

**New York State Department of Environmental Conservation**

**Division of Solid and Hazardous Materials**

**Bureau of Radiation, 8th Floor**

625 Broadway, Albany, New York 12233-7252

**Phone:** (518) 402-8594 **FAX:** (518) 402-9025

**Website:** www.dec.state.ny.us



MAY 06 2002

[REDACTED]  
Project Engineer, Town of Tonawanda Landfill  
U.S. Army Corps of Engineers, Buffalo District  
1776 Niagara Street  
Buffalo, New York 14207-3199

Dear [REDACTED]:

**Re:** NYSDEC Sample Results from the Town of Tonawanda Landfill

The letter responds to [REDACTED] May 2, 2002 email request for the analytical data obtained from all New York State Department of Environmental Conservation (NYSDEC) samples analyzed from the Town of Tonawanda landfill. The following types of samples and numbers of samples were collected from the Town of Tonawanda site: one soil sample collected on July 25, 2001 (Boring TLFB1B005, 2' - 2.5' depth interval), one surface water collected when a boring created an artesian well (also on July 25, 2001) and seven ground water samples collected between September 19 - 20, 2001. The associated data is enclosed.

If you have any questions or need further information, I can be contacted directly at (518) 402-8573.

Sincerely,

[REDACTED]  
Bureau of Radiation  
Division of Solid & Hazardous Materials

Enclosure

w/encl. - [REDACTED], USEPA  
[REDACTED], USACE  
[REDACTED], DEC Region 9  
[REDACTED], DEC, Region 9  
[REDACTED], NYSDOH  
[REDACTED], Erie Co.



EBS-OR-15786

September 10, 2001

Oak Ridge Laboratory  
601 Scarboro Road  
Oak Ridge, TN 37830  
Phone (865) 481-0683  
Fax (865) 483-4621

██████████  
Lionville Laboratory, Inc.  
208 Welsh Pool Road  
Lionville, PA 19341-1313

*LVL 61082575*

CASE NARRATIVE  
Work Order # 01-08066-OR

SAMPLE RECEIPT

This work order contains two water samples and suspended for Isotopic Thorium, Isotopic analyzed as dissolved for Gross Alpha/Beta ar

amples were analyzed as dissolved Spectroscopy. Both samples were

<u>CLIENT ID</u>	<u>RFW #</u>	<u>LAB ID</u>
RN9000802W080901 D	0108L575	01-08066-04
RN9000802W080901 S	0108L575	01-08066-05
RN9000802W080902 D	0108L575	01-08066-06
RN9000802W080902 S	0108L575	01-08066-07

*7/25/01  
Town of Tonawanda  
Groundwater from  
Geoprobe*

ANALYTICAL METHODS

Gross Alpha/Beta was performed by gas-flow proportional counting using EPA Method 900.0 modified. Radium-226 was analyzed using EPA Method 903.0 modified. Radium-228 was analyzed using EPA Method 904.0 modified. Isotopic Thorium was analyzed using Method EML Th-01 modified. Isotopic Uranium was analyzed using Method EML U-02 modified. Gamma Spectroscopy was performed using EPA Method 901.1 modified.

ANALYTICAL DATA

NOTED EXCEPTIONS

The Gross Alpha and Gross Beta replicates both had elevated normalized differences and relative percent differences.

GROSS ALPHA / BETA

Gross Alpha / Beta samples for water were prepared by evaporation of an acidified aliquot of the sample and transfer of the reduced sample to a steel planchet for final evaporation to dryness. The samples were then counted by use of a gas proportional counter.

Some or all of the samples in this work order all had detection limits that were higher than normally seen for this analysis. This situation was the result of the high level of suspended and/or dissolved solids present in the samples. Based on the maximum energies of alpha particles, it is only practical to self-absorption correct samples up to a final deposited mass of about 120 milligrams on a two-inch planchet



# EBERLINE SERVICES

EBS-OR-15786

September 10, 2001

Oak Ridge Laboratory  
601 Scarboro Road  
Oak Ridge, TN 37830  
Phone (865) 481-0683  
Fax (865) 483-4621

██████████  
Lionville Laboratory, Inc.  
208 Welsh Pool Road  
Lionville, PA 19341-1313

LVL 61082575

## CASE NARRATIVE Work Order # 01-08066-OR

### SAMPLE RECEIPT

This work order contains two water samples received 08/13/01. Both samples were analyzed as dissolved and suspended for Isotopic Thorium, Isotopic Uranium and by Gamma Spectroscopy. Both samples were analyzed as dissolved for Gross Alpha/Beta and Radium-226/228.

<u>CLIENT ID</u>	<u>RFW #</u>	<u>LAB ID</u>
RN9000802W080901 D	0108L575	01-08066-04
RN9000802W080901 S	0108L575	01-08066-05
RN9000802W080902 D	0108L575	01-08066-06
RN9000802W080902 S	0108L575	01-08066-07

### ANALYTICAL METHODS

Gross Alpha/Beta was performed by gas-flow proportional counting using EPA Method 900.0 modified. Radium-226 was analyzed using EPA Method 903.0 modified. Radium-228 was analyzed using EPA Method 904.0 modified. Isotopic Thorium was analyzed using Method EML Th-01 modified. Isotopic Uranium was analyzed using Method EML U-02 modified. Gamma Spectroscopy was performed using EPA Method 901.1 modified.

### ANALYTICAL DATA

#### NOTED EXCEPTIONS

The Gross Alpha and Gross Beta replicates both had elevated normalized differences and relative percent differences.

#### GROSS ALPHA / BETA

Gross Alpha / Beta samples for water were prepared by evaporation of an acidified aliquot of the sample and transfer of the reduced sample to a steel planchet for final evaporation to dryness. The samples were then counted by use of a gas proportional counter.

Some or all of the samples in this work order all had detection limits that were higher than normally seen for this analysis. This situation was the result of the high level of suspended and/or dissolved solids present in the samples. Based on the maximum energies of alpha particles, it is only practical to self-absorption correct samples up to a final deposited mass of about 120 milligrams on a two-inch planchet

ANALYTICAL DATA CONTINUED

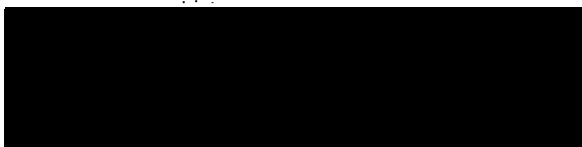
GROSS ALPHA/BETA

(EPA method 900.0). In order to stay within this calibration limit, it was necessary to use aliquots for these samples that were substantially reduced from those normally used in this determination. Additionally, the high deposited mass required the use of a significant self-absorption factor in the calculation of the results, uncertainties, and detection limits. These two factors resulted in elevation of the detection limits above what is normally seen for this analysis. Though the detection limits could be lowered through longer counting times, the inverse-square relationship between count time and detection limits (a four times longer count to lower the detection limit by half) dictates that impractically long count times would be required to produce "normal" detection limits. We feel that the data as presented represents the best compromise between the desired detection limits and the problems inherent in the sample matrix.

The Gross Alpha and Gross Beta analysis results ranged from equal to, to somewhat elevated above, their respective sample detection limits. The Gross Beta laboratory control standard had an acceptable percent recovery and normalized difference. The Gross Alpha laboratory control standard had an elevated normalized difference but the percent recovery was acceptable. The blank results were both less than their respective sample detection limits. The Gross Alpha and Gross Beta replicates both had elevated relative percent differences and normalized differences. This result was most likely due to the extremely high level of total solids found in these samples.

CERTIFICATION OF ACCURACY

I certify that this data report is in compliance with the terms and conditions of the Purchase Order, both technically and for completeness, for other than the conditions detailed above. Release of the data contained in this hard copy data package has been authorized by the cognizant project manager or his/her designee to be accurate as verified by the following signature.



Laboratory Manager

Date: 9/10/2001

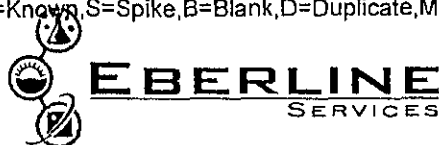
Lionville Laboratories  
208 Welsh Pool Road  
Lionville, PA 19341-1313

SDG: 0108066  
Matrix: Water

Final Report of Analysis  
Date of Report: 9/10/2001  
Page 1 of 5

Lab ID	Client ID	Sample Date	Receipt Date	Analysis Date	Batch ID	Analyte	Method	Result	Error	MDA	Units
01-08066-01	K KNOWN	08/13/01	08/13/01	08/14/01	0108066	Gross Alpha	EPA 900.0 Modified	240.72	10.35		pCi/l
01-08066-01	S SPIKE	08/13/01	08/13/01	08/14/01	0108066	Gross Alpha	EPA 900.0 Modified	266.62	8.21	0.62	pCi/l
01-08066-02	B BLANK	08/13/01	08/13/01	08/14/01	0108066	Gross Alpha	EPA 900.0 Modified	0.19	0.32	0.62	pCi/l
01-08066-03	D RN9000802W080901 D	07/24/01	08/13/01	08/14/01	0108066	Gross Alpha	EPA 900.0 Modified	12.41	14.70	14.92	pCi/l
01-08066-04	RN9000802W080901 D	07/24/01	08/13/01	08/14/01	0108066	Gross Alpha	EPA 900.0 Modified	45.85	17.37	15.10	pCi/l
01-08066-06	RN9000802W080902 D	07/25/01	08/13/01	08/15/01	0108066	Gross Alpha	EPA 900.0 Modified	10.31	12.81	13.04	pCi/l
01-08066-01	K KNOWN	08/13/01	08/13/01	08/14/01	0108066	Gross Beta	EPA 900.0 Modified	268.79	4.84		pCi/l
01-08066-01	S SPIKE	08/13/01	08/13/01	08/14/01	0108066	Gross Beta	EPA 900.0 Modified	265.63	7.44	1.13	pCi/l
01-08066-02	B BLANK	08/13/01	08/13/01	08/14/01	0108066	Gross Beta	EPA 900.0 Modified	-0.25	0.49	1.13	pCi/l
01-08066-03	D RN9000802W080901 D	07/24/01	08/13/01	08/14/01	0108066	Gross Beta	EPA 900.0 Modified	111.36	15.33	12.96	pCi/l
01-08066-04	RN9000802W080901 D	07/24/01	08/13/01	08/14/01	0108066	Gross Beta	EPA 900.0 Modified	206.95	17.10	12.94	pCi/l
01-08066-06	RN9000802W080902 D	07/25/01	08/13/01	08/15/01	0108066	Gross Beta	EPA 900.0 Modified	154.64	16.17	12.97	pCi/l
01-08066-01	K KNOWN	08/13/01	08/13/01	08/17/01	0108066	Cobalt-60	EPA 901.1 Modified	1.91E+02	9.35E+00		pCi/ml
01-08066-01	K KNOWN	08/13/01	08/13/01	08/17/01	0108066	Cesium-137	EPA 901.1 Modified	1.21E+02	5.70E+00		pCi/ml
01-08066-01	S SPIKE	08/13/01	08/13/01	08/17/01	0108066	Cobalt-60	EPA 901.1 Modified	1.88E+02	1.42E+01	8.11E-01	pCi/ml
01-08066-01	S SPIKE	08/13/01	08/13/01	08/17/01	0108066	Cesium-137	EPA 901.1 Modified	1.24E+02	1.32E+01	6.50E-01	pCi/ml
01-08066-02	B BLANK	08/13/01	08/13/01	08/16/01	0108066	Cobalt-60	EPA 901.1 Modified	2.01E-03	4.28E-03	7.75E-03	pCi/ml
01-08066-02	B BLANK	08/13/01	08/13/01	08/16/01	0108066	Cesium-137	EPA 901.1 Modified	-2.05E-03	5.09E-03	7.24E-03	pCi/ml
01-08066-02	B BLANK	08/13/01	08/13/01	08/16/01	0108066	Ruthenium-106	EPA 901.1 Modified	1.19E-02	3.30E-02	5.97E-02	pCi/ml
01-08066-02	B BLANK	08/13/01	08/13/01	08/16/01	0108066	Zirconium-95	EPA 901.1 Modified	-7.41E-04	6.88E-03	1.20E-02	pCi/ml
01-08066-03	D RN9000802W080901 D	07/24/01	08/13/01	08/17/01	0108066	Cobalt-60	EPA 901.1 Modified	-1.72E-03	3.98E-03	6.93E-03	pCi/ml
01-08066-03	D RN9000802W080901 D	07/24/01	08/13/01	08/17/01	0108066	Cesium-137	EPA 901.1 Modified	4.21E-03	4.18E-03	6.77E-03	pCi/ml
01-08066-03	D RN9000802W080901 D	07/24/01	08/13/01	08/17/01	0108066	Ruthenium-106	EPA 901.1 Modified	4.63E-03	3.57E-02	6.08E-02	pCi/ml
01-08066-03	D RN9000802W080901 D	07/24/01	08/13/01	08/17/01	0108066	Zirconium-95	EPA 901.1 Modified	-4.54E-03	7.98E-03	1.30E-02	pCi/ml

K=Known, S=Spike, B=Blank, D=Duplicate, MS=Matrix Spike



Oak Ridge Laboratory

601 Scarboro Road, Oak Ridge, TN 37830 865/481-0683 FAX 865/483-4621

Lionville Laboratories  
208 Welsh Pool Road  
Lionville, PA 19341-1313

SDG: 0108066  
Matrix: Water

Final Report of Analysis  
Date of Report: 9/10/2001  
Page 2 of 5

Lab ID	Client ID	Sample Date	Receipt Date	Analysis Date	Batch ID	Analyte	Method	Result	Error	MDA	Units
01-08066-04	RN9000802W080901 D	07/24/01	08/13/01	08/16/01	0108066	Cobalt-60	EPA 901.1 Modified	7.15E-04	3.83E-03	6.96E-03	pCi/ml
01-08066-04	RN9000802W080901 D	07/24/01	08/13/01	08/16/01	0108066	Cesium-137	EPA 901.1 Modified	2.69E-03	4.01E-03	7.01E-03	pCi/ml
01-08066-04	RN9000802W080901 D	07/24/01	08/13/01	08/16/01	0108066	Ruthenium-106	EPA 901.1 Modified	-1.76E-02	3.55E-02	5.83E-02	pCi/ml
01-08066-04	RN9000802W080901 D	07/24/01	08/13/01	08/16/01	0108066	Zirconium-95	EPA 901.1 Modified	1.10E-04	7.93E-03	1.34E-02	pCi/ml
01-08066-05	RN9000802W080901 S	07/24/01	08/13/01	08/17/01	0108066	Cobalt-60	EPA 901.1 Modified	8.92E-04	2.42E-03	4.40E-03	pCi/ml
01-08066-05	RN9000802W080901 S	07/24/01	08/13/01	08/17/01	0108066	Cesium-137	EPA 901.1 Modified	5.45E-03	5.86E-03	4.31E-03	pCi/ml
01-08066-05	RN9000802W080901 S	07/24/01	08/13/01	08/17/01	0108066	Ruthenium-106	EPA 901.1 Modified	5.44E-03	2.16E-02	3.89E-02	pCi/ml
01-08066-05	RN9000802W080901 S	07/24/01	08/13/01	08/17/01	0108066	Zirconium-95	EPA 901.1 Modified	-5.60E-04	5.21E-03	9.19E-03	pCi/ml
01-08066-06	RN9000802W080902 D	07/25/01	08/13/01	08/16/01	0108066	Cobalt-60	EPA 901.1 Modified	3.96E-03	4.75E-03	8.86E-03	pCi/ml
01-08066-06	RN9000802W080902 D	07/25/01	08/13/01	08/16/01	0108066	Cesium-137	EPA 901.1 Modified	9.27E-04	7.39E-03	8.99E-03	pCi/ml
01-08066-06	RN9000802W080902 D	07/25/01	08/13/01	08/16/01	0108066	Ruthenium-106	EPA 901.1 Modified	-4.89E-02	4.31E-02	7.13E-02	pCi/ml
01-08066-06	RN9000802W080902 D	07/25/01	08/13/01	08/16/01	0108066	Zirconium-95	EPA 901.1 Modified	1.93E-03	8.93E-03	1.61E-02	pCi/ml
01-08066-07	RN9000802W080902 S	07/25/01	08/13/01	08/17/01	0108066	Cobalt-60	EPA 901.1 Modified	7.20E-04	3.15E-03	5.65E-03	pCi/ml
01-08066-07	RN9000802W080902 S	07/25/01	08/13/01	08/17/01	0108066	Cesium-137	EPA 901.1 Modified	-3.27E-04	3.19E-03	5.59E-03	pCi/ml
01-08066-07	RN9000802W080902 S	07/25/01	08/13/01	08/17/01	0108066	Ruthenium-106	EPA 901.1 Modified	-6.69E-03	3.18E-02	4.96E-02	pCi/ml
01-08066-07	RN9000802W080902 S	07/25/01	08/13/01	08/17/01	0108066	Zirconium-95	EPA 901.1 Modified	9.59E-03	6.64E-03	1.25E-02	pCi/ml
01-08066-01	K KNOWN	08/13/01	08/13/01	08/20/01	0108066	Radium-226	EPA 903.0 Modified	10.17	0.47		pCi/l
01-08066-01	S SPIKE	08/13/01	08/13/01	08/20/01	0108066	Radium-226	EPA 903.0 Modified	9.09	1.13	0.19	pCi/l
01-08066-02	B BLANK	08/13/01	08/13/01	08/20/01	0108066	Radium-226	EPA 903.0 Modified	0.19	0.13	0.13	pCi/l
01-08066-03	D RN9000802W080901 D	07/24/01	08/13/01	08/21/01	0108066	Radium-226	EPA 903.0 Modified	1.19	0.45	0.42	pCi/l
01-08066-04	RN9000802W080901 D	07/24/01	08/13/01	08/21/01	0108066	Radium-226	EPA 903.0 Modified	1.41	0.47	0.34	pCi/l
01-08066-06	RN9000802W080902 D	07/25/01	08/13/01	08/21/01	0108066	Radium-226	EPA 903.0 Modified	1.52	0.80	0.62	pCi/l

K=Known, S=Spike, B=Blank, D=Duplicate, MS=Matrix Spike



**EBERLINE**  
SERVICES

**Oak Ridge Laboratory**

601 Scarboro Road, Oak Ridge, TN 37830 865/481-0683 FAX 865/483-4621

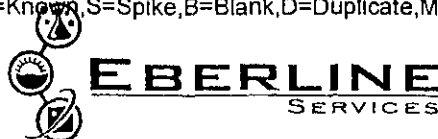
Lionville Laboratories  
 208 Welsh Pool Road  
 Lionville, PA 19341-1313

SDG: 0108066  
 Matrix: Water

Final Report of Analysis  
 Date of Report: 9/10/2001  
 ... Page 3 of 5

Lab ID	Client ID	Sample Date	Receipt Date	Analysis Date	Batch ID	Analyte	Method	Result	Error	MDA	Units
01-08066-01	K KNOWN	08/13/01	08/13/01	09/04/01	0108066	Radium-228	EPA 904.0 Modified	17.68	0.80		pCi/l
01-08066-01	S SPIKE	08/13/01	08/13/01	09/04/01	0108066	Radium-228	EPA 904.0 Modified	15.98	1.32	1.04	pCi/l
01-08066-02	B BLANK	08/13/01	08/13/01	09/04/01	0108066	Radium-228	EPA 904.0 Modified	0.42	0.66	1.13	pCi/l
01-08066-03	D RN9000802W080901 D	07/24/01	08/13/01	09/04/01	0108066	Radium-228	EPA 904.0 Modified	0.53	0.70	1.19	pCi/l
01-08066-04	RN9000802W080901 D	07/24/01	08/13/01	09/04/01	0108066	Radium-228	EPA 904.0 Modified	1.54	0.77	1.18	pCi/l
01-08066-06	RN9000802W080902 D	07/25/01	08/13/01	09/04/01	0108066	Radium-228	EPA 904.0 Modified	1.33	1.10	1.79	pCi/l
01-08066-01	K KNOWN	08/13/01	08/13/01	08/23/01	0108066	Thorium-228	EML Th-01 Modified	4.76	0.17		pCi/l
01-08066-01	S SPIKE	08/13/01	08/13/01	08/23/01	0108066	Thorium-228	EML Th-01 Modified	5.12	1.18	0.12	pCi/l
01-08066-02	B BLANK	08/13/01	08/13/01	08/23/01	0108066	Thorium-228	EML Th-01 Modified	0.63	0.25	0.16	pCi/l
01-08066-03	D RN9000802W080902 D	07/25/01	08/13/01	08/23/01	0108066	Thorium-228	EML Th-01 Modified	0.48	0.46	0.58	pCi/l
01-08066-04	RN9000802W080901 D	07/24/01	08/13/01	08/23/01	0108066	Thorium-228	EML Th-01 Modified	-0.04	0.05	0.50	pCi/l
01-08066-05	RN9000802W080901 S	07/24/01	08/13/01	08/23/01	0108066	Thorium-228	EML Th-01 Modified	0.45	0.47	0.71	pCi/l
01-08066-06	RN9000802W080902 D	07/25/01	08/13/01	08/23/01	0108066	Thorium-228	EML Th-01 Modified	0.53	0.59	0.86	pCi/l
01-08066-07	RN9000802W080902 S	07/25/01	08/13/01	08/23/01	0108066	Thorium-228	EML Th-01 Modified	1.07	0.66	0.73	pCi/l
01-08066-01	K KNOWN	08/13/01	08/13/01	08/23/01	0108066	Thorium-230	EML Th-01 Modified	5.42	0.15		pCi/l
01-08066-01	S SPIKE	08/13/01	08/13/01	08/23/01	0108066	Thorium-230	EML Th-01 Modified	5.67	1.29	0.05	pCi/l
01-08066-02	B BLANK	08/13/01	08/13/01	08/23/01	0108066	Thorium-230	EML Th-01 Modified	0.10	0.10	0.14	pCi/l
01-08066-03	D RN9000802W080902 D	07/25/01	08/13/01	08/23/01	0108066	Thorium-230	EML Th-01 Modified	0.19	0.41	0.93	pCi/l
01-08066-04	RN9000802W080901 D	07/24/01	08/13/01	08/23/01	0108066	Thorium-230	EML Th-01 Modified	0.73	0.58	0.80	pCi/l
01-08066-05	RN9000802W080901 S	07/24/01	08/13/01	08/23/01	0108066	Thorium-230	EML Th-01 Modified	0.71	0.57	0.71	pCi/l
01-08066-06	RN9000802W080902 D	07/25/01	08/13/01	08/23/01	0108066	Thorium-230	EML Th-01 Modified	1.91	1.14	1.25	pCi/l
01-08066-07	RN9000802W080902 S	07/25/01	08/13/01	08/23/01	0108066	Thorium-230	EML Th-01 Modified	0.84	0.58	0.69	pCi/l

K=Known, S=Spike, B=Blank, D=Duplicate, MS=Matrix Spike



**Oak Ridge Laboratory**

601 Scarboro Road, Oak Ridge, TN 37830 865/481-0683 FAX 865/483-4621

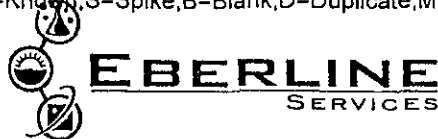
Lionville Laboratories  
 208 Welsh Pool Road  
 Lionville, PA 19341-1313

SDG: 0108066  
 Matrix: Water

Final Report of Analysis  
 Date of Report: 9/10/2001  
 Page 4 of 5

Lab ID	Client ID	Sample Date	Receipt Date	Analysis Date	Batch ID	Analyte	Method	Result	Error	MDA	Units
01-08066-01	K KNOWN	08/13/01	08/13/01	08/23/01	0108066	Thorium-232	EML Th-01 Modified	4.76	0.17		pCi/l
01-08066-01	S SPIKE	08/13/01	08/13/01	08/23/01	0108066	Thorium-232	EML Th-01 Modified	5.68	1.29	0.12	pCi/l
01-08066-02	B BLANK	08/13/01	08/13/01	08/23/01	0108066	Thorium-232	EML Th-01 Modified	0.06	0.07	0.11	pCi/l
01-08066-03	D RN9000802W080902 D	07/25/01	08/13/01	08/23/01	0108066	Thorium-232	EML Th-01 Modified	0.31	0.36	0.53	pCi/l
01-08066-04	RN9000802W080901 D	07/24/01	08/13/01	08/23/01	0108066	Thorium-232	EML Th-01 Modified	0.14	0.24	0.45	pCi/l
01-08066-05	RN9000802W080901 S	07/24/01	08/13/01	08/23/01	0108066	Thorium-232	EML Th-01 Modified	0.32	0.37	0.55	pCi/l
01-08066-06	RN9000802W080902 D	07/25/01	08/13/01	08/23/01	0108066	Thorium-232	EML Th-01 Modified	0.78	0.68	0.81	pCi/l
01-08066-07	RN9000802W080902 S	07/25/01	08/13/01	08/23/01	0108066	Thorium-232	EML Th-01 Modified	0.30	0.31	0.20	pCi/l
01-08066-01	K KNOWN	08/13/01	08/13/01	08/22/01	0108066	Uranium-234	EML U-02 Modified	8.09	0.29		pCi/l
01-08066-01	S SPIKE	08/13/01	08/13/01	08/22/01	0108066	Uranium-234	EML U-02 Modified	7.70	1.68	0.14	pCi/l
01-08066-02	B BLANK	08/13/01	08/13/01	08/22/01	0108066	Uranium-234	EML U-02 Modified	0.01	0.05	0.14	pCi/l
01-08066-03	D RN9000802W080902 D	07/25/01	08/13/01	08/22/01	0108066	Uranium-234	EML U-02 Modified	1.95	1.82	2.55	pCi/l
01-08066-04	RN9000802W080901 D	07/24/01	08/13/01	08/22/01	0108066	Uranium-234	EML U-02 Modified	1.78	1.57	2.50	pCi/l
01-08066-05	RN9000802W080901 S	07/24/01	08/13/01	08/22/01	0108066	Uranium-234	EML U-02 Modified	0.03	0.20	0.57	pCi/l
01-08066-06	RN9000802W080902 D	07/25/01	08/13/01	08/22/01	0108066	Uranium-234	EML U-02 Modified	0.81	1.04	1.82	pCi/l
01-08066-07	RN9000802W080902 S	07/25/01	08/13/01	08/22/01	0108066	Uranium-234	EML U-02 Modified	0.42	0.44	0.67	pCi/l
01-08066-01	K KNOWN	08/13/01	08/13/01	08/22/01	0108066	Uranium-235	EML U-02 Modified	0.37	0.01		pCi/l
01-08066-01	S SPIKE	08/13/01	08/13/01	08/22/01	0108066	Uranium-235	EML U-02 Modified	0.19	0.14	0.12	pCi/l
01-08066-02	B BLANK	08/13/01	08/13/01	08/22/01	0108066	Uranium-235	EML U-02 Modified	-0.01	0.01	0.12	pCi/l
01-08066-03	D RN9000802W080902 D	07/25/01	08/13/01	08/22/01	0108066	Uranium-235	EML U-02 Modified	0.74	1.07	1.01	pCi/l
01-08066-04	RN9000802W080901 D	07/24/01	08/13/01	08/22/01	0108066	Uranium-235	EML U-02 Modified	-0.09	0.12	1.36	pCi/l
01-08066-05	RN9000802W080901 S	07/24/01	08/13/01	08/22/01	0108066	Uranium-235	EML U-02 Modified	0.07	0.17	0.39	pCi/l
01-08066-06	RN9000802W080902 D	07/25/01	08/13/01	08/22/01	0108066	Uranium-235	EML U-02 Modified	0.50	0.79	1.27	pCi/l
01-08066-07	RN9000802W080902 S	07/25/01	08/13/01	08/22/01	0108066	Uranium-235	EML U-02 Modified	0.05	0.22	0.65	pCi/l

K=Known, S=Spike, B=Blank, D=Duplicate, MS=Matrix Spike



Oak Ridge Laboratory

601 Scarboro Road, Oak Ridge, TN 37830 865/481-0683 FAX 865/483-4621



Lionville Laboratories  
208 Welsh Pool Road  
Lionville, PA 19341-1313

SDG: 0108066  
Matrix: Water

Final Report of Analysis  
Date of Report: 9/10/2001  
Page 5 of 5

Lab ID	Client ID	Sample Date	Receipt Date	Analysis Date	Batch ID	Analyte	Method	Result	Error	MDA	Units
01-08066-01	K KNOWN	08/13/01	08/13/01	08/22/01	0108066	Uranium-238	EML U-02 Modified	7.89	0.28		pCi/l
01-08066-01	S SPIKE	08/13/01	08/13/01	08/22/01	0108066	Uranium-238	EML U-02 Modified	7.53	1.65%	0.11	pCi/l
01-08066-02	B BLANK	08/13/01	08/13/01	08/22/01	0108066	Uranium-238	EML U-02 Modified	0.01	0.07	0.19	pCi/l
01-08066-03	D RN9000802W080902 D	07/25/01	08/13/01	08/22/01	0108066	Uranium-238	EML U-02 Modified	1.23	1.68	3.18	pCi/l
01-08066-04	RN9000802W080901 D	07/24/01	08/13/01	08/22/01	0108066	Uranium-238	EML U-02 Modified	0.40	0.73	1.50	pCi/l
01-08066-05	RN9000802W080901 S	07/24/01	08/13/01	08/22/01	0108066	Uranium-238	EML U-02 Modified	-0.01	0.15	0.52	pCi/l
01-08066-06	RN9000802W080902 D	07/25/01	08/13/01	08/22/01	0108066	Uranium-238	EML U-02 Modified	0.59	0.93	1.81	pCi/l
01-08066-07	RN9000802W080902 S	07/25/01	08/13/01	08/22/01	0108066	Uranium-238	EML U-02 Modified	0.11	0.31	0.76	pCi/l

K=Known, S=Spike, B=Blank, D=Duplicate, MS=Matrix Spike



**EBERLINE**  
SERVICES

**Oak Ridge Laboratory**

601 Scarboro Road, Oak Ridge, TN 37830 865/481-0683 FAX 865/483-4621