113																									
40-1MW06D6W	1.00	1114																									
40-1MW06D6W-D	1.00	1115																									
40-1MW04S-FD	1.00	1116																									
40-1MW04S-FD	50.00	1117																									
40-1MW02S-GW	1.00	1118																									
40-1GW3-FB	1.00	1119																									
40-1MW06S-GW	1.00	1120																									
40-1MW04S-GW	1.00	1121																									
40-1MW04S-GW	50.00	1122																									
CCV	1.00	1123																									
CCB	1.00	1124																									
40-1MW06D-GW	1.00	1125																									
40-1MW06D6W-D	1.00	1126																									
40-1MW04S-FD	1.00	1127																									
40-1MW04S-FD	50.00	1128																									
40-1MW02S-GW	1.00	1129																									
40-1MW02S-GW	10.00	1130																									
40-1GW3-FB	1.00	1131																									
40-1MW06S-GW	1.00	1132																									
40-1MW06S-GW	2.00	1133																									
40-1MW02S-GW	4.00	1134																									
CCV	1.00	1135																									

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ANALYSIS RUN LOG

Lab Name: ARDL INC. Contract: 111918

Lab Code: _____ Case No.: _____ SAS No.: _____ SDG No.: _____

Instrument ID Number: AA20 Method: A

Start Date: 5-31-91 End Date: 5-31-91

EPA Sample No.	D/F	Time	% R	Analytes																							
				AL	SB	AS	BA	BE	CD	CA	CR	CO	CU	FE	PB	MG	MN	HG	NI	K	SE	AG	NA	TL	V	ZN	CN
CCB	1.00		1136																	X							
b-1MW245-GW	2.00		1137																								
LCSW	1.00		1138																								
PBW	1.00		1139																								
ZZZZZ	1.00		1140																								
ZZZZZ	1.00		1141																								
ZZZZZ	1.00		1142																								
ZZZZZ	1.00		1143																								
ZZZZZ	1.00		1144																								
ZZZZ	2.00		1145																								
CCV	1.00		1146																								
CCB	1.00		1147																								
LCSW	1.00		1148																								
PBW	1.00		1149																								
CCV	1.00		1150																								
CCB	1.00		1151																								

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ANALYSIS RUN LOG

Lab Name: ARDL Contract: 111918

Lab Code: _____ Case No.: _____ SAS No.: _____ SDG No.: _____

Instrument ID Number: AA20 Method: BH

Start Date: 5-31-91 End Date: 5-31-91

EPA Sample No.	D/F	Time	% R	Analytes																						
				AL	SB	AS	BA	BE	CD	CA	CR	CO	CU	FE	PB	MG	MN	HG	NI	K	SE	AG	NA	TL	V	ZN	CN
SO	1.00	1330																			X						
S 3.00	1.00	1332																									
S 5.00	1.00	1334																									
S 7.00	1.00	1336																									
S 10.00	1.00	1338																									
ICV	1.00	1340																									
ICB	1.00	1342																									
CRA	1.00	1344																									
LCS	1.00	1346																									
PBLK	1.00	1348																									
LD-1MW060-GW	5.00	1350																									
LD-1MW060-GW d	5.00	1352																									
LD-1MW060-GW S	5.00	1354																									
LD-1MW025-FD	5.00	1356																									
LD-1MW025-GW	5.00	1358																									
LD-1GW3-FR	5.00	1400																									
LD-1MW065-GW	5.00	1402																									
CCV	1.00	1404																									
CCB	1.00	1406																									
LD-1MW045-GW	5.00	1408																									
LD-1MW060-GW	5.00	1410																									
LD-1MW060-GW D	5.00	1412																									
LD-1MW060-GW S	5.00	1414																									
LD-1MW045-FD	5.00	1416																									
LD-1MW025-GW	5.00	1418																									
LD-1GW3-FR	5.00	1420																									
LD-1MW065-GW	5.00	1422																									
LD-1MW045-GW	5.00	1424																									
CCV	1.00	1426																									
CCB	1.00	1428																			X						

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ANALYSIS RUN LOG

Lab Name: ARDL Inc Contract: 111917

Lab Code: _____ Case No.: _____ SAS No.: _____ SDG No.: _____

Instrument ID Number: AA 20 Method: A

Start Date: 5-31-91 End Date: 5-31-91

EPA Sample No.	D/F	Time	% R	Analytes																						
				AL	SB	AS	BA	BE	CD	CA	CR	CO	CU	FE	PB	MG	MN	HG	NI	K	SE	AG	NA	TL	V	ZN	CN
S 0.00	1	0815																					X				
S 5.00	1	0816																									
S 10.00	1	0817																									
S 15.00	1	0818																									
S 20.00	1	0819																									
ICV	1	0820																									
ICB	1	0821																									
LCS W	1	0822																									
PBW	1	0823																									
SRA	1	0824																									
ZZZZZ	1	0825																									
ZZZZZ	1	0826																									
ZZZZZ	1	0827																									
ZZZZZ	1	0828																									
ZZZZZ	1	0829																									
ZZZZZ	1	0830																									
ZZZZZ	1	0831																									
CCV	1	0832																									
CCB	1	0833																									
ZZZZZ	1	0834																									
ZZZZZ	1	0835																									
ZZZZZ	1	0836																									
ZZZZZ	1	0837																									
ZZZZZ	1	0838																									
ZZZZZ	1	0839																									
ZZZZZ	1	0840																									
ZZZZZ	1	0841																									
ZZZZZ	1	0842																									
ZZZZZ	1	0843																									
CCV	1	0844																									
CCB	1	0845																									
ZZZZZ	1	0846																									
ZZZZZ	1	0847																									

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ANALYSIS RUN LOG

Lab Name: ARDL Inc Contract: 111918

Lab Code: _____ Case No.: _____ SAS No.: _____ SDG No.: _____

Instrument ID Number: AA20 Method: A

Start Date: 5-31-91 End Date: 5-31-91

EPA Sample No.	D/F	Time	% R	Analytes																							
				AL	SB	AS	BA	BE	CD	CA	CR	CO	CU	FE	PB	MG	MN	HG	NI	K	SE	AG	NA	TL	V	ZN	CN
ZZZZZ	1	0848																					X				
ZZZZZ	1	0849																									
ZZZZZ	1	0850																									
ZZZZZ	1	0851																									
ZZZZZ	1	0852																									
ZZZZZ	1	0853																									
ZZZZZ	1	0854																									
CCV	1	0855																									
CCB	1	0856																									
ZZZZZ	10	0857																									
ZZZZZ	10	0858																									
ZZZZZ	10	0859																									
ZZZZZ	5	0900																									
ZZZZZ	50	0901																									
ZZZZZ	10	0902																									
ZZZZZ	10	0903																									
ZZZZZ	10	0904																									
ZZZZZ	10	0905																									
CCV	1	0906																									
CCB	1	0907																									
ZZZZZ	10	0908																									
ZZZZZ	10	0909																									
ZZZZZ	10	0910																									
ZZZZZ	10	0911																									
ZZZZZ	10	0912																									
ZZZZZ	10	0913																									
ZZZZZ	10	0914																									
ZZZZZ	50	0915																									
ZZZZZ	10	0916																									
ZZZZZ	10	0917																									
CCV	1	0918																									
CCB	1	0919																									
ZZZZZ	10	0920																									

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ANALYSIS RUN LOG

Lab Name: ARDL INC Contract: 111918

Lab Code: _____ Case No.: _____ SAS No.: _____ SDG No.: _____

Instrument ID Number: AA20 Method: A

Start Date: 5-31-91 End Date: 5-31-91

EPA Sample No.	D/F	Time	% R	Analytes																						
				AL	SB	AS	BA	BE	CD	CA	CR	CO	CU	FE	PB	MG	MN	HG	NI	K	SE	AG	NA	TL	V	ZN	CN
ZZZZZ	10.00	0921																					X				
ZZZZZ	10.00	0922																									
ZZZZZ	10.00	0923																									
ZZZZZ	10.00	0924																									
LCS W	1.00	0925																									
PBW	1.00	0926																									
40-1MW06D-GW	1.00	0927																									
~~40-1MW06D-GW D~~	~~1.00~~	~~0928~~																									
40-1MW04S-FD	1.00	0929																									
CCV	1.00	0930																									
CCB	1.00	0931																									
~~40-1MW02S-GW~~	~~1.00~~	~~0932~~																									
40-16W3-FB	1.00	0933																									
40-1MW06S-GW	1.00	0934																									
40-1MW04S-GW	1.00	0935																									
40-1MW06D-GW	1.00	0936																									
40-1MW06D-GW	1.00	0937																									
40-1MW04S-FD	1.00	0938																									
40-1MW02S-GW	1.00	0939																									
40-16W3-FB	1.00	0940																									
CCV	1.00	0941																									
CCB	1.00	0942																									
40-1MW04S-GW	1.00	0943																									
40-1MW06D-GW	10.00	0944																									
40-1MW06D-GW-B	10.00	0945																									
40-1MW04S-FD	50.00	0946																									
40-1MW02S-GW	20.00	0947																									
40-1MW06S-GW	5.00	0948																									
40-1MW04S-GW	50.00	0949																									
40-1MW06D-GW	10.00	0950																									
40-1MW06D-GW D	10.00	0951																									
40-1MW04S-GW	50.00	0952																									
CCV	1.00	0953																									

ANALYSIS RUN LOG

Lab Name: ARDL INC Contract: 111918

Lab Code: _____ Case No.: _____ SAS No.: _____ SDG No.: _____

Instrument ID Number: AA20 Method: A

Start Date: 5-31-91 End Date: 5-31-91

EPA Sample No.	D/F	Time	% R	Analytes																								
				AL	SB	AS	BA	BE	CD	CA	CR	CO	CU	FE	PB	MG	MN	HG	NI	K	SE	AG	NA	TL	V	ZN	CN
CCB	1.00	0954																					X				
10-1MW025-6W	50.00	0955																									
10-1MW065-6W	50.00	0956																									
10-1MW045-6W	50.00	0957																									
ZZZZZ	1.00	0958																									
ZZZZZ	1.00	0959																									
ZZZZZ	1.00	1000																									
ZZZZZ	1.00	1001																									
LCS W	1.00	1002																									
PB	1.00	1003																									
CCV	1.00	1004																									
CCB	1.00	1005																									
ZZZZZ	20.00	1006																									
ZZZZZ	20.00	1007																									
CCV	1.00	1008																									
CCB	1.00	1009																									

ANALYSIS RUN LOG

Lab Name: ARDL Contract: 111918

Lab Code: _____ Case No.: _____ SAS No.: _____ SDG No.: _____

Instrument ID Number: AA-20 Method: F

Start Date: 6-1-91 End Date: 6-1-91

EPA Sample No.	D/F	Time	% R	Analytes																						
				AL	SB	AS	BA	BE	CD	CA	CR	CO	CU	FE	PB	MG	MN	HG	NI	K	SE	AG	NA	TL	V	ZN	CN
S0	1.00	0730																						X			
S10.00	1.00	0735																									
S20.00	1.00	0740																									
S30.00	1.00	0745																									
S50.00	1.00	0750																									
ICV	1.00	0755																									
ICB	1.00	0800																									
CRA	1.00	0805																									
LCS	1.00	0810																									
LCSA	1.00	0815	102.3																								
Pb	1.00	0820																									
PbA	1.00	0825	89.4																								
LO-1MW06D-GW	1.00	0830																									
LO-1MW06D-GWA	1.00	0835	82.5																								
LO-1MW02S-GW	1.00	0840																									
LO-1MW02S-GWA	1.00	0850	69.2																								
LO-1MW02S-GWS	1.00	0855																									
CCV	1.00	0905																									
CCB	1.00	0915																									
LO-1MW02S-GWD	1.00	0925																									
LO-1MW02S-GWDA	1.00	0930	72.4																								
LO-1GW3-FB	1.00	0935																									
LO-1GW3-FBA	1.00	0940	73.3																								
LO-1MW04S-GW	1.00	0945																									
LO-1MW04S-GWA	1.00	0955	67.1																								
LO-1MW04S-GW	1.00	1000																									
LO-1MW04S-GWA	1.00	1010	61.4																								
LO-1MW04S-FD	1.00	1015																									
LO-1MW04S-FDA	1.00	1020	80.8																								
CCV	1.00	1025																									
CCB	1.00	1030																									
ZZZZZ	1.00	1040																									
ZZZZZA	1.00	1050	79.1																					X			

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ANALYSIS RUN LOG

Lab Name: ARDL Contract: 111918

Lab Code: _____ Case No.: _____ SAS No.: _____ SDG No.: _____

Instrument ID Number: AA-20 Method: F

Start Date: 6-1-91 End Date: 6-1-91

EPA Sample No.	D/F	Time	% R	Analytes																							
				AL	SB	AS	BA	BE	CD	CA	CR	CO	CU	FE	PB	MG	MN	HG	NI	K	SE	AG	NA	TL	V	ZN	CN
ZZZZZ	1.00	1100																						X			
ZZZZZ A	1.00	1105	73.5																								
ZZZZZS	1.00	1110																									
LO-IMW06D-GW	1.00	1115																									
LO-IMW06D-GW A	1.00	1120	52.8																								
LO-IMW06D-GW M	1.00	1130																									
LO-IMW06D-GW M A	1.00	1140	54.8																								
LO-IMW06D-GW S	1.00	1150																									
CCV	1.00	1200																									
CCB	1.00	1210																									
LO-IMW04S-FD	1.00	1220																									
LO-IMW04S-FD A	1.00	1230	62.8																								
LO-IMW02S-GW	1.00	1235																									
LO-IMW02S-GW A	1.00	1240	42.6																								
LO-IGW3-FB	1.00	1245																									
LO-IGW3-FB A	1.00	1250	81.0																								
LO-IMW01S-GW	1.00	1310																									
LO-IMW01S-GW A	1.00	1320	64.2																								
LO-IMW01S-GW	1.00	1330																									
LO-IMW01S-GW A	1.00	1335	48.5																								
CCV	1.00	1340																									
CCB	1.00	1345																						X			

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ANALYSIS RUN LOG

Lab Name: ARDL Contract: 111 018

Lab Code: _____ Case No.: _____ SAS No.: _____ SDG No.: _____

Instrument ID Number: AA20 Method: F

Start Date: 6-3-91 End Date: 6-3-91

EPA Sample No.	D/F	Time	% R	Analytes																						
				AL	SB	AS	BA	BE	CD	CA	CR	CO	CU	FE	PB	MG	MN	HG	NI	K	SE	AG	NA	TL	V	ZN	CN
S0.00	1.00	0730																						X			
S10.00	1.00	0735																									
S20.00	1.00	0740																									
S30.00	1.00	0745																									
S50.00	1.00	0750																									
ICV	1.00	0755																									
ICB	1.00	0800																									
ZZZZZ	1.00	0810																									
CRA	1.00	0815																									
LCSW	1.00	0820																									
LCSWA	1.00	0825	96.3																								
PBW	1.00	0830																									
PBWA	1.00	0835	89.1																								
ZZZZZ	1.00	0840																									
ZZZZZ	1.00	0845																									
ZZZZZ	1.00	0850																									
ZZZZZ	1.00	0855																									
CCV	1.00	0900																									
CCB	1.00	0905																									
ZZZZZ	1.00	0910																									
ZZZZZ	1.00	0915																									
ZZZZZ	1.00	0920																									
ZZZZZ	1.00	0925																									
ZZZZZ	1.00	0930																									
ZZZZZ	1.00	0935																									
ZZZZZ	1.00	0940																									
ZZZZZ	1.00	0945																									
ZZZZZ	1.00	0950																									
CCV	1.00	0955																									
CCB	1.00	1000																									
ZZZZZ	1.00	1005																									
ZZZZZ	1.00	1010																									
ZZZZZ	1.00	1015																									

U.S. EPA - CLP

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ANALYSIS RUN LOG

Lab Name: ARDL Contract: 1198

Lab Code: _____ Case No.: _____ SAS No.: _____ SDG No.: _____

Instrument ID Number: AA20 Method: F

Start Date: 6-3-91 End Date: 6-3-91

EPA Sample No.	D/F	Time	% R	Analytes																						
				AL	SB	AS	BA	BE	CD	CA	CR	CO	CU	FE	PB	MG	MN	HG	NI	K	SE	AG	NA	TL	V	ZN	CN
ZZZZZ	1.00	1020																						X			
ZZZZZ	1.00	1025																									
ZZZZZ	1.00	1030																									
ZZZZZ	1.00	1035																									
ZZZZZ	1.00	1040																									
ZZZZZ	1.00	1045																									
ZZZZZ	1.00	1050																									
CCV	1.00	1055																									
CCB	1.00	1100																									
ZZZZZ	1.00	1105																									
ZZZZZ	1.00	1110																									
ZZZZZ	1.00	1115																									
ZZZZZ	1.00	1120																									
ZZZZZ	1.00	1125																									
ZZZZZ	1.00	1130																									
ZZZZZ	1.00	1135																									
ZZZZZ	1.00	1140																									
ZZZZZ	1.00	1145																									
ZZZZZ	1.00	1150																									
CCV	1.00	1155																									
CCB	1.00	1200																									
ZZZZZ	1.00	1205																									
ZZZZZ	1.00	1210																									
ZZZZZ	1.00	1215																									
ZZZZZ	1.00	1220																									
ZZZZZ	1.00	1225																									
ZZZZZ	1.00	1230																									
ZZZZZ	1.00	1235																									
ZZZZZ	1.00	1240																									
ZZZZZ	1.00	1245																									
ZZZZZ	1.00	1250																									
CCV	1.00	1255																									
CCB	1.00	1300																									

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ANALYSIS RUN LOG

Lab Name: ARDL Contract: 11218

Lab Code: _____ Case No.: _____ SAS No.: _____ SDG No.: _____

Instrument ID Number: AA20 Method: F

Start Date: 6-3-91 End Date: 6-3-91

EPA Sample No.	D/F	Time	% R	Analytes																							
				AL	SB	AS	BA	BE	CD	CA	CR	CO	CU	FE	PB	MG	MN	HG	NI	K	SE	AG	NA	TL	V	ZN	CN
ZZZZZ	1.00	1305																						Y			
ZZZZZ	1.00	1310																									
ZZZZZ	1.00	1315																									
ZZZZZ	1.00	1320																									
ZZZZZ	1.00	1325																									
ZZZZZ	1.00	1330																									
ZZZZZ	1.00	1335																									
ZZZZZ	1.00	1340																									
ZZZZZ	1.00	1345																									
ZZZZZ	1.00	1350																									
CCV	1.00	1355																									
CCB	1.00	1400																									
ZZZZZ	1.00	1405																									
ZZZZZ	1.00	1410																									
LCS W	1.00	1415																									
LCS WA	1.00	1420																									
PBW	1.00	1425																									
PBWA	1.00	1430																									
LO-1MW045-FD	1.00	1435																									
LO-1MW045-FD A	1.00	1440	109.1																								
ZZZZZ	1.00	1445																									
ZZZZZ	1.00	1450																									
CCV	1.00	1455																									
CCB	1.00	1500																									
ZZZZZ	1.00	1505																									
ZZZZZ	1.00	1510																									
ZZZZZ	1.00	1515																									
CCV	1.00	1520																									
CCB	1.00	1525																									
ZZZZZ	1.00	1530																									
ZZZZZ	1.00	1535																									
ZZZZZ	1.00	1540																									
ZZZZZ	1.00	1545																									

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ANALYSIS RUN LOG

Lab Name: ARDL Contract: 111918

Lab Code: _____ Case No.: _____ SAS No.: _____ SDG No.: _____

Instrument ID Number: AA20 Method: F

Start Date: 6-3-91 End Date: 6-3-91

EPA Sample No.	D/F	Time	% R	Analytes																							
				AL	SB	AS	BA	BE	CD	CA	CR	CO	CU	FE	PB	MG	MN	HG	NI	K	SE	AG	NA	TL	V	ZN	CN
ZZZZZ	1-00	1550																						X			
ZZZZZ	1-00	1555																						X			

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100082

D. CASE 111928

SDG 111928

PROJECT NAME: Lenz OIL

SUPPORT DOCUMENTATION FOR THE REVIEW OF INORGANIC ANALYTICAL DATA PACKAGE

TYPE OF ANALYSIS: Metals, CN
CONTRACT LABORATORY: ARDL

REVIEWER: Ruth Forman
REVIEW DATE: June, 1991

APPLICABLE SAMPLE NO's.: See Table 1 of Report

THE FOLLOWING TABLE INDICATES AREAS WHICH WERE EXAMINED IN DETAIL, THE IDENTIFIED PROBLEM AREAS, AND SUPPORT DOCUMENTATION ATTACHMENTS:

	AREAS EXAMINED IN DETAIL (CHECK (✓) IF YES OR FOOTNOTE LETTER FOR COMMENTS BELOW)					PROBLEM AREAS IDENTIFIED (CHECK (✓) IF YES OR FOOTNOTE NUMBER FOR COMMENTS BELOW)					SUPPORT DOCUMENTATION ATTACHMENTS (CHECK (✓) IF YES OR IDENTIF... ATTACHMENT ...).				
	ALL APPLICABLE ANALYSES	ICP OR A.A. METALS	FURNACE METALS	COLD VAPOR MERCURY	CYANIDE	ALL APPLICABLE ANALYSES	ICP OR A.A. METALS	FURNACE METALS	COLD VAPOR MERCURY	CYANIDE	ALL APPLICABLE ANALYSES	ICP OR A.A. METALS	FURNACE METALS	COLD VAPOR MERCURY	CYANIDE
HOLDING TIMES	✓										✓				
BLANK ANALYSIS RESULTS	✓										✓				
MATRIX SPIKES (PRE-DIGESTION)	✓						✓	✓			✓				
DUPLICATES	✓														
QUANTITATION OF RESULTS	✓														
DETECTION LIMITS/SENSITIVITY	✓										✓				
INITIAL CALIBRATIONS	✓										✓				
CONTINUING CALIBRATIONS	✓										✓				
LABORATORY CONTROL STANDARDS	✓										✓				
ICP LINEAR RANGE ANALYSIS	✓										✓				
ICP INTERFERENCE CHECKS	✓										✓				
ICP SERIAL DILUTIONS	✓														
GFAA POST-DIGESTION SPIKES	✓														
GFAA DUPLICATE BURNS	✓														
GFAA STANDARD ADDITIONS	✓														
OTHERS															

COMMENTS:

BLANK ANALYSIS RESULTS FOR INORGANICS

PARAMETER	TYPE/ MATRIX	SAMPLE #	SOURCE	CONTAMINANT (CONCENTRATION)
Metals	ICAL / Aq	Initial Calibration	ARDL	None Reported
Metals	CCAL / Aq	Continuing Calibration	ARDL	None Reported
Metals	PB / Aq	Prep Blank	ARDL	None Reported

LABORATORY REPORTED FIELD BLANK IS COMPARED WITH THE SAMPLE DATA IN A TABULATION FORM WITHIN THE SAMPLE ANALYTICAL DATA SUMMARY.

COMMENTS :

(1) RESULT REPORTED BY THE LABORATORY AND CONFIRMED BY REVIEWER

(2) RESULT INFERED FROM INSTRUMENT PRINTOUTS AND/OR SUPPORTING DATA

INITIAL AND CONTINUING CALIBRATION VERIFICATION
METALS

Lab Name ARDL, Inc. Contract No. 111928

Initial Calibration Source LAB PREPARED

Continuing Calibration Source LAB PREPARED

Concentration Units: ug/L

Analyte	Initial Calibration True	Initial Calibration Found	Initial Calibration %R(1)	Continuing Calibration True	Continuing Calibration Found	Continuing Calibration %R(1)	Continuing Calibration Found	Continuing Calibration %R(1)	M
Aluminum	5000	4600	92	5000	4770	95	4800	96	P
Antimony	1000	1090	109	1000	965	96	1070	107	P
Arsenic	4.0	3.8	95	2.0	2.0	100			
Barium	500	498	100	500	496	99	472	94	P
Beryllium	500	489	98	500	484	97	462	92	P
Cadmium	1000	995	100	1000	961	96	973	97	P
Calcium	5000	5020	100	5000	5170	103	4940	99	P
Chromium	1250	1300	104	1250	1320	106	1280	102	P
Cobalt	1000	1000	100	1000	1010	101	978	98	P
Copper	1000	965	96	1000	1010	101	954	95	P
Iron	750	761	101	750	787	105	761	101	P
Lead	10	11	110	10	10	100	11	110	F
Magnesium	5000	5200	104	5000	5360	107	5400	108	P
Manganese	150	160	107	150	150	100			
Mercury	6.0	5.7	95	4.0	3.6	90			CV
Nickel	2500	2510	104	2500	2550	102	2490	99	P
Potassium	8000	8300	104	8000	8400	105			A
Selenium	4.0	3.7	92	2.0	1.9	95			BH
Silver	150	150	100	150	150	100			A
Sodium	8000	7700	96	8000	7700	96			A
Thallium	25	23	92	25	23	92	24	96	F
Vanadium	500	501	100	500	507	101	493	99	P
Zinc	1000	995	100	1000	994	99	987	99	P
Cyanide									US

(1) Control Limits: Mercury 80-120; Other Metals 90-110

INITIAL AND CONTINUING CALIBRATION VERIFICATION
METALS

Lab Name ARDL, Inc. Contract No. 11982

Initial Calibration Source LAB PREPARED

Continuing Calibration Source LAB PREPARED

Concentration Units: ug/L

Analyte	Initial Calibration True	Initial Calibration Found	Initial Calibration %R(1)	Continuing Calibration True	Continuing Calibration Found	Continuing Calibration %R(1)	Continuing Calibration Found	Continuing Calibration %R(1)	M
Aluminum				15000	14570	91			P
Antimony				1000	995	100			P
Arsenic									BH
Barium									P
Beryllium									P
Cadmium									P
Calcium									P
Chromium									P
Cobalt									P
Copper									P
Iron									P
Lead									
Magnesium				5000	5380	108			P
Manganese									P
Mercury									CV
Nickel									P
Potassium									P
Selenium									BH
Silver									P
Sodium									P
Thallium									P
Vanadium									P
Zinc									P
Tin									AS

(1) Control Limits: Mercury 80-120; Other Metals 90-110

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2B
CRDL STANDARD FOR AA AND ICP

Lab Name: ARDL, INC. Contract: 111928

Lab Code: _____ Case No.: _____ SAS No.: _____ SDG No.: _____

AA CRDL Standard Source: LAB PREPARED

ICP CRDL Standard Source: LAB PREPARED

Concentration Units: ug/L

Analyte	CRDL Standard for AA			CRDL Standard for ICP				
					Initial		Final	
	True	Found	%R	True	Found	%R	Found	%R
Aluminum				400	450	112	570	142 NO IMP
Antimony				150	92	61	150	100
Arsenic	10	9.6	96					
Barium				400	430	108	370	92
Beryllium				10	10	100	9	90
Cadmium				10	13	130 NO IMPACT	9	90
Calcium				10000	10500	105	9200	92
Chromium				20	19	95	20	100
Cobalt				100	110	110	94	94
Copper				50	46	92	25	50
Iron				200	270	135	220	110
Lead	6.0	6.5	108					
Magnesium				10000	8860	89	11500	
Manganese	15	13	87					
Mercury	0.20	0.19	95					
Nickel				80	78	98	57	71
Potassium	5000	5100	102					
Selenium	5.0	4.5	90					
Silver	10	8.0	80					
Sodium	5000	4700	94					
Thallium	10	9.5	95					
Vanadium				100	110	110	92 OK	92
Zinc				40	52	130	50	125

FORM IIIA
BLANKS
METALS

Lab Name ARDL, Inc. Contract No. 11928

Preparation Blank Matrix (soil/water) WASTE OIL

Preparation Blank Concentration Units (ug/L or mg/kg) UG/L

Analyte	Initial Calib. Blanks (ug/L)	Continuing Calibration Blank (ug/L) C	1	C	2	C	3	C	Prepar-ation Blank	C	M
Aluminum	200	U	200	U	200	U	200	U	200	U	P
Antimony	60	U	60	U	60	U	60	U	60	U	P
Arsenic	0.90	U	0.90	U					0.90	U	BH
Barium	50	U	50	U	50	U			50	U	P
Beryllium	5.0	U	5.0	U	5.0	U			5.0	U	P
Cadmium	5.0	U	5.0	U	5.0	U			5.0	U	P
Calcium	1000	U	1000	U	1000	U			1000	U	P
Chromium	10	U	10	U	10	U			10	U	P
Cobalt	50	U	50	U	50	U			50	U	P
Copper	25	U	25	U	25	U			25	U	P
Iron	50	U	50	U	50	U			50	U	P
Lead	2.0	U	2.0	U	2.0	U			2.0	U	F
Magnesium	1000	U	1000	U	1000	U	1000	U	1000	U	P
Manganese	15	U	15	U					15	U	A
Mercury	0.20	U	0.20	U					0.20	U	CV
Nickel	40	U	40	U	40	U			40	U	P
Potassium	500	U	500	U					500	U	A
Selenium	0.90	U	0.90	U					0.90	U	BH
Silver	10	U	10	U					10		A
Sodium	500	U	500	U					500	U	A
Thallium	5.0	U	5.0	U	5.0	U			5.0	U	F
Vanadium	50	U	50	U	50	U			50	U	P
Zinc	20	U	20	U	20	U			20	U	P
Cyanide									10	U	C

Form IV

ICP INTERFERENCE CHECK SAMPLE

Lab Name ARDL, Inc. Contract No. 111928

ICP ID Number JA965

ICP Source ICF Technology

Concentration Units: ug/L

Analyte	True Sol. A	True Sol. AB	Initial Found Sol. A	Initial Found Sol. AB	Initial Found %R	Final Found Sol. A	Final Found Sol. AB	Final Found %R
Aluminum	481000	469700	616000			583000		
Antimony								
Arsenic								
Barium		456		453	99		403	88
Berylium		472		506	107		469	99
Cadmium		958		897	94		824	86
Calcium	448250	445800	459000	434000		441000	412000	
Chromium	25	525	65	500	95	24	467	89
Cobalt		494		516	104		477	97
Copper		523		482	92		427	82
Iron	182650	178650	181000	172000		173000	161000	
Lead		4700						
Magnesium	450900	445200	475000			446000		
Manganese	16	530	192			225		
Mercury								
Nickel		940		849	90		785	84
Potassium								
Selenium								
Silver		990						
Sodium								
Thallium								
Vanadium		471		425	90		407	86
Zinc		1026		973	95		904	88
Cyanide								

Form IV

ICP INTERFERENCE CHECK SAMPLE

Lab Name ARDL, Inc. Contract No. 111928

ICP ID Number Leeman

ICP Source ICF Technology

Concentration Units: ug/L

Analyte	True Sol. A	True Sol. AB	Initial Found Sol. A	Initial Found Sol. AB	%R	Final Found Sol. A	Final Found Sol. AB	%R
Aluminum	481000	469700	495000	385000		484000	390000	
Antimony								
Arsenic								
Barium		456						
Beryllium		472						
Cadmium		958						
Calcium	448250	445800	437000	362000		431000	361000	
Chromium	25	525						
Cobalt		494						
Copper		523						
Iron	182650	178650	170000	143000		172000	145000	
Lead		4700						
Magnesium	450900	445200	492000	390000		496000	420000	
Manganese	16	530						
Mercury								
Nickel		940						
Potassium								
Selenium								
Silver		990						
Sodium								
Thallium								
Vanadium		471						
Zinc		1026						
Cyanide								

LAB ID # 111928-1
IEPA ID # LD-IG106S-WO

FORM VA

SPIKE SAMPLE RECOVERY
METALS

Lab Name ARDL, Inc. Contract No. 111928

Matrix (soil/water) WASTE OIL Level (low/med) _____

Concentration Units (ug/L or mg/kg dry weight mg/kg

Analyte	Control Limit %R	Spiked Sample Result (SSR)	C	Sample Result (SR)	C	Spike Added (SA)	%R	Q	M
Aluminum	75-125	230		38	U	200	87		P
Antimony	75-125	43		12	U	50	86	—	P
Arsenic	75-125	1.7		0.87	U	1.9	89		BH
Barium	75-125	180		9.6	U	200	90		P
Beryllium	75-125	4.2		0.96	U	5.0	84		P
Cadmium	75-125	4.4		0.96	U	5.0	88		P
Chromium	75-125	20		1.9	U	20	100		P
Cobalt	75-125	46		9.6	U	50	92		P
Copper	75-125	20		4.8	U	25	80		P
Iron	75-125	102		16	B	100	102		P
Lead	75-125	2.9		0.66		4.0	56	N	F
Manganese	75-125	49		2.9	U	50	98		A
Mercury	75-125	0.32		0.067	U	0.31	103		CV
Nickel	75-125	45		7.7	U	50	90		P
Selenium	75-125	1.0		0.87	U	1.92	52	N	BH
Silver	75-125	3.4		1.9	U	5.0	68	N	A
Thallium	75-125	3.5		0.96	U	4.0	88		F
Vanadium	75-125	44		9.6	U	50	88		P
Zinc	75-125	49		4.2		50	90		P
Cyanide	75-125	3.7		0.55	U	4.4	89		C
	75-125								

IEPA ID # [illegible]

FORM VIA

DUPLICATES
METALS

Lab Name ARDL, Inc. Contract No. 111928

Matrix (soil/water) WASTE OIL Level (low/med) _____

% Solids for Sample 100 % Solids for Duplicate 100

Concentration Units (ug/L or mg/kg dry weight) MG/KG

Analyte	Control Limit	Sample (S)	C	Duplicate (D)	C	RPD	Q	M
Aluminum	± 38	38	U	39	U			P
Antimony	± 12	12	U	12	U			P
Arsenic	± 9.6	0.87	U	0.86	U			BH
Barium	± 38	9.6	U	9.8	U			P
Beryllium	± 0.96	0.96	U	0.98	U			P
Cadmium	± 0.96	0.96	U	0.98	U			P
Calcium	± 960	180	B	200	B	11		P
Chromium	± 1.9	1.9	U	2.0	U			P
Cobalt	± 9.6	9.6	U	9.8	U			P
Copper	± 4.8	4.8	U	4.9	U			P
Iron	± 19	16	B	25		44		P
Lead	± 0.58	0.66		0.40	B	49		F
Magnesium	± 960	190	U	200	U			P
Manganese	± 2.9	2.9	U	2.9	U			A
Mercury	± 0.067	0.067	U	0.059	U			CV
Nickel	± 7.7	7.7	U	7.8	U			P
Potassium	± 961	96	U	95	U			A
Selenium	± 4.8	0.87	U	0.86	U			BH
Silver	± 1.9	1.9	U	2.0	U			A
Sodium	± 961	96	U	95	U			A
Thallium	± 1.9	0.96	U	0.95	U			F
Vanadium	± 9.6	9.6	U	9.8	U			P
Zinc	± 3.8	4.2		4.1		2.4		P
Cyanide	± 0.25	0.25	U	0.25	U			C

FORM VIIA

LABORATORY CONTROL SAMPLE
METALS

Lab Name ARDL, Inc. Contract No. 111928

Solid LCS Source

Aqueous LCS Source LAB PREPARED

Analyte	Aqueous (ug/L) True	Found	%R	Solid (mg/kg) True	Found	C	Limits	%R
Aluminum	10000	8220	82					
Antimony	1000	1910	96					
Arsenic	5.0	4.8	96					
Barium	1000	1050	105					
Berylium	1000	1040	104					
Cadmium	2000	2160	111					
Calcium	10000	8940	89					
Chromium	2500	2760	110					
Cobalt	2000	2210	110					
Copper	2000	2090	104					
Iron	1500	1680	112					
Lead	10	10	100					
Magnesium	10000	9890	99					
Manganese	1000	1000	100					
Mercury	5.0	4.8	96					
Nickel	5000	5400	108					
Potassium	12500	13000	104					
Selenium	5.0	5.0	100					
Silver	5000	4800	96					
Sodium	12500	12000	96					
Thallium	20	17	85					
Vanadium	1000	1030	103					
Zinc	2000	2180	109					
Cyanide	100	98	98					

IEPA ID # [illegible]

FORM VIII

ICP SERIAL DILUTIONS

Lab Name ARDL INC. Site Inventory No. _____

Date 6-12-91 Matrix (soil/water) WASTE OIL

Level (low/med.) _____

Concentration Units: ug/L

Analyte	Initial Sample Result (I)	C	Serial Dilution Result (S)	C	% Difference	Q	M
Aluminum	200	U	1000	U			P
Antimony	60	U	300	U			
Arsenic							
Barium	50	U	250	U			
Berylium	50	U	25	U			
Cadmium	5.0	U	25	U			
Calcium	1000	U	5000	U			
Chromium	10	U	50	U			
Cobalt	50	U	250	U			
Copper	25	U	125	U			
Iron	84	B	250	U			
Lead							
Magnesium	1000	U	5000	U			
Manganese	15	U	75	U			
Mercury							
Nickel	40	U	200	U			
Potassium							
Selenium							
Silver	10	U	50	U			
Sodium							
Thallium							
Vanadium	50	U	250	U			
Zinc	21		1000	U			

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INSTRUMENT DETECTION LIMITS (QUARTERLY)

Lab Name: ARDL, INC. Contract: 111928

Lab Code: _____ Case No.: _____ SAS No.: _____ SDG No.: _____

ICP ID Number: JA965w/Grid Neb.

Flame AA ID Number: _____

Furnace AA ID Number: _____

Analyte	Wave-length (nm)	Back-ground	CRDL (ug/L)	IDL (ug/L)	M
Aluminum	308.22		200	200	P
Antimony	217.58		60	60	P
Arsenic			10		
Barium	493.41		200	50	P
Beryllium	234.86		5	5	P
Cadmium	228.80		5	5	P
Calcium	396.85		5000	1000	P
Chromium	205.55		10	10	P
Cobalt	228.62		50	50	P
Copper	324.75		25	25	P
Iron	259.94		100	50	P
Lead	220.35		3	60	P
Magnesium	279.07		5000	1000	P
Manganese	257.61		15	15	P
Mercury			0.2		
Nickel	231.60		40	40	P
Potassium			5000		
Selenium			5		
Silver	328.07		10	10	P
Sodium			5000		P
Thallium			10		
Vanadium	292.40		50	50	P
Zinc	213.86		20	20	P

Comments:

Lead does not meet CRDL.

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INSTRUMENT DETECTION LIMITS (QUARTERLY)

Lab Name: ARDL, INC. Contract: 111928

Lab Code: _____ Case No.: _____ SAS No.: _____ SDG No.: _____

ICP ID Number: LEEMAN PLASMA SPEC.

Flame AA ID Number: _____

Furnace AA ID Number: _____

Analyte	Wave-length (nm)	Back-ground	CRDL (ug/L)	IDL (ug/L)	M
Aluminum	308.22		200	200	P
Antimony	206.83		60	60	P
Arsenic			10		
Barium	455.40		200	50	P
Beryllium	234.86		5	5	P
Cadmium	214.44		5	5	P
Calcium	317.93		5000	1000	P
Chromium	205.55		10	10	P
Cobalt	228.62		50	50	P
Copper	324.75		25	25	P
Iron	259.94		100	50	P
Lead	220.35		3	60	P
Magnesium	383.23		5000	1000	P
Manganese	257.61		15	15	P
Mercury			0.2		
Nickel	231.60		40	40	P
Potassium	766.49		5000	1000	P
Selenium			5		
Silver	338.29		10	10	P
Sodium	588.99		5000	1000	P
Thallium			10		
Vanadium	310.23		50	50	P
Zinc	213.86		20	20	P

Comments:

Lead does not meet CRDL.

10

INSTRUMENT DETECTION LIMITS (QUARTERLY)

Lab Name: ARDL, INC. Contract: 111928

Lab Code: _____ Case No.: _____ SAS No.: _____ SDG No.: _____

ICP ID Number: _____

Flame AA ID Number: _____

Furnace AA ID Number: SPECTRA AA 300

Analyte	Wave-length (nm)	Back-ground	CRDL (ug/L)	IDL (ug/L)	M
Aluminum			200		
Antimony	217.60	BD	60	5.0	F
Arsenic	193.70	BD	10	3.0	F
Barium			200		
Beryllium			5		
Cadmium			5		
Calcium			5000		
Chromium	357.90	BD	10	2.0	F
Cobalt			50		
Copper			25		
Iron			100		
Lead	283.30	BD	3	2.0	F
Magnesium			5000		
Manganese			15		
Mercury			0.2		
Nickel			40		
Potassium			5000		
Selenium	196.03	BD	5	3.0	F
Silver			10		
Sodium			5000		
Thallium	276.80	BD	10	5.0	F
Vanadium			50		
Zinc			20		

Comments:

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INSTRUMENT DETECTION LIMITS (QUARTERLY)

Lab Name: ARDL, INC. Contract: 111928

Lab Code: _____ Case No.: _____ SAS No.: _____ SDG No.: _____

ICP ID Number: _____

Flame AA ID Number: SPECTRA AA 300

Furnace AA ID Number: _____

Analyte	Wave-length (nm)	Back-ground	CRDL (ug/L)	IDL (ug/L)	M
Aluminum	309.3		200	100	A
Antimony			60		
Arsenic	193.70		10	0.9	BH
Barium	553.60		200	200	A
Beryllium	234.96		5	5	A
Cadmium	228.80		5	5	A
Calcium	422.70		5000	500	A
Chromium			10		
Cobalt	240.70		50	50	A
Copper	324.75		25	25	A
Iron	248.30		100	100	A
Lead	217.00		3	30	A
Magnesium	285.20		5000	1000	A
Manganese	279.50		15	15	A
Mercury	253.70		0.2	0.2	CV
Nickel	232.0		40	40	A
Potassium	766.49		5000	500	A
Selenium	196.03		5	0.9	BH
Silver	328.07		10	10	A
Sodium	589.00		5000	500	A
Thallium			10		
Vanadium	318.5		50	110	A
Zinc	213.86		20	20	A

Comments:

Lead and vanadium do not meet CRDL.

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INSTRUMENT DETECTION LIMITS (QUARTERLY)

Lab Name: ARDL, INC. Contract: 111928

Lab Code: _____ Case No.: _____ SAS No.: _____ SDG No.: _____

ICP ID Number: _____

Flame AA ID Number: _____

Furnace AA ID Number: SPECTRA AA 20

Analyte	Wave-length (nm)	Back-ground	CRDL (ug/L)	IDL (ug/L)	M
Aluminum					
Antimony	217.60	BD	60	5.0	F
Arsenic	193.70	BD	10	3.0	F
Barium			200		
Beryllium			5		
Cadmium			5		
Calcium			5000		
Chromium	357.90	BD	10	2.0	F
Cobalt			50		
Copper			25		
Iron			100		
Lead	283.30	BD	3	2.0	F
Magnesium			5000		
Manganese			15		
Mercury			0.2		
Nickel			40		
Potassium			5000		
Selenium	196.03	BD	5	3.0	F
Silver			10		
Sodium			5000		
Thallium	276.80	BD	10	5.0	F
Vanadium			50		
Zinc			20		

Comments:

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INSTRUMENT DETECTION LIMITS (QUARTERLY)

Lab Name: ARDL, INC. Contract: 111928

Lab Code: _____ Case No.: _____ SAS No.: _____ SDG No.: _____

ICP ID Number: _____

Flame AA ID Number: SPECTRA AA 20

Furnace AA ID Number: _____

Analyte	Wave-length (nm)	Back-ground	CRDL (ug/L)	IDL (ug/L)	M
Aluminum	309.30		200	100	A
Antimony			60		
Arsenic	193.70		10	0.9	BH
Barium			200		A
Beryllium	234.86		5	5	A
Cadmium	228.80		5	5	A
Calcium	422.70		5000	500	A
Chromium			10		
Cobalt	240.70		50	50	A
Copper	324.75		25	25	A
Iron	248.30		100	100	A
Lead	217.00		3	30	A
Magnesium	285.20		5000	1000	A
Manganese	279.50		15	15	A
Mercury	253.70		0.2	0.2	CV
Nickel	232.00		40	40	A
Potassium	766.49		5000	500	A
Selenium	196.03		5	0.9	BH
Silver	328.07		10	10	A
Sodium	589.00		5000	500	A
Thallium			10		
Vanadium			50		
Zinc	213.86		20	20	A

Comments:

Lead does not meet CRDL.

FORM 11A

ICP Interelement Correction Factors

Lab Name: ARDL, Inc. ICP ID Number: Leeman Date: 01/16/91

Analyte	Wave-length (nm)	Interelement Correction Factors for: Al	Ca	Fe	Mg	--
Aluminum	308.22	--	-0.000004	-0.000027	-0.000062	
Antimony	206.83	0.000164	-0.000028	-0.000202	0.000075	
Arsenic	--	--	--	--	--	
Barium	455.40	-0.000004	0.000084	-0.000003	-0.000005	
Beryllium	234.86	0.000000	0.000004	0.000030	0.000000	
Cadmium	214.44	0.000010	0.000013	0.000021	0.000001	
Calcium	317.93	0.000086	--	0.000042	-0.000048	
Chromium	205.55	-0.000004	0.000007	0.000039	0.000000	
Cobalt	228.62	0.000028	-0.000010	-0.000036	-0.000018	
Copper	324.75	-0.000006	0.000002	0.000019	-0.000019	
Iron	259.94	0.000086	0.000001	--	0.000378	
Lead	220.35	0.000170	-0.000018	0.000047	-0.000009	
Magnesium	383.23	0.000107	0.0480	-0.000176	--	
Manganese	257.61	-0.000006	-0.000027	-0.000042	-0.000026	
Mercury	--	--	--	--		
Nickel	231.60	0.000024	0.000028	-0.000004	0.000012	
Potassium	766.49	0.00333	0.00436	0.00425	0.00384	
Selenium	--	--	--	--	--	
Silver	338.29	0.000045	0.000054	-0.000031	0.000021	
Sodium	588.99	0.000284	0.00131	0.000433	0.000334	
Thallium	--	--	--	--	--	
Vanadium	310.23	0.000021	0.000010	0.000001	0.000000	
Zinc	213.86	0.000040	0.000018	0.000088	0.000000	

Comments:

FORM XI (Part 1) - IN

FORM 11A

ICP Interelement Correction Factors

ab Name: ARDL, Inc. ICP ID Number: JA965W/Grid Date: 01/16/91

Analyte	Wave-length (nm)	Interelement Correction Factors for: Al	Ca	Fe	Mg	--
Aluminum	308.22	--	0.000338	0.000751	0.000525	
Antimony	217.58	0.000451	0.000000	0.000000	0.000711	
Arsenic	--	--	--	--	--	
Barium	493.41	0.000000	0.000082	0.000006	0.000000	
Beryllium	234.86	0.000000	0.000005	0.000474	0.000000	
Cadmium	228.80	0.000000	0.000013	0.000005	0.000001	
Calcium	396.85	0.000138	--	0.000134	0.000000	
Chromium	205.55	0.000015	0.000015	0.000000	0.000012	
Cobalt	228.62	0.000000	0.000011	0.000008	0.000000	
Copper	324.75	0.000011	0.000015	0.000013	0.000004	
Iron	259.94	0.000120	0.000110	--	0.000664	
Lead	220.35	0.000000	0.000017	0.000091	0.000004	
Magnesium	279.07	0.000008	0.000749	0.000225	--	
Manganese	257.61	0.000051	0.000000	0.000261	0.000000	
Mercury	--	--	--	--		
Nickel	231.60	0.000011	0.000029	0.000011	0.000000	
Potassium	--	--	--	--	--	
Selenium	--	--	--	--	--	
Silver	328.07	0.000031	0.000026	0.000000	0.000005	
Sodium	--	--	--	--	--	
Thallium	--	--	--	--	--	
Vanadium	292.40	0.000002	0.000000	0.000132	0.000000	
Zinc	213.86	0.000051	0.000028	0.000086	0.000010	

Comments:

FORM XI (Part 1) - IN

FORM 12

ICP Linear Ranges (Quarterly)

Lab Name: ARDL, Inc. ICP ID Number: Leeman Date: 04/16/91

Analyte	Integ. Time (sec.)	Concentration (ug/L)	M
Aluminum	3	1000000	P
Antimony	10	200000	P
Arsenic		-	P
Barium	3	20000	P
Beryllium	3	50000	P
Cadmium	7	200000	P
Calcium	3	500000	P
Chromium	7	100000	P
Cobalt	3	200000	P
Copper	3	100000	P
Iron	3	200000	P
Lead	7	100000	P
Magnesium	2	500000	P
Manganese	3	50000	P
Mercury		-	P
Nickel	3	1000000	P
Potassium	3	200000	P
Selenium		-	P
Silver	7	1000000	P
Sodium	3	200000	P
Thallium		-	P
Vanadium	3	100000	P
Zinc	3	200000	P

Comments:

FORM XII - IN

FORM 12

ICP Linear Ranges (Quarterly)

Lab Name: ARDL, Inc. ICP ID Number: JA965W/GRID Date: 04/16/91

Analyte	Integ. Time (sec.)	Concentration (ug/L)	M
Aluminum	10	500000	P
Antimony	10	100000	P
Arsenic	--	--	P
Barium	10	100000	P
Beryllium	10	5000	P
Cadmium	10	50000	P
Calcium	10	500000	P
Chromium	10	100000	P
Cobalt	10	5000	P
Copper	10	100000	P
Iron	10	200000	P
Lead	10	100000	P
Magnesium	10	500000	P
Manganese	10	50000	P
Mercury	--	--	P
Nickel	10	250000	P
Potassium	--	--	P
Selenium	--	--	P
Silver	10	100000	P
Sodium	--	--	P
Thallium	--	--	P
Vanadium	10	100000	P
Zinc	10	5000	P

Comments:

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PREPARATION LOG

Lab Name: ARDL, INC. Contract: 111928

Lab Code: _____ Case No.: _____ SAS No.: _____ SDG No.: _____

Method: F

EPA Sample No.	Preparation Date	Weight (gram)	Volume (mL)
LO-1G106S-WO	6-5-91	1.04	200
LO-1G106S-WO D	6-5-91	1.05	200
LO-1G106S-WO S	6-5-91	1.00	200
PBLK	6-5-91		100
LCS	6-5-91		100

U.S. EPA - CLP
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PREPARATION LOG

Lab Name: ARDL, INC. Contract: 111928

Lab Code: _____ Case No.: _____ SAS No.: _____ SDG No.: _____

Method: P

EPA Sample No.	Preparation Date	Weight (gram)	Volume (mL)
LD-1GW-TB3	6-5-91	1.04	200
LD-1GW-TB3 D	6-5-91	1.02	200
LD-1GW-TB3 S	6-5-91	1.00	200
PBLK	6-5-91		100
LCS	6-5-91		100

FORM XIII - IN 7/88

U.S. EPA - CLP
13
PREPARATION LOG

Lab Name: ARDL, Inc Contract: 111928

Lab Code: _____ Case No.: _____ SAS No.: _____ SDG No.: _____

Method: CV

EPA Sample No.	Preparation Date	Weight (gram)	Volume (mL)
LCS	6-4-91		100
PBLK	6-4-91		100
LA-1G1N6S-W0	6-4-91	0.30	100
LA-1G1N6S-W0 D	6-4-91	0.34	100
LA-1G1N6S-W0 S	6-4-91	0.32	100

FORM XIII - IN 7/88

U.S. EPA - CLP
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PREPARATION LOG

Lab Name: ARDL, INC Contract: 111928

Lab Code: _____ Case No.: _____ SAS No.: _____ SDG No.: _____

Method: CN

EPA Sample No.	Preparation Date	Weight (gram)	Volume (mL)
LO-161065-WO	5-21-91	10.12	
LO-161065-WOD	5-21-91	10.18	
LO-161065-WOS	5-21-91	11.40	
LCS	5-21-91		500
OREP Blank	5-21-91		500

FORM XIII - IN 7/88

ANALYSIS RUN LOG

Lab Name: ARDL, INC. Contract: 111928

Lab Code: _____ Case No.: _____ SAS No.: _____ SDG No.: _____

Instrument ID Number: Leeman Method: P

Start Date: 6-12-91 End Date: 6-12-91

EPA Sample No.	D/F	Time	% R	Analytes																					
				AL	SB	AS	BA	BE	CD	CA	CR	CO	CU	FE	PB	MG	MN	HG	NI	K	SE	AG	NA	TL	V	ZN
BLK		0858		X	X					X				X		X										
ICP1		0906		X						X				X		X										
ICP2		0911			X																					
ICV2		0916			X																					
ICV1		0925		X						X				X		X										
ZZZZZ		0934																								
ZZZZZ		0941																								
ICB		0945		X	X					X				X		X										
ICSA		0949		X						X				X		X										
ZZZZZ		0959																								
ICSAB		1006		X						X				X		X										
CRI		1017		X	X					X				X		X										
ZZZZZ		1022																								
ZZZZZ		1029																								
ZZZZZ		1035																								
ZZZZZ		1039																								
PBW		1049		X	X					X				X		X										
LCSW		1056		X						X				X		X										
ZZZZZ		1103																								
ZZZZZ		1108																								
CCV1		1115		X						X				X		X										
CCV2		1123			X																					
CCB		1130		X	X					X				X		X										
LCSW		1243			X																					
ID-16106-WC		1256		X	X					X				X		X										
ZZZZZ		1300																								
ID-16106-WDS		1303		X	X					X				X		X										
ID-16106-WDS		1307		X	X					X				X		X										
CCV1		1312		X						X				X		X										
CCV2		1316			X																					
CCB		1322		X	X					X				X		X										
ZZZZZ		1324																								
ZZZZZ		1325																								

U.S. EPA - CLP

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ANALYSIS RUN LOG

Lab Name: ARDL INC. Contract: 111928

Lab Code: _____ Case No.: _____ SAS No.: _____ SDG No.: _____

Instrument ID Number: Leeman Method: P

Start Date: 6-12-91 End Date: 6-12-91

EPA Sample No.	D/F	Time	% R	Analytes																					
				AL	SB	AS	BA	BE	CD	CA	CR	CO	CU	FE	PB	MG	MN	HG	NI	K	SE	AG	NA	TL	V	ZN
ZZZZZ		1330																								
ZZZZZ		1333																								
ZZZZZ		1335																								
ZZZZZ		1337																								
CRI		1343		X	X					X				X		X										
ICSA		1345		X						X				X		X										
ICSAB		1349		X						X				X		X										
CCV1		1400		X						X				X		X										
CCV2		1404			X																					
CCB		1410		X	X					X				X		X										
CCB		1411								X																

FORM XIV - IN 7/88

ANALYSIS RUN LOG

Lab Name: ARDL INC Contract: 111928

Lab Code: _____ Case No.: _____ SAS No.: _____ SDG No.: _____

Instrument ID Number: ICP-JA Method: P

Start Date: 6-12-91 End Date: 6-12-91

EPA Sample No.	D/F	Time	% R	Analytes																						
				AL	SB	AS	BA	BE	CD	CA	CR	CO	CU	FE	PB	MG	MN	HG	NI	K	SE	AG	NA	TL	V	ZN
S0	1.00	0845		X			X	X	X	X	X	X	X	X		X			X						X	X
S1	1.00	0851			X																					
ZZZZZ	1.00	0900																								
ZZZZZ	1.00	0903																								
ICV1	1.00	0909					X	X	X	X	X	X	X	X			X		X						X	X
ZZZZZ	1.00	0914																								
Blank	1.00	0923		X			X	X	X	X	X	X	X	X			X		X						X	X
ICV1	1.00	0927					X	X	X	X	X	X	X	X		X	X		X						X	X
ZZZZZ	1.00	0932																								
ICB	1.00	0936					X	X	X	X	X	X	X	X					X						X	X
ICSA	1.00	0939		X						X				X		X										
ICSAB	1.00	0944		X			X	X	X	X	X	X	X	X		X			X						X	X
LCSW	1.00	0953					X	X	X	X	X	X	X	X					X						X	X
ZZZZZ	1.00	0959																								
PBW	1.00	1006					X	X	X	X	X	X	X	X					X						X	X
CRI	1.00	1010					X	X	X	X	X	X	X	X					X						X	X
ZZZZZ	1.00	1013																								
ZZZZZ	1.00	1015																								
ZZZZZ	1.00	1018																								
ZZZZZ	1.00	1020																								
CCVI	1.00	1024					X	X	X	X	X	X	X	X					X						X	X
CCB	1.00	1031					X	X	X	X	X	X	X	X					X						X	X
LD-IG065-W0	1.00	1037					X	X	X	X	X	X	X	X					X						X	X
LD-IG065-W0D	1.00	1040																								
LD-IGW-S-WS	1.00	1043																								
LD-IG065-W0	1.00	1048																								
LD-IG065-W0L	5.0	1050																								
CRI	1.00	1053					X	X	X	X	X	X	X	X					X						X	X
ICSA	1.00	1056		X						X				X		X										
ICSAB	1.00	1111		X			X	X	X	X	X	X	X	X		X			X						X	X
CCVI	1.00	1118																								
CCB	1.00	1125		X			X	X	X	X	X	X	X	X		X			X						X	X

ANALYSIS RUN LOG

Lab Name: ARDL, INC Contract: 111928

Lab Code: _____ Case No.: _____ SAS No.: _____ SDG No.: _____

Instrument ID Number: AA20 Method: 3H

Start Date: 6-7-91 End Date: 6-7-91

EPA Sample No.	D/F	Time	% R	Analytes																					
				AL	SB	AS	BA	BE	CD	CA	CR	CO	CU	FE	PB	MG	MN	HG	NI	K	SE	AG	NA	TL	V	ZN
S0.00	1.00	1318				X																				
S1.00	1.00	1320																								
S3.00	1.00	1322																								
S5.00	1.00	1324																								
S7.00	1.00	1326																								
ICV	1.00	1328																								
ICB	1.00	1330																								
CRA	1.00	1332																								
CRA	2.00	1334																								
LCSW	1.00	1336																								
PBW	1.00	1338																								
ZZZZZ	5.00	1340																								
40-161065-WD	5.00	1342																								
40-161065-WDD	5.00	1344																								
40-161065-WDS	5.00	1346																								
ICV	1.00	1348																								
CCB	1.00	1350																								
ZZZZZ	5.00	1352																								
ZZZZZ	5.00	1354																								
ZZZZZ	5.00	1356																								
ZZZZZ	5.00	1358																								
ZZZZZ	5.00	1400																								
ZZZZZ	5.00	1402																								
ZZZZZ	5.00	1404																								
ZZZZZ	10.00	1406																								
ZZZZZ	5.00	1408																								
ZZZZZ	5.00	1410																								
ZZZZZ	5.00	1412																								
ZZZZZ	5.00	1414																								
ZZZZZ	5.00	1416																								
ZZZZZ	5.00	1418																								
ZZZZZ	5.00	1420																								
ZZZZZ	5.00	[illegible]																								

ANALYSIS RUN LOG

Lab Name: ARDL Inc Contract: 111928

Lab Code: _____ Case No.: _____ SAS No.: _____ SDG No.: _____

Instrument ID Number: AA20 Method: F

Start Date: 6-6-91 End Date: 6-6-91

EPA Sample No.	D/F	Time	% R	Analytes																						
				AL	SB	AS	BA	BE	CD	CA	CR	CO	CU	FE	PB	MG	MN	HG	NI	K	SE	AG	NA	TL	V	ZN
S0.00	1.00	0730													X											
S 3.00	1.00	0735																								
S 10.00	1.00	0740																								
S 15.00	1.00	0745																								
S 20.00	1.00	0750																								
ICV	1.00	0755																								
ICB	1.00	0800																								
CRA	1.00	0805																								
LCS W	1.00	0810																								
LCSWA	1.00	0815	95.7																							
PBW	1.00	0820																								
PBWA	1.00	0825	110.5																							
ZZZZZ	2.00	0830																								
20-16106SWCA	1.00	0835																								
20-16106SWCA	1.00	0840	110.2																							
20-16106SWCD	1.00	0845																								
20-16106SWCDA	1.00	0850	106.0																							
CCV	1.00	0900																								
CCB	1.00	0905																								
20-16106SWCS	1.00	0910																								
CCV	1.00	0915																								
CCB	1.00	0920																								
ZZZZZ	10.00	0925																								
ZZZZZ	10.00	0930																								
ZZZZZ	2.00	0935																								
ZZZZZ	1.00	0945																								
ZZZZZ	1.00	0950																								
ZZZZZ	1.00	0955																								
ZZZZZ	1.00	1000																								
ZZZZZ	1.00	1005																								
ZZZZZ	1.00	1010																								
ZZZZZ	1.00	1015																								

ANALYSIS RUN LOG

Lab Name: ARDL INC Contract: 111928

Lab Code: _____ Case No.: _____ SAS No.: _____ SDG No.: _____

Instrument ID Number: AA20 Method: A

Start Date: 6-12-91 End Date: 6-12-91

EPA Sample No.	D/F	Time	% R	Analytes																					
				AL	SB	AS	BA	BE	CD	CA	CR	CO	CU	FE	PB	MG	MN	HG	NI	K	SE	AG	NA	TL	V	ZN
S 0.00	1.00	1310															X								
S 50.00	1.00	1311																							
S 100.00	1.00	1312																							
S 300.00	1.00	1313																							
S 500.00	1.00	1314																							
S 1000.00	1.00	1315																							
ICV	1.00	1316																							
ICB	1.00	1317																							
CRA	1.00	1318																							
LCS	1.00	1319																							
PBIK	1.00	1320																							
ZZZZZ	1.00	1321																							
10-16106S-WO	1.00	1322																							
10-16106S-WO4	1.00	1323																							
10-16106S-WO8	1.00	1324																							
CCV	1.00	1325																							
CCB	1.00	1326															X								

U.S. EPA - CLP

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ANALYSIS RUN LOG

Lab Name: ABDL INC. Contract: 111928

Lab Code: _____ Case No.: _____ SAS No.: _____ SDG No.: _____

Instrument ID Number: AA20 Method: CV

Start Date: 6-4-91 End Date: 6-4-91

EPA Sample No.	D/F	Time	% R	Analytes																						
				AL	SB	AS	BA	BE	CD	CA	CR	CO	CU	FE	PB	MG	MN	HG	NI	K	SE	AG	NA	TL	V	ZN	CN
S0	1.00	1130																X									
S0.50	1.00	1132																									
S1.00	1.00	1134																									
S5.00	1.00	1136																									
S10.00	1.00	1138																									
ICV	1.00	1140																									
ICB	1.00	1142																									
CRA	1.00	1144																									
LCS	1.00	1146																									
PBLK	1.00	1148																									
LD-IG106S-LW	1.00	1150																									
LD-IG106S-LWD	1.00	1152																									
LD-IG106S-LWS	1.00	1154																									
ICV	1.00	1156																									
ICB	1.00	1158																									
ZZZZZ	1.00	1200																									
ZZZZZ	1.00	1202																									
ZZZZZ	1.00	1204																									
ZZZZZ	1.00	1206																									
ZZZZZ	1.00	1208																									
ZZZZZ	1.00	1210																									
ZZZZZ	1.00	1212																X									

ANALYSIS RUN LOG

Lab Name: ARDL, Inc. Contract: 111928

Lab Code: _____ Case No.: _____ SAS No.: _____ SDG No.: _____

Instrument ID Number: AA300 Method: Flame

Start Date: 6-6-91 End Date: 6-6-91

EPA Sample No.	D/F	Time	% R	Analytes																						
				AL	SB	AS	BA	BE	CD	CA	CR	CO	CU	FE	PB	MG	MN	HG	NI	K	SE	AG	NA	TL	V	ZN
50.00	1.00	16:00																		X						
55.00	1.00	16:02																								
510.00	1.00	16:04																								
515.00	1.00	16:06																								
520.00	1.00	16:08																								
ICV	1.00	16:10																								
ICB	1.00	16:12																								
CRA	1.00	16:14																								
LCS	1.00	16:16																								
MB1X	1.00	16:18																								
22222	1.00	16:20																								
20-16106S-WO	1.00	16:22																								
20-16106S-WO1	1.00	16:24																								
CCV	1.00	16:26																								
CCB	1.00	16:28																		X						

ANALYSIS RUN LOG

Lab Name: ARDL Inc Contract: 11928

Lab Code: _____ Case No.: _____ SAS No.: _____ SDG No.: _____

Instrument ID Number: AA20 Method: BH

Start Date: 6-7-91 End Date: 6-7-91

EPA Sample No.	D/F	Time	% R	Analytes																						
				AL	SB	AS	BA	BE	CD	CA	CR	CO	CU	FE	PB	MG	MN	HG	NI	K	SE	AG	NA	TL	V	ZN	CN
S 0.00	1.00	1045																			X						
S 3.00	1.00	1047																									
S 5.00	1.00	1048																									
S 7.00	1.00	1050																									
S 10.00	1.00	1052																									
IV	1.00	1054																									
ICB	1.00	1056																									
LCSW	1.00	1058																									
PBW	1.00	1100																									
ZZZZZ	5.00	1102																									
CRA	1.00	1104																									
20-1G106S-WO	5.00	1106																									
20-1G106S-WOD	5.00	1108																									
20-1-G106S-WO-DA	5.00	1110																									
CCV	1.00	1112																									
CCB	1.00	1114																									
ZZZZZ	5.00	1116																									
ZZZZZ	5.00	1118																									
ZZZZZ	5.00	1120																									
ZZZZZ	5.00	1122																									
ZZZZZ	5.00	1124																									
ZZZZZ	5.00	1126																									
ZZZZZ	5.00	1128																									
ZZZZZ	5.00	1130																									
ZZZZZ	5.00	1132																									
ZZZZZ	5.00	1134																									
ZZZZZ	5.00	1136																									
ZZZZZ	5.00	1138																									
ZZZZZ	5.00	1140																									
ZZZZZ	5.00	1142																									
ZZZZZ	5.00	1144																									
ZZZZZ	5.00	1146																									
ZZZZZ	5.00	1148																			X						

ANALYSIS RUN LOG

Lab Name: ARDL INC Contract: 111928

Lab Code: _____ Case No.: _____ SAS No.: _____ SDG No.: _____

Instrument ID Number: AA20 Method: BH

Start Date: 6-7-91 End Date: 6-7-91

EPA Sample No.	D/F	Time	% R	Analytes																						
				AL	SB	AS	BA	BE	CD	CA	CR	CO	CU	FE	PB	MG	MN	HG	NI	K	SE	AG	NA	TL	V	ZN
22222	5.00	1150																			X					
22222	5.00	1152																			X					

ANALYSIS RUN LOG

Lab Name: ARDL, INC. Contract: 111928

Lab Code: _____ Case No.: _____ SAS No.: _____ SDG No.: _____

Instrument ID Number: AA 20 Method: P

Start Date: 6-10-91 End Date: 6-10-91

EPA Sample No.	D/F	Time	% R	Analytes																					
				AL	SB	AS	BA	BE	CD	CA	CR	CO	CU	FE	PB	MG	MN	HG	NI	K	SE	AG	NA	TL	V	ZN
SD	1.00	1400																				X				
S50	1.00	1401																								
S100	1.00	1402																								
S200	1.00	1403																								
S500	1.00	1404																								
ICV	1.00	1405																								
ICB	1.00	1406																								
CRA	1.00	1407																								
ZZZZZ	1.00	1408																								
LCS	10.00	1409																								
PBLK	1.00	1410																								
WICPI	1.00	1411																								
LD-16106S-1.00	1.00	1412																								
LD-16106S-1.00D	1.00	1413																								
LD-16106S-1.00S	1.00	1414																								
CCV	1.00	1415																								
CCB	1.00	1416																								
ZZZZZ	1.00	1417																								
ZZZZZ	1.00	1418																								
ZZZZZ	1.00	1419																								
ZZZZZ	1.00	1420																								
ZZZZZ	1.00	1421																				X				

ANALYSIS RUN LOG

Lab Name: ARDL, Inc. Contract: 111928

Lab Code: _____ Case No.: _____ SAS No.: _____ SDG No.: _____

Instrument ID Number: AA300 Method: Flame

Start Date: 6/6/91 End Date: 6/6/91

EPA Sample No.	D/F	Time	% R	Analytes																					
				AL	SB	AS	BA	BE	CD	CA	CR	CO	CU	FE	PB	MG	MN	HG	NI	K	SE	AG	NA	TL	VN	ZN
S0.00	1.00	16:30																					X			
S5.00	1.00	16:32																								
S10.00	1.00	16:34																								
S15.00	1.00	16:36																								
S20.00	1.00	16:38																								
ICV	1.00	16:40																								
ICB	1.00	16:42																								
CRA	1.00	16:44																								
LCS	1.00	16:46																								
DBLK	1.00	16:48																								
ZZZZZ	1.00	16:50																								
LD-16065-WO	1.00	16:52																								
LD-16065-WOD	1.00	16:54																								
CCV	1.00	16:56																								
CCB	1.00	16:58																					X			

ANALYSIS RUN LOG

Lab Name: ARDL, INC. Contract: 111928

Lab Code: _____ Case No.: _____ SAS No.: _____ SDG No.: _____

Instrument ID Number: AA300 Method: F

Start Date: 6/6/91 End Date: 6/6/91

EPA Sample No.	D/F	Time	% R	Analytes																						
				AL	SB	AS	BA	BE	CD	CA	CR	CO	CU	FE	PB	MG	MN	HG	NI	K	SE	AG	NA	TL	V	ZN
500.00	1.00	0930																						X		
510.00	1.00	0935																								
520.00	1.00	0940																								
525.00	1.00	0945																								
540.00	1.00	0950																								
ICV	1.00	0955																								
ICB	1.00	1000																								
CRA	1.00	1005																								
LCS	1.00	1010																								
LCSA	1.00	1015	103																							
PBLK	1.00	1020																								
PBLKA	1.00	1025	94																							
ZZZZZ	1.00	1030																								
ZZZZZ	1.00	1035																								
CCV	1.00	1040																								
CCB	1.00	1045																								
LO-IG1065-LO	1.00	1050																								
LO-IG1065-LOA	1.00	1055	57																							
LO-IG1065-LOD	1.00	1100																								
LO-IG1065-LOA	1.00	1105	57																							
LO-IG1065-LOB	1.00	1110																								
CCV	1.00	1115																								
CCB	1.00	1120																						X		

SECTION 5

PROJECT CASE NARRATIVES AND CHAIN-OF-CUSTODIES

ORGANIC ANALYSIS DATA PACKAGE

ERM - NORTH CENTRAL, INC. Date: 6/04/91
ORGANIC ANALYSIS DATA PACKAGE

Lab Name: ARDL, Inc. ARDL Report No.: 111897

W.O. No.: 0252 Facility Name: Lenz Oil

CASE NARRATIVE

ERM ID No.	Lab ID No.	VOA Analysis Date	Semi-Volatiles Extr. Date	Semi-Volatiles Analysis Date	Pesticide/PCB Extr Date	Pesticide/PCB Analysis Date
LO-1G102D-GW	111897-1	05/12/91	05/10/91	06/04/91	05/10/91	05/17/91
LO-1G102D-GWMS	111897-1MS	05/14/91	05/10/91	05/22/91	05/10/91	05/30/91
LO-1G102D-GWMSD	111897-1MSD	05/14/91	05/10/91	05/22/91	05/10/91	05/30/91
LO-1G102L-GW	111897-2	05/12/91	05/10/91	06/04/91	05/10/91	05/17/91
LO-1G101D-GW	111897-3	05/12/91	05/10/91	06/04/91	05/10/91	05/17/91
LO-1G101W-GW	111897-4	05/12/91	05/10/91	06/04/91	05/10/91	05/17/91
LO-1G101L-GW	111897-5	05/12/91	05/10/91	05/22/91	05/10/91	05/17/91
LO-1G101L-GWRE	111897-5RE		05/10/91	05/23/91		
LO-1MW01D-GW	111897-6	05/13/91	05/10/91	05/22/91	05/10/91	05/21/91
LO-1MW01S-GW	111897-7	05/12/91	05/10/91	05/22/91	05/10/91	05/21/91
LO-1MW03S-GW	111897-8	05/12/91	05/10/91	05/22/91	05/10/91	05/21/91
LO-1MW03S-GWRE	111897-8RE	05/13/91				
LO-1MW03D-GW	111897-9	05/12/91	05/10/91	05/22/91	05/10/91	05/22/91
LO-1MW03D-GWRE	111897-9RE	05/13/91				
LO-1MW03S-FD	111897-10	05/12/91	05/10/91	05/22/91	05/10/91	05/22/91
LO-1MW03S-FDRE	111897-10RE	05/13/91				
LO-1GW1-FB	111897-11	05/12/91	05/10/91	05/22/91	05/10/91	05/22/91
LO-1GW1-FBRE	111897-11RE	05/13/91				
LO-GW6-TB	111897-12	05/12/91				
LO-GW6-TBRE	111897-12RE	05/13/91				
	BLK 5/12/91	05/12/91				
	BLK 5/13/91	05/13/91				
	BLK 5/14/91	05/14/91				
	BLANK B1339		05/10/91	06/04/91		
	111897-B1338				05/10/91	05/17/91

ORGANIC ANALYSIS DATA PACKAGE

ERM - NORTH CENTRAL, INC. Date: 6/04/91
ORGANIC ANALYSIS DATA PACKAGE

Lab Name: ARDL, Inc. ARDL Report No.: 111897

W.O. No.: 0252 Facility Name: Lenz Oil

CASE NARRATIVE

Dick Kuetain 618-244-3235.

VOLATILE FRACTION

Twelve (12) water samples were received by ARDL on May 7, 1991, for VOA analysis by GC/MS. All samples were analyzed according to low level protocol.

ERM Sample Numbers LO-1MW03S-GW, LO-1MW03D-GW, LO-1MW3S-FD, LO-1GW1-FB, and LO-GW6-TB failed surrogate recovery criteria initially and during reanalysis. Both sets of data have been submitted. The reanalyses of ERM Sample Numbers LO-1MW03S-GW and LO-1MW3S-FD failed internal standard area criteria but were not reevaluated because they confirmed previous surrogate failures.

No other problems were encountered during the analysis of these samples.

SEMIVOLATILE FRACTION

Eleven (11) water samples were received by ARDL on May 7, 1991, for VOA analysis by GC/MS. All samples were extracted and analyzed according to low level protocol.

ERM Sample Number LO-1G101L-GW failed surrogate recovery criteria during the initial analysis and reanalysis. Results of both analyses are included herein.

No other problems were encountered during the analysis of these samples.

PESTICIDE/PCB FRACTION

Eleven (11) water samples were received for Pesticide/PCB analysis. The samples were extracted and concentrated per protocol. No problems were encountered in the extraction process.

Surrogate and MS/MSD recovery results were acceptable.

No problems were encountered in the analysis of these samples.

ERM - NORTH CENTRAL, INC. Date: 6/04/91
ORGANIC ANALYSIS DATA PACKAGE

Lab Name: ARDL, Inc. ARDL Report No.: 111897

W.O. No.: 0252 Facility Name: Lenz Oil

CASE NARRATIVE (Continued)

ORGANIC DATA REPORTING QUALIFIERS

The following organic data reporting qualifiers are used as required.

U - Indicates compound was analyzed for but not detected. The sample quantitation limit must be corrected for dilution and for percent moisture.

J - Indicates an estimated value. This flag is used either when estimating a concentration for TICs where a 1:1 response is assumed, or when the mass spectral data indicate the presence of a compound that meets the identification criteria but the result is less than the CRDL.

C - This flag applies to pesticide results where the identification has been confirmed by GC/MS. Single component pesticides greater than or equal to 10 ng/ul in the final extract shall be confirmed by GC/MS.

B - This flag is used when the analyte is found in the blank as well as the sample. This flag must by used for a TIC as well as for a positively identified TCL compound.

E - This flag identifies compounds whose concentrations exceed the calibration range of the instrument for that specific analysis. If one or more compounds have a response greater than full scale, the sample or extract must be diluted and re-analyzed. All such compounds with a response greater than full scale should have the concentration flagged with an "E" on the Form 1 for the original analysis. If the dilution of the extract causes any compounds identified in the first analysis to be below the calibration range in the second analysis, then the results of both analyses shall be reported on separate Forms 1. The Form 1 for the diluted sample shall have the "DL" suffix appended to the lab sample number and the EPA sample number.

ERM - NORTH CENTRAL, INC. Date: 6/04/91
ORGANIC ANALYSIS DATA PACKAGE

Lab Name: ARDL, Inc. ARDL Report No.: 111897

W.O. No.: 0252 Facility Name: Lenz Oil

CASE NARRATIVE (Continued)

ORGANIC DATA REPORTING QUALIFIERS (Continued)

D - This flag identifies all compounds identified in an analysis at a secondary dilution factor. If a sample or extract is reanalyzed at a higher dilution factor, as in the "E" flag above, the "DL" suffix is appended to the sample numbers (both lab and EPA) on the Form 1 for the diluted sample, and all concentration values reported on that Form 1 are flagged with the "D" flag.

Release of the data contained in this package has been authorized by the Technical Services Manager or his designee as verified by the following signature.

Daniel J. Gillespie
Technical Services Manager

ORGANIC ANALYSIS DATA PACKAGE

ERM - NORTH CENTRAL, INC. Date: 6/04/91
ORGANIC ANALYSIS DATA PACKAGE

Lab Name: ARDL, Inc. ARDL Report No.: 111897

W.O. No.: 0252 Facility Name: Lenz Oil

SAMPLE SUMMARY

IEPA NUMBER	ARDL NUMBER	LEVEL LOW	LEVEL MED	FRACTION VOA	FRACTION BNA	FRACTION PEST	FRACTION PCB	MS/ MSD	RPT	COMMENTS
LO-1G102D-GW	111897-1	X		X	X	X	X			
LO-1G102D-GWMS	111897-1MS	X		X	X	X	X	X		
LO-1G102D-GWMSD	111897-1MSD	X		X	X	X	X	X		
LO-1G102L-GW	111897-2	X		X	X	X	X			
LO-1G101D-GW	111897-3	X		X	X	X	X			
LO-1G101W-GW	111897-4	X		X	X	X	X			
LO-1G101L-GW	111897-5	X		X	X	X	X			
LO-1G101L-GWRE	111897-5RE	X			X				X	
LO-1MW01D-GW	111897-6	X		X	X	X	X			
LO-1MW01S-GW	111897-7	X		X	X	X	X			
LO-1MW03S-GW	111897-8	X		X	X	X	X			
LO-1MW03S-GWRE	111897-8RE	X		X					X	
LO-1MW03D-GW	111897-9	X		X	X	X	X			
LO-1MW03D-GWRE	111897-9RE	X		X					X	
LO-1MW3S-FD	111897-10	X		X	X	X	X			
LO-1MW3S-FDRE	111897-10RE	X		X					X	
LO-1GW1-FB	111897-11	X		X	X	X	X			
LO-1GW1-FBRE	111897-11RE	X		X					X	
LO-GW6-TB	111897-12	X		X						
LO-GW6-TBRE	111897-12RE	X		X					X	
	BLK 5/12/91	X		X						METHOD BLK
	BLK 5/13/91	X		X						METHOD BLK
	BLK 5/14/91	X		X						METHOD BLK
	BLANK B1339	X			X					METHOD BLK
	111897-B1338	X				X	X			METHOD BLK

ORGANIC ANALYSIS DATA PACKAGE

ERM - NORTH CENTRAL, INC. Date: 6/05/91
ORGANIC ANALYSIS DATA PACKAGE

Lab Name: ARDL, Inc. ARDL Report No.: 111908

W.O. No.: 0252 Facility Name: Lenz Oil

CASE NARRATIVE

ERM ID No.	Lab ID No.	VOA Analysis Date	Semi-Volatiles Extr. Date	Semi-Volatiles Analysis Date	Pesticide/PCB Extr Date	Pesticide/PCB Analysis Date
LO-1MW04D-GW	111908-1	05/14/91	05/10/91	05/23/91	05/10/91	05/17/91
LO-1G104D-GW	111908-2	05/14/91	05/10/91	05/23/91	05/10/91	05/17/91
LO-1G104D-GWMS	111908-2MS	06/04/91				
LO-1G104D-GWMSD	111908-2MSD	06/04/91				
LO-1GW2-FB	111908-3	05/14/91	05/10/91	05/23/91	05/10/91	05/17/91
LO-1MW07D-GW	111908-4	05/14/91	05/10/91	05/23/91	05/10/91	05/17/91
LO-1MW07S-GW	111908-5	05/14/91	05/10/91	05/23/91	05/10/91	05/17/91
LO-1MW02D-GW	111908-6	05/14/91	05/10/91	06/04/91	05/10/91	05/20/91
LO-1MW05S-GW	111908-7	05/17/91	05/10/91	05/27/91	05/10/91	05/22/91
LO-1MW05S-GWRE	111908-7RE		05/10/91	05/30/91		
LO-1G105S-FD	111908-8	05/17/91	05/10/91	05/30/91	05/10/91	05/22/91
LO-1G105S-FDDL	111908-8DL		05/10/91	05/31/91		
LO-1G105S-FDRE	111908-8RE	05/17/91	05/10/91	05/30/91		
LO-1G104L-GW	111908-9	05/14/91	05/10/91	06/04/91	05/10/91	05/20/91
LO-1MW05D-GR	111908-10	05/14/91	05/10/91	06/04/91	05/10/91	05/20/91
LO-1G106DR-GW	111908-11	05/21/91	05/10/91	06/04/91	05/10/91	05/20/91
LO-G106DR-MS/MSD	111908-12	05/17/91	05/10/91	06/04/91	05/10/91	06/04/91
LO-G106DR-MS/MSDMS	111908-12MS		05/10/91	05/27/91	05/10/91	05/20/91
LO-G106DR-MS/MSDMSD	111908-12MSD		05/10/91	05/27/91	05/10/91	06/04/91
LO-1GW-TB1	111908-13	05/21/91				
	BLK 5/14/91	05/14/91				
	BLK 5/16/91	05/16/91				
	BLK 5/17/91	05/17/91				
	BLK 5/21/91	05/21/91				
	BLK 6/03/91	06/03/91				
	BLANK B1341		05/10/91	05/23/91		
	111908-B1340				05/10/91	05/17/91

1MW052

ORGANIC ANALYSIS DATA PACKAGE

ERM - NORTH CENTRAL, INC. Date: 6/05/91
ORGANIC ANALYSIS DATA PACKAGE

Lab Name: ARDL, Inc. ARDL Report No.: 111908

W.O. No.: 0252 Facility Name: Lenz Oil

CASE NARRATIVE

VOLATILE FRACTION

Thirteen (13) water samples were received by ARDL on May 8, 1991, for VOA analysis by GC/MS. All samples were analyzed according to low level protocol.

ERM Sample Number LO-1MW05S-GW and LO-1G105S-FC were analyzed at a 1:10 concentration due to matrix interferences. ERM Sample Number LO-1G105S-FD failed internal standard area criteria and surrogate recovery criteria initially and during reanalysis. Both sets of data have been submitted.

No other problems were encountered during the analysis of these samples.

SEMIVOLATILE FRACTION

Twelve (12) water samples were received by ARDL on May 8, 1991, for BNA analysis by GC/MS. The samples were extracted and analyzed according to low level protocol.

Due to sample matrix, ERM Sample Numbers LO-1MW05S-GW and LO-1G105S-FD were concentrated to a final volume of 10 mL instead of the standard 1 mL. This factor has been taken into account in all applicable calculations.

ERM Sample Numbers LO-1MW05S-GW and LO-1G105S-FD failed surrogate recovery criteria during the initial analysis and reanalysis. Results of both analyses of each sample are included herein.

ERM Sample Number LO-1G105S-FD had target compounds that exceeded the standardized linearity. Therefore, a 1:50 dilution was performed on this sample. Results of all analyses are included herein.

No other problems were encountered in the analysis of these samples.

ERM - NORTH CENTRAL, INC. Date: 6/05/91
ORGANIC ANALYSIS DATA PACKAGE

Lab Name: ARDL, Inc. ARDL Report No.: 111908

W.O. No.: 0252 Facility Name: Lenz Oil

CASE NARRATIVE (Continued)

PESTICIDE/PCB FRACTION

Twelve (12) water samples were received for Pesticide/PCB analysis. The samples were extracted and concentrated per SOW. No problems were encountered in the extraction or concentration of these samples.

ERM Sample Numbers LO-1MW05S-GW and LO-1G105S-FD were identified and confirmed as containing the target Aroclors 1248 and 1260. Both samples required dilutions due to the matrix effects and presence of these two target compounds.

During the closing of two of the sequences used in confirmation, some of the individual A and B standard compounds did not fall within their retention time windows.

No additional problems were encountered in the analysis of these samples.

ORGANIC DATA REPORTING QUALIFIERS

The following organic data reporting qualifiers are used as required.

U - Indicates compound was analyzed for but not detected. The sample quantitation limit must be corrected for dilution and for percent moisture.

J - Indicates an estimated value. This flag is used either when estimating a concentration for TICs where a 1:1 response is assumed, or when the mass spectral data indicate the presence of a compound that meets the identification criteria but the result is less than the CRDL.

C - This flag applies to pesticide results where the identification has been confirmed by GC/MS. Single component pesticides greater than or equal to 10 ng/ul in the final extract shall be confirmed by GC/MS.

B - This flag is used when the analyte is found in the blank as well as the sample. This flag must by used for a TIC as well as for a positively identified TCL compound.

ERM - NORTH CENTRAL, INC. Date: 6/05/91
ORGANIC ANALYSIS DATA PACKAGE

Lab Name: ARDL, Inc. ARDL Report No.: 111908

W.O. No.: 0252 Facility Name: Lenz Oil

CASE NARRATIVE (Continued)

ORGANIC DATA REPORTING QUALIFIERS (Continued)

E - This flag identifies compounds whose concentrations exceed the calibration range of the instrument for that specific analysis. If one or more compounds have a response greater than full scale, the sample or extract must be diluted and re-analyzed. All such compounds with a response greater than full scale should have the concentration flagged with an "E" on the Form 1 for the original analysis. If the dilution of the extract causes any compounds identified in the first analysis to be below the calibration range in the second analysis, then the results of both analyses shall be reported on separate Forms 1. The Form 1 for the diluted sample shall have the "DL" suffix appended to the lab sample number and the EPA sample number.

D - This flag identifies all compounds identified in an analysis at a secondary dilution factor. If a sample or extract is reanalyzed at a higher dilution factor, as in the "E" flag above, the "DL" suffix is appended to the sample numbers (both lab and EPA) on the Form 1 for the diluted sample, and all concentration values reported on that Form 1 are flagged with the "D" flag.

Release of the data contained in this package has been authorized by the Technical Services Manager or his designee as verified by the following signature.

Daniel J. Gillespie
Technical Services Manager

ORGANIC ANALYSIS DATA PACKAGE

ERM - NORTH CENTRAL, INC.
ORGANIC ANALYSIS DATA PACKAGE

Date: 6/05/91

Lab Name: ARDL, Inc.

ARDL Report No.: 111908

W.O. No.: 0252

Facility Name: Lenz Oil

SAMPLE SUMMARY

IEPA NUMBER	ARDL NUMBER	LEVEL LOW	LEVEL MED	FRACTION VOA	FRACTION BNA	FRACTION PEST	FRACTION PCB	MS/ MSD	RPT	COMMENTS
LO-1MW04D-GW	111908-1	X		X	X	X	X			
LO-1G104D-GW	111908-2	X		X	X	X	X			
LO-1G104D-GWMS	111908-2MS	X		X				X		
LO-1G104D-GWMSD	111908-2MSD	X		X				X		
LO-1GW2-FB	111908-3	X		X	X	X	X			
LO-1MW07D-GW	111908-4	X		X	X	X	X			
LO-1MW075-GW	111908-5	X		X	X	X	X			
LO-1MW02D-GW	111908-6	X		X	X	X	X			
LO-1MW05S-GW	111908-7	X		X		X	X			
LO-1MW05S-GW	111908-7	X			X					1:10 DIL
LO-1MW05S-GWRE	111908-7RE	X			X					1:10 DIL
LO-1G105S-FD	111908-8	X		X		X	X			
LO-1G105S-FD	111908-8	X			X					1:10 DIL
LO-1G105S-FDDL	111908-8DL	X			X					1:50 DIL
LO-1G105S-FDRE	111908-8RE	X		X					X	
LO-1G105S-FDRE	111908-8RE	X			X					1:10 DIL
LO-1G104L-GW	111908-9	X		X	X	X	X			
LO-1MW05D-GR	111908-10	X		X	X	X	X			
LO-1G106DR-GW	111908-11	X		X	X	X	X			
LO-G106DR-MS/MSD	111908-12	X		X	X	X	X			
LO-G106DR-MS/MSDMS	111908-12MS	X			X	X	X	X		
LO-G106DR-MS/MSDMSD	111908-12MSD	X			X	X	X	X		
LO-1GW-TB1	111908-13	X		X	X					
	BLK 5/14/91	X		X						METHOD BLK
	BLK 5/16/91	X		X						METHOD BLK
	BLK 5/17/91	X		X						METHOD BLK
	BLK 5/21/91	X		X						METHOD BLK
	BLK 6/03/91	X		X						METHOD BLK
	BLANK B1341	X			X					METHOD BLK
	111908-B1340	X				X	X			METHOD BLK

ORGANIC ANALYSIS DATA PACKAGE

ERM - NORTH CENTRAL, INC. Date: 6/08/91
ORGANIC ANALYSIS DATA PACKAGE

Lab Name: ARDL, Inc. ARDL Report No.: 111918

W.O. No.: 0252 Facility Name: Lenz Oil

CASE NARRATIVE

ERM ID No.	Lab ID No.	VOA Analysis Date	Semi-Volatiles Extr. Date	Semi-Volatiles Analysis Date	Pesticide/PCB Extr Date	Pesticide/PCB Analysis Date
LO-1MW06D-GW	111918-1	05/22/91	05/14/91	05/29/91	05/14/91	05/21/91
LO-1MW06D-GWRE	111918-1RE		05/14/91	05/31/91		
LO-1MW04S-FD	111918-2	05/22/91	05/14/91	05/30/91	05/14/91	05/21/91
LO-1MW04S-FDMS	111918-2MS	06/04/91				
LO-1MW04S-FDMSD	111918-2MSD	06/04/91				
LO-1MW02S-GW	111918-3	05/22/91	05/14/91	05/30/91	05/14/91	05/21/91
LO-1GW3-FB	111918-4	05/22/91	05/14/91	05/30/91	05/14/91	05/29/91
LO-1MW06S-GW	111918-5	05/22/91	05/14/91	05/31/91	05/14/91	05/21/91
LO-1MW04S-GW	111918-6	05/22/91	05/14/91	05/31/91	05/14/91	05/21/91
LO-1MW04S-GWRE	111918-6RE	05/28/91				
LO-1MW02S-MS/MSD	111918-7	05/22/91	05/14/91	05/31/91	05/14/91	05/22/91
LO-1MW02S-MS/MSDMS	111918-7MS		05/14/91	05/31/91	05/14/91	05/21/91
LO-1MW02S-MS/MSDMSD	111918-7MSD		05/14/91	05/31/91	05/14/91	05/21/91
LO-1GW-TB2	111918-8	05/22/91				
	BLK 5/22/91 (HP-2)	05/22/91				
	BLK 5/22/91 (HP-4)	05/22/91				
	BLK 5/28/91	05/28/91				
	BLK 6/03/91	06/03/91				
	BLANK B1349		05/14/91	05/29/91		
PBLK 1348	111918-B1348				05/14/91	05/21/91

ORGANIC ANALYSIS DATA PACKAGE

ERM - NORTH CENTRAL, INC.
ORGANIC ANALYSIS DATA PACKAGE

Date: 6/08/91

Lab Name: ARDL, Inc.

ARDL Report No.: 111918

W.O. No.: 0252

Facility Name: Lenz Oil

CASE NARRATIVE

VOLATILE FRACTION

Eight (8) water samples were received on May 9, 1991 for VOA analysis by GC/MS. All samples were analyzed according to low level protocol.

Sample LO-1MW04S-GW analyzed on June 22, 1991 failed surrogate recovery criteria, however, surrogate recovery results were acceptable in the reanalysis. Both sets of data have been submitted.

No other problems were encountered during the analysis of these samples.

SEMIVOLATILE FRACTION

Seven (7) water samples were received on May 9, 1991 for BNA extraction and analysis by GC/MS. All samples were analyzed according to low level protocol.

Sample LO-1MW06D-GW failed surrogate recovery criteria initially and during reanalysis. Both sets of data have been submitted.

Sample LO-1MW02S-GW failed internal standard criteria initially and during reanalysis. Both sets of data have been submitted.

No other problems were encountered in the analysis of these samples.

PESTICIDE/PCB FRACTION

Seven (7) water samples were received for Pesticide/PCB analysis. The samples were extracted and concentrated per SOW. No problems were encountered during the extraction process.

No problems were encountered in the analysis of these samples.

ERM - NORTH CENTRAL, INC. Date: 6/08/91
ORGANIC ANALYSIS DATA PACKAGE

Lab Name: ARDL, Inc. ARDL Report No.: 111918

W.O. No.: 0252 Facility Name: Lenz Oil

CASE NARRATIVE (Continued)

ORGANIC DATA REPORTING QUALIFIERS

The following organic data reporting qualifiers are used as required.

U - Indicates compound was analyzed for but not detected. The sample quantitation limit must be corrected for dilution and for percent moisture.

J - Indicates an estimated value. This flag is used either when estimating a concentration for TICs where a 1:1 response is assumed, or when the mass spectral data indicate the presence of a compound that meets the identification criteria but the result is less than the CRDL.

C - This flag applies to pesticide results where the identification has been confirmed by GC/MS. Single component pesticides greater than or equal to 10 ng/ul in the final extract shall be confirmed by GC/MS.

B - This flag is used when the analyte is found in the blank as well as the sample. This flag must by used for a TIC as well as for a positively identified TCL compound.

E - This flag identifies compounds whose concentrations exceed the calibration range of the instrument for that specific analysis. If one or more compounds have a response greater than full scale, the sample or extract must be diluted and re-analyzed. All such compounds with a response greater than full scale should have the concentration flagged with an "E" on the Form 1 for the original analysis. If the dilution of the extract causes any compounds identified in the first analysis to be below the calibration range in the second analysis, then the results of both analyses shall be reported on separate Forms 1. The Form 1 for the diluted sample shall have the "DL" suffix appended to the lab sample number and the EPA sample number.

ORGANIC ANALYSIS DATA PACKAGE

ERM - NORTH CENTRAL, INC. Date: 6/08/91
ORGANIC ANALYSIS DATA PACKAGE

Lab Name: ARDL, Inc. ARDL Report No.: 111918

W.O. No.: 0252 Facility Name: Lenz Oil

CASE NARRATIVE (Continued)

ORGANIC DATA REPORTING QUALIFIERS (Continued)

D - This flag identifies all compounds identified in an analysis at a secondary dilution factor. If a sample or extract is reanalyzed at a higher dilution factor, as in the "E" flag above, the "DL" suffix is appended to the sample numbers (both lab and EPA) on the Form 1 for the diluted sample, and all concentration values reported on that Form 1 are flagged with the "D" flag.

Release of the data contained in this package has been authorized by the Technical Services Manager or his designee as verified by the following signature.

Daniel J. Gillespie
Technical Services Manager

ORGANIC ANALYSIS DATA PACKAGE

ERM - NORTH CENTRAL, INC. Date: 6/08/91
ORGANIC ANALYSIS DATA PACKAGE

Lab Name: ARDL, Inc. ARDL Report No.: 111918

W.O. No.: 0252 Facility Name: Lenz Oil

SAMPLE SUMMARY

IEPA NUMBER	ARDL NUMBER	LEVEL LOW	LEVEL MED	FRACTION VOA	FRACTION BNA	FRACTION PEST	FRACTION PCB	MS/ MSD	RPT	COMMENTS
LO-1MW06D-GW	111918-1	X		X	X	X	X			
LO-1MW06D-GWRE	111918-1RE	X			X				X	
LO-1MW04S-FD	111918-2	X		X	X	X	X			
LO-1MW04S-FDMS	111918-2MS	X		X				X		
LO-1MW04S-FDMSD	111918-2MSD	X		X				X		
LO-1MW02S-GW	111918-3	X		X	X	X	X			
LO-1GW3-FD	111918-4	X		X	X	X	X			
LO-1MW06S-GW	111918-5	X		X	X	X	X			
LO-1MW04S-GW	111918-6	X		X	X	X	X			
LO-1MW04S-GWRE	111918-6RE	X		X					X	
LO-1MW02S-MS/MSD	111918-7	X		X	X	X	X			
LO-1MW02S-MS/MSDMS	111918-7MS	X			X	X	X	X		
LO-1MW02S-MS/MSDMSD	111918-7MSD	X			X	X	X	X		
LO-1GW-TB2	111918-8	X		X						
	BLK 5/22/91 (HP-2)	X		X						METHOD BLK
	BLK 5/22/91 (HP-4)	X		X						METHOD BLK
	BLK 5/28/91	X		X						METHOD BLK
	BLK 6/03/91	X		X						METHOD BLK
	BLANK B1349	X			X					METHOD BLK
PBLK 1348	111918-B1348	X				X	X			METHOD BLK

ORGANIC ANALYSIS DATA PACKAGE

ERM - NORTH CENTRAL, INC. Date: 6/17/91
ORGANIC ANALYSIS DATA PACKAGE

Lab Name: ARDL, Inc. ARDL Report No.: 111928

W.O. No.: 0252 Facility Name: Lenz Oil

CASE NARRATIVE

Sample ID No.	Lab ID No.	Pesticide/PCB Extr. Date	Pesticide/PCB Analysis Date
LO-1G106S-WO	111928-1	05/21/91	05/29/91
LO-1G106S-WOMS	111928-1MS	05/21/91	05/30/91
LO-1G106S-WOMSD	111928-1MSD	05/21/91	05/30/91
PBLK 1365	111928-B1365	05/21/91	05/29/91

ORGANIC ANALYSIS DATA PACKAGE

ERM - NORTH CENTRAL, INC. Date: 6/17/91
ORGANIC ANALYSIS DATA PACKAGE

Lab Name: ARDL, Inc. ARDL Report No.: 111928

W.O. No.: 0252 Facility Name: Lenz Oil

CASE NARRATIVE

Sample ID No.	Lab ID No.	Volatiles Analysis Date	Semi-Volatiles Extr. Date	Semi-Volatiles Analysis Date
LO-1G106S-WO	111928-1	05/23/91		
LO-1G106S-WOMS	111928-1MS	06/04/91		
LO-1G106S-WOMSD	111928-1MSD	06/04/91		
LO-1G106S-WO	111928-1 (WATER)		05/21/91	06/11/91
LO-1G106S-WO	111928-1 (WASTE)		05/21/91	06/05/91
LO-1G106S-WODL	111928-1DL (WASTE)		05/21/91	06/11/91
LO-1G106S-WODLRE	111928-1DLRE (WASTE)		05/21/91	06/11/91
LO-1G106S-WOMS	111928-1MS (WASTE)		05/21/91	06/05/91
LO-1G106S-WOMSD	111928-1MSD (WASTE)		05/21/91	06/11/91
LO-1GW-TB3	111928-2	05/23/91		
	BLK 5/23/91	05/23/91		
	BLK 6/04/91	06/04/91		
	BLANK B1364 (WASTE)		05/21/91	06/10/91
	BLANK B1366 (WATER)		05/21/91	06/11/91

ORGANIC ANALYSIS DATA PACKAGE

ERM - NORTH CENTRAL, INC. Date: 6/17/91
ORGANIC ANALYSIS DATA PACKAGE

Lab Name: ARDL, Inc. ARDL Report No.: 111928

W.O. No.: 0252 Facility Name: Lenz Oil

CASE NARRATIVE

VOLATILE FRACTION

One (1) water and one (1) bi-layered sample was received on May 13, 1991 for VOA analysis by GC/MS. The samples were extracted and analyzed according to low level protocol.

ERM Sample Number LO-1G106S-WO had a thin layer of an oily substance on top of the water, however, there was an insufficient amount of this oily material to analyze separately. The sample required a 1:10 dilution for analysis.

ERM Sample Number LO-1G106S-WOMSD failed to meet internal standard recovery criteria for the fifth internal standard. The recovery was 49% and since the sample and MS both met this criteria, the MSD was not reanalyzed.

No other problems were encountered during the analysis of these samples.

SEMIVOLATILE FRACTION

One (1) bi-layered sample was received by ARDL on May 13, 1991, for BNA analysis by GC/MS. All analyses were per low level protocol.

The sample had a two layered matrix. The bottom layer was extracted as a water sample. The top layer appeared to be an oil, therefore, it was extracted by diluting the sample in methylene chloride. The sampe was then taken through GPC clean-up.

The oil layer had several target compounds that exceed standardized linearity criteria. The sample was then analyzed at a 1:5 dilution. Both analyses are included herein.

The initial analysis of the oil layer failed internal standard area criteria and surrogate recovery criteria. The matrix spike/matrix spike duplicate samples also failed these criteria with similar trends. Therefore, a reanalysis was not performed on the sample.

ERM - NORTH CENTRAL, INC. Date: 6/17/91
ORGANIC ANALYSIS DATA PACKAGE

Lab Name: ARDL, Inc. ARDL Report No.: 111928

W.O. No.: 0252 Facility Name: Lenz Oil

CASE NARRATIVE (Continued)

SEMIVOLATILE FRACTION (Continued)

The diluted extract of the oil layer sample also failed internal standard area criteria and surrogate recovery criteria during both the initial analysis and the reanalysis. Results of both analyses of the diluted sample are included.

No matrix spike/matrix spike duplicate samples were extracted for the water layer of this sample due to an insufficient amount of sample received.

No other problems were encountered during the analysis of these samples.

PESTICIDE/PCB FRACTION

One (1) water sample was received for Pesticide/PCB analysis. The sample was extracted and concentrated per protocol. The extract was then taken through GPC clean-up. The UV spectral data associated with this sample is submitted within the data package.

The chromatogram of the sample indicated a PCB-type pattern. The extract was tentatively identified as containing Aroclors 1242 and 1260. However, GC/MS confirmational analysis could not identify any Aroclor compound present. Because GC/MS did not confirm the presence of Aroclors, the peaks in the chromatograms that fell into retention time windows of target Pesticide compounds were reported if they were confirmed on both columns used in GC analysis.

As the sample contained substantial matrix effects, the surrogate compound, dibutylchlorendate (DBC), did not fall with the retention time windows established on either column used in the analysis. However, the standards used in the following calibrations were all within retention windows. The spiked compounds in the MS and MSD sample portions were also outside their retention windows. It is believed that matrix interferences caused these retention time shifts as no shift was seen in the blanks or standards associated with the sequences in which these samples were analyzed.

ERM - NORTH CENTRAL, INC. Date: 6/17/91
ORGANIC ANALYSIS DATA PACKAGE

Lab Name: ARDL, Inc. ARDL Report No.: 111928

W.O. No.: 0252 Facility Name: Lenz Oil

CASE NARRATIVE (Continued)

PESTICIDE/PCB FRACTION (Continued)

MS/MSD recovery results were high due to the interfering matrix effects of the sample extracts.

No additional problems were encountered in the analysis of these samples.

ORGANIC DATA REPORTING QUALIFIERS

The following organic data reporting qualifiers are used as required.

U - Indicates compound was analyzed for but not detected. The sample quantitation limit must be corrected for dilution and for percent moisture.

J - Indicates an estimated value. This flag is used either when estimating a concentration for TICs where a 1:1 response is assumed, or when the mass spectral data indicate the presence of a compound that meets the identification criteria but the result is less than the CRDL.

C - This flag applies to pesticide results where the identification has been confirmed by GC/MS. Single component pesticides greater than or equal to 10 ng/ul in the final extract shall be confirmed by GC/MS.

B - This flag is used when the analyte is found in the blank as well as the sample. This flag must by used for a TIC as well as for a positively identified TCL compound.

E - This flag identifies compounds whose concentrations exceed the calibration range of the instrument for that specific analysis. If one or more compounds have a response greater than full scale the sample or extract must be diluted and re-analyzed. All such compounds with a response greater than full scale should have the concentration flagged with an "E" on the Form 1 for the original analysis. If the dilution of the extract causes any compounds identified in the first analysis to be below the calibration range in the second analysis, then the results of both analyses shall be reported on separate Forms 1. The Form 1 for the diluted sample shall have the "DL" suffix appended to the lab sample number and the EPA sample number.

ERM - NORTH CENTRAL, INC.
ORGANIC ANALYSIS DATA PACKAGE

Date: 6/17/91

Lab Name: ARDL, Inc.

ARDL Report No.: 111928

W.O. No.: 0252

Facility Name: Lenz Oil

CASE NARRATIVE (Continued)

ORGANIC DATA REPORTING QUALIFIERS (Continued)

D - This flag identifies all compounds identified in an analysis at a secondary dilution factor. If a sample or extract is reanalyzed at a higher dilution factor, as in the "E" flag above, the "DL" suffix is appended to the sample numbers (both lab and EPA) on the Form 1 for the diluted sample, and all concentration values reported on that Form 1 are flagged with the "D" flag.

Release of the data contained in this package has been authorized by the Technical Services Manager or his designee as verified by the following signature.

Daniel J. Gillespie
Technical Services Manager

ORGANIC ANALYSIS DATA PACKAGE

ERM - NORTH CENTRAL, INC.
ORGANIC ANALYSIS DATA PACKAGE

Date: 6/17/91

Lab Name: ARDL, Inc.

ARDL Report No.: 111928

W.O. No.: 0252

Facility Name: Lenz Oil

SAMPLE SUMMARY

IEPA NUMBER	ARDL NUMBER	LEVEL LOW	LEVEL MED	FRACTION VOA	FRACTION BNA	FRACTION PEST	FRACTION PCB	MS/ MSD	DIL	COMMENTS
LO-1G106S-WO	111928-1	X		X					1:10	
LO-1G106S-WO	111928-1	X				X	X			
LO-1G106S-WOMS	111928-1MS	X		X				X	1:10	
LO-1G106S-WOMS	111928-1MS	X				X	X			
LO-1G106S-WOMSD	111928-1MSD	X		X				X	1:10	
LO-1G106S-WOMSD	111928-1MSD	X				X	X			
LO-1G106S-WO	111928-1	X			X					WATER
LO-1G106S-WO	111928-1	X			X					WASTE
LO-1G106S-WODL	111928-1DL	X			X				1:5	WASTE
LO-1G106S-WODLRE	111928-1DLRE	X			X				1:5	WASTE
LO-1G106S-WOMS	111928-1MS	X			X			X		WASTE
LO-1G106S-WOMSD	111928-1MSD	X			X			X		WASTE
LO-1GW-TB3	111928-2	X		X						
	BLK 5/23/91	X		X						METHOD BLK
	BLK 6/04/91	X		X						METHOD BLK
	BLANK B1364 (WASTE)	X			X					METHOD BLK
	BLANK B1366 (WATER)	X			X					METHOD BLK
PBLK 1365	111928-B1365	X				X	X			METHOD BLK

ILLINOIS ENVIRONMENTAL PROTECTION AGENCY
CONTRACT LABORATORY SERVICE
INORGANIC ANALYSES DATA PACKAGE

Date: 6-7-91

COVER PAGE

Lab Name: ARDL, Inc.
Site Inventory No.:
Region:

Q.C. Report No. 111908
Facility Name: (ERM) LENZ OIL
County:

SAMPLE NUMBERS

Sample Monitor Point Number	Lab ID Number	Sample Monitor Point Number	Lab ID Number
LO-1MW04D-GW	111908-1	LO-1MW05S-GW	111908-7
LO-1G104D-GW	111908-2	LO-1G105S-FD	111908-8
LO-1GW2-FB	111908-3	LO-1G104L-GW	111908-9
LO-1MW07D-GW	111908-4	LO-1MW05D-GW	111908-10
LO-1MW07S-GW	111908-5	LO-1G106DR-GW	111908-11
LO-1MW02D-GW	111908-6		

Comments:

ICP Interelement and background corrections applied? Yes X No

If yes, corrections applied before X or after generation of raw data.

Footnotes:
NR - Not required.

Chemical Analysis Form:

Method - Indicate method used with P (for ICP), A (for flame), F (for furnace), CV (for cold vapor), and BH (for borohydride).
B - Indicates element concentration between contract required detection limit and instrument detection limit.
U - Indicates element was analyzed for but not detected. Report the detection limit value (e.g., 10U).
E - Indicates a value estimated or not reported due to the presence or interference.
s - Indicates value determined by Method of Standard Addition.
N - Indicates spike sample recovery is not within control limits.
* - Indicates duplicate analysis is not within control limits.
+ - Indicates the correlation coefficient for method of standard addition is less than 0.995.

ILLINOIS ENVIRONMENTAL PROTECTION AGENCY
CONTRACT LABORATORY SERVICE
INORGANIC ANALYSES DATA PACKAGE

Date: 6-7-91

COVER PAGE (Continued)

Lab Name: ARDL, Inc.
Site Inventory No.:
Region:

Q.C. Report Number: 111908
Facility Name: (ERM) LENZ OIL
County:

CASE NARRATIVE

Eleven water samples were received 8 May 91 for analysis. Reques analyses included total cyanide, total metals and dissolved metals.

All samples were analyzed for cyanide within five days of validated time of sample receipt (VTSR) using the TRAACS 800 Auto Analyzer. All samples were reanalyzed eleven days later using the manual method. The data from both of these analytical runs is included in the raw data section of this report while only the data from the latter run has been entered on forms 1 through 13.

The level of the CRA standards were in most cases, lower than those specified in order to optimize instrument performance. The CRA standard for lead was twice the specified level. The CRI standard for antimony was 1.25 times the specified level.

In some instances the continuing calibration verification (CCV) standards were analyzed at intervals exceeding 120 minutes on the ICP. However, all CCV analyses were within the specified range, ARDL submits that the data are valid.

The matrix spike for total analyses on the ICP were inadvertently spiked at twice the required levels.

Release of the data contained in this package has been authorized by the Technical Services Manager or his designee as verified by the following signature.

Daniel J. Gillespie
Technical Services Manager

ILLINOIS ENVIRONMENTAL PROTECTION AGENCY
CONTRACT LABORATORY SERVICE
INORGANIC ANALYSES DATA PACKAGE

Date: 6-6-91

COVER PAGE

Lab Name: ARDL, Inc.
Site Inventory No.:
Region:

Q.C. Report No. 111897
Facility Name: (ERM) LENZ OIL
County:

SAMPLE NUMBERS

Sample Monitor Point Number	Lab ID Number	Sample Monitor Point Number	Lab ID Number
LO-1G102D-GW	111897-1	LO-1MW01S-GW	111897-7
LO-1G102L-GW	111897-2	LO-1MW03S-GW	111897-8
LO-1G101D-GW	111897-3	LO-1MW03D-GW	111897-9
LO-1G101M-GW	111897-4	LO-1MW03S-FD	111897-10
LO-1G101L-GW	111897-5	LO-1GW1-FB	111897-11
LO-1MW01D-GW	111897-6		

Comments:

ICP Interelement and background corrections applied? Yes X No

If yes, corrections applied before X or after generation of raw data.

Footnotes:
NR - Not required.

Chemical Analysis Form:

Method - Indicate method used with P (for ICP), A (for flame), F (for furnace), CV (for cold vapor), and BH (for borohydride).
B - Indicates element concentration between contract required detection limit and instrument detection limit.
U - Indicates element was analyzed for but not detected. Report the detection limit value (e.g., 10U).
E - Indicates a value estimated or not reported due to the presence or interference.
s - Indicates value determined by Method of Standard Addition.
N - Indicates spike sample recovery is not within control limits.
* - Indicates duplicate analysis is not within control limits.
+ - Indicates the correlation coefficient for method of standard addition is less than 0.995.

ILLINOIS ENVIRONMENTAL PROTECTION AGENCY
CONTRACT LABORATORY SERVICE
INORGANIC ANALYSES DATA PACKAGE

Date: 6-6-91

COVER PAGE (Continued)

Lab Name: ARDL, Inc.
Site Inventory No.: _____
Region: _____

Q.C. Report Number: 111897
Facility Name: (ERM) LENZ OIL
County: _____

CASE NARRATIVE

Eleven water samples were received 7 May 91 for analysis. Requested analyses included total cyanide, total metals and dissolved metals.

All samples were analyzed for cyanide within six days of validated time of sample receipt (VTSR) using the TRAACS 800 Auto Analyzer. All samples were reanalyzed ten days later using the manual method. The data from both of these analytical runs is included in the raw data section of this report while only the data from the latter run has been entered on forms 1 through 13.

The level of the CRA standards were in most cases, lower than those specified in order to optimize instrument performance. The CRA standard for lead was twice the specified level. The CRI standard for antimony was 1.25 times the specified level.

In some instances the continuing calibration verification (CCV) standards were analyzed at intervals exceeding 120 minutes. However, as all CCV analyses were within the specified range, ARDL submits that the data are valid.

Release of the data contained in this package has been authorized by the Technical Services Manager or his designee as verified by the following signature.

Daniel J. Gillespie
Daniel J. Gillespie
Technical Services Manager

ILLINOIS ENVIRONMENTAL PROTECTION AGENCY
CONTRACT LABORATORY SERVICE
INORGANIC ANALYSES DATA PACKAGE

Date: 6-7-91

COVER PAGE

Lab Name: ARDL, Inc.
Site Inventory No.: _____
Region: _____

Q.C. Report No. 111918
Facility Name: (ERM) LENZ OIL
County: _____

SAMPLE NUMBERS

Sample Monitor Point Number	Lab ID Number	Sample Monitor Point Number	Lab ID Number
LO-1MW06D-GW	111918-1	LO-1GW3-FB	111918-4
LO-1MW04S-FD	111918-2	LO-1MW06S-GW	111918-5
LO-1MW02S-GW	111918-3	LO-1MW04S-GW	111918-6

Comments: _____

ICP Interelement and background corrections applied? Yes X No ____

If yes, corrections applied before X or after ____ generation of raw data.

Footnotes:
NR - Not required.

Chemical Analysis Form:

Method - Indicate method used with P (for ICP), A (for flame), F (for furnace), CV (for cold vapor), and BH (for borohydride).
B - Indicates element concentration between contract required detection limit and instrument detection limit.
U - Indicates element was analyzed for but not detected. Report the detection limit value (e.g., 10U).
E - Indicates a value estimated or not reported due to the presence or interference.
S - Indicates value determined by Method of Standard Addition.
N - Indicates spike sample recovery is not within control limits.
* - Indicates duplicate analysis is not within control limits.
+ - Indicates the correlation coefficient for method of standard addition is less than 0.995.

ILLINOIS ENVIRONMENTAL PROTECTION AGENCY
CONTRACT LABORATORY SERVICE
INORGANIC ANALYSES DATA PACKAGE

Date: 6-7-91

COVER PAGE (Continued)

Lab Name: ARDL, Inc.
Site Inventory No.: _____
Region: _____

Q.C. Report Number: 111918
Facility Name: (ERM) LENZ OIL
County: _____

CASE NARRATIVE

Six water samples collected on 8 May 91 were received 9 May 91 for analysis. Requested analyses included total cyanide, total metals a dissolved metals.

All samples were analyzed for cyanide within four days of validated time of sample receipt (VTSR) using the TRAACS 800 Auto Analyzer. All samples were reanalyzed nine days later using the manual method. The data from both of these analytical runs is included in the raw data section of this report while only the data from the latter run has been entered on forms I through 13.

The level of the CRA standards were in most cases, lower than those specified in order to optimize instrument performance. The CRA standarc for lead was twice the specified level. The CRI standard for antimony was 1.25 times the specified level.

In some instances the continuing calibration verification (CCV) standards were analyzed at intervals exceeding 120 minutes. However, as all CCV analyses were within the specified range, ARDL submits that the data a valid.

Release of the data contained in this package has been authorized by the Technical Services Manager or his designee as verified by the following signature.

Daniel J. Gillespie
Technical Services Manager

ILLINOIS ENVIRONMENTAL PROTECTION AGENCY
CONTRACT LABORATORY SERVICE
INORGANIC ANALYSES DATA PACKAGE

Date: 6-13-91

COVER PAGE

Lab Name: ARDL, Inc.
Site Inventory No.: _____
Region: _____

Q.C. Report No. 111928
Facility Name: (ERM) LENZ OIL
County: _____

SAMPLE NUMBERS

Sample Monitor Point Number	Lab ID Number	Sample Monitor Point Number	Lab ID Number
LO-1G106S-WO	111928-1		

Comments: _____

ICP Interelement and background corrections applied? Yes X No ____

If yes, corrections applied before X or after ____ generation of raw data.

Footnotes:
NR - Not required.

Chemical Analysis Form:

Method - Indicate method used with P (for ICP), A (for flame), F (for furnace), CV (for cold vapor), and BH (for borohydride).
B - Indicates element concentration between contract required detection limit and instrument detection limit.
U - Indicates element was analyzed for but not detected. Report the detection limit value (e.g., 10U).
E - Indicates a value estimated or not reported due to the presence or interference.
s - Indicates value determined by Method of Standard Addition.
N - Indicates spike sample recovery is not within control limits.
* - Indicates duplicate analysis is not within control limits.
+ - Indicates the correlation coefficient for method of standard addition is less than 0.995.

ILLINOIS ENVIRONMENTAL PROTECTION AGENCY
CONTRACT LABORATORY SERVICE
INORGANIC ANALYSES DATA PACKAGE

Date: 6-13-91

COVER PAGE (Continued)

Lab Name: ARDL, Inc.
Site Inventory No.: _____
Region: _____

Q.C. Report Number: 111928
Facility Name: (ERM) LENZ OIL
County: _____

CASE NARRATIVE

One waste oil sample was received 13 May 91 for analysis. Requested analyses included total cyanide and total metals.

The level of the CRA standard for lead was 2.0 times the specified level. The level of the CRI for antimony was 1.25 times the specified level.

The matrix spikes on the ICP and flame digestion were inadvertently spiked at 1/2 the specified level.

Release of the data contained in this package has been authorized by the Technical Services Manager or his designee as verified by the following signature.

Daniel J. Gillespie
Technical Services Manager

ERM North Central, inc.

00-

Sample Chain of Custody

W.O.No.: 0052

Project Name: LENZ OIL

Sampler: DIRK KAISER

LOW CONC.

ERM Sample Number	Date	Time	COMP	GRAB	Station Location	Number of Containers	40ml VOA	1L A/B/N	1l PEST/PCB	1l DISSOL METALS	1l TOTAL METALS	1l CYANIDES	Remarks
													MATRIX
LO-1G102L-GW	5/6/91	1215		X	LO-1G102L-GW	10	2	3	2	1	1	1	WATER* bubble in 1 VOA vial
LO-1G102D-GW	5/6/91	1255		X	LO-1G102D-GW	3	—	3	—	—	—	—	WATER
													RUN FOR TAL & TCL LISTS
													DISSOLVED METALS FILTERED
													METALS PRESERVED w/ HNO_3
													CN^- PRESERVED w/ NaOH
													SHIPPED FED EX # 819462574
													TO ARDL

Sample Relinquished by:	Date	Time	Sample Received by:	Date	Time	Reason for Transfer
[signature]	5/6/91	19:30	[signature]	05/07/91	1000	received in lab

COPIES: White & Yellow copies accompany sample shipment to laboratory. Yellow copy retained by laboratory. White copy to be returned to ERM for files. Pink copy retained by sampler. Gold copy extra copy as needed

ERM North Central, inc.

0016

Sample Chain of Custody

W.O.No.: 0252 | Project Name: Lenz Oil

Sampler: Dirk Kaiser

ERM Sample Number	Date	Time	COMP	GRAB	Station Location	Number of Containers	40ml VOA	1l A/B/N	1l Pest/PCB	1l Dissol Metals	1l Total Metals	1l CN⁻	Remarks
LO-1MW03S-FD	5/6/91	16:45		8	LO-1MW03S-FD	10	2	3	2	1	1	1	Low Conc. Matrix Water
													Run for TCL & TAL lists
													Dissolved Metals are filtered
													Metals are preserved HNO
													CN⁻ are preserved NaOH
													Shipped Fed Ex#
													8194625740 to ARDL

Sample Relinquished by:	Date	Time	Sample Received by:	Date	Time	Reason for Transfer
[signature]	5/6/91	1930	[signature]	05/07/91	1000	received in lab

COPIES: White & Yellow copies accompany sample shipment to laboratory. Ye' py retained by laboratory. White copy to be returned to ER files. Pink copy retained by sampler. Gold copy extra copy as needed

ERM North Central, inc.

008

Sample Chain of Custody

W.O.No.: 0252 | Project Name: Lenz Oil

Sampler: Dirk Kaiser

LOW CONC.

ERM Sample Number	Date	Time	COMP	GRAB	Station Location	Number of Containers	ADM	VOA	ABN	PEST/PCB	DISSOL. METALS	TOTAL METALS	CYANIDES	Remarks
0-1MW01D-GW	5/6/91	16:50		X	LO-1MW01D-GW	7	2	-	2	1	1	1		MATRIX WATER
0-1MW03S-GW	5/6/91	16:45		X	LO-1MW03S-GW	10	2	3	2	1	1	1		WATER

RUN FOR TCL & TAL LISTS
DISSOLV. METALS ARE FILTERED
METALS ARE PRESERVED W/ HNO3
CN⁻ ARE PRESERVED W/ NaOH

SHIPPED FEDEX # 8194625710
TO ANDL

Sample Relinquished by:	Date	Time	Sample Received by:	Date	Time	Reason for Transfer
[illegible]	5/6/91	1930	Donna Lachman	05/07/91	1000	received in lab

COPIES White & Yellow copies accompany sample shipment to laboratory. Yellow copy retained by laboratory. White copy to be returned to ERM for files. Pink copy retained by sampler. Gold copy extra copy as needed

ERM North Central, inc.

OC 7

Sample Chain of Custody

W.O.No.: 0252 | Project Name: Lenz Oil

Sampler: Dirk Kaiser

LOW CONC.

ERM Sample Number	Date	Time	COMP	GRAB	Station Location	Number of Containers	40ml VOA	1l A/B/N	1l PEST/PCB	1l Dissol Metals	1l Total Metals	1l Cyanides	Remarks
													MATRIX
LO-MW01S-GW	5/6/91	1540		X	LO-MW01S-GW	10	2	3	2	1	1	1	WATER
LO-MW03S-GW	5/6/91	1645		X	LO-1MW03S-GW *	3	–	3	–	–	–	–	WATER

RUN FOR TAL & TCL LISTS

DISSOLVED METALS ARE FILTERED

METALS ARE PRESERVED W/ HNO_3

CYANIDES ARE PRESERVED W/ NaOH

SHIPPED FED EX #8194625740 TO ARDL

* These 3 A/B/N Samples were Numbered #LO-1MW01D-GW

Sample Relinquished by:	Date	Time	Sample Received by:	Date	Time	Reason for Transfer
[signature]	5/6/91	19:30	[signature] Conchrum	05/07/91	1000	received in lab

COPIES. White & Yellow copies accompany sample shipment to laboratory. Yel[illegible]py retained by laboratory. White copy to be returned to ER[illegible] files. Pink copy retained by sampler. Gold copy extra copy as needed

ERM-North Central, inc.

UCT

Sample Chain of Custody

W.O.No.: 0252

Project Name: LENZ OIL

Sampler: DIRK KAISER

LOW CONCENTRATION

ERM Sample Number	Date	Time	COMP	GRAB	Station Location	Number of Containers	40ml VOA	40ml 1l A/B/N	1l PEST/PCB	1l DISSOV METALS	1l TOTAL METALS	1l CYANIDE	Remarks
													MATRIX
LO-1G101M-GW	5/6/91	1120		X	LO-1G101M-GW	7	2	–	2	1	1	1	WATER
LO-1G101L-GW	5/6/91	1020		X	LO-1G101L-GW	10	2	3	2	1	1	1	WATER

RUN FOR TCL & TAL LISTS

METALS PRESERVED W/ HNO_3

CN^- PRESERVED W/ NaOH

DISSOVED METALS HAVE BEEN FILTERED

SHIPPED FED EX # 8194625740

TO ARDL

Sample Relinquished by:	Date	Time	Sample Received by:	Date	Time	Reason for Transfer
[signature]	5/6/91	19:30	[signature]	05/07/91	1000	received in lab

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ERM· North Central, inc.

009

Sample Chain of Custody

W.O.No.: 0252

Project Name: LENZ OIL

Sampler: DIRK KAISER

LOW CONC

ERM Sample Number	Date	Time	COMP	GRAB	Station Location	Number of Containers	40ml VOA	1l AIB/N	1l FEST/FCB	1l DISSOL METALS	1l TOTAL METALS	1l CN⁻	Remarks
													MATRIX
LO-1MW03D GW	5/6/91	1550		X	LO-1MW03D-GW	10	2 *	3	2	1	1	1	WATER
													* 1 VOA VIAL BROKEN
													RUN FOR TCL & TAL LISTS
													DISSOLVED METALS ARE FILTERED
													METALS ARE PRESERVED W/ HNO3
													CN⁻ ARE PRESERVED W/ NaOH
													SHIPPED FED EX # 8194625740
													TO ARDL

Sample Relinquished by:	Date	Time	Sample Received by:	Date	Time	Reason for Transfer
[signature]	5/6/91	19:30	[signature]	05/07/91	1000	received in lab

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ERM North Central, inc.

003

Sample Chain of Custody

W.O.No.: 0252 | Project Name: LENZ OIL

Sampler:

LOW CONCENTRATION

ERM Sample Number	Date	Time	COMP	GRAB	Station Location	Number of Containers	40ml VOA	1l A/B/N	1l PEST/PCB	1l TOTAL METALS	1l DISSOV. METALS	1l CYANIDE	Remarks
													MATRIX
LO-1G101D-GW	5/6/91	1240		X	LO-1G101D-GW	10	2	3	2	1	1	1	WATER
LO-1G101M-GW	5/6/91	1120		X	LO-1G101M-GW	3		3					WATER
~~LO-1G101-TB~~	~~5/6/91~~	5/6/91										2	* 1 VOA VIAL BROKEN. ALSO MARK "PRIORITY POL" IS TO BE RUN W. TH R... SAMPLES / PER DIRK KAISER - 05/07/91
LO-GW6-TB	5/2/91	1300		X	LO-GW6-TB	2	2	*					RUN FOR TCL & TAL LIST:
													METALS ARE PRESERVED W/ HN
													CYANIDES ARE PRESERVED W/ NA
													DISSOVED METALS HAVE BEEN FILT...
													SHIPPED FED EX #8194625 ...
													TO ARDL

Sample Relinquished by:	Date	Time	Sample Received by:	Date	Time	Reason for Transfer
[signature]	5/6/91	19:30	[signature]	05/07/91	1600	received in lab

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00

Sample Chain of Custody

W.O.No.: 0252

Project Name: LENZ OIL

Sampler: DIRK KAISER

ERM Sample Number	Date	Time	COMP	GRAB	Station Location	Number of Containers	40ml VOA	1l A/B/N	1l PEST/PCB	1l DISSOL METALS	1l TOTAL METALS	1l CYANIDES	Remarks
													MATRIX
LO-1G102D-GW	5/6/91	1255		X	LO-1G102D-GW	7	2*	-	2	1	1	1	WATER
LO-1GW1-FB	5/6/91	1500		X	LO-1GW1-FB	10	2	3	2	1	1	1	WATER
													RUN FOR TCL & TAL LISTS
													DISSOLVED METALS ARE FILTERED
					*1 VOA VIAL BROKEN								METALS ARE PRESERVED W/ HNO_3
													CYANIDES ARE PRESERVED W/ NaOH
													SHIPPED FED EX # 8194625740
													TO ARDL

Sample Relinquished by:	Date	Time	Sample Received by:	Date	Time	Reason for Transfer
[signature]	5/6/91	19:30	[signature]	05/07/91	1000	received in lab

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OK

Sample Chain of Custody

W.O.No.: 0252

Project Name: LENZ OIL

Sampler: DIRK KAISER

LOW CONC.

ERM Sample Number	Date	Time	COMP	GRAB	Station Location	Number of Containers	40ml VOA	1l A/B/N	1l PEST/PCB	1l DISSOLV METALS	1l TOTAL METALS	1l CYANIDES	Remarks
													MATRIX
LO-1MW07D-GW	5/7/91	1220		X	LO-1MW07D-GW	7	2	–	2	1	1	1	WATER
LO-1MW02D-GW	5/7/91	1430		X	LO-1MW02D-GW	10	2	3	2	1	1	1	WATER

RUN FOR TCL & TAL LISTS

DISSOLVED METALS ARE FILTERED

METALS ARE PRESERVED W/ HNO_3

CYANIDES ARE PRESERVED W/ NaOH

SHIPPED FED EX #

8194625703 TO ARDL

Sample Relinquished by:	Date	Time	Sample Received by:	Date	Time	Reason for Transfer
[signature]	5/7/91	1745	[signature]	05/08/91	1000	

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013

Sample Chain of Custody

W.O.No.: 0252

Project Name: LENZ OIL

Sampler: DIRK KAISER

LOW CONC

ERM Sample Number	Date	Time	COMP	GRAB	Station Location	Number of Containers	40ml VOA	1l A/B/N	1l PEST/PCB	1l DISSOLVED METALS	1l TOTAL METALS	1l CYANIDES	Remarks
													MATRIX
LO-1MW05D-GW	5/7/91	1100		X	LO-1MW05D-GW	10	2	3	2	1	1	1	WATER
LO-1G104D-GW	5/7/91	1145		X	LO-1G104D-GW	7	2	–	2	1	1	~~0~~ 1	WATER

RUN FOR TCL & TAL LIST

DISSOLVED METALS ARE FILTERED

METALS ARE PRESERVED W/ HNO_3

CYANIDES ARE PRESERVED W/ NaOH

SHIPPED FED EX #

8194625703 TO ARDL

Sample Relinquished by:	Date	Time	Sample Received by:	Date	Time	Reason for Transfer
[signature]	5/7/91	1745	[signature]	05/08/91	1000	

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01

Sample Chain of Custody

W.O.No. 0252 | Project Name: LENZ OIL

Sampler: DIRK KAISER

LOW CONC.

ERM Sample Number	Date	Time	COMP	GRAB	Station Location	Number of Containers	40ml VOA	1L AB/N	1L Pest/Herbs	1L Dissolved Metals	1L Total Metals	1L Cyanides	Matrix	Remarks
LO-1MW07S-GW	5/7/91	1315		X	LO-1MW07S-GW	10	2	3	2	1	1	1	WATER	
LO-1MW07D-GW	5/7/91	1220		X	LO-1MW07D-GW	3	–	3	–	–	–	–	WATER	

RUN FOR TCL & TAL LIST

DISSOLVED METALS ARE FILTERED.

METALS ARE PRESERVED w/ HNO_3

CYANIDES ARE PRESERVED w/ NaOH

SHIPPED FED EX # 8194625703 TO ARDC.

Sample Relinquished by:	Date	Time	Sample Received by:	Date	Time	Reason for Transfer
[illegible]	5/7/91	1745	[illegible]	05/08/91	1000	

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01

Sample Chain of Custody

W.O.No.: 0252 | Project Name: Lenz Oil

Sampler: Dirk Kaiser

Low Conc.

ERM Sample Number	Date	Time	COMP	GRAB	Station Location	Number of Containers	40ml VOA	1l A/B/N	1l Pest/PCB	1l Dissol. Metals	1l Total Metals	1l Cyanides	Remarks
													MATRIX
LO-1MW040-GW	5/7/91	1530		X	LO-1MW040-GW	10	2	3	2	1	1	1	WATER
LO-1GW2-FB	5/7/91	1120		X	LO-1GW2-FB	3	—	3	—	—	—	—	WATER

Run for TCL & TAL lists

Dissolved metals are filtered

Metals preserved w/ HNO_3

Cyanides preserved w/ NaOH

Shipped Fed Ex #

819465703 to ARDL

Sample Relinquished by:	Date	Time	Sample Received by:	Date	Time	Reason for Transfer
[signature]	5/7/91	1745	Donna Cochrane	05/08/91	1000	

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ERM- orth Central, inc.

01

Sample Chain of Custody

W.O.No.: 0252 | Project Name: LENE OIL

Sampler: DIRK KAISER

LOW CONC.

ERM Sample Number	Date	Time	COMP	GRAB	Station Location	Number of Containers	40ml VOA	1l A/B/N	1l PEST/PCB	1l DISSOL METALS	1l TOTAL METALS	1l CYANIDES	Remarks
													MATRIX
-1G106DR-GW	5/7	1015		X	LO-1G106DR-GW	10	2	3	2	1	1	1	WATER
-1GW2-FB	5/7	1120		X	LO-1GW2-FB	7	2	–	2	1	1	1	WATER

RUN FOR TCL & TAL

DISSOLVED METALS ARE FILTERED

METALS PRESERVED W/ HNO_3

CYANIDES PRESERVED W/ NaOH

SHIPPED FED EX#

8194625703 TO ARDL

Sample Relinquished by:	Date	Time	Sample Received by:	Date	Time	Reason for Transfer
[signature]	5/7/91	1745	[signature]	05/08/91	1000	

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015

Sample Chain of Custody

W.O.No.: 0252 | Project Name: Lenz Oil

Sampler: Dine Kaiser

Low Conc

ERM Sample Number	Date	Time	COMP	GRAB	Station Location	Number of Containers	40ml VOA	1l A/B/N	1l Pest/PCB	1l Dissolv. Metals	1l Total Metals	1l Cyanide	Remarks
													MATRIX
0-1G104L-GW	5/7/91	1200		X	LO-1G104L-GW	10	2	3	2	1	1	1	WATER ** bubble in 1 VOA vial
0-1MW05D-GW	5/7/91	1100		X	LO-1MW05D-GW	3	—	3	—	—	—	—	WATER * containers numbered LO-1G104D-GW
													RUN FOR TAL & TCL LISTS
													DISSOLVED METALS ARE FILTERED
													METALS ARE PRESERVED W/ HNO
													CYANIDES ARE PRESERVED W/ NaOH
													SHIPPED FED EX#
													8194625703 TO ARDL

Sample Relinquished by:	Date	Time	Sample Received by:	Date	Time	Reason for Transfer
[signature]	5/7/91	1745	[signature]	05/08/91	1000	

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012

Sample Chain of Custody

W.O.No.: 0252
Project Name: LONZ OIL
Sampler: DIRK KAISER

LOW CONC.

ERM Sample Number	Date	Time	COMP	GRAB	Station Location	Number of Containers	40ml VOA	1L A/B/N	1L Pest/PCB	1L Diss. Metals	1L Total Metals	1L Cyanides	Remarks
													MATRIX
0-1MW05S-FD	5/7/91	0930		X	LO-1MW05S-FD	7	2	–	2	1	1	1	WATER
0-1G1D6D2-MS/MSD	5/7/91	1015		X	LO-1G1D6D2-MS/MSD	7	~~4~~ 2	3	2	–	–	–	WATER

RUN FOR TCL & TAL
DISSOLV. METALS ARE FILTERED
METALS ARE PRESERVED W/ HNO
CYANIDES ARE PRESERVED W/ NaOH

SHIPPED FED EX # 8194625710
TO ANDL

Sample Relinquished by:	Date	Time	Sample Received by:	Date	Time	Reason for Transfer
[illegible]	5/7/91	1745	[illegible]	05/08/91	1000	

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~~011 [illegible]~~ 011

Sample Chain of Custody

W.O.No: 0252 | Project Name: LENZ OIL

Sampler: DIRK KAISER

LOW CONC.

ERM Sample Number	Date	Time	COMP	GRAB	Station Location	Number of Containers	ADml VOA	1l A/B/N	1l PEST/PCB	1l DISSOLV METALS	1l TOTAL METALS	1l CYANIDE	Remarks
													MATRIX
LO-1MW05S-GW	5/7/91	0930		X	LO-1MW05S-GW	10	2	3	2	1	1	1	WATER
LO-1MW05S-FD	5/7/91	0930		X	LO-1MW05S-FD	3	–	3	–	–	–	–	WATER
LO-1GW-TB1	5/7/91	1300		X	LO-1GW-TB1 (TRIP BLANK)	2	2	–	–	–	–	–	WATER * bubble in 1 VOA vial
													RUN FOR TAL & TCL LISTS
													DISSOLVED METALS ARE FILTERED
													METALS ARE PRESERVED W/ HNO3
													CYANIDES ARE PRESERVED W/ NaOH
													SHIPPED FED EX # 8194625703
													TO ARDL

Sample Relinquished by:	Date	Time	Sample Received by:	Date	Time	Reason for Transfer
[signature]	5/7/91	1745	Donna Cochran	05/08/91	1000	

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02 -

Sample Chain of Custody

W.O.No.: 0252 | Project Name: LENZ OIL

Sampler: DIRK KAISER

LOW CONC.

ERM Sample Number	Date	Time	COMP	GRAB	Station Location	Number of Containers	40ml VOA	1l A/B/N	1l PEST/PCB	1l DISSOL METALS	1l TOTAL METALS	1l CYANIDES	Remarks
LO-1MW04S-GW	5/8/91	0915		X	LO-1MW04S-GW	7	2	-	2	1	1	1	MATRIX WATER
LO-1MW02S-MS/MSD	5/8/91	1045		X	LO-1MW02S-MS/MSD	7	2	3	2	—	—	—	Lt metals not preserved adj in lab
													RUN FOR TCL & TAL LISTS
													DISSOLVED METALS ARE FILTERS
													METALS ARE PRESERVED W/ HNO_3
													CYANIDE ARE PRESERVED W/ NaOH
													SHIPPED FED EX#
													8194625666 TO MDL

Sample Relinquished by:	Date	Time	Sample Received by:	Date	Time	Reason for Transfer
[signature]	5/8/91	1530	Donna Cochran	05/09/91	0930	

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ERM North Central, inc.

DZ

Sample Chain of Custody

W.O.No.: 0252

Project Name: LENZ OIL

Sampler: DINK KAISER

ERM Sample Number	Date	Time	COMP	GRAB	Station Location	Number of Containers	40ml VOA	1l A/BN	1l PESTICIDES	1l DISSOL. METALS	1l TOTAL METALS	1l CYANIDES	Remarks
													LOW CONC. MATRIX
LO-1MW06S-GW	5/8/91	1000		X	LO-1MW06S-GW	10	2	3	2	1	1	1	WATER
LO-1GW3-FB	5/8/91	0815		X	LO-1GW3-FB	7	2	–	2	1	1	1	WATER
													RUN FOR TCL & TAL LIST.
													DISSOLVED METALS ARE FILTERED
													METALS PRESERVED W/ HNO_3
													CYANIDES PRESERVED W/ NaOH
													SHIPPED FEDEX # 8194625
													~~8194625403~~ TO ARDL

Sample Relinquished by:	Date	Time	Sample Received by:	Date	Time	Reason for Transfer
[illegible]	5/8/91	1530	[illegible]	05/09/91	0930	

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UL-1

Sample Chain of Custody

W.O. No.: 0252 | Project Name: LENZ OIL

Sampler: DIRK KAISER

HIGH CONCENTRATION

ERM Sample Number	Date	Time	COMP	GRAB	Station Location	Number of Containers	40ml VOA	1l A/B/N, PEST/PCB	1l METALS/CN				Remarks
													MATRIX
G106S-WO	5/9/91	9:50		X	LO-1G106S-WO	4	2	1	1				WASTE OIL
GW-TB3	5/2/91	13:00		X	LO-1GW-TB3 (TRIP BLANK)	2	2	-	-				WATER
													SAMPLES ARE UNFILTERED AND UNPRESERVED
													SHIPPED FED EX# 352590932 TO ARDL

Sample Relinquished by:	Date	Time	Sample Received by:	Date	Time	Reason for Transfer
[signature]	5/9/91	1630	COOLER	5/9/91	1630	SAMPLES HELD OVERNIGHT
COOLER	5/10/91	0800	[signature]	5/10/91	0800	
[signature]	5/10/91	1530	[signature]	05/13/91	0630	

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