0074424

SAF-RC-022
100-BC Burial Grounds – Other Solid Quick Turn
FINAL DATA PACKAGE

COMPLETE COPY OF DATA PACKAGE TO:

Jason Capron	X3-40	KW 11/8/07 INITIAL/DATE
Jeanette Duncan	H4-21	KW 11/8/07 INITIAL/DATE

RECEIVED
NOV 20 2007
EDMC

COMMENTS:

SDG: 07I-2020-01 SAF-RC-022

Rad only X Chem only Rad & Chem

X Complete Partial

Sample Location/Waste Site: 116-C-3 S. Chem tank (air filter)

Kessner, Joan H

From: Perkins, James B. [perkins@datachem.com]

Sent: Tuesday, November 06, 2007 4:09 PM

To: Fauver, Brian E; Knutson, Garrett E; Whatley, Zona G (Gwen); Kessner, Joan H; Brounstein, Robert A; Strong, S Ilene; Brasker, William L

Subject: Rush Metals 07I-2020-01

Attachments: James B. Perkins (perkins@datachem.com).vcf; 07I-2020-01.doc; 07I-2020-01.TXT

Joan,

We had to derive the air volumes by taking the information from the brown envelopes received with the samples. We were not sure these are the legitimate start and end times but the sample numbers were on the envelopes. However, one sample had lpm circled as the flow rate volume and the other was expressed in cfm. If these are correct then the mg/m^3 calculations should be correct.

Let me know if you have any questions about this very difficult set.

Thanks,
Jim

James B. Perkins
Executive VP
DataChem Laboratories, Inc.
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Salt Lake City, UT 84123
801-266-7700
perkins@datachem.com
www.datachem.com

RECEIVED NOV 2007

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Cover

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Report Identification Number: 07I-2020-01
Subcontract Number: 0000X-BO-G0058-B-Mod# 14
Name of Industrial Hygienist: Gwen Whatley/ Ilene Strong / William Brasher/ Robert Brounstern/ Garrett Knutson / Brian Fauver
Laboratory Identification Number: DCHM
SAF#: RC-022 / R116C32000
Payroll#:

Sample Information

Sample Date	Customer Sample Number	Laboratory Sample Number	Method	Analytical Batch Identification	Sample Matrix
31 Oct 2007	J15WH1	07I12912	7300Mod	G07B400L	FILTER
31 Oct 2007	J15WH2	07I12913	7300Mod	G07B400L	FILTER
31 Oct 2007	J15WH3	07I12914	7300Mod	G07B400L	FILTER

I certify that this electronic image and all hardcopies produced from this image accurately represent the data and are in compliance with the contract specific requirements, both technically and for completeness, other than the conditions detailed above or in the sample data package narrative. Release, by submission through email, the data contained in this electronic image and the computer-readable EDD (as applicable), has been authorized by the laboratory Manager or the Manager's designee.

Name: Robert K. Aullman
Title: Chemist
Date: November 06, 2007

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Case Narrative

Report Identification Number: 07I-2020-01
Subcontract Number: 0000X-BO-G0058-B-Mod# 14
Name of Industrial Hygienist: Gwen Whatley/ Ilene Strong / William Brasker/ Robert Brounstern/ Garrett Knutson / Brian Fauver
Laboratory Identification Number: DCHM
SAF#: RC-022 / R116C32000
Payroll#:

General Set Information: There are three samples in set 07I-2020-01 which were analyzed for antimony, beryllium, cadmium, chromium, lead, magnesium, manganese, nickel, selenium, silver, sodium and zinc on MCE filter. Some problems were encountered with the receipt of these samples and contact with the CTR was required.

Method Summary: Samples were transferred to 50 ml centrifuge tubes and digested in the presence of 10 mL of 1:1 (v/v) nitric acid. Samples were digested in a hot block set at 110EC for 40 minutes. Samples were then diluted to a 25 mL volume with ASTM Type II Water. Samples were shaken and delivered for ICP analysis.

Sample Preparation: All samples were prepared in accordance with DCL SOP "IH-AN-021" and NIOSH method NMAM 7300 modified for hot block digestion.

Holding Times: The holding times were met for both sample preparation and analysis.

Instrument Calibration: Instrument calibration was performed in accordance with NIOSH method NMAM 7300.

Initial and Continuing Calibration Verification Analysis: Antimony, beryllium, cadmium, chromium, lead, magnesium, manganese, nickel, selenium, silver, sodium and zinc recoveries in all Initial Calibration Verification (ICV) and Continuing Calibration Verification (CCV) samples are within the quality control limits of +/- 10%.

Initial and Continuing Calibration Blank Analysis: No antimony results were found in the Initial Calibration Blank (ICB) or Continuing Calibration Blanks (CCB) at levels above the Limit of Quantitation (LOQ) of 2. ug/sample. No beryllium results were found in the Initial Calibration Blank (ICB) or Continuing Calibration Blanks (CCB) at levels above the Limit of Quantitation (LOQ) of 0.02 ug/sample. No cadmium results were found in the Initial Calibration Blank (ICB) or Continuing Calibration Blanks (CCB) at levels above the Limit of Quantitation (LOQ) of 0.1 ug/sample. No lead results were found in the Initial Calibration Blank (ICB) or Continuing Calibration Blanks (CCB) at levels above the Limit of Quantitation (LOQ) of 2. ug/sample. No chromium results were found in the Initial Calibration Blank (ICB) or Continuing Calibration Blanks (CCB) at levels above the Limit of Quantitation (LOQ) of 2. ug/sample. No magnesium results were found in the Initial Calibration Blank (ICB) or Continuing Calibration Blanks (CCB) at levels above

the Limit of Quantitation (LOQ) of 0.7 ug/sample. No manganese results were found in the Initial Calibration Blank (ICB) or Continuing Calibration Blanks (CCB) at levels above the Limit of Quantitation (LOQ) of 0.4 ug/sample. No nickel results were found in the Initial Calibration Blank (ICB) or Continuing Calibration Blanks (CCB) at levels above the Limit of Quantitation (LOQ) of 0.2 ug/sample. No selenium results were found in the Initial Calibration Blank (ICB) or Continuing Calibration Blanks (CCB) at levels above the Limit of Quantitation (LOQ) of 2. ug/sample. No silver results were found in the Initial Calibration Blank (ICB) or Continuing Calibration Blanks (CCB) at levels above the Limit of Quantitation (LOQ) of 0.2 ug/sample. No sodium results were found in the Initial Calibration Blank (ICB) or Continuing Calibration Blanks (CCB) at levels above the Limit of Quantitation (LOQ) of 3. ug/sample. No zinc results were found in the Initial Calibration Blank (ICB) or Continuing Calibration Blanks (CCB) at levels above the Limit of Quantitation (LOQ) of 0.6 ug/sample.

Method Blank Analysis: No antimony, beryllium, cadmium, chromium, lead, magnesium, manganese, nickel, selenium, silver, sodium, and zinc were found in the reagent blank sample above the Contract Required Detection Limit (CRDL). No antimony, beryllium, cadmium, chromium, lead, manganese, nickel, selenium or silver were found in the filtered reagent blank sample above the Contract Required Detection Limit (CRDL). Magnesium, sodium and zinc were found in the filtered reagent blank sample above the Contract Required Detection Limit (CRDL). All samples and control samples were reagent blank corrected with the filtered reagent blank for magnesium, sodium, and zinc. After filtered reagent blank correction, no antimony, beryllium, cadmium, chromium, lead, manganese, nickel, selenium, silver or zinc were found in the media blank sample above the Contract Required Detection Limit (CRDL). After filtered reagent blank correction, magnesium and sodium were found in the media blank sample above the Contract Required Detection Limit (CRDL). No media blank correction was performed. This correction should be performed by the industrial hygienist.

Dilution(s): Sample 07I12912 was diluted twofold for cadmium due to interference. Sample 07I12913 was diluted twofold for cadmium due to interference. Sample 07I12914 was diluted fivefold for cadmium due to interference and for high concentrations of zinc. The reporting limits needed to be raised accordingly.

Laboratory Control Sample and Duplicate Analysis: A Laboratory Control Sample (LCS) and a Laboratory Control Sample Duplicate (LCSD) were prepared and analyzed with these samples. A filtered reagent blank correction was performed for magnesium, sodium, and zinc on both the LCS and LCSD. The LCS results were in the control limit of +/- 20%. The Relative Percent Differences (RPD) between the LCS results and the LCSD results were within the control limit of 20%. Antimony and sodium were not spiked onto the LCS or LCSD.

Replicate Analysis: A sample was replicated with these samples. The RPDs between the sample and its replicate were within the control limit of 20%. If the result of the sample or replicate is below the CRDL, replicate analysis is negligible.

Flagging Codes: None

Nonconformance/Corrective Action Report (NC/CAR): NC/CAR #991 was initiated. Sample filters were received on a metal planchet and appeared to have been adhered to it. To remove the filter from the planchet backing a metal spatula was used to scrape it free. The planchet was scored during the process, leading to the conclusion that samples may have received contamination from the transfer procedure.

Due to the media used in the sampling, all samples had to be filtered prior to analysis. During analysis, it was observed that the samples and blanks were contaminated from the filtration process. This amount was blank corrected from the samples and control samples prior to reporting the data.

Sample Calculation: The final results are calculated by the following equation:

Final result for aqueous samples (µg/sample) = (A) x (B) x (C)

Where:

A = Analyte concentration from instrument determination (µg/L)

B = Concentration factor from sample preparation

$$= \frac{\text{Final Volume of Digestate (L)}}{\text{Sample}}$$

C = Dilution performed at time of analysis

Example Calculation: (1 µg/L) x (0.025 L/sample) x (1) = 0.025 µg/sample

Miscellaneous Comments: None.

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Results

Report Identification Number: 07I-2020-01
Subcontract Number: 0000X-BO-G0058-B-Mod# 14
Name of Industrial Hygienist: Gwen Whatley/ Ilene Strong / William Brasker/ Robert Brounstern/ Garrett Knutson / Brian Fauver
Laboratory Identification Number: DCHM
SAF#: RC-022 / R116C32000
Payroll#:

Customer Sample Number	Laboratory Sample Number	Date Analyzed	Antimony µg/sample		Beryllium µg/sample		Cadmium µg/sample	
J15WH1	07I12912	05 Nov 2007	<2.	U	0.025		<0.1	U
J15WH2	07I12913	05 Nov 2007	<2.	U	0.025		<0.1	U
J15WH3	07I12914	06 Nov 2007	<2.	U	0.049		<0.1	U
Limit of Detection (LOD)			2.		0.02			
Required Detection Limit (RDL)								

Customer Sample Number	Laboratory Sample Number	Date Analyzed	Chromium µg/sample		Lead µg/sample		Magnesium µg/sample	
J15WH1	07I12912	05 Nov 2007	<2.	U	<2.	U	170	
J15WH2	07I12913	05 Nov 2007	<2.	U	<2.	U	180	
J15WH3	07I12914	06 Nov 2007	3.2		2.9		340	
Limit of Detection (LOD)			2.		2.		0.7	
Required Detection Limit (RDL)								

Customer Sample Number	Laboratory Sample Number	Date Analyzed	Manganese µg/sample		Nickel µg/sample		Selenium µg/sample	
J15WH1	07I12912	05 Nov 2007	3.4		0.85		<2.	U
J15WH2	07I12913	05 Nov 2007	2.0		0.59		<2.	U
J15WH3	07I12914	06 Nov 2007	1.8		0.59		<2.	U
Limit of Detection (LOD)			0.4		0.2		2.	
Required Detection Limit (RDL)								

Customer Sample Number	Laboratory Sample Number	Date Analyzed	Silver µg/sample		Sodium µg/sample		Zinc µg/sample	
J15WH1	07I12912	05 Nov 2007	<0.2	U	1600		390	
J15WH2	07I12913	05 Nov 2007	<0.2	U	1600		400	

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Results

Customer Sample Number	Laboratory Sample Number	Date Analyzed	Silver µg/sample		Sodium µg/sample		Zinc µg/sample	
J15WH3	07I12914	06 Nov 2007	<0.2	U	3200		920	
Limit of Detection (LOD)			0.2		3.		0.6	
Required Detection Limit (RDL)								

Customer Sample Number	Laboratory Sample Number	Date Analyzed	Antimony µg/m³		Beryllium µg/m³		Cadmium µg/m³	
J15WH1	07I12912	05 Nov 2007	<57.	U	0.71		<2.8	U
J15WH2	07I12913	05 Nov 2007	<0.23	U	0.0028		<0.011	U
J15WH3	07I12914	06 Nov 2007	**		**		**	
Limit of Detection (LOD)								
Required Detection Limit (RDL)								

Customer Sample Number	Laboratory Sample Number	Date Analyzed	Chromium µg/m³		Lead µg/m³		Magnesium µg/m³	
J15WH1	07I12912	05 Nov 2007	<57.	U	<57.	U	4800	
J15WH2	07I12913	05 Nov 2007	<0.23	U	<0.23	U	20.	
J15WH3	07I12914	06 Nov 2007	**		**		**	
Limit of Detection (LOD)								
Required Detection Limit (RDL)								

Customer Sample Number	Laboratory Sample Number	Date Analyzed	Manganese µg/m³		Nickel µg/m³		Selenium µg/m³	
J15WH1	07I12912	05 Nov 2007	96.		24.		<57.	U
J15WH2	07I12913	05 Nov 2007	0.23		0.067		<0.23	U
J15WH3	07I12914	06 Nov 2007	**		**		**	
Limit of Detection (LOD)								
Required Detection Limit (RDL)								

Customer Sample Number	Laboratory Sample Number	Date Analyzed	Silver µg/m³		Sodium µg/m³		Zinc µg/m³	
J15WH1	07I12912	05 Nov 2007	<5.7	U	45000		11000	
J15WH2	07I12913	05 Nov 2007	<0.023	U	190		45.	
J15WH3	07I12914	06 Nov 2007	**		**		**	

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Results

Customer Sample Number	Laboratory Sample Number	Date Analyzed	Silver µg/m³	Sodium µg/m³	Zinc µg/m³
Limit of Detection (LOD)					
Required Detection Limit (RDL)					

Customer Sample Number	Laboratory Sample Number	Date Analyzed	Air Volume L	
J15WH1	07I12912	05 Nov 2007	35.28	
J15WH2	07I12913	05 Nov 2007	8850.	
J15WH3	07I12914	06 Nov 2007	**	
Limit of Detection (LOD)				
Required Detection Limit (RDL)				

U - Parameter not detected above LOD.
J - Parameter between LOD and RDL.

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E-mail: lab@datachem.com

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QC Summary

Report Identification Number: 07I-2020-01
Subcontract Number: 0000X-BO-G0058-B-Mod# 14
Name of Industrial Hygienist: Gwen Whatley/ Ilene Strong / William Brasker/ Robert Brounstern/ Garrett Knutson / Brian Fauver
Laboratory Identification Number: DCHM
SAF: RC-022 / R116C32000
Payroll#:

Batch ID: G07B400L

QC Sample ID	QC Type	Analyte	Units	Result	Parent Result	Target	Percent Rec.	Relative Percent Diff.
BL-260996-1	MB	Antimony	µg/sample	ND	NA	NA	NA	NA
BL-260996-1	MB	Beryllium	µg/sample	ND	NA	NA	NA	NA
BL-260996-1	MB	Cadmium	µg/sample	ND	NA	NA	NA	NA
BL-260996-1	MB	Chromium	µg/sample	ND	NA	NA	NA	NA
BL-260996-1	MB	Lead	µg/sample	ND	NA	NA	NA	NA
BL-260996-1	MB	Magnesium	µg/sample	0.97	NA	NA	NA	NA
BL-260996-1	MB	Manganese	µg/sample	ND	NA	NA	NA	NA
BL-260996-1	MB	Nickel	µg/sample	ND	NA	NA	NA	NA
BL-260996-1	MB	Selenium	µg/sample	ND	NA	NA	NA	NA
BL-260996-1	MB	Silver	µg/sample	ND	NA	NA	NA	NA
BL-260996-1	MB	Sodium	µg/sample	11.	NA	NA	NA	NA
BL-260996-1	MB	Zinc	µg/sample	ND	NA	NA	NA	NA
QC-260996-1	LCS	Antimony	µg/sample	0.00	NA	0.00		NA
QC-260996-1	LCS	Beryllium	µg/sample	11.3	NA	10.0	113.	NA
QC-260996-1	LCS	Cadmium	µg/sample	11.5	NA	10.0	115.	NA
QC-260996-1	LCS	Chromium	µg/sample	109.	NA	100.	109.	NA
QC-260996-1	LCS	Lead	µg/sample	111.	NA	100.	111.	NA
QC-260996-1	LCS	Magnesium	µg/sample	111.	NA	100.	111.	NA
QC-260996-1	LCS	Manganese	µg/sample	109.	NA	100.	109.	NA
QC-260996-1	LCS	Nickel	µg/sample	11.4	NA	10.0	114.	NA
QC-260996-1	LCS	Selenium	µg/sample	110.	NA	100.	110.	NA
QC-260996-1	LCS	Silver	µg/sample	94.7	NA	100.	94.7	NA
QC-260996-1	LCS	Sodium	µg/sample	21.1	NA	0.00		NA
QC-260996-1	LCS	Zinc	µg/sample	106.	NA	100.	106.	NA
QD-260996-1	LCSD	Antimony	µg/sample	0.00	0.00	0.00		0.00
QD-260996-1	LCSD	Beryllium	µg/sample	11.4	11.3	10.0	114.	1.17
QD-260996-1	LCSD	Cadmium	µg/sample	11.6	11.5	10.0	116.	0.623
QD-260996-1	LCSD	Chromium	µg/sample	109.	109.	100.	109.	0.0360

QC Summary

QD-260996-1	LCSD	Lead	µg/sample	110.	111.	100.	110.	0.355
QD-260996-1	LCSD	Magnesium	µg/sample	111.	111.	100.	111.	0.118
QD-260996-1	LCSD	Manganese	µg/sample	111.	109.	100.	111.	1.88
QD-260996-1	LCSD	Nickel	µg/sample	11.3	11.4	10.0	113.	0.660
QD-260996-1	LCSD	Selenium	µg/sample	112.	110.	100.	112.	2.02
QD-260996-1	LCSD	Silver	µg/sample	95.1	94.7	100.	95.1	0.408
QD-260996-1	LCSD	Sodium	µg/sample	4.73	21.1	0.00		127.
QD-260996-1	LCSD	Zinc	µg/sample	102.	106.	100.	102.	4.51

MB - Method Blank
LCS - Laboratory Control Sample
LCSD - Laboratory Control Sample Duplicate
MS - Matrix Spike
MSD - Matrix Spike Duplicate
LD - Laboratory Duplicate

NA - Not Applicable
ND - Parameter not detected above LOD

LCS, LCSD Percent Rec. = (Result / Target) * 100.0
MS, MSD Percent Rec. = ((Result – Parent) / Target) * 100.0

LCS, LCSD Relative Percent Diff. = ((|LCS – LCSD|) / ((LCS + LCSD)/2.0)) * 100.
MS, MSD Relative Percent Diff. = ((|MS – MSD|) / ((MS+ MSD)/2.0)) * 100.
LD Relative Percent Diff. = ((|Parent – LD|) / ((Parent + LD)/2.0)) * 100

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COC

67I-2020-01

Washington Closure Hanford	CHAIN OF CUSTODY/SAMPLE ANALYSIS REQUEST		RC-022-047	Page 1 of 1
Collector: C. Martinez	Company Contact: C. Martinez	Telephone No.: 509-539-2816	Project Coordinator: KESSNER, JH	Price Code / Data Turnaround: 24 hrs
Project Designation: 100-BC Burial Grounds - Other Quick Turn	Sampling Location: 116-C-3 S. Chem tank (air filter)		SAF No.: RC-022	
Ice Chest No.: FED EX Box	Field Logbook No.: EFL1173-14	COA: R116C32000	Method of Shipment: ~~Government Vehicle~~ DAS 11/1/07 FED EX	
Shipped To: DATA CHEM SLC ~~Radiological Counting Facility~~ DAS 11/1/07	Offsite Property No.: ~~N/A~~ DAS 11/1/07		Bill of Lading/Air Bill No.: ~~N/A~~ DAS 11/1/07	

POSSIBLE SAMPLE HAZARDS/REMARKS

~~None~~ DAS 11/1/07

Potential Radioactivity

Special Handling and/or Storage

None

Preservation	None			None	None	None				
Type of Container	G*			Filter	Filter	Filter				
No. of Container(s)				1	0	0				
Volume	~~60mL~~ 2 in Filters			1 ea	1 ea	1 ea				
SAMPLE ANALYSIS	See item (1) in Special Instructions. DAS 11/1/07			Airborn Chromium Hex NIOSH 7600	Particulate Airborn	Metals Airborn				
Sample No.	Matrix *	Sample Date	Sample Time		RCF					
~~J15WH4~~ J15WH1	OTHER	10/31/07	1515	✓	18616	✓	✓	✓		100BC-07-0248
~~J15WH5~~ J15WH2	OTHER		1515	✓	18617	✓	✓	✓		100BC-07-0249
~~J15WH6~~ J15WH3	OTHER	10/31/07	1515	✓	18618	✓	✓	✓		

DAS 11/1/07

CHAIN OF POSSESSION	Sign/Print Names	
Relinquished By/Removed From: C. Martinez / C. Martinez — Date/Time: 10/31/07 1655	Received By/Stored In: 3728 1A — Date/Time: 10/31/07 1655	
Relinquished By/Removed From: 3728 1A — Date/Time: 11-1-07 0810	Received By/Stored In: KM Singleton — Date/Time: 11-1-07 0810	
Relinquished By/Removed From: KM Singleton — Date/Time: 11-1-07 WCH 0820	Received By/Stored In: R. Umbrerman — Date/Time: 110107 RCF 0820	
Relinquished By/Removed From: R. Umbrerman — Date/Time: 11-1-07 RCF 1250	Received By/Stored In: David St. John — Date/Time: 11/1/07 1250	
Relinquished By/Removed From: David St. John — Date/Time: 11/1/07 1330	Received By/Stored In: FED EX — Date/Time:	
Relinquished By/Removed From: [signature] — Date/Time:	Received By/Stored In: [signature] — Date/Time: 5 Nov 07 1030	

SPECIAL INSTRUCTIONS

(1) RCF GEA Shipping Screen {Americium-241, Cesium-137, Cobalt-60, Europium-152, Europium-154, Europium-155}

Sampler unavailable to relinquish samples from 3728 Ref # 1A. 3728 Custodian removed samples for shipping on 11/1/07

Matrix *: S-Soil, SE-Sediment, SO-Solid, SL-Sludge, W-Water, O-Oil, A-Air, DS-Drum Solids, DL-Drum Liquids, T-Tissue, WI-Wipe, L-Liquid, V-Vegetation, X-Other

LABORATORY SECTION	Received By: [signature]	Title	Date/Time: 5 Nov 07 1030
FINAL SAMPLE DISPOSITION	Disposal Method	Disposed By	Date/Time

WCH-EE-011

DataChem Laboratories, Inc.
960 West Levoy Drive
Salt Lake City, Utah 84123-2547
Phone: (801) 266-7700
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COC

DATA CHEM LABORATORIES

Washington Closure Hanford

Radiological Counting Facility

11/1/2007 12:31:03PM

Analysis Report for RCF18618 11/05/07

J15WH6 SAF:RC-022 100BC/116C-3 CHEM TANK AIR FILTER

H3 as per Joan Kessner

GAMMA SPECTRUM ANALYSIS

Sample Identification	: RCF18618
Sample Description	: J15WH6 SAF:RC-022 100BC/116C-3 CHEM TANK AIR FILTER
Sample Type	: 47 mm filter
Unit	:
Sample Point	
Sample Size	: 1.000E+00 units
Facility	: Default
Sample Taken On	: 10/30/2007 3:15:00PM
Acquisition Started	: 11/1/2007 10:30:36AM
Procedure	: 47 mm filter
Operator	: RCT
Detector Name	: REGIE02
Geometry	: 47 mm Filter
Live Time	: 7200.0 seconds
Real Time	: 7212.5 seconds
Dead Time	: 0.17 %
Peak Locate Threshold	: 3.00
Peak Locate Range (in channels)	: 80 - 4096
Peak Area Range (in channels)	: 80 - 4096
Identification Energy Tolerance	: 1.300 keV
Energy Calibration Used Done On	: 9/17/2007
Efficiency Calibration Used Done On	: 4/6/2007
Efficiency Calibration Description	: Efficiency calibration 47 mm filter REGe02
Sample Number	: 15609

INTERFERENCE CORRECTED REPORT

Nuclide Name	Nuclide Id Confidence	Wt mean Activity (uCi/unit)	Wt mean Activity Uncertainty	Comments

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Salt Lake City, Utah 84123-2547

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J15WH6 SAF:RC-022 100BC/116C-3 CHEM TANK AIR FILTER

? = nuclide is part of an undetermined solution
X = nuclide rejected by the interference analysis
@ = nuclide contains energy lines not used in Weighted Mean Activity
d = identified by daughter product energy lines assumed to be in secular equilibrium

Errors quoted at 1.000 sigma

No peak search results available for nuclide analysis.

NUCLIDE MDA REPORT

Nuclide Library Used : \\GOZER\ApexRoot\Default\Library\RCF UNKNOWN.NLB

Nuclide Name	Energy (keV)	Yield(%)	Activity (uCi/units)	Nuclide MDA (uCi/units)	Line MDA (uCi/units)
K-40	1460.83	10.67	1.20E-04	8.87E-05	8.87E-05
CO-60	1173.24	99.90	-2.52E-06	4.84E-06	4.84E-06
	1332.50	99.98	2.69E-06		5.72E-06
NB-94	702.63	99.81	-3.01E-06	3.78E-06	3.83E-06
	871.10	99.89	-1.23E-06		3.78E-06
AG-108m	433.94	90.50	-2.59E-07	2.92E-06	2.92E-06
	614.28	89.80	-2.50E-06		4.03E-06
	722.94	90.80	-1.03E-06		3.96E-06
CS-137	661.66	85.21	1.60E-06	4.00E-06	4.00E-06
EU-152	121.78	28.40	3.51E-06	4.94E-06	4.94E-06
	344.29	26.60	3.28E-06		8.73E-06
	964.11	14.50	1.44E-05		3.54E-05
	1408.00	20.80	-9.99E-06		2.26E-05
EU-154	123.10	40.50	7.18E-07	3.49E-06	3.49E-06
	723.36	19.70	-4.73E-06		1.83E-05
	873.23	11.45	1.42E-05		3.63E-05
	1004.78	17.90	1.06E-05		2.62E-05
	1274.54	35.50	-7.86E-06		1.22E-05
EU-155	86.54	34.00	2.12E-06	3.68E-06	3.68E-06
	105.31	20.60	-1.61E-06		6.04E-06
PB-212	74.81	10.50	2.05E-05	7.97E-06	1.36E-05
	77.11	17.70	2.72E-06		7.97E-06
	87.19	6.27	6.28E-06		1.99E-05
RA-226d	186.11	3.28	2.47E-05	7.29E-06	5.21E-05
	241.92	7.46	1.06E-05		2.82E-05
	295.09	19.20	-1.03E-06		1.21E-05
	351.87	37.10	2.53E-06		7.29E-06
	609.31	46.10	4.92E-07		8.43E-06
	1120.27	15.00	3.02E-05		3.80E-05
	1764.49	15.90	5.36E-06		3.74E-05
TH-232d	238.58	43.60	2.98E-06	4.94E-06	4.94E-06
	338.42	12.40	1.35E-06		1.82E-05
	583.02	30.87	8.33E-06		1.15E-05
	911.16	29.00	8.12E-06		1.62E-05

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Analysis Report for RCF18618 11/1/2007 12:31:03PM Page 3 of 3

J15WH6 SAF:RC-022 100BC/116C-3 CHEM TANK AIR FILTER

Nuclide Name	Energy (keV)	Yield(%)	Activity (uCi/units)	Nuclide MDA (uCi/units)	Line MDA (uCi/units)
U-235	968.97	17.40	-1.01E-05		2.81E-05
	143.79	10.50	1.90E-06	3.23E-06	1.42E-05
	163.38	4.70	2.47E-06		3.42E-05
	185.74	53.00	2.52E-06		3.23E-06
	205.33	4.70	2.23E-05		4.13E-05
U-238d	63.29	3.80	6.44E-06	2.45E-05	2.48E-05
	92.56	5.41	1.27E-05		2.45E-05
AM-241	59.54	35.70	-2.45E-07	2.44E-06	2.44E-06
CM-243	99.52	14.40	2.41E-06	5.41E-06	8.30E-06
	103.73	23.00	3.90E-07		5.41E-06
	116.93	8.32	-1.28E-05		1.51E-05
	228.19	10.56	8.71E-06		1.84E-05
	277.60	14.00	3.86E-06		1.41E-05
CM-245	99.52	21.10	1.65E-06	3.70E-06	5.67E-06
	103.73	33.60	2.67E-07		3.70E-06
	116.93	12.20	-8.70E-06		1.03E-05
	174.94	9.50	-6.50E-06		1.66E-05

+ = Nuclide identified during the nuclide identification
* = Energy line found in the spectrum
< = MDA value not calculated
@ = Half-life too short to be able to perform the decay correction

DAVID M. BRESHM

Reviewed and Approved: NOV 01 2007

(print/sign/date)

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Analysis Report for RCF18616 gp 11/5/07.
J15WH4 SAF:RC-022 116C-3 DOWNWIND BOUNDARY
H1 as per Joan Kessner

GAMMA SPECTRUM ANALYSIS

Sample Identification	: RCF18616
Sample Description	: J15WH4 SAF:RC-022 116C-3 DOWNWIND BOUNDARY
Sample Type	: 47 mm filter
Unit	:
Sample Point	
Sample Size	: 1.000E+00 units
Facility	: Default
Sample Taken On	: 10/30/2007 1:00:00PM
Acquisition Started	: 11/1/2007 8:19:45AM
Procedure	: 47 mm filter
Operator	: RCT
Detector Name	: REGIE02
Geometry	: 47 mm Filter
Live Time	: 7200.0 seconds
Real Time	: 7220.3 seconds
Dead Time	: 0.28 %
Peak Locate Threshold	: 3.00
Peak Locate Range (in channels)	: 80 - 4096
Peak Area Range (in channels)	: 80 - 4096
Identification Energy Tolerance	: 1.300 keV
Energy Calibration Used Done On	: 9/17/2007
Efficiency Calibration Used Done On	: 4/6/2007
Efficiency Calibration Description	: Efficiency calibration 47 mm filter REGe02
Sample Number	: 15608

INTERFERENCE CORRECTED REPORT

Nuclide Name	Nuclide Id Confidence	Wt mean Activity (uCi/units)	Wt mean Activity Uncertainty	Comments
PB-212 } radon decay daughters	0.711	9.01E-06	1.11E-06	
TH-232d }	0.444	8.94E-06	1.57E-06	

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Analysis Report for RCF18616

J15WH4 SAF:RC-022 116C-3 DOWNWIND BOUNDARY

? = nuclide is part of an undetermined solution
X = nuclide rejected by the interference analysis
@ = nuclide contains energy lines not used in Weighted Mean Activity
d = identified by daughter product energy lines assumed to be in secular equilibrium
Errors quoted at 1.000 sigma

UNIDENTIFIED PEAKS

Peak Locate Performed on : 11/1/2007 10:29:19AM
Peak Locate From Channel : 80
Peak Locate To Channel : 4096

Peak No.	Energy (keV)	Peak Rate (CPS)	Peak Rate (%) Uncertainty

All peaks were identified.

M = First peak in a multiplet region
m = Other peak in a multiplet region
F = Fitted singlet
Errors quoted at 1.000 sigma

NP = No Peak
UK = Unknown

NUCLIDE MDA REPORT

Nuclide Library Used : \\GOZER\ApexRoot\Default\Library\RCF UNKNOWN.NLB

Nuclide Name	Energy (keV)	Yield(%)	Activity (uCiUnits)	Nuclide MDA (uCiUnits)	Line MDA (uCiUnits)
K-40	1460.83	10.67	1.25E-04	9.18E-05	9.18E-05
CO-60	1173.24	99.90	4.72E-07	5.12E-06	5.12E-06
	1332.50	99.98	3.84E-06		5.88E-06
NB-94	702.63	99.81	-3.10E-07	3.85E-06	3.85E-06
	871.10	99.89	4.37E-07		4.44E-06
AG-108m	433.94	90.50	1.30E-06	3.30E-06	3.30E-06
	614.28	89.80	-3.94E-06		4.41E-06
	722.94	90.80	2.13E-06		4.44E-06
CS-137	661.66	85.21	-8.53E-07	4.19E-06	4.19E-06
EU-152	121.78	28.40	9.22E-07	5.11E-06	5.11E-06
	344.29	26.60	-1.17E-06		9.50E-06
	964.11	14.50	1.35E-05.		3.99E-05
	1408.00	20.80	-4.86E-06		2.56E-05
EU-154	123.10	40.50	-1.35E-06	3.53E-06	3.53E-06
	723.36	19.70	9.80E-06		2.05E-05
	873.23	11.45	-4.01E-06		3.77E-05
	1004.78	17.90	-7.91E-06		2.68E-05
	1274.54	35.50	2.01E-06		1.45E-05
EU-155	86.54	34.00	4.97E-06	4.30E-06	4.30E-06
	105.31	20.60	1.59E-08		6.48E-06

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Analysis Report for RCF18616 11/1/2007 10:29:25AM Page 3 of 3

J15WH4 SAF:RC-022 116C-3 DOWNWIND BOUNDARY

	Nuclide Name	Energy (keV)		Yield(%)	Activity (uCi/units)	Nuclide MDA (uCi/units)	Line MDA (uCi/units)
+	PB-212	74.81	*	10.50	1.40E-05	5.95E-06	9.91E-06
		77.11	*	17.70	7.55E-06		5.95E-06
		87.19		6.27	1.52E-05		2.31E-05
	RA-226d	186.11		3.28	1.11E-05	7.81E-06	5.81E-05
		241.92		7.46	-4.90E-06		3.89E-05
		295.09		19.20	-5.22E-08		1.18E-05
		351.87		37.10	2.08E-08		7.81E-06
		609.31		46.10	5.19E-06		9.81E-06
		1120.27		15.00	3.73E-05		3.97E-05
		1764.49		15.90	2.20E-05		4.55E-05
+	TH-232d	238.58	*	43.60	1.05E-05	5.33E-06	5.33E-06
		338.42		12.40	-1.53E-05		1.96E-05
		583.02	*	30.87	4.87E-06		9.68E-06
		911.16		29.00	2.36E-06		1.37E-05
		968.97		17.40	5.81E-07		3.28E-05
	U-235	143.79		10.50	-7.58E-06	3.62E-06	1.55E-05
		163.38		4.70	1.63E-05		3.61E-05
		185.74		53.00	8.29E-08		3.62E-06
		205.33		4.70	4.44E-05		4.52E-05
	U-238d	63.29		3.80	-2.93E-06	2.55E-05	2.55E-05
		92.56		5.41	1.03E-06		2.66E-05
	AM-241	59.54		35.70	2.83E-07	2.70E-06	2.70E-06
	CM-243	99.52		14.40	2.80E-07	5.79E-06	9.41E-06
		103.73		23.00	-2.84E-06		5.79E-06
		116.93		8.32	2.46E-07		1.73E-05
		228.19		10.56	2.21E-05		2.08E-05
		277.60		14.00	3.73E-06		1.68E-05
	CM-245	99.52		21.10	1.91E-07	3.96E-06	6.42E-06
		103.73		33.60	-1.94E-06		3.96E-06
		116.93		12.20	1.68E-07		1.18E-05
		174.94		9.50	7.10E-06		1.82E-05

+ = Nuclide identified during the nuclide identification
* = Energy line found in the spectrum
> = MDA value not calculated
@ = Half-life too short to be able to perform the decay correction

Reviewed and Approved: DAVID M. BREHM

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Analysis Report for RCF18617 gg 11/5/07
J15WH5 SAF:RC-022 AIR-100BC-07-0249 116C-3 FORKLIFT
Hg as per Joan Kessner

GAMMA SPECTRUM ANALYSIS

Sample Identification	: RCF18617
Sample Description	: J15WH5 SAF:RC-022 AIR-100BC-07-0249 116C-3 FORKLIFT
Sample Type	: 47 mm filter
Unit	:
Sample Point	
Sample Size	: 1.000E+00 units
Facility	: Default
Sample Taken On	: 10/30/2007 5:10:00PM
Acquisition Started	: 11/1/2007 8:31:04AM
Procedure	: 47 mm filter
Operator	: RCT
Detector Name	: PGTWHITE
Geometry	: 47 mm Filter
Live Time	: 7200.0 seconds
Real Time	: 7201.0 seconds
Dead Time	: 0.01 %
Peak Locate Threshold	: 3.00
Peak Locate Range (in channels)	: 80 - 4096
Peak Area Range (in channels)	: 80 - 4096
Identification Energy Tolerance	: 1.300 keV
Energy Calibration Used Done On	: 1/29/2007
Efficiency Calibration Used Done On	: 2/22/2007
Efficiency Calibration Description	: Efficiency calibration pgtwhite 47 mm filter
Sample Number	: 15603

INTERFERENCE CORRECTED REPORT

Nuclide Name	Nuclide Id Confidence	Wt mean Activity (uCi/unit)	Wt mean Activity Uncertainty	Comments
U-238d	0.331	1.68E-05	1.03E-05	

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Analysis Report for RCF18617

J15WH5 SAF:RC-022 AIR-100BC-07-0249 116C-3 FORKLIFT

? = nuclide is part of an undetermined solution
X = nuclide rejected by the interference analysis
@ = nuclide contains energy lines not used in Weighted Mean Activity
d = identified by daughter product energy lines assumed to be in secular equilibrium
Errors quoted at 1.000 sigma

UNIDENTIFIED PEAKS

Peak Locate Performed on : 11/1/2007 10:31:09AM
Peak Locate From Channel : 80
Peak Locate To Channel : 4096

Peak No.		Energy (keV)	Peak Rate (CPS)	Peak Rate (%) Uncertainty
M	1	74.91 Pb-212	4.38E-03	44.77
	3	609.25 MLP	3.84E-03	56.53

M = First peak in a multiplet region
m = Other peak in a multiplet region
F = Fitted singlet
Errors quoted at 1.000 sigma

NP = No Peak
UK = Unknown

NUCLIDE MDA REPORT

Nuclide Library Used : \\GOZER\ApexRoot\Default\Library\RCF UNKNOWN.NLB

Nuclide Name	Energy (keV)	Yield(%)	Activity (uCi/units)	Nuclide MDA (uCi/units)	Line MDA (uCi/units)
K-40	1460.83	10.67	1.27E-04	9.67E-05	9.67E-05
CO-60	1173.24	99.90	5.00E-06	5.83E-06	5.83E-06
	1332.50	99.98	1.44E-06		6.66E-06
NB-94	702.63	99.81	9.42E-07	4.62E-06	4.62E-06
	871.10	99.89	-6.75E-07		4.89E-06
AG-108m	433.94	90.50	-1.15E-06	3.28E-06	3.28E-06
	614.28	89.80	-6.89E-07		4.78E-06
	722.94	90.80	-6.74E-06		4.18E-06
CS-137	661.66	85.21	4.33E-07	4.77E-06	4.77E-06
EU-152	121.78	28.40	3.61E-06	5.01E-06	5.01E-06
	344.29	26.60	-1.08E-05		9.22E-06
	964.11	14.50	3.06E-07		3.60E-05
	1408.00	20.80	2.09E-05		3.05E-05
EU-154	123.10	40.50	-9.71E-07	3.37E-06	3.37E-06
	723.36	19.70	-1.09E-06		2.05E-05
	873.23	11.45	1.98E-05		4.34E-05
	1004.78	17.90	-1.76E-06		2.88E-05
	1274.54	35.50	4.46E-06		1.57E-05

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Analysis Report for RCF18617

J15WH5 SAF:RC-022 AIR-100BC-07-0249 116C-3 FORKLIFT

	Nuclide Name	Energy (keV)		Yield(%)	Activity (uCi/units)	Nuclide MDA (uCi/units)	Line MDA (uCi/units)
	EU-155	86.54		34.00	3.46E-06	4.50E-06	4.50E-06
		105.31		20.60	1.76E-08		6.74E-06
	PB-212	74.81		10.50	-4.16E-06	1.01E-05	1.74E-05
		77.11		17.70	3.02E-07		1.01E-05
		87.19		6.27	1.14E-05		2.41E-05
	RA-226d	186.11		3.28	9.81E-06	8.89E-06	6.54E-05
		241.92		7.46	2.53E-05		3.26E-05
		295.09		19.20	1.02E-05		1.45E-05
		351.87		37.10	1.42E-05		8.89E-06
		609.31		46.10	1.77E-05		1.10E-05
		1120.27		15.00	-1.62E-05		3.69E-05
		1764.49		15.90	3.28E-05		4.32E-05
	TH-232d	238.58		43.60	5.14E-06	5.64E-06	5.64E-06
		338.42		12.40	1.57E-05		2.31E-05
		583.02		30.87	8.34E-06		1.28E-05
		911.16		29.00	-6.19E-06		1.76E-05
		968.97		17.40	-6.81E-06		2.92E-05
	U-235	143.79		10.50	-1.38E-06	4.07E-06	1.56E-05
		163.38		4.70	1.76E-05		3.78E-05
		185.74		53.00	6.36E-07		4.07E-06
		205.33		4.70	6.73E-06		4.36E-05
+	U-238d	63.29		3.80	4.07E-05	3.39E-05	3.96E-05
		92.56	*	5.41	1.68E-05		3.39E-05
	AM-241	59.54		35.70	-9.47E-06	3.60E-06	3.60E-06
	CM-243	99.52		14.40	4.18E-07	6.00E-06	9.20E-06
		103.73		23.00	9.51E-07		6.00E-06
		116.93		8.32	-4.28E-06		1.72E-05
		228.19		10.56	-1.07E-05		1.96E-05
		277.60		14.00	7.34E-06		1.78E-05
	CM-245	99.52		21.10	2.85E-07	4.11E-06	6.28E-06
		103.73		33.60	6.51E-07		4.11E-06
		116.93		12.20	-2.92E-06		1.17E-05
		174.94		9.50	3.94E-06		1.94E-05

+ = Nuclide identified during the nuclide identification
* = Energy line found in the spectrum
> = MDA value not calculated
@ = Half-life too short to be able to perform the decay correction

Reviewed and Approved: DAVID M. BREHM

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