

**ELV-1C West Interim Source Removal Action (ISRA).
Soil Sampling for Radionuclides.
Results and Statistical Analysis.
Waste Certification.**

This data package provides the laboratory results and statistical analysis of pre-excavation samples taken from the ELV-1C West Interim Source Removal Action (ISRA) area (See Appendix 1). This analysis and data interpretation complies with procedures approved by the California Department of Public Health (CDPH) Radiologic Health Branch (RHB)¹.

Twelve (12) samples taken for waste disposal characterization were analyzed for strontium-90, tritium and gamma emitting radionuclides by gamma spectroscopy, using an off-site laboratory.

Minimum detectable activity (MDA) for cesium-137 and strontium-90 averaged ~0.041 pCi/g and ~0.043 pCi/g respectively. Minimum detectable activity for tritium averaged ~0.8 pCi/g. The gamma spectroscopy library also included the following contaminants-of-concern: Na-22, K-40, Mn-54, Co-60, Cs-134, Cs-137, Eu-152, Eu-154, Th-228, Th-232, U-235, U-238 and Am-241. Laboratory data packages are available on request.

Statistical evaluation of sample analytical results to determine whether or not the sampled waste contains Cs-137 or Sr-90 activity elevated above local background was conducted using the Wilcoxon Rank Sum Test using protocols described in NUREG-1505² and DTSC guidance³ (See Appendix 2). Appendix 2 shows the complete analytical results for all radionuclides. Complete laboratory data packages are available on request.

Local background data for cesium-137 and strontium-90 was taken from Table 20 of the 1995 McLaren/Hart report⁴. Background for tritium in soil is not well established, and is not reported in the 1995 McLaren/Hart report, therefore tritium background in soil is conservatively assumed to be zero. Tritium data is therefore compared to the MDA of the analysis and the EPA preliminary remediation goal (PRG)⁵ for residential 10⁻⁶ risk.

¹ Boeing, "Northern Drainage Waste Sampling for Radionuclides." Revision 9, November 5, 2007. (Attachment 3 to Northern Drainage Work Plan) and "ISRA Waste Sampling for Radionuclides", Attachment A to the ISRA Soil Management Plan.

² NUREG-1505, Nuclear Regulatory Commission, "A Non-parametric Statistical Methodology for the Design and Analysis of Final Status Decommissioning Surveys." January 1998. http://www.philrutherford.com/Radiation_Cleanup_Standards/NUREG-1505.pdf

³ DTSC, "Selecting Inorganic Constituents as Chemicals of Concern at Risk Assessments at Hazardous Waste Sites and Permitted Facilities." February 1997.

⁴ McLaren/Hart, "Additional Soil and Water Sampling at the Brandeis-Bardin Institute and Santa Monica Mountains Conservancy." Jan 19, 1995. <http://www.etec.energy.gov/Health-and-Safety/Documents/BrandeisBardin/AddSoilandWaterSamp.pdf>

⁵ EPA preliminary remediation goals for radionuclides - <http://epa-prgs.ornl.gov/radionuclides/>.

Conclusions

Cesium-137 – Based on the results of the statistical analysis of Appendix 1, soil to be excavated from the ELV-1C Drainage ISRA area does not exceed the local background for Cs-137. The highest Cs-137 result is 0.196 pCi/g which is less than the highest background result of 0.213 pCi/g. The incremental dose from Cs-137 above background is therefore zero mrem/y. The highest non-background subtracted Cs-137 result is equivalent to an effective dose of 0.14 mrem/y⁶.

Strontium-90 - Based on the results of the statistical analysis of Appendix 1, soil to be excavated from the ELV-D1 Drainage ISRA area does not exceed the local background for Sr-90. The highest Sr-90 result is 0.038 pCi/g which is less than the highest background result of 0.13 pCi/g. The incremental dose from Sr-90 above background is therefore zero mrem/y. The highest non-background subtracted Sr-90 result is equivalent to an effective dose of 0.012 mrem/y⁶.

Tritium - All tritium results are non-detect, the average tritium result is 0.165 pCi/g and the highest non-detect tritium result is 0.761 pCi/g. The incremental dose from H-3 is therefore zero mrem/y since all results are non-detect. The highest non-detect, non-background subtracted tritium result is less than an effective dose of 0.01 mrem/y⁶.

This waste is certified to be “radiologically” acceptable for shipment to, and disposal at, any Class 1 or 2 disposal facility.

This waste meets the requirements of disposal facility permits^{7,8} and complies with the California Health & Safety Code⁹.

⁶ EPA dose compliance concentrations for radionuclides - <http://epa-dccs.ornl.gov/>. Soil concentrations that meet the 10⁻⁶ residential risk PRG are < 0.1 mrem/y. The Cs-137 residential PRG of 0.0597 pCi/g is equivalent to 0.042 mrem/y. The Sr-90 residential PRG of 0.231 pCi/g is equivalent to 0.071 mrem/y. The tritium residential PRG of 2.28 pCi/g is equivalent to 0.032 mrem/y.

⁷ This waste is exempt from regulation and licensing or is expressly authorized for disposal under the Radiation Control Law (Division 104, Part 9, Chapter 8 of the California Health & Safety Code).

⁸ This waste is not prohibited from disposal by any government agency with jurisdictional authority over this waste.

⁹ Division 104, Part 9, Chapter 5, Article 1, Section 114715, “No person shall bury, throw away, or in any manner dispose of radioactive wastes within the state except in a manner and at locations as will result in no significant radioactive contamination of the environment.” For the purposes of this requirement, “significant” is defined in Section 114710 as amounts of radioactive materials that are likely to expose persons to ionizing radiation greater than the guide levels published by the Federal Radiation Council (FRC). The FRC no longer exists, but the applicable guide level last published by the FRC was 500 mrem per year to a member of the public. Because the regulatory dose limit to members of the public has since been lowered to 100 mrem per year, CDPH/RHB conservatively utilizes the lower dose for purposes of defining “significant” radioactive contamination in this Article of the California Health and Safety Code.

<http://www.leginfo.ca.gov/cgi-bin/displaycode?section=hsc&group=114001-115000&file=114705-114780>

The Governor's Executive Order D-62-02 prohibits the *"disposal of decommissioned materials to Class III landfills or unclassified management units."* The soil from the ELV-1C West ISRA area is not decommissioned material, and does not originate from the proximity of any radiological facility. The sampling in this certification has therefore been conducted as a best management practice that also complies with the requirements of D-62-02. Verification sampling and/or approval by the California Department of Public Health (CDPH) Radiologic Health Branch (RHB) are not required for the off-site disposal of decommissioned material or of the subject material¹⁰.



Phil Rutherford
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¹⁰ The California Department of Public Health (CDPH) Radiologic Health Branch (RHB) has stated in a November 9, 2007 email to Phil Rutherford (Boeing) ... *"The Governor's Executive Order D-62-02, does not specifically require the Department of Health Services (now the Department of Public Health) to perform verification sampling of decommissioned material or to provide approval for disposal of specific decommissioned material shipped offsite (e.g., to Class I or II landfills). The California DPH has not imposed a requirement that Boeing or the Department of Energy (DOE) seek DPH verification sampling or approval of all decommissioned material destined for Class I or II landfills in compliance with the Governor's Executive Order."*

Appendix 1

Wilcoxon Rank Sum Statistical Test for Cesium-137 and Strontium-90

Wilcoxon Rank Sum Test -- (Cesium-137)**General Information:**

The WRS tests whether or not measurements of samples from a survey area (S) tend to be consistently larger than those from a background reference area by more than the DCGL.

The null hypothesis, H_0 , is: Survey sample concentrations exceed those in the background

The alternative hypothesis, H_a , is: Survey sample concentrations do not exceed those in the background

Instruction on how to use this template:

- 1) Enter analysis results in pCi/gram
- 2) Enter number of samples for background and survey data sets, m and n.
- 3) The WRS test is calculated using the method prescribed in NUREG-1505, Nuclear Regulatory Commission, "A Non-parametric Statistical Methodology for the Design and Analysis of Final Status Decommissioning Surveys." January 1998.

DCGL (pCi/g)	0.003
Type I Error Rate, Alpha:	0.05
Type II Error Rate, Beta:	0.05
Number of Background Samples, m:	51
Number of Survey Samples, n:	12
Z-value for Alpha	1.645
Critical Value	1726
Sum of Reference Ranks	1726

If the sum of the reference ranks is larger than the critical value, there is enough evidence to reject the null hypothesis and accept the alternative hypothesis. Otherwise the null hypothesis is accepted.

Test Result:

Survey sample concentrations do not exceed those in the background by more than the DCGL

	Bkgd Ref (R)	Survey (S)
Mean	0.087	0.066
Max	0.213	0.196
Min	0.015	-0.003
σ	0.062	0.064
$m-1.96\sigma$	-0.035	-0.059
$m+1.96\sigma$	0.210	0.192

No.	Soil ID	Cs-137	Adjusted Cs-137	Area	Ranks	Reference Ranks
1		0.092	0.095	R	36	36
2		0.020	0.023	R	12	12
3		0.020	0.023	R	12	12
4		0.100	0.103	R	41.5	41.5
5		0.020	0.023	R	12	12
6		0.158	0.161	R	54.5	54.5
7		0.175	0.178	R	56	56
8		0.209	0.212	R	62	62
9		0.180	0.183	R	57	57
10		0.030	0.033	R	21	21
11		0.213	0.216	R	63	63
12		0.025	0.028	R	18	18
13		0.020	0.023	R	12	12
14		0.020	0.023	R	12	12
15		0.074	0.077	R	31	31
16		0.147	0.150	R	50	50
17		0.100	0.103	R	41.5	41.5
18		0.067	0.070	R	29.5	29.5
19		0.099	0.102	R	40	40
20		0.101	0.104	R	43	43
21		0.148	0.151	R	51	51

No.	Soil ID	Cs-137	Adjusted Cs-137	Area	Ranks	Reference Ranks
22		0.153	0.156	R	53	53
23		0.025	0.028	R	18	18
24		0.188	0.191	R	58	58
25		0.198	0.201	R	61	61
26		0.030	0.033	R	21	21
27		0.079	0.082	R	32	32
28		0.158	0.161	R	54.5	54.5
29		0.109	0.112	R	44	44
30		0.059	0.062	R	28	28
31		0.067	0.070	R	29.5	29.5
32		0.113	0.116	R	45	45
33		0.015	0.018	R	5	5
34		0.031	0.034	R	23	23
35		0.042	0.045	R	26	26
36		0.097	0.100	R	38	38
37		0.015	0.018	R	5	5
38		0.020	0.023	R	12	12
39		0.085	0.088	R	34	34
40		0.080	0.083	R	33	33
41		0.015	0.018	R	5	5
42		0.020	0.023	R	12	12
43		0.035	0.038	R	24.5	24.5
44		0.035	0.038	R	24.5	24.5
45		0.025	0.028	R	18	18
46		0.150	0.153	R	52	52
47		0.140	0.143	R	48.5	48.5
48		0.190	0.193	R	59	59
49		0.097	0.100	R	38	38
50		0.030	0.033	R	21	21
51		0.140	0.143	R	48.5	48.5
52	ISWC0049RadS001	0.140	0.140	S	47	0
53	ISWC0050RadS001	0.021	0.021	S	8	0
59	ISWC0056RadS001	0.010	0.010	S	2	0
60	ISWC0057RadS001	0.020	0.020	S	7	0
62	ISWC0059RadS001	0.061	0.061	S	27	0
63	ISWC0060RadS001	0.090	0.090	S	35	0
82	ISWC0098RadS001	0.024	0.024	S	16	0
83	ISWC0099RadS001	-0.003	-0.003	S	1	0
84	ISWC0100RadS001	0.011	0.011	S	3	0
85	ISWC0101RadS001	0.100	0.100	S	38	0
86	ISWC0102RadS001	0.196	0.196	S	60	0
87	ISWC0103RadS001	0.128	0.128	S	46	0
Sum					2016	1726

Wilcoxon Rank Sum Test -- (Strontium-90)**General Information:**

The WRS tests whether or not measurements of samples from a survey area (S) tend to be consistently larger than those from a background reference area by more than the DCGL.

The null hypothesis, H_0 , is: Survey sample concentrations exceed those in the background

The alternative hypothesis, H_a , is: Survey sample concentrations do not exceed those in the background

Instruction on how to use this template:

- 1) Enter analysis results in pCi/gram
- 2) Enter number of samples for background and survey data sets, m and n.
- 3) The WRS test is calculated using the method prescribed in NUREG-1505, Nuclear Regulatory Commission, "A Non-parametric Statistical Methodology for the Design and Analysis of Final Status Decommissioning Surveys." January 1998.

DCGL (pCi/g)	0.00
Type I Error Rate, Alpha:	0.05
Type II Error Rate, Beta:	0.05
Number of Background Samples, m:	51
Number of Survey Samples, n:	12
Z-value for Alpha	1.645
Critical Value	1726
Sum of Reference Ranks	1855

If the sum of the reference ranks is larger than the critical value, there is enough evidence to reject the null hypothesis and accept the alternative hypothesis. Otherwise the null hypothesis is accepted.

Test Result:

Survey sample concentrations do not exceed those in the background by more than the DCGL

	Bkgd Ref (R)	Survey (S)
Mean	0.051	0.019
Max	0.130	0.038
Min	0.005	-0.015
σ	0.030	0.016
$m-1.96\sigma$	-0.008	-0.012
$m+1.96\sigma$	0.109	0.049

No.	Soil ID	Sr-90	Adjusted Sr-90	Area	Ranks	Reference Ranks
1		0.030	0.030	R	22	22
2		0.010	0.010	R	6.5	6.5
3		0.045	0.045	R	38.5	38.5
4		0.045	0.045	R	38.5	38.5
5		0.050	0.050	R	48	48
6		0.040	0.040	R	30	30
7		0.035	0.035	R	24.5	24.5
8		0.050	0.050	R	48	48
9		0.050	0.050	R	48	48
10		0.130	0.130	R	62.5	62.5
11		0.120	0.120	R	61	61
12		0.040	0.040	R	30	30
13		0.045	0.045	R	38.5	38.5
14		0.130	0.130	R	62.5	62.5
15		0.050	0.050	R	48	48
16		0.088	0.088	R	56	56
17		0.080	0.080	R	53	53
18		0.100	0.100	R	60	60
19		0.069	0.069	R	52	52
20		0.097	0.097	R	58	58
21		0.084	0.084	R	55	55

No.	Soil ID	Sr-90	Adjusted Sr-90	Area	Ranks	Reference Ranks
22		0.098	0.098	R	59	59
23		0.045	0.045	R	38.5	38.5
24		0.045	0.045	R	38.5	38.5
25		0.020	0.020	R	11	11
26		0.045	0.045	R	38.5	38.5
27		0.089	0.089	R	57	57
28		0.050	0.050	R	48	48
29		0.045	0.045	R	38.5	38.5
30		0.050	0.050	R	48	48
31		0.045	0.045	R	38.5	38.5
32		0.040	0.040	R	30	30
33		0.045	0.045	R	38.5	38.5
34		0.045	0.045	R	38.5	38.5
35		0.045	0.045	R	38.5	38.5
36		0.025	0.025	R	15.5	15.5
37		0.082	0.082	R	54	54
38		0.045	0.045	R	38.5	38.5
39		0.040	0.040	R	30	30
40		0.035	0.035	R	24.5	24.5
41		0.025	0.025	R	15.5	15.5
42		0.005	0.005	R	3	3
43		0.020	0.020	R	11	11
44		0.010	0.010	R	6.5	6.5
45		0.020	0.020	R	11	11
46		0.020	0.020	R	11	11
47		0.050	0.050	R	48	48
48		0.030	0.030	R	22	22
49		0.030	0.030	R	22	22
50		0.020	0.020	R	11	11
51		0.040	0.040	R	30	30
52	ISWC0049RadS001	0.010	0.010	S	5	0
53	ISWC0050RadS001	0.028	0.028	S	20	0
59	ISWC0056RadS001	0.037	0.037	S	26	0
60	ISWC0057RadS001	0.027	0.027	S	17.5	0
62	ISWC0059RadS001	0.027	0.027	S	19	0
63	ISWC0060RadS001	0.017	0.017	S	8	0
82	ISWC0098RadS001	-0.015	-0.015	S	1	0
83	ISWC0099RadS001	0.027	0.027	S	17.5	0
84	ISWC0100RadS001	0.000	0.000	S	2	0
85	ISWC0101RadS001	0.038	0.038	S	27	0
86	ISWC0102RadS001	0.022	0.022	S	14	0
87	ISWC0103RadS001	0.007	0.007	S	4	0
Sum					2016	1855

Soil Data from ELV-1C West

No.	Sample ID	Stockpile ID	Sampling Date	Laboratory Batch	Cesium-137 (pCi/g)				Strontium-90 (pCi/g)				Tritium (pCi/g)			
					Activity	+/- 2σ Error	MDA	Non-detect?	Activity	+/- 2σ Error	MDA	Non-detect?	Activity	+/- 2σ Error	MDA	Non-detect?
1	ISWC0049RadS001	N/A	7/28/2009	234235	0.14	0.0427	0.0452		0.00961	0.0232	0.0428	NDA	-0.0861	0.362	0.672	NDA
2	ISWC0050RadS001	N/A	7/28/2009	234235	0.0207	0.0297	0.05	NDA	0.0275	0.0274	0.0443	NDA	-0.126	0.383	0.715	NDA
3	ISWC0056RadS001	N/A	7/28/2009	234235	0.0101	0.0206	0.0362	NDA	0.0369	0.0308	0.0499	NDA	-0.269	0.367	0.712	NDA
4	ISWC0057RadS001	N/A	7/28/2009	234235	0.0195	0.023	0.0288	NDA	0.0268	0.0194	0.0319	NDA	-0.208	0.353	0.677	NDA
5	ISWC0059RadS001	N/A	7/28/2009	234235	0.0609	0.0252	0.0358		0.027	0.019	0.0311	NDA	0.0186	0.401	0.726	NDA
6	ISWC0060RadS001	N/A	7/28/2009	234235	0.09	0.0436	0.0497		0.017	0.0262	0.0456	NDA	-0.0543	0.39	0.717	NDA
7	ISWC0098RadS001	N/A	8/24/2009	235959	0.0242	0.0273	0.0347	NDA	-0.0147	0.0197	0.047	NDA	0.242	0.53	0.905	NDA
8	ISWC0099RadS001	N/A	8/24/2009	235959	-0.00336	0.0214	0.0365	NDA	0.0268	0.0297	0.0494	NDA	0.178	0.525	0.902	NDA
9	ISWC0100RadS001	N/A	8/24/2009	235959	0.0108	0.0267	0.0463	NDA	-0.000186	0.0228	0.0454	NDA	0.761	0.547	0.9	NDA
10	ISWC0101RadS001	N/A	8/24/2009	235959	0.1	0.0403	0.041		0.0377	0.0273	0.0434	NDA	0.315	0.526	0.893	NDA
11	ISWC0102RadS001	N/A	8/24/2009	235959	0.196	0.0415	0.0418		0.0216	0.0223	0.0366	NDA	0.634	0.542	0.9	NDA
12	ISWC0103RadS001	N/A	8/24/2009	235959	0.128	0.0381	0.0448		0.00657	0.0234	0.0431	NDA	0.572	0.541	0.902	NDA

	Cesium-137 (pCi/g)				Strontium-90 (pCi/g)				Tritium (pCi/g)			
	Activity		MDA	Non-detect?	Activity		MDA	Non-detect?	Activity		MDA	Non-detect?
Average	0.066		0.041		0.019		0.043		0.165		0.802	
Maximum	0.196		0.050		0.038		0.050		0.761		0.905	
Minimum	-0.003		0.029		-0.015		0.031		-0.269		0.672	
Count				12				12				12
Number of Non-Detects				6				12				12
% Non-Detects				50%				100%				100%

Appendix 2
Analytical Radionuclide Results

Soil Sample Results for ELV-1C West

Project Name	Sampling Organization	Sampling Date	Sampling Location (General)	Sampling Location (Specific)	Sample Serial Number	SampleType	Media Type	Isotope	Value	Error (+/-)	MDA	Non-Detect?	Units	Error Type	Analysis Protocol	Analysis Organization	Document	Status
ISRA Outfall 009 Waste Characterization	MWH	7/28/2009	ELV-1C	ISWC0056	ISWC0056RadS001	Scheduled	Soil	Tritium	-0.269	0.367	0.712	NDA	pCi/g	2 sigma	EPA 906.0 Modified	GEL	234235	Pre-remedial
ISRA Outfall 009 Waste Characterization	MWH	7/28/2009	ELV-1C	ISWC0057	ISWC0057RadS001	Scheduled	Soil	Tritium	-0.208	0.353	0.677	NDA	pCi/g	2 sigma	EPA 906.0 Modified	GEL	234235	Pre-remedial
ISRA Outfall 009 Waste Characterization	MWH	7/28/2009	ELV-1C	ISWC0059	ISWC0059RadS001	Scheduled	Soil	Tritium	0.0186	0.401	0.726	NDA	pCi/g	2 sigma	EPA 906.0 Modified	GEL	234235	Pre-remedial
ISRA Outfall 009 Waste Characterization	MWH	7/28/2009	ELV-1C	ISWC0060	ISWC0060RadS001	Scheduled	Soil	Tritium	-0.0543	0.39	0.717	NDA	pCi/g	2 sigma	EPA 906.0 Modified	GEL	234235	Pre-remedial
ISRA Outfall 009 Waste Characterization	MWH	8/24/2009	ELV-1C	ISWC0098	ISWC0098RadS001	Scheduled	Soil	Tritium	0.242	0.53	0.905	NDA	pCi/g	2 sigma	EPA 906.0 Modified	GEL	235959	Pre-remedial
ISRA Outfall 009 Waste Characterization	MWH	8/24/2009	ELV-1C	ISWC0099	ISWC0099RadS001	Scheduled	Soil	Tritium	0.178	0.525	0.902	NDA	pCi/g	2 sigma	EPA 906.0 Modified	GEL	235959	Pre-remedial
ISRA Outfall 009 Waste Characterization	MWH	8/24/2009	ELV-1C	ISWC0100	ISWC0100RadS001	Scheduled	Soil	Tritium	0.761	0.547	0.9	NDA	pCi/g	2 sigma	EPA 906.0 Modified	GEL	235959	Pre-remedial
ISRA Outfall 009 Waste Characterization	MWH	8/24/2009	ELV-1C	ISWC0101	ISWC0101RadS001	Scheduled	Soil	Tritium	0.315	0.526	0.893	NDA	pCi/g	2 sigma	EPA 906.0 Modified	GEL	235959	Pre-remedial
ISRA Outfall 009 Waste Characterization	MWH	8/24/2009	ELV-1C	ISWC0102	ISWC0102RadS001	Scheduled	Soil	Tritium	0.634	0.542	0.9	NDA	pCi/g	2 sigma	EPA 906.0 Modified	GEL	235959	Pre-remedial
ISRA Outfall 009 Waste Characterization	MWH	8/24/2009	ELV-1C	ISWC0103	ISWC0103RadS001	Scheduled	Soil	Tritium	0.572	0.541	0.902	NDA	pCi/g	2 sigma	EPA 906.0 Modified	GEL	235959	Pre-remedial
ISRA Outfall 009 Waste Characterization	MWH	7/28/2009	ELV-1C	ISWC0049	ISWC0049RadS001	Scheduled	Soil	Uranium-235	0.237	0.134	0.237	NDA	pCi/g	2 sigma	EML HASL 300, 4.5.2.3	GEL	234235	Pre-remedial
ISRA Outfall 009 Waste Characterization	MWH	7/28/2009	ELV-1C	ISWC0050	ISWC0050RadS001	Scheduled	Soil	Uranium-235	-0.0138	0.151	0.257	NDA	pCi/g	2 sigma	EML HASL 300, 4.5.2.3	GEL	234235	Pre-remedial
ISRA Outfall 009 Waste Characterization	MWH	7/28/2009	ELV-1C	ISWC0056	ISWC0056RadS001	Scheduled	Soil	Uranium-235	0.121	0.118	0.209	NDA	pCi/g	2 sigma	EML HASL 300, 4.5.2.3	GEL	234235	Pre-remedial
ISRA Outfall 009 Waste Characterization	MWH	7/28/2009	ELV-1C	ISWC0057	ISWC0057RadS001	Scheduled	Soil	Uranium-235	0.116	0.127	0.178	NDA	pCi/g	2 sigma	EML HASL 300, 4.5.2.3	GEL	234235	Pre-remedial
ISRA Outfall 009 Waste Characterization	MWH	7/28/2009	ELV-1C	ISWC0059	ISWC0059RadS001	Scheduled	Soil	Uranium-235	0.0113	0.101	0.174	NDA	pCi/g	2 sigma	EML HASL 300, 4.5.2.3	GEL	234235	Pre-remedial
ISRA Outfall 009 Waste Characterization	MWH	7/28/2009	ELV-1C	ISWC0060	ISWC0060RadS001	Scheduled	Soil	Uranium-235	0.0412	0.168	0.233	NDA	pCi/g	2 sigma	EML HASL 300, 4.5.2.3	GEL	234235	Pre-remedial
ISRA Outfall 009 Waste Characterization	MWH	8/24/2009	ELV-1C	ISWC0098	ISWC0098RadS001	Scheduled	Soil	Uranium-235	0.0688	0.141	0.196	NDA	pCi/g	2 sigma	EML HASL 300, 4.5.2.3	GEL	235959	Pre-remedial
ISRA Outfall 009 Waste Characterization	MWH	8/24/2009	ELV-1C	ISWC0099	ISWC0099RadS001	Scheduled	Soil	Uranium-235	-0.0363	0.121	0.211	NDA	pCi/g	2 sigma	EML HASL 300, 4.5.2.3	GEL	235959	Pre-remedial
ISRA Outfall 009 Waste Characterization	MWH	8/24/2009	ELV-1C	ISWC0100	ISWC0100RadS001	Scheduled	Soil	Uranium-235	0.211	0.161	0.257	NDA	pCi/g	2 sigma	EML HASL 300, 4.5.2.3	GEL	235959	Pre-remedial
ISRA Outfall 009 Waste Characterization	MWH	8/24/2009	ELV-1C	ISWC0101	ISWC0101RadS001	Scheduled	Soil	Uranium-235	0.0451	0.147	0.255	NDA	pCi/g	2 sigma	EML HASL 300, 4.5.2.3	GEL	235959	Pre-remedial
ISRA Outfall 009 Waste Characterization	MWH	8/24/2009	ELV-1C	ISWC0102	ISWC0102RadS001	Scheduled	Soil	Uranium-235	0.0452	0.124	0.209	NDA	pCi/g	2 sigma	EML HASL 300, 4.5.2.3	GEL	235959	Pre-remedial
ISRA Outfall 009 Waste Characterization	MWH	8/24/2009	ELV-1C	ISWC0103	ISWC0103RadS001	Scheduled	Soil	Uranium-235	0.0557	0.139	0.24	NDA	pCi/g	2 sigma	EML HASL 300, 4.5.2.3	GEL	235959	Pre-remedial
ISRA Outfall 009 Waste Characterization	MWH	7/28/2009	ELV-1C	ISWC0049	ISWC0049RadS001	Scheduled	Soil	Uranium-238	0.79	0.513	0.666	NDA	pCi/g	2 sigma	EML HASL 300, 4.5.2.3	GEL	234235	Pre-remedial
ISRA Outfall 009 Waste Characterization	MWH	7/28/2009	ELV-1C	ISWC0050	ISWC0050RadS001	Scheduled	Soil	Uranium-238	0.75	1.12	1.67	NDA	pCi/g	2 sigma	EML HASL 300, 4.5.2.3	GEL	234235	Pre-remedial
ISRA Outfall 009 Waste Characterization	MWH	7/28/2009	ELV-1C	ISWC0056	ISWC0056RadS001	Scheduled	Soil	Uranium-238	1.36	0.879	1.08	NDA	pCi/g	2 sigma	EML HASL 300, 4.5.2.3	GEL	234235	Pre-remedial
ISRA Outfall 009 Waste Characterization	MWH	7/28/2009	ELV-1C	ISWC0057	ISWC0057RadS001	Scheduled	Soil	Uranium-238	1.35	1.23	1.51	NDA	pCi/g	2 sigma	EML HASL 300, 4.5.2.3	GEL	234235	Pre-remedial
ISRA Outfall 009 Waste Characterization	MWH	7/28/2009	ELV-1C	ISWC0059	ISWC0059RadS001	Scheduled	Soil	Uranium-238	1.27	0.476	0.524	NDA	pCi/g	2 sigma	EML HASL 300, 4.5.2.3	GEL	234235	Pre-remedial
ISRA Outfall 009 Waste Characterization	MWH	7/28/2009	ELV-1C	ISWC0060	ISWC0060RadS001	Scheduled	Soil	Uranium-238	0.61	0.655	0.651	NDA	pCi/g	2 sigma	EML HASL 300, 4.5.2.3	GEL	234235	Pre-remedial
ISRA Outfall 009 Waste Characterization	MWH	8/24/2009	ELV-1C	ISWC0098	ISWC0098RadS001	Scheduled	Soil	Uranium-238	1.03	0.937	1.22	NDA	pCi/g	2 sigma	EML HASL 300, 4.5.2.3	GEL	235959	Pre-remedial
ISRA Outfall 009 Waste Characterization	MWH	8/24/2009	ELV-1C	ISWC0099	ISWC0099RadS001	Scheduled	Soil	Uranium-238	0.888	0.763	1.09	NDA	pCi/g	2 sigma	EML HASL 300, 4.5.2.3	GEL	235959	Pre-remedial
ISRA Outfall 009 Waste Characterization	MWH	8/24/2009	ELV-1C	ISWC0100	ISWC0100RadS001	Scheduled	Soil	Uranium-238	-0.837	1.29	2.32	NDA	pCi/g	2 sigma	EML HASL 300, 4.5.2.3	GEL	235959	Pre-remedial
ISRA Outfall 009 Waste Characterization	MWH	8/24/2009	ELV-1C	ISWC0101	ISWC0101RadS001	Scheduled	Soil	Uranium-238	0.531	1.2	1.66	NDA	pCi/g	2 sigma	EML HASL 300, 4.5.2.3	GEL	235959	Pre-remedial
ISRA Outfall 009 Waste Characterization	MWH	8/24/2009	ELV-1C	ISWC0102	ISWC0102RadS001	Scheduled	Soil	Uranium-238	1.08	0.78	0.942	NDA	pCi/g	2 sigma	EML HASL 300, 4.5.2.3	GEL	235959	Pre-remedial
ISRA Outfall 009 Waste Characterization	MWH	8/24/2009	ELV-1C	ISWC0103	ISWC0103RadS001	Scheduled	Soil	Uranium-238	0.671	0.561	0.682	NDA	pCi/g	2 sigma	EML HASL 300, 4.5.2.3	GEL	235959	Pre-remedial