



February 12, 2008
Ref. No. 137003-122

RECEIVED
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2008 FEB 14 AM 11:18

Mr. Eric Lardiere
Meggitt-USA, Inc.
Whittaker Corporation
1955 N. Surveyor Avenue
Simi Valley, CA 93063

Subject: Annual Site Groundwater Monitoring for 2007

Dear Mr. Lardiere:

Please find the enclosed document detailing the October 2007 groundwater sampling event conducted by EnergySolutions, LLC at the Whittaker site located near Greenville, PA. This document should be attached as Addendum 12 to the site Groundwater Monitoring Plan (Scientech Document Number 82A9103, Revision 3).

Please complete and return the top copy of the enclosed EnergySolutions Document Transmittal Form to indicate receipt of your controlled copy of this report.

Should you have any questions or comments, please call me at (864) 235-3694 or cell (864) 380-6676.

Sincerely,

Kenneth M. Kasper, CHP, CIH
General Manager, Engineering & Health Physics

KMK/lhc
Enclosure

cc: J. Nicholson w/enclosure
B. Werner w/enclosure
R. Woods w/enclosure

Date Issued: 2/12/2008
Project No.: 137003
Assigned to: John Nicholson, Division of Nuclear Materials Safety
790 U.S. Nuclear Regulatory Commission,
475 Allendale Road
King of Prussia, PA 19406

Document No.	Rev. No.	Comments	Document Title
82A9103	03	1 Controlled Copy-Addendum 12	Groundwater Monitoring Plan for the Mercer Alloys (Whittaker) Site Remediation

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Please sign, date and return this Transmittal form to:

EnergySolutions, LLC, Attention: Document Control
143 West Street, New Milford, CT 06776 or FAX: (860) 355-3295

ENERGYSOLUTIONS

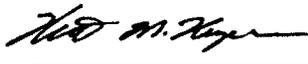
ADDENDUM AUTHORIZATION

11-Feb-08
Effective Date

Document Title Groundwater Monitoring Plan

Document No. 82A9103, Rev. 3

Addendum No. 12

Originator 
Kenneth M. Kasper, CHP, CIH

For Site/Utility Whittaker Site, Greenville, PA

Description of Addendum:

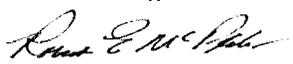
Report on annual site groundwater monitoring for 2007.

CONTROLLED COPY No. 790

Reason for Change:

Results of the ANNUAL groundwater monitoring are to be submitted per Section 3 of the Groundwater Monitoring Plan.

APPROVALS:

<u>Title</u>	<u>Signature</u>	<u>Date</u>
Technical Reviewer	<u></u> Robert E. McPeak, Jr., P.E., L.E.P.	<u>2/11/2008</u>
Vice President	<u></u> Lee G. Penney	<u>2/11/2008</u>

Approvals for the Addendum shall at least be equal to the Approval of the base document and may include customer sign off.

Distribute to all EnergySolutions Control Copy holders of affected document and None

A copy of this authorization shall be attached to the affected document.

February 11, 2008

Subject: Whittaker Site Groundwater Monitoring Well Sampling, October 2007

INTRODUCTION

In accordance with Whittaker Corporation's U.S. Nuclear Regulatory Commission (NRC) License No. SMA-1018, Amendment No. 14, Condition No. 15, and Scientech, LLC Document No. 82A9103, Revision 3, "Groundwater Monitoring Plan, Whittaker Corporation, Greenville, PA," well sampling activities were conducted on October 22, 23, and 24, 2007. Robert McPeak (Project Environmental Engineer) of EnergySolutions, LLC conducted the sampling activities with support from on-site EnergySolutions personnel. Well sampling procedures and analytical protocol are discussed and specified in the Groundwater Monitoring Plan. The water sampling event also complies with the environmental monitoring requirements of the site Restoration Plan as approved by the Pennsylvania Department of Environmental Protection.

ACTIVITIES

EnergySolutions first measured the depths to groundwater for all 10 site monitoring wells (MW-1 to MW-10). EnergySolutions sampled wells MW-2, MW-3 and MW-4 on October 22, well MW-6 through MW-9 on October 23 and well MW-1 along with surface water samples locations on October 23. A sample could not be collected from MW-10 because it was damaged during site remediation activities. Water samples were collected in two 0.5-gallon plastic containers for gross alpha and gross beta analysis. The wells were productive and sampling proceeded without any problems.

Groundwater samples were analyzed for gross alpha and gross beta activity using gas flow proportional counting (GFPC) by EPA 9000.0 methods, for gross alpha by method RICH-RC-5021 and gross beta by method RICH-RC-5014 by Test America Laboratories. (TAL) radioanalytical laboratory in Richland, WA. For quality assurance (QA) purposes, EnergySolutions sent a duplicate sample from MW-9 to General Engineering Laboratories (GEL) in Charleston, SC.

RESULTS

Table 1 provides a summary of groundwater analytical results for MW-1 through MW-10 for gross alpha and gross beta as reported by TAL. All results were less than the water quality contaminant limits of 15 picocuries per liter (pCi/L) gross alpha and less than 50 pCi/L gross beta. In fact, no sample has had concentrations greater than either limit since April 2001. As a result, none of the samples were analyzed for isotopic distribution. The maximum reported alpha activity was 8.94 pCi/L for the sample collected from MW-1. The maximum beta activity was 23.2 pCi/L for the sample collected from MW-8. While MW-8 has been had consistently higher gross beta activity since 2004, it is below the drinking water standards and there is no apparent trend in increasing activity.

Surface water samples were also collected from a point upstream of the Whittaker site and a point downstream from the site on the Shenango River as well as in the two “ponds” that are formed from the storm water outfalls that pass below Section 4 of the Whittaker site. The data from these samples is provided in Table 2.

**TABLE 1
GROUNDWATER ANALYSIS DATA – October 2007**

Field ID	SMP Received		Analysis	Result	Error	MDA	Unit
MW-1	~ 4000	ml	Alpha	8.94	3.1	1.87	pCi/L
			Beta	9.08	2.8	4.8	pCi/L
MW-1 _{Dup}			Alpha	7.43	3.2	1.99	pCi/L
MW-2	~ 4000	ml	Alpha	1.97	1.2	1.41	pCi/L
			Beta	3.06	2.3	4.41	pCi/L
MW-1 _{Dup}			Beta	1.69	2.2	4.62	pCi/L
MW-3	~ 4000	ml	Alpha	0.625	0.72	1.30	pCi/L
			Beta	2.48	1.9	3.84	pCi/L
MW-4	~ 4000	ml	Alpha	3.31	1.4	1.02	pCi/L
			Beta	6.56	2.9	5.45	pCi/L
MW-5	~ 4000	ml	Alpha	1.75	1.1	1.18	pCi/L
			Beta	1.05	2.9	4.83	pCi/L
MW-6	~ 4000	ml	Alpha	3.91	1.7	1.49	pCi/L
			Beta	9.99	3.8	6.66	pCi/L
MW-7	~ 4000	ml	Alpha	0.509	0.69	1.34	pCi/L
			Beta	6.62	2.0	3.31	pCi/L
MW-8	~ 4000	ml	Alpha	1.14	0.85	0.999	pCi/L
			Beta	23.2	5.8	7.88	pCi/L
MW-9	~ 4000	ml	Alpha	0.933	0.82	1.21	pCi/L
(TAL)			Beta	2.84	2.4	4.58	pCi/L
MW-9 _{Dup}	~ 4000	ml	Alpha	1.61	0.989	1.49	pCi/L
(GEL)			Beta	1.78	1.50	2.49	pCi/L

**TABLE 2
SURFACE WATER ANALYSIS DATA – October 2007**

Field ID	SMP Received		Analysis	Result	Error	MDA	Unit
South Pond	4000	ml	Alpha	1.91	1.2	1.47	pCi/L
			Beta	7.17	2.1	3.44	pCi/L
North Pond	4000	ml	Alpha	1.81	1.0	1.09	pCi/L
			Beta	5.86	2.1	3.66	pCi/L
UP STRN	4000	ml	Alpha	1.21	0.91	1.19	pCi/L
			Beta	4.56	1.6	2.74	pCi/L
DN STRN	4000	ml	Alpha	1.33	0.93	1.04	pCi/L
			Beta	4.99	1.7	2.70	pCi/L

Attachment A provides the location of the groundwater monitoring wells. Attachment B provides the analytical report from TAL and the sample chain-of-custody forms and the analytical report for the QA sample sent to GEL. Attachment C provides the well sampling logs.

Table 3 compares gross alpha and gross beta results from each Whittaker site groundwater sampling event dating back to September 2001. These data do not include duplicate samples analyzed at a QA laboratory. Table 4 provides the depths to groundwater in MW-1 through MW-10 from May 2000 through October 2007.

**TABLE 3
 GROUNDWATER CONCENTRATION COMPARISONS
 UNFILTERED SAMPLES**

Well Number	September 2001		August 2002		October 2003		September 2004	
	Gross alpha	Gross alpha	Gross alpha	Gross alpha	Gross alpha	Gross alpha	Gross alpha	Gross beta
MW-1	<MDA	3.2	<MDA	<MDA	<MDA	<MDA	<MDA	5.6
MW-2	<MDA	6.5	4.9	<MDA	3.5	3.5	4.9	9.3
MW-3	<MDA	<MDA	2.5	<MDA	<MDA	<MDA	2.5	<MDA
MW-4	11	4.6	8.5	<MDA	5.6	5.6	8.5	9.5
MW-5	<MDA	<MDA	<MDA	<MDA	<MDA	<MDA	<MDA	7.7
MW-6	<MDA	5.2	5.4	6.0	<MDA	<MDA	5.4	6.7
MW-7	<MDA	<MDA	<MDA	<MDA	<MDA	<MDA	<MDA	4.4
MW-8	6.6	5.2	5.3	<MDA	<MDA	<MDA	5.3	22
MW-9	<MDA	<MDA	<MDA	<MDA	<MDA	<MDA	<MDA	<MDA
MW-10	11	<MDA	6.6	9.6	<MDA	<MDA	6.6	212

Well Number	November 2005		September 2006		October 2007	
	Gross alpha	Gross beta	Gross alpha	Gross beta	Gross alpha	Gross beta
MW-1	<MDA	<MDA	<MDA	<MDA	8.94	9.08
MW-2	<MDA	15.3	<MDA	4.1	1.97	<MDA
MW-3	<MDA	<MDA	<MDA	12.9	<MDA	<MDA
MW-4	<MDA	6.4	3.7	6.3	3.31	6.56
MW-5	<MDA	4.6	<MDA	9.8	1.75	<MDA
MW-6	6.0	6.5	<MDA	13.8	3.91	9.99
MW-7	<MDA	5.5	<MDA	6.0	<MDA	6.62
MW-8	<MDA	21.4	<MDA	20.4	1.14	23.2
MW-9	<MDA	<MDA	<MDA	7.7	<MDA	<MDA
MW-10	9.6	30.1	<MDA	31.8	NA	NA

**TABLE 4
DEPTH TO GROUNDWATER IN MONITORING WELLS**

Well Number	Depth to Groundwater (feet) ^a							Δ Feet ^b
	09-01	08-02	10-03	9-04	11-05	9-06	10-07	
MW-1	6.63	6.91	4.89	5.35	5.40	3.92	5.20	-1.28
MW-2	11.44	11.36	9.32	9.88	10.78	9.45	11.13	-1.68
MW-3	1.90	1.86	0.69	0.73	1.23	0	1.60	-1.60
MW-4	16.70	16.79	15.33	15.53	16.24	14.8	16.78	-1.98
MW-5	8.20	8.32	6.16	6.09	6.79	5.45	7.01	-1.56
MW-6	20.70	20.83	20.22	20.34	20.51	19.96	20.58	-0.62
MW-7	4.35	4.53	4.31	4.37	4.24	4.2	3.94	0.26
MW-8	19.86	19.60	18.65	18.22	17.26	18.16	19.03	-0.87
MW-9	0.05	0	0.1	0	0	0	0	0
MW-10	22.45	22.33	20.50	20.51	21.11	19.9	NA	NA
Average 1-year change in water level								

Note:

^a Measured from the top of the PVC well casing.

^b Change in water level change from November 2005 to October 2007.

ATTACHMENTS

The following supporting documentation is provided as attachments to this report.

- A Site Well Location Map
- B TAL and GEL Water Analysis Report and Chain-of-Custody Forms
- C EnergySolutions Well Sampling Field Logs

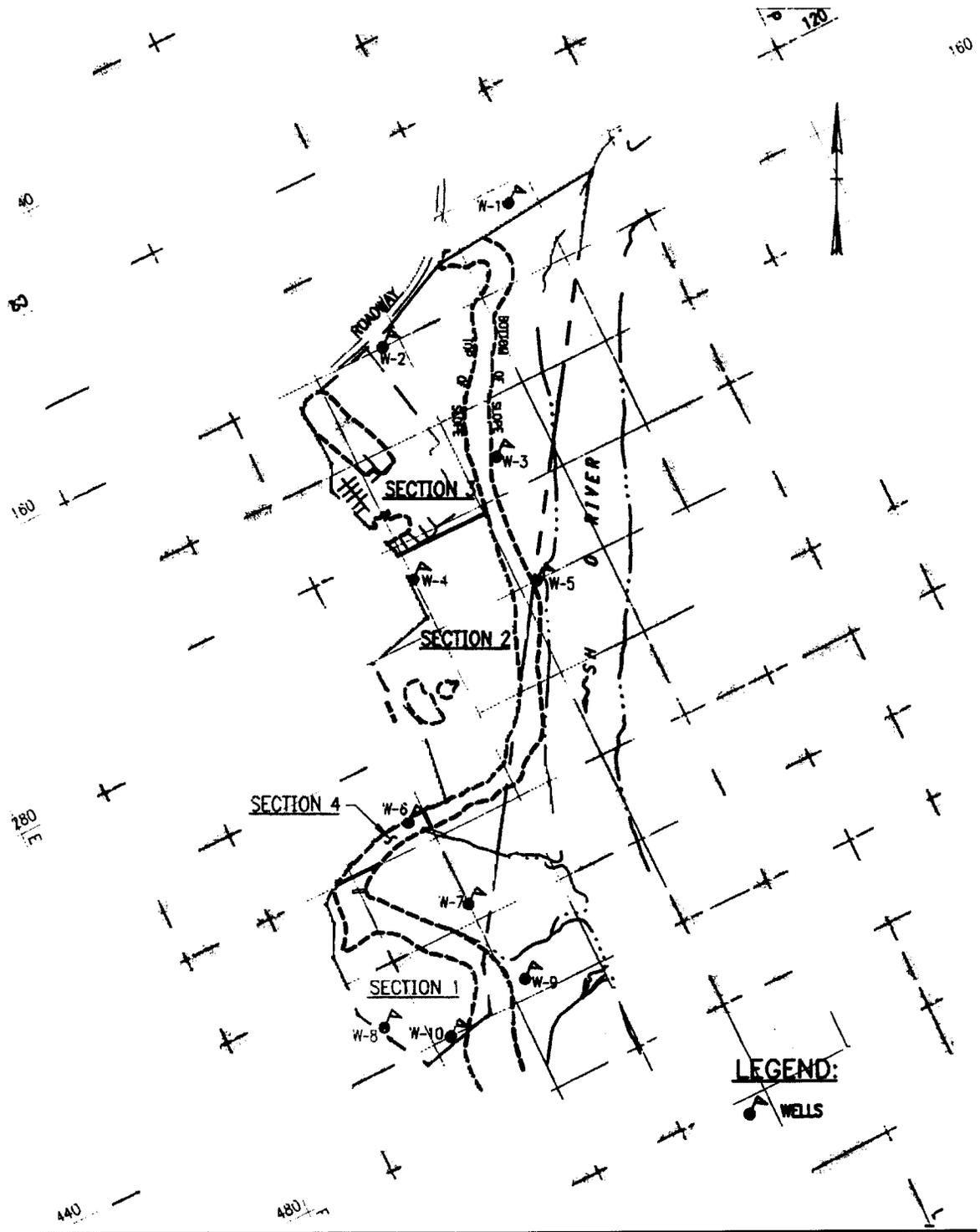


Document No. 82A9103
Revision No. 3
Addendum No. 12

ATTACHMENT A

Site Well Location Map

(1 page)





Document No. 82A9103
Revision No. 3
Addendum No. 12

ATTACHMENT B

TAL Water Analysis Report and Chain of Custody Forms
GEL Water Analysis Report (MW-9) and Chain of Custody Forms

(36 pages)

Analytical Data Package Prepared For

Energy Solutions

Whittaker 137003

Radiochemical Analysis By

TAL Richland

2800 G.W. Way, Richland Wa, 99354, (509)-375-3131.

Assigned Laboratory Code: STLR

Data Package Contains _____ Pages

Report No.: 37569

SDG No.	Order No.	Client Sample ID (List Order)	Lot-Sa No.	Work Order	Report DB ID	Batch No.
36654		DN STRM	J7K140163-12	KA76G1AC	9KA76G10	7318395
		DN STRM	J7K140163-12	KA76G1AA	9KA76G10	7318397
		MW-1	J7K140163-1	KA75C1AC	9KA75C10	7318395
		MW-1	J7K140163-1	KA75C1AA	9KA75C10	7318397
		MW-2	J7K140163-2	KA75Q1AC	9KA75Q10	7318395
		MW-2	J7K140163-2	KA75Q1AA	9KA75Q10	7318397
		MW-3	J7K140163-3	KA75T1AC	9KA75T10	7318395
		MW-3	J7K140163-3	KA75T1AA	9KA75T10	7318397
		MW-4	J7K140163-4	KA75W1AC	9KA75W10	7318395
		MW-4	J7K140163-4	KA75W1AA	9KA75W10	7318397
		MW-5	J7K140163-5	KA7501AC	9KA75010	7318395
		MW-5	J7K140163-5	KA7501AA	9KA75010	7318397
		MW-6	J7K140163-6	KA7531AC	9KA75310	7318395
		MW-6	J7K140163-6	KA7531AA	9KA75310	7318397
		MW-7	J7K140163-7	KA7551AC	9KA75510	7318395
		MW-7	J7K140163-7	KA7551AA	9KA75510	7318397
		MW-8	J7K140163-8	KA7581AC	9KA75810	7318395
		MW-8	J7K140163-8	KA7581AA	9KA75810	7318397
		MW-9	J7K140163-9	KA76A1AC	9KA76A10	7318395
		MW-9	J7K140163-9	KA76A1AA	9KA76A10	7318397
		NORTH POND	J7K140163-10	KA76C1AC	9KA76C10	7318395
		NORTH POND	J7K140163-10	KA76C1AA	9KA76C10	7318397
		SOUTH POND	J7K140163-11	KA76E1AC	9KA76E10	7318395
		SOUTH POND	J7K140163-11	KA76E1AA	9KA76E10	7318397
		UP STRM	J7K140163-13	KA76J1AC	9KA76J10	7318395
		UP STRM	J7K140163-13	KA76J1AA	9KA76J10	7318397

CERTIFICATE OF ANALYSIS

November 28, 2007

EnergySolutions
143 West Street
New Milford, CT 06776

Attention: Dennis L. Davids, Jr.

SDG Number	:	36654
Date SDG Received	:	October 26, 2007
Number of Samples	:	Thirteen (13)
Sample Type	:	Water
Project Name	:	Whitaker
Project Number	:	137003.001.203.0001

CASE NARRATIVE

I. Introduction

On October 26, 2007, thirteen water samples were received at TestAmerica Laboratories Richland (TALR) for radiochemical analysis. Upon receipt, the samples were assigned to Lot Number J7K140163 with the laboratory ID number corresponding to the EnergySolutions (ENVS) specific ID as shown on the cover page.

II. Sample Receipt

The samples were received in good condition. Sample MW-2 was mislabeled as sample MW-1. The client was notified and identified which sample was MW-1 and which was MW-2.

III. Analytical Results/Methodology

The analytical results for this report are presented by laboratory sample ID. Each set of data includes sample identification information; analytical results and the appropriate associated statistical errors.

The requested analyses were:

Gas Proportional Counting
Gross Alpha by method RICH-RC-5021
Gross Beta by method RICH-RC-5014

V. Quality Control

The analytical results for each analysis performed include a minimum of one Laboratory Control Sample (LCS) and one method (reagent) blank analysis. Duplicate sample analyses are performed where sufficient volume is provided. Any exceptions have been noted in the "Comments" section.

QC and sample results are reported in the same units.

V. Comments

Gas Proportional Counting

Gross Alpha by method RICH-RC-5021:

Sample MW-1 and its duplicate had precipitate weights that exceeded the 25 mg limit for the method. The samples were then re-flamed but were still above limits; however, the weights were still within the calibration curve and the duplicate is in agreement. Data is accepted. Except as noted, the LCS, batch blank, sample and sample duplicate results are within acceptance limits.

Gross Beta by method RICH-RC-5014

The LCS, batch blank, sample and sample duplicate results are within acceptance limits.

I certify that this Certificate of Analysis is in compliance with the SOW, both technically and for completeness, for other than the conditions detailed above. Release of the data contained in this hard copy data package has been authorized by the Laboratory Manager, or a designee as verified by the following signature.

Reviewed and approved:



Erika Jordan
Manager, Project Management

Drinking Water Method Cross References

DRINKING WATER ASTM METHOD CROSS REFERENCES		
Referenced Method	Isotope(s)	STL Richland's SOP number
EPA 901.1	Cs-134, I-131	RICH-RC-5017
EPA 900.0	Alpha & Beta	RICH-RC-5014
EPA 00-02	Gross Alpha (Coprecipitation)	RICH-RC-5021
EPA 903.0	Total Alpha Radium (Ra-226)	RICH-RC-5027
EPA 903.1	Ra-226	RICH-RC-5005
EPA 904.0	Ra-228	RICH-RC-5005
EPA 905.0	Sr-89/90	RICH-RC-5006
ASTM D5174	Uranium	RICH-RC-5058
EPA 906.0	Tritium	RICH-RC-5007

Uncertainty Estimation

Test America Richland has adopted the internationally accepted approach to estimating uncertainties described in "NIST Technical Note 1297, 1994 Edition". The approach, "Law of Propagation of Errors", involves the identification of all variables in an analytical method which are used to derive a result. These variables are related to the analytical result (R) by some functional relationship, $R = \text{constants} * f(x,y,z,...)$. The components (x,y,z) are evaluated to determine their contribution to the overall method uncertainty. The individual component uncertainties (u_i) are then combined using a statistical model that provides the most probable overall uncertainty value. All component uncertainties are categorized as type A, evaluated by statistical methods, or type B, evaluated by other means. Uncertainties not included in the components, such as sample homogeneity, are combined with the component uncertainty as the square root of the sum-of-the-squares of the individual uncertainties. The uncertainty associated with the derived result is the combined uncertainty (u_c) multiplied by the coverage factor (1,2, or 3).

When three or more sample replicates are used to derive the analytical result, the type A uncertainty is the standard deviation of the mean value (S/\sqrt{n}), where S is the standard deviation of the derived results. The type B uncertainties are all other random or non-random components that are not included in the standard deviation.

The derivation of the general "Law of Propagation of Errors" equations and specific example are available on request.

Report Definitions

Action Lev	An agreed upon activity level used to trigger some action when the final result is greater than or equal to the Action Level. Often the Action Level is related to the Decision Limit.
Batch	The QC preparation batch number that relates laboratory samples to QC samples that were prepared and analyzed together.
Bias	Defined by the equation $(\text{Result}/\text{Expected})-1$ as defined by ANSI N13.30.
COC No	Chain of Custody Number assigned by the Client or STL Richland.
Count Error (#s)	Poisson counting statistics of the gross sample count and background. The uncertainty is absolute and in the same units as the result. For Liquid Scintillation Counting (LSC) the batch blank count is the background.
Total Uncert (#s) u_c - Combined Uncertainty.	All known uncertainties associated with the preparation and analysis of the sample are propagated to give a measure of the uncertainty associated with the result, u_c , the combined uncertainty. The uncertainty is absolute and in the same units as the result.
(#s), Coverage Factor	The coverage factor defines the width of the confidence interval, 1, 2 or 3 standard deviations.
CRDL (RL)	Contractual Required Detection Limit as defined in the Client's Statement Of Work or STL Richland "default" nominal detection limit. Often referred to the reporting level (RL)
Lc	Decision Level based on instrument background or blank, adjusted by the Efficiency, Chemical Yield, and Volume associated with the sample. The Type I error probability is approximately 5%. $Lc = (1.645 * \text{Sqrt}(2 * (\text{BkgrndCnt}/\text{BkgrndCntMin})/\text{SCntMin})) * (\text{ConvFct}/(\text{Eff} * \text{Yld} * \text{Abn} * \text{Vol})) * \text{IngrFct}$. For LSC methods the batch blank is used as a measure of the background variability. Lc cannot be calculated when the background count is zero.
Lot-Sample No	The number assigned by the LIMS software to track samples received on the same day for a given client. The sample number is a sequential number assigned to each sample in the Lot.
MDC MDA	Detection Level based on instrument background or blank, adjusted by the Efficiency, Chemical Yield, and Volume with a Type I and II error probability of approximately 5%. $MDC = (4.65 * \text{Sqrt}((\text{BkgrndCnt}/\text{BkgrndCntMin})/\text{SCntMin}) + 2.71/\text{SCntMin}) * (\text{ConvFct}/(\text{Eff} * \text{Yld} * \text{Abn} * \text{Vol})) * \text{IngrFct}$. For LSC methods the batch blank is used as a measure of the background variability.
Primary Detector	The instrument identifier associated with the analysis of the sample aliquot.
Ratio U-234/U-238	The U-234 result divided by the U-238 result. The U-234/U-238 ratio for natural uranium in NIST SRM 4321C is 1.038.
Rst/MDC	Ratio of the Result to the MDC. A value greater than 1 may indicate activity above background at a high level of confidence. Caution should be used when applying this factor and it should be used in concert with the qualifiers associated with the result.
Rst/TotUcert	Ratio of the Result to the Total Uncertainty. If the uncertainty has a coverage factor of 2 a value greater than 1 may indicate activity above background at approximately the 95% level of confidence assuming a two-sided confidence interval. Caution should be used when applying this factor and it should be used in concert with the qualifiers associated with the result.
Report DB No	Sample Identifier used by the report system. The number is based upon the first five digits of the Work Order Number.
RER	The equation Replicate Error Ratio = $(S-D)/[\text{sqrt}(\text{TPUs}^2 + \text{TPUd}^2)]$ as defined by ICPT BOA where S is the original sample result, D is the result of the duplicate, TPUs is the total uncertainty of the original sample and TPUd is the total uncertainty of the duplicate sample.
SDG	Sample Delivery Group Number assigned by the Client or assigned by STL Richland upon sample receipt.
Sum Rpt Alpha Spec Rst(s)	The sum of the reported alpha spec results for tests derived from the same sample excluding duplicate result where the results are in the same units.
Work Order	The LIMS software assign test specific identifier.
Yield	The recovery of the tracer added to the sample such as Pu-242 used to trace a Pu-239/40 method.

Sample Results Summary

Date: 28-Nov-07

TAL Richland STLR

Ordered by Method, Batch No., Client Sample ID.

Report No. : 37569

SDG No: 36654

Client Id	Batch	Work Order	Parameter	Result +- Uncertainty (2s)	Qual	Units	Tracer Yield	MDC or MDA	CRDL	RER2
7318395 EPA900.0										
DN STRM										
	KA76G1AC		Gross Alpha	1.33E+00 +- 9.78E-01	J	pCi/L	100%	1.04E+00	3.00E+00	
MW-1										
	KA75C1AC		Gross Alpha	8.94E+00 +- 3.70E+00		pCi/L	100%	1.87E+00	3.00E+00	
MW-1 DUP										
	KA75C1AD		Gross Alpha	7.43E+00 +- 3.24E+00		pCi/L	100%	1.99E+00	3.00E+00	0.6
MW-2										
	KA75Q1AC		Gross Alpha	1.97E+00 +- 1.25E+00	J	pCi/L	100%	1.41E+00	3.00E+00	
MW-3										
	KA75T1AC		Gross Alpha	6.25E-01 +- 7.30E-01	U	pCi/L	100%	1.30E+00	3.00E+00	
MW-4										
	KA75W1AC		Gross Alpha	3.31E+00 +- 1.59E+00		pCi/L	100%	1.02E+00	3.00E+00	
MW-5										
	KA7501AC		Gross Alpha	1.75E+00 +- 1.13E+00	J	pCi/L	100%	1.18E+00	3.00E+00	
MW-6										
	KA7531AC		Gross Alpha	3.91E+00 +- 1.96E+00		pCi/L	100%	1.49E+00	3.00E+00	
MW-7										
	KA7551AC		Gross Alpha	5.09E-01 +- 6.97E-01	U	pCi/L	100%	1.34E+00	3.00E+00	
MW-8										
	KA7581AC		Gross Alpha	1.14E+00 +- 8.84E-01	J	pCi/L	100%	9.99E-01	3.00E+00	
MW-9										
	KA76A1AC		Gross Alpha	9.33E-01 +- 8.48E-01	U	pCi/L	100%	1.21E+00	3.00E+00	
NORTH POND										
	KA76C1AC		Gross Alpha	1.81E+00 +- 1.12E+00	J	pCi/L	100%	1.09E+00	3.00E+00	
SOUTH POND										
	KA76E1AC		Gross Alpha	1.91E+00 +- 1.25E+00	J	pCi/L	100%	1.47E+00	3.00E+00	
UP STRM										
	KA76J1AC		Gross Alpha	1.21E+00 +- 9.48E-01	J	pCi/L	100%	1.19E+00	3.00E+00	
7318397 E900.0										
DN STRM										
	KA76G1AA		Gross Beta	4.99E+00 +- 1.73E+00	J	pCi/L	100%	2.70E+00	2.00E+02	
MW-1										
	KA75C1AA		Gross Beta	9.08E+00 +- 3.16E+00	J	pCi/L	100%	4.80E+00	2.00E+02	
MW-2										
	KA75Q1AA		Gross Beta	3.60E+00 +- 2.31E+00	U	pCi/L	100%	4.41E+00	2.00E+02	
MW-2 DUP										
	KA75Q1AD		Gross Beta	1.69E+00 +- 2.21E+00	U	pCi/L	100%	4.62E+00	2.00E+02	1.2
MW-3										
	KA75T1AA		Gross Beta	2.48E+00 +- 1.94E+00	U	pCi/L	100%	3.84E+00	2.00E+02	

TAL Richland
rptSTLRchSaSum
mary2 V5.1.4
A2002

RER2 - Replicate Error Ratio = (S-D)/[sqrt(sq(TPU)+sq(TPUD))] as defined by ICPT BOA.
J Qual - No U|< qualifier has been assigned and the result is below the Reporting Limit, RL (CRDL) or Report Value is Estimated.
U Qual - Analyzed for but not detected above limiting criteria. Limit criteria is less than the Mdc/Mda or Total Uncert or not identified by gamma scan software.

Sample Results Summary

Date: 28-Nov-07

TAL Richland STLR

Ordered by Method, Batch No., Client Sample ID.

Report No. : 37569

SDG No: 36654

Batch	Client Id Work Order	Parameter	Result +- Uncertainty (2s)	Qual	Units	Tracer Yield	MDC or MDA	CRDL	RER2
7318397	E900.0								
	MW-4								
	KA75W1AA	Gross Beta	6.56E+00 +- 3.04E+00	J	pCi/L	100%	5.45E+00	2.00E+02	
	MW-5								
	KA7501AA	Gross Beta	1.05E+01 +- 3.21E+00	J	pCi/L	100%	4.83E+00	2.00E+02	
	MW-6								
	KA7531AA	Gross Beta	9.99E+00 +- 3.97E+00	J	pCi/L	100%	6.66E+00	2.00E+02	
	MW-7								
	KA7551AA	Gross Beta	6.62E+00 +- 2.15E+00	J	pCi/L	100%	3.31E+00	2.00E+02	
	MW-8								
	KA7581AA	Gross Beta	2.32E+01 +- 5.79E+00	J	pCi/L	100%	7.88E+00	2.00E+02	
	MW-9								
	KA76A1AA	Gross Beta	2.84E+00 +- 2.42E+00	U	pCi/L	100%	4.58E+00	2.00E+02	
	NORTH POND								
	KA76C1AA	Gross Beta	5.86E+00 +- 2.22E+00	J	pCi/L	100%	3.66E+00	2.00E+02	
	SOUTH POND								
	KA76E1AA	Gross Beta	7.17E+00 +- 2.27E+00	J	pCi/L	100%	3.44E+00	2.00E+02	
	UP STRM								
	KA76J1AA	Gross Beta	4.56E+00 +- 1.66E+00	J	pCi/L	100%	2.74E+00	2.00E+02	
	No. of Results:	28							

TAL Richland

rptSTLRchSaSummary2 V5.1.4
A2002

RER2 - Replicate Error Ratio = (S-D)/[sqrt(sq(TPUs)+sq(TPUD))] as defined by ICPT BOA.

J Qual - No UJ< qualifier has been assigned and the result is below the Reporting Limit, RL (CRDL) or Report Value is Estimated.

U Qual - Analyzed for but not detected above limiting criteria. Limit criteria is less than the Mdc/Mda or Total Uncert or not identified by gamma scan software.

QC Results Summary

Date: 28-Nov-07

TAL Richland STLR

Ordered by Method, Batch No, QC Type,.

Report No. : 37569

SDG No.: 36654

Batch	Work Order	Parameter	Result +/- Uncertainty (2s)	Qual	Units	Tracer Yield	LCS Recovery	Bias	MDC MDA
EPA900.0									
7318395	BLANK QC,								
	KA83R1AA	Gross Alpha	6.10E-01 +- 6.72E-01	U	pCi/L	100%			1.09E+00
7318395	LCS,								
	KA83R1AC	Gross Alpha	3.12E+01 +- 8.30E+00		pCi/L	100%	77%	-0.2	1.13E+00
E900.0									
7318397	BLANK QC,								
	KA8341AA	Gross Beta	4.08E-01 +- 8.55E-01	U	pCi/L	100%			1.70E+00
7318397	LCS,								
	KA8341AC	Gross Beta	3.62E+01 +- 5.06E+00		pCi/L	100%	88%	-0.1	1.77E+00
No. of Results: 4									

TAL Richland

Bias - (Result/Expected)-1 as defined by ANSI N13.30.

rptSTLRchQcSummary V5.1.4 A2002

U Qual - Analyzed for but not detected above limiting criteria. Limit criteria is less than the Mdc/Mda or Total Uncert or not identified by gamma scan software.

FORM I

Date: 28-Nov-07

SAMPLE RESULTS

Lab Name: TA Richland
 Lot-Sample No.: J7K140163-12
 Client Sample ID: DN STRM
 Whittaker 137003

SDG: 36654
 Report No. : 37569
 COC No. :

Collection Date: 10/24/2007 11:40:00 AM
 Received Date: 10/26/2007 10:00:00 AM
 Matrix: WATER

Ordered by Client Sample ID, Batch No

Parameter	Result	Qual	Count Error (2 s)	Total Uncert(2 s)	MDC MDA, Action Lev	Rpt Unit, Lc	Yield CRDL(RL)	Rst/MDC, Rst/TotUncert	Analysis, Prep Date	Total Sa Size	Aliquot Size	Primar Detecto
atch: 7318395	EPA900.0				Work Order: KA76G1AC		Report DB ID: 9KA76G10					
Gross Alpha	1.33E+00	J	9.3E-01	9.8E-01	1.04E+00	pCi/L	100%	(1.3)	11/26/07 05:45 p		0.2021	GPC1
							3.23E-01	3.00E+00 (2.7)			L	
atch: 7318397	E900.0				Work Order: KA76G1AA		Report DB ID: 9KA76G10					
Gross Beta	4.99E+00	J	1.6E+00	1.7E+00	2.70E+00	pCi/L	100%	(1.9)	11/27/07 06:42 p		0.1985	GPC2
							1.28E+00	2.00E+02 (5.8)			L	

No. of Results: 2 Comments:

L Richland MDC|MDA,Lc - Detection, Decision Level based on instrument background or blank, adjusted by the sample Efficiency, Yield, and Volume.
 STL RchSample J Qual - No U|< qualifier has been assigned and the result is below the Reporting Limit, RL (CRDL) or Report Value is Estimated.
 .14 A2002 U Qual - Analyzed for but not detected above limiting criteria. Limit criteria is less than the Mdc/Mda or Total Uncert or not identified by gamma scan software.

FORM I
SAMPLE RESULTS

Date: 28-Nov-07

Lab Name: TA Richland
Lot-Sample No.: J7K140163-1
Client Sample ID: MW-1
Whittaker 137003

SDG: 36654
Report No. : 37569
COC No. :

Collection Date: 10/24/2007 9:12:00 AM
Received Date: 10/26/2007 10:00:00 AM
Matrix: WATER

Ordered by Client Sample ID, Batch No

Parameter	Result	Qual	Count Error (2 s)	Total Uncert(2 s)	MDC MDA, Action Lev	Rpt Unit, Lc	Yield CRDL(RL)	Rst/MDC, Rst/TotUcert	Analysis, Prep Date	Total Sa Size	Aliquot Size	Primary Detecto
atch: 7318395	EPA900.0				Work Order: KA75C1AC		Report DB ID: 9KA75C10					
Gross Alpha	8.94E+00		3.1E+00	3.7E+00	1.87E+00	pCi/L	100%	(4.8)	11/26/07 06:50 p		0.2042	GPC11
							5.79E-01	3.00E+00			L	
atch: 7318397	E900.0				Work Order: KA75C1AA		Report DB ID: 9KA75C10					
Gross Beta	9.08E+00	J	2.8E+00	3.2E+00	4.80E+00	pCi/L	100%	(1.9)	11/27/07 12:13 p		0.0861	GPC21
							2.31E+00	2.00E+02			L	

No. of Results: 2 Comments:

L Richland MDC|MDA,Lc - Detection, Decision Level based on instrument background or blank, adjusted by the sample Efficiency, Yield, and Volume.
STLRchSample J Qual - No U|< qualifier has been assigned and the result is below the Reporting Limit, RL (CRDL) or Report Value is Estimated.
1.4 A2002 U Qual - Analyzed for but not detected above limiting criteria. Limit criteria is less than the Mdc/Mda or Total Uncert or not identified by gamma scan software.

FORM I

Date: 28-Nov-07

SAMPLE RESULTS

Lab Name: TA Richland
 Lot-Sample No.: J7K140163-2
 Client Sample ID: MW-2
 Whittaker 137003

SDG: 36654
 Report No. : 37569
 COC No. :

Collection Date: 10/22/2007 2:11:00 PM
 Received Date: 10/26/2007 10:00:00 AM
 Matrix: WATER

Ordered by Client Sample ID, Batch No

Parameter	Result	Qual	Count Error (2 s)	Total Uncert(2 s)	MDC MDA, Action Lev	Rpt Unit, Lc	Yield CRDL(RL)	Rst/MDC, Rst/TotUcert	Analysis, Prep Date	Total Sa Size	Aliquot Size	Primary Detect
atch: 7318395	EPA900.0				Work Order: KA75Q1AC			Report DB ID: 9KA75Q10				
Gross Alpha	1.97E+00	J	1.2E+00	1.2E+00	1.41E+00	pCi/L	100%	(1.4)	11/26/07 06:50 p		0.2016	GPC1
						5.08E-01	3.00E+00	(3.2)			L	
atch: 7318397	E900.0				Work Order: KA75Q1AA			Report DB ID: 9KA75Q10				
Gross Beta	3.60E+00	U	2.3E+00	2.3E+00	4.41E+00	pCi/L	100%	0.82	11/27/07 04:50 p		0.1259	GPC2
						2.09E+00	2.00E+02	(3.1)			L	

No. of Results: 2 Comments:

IL Richland MDC|MDA,Lc - Detection, Decision Level based on instrument background or blank, adjusted by the sample Efficiency, Yield, and Volume.
 tSLRchSample J Qual - No U|< qualifier has been assigned and the result is below the Reporting Limit, RL (CRDL) or Report Value is Estimated.
 i.1.4 A2002 U Qual - Analyzed for but not detected above limiting criteria. Limit criteria is less than the Mdc/Mda or Total Uncert or not identified by gamma scan software.

FORM I

Date: 28-Nov-07

SAMPLE RESULTS

Lab Name: TA Richland
 Lot-Sample No.: J7K140163-3
 Client Sample ID: MW-3
 Whittaker 137003

SDG: 36654
 Report No.: 37569
 COC No.:

Collection Date: 10/22/2007 2:19:00 PM
 Received Date: 10/26/2007 10:00:00 AM
 Matrix: WATER

Ordered by Client Sample ID, Batch No

Parameter	Result	Qual	Count Error (2 s)	Total Uncert(2 s)	MDC MDA, Action Lev	Rpt Unit, Lc	Yield CRDL(RL)	Rst/MDC, Rst/TotUncert	Analysis, Prep Date	Total Sa Size	Aliquot Size	Primar Detecto
stch: 7318395	EPA900.0				Work Order: KA75T1AC		Report DB ID: 9KA75T10					
Gross Alpha	6.25E-01	U	7.2E-01	7.3E-01	1.30E+00	pCi/L	100%	0.48	11/26/07 07:53 p		0.2034	GPC10
							4.69E-01	3.00E+00			L	
								(1.7)				
stch: 7318397	E900.0				Work Order: KA75T1AA		Report DB ID: 9KA75T10					
Gross Beta	2.48E+00	U	1.9E+00	1.9E+00	3.84E+00	pCi/L	100%	0.65	11/27/07 04:50 p		0.1479	GPC20
							1.82E+00	2.00E+02			L	
								(2.6)				

No. of Results: 2 Comments:

L Richland MDC|MDA,Lc - Detection, Decision Level based on instrument background or blank, adjusted by the sample Efficiency, Yield, and Volume.
 STLRchSample J Qual - No U|< qualifier has been assigned and the result is below the Reporting Limit, RL (CRDL) or Report Value is Estimated.
 .1.4 A2002 U Qual - Analyzed for but not detected above limiting criteria. Limit criteria is less than the Mdc/Mda or Total Uncert or not identified by gamma scan software.

FORM I

Date: 28-Nov-07

SAMPLE RESULTS

Lab Name: TA Richland
 Lot-Sample No.: J7K140163-4
 Client Sample ID: MW-4
 Whittaker 137003

SDG: 36654
 Report No. : 37569
 COC No. :

Collection Date: 10/22/2007 3:31:00 PM
 Received Date: 10/26/2007 10:00:00 AM
 Matrix: WATER

Ordered by Client Sample ID, Batch No

Parameter	Result	Qual	Count Error (2 s)	Total Uncert(2 s)	MDC MDA, Action Lev	Rpt Unit, Lc	Yield CRDL(RL)	Rst/MDC, Rst/TotUcert	Analysis, Prep Date	Total Sa Size	Aliquot Size	Primary Detect
atch: 7318395	EPA900.0				Work Order: KA75W1AC		Report DB ID: 9KA75W10					
Gross Alpha	3.31E+00		1.4E+00	1.6E+00	1.02E+00	pCi/L	100%	(3.2)	11/26/07 07:53 p		0.2042	GPC1
							3.16E-01	3.00E+00			L	
atch: 7318397	E900.0				Work Order: KA75W1AA		Report DB ID: 9KA75W10					
Gross Beta	6.56E+00	J	2.9E+00	3.0E+00	5.45E+00	pCi/L	100%	(1.2)	11/27/07 04:50 p		0.1135	GPC2
							2.60E+00	2.00E+02			L	

No. of Results: 2 Comments:

L Richland MDC|MDA,Lc - Detection, Decision Level based on instrument background or blank, adjusted by the sample Efficiency, Yield, and Volume.
 STLRchSample J Qual - No U|< qualifier has been assigned and the result is below the Reporting Limit, RL (CRDL) or Report Value is Estimated.
 .1.4 A2002 U Qual - Analyzed for but not detected above limiting criteria. Limit criteria is less than the Mdc/Mda or Total Uncert or not identified by gamma scan software.

FORM I
SAMPLE RESULTS

Date: 28-Nov-07

Lab Name: TA Richland
Lot-Sample No.: J7K140163-5
Client Sample ID: MW-5
Whittaker 137003

SDG: 36654
Report No. : 37569
COC No. :

Collection Date: 10/24/2007 10:26:00 AM
Received Date: 10/26/2007 10:00:00 AM
Matrix: WATER

Ordered by Client Sample ID, Batch No

Parameter	Result	Qual	Count Error (2 s)	Total Uncert(2 s)	MDC MDA, Action Lev	Rpt Unit, Lc	Yield CRDL(RL)	Rst/MDC, Rst/TotUcert	Analysis, Prep Date	Total Sa Size	Aliquot Size	Primary Detecto
stch: 7318395	EPA900.0				Work Order: KA7501AC		Report DB ID: 9KA75010					
Gross Alpha	1.75E+00	J	1.1E+00	1.1E+00	1.18E+00	pCi/L	100%	(1.5)	11/26/07 07:53 p		0.1982	GPC10
							3.99E-01	3.00E+00			L	
stch: 7318397	E900.0				Work Order: KA7501AA		Report DB ID: 9KA75010					
Gross Beta	1.05E+01	J	2.9E+00	3.2E+00	4.83E+00	pCi/L	100%	(2.2)	11/27/07 04:50 p		0.1179	GPC20
							2.29E+00	2.00E+02			L	

No. of Results: 2 Comments:

L Richland MDC|MDA,Lc - Detection, Decision Level based on instrument background or blank, adjusted by the sample Efficiency, Yield, and Volume.
 .STLRchSample J Qual - No U|< qualifier has been assigned and the result is below the Reporting Limit, RL (CRDL) or Report Value is Estimated.
 .1.4 A2002 U Qual - Analyzed for but not detected above limiting criteria. Limit criteria is less than the Mdc/Mda or Total Uncert or not identified by gamma scan software.

FORM I

Date: 28-Nov-07

SAMPLE RESULTS

Lab Name: TA Richland
 Lot-Sample No.: J7K140163-6
 Client Sample ID: MW-6
 Whittaker 137003

SDG: 36654
 Report No. : 37569
 COC No. :

Collection Date: 10/23/2007 10:33:00 AM
 Received Date: 10/26/2007 10:00:00 AM
 Matrix: WATER

Ordered by Client Sample ID, Batch No

Parameter	Result	Qual	Count Error (2 s)	Total Uncert(2 s)	MDC MDA, Action Lev	Rpt Unit, Lc	Yield CRDL(RL)	Rst/MDC, Rst/TotUcert	Analysis, Prep Date	Total Sa Size	Aliquot Size	Primar Detecto
atch: 7318395	EPA900.0				Work Order: KA7531AC		Report DB ID: 9KA75310					
Gross Alpha	3.91E+00		1.7E+00	2.0E+00	1.49E+00 pCi/L		100%	(2.6)	11/26/07 07:53 p		0.2001	GPC11
						4.99E-01	3.00E+00	(4.)			L	
atch: 7318397	E900.0				Work Order: KA7531AA		Report DB ID: 9KA75310					
Gross Beta	9.99E+00 J		3.8E+00	4.0E+00	6.66E+00 pCi/L		100%	(1.5)	11/27/07 12:13 p		0.0636	GPC21
						3.21E+00	2.00E+02	(5.)			L	

No. of Results: 2 Comments:

L Richland MDC|MDA,Lc - Detection, Decision Level based on instrument background or blank, adjusted by the sample Efficiency, Yield, and Volume.
 STLRchSample J Qual - No U|< qualifier has been assigned and the result is below the Reporting Limit, RL (CRDL) or Report Value is Estimated.
 .1.4 A2002 U Qual - Analyzed for but not detected above limiting criteria. Limit criteria is less than the Mdc/Mda or Total Uncert or not identified by gamma scan software.

FORM I

Date: 28-Nov-07

SAMPLE RESULTS

Lab Name: TA Richland

SDG: 36654

Collection Date: 10/23/2007 3:25:00 PM

Lot-Sample No.: J7K140163-7

Report No. : 37569

Received Date: 10/26/2007 10:00:00 AM

Client Sample ID: MW-7

COC No. :

Matrix: WATER

Whittaker 137003

Ordered by Client Sample ID, Batch No

Parameter	Result	Qual	Count Error (2 s)	Total Uncert(2 s)	MDC MDA, Action Lev	Rpt Unit, Lc	Yield CRDL(RL)	Rst/MDC, Rst/TotUncert	Analysis, Prep Date	Total Sa Size	Aliquot Size	Primary Detecto
it ch: 7318395	EPA900.0				Work Order: KA7551AC		Report DB ID: 9KA75510					
Gross Alpha	5.09E-01	U	6.9E-01	7.0E-01	1.34E+00	pCi/L	100%	0.38	11/26/07 04:37 p		0.2043	GPC10
							4.86E-01	3.00E+00			L	
it ch: 7318397	E900.0				Work Order: KA7551AA		Report DB ID: 9KA75510					
Gross Beta	6.62E+00	J	2.0E+00	2.2E+00	3.31E+00	pCi/L	100%	(2.)	11/27/07 04:50 p		0.174	GPC20
							1.57E+00	2.00E+02			L	

No. of Results: 2 Comments:

L Richland MDC|MDA,Lc - Detection, Decision Level based on instrument background or blank, adjusted by the sample Efficiency, Yield, and Volume.
 STLRchSample J Qual - No U|< qualifier has been assigned and the result is below the Reporting Limit, RL (CRDL) or Report Value is Estimated.
 1.4 A2002 U Qual - Analyzed for but not detected above limiting criteria. Limit criteria is less than the Mdc/Mda or Total Uncert or not identified by gamma scan software.

FORM I
SAMPLE RESULTS

Date: 28-Nov-07

Lab Name: TA Richland
Lot-Sample No.: J7K140163-8
Client Sample ID: MW-8
Whittaker 137003

SDG: 36654
Report No. : 37569
COC No. :

Collection Date: 10/23/2007 2:38:00 PM
Received Date: 10/26/2007 10:00:00 AM
Matrix: WATER

Ordered by Client Sample ID, Batch No

Parameter	Result	Qual	Count Error (2 s)	Total Uncert(2 s)	MDC MDA, Action Lev	Rpt Unit, Lc	Yield CRDL(RL)	Rst/MDC, Rst/TotUcert	Analysis, Prep Date	Total Sa Size	Aliquot Size	Primar Detecto
atch: 7318395	EPA900.0				Work Order: KA7581AC	Report DB ID: 9KA75810						
Gross Alpha	1.14E+00	J	8.5E-01	8.8E-01	9.99E-01	pCi/L	100%	(1.1)	11/26/07 04:37 p		0.1999	GPC11
							3.10E-01	3.00E+00	(2.6)		L	
atch: 7318397	E900.0				Work Order: KA7581AA	Report DB ID: 9KA75810						
Gross Beta	2.32E+01	J	5.0E+00	5.8E+00	7.88E+00	pCi/L	100%	(2.9)	11/27/07 12:13 p		0.0514	GPC21
							3.79E+00	2.00E+02	(8.)		L	

No. of Results: 2 Comments:

L Richland MDC|MDA,Lc - Detection, Decision Level based on instrument background or blank, adjusted by the sample Efficiency, Yield, and Volume.
STLRchSample J Qual - No U|< qualifier has been assigned and the result is below the Reporting Limit, RL (CRDL) or Report Value is Estimated.
.1.4 A2002 U Qual - Analyzed for but not detected above limiting criteria. Limit criteria is less than the Mdc/Mda or Total Uncert or not identified by gamma scan software.

FORM I
SAMPLE RESULTS

Date: 28-Nov-07

Lab Name: TA Richland
Lot-Sample No.: J7K140163-9
Client Sample ID: MW-9
Whittaker 137003

SDG: 36654
Report No.: 37569
COC No.:

Collection Date: 10/23/2007 4:18:00 PM
Received Date: 10/26/2007 10:00:00 AM
Matrix: WATER

Ordered by Client Sample ID, Batch No.

Parameter	Result	Qual	Count Error (2 s)	Total Uncert(2 s)	MDC MDA, Action Lev	Rpt Unit, Lc	Yield CRDL(RL)	Rst/MDC, Rst/TotUncert	Analysis, Prep Date	Total Sa Size	Aliquot Size	Primary Detecto
stch: 7318395	EPA900.0				Work Order: KA76A1AC		Report DB ID: 9KA76A10					
Gross Alpha	9.33E-01	U	8.2E-01	8.5E-01	1.21E+00	pCi/L	100%	0.77	11/26/07 04:37 p		0.2005	GPC10
							4.09E-01	3.00E+00	(2.2)		L	
stch: 7318397	E900.0				Work Order: KA76A1AA		Report DB ID: 9KA76A10					
Gross Beta	2.84E+00	U	2.4E+00	2.4E+00	4.58E+00	pCi/L	100%	0.62	11/27/07 07:32 p		0.0876	GPC20
							2.21E+00	2.00E+02	(2.3)		L	

No. of Results: 2 Comments:

L Richland MDC|MDA,Lc - Detection, Decision Level based on instrument background or blank, adjusted by the sample Efficiency, Yield, and Volume.
STLRchSample J Qual - No U|< qualifier has been assigned and the result is below the Reporting Limit, RL (CRDL) or Report Value is Estimated.
.1.4 A2002 U Qual - Analyzed for but not detected above limiting criteria. Limit criteria is less than the Mdc/Mda or Total Uncert or not identified by gamma scan software.

FORM I

Date: 28-Nov-07

SAMPLE RESULTS

Lab Name: TA Richland
 Lot-Sample No.: J7K140163-10
 Client Sample ID: NORTH POND
 Whittaker 137003

SDG: 36654
 Report No. : 37569
 COC No. :

Collection Date: 10/24/2007 11:15:00 AM
 Received Date: 10/26/2007 10:00:00 AM
 Matrix: WATER

Ordered by Client Sample ID, Batch No

Parameter	Result	Qual	Count Error (2 s)	Total Uncert(2 s)	MDC MDA, Action Lev	Rpt Unit, Lc	Yield CRDL(RL)	Rst/MDC, Rst/TotUcert	Analysis, Prep Date	Total Sa Size	Aliquot Size	Primary Detecto
atch: 7318395	EPA900.0				Work Order: KA76C1AC		Report DB ID: 9KA76C10					
Gross Alpha	1.81E+00	J	1.0E+00	1.1E+00	1.09E+00	pCi/L	100%	(1.7)	11/26/07 04:37 p		0.2039	GPC10
						3.67E-01	3.00E+00	(3.2)			L	
atch: 7318397	E900.0				Work Order: KA76C1AA		Report DB ID: 9KA76C10					
Gross Beta	5.86E+00	J	2.1E+00	2.2E+00	3.66E+00	pCi/L	100%	(1.6)	11/27/07 04:50 p		0.1494	GPC20
						1.73E+00	2.00E+02	(5.3)			L	

No. of Results: 2 Comments:

L Richland MDC|MDA,Lc - Detection, Decision Level based on instrument background or blank, adjusted by the sample Efficiency, Yield, and Volume.
 STLRchSample J Qual - No U|< qualifier has been assigned and the result is below the Reporting Limit, RL (CRDL) or Report Value is Estimated.
 .1.4 A2002 U Qual - Analyzed for but not detected above limiting criteria. Limit criteria is less than the Mdc/Mda or Total Uncert or not identified by gamma scan software.

FORM I

Date: 28-Nov-07

SAMPLE RESULTS

Lab Name: TA Richland
 Lot-Sample No.: J7K140163-11
 Client Sample ID: SOUTH POND
 Whittaker 137003

SDG: 36654
 Report No. : 37569
 COC No. :

Collection Date: 10/24/2007 11:25:00 AM
 Received Date: 10/26/2007 10:00:00 AM
 Matrix: WATER

Ordered by Client Sample ID, Batch No

Parameter	Result	Qual	Count Error (2 s)	Total Uncert(2 s)	MDC MDA, Action Lev	Rpt Unit, Lc	Yield CRDL(RL)	Rst/MDC, Rst/TotUncert	Analysis, Prep Date	Total Sa Size	Aliquot Size	Primar, Detecto
stch: 7318395	EPA900.0				Work Order: KA76E1AC		Report DB ID: 9KA76E10					
Gross Alpha	1.91E+00	J	1.2E+00	1.3E+00	1.47E+00	pCi/L	100%	(1.3)	11/26/07 05:45 p		0.1986	GPC10
						5.30E-01	3.00E+00	(3.)			L	
stch: 7318397	E900.0				Work Order: KA76E1AA		Report DB ID: 9KA76E10					
Gross Beta	7.17E+00	J	2.1E+00	2.3E+00	3.44E+00	pCi/L	100%	(2.1)	11/27/07 06:42 p		0.1562	GPC20
						1.63E+00	2.00E+02	(6.3)			L	

No. of Results: 2 Comments:

L Richland MDC|MDA,Lc - Detection, Decision Level based on instrument background or blank, adjusted by the sample Efficiency, Yield, and Volume.
 STLrchSample J Qual - No U|< qualifier has been assigned and the result is below the Reporting Limit, RL (CRDL) or Report Value is Estimated.
 1.4 A2002 U Qual - Analyzed for but not detected above limiting criteria. Limit criteria is less than the Mdc/Mda or Total Uncert or not identified by gamma scan software.

FORM I

Date: 28-Nov-07

SAMPLE RESULTS

Lab Name: TA Richland

SDG: 36654

Collection Date: 10/24/2007 11:50:00 AM

Lot-Sample No.: J7K140163-13

Report No. : 37569

Received Date: 10/26/2007 10:00:00 AM

Client Sample ID: UP STRM

COC No. :

Matrix: WATER

Whittaker 137003

Ordered by Client Sample ID, Batch No

Parameter	Result	Qual	Count Error (2 s)	Total Uncert(2 s)	MDC MDA, Action Lev	Rpt Unit, Lc	Yield CRDL(RL)	Rst/MDC, Rst/TotUcert	Analysis, Prep Date	Total Sa Size	Aliquot Size	Primary Detector
Batch: 7318395	EPA900.0				Work Order: KA76J1AC		Report DB ID: 9KA76J10					
Gross Alpha	1.21E+00	J	9.1E-01	9.5E-01	1.19E+00	pCi/L	100%	(1.)	11/26/07 05:45 p		0.1997	GPC10
							4.05E-01	3.00E+00			L	
Batch: 7318397	E900.0				Work Order: KA76J1AA		Report DB ID: 9KA76J10					
Gross Beta	4.56E+00	J	1.6E+00	1.7E+00	2.74E+00	pCi/L	100%	(1.7)	11/27/07 06:42 p		0.1976	GPC20
							1.30E+00	2.00E+02			L	

No. of Results: 2 Comments:

L Richland MDC|MDA,Lc - Detection, Decision Level based on instrument background or blank, adjusted by the sample Efficiency, Yield, and Volume.
 STLRchSample J Qual - No U|< qualifier has been assigned and the result is below the Reporting Limit, RL (CRDL) or Report Value is Estimated.
 .1.4 A2002 U Qual - Analyzed for but not detected above limiting criteria. Limit criteria is less than the Mdc/Mda or Total Uncert or not identified by gamma scan software.

FORM II

Date: 28-Nov-07

DUPLICATE RESULTS

Lab Name: TA Richland

SDG: 36654

Collection Date: 10/24/2007 9:12:00 AM

Lot-Sample No.: J7K140163-1

Report No. : 37569

Received Date: 10/26/2007 10:00:00 AM

Client Sample ID: MW-1 DUP

COC No. :

Matrix: WATER

Parameter	Result, Orig Rst	Qual	Count Error (2 s)	Total Uncert(2 s)	MDC MDA, Action Lev	Rpt Unit, CRDL	Yield	Rst/MDC, Rst/TotUcert	Analysis, Prep Date	Total Sa Size	Aliquot Size	Primary Detector
atch: 7318395	EPA900.0				Work Order: KA75C1AD	Report DB ID: KA75C1DR			Orig Sa DB ID: 9KA75C10			
Gross Alpha	7.43E+00		2.8E+00	3.2E+00	1.99E+00	pCi/L	100%	(3.7)	11/26/07 06:50 p		0.2051	GPC10F
	8.94E+00		RER2 0.6			3.00E+00		(4.6)			L	

No. of Results: 1 Comments:

Richland RER2 - Replicate Error Ratio = (S-D)/[sqrt(sq(TPUs)+sq(TPUd))] as defined by ICPT BOA.

tSTLRchDupV5.1 MDC|MDA,Lc - Detection, Decision Level based on instrument background or blank, adjusted by the sample Efficiency, Yield, and Volume.
A2002

FORM II

Date: 28-Nov-07

DUPLICATE RESULTS

Lab Name: TA Richland
 Lot-Sample No.: J7K140163-2
 Client Sample ID: MW-2 DUP

SDG: 36654
 Report No. : 37569
 COC No. :

Collection Date: 10/22/2007 2:11:00 PM
 Received Date: 10/26/2007 10:00:00 AM
 Matrix: WATER

Parameter	Result, Orig Rst	Qual	Count Error (2 s)	Total Uncert(2 s)	MDC MDA, Action Lev	Rpt Unit, CRDL	Yield	Rst/MDC, Rst/TotUncert	Analysis, Prep Date	Total Sa Size	Aliquot Size	Primary Detector
atch: 7318397	E900.0											
					Work Order: KA75Q1AD			Report DB ID: KA75Q1DR		Orig Sa DB ID: 9KA75Q10		
Gross Beta	1.69E+00	U	2.2E+00	2.2E+00	4.62E+00	pCi/L	100%	0.36	11/27/07 04:50 p		0.1223	GPC27C
	3.60E+00	U		RER2 1.2			2.00E+02	(1.5)			L	

No. of Results: 1 Comments:

L Richland RER2 - Replicate Error Ratio = $(S-D)/[\text{sqrt}(\text{sq}(\text{TPUs})+\text{sq}(\text{TPUd}))]$ as defined by ICPT BOA.
 tSTLRchDupV5.1 MDC|MDA,Lc - Detection, Decision Level based on instrument background or blank, adjusted by the sample Efficiency, Yield, and Volume.
 A2002 U Qual - Analyzed for but not detected above limiting criteria. Limit criteria is less than the Mdc/Mda or Total Uncert or not identified by gamma scan software.

FORM II
BLANK RESULTS

Date: 28-Nov-07

Lab Name: TA Richland

SDG: 36654

Matrix: WATER

Report No. : 37569

Parameter	Result	Qual	Count Error (2 s)	Total Uncert(2 s)	MDC MDA ,	Rpt Unit, CRDL	Yield	Rst/MDC, Rst/TotUncert	Analysis, Prep Date	Total Sa Size	Aliquot Size	Primary Detector
atch: 7318395 EPA900.0 Work Order: KA83R1AA Report DB ID: KA83R1AB												
Gross Alpha	6.10E-01	U	6.6E-01	6.7E-01	1.09E+00	pCi/L	100%	0.56	11/26/07 05:45 p		0.1993	GPC10F
					3.65E-01	3.00E+00		(1.8)			L	
atch: 7318397 E900.0 Work Order: KA8341AA Report DB ID: KA8341AB												
Gross Beta	4.08E-01	U	8.5E-01	8.5E-01	1.70E+00	pCi/L	100%	0.24	11/27/07 07:32 p		0.2007	GPC26C
					8.16E-01	4.00E+00		0.95			L	

No. of Results: 2 Comments:

TA Richland
Blank
1.1.4 A2002

MDC|MDA,Lc - Detection, Decision Level based on instrument background or blank, adjusted by the sample Efficiency, Yield, and Volume.
U Qual - Analyzed for but not detected above limiting criteria. Limit criteria is less than the Mdc/Mda or Total Uncert or not identified by gamma scan software.

FORM II
LCS RESULTS

Date: 28-Nov-07

Lab Name: TA Richland
Matrix: WATER

SDG: 36654
Report No.: 37569

Parameter	Result	Count Qual	Count Error (2 s)	Total Uncert(2 s)	MDC MDA	Report Unit	Yield	Expected	Expected Uncert	Recovery, Bias	Analysis, Prep Date	Aliquot Size	Primary Detector
atch: 7318395	EPA900.0			Work Order: KA83R1AC			Report DB ID: KA83R1CS						
Gross Alpha	3.12E+01		4.1E+00	8.3E+00	1.13E+00	pCi/L	100%	4.05E+01	6.23E-01	77%	11/26/07 06:50 p	0.2001	GPC10L
							Rec Limits:	75	125	-0.2		L	
atch: 7318397	E900.0			Work Order: KA8341AC			Report DB ID: KA8341CS						
Gross Beta	3.62E+01		2.1E+00	5.1E+00	1.77E+00	pCi/L	100%	4.11E+01	8.17E-01	88%	11/27/07 07:32 p	0.2033	GPC26E
							Rec Limits:	70	130	-0.1		L	
No. of Results: 2		Comments:											



November 01, 2007

Mr. Dennis L. Davids
EnergySolutions, LLC.
99 Crestview Drive Extension
Transfer, Pennsylvania 16154

Re: Whitaker, PA Site
Work Order: 196435

Dear Mr. Davids:

GEL Laboratories, LLC (GEL) appreciates the opportunity to provide the enclosed analytical results for the sample(s) we received on October 26, 2007. This original data report has been prepared and reviewed in accordance with GEL's standard operating procedures.

Our policy is to provide high quality, personalized analytical services to enable you to meet your analytical needs on time every time. We trust that you will find everything in order and to your satisfaction. If you have any questions, please do not hesitate to call me at (843) 556-8171, ext. 4243.

Sincerely,

A handwritten signature in black ink that reads "Cheryl Jones".

Cheryl Jones
Project Manager

Chain of Custody: COC-W-07-0009
Enclosures



196435

**ENERGYSOLUTIONS FIELD SERVICES
CHAIN OF CUSTODY RECORD
Parameters for Analysis**

Energy Solutions
143 West Street
New Milford, CT 06776
(801) 303-1028

To: General Engineering Laboratories, LLC
P.O. Box 30712
Charleston, SC 29417
Phone: (843) 556-8171
Fax: (843) 766-1178

Attention: Cheryl Jones
Email: cj@gel.com

Sampler's Name: Robert McPeak
Project Number: 137003
Project Name: Whittaker
Tracking Number: COC-W-07-0009

Gross Alpha & Beta										

Sample ID No.	Date Collected	Time Collected									Comments
MW-9	10/23/2007	4:30 PM	x								Please Send Results to: Dennis L. Davids, Jr. Energy Solutions c/o Greenville Metals Energy Solutions Construction Trailer 99 Crestview Drive Ext. Transfer, PA 16154 and e-mail: dldavids@energysolutions.com

[Signature]

10/25/07 4:00 PM

Relinquished By (Signature)

Date/Time

[Signature] 10/26/07 0945

Received By (Signature)

Date/Time

SHIPPING INFORMATION: Fed Ex 10/25/2007
Carrier Date Shipped

ENERGYSOLUTIONS CONTACT: Dennis L. Davids, Jr. 724-846-0944
Name Phone No.

Client: <i>ENRG</i>		SDG/ARCO/Work Order: <i>196435</i>	
Received By: <i>Picky Alex</i>		Date Received: <i>10/26/07</i>	
Suspected Hazard Information	Yes	No	*If Counts > x2 area background on samples not marked "radioactive", contact the Radiation Safety Group of further investigation.
Marked as radioactive?		✓	Maximum Counts Observed*: <i>90 cpm</i>
Classified Radioactive II by RSO?		✓	
Marked containing PCBs?		✓	
Shipped as a DOT Hazardous?		✓	Hazard Class Shipped: UN#:
Identified as Foreign Soil?		✓	

Sample Receipt Criteria		Yes	NA	No	Comments/Qualifiers (Required for Non-Conforming Items)
1	Shipping containers received intact and sealed?	✓			Circle Applicable: seals broken damaged container leaking container other (describe)
2	Samples requiring cold preservation within (4 +/- 2 C)?		✓		ice bags blue ice dry ice <u>none</u> other (describe) <i>22°</i>
3	Chain of custody documents included with shipment?	✓			
4	Sample containers intact and sealed?	✓			Circle Applicable: seals broken damaged container leaking container other (describe)
5	Samples requiring chemical preservation at proper pH?	✓			Sample ID's, containers affected and observed pH: If Preservation added, Lot#:
6	VOA vials free of headspace (defined as < 6mm bubble)?		✓		Sample ID's and containers affected:
7	Are Encore containers present?			✓	(If yes, immediately deliver to Volatiles laboratory)
8	Samples received within holding time?	✓			Id's and tests affected:
9	Sample ID's on COC match ID's on bottles?	✓			Sample ID's and containers affected:
10	Date & time on COC match date & time on bottles?			✓	Sample ID's affected: <i>no date/time on sample</i>
11	Number of containers received match number indicated on COC?	✓			Sample ID's affected: <i>one container received</i>
12	COC form is properly signed in relinquished/received sections?	✓			

Comments: *7917 8813 7273*

GEL LABORATORIES LLC

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

Certificate of Analysis Report for

ENRG001 EnergySolutions, LLC

Client SDG: 196435 GEL Work Order: 196435

The Qualifiers in this report are defined as follows:

- * A quality control analyte recovery is outside of specified acceptance criteria
- ** Analyte is a surrogate compound
- U Analyte was analyzed for, but not detected above the MDL, MDA, or LOD.
- ND The analyte concentration is not detected above the detection limit.

The above sample is reported on an "as received" basis.

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, Cheryl Jones.



Reviewed by _____

GEL LABORATORIES LLC

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

Certificate of Analysis

Company : EnergySolutions, LLC.
Address : 99 Crestview Drive Extension
Transfer, Pennsylvania 16154

Contact: Mr. Dennis L. Davids, Jr.
Project: **Whitaker, PA Site**

Report Date: November 1, 2007

Client Sample ID: MW-9
Sample ID: 196435001
Matrix: Ground Water
Collect Date: 23-OCT-07 16:30
Receive Date: 26-OCT-07
Collector: Client

Project: ENRG00102
Client ID: ENRG001

Parameter	Qualifier	Result	Uncertainty	DL	RL	Units	DF	AnalystDate	Time	Batch	Method
Rad Gas Flow Proportional Counting											
<i>GFPC, Gross A/B, liquid</i>											
Alpha		1.61	+/-0.989	1.49	5.00	pCi/L		HAK 10/30/07	2130	696978	1
Beta	U	1.78	+/-1.50	2.49	5.00	pCi/L		B			

The following Analytical Methods were performed

Method	Description	Analyst Comments
1	EPA 900.0	

GEL LABORATORIES LLC

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

QC Summary

Report Date: November 1, 2007

Page 1 of 2

EnergySolutions, LLC.
99 Crestview Drive Extension
Transfer, Pennsylvania

Contact: Mr. Dennis L. Davids, Jr.

Workorder: 196435

Parmname	NOM	Sample	Qual	QC	Units	RPD%	REC%	Range	Anlst	Date	Time
Rad Gas Flow											
Batch	696978										
QC1201448840	196441002		DUP								
Alpha	U	-1.04	U	0.508	pCi/L	0		N/A	HAKB	10/30/07	21:47
		+/-1.87		+/-1.30							
Beta	U	-1.32	U	0.629	pCi/L	0		N/A			
		+/-2.54		+/-2.38							
QC1201448843	LCS										
Alpha	92.7			70.7	pCi/L		76	(75%-125%)		10/30/07	19:38
				+/-7.95							
Beta	265			245	pCi/L		93	(75%-125%)			
				+/-11.6							
QC1201448839	MB										
Alpha			U	0.347	pCi/L					10/30/07	21:46
				+/-0.867							
Beta			U	-0.0691	pCi/L						
				+/-1.55							
QC1201448841	196441002		MS								
Alpha	211	U	-1.04	261	pCi/L		124	(75%-125%)		10/30/07	19:38
			+/-1.87	+/-28.2							
Beta	602	U	-1.32	686	pCi/L		114	(75%-125%)			
			+/-2.54	+/-30.7							
QC1201448842	196441002		MSD								
Alpha	211	U	-1.04	243	pCi/L	7	115	(0%-20%)		10/30/07	19:38
			+/-1.87	+/-26.8							
Beta	602	U	-1.32	633	pCi/L	8	105	(0%-20%)			
			+/-2.54	+/-28.7							

Notes:

The Qualifiers in this report are defined as follows:

- ** Analyte is a surrogate compound
- < Result is less than value reported
- > Result is greater than value reported
- A The TIC is a suspected aldol-condensation product
- B For General Chemistry and Organic analysis the target analyte was detected in the associated blank.
- BD Results are either below the MDC or tracer recovery is low
- C Analyte has been confirmed by GC/MS analysis
- D Results are reported from a diluted aliquot of the sample
- H Analytical holding time was exceeded
- J Value is estimated
- M M if above MDC and less than LLD

GEL LABORATORIES LLC

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

QC Summary

Workorder: 196435

Page 2 of 2

Parmname	NOM	Sample	Qual	QC	Units	RPD%	REC%	Range	Anlst	Date	Time
N/A	RPD or %Recovery limits do not apply.										
ND	Analyte concentration is not detected above the detection limit										
NJ	Consult Case Narrative, Data Summary package, or Project Manager concerning this qualifier										
R	Sample results are rejected										
U	Analyte was analyzed for, but not detected above the MDL, MDA, or LOD.										
UI	Gamma Spectroscopy--Uncertain identification										
X	Consult Case Narrative, Data Summary package, or Project Manager concerning this qualifier										
Y	QC Samples were not spiked with this compound										
^	RPD of sample and duplicate evaluated using +/-RL. Concentrations are <5X the RL. Qualifier Not Applicable for Radiochemistry.										
h	Preparation or preservation holding time was exceeded										

N/A indicates that spike recovery limits do not apply when sample concentration exceeds spike conc. by a factor of 4 or more.

^ The Relative Percent Difference (RPD) obtained from the sample duplicate (DUP) is evaluated against the acceptance criteria when the sample is greater than five times (5X) the contract required detection limit (RL). In cases where either the sample or duplicate value is less than 5X the RL, a control limit of +/- the RL is used to evaluate the DUP result.

* Indicates that a Quality Control parameter was not within specifications.

For PS, PSD, and SDILT results, the values listed are the measured amounts, not final concentrations.

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 QC Summary.

List of current GEL Certifications as of 01 November 2007

State	Certification
Alaska	UST-062
Arizona	AZ0668
Arkansas	88-0651
CLIA	42D0904046
California	01151CA
Colorado	GenEngLabs
Connecticut	PH-0169
Dept. of Navy	NFESC 413
EPA	WG-15J
Florida/NELAP	E87156
Georgia	E87156 (FL/NELAP)
Hawaii	N/A
Idaho	N/A
Illinois	200029
Indiana	C-SC-01
Kansas	E-10332
Kentucky	90129
Louisiana	03046
Maryland	270
Massachusetts	M-SC012
Michigan	9903
Nevada	SC12
New Jersey	SC002
New Mexico	FL NELAP E87156
New York	11501
North Carolina	233
North Carolina Drinking W	45709
North Dakota	R-158
Oklahoma	9904
Pennsylvania	68-00485
South Carolina	10120001/10585001/10120002
Tennessee	02934
Texas NELAP	T104704235-07-TX
U.S. Dept. of Agriculture	S-52597
US Army Corps of Engineer	N/A
Utah	8037697376 GEL
Vermont	VT87156
Virginia	00151
Washington	C1641



Document No. 82A9103
Revision No. 3
Addendum No. 12

ATTACHMENT C

EnergySolutions Well Sampling Field Logs

(10 pages)

