

LDC #: 21179A296  
 SDG #: 9067

**VALIDATION FINDINGS WORKSHEET**  
**Field Duplicates**

Page: 1 of 1  
 Reviewer: MG  
 2nd reviewer: W

METHOD: Radiochemistry (Method: 904.0)

- N N/A Were field duplicate pairs identified in this SDG?
- N N/A Were target isotopes detected in the field duplicate pairs?

Isotopes	Activity ( pCi/L )		RPD
	3	5	
Ra-228	0.633 U	1.08	200

Isotopes	Activity ( )		RPD

Isotopes	Activity ( )		RPD

Isotopes	Activity ( )		RPD

## Laboratory Data Consultants, Inc. Data Validation Report

**Project/Site Name:** Former Raytheon Site  
**Collection Date:** May 27, 2009  
**LDC Report Date:** August 5, 2009  
**Matrix:** Water  
**Parameters:** Radium-228  
**Validation Level:** Level III & IV  
**Laboratory:** GPL Laboratories

**Sample Delivery Group (SDG):** 9068

### Sample Identification

CP-0905005  
CP-0905006  
CP-0905001\*\*  
CP-0905002\*\*  
CP-0905023  
CP-0905024  
CP-0905013  
CP-0905014  
CP-0905017  
CP-0905018  
CP-0905021  
CP-0905022  
CP-0905028  
CP-0905005DUP  
CP-0905006MS

\*\*Indicates sample underwent Level IV review

## Introduction

This data review covers 15 water samples listed on the cover sheet. The analyses were per EPA Method 904.0 for Radium-228.

The review follows a modified outline of the USEPA Contract Laboratory Program National Functional Guidelines for Inorganic Data Review (October 2004) as there are no current guidelines for the method stated above.

A qualification summary table is provided at the end of this report if data has been qualified. Flags are classified a P (protocol) or A (advisory) to indicate whether the flag is due to a laboratory deviation from a specified protocol or is of technical advisory nature.

Blank results are summarized in Section III.

Field duplicates are summarized in Section VIII.

Samples indicated by a double asterisk on the front cover underwent a Level IV review. A Level III review was performed on all of the other samples. Raw data were not evaluated for the samples reviewed by Level III criteria since this review is based on QC data.

The following are definitions of the data qualifiers:

- U Indicates the isotope was analyzed for but not detected at or above the stated limit.
- J Indicates an estimated value.
- R Quality control indicates the data is not usable.
- N Presumptive evidence of presence of the constituent.
- UJ Indicates the isotope was analyzed for but not detected. The sample detection limit is an estimated value.
- A Indicates the finding is based upon technical validation criteria.
- P Indicates the finding is related to a protocol/contractual deviation.
- None Indicates the data was not significantly impacted by the finding, therefore qualification was not required.

## I. Technical Holding Times

All technical holding time requirements were met.

The chain-of-custodies were reviewed for documentation of cooler temperatures. All cooler temperatures met validation criteria.

## II. Calibration

### a. Initial Calibration

All criteria for the initial calibration were met.

Detector efficiency was determined and a self-absorption curve was generated for each radionuclide of interest.

### b. Continuing Calibration

Calibration verification and background determination were performed at the required frequencies. Results were within laboratory control limits.

## III. Blanks

Method blanks were reviewed for each matrix as applicable. Blank results contained less than the minimum detectable activity (MDA).

Sample CP-0905028 was identified as an equipment blank. No radium-228 contaminants were found in this blank with the following exceptions:

Equipment Blank ID	Sampling Date	Isotope	Concentration	Associated Samples
CP-0905028	5/27/09	Radium-228	1.09 pCi/L	CP-0905005 CP-0905006 CP-0905001** CP-0905002** CP-0905023 CP-0905024 CP-0905013 CP-0905014 CP-0905017 CP-0905018 CP-0905021 CP-0905022

Sample concentrations were compared to concentrations detected in the field blanks. The sample concentrations were either not detected or were significantly greater (>5X blank contaminants) than the concentrations found in the associated field blanks with the following exceptions:

Sample	Isotope	Reported Concentration	Modified Final Concentration
CP-0905001**	Radium-228	2.20 pCi/L	2.20U pCi/L
CP-0905002**	Radium-228	4.46 pCi/L	4.46U pCi/L
CP-0905023	Radium-228	4.86 pCi/L	4.86U pCi/L
CP-0905024	Radium-228	4.07 pCi/L	4.07U pCi/L
CP-0905013	Radium-228	1.60 pCi/L	1.60U pCi/L
CP-0905014	Radium-228	2.14 pCi/L	2.14U pCi/L
CP-0905017	Radium-228	2.51 pCi/L	2.51U pCi/L
CP-0905018	Radium-228	1.64 pCi/L	1.64U pCi/L
CP-0905021	Radium-228	2.51 pCi/L	2.51U pCi/L
CP-0905022	Radium-228	1.37 pCi/L	1.37U pCi/L

#### IV. Accuracy and Precision Data

##### a. Matrix Spike/(Matrix Spike) Duplicate

Matrix spike (MS) samples were reviewed for each matrix as applicable. Percent recoveries (%R) were within QC limits.

Duplicate (DUP) sample analyses were reviewed for each matrix as applicable. Results were within QC limits.

##### b. Laboratory Control Samples

Laboratory control samples were reviewed for each matrix as applicable. Percent recoveries (%R) were within QC limits.

##### c. Chemical Recovery

All chemical recoveries were within validation criteria with the following exceptions:

Isotope	%R (Limits)	Associated Samples	Affected Isotope	Flag	A or P
Actinium-228	137.64 (30-110)	All samples in SDG 9068	Radium-228	J (all detects) UJ (all non-detects)	A

## V. Sample Result Verification

All sample result verifications were acceptable for samples on which a Level IV review was performed. Raw data were not evaluated for the samples reviewed by Level III criteria.

## VI. Minimum Detectable Activity (MDA)

All minimum detectable activities met required detection limits.

## VII. Overall Assessment of Data

Data flags are summarized at the end of this report if data has been qualified.

## VIII. Field Duplicates

Samples CP-0905001\*\* and CP-0905023 and samples CP-0905002\*\* and CP-0905024 were identified as field duplicates. No radium-228 was detected in any of the samples with the following exceptions:

Isotope	Activity (pCi/L)		RPD
	CP-0905001**	CP-0905023	
Radium-228	2.20	4.86	75

Isotope	Activity (pCi/L)		RPD
	CP-0905002**	CP-0905024	
Radium-228	4.46	4.07	9

**Former Raytheon Site  
Radium-228 - Data Qualification Summary - SDG 9068**

SDG	Sample	Isotope	Flag	A or P	Reason
9068	CP-0905005 CP-0905006 CP-0905001** CP-0905002** CP-0905023 CP-0905024 CP-0905013 CP-0905014 CP-0905017 CP-0905018 CP-0905021 CP-0905022 CP-0905028	Radium-228	J (all detects) UJ (all non-detects)	A	Chemical recovery (%R)

**Former Raytheon Site  
Radium-228 - Laboratory Blank Data Qualification Summary - SDG 9068**

No Sample Data Qualified in this SDG

**Former Raytheon Site  
Radium-228 - Field Blank Data Qualification Summary - SDG 9068**

SDG	Sample	Isotope	Modified Final Concentration	A or P
9068	CP-0905001**	Radium-228	2.20U pCi/L	A
9068	CP-0905002**	Radium-228	4.46U pCi/L	A
9068	CP-0905023	Radium-228	4.86U pCi/L	A
9068	CP-0905024	Radium-228	4.07U pCi/L	A
9068	CP-0905013	Radium-228	1.60U pCi/L	A
9068	CP-0905014	Radium-228	2.14U pCi/L	A
9068	CP-0905017	Radium-228	2.51U pCi/L	A
9068	CP-0905018	Radium-228	1.64U pCi/L	A
9068	CP-0905021	Radium-228	2.51U pCi/L	A

<b>SDG</b>	<b>Sample</b>	<b>Isotope</b>	<b>Modified Final Concentration</b>	<b>A or P</b>
9068	CP-0905022	Radium-228	1.37U pCi/L	A



LDC #: 21179B29b

**VALIDATION COMPLETENESS WORKSHEET**

Date: 8-4-09

SDG #: 9068

Level III/IV

Page: 1 of 1

Laboratory: GPL Laboratories

Reviewer: MG

2nd Reviewer: **METHOD:** Radium 228 (EPA Method 904.0)

The samples listed below were reviewed for each of the following validation areas. Validation findings are noted in attached validation findings worksheets.

	Validation Area		Comments
I.	Technical holding times	A	Sampling dates: 5-27-09
IIa.	Initial calibration	A	
IIb.	Calibration verification	A	
III.	Blanks	A	
IVa.	Matrix Spike/(Matrix Spike) Duplicates	A	MS/DUP
IVb.	Laboratory control samples	A	LCS
IVc.	Chemical recovery	SW	
V.	Sample result verification	A	Not reviewed for Level III validation.
VI.	Minimum detectable activity (MDA)	A	
VII.	Overall assessment of data	A	
VIII.	Field duplicates	SW	D = 3+5, D = 4+6
XIV.	Field blanks	SW	EB = 13

Note: A = Acceptable  
N = Not provided/applicable  
SW = See worksheet

ND = No compounds detected  
R = Rinsate  
FB = Field blank

D = Duplicate  
TB = Trip blank  
EB = Equipment blank

Validated Samples: \*\* Indicates sample underwent Level IV validation

all water

1	CP-0905005	11	CP-0905021	21		31	
2	CP-0905006	12	CP-0905022	22		32	
3	CP-0905001**	13	CP-0905028	23		33	
4	CP-0905002**	14	CP-0905005DUP	24		34	
5	CP-0905023	15	CP-0905006MS	25		35	
6	CP-0905024	16	PBW	26		36	
7	CP-0905013	17		27		37	
8	CP-0905014	18		28		38	
9	CP-0905017	19		29		39	
10	CP-0905018	20		30		40	

Notes: \_\_\_\_\_

\_\_\_\_\_

\_\_\_\_\_

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 SDG #: 9068

VALIDATION FINDINGS CHECKLIST

Page: 1 of 2  
 Reviewer: MG  
 2nd Reviewer: ✓

Method: Radiochemistry (EPA Method 904.0 )

Validation Area	Yes	No	NA	Findings/Comments
<b>I. Technical holding times</b>				
All technical holding times were met.	✓			
<b>II. Calibration</b>				
Were all instruments and detectors calibration as required?	✓			
Were NIST traceable standards used for all calibrations?	✓			
Was the check source identified by activity and radionuclide?	✓			
Were check sources including background counts analyzed at the required frequency and within laboratory control limits?	✓			
<b>III. Blanks</b>				
Were blank analyses performed as required?	✓			
Were any activities detected in the blanks greater than the minimum detectable activity (MDA)? If yes, please see the Blanks validation completeness worksheet.		✓		
<b>IV. Matrix spikes and Duplicates</b>				
Were a matrix spike (MS) analyzed for each matrix in this SDG? If no, indicate which matrix does not have an associated MS/MSD or MS/DUP. Soil / Water.	✓			
Were the MS percent recoveries (%R) within the QC limits? If the sample concentration exceeded the spike concentration by a factor of 4 or more, no action was taken.	✓			
Was a duplicate sample analyzed at the required frequency of 5% in this SDG?	✓			
Were all duplicate sample duplicate error ratios (DER) $\leq 1.42$ ?	✓			
<b>V. Laboratory control samples</b>				
Was an LCS analyzed per analytical batch?	✓			
Were the LCS percent recoveries (%R) and relative percent difference (RPD) within the 75-125%?	✓			
<b>VI. Sample Chemical/Carrier Recovery</b>				
Was a tracer/carrier added to each sample?	✓			
Were tracer/carrier recoveries within the QC limits?		✓		
<b>VII. Regional Quality Assurance and Quality Control</b>				
Were performance evaluation (PE) samples performed?		✓		
Were the performance evaluation (PE) samples within the acceptance limits?			✓	
<b>VIII. Sample Result Verification</b>				
Were activities adjusted to reflect all sample dilutions and dry weight factors applicable to level IV validation?	✓			
Were the Minimum Detectable Activities (MDA) $< RL$ ?	✓			

LDC #: 21179B296  
SDG #: 9068

VALIDATION FINDINGS CHECKLIST

Page: 2 of 2  
Reviewer: MG  
2nd Reviewer: ✓

Validation Area	Yes	No	NA	Findings/Comments
IX. Overall assessment of data				
Overall assessment of data was found to be acceptable.	✓			
X. Field duplicates				
Field duplicate pairs were identified in this SDG.	✓			
Target analytes were detected in the field duplicates.	✓			
XI. Field blanks				
Field blanks were identified in this SDG.	✓			
Target analytes were detected in the field blanks.	✓			

LDC #: 21179B296  
SDG #: 9068

VALIDATION FINDINGS WORKSHEET  
Field Blanks

Page: 1 of 1  
Reviewer: MG  
2nd Reviewer: [Signature]

METHOD: Radiochemistry (Method: 904.0)

N N/A Were field blanks identified in this SDG?  
 N N/A Were target isotopes detected in the field blanks?  
Blank units: pCi/L Associated sample units: pCi/L  
Sampling date: 5-27-09

Field blank type: (circle one) Field Blank / Rinsate / Other: EB Associated Samples: 1-12

Analyte	Blank ID	Blank Action Limit	Sample Identification																	
			3	4	5	6	7	8	9	10	11	12								
Ra-228	1.09	5.45	2.20	4.46	4.86	4.07	1.60	2.14	2.51	1.64	2.51	1.37								

Blank units: \_\_\_\_\_ Associated sample units: \_\_\_\_\_  
Sampling date: \_\_\_\_\_  
Field blank type: (circle one) Field Blank / Rinsate / Other: \_\_\_\_\_

Analyte	Blank ID	Blank Action Limit	Sample Identification																	

Samples with isotope concentrations within five times the associated field blank concentration are listed above, these sample results were qualified as not detected, "U".

VALIDATION FINDINGS WORKSHEET  
Sample Carrier Recovery

METHOD: Radiochemistry (Method: 904.0)

Please see qualifications below for all questions answered "N". Not applicable questions are identified as "N/A".

Y  N  N/A  
 Was a carrier added to each sample?  
 Y  N  N/A  
 Were carrier recoveries within the control limits?

LEVEL IV ONLY:  
 Y  N  N/A  
 Were recalculated results acceptable? See Level IV Recalculation Worksheet for recalculations.

#	ID	Matrix	Isotope	%R (limits)	Associated Samples	Qualifications
1	Ra-228	water	Ac-228	137.64 (30-110)	q11	J/US/A

Comments:  
 \_\_\_\_\_  
 \_\_\_\_\_

LDC #: 21179B296  
 SDG #: 9068

**VALIDATION FINDINGS WORKSHEET**  
**Field Duplicates**

Page: 1 of 1  
 Reviewer: MG  
 2nd reviewer:                     

METHOD: Radiochemistry (Method: 904.0)

N N/A  
 N N/A

Were field duplicate pairs identified in this SDG?  
 Were target isotopes detected in the field duplicate pairs?

Isotopes	Activity ( pCi/L )		RPD
	3	5	
Ra-228	2.20	4.86	75

Isotopes	Activity ( pCi/L )		RPD
	4	6	
Ra-228	4.46	4.07	9

Isotopes	Activity (            )		RPD

Isotopes	Activity (            )		RPD

LDC #: 21179B296  
 SDG #: 9068

**VALIDATION FINDINGS WORKSHEET**  
**Level IV Recalculation Worksheet**

Page: 1 of 1  
 Reviewer: MG  
 2nd Reviewer: A

METHOD: Radiochemistry (Method: 904.0)

Percent recoveries (%R) for a laboratory control sample, a matrix spike and a matrix spike duplicate sample were recalculated using the following formula:

$$\%R = \frac{\text{Found}}{\text{True}} \times 100$$

Where, Found = activity of each analyte measured in the analysis of the sample.  
 True = activity of each analyte in the source.

A matrix spike and matrix spike duplicate relative percent difference (RPD) was recalculated using the following formula:

$$RPD = \frac{|S-D|}{(S+D)/2} \times 100$$

Where, S = Original sample activity  
 D = Duplicate sample activity

Sample ID	Type of Analysis	Analyte	Found/S (units)	True/D (units)	Recalculated		Acceptable (Y/N)
					%R or RPD	Reported %R or RPD	
LCS	Laboratory control sample	Ra-228	7.85 (pci/L)	7.19 (pci/L)	109	109	Y
15	Matrix spike sample	Ra-228	5.35 (pci/L)	7.19 (pci/L)	74.4	74.4	
14	Duplicate RPD	Ra-228	0.547 (pci/L) ± 0.412 (2σ)	0.718 (pci/L) ± 0.453	(F/E) 0.559	(F/E) 0.556	
9068 - Yield A for 3	Chemical recovery	Ac-228 for Ra-228	13.25 (dpm)	9.57 (dpm)	138.45	137.64	

Comments: Refer to appropriate worksheet for list of qualifications and associated samples when reported results do not agree within 10.0% of the recalculated results.

LDC #: 21179 B296  
 SDG #: 9068

**VALIDATION FINDINGS WORKSHEET**  
**Sample Calculation Verification**

Page: 1 of 1  
 Reviewer: MG  
 2nd reviewer: W

METHOD: Radiochemistry (Method: 904.0)

Please see qualifications below for all questions answered "N". Not applicable questions are identified as "N/A".

- N N/A Have results been reported and calculated correctly?
- N N/A Are results within the calibrated range of the instruments?

Analyte results for # 3 Ra-228 reported with a positive detect were recalculated and verified using the following equation:

Activity = \_\_\_\_\_ Recalculation: \_\_\_\_\_

$$\frac{(cpm - bckgrd\ cpm)}{(2.22)(E)(Vol)(CF)} \times 1.33 - 0.388 \times 1.00 \times 1.46 \times 1.10 \times 1.00 = 2.205\ \text{pci/L}$$

$(2.22)(0.3742)(0.60\text{L})(1.3764)$

E = Efficiency  
 Vol = Volume  
 CF = %R, Self-absorbance, abundance, ect.

#	Sample ID	Analyte	Reported Concentration (pci/L)	Calculated Concentration (pci/L)	Acceptable (Y/N)
1	3	Ra-228	2.20	2.21	Y

Note: \_\_\_\_\_



**Former Raytheon Site  
Data Validation Reports  
LDC# 21179**

Isotopic Uranium

*LDC*

## Laboratory Data Consultants, Inc. Data Validation Report

**Project/Site Name:** Former Raytheon Site  
**Collection Date:** May 26, 2009  
**LDC Report Date:** August 5, 2009  
**Matrix:** Water  
**Parameters:** Isotopic Uranium  
**Validation Level:** Level III  
**Laboratory:** GPL Laboratories

**Sample Delivery Group (SDG):** 9067

### Sample Identification

CP-0905015  
CP-0905016  
CP-0905019  
CP-0905020  
CP-0905025  
CP-0905026  
CP-0905009  
CP-0905010  
CP-0905015DUP  
CP-0905009DUP\*  
CP-0905009RE\*  
CP-0905010RE\*

\*Indicates samples analyzed using Standard Method 7500-U for Isotopic Uranium.

## Introduction

This data review covers 12 water samples listed on the cover sheet. The analyses were per Method ACW03 and Standard Method 7500-U for Isotopic Uranium.

The review follows a modified outline of the USEPA Contract Laboratory Program National Functional Guidelines for Inorganic Data Review (October 2004) as there are no current guidelines for the method stated above.

A qualification summary table is provided at the end of this report if data has been qualified. Flags are classified a P (protocol) or A (advisory) to indicate whether the flag is due to a laboratory deviation from a specified protocol or is of technical advisory nature.

Blank results are summarized in Section III.

Field duplicates are summarized in Section VIII.

Raw data were not reviewed for this SDG. The review was based on QC data.

The following are definitions of the data qualifiers:

- U Indicates the isotope was analyzed for but not detected at or above the stated limit.
- J Indicates an estimated value.
- R Quality control indicates the data is not usable.
- N Presumptive evidence of presence of the constituent.
- UJ Indicates the isotope was analyzed for but not detected. The sample detection limit is an estimated value.
- A Indicates the finding is based upon technical validation criteria.
- P Indicates the finding is related to a protocol/contractual deviation.
- None Indicates the data was not significantly impacted by the finding, therefore qualification was not required.

## **I. Technical Holding Times**

All technical holding time requirements were met.

The chain-of-custodies were reviewed for documentation of cooler temperatures. All cooler temperatures met validation criteria.

## **II. Calibration**

### **a. Initial Calibration**

All criteria for the initial calibration were met.

Detector efficiency was determined for each radionuclide of interest.

### **b. Continuing Calibration**

Calibration verification and background determination were performed at the required frequencies. Results were within control limits.

## **III. Blanks**

Method blanks were reviewed for each matrix as applicable. Blank results contained less than the minimum detectable activity (MDA).

No field blanks were identified in this SDG.

## **IV. Accuracy and Precision Data**

### **a. Matrix Spike/(Matrix Spike) Duplicate**

Matrix spike (MS) and matrix spike duplicate (MSD) analyses were not required by the method.

Duplicate (DUP) sample analyses were reviewed for each matrix as applicable. Results were within QC limits.

### **b. Laboratory Control Samples**

Laboratory control samples were reviewed for each matrix as applicable. Percent recoveries (%R) were within QC limits.

### **c. Tracer Recovery**

All tracer recoveries were within validation criteria with the following exceptions:

Sample ID	Isotope	%R (Limits)	Affected Isotopes	Flag	A or P
CP-0905009	Uranium-232	0.33 (30-110)	Uranium-232	J (all detects) R (all non-detects)	A
CP-0905010	Uranium-232	0.35 (30-110)	Uranium-232	J (all detects) R (all non-detects)	A

## V. Minimum Detectable Activity (MDA)

All minimum detectable activities met required detection limits.

## VI. Sample Result Verification

Raw data were not reviewed for this SDG.

## VII. Overall Assessment of Data

Data flags are summarized at the end of this report if data has been qualified.

## VIII. Field Duplicates

Samples CP-0905019 and CP-0905025 and samples CP-0905020 and CP-0905026 were identified as field duplicates. No isotopic uranium was detected in any of the samples with the following exceptions:

Isotope	Activity (pCi/L)		RPD
	CP-0905019	CP-0905025	
Uranium 233/234	12.2	12.0	2
Uranium 238	11.7	11.8	1
Uranium 235	0.481	0.657	31

Isotope	Activity (pCi/L)		RPD
	CP-0905020	CP-0905026	
Uranium 233/234	12.0	12.3	2
Uranium 235	0.584	0.362	47
Uranium 238	12.4	11.5	8

**Former Raytheon Site  
Isotopic Uranium - Data Qualification Summary - SDG 9067**

SDG	Sample	Isotope	Flag	A or P	Reason
9067	CP-0905009 CP-0905010	Uranium-232	J (all detects) R (all non-detects)	A	Tracer recovery (%R)

**Former Raytheon Site  
Isotopic Uranium - Laboratory Blank Data Qualification Summary - SDG 9067**

No Sample Data Qualified in this SDG

**Former Raytheon Site  
Isotopic Uranium - Field Blank Data Qualification Summary - SDG 9067**

No Sample Data Qualified in this SDG

LDC #: 21179A59a

**VALIDATION COMPLETENESS WORKSHEET**

Date: 8-3-09

SDG #: 9067

Level III

Page: 1 of 1

Laboratory: GPL Laboratories

Reviewer: MG

2nd Reviewer:

**METHOD:** Isotopic Uranium (Method ACW03 & SM7500-U)

The samples listed below were reviewed for each of the following validation areas. Validation findings are noted in attached validation findings worksheets.

	Validation Area		Comments
I.	Technical holding times	A	Sampling dates: 5-26-09
IIa.	Initial calibration	A	
IIb.	Calibration verification	A	
III.	Blanks	A	
IVa.	Matrix Spike/(Matrix Spike) Duplicates	A	DUP
IVa.	Laboratory control samples	A	LCS
V.	Tracer Recovery	SW	
VI.	Minimum Detectable Activity (MDA)	nm ↓ ASW	
VII.	Sample result verification	nm ↓ SW/N	
VIII.	Overall assessment of data	A	
IX.	Field duplicates	SW	D = 3+5, D = 4+6
X.	Field blanks	N	

Note: A = Acceptable  
 N = Not provided/applicable  
 SW = See worksheet

ND = No compounds detected  
 R = Rinsate  
 FB = Field blank

D = Duplicate  
 TB = Trip blank  
 EB = Equipment blank

Validated Samples:

all water

1	CP-905015	11	CP-905009	21	PBW1	31	
2	CP-905016	12	CP-905010	22	PBW2 *	32	
3	CP-905019	13	CP-905011 nm	23		33	
4	CP-905020	14	CP-905012 ↓	24		34	
5	CP-905025	15	CP-905027 ↓	25		35	
6	CP-905026	16	CP-905015DUP	26		36	
7	CP-905007 nm	17	CP-905009DUP *	27		37	
8	CP-905008 ↓	18	CP-0905009RE *	28		38	
9	CP-905003 ↓	19	CP-0905010RE *	29		39	
10	CP-905004 ↓	20		30		40	

Notes: \* = re-analysis by SM7500-U (original analysis by ACW03)

nm ID: CP-090- - - -

LDC #: 21179A59a  
SDG #: 9067

# VALIDATION FINDINGS WORKSHEET

## Sample Chemical Recovery

Page: 1 of 1  
Reviewer: MLG  
2nd Reviewer: [Signature]

METHOD: Radiochemistry (Method: ACW03 & SM7500-U)

Please see qualifications below for all questions answered "N". Not applicable questions are identified as "N/A".  
 N / N/A Was a tracer added to each sample?  
 N / N/A Were tracer recoveries within the control limits?  
LEVEL IV ONLY:

N / N/A Were recalculated results acceptable? See Level IV Recalculation Worksheet for recalculations.

#	ID	Matrix	Tracer	%R (limits)	Associated Isotopes	Associated Samples	method	Qualifications
1	11	water	U-232	0.33 (30-110)	All	11	(ACW03)	J/R/A - Y02
2	12	↓	↓	0.35 (30-110)	↓	12	(ACW03)	↓
3	11							
4	12							

NA  
↓

Comments:



LDC #: 21179A59a  
 SDG #: 9067

**VALIDATION FINDINGS WORKSHEET**  
**Field Duplicates**

Page: 1 of 1  
 Reviewer: MG  
 2nd reviewer: [Signature]

METHOD: Radiochemistry (Method: ACW03)

- N N/A Were field duplicate pairs identified in this SDG?  
 N N/A Were target isotopes detected in the field duplicate pairs?

Isotopes	Activity ( pCi/L )		RPD
	3	5	
U-233/234	12.2	12.0	2
U-238	11.7	11.8	1
U-235	0.481	0.657	31

Isotopes	Activity ( pCi/L )		RPD
	4	6	
U-233/234	12.0	12.3	2
U-235	0.584	0.362	47
U-238	12.4	11.5	8

Isotopes	Activity ( )		RPD

Isotopes	Activity ( )		RPD

**Laboratory Data Consultants, Inc.  
Data Validation Report**

**Project/Site Name:** Former Raytheon Site  
**Collection Date:** May 27, 2009  
**LDC Report Date:** August 5, 2009  
**Matrix:** Water  
**Parameters:** Isotopic Uranium  
**Validation Level:** Level III  
**Laboratory:** GPL Laboratories

**Sample Delivery Group (SDG):** 9068

**Sample Identification**

CP-0905005  
CP-0905006  
CP-0905013  
CP-0905014  
CP-0905017  
CP-0905018  
CP-0905021  
CP-0905022

## Introduction

This data review covers 8 water samples listed on the cover sheet. The analyses were per Method ACW03 for Isotopic Uranium.

The review follows a modified outline of the USEPA Contract Laboratory Program National Functional Guidelines for Inorganic Data Review (October 2004) as there are no current guidelines for the method stated above.

A qualification summary table is provided at the end of this report if data has been qualified. Flags are classified a P (protocol) or A (advisory) to indicate whether the flag is due to a laboratory deviation from a specified protocol or is of technical advisory nature.

Blank results are summarized in Section III.

Field duplicates are summarized in Section VIII.

Raw data were not reviewed for this SDG. The review was based on QC data.

The following are definitions of the data qualifiers:

- U Indicates the isotope was analyzed for but not detected at or above the stated limit.
- J Indicates an estimated value.
- R Quality control indicates the data is not usable.
- N Presumptive evidence of presence of the constituent.
- UJ Indicates the isotope was analyzed for but not detected. The sample detection limit is an estimated value.
- A Indicates the finding is based upon technical validation criteria.
- P Indicates the finding is related to a protocol/contractual deviation.
- None Indicates the data was not significantly impacted by the finding, therefore qualification was not required.

## **I. Technical Holding Times**

All technical holding time requirements were met.

The chain-of-custodies were reviewed for documentation of cooler temperatures. All cooler temperatures met validation criteria.

## **II. Calibration**

### **a. Initial Calibration**

All criteria for the initial calibration were met.

Detector efficiency was determined for each radionuclide of interest.

### **b. Continuing Calibration**

Calibration verification and background determination were performed at the required frequencies. Results were within control limits.

## **III. Blanks**

Method blanks were reviewed for each matrix as applicable. Blank results contained less than the minimum detectable activity (MDA).

No field blanks were identified in this SDG.

## **IV. Accuracy and Precision Data**

### **a. Matrix Spike/(Matrix Spike) Duplicate**

Matrix spike (MS) and matrix spike duplicate (MSD) analyses were not required by the method.

Duplicate (DUP) sample analyses were reviewed for each matrix as applicable. Results were within QC limits.

### **b. Laboratory Control Samples**

Laboratory control samples were reviewed for each matrix as applicable. Percent recoveries (%R) were within QC limits.

### **c. Tracer Recovery**

All tracer recoveries were within validation criteria.

## **V. Minimum Detectable Activity (MDA)**

All minimum detectable activities met required detection limits.

## **VI. Sample Result Verification**

Raw data were not reviewed for this SDG.

## **VII. Overall Assessment of Data**

Data flags are summarized at the end of this report if data has been qualified.

## **VIII. Field Duplicates**

No field duplicates were identified in this SDG.

**Former Raytheon Site  
Isotopic Uranium - Data Qualification Summary - SDG 9068**

No Sample Data Qualified in this SDG

**Former Raytheon Site  
Isotopic Uranium - Laboratory Blank Data Qualification Summary - SDG 9068**

No Sample Data Qualified in this SDG

**Former Raytheon Site  
Isotopic Uranium - Field Blank Data Qualification Summary - SDG 9068**

No Sample Data Qualified in this SDG

**METHOD:** Isotopic Uranium (Method ACW03)

The samples listed below were reviewed for each of the following validation areas. Validation findings are noted in attached validation findings worksheets.

	Validation Area		Comments
I.	Technical holding times	A	Sampling dates: <u>5-27-09</u>
IIa.	Initial calibration	A	
IIb.	Calibration verification	A	
III.	Blanks	A	
IVa.	Matrix Spike/(Matrix Spike) Duplicates	A	<u>DUP (SDG: 9067)</u>
IVa.	Laboratory control samples	A	<u>LCS</u>
V.	Tracer Recovery	A	
VI.	Minimum Detectable Activity (MDA)	A	
VII.	Sample result verification	N	
VIII.	Overall assessment of data	A	
IX.	Field duplicates	N	
X	Field blanks	N	

Note: A = Acceptable  
 N = Not provided/applicable  
 SW = See worksheet

ND = No compounds detected  
 R = Rinsate  
 FB = Field blank

D = Duplicate  
 TB = Trip blank  
 EB = Equipment blank

Validated Samples:  
all water

1	CP-0905005	11		21		31	
2	CP-0905006	12		22		32	
3	CP-0905013	13		23		33	
4	CP-0905014	14		24		34	
5	CP-0905017	15		25		35	
6	CP-0905018	16		26		36	
7	CP-0905021	17		27		37	
8	CP-0905022	18		28		38	
9	<u>PBW</u>	19		29		39	
10		20		30		40	

Notes: \_\_\_\_\_  
 \_\_\_\_\_  
 \_\_\_\_\_

## MEMORANDUM

**Date:** August 15, 2009  
**To:** Kim Sawyer, Project Manager, OTIE  
**Prepared by:** Richard Baldino, Senior Project Chemist, OTIE  
**Subject:** Data Validation Review for  
Raytheon, Canoga Park

Oneida Total Integrated Enterprises (OTIE) conducted groundwater sampling at Raytheon Canoga Park Site 1 as part of a Operation and Maintenance and Groundwater Monitoring program. The samples were analyzed under Work Order (SDG) numbers 9067\_9115 and 9068\_9089 by GPL Laboratories, inc. using U.S. Environmental Protection Agency (U.S. EPA) methods 900.0 (Gross Alpha and Beta), 903.1 (Radium-226), and 904.0 (Radium-228). The samples were analyzed under Work Order (SDG) number 3010643 by Pace Analytical Laboratory using U.S. Environmental Protection Agency (U.S. EPA) method 908.0 (Total Uranium). Samples collected under these SDGs are summarized in Table 1.

Analytical results were sent to Laboratory Data Consultants, Inc. (LDC) for data validation. Data were validated under LDC Project Number 21179. Laboratory data were validated using guidelines set forth in the U.S. EPA Contract Laboratory Program National Functional Guidelines for Inorganic Data Review (EPA540-R-04-004, October 2004) and applicable methodologies. The purpose of the chemical data quality evaluation process is to assess the usability of data for the project decision-making process.

Validation report number 21179 generated by LDC dated August 10, 2009 was reviewed to assess data quality, data qualification decisions, and validation completeness. No major issues were identified. Minor issues include qualification for blank contamination, tracer recovery deficiencies, and chemical surrogate recovery deficiencies. Minor validation deficiencies are summarized in Table 2. Laboratory data reporting forms along with handwritten data qualifications, where warranted, are included in Attachment 1.

The analytical performance of this data set is very strong. The analytical results meet the data quality objectives defined by the applicable method and validation guidance documentation. The analytical data is usable and acceptable with the qualifications as noted in Table 2 and Attachment 1. Rejection of analytical data was not required.



**Table 1**  
**Sample Cross-Reference Summary**  
*(Raytheon - Canoga Park)*

<b>Batch ID</b>	<b>Station ID</b>	<b>Sample ID</b>	<b>Sample Date/Time</b>	<b>Received Date</b>	<b>Matrix</b>
3010643	MW-16	CP-0905001	5/27/2009 8:00	5/29/2009	Ground Water
S9068_9089	MW-16	CP-0905001	5/27/2009 8:00	5/28/2009	Ground Water
S9068_9089	MW-16	CP-0905002	5/27/2009 8:15	5/28/2009	Ground Water
3010643	MW-16	CP-0905002	5/27/2009 8:15	5/29/2009	Ground Water
3010643	MW-19S	CP-0905003	5/26/2009 11:45	5/29/2009	Ground Water
S9067_9115	MW-19S	CP-0905003	5/26/2009 11:45	5/27/2009	Ground Water
S9067_9115	MW-19S	CP-0905004	5/26/2009 12:00	5/27/2009	Ground Water
3010643	MW-19S	CP-0905004	5/26/2009 12:00	5/29/2009	Ground Water
S9068_9089	CM-08D	CP-0905005	5/27/2009 11:45	5/28/2009	Ground Water
3010643	CM-08D	CP-0905005	5/27/2009 11:45	5/29/2009	Ground Water
3010643	CM-08D	CP-0905006	5/27/2009 12:00	5/29/2009	Ground Water
S9068_9089	CM-08D	CP-0905006	5/27/2009 12:00	5/28/2009	Ground Water
3010643	MW-20D	CP-0905007	5/26/2009 11:00	5/29/2009	Ground Water
S9067_9115	MW-20D	CP-0905007	5/26/2009 11:00	5/27/2009	Ground Water
S9067_9115	MW-20D	CP-0905008	5/26/2009 11:15	5/27/2009	Ground Water
3010643	MW-20D	CP-0905008	5/26/2009 11:15	5/29/2009	Ground Water
3010643	MW-21S	CP-0905009	5/26/2009 13:45	5/29/2009	Ground Water
S9067_9115	MW-21S	CP-0905009	5/26/2009 13:45	5/27/2009	Ground Water
S9067_9115	MW-21S	CP-0905010	5/26/2009 14:00	5/27/2009	Ground Water
3010643	MW-21S	CP-0905010	5/26/2009 14:00	5/29/2009	Ground Water
S9067_9115	MW-21D	CP-0905011	5/26/2009 14:45	5/27/2009	Ground Water
3010643	MW-21D	CP-0905011	5/26/2009 14:45	5/29/2009	Ground Water
3010643	MW-21D	CP-0905012	5/26/2009 15:00	5/29/2009	Ground Water
S9067_9115	MW-21D	CP-0905012	5/26/2009 15:00	5/27/2009	Ground Water
3010643	CM-09D	CP-0905013	5/27/2009 11:00	5/29/2009	Ground Water
S9068_9089	CM-09D	CP-0905013	5/27/2009 11:00	5/28/2009	Ground Water
S9068_9089	CM-09D	CP-0905014	5/27/2009 11:15	5/28/2009	Ground Water
3010643	CM-09D	CP-0905014	5/27/2009 11:15	5/29/2009	Ground Water
3010643	CM-10	CP-0905015	5/26/2009 8:30	5/29/2009	Ground Water
S9067_9115	CM-10	CP-0905015	5/26/2009 8:30	5/27/2009	Ground Water
S9068_9089	CM-10	CP-0905015	5/26/2009 8:30	5/27/2009	Ground Water
S9067_9115	CM-10	CP-0905016	5/26/2009 8:45	5/27/2009	Ground Water
3010643	CM-10	CP-0905016	5/26/2009 8:45	5/29/2009	Ground Water
S9068_9089	CM-12	CP-0905017	5/27/2009 9:30	5/28/2009	Ground Water
3010643	CM-12	CP-0905017	5/27/2009 9:30	5/29/2009	Ground Water
3010643	CM-12	CP-0905018	5/27/2009 9:45	5/29/2009	Ground Water
S9068_9089	CM-12	CP-0905018	5/27/2009 9:45	5/28/2009	Ground Water
3010643	CM-17	CP-0905019	5/26/2009 9:30	5/29/2009	Ground Water
S9067_9115	CM-17	CP-0905019	5/26/2009 9:30	5/27/2009	Ground Water
S9067_9115	CM-17	CP-0905020	5/26/2009 9:45	5/27/2009	Ground Water
3010643	CM-17	CP-0905020	5/26/2009 9:45	5/29/2009	Ground Water
3010643	CM-18	CP-0905021	5/27/2009 12:30	5/29/2009	Ground Water
S9068_9089	CM-18	CP-0905021	5/27/2009 12:30	5/28/2009	Ground Water
S9068_9089	CM-18	CP-0905022	5/27/2009 12:45	5/28/2009	Ground Water
3010643	CM-18	CP-0905022	5/27/2009 12:45	5/29/2009	Ground Water

3010643	MW-16	CP-0905023	5/27/2009 8:30	5/29/2009	Ground Water
S9068_9089	MW-16	CP-0905023	5/27/2009 8:30	5/28/2009	Ground Water
S9068_9089	MW-16	CP-0905024	5/27/2009 8:45	5/28/2009	Ground Water
3010643	MW-16	CP-0905024	5/27/2009 8:45	5/29/2009	Ground Water
S9067_9115	CM-17	CP-0905025	5/26/2009 10:00	5/27/2009	Ground Water
3010643	CM-17	CP-0905025	5/26/2009 10:00	5/29/2009	Ground Water
3010643	CM-17	CP-0905026	5/26/2009 10:15	5/29/2009	Ground Water
S9067_9115	CM-17	CP-0905026	5/26/2009 10:15	5/27/2009	Ground Water
3010643	FieldQC	CP-0905027	5/26/2009 15:15	5/29/2009	Quality Control
S9067_9115	FieldQC	CP-0905027	5/26/2009 15:15	5/27/2009	Quality Control
S9068_9089	FieldQC	CP-0905028	5/27/2009 13:15	5/28/2009	Quality Control
3010643	FieldQC	CP-0905028	5/27/2009 13:15	5/29/2009	Quality Control

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**Table 2**

Summary of Qualified Data  
(Raytheon - Canoga Park)

Lab Sample ID	Field Sample ID	Analysis	Method	Parameter Name	Result	Lab Qual	DV Qual	DV <sup>1</sup> Qual Code	Project Qualifier
3010643001	CP-0905015	Radiological	E908	Uranium, Total	62.1	=	J	TR	J
3010643002	CP-0905016	Radiological	E908	Uranium, Total	109	=	J	TR	J
3010643003	CP-0905019	Radiological	E908	Uranium, Total	33.1	=	J	TR	J
3010643004	CP-0905020	Radiological	E908	Uranium, Total	21.5	=	J	TR	J
3010643005	CP-0905025	Radiological	E908	Uranium, Total	17.5	=	J	TR	J
3010643006	CP-0905026	Radiological	E908	Uranium, Total	19.1	=	J	TR	J
3010643007	CP-0905007	Radiological	E908	Uranium, Total	0.766	U	UJ	TR	UJ
3010643008	CP-0905008	Radiological	E908	Uranium, Total	0.776	U	UJ	TR	UJ
3010643009	CP-0905003	Radiological	E908	Uranium, Total	2.44	=	J	TR	J
3010643010	CP-0905004	Radiological	E908	Uranium, Total	3.12	=	J	TR	J
3010643011	CP-0905009	Radiological	E908	Uranium, Total	26.5	=	J	TR	J
3010643012	CP-0905010	Radiological	E908	Uranium, Total	49.3	=	J	TR	J
3010643013	CP-0905011	Radiological	E908	Uranium, Total	3.11	=	J	TR	J
3010643014	CP-0905012	Radiological	E908	Uranium, Total	0.791	U	UJ	TR	UJ
3010643016	CP-0905005	Radiological	E908	Uranium, Total	70.3	=	J	TR	J
3010643017	CP-0905006	Radiological	E908	Uranium, Total	51.1	=	J	TR	J
3010643018	CP-0905001	Radiological	E908	Uranium, Total	0.648	U	UJ	TR	UJ
3010643019	CP-0905002	Radiological	E908	Uranium, Total	0.789	U	UJ	TR	UJ
3010643020	CP-0905023	Radiological	E908	Uranium, Total	0.657	U	UJ	TR	UJ
OT109-9068-01	CP-0905005	Radiological	E903.1	Radium-226	2.04	=	U	B	U
OT109-9068-01	CP-0905005	Radiological	E904.0	Radium-228	0.547	U	UJ	R	UJ
OT109-9068-02	CP-0905006	Radiological	E903.1	Radium-226	4.44	=	U	B	U
OT109-9068-02	CP-0905006	Radiological	E904.0	Radium-228	0.293	U	UJ	R	UJ
OT109-9068-03	CP-0905001	Radiological	E903.1	Radium-226	4.88	=	U	B	U
OT109-9068-03	CP-0905001	Radiological	E904.0	Radium-228	2.2	=	UJ	RB	UJ
OT109-9068-04	CP-0905002	Radiological	E903.1	Radium-226	5.51	=	U	B	U
OT109-9068-04	CP-0905002	Radiological	E904.0	Radium-228	4.46	=	UJ	RB	UJ
OT109-9068-05	CP-0905023	Radiological	E903.1	Radium-226	5.55	=	U	B	U
OT109-9068-05	CP-0905023	Radiological	E904.0	Radium-228	4.86	=	UJ	RB	UJ
OT109-9068-05B	CP-0905023	Radiological	E900	Beta, Gross	5.93	=	U	B	U
OT109-9068-06	CP-0905024	Radiological	E903.1	Radium-226	6.29	=	U	B	U
OT109-9068-06	CP-0905024	Radiological	E904.0	Radium-228	4.07	=	UJ	RB	UJ
OT109-9068-06B	CP-0905024	Radiological	E900	Beta, Gross	5.03	=	U	B	U
OT109-9068-07	CP-0905013	Radiological	E903.1	Radium-226	1.3	=	U	B	U
OT109-9068-07	CP-0905013	Radiological	E904.0	Radium-228	1.6	=	UJ	RB	UJ
OT109-9068-08	CP-0905014	Radiological	E903.1	Radium-226	0.775	=	U	B	U
OT109-9068-08	CP-0905014	Radiological	E904.0	Radium-228	2.14	=	UJ	RB	UJ
OT109-9068-09	CP-0905017	Radiological	E903.1	Radium-226	2.14	=	U	B	U
OT109-9068-09	CP-0905017	Radiological	E904.0	Radium-228	2.51	=	UJ	RB	UJ
OT109-9068-10	CP-0905018	Radiological	E904.0	Radium-228	1.64	=	UJ	RB	UJ
OT109-9068-11	CP-0905021	Radiological	E903.1	Radium-226	1	=	U	B	U
OT109-9068-11	CP-0905021	Radiological	E904.0	Radium-228	2.51	=	UJ	RB	UJ
OT109-9068-12	CP-0905022	Radiological	E903.1	Radium-226	0.662	=	U	B	U
OT109-9068-12	CP-0905022	Radiological	E904.0	Radium-228	1.37	=	UJ	RB	UJ

1) Data Validation Qualifier Codes are as follows:

B - Presumed contamination from preparation (method) blank or field blank.

T - Tracer recovery was outside QC limits.

R - Chemical (surrogate) recovery was outside QC limits.

**ATTACHMENT 1**  
**SUMMARY OF ANALYTICAL RESULTS**  
**AND**  
**VALIDATION QUALIFIERS**

# GPL Laboratories Alabama, LLC

## Radioanalytical Results

Report Identification Number: S9068\_9089

Project Name: <u>OTIE - TN&amp;A</u>	Chain-of-Custody Number:	Matrix: <u>Water</u>
Site Sample ID: <u>CP-0905005</u>	Collection Date: <u>5/27/2009 11:45:00 AM</u>	Date Received: <u>5/28/2009 8:45:00</u>
Other Sample ID:	Batch Number: <u>9068</u>	Laboratory Code: <u>SCA</u>

Method Number	Radionuclide	Laboratory Sample ID	Analysis Date/Time	Activity (pCi/L)	2 $\sigma$ Counting Error (pCi/L)	Total Error (pCi/L)	MDA (pCi/L)
EPA 900.0	BETA	OTI09-9068-01B	06/24/09 18:19	21.6	1.52	6.67	1.37
ACW03	U-233/234	OTI09-9068-01	06/24/09 16:59	29.2	2.77	6.46	0.110
ACW03	U-235	OTI09-9068-01	06/24/09 16:59	1.23	0.362	0.517	0.136
ACW03	U-238	OTI09-9068-01	06/24/09 16:59	28.0	2.68	6.20	0.053
EPA 903.1	RA-226	OTI09-9068-01	06/09/09 18:35	2.04 <i>U</i>	0.383	0.722	0.420
EPA 904.0	RA-228	OTI09-9068-01	06/03/09 17:40	0.547 <i>US</i>	0.378	0.412	0.562

Quality Control Samples				
Radionuclide	Laboratory Control (LC)	Laboratory Duplicate (LD)	Matrix Spike (MS)	Preparation Blank (PB)
Beta	SCAQC-9068-LCB	SCAQC-9068-LD1		SCAQC-9068-PB1
Ra	SCAQC-9068-LC1	SCAQC-9068-LD1	SCAQC-9068-MS1	SCAQC-9068-PB
U	SCAQC-9067-LC1	SCAQC-9067-LD1		SCAQC-9067-PB1

*8/17/09* *Q*

# GPL Laboratories Alabama, LLC

## Radioanalytical Results

Report Identification Number: S9068\_9089

Project Name: <u>OTIE - TN&amp;A</u>	Chain-of-Custody Number:	Matrix: <u>Water</u>
Site Sample ID: <u>CP-0905006</u>		
Other Sample ID:	Collection Date: <u>5/27/2009 12:00:00 PM</u>	Date Received: <u>5/28/2009 8:45:00</u>
	Batch Number: <u>9068</u>	Laboratory Code: <u>SCA</u>

Method Number	Radionuclide	Laboratory Sample ID	Analysis Date/Time	Activity (pCi/L)	2 $\sigma$ Counting Error (pCi/L)	Total Error (pCi/L)	MDA (pCi/L)
EPA 900.0	BETA	OTI09-9068-02B	06/24/09 18:19	12.2	1.61	4.00	1.92
ACW03	U-233/234	OTI09-9068-02	06/24/09 17:00	30.1	3.05	6.74	0.062
ACW03	U-235	OTI09-9068-02	06/24/09 17:00	1.24	0.387	0.536	0.076
ACW03	U-238	OTI09-9068-02	06/24/09 17:00	28.9	2.94	6.49	0.061
EPA 903.1	RA-226	OTI09-9068-02	06/09/09 18:35	4.44 <i>U</i>	0.504	1.42	0.431
EPA 904.0	RA-228	OTI09-9068-02	06/03/09 17:41	0.293 <i>UJ</i>	0.345	0.356	0.561

Quality Control Samples				
Radionuclide	Laboratory Control (LC)	Laboratory Duplicate (LD)	Matrix Spike (MS)	Preparation Blank (PB)
Beta	SCAQC-9068-LCB	SCAQC-9068-LD1		SCAQC-9068-PB1
Ra	SCAQC-9068-LC1	SCAQC-9068-LD1	SCAQC-9068-MS1	SCAQC-9068-PB
U	SCAQC-9067-LC1	SCAQC-9067-LD1		SCAQC-9067-PB1

*8/17/09*

# GPL Laboratories Alabama, LLC

## Radioanalytical Results

Report Identification Number: S9068\_9089

Project Name: <u>OTIE - TN&amp;A</u>	Chain-of-Custody Number:	Matrix: <u>Water</u>
Site Sample ID: <u>CP-0905001</u>		
Other Sample ID:	Collection Date: <u>5/27/2009 8:00:00 AM</u>	Date Received: <u>5/28/2009 8:45:00</u>
	Batch Number: <u>9068</u>	Laboratory Code: <u>SCA</u>

<u>Method Number</u>	<u>Radionuclide</u>	<u>Laboratory Sample ID</u>	<u>Analysis Date/Time</u>	<u>Activity (pCi/L)</u>	<u>2 <math>\sigma</math> Counting Error (pCi/L)</u>	<u>Total Error (pCi/L)</u>	<u>MDA (pCi/L)</u>
EPA 900.0	BETA	OTI09-9068-03B	06/24/09 18:20	6.33	0.899	2.10	1.15
EPA 903.1	RA-226	OTI09-9068-03	06/09/09 20:07	4.88 <i>U</i>	0.524	1.56	0.446
EPA 904.0	RA-228	OTI09-9068-03	06/03/09 17:40	2.20 <i>UJ</i>	0.547	0.857	0.566

<u>Quality Control Samples</u>				
<u>Radionuclide</u>	<u>Laboratory Control (LC)</u>	<u>Laboratory Duplicate (LD)</u>	<u>Matrix Spike (MS)</u>	<u>Preparation Blank (PB)</u>
Beta	SCAQC-9068-LCB	SCAQC-9068-LD1		SCAQC-9068-PB1
Ra	SCAQC-9068-LC1	SCAQC-9068-LD1	SCAQC-9068-MS1	SCAQC-9068-PB

*8/17/09* *Q*

# GPL Laboratories Alabama, LLC

## Radioanalytical Results

Report Identification Number: S9068\_9089

Project Name: <u>OTIE - TN&amp;A</u>	Chain-of-Custody Number:	Matrix: <u>Water</u>
Site Sample ID: <u>CP-0905002</u>		
Other Sample ID:	Collection Date: <u>5/27/2009 8:15:00 AM</u>	Date Received: <u>5/28/2009 8:45:00</u>
	Batch Number: <u>9068</u>	Laboratory Code: <u>SCA</u>

Method Number	Radionuclide	Laboratory Sample ID	Analysis Date/Time	Activity (pCi/L)	2 $\sigma$ Counting Error (pCi/L)	Total Error (pCi/L)	MDA (pCi/L)
EPA 900.0	BETA	OTI09-9068-04B	06/24/09 18:20	6.52	0.858	2.14	1.06
EPA 903.1	RA-226	OTI09-9068-04	06/09/09 20:07	5.51 <i>U</i>	0.550	1.74	0.380
EPA 904.0	RA-228	OTI09-9068-04	06/04/09 13:25	4.46 <i>UJ</i>	0.738	1.53	0.599

Quality Control Samples				
Radionuclide	Laboratory Control (LC)	Laboratory Duplicate (LD)	Matrix Spike (MS)	Preparation Blank (PB)
Beta	SCAQC-9068-LCB	SCAQC-9068-LD1		SCAQC-9068-PB1
Ra	SCAQC-9068-LC1	SCAQC-9068-LD1	SCAQC-9068-MS1	SCAQC-9068-PB

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## Radioanalytical Results

Report Identification Number: S9068\_9089

Project Name: <u>OTIE - TN&amp;A</u>	Chain-of-Custody Number:	Matrix: <u>Water</u>
Site Sample ID: <u>CP-0905023</u>		
Other Sample ID:	Collection Date: <u>5/27/2009 8:30:00 AM</u>	Date Received: <u>5/28/2009 8:45:00</u>
	Batch Number: <u>9068</u>	Laboratory Code: <u>SCA</u>

Method Number	Radionuclide	Laboratory Sample ID	Analysis Date/Time	Activity (pCi/L)	2 $\sigma$ Counting Error (pCi/L)	Total Error (pCi/L)	MDA (pCi/L)
EPA 900.0	BETA	OTI09-9068-05B	06/24/09 18:21	5.93 <i>U</i>	0.869	1.98	1.13
EPA 903.1	RA-226	OTI09-9068-05	06/10/09 13:46	5.55 <i>U</i>	0.550	1.75	0.424
EPA 904.0	RA-228	OTI09-9068-05	06/04/09 13:25	4.86 <i>US</i>	0.782	1.66	0.589

Quality Control Samples				
Radionuclide	Laboratory Control (LC)	Laboratory Duplicate (LD)	Matrix Spike (MS)	Preparation Blank (PB)
Beta	SCAQC-9068-LCB	SCAQC-9068-LD1		SCAQC-9068-PB1
Ra	SCAQC-9068-LC1	SCAQC-9068-LD1	SCAQC-9068-MS1	SCAQC-9068-PB

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# GPL Laboratories Alabama, LLC

## Radioanalytical Results

Report Identification Number: S9068\_9089

Project Name: <u>OTIE - TN&amp;A</u>	Chain-of-Custody Number:	Matrix: <u>Water</u>
Site Sample ID: <u>CP-0905024</u>		
Other Sample ID:	Collection Date: <u>5/27/2009 8:45:00 AM</u>	Date Received: <u>5/28/2009 8:45:00</u>
	Batch Number: <u>9068</u>	Laboratory Code: <u>SCA</u>

Method Number	Radionuclide	Laboratory Sample ID	Analysis Date/Time	Activity (pCi/L)	2 $\sigma$ Counting Error (pCi/L)	Total Error (pCi/L)	MDA (pCi/L)
EPA 900.0	BETA	OTI09-9068-06B	06/23/09 18:18	5.03 <i>U</i>	0.787	1.70	1.04
EPA 903.1	RA-226	OTI09-9068-06	06/10/09 13:46	6.29 <i>U</i>	0.592	1.98	0.426
EPA 904.0	RA-228	OTI09-9068-06	06/04/09 13:25	4.07 <i>UJ</i>	0.722	1.42	0.639

Quality Control Samples				
Radionuclide	Laboratory Control (LC)	Laboratory Duplicate (LD)	Matrix Spike (MS)	Preparation Blank (PB)
Beta	SCAQC-9068-LCB	SCAQC-9068-LD1		SCAQC-9068-PB1
Ra	SCAQC-9068-LC1	SCAQC-9068-LD1	SCAQC-9068-MS1	SCAQC-9068-PB

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## Radioanalytical Results

Report Identification Number: S9068\_9089

Project Name: <u>OTIE - TN&amp;A</u>	Chain-of-Custody Number:	Matrix: <u>Water</u>
Site Sample ID: <u>CP-0905013</u>		
Other Sample ID:	Collection Date: <u>5/27/2009 11:00:00 AM</u>	Date Received: <u>5/28/2009 8:45:00</u>
	Batch Number: <u>9068</u>	Laboratory Code: <u>SCA</u>

Method Number	Radionuclide	Laboratory Sample ID	Analysis Date/Time	Activity (pCi/L)	2 $\sigma$ Counting Error (pCi/L)	Total Error (pCi/L)	MDA (pCi/L)
EPA 900.0	BETA	OTI09-9068-07B	06/23/09 18:18	26.5	1.74	8.12	1.54
ACW03	U-233/234	OTI09-9068-07	06/24/09 17:00	28.8	2.83	6.42	0.057
ACW03	U-235	OTI09-9068-07	06/24/09 17:00	1.14	0.355	0.492	0.070
ACW03	U-238	OTI09-9068-07	06/24/09 17:00	25.5	2.55	5.70	0.118
EPA 903.1	RA-226	OTI09-9068-07	06/10/09 13:46	1.30 <i>U</i>	0.353	0.525	0.471
EPA 904.0	RA-228	OTI09-9068-07	06/04/09 13:26	1.60 <i>US</i>	0.489	0.685	0.538

Quality Control Samples				
Radionuclide	Laboratory Control (LC)	Laboratory Duplicate (LD)	Matrix Spike (MS)	Preparation Blank (PB)
Beta	SCAQC-9068-LCB	SCAQC-9068-LD1		SCAQC-9068-PB1
Ra	SCAQC-9068-LC1	SCAQC-9068-LD1	SCAQC-9068-MS1	SCAQC-9068-PB
U	SCAQC-9067-LC1	SCAQC-9067-LD1		SCAQC-9067-PB1

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## Radioanalytical Results

Report Identification Number: S9068\_9089

Project Name: <u>OTIE - TN&amp;A</u>	Chain-of-Custody Number:	Matrix: <u>Water</u>
Site Sample ID: <u>CP-0905014</u>		
Other Sample ID:	Collection Date: <u>5/27/2009 11:15:00 AM</u>	Date Received: <u>5/28/2009 8:45:00</u>
	Batch Number: <u>9068</u>	Laboratory Code: <u>SCA</u>

Method Number	Radionuclide	Laboratory Sample ID	Analysis Date/Time	Activity (pCi/L)	2 $\sigma$ Counting Error (pCi/L)	Total Error (pCi/L)	MDA (pCi/L)
EPA 900.0	BETA	OTI09-9068-08B	06/24/09 18:21	19.2	1.42	5.94	1.38
ACW03	U-233/234	OTI09-9068-08	06/24/09 17:00	29.9	2.78	6.59	0.054
ACW03	U-235	OTI09-9068-08	06/24/09 17:00	1.22	0.357	0.511	0.066
ACW03	U-238	OTI09-9068-08	06/24/09 17:00	27.1	2.56	5.99	0.053
EPA 903.1	RA-226	OTI09-9068-08	06/10/09 13:46	0.775 U	0.304	0.383	0.435
EPA 904.0	RA-228	OTI09-9068-08	06/04/09 13:26	2.14 UJ	0.556	0.849	0.593

Quality Control Samples				
Radionuclide	Laboratory Control (LC)	Laboratory Duplicate (LD)	Matrix Spike (MS)	Preparation Blank (PB)
Beta	SCAQC-9068-LCB	SCAQC-9068-LD1		SCAQC-9068-PB1
Ra	SCAQC-9068-LC1	SCAQC-9068-LD1	SCAQC-9068-MS1	SCAQC-9068-PB
U	SCAQC-9067-LC1	SCAQC-9067-LD1		SCAQC-9067-PB1

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## Radioanalytical Results

Report Identification Number: S9068\_9089

Project Name: <u>OTIE - TN&amp;A</u>	Chain-of-Custody Number:	Matrix: <u>Water</u>
Site Sample ID: <u>CP-0905017</u>		
Other Sample ID:	Collection Date: <u>5/27/2009 9:30:00 AM</u>	Date Received: <u>5/28/2009 8:45:00</u>
	Batch Number: <u>9068</u>	Laboratory Code: <u>SCA</u>

Method Number	Radionuclide	Laboratory Sample ID	Analysis Date/Time	Activity (pCi/L)	2 $\sigma$ Counting Error (pCi/L)	Total Error (pCi/L)	MDA (pCi/L)
EPA 900.0	BETA	OTI09-9068-09B	06/23/09 18:19	0.375	0.635	0.645	1.03
ACW03	U-233/234	OTI09-9068-09	06/24/09 17:00	20.5	2.22	4.67	0.062
ACW03	U-235	OTI09-9068-09	06/24/09 17:00	0.852	0.319	0.409	0.077
ACW03	U-238	OTI09-9068-09	06/24/09 17:00	17.8	1.98	4.07	0.062
EPA 903.1	RA-226	OTI09-9068-09	06/10/09 14:53	2.14 <i>U</i>	0.358	0.736	0.306
EPA 904.0	RA-228	OTI09-9068-09	06/04/09 13:27	2.51 <i>UJ</i>	0.594	0.960	0.597

Quality Control Samples				
Radionuclide	Laboratory Control (LC)	Laboratory Duplicate (LD)	Matrix Spike (MS)	Preparation Blank (PB)
Beta	SCAQC-9068-LCB	SCAQC-9068-LD1		SCAQC-9068-PB1
Ra	SCAQC-9068-LC1	SCAQC-9068-LD1	SCAQC-9068-MS1	SCAQC-9068-PB
U	SCAQC-9067-LC1	SCAQC-9067-LD1		SCAQC-9067-PB1

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## Radioanalytical Results

Report Identification Number: S9068\_9089

Project Name: <u>OTIE - TN&amp;A</u>	Chain-of-Custody Number:	Matrix: <u>Water</u>
Site Sample ID: <u>CP-0905018</u>		
Other Sample ID:	Collection Date: <u>5/27/2009 9:45:00 AM</u>	Date Received: <u>5/28/2009 8:45:00</u>
	Batch Number: <u>9068</u>	Laboratory Code: <u>SCA</u>

Method Number	Radionuclide	Laboratory Sample ID	Analysis Date/Time	Activity (pCi/L)	2 $\sigma$ Counting Error (pCi/L)	Total Error (pCi/L)	MDA (pCi/L)
EPA 900.0	BETA	OTI09-9068-10B	06/24/09 18:21	7.83	0.807	2.48	0.858
ACW03	U-233/234	OTI09-9068-10	06/24/09 17:00	12.7	1.48	2.93	0.058
ACW03	U-235	OTI09-9068-10	06/24/09 17:00	0.398	0.208	0.240	0.072
ACW03	U-238	OTI09-9068-10	06/24/09 17:00	11.7	1.39	2.72	0.058
EPA 903.1	RA-226	OTI09-9068-10	06/10/09 14:53	0.440	0.304	0.331	0.472
EPA 904.0	RA-228	OTI09-9068-10	06/04/09 13:27	1.64 <i>UJ</i>	0.506	0.706	0.577

Quality Control Samples				
Radionuclide	Laboratory Control (LC)	Laboratory Duplicate (LD)	Matrix Spike (MS)	Preparation Blank (PB)
Beta	SCAQC-9068-LCB	SCAQC-9068-LD1		SCAQC-9068-PB1
Ra	SCAQC-9068-LC1	SCAQC-9068-LD1	SCAQC-9068-MS1	SCAQC-9068-PB
U	SCAQC-9067-LC1	SCAQC-9067-LD1		SCAQC-9067-PB1

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## Radioanalytical Results

Report Identification Number: S9068\_9089

Project Name: <u>OTIE - TN&amp;A</u>	Chain-of-Custody Number:	Matrix: <u>Water</u>
Site Sample ID: <u>CP-0905021</u>	Collection Date: <u>5/27/2009 12:30:00 PM</u>	Date Received: <u>5/28/2009 8:45:00</u>
Other Sample ID:	Batch Number: <u>9068</u>	Laboratory Code: <u>SCA</u>

Method Number	Radionuclide	Laboratory Sample ID	Analysis Date/Time	Activity (pCi/L)	2 $\sigma$ Counting Error (pCi/L)	Total Error (pCi/L)	MDA (pCi/L)
EPA 900.0	BETA	OTI09-9068-11B	06/23/09 18:19	52.8	2.35	16.0	1.46
ACW03	U-233/234	OTI09-9068-11	06/24/09 17:01	23.5	2.45	5.30	0.061
ACW03	U-235	OTI09-9068-11	06/24/09 17:01	0.996	0.342	0.454	0.075
ACW03	U-238	OTI09-9068-11	06/24/09 17:01	24.1	2.51	5.44	0.060
EPA 903.1	RA-226	OTI09-9068-11	06/10/09 14:53	1.00 U	0.330	0.446	0.451
EPA 904.0	RA-228	OTI09-9068-11	06/04/09 13:27	2.51 UJ	0.592	0.957	0.595

Quality Control Samples				
Radionuclide	Laboratory Control (LC)	Laboratory Duplicate (LD)	Matrix Spike (MS)	Preparation Blank (PB)
Beta	SCAQC-9068-LCB	SCAQC-9068-LD1		SCAQC-9068-PB1
Ra	SCAQC-9068-LC1	SCAQC-9068-LD1	SCAQC-9068-MS1	SCAQC-9068-PB
U	SCAQC-9067-LC1	SCAQC-9067-LD1		SCAQC-9067-PB1

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## Radioanalytical Results

Report Identification Number: S9068\_9089

Project Name: <u>OTIE - TN&amp;A</u>	Chain-of-Custody Number:	Matrix: <u>Water</u>
Site Sample ID: <u>CP-0905022</u>		
Other Sample ID:	Collection Date: <u>5/27/2009 12:45:00 PM</u>	Date Received: <u>5/28/2009 8:45:00</u>
	Batch Number: <u>9068</u>	Laboratory Code: <u>SCA</u>

Method Number	Radionuclide	Laboratory Sample ID	Analysis Date/Time	Activity (pCi/L)	2 $\sigma$ Counting Error (pCi/L)	Total Error (pCi/L)	MDA (pCi/L)
EPA 900.0	BETA	OTI09-9068-12B	06/25/09 16:58	26.7	1.59	8.18	1.38
ACW03	U-233/234	OTI09-9068-12	06/24/09 17:01	18.2	1.94	4.13	0.055
ACW03	U-235	OTI09-9068-12	06/24/09 17:01	0.656	0.263	0.328	0.068
ACW03	U-238	OTI09-9068-12	06/24/09 17:01	18.7	1.98	4.23	0.098
EPA 903.1	RA-226	OTI09-9068-12	06/10/09 14:53	0.662 <i>U</i>	0.274	0.338	0.384
EPA 904.0	RA-228	OTI09-9068-12	06/04/09 14:00	1.37 <i>US</i>	0.522	0.664	0.648

Quality Control Samples				
Radionuclide	Laboratory Control (LC)	Laboratory Duplicate (LD)	Matrix Spike (MS)	Preparation Blank (PB)
Beta	SCAQC-9068-LCB	SCAQC-9068-LD1		SCAQC-9068-PB1
Ra	SCAQC-9068-LC1	SCAQC-9068-LD1	SCAQC-9068-MS1	SCAQC-9068-PB
U	SCAQC-9067-LC1	SCAQC-9067-LD1		SCAQC-9067-PB1

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## Radioanalytical Results

Report Identification Number: S9068\_9089

Project Name: <u>OTIE - TN&amp;A</u>	Chain-of-Custody Number:	Matrix: <u>Water</u>
Site Sample ID: <u>CP-0905028</u>		
Other Sample ID:	Collection Date: <u>5/27/2009 1:15:00 PM</u>	Date Received: <u>5/28/2009 8:45:00</u>
	Batch Number: <u>9068</u>	Laboratory Code: <u>SCA</u>

Method Number	Radionuclide	Laboratory Sample ID	Analysis Date/Time	Activity (pCi/L)	2 $\sigma$ Counting Error (pCi/L)	Total Error (pCi/L)	MDA (pCi/L)
EPA 900.0	ALPHA	OTI09-9068-13	06/22/09 17:39	-0.469	0.688	0.727	1.15
EPA 900.0	BETA	OTI09-9068-13	06/15/09 15:50	1.25	0.764	0.851	1.10
EPA 903.1	RA-226	OTI09-9068-13	06/10/09 15:50	1.83	0.371	0.662	0.431
EPA 904.0	RA-228	OTI09-9068-13	06/04/09 14:01	1.09 <u>J</u>	0.511	0.607	0.686

Quality Control Samples				
Radionuclide	Laboratory Control (LC)	Laboratory Duplicate (LD)	Matrix Spike (MS)	Preparation Blank (PB)
Alpha		SCAQC-9068-LD1		SCAQC-9068-PB1
Beta	SCAQC-9068-LCB	SCAQC-9068-LD1		SCAQC-9068-PB1
Ra	SCAQC-9068-LC1	SCAQC-9068-LD1	SCAQC-9068-MS1	SCAQC-9068-PB

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## Radioanalytical Results

Report Identification Number: S9068\_9089

Project Name: <u>OTIE - TN&amp;A</u>	Chain-of-Custody Number:	Matrix: <u>Water</u>
Site Sample ID: <u>CP-0905005</u>	Collection Date: <u>5/27/2009 11:45:00 AM</u>	Date Received: <u>5/28/2009 8:45:00</u>
Other Sample ID:	Batch Number: <u>9089</u>	Laboratory Code: <u>SCA</u>

Method Number	Radionuclide	Laboratory Sample ID	Analysis Date/Time	Activity (pCi/L)	2 $\sigma$ Counting Error (pCi/L)	Total Error (pCi/L)	MDA (pCi/L)
SM 7110C	ALPHA	OTI09-9089-01	06/20/09 11:11	32.1	4.31	16.6	2.15

Quality Control Samples				
Radionuclide	Laboratory Control (LC)	Laboratory Duplicate (LD)	Matrix Spike (MS)	Preparation Blank (PB)
Alpha	SCAQC-9089-LCB	SCAQC-9089-LD1		SCAQC-9089-PB

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## Radioanalytical Results

Report Identification Number: S9068\_9089

Project Name: <u>OTIE - TN&amp;A</u>	Chain-of-Custody Number:	Matrix: <u>Water</u>
Site Sample ID: <u>CP-0905006</u>		
Other Sample ID:	Collection Date: <u>5/27/2009 12:00:00 PM</u>	Date Received: <u>5/28/2009 8:45:00</u>
	Batch Number: <u>9089</u>	Laboratory Code: <u>SCA</u>

<u>Method Number</u>	<u>Radionuclide</u>	<u>Laboratory Sample ID</u>	<u>Analysis Date/Time</u>	<u>Activity (pCi/L)</u>	<u>2 <math>\sigma</math> Counting Error (pCi/L)</u>	<u>Total Error (pCi/L)</u>	<u>MDA (pCi/L)</u>
SM 7110C	ALPHA	OTI09-9089-02	06/20/09 11:11	30.1	4.04	15.6	1.70

<u>Quality Control Samples</u>				
<u>Radionuclide</u>	<u>Laboratory Control (LC)</u>	<u>Laboratory Duplicate (LD)</u>	<u>Matrix Spike (MS)</u>	<u>Preparation Blank (PB)</u>
Alpha	SCAQC-9089-LCB	SCAQC-9089-LD1		SCAQC-9089-PB

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## Radioanalytical Results

Report Identification Number: S9068\_9089

Project Name: <u>OTIE - TN&amp;A</u>	Chain-of-Custody Number:	Matrix: <u>Water</u>
Site Sample ID: <u>CP-0905001</u>	Collection Date: <u>5/27/2009 8:00:00 AM</u>	Date Received: <u>5/28/2009 8:45:00</u>
Other Sample ID:	Batch Number: <u>9089</u>	Laboratory Code: <u>SCA</u>

Method Number	Radionuclide	Laboratory Sample ID	Analysis Date/Time	Activity (pCi/L)	2 $\sigma$ Counting Error (pCi/L)	Total Error (pCi/L)	MDA (pCi/L)
SM 7110C	ALPHA	OTI09-9089-03	07/01/09 16:49	35.0	4.34	18.0	1.53

Quality Control Samples				
Radionuclide	Laboratory Control (LC)	Laboratory Duplicate (LD)	Matrix Spike (MS)	Preparation Blank (PB)
Alpha	SCAQC-9089-LCB	SCAQC-9089-LD1		SCAQC-9089-PB

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## Radioanalytical Results

Report Identification Number: S9068\_9089

Project Name: <u>OTIE - TN&amp;A</u>	Chain-of-Custody Number:	Matrix: <u>Water</u>
Site Sample ID: <u>CP-0905002</u>		
Other Sample ID:	Collection Date: <u>5/27/2009 8:15:00 AM</u>	Date Received: <u>5/28/2009 8:45:00</u>
	Batch Number: <u>9089</u>	Laboratory Code: <u>SCA</u>

Method Number	Radionuclide	Laboratory Sample ID	Analysis Date/Time	Activity (pCi/L)	2 $\sigma$ Counting Error (pCi/L)	Total Error (pCi/L)	MDA (pCi/L)
SM 7110C	ALPHA	OTI09-9089-04	07/01/09 16:49	34.9	4.34	18.0	1.48

Quality Control Samples				
Radionuclide	Laboratory Control (LC)	Laboratory Duplicate (LD)	Matrix Spike (MS)	Preparation Blank (PB)
Alpha	SCAQC-9089-LCB	SCAQC-9089-LD1		SCAQC-9089-PB

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## Radioanalytical Results

Report Identification Number: S9068\_9089

Project Name: <u>OTIE - TN&amp;A</u>	Chain-of-Custody Number:	Matrix: <u>Water</u>
Site Sample ID: <u>CP-0905023</u>	Collection Date: <u>5/27/2009 8:30:00 AM</u>	Date Received: <u>5/28/2009 8:45:00</u>
Other Sample ID:	Batch Number: <u>9089</u>	Laboratory Code: <u>SCA</u>

Method Number	Radionuclide	Laboratory Sample ID	Analysis Date/Time	Activity (pCi/L)	2 $\sigma$ Counting Error (pCi/L)	Total Error (pCi/L)	MDA (pCi/L)
SM 7110C	ALPHA	OTI09-9089-05	07/01/09 21:20	26.3	4.04	13.8	1.81

Quality Control Samples				
Radionuclide	Laboratory Control (LC)	Laboratory Duplicate (LD)	Matrix Spike (MS)	Preparation Blank (PB)
Alpha	SCAQC-9089-LCB	SCAQC-9089-LD1		SCAQC-9089-PB

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## Radioanalytical Results

Report Identification Number: S9068\_9089

Project Name: <u>OTIE - TN&amp;A</u>	Chain-of-Custody Number:	Matrix: <u>Water</u>
Site Sample ID: <u>CP-0905024</u>	Collection Date: <u>5/27/2009 8:45:00 AM</u>	Date Received: <u>5/28/2009 8:45:00</u>
Other Sample ID:	Batch Number: <u>9089</u>	Laboratory Code: <u>SCA</u>

Method Number	Radionuclide	Laboratory Sample ID	Analysis Date/Time	Activity (pCi/L)	2 $\sigma$ Counting Error (pCi/L)	Total Error (pCi/L)	MDA (pCi/L)
SM 7110C	ALPHA	OTI09-9089-06	07/01/09 19:37	32.7	4.52	17.0	1.84

Quality Control Samples				
Radionuclide	Laboratory Control (LC)	Laboratory Duplicate (LD)	Matrix Spike (MS)	Preparation Blank (PB)
Alpha	SCAQC-9089-LCB	SCAQC-9089-LD1		SCAQC-9089-PB

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## Radioanalytical Results

Report Identification Number: S9068\_9089

Project Name: <u>OTIE - TN&amp;A</u>	Chain-of-Custody Number:	Matrix: <u>Water</u>
Site Sample ID: <u>CP-0905013</u>	Collection Date: <u>5/27/2009 11:00:00 AM</u>	Date Received: <u>5/28/2009 8:45:00</u>
Other Sample ID:	Batch Number: <u>9089</u>	Laboratory Code: <u>SCA</u>

Method Number	Radionuclide	Laboratory Sample ID	Analysis Date/Time	Activity (pCi/L)	2 $\sigma$ Counting Error (pCi/L)	Total Error (pCi/L)	MDA (pCi/L)
SM 7110C	ALPHA	OTI09-9089-07	06/20/09 15:08	30.1	4.73	15.8	2.83

Quality Control Samples				
Radionuclide	Laboratory Control (LC)	Laboratory Duplicate (LD)	Matrix Spike (MS)	Preparation Blank (PB)
Alpha	SCAQC-9089-LCB	SCAQC-9089-LD1		SCAQC-9089-PB

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# GPL Laboratories Alabama, LLC

## Radioanalytical Results

Report Identification Number: S9068\_9089

Project Name: <u>OTIE - TN&amp;A</u>	Chain-of-Custody Number:	Matrix: <u>Water</u>
Site Sample ID: <u>CP-0905014</u>		
Other Sample ID:	Collection Date: <u>5/27/2009 11:15:00 AM</u>	Date Received: <u>5/28/2009 8:45:00</u>
	Batch Number: <u>9089</u>	Laboratory Code: <u>SCA</u>

<u>Method Number</u>	<u>Radionuclide</u>	<u>Laboratory Sample ID</u>	<u>Analysis Date/Time</u>	<u>Activity (pCi/L)</u>	<u>2 <math>\sigma</math> Counting Error (pCi/L)</u>	<u>Total Error (pCi/L)</u>	<u>MDA (pCi/L)</u>
SM 7110C	ALPHA	OT109-9089-08	06/20/09 15:08	39.3	4.58	20.2	1.90

<u>Quality Control Samples</u>				
<u>Radionuclide</u>	<u>Laboratory Control (LC)</u>	<u>Laboratory Duplicate (LD)</u>	<u>Matrix Spike (MS)</u>	<u>Preparation Blank (PB)</u>
Alpha	SCAQC-9089-LCB	SCAQC-9089-LD1		SCAQC-9089-PB

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# GPL Laboratories Alabama, LLC

## Radioanalytical Results

Report Identification Number: S9068\_9089

Project Name: <u>OTIE - TN&amp;A</u>	Chain-of-Custody Number:	Matrix: <u>Water</u>
Site Sample ID: <u>GP-0905017</u>		
Other Sample ID:	Collection Date: <u>5/27/2009 9:30:00 AM</u>	Date Received: <u>5/28/2009 8:45:00</u>
	Batch Number: <u>9089</u>	Laboratory Code: <u>SCA</u>

<u>Method Number</u>	<u>Radionuclide</u>	<u>Laboratory Sample ID</u>	<u>Analysis Date/Time</u>	<u>Activity (pCi/L)</u>	<u>2 <math>\sigma</math> Counting Error (pCi/L)</u>	<u>Total Error (pCi/L)</u>	<u>MDA (pCi/L)</u>
SM 7110C	ALPHA	OTI09-9089-09	06/20/09 15:09	16.9	3.20	9.05	2.14

<u>Quality Control Samples</u>				
<u>Radionuclide</u>	<u>Laboratory Control (LC)</u>	<u>Laboratory Duplicate (LD)</u>	<u>Matrix Spike (MS)</u>	<u>Preparation Blank (PB)</u>
Alpha	SCAQC-9089-LCB	SCAQC-9089-LD1		SCAQC-9089-PB

# GPL Laboratories Alabama, LLC

## Radioanalytical Results

Report Identification Number: S9068\_9089

Project Name: <u>OTIE - TN&amp;A</u>	Chain-of-Custody Number:	Matrix: <u>Water</u>
Site Sample ID: <u>CP-0905018</u>		
Other Sample ID:	Collection Date: <u>5/27/2009 9:45:00 AM</u>	Date Received: <u>5/28/2009 8:45:00</u>
	Batch Number: <u>9089</u>	Laboratory Code: <u>SCA</u>

Method Number	Radionuclide	Laboratory Sample ID	Analysis Date/Time	Activity (pCi/L)	2 $\sigma$ Counting Error (pCi/L)	Total Error (pCi/L)	MDA (pCi/L)
SM 7110C	ALPHA	OTI09-9089-10	06/20/09 15:09	13.2	2.70	7.14	1.66

Quality Control Samples				
Radionuclide	Laboratory Control (LC)	Laboratory Duplicate (LD)	Matrix Spike (MS)	Preparation Blank (PB)
Alpha	SCAQC-9089-LCB	SCAQC-9089-LD1		SCAQC-9089-PB

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## Radioanalytical Results

Report Identification Number: S9068\_9089

Project Name: <u>OTIE - TN&amp;A</u>	Chain-of-Custody Number:	Matrix: <u>Water</u>
Site Sample ID: <u>CP-0905021</u>	Collection Date: <u>5/27/2009 12:30:00 PM</u>	Date Received: <u>5/28/2009 8:45:00</u>
Other Sample ID:	Batch Number: <u>9089</u>	Laboratory Code: <u>SCA</u>

Method Number	Radionuclide	Laboratory Sample ID	Analysis Date/Time	Activity (pCi/L)	2 $\sigma$ Counting Error (pCi/L)	Total Error (pCi/L)	MDA (pCi/L)
SM 7110C	ALPHA	OT109-9089-11	07/01/09 19:38	28.3	4.01	14.7	1.62

Quality Control Samples				
Radionuclide	Laboratory Control (LC)	Laboratory Duplicate (LD)	Matrix Spike (MS)	Preparation Blank (PB)
Alpha	SCAQC-9089-LCB	SCAQC-9089-LD1		SCAQC-9089-PB

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# GPL Laboratories Alabama, LLC

## Radioanalytical Results

Report Identification Number: S9068\_9089

Project Name: <u>OTIE - TN&amp;A</u>	Chain-of-Custody Number:	Matrix: <u>Water</u>
Site Sample ID: <u>CP-0905022</u>		
Other Sample ID:	Collection Date: <u>5/27/2009 12:45:00 PM</u>	Date Received: <u>5/28/2009 8:45:00</u>
	Batch Number: <u>9089</u>	Laboratory Code: <u>SCA</u>

<u>Method Number</u>	<u>Radionuclide</u>	<u>Laboratory Sample ID</u>	<u>Analysis Date/Time</u>	<u>Activity (pCi/L)</u>	<u>2 <math>\sigma</math> Counting Error (pCi/L)</u>	<u>Total Error (pCi/L)</u>	<u>MDA (pCi/L)</u>
SM 7110C	ALPHA	OTI09-9089-12	07/01/09 19:38	45.0	4.88	23.0	1.45

<u>Quality Control Samples</u>				
<u>Radionuclide</u>	<u>Laboratory Control (LC)</u>	<u>Laboratory Duplicate (LD)</u>	<u>Matrix Spike (MS)</u>	<u>Preparation Blank (PB)</u>
Alpha	SCAQC-9089-LCB	SCAQC-9089-LD1		SCAQC-9089-PB

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## Radioanalytical Results

Report Identification Number: S9067\_9115

Project Name: <u>OTIE - TN&amp;A</u>	Chain-of-Custody Number:	Matrix: <u>Water</u>
Site Sample ID: <u>CP-0905015</u>		
Other Sample ID:	Collection Date: <u>5/26/2009 8:30:00 AM</u>	Date Received: <u>5/27/2009 11:15:00</u>
	Batch Number: <u>9085</u>	Laboratory Code: <u>SCA</u>

Method Number	Radionuclide	Laboratory Sample ID	Analysis Date/Time	Activity (pCi/L)	2 $\sigma$ Counting Error (pCi/L)	Total Error (pCi/L)	MDA (pCi/L)
SM 7110C	ALPHA	OTI09-9085-01	06/19/09 17:15	51.6	5.35	26.4	1.98

Quality Control Samples				
Radionuclide	Laboratory Control (LC)	Laboratory Duplicate (LD)	Matrix Spike (MS)	Preparation Blank (PB)
Alpha	SCAQC-9085-LCB	SCAQC-9085-LD1		SCAQC-9085-PB1

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# GPL Laboratories Alabama, LLC

## Radioanalytical Results

Report Identification Number: S9067\_9115

Project Name: <u>OTIE - TN&amp;A</u>	Chain-of-Custody Number:	Matrix: <u>Water</u>
Site Sample ID: <u>CP-0905016</u>		
Other Sample ID:	Collection Date: <u>5/26/2009 8:45:00 AM</u>	Date Received: <u>5/27/2009 11:15:00</u>
	Batch Number: <u>9085</u>	Laboratory Code: <u>SCA</u>

Method Number	Radionuclide	Laboratory Sample ID	Analysis Date/Time	Activity (pCi/L)	2 $\sigma$ Counting Error (pCi/L)	Total Error (pCi/L)	MDA (pCi/L)
SM 7110C	ALPHA	OTI09-9085-02	06/19/09 19:01	46.3	5.43	23.8	2.49

Quality Control Samples				
Radionuclide	Laboratory Control (LC)	Laboratory Duplicate (LD)	Matrix Spike (MS)	Preparation Blank (PB)
Alpha	SCAQC-9085-LCB	SCAQC-9085-LD1		SCAQC-9085-PB1

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## Radioanalytical Results

Report Identification Number: S9067\_9115

Project Name: <u>OTIE - TN&amp;A</u>	Chain-of-Custody Number:	Matrix: <u>Water</u>
Site Sample ID: <u>CP-0905019</u>		
Other Sample ID:	Collection Date: <u>5/26/2009 9:30:00 AM</u>	Date Received: <u>5/27/2009 11:15:00</u>
	Batch Number: <u>9085</u>	Laboratory Code: <u>SCA</u>

<u>Method Number</u>	<u>Radionuclide</u>	<u>Laboratory Sample ID</u>	<u>Analysis Date/Time</u>	<u>Activity (pCi/L)</u>	<u>2 <math>\sigma</math> Counting Error (pCi/L)</u>	<u>Total Error (pCi/L)</u>	<u>MDA (pCi/L)</u>
SM 7110C	ALPHA	OT109-9085-03	06/19/09 17:15	20.9	3.54	11.1	1.85

<u>Quality Control Samples</u>				
<u>Radionuclide</u>	<u>Laboratory Control (LC)</u>	<u>Laboratory Duplicate (LD)</u>	<u>Matrix Spike (MS)</u>	<u>Preparation Blank (PB)</u>
Alpha	SCAQC-9085-LCB	SCAQC-9085-LD1		SCAQC-9085-PB1

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## Radioanalytical Results

Report Identification Number: S9067\_9115

Project Name: <u>OTIE - TN&amp;A</u>	Chain-of-Custody Number:	Matrix: <u>Water</u>
Site Sample ID: <u>CP-0905020</u>		
Other Sample ID:	Collection Date: <u>5/26/2009 9:45:00 AM</u>	Date Received: <u>5/27/2009 11:15:00</u>
	Batch Number: <u>9085</u>	Laboratory Code: <u>SCA</u>

Method Number	Radionuclide	Laboratory Sample ID	Analysis Date/Time	Activity (pCi/L)	2 $\sigma$ Counting Error (pCi/L)	Total Error (pCi/L)	MDA (pCi/L)
SM 7110C	ALPHA	OTI09-9085-04	06/19/09 19:01	17.2	3.06	9.12	1.87

Quality Control Samples				
Radionuclide	Laboratory Control (LC)	Laboratory Duplicate (LD)	Matrix Spike (MS)	Preparation Blank (PB)
Alpha	SCAQC-9085-LCB	SCAQC-9085-LD1		SCAQC-9085-PB1

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## Radioanalytical Results

Report Identification Number: S9067\_9115

Project Name: <u>OTIE - TN&amp;A</u>	Chain-of-Custody Number:	Matrix: <u>Water</u>
Site Sample ID: <u>CP-0905025</u>		
Other Sample ID:	Collection Date: <u>5/26/2009 10:00:00 AM</u>	Date Received: <u>5/27/2009 11:15:00</u>
	Batch Number: <u>9085</u>	Laboratory Code: <u>SCA</u>

<u>Method Number</u>	<u>Radionuclide</u>	<u>Laboratory Sample ID</u>	<u>Analysis Date/Time</u>	<u>Activity (pCi/L)</u>	<u>2 <math>\sigma</math> Counting Error (pCi/L)</u>	<u>Total Error (pCi/L)</u>	<u>MDA (pCi/L)</u>
SM 7110C	ALPHA	OTI09-9085-05	06/19/09 19:01	26.9	4.06	14.1	2.25

<u>Quality Control Samples</u>				
<u>Radionuclide</u>	<u>Laboratory Control (LC)</u>	<u>Laboratory Duplicate (LD)</u>	<u>Matrix Spike (MS)</u>	<u>Preparation Blank (PB)</u>
Alpha	SCAQC-9085-LCB	SCAQC-9085-LD1		SCAQC-9085-PB1

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## Radioanalytical Results

Report Identification Number: S9067\_9115

Project Name: <u>OTIE - TN&amp;A</u>	Chain-of-Custody Number:	Matrix: <u>Water</u>
Site Sample ID: <u>CP-0905026</u>		
Other Sample ID:	Collection Date: <u>5/26/2009 10:15:00 AM</u>	Date Received: <u>5/27/2009 11:15:00</u>
	Batch Number: <u>9085</u>	Laboratory Code: <u>SCA</u>

Method Number	Radionuclide	Laboratory Sample ID	Analysis Date/Time	Activity (pCi/L)	2 $\sigma$ Counting Error (pCi/L)	Total Error (pCi/L)	MDA (pCi/L)
SM 7110C	ALPHA	OTI09-9085-06	06/19/09 19:01	20.1	3.31	10.6	1.69

Quality Control Samples				
Radionuclide	Laboratory Control (LC)	Laboratory Duplicate (LD)	Matrix Spike (MS)	Preparation Blank (PB)
Alpha	SCAQC-9085-LCB	SCAQC-9085-LD1		SCAQC-9085-PB1

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## Radioanalytical Results

Report Identification Number: S9067\_9115

Project Name: <u>OTIE - TN&amp;A</u>	Chain-of-Custody Number:	Matrix: <u>Water</u>
Site Sample ID: <u>CP-0905007</u>		
Other Sample ID:	Collection Date: <u>5/26/2009 11:00:00 AM</u>	Date Received: <u>5/27/2009 11:15:00</u>
	Batch Number: <u>9085</u>	Laboratory Code: <u>SCA</u>

Method Number	Radionuclide	Laboratory Sample ID	Analysis Date/Time	Activity (pCi/L)	2 $\sigma$ Counting Error (pCi/L)	Total Error (pCi/L)	MDA (pCi/L)
SM 7110C	ALPHA	OT109-9085-07	06/19/09 20:49	49.6	5.65	25.4	2.52

Quality Control Samples				
Radionuclide	Laboratory Control (LC)	Laboratory Duplicate (LD)	Matrix Spike (MS)	Preparation Blank (PB)
Alpha	SCAQC-9085-LCB	SCAQC-9085-LD1		SCAQC-9085-PB1

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## Radioanalytical Results

Report Identification Number: S9067\_9115

Project Name: <u>OTIE - TN&amp;A</u>	Chain-of-Custody Number:	Matrix: <u>Water</u>
Site Sample ID: <u>CP-0905008</u>		
Other Sample ID:	Collection Date: <u>5/26/2009 11:15:00 AM</u>	Date Received: <u>5/27/2009 11:15:00</u>
	Batch Number: <u>9085</u>	Laboratory Code: <u>SCA</u>

Method Number	Radionuclide	Laboratory Sample ID	Analysis Date/Time	Activity (pCi/L)	2 $\sigma$ Counting Error (pCi/L)	Total Error (pCi/L)	MDA (pCi/L)
SM 7110C	ALPHA	OTI09-9085-08	06/19/09 20:49	42.0	4.73	21.5	1.90

Quality Control Samples				
Radionuclide	Laboratory Control (LC)	Laboratory Duplicate (LD)	Matrix Spike (MS)	Preparation Blank (PB)
Alpha	SCAQC-9085-LCB	SCAQC-9085-LD1		SCAQC-9085-PB1

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## Radioanalytical Results

Report Identification Number: S9067\_9115

Project Name: <u>OTIE - TN&amp;A</u>	Chain-of-Custody Number:	Matrix: <u>Water</u>
Site Sample ID: <u>CP-0905003</u>	Collection Date: <u>5/26/2009 11:45:00 AM</u>	Date Received: <u>5/27/2009 11:15:00</u>
Other Sample ID:	Batch Number: <u>9085</u>	Laboratory Code: <u>SCA</u>

Method Number	Radionuclide	Laboratory Sample ID	Analysis Date/Time	Activity (pCi/L)	2 $\sigma$ Counting Error (pCi/L)	Total Error (pCi/L)	MDA (pCi/L)
SM 7110C	ALPHA	OTI09-9085-09	06/19/09 20:49	2.48	1.66	2.08	2.31

Quality Control Samples				
Radionuclide	Laboratory Control (LC)	Laboratory Duplicate (LD)	Matrix Spike (MS)	Preparation Blank (PB)
Alpha	SCAQC-9085-LCB	SCAQC-9085-LD1		SCAQC-9085-PB1

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# GPL Laboratories Alabama, LLC

## Radioanalytical Results

Report Identification Number: S9067\_9115

Project Name: <u>OTIE - TN&amp;A</u>	Chain-of-Custody Number:	Matrix: <u>Water</u>
Site Sample ID: <u>CP-0905004</u>	Collection Date: <u>5/26/2009 12:00:00 PM</u>	Date Received: <u>5/27/2009 11:15:00</u>
Other Sample ID:	Batch Number: <u>9085</u>	Laboratory Code: <u>SCA</u>

Method Number	Radionuclide	Laboratory Sample ID	Analysis Date/Time	Activity (pCi/L)	2 $\sigma$ Counting Error (pCi/L)	Total Error (pCi/L)	MDA (pCi/L)
SM 7110C	ALPHA	OT109-9085-10	06/19/09 20:49	6.04	1.94	3.59	1.70

Quality Control Samples			
Radionuclide	Laboratory Control (LC)	Laboratory Duplicate (LD)	Preparation Blank (PB)
Alpha	SCAQC-9085-LCB	SCAQC-9085-LD1	SCAQC-9085-PB1

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## Radioanalytical Results

Report Identification Number: S9067\_9115

Project Name: <u>OTIE - TN&amp;A</u>	Chain-of-Custody Number:	Matrix: <u>Water</u>
Site Sample ID: <u>CP-0905009</u>		
Other Sample ID:	Collection Date: <u>5/26/2009 1:45:00 PM</u>	Date Received: <u>5/27/2009 11:15:00</u>
	Batch Number: <u>9085</u>	Laboratory Code: <u>SCA</u>

Method Number	Radionuclide	Laboratory Sample ID	Analysis Date/Time	Activity (pCi/L)	2 $\sigma$ Counting Error (pCi/L)	Total Error (pCi/L)	MDA (pCi/L)
SM 7110C	ALPHA	OTI09-9085-11	07/01/09 15:07	19.7	3.51	10.5	1.82

Quality Control Samples				
Radionuclide	Laboratory Control (LC)	Laboratory Duplicate (LD)	Matrix Spike (MS)	Preparation Blank (PB)
Alpha	SCAQC-9085-LCB	SCAQC-9085-LD1		SCAQC-9085-PB1

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## Radioanalytical Results

Report Identification Number: S9067\_9115

Project Name: <u>OTIE - TN&amp;A</u>	Chain-of-Custody Number:	Matrix: <u>Water</u>
Site Sample ID: <u>CP-0905010</u>		
Other Sample ID:	Collection Date: <u>5/26/2009 2:00:00 PM</u>	Date Received: <u>5/27/2009 11:15:00</u>
	Batch Number: <u>9085</u>	Laboratory Code: <u>SCA</u>

<u>Method Number</u>	<u>Radionuclide</u>	<u>Laboratory Sample ID</u>	<u>Analysis Date/Time</u>	<u>Activity (pCi/L)</u>	<u>2 <math>\sigma</math> Counting Error (pCi/L)</u>	<u>Total Error (pCi/L)</u>	<u>MDA (pCi/L)</u>
SM 7110C	ALPHA	OTI09-9085-12	07/01/09 15:07	20.0	3.25	10.5	1.49

<u>Quality Control Samples</u>				
<u>Radionuclide</u>	<u>Laboratory Control (LC)</u>	<u>Laboratory Duplicate (LD)</u>	<u>Matrix Spike (MS)</u>	<u>Preparation Blank (PB)</u>
Alpha	SCAQC-9085-LCB	SCAQC-9085-LD1		SCAQC-9085-PB1

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# GPL Laboratories Alabama, LLC

## Radioanalytical Results

Report Identification Number: S9067\_9115

Project Name: <u>OTIE - TN&amp;A</u>	Chain-of-Custody Number:	Matrix: <u>Water</u>
Site Sample ID: <u>CP-0905011</u>	Collection Date: <u>5/26/2009 2:45:00 PM</u>	Date Received: <u>5/27/2009 11:15:00</u>
Other Sample ID:	Batch Number: <u>9085</u>	Laboratory Code: <u>SCA</u>

<u>Method Number</u>	<u>Radionuclide</u>	<u>Laboratory Sample ID</u>	<u>Analysis Date/Time</u>	<u>Activity (pCi/L)</u>	<u>2 <math>\sigma</math> Counting Error (pCi/L)</u>	<u>Total Error (pCi/L)</u>	<u>MDA (pCi/L)</u>
SM 7110C	ALPHA	OT109-9085-13	07/01/09 15:07	59.8	6.06	30.5	1.68

<u>Quality Control Samples</u>				
<u>Radionuclide</u>	<u>Laboratory Control (LC)</u>	<u>Laboratory Duplicate (LD)</u>	<u>Matrix Spike (MS)</u>	<u>Preparation Blank (PB)</u>
Alpha	SCAQC-9085-LCB	SCAQC-9085-LD1		SCAQC-9085-PB1

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## Radioanalytical Results

Report Identification Number: S9067\_9115

Project Name: <u>OTIE - TN&amp;A</u>	Chain-of-Custody Number:	Matrix: <u>Water</u>
Site Sample ID: <u>CP-0905012</u>	Collection Date: <u>5/26/2009 3:00:00 PM</u>	Date Received: <u>5/27/2009 11:15:00</u>
Other Sample ID:	Batch Number: <u>9085</u>	Laboratory Code: <u>SCA</u>

<u>Method Number</u>	<u>Radionuclide</u>	<u>Laboratory Sample ID</u>	<u>Analysis Date/Time</u>	<u>Activity (pCi/L)</u>	<u>2 <math>\sigma</math> Counting Error (pCi/L)</u>	<u>Total Error (pCi/L)</u>	<u>MDA (pCi/L)</u>
SM 7110C	ALPHA	OTI09-9085-14	07/01/09 16:48	49.4	5.58	25.3	1.86

<u>Quality Control Samples</u>				
<u>Radionuclide</u>	<u>Laboratory Control (LC)</u>	<u>Laboratory Duplicate (LD)</u>	<u>Matrix Spike (MS)</u>	<u>Preparation Blank (PB)</u>
Alpha	SCAQC-9085-LCB	SCAQC-9085-LD1		SCAQC-9085-PB1

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## Radioanalytical Results

Report Identification Number: S9067\_9115

Project Name: <u>OTIE - TN&amp;A</u>	Chain-of-Custody Number:	Matrix: <u>Water</u>
Site Sample ID: <u>CP-0905027</u>		
Other Sample ID:	Collection Date: <u>5/26/2009 3:15:00 PM</u>	Date Received: <u>5/27/2009 11:15:00</u>
	Batch Number: <u>9067</u>	Laboratory Code: <u>SCA</u>

Method Number	Radionuclide	Laboratory Sample ID	Analysis Date/Time	Activity (pCi/L)	2 $\sigma$ Counting Error (pCi/L)	Total Error (pCi/L)	MDA (pCi/L)
EPA 900.0	ALPHA	OTI09-9067-15	06/21/09 08:44	0.046	0.773	0.773	1.50
EPA 900.0	BETA	OTI09-9067-15B	06/26/09 13:32	0.590	0.680	0.703	1.04
EPA 903.1	RA-226	OTI09-9067-15	06/04/09 16:58	0.063	0.256	0.257	0.441
EPA 904.0	RA-228	OTI09-9067-15	06/03/09 13:07	0.092	0.345	0.346	0.614

Quality Control Samples				
Radionuclide	Laboratory Control (LC)	Laboratory Duplicate (LD)	Matrix Spike (MS)	Preparation Blank (PB)
Alpha		SCAQC-9067-LD1		SCAQC-9067-PB1
Beta	SCAQC-9067-LC1B	SCAQC-9067-LD1		SCAQC-9067-PB1B
Ra	SCAQC-9067-LC1	SCAQC-9067-LD1	SCAQC-9067-MS1	SCAQC-9067-PB

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**ANALYTICAL RESULTS**

Project: 2009025  
 Pace Project No.: 3010643

**Sample: CP-0905015** Lab ID: 3010643001 Collected: 05/26/09 08:30 Received: 05/29/09 09:30 Matrix: Water  
 PWS: Site ID: Sample Type:

Comments: • The LCS recovery for batch 2439 (affecting samples 3010643001 through 3010643020) was biased high and above the default acceptance criteria for batch LCS recovery. The precision between the LCS and LCSD was acceptable. The high LCS may indicate a bias in the sample results. Additionally, several samples had suspended solids and dissolved silica, which may bias the uranium results low. Data is being provided, and re-analysis utilizing other more sensitive methods needs to be determined by the client.

Parameters	Method	Act ± Unc (MDC)	Units	Analyzed	CAS No.	Qual
Total Uranium	EPA 908.0	62.1 ± 11.9 (0.618) J	pCi/L	06/17/09 13:05	7440-61-1	

**Sample: CP-0905016** Lab ID: 3010643002 Collected: 05/26/09 08:45 Received: 05/29/09 09:30 Matrix: Water  
 PWS: Site ID: Sample Type:

Parameters	Method	Act ± Unc (MDC)	Units	Analyzed	CAS No.	Qual
Total Uranium	EPA 908.0	109 ± 20.8 (0.673) J	pCi/L	06/17/09 13:37	7440-61-1	

**Sample: CP-0905019** Lab ID: 3010643003 Collected: 05/26/09 09:30 Received: 05/29/09 09:30 Matrix: Water  
 PWS: Site ID: Sample Type:

Parameters	Method	Act ± Unc (MDC)	Units	Analyzed	CAS No.	Qual
Total Uranium	EPA 908.0	33.1 ± 6.60 (0.741) J	pCi/L	06/17/09 13:37	7440-61-1	

**Sample: CP-0905020** Lab ID: 3010643004 Collected: 05/26/09 09:45 Received: 05/29/09 09:30 Matrix: Water  
 PWS: Site ID: Sample Type:

Parameters	Method	Act ± Unc (MDC)	Units	Analyzed	CAS No.	Qual
Total Uranium	EPA 908.0	21.5 ± 4.44 (0.748) J	pCi/L	06/17/09 13:37	7440-61-1	

**Sample: CP-0905025** Lab ID: 3010643005 Collected: 05/26/09 10:00 Received: 05/29/09 09:30 Matrix: Water  
 PWS: Site ID: Sample Type:

Parameters	Method	Act ± Unc (MDC)	Units	Analyzed	CAS No.	Qual
Total Uranium	EPA 908.0	17.5 ± 3.72 (0.975) J	pCi/L	06/17/09 13:37	7440-61-1	

**Sample: CP-0905026** Lab ID: 3010643006 Collected: 05/26/09 10:15 Received: 05/29/09 09:30 Matrix: Water  
 PWS: Site ID: Sample Type:

Parameters	Method	Act ± Unc (MDC)	Units	Analyzed	CAS No.	Qual
Total Uranium	EPA 908.0	19.1 ± 3.96 (0.637) J	pCi/L	06/17/09 15:57	7440-61-1	

**Sample: CP-0905007** Lab ID: 3010643007 Collected: 05/26/09 11:00 Received: 05/29/09 09:30 Matrix: Water  
 PWS: Site ID: Sample Type:

Parameters	Method	Act ± Unc (MDC)	Units	Analyzed	CAS No.	Qual
Total Uranium	EPA 908.0	-0.142 ± 0.242 (0.766) J	pCi/L	06/18/09 08:40	7440-61-1	

Date: 06/18/2009 04:08 PM

**REPORT OF LABORATORY ANALYSIS**

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8/17/09 J

**ANALYTICAL RESULTS**

Project: 2009025  
Pace Project No.: 3010643

**Sample: CP-0905008** Lab ID: 3010643008 Collected: 05/26/09 11:15 Received: 05/29/09 09:30 Matrix: Water  
PWS: Site ID: Sample Type:

Parameters	Method	Act ± Unc (MDC)	Units	Analyzed	CAS No.	Qual
Total Uranium	EPA 908.0	0.228 ± 0.362 (0.776) <i>J</i>	pCi/L	06/18/09 08:40	7440-61-1	

**Sample: CP-0905003** Lab ID: 3010643009 Collected: 05/26/09 11:45 Received: 05/29/09 09:30 Matrix: Water  
PWS: Site ID: Sample Type:

Parameters	Method	Act ± Unc (MDC)	Units	Analyzed	CAS No.	Qual
Total Uranium	EPA 908.0	2.44 ± 0.870 (0.716) <i>J</i>	pCi/L	06/18/09 09:07	7440-61-1	

**Sample: CP-0905004** Lab ID: 3010643010 Collected: 05/26/09 12:00 Received: 05/29/09 09:30 Matrix: Water  
PWS: Site ID: Sample Type:

Parameters	Method	Act ± Unc (MDC)	Units	Analyzed	CAS No.	Qual
Total Uranium	EPA 908.0	3.12 ± 1.02 (0.788) <i>J</i>	pCi/L	06/18/09 09:07	7440-61-1	

**Sample: CP-0905009** Lab ID: 3010643011 Collected: 05/26/09 13:45 Received: 05/29/09 09:30 Matrix: Water  
PWS: Site ID: Sample Type:

Parameters	Method	Act ± Unc (MDC)	Units	Analyzed	CAS No.	Qual
Total Uranium	EPA 908.0	26.5 ± 5.43 (0.796) <i>J</i>	pCi/L	06/18/09 09:07	7440-61-1	

**Sample: CP-0905010** Lab ID: 3010643012 Collected: 05/26/09 14:00 Received: 05/29/09 09:30 Matrix: Water  
PWS: Site ID: Sample Type:

Parameters	Method	Act ± Unc (MDC)	Units	Analyzed	CAS No.	Qual
Total Uranium	EPA 908.0	49.3 ± 9.67 (0.860) <i>J</i>	pCi/L	06/18/09 09:07	7440-61-1	

**Sample: CP-0905011** Lab ID: 3010643013 Collected: 05/26/09 14:45 Received: 05/29/09 09:30 Matrix: Water  
PWS: Site ID: Sample Type:

Parameters	Method	Act ± Unc (MDC)	Units	Analyzed	CAS No.	Qual
Total Uranium	EPA 908.0	3.11 ± 0.784 (0.574) <i>J</i>	pCi/L	06/16/09 16:30	7440-61-1	

**Sample: CP-0905012** Lab ID: 3010643014 Collected: 05/26/09 15:00 Received: 05/29/09 09:30 Matrix: Water  
PWS: Site ID: Sample Type:

Parameters	Method	Act ± Unc (MDC)	Units	Analyzed	CAS No.	Qual
Total Uranium	EPA 908.0	0.0258 ± 0.331 (0.791) <i>J</i>	pCi/L	06/16/09 16:30	7440-61-1	

**ANALYTICAL RESULTS**

Project: 2009025  
Pace Project No.: 3010643

**Sample: CP-0905027**      **Lab ID: 3010643015**      Collected: 05/26/09 15:15      Received: 05/29/09 09:30      Matrix: Water  
PWS:      Site ID:      Sample Type:

Parameters	Method	Act ± Unc (MDC)	Units	Analyzed	CAS No.	Qual
Total Uranium	EPA 908.0	0.0259 ± 0.271 (0.660) <i>MS</i>	pCi/L	06/16/09 16:30	7440-61-1	

**Sample: CP-0905005**      **Lab ID: 3010643016**      Collected: 05/27/09 11:45      Received: 05/29/09 09:30      Matrix: Water  
PWS:      Site ID:      Sample Type:

Parameters	Method	Act ± Unc (MDC)	Units	Analyzed	CAS No.	Qual
Total Uranium	EPA 908.0	70.3 ± 13.4 (0.802) <i>J</i>	pCi/L	06/16/09 16:30	7440-61-1	

**Sample: CP-0905006**      **Lab ID: 3010643017**      Collected: 05/27/09 12:00      Received: 05/29/09 09:30      Matrix: Water  
PWS:      Site ID:      Sample Type:

Parameters	Method	Act ± Unc (MDC)	Units	Analyzed	CAS No.	Qual
Total Uranium	EPA 908.0	51.1 ± 9.86 (0.718) <i>J</i>	pCi/L	06/16/09 16:30	7440-61-1	

**Sample: CP-0905001**      **Lab ID: 3010643018**      Collected: 05/27/09 08:00      Received: 05/29/09 09:30      Matrix: Water  
PWS:      Site ID:      Sample Type:

Parameters	Method	Act ± Unc (MDC)	Units	Analyzed	CAS No.	Qual
Total Uranium	EPA 908.0	-0.0204 ± 0.252 (0.648) <i>MS</i>	pCi/L	06/16/09 16:30	7440-61-1	

**Sample: CP-0905002**      **Lab ID: 3010643019**      Collected: 05/27/09 08:15      Received: 05/29/09 09:30      Matrix: Water  
PWS:      Site ID:      Sample Type:

Parameters	Method	Act ± Unc (MDC)	Units	Analyzed	CAS No.	Qual
Total Uranium	EPA 908.0	0.261 ± 0.379 (0.789) <i>MS</i>	pCi/L	06/16/09 16:30	7440-61-1	

**Sample: CP-0905023**      **Lab ID: 3010643020**      Collected: 05/27/09 08:30      Received: 05/29/09 09:30      Matrix: Water  
PWS:      Site ID:      Sample Type:

Parameters	Method	Act ± Unc (MDC)	Units	Analyzed	CAS No.	Qual
Total Uranium	EPA 908.0	0.360 ± 0.351 (0.657) <i>MS</i>	pCi/L	06/16/09 16:30	7440-61-1	

**Sample: CP-0905024**      **Lab ID: 3010643021**      Collected: 05/27/09 08:45      Received: 05/29/09 09:30      Matrix: Water  
PWS:      Site ID:      Sample Type:

Parameters	Method	Act ± Unc (MDC)	Units	Analyzed	CAS No.	Qual
Total Uranium	EPA 908.0	0.243 ± 0.251 (0.476)	pCi/L	06/16/09 16:31	7440-61-1	

**ANALYTICAL RESULTS**

Project: 2009025  
Pace Project No.: 3010643

**Sample: CP-0905013**      **Lab ID: 3010643022**      Collected: 05/27/09 11:00      Received: 05/29/09 09:30      Matrix: Water  
PWS:      Site ID:      Sample Type:

Parameters	Method	Act ± Unc (MDC)	Units	Analyzed	CAS No.	Qual
Total Uranium	EPA 908.0	<b>50.5 ± 9.71 (0.467)</b>	pCi/L	06/16/09 14:55	7440-61-1	

**Sample: CP-0905014**      **Lab ID: 3010643023**      Collected: 05/27/09 11:15      Received: 05/29/09 09:30      Matrix: Water  
PWS:      Site ID:      Sample Type:

Parameters	Method	Act ± Unc (MDC)	Units	Analyzed	CAS No.	Qual
Total Uranium	EPA 908.0	<b>58.3 ± 11.2 (0.493)</b>	pCi/L	06/16/09 14:54	7440-61-1	

**Sample: CP-0905017**      **Lab ID: 3010643024**      Collected: 05/27/09 09:30      Received: 05/29/09 09:30      Matrix: Water  
PWS:      Site ID:      Sample Type:

Parameters	Method	Act ± Unc (MDC)	Units	Analyzed	CAS No.	Qual
Total Uranium	EPA 908.0	<b>34.8 ± 6.80 (0.440)</b>	pCi/L	06/16/09 14:55	7440-61-1	

**Sample: CP-0905018**      **Lab ID: 3010643025**      Collected: 05/27/09 09:45      Received: 05/29/09 09:30      Matrix: Water  
PWS:      Site ID:      Sample Type:

Parameters	Method	Act ± Unc (MDC)	Units	Analyzed	CAS No.	Qual
Total Uranium	EPA 908.0	<b>22.0 ± 4.42 (0.479)</b>	pCi/L	06/16/09 14:55	7440-61-1	

**Sample: CP-0905021**      **Lab ID: 3010643026**      Collected: 05/27/09 12:30      Received: 05/29/09 09:30      Matrix: Water  
PWS:      Site ID:      Sample Type:

Parameters	Method	Act ± Unc (MDC)	Units	Analyzed	CAS No.	Qual
Total Uranium	EPA 908.0	<b>65.1 ± 12.4 (0.594)</b>	pCi/L	06/16/09 12:23	7440-61-1	

**Sample: CP-0905022**      **Lab ID: 3010643027**      Collected: 05/27/09 12:45      Received: 05/29/09 09:30      Matrix: Water  
PWS:      Site ID:      Sample Type:

Parameters	Method	Act ± Unc (MDC)	Units	Analyzed	CAS No.	Qual
Total Uranium	EPA 908.0	<b>51.4 ± 9.91 (0.563)</b>	pCi/L	06/16/09 12:23	7440-61-1	

**Sample: CP-0905028**      **Lab ID: 3010643028**      Collected: 05/27/09 13:15      Received: 05/29/09 09:30      Matrix: Water  
PWS:      Site ID:      Sample Type:

Parameters	Method	Act ± Unc (MDC)	Units	Analyzed	CAS No.	Qual
Total Uranium	EPA 908.0	<b>0.225 ± 0.296 (0.608)</b>	pCi/L	06/16/09 12:23	7440-61-1	



# GPL Laboratories Alabama, LLC

## Radioanalytical Results

Report Identification Number: 59087\_0115

Project Name: <b>OTIE - TMS&amp;</b>	Chain-of-Custody Number:	Matrix: <b>Water</b>
Site Sample ID: <b>GP-0908027</b>		
Other Sample ID:	Collection Date: <b>5/29/2009 3:15:00 PM</b>	Date Received: <b>5/27/2009 11:18:00</b>
	Batch Number: <b>5082</b>	Laboratory Code: <b>SCS</b>

Method Number	Radionuclide	Laboratory Sample ID	Analysis Date/Time	Activity (pCi/L)	2 $\sigma$ Counting Error (pCi/L)	Total Error (pCi/L)	MDA (pCi/L)
EPA 900.0	ALPHA	OT09-9087-15	06/21/09 08:44	0.048	0.773	0.773	1.50
EPA 900.0	BETA	OT09-9087-15B	06/26/09 13:32	0.690	0.690	0.703	1.04
EPA 903.1	RA-226	OT09-9087-15	06/04/09 16:55	0.063	0.358	0.357	0.441
EPA 904.0	RA-226	OT09-9087-15	06/03/09 13:27	0.092	0.345	0.345	0.614

Quality Control Samples			
Radionuclide	Laboratory Control (LC)	Laboratory Duplicate (LD)	Preparation Blank (PB)
Alpha		SCAGC-9087-LD1	SCAGC-9087-PB1
Beta	SCAGC-9087-LC1B	SCAGC-9087-LD1	SCAGC-9087-PB1B
Ra	SCAGC-9087-LC1	SCAGC-9087-LD1	SCAGC-9087-PB