GEL | Laboratories LLC

a member of **The GEL Group** INC

PO Box 30712 Charleston, SC 29417
2040 Savage Road Charleston, SC 29407
P 843.556.8171 F 843.766.1178

www.gel.com

September 16, 2008

Ms. Jeri Buczek
Savannah River Nuclear Solutions, LLC
Building 730-4B, Room 2115
Aiken, SC 29808

Re: 212300c.GEL
212300r1.GEL
212303c.GEL
212303r1.GEL
GEL-2008-ZV4SS

Lab Certification: SCDHEC 10120001/10120002

Dear Ms. Buczek:

Enclosed are the above referenced files, which contain data for the sample(s) received on July 16, 2008. The samples were assigned to the laboratory identification series 212300% and 212303%. This revised report has been prepared and reviewed in accordance with GEL's standard operating procedures. The EDD for files 212300r1.GEL and 212303r1.GEL was FTPed on September 16, 2008 and should be used in conjunction with files 212300c.GEL and 212303c.GEL which were FTPed on August 13, 2008.

Alpha Spec and Ra-226 results were erroneously reported in the original data results. Those tests were only required if the Gross Alpha results exceeded 40 pCi/g. This report contains the correct requested analysis and should replace files 212300r.GEL and 212303r.GEL reported on August 13, 2008.

The client was contacted regarding several sample receiving issues. Please refer to the enclosed e-mail for further details on all issues.

The following samples were received:

Lab ID	Sample Description
212300001	ZV4SS-0000033
212300002	ZV4SS-0000036
212300003	ZV4SS-0000025
212300004	ZV4SS-0000029
212300005	ZV4SS-0000026
212300006	ZV4SS-0000038

problem solved

212303001	ZV4SS-0000032
212303002	ZV4SS-0000031
212303003	ZV4SS-0000035
212303004	ZV4SS-0000028
212303005	ZV4SS-0000027
212303006	ZV4SS-0000024
212303007	ZV4SS-0000023
212303008	ZV4SS-0000034
212303009	ZV4SS-0000030
212303010	ZV4SS-0000037

The original chains of custody were sent with the initial data package. If you have any questions concerning this data, please call Martha Harrison at (843) 556-8171, extension 4475.

Yours very truly,

Edith M. Kent
Project Manager

Enclosure
WSRB001.212300c.GEL/212300r1.GEL/212303c.GEL/212303r1.GEL

Table of Contents

BEIDMS Data Review Filter Program Responses for 212300c.GEL

There were no errors reported from the checker program.

BEIDMS Data Review Filter Program Responses for 212300r1.GEL

1) **The Preparation Factor Unit field contains an invalid value, 18 times:** The reporting units for some of the tracers and carriers are different than the reporting units for the radiochemistry analytes. The client has been provided with the correct reporting units in order to update their tables. The checker program currently in use by the laboratory has not yet been updated by the client to recognize these as valid preparation factor units.
2) **The Spike Units field contains an invalid value, 18 times:** The reporting units for some of the tracers and carriers are different than the reporting units for the radiochemistry analytes. The client has been provided with the correct reporting units in order to update their tables. The checker program currently in use by the laboratory has not yet been updated by the client to recognize these as valid spike units.

BEIDMS Data Review Filter Program Responses for 212303c.GEL

There were no errors reported from the checker program.

BEIDMS Data Review Filter Program Responses for 212303r1.GEL

1) **The Preparation Factor Unit field contains an invalid value, 24 times:** The reporting units for some of the tracers and carriers are different than the reporting units for the radiochemistry analytes. The client has been provided with the correct reporting units in order to update their tables. The checker program currently in use by the laboratory has not yet been updated by the client to recognize these as valid preparation factor units.
2) **The Spike Units field contains an invalid value, 24 times:** The reporting units for some of the tracers and carriers are different than the reporting units for the radiochemistry analytes. The client has been provided with the correct reporting units in order to update their tables. The checker program currently in use by the laboratory has not yet been updated by the client to recognize these as valid spike units.

Anomaly Summary Report

H:\beldms\2008\212300r1.GEL

Records Processed: 93

Anomaly	Severity	Number Found
The Preparation Factor Unit field contains an invalid value	Fatal	18
The Spike Units field contains an invalid value	Fatal	18
	Total Anomalies Found:	36

Fatal The Preparation Factor Unit field contains an invalid value

line_no	Customer_Sample_ID	Group_COC_Number	Analyte_Name	Analytical_Method_Code	Preparation_Factor	Preparation_Factor_Unit	Lab_Qualifier	Analytical_Result	Result_Unit	Analyte_Type	Lab_QC_Sample_Code	Lab_Sample_ID
9	ZV4SS-0000033	GEL8198A	STRONTIUM CARRIER	RADA-004	1.00	mg		87.68036	%	TRCR	REG	212300001
10	ZV4SS-0000033	GEL8198A	TECHNETIUM-99M TRACER	RADA-005	1.00	CPM		65.27845	%	TRCR	REG	212300001
19	ZV4SS-0000036	GEL8198A	STRONTIUM CARRIER	RADA-004	1.00	mg		84.35072	%	TRCR	REG	212300002
20	ZV4SS-0000036	GEL8198A	TECHNETIUM-99M TRACER	RADA-005	1.00	CPM		80.77443	%	TRCR	REG	212300002
29	ZV4SS-0000025	GEL8198A	STRONTIUM CARRIER	RADA-004	1.00	mg		84.35072	%	TRCR	REG	212300003
30	ZV4SS-0000025	GEL8198A	TECHNETIUM-99M TRACER	RADA-005	1.00	CPM		70.52408	%	TRCR	REG	212300003
39	ZV4SS-0000029	GEL8198A	STRONTIUM CARRIER	RADA-004	1.00	mg		86.57048	%	TRCR	REG	212300004
40	ZV4SS-0000029	GEL8198A	TECHNETIUM-99M TRACER	RADA-005	1.00	CPM		64.05145	%	TRCR	REG	212300004
49	ZV4SS-0000026	GEL8198A	STRONTIUM CARRIER	RADA-004	1.00	mg		76.58158	%	TRCR	REG	212300005
50	ZV4SS-0000026	GEL8198A	TECHNETIUM-99M TRACER	RADA-005	1.00	CPM		70.43382	%	TRCR	REG	212300005
58	ZV4SS-0000032	GEL8198A	STRONTIUM CARRIER	RADA-004	1.00	mg		82.13097	%	TRCR	REG	212303001
61	ZV4SS-0000023	GEL8198A	TECHNETIUM-99M TRACER	RADA-005	1.00	CPM		80.59531	%	TRCR	REG	212303007
83	LABQC		TECHNETIUM-99M TRACER	RADA-005	1.00	CPM		67.70791	%	TRCR	LB	1201627158
85	ZV4SS-0000023	GEL8198A	TECHNETIUM-99M TRACER	RADA-005	1.00	CPM		85.46534	%	TRCR	LD	1201627159
87	LABQC		TECHNETIUM-99M TRACER	RADA-005	1.00	CPM		79.1156	%	TRCR	LCS	1201627160
89	LABQC		STRONTIUM CARRIER	RADA-004	1.00	mg		71.03219	%	TRCR	LB	1201629564
91	ZV4SS-0000032	GEL8198A	STRONTIUM CARRIER	RADA-004	1.00	mg		84.35072	%	TRCR	LD	1201629565
93	LABQC		STRONTIUM CARRIER	RADA-004	1.00	mg		91.00999	%	TRCR	LCS	1201629566

Fatal The Spike Units field contains an invalid value

line_no	Customer_Sample_ID	Group_COC_Number	Analyte_Name	Analytical_Method_Code	Lab_Qualifier	Analytical_Result	Result_Unit	Spike_Amount	Spike_Units	Expected_Value	Analyte_Type	Lab_QC_Sample_Code	Lab_Sample_ID	LAB_QC_Batch_ID
9	ZV4SS-0000033	GEL8198A	STRONTIUM CARRIER	RADA-004		87.68036	%	9.01	mg	9.01	TRCR	REG	212300001	777719
10	ZV4SS-0000033	GEL8198A	TECHNETIUM-99M TRACER	RADA-005		65.27845	%	43200	CPM	43200	TRCR	REG	212300001	776635
19	ZV4SS-0000036	GEL8198A	STRONTIUM CARRIER	RADA-004		84.35072	%	9.01	mg	9.01	TRCR	REG	212300002	777719
20	ZV4SS-0000036	GEL8198A	TECHNETIUM-99M TRACER	RADA-005		80.77443	%	43200	CPM	43200	TRCR	REG	212300002	776635
29	ZV4SS-0000025	GEL8198A	STRONTIUM CARRIER	RADA-004		84.35072	%	9.01	mg	9.01	TRCR	REG	212300003	777719
30	ZV4SS-0000025	GEL8198A	TECHNETIUM-99M TRACER	RADA-005		70.52408	%	43200	CPM	43200	TRCR	REG	212300003	776635
39	ZV4SS-0000029	GEL8198A	STRONTIUM CARRIER	RADA-004		86.57048	%	9.01	mg	9.01	TRCR	REG	212300004	777719
40	ZV4SS-0000029	GEL8198A	TECHNETIUM-99M TRACER	RADA-005		64.05145	%	43200	CPM	43200	TRCR	REG	212300004	776635
49	ZV4SS-0000026	GEL8198A	STRONTIUM CARRIER	RADA-004		76.58158	%	9.01	mg	9.01	TRCR	REG	212300005	777719
50	ZV4SS-0000026	GEL8198A	TECHNETIUM-99M TRACER	RADA-005		70.43382	%	43200	CPM	43200	TRCR	REG	212300005	776635
58	ZV4SS-0000032	GEL8198A	STRONTIUM CARRIER	RADA-004		82.13097	%	9.01	mg	9.01	TRCR	REG	212303001	777719
61	ZV4SS-0000023	GEL8198A	TECHNETIUM-99M TRACER	RADA-005		80.59531	%	43200	CPM	43200	TRCR	REG	212303007	776635
83	LABQC		TECHNETIUM-99M TRACER	RADA-005		67.70791	%	43200	CPM	43200	TRCR	LB	1201627158	776635
85	ZV4SS-0000023	GEL8198A	TECHNETIUM-99M TRACER	RADA-005		85.46534	%	43200	CPM	43200	TRCR	LD	1201627159	776635
87	LABQC		TECHNETIUM-99M TRACER	RADA-005		79.1156	%	43200	CPM	43200	TRCR	LCS	1201627160	776635
89	LABQC		STRONTIUM CARRIER	RADA-004		71.03219	%	9.01	mg	9.01	TRCR	LB	1201629564	777719
91	ZV4SS-0000032	GEL8198A	STRONTIUM CARRIER	RADA-004		84.35072	%	9.01	mg	9.01	TRCR	LD	1201629565	777719
93	LABQC		STRONTIUM CARRIER	RADA-004		91.00999	%	9.01	mg	9.01	TRCR	LCS	1201629566	777719

Anomaly Summary Report

H:\beidms\2008\212303r1.GEL

Records Processed: 123

Anomaly	Severity	Number Found
The Preparation Factor Unit field contains an invalid value	Fatal	24
The Spike Units field contains an invalid value	Fatal	24
	Total Anomalies Found:	48

Fatal The Preparation Factor Unit field contains an invalid value

line_no	Customer_Sample_ID	Group_COC_Number	Analyte_Name	Analytical_Method_Code	Preparation_Factor	Preparation_Factor_Unit	Lab_Qualifier	Analytical_Result	Result_Unit	Analyte_Type	Lab_QC_Sample_Code	Lab_Sample_ID
9	ZV4SS-0000033	GEL8198A	STRONTIUM CARRIER	RADA-004	1.00	mg		87.68036	%	TRCR	REG	212300001
10	ZV4SS-0000033	GEL8198A	TECHNETIUM-99M TRACER	RADA-005	1.00	CPM		65.27845	%	TRCR	REG	212300001
19	ZV4SS-0000036	GEL8198A	STRONTIUM CARRIER	RADA-004	1.00	mg		84.35072	%	TRCR	REG	212300002
20	ZV4SS-0000036	GEL8198A	TECHNETIUM-99M TRACER	RADA-005	1.00	CPM		80.77443	%	TRCR	REG	212300002
29	ZV4SS-0000025	GEL8198A	STRONTIUM CARRIER	RADA-004	1.00	mg		84.35072	%	TRCR	REG	212300003
30	ZV4SS-0000025	GEL8198A	TECHNETIUM-99M TRACER	RADA-005	1.00	CPM		70.52408	%	TRCR	REG	212300003
39	ZV4SS-0000029	GEL8198A	STRONTIUM CARRIER	RADA-004	1.00	mg		86.57048	%	TRCR	REG	212300004
40	ZV4SS-0000029	GEL8198A	TECHNETIUM-99M TRACER	RADA-005	1.00	CPM		64.05145	%	TRCR	REG	212300004
49	ZV4SS-0000026	GEL8198A	STRONTIUM CARRIER	RADA-004	1.00	mg		76.58158	%	TRCR	REG	212300005
50	ZV4SS-0000026	GEL8198A	TECHNETIUM-99M TRACER	RADA-005	1.00	CPM		70.43382	%	TRCR	REG	212300005
58	ZV4SS-0000032	GEL8198A	STRONTIUM CARRIER	RADA-004	1.00	mg		82.13097	%	TRCR	REG	212303001
61	ZV4SS-0000023	GEL8198A	TECHNETIUM-99M TRACER	RADA-005	1.00	CPM		80.59531	%	TRCR	REG	212303007
83	LABQC		TECHNETIUM-99M TRACER	RADA-005	1.00	CPM		67.70791	%	TRCR	LB	1201627158
85	ZV4SS-0000023	GEL8198A	TECHNETIUM-99M TRACER	RADA-005	1.00	CPM		85.46534	%	TRCR	LD	1201627159
87	LABQC		TECHNETIUM-99M TRACER	RADA-005	1.00	CPM		79.1156	%	TRCR	LCS	1201627160
89	LABQC		STRONTIUM CARRIER	RADA-004	1.00	mg		71.03219	%	TRCR	LB	1201629564
91	ZV4SS-0000032	GEL8198A	STRONTIUM CARRIER	RADA-004	1.00	mg		84.35072	%	TRCR	LD	1201629565
93	LABQC		STRONTIUM CARRIER	RADA-004	1.00	mg		91.00999	%	TRCR	LCS	1201629566

Fatal The Spike Units field contains an invalid value

line_no	Customer_Sample_ID	Group_COC_Number	Analyte_Name	Analytical_Method_Code	Lab_Qualifier	Analytical_Result	Result_Unit	Spike_Amount	Spike_Units	Expected_Value	Analyte_Type	Lab_QC_Sample_Code	Lab_Sample_ID	LAB_QC_Batch_ID
9	ZV4SS-0000033	GEL8198A	STRONTIUM CARRIER	RADA-004		87.68036	%	9.01	mg	9.01	TRCR	REG	212300001	777719
10	ZV4SS-0000033	GEL8198A	TECHNETIUM-99M TRACER	RADA-005		65.27845	%	43200	CPM	43200	TRCR	REG	212300001	776635
19	ZV4SS-0000036	GEL8198A	STRONTIUM CARRIER	RADA-004		84.35072	%	9.01	mg	9.01	TRCR	REG	212300002	777719
20	ZV4SS-0000036	GEL8198A	TECHNETIUM-99M TRACER	RADA-005		80.77443	%	43200	CPM	43200	TRCR	REG	212300002	776635
29	ZV4SS-0000025	GEL8198A	STRONTIUM CARRIER	RADA-004		84.35072	%	9.01	mg	9.01	TRCR	REG	212300003	777719
30	ZV4SS-0000025	GEL8198A	TECHNETIUM-99M TRACER	RADA-005		70.52408	%	43200	CPM	43200	TRCR	REG	212300003	776635
39	ZV4SS-0000029	GEL8198A	STRONTIUM CARRIER	RADA-004		86.57048	%	9.01	mg	9.01	TRCR	REG	212300004	777719
40	ZV4SS-0000029	GEL8198A	TECHNETIUM-99M TRACER	RADA-005		64.05145	%	43200	CPM	43200	TRCR	REG	212300004	776635
49	ZV4SS-0000026	GEL8198A	STRONTIUM CARRIER	RADA-004		76.58158	%	9.01	mg	9.01	TRCR	REG	212300005	777719
50	ZV4SS-0000026	GEL8198A	TECHNETIUM-99M TRACER	RADA-005		70.43382	%	43200	CPM	43200	TRCR	REG	212300005	776635
58	ZV4SS-0000032	GEL8198A	STRONTIUM CARRIER	RADA-004		82.13097	%	9.01	mg	9.01	TRCR	REG	212303001	777719
61	ZV4SS-0000023	GEL8198A	TECHNETIUM-99M TRACER	RADA-005		80.59531	%	43200	CPM	43200	TRCR	REG	212303007	776635
83	LABQC		TECHNETIUM-99M TRACER	RADA-005		67.70791	%	43200	CPM	43200	TRCR	LB	1201627158	776635
85	ZV4SS-0000023	GEL8198A	TECHNETIUM-99M TRACER	RADA-005		85.46534	%	43200	CPM	43200	TRCR	LD	1201627159	776635
87	LABQC		TECHNETIUM-99M TRACER	RADA-005		79.1156	%	43200	CPM	43200	TRCR	LCS	1201627160	776635
89	LABQC		STRONTIUM CARRIER	RADA-004		71.03219	%	9.01	mg	9.01	TRCR	LB	1201629564	777719
91	ZV4SS-0000032	GEL8198A	STRONTIUM CARRIER	RADA-004		84.35072	%	9.01	mg	9.01	TRCR	LD	1201629565	777719
93	LABQC		STRONTIUM CARRIER	RADA-004		91.00999	%	9.01	mg	9.01	TRCR	LCS	1201629566	777719

7

General Chemistry Analysis

Case Narrative

General Chemistry Narrative
Westinghouse Savannah River Co. (WSRB)
SDG 212300

Method/Analysis Information

Product:	**Nitrate + Nitrite**		
Analytical Batch:	775789	**Method:**	EPA 353.2 Modified
Prep Batch :	775788	**Method:**	EPA 353.2 Modified

Sample Analysis

The following samples were analyzed using the analytical protocol as established in EPA 353.2 Modified:

Sample ID	Client ID
212300001	ZV4SS-0000033
212300002	ZV4SS-0000036
212300003	ZV4SS-0000025
212300004	ZV4SS-0000029
212300005	ZV4SS-0000026
1201625158	Method Blank (MB)
1201625162	Laboratory Control Sample (LCS)
1201625231	212300001(ZV4SS-0000033) Sample Duplicate (DUP)
1201625232	212300001(ZV4SS-0000033) Matrix Spike (MS)
1201625233	212300001(ZV4SS-0000033) Matrix Spike Duplicate (MSD)

The samples in this SDG were analyzed on an "as received" basis.

SOP Reference

Procedure for preparation, analysis and reporting of analytical data are controlled by GEL Laboratories LLC as Standard Operating Procedure (SOP). The data discussed in this narrative has been analyzed in accordance with GL-GC-E-128 REV# 4.

Preparation/Analytical Method Verification

The SOP stated above has been prepared based on technical research and testing conducted by GEL Laboratories, LLC. and with guidance from the regulatory documents listed in this "Method/Analysis Information" section.

Calibration Information

The Nutrient analysis was performed on a Lachat Quickchem FIA+ 8500 Series.

Y Intercept Rule

The absolute value of the intercept is less than 3 times the MDL.

Quality Control (QC) Information

Method Blank (MB) Statement
The MB analyzed with this SDG met the acceptance criteria.

Laboratory Control Sample (LCS) Recovery
The LCS spike recovery met the acceptance limits.

Quality Control (QC) Designation
The following sample was selected for QC analysis: 212300001 (ZV4SS-0000033).

Matrix Spike (MS)/Post Spike (PS) Recovery Statement
The MS/PS recovery for this sample set was within the required acceptance limits.

Matrix Spike Duplicate (MSD) Recovery Statement
The MSD recovery for this sample set was within the required acceptance limits.

MS/MSD Relative Percent Difference (RPD) Statement
The RPD between the MS and MSD met the acceptance limits.

Duplicate Relative Percent Difference (RPD) Statement
The RPD between the sample and its duplicate met the acceptance limits.

Technical Information

GEL assigns holding times based on the date and time of sample collection. Those holding times expressed in hours are calculated in the AlphaLims system by hours. Those holding times expressed as days expire at midnight on the day of expiration.

Holding Times
All samples in this SDG met the specified holding time.

Preparation/Analytical Method Verification
All procedures were performed as stated in the SOP.

Sample Dilutions
The samples in this SDG did not require dilutions.

Sample Re-analysis
The samples in this SDG did not require re-analysis.

Miscellaneous Information

Nonconformance (NCR) Documentation
An NCR was not required for this SDG.

Additional Comments
Additional comments were not required for this SDG.

Certification Statement

Where the analytical method has been performed under NELAP certification, the analysis has met all of the requirements of the NELAC standard unless otherwise noted in the analytical case narrative.

Review Validation:

GEL requires all analytical data to be verified by a qualified data validator. In addition, all data designated for CLP or CLP-like packaging will receive a third level validation upon completion of the data package.

The following data validator verified the information presented in this case narrative:

Reviewer: _____ **Date:** 11 Aug 08

Sample Data Summary

GEL LABORATORIES LLC
2040 Savage Road Charleston SC 29407 - (843) 556-8171 - www.gel.com

Certificate of Analysis Report
for

WSRB001 Westinghouse Savannah River Co. (AC33915N)

Client SDG: 212300 GEL Work Order: 212300

The Qualifiers in this report are defined as follows:

U The analyte was analyzed for, but not detected. The sample quantitation limit (SQL) is valid unless blank contamination is indicated.

Where the analytical method has been performed under NELAP certification, the analysis has met all of the requirements of the NELAC standard unless qualified on the Certificate of Analysis.

The designation ND, if present, appears in the result column when the analyte concentration is not detected above the detection limit.

This data report has been prepared and reviewed in accordance with GEL Laboratories LLC standard operating procedures. Please direct any questions to your Project Manager, Edith Kent.

Reviewed by _____

GEL LABORATORIES LLC
2040 Savage Road Charleston SC 29407 - (843) 556-8171 - www.gel.com

Certificate of Analysis

Company : Westinghouse Savannah Rvr Co
Address : Building 730-4B, Cube 2119
Aiken, South Carolina 29808

Report Date: August 6, 2008

Contact: Mr. Robert Kemmerlin
Project: **GEL-2008-ZV4SS-2**

Client Sample ID:	ZV4SS-0000033	Project:	WSRB03808
Sample ID:	212300001	Client ID:	WSRB001
Matrix:	Misc Solid		
Collect Date:	10-JUL-08 10:15		
Receive Date:	16-JUL-08		
Collector:	Client		

Parameter	Qualifier	Result	DL	RL	Units	DF	AnalystDate	Time	Batch	Method
Nutrient Analysis										
EPA 353.2 Nitrogen, Nitrate/Nitrite "As Received"										
Nitrogen, Nitrate/Nitrite		2.28	0.159	0.496	mg/kg	1	AXH3 07/24/08	1006	775789	1

The following Prep Methods were performed

Method	Description	Analyst	Date	Time	Prep Batch
EPA 353.2 Modified	EPA 353.1 Modified Nitrate/Nitrite	AXH3	07/21/08	1510	775788

The following Analytical Methods were performed

Method	Description	Analyst Comments
1	EPA 353.2 Modified	

GEL LABORATORIES LLC
2040 Savage Road Charleston SC 29407 - (843) 556-8171 - www.gel.com

Certificate of Analysis

Company : Westinghouse Savannah Rvr Co
Address : Building 730-4B, Cube 2119
Aiken, South Carolina 29808

Report Date: August 6, 2008

Contact: Mr. Robert Kemmerlin
Project: **GEL-2008-ZV4SS-2**

Client Sample ID:	ZV4SS-0000036	Project:	WSRB03808
Sample ID:	212300002	Client ID:	WSRB001
Matrix:	Misc Solid		
Collect Date:	14-JUL-08 10:30		
Receive Date:	16-JUL-08		
Collector:	Client		

Parameter	Qualifier	Result	DL	RL	Units	DF	AnalystDate	Time	Batch	Method
Nutrient Analysis										
EPA 353.2 Nitrogen, Nitrate/Nitrite "As Received"										
Nitrogen, Nitrate/Nitrite		3.97	0.154	0.481	mg/kg	1	AXH3 07/24/08	1016	775789	1

The following Prep Methods were performed

Method	Description	Analyst	Date	Time	Prep Batch
EPA 353.2 Modified	EPA 353.1 Modified Nitrate/Nitrite	AXH3	07/21/08	1510	775788

The following Analytical Methods were performed

Method	Description	Analyst Comments
1	EPA 353.2 Modified	

GEL LABORATORIES LLC
2040 Savage Road Charleston SC 29407 - (843) 556-8171 - www.gel.com

Certificate of Analysis

Company : Westinghouse Savannah Rvr Co
Address : Building 730-4B, Cube 2119
Aiken, South Carolina 29808

Report Date: August 6, 2008

Contact: Mr. Robert Kemmerlin
Project: **GEL-2008-ZV4SS-2**

Client Sample ID:	ZV4SS-0000025	Project:	WSRB03808
Sample ID:	212300003	Client ID:	WSRB001
Matrix:	Misc Solid		
Collect Date:	10-JUL-08 10:05		
Receive Date:	16-JUL-08		
Collector:	Client		

Parameter	Qualifier	Result	DL	RL	Units	DF	AnalystDate	Time	Batch	Method
Nutrient Analysis										
EPA 353.2 Nitrogen, Nitrate/Nitrite "As Received"										
Nitrogen, Nitrate/Nitrite		6.50	0.158	0.495	mg/kg	1	AXH3 07/24/08	1017	775789	1

The following Prep Methods were performed

Method	Description	Analyst	Date	Time	Prep Batch
EPA 353.2 Modified	EPA 353.1 Modified Nitrate/Nitrite	AXH3	07/21/08	1510	775788

The following Analytical Methods were performed

Method	Description	Analyst Comments
1	EPA 353.2 Modified	

GEL LABORATORIES LLC
2040 Savage Road Charleston SC 29407 - (843) 556-8171 - www.gel.com

Certificate of Analysis

Company : Westinghouse Savannah Rvr Co
Address : Building 730-4B, Cube 2119
Aiken, South Carolina 29808

Report Date: August 6, 2008

Contact: Mr. Robert Kemmerlin
Project: **GEL-2008-ZV4SS-2**

Client Sample ID:	ZV4SS-0000029	Project:	WSRB03808
Sample ID:	212300004	Client ID:	WSRB001
Matrix:	Misc Solid		
Collect Date:	10-JUL-08 13:35		
Receive Date:	16-JUL-08		
Collector:	Client		

Parameter	Qualifier	Result	DL	RL	Units	DF	AnalystDate	Time	Batch	Method
Nutrient Analysis										
EPA 353.2 Nitrogen, Nitrate/Nitrite "As Received"										
Nitrogen, Nitrate/Nitrite		5.21	0.153	0.478	mg/kg	1	AXH3 07/24/08	1018	775789	1

The following Prep Methods were performed

Method	Description	Analyst	Date	Time	Prep Batch
EPA 353.2 Modified	EPA 353.1 Modified Nitrate/Nitrite	AXH3	07/21/08	1510	775788

The following Analytical Methods were performed

Method	Description	Analyst Comments
1	EPA 353.2 Modified	

GEL LABORATORIES LLC
2040 Savage Road Charleston SC 29407 - (843) 556-8171 - www.gel.com

Certificate of Analysis

Company : Westinghouse Savannah Rvr Co
Address : Building 730-4B, Cube 2119
Aiken, South Carolina 29808

Report Date: August 6, 2008

Contact: Mr. Robert Kemmerlin
Project: **GEL-2008-ZV4SS-2**

Client Sample ID:	ZV4SS-0000026	Project:	WSRB03808
Sample ID:	212300005	Client ID:	WSRB001
Matrix:	Misc Solid		
Collect Date:	10-JUL-08 10:05		
Receive Date:	16-JUL-08		
Collector:	Client		

Parameter	Qualifier	Result	DL	RL	Units	DF	AnalystDate	Time	Batch	Method
Nutrient Analysis										
EPA 353.2 Nitrogen, Nitrate/Nitrite "As Received"										
Nitrogen, Nitrate/Nitrite		5.34	0.149	0.465	mg/kg	1	AXH3 07/24/08	1019	775789	1

The following Prep Methods were performed

Method	Description	Analyst	Date	Time	Prep Batch
EPA 353.2 Modified	EPA 353.1 Modified Nitrate/Nitrite	AXH3	07/21/08	1510	775788

The following Analytical Methods were performed

Method	Description	Analyst Comments
1	EPA 353.2 Modified	

RADIOLOGICAL ANALYSIS

Radiochemistry Case Narrative
Savannah River Nuclear Solutions, LLC (WSRB)
SDG 212300

Method/Analysis Information

Product:	**Gammaspec, Gamma, Sb-125, Cs-137, Ra-226**
Analytical Method:	RADA-013
Prep Method:	Dry Soil Prep
Analytical Batch Number:	776476
Prep Batch Number:	776142

Sample ID	Client ID
212300001	ZV4SS-0000033
212300002	ZV4SS-0000036
212300003	ZV4SS-0000025
212300004	ZV4SS-0000029
212300005	ZV4SS-0000026
1201626776	Method Blank (MB)
1201626777	212303001(ZV4SS-0000032) Sample Duplicate (DUP)
1201626778	Laboratory Control Sample (LCS)

The samples in this SDG were analyzed on a "dry weight" basis.

SOP Reference
Procedure for preparation, analysis and reporting of analytical data are controlled by GEL Laboratories LLC as Standard Operating Procedure (SOP). The data discussed in this narrative has been analyzed in accordance with GL-RAD-A-013 REV# 15.

Calibration Information:

Calibration Information
All initial and continuing calibration requirements have been met.

Standards Information
Standard solution(s) for these analyses are NIST traceable and used before the expiration date(s).

Sample Geometry
All counting sources were prepared in the same geometry as the calibration standards.

Quality Control (QC) Information:

Blank Information
The blank volume is representative of the sample volume in this batch.

Designated QC
The following sample was used for QC: 212303001 (ZV4SS-0000032).

QC Information
All of the QC samples met the required acceptance limits.

CSU
The blank result is less than 1.65 times the CSU.

Technical Information:

Holding Time
All sample procedures for this sample set were performed within the required holding time.

Preparation Information
All preparation criteria have been met for these analyses.

Sample Re-prep/Re-analysis
Sample 1201626777 (ZV4SS-0000032) was recounted due to high MDA.

Miscellaneous Information:

NCR Documentation
Nonconformance reports are generated to document any procedural anomalies that may deviate from referenced SOP or contractual documents. A nonconformance report (NCR) was not generated for this SDG.

Additional Comments
Additional comments were not required for this sample set.

Qualifier information

Qualifier	Reason	Analyte	Sample	Client Sample
1	EPA Storet Code:Compound identification criteria were not met.	Antimony-125	212300001	ZV4SS-0000033
			212300002	ZV4SS-0000036
			212300004	ZV4SS-0000029
			212300005	ZV4SS-0000026

Method/Analysis Information

Product:	**Gamma Low level I129, Solid**
Analytical Method:	EML HASL 300, 4.5.2.3
Analytical Batch Number:	776477

Sample ID	Client ID
212300001	ZV4SS-0000033
212300002	ZV4SS-0000036
212300003	ZV4SS-0000025
212300004	ZV4SS-0000029
212300005	ZV4SS-0000026
212300006	ZV4SS-0000038
1201626779	Method Blank (MB)
1201626780	212303001(ZV4SS-0000032) Sample Duplicate (DUP)
1201626782	Laboratory Control Sample (LCS)

The samples in this SDG were analyzed on an "as received" basis.

SOP Reference
Procedure for preparation, analysis and reporting of analytical data are controlled by GEL Laboratories LLC as Standard Operating Procedure (SOP). The data discussed in this narrative has been analyzed in accordance with GL-RAD-A-006 REV# 13.

Calibration Information:

Calibration Information
All initial and continuing calibration requirements have been met.

Standards Information
Standard solution(s) for these analyses are NIST traceable and used before the expiration date(s).

Sample Geometry
All counting sources were prepared in the same geometry as the calibration standards.

Quality Control (QC) Information:

Blank Information
The blank volume is representative of the sample volume in this batch.

Designated QC
The following sample was used for QC: 212303001 (ZV4SS-0000032).

QC Information
All of the QC samples met the required acceptance limits.

CSU
The blank result is less than 1.65 times the CSU.

Technical Information:

Holding Time
All sample procedures for this sample set were performed within the required holding time.

Preparation Information
All preparation criteria have been met for these analyses.

Sample Re-prep/Re-analysis
Sample 212300006 (ZV4SS-0000038) was recounted due to high MDA.

Miscellaneous Information:

NCR Documentation
Nonconformance reports are generated to document any procedural anomalies that may deviate from referenced SOP or contractual documents. A nonconformance report (NCR) was not generated for this SDG.

Additional Comments
Additional comments were not required for this sample set.

Qualifier information

Qualifier	Reason	Analyte	Sample	Client Sample
1	EPA Storet Code:Compound identification criteria were not met.	Iodine-129	212300003	ZV4SS-0000025
			212300004	ZV4SS-0000029
			212300005	ZV4SS-0000026
			212300006	ZV4SS-0000038

Method/Analysis Information

Product:	**GFPC, Gross Alpha Solid**
Analytical Method:	RADA-001
Prep Method:	Dry Soil Prep
Analytical Batch Number:	776598
Prep Batch Number:	776142

Sample ID	Client ID
212300001	ZV4SS-0000033
212300002	ZV4SS-0000036
212300003	ZV4SS-0000025
212300004	ZV4SS-0000029
212300005	ZV4SS-0000026
1201627038	Method Blank (MB)
1201627039	212303001(ZV4SS-0000032) Sample Duplicate (DUP)
1201627040	Laboratory Control Sample (LCS)

The samples in this SDG were analyzed on a "dry weight" basis.

SOP Reference
Procedure for preparation, analysis and reporting of analytical data are controlled by GEL Laboratories LLC as Standard Operating Procedure (SOP). The data discussed in this narrative has been analyzed in accordance with GL-RAD-A-001B REV# 12.

Calibration Information:

Calibration Information
All initial and continuing calibration requirements have been met. The discrimination settings are calibrated in beta discriminating mode to reduce beta to alpha crosstalk.

Standards Information
Standard solution(s) for these analyses are NIST traceable and used before the expiration date(s).

Sample Geometry
All counting sources were prepared in the same geometry as the calibration standards.

Quality Control (QC) Information:

Blank Information
The blank volume is representative of the sample volumes in this batch.

Designated QC
The following sample was used for QC: 212303001 (ZV4SS-0000032).

QC Information

All of the QC samples met the required acceptance limits.

CSU
The blank result is less than 1.65 times the CSU.

Technical Information:

Holding Time
All sample procedures for this sample set were performed within the required holding time.

Preparation Information
All preparation criteria have been met for these analyses.

Sample Re-prep/Re-analysis
Sample 1201627038 (MB) was recounted due to a suspected blank false positive.

Chemical Recoveries
All chemical recoveries meet the required acceptance limits for this sample set.

Gross Alpha/Beta Preparation Information
High hygroscopic salt content in evaporated samples can cause the sample mass to fluctuate due to moisture absorption. To minimize this interference, the salts are converted to oxides by heating the sample under a flame until a dull red color is obtained. The conversion to oxides stabilizes the sample weight and ensures that proper alpha/beta efficiencies are assigned for each sample. Volatile radioisotopes of carbon, hydrogen, technetium, polonium and cesium may be lost during sample heating.

Miscellaneous Information:

NCR Documentation
Nonconformance reports are generated to document any procedural anomalies that may deviate from referenced SOP or contractual documents. A nonconformance report (NCR) was not generated for this SDG.

Additional Comments
Additional comments were not required for this sample set.

Qualifier information

Manual qualifiers were not required.

Method/Analysis Information

Product:	**GFPC, Sr90, solid Rad**
Analytical Method:	RADA-004
Prep Method:	Dry Soil Prep
Analytical Batch Number:	777719
Prep Batch Number:	776142

Sample ID	Client ID
212300001	ZV4SS-0000033
212300002	ZV4SS-0000036
212300003	ZV4SS-0000025
212300004	ZV4SS-0000029
212300005	ZV4SS-0000026
1201629564	Method Blank (MB)
1201629565	212303001(ZV4SS-0000032) Sample Duplicate (DUP)
1201629566	Laboratory Control Sample (LCS)

The samples in this SDG were analyzed on a "dry weight" basis.

SOP Reference
Procedure for preparation, analysis and reporting of analytical data are controlled by GEL Laboratories LLC as Standard Operating Procedure (SOP). The data discussed in this narrative has been analyzed in accordance with GL-RAD-A-004 REV# 12.

Calibration Information:

Calibration Information
All initial and continuing calibration requirements have been met.

Standards Information
Standard solution(s) for these analyses are NIST traceable and used before the expiration date(s).

Sample Geometry
All counting sources were prepared in the same geometry as the calibration standards.

Quality Control (QC) Information:

Blank Information
The blank volume is representative of the sample volume in this batch.

Designated QC
The following sample was used for QC: 212303001 (ZV4SS-0000032).

QC Information
All of the QC samples met the required acceptance limits.

CSU
The blank 1201629564 (MB) result is greater than 1.65 times the CSU but less than the MDA.

Technical Information:

Holding Time
All sample procedures for this sample set were performed within the required holding time.

Preparation Information
All preparation criteria have been met for these analyses.

Sample Re-prep/Re-analysis
Samples 212300002 (ZV4SS-0000036), 212300003 (ZV4SS-0000025), 212300004 (ZV4SS-0000029) and 212300005 (ZV4SS-0000026) were recounted to verify sample results. Second counts being reported.

Chemical Recoveries
All chemical recoveries meet the required acceptance limits for this sample set.

Miscellaneous Information:

NCR Documentation
Nonconformance reports are generated to document any procedural anomalies that may deviate from referenced SOP or contractual documents. A nonconformance report (NCR) was not generated for this SDG.

Qualifier information

Manual qualifiers were not required.

Method/Analysis Information

Product:	**Liquid Scint Tc99, Solid**
Analytical Method:	RADA-005
Analytical Batch Number:	776635

Sample ID	Client ID
212300001	ZV4SS-0000033
212300002	ZV4SS-0000036
212300003	ZV4SS-0000025
212300004	ZV4SS-0000029
212300005	ZV4SS-0000026
1201627158	Method Blank (MB)
1201627159	212303007(ZV4SS-0000023) Sample Duplicate (DUP)
1201627160	Laboratory Control Sample (LCS)

The samples in this SDG were analyzed on an "as received" basis.

SOP Reference
Procedure for preparation, analysis and reporting of analytical data are controlled by GEL Laboratories LLC as Standard Operating Procedure (SOP). The data discussed in this narrative has been analyzed in accordance with GL-RAD-A-005 REV# 16.

Calibration Information:

Calibration Information
All initial and continuing calibration requirements have been met.

Standards Information
Standard solution(s) for these analyses are NIST traceable and used before the expiration date(s).

Sample Geometry
All counting sources were prepared in the same geometry as the calibration standards.

Quality Control (QC) Information:

Blank Information
The blank volume is representative of the sample volume in this batch.

Designated QC
The following sample was used for QC: 212303007 (ZV4SS-0000023).

QC Information
All of the QC samples met the required acceptance limits.

CSU
The blank result is less than 1.65 times the CSU.

Technical Information:

Holding Time
All sample procedures for this sample set were performed within the required holding time.

Preparation Information
All preparation criteria have been met for these analyses.

Sample Re-prep/Re-analysis
Sample 212300005 (ZV4SS-0000026) was recounted due to a negative result greater than three times the error.

Miscellaneous Information:

NCR Documentation
Nonconformance reports are generated to document any procedural anomalies that may deviate from referenced SOP or contractual documents. A nonconformance report (NCR) was not generated for this SDG.

Additional Comments
Additional comments were not required for this sample set.

Qualifier information

Manual qualifiers were not required.

Method/Analysis Information

Product:	**Liquid Scint C14, Solid**
Analytical Method:	EPA EERF C-01 Modified
Analytical Batch Number:	776634

Sample ID	Client ID
212300001	ZV4SS-0000033
212300002	ZV4SS-0000036
212300003	ZV4SS-0000025
212300004	ZV4SS-0000029
212300005	ZV4SS-0000026
1201627154	Method Blank (MB)
1201627155	212303002(ZV4SS-0000031) Sample Duplicate (DUP)
1201627156	212303002(ZV4SS-0000031) Matrix Spike (MS)
1201627157	Laboratory Control Sample (LCS)

The samples in this SDG were analyzed on an "as received" basis.

SOP Reference
Procedure for preparation, analysis and reporting of analytical data are controlled by GEL Laboratories LLC as Standard Operating Procedure (SOP). The data discussed in this narrative has been analyzed in accordance with GL-RAD-A-003 REV# 11.

Calibration Information:

Calibration Information
All initial and continuing calibration requirements have been met.

Standards Information
Standard solution(s) for these analyses are NIST traceable and used before the expiration date(s).

Sample Geometry
All counting sources were prepared in the same geometry as the calibration standards.

Quality Control (QC) Information:

Blank Information
The blank volume is representative of the sample volume in this batch.

Designated QC
The following sample was used for QC: 212303002 (ZV4SS-0000031).

QC Information
All of the QC samples met the required acceptance limits.

CSU
The blank result is less than 1.65 times the CSU.

Technical Information:

Holding Time
All sample procedures for this sample set were performed within the required holding time.

Preparation Information
All preparation criteria have been met for these analyses.

Sample Re-prep/Re-analysis
Samples were recounted due to the quench number being outside the calibration range.

Miscellaneous Information:

NCR Documentation
Nonconformance reports are generated to document any procedural anomalies that may deviate from referenced SOP or contractual documents. The following NCR was generated for this SDG:
NCR 585474 was generated due to Sample Analyzed out of Holding. 1. Sample 212300 001, 003, 004, 005, 212303 001, 002, 006, 007, 009, 1201627155, 1201627156 were received within holding but analyzed out of holding. 1. Reporting results

Additional Comments
Additional comments were not required for this sample set.

Qualifier information

Manual qualifiers were not required.

Certification Statement

Where the analytical method has been performed under NELAP certification, the analysis has met all of the requirements of the NELAC standard unless otherwise noted in the analytical case narrative.

Review Validation:

GEL requires all analytical data to be verified by a qualified data validator. In addition, all data designated for CLP or CLP-like packaging will receive a third level validation upon completion of the

data package.

The following data validator verified the information presented in this case narrative:

Reviewer/Date: A Edwards McCarty 9/15/08

COMPANY - WIDE NONCONFORMANCE REPORT

Mo.Day Yr.	Division:	Quality Criteria:	Type:
11-AUG-08	Radiochemistry	Specifications	Process
Instrument Type:	**Test / Method:**	**Matrix Type:**	**Client Code:**
LSC	EPA EERF C-01 Modified	Solid	WSRB
Batch ID:	**Sample Numbers:**		
776634	See Below		

Potentially affected work order(s)(SDG): 212300,212303(212300-1)

Application Issues:

Sample Analyzed out of Holding

Specification and Requirements Nonconformance Description:	NRG Disposition:
1. Sample 212300 001, 003, 004, 005, 212303 001, 002, 006, 007, 009, 1201627155, 1201627156 were received within holding but analyzed out of holding.	1. Reporting results

Originator's Name:

Kenshalla Oston 11-AUG-08

Data Validator/Group Leader:

Lesley Anderson 12-AUG-08

Quality Review:

Director:

SAMPLE DATA SUMMARY

GEL LABORATORIES LLC
2040 Savage Road Charleston SC 29407 - (843) 556-8171 - www.gel.com

Certificate of Analysis Report
for

WSRB001 Savannah River Nuclear Solutions, LLC (AC33915N)

Client SDG: 212300 GEL Work Order: 212300

The Qualifiers in this report are defined as follows:

J The detected analyte was positively identified but the result is approximate.

R The sample result is rejected as unusable due to serious deficiencies in meeting quality control criteria. The analyte may be present or absent.

U The analyte was analyzed for, but not detected. The sample quantitation limit (SQL) is valid unless blank contamination is indicated.

UJ The analyte was analyzed for, but not detected. The sample quantitation limit (SQL) is approximate, and may be inaccurate or imprecise.

Where the analytical method has been performed under NELAP certification, the analysis has met all of the requirements of the NELAC standard unless qualified on the Certificate of Analysis.

The designation ND, if present, appears in the result column when the analyte concentration is not detected above the detection limit.

This data report has been prepared and reviewed in accordance with GEL Laboratories LLC standard operating procedures. Please direct any questions to your Project Manager, Edith Kent.

Heather D McCarty

Reviewed by

GEL LABORATORIES LLC
2040 Savage Road Charleston SC 29407 - (843) 556-8171 - www.gel.com

Certificate of Analysis

Company : Savannah River Nuclear Solutions, LLC
Address : Building 730-4B, Cube 2119
Aiken, South Carolina 29808

Report Date: September 15, 2008

Contact: Mr. Robert Kemmerlin
Project: **GEL-2008-ZV4SS-2**

Client Sample ID:	ZV4SS-0000033	Project:	WSRB03808
Sample ID:	212300001	Client ID:	WSRB001
Matrix:	Misc Solid		
Collect Date:	10-JUL-08 10:15		
Receive Date:	16-JUL-08		
Collector:	Client		

Parameter	Qualifier	Result	Uncertainty	DL	RL	Units	DF	Analyst	Date	Time	Batch	Method
Rad Gamma Spec Analysis												
Gamma Low level I129, Solid "As Received"												
Iodine-129	U	-0.0608	+/-0.366	0.433	2.24	pCi/g		MJH1	07/28/08	0945	776477	1
Gammaspec, Gamma, Sb-125, Cs-137, Ra-226 "Dry Weight Corrected"												
Antimony-125	R	0.319	+/-0.158	0.292	0.316	pCi/g		MJH1	07/30/08	1014	776476	2
Cesium-137		8.32	+/-0.520	0.0683	0.170	pCi/g						
Rad Gas Flow Proportional Counting												
GFPC, Gross Alpha Solid "Dry Weight Corrected"												
Alpha		22.5	+/-6.39	3.78	1.00	pCi/g		DXB5	08/05/08	1725	776598	3
Beta		36.0	+/-6.23	6.49	8.00	pCi/g						
GFPC, Sr90, solid Rad "Dry Weight Corrected"												
Strontium-90	U	0.148	+/-0.218	0.379	1.92	pCi/g		AXD2	07/29/08	2002	777719	4
Rad Liquid Scintillation Analysis												
Liquid Scint C14, Solid "As Received"												
Carbon-14	UJ	-50.6	+/-99.9	180	274	pCi/g		SXB4	08/08/08	1328	776634	5
Liquid Scint Tc99, Solid "As Received"												
Technetium-99	U	-26.4	+/-38.5	67.8	90.4	pCi/g		RXE1	07/29/08	0145	776635	6

The following Prep Methods were performed

Method	Description	Analyst	Date	Time	Prep Batch
Dry Soil Prep	Dry Soil Prep GL-RAD-A-021	BXJ1	07/21/08	1722	776142

The following Analytical Methods were performed

Method	Description	Analyst Comments
1	EML HASL 300, 4.5.2.3	
2	RADA-013	
3	RADA-001	
4	RADA-004	
5	EPA EERF C-01 Modified	
6	RADA-005	

Surrogate/Tracer recovery	Test	Result	Nominal	Recovery%	Acceptable Limits
Strontium Carrier	GFPC, Sr90, solid Rad "Dry Weight	7.90 mg	9.01	88	(25%-125%)

GEL LABORATORIES LLC
2040 Savage Road Charleston SC 29407 - (843) 556-8171 - www.gel.com

Certificate of Analysis

Company : Savannah River Nuclear Solutions, LLC
Address : Building 730-4B, Cube 2119
Aiken, South Carolina 29808

Report Date: September 15, 2008

Contact: Mr. Robert Kemmerlin
Project: **GEL-2008-ZV4SS-2**

Client Sample ID: ZV4SS-0000033
Sample ID: 212300001

Project: WSRB03808
Client ID: WSRB001

Parameter	Qualifier	Result	Uncertainty	DL	RL	Units	DF	Analyst	Date	Time	Batch	Method

Surrogate/Tracer recovery	Test	Result	Nominal	Recovery%	Acceptable Limits
Technetium-99m Tracer	Corrected" Liquid Scint Tc99, Solid "As Received"	28200 CPM	43200	65	(15%-125%)

GEL LABORATORIES LLC
2040 Savage Road Charleston SC 29407 - (843) 556-8171 - www.gel.com

Certificate of Analysis

Company : Savannah River Nuclear Solutions, LLC
Address : Building 730-4B, Cube 2119
Aiken, South Carolina 29808

Report Date: September 15, 2008

Contact: Mr. Robert Kemmerlin
Project: **GEL-2008-ZV4SS-2**

Client Sample ID:	ZV4SS-0000036	Project:	WSRB03808
Sample ID:	212300002	Client ID:	WSRB001
Matrix:	Misc Solid		
Collect Date:	14-JUL-08 10:30		
Receive Date:	16-JUL-08		
Collector:	Client		

Parameter	Qualifier	Result	Uncertainty	DL	RL	Units	DF	Analyst	Date	Time	Batch	Method
Rad Gamma Spec Analysis												
Gamma Low level I129, Solid "As Received"												
Iodine-129	U	-0.266	+/-0.320	0.348	2.24	pCi/g		MJH1	07/28/08	1036	776477	1
Gammaspec, Gamma, Sb-125, Cs-137, Ra-226 "Dry Weight Corrected"												
Antimony-125	R	0.271	+/-0.195	0.255	0.316	pCi/g		MJH1	07/30/08	1024	776476	2
Cesium-137		6.22	+/-0.543	0.0775	0.170	pCi/g						
Rad Gas Flow Proportional Counting												
GFPC, Gross Alpha Solid "Dry Weight Corrected"												
Alpha		30.1	+/-7.56	3.45	1.00	pCi/g		DXB5	08/05/08	1725	776598	3
Beta		40.4	+/-5.99	5.08	8.00	pCi/g						
GFPC, Sr90, solid Rad "Dry Weight Corrected"												
Strontium-90	U	-0.0253	+/-0.167	0.338	1.92	pCi/g		AXD2	08/06/08	2023	777719	4
Rad Liquid Scintillation Analysis												
Liquid Scint C14, Solid "As Received"												
Carbon-14	U	46.2	+/-139	240	274	pCi/g		SXB4	08/08/08	1345	776634	5
Liquid Scint Tc99, Solid "As Received"												
Technetium-99	U	-30.3	+/-32.3	57.4	90.4	pCi/g		RXE1	07/29/08	0222	776635	6

The following Prep Methods were performed

Method	Description	Analyst	Date	Time	Prep Batch
Dry Soil Prep	Dry Soil Prep GL-RAD-A-021	BXJ1	07/21/08	1722	776142

The following Analytical Methods were performed

Method	Description	Analyst Comments
1	EML HASL 300, 4.5.2.3	
2	RADA-013	
3	RADA-001	
4	RADA-004	
5	EPA EERF C-01 Modified	
6	RADA-005	

Surrogate/Tracer recovery	Test	Result	Nominal	Recovery%	Acceptable Limits
Strontium Carrier	GFPC, Sr90, solid Rad "Dry Weight	7.60 mg	9.01	84	(25%-125%)

GEL LABORATORIES LLC
2040 Savage Road Charleston SC 29407 - (843) 556-8171 - www.gel.com

Certificate of Analysis

Company : Savannah River Nuclear Solutions, LLC
Address : Building 730-4B, Cube 2119
Aiken, South Carolina 29808

Report Date: September 15, 2008

Contact: Mr. Robert Kemmerlin
Project: **GEL-2008-ZV4SS-2**

Client Sample ID: ZV4SS-0000036
Sample ID: 212300002

Project: WSRB03808
Client ID: WSRB001

Parameter	Qualifier	Result	Uncertainty	DL	RL	Units	DF	Analyst	Date	Time	Batch	Method

Surrogate/Tracer recovery	Test	Result	Nominal	Recovery%	Acceptable Limits
Technetium-99m Tracer	Corrected" Liquid Scint Tc99, Solid "As Received"	34900 CPM	43200	81	(15%-125%)

GEL LABORATORIES LLC
2040 Savage Road Charleston SC 29407 - (843) 556-8171 - www.gel.com

Certificate of Analysis

Company : Savannah River Nuclear Solutions, LLC
Address : Building 730-4B, Cube 2119
Aiken, South Carolina 29808

Report Date: September 15, 2008

Contact: Mr. Robert Kemmerlin
Project: **GEL-2008-ZV4SS-2**

Client Sample ID:	ZV4SS-0000025	Project:	WSRB03808
Sample ID:	212300003	Client ID:	WSRB001
Matrix:	Misc Solid		
Collect Date:	10-JUL-08 10:05		
Receive Date:	16-JUL-08		
Collector:	Client		

Parameter	Qualifier	Result	Uncertainty	DL	RL	Units	DF	Analyst	Date	Time	Batch	Method
Rad Gamma Spec Analysis												
Gamma Low level I129, Solid "As Received"												
Iodine-129	R	14.9	+/-1.53	2.22	2.24	pCi/g		MJH1	07/28/08	1135	776477	1
Gammaspec, Gamma, Sb-125, Cs-137, Ra-226 "Dry Weight Corrected"												
Antimony-125		4.46	+/-1.13	1.99	0.316	pCi/g		MJH1	07/30/08	1025	776476	2
Cesium-137		1050	+/-54.0	0.364	0.170	pCi/g						
Rad Gas Flow Proportional Counting												
GFPC, Gross Alpha Solid "Dry Weight Corrected"												
Alpha		29.9	+/-7.65	5.04	1.00	pCi/g		DXB5	08/05/08	1725	776598	3
Beta		917	+/-24.6	5.68	8.00	pCi/g						
GFPC, Sr90, solid Rad "Dry Weight Corrected"												
Strontium-90	J	3.57	+/-0.579	0.514	1.92	pCi/g		AXD2	08/06/08	2023	777719	4
Rad Liquid Scintillation Analysis												
Liquid Scint C14, Solid "As Received"												
Carbon-14	UJ	-109	+/-78.8	148	274	pCi/g		SXB4	08/08/08	1401	776634	5
Liquid Scint Tc99, Solid "As Received"												
Technetium-99	U	-34.2	+/-37.9	67.3	90.4	pCi/g		RXE1	07/29/08	0259	776635	6

The following Prep Methods were performed

Method	Description	Analyst	Date	Time	Prep Batch
Dry Soil Prep	Dry Soil Prep GL-RAD-A-021	BXJ1	07/21/08	1722	776142

The following Analytical Methods were performed

Method	Description	Analyst Comments
1	EML HASL 300, 4.5.2.3	
2	RADA-013	
3	RADA-001	
4	RADA-004	
5	EPA EERF C-01 Modified	
6	RADA-005	

Surrogate/Tracer recovery	Test	Result	Nominal	Recovery%	Acceptable Limits
Strontium Carrier	GFPC, Sr90, solid Rad "Dry Weight	7.60 mg	9.01	84	(25%-125%)

GEL LABORATORIES LLC
2040 Savage Road Charleston SC 29407 - (843) 556-8171 - www.gel.com

Certificate of Analysis

Company : Savannah River Nuclear Solutions, LLC
Address : Building 730-4B, Cube 2119
Aiken, South Carolina 29808

Report Date: September 15, 2008

Contact: Mr. Robert Kemmerlin
Project: **GEL-2008-ZV4SS-2**

Client Sample ID: ZV4SS-0000025
Sample ID: 212300003

Project: WSRB03808
Client ID: WSRB001

Parameter	Qualifier	Result	Uncertainty	DL	RL	Units	DF	Analyst	Date	Time	Batch	Method

Surrogate/Tracer recovery	Test	Result	Nominal	Recovery%	Acceptable Limits
Technetium-99m Tracer	Corrected" Liquid Scint Tc99, Solid "As Received"	30500 CPM	43200	71	(15%-125%)

GEL LABORATORIES LLC
2040 Savage Road Charleston SC 29407 - (843) 556-8171 - www.gel.com

Certificate of Analysis

Company : Savannah River Nuclear Solutions, LLC
Address : Building 730-4B, Cube 2119
Aiken, South Carolina 29808

Report Date: September 15, 2008

Contact: Mr. Robert Kemmerlin
Project: **GEL-2008-ZV4SS-2**

Client Sample ID:	ZV4SS-0000029	Project:	WSRB03808
Sample ID:	212300004	Client ID:	WSRB001
Matrix:	Misc Solid		
Collect Date:	10-JUL-08 13:35		
Receive Date:	16-JUL-08		
Collector:	Client		

Parameter	Qualifier	Result	Uncertainty	DL	RL	Units	DF	Analyst	Date	Time	Batch	Method
Rad Gamma Spec Analysis												
Gamma Low level I129, Solid "As Received"												
Iodine-129	R	2.45	+/-0.822	1.12	2.24	pCi/g		MJH1	07/28/08	1238	776477	1
Gammaspec, Gamma, Sb-125, Cs-137, Ra-226 "Dry Weight Corrected"												
Antimony-125	R	2.03	+/-1.09	1.59	0.316	pCi/g		MJH1	07/30/08	1045	776476	2
Cesium-137		284	+/-22.4	0.306	0.170	pCi/g						
Rad Gas Flow Proportional Counting												
GFPC, Gross Alpha Solid "Dry Weight Corrected"												
Alpha		26.2	+/-7.29	4.07	1.00	pCi/g		DXB5	08/05/08	1725	776598	3
Beta		265	+/-13.9	6.67	8.00	pCi/g						
GFPC, Sr90, solid Rad "Dry Weight Corrected"												
Strontium-90	U	0.817	+/-0.295	0.354	1.92	pCi/g		AXD2	08/06/08	2023	777719	4
Rad Liquid Scintillation Analysis												
Liquid Scint C14, Solid "As Received"												
Carbon-14	UJ	-26.5	+/-125	221	274	pCi/g		SXB4	08/08/08	1417	776634	5
Liquid Scint Tc99, Solid "As Received"												
Technetium-99	U	-28.1	+/-40.1	70.7	90.4	pCi/g		RXE1	07/29/08	0336	776635	6

The following Prep Methods were performed

Method	Description	Analyst	Date	Time	Prep Batch
Dry Soil Prep	Dry Soil Prep GL-RAD-A-021	BXJ1	07/21/08	1722	776142

The following Analytical Methods were performed

Method	Description	Analyst Comments
1	EML HASL 300, 4.5.2.3	
2	RADA-013	
3	RADA-001	
4	RADA-004	
5	EPA EERF C-01 Modified	
6	RADA-005	

Surrogate/Tracer recovery	Test	Result	Nominal	Recovery%	Acceptable Limits
Strontium Carrier	GFPC, Sr90, solid Rad "Dry Weight	7.80 mg	9.01	87	(25%-125%)

GEL LABORATORIES LLC
2040 Savage Road Charleston SC 29407 - (843) 556-8171 - www.gel.com

Certificate of Analysis

Company : Savannah River Nuclear Solutions, LLC
Address : Building 730-4B, Cube 2119
Aiken, South Carolina 29808

Report Date: September 15, 2008

Contact: Mr. Robert Kemmerlin
Project: **GEL-2008-ZV4SS-2**

Client Sample ID: ZV4SS-0000029
Sample ID: 212300004

Project: WSRB03808
Client ID: WSRB001

Parameter	Qualifier	Result	Uncertainty	DL	RL	Units	DF	Analyst	Date	Time	Batch	Method
Surrogate/Tracer recovery	**Test**				**Result**		**Nominal**	**Recovery%**		**Acceptable Limits**		
	Corrected"											
Technetium-99m Tracer	Liquid Scint Tc99, Solid "As Received"				27700	CPM	43200	64		(15%-125%)		

GEL LABORATORIES LLC
2040 Savage Road Charleston SC 29407 - (843) 556-8171 - www.gel.com

Certificate of Analysis

Company : Savannah River Nuclear Solutions, LLC
Address : Building 730-4B, Cube 2119
Aiken, South Carolina 29808

Report Date: September 15, 2008

Contact: Mr. Robert Kemmerlin
Project: **GEL-2008-ZV4SS-2**

Client Sample ID:	ZV4SS-0000026	Project:	WSRB03808
Sample ID:	212300005	Client ID:	WSRB001
Matrix:	Misc Solid		
Collect Date:	10-JUL-08 10:05		
Receive Date:	16-JUL-08		
Collector:	Client		

Parameter	Qualifier	Result	Uncertainty	DL	RL	Units	DF	Analyst	Date	Time	Batch	Method
Rad Gamma Spec Analysis												
Gamma Low level I129, Solid "As Received"												
Iodine-129	R	13.4	+/-1.21	1.95	2.24	pCi/g		MJH1	07/28/08	1445	776477	1
Gammaspec, Gamma, Sb-125, Cs-137, Ra-226 "Dry Weight Corrected"												
Antimony-125	R	4.71	+/-1.08	1.76	0.316	pCi/g		MJH1	07/30/08	1124	776476	2
Cesium-137		1390	+/-74.8	0.332	0.170	pCi/g						
Rad Gas Flow Proportional Counting												
GFPC, Gross Alpha Solid "Dry Weight Corrected"												
Alpha		19.6	+/-5.94	4.97	1.00	pCi/g		DXB5	08/05/08	1725	776598	3
Beta		1150	+/-27.5	5.77	8.00	pCi/g						
GFPC, Sr90, solid Rad "Dry Weight Corrected"												
Strontium-90		3.98	+/-0.624	0.568	1.92	pCi/g		AXD2	08/06/08	2023	777719	4
Rad Liquid Scintillation Analysis												
Liquid Scint C14, Solid "As Received"												
Carbon-14	UJ	-49.9	+/-135	241	274	pCi/g		SXB4	08/08/08	1433	776634	5
Liquid Scint Tc99, Solid "As Received"												
Technetium-99	U	-17.7	+/-31.7	55.9	90.4	pCi/g		RXE1	08/07/08	1033	776635	6

The following Prep Methods were performed

Method	Description	Analyst	Date	Time	Prep Batch
Dry Soil Prep	Dry Soil Prep GL-RAD-A-021	BXJ1	07/21/08	1722	776142

The following Analytical Methods were performed

Method	Description	Analyst Comments
1	EML HASL 300, 4.5.2.3	
2	RADA-013	
3	RADA-001	
4	RADA-004	
5	EPA EERF C-01 Modified	
6	RADA-005	

Surrogate/Tracer recovery	Test	Result	Nominal	Recovery%	Acceptable Limits
Strontium Carrier	GFPC, Sr90, solid Rad "Dry Weight	6.90 mg	9.01	77	(25%-125%)

GEL LABORATORIES LLC
2040 Savage Road Charleston SC 29407 - (843) 556-8171 - www.gel.com

Certificate of Analysis

Company : Savannah River Nuclear Solutions, LLC
Address : Building 730-4B, Cube 2119
Aiken, South Carolina 29808

Report Date: September 15, 2008

Contact: Mr. Robert Kemmerlin
Project: **GEL-2008-ZV4SS-2**

Client Sample ID: ZV4SS-0000026
Sample ID: 212300005

Project: WSRB03808
Client ID: WSRB001

Parameter	Qualifier	Result	Uncertainty	DL	RL	Units	DF	Analyst	Date	Time	Batch	Method

Surrogate/Tracer recovery	Test	Result	Nominal	Recovery%	Acceptable Limits
Technetium-99m Tracer	Corrected" Liquid Scint Tc99, Solid "As Received"	30400 CPM	43200	70	(15%-125%)

GEL LABORATORIES LLC
2040 Savage Road Charleston SC 29407 - (843) 556-8171 - www.gel.com

Certificate of Analysis

Company : Savannah River Nuclear Solutions, LLC
Address : Building 730-4B, Cube 2119
Aiken, South Carolina 29808

Report Date: September 15, 2008

Contact: Mr. Robert Kemmerlin
Project: **GEL-2008-ZV4SS-2**

Client Sample ID:	ZV4SS-0000038	Project:	WSRB03808
Sample ID:	212300006	Client ID:	WSRB001
Matrix:	Misc Solid		
Collect Date:	10-JUL-08 10:00		
Receive Date:	16-JUL-08		
Collector:	Client		

Parameter	Qualifier	Result	Uncertainty	DL	RL	Units	DF	AnalystDate	Time	Batch	Method
Rad Gamma Spec Analysis											
Gamma Low level I129, Solid "As Received"											
Iodine-129	R	68.8	+/-3.17	2.74	2.24	pCi/g		MJH1 08/05/08	1853	776477	1

The following Analytical Methods were performed

Method	Description	Analyst Comments
1	EML HASL 300, 4.5.2.3	