2609 North River Road, Port Allen, Louisiana 70767
(800) 401-4277 -- FAX (225) 381-2996

American Radiation Services, Inc.

Laboratory Analysis Report

ARS1-09-02521

Prepared for:

Nuclear Regulatory Commission (NRC)

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Project Manager Review

Management 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 client.

Contact Person: Questions regarding this analytical report should be addressed to:

Project Manager

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LELAP Cert# 01949

NELAP Cert# E87558

ARS INTERNATIONAL

2609 North River Road, Port Allen, Louisiana 70767

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

ARS Sample Delivery Group:	ARS1-09-02521	**Request or PO Number:**	BD-09-2
Client Sample ID:	BD-09-2-01	**ARS Sample ID:**	ARS1-09-02521-001
Sample Collection Date:	09/16/09	**Date Received:**	09/23/09
Sample Matrix:	Aqueous	**Report Date:**	10/20/09

Analysis Description	Analysis Results	Analysis Error +/- 2 s	MDC	DLC	Qual	Analysis Units	Analysis Test Method	Analysis Date/Time	Analysis Technician	Tracer/Chem Recovery
H-3	176.540	97.628	158.164	77.910		pCi/L	ARS-054/EPA 906.0	10/13/09 13:15	BJS	N/A

NOTES: Sample Location: Braidwood Station/Inspection #05000456/2009004 Control #BD-09-2/Docket #050-00456

Project Manager Review

LELAP Certificate# 01949 NELAP Certificate # E87558

ARS INTERNATIONAL

2609 North River Road, Port Allen, Louisiana 70767

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

ARS Sample Delivery Group:	ARS1-09-02521	**Request or PO Number:**	BD-09-2
Client Sample ID:	BD-09-2-02	**ARS Sample ID:**	ARS1-09-02521-002
Sample Collection Date:	09/16/09	**Date Received:**	09/23/09
Sample Matrix:	Aqueous	**Report Date:**	10/20/09

Analysis Description	Analysis Results	Analysis Error +/- 2 s	MDC	DLC	Qual	Analysis Units	Analysis Test Method	Analysis Date/Time	Analysis Technician	Tracer/Chem Recovery
H-3	50.336	94.777	159.717	78.674	U	pCi/L	ARS-054/EPA 906.0	10/13/09 17:22	BJS	N/A

NOTES: Sample Location: Braidwood Station/Inspection #05000456/2009004 Control #BD-09-2/Docket #050-00456

Project Manager Review

LELAP Certificate# 01949 NELAP Certificate # E87558

ARS INTERNATIONAL

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

ARS Sample Delivery Group:	ARS1-09-02521	**Request or PO Number:**	BD-09-2
Client Sample ID:	BD-09-2-03	**ARS Sample ID:**	ARS1-09-02521-003
Sample Collection Date:	09/16/09	**Date Received:**	09/23/09
Sample Matrix:	Aqueous	**Report Date:**	10/20/09

Analysis Description	Analysis Results	Analysis Error +/- 2 s	MDC	DLC	Qual	Analysis Units	Analysis Test Method	Analysis Date/Time	Analysis Technician	Tracer/Chem Recovery
H-3	35.574	94.233	159.355	78.496	U	pCi/L	ARS-054/EPA 906.0	10/13/09 21:29	BJS	N/A

NOTES: Sample Location: Braidwood Station/Inspection #05000456/2009004 Control #BD-09-2/Docket #050-00456

Project Manager Review

LELAP Certificate# 01949 NELAP Certificate # E87558

ARS INTERNATIONAL

2609 North River Road, Port Allen, Louisiana 70767

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

ARS Sample Delivery Group: ARS1-09-02521
Client Sample ID: BD-09-2-04
Sample Collection Date: 09/16/09
Sample Matrix: Aqueous

Request or PO Number: BD-09-2
ARS Sample ID: ARS1-09-02521-004
Date Received: 09/23/09
Report Date: 10/20/09

Analysis Description	Analysis Results	Analysis Error +/- 2 s	MDC	DLC	Qual	Analysis Units	Analysis Test Method	Analysis Date/Time	Analysis Technician	Tracer/Chem Recovery
H-3	81.358	95.049	158.861	78.253	U	pCi/L	ARS-054/EPA 906.0	10/14/09 01:36	BJS	N/A

NOTES: Sample Location: Braidwood Station/Inspection #05000456/2009004 Control #BD-09-2/Docket #050-00456

Project Manager Review

LELAP Certificate# 01949 NELAP Certificate # E87558

ARS INTERNATIONAL

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

ARS Sample Delivery Group:	ARS1-09-02521	**Request or PO Number:**	BD-09-2
Client Sample ID:	BD-09-2-05	**ARS Sample ID:**	ARS1-09-02521-005
Sample Collection Date:	09/16/09	**Date Received:**	09/23/09
Sample Matrix:	Aqueous	**Report Date:**	10/20/09

Analysis Description	Analysis Results	Analysis Error +/- 2 s	MDC	DLC	Qual	Analysis Units	Analysis Test Method	Analysis Date/Time	Analysis Technician	Tracer/Chem Recovery
H-3	563.548	117.983	158.947	78.295		pCi/L	ARS-054/EPA 906.0	10/14/09 05:44	BJS	N/A

NOTES: Sample Location: Braidwood Station/Inspection #05000456/2009004 Control #BD-09-2/Docket #050-00456

Project Manager Review

LELAP Certificate# 01949 NELAP Certificate # E87558

ARS INTERNATIONAL

2609 North River Road, Port Allen, Louisiana 70767

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

ARS Sample Delivery Group: ARS1-09-02521
Client Sample ID: BD-09-2-06
Sample Collection Date: 09/15/09
Sample Matrix: Aqueous

Request or PO Number: BD-09-2
ARS Sample ID: ARS1-09-02521-006
Date Received: 09/23/09
Report Date: 10/20/09

Analysis Description	Analysis Results	Analysis Error +/- 2 s	MDC	DLC	Qual	Analysis Units	Analysis Test Method	Analysis Date/Time	Analysis Technician	Tracer/Chem Recovery
H-3	81.262	94.938	158.674	78.161	U	pCi/L	ARS-054/EPA 906.0	10/14/09 09:51	BJS	N/A

NOTES: Sample Location: Braidwood Station/Inspection #05000456/2009004 Control #BD-09-2/Docket #050-00456

Project Manager Review

LELAP Certificate# 01949 NELAP Certificate # E87558

ARS INTERNATIONAL

2609 North River Road, Port Allen, Louisiana 70767

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

ARS Sample Delivery Group: ARS1-09-02521
Client Sample ID: BD-09-2-07
Sample Collection Date: 09/16/09
Sample Matrix: Aqueous

Request or PO Number: BD-09-2
ARS Sample ID: ARS1-09-02521-007
Date Received: 09/23/09
Report Date: 10/20/09

Analysis Description	Analysis Results	Analysis Error +/- 2 s	MDC	DLC	Qual	Analysis Units	Analysis Test Method	Analysis Date/Time	Analysis Technician	Tracer/Chem Recovery
H-3	31.171	93.490	158.250	77.952	U	pCi/L	ARS-054/EPA 906.0	10/14/09 13:58	BJS	N/A

NOTES: Sample Location: Braidwood Station/Inspection #05000456/2009004 Control #BD-09-2/Docket #050-00456

Project Manager Review

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ARS INTERNATIONAL

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

ARS Sample Delivery Group: ARS1-09-02521
Client Sample ID: BD-09-2-08
Sample Collection Date: 09/15/09
Sample Matrix: Aqueous

Request or PO Number: BD-09-2
ARS Sample ID: ARS1-09-02521-008
Date Received: 09/23/09
Report Date: 10/20/09

Analysis Description	Analysis Results	Analysis Error +/- 2 s	MDC	DLC	Qual	Analysis Units	Analysis Test Method	Analysis Date/Time	Analysis Technician	Tracer/Chem Recovery
H-3	47.728	93.727	158.028	77.842	U	pCi/L	ARS-054/EPA 906.0	10/14/09 18:05	BJS	N/A

NOTES: Sample Location: Braidwood Station/Inspection #05000456/2009004 Control #BD-09-2/Docket #050-00456

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ARS INTERNATIONAL

2609 North River Road, Port Allen, Louisiana 70767

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

ARS Sample Delivery Group:	ARS1-09-02521	**Request or PO Number:**	BD-09-2
Client Sample ID:	BD-09-2-09	**ARS Sample ID:**	ARS1-09-02521-009
Sample Collection Date:	09/16/09	**Date Received:**	09/23/09
Sample Matrix:	Aqueous	**Report Date:**	10/20/09

Analysis Description	Analysis Results	Analysis Error +/- 2 s	MDC	DLC	Qual	Analysis Units	Analysis Test Method	Analysis Date/Time	Analysis Technician	Tracer/Chem Recovery
H-3	43.487	93.436	157.697	77.679	U	pCi/L	ARS-054/EPA 906.0	10/14/09 22:12	BJS	N/A

NOTES: Sample Location: Braidwood Station/Inspection #05000456/2009004 Control #BD-09-2/Docket #050-00456

Project Manager Review

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ARS INTERNATIONAL

2609 North River Road, Port Allen, Louisiana 70767

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

ARS Sample Delivery Group: ARS1-09-02521
Client Sample ID: BD-09-2-10
Sample Collection Date: 09/16/09
Sample Matrix: Aqueous

Request or PO Number: BD-09-2
ARS Sample ID: ARS1-09-02521-010
Date Received: 09/23/09
Report Date: 10/20/09

Analysis Description	Analysis Results	Analysis Error +/- 2 s	MDC	DLC	Qual	Analysis Units	Analysis Test Method	Analysis Date/Time	Analysis Technician	Tracer/Chem Recovery
H-3	1587.210	201.471	159.881	78.755		pCi/L	ARS-054/EPA 906.0	10/15/09 02:19	BJS	N/A

NOTES: Sample Location: Braidwood Station/Inspection #05000456/2009004 Control #BD-09-2/Docket #050-00456

Project Manager Review

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ARS INTERNATIONAL

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

ARS Sample Delivery Group: ARS1-09-02521
Client Sample ID: BD-09-2-11
Sample Collection Date: 09/15/09
Sample Matrix: Aqueous

Request or PO Number: BD-09-2
ARS Sample ID: ARS1-09-02521-011
Date Received: 09/23/09
Report Date: 10/20/09

Analysis Description	Analysis Results	Analysis Error +/- 2 s	MDC	DLC	Qual	Analysis Units	Analysis Test Method	Analysis Date/Time	Analysis Technician	Tracer/Chem Recovery
H-3	116.841	96.072	158.889	78.266	U	pCi/L	ARS-054/EPA 906.0	10/15/09 06:27	BJS	N/A

NOTES: Sample Location: Braidwood Station/Inspection #05000456/2009004 Control #BD-09-2/Docket #050-00456

Project Manager Review

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

ARS Sample Delivery Group: ARS1-09-02521
Client Sample ID: BD-09-2-12
Sample Collection Date: 09/15/09
Sample Matrix: Aqueous

Request or PO Number: BD-09-2
ARS Sample ID: ARS1-09-02521-012
Date Received: 09/23/09
Report Date: 10/20/09

Analysis Description	Analysis Results	Analysis Error +/- 2 s	MDC	DLC	Qual	Analysis Units	Analysis Test Method	Analysis Date/Time	Analysis Technician	Tracer/Chem Recovery
H-3	103.424	94.878	157.520	77.592	U	pCi/L	ARS-054/EPA 906.0	10/15/09 10:34	BJS	N/A

NOTES: Sample Location: Braidwood Station/Inspection #05000456/2009004 Control #BD-09-2/Docket #050-00456

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ARS INTERNATIONAL

2609 North River Road, Port Allen, Louisiana 70767

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

ARS Sample Delivery Group:	ARS1-09-02521	**Request or PO Number:**	BD-09-2
Client Sample ID:	BD-09-2-13	**ARS Sample ID:**	ARS1-09-02521-013
Sample Collection Date:	09/15/09	**Date Received:**	09/23/09
Sample Matrix:	Aqueous	**Report Date:**	10/20/09

Analysis Description	Analysis Results	Analysis Error +/- 2 s	MDC	DLC	Qual	Analysis Units	Analysis Test Method	Analysis Date/Time	Analysis Technician	Tracer/Chem Recovery
H-3	74.740	95.406	159.769	78.679	U	pCi/L	ARS-054/EPA 906.0	10/17/09 06:22	BJS	N/A

NOTES: Sample Location: Braidwood Station/Inspection #05000456/2009004 Control #BD-09-2/Docket #050-00456

Project Manager Review

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ARS INTERNATIONAL

2609 North River Road, Port Allen, Louisiana 70767

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

ARS Sample Delivery Group: ARS1-09-02521
Client Sample ID: BD-09-2-14
Sample Collection Date: 09/15/09
Sample Matrix: Aqueous

Request or PO Number: BD-09-2
ARS Sample ID: ARS1-09-02521-014
Date Received: 09/23/09
Report Date: 10/20/09

Analysis Description	Analysis Results	Analysis Error +/- 2 s	MDC	DLC	Qual	Analysis Units	Analysis Test Method	Analysis Date/Time	Analysis Technician	Tracer/Chem Recovery
H-3	70.045	94.722	158.809	78.206	U	pCi/L	ARS-054/EPA 906.0	10/17/09 10:29	BJS	N/A

NOTES: Sample Location: Braidwood Station/Inspection #05000456/2009004 Control #BD-09-2/Docket #050-00456

Project Manager Review

LELAP Certificate# 01949 NELAP Certificate # E87558

ARS INTERNATIONAL

2609 North River Road, Port Allen, Louisiana 70767

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

ARS Sample Delivery Group: ARS1-09-02521
Client Sample ID: BD-09-2-15
Sample Collection Date: 09/16/09
Sample Matrix: Aqueous

Request or PO Number: BD-09-2
ARS Sample ID: ARS1-09-02521-015
Date Received: 09/23/09
Report Date: 10/20/09

Analysis Description	Analysis Results	Analysis Error +/- 2 s	MDC	DLC	Qual	Analysis Units	Analysis Test Method	Analysis Date/Time	Analysis Technician	Tracer/Chem Recovery
H-3	-8.612	94.364	161.084	79.327	U	pCi/L	ARS-054/EPA 906.0	10/17/09 14:36	BJS	N/A

NOTES: Sample Location: Braidwood Station/Inspection #05000456/2009004 Control #BD-09-2/Docket #050-00456

Project Manager Review

LELAP Certificate# 01949 NELAP Certificate # E87558

ARS INTERNATIONAL

2609 North River Road, Port Allen, Louisiana 70767

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

ARS Sample Delivery Group:	ARS1-09-02521	**Request or PO Number:**	BD-09-2
Client Sample ID:	BD-09-2-16	**ARS Sample ID:**	ARS1-09-02521-016
Sample Collection Date:	09/16/09	**Date Received:**	09/23/09
Sample Matrix:	Aqueous	**Report Date:**	10/20/09

Analysis Description	Analysis Results	Analysis Error +/- 2 s	MDC	DLC	Qual	Analysis Units	Analysis Test Method	Analysis Date/Time	Analysis Technician	Tracer/Chem Recovery
H-3	44.692	94.350	159.228	78.413	U	pCi/L	ARS-054/EPA 906.0	10/17/09 18:43	BJS	N/A

NOTES: Sample Location: Braidwood Station/Inspection #05000456/2009004 Control #BD-09-2/Docket #050-00456

Project Manager Review

LELAP Certificate# 01949 NELAP Certificate # E87558

ARS INTERNATIONAL

2609 North River Road, Port Allen, Louisiana 70767

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

ARS Sample Delivery Group: ARS1-09-02521
Client Sample ID: BD-09-2-17
Sample Collection Date: 09/15/09
Sample Matrix: Aqueous

Request or PO Number: BD-09-2
ARS Sample ID: ARS1-09-02521-017
Date Received: 09/23/09
Report Date: 10/20/09

Analysis Description	Analysis Results	Analysis Error +/- 2 s	MDC	DLC	Qual	Analysis Units	Analysis Test Method	Analysis Date/Time	Analysis Technician	Tracer/Chem Recovery
H-3	75.053	95.805	160.438	79.008	U	pCi/L	ARS-054/EPA 906.0	10/17/09 22:50	BJS	N/A

NOTES: Sample Location: Braidwood Station/Inspection #05000456/2009004 Control #BD-09-2/Docket #050-00456

Project Manager Review

LELAP Certificate# 01949 NELAP Certificate # E87558

ARS INTERNATIONAL

2609 North River Road, Port Allen, Louisiana 70767

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

ARS Sample Delivery Group:	ARS1-09-02521	**Request or PO Number:**	BD-09-2
Client Sample ID:	BD-09-2-18	**ARS Sample ID:**	ARS1-09-02521-018
Sample Collection Date:	09/15/09	**Date Received:**	09/23/09
Sample Matrix:	Aqueous	**Report Date:**	10/20/09

Analysis Description	Analysis Results	Analysis Error +/- 2 s	MDC	DLC	Qual	Analysis Units	Analysis Test Method	Analysis Date/Time	Analysis Technician	Tracer/Chem Recovery
H-3	3524.580	388.695	158.762	78.183		pCi/L	ARS-054/EPA 906.0	10/18/09 02:57	BJS	N/A

NOTES: Sample Location: Braidwood Station/Inspection #05000456/2009004 Control #BD-09-2/Docket #050-00456

Project Manager Review

LELAP Certificate# 01949 NELAP Certificate # E87558

ARS INTERNATIONAL

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

ARS Sample Delivery Group:	ARS1-09-02521	**Request or PO Number:**	BD-09-2
Client Sample ID:	BD-09-2-19	**ARS Sample ID:**	ARS1-09-02521-019
Sample Collection Date:	09/15/09	**Date Received:**	09/23/09
Sample Matrix:	Aqueous	**Report Date:**	10/20/09

Analysis Description	Analysis Results	Analysis Error +/- 2 s	MDC	DLC	Qual	Analysis Units	Analysis Test Method	Analysis Date/Time	Analysis Technician	Tracer/Chem Recovery
H-3	78.549	94.960	158.835	78.219	U	pCi/L	ARS-054/EPA 906.0	10/18/09 07:04	BJS	N/A

NOTES: Sample Location: Braidwood Station/Inspection #05000456/2009004 Control #BD-09-2/Docket #050-00456

Project Manager Review

LELAP Certificate# 01949 NELAP Certificate # E87558

ARS INTERNATIONAL

2609 North River Road, Port Allen, Louisiana 70767

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

ARS Sample Delivery Group:	ARS1-09-02521	**Request or PO Number:**	BD-09-2
Client Sample ID:	BD-09-2-20	**ARS Sample ID:**	ARS1-09-02521-020
Sample Collection Date:	09/15/09	**Date Received:**	09/23/09
Sample Matrix:	Aqueous	**Report Date:**	10/20/09

Analysis Description	Analysis Results	Analysis Error +/- 2 s	MDC	DLC	Qual	Analysis Units	Analysis Test Method	Analysis Date/Time	Analysis Technician	Tracer/Chem Recovery
H-3	2.162	94.956	161.765	79.662	U	pCi/L	ARS-054/EPA 906.0	10/18/09 11:12	BJS	N/A

NOTES: Sample Location: Braidwood Station/Inspection #05000456/2009004 Control #BD-09-2/Docket #050-00456

Project Manager Review

LELAP Certificate# 01949 NELAP Certificate # E87558

ARS INTERNATIONAL

2609 North River Road, Port Allen, Louisiana 70767

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

ARS Sample Delivery Group:	ARS1-09-02521	**Request or PO Number:**	BD-09-2
Client Sample ID:	BD-09-2-21	**ARS Sample ID:**	ARS1-09-02521-021
Sample Collection Date:	09/15/09	**Date Received:**	09/23/09
Sample Matrix:	Aqueous	**Report Date:**	10/20/09

Analysis Description	Analysis Results	Analysis Error +/- 2 s	MDC	DLC	Qual	Analysis Units	Analysis Test Method	Analysis Date/Time	Analysis Technician	Tracer/Chem Recovery
H-3	66.350	95.405	160.136	78.859	U	pCi/L	ARS-054/EPA 906.0	10/18/09 15:19	BJS	N/A

NOTES: Sample Location: Braidwood Station/Inspection #05000456/2009004 Control #BD-09-2/Docket #050-00456

Project Manager Review

LELAP Certificate# 01949 NELAP Certificate # E87558

ARS INTERNATIONAL

2609 North River Road, Port Allen, Louisiana 70767

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

ARS Sample Delivery Group:	ARS1-09-02521	**Request or PO Number:**	BD-09-2
Client Sample ID:	BD-09-2-22	**ARS Sample ID:**	ARS1-09-02521-022
Sample Collection Date:	09/14/09	**Date Received:**	09/23/09
Sample Matrix:	Aqueous	**Report Date:**	10/20/09

Analysis Description	Analysis Results	Analysis Error +/- 2 s	MDC	DLC	Qual	Analysis Units	Analysis Test Method	Analysis Date/Time	Analysis Technician	Tracer/Chem Recovery
H-3	21.509	94.841	160.926	79.248	U	pCi/L	ARS-054/EPA 906.0	10/18/09 19:26	BJS	N/A

NOTES: Sample Location: Braidwood Station/Inspection #05000456/2009004 Control #BD-09-2/Docket #050-00456

Project Manager Review

LELAP Certificate# 01949 NELAP Certificate # E87558

ARS INTERNATIONAL

2609 North River Road, Port Allen, Louisiana 70767

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

ARS Sample Delivery Group: ARS1-09-02521
Client Sample ID: BD-09-2-23
Sample Collection Date: 09/14/09
Sample Matrix: Aqueous

Request or PO Number: BD-09-2
ARS Sample ID: ARS1-09-02521-023
Date Received: 09/23/09
Report Date: 10/20/09

Analysis Description	Analysis Results	Analysis Error +/- 2 s	MDC	DLC	Qual	Analysis Units	Analysis Test Method	Analysis Date/Time	Analysis Technician	Tracer/Chem Recovery
H-3	107.169	96.654	160.364	78.972	U	pCi/L	ARS-054/EPA 906.0	10/18/09 23:33	BJS	N/A

NOTES: Sample Location: Braidwood Station/Inspection #05000456/2009004 Control #BD-09-2/Docket #050-00456

Project Manager Review

LELAP Certificate# 01949 NELAP Certificate # E87558

2609 North River Road, Port Allen, Louisiana 70767
1 (800) 401-4277 FAX (225) 381-2996

QC Results Report

Sample Delivery Group: ARS1-09-02521
Date Received: 9/22/2009

Laboratory Control Sample Evaluation

Analysis Batch	QC Type	Analyte	Analysis Results	CSU 1 (1 s)	MDC	Expected Value	Qual	Report Units	Analysis Test Method	Analysis Date/Time	Analysis Technician	Percent Recovery (%)	LCS Acceptance Range
ARS1-B09-03983	LCS	H3	1046.298	153.293	157.467	1243.259		pCi/L	ARS-054/EPA 906.0	10/12/09 20:46	BJS	84	75%-125%

Blank Evaluation

Analysis Batch	QC Type	Analyte	Analysis Results	CSU 1 (1 s)	MDC	Expected Value	Qual	Report Units	Analysis Test Method	Analysis Date/Time	Analysis Technician
ARS1-B09-03983	MBL	H3	41.942	94.575	159.700	NA	U	pCi/L	ARS-054/EPA 906.0	10/13/09 5:00	BJS

RER Duplicate Evaluation

Analysis Batch	QC Type	Analysis Description	Result 1	CSU 1 (1 s)	Result 2	CSU 2 (1s)	Qual	Analysis Units	Analysis Test Method	Analysis Date/Time	Analysis Technician	RER	RER AcceptanceRange
ARS1-B09-03983	LCSD	H3	1046.298	153.293	1041.884	152.779		pCi/L	ARS-054/EPA 906.0	10/13/09 0:53	BJS	0.01	< 1

DER Duplicate Evaluation

Analysis Batch	QC Type	Analysis Description	Result 1	CSU 1 (1 s)	Result 2	CSU 2 (1s)	Qual	Analysis Units	Analysis Test Method	Analysis Date/Time	Analysis Technician	DER	DER AcceptanceRange
ARS1-B09-03983	LCSD	H3	1046.298	153.293	1041.884	152.779		pCi/L	ARS-054/EPA 906.0	10/13/09 0:53	BJS	0.04	< 3

Matrix Spike

Analysis Batch	QC Type	Analyte	Analysis Results	CSU 1 (1 s)	Unspiked Activity	Spike Con.	Qual	Report Units	Analysis Test Method	Analysis Date/Time	Analysis Technician	Percent Recovery(%)	MS Acceptance Range
ARS1-B09-03983	MS	H3	6399.417	677.956	176.540	7654.98		pCi/L	ARS-054/EPA 906.0	10/13/09 9:07	BJS	81	60%-140%

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

QC Results Report

Sample Delivery Group: ARS1-09-02521
Date Received: 9/22/2009

Laboratory Control Sample Evaluation

Analysis Batch	QC Type	Analyte	Analysis Results	CSU 1 (1 s)	MDC	Expected Value	Qual	Report Units	Analysis Test Method	Analysis Date/Time	Analysis Technician	Percent Recovery (%)	LCS Acceptance Range
ARS1-B09-04041	LCS	H3	1051.724	154.842	159.842	1242.493		pCi/L	ARS-054/EPA 906.0	10/16/09 13:52	BJS	85	75%-125%

Blank Evaluation

Analysis Batch	QC Type	Analyte	Analysis Results	CSU 1 (1 s)	MDC	Expected Value	Qual	Report Units	Analysis Test Method	Analysis Date/Time	Analysis Technician
ARS1-B09-04041	MBL	H3	110.906	96.303	159.573	NA	U	pCi/L	ARS-054/EPA 906.0	10/16/09 22:07	BJS

RER Duplicate Evaluation

Analysis Batch	QC Type	Analysis Description	Result 1	CSU 1 (1 s)	Result 2	CSU 2 (1s)	Qual	Analysis Units	Analysis Test Method	Analysis Date/Time	Analysis Technician	RER	RER AcceptanceRange
ARS1-B09-04041	LCSD	H3	1051.724	154.842	1103.461	158.653		pCi/L	ARS-054/EPA 906.0	10/16/09 18:00	BJS	0.17	< 1

DER Duplicate Evaluation

Analysis Batch	QC Type	Analysis Description	Result 1	CSU 1 (1 s)	Result 2	CSU 2 (1s)	Qual	Analysis Units	Analysis Test Method	Analysis Date/Time	Analysis Technician	DER	DER AcceptanceRange
ARS1-B09-04041	LCSD	H3	1051.724	154.842	1103.461	158.653		pCi/L	ARS-054/EPA 906.0	10/16/09 18:00	BJS	0.47	< 3

Matrix Spike

Analysis Batch	QC Type	Analyte	Analysis Results	CSU 1 (1 s)	Unspiked Activity	Spike Con.	Qual	Report Units	Analysis Test Method	Analysis Date/Time	Analysis Technician	Percent Recovery(%)	MS Acceptance Range
ARS1-B09-04041	MS	H3	6657.620	154.842	74.740	7763.05		pCi/L	ARS-054/EPA 906.0	10/17/09 2:14	BJS	85	60%-140%

Project Manager Review

LELAP Certificate# 01949 NELAP Certificate # E87558

ARS INTERNATIONAL

2609 North River Road • Port Allen, Louisiana 70767

1 (800) 401-4277 • Fax (225) 381-2996

Notes:

Comments:

1.0) Soil and Sludge analysis are reported on a wet basis or an as received basis unless otherwise indicated.

2.0) Data in this report are within the limits of uncertainty specified in the reference method unless otherwise specified.

3.0) Modified analysis procedures are procedures that are modified to meet the certain specifications. An example may be the use of a water method to analyze a solid matrix due to the lack of an officially recognized procedure for the analysis of the solid matrix. Modified analyses are indicated by the subsequent addition of "m" to the procedure number (i.e. 900.0M).

4.0) Derived Air Concentrations and Effluent Release Concentrations are obtained from 10 CFR 20 Appendix B.

5.0) **Total activity** is actually total gamma activity and is determined utilizing the prominent gamma emitters from the naturally occurring radioactive decay chains and other prominent radioactive nuclides. Total activity may be lower than the actual total activity due to the extent of secular equilibrium achieved in the various decay chains at the time of analysis. The total activity is not representative of nuclides that emit solely alpha or beta particles.

6.0) Ra-228 is determined via secular equilibrium with its daughter, Actinium 228. (Gamma Spectroscopy only).

7.0) U-238 is determined via secular equilibrium with its daughter, Thorium 234. (Gamma Spectroscopy only).

8.0) All gamma spectroscopy was performed utilizing high purity germanium detectors (**HPGe**).

9.0) ARS makes every attempt to match sample density to calibrated density; however, in some cases, it is not practical or possible to do so and data results may be affected.

Method References:

1.0) **EPA 600/4-80-032**; Prescribed Procedures for the Measurements of Radioactivity in Drinking Water, August 1980.

2.0) Standard Methods for Examination of Water and Waste Water, 18th, 1992.

3.0) **EPA SW-846**; Test Methods for Evaluating Solid Waste, Third Edition, (9/86). (Updated through 1995).

4.0) **EPA 600/4/79-020**; Methods for Chemical Analysis of Water and Waste, March 1983.

5.0) HASL 300

6.0) **ARS-040**; An LCSD is not reported with this process. The criteria for the LCS/LCSD analysis for reproducibility have not been established for Low Level Tritium analysis. A prepared standard for Low Level Tritium has not been developed. As a result, the standard we use is based on the dilution of a verified conventional tritium standard. The volume required for Low Level Tritium analysis, in addition to the lack of an available Low Level Tritium standard, introduce variability into the LCS/LCSD analysis that does not represent the actual sample analysis. The preferred measure for reproducibility is to run a duplicate analysis of a sample.

Definitions:

1.0)	**ND**	Not detected above the detection limit (non-detect).
2.0)	**MDC**	(Minimum Detectable Concentration) minimum concentration of the analyte that ARS can detect utilizing the specific analysis
3.0)	**MBL**	Method Blank
4.0)	**DO**	Duplicate Original
5.0)	**DUP**	Method Duplicate
6.0)	**MS/MSD**	Matrix Spike/Matrix Spike Duplicate
7.0)	**S**	Spike
8.0)	**RS**	Reference Spike
9.0)	***SC**	Subcontracted out to another qualified laboratory
10.0)	**NR**	Not Referenced
11.0)	**N/A**	Not Applicable
12.0)	*****	Reported as a calculated value
13.0)	******	False Positive due to interference from Bi-214
14.0)	**U**	Activity is below the MDC
15.0)	**LCS/LCSD**	Laboratory Control Standard/Laboratory Control Standard Duplicate

NRC FORM 303 (1-2007) U.S. NUCLEAR REGULATORY COMMISSION

REQUEST FOR ANALYSIS AND CHAIN OF CUSTODY

LABORATORY – ☐ ORISE ☑ OTHER ARS (Specify)

LABORATORY USE ONLY

CONTROL NUMBER: BD-09-2

SAMPLE LOCATION (LICENSEE)	INSPECTION NO.	LICENSE NO.	DOCKET NO.
Braidwood Station	05000456/2009004		050-00456

SAMPLE SUBMITTED

# TOTAL	TYPE	VOLUME	WEIGHT
23	H2O	250 ml/ea (collected in 500 ml bottles)	n/a

DATE SAMPLES SUBMITTED:

PRIORITY: ☑ ROUTINE ☐ URGENT

SAMPLE COLLECTION INTERVAL

	MONTH	DAY	YEAR	TIME
START	09	14	09	
STOP	09	16	09	

INSPECTOR RESPONSIBLE: Sam Mulay

TELEPHONE NUMBER: 630-829-9837

ANALYSIS TO BE PERFORMED	LIST DESIRED LLD (Optional)	OTHER TYPE OF ANALYSIS (Specify)	LIST DESIRED LLD (Optional)
☐ GROSS ALPHA (GA)		☐	
☐ GROSS BETA (GB)		☐	
☐ GAMMA SPEC (GS)		☐	
☑ TRITIUM (H3)	200 pCi/L	☐	
☐ CARBON-14 (C14)		☐	
☐ IODINE-125 (I125)		☐	

RELINQUISHED BY	RECEIVED BY	DATE	TIME	REASON FOR CHANGE OF CUSTODY
Sam Mulay	FEDEX			Samples shipped to ARS (LAB)

FEE RECOVERABLE ☑ YES ☐ NO TAC NUMBER /2009004 (If Assigned)

REMARKS

Do not process/analyze samples until directed/authorized by Richard Conatser (Tel.: 301-415-4039), NRR, HQ NRC...

Hold samples until notified by NRC...

NOTE: SAMPLES WILL BE DISCARDED AFTER ANALYSIS UNLESS REASONS ARE NOTED IN REMARKS ABOVE.

NRC FORM 303 (1-2007) U.S. NUCLEAR REGULATORY COMMISSION

REQUEST FOR ANALYSIS AND CHAIN OF CUSTODY

LABORATORY – ☐ ORISE ☑ OTHER ARS (Specify)

LABORATORY USE ONLY

CONTROL NUMBER: BD-09-2

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SAMPLE SUBMITTED

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SAMPLE COLLECTION INTERVAL

	MONTH	DAY	YEAR	TIME
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STOP	09	16	09	

INSPECTOR RESPONSIBLE: Sam Mulay

TELEPHONE NUMBER: 630-829-9837

ANALYSIS TO BE PERFORMED	LIST DESIRED LLD (Optional)	OTHER TYPE OF ANALYSIS (Specify)	LIST DESIRED LLD (Optional)
☐ GROSS ALPHA (GA)		☐	
☐ GROSS BETA (GB)		☐	
☐ GAMMA SPEC (GS)		☐	
☑ TRITIUM (H3)	200 pCi/L	☐	
☐ CARBON-14 (C14)		☐	
☐ IODINE-125 (I125)		☐	

RELINQUISHED BY	RECEIVED BY	DATE	TIME	REASON FOR CHANGE OF CUSTODY
Sam Mulay	FEDEX			Samples shipped to ARS (LAB)

FEE RECOVERABLE ☑ YES ☐ NO TAC NUMBER /2009004 (If Assigned)

REMARKS

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Hold samples until notified by NRC...

NOTE: SAMPLES WILL BE DISCARDED AFTER ANALYSIS UNLESS REASONS ARE NOTED IN REMARKS ABOVE.

NRC FORM 303A (1-2007) U.S. NUCLEAR REGULATORY COMMISSION

SAMPLE RECORD -- Continued

LABORATORY – ☐ ORISE ☑ OTHER ARS (Specify)

LABORATORY USE ONLY
CONTROL NUMBER
BD-09-2

SAMPLE NUMBER	SAMPLE NAME AND DESCRIPTION	COLLECTION DATE/TIME	REMARKS, PRESERVATIVE ANALYSIS REQUESTED, ETC.
BD-09-2-01	MW-110	9/16/09 2:04 pm	
BD-09-2-02	MW-111DR	9/16/09 9:55 am	
BD-09-2-03	MW-131D	9/16/09 9:15 Am	
BD-09-2-04	MW-132D	9/16/09 11:10 Am	
BD-09-2-05	F-5D	9/16/09 2:44 pm	
BD-09-2-06	MW-105	9/15/09 4:03 pm	
BD-09-2-07	MW-112D	9/16/09 10:39 Am	
BD-09-2-08	MW-113DR	9/15/09 3:25 pm	
BD-09-2-09	MW-133D	9/16/09 4:39 pm	
BD-09-2-10	MW-134D	9/16/09 4:02 pm	
BD-09-2-11	MW-135D	9/15/09 11:50 Am	
BD-09-2-12	MW-136D	9/15/09 2:38 pm	
BD-09-2-13	MW-137D	9/15/09 2:03 pm	
BD-09-2-14	MW-138D	9/15/09 1:25 pm	
BD-09-2-15	MW-139D	9/16/09 3:24 pm	
BD-09-2-16	MW-140D	9/16/09 11:55 Am	
BD-09-2-17	VB-4-5D	9/15/09 9:55 Am	
BD-09-2-18	VB-4-6D	9/15/09 9:25 Am	
BD-09-2-19	MW-145D	9/15/09 10:40 Am	
BD-09-2-20	MW-157D	9/15/09 11:10 Am	
BD-09-2-21	DS-2, F Ditch	9/14/09 11:35 Am	
BD-09-2-22	MW-109D	9/14/09 11:20 Am	
BD-09-2-23	MW-130D	9/14/09 10:45 Am	