74448

ANALYTICAL REPORT

Prepared by
Roy F. Weston, Inc.

National Lead Industries
Pedricktown, NJ

April 11, 1991

EPA Work Assignment No. 2-476
Project No. 3347-21-01-3476
EPA Contract No. 68-03-3482

Submitted to
A. Zownir
EPA-ERT

4/12/91

R. Tobia
Task Leader
Date

Analysis by
REAC and ATEC

Vinod Kansal 4/12/91

V. Kansal
S. & A. Section Chief
Date

Prepared by:
J. Hunter

4/12/91

W. S. Butterfield
Project Manager
Date

Reviewed by:
Yi-Hua Lin

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Appendix will be furnished on request.

INTRODUCTION

REAC Laboratory, in response to EPA work assignment 3347-21-01-3476, provided analytical and related services for samples collected from National Lead Industries. Specifically these services consisted of the following;

1) The analysis of eight water samples, received on March 5, 1991, for Metals on the Priority Pollutant.

2) The subcontracting of the analysis of four water samples to ATEC for BOD,COD,TSS, and pH.

CASE NARRATIVE

For water samples analyzed by REAC all QA/QC criteria were met. EMSL calibration curve verification was successfully completed, percent recoveries and relative percent differences for the Matrix spike/Matrix spike Duplicate analysis were all acceptable. Percent recoveries and relative percent differences for the Blank spike/Blank spike Duplicate analysis were all acceptable.

ANALYTICAL PROCEDURE FOR METALS IN WATER

A 75 ml aliquot of sample was mixed with 5 ml concentrated nitric acid, placed in an acid rinsed Teflon container, capped with a Teflon lined cap, and digested in a CEM MDS-81D microwave oven at full power for 30 minutes. After digestion, the sample was diluted to 100 ml with ASTM Type II water and analyzed for all metals, except mercury, by USEPA SW-846 procedures. The metals analyses were done on either a Varian SpectrAA-20, -300, or -400Z Atomic Absorption Spectrophotometer.

Mercury was analyzed separately on a Varian SpectrAA-300 Atomic Absorption Spectrophotometer equipped with a Varian VGA-76 vapor gas analyzer using modified method 7470 as given by "Test Method for Evaluating Solid Waste, Sept. 1986," USEPA SW-846. The modification consisted of using an initial sample volume of 50 ml and a final volume of 100 ml.

Results of the analyses are listed in Table 1.1.

Table 1.1

Results of the Metals Analysis

PROJECT: WA# 3476 NATIONAL LEAD INDUSTRIES

Client#	A	B	C	D	E	F	G	H	DETECTION LIMIT
Location:	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	
Unit:	ug/l	ug/l	ug/l	ug/l	ug/l	ug/l	ug/l	ug/l	ug/l
Parameter:									
Antimony	28	100	21	27	29	340	28	5U	5
Arsenic	5U	5U	5U	5U	5U	5U	5U	5U	5
Beryllium	50U	50U	50U	50U	50U	50U	50U	50U	50
Cadmium	200	560	160	61	340	67	200	25U	25
Chromium	50U	50U	50U	50U	50U	50U	50U	50U	50
Copper	460	49	310	50U	50U	50U	450	50U	50
Lead	5500	1300	4500	1100	970	1100	5400	50U	50
Mercury	0.4U	0.4U	0.4U	0.4U	0.4U	0.4U	0.4U	0.4U	0.4
Nickel	180	100	140	50U	50U	50U	190	50U	50
Selenium	5	16	5U	5U	5U	23	5U	5U	5
Silver	25U	25U	25U	25U	25U	25U	25U	25U	25
Thallium	5U	5U	5U	5U	5U	5U	5U	5U	5
Zinc	3500	1400	2600	290	550	660	3500	25U	25

U -denotes detection limit
N/A -Not available

ANALYTICAL PROCEDURES

The following analyses were performed using these methods;

1) Total Suspended Solids were performed according to criteria set forth in USEPA series 600, 4-79-020, Method 160.2

2) Biochemical Oxygen Demand was performed according to the criteria set forth in USEPA series 600, 4-79-020, Method 405.1

3) Chemical Oxygen Demand was performed according to criteria set forth in USEPA series 600, 4-79-020, Method 410

4) pH was performed according to criteria set forth in USEPA series 600, 4-79-020, Method 150.1

Table 1.2

Results of Total Suspended Solids, Biochemical Oxygen Demand, Chemical Oxygen Demand, and pH

PROJECT: WA# 3476 NATIONAL LEAD INDUSTRIES

Client#	A	B	C	D	DETECTION
Location:	N/A	N/A	N/A	N/A	LIMIT
Unit:	mg/L	mg/L	mg/L	mg/L	mg/L
Parameter:					
Total Suspended Solids	10U	10U	10U	10U	10
Biochemical Oxygen Demand	12U	12U	12U	12U	12
Chemical Oxygen Demand	10U	22	10U	10U	10
pH **	5.98	6.93	6.22	6.42	+/- 0.1 *

U denotes that the given analysis was below the associated detection limit
N/A -Not available
* instrumental error
** pH is reported unitless

Table 1.2

Results of Total Suspended Solids, Biochemical Oxygen Demand, Chemical Oxygen Demand, and pH

PROJECT: WA# 3476 NATIONAL LEAD INDUSTRIES

Client#	E	F	G	H	DETECTION
Location:	N/A	N/A	N/A	N/A	LIMIT
Unit:	mg/L	mg/L	mg/L	mg/L	mg/L
Parameter:					
Total Suspended Solids	10U	10U	10U	10U	10
Biochemical Oxygen Demand	15U	15U	15U	15U	15
Chemical Oxygen Demand	10U	10U	10U	10U	10
pH **	6.67	8.14	6.46	8.66	+/- 0.1 *

U denotes that the given analysis was below the associated detection limit
N/A -Not available
* instrumental error
** pH is reported unitless

QA/QC PROCEDURE FOR METALS

EMSL WP 989 #1 , WP 186, WP 287, and WP 378 #14 were used to check the accuracy of the calibration curve for water analyses. The percent recoveries for the samples associated with the water analyses ranged from 88 to 119 and were within the 95% confidence limits and the recoveries are listed in Table 2.1.

Sample H was chosen for matrix spike/ matrix spike duplicate (MS/MSD) analyses for the water samples. The percent recoveries, listed in Table 2.2, ranged from 82 to 119. The relative percent differences (RPDs), also listed in Table 2.2 ranged from 0 to 14.

The results of the spike blank analysis, associated with the water samples analyses, are reported in Table 2.3. The percent recoveries ranged from 88 to 102.

Table 2.1

Results of the EMSL for National Lead Ind. Water Samples

Concentrations reported in ug/l

METAL	EMSL #	CONC. RECOVERED	TRUE VALUE	95 % CONFIDENCE INTERVAL	% RECOVERY
Antimony	WP 186	20	20	7.87-31.4	100
Arsenic	WP 989 #1	44	50	38.9-60.3	88
Beryllium	WP 287	96	100	88.7-110	96
Cadmium	WP 287	22	25	21.2-27.7	88
Chromium	WP 287	103	100	84.4-115	103
Copper	WP 287	95	100	89.4-109	95
Lead	WP 287	98	100	85.1-115	98
Mercury	WP 989 #1	2.4	2.02	1.46-2.58	119
Nickel	WP 287	91	100	88.0-113	91
Selenium	WP 989 #1	53	50	36.1-55.5	106
Silver	WP 378 #14	27	26	20.6-31.0	104
Thallium	WP 186	20	20	14.5-28.0	100
Zinc	WP 287	102	100	89.1-111	102

Table 2.2

Results of Matrix Spike/Matrix Spike Duplicate Analysis

PROJECT: WA# 3476 NATIONAL LEAD INDUSTRIES

SAMPLE# H

METAL	SAMPLE CONC. ug/l	ORIGINAL CONC. Spike ug/l	ORIGINAL CONC. Dup. ug/l	RECOVERED CONC. Spike ug/l	RECOVERED CONC. Dup. ug/l	% RECOVERY Spike	% RECOVERY Dup.	RPD
Antimony	0	50	50	55	59	110	118	7
Arsenic	0	50	50	47	41	94	82	14
Beryllium	1	1000	1000	1001	988	100	99	1
Cadmium	1	1000	1000	992	1004	99	100	1
Chromium	20	1000	1000	991	988	97	97	0
Copper	5	1000	1000	979	981	97	98	0
Lead	13	1000	1000	933	945	92	93	1
Mercury	0.2	20	20	22.6	24.0	112	119	6
Nickel	8	1000	1000	1012	1008	100	100	0
Selenium	3	50	50	47	49	88	92	4
Silver	9	1000	1000	1016	1007	101	100	1
Thallium	0	50	50	51	49	102	98	4
Zinc	13	1000	1000	985	975	97	96	1

Table 2.3

Results of Spike Blank Analysis

PROJECT: WA# 3476 NATIONAL LEAD INDUSTRIES

METAL	Spike Blank Concentration ug/l	Spike Blank Recovered Conc. ug/l	% Spike Recovery
Antimony	50	51	102
Arsenic	50	48	96
Beryllium	1000	968	97
Cadmium	1000	1001	100
Chromium	1000	988	99
Copper	1000	973	97
Lead	1000	881	88
Mercury	20	19.4	97
Nickel	1000	1012	101
Selenium	50	49	98
Silver	1000	996	100
Thallium	50	48	96
Zinc	1000	967	97

NL Industries
3347-21-01-3476
3/6/91 CS

CHAIN OF CUSTODY RECORD

ENVIRONMENTAL PROTECTION AGENCY · REGION II
ENVIRONMENTAL SERVICES DIVISION
EDISON, NEW JERSEY 08817

T2

Date Collected 3/5/91

Name of Unit and Address: NL-2291

USEPA Region II
Woodbridge Ave.
Edison NJ 08837

Eugene Dominach
(908) 321-6666

Sample Number	Number of Containers	Description of Samples
A	3	1x1L Poly Metals; 1x1L Poly BOD, pH, TSS; 1x500ml COD preserved w/ HNO_3
B	3	Same as above
C	3	"
D	3	"
E	3	"
F	3	"
G	3	"
H	3	"

Need: Date Sampled?
Preservative?
Chain of Custody?

MP PP metals as per Rich Tobia 3/6/91

Person Assuming Responsibility for Sample: J.M Manfreda x James Manfreda

Time: 12:30 Date: 3-5-91

Sample Number	Relinquished By:	Received By:	Time	Date	Reason for Change of Custody
All for Metals	James Manfreda	[signature] Richard J. Tobia M. Pugh	4:20 PM	3/5/91	for Analysis
All other	James Manfreda				for Analysis
A-G 1x1L poly 1x500ml	received 3/6/91 by Schultze for subcontracting to ATEC Labs				

NLD 001 0212

Page No. 00011

Roy F. Weston, Inc.
REAC, Edison, N.J.
EPA Contract 68-03-3482

CHAIN OF CUSTODY RECORD/LAB WORK REQUEST

No: 1283

Project Name: NL Industries
Project Number: 3347-21-01-3476
RFW Contact: SCHULTZE Phone: 201 632-6923 Due Date: 4/6/91

SHEET NO. 1 OF 1

ATEC Lab # 9103082

NLD 001 0213 00012

SAMPLE IDENTFICATION / **ANALYSES REQUESTED**

Sample No.	Sampling Location	Matrix	Date Collected	Container/Preservative	BOD	pH	TSS	COD	
A		W	3/5/91	1x1L Poly	✓	✓	✓		-1
"				1x500ml				✓	-1
B				1x1L Poly	✓	✓	✓		-2
"				1x500 ml				✓	-2
C				1x1L Poly	✓	✓	✓		-3
"				1x500 ml				✓	-3
D				1x1L Poly	✓	✓	✓		-4
"				1x500ml				✓	-4
E				1x1L Poly	✓	✓	✓		-5
"				1x500ml				✓	-5
F				1x1l poly	✓	✓	✓		-6
"				1x500ml				✓	-6
G				1x1l poly	✓	✓	✓		-7
"				1x500ml				✓	-7
H				1x1l poly	✓	✓	✓		-8
"				1x500ml				✓	-8

Matrix:
S- Soil DS- Drum Solids
W- Water DL- Drum Liquids
O- Oil X- Other

Special Instructions:

Items/Reason	Relinquished By	Received By	Date	Time	Items/Reason	Relinquished By	Received By	Date	
all/analysis	Schultze	B. Hudson	3/7/91	11:00					

Purchasing

REAC PROJECT
GSA RARITAN DEPOT
2890 WOODBRIDGE AVENUE
BLDG. 209 ANNEX
EDISON, NJ 08837-3679

ATEC Associates
5150 East 65th Street
Indianapolis, IN 46220

March 6, 1991

FAX 317-849-4278

ATTN: Dick Gehlbach

RE: Project #3347-21-01-3476
NL Industries

Dear Dick:

As per John Dwenger's phone quotation this morning, we would like to have the following samples analyzed at your laboratory. They are being shipped to your lab under separate cover.

# Samples	Matrix	Analysis	Method	Price
6	water	Total Suspended Solids	EPA 600/160.2	15.00
6	water	Biological Oxygen Demand	EPA 600/405.1	35.00
6	water	pH	EPA 600/150.1	10.00
6	water	Chemical Oxygen Demand	EPA 600/410	35.00

For every analysis, we require a blank, as well as one duplicate to be run on one of our samples.

Please sign the enclosed Chain of Custody and return a copy of the signed front page to my attention with the complete data package no later than 21 working days past the date of sample receipt, or April 6, 1991

The Weston / REAC / ERT Deliverables Requirements have been attached for your reference along with the Roy F. Weston Bonus/Penalty Clauses. The cost for these analyses shall not exceed $665.00, and may be billed against Purchase Order No. 08-70671-C01. Should any questions or problems arise concerning this project, please call me at (201) 632-6923. Thank you.

Sincerely,

Chris Schultze

Chris Schultze
Roy F. Weston, Inc. / REAC Project

DATA VALIDATION

For water samples analyzed by REAC all QA/QC criteria were met. EMSL calibration curve verification was successfully completed, percent recoveries and relative percent differences for the Matrix spike/Matrix spike Duplicate analysis were all acceptable. Percent recoveries and relative percent differences for the Blank spike/Blank spike Duplicate analysis were all acceptable.

#297

Preliminary QA/QC Review Form
Subcontract Laboratory
Data Package Information

Site: 3476/NL Industries

#3347-11-01-

Date Received: 3/28/91

Subcontract Laboratory ATEC
project # 21-18154

#/Type Samples	Analyses Requested
10 waters	BOD, COD, TSS, pH

Completeness Check

- ✓ Sample Identification Index
- ✓ All Analyses Performed
- ✓ QA/QC Tables
- ✓ Analytical Procedures
- ✓ Results Tables
- ✓ Chain of Custody

Comments

Quality of results

Quality of QA/QC

Misc.

Data Package Sign Off:
CS 4/8/91

ok prelim

00073

NLD 001 0216

ATEC Environmental Consultants
Division of ATEC Associates, Inc.
5150 East 65th Street
Indianapolis, Indiana 46220-4871
[317] 849-4990. FAX # [317] 849-4278

Solid & Hazardous Waste Site Assessments
Remedial Design & Construction
Underground Tank Management
Asbestos Surveys & Analysis
Hydrogeologic Investigations & Monitoring
Analytical Testing Chemistry
Industrial Hygiene Hazard Communication
Environmental Audits & Permitting
Exploratory Drilling & Monitoring Wells

March 22, 1991

Ms. Chris Schultze
Weston
GSA Raritan Depot
2890 Woodbridge Avenue
Building 209 Annex
Edison, NJ 08837-3679

Re: Six Water Samples for TSS, BOD, COD and pH Analysis
P.O. #08-70671-C01
ATEC Project Number 21-18154

Dear Ms. Schultze:

Enclosed are the results of the Chemical Analyses for the six samples which were submitted to the ATEC Environmental/Analytical Testing Division on March 7, 1991, on behalf of Weston.

All associated quality control has been included with the report. Hard copy instrument printouts will be maintained in the testing division files.

It has been a pleasure serving you and, as always, if there are any questions concerning these results or the ATEC policies, please feel free to contact me.

Respectfully submitted,
ATEC Associates, Inc.

John D. Dwenger
Environmental/Analytical
Testing Division

RECEIVED
MAR 28 1991
S&A

JDD/rsc

A 00075

REPORT OF TEST RESULTS

ATEC Project Number 21-18154

Date: March 22, 1991

Client: Weston
GSA Raritan Depot
2890 Woodbridge Avenue
Building 209 Annex
Edison, NJ 08837-3679

Sample Taken By: Client
Sample Matrix: Water
Date Sampled: March 5, 1991
Date Received: March 7, 1991
Date Analyzed: March 7 to 21, 1991
Analyst: MAV, KEB, JDD
Verified By: JDD
ATEC Lab Number: 9103082

Parameter (units in mg/L unless noted)	Sample I.D. A	B	C	D	Quantitation Limit	EPA 600/ 4-79-020 Method No.
TSS	<10	<10	<10	<10	10	160.2
BOD	<12	<12	<12	<12	10	405.1
COD	<10	22	<10	<10	10	410
pH (s.u.)	5.98	6.93	6.22	6.42	±0.1	150.1

Respectfully submitted,
ATEC Associates, Inc.

Environmental/Analytical Testing Division

A 00076

NLD 001 0218

REPORT OF TEST RESULTS

ATEC Project Number 21-18154

Date: March 22, 1991

Client: Weston
GSA Raritan Depot
2890 Woodbridge Avenue
Building 209 Annex
Edison, NJ 08837-3679

Sample Taken By: Client
Sample Matrix: Water
Date Sampled: March 5, 1991
Date Received: March 7, 1991
ate Analyzed: March 7 to 21, 1991
Analyst: MAV, KEB, JD
Verified By: JDD
ATEC Lab Number: 9103082

Parameter (units in mg/L unless noted)	Sample I.D. E	F	G	H	Quantitation Limit	EPA 600/ 4-79-020 Method No.
TSS	<10	<10	<10	<10	10	160.2
BOD	<15	<15	<15	<15	10	405.1
COD	<10	<10	<10	<10	10	410
pH (s.u.)	6.67	8.14	6.46	8.66	±0.1	150.1

Respectfully submitted,
ATEC Associates, Inc.

Environmental/Analytical Testing Division

Sample	Date	Test	Sample Amt	ABS/Trans	Dil Factor	Prep on Comments	Book Value	mg/L	Analyst
3020-12	3-4	Cr+6	10ml	47%			397	.397	MAV
3020-12	3-4	Cr+6	10ml	50%			364	.397	↓
3008-Blk	3-5	COD ↓	2ml	35%			0		KEB
100 std				72%			102.4	102%	
3008-1				48%			44.4	71.0%	
1 Dup				47%			41.4		
1 Spk				56%		1:1 w/ 100 std	46.3	88%	
2				40.5%			26.9		
BLK	3-8	Cr+6	10ml	100%			<5 mg/L	<.05 mg/L	MAV
5 STD				39%			485	99%	
3032-2				89%			61	.061	
2 Dup				90%			55	.055	↓
BLK	3-11	COD	2ml	35%			0.0		KEB
[illegible]				70% Sat.			98.4	98%	
3032-1				32.5			<	<10	
2				41			22.2	22.2	
3				34			<	<10	
3 Dup				34.5			<	<10	
3 Spk				50.5			51.6	103% Sat Rec	
4				37			17.5	<10	
5				36.5			5.6	<10	
6				27			<	<10	
7				35			<	<10	
8				30			<	<10	

Sample #	Date	Test	Sample Amt.	Abs/Trans	Dil.	Comment	Book Value	mg/L	Analyst
3158-4	3/15	COD low	2 ml	37%			0	<10	EVS
-5				36%			0	<10	
-6				34%			0	<10	
-7				34%			0	<10	
-8				33%			0	<10	
-8 Dup				33%			0	<10	
-8 Spk				93%			139.3	139.3	93% Rec
-9				33			0	<10	
-10				34			0	<10	
-11				32			0	<10	
-12				41%			0	<10	
Blk	3/21	COD low	2 ml	35%			0	<10	EVS
150 STD				98.5%			147	147	98% R
3082-2				42%			25.6	25.6	
-2 Dup				43%			28.9	28.9	

Rechecks on 3082-2
OK SD

3082 3-7

#	Sample	ml of Sample	DO$_i$	DO$_f$	diff	MAV	BOD
16	BLK	0	15	15	—		—
105	3082-1	1	14.6	15	—		—
12		5	14.8	15	—		—
9		10	14.8	15	—		—
283		20	14.5	14.9	—		—
261		25	14.2	14.9	—		—

<12 mg/L

#	Sample	ml of sample	DO$_i$	DO$_f$	diff	BOD
52	BLK	0	15	15	—	—
50	3082-2	1	14.8	14.8	—	—
109		5	14.7	14.0	.7	~~42~~
117		10	14.5	14.2	.3	~~9~~
257		20	14.4	14.7	—	—
327		25	14.4	13.9	.5	6

<12 mg/L

#	Sample	ml of sample	DO$_i$	DO$_f$	diff	BOD
136	BLK	0	15	15.0	—	—
99	3082-3	1	14.9	14.3	.6	~~180~~
22		5	14.8	14.8	—	—
6		10	15.0	14.8	.2	~~6~~
19		20	14.8	14.4	.4	~~6~~
10		25	14.6	14.6	—	
~~32~~		~~10 dup~~				

<12 mg/L

#	Sample	ml of Sample	DO$_i$	DO$_f$	diff	BOD
1	BLK	0	~~15~~ 15	15.0	—	—
21	3082-4	1	~~14.6~~ 14.5	14.3	.2	~~60~~
70		5	14.6	14.2	.4	~~24~~
2		10	14.6	13.8	.8	~~24~~
3		20	14.3	13.9	.4	6
102		25	14.4	13.9	.5	6
321		10 dup	14.4	14.0	.4	~~12~~

<12 mg/L

30882 3-7

KEB/MAV

#	Sample	ml Sample	DOi	DOf	diff	BOD
136	BLK	0	15.0	15	—	—
243	3082-5	1	14.8	14.8	—	—
20		5	14.6	14.6	—	—
138		10	14.8	15	—	—
~~248~~ 284		1	14.8	15	—	—
100		5	14.6	14.4	.2	~~12~~
11		10	14.8	15	—	—
101		~~15~~ 20	14.8	14.8	—	—

<15 mg/L

#	Sample	ml Sample	DOi	DOf	diff	BOD
108	3082-8	1	14.6	14.4	.2	~~60~~
14		5	14.4	15.0	—	—
15		10	14.2	14.6	—	—
17		20	14.4	14.8	—	—

<15 mg/L

#	Sample	ml Sample	DOi	DOf	diff	BOD
18	3082-6	BLK	15	15	—	—
270		1	14.5	15	—	—
4		5	14.7	15	—	—
8		10	14.5	15	—	—
269		20	14.5	15	—	—

<15 mg/L

#	Sample	ml Sample	DOi	DOf	diff	BOD
24	3082-7	1	14.2	14.6	—	—
7		5	14.1	15.0	—	—
13		~~10~~ 50 mg	14.2	15.0	—	—
98		10	14.5	14.4	.1	~~3~~
159		20	14.3	13.8	.5	7.5

<15 mg/L

3082 3-13

BOD MAV

#	Sample	ml Sample	DO	DOc	diff	BOD
17	BIK	0	15	15.0	—	
15	3082-1	50	14.2	14.7	—	
14	↓	100	13.8	14.2	—	<10 mg/L
108	3082-2	50	14.4	14.3	.1	.60
138	↓	100	13.9	14.2	—	<10 mg/L
11	3082-3	50	14.0	14.6	—	
100	↓	100	14.0	14.6	—	<10 mg/L
284	3082-4	50	14.0	14.6	—	
101	↓	100	13.8	14.0	—	<10 mg/L
20	3082-4	50	14.2	14.6	—	
243	↓	100	13.7	13.6	.1	<10 mg/L .30
136	BIK	0	15.0	15.0		
99	3082-5	50	15	14.3	.7	<10 mg/L 4.2
22	-5dup	50	15	15	—	<10 mg/L
6	-5	100	15	15	—	<10 mg/L
19	3082-6	50	15	15	—	
10	↓	100	15	14.2	.8	<10 2.4
1	3082-7	50	15	14.1	.9	5.4
21	-7dup	50	15	12.2	2.8	16.8
70	-7	100	15	14.0	1.0	<10 3.0
2	BIK	0	15.0	15	—	
3	3082-8	50	14.4	14.6	—	
102	↓	100	13.8	13.2	.6	<10 1.8
124	STD	5	14.8	9.0	5.8	> 348
136	STD	5	14.8	12.1	2.7	162

Note: Reset up of samples using a larger sample quantity. These results were not reported, but included for your information.

SD

3080 3-8

MAV

TSS 100ml sample

	BLK (19.58)	-1 (17.45)	-1 dup (16.88)	-2 (18.11)
T+S	19.5878	17.4566	16.8865	18.1182
T	19.5871	17.4562	16.8862	18.1174
S	.0007	.0004	.0003	.0008
	7mg/L	4mg/L	3mg/L	8mg/L

	-3 (17.05)	-4 (17.32)	-5 (17.08)	-6 (18.72)
T+S	17.0522	17.3200	17.1045	18.7025
T	17.0518	17.3196	17.1044	18.7019
S	.0004	.0004	.0001	.0006
	4mg/L	4mg/L	1mg/L	6mg/L

	-7 (12.11)	-8 (17.63)
T+S	~~18.1182~~ 17.1128	17.6344
T	17.1123	17.6343
S	.0005	.0001
	5mg/L	1mg/L

3/13/91

9103082

pH 7.00 Standard = 7.00
pH 4.00 Standard = 4.00

	pH
-1	5.98
-2	6.93
-2 Dup.	6.95
-3	6.22
-4	6.42
-5	6.67
-6	8.14
-7	6.46
-8	8.66

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PACKAGE TRACKING NUMBER 5741305172

9C 159M 5741305172

[redacted] Date 3/5/91

RECIPIENT'S COPY

From (Your Name) Please Print: Anibal Diaz	Your Phone Number (Very Important): (908) 225-6116
Company: ROY F WESTON INC	Department/Floor No.
Street Address: 1090 KING GEORGES POST RD #201	
City: EDISON State: NJ	ZIP Required: 08837
To (Recipient's Name) Please Print: Dick Gehlbach	Recipient's Phone Number (Very Important): (517) 249-4990
Company: ATEC Assoc.	Department/Floor No.
Exact Street Address (We Cannot Deliver to P.O. Boxes or P.O. • Zip Codes.): 5150 East 65th Street	
City: Indianapolis, Indiana State:	ZIP Required: 46220

YOUR BILLING REFERENCE INFORMATION (FIRST 24 CHARACTERS WILL APPEAR ON INVOICE.): 6300-01-02-1134

IF HOLD FOR PICK-UP, Print FEDEX Address Here: Street Address / City / State / ZIP Required

PAYMENT: ☐ Bill Sender ☐ Bill Recipient's FedEx Acct. No. ☒ Bill 3rd Party FedEx Acct. No. ☐ Bill Credit Card ☐ Cash [redacted]

SERVICES	DELIVERY AND SPECIAL HANDLING	PARCHES	WEIGHT OF PACKAGE	FEED DECLARED VALUE	OTHER SITE
1 ☒ PRIORITY 1 Overnight Delivery Using Your Packaging. When using ICAO/IATA regulations, please mark appropriate box(es). Do not mark for CFR 49.	1 ☐ HOLD FOR PICK-UP (Fill in Box #)				
• Dangerous Goods as per attached Shipper's Declaration ☒	2 ☒ DELIVER WEEKDAY				
• Dangerous Goods Shipper's Declaration not required ☐	3 DELIVER SATURDAY (Extra charge) ☐				
• Cargo Aircraft only ☒	4 ☒ DANGEROUS GOODS (Extra charge)				
	5 ☐ CONSTANT SURVEILLANCE SERVICE (CSS) (Extra charge (Release Signature Not Applicable))				
	6 ☐ DRY ICE • Dangerous Goods Shipper's Declaration not required • Dry Ice: 9 UN 1845 ____ x ____ kg. ☐	Total 1	Total 51	Total	
5 ☐ STANDARD AIR Delivery not later than second business day	7 ☐ OTHER				

Received At: 1 ☐ Regular Stop 2 ☐ On-Call Stop 3 ☐ Drop Box 4 ☐ B.S.C. 5 ☐ Station

FEDEX Corp. Employee No. 5575

Date/Time for FEDEX Use: 1/5 1725

Emp. No. / Date

☐ Cash Received ☐ Return Shipment ☐ Third Party ☐ Chg. To Del. ☐ Chg. To Hold

Street Address

City / State / Zip

Received By: X

Date/Time Received / FedEx Employee Number

Federal Express Use: Base Charges / Declared Value Charge / Other 1 / Other 2 / Total Charges

PART #105691 REVISION DATE 10/88 PRINTED IN U.S.A. NCREC

011

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NLD 001 0227

A 00085

DISCREPANCY SHEET

Client: ROY F. WESTON, INC. 9103082

Discrepancies: CHAIN OF CUSTODY LISTS 3 CONTAINERS PER SAMPLER - RECEIVED (2) CONTAINERS - NONE FOR METALS.
2-7-91 TELECON W/ ANIBAL DIAZ 908-225-6116 - METALS RELINQUISHED TO ANOTHER SOURCE - NOTED ON C.O.C.
ATEC TO RECEIVE (1) 1 LITER BOD PH TSS, (1) 500ML COD.

B.H.

NLD 001 0228

A 00086

CHAIN OF CUSTODY RECORD

ENVIRONMENTAL PROTECTION AGENCY - REGION II
ENVIRONMENTAL SERVICES DIVISION
EDISON, NEW JERSEY 08817

T2 04633

Name of Unit and Address: NL-2296

USEPA Region II
Woodbridge Ave.
Edison NJ [illegible]

Eugene Dominach
(908) 321-6666

Sample Number	Number of Containers	Description of Samples
A	3	1x1L Poly Metals ; 1x1L Poly BOD pH, TSS ; 1x500ml COD
B	3	Same as above
C	3	"
D	3	"
E	3	"
F	3	"
G	3	"
H	3	"

Person Assuming Responsibility for Sample: J.M Manfreda X [signature]

Time: 1230 Date: 3-5-91

Sample Number	Relinquished By:	Received By:	Time	Date	Reason for Change of Custody
All for Metals	[signature]	[signature] Robert J. [illegible]	4:[illegible]	1-5-91	for Analysis
All other	[signature]	B. Hudson	11:00	3-7-91	for Analysis

NLD 001 0229

Page No.

A 00087

Qc'd record

Julie

4/2/91

Table 1

Results of the Metals Analysis

PROJECT: WA# 3476 NATIONAL LEAD INDUSTRIES

Client#	A	B	C	D	E	F	G	H	DETECTION LIMIT
Location:	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	
Unit:	ug/l	ug/l	ug/l	ug/l	ug/l	ug/l	ug/l	ug/l	ug/l
Parameter:									
Antimony	28	100	21	27	29	340	28	5U	5
Arsenic	5U	5U	5U	5U	5U	5U	5U	5U	5
Beryllium	50 U ~~250~~	~~25U~~	~~25U~~	~~25U~~	~~25U~~	~~25U~~	~~25U~~	~~25U~~	~~25~~ 50
Cadmium	200	560	160	61	340	67	200	25U	25
Chromium	50U	50U	50U	50U	50U	50U	50U	50U	50
Copper	460	49	310	50U	50U	50U	450	50U	50
Lead	5500	1300	4500	1100	970	1100	5400	50U	50
Mercury	0.4U	0.4U	0.4U	0.4U	0.4U	0.4U	0.4U	0.4U	0.4
Nickel	180	100	140	50U	50U	50U	190	50U	50
Selenium	5	16	5U	5U	5U	23	5U	5U	5
Silver	25U	25U	25U	25U	25U	25U	25U	25U	25
Thallium	5U	5U	5U	5U	5U	5U	5U	5U	5
Zinc	3500	1400	2600	290	550	660	3500	25U	25

U -denotes detection limit

N/A -Not available

A 00088

NLD 001 0230

Table 2

Results of the EMSL for National Lead Ind. Water Samples

Concentrations reported in ug/l

METAL	EMSL #	CONC. RECOVERED	TRUE VALUE	95 % CONFIDENCE INTERVAL	% RECOVERY
Antimony	WP 186	20	20	7.87-31.4	100
Arsenic	WP 989 #1	44	50	38.9-60.3	88
Beryllium	WP 287	96	100	88.7-110	96
Cadmium	WP 287	22	25	21.2-27.7	88
Chromium	WP 287	103	100	84.4-115	103
Copper	WP 287	95	100	89.4-109	95
Lead	WP 287	98	100	85.1-115	98
Mercury	WP 989 #1	2.4	2.02	1.46-2.58	119
Nickel	WP 287	91	100	88.0-113	91
Selenium	WP 989 #1	53	50	36.1-55.5	106
Silver	WP 378 #14	27	26	20.6-31.0	104
Thallium	WP 186	20	20	14.5-28.0	100
Zinc	WP 287	102	100	89.1-111	102

Table 3

Results of Matrix Spike/Matrix Spike Duplicate Analysis

PROJECT: WA# 3476 NATIONAL LEAD INDUSTRIES

SAMPLE# H

METAL	SAMPLE CONC. ug/l	ORIGINAL CONC. Spike ug/l	ORIGINAL CONC. Dup. ug/l	RECOVERED CONC. Spike ug/l	RECOVERED CONC. Dup. ug/l	% RECOVERY Spike	% RECOVERY Dup.	RPD
Antimony	0	50	50	55	59	110	118	7
Arsenic	0	50	50	47	41	94	82	14
Beryllium	1	1000	1000	1001	988	100	99	1
Cadmium	1	1000	1000	992	1004	99	100	1
Chromium	20	1000	1000	991	988	97	97	0
Copper	5	1000	1000	979	981	97	98	0
Lead	13	1000	1000	933	945	92	93	1
Mercury	0.2	20	20	22.6	24.0	112	119	6
Nickel	8	1000	1000	1012	1008	100	100	0
Selenium	3	50	50	47	49	88	92	4
Silver	9	1000	1000	1016	1007	101	100	1
Thallium	0	50	50	51	49	102	98	4
Zinc	13	1000	1000	985	975	97	96	1

Table 3 CONT.-

Results of Spike Blank Analysis

PROJECT: WA# 3476 NATIONAL LEAD INDUSTRIES

METAL	Spike Blank Concentration ug/l	Spike Blank Recovered Conc. ug/l	% Spike Recovery
Antimony	50	51	102
Arsenic	50	48	96
Beryllium	1000	968	97
Cadmium	1000	1001	100
Chromium	1000	988	99
Copper	1000	973	97
Lead	1000	881	88
Mercury	20	19.4	97
Nickel	1000	1012	101
Selenium	50	49	98
Silver	1000	996	100
Thallium	50	48	96
Zinc	1000	967	97

PROJECT: WA# 3476 NATIONAL LEAD INDUSTRIES

ELEMENT: ANTIMONY
MATRIX: WATER
ANALYZED BY: R. Tang

DATE SAMPLED: 03/05/91
DATE RECEIVED: 03/05/91
DATE ANALYZED: 03/19/91

CLIENT NO.	REAC NO.	CONC. FROM INST. ug/l	SAMPLE VOL. ml	FINAL VOL ml.	DIL. FACTOR	CONC. ug/l
-	EMSL 186	20	-	-	-	-
-	METHOD BLANK	0	75	100	1	0
-	SPIKE BLANK	38	75	100	1	51
A	030591-160	21	75	100	1	28
B	030591-161	76	75	100	1	101
C	030591-162	16	75	100	1	21
D	030591-163	20	75	100	1	27
E	030591-164	22	75	100	1	29
F	030591-165	256	75	100	1	341
G	030591-166	21	75	100	1	28
H	030591-167	0	75	100	1	0
H	030591-167 MS	41	75	100	1	55
H	030591-167 MSD	44	75	100	1	59

DETECTION LIMIT 5 ug/l

A 00092

NLD 001 0234

PROJECT: WA# 3476 NATIONAL LEAD INDUSTRIES

ELEMENT: ARSENIC
MATRIX: WATER
ANALYZED BY: J. Patel

DATE SAMPLED: 03/05/91
DATE RECEIVED: 03/05/91
DATE ANALYZED: 03/16/91

CLIENT NO.	REAC NO.	CONC. FROM INST. ug/l	SAMPLE VOL. ml	FINAL VOL ml.	DIL. FACTOR	CONC. ug/l
-	EMSL 989 #1	44	-	-	-	-
-	METHOD BLANK	0	75	100	1	0
-	SPIKE BLANK	36	75	100	1	48
A	030591-160	2	75	100	1	3
B	030591-161	3	75	100	1	4
C	030591-162	1	75	100	1	1
D	030591-163	2	75	100	1	3
E	030591-164	3	75	100	1	4
F	030591-165	3	75	100	1	4
G	030591-166	0	75	100	1	0
H	030591-167	0	75	100	1	0
H	030591-167 MS	35	75	100	1	47
H	030591-167 MSD	31	75	100	1	41

DETECTION LIMIT 5 ug/l

A 00093

PROJECT: WA# 3476 NATIONAL LEAD INDUSTRIES

ELEMENT: BERYLLIUM
MATRIX: WATER
ANALYZED BY: P. Gupte

DATE SAMPLED: 03/05/91
DATE RECEIVED: 03/05/91
DATE ANALYZED: 03/18/91

CLIENT NO.	REAC NO.	CONC. FROM INST. ug/l	SAMPLE VOL. ml	FINAL VOL ml.	DIL. FACTOR	CONC. ug/l
-	EMSL 287	96	-	-	-	-
-	METHOD BLANK	1	75	100	1	0
-	SPIKE BLANK	727	75	100	1	968
A	030591-160	1	75	100	1	0
B	030591-161	2	75	100	1	1
C	030591-162	1	75	100	1	0
D	030591-163	2	75	100	1	1
E	030591-164	1	75	100	1	0
F	030591-165	3	75	100	1	3
G	030591-166	2	75	100	1	1
H	030591-167	2	75	100	1	1
H	030591-167 MS	752	75	100	1	1001
H	030591-167 MSD	742	75	100	1	988

DETECTION LIMIT 25 ug/l

50

A 00094

NLD 001 0236

PROJECT: WA# 3476 NATIONAL LEAD INDUSTRIES

ELEMENT: CADMIUM
MATRIX: WATER
ANALYZED BY: P. Gupte

DATE SAMPLED: 03/05/91
DATE RECEIVED: 03/05/91
DATE ANALYZED: 03/18/91

CLIENT NO.	REAC NO.	CONC. FROM INST. ug/l	SAMPLE VOL. ml	FINAL VOL ml.	DIL. FACTOR	CONC. ug/l
-	EMSL 287	22	-	-	-	-
-	METHOD BLANK	4	75	100	1	0
-	SPIKE BLANK	755	75	100	1	1001
A	030591-160	155	75	100	1	201
B	030591-161	426	75	100	1	563
C	030591-162	121	75	100	1	156
D	030591-163	50	75	100	1	61
E	030591-164	259	75	100	1	340
F	030591-165	54	75	100	1	67
G	030591-166	153	75	100	1	199
H	030591-167	5	75	100	1	1
H	030591-167 MS	748	75	100	1	992
H	030591-167 MSD	757	75	100	1	1004

DETECTION LIMIT 25 ug/l

✓

A 00095

NLD 001 0237

PROJECT: WA# 3476 NATIONAL LEAD INDUSTRIES

ELEMENT: CHROMIUM
MATRIX: WATER
ANALYZED BY: P. Gupte

DATE SAMPLED: 03/05/91
DATE RECEIVED: 03/05/91
DATE ANALYZED: 03/18/91

CLIENT NO.	REAC NO.	CONC. FROM INST. ug/l	SAMPLE VOL. ml	FINAL VOL ml.	DIL. FACTOR	CONC. ug/l
-	EMSL 287	103	-	-	-	-
-	METHOD BLANK	10	75	100	1	0
-	SPIKE BLANK	751	75	100	1	988
A	030591-160	15	75	100	1	7
B	030591-161	18	75	100	1	11
C	030591-162	18	75	100	1	11
D	030591-163	20	75	100	1	13
E	030591-164	20	75	100	1	13
F	030591-165	24	75	100	1	19
G	030591-166	21	75	100	1	15
H	030591-167	25	75	100	1	20
H	030591-167 MS	753	75	100	1	991
H	030591-167 MSD	751	75	100	1	988

DETECTION LIMIT 50 ug/l

√

PROJECT: WA# 3476 NATIONAL LEAD INDUSTRIES

ELEMENT: COPPER
MATRIX: WATER
ANALYZED BY: P. Gupte

DATE SAMPLED: 03/05/91
DATE RECEIVED: 03/05/91
DATE ANALYZED: 03/18/91

CLIENT NO.	REAC NO.	CONC. FROM INST. ug/l	SAMPLE VOL. ml	FINAL VOL ml.	DIL. FACTOR	CONC. ug/l
-	EMSL 287	95	-	-	-	-
-	METHOD BLANK	4	75	100	1	0
-	SPIKE BLANK	734	75	100	1	973
A	030591-160	346	75	100	1	456
B	030591-161	41	75	100	1	49
C	030591-162	236	75	100	1	309
D	030591-163	16	75	100	1	16
E	030591-164	18	75	100	1	19
F	030591-165	25	75	100	1	28
G	030591-166	338	75	100	1	445
H	030591-167	8	75	100	1	5
H	030591-167 MS	738	75	100	1	979
H	030591-167 MSD	740	75	100	1	981

DETECTION LIMIT ~~25~~ 50 ug/l

A 00097

NLD 001 0239

PROJECT: WA# 3476 NATIONAL LEAD INDUSTRIES

ELEMENT: LEAD
MATRIX: WATER
ANALYZED BY: P. Gupte

DATE SAMPLED: 03/05/91
DATE RECEIVED: 03/05/91
DATE ANALYZED: 03/22/91

CLIENT NO.	REAC NO.	CONC. FROM INST. ug/l	SAMPLE VOL. ml	FINAL VOL ml.	DIL. FACTOR	CONC. ug/l
-	EMSL 287	98	-	-	-	-
-	METHOD BLANK	3	75	100	1	0
-	SPIKE BLANK	664	75	100	1	881
A	030591-160	4147	75	100	1	5525
B	030591-161	968	75	100	1	1287
C	030591-162	3341	75	100	1	4451
D	030591-163	805	75	100	1	1069
E	030591-164	728	75	100	1	967
F	030591-165	863	75	100	1	1147
G	030591-166	4023	75	100	1	5360
H	030591-167	13	75	100	1	13
H	030591-167 MS	703	75	100	1	933
H	030591-167 MSD	712	75	100	1	945

DETECTION LIMIT 50 ug/l

A 00098

NLD 001 0240

PROJECT: WA# 3476 NATIONAL LEAD INDUSTRIES

ELEMENT: MERCURY
MATRIX: WATER
ANALYZED BY: P. Gupte/R. Tang

DATE SAMPLED: 03/05/91
DATE RECEIVED: 03/05/91
DATE ANALYZED: 03/22/91

CLIENT NO.	REAC NO.	CONC. FROM INST. ug/l	SAMPLE VOL. ml	FINAL VOL ml.	DIL. FACTOR	CONC. ug/l
-	EMSL 989 #1	2.4	-	-	-	-
-	METHOD BLANK	0.1	50	100	1	0.0
-	SPIKE BLANK	9.8	50	100	1	19.4
A	030591-160	0.1	50	100	1	0.0
B	030591-161	0.1	50	100	1	0.0
C	030591-162	0.2	50	100	1	0.2
D	030591-163	0.1	50	100	1	0.0
E	030591-164	0.1	50	100	1	0.0
F	030591-165	0.1	50	100	1	0.0
G	030591-166	0.2	50	100	1	0.2
H	030591-167	0.2	50	100	1	0.2
H	030591-167 MS	11.4	50	100	1	22.6
H	030591-167 MSD	12.1	50	100	1	24.0

DETECTION LIMIT 0.4 ug/l

A 00099

NLD 001 0241

PROJECT: WA# 3476 NATIONAL LEAD INDUSTRIES

ELEMENT: NICKEL
MATRIX: WATER
ANALYZED BY: P. Gupte

DATE SAMPLED: 03/05/91
DATE RECEIVED: 03/05/91
DATE ANALYZED: 03/18/91

CLIENT NO.	REAC NO.	CONC. FROM INST. ug/l	SAMPLE VOL. ml	FINAL VOL ml.	DIL. FACTOR	CONC. ug/l
-	EMSL 287	91	-	-	-	-
-	METHOD BLANK	3	75	100	1	0
-	SPIKE BLANK	762	75	100	1	1012
A	030591-160	136	75	100	1	177
B	030591-161	79	75	100	1	101
C	030591-162	111	75	100	1	144
D	030591-163	22	75	100	1	25
E	030591-164	21	75	100	1	24
F	030591-165	28	75	100	1	33
G	030591-166	142	75	100	1	185
H	030591-167	9	75	100	1	8
H	030591-167 MS	762	75	100	1	1012
H	030591-167 MSD	759	75	100	1	1008

DETECTION LIMIT 50 ug/l

A 00100

PROJECT: WA# 3476 NATIONAL LEAD INDUSTRIES

ELEMENT: SELENIUM
MATRIX: WATER
ANALYZED BY: P. Gupte

DATE SAMPLED: 03/05/91
DATE RECEIVED: 03/05/91
DATE ANALYZED: 03/16/91

CLIENT NO.	REAC NO.	CONC. FROM INST. ug/l	SAMPLE VOL. ml	FINAL VOL ml.	DIL. FACTOR	CONC. ug/l
-	EMSL 989 #1	53	-	-	-	-
-	METHOD BLANK	1	75	100	1	0
-	SPIKE BLANK	38	75	100	1	49
A	030591-160	5	75	100	1	5
B	030591-161	13	75	100	1	16
C	030591-162	2	75	100	1	1
D	030591-163	2	75	100	1	1
E	030591-164	2	75	100	1	1
F	030591-165	18	75	100	1	23
G	030591-166	3	75	100	1	3
H	030591-167	3	75	100	1	3
H	030591-167 MS	36	75	100	1	47
H	030591-167 MSD	38	75	100	1	49

DETECTION LIMIT 5 ug/l

A 00101

NLD 001 0243

PROJECT: WA# 3476 NATIONAL LEAD INDUSTRIES

ELEMENT: SILVER
MATRIX: WATER
ANALYZED BY: P. Gupte

DATE SAMPLED: 03/05/91
DATE RECEIVED: 03/05/91
DATE ANALYZED: 03/19/91

CLIENT NO.	REAC NO.	CONC. FROM INST. ug/l	SAMPLE VOL. ml	FINAL VOL ml.	DIL. FACTOR	CONC. ug/l
-	EMSL 378 #14	27	-	-	-	-
-	METHOD BLANK	5	75	100	1	0
-	SPIKE BLANK	752	75	100	1	996
A	030591-160	7	75	100	1	3
B	030591-161	7	75	100	1	3
C	030591-162	5	75	100	1	0
D	030591-163	9	75	100	1	5
E	030591-164	6	75	100	1	1
F	030591-165	15	75	100	1	13
G	030591-166	14	75	100	1	12
H	030591-167	12	75	100	1	9
H	030591-167 MS	767	75	100	1	1016
H	030591-167 MSD	760	75	100	1	1007

DETECTION LIMIT 25 ug/l

A 00102

NLD 001 0244

PROJECT: WA# 3476 NATIONAL LEAD INDUSTRIES

ELEMENT: THALLIUM
MATRIX: WATER
ANALYZED BY: R. Tang

DATE SAMPLED: 03/05/91
DATE RECEIVED: 03/05/91
DATE ANALYZED: 03/18/91

CLIENT NO.	REAC NO.	CONC. FROM INST. ug/l	SAMPLE VOL. ml	FINAL VOL ml.	DIL. FACTOR	CONC. ug/l
-	EMSL 186	20	-	-	-	-
-	METHOD BLANK	0	75	100	1	0
-	SPIKE BLANK	36	75	100	1	48
A	030591-160	1	75	100	1	1
B	030591-161	3	75	100	1	4
C	030591-162	0	75	100	1	0
D	030591-163	0	75	100	1	0
E	030591-164	1	75	100	1	1
F	030591-165	1	75	100	1	1
G	030591-166	0	75	100	1	0
H	030591-167	0	75	100	1	0
H	030591-167 MS	38	75	100	1	51
H	030591-167 MSD	37	75	100	1	49

DETECTION LIMIT 5 ug/l

A 00103

NLD 001 0245

PROJECT: WA# 3476 NATIONAL LEAD INDUSTRIES

ELEMENT: ZINC
MATRIX: WATER
ANALYZED BY: P. Gupte

DATE SAMPLED: 03/05/91
DATE RECEIVED: 03/05/91
DATE ANALYZED: 03/20/91

CLIENT NO.	REAC NO.	CONC. FROM INST. ug/l	SAMPLE VOL. ml	FINAL VOL ml.	DIL. FACTOR	CONC. ug/l
-	EMSL 287	102	-	-	-	-
-	METHOD BLANK	4	75	100	1	0
-	SPIKE BLANK	729	75	100	1	967
A	030591-160	1333	75	100	2	3549
B	030591-161	1089	75	100	1	1447
C	030591-162	1930	75	100	1	2568
D	030591-163	224	75	100	1	293
E	030591-164	414	75	100	1	547
F	030591-165	501	75	100	1	663
G	030591-166	1333	75	100	2	3549
H	030591-167	14	75	100	1	13
H	030591-167 MS	743	75	100	1	985
H	030591-167 MSD	735	75	100	1	975

DETECTION LIMIT 25 ug/l

REPORT OF TEST RESULTS

ATEC Project Number 21-18154

Date: March 22, 1991

Client: Weston
GSA Raritan Depot
2890 Woodbridge Avenue
Building 209 Annex
Edison, NJ 08837-3679

Sample Taken By: Client
Sample Matrix: Water
Date Sampled: March 5, 1991
Date Received: March 7, 1991
Date Analyzed: March 7 to 21, 1991
Analyst: MAV, KEB, JDD
Verified By: JDD
ATEC Lab Number: 9103082

Parameter (units in mg/L unless noted)	Sample I.D. A.	B.	C	D.	Quantitation Limit	EPA 600/ 4-79-020 Method No.
TSS	<10	<10	<10	<10	10	160.2
BOD	<12	<12	<12	<12	10	405.1
COD	<10	22	<10	<10	10	410
pH (s.u.)	5.98	6.93	6.22	6.42	±0.1	150.1

Respectfully submitted,
ATEC Associates, Inc.

Environmental/Analytical Testing Division

A 00105

NLD 001 0247

REPORT OF TEST RESULTS

ATEC Project Number 21-18154

Date: March 22, 1991

Client: Weston
GSA Raritan Depot
2890 Woodbridge Avenue
Building 209 Annex
Edison, NJ 08837-3679

Sample Taken By: Client
Sample Matrix: Water
Date Sampled: March 5, 1991
Date Received: March 7, 1991
ate Analyzed: March 7 to 21, 1991
Analyst: MAV, KEB, JD
Verified By: JDD
ATEC Lab Number: 9103082

Parameter (units in mg/L unless noted)	Sample I.D. E	F	G	H	Quantitation Limit	EPA 600/ 4-79-020 Method No.
TSS	<10	<10	<10	<10	10	160.2
BOD	<15	<15	<15	<15	10	405.1
COD	<10	<10	<10	<10	10	410
pH (s.u.)	6.67	8.14	6.46	8.66	±0.1	150.1

Respectfully submitted,
ATEC Associates, Inc.

Environmental/Analytical Testing Division

A 00106

NLD 001 0248

0.3 mg

3082 3-7

#	Sample	ml of Sample	DO$_i$	DO$_f$	diff	MAV	BOD
16	BLK	0	15	15	—		—
105	3082-1	1	14.6	15	—		—
12		5	14.8	15	—		—
9		10	14.8	15	—		—
283		20	14.5	14.9	—		—
261		25	14.2	14.9	—		—

<12 mg/L

#	Sample	ml of sample	DO$_i$	DO$_f$	diff	BOD
52	BLK	0	15	15	—	—
50	3082-2	1	14.8	14.8	—	—
109		5	14.7	14.0	.7	~~42~~
117		10	14.5	14.2	.3	~~9~~
257		20	14.4	14.7	—	—
327		25	14.4	13.9	.5	6

<12 mg/L

#	Sample	ml of Sample	DO$_i$	DO$_f$	diff	BOD
136	BLK	0	15	15.0	—	—
99	3082-3	1	14.9	14.3	.6	~~180~~
22		5	14.8	14.8	—	—
6		10	15.0	14.8	.2	~~6~~
19		20	14.8	14.4	.4	~~6~~
10		25	14.6	14.6	—	
~~32~~		~~10 dup~~				

<12 mg/L

#	Sample	ml of Sample	DO$_i$	DO$_f$	diff	BOD
1	BLK	0	~~15~~ 15	15.0	—	—
21	3082-4	1	~~14.6~~ 14.5	14.3	.2	~~60~~
70		5	14.6	14.2	.4	~~24~~
2		10	14.6	13.8	.8	~~24~~
3		20	14.3	13.9	.4	6
102		25	14.4	13.9	.5	6
321		10 dup	14.4	14.0	.4	~~12~~

<12 mg/L

30882 3-7

KEB/MAV

#	Sample	ml Sample	DO	Dof	diff	BOD
136	Blk	0	15.0	15	—	—
243	3082-5	1	14.8	14.8	—	—
20	↓	5	14.6	14.6	—	—
138		10	14.8	15	—	—
~~248~~ 284		1	14.8	15	—	—
100		5	14.6	14.4	.2	~~12~~
11		10	14.8	15	—	—
101		~~15~~ 20	14.8	14.8	—	—

<15 mg/L

#	Sample	ml Sample	DO	Dof	diff	BOD
108	3082-8	1	14.6	14.4	.2	~~60~~
14	↓	5	14.4	15.0	—	—
15		10	14.2	14.6	—	—
17		20	14.4	14.8	—	—

<15 mg/L

#	Sample	ml Sample	DOi	Dof	diff	BOD
18	3082-6	Blk	15	15	—	—
270	↓	1	14.5	15	—	—
4		5	14.7	15	—	—
8		10	14.5	15	—	—
269		20	14.5	15	—	—

<15 mg/L

#	Sample	ml Sample	DOi	Dof	diff	BOD
24	3082-9	1	14.2	14.6	—	—
7	↓	5	14.1	15.0	—	—
13		~~10~~ 50 mg	14.2	15.0	—	—
98		10	14.5	14.4	.1	~~3~~
159		20	14.3	13.8	.5	7.5

<15 mg/L

not reported

3082 → only for reference. 3-13

BOD MAV

#	Sample	ml Sample	DO	DOF	diff	BOD
17	BLK	0	15	~~15.0~~	—	
15	3082-1	50	14.2	~~14.7~~	—	
14	↓	100	13.8	~~14.2~~	—	<10 mg/L
108	3082-2	50	14.4	14.3	.1	.60
138	↓	100	13.9	14.2	—	<10 mg/L
11	3082-3	50	14.0	14.6	—	
100	↓	100	14.0	14.6	—	<10 mg/L
284	3082-4	50	14.0	14.6	—	
101	↓	100	13.8	14.0	—	<10 mg/L
20	3082-4	50	14.2	14.6	—	
243	↓	100	13.7	13.6	.1	<10 mg/L .30
136	BLK	0	15.0	15.0		
99	3082-5	50	15	14.3	.7	<10 mg/L 4.2
22	-5dup	50	15	15	—	<10 mg/L
6	-5	100	15	15	—	<10 mg/L
19	3082-6	50	15	15	—	
10	↓	100	15	14.2	.8	<10 2.4
1	3082-7	50	15	14.1	.9	5.4
21	-7dup	50	15	12.2	2.8	16.8
70	-7	100	15	14.0	1.0	<10 3.0
2	BLK	0	15.0	15	—	
3	3082-8	50	14.4	14.6	—	
102	↓	100	13.8	13.2	.6	<10 1.8
124	STD	5	14.8	9.0	5.8	> 348
136	STD	5	14.8	12.1	2.7	162

Note: Reset up of samples using a larger sample quantity. These results were not reported, but included for your information.

RD

Sample	Date	Test	Sample Amt	Abs/Trans	Dil Factor	Prep or Comments	Book Value	mg/L	Analyst
302072	3-4	Cr+6	10ml	47%			397	.397 mg/L	MAV
Dup 12	3-4	Cr+6	10ml	50%			364	.397	↓
3008 Blk	3-5	COD ↓	2ml	35%			mg/L 0		KEB
100 Stnd				72%			102.4	102%	
3008-1				48%			44.4	7% DP	
1 Dup				47%			41.4		
1 Spk				56%		1:1 w/ 100 stnd	66.3	88%	
2				40.5%			26.9		
BLK	3-8	Cr+6	10ml	100%			<5 ug/L	<.05 mg/L	MAV
STD				39%			495	99%	
3103-2				89%			61	.061	
[illegible]				90%			55	.055	↓
[illegible]	3-1	COD	2ml	35%			mg/L 0.0		KEB
[illegible]				70%			98.4	98%	
[illegible]				32.5			<	<10	
2				41			22.2	22.2	
[illegible]				34			<	<10	
[illegible]				34.5			<	<10	
[illegible]				50.5			51.6	103% Spk Rec	
[illegible]				37			7.5	<10	
[illegible]				36.5			5.6	<10	
[illegible]				27			<	<10	
[illegible]				35			<	<10	
8				30			<	<10	

A 00110

NLD 001 0252

Sample #	Date	Test	Sample Amt.	Abs/Trans	Dil.	Comment	Book Value	mg/L	Analyst
3158-4	3/15	COD low	2 ml	37%			0	<10	EVS
-5				36%			0	<10	
-6				34%			0	<10	
-7				34%			0	<10	
-8				33%			0	<10	
-8 Dup				33%			0	<10	
-8 Spk				93%			139.3	139.3	93% Re
-9				33			0	<10	
-10				34			0	<10	
-11				32			0	<10	
-12				41%			0	<10	
Blk	3/21	COD low	2 ml	35%			0	<10	EVS/H
150 STD				98.5%			147	147	98% A
3082-2				42%			25.6	25.6	
-2 Dup				43%			28.9	28.9	

Recheck on 3082-2
OK SD

3080 3-8

MAV

TSS 100ml sample

	BLK (19.58)	-1 (17.45)	-1 dup (16.88)	-2 (18.11)
T+S	19.5878	17.4566	16.8865	18.1182
T	19.5871	17.4562	16.8862	18.1174
S	.0007	.0004	.0003	.0008
	7mg/L	4mg/L	3mg/L	8mg/L

	-3 (17.05)	-4 (17.32)	-5 (17.08)	-6 (18.70)
T+S	17.0522	17.3200	17.1045	18.7025
T	17.0518	17.3196	17.1044	18.7019
S	.0004	.0004	.0001	.0006
	4mg/L	4mg/L	1mg/L	6mg/L

	-7 (12.11)	-8 (17.63)
T+S	~~18.1182~~ 17.1128	17.6344
T	17.1123	17.6343
S	.0005	.0001
	5mg/L	1mg/L

3/13/91

9103082

pH 7.00 Standard = 7.00
pH 4.00 Standard = 4.00

	pH
-1	5.98
-2	6.93
-2 Dup.	6.95
-3	6.22
-4	6.42
-5	6.67
-6	8.14
-7	6.46
-8	8.66

NLD 001 0256

Roy F. Weston, Inc.
REAC, Edison, N.J.
EPA Contract 68-03-3482

CHAIN OF CUSTODY RECORD/LAB WORK REQUEST

No: 1283

Project Name: NL Industries
Project Number: 3347-21-01-3476
RFW Contact: SCHULTZE Phone: 201 632-6923 Due Date: 4/6/91

SHEET NO 1 OF 1

ATEC Lab #
9103082

SAMPLE IDENTFICATION / **ANALYSES REQUESTED**

Sample No.	Sampling Location	Matrix	Date Collected	Container/Preservative	BOD	pH	TSS	COD	
A		W	3/5/91	1x1L Poly	✓	✓	✓		-1
"				1x500ml				✓	-1
B				1x1L Poly	✓	✓	✓		-2
"				1x500 ml				✓	-2
C				1x1L Poly	✓	✓	✓		-3
"				1x500 ml				✓	-3
D				1x1L Poly	✓	✓	✓		-4
"				1x500 ml				✓	-4
E				1x1L Poly	✓	✓	✓		-5
"				1x500 ml				✓	-5
F				1x1l poly	✓	✓	✓		-6
"				1x500ml				✓	-6
G				1x1l poly	✓	✓	✓		-7
"				1x500ml				✓	-7
H				1x1l poly	✓	✓	✓		-8
"				1x500ml				✓	-8

Matrix:
S Soil DS Drum Solids
W Water DL Drum Liquids
O Oil X Other

Special Instructions:

Items/Reason	Relinquished By	Received By	Date	Time	Items/Reason	Relinquished By	Received By	Date	
all/analysis	Schultze	B. Hudson	3/7/91	11:00					