

REQUEST NUMBER: 10-2984

NATIONAL LABORATORY

These Samples are on:

LANL Request Number:10-2984

Per Agreement Number:63641-001-10

Project Cost Code: MR8R032TNB00

SHIP DATE: 5/3/2010

TURNAROUND/REPORT DUE: 6/2/2010

TURNAROUND REQ'D: 30 Days

RAD SCREENING: Not Required

LAB REQUEST COMMENTS:

LANL ER SMO CONTACT:

Signature:

September.

PRIORITY	METHOD CODE	CNTR	SAMPLE ID	SAMPLE MATRIX	DATE SAMPLED	SPECIAL INSTRUCTIONS
	EPA:906.0	1	MD21-10-15382	GAS	4/30/2010	
		1	MD21-10-15383	GAS	4/30/2010	
		1	MD21-10-15384	GAS	4/30/2010	
		1	MD21-10-15385	GAS	4/30/2010	
		1	MD21-10-15386	GAS	4/30/2010	
		1	MD21-10-15387	GAS	4/30/2010	
		1	MD21-10-15388	GAS	4/30/2010	
		1	MD21-10-15389	GAS	4/30/2010	
		1	MD21-10-15390	GAS	4/30/2010	

Hard Copy Required

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Final Page of REQUEST NUMBER 10-2984

Monday, May 03, 2010

LAB CHAIN OF CUSTODY DOCUMENT NUMBER: 10-2984C

LOS ALAMOS

REQUEST NUMBER: 10-2984

NATIONAL LABORATORY

ATTN: Danny Coleman

TURNAROUND/REPORT DUE: 6/2/2010

American Radiation Services - Primary

TURNAROUND REQ'D: 30

1726 Wooddale Court

Baton Rouge, LA 70806

LAB REQUEST COMMENTS:

SAMPLE ID	CTNR	CTNR DESC	ORDER	PRESERV	MATRIX
MD21-10-15390	1	SILICA GEL TUBE	H3	None	GAS
MD21-10-15384	1	SILICA GEL TUBE	H3	None	GAS
MD21-10-15382	1	SILICA GEL TUBE	H3	None	GAS
MD21-10-15388	1	SILICA GEL TUBE	H3	None	GAS
MD21-10-15387	1	SILICA GEL TUBE	H3	None	GAS
MD21-10-15385	1	SILICA GEL TUBE	H3	None	GAS
MD21-10-15389	1	SILICA GEL TUBE	H3	None	GAS
MD21-10-15386	1	SILICA GEL TUBE	H3	None	GAS
MD21-10-15383	1	SILICA GEL TUBE	H3	None	GAS
MD21-10-15391	1	SILICA GEL TUBE	H3	None	GAS

Relinquished By:

Date

Time

Received By:

Date

Time

Printed Name

Signature

Printed Name

Signature

Printed Name

Signature

Printed Name

Signature

Printed Name

Signature

Printed Name

Signature

Received for DISPOSAL By: Date

Time

Remarks:

Printed Name

Signature

SAMPLE COLLECTION LOG/FIELD CHAIN OF CUSTODY

EVENT ID: 2725

EVENT NAME: 4th Qtr. Tritium Vapor Monitoring - CU 21-018(a)-99 - MDA V

SAMPLE ID: MD21-10-15382

WORK ORDER:

AS PLANNED		AS COLLECTED		AS PLANNED		AS COLLECTED	
DATE COLLECTED(MM/DD/YYYY):		4/30/2010		MEDIA:	NA		OK
TIME COLLECTED (HH:MM)		0800		SUB-MEDIA:	OTHER		
PRS ID:	21-018(a)-99	OK		SAMPLE TECH CODE:	VOST		
LOCATION ID:	21-24524W			FIELD QC TYPE:	NA		
LOCATION TYPE:	BH			FIELD PREP:	NA		
TOP DEPTH:	42.5			SAMPLE USAGE:	INV		
BOTTOM DEPTH:	47.5			SCREEN/PORT DESC:	geoprobe soil/gas implant, port #1		
FIELD MATRIX:	GAS			EXCAVATED: YES/NO	NA		
COMPOSITE TYPE:	NA			COMPOSITE TIME INTERVAL:	NA		
BOREHOLE: YES/NO/NA				BOREHOLE DECLINATION:	Vertical		
				BOREHOLE DIRECTION:	NA		

#	PRIORITY	ORDER	CNTNR	PRESERVATIVE	COLLECTED Y/N	SPECIAL INSTRUCTIONS
1	30 DAY	H3	1 EA SILICA GEL TUBE	None	Y	none

SAMPLE DESC: tritium vapor

beginning: T = 61°F; rh = 27%; BP = 30.09" Hg; start = 1505, 4/27/10
 end: T = 32°F; rh = 75%; BP = 29.64" Hg; end = see above

SAMPLE COMMENTS:

mass of gel = 130.28g final mass = 605.27g
 initial mass = 561.67g volume plug = 7566.2

LOCATION DESC:

HSA constructed BH, port #1, Q613

FIELD SCREENING/MEASUREMENT RESULTS:

NA

COLLECTED BY (PRINT) Lindsay Hay REVIEWED BY (PRINT) Dennis Powell

RELINQUISHED BY (Printed Name) <u>Lindsay Hay</u> (Signature) <u>[Signature]</u>	Date/Time <u>4/30/10</u> <u>12130</u>	RECEIVED BY (Printed Name) <u>LA. Greene</u> (Signature) <u>[Signature]</u>	Date/Time <u>4/30/10</u> <u>12130</u>
RELINQUISHED BY (Printed Name) (Signature)	Date/Time	RECEIVED BY (Printed Name) (Signature)	Date/Time

SAMPLE COLLECTION LOG/FIELD CHAIN OF CUSTODY

EVENT ID: 2725

EVENT NAME: 4th Qtr. Tritium Vapor Monitoring - CU 21-018(a)-99 - MDA V

SAMPLE ID: MD21-10-15383

WORK ORDER:

AS PLANNED		AS COLLECTED		AS PLANNED		AS COLLECTED	
DATE COLLECTED(MM/DD/YYYY):		4/30/2010		MEDIA:	NA		OK
TIME COLLECTED (HH:MM)		0800		SUB-MEDIA:	OTHER		
PRS ID:	21-018(a)-99			SAMPLE TECH CODE:	VOST		
LOCATION ID:	21-24524W			FIELD QC TYPE:	NA		
LOCATION TYPE:	BH			FIELD PREP:	NA		
TOP DEPTH:	122.5			SAMPLE USAGE:	INV		
BOTTOM DEPTH:	127.5			SCREEN/PORT DESC:	gas probe soil/gas implant, port #2		
FIELD MATRIX:	GAS			EXCAVATED: YES/NO/NA	NA		
COMPOSITE TYPE:	NA			COMPOSITE TIME INTERVAL:	NA		
BOREHOLE: YES/NO/NA	YES			BOREHOLE DECLINATION:	Vertical		
				BOREHOLE DIRECTION:	NA		

#	PRIORITY	ORDER	CNTNR	PRESERVATIVE	COLLECTED Y/N	SPECIAL INSTRUCTIONS
1	30 DAY	H3	1 EA SILICA GEL TUBE	None	Y	none

SAMPLE DESC: tritium vapor

beginning: T = 61°F; rh = 27%; BP = 30.09" Hg; start = 1505, 4/27/10
 end: T = 32°F; rh = 75%; BP = 29.64" Hg; end = see above

SAMPLE COMMENTS:

mass of gel = 142.10g final mass = 635.61g
 initial mass = 586.29g volume pugel = 76912

LOCATION DESC:

HSA constructed BH, port #2, Qbt2

FIELD SCREENING/MEASUREMENT RESULTS:

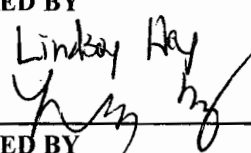

NA

COLLECTED BY (PRINT)

Lindsay Hay

REVIEWED BY (PRINT)

Dennis Power

RELINQUISHED BY (Printed Name) Lindsay Hay (Signature) 	Date/Time 4/30/10 12:30	RECEIVED BY (Printed Name) K. Gracore (Signature) 	Date/Time 4/30/10 12:30
RELINQUISHED BY (Printed Name) (Signature)	Date/Time	RECEIVED BY (Printed Name) (Signature)	Date/Time

SAMPLE COLLECTION LOG/FIELD CHAIN OF CUSTODY

EVENT ID: 2725

EVENT NAME: 4th Qtr. Tritium Vapor Monitoring - CU 21-018(a)-99 - MDA V

SAMPLE ID: MD21-10-15384

WORK ORDER:

AS PLANNED		AS COLLECTED		AS PLANNED		AS COLLECTED	
DATE COLLECTED(MM/DD/YYYY):		4/30/2010		MEDIA:		NA	
TIME COLLECTED (HH:MM)		0800		SUB-MEDIA:		OTHER	
PRS ID: 21-018(a)-99		OK		SAMPLE TECH CODE:		VOST	
LOCATION ID: 21-24524W				FIELD QC TYPE:		NA	
LOCATION TYPE: BH				FIELD PREP:		NA	
TOP DEPTH: 172.5				SAMPLE USAGE:		INV	
BOTTOM DEPTH: 177.5				SCREEN/PORT DESC:		graphite soil/gas implant, port #3	
FIELD MATRIX: GAS				EXCAVATED: YES/NO		NA	
COMPOSITE TYPE: NA		COMPOSITE TIME INTERVAL: NA		WATER FLOWING: YES/NO		NA	
BOREHOLE YES/NO/NA		BOREHOLE DECLINATION: vertical		BOREHOLE DIRECTION:		NA	

#	PRIORITY	ORDER	CNTNR	PRESERVATIVE	COLLECTED Y/N	SPECIAL INSTRUCTIONS
1	30 DAY	H3	1 EA SILICA GEL TUBE	None	Y	none

SAMPLE DESC: tritium vapor
 beginning: T = 61°F; rh = 27%; BP = 30.09" Hg; start = 1505, 4/27/10
 end: T = 32°F; rh = 75%; BP = 29.64" Hg; end = see above

SAMPLE COMMENTS:

mass of gel = 131.56g final mass = 592.78g
 initial mass = 562.26g volume purged = 8241L

LOCATION DESC:

HSA constructed BA, port #3, Q661V

FIELD SCREENING/MEASUREMENT RESULTS:

NA

COLLECTED BY (PRINT) Linkoy Hy

REVIEWED BY (PRINT) Dennis Powell

RELINQUISHED BY (Printed Name) Linkoy Hy (Signature) Linkoy Hy	Date/Time 4/30/10 12130	RECEIVED BY (Printed Name) K. Greer (Signature) K. Greer	Date/Time 4/30/10 12130
RELINQUISHED BY (Printed Name) (Signature)	Date/Time	RECEIVED BY (Printed Name) (Signature)	Date/Time

SAMPLE COLLECTION LOG/FIELD CHAIN OF CUSTODY

EVENT ID: 2725

EVENT NAME: 4th Qtr. Tritium Vapor Monitoring - CU 21-018(a)-99 - MDA V

SAMPLE ID: MD21-10-15385

WORK ORDER:

AS PLANNED		AS COLLECTED		AS PLANNED		AS COLLECTED	
DATE COLLECTED(MM/DD/YYYY):		4/30/2010		MEDIA:	NA		OK
TIME COLLECTED (HH:MM)		0800		SUB-MEDIA:	OTHER		
PRS ID:	21-018(a)-99	OK		SAMPLE TECH CODE:	VOST		
LOCATION ID:	21-24524W			FIELD QC TYPE:	NA		
LOCATION TYPE:	BH			FIELD PREP:	NA		
TOP DEPTH:	257.5			SAMPLE USAGE:	INV		
BOTTOM DEPTH:	262.5			SCREEN/PORT DESC:	geoprobe soil/gas implant, port #4		
FIELD MATRIX:	GAS			EXCAVATED: YES/NO/NA	(NA)		
COMPOSITE TYPE:	NA			COMPOSITE TIME INTERVAL:	NA		
BOREHOLE: (YES/NO/NA)	(YES/NO/NA)			BOREHOLE DECLINATION:	vertical		
				BOREHOLE DIRECTION:	NA		

#	PRIORITY	ORDER	CNTNR	PRESERVATIVE	COLLECTED Y/N	SPECIAL INSTRUCTIONS
1	30 DAY	H3	1 EA SILICA GEL TUBE	None	Y	none

SAMPLE DESC: tritium vapor

beginning: T = 61°F ; rh = 27% ; BP = 30.09" Hg ; start = 1505, 4/27/10
 end: T = 32°F ; rh = 75% ; BP = 29.64" Hg ; end = see above

SAMPLE COMMENTS:

mass of gel = 142.76g final mass = 621.26g
 initial mass = 591.99g volume purged = 8753 L

LOCATION DESC:

HSA constructed BH, port #4, Qbtlg

FIELD SCREENING/MEASUREMENT RESULTS:

NA

COLLECTED BY (PRINT)

Lindsay Hay

REVIEWED BY (PRINT)

Dennis Powell

RELINQUISHED BY (Printed Name) Lindsay Hay (Signature) <i>[Signature]</i>	Date/Time 4/30/10 12:30	RECEIVED BY (Printed Name) K. L. Carr (Signature) <i>[Signature]</i>	Date/Time 4/30/10 12:30
RELINQUISHED BY (Printed Name) (Signature)	Date/Time	RECEIVED BY (Printed Name) (Signature)	Date/Time

SAMPLE COLLECTION LOG/FIELD CHAIN OF CUSTODY

EVENT ID: 2725

EVENT NAME: 4th Qtr. Tritium Vapor Monitoring - CU 21-018(a)-99 - MDA V

SAMPLE ID: MD21-10-15386

WORK ORDER:

AS PLANNED		AS COLLECTED		AS PLANNED		AS COLLECTED	
DATE COLLECTED(MM/DD/YYYY):		4/30/2010		MEDIA:	NA		OK
TIME COLLECTED (HH:MM)		08:00		SUB-MEDIA:	OTHER		
PRS ID:	21-018(a)-99	OK		SAMPLE TECH CODE:	VOST		
LOCATION ID:	21-24524W			FIELD QC TYPE:	NA		
LOCATION TYPE:	BH			FIELD PREP:	NA		
TOP DEPTH:	300			SAMPLE USAGE:	INV		
BOTTOM DEPTH:	305			SCREEN/PORT DESC:	geoprobe soil/gas implant, port #5		
FIELD MATRIX:	GAS			EXCAVATED: YES/NO	NA		
COMPOSITE TYPE:	NA			COMPOSITE TIME INTERVAL:	NA		
				WATER FLOWING: YES/NO	NA		
BOREHOLE:	YES/NO/NA			BOREHOLE DECLINATION:	Vertical		
				BOREHOLE DIRECTION:	NA		

#	PRIORITY	ORDER	CNTNR	PRESERVATIVE	COLLECTED Y/N	SPECIAL INSTRUCTIONS
1	30 DAY	H3	1 EA SILICA GEL TUBE	None	Y	none

SAMPLE DESC: tritium vapor
beginning: T = 61°F; rh = 27%; BP = 30.09" Hg; start = 1505, 4/27/10
end: T = 32°F; rh = 75%; BP = 29.64" Hg; end = see above

SAMPLE COMMENTS:

mass of gel = 141.40g final mass = 632.50g
initial mass = 590.20g volume DW gel = 5493 μl

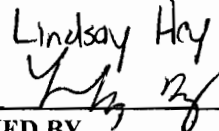
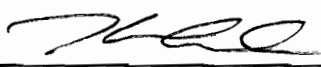
LOCATION DESC:

HSA conducted BH, port #5, 2btt, FD sample collected; sample ID: MD21-10-15391

FIELD SCREENING/MEASUREMENT RESULTS:

NA

COLLECTED BY (PRINT) Lindsay Hay REVIEWED BY (PRINT) Dennis Powell

RELINQUISHED BY (Printed Name) Lindsay Hay (Signature) 	Date/Time 4/30/10 12:30	RECEIVED BY K. Bruce (Printed Name) (Signature) 	Date/Time 4/30/10 12:30
RELINQUISHED BY (Printed Name) (Signature)	Date/Time	RECEIVED BY (Printed Name) (Signature)	Date/Time

SAMPLE COLLECTION LOG/FIELD CHAIN OF CUSTODY

EVENT ID: 2725

EVENT NAME: 4th Qtr. Tritium Vapor Monitoring - CU 21-018(a)-99 - MDA V

SAMPLE ID: MD21-10-15387

WORK ORDER:

AS PLANNED		AS COLLECTED		AS PLANNED		AS COLLECTED	
DATE COLLECTED(MM/DD/YYYY):		4/30/2010		MEDIA:	NA		012
TIME COLLECTED (HH:MM)		0800		SUB-MEDIA:	OTHER		
PRS ID:	21-018(a)-99	012		SAMPLE TECH CODE:	VOST		
LOCATION ID:	21-24524W			FIELD QC TYPE:	NA		
LOCATION TYPE:	BH			FIELD PREP:	NA		
TOP DEPTH:	327.5			SAMPLE USAGE:	INV		
BOTTOM DEPTH:	332.5			SCREEN/PORT DESC:	gas probe sul/gas implant port #6		
FIELD MATRIX:	GAS			EXCAVATED: YES/NO	NA		
COMPOSITE TYPE:	NA			COMPOSITE TIME INTERVAL:	NA		
BOREHOLE: YES/NO/NA	YES	BOREHOLE DECLINATION:	vertical	BOREHOLE DIRECTION:	NA		

#	PRIORITY	ORDER	CNTNR	PRESERVATIVE	COLLECTED Y/N	SPECIAL INSTRUCTIONS
1	30 DAY	H3	1 EA SILICA GEL TUBE	None	Y	none

SAMPLE DESC: tritium vapor

beginning: T = 61°F; rh = 27%; BP = 30.09" Hg; start = 1505, 4/27/10

end: T = 32°F; rh = 75%; BP 29.64" Hg; end = see above

SAMPLE COMMENTS:

mass of gel = 140.30g

final mass = 597.04g

initial mass = 566.10g

vapor purged = 7922.1

LOCATION DESC:

1EA constituted BH, port #6, Qtr

FIELD SCREENING/MEASUREMENT RESULTS:

NA

COLLECTED BY (PRINT) Lindsay Dry REVIEWED BY (PRINT) Dennis Power

RELINQUISHED BY (Printed Name) Lindsay Dry (Signature) <i>[Signature]</i>	Date/Time 4/30/10 12:30	RECEIVED BY 14. Greene (Printed Name) (Signature) <i>[Signature]</i>	Date/Time 4/30/10 12:30
RELINQUISHED BY (Printed Name) (Signature)	Date/Time	RECEIVED BY (Printed Name) (Signature)	Date/Time

SAMPLE COLLECTION LOG/FIELD CHAIN OF CUSTODY

EVENT ID: 2725

EVENT NAME: 4th Qtr. Tritium Vapor Monitoring - CU 21-018(a)-99 - MDA V

SAMPLE ID: MD21-10-15388

WORK ORDER:

AS PLANNED		AS COLLECTED		AS PLANNED		AS COLLECTED	
DATE COLLECTED(MM/DD/YYYY):		4/30/2010		MEDIA:	NA		OK
TIME COLLECTED (HH:MM)		0800		SUB-MEDIA:	OTHER		
PRS ID:	21-018(a)-99	OK		SAMPLE TECH CODE:	VOST		
LOCATION ID:	21-24524W			FIELD QC TYPE:	NA		
LOCATION TYPE:	BH			FIELD PREP:	NA		
TOP DEPTH:	377.5			SAMPLE USAGE:	INV		
BOTTOM DEPTH:	382.5			SCREEN/PORT DESC:	graspable soil/gas implant, port #7		
FIELD MATRIX:	GAS			EXCAVATED: YES/NO	NA		
COMPOSITE TYPE:	NA			COMPOSITE TIME INTERVAL:	NA		
BOREHOLE: YES/NO	NO			WATER FLOWING: YES/NO	NA		
BOREHOLE DECLINATION:	vertical			BOREHOLE DIRECTION:	NA		

#	PRIORITY	ORDER	CNTNR	PRESERVATIVE	COLLECTED Y/N	SPECIAL INSTRUCTIONS
1	30 day	H3	1 EA SILICA GEL TUBE	None	Y	none

SAMPLE DESC: 4th Qtr. Tritium Vapor
 beginning: T = 61°F; rh = 27%; BP = 30.09" Hg; start = 1505, 4/27/10
 end: T = 32°F; rh = 75%; BP = 29.64" Hg; end = see above

SAMPLE COMMENTS:

mass of gel = 140.04g final mass = 601.52g
 initial mass = 431.98g 572.02g
 volume purged = 5459d

LOCATION DESC: 1st 4/30/10
 HSA Unstirred BH, port #7, 2bot

FIELD SCREENING/MEASUREMENT RESULTS:

NA

COLLECTED BY (PRINT) Lindsay Day REVIEWED BY (PRINT) Dennis Powell

RELINQUISHED BY (Printed Name) <u>Lindsay Day</u> (Signature) <u>[Signature]</u>	Date/Time <u>4/30/10</u> <u>12:30</u>	RECEIVED BY (Printed Name) <u>K. Greene</u> (Signature) <u>[Signature]</u>	Date/Time <u>4/30/10</u> <u>12:30</u>
RELINQUISHED BY (Printed Name) (Signature)	Date/Time	RECEIVED BY (Printed Name) (Signature)	Date/Time

SAMPLE COLLECTION LOG/FIELD CHAIN OF CUSTODY

EVENT ID: 2725

EVENT NAME: 4th Qtr. Tritium Vapor Monitoring - CU 21-018(a)-99 - MDA V

SAMPLE ID: MD21-10-15389

WORK ORDER:

AS PLANNED		AS COLLECTED		AS PLANNED		AS COLLECTED	
DATE COLLECTED(MM/DD/YYYY):		4/30/2010		MEDIA:	NA		NA
TIME COLLECTED (HH:MM)		0800		SUB-MEDIA:	OTHER		
PRS ID:	21-018(a)-99	OK		SAMPLE TECH CODE:	VOST		
LOCATION ID:	21-24524S			FIELD QC TYPE:	NA		
LOCATION TYPE:	BH			FIELD PREP:	NA		
TOP DEPTH:	677.5			SAMPLE USAGE:	INV		
BOTTOM DEPTH:	682.5			SCREEN/PORT DESC:	gas probe soil/gas implant, port #10		
FIELD MATRIX:	GAS			EXCAVATED: YES/NO/NA	NA		
COMPOSITE TYPE:	NA			COMPOSITE TIME INTERVAL:	NA		
				WATER FLOWING: YES/NO/NA	NA		
BOREHOLE: YES/NO/NA	YES	BOREHOLE DECLINATION:	North	BOREHOLE DIRECTION:	NA		

#	PRIORITY	ORDER	CNTNR	PRESERVATIVE	COLLECTED Y/N	SPECIAL INSTRUCTIONS
1	30 DAY	H3	1 EA SILICA GEL TUBE	None	Y	none

SAMPLE DESC: tritium vapor

beginning: $T = 61^{\circ}\text{F}$, $\text{rh} = 27\%$; BP = 30.09" Hg; start = 1505, 4/27/10
 end: $T = 32^{\circ}\text{F}$, $\text{rh} = 75\%$; BP = 29.64" Hg; end = see above

SAMPLE COMMENTS:

mass of gel = 130.37g final mass = 603.86g
 initial mass = 584.26g Volume purged = 10,928d

LOCATION DESC:

AR constructed BH, port #10, 260g

FIELD SCREENING/MEASUREMENT RESULTS:

NA

COLLECTED BY (PRINT) Lindsay Hay

REVIEWED BY (PRINT) Dennis Powell

RELINQUISHED BY (Printed Name) Lindsay Hay (Signature) <i>Lindsay Hay</i>	Date/Time 4/30/10 12:30	RECEIVED BY <i>K. Greene</i> (Printed Name) (Signature) <i>[Signature]</i>	Date/Time 4/30/10 12:30
RELINQUISHED BY (Printed Name) (Signature)	Date/Time	RECEIVED BY (Printed Name) (Signature)	Date/Time

SAMPLE COLLECTION LOG/FIELD CHAIN OF CUSTODY

EVENT ID: 2725

EVENT NAME: 4th Qtr. Tritium Vapor Monitoring - CU 21-018(a)-99 - MDA V

SAMPLE ID: MD21-10-15390

WORK ORDER:

AS PLANNED		AS COLLECTED		AS PLANNED		AS COLLECTED	
DATE COLLECTED(MM/DD/YYYY):		4/30/2010		MEDIA:		NA	
TIME COLLECTED (HH:MM)		0800		SUB-MEDIA:		OTHER	
PRS ID: 21-018(a)-99		02		SAMPLE TECH CODE:		VOST	
LOCATION ID: 21-24524S				FIELD QC TYPE:		NA	
LOCATION TYPE: BH				FIELD PREP:		NA	
TOP DEPTH: 712.5				SAMPLE USAGE:		INV	
BOTTOM DEPTH: 717.5				SCREEN/PORT DESC:		gas phase soil/gas implant, port #11	
FIELD MATRIX: GAS				EXCAVATED: YES/NO		NA	
COMPOSITE TYPE: NA		COMPOSITE TIME INTERVAL: NA		WATER FLOWING: YES/NO		NA	
BOREHOLE: YES/NO/NA		BOREHOLE DECLINATION: Vertical		BOREHOLE DIRECTION: NA			

#	PRIORITY	ORDER	CNTNR	PRESERVATIVE	COLLECTED Y/N	SPECIAL INSTRUCTIONS
1	30 DAY	H3	1 EA SILICA GEL TUBE	None	Y	none

SAMPLE DESC: tritium vapor

beginning: T = 61°F, rh = 27%; BP = 30.09" Hg; start = 1505, 4/27/10
 end: T = 32°F; rh = 75%; BP = 29.64" Hg; end = see above

SAMPLE COMMENTS:

mass of gel = 140.11g
 initial mass = 589.69g
 final mass = 630.33
 volume purged = 4714l

LOCATION DESC:

AR constructed BH, port #11, Tpt

FIELD SCREENING/MEASUREMENT RESULTS:

NA

COLLECTED BY (PRINT) Lindsay Hay REVIEWED BY (PRINT) Dennis Powell

RELINQUISHED BY (Printed Name) <u>Lindsay Hay</u> (Signature) <u>[Signature]</u>	Date/Time <u>4/30/10</u> <u>12:30</u>	RECEIVED BY (Printed Name) <u>K. Greene</u> (Signature) <u>[Signature]</u>	Date/Time <u>4/30/10</u> <u>12:30</u>
RELINQUISHED BY (Printed Name) (Signature)	Date/Time	RECEIVED BY (Printed Name) (Signature)	Date/Time

SAMPLE COLLECTION LOG/FIELD CHAIN OF CUSTODY

EVENT ID: 2725

EVENT NAME: 4th Qtr. Tritium Vapor Monitoring - CU 21-018(a)-99 - MDA V

SAMPLE ID: MD21-10-15391

WORK ORDER:

AS PLANNED		AS COLLECTED		AS PLANNED		AS COLLECTED	
DATE COLLECTED(MM/DD/YYYY):		4/30/2010		MEDIA:		NA	
TIME COLLECTED (HH:MM)		0800		SUB-MEDIA:		OTHER	
PRS ID: 21-018(a)-99		012		SAMPLE TECH CODE:		VOST	
LOCATION ID: UNK				FIELD QC TYPE:		FD	
LOCATION TYPE: GENERIC				FIELD PREP:		NA	
TOP DEPTH: 0				SAMPLE USAGE:		QC	
BOTTOM DEPTH: 0				SCREEN/PORT DESC:		probe soil/gas implant, port # 5	
FIELD MATRIX: GAS				EXCAVATED: YES/NO		NA	
COMPOSITE TYPE: NA		COMPOSITE TIME INTERVAL: NA		WATER FLOWING: YES/NO		NA	
BOREHOLE: YES/NO/NA		BOREHOLE DECLINATION: NA		BOREHOLE DIRECTION: NA			

#	PRIORITY	ORDER	CNTNR	PRESERVATIVE	COLLECTED Y/N	SPECIAL INSTRUCTIONS
1	30 DAY	H3	1 EA SILICA GEL TUBE	None	Y	none

SAMPLE DESC: QC Sample of sec below - tritium vapor

beginning: T = 61°F; rh = 2.7%; BP = 30.09" Hg; start = 1505, 4/27/10
 end: T = 32°F; rh = 75%; BP = 29.64" Hg; end = see above

SAMPLE COMMENTS:

mass of gel = 135.18g final mass = 623.80g
 initial mass = 572.63g volume purged = 6065 L

LOCATION DESC:

2btt
 HSA constructed BA, port # 5, FD sample collected in parallel with sample ID: MD21-10-15386
 FIELD SCREENING/MEASUREMENT RESULTS:

NA

COLLECTED BY (PRINT) Lindsey Ary

REVIEWED BY (PRINT) Dennis Powell

RELINQUISHED BY (Printed Name) Lindsey Ary (Signature) [Signature]	Date/Time 4/30/10 12:30	RECEIVED BY (Printed Name) K. Greene (Signature) [Signature]	Date/Time 4/30/10 12:30
RELINQUISHED BY (Printed Name) (Signature)	Date/Time	RECEIVED BY (Printed Name) (Signature)	Date/Time

DATA VALIDATION COVER SHEET**5119-1**

Records Use only

Data Validation Cover Sheet**Section I.**REQUEST NUMBER: 10-2984 VALIDATION DATE: 6/15/10 LAB CODE: ARSCONTRACT LABORATORY NAME: American Radiation ServicesVALIDATOR: Larry Fukui ORGANIZATION: Analytical Quality Associates, Inc.

ANALYTICAL SUITE (CHECK ALL THAT APPLY):

- | | | | |
|---|--|---|--|
| <input type="checkbox"/> TPH-GRO | <input type="checkbox"/> HIGH EXPLOSIVES | <input type="checkbox"/> DIOXIN FURANS | <input type="checkbox"/> LCMSMS PERCHLORATES |
| <input type="checkbox"/> TPH-DRO | <input type="checkbox"/> METALS | <input type="checkbox"/> PCB CONGENERS | <input type="checkbox"/> ORGANOCHLORINE |
| <input type="checkbox"/> GENERAL CHEMISTRY | <input checked="" type="checkbox"/> RADIOCHEMISTRY | <input type="checkbox"/> LCMSMS HIGH EXPLOSIVES | PESTICIDES/POLYCHLORINATED BIPHENYLS |
| <input type="checkbox"/> OTHER (DESCRIBE): <u>Tritium</u> | | | |

Section II. Completeness Check

- | YES | NO | N/A | (CHECK ONE) | YES | NO | N/A | (CHECK ONE) |
|-------------------------------------|--------------------------|-------------------------------------|-----------------------------|-------------------------------------|--------------------------|-------------------------------------|--------------------------|
| <input checked="" type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | 1. CHAIN-OF-CUSTODY FORM(S) | <input checked="" type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | 6. RAW/BSS DATA |
| <input checked="" type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | 2. CASE NARRATIVE | <input checked="" type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | 7. QUALITY CONTROL FORMS |
| <input checked="" type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | 3. SAMPLE RESULT FORMS | <input type="checkbox"/> | <input type="checkbox"/> | <input checked="" type="checkbox"/> | 8. QUANTITATION REPORTS |
| <input type="checkbox"/> | <input type="checkbox"/> | <input checked="" type="checkbox"/> | 4. SAMPLE CHROMATOGRAMS | <input type="checkbox"/> | <input type="checkbox"/> | <input checked="" type="checkbox"/> | 9. TICS FORMS |
| <input type="checkbox"/> | <input type="checkbox"/> | <input checked="" type="checkbox"/> | 5. STANDARD CHROMATOGRAMS | <input type="checkbox"/> | <input type="checkbox"/> | <input checked="" type="checkbox"/> | 10. TICS MASS SPECTRA |

Comments/problems noted (include information about requests for further information submitted to the contract laboratory and agreed-upon date of resolution and contract laboratory point of contact):

1. It should be noted that no MS or Duplicate samples were analyzed. However, an LCS and LCSD were analyzed, met acceptance criteria and, thus, no sample data were qualified, based on professional judgment.
2. It should be noted that the LCS/LCSD RER was originally calculated by the laboratory using the 1-sigma TPU values. Thus, the LCS/LCSD RER was hand-calculated using the 2-sigma TPU values and was found to be within specifications. No sample data were qualified as a result.

Reviewed by: Monica Dymerski **Level I** **Date:** 06/15/10VALIDATOR'S SIGNATURE: DATE: 6/15/10

RAD ANALYTICAL DATA VALIDATION CHECKLIST**5119-2****Rad Analytical Data Validation Checklist**

Records Use only



Yes No N/A (Check One)				Assign Qualifier Listed Below If Criterion = Yes	
				Non-detected Analyte	Detected Analyte
<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	1. The holding time was >1 and ≤2 times the applicable holding time requirement.	UJ, R9	J-, R9
<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	2. The holding time was >2 times the applicable holding time requirement.	R, R9a	J-, R9a
<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	3. The results for the affected analytes are considered not detected (U) because the associated sample concentration was less than or equal to the MDC.	U, R5	N/A
<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	4. The analyte should be regarded as rejected because spectral interferences prevent positive identification of the analytes.	R, R5a	R, R5a
<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	5. The MDC and/or TPU documentation is missing. Data may not be acceptable for use. Contact the SMO or external laboratory for information.	R, R5b	J-, R5b
<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	6. The results for the affected analytes should be regarded as not detected (U) because the associated sample concentration was less than 3X the 1 sigma TPU.	U, R11	N/A
<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	7. The sample result is ≤5X the concentration of the related analyte in the method blank.	U, R4	N/A
<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	8. The affected analytes are considered estimated and biased high because this analyte was identified in the method blank but was >5X.	N/A	J, R4a
<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	9. The sample result is ≤5X the concentration of the related analyte in the trip blank, rinsate blank, or equipment blank.	U, R4d	N/A
<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	10. Required method blank information is missing. Data may not be acceptable for use. Contact the SMO or external laboratory for information.	R, R4e	R, R4e
<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	11. The tracer is <10%R. Follow the external laboratory limits located within the associated data package. Tracer%R is not applicable for Gamma Spectroscopy.	R, R3	R, R3

RAD ANALYTICAL DATA VALIDATION CHECKLIST

5119-2

Rad Analytical Data Validation Checklist

Records Use only



Yes No N/A				Assign Qualifier Listed Below If Criterion = Yes	
(Check One)				Non-detected Analyte	Detected Analyte
<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	12. The tracer is < the Lower Acceptance Level (LAL) but $\geq 10\%R$. Follow the external laboratory limits located within the associated data package. Tracer%R is not applicable for Gamma Spectroscopy.	UJ, R3a	J-, R3a
<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	13. The Tracer%R value is > the Upper Acceptance Limit (UAL). Follow the external laboratory limits located within the associated data package. Tracer%R is not applicable for Gamma Spectroscopy.	N/A	J+, R3b
<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	14. Required tracer information is missing. Data may not be acceptable for use. Contact the SMO or external laboratory for information. Tracer%R is not applicable for Gamma Spectroscopy.	R, R3d	R, R3d
<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	15. The LCS percent recovery was <10%. Follow the external laboratory limits located within the associated data package.	R, R12	R, R12
<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	16. The LCS percent recovery was < the LAL but >10%. Follow the external laboratory limits located within the associated data package.	UJ, R12a	J-, R12a
<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	17. The LCS percent recovery was > the UAL. Follow the external laboratory limits located within the associated data package.	N/A	J+, R12b
<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	18. The LCS documentation is missing. Data may not be acceptable for use. Contact the SMO or external laboratory for information.	R, R12c	R, R12c
<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	19. Associated duplicate sample has DER or RER > the analytical laboratory's acceptance limits.	R, R10	J, J10
<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	20. The duplicate sample was not prepared and/or analyzed with the samples for unspecified reasons. The duplicate information is missing. Data may not be acceptable for use. Contact the SMO or external laboratory for information.	R, R6	R, R6

RAD ANALYTICAL DATA VALIDATION CHECKLIST

5119-2

Records Use only

Rad Analytical Data Validation Checklist



Yes No N/A (Check One)				Assign Qualifier Listed Below If Criterion = Yes	
				Non-detected Analyte	Detected Analyte
<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	21. The associated matrix spike recovery was <10%. Follow the external laboratory limits. MS/MSD is not applicable to Gamma Spectroscopy.	R, R6	R, R6
<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	22. The associated matrix spike recovery was <10%. Follow the external laboratory limits. MS/MSD is not applicable to Gamma Spectroscopy.	UJ, R6a	J-, R6a
<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	23. The associated matrix spike recovery was above the UAL. Follow the external laboratory limits. MS/MSD is not applicable to Gamma Spectroscopy.	UJ, R6b	J+, R6b
<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	24. Required matrix spike information is missing. Data may not be acceptable for use. Contact the SMO or external laboratory for information. If LCS information is present, do not Reject. Qualify data based on LCS information. MS/MSD is not applicable to Gamma Spectroscopy.	R, R6c	R, R6c
<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	25. Duplicate, dilution, or reanalysis.	UJ, R88	J, R88
<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	26. The LANL project chemist identified quality deficiencies in the reported data that require further qualification. This code can ONLY be used and/or under advisement by the LANL project chemist.	UJ, R, R19	J, R, R19
<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	27. Quantification of data via data validation did not occur based on Quality Control requirements in this procedure. Adhere to the external laboratory qualifiers found within the Form I analytical data summary sheets generated by the external laboratory.	U, U_LAB	J, J_LAB NQ, NQ



2609 North River Road, Port Allen, Louisiana 70767

1 (800) 401-4277 FAX (225) 381-2996

ARS Sample Delivery Group: ARS1-10-01011
Client Sample ID: MD21-10-15382
Sample Collection Date: 04/30/10
Sample Matrix: Silica

Request or PO Number: 10-2984
ARS Sample ID: ARS1-10-01011-001
Date Received: 05/04/10
Report Date: 06/08/10

Analysis Description	Analysis Results	Analysis Error +/- 1 s	MDC	DLC	Qual	Analysis Units	Analysis Test Method	Analysis Date/Time	Analysis Technician	Tracer/Chem Recovery
H-3	46012.448	2419.479	212.142	104.205		pCi/L	ARS-054/EPA 906.0	06/07/10 04:22	B5	N/A

NOTES: Project Cost Code MR8R032TNB00


Project Manager Review

Notes: American Radiation Services, Inc. assumes no liability for the use or interpretation of any analytical results provided other than the cost of the analysis itself. Reproduction of this report in less than full requires the written consent of the American Radiation Services, Inc.

LELAP Certificate# 01949

NELAP Certificate # E87558



2609 North River Road, Port Allen, Louisiana 70767

1 (800) 401-4277 FAX (225) 381-2996

ARS Sample Delivery Group: ARS1-10-01011

Client Sample ID: MD21-10-15383

Sample Collection Date: 04/30/10

Sample Matrix: Silica

Request or PO Number: 10-2984

ARS Sample ID: ARS1-10-01011-002

Date Received: 05/04/10

Report Date: 06/08/10

Analysis Description	Analysis Results	Analysis Error +/- 1 s	MDC	DLC	Qual	Analysis Units	Analysis Test Method	Analysis Date/Time	Analysis Technician	Tracer/Chem Recovery
H-3	14119.381	753.989	213.460	104.853		pCi/L	ARS-054/EPA 906.0	06/07/10 07:29	BS	N/A

NOTES: Project Cost Code MR8R032TNB00

SPL

Project Manager Review

Notes: American Radiation Services, Inc. assumes no liability for the use or interpretation of any analytical results provided other than the cost of the analysis itself. Reproduction of this report in less than full requires the written consent of the American Radiation Services, Inc.

LELAP Certificate# 01949

NELAP Certificate # EB7558



2609 North River Road, Port Allen, Louisiana 70767

1 (800) 401-4277 FAX (225) 381-2996

ARS Sample Delivery Group: ARS1-10-01011
Client Sample ID: MD21-10-15384
Sample Collection Date: 04/30/10
Sample Matrix: Silica

Request or PO Number: 10-2984
ARS Sample ID: ARS1-10-01011-003
Date Received: 05/04/10
Report Date: 06/08/10

Analysis Description	Analysis Results	Analysis Error +/- 1 s	MDC	DLC	Qual	Analysis Units	Analysis Test Method	Analysis Date/Time	Analysis Technician	Tracer/Client Recovery
H-3	13004.308	695.974	214.193	105.213		pCi/L	ARS-054/EPA 906.0	06/07/10 10:36	BS	N/A

NOTES: Project Cost Code MR8R032TNB00

SDL

Project Manager Review

Notes: American Radiation Services, Inc. assumes no liability for the use or interpretation of any analytical results provided other than the cost of the analysis itself. Reproduction of this report in less than full requires the written consent of the American Radiation Services, Inc.

LELAP Certificate # 01949

NELAP Certificate # E87558



2609 North River Road, Port Allen, Louisiana 70767

1 (800) 401-4277 FAX (225) 381-2996

ARS Sample Delivery Group: ARS1-10-01011
Client Sample ID: MD21-10-15385
Sample Collection Date: 04/30/10
Sample Matrix: Silica

Request or PO Number: 10-2984
ARS Sample ID: ARS1-10-01011-004
Date Received: 05/04/10
Report Date: 06/08/10

Analysis Description	Analysis Results	Analysis Error +/- 1 s	MDC	DLC	Qual	Analysis Units	Analysis Test Method	Analysis Date/Time	Analysis Technician	Tracer/Recovery
H-3	20535.692	1088.451	211.101	103.694		pCi/L	ARS-054/EPA 906.0	06/07/10 13:43	BS	N/A

NOTES: Project Cost Code MR8R032TNB00

SOL

Project Manager Review

Notes: American Radiation Services, Inc. assumes no liability for the use or interpretation of any analytical results provided other than the cost of the analysis itself. Reproduction of this report in less than full requires the written consent of the American Radiation Services, Inc.

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NELAP Certificate # E87558



2609 North River Road, Port Allen, Louisiana 70767

1 (800) 401-4277 FAX (225) 381-2996

ARS Sample Delivery Group: ARS1-10-01011
Client Sample ID: MD21-10-15386
Sample Collection Date: 04/30/10
Sample Matrix: Silica

Request or PO Number: 10-2984
ARS Sample ID: ARS1-10-01011-005
Date Received: 05/04/10
Report Date: 06/08/10

Analysis Description	Analysis Results	Analysis Error +/- 1 s	MDC	DLC	Qual	Analysis Units	Analysis Test Method	Analysis Date/Time	Analysis Technician	Tracer/Chem Recovery
H-3	56603.616	2973.013	211.822	104.048		pCi/L	ARS-054/EPA 906.0	06/07/10 16:50	BS	N/A

NOTES: Project Cost Code MR8R032TNB00

Project Manager Review

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LELAP Certificate # 01949

NELAP Certificate # E87558

LMF
6/15/10



2609 North River Road, Port Allen, Louisiana 70767

1 (800) 401-4277 FAX (225) 381-2996

ARS Sample Delivery Group: ARS1-10-01011
Client Sample ID: MD21-10-15387
Sample Collection Date: 04/30/10
Sample Matrix: Silica

Request or PO Number: 10-2984
ARS Sample ID: ARS1-10-01011-006
Date Received: 05/04/10
Report Date: 06/08/10

Analysis Description	Analysis Results	Analysis Error +/- 1 s	MDC	DLC	Qual	Analysis Units	Analysis Test Method	Analysis Date/Time	Analysis Technician	Tracer/Chem Recovery
H-3	8663.596	470.320	213.348	104.798		pCi/L	ARS-054/EPA 906.0	06/07/10 19:57	BS	N/A

NOTES: Project Cost Code MR8R032TNB00

SOL

Project Manager Review

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LELAP Certificate# 01949

NELAP Certificate # EB7558



2609 North River Road, Port Allen, Louisiana 70767

1 (800) 401-4277 FAX (225) 381-2996

ARS Sample Delivery Group: ARS1-10-01011
Client Sample ID: MD21-10-15388
Sample Collection Date: 04/30/10
Sample Matrix: Silica

Request or PO Number: 10-2984
ARS Sample ID: ARS1-10-01011-007
Date Received: 05/04/10
Report Date: 06/08/10

Analysis Description	Analysis Results	Analysis Error +/- 1 s	MDC	DLC	Qual	Analysis Units	Analysis Test Method	Analysis Date/Time	Analysis Technician	Tracer/Chemical Recovery
H-3	7778.340	424.561	214.021	105.128		pCi/L	ARS-054/EPA 906.0	06/07/10 23:04	BS	N/A

NOTES: Project Cost Code MR8R032TNB00

SPL

Project Manager Review

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LELAP Certificate# 01949

NELAP Certificate # E87558



2609 North River Road, Port Allen, Louisiana 70767

1 (800) 401-4277 FAX (225) 381-2996

ARS Sample Delivery Group: ARS1-10-01011
Client Sample ID: MD21-10-15389
Sample Collection Date: 04/30/10
Sample Matrix: Silica

Request or PO Number: 10-2984
ARS Sample ID: ARS1-10-01011-008
Date Received: 05/04/10
Report Date: 06/08/10

Analysis Description	Analysis Results	Analysis Error +/- 1 s	MDC	DLC	Qual	Analysis Units	Analysis Test Method	Analysis Date/Time	Analysis Technician	Tracer/Cl. Recover
H-3	1070.554	92.836	212.126	104.198		pCi/L	ARS-054/EPA 906.0	06/08/10 02:10	BS	N/A

NOTES: Project Cost Code MR8R032TNB00

SPL

Project Manager Review

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LELAP Certificate# 01949

NELAP Certificate # E87558



2609 North River Road, Port Allen, Louisiana 70767

1 (800) 401-4277 FAX (225) 381-2996

ARS Sample Delivery Group: ARS1-10-01011

Client Sample ID: MD21-10-15390

Sample Collection Date: 04/30/10

Sample Matrix: Silica

Request or PO Number: 10-2984

ARS Sample ID: ARS1-10-01011-009

Date Received: 05/04/10

Report Date: 06/08/10

Analysis Description	Analysis Results	Analysis Error +/- 1 s	MDC	DLC	Qual	Analysis Units	Analysis Test Method	Analysis Date/Time	Analysis Technician	Tracer/Chem Recovery
H-3	284.456	68.434	213.589	104.916		pCi/L	ARS-054/EPA 906.0	06/08/10 05:17	BS	N/A

NOTES: Project Cost Code MR8R032TNB00

SPR

Project Manager Review

Notes: American Radiation Services, Inc. assumes no liability for the use or interpretation of any analytical results provided other than the cost of the analysis itself. Reproduction of this report in less than full requires the written consent of the American Radiation Services, Inc.

LELAP Certificate# 01949

NELAP Certificate # E87558

LMF
6/15/10



2609 North River Road, Port Allen, Louisiana 70767

1 (800) 401-4277 FAX (225) 381-2996

ARS Sample Delivery Group: ARS1-10-01011
Client Sample ID: MD21-10-15391
Sample Collection Date: 04/30/10
Sample Matrix: Silica

Request or PO Number: 10-2984
ARS Sample ID: ARS1-10-01011-010
Date Received: 05/04/10
Report Date: 06/08/10

Analysis Description	Analysis Results	Analysis Error +/- 1 s	MDC	DLC	Qual	Analysis Units	Analysis Test Method	Analysis Date/Time	Analysis Technician	Tracer/Check Recovery
H-3	63639.776	3340.918	213.703	104.972		pCi/L	ARS-054/EPA 906.0	06/08/10 08:24	BS	N/A

NOTES: Project Cost Code MR8R032TNB00

SR

Project Manager Review

Notes: American Radiation Services, Inc. assumes no liability for the use or interpretation of any analytical results provided other than the cost of the analysis itself. Reproduction of this report in less than full requires the written consent of the American Radiation Services, Inc.

LELAP Certificate# 01949

NELAP Certificate # E87558

Monday, May 03, 2010

LAB CHAIN OF CUSTODY DOCUMENT NUMBER: 10-2984

LOS ALAMOS

REQUEST NUMBER: 10-2984

NATIONAL LABORATORY

ATTN: Danny Coleman

TURNAROUND/REPORT DUE: 6/2/2010

American Radiation Services - Primary

TURNAROUND REQ'D: 30

1726 Wooddale Court

Baton Rouge, LA 70806

LAB REQUEST COMMENTS:

SAMPLE ID	CTNR	CTNR DESC	ORDER	PRESERV	MATRIX
MD21-10-15390	1	SILICA GEL TUBE	H3	None	GAS
MD21-10-15384	1	SILICA GEL TUBE	H3	None	GAS
MD21-10-15382	1	SILICA GEL TUBE	H3	None	GAS
MD21-10-15388	1	SILICA GEL TUBE	H3	None	GAS
MD21-10-15387	1	SILICA GEL TUBE	H3	None	GAS
MD21-10-15385	1	SILICA GEL TUBE	H3	None	GAS
MD21-10-15389	1	SILICA GEL TUBE	H3	None	GAS
MD21-10-15386	1	SILICA GEL TUBE	H3	None	GAS
MD21-10-15383	1	SILICA GEL TUBE	H3	None	GAS
MD21-10-15391	1	SILICA GEL TUBE	H3	None	GAS

Relinquished By:

Date

Time

Received By:

Date

Time

Printed Name

Signature

Printed Name

Signature

Printed Name

Signature

Printed Name

Signature

Printed Name

Signature

Printed Name

Signature

Received for DISPOSAL By:

Date

Time

Remarks:

Printed Name

Signature

Monday, May 03, 2010

LOS ALAMOS
NATIONAL LABORATORY

REQUEST NUMBER: 10-2984

ATTN: Danny Coleman

American Radiation Services - Primary
1726 Wooddale Court
Baton Rouge, LA 70806

These Samples are on:

LANL Request Number: 10-2984
Per Agreement Number: 63641-001-10
Project Cost Code: MR8R032TNB00Please analyse the enclosed samples
according to the schedule indicated:

SHIP DATE: 5/3/2010

TURNAROUND/REPORT DUE: 6/2/2010

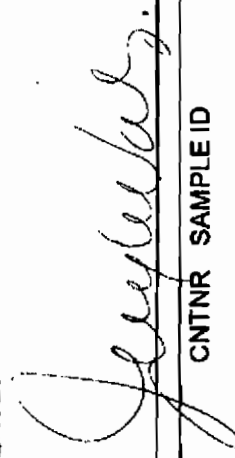
TURNAROUND REQ'D: 30 Days

RAD SCREENING: Not Required

LAB REQUEST COMMENTS:

LANL ER SMO CONTACT:

Signature:



PRIORITY	METHOD CODE	CNTNR	SAMPLE ID	SAMPLE MATRIX	DATE SAMPLED	SPECIAL INSTRUCTIONS
	EPA-906.0	1	MD21-10-15382	GAS	4/30/2010	
		1	MD21-10-15383	GAS	4/30/2010	
		1	MD21-10-15384	GAS	4/30/2010	
		1	MD21-10-15385	GAS	4/30/2010	
		1	MD21-10-15386	GAS	4/30/2010	
		1	MD21-10-15387	GAS	4/30/2010	
		1	MD21-10-15388	GAS	4/30/2010	
		1	MD21-10-15389	GAS	4/30/2010	
		1	MD21-10-15390	GAS	4/30/2010	



2609 North River Road • Port Allen, Louisiana 70767

1 (800) 401-4277 • Fax (225) 381-2996

American Radiation Services Analytical Reports

for

Los Alamos National Laboratory

Request Number: 10-2984



2609 North River Road • Port Allen, Louisiana 70767

1 (800) 401-4277 • Fax (225) 381-2996

American Radiation Services Analytical Reports

for

**Los Alamos National Laboratory
Request Number: 10-2984**

Original COC

REQUEST NUMBER: 10-2984

**LOS ALAMOS
NATIONAL LABORATORY**

ATTN: Danny Coleman

American Radiation Services - Primary

1726 Wooddale Court

Baton Rouge, LA 70806

Please analyse the enclosed samples according to the schedule indicated:

SHIP DATE: 5/3/2010

TURNAROUND/REPORT DUE: 6/2/2010

TURNAROUND REQ'D: 30 Days

RAD SCREENING: Not Required

LAB REQUEST COMMENTS:

LANL ER SMO CONTACT:

Signature:

September 27.

PRIORITY	METHOD CODE	CNTR	SAMPLE ID	SAMPLE MATRIX	DATE SAMPLED	SPECIAL INSTRUCTIONS
	EPA 906.0	1	MD21-10-15382	GAS	4/30/2010	
		1	MD21-10-15383	GAS	4/30/2010	
		1	MD21-10-15384	GAS	4/30/2010	
		1	MD21-10-15385	GAS	4/30/2010	
		1	MD21-10-15386	GAS	4/30/2010	
		1	MD21-10-15387	GAS	4/30/2010	
		1	MD21-10-15388	GAS	4/30/2010	
		1	MD21-10-15389	GAS	4/30/2010	
		1	MD21-10-15390	GAS	4/30/2010	

Monday, May 03, 2010

LAB CHAIN OF CUSTODY DOCUMENT NUMBER: 10-2984C

LOS ALAMOS

REQUEST NUMBER: 10-2984

NATIONAL LABORATORY

ATTN: Danny Coleman

TURNAROUND/REPORT DUE: 6/2/2010

American Radiation Services - Primary

TURNAROUND REQ'D: 30

1726 Wooddale Court

Baton Rouge, LA 70806

LAB REQUEST COMMENTS:

SAMPLE ID	CTNR	CTNR DESC	ORDER	PRESERV	MATRIX
MD21-10-15390	1	SILICA GEL TUBE	H3	None	GAS
MD21-10-15384	1	SILICA GEL TUBE	H3	None	GAS
MD21-10-15382	1	SILICA GEL TUBE	H3	None	GAS
MD21-10-15388	1	SILICA GEL TUBE	H3	None	GAS
MD21-10-15387	1	SILICA GEL TUBE	H3	None	GAS
MD21-10-15385	1	SILICA GEL TUBE	H3	None	GAS
MD21-10-15389	1	SILICA GEL TUBE	H3	None	GAS
MD21-10-15386	1	SILICA GEL TUBE	H3	None	GAS
MD21-10-15383	1	SILICA GEL TUBE	H3	None	GAS
MD21-10-15391	1	SILICA GEL TUBE	H3	None	GAS

Relinquished By:

Date

Time

Received By:

Date

Time

Printed Name

Signature

Printed Name

Signature

Printed Name

Signature

Printed Name

Signature

Printed Name

Signature

Printed Name

Signature

Received for DISPOSAL By: Date

Time

Remarks:

Printed Name

Signature



2609 North River Road • Port Allen, Louisiana 70767

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American Radiation Services Analytical Reports

for

**Los Alamos National Laboratory
Request Number: 10-2984**

Case Narrative



2609 North River Road • Port Allen, Louisiana 70767

1 (800) 401-4277 • Fax (225) 381-2996

June 8, 2010

LANL
Keith Greene
PO Box 1663 MS M992
Los Alamos, NM 87545

Request Number: 10-2984

LANL Sample ID: MD21-10-15382; MD21-10-15383; MD21-10-15384; MD21-10-15385; MD21-10-15386;
MD21-10-15387; MD21-10-15388; MD21-10-15389; MD21-10-15390; MD21-10-15391.

Dear Mr. Greene;

On May 4, 2010, ARS International received ten (10) Silica Gel samples to be analyzed for Tritium.

The samples were processed and counted using the appropriate counting equipment and QA/QC for this type of analysis. Results of the analysis and QA/QC are attached in the data package.

The client and QA/QC samples were counted with a count time sufficient to meet quality control parameters for counting equipment and were within acceptance criteria and statistical sound detection limits.

If you have any questions please do not hesitate to call at 225.381.2991 or email LANL@amrad.com.

Sincerely,

A handwritten signature in cursive script, appearing to read 'Eugene Mulligan', is written over the typed name.

Laboratory Management
ARS International



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COVER PAGE

PROJECT SAMPLE IDENTIFICATION CROSS-REFERENCE TO ARS SAMPLE LABORATORY IDs

Subcontract (LANL Agreement Number) 63641-001-10

Request Number	LANL PROJECT SAMPLE ID NUMBER	American Radiation Services SAMPLE ID NUMBER(S)
10-2984	MD21-10-15382	ARS1-10-01011-001
10-2984	MD21-10-15383	ARS1-10-01011-002
10-2984	MD21-10-15384	ARS1-10-01011-003
10-2984	MD21-10-15385	ARS1-10-01011-004
10-2984	MD21-10-15386	ARS1-10-01011-005
10-2984	MD21-10-15387	ARS1-10-01011-006
10-2984	MD21-10-15388	ARS1-10-01011-007
10-2984	MD21-10-15389	ARS1-10-01011-008
10-2984	MD21-10-15390	ARS1-10-01011-009
10-2984	MD21-10-15391	ARS1-10-01011-010

ANALYTICAL METHODS

Tritium analyses were performed using EPA 906.0.

ANALYTICAL RESULTS

The result data that are flagged with "U" indicate that the activity is below the MDC.



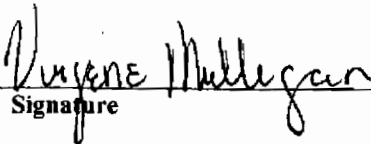
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American Radiation Services Project Manager/Laboratory Director's Comments:

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

"I certify that this electronic image and all hardcopies produced from this image accurately represent the data and is in compliance with the LANL specific requirements, both technically and for completeness, other than the conditions detailed above or in the sample data package narrative. Release, by submission through email, the data contained in this electronic image and the computer-readable EDD (as applicable), has been authorized by the laboratory Manager/Technical Director or the Manager's designee."


Signature

Laboratory Management, ARS International

Title

6-8-10

Date



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American Radiation Services Analytical Reports

for

Los Alamos National Laboratory

Tritium by Low Level Liquid Scintillation Counting



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1 (800) 401-4277 FAX (225) 381-2996

ARS Sample Delivery Group: ARS1-10-01011

Client Sample ID: MD21-10-15382

Sample Collection Date: 04/30/10

Sample Matrix: Silica

Request or PO Number: 10-2984

ARS Sample ID: ARS1-10-01011-001

Date Received: 05/04/10

Report Date: 06/08/10

Analysis Description	Analysis Results	Analysis Error +/- 1 s	MDC	DLC	Qual	Analysis Units	Analysis Test Method	Analysis Date/Time	Analysis Technician	Tracer/Chem Recovery
H-3	46012.448	2419.479	212.142	104.205		pCi/L	ARS-054/EPA 906.0	06/07/10 04:22	BS	N/A

NOTES: Project Cost Code MR8R032TNB00


Project Manager Review

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LELAP Certificate# 01949

NELAP Certificate # E87558



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1 (800) 401-4277 FAX (225) 381-2996

ARS Sample Delivery Group: ARS1-10-01011
Client Sample ID: MD21-10-15383
Sample Collection Date: 04/30/10
Sample Matrix: Silica

Request or PO Number: 10-2984
ARS Sample ID: ARS1-10-01011-002
Date Received: 05/04/10
Report Date: 06/08/10

Analysis Description	Analysis Results	Analysis Error +/- 1 s	MDC	DLC	Qual	Analysis Units	Analysis Test Method	Analysis Date/Time	Analysis Technician	Tracer/Chem Recovery
H-3	14119.381	753.989	213.460	104.853		pCi/L	ARS-054/EPA 906.0	06/07/10 07:29	BS	N/A

NOTES: Project Cost Code MR8R032TNB00

SOL

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1 (800) 401-4277 FAX (225) 381-2996

ARS Sample Delivery Group: ARS1-10-01011
Client Sample ID: MD21-10-15384
Sample Collection Date: 04/30/10
Sample Matrix: Silica

Request or PO Number: 10-2984
ARS Sample ID: ARS1-10-01011-003
Date Received: 05/04/10
Report Date: 06/08/10

Analysis Description	Analysis Results	Analysis Error +/- 1 s	MDC	DLC	Qual	Analysis Units	Analysis Test Method	Analysis Date/Time	Analysis Technician	Tracer/Client Recovery
H-3	13004.308	695.974	214.193	105.213		pCi/L	ARS-054/EPA 906.0	06/07/10 10:36	BS	N/A

NOTES: Project Cost Code MR8R032TNB00

SDH

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NELAP Certificate # E87558



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1 (800) 401-4277 FAX (225) 381-2996

ARS Sample Delivery Group: ARS1-10-01011
Client Sample ID: MD21-10-15385
Sample Collection Date: 04/30/10
Sample Matrix: Silica

Request or PO Number: 10-2984
ARS Sample ID: ARS1-10-01011-004
Date Received: 05/04/10
Report Date: 06/08/10

Analysis Description	Analysis Results	Analysis Error +/- 1 s	MDC	DLC	Qual	Analysis Units	Analysis Test Method	Analysis Date/Time	Analysis Technician	Tracer/Chem Recovery
H-3	20535.692	1088.451	211.101	103.694		pCi/L	ARS-054/EPA 906.0	06/07/10 13:43	BS	N/A

NOTES: Project Cost Code MR8R032TNB00

SPL

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NELAP Certificate # E87558



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ARS Sample Delivery Group: ARS1-10-01011
Client Sample ID: MD21-10-15386
Sample Collection Date: 04/30/10
Sample Matrix: Silica

Request or PO Number: 10-2984
ARS Sample ID: ARS1-10-01011-005
Date Received: 05/04/10
Report Date: 06/08/10

Analysis Description	Analysis Results	Analysis Error +/- 1 s	MDC	DLC	Qual	Analysis Units	Analysis Test Method	Analysis Date/Time	Analysis Technician	Tracer/Chem Recovery
H-3	56603.616	2973.013	211.822	104.048		pCi/L	ARS-054/EPA 906.0	06/07/10 16:50	BS	N/A

NOTES: Project Cost Code MR8R032TNB00

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ARS Sample Delivery Group: ARS1-10-01011
Client Sample ID: MD21-10-15387
Sample Collection Date: 04/30/10
Sample Matrix: Silica

Request or PO Number: 10-2984
ARS Sample ID: ARS1-10-01011-006
Date Received: 05/04/10
Report Date: 06/08/10

Analysis Description	Analysis Results	Analysis Error +/- 1 s	MDC	DLC	Qual	Analysis Units	Analysis Test Method	Analysis Date/Time	Analysis Technician	Tracer/Chem Recovery
H-3	8663.596	470.320	213.348	104.798		pCi/L	ARS-054/EPA 906.0	06/07/10 19:57	BS	N/A

NOTES: Project Cost Code MRSR032TNB00


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NELAP Certificate # E8755B



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ARS Sample Delivery Group: ARS1-10-01011
Client Sample ID: MD21-10-15388
Sample Collection Date: 04/30/10
Sample Matrix: Silica

Request or PO Number: 10-2984
ARS Sample ID: ARS1-10-01011-007
Date Received: 05/04/10
Report Date: 06/08/10

Analysis Description	Analysis Results	Analysis Error +/- 1 s	MDC	DLC	Qual	Analysis Units	Analysis Test Method	Analysis Date/Time	Analysis Technician	Tracer/Chem Recovery
H-3	7779.340	424.561	214.021	105.128		pCi/L	ARS-054/EPA 906.0	06/07/10 23:04	BS	N/A

NOTES: Project Cost Code MR8R032TNB00

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NELAP Certificate # E87558



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ARS Sample Delivery Group: ARS1-10-01011
Client Sample ID: MD21-10-15389
Sample Collection Date: 04/30/10
Sample Matrix: Silica

Request or PO Number: 10-2984
ARS Sample ID: ARS1-10-01011-008
Date Received: 05/04/10
Report Date: 06/08/10

Analysis Description	Analysis Results	Analysis Error +/- 1 s	MDC	DLC	Qual	Analysis Units	Analysis Test Method	Analysis Date/Time	Analysis Technician	Tracer/Chem Recovery
H-3	1070.554	92.836	212.126	104.198		pCi/L	ARS-054/EPA 906.0	06/08/10 02:10	BS	N/A

NOTES: Project Cost Code MR8R032TNB00

SPL

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ARS Sample Delivery Group: ARS1-10-01011

Client Sample ID: MD21-10-15390

Sample Collection Date: 04/30/10

Sample Matrix: Silica

Request or PO Number: 10-2984

ARS Sample ID: ARS1-10-01011-009

Date Received: 05/04/10

Report Date: 06/08/10

Analysis Description	Analysis Results	Analysis Error +/- 1 s	MDC	DLC	Qual	Analysis Units	Analysis Test Method	Analysis Date/Time	Analysis Technician	Tracer/Chem Recovery
H-3	284.456	68.434	213.589	104.916		pCi/L	ARS-054/EPA 906.0	06/08/10 05:17	BS	N/A

NOTES: Project Cost Code MR8R032TN800

SPR

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ARS Sample Delivery Group: ARS1-10-01011

Client Sample ID: MD21-10-15391

Sample Collection Date: 04/30/10

Sample Matrix: Silica

Request or PO Number: 10-2984

ARS Sample ID: ARS1-10-01011-010

Date Received: 05/04/10

Report Date: 06/08/10

Analysis Description	Analysis Results	Analysis Error +/- 1 s	MDC	DLC	Qual	Analysis Units	Analysis Test Method	Analysis Date/Time	Analysis Technician	Tracer/Chem Recovery
H-3	63639.776	3340.918	213.703	104.972		pCi/L	ARS-054/EPA 906.0	06/08/10 08:24	BS	N/A

NOTES: Project Cost Code MR8R032TNB00

SOL

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QC Results per Analytical Batch

Analytical Batch	ARS1-B10-02636
SDG	ARS1-10-01011
Analysis	Tritium
Analysis Test Method	ARS-054/Liquid Scintillation Counter
Analysis Code	LSC-A-001
Report Units	pCi/L

Acceptable QC Performance Ranges

QC Sample Type	Performance Items and Ranges		
Laboratory Control Sample	Recovery (%):	> 80	< 120
Matrix Spike	Recovery (%):	> 75	< 125
Duplicate	Replicate Error Ratio (RER):	< 1	
	Duplicate Error Ratio (DER):	< 3	
	Relative Percent Difference (RPD %):	≤ 25	

Laboratory Control Sample			Analysis Date	06/05/10 11:54	Analysis Technician	MHARB	
Analysis Batch Sample ID	QC Type	Analyte	Results	CSU (1s)	Expected Value	LCS Rec (%)	MDC
ARS1-B10-02636-01	LCS	H-3	2.52	0.16	2.48	102	0.21

Duplicate RER/DER/RPD			Analysis Date	06/05/10 15:00	Analysis Technician	MHARB	
Analyte	Result LCS	CSU LCS (1s)	Results LCSD	CSU LCSD (1s)	RER	DER	RPD
H-3	2.52	0.16	2.39	0.15	0.21	0.59	5.3

Method Blank			Analysis Date	06/05/10 18:07	Analysis Technician	MHARB	
Analysis Batch Sample ID	QC Type	Analyte	Results	CSU (1s)	MDC	Qual	
ARS1-B10-02636-03	MBL	H-3	39	63	210	U	

Susan Leese

6-8-10

Susan Leese

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American Radiation Services Analytical Reports

for

Los Alamos National Laboratory

Tritium

by

Low Level Liquid Scintillation Counting

Samples



LSC Instrument Data Transfer Report

\\PACAR03170_NEW\Results\ARS1-B10-02636-23

Batch Sample ID: ARS1-B10-02636										Non-Bkg Samples Transferred: 23										Samples Eligible To Save: 23										LSC 2																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																															
LINS	LSC	LSC	LSC	LSC	LSC	LSC	LSC	LSC	LSC	LSC	LSC	LSC	LSC	LSC	LSC	LSC	LSC	LSC	LSC	LSC	LSC	LSC	LSC	LSC	LSC	LSC	LSC	LSC	LSC	LSC	LSC	LSC	LSC	LSC	LSC	LSC	LSC	LSC	LSC	LSC	LSC	LSC	LSC	LSC	LSC	LSC	LSC	LSC	LSC	LSC	LSC	LSC	LSC	LSC	LSC	LSC	LSC	LSC	LSC	LSC	LSC	LSC	LSC	LSC	LSC	LSC	LSC	LSC	LSC	LSC	LSC	LSC	LSC	LSC	LSC	LSC	LSC	LSC	LSC	LSC	LSC	LSC	LSC	LSC	LSC	LSC	LSC	LSC	LSC	LSC	LSC	LSC	LSC	LSC	LSC	LSC	LSC	LSC	LSC	LSC	LSC	LSC	LSC	LSC	LSC	LSC	LSC	LSC	LSC	LSC	LSC	LSC	LSC	LSC	LSC	LSC	LSC	LSC	LSC	LSC	LSC	LSC	LSC	LSC	LSC	LSC	LSC	LSC	LSC	LSC	LSC	LSC	LSC	LSC	LSC	LSC	LSC	LSC	LSC	LSC	LSC	LSC	LSC	LSC	LSC	LSC	LSC	LSC	LSC	LSC	LSC	LSC	LSC	LSC	LSC	LSC	LSC	LSC	LSC	LSC	LSC	LSC	LSC	LSC	LSC	LSC	LSC	LSC	LSC	LSC	LSC	LSC	LSC	LSC	LSC	LSC	LSC	LSC	LSC	LSC	LSC	LSC	LSC	LSC	LSC	LSC	LSC	LSC	LSC	LSC	LSC	LSC	LSC	LSC	LSC	LSC	LSC	LSC	LSC	LSC	LSC	LSC	LSC	LSC	LSC	LSC	LSC	LSC	LSC	LSC	LSC	LSC	LSC	LSC	LSC	LSC	LSC	LSC	LSC	LSC	LSC	LSC	LSC	LSC	LSC	LSC	LSC	LSC	LSC	LSC	LSC	LSC	LSC	LSC	LSC	LSC	LSC	LSC	LSC	LSC	LSC	LSC	LSC	LSC	LSC	LSC	LSC	LSC	LSC	LSC	LSC	LSC	LSC	LSC	LSC	LSC	LSC	LSC	LSC	LSC	LSC	LSC	LSC	LSC	LSC	LSC	LSC	LSC	LSC	LSC	LSC	LSC	LSC	LSC	LSC	LSC	LSC	LSC	LSC	LSC	LSC	LSC	LSC	LSC	LSC	LSC	LSC	LSC	LSC	LSC	LSC	LSC	LSC	LSC	LSC	LSC	LSC	LSC	LSC	LSC	LSC	LSC	LSC	LSC	LSC	LSC	LSC	LSC	LSC	LSC	LSC	LSC	LSC	LSC	LSC	LSC	LSC	LSC	LSC	LSC	LSC	LSC	LSC	LSC	LSC	LSC	LSC	LSC	LSC	LSC	LSC	LSC	LSC	LSC	LSC	LSC	LSC	LSC	LSC	LSC	LSC	LSC	LSC	LSC	LSC	LSC	LSC	LSC	LSC	LSC	LSC	LSC	LSC	LSC	LSC	LSC	LSC	LSC	LSC	LSC	LSC	LSC	LSC	LSC	LSC	LSC	LSC	LSC	LSC	LSC	LSC	LSC	LSC	LSC	LSC	LSC	LSC	LSC	LSC	LSC	LSC	LSC	LSC	LSC	LSC	LSC	LSC	LSC	LSC	LSC	LSC	LSC	LSC	LSC	LSC	LSC	LSC	LSC	LSC	LSC	LSC	LSC	LSC	LSC	LSC	LSC	LSC	LSC	LSC	LSC	LSC	LSC	LSC	LSC	LSC	LSC	LSC	LSC	LSC	LSC	LSC	LSC	LSC	LSC	LSC	LSC	LSC	LSC	LSC	LSC	LSC	LSC	LSC	LSC	LSC	LSC	LSC	LSC	LSC	LSC	LSC	LSC	LSC	LSC	LSC	LSC	LSC	LSC	LSC	LSC	LSC	LSC	LSC	LSC	LSC	LSC	LSC	LSC	LSC	LSC	LSC	LSC	LSC	LSC	LSC	LSC	LSC	LSC	LSC	LSC	LSC	LSC	LSC	LSC	LSC	LSC	LSC	LSC	LSC	LSC	LSC	LSC	LSC	LSC	LSC	LSC	LSC	LSC	LSC	LSC	LSC	LSC	LSC	LSC	LSC	LSC	LSC	LSC	LSC	LSC	LSC	LSC	LSC	LSC	LSC	LSC	LSC	LSC	LSC	LSC	LSC	LSC	LSC	LSC	LSC	LSC	LSC	LSC	LSC	LSC	LSC	LSC	LSC	LSC	LSC	LSC	LSC	LSC	LSC	LSC	LSC	LSC	LSC	LSC	LSC	LSC	LSC	LSC	LSC	LSC	LSC	LSC	LSC	LSC	LSC	LSC	LSC	LSC	LSC	LSC	LSC	LSC	LSC	LSC	LSC	LSC	LSC	LSC	LSC	LSC	LSC	LSC	LSC	LSC	LSC	LSC	LSC	LSC	LSC	LSC	LSC	LSC	LSC	LSC	LSC	LSC	LSC	LSC	LSC	LSC	LSC	LSC	LSC	LSC	LSC	LSC	LSC	LSC	LSC	LSC	LSC	LSC	LSC	LSC	LSC	LSC	LSC	LSC	LSC	LSC	LSC	LSC	LSC	LSC	LSC	LSC	LSC	LSC	LSC	LSC	LSC	LSC	LSC	LSC	LSC	LSC	LSC	LSC	LSC	LSC	LSC	LSC	LSC	LSC	LSC	LSC	LSC	LSC	LSC	LSC	LSC	LSC	LSC	LSC	LSC	LSC	LSC	LSC	LSC	LSC	LSC	LSC	LSC	LSC	LSC	LSC	LSC	LSC	LSC	LSC	LSC	LSC	LSC	LSC	LSC	LSC	LSC	LSC	LSC	LSC	LSC	LSC	LSC	LSC	LSC	LSC	LSC	LSC	LSC	LSC	LSC	LSC	LSC	LSC	LSC	LSC	LSC	LSC	LSC	LSC	LSC	LSC	LSC	LSC	LSC	LSC	LSC	LSC	LSC	LSC	LSC	LSC	LSC	LSC	LSC	LSC	LSC	LSC	LSC	LSC	LSC	LSC	LSC	LSC	LSC	LSC	LSC	LSC	LSC	LSC	LSC	LSC	LSC	LSC	LSC	LSC	LSC	LSC	LSC	LSC	LSC	LSC	LSC	LSC	LSC	LSC	LSC	LSC	LSC	LSC	LSC	LSC	LSC	LSC	LSC	LSC	LSC	LSC	LSC	LSC	LSC	LSC	LSC	LSC	LSC	LSC	LSC	LSC	LSC	LSC	LSC	LSC	LSC	LSC	LSC	LSC	LSC	LSC	LSC	LSC	LSC	LSC	LSC	LSC	LSC	LSC	LSC	LSC	LSC	LSC	LSC	LSC	LSC	LSC	LSC	LSC	LSC	LSC	LSC	LSC	LSC	LSC	LSC	LSC	LSC	LSC	LSC	LSC	LSC	LSC	LSC	LSC	LSC	LSC	LSC	LSC	LSC	LSC	LSC	LSC	LSC	LSC	LSC	LSC	LSC	LSC	LSC	LSC	LSC	LSC	LSC	LSC	LSC	LSC	LSC	LSC	LSC	LSC	LSC	LSC	LSC	LSC	LSC	LSC	LSC	LSC	LSC	LSC	LSC	LSC	LSC	LSC	LSC	LSC	LSC	LSC	LSC	LSC	LSC	LSC	LSC	LSC	LSC	LSC	LSC	LSC	LSC	LSC	LSC	LSC	LSC	LSC	LSC	LSC	LSC	LSC	LSC	LSC	LSC	LSC	LSC	LSC	LSC	LSC	LSC	LSC	LSC	LSC	LSC	LSC	LSC	LSC	LSC	LSC	LSC	LSC	LSC	LSC	LSC	LSC	LSC	LSC	LSC	LSC	LSC	LSC	LSC	LSC	LSC	LSC	LSC	LSC	LSC	LSC	LSC	LSC	LSC	LSC	LSC	LSC	LSC	LSC	LSC	LSC	LSC	LSC	LSC	LSC	LSC	LSC	LSC	LSC	LSC	LSC	LSC	LSC	LSC	LSC	LSC	LSC	LSC	LSC	LSC	LSC	LSC	LSC	LSC	LSC	LSC	LSC	LSC	LSC	LSC	LSC	LSC	LSC	LSC	LSC	LSC	LSC	LSC	LSC	LSC	LSC	LSC	LSC	LSC	LSC	LSC	LSC	LSC	LSC	LSC	LSC	LSC	LSC	LSC	LSC	LSC	LSC	LSC	LSC	LSC	LSC	LSC	LSC	LSC	LSC	LSC	LSC	LSC	LSC	LSC	LSC	LSC	LSC	LSC	LSC	LSC	LSC	LSC	LSC	LSC	LSC	LSC	LSC	LSC	LSC	LSC	LSC	LSC	LSC	LSC	LSC	LSC	LSC	LSC	LSC	LSC	LSC	LSC	LSC	LSC	LSC	LSC	LSC	LSC	LSC	LSC	LSC	LSC	LSC	LSC	LSC	LSC	LSC	LSC	LSC	LSC	LSC	LSC	LSC	LSC	LSC	LSC	LSC	LSC	LSC	LSC	LSC	LSC	LSC	LSC	LSC	LSC	LSC	LSC	LSC	LSC	LSC	LSC	LSC	LSC	LSC	LSC	LSC	LSC	LSC	LSC	LSC	LSC	LSC	LSC	LSC	LSC	LSC	LSC	LSC	LSC	LSC	LSC	LSC	LSC	LSC	LSC	LSC	LSC	LSC	LSC	LSC	LSC	LSC	LSC	LSC	LSC	LSC	LSC	LSC	LSC	LSC	LSC	LSC	LSC	LSC	LSC	LSC	LSC	LSC	LSC	LSC	LSC	LSC	LSC	LSC	LSC	LSC	LSC	LSC	LSC	LSC	LSC

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Procedure		ARS-054	
Variable	Value		
Gross Count Rate	15.510000		
Sample Count Mins	180.000000		
BKG Count Rate	5.880000		
BKG Count Mins	180.000000		
Instrument Efficiency	0.361900		
Sample Aliquot	5.010000		
Dilution Factor	1.000000		
Aliquot Conversion Factor	1.000000		
Sample Collection Date (t1)	6/5/10 3:00 PM		
Count Date (t2)	6/5/10 3:00 PM		
Activity Units - pCi --- LCF ---	2.2200		
CF	1.9600		
Nuclide Abundance	1.000000		
Half-life Days 1 - Result Isotope	4499.800000		
TPUF_Calibration Factor	0.041330		
TPUF_Aliquoting Factor	0.020000		
TPUF_Yield Factor	0.000000		
TPUF_Decay Ingrowth Factor	0.025000		
TPUF_Analysis Factor	0.000000		
TPUF_Unassigned Factor	0.000000		
Activity Units	pCi		
Aliquot Units	L		
Variables Intact Test		OK	

Isotope	H-3		
Calculated Values	Excel	VBA	V/V
ACT	2.392473	2.392473	OK
CU	0.167880	0.167880	OK
TPU	0.297114	0.297114	OK
MDA	0.212662	0.212662	OK
DL	0.104461	0.104461	OK
Net Count Rate	9.630000	9.630000	OK
D t 1 (t2 - t1)	0.000000	0.000000	OK
DF	1.000000	1.000000	OK
Sys Err	0.052280	0.052280	OK
K	4.025124	4.025124	OK
K MDA	724.522352	724.522352	OK
Batch Identifiers and Other Related Information			
Batch	ARS1-B10-02636		
Batch ID	ARS1-B10-02636-02		
Analysis Code			
SDG	QC Sample		
Fraction	N/A QC Sample		
Run Number			
Client	QC Sample		
Client Profile			
Client ID	N/A QC Sample		
Instr File Name	76		
Instr Detector	P-50-S-3		
Instr keV			
Version/Date	1.0 -- 11/18/2005		

Procedure		ARS-054			
Variable	Value				
Gross Count Rate	6.040000				
Sample Count Mins	180.000000				
BKG Count Rate	5.880000				
BKG Count Mins	180.000000				
Instrument Efficiency	0.362800				
Sample Aliquot	5.043000				
Dilution Factor	1.000000				
Aliquot Conversion Factor	0.001000				
Sample Collection Date (t1)	6/5/10 6:07 PM				
Count Date (t2)	6/5/10 6:07 PM				
Activity Units = pCi --- UCF =	2.2200				
CF	1.9600				
Nuclide Abundance	1.000000				
Half-life Days 1 - Result Isotope	4499.800000				
TPUF Calibration Factor	0.041330				
TPUF Aliquoting Factor	0.020000				
TPUF Yield Factor	0.000000				
TPUF Decay Ingrowth Factor	0.025000				
TPUF Analysis Factor	0.000000				
TPUF Unassigned Factor	0.000000				
Activity Units	pCi				
Aliquot Units	L				
0 Variables Intact Test OK					

Isotope	H-3			
Calculated Values	Excel	VBA	V/V	
ACT	39.392248	39.392248	OK	
CU	124.179182	124.179182	OK	
TPU	124.244748	124.244748	OK	
MDA	210.746618	210.746618	OK	
DL	103.519959	103.519959	OK	
Net Count Rate	0.160000	0.160000	OK	
D t 1 (t2 - t1)	0.000000	0.000000	OK	
DF	1.000000	1.000000	OK	
Sys Err	0.052280	0.052280	OK	
K	0.004062	0.004062	OK	
K MDA	0.731108	0.731108	OK	
Batch Identifiers and Other Related Information				
Batch	ARS1-B10-02636			
Batch ID	ARS1-B10-02636-03			
Analysis Code				
SDG	QC Sample			
Fraction	N/A QC Sample			
Run Number				
Client	QC Sample			
Client Profile				
Client ID	N/A QC Sample			
Instr File Name	76			
Instr Detector	P-50-S-4			
Instr keV				
Version/Date	1.0 -- 11/18/2005			

Procedure		ARS-054	
Variable	Value		
Gross Count Rate	191.540000		
Sample Count Minis	180.000000		
BKG Count Rate	5.880000		
BKG Count Minis	180.000000		
Instrument Efficiency	0.364100		
Sample Aliquot	5.021000		
Dilution Factor	1.000000		
Aliquot Conversion Factor	0.001000		
Sample Collection Date (t1)	4/30/10 12:00 PM		
Count Date (t2)	6/7/10 4:22 AM		
Activity Units = pCi --- UCF =	2.2200		
CF	1.0000		
Nuclide Abundance	1.000000		
Halflife Days 1 - Result Isotope	4499.800000		
TPUF_Calibration Factor	0.041330		
TPUF_Aliquoting Factor	0.020000		
TPUF_Yield Factor	0.000000		
TPUF_Decay Ingrowth Factor	0.025000		
TPUF_Analysis Factor	0.000000		
TPUF_Unassigned Factor	0.000000		
Activity Units	pCi		
Aliquot Units	L		
Variables Intact Test			
OK			

Isotope	H-3		
Calculated Values	Excel	VBA	V/V
ACT	46012.447822	46012.447805	OK
CU	259.547179	259.547179	OK
TPU	2419.479402	2419.479401	OK
MDA	212.142082	212.142082	OK
DL	104.205419	104.205419	OK
Net Count Rate	185.660000	185.660000	OK
D t 1 (t2 - t1)	37.681944	37.681944	OK
DF	0.994212	0.994212	OK
Sys Err	0.052280	0.052280	OK
K	0.004035	0.004035	OK
K MDA	0.726299	0.726299	OK
Batch Identifiers and Other Related Information			
Batch	ARS1-B10-02636		
Batch ID	ARS1-B10-02636-14		
Analysis Code	LSC-A-001		
SDG	ARS1-10-01011		
Fraction	001		
Run Number	1		
Client	Los Alamos National Laboratory		
Client Profile	Keith Greene		
Client ID	MD21-10-15382		
Instr File Name	76		
Instr Detector	P-50-S-15		
Instr keV			
Version/Date	1.0 -- 11/18/2005		

Procedure		ARS-054	
Variable	Value		
Gross Count Rate	62.500000		
Sample Count Mins	180.000000		
BKG Count Rate	5.880000		
BKG Count Mins	180.000000		
Instrument Efficiency	0.359000		
Sample Aliquot	5.061000		
Dilution Factor	1.000000		
Aliquot Conversion Factor	0.001000		
Sample Collection Date (t1)	4/30/10 12:00 PM		
Count Date (t2)	6/7/10 7:29 AM		
Activity Units - pCi - UCF =	2.2200		
CF	1.0000		
Nuclide Abundance	1.000000		
Half-life Days 1 - Result Isotope	4499.800000		
TPUF Calibration Factor	0.041330		
TPUF Aliquoting Factor	0.020000		
TPUF Yield Factor	0.000000		
TPUF Decay Ingrowth Factor	0.025000		
TPUF Analysis Factor	0.000000		
TPUF Unassigned Factor	0.000000		
Activity Units	pCi		
Aliquot Units	L		
Variables Intact Test		OK	

Isotope	H-3		
Calculated Values	Excel	VBA	V/V
ACT	14119.381044	14119.381039	OK
CU	153.700078	153.700078	OK
TPU	753.989291	753.989291	OK
MDA	213.459530	213.459569	OK
DL	104.852576	104.852576	OK
Net Count Rate	56.620000	56.620000	OK
D t 1 (t2 - t1)	37.811806	37.811806	OK
DF	0.994192	0.994192	OK
Sys Err	0.052280	0.052280	OK
K	0.004010	0.004010	OK
K MDA	0.721816	0.721816	OK
Batch Identifiers and Other Related Information			
Batch	ARS1-B10-02636		
Batch ID	ARS1-B10-02636-15		
Analysis Code	LSC-A-001		
SDG	ARS1-10-01011		
Fraction	002		
Run Number	1		
Client	Los Alamos National Laboratory		
Client Profile	Keith Greene		
Client ID	MD21-10-15383		
Instr File Name	76		
Instr Detector	P-50-S-16		
Instr keV			
Version/Date	1.0 -- 11/18/2005		

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SDH

Date:

6-8-10

Procedure		Isotope			
ARS-054		H-3			
Variable	Value	Calculated Values	Excel	VBA	V/V
Gross Count Rate	57.850000	ACT	13004.308423	13004.308418	OK
Sample Count Mins	180.000000	CU	148.891619	148.891618	OK
BKG Count Rate	5.880000	TPU	695.974479	695.974479	OK
BKG Count Mins	180.000000	MDA	214.192559	214.192559	OK
Instrument Efficiency	0.358700	DL	105.212625	105.212625	OK
Sample Aliquot	5.048000	Net Count Rate	51.970000	51.970000	OK
Dilution Factor	1.000000	D t 1 (t2 - t1)	37.941667	37.941667	OK
Aliquot Conversion Factor	0.001000	DF	0.994173	0.994173	OK
		Sys Err	0.052280	0.052280	OK
Sample Collection Date (t1)	4/30/10 12:00 PM	K	0.003996	0.003996	OK
Count Date (t2)	6/7/10 10:36 AM	K MDA	0.719346	0.719346	OK
Activity Units = pCi --- UCF =	2.2200				
CF	1.0000				
Nuclide Abundance	1.000000				
Half-life Days 1 - Result Isotope	4499.800000				
TPUF Calibration Factor	0.041330				
TPUF Aliquoting Factor	0.020000				
TPUF Yield Factor	0.000000				
TPUF Decay Ingrowth Factor	0.025000				
TPUF Analysis Factor	0.000000				
TPUF Unassigned Factor	0.000000				
Activity Units	pCi	Batch Identifiers and Other Related Information			
Aliquot Units	L	Batch	ARS1-B10-02636		
		Batch ID	ARS1-B10-02636-16		
		Analysis Code	LSC-A-001		
		SDG	ARS1-10-01011		
		Fraction	003		
		Run Number	1		
		Client	Los Alamos National Laboratory		
		Client Profile	Keith Greene		
		Client ID	MD21-10-15384		
		Instr File Name	76		
		Instr Detector	P-50-S-17		
		Instr keV			
		Version/Date	1.0 -- 11/18/2005		
0 Variables Intact Test	OK				

Procedure		ARS-054	
Variable	Value		
Gross Count Rate	89.150000		
Sample Count Mins	180.000000		
BKG Count Rate	5.880000		
BKG Count Mins	180.000000		
Instrument Efficiency	0.363600		
Sample Aliquot	5.053000		
Dilution Factor	1.000000		
Aliquot Conversion Factor	0.001000		
Sample Collection Date (t1)	4/30/10 12:00 PM		
Count Date (t2)	6/7/10 1:43 PM		
Activity Units -- pCi -- UCF =	2.2200		
CF	1.0000		
Nuclide Abundance	1.000000		
Half-life Days 1 - Result Isotope	4499.800000		
TPUF Calibration Factor	0.041330		
TPUF Aliquoting Factor	0.020000		
TPUF Yield Factor	0.000000		
TPUF Decay Ingrowth Factor	0.025000		
TPUF Analysis Factor	0.000000		
TPUF Unassigned Factor	0.000000		
Activity Units	pCi		
Aliquot Units	L		
Variables Intact Test		OK	

Isotope	H-3		
Calculated Values	Excel	VBA	V/V
ACT	20535.692215	20535.692207	OK
CU	179.190464	179.190464	OK
TPU	1088.451469	1088.451469	OK
MDA	211.101159	211.101159	OK
DL	103.694111	103.694111	OK
Net Count Rate	83.270000	83.270000	OK
D t 1 (t2 - t1)	38.071528	38.071528	OK
DF	0.994153	0.994153	OK
Sys Err	0.052280	0.052280	OK
K	0.004055	0.004055	OK
K MDA	0.729880	0.729880	OK
Batch Identifiers and Other Related Information			
Batch	ARS1-B10-02636		
Batch ID	ARS1-B10-02636-17		
Analysis Code	LSC-A-001		
SDG	ARS1-10-01011		
Fraction	004		
Run Number	1		
Client	Los Alamos National Laboratory		
Client Profile	Keith Greene		
Client ID	MD21-10-15385		
Instr File Name	76		
Instr Detector	P-50-S-18		
Instr keV			
Version/Date	1.0 -- 11/18/2005		

Procedure		ARS-054	
Variable	Value		
Gross Count Rate	234.620000		
Sample Count Mins	180.000000		
BKG Count Rate	5.880000		
BKG Count Mins	180.000000		
Instrument Efficiency	0.362800		
Sample Aliquot	5.047000		
Dilution Factor	1.000000		
Aliquot Conversion Factor	0.001000		
Sample Collection Date (t1)	4/30/10 12:00 PM		
Count Date (t2)	6/7/10 4:50 PM		
Activity Units = pCi --- UCF =	2.2200		
CF	1.0000		
Nuclide Abundance	1.000000		
Halflife Days 1 - Result Isotope	4499.800000		
TPUF_Calibration Factor	0.041330		
TPUF_Aliquoting Factor	0.020000		
TPUF_Yield Factor	0.000000		
TPUF_Decay Ingrowth Factor	0.025000		
TPUF_Analysis Factor	0.000000		
TPUF_Unassigned Factor	0.000000		
Activity Units	pCi		
Aliquot Units	L		
Variables Intact Test			
OK			

Isotope		H-3	
Calculated Values	Excel	VBA	V/V
ACT	56603.615979	56603.615958	OK
CU	286.037746	286.037746	OK
TPU	2973.013110	2973.013109	OK
MDA	211.822405	211.822405	OK
DL	104.048391	104.048391	OK
Net Count Rate	228.740000	228.740000	OK
D t 1 (t2 - t1)	38.201389	38.201389	OK
DF	0.994133	0.994133	OK
Sys Err	0.052280	0.052280	OK
K	0.004041	0.004041	OK
K MDA	0.727395	0.727395	OK
Batch Identifiers and Other Related Information			
Batch	ARS1-B10-02636		
Batch ID	ARS1-B10-02636-18		
Analysis Code	LSC-A-001		
SDG	ARS1-10-01011		
Fraction	005		
Run Number	1		
Client	Los Alamos National Laboratory		
Client Profile	Keith Greene		
Client ID	MD21-10-15386		
Instr File Name	76		
Instr Detector	P-50-S-19		
Instr keV			
Version/Date	1.0 -- 11/18/2005		

Procedure		ARS-054	
Variable	Value		
Gross Count Rate	40.640000		
Sample Count Mins	180.000000		
BKG Count Rate	5.880000		
BKG Count Mins	180.000000		
Instrument Efficiency	0.361000		
Sample Aliquot	5.036000		
Dilution Factor	1.000000		
Aliquot Conversion Factor	0.001000		
Sample Collection Date (t1)	4/30/10 12:00 PM		
Count Date (t2)	6/7/10 7:57 PM		
Activity Units = pCi --- UCF =	2.2200		
CF	1.0000		
Nuclide Abundance	1.000000		
Half-life Days 1 - Result Isotope	4499.800000		
TPUF Calibration Factor	0.041330		
TPUF Aliquoting Factor	0.020000		
TPUF Yield Factor	0.000000		
TPUF Decay Ingrowth Factor	0.025000		
TPUF Analysis Factor	0.000000		
TPUF Unassigned Factor	0.000000		
Activity Units	pCi		
Aliquot Units	L		
Variables Intact Test			
OK			

Isotope	H-3		
Calculated Values	Excel	VBA	V/V
ACT	8663.595642	8663.595639	OK
CU	126.707408	126.707408	OK
TPU	470.319738	470.319738	OK
MDA	213.347886	213.347886	OK
DL	104.797692	104.797692	OK
Net Count Rate	34.760000	34.760000	OK
D t 1 (t2 - t1)	38.331250	38.331250	OK
DF	0.994113	0.994113	OK
Sys Err	0.052280	0.052280	OK
K	0.004012	0.004012	OK
K MDA	0.722194	0.722194	OK
Batch Identifiers and Other Related Information			
Batch	ARS1-B10-02636		
Batch ID	ARS1-B10-02636-19		
Analysis Code	LSC-A-001		
SDG	ARS1-10-01011		
Fraction	006		
Run Number	1		
Client	Los Alamos National Laboratory		
Client Profile	Keith Greene		
Client ID	MD21-10-15387		
Instr File Name	76		
Instr Detector	P-50-S-20		
Instr keV			
Version/Date	1.0 -- 11/18/2005		

Reviewed by: SKH

Date: 6-8-10

Procedure		ARS-054	
Variable	Value		
Gross Count Rate	36.990000		
Sample Count Mins	180.000000		
BKG Count Rate	5.880000		
BKG Count Mins	180.000000		
Instrument Efficiency	0.359800		
Sample Aliquot	5.037000		
Dilution Factor	1.000000		
Aliquot Conversion Factor	0.001000		
Sample Collection Date (t1)	4/30/10 12:00 PM		
Count Date (t2)	6/7/10 11:04 PM		
Activity Units = pCi -- UCF =	2.2200		
CF	1.0000		
Nuclide Abundance	1.000000		
Half-life Days - Result Isotope	4499.800000		
TPUF_Calibration Factor	0.041330		
TPUF_Aliquoting Factor	0.020000		
TPUF_Yield Factor	0.000000		
TPUF_Decay Ingrowth Factor	0.025000		
TPUF_Analysis Factor	0.000000		
TPUF_Unassigned Factor	0.000000		
Activity Units	pCi		
Aliquot Units	L		
Variables Intact Test		OK	

Isotope		H-3	
Calculated Values	Excel	VBA	V/V
ACT	7778.339924	7778.339921	OK
CU	122.018982	122.018982	OK
TPU	424.561397	424.561397	OK
MDA	214.021174	214.021174	OK
DL	105.128440	105.128439	OK
Net Count Rate	31.110000	31.110000	OK
D t 1 (t2 - t1)	38.461111	38.461111	OK
DF	0.994093	0.994093	OK
Sys Err	0.052280	0.052280	OK
K	0.004000	0.004000	OK
K MDA	0.719922	0.719922	OK
Batch Identifiers and Other Related Information			
Batch	ARS1-B10-02636		
Batch ID	ARS1-B10-02636-20		
Analysis Code	LSC-A-001		
SDG	ARS1-10-01011		
Fraction	007		
Run Number	1		
Client	Los Alamos National Laboratory		
Client Profile	Kelth Greene		
Client ID	MD21-10-15368		
Instr File Name	76		
Instr Detector	P-50-S-21		
Instr keV			
Version/Date	1.0 -- 11/18/2005		

Procedure		ARS-054	
Variable	Value		
Gross Count Rate	10.200000		
Sample Count Mins	180.000000		
BKG Count Rate	5.880000		
BKG Count Mins	180.000000		
Instrument Efficiency	0.359100		
Sample Aliquot	5.092000		
Dilution Factor	1.000000		
Aliquot Conversion Factor	0.001000		
Sample Collection Date (t1)	4/30/10 12:00 PM		
Count Date (t2)	6/8/10 2:10 AM		
Activity Units = pCi --- UCF =	2.2200		
CF	1.0000		
Nuclide Abundance	1.000000		
Half-life Days 1 - Result Isotope	4499.800000		
TPUF_Calibration Factor	0.041330		
TPUF_Aliquoting Factor	0.020000		
TPUF_Yield Factor	0.000000		
TPUF_Decay Ingrowth Factor	0.025000		
TPUF_Analysis Factor	0.000000		
TPUF_Unassigned Factor	0.000000		
Activity Units	pCi		
Aliquot Units	L		
Variables Intact Test			
OK			

Isotope		H-3	
Calculated Values	Excel	VBA	V/V
ACT	1070.554065	1070.554065	OK
CU	74.068172	74.068172	OK
TPU	92.836096	92.836096	OK
MDA	212.126386	212.126386	OK
DL	104.197709	104.197709	OK
Net Count Rate	4.320000	4.320000	OK
D t 1 (t2 - t1)	38.590278	38.590278	OK
DP	0.994073	0.994073	OK
Sys Err	0.052280	0.052280	OK
K	0.004035	0.004035	OK
K MDA	0.726353	0.726353	OK
Batch Identifiers and Other Related Information			
Batch	ARS1-B10-02636		
Batch ID	ARS1-B10-02636-21		
Analysis Code	LSC-A-001		
SDG	ARS1-10-01011		
Fraction	008		
Run Number	1		
Client	Los Alamos National Laboratory		
Client Profile	Keith Greene		
Client ID	MD21-10-15389		
Instr File Name	76		
Instr Detector	P-50-S-22		
Instr keV			
Version/Date	1.0 -- 11/18/2005		

Procedure		ARS-054	
Variable	Value		
Gross Count Rate	7.020000		
Sample Count Mins	180.000000		
BKG Count Rate	5.880000		
BKG Count Mins	180.000000		
Instrument Efficiency	0.359400		
Sample Aliquot	5.053000		
Dilution Factor	1.000000		
Aliquot Conversion Factor	0.001000		
Sample Collection Date (t1)	4/30/10 12:00 PM		
Count Date (t2)	6/8/10 5:17 AM		
Activity Units = pCi --- UCF =	2.2200		
CF	1.0000		
Nuclide Abundance	1.000000		
Half-life Days 1 - Result Isotope	4499.800000		
TPUF_Calibration Factor	0.041330		
TPUF_Aliquoting Factor	0.020000		
TPUF_Yield Factor	0.000000		
TPUF_Decay Ingrowth Factor	0.025000		
TPUF_Analysis Factor	0.000000		
TPUF_Unassigned Factor	0.000000		
Activity Units	pCi		
Aliquot Units	L		
Variables Intact Test			
OK			

Isotope		H-3	
Calculated Values	Excel	VBA	V/V
ACT	284.455821	284.455821	OK
CU	66.788787	66.788787	OK
TPU	68.434148	68.434148	OK
MDA	213.589456	213.589456	OK
DL	104.916377	104.916377	OK
Net Count Rate	1.140000	1.140000	OK
D t 1 (t2 - t1)	38.720139	38.720139	OK
QF	0.994053	0.994053	OK
Sys Err	0.052280	0.052280	OK
K	0.004008	0.004008	OK
K MDA	0.721377	0.721377	OK
Batch Identifiers and Other Related Information			
Batch	ARS1-B10-02636		
Batch ID	ARS1-B10-02636-22		
Analysis Code	LSC-A-001		
SDG	ARS1-10-01011		
Fraction	009		
Run Number	1		
Client	Los Alamos National Laboratory		
Client Profile	Keith Greene		
Client ID	MD21-10-15390		
Instr File Name	76		
Instr Detector	P-50-S-23		
Instr keV			
Version/Date	1.0 -- 11/18/2005		

Procedure		Isotope			
ARS-054		H-3			
Variable	Value	Calculated Values	Excel	VBA	V/V
Gross Count Rate	260.790000	ACT	63639.775791	63639.775767	OK
Sample Count Mins	180.000000	CU	303.873338	303.873337	OK
BKG Count Rate	5.880000	TPU	3340.917631	3340.917630	OK
BKG Count Mins	180.000000	MDA	213.703484	213.703484	OK
Instrument Efficiency	0.359500	DL	104.972388	104.972388	OK
Sample Aliquot	5.049000	Net Count Rate	254.910000	254.910000	OK
Dilution Factor	1.000000	D t 1 (t2 - t1)	38.850000	38.850000	OK
Aliquot Conversion Factor	0.001000	DF	0.994033	0.994033	OK
		Sys Err	0.052280	0.052280	OK
Sample Collection Date (t1)	4/30/10 12:00 PM	K	0.004006	0.004006	OK
Count Date (t2)	6/8/10 8:24 AM	K MDA	0.720992	0.720992	OK
Activity Units = pCi --- UCF =	2.2200				
CF	1.0000				
Nuclide Abundance	1.000000				
Half-life Days 1 - Result Isotope	4499.800000				
TPUF_Calibration Factor	0.041330				
TPUF_Aliquoting Factor	0.020000				
TPUF_Yield Factor	0.000000				
TPUF_Decay Ingrowth Factor	0.025000				
TPUF_Analysis Factor	0.000000				
TPUF_Unassigned Factor	0.000000				
Activity Units	pCi	Batch Identifiers and Other Related Information			
Aliquot Units	L	Batch	ARS1-B10-02636		
		Batch ID	ARS1-B10-02636-23		
		Analysis Code	LSC-A-001		
		SDG	ARS1-10-01011		
		Fraction	010		
		Run Number	1		
		Client	Los Alamos National Laboratory		
		Client Profile	Keith Greene		
		Client ID	MD21-10-15391		
		Instr File Name	76		
		Instr Detector	P-50-S-24		
		Instr keV			
		Version/Date	1.0 -- 11/18/2005		
0 Variables Intact Test	OK				



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American Radiation Services Analytical Reports

for

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Tritium

by

**Low Level Liquid
Scintillation Counting**

**Laboratory
Records**

Analysis Batch Report



Analysis Batch ID ARS1-B10-02636

Method ARS-054

Analysis LSC-A-001

Matrix SI

Description TRITIUM IN WATER

Batch Sample ID	Type	Blind 1s01	Blind 1s02	Blind 1s03	SDG	FR	Run	Client ID	Isotope Group	Lab Deadline
ARS1-B10-02636-01	LCS	B-10156			ARS1-10-01008	001	1	MD50-15799	STD	05/28/10
ARS1-B10-02636-02	LCS	B-10159			ARS1-10-01008	002	1	MD50-15800	STD	05/28/10
ARS1-B10-02636-03	MBL				ARS1-10-01008	003	1	MD50-15801	STD	05/28/10
ARS1-B10-02636-04	TRG				ARS1-10-01008	004	1	MD50-15802	STD	05/28/10
ARS1-B10-02636-05	TRG				ARS1-10-01008	005	1	MD50-15803	STD	05/28/10
ARS1-B10-02636-06	TRG				ARS1-10-01008	006	1	MD50-15804	STD	05/28/10
ARS1-B10-02636-07	TRG				ARS1-10-01008	007	1	MD50-15805	STD	05/28/10
ARS1-B10-02636-08	TRG				ARS1-10-01008	008	1	MD50-15806	STD	05/28/10
ARS1-B10-02636-09	TRG				ARS1-10-01008	009	1	MD50-15807	STD	05/28/10
ARS1-B10-02636-10	TRG				ARS1-10-01008	010	1	MD50-15808	STD	05/28/10
ARS1-B10-02636-11	TRG				ARS1-10-01011	001	1	MD21-10-15382	STD	05/28/10
ARS1-B10-02636-12	TRG				ARS1-10-01011	002	1	MD21-10-15383	STD	05/28/10
ARS1-B10-02636-13	TRG				ARS1-10-01011	003	1	MD21-10-15384	STD	05/28/10
ARS1-B10-02636-14	TRG				ARS1-10-01011	004	1	MD21-10-15385	STD	05/28/10
ARS1-B10-02636-15	TRG				ARS1-10-01011	005	1	MD21-10-15386	STD	05/28/10
ARS1-B10-02636-16	TRG				ARS1-10-01011	006	1	MD21-10-15387	STD	05/28/10
ARS1-B10-02636-17	TRG				ARS1-10-01011	007	1	MD21-10-15388	STD	05/28/10
ARS1-B10-02636-18	TRG				ARS1-10-01011	008	1	MD21-10-15389	STD	05/28/10
ARS1-B10-02636-19	TRG				ARS1-10-01011	009	1	MD21-10-15390	STD	05/28/10
ARS1-B10-02636-20	TRG				ARS1-10-01011	010	1	MD21-10-15391	STD	05/28/10
ARS1-B10-02636-21	TRG									
ARS1-B10-02636-22	TRG									
ARS1-B10-02636-23	TRG									

61796	10-01008-001-1	WRAD	61797	10-01008-002-1	WRAD	61798	10-01008-003-1	WRAD	61799	10-01008-004-1	WRAD	61800	10-01008-005-1	WRAD	61801	10-01008-006-1	WRAD	61802	10-01008-007-1	WRAD	61803	10-01008-008-1	WRAD
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61804	10-01008-009-1	WRAD	61805	10-01008-010-1	WRAD	61806	10-01011-001-1	WRAD	61807	10-01011-002-1	WRAD	61808	10-01011-003-1	WRAD	61809	10-01011-004-1	WRAD	61810	10-01011-005-1	WRAD	61811	10-01011-006-1	WRAD
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61812	10-01011-007-1	WRAD	61813	10-01011-008-1	WRAD	61814	10-01011-009-1	WRAD	61815	10-01011-010-1	WRAD
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LCS Report
Analytical Batch: ARS1-810-02636

Bin#10	ASRCH	ARS1SampleID	SampleID	Isotope	ExpectedValue	EmptyVt	GrossVt	NetVt	Useful	ModDate	ExpectedVt	MeasVt	MeasDate	MeasVt
B-10158	ARS1-810-02636	ARS1-810-02636-01	B-H3	S-0238	H-3	5	2.489828056	0	1	1 WSTICKLE	5/10/2010	2.479876169	6/5/2010	2.479876169
B-10159	ARS1-810-02636	ARS1-810-02636-02	B-H3	S-0238	H-3	5	2.489828056	0	1	1 WSTICKLE	5/10/2010	2.479876169	6/5/2010	2.479876169

ARS-054

ID_31001_054	ABatch	ABatchSampleID	ClientID	Aliquot1	AliquotUnits1	IC_ID1	Aliquot2	AliquotUnits2	IC_ID2	UserID	ModDate
5515	ARSI-B10-02636	ARSI-B10-02636-01					5.094 g			MHARB	05/26/2010 09:16:00
5516	ARSI-B10-02636	ARSI-B10-02636-02					5.01 g			MHARB	05/26/2010 09:16:00
5517	ARSI-B10-02636	ARSI-B10-02636-03					5.043 g			MHARB	05/26/2010 09:16:00
5518	ARSI-B10-02636	ARSI-B10-02636-04	MD50-15799				5.057 g			61796 MHARB	05/26/2010 09:16:00
5519	ARSI-B10-02636	ARSI-B10-02636-05	MD50-15800				5.101 g			61797 MHARB	05/26/2010 09:16:00
5520	ARSI-B10-02636	ARSI-B10-02636-06	MD50-15801				5.084 g			61798 MHARB	05/26/2010 09:16:00
5521	ARSI-B10-02636	ARSI-B10-02636-07	MD50-15802				5.08 g			61799 MHARB	05/26/2010 09:16:00
5522	ARSI-B10-02636	ARSI-B10-02636-08	MD50-15803				5.08 g			61800 MHARB	05/26/2010 09:16:01
5523	ARSI-B10-02636	ARSI-B10-02636-09	MD50-15804				5.063 g			61801 MHARB	05/26/2010 09:16:01
5524	ARSI-B10-02636	ARSI-B10-02636-10	MD50-15805				5.093 g			61802 MHARB	05/26/2010 09:16:01
5525	ARSI-B10-02636	ARSI-B10-02636-11	MD50-15806				5.116 g			61803 MHARB	05/26/2010 09:16:01
5526	ARSI-B10-02636	ARSI-B10-02636-12	MD50-15807				5.068 g			61804 MHARB	05/26/2010 09:16:01
5527	ARSI-B10-02636	ARSI-B10-02636-13	MD50-15808				5.103 g			61805 MHARB	05/26/2010 09:16:01
5528	ARSI-B10-02636	ARSI-B10-02636-14	MD21-10-15382				5.021 g			61806 MHARB	05/26/2010 09:16:01
5529	ARSI-B10-02636	ARSI-B10-02636-15	MD21-10-15383				5.061 g			61807 MHARB	05/26/2010 09:16:01
5530	ARSI-B10-02636	ARSI-B10-02636-16	MD21-10-15384				5.048 g			61808 MHARB	05/26/2010 09:16:01
5531	ARSI-B10-02636	ARSI-B10-02636-17	MD21-10-15385				5.053 g			61809 MHARB	05/26/2010 09:16:01
5532	ARSI-B10-02636	ARSI-B10-02636-18	MD21-10-15386				5.047 g			61810 MHARB	05/26/2010 09:16:01
5533	ARSI-B10-02636	ARSI-B10-02636-19	MD21-10-15387				5.036 g			61811 MHARB	05/26/2010 09:16:01
5534	ARSI-B10-02636	ARSI-B10-02636-20	MD21-10-15388				5.037 g			61812 MHARB	05/26/2010 09:16:01
5535	ARSI-B10-02636	ARSI-B10-02636-21	MD21-10-15389				5.092 g			61813 MHARB	05/26/2010 09:16:02
5536	ARSI-B10-02636	ARSI-B10-02636-22	MD21-10-15390				5.053 g			61814 MHARB	05/26/2010 09:16:02
5537	ARSI-B10-02636	ARSI-B10-02636-23	MD21-10-15391				5.049 g			61815 MHARB	05/26/2010 09:16:02

Batch Result Verification Report

Batch/Sample ID	SDG	Fraction	Client ID	Run	Isotope	ACT	TPU	TPUs	TPUs	MDA	DL	CU	CU1s	CU2s	Activity/Report Units
ARS1-B10-02636-01				1-H-3		2.51988311	0.157028036	0.157028036	0.30777495	0.208609335	0.102568354	0.085455827	0.085455827	0.16749342	PC
ARS1-B10-02636-02				1-H-3		2.39247271	0.297113709	0.151588627	0.297113709	0.212662332	0.104460963	0.167859501	0.085442803	0.167859501	PC
ARS1-B10-02636-03				1-H-3		39.39224766	124.2447475	63.39017732	124.2447475	210.7466183	103.5199586	124.1791622	63.35671541	124.1791622	PC
ARS1-B10-02636-04	ARS1-10-01008	001	MD50-15799	1-H-3		704.6655269	80.29589262	80.29589262	157.3799495	214.6577344	105.4411215	71.34609853	71.34609853	139.838531	PC
ARS1-B10-02636-05	ARS1-10-01008	002	MD50-15800	1-H-3		359.7756271	68.96700238	68.96700238	135.175347	209.5001024	102.9076628	66.35261962	66.35261962	130.0511345	PC
ARS1-B10-02636-06	ARS1-10-01008	003	MD50-15801	1-H-3		430.1855764	70.66226281	70.66226281	138.4980351	209.2247283	102.7723974	66.98773141	66.98773141	131.2959536	PC
ARS1-B10-02636-07	ARS1-10-01008	004	MD50-15802	1-H-3		222.7272404	65.97150726	65.97150726	129.3041542	209.5085636	102.911819	64.93577059	64.93577059	127.2741104	PC
ARS1-B10-02636-08	ARS1-10-01008	005	MD50-15803	1-H-3		66.35838313	63.63191644	63.63191644	124.7185562	210.3787483	103.3392587	63.5377613	63.5377613	124.5130612	PC
ARS1-B10-02636-09	ARS1-10-01008	006	MD50-15804	1-H-3		156.7413502	65.78667403	65.78667403	128.9418811	212.9672729	104.610757	65.2743181	65.2743181	127.9376904	PC
ARS1-B10-02636-10	ARS1-10-01008	007	MD50-15805	1-H-3		208.5341326	65.12449675	65.12449675	127.6440136	207.5623287	101.9558171	64.20548396	64.20548396	125.8427486	PC
ARS1-B10-02636-11	ARS1-10-01008	008	MD50-15806	1-H-3		143.9714362	64.35940215	64.35940215	126.1444282	208.8787024	102.6024275	63.91776073	63.91776073	125.278811	PC
ARS1-B10-02636-12	ARS1-10-01008	009	MD50-15807	1-H-3		482.6898772	71.92560419	71.92560419	140.9741842	208.67616	102.5029375	67.35349163	67.35349163	132.0128436	PC
ARS1-B10-02636-13	ARS1-10-01008	010	MD50-15808	1-H-3		467.785992	71.48175073	71.48175073	140.1042314	208.5571596	102.4444838	67.16794542	67.16794542	131.649172	PC
ARS1-B10-02636-14	ARS1-10-01011	001	MD21-10-15382	1-H-3		48012.44781	2419.479401	2419.479401	4742.179627	212.1420822	104.2054185	259.547179	259.547179	508.7124708	PC
ARS1-B10-02636-15	ARS1-10-01011	002	MD21-10-15383	1-H-3		14119.38104	753.9892906	753.9892906	1477.81901	213.4595694	104.8525759	153.7000785	153.7000785	301.2521539	PC
ARS1-B10-02636-16	ARS1-10-01011	003	MD21-10-15384	1-H-3		13004.10842	695.974479	695.974479	1364.109979	214.1925591	105.2126247	148.8916185	148.8916185	291.8275722	PC
ARS1-B10-02636-17	ARS1-10-01011	004	MD21-10-15385	1-H-3		20535.69221	1088.451469	1088.451469	2133.364879	211.1011588	103.6941109	179.1904639	179.1904639	351.2133093	PC
ARS1-B10-02636-18	ARS1-10-01011	005	MD21-10-15386	1-H-3		58803.61596	2973.013109	2973.013109	5827.105694	211.8224049	104.0483912	286.0377458	286.0377458	560.6339817	PC
ARS1-B10-02636-19	ARS1-10-01011	006	MD21-10-15387	1-H-3		8663.595639	470.3197383	470.3197383	921.626821	213.5478158	104.7976917	126.707408	126.707408	248.3455196	PC
ARS1-B10-02636-20	ARS1-10-01011	007	MD21-10-15388	1-H-3		7778.339921	424.5613971	424.5613971	832.1403383	214.0211743	105.1284395	122.0189817	122.0189817	239.1572042	PC
ARS1-B10-02636-21	ARS1-10-01011	008	MD21-10-15389	1-H-3		1070.554065	92.83609624	92.83609624	181.9587486	212.1263863	104.1977086	74.0681722	74.0681722	145.1736176	PC
ARS1-B10-02636-22	ARS1-10-01011	009	MD21-10-15390	1-H-3		284.4558214	68.43414821	68.43414821	134.1309305	213.5894563	104.9163771	66.79878717	66.79878717	130.9256228	PC
ARS1-B10-02636-23	ARS1-10-01011	010	MD21-10-15391	1-H-3		63639.77577	3340.91763	3340.91763	6548.198555	213.7034844	104.9723883	303.8733374	303.8733374	595.5917413	PC

Batch Result Verification Report

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Page 2 of 5

Batch/Sample ID	SDG	Fraction	Aliquot/Report Units	Chem/Recovery	Trace/Recovery	Sample Counts	Sample Count/Min	BKG. Counts	BKG. Count/Min	EFF.	ATQ	Sample Calibrate	Midpoint Countdate	BP
ARS1-B10-02636-01			L			0.090055556	180	0.032666667	180	0.3625	5.094	6/8/2010	6/5/2010	
ARS1-B10-02636-02			L			0.086166667	180	0.032666667	180	0.3619	5.01	6/8/2010	6/5/2010	
ARS1-B10-02636-03			L			0.033555556	180	0.032666667	180	0.3628	5.043	6/8/2010	6/5/2010	
ARS1-B10-02636-04			L			0.048277778	180	0.032666667	180	0.3572	5.057	4/30/2010	6/5/2010	
ARS1-B10-02636-05	ARS1-10-01008 .001		L			0.040833333	180	0.032666667	180	0.3629	5.101	4/29/2010	6/6/2010	
ARS1-B10-02636-06	ARS1-10-01008 .003		L			0.042444444	180	0.032666667	180	0.3646	5.084	4/29/2010	6/6/2010	
ARS1-B10-02636-07	ARS1-10-01008 .004		L			0.037722222	180	0.032666667	180	0.3644	5.08	4/29/2010	6/6/2010	
ARS1-B10-02636-08	ARS1-10-01008 .005		L			0.034166667	180	0.032666667	180	0.3629	5.08	4/29/2010	6/6/2010	
ARS1-B10-02636-09	ARS1-10-01008 .006		L			0.036166667	180	0.032666667	180	0.3597	5.063	4/29/2010	6/6/2010	
ARS1-B10-02636-10	ARS1-10-01008 .007		L			0.037444444	180	0.032666667	180	0.3669	5.093	4/29/2010	6/6/2010	
ARS1-B10-02636-11	ARS1-10-01008 .008		L			0.035944444	180	0.032666667	180	0.3629	5.116	4/30/2010	6/6/2010	
ARS1-B10-02636-12	ARS1-10-01008 .009		L			0.036666667	180	0.032666667	180	0.3667	5.068	4/30/2010	6/6/2010	
ARS1-B10-02636-13	ARS1-10-01008 .010		L			0.043333333	180	0.032666667	180	0.3644	5.103	4/30/2010	6/7/2010	
ARS1-B10-02636-14	ARS1-10-01011 .001		L			1.064111111	180	0.032666667	180	0.3641	5.021	4/30/2010	6/7/2010	
ARS1-B10-02636-15	ARS1-10-01011 .002		L			0.347222222	180	0.032666667	180	0.359	5.061	4/30/2010	6/7/2010	
ARS1-B10-02636-16	ARS1-10-01011 .003		L			0.321388889	180	0.032666667	180	0.3587	5.046	4/30/2010	6/7/2010	
ARS1-B10-02636-17	ARS1-10-01011 .004		L			0.495777778	180	0.032666667	180	0.3636	5.053	4/30/2010	6/7/2010	
ARS1-B10-02636-18	ARS1-10-01011 .005		L			1.303444444	180	0.032666667	180	0.3628	5.047	4/30/2010	6/7/2010	
ARS1-B10-02636-19	ARS1-10-01011 .006		L			0.225777778	180	0.032666667	180	0.361	5.036	4/30/2010	6/7/2010	
ARS1-B10-02636-20	ARS1-10-01011 .007		L			0.2055	180	0.032666667	180	0.3598	5.037	4/30/2010	6/7/2010	
ARS1-B10-02636-21	ARS1-10-01011 .008		L			0.056666667	180	0.032666667	180	0.3591	5.092	4/30/2010	6/8/2010	
ARS1-B10-02636-22	ARS1-10-01011 .009		L			0.039	180	0.032666667	180	0.3594	5.053	4/30/2010	6/8/2010	
ARS1-B10-02636-23	ARS1-10-01011 .010		L			1.448833333	180	0.032666667	180	0.3595	5.049	4/30/2010	6/8/2010	

Batch Result Verification Report

Batch/SampleID	SOC	Fraction	BP	MDA	SN	Val	UCF	CF	GrossCountRate	BKGCountRate	NetCountRate	PlatingRecovery	InstFile Name	DetectorID	InstrumentalVal	NuclideAbbr	TraceMeasACT
ARSI-B10-02636-01							2.22	1	16.21	5.88	10.33	76	P-50-S-2				
ARSI-B10-02636-02							2.22	1.96	15.51	5.88	9.63	76	P-50-S-3				
ARSI-B10-02636-03							2.22	1.96	6.04	5.88	0.16	76	P-50-S-4				
ARSI-B10-02636-04							2.22	1	8.69	5.88	2.81	76	P-50-S-5				
ARSI-B10-02636-05							2.22	1	7.35	5.88	1.47	76	P-50-S-6				
ARSI-B10-02636-06							2.22	1	7.64	5.88	1.76	76	P-50-S-7				
ARSI-B10-02636-07							2.22	1	6.79	5.88	0.91	76	P-50-S-8				
ARSI-B10-02636-08							2.22	1	6.15	5.88	0.27	76	P-50-S-9				
ARSI-B10-02636-09							2.22	1	6.51	5.88	0.63	76	P-50-S-10				
ARSI-B10-02636-10							2.22	1	6.74	5.88	0.86	76	P-50-S-11				
ARSI-B10-02636-11							2.22	1	6.47	5.88	0.59	76	P-50-S-12				
ARSI-B10-02636-12							2.22	1	7.86	5.88	1.98	76	P-50-S-13				
ARSI-B10-02636-13							2.22	1	7.8	5.88	1.92	76	P-50-S-14				
ARSI-B10-02636-14							2.22	1	191.54	5.88	185.66	76	P-50-S-15				
ARSI-B10-02636-15							2.22	1	62.51	5.88	56.62	76	P-50-S-16				
ARSI-B10-02636-16							2.22	1	57.85	5.88	51.97	76	P-50-S-17				
ARSI-B10-02636-17							2.22	1	89.15	5.88	83.27	76	P-50-S-18				
ARSI-B10-02636-18							2.22	1	234.62	5.88	228.74	76	P-50-S-19				
ARSI-B10-02636-19							2.22	1	40.64	5.88	34.76	76	P-50-S-20				
ARSI-B10-02636-20							2.22	1	36.99	5.88	31.11	76	P-50-S-21				
ARSI-B10-02636-21							2.22	1	10.2	5.88	4.32	76	P-50-S-22				
ARSI-B10-02636-22							2.22	1	7.02	5.88	1.14	76	P-50-S-23				
ARSI-B10-02636-23							2.22	1	260.79	5.88	254.91	76	P-50-S-24				

Batch Result Verification Report

BatchSampleID	SD6	Fraction	TracerKnownACT	TracerIsotope	TracerRefDate	TracerRefACT	TracerKnown	HalfLife1	HalfLife2	HalfLife3	TPUF_1	TPUF_2	TPUF_3	TPUF_4	TPUF_5	TPUF_6	DeltaT1	DeltaT2
ARS1-B10-02636-01							4499.8				0.04133	0.02	0	0.025	0	0	0	
ARS1-B10-02636-02							4499.8				0.04133	0.02	0	0.025	0	0	0	
ARS1-B10-02636-03							4499.8				0.04133	0.02	0	0.025	0	0	0	
ARS1-B10-02636-04	ARS1-10-01008	001					4499.8				0.04133	0.02	0	0.025	0	0	36.38472222	0
ARS1-B10-02636-05	ARS1-10-01008	002					4499.8				0.04133	0.02	0	0.025	0	0	37.51458333	0
ARS1-B10-02636-06	ARS1-10-01008	003					4499.8				0.04133	0.02	0	0.025	0	0	37.64444444	0
ARS1-B10-02636-07	ARS1-10-01008	004					4499.8				0.04133	0.02	0	0.025	0	0	37.77261111	0
ARS1-B10-02636-08	ARS1-10-01008	005					4499.8				0.04133	0.02	0	0.025	0	0	37.90347222	0
ARS1-B10-02636-09	ARS1-10-01008	006					4499.8				0.04133	0.02	0	0.025	0	0	38.03333333	0
ARS1-B10-02636-10	ARS1-10-01008	007					4499.8				0.04133	0.02	0	0.025	0	0	38.16319444	0
ARS1-B10-02636-11	ARS1-10-01008	008					4499.8				0.04133	0.02	0	0.025	0	0	37.29236111	0
ARS1-B10-02636-12	ARS1-10-01008	009					4499.8				0.04133	0.02	0	0.025	0	0	37.42222222	0
ARS1-B10-02636-13	ARS1-10-01008	010					4499.8				0.04133	0.02	0	0.025	0	0	37.55208333	0
ARS1-B10-02636-14	ARS1-10-01011	001					4499.8				0.04133	0.02	0	0.025	0	0	37.68194444	0
ARS1-B10-02636-15	ARS1-10-01011	002					4499.8				0.04133	0.02	0	0.025	0	0	37.81180556	0
ARS1-B10-02636-16	ARS1-10-01011	003					4499.8				0.04133	0.02	0	0.025	0	0	37.94166667	0
ARS1-B10-02636-17	ARS1-10-01011	004					4499.8				0.04133	0.02	0	0.025	0	0	38.07152778	0
ARS1-B10-02636-18	ARS1-10-01011	005					4499.8				0.04133	0.02	0	0.025	0	0	38.20138889	0
ARS1-B10-02636-19	ARS1-10-01011	006					4499.8				0.04133	0.02	0	0.025	0	0	38.33125	0
ARS1-B10-02636-20	ARS1-10-01011	007					4499.8				0.04133	0.02	0	0.025	0	0	38.46111111	0
ARS1-B10-02636-21	ARS1-10-01011	008					4499.8				0.04133	0.02	0	0.025	0	0	38.59027778	0
ARS1-B10-02636-22	ARS1-10-01011	009					4499.8				0.04133	0.02	0	0.025	0	0	38.72013889	0
ARS1-B10-02636-23	ARS1-10-01011	010					4499.8				0.04133	0.02	0	0.025	0	0	38.85	0

Batch Result Verification Report

BatchSampleID	SDG	Fraction	Delta13	Delta14	Delta15	Delta16	DF1	DF2	DF3	IF1	IF2	System	K_Val	K_MDA	AnalysisCode	UserID	ModDate
ARS1-810-02636-01							1					0.052279718	4.0993965	737.89137		BSTEFFENS	6/8/2010
ARS1-810-02636-02							1					0.052279718	4.02512418	724.5223524		BSTEFFENS	6/8/2010
ARS1-810-02636-03							1					0.052279718	0.004061713	0.73110832		BSTEFFENS	6/8/2010
ARS1-810-02636-04												0.052279718	0.003987707	0.717787348	LSC-A-001	BSTEFFENS	6/8/2010
ARS1-810-02636-05												0.052279718	0.00408588	0.73545638	LSC-A-001	BSTEFFENS	6/8/2010
ARS1-810-02636-06												0.052279718	0.004091258	0.736426364	LSC-A-001	BSTEFFENS	6/8/2010
ARS1-810-02636-07												0.052279718	0.004085715	0.735428678	LSC-A-001	BSTEFFENS	6/8/2010
ARS1-810-02636-08												0.052279718	0.004068815	0.73286742	LSC-A-001	BSTEFFENS	6/8/2010
ARS1-810-02636-09												0.052279718	0.004019361	0.73484899	LSC-A-001	BSTEFFENS	6/8/2010
ARS1-810-02636-10												0.052279718	0.004124025	0.74212452	LSC-A-001	BSTEFFENS	6/8/2010
ARS1-810-02636-11												0.052279718	0.004098035	0.737646319	LSC-A-001	BSTEFFENS	6/8/2010
ARS1-810-02636-12												0.052279718	0.004102013	0.738362284	LSC-A-001	BSTEFFENS	6/8/2010
ARS1-810-02636-13												0.052279718	0.004104353	0.738783585	LSC-A-001	BSTEFFENS	6/8/2010
ARS1-810-02636-14												0.052279718	0.004034995	0.726289112	LSC-A-001	BSTEFFENS	6/8/2010
ARS1-810-02636-15												0.052279718	0.004102013	0.721816344	LSC-A-001	BSTEFFENS	6/8/2010
ARS1-810-02636-16												0.052279718	0.003996368	0.719346212	LSC-A-001	BSTEFFENS	6/8/2010
ARS1-810-02636-17												0.052279718	0.004054891	0.729880437	LSC-A-001	BSTEFFENS	6/8/2010
ARS1-810-02636-18												0.052279718	0.004041085	0.72395226	LSC-A-001	BSTEFFENS	6/8/2010
ARS1-810-02636-19												0.052279718	0.004012191	0.722194371	LSC-A-001	BSTEFFENS	6/8/2010
ARS1-810-02636-20												0.052279718	0.00399568	0.719922253	LSC-A-001	BSTEFFENS	6/8/2010
ARS1-810-02636-21												0.052279718	0.004035294	0.726352854	LSC-A-001	BSTEFFENS	6/8/2010
ARS1-810-02636-22												0.052279718	0.004007652	0.721377397	LSC-A-001	BSTEFFENS	6/8/2010
ARS1-810-02636-23												0.052279718	0.00400514	0.720992484	LSC-A-001	BSTEFFENS	6/8/2010

Assay Definition-

Assay Description:
 H-3 Normal Level Assay

Assay Type: DPM (Single)

Report Name: Report1

Output Data Path: C:\Packard\Tricarb\Results\ARS\H-3 Normal Lvl 3\20100605_0841

Raw Results Path: C:\Packard\Tricarb\Results\ARS\H-3 Normal Lvl 3\20100605_0841\Results

RTF File Name: C:\Packard\Tricarb\Results\ARS\H-3 Normal Lvl 3\20100605_0841\H-3 Results.rtf

Comma-Delimited File Name: C:\Packard\Tricarb\Results\ARS\H-3 Normal Lvl 3\20100605_0841\H-3 Results.csv

Count Conditions-

Nuclide: H-3 Normal

Quench Indicator: tSIE/AEC

External Std Terminator (sec): 0.5 2s%

Pre-Count Delay (min): 0.00

Quench Set:

Low Energy: UG STD H-3

Count Time (min): 180.00

Count Mode: Normal

Assay Count Cycles: 1

#Vials/Sample: 1

Repeat Sample Count: 1

Calculate & Reference: Off

Background Subtract: Off

Low CPM Threshold: Off

2 Sigma & Terminator: On - Any Region

Regions	LL	UL	2Sigma & Terminator
A	2.0	18.6	0.50
B	0.0	2000.0	0.00
C	0.0	2000.0	0.00

Count Corrections-

Static Controller: On

Colored Samples: Off

Coincidence Time (nsec): 18

Luminescence Correction: Off

Heterogeneity Monitor: Off

Delay Before Burst (nsec): 75

Half Life-

Half Life Correction: Off

Regions Half Life

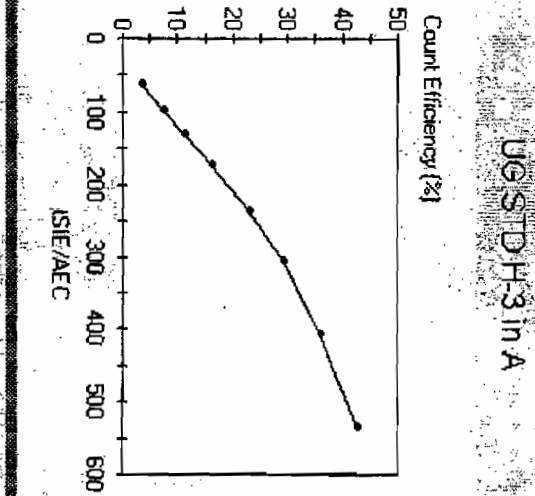
Units

Reference Date

Reference Time

A
 B
 C

Cycle 1 Results
 Quench Curve Block Data



Date Acquired: 05/05/2009
 Date Modified:
 UG STD H-3 in A

tSIE/AEC	Count Efficiency (%)
533.53	42.76
406.26	35.99
306.93	29.10
237.55	22.83
174.55	16.30
131.14	11.32
97.13	7.31
62.75	3.54

Beta Liquid Scintillation Counter Log Book

Date	Time	ARS Sample I.D. Number	Batch Number	Liquid Scintillation File Number	Technician Initials
5-24-10	13:41	B10-02612-17	B10-02612	1124 0916	MH
↓	↓	B10-02612-18	B10-02612	↓	MH
↓	↓	B10-02612-19	B10-02612	↓	MH
↓	↓	B10-02612-20	B10-02612	↓	MH
↓	↓	B10-02612-21	↓	↓	MH
↓	↓	B10-02612-22	↓	↓	MH
↓	↓	B10-02612-23	↓	↓	MH
5-26-10	12:20	B10-02671-01	B10-02671	1750 0913	MH
↓	↓	B10-02671-02	↓	↓	MH
↓	↓	B10-02671-03	↓	↓	MH
↓	↓	B10-02671-04	↓	↓	MH
↓	↓	B10-02671-05	↓	↓	MH
↓	↓	B10-02671-06	↓	↓	MH
↓	↓	B10-02671-07	↓	↓	MH
5-26-10	12:20	SNC 117	QA	QA	MH
6-1-10	11:10	Background	B10-02636	0841	JK
↓	↓	B10-02636-01	↓	↓	JK
↓	↓	B10-02636-02	↓	↓	JK
↓	↓	B10-02636-03	↓	↓	JK
↓	↓	B10-02636-04	↓	↓	JK

Beta Liquid Scintillation Counter Log Book

Date	Time	ARS Sample I.D. Number	Batch Number	Liquid Scintillation File Number	Technician Initials
6-1-10	1110	B10-02636-05	B10-02636	0841	JS
↓	↓	B10-02636-06	↓	↓	JS
↓	↓	B10-02636-07	↓	↓	JS
↓	↓	B10-02636-08	↓	↓	JS
↓	↓	B10-02636-09	↓	↓	JS
↓	↓	B10-02636-10	↓	↓	JS
↓	↓	B10-02636-11	↓	↓	JS
↓	↓	B10-02636-12	↓	↓	JS
↓	↓	B10-02636-13	↓	↓	JS
↓	↓	B10-02636-14	↓	↓	JS
↓	↓	B10-02636-15	↓	↓	JS
↓	↓	B10-02636-16	↓	↓	JS
↓	↓	B10-02636-17	↓	↓	JS
↓	↓	B10-02636-18	↓	↓	JS
↓	↓	B10-02636-19	↓	↓	JS
↓	↓	B10-02636-20	↓	↓	JS
↓	↓	B10-02636-21	↓	↓	JS
↓	↓	B10-02636-22	↓	↓	JS
↓	↓	B10-02636-23	↓	↓	JS
6-1-10	1128	SNC 117	QA	QA	JS



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American Radiation Services Analytical Reports

for

Los Alamos National Laboratory

Tritium

by

**Low Level Liquid
Scintillation Counting**

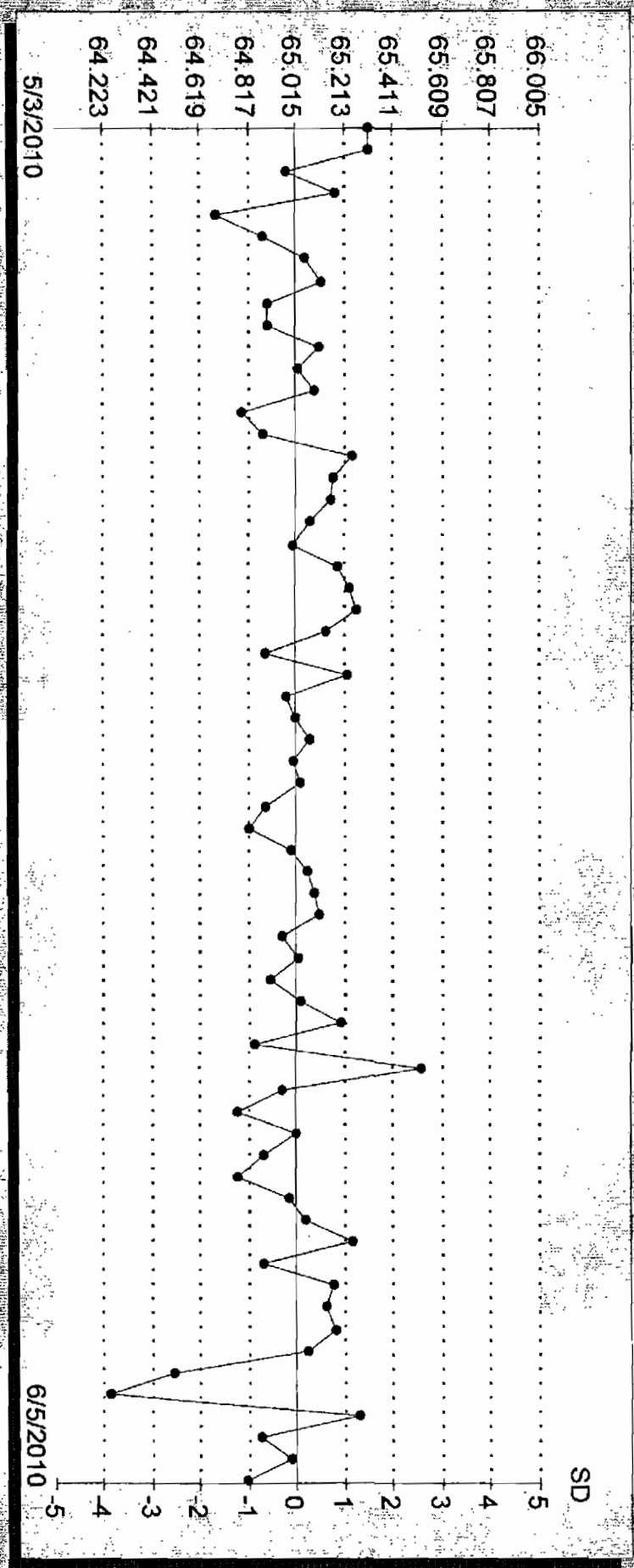
Control Charts

3H Efficiency
 Total # pts : 1461
 Valid # pts : 63
 Mean : 65.02
 SD : 0.20

Date	Value	Valid Pt
May 03, 2010	65.31	X
May 07, 2010	65.32	X
May 11, 2010	64.97	X
May 20, 2010	65.18	X
May 23, 2010	64.68	X
May 26, 2010	64.88	X
May 26, 2010	65.05	X
May 26, 2010	65.11	X
May 27, 2010	64.90	X
May 27, 2010	64.90	X
May 27, 2010	65.11	X
May 27, 2010	65.03	X
May 27, 2010	65.09	X
May 27, 2010	64.79	X
May 28, 2010	64.87	X
May 28, 2010	65.24	X
May 28, 2010	65.17	X
May 28, 2010	65.16	X
May 28, 2010	65.07	X
May 28, 2010	65.01	X
May 28, 2010	65.19	X
May 28, 2010	65.24	X
May 28, 2010	65.27	X
May 29, 2010	65.14	X
May 29, 2010	64.89	X
May 29, 2010	65.22	X
May 29, 2010	64.97	X
May 29, 2010	65.01	X
May 29, 2010	65.07	X
May 29, 2010	65.01	X
May 30, 2010	65.03	X
May 30, 2010	64.89	X
May 30, 2010	64.82	X
May 30, 2010	64.99	X
May 30, 2010	65.06	X
May 30, 2010	65.09	X
May 30, 2010	65.11	X
May 30, 2010	64.95	X
May 30, 2010	65.02	X
May 30, 2010	64.91	X
May 30, 2010	65.03	X
May 30, 2010	65.19	X
May 30, 2010	64.84	X
May 31, 2010	65.52	X
May 31, 2010	64.95	X
May 31, 2010	64.77	X
May 31, 2010	65.01	X

May 31, 2010	64.88	X
May 31, 2010	64.77	X
May 31, 2010	64.98	X
May 31, 2010	65.05	X
May 31, 2010	65.25	X
May 31, 2010	64.88	X
May 31, 2010	65.16	X
May 31, 2010	65.14	X
May 31, 2010	65.18	X
Jun 01, 2010	65.06	X
Jun 01, 2010	64.51	X
Jun 01, 2010	64.25	X
Jun 01, 2010	65.27	X
Jun 01, 2010	64.87	X
Jun 01, 2010	64.99	X
Jun 05, 2010	64.81	X

3H Efficiency
 Total # pts : 1461
 Valid # pts : 63
 Mean : 65.02
 SD : 0.20



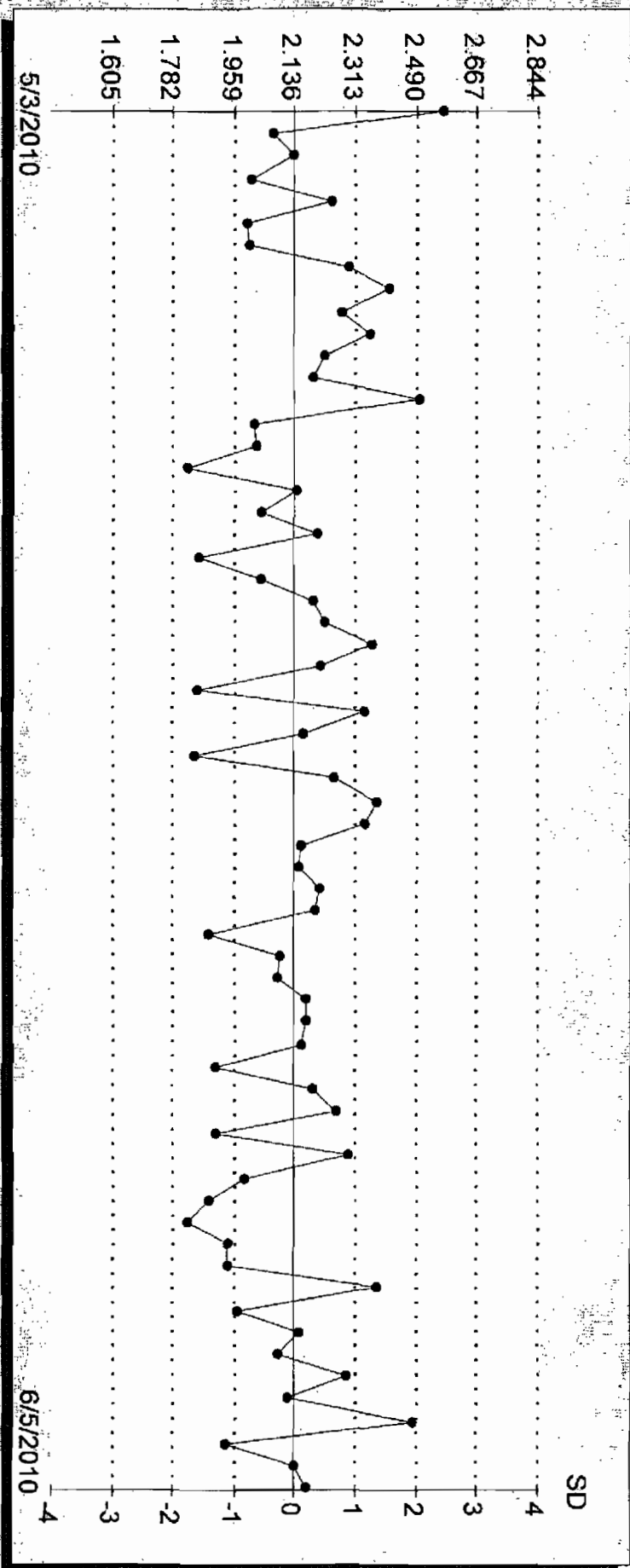
3H Background

Total # pts : 1424
Valid # pts : 63
Mean : 2.14
SD : 0.18

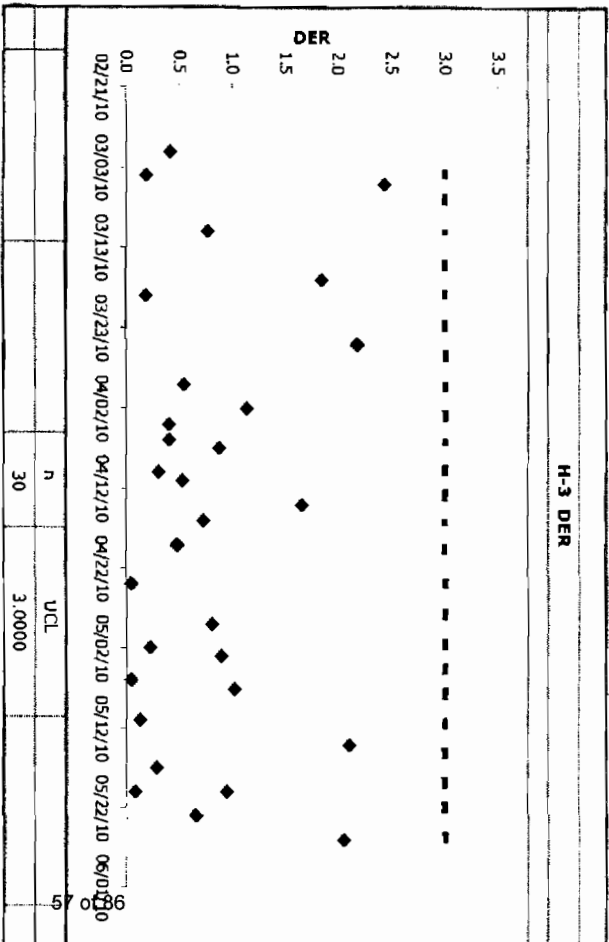
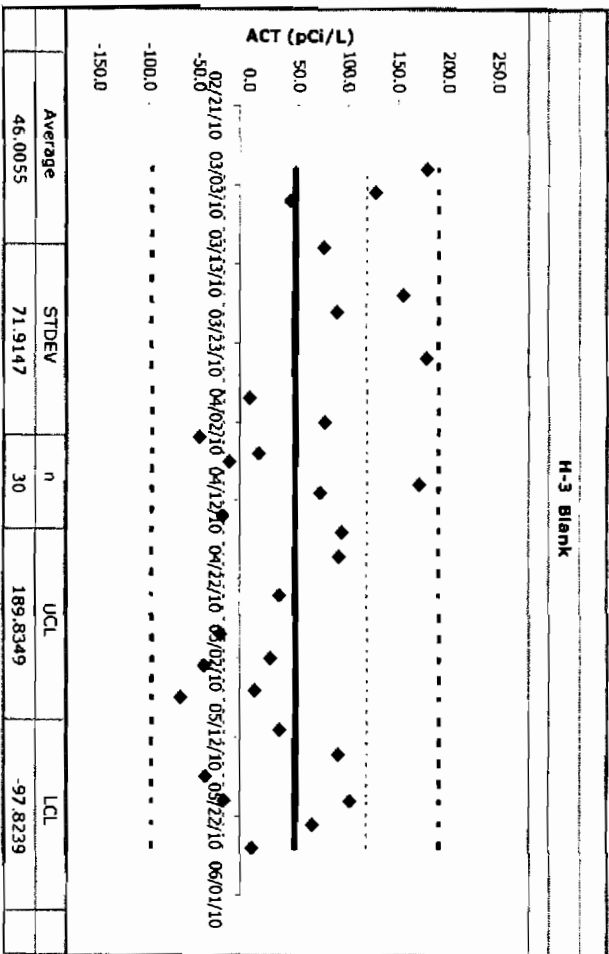
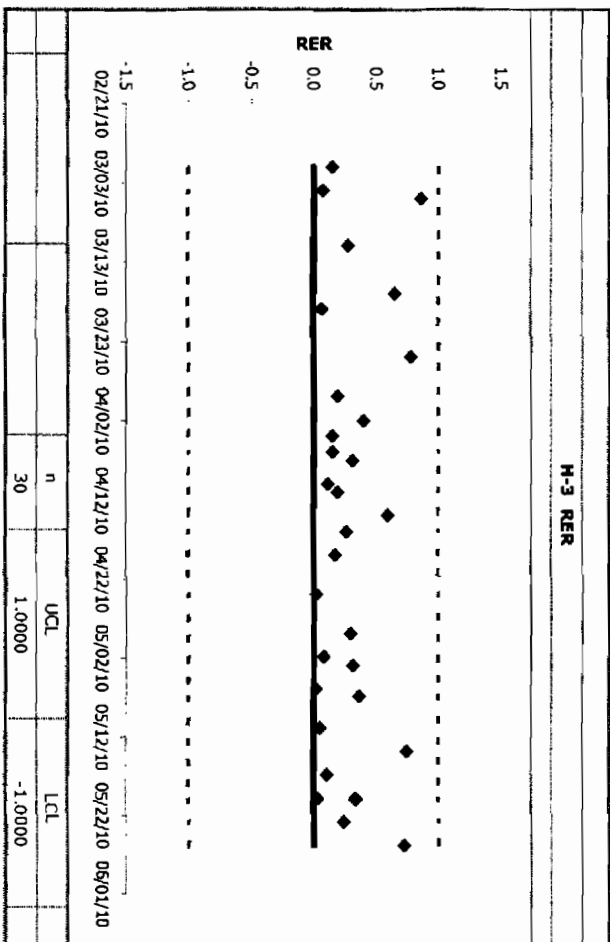
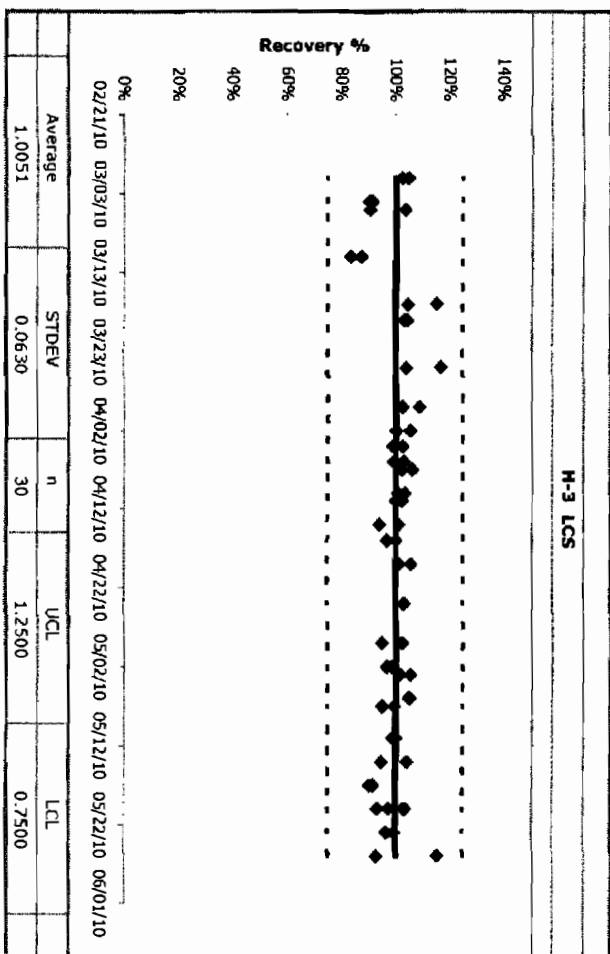
Date	Value	Valid Pt
May 03, 2010	2.57	X
May 07, 2010	2.07	X
May 11, 2010	2.14	X
May 20, 2010	2.01	X
May 23, 2010	2.25	X
May 26, 2010	2.00	X
May 26, 2010	2.00	X
May 26, 2010	2.29	X
May 27, 2010	2.41	X
May 27, 2010	2.27	X
May 27, 2010	2.35	X
May 27, 2010	2.22	X
May 27, 2010	2.19	X
May 27, 2010	2.50	X
May 28, 2010	2.01	X
May 28, 2010	2.02	X
May 28, 2010	1.82	X
May 28, 2010	2.14	X
May 28, 2010	2.03	X
May 28, 2010	2.20	X
May 28, 2010	1.86	X
May 28, 2010	2.04	X
May 28, 2010	2.19	X
May 29, 2010	2.22	X
May 29, 2010	2.36	X
May 29, 2010	2.21	X
May 29, 2010	1.85	X
May 29, 2010	2.34	X
May 29, 2010	2.16	X
May 29, 2010	1.84	X
May 30, 2010	2.25	X
May 30, 2010	2.38	X
May 30, 2010	2.34	X
May 30, 2010	2.16	X
May 30, 2010	2.15	X
May 30, 2010	2.21	X
May 30, 2010	2.20	X
May 30, 2010	1.88	X
May 30, 2010	2.09	X
May 30, 2010	2.08	X
May 30, 2010	2.16	X
May 30, 2010	2.17	X
May 30, 2010	2.15	X
May 31, 2010	1.90	X
May 31, 2010	2.19	X
May 31, 2010	2.26	X

May 31, 2010	2.29	X
May 31, 2010	1.99	X
May 31, 2010	1.88	X
May 31, 2010	1.82	X
May 31, 2010	1.94	X
May 31, 2010	1.94	X
May 31, 2010	2.38	X
May 31, 2010	1.97	X
May 31, 2010	2.15	X
Jun 01, 2010	2.09	X
Jun 01, 2010	2.29	X
Jun 01, 2010	2.11	X
Jun 01, 2010	2.48	X
Jun 01, 2010	1.94	X
Jun 01, 2010	2.13	X
Jun 05, 2010	2.17	X

3H Background : 1424
Total # pts : 63
Valid # pts : 2.14
Mean : 0.18
SD : 0.18



QC Chart





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American Radiation Services Analytical Reports

for

Los Alamos National Laboratory

**Low Level Liquid
Scintillation Counting**

**Calibration
Information**



QUALITY CONTROL PROGRAM
AMERICAN RADIATION SERVICES
RADIOACTIVE REFERENCE SOLUTIONS
ANNUAL ACTIVITY VERIFICATION

VERIFICATION DATE 3/28/2010 0:00 date counted
 STANDARD REFERENCE # S-0238

Principal Radionuclide

H-3

ENTER -->

Half Life, Years

1.232E+01

OR -->

Half Life, Days

4.4998E+034.4998E+03

Radionuclide

H-3

Dilution Reference Date

3/23/2010 12:50

Dilution Activity 2.51 pCi per gram ==> dpm/g 5.57
 Verif. Date Decay Corrected 2.51 pCi per gram ==> dpm/g 5.56

Minimum of 3 Required

Trial ID	Sample Counts	Count Time (min)	Detector	Efficiency	Bkg. (cpm)	Net Weight	Decay Corrected Activity Result (dpm/g)	Decay Corrected Activity Result (pCi/g)
S-0238-V1	16.12	1	LSC	0.3378	6.76	5.009	5.53	2.49
S-0238-V2	16.76	1	LSC	0.3394	6.76	5.019	5.87	2.64
S-0238-V3	16.59	1	LSC	0.3312	6.76	5.003	5.93	2.67
S-0238-V4	17.01	1	LSC	0.3402	6.76	5.023	6.00	2.70
S-0238-V5	16.72	1	LSC	0.3380	6.76	5.021	5.87	2.64

10% Max

PASS

Standard Deviation percent of known concentration

5% Max

PASS

Target Activity

% Diff

Average

Two Sigma Uncertainty

5.84	2.63
0.35	0.16
3.24%	3.24%
5.56	2.51
4.96%	4.96%

Verification Expiration Date: March 28, 2011

Prepared & Counted By

B. J. SmithDate: 3/28/2010 0:00

Verified & Approved By

Dwayne MulliganDate: 4-14-10 0900

QC Approval

B. J. SmithDate: 3-30-10/0815**S-0238****H-3****SL**

Manufacturer

Sol Matrix

Ref No

Tech

Parent ID

NIST SRM 4927F

H2O

NIST SRM 4927F

Unknown

S-0237

Verified 3/28/10Expires 3/28/11

RADIOACTIVE STANDARDS - BATON ROUGE LABORATORY



STD ID: S-0238



Add/Edit Secondary Stds

Parent Standard Data

Planning		Parent Solution Reference #			
Planning Comments	Create an H-3 LCS stock solution.	NIST SRM 4927F			
Target dpm/g (on dil. date)	5.5	Parent Solution #	S-0137		
Target Final volume mL	2000	Parent Principal Radionuclide	H-3	Half Life (Days)	4499.8008000
Appx mass g of Parent Sol'n	3.140091086	Parent Reference Date	03/22/2010 10:10		
Appx vol mL of Parent Sol'n	3.145753443	Parent Certified Act	3503.682716	Cert Act/Vol Units	dpm g
Expected Addition for Analysis g		Parent Cert Act Uncen 1 Sigma	0.0036		
		Parent Sp. Gravity G/mL	0.9982		
Standards Preparation / Dilution		Parent Supplier	NIST SRM 4927F		
Secondary Solution #	S-0238	Parent Date Recvd	01/02/00		
Dilution Date (New Ref Date)	03/23/2010 12:50	Parent Received By	Unknown		
Ampoule, Empty (g)		Parent Can Exp Date			
Ampoule / Solution Gross (g)		Parent Matrix	H2O		
Net Wt Removed (g)		Certified dpm/g At Ref Date	3503.682716		
Transfer Container, Empty (g)	13.2	Certified dpm/g on 03/23/2010 12:50	3503.683094		
Container Plus Solution (g)	16.364	Intermediate level H-3 standard for creating LCS solutions and matrix spikes. Dilution performed as stated above by B Steffens. -BJS 3/22/10			
Net Wt Transferred (g)	3.164	Parent Comments			
DPM Xferred on 03/23/2010 12:50	11083.75491	Parent Tech	Unknown		
Diluent/matrix	H2O	Is_Primary	FALSE		
Diluent Density Cont, Empty (g)		Is_LCS	TRUE		
Test Mass of 5 mL of Diluent (g)		Is_Tracer	FALSE		
Diluent Density Test - (g/mL)		Is_Calib	FALSE		
Dilution Empty Container Mass (g)	473.58				
Dilution Full Cont g (if measured)	2464.04				
Dilution Final Volume mL (if measured)	2000				
Final Dilution Density (g/mL)	0.99523				
Final Dilution Measured Mass g	1990.46				
Comments	Primary H-3 LCS stock solution. Dilution performed as stated above by B Steffens. -BJS 3/23/10				
Final Dilution dpm/g	5.568438909				
Final Dil New Ref Date/Time	03/23/2010 12:50				



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American Radiation Services Analytical Reports

for

Los Alamos National Laboratory

Percent Moisture



2609 North River Road, Port Allen, Louisiana 70767

1 (800) 401-4277 FAX (225) 381-2996

ARS Sample Delivery Group: ARS1-10-01011
Client Sample ID: MD21-10-15382
Sample Collection Date: 04/30/10
Sample Matrix: Silica

Request or PO Number: 10-2984
ARS Sample ID: ARS1-10-01011-001
Date Received: 05/04/10
Report Date: 06/08/10

Analysis Description	Analysis Results	Analysis Error +/- 1 s	MDC	DLC	Qual	Analysis Units	Analysis Test Method	Analysis Date/Time	Analysis Technician	Tracer/Chem Recovery
Percent Moisture	26.189	N/A	N/A	N/A		%	Percent Moisture	06/07/10 04:22	BS	N/A

NOTES: Project Cost Code MR8R032TNB00

Project Manager Review

Notes: American Radiation Services, Inc. assumes no liability for the use or interpretation of any analytical results provided other than the cost of the analysis itself. Reproduction of this report in less than full requires the written consent of the American Radiation Services, Inc.

LELAP Certificate# 01949

NELAP Certificate # E87558



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1 (800) 401-4277 FAX (225) 381-2996

ARS Sample Delivery Group: ARS1-10-01011
Client Sample ID: MD21-10-15383
Sample Collection Date: 04/30/10
Sample Matrix: Silica

Request or PO Number: 10-2984
ARS Sample ID: ARS1-10-01011-002
Date Received: 05/04/10
Report Date: 06/08/10

Analysis Description	Analysis Results	Analysis Error +/- 1 s	MDC	DLC	Qual	Analysis Units	Analysis Test Method	Analysis Date/Time	Analysis Technician	Tracer/Chem Recovery
Percent Moisture	25.833	N/A	N/A	N/A		%	Percent Moisture	06/07/10 07:29	BS	N/A

NOTES: Project Cost Code MRBR032TNB00

Project Manager Review

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ARS Sample Delivery Group: ARS1-10-01011
Client Sample ID: MD21-10-15384
Sample Collection Date: 04/30/10
Sample Matrix: Silica

Request or PO Number: 10-2984
ARS Sample ID: ARS1-10-01011-003
Date Received: 05/04/10
Report Date: 06/08/10

Analysis Description	Analysis Results	Analysis Error +/- 1 s	MDC	DLC	Qual	Analysis Units	Analysis Test Method	Analysis Date/Time	Analysis Technician	Tracer/Chem Recovery
Percent Moisture	21.004	N/A	N/A	N/A		%	Percent Moisture	06/07/10 10:36	BS	N/A

NOTES: Project Cost Code MR8R032TNB00

Project Manager Review

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ARS Sample Delivery Group: ARS1-10-01011

Client Sample ID: MD21-10-15385

Sample Collection Date: 04/30/10

Sample Matrix: Silica

Request or PO Number: 10-2984

ARS Sample ID: ARS1-10-01011-004

Date Received: 05/04/10

Report Date: 06/08/10

Analysis Description	Analysis Results	Analysis Error +/- 1 s	MDC	DLC	Qual	Analysis Units	Analysis Test Method	Analysis Date/Time	Analysis Technician	Tracer/Chem Recovery
Percent Moisture	18.543	N/A	N/A	N/A		%	Percent Moisture	06/07/10 13:43	BS	N/A

NOTES: Project Cost Code MR8R032TNB00

Project Manager Review

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ARS Sample Delivery Group: ARS1-10-01011
Client Sample ID: MD21-10-15386
Sample Collection Date: 04/30/10
Sample Matrix: Silica

Request or PO Number: 10-2984
ARS Sample ID: ARS1-10-01011-005
Date Received: 05/04/10
Report Date: 06/08/10

Analysis Description	Analysis Results	Analysis Error +/- 1 s	MDC	DLC	Qual	Analysis Units	Analysis Test Method	Analysis Date/Time	Analysis Technician	Tracer/Chem Recovery
Percent Moisture	32.192	N/A	N/A	N/A		%	Percent Moisture	06/07/10 16:50	BS	N/A

NOTES: Project Cost Code MR8R032TN800


Project Manager Review

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NELAP Certificate # E87558



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ARS Sample Delivery Group: ARS1-10-01011
Client Sample ID: MD21-10-15387
Sample Collection Date: 04/30/10
Sample Matrix: Silica

Request or PO Number: 10-2984
ARS Sample ID: ARS1-10-01011-006
Date Received: 05/04/10
Report Date: 06/08/10

Analysis Description	Analysis Results	Analysis Error +/- 1 s	HDC	DLC	Qual	Analysis Units	Analysis Test Method	Analysis Date/Time	Analysis Technician	Tracer/Chem Recovery
Percent Moisture	18.913	N/A	N/A	N/A		%	Percent Moisture	06/07/10 19:57	BS	N/A

NOTES: Project Cost Code MR8R032TNB00

SDL

Project Manager Review

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NELAP Certificate # EB7558



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ARS Sample Delivery Group: ARS1-10-01011
Client Sample ID: MD21-10-15388
Sample Collection Date: 04/30/10
Sample Matrix: Silica

Request or PO Number: 10-2984
ARS Sample ID: ARS1-10-01011-007
Date Received: 05/04/10
Report Date: 06/08/10

Analysis Description	Analysis Results	Analysis Error +/- 1 s	MDC	DLC	Qual	Analysis Units	Analysis Test Method	Analysis Date/Time	Analysis Technician	Tracer/Chem Recovery
Percent Moisture	18.360	N/A	N/A	N/A		%	Percent Moisture	06/07/10 23:04	BS	N/A
NOTES: Project Cost Code MR8R032TNB00										

Project Manager Review

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NELAP Certificate # E87558



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1 (800) 401-4277 FAX (225) 381-2996

ARS Sample Delivery Group: ARS1-10-01011
Client Sample ID: MD21-10-15389
Sample Collection Date: 04/30/10
Sample Matrix: Silica

Request or PO Number: 10-2984
ARS Sample ID: ARS1-10-01011-008
Date Received: 05/04/10
Report Date: 06/08/10

Analysis Description	Analysis Results	Analysis Error +/- 1 s	MDC	DLC	Qual	Analysis Units	Analysis Test Method	Analysis Date/Time	Analysis Technician	Tracer/Chem Recovery
Percent Moisture	13.928	N/A	N/A	N/A		%	Percent Moisture	06/08/10 02:10	BS	N/A

NOTES: Project Cost Code MR8R032TNB00

SDA

Project Manager Review

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NELAP Certificate # E87558



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ARS Sample Delivery Group: ARS1-10-01011
Client Sample ID: MD21-10-15390
Sample Collection Date: 04/30/10
Sample Matrix: Silica

Request or PO Number: 10-2984
ARS Sample ID: ARS1-10-01011-009
Date Received: 05/04/10
Report Date: 06/08/10

Analysis Description	Analysis Results	Analysis Error +/- 1 s	MDC	DLC	Qual	Analysis Units	Analysis Test Method	Analysis Date/Time	Analysis Technician	Tracer/Chem Recovery
Percent Moisture	22.934	N/A	N/A	N/A		%	Percent Moisture	06/08/10 05:17	BS	N/A

NOTES: Project Cost Code MR8R032TNB00

SPH

Project Manager Review

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ARS Sample Delivery Group: ARS1-10-01011
Client Sample ID: MD21-10-15391
Sample Collection Date: 04/30/10
Sample Matrix: Silica

Request or PO Number: 10-2984
ARS Sample ID: ARS1-10-01011-010
Date Received: 05/04/10
Report Date: 06/08/10

Analysis Description	Analysis Results	Analysis Error +/- 1 s	MDC	DLC	Qual	Analysis Units	Analysis Test Method	Analysis Date/Time	Analysis Technician	Tracer/Chem Recovery
Percent Moisture	26.480	N/A	N/A	N/A		%	Percent Moisture	06/08/10 08:24	BS	N/A

NOTES: Project Cost Code MR8R032TNB00

Project Manager Review

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American Radiation Services Analytical Reports

for

Los Alamos National Laboratory

Percent Moisture Laboratory Records

Port Allen, LA
PERCENT MOISTURE DETERMINATION IN SOILS

SDG Number ARS1-10-01008-01011
Client LANL

LANL ID	ARS ID	weight of cylinder with gel (g)	weight of empty cylinder (g)	Weight of gel (g)	amount of liquid collected (ml)	amount of liquid tested (ml)	% moisture
MD50-15799	ARS1-10-01008-001	598	443	156	8.244	5.057	5.28451538
MD50-15800	ARS1-10-01008-002	594	436	158	8.169	5.101	5.17025316
MD50-15801	ARS1-10-01008-003	598	439	159	10.995	5.084	6.91509434
MD50-15802	ARS1-10-01008-004	598	437	156	9.051	5.08	5.80192308
MD50-15803	ARS1-10-01008-005	602	441	162	12.479	5.08	7.70308642
MD50-15804	ARS1-10-01008-006	600	438	160	11.25	5.063	7.03125
MD50-15805	ARS1-10-01008-007	594	440	154	12.487	5.093	8.10844156
MD50-15806	ARS1-10-01008-008	596	439	157	7.494	5.116	4.77324841
MD50-15807	ARS1-10-01008-009	598	440	157	8.16	5.068	5.19745223
MD50-15808	ARS1-10-01008-010	603	442	161	11.168	5.103	6.93664596
MD21-10-15382	ARS1-10-01011-001	612	436	176	46.092	5.021	26.1886364
MD21-10-15383	ARS1-10-01011-002	643	448	195	50.375	5.061	25.83333333
MD21-10-15384	ARS1-10-01011-003	600	435	162	34.027	5.048	21.004321
MD21-10-15385	ARS1-10-01011-004	627	453	174	32.264	5.053	18.5425287
MD21-10-15386	ARS1-10-01011-005	640	452	144	46.356	5.047	32.1916667

MD21-10-15387	ARS1-10-01011-006	603	430	173	32.719	5.036	18.9127168
MD21-10-15388	ARS1-10-01011-007	609	437	172	31.58	5.037	18.3604651
MD21-10-15389	ARS1-10-01011-008	610	451	159	22.145	5.092	13.927673
MD21-10-15390	ARS1-10-01011-009	637	455	182	41.739	5.053	22.9336165
MD21-10-15391	ARS1-10-01011-010	631	445	186	49.253	5.049	26.4801075

Balance ID: 0102/H1331122173560P
Pipettor ID: FJ40469

Signature

[Handwritten Signature]

Date

5-24-10

MD21-10-15387	ARS1-10-01011-006	U03	436	173	32.719	5.034	#DIV/0!
MD21-10-15388	ARS1-10-01011-007	U09	437	172	31.580	5.037	#DIV/0!
MD21-10-15389	ARS1-10-01011-008	U10	451	179	22.145	5.092	#DIV/0!
MD21-10-15390	ARS1-10-01011-009	U37	455	182	41.739	5.053	#DIV/0!
MD21-10-15391	ARS1-10-01011-010	U31	445	4 180	49.255	5.044	#DIV/0!

Balance ID: 0102/H1331122173560P
Pipettor ID: FJ40469

Signature: Matthew Adk Date: 5-24-10

Port Allen, LA
PERCENT MOISTURE DETERMINATION IN SOILS

SDG Number ARS1-10-01008-01011
Client LANL

LANL ID	ARS ID	weight of cylinder with gel (g)	weight of empty cylinder (g)	Weight of gel (g)	amount of liquid collected (ml)	amount of liquid tested (ml)	% moisture
MD50-15799	ARS1-10-01008-001	598	443	156	8.244	5.057	#DIV/0!
MD50-15800	ARS1-10-01008-002	594	436	158	8.169	5.101	#DIV/0!
MD50-15801	ARS1-10-01008-003	598	439	159	10.995	5.084	#DIV/0!
MD50-15802	ARS1-10-01008-004	598	437	154	9.051	5.080	#DIV/0!
MD50-15803	ARS1-10-01008-005	602	441	162	12.479	5.080	#DIV/0!
MD50-15804	ARS1-10-01008-006	600	438	160	11.250	5.043	#DIV/0!
MD50-15805	ARS1-10-01008-007	594	440	154	12.487	5.093	#DIV/0!
MD50-15806	ARS1-10-01008-008	596	439	157	7.494	5.116	#DIV/0!
MD50-15807	ARS1-10-01008-009	598	440	157	8.160	5.068	#DIV/0!
MD50-15808	ARS1-10-01008-010	603	442	161	11.168	5.103	#DIV/0!
MD21-10-15382	ARS1-10-01011-001	612	436	176	46.092	5.021	#DIV/0!
MD21-10-15383	ARS1-10-01011-002	643	448	195	50.375	5.001	#DIV/0!
MD21-10-15384	ARS1-10-01011-003	600	435	162	34.027	5.048	#DIV/0!
MD21-10-15385	ARS1-10-01011-004	627	433	174	32.264	5.053	#DIV/0!
MD21-10-15386	ARS1-10-01011-005	640	452	144	46.356	5.047	#DIV/0!

LCS: 5.094
LCSD: 5.01
MRL: 5.043



2609 North River Road • Port Allen, Louisiana 70767

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American Radiation Services Analytical Reports

for

Los Alamos National Laboratory

Folder Duplicate



Report Compilation Checklist

ARS SDG: 10-01011 Client Name: LANL Sample Matrix: SI

LEVEL 1 COMPONENTS

	1st Reviewer		
1) Cover Page Complete and Accurate (see ARS-059)?	<input checked="" type="checkbox"/> Yes	No	N/A
2) Technical Review Checklist(s) Complete and Accurate?	<input checked="" type="checkbox"/> Yes	No	N/A
3) Case Narrative Complete and Accurate (see ARS-059)?	<input checked="" type="checkbox"/> Yes	No	N/A
4) Form 1s Present for all Samples and Tests?	<input checked="" type="checkbox"/> Yes	No	N/A
5) Client Specific Components are Present and Complete?	<input checked="" type="checkbox"/> Yes	No	N/A

LEVEL 2 COMPONENTS

	1st Reviewer		
6) Batch Quality Control Report is Present and Accurate?	<input checked="" type="checkbox"/> Yes	No	N/A
7) DQO Report is Present and Accurate?	<input checked="" type="checkbox"/> Yes	No	N/A
8) Client Specific Batch QC Components are Present and Complete?	<input checked="" type="checkbox"/> Yes	No	N/A

LEVEL 3 COMPONENTS

	1st Reviewer		
9) Efficiencies are Present?	<input checked="" type="checkbox"/> Yes	No	N/A
10) Calibrations are Present?	<input checked="" type="checkbox"/> Yes	No	N/A
11) Backgrounds are Present?	<input checked="" type="checkbox"/> Yes	No	N/A
12) Spectrum Analysis is Present?	<input checked="" type="checkbox"/> Yes	No	N/A
13) Spectral Plots are Present?	<input checked="" type="checkbox"/> Yes	No	N/A
14) Plateaus are Present?	<input checked="" type="checkbox"/> Yes	No	N/A
15) Control Charts are Present?	<input checked="" type="checkbox"/> Yes	No	N/A
16) Other:	Yes	No	<input checked="" type="checkbox"/> N/A

LEVEL 4 COMPONENTS

	1st Reviewer		
17) Preparation Raw Data Present and Complete?	<input checked="" type="checkbox"/> Yes	No	N/A
18) Instrument Raw Data Present and Complete?	<input checked="" type="checkbox"/> Yes	No	N/A
19) Calibration Certificates Present?	<input checked="" type="checkbox"/> Yes	No	N/A
20) Copies of Log Book Pages Present?	<input checked="" type="checkbox"/> Yes	No	N/A
21) Sample Receiving Documentation Present?	<input checked="" type="checkbox"/> Yes	No	N/A
22) LIMS Reports Present?	<input checked="" type="checkbox"/> Yes	No	N/A
23) Applicable Correspondence Present?	<input checked="" type="checkbox"/> Yes	No	N/A
24) Other:	Yes	No	<input checked="" type="checkbox"/> N/A

Susan Reese
Report Generator Signature

6-8-10
Date

99M
Management Review Signature

6-8-10
Date



LSC
Technical Review Checklist

ARS SDG ARS1-10-01011

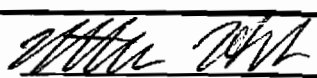

Sample Matrix: SI Aliquot (Circle One): Dry As Received Filtered Other: _____

Required QC Samples (Mark all that apply): Blank ☒ LOS ☒ LOSD ☒ Sample Dup MS MSD

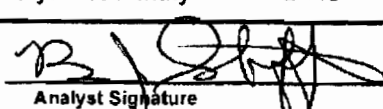
ARS A. Batch ID(s): Batch A: B10-02636 Batch B: N/A Batch C: N/A

Test Method(s): LCS-A-001 N/A N/A

A. RADIOCHEMICAL PREPARATION REVIEW

	Chemist Review	Verifier Review
1) 100% of Manual Transcriptions Verified?	<input checked="" type="radio"/> Yes No N/A	<input checked="" type="radio"/> Yes No N/A
2) 100% of Manual Calculations Verified?	Yes No <input checked="" type="radio"/> N/A	Yes No <input checked="" type="radio"/> N/A
3) Blank Composition/Configuration Matches Calibration?	<input checked="" type="radio"/> Yes No N/A	<input checked="" type="radio"/> Yes No N/A
4) Deviations from procedure are documented and verified?	Yes No <input checked="" type="radio"/> N/A	Yes No <input checked="" type="radio"/> N/A
5) Appropriate Cocktail Selected?	<input checked="" type="radio"/> Yes No N/A	<input checked="" type="radio"/> Yes No N/A
6) Sample Prep Anomaly? <input checked="" type="checkbox"/> No <input type="checkbox"/> Yes (See Tech Notes) NCR # (If initiated): _____		
 Chemist Signature	<u>6-7-10</u> Date	 Verifier Review Signature
		<u>6-7-10</u> Date

B. ANALYSIS REVIEW

	Analyst Review	QA Officer Review
1) Calibrations Valid and Current?	<input checked="" type="radio"/> Yes No N/A	Yes No N/A
2) Backgrounds Valid and Current?	<input checked="" type="radio"/> Yes No N/A	Yes No N/A
3) Source Checks Completed and Acceptable?	<input checked="" type="radio"/> Yes No N/A	Yes No N/A
QA Officer Signature _____ Date _____		
	Analyst Review	Technical Review
4) Background Checks Complete and Acceptable?	<input checked="" type="radio"/> Yes No N/A	Yes No N/A
5) 100% of Manually Entered Parameters Verified Accurate?	<input checked="" type="radio"/> Yes No N/A	Yes No N/A
6) Appropriate QC samples initiated at required frequency?	<input checked="" type="radio"/> Yes No N/A	Yes No N/A
6) Test/Sample Specific Parameters (See ARS-059 for details)		
a) Analysis Parameters Checked and Correct and Peak Shapes are Acceptable?	<input checked="" type="radio"/> Yes No N/A	Yes No N/A
b) Spectra show no Evidence of Interferences?	<input checked="" type="radio"/> Yes No N/A	Yes No N/A
c) Sample Quench for All Samples within Range of Quench Curve?	<input checked="" type="radio"/> Yes No N/A	Yes No N/A
7) Analysis Anomaly? <input checked="" type="checkbox"/> No <input type="checkbox"/> Yes (See Comments) NCR # (If initiated): _____		
 Analyst Signature	<u>6-8-10</u> Date	<u>N/A</u> Technical Reviewer Signature
		 Date



Batch A: B10-02636

C. BATCH QC VALIDATION

	Proj. Mgr. Review			QA Officer Review		
1) Activity + 3xCSU a Negative Number?	Yes	No	N/A	Yes	No	N/A
2) RDL Criteria are Met?	Yes	No	N/A	Yes	No	N/A
3) Method Blank Criterion Met?	Yes	No	N/A	Yes	No	N/A
4) LCS/LCD Criteria Met?	Yes	No	N/A	Yes	No	N/A
5) Duplicate (Sample Duplicate, LCSD, MSD) Criteria Met?	Yes	No	N/A	Yes	No	N/A
6) MS/MSD Criteria Met?	Yes	No	N/A	Yes	No	N/A
7) Batch QC Anomaly? <input type="checkbox"/> No <input type="checkbox"/> Yes (See Tech Notes) NCR # (If initiated): _____						
Project Manager Signature		Date		QA Officer Signature		Date

GENERAL COMMENTS

This image shows a single sheet of white paper with horizontal blue or grey ruling lines. The lines are evenly spaced and run across the width of the page. There is no handwriting or other markings on the paper.

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SDG Report - Samples and Containers

SDG Specific Data				Project Type			
SDG	ARS1-10-01011	Rpt Level	4	TAT Days	30	COC Number	Environmental
Sample Count	Los Alamos National Laboratory	Date Received	5/4/2010	PO Number	MR8R0327NB00	Job Number	63641-001-10
Client	114	Internal Deadline	6/1/2010	Job Location			
Client Code	PN-00094	Lab Deadline	5/28/2010				
Profile Number							
Comments							

Samples and Containers (→) Checked In Thus Far													
FR	ClientID	Matrix	SampleStartDate	SampleEndDate	Disp	Held	Arch	Storage	X	Units	Y	Units	Comments
→	001	MD21-10-15382	SI	04/30/10 12:00 PM	04/30/10 12:00 PM	H	90	5	06		N	N/A	
		60243	1					70	20				
→	002	MD21-10-15383	SI	04/30/10 12:00 PM	04/30/10 12:00 PM	H	90	5	06		N	N/A	
		60244	1					70	20				
→	003	MD21-10-15384	SI	04/30/10 12:00 PM	04/30/10 12:00 PM	H	90	5	06		N	N/A	
		60245	1					70	20				
→	004	MD21-10-15385	SI	04/30/10 12:00 PM	04/30/10 12:00 PM	H	90	5	06		N	N/A	
		60246	1					70	20				
→	005	MD21-10-15386	SI	04/30/10 12:00 PM	04/30/10 12:00 PM	H	90	5	06		N	N/A	
		60247	1					80	20				
→	006	MD21-10-15387	SI	04/30/10 12:00 PM	04/30/10 12:00 PM	H	90	5	06		N	N/A	
		60248	1					80	20				
→	007	MD21-10-15388	SI	04/30/10 12:00 PM	04/30/10 12:00 PM	H	90	5	06		N	N/A	
		60249	1					70	20				
→	008	MD21-10-15389	SI	04/30/10 12:00 PM	04/30/10 12:00 PM	H	90	5	06		N	N/A	
		60250	1					80	20				
→	009	MD21-10-15390	SI	04/30/10 12:00 PM	04/30/10 12:00 PM	H	90	5	06		N	N/A	
		60251	1					70	20				
→	010	MD21-10-15391	SI	04/30/10 12:00 PM	04/30/10 12:00 PM	H	90	5	06		N	N/A	
		60252	1					70	20				

SDG Report - Analysis Assignments

Temp SDG	ARS1-10-01011	Sample Count	
Client	Los Alamos National Laboratory	Analysis Count	1-10

Samples Count Totals per Analysis		
Analysis Code	Analysis Description	Samples Count
LSC-A-001	Tritium in (Water [Aqueous, AQ, SI])	10

Analyses Assigned Per Fraction		
Fraction	Analysis Code	X = Assigned
001	LSC-A-001	X
002	LSC-A-001	X
003	LSC-A-001	X
004	LSC-A-001	X
005	LSC-A-001	X
006	LSC-A-001	X
007	LSC-A-001	X
008	LSC-A-001	X
009	LSC-A-001	X
010	LSC-A-001	X

ARS FILE TRACKING SHEET

SDG: 10-01011

Task	Date / Time	Initials
Date & Time Samples Received	5-4-10/10:20	WAZ
ICOC Initiated / Storage Location: <u>O6</u>	5-4-10/16:15	WAZ
Technical Checks Performed	See batch	
Report Written	6-8-10/1520	SDL
Quality Assurance Checks Performed on Report	6-8-10	MM
Management Check Performed on Report	1608	MM
Preliminary Report Sent		
Report E-mailed		
Report Faxed		
Report Reviewed		
Report Mailed		
Invoice Completed Invoice #: _____		
Report Imaged		

SPECIAL REQUIREMENTS

Requirement	Yes	No
3 Hour Rush		✓
24 Hour Rush		✓
48 Hour Rush		✓
Special Invoicing ^{see notes} Mgmt. Approval: _____		✓

NOTES:

ARS-062
07/03/2009

SDG: 10-01611

SHIPPING CONTAINER

Good Condition ☒ Yes ☐ No
Radioactive ☐ Yes ☒ No
UN2910 ☐ Yes ☒ No
Sec. Seals ☒ Yes ☐ No
Seals Intact ☒ Yes ☐ No ☐ N/A
Air Bill ☐ Yes ☒ No

COC PRESENT WITH SAMPLES

COC ☒ Yes ☐ No

SAMPLE CONTAINER(S)

Good Condition ☒ Yes ☐ No
 Sec. Seals ☐ Yes ☒ No
 Seal Intact ☐ Yes ☐ No ☒ N/A
 Radioactive ☐ Yes ☒ No

Samples Rcv

Matrix [AF , AQ , BI , FE , LT , (SI) SO , UR , VG]

Exposure Rate Meter: <u>M3242861</u>	Serial No.: <u>442PR264266</u>	Calibration Due Date: <u>4-19-11</u>
Count Rate Meter: <u>M2154859</u>	Serial No.: <u>442PR184559</u>	Calibration Due Date: <u>4-6-11</u>
Background Exposure Rate ($\mu\text{R/hr}$) <u>20</u>	Max. Exposure Rate on Shipping Containers Externals (Plus Bkgd) <u>20</u> $\mu\text{R/hr}$	
Background Count Rate (cpm) <u>60</u>	Max. Removable Count Rate on Shipping Containers Externals (Plus Bkgd) <u>60</u> cpm	
	Max. Removable Count Rate on Shipping Containers Internals (Plus Bkgd) <u>60</u> cpm	

[illegible]

Survivors'

Name:

William Zecher

Date/Time Surveyed:

5-4-10

15:13

SAMPLE CHECK-IN COMMENT SHEET

SDG: 10-01011This image shows a single sheet of white paper with horizontal blue or grey ruling lines. The lines are evenly spaced and run across the width of the page. There is no handwriting or other markings on the paper.