



March 13, 2008

www.gel.com

Ms. Jeri Buczek
Westinghouse Savannah River Site
Building 730-4B, Room 2115
Aiken, SC 29808

Re: 202836c.GEL
202836r.GEL
GEL-2008-ZV4SS

Lab Certification: SCDHEC 10120001/10120002

Dear Ms. Buczek:

Enclosed are the above referenced files, which contain data for the samples received on February 14, 2008 and assigned to the laboratory identification series 202836%. This original report has been prepared and reviewed in accordance with GEL's standard operating procedures. The EDD was FTPed on March 13, 2008.

The lab notified the client that the Silver for this contract will need to be analyzed by method 6010 due to certification. The same pay item of 511 still applies. The certification issue only applies to solids.

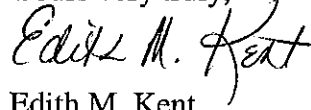
The client was also notified that there were samples received under GEL8045B missed the C-14 holding time. Please refer to the attached e-mail for further details.

The following samples were received:

| <u>Lab ID</u> | <u>Sample ID</u> |
|---------------|------------------|
| 202836001 | ZV4SS-0000005 |
| 202836002 | ZV4SS-0000007 |
| 202836003 | ZV4SS-0000009 |
| 202836004 | ZV4SS-0000010 |

Please find enclosed the original chain of custody form. 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

WSRB001.202836c.GEL/202836r.GEL

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**GC/MS
VOLATILE
ANALYSIS**

GC/MS Volatile Organics
Westinghouse Savannah River Co. (WSRB)
SDG 202836

Method/Analysis Information

Procedure: Volatile Organic Compounds (VOC) by Gas Chromatography/Mass Spectrometer
Analytical Method: SW846 8260B
Prep Method: SW846 5035
Analytical Batch Number: 727413
Prep Batch Number: 727410

Sample Analysis

The following client and quality control samples were analyzed to complete this SDG using the methods referenced in the Analysis Information section:

| Sample ID | Client ID |
|------------|--|
| 202836001 | ZV4SS-0000005 |
| 202836002 | ZV4SS-0000007 |
| 202836003 | ZV4SS-0000009 |
| 202836004 | ZV4SS-0000010 |
| 1201516995 | Method Blank (MB) |
| 1201516996 | Laboratory Control Sample (LCS) |
| 1201516997 | Laboratory Control Sample Duplicate (LCSD) |

NOTE: For volatile organic analyses the matrix spike designations may be indicated as "PS" or "PSD". The "PS" designation (post spike) indicates that the matrix was fortified prior to analysis but after applying any prep factors, such as a dilution. The laboratory considers the MS/MSD and PS/PSD designations interchangeable.

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

Preparation/Analytical Method Verification

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-OA-E-038 REV# 10.

Raw data reports are processed and reviewed by the analyst using the Target software package. False positives have been removed from the Target quantitation reports per standard operating procedures (SOP) section 19.1.2.

Calibration Information

Please note that the 'Cal Date' indicated on each quantitation report reflects the date and time of the most recent calibrated analyte(s) in the Target processing method. Since the laboratory may calibrate with multiple solutions on different days using the same processing method, the Target software will update the 'Cal Date' to the last calibration file, date and time. The correct dates and times for all calibration files are located on the Calibration History report in the Standard Data section in the data package.

Due to software limitations, the Calibration Summary Form 6 may not indicate all the calibration files comprising the initial calibration. A complete list of the initial calibration data files are shown in the Calibration History report located in the Standard Data section of the data package.

The linear equation used in Target and indicated on the initial calibration summary form is not a conventional linear equation (slope intercept formula) and does not match the equation found in SW-846 method 8000B. The x and y axes are inversed in Target, so that the instrument response is treated as the independent variable (x) and the concentration ratio is treated as the dependent variable (y). The equation used in Target to calculate sample results is adjusted to account for the linear equation inversion and reciprocal slope. The adjusted calculation has been independently verified to produce valid results.

Initial Calibration

All initial calibration requirements have been met for this sample delivery groups (SDG). A second source initial calibration verification (ICV) was included in the standard section directly behind the initial calibration.

Continuing Calibration Verification Requirements

All associated calibration verification standard(s) (ICV or CCV) met the acceptance criteria.

Quality Control (QC) Information**Method Blank (MB) Statement**

The MB analyzed with this SDG met the acceptance criteria.

Surrogate Recoveries

Sample 202836002 (ZV4SS-0000007) did not pass surrogate recoveries. The sample was re-analyzed and confirmed the results. See NCR 523418.

Laboratory Control Sample (LCS) Recovery

The LCS spike recoveries met the acceptance limits, except n-Butyl alcohol. The LCSD recovered in a similar manner. The unacceptable recoveries are possibly due to vagaries in the purge process and/or calibration variances. There were no detects of this analyte in the samples. See NCR 523418.

Laboratory Control Sample Duplicate (LCSD) Recovery

The LCSD spike recoveries met the acceptance limits, except n-Butyl alcohol. The LCS recovered in a similar manner. The unacceptable recoveries are possibly due to vagaries in the purge process and/or calibration variances. There were no detects of this analyte in the samples. See NCR 523418.

LCS/LCSD Relative Percent Difference (RPD) Statement

The RPD(s) between the LCS and LCSD met the acceptance limits.

QC Sample Designation

Spike analyses were not required for this SDG.

Internal Standard (ISTD) Acceptance

The internal standard responses, in all samples and quality control samples, met the required acceptance criteria.

Technical Information**Holding Time Specifications**

GEL assigns holding times based on the associated methodology, which assigns the date and time from sample collection or sample receipt. Those holding times expressed in hours are calculated in the ALPHALIMS system. Those holding times expressed as days expire at midnight on the day of expiration. All samples in this SDG met the specified holding time.

Sample Preservation and Integrity

All samples met the sample preservation and integrity requirements.

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-extraction/Re-analysis
Samples 202836002 (ZV4SS-0000007) was re-analyzed due to unacceptable surrogate recoveries.

Miscellaneous Information

Electronic Package Comment

This data package was generated using an electronic data processing program referred to as virtual packaging. In an effort to increase quality and efficiency, the laboratory has developed systems to generate all data packages electronically. The following change from traditional packages should be noted:

Analyst/peer reviewer initials and dates are not present on the electronic data files. Presently, all initials and dates are present on the original raw data. These hard copies are temporarily stored in the laboratory. An electronic signature page inserted after the case narrative of each electronic package will indicate the analyst, reviewer, and report specialist names associated with the generation of the data and package. The data validator will always sign and date the case narrative. Data that are not generated electronically, such as hand written pages, will be scanned and inserted into the electronic package.

Nonconformance (NCR) Documentation
NCR # 523418 was generated for this SDG.

Manual Integrations

Data files associated with the initial calibration, continuing calibration check, and samples did not require manual integrations.

TIC Comment

Tentatively identified compounds (TIC) were not required for this SDG.

Additional Comments

Additional comments were not required for this SDG.

Residual Chlorine

Residual Chlorine was not detected in any of the samples in this SDG.

System Configuration

The Volatile-GC/MS analysis was performed on a Agilent 6890/5875.

| Instrument ID | System Configuration | Column ID | Column Description | P & T Trap |
|---------------|----------------------|-----------|--------------------------------------|------------|
| VOA6.I | HP6890/HP5975 | Restek | RTX-Volatiles, 30m x 0.25 mm, 1.0 um | Trap 10 |

Certification Statement

When 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: Erin Haubert

Date: 03/10/08

Roadmap for WSRB 202836 VOA

This roadmap was analyzed by Douglas Robinson on 02-20-2008, 19:43.

This roadmap was reviewed by Dale Mori on 02-27-2008, 17:14.

This roadmap was packaged by LySandra Gathers on 02-28-2008, 13:55.

This roadmap was validated by Erin Haubert on 03-10-2008, 15:01.

Sample

| exclude | manual | datafile | smpid | clientid | injdate | injtime | sublist | dilution | comment |
|-------------------------------------|--------|--|-----------|---------------|-------------|---------|------------|----------|----------------------|
| <input checked="" type="checkbox"/> | N | /chem/VOA6.i/021508v6/snapshot/6x516.d | 202836001 | ZV4SS-0000005 | 15-FEB-2008 | 22:20 | 202836.sub | 1 | <input type="text"/> |
| <input type="checkbox"/> | N | /chem/VOA6.i/021508v6/6x516.d | 202836001 | ZV4SS-0000005 | 15-FEB-2008 | 22:20 | 202836.sub | 1 | <input type="text"/> |
| <input checked="" type="checkbox"/> | N | /chem/VOA6.i/021508v6/6x517.d | 202836002 | ZV4SS-0000007 | 15-FEB-2008 | 22:49 | 202836.sub | 1 | <input type="text"/> |
| <input checked="" type="checkbox"/> | N | /chem/VOA6.i/021508v6/6x518.d | 202836003 | ZV4SS-0000009 | 15-FEB-2008 | 23:17 | 202836.sub | 1 | <input type="text"/> |
| <input type="checkbox"/> | N | /chem/VOA6.i/021508v6/6x519.d | 202836004 | ZV4SS-0000010 | 15-FEB-2008 | 23:46 | 202836.sub | 1 | <input type="text"/> |
| <input type="checkbox"/> | N | /chem/VOA6.i/021508v6/6x523.d | 202836002 | ZV4SS-0000007 | 16-FEB-2008 | 01:42 | 202836.sub | 1 | <input type="text"/> |
| <input type="checkbox"/> | N | /chem/VOA6.i/021508v6/6x524.d | 202836003 | ZV4SS-0000009 | 16-FEB-2008 | 02:11 | 202836.sub | 1 | <input type="text"/> |
| <input checked="" type="checkbox"/> | N | /chem/VOA6.i/021508v6/6x525.d | 202836004 | ZV4SS-0000010 | 16-FEB-2008 | 02:40 | 202836.sub | 1 | <input type="text"/> |

QC Sample

| exclude | manual | datafile | smpid | clientid | sampletype | injdate | injtime | sublist | dilution | comment |
|--------------------------|--------|---------------------------------|------------|----------|------------|-------------|---------|--------------|----------|----------------------|
| <input type="checkbox"/> | N | /chem/VOA6.i/021508v6/6x502LA.d | 1201516996 | LCS | lcs | 15-FEB-2008 | 15:19 | CALsubL+.sub | 1 | <input type="text"/> |
| <input type="checkbox"/> | N | /chem/VOA6.i/021508v6/6x503DA.d | 1201516997 | LCSD | lcsd | 15-FEB-2008 | 15:48 | CALsubL+.sub | 1 | <input type="text"/> |
| <input type="checkbox"/> | N | /chem/VOA6.i/021508v6/6x505BA.d | 1201516995 | BLANK | mb | 15-FEB-2008 | 16:46 | all.sub | 1 | <input type="text"/> |

SAMPLE DATA SUMMARY

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

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

Report Date: February 28, 2008

Page 1 of 2

| | | | |
|-------------------|-----------------|------------|-----------|
| Client Sample ID: | ZV4SS-0000005 | Project: | WSRB00308 |
| Sample ID: | 202836001 | Client ID: | WSRB001 |
| Matrix: | Misc Solid | | |
| Collect Date: | 02-FEB-08 10:30 | | |
| Receive Date: | 14-FEB-08 | | |
| Collector: | Client | | |

| Parameter | Qualifier | Result | DL | RL | Units | DF | Analyst | Date | Time | Batch | Method |
|--|-----------|--------|-------|------|-------|----|---------|----------|------|--------|--------|
| Volatile Organics Federal | | | | | | | | | | | |
| <i>GEL 8260B Volatiles (6-9 items)</i> | | | | | | | | | | | |
| Benzene | J | 1.00 | 0.351 | 1.06 | ug/kg | 1 | DXR1 | 02/15/08 | 2220 | 727413 | 1 |
| Isobutyl alcohol | U | ND | 10.6 | 53.2 | ug/kg | 1 | | | | | |
| Tetrachloroethylene | U | ND | 0.213 | 1.06 | ug/kg | 1 | | | | | |
| Toluene | | 1.94 | 0.309 | 1.06 | ug/kg | 1 | | | | | |
| Trichloroethylene | U | ND | 0.266 | 1.06 | ug/kg | 1 | | | | | |
| n-Butyl alcohol | J | 30.8 | 28.7 | 53.2 | ug/kg | 1 | | | | | |

The following Prep Methods were performed

| Method | Description | Analyst | Date | Time | Prep Batch |
|------------|-----------------|---------|----------|------|------------|
| SW846 5035 | 5035/8260B Prep | DXR1 | 02/02/08 | 1013 | 727410 |

The following Analytical Methods were performed

| Method | Description | Analyst Comments |
|--------|-------------|------------------|
| 1 | SW846 8260B | |

| Surrogate/Tracer recovery | Test | Result | Nominal | Recovery% | Acceptable Limits |
|---------------------------|---------------------------------|------------|---------|-----------|-------------------|
| 1,2-Dichloroethane-d4 | GEL 8260B Volatiles (6-9 items) | 43.0 ug/kg | 50.0 | 81 | (60%-114%) |
| Bromofluorobenzene | GEL 8260B Volatiles (6-9 items) | 55.9 ug/kg | 50.0 | 105 | (77%-129%) |
| Dibromofluoromethane | GEL 8260B Volatiles (6-9 items) | 44.7 ug/kg | 50.0 | 84 | (68%-116%) |
| Toluene-d8 | GEL 8260B Volatiles (6-9 items) | 49.7 ug/kg | 50.0 | 94 | (75%-125%) |

Notes:

The Qualifiers in this report are defined as follows :

- J The detected analyte was positively identified but the result is approximate.
- NJ The detected analyte was only tentatively 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.
- S Result equaling SQL is actual laboratory test output
- 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.
- d The 2:1 depletion requirement was not met for this sample

The above sample is reported on a dry weight basis except where prohibited by the analytical procedure.

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Certificate of Analysis

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Aiken, South Carolina 29808

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

Report Date: February 28, 2008

Page 2 of 2

Client Sample ID: ZV4SS-0000005
Sample ID: 202836001

Project: WSRB00308
Client ID: WSRB001

| Parameter | Qualifier | Result | DL | RL | Units | DF | AnalystDate | Time | Batch | Method |
|-----------|-----------|--------|----|----|-------|----|-------------|------|-------|--------|
|-----------|-----------|--------|----|----|-------|----|-------------|------|-------|--------|

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.

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.

Erin Haubert

Reviewed by _____

GEL LABORATORIES LLC

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Certificate of Analysis

Company : Westinghouse Savannah Rvr Co
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 Aiken, South Carolina 29808

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

Report Date: February 28, 2008

Page 1 of 2

Client Sample ID: ZV4SS-000007
 Sample ID: 202836002
 Matrix: Misc Solid
 Collect Date: 02-FEB-08 14:45
 Receive Date: 14-FEB-08
 Collector: Client

Project: WSRB00308
 Client ID: WSRB001

| Parameter | Qualifier | Result | DL | RL | Units | DF | AnalystDate | Time | Batch | Method |
|--|-----------|--------|-------|-------|-------|----|---------------|------|--------|--------|
| Volatile Organics Federal | | | | | | | | | | |
| <i>GEL 8260B Volatiles (6-9 items)</i> | | | | | | | | | | |
| Benzene | J | 0.880 | 0.295 | 0.893 | ug/kg | 1 | DXR1 02/16/08 | 0142 | 727413 | 1 |
| Isobutyl alcohol | J | 43.6 | 8.93 | 44.6 | ug/kg | 1 | | | | |
| Tetrachloroethylene | U | ND | 0.179 | 0.893 | ug/kg | 1 | | | | |
| Toluene | | 1.82 | 0.259 | 0.893 | ug/kg | 1 | | | | |
| Trichloroethylene | U | ND | 0.223 | 0.893 | ug/kg | 1 | | | | |
| n-Butyl alcohol | U | ND | 24.1 | 44.6 | ug/kg | 1 | | | | |

The following Prep Methods were performed

| Method | Description | Analyst | Date | Time | Prep Batch |
|------------|-----------------|---------|----------|------|------------|
| SW846 5035 | 5035/8260B Prep | DXR1 | 02/02/08 | 1445 | 727410 |

The following Analytical Methods were performed

| Method | Description | Analyst Comments |
|--------|-------------|------------------|
| 1 | SW846 8260B | |

| Surrogate/Tracer recovery | Test | Result | Nominal | Recovery% | Acceptable Limits |
|---------------------------|---------------------------------|------------|---------|-----------|-------------------|
| 1,2-Dichloroethane-d4 | GEL 8260B Volatiles (6-9 items) | 33.4 ug/kg | 50.0 | 75 | (60%-114%) |
| Bromofluorobenzene | GEL 8260B Volatiles (6-9 items) | 26.0 ug/kg | 50.0 | 58* | (77%-129%) |
| Dibromofluoromethane | GEL 8260B Volatiles (6-9 items) | 34.0 ug/kg | 50.0 | 76 | (68%-116%) |
| Toluene-d8 | GEL 8260B Volatiles (6-9 items) | 33.0 ug/kg | 50.0 | 74* | (75%-125%) |

Notes:

The Qualifiers in this report are defined as follows :

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- R The sample result is rejected as unusable due to serious deficiencies in meeting quality control criteria. The analyte may be present or absent.
- S Result equaling SQL is actual laboratory test output
- 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.
- d The 2:1 depletion requirement was not met for this sample

The above sample is reported on a dry weight basis except where prohibited by the analytical procedure.

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Certificate of Analysis

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Aiken, South Carolina 29808

Contact: Mr. Robert Kemmerlin

Project: GEL-2008-ZV4SS

Report Date: February 28, 2008

Page 2 of 2

Client Sample ID: ZV4SS-0000007
Sample ID: 202836002

Project: WSRB00308
Client ID: WSRB001

| Parameter | Qualifier | Result | DL | RL | Units | DF | AnalystDate | Time | Batch | Method |
|-----------|-----------|--------|----|----|-------|----|-------------|------|-------|--------|
|-----------|-----------|--------|----|----|-------|----|-------------|------|-------|--------|

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.

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.

Erin Haubert

Reviewed by

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Certificate of Analysis

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Aiken, South Carolina 29808

Report Date: February 28, 2008

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

Page 1 of 2

Client Sample ID: ZV4SS-0000009
Sample ID: 202836003
Matrix: Misc Solid
Collect Date: 02-FEB-08 14:45
Receive Date: 14-FEB-08
Collector: Client

Project: WSRB00308
Client ID: WSRB001

| Parameter | Qualifier | Result | DL | RL | Units | DF | Analyst | Date | Time | Batch | Method |
|--|-----------|--------|-------|------|-------|----|---------|----------|------|--------|--------|
| Volatiles Organics Federal | | | | | | | | | | | |
| <i>GEL 8260B Volatiles (6-9 items)</i> | | | | | | | | | | | |
| Benzene | | 1.56 | 0.351 | 1.06 | ug/kg | 1 | DXR1 | 02/16/08 | 0211 | 727413 | 1 |
| Isobutyl alcohol | | 64.4 | 10.6 | 53.2 | ug/kg | 1 | | | | | |
| Tetrachloroethylene | U | ND | 0.213 | 1.06 | ug/kg | 1 | | | | | |
| Toluene | | 5.07 | 0.309 | 1.06 | ug/kg | 1 | | | | | |
| Trichloroethylene | U | ND | 0.266 | 1.06 | ug/kg | 1 | | | | | |
| n-Butyl alcohol | U | ND | 28.7 | 53.2 | ug/kg | 1 | | | | | |

The following Prep Methods were performed

| Method | Description | Analyst | Date | Time | Prep Batch |
|------------|-----------------|---------|----------|------|------------|
| SW846 5035 | 5035/8260B Prep | DXR1 | 02/02/08 | 1445 | 727410 |

The following Analytical Methods were performed

| Method | Description | Analyst Comments |
|--------|-------------|------------------|
| 1 | SW846 8260B | |

| Surrogate/Tracer recovery | Test | Result | Nominal | Recovery% | Acceptable Limits |
|---------------------------|---------------------------------|------------|---------|-----------|-------------------|
| 1,2-Dichloroethane-d4 | GEL 8260B Volatiles (6-9 items) | 46.6 ug/kg | 50.0 | 88 | (60%-114%) |
| Bromofluorobenzene | GEL 8260B Volatiles (6-9 items) | 57.5 ug/kg | 50.0 | 108 | (77%-129%) |
| Dibromofluoromethane | GEL 8260B Volatiles (6-9 items) | 49.1 ug/kg | 50.0 | 92 | (68%-116%) |
| Toluene-d8 | GEL 8260B Volatiles (6-9 items) | 52.6 ug/kg | 50.0 | 99 | (75%-125%) |

Notes:

The Qualifiers in this report are defined as follows :

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

NJ The detected analyte was only tentatively 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.

S Result equaling SQL is actual laboratory test output

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.

d The 2:1 depletion requirement was not met for this sample

The above sample is reported on a dry weight basis except where prohibited by the analytical procedure.

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Certificate of Analysis

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Address : Building 730-4B, Cube 2119
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Contact: Mr. Robert Kemmerlin
Project: GEL-2008-ZV4SS

Report Date: February 28, 2008

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Client Sample ID: ZV4SS-0000009
Sample ID: 202836003

Project: WSRB00308
Client ID: WSRB001

| Parameter | Qualifier | Result | DL | RL | Units | DF | AnalystDate | Time | Batch | Method |
|-----------|-----------|--------|----|----|-------|----|-------------|------|-------|--------|
|-----------|-----------|--------|----|----|-------|----|-------------|------|-------|--------|

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.

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.

Erin Haubert

Reviewed by

GEL LABORATORIES LLC

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Certificate of Analysis

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

Report Date: February 28, 2008

Contact: Mr. Robert Kemmerlin

Project: GEL-2008-ZV4SS

Page 1 of 2

Client Sample ID: ZV4SS-0000010
 Sample ID: 202836004
 Matrix: Misc Solid
 Collect Date: 02-FEB-08 15:00
 Receive Date: 14-FEB-08
 Collector: Client

Project: WSRB00308
 Client ID: WSRB001

| Parameter | Qualifier | Result | DL | RL | Units | DF | Analyst | Date | Time | Batch | Method |
|--|-----------|--------|-------|-------|-------|----|---------|----------|------|--------|--------|
| Volatile Organics Federal | | | | | | | | | | | |
| <i>GEL 8260B Volatiles (6-9 items)</i> | | | | | | | | | | | |
| Benzene | | 0.872 | 0.270 | 0.820 | ug/kg | 1 | DXR1 | 02/15/08 | 2346 | 727413 | 1 |
| Isobutyl alcohol | J | 8.36 | 8.20 | 41.0 | ug/kg | 1 | | | | | |
| Tetrachloroethylene | U | ND | 0.164 | 0.820 | ug/kg | 1 | | | | | |
| Toluene | | 28.8 | 0.238 | 0.820 | ug/kg | 1 | | | | | |
| Trichloroethylene | U | ND | 0.205 | 0.820 | ug/kg | 1 | | | | | |
| n-Butyl alcohol | U | ND | 22.1 | 41.0 | ug/kg | 1 | | | | | |

The following Prep Methods were performed

| Method | Description | Analyst | Date | Time | Prep Batch |
|------------|-----------------|---------|----------|------|------------|
| SW846 5035 | 5035/8260B Prep | DXR1 | 02/02/08 | 1500 | 727410 |

The following Analytical Methods were performed

| Method | Description | Analyst Comments |
|--------|-------------|------------------|
| 1 | SW846 8260B | |

| Surrogate/Tracer recovery | Test | Result | Nominal | Recovery% | Acceptable Limits |
|---------------------------|---------------------------------|------------|---------|-----------|-------------------|
| 1,2-Dichloroethane-d4 | GEL 8260B Volatiles (6-9 items) | 33.8 ug/kg | 50.0 | 82 | (60%-114%) |
| Bromofluorobenzene | GEL 8260B Volatiles (6-9 items) | 35.7 ug/kg | 50.0 | 87 | (77%-129%) |
| Dibromofluoromethane | GEL 8260B Volatiles (6-9 items) | 36.1 ug/kg | 50.0 | 88 | (68%-116%) |
| Toluene-d8 | GEL 8260B Volatiles (6-9 items) | 37.5 ug/kg | 50.0 | 91 | (75%-125%) |

Notes:

The Qualifiers in this report are defined as follows :

- J The detected analyte was positively identified but the result is approximate.
- NJ The detected analyte was only tentatively 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.
- S Result equaling SQL is actual laboratory test output
- 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.
- d The 2:1 depletion requirement was not met for this sample

The above sample is reported on a dry weight basis except where prohibited by the analytical procedure.

GEL LABORATORIES LLC

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Certificate of Analysis

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

Report Date: February 28, 2008

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

Page 2 of 2

Client Sample ID: ZV4SS-0000010
Sample ID: 202836004

Project: WSRB00308
Client ID: WSRB001

| Parameter | Qualifier | Result | DL | RL | Units | DF | AnalystDate | Time | Batch | Method |
|-----------|-----------|--------|----|----|-------|----|-------------|------|-------|--------|
|-----------|-----------|--------|----|----|-------|----|-------------|------|-------|--------|

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.

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.

Erin Haubert

Reviewed by

**GC/MS
SEMIVOLATILE
ANALYSIS**

**Semi-Volatile Case Narrative
Westinghouse Savannah River Co. (WSRB)
SDG 202836**

Method/Analysis Information

| | |
|--------------------------|---|
| Procedure: | Semivolatile Analysis by Gas Chromatograph/Mass Spectrometer |
| Analytical Method: | SW846 8270C |
| Prep Method: | SW846 3550B |
| Analytical Batch Number: | 727374 |
| Prep Batch Number: | 727372 |

Sample Analysis

The following samples were analyzed using the analytical protocol as established in SW846 8270C:

| Sample ID | Client ID |
|------------------|---|
| 202836001 | ZV4SS-0000005 |
| 202836002 | ZV4SS-0000007 |
| 202836003 | ZV4SS-0000009 |
| 202836004 | ZV4SS-0000010 |
| 1201516904 | Method Blank (MB) |
| 1201516905 | Laboratory Control Sample (LCS) |
| 1201516906 | 202825001(ZV4SS-0000004) Matrix Spike (MS) |
| 1201516907 | 202825001(ZV4SS-0000004) Matrix Spike Duplicate (MSD) |

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

Preparation/Analytical Method Verification

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-OA-E-009 REV# 19.

Raw data reports are processed and reviewed by the analyst using the Target software package. False positives have been removed from the Target quantitation reports per standard operating procedures (SOP) section 18.2.

Calibration Information

Please note that the 'Cal Date' indicated on each quantitation report reflects the date and time of the most recent calibrated analyte(s) in the Target processing method. Since the laboratory may calibrate with multiple solutions on different days using the same processing method, the Target software will update the 'Cal Date' to the last calibration file, date and time. The correct dates and times for all calibration files are located on the Calibration History report in the Standard Data section in the data package.

Due to software limitations, the Calibration Summary Form 6 may not indicate all the calibration files comprising the initial calibration. A complete list of the initial calibration data files are shown in the Calibration History report located in the Standard Data section of the data package. Please note that the second level of the initial calibration (5 mg/L) is only used for n-Nitrosodipropylamine. The various calibration mixes may not be calibrated using all of the calibration levels. In addition, not all of the mixes are calibrated using the same levels.

Diphenylamine has now superseded N-Nitroso-diphenylamine as a CCC on Quantitation Reports, Initial Calibration Reports, Calibration Check Standard Reports, etc. Previous versions of EPA Method 8270 (prior to 8270C) listed N-Nitroso-diphenylamine as a CCC. However, as stated in EPA Method 8270C, Revision 3, December, 1996, Section 1.4.5, "N-Nitroso-diphenylamine decomposes in the gas chromatographic inlet and cannot be separated from Diphenylamine." Studies of these two compounds at GEL, both independent of each other and together, show that they not only co-elute, but also have similar mass spectra. N-Nitroso-diphenylamine and Diphenylamine will be reported as Diphenylamine on all reports and forms.

When calibrations are performed for Appendix IX compounds some of the compounds may not be calibrated exactly according to the criteria in Method 8270C. If the %RSD is greater than 15% or the correlation coefficient is less than 0.99 then the analyte is quantitated using the response factor. If the analyte is detected then the sample is re-analyzed for that analyte on an instrument that is compliant with the criteria in the method.

The linear equation used in Target and indicated on the initial calibration summary form is not a conventional linear equation (slope intercept formula) and does not match the equation found in SW-846 method 8000B. The x and y axes are inversed in Target, so that the instrument response is treated as the independent variable (x) and the concentration ratio is treated as the dependent variable (y). The equation used in Target to calculate sample results is adjusted to account for the linear equation inversion and reciprocal slope. The adjusted calculation has been independently verified to produce valid results.

Initial Calibration

All initial calibration requirements have been met for this sample delivery group (SDG). A second source initial calibration verification (ICV) was included in the standard section directly behind the initial calibration.

CCV Requirements

All associated calibration verification standard(s) (ICV or CCV) met the acceptance criteria.

Quality Control (QC) Information

Method Blank (MB) Statement

The MB analyzed with this SDG met the acceptance criteria.

Surrogate Recoveries

All the surrogate recoveries were within the established acceptance criteria for this SDG.

Laboratory Control Sample (LCS) Recovery

The LCS spike recoveries met the acceptance limits.

QC Sample Designation

The non-SDG sample 202825001 (ZV4SS-0000004) was selected for analysis as the matrix spike and matrix spike duplicate.

Matrix Spike (MS) Recovery Statement

The MS recoveries were within the established acceptance limits.

Matrix Spike Duplicate (MSD) Recovery Statement

The MSD recoveries were within the established acceptance limits.

MS/MSD Relative Percent Difference (RPD) Statement

The RPD(s) between the MS and MSD met the acceptance limits.

Internal Standard (ISTD) Acceptance

The internal standard responses were within the required acceptance criteria for all samples and QC.

Technical Information**Holding Time Specifications**

All samples in this SDG met the specified holding time. GEL assigns holding times based on the associated methodology that assigns the date and time from sample collection or sample receipt. Those holding times expressed in hours are calculated in the ALPHALIMS system. Those holding times expressed as days expire at midnight on the day of expiration.

Preparation/Analytical Method Verification

Container scanning event for custody missed for samples : 202836001, 202836002, 202836003 and 202836004. Analyst failed to take custody during the analytical process. However, physical custody of the samples was maintained throughout the analysis.

Sample Dilutions

The samples in this SDG did not require dilutions.

Sample Re-extraction/Re-analysis

These samples were reanalyzed because they were outside the tune window.

Miscellaneous Information**Nonconformance (NCR) Documentation**

The following NCR was generated for this SDG: 523871. It is located in the Miscellaneous Section of the data report.

Manual Integrations

Some initial calibration standards, continuing calibration standards, and/or samples may require manual integrations due to software limitations. Please see the raw data in the Miscellaneous Section.

Additional Comments

Additional comments were not required for this SDG.

Electronic Package Comment

The following package was generated using an electronic data processing program referred to as "virtual packaging". In an effort to increase quality and efficiency, the laboratory is developing systems to eventually generate all data packages electronically. The following change from "traditional" packages should be noted:

Analyst/peer reviewer initials and dates are not present on the electronic data files. Presently, all initials and dates are present on the original raw data. These hard copies are temporarily stored in the laboratory. An electronic signature page inserted after the case narrative of each electronic package will indicate the analyst, reviewer, and report specialist names associated with the generation of the data and package. The data validator will always sign and date the case narrative. Data that are not generated electronically, such as hand written pages, will be scanned and inserted into the electronic package.

System Configuration

The laboratory utilizes a HP 6890 Series gas chromatograph and a HP 5973 Mass Selective Detector. The configuration is equipped with the electronic pressure control. All MS interfaces are capillary direct.

Chromatographic Columns

Chromatographic separation of semi-volatile components is accomplished through analysis on one or more of the following columns (all with dimensions of 30 meters x 0.25 millimeters ID and 0.25 micron film

except J&W DB-5MS2 and Phenomenex ZB-5ms which are 25 meters x 0.20 mm ID and 0.33 micron film).

Instrument Configuration

The samples reported in this SDG were analyzed on one or more of the following instrument systems. Instrument systems are referenced in the raw data and individual form headers by the Instrument ID designations listed below:

The Semi-Volatile-GC/MS analysis was performed on a HP 5973 Mass Spectrometer.

| Instrument ID | System Configuration | Column ID | Column Description |
|----------------------|-----------------------------|------------------|--|
| MSD1.I | HP6890/HP5973 | ZB-5ms | 25m x 0.2mm, 0.33um (5% Polysilarylene-95% Polydimethylsiloxane) |

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.

Reviewer: *Dan Bevelum* Date: *3-12-08*

Roadmap for WSRB 202836 SVOA

This roadmap was analyzed by Lloyd Fox on 02-21-2008, 18:35.

This roadmap was reviewed by Daniel Beacham on 02-25-2008, 10:19.

This roadmap was packaged by Chantay Pinckney on 02-26-2008, 10:02.

This roadmap was validated by Daniel Beacham on 03-12-2008, 15:29.

Sample

| exclude | manual | datafile | smpid | injdate | injtime | sublist | clientid | dilution | comment |
|-------------------------------------|--------|----------------------------------|-----------|-------------|---------|------------|---------------|----------|------------------|
| <input type="checkbox"/> | N | /chem/MSD1.i/s021908.b/s1b1930.d | 202836001 | 20-FEB-2008 | 06:52 | 202836.sub | ZV4SS-0000005 | 1 | |
| <input type="checkbox"/> | N | /chem/MSD1.i/s021908.b/s1b1931.d | 202836002 | 20-FEB-2008 | 07:15 | 202836.sub | ZV4SS-0000007 | 1 | |
| <input checked="" type="checkbox"/> | N | /chem/MSD1.i/s021908.b/s1b1932.d | 202836003 | 20-FEB-2008 | 07:39 | 202836.sub | ZV4SS-0000009 | 1 | DUSE out of tune |
| <input checked="" type="checkbox"/> | N | /chem/MSD1.i/s021908.b/s1b1933.d | 202836004 | 20-FEB-2008 | 08:04 | 202836.sub | ZV4SS-0000010 | 1 | DUSE out of tune |
| <input type="checkbox"/> | N | /chem/MSD1.i/s022008.b/s1b2011.d | 202836003 | 20-FEB-2008 | 21:25 | 202836.sub | ZV4SS-0000009 | 1 | |
| <input type="checkbox"/> | N | /chem/MSD1.i/s022008.b/s1b2012.d | 202836004 | 20-FEB-2008 | 21:48 | 202836.sub | ZV4SS-0000010 | 1 | |

QC Sample

| exclude | manual | datafile | smpid | sampletype | injdate | injtime | sublist | clientid | dilution | comment |
|--------------------------|--------|------------------------------------|------------|------------|-------------|---------|------------|-----------|----------|---------|
| <input type="checkbox"/> | N | /chem/MSD1.i/s021908.b/s1b1916-2.d | 1201516904 | mb | 20-FEB-2008 | 01:21 | 202836.sub | SBLK01 | 1 | |
| <input type="checkbox"/> | N | /chem/MSD1.i/s021908.b/s1b1917-2.d | 1201516905 | lcs | 20-FEB-2008 | 01:44 | 202836.sub | SBLK01LCS | 1 | |

SAMPLE DATA SUMMARY

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 Aiken, South Carolina 29808

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

Report Date: February 26, 2008

Page 1 of 2

| | | | |
|-------------------|-----------------|------------|-----------|
| Client Sample ID: | ZV4SS-0000005 | Project: | WSRB00308 |
| Sample ID: | 202836001 | Client ID: | WSRB001 |
| Matrix: | Misc Solid | | |
| Collect Date: | 02-FEB-08 10:30 | | |
| Receive Date: | 14-FEB-08 | | |
| Collector: | Client | | |

| Parameter | Qualifier | Result | DL | RL | Units | DF | Analyst | Date | Time | Batch | Method |
|---|-----------|--------|-----|-----|-------|----|---------|----------|------|--------|--------|
| Semi-volatile Mass spec Organics Federal | | | | | | | | | | | |
| <i>Semivolatiles Method 8270C</i> | | | | | | | | | | | |
| 1,1'-Biphenyl | U | ND | 299 | 996 | ug/kg | 1 | CAK | 02/20/08 | 0652 | 727374 | 1 |
| Phenol | U | ND | 199 | 996 | ug/kg | 1 | | | | | |

The following Prep Methods were performed

| Method | Description | Analyst | Date | Time | Prep Batch |
|-------------|--|---------|----------|------|------------|
| SW846 3550B | 3550B BNA Soil Prep-8270C Analysis Fed | AXV1 | 02/15/08 | 2157 | 727372 |

The following Analytical Methods were performed

| Method | Description | Analyst Comments |
|--------|-------------|------------------|
| 1 | SW846 8270C | |

| Surrogate/Tracer recovery | Test | Result | Nominal | Recovery% | Acceptable Limits |
|---------------------------|----------------------------|------------|---------|-----------|-------------------|
| 2-Fluorobiphenyl | Semivolatiles Method 8270C | 4030 ug/kg | 4980 | 81 | (45%-101%) |
| Nitrobenzene-d5 | Semivolatiles Method 8270C | 3810 ug/kg | 4980 | 76 | (45%-101%) |
| p-Terphenyl-d14 | Semivolatiles Method 8270C | 3650 ug/kg | 4980 | 73 | (41%-114%) |
| 2,4,6-Tribromophenol | Semivolatiles Method 8270C | 5780 ug/kg | 9960 | 58 | (45%-97%) |
| 2-Fluorophenol | Semivolatiles Method 8270C | 6820 ug/kg | 9960 | 68 | (35%-98%) |
| Phenol-d5 | Semivolatiles Method 8270C | 6770 ug/kg | 9960 | 68 | (45%-95%) |

Notes:

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Project: GEL-2008-ZV4SS

Report Date: February 26, 2008

Page 2 of 2

Client Sample ID: ZV4SS-0000005
Sample ID: 202836001

Project: WSRB00308
Client ID: WSRB001

| Parameter | Qualifier | Result | DL | RL | Units | DF | AnalystDate | Time | Batch | Method |
|-----------|-----------|--------|----|----|-------|----|-------------|------|-------|--------|
|-----------|-----------|--------|----|----|-------|----|-------------|------|-------|--------|

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Reviewed by Dan Beuchum 3-12-08

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

Report Date: February 26, 2008

Page 1 of 2

Client Sample ID: ZV4SS-0000007
Sample ID: 202836002
Matrix: Misc Solid
Collect Date: 02-FEB-08 14:45
Receive Date: 14-FEB-08
Collector: Client

Project: WSRB00308
Client ID: WSRB001

| Parameter | Qualifier | Result | DL | RL | Units | DF | Analyst | Date | Time | Batch | Method |
|---|-----------|--------|-----|-----|-------|----|---------|----------|------|--------|--------|
| Semi-volatile Mass spec Organics Federal | | | | | | | | | | | |
| <i>Semivolatiles Method 8270C</i> | | | | | | | | | | | |
| 1,1'-Biphenyl | U | ND | 294 | 979 | ug/kg | 1 | CAK | 02/20/08 | 0715 | 727374 | 1 |
| Phenol | U | ND | 196 | 979 | ug/kg | 1 | | | | | |

The following Prep Methods were performed

| Method | Description | Analyst | Date | Time | Prep Batch |
|-------------|--|---------|----------|------|------------|
| SW846 3550B | 3550B BNA Soil Prep-8270C Analysis Fed | AXV1 | 02/15/08 | 2157 | 727372 |

The following Analytical Methods were performed

| Method | Description | Analyst Comments |
|--------|-------------|------------------|
| 1 | SW846 8270C | |

| Surrogate/Tracer recovery | Test | Result | Nominal | Recovery% | Acceptable Limits |
|---------------------------|----------------------------|------------|---------|-----------|-------------------|
| 2-Fluorobiphenyl | Semivolatiles Method 8270C | 3770 ug/kg | 4900 | 77 | (45%-101%) |
| Nitrobenzene-d5 | Semivolatiles Method 8270C | 3430 ug/kg | 4900 | 70 | (45%-101%) |
| p-Terphenyl-d14 | Semivolatiles Method 8270C | 3410 ug/kg | 4900 | 70 | (41%-114%) |
| 2,4,6-Tribromophenol | Semivolatiles Method 8270C | 4570 ug/kg | 9790 | 47 | (45%-97%) |
| 2-Fluorophenol | Semivolatiles Method 8270C | 6060 ug/kg | 9790 | 62 | (35%-98%) |
| Phenol-d5 | Semivolatiles Method 8270C | 6120 ug/kg | 9790 | 63 | (45%-95%) |

Notes:

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Project: GEL-2008-ZV4SS

Report Date: February 26, 2008

Page 2 of 2

Client Sample ID: ZV4SS-0000007
Sample ID: 202836002

Project: WSRB00308
Client ID: WSRB001

| Parameter | Qualifier | Result | DL | RL | Units | DF | AnalystDate | Time | Batch | Method |
|-----------|-----------|--------|----|----|-------|----|-------------|------|-------|--------|
|-----------|-----------|--------|----|----|-------|----|-------------|------|-------|--------|

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Reviewed by Dan Beveling 3-12-08

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

Report Date: February 26, 2008

Page 1 of 2

| | | | |
|-------------------|-----------------|------------|-----------|
| Client Sample ID: | ZV4SS-0000009 | Project: | WSRB00308 |
| Sample ID: | 202836003 | Client ID: | WSRB001 |
| Matrix: | Misc Solid | | |
| Collect Date: | 02-FEB-08 14:45 | | |
| Receive Date: | 14-FEB-08 | | |
| Collector: | Client | | |

| Parameter | Qualifier | Result | DL | RL | Units | DF | Analyst | Date | Time | Batch | Method |
|---|-----------|--------|-----|-----|-------|----|---------|----------|------|--------|--------|
| Semi-volatile Mass spec Organics Federal | | | | | | | | | | | |
| <i>Semivolatiles Method 8270C</i> | | | | | | | | | | | |
| 1,1'-Biphenyl | U | ND | 299 | 995 | ug/kg | 1 | CAK | 02/20/08 | 2125 | 727374 | 1 |
| Phenol | U | ND | 199 | 995 | ug/kg | 1 | | | | | |

The following Prep Methods were performed

| Method | Description | Analyst | Date | Time | Prep Batch |
|-------------|--|---------|----------|------|------------|
| SW846 3550B | 3550B BNA Soil Prep-8270C Analysis Fed | AXV1 | 02/15/08 | 2157 | 727372 |

The following Analytical Methods were performed

| Method | Description | Analyst Comments |
|--------|-------------|------------------|
| 1 | SW846 8270C | |

| Surrogate/Tracer recovery | Test | Result | Nominal | Recovery% | Acceptable Limits |
|---------------------------|----------------------------|------------|---------|-----------|-------------------|
| 2-Fluorobiphenyl | Semivolatiles Method 8270C | 4040 ug/kg | 4980 | 81 | (45%-101%) |
| Nitrobenzene-d5 | Semivolatiles Method 8270C | 3700 ug/kg | 4980 | 74 | (45%-101%) |
| p-Terphenyl-d14 | Semivolatiles Method 8270C | 3490 ug/kg | 4980 | 70 | (41%-114%) |
| 2,4,6-Tribromophenol | Semivolatiles Method 8270C | 6180 ug/kg | 9950 | 62 | (45%-97%) |
| 2-Fluorophenol | Semivolatiles Method 8270C | 6670 ug/kg | 9950 | 67 | (35%-98%) |
| Phenol-d5 | Semivolatiles Method 8270C | 6580 ug/kg | 9950 | 66 | (45%-95%) |

Notes:

The Qualifiers in this report are defined as follows :

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Project: GEL-2008-ZV4SS

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Client Sample ID: ZV4SS-0000009
Sample ID: 202836003

Project: WSRB00308
Client ID: WSRB001

| Parameter | Qualifier | Result | DL | RL | Units | DF | AnalystDate | Time | Batch | Method |
|-----------|-----------|--------|----|----|-------|----|-------------|------|-------|--------|
|-----------|-----------|--------|----|----|-------|----|-------------|------|-------|--------|

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Reviewed by

Dan Beuhay 3-12-08

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Certificate of Analysis

Company : Westinghouse Savannah Rvr Co
 Address : Building 730-4B, Cube 2119
 Aiken, South Carolina 29808
 Contact: Mr. Robert Kemmerlin
 Project: **GEL-2008-ZV4SS**

Report Date: February 26, 2008

Page 1 of 2

| | |
|--------------------------------|--------------------|
| Client Sample ID: ZV4SS-000010 | Project: WSRB00308 |
| Sample ID: 202836004 | Client ID: WSRB001 |
| Matrix: Misc Solid | |
| Collect Date: 02-FEB-08 15:00 | |
| Receive Date: 14-FEB-08 | |
| Collector: Client | |

| Parameter | Qualifier | Result | DL | RL | Units | DF | Analyst | Date | Time | Batch | Method |
|---|-----------|--------|-----|-----|-------|----|---------|----------|------|--------|--------|
| Semi-volatile Mass spec Organics Federal | | | | | | | | | | | |
| <i>Semivolatiles Method 8270C</i> | | | | | | | | | | | |
| 1,1'-Biphenyl | U | ND | 293 | 977 | ug/kg | 1 | CAK | 02/20/08 | 2148 | 727374 | 1 |
| Phenol | U | ND | 195 | 977 | ug/kg | 1 | | | | | |

The following Prep Methods were performed

| Method | Description | Analyst | Date | Time | Prep Batch |
|-------------|--|---------|----------|------|------------|
| SW846 3550B | 3550B BNA Soil Prep-8270C Analysis Fed | AXVI | 02/15/08 | 2157 | 727372 |

The following Analytical Methods were performed

| Method | Description | Analyst Comments |
|--------|-------------|------------------|
| 1 | SW846 8270C | |

| Surrogate/Tracer recovery | Test | Result | Nominal | Recovery% | Acceptable Limits |
|---------------------------|----------------------------|------------|---------|-----------|-------------------|
| 2-Fluorobiphenyl | Semivolatiles Method 8270C | 4120 ug/kg | 4890 | 84 | (45%-101%) |
| Nitrobenzene-d5 | Semivolatiles Method 8270C | 3870 ug/kg | 4890 | 79 | (45%-101%) |
| p-Terphenyl-d14 | Semivolatiles Method 8270C | 3680 ug/kg | 4890 | 75 | (41%-114%) |
| 2,4,6-Tribromophenol | Semivolatiles Method 8270C | 6840 ug/kg | 9770 | 70 | (45%-97%) |
| 2-Fluorophenol | Semivolatiles Method 8270C | 6860 ug/kg | 9770 | 70 | (35%-98%) |
| Phenol-d5 | Semivolatiles Method 8270C | 7080 ug/kg | 9770 | 72 | (45%-95%) |

Notes:

The Qualifiers in this report are defined as follows :

- J The detected analyte was positively identified but the result is approximate.
- NJ The detected analyte was only tentatively 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.
- S Result equaling SQL is actual laboratory test output
- 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.
- d The 2:1 depletion requirement was not met for this sample

The above sample is reported on a dry weight basis except where prohibited by the analytical procedure.

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Certificate of Analysis

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

Report Date: February 26, 2008

Page 2 of 2

Client Sample ID: ZV4SS-0000010
Sample ID: 202836004

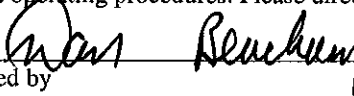
Project: WSRB00308
Client ID: WSRB001

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

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.

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

 3-12-08

Metals Analysis

Case Narrative

**Metals Fractional Narrative
Westinghouse Savannah River Co. (WSRB)
SDG 202836**

Sample Analysis

| Sample ID | Client ID |
|------------------|---|
| 202836001 | ZV4SS-0000005 |
| 202836002 | ZV4SS-0000007 |
| 202836003 | ZV4SS-0000009 |
| 202836004 | ZV4SS-0000010 |
| 1201521221 | Method Blank (MB) ICP |
| 1201521222 | Laboratory Control Sample (LCS) |
| 1201521225 | 202647001(08022-106R-SLL) Serial Dilution (SD) |
| 1201521223 | 202647001(08022-106R-SLS) Matrix Spike (MS) |
| 1201521224 | 202647001(08022-106R-SLSD) Matrix Spike Duplicate (MSD) |
| 1201521246 | Method Blank (MB) ICP-MS |
| 1201521247 | Laboratory Control Sample (LCS) |
| 1201521250 | 202836001(ZV4SS-0000005L) Serial Dilution (SD) |
| 1201521248 | 202836001(ZV4SS-0000005S) Matrix Spike (MS) |
| 1201521249 | 202836001(ZV4SS-0000005SD) Matrix Spike Duplicate (MSD) |
| 1201523450 | Method Blank (MB) CVAA |
| 1201523451 | Laboratory Control Sample (LCS) |
| 1201523455 | 202836001(ZV4SS-0000005L) Serial Dilution (SD) |
| 1201523452 | 202836001(ZV4SS-0000005S) Matrix Spike (MS) |
| 1201523453 | 202836001(ZV4SS-0000005SD) Matrix Spike Duplicate (MSD) |

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

Method/Analysis Information

| | |
|---------------------------------------|---|
| Analytical Batch: | 729290, 729301 and 730267 |
| Prep Batch : | 729289, 729299 and 730265 |
| Standard Operating Procedures: | GL-MA-E-013 REV# 17, GL-MA-E-009 REV# 17, GL-MA-E-014 REV# 15 and GL-MA-E-010 REV# 18 |

Analytical Method: SW846 3050B/6010B, SW846 3050B/6020 and SW846 7471A
Prep Method : SW846 3050B and SW846 7471A Prep

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.

System Configuration

The Metals analysis-ICP was performed on a P E 5300 Optima radial/axial-viewing inductively coupled plasma atomic emission spectrometer. The instrument is equipped with a Burgener nebulizer, cyclonic spray chamber, and yttrium or scandium internal standard. Operating conditions for the ICP are set at a power level of 1500 watts. The instrument has a peristaltic pump flow rate of 1.4L/min, argon gas flows of 15 L/min and 0.2 L/min for the torch and auxiliary gases, and a flow setting of 0.65L/min for the nebulizer.

The Metals analysis - ICPMS was performed on a Perkin Elmer ELAN 6100E inductively coupled plasma mass spectrometer (ICP-MS). The instrument is equipped with a cross-flow nebulizer, quadrupole mass spectrometer, and dual mode electron multiplier detector. Internal standards of scandium, germanium, indium, tantalum, and/or lutetium were utilized to cover the mass spectrum. Operating conditions are set at 1400W power and combined argon pressures of 360+/-7 kPa for the plasma and auxiliary gases, and 0.85 L/min carrier gas flow, and an initial lens voltage of 5.2.

The Metals analysis-Mercury was performed on a Perkin-Elmer Flow Injection Mercury System (FIMS-400) automated mercury analyzer. The instrument consists of a cold vapor atomic absorption spectrometer set to detect mercury at a wavelength of 253.7 nm. Sample introduction through the flow injection system is performed via a peristaltic pump at 9 mL/min and nitrogen carrier gas rate of 80 mL/min.

Calibration Information

Instrument Calibration

All initial calibration requirements have been met for this sample delivery group (SDG).

CRDL Requirements

All CRDL standard(s) met the referenced advisory control limits.

ICSA/ICSAB Statement

All interference check samples (ICSA and ICSAB) associated with this SDG met the established acceptance criteria.

Continuing Calibration Blank (CCB) Requirements

All continuing calibration blanks (CCB) bracketing this batch met the established acceptance

criteria for all applicable analytes.

Continuing Calibration Verification (CCV) Requirements

All continuing calibration verifications (CCV) bracketing this SDG met the acceptance criteria.

Quality Control (QC) Information

Method Blank (MB) Statement

The MBs analyzed with this SDG met the acceptance criteria.

Laboratory Control Sample (LCS) Recovery

The LCS spike recoveries met the acceptance limits.

Quality Control (QC) Sample Statement

The following samples were selected as the quality control (QC) samples for this SDG: 202647001 (08022-106R-SL)-ICP and 202836001 (ZV4SS-0000005)-ICP-MS and CVAA.

Matrix Spike (MS) Recovery Statement

The percent recoveries (%R) obtained from the MS analyses are evaluated when the sample concentration is less than four times (4X) the spike concentration added. The MS met the recommended quality control acceptance criteria for percent recoveries for all applicable analytes with the exceptions of antimony, chromium, copper, lead and nickel as indicated by the “*” qualifiers.

Matrix Spike Duplicate (MSD) Recovery Statement

The percent recovery (%R) obtained from the MSD analyses are evaluated when the sample concentration is less than four times (4X) the spike concentration added. The MSD met the recommended quality control acceptance criteria for percent recoveries for all applicable analytes with the exceptions of antimony and mercury as indicated by the “*” qualifiers

MS/MSD Relative Percent Difference (RPD) Statement

The relative percent difference (RPD) obtained from the designated matrix spike duplicate (MSD) is evaluated based on acceptance criteria of 20%. The RPD between qualifying elements results in the MS and MSD were within the acceptance limits of 20% with the exceptions of aluminum, chromium, copper, iron, lithium, manganese, nickel, zinc and mercury as indicated by the “*” qualifiers.

Serial Dilution % Difference Statement

The serial dilution is used to assess matrix suppression or enhancement. Raw element concentrations 25x the IDL for CVAA, 50X the IDL for ICP and 100X the IDL for ICP-MS analyses are applicable for serial dilution assessment. All applicable analytes met the established criteria of less than 10% difference (%D) with the exceptions of aluminum, barium and mercury as indicated by the “*” qualifiers.

Technical Information

Holding Time Specifications

GEL assigns holding times based on the associated methodology, which assigns the date and time from sample collection of sample receipt. Those holding times expressed in hours are calculated in the AlphaLIMS system. Those holding times expressed as days expire at midnight on the day of expiration. 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

Dilutions are performed to minimize matrix interferences resulting from elevated mineral element concentrations present in solid samples and/or to bring over range target analyte concentrations into the linear calibration range of the instrument. The samples 202836001, 202836003 and 202836004 on the ICP-MS required 20x dilutions for iron, manganese and/or zinc in order to bring over range concentrations within the linear calibration range of the instrument. The samples in this SDG were diluted the standard 2x for solids on the ICPMS.

Preparation Information

The samples in this SDG were prepared exactly according to the cited SOP.

Miscellaneous Information**Nonconformance 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 ID 524855, NCR ID 525421 and NCR ID 528659. A copy is included in the Miscellaneous Data section of this package.

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: Mike DeA. Elmer Date: 3.12.08

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: 202836 GEL Work Order: 202836

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.

Yick Cole A. Elmer 3-12-08
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

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

Report Date: March 12, 2008

Client Sample ID: ZV4SS-0000005
Sample ID: 202836001
Matrix: Misc Solid
Collect Date: 02-FEB-08 10:30
Receive Date: 14-FEB-08
Collector: Client
Project: WSRB00308
Client ID: WSRB001

| Parameter | Qualifier | Result | DL | RL | Units | DF | Analyst | Date | Time | Batch | Method |
|--|-----------|----------|-------|-------|-------|----|---------|----------|------|--------|--------|
| Mercury Analysis-CVAA | | | | | | | | | | | |
| <i>7471 Cold Vapor Hg in Solid</i> | | | | | | | | | | | |
| Mercury | | 87.5 | 1.48 | 9.85 | ug/kg | 1 | JXL1 | 02/27/08 | 0957 | 730267 | 1 |
| Metals Analysis-ICP | | | | | | | | | | | |
| <i>3050/6010 Silver Federal</i> | | | | | | | | | | | |
| Silver | J | 218 | 96.5 | 483 | ug/kg | 1 | HSC | 02/25/08 | 1607 | 729290 | 2 |
| Metals Analysis-ICP-MS | | | | | | | | | | | |
| <i>6020 ICP SCAN Metals Soil Federal</i> | | | | | | | | | | | |
| Aluminum | | 6800000 | 994 | 2980 | ug/kg | 2 | PRB | 03/07/08 | 2300 | 729301 | 3 |
| Antimony | U | 19.5 | 99.4 | 398 | ug/kg | 2 | | | | | |
| Arsenic | J | 716 | 298 | 994 | ug/kg | 2 | | | | | |
| Barium | | 72600 | 99.4 | 398 | ug/kg | 2 | | | | | |
| Beryllium | | 888 | 19.9 | 99.4 | ug/kg | 2 | | | | | |
| Boron | | 6300 | 795 | 2980 | ug/kg | 2 | | | | | |
| Cadmium | | 320 | 19.9 | 199 | ug/kg | 2 | | | | | |
| Chromium | | 9240 | 199 | 596 | ug/kg | 2 | | | | | |
| Cobalt | | 3010 | 19.9 | 199 | ug/kg | 2 | | | | | |
| Copper | | 6470 | 39.8 | 199 | ug/kg | 2 | | | | | |
| Lead | | 4410 | 99.4 | 398 | ug/kg | 2 | | | | | |
| Lithium | | 20200 | 398 | 1990 | ug/kg | 2 | | | | | |
| Molybdenum | | 585 | 19.9 | 99.4 | ug/kg | 2 | | | | | |
| Nickel | | 6450 | 99.4 | 398 | ug/kg | 2 | | | | | |
| Selenium | U | 118 | 497 | 994 | ug/kg | 2 | | | | | |
| Strontium | | 41800 | 398 | 1990 | ug/kg | 2 | | | | | |
| Thallium | J | 114 | 39.8 | 199 | ug/kg | 2 | | | | | |
| Uranium | | 2500 | 9.94 | 39.8 | ug/kg | 2 | | | | | |
| Iron | | 14200000 | 19900 | 49700 | ug/kg | 20 | PRB | 03/10/08 | 1210 | 729301 | 4 |
| Manganese | | 375000 | 1990 | 9940 | ug/kg | 20 | | | | | |
| Zinc | | 524000 | 3980 | 19900 | ug/kg | 20 | | | | | |

The following Prep Methods were performed

| Method | Description | Analyst | Date | Time | Prep Batch |
|------------------|-----------------------------|---------|----------|------|------------|
| SW846 3050B | 846 3050BS PREP | BCD1 | 02/25/08 | 0700 | 729289 |
| SW846 3050B | ICP-MS 3050BS PREP | BCD1 | 02/27/08 | 0630 | 729299 |
| SW846 7471A Prep | EPA 7471A Mercury Prep Soil | TXB3 | 02/26/08 | 1700 | 730265 |

The following Analytical Methods were performed

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Report Date: March 12, 2008

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

Client Sample ID: ZV4SS-0000005
Sample ID: 202836001

Project: WSRB00308
Client ID: WSRB001

| Parameter | Qualifier | Result | DL | RL | Units | DF | AnalystDate | Time | Batch | Method |
|-----------|-----------|--------|----|----|-------|----|-------------|------|-------|--------|
|-----------|-----------|--------|----|----|-------|----|-------------|------|-------|--------|

The following Analytical Methods were performed

| Method | Description | Analyst Comments |
|--------|-------------------|------------------|
| 1 | SW846 7471A | |
| 2 | SW846 3050B/6010B | |
| 3 | SW846 3050B/6020 | |
| 4 | SW846 3050B/6020 | |

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Certificate of Analysis

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

Report Date: March 12, 2008

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

Client Sample ID: ZV4SS-0000007
Sample ID: 202836002
Matrix: Misc Solid
Collect Date: 02-FEB-08 14:45
Receive Date: 14-FEB-08
Collector: Client

Project: WSRB00308
Client ID: WSRB001

| Parameter | Qualifier | Result | DL | RL | Units | DF | Analyst | Date | Time | Batch | Method |
|--|-----------|---------|------|------|-------|----|---------|----------|------|--------|--------|
| Mercury Analysis-CVAA | | | | | | | | | | | |
| <i>7471 Cold Vapor Hg in Solid</i> | | | | | | | | | | | |
| Mercury | | 389 | 1.44 | 9.63 | ug/kg | 1 | JXL1 | 02/27/08 | 1009 | 730267 | 1 |
| Metals Analysis-ICP | | | | | | | | | | | |
| <i>3050/6010 Silver Federal</i> | | | | | | | | | | | |
| Silver | J | 192 | 99.8 | 499 | ug/kg | 1 | HSC | 02/25/08 | 1612 | 729290 | 2 |
| Metals Analysis-ICP-MS | | | | | | | | | | | |
| <i>6020 ICP SCAN Metals Soil Federal</i> | | | | | | | | | | | |
| Aluminum | | 4700000 | 965 | 2900 | ug/kg | 2 | PRB | 03/07/08 | 2324 | 729301 | 3 |
| Antimony | U | 68.5 | 96.5 | 386 | ug/kg | 2 | | | | | |
| Arsenic | | 1100 | 290 | 965 | ug/kg | 2 | | | | | |
| Barium | | 39500 | 96.5 | 386 | ug/kg | 2 | | | | | |
| Beryllium | | 627 | 19.3 | 96.5 | ug/kg | 2 | | | | | |
| Boron | J | 2280 | 772 | 2900 | ug/kg | 2 | | | | | |
| Cadmium | | 442 | 19.3 | 193 | ug/kg | 2 | | | | | |
| Chromium | | 15300 | 193 | 579 | ug/kg | 2 | | | | | |
| Cobalt | | 2440 | 19.3 | 193 | ug/kg | 2 | | | | | |
| Copper | | 5760 | 38.6 | 193 | ug/kg | 2 | | | | | |
| Iron | | 7590000 | 1930 | 4830 | ug/kg | 2 | | | | | |
| Lead | | 18500 | 96.5 | 386 | ug/kg | 2 | | | | | |
| Lithium | | 8770 | 386 | 1930 | ug/kg | 2 | | | | | |
| Manganese | | 164000 | 193 | 965 | ug/kg | 2 | | | | | |
| Molybdenum | | 569 | 19.3 | 96.5 | ug/kg | 2 | | | | | |
| Nickel | | 6000 | 96.5 | 386 | ug/kg | 2 | | | | | |
| Selenium | U | -42.1 | 483 | 965 | ug/kg | 2 | | | | | |
| Strontium | | 18400 | 386 | 1930 | ug/kg | 2 | | | | | |
| Thallium | J | 56.0 | 38.6 | 193 | ug/kg | 2 | | | | | |
| Uranium | | 932 | 9.65 | 38.6 | ug/kg | 2 | | | | | |
| Zinc | | 373000 | 386 | 1930 | ug/kg | 2 | | | | | |

The following Prep Methods were performed

| Method | Description | Analyst | Date | Time | Prep Batch |
|------------------|-----------------------------|---------|----------|------|------------|
| SW846 3050B | 846 3050BS PREP | BCD1 | 02/25/08 | 0700 | 729289 |
| SW846 3050B | ICP-MS 3050BS PREP | BCD1 | 02/27/08 | 0630 | 729299 |
| SW846 7471A Prep | EPA 7471A Mercury Prep Soil | TXB3 | 02/26/08 | 1700 | 730265 |

The following Analytical Methods were performed

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Report Date: March 12, 2008

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

Client Sample ID: ZV4SS-0000007
Sample ID: 202836002

Project: WSRB00308
Client ID: WSRB001

| Parameter | Qualifier | Result | DL | RL | Units | DF | AnalystDate | Time | Batch | Method |
|-----------|-----------|--------|----|----|-------|----|-------------|------|-------|--------|
|-----------|-----------|--------|----|----|-------|----|-------------|------|-------|--------|

The following Analytical Methods were performed

| Method | Description | Analyst Comments |
|--------|-------------------|------------------|
| 1 | SW846 7471A | |
| 2 | SW846 3050B/6010B | |
| 3 | SW846 3050B/6020 | |

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Report Date: March 12, 2008

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

| | | | |
|-------------------|-----------------|------------|-----------|
| Client Sample ID: | ZV4SS-0000009 | Project: | WSRB00308 |
| Sample ID: | 202836003 | Client ID: | WSRB001 |
| Matrix: | Misc Solid | | |
| Collect Date: | 02-FEB-08 14:45 | | |
| Receive Date: | 14-FEB-08 | | |
| Collector: | Client | | |

| Parameter | Qualifier | Result | DL | RL | Units | DF | Analyst | Date | Time | Batch | Method |
|--|-----------|---------|------|-------|-------|----|---------|----------|------|--------|--------|
| Mercury Analysis-CVAA | | | | | | | | | | | |
| <i>7471 Cold Vapor Hg in Solid</i> | | | | | | | | | | | |
| Mercury | | 374 | 1.48 | 9.85 | ug/kg | 1 | JXL1 | 02/27/08 | 1011 | 730267 | 1 |
| Metals Analysis-ICP | | | | | | | | | | | |
| <i>3050/6010 Silver Federal</i> | | | | | | | | | | | |
| Silver | J | 119 | 99.8 | 499 | ug/kg | 1 | HSC | 02/25/08 | 1618 | 729290 | 2 |
| Metals Analysis-ICP-MS | | | | | | | | | | | |
| <i>6020 ICP SCAN Metals Soil Federal</i> | | | | | | | | | | | |
| Aluminum | | 5980000 | 965 | 2900 | ug/kg | 2 | PRB | 03/07/08 | 2330 | 729301 | 3 |
| Antimony | U | 91.5 | 96.5 | 386 | ug/kg | 2 | | | | | |
| Arsenic | J | 869 | 290 | 965 | ug/kg | 2 | | | | | |
| Barium | | 88300 | 96.5 | 386 | ug/kg | 2 | | | | | |
| Beryllium | | 687 | 19.3 | 96.5 | ug/kg | 2 | | | | | |
| Boron | | 4530 | 772 | 2900 | ug/kg | 2 | | | | | |
| Cadmium | | 419 | 19.3 | 193 | ug/kg | 2 | | | | | |
| Chromium | | 12800 | 193 | 579 | ug/kg | 2 | | | | | |
| Cobalt | | 3370 | 19.3 | 193 | ug/kg | 2 | | | | | |
| Copper | | 6340 | 38.6 | 193 | ug/kg | 2 | | | | | |
| Iron | | 8350000 | 1930 | 4830 | ug/kg | 2 | | | | | |
| Lead | | 20200 | 96.5 | 386 | ug/kg | 2 | | | | | |
| Lithium | | 9060 | 386 | 1930 | ug/kg | 2 | | | | | |
| Molybdenum | | 430 | 19.3 | 96.5 | ug/kg | 2 | | | | | |
| Nickel | | 7390 | 96.5 | 386 | ug/kg | 2 | | | | | |
| Selenium | U | 7.53 | 483 | 965 | ug/kg | 2 | | | | | |
| Strontium | | 36100 | 386 | 1930 | ug/kg | 2 | | | | | |
| Thallium | J | 48.6 | 38.6 | 193 | ug/kg | 2 | | | | | |
| Uranium | | 919 | 9.65 | 38.6 | ug/kg | 2 | | | | | |
| Manganese | | 223000 | 1930 | 9650 | ug/kg | 20 | PRB | 03/10/08 | 1223 | 729301 | 4 |
| Zinc | | 734000 | 3860 | 19300 | ug/kg | 20 | | | | | |

The following Prep Methods were performed

| Method | Description | Analyst | Date | Time | Prep Batch |
|------------------|-----------------------------|---------|----------|------|------------|
| SW846 3050B | 846 3050BS PREP | BCD1 | 02/25/08 | 0700 | 729289 |
| SW846 3050B | ICP-MS 3050BS PREP | BCD1 | 02/27/08 | 0630 | 729299 |
| SW846 7471A Prep | EPA 7471A Mercury Prep Soil | TXB3 | 02/26/08 | 1700 | 730265 |

The following Analytical Methods were performed

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Certificate of Analysis

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

Report Date: March 12, 2008

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

Client Sample ID: ZV4SS-0000009
Sample ID: 202836003

Project: WSRB00308
Client ID: WSRB001

| Parameter | Qualifier | Result | DL | RL | Units | DF | AnalystDate | Time | Batch | Method |
|-----------|-----------|--------|----|----|-------|----|-------------|------|-------|--------|
|-----------|-----------|--------|----|----|-------|----|-------------|------|-------|--------|

The following Analytical Methods were performed

| Method | Description | Analyst Comments |
|--------|-------------------|------------------|
| 1 | SW846 7471A | |
| 2 | SW846 3050B/6010B | |
| 3 | SW846 3050B/6020 | |
| 4 | SW846 3050B/6020 | |

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Certificate of Analysis

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

Report Date: March 12, 2008

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

| | | | |
|-------------------|-----------------|------------|-----------|
| Client Sample ID: | ZV4SS-0000010 | Project: | WSRB00308 |
| Sample ID: | 202836004 | Client ID: | WSRB001 |
| Matrix: | Misc Solid | | |
| Collect Date: | 02-FEB-08 15:00 | | |
| Receive Date: | 14-FEB-08 | | |
| Collector: | Client | | |

| Parameter | Qualifier | Result | DL | RL | Units | DF | Analyst | Date | Time | Batch | Method |
|--|-----------|----------|-------|-------|-------|----|---------|----------|------|--------|--------|
| Mercury Analysis-CVAA | | | | | | | | | | | |
| <i>7471 Cold Vapor Hg in Solid</i> | | | | | | | | | | | |
| Mercury | | 76.5 | 1.46 | 9.72 | ug/kg | 1 | JXL1 | 02/27/08 | 1013 | 730267 | 1 |
| Metals Analysis-ICP | | | | | | | | | | | |
| <i>3050/6010 Silver Federal</i> | | | | | | | | | | | |
| Silver | J | 234 | 95.2 | 476 | ug/kg | 1 | HSC | 02/25/08 | 1623 | 729290 | 2 |
| Metals Analysis-ICP-MS | | | | | | | | | | | |
| <i>6020 ICP SCAN Metals Soil Federal</i> | | | | | | | | | | | |
| Aluminum | | 7210000 | 965 | 2900 | ug/kg | 2 | PRB | 03/07/08 | 2335 | 729301 | 3 |
| Antimony | U | 32.8 | 96.5 | 386 | ug/kg | 2 | | | | | |
| Arsenic | J | 674 | 290 | 965 | ug/kg | 2 | | | | | |
| Barium | | 27700 | 96.5 | 386 | ug/kg | 2 | | | | | |
| Beryllium | | 880 | 19.3 | 96.5 | ug/kg | 2 | | | | | |
| Boron | J | 965 | 772 | 2900 | ug/kg | 2 | | | | | |
| Cadmium | | 246 | 19.3 | 193 | ug/kg | 2 | | | | | |
| Chromium | | 17600 | 193 | 579 | ug/kg | 2 | | | | | |
| Cobalt | | 5520 | 19.3 | 193 | ug/kg | 2 | | | | | |
| Copper | | 6900 | 38.6 | 193 | ug/kg | 2 | | | | | |
| Lead | | 19900 | 96.5 | 386 | ug/kg | 2 | | | | | |
| Lithium | | 27300 | 386 | 1930 | ug/kg | 2 | | | | | |
| Molybdenum | | 584 | 19.3 | 96.5 | ug/kg | 2 | | | | | |
| Nickel | | 13500 | 96.5 | 386 | ug/kg | 2 | | | | | |
| Selenium | U | -33.8 | 483 | 965 | ug/kg | 2 | | | | | |
| Strontium | | 9640 | 386 | 1930 | ug/kg | 2 | | | | | |
| Thallium | J | 118 | 38.6 | 193 | ug/kg | 2 | | | | | |
| Uranium | | 1850 | 9.65 | 38.6 | ug/kg | 2 | | | | | |
| Zinc | | 332000 | 386 | 1930 | ug/kg | 2 | | | | | |
| Iron | | 15000000 | 19300 | 48300 | ug/kg | 20 | PRB | 03/10/08 | 1225 | 729301 | 4 |
| Manganese | | 420000 | 1930 | 9650 | ug/kg | 20 | | | | | |

The following Prep Methods were performed

| Method | Description | Analyst | Date | Time | Prep Batch |
|------------------|-----------------------------|---------|----------|------|------------|
| SW846 3050B | 846 3050BS PREP | BCD1 | 02/25/08 | 0700 | 729289 |
| SW846 3050B | ICP-MS 3050BS PREP | BCD1 | 02/27/08 | 0630 | 729299 |
| SW846 7471A Prep | EPA 7471A Mercury Prep Soil | TXB3 | 02/26/08 | 1700 | 730265 |

The following Analytical Methods were performed

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Certificate of Analysis

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

Report Date: March 12, 2008

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

Client Sample ID: ZV4SS-0000010
Sample ID: 202836004

Project: WSRB00308
Client ID: WSRB001

| Parameter | Qualifier | Result | DL | RL | Units | DF | AnalystDate | Time | Batch | Method |
|-----------|-----------|--------|----|----|-------|----|-------------|------|-------|--------|
|-----------|-----------|--------|----|----|-------|----|-------------|------|-------|--------|

The following Analytical Methods were performed

| Method | Description | Analyst Comments |
|--------|-------------------|------------------|
| 1 | SW846 7471A | |
| 2 | SW846 3050B/6010B | |
| 3 | SW846 3050B/6020 | |
| 4 | SW846 3050B/6020 | |

General Chemistry

Analysis

Case Narrative

**General Chemistry Narrative
Westinghouse Savannah River Co. (WSRB)
SDG 202836**

Method/Analysis Information

| | | | |
|--------------------------|---------------------------|----------------|------------|
| Product: | Ion Chromatography | | |
| Analytical Batch: | 727132 | Method: | SW846 9056 |
| Prep Batch : | 727131 | Method: | SW846 9056 |

Sample Analysis

The following samples were analyzed using the analytical protocol as established in SW846 9056:

| Sample ID | Client ID |
|------------------|---|
| 202836001 | ZV4SS-0000005 |
| 202836002 | ZV4SS-0000007 |
| 202836003 | ZV4SS-0000009 |
| 202836004 | ZV4SS-0000010 |
| 1201516250 | Method Blank (MB) |
| 1201516251 | Laboratory Control Sample (LCS) |
| 1201516252 | 202825001(ZV4SS-0000004) Sample Duplicate (DUP) |
| 1201516253 | 202825001(ZV4SS-0000004) Matrix Spike (MS) |
| 1201516256 | 202825001(ZV4SS-0000004) 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-086 REV# 14.

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 Ion Chromatography analysis was performed on a Dionex DX300 Ion Chromatograph equipped with a Dionex AS9-HC general purpose anion column.

Initial Calibration

All initial calibration requirements have been met for this SDG.

Continuing Calibration Blanks

All continuing calibration blanks (CCBs) associated with reported data from this batch were within

acceptance limits.

Calibration Verification Information (CCV)

All continuing calibration verification standards (CCVs) associated with reported data from this batch were within acceptance limits.

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: 202825001 (ZV4SS-0000004).

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.

Manual Integrations

Manual integrations were not required for the samples in this SDG.

Additional Comments

Additional comments were not required for this SDG.

Method/Analysis Information

Product: Nitrate + Nitrite
Analytical Batch: 727006 **Method:** EPA 353.2 Modified
Prep Batch : 727004 **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 |
|------------------|---|
| 202836001 | ZV4SS-0000005 |
| 202836002 | ZV4SS-0000007 |
| 202836003 | ZV4SS-0000009 |
| 202836004 | ZV4SS-0000010 |
| 1201515940 | Method Blank (MB) |
| 1201515941 | 202825001(ZV4SS-0000004) Sample Duplicate (DUP) |
| 1201515942 | 202825001(ZV4SS-0000004) Matrix Spike (MS) |
| 1201515943 | 202825001(ZV4SS-0000004) Matrix Spike Duplicate (MSD) |
| 1201515944 | Laboratory Control Sample (LCS) |
| 1201516216 | 202825002(ZV4SS-0000008) Sample Duplicate (DUP) |
| 1201516217 | 202825002(ZV4SS-0000008) Matrix Spike (MS) |
| 1201516218 | 202825002(ZV4SS-0000008) 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.

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 samples were selected for QC analysis: 202825001 (ZV4SS-0000004) and 202825002 (ZV4SS-0000008).

Matrix Spike (MS)/Post Spike (PS) Recovery Statement

The sample concentration was more than four times the spike nominal concentration; therefore, the spike recovery was not applicable for samples 1201515942 (ZV4SS-0000004) and 1201516217 (ZV4SS-0000008).

Matrix Spike Duplicate (MSD) Recovery Statement

The sample concentration was more than four times the spike duplicate nominal concentration; therefore, the spike duplicate recovery was not applicable. 1201515943 (ZV4SS-0000004) and 1201516218 (ZV4SS-0000008).

MS/MSD Relative Percent Difference (RPD) Statement

The RPDs 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 following samples in this sample group were diluted due to high concentration for this analysis. 1201515941 (ZV4SS-0000004), 1201515942 (ZV4SS-0000004), 1201515943 (ZV4SS-0000004), 1201516216 (ZV4SS-0000008), 1201516217 (ZV4SS-0000008), 1201516218 (ZV4SS-0000008) and 202836001 (ZV4SS-0000005). The following samples in this sample group were diluted due to matrix interference. 202836002 (ZV4SS-0000007), 202836003 (ZV4SS-0000009) and 202836004 (ZV4SS-0000010).

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.

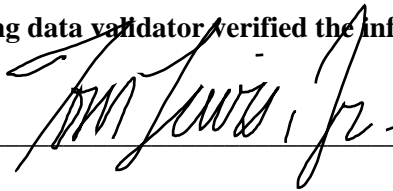
Certification Statement

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: 10 March 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: 202836 GEL Work Order: 202836

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.

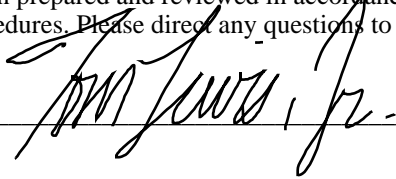
U The analyte was analyzed for, but not detected. The sample quantitation limit (SQL) is valid unless blank contamination is indicated.

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: March 5, 2008

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

Client Sample ID: ZV4SS-0000005
Sample ID: 202836001
Matrix: Misc Solid
Collect Date: 02-FEB-08 10:30
Receive Date: 14-FEB-08
Collector: Client
Project: WSRB00308
Client ID: WSRB001

| Parameter | Qualifier | Result | DL | RL | Units | DF | Analyst | Date | Time | Batch | Method |
|--|-----------|--------|-------|-------|-------|----|---------|----------|------|--------|--------|
| Ion Chromatography Federal | | | | | | | | | | | |
| <i>SW846-9056 Sulfate in Solids</i> | | | | | | | | | | | |
| Chloride | | 2.26 | 0.650 | 1.97 | mg/kg | 1 | VXP1 | 02/16/08 | 2247 | 727132 | 1 |
| Fluoride | J | 0.699 | 0.295 | 0.985 | mg/kg | 1 | | | | | |
| Sulfate | | 27.5 | 0.985 | 3.94 | mg/kg | 1 | | | | | |
| Nutrient Analysis | | | | | | | | | | | |
| <i>EPA 353.2 Nitrogen, Nitrate/Nitrite</i> | | | | | | | | | | | |
| Nitrogen, Nitrate/Nitrite | | 77.0 | 1.52 | 4.75 | mg/kg | 10 | AXH3 | 02/19/08 | 1211 | 727006 | 2 |

The following Prep Methods were performed

| Method | Description | Analyst | Date | Time | Prep Batch |
|--------------------|------------------------------------|---------|----------|------|------------|
| EPA 353.2 Modified | EPA 353.1 Modified Nitrate/Nitrite | AXH3 | 02/18/08 | 1543 | 727004 |
| SW846 9056 | SW846-9056 Total Anions in Soil | VXP1 | 02/16/08 | 0811 | 727131 |

The following Analytical Methods were performed

| Method | Description | Analyst Comments |
|--------|--------------------|------------------|
| 1 | SW846 9056 | |
| 2 | EPA 353.2 Modified | |

GEL LABORATORIES LLC

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Certificate of Analysis

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

Report Date: March 5, 2008

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

Client Sample ID: ZV4SS-0000007
Sample ID: 202836002
Matrix: Misc Solid
Collect Date: 02-FEB-08 14:45
Receive Date: 14-FEB-08
Collector: Client

Project: WSRB00308
Client ID: WSRB001

| Parameter | Qualifier | Result | DL | RL | Units | DF | Analyst | Date | Time | Batch | Method |
|--|-----------|--------|-------|-------|-------|----|---------|----------|------|--------|--------|
| Ion Chromatography Federal | | | | | | | | | | | |
| <i>SW846-9056 Sulfate in Solids</i> | | | | | | | | | | | |
| Chloride | U | 0.00 | 0.621 | 1.88 | mg/kg | 1 | VXP1 | 02/16/08 | 2348 | 727132 | 1 |
| Fluoride | U | 0.00 | 0.282 | 0.941 | mg/kg | 1 | | | | | |
| Sulfate | | 4.60 | 0.941 | 3.76 | mg/kg | 1 | | | | | |
| Nutrient Analysis | | | | | | | | | | | |
| <i>EPA 353.2 Nitrogen, Nitrate/Nitrite</i> | | | | | | | | | | | |
| Nitrogen, Nitrate/Nitrite | U | -0.404 | 1.60 | 4.99 | mg/kg | 10 | AXH3 | 02/19/08 | 1212 | 727006 | 2 |

The following Prep Methods were performed

| Method | Description | Analyst | Date | Time | Prep Batch |
|--------------------|------------------------------------|---------|----------|------|------------|
| EPA 353.2 Modified | EPA 353.1 Modified Nitrate/Nitrite | AXH3 | 02/18/08 | 1543 | 727004 |
| SW846 9056 | SW846-9056 Total Anions in Soil | VXP1 | 02/16/08 | 0811 | 727131 |

The following Analytical Methods were performed

| Method | Description | Analyst Comments |
|--------|--------------------|------------------|
| 1 | SW846 9056 | |
| 2 | EPA 353.2 Modified | |

GEL LABORATORIES LLC

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Certificate of Analysis

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

Report Date: March 5, 2008

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

Client Sample ID: ZV4SS-0000009
Sample ID: 202836003
Matrix: Misc Solid
Collect Date: 02-FEB-08 14:45
Receive Date: 14-FEB-08
Collector: Client

Project: WSRB00308
Client ID: WSRB001

| Parameter | Qualifier | Result | DL | RL | Units | DF | Analyst | Date | Time | Batch | Method |
|--|-----------|--------|-------|-------|-------|----|---------|----------|------|--------|--------|
| Ion Chromatography Federal | | | | | | | | | | | |
| <i>SW846-9056 Sulfate in Solids</i> | | | | | | | | | | | |
| Chloride | U | 0.00 | 0.641 | 1.94 | mg/kg | 1 | VXP1 | 02/17/08 | 0008 | 727132 | 1 |
| Fluoride | U | 0.00 | 0.291 | 0.971 | mg/kg | 1 | | | | | |
| Sulfate | | 6.10 | 0.971 | 3.88 | mg/kg | 1 | | | | | |
| Nutrient Analysis | | | | | | | | | | | |
| <i>EPA 353.2 Nitrogen, Nitrate/Nitrite</i> | | | | | | | | | | | |
| Nitrogen, Nitrate/Nitrite | U | 0.917 | 1.59 | 4.96 | mg/kg | 10 | AXH3 | 02/19/08 | 1213 | 727006 | 2 |

The following Prep Methods were performed

| Method | Description | Analyst | Date | Time | Prep Batch |
|--------------------|------------------------------------|---------|----------|------|------------|
| EPA 353.2 Modified | EPA 353.1 Modified Nitrate/Nitrite | AXH3 | 02/18/08 | 1543 | 727004 |
| SW846 9056 | SW846-9056 Total Anions in Soil | VXP1 | 02/16/08 | 0811 | 727131 |

The following Analytical Methods were performed

| Method | Description | Analyst Comments |
|--------|--------------------|------------------|
| 1 | SW846 9056 | |
| 2 | EPA 353.2 Modified | |

GEL LABORATORIES LLC

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Certificate of Analysis

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

Report Date: March 5, 2008

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

Client Sample ID: ZV4SS-0000010
Sample ID: 202836004
Matrix: Misc Solid
Collect Date: 02-FEB-08 15:00
Receive Date: 14-FEB-08
Collector: Client

Project: WSRB00308
Client ID: WSRB001

| Parameter | Qualifier | Result | DL | RL | Units | DF | Analyst | Date | Time | Batch | Method |
|--|-----------|--------|-------|-------|-------|----|---------|----------|------|--------|--------|
| Ion Chromatography Federal | | | | | | | | | | | |
| <i>SW846-9056 Sulfate in Solids</i> | | | | | | | | | | | |
| Chloride | U | 0.00 | 0.652 | 1.97 | mg/kg | 1 | VXP1 | 02/17/08 | 0029 | 727132 | 1 |
| Fluoride | U | 0.00 | 0.296 | 0.987 | mg/kg | 1 | | | | | |
| Sulfate | J | 3.93 | 0.987 | 3.95 | mg/kg | 1 | | | | | |
| Nutrient Analysis | | | | | | | | | | | |
| <i>EPA 353.2 Nitrogen, Nitrate/Nitrite</i> | | | | | | | | | | | |
| Nitrogen, Nitrate/Nitrite | U | 0.0637 | 1.58 | 4.92 | mg/kg | 10 | AXH3 | 02/19/08 | 1215 | 727006 | 2 |

The following Prep Methods were performed

| Method | Description | Analyst | Date | Time | Prep Batch |
|--------------------|------------------------------------|---------|----------|------|------------|
| EPA 353.2 Modified | EPA 353.1 Modified Nitrate/Nitrite | AXH3 | 02/18/08 | 1543 | 727004 |
| SW846 9056 | SW846-9056 Total Anions in Soil | VXP1 | 02/16/08 | 0811 | 727131 |

The following Analytical Methods were performed

| Method | Description | Analyst Comments |
|--------|--------------------|------------------|
| 1 | SW846 9056 | |
| 2 | EPA 353.2 Modified | |

RADIOLOGICAL ANALYSIS

Radiochemistry Case Narrative
Westinghouse Savannah River Co. (WSRB)
SDG 202836

Method/Analysis Information

Product: Liquid Scint Tc99, Solid High Rad
Analytical Method: DOE EML HASL-300, Tc-02-RC Modified
Analytical Batch Number: 729240

| Sample ID | Client ID |
|------------------|---|
| 202836001 | ZV4SS-0000005 |
| 202836002 | ZV4SS-0000007 |
| 202836003 | ZV4SS-0000009 |
| 202836004 | ZV4SS-0000010 |
| 1201521098 | Method Blank (MB) |
| 1201521099 | 202836001(ZV4SS-0000005) Sample Duplicate (DUP) |
| 1201521100 | 202836001(ZV4SS-0000005) Matrix Spike (MS) |
| 1201521101 | 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# 14.

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 volumes in this batch.

Designated QC

The following sample was used for QC: 202836001 (ZV4SS-0000005).

QC Information

All of the QC samples met the required acceptance limits.

CSU

The blank result is greater than 1.65 times the CSU and MDA but less than the RDL.

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 a suspected blank false positive.

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.

Manual Integration

No manual integrations were performed on data in this batch.

Additional Comments

Additional comments were not required for this sample set.

Qualifier information

Manual qualifiers were not required.

Method/Analysis Information

| | |
|--------------------------|-----------------------------------|
| Product: | Gamma Ni59, Solid High Rad |
| Analytical Method: | DOE RESL Ni-1 |
| Prep Method: | Dry Soil Prep |
| Analytical Batch Number: | 733319 |
| Prep Batch Number: | 729236 |

| Sample ID | Client ID |
|------------------|---|
| 202836001 | ZV4SS-0000005 |
| 202836002 | ZV4SS-0000007 |
| 202836003 | ZV4SS-0000009 |
| 202836004 | ZV4SS-0000010 |
| 1201530317 | Method Blank (MB) |
| 1201530318 | 202836001(ZV4SS-0000005) Sample Duplicate (DUP) |
| 1201530319 | 202836001(ZV4SS-0000005) Matrix Spike (MS) |
| 1201530320 | 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-022 REV# 10.

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: 202836001 (ZV4SS-0000005).

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 reprepared due to not meeting required detection limits.

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.

Manual Integration

No manual integrations were performed on data in this batch.

Additional Comments

Additional comments were not required for this sample set.

Qualifier information

Manual qualifiers were not required.

Method/Analysis Information

| | |
|--------------------------|--|
| Product: | Liquid Scint Ni63, Solid High Rad |
| Analytical Method: | DOE RESL Ni-1, Modified |
| Prep Method: | Dry Soil Prep |
| Analytical Batch Number: | 732973 |
| Prep Batch Number: | 729236 |

| Sample ID | Client ID |
|------------------|---|
| 202836001 | ZV4SS-0000005 |
| 202836002 | ZV4SS-0000007 |
| 202836003 | ZV4SS-0000009 |
| 202836004 | ZV4SS-0000010 |
| 1201529481 | Method Blank (MB) |
| 1201529482 | 202836004(ZV4SS-0000010) Sample Duplicate (DUP) |
| 1201529483 | 202836004(ZV4SS-0000010) Matrix Spike (MS) |
| 1201529484 | 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-022 REV# 10.

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: 202836004 (ZV4SS-0000010).

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 reprepared due to high MDAs.

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.

Manual Integration

No manual integrations were performed on data in this batch.

Additional Comments

Additional comments were not required for this sample set.

Qualifier information

Manual qualifiers were not required.

Method/Analysis Information

Product: **Gammasec, Gamma, Solid High Rad+ Ra226, Ra228**
Analytical Method: EML HASL 300, 4.5.2.3
Prep Method: Dry Soil Prep
Analytical Batch Number: 729245
Prep Batch Number: 729236

| Sample ID | Client ID |
|------------------|---|
| 202836001 | ZV4SS-0000005 |
| 202836002 | ZV4SS-0000007 |
| 202836003 | ZV4SS-0000009 |
| 202836004 | ZV4SS-0000010 |
| 1201521122 | Method Blank (MB) |
| 1201521123 | 202836001(ZV4SS-0000005) Sample Duplicate (DUP) |
| 1201521124 | 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# 14.

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: 202836001 (ZV4SS-0000005).

QC Information

Refer to Non-Conformance Report.

CSU

The blank results for Pb-214 and K-40 for sample 1201521122 (MB) are 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

None of the samples in this sample set required reprep or reanalysis.

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 527122 was generated due to RDL less than MDA. 1. Samples 202836001, 002, 003, 004, 1201521122 and 1201521123 did not meet the required detection limits due to the high sample activity. 1. Reporting results.

Manual Integration

No manual integrations were performed on data in this batch.

Additional Comments

Additional comments were not required for this sample set.

Qualifier information

| Qualifier | Reason | Analyte | Sample |
|-----------|--|--------------|------------|
| 1 | EPA Storet Code:Compound identification criteria were not met. | Actinium-228 | 1201521122 |
| | | Bismuth-214 | 202836002 |
| | | | 202836003 |
| | | | 1201521123 |
| | | Niobium-94 | 202836001 |
| | | Potassium-40 | 202836004 |
| | | Radium-226 | 202836002 |
| | | | 202836003 |
| | | | 1201521123 |
| | | Radium-228 | 1201521122 |

Method/Analysis Information

Product: Gamma Low level I129, Solid High RAD

Analytical Method: EML HASL 300, 4.5.2.3

Analytical Batch Number: 731673

| Sample ID | Client ID |
|------------|---|
| 202836001 | ZV4SS-0000005 |
| 202836002 | ZV4SS-0000007 |
| 202836003 | ZV4SS-0000009 |
| 202836004 | ZV4SS-0000010 |
| 1201526576 | Method Blank (MB) |
| 1201526577 | 202836001(ZV4SS-0000005) Sample Duplicate (DUP) |
| 1201526578 | 202836001(ZV4SS-0000005) Matrix Spike (MS) |
| 1201526579 | 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# 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: 202836001 (ZV4SS-0000005).

QC Information

All of the QC samples met the required acceptance limits.

CSU

The method blank 1201526576 (MB) result for I-129 is greater than 1.65 times the CSU but less than the MDA.

Technical Information:

Holding Time

Refer to non-conformance report

Preparation Information

All preparation criteria have been met for these analyses.

Sample Re-prep/Re-analysis

Samples were reprepared due to not meeting the required detection limits.

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 528625 was generated due to Sample Analyzed out of Holding. 1. Samples 202836 001, 002, 003, 004, 1201526577, and 1201526578 were analyzed out of holding. 1. Reporting results.

Manual Integration

No manual integrations were performed on data in this batch.

Additional Comments

Additional comments were not required for this sample set.

Qualifier information

| Qualifier | Reason | Analyte | Sample |
|------------------|--|----------------|---------------|
| 1 | EPA Storet Code:Compound identification criteria were not met. | Iodine-129 | 202836004 |

Method/Analysis Information

Product: GFPC, Gross Alpha Solid High Rad
Analytical Method: EPA 900.0 Modified
Prep Method: Dry Soil Prep
Analytical Batch Number: 734823
Prep Batch Number: 729236

| Sample ID | Client ID |
|------------------|---|
| 202836001 | ZV4SS-0000005 |
| 202836002 | ZV4SS-0000007 |
| 202836003 | ZV4SS-0000009 |
| 202836004 | ZV4SS-0000010 |
| 1201533722 | Method Blank (MB) |
| 1201533723 | 202836001(ZV4SS-0000005) Sample Duplicate (DUP) |
| 1201533724 | 202836001(ZV4SS-0000005) Matrix Spike (MS) |
| 1201533725 | 202836001(ZV4SS-0000005) Matrix Spike Duplicate (MSD) |
| 1201533726 | 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# 11.

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 volume in this batch.

Designated QC

The following sample was used for QC: 202836001 (ZV4SS-0000005).

QC Information

Refer to Non-Conformance Report. The matrix spike and matrix spike duplicate, 1201533724 (ZV4SS-0000005) and 1201533725 (ZV4SS-0000005), did not meet beta recovery requirements due to the sample activity being greater than five times the spiked nominal concentration.

CSU

The beta result for blank 1201533722 (MB) is greater than 1.65 times the CSU but less than the five percent of the lowest sample activity.

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 low/high recovery. Samples 202836001 (ZV4SS-0000005), 202836002 (ZV4SS-0000007), 202836003 (ZV4SS-0000009) and 202836004 (ZV4SS-0000010) were repped due to low/high recovery. Samples 202836001 (ZV4SS-0000005), 202836002 (ZV4SS-0000007), 202836003 (ZV4SS-0000009) and 202836004 (ZV4SS-0000010) were repped due to high relative percent difference/relative error ratio.

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. The following NCR was generated for this SDG: NCR 530116 was generated due to Failed Recovery for MS/PS. 1. Matrix spike 1201533724 did not meet the alpha recovery requirement. The matrix spike duplicate met the recovery requirement;

however, it passed with a low value. The matrix spike and matrix spike duplicate are similar in results.
1. Reporting results.

Manual Integration

No manual integrations were performed on data in this batch.

Additional Comments

Samples 1201533722 (MB) and 202836004 (ZV4SS-0000010) did not meet the alpha required detection limit due to low sample volume. No more sample could be used without exceeding the maximum net weight limit. The samples counted for 500 minutes. The sample and the duplicate, 1201533723 (ZV4SS-0000005) and 202836001 (ZV4SS-0000005), did not meet the alpha relative percent difference requirement; however, they do meet the relative error ratio requirement with value of 0.5781.

Qualifier information

Manual qualifiers were not required.

Method/Analysis Information

| | |
|--------------------------|-----------------------------------|
| Product: | GFPC, Sr90, solid High Rad |
| Analytical Method: | EPA 905.0 Modified |
| Prep Method: | Dry Soil Prep |
| Analytical Batch Number: | 729241 |
| Prep Batch Number: | 729236 |

| Sample ID | Client ID |
|------------------|---|
| 202836001 | ZV4SS-0000005 |
| 202836002 | ZV4SS-0000007 |
| 202836003 | ZV4SS-0000009 |
| 202836004 | ZV4SS-0000010 |
| 1201521105 | Method Blank (MB) |
| 1201521106 | 202836001(ZV4SS-0000005) Sample Duplicate (DUP) |
| 1201521107 | 202836001(ZV4SS-0000005) Matrix Spike (MS) |
| 1201521108 | 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 volumes in this batch.

Designated QC

The following sample was used for QC: 202836001 (ZV4SS-0000005).

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 202836004 (ZV4SS-0000010) was recounted due to high MDA. Sample 1201521105 (MB) was recounted due to a negative result greater than three times the error. Samples 202836001 (ZV4SS-0000005), 202836002 (ZV4SS-0000007), 202836003 (ZV4SS-0000009) and 202836004 (ZV4SS-0000010) 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.

Manual Integration

No manual integrations were performed on data in this batch.

Additional Comments

The results for samples 202836001 (ZV4SS-0000005), 202836002 (ZV4SS-0000007), 202836003 (ZV4SS-0000009) and 202836004 (ZV4SS-0000010) were verified by recounting at least five days from the separation date.

Qualifier information

Manual qualifiers were not required.

Method/Analysis Information

Product: LSC, Tritium Dist, Solid High Rad

Analytical Method: EPA 906.0 Modified

Analytical Batch Number: 734356

| Sample ID | Client ID |
|------------------|---|
| 202836001 | ZV4SS-0000005 |
| 202836002 | ZV4SS-0000007 |
| 202836003 | ZV4SS-0000009 |
| 202836004 | ZV4SS-0000010 |
| 1201532682 | Method Blank (MB) |
| 1201532683 | 202836001(ZV4SS-0000005) Sample Duplicate (DUP) |
| 1201532684 | 202836001(ZV4SS-0000005) Matrix Spike (MS) |
| 1201532685 | 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-002 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: 202836001 (ZV4SS-0000005).

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 202836001 (ZV4SS-0000005), 202836002 (ZV4SS-0000007), 202836003 (ZV4SS-0000009) and 202836004 (ZV4SS-0000010) were reprepared due to low/high recovery. Samples 202836001 (ZV4SS-0000005), 202836002 (ZV4SS-0000007), 202836003 (ZV4SS-0000009) and 202836004 (ZV4SS-0000010) were reprepared due to high relative percent difference/relative error ratio.

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.

Manual Integration

No manual integrations were performed on data in this batch.

Additional Comments

The result for sample 202836003 (ZV4SS-0000009) is biased high due to spectral interference.

Qualifier information

| Qualifier | Reason | Analyte | Sample |
|------------------|--|----------------|---------------|
| 4 | Matrix interference is present. | Tritium | 202836003 |
| R | The sample result is rejected as unusable due to serious deficiencies in meeting quality control criteria. The analyte may be present or absent. | | 202836003 |

Method/Analysis Information

Product: Liquid Scint C14, Solid High RAD
Analytical Method: EPA EERF C-01 Modified
Analytical Batch Number: 729239

| Sample ID | Client ID |
|------------------|---|
| 202836001 | ZV4SS-0000005 |
| 202836002 | ZV4SS-0000007 |
| 202836003 | ZV4SS-0000009 |
| 202836004 | ZV4SS-0000010 |
| 1201521091 | Method Blank (MB) |
| 1201521092 | 202836001(ZV4SS-0000005) Sample Duplicate (DUP) |
| 1201521093 | 202836001(ZV4SS-0000005) Matrix Spike (MS) |
| 1201521094 | 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# 9.

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 volumes in this batch.

Designated QC

The following sample was used for QC: 202836001 (ZV4SS-0000005).

QC Information

All of the QC samples met the required acceptance limits.

COMPANY - WIDE NONCONFORMANCE REPORT

| | | | |
|--|--|--|-----------------------------|
| Mo.Day Yr. 04-MAR-08 | Division: Radiochemistry | Quality Criteria: Specifications | Type: Process |
| Instrument Type: GAMMA SPECTROMETER | Test / Method: EML HASL 300, 4.5.2.3 | Matrix Type: Solid | Client Code: WSRB |
| Batch ID: 729245 | Sample Numbers: See Below | | |
| Potentially affected work order(s)(SDG): 202836 | | | |
| Application Issues: RDL less than MDA | | | |
| Specification and Requirements Nonconformance Description: | | NRG Disposition: | |
| 1. Samples 202836001, 002, 003, 004, 1201521122 and 1201521123 did not meet the required detection limits due to the high sample activity. | | 1. Reporting results. | |

Originator's Name:
 Heather Anderson 04-MAR-08

Data Validator/Group Leader:
 Lesley Anderson 11-MAR-08

Quality Review:

Director:

COMPANY - WIDE NONCONFORMANCE REPORT

| | | | |
|--|--|--|-----------------------------|
| Mo.Day Yr. 10-MAR-08 | Division: Radiochemistry | Quality Criteria: Specifications | Type: Process |
| Instrument Type: GAMMA SPECTROMETER | Test / Method: EML HASL 300, 4.5.2.3 | Matrix Type: Solid | Client Code: WSRB |
| Batch ID: 731673 | Sample Numbers: See Below | | |
| Potentially affected work order(s)(SDG): 202836 | | | |
| Application Issues: Sample Analyzed out of Holding | | | |
| Specification and Requirements Nonconformance Description: | | NRG Disposition: | |
| 1. Samples 202836 001, 002, 003, 004, 1201526577, and 1201526578 were analyzed out of holding. | | 1. Reporting results. | |

Originator's Name:
 Shenise Euland 10-MAR-08

Data Validator/Group Leader:
 Lesley Anderson 11-MAR-08

Quality Review:

Director:

COMPANY - WIDE NONCONFORMANCE REPORT

| | | | |
|---|---|--|-----------------------------|
| Mo.Day Yr. 11-MAR-08 | Division: Radiochemistry | Quality Criteria: Specifications | Type: Process |
| Instrument Type: LSC | Test / Method: EPA EERF C-01 Modified | Matrix Type: Solid | Client Code: WSRB |
| Batch ID: 729239 | Sample Numbers: See Below | | |
| Potentially affected work order(s)(SDG): 202836 | | | |
| Application Issues: Sample Analyzed out of Holding | | | |
| Specification and Requirements | | NRG Disposition: | |
| Nonconformance Description: | | | |
| 1. Samples 202836001, 202836002, 202836003, 202836004, 1201521092, and 1201521093 were analyzed out of holding. | | 1. Reporting results. | |

Originator's Name:
 John Parker 11-MAR-08

Data Validator/Group Leader:
 Lesley Anderson 12-MAR-08

Quality Review:

Director:

COMPANY - WIDE NONCONFORMANCE REPORT

| | | | |
|---|---|--|-----------------------------|
| Mo.Day Yr. 13-MAR-08 | Division: Radiochemistry | Quality Criteria: Specifications | Type: Process |
| Instrument Type: GFPC | Test / Method: EPA 900.0 Modified | Matrix Type: Solid | Client Code: WSRB |
| Batch ID: 734823 | Sample Numbers: See Below | | |
| Potentially affected work order(s)(SDG): 202836 | | | |
| Application Issues: Failed Recovery for MS/PS | | | |
| Specification and Requirements Nonconformance Description: | | NRG Disposition: | |
| 1. Matrix spike 1201533724 did not meet the alpha recovery requirement. The matrix spike duplicate met the recovery requirement; however, it passed with a low value. The matrix spike and matrix spike duplicate are similar in results. | | 1. Reporting results. | |

Originator's Name:
 John Parker 13-MAR-08

Data Validator/Group Leader:
 Kate Gellatly 13-MAR-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 Westinghouse Savannah River Co. (AC33915N)

Client SDG: 202836 GEL Work Order: 202836

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.



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: March 13, 2008

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

Client Sample ID: ZV4SS-0000005
 Sample ID: 202836001
 Matrix: Misc Solid
 Collect Date: 02-FEB-08 10:30
 Receive Date: 14-FEB-08
 Collector: Client

Project: WSRB00308
 Client ID: WSRB001

| Parameter | Qualifier | Result | Uncertainty | DL | RL | Units | DF | AnalystDate | Time | Batch | Method |
|--|-----------|----------|-------------|-------|-------|-------|----|---------------|------|--------|--------|
| High Rad Testing | | | | | | | | | | | |
| <i>Gamma Low level I129, Solid High RAD</i> | | | | | | | | | | | |
| Iodine-129 | UJ | -0.0446 | +/-0.214 | 0.311 | 2.24 | pCi/g | | TC1 03/06/08 | 1948 | 731673 | 1 |
| <i>LSC, Tritium Dist, Solid High Rad</i> | | | | | | | | | | | |
| Tritium | U | 4.10 | +/-2.15 | 3.34 | 3.00 | pCi/g | | GXR1 03/11/08 | 1630 | 734356 | 2 |
| <i>Liquid Scint C14, Solid High RAD</i> | | | | | | | | | | | |
| Carbon-14 | UJ | -11.8 | +/-9.29 | 17.4 | 274 | pCi/g | | GXR1 03/10/08 | 2246 | 729239 | 3 |
| <i>Liquid Scint Tc99, Solid High Rad</i> | | | | | | | | | | | |
| Technetium-99 | J | 66.4 | +/-19.0 | 28.4 | 90.4 | pCi/g | | GXR1 03/12/08 | 1041 | 729240 | 4 |
| <i>GFPC, Gross Alpha Solid High Rad</i> | | | | | | | | | | | |
| Alpha | | 1930 | +/-102 | 32.7 | 1.00 | pCi/g | | GXR1 03/12/08 | 2005 | 734823 | 5 |
| Beta | | 1.83E+05 | +/-506 | 45.9 | 8.00 | pCi/g | | | | | |
| <i>GFPC, Sr90, solid High Rad</i> | | | | | | | | | | | |
| Strontium-90 | | 33.8 | +/-5.53 | 4.59 | 1.92 | pCi/g | | TC1 03/10/08 | 2151 | 729241 | 6 |
| <i>Gamma Ni59, Solid High Rad</i> | | | | | | | | | | | |
| Nickel-59 | U | -13.6 | +/-5.97 | 7.90 | 20.0 | pCi/g | | TC1 03/07/08 | 0536 | 733319 | 7 |
| <i>Gammascpec, Gamma, Solid High Rad+ Ra226, Ra228</i> | | | | | | | | | | | |
| Actinium-228 | U | 14.6 | +/-15.8 | 25.9 | 0.369 | pCi/g | | TC1 02/27/08 | 1411 | 729245 | 8 |
| Antimony-125 | | 190 | +/-47.3 | 63.0 | 0.316 | pCi/g | | | | | |
| Bismuth-214 | U | -8.38 | +/-16.3 | 27.1 | 6.19 | pCi/g | | | | | |
| Cesium-137 | | 2.09E+05 | +/-19800 | 14.3 | 0.170 | pCi/g | | | | | |
| Cobalt-60 | U | 0.118 | +/-1.33 | 1.74 | 0.300 | pCi/g | | | | | |
| Lead-212 | U | 5.94 | +/-13.1 | 22.5 | 0.291 | pCi/g | | | | | |
| Lead-214 | U | 6.29 | +/-21.4 | 36.3 | 0.264 | pCi/g | | | | | |
| Niobium-94 | R | 12.9 | +/-6.18 | 8.68 | 1.00 | pCi/g | | | | | |
| Potassium-40 | J | 22.2 | +/-9.89 | 11.5 | 1.01 | pCi/g | | | | | |
| Radium-226 | U | -8.38 | +/-16.3 | 27.1 | | pCi/g | | | | | |
| Radium-228 | U | 14.6 | +/-15.8 | 25.9 | 0.500 | pCi/g | | | | | |
| Ruthenium-106 | U | -24 | +/-81.0 | 134 | 0.800 | pCi/g | | | | | |
| Thallium-208 | U | 12.1 | +/-9.34 | 15.5 | 0.133 | pCi/g | | | | | |
| <i>Liquid Scint Ni63, Solid High Rad</i> | | | | | | | | | | | |
| Nickel-63 | U | -10.4 | +/-10.8 | 18.7 | 23.4 | pCi/g | | TC1 03/07/08 | 1815 | 732973 | 9 |

The following Prep Methods were performed

| Method | Description | Analyst | Date | Time | Prep Batch |
|---------------|----------------------------|---------|----------|------|------------|
| Dry Soil Prep | Dry Soil Prep GL-RAD-A-021 | TC1 | 02/25/08 | 1448 | 729236 |

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Certificate of Analysis

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

Report Date: March 13, 2008

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

Client Sample ID: ZV4SS-0000005
Sample ID: 202836001

Project: WSRB00308
Client ID: WSRB001

| Parameter | Qualifier | Result | Uncertainty | DL | RL | Units | DF | AnalystDate | Time | Batch | Method |
|-----------|-----------|--------|-------------|----|----|-------|----|-------------|------|-------|--------|
|-----------|-----------|--------|-------------|----|----|-------|----|-------------|------|-------|--------|

The following Analytical Methods were performed

| Method | Description | Analyst Comments |
|--------|-------------------------------------|------------------|
| 1 | EML HASL 300, 4.5.2.3 | |
| 2 | EPA 906.0 Modified | |
| 3 | EPA EERF C-01 Modified | |
| 4 | DOE EML HASL-300, Tc-02-RC Modified | |
| 5 | EPA 900.0 Modified | |
| 6 | EPA 905.0 Modified | |
| 7 | DOE RESL Ni-1 | |
| 8 | EML HASL 300, 4.5.2.3 | |
| 9 | DOE RESL Ni-1, Modified | |

| Surrogate/Tracer recovery | Test | Result | Nominal | Recovery% | Acceptable Limits |
|---------------------------|-----------------------------------|--------------|----------|-----------|-------------------|
| Technetium-99m Tracer | Liquid Scint Tc99, Solid High Rad | 1.95E+05 CPM | 2.64E+05 | 74 | (15%-125%) |
| Strontium Carrier | GFPC, Sr90, solid High Rad | 8.00 mg | 8.95 | 89 | (25%-125%) |
| Nickel Carrier | Gamma Ni59, Solid High Rad | 20.2 mg | 21.3 | 95 | (25%-125%) |
| Nickel Carrier | Liquid Scint Ni63, Solid High Rad | 20.7 mg | 23.2 | 89 | (25%-125%) |

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Certificate of Analysis

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 Aiken, South Carolina 29808

Report Date: March 13, 2008

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

Client Sample ID: ZV4SS-0000007
 Sample ID: 202836002
 Matrix: Misc Solid
 Collect Date: 02-FEB-08 14:45
 Receive Date: 14-FEB-08
 Collector: Client

Project: WSRB00308
 Client ID: WSRB001

| Parameter | Qualifier | Result | Uncertainty | DL | RL | Units | DF | AnalystDate | Time | Batch | Method |
|--|-----------|----------|-------------|-------|-------|-------|----|---------------|------|--------|--------|
| High Rad Testing | | | | | | | | | | | |
| <i>Gamma Low level I129, Solid High RAD</i> | | | | | | | | | | | |
| Iodine-129 | UJ | 0.910 | +/-0.715 | 0.998 | 2.24 | pCi/g | | TC1 03/06/08 | 1949 | 731673 | 1 |
| <i>LSC, Tritium Dist, Solid High Rad</i> | | | | | | | | | | | |
| Tritium | U | 2.60 | +/-1.82 | 2.93 | 3.00 | pCi/g | | GXR1 03/11/08 | 1733 | 734356 | 2 |
| <i>Liquid Scint C14, Solid High RAD</i> | | | | | | | | | | | |
| Carbon-14 | UJ | -1.63 | +/-6.68 | 11.9 | 274 | pCi/g | | GXR1 03/10/08 | 2303 | 729239 | 3 |
| <i>Liquid Scint Tc99, Solid High Rad</i> | | | | | | | | | | | |
| Technetium-99 | U | 34.4 | +/-16.7 | 26.7 | 90.4 | pCi/g | | GXR1 03/12/08 | 1057 | 729240 | 4 |
| <i>GFPC, Gross Alpha Solid High Rad</i> | | | | | | | | | | | |
| Alpha | | 4100 | +/-147 | 23.8 | 1.00 | pCi/g | | GXR1 03/12/08 | 2049 | 734823 | 5 |
| Beta | | 1.98E+05 | +/-542 | 32.2 | 8.00 | pCi/g | | | | | |
| <i>GFPC, Sr90, solid High Rad</i> | | | | | | | | | | | |
| Strontium-90 | | 47.9 | +/-6.10 | 4.07 | 1.92 | pCi/g | | TC1 03/10/08 | 2152 | 729241 | 6 |
| <i>Gamma Ni59, Solid High Rad</i> | | | | | | | | | | | |
| Nickel-59 | U | 0.239 | +/-1.21 | 2.40 | 20.0 | pCi/g | | TC1 03/07/08 | 0537 | 733319 | 7 |
| <i>Gammascpec, Gamma, Solid High Rad+ Ra226, Ra228</i> | | | | | | | | | | | |
| Actinium-228 | U | 10.3 | +/-17.5 | 29.8 | 0.369 | pCi/g | | TC1 02/28/08 | 0909 | 729245 | 8 |
| Antimony-125 | | 292 | +/-57.0 | 67.1 | 0.316 | pCi/g | | | | | |
| Bismuth-214 | R | 50.4 | +/-21.3 | 29.8 | 6.19 | pCi/g | | | | | |
| Cesium-137 | | 1.65E+05 | +/-15700 | 16.0 | 0.170 | pCi/g | | | | | |
| Cobalt-60 | U | 0.176 | +/-1.49 | 2.15 | 0.300 | pCi/g | | | | | |
| Lead-212 | U | 21.5 | +/-16.3 | 24.4 | 0.291 | pCi/g | | | | | |
| Lead-214 | U | 6.48 | +/-23.0 | 39.1 | 0.264 | pCi/g | | | | | |
| Niobium-94 | U | -10.7 | +/-6.19 | 10.0 | 1.00 | pCi/g | | | | | |
| Potassium-40 | U | -4.19 | +/-8.86 | 14.4 | 1.01 | pCi/g | | | | | |
| Radium-226 | R | 50.4 | +/-21.3 | 29.8 | | pCi/g | | | | | |
| Radium-228 | U | 10.3 | +/-17.5 | 29.8 | 0.500 | pCi/g | | | | | |
| Ruthenium-106 | U | 10.8 | +/-91.4 | 148 | 0.800 | pCi/g | | | | | |
| Thallium-208 | U | 13.7 | +/-10.3 | 17.0 | 0.133 | pCi/g | | | | | |
| <i>Liquid Scint Ni63, Solid High Rad</i> | | | | | | | | | | | |
| Nickel-63 | U | -8.27 | +/-12.2 | 21.2 | 23.4 | pCi/g | | TC1 03/07/08 | 2019 | 732973 | 9 |

The following Prep Methods were performed

| Method | Description | Analyst | Date | Time | Prep Batch |
|---------------|----------------------------|---------|----------|------|------------|
| Dry Soil Prep | Dry Soil Prep GL-RAD-A-021 | TC1 | 02/25/08 | 1448 | 729236 |

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Certificate of Analysis

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

Report Date: March 13, 2008

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

Client Sample ID: ZV4SS-0000007
Sample ID: 202836002

Project: WSRB00308
Client ID: WSRB001

| Parameter | Qualifier | Result | Uncertainty | DL | RL | Units | DF | AnalystDate | Time | Batch | Method |
|-----------|-----------|--------|-------------|----|----|-------|----|-------------|------|-------|--------|
|-----------|-----------|--------|-------------|----|----|-------|----|-------------|------|-------|--------|

The following Analytical Methods were performed

| Method | Description | Analyst Comments |
|--------|-------------------------------------|------------------|
| 1 | EML HASL 300, 4.5.2.3 | |
| 2 | EPA 906.0 Modified | |
| 3 | EPA EERF C-01 Modified | |
| 4 | DOE EML HASL-300, Tc-02-RC Modified | |
| 5 | EPA 900.0 Modified | |
| 6 | EPA 905.0 Modified | |
| 7 | DOE RESL Ni-1 | |
| 8 | EML HASL 300, 4.5.2.3 | |
| 9 | DOE RESL Ni-1, Modified | |

| Surrogate/Tracer recovery | Test | Result | Nominal | Recovery% | Acceptable Limits |
|---------------------------|-----------------------------------|--------------|----------|-----------|-------------------|
| Technetium-99m Tracer | Liquid Scint Tc99, Solid High Rad | 2.04E+05 CPM | 2.64E+05 | 77 | (15%-125%) |
| Strontium Carrier | GFPC, Sr90, solid High Rad | 8.00 mg | 8.95 | 89 | (25%-125%) |
| Nickel Carrier | Gamma Ni59, Solid High Rad | 20.1 mg | 21.3 | 94 | (25%-125%) |
| Nickel Carrier | Liquid Scint Ni63, Solid High Rad | 17.7 mg | 23.2 | 76 | (25%-125%) |

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 Aiken, South Carolina 29808

Report Date: March 13, 2008

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

Client Sample ID: ZV4SS-0000009
 Sample ID: 202836003
 Matrix: Misc Solid
 Collect Date: 02-FEB-08 14:45
 Receive Date: 14-FEB-08
 Collector: Client

Project: WSRB00308
 Client ID: WSRB001

| Parameter | Qualifier | Result | Uncertainty | DL | RL | Units | DF | AnalystDate | Time | Batch | Method |
|--|-----------|----------|-------------|-------|-------|-------|----|---------------|------|--------|--------|
| High Rad Testing | | | | | | | | | | | |
| <i>Gamma Low level I129, Solid High RAD</i> | | | | | | | | | | | |
| Iodine-129 | UJ | 0.415 | +/-0.389 | 0.551 | 2.24 | pCi/g | | TC1 03/07/08 | 1802 | 731673 | 1 |
| <i>LSC, Tritium Dist, Solid High Rad</i> | | | | | | | | | | | |
| Tritium | R | 199 | +/-6.88 | 2.60 | 3.00 | pCi/g | | GXR1 03/11/08 | 1835 | 734356 | 2 |
| <i>Liquid Scint C14, Solid High RAD</i> | | | | | | | | | | | |
| Carbon-14 | UJ | -4.58 | +/-7.66 | 13.8 | 274 | pCi/g | | GXR1 03/10/08 | 2319 | 729239 | 3 |
| <i>Liquid Scint Tc99, Solid High Rad</i> | | | | | | | | | | | |
| Technetium-99 | J | 79.3 | +/-17.6 | 25.1 | 90.4 | pCi/g | | GXR1 03/12/08 | 1114 | 729240 | 4 |
| <i>GFPC, Gross Alpha Solid High Rad</i> | | | | | | | | | | | |
| Alpha | | 1860 | +/-93.4 | 35.5 | 1.00 | pCi/g | | GXR1 03/12/08 | 2049 | 734823 | 5 |
| Beta | | 1.87E+05 | +/-504 | 32.2 | 8.00 | pCi/g | | | | | |
| <i>GFPC, Sr90, solid High Rad</i> | | | | | | | | | | | |
| Strontium-90 | | 27.3 | +/-5.10 | 4.98 | 1.92 | pCi/g | | TC1 03/10/08 | 2152 | 729241 | 6 |
| <i>Gamma Ni59, Solid High Rad</i> | | | | | | | | | | | |
| Nickel-59 | U | -3.08 | +/-2.50 | 3.62 | 20.0 | pCi/g | | TC1 03/07/08 | 0537 | 733319 | 7 |
| <i>Gammascpec, Gamma, Solid High Rad+ Ra226, Ra228</i> | | | | | | | | | | | |
| Actinium-228 | U | -16.9 | +/-17.7 | 29.9 | 0.369 | pCi/g | | TC1 02/28/08 | 1130 | 729245 | 8 |
| Antimony-125 | | 511 | +/-64.0 | 75.3 | 0.316 | pCi/g | | | | | |
| Bismuth-214 | R | 66.4 | +/-23.4 | 32.3 | 6.19 | pCi/g | | | | | |
| Cesium-137 | | 1.71E+05 | +/-16200 | 17.0 | 0.170 | pCi/g | | | | | |
| Cobalt-60 | U | 1.54 | +/-1.31 | 1.99 | 0.300 | pCi/g | | | | | |
| Lead-212 | U | -9.71 | +/-15.7 | 27.0 | 0.291 | pCi/g | | | | | |
| Lead-214 | U | 1.36 | +/-25.6 | 43.4 | 0.264 | pCi/g | | | | | |
| Niobium-94 | U | -14.4 | +/-6.29 | 10.1 | 1.00 | pCi/g | | | | | |
| Potassium-40 | U | 1.49 | +/-8.34 | 14.0 | 1.01 | pCi/g | | | | | |
| Radium-226 | R | 66.4 | +/-23.4 | 32.3 | | pCi/g | | | | | |
| Radium-228 | U | -16.9 | +/-17.7 | 29.9 | 0.500 | pCi/g | | | | | |
| Ruthenium-106 | U | -134 | +/-107 | 159 | 0.800 | pCi/g | | | | | |
| Thallium-208 | U | 2.45 | +/-11.1 | 18.4 | 0.133 | pCi/g | | | | | |
| <i>Liquid Scint Ni63, Solid High Rad</i> | | | | | | | | | | | |
| Nickel-63 | U | -10.8 | +/-10.8 | 18.8 | 23.4 | pCi/g | | TC1 03/07/08 | 2224 | 732973 | 9 |

The following Prep Methods were performed

| Method | Description | Analyst | Date | Time | Prep Batch |
|---------------|----------------------------|---------|----------|------|------------|
| Dry Soil Prep | Dry Soil Prep GL-RAD-A-021 | TC1 | 02/25/08 | 1448 | 729236 |

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Certificate of Analysis

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

Report Date: March 13, 2008

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

Client Sample ID: ZV4SS-0000009
Sample ID: 202836003

Project: WSRB00308
Client ID: WSRB001

| Parameter | Qualifier | Result | Uncertainty | DL | RL | Units | DF | AnalystDate | Time | Batch | Method |
|-----------|-----------|--------|-------------|----|----|-------|----|-------------|------|-------|--------|
|-----------|-----------|--------|-------------|----|----|-------|----|-------------|------|-------|--------|

The following Analytical Methods were performed

| Method | Description | Analyst Comments |
|--------|-------------------------------------|------------------|
| 1 | EML HASL 300, 4.5.2.3 | |
| 2 | EPA 906.0 Modified | |
| 3 | EPA EERF C-01 Modified | |
| 4 | DOE EML HASL-300, Tc-02-RC Modified | |
| 5 | EPA 900.0 Modified | |
| 6 | EPA 905.0 Modified | |
| 7 | DOE RESL Ni-1 | |
| 8 | EML HASL 300, 4.5.2.3 | |
| 9 | DOE RESL Ni-1, Modified | |

| Surrogate/Tracer recovery | Test | Result | Nominal | Recovery% | Acceptable Limits |
|---------------------------|-----------------------------------|--------------|----------|-----------|-------------------|
| Technetium-99m Tracer | Liquid Scint Tc99, Solid High Rad | 1.98E+05 CPM | 2.64E+05 | 75 | (15%-125%) |
| Strontium Carrier | GFPC, Sr90, solid High Rad | 8.10 mg | 8.95 | 91 | (25%-125%) |
| Nickel Carrier | Gamma Ni59, Solid High Rad | 20.5 mg | 21.3 | 96 | (25%-125%) |
| Nickel Carrier | Liquid Scint Ni63, Solid High Rad | 20.3 mg | 23.2 | 88 | (25%-125%) |

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Certificate of Analysis

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 Aiken, South Carolina 29808

Report Date: March 13, 2008

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

Client Sample ID: ZV4SS-0000010
 Sample ID: 202836004
 Matrix: Misc Solid
 Collect Date: 02-FEB-08 15:00
 Receive Date: 14-FEB-08
 Collector: Client

Project: WSRB00308
 Client ID: WSRB001

| Parameter | Qualifier | Result | Uncertainty | DL | RL | Units | DF | AnalystDate | Time | Batch | Method |
|--|-----------|----------|-------------|------|-------|-------|----|---------------|------|--------|--------|
| High Rad Testing | | | | | | | | | | | |
| <i>Gamma Low level I129, Solid High RAD</i> | | | | | | | | | | | |
| Iodine-129 | R | 2.71 | +/-1.43 | 2.02 | 2.24 | pCi/g | | TC1 03/07/08 | 1802 | 731673 | 1 |
| <i>LSC, Tritium Dist, Solid High Rad</i> | | | | | | | | | | | |
| Tritium | | 11.0 | +/-2.22 | 2.73 | 3.00 | pCi/g | | GXR1 03/11/08 | 2112 | 734356 | 2 |
| <i>Liquid Scint C14, Solid High RAD</i> | | | | | | | | | | | |
| Carbon-14 | UJ | -4.02 | +/-6.41 | 11.6 | 274 | pCi/g | | GXR1 03/10/08 | 2335 | 729239 | 3 |
| <i>Liquid Scint Tc99, Solid High Rad</i> | | | | | | | | | | | |
| Technetium-99 | U | 42.0 | +/-12.5 | 18.8 | 90.4 | pCi/g | | GXR1 03/12/08 | 1131 | 729240 | 4 |
| <i>GFPC, Gross Alpha Solid High Rad</i> | | | | | | | | | | | |
| Alpha | U | -30.7 | +/-17.9 | 20.0 | 1.00 | pCi/g | | GXR1 03/12/08 | 2049 | 734823 | 5 |
| Beta | | 1.23E+05 | +/-416 | 32.3 | 8.00 | pCi/g | | | | | |
| <i>GFPC, Sr90, solid High Rad</i> | | | | | | | | | | | |
| Strontium-90 | U | 1.08 | +/-1.13 | 1.88 | 1.92 | pCi/g | | TC1 03/12/08 | 1536 | 729241 | 6 |
| <i>Gamma Ni59, Solid High Rad</i> | | | | | | | | | | | |
| Nickel-59 | U | -12.1 | +/-5.82 | 7.78 | 20.0 | pCi/g | | TC1 03/07/08 | 0741 | 733319 | 7 |
| <i>Gammascpec, Gamma, Solid High Rad+ Ra226, Ra228</i> | | | | | | | | | | | |
| Actinium-228 | U | 0.959 | +/-11.8 | 20.1 | 0.369 | pCi/g | | TC1 02/28/08 | 1347 | 729245 | 8 |
| Antimony-125 | | 231 | +/-49.6 | 59.0 | 0.316 | pCi/g | | | | | |
| Bismuth-214 | U | -10.7 | +/-15.1 | 25.0 | 6.19 | pCi/g | | | | | |
| Cesium-137 | | 1.17E+05 | +/-11100 | 12.6 | 0.170 | pCi/g | | | | | |
| Cobalt-60 | U | 0.268 | +/-0.782 | 1.17 | 0.300 | pCi/g | | | | | |
| Lead-212 | U | 15.0 | +/-12.8 | 21.5 | 0.291 | pCi/g | | | | | |
| Lead-214 | U | 3.51 | +/-20.2 | 34.3 | 0.264 | pCi/g | | | | | |
| Niobium-94 | U | -3.36 | +/-4.13 | 6.76 | 1.00 | pCi/g | | | | | |
| Potassium-40 | R | 15.6 | +/-5.83 | 11.1 | 1.01 | pCi/g | | | | | |
| Radium-226 | U | -10.7 | +/-15.1 | 25.0 | | pCi/g | | | | | |
| Radium-228 | U | 0.959 | +/-11.8 | 20.1 | 0.500 | pCi/g | | | | | |
| Ruthenium-106 | U | -23.7 | +/-74.6 | 124 | 0.800 | pCi/g | | | | | |
| Thallium-208 | U | 6.72 | +/-8.63 | 14.3 | 0.133 | pCi/g | | | | | |
| <i>Liquid Scint Ni63, Solid High Rad</i> | | | | | | | | | | | |
| Nickel-63 | U | -10.7 | +/-11.0 | 19.2 | 23.4 | pCi/g | | TC1 03/08/08 | 0029 | 732973 | 9 |

The following Prep Methods were performed

| Method | Description | Analyst | Date | Time | Prep Batch |
|---------------|----------------------------|---------|----------|------|------------|
| Dry Soil Prep | Dry Soil Prep GL-RAD-A-021 | TC1 | 02/25/08 | 1448 | 729236 |

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Certificate of Analysis

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Aiken, South Carolina 29808

Report Date: March 13, 2008

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

Client Sample ID: ZV4SS-0000010
Sample ID: 202836004

Project: WSRB00308
Client ID: WSRB001

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

The following Analytical Methods were performed

| Method | Description | Analyst | Comments |
|--------|-------------------------------------|---------|----------|
| 1 | EML HASL 300, 4.5.2.3 | | |
| 2 | EPA 906.0 Modified | | |
| 3 | EPA EERF C-01 Modified | | |
| 4 | DOE EML HASL-300, Tc-02-RC Modified | | |
| 5 | EPA 900.0 Modified | | |
| 6 | EPA 905.0 Modified | | |
| 7 | DOE RESL Ni-1 | | |
| 8 | EML HASL 300, 4.5.2.3 | | |
| 9 | DOE RESL Ni-1, Modified | | |

| Surrogate/Tracer recovery | Test | Result | Nominal | Recovery% | Acceptable Limits |
|---------------------------|-----------------------------------|--------------|----------|-----------|-------------------|
| Technetium-99m Tracer | Liquid Scint Tc99, Solid High Rad | 2.09E+05 CPM | 2.64E+05 | 79 | (15%-125%) |
| Strontium Carrier | GFPC, Sr90, solid High Rad | 8.30 mg | 8.95 | 93 | (25%-125%) |
| Nickel Carrier | Gamma Ni59, Solid High Rad | 20.1 mg | 21.3 | 94 | (25%-125%) |
| Nickel Carrier | Liquid Scint Ni63, Solid High Rad | 20.1 mg | 23.2 | 87 | (25%-125%) |