

Pond Discharge Notification Coversheet
Date: 5/21/09
Total pages including coversheet = (14)

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From: George Squibb, Rocky Flats Surface Water Lead, Telephone (303) 994-0145

Re: Discharge notification for Rocky Flats Ponds A-4 and C-2.

Pre-discharge samples for Ponds A-4 and C-2 were collected on 5/4/09. All results indicate that water quality is acceptable for discharge. Discharge of Pond A-4 is scheduled to begin on 5/23/09 at 9:00 am. Discharge of Pond C-2 is scheduled to begin on 5/24/09 at 9:00 am.

Pond A-4 will be direct discharged using the outlet works to North Walnut Creek through POC GS11. The discharge is expected to continue through approximately 6/6/09, with a total discharge volume of approximately 11.2 MG.

Pond C-2 will be direct discharged using the outlet works to Woman Creek through POC GS31. The discharge is expected to continue through approximately 6/1/09, with a total discharge volume of approximately 4.2 MG.

All available analytical data accompany this notice, and all data show the water quality meets applicable surface-water standards.

Please contact me if you have questions.

RESULTS REPORT**RIN: 09052278****Site: Rocky Flats Surface Water****Location: A4 POND****Ticket Number: HGY 310****Report Date: 5/19/2009**

Parameter	Units	Date Sampled	Date Analyzed	Result	Qualifier(s)	Uncertainty	Detection Limit	Method
Americium-241	pCi/L	05/04/2009	05/12/2009	-0.00922	U	0.0266	0.0286	Am-05-RC Modified
Uranium	ug/L	05/04/2009	05/11/2009	7.12			0.050	EPA 3005/6020
Plutonium-238	pCi/L	05/04/2009	05/15/2009	-0.00425	U	0.0133	0.0173	Pu-11-RC Modified
Plutonium-239/240	pCi/L	05/04/2009	05/15/2009	0.00283	U	0.0104	0.0207	Pu-11-RC Modified
NO2+NO3 as N	mg/L	05/04/2009	05/06/2009	4.94			0.100	EPA 353.2

RESULTS REPORT**RIN: 09052278****Site: Rocky Flats Surface Water****Location: C2 POND****Ticket Number: HGY 311****Report Date: 5/19/2009**

Parameter	Units	Date Sampled	Date Analyzed	Result	Qualifier(s)	Uncertainty	Detection Limit	Method
Americium-241	pCi/L	05/04/2009	05/11/2009	-0.0161	U	0.0176	0.0211	Am-05-RC Modified
Uranium	ug/L	05/04/2009	05/11/2009	5.23			0.050	EPA 3005/6020
Plutonium-238	pCi/L	05/04/2009	05/15/2009	-0.0252	U	0.0639	0.103	Pu-11-RC Modified
Plutonium-239/240	pCi/L	05/04/2009	05/15/2009	0.00841	U	0.0436	0.123	Pu-11-RC Modified



Data Review and Validation Report

General Information

Report Number (RIN): 09052278
Sample Event: May 4, 2009
Site(s): Rocky Flats, Colorado; Surface Water
Laboratory: GEL Laboratories, Charleston, South Carolina
Work Order No.: 229057
Analysis: Metals, Wet Chemistry, and Radiochemistry
Validator: Steve Donovan
Review Date: May 19, 2009

This validation was performed according to the *Environmental Procedures Catalog* (STO 6), "Standard Practice for Validation of Laboratory Data," GT-9(P). The procedure was applied at Level 2, Data Deliverables Verification. See attached Data Validation Worksheets for supporting documentation on the data review and validation. All analyses were successfully completed. The samples were 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
Americium-241	ASP-A-020	HASL-300, Am-05	HASL-300, Am-05-RC
Arsenic, Uranium	LMM-02	SW-846 3005A	SW-846 6020
Nitrate + Nitrite as N	WCH-A-022	MCAWW 353.2	MCAWW 353.2
Plutonium Isotopes	LMR-08	HASL-300, Pu-11	HASL-300, Pu-11-RC

Data Qualifier Summary

None of the analytical results required qualification.

Sample Shipping/Receiving

GEL Laboratories in Charleston, South Carolina, received two water samples on May 5, 2009 accompanied by a Chain of Custody (COC) form. The COC form was checked to confirm that all of the samples were listed with sample collection dates and times, and that signatures and dates were present indicating sample relinquishment and receipt. The COC form was complete

with no errors or omissions. The air waybill number was listed on the Sample Receipt and Review form.

Preservation and Holding Times

The sample shipment was received intact with the temperature inside the iced cooler of 6 °C, which complies with requirements. The sample aliquots were received in the correct container types and were analyzed within the applicable holding times.

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.

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).

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 method blank and calibration blank results associated with metals and wet chemistry samples were below the practical quantitation limits and method detection limits for all analytes. The radiochemistry method blank results were less than 1.65 times the respective total propagated uncertainty (TPU) or below the minimum detectable concentration.

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

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

Matrix Spike Analysis

Matrix spike (MS) samples are used to measure method performance in the sample matrix. The MS analyses for all analytes resulted in acceptable recoveries.

Laboratory Duplicate Analysis

Laboratory replicate sample results demonstrate acceptable laboratory precision. The relative percent difference values for the non-radiochemical sample replicates were less than 20 percent for results that are greater than five times the practical quantitation limit, indicating acceptable precision. The radiochemical relative error ratios (calculated using the one-sigma total propagated uncertainty) for the sample replicates were less than three, indicating acceptable precision.

Laboratory Control Sample

Laboratory control samples were analyzed at the correct frequency to provide information on the accuracy of the analytical method and the overall laboratory performance, including sample preparation. All control sample results were acceptable.

Metals Serial Dilution

Serial dilutions were prepared and analyzed for the metals analyses to monitor chemical or physical interferences in the sample matrix. ICP-MS serial dilution data are evaluated when the concentration of the undiluted sample is greater than 100 times the practical quantitation limit. All evaluated serial dilution data were acceptable.

Detection Limits/Dilutions

Samples were diluted in a consistent and acceptable manner when required. The required detection limits (RDLs) were met for all analytes with the following exception. The plutonium-238 and plutonium-239/240 RDLs were not met for sample C2 POND because of a matrix interference. There was insufficient sample volume available to repeat the analysis.

Completeness

Results were reported in the correct units for all analytes requested using contract-required laboratory qualifiers. The analytical report included the MDL (MDC for radiochemistry) and practical quantitation limit for all analytes and all required supporting documentation.

Electronic Data Deliverable (EDD) File

The EDD file arrived on May 19, 2009. 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.

Outliers Report

Potential outliers are measurements that are extremely large or small relative to the rest of the data and, therefore, are suspected of misrepresenting the population from which they were collected. Potential outliers may result from transcription errors, data-coding errors, or

measurement system problems. However, outliers may also represent true extreme values of a distribution and indicate more variability in the population than was expected.

Statistical outlier tests give probabilistic evidence that an extreme value does not "fit" with the distribution of the remainder of the data and is therefore a statistical outlier. These tests should only be used to identify data points that require further investigation. The tests alone cannot determine whether a statistical outlier should be discarded or corrected within a data set.

There are three steps involved in identifying extreme values or outliers:

1. Identify extreme values that may be potential outliers by generating the Outliers Report using the Sample Management System from data in 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 are highlighted if the concentration detected is not within 50 percent of historical minimum or maximum values. A determination is also made if the data are normally distributed using the Studentized Range Test.
2. Apply the appropriate statistical test. Dixon's Extreme Value test is used to test for statistical outliers when the sample size is less than or equal to 25. This test considers both extreme values that are much smaller than the rest of the data (case 1) and extreme values that are much larger than the rest of the data (case 2). This test is valid only if the data without the suspected outlier are normally distributed. Rosner's Test is a parametric test that is used to detect outliers for sample sizes of 25 or more. This test also assumes that the data without the suspected outliers are normally distributed.
3. Scientifically review statistical outliers and decide on their disposition.

No values from this sampling event were identified as potential outliers. The data for this RIN are acceptable as qualified

Report Prepared By: _____

Steve Donovan
Laboratory Coordinator

SAMPLE MANAGEMENT SYSTEM

General Data Validation Report

RIN: 09052278 Lab Code: GEN Validator: Steve Donovan Validation Date: 5/19/2009

Project: Rocky Flats Surface Water Analysis Type: Metals General Chem Rad Organics

of Samples: 2 Matrix: Water Requested Analysis Completed: Yes

Chain of Custody

Present: OK Signed: OK Dated: OK

Sample

Integrity: OK Preservation: OK Temperature: OK

Select Quality Parameters

- Holding Times
- Detection Limits
- Field/Trip Blanks
- Field Duplicates

All analyses were completed within the applicable holding times.

There are 2 detection limit failures.

SAMPLE MANAGEMENT SYSTEM

RIN: 09052278 Lab Code: GEN

Non-Compliance Report: Detection Limits

Project: Rocky Flats Surface Water

Validation Date: 5/19/2009

Ticket	Location	Lab Sample ID	Method Code	Lab Method	Analyte Name	Result	Qualifier	Reported Detection Limit	Required Detection Limit	Units
HGY 311	C2 POND	229057002	LMR-08	Pu-11-RC Modified	Plutonium-239/240	0.00841	U	0.123	0.03	pCi/L
HGY 311	C2 POND	229057002	LMR-08	Pu-11-RC Modified	Plutonium-238	-0.0252	U	0.103	0.03	pCi/L

SAMPLE MANAGEMENT SYSTEM
Metals Data Validation Worksheet

RIN: 09052278 Lab Code: GEN Date Due: 5/19/2009
 Matrix: Water Site Code: RFS02 Date Completed: 5/19/2009

Analyte	Date Analyzed	CALIBRATION						Method Blank	LCS %R	MS %R	MSD %R	Dup. RPD	ICSAB %R	Serial Dil. %R	CRI %R
		Int.	R^2	ICV	CCV	ICB	CCB								
Uranium	05/11/2009							OK	99.6	98.9		6.0		4.0	

SAMPLE MANAGEMENT SYSTEM
Wet Chemistry Data Validation Worksheet

RIN: 09052278 **Lab Code:** GEN **Date Due:** 5/19/2009
Matrix: Water **Site Code:** RFS02 **Date Completed:** 5/19/2009

Analyte	Date Analyzed	CALIBRATION						Method Blank	LCS %R	MS %R	MSD %R	DUP RPD	Serial Dil. %R
		Int.	R^2	ICV	CCV	ICB	CCB						
NO2+NO3 as N	05/06/2009							OK	99.00	93.6		4.00	

SAMPLE MANAGEMENT SYSTEM
Radiochemistry Data Validation Worksheet

RIN: 09052278 **Lab Code:** GEN **Date Due:** 5/19/2009
Matrix: Water **Site Code:** RFS02 **Date Completed:** 5/19/2009

Sample	Analyte	Date Analyzed	Result	Flag	Tracer %R	LCS %R	MS %R	Duplicate
C2 POND	Americium-241	05/11/2009			65.0			
C2 POND	Americium-241	05/11/2009			52.0			1.59
Blank_Spike	Americium-241	05/11/2009			96.0	102.0		
C2 POND	Americium-241	05/11/2009			80.0		99.5	
Blank	Americium-241	05/11/2009	0.0011	U	97.0			
A4 POND	Americium-241	05/12/2009			41.0			
A4 POND	Plutonium-238	05/15/2009			76.0			
C2 POND	Plutonium-238	05/15/2009			79.0			
Blank	Plutonium-238	05/15/2009	0	U	84.0			
Blank_Spike	Plutonium-239/240	05/15/2009				108.0		
Blank_Spike_Du	Plutonium-239/240	05/15/2009				104.0		0.50
Blank	Plutonium-239/240	05/15/2009	0.0089	U				



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Laboratory Services Division
8100 Lowry Boulevard Denver, CO 80230
PO Box 17123 Denver, CO 80217
303-692-3090
www.cdphe.state.co.us/lr

Laboratory Results For Sample Number: ENV-2009004412-

Site ID/PWSID

Site
Address

Contact Carl Spreng
Phone x3358
Fax
Email

Site Description ROCKY FLATS POND A-4

Customer ID 00008835

Customer CDPHE - HMWMD - Rocky Flats Unit
4300 Cherry Creek Drive South

Denver CO 80246

Collected By AC
Collected 05/04/2009 11:30:00
Received 05/04/2009 13:49:00
Reported 05/20/2009 00:00:00
Bottles 3 CUBE, 1 250 NUT
Matrix Surface Water
Field Fluoride
Residual Chlorine
Temperature at Receipt

Test Name	Result	Units	MCL	MRL	Method Name	Date Analyzed	Qualifier
Americium-241	< 0.012	pCi/L	NA	0.01	ASTM-3084-89	05/20/2009 00:00:00	
Plutonium-239+240	0.046 +/- 0.018	pCi/L	NA	0.02	ASTM-3084-89	05/20/2009 00:00:00	
Uranium, Total	0.005	mg/L	NA	0.001	EPA 200.8	05/05/2009 00:00:00	
Nitrogen, Nitrate/Nitrite	4.9	mg/L	NA	0.1	EPA 353.2	05/08/2009 00:00:00	

Comments:

Registry Comments:
PREDISCHARGE SAMPLING

RUSH



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Laboratory Services Division
8100 Lowry Boulevard Denver, CO 80230
PO Box 17123 Denver, CO 80217
303-692-3090
www.cdphe.state.co.us/lr

Laboratory Results For Sample Number: ENV-2009004413-

Site ID/PWSID

Site
Address

Contact Carl Spreng
Phone x3358
Fax
Email

Site Description ROCKY FLATS POND C-2

Customer ID 00008835

Customer CDPHE - HMWMD - Rocky Flats Unit
4300 Cherry Creek Drive South

Denver CO 80246

Collected By AC
Collected 05/04/2009 11:00:00
Received 05/04/2009 13:49:00
Reported 05/20/2009 00:00:00
Bottles 3 CUBE, 1 250 NUT
Matrix Surface Water
Field Fluoride
Residual Chlorine
Temperature at Receipt

Test Name	Result	Units	MCL	MRL	Method Name	Date Analyzed	Qualifier
Americium-241	< 0.01	pCi/L	NA	0.01	ASTM-3084-89	05/20/2009 00:00:00	
Plutonium-239+240	< 0.02	pCi/L	NA	0.02	ASTM-3084-89	05/20/2009 00:00:00	
Uranium, Total	0.004	mg/L	NA	0.001	EPA 200.8	05/05/2009 00:00:00	
Nitrogen, Nitrate/Nitrite	< 0.1	mg/L	NA	0.1	EPA 353.2	05/08/2009 00:00:00	

Comments:

Registry Comments:

Pre-discharge sampling (INO RF1 & RAD RF1).

Rush.