ARS INTERNATIONAL

2609 North River Road, Port Allen, Louisiana 70767

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

American Radiation Services, Inc.

Laboratory Analysis Report

ARS1-09-00463

Prepared for:

Nuclear Regulatory Commission (NRC)

James Noggle
USNRC Region 1
475 Allendale Road
King of Prussia, PA 19406
James.Noggle@nrc.gov

Phone: 610.337.5063

Revised 3-12-09

Project Manager Review

Management Review

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

Project Manager

ProjectManagers@amrad.com

Phone: **225.381.2991**
Fax: 225.381.2996

ARS INTERNATIONAL

2609 North River Road, Port Allen, Louisiana 70767

1 (800) 401-4277 FAX (225) 301-2996

ARS Sample Delivery Group:	ARS1-09-00463	Request or PO Number:	N/A
Client Sample ID:	MW-67-39-(008)	ARS Sample ID:	ARS1-09-00463-001
Sample Collection Date:	01/27/09 16:15	Date Received:	2/4/2009
Sample Matrix:	Aqueous	Report Date:	03/04/09 12:45

Analysis Description	Analysis Results	Analysis Error +/- 2 s	MDC	DLC	Qual	Analysis Units	Analysis Tat Method	Analysis Date/Time	Analysis Technician	Tracer/Chem Recovery
MN-54	-0.939	2.102	3.520	1.760	U	pCi/L	ARS-006/EPA 901.1	2/12/09 18:18	JLA	N/A
FE-59	0.191	3.581	6.160	3.080	U	pCi/L	ARS-006/EPA 901.1	2/12/09 18:18	JLA	N/A
CO-58	-0.549	2.089	3.520	1.760	U	pCi/L	ARS-006/EPA 901.1	2/12/09 18:18	JLA	N/A
CO-60	0.100	1.810	3.150	1.575	U	pCi/L	ARS-006/EPA 901.1	2/12/09 18:18	JLA	N/A
ZN-65	-0.590	3.849	5.780	2.890	U	pCi/L	ARS-006/EPA 901.1	2/12/09 18:18	JLA	N/A
NB-95	-0.708	5.237	3.660	1.830	U	pCi/L	ARS-006/EPA 901.1	2/12/09 18:18	JLA	N/A
ZR-95	0.867	3.597	6.100	3.050	U	pCi/L	ARS-006/EPA 901.1	2/12/09 18:18	JLA	N/A
I-131	-0.544	1.867	3.130	1.565	U	pCi/L	ARS-006/EPA 901.1	2/12/09 18:18	JLA	N/A
CS-134	-0.671	72.795	3.860	1.930	U	pCi/L	ARS-006/EPA 901.1	2/12/09 18:18	JLA	N/A
CS-131	0271	2142	3630	1815	U	pCi/L	ARS-006/EPA 901 1	2112109 18:18	JLA	N/A
BA-140	-6.196	31.283	15.300	7.650	U	pCi/L	ARS-006/EPA 901.1	2/12/09 18:18	JLA	N/A
LA-140	-1.424	2.931	4.930	2.465	U	pCi/L	ARS-006/EPA 901.1	2/12/09 18:18	JLA	N/A
SR-90	12.256	0.981	0.379	0.176		pCi/L	ARS-032/Eichrom SRW-01	2/24/09 17:20	BS	N/A
H-3	3368.962	371.385	147.852	72.749		pCi/L	ARS-054/EPA 906.0	2/28/09 1:23	BS	91.00%
NI-63	2.7562	4.9484	8.2825	4.074	U	pCi/L	ARS-022	3/5/09 13:02	BS	N/A

NOTES:

Lindsay Rousel

Project Manager Review

LELAP Certificate# 30658 NELAP Certificate # E87558

ARS INTERNATIONAL

2609 North River Road. Port Allen. Louisiana 70767

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

ARS Sample Delivery Grwp:	ARS1-09-00463	**Request or PO Number:**	N/A
Client Sample ID:	MW-67-105-(007)	**ARS Sample ID:**	ARS1-09-00463-00
Sample Collection Date:	01/27/09 16:45	**Date Received:**	2/4/2009
Sample Matrix:	Aqueous	**Report Date:**	03/04/09 12:45

Analysis Description	Analysis Results	Analysis Error +/- 2 s	MDC	DLC	Qual	Analysis Units	Analysis Test Method	Analysis Date/Time	Analysis Technician	Tracer/Chem Recovery
MN-54	-0.024	2.326	3.930	1.965	U	pCi/L	ARS-006/EPA 901.1	2/23/09 18:24	JLA	N/A
FE-59	-0.352	75.969	7.580	3.790	U	pCi/L	ARS-006/EPA 901.1	2/23/09 18:24	JLA	N/A
CO-58	0.398	2.017	3.440	1.720	U	pCi/L	ARS-006/EPA 901.1	2/23/09 18:24	JLA	N/A
CO-60	-1.156	85.815	4.670	2.335	U	pCi/L	ARS-006/EPA 901.1	2/23/09 18:24	JLA	N/A
ZN-65	-3.916	6.997	8.680	4.340	U	pCi/L	ARS-006/EPA 901.1	2/23/09 18:24	JLA	N/A
NB-95	-1.705	14.742	4.110	2.055	U	pCi/L	ARS-006/EPA 901.1	2/23/09 18:24	JLA	N/A
ZR-95	1.641	3.876	6.530	3.265	U	pCi/L	ARS-006/EPA 901.1	2/23/09 18:24	JLA	N/A
1-131	-2.184	323.540	3.340	1.670	U	pCi/L	ARS-006/EPA 901.1	2/23/09 18:24	JLA	N/A
CS-134	-0.570	7.088	4.410	2.205	U	pCi/L	ARS-006/EPA 901.1	2/23/09 18:24	JLA	N/A
CS-137	0.410	1.885	3.180	1.590	U	pCi/L	ARS-006/EPA 901.1	2/23/09 18:24	JLA	N/A
BA-140	-1.298	39.780	14.900	7.450	U	pCi/L	ARS-006/EPA 901.1	2/23/09 18:24	JLA	N/A
LA-140	-1.297	2.988	5030	2.515	U	pCi/L	ARS-006/EPA 901.1	2/23/09 18:24	JLA	N/A
SR-90	1139	0.163	0 344	0.160		pCi/L	ARS-032/Eichrom SRW-01	2/24/09 17:20	BS	N/A
H-3	2003.451	237.319	147.699	72.673		pCi/L	ARS-054/EPA 906.0	2/28/09 5:31	BS	91.0%
NI-63	1.8718	4.7474	8.0049	3.9374	U	pCi/L	ARS-022	3/5/09 13:27	BS	N/A

NOTES:

Project Manager Review

LELAP Certificate # 30658 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: ARS1-09-00463
Client Sample ID: MW-67-173-(007)
Sample Collection Date: 01/27/09 16:33
Sample Matrix: Aqueous

Request or PO Number: N/A
ARS Sample ID: ARS1-09-00463-003
Date Received: 2/4/2009
Report Date: 03/04/09 12:45

Analysis Description	Analysis Results	Analysis Error +/- 2 s	MDC	DLC	Qual	Analysis Units	Analysis Test Method	Analysis Date/Time	Analysis Technician	Tracer/Chem Recovery
MN-54	-0 065	2 184	3 750	1 875	U	pCi/L	ARS-006/EPA 901 1	3/10/09 17.23	JLA	N/A
FE 59	-3 245	-24 594	8 330	4 165	U	pCi/L	ARS-006/EPA 901 1	3/10/09 17 23	JLA	N/A
CO-58	1097	2 411	4.040	2.020	U	pCi/L	ARS-006/EPA 901 1	3/10/09 17 23	ILA	N/A
CU-60	-1 602	342 190	4 700	2 350	U	pCi/L	ARS-006/EPA 901 1	3110109 17 23	JLA	N/A
ZN-65	-0.364	11.053	17.100	8.550	U	pCi/L	ARS-006/EPA 901.1	3/10/09 17:23	JLA	N/A
NB-95	-0.163	48.183	3.960	1.980	U	pCi/L	ARS-006/EPA 901.1	3/10/09 17:23	JLA	N/A
ZR-95	0.446	4.033	6.950	3.475	U	pCi/L	ARS-006/EPA 901.1	3/10/09 17:23	JLA	N/A
I-131	0.901	2.341	3.910	1.955	U	pCi/L	ARS-006/EPA 901.1	3/10/09 17:23	JLA	N/A
CS-134	-1.886	51.363	5.230	2.615	U	pCi/L	ARS-006/EPA 901.1	3/10/09 17:23	JLA	N/A
CS-137	16.317	3.959	3.910	1.955		pCi/L	ARS-006/EPA 901.1	3/10/09 17:23	JLA	N/A
BA-140	-4.263	2110.500	17.700	8.850	U	pCi/L	ARS-006/EPA 901.1	3/10/09 17:23	JLA	N/A
LA-140	1.127	3.364	5.740	2.870	U	pCi/L	ARS-006/EPA 901.1	3/10/09 17:23	JLA	N/A
SR-90	0.102	0.100	0.336	0.156	U	pCi/L	ARS-032/Eichrom SRW-01	2/24/09 17:20	BS	N/A
H-3	822.081	131.108	146.489	72.078		pCi/L	ARS-054/EPA 906.0	2/28/09 9:38	BS	108.00%
NI-63	0.8225	4.8924	8.3143	4.0896	U	pCi/L	ARS-022	3/5/09 13:51	BS	N/A

NOTES:

Project Manager Review

LELAP Certificate# 30658 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:	ARS1-09-00463	**Request or PO Number:**	N/A
Client Sample ID:	MW-67-219-(007)	**ARS Sample ID:**	ARS1-09-00463-00
Sample Collection Date:	01/27/09 12:34	**Date Received:**	2/4/2009
Sample Matrix:	Aqueous	**Report Date:**	03/04/09 12:45

Analysis Description	Analysis Results	Analysis Error +/- 2 s	MDC	DLC	Qual	Analysis Units	Analysis Test Method	Analysis Date/Time	Analysis Technician	Tracer, Reco	Chem ery
MN-54	0.729	2.301	3.890	1.945	U	pCi/L	ARS-006/EPA 901.1	3/10/09 17:22	JLA		N/A
FE-59	-1.479	4.548	7.630	3.815	U	pCi/L	ARS-006/EPA 901.1	3/10/09 17:22	JLA		N/A
CO-58	0.191	2.120	3.580	1.790	U	pCi/l	ARS-006/EPA 901.1	3/10/09 17:22	JLA		N/A
CO-60	-0.881	137.250	4.500	2.250	U	pCi/l	ARS-006/EPA 901.1	3/10/09 17:22	JLA		N/A
ZN-65	-3.006	5.671	9.440	4.720	U	pCi/L	ARS-006/EPA 901.1	3/10/09 17:22	JLA		N/A
NB-95	1.205	2.300	3.870	1.935	U	pCi/L	ARS-006/EPA 901.1	3/10/09 17:22	JLA		N/A
ZR-95	-2.592	10.443	6.950	3.475	U	pCi/L	ARS-006/EPA 901.1	3/10/09 17:22	JLA		N/A
I-131	0.006	2.161	3.630	1.815	U	pCi/L	ARS-006/EPA 901.1	3/10/09 17:22	JLA		N/A
CS-134	2.183	2.528	4.160	2.080	U	pCi/L	ARS-006/EPA 901.1	3/10/09 17:22	JLA		N/A
CS-137	0.527	2.575	4.320	2.160	U	pCi/L	ARS-006/EPA 901.1	3/10/09 17:22	JLA		N/A
BA-140	-3.664	111.060	16.800	8.400	U	pCi/L	ARS-006/EPA 901.1	3/10/09 17:22	JLA		N/A
LA-140	2.184	2.777	4.580	2.290	U	pCi/L	ARS-006/EPA 901.1	3/10/09 17:22	JLA		N/A
SR-90	0.256	0.104	0.323	0.149	U	pCi/L	ARS-032/Eichrom SRW-01	2/24/09 17:20	BS		N/A
H-3	1067.798	151.016	145.913	71.795		pCi/L	ARS-054/EPA 906.0	2/28/09 13:46	BS	91.0%	
NI-63	5.4099	4.7811	7.7117	3.7932	U	pCi/L	ARS-022	3/5/09 14:16	BS		N/A

NOTES:

Project Manager Review

LEIAP Certificate# 30658 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: ARS1-09-00463
Client Sample ID: MW-67-276-(007)
Sample Collection Date: 01/27/09 13:01
Sample Matrix: Aqueous

Request or PO Number: N/A
ARS Sample ID: ARS1-09-00463-005
Date Received: 2/4/2009
Report Date: 03/04/09 12:45

Analysts Description	Analysis Results	Analysis Error +/- 2 s	MDC	DLC	Qual	Analysis Units	Analysis Test Method	Analysis Date/Time	Analysis Technician	Tracer/Chem Recovery
MN-54	0.018	1.974	3.370	1.685	U	pCi/L	ARS-006/EPA 901.1	2/23/09 18:25	JLA	N/A
FE-59	1.524	3.627	6.110	3.055	U	pCi/L	ARS-006/EPA 901.1	2/23/09 18:25	JLA	N/A
CO-58	0.005	2.064	3.520	1.760	U	pCi/L	ARS-006/EPA 901.1	2/23/09 18:25	JLA	N/A
CO-60	0.327	2.179	3.740	1.870	U	pCi/L	ARS-006/EPA 901.1	2/23/09 18:25	JLA	N/A
ZN-65	-4.485	3459.400	6.900	3.450	U	pCi/L	ARS-006/EPA 901.1	2/23/09 18:25	JLA	N/A
NB-95	-0.378	3.399	3.730	1.865	U	pCi/L	ARS-006/EPA 901.1	2/23/09 18:25	JLA	N/A
ZR 95	-1657	6667	6 260	3 130	U	pCi/L	ARS-006/EPA 901 1	2/23/09 18 25	JLA	N/A
I 131	0.096	1350	2 300	1 150	U	pCi/L	ARS-006/EPA 901 1	2/23/09 18 25	JLA	N/A
CS-134	-0.026	2.314	3.690	1.845	U	pCi/L	ARS-006/EPA 901.1	2/23/09 18:25	JLA	N/A
CS-137	-1.431	2.272	3.770	1.885	U	pCi/L	ARS-006/EPA 901.1	2/23/09 18:25	JLA	N/A
BA-140	-0.719	12.825	14.500	7.250	U	pCi/L	ARS-006/EPA 901.1	2/23/09 18:25	JLA	N/A
LA-140	-1.585	2.797	4.680	2.340	U	pCi/L	ARS-006/EPA 901.1	2/23/09 18:25	JLA	N/A
SR-90	0.086	0.105	0.356	0.165	U	pCi/L	ARS-032/Eichrom SRW-01	2/24/09 17:20	BS	N/A
H-3	1074.817	152.243	147.440	72.546		pCi/L	ARS-054/EPA 906.0	2/28/09 17:53	BS	108.00%
NI-63	5.6626	4.954	7.9698	3.9202	U	pCi/L	ARS-022	3/5/09 14:41	BS	N/A

NOTES:

Project Manager Review

LELAP Certificate# 30658 NELAP Certificate # E87558

ARS INTERNATIONAL

2609 North River Road, Port Allen, Louisiana 70767

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

ARS Sampk Delivery Group:	ARS1-09-00463	**Request or PO Number:**	N/A
Client Sample ID:	MW-67-323-(007)	**ARS Sample ID:**	ARS1-09-00463-00(
Sample Collection Date:	01/27/09 13:50	**Date Received:**	2/4/2009
Sample Matrix:	Aqueous	**Report Date:**	03/04/09 12.45

Analysis Description	Analysis Results	Error +/- 2 s	MDC	DLC	Qual	Analysis Units	Analysis Test Method	Analysis Date/Time	Analysis Technician	Tracer/Chem Recovery
MN-54	0.296	Analysis Error +/- 2	3.600	1.800	U	pCi/L	ARS-006/EPA 901.1	3/10/09 17:27	JLA	N/A
FE-59	0.316	2.131	7.340	3.670	U	pCi/L	ARS-006/EPA 901.1	3/10/09 17:27	JLA	N/A
CO-58	-0.588		3.620	1.810	U	pCi/L	ARS-006/EPA 901.1	3/10/09 17:27	JLA	N/A
CO-60	-0.492	36.649	4.350	2.175	U	pCi/L	ARS-006/EPA 901.1	3/10/09 17:27	JLA	N/A
ZN-65	-4.899	5.757	9.470	4.735	U	pCi/L	ARS-006/EPA 901.1	3/10/09 17:27	JLA	N/A
NB-95	1.373	2.278	3.780	1.890	U	pCi/L	ARS-006/EPA 901.1	3/10/09 17:27	JLA	N/A
ZR-95	-3.485	8.727	6.770	3.385	U	pCi/L	ARS-006/EPA 901.1	3/10/09 17:27	JLA	N/A
I-131	0.668	2.107	3.520	1.760	U	pCi/L	ARS-006/EPA 901.1	3/10/09 17:27	JLA	N/A
CS-134	-1.420	2.392	3.970	1.985	U	pCi/L	ARS-006/EPA 901.1	3/10/09 17:27	JLA	N/A
CS-137	-1.329	18.449	3.260	1.630	U	pCi/L	ARS-006/EPA 901.1	3/10/09 17:27	JLA	N/A
BA-140	-6.223	41.031	16.300	8.150	U	pCi/L	ARS-006/EPA 901.1	3/10/09 17:27	JLA	N/A
LA-140	-0.728	2.897	4.940	2.470	U	pCi/L	ARS-006/EPA 901.1	3/10/09 17:27	JLA	N/A
SR-90	-0.023	0.094	0.337	0.156	U	pCi/L	ARS-032/Eichrom SRW-01	2/24/09 17:20	BS	N/A
H-3	422.989	102.750	145.625	71.653		pCi/L	ARS-054/EPA 906.0	2/28/09 22:01	BS	99.0%
NI-63	-1.2608	4.8165	8.2459	4.056	U	pCi/L	ARS-022	3/5/09 15:06	BS	N/A

NOTES:

Project Manager Review

LELAP Certificate# 30658 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:	ARS1-09-00463	**Request or PO Number:**	N/A
Client Sample ID:	MW-67-340-(007)	**ARS Sample ID:**	ARS1-09-00463-007
Sample Collection Date:	01/27/09 12:44	**Date Received:**	2/4/2009
Sample Matrix:	Aqueous	**Report Date:**	03/04/09 12:45

Analysis Description	Analysis Results	Analysis Error +/- 2 s	MDC	DLC	Qual	Analysis units	Analysis Test Method	Analysis Date/Time	Analysis Technician	Tracer/Chem Recovery
MN 54	-0 444	17 762	4 640	2 320	U	pCi/L	ARS-006/EPA 901 1	3/11/09 16 09	JLA	N/A
FE-59	0.033	3.625	6.210	3 105	U	pCi/L	ARS-006/EPA 901.1	3/11/09 16:09	JLA	N/A
CO-58	-0 404	2 246	3 780	1890	U	pCi/L	ARS-006/EPA 901.1	3/11/09 16:09	JLA	N/A
CO-60	-0 600	7 027	4 490	2 245	U	pCi/L	ARS-006/EPA 901 1	3/11/09 16 09	JLA	N/A
ZN 65	0 000	7 416	12 500	6 250	U	pCi/L	ARS-006/EPA 901 1	3/11/09 16 09	JLA	N/A
NB-95	-0.297	4.967	4.100	2.050	U	pCi/L	ARS-006/EPA 901.1	3/11/09 16:09	JLA	N/A
ZR-95	-1.205	95.241	5.100	2.550	U	pCi/L	ARS-006/EPA 901.1	3/11/09 16:09	JLA	N/A
I-131	-1.008	2.208	3.630	1.815	U	pCi/L	ARS-006/EPA 901.1	3/11/09 16:09	JLA	N/A
CS-134	2.664	2.524	4.120	2.060	U	pCi/L	ARS-006/EPA 901.1	3/11/09 16:09	JLA	N/A
CS-137	-0.558	2.606	4.370	2.185	U	pCi/L	ARS-006/EPA 901.1	3/11/09 16:09	JLA	N/A
BA-140	-3.529	136.310	16.300	8.150	U	pCi/L	ARS-006/EPA 901.1	3/11/09 16:09	JLA	N/A
LA-140	-0.028	1.125	5.960	2.980	U	pCi/L	ARS-006/EPA 901.1	3/11/09 16:09	JLA	N/A
SR-90	-0.007	0.125	0.446	0.206	U	pCi/L	ARS-032/Eichrom SRW-01	2/24/09 17:20	BS	N/A
H-3	613.799	115.873	147.064	72.361		pCi/L	ARS-054/EPA 906.0	3/1/09 2:08	BS	66.00%
NI-63	1.5796	4.7236	7.9834	3.9268	U	pCi/L	ARS-022	3/5/09 15:30	BS	N/A

NOTES:

Lindsay Rousel

Project Manager Review

LELAP Certificate# 30658 NELAP Certificate # E87558

ARS INTERNATIONAL

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

QC Results Report

Sample Delivery Group: ARS1-09-00463
Oate Received: 02/04/09

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	Analysis Technician	Percent Recovery (%)	LCS Acceptance Range
ARS1-B09-00938	LCS	CO-60	25299 00	507.08	265 80	25394 58		pCi/g	EPA 901 1	03/10/09	JLA	100	75%-12 %
ARS1-B09-00938	LCS	CS-137	15254 00	355.72	156 30	15365 62		pCi/g	EPA 901 1	03/10/09	JLA	99	75%-12 %
ARS1-B09-00938	LCS	AM-241	34140 00	1252 30	281 50	34896 70		pCi/g	EPA 901 1	03/10/09	JLA	98	75%-12 %

Blank Evaluation

Analysis Batch	QC Type	Analyte	Analysis Results	CSU 1 (1 s)	MDC	Expected Value	Qual	Report Units	Analysis Test Method	Analysis Date	Analysis Technician
ARS1-B09-00938	MBL	CO-60	-0.004	0.009	0.023	NA	U	pCi	EPA 901.1	03/10/09	JLA
ARS1-B09-00938	MBL	CS-137	-0.007	0.151	0.021	NA	U	pCi	EPA 901.1	03/10/09	JLA
ARS1-B09-00938	MBL	AM-241	0.008	0.006	0.022	NA	U	pCi	EPA 901.1	03/10/09	JLA

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	Analysis Technician	RER	RER Acceptance Range
ARS1-B09-00938	LCSD	CO-60	25299.00	507.08	25211.00	496.61		pCi/g	EPA 901.1	03/10/09	JLA	0.09	< 1
ARS1-B09-00938	LCSD	CS-137	15254.00	355.72	15345.00	351.59		pCi/g	EPA 901.1	03/10/09	JLA	0.13	< 1
ARS1-B09-00938	LCSD	AM-241	34140.00	1252.30	34466.00	1264.90		pCi/g	EPA 901.1	03/10/09	JLA	0.13	< 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	Analysis Technician	DER	DER Acceptance Range
ARS1-B09-00938	LCSD	CO-60	25299.00	507.08	25211.00	496.61		pCi/g	EPA 901.1	03/10109	JLA	0.25	< 3
ARS1-B09-00938	LCSD	CS-137	15254.00	355.72	15345.00	351.59		pCi/g	EPA 901.1	03/10/09	JLA	0.36	< 3
ARS1-B09-00938	LCSD	AM-241	34140.00	1252.30	34466.00	1264.90		pCi/g	EPA 901.1	03/10/09	JLA	0.37	< 3

Lindsay Roussel
Quality Assurance Review

LELAP Certificate* 30658 NELAP Certificate # E87558

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

QC Results Report

Sample Delivery Group: ARS1-09-00463
Date Received: 02/04/09

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	Analysis Technician	Percent Recovery (%)	LCS Acceptance Range
ARS1-B09-00666	LCS	CO-60	24784.00	489.08	178.10	25394.58		pCi/g	EPA 901.1	02/23/09	JLA	98	75%-125%
ARS1-B09-00666	LCS	CS-137	14937.00	333.93	149.90	15365.62		pCi/g	EPA 901.1	02/23/09	JLA	97	75%-125%
ARS1-B09-00666	LCS	AM-241	34175.00	1251.60	252.70	34896.70		pCi/g	EPA 901.1	02/23/09	JLA	98	75%-125%

Blank Evaluatian

Analysis Batch	QC Type	Analyte	Analysis Results	CSU 1 (1 s)	MDC	Expected Value	Qual	Report Units	Analysis Test Method	Analysis Date	Analysis Technician
ARS1-B09-00666	MBL	CO-60	-0.003	0.029	0.005	NA	U	pCi	EPA 901.1	02/23/09	JLA
ARS1-B09-00666	MBL	CS-137	0.001	0.001	0.004	NA	U	pCi	EPA 901.1	02/23/09	JLA
ARS1-B09-00666	MBL	AM-241	0.002	0.002	0.007	NA	U	pCi	EPA 901.1	02/23/09	JLA

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	Analysis Technician	RER	RER AcceptanceRange
ARS1-B09-00666	LCSD	CO-60	24784.00	489.08	24639.00	481.99		pCi/g	EPA 901.1	02/23/09	JLA	0.15	< 1
ARS1-B09-00666	LCSD	CS-137	14937.00	333.93	15357.00	336.43		pCi/g	EPA 901.1	02/23/09	JLA	0.63	< 1
ARS1-B09-00666	LCSD	AM-241	34175.00	1251.60	35927.00	1329.40		pCi/g	EPA 901.1	02/23/09	JLA	0.68	c 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	Analysis Technician	DER	DER AcceptanceRange
ARS1-B09-00666	LCSD	CO-60	24784.00	489.08	24639.00	481.99		pCi/g	EPA 901.1	02/23/09	JLA	0.42	< 3
ARS1-B09-00666	LCSD	CS-137	14937.00	333.93	15357.00	336.13		pCi/g	EPA 901.1	02/23/09	JLA	1.77	c 3
ARS1-B09-00666	LCSD	AM-241	34175.00	1251.60	35927.00	1329.40		pCi/g	EPA 901.1	02/23/09	JLA	1.92	< 3

Lindsay Rousel
Quality Assurance Review

LELAP Certificate# 30658 NELAP Certificate # E87558

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

QC Results Report

Sample Delivery Group: ARS1-09-00463
Date Received: 02/04/09

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	Analysis Technician	Percent Recovery (%)	LCS Acceptance Range
ARS1-B09-00546	LCS	CO-60	25461.00	509.44	197.20	25394.58		pCi/g	EPA 901.1	02/12/09	JLA	100	75%-125%
ARS1-B09-00546	LCS	CS-137	15342.00	363.55	140.40	15365.62		pCi/g	EPA 901.1	02/12/09	JLA	100	75%-125%
ARS1-B09-00546	LCS	AM-241	34336.00	1246.80	278.20	34896.70		pCi/g	EPA 901.1	02/12/09	JLA	98	75%-125%

Blank Evaluation

Analysis Batch	QC Type	Analyte	Analysis Results	CSU 1 s)	WOC	Expected Value	Qual	Report Units	Analysis Test Method	Analysis Date	Analysis Technician
ARS1-B09-00546	MBL	CO-60	-0.003	0.010	0.005	NA	U	pCi	EPA 901.1	02/12/09	JLA
ARS1-B09-00546	MBL	CS-137	-0.001	0.003	0.005	NA	U	pCi	EPA 901.1	02/12/09	JLA
ARS1-B09-00546	MBL	AM-241	0.002	0.002	0.006	NA	U	pCi	EPA 901.1	02/12/09	JLA

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	Analysis Technician	RER	RER Acceptance range
ARS1-B09-00546	LCSD	CO-60	25461.00	509 44	25140 00	495 44		pCi/g	EPA 901 1	02/12/09	JLA	0 32	< 1
ARS1-B09-00546	LCSD	CS-137	15342.00	363 55	15473.00	346 37		pCi/g	EPA 901 1	02/12/09	JLA	0 18	< 1
ARS1-B09-00546	LCSD	AM-241	34336.00	1246.80	34015.00	1245.90		pCi/g	EPA 901.1	02/12/09	JLA	013	< 1

DER Duplicate Evaluation

Analysis Batch	QC	Analysis Description	Result 1	CSU 1(1 s)	Result 2	CSU 2 (1s)	Qual	Analysis Units	Analysis Test Method	Analysis Date	Analysis Technician	DER	DER Acceptance range
ARS1-B09-00546	LCSD	CO-60	25461 00	509 44	25140 00	495 44		pCi/g	EPA 901 1	02/12/09	JLA	0 90	< 3
ARS1 B09 00546	LCSD	CS-137	15342 00	363 55	15473 00	346 37		pCi/g	EPA 901 1	02/12/09	JLA	0 52	< 3
ARS1-B09-00546	LCSD	AM-241	34336 00	1246 80	34015 00	1245 90		pCi/g	EPA 901 1	02/12/09	JLA	0 36	< 3

Lindsay Rousel
Quality Assurance Review

LELAP Certificate# 30658 NEIAP Certificate # E87558

AMERICAN RADIATION SERVICES, INC.

2609 North River Road, Port Allen, Loulslana 70767

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

QC Results Report

Sample Delivery Group: ARS1-09-00463
Date Received: 02/04/09

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 Ra
ARS1-B09-00577	LCS	Sr-90	18.94	1.5	0.347	20.74		pCi/L	ARS-032/EPA 905.0	2/24/09 17:20	BS	91	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-B09-00577	MBL	Sr-90	-0.103	0.09	0.336	NA	U	pCi/L	ARS-032/EPA 905.0	2/24/09 17:20	BS

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-B09-00577	LCSD	Sr-90	18.94	1.5	20.01	1.6		pCi/L	ARS-032/EPA 905.0	2/24/09 17:20	BS	0.35	< 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-B09-00577	LCSD	Sr-90	18.94	1.5	20.0	1.6		pCi/L	ARS-032/EPA 905.0	2/24/09 17:20	BS	0.99	< 3

Lindsay Roussel
Project Manager Review

LELAP Certificate # 30658 NELAP Certificate # E87558

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

QC Results Report

Sample Delivery Group: ARS1-09-00463
Date Received: 2/4/2009

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-B09-00590	LCS	H3	1215.833	164 027	146 397	1257 658		pCi/L	ARS-054/EPA 906 0	2/27/09 0.37	BS	97	75% - 25%

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-B09-00590	MBL	H3	133.046	88.682	145.165	NA	U	pCi/L	ARS-054/EPA 906.0	2/27/09 8:52	BS

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 Acceptance Range
ARS1-B09-00590	LCSD	H3	1215 833	164 027	1308.130	172.358		pCi/L	ARS-054/EPA 906 0	2/27/09 4.45	BS	0 27	< 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 Acceptance Range
ARS1-B09-00590	LCSD	H3	1215.833	164.027	1308.130	172 358		pCi/L	ARS-054/EPA 906.0	2/27/09 4:45	BS	0.78	< 3

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 ARS International

LELAP Certificate# 01949 NELAP Certificate # E87558

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

QC Results Report

Sample Delivery Group: ARS1-09-00463
Date Received: 2/4/2009

Laboratory Control Sample Evaluation

Analysis Batch	■	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
N/A	LCS	NI-63	203.828	47.405	8.283	204.509		pCi/L	ARS-022	3/2/09 18:34	BS	100	75%-125%

Blank Evaluation

Analysis Batch	QC Type	Analyte		C 1 (1 s)	MDC	Expected Value	Qual	Report Units	Analysis Teat Method	Analysis Date/Time	Analysis Technician
N/A	MBL	NI-63	-0.869	4.708	8.055	NA	U	pCi/L	ARS-022	3/3/09 2:58	BS

RER Duplicate Evaluation

Analysis Batch	QC Type	Analysis Description	Result 1	CSU 1 (1 s)	Result 2	CSU 2 (1s)	Quai	Analysis Units	Analysis Test Method	Analysis Date/Time	Analysis Technician	RER	RER AcceptanceRange
N/A	LCSD	NI-63	203.828	47 405	210.004	48.834		pCi/L	ARS-022	3/2/09 22:47	BS	0.06	< 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 Tachnician	DER	DER AcceptanceRange
N/A	LCSD	Ni-63	203.828	47.405	210.004	48.834		pCi/L	ARS-022	3/2/09 22:47	BS	0.18	< 3

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 indicaled.

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 nudides. 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 LCSILCSD 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 LCSILCSD 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 laboralory
10.0)	**NR**	Not Referenced
11.0)	**NIA**	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)	**LCSILCSD**	Laboratory Control Standard/Laboratory Control Standard Duplicate

LELAP Cert# 30658 *NELAP Cert# E87558*

NRC FORM 303 (4-2004) U.S. NUCLEAR REGULATORY COMMISSION

REQUEST FOR ANALYSIS AND CHAIN OF CUSTODY

LABORATORY USE ONLY

CONTROL NUMBER

LABORATORY:

SAMPLE LOCATION(LICENSEE): INDIAN POINT ENERGY CENTER

LICENSEE NUMBER | DOCKET NO.

SAMPLE SUBMITTED

# TOTAL	TYPE	VOLUME	WEIGHT
1	GROUND WATER	2000 ML	~ 2 Kg

DATE SAMPLES SUBMITTED

PRIORITY: ☐ ROUTINE ☐ URGENT

SAMPLE COLLECTION INTERVAL

	MONTH	DAY	YEAR	TIME
START				
STOP				

INSPECTOR RESPONSIBLE: Jim Noggle (USNRC)

TELEPHONE NUMBER: (610) 337-5063

ANALYSIS TO BE PERFORMED	LIST DESIRED LLD (Optional)	OTHER TYPE OF ANALYSIS (Specify)	LIST DESIRED LLD (Optional)
☐ GROSS ALPHA (GA)		☒ STRONTIUM-90 (Sr90)	
☐ GROSS BETA (GB)		☐ NICKEL-63 (Ni63)	
☒ GAMMA SPEC (GS)		☐	
☒ TRITIUM (H3)		☐	
☐ CARBON-14 (C14)		☐	
☐ IODINE-125 (I125)		☐	

RELENQUISHED BY	RECEIVED BY	DATE	TIME	REASON FOR CHANGE OF CUSTODY
[signature]	[signature]	01/27/09	1704	Verify correct samples
[signature]	[signature]	1/27/09	1704	Relenquished observer/witness
[signature]	SECURED STORAGE	1/27/09	1704	SECURED STORAGE
[signature]	SHIPMENT 09-019	1/30/09	1500	SHIP TO LAB.
	[signature]	2-4-09	08:30	LAB

FEE RECOVERABLE ☐ NO ☒ YES TAC NUMBER

REMARKS:

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

NRC FORM 303 (4-2004) U.S. NUCLEAR REGULATORY COMMISSION

LABORATORY USE ONLY

CONTROL NUMBER

SAMPLE RECORD - Continued

LABORATORY: _____

	SAMPLE NUMBER	SAMPLE NAME AND DESCRIPTION	COLLECTION DATE/TIME	REMARKS, PRESERVATIVE ANALYSIS REQUESTED, ETC.
	MW-67-39-(008)	Ground Water Split Sample of MW-67-39-(008)	01/27/09 1615	Sample is unfiltered & unpresewed. Analyze for Gamma Spec, H3, Sr90, Ni63
	MW-67-105-(007)	Ground Water Split Sample of MW-67-105-(007)	01/27/09 1645	Sample is unfiltered 8 unpreserved. Analyze for Gamma Spec. H3, Sr90, Ni63
	MW-67-173-(007)	Ground Water Split Sample of MW-67-173-(007)	01/27/09 1633	Sample is unfiltered 8 unpreserved Analyze for Gamma Spec, H3, Sr90, Ni63
*	MW-67-2194007)	Ground Water Split Sample of MW-67-219-(007)	01/27/09 1234	Sample is unfiltered & unpreserved Analyze for Gamma Spec, H3, Sr90, Ni63
*	MW-67-276-(007)	Ground Water Split Sample of MW-67-276-(007)	01/27/09 1301	Sample is unfiltered 8 unpreserved Analyze for Gamma Spec. H3, Sr90, Ni63
*	MW-67-323-(007)	Ground Water Split Sample of MW-67-323-(007)	01/27/09 1350	Sample is unfiltered & unpreserved Analyze for Gamma Spec. H3, Sr90, Ni63
*	MW-67-340-(007)	Ground Water Split Sample of MW-67-340-(007)	01/27/09 1244	Sample is unfiltered & unpreserved Analyze for Gamma Spec, H3, Sr90, Ni63

* From 1320 to 1340 these samples were not observed by NRC.