

# Data Validation Package

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October 2006

Canonsburg, Pennsylvania, Disposal Site

December 2006



**U.S. Department of Energy**  
**Office of Legacy Management**

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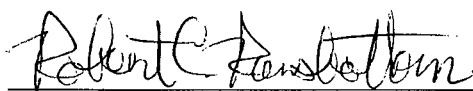
# Sampling Event Summary

**Site:** Canonsburg, Pennsylvania, Disposal Site

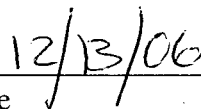
**Sampling Period:** October 3, 2006

Six ground water samples and three surface water samples were collected at the Canonsburg, Pennsylvania, Disposal Site to demonstrate compliance with standards as set forth in the *Ground Water Compliance Action Plan for the Canonsburg, Pennsylvania, UMTRA Project Site*. Water levels were measured at each sampled well. Sampling and analysis was conducted as specified in *Sampling and Analysis Plan for U.S. Department of Energy Office of Legacy Management Sites* (2006). One duplicate sample was collected from location 0413.

The U.S. Department of Energy monitors ground water and surface water at the Canonsburg site to demonstrate that uranium concentrations do not exceed U.S. Nuclear Regulatory Commission-approved alternate concentration limits (ACL) of 1.0 milligram per liter (mg/L) in ground water and 0.01 mg/L at the point of exposure (POE) in Chartiers Creek. The ACL for uranium was not exceeded in point-of-compliance wells 0412, 0413, and 0414. These data are consistent with historical results as illustrated in the time-concentration graphs included with the analytical data. The uranium concentration at POE location 0602 in Chartiers Creek did not exceed the ACL. Comparisons of the analytical results from Chartiers Creek downstream locations 0602 and 0603 to the results from the upstream location 0601 indicate negligible site-related impacts to water quality in Chartiers Creek.



Robert Ransbottom  
Site Lead, S.M. Stoller



Date





M:\LTS\111\0005\10\S02153\S0215300.mxd carverh 1/23/2006 4:57:10 PM

*Sample Location, Canonsburg, Pennsylvania, Disposal Site*

## **Data Assessment Summary**

## Water Sampling Field Activities Verification Checklist

<b>Project</b>	<u>Canonsburg, Pennsylvania</u>	<b>Date(s) of Water Sampling</b>	<u>October 3, 2006</u>
<b>Date(s) of Verification</b>	<u>December 5, 2006</u>	<b>Name of Verifier</b>	<u>Steve Donovan</u>

	Response (Yes, No, NA)	Comments
1. Is the SAP the primary document directing field procedures?  List other documents, SOP's, instructions.	<u>Yes</u>	<u>Work Order Letter dated September 22, 2006</u>
2. Were the sampling locations specified in the planning documents sampled?	<u>Yes</u>	
3. Was a pre-trip calibration conducted as specified in the above named documents?	<u>Yes</u>	<u>Pre-trip calibration performed on September 28, 2006</u>
4. Was an operational check of the field equipment conducted twice daily?  Did the operational checks meet criteria?	<u>Yes</u> <u>Yes</u>	<u>Two operational checks performed on October 3, 2006</u>
5. Were the number and types (alkalinity, temperature, Ec, pH, turbidity, DO, ORP) of field measurements taken as specified?	<u>Yes</u>	
6. Was the Category of the well documented?	<u>Yes</u>	
7. Were the following conditions met when purging a Category I well:  Was one pump/tubing volume purged prior to sampling?  Did the water level stabilize prior to sampling?  Did pH, specific conductance, and turbidity measurements stabilize prior to sampling?  Was the flow rate less than 500 mL/min?  If a portable pump was used, was there a 4 hour delay between pump installation and sampling?	<u>Yes</u> <u>Yes</u> <u>Yes</u> <u>Yes</u> <u>NA</u>	



### Water Sampling Field Activities Verification Checklist (continued)

	Response (Yes, No, NA)	Comments
8. Were the following conditions met when purging a Category II well:		
Was the flow rate less than 500 mL/min?	Yes	
Was one pump/tubing volume removed prior to sampling?	Yes	
9. Were duplicates taken at a frequency of one per 20 samples?	Yes	
10. Were equipment blanks taken at a frequency of one per 20 samples that were collected with nondedicated equipment?	NA	An equipment blank was not necessary because new pump-head tubing was used at each location.
11. Were trip blanks prepared and included with each shipment of VOC samples?	NA	
12. Were QC samples assigned a fictitious site identification number?	Yes	
Was the true identity of the samples recorded on the Quality Assurance Sample Log?	Yes	Sample 2213 is a duplicate of 0413.
13. Were samples collected in the containers specified?	Yes	
14. Were samples filtered and preserved as specified?	Yes	
15. Were the number and types of samples collected as specified?	Yes	
16. Were chain of custody records completed and was sample custody maintained?	Yes	
17. Are field data sheets signed and dated by both team members?	Yes	
18. Was all other pertinent information documented on the field data sheets?	Yes	
19. Was the presence or absence of ice in the cooler documented at every sample location?	Yes	
20. Were water levels measured at the locations specified in the planning documents?	Yes	

## Laboratory Performance Assessment

### General Information

Report Number (RIN): 06090506  
Sample Event: October 3, 2006  
Site(s): Canonsburg, Pennsylvania  
Laboratory: Paragon Analytics, Fort Collins, Colorado  
Work Order No.: 0610031  
Analysis: Metals, Inorganics, and Radiochemistry  
Validator: Steve Donivan  
Review Date: November 28, 2006

This validation was performed according to the *Environmental Procedures Catalog* (STO 6), "Standard Practice for Validation of Laboratory Data," GT-9(P) (2006). The procedure was applied at Level 3, Data Validation. See attached Data Validation Worksheets for supporting documentation on the data review and validation. The analysis was successfully completed. The sample was prepared and analyzed using accepted procedures based on methods specified by line item code, which are listed in Table 1.

Table 1. Analytes and Methods

Analyte	Line Item Code	Prep Method	Analytical Method
Calcium, Magnesium, Potassium, Sodium	MET-A-020	SW-846 3005A	SW-846 6010B
Chloride, Cl	MIS-A-039	SW-846 9056	SW-846 9056
Gross Alpha/Beta	GPC-A-001	EPA 900.0	EPA 900.0
Manganese, Mn	GJO-17	SW-846 3005A	SW-846 6010B
Molybdenum, Mo	GJO-15	SW-846 3005A	SW-846 6020
Sulfate, SO <sub>4</sub>	MIS-A-044	SW-846 9056	SW-846 9056
Uranium, U	GJO-01	SW-846 3005A	SW-846 6020

### Sample Shipping/Receiving

Paragon Analytics, Fort Collins, Colorado, received 10 water samples on October 4, 2006, accompanied by a Chain of Custody (COC) form. The COC form was checked to confirm that all of the samples were listed on the form and that signatures and dates were present indicating sample relinquishment and receipt. The sample submittal documents including the COC form and the sample submittal form had no errors or omissions.

### Preservation and Holding Times

The sample shipments were received cool and intact with the temperature within the cooler of 1.0 °C, which complies with requirements. All samples were received in the correct container types and had been preserved correctly for the requested analyses with the exception of the metals bottle from location 0603. This sample was acidified and allowed to equilibrate upon receipt. All samples were analyzed within the applicable holding times.



## Data Qualifier Summary

The analytical results were qualified as listed in Table 2.

Table 2. Data Qualifier Summary

Sample Number	Location	Analyte	Flag	Reason
0610031-1	0406A	Gross Alpha	J	Less than 3 times the MDC
0610031-1	0406A	Gross Beta	J	Less than 3 times the MDC
0610031-1	0406A	Molybdenum	U	Less than 5 times the calibration blank
0610031-2	0410	Gross Beta	J	Less than 3 times the MDC
0610031-2	0410	Potassium	J	Matrix spike duplicate failure
0610031-2	0410	Molybdenum	U	Less than 5 times the calibration blank
0610031-2	0410	Uranium	U	Less than 5 times the calibration blank
0610031-3	0412	Molybdenum	U	Less than 5 times the calibration blank
0610031-5	0414B	Gross Alpha	J	Less than 3 times the MDC
0610031-5	0414B	Molybdenum	U	Less than 5 times the calibration blank
0610031-6	0424	Gross Alpha	J	Less than 3 times the MDC
0610031-6	0424	Gross Beta	J	Less than 3 times the MDC
0610031-6	0424	Molybdenum	U	Less than 5 times the calibration blank
0610031-6	0424	Uranium	U	Less than 5 times the calibration blank

## Laboratory Instrument Calibration

Compliance requirements for satisfactory instrument calibration are established to ensure that the instrument is capable of producing acceptable qualitative and quantitative data for all analytes. Initial calibration demonstrates that the instrument is capable of acceptable performance in the beginning of the analytical run and of producing a linear curve. Compliance requirements for continuing calibration checks are established to ensure that the instrument continues to be capable of producing acceptable qualitative and quantitative data. All laboratory instrument calibrations were performed correctly in accordance with the cited methods.

### *Method SW-846 6010B*

Calibrations for calcium, magnesium, molybdenum, potassium, and sodium were performed on October 13, 2006, and November 1, 2006, using one calibration standard and a blank. Calibration and laboratory spike standards were prepared from independent sources. Initial and continuing calibration verification (CCV) checks were made at the required frequency resulting in 24 CCVs. All calibration check results met the acceptance criteria. A reporting limit verification check was made at the required frequency to verify the linearity of the calibration curve near the practical quantitation limit. The check results were within the acceptance range.

### *Method SW-846 6020*

Calibrations for molybdenum and uranium were performed October 25, 2006. The initial calibrations were performed using six calibration standards resulting in calibration curves with correlation coefficient ( $r^2$ ) values greater than 0.995. The absolute values of the curve intercepts

were less than three times the method detection limit (MDL). Calibration and laboratory spike standards were prepared from independent sources. Initial and CCV checks were made at the required frequency resulting in 11 CCVs. All initial and CCV results were within the acceptance range with the exception of CCV1 for molybdenum. There were no samples associated with this CCV. Reporting limit verification checks were made at the required frequency to verify the linearity of the calibration curves near the practical quantitation limit. The check results were within the acceptance range. The mass calibration and resolution was checked at the beginning of each analytical run in accordance with the procedure. Internal standard recoveries were stable and within acceptance ranges.

#### *Method SW-846 9056*

Initial calibrations were performed for chloride and sulfate using five calibration standards on August 21, 2006. The resulting calibration curves had correlation coefficient ( $r^2$ ) values greater than 0.995 and intercepts less than three times the MDL. Initial calibration and calibration check standards were prepared from independent sources. Initial and CCV checks were made at the required frequency resulting in 11 CCVs. All initial and CCV results were within the acceptance range.

#### Radiochemical Analysis

Radiochemical results are qualified with a "J" flag (estimated) when the result is greater than the minimum detectable concentration (MDC), but less than three times the MDC. Radiochemical results are qualified with a "U" flag (not detected) when the result is greater than the MDC, but less than the two sigma total propagated uncertainty (TPU).

#### *Gross Alpha/Beta*

Plateau calibrations were performed on October 31, 2005. Alpha and beta attenuation calibrations were performed on November 3, 2005, covering a range of 0 to 189 milligrams (mg). All standards were counted to a minimum of 10,000 counts. All calibration and background checks met acceptance criteria. The residual mass was less than 100 mg for all samples.

#### Method and Calibration Blanks

Method blanks are analyzed to assess any contamination that may have occurred during sample preparation. Calibration blanks are analyzed to assess instrument contamination prior to and during sample analysis. All initial and continuing calibration blank (CCB) results were below the practical quantitation limits for calcium, magnesium, manganese, molybdenum, potassium, sodium, and uranium with the exception of CCB1 for molybdenum. There were no samples associated with this CCB. In cases where blank concentration exceeds the instrument detection limit, the associated sample results are qualified with a "U" flag (not detected) when the sample result is greater than the MDL but less than 5 times the blank concentration. The method blank results for chloride and sulfate were below the MDLs with the exception of CCB1 and CCB2 for chloride. There were no samples associated with these CCBs. The gross alpha and gross beta method blank results were below the MDC.

### Inductively Coupled Plasma (ICP) Interference Check Sample (ICS) Analysis

ICP interference check samples ICESA and ICESAB were analyzed at the required frequency to verify the instrumental interference and background correction factors. All check sample results met the acceptance criteria.

### Matrix Spike Analysis

Matrix spike and matrix spike duplicate (MS/MSD) pairs were analyzed for all analytes as a measure of method performance in the sample matrix. The MS/MSD recoveries met the acceptance criteria for all analytes evaluated with the exception of the MSD for potassium. The associated potassium result is qualified with a "J" flag (estimated).

### Laboratory Replicate Analysis

The relative percent difference values for the laboratory replicate sample and matrix spike duplicate sample results for all non-radiochemical analytes were less than 20 percent and the relative error ratio for gross alpha and gross beta was less than 3.0, indicating acceptable laboratory precision.

### Laboratory Control Samples

Laboratory control samples (LCS) were analyzed at the correct frequency to provide information on the accuracy of the analytical method and the overall laboratory performance, including sample preparation. The LCS results were acceptable for all analysis categories.

### Metals Serial Dilution

Serial dilutions were performed during the metals analysis to monitor physical or chemical interferences that may exist in the sample matrix. Serial dilutions were prepared and analyzed for calcium, magnesium, manganese, potassium, and sodium. The acceptance criteria were met for all analytes.

### Detection Limits/Dilutions

Samples were diluted in a consistent and acceptable manner when required. Dilutions were not required to reduce interferences. The required detection limits were met for all analytes with the following exception. The required detection limits were not met for gross alpha and gross beta in some cases because of the elevated levels of dissolved solids in the samples.

### Completeness

Results were reported in the correct units for all analytes requested using contract-required laboratory qualifiers.

## Chromatography Peak Integration

The integration of analyte peaks was reviewed for all chloride and sulfate data. There were no manual integrations performed and all peak integrations were satisfactory.

## Anion/Cation Balance

The anion/cation balance is used to determine if major ion concentrations have been quantified correctly. The total anions should balance with the total cations when expressed in milliequivalents per liter (meq/L). Table 3 shows the total anion and cation results from this event and the charge balance, which is a relative percent difference calculation. Typically, a charge balance difference of up to 15 percent is considered acceptable.

*Table 3. Cation/Anion Balance*

Site Code	Location	Cations (meq/L)	Anions (meq/L)	Charge Balance (%)
CAN01	0406A	17.78	17.29	1.42
CAN01	0410	5.23	5.54	2.92
CAN01	0412	33.13	29.10	6.48
CAN01	0413	8.08	7.75	2.14
CAN01	0414B	7.54	7.25	2.02
CAN01	0424	14.75	13.52	4.35
CAN01	0601	14.94	11.72	12.10
CAN01	0602	13.83	11.41	9.57
CAN01	0603	13.26	12.05	4.77

The charge balance value for all locations was less than 15 percent indicating acceptable data quality.

## Electronic Data Deliverable (EDD) File

The EDD file arrived on November 6, 2006, and was loaded into the SEEPro database on December 4, 2006. The Sample Management System EDD validation module was used to verify that the EDD file was complete and in compliance with requirements. The module compares the contents of the file to the requested analyses to ensure all and only the requested data are delivered. The contents of the EDD were manually examined to verify that the sample results accurately reflect the data contained in the sample data package.

# SAMPLE MANAGEMENT SYSTEM

## General Data Validation Worksheet

Page 1 of 1

RIN: 06090506      Lab Code: PAR      Validator: Steve Donovan      Validation Date: 11/28/2006  
 Site: CANONSBURG      Analysis Type:  Metals     General Chem     Rad     Organics  
 # of Samples: 10      Matrix: WATER      Requested Analysis Completed: Yes

**Chain of Custody**  
 Present: OK    Signed: OK    Dated: OK

**Sample**  
 Integrity: OK    Preservation: OK    Temperature: OK

### Exceptions

Method	Analyte	Location	Ticket	Collection Date	Preparation Date	Analysis Date	Dilution Factor	Holding Time Met	Detection Limit Met
SOP724R9	GROSS BETA	412	NDV 232	10/3/2006	10/12/2006	10/23/2006	1	Yes	No
SOP724R9	GROSS ALPHA	412	NDV 232	10/3/2006	10/12/2006	10/23/2006	1	Yes	No

**Comments:**

All samples were analyzed within the applicable holding times.  
 \_\_\_\_\_  
 \_\_\_\_\_  
 \_\_\_\_\_

**SAMPLE MANAGEMENT SYSTEM**  
**Inorganics Data Validation Worksheet**

RIN: 06090506      Lab Code: PAR      Date Due: 11/2/2006  
 Matrix: Water      Site Code: CAN01      Date Completed: 11/8/2006

Analyte	Date Analyzed	CALIBRATION						Method Blank	LCS %R	MS %R	MSD %R	DUP RPD	Serial Dil. %R
		Int.	R <sup>2</sup>	ICV	CCV	ICB	CCB						
Chloride	10/06/2006	0	0.9999	OK	OK	OK	OK	OK	99.0	95.0	94.0	1.00	
Sulfate	10/06/2006	0	0.9999	OK	OK	OK	OK	OK	94.0	95.0	94.0	1.00	

Comments: \_\_\_\_\_

\_\_\_\_\_

\_\_\_\_\_



## Sampling Quality Control Assessment

The following information summarizes and assesses quality control for this sampling event.

### Sampling Protocol

All monitor well sample results were qualified with an "F" flag in the database indicating the wells were purged and sampled using the low-flow sampling method. Additionally, sample results for wells 0406A, 0410, 0413, and 0414B were qualified with a "Q" flag indicating the data are qualitative because these wells are Category II based on water level drawdown.

### Equipment Blank Assessment

An equipment blank was not necessary because new pump-head tubing was used at each location.

### Field Duplicate Assessment

Field duplicate samples are collected and analyzed as an indication of overall precision of the measurement process. The precision observed includes both field and laboratory precision and has more variability than laboratory duplicates which measure only laboratory performance. Duplicate samples were collected from location 0413. The non-radiochemical duplicate results met the U.S. Environmental Protection Agency recommended laboratory duplicate criteria of having a relative percent difference of less than 20 percent for results that are greater than five times the practical quantitation limit. The gross alpha and gross beta duplicate results had relative error ratios less than three demonstrating acceptable precision.

### Certification

All laboratory analytical quality control criteria were met except as qualified in this report. The data qualifiers listed on the SEEPro database reports are defined on the last page of each report. All data in this package are considered validated and available for use.

Laboratory Coordinator:

Steve Donivan  
Steve Donivan

12-13-2008  
Date

Data Validation Lead:

Steve Donivan  
Steve Donivan

12-13-2008  
Date

**Attachment 1**  
**Assessment of Anomalous Data**

## **Minimums and Maximums Report**

## **Minimums and Maximums Report**

The Minimums and Maximums Report is generated by a data validation application used to query the SEEPro database. The application compares the new data set with historical data and lists all new data that fall outside the historical data range. Data listed in the report require further review if:

- (1) Identified low concentrations are not the result of improved detection limits.
- (2) The concentration detected is not within 50 percent of historical minimum or maximum values.
- (3) There were five or more historical sample results for comparison.

There were no results that failed to meet the criteria above and all data from this sampling event may be considered validated as qualified.

Data Validation Minimums and Maximums Report - No Field Parameters  
 Laboratory: PARAGON (Fort Collins, CO)  
 RIN: 06090506  
 Comparison: All Historical Data  
 Report Date: 12/5/2006

Site Code	Location Code	Sample Date	Analyte	Current			Historical Maximum			Historical Minimum			Count	
				Result	Qualifiers		Result	Qualifiers		Result	Qualifiers		N	N Below Detect
CAN01	0410	10/03/2006	Sulfate	72		FQ	171			72.7		L	29	0
CAN01	0412	10/03/2006	Magnesium	96		F	84			43.4			35	0
CAN01	0413	10/03/2006	Sulfate	55		FQ	551		F	55.4		F	40	0
CAN01	0424	10/03/2006	Calcium	120		F	110			93		F	17	0
CAN01	0424	10/03/2006	Magnesium	31		F	28.1		F	23.5		L	17	0
CAN01	0424	10/03/2006	Sulfate	120		F	230			127		F	17	0
CAN01	0601	10/03/2006	Calcium	130			118			69			21	0
CAN01	0603	10/03/2006	Manganese	0.051			0.13			0.0603			18	0
CAN01	0603	10/03/2006	Potassium	9.6			9.51			3.68			17	0

SAMPLE ID CODES: 000X = Filtered sample (0.45 µm). N00X = Unfiltered sample. X = replicate number.

LAB QUALIFIERS:

- \* Replicate analysis not within control limits.
- > Result above upper detection limit.
- A TIC is a suspected aldol-condensation product.
- B Inorganic: Result is between the IDL and CRDL. Organic: Analyte also found in method blank.
- C Pesticide result confirmed by GC-MS.
- D Analyte determined in diluted sample.
- E Inorganic: Estimate value because of interference, see case narrative. Organic: Analyte exceeded calibration range of the GC-MS.
- H Holding time expired, value suspect.
- I Increased detection limit due to required dilution.
- J Estimated
- N Inorganic or radiochemical: Spike sample recovery not within control limits. Organic: Tentatively identified compound (TIC).
- P > 25% difference in detected pesticide or Aroclor concentrations between 2 columns.
- U Analytical result below detection limit.
- W Post-digestion spike outside control limits while sample absorbance < 50% of analytical spike absorbance.
- X,Y,Z Laboratory defined qualifier, see case narrative.

DATA QUALIFIERS:

- F Low flow sampling method used.
- L Less than 3 bore volumes purged prior to sampling.
- U Parameter analyzed for but was not detected.
- G Possible grout contamination, pH > 9.
- Q Qualitative result due to sampling technique.
- X Location is undefined.
- J Estimated value.
- R Unusable result.



**Attachment 2**  
**Data Presentation**

## **Ground Water Quality Data**

Ground Water Quality Data by Location (USEE100) FOR SITE CAN01, Canonsburg Disposal Site  
 REPORT DATE: 12/5/2006  
 Location: 0406A WELL Replacement well for 0406.

Parameter	Units	Sample Date	Sample ID	Depth Range (Ft BLS)	Result	Lab	Qualifiers Data	QA	Detection Limit	Uncertainty
Alkalinity, Total (As CaCO3)	mg/L	10/03/2006	0001	5 - 15	656		FQ	#		
Calcium	mg/L	10/03/2006	0001	5 - 15	230		FQ	#	.0059	
Chloride	mg/L	10/03/2006	0001	5 - 15	110		FQ	#	4	
Gross Alpha	pCi/L	10/03/2006	0001	5 - 15	1.96		FQJ	#	1.11	.847
Gross Beta	pCi/L	10/03/2006	0001	5 - 15	4.49		FQJ	#	2.31	1.63
Magnesium	mg/L	10/03/2006	0001	5 - 15	48		FQ	#	.0062	
Manganese	mg/L	10/03/2006	0001	5 - 15	1.8		FQ	#	.000097	
Molybdenum	mg/L	10/03/2006	0001	5 - 15	0.00038	B	UFQ	#	.00013	
Oxidation Reduction Potential	mV	10/03/2006	N001	5 - 15	-142.9		FQ	#		
pH	s.u.	10/03/2006	N001	5 - 15	6.75		FQ	#		
Potassium	mg/L	10/03/2006	0001	5 - 15	5.5		FQ	#	.012	
Sodium	mg/L	10/03/2006	0001	5 - 15	51		FQ	#	.0044	
Specific Conductance	umhos/cm	10/03/2006	N001	5 - 15	1500		FQ	#		
Sulfate	mg/L	10/03/2006	0001	5 - 15	51		FQ	#	10	
Temperature	C	10/03/2006	N001	5 - 15	19.16		FQ	#		
Turbidity	NTU	10/03/2006	N001	5 - 15	7.29		FQ	#		
Uranium	mg/L	10/03/2006	0001	5 - 15	0.0004		FQ	#	.0000048	

Ground Water Quality Data by Location (USEE100) FOR SITE CAN01, Canonsburg Disposal Site  
 REPORT DATE: 12/5/2006  
 Location: 0410 WELL

Parameter	Units	Sample Date	Sample ID	Depth Range (Ft BLS)	Result	Qualifiers			Detection Limit	Uncertainty
						Lab	Data	QA		
Alkalinity, Total (As CaCO3)	mg/L	10/03/2006	0001	11.48 - 16.08	33		FQ	#		
Calcium	mg/L	10/03/2006	0001	11.48 - 16.08	32		FQ	#	.0059	
Chloride	mg/L	10/03/2006	0001	11.48 - 16.08	120		FQ	#	2	
Gross Alpha	pCi/L	10/03/2006	0001	11.48 - 16.08	0.887	U	FQ	#	.887	.53
Gross Beta	pCi/L	10/03/2006	0001	11.48 - 16.08	2.46		FQJ	#	2.3	1.29
Magnesium	mg/L	10/03/2006	0001	11.48 - 16.08	15		FQ	#	.0062	
Manganese	mg/L	10/03/2006	0001	11.48 - 16.08	1.7	N	FQ	#	.000097	
Molybdenum	mg/L	10/03/2006	0001	11.48 - 16.08	0.00018	B	UFQ	#	.00013	
Oxidation Reduction Potential	mV	10/03/2006	N001	11.48 - 16.08	170.4		FQ	#		
pH	s.u.	10/03/2006	N001	11.48 - 16.08	5.22		FQ	#		
Potassium	mg/L	10/03/2006	0001	11.48 - 16.08	1.9	N	FQJ	#	.012	
Sodium	mg/L	10/03/2006	0001	11.48 - 16.08	54		FQ	#	.0044	
Specific Conductance	umhos/cm	10/03/2006	N001	11.48 - 16.08	579		FQ	#		
Sulfate	mg/L	10/03/2006	0001	11.48 - 16.08	72		FQ	#	5	
Temperature	C	10/03/2006	N001	11.48 - 16.08	16.36		FQ	#		
Turbidity	NTU	10/03/2006	N001	11.48 - 16.08	2.67		FQ	#		
Uranium	mg/L	10/03/2006	0001	11.48 - 16.08	0.000058	B	UFQ	#	.0000048	

Ground Water Quality Data by Location (USEE100) FOR SITE CAN01, Canonsburg Disposal Site  
 REPORT DATE: 12/5/2006  
 Location: 0412 WELL

Parameter	Units	Sample		Depth Range		Result	Qualifiers			Detection Limit	Uncertainty
		Date	ID	(Ft BLS)	Lab		Data	QA			
Alkalinity, Total (As CaCO3)	mg/L	10/03/2006	0001	13.21	- 18.21	530		F	#		
Calcium	mg/L	10/03/2006	0001	13.21	- 18.21	450		F	#	.059	
Chloride	mg/L	10/03/2006	0001	13.21	- 18.21	21		F	#	4	
Gross Alpha	pCi/L	10/03/2006	0001	13.21	- 18.21	85.3		F	#	2.2	14.3
Gross Beta	pCi/L	10/03/2006	0001	13.21	- 18.21	32		F	#	4.45	6
Magnesium	mg/L	10/03/2006	0001	13.21	- 18.21	96		F	#	.0062	
Manganese	mg/L	10/03/2006	0001	13.21	- 18.21	26		F	#	.00097	
Molybdenum	mg/L	10/03/2006	0001	13.21	- 18.21	0.00039	B	UF	#	.00013	
Oxidation Reduction Potential	mV	10/03/2006	N001	13.21	- 18.21	-27.5		F	#		
pH	s.u.	10/03/2006	N001	13.21	- 18.21	6.38		F	#		
Potassium	mg/L	10/03/2006	0001	13.21	- 18.21	5		F	#	.012	
Sodium	mg/L	10/03/2006	0001	13.21	- 18.21	61		F	#	.0044	
Specific Conductance	umhos/cm	10/03/2006	N001	13.21	- 18.21	2230		F	#		
Sulfate	mg/L	10/03/2006	0001	13.21	- 18.21	860		F	#	10	
Temperature	C	10/03/2006	N001	13.21	- 18.21	15.46		F	#		
Turbidity	NTU	10/03/2006	N001	13.21	- 18.21	9.4		F	#		
Uranium	mg/L	10/03/2006	0001	13.21	- 18.21	0.12		F	#	.000024	

Ground Water Quality Data by Location (USEE100) FOR SITE CAN01, Canonsburg Disposal Site  
 REPORT DATE: 12/5/2006  
 Location: 0413 WELL

Parameter	Units	Sample Date	Sample ID	Depth Range (Ft BLS)	Result	Lab	Qualifiers Data	QA	Detection Limit	Uncertainty
Alkalinity, Total (As CaCO3)	mg/L	10/03/2006	0001	6.05 - 11.05	322		FQ	#		
Calcium	mg/L	10/03/2006	0001	6.05 - 11.05	120		FQ	#	.0059	
Calcium	mg/L	10/03/2006	0002	6.05 - 11.05	130		FQ	#	.0059	
Chloride	mg/L	10/03/2006	0001	6.05 - 11.05	5.7		FQ	#	.4	
Chloride	mg/L	10/03/2006	0002	6.05 - 11.05	6.3		FQ	#	.4	
Gross Alpha	pCi/L	10/03/2006	0001	6.05 - 11.05	62.3		FQ	#	.708	10.3
Gross Alpha	pCi/L	10/03/2006	0002	6.05 - 11.05	76.7		FQ	#	.968	12.7
Gross Beta	pCi/L	10/03/2006	0001	6.05 - 11.05	40		FQ	#	2.2	6.65
Gross Beta	pCi/L	10/03/2006	0002	6.05 - 11.05	40.2		FQ	#	2.73	6.82
Magnesium	mg/L	10/03/2006	0001	6.05 - 11.05	16		FQ	#	.0062	
Magnesium	mg/L	10/03/2006	0002	6.05 - 11.05	17		FQ	#	.0062	
Manganese	mg/L	10/03/2006	0001	6.05 - 11.05	2.1		FQ	#	.000097	
Manganese	mg/L	10/03/2006	0002	6.05 - 11.05	2.3		FQ	#	.000097	
Molybdenum	mg/L	10/03/2006	0001	6.05 - 11.05	0.0039		FQ	#	.00013	
Molybdenum	mg/L	10/03/2006	0002	6.05 - 11.05	0.0043		FQ	#	.00013	
Oxidation Reduction Potential	mV	10/03/2006	N001	6.05 - 11.05	-77.2		FQ	#		
pH	s.u.	10/03/2006	N001	6.05 - 11.05	6.77		FQ	#		
Potassium	mg/L	10/03/2006	0001	6.05 - 11.05	5		FQ	#	.012	
Potassium	mg/L	10/03/2006	0002	6.05 - 11.05	5.1		FQ	#	.012	
Sodium	mg/L	10/03/2006	0001	6.05 - 11.05	15		FQ	#	.0044	
Sodium	mg/L	10/03/2006	0002	6.05 - 11.05	16		FQ	#	.0044	
Specific Conductance	umhos/cm	10/03/2006	N001	6.05 - 11.05	682		FQ	#		



Ground Water Quality Data by Location (USEE100) FOR SITE CAN01, Canonsburg Disposal Site  
 REPORT DATE: 12/5/2006  
 Location: 0413 WELL

Parameter	Units	Sample Date	Sample ID	Depth Range (Ft BLS)	Result	Qualifiers		Detection Limit	Uncertainty
						Lab	Data QA		
Sulfate	mg/L	10/03/2006	0001	6.05 - 11.05	55		FQ #	1	
Sulfate	mg/L	10/03/2006	0002	6.05 - 11.05	55		FQ #	1	
Temperature	C	10/03/2006	N001	6.05 - 11.05	16.08		FQ #		
Turbidity	NTU	10/03/2006	N001	6.05 - 11.05	13		FQ #		
Uranium	mg/L	10/03/2006	0001	6.05 - 11.05	0.15		FQ #	.000024	
Uranium	mg/L	10/03/2006	0002	6.05 - 11.05	0.14		FQ #	.000024	

Ground Water Quality Data by Location (USEE100) FOR SITE CAN01, Canonsburg Disposal Site  
 REPORT DATE: 12/5/2006  
 Location: 0414B WELL Replacement well for 0414A.

Parameter	Units	Sample Date	Sample ID	Depth Range (Ft BLS)	Result	Qualifiers		Detection Limit	Uncertainty
						Lab	Data QA		
Alkalinity, Total (As CaCO3)	mg/L	10/03/2006	0001	-	219		FQ #		
Calcium	mg/L	10/03/2006	0001	-	110		FQ #	.0059	
Chloride	mg/L	10/03/2006	0001	-	13		FQ #	2	
Gross Alpha	pCi/L	10/03/2006	0001	-	2.18		FQJ #	.852	.776
Gross Beta	pCi/L	10/03/2006	0001	-	1.88	U	FQ #	1.88	1.02
Magnesium	mg/L	10/03/2006	0001	-	19		FQ #	.0062	
Manganese	mg/L	10/03/2006	0001	-	8		FQ #	.000097	
Molybdenum	mg/L	10/03/2006	0001	-	0.00032	B	UFQ #	.00013	
Oxidation Reduction Potential	mV	10/03/2006	N001	-	22.8		FQ #		
pH	s.u.	10/03/2006	N001	-	6.46		FQ #		
Potassium	mg/L	10/03/2006	0001	-	2.2		FQ #	.012	
Sodium	mg/L	10/03/2006	0001	-	10		FQ #	.0044	
Specific Conductance	umhos/cm	10/03/2006	N001	-	632		FQ #		
Sulfate	mg/L	10/03/2006	0001	-	120		FQ #	5	
Temperature	C	10/03/2006	N001	-	14.58		FQ #		
Turbidity	NTU	10/03/2006	N001	-	102		FQ #		
Uranium	mg/L	10/03/2006	0001	-	0.0023		FQ #	.000048	

Ground Water Quality Data by Location (USEE100) FOR SITE CAN01, Canonsburg Disposal Site  
 REPORT DATE: 12/5/2006  
 Location: 0424 WELL

Parameter	Units	Sample Date	Sample ID	Depth Range (Ft BLS)		Result	Qualifiers			Detection Limit	Uncertainty
							Lab	Data	QA		
Alkalinity, Total (As CaCO3)	mg/L	10/03/2006	0001	7.58	- 12.58	396		F	#		
Calcium	mg/L	10/03/2006	0001	7.58	- 12.58	120		F	#	.0059	
Chloride	mg/L	10/03/2006	0001	7.58	- 12.58	110		F	#	2	
Gross Alpha	pCi/L	10/03/2006	0001	7.58	- 12.58	1.47		FJ	#	1.12	.79
Gross Beta	pCi/L	10/03/2006	0001	7.58	- 12.58	4.03		FJ	#	2.2	1.53
Magnesium	mg/L	10/03/2006	0001	7.58	- 12.58	31		F	#	.0062	
Manganese	mg/L	10/03/2006	0001	7.58	- 12.58	5		F	#	.000097	
Molybdenum	mg/L	10/03/2006	0001	7.58	- 12.58	0.00024	B	UF	#	.00013	
Oxidation Reduction Potential	mV	10/03/2006	N001	7.58	- 12.58	-45.2		F	#		
pH	s.u.	10/03/2006	N001	7.58	- 12.58	6.49		F	#		
Potassium	mg/L	10/03/2006	0001	7.58	- 12.58	4.9		F	#	.012	
Sodium	mg/L	10/03/2006	0001	7.58	- 12.58	140		F	#	.0044	
Specific Conductance	umhos/cm	10/03/2006	N001	7.58	- 12.58	1309		F	#		
Sulfate	mg/L	10/03/2006	0001	7.58	- 12.58	120		F	#	5	
Temperature	C	10/03/2006	N001	7.58	- 12.58	15.78		F	#		
Turbidity	NTU	10/03/2006	N001	7.58	- 12.58	6.08		F	#		
Uranium	mg/L	10/03/2006	0001	7.58	- 12.58	0.000062	B	UF	#	.0000048	

SAMPLE ID CODES: 000X = Filtered sample (0.45 µm). N00X = Unfiltered sample. X = replicate number.

LAB QUALIFIERS:

- \* Replicate analysis not within control limits.
- > Result above upper detection limit.
- A TIC is a suspected aldol-condensation product.
- B Inorganic: Result is between the IDL and CRDL. Organic: Analyte also found in method blank.
- C Pesticide result confirmed by GC-MS.
- D Analyte determined in diluted sample.

E Inorganic: Estimate value because of interference, see case narrative. Organic: Analyte exceeded calibration range of the GC-MS.  
H Holding time expired, value suspect.  
I Increased detection limit due to required dilution.  
J Estimated  
N Inorganic or radiochemical: Spike sample recovery not within control limits. Organic: Tentatively identified compound (TIC).  
P > 25% difference in detected pesticide or Aroclor concentrations between 2 columns.  
U Analytical result below detection limit.  
W Post-digestion spike outside control limits while sample absorbance < 50% of analytical spike absorbance.  
X,Y,Z Laboratory defined qualifier, see case narrative.

DATA QUALIFIERS:

F	Low flow sampling method used.	G	Possible grout contamination, pH > 9.	J	Estimated value.
L	Less than 3 bore volumes purged prior to sampling.	Q	Qualitative result due to sampling technique.	R	Unusable result.
U	Parameter analyzed for but was not detected.	X	Location is undefined.		

QA QUALIFIER:

# Validated according to quality assurance guidelines.

**Surface Water Quality Data**

Ground Water Quality Data by Location (USEE102) FOR SITE CAN01, Canonsburg Disposal Site

REPORT DATE: 12/5/2006

Location: 0601 SURFACE LOCATION RESERVED MGILBERT, WQD, 4/24/89

Parameter	Units	Sample		Result	Qualifiers		Detection Limit	Uncertainty
		Date	ID		Lab	Data QA		
Alkalinity, Total (As CaCO3)	mg/L	10/03/2006	0001	150		#		
Calcium	mg/L	10/03/2006	0001	130		#	.0059	
Chloride	mg/L	10/03/2006	0001	95		#	2	
Magnesium	mg/L	10/03/2006	0001	31		#	.0062	
Manganese	mg/L	10/03/2006	0001	0.066		#	.000097	
Molybdenum	mg/L	10/03/2006	0001	0.042		#	.00013	
Oxidation Reduction Potential	mV	10/03/2006	N001	-22.8		#		
pH	s.u.	10/03/2006	N001	8.09		#		
Potassium	mg/L	10/03/2006	0001	9.9		#	.012	
Sodium	mg/L	10/03/2006	0001	130		#	.0044	
Specific Conductance	umhos/cm	10/03/2006	N001	1150		#		
Sulfate	mg/L	10/03/2006	0001	290		#	5	
Temperature	C	10/03/2006	N001	17.62		#		
Uranium	mg/L	10/03/2006	0001	0.00047		#	.0000048	



Ground Water Quality Data by Location (USEE102) FOR SITE CAN01, Canonsburg Disposal Site  
 REPORT DATE: 12/5/2006  
 Location: 0602 SURFACE LOCATION RESERVED MGILBERT, WQD, 4/24/89

Parameter	Units	Sample		Result	Qualifiers		Detection Limit	Uncertainty
		Date	ID		Lab	Data		
Alkalinity, Total (As CaCO3)	mg/L	10/03/2006	0001	132		#		
Calcium	mg/L	10/03/2006	0001	120		#	.0059	
Chloride	mg/L	10/03/2006	0001	97		#	2	
Magnesium	mg/L	10/03/2006	0001	29		#	.0062	
Manganese	mg/L	10/03/2006	0001	0.059		#	.000097	
Molybdenum	mg/L	10/03/2006	0001	0.042		#	.00013	
Oxidation Reduction Potential	mV	10/03/2006	N001	1.9		#		
pH	s.u.	10/03/2006	N001	7.97		#		
Potassium	mg/L	10/03/2006	0001	9.3		#	.012	
Sodium	mg/L	10/03/2006	0001	120		#	.0044	
Specific Conductance	umhos/cm	10/03/2006	N001	1135		#		
Sulfate	mg/L	10/03/2006	0001	290		#	5	
Temperature	C	10/03/2006	N001	16.09		#		
Uranium	mg/L	10/03/2006	0001	0.00037		#	.0000048	

Ground Water Quality Data by Location (USEE102) FOR SITE CAN01, Canonsburg Disposal Site  
 REPORT DATE: 12/5/2006  
 Location: 0603 SURFACE LOCATION WS CHARTIERS CREEK UDR CONRAIL OVPS

Parameter	Units	Sample		Result	Qualifiers			Detection Limit	Uncertainty
		Date	ID		Lab	Data	QA		
Alkalinity, Total (As CaCO3)	mg/L	10/03/2006	0001	152			#		
Calcium	mg/L	10/03/2006	0001	110			#	.0059	
Chloride	mg/L	10/03/2006	0001	98			#	2	
Magnesium	mg/L	10/03/2006	0001	28			#	.0062	
Manganese	mg/L	10/03/2006	0001	0.051			#	.000097	
Molybdenum	mg/L	10/03/2006	0001	0.042			#	.00013	
Oxidation Reduction Potential	mV	10/03/2006	N001	4.5			#		
pH	s.u.	10/03/2006	N001	7.87			#		
Potassium	mg/L	10/03/2006	0001	9.6			#	.012	
Sodium	mg/L	10/03/2006	0001	120			#	.0044	
Specific Conductance	umhos/cm	10/03/2006	N001	1151			#		
Sulfate	mg/L	10/03/2006	0001	300			#	5	
Temperature	C	10/03/2006	N001	18.26			#		
Uranium	mg/L	10/03/2006	0001	0.00036			#	.0000048	

SAMPLE ID CODES: 000X = Filtered sample (0.45 µm). N00X = Unfiltered sample. X = replicate number.

LAB QUALIFIERS:

- \* Replicate analysis not within control limits.
- > Result above upper detection limit.
- A TIC is a suspected aldol-condensation product.
- B Inorganic: Result is between the IDL and CRDL. Organic: Analyte also found in method blank.
- C Pesticide result confirmed by GC-MS.
- D Analyte determined in diluted sample.
- E Inorganic: Estimate value because of interference, see case narrative. Organic: Analyte exceeded calibration range of the GC-MS.
- H Holding time expired, value suspect.
- I Increased detection limit due to required dilution.
- J Estimated
- N Inorganic or radiochemical: Spike sample recovery not within control limits. Organic: Tentatively identified compound (TIC).
- P > 25% difference in detected pesticide or Aroclor concentrations between 2 columns.
- U Analytical result below detection limit.
- W Post-digestion spike outside control limits while sample absorbance < 50% of analytical spike absorbance.
- X,Y,Z Laboratory defined qualifier, see case narrative.

DATA QUALIFIERS:

- F Low flow sampling method used. G Possible grout contamination, pH > 9. J Estimated value.
- L Less than 3 bore volumes purged prior to sampling. Q Qualitative result due to sampling technique.
- R Unusable result. U Parameter analyzed for but was not detected. X Location is undefined.

QA QUALIFIER:

- # Validated according to quality assurance guidelines.

**Static Water Level Data**

STATIC WATER LEVELS (USEE700) FOR SITE CAN01, Canonsburg Disposal Site  
 REPORT DATE: 12/5/2006

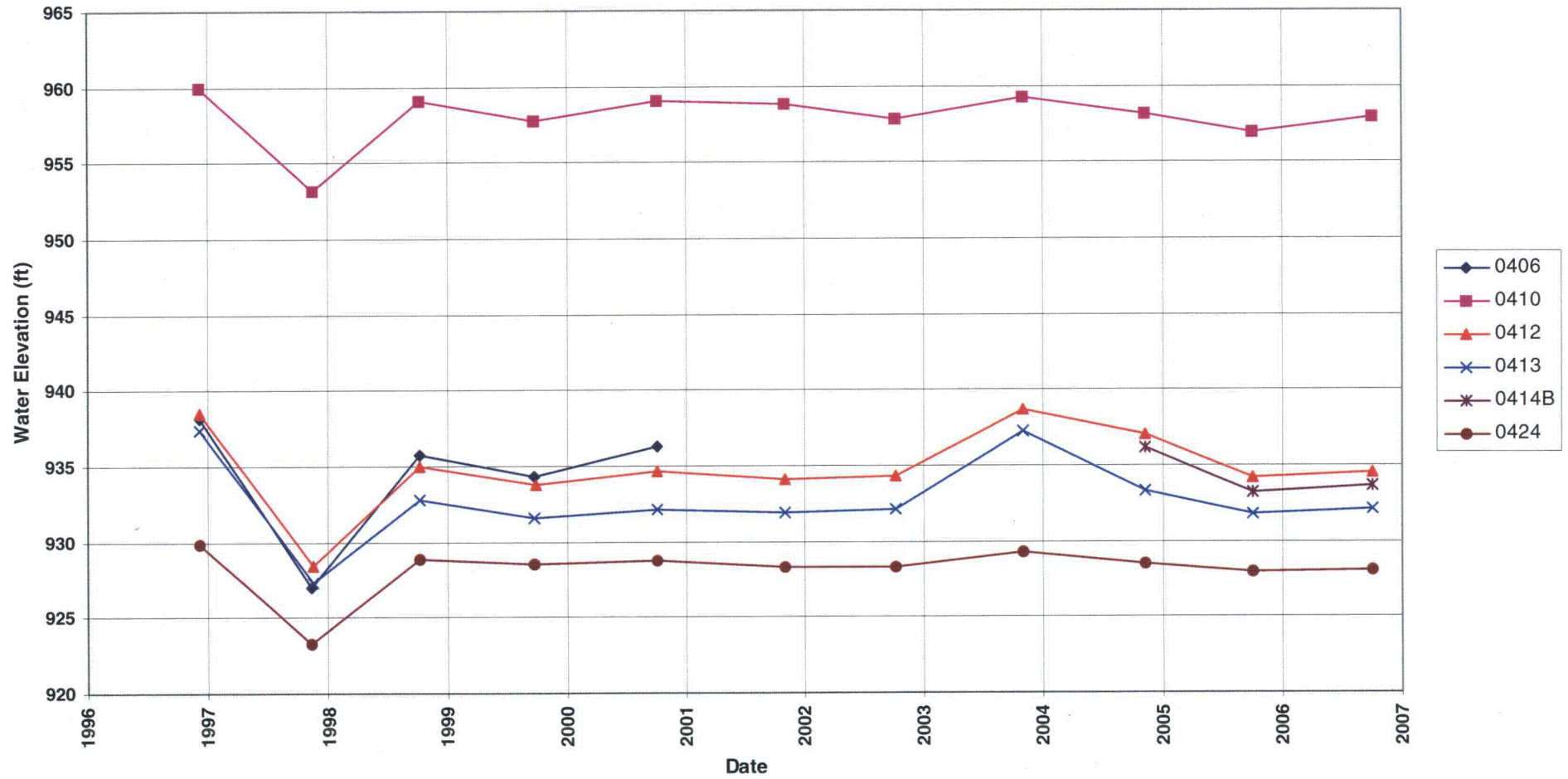
Location Code	Flow Code	Top of Casing Elevation (Ft)	Measurement Date	Measurement Time	Depth From Top of Casing (Ft)	Water Elevation (Ft)	Water Level Flag
0406A		941.26	03-OCT-06	16:35:00	9.5	931.76	
0410	U	969.16	03-OCT-06	15:00:00	11.22	957.94	
0412	O	949.7	03-OCT-06	09:40:00	15.11	934.59	
0413	O	940.36	03-OCT-06	10:40:00	8.2	932.16	
0414B		943.65	03-OCT-06	13:41:00	10.01	933.64	
0424	C	942.25	03-OCT-06	13:16:00	14.13	928.12	

FLOW CODES: B BACKGROUND U UPGRADIENT C CROSS GRADIENT D DOWN GRADIENT O ON SITE

WATER LEVEL FLAGS: D Dry

**Hydrograph**

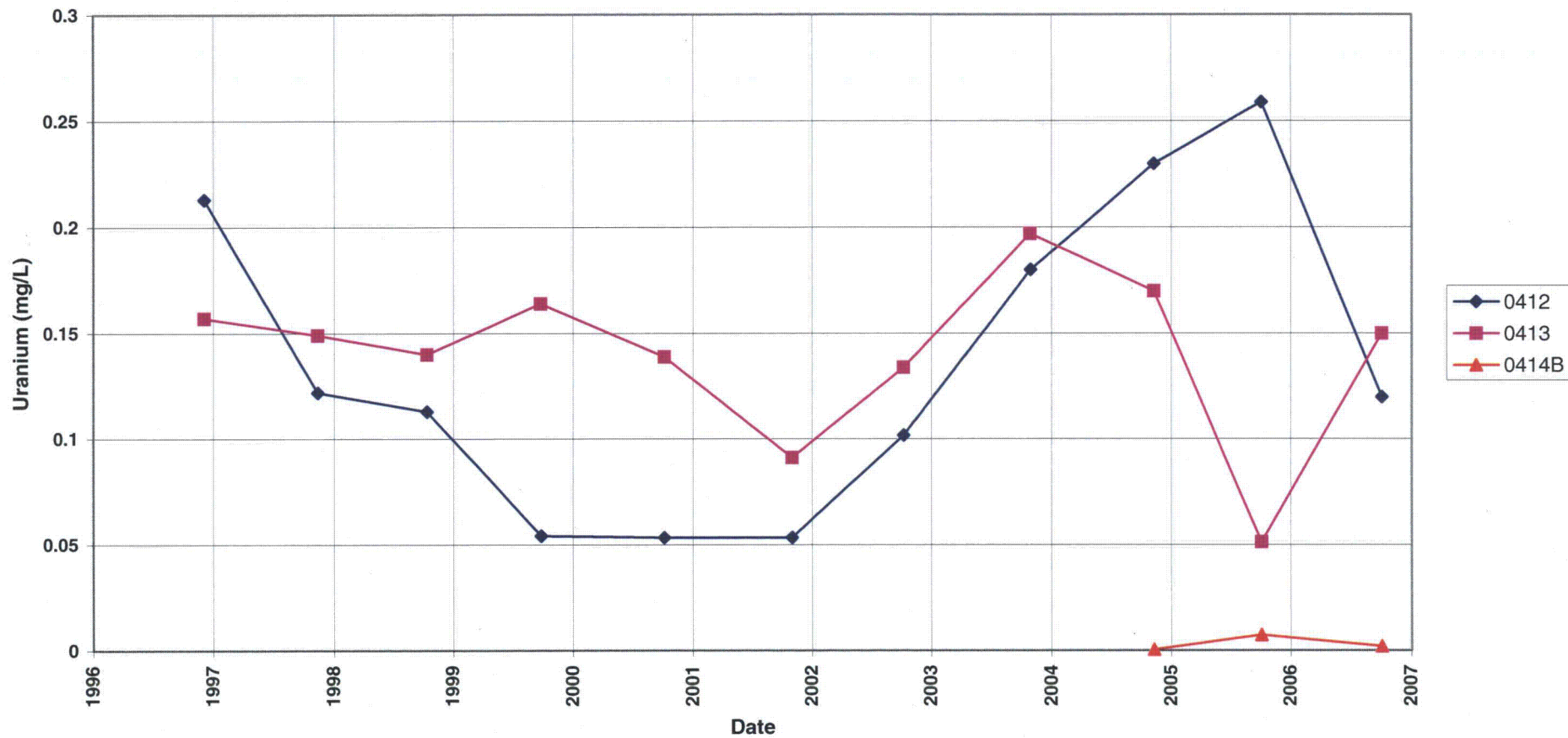
### Canonsburg Disposal Site Hydrograph



## **Time Versus Concentration Graphs**

# Canonsburg Disposal Site Point of Compliance Wells Uranium Concentration

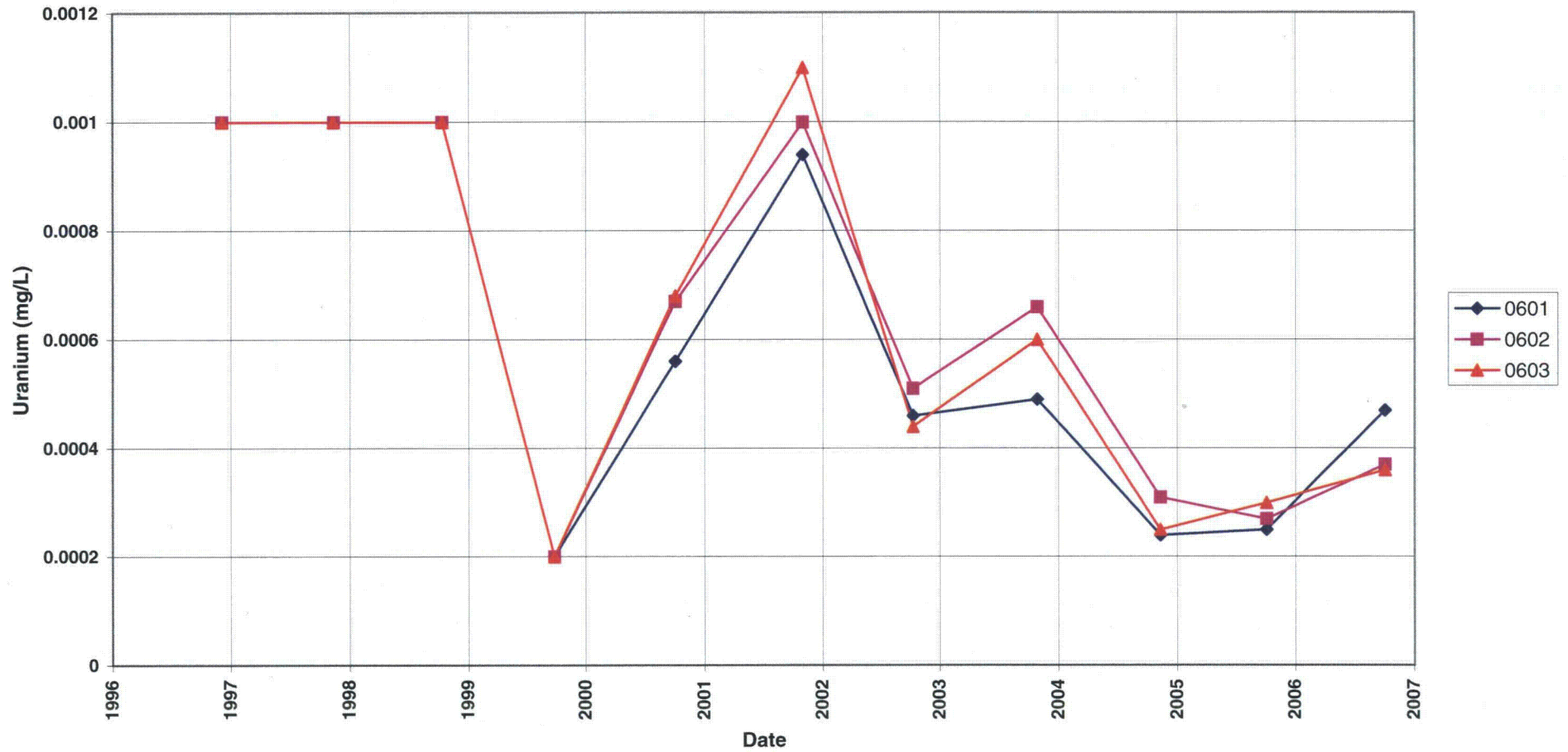
Alternate Concentration Limit = 1.0 mg/L





### Canonsburg Disposal Site Surface Locations Uranium Concentration

Alternate Concentration Limit = 0.01 mg/L



**Attachment 3**  
**Sampling and Analysis Work Order**

# Stoller

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established 1959

Task Order ST06-101  
Control Number 1000-T06-1828

September 22, 2006

Mr. Jack R. Craig  
Program Manager, LM-20  
U.S. Department of Energy  
Office of Legacy Management  
626 Cochrans Mill Road  
Pittsburgh, PA 15236-0940

SUBJECT: Contract No. DE-AC01-02GJ79491, Stoller  
October 2006 Environmental Sampling at Canonsburg, Pennsylvania

Reference: FY 2006 LM Task Order No. ST06-101-07

Dear Mr. Craig:

The purpose of this letter is to inform you of the upcoming sampling event at Canonsburg, Pennsylvania. Enclosed are the map and tables specifying sample locations and analytes for routine monitoring. Water quality data will be collected from this site as part of the environmental sampling currently scheduled to begin the week of October 2, 2006.

The following lists show the wells (with zone of completion) and surface locations scheduled to be sampled during this event.

**Monitor Wells (filtered)\***

406A Um      410 Um      412 Um      413 Um      414B Nr      424 Um

\*NOTE: Um = Unconsolidated materials; Nr = No recovery of data for classifying

**Surface Locations (filtered)\***

601              602              603

QA/QC samples will be collected as directed in the *Sampling and Analysis Plan for U.S. Department of Energy Office of Legacy Management Sites*. Access agreements are being reviewed and are expected to be complete by the beginning of fieldwork.

If you have any questions, please call me at extension 6588 or Mike Widdop at extension 6793.

Sincerely,

Clay Carpenter  
Project Manager

CC/lcg/mat  
Enclosures (3)

cc: C. I. Bahrke, Stoller  
S. E. Donovan, Stoller (e)  
L. C. Goodknight, Stoller (e)  
K. E. Miller, Stoller (e)  
M. R. Widdop, Stoller (e)

cc w/o enclosures:  
Correspondence Control File (Thru B. Bonnett)

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Site	Canonsburg	
	Ground Water	Surface Water
<b>Analyte</b>		
<b>Approx. No. Samples/yr</b>	6	3
<i>Field Measurements</i>		
Alkalinity	X	X
Dissolved Oxygen		
Redox Potential	X	X
pH	X	X
Specific Conductance	X	X
Turbidity	X	
Temperature	X	X
<i>Laboratory Measurements</i>		
Aluminum		
Ammonia as N (NH3-N)		
Antimony		
Arsenic		
Beryllium		
Bromide		
Cadmium		
Calcium	X	X
Chloride	X	X
Chromium		
Cobalt		
Copper		
Fluoride		
Gamma Spec		
Gross Alpha	X	
Gross Beta	X	
Iron		
Lead		
Lead-210		
Magnesium	X	X
Manganese	X	X
Molybdenum	X	X
Nickel		
Nickel-63		
Nitrate + Nitrite as N (NO3+NO2)-N		
PCBs		
Phosphate		
Polonium-210		
Potassium	X	X
Radium-226		
Radium-228		
Selenium		
Silica		

Analyte	Ground Water	Surface Water
Sodium	X	X
Strontium		
Sulfate	X	X
Sulfide		
Thallium		
Thorium-230		
Tin		
Total Dissolved Solids		
Total Organic Carbon		
Uranium	X	X
Vanadium		
Zinc		
<b>Total No. of Analytes</b>	11	9

**Attachment 4**  
**Trip Report**

## Memorandum

Control Number N/A

DATE: October 26, 2006

TO: Bob Ransbottom

FROM: Jeff Walters

SUBJECT: Trip Report

Site: Canonsburg, PA

Dates of Sampling Event: October 2, through October 4, 2006

Team Members: Dan Sellers and Jeff Walters

Note: J. Craig of DOE was onsite to observe field activities.

Number of Locations Sampled: 6 monitor wells, 3 surface water locations, and one duplicate for a total of 10 samples.

Locations Not Sampled/Reason: None.

Location Specific Information: All Category II wells need to be redeveloped.

Ticket Number	Location	Sample Date	Description	Water Levels
NDV232	0412	10/3/06	CAT I; slowed pump after 1.1L and 2.5L	15.11
NDV233	0413	10/3/06	CAT II	8.20
NDV234	2213	10/3/06	Duplicate sample of 0413	-----
NDV235	0602	10/3/06	Surface Water Sample	-----
NDV236	0424	10/3/06	CAT I; slowed pump after 1L	14.13
NDV237	0414B	10/3/06	CAT II; slowed pump after 3.0L and 5.0L	10.01
NDV238	0601	10/3/06	Surface Water Sample	-----
NDV239	0410	10/3/06	CAT II; slowed pump after 2.0L and 3.0L	11.22
NDV240	0603	10/3/06	Surface Water Sample	-----
NDV241	406A	10/3/06	CAT II; slowed pump after 1.0L	9.50

Field Variance: None.



**Quality Control Sample Cross Reference:** An equipment blank was not necessary because new pump head tubing was used at each location and all downhole tubing is dedicated. New tubing was also used at each surface water location.

False ID	True ID	Sample Type	Associated Matrix	Ticket Number
2213	0413	Duplicate	Ground Water	NDV234

**Requisition Numbers Assigned:** All samples were assigned to RIN 06090506.

**Sample Shipment:** Samples with ticket numbers NDV 232 through NDV 241 were shipped overnight FedEx to Paragon Analytics, Inc. from Washington, PA, on October 4, 2006.

**Water Level Measurements:** Water levels measurements were collected in all sampled wells. Water level data are provided in the table above. These data represent depth to water (ft btoc) measurements.

**Well Inspection Summary:** Well inspections were conducted at all sampled wells. Monitor well 0412 needs a new well cap. All other wells were in good condition.

**Equipment:** All wells and surface water locations were sampled using a peristaltic pump, new pump head tubing, and dedicated downhole tubing. All equipment operated fine.

**Institutional Controls:** Did not examine. All gates were appropriately closed and locked during the sampling event.

**Fences, Gates, Locks:** OK

**Signs:** No problems observed.

**Trespassing/Site Disturbances:** None observed.

**Site Issues:** GPS coordinances were recorded for Erosion Control Markers E and E1.

**Disposal Cell/Drainage Structure Integrity:** N/A

**Vegetation/Noxious Weed Concerns:** N/A

**Maintenance Requirements:** None observed.

**Corrective Action Taken:** None

(JWW/lcg)

cc: J. R. Craig, DOE-LM (e)

C. I. Bahrke, Stoller (e)

S. E. Donovan, Stoller (e)

K. E. Miller, Stoller (e)