

RECEIVED

CORRES. CONTROL  
INCOMING LTR NO.

Department of Energy

2002 MAR 12 P 2:01

00158 RF02



ROCKY FLATS FIELD OFFICE  
10808 HIGHWAY 93, UNIT A  
GOLDEN, COLORADO 80403-8200

CORRESPONDENCE  
CONTROL

MAR 11 2002

01-DOE-00341

DUE DATE  
ACTION

DIST.	LTR	ENC
BOGENBERGER, V.		
BOGNAR, E.		
BRAILS FORD, M.D.		
BURNS, T. F.		
DECK, C. A.	X	X
DEGENHART, K.		
DIETERLE, S. E.		
FERRERA, D.W.		
FERRI, M.S.		
GERMAIN, A. L.		
GIACOMINI, J.		
HALL, L.		
SOM, J.H.		
MARTINEZ, L.A.	X	X
MCLAUGHLIN, J.		
NORTH, K.		
PARKER, A.M.	X	X
POWERS, K.		
RAAZ, R. D.		
RODGERS, A. D.		
SCOTT, G.K.	X	X
SHELTON, D.C.	X	X
SPEARS, M.S.		
TRICE, K.D.		
TUOH, N.R.		
VOORHEIS, G.M.		
WILLIAMS, J. L.		
PARSONS, D.	X	X
Foss, D.	X	X
Gibbs, F.	X	X
BROOKS, L.	X	X

Mr. Steven H. Gunderson  
Rocky Flats Cleanup Agreement Project Coordinator  
Colorado Department of Public Health and Environment  
4300 Cherry Creek Drive South  
Denver, CO 80222-1530

Dear Mr. Gunderson:

Subject: Re-Typing of B551 and B662 from Rocky Flats Cleanup Agreement Type 1 to Type 2

B551 and B662 underwent Reconnaissance Level Characterization (RLC), and findings were reported in the Group A RLC Report, dated June 14, 2000. Both facilities were typed as Type 2 facilities, primarily because of elevated readings on the exterior metal roofs. However, the elevated readings were not further characterized during RLC to determine if they were Department of Energy (DOE)-added radioactive material or naturally occurring radioactive material (NORM). Kaiser-Hill Company, L.L.C. (K-H) took a metal coupon from the exterior of each facility where the highest activity was detected during the RLC. Coupon sample results did not show any activity associated with DOE isotopes of concern, and indicate that the facilities should be re-typed as Type 1 facilities. Characterization results are discussed below and the coupon sample result details are included as an enclosure to this letter.

B551 was surveyed as part of the RLC on April 19, 1999. Results showed three total surface activity alpha readings above 100 dpm/100cm<sup>2</sup> on the metal exterior roof, these were survey points #24, 156 dpm/100cm<sup>2</sup>, #26, 228 dpm/100cm<sup>2</sup>, and #27, 102 dpm/100cm<sup>2</sup> (a roof drain).

The three points were surveyed again during late November 2001, and elevated readings were again detected. These points were then covered and re-surveyed during early December 2001, to determine if significant decay would occur. Significant decay would indicate the presence of short-lived radon decay products. Results from the re-survey indicated elevated readings and no significant decay, which indicated the presence of long-lived radon decay products (e.g., naturally occurring polonium-210) or DOE-added radioactive material.

Two of the points (excluding the roof drain point) were surveyed again on January 8, 2002; elevated readings were again detected.

On January 31, 2002, a metal coupon sample from the roof of B551 was taken (Sample No. 02D0736-001.001). The sample was taken from Point #26, the point that had the highest reading during RLC. Results did not detect any of the DOE isotopes of concern.

COR. CONTROL	X	X
ADMN. RECORD	X	X
PATS/130		

Reviewed for Addressee  
Corres. Control RFP

3/12/02  
Date By *bj*

Ref. Ltr. #

DOE ORDER #

NONE

MAR 2002  
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RECORDS CENTER

ADMIN RECORD  
IA-A-000928

1/19

MAR 11 2002

Because the B551 RLC was conducted to type the facility, radiological surveys were not conducted in accordance with the RFETS Pre-Demolition Survey (PDS) requirements. Therefore, a B551 PDS will be conducted, and a PDS Report (PDSR) will be submitted to the Colorado Department of Public Health and Environment (CDPHE) for approval prior to building demolition. In addition, the B551 chemical dispensary will be evaluated again after all chemicals and storage racks have been removed. However, no chemical contamination of the dispensary is anticipated. The dispensary was used to store primarily paints and painting supplies, and the RLC indicated no spill history. In addition, there was no physical evidence of contamination (i.e., no visible stains).

B662 was surveyed as part of the RLC on April 15, 1999. Results showed six total surface activity (alpha) readings above 100 dpm/100cm<sup>2</sup>:

- Four on exterior roof survey points – Point #31, 210 dpm/100cm<sup>2</sup>, Point #32, 226 dpm/100cm<sup>2</sup>, Point #33, 232 dpm/100cm<sup>2</sup>, and Point #34, 330 dpm/100cm<sup>2</sup>.
- Two on interior floor cracks – Point #35, 288 dpm/100cm<sup>2</sup> and Point #36, 126 dpm/100cm<sup>2</sup>.

The six points were surveyed again on December 12, 2001, and elevated readings were again detected. These six points were then covered and re-surveyed on December 10, 2001, to determine if significant decay would occur. Significant decay would indicate the presence of short-lived radon decay products. Results from the re-survey indicated elevated readings and no significant decay, which indicated the presence of long-lived radon decay products (e.g., naturally occurring polonium-210) or DOE-added radioactive material.

The four exterior metal roof points were surveyed again on December 19, 2001; elevated readings were again detected.

On January 31, 2002, a metal coupon sample from the roof of B662 was taken (Sample No. 02D0736-002.001). The sample was taken from Point #34, the point that had the highest reading during the RLC. Results did not detect any of the DOE isotopes of concern.

Because the B662 RLC was conducted to type the facility, radiological surveys were not conducted in accordance with the RFETS Pre-Demolition Survey (PDS) requirements. Therefore, a B662 PDS will be conducted, and a PDS Report (PDSR) will be submitted to CDPHE for approval prior to building demolition.

Based on the B662 facility-specific Historical Site Assessment, and RLC and subsequent survey data, the building concrete slab may be radiologically and chemically contaminated, and therefore, will be dispositioned separately from the uncontaminated metal structure. The RISS Project will conduct additional PDS characterization of the slab, which may include taking core samples. Decisions on the removal and disposal of the slab, including necessary EH&S controls, will be made based on this

Steven H. Gunderson  
01-DOE-00341

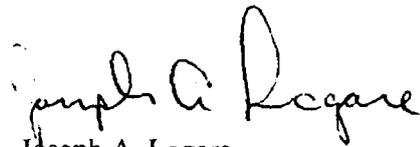
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characterization. During the demolition of the B662 structure, the slab may be treated as radiologically and chemically contaminated, and appropriate EH&S controls will be established to avoid any contaminant release. Follow-up investigation surveys or original elevated readings are on file in the B116 characterization files, and are available for review upon request.

Based on the above information and the enclosed data, DOE requests the re-typing of Buildings 551 and 662 from Type 2 to Type 1 facilities, and seeks your concurrence.

Questions can be directed to Steve Tower, Rocky Flats Field Office, AMP at (303) 966-2133.



Joseph A. Legare  
Assistant Manager  
for Environment and Stewardship

Enclosure

cc w/o Encl:  
S. Tower, AMP  
F. Gibbs, K-H RISS D&D  
D. Foss, K-H RISS D&D  
D. Parsons, K-H D&D  
Tim Rehder, EPA Region VIII

cc w/ Encl:  
Building 850 Administrative Record

Attachment for:  
Retyping of 551 and B662

**B551 & B662 Gamma  
Spectrometry Roof Coupon  
Sample Results  
(15 pages)**

Best Available Copy

DOT Non-Radioactive Determination  
using 32 year-old Weapons Grade Plutonium, for CY 2001

Isotope	Det Limit (pCi/g)	Activity (pCi/g)	U-235/238 %wt. ratio	Uranium Determination
Am-241	8.61E-02	0.00E+00		
U-235	1.24E+00	0	#DIV/0!	Below MDA
U-238	5.88E+00	0.00E+00		

Isotope	CI/g	uCI/g	Spl Wt	Tot uCI
Am-241	0.00E+00			
Pa-234m	0.00E+00			
Pu-238	0.00E+00			
Pu-239	0.00E+00			
Pu-240	0.00E+00			
Pu-241	0.00E+00			
Pu-242	0.00E+00			
Th-230	Not Estimated			
Th-231	0.00E+00			
Th-234	0.00E+00			
U-234	0.00E+00			
U-235	0.00E+00			
U-236	Not Estimated			
U-238	0.00E+00			
<b>Total (nCi/g)</b>	<b>0.0</b>	<b>0</b>	<b>8.2</b>	<b>0</b>
<b>Total (Bq/g)</b>	<b>0.0</b>			
<b>DOT Status</b>	<b>Nonradioactive</b>			

B551

rin 02d0736-001.001

*W. Hall*  
02/05/02

B551/B662  
X spec results

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DOT Non-Radioactive Determination  
using 32 year-old Weapons Grade Plutonium, for CY 2001

Isotope	Det Limit (pCi/g)	Activity (pCi/g)	U-235/238 %wt. ratio	Uranium Determination
Am-241	1.21E+00	0.00E+00		
U-235	1.81E+00	0	#DIV/0!	Below MDA
U-238	8.67E+00	0.00E+00		
	<b>Ci/g</b>			
Am-241	0.00E+00			
Pa-234m	0.00E+00			
Pu-238	0.00E+00			
Pu-239	0.00E+00			
Pu-240	0.00E+00			
Pu-241	0.00E+00			
Pu-242	0.00E+00			
Th-230	Not Estimated			
Th-231	0.00E+00			
Th-234	0.00E+00			
U-234	0.00E+00			
U-235	0.00E+00			
U-236	Not Estimated			
U-238	0.00E+00			
<b>Total (nCi/g)</b>	<b>0.0</b>		<b>uCi/g</b>	<b>Spl Wt</b>
<b>Total (Bq/g)</b>	<b>0.0</b>		<b>0</b>	<b>8.2</b>
<b>DOT Status</b>	<b>Nonradioactive</b>			<b>Tot uCi</b>
				<b>0</b>

B662

rin 02d0736-002.001

*[Handwritten Signature]*  
02/05/02

B551/B662  
8 spec results

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2/04/02

Mr. Chuck Hoelzel  
Contract Technical Representative, Subcontract Number KH001076OZ  
Kaiser-Hill Company, L.L.C.  
Rocky Flats Environmental Technology Site  
P.O. Box 464  
Golden, CO 80402-0464

Dear Mr. Hoelzel;

On January 31, 2002, Canberra Mobile Laboratory Services (CMLS) received 2 metal roof coupon samples from B551 and B 662 to be counted using On-Site Radiological Screening by Gamma Spectrometry, RC10-B, Batch No. 0201314467. The Rin for this batch is 02D0736. The samples were requested to be counted as a Lab-NonStandard ISOCS sample. A 24 Hour Results Only package, containing the items specified in contract No. KH001076OZ dated February 1, 2000 and updated July 1, 2001 has been requested for this report.

The samples were counted using ISOCS. The samples had QA/QC appropriate to this type of analysis. Results of the analysis are attached in the batch report narrative.

The samples were counted for 7200 seconds. This count time was sufficient to meet the detection limit requirements of the client.

For your convenience, please find attached a sample cross-reference listing of Project sample identification numbers and the corresponding CMLS laboratory ID designator.

If you have any questions please do not hesitate to call at 303-966-7946.

Sincerely,

Larry Umbaugh  
Laboratory Director, Canberra Mobile Laboratory Services

**COVER PAGE**  
RC10B, On-Site Radiological Screening by Gamma Spectrometry

**Gamma Spectrometry**

**PROJECT SAMPLE IDENTIFICATION  
CROSS-REFERENCE  
TO CMLS SAMPLE LABORATORY IDS**

**BATCH 0201314467**  
**Subcontract KH0010760Z**

<b>COC NUMBER</b>	<b>PROJECT SAMPLE ID NUMBER</b>	<b>SITE SAMPLE NUMBER(S)</b>	<b>CMLS SAMPLE ID NUMBER(S)</b>	<b>OBJECT NUMBER(S) CMLS</b>	<b>LINE ITEM CODE(S)</b>
02D0736#001	02D0736-001.001	02D0736-001.001	CMLS-909	G1900065	RC10B019
02D0736#001	02D0736-002.001	02D0736-002.001	CMLS-910	G1900066	RC10B019

Calibration Package ID: Objects individually modeled using ISOCS.

Comments:

Sample was counted in T130A using LeGe Detector LI004.

Certification Statement:

"I certify that this sample data package is in compliance with SOW requirements, both technically and for completeness, other than the conditions detailed above. Release of the data contained in this sample data package and the computer-readable EDD, as applicable, submitted on diskette or by modem, has been authorized by the Laboratory Manager or the Manager's designee, as verified by the following signature."

Larry Umbaugh  
Signature

Date: 02/04/02

Laboratory Director  
Title

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# CHAIN OF CUSTODY

Available Copy



**CMLS Sample Data Package Narrative**

**Contract Number: KH001076OZ**

**RIN Number: 02D0736 Batch Number: 0201314467 Date: 02/04/02**

**Data Package Type: Lab NonStandard ISOCS Level: 24HrR**

**Analytical Summary:**

**Location of Analysis: RFETS, T130A**

**Measurement Type: Object, by ISOCS measurement**

**Statement of Work Number: Module RC10-B**

**Detector(s) Used: LeGe, ISOCS-characterized detector, LI004**

**Software Used for analysis: Canberra Industries ProCount 2000 version 1.0a using ISOCS Version 1.2b, and Genie 2K version 1.1**

**CMLS Procedures Used for Analysis: CMLS-019, CMLS-20, CMLS-022, and CMLS-023**

**MDA Requirements: Per contract**

**Were all MDA requirements met in the analysis  YES  NO  N/A**

**If NO, list the specific MDA that was not met:**

**Efficiency Curve used: Dual**

**CMLS Radionuclide Library Used for Analysis: Secular.LIB**

**Source of Library: The TABLE OF RADIOACTIVE ISOTOPES by Browns & Firestone, with low abundance Pu and Am peaks taken from "A Reevaluation of the Gamma Ray Energies and Absolute Branching Intensities of U-238, Pu-238, -239, -240, -241, and Am-241," Gannink, R., Evans, J.E., and Prindle, A.L., Lawrence Livermore Laboratories, UCRL-52139, October 11, 1976.**

**Unidentified Peaks:**

**All unidentified peaks were dispositioned.**

**Total Propagated Error:**

**Total propagated error is determined from the counting error and the systematic error, when available. The systematic error is determined by comparing the ratios of the reported activities of Th-234 and Pa-234m or other pairs of nuclides with established ratios or the ratio of the activities of different energy lines of a nuclide. Systematic error is not calculated when no pairs of nuclides with established ratios are present in the sample.**

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**Quality Control Summary:**

Daily QC check source(s) counted?  YES  NO

Parameters within specification?  YES  NO

**Action taken if not within specification:**

Recount within specification?  YES  NO  N/A

Do all QC samples meet the Data Quality Objectives?  YES  NO

If No, list specific QC sample ID and the DQO that was not met:

QA Background Count Performed?  YES  NO

If No, Explanation:

**QA Criteria:**

Upper and lower boundaries have been established for peak centroid warning and control limits for selected energy lines. Upper and lower boundary limits for peak centroids are set as absolutes from the calibration centroids. FWHM and activity parameters are controlled at 2 and 3 sigma limits for selected energies that cover the full range of energies in the spectrum. The limits for the QA parameters are derived from a running mean of the QA data collected since the initial calibration of the detector for the N-sigma parameters.

**Nonconformance & Operational Variances:**

None.

**Discussion:**

None.

MDA Calculation - Currie Method as specified in the Genie 2000 Customized Tools Manual, Appendix B; Basic Algorithms.

**Canberra Project Manager/Manager's Designee Comments:**

"I certify that this sample data package is in compliance with SOW requirements, both technically and for completeness, other than the conditions detailed above. Release of the data contained in this sample data package and the computer-readable EDD, as applicable, submitted on diskette or by modem, has been authorized by the Laboratory Manager or the Manager's designee, as verified by the following signature."

*"I certify that this electronic image, and all hardcopies produced from this image, accurately represents the data and is in compliance with the RFETS 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."*

Larry Umbaugh  
Signature

Laboratory Director  
Title

2/04/02  
Date

**QC Background and QC Performance Check Data were performed as required and were acceptable. Hardcopy printouts are on file at the CMLS office and are available upon request.**

# **GAMMA SPECTROSCOPY**

## **ANALYTICAL RESULTS**

\*\*\*\*\*  
 \*\*\*\*\* GAMMA SPECTRUM ANALYSIS \*\*\*\*\*  
 \*\* Canberra Mobile Laboratory Services \*\*  
 \*\*\*\*\*

Report Generated On : 2/04/2002 8:22:33 AM

RIN Number : 02D0736  
 Analytical Batch ID : 0201314467  
 Line Item Code : RC10B019

Filename: A:\G1900065.CNF

Sample Number : 02D0736-001.001  
 Lab Sample Number : CMLS-909  
 Sample Receipt Date : 1/31/2002  
 Sample Volume Received : 8.20E+000 GRAMS

Result Identifier : N/A

Peak Locate Threshold : 3.00  
 Peak Locate Range (in channels) : 100 - 8192  
 Peak Area Range (in channels) : 100 - 8192  
 Identification Energy Tolerance : 1.500 keV

Sample (Final Aliquot Size) : 8.200E+000 GRAMS  
 Sample Quantity Error : 0.000E+000  
 Systematic Error Applied : 0.000E+000

Sample Taken On : 1/31/2002 10:30:00 AM  
 Acquisition Started : 1/31/2002 12:48:49 PM

Count Time : 7200.0 seconds  
 Real Time : 7203.2 seconds  
 Dead Time : 0.04 %

Energy Calibration Used Done On : 1/14/02  
 Energy = -0.509 + 0.250\*ch + -6.15E-008\*ch^2 + 6.19E-012\*ch^3

Corrections Applied:  
None

Efficiency Calibration Used Done On : 1/31/02  
 Efficiency Geometry ID : 02D0736-001.001

Analyzed By: Lee Jones Date: 2/4/02

Reviewed By: Sheri Chambers Date: 2/4/02



B 551

Sample and QC Sample Results Summary 2/04/02 8:22:33 AM Page 2

\*\*\*\*\*
Sample and QC Sample Results Summary
\*\*\*\*\*

Site Sample ID : 02D0736-001.001

Analytical Batch ID : 0201314467

Sample Type (Result Identifier): G19

Lab Sample Number : CMLS-909

Geometry ID : 02D0736-001.001

Filename: A:\G1900065.CNF

Detector Name: LEGE

MDA = Curie method as specified in Genie-2000 Customization Tools Manual Appendix B; Basic Algorithms.

Table with 4 columns: Analyte, Activity (pCi/GRAMS), 2-Sigma Uncertainty (pCi/GRAMS), MDA (pCi/GRAMS). Rows include K-40, TL-208, PO-210, BI-212, PB-212, BI-214, PB-214, RA-224, RA-226, AC-228, TH-230, Th-231, NP/U-233, PA-234, PA-234M, U-235, U238/234, AM-241.

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B662

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\*\*\*\*\* GAMMA SPECTRUM ANALYSIS \*\*\*\*\*  
\*\* Canberra Mobile Laboratory Services \*\*  
\*\*\*\*\*

Report Generated On : 2/04/2002 8:59:44 AM

RIN Number : 02D0736  
Analytical Batch ID : 0201314467  
Line Item Code : RC10B019

Filename: A:\G1900066.CNF

Sample Number : 02D0736-002.001  
Lab Sample Number : CMLS-910  
Sample Receipt Date : 1/31/2002  
Sample Volume Received : 5.40E+000 GRAMS

Result Identifier : N/A

Peak Locate Threshold : 3.00  
Peak Locate Range (in channels) : 100 - 8192  
Peak Area Range (in channels) : 100 - 8192  
Identification Energy Tolerance : 1.500 keV

Sample (Final Aliquot Size) : 5.400E+000 GRAMS  
Sample Quantity Error : 0.000E+000  
Systematic Error Applied : 0.000E+000

Sample Taken On : 1/31/2002 10:30:00 AM  
Acquisition Started : 1/31/2002 3:23:48 PM

Count Time : 7200.0 seconds  
Real Time : 7203.2 seconds  
Dead Time : 0.04 %

Energy Calibration Used Done On : 1/14/02  
Energy = -0.509 + 0.250\*ch + -6.15E-008\*ch^2 + 6.19E-012\*ch^3

Corrections Applied:  
None

Efficiency Calibration Used Done On : 1/31/02  
Efficiency Geometry ID : 02D0736-002.001

Analyzed By: Lee Jones Date: 2/4/02

Reviewed By: Sheri Chambers Date: 2/4/02

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Sample and QC Sample Results Summary 2/04/02 8:59:44 AM Page 2

\*\*\*\*\*  
\*\*\*\*\* Sample and QC Sample Results Summary \*\*\*\*\*  
\*\*\*\*\*

Site Sample ID : 02D0736-002.001

Analytical Batch ID : 0201314467

Sample Type (Result Identifier): G19

Lab Sample Number : CMLS-910

Geometry ID : 02D0736-002.001

Filename: A:\G1900066.CNF

Detector Name: LEGE

MDA = Curie method as specified in Genie-2000 Customization Tools Manual  
Appendix B; Basic Algorithms.

Analyte	Activity (pCi/GRAMS )	2-Sigma Uncertainty (pCi/GRAMS )	MDA (pCi/GRAMS )
K-40	4.21E+002	4.53E+001	2.78E+001
TL-208	0.00E+000	0.00E+000	2.73E+000
PO-210	0.00E+000	0.00E+000	2.49E+005
BI-212	0.00E+000	0.00E+000	3.94E+001
PB-212	3.45E+000	1.60E+000	2.57E+000
BI-214	8.67E+000	2.97E+000	4.38E+000
PB-214	0.00E+000	0.00E+000	4.14E+000
RA-224	0.00E+000	0.00E+000	3.44E+001
RA-226	0.00E+000	0.00E+000	2.90E+001
AC-228	0.00E+000	0.00E+000	8.40E+000
TH-230	0.00E+000	0.00E+000	1.12E+002
Th-231	1.75E+001	5.63E+000	6.57E+000
NP/U-233	0.00E+000	0.00E+000	4.34E+000
PA-234	0.00E+000	0.00E+000	2.05E+000
PA-234M	0.00E+000	0.00E+000	2.73E+002
U-235	0.00E+000	0.00E+000	1.81E+000
U238/234	0.00E+000	0.00E+000	8.67E+000
AM-241	0.00E+000	0.00E+000	1.21E+000

19/19