Los Alamos
NATIONAL LABORATORY

*Los Alamos National Laboratory*
*Los Alamos, New Mexico 87545*

Date: July 12, 2000
In Reply Refer To: ESH-18/WQ&H:00-0228
Mail Stop: K497
Telephone: (505) 665-1859

[R-19]

2/1086/15

HSWA CAMU

Ms. Marcy Leavitt, Chief
Ground Water Quality Bureau
New Mexico Environment Department
P.O. Box 26110
Santa Fe, New Mexico 87502

**SUBJECT: ANALYTICAL RESULTS FROM SAMPLING GROUND WATER PRODUCED DURING THE DRILLING OF MONITORING WELL R-19 AT 625, 832.2, 1157, AND 1860-FOOT DEPTHS**

Dear Ms. Leavitt:

Enclosed are copies of the validated analytical reports for screening samples collected from Monitoring Well R-19 at the 625, 832.2, 1157, and 1860-foot depths. Monitoring Well R-19 is located at Technical Area (TA)-36. A discussion of the analytical results is presented below.

**Attachment I: Nonfiltered Sample: 625 Feet**
On February 24, 2000, nonfiltered sample CATH-00-0002 was collected from R-19 at 625 feet. Analysis of sample CATH-00-0002 (nonfiltered sample) for High-Explosive Compounds (HECs) did not detect the presence of any target analytes at concentrations greater than the laboratory's reporting limit. Validation of the data confirmed that the results are acceptable as reported.

**Attachment II: Nonfiltered Sample: 832.2 Feet**
On February 29, 2000, nonfiltered sample CATH-00-0013 was collected from R-19 at 832.2 feet. Analysis of sample CATH-00-0013 for High-Explosive Compounds (HECs) did not detect the presence of any target analytes at concentrations greater than the laboratory's reporting limit with the exception of 2-Amino-4,6-DNT (0.62 µg/L) and 2,6-Dinitrotoluene (0.34 µg/L). Validation of the data, however, indicates that the detection of 2-Amino-4,6-DNT should be regarded as estimated (J) because the matrix spike recovery was low. In addition, the detection of 2,6-Dinitrotoluene should also be regarded as estimated (J) because the percent difference between the primary and secondary column exceeded 25%.

**Attachment III: Nonfiltered Sample: 1157 Feet**
On March 3, 2000, nonfiltered sample CATH-00-0014 was collected from R-19 at 1157 feet. Analysis of sample CATH-00-0014 for High-Explosive Compounds (HECs) did not detect the presence of any target analytes in the sample at concentrations greater than the laboratory's reporting limit. Validation of the data confirmed that the results are acceptable as reported.

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1V

**Attachment IV: Filtered Sample: 1157 Feet**
On March 3, 2000, filtered sample CATH-00-0016 was collected from R-19 at 1157 feet. Analysis of sample CATH-00-0016 detected Total Organic Carbon at 110 mg/L. Validation of the data confirmed that the results are acceptable as reported.

**Attachment V: Nonfiltered Samples: 1860 Feet**
On March 12, 2000, nonfiltered sample CATH-00-0024 was collected from R-19 at 1860 feet. Analysis of sample CATH-00-0024 for High-Explosive Compounds (HECs) did not detect the presence of any target analytes in the sample at concentrations greater than the laboratory's reporting limit. Validation of the data confirmed that the results are acceptable as reported.
On March 12, 2000, nonfiltered sample CATH-00-0026 was collected from R-19 at 1860 feet. Sample CATH-00-0026 was analyzed for Total Organic Carbon and Total Alkalinity. Validation of the data confirmed that the results are acceptable as reported.

**Attachment VI: Filtered Sample: 1860 Feet**
On March 12, 2000, filtered sample CATH-00-0025 was collected from R-19 at 1860 feet. Sample CATH-00-0025 was analyzed for TKN, ammonia, nitrate/nitrite, total phosphorus, total recoverable ICP metals, and total recoverable mercury. Validation of the data confirmed that the results are acceptable as reported with the exception of the results for ammonia and total phosphorous which should be regarded as estimated (J) because the matrix spike recoveries were outside of acceptance criteria.

Please contact me at 667-1859 or Bob Beers at 667-7969 if you need any additional information regarding this data.



Sincerely,

Steven Rae
Group Leader
Water Quality and Hydrology Group

SR:BB/rm

Enclosures: a/s

Cy: P. Bustamante, NMED/GWQB, Santa Fe, New Mexico, w/enc.
J. Keiling, NMED/HRMB, Santa Fe, New Mexico, w/enc.
J. Young, NMED/HRMB, Santa Fe, New Mexico, w/enc.
J. Davis, NMED/SWQB, Santa Fe, New Mexico, w/enc.
S. Yanicek, NMED/DOE/OB, w/enc., MS J993
J. Vozella, DOE/LAAO, w/enc., MS A316
M. Johansen, DOE/LAAO, w/enc., MS A316
T. Gunderson, DLDOPS, w/enc., A100

Cy (continued):
M. Baker, E-DIV, w/enc., MS J591
J. Canepa, EM/ER, w/enc., MS M992
A. Pratt, EES-13, w/enc., MS M992
D. Daymon, EES-13, w/enc., MS M992
D. Broxton, EES-1, w/enc., MS D462
P. Longmire, EES-1, w/enc., MS D469
D. McInroy, EM/ER, w/enc., MS M992
R. Bohn, EM/ER, w/enc., MS M992
B. Hardesty, E-ER, w/enc., MS M992
D. Erickson, ESH-DO, w/enc., MS K491
C. Nylander, ESH-18, w/enc., MS K497
S. Veenis, ESH-18, w/enc., MS K497
M. Saladen, ESH-18, w/enc., MS K497
B. Beers, ESH-18, w/enc., MS K497
H. Decker, ESH-18, w/enc., MS K497
D. Woitte, LC-GEN, w/enc., MS A187
WQ&H File, w/enc., MS K497
CIC-10, w/enc., MS A150

# ATTACHMENT I

R-19
NONFILTERED SAMPLE
625 FEET

- HECs

# Los Alamos
NATIONAL LABORATORY
# Memorandum

**Environmental Science and Waste Technology (E)**
**Environmental Restoration**
**E/ER**

To: Deba Daymon, Dave Broxton, Roy Bohn
Pat Longmire, Bob Beers
From: Bill Hardesty
Phone: 667-9673
e-mail: wbh@lanl.gov
Date: April 3, 2000

Bill Hardesty

The analytical data for Request 6476R Addendum is attached.

**SUBJECT: Data Quality Evaluation for Request 6476R Addendum**

For Request 6476R, one water sample (CATH-00-0002) from R-19 at 625 feet was analyzed at Paragon Analytics for high explosives. This report replaces Paragon's first report in which Paragon failed to run a second column confirmation on analytes "detected" between the practical quantitation limit (PQL) and method detection limit (MDL). None of the previously reported (J qualified) detects were confirmed when analyzed on the primary and secondary column. No explosives were detected in the sample. No target analytes were detected in the method blank. All initial and continuing calibrations met acceptance criteria. The laboratory control sample recoveries met acceptance criteria (80-120%). There was not sufficient sample to analyze a matrix spike sample. The surrogate recovery was low. The sample was re-extracted and re-analyzed and the surrogate recovery was also low for in the second analysis. The low surrogate recovery was attributed to matrix interference from the emulsions in the water sample. The reporting limits for all target analytes for this sample should be regarded as estimated (UJ) because of the low surrogate recovery. The data are usable.

PARAGON ANALYTICS, INC.
225 Commerce Drive ◆ Fort Collins, CO 80524 ◆ (800) 443-1511 ◆ (970) 490-1511 ◆ FAX (970) 490-1522

R-19
625ft

March 20, 2000

Ms. Joylene Valdez
Los Alamos National Laboratory
SMO TA-3, Bldg. 271
Los Alamos, NM 87545

RE: Paragon Workorder: 00-02-154
Client Project Name: None Submitted
Client Project Number: 6476R Addendum

Dear Ms. Valdez:

This report contains updated results for Explosives by HPLC (pages 1-61). The results have been updated to reflect the re-analyses of the sample on a confirmation (CN) column. (The original report was sent on March 8, 2000.)

The circumstances of the re-analyses have are described in the enclosed Addendum to the Case Narrative.

Please note that a replacement EDD was sent on March 20, 2000.

Thank you for your confidence in Paragon Analytics, Inc. Should you have any questions, please call.

Sincerely,

Steven M. Fry

Paragon Analytics, Inc.
Dr. Steven M. Fry
Vice President

SMF/smf
Enclosure: Report

Report Sent To: Pat Lyon
Approved By:
Date: 03/23/00

# HPLC Explosives

## Method SW8330

## Sample Results

**Lab Name:** Paragon Analytics, Inc.
**Work Order Number:** 0002154
**Client Name:** Los Alamos National Laboratory SMO
**ClientProject ID:** 6476R

[redacted] CATH-00-0002
0002154-1

**Sample Matrix:** WATER
**% Moisture:** N/A
**Date Collected:** 24-Feb-00
**Date Extracted:** 01-Mar-00
**Date Analyzed:** 02-Mar-00

**Prep Batch:** EX000301-1
**QCBatchID:** EX000301-1-1
**Run ID:** HP000302-41
**Cleanup:** NONE
**Basis:** As Received

**Sample Aliquot:** 350 ML
**Final Volume:** 3 ML
**Result Units:** UG/L

**File Name:** 03020008

| CASNO | Target Analyte | Dilution Factor | Result | Reporting Limit | Result Qualifier | EPA Qualifier |
|---|---|---|---|---|---|---|
| 2691-41-0 | HMX | 1 | 1 | 1 | U | |
| 121-82-4 | RDX | 1 | 0.84 | 0.84 | U | |
| 99-35-4 | 1,3,5-TRINITROBENZENE | 1 | 0.26 | 0.26 | U | |
| 99-65-0 | 1,3-DINITROBENZENE | 1 | 0.25 | 0.25 | U | |
| 479-45-8 | TETRYL | 1 | 1 | 1 | U | |
| 98-95-3 | NITROBENZENE | 1 | 1 | 1 | U | |
| 118-96-7 | 2,4,6-TRINITROTOLUENE | 1 | 0.25 | 0.25 | U | |
| 1946-51-0 | 4-AMINO-2,6-DNT | 1 | 0.25 | 0.25 | U | |
| 35572-78-2 | 2-AMINO-4,6-DNT | 1 | 0.25 | 0.25 | U | |
| 606-20-2 | 2,6-DINITROTOLUENE | 1 | 0.25 | 0.25 | U | |
| 121-14-2 | 2,4-DINITROTOLUENE | 1 | 0.25 | 0.25 | U | |
| 88-72-2 | 2-NITROTOLUENE | 1 | 1 | 1 | U | |
| 99-99-0 | 4-NITROTOLUENE | 1 | 1 | 1 | U | |
| 99-08-1 | 3-NITROTOLUENE | 1 | 1 | 1 | U | |

## Surrogate Recovery

| CASNO | Surrogate Analyte | Result | Flag | Spike Amount | Percent Recovery | Control Limits |
|---|---|---|---|---|---|---|
| 100-25-4 | 1,4-DINITROBENZENE | 0.392 | * | 2.14 | 18 | 34 - 106 |

**Data Package ID:** *HP0002154-1*

00008A 3/20/00

# ATTACHMENT II

R-19
NONFILTERED SAMPLE
832.2 FEET

- HECs

| | |
|---|---|
| **Los Alamos**<br>NATIONAL LABORATORY<br>**Memorandum**<br>**Environmental Science and Waste Technology (E)**<br>**Environmental Restoration**<br>**E/ER** | To: Deba Daymon, Dave Broxton, Roy Bohn<br>Pat Longmire, Ted Ball<br>From: Bill Hardesty<br>Phone: 667-9673<br>e-mail: wbh@lanl.gov<br>Date: April 5, 2000<br>Bill Hardesty 4/5/00 |

The analytical data for Request 6513R is attached.

**SUBJECT: Data Quality Evaluation for Request 6513R**

For Request 6513R, one water sample from R-19, at a depth of 832.2 feet, was analyzed at Paragon Analytics for high explosives.

HMX was reported at 0.11 ug/L. This result should be regarded as estimated (J) because the result was less than the practical quantitation limit but above the method detection limit. This result should also be regarded as estimated (J) because the matrix spike recovery was low. Further, this result should be regarded as estimated (J) because the percent difference between the primary and secondary column exceeded 25%.

Nitrobenzene was reported at 0.36 ug/L. This result should be regarded as estimated (J) because the result was less than the practical quantitation limit but above the method detection limit. This result should also be regarded as estimated (J) because the percent difference between the primary and secondary column exceeded 25%.

2-Amino-4,6-DNT was reported at 0.62 ug/L. This result should be regarded as estimated (J) because the matrix spike recovery was low.

2,6-Dinitrotoluene was reported at 0.34 ug/L. This result should be regarded as estimated (J) because the percent difference between the primary and secondary column exceeded 25%.

No target analytes were detected in the method blank. The blank spike and blank spike duplicate recoveries and relative percent differences met performance criteria. The data above was qualified based on low matrix spike recoveries, and secondary confirmation results with percent differences >25%.

The results are qualified, but fully usable.

perched ▽ 832.2 ft

R-19 Perched

PARAGON ANALYTICS,

225 Commerce Drive • Fort Collins, CO 80524 • (800) 443-1511 • (970) 490-1511 • FAX (970) 490-1522

March 13, 2000

MAR 2000

Ms. Joylene Valdez
Los Alamos National Laboratory SMO
SMO TA-3, Building 271
Los Alamos, NM 87545

RE: Paragon Workorder: 00-03-040
Client Project Name: None Submitted
Client Project Number: 6513R

Dear Ms. Valdez:

One water sample was received from Los Alamos National Laboratory SMO on March 4, 2000. The sample was scheduled for Explosive by HPLC (pages 1-114) analysis. The results for this analysis are contained in the enclosed reports.

Please note that an EDD was ~~mailed~~ sent on March 13, 2000.

pt.

Thank you for your confidence in Paragon Analytics, Inc. Should you have any questions, please call.

Sincerely,

Report Approved: Date: 03/16/00

Paragon Analytics, Inc.
Lance Steere
Senior Project Manager

LRS/mc
Enclosure: Report

EDD

# Paragon Analytics, Incorporated

## Sample Number(s) Cross-Reference Table

**Paragon OrderNum:** 0003040
**Client Name:** Los Alamos National Laboratory SMO
**Client Project Name:**
**Client Project Number:** fd3189
**Client PO Number:** 7794L0014-9S

| Client Sample | Lab Sample Number | COC Number | Matrix | Date Collected | Time Collected |
|---|---|---|---|---|---|
| CATH-00-0013 | 0003040-1 | | WATER | 2/29/00 | |

R-19 NONFILTERED ONLY

# HPLC Explosives

V 832.2 FL Perched
Collected @ 8:02 PM

## Method SW8330
## Sample Results

Lab Name: Paragon Analytics, Inc.
Work Order Number: 0003040
Client Name: Los Alamos National Laboratory SMO
ClientProject ID: 6513R

Field ID: CATH-00-0013
Lab ID: 0003040-1

Sample Matrix: WATER
% Moisture: N/A
Date Collected: 29-Feb-00
Date Extracted: 05-Mar-00
Date Analyzed: 06-Mar-00

Prep Batch: EX000305-1
QCBatchID: EX000305-1-1
Run ID: HP000306-42
Cleanup: NONE
Basis: As Received

Sample Aliquot: 350 ML
Final Volume: 3 ML
Result Units: UG/L

File Name: 03060008

| CASNO | Target Analyte | Dilution Factor | Result | Reporting Limit | Result Qualifier | EPA Qualifier |
|---|---|---|---|---|---|---|
| 2691-41-0 | HMX | 1 | 0.11 | 1 | J | |
| 121-82-4 | RDX | 1 | 0.84 | 0.84 | U | |
| 99-35-4 | 1,3,5-TRINITROBENZENE | 1 | 0.26 | 0.26 | U | |
| 99-65-0 | 1,3-DINITROBENZENE | 1 | 0.25 | 0.25 | U | |
| 479-45-8 | TETRYL | 1 | 1 | 1 | U | |
| 98-95-3 | NITROBENZENE | 1 | 0.36 | 1 | J | |
| 118-96-7 | 2,4,6-TRINITROTOLUENE | 1 | 0.25 | 0.25 | U | |
| 1946-51-0 | 4-AMINO-2,6-DNT | 1 | 0.25 | 0.25 | U | |
| 35572-78-2 | 2-AMINO-4,6-DNT | 1 | 0.62 | 0.25 | | |
| 606-20-2 | 2,6-DINITROTOLUENE | 1 | 0.34 | 0.25 | | |
| 121-14-2 | 2,4-DINITROTOLUENE | 1 | 0.25 | 0.25 | U | |
| 88-72-2 | 2-NITROTOLUENE | 1 | 1 | 1 | U | |
| 99-99-0 | 4-NITROTOLUENE | 1 | 1 | 1 | U | |
| 99-08-1 | 3-NITROTOLUENE | 1 | 1 | 1 | U | |

## Surrogate Recovery

| CASNO | Surrogate Analyte | Result | Flag | Spike Amount | Percent Recovery | Control Limits |
|---|---|---|---|---|---|---|
| 100-25-4 | 1,4-DINITROBENZENE | 1.21 | | 2.14 | 56 | 34 - 106 |

Data Package ID: *HP0003040-1*

# HPLC Explosives

## Method SW8330

## Column Comparison

**Lab Name:** Paragon Analytics, Inc.
**Work Order Number:** 0003040
**Client Name:** Los Alamos National Laboratory SMO
**ClientProject ID:** 6513R

| | |
|---|---|
| **Field ID:** | CATH-00-0013 |
| **Lab ID:** | 0003040-1 |

**Sample Matrix:** WATER
**% Moisture:** N/A
**Date Collected:** 02/29/2000
**Date Extracted:** 03/05/2000
**Date Analyzed:** 03/06/2000

**Prep Batch:** EX000305-1
**QCBatchID:** EX000305-1-1
**Run ID:** HP000306-42
**Cleanup:** NONE
**Basis:** As Received

**Sample Aliquot:** 350 ML
**Final Volume:** 3 ML
**Result Units:** UG/L

| CASNO | Target Analyte | Column 1 Result | Column 2 Result | %D | Column 1 %Rec | Column 2 %Rec |
|---|---|---|---|---|---|---|
| 2691-41-0 | HMX | 0.11 | 8.5 | 627.3 | | |
| 100-25-4 | 1,4-DINITROBENZENE | 1.21 | 1.47 | 21.5 | 56 | 69 |
| 98-95-3 | NITROBENZENE | 0.36 | 8.5 | 261.1 | | |
| 35572-78-2 | 2-AMINO-4,6-DNT | 0.62 | 0.6 | 3.3 | | |
| 606-20-2 | 2,6-DINITROTOLUENE | 0.34 | 1.8 | 429.4 | | |

**Data Package ID:** *HP0003040-1*

# ATTACHMENT III

R-19
NONFILTERED SAMPLE
1157 FEET

- HECs

# Los Alamos
NATIONAL LABORATORY
# Memorandum

**Environmental Science and Waste Technology (E)**
**Environmental Restoration**
**E/ER**

To: Deba Daymon, Dave Broxton, Roy Bohn
Pat Longmire, Bob Beers
From: Bill Hardesty
Phone: 667-9673
e-mail: wbh@lanl.gov
Date: April 3, 2000

Bill Hardesty

The analytical data for Request 6512R is attached.

**SUBJECT: Data Quality Evaluation for Request 6512R**

For Request 6512R, one water sample (CATH-00-0014) from R-19 at 1157 feet was analyzed at Paragon Analytics for high explosives. The sample was extracted and analyzed within holing times. No target analytes were detected in the method blank. All initial and continuing calibrations verifications were within acceptance criteria except for 2,4,6-TNT had a high recovery and Tetryl had a low recovery on the closing continuing calibration. These compounds were not detected on the primary analysis and were therefore not target analytes on the confirmation analysis. No data qualification was therefore necessary. All laboratory control sample recoveries met acceptance criteria. There was insufficient sample to analyze a matrix spike sample. All surrogate recoveries met were within acceptance criteria. One target analyte was detected, 2,4-amino-4,6-DNT at 0.19ug/L on the primary column. The result for this analyte on the secondary column was 0.55 ug/L. Per EPA Method 8330, the primary column result was reported. The result for 2,4,amino-4,6-DNT should be regarded as estimated (J) because the percent difference (190%) for the results between the primary and secondary column exceeded 25%. The result is also regarded as estimated because it was below the practical quantitation limit (0.25 ug/L). The data are usable.

PARAGON ANALYTICS, INC.
225 Commerce Drive • Fort Collins, CO 80524 • (800) 443-1511 • (970) 490-1511 • FAX (970) 490-1522

R-19
1157ft

March 20, 2000

Ms. Joylene Valdez
Los Alamos National Laboratory SMO
SMO TA-3, Building 271
Los Alamos, NM 87545

RE: Paragon Workorder: 00-03-048
Client Project Name: None Submitted
Client Project Number: 6512R

Dear Ms. Valdez:

One water sample was received from Los Alamos National Laboratory SMO on March 7, 2000. The sample was scheduled for Explosives (pages 1-110) analysis.The results for this analysis are contained in the enclosed reports.

Please note that an EDD was sent out on March 20, 2000.

Thank you for your confidence in Paragon Analytics, Inc. Should you have any questions, please call.

Sincerely,

Paragon Analytics, Inc.
Lance Steere
Senior Project Manager

LRS/mc
Enclosure: Report

Pat.
03/23/00

# HPLC Explosives

## Method SW8330

## Sample Results

**Lab Name:** Paragon Analytics, Inc.
**Work Order Number:** 0003048
**Client Name:** Los Alamos National Laboratory SMO
**ClientProject ID:** 6512R

| | |
|---|---|
| Field ID: | CATH-00-0014 |
| Lab ID: | 0003048-1 |

**Sample Matrix:** WATER
**% Moisture:** N/A
**Date Collected:** 03-Mar-00
**Date Extracted:** 08-Mar-00
**Date Analyzed:** 14-Mar-00

**Prep Batch:** EX000308-1
**QCBatchID:** EX000308-1-1
**Run ID:** HP000314-41
**Cleanup:** NONE
**Basis:** As Received

**Sample Aliquot:** 350 ML
**Final Volume:** 3 ML
**Result Units:** UG/L

**File Name:** 03140006

| CASNO | Target Analyte | Dilution Factor | Result | Reporting Limit | Result Qualifier | EPA Qualifier |
|---|---|---|---|---|---|---|
| 2691-41-0 | HMX | 1 | 1 | 1 | U | |
| 121-82-4 | RDX | 1 | 0.84 | 0.84 | U | |
| 99-35-4 | 1,3,5-TRINITROBENZENE | 1 | 0.26 | 0.26 | U | |
| 99-65-0 | 1,3-DINITROBENZENE | 1 | 0.25 | 0.25 | U | |
| 479-45-8 | TETRYL | 1 | 1 | 1 | U | |
| 98-95-3 | NITROBENZENE | 1 | 1 | 1 | U | |
| 118-96-7 | 2,4,6-TRINITROTOLUENE | 1 | 0.25 | 0.25 | U | |
| 1946-51-0 | 4-AMINO-2,6-DNT | 1 | 0.25 | 0.25 | U | |
| 35572-78-2 | 2-AMINO-4,6-DNT | 1 | 0.19 | 0.25 | J | |
| 606-20-2 | 2,6-DINITROTOLUENE | 1 | 0.25 | 0.25 | U | |
| 121-14-2 | 2,4-DINITROTOLUENE | 1 | 0.25 | 0.25 | U | |
| 88-72-2 | 2-NITROTOLUENE | 1 | 1 | 1 | U | |
| 99-99-0 | 4-NITROTOLUENE | 1 | 1 | 1 | U | |
| 99-08-1 | 3-NITROTOLUENE | 1 | 1 | 1 | U | |

## Surrogate Recovery

| CASNO | Surrogate Analyte | Result | Flag | Spike Amount | Percent Recovery | Control Limits |
|---|---|---|---|---|---|---|
| 100-25-4 | 1,4-DINITROBENZENE | 1.83 | | 2.14 | 85 | 34 - 106 |

**Data Package ID:** *HP0003048-1*

# ATTACHMENT IV

R-19
FILTERED SAMPLE
1157 FEET

- Total Organic Carbon

| | |
|---|---|
| **Los Alamos**<br>NATIONAL LABORATORY<br>**Memorandum**<br>**Environmental Science and Waste Technology (E)**<br>**Environmental Restoration**<br>**E/ER** | To: Deba Daymon, Dave Broxton, Roy Bohn<br>Pat Longmire, Ted Ball<br>From: Bill Hardesty<br>Phone: 667-9673<br>e-mail: wbh@lanl.gov<br>Date: April 5, 2000<br>Bill Hardesty 4/5/00 |

The analytical data for Request 6516R is attached.

**SUBJECT: Data Quality Evaluation for Request 6516R**

For Request 6516R, one water sample from R-19, at a depth of 1157 feet, was analyzed at Paragon Analytics for total organic carbon.

**Summary**

Total organic carbon was detected at 110 mg/L.

**Data Quality**

No total organic carbon was detected in the method blank. The sample was prepared and analyzed within holding time. The matrix spike, matrix spike duplicate and laboratory control sample requirements were met. The data is useable without qualification.

PARAGON ANALYTICS, INC.
225 Commerce Drive • Fort Collins, CO 80524 • (800) 443-1511 • (970) 490-1511 • FAX (970) 490-1522

R-19 2 1157

March 23, 2000

Ms. Joylene Valdez
Los Alamos National Laboratory SMO
SMO TA-3, Building 271
Los Alamos, NM 87545

MAR 2000

RE: Paragon Workorder: 00-03-050
Client Project Name: None Submitted
Client Project Number: 6516R

Dear Ms. Valdez:

One water sample was received from Los Alamos National Laboratory SMO on March 7, 2000. The sample was scheduled for Total Organic Carbon (pages 1-29) analysis.The results for this analysis are contained in the enclosed reports.

Please note that an EDD was not required.

Thank you for your confidence in Paragon Analytics, Inc. Should you have any questions, please call.

Sincerely,

Paragon Analytics, Inc.
Lance Steere
Senior Project Manager

FIELD COPY

LRS/mc
Enclosure: Report

put.

03/27/00

# TOTAL ORGANIC CARBON

## Method SW9060

## Sample Results

**Lab Name:** Paragon Analytics, Inc.
**Client Name:** Los Alamos National Laboratory SMO
**Client Project ID:** 6516R
**Work Order Number:** 0003050
**Reporting Basis:** As Received

**Final Volume:** 1 ML
**Matrix:** WATER
**Result Units:** MG/L

| Client Sample ID | Lab ID | Date Collected | Date Prepared | Date Analyzed | Percent Moisture | Dilution Factor | Result | Reporting Limit | Flag | Sample Aliquot |
|---|---|---|---|---|---|---|---|---|---|---|
| CATH-00-0016 | 0003050-1 | 3/3/2000 | 3/13/2000 | 03/13/2000 | N/A | 1 | 110 | 5 | | .2 ML |

**Comments:**

1. ND or U = Not Detected at or above the client requested detection limit.

**Data Package ID:** *MW0003050-1*

# ATTACHMENT V

R-19
NONFILTERED SAMPLE
1860 FEET

- HECs
- Total Alkalinity
- Total Organic Carbon

| | |
|---|---|
| **Los Alamos**<br>NATIONAL LABORATORY<br>**Memorandum**<br>**Environmental Science and Waste Technology (E)**<br>**Environmental Restoration**<br>**E/ER** | To: Deba Daymon, Dave Broxton, Roy Bohn<br>Pat Longmire, Ted Ball<br>From: Bill Hardesty<br>Phone: 667-9673<br>e-mail: wbh@lanl.gov<br>Date: April 5, 2000<br>Bill Hardesty 4/5/00 |

The analytical data for Request 6573R is attached.

**SUBJECT: Data Quality Evaluation for Request 6573R**

For Request 6573R, one water sample from R-19, at a depth of 1860 feet, was analyzed at Paragon Analytics for high explosives.

**Summary**

No target analytes were detected.

**Data Quality**

No target analytes were detected in the method blank. The sample was extracted and analyzed within holding time. All initial and continuing calibration verifications met acceptance criteria. The blank spike and blank spike duplicate recoveries and relative percent differences met performance criteria. There was not sufficient sample to analyze a matrix spike sample. All surrogate recoveries met acceptance criteria. The results are usable without qualification.

R-19
1860

# PARAGON ANALYTICS, INC.

225 Commerce Drive ◆ Fort Collins, CO 80524 ◆ (800) 443-1511 ◆ (970) 490-1511 ◆ FAX (970) 490-1522

March 24, 2000

Ms. Joylene Valdez
Los Alamos National Laboratory SMO
SMO TA-3, Building 271
Los Alamos, NM 87545

RE: Paragon Workorder: 00-03-125
Client Project Name: None Submitted
Client Project Number: 6573R

Dear Ms. Valdez:

One water sample was received from Los Alamos National Laboratory SMO on March 15, 2000. The samples were scheduled for Explosives by HPLC (pages 1-64) analysis. The results for this analysis are contained in the enclosed reports.

Please note that an EDD was sent out on March 23, 2000.

Thank you for your confidence in Paragon Analytics, Inc. Should you have any questions, please call.

Sincerely,

Paragon Analytics, Inc.
Lance Steere
Senior Project Manager

LRS/mc
Enclosure: Report

FAX Report Sent To:
Approved By:
Date Sent: 03/27/00

# HPLC Explosives

## Method SW8330

## Sample Results

**Lab Name:** Paragon Analytics, Inc.
**Work Order Number:** 0003125
**Client Name:** Los Alamos National Laboratory SMO
**ClientProject ID:** 6573R

| | |
|---|---|
| Sample ID: | CATH-00-0024 |
| Lab ID: | 0003125-1 |

**Sample Matrix:** WATER
**% Moisture:** N/A
**Date Collected:** 12-Mar-00
**Date Extracted:** 15-Mar-00
**Date Analyzed:** 15-Mar-00

**Prep Batch:** EX000315-2
**QCBatchID:** EX000315-2-1
**Run ID:** HP000315-32
**Cleanup:** NONE
**Basis:** As Received

**Sample Aliquot:** 350 ML
**Final Volume:** 3 ML
**Result Units:** UG/L

**File Name:** 03150011

| CASNO | Target Analyte | Dilution Factor | Result | Reporting Limit | Result Qualifier | EPA Qualifier |
|---|---|---|---|---|---|---|
| 2691-41-0 | HMX | 1 | 1 | 1 | U | |
| 121-82-4 | RDX | 1 | 0.84 | 0.84 | U | |
| 99-35-4 | 1,3,5-TRINITROBENZENE | 1 | 0.26 | 0.26 | U | |
| 99-65-0 | 1,3-DINITROBENZENE | 1 | 0.25 | 0.25 | U | |
| 479-45-8 | TETRYL | 1 | 1 | 1 | U | |
| 98-95-3 | NITROBENZENE | 1 | 1 | 1 | U | |
| 118-96-7 | 2,4,6-TRINITROTOLUENE | 1 | 0.25 | 0.25 | U | |
| 1946-51-0 | 4-AMINO-2,6-DNT | 1 | 0.25 | 0.25 | U | |
| 35572-78-2 | 2-AMINO-4,6-DNT | 1 | 0.25 | 0.25 | U | |
| 606-20-2 | 2,6-DINITROTOLUENE | 1 | 0.25 | 0.25 | U | |
| 121-14-2 | 2,4-DINITROTOLUENE | 1 | 0.25 | 0.25 | U | |
| 88-72-2 | 2-NITROTOLUENE | 1 | 1 | 1 | U | |
| 99-99-0 | 4-NITROTOLUENE | 1 | 1 | 1 | U | |
| 99-08-1 | 3-NITROTOLUENE | 1 | 1 | 1 | U | |

## Surrogate Recovery

| CASNO | Surrogate Analyte | Result | Flag | Spike Amount | Percent Recovery | Control Limits |
|---|---|---|---|---|---|---|
| 100-25-4 | 1,4-DINITROBENZENE | 1.75 | | 2.14 | 82 | 34 - 106 |

**Data Package ID:** *HP0003125-1*

**Los Alamos**
NATIONAL LABORATORY
**Memorandum**
**Environmental Science and Waste Technology (E)**
**Environmental Restoration**
**E/ER**

To: Deba Daymon, Dave Broxton, Roy Bohn
Pat Longmire, Ted Ball
From: Bill Hardesty
Phone: 667-9673
e-mail: wbh@lanl.gov
Date: April 5, 2000

Bill Hardesty

The analytical data for Request 6580R is attached.

**SUBJECT: Data Quality Evaluation for Request 6580R**

For Request 6580R, one water sample from R-19, at a depth of 1860 feet, was analyzed at Paragon Analytics for total organic carbon.

**Summary**

Total organic carbon was detected at 6.1 mg/L.

**Data Quality**

No total organic carbon was detected in the method blank. The sample was prepared and analyzed within holding time. The matrix spike, matrix spike duplicate and laboratory control sample requirements were met. The data is useable without qualification.

R-19

PARAGON ANALYTICS, INC.
225 Commerce Drive • Fort Collins, CO 80524 • (800) 443-1511 • (970) 490-1511 • FAX (970) 490-1522

March 29, 2000

Ms. Joylene Valdez
Los Alamos National Laboratory SMO
SMO TA-3, Building 271
Los Alamos, NM 87545

RE: Paragon Workorder: 00-03-144
Client Project Name: None Submitted
Client Project Number: 6580R

Dear Ms. Valdez:

One water sample was received from Los Alamos National Laboratory SMO on March 18, 2000. The sample was scheduled for Total Organic Carbon (pages 1-28) analysis. The results for this analysis are contained in the enclosed reports.

Please note that no EDD was required for this package.

Thank you for your confidence in Paragon Analytics, Inc. Should you have any questions, please call.

Sincerely,

Paragon Analytics, Inc.
Lance Steere
Senior Project Manager

Report Sent To: Bill Hardesty
Approved By:
Date Sent: 4/3/00

LRS/mc
Enclosure: Report

FIELD COPY

# TOTAL ORGANIC CARBON

## Method SW9060

## Sample Results

**Lab Name:** Paragon Analytics, Inc.
**Client Name:** Los Alamos National Laboratory SMO
**Client Project ID:** 6580R
**Work Order Number:** 0003144
**Reporting Basis:** As Received

**Final Volume:** 1 ML
**Matrix:** WATER
**Result Units:** MG/L

| Client Sample ID | Lab ID | Date Collected | Date Prepared | Date Analyzed | Percent Moisture | Dilution Factor | Result | Reporting Limit | Flag | Sample Aliquot |
|---|---|---|---|---|---|---|---|---|---|---|
| CATH-00-0026 | 0003144-1 | 3/12/2000 | 3/23/2000 | 03/23/2000 | N/A | 1 | 6.1 | 1 | | 1 ML |

**Comments:**

1. ND or U = Not Detected at or above the client requested detection limit.

**Data Package ID:** *MW0003144-1*

# TOTAL ALKALINITY As CaCO3

## Method EPA310.1

## Sample Results

**Lab Name:** Paragon Analytics, Inc.
**Client Name:** Los Alamos National Laboratory SMO
**Client Project ID:** 6581R
**Work Order Number:** 0003146
**Reporting Basis:** As Received

**Final Volume:** 50 ML
**Matrix:** WATER
**Result Units:** mg/L

| Client Sample ID | Lab ID | Date Collected | Date Prepared | Date Analyzed | Percent Moisture | Dilution Factor | Result | Reporting Limit | Flag | Sample Aliquot |
|---|---|---|---|---|---|---|---|---|---|---|
| CATH-00-0026 | 0003146-1 | 3/12/2000 | 3/21/2000 | 03/21/2000 | N/A | 1 | 52 | 10 | | 50 ML |

**Comments:**

1. ND or U = Not Detected at or above the client requested detection limit.

**Data Package ID:** *AK0003146-1*

# ATTACHMENT VI

R-19
FILTERED SAMPLE
1860 FEET

- TKN, NH3, NO3/NO2
- Total Phosphorus
- Total Recoverable ICP Metals
- Total Recoverable Mercury

| | |
|---|---|
| **Los Alamos**<br>NATIONAL LABORATORY<br>**Memorandum**<br>**Environmental Science and Waste Technology (E)**<br>**Environmental Restoration**<br>**E/ER** | To: Deba Daymon, Dave Broxton, Roy Bohn<br>Pat Longmire, Ted Ball<br>From: Bill Hardesty<br>Phone: 667-9673<br>e-mail: wbh@lanl.gov<br>Date: April 19, 2000<br>Bill Hardesty |

The analytical data for Request 6586R is attached.

**SUBJECT: Data Quality Evaluation for Request 6586R**

For Request 6586R, one water sample (CATH-00-0025) from R-19 (collected 3/12/00 at 8:00), at a depth of 1860 feet, was analyzed at RECRA Environmental for TKN.

**Summary**

Please refer to the attached Form 1's.

**Data Quality**

The data is usable without qualification.

RECRA
ENVIRONMENTAL
INC.

*Chemical and Environmental Measurement Information*

11 April 2000

Ms. Joylene Valdez
Los Alamos National Laboratory
TA-3, Building 271
DP. O1U MS-H865
Los Alamos, NM 87545

Ref: **Subcontract No. 7791L0014-8M**
**Data Report for RFW Batch 0003L758**
**LANL Request No. 6586R**

R-19 1860

Dear Ms. Valdez:

Enclosed please find the data report for 1 water sample received 21 March 2000. This was analyzed for TKN on a 30 day turnaround. The EDD will follow shortly.

Please do not hesitate to contact me at (610) 280-3000, ext. 4286 with any question you may have regarding either the hard copy or electronic report.

Very truly yours,

Recra Environmental, Inc.

Judith L. Stone
Senior Project Manager

Bill
Report Sent To: Bill Hardesty
Reported By:
Date Sent: 4/13/00

Enclosure:

FIEL COPY

Monday, March 20, 2000

REQUEST NUMBER: 6586R

ANALYSIS TYPE: INORG

# Los Alamos
NATIONAL LABORATORY

ATTN: Judy Stone
RECRA
208 WELSH POOL ROAD
LIONVILLE, PA 19341-1225

00031758

Please analyze the enclosed samples according to the schedule indicated:

**SHIP DATE: 3/20/00**
**REPORT DUE: 4/21/00**
**TURN AROUND REQ'D: 30 day**

These samples are on:

**LANL Request Number: 6586R**
**Per Agreement Number: 7791L0014-9S**
**Project Cost Code: MR1A05509LG0**

**RAD SCREENING: Not Required**

**COMMENTS: TH - 1049 , AP; SAMPLES SHIPPED UNDER FDG# 3210.**

LANL ER SMO CONTACT: Joylene Valdez MS H865 5056659968

Signature: Joylene Valdez

| ANALYSIS ORDER CODE | ANALYTE(S) | SAMPLE ID | CONT ID | SAMPLE MATRIX | DATE SAMPLED | COMMENTS |
|---|---|---|---|---|---|---|
| TKN | | CATH-00-0025 | 08 | W | 3/12/00 | |

Recra LabNet - Lionville

INORGANICS DATA SUMMARY REPORT 03/27/00

CLIENT: LANL REQ 6586R

RECRA LOT #: 0003L758

WORK ORDER: 02744-064-001-9999-00

| SAMPLE | SITE ID | ANALYTE | RESULT | UNITS | REPORTING LIMIT | DILUTION FACTOR |
|---|---|---|---|---|---|---|
| -001 | CATH-00-0025 08 | TKN | 1.9 | MG/L | 0.10 | 1.0 |

**Los Alamos**
NATIONAL LABORATORY
**Memorandum**
**Environmental Science and Waste Technology (E)**
**Environmental Restoration**
**E/ER**

To: Deba Daymon, Dave Broxton, Roy Bohn
Pat Longmire, Ted Ball
From: Bill Hardesty
Phone: 667-9673
e-mail: wbh@lanl.gov
Date: April 7, 2000

Bill Hardesty

The analytical data for Request 6581R is attached.

**SUBJECT: Data Quality Evaluation for Request 6581R**

For Request 6581R, one water sample (filtered and not filtered) from R-19 (collected 3/12/00 at 8:00), at a depth of 1860 feet, was analyzed at Paragon Analytics for Inorganic analytes and Target Analyte List metals.

**Summary**

Please refer to the attached Form 1's for the detected inorganic chemicals.

**Data Quality**

- For the inorganic analyses, the samples were prepared and analyzed within the established holding times. No target analytes were detected in the method blank. The laboratory control sample recoveries were within acceptance criteria. All initial and continuing calibration verifications met acceptance criteria. The ammonia concentrations in the matrix spike (MS) and matrix spike duplicate (MSD) were above the analytical range of the ion selective electrode. The MS/MSD recoveries were also outside of acceptance criteria for total phosphorous. The results for ammonia and total phosphorous should be regarded as estimated (J) because of the matrix spike recoveries outside of acceptance criteria. The results are fully usable.
- For the TAL metals analyses, the samples were prepared and analyzed within established holding times. No target analytes were detected in the method blank. The laboratory control sample recoveries met acceptance criteria. All initial and continuing calibration verifications met acceptance criteria. The interference check sample met acceptance criteria. The MSD recovery for selenium was high. Since selenium was not detected in the sample, no qualifier was necessary. The data are usable without qualification.

PARAGON ANALYTICS, INC.
225 Commerce Drive ◆ Fort Collins, CO 80524 ◆ (800) 443-1511 ◆ (970) 490-1511 ◆ FAX (970) 490-1522

April 3, 2000

APR 2000

Ms. Joylene Valdez
Los Alamos National Laboratory SMO
SMO TA-3, Building 271
Los Alamos, NM 87545

collected
3/12 8:00

R-19
TH-10,000
SAIC
1860 feet

RE: Paragon Workorder: 00-03-146
Client Project Name: None Submitted
Client Project Number: 6581R

Dear Ms. Valdez:

Two water samples were received from Los Alamos National Laboratory SMO on March 18, 2000. The sample was scheduled for Inorganics (pages 1-48) and Total Recoverable Metals (pages 49-260) analysis. The results for this analysis are contained in the enclosed reports.

Please note an EDD was transmitted on April 3, 2000.

Thank you for your confidence in Paragon Analytics, Inc. Should you have any questions, please call.

Sincerely,

Steven Fry

Paragon Analytics, Inc.
by Lance Steere
Senior Project Manager

LRS/mc
Enclosure: Report

FIELD COPY

Bill
Report Cont To: Bill Hardesty

Approved By: _____

Date Sent: 4/5/00

Friday, March 17, 2000

**Los Alamos**
**National Laboratory**

Attn: Steve Fry
Paragon Analytics, Inc.
225 Commerce
Ft. Collins, CO 80524

**CHAIN OF CUSTODY DOCUMENT NUMBER: 3210**
**Field Delivery Group Number: 3210**
Analysis Type: INORGANIC

**PAGE 1 OF 1**

0003146

Please analyze the enclosed samples according to the schedule indicated:

**Ship Date:** 3/17/00
**Report Due: 4/21/00**
**Turnaround Required: 30 days**
**Rad screening: NO, NOT REQUIRED**
**Comments: Database is down, will send corrected paperwork ASAP.**
**LANL ER SMO CONTACT: Stephanie L Hagelberg MS H865 (505) 665-9966**

**LANL Field Delivery Group Number: 3210**
**Per agreement number: 7794L0014-9S**
**Project Cost Code: MR1A 05509LG0**

**SIGNATURE** _____

| Sample ID | CID | Container | Matrix | Pres | Order Code | Analytes | Collection time | Comments |
|---|---|---|---|---|---|---|---|---|
| CATH-00-0026 | 01 | 125 ml poly | water | ICE | ALKT | | 3/12/00 0800 | |
| CATH-00-0025 | 07 | 500 ml poly | water | H2SO4 | NH4+NO2NO3+PO4 | | 3/12/00 0800 | |
| CATH-00-0025 | 06 | 250 ml poly | water | HNO3 | METTAL+B+Mo+Si+Sr | | 3/12/00 0800 | |

| Relinquished By: | | Date | Time | Received By: | | Date | Time |
|---|---|---|---|---|---|---|---|
| Stephanie L Hagelberg | | | | | | | |
| Printed Name | Signature | 3-17-00 | 1400 | Printed Name | Signature | 3/18/00 | 1000 |
| Printed Name | Signature | | | Printed Name | Signature | | |
| Printed Name | Signature | | | Printed Name | Signature | | |

**Received for disposal by:**

| | | | |
|---|---|---|---|
| Printed Name | Signature | Printed Name | Signature |

# AMMONIA

## Method EPA350.3

## Sample Results

**Lab Name:** Paragon Analytics, Inc.
**Client Name:** Los Alamos National Laboratory SMO
**Client Project ID:** 6581R
**Work Order Number:** 0003146
**Reporting Basis:** As Received

**Final Volume:** 10 ML
**Matrix:** WATER
**Result Units:** mg/L

| Client Sample ID | Lab ID | Date Collected | Date Prepared | Date Analyzed | Percent Moisture | Dilution Factor | Result | Reporting Limit | Flag | Sample Aliquot |
|---|---|---|---|---|---|---|---|---|---|---|
| CATH-00-0025 | 0003146-2 | 3/12/2000 | 3/24/2000 | 03/24/2000 | N/A | 1 | 0.52 | 0.52 | U | 10 ML |

**Comments:**

1. ND or U = Not Detected at or above the client requested detection limit.

**Data Package ID:** *NH0003146-1*

# NITRATE/NITRITE

## Method EPA353.3

## Sample Results

**Lab Name:** Paragon Analytics, Inc.
**Client Name:** Los Alamos National Laboratory SMO
**Client Project ID:** 6581R
**Work Order Number:** 0003146
**Reporting Basis:** As Received

**Final Volume:** 3 ML
**Matrix:** WATER
**Result Units:** mg/L

| Client Sample ID | Lab ID | Date Collected | Date Prepared | Date Analyzed | Percent Moisture | Dilution Factor | Result | Reporting Limit | Flag | Sample Aliquot |
|---|---|---|---|---|---|---|---|---|---|---|
| CATH-00-0025 | 0003146-2 | 3/12/2000 | 3/22/2000 | 03/22/2000 | N/A | 2 | 0.27 | 0.1 | | 3 ML |

**Comments:**

1. ND or U = Not Detected at or above the client requested detection limit.

**Data Package ID:** *NN0003146-1*

# TOTAL PHOSPHORUS

## Method EPA365.2

## Sample Results

**Lab Name:** Paragon Analytics, Inc.
**Client Name:** Los Alamos National Laboratory SMO
**Client Project ID:** 6581R
**Work Order Number:** 0003146
**Reporting Basis:** As Received

**Final Volume:** 50 ML
**Matrix:** WATER
**Result Units:** mg/L

| Client Sample ID | Lab ID | Date Collected | Date Prepared | Date Analyzed | Percent Moisture | Dilution Factor | Result | Reporting Limit | Flag | Sample Aliquot |
|---|---|---|---|---|---|---|---|---|---|---|
| CATH-00-0025 | 0003146-2 | 3/12/2000 | 3/24/2000 | 03/24/2000 | N/A | 1 | 0.05 | 0.05 | UN | 50 ML |

**Comments:**

1. ND or U = Not Detected at or above the client requested detection limit.

**Data Package ID:** *PO0003146-1*

# Total Recoverable ICP Metals

## Method SW6010

## Sample Results

**Lab Name:** Paragon Analytics, Inc.
**Work Order Number:** 0003146
**Client Name:** Los Alamos National Laboratory SMO
**ClientProject ID:** 6581R

**Field ID:** CATH-00-0025
**Lab ID:** 0003146-2

**Sample Matrix:** WATER
**% Moisture:** N/A
**Date Collected:** 12-Mar-00
**Date Extracted:** 23-Mar-00
**Date Analyzed:** 27-Mar-00

**Prep Batch:** IP000323-1
**QCBatchID:** IP000323-1-1
**Run ID:** IT000327-1A2
**Cleanup:** NONE
**Basis:** As Received

**Sample Aliquot:** 50 G
**Final Volume:** 50 G
**Result Units:** MG/L

**File Name:** TS00327

| CASNO | Target Analyte | Dilution Factor | Result | Reporting Limit | IDL | Result Qualifier | EPA Qualifier |
|---|---|---|---|---|---|---|---|
| 7429-90-5 | ALUMINUM | 1 | 0.075 | 0.2 | 0.0095 | B | |
| 7440-36-0 | ANTIMONY | 1 | 0.0028 | 0.02 | 0.0028 | U | |
| 7440-38-2 | ARSENIC | 1 | 0.0023 | 0.01 | 0.0023 | U | |
| 7440-39-3 | BARIUM | 1 | 0.018 | 0.1 | 0.000056 | B | |
| 7440-41-7 | BERYLLIUM | 1 | 0.00013 | 0.005 | 0.00013 | U | |
| 7440-43-9 | CADMIUM | 1 | 0.00017 | 0.005 | 0.00017 | U | |
| 7440-70-2 | CALCIUM | 1 | 6.8 | 1 | 0.0025 | | |
| 7440-47-3 | CHROMIUM | 1 | 0.0017 | 0.01 | 0.00037 | B | |
| 7440-48-4 | COBALT | 1 | 0.0016 | 0.01 | 0.00039 | B | |
| 7440-50-8 | COPPER | 1 | 0.0009 | 0.01 | 0.00042 | B | |
| 7439-89-6 | IRON | 1 | 0.079 | 0.1 | 0.0073 | B | |
| 7439-92-1 | LEAD | 1 | 0.002 | 0.003 | 0.002 | U | |
| 7439-95-4 | MAGNESIUM | 1 | 2 | 1 | 0.0034 | | E |
| 7439-96-5 | MANGANESE | 1 | 0.043 | 0.01 | 0.000054 | | |
| 7440-02-0 | NICKEL | 1 | 0.0008 | 0.02 | 0.00054 | B | |
| 7440-09-7 | POTASSIUM | 1 | 2.2 | 1 | 0.051 | | |
| 7782-49-2 | SELENIUM | 1 | 0.0038 | 0.005 | 0.0038 | U | N |
| 7440-22-4 | SILVER | 1 | 0.00064 | 0.01 | 0.00064 | U | |
| 7440-23-5 | SODIUM | 1 | 11 | 1 | 0.0031 | | |
| 7440-28-0 | THALLIUM | 1 | 0.0032 | 0.01 | 0.0032 | U | |
| 7440-62-2 | VANADIUM | 1 | 0.0053 | 0.01 | 0.00043 | B | |
| 7440-66-6 | ZINC | 1 | 0.014 | 0.02 | 0.00051 | B | |

**Data Package ID:** *IT0003146-1*

# Total Recoverable ICP Metals

## Method SW6010

## Sample Results

**Lab Name:** Paragon Analytics, Inc.
**Work Order Number:** 0003146
**Client Name:** Los Alamos National Laboratory SMO
**ClientProject ID:** 6581R

| | |
|---|---|
| [redacted] | CATH-00-0025 |
| [redacted] | 0003146-2 |

**Sample Matrix:** WATER
**% Moisture:** N/A
**Date Collected:** 12-Mar-00
**Date Extracted:** 23-Mar-00
**Date Analyzed:** 27-Mar-00

**Prep Batch:** IP000323-1
**QCBatchID:** IP000323-1-1
**Run ID:** IP000327-1A2
**Cleanup:** NONE
**Basis:** As Received

**Sample Aliquot:** 50 G
**Final Volume:** 50 G
**Result Units:** MG/L
**File Name:** IS00327

| CASNO | Target Analyte | Dilution Factor | Result | Reporting Limit | IDL | Result Qualifier | EPA Qualifier |
|---|---|---|---|---|---|---|---|
| 7440-42-8 | BORON | 1 | 0.057 | 0.1 | 0.017 | B | |
| 7439-98-7 | MOLYBDENUM | 1 | 0.0033 | 0.01 | 0.0033 | U | |
| 7440-21-3 | SILICON | 1 | 42 | 0.05 | 0.014 | | |
| 7440-24-6 | STRONTIUM | 1 | 0.033 | 0.01 | 0.00044 | | |

**Data Package ID:** *IP0003146-1*

# Total Recoverable MERCURY

## Method SW7470

## Sample Results

**Lab Name:** Paragon Analytics, Inc.
**Client Name:** Los Alamos National Laboratory SMO
**Client Project ID:** 6581R
**Work Order Number:** 0003146
**Reporting Basis:** As Received

**Final Volume:** 20 G
**Matrix:** WATER
**Result Units:** MG/L

| Client Sample ID | Lab ID | Date Collected | Date Prepared | Date Analyzed | Percent Moisture | Dilution Factor | Result | Reporting Limit | IDL | Flag | Sample Aliquot |
|---|---|---|---|---|---|---|---|---|---|---|---|
| CATH-00-0025 | 0003146-2 | 3/12/2000 | 3/27/2000 | 03/28/2000 | N/A | 1 | 0.000034 | 0.0002 | 0.000011 | B | 20 G |

**Comments:**

1. ND or U = Not Detected at or above the client requested detection limit.

**Data Package ID:** *HG0003146-1*