

Monday, September 19, 2011

REQUEST NUMBER: 11-3626

**LOS ALAMOS
NATIONAL LABORATORY**

ATTN: Danny Coleman
American Radiation Services - Primary
1726 Wooddale Court
Baton Rouge, LA 70806

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

Please analyse the enclosed samples
according to the schedule indicated:

SHIP DATE: 9/19/2011

TURNAROUND/REPORT DUE: 10/19/2011

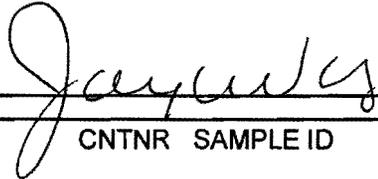
TURNAROUND REQ'D: 30 Days

RAD SCREENING: Not Required

LAB REQUEST COMMENTS:

LANL ER SMO CONTACT:

Signature:



PRIORITY	METHOD CODE	CNTNR	SAMPLE ID	SAMPLE MATRIX	DATE SAMPLED	SPECIAL INSTRUCTIONS
	EPA:906.0	1	MD21-11-26384	GAS	9/15/2011	
		1	MD21-11-26385	GAS	9/15/2011	
		1	MD21-11-26386	GAS	9/15/2011	
		1	MD21-11-26387	GAS	9/15/2011	
		1	MD21-11-26388	GAS	9/15/2011	
		1	MD21-11-26389	GAS	9/15/2011	
		1	MD21-11-26390	GAS	9/15/2011	
		1	MD21-11-26391	GAS	9/15/2011	
		1	MD21-11-26392	GAS	9/15/2011	
		1	MD21-11-26393	GAS	9/15/2011	

Monday, September 19, 2011

LAB CHAIN OF CUSTODY DOCUMENT NUMBER: 11-3626C

LOS ALAMOS

REQUEST NUMBER: 11-3626

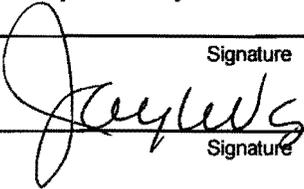
NATIONAL LABORATORY

ATTN: Danny Coleman
American Radiation Services - Primary
1726 Wooddale Court
Baton Rouge, LA 70806

TURNAROUND/REPORT DUE: 10/19/2011
TURNAROUND REQ'D: 30

LAB REQUEST COMMENTS:

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

Relinquished By:	Date	Time	Received By:	Date	Time
	9/19/11	1400			
Signature			Signature		
Signature			Signature		
Signature			Signature		

Received for DISPOSAL By: _____ Date _____ Time _____ Remarks: _____

Signature _____

SAMPLE COLLECTION LOG/FIELD CHAIN OF CUSTODY

EVENT ID: 3592

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

SAMPLE ID: MD21-11-26384

WORK ORDER:

	AS PLANNED	AS COLLECTED		AS PLANNED	AS COLLECTED
DATE COLLECTED(MM/DD/YYYY):		9/15/11	MEDIA:	NA	OK
TIME COLLECTED (HH:MM)		1100	SUB-MEDIA:	OTHER	OK
PRS ID:	21-018(a)-99	OK	SAMPLE TECH CODE:	VOST	OK
LOCATION ID:	21-24524W	OK	FIELD QC TYPE:	NA	OK
LOCATION TYPE:	BH	OK	FIELD PREP:	NA	OK
TOP DEPTH:	42.5	OK	SAMPLE USAGE:	INV	OK
BOTTOM DEPTH:	47.5	OK	SCREEN/PORT DESC:		OK
FIELD MATRIX:	GAS	OK	EXCAVATED: YES / NO	(NA) part 1	OK
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		NA

SAMPLE DESC:

column # 221 initial wt 603.63g to 9/15/11 Final wt for to 8/19/11
 silica wt 187.92g to 9/15/11 vapor wt 654.13g to 9/15/11
 51.61g

SAMPLE COMMENTS:

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

LOCATION DESC:

FIELD SCREENING/MEASUREMENT RESULTS:

atm O₂ 20.9% CO₂ 530 ppm
 subatm O₂ 21.9% to 9/15/11 CO₂ 2.19%
 15.0%

COLLECTED BY (PRINT)

R. Ong J. M. Gong

REVIEWED BY (PRINT)

M. Gong

RELINQUISHED BY	Date/Time	RECEIVED BY	Date/Time
(Printed Name) <i>Rance Drost</i>	9/16/11	(Printed Name) <i>Sherril Sherwood</i>	9/16/11
(Signature) <i>Rance Drost</i>	1500	(Signature) <i>Sherril Sherwood</i>	1500
RELINQUISHED BY	Date/Time	RECEIVED BY	Date/Time
(Printed Name)		(Printed Name)	
(Signature)		(Signature)	

SAMPLE COLLECTION LOG/FIELD CHAIN OF CUSTODY

EVENT ID: 3592

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

SAMPLE ID: MD21-11-26385

WORK ORDER:

	<u>AS PLANNED</u>	<u>AS COLLECTED</u>	<u>AS PLANNED</u>	<u>AS COLLECTED</u>
DATE COLLECTED(MM/DD/YYYY):		9/15/11	MEDIA: NA	ok
TIME COLLECTED (HH:MM)		1600	SUB-MEDIA: OTHER	
PRS ID: 21-018(a)-99		ok	SAMPLE TECH CODE: VOST	
LOCATION ID: 21-24524W		ok	FIELD QC TYPE: NA	
LOCATION TYPE: BH		ok	FIELD PREP: NA	
TOP DEPTH: 122.5		ok	SAMPLE USAGE: INV	
BOTTOM DEPTH: 127.5		ok	SCREEN/PORT DESC:	
FIELD MATRIX: GAS		ok	EXCAVATED: YES/NO <input checked="" type="radio"/> NA	
COMPOSITE TYPE: <u>MM</u>			COMPOSITE TIME INTERVAL: <u>MM</u>	
BOREHOLE <input checked="" type="radio"/> YES / NO / NA			WATER FLOWING: YES/NO <input checked="" type="radio"/> NA	
BOREHOLE DECLINATION: <u>MM</u>			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	no 8/19/11 Not collected, not sampled for

SAMPLE DESC: column # 198 initial wt 599.20g Final wt 649.10g
 silica wt = 152.22g vial wt 49.90g

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

LOCATION DESC: MM

FIELD SCREENING/MEASUREMENT RESULTS:
 atm O₂ 20.9% CO₂ 530 ppm
 sub atm O₂ 20.0% CO₂ 510 ppm

COLLECTED BY (PRINT) R Onst M Gargi REVIEWED BY (PRINT) MM Brown

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

SAMPLE COLLECTION LOG/FIELD CHAIN OF CUSTODY

EVENT ID: 3592

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

SAMPLE ID: MD21-11-26386

WORK ORDER:

	<u>AS PLANNED</u>	<u>AS COLLECTED</u>		<u>AS PLANNED</u>	<u>AS COLLECTED</u>
DATE COLLECTED(MM/DD/YYYY):		9/15/11	MEDIA:	NA	OK
TIME COLLECTED (HH:MM)		1100	SUB-MEDIA:	OTHER	
PRS ID:	21-018(a)-99	OK	SAMPLE TECH CODE:	YOST	
LOCATION ID:	21-24524W	OK	FIELD QC TYPE:	NA	
LOCATION TYPE:	BH	OK	FIELD PREP:	NA	
TOP DEPTH:	172.5	OK	SAMPLE USAGE:	INV	
BOTTOM DEPTH:	177.5	OK	SCREEN/PORT DESC:		
FIELD MATRIX:	GAS	OK	EXCAVATED: YES/NO/NA	NA	part 3
COMPOSITE TYPE:	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	Y	NA
1		TO15	6 LITER SUMMA CANISTER	None	Y	NA

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

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

LOCATION DESC: NA

FIELD SCREENING/MEASUREMENT RESULTS:
 atm O₂ 20.9% CO₂ 530 ppm
 sub atm O₂ 20.1% CO₂ 4560 ppm

COLLECTED BY (PRINT) R Orest M George REVIEWED BY (PRINT) all Buz

RELINQUISHED BY (Printed Name) R Orest M George (Signature) <i>R Orest M George</i>	Date/Time 9/16/11 1500	RECEIVED BY (Printed Name) Sheri Merwood (Signature) <i>Sheri Merwood</i>	Date/Time 9/16/11 1800
RELINQUISHED BY (Printed Name) (Signature)	Date/Time	RECEIVED BY (Printed Name) (Signature)	Date/Time

SAMPLE COLLECTION LOG/FIELD CHAIN OF CUSTODY

EVENT ID: 3592

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

SAMPLE ID: MD21-11-26387

WORK ORDER:

	<u>AS PLANNED</u>	<u>AS COLLECTED</u>	<u>AS PLANNED</u>	<u>AS COLLECTED</u>
DATE COLLECTED(MM/DD/YYYY):		9/15/11	MEDIA:	NA
TIME COLLECTED (HH:MM)		1100	SUB-MEDIA:	OTHER
PRS ID:	21-018(a)-99	OK	SAMPLE TECH CODE:	VOST
LOCATION ID:	21-24524W	OK	FIELD QC TYPE:	NA
LOCATION TYPE:	BH	OK	FIELD PREP:	NA
TOP DEPTH:	257.5	OK	SAMPLE USAGE:	INV
BOTTOM DEPTH:	262.5	OK	SCREEN/PORT DESC:	
FIELD MATRIX:	GAS	OK	EXCAVATED: YES/NO	NA part 4
COMPOSITE TYPE:	NA		COMPOSITE TIME INTERVAL:	
			WATER FLOWING: YES/NO	NA
BOREHOLE: <input checked="" type="radio"/> YES / <input type="radio"/> 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		10/8/11 Not collected NA sampled loss

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

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

LOCATION DESC: NA

FIELD SCREENING/MEASUREMENT RESULTS:
 atm O₂ 20.9% CO₂ 530ppm
 sub atm O₂ 5110ppm CO₂ 20.2%

COLLECTED BY (PRINT) R. Onstott / M. Bergin REVIEWED BY (PRINT) cll V. Gony

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

SAMPLE COLLECTION LOG/FIELD CHAIN OF CUSTODY

EVENT ID: 3592

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

SAMPLE ID: MD21-11-26388

WORK ORDER:

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

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

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

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

LOCATION DESC: NA

FIELD SCREENING/MEASUREMENT RESULTS:
 atm O₂ 20.9% CO₂ 530ppm
 sub atm O₂ 20.3% CO₂ 5050ppm

COLLECTED BY (PRINT) Ronald M. Braggi, REVIEWED BY (PRINT) [Signature]

RELINQUISHED BY (Printed Name) <i>Karee Onstott</i> (Signature) <i>Karee Onstott</i>	Date/Time 9/16/11 1:50	RECEIVED BY (Printed Name) <i>Sheri Newwood</i> (Signature) <i>Sheri Newwood</i>	Date/Time 9/16/11 1800
RELINQUISHED BY (Printed Name) (Signature)	Date/Time	RECEIVED BY (Printed Name) (Signature)	Date/Time

SAMPLE COLLECTION LOG/FIELD CHAIN OF CUSTODY

EVENT ID: 3592

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

SAMPLE ID: MD21-11-26389

WORK ORDER:

	<u>AS PLANNED</u>	<u>AS COLLECTED</u>	<u>AS PLANNED</u>	<u>AS COLLECTED</u>
DATE COLLECTED(MM/DD/YYYY):		9/15/11	MEDIA: NA	ok
TIME COLLECTED (HH:MM)		1100	SUB-MEDIA: OTHER	
PRS ID: 21-018(a)-99		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 <input checked="" type="radio"/> NA	
COMPOSITE TYPE: <u>NA</u>			COMPOSITE TIME INTERVAL: _____	
BOREHOLE: <input checked="" type="radio"/> YES / NO / NA			WATER FLOWING: YES / NO / <input checked="" type="radio"/> NA	
BOREHOLE DECLINATION: <u>NA</u>			BOREHOLE DIRECTION: <u>90°</u>	

#	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		NA

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

SAMPLE COMMENTS: weather sat on loss T=55°F RH 77% BP=30.29 in

LOCATION DESC: NA

FIELD SCREENING/MEASUREMENT RESULTS:
 atm O₂ 20.9%
 sub atm O₂ 20.3%
 CO₂ 530 ppm
 CO₂ 4750 ppm

COLLECTED BY (PRINT) K. Dwyer REVIEWED BY (PRINT) M. V. Roy

RELINQUISHED BY (Printed Name) <u>James Dwyer</u> (Signature) <u>James Dwyer</u>	Date/Time <u>9/16/11</u> <u>1500</u>	RECEIVED BY (Printed Name) <u>Sheri Newwood</u> (Signature) <u>Sheri Newwood</u>	Date/Time <u>9/16/11</u> <u>1500</u>
RELINQUISHED BY (Printed Name) (Signature)	Date/Time	RECEIVED BY (Printed Name) (Signature)	Date/Time

SAMPLE COLLECTION LOG/FIELD CHAIN OF CUSTODY

EVENT ID: 3592

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

SAMPLE ID: MD21-11-26390

WORK ORDER:

	<u>AS PLANNED</u>	<u>AS COLLECTED</u>	<u>AS PLANNED</u>	<u>AS COLLECTED</u>
DATE COLLECTED(MM/DD/YYYY):		9/15/11	MEDIA:	NA
TIME COLLECTED (HH:MM)		1100	SUB-MEDIA:	OTHER
PRS ID:	21-018(a)-99	ok	SAMPLE TECH CODE:	VOST
LOCATION ID:	21-24524W	ok	FIELD QC TYPE:	NA
LOCATION TYPE:	BH	ok	FIELD PREP:	NA
TOP DEPTH:	377.5	ok	SAMPLE USAGE:	INV
BOTTOM DEPTH:	382.5	ok	SCREEN/PORT DESC:	
FIELD MATRIX:	GAS	ok	EXCAVATED: YES/NO	NA
COMPOSITE TYPE:	NA		COMPOSITE TIME INTERVAL:	
BOREHOLE: <input checked="" type="radio"/> YES <input type="radio"/> 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	no 8/19/11 Not collected, Not sampled for

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

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

LOCATION DESC: NA

FIELD SCREENING/MEASUREMENT RESULTS:
 atm O₂ 20.9% CO₂ 530 ppm
 sub atm O₂ 20.4% CO₂ 4500 ppm

COLLECTED BY (PRINT) R Onstott M 610911 REVIEWED BY (PRINT) JLL/Gray

RELINQUISHED BY (Printed Name) <u>Karee Onstott</u> (Signature) <u>Karee Onstott</u>	Date/Time 9/16/11 1500	RECEIVED BY (Printed Name) <u>SIERRA SHERWOOD</u> (Signature) <u>Sierra Sherwood</u>	Date/Time 9/16/11 1500
RELINQUISHED BY (Printed Name) (Signature)	Date/Time	RECEIVED BY (Printed Name) (Signature)	Date/Time

SAMPLE COLLECTION LOG/FIELD CHAIN OF CUSTODY

EVENT ID: 3592

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

SAMPLE ID: MD21-11-26391

WORK ORDER:

	<u>AS PLANNED</u>	<u>AS COLLECTED</u>	<u>AS PLANNED</u>	<u>AS COLLECTED</u>
DATE COLLECTED(MM/DD/YYYY):		9/15/11	MEDIA:	NA
TIME COLLECTED (HH:MM)		1:00	SUB-MEDIA:	OTHER
PRS ID:	21-018(a)-99	ok	SAMPLE TECH CODE:	YOST
LOCATION ID:	21-24524S	ok	FIELD QC TYPE:	NA
LOCATION TYPE:	BH	ok	FIELD PREP:	NA
TOP DEPTH:	677.5	ok	SAMPLE USAGE:	INV
BOTTOM DEPTH:	682.5	ok	SCREEN/PORT DESC:	
FIELD MATRIX:	GAS	ok	EXCAVATED: YES/NO	NA part 10
COMPOSITE TYPE:	MA		COMPOSITE TIME INTERVAL:	
			WATER FLOWING: YES/NO	NA
BOREHOLE: YES/NO/NA	MA		BOREHOLE DECLINATION:	MA
			BOREHOLE DIRECTION:	90°

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

SAMPLE DESC: # 224 initial wt 612.07g Pivalut 650.33g
 silica wt 153.32g vapor wt = 38.26g

SAMPLE COMMENTS: weather data @ 1055 T=55°F RH 77% BP=30.29 ^{9/15} in

LOCATION DESC: MA

FIELD SCREENING/MEASUREMENT RESULTS:
 atm O₂ 20.9% CO₂ 530 ppm
 sub atm O₂ 20.4% CO₂ 3500 ppm

COLLECTED BY (PRINT) Ronoff M George REVIEWED BY (PRINT) Steve Newwood

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

SAMPLE COLLECTION LOG/FIELD CHAIN OF CUSTODY

EVENT ID: 3592

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

SAMPLE ID: MD21-11-26392

WORK ORDER:

	<u>AS PLANNED</u>	<u>AS COLLECTED</u>		<u>AS PLANNED</u>	<u>AS COLLECTED</u>
DATE COLLECTED(MM/DD/YYYY):		9/15/11	MEDIA:	NA	OK
TIME COLLECTED (HH:MM)		1100	SUB-MEDIA:	OTHER	
PRS ID:	21-018(a)-99	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:		part 11
FIELD MATRIX:	GAS	OK	EXCAVATED: YES/NO/NA		
COMPOSITE TYPE:	NA		COMPOSITE TIME INTERVAL:		
BOREHOLE: <input checked="" type="checkbox"/> YES <input type="checkbox"/> NO / NA			BOREHOLE DECLINATION:	NA	
			BOREHOLE DIRECTION:	90°	

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

SAMPLE DESC: #26
 initial wt = 591.39g final wt = 625.88g
 silica wt = 151.02g vapor wt = 34.49g

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

LOCATION DESC:

FIELD SCREENING/MEASUREMENT RESULTS:
 atm O₂ 20.9% CO₂ 530 ppm
 sub atm O₂ 20.5% CO₂ 3400 ppm

COLLECTED BY (PRINT) Ronak M. Gogi REVIEWED BY (PRINT) dlw/Bog

RELINQUISHED BY (Printed Name) <i>Lance Duskitt</i> (Signature) <i>Lance Duskitt</i>	Date/Time 9/16/11 1500	RECEIVED BY (Printed Name) <i>Sherrin Herwood</i> (Signature) <i>Sherrin Herwood</i>	Date/Time 9/16/11 1000
RELINQUISHED BY (Printed Name) (Signature)	Date/Time	RECEIVED BY (Printed Name) (Signature)	Date/Time

SAMPLE COLLECTION LOG/FIELD CHAIN OF CUSTODY

EVENT ID: 3592

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

SAMPLE ID: MD21-11-26393

WORK ORDER:

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

#	PRIORITY	ORDER	CNTNR	PRESERVATIVE	COLLECTED Y/N	SPECIAL INSTRUCTIONS
1		H3	1 EA SILICA GEL TUBE	None	Y	NA
1		T015	6 LITER SUMMA CANISTER	None		to 8/19/11 Not collected, Not sampled for

SAMPLE DESC: QC Sample of MD21-11-26386
 column 212 initial wt 600.96g Final 640.67g
 silica wt 152.22g vapor 39.71g
 SAMPLE COMMENTS: weather @ 1055 T=55°F RH 77% BP=30.29 in

LOCATION DESC:
 NA

FIELD SCREENING/MEASUREMENT RESULTS:
 atm O₂ 20.9% CO₂ 530ppm
 subatm O₂ 20.1% CO₂ 4560ppm

COLLECTED BY (PRINT) K Onstott Mergo REVIEWED BY (PRINT) Cherry Swerwood

RELINQUISHED BY (Printed Name) <u>K Onstott Mergo</u> (Signature) <u>[Signature]</u> Date/Time <u>9/16/11 1500</u>	RECEIVED BY (Printed Name) <u>Cherry Swerwood</u> (Signature) <u>[Signature]</u> Date/Time <u>9/16/11 1500</u>
RELINQUISHED BY (Printed Name) (Signature)	RECEIVED BY (Printed Name) (Signature)

DATA VALIDATION COVER SHEET

5119-1

Data Validation Cover Sheet

Records Use only



Section I.

REQUEST NUMBER: 11-3626 VALIDATION DATE: 11/01/11 LAB CODE: ARSCONTRACT LABORATORY NAME: American Radiation ServicesVALIDATOR: Kris Chupka ORGANIZATION: Analytical Quality Associates, Inc.

ANALYTICAL SUITE (CHECK ALL THAT APPLY):

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

Section II. Completeness Check

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

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

1. An MS was not analyzed. However, an LCS was analyzed and met acceptance criteria; thus, no sample data were qualified.
2. An LCSD was analyzed instead of a sample duplicate. Acceptance criteria were met and, thus, no sample data were qualified.
3. The LCS/LCSD RER was hand-calculated using the 2-sigma TPU values and was found to be within specifications. No sample data were qualified as a result.

Reviewed by: Susan Ball **Level:** I **Date:** 11/02/11

VALIDATOR'S SIGNATURE: _____

A handwritten signature in black ink, appearing to read "Kris Chupka".

DATE: 11/01/11

RAD ANALYTICAL DATA VALIDATION CHECKLIST

5119-2

Rad Analytical Data Validation Checklist

Records Use only



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

RAD ANALYTICAL DATA VALIDATION CHECKLIST

5119-2

Rad Analytical Data Validation Checklist

Records Use only



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

RAD ANALYTICAL DATA VALIDATION CHECKLIST

5119-2

Rad Analytical Data Validation Checklist

Records Use only



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



2609 North River Road, Port Allen, Louisiana 70767

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

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

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

Analysis Description	Analysis Results	Analysis Error +/- 1 s	MDC	DLC	Qual	Analysis Units	Analysis Test Method	Analysis Date/Time	Analysis Technician	Tracer/Chem Recovery
H-3	54381.479	2856.445	202.197	99.287		pCi/L	ARS-054/EPA:906.0	09/30/11 02:22	BS	NA

NOTES: Project Cost Code MR8R032NFM00

Project Manager Review

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

LELAP Certificate# 01949

NELAP Certificate # E87558



2609 North River Road, Port Allen, Louisiana 70767

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

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

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

Analysis Description	Analysis Results	Analysis Error +/- 1 s	MDC	DLC	Qual	Analysis Units	Analysis Test Method	Analysis Date/Time	Analysis Technician	Tracer/Chem Recovery
H-3	1485.604	107.798	201.302	98.847		pCi/L	ARS-054/EPA:906.0	09/30/11 05:32	BS	NA

NOTES: Project Cost Code MR8R032NFM00

Project Manager Review

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

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

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

Analysis Description	Analysis Results	Analysis Error +/- 1 s	MDC	DLC	Qual	Analysis Units	Analysis Test Method	Analysis Date/Time	Analysis Technician	Tracer/Chem Recovery
H-3	58095.031	3050.570	202.490	99.431		pCi/L	ARS-054/EPA:906.0	09/30/11 08:41	BS	NA

NOTES: Project Cost Code MR8R032NFM00

Project Manager Review

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

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

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

Analysis Description	Analysis Results	Analysis Error +/- 1 s	MDC	DLC	Qual	Analysis Units	Analysis Test Method	Analysis Date/Time	Analysis Technician	Tracer/Chem Recovery
H-3	11568.904	620.326	201.183	98.789		pCi/L	ARS-054/EPA:906.0	09/30/11 11:50	BS	NA

NOTES: Project Cost Code MR8R032NFM00

Project Manager Review

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NELAP Certificate # E87558



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

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

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

Analysis Description	Analysis Results	Analysis Error +/- 1 s	MDC	DLC	Qual	Analysis Units	Analysis Test Method	Analysis Date/Time	Analysis Technician	Tracer/Chem Recovery
H-3	14968.277	797.240	199.003	97.718		pCi/L	ARS-054/EPA:906.0	09/30/11 15:00	BS	NA

NOTES: Project Cost Code MR8R032NFM00

Project Manager Review

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

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

Analysis Description	Analysis Results	Analysis Error +/- 1 s	MDC	DLC	Qual	Analysis Units	Analysis Test Method	Analysis Date/Time	Analysis Technician	Tracer/Chem Recovery
H-3	13223.349	706.626	202.868	99.616		pCi/L	ARS-054/EPA:906.0	09/30/11 18:09	BS	NA

NOTES: Project Cost Code MR8R032NFM00

Project Manager Review

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NELAP Certificate # E87558



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

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

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

Analysis Description	Analysis Results	Analysis Error +/- 1 s	MDC	DLC	Qual	Analysis Units	Analysis Test Method	Analysis Date/Time	Analysis Technician	Tracer/Chem Recovery
H-3	16513.216	878.066	202.053	99.216		pCi/L	ARS-054/EPA:906.0	09/30/11 21:19	BS	NA

NOTES: Project Cost Code MR8R032NFM00

Project Manager Review

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NELAP Certificate # E87558



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

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

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

Analysis Description	Analysis Results	Analysis Error +/- 1 s	MDC	DLC	Qual	Analysis Units	Analysis Test Method	Analysis Date/Time	Analysis Technician	Tracer/Chem Recovery
H-3	54101.284	2841.871	203.215	99.787		pCi/L	ARS-054/EPA:906.0	10/01/11 00:28	BS	NA

NOTES: Project Cost Code MR8R032NFM00

Project Manager Review

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LELAP Certificate# 01949

NELAP Certificate # E87558



2609 North River Road, Port Allen, Louisiana 70767

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

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

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

Analysis Description	Analysis Results	Analysis Error +/- 1 s	MDC	DLC	Qual	Analysis Units	Analysis Test Method	Analysis Date/Time	Analysis Technician	Tracer/Chem Recovery
H-3	11778.117	631.320	202.350	99.362		pCi/L	ARS-054/EPA:906.0	10/01/11 03:37	BS	NA

NOTES: Project Cost Code MR8R032NFM00

Project Manager Review

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LELAP Certificate# 01949

NELAP Certificate # E87558



2609 North River Road, Port Allen, Louisiana 70767

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

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

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

Analysis Description	Analysis Results	Analysis Error +/- 1 s	MDC	DLC	Qual	Analysis Units	Analysis Test Method	Analysis Date/Time	Analysis Technician	Tracer/Chem Recovery
H-3	1936.298	128.396	202.326	99.350		pCi/L	ARS-054/EPA:906.0	10/01/11 06:47	BS	NA

NOTES: Project Cost Code MR8R032NFM00

Project Manager Review

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LELAP Certificate # 01949

NELAP Certificate # E87558

Monday, September 19, 2011

REQUEST NUMBER: 11-3626

LOS ALAMOS

NATIONAL LABORATORY

ATTN: Danny Coleman

American Radiation Services - Primary

1726 Wooddale Court

Baton Rouge, LA 70806

These Samples are on:

LANL Request Number: 11-3626

Per Agreement Number: 63641-001-10

Project Cost Code: MR8R032NFM00

Please analyse the enclosed samples according to the schedule indicated:

SHIP DATE: 9/19/2011

TURNAROUND/REPORT DUE: 10/19/2011

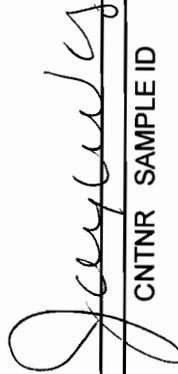
TURNAROUND REQ'D: 30 Days

RAD SCREENING: Not Required

LAB REQUEST COMMENTS:

LANL ER SMO CONTACT:

Signature:



PRIORITY	METHOD CODE	CNTR	SAMPLE ID	SAMPLE MATRIX	DATE SAMPLED	SPECIAL INSTRUCTIONS
	EPA:906.0	1	MD21-11-26384	GAS	9/15/2011	
		1	MD21-11-26385	GAS	9/15/2011	
		1	MD21-11-26386	GAS	9/15/2011	
		1	MD21-11-26387	GAS	9/15/2011	
		1	MD21-11-26388	GAS	9/15/2011	
		1	MD21-11-26389	GAS	9/15/2011	
		1	MD21-11-26390	GAS	9/15/2011	
		1	MD21-11-26391	GAS	9/15/2011	
		1	MD21-11-26392	GAS	9/15/2011	
		1	MD21-11-26393	GAS	9/15/2011	

Monday, September 19, 2011

LAB CHAIN OF CUSTODY DOCUMENT NUMBER: 11-3626C

LOS ALAMOS

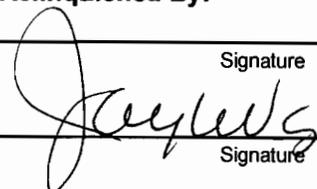
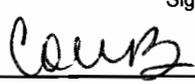
REQUEST NUMBER: 11-3626

NATIONAL LABORATORY

ATTN: Danny Coleman
American Radiation Services - Primary
1726 Wooddale Court
Baton Rouge, LA 70806
LAB REQUEST COMMENTS:

TURNAROUND/REPORT DUE: 10/19/2011
TURNAROUND REQ'D: 30

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

Relinquished By:	Date	Time	Received By:	Date	Time
	9/19/11	14:00		9-2011/10:14	
Signature			Signature		
Signature			Signature		

Received for DISPOSAL By:	Date	Time	Remarks:
Signature			



2609 North River Road • Port Allen, Louisiana 70767

1 (800) 401-4277 • Fax (225) 381-2996

American Radiation Services Analytical Reports

for

Los Alamos National Laboratory

Request Number: 11-3626



2609 North River Road • Port Allen, Louisiana 70767

1 (800) 401-4277 • Fax (225) 381-2996

American Radiation Services Analytical Reports

for

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

Original COC

Monday, September 19, 2011

REQUEST NUMBER: 11-3626

**LOS ALAMOS
NATIONAL LABORATORY**

ATTN: Danny Coleman
American Radiation Services - Primary
1726 Wooddale Court
Baton Rouge, LA 70806

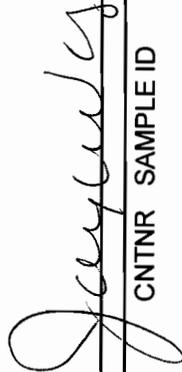
These Samples are on:
LANL Request Number: 11-3626
Per Agreement Number: 63641-001-10
Project Cost Code: MR8R032NFM00

Please analyse the enclosed samples
according to the schedule indicated:

SHIP DATE: 9/19/2011
TURNAROUND/REPORT DUE: 10/19/2011
TURNAROUND REQ'D: 30 Days

RAD SCREENING: Not Required
LAB REQUEST COMMENTS:

LANL ER SMO CONTACT:

Signature: 

PRIORITY	METHOD CODE	CNTR	SAMPLE ID	SAMPLE MATRIX	DATE SAMPLED	SPECIAL INSTRUCTIONS
	EPA:906.0	1	MD21-11-26384	GAS	9/15/2011	
		1	MD21-11-26385	GAS	9/15/2011	
		1	MD21-11-26386	GAS	9/15/2011	
		1	MD21-11-26387	GAS	9/15/2011	
		1	MD21-11-26388	GAS	9/15/2011	
		1	MD21-11-26389	GAS	9/15/2011	
		1	MD21-11-26390	GAS	9/15/2011	
		1	MD21-11-26391	GAS	9/15/2011	
		1	MD21-11-26392	GAS	9/15/2011	
		1	MD21-11-26393	GAS	9/15/2011	

Monday, September 19, 2011

LAB CHAIN OF CUSTODY DOCUMENT NUMBER: 11-3626C

LOS ALAMOS

REQUEST NUMBER: 11-3626

NATIONAL LABORATORY

ATTN: Danny Coleman

TURNAROUND/REPORT DUE: 10/19/2011

American Radiation Services - Primary

TURNAROUND REQ'D: 30

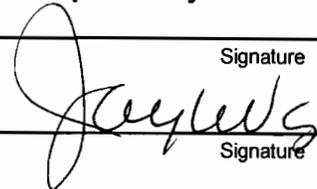
1726 Wooddale Court

Baton Rouge, LA 70806

LAB REQUEST COMMENTS:

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

Relinquished By: Date Time Received By: Date Time


Signature
9/19/11 1400
Signature
COWB
9-2011/10:14

Signature
Signature

Received for DISPOSAL By: Date Time Remarks: _____

Signature



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American Radiation Services Analytical Reports

for

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

Case Narrative



2609 North River Road • Port Allen, Louisiana 70767

1 (800) 401-4277 • Fax (225) 381-2996

October 13, 2011

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

Request Number: **11-3626**

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

Dear Mr. Greene;

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

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

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

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

Sincerely,

A handwritten signature in cursive script that reads 'Eugene Mullen'.

Laboratory Management
ARS International



COVER PAGE
PROJECT SAMPLE IDENTIFICATION
CROSS-REFERENCE
TO ARS SAMPLE LABORATORY IDs
Subcontract (LANL Agreement Number) 63641-001-10

Request Number	LANL PROJECT SAMPLE ID NUMBER	American Radiation Services SAMPLE ID NUMBER(S)
11-3626	MD21-11-26384	ARS1-11-02028-001
11-3626	MD21-11-26391	ARS1-11-02028-002
11-3626	MD21-11-26388	ARS1-11-02028-003
11-3626	MD21-11-26389	ARS1-11-02028-004
11-3626	MD21-11-26385	ARS1-11-02028-005
11-3626	MD21-11-26386	ARS1-11-02028-006
11-3626	MD21-11-26393	ARS1-11-02028-007
11-3626	MD21-11-26387	ARS1-11-02028-008
11-3626	MD21-11-26390	ARS1-11-02028-009
11-3626	MD21-11-26392	ARS1-11-02028-010

ANALYTICAL METHODS

Tritium analyses were performed using EPA 906.0.

ANALYTICAL RESULTS

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

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

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



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

Dyrene Mellegan
Signature

Laboratory Management, ARS International
Title

10-13-11
Date



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American Radiation Services Analytical Reports

for

Los Alamos National Laboratory

Tritium

by

Low Level Liquid Scintillation Counting



2609 North River Road, Port Allen, Louisiana 70767

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

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

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

Analysis Description	Analysis Results	Analysis Error +/- 1 s	MDC	DLC	Qual	Analysis Units	Analysis Test Method	Analysis Date/Time	Analysis Technician	Tracer/Chem Recovery
H-3	54381.479	2856.445	202.197	99.287		pCi/L	ARS-054/EPA:906.0	09/30/11 02:22	BS	NA

NOTES: Project Cost Code MR8R032NFM00

Project Manager Review

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

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

Analysis Description	Analysis Results	Analysis Error +/- 1 s	MDC	DLC	Qual	Analysis Units	Analysis Test Method	Analysis Date/Time	Analysis Technician	Tracer/Chem Recovery
H-3	1485.604	107.798	201.302	98.847		pCi/L	ARS-054/EPA:906.0	09/30/11 05:32	BS	NA

NOTES: Project Cost Code MR8R032NFM00

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

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

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

Analysis Description	Analysis Results	Analysis Error +/- 1 s	MDC	DLC	Qual	Analysis Units	Analysis Test Method	Analysis Date/Time	Analysis Technician	Tracer/Chem Recovery
H-3	58095.031	3050.570	202.490	99.431		pCi/L	ARS-054/EPA:906.0	09/30/11 08:41	BS	NA

NOTES: Project Cost Code MR8R032NFM00

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

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

Analysis Description	Analysis Results	Analysis Error +/- 1 s	MDC	DLC	Qual	Analysis Units	Analysis Test Method	Analysis Date/Time	Analysis Technician	Tracer/Chem Recovery
H-3	11568.904	620.326	201.183	98.789		pCi/L	ARS-054/EPA:906.0	09/30/11 11:50	BS	NA

NOTES: Project Cost Code MR8R032NFM00

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

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

Analysis Description	Analysis Results	Analysis Error +/- 1 s	MDC	DLC	Qual	Analysis Units	Analysis Test Method	Analysis Date/Time	Analysis Technician	Tracer/Chem Recovery
H-3	14968.277	797.240	199.003	97.718		pCi/L	ARS-054/EPA:906.0	09/30/11 15:00	BS	NA

NOTES: Project Cost Code MR8R032NFM00

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

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

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

Analysis Description	Analysis Results	Analysis Error +/- 1 s	MDC	DLC	Qual	Analysis Units	Analysis Test Method	Analysis Date/Time	Analysis Technician	Tracer/Chem Recovery
H-3	13223.349	706.626	202.868	99.616		pCi/L	ARS-054/EPA:906.0	09/30/11 18:09	BS	NA

NOTES: Project Cost Code MR8R032NFM00

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

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

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

Analysis Description	Analysis Results	Analysis Error +/- 1 s	MDC	DLC	Qual	Analysis Units	Analysis Test Method	Analysis Date/Time	Analysis Technician	Tracer/Chem Recovery
H-3	16513.216	878.066	202.053	99.216		pCi/L	ARS-054/EPA:906.0	09/30/11 21:19	BS	NA

NOTES: Project Cost Code MR8R032NFM00

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

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

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

Analysis Description	Analysis Results	Analysis Error +/- 1 s	MDC	DLC	Qual	Analysis Units	Analysis Test Method	Analysis Date/Time	Analysis Technician	Tracer/Chem Recovery
H-3	54101.284	2841.871	203.215	99.787		pCi/L	ARS-054/EPA:906.0	10/01/11 00:28	BS	NA

NOTES: Project Cost Code MR8R032NFM00

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

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

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

Analysis Description	Analysis Results	Analysis Error +/- 1 s	MDC	DLC	Qual	Analysis Units	Analysis Test Method	Analysis Date/Time	Analysis Technician	Tracer/Chem Recovery
H-3	11778.117	631.320	202.350	99.362		pCi/L	ARS-054/EPA:906.0	10/01/11 03:37	BS	NA

NOTES: Project Cost Code MR8R032NFM00

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

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

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

Analysis Description	Analysis Results	Analysis Error +/- 1 s	MDC	DLC	Qual	Analysis Units	Analysis Test Method	Analysis Date/Time	Analysis Technician	Tracer/Chem Recovery
H-3	1936.298	128.396	202.326	99.350		pCi/L	ARS-054/EPA:906.0	10/01/11 06:47	BS	NA

NOTES: Project Cost Code MR8R032NFM00

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QC Results per Analytical Batch

Analytical Batch	ARS1-B11-03628
SDG	ARS1-11-02028
Analysis	Tritium (Aqueous)
Analysis Test Method	ARS-054/Liquid Scintillation Counter
Analysis Code	LSC-A-001
Report Units	pCi/L

Acceptable QC Performance Ranges

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

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

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

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

Susan Leese

Susan Leese

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American Radiation Services Analytical Reports

for

Los Alamos National Laboratory

Tritium

by

Low Level Liquid Scintillation Counting

Samples

Procedure		Isotope			
ARS-054		H-3			
Variable	Value	Calculated Values	Excel	VBA	V/V
Gross Count Rate	15.900000	ACT	2439.613006	2439.613006	OK
Sample Count Mins	180.000000	CU	161.608865	161.608865	OK
BKG Count Rate	5.660000	TPU	297.672403	297.672403	OK
BKG Count Mins	180.000000	MDA	200.150825	200.150825	OK
Instrument Efficiency	0.373600	DL	98.281969	98.281969	OK
Sample Aliquot	5.060800	Net Count Rate	10.240000	10.240000	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)	9/29/11 4:34 PM	K	0.004197	0.004197	OK
Count Date (t2)	9/29/11 4:34 PM	K MDA	0.755530	0.755530	OK
Activity Units = pCi --- UCF =	2.2200				
CF	1.9600				
Nuclide Abundance	1.000000				
Halflife Days 1 - Result Isotope	4499.800000				
TPUF_Calibration Factor	0.041330				
TPUF_Aliquoting Factor	0.020000				
TPUF_Yield Factor	0.000000				
TPUF_Decay Ingrowth Factor	0.025000				
TPUF_Analysis Factor	0.000000				
TPUF_Unassigned Factor	0.000000				
Activity Units	pCi	Batch Identifiers and Other Related Information			
Aliquot Units	L	Batch	ARS1-B11-03628		
		Batch ID	ARS1-B11-03628-01		
		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	71		
		Instr Detector	P-54-S-2		
		Instr keV			
		Version/Date	1.0 -- 11/18/2005		
Variables Intact Test	OK				

Reviewed by: *SDH*

Date: *10-12-11*

Procedure		Isotope			
ARS-054		H-3			
Variable	Value	Calculated Values	Excel	VBA	V/V
Gross Count Rate	15.880000	ACT	2424.038449	2424.038449	OK
Sample Count Mins	180.000000	CU	160.816748	160.816748	OK
BKG Count Rate	5.660000	TPU	295.902203	295.902203	OK
BKG Count Mins	180.000000	MDA	199.262240	199.262240	OK
Instrument Efficiency	0.375600	DL	97.845638	97.845638	OK
Sample Aliquot	5.056300	Net Count Rate	10.220000	10.220000	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)	9/29/11 7:43 PM	K	0.004216	0.004216	OK
Count Date (t2)	9/29/11 7:43 PM	K MDA	0.758899	0.758899	OK
Activity Units = pCi --- UCF =	2.2200				
CF	1.9600				
Nuclide Abundance	1.000000				
Halflife Days 1 - Result Isotope	4499.800000				
TPUF_Calibration Factor	0.041330				
TPUF_Aliquoting Factor	0.020000				
TPUF_Yield Factor	0.000000				
TPUF_Decay Ingrowth Factor	0.025000				
TPUF_Analysis Factor	0.000000				
TPUF_Unassigned Factor	0.000000				
Activity Units	pCi	Batch Identifiers and Other Related Information			
Aliquot Units	L	Batch	ARS1-B11-03628		
		Batch ID	ARS1-B11-03628-02		
		Analysis Code			
		SDG	QC Sample		
		Fraction	N/A QC Sample		
		Run Number			
		Client	QC Sample		
		Client Profile			
		Client ID	N/A QC Sample		
		Instr File Name	71		
		Instr Detector	P-54-S-3		
		Instr keV			
		Version/Date	1.0 -- 11/18/2005		
Variables Intact Test	OK				

Procedure		ARS-054		Isotope		H-3		
Variable	Value	Calculated Values	Excel	VBA	V/V			
Gross Count Rate	5.940000	ACT	66.357489	66.357489	OK			
Sample Count Mins	180.000000	CU	117.918169	117.918169	OK			
BKG Count Rate	5.660000	TPU	118.114048	118.114048	OK			
BKG Count Mins	180.000000	MDA	199.098650	199.098650	OK			
Instrument Efficiency	0.375100	DL	97.765309	97.765309	OK			
Sample Aliquot	5.067200	Net Count Rate	0.280000	0.280000	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)	9/29/11 10:52 PM	K	0.004220	0.004220	OK			
Count Date (t2)	9/29/11 10:52 PM	K MDA	0.759522	0.759522	OK			
Activity Units = pCi --- UCF =	2.2200							
CF	1.9600							
Nuclide Abundance	1.000000							
Halflife Days 1 - Result Isotope	4499.800000							
TPUF_Calibration Factor	0.041330							
TPUF_Aliquoting Factor	0.020000							
TPUF_Yield Factor	0.000000							
TPUF_Decay Ingrowth Factor	0.025000							
TPUF_Analysis Factor	0.000000							
TPUF_Unassigned Factor	0.000000							
Activity Units	pCi	Batch Identifiers and Other Related Information						
Aliquot Units	L	Batch	ARS1-B11-03628					
		Batch ID	ARS1-B11-03628-03					
		Analysis Code						
		SDG	QC Sample					
		Fraction	N/A QC Sample					
		Run Number						
		Client	QC Sample					
		Client Profile						
		Client ID	N/A QC Sample					
		Instr File Name	71					
		Instr Detector	P-54-S-4					
		Instr keV						
		Version/Date	1.0 -- 11/18/2005					
Variables Intact Test	OK							

Procedure		ARS-054			
Variable	Value	Isotope		H-3	
		Calculated Values	Excel	VBA	V/V
Gross Count Rate	231.610000	ACT	54381.478922	54381.478914	OK
Sample Count Mins	180.000000	CU	276.327324	276.327324	OK
BKG Count Rate	5.660000	TPU	2856.445493	2856.445492	OK
BKG Count Mins	180.000000	MDA	202.197168	202.197168	OK
Instrument Efficiency	0.372100	DL	99.286804	99.286804	OK
Sample Aliquot	5.041100	Net Count Rate	225.950000	225.950000	OK
Dilution Factor	1.000000	D t 1 (t2 - t1)	14.598611	14.598611	OK
Aliquot Conversion Factor	0.001000	DF	0.997754	0.997754	OK
		Sys Err	0.052280	0.052280	OK
Sample Collection Date (t1)	9/15/11 12:00 PM	K	0.004155	0.004155	OK
Count Date (t2)	9/30/11 2:22 AM	K MDA	0.747883	0.747883	OK
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	Batch Identifiers and Other Related Information			
Aliquot Units	L	Batch	ARS1-B11-03628		
		Batch ID	ARS1-B11-03628-07		
		Analysis Code	LSC-A-001		
		SDG	ARS1-11-02028		
		Fraction	001		
		Run Number	1		
		Client	Los Alamos National Laboratory		
		Client Profile	Keith Greene		
		Client ID	MD21-11-26384		
		Instr File Name	71		
		Instr Detector	P-54-S-B		
		Instr keV			
		Version/Date	1.0 -- 11/18/2005		
Variables Intact Test	OK				

Reviewed by: *SDR*

Date: *10-12-11*

Procedure		Isotope			
ARS-054		H-3			
Variable	Value	Calculated Values	Excel	VBA	V/V
Gross Count Rate	11.860000	ACT	1485.603683	1485.603682	OK
Sample Count Mins	180.000000	CU	74.755315	74.755315	OK
BKG Count Rate	5.660000	TPU	107.798474	107.798474	OK
BKG Count Mins	180.000000	MDA	201.301809	201.301809	OK
Instrument Efficiency	0.373200	DL	98.847147	98.847147	OK
Sample Aliquot	5.048700	Net Count Rate	6.200000	6.200000	OK
Dilution Factor	1.000000	D t 1 (t2 - t1)	14.730556	14.730556	OK
Aliquot Conversion Factor	0.001000	DF	0.997733	0.997733	OK
Sample Collection Date (t1)	9/15/11 12:00 PM	Sys Err	0.052280	0.052280	OK
Count Date (t2)	9/30/11 5:32 AM	K	0.004173	0.004173	OK
Activity Units = pCi --- UCF =	2.2200	K MDA	0.751210	0.751210	OK
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	Batch Identifiers and Other Related Information			
Aliquot Units	L	Batch	ARS1-B11-03628		
		Batch ID	ARS1-B11-03628-08		
		Analysis Code	LSC-A-001		
		SDG	ARS1-11-02028		
		Fraction	002		
		Run Number	1		
		Client	Los Alamos National Laboratory		
		Client Profile	Keith Greene		
		Client ID	MD21-11-26391		
		Instr File Name	71		
		Instr Detector	P-54-S-9		
		Instr keV			
		Version/Date	1.0 -- 11/18/2005		
0	Variables Intact Test				OK

Reviewed by: *SJK*

Date: 10-12-11

Procedure		Isotope				
ARS-054		H-3				
Variable	Value	Calculated Values		Excel	VBA	V/V
Gross Count Rate	246.690000	ACT	58095.031444	58095.031435	OK	
Sample Count Mins	180.000000	CU	285.386413	285.386413	OK	
BKG Count Rate	5.660000	TPU	3050.570399	3050.570398	OK	
BKG Count Mins	180.000000	MDA	202.490331	202.490331	OK	
Instrument Efficiency	0.372500	DL	99.430759	99.430759	OK	
Sample Aliquot	5.028600	Net Count Rate	241.030000	241.030000	OK	
Dilution Factor	1.000000	D t 1 (t2 - t1)	14.861806	14.861806	OK	
Aliquot Conversion Factor	0.001000	DF	0.997713	0.997713	OK	
		Sys Err	0.052280	0.052280	OK	
Sample Collection Date (t1)	9/15/11 12:00 PM	K	0.004149	0.004149	OK	
Count Date (t2)	9/30/11 8:41 AM	K MDA	0.746801	0.746801	OK	
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	Batch Identifiers and Other Related Information				
Aliquot Units	L	Batch	ARS1-B11-03628			
		Batch ID	ARS1-B11-03628-09			
		Analysis Code	LSC-A-001			
		SDG	ARS1-11-02028			
		Fraction	003			
		Run Number	1			
		Client	Los Alamos National Laboratory			
		Client Profile	Keith Greene			
		Client ID	MD21-11-26388			
		Instr File Name	71			
		Instr Detector	P-54-S-10			
		Instr keV				
		Version/Date	1.0 -- 11/18/2005			
Variables Intact Test	OK					

Reviewed by:

Signature

Date: 10-12-11

Procedure		Isotope			
ARS-054		H-3			
Variable	Value	Calculated Values	Excel	VBA	V/V
Gross Count Rate	53.970000	ACT	11568.903852	11568.903850	OK
Sample Count Mins	180.000000	CU	137.832403	137.832403	OK
BKG Count Rate	5.660000	TPU	620.325583	620.325583	OK
BKG Count Mins	180.000000	MDA	201.183137	201.183136	OK
Instrument Efficiency	0.371500	DL	98.788874	98.788874	OK
Sample Aliquot	5.075000	Net Count Rate	48.310000	48.310000	OK
Dilution Factor	1.000000	D t 1 (t2 - t1)	14.993056	14.993056	OK
Aliquot Conversion Factor	0.001000	DF	0.997693	0.997693	OK
		Sys Err	0.052280	0.052280	OK
Sample Collection Date (t1)	9/15/11 12:00 PM	K	0.004176	0.004176	OK
Count Date (t2)	9/30/11 11:50 AM	K MDA	0.751653	0.751653	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-B11-03628		
		Batch ID	ARS1-B11-03628-10		
		Analysis Code	LSC-A-001		
		SDG	ARS1-11-02028		
		Fraction	004		
		Run Number	1		
		Client	Los Alamos National Laboratory		
		Client Profile	Keith Greene		
		Client ID	MD21-11-26389		
		Instr File Name	71		
		Instr Detector	P-54-S-11		
		Instr keV			
		Version/Date	1.0 -- 11/18/2005		
Variables Intact Test	OK				

Reviewed by: Sid

Date: 10-12-11

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

Reviewed by: SDH

Date: 10-12-11

Procedure		Isotope			
ARS-054		H-3			
Variable	Value	Calculated Values	Excel	VBA	V/V
Gross Count Rate	60.420000	ACT	13223.349220	13223.349218	OK
Sample Count Mins	180.000000	CU	146.310937	146.310937	OK
BKG Count Rate	5.660000	TPU	706.626144	706.626144	OK
BKG Count Mins	180.000000	MDA	202.868411	202.868411	OK
Instrument Efficiency	0.371400	DL	99.616411	99.616411	OK
Sample Aliquot	5.034400	Net Count Rate	54.760000	54.760000	OK
Dilution Factor	1.000000	D t 1 (t2 - t1)	15.256250	15.256250	OK
Aliquot Conversion Factor	0.001000	DF	0.997653	0.997653	OK
		Sys Err	0.052280	0.052280	OK
Sample Collection Date (t1)	9/15/11 12:00 PM	K	0.004141	0.004141	OK
Count Date (t2)	9/30/11 6:09 PM	K MDA	0.745409	0.745409	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-B11-03628		
		Batch ID	ARS1-B11-03628-12		
		Analysis Code	LSC-A-001		
		SDG	ARS1-11-02028		
		Fraction	006		
		Run Number	1		
		Client	Los Alamos National Laboratory		
		Client Profile	Keith Greene		
		Client ID	MD21-11-26386		
		Instr File Name	71		
		Instr Detector	P-54-S-13		
		Instr keV			
		Version/Date	1.0 -- 11/18/2005		
Variables Intact Test	OK				

Reviewed by: SDH

Date: 10-12-11

Procedure		ARS-054		Isotope		H-3		
Variable	Value	Calculated Values	Excel	VBA	V/V			
Gross Count Rate	229.320000	ACT	54101.283836	54101.283827	OK			
Sample Count Mins	180.000000	CU	276.374804	276.374804	OK			
BKG Count Rate	5.660000	TPU	2841.870647	2841.870646	OK			
BKG Count Mins	180.000000	MDA	203.214948	203.214948	OK			
Instrument Efficiency	0.369900	DL	99.786574	99.786574	OK			
Sample Aliquot	5.046400	Net Count Rate	223.660000	223.660000	OK			
Dilution Factor	1.000000	D t 1 (t2 - t1)	15.519444	15.519444	OK			
Aliquot Conversion Factor	0.001000	DF	0.997612	0.997612	OK			
		Sys Err	0.052280	0.052280	OK			
Sample Collection Date (t1)	9/15/11 12:00 PM	K	0.004134	0.004134	OK			
Count Date (t2)	10/1/11 12:28 AM	K MDA	0.744138	0.744138	OK			
Activity Units = pCi --- UCF =	2.2200							
CF	1.0000							
Nuclide Abundance	1.000000							
Halfife 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-B11-03628					
		Batch ID	ARS1-B11-03628-14					
		Analysis Code	LSC-A-001					
		SDG	ARS1-11-02028					
		Fraction	008					
		Run Number	1					
		Client	Los Alamos National Laboratory					
		Client Profile	Keith Greene					
		Client ID	MD21-11-26387					
		Instr File Name	71					
		Instr Detector	P-54-S-15					
		Instr keV						
		Version/Date	1.0 -- 11/18/2005					
Variables Intact Test	OK							

Reviewed by: SDK

Date: 10-12-11

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

Procedure		Isotope			
ARS-054		H-3			
Variable	Value	Calculated Values	Excel	VBA	V/V
Gross Count Rate	13.700000	ACT	1936.297652	1936.297652	OK
Sample Count Mins	180.000000	CU	78.982794	78.982794	OK
BKG Count Rate	5.660000	TPU	128.396306	128.396306	OK
BKG Count Mins	180.000000	MDA	202.326361	202.326361	OK
Instrument Efficiency	0.372100	DL	99.350243	99.350243	OK
Sample Aliquot	5.038800	Net Count Rate	8.040000	8.040000	OK
Dilution Factor	1.000000	D t 1 (t2 - t1)	15.782639	15.782639	OK
Aliquot Conversion Factor	0.001000	DF	0.997572	0.997572	OK
		Sys Err	0.052280	0.052280	OK
Sample Collection Date (t1)	9/15/11 12:00 PM	K	0.004152	0.004152	OK
Count Date (t2)	10/1/11 6:47 AM	K MDA	0.747406	0.747406	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-B11-03628		
		Batch ID	ARS1-B11-03628-16		
		Analysis Code	LSC-A-001		
		SDG	ARS1-11-02028		
		Fraction	010		
		Run Number	1		
		Client	Los Alamos National Laboratory		
		Client Profile	Keith Greene		
		Client ID	MD21-11-26392		
		Instr File Name	71		
		Instr Detector	P-54-S-17		
		Instr keV			
		Version/Date	1.0 -- 11/18/2005		
Variables Intact Test	OK				

Reviewed by:

SDH

Date:

10-12-11



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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-B11-03628										
Method ARS-054		Tritium (Aqueous)		Analysis		LSC-A-001		Matrix		SI
Description										
ABatch Sample ID	Type	Blind Iso1	Blind Iso2	Blind Iso3	SDG	FR	Run	Client ID	Isotope Group	Lab Deadline
ARS1-B11-03628-01	LCS	B-12511								
ARS1-B11-03628-02	LCSD	B-12512								
ARS1-B11-03628-03	MBL									
ARS1-B11-03628-04	TRG				ARS1-11-01989	001	1	MD54-11-23141	STD	10/17/11
ARS1-B11-03628-05	TRG				ARS1-11-01989	002	1	MD54-11-23140	STD	10/17/11
ARS1-B11-03628-06	TRG				ARS1-11-01989	003	1	MD54-11-23142	STD	10/17/11
ARS1-B11-03628-07	TRG				ARS1-11-02028	001	1	MD21-11-26384	STD	10/17/11
ARS1-B11-03628-08	TRG				ARS1-11-02028	002	1	MD21-11-26391	STD	10/17/11
ARS1-B11-03628-09	TRG				ARS1-11-02028	003	1	MD21-11-26388	STD	10/17/11
ARS1-B11-03628-10	TRG				ARS1-11-02028	004	1	MD21-11-26389	STD	10/17/11
ARS1-B11-03628-11	TRG				ARS1-11-02028	005	1	MD21-11-26385	STD	10/17/11
ARS1-B11-03628-12	TRG				ARS1-11-02028	006	1	MD21-11-26386	STD	10/17/11
ARS1-B11-03628-13	TRG				ARS1-11-02028	007	1	MD21-11-26393	STD	10/17/11
ARS1-B11-03628-14	TRG				ARS1-11-02028	008	1	MD21-11-26387	STD	10/17/11
ARS1-B11-03628-15	TRG				ARS1-11-02028	009	1	MD21-11-26390	STD	10/17/11
ARS1-B11-03628-16	TRG				ARS1-11-02028	010	1	MD21-11-26392	STD	10/17/11
ARS1-B11-03628-17	TRG				ARS1-11-02029	001	1	MD54-11-23144	STD	10/17/11
ARS1-B11-03628-18	TRG				ARS1-11-02029	002	1	MD54-11-23143	STD	10/17/11
ARS1-B11-03628-19	TRG				ARS1-11-02029	003	1	MD54-11-23145	STD	10/17/11

96839 11-01989-001-1 WRAD
 96840 11-01989-002-1 WRAD
 96841 11-01989-003-1 WRAD
 96842 11-02028-001-1 WRAD
 96843 11-02028-001-1 WRAD
 96844 11-02028-002-1 WRAD
 96845 11-02028-003-1 WRAD
 96846 11-02028-003-1 WRAD
 96847 11-02028-004-1 WRAD
 96848 11-02028-005-1 WRAD
 96850 11-02028-006-1 WRAD

96851 11-02028-007-1 WRAD
 96852 11-02028-008-1 WRAD
 96853 11-02028-009-1 WRAD
 96854 11-02028-010-1 WRAD
 96855 11-02028-010-1 WRAD
 96856 11-02029-001-1 WRAD
 96857 11-02029-001-1 WRAD
 96858 11-02029-002-1 WRAD
 96859 11-02029-003-1 WRAD
 96860 11-02029-003-1 WRAD

LCS Report
Analytical Batch: ARS1-B11-03628

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

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

* Recounted using 1.0058 g for 10-10-11

Assay Definition-

Assay Description:
H3 Normal Lvl

Assay Type: DPM (Single)

Report Name: Report1

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

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

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

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

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

Count Conditions-

Nuclide: H-3 Normal

Quench Indicator: tSIE/AEC

External Std Terminator (sec): 0.5 2s%

Pre-Count Delay (min): 0.00

Quench Set:

Low Energy: UG STD H-3

Count Time (min): 180.00

Count Mode: Normal

Assay Count Cycles: 1

#Vials/Sample: 1

Repeat Sample Count: 1

Calculate % Reference: Off

Background Subtract: Off

Low CPM Threshold: Off

2 Sigma % Terminator: On - Any Region

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

Count Corrections-

Static Controller: On

Colored Samples: Off

Coincidence Time (nsec): 18

10

Half Life-

Luminescence Correction: Off

Heterogeneity Monitor: Off

Delay Before Burst (nsec): 75

Half Life Correction: Off

Regions Half Life

Units

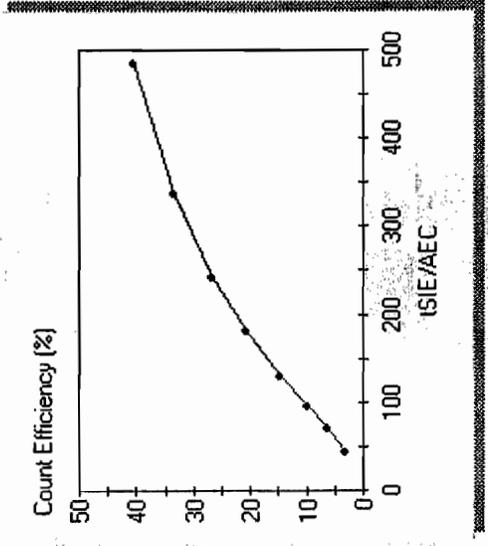
Reference Date

Reference Time

- A
- B
- C

Cycle 1 Results
 Quench Curve Block Data

UG STD H-3 in A



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

tSIE/AEC	Count Efficiency (%)
40.41	487.53
33.51	339.12
26.83	243.83
20.93	182.60
14.63	830.85
9.97	26.86
6.34	51.30
3.09	46.31

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

061533

Serial# 061533

QuantaSmart (TM) - 2.03 -

11:44:04 AM

Protocol# 54 - H-3 Normal 3.1sa

Recount

Assay Definition-

Assay Description:
H3 Normal Lvl

Assay Type: DPM (Single)

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

Count Conditions-

Nuclide: H-3 Normal
Quench Indicator: tSIE/AEC
External Std Terminator (sec): 0.5 2s%
Pre-Count Delay (min): 0.00

Quench Set:

Low Energy: UG STD H-3
Count Time (min): 60.00

Count Mode: Normal
Assay Count Cycles: 1 Repeat Sample Count: 1
#Vials/Sample: 1 Calculate % Reference: Off

Background Subtract: Off

Low CPM Threshold: Off

2 Sigma % Terminator: On - Any Region

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

Count Corrections-

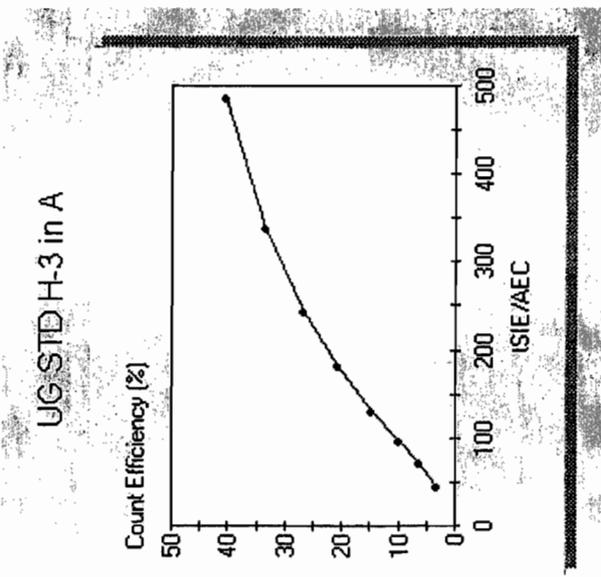
Static Controller: On Luminescence Correction: Off
Colored Samples: Off Heterogeneity Monitor: Off
Coincidence Time (nsec): 18 Delay Before Burst (nsec): 75

Half Life-

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

- A
- B
- C

Cycle 1 Results
 Quench Curve Block Data



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

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

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

Protocol# 23 - H3 Normal Lvl.lsa

User: ARS

*Recounted
x12
on*

Assay Definition-

Assay Description:
H3 Normal Lvl

Assay Type: DPM (Single)

Report Name: Report1

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

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

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

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

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

Count Conditions-

Nuclide: Standard H3

Quench Indicator: tSIE/AEC

External Std Terminator (sec): 0.5 2s%

Pre-Count Delay (min): 0.00

Quench Set:

Low Energy: PE UG STD H3

Count Time (min): 10.00

Count Mode: Normal

Assay Count Cycles: 1

#Vials/Sample: 1

Repeat Sample Count: 1

Calculate % Reference: Off

Background Subtract: Off

Low CPM Threshold: Off

2 Sigma % Terminator: On - Any Region

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

Count Corrections-

Static Controller: On

Colored Samples: Off

Coincidence Time (nsec): 18

Delay Before Burst (nsec): 75

Half Life-

Luminescence Correction: n/a

Heterogeneity Monitor: n/a

Units Reference Date Reference Time

Half Life Correction: Off

Regions Half Life

A
B
C

Cycle 1 Results

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

*Recount for 11-14-01 by
105580
using*

Assay Definition-
 Assay Description:
 H3 Normal Lvl
 Assay Type: DPM (Single)
 Report Name: Report1
 Output Data Path: C:\Packard\Tricarb\Results\ARS\H-3 Normal 3\20111004_1023
 Raw Results Path: C:\Packard\Tricarb\Results\ARS\H-3 Normal 3\20111004_1023\20111004_1023.results
 RTF File Name: C:\Packard\Tricarb\Results\ARS\H-3 Normal 3\20111004_1023\H3 Results.rtf
 Comma-Delimited File Name: C:\Packard\Tricarb\Results\ARS\H-3 Normal 3\20111004_1023\H3 Results.csv
 Assay File Name: C:\Packard\TriCarb\Assays\H-3 Normal 3.lsa

Count Conditions-

Nuclide: H-3 Normal
 Quench Indicator: tSIE/AEC
 External Std Terminator (sec): 0.5 2s%
 Pre-Count Delay (min): 0.00
 Quench Set:
 Low Energy: UG STD H-3
 Count Time (min): 60.00
 Count Mode: Normal
 Assay Count Cycles: 1 Repeat Sample Count: 1
 #Vials/Sample: 1 Calculate % Reference: Off

Background Subtract: Off
 Low CPM Threshold: Off
 2 Sigma % Terminator: On - Any Region

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

Count Corrections-

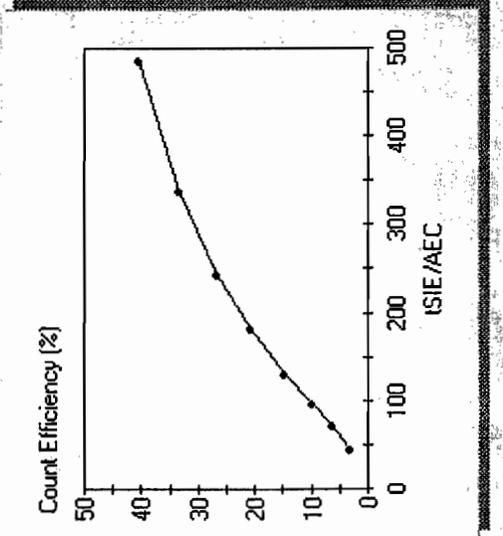
Static Controller: On Luminescence Correction: Off
 Spored Samples: Off Heterogeneity Monitor: Off
 Coincidence Time (nsec): 18 Delay Before Burst (nsec): 75
 Half Life-

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

- A
- B
- C

Cycle 1 Results
 Quench Curve Block Data

UG STD H-3 in A



Date Acquired: 06/15/2011

Date Modified:

UG STD H-3 in A

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

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

MESSAGES
E

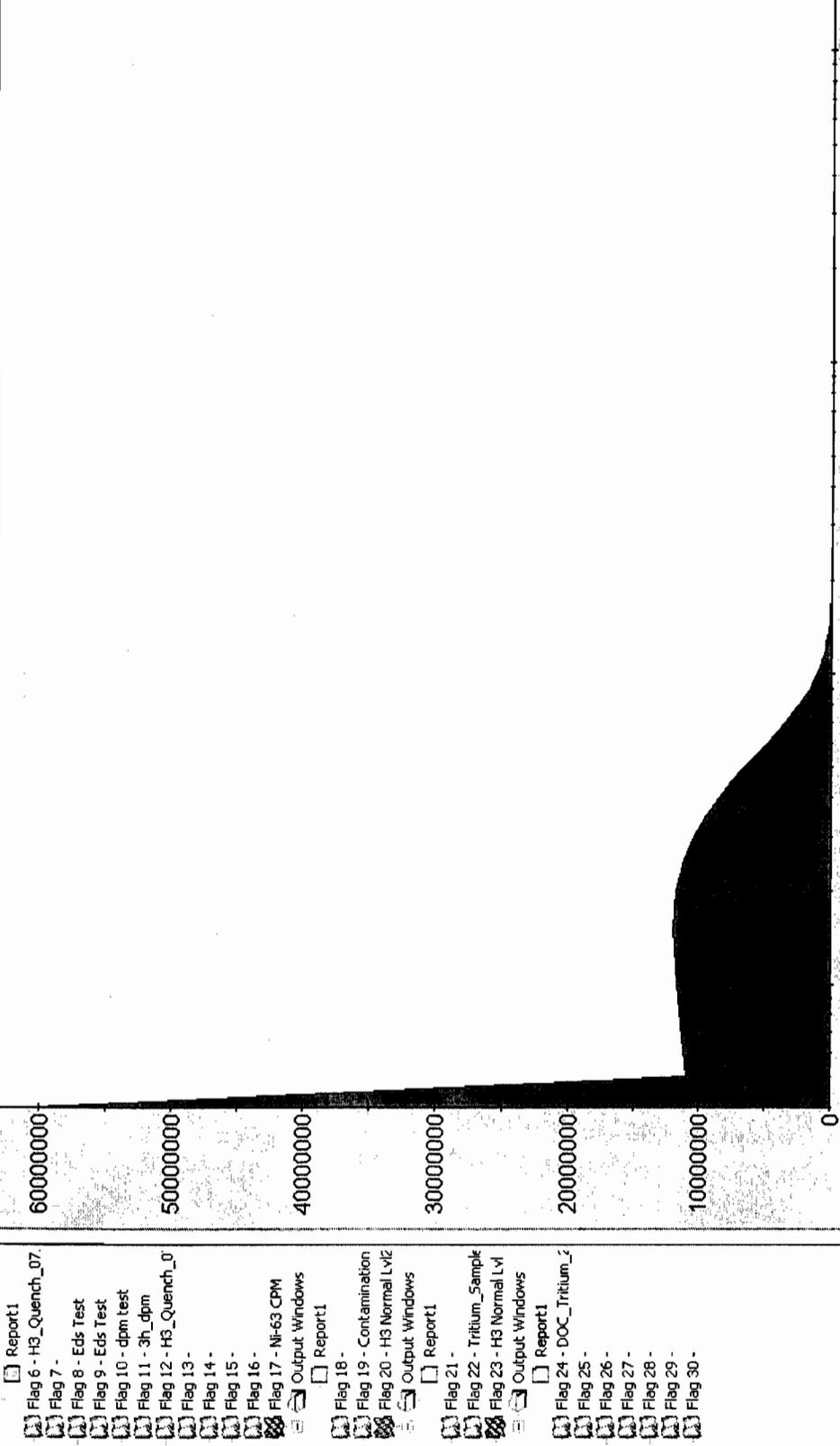
Protocols
 SMC
 Output Windows
 Report1
 Priostat (group) - 3h_dc
 Flag 1 - H3-Quench 01V
 Flag 2 - Tritium_Sample
 Flag 3 - Contamination_
 Flag 4 - H3 Low Lvl Qui
 Output Windows
 Report1
 Flag 5 - Low Level H3
 Output Windows
 Report1
 Flag 6 - H3_Quench_07
 Flag 7 -
 Flag 8 - Eds Test
 Flag 9 - Eds Test
 Flag 10 - dpm test
 Flag 11 - 3h_dpm
 Flag 12 - H3_Quench_0
 Flag 13 -
 Flag 14 -
 Flag 15 -
 Flag 16 -
 Flag 17 - Ni-63 CPM
 Output Windows
 Report1
 Flag 18 -
 Flag 19 - Contamination
 Flag 20 - H3 Normal Lv2
 Output Windows
 Report1
 Flag 21 -
 Flag 22 - Tritium_Sample
 Flag 23 - H3 Normal Lvl
 Output Windows
 Report1
 Flag 24 - DOC_Tritium_2
 Flag 25 -
 Flag 26 -
 Flag 27 -
 Flag 28 -
 Flag 29 -
 Flag 30 -

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

Scale
 keV Full Scale: Auto
 Counts Full Scale: Auto
 Log keV Scale
 Linear keV Scale

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

Restore



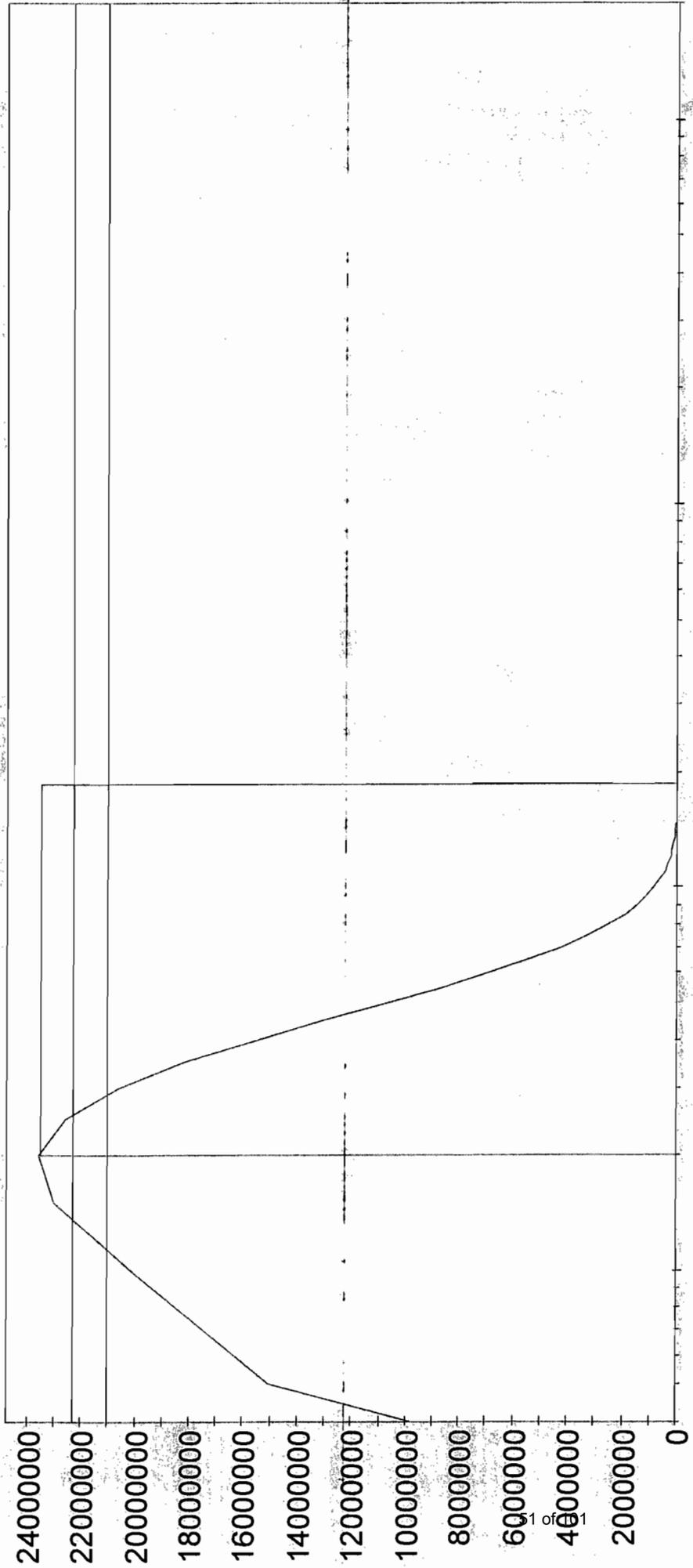
Protocol # 54

SpectraView - H-3 Normal 3.1sa

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

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

Counts #



Batch Result Verification Report

ABatchSampleID	SDG	Fraction	ClientID	Run	Isotope	ACT	TPU	TPU1s	TPU2s	MDA	DL	CU	CU1s	CU2s	ActivityReportUnits
ARS1-B11-03628-01				1	H-3	2439.613006	297.6724033	151.8736751	297.6724033	200.1508247	98.28196853	161.6088651	82.45350261	161.6088651	pCi
ARS1-B11-03628-02				1	H-3	2424.038449	295.902203	150.9705117	295.902203	199.2622403	97.84563849	160.8167484	82.04936142	160.8167484	pCi
ARS1-B11-03628-03				1	H-3	66.35748945	118.1140482	60.26226949	118.1140482	199.0986502	97.76530929	117.9181695	60.1623138	117.9181695	pCi
ARS1-B11-03628-04	ARS1-11-01989	001	MD54-11-23141	1	H-3	3153904.197	165073.6745	165073.6745	323544.402	612.0640569	279.3295221	7885.538019	7885.538019	15455.65452	pCi
ARS1-B11-03628-05	ARS1-11-01989	002	MD54-11-23140	1	H-3	37366745.86	1955748.184	1955748.184	3833266.44	2467.219829	918.1722104	93269.05357	93269.05357	182807.345	pCi
ARS1-B11-03628-06	ARS1-11-01989	003	MD54-11-23142	1	H-3	1453022050	76048049.69	76048049.69	149054177.4	64315.39535	20184.08847	3583286.562	3583286.562	7023241.662	pCi
ARS1-B11-03628-07	ARS1-11-02028	001	MD21-11-26384	1	H-3	54381.47891	2856.445492	2856.445492	5598.633165	202.1971682	99.2868041	276.3273239	276.3273239	541.6015548	pCi
ARS1-B11-03628-08	ARS1-11-02028	002	MD21-11-26391	1	H-3	1485.603682	107.7984736	107.7984736	211.2850083	201.3018092	98.84714746	74.75531505	74.75531505	146.5204175	pCi
ARS1-B11-03628-09	ARS1-11-02028	003	MD21-11-26388	1	H-3	58095.03144	3050.570398	3050.570398	5979.117981	202.4903312	99.43075874	285.3864126	285.3864126	559.3573687	pCi
ARS1-B11-03628-10	ARS1-11-02028	004	MD21-11-26389	1	H-3	11568.90385	620.3255834	620.3255834	1215.838143	201.1831365	98.78887445	137.8324025	137.8324025	270.1515089	pCi
ARS1-B11-03628-11	ARS1-11-02028	005	MD21-11-26385	1	H-3	14968.27688	797.2398637	797.2398637	1562.590133	199.0031066	97.71839358	152.40334	152.40334	298.7105464	pCi
ARS1-B11-03628-12	ARS1-11-02028	006	MD21-11-26386	1	H-3	13223.34922	706.6261443	706.6261443	1384.987243	202.8684114	99.61641108	146.3109373	146.3109373	286.7694372	pCi
ARS1-B11-03628-13	ARS1-11-02028	007	MD21-11-26393	1	H-3	16513.21564	878.0658019	878.0658019	1721.008972	202.0525118	99.21577209	160.3180053	160.3180053	314.2232903	pCi
ARS1-B11-03628-14	ARS1-11-02028	008	MD21-11-26387	1	H-3	54101.28383	2841.870646	2841.870646	5570.066467	203.2149482	99.78657435	276.3748041	276.3748041	541.694616	pCi
ARS1-B11-03628-15	ARS1-11-02028	009	MD21-11-26390	1	H-3	11778.11746	631.3202222	631.3202222	1237.387636	202.3500996	99.36189949	139.3160476	139.3160476	273.0594534	pCi
ARS1-B11-03628-16	ARS1-11-02028	010	MD21-11-26392	1	H-3	1936.297652	128.3963062	128.3963062	251.6567602	202.326361	99.3502429	78.9879423	78.9879423	154.8062767	pCi
ARS1-B11-03628-17	ARS1-11-02029	001	MD54-11-23144	1	H-3	8243.103506	447.7402421	447.7402421	877.5708744	203.2018079	99.78012192	121.4738625	121.4738625	238.0887705	pCi
ARS1-B11-03628-18	ARS1-11-02029	002	MD54-11-23143	1	H-3	17258.04195	1051.851227	1051.851227	2061.628404	-2561.601032	-1257.847388	-540.6883998	-540.6883998	-1059.749264	pCi
ARS1-B11-03628-19	ARS1-11-02029	003	MD54-11-23145	1	H-3	21322.20567	1129.252362	1129.252362	2213.33463	204.7903094	100.560139	180.5898103	180.5898103	353.95660282	pCi

*

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

Batch Result Verification Report

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

Batch Result Verification Report

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

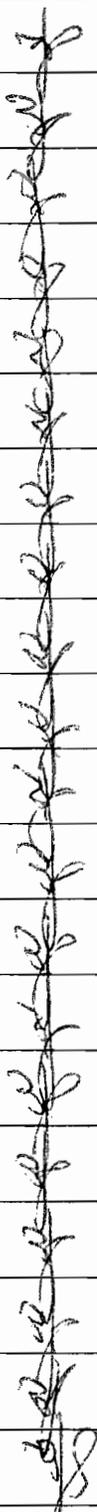
Batch Result Verification Report

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

Batch Result Verification Report

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

Beta Liquid Scintillation Counter Log Book

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

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



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American Radiation Services Analytical Reports

for

Los Alamos National Laboratory

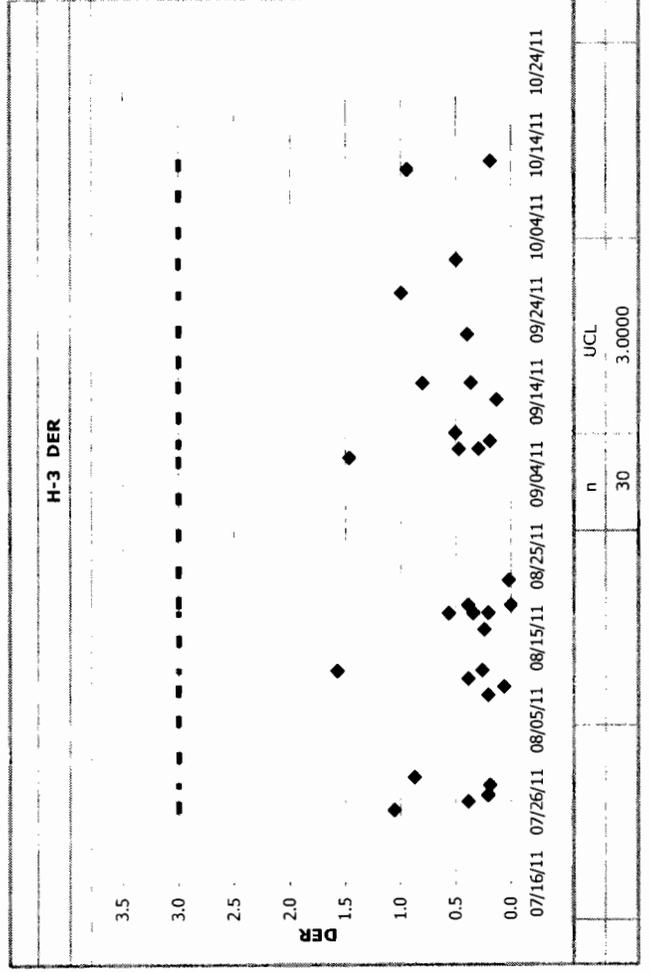
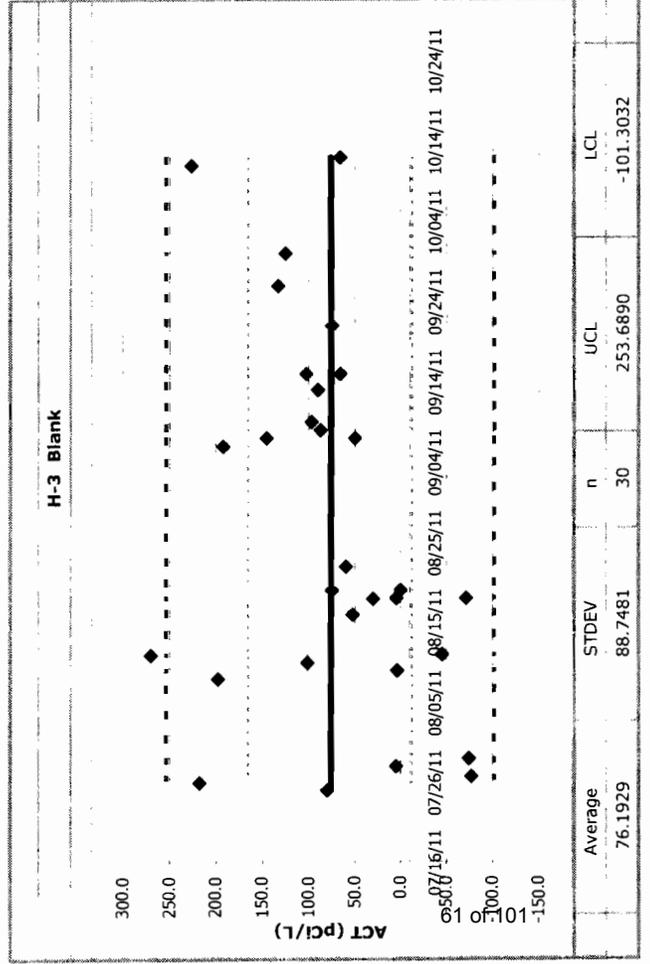
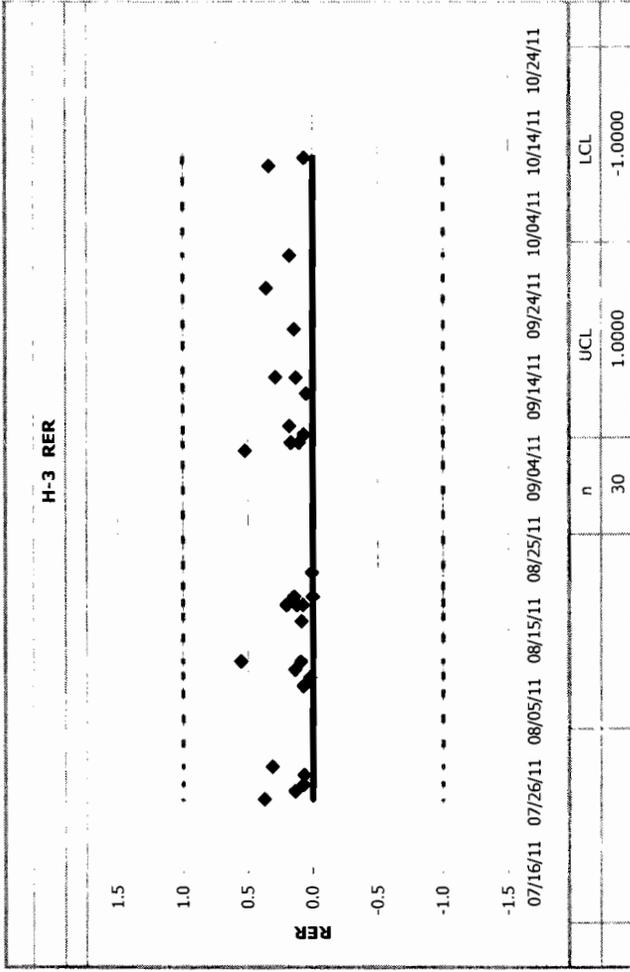
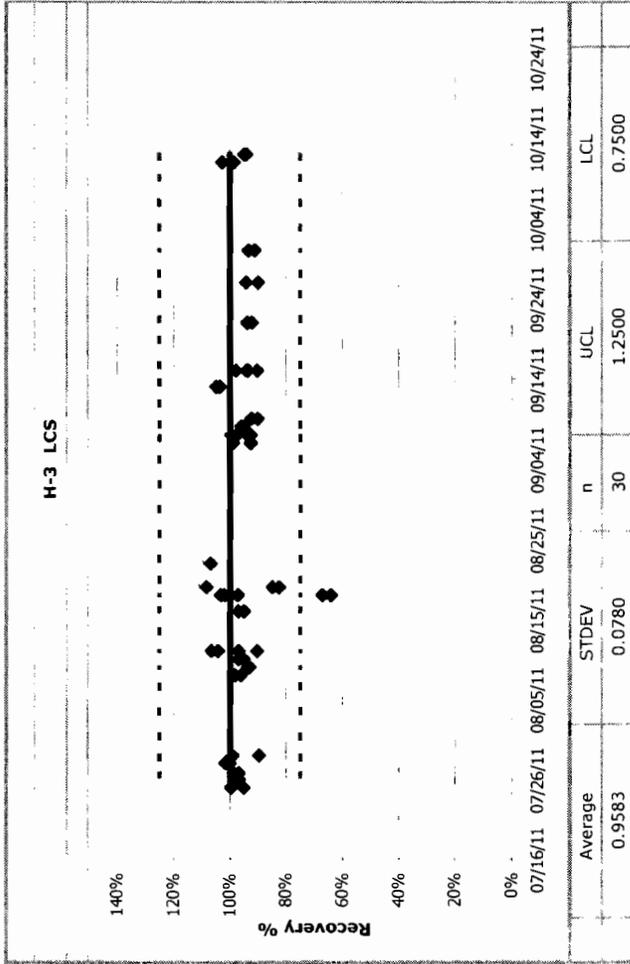
Tritium

by

Low Level Liquid Scintillation Counting

Control Charts

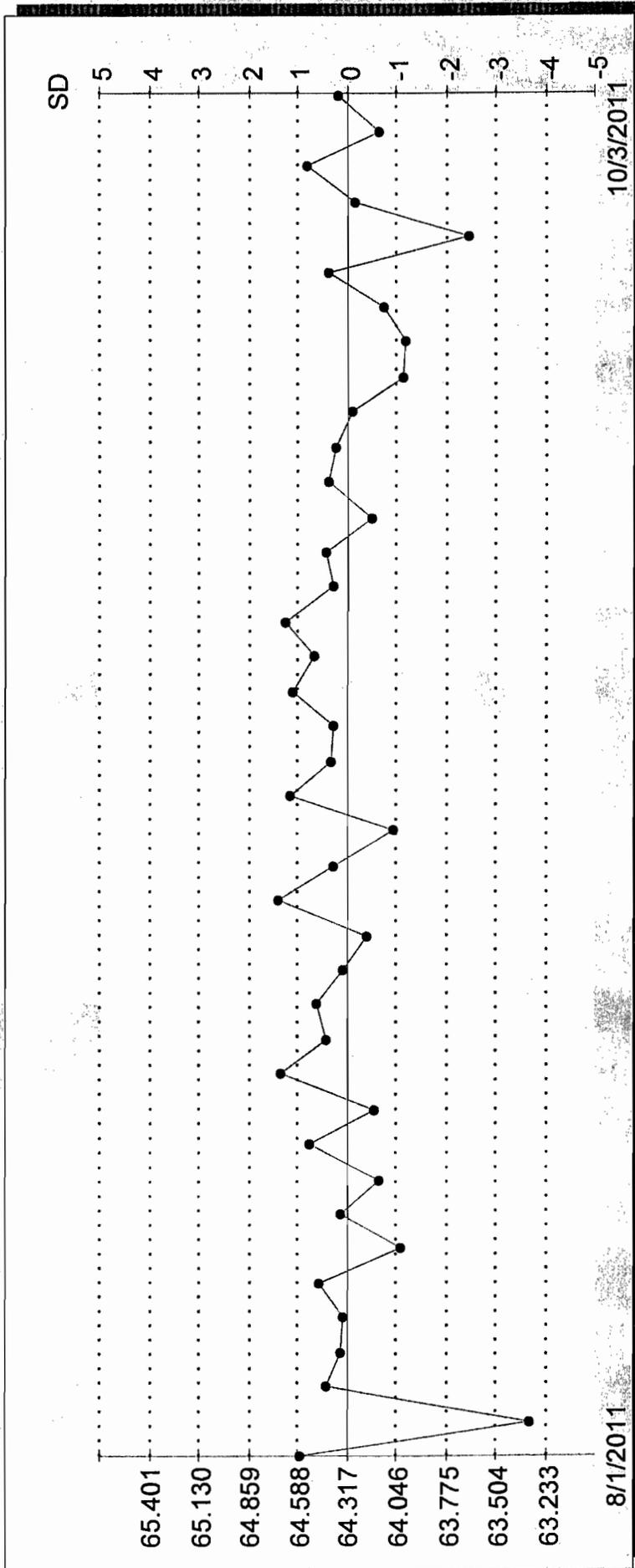
QC Chart



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

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

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

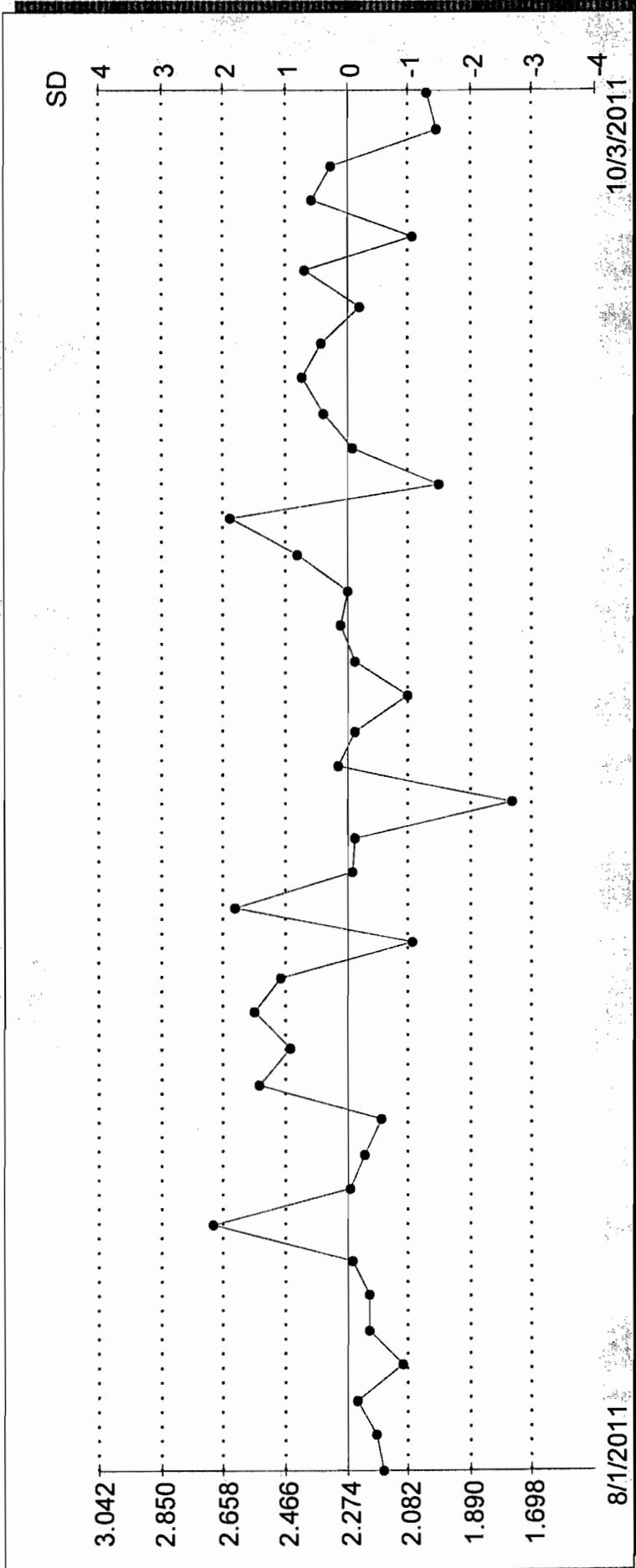


3H Background

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

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

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





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American Radiation Services Analytical Reports

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Low Level Liquid Scintillation Counting

Calibration Information

STD ID: S-0262

		Add/Edit Secondary Stds		Parent Standard Data			
Planning		Parent Solution Reference #		NIST SRM 4927F			
Planning Comments		Create an H3 LCS stock solution.		Parent Solution #		S-0237	
Target dpm/g (on dil. date)		5.5		Parent Principal Radionuclide		H-3	
Target Final volume mL		2000		Half Life (Days)		4499.8600000	
Appx mass g of Parent Sol'n		3.406758506		Parent Reference Date		03/22/2010 10:10	
Appx vol ml of Parent Sol'n		3.414985335		Parent Certified Act		3503.682716	
Expected Addition for Analysis g		5		Cert Act/Vol Units		dpm g	
Standards Preparation / Dilution		Parent Cert Act Uncert 1 Sigma		0.0036			
Secondary Solution #		S-0262		Parent Sp. Gravity G/Ml		0.9982	
Dilution Date (New Ref Date)		09/07/2011 11:47		Parent Supplier		NIST SRM 4927F	
Ampoule, Empty (g)				Parent Date Recvd		01/02/00	
Ampoule /Solution Gross (g)				Parent Received By		Unknown	
Net Wt Removed (g)				Parent Cert Exp Date			
Transfer Container, empty (g)		13.352		Parent Matrix		H2O	
Container Plus Solution (g)		16.889		Certified dpm/g At Ref Date		3503.682716	
Net Wt Transferred (g)		3.537		Certified dpm/g on 09/07/2011 11:47		3226.981313	
DPM Xferred on 09/07/2011 11:47		11413.83291		Parent Comments		Intermediate level H-3 standard for creating LCS solutions and matrix spikes. Dilution performed as stated above by B Staffens. -BJS 3/22/10	
Diluent/matrix		Dead H2O		Parent Tech		Unknown	
Diluent Density Cont, empty (g)				is_Primary		FALSE	
Test Mass of 5 ml of Diluent (g)				is_LCS		TRUE	
Diluent Density Test - (g/mL)				is_Tracer		FALSE	
Dilution Empty Container Mass (g)		473.97		is_Calib		FALSE	
Dilution Full Cont g (if measured)		2467.33					
Dilution Final Volume ml (if measured)		2000					
Final Dilution Density (g/mL)		0.99668					
Final Dilution Measured Mass g		1993.36					
Comments		H3 LCS stock solution dilution performed as stated above by B Staffens. -BJS 9/7/11					
Final Dilution dpm/g		5.725926529					
Final Dil New Ref Date/Time		09/07/2011 11:47					

S-0262			
H-3	Verified	9/7/11	
SL	Expires	9/7/12	
Manufacturer	NIST SRM 4927F		
Sol Matrix	H2O		
Ref No	NIST SRM 4927F		
Tech	Unknown		
Parent ID	S-0237		
RADIOACTIVE STANDARDS -- BATON ROUGE LABORATORY			





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

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

Principal Radionuclide **H-3** ENTER → Half Life, Years **1.232E+01** OR → Half Life, Days **4.4998E+03**
4.4998E+03

Radionuclide **H-3** Dilution Reference Date **9/7/2011 11:47**

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

Minimum of 3 Required

Trial ID	Sample Counts	Count Time (min)	Detector	Efficiency	Bkg. (cpm)	Net Weight	Decay Corrected Activity Result (dpm/g)	Decay Corrected Activity Result (pCi/g)
S-0262-V1	16.07	1	LSC	0.3754	5.40	5.050	5.63	2.54
S-0262-V2	16.39	1	LSC	0.3770	5.40	5.037	5.79	2.61
S-0262-V3	15.70	1	LSC	0.3763	5.40	5.035	5.44	2.45
S-0262-V4	15.00	1	LSC	0.3768	5.40	5.022	5.07	2.29
S-0262-V5	15.85	1	LSC	0.3774	5.40	5.019	5.52	2.49

10% Max	PASS	Average	5.49	2.47
		Two Sigma Uncertainty	0.52	0.24
		Standard Deviation percent of known concentration	4.66%	4.66%
		Target Activity	5.72	2.58
5% Max	PASS	% Diff	-4.13%	-4.13%

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

Prepared & Counted By *[Signature]* Date: **9/13/2011 7:43**
 Verified & Approved By *[Signature]* Date: **9-13-11**
 QC Approval *[Signature]* Date: **9-13-11**

S-0262	
H-3	Verified 9/7/11
SL	Expires 9/7/12
Manufacturer	NIST SRM 4927F
Sol Matrix	H2O
Ref No	NIST SRM 4927F
Tech	Unknown
Parent ID	S-0237

RADIOACTIVE STANDARDS - BATON ROUGE LABORATORY

Assay Definition-

Assay Description:
H-3 Normal Level Assay

Assay Type: DPM (Single)

Report Name: Report1

Output Data Path: C:\Packard\Tricarb\Results\ARS\H-3 Normal Lvl 3\20110912_2059

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

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

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

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

Count Conditions-

Nuclide: H-3 Normal

Quench Indicator: tSIE/AEC

External Std Terminator (sec): 0.5 2s*

Pre-Count Delay (min): 0.00

Quench Set:

Low Energy: UG STD H-3

Count Time (min): 120.00

Count Mode: Normal

Assay Count Cycles: 1

#Vials/Sample: 1

Repeat Sample Count: 1

Calculate % Reference: Off

Background Subtract: Off

Low CPM Threshold: Off

2 Sigma & Terminator: On - Any Region

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

Count Corrections-

Static Controller: On

Colored Samples: Off

Coincidence Time (nsec): 18

Half Life-

Half Life Correction: Off

Regions Half Life

Luminescence Correction: Off

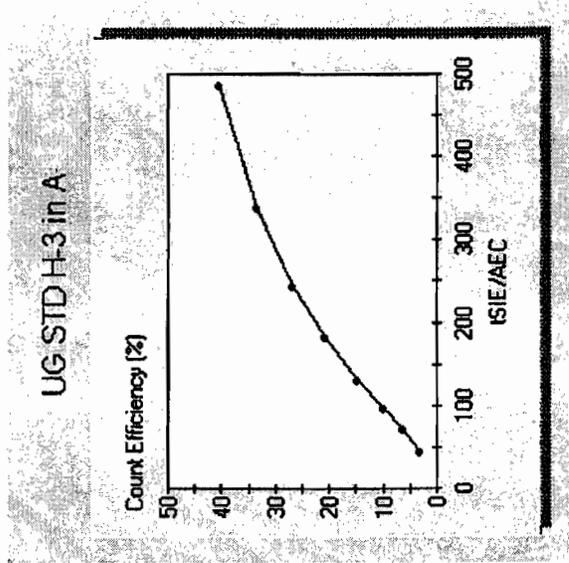
Heterogeneity Monitor: Off

Delay Before Burst (nsec): 75

Units Reference Date Reference Time

A
B
C

Cycle 1 Results
Quench Curve Block Data



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

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

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

User: ARS

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



National Institute of Standards & Technology

Certificate

Standard Reference Material 4927F

Hydrogen-3 Radioactivity Standard

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

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

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

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

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

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

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

Lisa R. Karam, Deputy Chief
Ionizing Radiation Division

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

Gaithersburg, Maryland 20899

May 2008

See Certificate Revision History on Last Page

Table 1. Properties of SRM 4927F

Certified values

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

Uncertified information

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

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

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

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

NOTES

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

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

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

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

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

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

REFERENCES

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

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



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American Radiation Services Analytical Reports

for

Los Alamos National Laboratory

Percent Moisture



2609 North River Road, Port Allen, Louisiana 70767

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

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

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

Analysis Description	Analysis Results	Analysis Error +/- 1 s	MDC	DLC	Qual	Analysis Units	Analysis Test Method	Analysis Date/Time	Analysis Technician	Tracer/Chem Recovery
Percent Moisture	26.929	NA	NA	NA		%	Percent Moisture	09/30/11 02:22	BS	NA

NOTES: Project Cost Code MR8R032NFM00

Project Manager Review

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

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

Analysis Description	Analysis Results	Analysis Error +/- 1 s	MDC	DLC	Qual	Analysis Units	Analysis Test Method	Analysis Date/Time	Analysis Technician	Tracer/Chem Recovery
Percent Moisture	21.895	NA	NA	NA		%	Percent Moisture	09/30/11 05:32	BS	NA

NOTES: Project Cost Code MR8R032NFM00

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

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

Analysis Description	Analysis Results	Analysis Error +/- 1 s	MDC	DLC	Qual	Analysis Units	Analysis Test Method	Analysis Date/Time	Analysis Technician	Tracer/Chem Recovery
Percent Moisture	23.598	NA	NA	NA		%	Percent Moisture	09/30/11 08:41	BS	NA

NOTES: Project Cost Code MR8R032NFM00

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

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

Analysis Description	Analysis Results	Analysis Error +/- 1 s	MDC	DLC	Qual	Analysis Units	Analysis Test Method	Analysis Date/Time	Analysis Technician	Tracer/Chem Recovery
Percent Moisture	21.832	NA	NA	NA		%	Percent Moisture	09/30/11 11:50	BS	NA

NOTES: Project Cost Code MR8R032NFM00

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

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

Analysis Description	Analysis Results	Analysis Error +/- 1 s	MDC	DLC	Qual	Analysis Units	Analysis Test Method	Analysis Date/Time	Analysis Technician	Tracer/Chem Recovery
Percent Moisture	25.626	NA	NA	NA		%	Percent Moisture	09/30/11 15:00	BS	NA

NOTES: Project Cost Code MR8R032NFM00

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

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

Analysis Description	Analysis Results	Analysis Error +/- 1 s	MDC	DLC	Qual	Analysis Units	Analysis Test Method	Analysis Date/Time	Analysis Technician	Tracer/Chem Recovery
Percent Moisture	13.106	NA	NA	NA		%	Percent Moisture	09/30/11 18:09	BS	NA

NOTES: Project Cost Code MR8R032NFM00

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

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

Analysis Description	Analysis Results	Analysis Error +/- 1 s	MDC	DLC	Qual	Analysis Units	Analysis Test Method	Analysis Date/Time	Analysis Technician	Tracer/Chem Recovery
Percent Moisture	22.896	NA	NA	NA		%	Percent Moisture	09/30/11 21:19	BS	NA

NOTES: Project Cost Code MR8R032NFM00

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

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

Analysis Description	Analysis Results	Analysis Error +/- 1 s	MDC	DLC	Qual	Analysis Units	Analysis Test Method	Analysis Date/Time	Analysis Technician	Tracer/Chem Recovery
Percent Moisture	24.348	NA	NA	NA		%	Percent Moisture	10/01/11 00:28	BS	NA

NOTES: Project Cost Code MR8R032NFM00

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

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

Table with 11 columns: Analysis Description, Analysis Results, Analysis Error +/- 1 s, MDC, DLC, Qual, Analysis Units, Analysis Test Method, Analysis Date/Time, Analysis Technician, Tracer/Chem Recovery. Row 1: Percent Moisture, 19.925, NA, NA, NA, %, Percent Moisture, 10/01/11 03:37, BS, NA.

NOTES: Project Cost Code MR8R032NFM00

Signature

Project Manager Review

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

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

Analysis Description	Analysis Results	Analysis Error +/- 1 s	MDC	DLC	Qual	Analysis Units	Analysis Test Method	Analysis Date/Time	Analysis Technician	Tracer/Chem Recovery
Percent Moisture	22.825	NA	NA	NA		%	Percent Moisture	10/01/11 06:47	BS	NA

NOTES: Project Cost Code MR8R032NFM00

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American Radiation Services Analytical Reports

for

Los Alamos National Laboratory

Percent Moisture Laboratory Records

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

SDG Number ARS1-11-01989, 02028, 02029
 Client LANL

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

0102/H1 331122173560P
FJ40469

Balance ID:
Pipettor ID:



Signature

Date

9-30-11

LCS-5.0608
 LCSD-5.0563
 BIK-5.0672

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

SDG Number ARS1-11-01989, 02028, 02029
 Client LANL

LANL ID	ARS ID	weight of cylinder with gel (g)	weight of empty cylinder (g)	Weight of gel (g)	amount of liquid collected (ml)	amount of liquid tested (ml)	% moisture
MD54-11-23141	ARS1-11-01989-001	607	439	167	23.6264	5.0612	#DIV/0!
MD54-11-23140	ARS1-11-01989-002	624	457	168	20.4232	5.0544	#DIV/0!
MD54-11-23142	ARS1-11-01989-003	601	438	162	20.8783	5.0479	#DIV/0!
MD21-11-26384	ARS1-11-02028-001	655	450	205	55.2641	5.0411	#DIV/0!
MD21-11-26391	ARS1-11-02028-002	651	460	190	41.5996	5.0487	#DIV/0!
MD21-11-26388	ARS1-11-02028-003	645	452	193	45.5444	5.0286	#DIV/0!
MD21-11-26389	ARS1-11-02028-004	637	447	189	41.2620	5.0756	#DIV/0!
MD21-11-26385	ARS1-11-02028-005	650	447	202	51.7645	5.0666	#DIV/0!
MD21-11-26386	ARS1-11-02028-006	623	452	170	22.2800	5.0344	#DIV/0!
MD21-11-26393	ARS1-11-02028-007	641	449	192	43.9604	5.0318	#DIV/0!
MD21-11-26387	ARS1-11-02028-008	629	438	190	46.2604 39.3446 45.9287	5.0464	#DIV/0!
MD21-11-26390	ARS1-11-02028-009	621	441	180	35.8654	5.0354	#DIV/0!
MD21-11-26392	ARS1-11-02028-010	626	439	189	43.1401	5.0388	#DIV/0!
MD54-11-23144	ARS1-11-02029-001	656	452	202	53.8600	5.0375	#DIV/0!
MD54-11-23143	ARS1-11-02029-002	641	440	201	55.3571	5.0373	#DIV/0!
MD54-11-23145	ARS1-11-02029-003	661	454	207	59.8238	5.0359	#DIV/0!

Balance ID:
Pipettor ID:

0102/H1331122173560P
FJ40469



Date

9-28-11



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American Radiation Services Analytical Reports

for

Los Alamos National Laboratory

Folder Duplicate



LSC Technical Review Checklist

ARS SDG 11-02028

Sample Matrix: SI Aliquot (Circle One) : Dry As Re✓ceived Filtered Other: _____

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

ARS A. Batch ID(s): Batch A: B11-03628 Batch B: N/A Batch C: N/A

Test 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) NCR # (If initiated): _____		
 Chemist Signature	<u>9-29-11</u> Date	 Verifier Review Signature
<u>9-29-11</u> Date		

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>10-13-11</u> Date
	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	<u>Yes</u> No <u>N/A</u>
b) Spectra show no Evidence of Interferences?	<u>Yes</u> No N/A	<u>Yes</u> No N/A
c) Sample Quench for All Samples within Range of Quench Curve?	<u>Yes</u> No N/A	<u>Yes</u> No N/A
7) Analysis Anomaly? <input checked="" type="checkbox"/> No <input type="checkbox"/> Yes (See Comments) NCR # (If initiated): _____		
 Analyst Signature	<u>10-10-11</u> Date	<u>N/A</u> Technical Reviewer Signature
Date		

SDG Report - Samples and Containers

SDG		ARS1-11-02028		TAT Days		30		Project Type		Environmental	
Sample Count	Rpt Level	4		Date Received	9/20/2011		COC Number	11-3626		Environmental	
Client	Los Alamos National Laboratory			Client Deadline	10/19/2011		PO Number	63641-001-10		MR8R032NFM00	
Client Code	114			Internal Deadline	10/19/2011		Job Number	MR8R032NFM00		Job Location	
Profile Number	PN-00094			Lab Deadline	10/17/2011						
Comments											

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

SDG Report - Analysis Assignments

Temp SDG	ARS1-11-02028	Sample Count	10
Client	Los Alamos National Laboratory	Analysis Count	1-10

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

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

DQO Report for SDG
ARS1-11-02028

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

ARS FILE TRACKING SHEET

SDG: ARS1-11-02028

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

SPECIAL REQUIREMENTS

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

NOTES:

