



Paragon Analytics

Radiochemistry Case Narrative

Isotopic Uranium

New Horizons

CSMRI / 2135

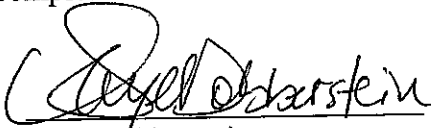
PA WO 0405169

1. This report consists of the analytical results for seven soil samples received by Paragon on 05/19/04.
2. These samples were prepared according to Paragon Analytics procedures PA SOP721R10, PA SOP773R8, and PA SOP778R9.
3. The samples were analyzed for the presence of isotopic uranium according to Paragon Analytics procedure PA SOP714R8. The analyses were completed on 06/18/04.
4. The isotopic analysis results for these samples are reported on a dry weight basis in units of pCi/gram.
5. This analytical method quantifies U-235 alpha activity in a specific region of interest corresponding to emission energies between those of U-234 and U-238. A potential limitation of this method is that measurable amounts of U-234 in the sample may cause a small amount of characteristic activity in the U-235 region of interest due to poorly resolved alpha activity at the boundary between the two regions. To minimize the potential for a high bias in the U-235 analytical results, the U-235 region of interest has been narrowed and limited to a lower energy region. An 85.1% abundance correction has been made to the final U-235 results.
6. Paragon Analytics follows the convention outlined in ANSI N42.23 for reporting significant digits in the TPU and MDC results. ANSI N42.23 states that the TPU result should be rounded to two significant digits and that the MDC result should be rounded to the same decimal place as the TPU result. In practice, this could result in an MDC result with a reported value of 0 for samples with significant activity, including the batch laboratory control sample.
7. Sample SDA064 (PA ID 0405169-13) was prepared at a greatly reduced aliquot (0.04-g versus 2.0-g standard aliquot) in a separate batch due to elevated activity detected in the prescreen results. Due to the reduced aliquot, the requested MDC of 0.1 pCi/g was not achieved, however the reported activity in the sample exceeds its

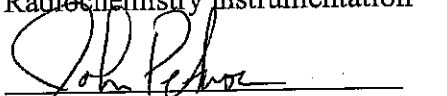
achieved MDC values. It is identified with "M3" flags on the final reports. Likewise, the associated method blank (AS040610-3MB) was prepared at an analogous reduced aliquot to this sample. It did not meet the requested MDC and was given an extended count of 1000 minutes in order to lower all associated MDC and uncertainty values. Data quality is considered unaffected and acceptable. The results are submitted in this report without qualification.

8. No further anomalous situations were encountered during the preparation or analysis of these samples. All remaining quality control criteria were met.

The data contained in the following report have been reviewed and approved by the personnel listed below. In addition, Paragon Analytics certifies that the analyses reported herein are true, complete and correct within the limits of the methods employed.


Skye Dobberstein
Radiochemistry Instrumentation

6/25/04
Date


Radiochemistry Final Data Review

6/25/04
Date

Isotopic Uranium By Alpha Spectroscopy

PAI 714 Rev 8

Sample Results

Lab Name: Paragon Analytics

Work Order Number: 0405169

Client Name: New Horizons

ClientProject ID: CSMRI 2135

Field ID: IC1008
Lab ID: 0405169-2

Sample Matrix: SOIL
Prep SOP: PAI 778 Rev 9
Date Collected: 03-May-04
Date Prepared: 10-Jun-04
Date Analyzed: 18-Jun-04

Prep Batch: AS040610-1
QC Batch ID: AS040610-1-2
Run ID: AS040610-1a
Count Time: 300 minutes
Report Basis: Dry Weight

Final Aliquot: 2.00 g
Prep Basis: Dry Weight
Moisture(%): NA
Result Units: pCi/g
File Name: U51692

CASNO	Target Nuclide	Result +/- 2 s TPU	MDC	Lab Qualifier
13966-29-5	U-234	1.21 +/- 0.22	0.03	
15117-96-1	U-235	0.056 +/- 0.030	0.022	LT
7440-61-1	U-238	1.33 +/- 0.24	0.02	

Chemical Yield Summary

Carrier/Tracer	Amount Added	Result	Units	Yield	Control Limits	Flag
U-232	4.266	3.55	pCi/g	83.2	30 - 110 %	

Comments:

Qualifiers/Flags:

U - Result is less than the sample specific MDC.

Y1 - Chemical Yield is in control at 100-110%. Quantitative Yield is assumed.

Y2 - Chemical Yield outside default limits.

LT - Result is less than Requested MDC, greater than sample specific MDC.

M3 - The requested MDC was not met, but the reported activity is greater than the reported MDC.

M - The requested MDC was not met.

Abbreviations:

TPU - Total Propagated Uncertainty (see PAI SOP 743)

MDC - Minimum Detectable Concentration (see PAI SOP 709)

BDL - Below Detection Limit

Data Package ID: U0405169-1

Isotopic Uranium By Alpha Spectroscopy

PAI 714 Rev 8

Sample Results

Lab Name: Paragon Analytics

Work Order Number: 0405169

Client Name: New Horizons

ClientProject ID: CSMRI 2135

Field ID: IC1025

Lab ID: 0405169-4

Sample Matrix: SOIL
Prep SOP: PAI 778 Rev 9
Date Collected: 04-May-04
Date Prepared: 10-Jun-04
Date Analyzed: 18-Jun-04

Prep Batch: AS040610-1
QC Batch ID: AS040610-1-2
Run ID: AS040610-1a
Count Time: 300 minutes
Report Basis: Dry Weight

Final Aliquot: 2.02 g
Prep Basis: Dry Weight
Moisture(%): NA
Result Units: pCi/g
File Name: U51694

CASNO	Target Nuclide	Result +/- 2 s TPU	MDC	Lab Qualifier
13966-29-5	U-234	2.95 +/- 0.50	0.03	
15117-96-1	U-235	0.191 +/- 0.062	0.010	
7440-61-1	U-238	2.87 +/- 0.49	0.03	

Chemical Yield Summary

Carrier/Tracer	Amount Added	Result	Units	Yield	Control Limits	Flag
U-232	4.232	3.19	pCi/g	75.3	30 - 110 %	

Comments:

Qualifiers/Flags:

U - Result is less than the sample specific MDC.

Y1 - Chemical Yield is in control at 100-110%. Quantitative Yield is assumed.

Y2 - Chemical Yield outside default limits.

LT - Result is less than Requested MDC, greater than sample specific MDC.

M3 - The requested MDC was not met, but the reported activity is greater than the reported MDC.

M - The requested MDC was not met.

Abbreviations:

TPU - Total Propagated Uncertainty (see PAI SOP 743)

MDC - Minimum Detectable Concentration (see PAI SOP 709)

BDL - Below Detection Limit

Data Package ID: U0405169-1

Isotopic Uranium By Alpha Spectroscopy

PAI 714 Rev 8

Sample Results

Lab Name: Paragon Analytics

Work Order Number: 0405169

Client Name: New Horizons

ClientProject ID: CSMRI 2135

Field ID: IC1028
Lab ID: 0405169-6

Sample Matrix: SOIL
Prep SOP: PAI 778 Rev 9
Date Collected: 04-May-04
Date Prepared: 10-Jun-04
Date Analyzed: 18-Jun-04

Prep Batch: AS040610-1
QCBatchID: AS040610-1-2
Run ID: AS040610-1a
Count Time: 300 minutes
Report Basis: Dry Weight

Final Aliquot: 2.02 g
Prep Basis: Dry Weight
Moisture(%): NA
Result Units: pCi/g
File Name: UR51696

CASNO	Target Nuclide	Result +/- 2 s TPU	MDC	Lab Qualifier
13966-29-5	U-234	1.43 +/- 0.26	0.02	
15117-96-1	U-235	0.060 +/- 0.031	0.019	LT
7440-61-1	U-238	1.42 +/- 0.26	0.02	

Chemical Yield Summary

Carrier/Tracer	Amount Added	Result	Units	Yield	Control Limits	Flag
U-232	4.226	3.55	pCi/g	84.0	30 - 110 %	

Comments:

Qualifiers/Flags:

- U - Result is less than the sample specific MDC.
- Y1 - Chemical Yield is in control at 100-110%. Quantitative Yield is assumed.
- Y2 - Chemical Yield outside default limits.
- LT - Result is less than Requested MDC, greater than sample specific MDC.
- M3 - The requested MDC was not met, but the reported activity is greater than the reported MDC.
- M - The requested MDC was not met.

Abbreviations:

- TPU - Total Propagated Uncertainty (see PAI SOP 743)
- MDC - Minimum Detectable Concentration (see PAI SOP 709)
- BDL - Below Detection Limit

Data Package ID: U0405169-1

Isotopic Uranium By Alpha Spectroscopy

PAI 714 Rev 8

Sample Results

Lab Name: Paragon Analytics

Work Order Number: 0405169

Client Name: New Horizons

ClientProject ID: CSMRI 2135

Field ID: H214
Lab ID: 0405169-8

Sample Matrix: SOIL
Prep SOP: PAI 778 Rev 9
Date Collected: 04-May-04
Date Prepared: 10-Jun-04
Date Analyzed: 18-Jun-04

Prep Batch: AS040610-1
QC Batch ID: AS040610-1-2
Run ID: AS040610-1a
Count Time: 300 minutes
Report Basis: Dry Weight

Final Aliquot: 2.06 g
Prep Basis: Dry Weight
Moisture(%): NA
Result Units: pCi/g
File Name: U51698

CASNO	Target Nuclide	Result +/- 2 s TPU	MDC	Lab Qualifier
13966-29-5	U-234	28.9 +/- 4.7	0	
15117-96-1	U-235	1.26 +/- 0.26	0.02	
7440-61-1	U-238	30.2 +/- 4.9	0	

Chemical Yield Summary

Carrier/Tracer	Amount Added	Result	Units	Yield	Control Limits	Flag
U-232	4.149	2.23	pCi/g	53.7	30 - 110 %	

Comments:

Qualifiers/Flags:

U - Result is less than the sample specific MDC.

Y1 - Chemical Yield is in control at 100-110%. Quantitative Yield is assumed.

Y2 - Chemical Yield outside default limits.

LT - Result is less than Requested MDC, greater than sample specific MDC.

M3 - The requested MDC was not met, but the reported activity is greater than the reported MDC.

M - The requested MDC was not met.

Abbreviations:

TPU - Total Propagated Uncertainty (see PAI SOP 743)

MDC - Minimum Detectable Concentration (see PAI SOP 709)

BDL - Below Detection Limit

Data Package ID: U0405169-1

Isotopic Uranium By Alpha Spectroscopy

PAI 714 Rev 8

Sample Results

Lab Name: Paragon Analytics

Work Order Number: 0405169

Client Name: New Horizons

ClientProject ID: CSMRI 2135

Field ID: H236
Lab ID: 0405169-10

Sample Matrix: SOIL
Prep SOP: PAI 778 Rev 9
Date Collected: 05-May-04
Date Prepared: 10-Jun-04
Date Analyzed: 18-Jun-04

Prep Batch: AS040610-1
QCBatchID: AS040610-1-2
Run ID: AS040610-1a
Count Time: 300 minutes
Report Basis: Dry Weight

Final Aliquot: 1.03 g
Prep Basis: Dry Weight
Moisture(%): NA
Result Units: pCi/g
File Name: U516910

CASNO	Target Nuclide	Result +/- 2 s TPU	MDC	Lab Qualifier
13966-29-5	U-234	45.8 +/- 7.4	0.1	
15117-96-1	U-235	2.57 +/- 0.52	0.03	
7440-61-1	U-238	55.2 +/- 8.9	0.1	

Chemical Yield Summary

Carrier/Tracer	Amount Added	Result	Units	Yield	Control Limits	Flag
U-232	8.318	5.04	pCi/g	60.6	30 - 110 %	

Comments:

Qualifiers/Flags:

- U - Result is less than the sample specific MDC.
- Y1 - Chemical Yield is in control at 100-110%. Quantitative Yield is assumed.
- Y2 - Chemical Yield outside default limits.
- LT - Result is less than Requested MDC, greater than sample specific MDC.
- M3 - The requested MDC was not met, but the reported activity is greater than the reported MDC.
- M - The requested MDC was not met.

Abbreviations:

- TPU - Total Propagated Uncertainty (see PAI SOP 743)
- MDC - Minimum Detectable Concentration (see PAI SOP 709)
- BDL - Below Detection Limit

Data Package ID: U0405169-1

Isotopic Uranium By Alpha Spectroscopy

PAI 714 Rev 8

Sample Results

Lab Name: Paragon Analytics

Work Order Number: 0405169

Client Name: New Horizons

ClientProject ID: CSMRI 2135

Field ID: E32
Lab ID: 0405169-12

Sample Matrix: SOIL
Prep SOP: PAI 778 Rev 9
Date Collected: 10-May-04
Date Prepared: 10-Jun-04
Date Analyzed: 18-Jun-04

Prep Batch: AS040610-1
QCBatchID: AS040610-1-2
Run ID: AS040610-1a
Count Time: 300 minutes
Report Basis: Dry Weight

Final Aliquot: 0.588 g
Prep Basis: Dry Weight
Moisture(%): NA
Result Units: pCi/g
File Name: U516912

CASNO	Target Nuclide	Result +/- 2 s TPU	MDC	Lab Qualifier
13966-29-5	U-234	44.2 +/- 7.0	0.1	
15117-96-1	U-235	1.80 +/- 0.40	0.07	
7440-61-1	U-238	43.8 +/- 6.9	0.1	

Chemical Yield Summary

Carrier/Tracer	Amount Added	Result	Units	Yield	Control Limits	Flag
U-232	14.50	11.7	pCi/g	80.9	30 - 110 %	

Comments:

Qualifiers/Flags:

- U - Result is less than the sample specific MDC.
- Y1 - Chemical Yield is in control at 100-110%. Quantitative Yield is assumed.
- Y2 - Chemical Yield outside default limits.
- LT - Result is less than Requested MDC, greater than sample specific MDC.
- M3 - The requested MDC was not met, but the reported activity is greater than the reported MDC.
- M - The requested MDC was not met.

Abbreviations:

- TPU - Total Propagated Uncertainty (see PAI SOP 743)
- MDC - Minimum Detectable Concentration (see PAI SOP 709)
- BDL - Below Detection Limit

Data Package ID: U0405169-1

Isotopic Uranium By Alpha Spectroscopy

PAI 714 Rev 8

Sample Results

Lab Name: Paragon Analytics

Work Order Number: 0405169

Client Name: New Horizons

ClientProject ID: CSMRI 2135

Field ID: SDA064
Lab ID: 0405169-13

Sample Matrix: SOIL
Prep SOP: PAI 778 Rev 9
Date Collected: 13-May-04
Date Prepared: 10-Jun-04
Date Analyzed: 17-Jun-04

Prep Batch: AS040610-3
QCBatchID: AS040610-3-1
Run ID: AS040610-3a
Count Time: 600 minutes
Report Basis: Dry Weight

Final Aliquot: 0.0406 g
Prep Basis: Dry Weight
Moisture(%): NA
Result Units: pCi/g
File Name: U516913

CASNO	Target Nuclide	Result +/- 2 s TPU	MDC	Lab Qualifier
13966-29-5	U-234	21.3 +/- 4.0	1.0	M3
15117-96-1	U-235	1.25 +/- 0.77	0.94	M3
7440-61-1	U-238	19.7 +/- 3.8	0.7	M3

Chemical Yield Summary

Carrier/Tracer	Amount Added	Result	Units	Yield	Control Limits	Flag
U-232	210.3	172	pCi/g	81.7	30 - 110 %	

Comments:

Qualifiers/Flags:

- U - Result is less than the sample specific MDC.
- Y1 - Chemical Yield is in control at 100-110%. Quantitative Yield is assumed.
- Y2 - Chemical Yield outside default limits.
- LT - Result is less than Requested MDC, greater than sample specific MDC.
- M3 - The requested MDC was not met, but the reported activity is greater than the reported MDC.
- M - The requested MDC was not met.

Abbreviations:

- TPU - Total Propagated Uncertainty (see PAI SOP 743)
- MDC - Minimum Detectable Concentration (see PAI SOP 709)
- BDL - Below Detection Limit

Data Package ID: U0405169-1

Isotopic Uranium By Alpha Spectroscopy

PAI 714 Rev 8

Sample Duplicate Results

Lab Name: Paragon Analytics

Work Order Number: 0405169

Client Name: New Horizons

ClientProject ID: CSMR! 2135

Field ID: IC1025
Lab ID: 0405169-4DUP

Sample Matrix: SOIL
Prep SOP: PAI 778 Rev 9
Date Collected: 04-May-04
Date Prepared: 10-Jun-04
Date Analyzed: 18-Jun-04

Prep Batch: AS040610-1
QCBatchID: AS040610-1-2
Run ID: AS040610-1a
Count Time: 300 minutes
Report Basis: Dry Weight

Final Aliquot: 2.04 g
Prep Basis: Dry Weight
Moisture(%): NA
Result Units: pCi/g
File Name: U51694D

CASNO	Target Nuclide	Result +/- 2 s TPU	MDC	Lab Qualifier
13966-29-5	U-234	3.17 +/- 0.54	0.02	
15117-96-1	U-235	0.178 +/- 0.059	0.010	
7440-61-1	U-238	2.99 +/- 0.51	0.01	

Chemical Yield Summary

Carrier/Tracer	Amount Added	Result	Units	Yield	Control Limits	Flag
U-232	4.190	3.18	pCi/g	76.0	30 - 110 %	

Comments:

Qualifiers/Flags:

- U - Result is less than the sample specific MDC.
- Y1 - Chemical Yield is in control at 100-110%. Quantitative yield is assumed.
- Y2 - Chemical Yield outside default limits.
- LT - Result is less than Requested MDC, greater than sample specific MDC.
- M - The requested MDC was not met.
- M3 - The requested MDC was not met, but the reported activity is greater than the reported MDC.
- W - DER is greater than Warning Limit of 1.42
- D - DER is greater than Control Limit of 2.13

Abbreviations:

- TPU - Total Propagated Uncertainty (see PAI SOP 743)
- MDC - Minimum Detectable Concentration (see PAI SOP 709)
- BDL - Below Detection Limit

Data Package ID: U0405169-1

Isotopic Uranium By Alpha Spectroscopy

PAI 714 Rev 8

Sample Duplicate Results

Lab Name: Paragon Analytics

Work Order Number: 0405169

Client Name: New Horizons

ClientProject ID: CSMRI 2135

Field ID: SDA064
Lab ID: 0405169-13DUP

Sample Matrix: SOIL
Prep SOP: PAI 778 Rev 9
Date Collected: 13-May-04
Date Prepared: 10-Jun-04
Date Analyzed: 17-Jun-04

Prep Batch: AS040610-3
QCBatchID: AS040610-3-1
Run ID: AS040610-3a
Count Time: 600 minutes
Report Basis: Dry Weight

Final Aliquot: 0.0406 g
Prep Basis: Dry Weight
Moisture(%): NA
Result Units: pCi/g
File Name: U516913D

CASNO	Target Nuclide	Result +/- 2 s TPU	MDC	Lab Qualifier
13966-29-5	U-234	20.1 +/- 3.9	1.1	M3
15117-96-1	U-235	0.79 +/- 0.56	0.63	M3
7440-61-1	U-238	18.7 +/- 3.6	1.0	M3

Chemical Yield Summary

Carrier/Tracer	Amount Added	Result	Units	Yield	Control Limits	Flag
U-232	210.3	181	pCi/g	86.2	30 - 110 %	

Comments:

Qualifiers/Flags:

- U - Result is less than the sample specific MDC.
- Y1 - Chemical Yield is in control at 100-110%. Quantitative yield is assumed.
- Y2 - Chemical Yield outside default limits.
- LT - Result is less than Requested MDC, greater than sample specific MDC.
- M - The requested MDC was not met.
- M3 - The requested MDC was not met, but the reported activity is greater than the reported MDC.
- W - DER is greater than Warning Limit of 1.42
- D - DER is greater than Control Limit of 2.13

Abbreviations:

- TPU - Total Propagated Uncertainty (see PAI SOP 743)
- MDC - Minimum Detectable Concentration (see PAI SOP 709)
- BDL - Below Detection Limit

Data Package ID: U0405169-1

Isotopic Uranium By Alpha Spectroscopy

PAI 714 Rev 8

Method Blank Results

Lab Name: Paragon Analytics

Work Order Number: 0405169

Client Name: New Horizons

ClientProject ID: CSMRI 2135

Lab ID: AS040610-1MB

Sample Matrix: SOIL
Prep SOP: PAI 778 Rev 9
Date Collected: 10-Jun-04
Date Prepared: 10-Jun-04
Date Analyzed: 18-Jun-04

Prep Batch: AS040610-1
QCBatchID: AS040610-1-2
Run ID: AS040610-1a
Count Time: 300 minutes

Final Aliquot: 2.00 g
Result Units: pCi/g
File Name: UR6101B

CASNO	Target Nuclide	Result +/- 2 s TPU	MDC	Lab Qualifier
13966-29-5	U-234	0.013 +/- 0.016	0.028	U
15117-96-1	U-235	-0.004 +/- 0.013	0.029	U
7440-61-1	U-238	0.017 +/- 0.017	0.026	U

Chemical Yield Summary

Carrier/Tracer	Amount Added	Result	Units	Yield	Control Limits	Flag
U-232	4.267	3.48	pCi/g	81.6	30 - 110 %	

Comments:

Qualifiers/Flags:

- U - Result is less than the sample specific MDC.
- Y1 - Chemical Yield is in control at 100-110%. Quantitative Yield is assumed.
- Y2 - Chemical Yield outside default limits.
- LT - Result is less than Requested MDC, greater than sample specific MDC.

Abbreviations:

- TPU - Total Propagated Uncertainty (see PAI SOP 743)
- MDC - Minimum Detectable Concentration (see PAI SOP 709)
- BDL - Below Detection Limit

M - Requested MDC not met.

B - Analyte concentration greater than MDC.

B3 - Analyte concentration greater than MDC but less than Requested MDC.

Data Package ID: U0405169-1

Isotopic Uranium By Alpha Spectroscopy

PAI 714 Rev 8 Method Blank Results

Lab Name: Paragon Analytics

Work Order Number: 0405169

Client Name: New Horizons

ClientProject ID: CSMRI 2135

Lab ID: AS040610-3MB

Sample Matrix: SOIL
Prep SOP: PAI 778 Rev 9
Date Collected: 10-Jun-04
Date Prepared: 10-Jun-04
Date Analyzed: 17-Jun-04

Prep Batch: AS040610-3
QCBatchID: AS040610-3-1
Run ID: AS040610-3a
Count Time: 1000 minutes

Final Aliquot: 0.0397 g
Result Units: pCi/g
File Name: U6103B

CASNO	Target Nuclide	Result +/- 2 s TPU	MDC	Lab Qualifier
13966-29-5	U-234	0.21 +/- 0.27	0.44	U,M
15117-96-1	U-235	0.05 +/- 0.24	0.36	U,M
7440-61-1	U-238	0.29 +/- 0.30	0.44	U,M

Chemical Yield Summary

Carrier/Tracer	Amount Added	Result	Units	Yield	Control Limits	Flag
U-232	214.8	191	pCi/g	88.9	30 - 110 %	

Comments:

Qualifiers/Flags:

U - Result is less than the sample specific MDC.
Y1 - Chemical Yield is in control at 100-110%. Quantitative Yield is assumed.
Y2 - Chemical Yield outside default limits.
LT - Result is less than Requested MDC, greater than sample specific MDC.

Abbreviations:

TPU - Total Propagated Uncertainty (see PAI SOP 743)
MDC - Minimum Detectable Concentration (see PAI SOP 709)
BDL - Below Detection Limit

M - Requested MDC not met.
B - Analyte concentration greater than MDC.
B3 - Analyte concentration greater than MDC but less than Requested MDC.

Data Package ID: U0405169-1

Isotopic Uranium By Alpha Spectroscopy

PAI 714 Rev 8

Laboratory Control Sample(s)

Lab Name: Paragon Analytics

Work Order Number: 0405169

Client Name: New Horizons

ClientProject ID: CSMRI 2135

Lab ID: AS040610-1LCS

Sample Matrix: SOIL
Prep SOP: PAI 778 Rev 9
Date Collected: 10-Jun-04
Date Prepared: 10-Jun-04
Date Analyzed: 18-Jun-04

Prep Batch: AS040610-1
QCBatchID: AS040610-1-2
Run ID: AS040610-1a
Count Time: 300 minutes

Final Aliquot: 2.00 g
Result Units: pCi/g
File Name: U6101L

CASNO	Target Nuclide	Results +/- 2s TPU	MDC	Spike Added	% Rec	Control Limits	Lab Qualifier
13966-29-5	U-234	4.44 +/- 0.73	0.04	4.34	102	82 - 122	P
7440-61-1	U-238	4.83 +/- 0.79	0.03	4.50	107	82 - 122	P

Chemical Yield Summary

Carrier/Tracer	Amount Added	Result	Units	Yield	Control Limits	Flag
U-232	4.267	3.39	pCi/g	79.4	30 - 110 %	

Comments:

Qualifiers/Flags:

- U - Result is less than the sample specific MDC.
- LT - Result is less than Requested MDC, greater than sample specific MDC.
- Y1 - Chemical Yield is in control at 100-110%. Quantitative Yield is assumed.
- Y2 - Chemical Yield outside default limits.
- L - LCS Recovery below lower control limit.
- H - LCS Recovery above upper control limit.
- P - LCS Recovery within control limits.
- M - The requested MDC was not met.
- M3 - The requested MDC was not met, but thereported activity is greater than the reported MDC.

Abbreviations:

- TPU - Total Propagated Uncertainty (see PAI SOP 743)
- MDC - Minimum Detectable Concentration (see PAI SOP 709)

Data Package ID: U0405169-1

Isotopic Uranium By Alpha Spectroscopy

PAI 714 Rev 8

Laboratory Control Sample(s)

Lab Name: Paragon Analytics

Work Order Number: 0405169

Client Name: New Horizons

ClientProject ID: CSMRI 2135

Lab ID: AS040610-3LCS	Sample Matrix: SOIL Prep SOP: PAI 778 Rev 9 Date Collected: 10-Jun-04 Date Prepared: 10-Jun-04 Date Analyzed: 16-Jun-04	Prep Batch: AS040610-3 QCBatchID: AS040610-3-1 Run ID: AS040610-3a Count Time: 300 minutes	Final Aliquot: 0.0397 g Result Units: pCi/g File Name: U6103L
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CASNO	Target Nuclide	Results +/- 2s TPU	MDC	Spike Added	% Rec	Control Limits	Lab Qualifier
13966-29-5	U-234	217 +/- 35	2	219	99.1	82 - 122	P,M3
7440-61-1	U-238	221 +/- 36	1	227	97.2	82 - 122	P,M3

Chemical Yield Summary

Carrier/Tracer	Amount Added	Result	Units	Yield	Control Limits	Flag
U-232	215.2	182	pCi/g	84.7	30 - 110 %	

Comments:

Qualifiers/Flags:

- U - Result is less than the sample specific MDC.
- LT - Result is less than Requested MDC, greater than sample specific MDC.
- Y1 - Chemical Yield is in control at 100-110%. Quantitative Yield is assumed.
- Y2 - Chemical Yield outside default limits.
- L - LCS Recovery below lower control limit.
- H - LCS Recovery above upper control limit.
- P - LCS Recovery within control limits.
- M - The requested MDC was not met.
- M3 - The requested MDC was not met, but thereported activity is greater than the reported MDC.

Abbreviations:

- TPU - Total Propagated Uncertainty (see PAI SOP 743)
- MDC - Minimum Detectable Concentration (see PAI SOP 709)

Data Package ID: U0405169-1

Isotopic Uranium By Alpha Spectroscopy

PAI 714 Rev 8

Duplicate Sample Results (DER)

Lab Name: Paragon Analytics

Work Order Number: 0405169

Client Name: New Horizons

ClientProject ID: CSMRI 2135

Field ID: IC1025

Lab ID: 0405169-4DUP

Sample Matrix: SOIL

Prep SOP: PAI 778 Rev 9

Date Collected: 04-May-04

Date Prepared: 10-Jun-04

Date Analyzed: 18-Jun-04

Prep Batch: AS040610-1

QCBatchID: AS040610-1-2

Run ID: AS040610-1a

Count Time: 300 minutes

Report Basis: Dry Weight

Final Aliquot: 2.04 g

Prep Basis: Dry Weight

Moisture(%): NA

Result Units: pCi/g

File Name: U51694D

CASNO	Analyte	Sample Result +/- 2s TPU	Duplicate Result +/- 2s TPU	DER	Control Limit	Lab Qualifiers
13966-29-5	U-234	2.95 +/- 0.50	3.17 +/- 0.54	0.30	2.13	
15117-96-1	U-235	0.191 +/- 0.062	0.178 +/- 0.059	0.16	2.13	
7440-61-1	U-238	2.87 +/- 0.49	2.99 +/- 0.51	0.17	2.13	

Comments:

Duplicate Qualifiers/Flags:

U - Result is less than the sample specific MDC.

Y1 - Chemical Yield is in control at 100-110%. Quantitative yield is assumed.

Y2 - Chemical Yield outside default limits.

W - DER is greater than Warning Limit of 1.42

D - DER is greater than Control Limit of 2.13

LT - Result is less than Request MDC, greater than sample specific MDC

M - Requested MDC not met.

M3 - The requested MDC was not met, but the reported activity is greater than the reported MDC.

L - LCS Recovery below lower control limit.

H - LCS Recovery above upper control limit.

P - LCS, Matrix Spike Recovery within control limits.

N - Matrix Spike Recovery outside control limits

Abbreviations:

TPU - Total Propagated Uncertainty (see PAI SOP 743)

DER - Duplicate Error Ratio

BDL - Below Detection Limit

NR - Not Reported

Data Package ID: U0405169-1

Isotopic Uranium By Alpha Spectroscopy

PAI 714 Rev 8

Duplicate Sample Results (DER)

Lab Name: Paragon Analytics

Work Order Number: 0405169

Client Name: New Horizons

ClientProject ID: CSMRI 2135

Field ID: SDA064

Lab ID: 0405169-13DUP

Sample Matrix: SOIL

Prep SOP: PAI 778 Rev 9

Date Collected: 13-May-04

Date Prepared: 10-Jun-04

Date Analyzed: 17-Jun-04

Prep Batch: AS040610-3

QC Batch ID: AS040610-3-1

Run ID: AS040610-3a

Count Time: 600 minutes

Report Basis: Dry Weight

Final Aliquot: 0.0406 g

Prep Basis: Dry Weight

Moisture(%): NA

Result Units: pCi/g

File Name: U516913D

CASNO	Analyte	Sample Result +/- 2s TPU	Duplicate Result +/- 2s TPU	DER	Control Limit	Lab Qualifiers
13966-29-5	U-234	21.3 +/- 4.0	20.1 +/- 3.9	0.21	2.13	M3
15117-96-1	U-235	1.25 +/- 0.77	0.79 +/- 0.56	0.49	2.13	M3
7440-61-1	U-238	19.7 +/- 3.8	18.7 +/- 3.6	0.19	2.13	M3

Comments:

Duplicate Qualifiers/Flags:

U - Result is less than the sample specific MDC.

Y1 - Chemical Yield is in control at 100-110%. Quantitative yield is assumed.

Y2 - Chemical Yield outside default limits.

W - DER is greater than Warning Limit of 1.42

D - DER is greater than Control Limit of 2.13

LT - Result is less than Request MDC, greater than sample specific MDC

M - Requested MDC not met.

M3 - The requested MDC was not met, but the reported activity is greater than the reported MDC.

L - LCS Recovery below lower control limit.

H - LCS Recovery above upper control limit.

P - LCS, Matrix Spike Recovery within control limits.

N - Matrix Spike Recovery outside control limits

Abbreviations:

TPU - Total Propagated Uncertainty (see PAI SOP 743)

DER - Duplicate Error Ratio

BDL - Below Detection Limit

NR - Not Reported

Data Package ID: U0405169-1