

Monday, September 19, 2011

REQUEST NUMBER: 11-3626

**LOS ALAMOS
NATIONAL LABORATORY**

ATTN: Danny Coleman

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

These Samples are on:

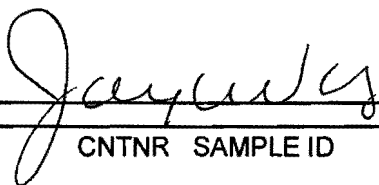
LANL Request Number: 11-3626
Per Agreement Number: 63641-001-10
Project Cost Code: MR8R032NFM00

Please analyse the enclosed samples
according to the schedule indicated:

SHIP DATE: 9/19/2011**TURNAROUND/REPORT DUE: 10/19/2011****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	MD21-11-26384	GAS	9/15/2011	
		1	MD21-11-26385	GAS	9/15/2011	
		1	MD21-11-26386	GAS	9/15/2011	
		1	MD21-11-26387	GAS	9/15/2011	
		1	MD21-11-26388	GAS	9/15/2011	
		1	MD21-11-26389	GAS	9/15/2011	
		1	MD21-11-26390	GAS	9/15/2011	
		1	MD21-11-26391	GAS	9/15/2011	
		1	MD21-11-26392	GAS	9/15/2011	
		1	MD21-11-26393	GAS	9/15/2011	

Monday, September 19, 2011

LAB CHAIN OF CUSTODY DOCUMENT NUMBER: 11-3626C

LOS ALAMOS

REQUEST NUMBER: 11-3626

NATIONAL LABORATORY

ATTN: Danny Coleman

TURNAROUND/REPORT DUE: 10/19/2011

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
MD21-11-26384	1	SILICA GEL TUBE	H3	None	GAS
MD21-11-26391	1	SILICA GEL TUBE	H3	None	GAS
MD21-11-26388	1	SILICA GEL TUBE	H3	None	GAS
MD21-11-26389	1	SILICA GEL TUBE	H3	None	GAS
MD21-11-26385	1	SILICA GEL TUBE	H3	None	GAS
MD21-11-26386	1	SILICA GEL TUBE	H3	None	GAS
MD21-11-26393	1	SILICA GEL TUBE	H3	None	GAS
MD21-11-26387	1	SILICA GEL TUBE	H3	None	GAS
MD21-11-26390	1	SILICA GEL TUBE	H3	None	GAS
MD21-11-26392	1	SILICA GEL TUBE	H3	None	GAS

Relinquished By:

Date

Time

Received By:

Date

Time

Signature

Signature

Signature

Signature

Signature

Signature

Received for DISPOSAL By:

Date

Time

Remarks:

Signature

SAMPLE COLLECTION LOG/FIELD CHAIN OF CUSTODY

EVENT ID: 3592

EVENT NAME: MDA V Pore Gas Sampling - CU 21-018(a)-99

SAMPLE ID: MD21-11-26384

WORK ORDER:

AS PLANNED		AS COLLECTED		AS PLANNED		AS COLLECTED	
DATE COLLECTED(MM/DD/YYYY):		9/15/11		MEDIA:	NA		
TIME COLLECTED (HH:MM)		1100		SUB-MEDIA:	OTHER		
PRS ID:	21-018(a)-99	OK		SAMPLE TECH CODE:	VOST		
LOCATION ID:	21-24524W	OK		FIELD QC TYPE:	NA		
LOCATION TYPE:	BH	OK		FIELD PREP:	NA		
TOP DEPTH:	42.5	OK		SAMPLE USAGE:	INV		
BOTTOM DEPTH:	47.5	OK		SCREEN/PORT DESC:			
FIELD MATRIX:	GAS	OK		EXCAVATED: YES/NO	NA		
COMPOSITE TYPE:	NA			COMPOSITE TIME INTERVAL:	NA		
BOREHOLE: YES/NO/NA				WATER FLOWING: YES/NO	NA		
BOREHOLE DECLINATION:	NA			BOREHOLE DIRECTION:	90°		

#	PRIORITY	ORDER	CNTNR	PRESERVATIVE	COLLECTED Y/N	SPECIAL INSTRUCTIONS
1		H3	1 EA SILICA GEL TUBE	None	Y	NA
1		TO15	6 LITER SUMMA CANISTER	None		Not collected, not sampled

SAMPLE DESC:

column # 221 initial wt 603.63g Final wt 622.22g
silica wt 602.32g Vapor wt 654.13g
146.96g 51.61g

SAMPLE COMMENTS:

weather data @ 1055 T = 55°F RH = 77% BP = 30.29 in

LOCATION DESC:

FIELD SCREENING/MEASUREMENT RESULTS:

atm O₂ 20.9% CO₂ 530 ppm
subatm O₂ 21.9% CO₂ 2.19%

COLLECTED BY (PRINT) R. Ong J. M. G. G. REVIEWED BY (PRINT) M. G. G.

RELINQUISHED BY	Date/Time	RECEIVED BY	Date/Time
(Printed Name) Rance D. G. G.	9/16/11	(Printed Name) Sheri Sherwood	9/16/11
(Signature) Rance D. G. G.	1500	(Signature) Sheri Sherwood	1500
RELINQUISHED BY	Date/Time	RECEIVED BY	Date/Time
(Printed Name)		(Printed Name)	
(Signature)		(Signature)	

SAMPLE COLLECTION LOG/FIELD CHAIN OF CUSTODY

EVENT ID: 3592

EVENT NAME: MDA V Pore Gas Sampling - CU 21-018(a)-99

SAMPLE ID: MD21-11-26385

WORK ORDER:

	AS PLANNED	AS COLLECTED		AS PLANNED	AS COLLECTED
DATE COLLECTED(MM/DD/YYYY):		9/15/11	MEDIA:	NA	ok
TIME COLLECTED (HH:MM)		1600	SUB-MEDIA:	OTHER	
PRS ID:	21-018(a)-99	ok	SAMPLE TECH CODE:	VOST	
LOCATION ID:	21-24524W	ok	FIELD QC TYPE:	NA	
LOCATION TYPE:	BH	ok	FIELD PREP:	NA	
TOP DEPTH:	122.5	ok	SAMPLE USAGE:	INV	
BOTTOM DEPTH:	127.5	ok	SCREEN/PORT DESC:		
FIELD MATRIX:	GAS	ok	EXCAVATED: YES/NO	NA	
COMPOSITE TYPE:	MM		COMPOSITE TIME INTERVAL:	MM	
BOREHOLE: YES/NO/NA	YES		WATER FLOWING: YES/NO	NA	
BOREHOLE DECLINATION:	MM		BOREHOLE DIRECTION:	90°	

#	PRIORITY	ORDER	CNTNR	PRESERVATIVE	COLLECTED Y/N	SPECIAL INSTRUCTIONS
1		H3	1 EA SILICA GEL TUBE	None	Y	NA
1		TO15	6 LITER SUMMA CANISTER	None		no 8/19/11 Not collected, not sampled for

SAMPLE DESC:

column #
198initial wt 599.20g
silica wt = 152.22gFinal wt 649.10g
var wt 49.90g

SAMPLE COMMENTS:

weather: data @ 1055 T=55°F RH=77% BP=30.29 in

LOCATION DESC:

MM

FIELD SCREENING/MEASUREMENT RESULTS:

atm O₂ 20.9% CO₂ 530 ppm
sub atm O₂ 20.0% CO₂ 510 ppm

COLLECTED BY (PRINT)

K Onst

M Garji

REVIEWED BY (PRINT)

M/Brom

RELINQUISHED BY	Date/Time	RECEIVED BY	Date/Time
(Printed Name) Kavee Onst	9/16/11	(Printed Name) Sheri Sherwood	9/16/11
(Signature) Kavee Onst	1500	(Signature) Sheri Sherwood	1500
RELINQUISHED BY	Date/Time	RECEIVED BY	Date/Time
(Printed Name)		(Printed Name)	
(Signature)		(Signature)	

SAMPLE COLLECTION LOG/FIELD CHAIN OF CUSTODY

EVENT ID: 3592

EVENT NAME: MDA V Pore Gas Sampling - CU 21-018(a)-99

SAMPLE ID: MD21-11-26386

WORK ORDER:

AS PLANNED		AS COLLECTED		AS PLANNED		AS COLLECTED	
DATE COLLECTED(MM/DD/YYYY):		9/18/11		MEDIA:	NA		OK
TIME COLLECTED (HH:MM)		1100		SUB-MEDIA:	OTHER		
PRS ID:	21-018(a)-99	OK		SAMPLE TECH CODE:	VOST		
LOCATION ID:	21-24524W	OK		FIELD QC TYPE:	NA		
LOCATION TYPE:	BH	OK		FIELD PREP:	NA		
TOP DEPTH:	172.5	OK		SAMPLE USAGE:	INV		
BOTTOM DEPTH:	177.5	OK		SCREEN/PORT DESC:			
FIELD MATRIX:	GAS	OK		EXCAVATED: YES/NO/NA	NA		part 3
COMPOSITE TYPE:	17/15/11 NA			COMPOSITE TIME INTERVAL:	NA		
BOREHOLE: YES/NO/NA	YES/NO/NA			BOREHOLE DECLINATION:	NA		
BOREHOLE DIRECTION:	90°						

#	PRIORITY	ORDER	CNTNR	PRESERVATIVE	COLLECTED Y/N	SPECIAL INSTRUCTIONS
1		H3	1 EA SILICA GEL TUBE	None	Y	NA
1		TO15	6 LITER SUMMA CANISTER	None		

SAMPLE DESC:

column 209 initial wt 603.68g Final wt = 622.23g
 silica wt 151.92g vapor = 18.60g

SAMPLE COMMENTS:

weather data @ 1055 T = 55°F RH = 77% BP = 30.29 in

LOCATION DESC:

NA

FIELD SCREENING/MEASUREMENT RESULTS:

atm O₂ 20.9% CO₂ 530 ppm
 sub atm O₂ 20.1% CO₂ 4560 ppm

COLLECTED BY (PRINT)

R Orest M George

REVIEWED BY (PRINT)

all Grey

RELINQUISHED BY	Date/Time	RECEIVED BY	Date/Time
(Printed Name) Rave Orest	9/16/11	(Printed Name) Sheri Merwood	9/16/11
(Signature) Rave Orest	1500	(Signature) Sheri Merwood	1800
RELINQUISHED BY	Date/Time	RECEIVED BY	Date/Time
(Printed Name)		(Printed Name)	
(Signature)		(Signature)	

SAMPLE COLLECTION LOG/FIELD CHAIN OF CUSTODY

EVENT ID: 3592

EVENT NAME: MDA V Pore Gas Sampling - CU 21-018(a)-99

SAMPLE ID: MD21-11-26387

WORK ORDER:

AS PLANNED		AS COLLECTED		AS PLANNED		AS COLLECTED	
DATE COLLECTED(MM/DD/YYYY):		9/15/11		MEDIA:	NA		
TIME COLLECTED (HH:MM)		1100		SUB-MEDIA:	OTHER		
PRS ID:	21-018(a)-99	OK		SAMPLE TECH CODE:	VOST		
LOCATION ID:	21-24524W	OK		FIELD QC TYPE:	NA		
LOCATION TYPE:	BH	OK		FIELD PREP:	NA		
TOP DEPTH:	257.5	OK		SAMPLE USAGE:	INV		
BOTTOM DEPTH:	262.5	OK		SCREEN/PORT DESC:			
FIELD MATRIX:	GAS	OK		EXCAVATED: YES/NO	NA		
COMPOSITE TYPE:	NA			COMPOSITE TIME INTERVAL:			
BOREHOLE: YES/NO/NA	YES			BOREHOLE DECLINATION:	NA		
				BOREHOLE DIRECTION:	70°		

#	PRIORITY	ORDER	CNTNR	PRESERVATIVE	COLLECTED Y/N	SPECIAL INSTRUCTIONS
1		H3	1 EA SILICA GEL TUBE	None	Y	NA
1		TO15	6 LITER SUMMA CANISTER	None		10/8/11 Not collected NA sampled loss

SAMPLE DESC:

column n #
213initial wt 582.57g Final wt 627.68g
silica wt 146.04g Vapor wt 45.11g

SAMPLE COMMENTS:

weather data @ 1055 T = 55°F RH 77% BP = 30.29" Hg

LOCATION DESC:

NA

FIELD SCREENING/MEASUREMENT RESULTS:

atm O₂ 20.9% CO₂ 530ppm
sub atm O₂ 5110ppm CO₂ 20.2%

COLLECTED BY (PRINT)

R. Onstott M. Boring

REVIEWED BY (PRINT)

cll V Boring

RELINQUISHED BY (Printed Name) Kane Onstott (Signature) Kane Onstott	Date/Time 9/16/11 1500	RECEIVED BY (Printed Name) Sheri Sherwood (Signature) Sheri Sherwood	Date/Time 9/16/11 1800
RELINQUISHED BY (Printed Name) (Signature)	Date/Time	RECEIVED BY (Printed Name) (Signature)	Date/Time

SAMPLE COLLECTION LOG/FIELD CHAIN OF CUSTODY

EVENT ID: 3592

EVENT NAME: MDA V Pore Gas Sampling - CU 21-018(a)-99

SAMPLE ID: MD21-11-26388

WORK ORDER:

AS PLANNED		AS COLLECTED		AS PLANNED		AS COLLECTED	
DATE COLLECTED(MM/DD/YYYY):		9/15/11		MEDIA:	NA		ok
TIME COLLECTED (HH:MM)		1100		SUB-MEDIA:	OTHER		
PRS ID:	21-018(a)-99			SAMPLE TECH CODE:	VOST		
LOCATION ID:	21-24524W		ok	FIELD QC TYPE:	NA		
LOCATION TYPE:	BH		ok	FIELD PREP:	NA		
TOP DEPTH:	300		ok	SAMPLE USAGE:	INV		
BOTTOM DEPTH:	305		ok	SCREEN/PORT DESC:			prt 5
FIELD MATRIX:	GAS		ok	EXCAVATED: YES/NO/NA	NA		
COMPOSITE TYPE:	NA			COMPOSITE TIME INTERVAL:			
BOREHOLE: YES/NO/NA	YES			BOREHOLE DECLINATION:	NA		
				BOREHOLE DIRECTION:	90°		

#	PRIORITY	ORDER	CNTNR	PRESERVATIVE	COLLECTED Y/N	SPECIAL INSTRUCTIONS
1		H3	1 EA SILICA GEL TUBE	None	Y	NA
1		TO15	6 LITER SUMMA CANISTER	None		

SAMPLE DESC:

column # 230 initial wt 602.91g Final wt 648.04g
 silica wt 151.77g vapor wt 42.13g

SAMPLE COMMENTS:

weather data @ 1055 T=55°F RH=77% BP=30.29 in

LOCATION DESC:

NA

FIELD SCREENING/MEASUREMENT RESULTS:

atm O₂ 20.9% CO₂ 530ppm
 sub atm O₂ 20.3% CO₂ 5050ppm

COLLECTED BY (PRINT) Rong H M Biao, REVIEWED BY (PRINT) J. H. Gray

RELINQUISHED BY (Printed Name) Karice Onstott (Signature) Karice Onstott	Date/Time 9/16/11 1500	RECEIVED BY (Printed Name) Sherry Sherwood (Signature) Sherry Sherwood	Date/Time 9/16/11 1800
RELINQUISHED BY (Printed Name) (Signature)	Date/Time	RECEIVED BY (Printed Name) (Signature)	Date/Time

SAMPLE COLLECTION LOG/FIELD CHAIN OF CUSTODY

EVENT ID: 3592

EVENT NAME: MDA V Pore Gas Sampling - CU 21-018(a)-99

SAMPLE ID: MD21-11-26389

WORK ORDER:

AS PLANNED		AS COLLECTED		AS PLANNED		AS COLLECTED	
DATE COLLECTED(MM/DD/YYYY):		9/15/11		MEDIA:	NA		
TIME COLLECTED (HH:MM)		1100		SUB-MEDIA:	OTHER		
PRS ID:	21-018(a)-99			SAMPLE TECH CODE:	VOST		
LOCATION ID:	21-24524W	ok		FIELD QC TYPE:	NA		
LOCATION TYPE:	BH	ok		FIELD PREP:	NA		
TOP DEPTH:	327.5	ok		SAMPLE USAGE:	INV		
BOTTOM DEPTH:	332.5	ok		SCREEN/PORT DESC:			
FIELD MATRIX:	GAS	ok		EXCAVATED: YES/NO	NA		
COMPOSITE TYPE:	NA			COMPOSITE TIME INTERVAL:			
BOREHOLE: YES/NO/NA				BOREHOLE DECLINATION:	NA		
				BOREHOLE DIRECTION:	90°		

#	PRIORITY	ORDER	CNTNR	PRESERVATIVE	COLLECTED Y/N	SPECIAL INSTRUCTIONS
1		H3	1 EA SILICA GEL TUBE	None	Y	NA
1		TO15	6 LITER SUMMA CANISTER	None		

SAMPLE DESC:

column 2/B initial wt 598.58g Final wt 636.13g
 silica wt 151.92g vapor wt 37.55g

SAMPLE COMMENTS:

weather sat on 1055 T=55°F RH 77% BP=30.29 in

LOCATION DESC:

NA

FIELD SCREENING/MEASUREMENT RESULTS:

atm O₂ 20.9%
 sub atm O₂ 20.3%
 CO₂ 530 ppm
 5050 ppm
 4750 ppm

COLLECTED BY (PRINT)

K. Ongstad M. Grogan

REVIEWED BY (PRINT)

M. V. Grogan

RELINQUISHED BY	Date/Time	RECEIVED BY	Date/Time
(Printed Name) Name O'Connell	9/16/11	(Printed Name) Sarah S. Grogan	9/16/11
(Signature) Name O'Connell	1500	(Signature) Sarah S. Grogan	1500
RELINQUISHED BY	Date/Time	RECEIVED BY	Date/Time
(Printed Name)		(Printed Name)	
(Signature)		(Signature)	

SAMPLE COLLECTION LOG/FIELD CHAIN OF CUSTODY

EVENT ID: 3592

EVENT NAME: MDA V Pore Gas Sampling - CU 21-018(a)-99

SAMPLE ID: MD21-11-26390

WORK ORDER:

AS PLANNED		AS COLLECTED		AS PLANNED		AS COLLECTED	
DATE COLLECTED(MM/DD/YYYY):		9/15/11		MEDIA:	NA		
TIME COLLECTED (HH:MM)		1100		SUB-MEDIA:	OTHER		
PRS ID:	21-018(a)-99	OK		SAMPLE TECH CODE:	VOST		
LOCATION ID:	21-24524W	OK		FIELD QC TYPE:	NA		
LOCATION TYPE:	BH	OK		FIELD PREP:	NA		
TOP DEPTH:	377.5	OK		SAMPLE USAGE:	INV		
BOTTOM DEPTH:	382.5	OK		SCREEN/PORT DESC:			
FIELD MATRIX:	GAS	OK		EXCAVATED: YES/NO/NA	NA		part 7
COMPOSITE TYPE:	NA			COMPOSITE TIME INTERVAL:			
BOREHOLE: YES/NO/NA	YES			BOREHOLE DECLINATION:	NA		
				BOREHOLE DIRECTION:	90°		

#	PRIORITY	ORDER	CNTNR	PRESERVATIVE	COLLECTED Y/N	SPECIAL INSTRUCTIONS
1		H3	1 EA SILICA GEL TUBE	None	Y	NA
1		T015	6 LITER SUMMA CANISTER	None	No 8/19/11 Not collected, Not sampled for	

SAMPLE DESC:

Column 226 Initial wt = 587.40g Final wt 620.47g
 silica wt = 146.02g Vapor wt = 33.07g

SAMPLE COMMENTS:

weather data @ 1055 T = 55°F RH = 77% BP = 30.29 in

LOCATION DESC:

NA

FIELD SCREENING/MEASUREMENT RESULTS:

atm O₂ 20.9% CO₂ 530 ppm
 sub atm O₂ 20.4% CO₂ 4500 ppm

COLLECTED BY (PRINT)

R Onst H M 6109

REVIEWED BY (PRINT)

cll/Gray

RELINQUISHED BY (Printed Name) <u>Karee Onst H</u> (Signature) <u>Karee Onst H</u>	Date/Time <u>9/16/11</u> <u>1500</u>	RECEIVED BY (Printed Name) <u>DAVID SHERWOOD</u> (Signature) <u>David Sherwood</u>	Date/Time <u>9/16/11</u> <u>1500</u>
RELINQUISHED BY (Printed Name) (Signature)	Date/Time	RECEIVED BY (Printed Name) (Signature)	Date/Time

SAMPLE COLLECTION LOG/FIELD CHAIN OF CUSTODY

EVENT ID: 3592

EVENT NAME: MDA V Pore Gas Sampling - CU 21-018(a)-99

SAMPLE ID: MD21-11-26391

WORK ORDER:

AS PLANNED		AS COLLECTED		AS PLANNED		AS COLLECTED	
DATE COLLECTED(MM/DD/YYYY):		9/15/11		MEDIA:	NA		
TIME COLLECTED (HH:MM)		1000		SUB-MEDIA:	OTHER		
PRS ID:	21-018(a)-99	OK		SAMPLE TECH CODE:	VOST		
LOCATION ID:	21-24524S	OK		FIELD QC TYPE:	NA		
LOCATION TYPE:	BH	OK		FIELD PREP:	NA		
TOP DEPTH:	677.5	OK		SAMPLE USAGE:	INV		
BOTTOM DEPTH:	682.5	OK		SCREEN/PORT DESC:			
FIELD MATRIX:	GAS	OK		EXCAVATED: YES/NO	NA		
COMPOSITE TYPE:	MA			COMPOSITE TIME INTERVAL:			
BOREHOLE: YES/NO/NA	YES			BOREHOLE DECLINATION:	MA		
				BOREHOLE DIRECTION:	90°		

#	PRIORITY	ORDER	CNTNR	PRESERVATIVE	COLLECTED Y/N	SPECIAL INSTRUCTIONS
1		H3	1 EA SILICA GEL TUBE	None	Y	MA
1		TO15	6 LITER SUMMA CANISTER	None		

SAMPLE DESC:

224 initial wt 612.07g Final wt 650.33g
silica wt 153.32g vapor wt = 38.26g

SAMPLE COMMENTS:

weather data @ 1055 T=55°F RH 77% BP=30.29 ^{20.9% O₂} _{in}

LOCATION DESC:

MA

FIELD SCREENING/MEASUREMENT RESULTS:

atm O₂ ~ 20.9% CO₂ 530 ppm
sub atm O₂ 20.4% CO₂ 3500 ppm

COLLECTED BY (PRINT)

R. Onstott M. Goring

REVIEWED BY (PRINT)

M. Goring

RELINQUISHED BY (Printed Name) <u>Nancy Onstott</u> (Signature) <u>Nancy Onstott</u>	Date/Time <u>9/16/11</u> <u>1500</u>	RECEIVED BY (Printed Name) <u>Sheila Greenwood</u> (Signature) <u>Sheila Greenwood</u>	Date/Time <u>9/16/11</u> <u>1500</u>
RELINQUISHED BY (Printed Name) (Signature)	Date/Time	RECEIVED BY (Printed Name) (Signature)	Date/Time

SAMPLE COLLECTION LOG/FIELD CHAIN OF CUSTODY

EVENT ID: 3592

EVENT NAME: MDA V Pore Gas Sampling - CU 21-018(a)-99

SAMPLE ID: MD21-11-26392

WORK ORDER:

AS PLANNED		AS COLLECTED		AS PLANNED		AS COLLECTED	
DATE COLLECTED(MM/DD/YYYY):		9/15/11		MEDIA:	NA		
TIME COLLECTED (HH:MM)		1100		SUB-MEDIA:	OTHER		
PRS ID:	21-018(a)-99			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:			
FIELD MATRIX:	GAS			EXCAVATED: YES/NO/NA			
COMPOSITE TYPE:	NA			COMPOSITE TIME INTERVAL:			
BOREHOLE: YES/NO/NA				BOREHOLE DECLINATION:	NA		
				BOREHOLE DIRECTION:	90°		

#	PRIORITY	ORDER	CNTNR	PRESERVATIVE	COLLECTED Y/N	SPECIAL INSTRUCTIONS
1		H3	1 EA SILICA GEL TUBE	None	Y	NA
1		TO15	6 LITER SUMMA CANISTER	None		to 8/19/11 Not collected, Not sampled for

SAMPLE DESC:

26 Initial wt = 591.39g Final wt 625.88g
 silica wt = 151.02g vapor wt 34.49g

SAMPLE COMMENTS:

weather data @ 1055 T = 55°F RH 77% BP 30.29 in

LOCATION DESC:

FIELD SCREENING/MEASUREMENT RESULTS:

atm O₂ 20.9% CO₂ 530 ppm
 sub atm O₂ 20.5% CO₂ 3400 ppm

COLLECTED BY (PRINT) Ronak M. Garg

REVIEWED BY (PRINT) dlw/Borg

RELINQUISHED BY (Printed Name) <i>Kane Dusk</i> (Signature) <i>Kane Dusk</i>	Date/Time 9/16/11 1500	RECEIVED BY (Printed Name) <i>Sherrin Sherwood</i> (Signature) <i>Sherrin Sherwood</i>	Date/Time 9/16/11 1000
RELINQUISHED BY (Printed Name) (Signature)	Date/Time	RECEIVED BY (Printed Name) (Signature)	Date/Time

SAMPLE COLLECTION LOG/FIELD CHAIN OF CUSTODY

EVENT ID: 3592

EVENT NAME: MDA V Pore Gas Sampling - CU 21-018(a)-99

SAMPLE ID: MD21-11-26393

WORK ORDER:

AS PLANNED		AS COLLECTED		AS PLANNED		AS COLLECTED	
DATE COLLECTED(MM/DD/YYYY):		9/15/11		MEDIA:	NA		
TIME COLLECTED (HH:MM)		1100		SUB-MEDIA:	OTHER		
PRS ID:	21-018(a)-99			SAMPLE TECH CODE:	VOST		
LOCATION ID:	UNK 21-24524W			FIELD QC TYPE:	FD		
LOCATION TYPE:	GENERIC			FIELD PREP:	NA		
TOP DEPTH:	0	172.5		SAMPLE USAGE:	QC		
BOTTOM DEPTH:	0	177.5		SCREEN/PORT DESC:		FD 3	
FIELD MATRIX:	GAS	OK		EXCAVATED: YES/NO	NA		
COMPOSITE TYPE:	NA			COMPOSITE TIME INTERVAL:			
BOREHOLE: YES/NO/NA				BOREHOLE DECLINATION:	NA		
				BOREHOLE DIRECTION:	900		

#	PRIORITY	ORDER	CNTNR	PRESERVATIVE	COLLECTED Y/N	SPECIAL INSTRUCTIONS
1		H3	1 EA SILICA GEL TUBE	None	Y	NA
1		TO15	6 LITER SUMMA CANISTER	None		to 8/19/11 Not collected, Not sampled for

SAMPLE DESC: QC Sample of MD21-11-26386

column initial wt 600.96g Final 640.67g
 212 silica wt 152.22g Vapor 39.71g

SAMPLE COMMENTS:

weather @ 1055 T=55°F RH 77% BP=30.29 in

LOCATION DESC:

NA

FIELD SCREENING/MEASUREMENT RESULTS:

atm O₂ 20.9% CO₂ 530ppm
 subatm O₂ 20.1% CO₂ 4560ppm

COLLECTED BY (PRINT)

K Onstott Mearns

REVIEWED BY (PRINT)

C M V Boy

RELINQUISHED BY	Date/Time	RECEIVED BY	Date/Time
(Printed Name) K Onstott Mearns	9/16/11	(Printed Name) SAEED SAEED	9/16/11
(Signature) K Onstott Mearns	1500	(Signature) SAEED SAEED	1800
RELINQUISHED BY	Date/Time	RECEIVED BY	Date/Time
(Printed Name)		(Printed Name)	
(Signature)		(Signature)	

DATA VALIDATION COVER SHEET

5119-1

Data Validation Cover Sheet

Records Use only



Section I.

REQUEST NUMBER: 11-3626 VALIDATION DATE: 11/01/11 LAB CODE: ARSCONTRACT LABORATORY NAME: American Radiation ServicesVALIDATOR: Kris Chupka 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 |
- ☒ OTHER (DESCRIBE): tritium only

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 checked="" type="checkbox"/> | <input type="checkbox"/> | <input 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. An MS was not analyzed. However, an LCS was analyzed and met acceptance criteria; thus, no sample data were qualified.
2. An LCSD was analyzed instead of a sample duplicate. Acceptance criteria were met and, thus, no sample data were qualified.
3. 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: Susan Ball**Level:** I**Date:** 11/02/11

VALIDATOR'S SIGNATURE: _____

DATE: 11/01/11

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 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 checked="" type="checkbox"/>	<input 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	R, R3	R, R3

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
			Gamma Spectroscopy.		
<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	R, R6	R, R6

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
			SMO or external laboratory for information.		
<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: ARS1-11-02028
Client Sample ID: MD21-11-26384
Sample Collection Date: 09/15/11
Sample Matrix: Silica

Request or PO Number: 11-3626
ARS Sample ID: ARS1-11-02028-001
Date Received: 09/20/11
Report Date: 10/13/11

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	54381.479	2856.445	202.197	99.287		pCi/L	ARS-054/EPA:906.0	09/30/11 02:22	BS	NA

NOTES: Project Cost Code MR8R032NFM00

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: ARS1-11-02028
Client Sample ID: MD21-11-26391
Sample Collection Date: 09/15/11
Sample Matrix: Silica

Request or PO Number: 11-3626
ARS Sample ID: ARS1-11-02028-002
Date Received: 09/20/11
Report Date: 10/13/11

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	1485.604	107.798	201.302	98.847		pCi/L	ARS-054/EPA:906.0	09/30/11 05:32	BS	NA

NOTES: Project Cost Code MR8R032NFM00

Project Manager Review

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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: ARS1-11-02028
Client Sample ID: MD21-11-26388
Sample Collection Date: 09/15/11
Sample Matrix: Silica

Request or PO Number: 11-3626
ARS Sample ID: ARS1-11-02028-003
Date Received: 09/20/11
Report Date: 10/13/11

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	58095.031	3050.570	202.490	99.431		pCi/L	ARS-054/EPA:906.0	09/30/11 08:41	BS	NA

NOTES: Project Cost Code MR8R032NFM00

Project Manager Review

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2609 North River Road, Port Allen, Louisiana 70767

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

ARS Sample Delivery Group: ARS1-11-02028
Client Sample ID: MD21-11-26389
Sample Collection Date: 09/15/11
Sample Matrix: Silica

Request or PO Number: 11-3626
ARS Sample ID: ARS1-11-02028-004
Date Received: 09/20/11
Report Date: 10/13/11

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	11568.904	620.326	201.183	98.789		pCi/L	ARS-054/EPA:906.0	09/30/11 11:50	BS	NA

NOTES: Project Cost Code MR8R032NFM00

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: ARS1-11-02028
Client Sample ID: MD21-11-26385
Sample Collection Date: 09/15/11
Sample Matrix: Silica

Request or PO Number: 11-3626
ARS Sample ID: ARS1-11-02028-005
Date Received: 09/20/11
Report Date: 10/13/11

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	14968.277	797.240	199.003	97.718		pCi/L	ARS-054/EPA:906.0	09/30/11 15:00	BS	NA

NOTES: Project Cost Code MR8R032NFM00

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: ARS1-11-02028
Client Sample ID: MD21-11-26386
Sample Collection Date: 09/15/11
Sample Matrix: Silica

Request or PO Number: 11-3626
ARS Sample ID: ARS1-11-02028-006
Date Received: 09/20/11
Report Date: 10/13/11

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	13223.349	706.626	202.868	99.616		pCi/L	ARS-054/EPA:906.0	09/30/11 18:09	BS	NA

NOTES: Project Cost Code MR8R032NFM00

Project Manager Review

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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: ARS1-11-02028
Client Sample ID: MD21-11-26393
Sample Collection Date: 09/15/11
Sample Matrix: Silica

Request or PO Number: 11-3626
ARS Sample ID: ARS1-11-02028-007
Date Received: 09/20/11
Report Date: 10/13/11

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	16513.216	878.066	202.053	99.216		pCi/L	ARS-054/EPA:906.0	09/30/11 21:19	BS	NA

NOTES: Project Cost Code MR8R032NFM00

Project Manager Review

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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: ARS1-11-02028
Client Sample ID: MD21-11-26387
Sample Collection Date: 09/15/11
Sample Matrix: Silica

Request or PO Number: 11-3626
ARS Sample ID: ARS1-11-02028-008
Date Received: 09/20/11
Report Date: 10/13/11

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	54101.284	2841.871	203.215	99.787		pCi/L	ARS-054/EPA:906.0	10/01/11 00:28	BS	NA

NOTES: Project Cost Code MR8R032NFM00

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: ARS1-11-02028

Client Sample ID: MD21-11-26390

Sample Collection Date: 09/15/11

Sample Matrix: Silica

Request or PO Number: 11-3626

ARS Sample ID: ARS1-11-02028-009

Date Received: 09/20/11

Report Date: 10/13/11

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	11778.117	631.320	202.350	99.362		pCi/L	ARS-054/EPA:906.0	10/01/11 03:37	BS	NA

NOTES: Project Cost Code MR8R032NFM00

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: ARS1-11-02028
Client Sample ID: MD21-11-26392
Sample Collection Date: 09/15/11
Sample Matrix: Silica

Request or PO Number: 11-3626
ARS Sample ID: ARS1-11-02028-010
Date Received: 09/20/11
Report Date: 10/13/11

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	1936.298	128.396	202.326	99.350		pCi/L	ARS-054/EPA:906.0	10/01/11 06:47	BS	NA
NOTES: Project Cost Code MR8R032NFM00										

Project Manager Review

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LELAP Certificate# 01949

NELAP Certificate # E87558

Monday, September 19, 2011

REQUEST NUMBER: 11-3626

LOS ALAMOS

NATIONAL LABORATORY

ATTN: Danny Coleman

American Radiation Services - Primary

1726 Wooddale Court

Baton Rouge, LA 70806

These Samples are on:

LANL Request Number: 11-3626

Per Agreement Number: 63641-001-10

Project Cost Code: MR8R032NFM00

Please analyse the enclosed samples according to the schedule indicated:

SHIP DATE: 9/19/2011

TURNAROUND/REPORT DUE: 10/19/2011

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	MD21-11-26384	GAS	9/15/2011	
		1	MD21-11-26385	GAS	9/15/2011	
		1	MD21-11-26386	GAS	9/15/2011	
		1	MD21-11-26387	GAS	9/15/2011	
		1	MD21-11-26388	GAS	9/15/2011	
		1	MD21-11-26389	GAS	9/15/2011	
		1	MD21-11-26390	GAS	9/15/2011	
		1	MD21-11-26391	GAS	9/15/2011	
		1	MD21-11-26392	GAS	9/15/2011	
		1	MD21-11-26393	GAS	9/15/2011	

Monday, September 19, 2011

LAB CHAIN OF CUSTODY DOCUMENT NUMBER: 11-3626C

LOS ALAMOS

REQUEST NUMBER: 11-3626

NATIONAL LABORATORY

ATTN: Danny Coleman

TURNAROUND/REPORT DUE: 10/19/2011

American Radiation Services - Primary

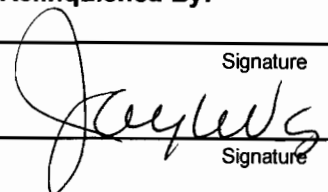
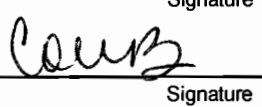
TURNAROUND REQ'D: 30

1726 Wooddale Court

Baton Rouge, LA 70806

LAB REQUEST COMMENTS:

SAMPLE ID	CTNR	CTNR DESC	ORDER	PRESERV	MATRIX
MD21-11-26384	1	SILICA GEL TUBE	H3	None	GAS
MD21-11-26391	1	SILICA GEL TUBE	H3	None	GAS
MD21-11-26388	1	SILICA GEL TUBE	H3	None	GAS
MD21-11-26389	1	SILICA GEL TUBE	H3	None	GAS
MD21-11-26385	1	SILICA GEL TUBE	H3	None	GAS
MD21-11-26386	1	SILICA GEL TUBE	H3	None	GAS
MD21-11-26393	1	SILICA GEL TUBE	H3	None	GAS
MD21-11-26387	1	SILICA GEL TUBE	H3	None	GAS
MD21-11-26390	1	SILICA GEL TUBE	H3	None	GAS
MD21-11-26392	1	SILICA GEL TUBE	H3	None	GAS

Relinquished By:	Date	Time	Received By:	Date	Time
	9/19/11	1400		9-2011/10:14	
Signature			Signature		
Signature			Signature		
Signature			Signature		

Received for DISPOSAL By:	Date	Time	Remarks:
Signature			



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: 11-3626



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: 11-3626**

Original COC

Monday, September 19, 2011

REQUEST NUMBER: 11-3626

**LOS ALAMOS
NATIONAL LABORATORY**

ATTN: Danny Coleman

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

These Samples are on:
LANL Request Number: 11-3626
Per Agreement Number: 63641-001-10
Project Cost Code: MR8R032NFM00

Please analyse the enclosed samples
according to the schedule indicated:

SHIP DATE: 9/19/2011

TURNAROUND/REPORT DUE: 10/19/2011

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	MD21-11-26384	GAS	9/15/2011	
		1	MD21-11-26385	GAS	9/15/2011	
		1	MD21-11-26386	GAS	9/15/2011	
		1	MD21-11-26387	GAS	9/15/2011	
		1	MD21-11-26388	GAS	9/15/2011	
		1	MD21-11-26389	GAS	9/15/2011	
		1	MD21-11-26390	GAS	9/15/2011	
		1	MD21-11-26391	GAS	9/15/2011	
		1	MD21-11-26392	GAS	9/15/2011	
		1	MD21-11-26393	GAS	9/15/2011	

Monday, September 19, 2011

LAB CHAIN OF CUSTODY DOCUMENT NUMBER: 11-3626C

LOS ALAMOS

REQUEST NUMBER: 11-3626

NATIONAL LABORATORY

ATTN: Danny Coleman

TURNAROUND/REPORT DUE: 10/19/2011

American Radiation Services - Primary

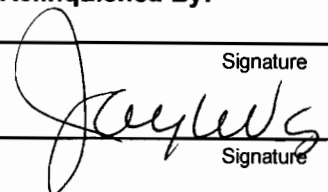
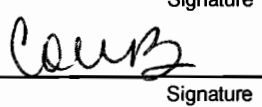
TURNAROUND REQ'D: 30

1726 Wooddale Court

Baton Rouge, LA 70806

LAB REQUEST COMMENTS:

SAMPLE ID	CTNR	CTNR DESC	ORDER	PRESERV	MATRIX
MD21-11-26384	1	SILICA GEL TUBE	H3	None	GAS
MD21-11-26391	1	SILICA GEL TUBE	H3	None	GAS
MD21-11-26388	1	SILICA GEL TUBE	H3	None	GAS
MD21-11-26389	1	SILICA GEL TUBE	H3	None	GAS
MD21-11-26385	1	SILICA GEL TUBE	H3	None	GAS
MD21-11-26386	1	SILICA GEL TUBE	H3	None	GAS
MD21-11-26393	1	SILICA GEL TUBE	H3	None	GAS
MD21-11-26387	1	SILICA GEL TUBE	H3	None	GAS
MD21-11-26390	1	SILICA GEL TUBE	H3	None	GAS
MD21-11-26392	1	SILICA GEL TUBE	H3	None	GAS

Relinquished By:	Date	Time	Received By:	Date	Time
	9/19/11	1400		9-2011/10:14	
Signature			Signature		
Signature			Signature		
Signature			Signature		

Received for DISPOSAL By:	Date	Time	Remarks:
Signature			



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American Radiation Services Analytical Reports

for

**Los Alamos National Laboratory
Request Number: 11-3626**

Case Narrative



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October 13, 2011

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

Request Number: **11-3626**

LANL Sample ID: MD21-11-26384; MD21-11-26391; MD21-11-26388; MD21-11-26389; MD21-11-26385;
MD21-11-26386; MD21-11-26393; MD21-11-26387; MD21-11-26390; MD21-11-26392.

Dear Mr. Greene;

On September 20, 2011, ARS International received ten (10) Silica Gel samples to be analyzed for Tritium.

The samples were received in good condition. They 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 black ink that reads 'Eugene Mulligan'.

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)
11-3626	MD21-11-26384	ARS1-11-02028-001
11-3626	MD21-11-26391	ARS1-11-02028-002
11-3626	MD21-11-26388	ARS1-11-02028-003
11-3626	MD21-11-26389	ARS1-11-02028-004
11-3626	MD21-11-26385	ARS1-11-02028-005
11-3626	MD21-11-26386	ARS1-11-02028-006
11-3626	MD21-11-26393	ARS1-11-02028-007
11-3626	MD21-11-26387	ARS1-11-02028-008
11-3626	MD21-11-26390	ARS1-11-02028-009
11-3626	MD21-11-26392	ARS1-11-02028-010

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.

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."



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"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."

Vigene Melligan
Signature

Laboratory Management, ARS International
Title

10-13-11
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: ARS1-11-02028
Client Sample ID: MD21-11-26384
Sample Collection Date: 09/15/11
Sample Matrix: Silica

Request or PO Number: 11-3626
ARS Sample ID: ARS1-11-02028-001
Date Received: 09/20/11
Report Date: 10/13/11

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	54381.479	2856.445	202.197	99.287		pCi/L	ARS-054/EPA:906.0	09/30/11 02:22	BS	NA

NOTES: Project Cost Code MR8R032NFM00

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: ARS1-11-02028
Client Sample ID: MD21-11-26391
Sample Collection Date: 09/15/11
Sample Matrix: Silica

Request or PO Number: 11-3626
ARS Sample ID: ARS1-11-02028-002
Date Received: 09/20/11
Report Date: 10/13/11

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	1485.604	107.798	201.302	98.847		pCi/L	ARS-054/EPA:906.0	09/30/11 05:32	BS	NA

NOTES: Project Cost Code MR8R032NFM00

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ARS Sample Delivery Group: ARS1-11-02028
Client Sample ID: MD21-11-26388
Sample Collection Date: 09/15/11
Sample Matrix: Silica

Request or PO Number: 11-3626
ARS Sample ID: ARS1-11-02028-003
Date Received: 09/20/11
Report Date: 10/13/11

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	58095.031	3050.570	202.490	99.431		pCi/L	ARS-054/EPA:906.0	09/30/11 08:41	BS	NA

NOTES: Project Cost Code MR8R032NFM00

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ARS Sample Delivery Group: ARS1-11-02028
Client Sample ID: MD21-11-26389
Sample Collection Date: 09/15/11
Sample Matrix: Silica

Request or PO Number: 11-3626
ARS Sample ID: ARS1-11-02028-004
Date Received: 09/20/11
Report Date: 10/13/11

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	11568.904	620.326	201.183	98.789		pCi/L	ARS-054/EPA:906.0	09/30/11 11:50	BS	NA

NOTES: Project Cost Code MR8R032NFM00

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

ARS Sample Delivery Group: ARS1-11-02028
Client Sample ID: MD21-11-26385
Sample Collection Date: 09/15/11
Sample Matrix: Silica

Request or PO Number: 11-3626
ARS Sample ID: ARS1-11-02028-005
Date Received: 09/20/11
Report Date: 10/13/11

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	14968.277	797.240	199.003	97.718		pCi/L	ARS-054/EPA:906.0	09/30/11 15:00	BS	NA

NOTES: Project Cost Code MR8R032NFM00

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

ARS Sample Delivery Group: ARS1-11-02028
Client Sample ID: MD21-11-26386
Sample Collection Date: 09/15/11
Sample Matrix: Silica

Request or PO Number: 11-3626
ARS Sample ID: ARS1-11-02028-006
Date Received: 09/20/11
Report Date: 10/13/11

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	13223.349	706.626	202.868	99.616		pCi/L	ARS-054/EPA:906.0	09/30/11 18:09	BS	NA

NOTES: Project Cost Code MR8R032NFM00

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

ARS Sample Delivery Group: ARS1-11-02028
Client Sample ID: MD21-11-26393
Sample Collection Date: 09/15/11
Sample Matrix: Silica

Request or PO Number: 11-3626
ARS Sample ID: ARS1-11-02028-007
Date Received: 09/20/11
Report Date: 10/13/11

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	16513.216	878.066	202.053	99.216		pCi/L	ARS-054/EPA:906.0	09/30/11 21:19	BS	NA

NOTES: Project Cost Code MR8R032NFM00

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

ARS Sample Delivery Group: ARS1-11-02028

Client Sample ID: MD21-11-26387

Sample Collection Date: 09/15/11

Sample Matrix: Silica

Request or PO Number: 11-3626

ARS Sample ID: ARS1-11-02028-008

Date Received: 09/20/11

Report Date: 10/13/11

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	54101.284	2841.871	203.215	99.787		pCi/L	ARS-054/EPA:906.0	10/01/11 00:28	BS	NA

NOTES: Project Cost Code MR8R032NFM00

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

ARS Sample Delivery Group: ARS1-11-02028

Client Sample ID: MD21-11-26390

Sample Collection Date: 09/15/11

Sample Matrix: Silica

Request or PO Number: 11-3626

ARS Sample ID: ARS1-11-02028-009

Date Received: 09/20/11

Report Date: 10/13/11

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	11778.117	631.320	202.350	99.362		pCi/L	ARS-054/EPA:906.0	10/01/11 03:37	BS	NA

NOTES: Project Cost Code MR8R032NFM00

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

ARS Sample Delivery Group: ARS1-11-02028
Client Sample ID: MD21-11-26392
Sample Collection Date: 09/15/11
Sample Matrix: Silica

Request or PO Number: 11-3626
ARS Sample ID: ARS1-11-02028-010
Date Received: 09/20/11
Report Date: 10/13/11

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	1936.298	128.396	202.326	99.350		pCi/L	ARS-054/EPA:906.0	10/01/11 06:47	BS	NA
NOTES: Project Cost Code MR8R032NFM00										

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QC Results per Analytical Batch

Analytical Batch	ARS1-B11-03628
SDG	ARS1-11-02028
Analysis	Tritium (Aqueous)
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	09/29/11 16:34	Analysis Technician	BSTEFFENS	
Analysis Batch Sample ID	QC Type	Analyte	Results	CSU (1s)	Expected Value	LCS Rec (%)	MDC
ARS1-B11-03628-01	LCS	H-3	2440	150	2571	95	200

Duplicate RER/DER/RPD			Analysis Date	09/29/11 19:43	Analysis Technician	BSTEFFENS	
Analyte	Result LCS	CSU LCS (1s)	Results LCSD	CSU LCSD (1s)	RER	DER	RPD
H-3	2440	152	2420	151	0.03	0.09	0.8

Method Blank		Analysis Date	09/29/11 22:52	Analysis Technician	BSTEFFENS	
Analysis Batch Sample ID	QC Type	Analyte	Results	CSU (1s)	MDC	Qual
ARS1-B11-03628-03	MBL	H-3	66	60	200	U

Susan Leese

Susan Leese

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American Radiation Services Analytical Reports

for

Los Alamos National Laboratory

Tritium

by

Low Level Liquid Scintillation Counting

Samples

Procedure		ARS-054		
Variable	Value			
Gross Count Rate	15.900000			
Sample Count Mins	180.000000			
BKG Count Rate	5.660000			
BKG Count Mins	180.000000			
Instrument Efficiency	0.373600			
Sample Aliquot	5.060800			
Dilution Factor	1.000000			
Aliquot Conversion Factor	0.001000			
Sample Collection Date (t1)	9/29/11 4:34 PM			
Count Date (t2)	9/29/11 4:34 PM			
Activity Units = pCi --- UCF =	2.2200			
CF	1.9600			
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			

Procedure		ARS-054	
Variable	Value		
Gross Count Rate	15.880000		
Sample Count Mins	180.000000		
BKG Count Rate	5.660000		
BKG Count Mins	180.000000		
Instrument Efficiency	0.375600		
Sample Aliquot	5.056300		
Dilution Factor	1.000000		
Aliquot Conversion Factor	0.001000		
Sample Collection Date (t1)	9/29/11 7:43 PM		
Count Date (t2)	9/29/11 7:43 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		
Variables Intact Test		OK	

Isotope		H-3	
Calculated Values	Excel	VBA	V/V
ACT	2424.038449	2424.038449	OK
CU	160.816748	160.816748	OK
TPU	295.902203	295.902203	OK
MDA	199.262240	199.262240	OK
DL	97.845638	97.845638	OK
Net Count Rate	10.220000	10.220000	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	0.004216	0.004216	OK
K MDA	0.758899	0.758899	OK
Batch Identifiers and Other Related Information			
Batch	ARS1-B11-03628		
Batch ID	ARS1-B11-03628-02		
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	71		
Instr Detector	P-54-S-3		
Instr keV			
Version/Date	1.0 -- 11/18/2005		

Procedure		ARS-054	
Variable	Value		
Gross Count Rate	5.940000		
Sample Count Mins	180.000000		
BKG Count Rate	5.660000		
BKG Count Mins	180.000000		
Instrument Efficiency	0.375100		
Sample Aliquot	5.067200		
Dilution Factor	1.000000		
Aliquot Conversion Factor	0.001000		
Sample Collection Date (t1)	9/29/11 10:52 PM		
Count Date (t2)	9/29/11 10:52 PM		
Activity Units = pCi --- UCF =	2.2200		
CF	1.9600		
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	66.357489	66.357489	OK
CU	117.918169	117.918169	OK
TPU	118.114048	118.114048	OK
MDA	199.098650	199.098650	OK
DL	97.765309	97.765309	OK
Net Count Rate	0.280000	0.280000	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	0.004220	0.004220	OK
K MDA	0.759522	0.759522	OK
Batch Identifiers and Other Related Information			
Batch	ARS1-B11-03628		
Batch ID	ARS1-B11-03628-03		
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	71		
Instr Detector	P-54-S-4		
Instr keV			
Version/Date	1.0 -- 11/18/2005		

Procedure	
ARS-054	
Variable	Value
Gross Count Rate	231.610000
Sample Count Mins	180.000000
BKG Count Rate	5.660000
BKG Count Mins	180.000000
Instrument Efficiency	0.372100
Sample Aliquot	5.041100
Dilution Factor	1.000000
Aliquot Conversion Factor	0.001000
Sample Collection Date (t1)	9/15/11 12:00 PM
Count Date (t2)	9/30/11 2:22 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	54381.478922	54381.478914	OK
CU	276.327324	276.327324	OK
TPU	2856.445493	2856.445492	OK
MDA	202.197168	202.197168	OK
DL	99.286804	99.286804	OK
Net Count Rate	225.950000	225.950000	OK
D t 1 (t2 - t1)	14.598611	14.598611	OK
DF	0.997754	0.997754	OK
Sys Err	0.052280	0.052280	OK
K	0.004155	0.004155	OK
K MDA	0.747883	0.747883	OK
Batch Identifiers and Other Related Information			
Batch	ARS1-B11-03628		
Batch ID	ARS1-B11-03628-07		
Analysis Code	LSC-A-001		
SDG	ARS1-11-02028		
Fraction	001		
Run Number	1		
Client	Los Alamos National Laboratory		
Client Profile	Keith Greene		
Client ID	MD21-11-26384		
Instr File Name	71		
Instr Detector	P-54-S-B		
Instr keV			
Version/Date	1.0 -- 11/18/2005		

Procedure		ARS-054	
Variable	Value		
Gross Count Rate	11.860000		
Sample Count Mins	180.000000		
BKG Count Rate	5.660000		
BKG Count Mins	180.000000		
Instrument Efficiency	0.373200		
Sample Aliquot	5.048700		
Dilution Factor	1.000000		
Aliquot Conversion Factor	0.001000		
Sample Collection Date (t1)	9/15/11 12:00 PM		
Count Date (t2)	9/30/11 5:32 AM		
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	1485.603683	1485.603682	OK
CU	74.755315	74.755315	OK
TPU	107.798474	107.798474	OK
MDA	201.301809	201.301809	OK
DL	98.847147	98.847147	OK
Net Count Rate	6.200000	6.200000	OK
D t 1 (t2 - t1)	14.730556	14.730556	OK
DF	0.997733	0.997733	OK
Sys Err	0.052280	0.052280	OK
K	0.004173	0.004173	OK
K MDA	0.751210	0.751210	OK
Batch Identifiers and Other Related Information			
Batch	ARS1-B11-03628		
Batch ID	ARS1-B11-03628-08		
Analysis Code	LSC-A-001		
SDG	ARS1-11-02028		
Fraction	002		
Run Number	1		
Client	Los Alamos National Laboratory		
Client Profile	Keith Greene		
Client ID	MD21-11-26391		
Instr File Name	71		
Instr Detector	P-54-S-9		
Instr keV			
Version/Date	1.0 -- 11/18/2005		

Procedure		ARS-054	
Variable	Value		
Gross Count Rate	246.690000		
Sample Count Mins	180.000000		
BKG Count Rate	5.660000		
BKG Count Mins	180.000000		
Instrument Efficiency	0.372500		
Sample Aliquot	5.028600		
Dilution Factor	1.000000		
Aliquot Conversion Factor	0.001000		
Sample Collection Date (t1)	9/15/11 12:00 PM		
Count Date (t2)	9/30/11 8:41 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	58095.031444	58095.031435	OK
CU	285.386413	285.386413	OK
TPU	3050.570399	3050.570398	OK
MDA	202.490331	202.490331	OK
DL	99.430759	99.430759	OK
Net Count Rate	241.030000	241.030000	OK
D t 1 (t2 - t1)	14.861806	14.861806	OK
DF	0.997713	0.997713	OK
Sys Err	0.052280	0.052280	OK
K	0.004149	0.004149	OK
K MDA	0.746801	0.746801	OK
Batch Identifiers and Other Related Information			
Batch	ARS1-B11-03628		
Batch ID	ARS1-B11-03628-09		
Analysis Code	LSC-A-001		
SDG	ARS1-11-02028		
Fraction	003		
Run Number	1		
Client	Los Alamos National Laboratory		
Client Profile	Keith Greene		
Client ID	MD21-11-26388		
Instr File Name	71		
Instr Detector	P-54-S-10		
Instr keV			
Version/Date	1.0 -- 11/18/2005		

Procedure		ARS-054	
Variable	Value		
Gross Count Rate	53.970000		
Sample Count Mins	180.000000		
BKG Count Rate	5.660000		
BKG Count Mins	180.000000		
Instrument Efficiency	0.371500		
Sample Aliquot	5.075000		
Dilution Factor	1.000000		
Aliquot Conversion Factor	0.001000		
Sample Collection Date (t1)	9/15/11 12:00 PM		
Count Date (t2)	9/30/11 11:50 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	11568.903852	11568.903850	OK
CU	137.832403	137.832403	OK
TPU	620.325583	620.325583	OK
MDA	201.183137	201.183136	OK
DL	98.788874	98.788874	OK
Net Count Rate	48.310000	48.310000	OK
D t 1 (t2 - t1)	14.993056	14.993056	OK
DF	0.997693	0.997693	OK
Sys Err	0.052280	0.052280	OK
K	0.004176	0.004176	OK
K MDA	0.751653	0.751653	OK
Batch Identifiers and Other Related Information			
Batch	ARS1-B11-03628		
Batch ID	ARS1-B11-03628-10		
Analysis Code	LSC-A-001		
SDG	ARS1-11-02028		
Fraction	004		
Run Number	1		
Client	Los Alamos National Laboratory		
Client Profile	Keith Greene		
Client ID	MD21-11-26389		
Instr File Name	71		
Instr Detector	P-54-S-11		
Instr keV			
Version/Date	1.0 -- 11/18/2005		

Procedure		ARS-054	
Variable	Value		
Gross Count Rate	68.850000		
Sample Count Mins	180.000000		
BKG Count Rate	5.660000		
BKG Count Mins	180.000000		
Instrument Efficiency	0.376200		
Sample Aliquot	5.066600		
Dilution Factor	1.000000		
Aliquot Conversion Factor	0.001000		
Sample Collection Date (t1)	9/15/11 12:00 PM		
Count Date (t2)	9/30/11 3:00 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	14968.276987	14968.276984	OK
CU	152.403340	152.403340	OK
TPU	797.239864	797.239864	OK
MDA	199.003107	199.003107	OK
DL	97.718394	97.718394	OK
Net Count Rate	63.190000	63.190000	OK
D t 1 (t2 - t1)	15.125000	15.125000	OK
DF	0.997673	0.997673	OK
Sys Err	0.052280	0.052280	OK
K	0.004222	0.004222	OK
K MDA	0.759887	0.759887	OK
Batch Identifiers and Other Related Information			
Batch	ARS1-B11-03628		
Batch ID	ARS1-B11-03628-11		
Analysis Code	LSC-A-001		
SDG	ARS1-11-02028		
Fraction	005		
Run Number	1		
Client	Los Alamos National Laboratory		
Client Profile	Keith Greene		
Client ID	MD21-11-26385		
Instr File Name	71		
Instr Detector	P-54-S-12		
Instr keV			
Version/Date	1.0 -- 11/18/2005		

Procedure		ARS-054	
Variable	Value		
Gross Count Rate	60.420000		
Sample Count Mins	180.000000		
BKG Count Rate	5.660000		
BKG Count Mins	180.000000		
Instrument Efficiency	0.371400		
Sample Aliquot	5.034400		
Dilution Factor	1.000000		
Aliquot Conversion Factor	0.001000		
Sample Collection Date (t1)	9/15/11 12:00 PM		
Count Date (t2)	9/30/11 6:09 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	13223.349220	13223.349218	OK
CU	146.310937	146.310937	OK
TPU	706.626144	706.626144	OK
MDA	202.868411	202.868411	OK
DL	99.616411	99.616411	OK
Net Count Rate	54.760000	54.760000	OK
D t 1 (t2 - t1)	15.256250	15.256250	OK
DF	0.997653	0.997653	OK
Sys Err	0.052280	0.052280	OK
K	0.004141	0.004141	OK
K MDA	0.745409	0.745409	OK
Batch Identifiers and Other Related Information			
Batch	ARS1-B11-03628		
Batch ID	ARS1-B11-03628-12		
Analysis Code	LSC-A-001		
SDG	ARS1-11-02028		
Fraction	006		
Run Number	1		
Client	Los Alamos National Laboratory		
Client Profile	Keith Greene		
Client ID	MD21-11-26386		
Instr File Name	71		
Instr Detector	P-54-S-13		
Instr keV			
Version/Date	1.0 -- 11/18/2005		

Procedure		ARS-054	
Variable	Value		
Gross Count Rate	74.320000		
Sample Count Mins	180.000000		
BKG Count Rate	5.660000		
BKG Count Mins	180.000000		
Instrument Efficiency	0.373100		
Sample Aliquot	5.031800		
Dilution Factor	1.000000		
Aliquot Conversion Factor	0.001000		
Sample Collection Date (t1)	9/15/11 12:00 PM		
Count Date (t2)	9/30/11 9:19 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	16513.215645	16513.215643	OK
CU	160.318005	160.318005	OK
TPU	878.065802	878.065802	OK
MDA	202.052512	202.052512	OK
DL	99.215772	99.215772	OK
Net Count Rate	68.660000	68.660000	OK
D t 1 (t2 - t1)	15.388194	15.388194	OK
DF	0.997632	0.997632	OK
Sys Err	0.052280	0.052280	OK
K	0.004158	0.004158	OK
K MDA	0.748419	0.748419	OK
Batch Identifiers and Other Related Information			
Batch	ARS1-B11-03628		
Batch ID	ARS1-B11-03628-13		
Analysis Code	LSC-A-001		
SDG	ARS1-11-02028		
Fraction	007		
Run Number	1		
Client	Los Alamos National Laboratory		
Client Profile	Keith Greene		
Client ID	MD21-11-26393		
Instr File Name	71		
Instr Detector	P-54-S-14		
Instr keV			
Version/Date	1.0 -- 11/18/2005		

Procedure		ARS-054	
Variable	Value		
Gross Count Rate	229.320000		
Sample Count Mins	180.000000		
BKG Count Rate	5.660000		
BKG Count Mins	180.000000		
Instrument Efficiency	0.369900		
Sample Aliquot	5.046400		
Dilution Factor	1.000000		
Aliquot Conversion Factor	0.001000		
Sample Collection Date (t1)	9/15/11 12:00 PM		
Count Date (t2)	10/1/11 12:28 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	54101.283836	54101.283827	OK
CU	276.374804	276.374804	OK
TPU	2841.870647	2841.870646	OK
MDA	203.214948	203.214948	OK
DL	99.786574	99.786574	OK
Net Count Rate	223.660000	223.660000	OK
D t 1 (t2 - t1)	15.519444	15.519444	OK
DF	0.997612	0.997612	OK
Sys Err	0.052280	0.052280	OK
K	0.004134	0.004134	OK
K MDA	0.744138	0.744138	OK
Batch Identifiers and Other Related Information			
Batch	ARS1-B11-03628		
Batch ID	ARS1-B11-03628-14		
Analysis Code	LSC-A-001		
SDG	ARS1-11-02028		
Fraction	008		
Run Number	1		
Client	Los Alamos National Laboratory		
Client Profile	Keith Greene		
Client ID	MD21-11-26387		
Instr File Name	71		
Instr Detector	P-54-S-15		
Instr keV			
Version/Date	1.0 -- 11/18/2005		

Procedure		ARS-054	
Variable	Value		
Gross Count Rate	54.560000		
Sample Count Mins	180.000000		
BKG Count Rate	5.660000		
BKG Count Mins	180.000000		
Instrument Efficiency	0.372300		
Sample Aliquot	5.035400		
Dilution Factor	1.000000		
Aliquot Conversion Factor	0.001000		
Sample Collection Date (t1)	9/15/11 12:00 PM		
Count Date (t2)	10/1/11 3:37 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	11778.117465	11778.117464	OK
CU	139.316048	139.316048	OK
TPU	631.320222	631.320222	OK
MDA	202.350100	202.350100	OK
DL	99.361900	99.361899	OK
Net Count Rate	48.900000	48.900000	OK
D t 1 (t2 - t1)	15.650694	15.650694	OK
DF	0.997592	0.997592	OK
Sys Err	0.052280	0.052280	OK
K	0.004152	0.004152	OK
K MDA	0.747318	0.747318	OK
Batch Identifiers and Other Related Information			
Batch	ARS1-B11-03628		
Batch ID	ARS1-B11-03628-15		
Analysis Code	LSC-A-001		
SDG	ARS1-11-02028		
Fraction	009		
Run Number	1		
Client	Los Alamos National Laboratory		
Client Profile	Keith Greene		
Client ID	MD21-11-26390		
Instr File Name	71		
Instr Detector	P-54-S-16		
Instr keV			
Version/Date	1.0 -- 11/18/2005		

Procedure		ARS-054	
Variable	Value		
Gross Count Rate	13.700000		
Sample Count Mins	180.000000		
BKG Count Rate	5.660000		
BKG Count Mins	180.000000		
Instrument Efficiency	0.372100		
Sample Aliquot	5.038800		
Dilution Factor	1.000000		
Aliquot Conversion Factor	0.001000		
Sample Collection Date (t1)	9/15/11 12:00 PM		
Count Date (t2)	10/1/11 6:47 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	1936.297652	1936.297652	OK
CU	78.982794	78.982794	OK
TPU	128.396306	128.396306	OK
MDA	202.326361	202.326361	OK
DL	99.350243	99.350243	OK
Net Count Rate	8.040000	8.040000	OK
D t 1 (t2 - t1)	15.782639	15.782639	OK
DF	0.997572	0.997572	OK
Sys Err	0.052280	0.052280	OK
K	0.004152	0.004152	OK
K MDA	0.747406	0.747406	OK
Batch Identifiers and Other Related Information			
Batch	ARS1-B11-03628		
Batch ID	ARS1-B11-03628-16		
Analysis Code	LSC-A-001		
SDG	ARS1-11-02028		
Fraction	010		
Run Number	1		
Client	Los Alamos National Laboratory		
Client Profile	Keith Greene		
Client ID	MD21-11-26392		
Instr File Name	71		
Instr Detector	P-54-S-17		
Instr keV			
Version/Date	1.0 -- 11/18/2005		



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**American Radiation Services
Analytical Reports**

for

Los Alamos National Laboratory

**Tritium
by
Low Level Liquid
Scintillation Counting
Laboratory
Records**

36 of 101

LCS Report
Analytical Batch: ARS1-B11-03628

BlindID	ABatch	ABatchSampleID	BlindGroup	StdID	Isotope	ExpectedAddition	ExpectedValue	EmptyWt	GrossWt	NetWt	UserID	ModDate	ExpectedValue_CT	MidPointCountDate	KnownValue
B-12511	ARS1-B11-03628	ARS1-B11-03628-01	B-H3	S-0262	H-3	5	2.573293477	0	1	1	1 BSTEFFENS	9/22/2011	2.57052025	9/29/2011	2.57052025
B-12512	ARS1-B11-03628	ARS1-B11-03628-02	B-H3	S-0262	H-3	5	2.573293477	0	1	1	1 BSTEFFENS	9/22/2011	2.57052025	9/29/2011	2.57052025

ID_31001_054	ABatch	ABatchSampleID	ClientID	Aliquot1	AliquotUnits1	IC_ID1	Aliquot2	AliquotUnits2	IC_ID2	UserID	ModDate
10075	ARS1-B11-03628	ARS1-B11-03628-01					5.0608 g			BSTEFFENS	10/04/2011 15:54:53
10076	ARS1-B11-03628	ARS1-B11-03628-02					5.0563 g			BSTEFFENS	10/04/2011 15:54:53
10077	ARS1-B11-03628	ARS1-B11-03628-03					5.0672 g			BSTEFFENS	10/04/2011 15:54:53
10078	ARS1-B11-03628	ARS1-B11-03628-04	MD54-11-23141				5.0612 g		96839	BSTEFFENS	10/04/2011 15:54:53
10079	ARS1-B11-03628	ARS1-B11-03628-05	MD54-11-23140				5.0544 g		96840	BSTEFFENS	10/04/2011 15:54:53
10080	ARS1-B11-03628	ARS1-B11-03628-06	MD54-11-23142				5.0479 g		96841	BSTEFFENS	10/04/2011 15:54:53
10081	ARS1-B11-03628	ARS1-B11-03628-07	MD21-11-26384				5.0411 g		96843	BSTEFFENS	10/04/2011 15:54:54
10082	ARS1-B11-03628	ARS1-B11-03628-08	MD21-11-26391				5.0487 g		96844	BSTEFFENS	10/04/2011 15:54:54
10083	ARS1-B11-03628	ARS1-B11-03628-09	MD21-11-26388				5.0286 g		96845	BSTEFFENS	10/04/2011 15:54:54
10084	ARS1-B11-03628	ARS1-B11-03628-10	MD21-11-26389				5.075 g		96847	BSTEFFENS	10/04/2011 15:54:54
10085	ARS1-B11-03628	ARS1-B11-03628-11	MD21-11-26385				5.0666 g		96848	BSTEFFENS	10/04/2011 15:54:54
10086	ARS1-B11-03628	ARS1-B11-03628-12	MD21-11-26386				5.0344 g		96850	BSTEFFENS	10/04/2011 15:54:54
10087	ARS1-B11-03628	ARS1-B11-03628-13	MD21-11-26393				5.0318 g		96851	BSTEFFENS	10/04/2011 15:54:54
10088	ARS1-B11-03628	ARS1-B11-03628-14	MD21-11-26387				5.0464 g		96853	BSTEFFENS	10/04/2011 15:54:54
10089	ARS1-B11-03628	ARS1-B11-03628-15	MD21-11-26390				5.0354 g		96854	BSTEFFENS	10/04/2011 15:54:54
10090	ARS1-B11-03628	ARS1-B11-03628-16	MD21-11-26392				5.0388 g		96855	BSTEFFENS	10/04/2011 15:54:54
10091	ARS1-B11-03628	ARS1-B11-03628-17	MD54-11-23144				5.0375 g		96857	BSTEFFENS	10/04/2011 15:54:54
10092	ARS1-B11-03628	ARS1-B11-03628-18	MD54-11-23143				* 5.0373 g		96858	BSTEFFENS	10/04/2011 15:54:54
10093	ARS1-B11-03628	ARS1-B11-03628-19	MD54-11-23145				5.0359 g		96860	BSTEFFENS	10/04/2011 15:54:55

* Recounted using 1.0058 g for 10-10-11

Assay Definition-

Assay Description:
 H3 Normal Lvl

Assay Type: DPM (Single)

Report Name: Report1

Output Data Path: C:\Packard\Tricarb\Results\ARS\H-3 Normal 3\20110929_1320

Raw Results Path: C:\Packard\Tricarb\Results\ARS\H-3 Normal 3\20110929_1320\20110929_1320.results

RTF File Name: C:\Packard\Tricarb\Results\ARS\H-3 Normal 3\20110929_1320\H3 Results.rtf

Comma-Delimited File Name: C:\Packard\Tricarb\Results\ARS\H-3 Normal 3\20110929_1320\H3 Results.csv

Assay File Name: C:\Packard\Tricarb\Assays\H-3 Normal 3.lsa

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

Half Life-

Luminescence Correction: Off

Heterogeneity Monitor: Off

Delay Before Burst (nsec): 75

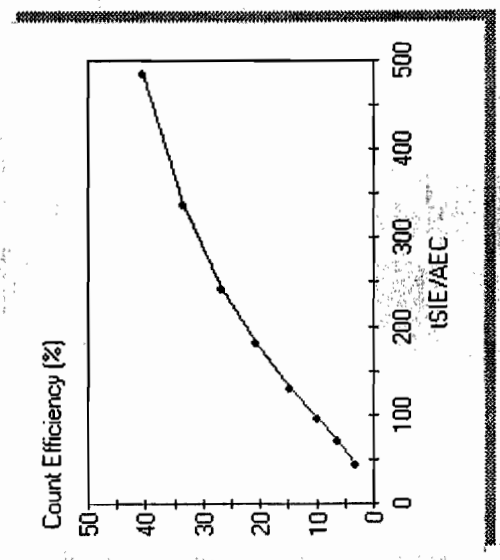
Half Life Correction: Off
 Regions Half Life

Units Reference Date Reference Time

A
B
C

Cycle 1 Results
Quench Curve Block Data

UG STD H-3 in A



Date Acquired: 06/15/2011
Date Modified:
UG STD H-3 in A

tSIE/AEC	Count Efficiency (%)
487.53	40.41
339.12	33.51
243.83	26.83
182.60	20.93
130.85	14.63
86.86	9.97
51.30	6.34
46.31	3.09

P#	S#	SMPL_ID	CPMA	DPM1	tSIE	Eff Nucl	In A	Count Time	DATE	TIME	MESSAGES
54	1	BACKGROUND	5.66	15.13	422.82	37.40		180.00	9/29/2011	1:25:00 PM	
54	2	B11-03628-01	15.90	42.55	422.12	37.36		180.00	9/29/2011	4:33:36 PM	
54	3	B11-03628-02	15.88	42.27	426.35	37.56		180.00	9/29/2011	7:42:58 PM	
54	4	B11-03628-03	5.94	15.83	425.28	37.51		180.00	9/29/2011	10:52:19 PM	
54	5	B11-03628-04	13038.45	35331.54	412.20	36.90		12.28	9/30/2011	2:01:09 AM	
54	6	B11-03628-05	158929.70	417901.41	436.45	38.03		1.01	9/30/2011	2:15:08 AM	
54	7	B11-03628-06	483629.28	16202229.50	45.50	2.98		0.34	9/30/2011	2:16:50 AM	E
54	8	B11-03628-07	231.61	622.41	418.86	37.21		180.00	9/30/2011	2:22:19 AM	
54	9	B11-03628-08	11.86	31.78	421.11	37.32		180.00	9/30/2011	5:31:42 AM	
54	10	B11-03628-09	246.69	662.17	419.75	37.25		180.00	9/30/2011	8:41:03 AM	
54	11	B11-03628-10	53.97	145.28	417.49	37.15		180.00	9/30/2011	11:50:25 AM	
54	12	B11-03628-11	68.85	183.02	427.63	37.62		180.00	9/30/2011	2:59:45 PM	
54	13	B11-03628-12	60.42	162.67	417.36	37.14		180.00	9/30/2011	6:09:12 PM	
54	14	B11-03628-13	74.32	199.16	421.05	37.31		180.00	9/30/2011	9:18:35 PM	
54	15	B11-03628-14	229.32	620.00	414.02	36.99		180.00	10/1/2011	12:27:57 AM	
54	16	B11-03628-15	54.56	146.57	419.16	37.23		180.00	10/1/2011	3:37:19 AM	
54	17	B11-03628-16	13.70	36.83	418.70	37.21		180.00	10/1/2011	6:46:39 AM	
54	18	B11-03628-17	39.74	107.21	415.63	37.06		180.00	10/1/2011	9:55:59 AM	
54	19	B11-03628-18	0.00	0.00	0.00	-2.94		180.00	10/1/2011	1:00:54 PM	E
54	20	B11-03628-19	93.13	253.13	409.81	36.79		180.00	10/2/2011	10:25:21 AM	

Recount

Assay Definition-
Assay Description:
H3 Normal Lvl

Assay Type: DPM (Single)
Report Name: Report1
Output Data Path: C:\Packard\Tricarb\Results\ARS\H-3 Normal 3\20111003_0917
Raw Results Path: C:\Packard\Tricarb\Results\ARS\H-3 Normal 3\20111003_0917\20111003_0917.results
RTF File Name: C:\Packard\Tricarb\Results\ARS\H-3 Normal 3\20111003_0917\H3 Results.rtf
Comma-Delimited File Name: C:\Packard\Tricarb\Results\ARS\H-3 Normal 3\20111003_0917\H3 Results.csv
Assay File Name: C:\Packard\Tricarb\Assays\H-3 Normal 3.1sa

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): 60.00
Count Mode: Normal
Assay Count Cycles: 1 Repeat Sample Count: 1
#Vials/Sample: 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 Luminescence Correction: Off
Colored Samples: Off Heterogeneity Monitor: Off
Coincidence Time (nsec): 18 Delay Before Burst (nsec): 75

Half Life-

Half Life Correction: Off
Regions Half Life Units Reference Date Reference Time

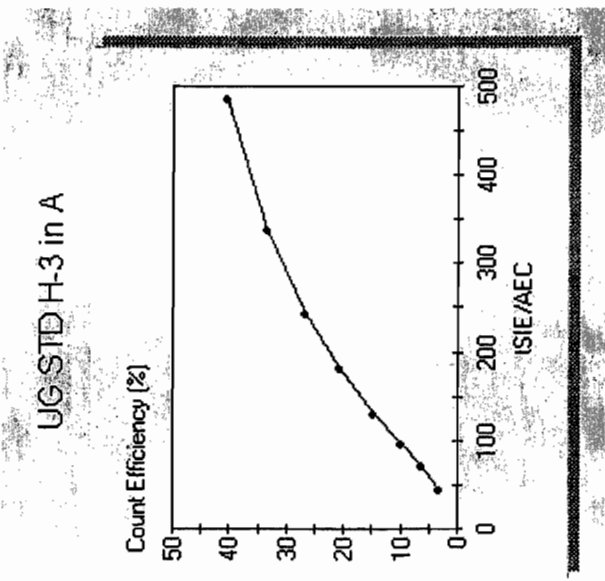
A

B

C

Cycle 1 Results

Quench Curve Block Data



Date Acquired: 06/15/2011

Date Modified:

UG STD H-3 in A

tSIE/AEC	Count Efficiency (%)
487.53	40.41
339.12	33.51
243.83	26.83
182.60	20.93
130.85	14.63
95.86	9.97
73.30	6.34
46.31	3.09

P#	S#	SMPL_ID	CPMA	DPM1	tSIE	Eff Nucl	In A	Count Time	DATE	TIME	MESSAGES
54	1	BACKGROUND	5.63	15.14	418.10		37.18	60.00	10/3/2011	9:22:11 AM	
54	2	B11-03628-18	0.00	0.00	0.00		-2.94	11.27	10/3/2011	11:44:01 AM	E

Recounted
x2
or

Assay Definition-

Assay Description:
H3 Normal Lvl

Assay Type: DPM (Single)

Report Name: Report1

Output Data Path: C:\Packard\Tricarb\Results\ARS\H3 Normal Lvl\20111003_1235

Raw Results Path: C:\Packard\Tricarb\Results\ARS\H3 Normal Lvl\20111003_1235\20111003_1235.results

RTF File Name: C:\Packard\Tricarb\Results\ARS\H3 Normal Lvl\20111003_1235\H3 Results.rtf

Comma-Delimited File Name: C:\Packard\Tricarb\Results\ARS\H3 Normal Lvl\20111003_1235\H3 Results.csv

Assay File Name: C:\Packard\Tricarb\Assays\H3 Normal Lvl.lsa

Count Conditions-

Nuclide: Standard H3

Quench Indicator: tSIE/AEC

External Std Terminator (sec): 0.5 2s%

Pre-Count Delay (min): 0.00

Quench Set:

Low Energy: PE UG STD H3

Count Time (min): 10.00

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

Half Life-

Half Life

Luminescence Correction: n/a

Heterogeneity Monitor: n/a

Delay Before Burst (nsec): 75

Half Life Correction: Off

Regions Half Life

Units

Reference Date

Reference Time

A
B
C

Cycle 1 Results

P#	S#	SMPL_ID	CPMA	DPM1	tsIE	Eff	Nucl	In A	Count	Time	DATE	TIME	MESSAGES
23	1	B11-03628-18	0.00	0.00	0.00			-3.79	10.00	10/3/2011 12:36:14 PM			E

*Recount
10-11-11
10:00 AM
11-11-11
10:00 AM*

Assay Definition-

Assay Description:
H3 Normal Lvl

Assay Type: DPM (Single)

Report Name: Report1

Output Data Path: C:\Packard\Tricarb\Results\ARS\H-3 Normal 3\20111004_1023

Raw Results Path: C:\Packard\Tricarb\Results\ARS\H-3 Normal 3\20111004_1023\20111004_1023.results

RTF File Name: C:\Packard\Tricarb\Results\ARS\H-3 Normal 3\20111004_1023\H3 Results.rtf

Comma-Delimited File Name: C:\Packard\Tricarb\Results\ARS\H-3 Normal 3\20111004_1023\H3 Results.csv

Assay File Name: C:\Packard\Tricarb\Assays\H-3 Normal 3.lsa

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): 60.00

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

Spilled Samples: Off

Coincidence Time (nsec): 18

Half Life-

Luminescence Correction: Off

Heterogeneity Monitor: Off

Delay Before Burst (nsec): 75

Half Life Correction: Off
Regions Half Life

Units

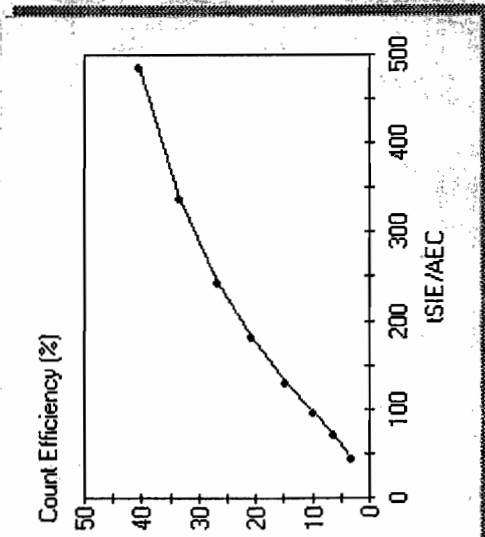
Reference Date

Reference Time

A
B
C

Cycle 1 Results
Quench Curve Block Data

UG STD H-3 in A



Date Acquired: 06/15/2011

Date Modified:

UG STD H-3 in A

tSIE/AEC	Count Efficiency (%)
487.53	40.41
339.12	33.51
243.83	26.83
182.60	20.93
130.85	14.63
96.86	9.97
71.30	6.34
46.31	3.09

P#	S#	SMPL_ID	CPMA	DPM1	tsIE	Eff Nucl In A	Count Time	DATE	TIME
54	1	B11-03628-18	1288249.99	147567242.51	29.27	0.87	0.13	10/4/2011	10:23:48 AM
E									

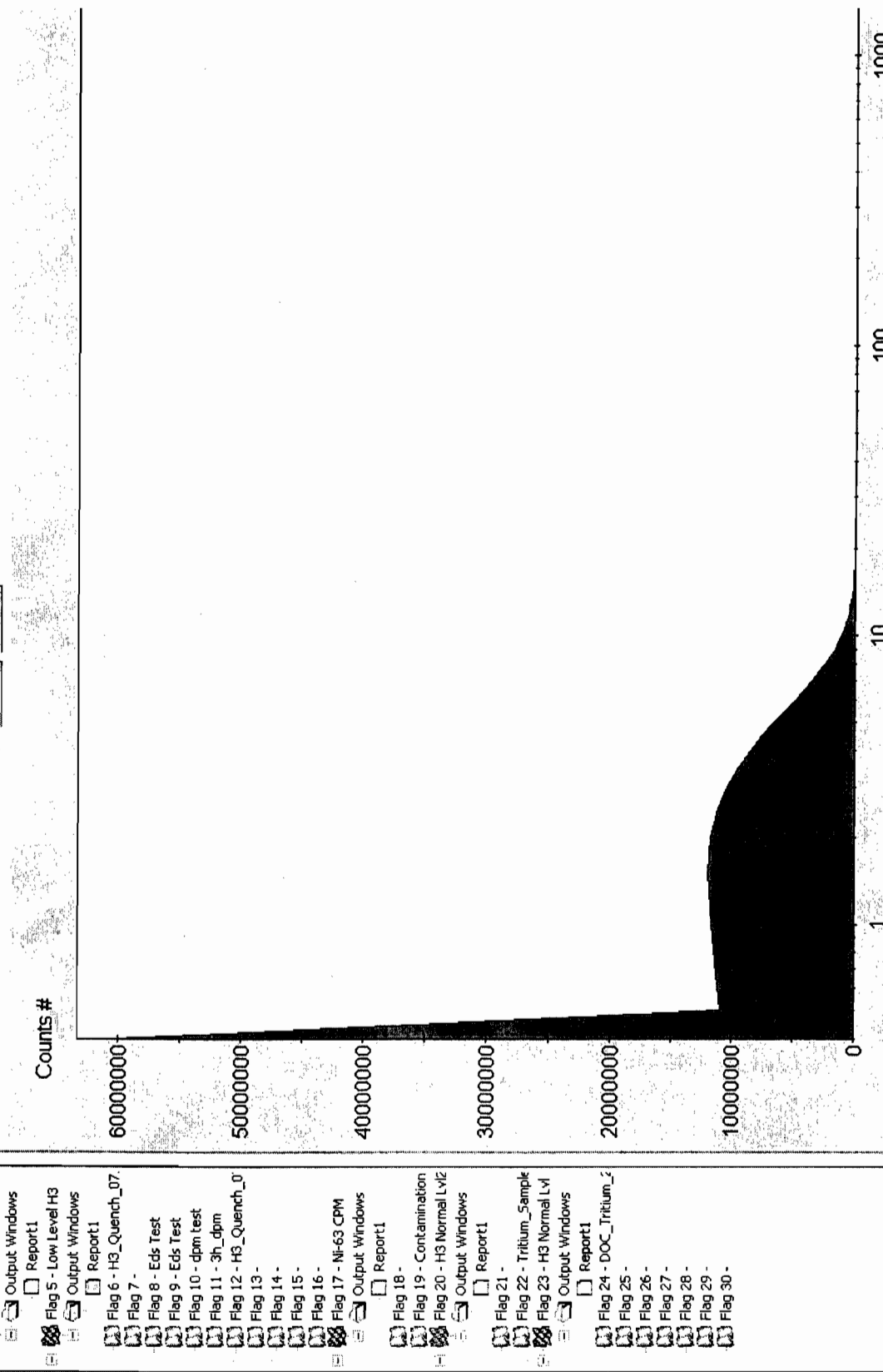
Protocol: [Cassette: 11] Sample: 12 [Instrument Idle] Error: []

Sample # 1
Count Time: 10.00
Pre-count Delay: 0.00
Acquisition Time: 10.00
Apply AEC ☒

Scale
keV Full Scale: [Auto]
Counts Full Scale: [Auto]
☒ Log keV Scale
☐ Linear keV Scale

Regions	Lower Level	Upper Level	CPM	25%
A	2.0	18.6	0.0	0.00
B	0.0	2000.0	0.0	0.00
C	0.0	2000.0	0.0	0.00

Regions [Print...]



- ☒ Protocols
- ☒ SNC
- ☒ Output Windows
- ☐ Report1
- ☒ Priostat (group) - 3h_dc
- ☒ Flag 1 - H3-Quench 01V
- ☒ Flag 2 - Tritium_Sample
- ☒ Flag 3 - Contamination_
- ☒ Flag 4 - H3 Low Lvl Qui
- ☒ Output Windows
- ☐ Report1
- ☒ Flag 5 - Low Level H3
- ☒ Output Windows
- ☐ Report1
- ☒ Flag 6 - H3_Quench_07
- ☒ Flag 7 -
- ☒ Flag 8 - Eds Test
- ☒ Flag 9 - Eds Test
- ☒ Flag 10 - dpm test
- ☒ Flag 11 - 3h_dpm
- ☒ Flag 12 - H3_Quench_07
- ☒ Flag 13 -
- ☒ Flag 14 -
- ☒ Flag 15 -
- ☒ Flag 16 -
- ☒ Flag 17 - Ni-63 CPM
- ☒ Output Windows
- ☐ Report1
- ☒ Flag 18 -
- ☒ Flag 19 - Contamination
- ☒ Flag 20 - H3 Normal Lvl2
- ☒ Output Windows
- ☐ Report1
- ☒ Flag 21 -
- ☒ Flag 22 - Tritium_Sample
- ☒ Flag 23 - H3 Normal Lvl
- ☒ Output Windows
- ☐ Report1
- ☒ Flag 24 - DOC_Tritium_2
- ☒ Flag 25 -
- ☒ Flag 26 -
- ☒ Flag 27 -
- ☒ Flag 28 -
- ☒ Flag 29 -
- ☒ Flag 30 -

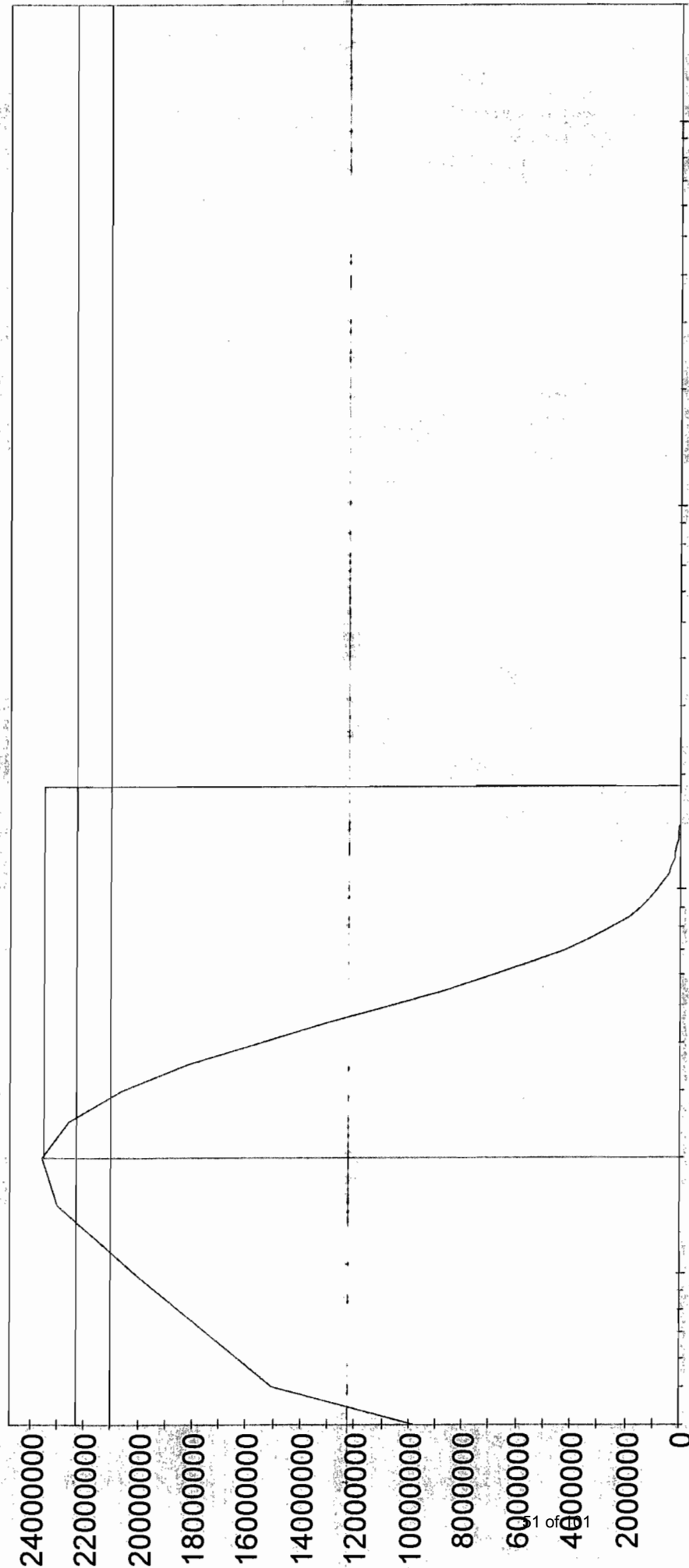
Protocol # 54

SpectraView - H-3 Normal 3.1sa

Sample #: 2
 Count Time: 60.00
 Pre-count Delay: 0.00
 Acquisition Time: 11.06

REGION	LL	UL	CPM	2S%
A	2.0	18.6	14696317.5	0.02
B	0.0	2000.0	20833110.3	0.01
C	0.0	2000.0	20833110.3	0.01

Counts #



Batch Result Verification Report

ABatchSampleID	SDG	Fraction	ClientID	Run	Isotope	ACT	TPU	TPU1s	TPU2s	MDA	DL	CU	CU1s	CU2s	ActivityReportUnits
ARS1-B11-03628-01				1	H-3	2439.613006	297.6724033	151.8736751	297.6724033	200.1508247	98.28196853	161.6088651	82.45350261	161.6088651	pCi
ARS1-B11-03628-02				1	H-3	2424.038449	295.902203	150.9705117	295.902203	199.2622403	97.84563849	160.8167484	82.04936142	160.8167484	pCi
ARS1-B11-03628-03				1	H-3	66.35748945	118.1140482	60.2626949	118.1140482	199.0986502	97.76530929	117.9181695	60.16233138	117.9181695	pCi
ARS1-B11-03628-04	ARS1-11-01989	001	MD54-11-23141	1	H-3	3153904.197	165073.6745	165073.6745	323544.402	612.0640569	279.3295221	7885.538019	7885.538019	15455.65452	pCi
ARS1-B11-03628-05	ARS1-11-01989	002	MD54-11-23140	1	H-3	37366745.86	1955748.184	1955748.184	3833266.44	2467.219829	918.1722104	93269.05357	93269.05357	182807.345	pCi
ARS1-B11-03628-06	ARS1-11-01989	003	MD54-11-23142	1	H-3	1453022050	76048049.69	76048049.69	149054177.4	64315.39535	20184.08847	3583286.562	3583286.562	7023241.662	pCi
ARS1-B11-03628-07	ARS1-11-02028	001	MD21-11-26384	1	H-3	54381.47891	2856.445492	2856.445492	5598.633165	202.1971682	99.2868041	276.3273239	276.3273239	541.6015548	pCi
ARS1-B11-03628-08	ARS1-11-02028	002	MD21-11-26391	1	H-3	1485.603682	107.7984736	107.7984736	211.2850083	201.3018092	98.84714746	74.75531505	74.75531505	146.5204175	pCi
ARS1-B11-03628-09	ARS1-11-02028	003	MD21-11-26388	1	H-3	58095.03144	3050.570398	3050.570398	5979.117981	202.4903312	99.43075874	285.3864126	285.3864126	559.3573687	pCi
ARS1-B11-03628-10	ARS1-11-02028	004	MD21-11-26389	1	H-3	11568.90385	620.3255834	620.3255834	1215.838143	201.1831365	98.78887445	137.8324025	137.8324025	270.1515089	pCi
ARS1-B11-03628-11	ARS1-11-02028	005	MD21-11-26385	1	H-3	14968.27698	797.2398637	797.2398637	1562.590133	199.0031066	97.71839358	152.40334	152.40334	298.7105464	pCi
ARS1-B11-03628-12	ARS1-11-02028	006	MD21-11-26386	1	H-3	13223.34922	706.6261443	706.6261443	1384.987243	202.8684114	99.61641108	146.3109373	146.3109373	286.7694372	pCi
ARS1-B11-03628-13	ARS1-11-02028	007	MD21-11-26393	1	H-3	16513.21564	878.0658019	878.0658019	1721.008972	202.0525118	99.21577209	160.3180053	160.3180053	314.2232903	pCi
ARS1-B11-03628-14	ARS1-11-02028	008	MD21-11-26387	1	H-3	54101.28383	2841.870646	2841.870646	5570.066467	203.2149482	99.78657435	276.3748041	276.3748041	541.694616	pCi
ARS1-B11-03628-15	ARS1-11-02028	009	MD21-11-26390	1	H-3	11778.11746	631.3202222	631.3202222	1237.387636	202.3500996	99.36189949	139.3160476	139.3160476	273.0594534	pCi
ARS1-B11-03628-16	ARS1-11-02028	010	MD21-11-26392	1	H-3	1936.297652	128.3963062	128.3963062	251.6567602	202.326361	99.3502429	78.98279423	78.98279423	154.8062767	pCi
ARS1-B11-03628-17	ARS1-11-02029	001	MD54-11-23144	1	H-3	8243.103506	447.7402421	447.7402421	877.5708744	203.2018079	99.78012192	121.4738625	121.4738625	238.0887705	pCi
ARS1-B11-03628-18	ARS1-11-02029	002	MD54-11-23143	1	H-3	17258.04195	1051.851227	1051.851227	2061.628404	-2561.601032	-1257.847388	-540.6883998	-540.6883998	-1059.749264	pCi
ARS1-B11-03628-19	ARS1-11-02029	003	MD54-11-23145	1	H-3	21322.20567	1129.252362	1129.252362	2213.33463	204.7903094	100.560139	180.5898103	180.5898103	353.9560282	pCi

* Recounted using 1.0058g. for 10-10-11

Batch Result Verification Report

American Radiation Services
Baton Rouge Laboratory

ABatchSampleID	SDG	Fraction	AliquotReportUnits	ChemRecovery	TracerRecovery	SampleCounts	SampleCountMins	BKG_Counts	BKG_CountMins	EFF	ALIQ	SampleCollDate	MidPointCountDate	BP_DL
ARS1-B11-03628-01			L			0.088333333	180	0.031444444	180	0.3736	5.0608	10/4/2011	9/29/2011	
ARS1-B11-03628-02			L			0.088222222	180	0.031444444	180	0.3756	5.0563	10/4/2011	9/29/2011	
ARS1-B11-03628-03			L			0.033	180	0.031444444	180	0.3751	5.0672	10/4/2011	9/29/2011	
ARS1-B11-03628-04	ARS1-11-01989 001		L			1061.763029	12.28	0.031444444	180	0.369	5.0612	9/8/2011	9/30/2011	
ARS1-B11-03628-05	ARS1-11-01989 002		L			157356.1386	1.01	0.031444444	180	0.3803	5.0544	9/8/2011	9/30/2011	
ARS1-B11-03628-06	ARS1-11-01989 003		L			1422439.059	0.34	0.031444444	180	0.0298	5.0479	9/8/2011	9/30/2011	
ARS1-B11-03628-07	ARS1-11-02028 001		L			1.286722222	180	0.031444444	180	0.3721	5.0411	9/15/2011	9/30/2011	
ARS1-B11-03628-08	ARS1-11-02028 002		L			0.065888889	180	0.031444444	180	0.3732	5.0487	9/15/2011	9/30/2011	
ARS1-B11-03628-09	ARS1-11-02028 003		L			1.3705	180	0.031444444	180	0.3725	5.0286	9/15/2011	9/30/2011	
ARS1-B11-03628-10	ARS1-11-02028 004		L			0.299833333	180	0.031444444	180	0.3715	5.075	9/15/2011	9/30/2011	
ARS1-B11-03628-11	ARS1-11-02028 005		L			0.3825	180	0.031444444	180	0.3762	5.0666	9/15/2011	9/30/2011	
ARS1-B11-03628-12	ARS1-11-02028 006		L			0.335666667	180	0.031444444	180	0.3714	5.0344	9/15/2011	9/30/2011	
ARS1-B11-03628-13	ARS1-11-02028 007		L			0.412888889	180	0.031444444	180	0.3731	5.0318	9/15/2011	9/30/2011	
ARS1-B11-03628-14	ARS1-11-02028 008		L			1.274	180	0.031444444	180	0.3699	5.0464	9/15/2011	10/1/2011	
ARS1-B11-03628-15	ARS1-11-02028 009		L			0.303111111	180	0.031444444	180	0.3723	5.0354	9/15/2011	10/1/2011	
ARS1-B11-03628-16	ARS1-11-02028 010		L			0.076111111	180	0.031444444	180	0.3721	5.0388	9/15/2011	10/1/2011	
ARS1-B11-03628-17	ARS1-11-02029 001		L			0.220777778	180	0.031444444	180	0.3706	5.0375	9/15/2011	10/1/2011	
ARS1-B11-03628-18	ARS1-11-02029 002		L			0	180	0.031444444	180	-0.0294	5.0373	9/15/2011	10/1/2011	
ARS1-B11-03628-19	ARS1-11-02029 003		L			0.517388889	180	0.031444444	180	0.3679	5.0359	9/15/2011	10/2/2011	

Batch Result Verification Report

American Radiation Services
Baton Rouge Laboratory

ABatchSampleID	SDG	Fraction	BP_MDA	Sb_Val	UCF	CF	GrossCountRate	BKGCountRate	NetCountRate	PlatingRecovery	InstFileName	DetectorID	InstrumentkeV	NuclideAbd	TracerMeasACT	TracerKnownACT
ARS1-B11-03628-01					2.22	1.96	15.9	5.66	10.24		71	P-54-S-2				
ARS1-B11-03628-02					2.22	1.96	15.88	5.66	10.22		71	P-54-S-3				
ARS1-B11-03628-03					2.22	1.96	5.94	5.66	0.28		71	P-54-S-4				
ARS1-B11-03628-04	ARS1-11-01989	001			2.22	1	13038.45	5.66	13032.79		71	P-54-S-5				
ARS1-B11-03628-05	ARS1-11-01989	002			2.22	1	158929.7	5.66	158924.04		71	P-54-S-6				
ARS1-B11-03628-06	ARS1-11-01989	003			2.22	1	483629.28	5.66	483623.62		71	P-54-S-7				
ARS1-B11-03628-07	ARS1-11-02028	001			2.22	1	231.61	5.66	225.95		71	P-54-S-8				
ARS1-B11-03628-08	ARS1-11-02028	002			2.22	1	11.86	5.66	6.2		71	P-54-S-9				
ARS1-B11-03628-09	ARS1-11-02028	003			2.22	1	246.69	5.66	241.03		71	P-54-S-10				
ARS1-B11-03628-10	ARS1-11-02028	004			2.22	1	53.97	5.66	48.31		71	P-54-S-11				
ARS1-B11-03628-11	ARS1-11-02028	005			2.22	1	68.85	5.66	63.19		71	P-54-S-12				
ARS1-B11-03628-12	ARS1-11-02028	006			2.22	1	60.42	5.66	54.76		71	P-54-S-13				
ARS1-B11-03628-13	ARS1-11-02028	007			2.22	1	74.32	5.66	68.66		71	P-54-S-14				
ARS1-B11-03628-14	ARS1-11-02028	008			2.22	1	229.32	5.66	223.66		71	P-54-S-15				
ARS1-B11-03628-15	ARS1-11-02028	009			2.22	1	54.56	5.66	48.9		71	P-54-S-16				
ARS1-B11-03628-16	ARS1-11-02028	010			2.22	1	13.7	5.66	8.04		71	P-54-S-17				
ARS1-B11-03628-17	ARS1-11-02029	001			2.22	1	39.74	5.66	34.08		71	P-54-S-18				
ARS1-B11-03628-18	ARS1-11-02029	002			2.22	1	0	5.66	-5.66		71	P-54-S-19				
ARS1-B11-03628-19	ARS1-11-02029	003			2.22	1	93.13	5.66	87.47		71	P-54-S-20				

Batch Result Verification Report

American Radiation Services
Baton Rouge Laboratory

ABatchSampleID	SDG	Fraction	TracerIsotope	TracerRefDate	TracerRefACT	TracerKnown	HalfLife1	HalfLife2	HalfLife3	TPUF_1	TPUF_2	TPUF_3	TPUF_4	TPUF_5	TPUF_6	DeltaT1	DeltaT2	DeltaT3	DeltaT4
ARS1-B11-03628-01							4499.8			0.04133	0.02	0	0.025	0	0	0			
ARS1-B11-03628-02							4499.8			0.04133	0.02	0	0.025	0	0	0			
ARS1-B11-03628-03							4499.8			0.04133	0.02	0	0.025	0	0	0			
ARS1-B11-03628-04	ARS1-11-01989 001						4499.8			0.04133	0.02	0	0.025	0	0	21.58402778			
ARS1-B11-03628-05	ARS1-11-01989 002						4499.8			0.04133	0.02	0	0.025	0	0	21.59375			
ARS1-B11-03628-06	ARS1-11-01989 003						4499.8			0.04133	0.02	0	0.025	0	0	21.59513889			
ARS1-B11-03628-07	ARS1-11-02028 001						4499.8			0.04133	0.02	0	0.025	0	0	14.59861111			
ARS1-B11-03628-08	ARS1-11-02028 002						4499.8			0.04133	0.02	0	0.025	0	0	14.73055556			
ARS1-B11-03628-09	ARS1-11-02028 003						4499.8			0.04133	0.02	0	0.025	0	0	14.86180556			
ARS1-B11-03628-10	ARS1-11-02028 004						4499.8			0.04133	0.02	0	0.025	0	0	14.99305556			
ARS1-B11-03628-11	ARS1-11-02028 005						4499.8			0.04133	0.02	0	0.025	0	0	15.125			
ARS1-B11-03628-12	ARS1-11-02028 006						4499.8			0.04133	0.02	0	0.025	0	0	15.25625			
ARS1-B11-03628-13	ARS1-11-02028 007						4499.8			0.04133	0.02	0	0.025	0	0	15.38819444			
ARS1-B11-03628-14	ARS1-11-02028 008						4499.8			0.04133	0.02	0	0.025	0	0	15.51944444			
ARS1-B11-03628-15	ARS1-11-02028 009						4499.8			0.04133	0.02	0	0.025	0	0	15.65069444			
ARS1-B11-03628-16	ARS1-11-02028 010						4499.8			0.04133	0.02	0	0.025	0	0	15.78263889			
ARS1-B11-03628-17	ARS1-11-02029 001						4499.8			0.04133	0.02	0	0.025	0	0	15.91388889			
ARS1-B11-03628-18	ARS1-11-02029 002						4499.8			0.04133	0.02	0	0.025	0	0	16.04236111			
ARS1-B11-03628-19	ARS1-11-02029 003						4499.8			0.04133	0.02	0	0.025	0	0	16.93402778			

Batch Result Verification Report

ABatchSampleID	SDG	Fraction	DeltaT5	DeltaT6	DF1	DF2	DF3	IF1	IF2	SysErr	K_Val	K_MDA	AnalysisCode	UserID	ModDate
ARS1-B11-03628-01					1					0.052279718	0.004197387	0.755529666		BSTEFFENS	10/4/2011
ARS1-B11-03628-02					1					0.052279718	0.004216105	0.758898853		BSTEFFENS	10/4/2011
ARS1-B11-03628-03					1					0.052279718	0.004219569	0.759522405		BSTEFFENS	10/4/2011
ARS1-B11-03628-04	ARS1-11-01989	001			0.996680727					0.052279718	0.004132272	0.0507443	LSC-A-001	BSTEFFENS	10/4/2011
ARS1-B11-03628-05	ARS1-11-01989	002			0.996679235					0.052279718	0.004253088	0.004295618	LSC-A-001	BSTEFFENS	10/4/2011
ARS1-B11-03628-06	ARS1-11-01989	003			0.996679021					0.052279718	0.00033284	0.000113166	LSC-A-001	BSTEFFENS	10/4/2011
ARS1-B11-03628-07	ARS1-11-02028	001			0.997753763					0.052279718	0.004154907	0.747883302	LSC-A-001	BSTEFFENS	10/4/2011
ARS1-B11-03628-08	ARS1-11-02028	002			0.997733484					0.052279718	0.004173388	0.75120977	LSC-A-001	BSTEFFENS	10/4/2011
ARS1-B11-03628-09	ARS1-11-02028	003			0.997713313					0.052279718	0.004148892	0.746800525	LSC-A-001	BSTEFFENS	10/4/2011
ARS1-B11-03628-10	ARS1-11-02028	004			0.997693141					0.052279718	0.004175849	0.751652889	LSC-A-001	BSTEFFENS	10/4/2011
ARS1-B11-03628-11	ARS1-11-02028	005			0.997672864					0.052279718	0.004221595	0.759887061	LSC-A-001	BSTEFFENS	10/4/2011
ARS1-B11-03628-12	ARS1-11-02028	006			0.997652693					0.052279718	0.00414116	0.745408734	LSC-A-001	BSTEFFENS	10/4/2011
ARS1-B11-03628-13	ARS1-11-02028	007			0.997632417					0.052279718	0.004157882	0.748418737	LSC-A-001	BSTEFFENS	10/4/2011
ARS1-B11-03628-14	ARS1-11-02028	008			0.997612247					0.052279718	0.004134098	0.744137609	LSC-A-001	BSTEFFENS	10/4/2011
ARS1-B11-03628-15	ARS1-11-02028	009			0.997592078					0.052279718	0.004151767	0.747318069	LSC-A-001	BSTEFFENS	10/4/2011
ARS1-B11-03628-16	ARS1-11-02028	010			0.997571802					0.052279718	0.004152254	0.747405751	LSC-A-001	BSTEFFENS	10/4/2011
ARS1-B11-03628-17	ARS1-11-02029	001			0.997551634					0.052279718	0.004134365	0.74418573	LSC-A-001	BSTEFFENS	10/4/2011
ARS1-B11-03628-18	ARS1-11-02029	002			0.997531893					0.052279718	-0.000327963	-0.059033348	LSC-A-001	BSTEFFENS	10/4/2011
ARS1-B11-03628-19	ARS1-11-02029	003			0.997394889					0.052279718	0.004102296	0.738413288	LSC-A-001	BSTEFFENS	10/4/2011


Beta Liquid Scintillation Counter Log Book

Date	Time	ARS Sample I.D. Number	Batch Number	Liquid Scintillation File Number	Technician Initials
9-29-11	1019	SNC 117	QA	QA	
L	L	Background	B11-03628	1320	
L	L	B11-03628-01	L	L	
L	L	B11-03628-02	L	L	
L	L	B11-03628-03	L	L	
L	L	B11-03628-04	L	L	
L	L	B11-03628-05	L	L	
L	L	B11-03628-06	L	L	
L	L	B11-03628-07	L	L	
L	L	B11-03628-08	L	L	
L	L	B11-03628-09	L	L	
L	L	B11-03628-10	L	L	
L	L	B11-03628-11	L	L	
L	L	B11-03628-12	L	L	
L	L	B11-03628-13	L	L	
L	L	B11-03628-14	L	L	
L	L	B11-03628-15	L	L	
L	L	B11-03628-16	L	L	
L	L	B11-03628-17	L	L	
L	L	B11-03628-18	L	L	

Beta Liquid Scintillation Counter Log Book

[illegible]

Technical Notes

		Batch	ARS1-B11-03628		
		Analysis Code	LSC-A-001		
		Procedure No	ARS-054		
		Matrix	SI		
#	Date	Dept	Batch Technical Notes		User ID
1	10/10/11 08:55	COUNTROOM	<p>Sample ARS1-B11-03628-18 (ARS1-11-02029-002) had extremely high activity and interference. This prevented the instrument from counting the sample properly. After counting the instrument printout showed a CPM of 0.00, a DPM of 0.00, a tSIE of 0.00, and an efficiency of -2.094 which calculated a very high activity and a very low MDA. The sample was recounted on the same instrument and a different instrument with the same result. The sample was then recounted using a 1.0058g aliquot which still had an extremely high CPM which timed out after 13 sec. The tSIE was 29.27 (outside range of the quench curve) with an efficiency of .87 indicating extreme interference. The data was manually entered into the V/V report and saved as a different file.</p>		BSTEFFENS



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American Radiation Services Analytical Reports

for

Los Alamos National Laboratory

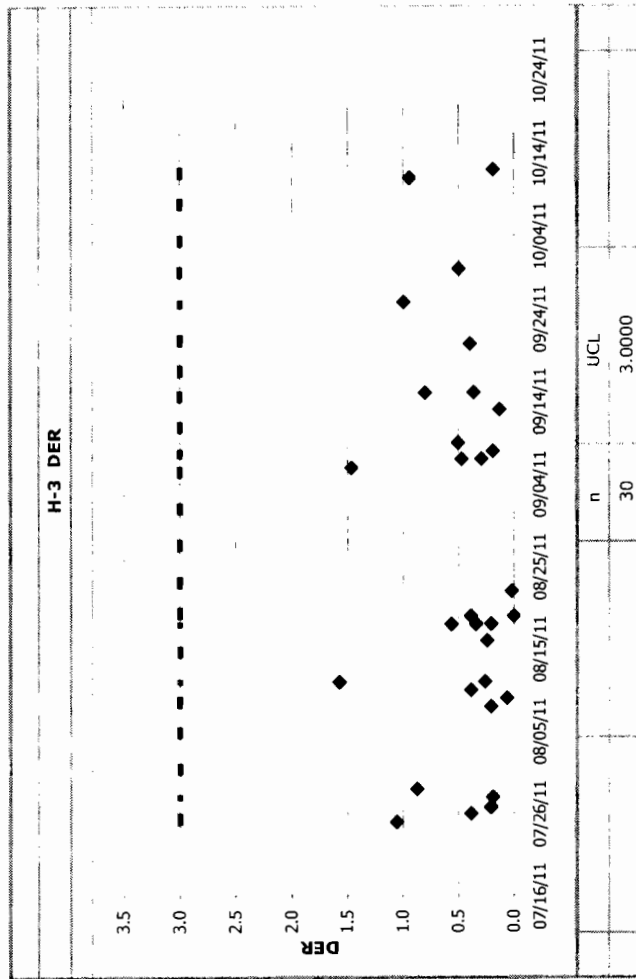
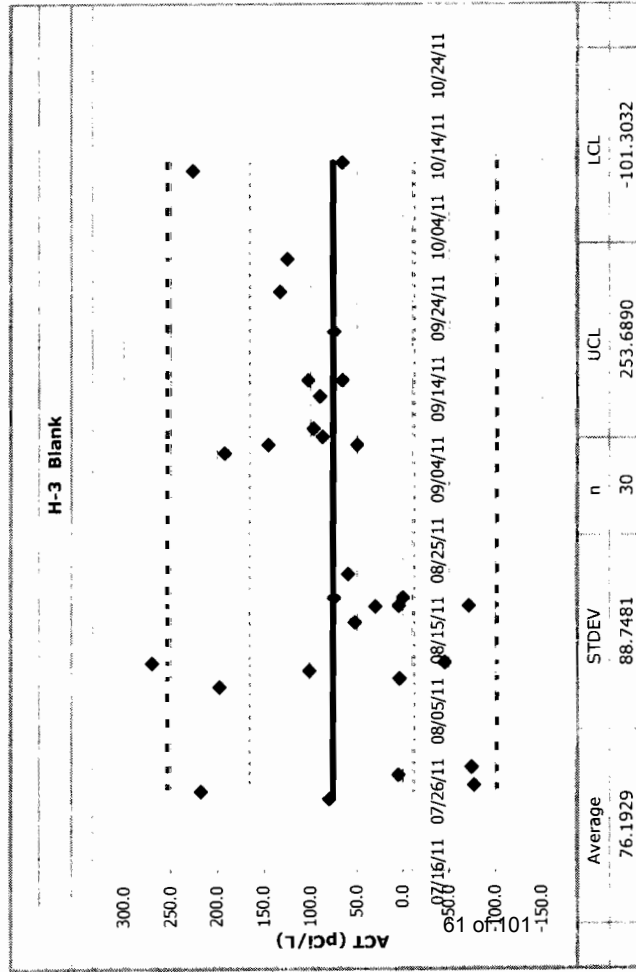
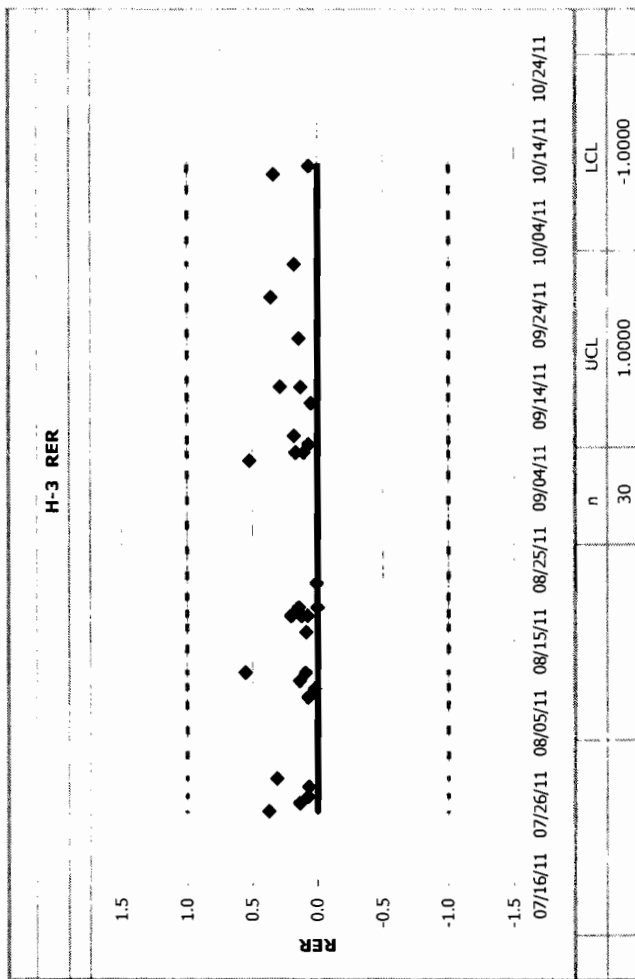
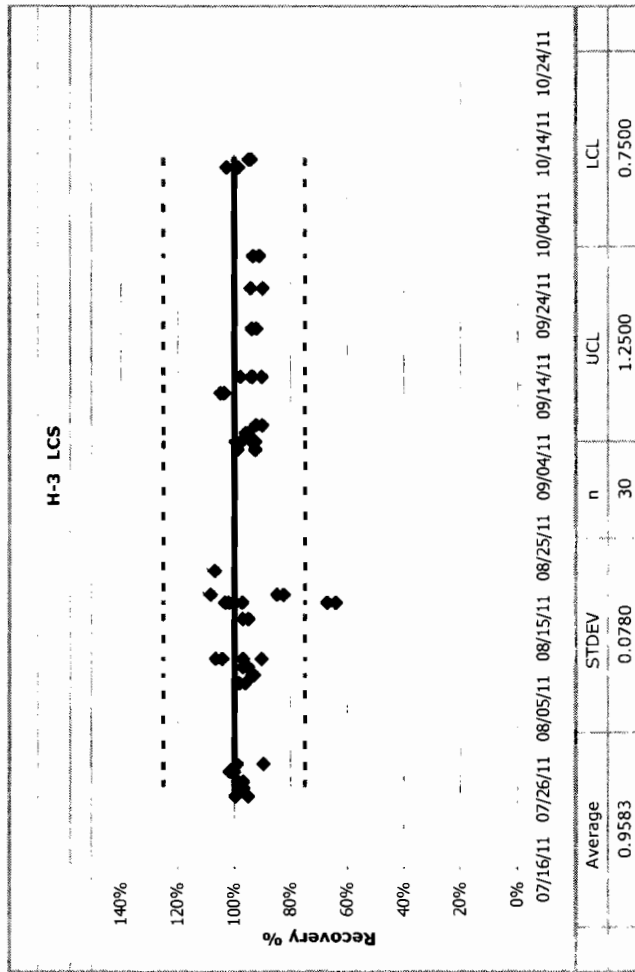
Tritium

by

**Low Level Liquid
Scintillation Counting**

Control Charts

QC Chart

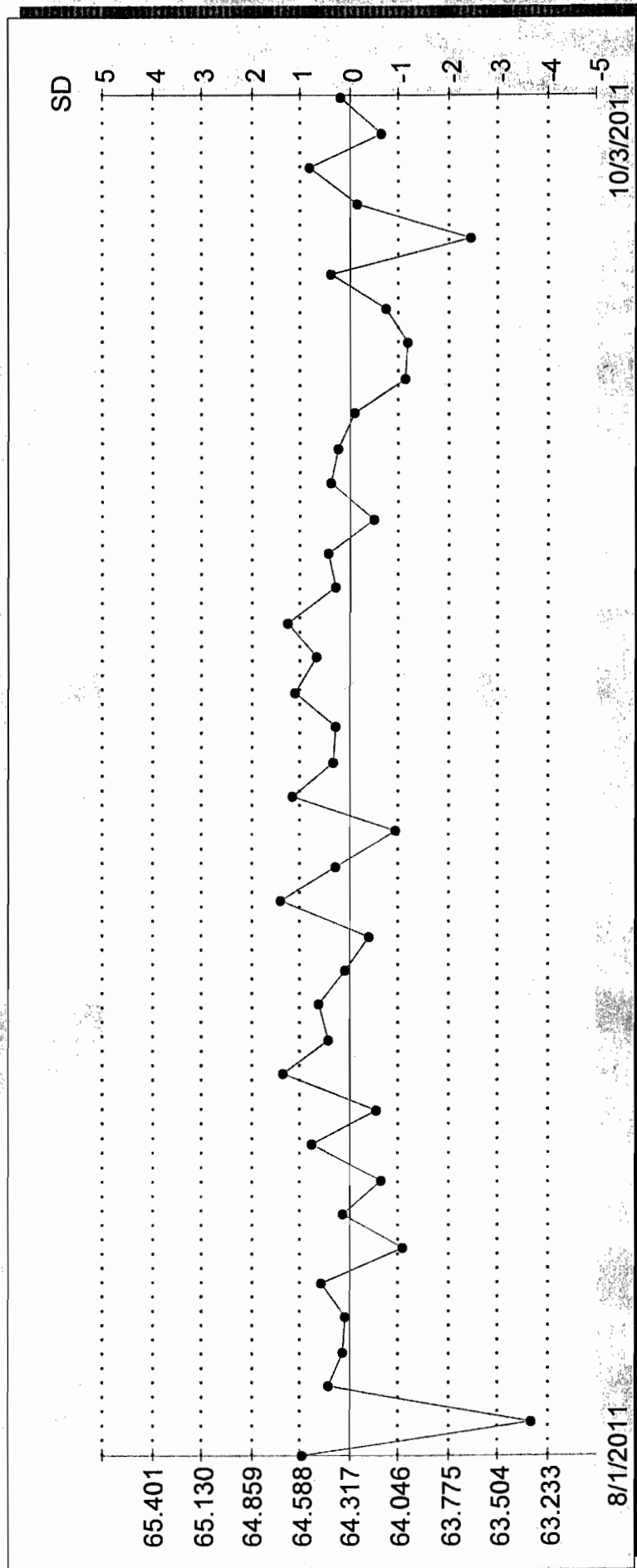


3H Efficiency

Total # pts : 1687
Valid # pts : 40
Mean : 64.32
SD : 0.27

Date	Value	Valid Pt
Aug 01, 2011	64.58	X
Aug 04, 2011	63.32	X
Aug 04, 2011	64.42	X
Aug 04, 2011	64.35	X
Aug 09, 2011	64.34	X
Aug 16, 2011	64.46	X
Aug 19, 2011	64.01	X
Aug 22, 2011	64.35	X
Aug 24, 2011	64.14	X
Aug 26, 2011	64.52	X
Aug 29, 2011	64.17	X
Aug 29, 2011	64.69	X
Aug 29, 2011	64.43	X
Sep 01, 2011	64.48	X
Sep 03, 2011	64.33	X
Sep 06, 2011	64.21	X
Sep 10, 2011	64.69	X
Sep 14, 2011	64.39	X
Sep 17, 2011	64.06	X
Sep 19, 2011	64.62	X
Sep 21, 2011	64.41	X
Sep 24, 2011	64.38	X
Sep 25, 2011	64.61	X
Sep 25, 2011	64.50	X
Sep 25, 2011	64.65	X
Sep 25, 2011	64.39	X
Sep 25, 2011	64.44	X
Sep 25, 2011	64.18	X
Sep 25, 2011	64.41	X
Sep 25, 2011	64.38	X
Sep 25, 2011	64.28	X
Sep 26, 2011	64.00	X
Sep 26, 2011	63.99	X
Sep 26, 2011	64.12	X
Sep 26, 2011	64.41	X
Sep 26, 2011	63.64	X
Sep 26, 2011	64.28	X
Sep 27, 2011	64.53	X
Sep 29, 2011	64.14	X
Oct 03, 2011	64.36	X

3H Efficiency : 1687
 Total # pts : 40
 Valid # pts : 64.32
 Mean : 0.27
 SD

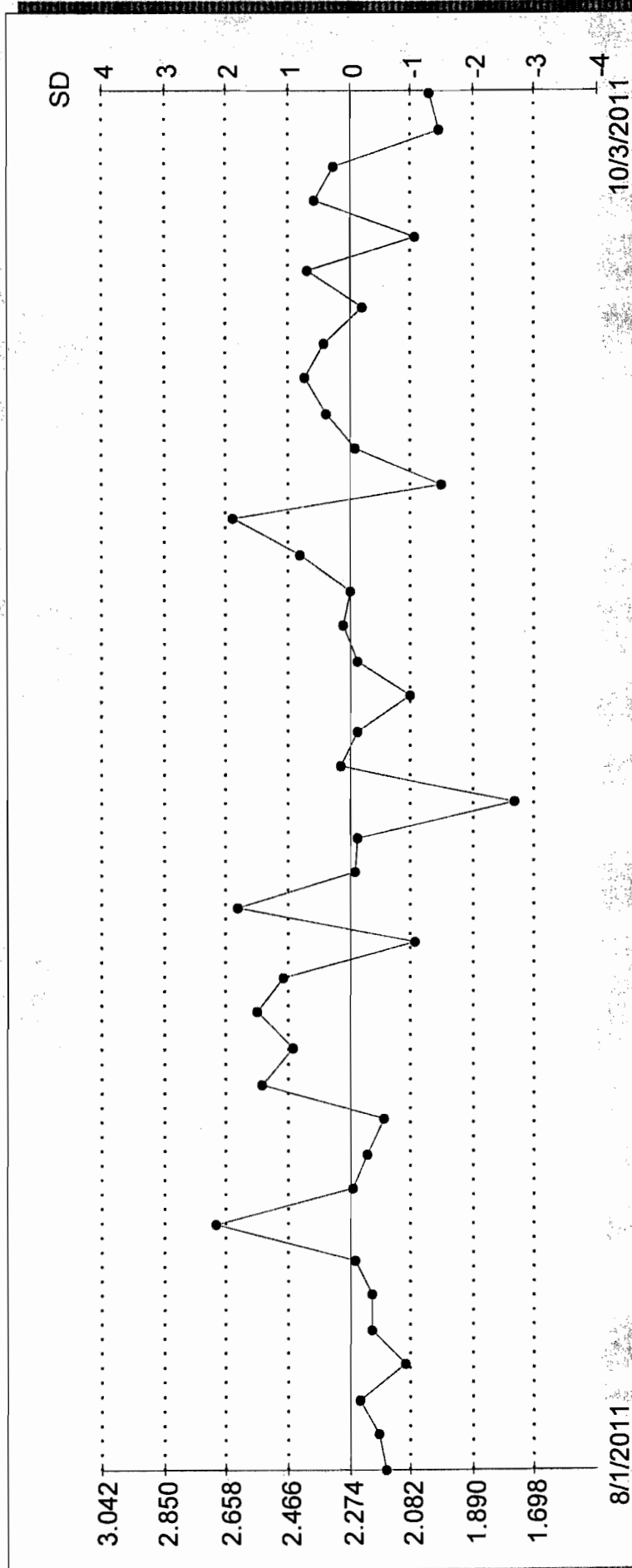


3H Background

Total # pts : 1643
Valid # pts : 40
Mean : 2.28
SD : 0.19

Date	Value	Valid Pt
Aug 01, 2011	2.16	X
Aug 04, 2011	2.18	X
Aug 04, 2011	2.25	X
Aug 04, 2011	2.10	X
Aug 09, 2011	2.20	X
Aug 16, 2011	2.20	X
Aug 19, 2011	2.26	X
Aug 22, 2011	2.69	X
Aug 24, 2011	2.26	X
Aug 26, 2011	2.22	X
Aug 29, 2011	2.17	X
Aug 29, 2011	2.55	X
Aug 29, 2011	2.45	X
Sep 01, 2011	2.57	X
Sep 03, 2011	2.48	X
Sep 06, 2011	2.07	X
Sep 10, 2011	2.63	X
Sep 14, 2011	2.25	X
Sep 17, 2011	2.25	X
Sep 19, 2011	1.76	X
Sep 21, 2011	2.30	X
Sep 24, 2011	2.25	X
Sep 25, 2011	2.09	X
Sep 25, 2011	2.25	X
Sep 25, 2011	2.29	X
Sep 25, 2011	2.28	X
Sep 25, 2011	2.43	X
Sep 25, 2011	2.64	X
Sep 25, 2011	1.99	X
Sep 25, 2011	2.26	X
Sep 25, 2011	2.35	X
Sep 26, 2011	2.41	X
Sep 26, 2011	2.35	X
Sep 26, 2011	2.24	X
Sep 26, 2011	2.41	X
Sep 26, 2011	2.07	X
Sep 26, 2011	2.39	X
Sep 27, 2011	2.32	X
Sep 29, 2011	1.99	X
Oct 03, 2011	2.03	X

3H Background
Total # pts : 1643
Valid # pts : 40
Mean : 2.28
SD : 0.19





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American Radiation Services Analytical Reports

for

Los Alamos National Laboratory

Low Level Liquid Scintillation Counting

Calibration Information

STD ID: S-0262

ARS INTERNATIONAL		Add/Edit Secondary Stds		Parent Standard Data	
Planning		Parent Solution Reference #		NIST SRM 4927F	
Planning Comments	Create an H3 LCS stock solution.	Parent Solution #		S-0237	
Target dpm/g (on dil. date)	5.5	Parent Principal Radionuclide		H-3	Half Life (Days) 4499.8800000
Target Final volume mL	2000	Parent Reference Date		03/22/2010 10:10	
Appx mass g of Parent Sol'n	3.408758506	Parent Certified Act		3503.682716	Cert Act/Vol Units dpm g
Appx vol ml of Parent Sol'n	3.414985335	Parent Cert Act Uncert 1 Sigma		0.0036	
Expected Addition for Analysis g	5	Parent Sp. Gravity GMI		0.9982	
Standards Preparation / Dilution		Parent Supplier		NIST SRM 4927F	
Secondary Solution #	S-0262	Parent Date Recvd		01/02/80	
Dilution Date (New Ref Date)	09/07/2011 11:47	Parent Received By		Unknown	
Ampoule, Empty (g)		Parent Cert 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)	13.352	Certified dpm/g on 09/07/2011 11:47		3226.981313	
Container Plus Solution (g)	16.889	Parent Comments		Intermediate level H-3 standard for creating LCS solutions and matrix spikes. Dilution performed as stated above by B Staffens. -BJS 3/22/10	
Net Wt Transferred (g)	3.537				
DPM Xferred on 09/07/2011 11:47	11413.83291				
Diluent/matrix	Dead H2O	Parent Tech		Unknown	
Diluent Density Cont, empty (g)		Is_Primary		FALSE	
Test Mass of 5 ml of Diluent (g)		Is_LCS		TRUE	
Diluent Density Test - (g/mL)		Is_Tracer		FALSE	
Dilution Empty Container Mass (g)	473.97	Is_Calib		FALSE	
Dilution Full Cont g (if measured)	2467.33				
Dilution Final Volume ml (if measured)	2000				
Final Dilution Density (g/mL)	0.99668				
Final Dilution Measured Mass g	1993.36				
Comments	H3 LCS stock solution dilution performed as stated above by B Staffens. -BJS 9/7/11				
Final Dilution dpm/g	5.725926529				
Final Dil New Ref Date/Time	09/07/2011 11:47				

S-0262



H-3

Verified 9/7/11

SL

Expires 9/7/12

Manufacturer NIST SRM 4927F

Sol Matrix H2O

Ref No NIST SRM 4927F

Tech Unknown

Parent ID S-0237



RADIOACTIVE STANDARDS -- BATON ROUGE LABORATORY



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

VERIFICATION DATE **9/13/2011 7:43** date counted
 STANDARD REFERENCE # **S-0262**

Principal Radionuclide
H-3

ENTER → Half Life, Years
1.232E+01

OR → Half Life, Days
4.4998E+03
4.4998E+03

Radionuclide **H-3**

Dilution Reference Date **9/7/2011 11:47**

Dilution Activity **2.58** pCi per gram ==> dpm/g **5.73**
 Verif. Date Decay Corrected **2.58** pCi per gram ==> dpm/g **5.72**

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-0262-V1	16.07	1	LSC	0.3754	5.40	5.050	5.63	2.54
S-0262-V2	16.39	1	LSC	0.3770	5.40	5.037	5.79	2.61
S-0262-V3	15.70	1	LSC	0.3763	5.40	5.035	5.44	2.45
S-0262-V4	15.00	1	LSC	0.3768	5.40	5.022	5.07	2.29
S-0262-V5	15.85	1	LSC	0.3774	5.40	5.019	5.52	2.49

10% Max PASS

Standard Deviation percent of known concentration

5% Max PASS

Average	5.49	2.47
Two Sigma Uncertainty	0.52	0.24
Target Activity	5.72	2.58
% Diff	-4.13%	-4.13%

Verification Expiration Date: **#####**

Prepared & Counted By *[Signature]*

Date: **9/13/2011 7:43**

Verified & Approved By *[Signature]*

Date: **9-13-11**

QC Approval *[Signature]*

Date: **9-13-11**

S-0262

H-3

SL

Manufacturer

Sol Matrix

Ref No

Tech

Parent ID



Verified **9/7/11**

Expires 9/7/12

NIST SRM 4927F

H2O

NIST SRM 4927F

Unknown

S-0237



RADIOACTIVE STANDARDS - BATON ROUGE LABORATORY

H-3 Standard Verification

Verifier's Name: Brian Steffens

Date: 9/7/2011

Pipettor ID: FJ40469

Pipettor ID: Auto-pipettor

Pipettor ID: na

Standard ID: S-0262

Standard ID: N/A

Standards brought up to ~5g with distilled dead water.

Standards made in glass vials.

Weight of Standard		
15mL of Ultima Gold added to standard	S-0262-V1	5.050 g
	S-0262-V2	5.037 g
	S-0262-V3	5.035 g
	S-0262-V4	5.022 g
	S-0262-V5	5.019 g

Balance ID: H1331122173560P

QuantaSmart (TM) - 2.03 - Serial# 061533

Protocol# 50 - H-3 Normal Lvl 3.lsa

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\20110912_2059

Raw Results Path: C:\Packard\Tricarb\Results\ARS\H-3 Normal Lvl 3\20110912_2059\20110912_2059.results

RTF File Name: C:\Packard\Tricarb\Results\ARS\H-3 Normal Lvl 3\20110912_2059\H-3 Results.rtf

Comma-Delimited File Name: C:\Packard\Tricarb\Results\ARS\H-3 Normal Lvl 3\20110912_2059\H-3 Results.csv

Assay File Name: C:\Packard\Tricarb\Assays\H-3 Normal Lvl 3.lsa

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): 120.00

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

Delay Before Burst (nsec): 75

Half Life-

Half Life Correction: Off

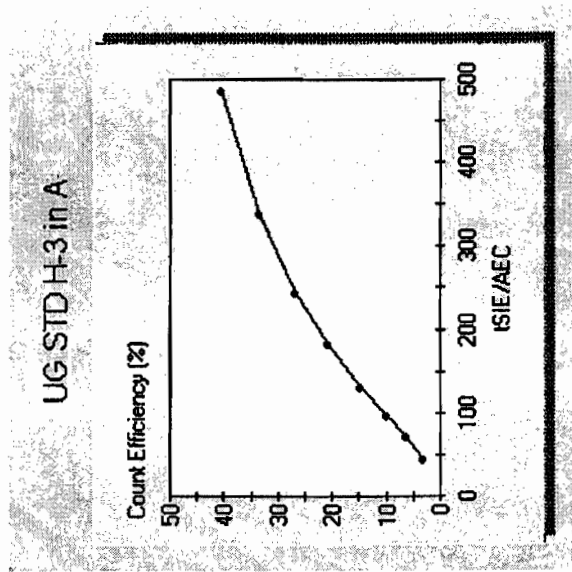
Regions Half Life

Units Reference Date

Reference Time

A
 B
 C

Cycle 1 Results
 Quench Curve Block Data



Date Acquired: 06/15/2011
 Date Modified:
 UG STD H-3 in A

tSIE/AEC	Count Efficiency (%)
487.53	40.41
339.12	33.51
243.83	26.83
182.60	20.93
130.85	14.63
96.86	9.97
71.30	6.34
46.31	3.09

QuantasSmart (TM) - 2.03 - Serial# 061533

9/13/2011 9:47:49 AM
Protocol# 50 - H-3 Normal Lvl 3.lsa

P#	S#	SMPL ID	CPMA	DPM1	tsIE	Eff Nucl	In A	Count Time	DATE	TIME	MESSAGES
50	1	BACKGROUND	5.40	14.31	429.68		37.72	120.00	9/12/2011	9:04:58 PM	
50	2	S-0262-V1	16.07	42.82	425.91		37.54	120.00	9/12/2011	11:12:00 PM	
50	3	S-0262-V2	16.39	43.48	429.27		37.70	120.00	9/13/2011	1:19:59 AM	
50	4	S-0262-V3	15.70	41.73	427.79		37.63	120.00	9/13/2011	3:27:57 AM	
50	5	S-0262-V4	15.00	39.81	428.81		37.68	120.00	9/13/2011	5:35:55 AM	
50	6	S-0262-V5	15.85	42.00	430.24		37.74	120.00	9/13/2011	7:43:52 AM	



National Institute of Standards & Technology

Certificate

Standard Reference Material 4927F

Hydrogen-3 Radioactivity Standard

This Standard Reference Material (SRM) consists of tritiated water, having a standardized and certified quantity of radioactive hydrogen-3. It is intended primarily for the calibration of instruments that are used to measure radioactivity and for the monitoring of radiochemical procedures. The solution, whose composition is specified in Table 1, is contained in a flame-sealed, 5 mL, NIST, borosilicate-glass ampoule (see Note 1)*.

The certified **hydrogen-3** massic activity value, at a **Reference Time of 1200 EST, 3 September 1998**, is:

$$(634.7 \pm 4.6) \text{ kBq} \cdot \text{g}^{-1}$$

Additional physical, chemical, and radiological properties for the SRM, as well as details on the standardization method, are given in Table 1. Uncertainty intervals for certified quantities are expanded ($k = 2$) uncertainties calculated according to the ISO and NIST Guidelines (see Note 2). Table 2 contains a specification of the components that comprise the uncertainty analyses.

The certification of this SRM, within the measurement uncertainties specified, is valid for at least five (5) years after receipt. The solution matrix, in an unopened ampoule, is believed to be indefinitely homogeneous and stable, within its half-life-dependent, useful lifetime. NIST will monitor this material and will report any substantive changes in certification to the purchaser. Should any of the certified values change, purchasers of this SRM will be notified of the change by NIST.

This SRM may represent a radiological hazard. Hydrogen-3 decays by beta particle emission. None of the beta particles escape from the SRM vial. During the decay process no photons are emitted. The SRM should be stored and used at a temperature between 5 and 35 °C. See Note 1

This Standard Reference Material was prepared in the Physics Laboratory, Ionizing Radiation Division, Radioactivity Group, Dr. M.P. Unterweger, Acting Group Leader. The overall technical direction and physical measurements leading to certification were provided by Drs. L.L. Lucas and M.P. Unterweger of the Radioactivity Group. The support aspects involved in the preparation, certification, and issuance of this SRM were coordinated through the Standard Reference Materials Program.

Lisa R. Karam, Deputy Chief
Ionizing Radiation Division

Gaithersburg, Maryland 20899
May 2008
See Certificate Revision History on Last Page

Robert L. Watters, Jr., Chief
Measurement Services Division

Table 1. Properties of SRM 4927F

Certified values

Radionuclide	Hydrogen-3
Reference time	1200 EST, 3 September 1998
Massic activity of the solution	634.7 kBq·g⁻¹
Relative expanded uncertainty ($k = 2$)	0.72 % (see Note 2)*

Uncertified information

Source description	Liquid in flame-sealed, 5 mL NIST borosilicate ampoule (see Note 1)
Solution composition	Distilled water
Solution density	(0.998 ± 0.002) g·mL ⁻¹ at 20 °C (see Note 3)
Solution mass	Approximately 5.0 g
Radionuclidic impurities	None detected (see Note 4)
Half-lives used	³ H: (4500 ± 8) d (see Note 5)
Calibration method (and instruments)	The certified massic activity for ³ H was obtained by 4πβ gas counting of SRM 4927E using the NIST length-compensated internal gas proportional counters and intercomparison of SRMs 4927E/4927F using two 4πβ liquid-scintillation (LS) counting systems (see Note 6)

Table 2. Uncertainty evaluation for the massic activity for SRM 4927F

Uncertainty component		Assessment Type [†]	Relative standard uncertainty contribution on massic activity of ³ H (%)
1	Massic count rate of SRM 4927E, corrected for background and decay; standard deviation of the mean for 23 sets of gas counting measurements (see Note 6)	A	0.18
2	LS intercomparison of SRM 4927F and SRM 4927E; standard deviation of the mean for 7 sets of LS measurements	A	0.06
3	Decay corrections for ³ H; (for half-life uncertainty of 0.18%)	A	0.002
4	Gram-mole determinations based on pressure, volume and temperature measurements	B	0.20
5	Livetime determinations	B	0.10
6	Extrapolation of count-rate-versus-energy to zero energy	B	0.20
7	Limit for radionuclidic impurities	B	0.05
Relative combined standard uncertainty			0.36
Relative expanded uncertainty (<i>k</i> = 2)			0.72

[†] = (A) denotes evaluation by statistical methods; (B) denotes evaluation by other methods.

NOTES

Note 1. Refer to <http://physics.nist.gov/Divisions/Div846/srm.html> for the standardized ampoule dimensions and for assistance and instructions on how to properly open an ampoule. Information on additional storage and handling requirements is also included in the website.

Note 2. The uncertainties on certified values are expanded uncertainties, $U = ku_c$. The quantity u_c is the combined standard uncertainty calculated according to the ISO and NIST Guides (see references [1] and [2]). The combined standard uncertainty is multiplied by a coverage factor of $k = 2$ and was chosen to obtain an approximate 95 % level of confidence.

Note 3. The stated uncertainty is two times the standard uncertainty. See reference [2]

Note 4. The estimated lower limit of detection for radionuclidic impurities is $300 \text{ Bq}\cdot\text{g}^{-1}$

Note 5. The stated uncertainty is the standard uncertainty. See reference [2] and [3].

Note 6. Extensive gas-counting measurements were made on the SRM 4927E solution during 1998 and 1999. The SRM 4927F solution was intercompared with the SRM 4927E using LS counting.

REFERENCES

- [1] International Organization for Standardization (ISO), *Guide to the Expression of Uncertainty in Measurement*, 1993 (corrected and reprinted, 1995). Available from Global Engineering Documents, 12 Inverness Way East, Englewood, CO 80112, U.S.A. Telephone 1-800-854-7179.
- [2] B. N. Taylor and C. E. Kuyatt, *Guidelines for Evaluating and Expressing the Uncertainty of NIST Measurement Results*, NIST Technical Note 1297, 1994. Available from the Superintendent of Documents, U.S. Government Printing Office, Washington, DC 20407, U.S.A.
- [3] L.L. Lucas and M.P. Unterwieser, *Comprehensive Review and Critical Evaluation of the Half-Life of Tritium*, J. Res. Natl. Inst. Stand. Technol. **105**, 541-549 (2000)

Certificate Revision History: May 2008 (Text revised); February 2007 (Text revised and expiration date extended); October 2000 (Half-life and text revised); June 1999 (Original certificate date).



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American Radiation Services Analytical Reports

for

Los Alamos National Laboratory

Percent Moisture



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

ARS Sample Delivery Group: ARS1-11-02028
Client Sample ID: MD21-11-26384
Sample Collection Date: 09/15/11
Sample Matrix: Silica

Request or PO Number: 11-3626
ARS Sample ID: ARS1-11-02028-001
Date Received: 09/20/11
Report Date: 10/13/11

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	26.929	NA	NA	NA		%	Percent Moisture	09/30/11 02:22	BS	NA

NOTES: Project Cost Code MR8R032NFM00

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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ARS Sample Delivery Group: ARS1-11-02028
Client Sample ID: MD21-11-26391
Sample Collection Date: 09/15/11
Sample Matrix: Silica

Request or PO Number: 11-3626
ARS Sample ID: ARS1-11-02028-002
Date Received: 09/20/11
Report Date: 10/13/11

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	21.895	NA	NA	NA		%	Percent Moisture	09/30/11 05:32	BS	NA

NOTES: Project Cost Code MR8R032NFM00

Project Manager Review

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ARS Sample Delivery Group: ARS1-11-02028
Client Sample ID: MD21-11-26388
Sample Collection Date: 09/15/11
Sample Matrix: Silica

Request or PO Number: 11-3626
ARS Sample ID: ARS1-11-02028-003
Date Received: 09/20/11
Report Date: 10/13/11

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	23.598	NA	NA	NA		%	Percent Moisture	09/30/11 08:41	BS	NA

NOTES: Project Cost Code MR8R032NFM00

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ARS Sample Delivery Group: ARS1-11-02028

Client Sample ID: MD21-11-26389

Sample Collection Date: 09/15/11

Sample Matrix: Silica

Request or PO Number: 11-3626

ARS Sample ID: ARS1-11-02028-004

Date Received: 09/20/11

Report Date: 10/13/11

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	21.832	NA	NA	NA		%	Percent Moisture	09/30/11 11:50	BS	NA
NOTES: Project Cost Code MR8R032NFM00										

Project Manager Review

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ARS Sample Delivery Group: ARS1-11-02028
Client Sample ID: MD21-11-26385
Sample Collection Date: 09/15/11
Sample Matrix: Silica

Request or PO Number: 11-3626
ARS Sample ID: ARS1-11-02028-005
Date Received: 09/20/11
Report Date: 10/13/11

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	25.626	NA	NA	NA		%	Percent Moisture	09/30/11 15:00	BS	NA

NOTES: Project Cost Code MR8R032NFM00

Project Manager Review

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ARS Sample Delivery Group: ARS1-11-02028
Client Sample ID: MD21-11-26386
Sample Collection Date: 09/15/11
Sample Matrix: Silica

Request or PO Number: 11-3626
ARS Sample ID: ARS1-11-02028-006
Date Received: 09/20/11
Report Date: 10/13/11

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	13.106	NA	NA	NA		%	Percent Moisture	09/30/11 18:09	BS	NA

NOTES: Project Cost Code MR8R032NFM00

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ARS Sample Delivery Group: ARS1-11-02028
Client Sample ID: MD21-11-26393
Sample Collection Date: 09/15/11
Sample Matrix: Silica

Request or PO Number: 11-3626
ARS Sample ID: ARS1-11-02028-007
Date Received: 09/20/11
Report Date: 10/13/11

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	22.896	NA	NA	NA		%	Percent Moisture	09/30/11 21:19	BS	NA

NOTES: Project Cost Code MR8R032NFM00

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ARS Sample Delivery Group: ARS1-11-02028
Client Sample ID: MD21-11-26387
Sample Collection Date: 09/15/11
Sample Matrix: Silica

Request or PO Number: 11-3626
ARS Sample ID: ARS1-11-02028-008
Date Received: 09/20/11
Report Date: 10/13/11

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	24.348	NA	NA	NA		%	Percent Moisture	10/01/11 00:28	BS	NA

NOTES: Project Cost Code MR8R032NFM00

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ARS Sample Delivery Group: ARS1-11-02028
Client Sample ID: MD21-11-26390
Sample Collection Date: 09/15/11
Sample Matrix: Silica

Request or PO Number: 11-3626
ARS Sample ID: ARS1-11-02028-009
Date Received: 09/20/11
Report Date: 10/13/11

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	19.925	NA	NA	NA		%	Percent Moisture	10/01/11 03:37	BS	NA

NOTES: Project Cost Code MR8R032NFM00

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ARS Sample Delivery Group: ARS1-11-02028
Client Sample ID: MD21-11-26392
Sample Collection Date: 09/15/11
Sample Matrix: Silica

Request or PO Number: 11-3626
ARS Sample ID: ARS1-11-02028-010
Date Received: 09/20/11
Report Date: 10/13/11

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	22.825	NA	NA	NA		%	Percent Moisture	10/01/11 06:47	BS	NA

NOTES: Project Cost Code MR8R032NFM00

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Los Alamos National Laboratory

Percent Moisture Laboratory Records

AMERICAN RADIATION SERVICES
Port Allen, LA
PERCENT MOISTURE DETERMINATION IN SOILS

SDG Number ARS1-11-01989, 02028, 02029
 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
MD54-11-23141	ARS1-11-01989-001	607	439	167	23.6264	5.0612	14.14754491
MD54-11-23140	ARS1-11-01989-002	624	457	168	20.4232	5.0544	12.15666667
MD54-11-23142	ARS1-11-01989-003	601	438	162	20.8783	5.0479	12.88783951
MD21-11-26384	ARS1-11-02028-001	655	450	205	55.2041	5.0411	26.92882927
MD21-11-26391	ARS1-11-02028-002	651	460	190	41.5996	5.0487	21.89452632
MD21-11-26388	ARS1-11-02028-003	645	452	193	45.5444	5.0286	23.59813472
MD21-11-26389	ARS1-11-02028-004	637	447	189	41.262	5.075	21.83174603
MD21-11-26385	ARS1-11-02028-005	650	447	202	51.7645	5.0666	25.6259901
MD21-11-26386	ARS1-11-02028-006	623	452	170	22.28	5.0344	13.10588235
MD21-11-26393	ARS1-11-02028-007	641	449	192	43.9604	5.0318	22.89604167
MD21-11-26387	ARS1-11-02028-008	629	438	190	46.2604	5.0464	24.34757895
MD21-11-26390	ARS1-11-02028-009	621	441	180	35.8654	5.0354	19.92522222
MD21-11-26392	ARS1-11-02028-010	626	439	189	43.1401	5.0388	22.82544974
MD54-11-23144	ARS1-11-02029-001	656	452	202	53.86	5.0375	26.66336634
MD54-11-23143	ARS1-11-02029-002	641	440	201	55.3571	5.0373	27.54084577
MD54-11-23145	ARS1-11-02029-003	661	454	207	59.8238	5.0359	28.90038647

Balance ID:
Pipettor ID:

0102/H1331122173560P
FJ40469

Signature

A handwritten signature in black ink, appearing to be 'R. J. Smith', written over a horizontal line.

Date

9-30-11

AMERICAN RADIATION SERVICES

Port Allen, LA

PERCENT MOISTURE DETERMINATION IN SOILS

SDG Number ARS1-11-01989, 02028, 02029

Client LANL

LCS-5.0608
LCSB-5.0563
BIK-5.0672

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
MD54-11-23141	ARS1-11-01989-001	607	439	167	23.6264	5.0612	#DIV/0!
MD54-11-23140	ARS1-11-01989-002	624	457	168	20.4232	5.0544	#DIV/0!
MD54-11-23142	ARS1-11-01989-003	601	438	162	20.8783	5.0479	#DIV/0!
MD21-11-26384	ARS1-11-02028-001	655	450	205	55.2641	5.0411	#DIV/0!
MD21-11-26391	ARS1-11-02028-002	651	460	190	41.5996	5.0487	#DIV/0!
MD21-11-26388	ARS1-11-02028-003	645	452	193	45.5444	5.0286	#DIV/0!
MD21-11-26389	ARS1-11-02028-004	637	447	189	41.2626	5.0756	#DIV/0!
MD21-11-26385	ARS1-11-02028-005	650	447	202	51.7645	5.0666	#DIV/0!
MD21-11-26386	ARS1-11-02028-006	623	452	170	22.2800	5.0344	#DIV/0!
MD21-11-26393	ARS1-11-02028-007	641	449	192	43.9604	5.0318	#DIV/0!
MD21-11-26387	ARS1-11-02028-008	629	438	190	46.2604 39.3446 46.2604	5.0464	#DIV/0!
MD21-11-26390	ARS1-11-02028-009	621	441	180	35.8654	5.0354	#DIV/0!
MD21-11-26392	ARS1-11-02028-010	626	439	189	43.1401	5.0388	#DIV/0!
MD54-11-23144	ARS1-11-02029-001	656	452	202	53.8600	5.0375	#DIV/0!
MD54-11-23143	ARS1-11-02029-002	641	440	201	55.3571	5.0373	#DIV/0!
MD54-11-23145	ARS1-11-02029-003	661	454	207	59.8238	5.0359	#DIV/0!

Balance ID:
Pipettor ID:

0102/H1331122173560P
FJ40469

Signature



Date

9-28-11



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American Radiation Services Analytical Reports

for

Los Alamos National Laboratory

Folder Duplicate



Report Compilation Checklist

ARS SDG: 11-02028 Client Name: LANL Sample Matrix: SI

LEVEL 1 COMPONENTS

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

LEVEL 2 COMPONENTS

	1st Reviewer			
6) Batch Quality Control Report is Present and Accurate?	Yes	No	N/A	
7) DQO Report is Present and Accurate?	Yes	No	N/A	
8) Client Specific Batch QC Components are Present and Complete?	Yes	No	N/A	

LEVEL 3 COMPONENTS

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

LEVEL 4 COMPONENTS

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

Susan Heese 10-12-11
Report Generator Signature Date

10-13-11
SDA

MM 10-13-11
Management Review Signature Date



LSC Technical Review Checklist

ARS SDG 11-02028Sample Matrix: SI Aliquot (Circle One) : Dry As Received ☒ Filtered Other: _____Required QC Samples (Mark all that apply): Blank ☒ LOS ☒ LOSD ☒ Sample Dup MS MSDARS A. Batch ID(s): Batch A: B11-03628 Batch B: N/A Batch C: N/ATest Method(s): LSC-A-001 N/A N/A

A. RADIOCHEMICAL PREPARATION REVIEW

	Chemist Review	Verifier Review
1) 100% of Manual Transcriptions Verified?	<input checked="" type="checkbox"/> Yes No N/A	<input checked="" type="checkbox"/> Yes No N/A
2) 100% of Manual Calculations Verified?	Yes No <input checked="" type="checkbox"/> N/A	Yes No <input checked="" type="checkbox"/> N/A
3) Blank Composition/Configuration Matches Calibration?	<input checked="" type="checkbox"/> Yes No N/A	<input checked="" type="checkbox"/> Yes No N/A
4) Deviations from procedure are documented and verified?	Yes No <input checked="" type="checkbox"/> N/A	Yes No <input checked="" type="checkbox"/> N/A
5) Appropriate Cocktail Selected?	<input checked="" type="checkbox"/> Yes No N/A	<input checked="" type="checkbox"/> Yes No N/A
6) Sample Prep Anomaly? <input checked="" type="checkbox"/> No <input type="checkbox"/> Yes (See Tech Notes) NCR # (If initiated): _____		
<div>Chemist Signature: <u>[Signature]</u> Date: <u>9-29-11</u> Verifier Review Signature: <u>[Signature]</u> Date: <u>9-29-11</u></div>		

B. ANALYSIS REVIEW

	Analyst Review	QA Officer Review
1) Calibrations Valid and Current?	<input checked="" type="checkbox"/> Yes No N/A	<input checked="" type="checkbox"/> Yes No N/A
2) Backgrounds Valid and Current?	<input checked="" type="checkbox"/> Yes No N/A	<input checked="" type="checkbox"/> Yes No N/A
3) Source Checks Completed and Acceptable?	<input checked="" type="checkbox"/> Yes No N/A	<input checked="" type="checkbox"/> Yes No N/A
QA Officer Signature: <u>[Signature]</u>		Date: <u>10-13-11</u>
	Analyst Review	Technical Review
4) Background Checks Complete and Acceptable?	<input checked="" type="checkbox"/> Yes No N/A	<input checked="" type="checkbox"/> Yes No N/A
5) 100% of Manually Entered Parameters Verified Accurate?	<input checked="" type="checkbox"/> Yes No N/A	<input checked="" type="checkbox"/> Yes No N/A
6) Appropriate QC samples initiated at required frequency?	<input checked="" type="checkbox"/> Yes No N/A	<input checked="" type="checkbox"/> 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="checkbox"/> Yes No N/A	<input checked="" type="checkbox"/> Yes No N/A
b) Spectra show no Evidence of Interferences?	<input checked="" type="checkbox"/> Yes No N/A	<input checked="" type="checkbox"/> Yes No N/A
c) Sample Quench for All Samples within Range of Quench Curve?	<input checked="" type="checkbox"/> Yes No N/A	<input checked="" type="checkbox"/> Yes No N/A
7) Analysis Anomaly? <input checked="" type="checkbox"/> No <input type="checkbox"/> Yes (See Comments) NCR # (If initiated): _____		
<div>Analyst Signature: <u>[Signature]</u> Date: <u>10-10-11</u> Technical Reviewer Signature: <u>N/A</u> Date: _____</div>		

Batch A: B11-03628

LSC Technical Review Checklist

C. BATCH QC VALIDATION

	Proj. Mgr. Review	QA Officer Review
1) Activity + 3xCSU a Negative Number?	Yes <input checked="" type="checkbox"/> No <input checked="" type="checkbox"/> N/A	Yes <input checked="" type="checkbox"/> No <input checked="" type="checkbox"/> N/A
2) RDL Criteria are Met?	<input checked="" type="checkbox"/> Yes No N/A	<input checked="" type="checkbox"/> Yes No N/A
3) Method Blank Criterion Met?	<input checked="" type="checkbox"/> Yes No N/A	<input checked="" type="checkbox"/> Yes No N/A
4) LCS/LCD Criteria Met?	<input checked="" type="checkbox"/> Yes No N/A	<input checked="" type="checkbox"/> Yes No N/A
5) Duplicate (Sample Duplicate, LCSD, MSD) Criteria Met?	<input checked="" type="checkbox"/> Yes No N/A	<input checked="" type="checkbox"/> Yes No N/A
6) MS/MSD Criteria Met?	Yes No <input checked="" type="checkbox"/> N/A	Yes No <input checked="" type="checkbox"/> N/A
7) Batch QC Anomaly? <input checked="" type="checkbox"/> No <input type="checkbox"/> Yes (See Tech Notes) NCR # (If initiated): _____		
<div style="display: flex; justify-content: space-between; align-items: flex-end; padding: 5px;"><div style="text-align: center;"><u>Susan Keene</u> Project Manager Signature</div><div style="text-align: center;"><u>10-13-11</u> Date</div><div style="text-align: center;"><u>[Signature]</u> QA Officer Signature</div><div style="text-align: center;"><u>10-13-11</u> Date</div></div>		

GENERAL COMMENTS

SDG Report - Samples and Containers									
SDG					SDG Specific Data				
Sample Count	ARS1-11-02028	Rpt Level			TAT Days	30	Project Type		
Client	Los Alamos National Laboratory	4			Date Received	9/20/2011	Environmental		
Client Code	114				Client Deadline	10/19/2011	COC Number		
Profile Number	PN-00094				Internal Deadline	10/19/2011	PO Number		
Comments					Lab Deadline	10/17/2011	Job Number		
							Job Location		

Samples and Containers (→) Checked In Thus Far																
FR	ClientID	Matrix	SampleStartDate	SampleEndDate	Disp	Hold	Arch	Storage	X	Units	Y	Units	Z	Units	Comments	
001 →	MD21-11-26384	SI	09/15/11 12:00 PM	09/15/11 12:00 PM	H	90	5	Q6								
		Cnt	Volume_mL	Wt_g	pH_Orig	pH_Final	CPM	uR_Hr	Storage	VOA	Head Sp	AF Units	AF Rate	AF Mins	AF Total Vol	
	95925	1		1.00			35	18		Y	N/A					
002 →	MD21-11-26391	SI	09/15/11 12:00 PM	09/15/11 12:00 PM	H	90	5	Q6								
		Cnt	Volume_mL	Wt_g	pH_Orig	pH_Final	CPM	uR_Hr	Storage	VOA	Head Sp	AF Units	AF Rate	AF Mins	AF Total Vol	
	95926	1		1.00			35	18		Y	N/A					
003 →	MD21-11-26388	SI	09/15/11 12:00 PM	09/15/11 12:00 PM	H	90	5	Q6								
		Cnt	Volume_mL	Wt_g	pH_Orig	pH_Final	CPM	uR_Hr	Storage	VOA	Head Sp	AF Units	AF Rate	AF Mins	AF Total Vol	
	95927	1		1.00			40	20		Y	N/A					
004 →	MD21-11-26389	SI	09/15/11 12:00 PM	09/15/11 12:00 PM	H	90	5	Q6								
		Cnt	Volume_mL	Wt_g	pH_Orig	pH_Final	CPM	uR_Hr	Storage	VOA	Head Sp	AF Units	AF Rate	AF Mins	AF Total Vol	
	95928	1		1.00			45	22		N	N/A					
005 →	MD21-11-26385	SI	09/15/11 12:00 PM	09/15/11 12:00 PM	H	90	5	Q6								
		Cnt	Volume_mL	Wt_g	pH_Orig	pH_Final	CPM	uR_Hr	Storage	VOA	Head Sp	AF Units	AF Rate	AF Mins	AF Total Vol	
	95929	1		1.00			40	20		N	N/A					
006 →	MD21-11-26386	SI	09/15/11 12:00 PM	09/15/11 12:00 PM	H	90	5	Q6								
		Cnt	Volume_mL	Wt_g	pH_Orig	pH_Final	CPM	uR_Hr	Storage	VOA	Head Sp	AF Units	AF Rate	AF Mins	AF Total Vol	
	95930	1		1.00			40	20		N	N/A					
007 →	MD21-11-26393	SI	09/15/11 12:00 PM	09/15/11 12:00 PM	H	90	5	Q6								
		Cnt	Volume_mL	Wt_g	pH_Orig	pH_Final	CPM	uR_Hr	Storage	VOA	Head Sp	AF Units	AF Rate	AF Mins	AF Total Vol	
	95931	1		1.00			40	18		N	N/A					
008 →	MD21-11-26387	SI	09/15/11 12:00 PM	09/15/11 12:00 PM	H	90	5	Q6								
		Cnt	Volume_mL	Wt_g	pH_Orig	pH_Final	CPM	uR_Hr	Storage	VOA	Head Sp	AF Units	AF Rate	AF Mins	AF Total Vol	
	95932	1		1.00			40	18		N	N/A					
009 →	MD21-11-26390	SI	09/15/11 12:00 PM	09/15/11 12:00 PM	H	90	5	Q6								
		Cnt	Volume_mL	Wt_g	pH_Orig	pH_Final	CPM	uR_Hr	Storage	VOA	Head Sp	AF Units	AF Rate	AF Mins	AF Total Vol	
	95933	1		1.00			40	20		N	N/A					
010 →	MD21-11-26392	SI	09/15/11 12:00 PM	09/15/11 12:00 PM	H	90	5	Q6								
		Cnt	Volume_mL	Wt_g	pH_Orig	pH_Final	CPM	uR_Hr	Storage	VOA	Head Sp	AF Units	AF Rate	AF Mins	AF Total Vol	
	95934	1		1.00			40	20		N	N/A					

SDG Report - Analysis Assignments

Temp SDG	ARS1-11-02028	Sample Count	10
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

DQO Report for SDG
ARS1-11-02028

Analysis Code	Group	Isotope	Activity Units	Aliquot Units	ProcedureNo	RDL	LCS_LL	LCS_UL	MS_LL	MS_UL	RadY_LL	RadY_UL	GravY_LL	GravY_UL	RER	RPD	DilutionReq	RoughPrepReq	BlankCorrectionMDA	BlankCorrectionAll	CountTimeReq	AliquotRequired
LSC-A-001	STC	H-3	pCi	L	ARS-054	2.50E+02	80	120	75	125	30	110	40	110	1.00	25	FALSE	FALSE	FALSE	FALSE		

ARS FILE TRACKING SHEET

SDG: ARS1-11-02028

Task	Date / Time	Initials
Date & Time Samples Received	09-20-11/10:14	CWB
ICOC Initiated / Storage Location: <u>Q6</u>	09-20-11/14:25	CWB
Technical Checks Performed	See Batch	
Report Written / EDD Generated: <u>10-13-11 / 1445</u> <u>SDH</u>	10-13-11/1441	SDH
Quality Assurance Checks Performed on Report	10-13-11 / 1518	SDH
Management Check Performed on Report	10-13-11 / 1518	SDH
Preliminary Report Sent	na	
Report E-mailed	10-14-11/8:45	SDH
Report Faxed	na	
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:

SDG: ARSH102020

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

Exposure Rate Meter:	<u>M3 2428201</u>	Serial No.:	<u>44-2 R2204206</u>	Calibration Due Date:	<u>4/2012</u>
Count Rate Meter:	<u>569 M2 1548559</u>	Serial No.:	<u>44-9 R2184559</u>	Calibration Due Date:	<u>4/2012</u>
Background Exposure Rate (μ R/hr)	<u>26</u>	Max. Exposure Rate on Shipping Containers Externals (Plus Bkgd)	<u>20</u>	μ R/hr	
Background Count Rate (cpm)	<u>60</u>	Max. Removable Count Rate on Shipping Containers Externals (Plus Bkgd)	<u>30</u>	cpm	
		Max. Removable Count Rate on Shipping Containers Internals (Plus Bkgd)	<u>30</u>	cpm	

[illegible]

Surveyors
Name

Date/Time Surveyed: