

Thursday, June 16, 2011

REQUEST NUMBER: 11-2668

LOS ALAMOS
NATIONAL LABORATORY

ATTN: Danny Coleman

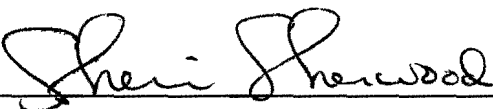
American Radiation Services - Primary
1726 Wooddale Court
Baton Rouge, LA 70806

These Samples are on:

LANL Request Number: 11-2668
Per Agreement Number: 63641-001-10
Project Cost Code: MR8R032NFM00Please analyse the enclosed samples
according to the schedule indicated:**SHIP DATE: 6/16/2011****TURNAROUND/REPORT DUE: 7/16/2011****TURNAROUND REQ'D: 30 Days****RAD SCREENING: Yes, Below Background****LAB REQUEST COMMENTS:**

LANL ER SMO CONTACT:

Signature:



PRIORITY	METHOD CODE	CNTNR	SAMPLE ID	SAMPLE MATRIX	DATE SAMPLED	SPECIAL INSTRUCTIONS
	EPA:906.0	1	MD21-11-14524	GAS	6/15/2011	
		1	MD21-11-14525	GAS	6/15/2011	
		1	MD21-11-14526	GAS	6/15/2011	
		1	MD21-11-14527	GAS	6/15/2011	
		1	MD21-11-14528	GAS	6/15/2011	
		1	MD21-11-14529	GAS	6/15/2011	
		1	MD21-11-14530	GAS	6/15/2011	
		1	MD21-11-14531	GAS	6/15/2011	
		1	MD21-11-14532	GAS	6/15/2011	
		1	MD21-11-14533	GAS	6/15/2011	

Thursday, June 16, 2011

REQUEST NUMBER: 11-2668

PRIORITY	METHOD CODE	CNTNR	SAMPLE ID	SAMPLE MATRIX	DATE SAMPLED	SPECIAL INSTRUCTIONS
	EPA:906.0	1	MD21-11-14534	GAS	6/15/2011	

Final Page of REQUEST NUMBER 11-2668

Thursday, June 16, 2011

LAB CHAIN OF CUSTODY DOCUMENT NUMBER: 11-2668C

LOS ALAMOS

REQUEST NUMBER: 11-2668

NATIONAL LABORATORY

ATTN: Danny Coleman

TURNAROUND/REPORT DUE: 7/16/2011

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
MD21-11-14527	1	SILICA GEL TUBE	H3	None	GAS
MD21-11-14524	1	SILICA GEL TUBE	H3	None	GAS
MD21-11-14531	1	SILICA GEL TUBE	H3	None	GAS
MD21-11-14525	1	SILICA GEL TUBE	H3	None	GAS
MD21-11-14534	1	SILICA GEL TUBE	H3	None	GAS
MD21-11-14532	1	SILICA GEL TUBE	H3	None	GAS
MD21-11-14526	1	SILICA GEL TUBE	H3	None	GAS
MD21-11-14529	1	SILICA GEL TUBE	H3	None	GAS
MD21-11-14533	1	SILICA GEL TUBE	H3	None	GAS
MD21-11-14528	1	SILICA GEL TUBE	H3	None	GAS
MD21-11-14530	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: 3515

EVENT NAME: FY11 - MDA T - CU 21-018(a)-99 - Pore Gas Sampling

SAMPLE ID: MD21-11-14524

WORK ORDER:

AS PLANNED	AS COLLECTED	AS PLANNED	AS COLLECTED
DATE COLLECTED(MM/DD/YYYY):	6/15/11	MEDIA:	NA
TIME COLLECTED (HH:MM)	1020	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 <input checked="" type="checkbox"/> NA	Part 1
COMPOSITE TYPE: NA		COMPOSITE TIME INTERVAL:	
		WATER FLOWING: YES/NO/NA	

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	N	Not collected to 6/15/11

SAMPLE DESC:

column # 6

initial wt = 587.36g
silica wt = 141.66gFinal wt Not sampled for
606.18g
vapor wt 20.82g

SAMPLE COMMENTS:

6/15/11
NA

weather @ 1010 T = 73°F RH = 12% BP = 30.23 in

LOCATION DESC:

NA

FIELD SCREENING/MEASUREMENT RESULTS:

atm O₂ 20.9% CO₂ = 440 ppm
subatm O₂ 16.2% CO₂ = 3.36%

COLLECTED BY (PRINT) R Onst H 6/15/11 M Giorgi

REVIEWED BY (PRINT) J Wolder

RELINQUISHED BY	Date/Time	RECEIVED BY	Date/Time
(Printed Name) J Wolder	6/15/11	(Printed Name) J Wolder	6/15/11
(Signature) J Wolder	1445	(Signature) J Wolder	1445
RELINQUISHED BY	Date/Time	RECEIVED BY	Date/Time
(Printed Name)		(Printed Name)	
(Signature)		(Signature)	

SAMPLE COLLECTION LOG/FIELD CHAIN OF CUSTODY

EVENT ID: 3515

EVENT NAME: FY11 - MDA T - CU 21-018(a)-99 - Pore Gas Sampling

SAMPLE ID: MD21-11-14525

WORK ORDER:

AS PLANNED	AS COLLECTED	AS PLANNED	AS COLLECTED
DATE COLLECTED(MM/DD/YYYY):	6/15/11	MEDIA:	NA
TIME COLLECTED (HH:MM)	1020	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)	part 2
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	N	not collected no sample for 6/15/11

SAMPLE DESC:

column #
15initial wt = 596.13g
silica = 147.14gFinal wt 619.30g
Vapor wt 23.17g

SAMPLE COMMENTS:

to 6/15/11
to 6/15/11

weather @ 1010 T = 73°F RH = 12% BP = 30.23 in

LOCATION DESC:

NA

FIELD SCREENING/MEASUREMENT RESULTS:

atm O₂ 20.9%
Sabatm O₂ 19.9%CO₂ 420 ppm
CO₂ 4220 ppm

COLLECTED BY (PRINT)

R. Onstott M. Giorgio

REVIEWED BY (PRINT)

J. Valdez

RELINQUISHED BY (Printed Name)	Date/Time	RECEIVED BY (Printed Name)	Date/Time
(Signature)	6/15/11 1445	J. Valdez (Signature)	6/15/11 1445
RELINQUISHED BY (Printed Name)	Date/Time	RECEIVED BY (Printed Name)	Date/Time
(Signature)		(Signature)	

SAMPLE COLLECTION LOG/FIELD CHAIN OF CUSTODY

EVENT ID: 3515

EVENT NAME: FY11 - MDA T - CU 21-018(a)-99 - Pore Gas Sampling

SAMPLE ID: MD21-11-14526

WORK ORDER:

AS PLANNED	AS COLLECTED	AS PLANNED	AS COLLECTED
DATE COLLECTED(MM/DD/YYYY):	6/15/11	MEDIA:	NA
TIME COLLECTED (HH:MM)	1020	SUB-MEDIA:	OTHER
PRS ID: 21-018(a)-99	OK	SAMPLE TECH CODE: VOST	
LOCATION ID: 21-24324W	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:	part 3
FIELD MATRIX: GAS	OK	EXCAVATED: YES/NO	NA
COMPOSITE TYPE: NA	OK	COMPOSITE TIME INTERVAL: NA	WATER FLOWING: YES/NO
BOREHOLE: YES/NO/NA	NA	BOREHOLE DECLINATION: NA	BOREHOLE DIRECTION: 204/15/11 90°

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

SAMPLE DESC:

column #
1Binitial wt = 603.21g
silica wt = 148.90gFinal wt 624.95g
Vapor wt 21.74g

SAMPLE COMMENTS:

to 175 ft
NA

weather @ 1010 T = 73°F RH = 12% BP = 30.23 in

LOCATION DESC:

NA

FIELD SCREENING/MEASUREMENT RESULTS:

atm O₂ 20.9% CO₂ 340 ppm
sub atm O₂ 19.9% CO₂ 4440 ppm

COLLECTED BY (PRINT)

Erik H. Morgan

REVIEWED BY (PRINT)

all Morgan

RELINQUISHED BY (Printed Name) (Signature)	Date/Time 6/15/11 1445	RECEIVED BY (Printed Name) (Signature)	Date/Time 6/15/11 1445
RELINQUISHED BY (Printed Name) (Signature)	Date/Time	RECEIVED BY (Printed Name) (Signature)	Date/Time

SAMPLE COLLECTION LOG/FIELD CHAIN OF CUSTODY

EVENT ID: 3515

EVENT NAME: FY11 - MDA T - CU 21-018(a)-99 - Pore Gas Sampling

SAMPLE ID: MD21-11-14527

WORK ORDER:

AS PLANNED	AS COLLECTED	AS PLANNED	AS COLLECTED
DATE COLLECTED(MM/DD/YYYY):	6/15/11	MEDIA:	NA
TIME COLLECTED (HH:MM)	1020	SUB-MEDIA:	OTHER
PRS ID: 21-018(a)-99	ok	SAMPLE TECH CODE:	VOST
LOCATION ID: 21-24324W	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	NO
COMPOSITE TYPE: NA	COMPOSITE TIME INTERVAL: NA	WATER FLOWING: YES/NO	NA
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	N	Not sampled for

SAMPLE DESC: column # initial wt 596.83g final wt 614.28g
26 silica wt 148.48g vapor wt 17.45g

SAMPLE COMMENTS: weather @ 1010 T=73°F RH=12% BP=30.23in

LOCATION DESC: NA

FIELD SCREENING/MEASUREMENT RESULTS:

atm O₂ 20.9% CO₂ 310 ppm
sub atm O₂ 20.2% CO₂ 4660 ppm

COLLECTED BY (PRINT) K. Onstott M. Morgan REVIEWED BY (PRINT) M. Morgan

RELINQUISHED BY (Printed Name) (Signature)	Date/Time 6/15/11 1425	RECEIVED BY (Printed Name) (Signature)	Date/Time 6/15/11 1425
RELINQUISHED BY (Printed Name) (Signature)	Date/Time	RECEIVED BY (Printed Name) (Signature)	Date/Time

SAMPLE COLLECTION LOG/FIELD CHAIN OF CUSTODY

EVENT ID: 3515

EVENT NAME: FY11 - MDA T - CU 21-018(a)-99 - Pore Gas Sampling

SAMPLE ID: MD21-11-14528

WORK ORDER:

	AS PLANNED	AS COLLECTED		AS PLANNED	AS COLLECTED
DATE COLLECTED(MM/DD/YYYY):		6/15/11	MEDIA:	NA	
TIME COLLECTED (HH:MM)		1020	SUB-MEDIA:	OTHER	
PRS ID:	21-018(a)-99	ok	SAMPLE TECH CODE:	VOST	
LOCATION ID:	21-24324W	sk	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:		
FIELD MATRIX:	GAS	ok	EXCAVATED: YES/NO/NA		
COMPOSITE TYPE:	NA		COMPOSITE TIME INTERVAL:	10 6/15/11	
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	N	Not sampled for Re 6/15/11

SAMPLE DESC:

Column # 7 initial wt 563.14g Final wt 603.23g
silica wt 147.41g vapor wt 20.09g

SAMPLE COMMENTS:

weather @ 1010 T=73°F RH=12% BP=30.23in

LOCATION DESC:

NA

FIELD SCREENING/MEASUREMENT RESULTS:

atm O₂ 20.9% CO₂ 340 ppm
sub atm O₂ 20.1% CO₂ 4500 ppm

COLLECTED BY (PRINT) R Onst H M Giorgi, REVIEWED BY (PRINT) J Valdez

RELINQUISHED BY (Printed Name) (Signature)	Date/Time 6/15/11 1445	RECEIVED BY (Printed Name) (Signature)	Date/Time 6/15/11 1445
RELINQUISHED BY (Printed Name) (Signature)	Date/Time	RECEIVED BY (Printed Name) (Signature)	Date/Time

SAMPLE COLLECTION LOG/FIELD CHAIN OF CUSTODY

EVENT ID: 3515

EVENT NAME: FY11 - MDA T - CU 21-018(a)-99 - Pore Gas Sampling

SAMPLE ID: MD21-11-14529

WORK ORDER:

AS PLANNED	AS COLLECTED	AS PLANNED	AS COLLECTED
DATE COLLECTED(MM/DD/YYYY):	6/15/11	MEDIA:	NA
TIME COLLECTED (HH:MM)	1020	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: 327.5	OK	SAMPLE USAGE:	INV
BOTTOM DEPTH: 332.5	OK	SCREEN/PORT DESC:	
FIELD MATRIX: GAS	OK	EXCAVATED: YES/NO/NA	part 6
COMPOSITE TYPE: NA		COMPOSITE TIME INTERVAL: NA	
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	N	not sampled for

SAMPLE DESC: column #7 Initial wt 585.07g Final wt 607.32g
Silica wt 145.23g vapor wt 22.25g

SAMPLE COMMENTS:

weather @ 1010 T = 73°F RH = 12% BP = 30.23 in

LOCATION DESC:

NA

FIELD SCREENING/MEASUREMENT RESULTS:

atm O₂ 20.9% CO₂ 340 ppm
sub O₂ 20.1% CO₂ 4160 ppm

COLLECTED BY (PRINT) *Donald M. Borgui* REVIEWED BY (PRINT) *cll/borgui*

RELINQUISHED BY (Printed Name) (Signature)	Date/Time 6/15/11 1445	RECEIVED BY (Printed Name) (Signature)	Date/Time 6/15/11 1445
RELINQUISHED BY (Printed Name) (Signature)	Date/Time	RECEIVED BY (Printed Name) (Signature)	Date/Time

SAMPLE COLLECTION LOG/FIELD CHAIN OF CUSTODY

EVENT ID: 3515

EVENT NAME: FY11 - MDA T - CU 21-018(a)-99 - Pore Gas Sampling

SAMPLE ID: MD21-11-14530

WORK ORDER:

AS PLANNED		AS COLLECTED		AS PLANNED		AS COLLECTED	
DATE COLLECTED(MM/DD/YYYY):		6/15/11		MEDIA:	NA		
TIME COLLECTED (HH:MM)		1020		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:		port 7	
FIELD MATRIX:	GAS	ok		EXCAVATED: YES/NO/NA			
COMPOSITE TYPE:	NA			COMPOSITE TIME INTERVAL:	NA		
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	N	not sampled for

SAMPLE DESC:

column #14 initial wt 604.88g Final wt 624.73g
silica wt 150.24g vapor wt 19.85g

SAMPLE COMMENTS:

weather @ 1010 T=73°F RH=12% BP=30.23, in

LOCATION DESC:

NA

FIELD SCREENING/MEASUREMENT RESULTS:

atm O₂ 20.9% CO₂ 340 ppm
sub atm O₂ 20.3% CO₂ 3610 ppm

COLLECTED BY (PRINT)

Ronsk M. Boring

REVIEWED BY (PRINT)

J. Valdez

RELINQUISHED BY	Date/Time	RECEIVED BY	Date/Time
(Printed Name)	6/15/11	(Printed Name)	6/15/11
(Signature)	1445	(Signature)	1445
RELINQUISHED BY	Date/Time	RECEIVED BY	Date/Time
(Printed Name)		(Printed Name)	
(Signature)		(Signature)	

SAMPLE COLLECTION LOG/FIELD CHAIN OF CUSTODY

EVENT ID: 3515

EVENT NAME: FY11 - MDA T - CU 21-018(a)-99 - Pore Gas Sampling

SAMPLE ID: MD21-11-14531

WORK ORDER:

AS PLANNED		AS COLLECTED		AS PLANNED		AS COLLECTED	
DATE COLLECTED(MM/DD/YYYY):		6/15/11		MEDIA:	NA		
TIME COLLECTED (HH:MM)		1020		SUB-MEDIA:	OTHER		
PRS ID:	21-018(a)-99	OK		SAMPLE TECH CODE:	VOST		
LOCATION ID:	21-24324S	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	NA		part 10
COMPOSITE TYPE:	NA			COMPOSITE TIME INTERVAL:	NA		
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	U	Not sampled for

SAMPLE DESC:

column # 9
to 6/15/11

initial wt = 581.31g Final wt 599.34g
 silica wt 147.99g
 vapor wt 18.03g
 to 6/15/11

SAMPLE COMMENTS:

weather @ 1010 T = 73°F RH = 12% BP = 30.23 in

LOCATION DESC:

NA

FIELD SCREENING/MEASUREMENT RESULTS:

atm O₂ 20.9%
 sub atm O₂ 20.5%
 CO₂ 340 ppm
 CO₂ 2350 ppm

COLLECTED BY (PRINT)

Rons # M6.0911

REVIEWED BY (PRINT)

all borge

RELINQUISHED BY (Printed Name) (Signature)	Date/Time 6/15/11 1445	RECEIVED BY (Printed Name) (Signature)	Date/Time 6/15/11 1445
RELINQUISHED BY (Printed Name) (Signature)	Date/Time	RECEIVED BY (Printed Name) (Signature)	Date/Time

SAMPLE COLLECTION LOG/FIELD CHAIN OF CUSTODY

EVENT ID: 3515

EVENT NAME: FY11 - MDA T - CU 21-018(a)-99 - Pore Gas Sampling

SAMPLE ID: MD21-11-14532

WORK ORDER:

AS PLANNED		AS COLLECTED		AS PLANNED		AS COLLECTED	
DATE COLLECTED(MM/DD/YYYY):		6/15/11		MEDIA:	NA		
TIME COLLECTED (HH:MM)		1020		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:	712.5	OK		SAMPLE USAGE:	INV		
BOTTOM DEPTH:	717.5	OK		SCREEN/PORT DESC:		port 11	
FIELD MATRIX:	GAS	OK		EXCAVATED: YES/NO	NA		
COMPOSITE TYPE:	NA			COMPOSITE TIME INTERVAL:	NA		
BOREHOLE: YES/NO/NA	NA			BOREHOLE DECLINATION:	NA		
				BOREHOLE DIRECTION:	90°		

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

SAMPLE DESC:
 Column # 10 initial wt 585.09g Final wt 604.10g
 silica wt 147.02g vapor wt 18.21g

SAMPLE COMMENTS:
 weather data @ 1010 T = 73°F RH = 12% BP = 30.23 in

LOCATION DESC:

NA

FIELD SCREENING/MEASUREMENT RESULTS:

atm O₂ 20.9% CO₂ 340 ppm
 sub atm O₂ 20.6% CO₂ 1520 ppm

COLLECTED BY (PRINT) Konstantin M. Birgin REVIEWED BY (PRINT) all/bruger

RELINQUISHED BY (Printed Name) all/bruger (Signature) all/bruger	Date/Time 6/15/11 1445	RECEIVED BY (Printed Name) J. V. Anderson (Signature) J. V. Anderson	Date/Time 6/15/11 1445
RELINQUISHED BY (Printed Name) (Signature)	Date/Time	RECEIVED BY (Printed Name) (Signature)	Date/Time

SAMPLE COLLECTION LOG/FIELD CHAIN OF CUSTODY

EVENT ID: 3515

EVENT NAME: FY11 - MDA T - CU 21-018(a)-99 - Pore Gas Sampling

SAMPLE ID: MD21-11-14533

WORK ORDER:

AS PLANNED		AS COLLECTED		AS PLANNED		AS COLLECTED	
DATE COLLECTED(MM/DD/YYYY):		6/15/11		MEDIA:	NA		
TIME COLLECTED (HH:MM)		1020		SUB-MEDIA:	OTHER		
PRS ID:	21-018(a)-99	OK		SAMPLE TECH CODE:	VOST		
LOCATION ID:	21-24524	OK		FIELD QC TYPE:	ED		
LOCATION TYPE:	BH	OK		FIELD PREP:	NA		
TOP DEPTH:	0	300		SAMPLE USAGE:	QC		
BOTTOM DEPTH:	0	305		SCREEN/PORT DESC:			
FIELD MATRIX:	GAS	OK		EXCAVATED: YES/NO/NA	NA		
COMPOSITE TYPE:	NA			COMPOSITE TIME INTERVAL:	NA		
BOREHOLE YES/NO/NA				WATER FLOWING: YES/NO/NA	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	N	not sampled for

SAMPLE DESC: QC Sample of MD21-11-14528

Column # 1

initial wt 585.22g
silica wt 145.38gFinal wt 604.75g
vapour wt 19.53g

SAMPLE COMMENTS:

weather @ 1010 T = 73°F RH = 12% BP = 30.23 in

LOCATION DESC:

NA

FIELD SCREENING/MEASUREMENT RESULTS:

atm O₂ 20.9%
sub atm O₂ 20.1%CO₂ 340 ppm
CO₂ 4500 ppm

COLLECTED BY (PRINT)

R Onstott

REVIEWED BY (PRINT)

cll W Grorpe

RELINQUISHED BY	Date/Time	RECEIVED BY	Date/Time
(Printed Name)	6/15/11	(Printed Name)	6/15/11
(Signature)	1445	(Signature)	1445
RELINQUISHED BY	Date/Time	RECEIVED BY	Date/Time
(Printed Name)		(Printed Name)	
(Signature)		(Signature)	

SAMPLE COLLECTION LOG/FIELD CHAIN OF CUSTODY

EVENT ID: 3515

EVENT NAME: FY11 - MDA T - CU 21-018(a)-99 - Pore Gas Sampling

SAMPLE ID: MD21-11-14534

WORK ORDER:

AS PLANNED		AS COLLECTED		AS PLANNED		AS COLLECTED	
DATE COLLECTED(MM/DD/YYYY):		6/15/11		MEDIA:	NA		ok
TIME COLLECTED (HH:MM)		1200		SUB-MEDIA:	OTHER		
PRS ID:	21-018(a)-99	ok		SAMPLE TECH CODE:	VOST		
LOCATION ID:	21-24524	ok		FIELD QC TYPE:	FB		
LOCATION TYPE:	BH	ok		FIELD PREP:	NA		
TOP DEPTH:	0	ok		SAMPLE USAGE:	QC		
BOTTOM DEPTH:	0	ok		SCREEN/PORT DESC:			FB
FIELD MATRIX:	GAS	ok		EXCAVATED: YES/NO/NA	NA		
COMPOSITE TYPE:	NA			COMPOSITE TIME INTERVAL:	NA		WATER FLOWING: YES/NO/NA
BOREHOLE: YES/NO/NA	NA			BOREHOLE DECLINATION:	NA		BOREHOLE DIRECTION:

#	PRIORITY	ORDER	CNTNR	PRESERVATIVE	COLLECTED Y/N	SPECIAL INSTRUCTIONS
1		H3	1 EA SILICA GEL TUBE	None	Y	NA
1		TOI5	6 LITER SUMMA CANISTER	None	N	Not sampled for 6/15/11

SAMPLE DESC: QC Sample of MD21-11-14528

column # 23

Initial wt = 595.09g

Silica wt = 148.78g

Final = 600.78g

DI wt = 5.66g

SAMPLE COMMENTS:

weather @ 12:15 T = 77°F RH = 11% BP = 30.21 in

LOCATION DESC:

NA

FIELD SCREENING/MEASUREMENT RESULTS:

NA

COLLECTED BY (PRINT)

L. Anstett M. Giorgi

REVIEWED BY (PRINT)

M. V. Gorp

RELINQUISHED BY	Date/Time	RECEIVED BY	Date/Time
(Printed Name) M. V. Gorp	6/15/11	(Printed Name) J. Valdez	6/15/11
(Signature) M. V. Gorp	1445	(Signature) J. Valdez	1445
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: 11-2668 VALIDATION DATE: 8/4/11 LAB CODE: ARSCONTRACT LABORATORY NAME: American Radiation ServicesVALIDATOR: Allison Felix ORGANIZATION: Analytical Quality Associates, Inc.

ANALYTICAL SUITE (CHECK ALL THAT APPLY):

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

Section II. Completeness Check

- | YES | NO | N/A | (CHECK ONE) | YES | NO | N/A | (CHECK ONE) |
|-------------------------------------|--------------------------|-------------------------------------|-----------------------------|-------------------------------------|--------------------------|-------------------------------------|--------------------------|
| <input checked="" type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | 1. CHAIN-OF-CUSTODY FORM(S) | <input checked="" type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | 6. RAW/BSS DATA |
| <input checked="" type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | 2. CASE NARRATIVE | <input checked="" type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | 7. QUALITY CONTROL FORMS |
| <input checked="" type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | 3. SAMPLE RESULT FORMS | <input 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 for tritium. However, an LCS was analyzed and met acceptance criteria, thus, no sample results were qualified.
2. An LCSD was analyzed instead of a sample duplicate. Acceptance criteria were met and, thus, no sample results were qualified. 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.

Reviewed by: Mary Donivan **Level:** I **Date:** 08/04/11VALIDATOR'S SIGNATURE: Allison Felix DATE: 8/4/11

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	
				Non-detected Analyte	Detected Analyte
<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	1. The holding time was >1 and ≤2 times the applicable holding time requirement.	UJ, R9	J-, R9
<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	2. The holding time was >2 times the applicable holding time requirement.	R, R9a	J-, R9a
<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	3. The results for the affected analytes are considered not detected (U) because the associated sample concentration was less than or equal to the MDC.	U, R5	N/A
<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	4. The analyte should be regarded as rejected because spectral interferences prevent positive identification of the analytes.	R, R5a	R, R5a
<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	5. The MDC and/or TPU documentation is missing. Data may not be acceptable for use. Contact the SMO or external laboratory for information.	R, R5b	J-, R5b
<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	6. The results for the affected analytes should be regarded as not detected (U) because the associated sample concentration was less than 3X the 1 sigma TPU.	U, R11	N/A
<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	7. The sample result is ≤5X the concentration of the related analyte in the method blank.	U, R4	N/A
<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	8. The affected analytes are considered estimated and biased high because this analyte was identified in the method blank but was >5X.	N/A	J, R4a
<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	9. The sample result is ≤5X the concentration of the related analyte in the trip blank, rinsate blank, or equipment blank.	U, R4d	N/A
<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	10. Required method blank information is missing. Data may not be acceptable for use. Contact the SMO or external laboratory for information.	R, R4e	R, R4e
<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	11. The tracer is <10%R. Follow the external laboratory limits located within the associated data package. Tracer%R is not applicable for Gamma Spectroscopy.	R, R3	R, R3

RAD ANALYTICAL DATA VALIDATION CHECKLIST	
5119-2 Rad Analytical Data Validation Checklist	Records Use only 

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

RAD ANALYTICAL DATA VALIDATION CHECKLIST

5119-2

Rad Analytical Data Validation Checklist

Records Use only



Yes No N/A				Assign Qualifier Listed Below If Criterion = Yes	
(Check One)				Non-detected Analyte	Detected Analyte
<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	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: ARS1-11-01342
Client Sample ID: MD21-11-14527
Sample Collection Date: 06/15/11
Sample Matrix: Silica

Request or PO Number: 11-2668
ARS Sample ID: ARS1-11-01342-001
Date Received: 06/17/11
Report Date: 07/11/11

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	32753.119	1726.401	208.440	102.378		pCi/L	ARS-054/EPA 906.0	07/03/11 22:30	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



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

ARS Sample Delivery Group: ARS1-11-01342

Client Sample ID: MD21-11-14524

Sample Collection Date: 06/15/11

Sample Matrix: Silica

Request or PO Number: 11-2668

ARS Sample ID: ARS1-11-01342-002

Date Received: 06/17/11

Report Date: 07/11/11

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	41926.866	2205.599	206.040	101.199		pCi/L	ARS-054/EPA 906.0	07/04/11 01:40	BS	NA

NOTES: Project Cost Code MR8R032NFM00

Project Manager Review

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

ARS Sample Delivery Group: ARS1-11-01342

Client Sample ID: MD21-11-14531

Sample Collection Date: 06/15/11

Sample Matrix: Silica

Request or PO Number: 11-2668

ARS Sample ID: ARS1-11-01342-003

Date Received: 06/17/11

Report Date: 07/11/11

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	160.897	64.279	207.627	101.979	U	pCi/L	ARS-054/EPA 906.0	07/04/11 04:49	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: ARS1-11-01342

Client Sample ID: MD21-11-14525

Sample Collection Date: 06/15/11

Sample Matrix: Silica

Request or PO Number: 11-2668

ARS Sample ID: ARS1-11-01342-004

Date Received: 06/17/11

Report Date: 07/11/11

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	11794.262	632.551	208.577	102.445		pCi/L	ARS-054/EPA 906.0	07/04/11 07:58	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: ARS1-11-01342

Client Sample ID: MD21-11-14534

Sample Collection Date: 06/15/11

Sample Matrix: Silica

Request or PO Number: 11-2668

ARS Sample ID: ARS1-11-01342-005

Date Received: 06/17/11

Report Date: 07/11/11

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	-51.944	62.390	210.666	103.471	U	pCi/L	ARS-054/EPA 906.0	07/04/11 11:08	BS	NA

NOTES: Project Cost Code MR8R032NFM00

Project Manager Review

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NELAP Certificate # E87558



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ARS Sample Delivery Group: ARS1-11-01342

Client Sample ID: MD21-11-14532

Sample Collection Date: 06/15/11

Sample Matrix: Silica

Request or PO Number: 11-2668

ARS Sample ID: ARS1-11-01342-006

Date Received: 06/17/11

Report Date: 07/11/11

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	49.086	62.998	209.029	102.667	U	pCi/L	ARS-054/EPA 906.0	07/04/11 14:17	BS	NA

NOTES: Project Cost Code MR8R032NFM00

Project Manager Review

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

ARS Sample Delivery Group: ARS1-11-01342

Client Sample ID: MD21-11-14526

Sample Collection Date: 06/15/11

Sample Matrix: Silica

Request or PO Number: 11-2668

ARS Sample ID: ARS1-11-01342-007

Date Received: 06/17/11

Report Date: 07/11/11

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	13441.997	718.485	210.217	103.251		pCi/L	ARS-054/EPA 906.0	07/04/11 17:27	BS	NA

NOTES: Project Cost Code MR8R032NFM00

Project Manager Review

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

ARS Sample Delivery Group: ARS1-11-01342

Client Sample ID: MD21-11-14529

Sample Collection Date: 06/15/11

Sample Matrix: Silica

Request or PO Number: 11-2668

ARS Sample ID: ARS1-11-01342-008

Date Received: 06/17/11

Report Date: 07/11/11

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	9413.044	508.886	209.650	102.972		pCi/L	ARS-054/EPA 906.0	07/04/11 20:36	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: ARS1-11-01342
Client Sample ID: MD21-11-14533
Sample Collection Date: 06/15/11
Sample Matrix: Silica

Request or PO Number: 11-2668
ARS Sample ID: ARS1-11-01342-009
Date Received: 06/17/11
Report Date: 07/11/11

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	47952.511	2520.727	209.086	102.695		pCi/L	ARS-054/EPA 906.0	07/04/11 23:45	BS	NA

NOTES: Project Cost Code MR8R032NFM00

SDI

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: ARS1-11-01342

Client Sample ID: MD21-11-14528

Sample Collection Date: 06/15/11

Sample Matrix: Silica

Request or PO Number: 11-2668

ARS Sample ID: ARS1-11-01342-010

Date Received: 06/17/11

Report Date: 07/11/11

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	48532.938	2551.217	211.314	103.789		pCi/L	ARS-054/EPA 906.0	07/05/11 02:55	BS	NA

NOTES: Project Cost Code MR8R032NFM00

SDI

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: ARS1-11-01342
Client Sample ID: MD21-11-14530
Sample Collection Date: 06/15/11
Sample Matrix: Silica

Request or PO Number: 11-2668
ARS Sample ID: ARS1-11-01342-011
Date Received: 06/17/11
Report Date: 07/11/11

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	6328.974	349.679	212.469	104.356		pCi/L	ARS-054/EPA 906.0	07/05/11 06:04	BS	NA

NOTES: Project Cost Code MR8R032NFM00

Project Manager Review

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LELAP Certificate# 01949

NELAP Certificate # E87558

Thursday, June 16, 2011

REQUEST NUMBER: 11-2668

**LOS ALAMOS
NATIONAL LABORATORY**

ATTN: Danny Coleman

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

These Samples are on:

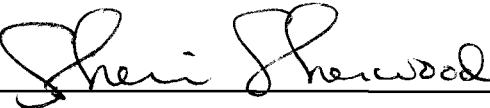
LANL Request Number: 11-2668
Per Agreement Number: 63641-001-10
Project Cost Code: MR8R032NFM00

Please analyse the enclosed samples
according to the schedule indicated:

SHIP DATE: 6/16/2011**TURNAROUND/REPORT DUE: 7/16/2011****TURNAROUND REQ'D: 30 Days****RAD SCREENING: Yes, Below Background****LAB REQUEST COMMENTS:**

LANL ER SMO CONTACT:

Signature:



PRIORITY	METHOD CODE	CNTNR	SAMPLE ID	SAMPLE MATRIX	DATE SAMPLED	SPECIAL INSTRUCTIONS
	EPA:906.0	1	MD21-11-14524	GAS	6/15/2011	
		1	MD21-11-14525	GAS	6/15/2011	
		1	MD21-11-14526	GAS	6/15/2011	
		1	MD21-11-14527	GAS	6/15/2011	
		1	MD21-11-14528	GAS	6/15/2011	
		1	MD21-11-14529	GAS	6/15/2011	
		1	MD21-11-14530	GAS	6/15/2011	
		1	MD21-11-14531	GAS	6/15/2011	
		1	MD21-11-14532	GAS	6/15/2011	
		1	MD21-11-14533	GAS	6/15/2011	

Thursday, June 16, 2011

REQUEST NUMBER: 11-2668

PRIORITY	METHOD CODE	CNTNR	SAMPLE ID	SAMPLE MATRIX	DATE SAMPLED	SPECIAL INSTRUCTIONS
	EPA:906.0	1	MD21-11-14534	GAS	6/15/2011	

Final Page of REQUEST NUMBER 11-2668

Thursday, June 16, 2011

LAB CHAIN OF CUSTODY DOCUMENT NUMBER: 11-2668C

LOS ALAMOS

REQUEST NUMBER: 11-2668

NATIONAL LABORATORY

ATTN: Danny Coleman

TURNAROUND/REPORT DUE: 7/16/2011

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
MD21-11-14527	1	SILICA GEL TUBE	H3	None	GAS
MD21-11-14524	1	SILICA GEL TUBE	H3	None	GAS
MD21-11-14531	1	SILICA GEL TUBE	H3	None	GAS
MD21-11-14525	1	SILICA GEL TUBE	H3	None	GAS
MD21-11-14534	1	SILICA GEL TUBE	H3	None	GAS
MD21-11-14532	1	SILICA GEL TUBE	H3	None	GAS
MD21-11-14526	1	SILICA GEL TUBE	H3	None	GAS
MD21-11-14529	1	SILICA GEL TUBE	H3	None	GAS
MD21-11-14533	1	SILICA GEL TUBE	H3	None	GAS
MD21-11-14528	1	SILICA GEL TUBE	H3	None	GAS
MD21-11-14530	1	SILICA GEL TUBE	H3	None	GAS

Relinquished By:

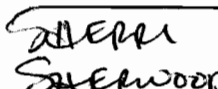
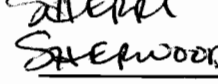

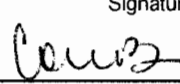
Date

Time

Received By:

Date

Time

	Signature	6/17/11 3pm	Signature		
	Signature			6-17-11/10:09	

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: 11-2668



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American Radiation Services Analytical Reports

for

**Los Alamos National Laboratory
Request Number: 11-2668**

Original COC

Thursday, June 16, 2011

REQUEST NUMBER: 11-2668

LOS ALAMOS**NATIONAL LABORATORY**

ATTN: Danny Coleman

These Samples are on:

American Radiation Services - Primary

LANL Request Number: 11-2668

1726 Wooddale Court

Per Agreement Number: 63641-001-10

Baton Rouge, LA 70806

Project Cost Code: MR8R032NFM00

Please analyse the enclosed samples
according to the schedule indicated:

SHIP DATE: 6/16/2011

TURNAROUND/REPORT DUE: 7/16/2011

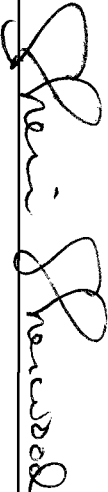
TURNAROUND REQ'D: 30 Days

RAD SCREENING: Yes, Below Background

LAB REQUEST COMMENTS:

LANL ER SMO CONTACT:

Signature:



PRIORITY	METHOD CODE	CNTNR	SAMPLE ID	SAMPLE MATRIX	DATE SAMPLED	SPECIAL INSTRUCTIONS
EPA:906.0		1	MD21-11-14524	GAS	6/15/2011	
		1	MD21-11-14525	GAS	6/15/2011	
		1	MD21-11-14526	GAS	6/15/2011	
		1	MD21-11-14527	GAS	6/15/2011	
		1	MD21-11-14528	GAS	6/15/2011	
		1	MD21-11-14529	GAS	6/15/2011	
		1	MD21-11-14530	GAS	6/15/2011	
		1	MD21-11-14531	GAS	6/15/2011	
		1	MD21-11-14532	GAS	6/15/2011	
		1	MD21-11-14533	GAS	6/15/2011	

Thursday, June 16, 2011

REQUEST NUMBER: 11-2668

PRIORITY	METHOD CODE	CNTNR	SAMPLE ID	SAMPLE MATRIX	DATE SAMPLED	SPECIAL INSTRUCTIONS
----------	-------------	-------	-----------	------------------	--------------	-------------------------

EPA:906.0		1	MD21-11-14534	GAS	6/15/2011	
-----------	--	---	---------------	-----	-----------	--

Final Page of REQUEST NUMBER 11-2668

Thursday, June 16, 2011

LAB CHAIN OF CUSTODY DOCUMENT NUMBER: 11-2668C

LOS ALAMOS

REQUEST NUMBER: 11-2668

NATIONAL LABORATORY

ATTN: Danny Coleman

TURNAROUND/REPORT DUE: 7/16/2011

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
MD21-11-14527	1	SILICA GEL TUBE	H3	None	GAS
MD21-11-14524	1	SILICA GEL TUBE	H3	None	GAS
MD21-11-14531	1	SILICA GEL TUBE	H3	None	GAS
MD21-11-14525	1	SILICA GEL TUBE	H3	None	GAS
MD21-11-14534	1	SILICA GEL TUBE	H3	None	GAS
MD21-11-14532	1	SILICA GEL TUBE	H3	None	GAS
MD21-11-14526	1	SILICA GEL TUBE	H3	None	GAS
MD21-11-14529	1	SILICA GEL TUBE	H3	None	GAS
MD21-11-14533	1	SILICA GEL TUBE	H3	None	GAS
MD21-11-14528	1	SILICA GEL TUBE	H3	None	GAS
MD21-11-14530	1	SILICA GEL TUBE	H3	None	GAS

Relinquished By:

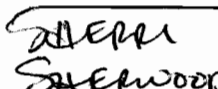

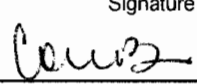
Date

Time

Received By:

Date

Time

	Signature	6/17/11 3pm	Signature		
	Signature			6-17-11/10:09	

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: 11-2668**

Case Narrative



2609 North River Road • Port Allen, Louisiana 70767

1 (800) 401-4277 • Fax (225) 381-2996

July 11, 2011

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

Request Number: **11-2668**

LANL Sample ID: **MD21-11-14527; MD21-11-14524; MD21-11-14531; MD21-11-14525; MD21-11-14534;
MD21-11-14532; MD21-11-14526; MD21-11-14529; MD21-11-14533; MD21-11-14528; MD21-11-14530.**

Dear Mr. Greene;

On June 17, 2011, ARS International received eleven (11) 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 cursive script that reads 'Eugene Mulligan'.

Laboratory Management
ARS International

**COVER PAGE**

**PROJECT SAMPLE IDENTIFICATION
CROSS-REFERENCE
TO ARS SAMPLE LABORATORY ID_s
Subcontract (LANL Agreement Number) 63641-001-10**

Request Number	LANL PROJECT SAMPLE ID NUMBER	American Radiation Services SAMPLE ID NUMBER(S)
11-2668	MD21-11-14527	ARS1-11-01342-001
11-2668	MD21-11-14524	ARS1-11-01342-002
11-2668	MD21-11-14531	ARS1-11-01342-003
11-2668	MD21-11-14525	ARS1-11-01342-004
11-2668	MD21-11-14534	ARS1-11-01342-005
11-2668	MD21-11-14532	ARS1-11-01342-006
11-2668	MD21-11-14526	ARS1-11-01342-007
11-2668	MD21-11-14529	ARS1-11-01342-008
11-2668	MD21-11-14533	ARS1-11-01342-009
11-2668	MD21-11-14528	ARS1-11-01342-010
11-2668	MD21-11-14530	ARS1-11-01342-011

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."



4-15-11
Date



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American Radiation Services Analytical Reports

for

Los Alamos National Laboratory

Tritium by Low Level Liquid Scintillation Counting



2609 North River Road, Port Allen, Louisiana 70767

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

ARS Sample Delivery Group: ARS1-11-01342
Client Sample ID: MD21-11-14527
Sample Collection Date: 06/15/11
Sample Matrix: Silica

Request or PO Number: 11-2668
ARS Sample ID: ARS1-11-01342-001
Date Received: 06/17/11
Report Date: 07/11/11

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	32753.119	1726.401	208.440	102.378		pCi/L	ARS-054/EPA 906.0	07/03/11 22:30	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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NELAP Certificate # E87558



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

ARS Sample Delivery Group: ARS1-11-01342

Client Sample ID: MD21-11-14524

Sample Collection Date: 06/15/11

Sample Matrix: Silica

Request or PO Number: 11-2668

ARS Sample ID: ARS1-11-01342-002

Date Received: 06/17/11

Report Date: 07/11/11

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	41926.866	2205.599	206.040	101.199		pCi/L	ARS-054/EPA 906.0	07/04/11 01:40	BS	NA

NOTES: Project Cost Code MR8R032NFM00

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ARS Sample Delivery Group: ARS1-11-01342

Client Sample ID: MD21-11-14531

Sample Collection Date: 06/15/11

Sample Matrix: Silica

Request or PO Number: 11-2668

ARS Sample ID: ARS1-11-01342-003

Date Received: 06/17/11

Report Date: 07/11/11

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	160.897	64.279	207.627	101.979	U	pCi/L	ARS-054/EPA 906.0	07/04/11 04:49	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: ARS1-11-01342

Client Sample ID: MD21-11-14525

Sample Collection Date: 06/15/11

Sample Matrix: Silica

Request or PO Number: 11-2668

ARS Sample ID: ARS1-11-01342-004

Date Received: 06/17/11

Report Date: 07/11/11

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	11794.262	632.551	208.577	102.445		pCi/L	ARS-054/EPA 906.0	07/04/11 07:58	BS	NA

NOTES: Project Cost Code MR8R032NFM00

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

ARS Sample Delivery Group: ARS1-11-01342

Client Sample ID: MD21-11-14534

Sample Collection Date: 06/15/11

Sample Matrix: Silica

Request or PO Number: 11-2668

ARS Sample ID: ARS1-11-01342-005

Date Received: 06/17/11

Report Date: 07/11/11

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	-51.944	62.390	210.666	103.471	U	pCi/L	ARS-054/EPA 906.0	07/04/11 11:08	BS	NA

NOTES: Project Cost Code MR8R032NFM00

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NELAP Certificate # E87558



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

ARS Sample Delivery Group: ARS1-11-01342

Client Sample ID: MD21-11-14532

Sample Collection Date: 06/15/11

Sample Matrix: Silica

Request or PO Number: 11-2668

ARS Sample ID: ARS1-11-01342-006

Date Received: 06/17/11

Report Date: 07/11/11

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	49.086	62.998	209.029	102.667	U	pCi/L	ARS-054/EPA 906.0	07/04/11 14:17	BS	NA

NOTES: Project Cost Code MR8R032NFM00

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ARS Sample Delivery Group: ARS1-11-01342
Client Sample ID: MD21-11-14526
Sample Collection Date: 06/15/11
Sample Matrix: Silica

Request or PO Number: 11-2668
ARS Sample ID: ARS1-11-01342-007
Date Received: 06/17/11
Report Date: 07/11/11

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	13441.997	718.485	210.217	103.251		pCi/L	ARS-054/EPA 906.0	07/04/11 17:27	BS	NA

NOTES: Project Cost Code MR8R032NFM00

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

ARS Sample Delivery Group: ARS1-11-01342

Client Sample ID: MD21-11-14529

Sample Collection Date: 06/15/11

Sample Matrix: Silica

Request or PO Number: 11-2668

ARS Sample ID: ARS1-11-01342-008

Date Received: 06/17/11

Report Date: 07/11/11

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	9413.044	508.886	209.650	102.972		pCi/L	ARS-054/EPA 906.0	07/04/11 20:36	BS	NA

NOTES: Project Cost Code MR8R032NFM00

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NELAP Certificate # E87558



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ARS Sample Delivery Group: ARS1-11-01342
Client Sample ID: MD21-11-14533
Sample Collection Date: 06/15/11
Sample Matrix: Silica

Request or PO Number: 11-2668
ARS Sample ID: ARS1-11-01342-009
Date Received: 06/17/11
Report Date: 07/11/11

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	47952.511	2520.727	209.086	102.695		pCi/L	ARS-054/EPA 906.0	07/04/11 23:45	BS	NA

NOTES: Project Cost Code MR8R032NFM00

SDI

Project Manager Review

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LELAP Certificate# 01949

NELAP Certificate # E87558



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

ARS Sample Delivery Group: ARS1-11-01342

Client Sample ID: MD21-11-14528

Sample Collection Date: 06/15/11

Sample Matrix: Silica

Request or PO Number: 11-2668

ARS Sample ID: ARS1-11-01342-010

Date Received: 06/17/11

Report Date: 07/11/11

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	48532.938	2551.217	211.314	103.789		pCi/L	ARS-054/EPA 906.0	07/05/11 02:55	BS	NA

NOTES: Project Cost Code MR8R032NFM00

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NELAP Certificate # E87558



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ARS Sample Delivery Group: ARS1-11-01342
Client Sample ID: MD21-11-14530
Sample Collection Date: 06/15/11
Sample Matrix: Silica

Request or PO Number: 11-2668
ARS Sample ID: ARS1-11-01342-011
Date Received: 06/17/11
Report Date: 07/11/11

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	6328.974	349.679	212.469	104.356		pCi/L	ARS-054/EPA 906.0	07/05/11 06:04	BS	NA

NOTES: Project Cost Code MR8R032NFM00

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LELAP Certificate# 01949

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QC Results per Analytical Batch

Analytical Batch	ARS1-B11-02481
SDG	ARS1-11-01342
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	07/03/11 03:35	Analysis Technician	BSTEFFENS	
Analysis Batch Sample ID	QC Type	Analyte	Results	CSU (1s)	Expected Value	LCS Rec (%)	MDC
ARS1-B11-02481-01	LCS	H-3	2170	140	2426	89	210

Duplicate RER/DER/RPD			Analysis Date	07/03/11 06:44	Analysis Technician	BSTEFFENS	
Analyte	Result LCS	CSU LCS (1s)	Results LCSD	CSU LCSD (1s)	RER	DER	RPD
H-3	2170	140	2390	150	0.39	1.07	9.6

Method Blank			Analysis Date	07/03/11 09:53	Analysis Technician	BSTEFFENS	
Analysis Batch Sample ID	QC Type	Analyte	Results	CSU (1s)	MDC	Qual	
ARS1-B11-02481-03	MBL	H-3	-14	61	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**



LSC Instrument Data Transfer Report

\\PACKARD03170_NEW\Results\ARS\H-3 Normal Lvl 3

Batch Sample ID				Non-BKG Samples Transferred				Samples Eligible To Save				LSC 2			
ARS1-B11-02481				23				23							
LIMS Batch Sample ID	LSC PE	LSC PID	LSC S#	LSC SML ID	LSC Count Date	LSC CPM	LSC ISIE	LSC EFF	LSC Count Dur	Analysis Batch	LIMS SDG	LIMS Run			
BKG															
ARS1-B11-02481-01	50		1	BACKGROUND	07/03/11 00:27	5.82	405.05	36.5700	180.00	ARS1-B11-02481					
ARS1-B11-02481-02	50		2	B11-02481-01	07/03/11 03:35	14.81	409.02	36.7600	180.00	ARS1-B11-02481					
ARS1-B11-02481-03	50		3	B11-02481-02	07/03/11 06:44	15.86	422.26	37.3700	180.00	ARS1-B11-02481					
ARS1-B11-02481-04	50		4	B11-02481-03	07/03/11 09:53	5.76	415.46	37.0500	180.00	ARS1-B11-02481					
ARS1-B11-02481-05	50		5	B11-02481-04	07/03/11 13:02	9.23	389.23	35.8400	180.00	ARS1-B11-02481					
ARS1-B11-02481-06	50		6	B11-02481-05	07/03/11 16:11	8.88	385.19	35.6500	180.00	ARS1-B11-02481					
ARS1-B11-02481-07	50		7	B11-02481-06	07/03/11 19:20	8.58	388.11	35.7800	180.00	ARS1-B11-02481					
ARS1-B11-02481-08	50		8	B11-02481-07	07/03/11 22:30	139.65	406.43	36.6300	180.00	ARS1-B11-02481					
ARS1-B11-02481-09	50		9	B11-02481-08	07/04/11 01:39	179.13	411.26	36.8600	180.00	ARS1-B11-02481					
ARS1-B11-02481-10	50		10	B11-02481-09	07/04/11 04:49	6.48	404.71	36.5500	180.00	ARS1-B11-02481					
ARS1-B11-02481-11	50		11	B11-02481-10	07/04/11 07:58	53.98	400.68	36.3700	180.00	ARS1-B11-02481					
ARS1-B11-02481-12	50		12	B11-02481-11	07/04/11 11:07	5.61	393.00	36.0100	180.00	ARS1-B11-02481					
ARS1-B11-02481-13	50		13	B11-02481-12	07/04/11 14:17	6.02	396.16	36.2500	180.00	ARS1-B11-02481					
ARS1-B11-02481-14	50		14	B11-02481-13	07/04/11 17:26	60.28	396.39	36.2600	180.00	ARS1-B11-02481					
ARS1-B11-02481-15	50		15	B11-02481-14	07/04/11 20:35	44.06	402.58	36.4600	180.00	ARS1-B11-02481					
ARS1-B11-02481-16	50		16	B11-02481-15	07/04/11 23:45	201.15	401.32	36.4000	180.00	ARS1-B11-02481					
ARS1-B11-02481-17	50		17	B11-02481-16	07/05/11 02:54	201.43	396.14	36.1600	180.00	ARS1-B11-02481					
ARS1-B11-02481-18	50		18	B11-02481-17	07/05/11 06:04	31.19	390.72	35.9000	180.00	ARS1-B11-02481					
ARS1-B11-02481-19	50		19	B11-02481-18	07/05/11 09:13	6.56	385.73	35.6700	180.00	ARS1-B11-02481					
ARS1-B11-02481-20	50		20	B11-02481-19	07/05/11 12:22	12.81	387.98	35.7800	180.00	ARS1-B11-02481					
ARS1-B11-02481-21	50		21	B11-02481-20	07/05/11 15:32	6.08	381.23	35.4600	180.00	ARS1-B11-02481					
ARS1-B11-02481-22	50		22	B11-02481-21	07/05/11 18:44	8.13	376.23	35.2100	180.00	ARS1-B11-02481					
ARS1-B11-02481-23	50		23	B11-02481-22	07/05/11 21:50	5.38	404.97	36.5700	180.00	ARS1-B11-02481					
ARS1-B11-02481-24	50		24	B11-02481-23	07/06/11 00:58	5.59	372.68	35.0700	180.00	ARS1-B11-02481					

Procedure		Isotope			
ARS-054		H-3			
Variable	Value	Calculated Value	Excel	VBA	V/V
Gross Count Rate	14.810000	ACT	2165.130670	2165.130670	OK
Sample Count Mins	180.000000	C	81.838818	81.838818	OK
BKG Count Rate	5.820000	TPU	139.500135	139.500135	OK
BKG Count Mins	180.000000	MDA	205.119220	205.119220	OK
Instrument Efficiency	0.367600	DL	100.746637	100.746637	OK
Sample Aliquot	5.088000	Net Count Rate	8.990000	8.990000	OK
Dilution Factor	1.000000	D t 1 (t2 - t1)	0.000000	0.000000	OK
Aliquot Conversion Factor	0.001000	DF	1.000000	1.000000	OK
		Sys Err	0.052280	0.052280	OK
Sample Collection Date (t1)	7/3/11 3:35 AM	K	0.004152	0.004152	OK
Count Date (t2)	7/3/11 3:35 AM	K MDA	0.747391	0.747391	OK
Activity Units = pCi --- UCF =	2.2200				
CF	1.0000				
Nuclide Abundance	1.000000				
Half-life Days 1 - Result Isotope	4499.800000				
TPUF_Calibration Factor	0.041330				
TPUF_Aliquoting Factor	0.020000				
TPUF_Yield Factor	0.000000				
TPUF_Decay Ingrowth Factor	0.025000				
TPUF_Analysis Factor	0.000000				
TPUF_Unassigned Factor	0.000000				
Activity Units	pCi	Batch Identifiers and Other Related Information			
Aliquot Units	L	Batch	ARS1-B11-02481		
		Batch L	ARS1-B11-02481-01		
		Analysis Code			
		SDG	QC Sample		
		Fraction	N/A QC Sample		
		Run Number			
		Client	QC Sample		
		Client Profile			
		Client ID	N/A QC Sample		
		Instr File Name	76		
		Instr Detector	P-50-S-2		
		Instr ke			
		Version/Date	1.0 -- 11/18/2005		
Variables Intact Test	OK				

Procedure		Isotope			
ARS-054		H-3			
Variable	Value	Calculated Values	Excel	VBA	V/V
Gross Count Rate	15.860000	ACT	2386.514239	2386.514239	OK
Sample Count Mins	180.000000	C	161.688739	161.688739	OK
BKG Count Rate	5.820000	TP	293.162078	293.162078	OK
BKG Count Mins	180.000000	MD	202.447423	202.447423	OK
Instrument Efficiency	0.373700	D	99.434354	99.434354	OK
Sample Aliquot	5.071000	Net Count Rate	10.040000	10.040000	OK
Dilution Factor	1.000000	D t 1 (t2 - t1)	0.000000	0.000000	OK
Aliquot Conversion Factor	0.001000	C	1.000000	1.000000	OK
Sample Collection Date (t1)	7/3/11 6:44 AM	Sys Err	0.052280	0.052280	OK
Count Date (t2)	7/3/11 6:44 AM	K	0.004207	0.004207	OK
Activity Units = pCi --- UCF =	2.2200	K MDA	0.757255	0.757255	OK
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	Batch Identifiers and Other Related Information			
Aliquot Units	L	Batch	ARS1-B11-02481		
		Batch Y	ARS1-B11-02481-02		
		Analysis Code			
		SD	QC Sample		
		Fraction	N/A QC Sample		
		Run Number			
		Client	QC Sample		
		Client Profile			
		Client ID	N/A QC Sample		
		Instr File Name	76		
		Instr Detector	P-50-S-3		
		Instr Key			
		Version/Date	1.0 -- 11/18/2005		
0 Variables Intact Test	OK				

Procedure		Isotope			
ARS-054		H-3			
Variable	Value	Calculated Values	Excel	VBA	V/V
Gross Count Rate	5.760000	AC	-14.413642	-14.413642	OK
Sample Count Mins	180.000000	C	119.425364	119.425364	OK
BKG Count Rate	5.820000	TPU	119.434497	119.434497	OK
BKG Count Mins	180.000000	MD	204.599426	204.599426	OK
Instrument Efficiency	0.370500	D	100.491335	100.491335	OK
Sample Aliquot	5.061000	Net Count Rate	-0.060000	-0.060000	OK
Dilution Factor	1.000000	D t 1 (t2 - t1)	0.000000	0.000000	OK
Aliquot Conversion Factor	0.001000	D	1.000000	1.000000	OK
		Sys Err	0.052280	0.052280	OK
Sample Collection Date (t1)	7/3/11 9:53 AM		0.004163	0.004163	OK
Count Date (t2)	7/3/11 9:53 AM	K MD	0.749290	0.749290	OK
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	Batch Identifiers and Other Related Information			
Aliquot Units	L	Batch	ARS1-B11-02481		
		Batch ID	ARS1-B11-02481-03		
		Analysis Code			
		SD	QC Sample		
		Fraction	N/A QC Sample		
		Run Number			
		Client	QC Sample		
		Client Profile			
		Client ID	N/A QC Sample		
		Instr File Name	76		
		Instr Detector	P-50-S-4		
		Instr Key			
		Version/Date	1.0 -- 11/18/2005		
Variables Intact Test	OK				

Procedure		ARS-054			
Variable	Value				
Gross Count Rate	139.650000				
Sample Count Mins	180.000000				
BKG Count Rate	5.820000				
BKG Count Mins	180.000000				
Instrument Efficiency	0.366300				
Sample Aliquot	5.039000				
Dilution Factor	1.000000				
Aliquot Conversion Factor	0.001000				
Sample Collection Date (t1)	6/15/11 12:00 PM				
Count Date (t2)	7/3/11 10:30 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	32753.119376	32753.119371	OK	
CD	220.013666	220.013666	OK	
TPU	1726.400575	1726.400575	OK	
MDA	208.440030	208.440030	OK	
DL	102.377691	102.377691	OK	
Net Count Rate	133.830000	133.830000	OK	
D t 1 (t2 - t1)	18.437500	18.437500	OK	
DI	0.997164	0.997164	OK	
Sys Err	0.052280	0.052280	OK	
K	0.004086	0.004086	OK	
K MDA	0.735484	0.735484	OK	
Batch Identifiers and Other Related Information				
Batch	ARS1-B11-02481			
Batch ID	ARS1-B11-02481-07			
Analysis Code	LSC-A-001			
SD	ARS1-11-01342			
Fraction	001			
Run Number	1			
Client	Los Alamos National Laboratory			
Client Profile	Keith Greene			
Client ID	MD21-11-14527			
Instr File Name	76			
Instr Detector	P-50-S-8			
Instr ke				
Version/Date	1.0 -- 11/18/2005			

Procedure		ARS-054	
Variable	Value		
Gross Count Rate	179.130000		
Sample Count Mins	180.000000		
BKG Count Rate	5.820000		
BKG Count Mins	180.000000		
Instrument Efficiency	0.368600		
Sample Aliquot	5.066000		
Dilution Factor	1.000000		
Aliquot Conversion Factor	0.001000		
Sample Collection Date (t1)	6/15/11 12:00 PM		
Count Date (t2)	7/4/11 1:40 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	41926.865954	41926.865946	OK
CP	148.222148	148.222148	OK
TPU	2205.599214	2205.599214	OK
MDA	206.039607	206.039607	OK
DL	101.198696	101.198696	OK
Net Count Rate	173.310800	173.310800	OK
D t 1 (t2 - t1)	18.569444	18.569444	OK
DF	0.997144	0.997144	OK
Sys Err	0.052280	0.052280	OK
K	0.004134	0.004134	OK
K MDA	0.744053	0.744053	OK
Batch Identifiers and Other Related Information			
Batch	ARS1-B11-02481		
Batch ID	ARS1-B11-02481-08		
Analysis Code	LSC-A-001		
SDC	ARS1-11-01342		
Fraction	002		
Run Number	1		
Client	Los Alamos National Laboratory		
Client Profile	Keith Greene		
Client ID	MD21-11-14524		
Instr File Name	76		
Instr Detector	P-50-S-9		
Instr Key			
Version/Date	1.0 -- 11/18/2005		

Procedure		ARS-054	
Variable	Value		
Gross Count Rate	6.480000		
Sample Count Mins	180.000000		
BKG Count Rate	5.820000		
BKG Count Mins	180.000000		
Instrument Efficiency	0.365500		
Sample Aliquot	5.070000		
Dilution Factor	1.000000		
Aliquot Conversion Factor	0.001000		
Sample Collection Date (t1)	6/15/11 12:00 PM		
Count Date (t2)	7/4/11 4:49 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	160.896527	160.896527	OK
CD	63.726349	63.726349	OK
TPU	64.279102	64.279102	OK
MDA	207.627402	207.627402	OK
DL	101.978560	101.978560	OK
Net Count Rate	0.660000	0.660000	OK
D t 1 (t2 - t1)	18.700694	18.700694	OK
DF	0.997123	0.997123	OK
Sys Err	0.052280	0.052280	OK
K	0.004102	0.004102	OK
K MDA	0.738363	0.738363	OK
Batch Identifiers and Other Related Information			
Batch	ARS1-B11-02481		
Batch ID	ARS1-B11-02481-09		
Analysis Code	LSC-A-001		
SDG	ARS1-11-01342		
Fraction	003		
Run Number	1		
Client	Los Alamos National Laboratory		
Client Profile	Keith Greene		
Client ID	MD21-11-14531		
Instr File Name	76		
Instr Detector	P-50-S-10		
Instr Key			
Version/Date	1.0 -- 11/18/2005		

Procedure		H-3			
Variable	Value	Calculated Values	Excel	VBA	V/V
Gross Count Rate	53.980000	ACT	11794.262439	11794.262437	OK
Sample Count Mins	180.000000	CR	141.155774	141.155774	OK
BKG Count Rate	5.820000	TPU	632.551493	632.551493	OK
BKG Count Mins	180.000000	MDA	208.576918	208.576918	OK
Instrument Efficiency	0.363700	DL	102.444925	102.444925	OK
Sample Aliquot	5.072000	Net Count Rate	48.160000	48.160000	OK
Dilution Factor	1.000000	D t 1 (t2 - t1)	18.831944	18.831944	OK
Aliquot Conversion Factor	0.001000	DF	0.997103	0.997103	OK
		Sys Err	0.052280	0.052280	OK
Sample Collection Date (t1)	6/15/11 12:00 PM	K	0.004083	0.004083	OK
Count Date (t2)	7/4/11 7:58 AM	K MDA	0.735001	0.735001	OK
Activity Units = pCi --- UCF =	2.2200				
CF	1.0000				
Nuclide Abundance	1.000000				
Half-life Days 1 - Result Isotope	4499.800000				
TPUF Calibration Factor	0.041330				
TPUF Aliquoting Factor	0.020000				
TPUF Yield Factor	0.000000				
TPUF Decay Ingrowth Factor	0.025000				
TPUF Analysis Factor	0.000000				
TPUF Unassigned Factor	0.000000				
Activity Units	pCi	Batch Identifiers and Other Related Information			
Aliquot Units	L	Batch	ARS1-B11-02481		
		Batch I	ARS1-B11-02481-10		
		Analysis Code	LSC-A-001		
		SD	ARS1-11-01342		
		Fraction	004		
		Run Number	1		
		Client	Los Alamos National Laboratory		
		Client Profile	Keith Greene		
		Client ID	MD21-11-14525		
		Instr File Name	76		
		Instr Detector	P-50-S-11		
		Instr keV			
		Version/Date	1.0 -- 11/18/2005		
0 Variables Intact Test	OK				

Procedure		ARS-054	
Variable	Value		
Gross Count Rate	5.610000		
Sample Count Mins	180.000000		
BKG Count Rate	5.820000		
BKG Count Mins	180.000000		
Instrument Efficiency	0.360100		
Sample Aliquot	5.072000		
Dilution Factor	1.000000		
Aliquot Conversion Factor	0.001000		
Sample Collection Date (t1)	6/15/11 12:00 PM		
Count Date (t2)	7/4/11 11:08 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	-51.943668	-51.943668	OK
CU	62.330438	62.330438	OK
TPU	62.389566	62.389566	OK
MDA	210.666389	210.666389	OK
DL	103.471193	103.471193	OK
Net Count Rate	-0.210000	-0.210000	OK
D t 1 (t2 - t1)	18.963889	18.963889	OK
DF	0.997083	0.997083	OK
Sys Err	0.052280	0.052280	OK
K	0.004043	0.004043	OK
K MDA	0.727711	0.727711	OK
Batch Identifiers and Other Related Information			
Batch	ARS1-B11-02481		
Batch ID	ARS1-B11-02481-11		
Analysis Code	LSC-A-001		
SDS	ARS1-11-01342		
Fraction	005		
Run Number	1		
Client	Los Alamos National Laboratory		
Client Profile	Keith Greene		
Client ID	MD21-11-14534		
Instr File Name	76		
Instr Detector	P-50-S-12		
Instr keV			
Version/Date	1.0 -- 11/18/2005		

Procedure		Isotope			
ARS-054		H-3			
Variable	Value	Calculated Values	Excel	VBA	V/V
Gross Count Rate	6.020000	ACT	49.085560	49.085560	OK
Sample Count Mins	180.000000	CU	62.945307	62.945307	OK
BKG Count Rate	5.820000	TPU	62.997594	62.997594	OK
BKG Count Mins	180.000000	MDA	209.028590	209.028590	OK
Instrument Efficiency	0.362500	DL	102.666769	102.666769	OK
Sample Aliquot	5.078000	Net Count Rate	0.200800	0.200800	OK
Dilution Factor	1.000000	D t 1 (t2 - t1)	19.095139	19.095139	OK
Aliquot Conversion Factor	0.001000	DF	0.997063	0.997063	OK
		Sys Err	0.052280	0.052280	OK
Sample Collection Date (t1)	6/15/11 12:00 PM	K	0.004075	0.004075	OK
Count Date (t2)	7/4/11 2:17 PM	K MDA	0.733413	0.733413	OK
Activity Units = pCi --- UCF =	2.2200				
CF	1.0000				
Nuclide Abundance	1.000000				
Half-life Days 1 - Result Isotope	4499.800000				
TPUF_Calibration Factor	0.041330				
TPUF_Aliquoting Factor	0.020000				
TPUF_Yield Factor	0.000000				
TPUF_Decay Ingrowth Factor	0.025000				
TPUF_Analysis Factor	0.000000				
TPUF_Unassigned Factor	0.000000				
Activity Units	pCi	Batch Identifiers and Other Related Information			
Aliquot Units	L	Batch	ARS1-B11-02481		
		Batch ID	ARS1-B11-02481-12		
		Analysis Code	LSC-A-001		
		SDC	ARS1-11-01342		
		Fraction	006		
		Run Number	1		
		Client	Los Alamos National Laboratory		
		Client Profile	Keith Greene		
		Client ID	MD21-11-14532		
		Instr File Name	76		
		Instr Detector	P-50-S-13		
		Instr Key			
		Version/Date	1.0 -- 11/18/2005		
Variables Intact Test	OK				

Procedure		H-3			
Variable	Value	Calculated Values	Excel	VBA	V/V
Gross Count Rate	60.280000	ACT	13441.996566	13441.996564	OK
Sample Count Mins	180.000000	CU	149.572110	149.572110	OK
BKG Count Rate	5.820000	TPU	718.484967	718.484967	OK
BKG Count Mins	180.000000	MDA	210.217119	210.217119	OK
Instrument Efficiency	0.362600	DL	103.250528	103.250528	OK
Sample Aliquot	5.048000	Net Count Rate	54.460000	54.460000	OK
Dilution Factor	1.000000	D t 1 (t2 - t1)	19.227083	19.227083	OK
Aliquot Conversion Factor	0.001000	DI	0.997043	0.997043	OK
		Sys Err	0.052280	0.052280	OK
Sample Collection Date (t1)	6/15/11 12:00 PM	IC	0.004051	0.004051	OK
Count Date (t2)	7/4/11 5:27 PM	K MDA	0.729267	0.729267	OK
Activity Units = pCi --- UCF =	2.2200				
CF	1.0000				
Nuclide Abundance	1.000000				
Half-life Days 1 - Result Isotope	4499.800000				
TPUF_Calibration Factor	0.041330				
TPUF_Aliquoting Factor	0.020000				
TPUF_Yield Factor	0.000000				
TPUF_Decay Ingrowth Factor	0.025000				
TPUF_Analysis Factor	0.000000				
TPUF_Unassigned Factor	0.000000				
Activity Units	pCi	Batch Identifiers and Other Related Information			
Aliquot Units	L	Batch	ARS1-B11-02481		
		Batch ID	ARS1-B11-02481-13		
		Analysis Code	LSC-A-001		
		SDC	ARS1-11-01342		
		Fraction	007		
		Run Number	1		
		Client	Los Alamos National Laboratory		
		Client Profile	Kelth Greene		
		Client ID	MD21-11-14526		
		Instr File Name	76		
		Instr Detector	P-50-S-14		
		Instr ke			
		Version/Date	1.0 -- 11/18/2005		
0 Variables Intact Test	OK				

Procedure		ARS-054			
Variable	Value				
Gross Count Rate	44.060000				
Sample Count Mins	180.000000				
BKG Count Rate	5.820000				
BKG Count Mins	180.000000				
Instrument Efficiency	0.364600				
Sample Aliquot	5.034000				
Dilution Factor	1.000000				
Aliquot Conversion Factor	0.001000				
Sample Collection Date (t1)	6/15/11 12:00 PM				
Count Date (t2)	7/4/11 8:36 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	9413.043759	9413.043757	OK	
CU	129.580355	129.580355	OK	
TPU	508.885618	508.885618	OK	
MDA	209.649644	209.649644	OK	
DL	102.971807	102.971807	OK	
Net Count Rate	38.240000	38.240000	OK	
D t 1 (t2 - t1)	19.358333	19.358333	OK	
DF	0.997022	0.997022	OK	
Sys Err	0.052280	0.052280	OK	
J	0.004062	0.004062	OK	
K MDA	0.731241	0.731241	OK	
Batch Identifiers and Other Related Information				
Batch	ARS1-B11-02481			
Batch ID	ARS1-B11-02481-14			
Analysis Code	LSC-A-001			
SDG	ARS1-11-01342			
Fraction	008			
Run Number	1			
Client	Los Alamos National Laboratory			
Client Profile	Keith Greene			
Client ID	MD21-11-14529			
Instr File Name	76			
Instr Detector	P-50-S-15			
Instr keV				
Version/Date	1.0 -- 11/18/2005			

Procedure		ARS-054			
Variable	Value				
Gross Count Rate	201.150000				
Sample Count Mins	180.000000				
BKG Count Rate	5.820000				
BKG Count Mins	180.000000				
Instrument Efficiency	0.364000				
Sample Aliquot	5.056000				
Dilution Factor	1.000000				
Aliquot Conversion Factor	0.001000				
Sample Collection Date (t1)	6/15/11 12:00 PM				
Count Date (t2)	7/4/11 11:45 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	47952.510723	47952.510714	OK	
CC	263.244829	263.244829	OK	
TPU	2520.727021	2520.727020	OK	
MDA	209.085703	209.085703	OK	
DL	102.694821	102.694821	OK	
Net Count Rate	195.330000	195.330000	OK	
D t 1 (t2 - t1)	19.489583	19.489583	OK	
DF	0.997002	0.997002	OK	
Sys Err	0.052280	0.052280	OK	
K	0.004073	0.004073	OK	
K MDA	0.733213	0.733213	OK	
Batch Identifiers and Other Related Information				
Batch	ARS1-B11-02481			
Batch ID	ARS1-B11-02481-15			
Analysis Code	LSC-A-001			
SDN	ARS1-11-01342			
Fraction	009			
Run Number	1			
Client	Los Alamos National Laboratory			
Client Profile	Keith Greene			
Client ID	MD21-11-14533			
Instr File Name	76			
Instr Detector	P-50-S-16			
Instr Key				
Version/Date	1.0 -- 11/18/2005			

[illegible]

Procedure		Isotope			
ARS-054		H-3			
Variable	Value	Calculated Values	Excel	VBA	V/V
Gross Count Rate	31.190000	ACT	6328.973910	6328.973909	OK
Sample Count Mins	160.000000	CU	113.119149	113.119149	OK
BKG Count Rate	5.820000	TPU	349.679155	349.679155	OK
BKG Count Mins	160.000000	MDA	212.468609	212.468609	OK
Instrument Efficiency	0.359000	DL	104.356373	104.356373	OK
Sample Aliquot	5.045000	Net Count Rate	25.370000	25.370000	OK
Dilution Factor	1.000000	D t 1 (t2 - t1)	19.752778	19.752778	OK
Aliquot Conversion Factor	0.001000	DF	0.996962	0.996962	OK
		Sys Err	0.052280	0.052280	OK
Sample Collection Date (t1)	6/15/11 12:00 PM	K	0.004009	0.004009	OK
Count Date (t2)	7/5/11 6:04 AM	K MDA	0.721539	0.721539	OK
Activity Units = pCi --- UCF =	2.2200				
CF	1.0000				
Nuclide Abundance	1.000000				
Half-life Days 1 - Result Isotope	4499.800000				
TPUF_Calibration Factor	0.041330				
TPUF_Aliquoting Factor	0.020000				
TPUF_Yield Factor	0.000000				
TPUF_Decay Ingrowth Factor	0.025000				
TPUF_Analysis Factor	0.000000				
TPUF_Unassigned Factor	0.000000				
Activity Units	pCi	Batch Identifiers and Other Related Information			
Aliquot Units	L	Batch	ARS1-B11-02481		
		Batch ID	ARS1-B11-02481-17		
		Analysis Code	LSC-A-001		
		SDG	ARS1-11-01342		
		Fraction	011		
		Run Number	1		
		Client	Los Alamos National Laboratory		
		Client Profile	Keith Greene		
		Client ID	MD21-11-14530		
		Instr File Name	76		
		Instr Detector	P-50-S-18		
		Instr Key			
		Version/Date	1.0 -- 11/18/2005		
Variables Intact Test	OK				



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American Radiation Services Analytical Reports

for

Los Alamos National Laboratory

Tritium

by

Low Level Liquid Scintillation Counting

Laboratory Records

Analysis Batch Report



Analysis Batch ID **ARS1-B11-02481**

Method **ARS-054** Analysis **LSC-A-001** Matrix **SI**
Description **Tritium (Aqueous)**

Aratch Sample ID	Type	Blind Iso1	Blind Iso2	Blind Iso3	SDG	FR	Run	Client ID	Isotope Group	Lab Deadline
ARS1-B11-02481-01	LCS	B-11976								
ARS1-B11-02481-02	LCSD	B-11977								
ARS1-B11-02481-03	MBL									
ARS1-B11-02481-04	TRG				ARS1-11-01310	001	1	MD54-11-7522	STD	07/11/11
ARS1-B11-02481-05	TRG				ARS1-11-01310	002	1	MD54-11-7521	STD	07/11/11
ARS1-B11-02481-06	TRG				ARS1-11-01310	003	1	MD54-11-7602	STD	07/11/11
ARS1-B11-02481-07	TRG				ARS1-11-01342	001	1	MD21-11-14527	STD	07/12/11
ARS1-B11-02481-08	TRG				ARS1-11-01342	002	1	MD21-11-14524	STD	07/12/11
ARS1-B11-02481-09	TRG				ARS1-11-01342	003	1	MD21-11-14531	STD	07/12/11
ARS1-B11-02481-10	TRG				ARS1-11-01342	004	1	MD21-11-14525	STD	07/12/11
ARS1-B11-02481-11	TRG				ARS1-11-01342	005	1	MD21-11-14534	STD	07/12/11
ARS1-B11-02481-12	TRG				ARS1-11-01342	006	1	MD21-11-14532	STD	07/12/11
ARS1-B11-02481-13	TRG				ARS1-11-01342	007	1	MD21-11-14526	STD	07/12/11
ARS1-B11-02481-14	TRG				ARS1-11-01342	008	1	MD21-11-14529	STD	07/12/11
ARS1-B11-02481-15	TRG				ARS1-11-01342	009	1	MD21-11-14533	STD	07/12/11
ARS1-B11-02481-16	TRG				ARS1-11-01342	010	1	MD21-11-14528	STD	07/12/11
ARS1-B11-02481-17	TRG				ARS1-11-01342	011	1	MD21-11-14530	STD	07/12/11
ARS1-B11-02481-18	TRG				ARS1-11-01343	001	1	MD54-11-7605	STD	07/12/11
ARS1-B11-02481-19	TRG				ARS1-11-01343	002	1	MD54-11-7520	STD	07/12/11
ARS1-B11-02481-20	TRG				ARS1-11-01343	003	1	MD54-11-7612	STD	07/12/11
ARS1-B11-02481-21	TRG				ARS1-11-01343	004	1	MD54-11-7519	STD	07/12/11
ARS1-B11-02481-22	TRG				ARS1-11-01343	005	1	MD54-11-7539	STD	07/12/11
ARS1-B11-02481-23	TRG				ARS1-11-01343	006	1	MD54-11-7620	STD	07/12/11

90230	90231	90232	90233	90234	90235	90236	90237	90238
11-01310-001-1	11-01310-002-1	11-01310-003-1	11-01342-001-1	11-01342-002-1	11-01342-003-1	11-01342-004-1	11-01342-005-1	11-01342-006-1
WRAD	WRAD	WRAD	WRAD	WRAD	WRAD	WRAD	WRAD	WRAD

90239	90240	90241	90242	90243	90244	90245	90246	90247
11-01342-007-1	11-01342-008-1	11-01342-009-1	11-01342-010-1	11-01342-011-1	11-01343-001-1	11-01343-002-1	11-01343-003-1	11-01343-004-1
WRAD	WRAD	WRAD	WRAD	WRAD	WRAD	WRAD	WRAD	WRAD

90248	90249
11-01343-005-1	11-01343-006-1
WRAD	WRAD

LCS Report
Analytical Batch: ARS1-B11-02481

BlindID	Asatch	AsatchSampleID	BlindGroup	StdID	Isotope	ExpectedAddition	ExpectedValue	EmptyWT	GrossWT	NetWT	UserID	ModDate	ExpectedValue_CT	MidpointCountDate	KnownValue
B-11976	ARS1-B11-02481	ARS1-B11-02481-01	B-H3	S-0247	H-3	5	2.428209486	0	1	1	1 BSTEFFENS	6/27/2011	2.425966282	7/3/2011	2.425966282
B-11977	ARS1-B11-02481	ARS1-B11-02481-02	B-H3	S-0247	H-3	5	2.428209486	0	1	1	1 BSTEFFENS	6/27/2011	2.425966282	7/3/2011	2.425966282

ARS-054

ID_31001_054	ABatch	ABatchSampleID	ClientID	Aliquot1	AliquotUnits1	IC_ID1	Aliquot2	AliquotUnits2	IC_ID2	UserID	ModDate
9198	ARSI-B11-02481	ARSI-B11-02481-01					5.088 g			BSTEFFENS	07/01/2011 15:49:21
9199	ARSI-B11-02481	ARSI-B11-02481-02					5.071 g			BSTEFFENS	07/01/2011 15:49:21
9200	ARSI-B11-02481	ARSI-B11-02481-03					5.061 g			BSTEFFENS	07/01/2011 15:49:21
9201	ARSI-B11-02481	ARSI-B11-02481-04	MD54-11-7522				5.044 g		90230	BSTEFFENS	07/01/2011 15:49:21
9202	ARSI-B11-02481	ARSI-B11-02481-05	MD54-11-7521				5.054 g		90231	BSTEFFENS	07/01/2011 15:49:21
9203	ARSI-B11-02481	ARSI-B11-02481-06	MD54-11-7602				5.046 g		90232	BSTEFFENS	07/01/2011 15:49:21
9204	ARSI-B11-02481	ARSI-B11-02481-07	MD21-11-14527				5.039 g		90233	BSTEFFENS	07/01/2011 15:49:21
9205	ARSI-B11-02481	ARSI-B11-02481-08	MD21-11-14524				5.066 g		90234	BSTEFFENS	07/01/2011 15:49:21
9206	ARSI-B11-02481	ARSI-B11-02481-09	MD21-11-14531				5.07 g		90235	BSTEFFENS	07/01/2011 15:49:21
9207	ARSI-B11-02481	ARSI-B11-02481-10	MD21-11-14525				5.072 g		90236	BSTEFFENS	07/01/2011 15:49:21
9208	ARSI-B11-02481	ARSI-B11-02481-11	MD21-11-14534				5.072 g		90237	BSTEFFENS	07/01/2011 15:49:22
9209	ARSI-B11-02481	ARSI-B11-02481-12	MD21-11-14532				5.078 g		90238	BSTEFFENS	07/01/2011 15:49:22
9210	ARSI-B11-02481	ARSI-B11-02481-13	MD21-11-14526				5.048 g		90239	BSTEFFENS	07/01/2011 15:49:22
9211	ARSI-B11-02481	ARSI-B11-02481-14	MD21-11-14529				5.034 g		90240	BSTEFFENS	07/01/2011 15:49:22
9212	ARSI-B11-02481	ARSI-B11-02481-15	MD21-11-14533				5.056 g		90241	BSTEFFENS	07/01/2011 15:49:22
9213	ARSI-B11-02481	ARSI-B11-02481-16	MD21-11-14528				5.036 g		90242	BSTEFFENS	07/01/2011 15:49:22
9214	ARSI-B11-02481	ARSI-B11-02481-17	MD21-11-14530				5.045 g		90243	BSTEFFENS	07/01/2011 15:49:22
9215	ARSI-B11-02481	ARSI-B11-02481-18	MD54-11-7605				5.045 g		90244	BSTEFFENS	07/01/2011 15:49:22
9216	ARSI-B11-02481	ARSI-B11-02481-19	MD54-11-7520				5.024 g		90245	BSTEFFENS	07/01/2011 15:49:22
9217	ARSI-B11-02481	ARSI-B11-02481-20	MD54-11-7612				5.044 g		90246	BSTEFFENS	07/01/2011 15:49:22
9218	ARSI-B11-02481	ARSI-B11-02481-21	MD54-11-7519				5.029 g		90247	BSTEFFENS	07/01/2011 15:49:22
9219	ARSI-B11-02481	ARSI-B11-02481-22	MD54-11-7539				5.033 g		90248	BSTEFFENS	07/01/2011 15:49:22
9220	ARSI-B11-02481	ARSI-B11-02481-23	MD54-11-7620				5.048 g		90249	BSTEFFENS	07/01/2011 15:49:23

Batch Result Verification Report

AbateSampleID	SDG	Fraction	ClientID	Run	Isotope	ACT	TPU	TPUs	TPUs2	MDA	DL	CU	CU1s	CU2s	ActivityReportUnits
ARS1-B11-02481-01				1	H-3	2165.13067	139.5001348	139.5001348	273.4202642	205.1192199	100.746375	81.5381838	81.5381838	159.806284	PC
ARS1-B11-02481-02				1	H-3	2386.514239	293.1620784	149.572489	293.1620784	202.4474231	99.4343541	161.6887393	82.49625476	161.6887393	PC
ARS1-B11-02481-03				1	H-3	-14.41364184	119.4344966	60.93596764	119.4344966	204.5994265	100.491335	119.4253642	60.93130827	119.4253642	PC
ARS1-B11-02481-04				1	H-3	852.7070861	84.94437177	84.94437177	166.4909687	212.9744126	104.6048047	72.30652505	72.30652505	141.7207891	PC
ARS1-B11-02481-05				1	H-3	767.7574751	82.17116267	82.17116267	161.0554788	213.6901791	104.9563616	71.70097179	71.70097179	140.5339047	PC
ARS1-B11-02481-06				1	H-3	691.0789726	79.5046165	79.5046165	155.8290483	213.2556435	104.7429344	70.82125041	70.82125041	138.8096508	PC
ARS1-B11-02481-07				1	H-3	32753.11937	1726.400575	1726.400575	3383.745127	208.4400296	102.3776909	220.0136657	220.0136657	431.2267847	PC
ARS1-B11-02481-08				1	H-3	41926.86595	2205.599214	2205.599214	4322.974459	206.0396074	101.1986963	245.2221484	245.2221484	480.6354108	PC
ARS1-B11-02481-09				1	H-3	160.8965268	64.27910219	64.27910219	125.9870403	207.627402	101.9785596	63.72634889	63.72634889	124.9036438	PC
ARS1-B11-02481-10				1	H-3	11794.26244	632.5514931	632.5514931	1239.800926	208.5769175	102.444925	141.1557742	141.1557742	276.6653174	PC
ARS1-B11-02481-11				1	H-3	-51.94366754	62.38956624	62.38956624	122.2835498	210.6663892	103.4711927	62.33043791	62.33043791	122.1676583	PC
ARS1-B11-02481-12				1	H-3	49.08556003	62.9975944	62.9975944	123.475285	209.0285898	102.666769	62.94530661	62.94530661	123.372801	PC
ARS1-B11-02481-13				1	H-3	13441.99656	718.4849668	718.4849668	1408.230535	210.2171186	103.2505284	149.57211	149.57211	293.1613356	PC
ARS1-B11-02481-14				1	H-3	9413.043757	508.885618	508.885618	997.4158112	209.6496443	102.971807	129.5803545	129.5803545	253.9774949	PC
ARS1-B11-02481-15				1	H-3	47952.51071	2520.72702	2520.72702	4940.62496	209.0857028	102.6948207	263.2448286	263.2448286	515.959864	PC
ARS1-B11-02481-16				1	H-3	48532.93844	2551.217422	2551.217422	5000.386147	211.3136101	103.7890827	266.2297293	266.2297293	521.8102695	PC
ARS1-B11-02481-17				1	H-3	6328.973909	349.6791548	349.6791548	685.3711434	212.4686087	104.3563734	113.1191487	113.1191487	221.7135314	PC
ARS1-B11-02481-18				1	H-3	185.8281811	66.57000938	66.57000938	130.4772184	213.8758715	105.0475665	65.85730067	65.85730067	129.0803093	PC
ARS1-B11-02481-19				1	H-3	1756.735489	122.3609049	122.3609049	239.8273737	214.0479807	105.1320999	80.8536023	80.8536023	158.4730605	PC
ARS1-B11-02481-20				1	H-3	65.6730952	65.03653355	65.03653355	127.4716058	215.1275708	105.6623529	64.94584406	64.94584406	127.2938544	PC
ARS1-B11-02481-21				1	H-3	640.0534105	78.93943766	78.93943766	154.7212978	217.1823012	106.6715571	71.49644729	71.49644729	140.1330367	PC
ARS1-B11-02481-22				1	H-3	-108.0056163	61.49010678	61.49010678	120.5206093	209.0622399	102.6832966	61.23030487	61.23030487	120.0113975	PC
ARS1-B11-02481-23				1	H-3	-58.63524201	64.25873709	64.25873709	125.9471247	217.1264951	106.6441472	64.18557788	64.18557788	125.8037326	PC

Batch Result Verification Report

BatchSampleID	SDG	Fraction	AliquotReportUnits	ChemRecovery	TracerRecovery	SampleCounts	SampleCountsmins	BKG_Counts	BKG_Countmins	EFF	ALIQ	SampleCollDate	MidPointCountDate	BP_DL
ARSI-B11-02481-01		L				0.08227778	180	0.03233333	180	0.3676	5.088	7/6/2011	7/3/2011	
ARSI-B11-02481-02		L				0.08811111	180	0.03233333	180	0.3737	5.071	7/6/2011	7/3/2011	
ARSI-B11-02481-03		L				0.032	180	0.03233333	180	0.3705	5.061	7/6/2011	7/3/2011	
ARSI-B11-02481-04		L				0.05127778	180	0.03233333	180	0.3584	5.044	6/10/2011	7/3/2011	
ARSI-B11-02481-05		L				0.04933333	180	0.03233333	180	0.3565	5.054	6/10/2011	7/3/2011	
ARSI-B11-02481-06		L				0.04766667	180	0.03233333	180	0.3578	5.046	6/10/2011	7/3/2011	
ARSI-B11-02481-07		L				0.77583333	180	0.03233333	180	0.3663	5.039	6/15/2011	7/4/2011	
ARSI-B11-02481-08		L				0.99516667	180	0.03233333	180	0.3686	5.066	6/15/2011	7/4/2011	
ARSI-B11-02481-09		L				0.036	180	0.03233333	180	0.3655	5.07	6/15/2011	7/4/2011	
ARSI-B11-02481-10		L				0.29988889	180	0.03233333	180	0.3637	5.072	6/15/2011	7/4/2011	
ARSI-B11-02481-11		L				0.03116667	180	0.03233333	180	0.3601	5.072	6/15/2011	7/4/2011	
ARSI-B11-02481-12		L				0.03344444	180	0.03233333	180	0.3625	5.078	6/15/2011	7/4/2011	
ARSI-B11-02481-13		L				0.33488889	180	0.03233333	180	0.3626	5.048	6/15/2011	7/4/2011	
ARSI-B11-02481-14		L				0.24477778	180	0.03233333	180	0.3646	5.034	6/15/2011	7/4/2011	
ARSI-B11-02481-15		L				1.1175	180	0.03233333	180	0.364	5.056	6/15/2011	7/4/2011	
ARSI-B11-02481-16		L				1.11905556	180	0.03233333	180	0.3616	5.036	6/15/2011	7/5/2011	
ARSI-B11-02481-17		L				0.17327778	180	0.03233333	180	0.359	5.045	6/15/2011	7/5/2011	
ARSI-B11-02481-18		L				0.03644444	180	0.03233333	180	0.3567	5.045	6/14/2011	7/5/2011	
ARSI-B11-02481-19		L				0.07116667	180	0.03233333	180	0.3578	5.024	6/16/2011	7/5/2011	
ARSI-B11-02481-20		L				0.03377778	180	0.03233333	180	0.3546	5.044	6/16/2011	7/5/2011	
ARSI-B11-02481-21		L				0.04627778	180	0.03233333	180	0.3523	5.029	6/16/2011	7/5/2011	
ARSI-B11-02481-22		L				0.02988889	180	0.03233333	180	0.3657	5.033	6/16/2011	7/5/2011	
ARSI-B11-02481-23		L				0.03105556	180	0.03233333	180	0.3507	5.048	6/23/2011	7/6/2011	

Batch Result Verification Report

BatchSampleID	SDG	Fraction	BP_MDA	Sp_Val	UCF	CF	GrossCountRate	BKGCountRate	NetCountRate	PlatingRecovery	InstFileName	DetectorID	InstrumentKey	NuclideAbd	TracerMeasACT
ARSI-B11-02481-01					2.22	1	14.81	5.82	8.99		76	P-50-S-2			
ARSI-B11-02481-02					2.22	1.96	15.86	5.82	10.04		76	P-50-S-3			
ARSI-B11-02481-03					2.22	1.96	5.76	5.82	-0.06		76	P-50-S-4			
ARSI-B11-02481-04	ARSI-11-01310	001			2.22	1	9.23	5.82	3.41		76	P-50-S-5			
ARSI-B11-02481-05	ARSI-11-01310	002			2.22	1	8.88	5.82	3.06		76	P-50-S-6			
ARSI-B11-02481-06	ARSI-11-01310	003			2.22	1	8.58	5.82	2.76		76	P-50-S-7			
ARSI-B11-02481-07	ARSI-11-01342	001			2.22	1	139.65	5.82	133.83		76	P-50-S-8			
ARSI-B11-02481-08	ARSI-11-01342	002			2.22	1	179.13	5.82	173.31		76	P-50-S-9			
ARSI-B11-02481-09	ARSI-11-01342	003			2.22	1	6.48	5.82	0.66		76	P-50-S-10			
ARSI-B11-02481-10	ARSI-11-01342	004			2.22	1	53.98	5.82	48.16		76	P-50-S-11			
ARSI-B11-02481-11	ARSI-11-01342	005			2.22	1	5.61	5.82	-0.21		76	P-50-S-12			
ARSI-B11-02481-12	ARSI-11-01342	006			2.22	1	6.02	5.82	0.2		76	P-50-S-13			
ARSI-B11-02481-13	ARSI-11-01342	007			2.22	1	60.28	5.82	54.46		76	P-50-S-14			
ARSI-B11-02481-14	ARSI-11-01342	008			2.22	1	44.06	5.82	38.24		76	P-50-S-15			
ARSI-B11-02481-15	ARSI-11-01342	009			2.22	1	201.15	5.82	195.33		76	P-50-S-16			
ARSI-B11-02481-16	ARSI-11-01342	010			2.22	1	201.43	5.82	195.61		76	P-50-S-17			
ARSI-B11-02481-17	ARSI-11-01342	011			2.22	1	31.19	5.82	25.37		76	P-50-S-18			
ARSI-B11-02481-18	ARSI-11-01343	001			2.22	1	6.58	5.82	0.74		76	P-50-S-19			
ARSI-B11-02481-19	ARSI-11-01343	002			2.22	1	12.81	5.82	6.99		76	P-50-S-20			
ARSI-B11-02481-20	ARSI-11-01343	003			2.22	1	6.08	5.82	0.26		76	P-50-S-21			
ARSI-B11-02481-21	ARSI-11-01343	004			2.22	1	8.33	5.82	2.51		76	P-50-S-22			
ARSI-B11-02481-22	ARSI-11-01343	005			2.22	1	5.38	5.82	-0.44		76	P-50-S-23			
ARSI-B11-02481-23	ARSI-11-01343	006			2.22	1	5.59	5.82	-0.23		76	P-50-S-24			

Batch Result Verification Report

BatchSampleID	SDG	Fraction	TracerKnownACT	TracerIsotope	TracerRefDate	TracerRefACT	TracerKnown	HalfLife1	HalfLife2	HalfLife3	TPUF_1	TPUF_2	TPUF_3	TPUF_4	TPUF_5	TPUF_6	DeltaT1	DeltaT2
ARSI-B11-02481-01								4499.8			0.04133	0.02	0	0.025	0	0	0	
ARSI-B11-02481-02								4499.8			0.04133	0.02	0	0.025	0	0	0	
ARSI-B11-02481-03								4499.8			0.04133	0.02	0	0.025	0	0	0	
ARSI-B11-02481-04	ARSI-11-01310	001						4499.8			0.04133	0.02	0	0.025	0	0	23.04305556	
ARSI-B11-02481-05	ARSI-11-01310	002						4499.8			0.04133	0.02	0	0.025	0	0	23.175	
ARSI-B11-02481-06	ARSI-11-01310	003						4499.8			0.04133	0.02	0	0.025	0	0	23.30625	
ARSI-B11-02481-07	ARSI-11-01342	001						4499.8			0.04133	0.02	0	0.025	0	0	18.4375	
ARSI-B11-02481-08	ARSI-11-01342	002						4499.8			0.04133	0.02	0	0.025	0	0	18.56944444	
ARSI-B11-02481-09	ARSI-11-01342	003						4499.8			0.04133	0.02	0	0.025	0	0	18.70069444	
ARSI-B11-02481-10	ARSI-11-01342	004						4499.8			0.04133	0.02	0	0.025	0	0	18.83194444	
ARSI-B11-02481-11	ARSI-11-01342	005						4499.8			0.04133	0.02	0	0.025	0	0	18.96388889	
ARSI-B11-02481-12	ARSI-11-01342	006						4499.8			0.04133	0.02	0	0.025	0	0	19.09513889	
ARSI-B11-02481-13	ARSI-11-01342	007						4499.8			0.04133	0.02	0	0.025	0	0	19.22708333	
ARSI-B11-02481-14	ARSI-11-01342	008						4499.8			0.04133	0.02	0	0.025	0	0	19.35833333	
ARSI-B11-02481-15	ARSI-11-01342	009						4499.8			0.04133	0.02	0	0.025	0	0	19.48958333	
ARSI-B11-02481-16	ARSI-11-01342	010						4499.8			0.04133	0.02	0	0.025	0	0	19.62152778	
ARSI-B11-02481-17	ARSI-11-01342	011						4499.8			0.04133	0.02	0	0.025	0	0	19.75277778	
ARSI-B11-02481-18	ARSI-11-01343	001						4499.8			0.04133	0.02	0	0.025	0	0	20.88402778	
ARSI-B11-02481-19	ARSI-11-01343	002						4499.8			0.04133	0.02	0	0.025	0	0	19.01597222	
ARSI-B11-02481-20	ARSI-11-01343	003						4499.8			0.04133	0.02	0	0.025	0	0	19.14722222	
ARSI-B11-02481-21	ARSI-11-01343	004						4499.8			0.04133	0.02	0	0.025	0	0	19.27916667	
ARSI-B11-02481-22	ARSI-11-01343	005						4499.8			0.04133	0.02	0	0.025	0	0	19.41041667	
ARSI-B11-02481-23	ARSI-11-01343	006						4499.8			0.04133	0.02	0	0.025	0	0	12.54097222	

Batch Result Verification Report

BatchSampleID	SDG	Fraction	Delta3	Delta4	Delta5	Delta6	DF1	DF2	DF3	IF1	IF2	SysErr	K_Val	K_MDA	AnalysisCode	UserID	ModDate
ARS1-B11-02481-01							1					0.052279718	0.004152174	0.74739138		BSTEFFENS	7/6/2011
ARS1-B11-02481-02							1					0.052279718	0.004206973	0.757255067		BSTEFFENS	7/6/2011
ARS1-B11-02481-03												0.052279718	0.004162723	0.74929016		BSTEFFENS	7/6/2011
ARS1-B11-02481-04							0.99645675					0.052279718	0.003999029	0.719825143	LSC-A-001	BSTEFFENS	7/6/2011
ARS1-B11-02481-05							0.996436498					0.052279718	0.003985634	0.71741405	LSC-A-001	BSTEFFENS	7/6/2011
ARS1-B11-02481-06							0.996416353					0.052279718	0.003993755	0.718875873	LSC-A-001	BSTEFFENS	7/6/2011
ARS1-B11-02481-07							0.997163925					0.052279718	0.004086023	0.735484145	LSC-A-001	BSTEFFENS	7/6/2011
ARS1-B11-02481-08							0.997143658					0.052279718	0.004133626	0.744052752	LSC-A-001	BSTEFFENS	7/6/2011
ARS1-B11-02481-09							0.997123499					0.052279718	0.004102015	0.738362738	LSC-A-001	BSTEFFENS	7/6/2011
ARS1-B11-02481-10							0.997103339					0.052279718	0.004083341	0.735001451	LSC-A-001	BSTEFFENS	7/6/2011
ARS1-B11-02481-11							0.997083074					0.052279718	0.004042841	0.727711419	LSC-A-001	BSTEFFENS	7/6/2011
ARS1-B11-02481-12							0.997062915					0.052279718	0.004074518	0.733413248	LSC-A-001	BSTEFFENS	7/6/2011
ARS1-B11-02481-13							0.99704265					0.052279718	0.004051481	0.729266655	LSC-A-001	BSTEFFENS	7/6/2011
ARS1-B11-02481-14							0.997022493					0.052279718	0.004062448	0.731240625	LSC-A-001	BSTEFFENS	7/6/2011
ARS1-B11-02481-15							0.997002335					0.052279718	0.004073405	0.733212912	LSC-A-001	BSTEFFENS	7/6/2011
ARS1-B11-02481-16							0.996982072					0.052279718	0.004030459	0.725482551	LSC-A-001	BSTEFFENS	7/6/2011
ARS1-B11-02481-17							0.996961915					0.052279718	0.004008549	0.721538762	LSC-A-001	BSTEFFENS	7/6/2011
ARS1-B11-02481-18							0.996788203					0.052279718	0.003982173	0.716791174	LSC-A-001	BSTEFFENS	7/6/2011
ARS1-B11-02481-19							0.997075074					0.052279718	0.003978971	0.716214825	LSC-A-001	BSTEFFENS	7/6/2011
ARS1-B11-02481-20							0.997054916					0.052279718	0.003959003	0.712620592	LSC-A-001	BSTEFFENS	7/6/2011
ARS1-B11-02481-21							0.997034651					0.052279718	0.003921548	0.705878592	LSC-A-001	BSTEFFENS	7/6/2011
ARS1-B11-02481-22							0.997014494					0.052279718	0.004073862	0.7332952	LSC-A-001	BSTEFFENS	7/6/2011
ARS1-B11-02481-23							0.998070059					0.052279718	0.003922556	0.706060018	LSC-A-001	BSTEFFENS	7/6/2011

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\20110703_0022

Raw Results Path: C:\Packard\Tricarb\Results\ARS\H-3 Normal Lvl 3\20110703_0022\H-3 Results.results

RTF File Name: C:\Packard\Tricarb\Results\ARS\H-3 Normal Lvl 3\20110703_0022\H-3 Results.rtf

Comma-Delimited File Name: C:\Packard\Tricarb\Results\ARS\H-3 Normal Lvl 3\20110703_0022\H-3 Results.csv

Assay File Name: C:\Packard\Tricarb\Assays\H-3 Normal Lvl 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): 180.00

Count Mode: Normal

Assay Count Cycles: 1

#Vials/Sample: 1

Repeat Sample Count: 1

Calculate & Reference: Off

Background Subtract: Off

Low CPM Threshold: Off

2 Sigma & Terminator: On - Any Region

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

Count Corrections-

Static Controller: On

Colored Samples: Off

Coincidence Time (nsec): 18

Luminescence Correction: Off

Heterogeneity Monitor: Off

Delay Before Burst (nsec): 75

Half Life-

Half Life Correction: Off

Regions

Half Life

Units

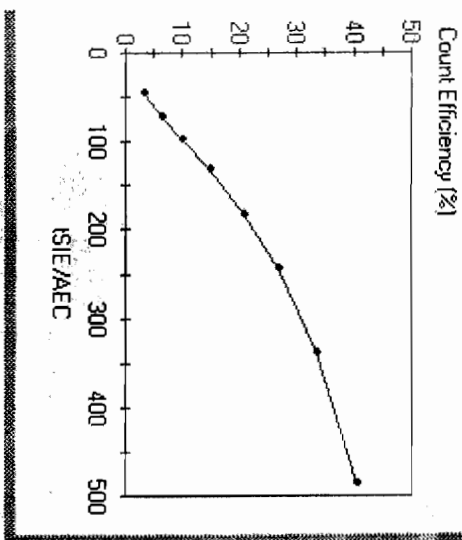
Reference Date

Reference Time

A
 B
 C

Cycle 1 Results
 Quench Curve Block Data

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	DPML	tSIE	Eff	Nucl	In A	Count	Time	DATE	TIME	MESSAGES
50	1	BACKGROUN	5.82	15.91	405.05			36.57	180.00		7/3/2011	12:27:51 AM	
50	2	B11-02481-01	14.81	40.29	409.02			36.76	180.00		7/3/2011	3:35:13 AM	
50	3	B11-02481-02	15.86	42.43	422.26			37.37	180.00		7/3/2011	6:44:08 AM	
50	4	B11-02481-03	5.76	15.54	415.46			37.05	180.00		7/3/2011	9:53:13 AM	
50	5	B11-02481-04	9.23	25.75	389.23			35.84	180.00		7/3/2011	1:02:13 PM	
50	6	B11-02481-05	8.88	24.92	385.19			35.65	180.00		7/3/2011	4:11:35 PM	
50	7	B11-02481-06	8.58	23.98	388.11			35.78	180.00		7/3/2011	7:20:58 PM	
50	8	B11-02481-07	139.65	381.20	406.43			36.63	180.00		7/3/2011	10:30:19 PM	
50	9	B11-02481-08	179.13	485.98	411.26			36.86	180.00		7/4/2011	1:39:41 AM	
50	10	B11-02481-09	6.48	17.73	404.71			36.55	180.00		7/4/2011	4:49:02 AM	
50	11	B11-02481-10	53.98	148.43	400.68			36.37	180.00		7/4/2011	7:58:22 AM	
50	12	B11-02481-11	5.61	15.58	393.00			36.01	180.00		7/4/2011	11:07:42 AM	
50	13	B11-02481-12	6.02	16.60	398.16			36.25	180.00		7/4/2011	2:17:09 PM	
50	14	B11-02481-13	60.28	166.25	398.39			36.26	180.00		7/4/2011	5:26:30 PM	
50	15	B11-02481-14	44.06	120.85	402.58			36.46	180.00		7/4/2011	8:35:52 PM	
50	16	B11-02481-15	201.15	552.64	401.32			36.40	180.00		7/4/2011	11:45:14 PM	
50	17	B11-02481-16	201.43	557.10	396.14			36.16	180.00		7/5/2011	2:54:36 AM	
50	18	B11-02481-17	31.19	86.86	390.72			35.90	180.00		7/5/2011	6:04:02 AM	
50	19	B11-02481-18	6.56	18.39	385.73			35.67	180.00		7/5/2011	9:13:22 AM	
50	20	B11-02481-19	12.81	35.81	387.98			35.78	180.00		7/5/2011	12:22:49 PM	
50	21	B11-02481-20	6.08	17.16	381.23			35.46	180.00		7/5/2011	3:32:15 PM	
50	22	B11-02481-21	8.33	23.65	376.30			35.23	180.00		7/5/2011	6:41:36 PM	
50	23	B11-02481-22	5.38	14.70	404.97			36.57	180.00		7/5/2011	9:50:59 PM	
50	24	B11-02481-23	5.59	15.93	372.68			35.07	180.00		7/6/2011	12:58:31 AM	

Beta Liquid Scintillation Counter Log Book

Date	Time	ARS Sample I.D. Number	Batch Number	Liquid Scintillation File Number	Technician Initials
6-29-11	1321	B11-02472-12	B11-02472	1413	JDR
↓	↓	B11-02472-13	↓	↓	JDR
↓	↓	B11-02472-14	↓	↓	JDR
↓	↓	B11-02472-15	↓	↓	JDR
↓	↓	B11-02472-16	↓	↓	JDR
↓	↓	B11-02472-17	↓	↓	JDR
↓	↓	B11-02472-18	↓	↓	JDR
↓	↓	B11-02472-19	↓	↓	JDR
↓	↓	B11-02472-20	↓	↓	JDR
↓	↓	B11-02472-21	↓	↓	JDR
↓	↓	B11-02472-22	↓	↓	JDR
↓	↓	B11-02472-23	↓	↓	JDR
7-1-11	1156	Background	UK Fe-55	1226	JDR
↓	↓	LCS	↓	↓	JDR
↓	↓	LCSD	↓	↓	JDR
↓	↓	MBL	↓	↓	JDR
↓	↓	11-01338-001	↓	↓	JDR
↓	↓	11-01338-002	↓	↓	JDR
↓	↓	Yield Spk	↓	↓	JDR
7-1-11	1508	SNC 117	QA	QA	JDR

Beta Liquid Scintillation Counter Log Book

Date	Time	ARS Sample I.D. Number	Batch Number	Liquid Scintillation File Number	Technician Initials
7-1-11	1508	Background	B11-02481	0022	
L	L	B11-02481-01	L	L	
L	L	B11-02481-02	L	L	
L	L	B11-02481-03	L	L	
L	L	B11-02481-04	L	L	
L	L	B11-02481-05	L	L	
L	L	B11-02481-06	L	L	
L	L	B11-02481-07	L	L	
L	L	B11-02481-09	L	L	
L	L	B11-02481-10	L	L	
L	L	B11-02481-11	L	L	
L	L	B11-02481-12	L	L	
L	L	B11-02481-13	L	L	
L	L	B11-02481-14	L	L	
L	L	B11-02481-15	L	L	
L	L	B11-02481-16	L	L	
L	L	B11-02481-17	L	L	
L	L	B11-02481-18	L	L	
L	L	B11-02481-19	L	L	
L	L	B11-02481-20	L	L	

Beta Liquid Scintillation Counter Log Book

[illegible]



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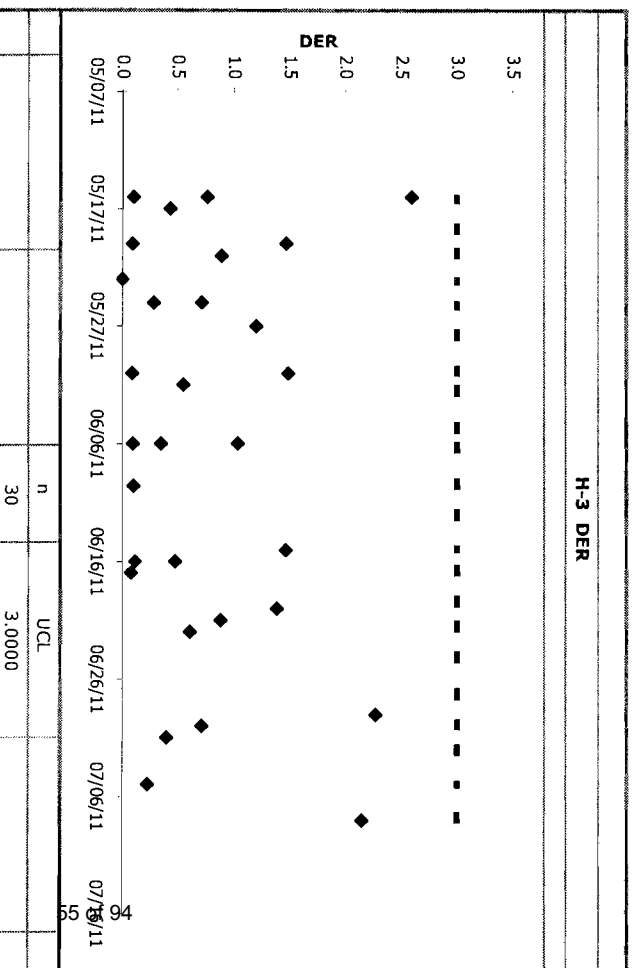
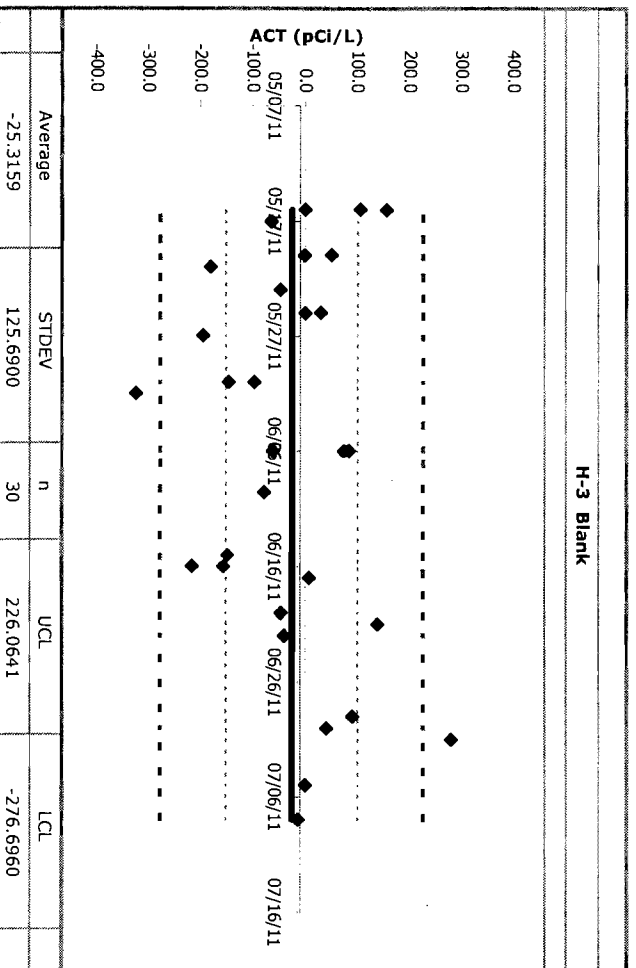
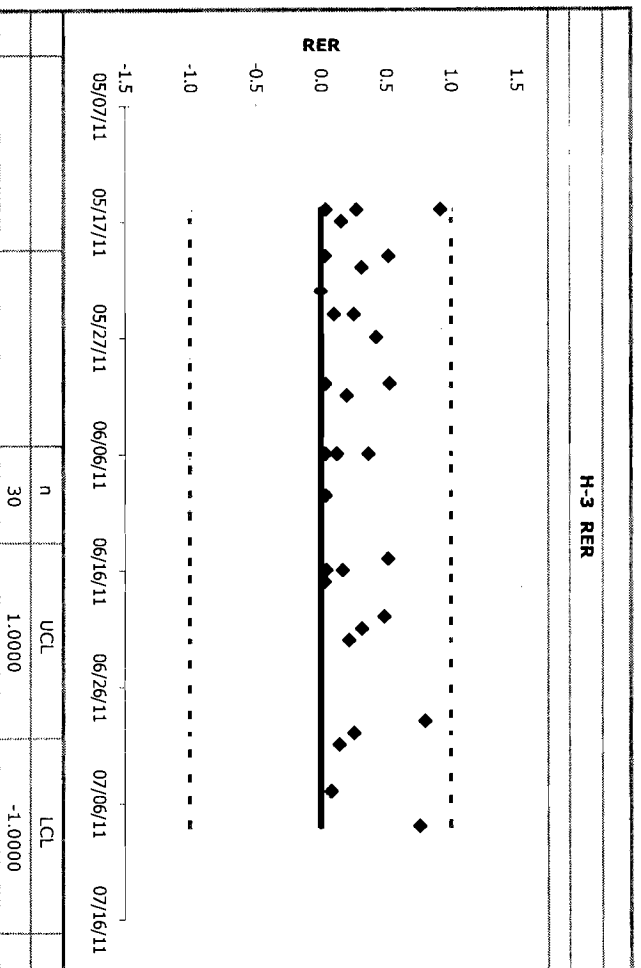
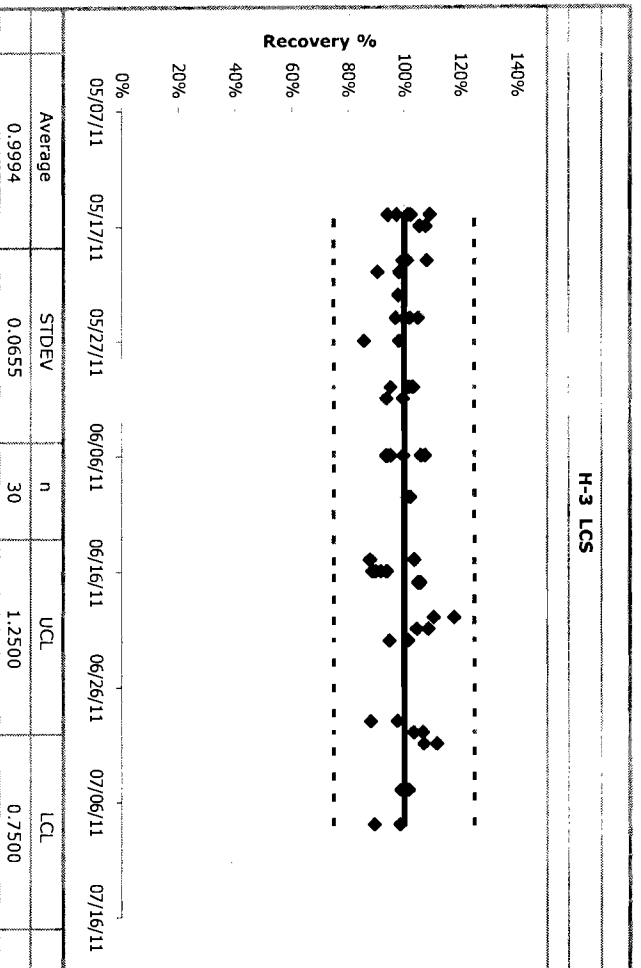
**American Radiation Services
Analytical Reports**

for

Los Alamos National Laboratory

**Tritium
by
Low Level Liquid
Scintillation Counting
Control Charts**

QC Chart

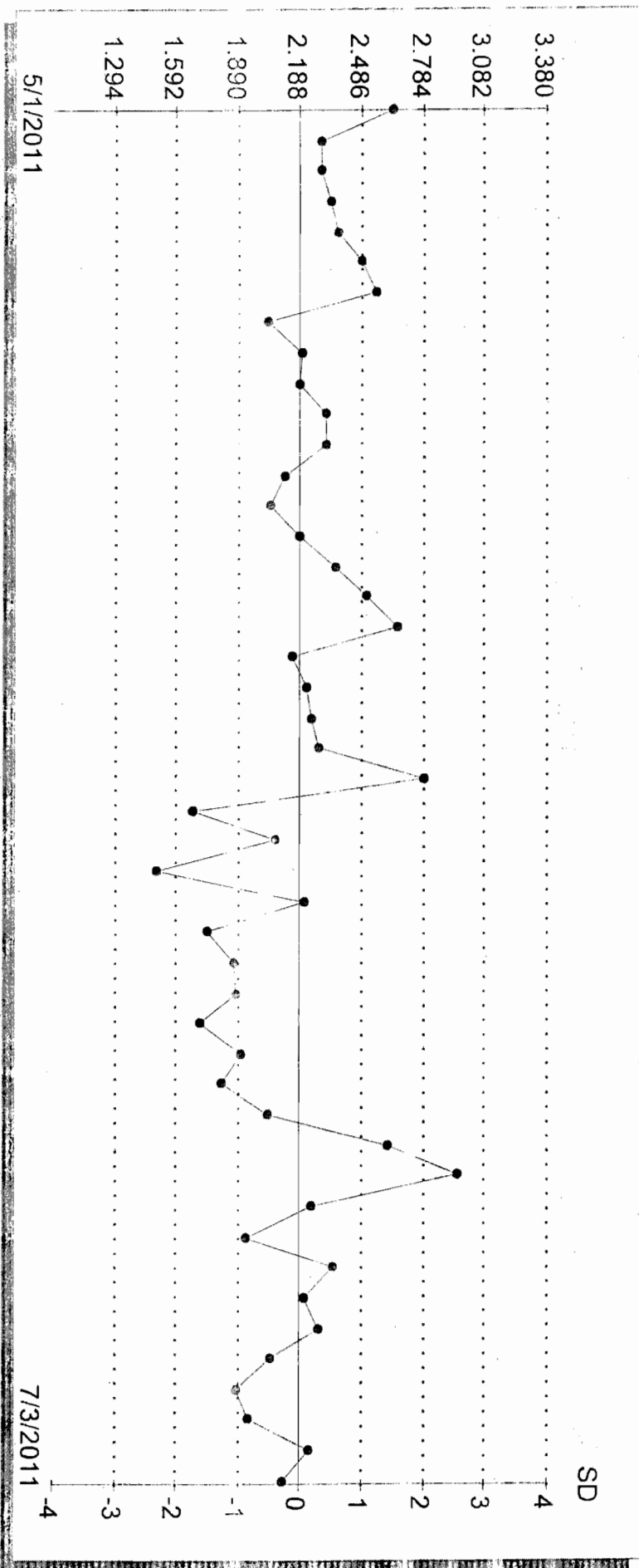


3H Background

Total # pts : 1592
Valid # pts : 46
Mean : 2.19
SD : 0.30

Date	Value	Valid Pt
May 01, 2011	2.64	X
May 01, 2011	2.29	X
May 01, 2011	2.29	X
May 01, 2011	2.34	X
May 01, 2011	2.37	X
May 01, 2011	2.49	X
May 01, 2011	2.55	X
May 01, 2011	2.04	X
May 01, 2011	2.19	X
May 01, 2011	2.19	X
May 01, 2011	2.31	X
May 01, 2011	2.32	X
May 01, 2011	2.12	X
May 01, 2011	2.05	X
May 02, 2011	2.18	X
May 02, 2011	2.36	X
May 02, 2011	2.51	X
May 02, 2011	2.67	X
May 02, 2011	2.15	X
May 02, 2011	2.22	X
May 09, 2011	2.24	X
May 16, 2011	2.27	X
May 21, 2011	2.79	X
Jun 02, 2011	1.67	X
Jun 02, 2011	2.07	X
Jun 02, 2011	1.50	X
Jun 02, 2011	2.21	X
Jun 02, 2011	1.74	X
Jun 03, 2011	1.87	X
Jun 03, 2011	1.88	X
Jun 03, 2011	1.70	X
Jun 03, 2011	1.91	X
Jun 03, 2011	1.81	X
Jun 03, 2011	2.03	X
Jun 06, 2011	2.62	X
Jun 09, 2011	2.95	X
Jun 13, 2011	2.24	X
Jun 15, 2011	1.93	X
Jun 16, 2011	2.35	X
Jun 21, 2011	2.21	X
Jun 24, 2011	2.28	X
Jun 28, 2011	2.04	X
Jun 29, 2011	1.89	X
Jun 29, 2011	1.94	X
Jun 29, 2011	2.23	X
Jul 03, 2011	2.10	X

3H Background
 Total # pts : 1592
 Valid # pts : 46
 Mean : 2.19
 SD : 0.30



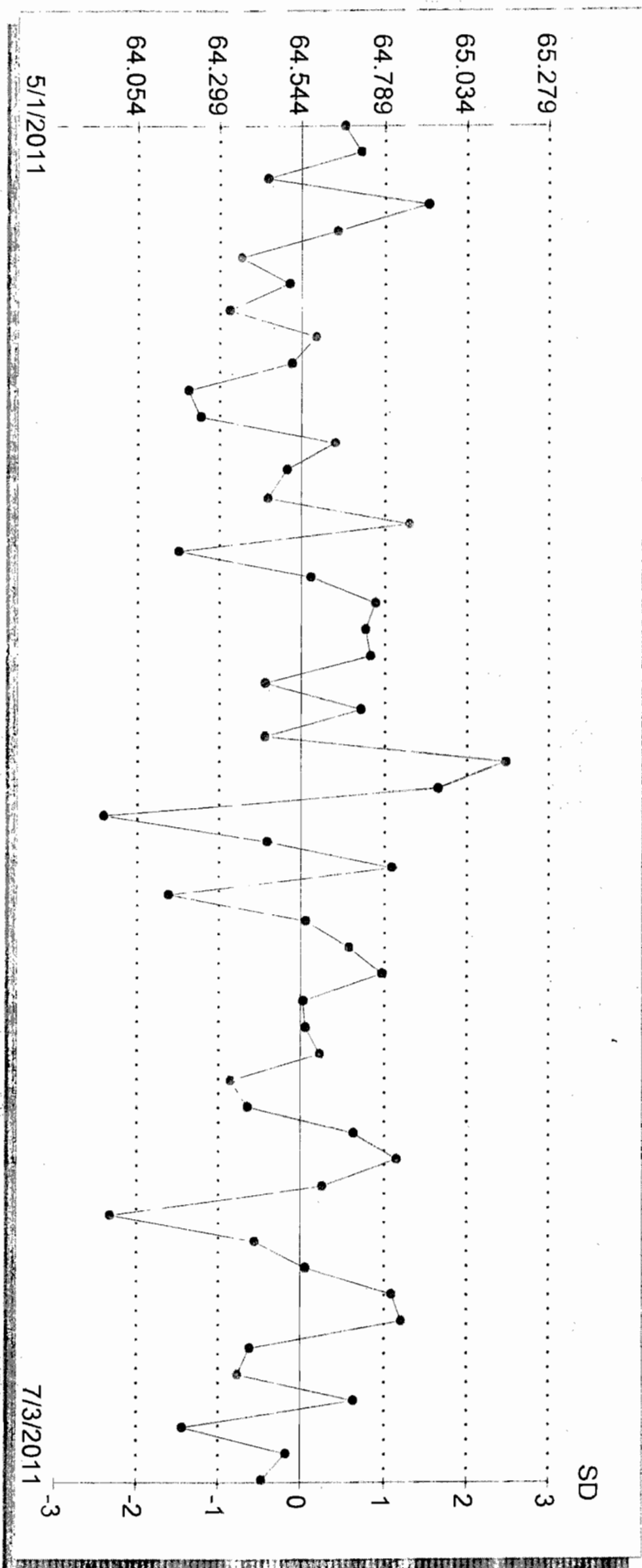
3H Efficiency

Total # pts : 1636
Valid # pts : 52
Mean : 64.54
SD : 0.24

Date	Value	Valid Pt
May 01, 2011	64.67	X
May 01, 2011	64.72	X
May 01, 2011	64.44	X
May 01, 2011	64.92	X
May 01, 2011	64.65	X
May 01, 2011	64.36	X
May 01, 2011	64.50	X
May 01, 2011	64.32	X
May 01, 2011	64.58	X
May 01, 2011	64.51	X
May 01, 2011	64.20	X
May 01, 2011	64.24	X
May 01, 2011	64.64	X
May 01, 2011	64.50	X
May 02, 2011	64.44	X
May 02, 2011	64.86	X
May 02, 2011	64.17	X
May 02, 2011	64.57	X
May 02, 2011	64.76	X
May 02, 2011	64.73	X
May 02, 2011	64.75	X
May 09, 2011	64.44	X
May 16, 2011	64.72	X
May 21, 2011	64.43	X
May 26, 2011	65.15	X
Jun 02, 2011	64.95	X
Jun 02, 2011	63.95	X
Jun 02, 2011	64.44	X
Jun 02, 2011	64.81	X
Jun 02, 2011	64.15	X
Jun 02, 2011	64.56	X
Jun 02, 2011	64.68	X
Jun 02, 2011	64.78	X
Jun 03, 2011	64.55	X
Jun 03, 2011	64.60	X
Jun 03, 2011	64.33	X
Jun 03, 2011	64.39	X
Jun 03, 2011	64.70	X
Jun 03, 2011	64.83	X
Jun 06, 2011	64.60	X
Jun 09, 2011	63.97	X
Jun 13, 2011	64.40	X
Jun 15, 2011	64.56	X
Jun 16, 2011	64.81	X
Jun 21, 2011	64.84	X
Jun 24, 2011	64.70	X

Jun 28, 2011	64.35	X
Jun 29, 2011	64.70	X
Jun 29, 2011	64.19	X
Jun 29, 2011	64.50	X
Jul 03, 2011	64.43	X

3H Efficiency : 1636
 Total # pts : 52
 Valid # pts : 64.54
 Mean : 0.24
 SD





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**American Radiation Services
Analytical Reports**

for

Los Alamos National Laboratory

**Low Level Liquid
Scintillation Counting**

**Calibration
Information**

STD ID: S-0247

ARS INTERNATIONAL		Add/Edit Secondary Stds		Parent Standard Data			
Planning		Parent Solution Reference #		NIST SRM 4927F			
Planning Comments		Create an H-3 LCS standard		Parent Solution #		S-0237	
Target dpm/g (on dil. date)		5.56		Parent Principal Radionuclide		H-3	
Target Final volume mL		2000		Parent Reference Date		03/22/2010 10:10	
Appx mass g of Parent Sol'n		3.274623294		Parent Certified Act		3503.682716	
Appx vol mL of Parent Sol'n		3.280528244		Parent Cert Act Uncert 1 Sigma		0.0036	
Expected Addition for Analysis g		5		Parent Sp. Gravity G/Ml		0.9982	
Standards Preparation / Dilution		Parent Supplier		NIST SRM 4927F			
Secondary Solution #		S-0247		Parent Date Recvd		01/02/00	
Dilution Date (New Ref Date)		10/11/2010 10:30		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)		1.7		Certified dpm/g on 10/11/2010 10:30		3395.81045	
Container Plus Solution (g)		4.994		Parent Comments		Intermediate level H-3 standard for creating LCS solutions and matrix spikes. Dilution performed as stated above by B Steffens. -BJS 3/22/10	
Net Wt Transferred (g)		3.294					
DPM Xferred on 10/11/2010 10:30		11185.79962					
Diluent/matrix		DI 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)		473.96		Is_Calib		FALSE	
Dilution Full Cont g (if measured)		2467.85					
Dilution Final Volume mL (if measured)		2000					
Final Dilution Density (g/mL)		0.996945					
Final Dilution Measured Mass g		1993.89					
Comments		Stock H-3 LCS standard. Dilution performed as stated above by B Steffens. -BJS 10/11/10					
Final Dilution dpm/g		5.610038479					
Final Dil New Ref Date/Time		10/11/2010 10:30					

S-0247



H-3

Verified 10/13/10

SL

Expires 10/13/11

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 **10/13/2010 20:18** date counted
 STANDARD REFERENCE # **S-0247**

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 **10/11/2010 10:30**Dilution Activity **2.53** pCi per gram ==> dpm/g **5.61**Verif. Date Decay Corrected **2.53** pCi per gram ==> dpm/g **5.61**

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-0247-V1	16.99	1	LSC	0.3440	6.86	5.017	5.87	2.64
S-0247-V2	16.76	1	LSC	0.3484	6.86	4.979	5.70	2.57
S-0247-V3	16.97	1	LSC	0.3465	6.86	4.972	5.87	2.64
S-0247-V4	16.76	1	LSC	0.3449	6.86	4.982	5.76	2.60
S-0247-V5	16.88	1	LSC	0.3433	6.86	4.980	5.86	2.64

					Average	5.81	2.62
					Two Sigma Uncertainty	0.15	0.07
10% Max	PASS			Standard Deviation percent of known concentration		1.35%	1.35%
				Target Activity		5.61	2.53
				% Diff		3.66%	3.66%

Verification Expiration Date: **October 13, 2011**

Prepared & Counted By

Date: **10/13/2010 20:18**

Verified & Approved By

Date: **10-14-10/12:24**

QC Approval

Date: **10-14-10/12:30**

STD ID: S-0031

ARS INTERNATIONAL		Add/Edit Secondary Stds	Parent Standard Data			
Planning		Parent Solution Reference #	NIST SRM 4927F			
Planning Comments	Dilute intermediate level solution from SRM 4927F	Parent Solution #	S-0107			
Target dpm/g (on dil. date)	267000	Parent Principal Radionuclide	H-3	Half Life (Days)	4499.8000000	
Target Final volume mL	200	Parent Reference Date	09/03/1998 11:00			
Appx mass g of Parent Sol'n	2.093763934	Parent Certified Act	38082000	Cert Act/Vol Units	dpm	g
Appx vol mL of Parent Sol'n	2.097539505	Parent Cert Act Uncert 1 Sigma	0.0036			
Expected Addition for Analysis g		Parent Sp. Gravity G/Ml	0.9982			
Standards Preparation / Dilution		Parent Supplier	NIST SRM 4927F			
Secondary Solution #	S-0031	Parent Date Recvd	01/02/00			
Dilution Date (New Ref Date)	10/19/2005 00:00	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	38082000			
Transfer Container, empty (g)	0	Certified dpm/g on 10/18/2005 00:00	25504307.89			
Container Plus Solution (g)	4.7574	Parent Comments	Primary for S-0029 - Information entered from dilution records - 4/18/2006 RTS			
Net Wt Transferred (g)	4.7574					
DPM Xferred on 10/19/2005 00:00	121334194.3					
Diluent/matrix	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)	1	Is_Calib	FALSE			
Dilution Full Cont g (if measured)	200.64					
Dilution Final Volume mL (if measured)	200					
Final Dilution Density (g/mL)	0.9982					
Final Dilution Measured Mass g	199.64					
Comments	S-0031 Intermediate dilution - Information entered from dilution records - 4/19/2006 RTS					
Final Dilution dpm/g	607764.9486					
Final Dil New Ref Date/Time	10/19/2005 00:00					



Add / Edit *Primary* Standards

Solution Reference #	NIST SRM 4927F		
Solution #	S-0107		
Principal Radionuclide	H-3	Half Life (Days)	4499.8000
Reference Date	09/03/98 11:00		
Certified Act	634700.0000	Cert. Act/Vol Units	Bq g
Cert Act Uncert 1 Sigma (fractional .03=3%)	0.0036		
Sp. Gravity G/MI	0.9982		
Supplier	NIST SRM 4927F		
Date Recvd	01/02/00		
Received By	Unknown		
Cert Exp Date			
Matrix	H2O		
Certified dpm/g At Reference Date	38082000		
Certified dpm/g On 10/15/2010 15:48	19261068.03		
Comments	Primary for S-0029 - Information entered from dilution records - 4/18/2006 RTS		
Primary Tech	Unknown		
Is_Primary	TRUE		
Is_LCS	TRUE		
Is_Tracer	FALSE		
Is_Calib	FALSE		

5-0031



National Institute of Standards & Technology

Certificate

Standard Reference Material 4927F Hydrogen-3 Radioactivity Standard

This Standard Reference Material (SRM) consists of radioactive hydrogen-3, as water, in 5 mL of distilled water. The solution is contained in a flame-sealed NIST borosilicate-glass ampoule. The SRM is intended for the calibration of beta-particle counting instruments and for the monitoring of radiochemical procedures.

Radiological Hazard

The SRM ampoule contains hydrogen-3 with a total activity of approximately 3.2 MBq. Hydrogen-3 decays by beta-particle emission. None of the beta particles escape from the SRM ampoule. During the decay process no photons are emitted. Approximate unshielded dose rates at several distances (as of the reference time) are given in note [a]*. There is no detectable external radiation. The SRM should be used only by persons qualified to handle radioactive material.

Chemical Hazard

The SRM ampoule contains only distilled water. There is no chemical hazard. If the ampoule is to be opened to transfer the solution, the recommended procedure is given on page 2.

Storage and Handling

The SRM should be stored and used at a temperature between 5 and 65°C. The solution in an unopened ampoule should remain stable and homogeneous until at least September 2008.

The ampoule (or any subsequent container) should always be clearly marked as containing radioactive material. If the ampoule is transported it should be packed, marked, labeled, and shipped in accordance with the applicable national, international, and carrier regulations. The solution in the ampoule is a dangerous good (hazardous material) because of the radioactivity.

Preparation

This Standard Reference Material was prepared in the Physics Laboratory, Ionizing Radiation Division, Radioactivity Group, L.R. Karam, Group Leader. The overall technical direction and physical measurements leading to certification were provided by L.L. Lucas and M.P. Unterwiesing 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 by J.W.L. Thomas.

Bert M. Coursey, Chief
Ionizing Radiation Division

Gaithersburg, Maryland 20899
June 1999
Half-life and text revised October 2000

Nancy M. Trahey, Chief
Standard Reference Materials Program

PROPERTIES OF SRM 4927F

Certified values

Solution density	$(0.998 \pm 0.002) \text{ g} \cdot \text{mL}^{-1}$ at 20.0 °C [b]*
Radionuclide	Hydrogen-3
Reference time	1200 EST, 3 September 1998 1100 CST
Massic activity of the solution [c]	$634.7 \text{ kBq} \cdot \text{g}^{-1}$
Relative expanded uncertainty ($k=2$)	0.72% [d] [e]

Uncertified values

Physical Properties:			
Source description	Liquid in flame-sealed NIST borosilicate-glass ampoule		
Ampoule specifications	Body outside diameter	(16.5 ± 0.5) mm	
	Wall Thickness	(0.60 ± 0.04) mm	
	Barium content	Less than 2.5%	
	Lead-oxide content	Less than 0.02%	
	Other heavy elements	Trace quantities.	
Solution mass	Approximately 5.0 g		
Chemical Properties:			
Solution composition	Chemical Formula	Concentration (mol·L ⁻¹)	Mass Fraction (g·g ⁻¹)
	H ₂ O ³ HHO	55 6 × 10 ⁻⁷	1.00 1 × 10 ⁻³
Radiological Properties:			
Radionuclidic impurities	None detected [f]		
Half lives used	Hydrogen-3: (4500 ± 8) d [g]		
Calibration method and measuring instrument(s)	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 counting systems [h]		

NOTES

- [a] The Sievert is the SI unit for dose equivalent. See reference [1]. One μSv is equal to 0.1 mrem.
 Distance from Ampoule (cm): 1 30 100
 Approximate Dose Rate ($\mu\text{Sv/h}$): <0.1 (Not detectable)
- [b] The stated uncertainty is two times the standard uncertainty.
- [c] Massic activity is the preferred name for the quantity activity divided by the total mass of the sample. See reference [1].
- [d] The reported value, y , of massic activity (activity per unit mass) at the reference time was not measured directly but was derived from measurements and calculations of other quantities. This can be expressed as $y = f(x_1, x_2, x_3, \dots, x_n)$, where f is a mathematical function derived from the assumed model of the measurement process.
- The value, x_i , used for each input quantity i has a standard uncertainty, $u(x_i)$, that generates a corresponding uncertainty in y , $u_i(y) = |\partial y / \partial x_i| \cdot u(x_i)$, called a component of combined standard uncertainty of y .
- The combined standard uncertainty of y , $u_c(y)$, is the positive square root of the sum of the squares of the components of combined standard uncertainty.
- The combined standard uncertainty is multiplied by a coverage factor of $k = 2$ to obtain U , the expanded uncertainty of y .
- Since it can be assumed that the possible estimated values of the massic activity are approximately normally distributed with approximate standard deviation $u_c(y)$, the unknown value of the massic activity is believed to lie in the interval $\pm U$ with a level of confidence of approximately 95 percent.
- For further information on the expression of uncertainties, see references [2] and [3].
- [e] The value of each standard uncertainty component, and hence the value of the expanded uncertainty itself, is a best estimate based upon all available information, but is only approximately known. That is to say, the "uncertainty of the uncertainty" is large and not well known. This is true for uncertainties evaluated by statistical methods (e.g., the relative standard deviation of the standard deviation of the mean for the massic response is approximately 50%) and for uncertainties evaluated by other methods (which could easily be over estimated or under estimated by substantial amounts). The unknown value of the expanded uncertainty is believed to lie in the interval $U/2$ to $2U$ (i.e., within a factor of 2 of the estimated value).
- [f] The estimated limit of detection for radionuclides is $500 \text{ Bq} \cdot \text{g}^{-1}$.
- [g] The stated uncertainty is the standard uncertainty. See reference [5].
- [h] 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 solution using liquid-scintillation counting.
- [i] Relative standard uncertainty of the input quantity x_i .



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American Radiation Services Analytical Reports

for

Los Alamos National Laboratory

Percent Moisture



2609 North River Road, Port Allen, Louisiana 70767

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

ARS Sample Delivery Group: ARS1-11-01342

Client Sample ID: MD21-11-14527

Sample Collection Date: 06/15/11

Sample Matrix: Silica

Request or PO Number: 11-2668

ARS Sample ID: ARS1-11-01342-001

Date Received: 06/17/11

Report Date: 07/11/11

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	12.080	NA	NA	NA		%	Percent Moisture	07/03/11 22:30	BS	NA

NOTES: Project Cost Code MR8R032NFM00

SDH

Project Manager Review

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ARS Sample Delivery Group: ARS1-11-01342
Client Sample ID: MD21-11-14524
Sample Collection Date: 06/15/11
Sample Matrix: Silica

Request or PO Number: 11-2668
ARS Sample ID: ARS1-11-01342-002
Date Received: 06/17/11
Report Date: 07/11/11

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	13.880	NA	NA	NA		%	Percent Moisture	07/04/11 01:40	BS	NA

NOTES: Project Cost Code MR8R032NFM00

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Project Manager Review

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ARS Sample Delivery Group: ARS1-11-01342

Client Sample ID: MD21-11-14531

Sample Collection Date: 06/15/11

Sample Matrix: Silica

Request or PO Number: 11-2668

ARS Sample ID: ARS1-11-01342-003

Date Received: 06/17/11

Report Date: 07/11/11

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	12.724	NA	NA	NA	U	%	Percent Moisture	07/04/11 04:49	BS	NA

NOTES: Project Cost Code MR8R032NFM00

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ARS Sample Delivery Group: ARS1-11-01342
Client Sample ID: MD21-11-14525
Sample Collection Date: 06/15/11
Sample Matrix: Silica

Request or PO Number: 11-2668
ARS Sample ID: ARS1-11-01342-004
Date Received: 06/17/11
Report Date: 07/11/11

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	14.430	NA	NA	NA		%	Percent Moisture	07/04/11 07:58	BS	NA
NOTES: Project Cost Code MR8R032NFM00										

SOL

Project Manager Review

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ARS Sample Delivery Group: ARS1-11-01342

Client Sample ID: MD21-11-14534

Sample Collection Date: 06/15/11

Sample Matrix: Silica

Request or PO Number: 11-2668

ARS Sample ID: ARS1-11-01342-005

Date Received: 06/17/11

Report Date: 07/11/11

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	4.790	NA	NA	NA	U	%	Percent Moisture	07/04/11 11:08	BS	NA
NOTES: Project Cost Code MR8R032NFM00										

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ARS Sample Delivery Group: ARS1-11-01342

Client Sample ID: MD21-11-14532

Sample Collection Date: 06/15/11

Sample Matrix: Silica

Request or PO Number: 11-2668

ARS Sample ID: ARS1-11-01342-006

Date Received: 06/17/11

Report Date: 07/11/11

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	12.389	NA	NA	NA	U	%	Percent Moisture	07/04/11 14:17	BS	NA

NOTES: Project Cost Code MR8R032NFM00

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ARS Sample Delivery Group: ARS1-11-01342
Client Sample ID: MD21-11-14526
Sample Collection Date: 06/15/11
Sample Matrix: Silica

Request or PO Number: 11-2668
ARS Sample ID: ARS1-11-01342-007
Date Received: 06/17/11
Report Date: 07/11/11

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	13.116	NA	NA	NA		%	Percent Moisture	07/04/11 17:27	BS	NA
NOTES: Project Cost Code MR8R032NFM00										

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ARS Sample Delivery Group: ARS1-11-01342
Client Sample ID: MD21-11-14529
Sample Collection Date: 06/15/11
Sample Matrix: Silica

Request or PO Number: 11-2668
ARS Sample ID: ARS1-11-01342-008
Date Received: 06/17/11
Report Date: 07/11/11

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	14.556	NA	NA	NA		%	Percent Moisture	07/04/11 20:36	BS	NA

NOTES: Project Cost Code MR8R032NFM00

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ARS Sample Delivery Group: ARS1-11-01342

Client Sample ID: MD21-11-14533

Sample Collection Date: 06/15/11

Sample Matrix: Silica

Request or PO Number: 11-2668

ARS Sample ID: ARS1-11-01342-009

Date Received: 06/17/11

Report Date: 07/11/11

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	13.007	NA	NA	NA		%	Percent Moisture	07/04/11 23:45	BS	NA

NOTES: Project Cost Code MR8R032NFM00

SOL

Project Manager Review

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ARS Sample Delivery Group: ARS1-11-01342

Client Sample ID: MD21-11-14528

Sample Collection Date: 06/15/11

Sample Matrix: Silica

Request or PO Number: 11-2668

ARS Sample ID: ARS1-11-01342-010

Date Received: 06/17/11

Report Date: 07/11/11

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	12.154	NA	NA	NA		%	Percent Moisture	07/05/11 02:55	BS	NA

NOTES: Project Cost Code MR8R032NFM00

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ARS Sample Delivery Group: ARS1-11-01342
Client Sample ID: MD21-11-14530
Sample Collection Date: 06/15/11
Sample Matrix: Silica

Request or PO Number: 11-2668
ARS Sample ID: ARS1-11-01342-011
Date Received: 06/17/11
Report Date: 07/11/11

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	10.874	NA	NA	NA		%	Percent Moisture	07/05/11 06:04	BS	NA

NOTES: Project Cost Code MR8R032NFM00

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Analytical Reports
for
Los Alamos National Laboratory**

**Percent Moisture
Laboratory
Records**

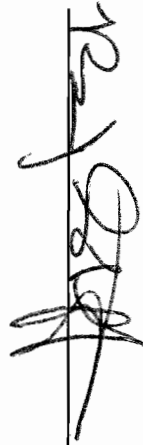
AMERICAN RADIATION SERVICES
Port Allen, LA
PERCENT MOISTURE DETERMINATION IN SOILS

SDG Number **ARS1-11-01310, 01342, 01343**
 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
MD54-11-7522	ARS1-11-01310-001	603	444	158	15.519	5.044	9.8221519
MD54-11-7521	ARS1-11-01310-002	589	441	148	8.394	5.054	5.67162162
MD54-11-7602	ARS1-11-01310-003	599	437	162	15.011	5.046	9.26604938
MD21-11-14527	ARS1-11-01342-001	616	450	166	20.052	5.039	12.0795181
MD21-11-14524	ARS1-11-01342-002	610	447	163	22.624	5.066	13.8797546
MD21-11-14531	ARS1-11-01342-003	602	435	166	21.122	5.07	12.7240964
MD21-11-14525	ARS1-11-01342-004	607	436	171	24.676	5.072	14.4304094
MD21-11-14534	ARS1-11-01342-005	603	448	155	7.425	5.072	4.79032258
MD21-11-14532	ARS1-11-01342-006	605	440	166	20.566	5.078	12.3891566
MD21-11-14526	ARS1-11-01342-007	627	457	171	22.429	5.048	13.1163743
MD21-11-14529	ARS1-11-01342-008	609	441	168	24.454	5.034	14.5559524
MD21-11-14533	ARS1-11-01342-009	606	441	165	21.462	5.056	13.0072727
MD21-11-14528	ARS1-11-01342-010	605	437	168	20.419	5.036	12.1541667
MD21-11-14530	ARS1-11-01342-011	626	456	170	18.486	5.045	10.8741176
MD54-11-7605	ARS1-11-01343-001	606	449	157	10.643	5.045	6.77898089

MD54-11-7520	ARS1-11-01343-002	621	454	167	19,114	5.024	11,445,509
MD54-11-7612	ARS1-11-01343-003	588	439	149	9,978	5.044	6,696,644.3
MD54-11-7519	ARS1-11-01343-004	619	456	162	15,972	5.029	9,859,259.26
MD54-11-7539	ARS1-11-01343-005	611	438	172	22,836	5.033	13,276,744.2
MD54-11-7620	ARS1-11-01343-006	583	437	146	9,718	5.048	6,656,164.38
Balance ID:	0102/H1331122173560P						
Pipettor ID:	FJ40469						

Signature



Date

7-6-11

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

SDG Number ARS1-11-01342, 01343
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
MD54-11-7522	ARS1-11-01310-001	603	444	158	15.519	5.044	#DIV/0!
MD54-11-7521	ARS1-11-01310-002	589	441	148	8.394	5.054	#DIV/0!
MD54-11-7602	ARS1-11-01310-003	599	437	162	15.011	5.046	#DIV/0!
MD21-11-14527	ARS1-11-01342-001	616	450	166	20.052	5.039	#DIV/0!
MD21-11-14524	ARS1-11-01342-002	610	447	163	22.624	5.066	#DIV/0!
MD21-11-14531	ARS1-11-01342-003	602	435	166	21.122	5.070	#DIV/0!
MD21-11-14525	ARS1-11-01342-004	607	436	171	24.676	5.072	#DIV/0!
MD21-11-14534	ARS1-11-01342-005	603	448	155	7.425	5.072	#DIV/0!
MD21-11-14532	ARS1-11-01342-006	605	440	166	20.566	5.078	#DIV/0!
MD21-11-14526	ARS1-11-01342-007	627	457	171	22.429	5.048	#DIV/0!
MD21-11-14529	ARS1-11-01342-008	609	441	168	24.934	5.034	#DIV/0!
MD21-11-14533	ARS1-11-01342-009	606	441	165	21.462	5.066	#DIV/0!
MD21-11-14528	ARS1-11-01342-010	605	437	168	20.419	5.036	#DIV/0!
MD21-11-14530	ARS1-11-01342-011	626	456	170	18.486	5.045	#DIV/0!
MD54-11-7605	ARS1-11-01343-001	606	449	157	10.643	5.045	#DIV/0!

LCS- 5.088
LCSB-5.071
BIK-5.061

MD54-11-7520	ARS1-11-01343-002	621	454	167	19.114	5.024	#DIV/0!
MD54-11-7612	ARS1-11-01343-003	588	439	149	9.578	5.044	#DIV/0!
MD54-11-7519	ARS1-11-01343-004	619	456	162	15.972	5.029	#DIV/0!
MD54-11-7539	ARS1-11-01343-005	611	438	172	22.536	5.033	#DIV/0!
MD54-11-7620	ARS1-11-01343-006	583	437	146	9.718	5.048	#DIV/0!

Balance ID: 0102/H1331122173560P

Pipettor ID: FJ40469

Signature



Date

7-1-11



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

Folder Duplicate



Report Compilation Checklist

ARS SDG: 11-01342 Client Name: LANL Sample Matrix: SI

LEVEL 1 COMPONENTS

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

LEVEL 2 COMPONENTS

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

LEVEL 3 COMPONENTS

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

LEVEL 4 COMPONENTS

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

Gusman Heese
Report Generator Signature

7-11-11
Date

WMM
Management Review Signature

7-15-11
Date



LSC Technical Review Checklist

ARS SDG 11-01342Sample 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: B11-02481 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?	<u>Yes</u> No N/A	<u>Yes</u> No N/A
2) 100% of Manual Calculations Verified?	Yes No <u>N/A</u>	Yes No <u>N/A</u>
3) Blank Composition/Configuration Matches Calibration?	<u>Yes</u> No N/A	<u>Yes</u> No N/A
4) Deviations from procedure are documented and verified?	Yes No <u>N/A</u>	Yes No <u>N/A</u>
5) Appropriate Cocktail Selected?	<u>Yes</u> No N/A	<u>Yes</u> No N/A
6) Sample Prep Anomaly? <input checked="" type="checkbox"/> No <input type="checkbox"/> Yes (See Tech Notes) VCR # (If initiated): _____		
<div>Chemist Signature: <u>[Signature]</u> Date: <u>7-1-11</u></div> <div>Verifier Review Signature: <u>[Signature]</u> Date: <u>7-1-11</u></div>		

B. ANALYSIS REVIEW

	Analyst Review	QA Officer Review
1) Calibrations Valid and Current?	<u>Yes</u> No N/A	<u>Yes</u> No N/A
2) Backgrounds Valid and Current?	<u>Yes</u> No N/A	<u>Yes</u> No N/A
3) Source Checks Completed and Acceptable?	<u>Yes</u> No N/A	<u>Yes</u> No N/A
QA Officer Signature: <u>[Signature]</u>		Date: <u>7-15-11</u>
	Analyst Review	Technical Review
4) Background Checks Complete and Acceptable?	<u>Yes</u> No N/A	<u>Yes</u> No N/A
5) 100% of Manually Entered Parameters Verified Accurate?	<u>Yes</u> No N/A	<u>Yes</u> No N/A
6) Appropriate QC samples initiated at required frequency?	<u>Yes</u> No N/A	<u>Yes</u> No N/A
6) Test/Sample Specific Parameters (See ARS-059 for details)		
a) Analysis Parameters Checked and Correct and Peak Shapes are Acceptable?	<u>Yes</u> No N/A	Yes No <u>N/A</u>
b) Spectra show no Evidence of Interferences?	<u>Yes</u> No N/A	Yes No N/A
c) Sample Quench for All Samples within Range of Quench Curve?	<u>Yes</u> No N/A	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>7-6-11</u></div> <div>Technical Reviewer Signature: <u>N/A</u> Date: _____</div>		

SDG Report - Samples and Containers

SDG Specific Data				TAT Days				Project Type			
SDG	ARS1-11-01342	Rpt Level	4	Date Received	6/17/2011	COC Number	11-2668	Environmental			
Sample Count		Client	Los Alamos National Laboratory	Client Deadline	7/16/2011	PO Number	63641-001-10				
Client Code	114	Profile Number	PN-00094	Internal Deadline	7/14/2011	Job Number	MR8R032FM00				
Comments	Lab Deadline 7/12/2011										

Samples and Containers (→) Checked In Thus Far											
FR	ClientID	Matrix	SampleStartDate	SampleEndDate	Disp	Hold	Arch	Storage	X	Units	Y
→	001	MD21-11-14527	SI	06/15/11 12:00 PM	06/15/11 12:00 PM	H	90	5	Q6	13	Q6
	IC_ID	Cnt	Volume_mL	WT_g	PH_Orig	PH_Final	CPM	UR_Hr	Storage	VOA	Head Sp
	89305	1		1.00			20	13		N	N/A
→	002	MD21-11-14524	SI	06/15/11 12:00 PM	06/15/11 12:00 PM	H	90	5	Q6	13	Q6
	IC_ID	Cnt	Volume_mL	WT_g	PH_Orig	PH_Final	CPM	UR_Hr	Storage	VOA	Head Sp
	89306	1		1.00			20	13		N	N/A
→	003	MD21-11-14531	SI	06/15/11 12:00 PM	06/15/11 12:00 PM	H	90	5	Q6	13	Q6
	IC_ID	Cnt	Volume_mL	WT_g	PH_Orig	PH_Final	CPM	UR_Hr	Storage	VOA	Head Sp
	89307	1		1.00			20	14		N	N/A
→	004	MD21-11-14525	SI	06/15/11 12:00 PM	06/15/11 12:00 PM	H	90	5	Q6	13	Q6
	IC_ID	Cnt	Volume_mL	WT_g	PH_Orig	PH_Final	CPM	UR_Hr	Storage	VOA	Head Sp
	89308	1		1.00			25	13		N	N/A
→	005	MD21-11-14534	SI	06/15/11 12:00 PM	06/15/11 12:00 PM	H	90	5	Q6	13	Q6
	IC_ID	Cnt	Volume_mL	WT_g	PH_Orig	PH_Final	CPM	UR_Hr	Storage	VOA	Head Sp
	89309	1		1.00			20	14		N	N/A
→	006	MD21-11-14532	SI	06/15/11 12:00 PM	06/15/11 12:00 PM	H	90	5	Q6	13	Q6
	IC_ID	Cnt	Volume_mL	WT_g	PH_Orig	PH_Final	CPM	UR_Hr	Storage	VOA	Head Sp
	89310	1		1.00			25	14		N	N/A
→	007	MD21-11-14526	SI	06/15/11 12:00 PM	06/15/11 12:00 PM	H	90	5	Q6	13	Q6
	IC_ID	Cnt	Volume_mL	WT_g	PH_Orig	PH_Final	CPM	UR_Hr	Storage	VOA	Head Sp
	89311	1		1.00			20	14		N	N/A
→	008	MD21-11-14529	SI	06/15/11 12:00 PM	06/15/11 12:00 PM	H	90	5	Q6	13	Q6
	IC_ID	Cnt	Volume_mL	WT_g	PH_Orig	PH_Final	CPM	UR_Hr	Storage	VOA	Head Sp
	89312	1		1.00			20	14		N	N/A
→	009	MD21-11-14533	SI	06/15/11 12:00 PM	06/15/11 12:00 PM	H	90	5	Q6	13	Q6
	IC_ID	Cnt	Volume_mL	WT_g	PH_Orig	PH_Final	CPM	UR_Hr	Storage	VOA	Head Sp
	89313	1		1.00			20	13		N	N/A
→	010	MD21-11-14528	SI	06/15/11 12:00 PM	06/15/11 12:00 PM	H	90	5	Q6	13	Q6
	IC_ID	Cnt	Volume_mL	WT_g	PH_Orig	PH_Final	CPM	UR_Hr	Storage	VOA	Head Sp
	89314	1		1.00			20	13		N	N/A
→	011	MD21-11-14530	SI	06/15/11 12:00 PM	06/15/11 12:00 PM	H	90	5	Q6	13	Q6
	IC_ID	Cnt	Volume_mL	WT_g	PH_Orig	PH_Final	CPM	UR_Hr	Storage	VOA	Head Sp
	89315	1		1.00			20	13		N	N/A

SDG Report - Analysis Assignments

Temp SDG	ARS1-11-01342	Sample Count	1-11
Client	Los Alamos National Laboratory	Analysis Count	1-11

Samples Count Totals per Analysis		
Analysis Code	Analysis Description	Samples Count
LSC-A-001	Tritium in (Water [Aqueous, AQ, SI])	11

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
011	LSC-A-001	X

Analysis Code	Group	Isotope	Activity Units	Aliquot Units	Procedure	RDL	LCS_LL	LCS_UL	MS_LL	MS_UL	Ready_LL	Ready_UL	Grav_LL	Grav_UL	RER	RPD	DilutionReq	RoughPrepReq	BlankCorrectionMDA	BlankCorrectionAll	CountTimeReq	AliquotRequired
LSCA-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: ARS1-11-01342

Task	Date / Time	Initials
Date & Time Samples Received	06-17-11/10:09	WMB
ICOC Initiated / Storage Location: <u>Q6</u>	06-17-11/15:06	WMB
Technical Checks Performed	See Batch	—
Report Written / EDD Generated: <u>7-11-11/1705</u> <u>SDC</u>	7-11-11/1701	SDC
Quality Assurance Checks Performed on Report	7-15-11/1115	WMB
Management Check Performed on Report		
Preliminary Report Sent		
Report E-mailed		
Report Faxed		
Report Reviewed		
Report Mailed		
Invoice Completed Invoice #: _____		
Report Imaged		

SPECIAL REQUIREMENTS

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

NOTES:

