APPENDIX B

WAST CERTIFICATIONS

Appendix B – Waste Certifications
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WASTE CHARACTERIZATION: IN-SITU SOIL LOCATED AT ISRA HAPPY VALLEY PLANNED EXCAVATION CYN-1

Introduction

This report presents supporting detailed information for the July 16, 2009 in-situ characterization of prospective soil wastes from planned ISRA excavations at Happy Valley.

Background

In-situ characterization of soil destined to be excavated from Happy Valley in accordance with the ISRA Workplan was performed. A step-by-step approach was followed to accomplish characterization of the soil prior to excavation. The first step was to review available information regarding historical area usage and existing analytical data from past soil sampling in the Happy Valley (HV). The objective was to identify all substances that could have an impact on the determination of whether soil in each planned excavation footprint was hazardous or not.

The next step was to develop a random sampling plan for each of the planned excavation footprints to determine whether any of the identified substances are present at concentrations that require further investigation. An evaluation of the results of the initial random sampling was performed to determine whether the data was adequate for waste characterization based on the exhibited variance of any detected analytes and the relative difference between detected concentrations and regulatory thresholds. The soil was characterized non-hazardous when analyte concentrations among the samples exhibited a reasonably small variance and there was satisfactory margin between the mean of the samples and applicable regulatory thresholds. Otherwise, additional samples were collected and subjected to analysis or the soil was characterized as hazardous.

The review of historical information and existing analytical data relevant to planned excavation CYN-1, which was later reduced in size, was based largely on the Group 1A RFI results. No major concerns with respect to hazardous waste characterization were revealed by the review, but it did suggest that any further analysis should focus on regulated metals. This is a small excavation area. To obtain additional data relating to regulated metals, a random sampling plan was developed for collection of four (4) samples from the planned excavation footprint. However, changes were made in the excavation plans after sampling was already completed. The original area was reduced, but this resulted in exclusion of some of the original sample collection points from the new footprint. Accordingly, an additional two (2) samples were collected to account for the new excavation footprint of CYN-1. The samples were all analyzed for CAM 17 metals. All samples were collected, contained, and handled according to field practice requirements in SW-846.

Results

Analytical results for the CYN-1 planned excavation area are presented in TestAmerica reports ISG0122, issued on 7/15/09 and ISH1607, issued on 9/9/09. With the exception of one sample with elevated Lead concentrations, all regulated metals were well below applicable regulatory thresholds. Chromium was the most significant of the detected metals from a regulatory standpoint, but in five of the six samples collected, it was well below the RCRA and California hazardous waste thresholds. Chromium ranged from 16 ppm to 28 ppm in these samples compared to the TCLP 20 X threshold of 100 ppm, the CA TTLC threshold of 2,500 ppm, and the CA STLC 10 X threshold of 50 ppm.

Although Lead was generally observed only at low concentrations, one of the samples collected during the second round of sampling did exhibit Lead at 75 ppm. As this concentration exceeded the CA STLC 10 X threshold (i.e., 50 ppm) requiring leachate testing (WET), the required analysis was performed. The CA WET yielded a 2.7 mg/L concentration for Lead in the sample with the elevated concentration, well below the CA STLC hazardous waste threshold of 5 mg/L. Taking into consideration all of the data from the randomly selected representative samples, the average properties of the soil to be removed during excavation from CYN-1 do not exceed hazardous waste regulatory thresholds.

Determination

According to analytical results and generator knowledge, the soil in the planned excavation footprint of Happy Valley CYN-1:

Is Not a Listed Waste (generator knowledge)
Is Not ignitable (generator knowledge)
Is Not corrosive (generator knowledge)
Is Not reactive (generator knowledge)
Is Not toxic (analytical results and generator knowledge)
- Is Not Extremely or Acutely Hazardous Waste
- Does Not exceed any RCRA or Title 22 thresholds
- Is Not subject to the Prop. 65 listing
- Is Not subject to Title 22 Appendix X list
- Is Not known by experience or testing to pose a hazard to human health or environment because of its carcinogenicity, acute toxicity, chronic toxicity, bio-accumulative properties, or persistence in the environment.

The soil in CYN-1 is NON-HAZARDOUS.

INTERIM SOURCE REMOVAL ACTION (ISRA) - OUTFALL 008

CYN-1 WASTE CHARACTERIZATION RESULTS
THE BOEING COMPANY
SANTA SUSANA FIELD LABORATORY

			Object Name:			**ISWC0041**	**ISWC0042**	**ISWC0094**	**ISWC0095**
			Sample Name:			ISWC0041S001	ISWC0042S001	ISWC0094S001	ISWC0095S001
			Collection Date:			7/1/2009	7/1/2009	8/17/2009	8/17/2009
			Sample Depth (feet):			0 - 0.3	0 - 0.5	0.0 - 0.5	0.0 - 0.3
ANALYTE	**UNITS**	**TTLC**	**WET Leachate Testing Trigger[a]**	**TCLP Leachate Testing Trigger[b]**	**STLC**	**RESULT**	**RESULT**	**RESULT**	**RESULT**
METALS									
Antimony	mg/kg	500	150	--	--	<10	<10	<10 M2	<10
Arsenic	mg/kg	500	50	100	--	4.4	4.4	8.1	7.3
Barium	mg/kg	10,000	1,000	2,000	--	77	56	51	52
Beryllium	mg/kg	75	7.5	--	--	0.5	0.52	0.54	0.48 J
Cadmium	mg/kg	100	10	20	--	<0.5	<0.5	<0.5	0.58
Chromium	mg/kg	500	50	100	--	16	16	25	28
Cobalt	mg/kg	8,000	800	--	--	6	5.5	6.2	6.6
Copper	mg/kg	2,500	250	--	--	16	8.3	14	15
Lead	mg/kg	1,000	50	100	--	3.8	3.9	6.6	75
Lead, WET	mg/L	--	--	--	5	--	--	--	2.7
Mercury	mg/kg	20	2	4	--	0.0088 J	0.01 J	<0.033	<0.033
Molybdenum	mg/kg	3,500	3,500	--	--	0.86 J	0.56 J	0.44 J	0.61 J
Nickel	mg/kg	2,000	200	--	--	12	12	17	17
Selenium	mg/kg	100	10	20	--	<2	<2	<2	<2
Silver	mg/kg	500	50	100	--	<1	<1	0.95 J	0.94 J
Thallium	mg/kg	700	70	--	--	1.1 J	1.3 J	<10	<10
Vanadium	mg/kg	2,400	240	--	--	29	29	35	31
Zinc	mg/kg	5,000	2,500	--	--	42	40	54	77
RADIONUCLIDES	--	--	--	--	R	R	R	R	R

NOTES

"--" - not applicable

[a] - WET Leachate Testing Trigger = STLC limit * 10

[b] - TCLP Leachate Testing Trigger = TCLP limit * 20

B - analyte was detected in the associated method blank

J - Result is estimated

M2 - the matrix spike and/or matrix spike duplicate were below the acceptance limits due to matrix interference

mg/kg - milligrams per kilogram

mg/L - milligrams per liter

R - Radiological analysis includes gamma spectroscopy (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), strontium-90, and tritium. Boeing has prepared a document dated August 17, 2009 that provides the radiological results and statistical analysis of the Outfall 008 waste characterization samples. Based on the results, the document certifies the soil represented by these waste characterization samples to be "radiologically" acceptable for shipment to Class 1, 2, and/or 3 disposal facilities. The analysis and data interpretation complies with procedures approved by the California Department of Public Health.

This table presents only those waste characterization sample results that actually fall within the boundaries of the final, revised excavation footprints. Other results may have been used in the initial soil characterization, but no longer fall within the final excavation footprints. These results are not included in this table, but have been reassigned as data gap information and are reported elsewhere.

WASTE CHARACTERIZATION: IN-SITU SOIL LOCATED AT ISRA HAPPY VALLEY PLANNED EXCAVATION DRG-1

Introduction

This report presents supporting detailed information for the July 16, 2009 in-situ characterization of prospective soil wastes from planned ISRA excavations at Happy Valley.

Background

In-situ characterization of soil destined to be excavated from Happy Valley in accordance with the ISRA Workplan was performed. A step-by-step approach was followed to accomplish characterization of the soil prior to excavation. The first step was to review available information regarding historical area usage and existing analytical data from past soil sampling in the Happy Valley (HV). The objective was to identify all substances that could have an impact on the determination of whether soil in each planned excavation footprint was hazardous or not.

The next step was to develop a random sampling plan for each of the planned excavation footprints to determine whether any of the identified substances are present at concentrations that require further investigation. An evaluation of the results of the initial random sampling was performed to determine whether the data was adequate for waste characterization based on the exhibited variance of any detected analytes and the relative difference between detected concentrations and regulatory thresholds. The soil was characterized non-hazardous when analyte concentrations among the samples exhibited a reasonably small variance and there was satisfactory margin between the mean of the samples and applicable regulatory thresholds. Otherwise, additional samples were collected and subjected to analysis or the soil was characterized as hazardous.

This is a very small area. The review of historical information and existing analytical data relevant to planned excavation DRG-1 was based largely on the Group 1A RFI results, which indicated that Dioxins were of chief interest to the RFI team. However, detected concentrations of Dioxins were exceeding low with respect to hazardous waste characterization. As in the other Happy Valley planned excavation locations, the focus was also placed on regulated metals in the DRG-1 excavation footprint. To obtain additional data relating to regulated metals, a random sampling plan was developed for collection of four (4) samples from the planned excavation footprint. The samples were to be analyzed for CAM 17 metals. All samples were collected, contained, and handled according to field practice requirements in SW-846.

Results

Analytical results for the DRG-1 planned excavation area are presented in TestAmerica report ISG0123 issued on 7/15/09. All regulated metals were well below applicable regulatory thresholds. Chromium and Lead were most significant from a regulatory standpoint, but both were well below their respective RCRA and California hazardous waste thresholds. Chromium ranged from 12 ppm to 15 ppm compared to the TCLP 20 X threshold of 100 ppm, the CA TTLC threshold of 2,500 ppm, and the CA STLC 10 X threshold of 50 ppm. Similarly, Lead ranged from 4.9 ppm to 17 ppm compared to the TCLP 20 X threshold of 100 ppm, the CA TTLC threshold of 1,000 ppm, and the CA STLC 10 X threshold of 50 ppm. All other regulated metals are well below regulatory thresholds.

Determination

According to analytical results and generator knowledge, the soil in the planned excavation footprint of Happy Valley DRG-1:

Is Not a Listed Waste (generator knowledge)
Is Not ignitable (generator knowledge)
Is Not corrosive (generator knowledge)
Is Not reactive (generator knowledge)
Is Not toxic (analytical results and generator knowledge)
- Is Not Extremely or Acutely Hazardous Waste
- Does Not exceed any RCRA or Title 22 thresholds
- Is Not subject to the Prop. 65 listing
- Is Not subject to Title 22 Appendix X list
- Is Not known by experience or testing to pose a hazard to human health or environment because of its carcinogenicity, acute toxicity, chronic toxicity, bio-accumulative properties, or persistence in the environment.

The soil in DRG-1 is NON-HAZARDOUS.

INTERIM SOURCE REMOVAL ACTION (ISRA) - OUTFALL 008

DRG-1 WASTE CHARACTERIZATION RESULTS
THE BOEING COMPANY
SANTA SUSANA FIELD LABORATORY

			Object Name:		**ISWC0045**	**ISWC0046**	**ISWC0047**	**ISWC0048**
			Sample Name:		ISWC0045S001	ISWC0046S001	ISWC0047S001	ISWC0048S001
			Collection Date:		7/1/2009	7/1/2009	7/1/2009	7/1/2009
			Sample Depth (feet):		0 - 0.5	0 - 0.5	0.6 - 1.1	1.0 - 1.5
ANALYTE	**UNITS**	**TTLC**	**WET Leachate Testing Trigger[a]**	**TCLP Leachate Testing Trigger[b]**	**RESULT**	**RESULT**	**RESULT**	**RESULT**
METALS								
Antimony	mg/kg	500	150	--	<10	<10	<10	<10
Arsenic	mg/kg	500	50	100	4.6	5.4	6	5.6
Barium	mg/kg	10,000	1,000	2,000	43	70	49	45
Beryllium	mg/kg	75	7.5	--	0.5	0.65	0.68	0.51
Cadmium	mg/kg	100	10	20	<0.5	<0.5	<0.5	<0.5
Chromium	mg/kg	500	50	100	12	15	14	14
Cobalt	mg/kg	8,000	800	--	5.5	4.9	4.2	4.1
Copper	mg/kg	2,500	250	--	6.4	7.6	4.9	7.8
Lead	mg/kg	1,000	50	100	7.8	17	4.9	5.6
Mercury	mg/kg	20	2	4	0.0085 J	0.018 J	0.026 J	0.012 J
Molybdenum	mg/kg	3,500	3,500	--	0.64 J	0.88 J	0.88 J	0.8 J
Nickel	mg/kg	2,000	200	--	10	12	10	10
Selenium	mg/kg	100	10	20	<2	<2	<2	<2
Silver	mg/kg	500	50	100	<1	<1	<1	<1
Thallium	mg/kg	700	70	--	1.2 J	<10	<10	1.2 J
Vanadium	mg/kg	2,400	240	--	19	26	25	22
Zinc	mg/kg	5,000	2,500	--	35	49	36	260
RADIONUCLIDES	--	--	--	--	R	R	R	R

NOTES

"--" - not applicable

[a] - WET Leachate Testing Trigger = STLC limit * 10

[b] - TCLP Leachate Testing Trigger = TCLP limit * 20

B - analyte was detected in the associated method blank

J - Result is estimated

M2 - the matrix spike and/or matrix spike duplicate were below the acceptance limits due to matrix interference

mg/kg - milligrams per kilogram

R - Radiological analysis includes gamma spectroscopy (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), strontium-90, and tritium. Boeing has prepared a document dated August 17, 2009 that provides the radiological results and statistical analysis of the Outfall 008 waste characterization samples. Based on the results, the document certifies the soil represented by these waste characterization samples to be "radiologically" acceptable for shipment to Class 1, 2, and/or 3 disposal facilities. The analysis and data interpretation complies with procedures approved by the California Department of Public Health.

WASTE CHARACTERIZATION: IN-SITU SOIL LOCATED AT ISRA HAPPY VALLEY PLANNED EXCAVATION HVS-1

Introduction

This report presents supporting detailed information for the July 16, 2009 in-situ characterization of prospective soil wastes from planned ISRA excavations at Happy Valley.

Background

In-situ characterization of soil destined to be excavated from Happy Valley in accordance with the ISRA Workplan was performed. A step-by-step approach was followed to accomplish characterization of the soil prior to excavation. The first step was to review available information regarding historical area usage and existing analytical data from past soil sampling in the Happy Valley (HV). The objective was to identify all substances that could have an impact on the determination of whether soil in each planned excavation footprint was hazardous or not.

The next step was to develop a random sampling plan for each of the planned excavation footprints to determine whether any of the identified substances are present at concentrations that require further investigation. An evaluation of the results of the initial random sampling was performed to determine whether the data was adequate for waste characterization based on the exhibited variance of any detected analytes and the relative difference between detected concentrations and regulatory thresholds. The soil was characterized non-hazardous when analyte concentrations among the samples exhibited a reasonably small variance and there was satisfactory margin between the mean of the samples and applicable regulatory thresholds. Otherwise, additional samples were collected and subjected to analysis or the soil was characterized as hazardous.

The review of historical information and existing analytical data relevant to planned excavation HVS-1 was based largely on the Group 1A RFI results. No major concerns with respect to hazardous waste characterization were revealed by the review, but it did suggest that any further analysis should focus on regulated metals. To obtain additional data relating to regulated metals, a random sampling plan was developed for collection of eight (8) samples from the planned excavation footprint. The samples were to be analyzed for CAM 17 metals. All samples were collected, contained, and handled according to field practice requirements in SW-846.

Results

Analytical results for the HVS-1 planned excavation area are presented in TestAmerica report ISG0119, issued on 7/15/09. All regulated metals were well below applicable regulatory thresholds. Chromium and Lead were most significant from a regulatory standpoint, but both were well below their respective RCRA and California hazardous waste thresholds. Chromium ranged from 4.7 ppm to 19 ppm compared to the TCLP 20 X threshold of 100 ppm, the CA TTLC threshold of 2,500 ppm, and the CA STLC 10 X threshold of 50 ppm. Similarly, Lead ranged 3 ppm to 8.7 ppm compared to the TCLP 20 X threshold of 100 ppm, the CA TTLC threshold of 1,000 ppm, and the CA STLC 10 X threshold of 50 ppm. All other regulated metals were well below regulatory thresholds.

Determination

According to analytical results and generator knowledge, the soil in the planned excavation footprint of Happy Valley HVS-1:

Is Not a Listed Waste (generator knowledge)
Is Not ignitable (generator knowledge)
Is Not corrosive (generator knowledge)
Is Not reactive (generator knowledge)
Is Not toxic (analytical results and generator knowledge)
- Is Not Extremely or Acutely Hazardous Waste
- Does Not exceed any RCRA or Title 22 thresholds
- Is Not subject to the Prop. 65 listing
- Is Not subject to Title 22 Appendix X list
- Is Not known by experience or testing to pose a hazard to human health or environment because of its carcinogenicity, acute toxicity, chronic toxicity, bio-accumulative properties, or persistence in the environment.

The soil in HVS-1 is NON-HAZARDOUS.

INTERIM SOURCE REMOVAL ACTION (ISRA) - OUTFALL 008

HVS-1 WASTE CHARACTERIZATION RESULTS
THE BOEING COMPANY
SANTA SUSANA FIELD LABORATORY

			Object Name:		**ISWC0001**	**ISWC0002**	**ISWC0003**	**ISWC0004**	**ISWC0005**	**ISWC0006**
			Sample Name:		ISWC0001S001	ISWC0002S001	ISWC0003S001	ISWC0004S001	ISWC0005S001	ISWC0006S001
			Collection Date:		7/1/2009	7/1/2009	7/1/2009	7/1/2009	7/1/2009	7/1/2009
			Sample Depth (feet):		1.5 - 2.0	1.5 - 2.0	1.5 - 2.0	1.5 - 2.0	0 - 0.5	1.5 - 2.0
ANALYTE	**UNITS**	**TTLC**	**WET Leachate Testing Trigger[a]**	**TCLP Leachate Testing Trigger[b]**	**RESULT**	**RESULT**	**RESULT**	**RESULT**	**RESULT**	**RESULT**
METALS										
Antimony	mg/kg	500	150	--	<10	<10	<10	<10 M2	<10	<10
Arsenic	mg/kg	500	50	100	5.6	7.4	7.1	5.6	<2	4.8
Barium	mg/kg	10,000	1,000	2,000	67	67	72	56	120	92
Beryllium	mg/kg	75	7.5	--	0.62	0.66	0.83	0.94	0.96	1.2
Cadmium	mg/kg	100	10	20	<0.5	<0.5	<0.5	0.29 J	0.2 J	<0.5
Chromium	mg/kg	500	50	100	17	18	18	16	4.7	11
Cobalt	mg/kg	8,000	800	--	4.6	5	4.9	4.4	5	4.5
Copper	mg/kg	2,500	250	--	7.7	8	8.3	8	7.8	9.3
Lead	mg/kg	1,000	50	100	4.3	5.6	6.7	8.6	3	6.3
Mercury	mg/kg	20	2	4	0.0081 J	0.008 J	0.011 J	0.011 J	0.037	0.012 J
Molybdenum	mg/kg	3,500	3,500	--	0.73 J	0.65 J	0.95 J	0.65 J	0.36 J	0.58 J
Nickel	mg/kg	2,000	200	--	11	12	13	11	5	8
Selenium	mg/kg	100	10	20	<2	<2	<2	<2	1.1 B, J	<2
Silver	mg/kg	500	50	100	<1	<1	<1	<1	<1	<1
Thallium	mg/kg	700	70	--	<10	<10	<10	<10	<10	<10
Vanadium	mg/kg	2,400	240	--	27	29	29	24	26	26
Zinc	mg/kg	5,000	2,500	--	42	43	45	53	53	53
RADIONUCLIDES	--	--	--	--	R	R	R	R	R	R

NOTES

"--" - not applicable

[a] - WET Leachate Testing Trigger = STLC limit * 10

[b] - TCLP Leachate Testing Trigger = TCLP limit * 20

B - analyte was detected in the associated method blank

J - Result is estimated

M2 - the matrix spike and/or matrix spike duplicate were below the acceptance limits due to matrix interference

mg/kg - milligrams per kilogram

R - Radiological analysis includes gamma spectroscopy (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), strontium-90, and tritium. Boeing has prepared a document dated August 17, 2009 that provides the radiological results and statistical analysis of the Outfall 008 waste characterization samples. Based on the results, the document certifies the soil represented by these waste characterization samples to be "radiologically" acceptable for shipment to Class 1, 2, and/or 3 disposal facilities. The analysis and data interpretation complies with procedures approved by the California Department of Public Health.

This table presents only those waste characterization sample results that actually fall within the boundaries of the final, revised excavation footprints. Other results may have been used in the initial soil characterization, but no longer fall within the final excavation footprints. These results are not included in this table, but have been reassigned as data gap information and are reported elsewhere.

WASTE CHARACTERIZATION: IN-SITU SOIL LOCATED AT ISRA HAPPY VALLEY PLANNED EXCAVATION HVS-2A

Introduction

This report presents supporting detailed information for the July 16, 2009 in-situ characterization of prospective soil wastes from planned ISRA excavations at Happy Valley.

Background

In-situ characterization of soil destined to be excavated from Happy Valley in accordance with the ISRA Workplan was performed. A step-by-step approach was followed to accomplish characterization of the soil prior to excavation. The first step was to review available information regarding historical area usage and existing analytical data from past soil sampling in the Happy Valley (HV). The objective was to identify all substances that could have an impact on the determination of whether soil in each planned excavation footprint was hazardous or not.

The next step was to develop a random sampling plan for each of the planned excavation footprints to determine whether any of the identified substances are present at concentrations that require further investigation. An evaluation of the results of the initial random sampling was performed to determine whether the data was adequate for waste characterization based on the exhibited variance of any detected analytes and the relative difference between detected concentrations and regulatory thresholds. The soil was characterized non-hazardous when analyte concentrations among the samples exhibited a reasonably small variance and there was satisfactory margin between the mean of the samples and applicable regulatory thresholds. Otherwise, additional samples were collected and subjected to analysis or the soil was characterized as hazardous.

The review of historical information and existing analytical data relevant to planned excavation HVS-2A was based largely on the Group 1A RFI results. Somewhat elevated historical concentrations indicated the need to investigate regulated metals more thoroughly. To obtain additional data relating to regulated metals, a random sampling plan was developed for collection of eight (8) samples from the planned excavation footprint. However, changes were made in the excavation plans after sampling was already completed. An additional 7 samples were collected to account for the new excavation footprint. The samples were all analyzed for CAM 17 metals. All samples were collected, contained, and handled according to field practice requirements in SW-846.

Results

Analytical results for the various samples collected in the original and revised HVS-2A planned excavation areas are presented in TestAmerica reports ISG0118, issued on 7/15/09; ISG2471, issued on 8/6/09; and ISG2313, issued on 8/11/09. All regulated metals were well below applicable regulatory thresholds. Chromium and Lead were most significant from a regulatory standpoint, but both were well below their respective RCRA and California hazardous waste thresholds. Chromium ranged from 9.7 ppm to 23 ppm compared to the TCLP 20 X threshold of 100 ppm, the CA TTLC threshold of 2,500 ppm, and the CA STLC 10 X threshold of 50 ppm. Similarly, Lead ranged 3.4 ppm to 33 ppm compared to the TCLP 20 X threshold of 100 ppm, the CA TTLC threshold of 1,000 ppm, and the CA STLC 10 X threshold of 50 ppm. Low concentrations of Selenium, a California only regulated metal, were also detected, ranging from

ND to 1.5 ppm. The CA TTLC for Selenium is 100 ppm and the CA STLC 10 X threshold is 10 ppm. All other regulated metals are well below regulatory thresholds.

Determination

According to analytical results and generator knowledge, the soil in the planned excavation footprint of Happy Valley HVS-2A:

Is Not a Listed Waste (generator knowledge)
Is Not ignitable (generator knowledge)
Is Not corrosive (generator knowledge)
Is Not reactive (generator knowledge)
Is Not toxic (analytical results and generator knowledge)
- Is Not Extremely or Acutely Hazardous Waste
- Does Not exceed any RCRA or Title 22 thresholds
- Is Not subject to the Prop. 65 listing
- Is Not subject to Title 22 Appendix X list
- Is Not known by experience or testing to pose a hazard to human health or environment because of its carcinogenicity, acute toxicity, chronic toxicity, bio-accumulative properties, or persistence in the environment.

The soil in HVS-2A is NON-HAZARDOUS.

INTERIM SOURCE REMOVAL ACTION (ISRA) - OUTFALL 008

HVS-2A WASTE CHARACTERIZATION RESULTS
THE BOEING COMPANY
SANTA SUSANA FIELD LABORATORY

			Object Name:		ISWC0028	ISWC0077	ISWC0078	ISWC0079	ISWC0080	ISWC0081	ISWC0082	ISWC0083
			Sample Name:		ISWC0028S001	ISWC0077S001	ISWC0078S001	ISWC0079S001	ISWC0080S001	ISWC0081S001	ISWC0082S001	ISWC0083S001
			Collection Date:		7/1/2009	7/29/2009	7/29/2009	7/29/2009	7/29/2009	7/29/2009	7/30/2009	7/30/2009
			Sample Depth (feet):		0.4 - 0.9	0.3 - 0.7	1.0 - 1.5	0.7 - 1.3	0.3 - 0.7	1.5 - 2.0	1.0 - 1.5	1.0 - 1.5
ANALYTE	**UNITS**	**TTLC**	**WET Leachate Testing Trigger[a]**	**TCLP Leachate Testing Trigger[b]**	**RESULT**	**RESULT**	**RESULT**	**RESULT**	**RESULT**	**RESULT**	**RESULT**	**RESULT**
METALS												
Antimony	mg/kg	500	150	--	<10	<10	<10	<10	<10	<10	<10	<10
Arsenic	mg/kg	500	50	100	4.2	8.9	3.7	4.3	5.2	4.5	3.7	3.1
Barium	mg/kg	10,000	1,000	2,000	59	54	48	53	99	92	81	84
Beryllium	mg/kg	75	7.5	--	0.63	0.85	0.51	0.62	0.84	0.68	0.55	0.54
Cadmium	mg/kg	100	10	20	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5
Chromium	mg/kg	500	50	100	12	23	9.7	12	17	14	14	13
Cobalt	mg/kg	8,000	800	--	4.1	7.7	3	3.6	7.5	5.5	4.2	4.3
Copper	mg/kg	2,500	250	--	8.9	17	3.8	4.7	8.5	5.8	7.1	6.9
Lead	mg/kg	1,000	50	100	30	8.4	3.4	5.9	8.2	4.6	19	17
Mercury	mg/kg	20	2	4	0.02 J	0.025 J	<0.033	0.012 J	0.018 J	0.0083 J	0.012 J	0.011 J
Molybdenum	mg/kg	3,500	3,500	--	0.82 J	0.22 J	<2	<2	<2	<2	<2	<2
Nickel	mg/kg	2,000	200	--	9.1	14	4.4	7.4	12	9.6	9.7	9.5
Selenium	mg/kg	100	10	20	<2	<2	<2	<2	<2	1.5 J	1.3 J	<2
Silver	mg/kg	500	50	100	<1	<1	<1	<1	<1	<1	<1	<1
Thallium	mg/kg	700	70	--	0.81 J	<10	<10	<10	<10	<10	<10	<10
Vanadium	mg/kg	2,400	240	--	23	33	19	22	31	27	24	23
Zinc	mg/kg	5,000	2,500	--	38	53	31	34	42	37	41	39
RADIONUCLIDES	--	--	--	--	R	R	R	R	R	R	R	R

NOTES

"--" - not applicable

[a] - WET Leachate Testing Trigger = STLC limit * 10

[b] - TCLP Leachate Testing Trigger = TCLP limit * 20

B - analyte was detected in the associated method blank

J - Result is estimated

M2 - the matrix spike and/or matrix spike duplicate were below the acceptance limits due to matrix interference

mg/kg - milligrams per kilogram

R - Radiological analysis includes gamma spectroscopy (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), strontium-90, and tritium. Boeing has prepared a document dated August 17, 2009 that provides the radiological results and statistical analysis of the Outfall 008 waste characterization samples. Based on the results, the document certifies the soil represented by these waste characterization samples to be "radiologically" acceptable for shipment to Class 1, 2, and/or 3 disposal facilities. The analysis and data interpretation complies with procedures approved by the California Department of Public Health.

This table presents only those waste characterization sample results that actually fall within the boundaries of the final, revised excavation footprints. Other results may have been used in the initial soil characterization, but no longer fall within the final excavation footprints. These results are not included in this table, but have been reassigned as data gap information and are reported elsewhere.

WASTE CHARACTERIZATION: IN-SITU SOIL LOCATED AT ISRA HAPPY VALLEY PLANNED EXCAVATION HVS-2B-1

Introduction

This report presents supporting detailed information for the July 16, 2009 in-situ characterization of prospective soil wastes from planned ISRA excavations at Happy Valley.

Background

In-situ characterization of soil destined to be excavated from Happy Valley in accordance with the ISRA Workplan was performed. A step-by-step approach was followed to accomplish characterization of the soil prior to excavation. The first step was to review available information regarding historical area usage and existing analytical data from past soil sampling in the Happy Valley (HV). The objective was to identify all substances that could have an impact on the determination of whether soil in each planned excavation footprint was hazardous or not.

The next step was to develop a random sampling plan for each of the planned excavation footprints to determine whether any of the identified substances are present at concentrations that require further investigation. An evaluation of the results of the initial random sampling was performed to determine whether the data was adequate for waste characterization based on the exhibited variance of any detected analytes and the relative difference between detected concentrations and regulatory thresholds. The soil was characterized non-hazardous when analyte concentrations among the samples exhibited a reasonably small variance and there was satisfactory margin between the mean of the samples and applicable regulatory thresholds. Otherwise, additional samples were collected and subjected to analysis or the soil was characterized as hazardous.

The review of historical information and existing analytical data relevant to planned excavation HVS-2B, which was later divided into two separate areas identified as HVS-2B-1 and HVS-2B-2, was based largely on the Group 1A RFI results. No major concerns with respect to hazardous waste characterization were revealed by the review, but it did suggest that any further analysis should focus on regulated metals. To obtain additional data relating to regulated metals, a random sampling plan was developed for collection of eight (8) samples from the planned excavation footprint. However, changes were made in the excavation plans after sampling was already completed. The original area was divided into two separate areas and an additional 2 samples were collected to account for the new excavation footprint of HVS-2B-1. The samples were all analyzed for CAM 17 metals. All samples were collected, contained, and handled according to field practice requirements in SW-846.

Results

Analytical results for the HVS-2B-1 planned excavation area are presented in TestAmerica report ISG0121, issued on 7/15/09 and ISG2313, issued on 8/11/09. All regulated metals were well below applicable regulatory thresholds. Chromium and Lead were most significant from a regulatory standpoint, but both were well below their respective RCRA and California hazardous waste thresholds. Chromium ranged from 14 ppm to 28 ppm compared to the TCLP 20 X threshold of 100 ppm, the CA TTLC threshold of 2,500 ppm, and the CA STLC 10 X threshold of 50 ppm. Similarly, Lead ranged 3.6 ppm to 34 ppm compared to the TCLP 20 X threshold of 100 ppm, the CA TTLC threshold of 1,000 ppm, and the CA STLC 10 X threshold of 50 ppm. All other regulated metals were well below regulatory thresholds.

Determination

According to analytical results and generator knowledge, the soil in the planned excavation footprint of Happy Valley HVS-2B-1:

Is Not a Listed Waste (generator knowledge)
Is Not ignitable (generator knowledge)
Is Not corrosive (generator knowledge)
Is Not reactive (generator knowledge)
Is Not toxic (analytical results and generator knowledge)
- Is Not Extremely or Acutely Hazardous Waste
- Does Not exceed any RCRA or Title 22 thresholds
- Is Not subject to the Prop. 65 listing
- Is Not subject to Title 22 Appendix X list
- Is Not known by experience or testing to pose a hazard to human health or environment because of its carcinogenicity, acute toxicity, chronic toxicity, bio-accumulative properties, or persistence in the environment.

The soil in HVS-2B-1 is NON-HAZARDOUS.

INTERIM SOURCE REMOVAL ACTION (ISRA) - OUTFALL 008

HVS-2B WASTE CHARACTERIZATION RESULTS
THE BOEING COMPANY
SANTA SUSANA FIELD LABORATORY

			Object Name:		**ISWC0084**	**ISWC0085**
			Sample Name:		ISWC0084S001	ISWC0085S001
			Collection Date:		7/29/2009	7/29/2009
			Sample Depth (feet):		1.0 - 1.5	0.5 - 1.0
ANALYTE	**UNITS**	**TTLC**	**WET Leachate Testing Trigger[a]**	**TCLP Leachate Testing Trigger[b]**	**RESULT**	**RESULT**
METALS						
Antimony	mg/kg	500	150	--	<10	<10
Arsenic	mg/kg	500	50	100	4.9	4.7
Barium	mg/kg	10,000	1,000	2,000	67	85
Beryllium	mg/kg	75	7.5	--	0.61	0.66
Cadmium	mg/kg	100	10	20	0.23 J	<0.5
Chromium	mg/kg	500	50	100	15	28
Cobalt	mg/kg	8,000	800	--	4.5	8
Copper	mg/kg	2,500	250	--	12	15
Lead	mg/kg	1,000	50	100	34	8
Mercury	mg/kg	20	2	4	0.017 J	0.0066 J
Molybdenum	mg/kg	3,500	3,500	--	<2	<2
Nickel	mg/kg	2,000	200	--	9.1	15
Selenium	mg/kg	100	10	20	<2	<2
Silver	mg/kg	500	50	100	<1	<1
Thallium	mg/kg	700	70	--	<10	<10
Vanadium	mg/kg	2,400	240	--	25	50
Zinc	mg/kg	5,000	2,500	--	41	63
RADIONUCLIDES	--	--	--	--	R	R

NOTES

"--" - not applicable

[a] - WET Leachate Testing Trigger = STLC limit * 10

[b] - TCLP Leachate Testing Trigger = TCLP limit * 20

B - analyte was detected in the associated method blank

J - Result is estimated

M2 - the matrix spike and/or matrix spike duplicate were below the acceptance limits due to matrix interference

mg/kg - milligrams per kilogram

R - Radiological analysis includes gamma spectroscopy (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), strontium-90, and tritium. Boeing has prepared a document dated August 17, 2009 that provides the radiological results and statistical analysis of the Outfall 008 waste characterization samples. Based on the results, the document certifies the soil represented by these waste characterization samples to be "radiologically" acceptable for shipment to Class 1, 2, and/or 3 disposal facilities. The analysis and data interpretation complies with procedures approved by the California Department of Public Health.

This table presents only those waste characterization sample results that actually fall within the boundaries of the final, revised excavation footprints. Other results may have been used in the initial soil characterization, but no longer fall within the final excavation footprints. These results are not included in this table, but have been reassigned as data gap information and are reported elsewhere.

WASTE CHARACTERIZATION: FURTHER SOIL EXCAVATION AT
ISRA HAPPY VALLEY HVS-2B-1 (CONTAINERIZED)

Introduction

This report presents supporting detailed information for characterization of additional soil excavated September 15, 2009 from the bottom of the original ISRA HVS-2B-1 site in Happy Valley.

Background

In-situ characterization of soil destined to be excavated from Happy Valley in accordance with the ISRA Workplan was performed. A step-by-step approach was followed to accomplish characterization of the soil prior to excavation. The first step was to review available information regarding historical area usage and existing analytical data from past soil sampling in the Happy Valley (HV). The objective was to identify all substances that could have an impact on the determination of whether soil in each planned excavation footprint was hazardous or not.

The next step was to develop a random sampling plan for each of the planned excavation footprints to determine whether any of the identified substances are present at concentrations that require further investigation. An evaluation of the results of the initial random sampling was performed to determine whether the data was adequate for waste characterization based on the exhibited variance of any detected analytes and the relative difference between detected concentrations and regulatory thresholds. The soil was characterized non-hazardous when analyte concentrations among the samples exhibited a reasonably small variance and there was satisfactory margin between the mean of the samples and applicable regulatory thresholds. Otherwise, additional samples were collected and subjected to analysis or the soil was characterized as hazardous.

The review of historical information and existing analytical data relevant to planned excavation HVS-2B, which was later divided into two separate areas identified as HVS-2B-1 and HVS-2B-2, was based largely on the Group 1A RFI results. No major concerns with respect to hazardous waste characterization were revealed by the review, but it did suggest that any further analysis should focus on regulated metals. To obtain additional data relating to regulated metals, a random sampling plan was developed for collection of eight (8) samples from the planned excavation footprint. However, changes were made in the excavation plans after sampling was already completed. The original area was divided into two separate areas and an additional 2 samples were collected to account for the new excavation footprint of HVS-2B-1. The samples were all analyzed for CAM 17 metals. All samples were collected, contained, and handled according to field practice requirements in SW-846.

The analytical results from the 2 additional samples confirmed the non-hazardous character determined from the original round of sampling. These results are reported in TestAmerica report ISG2313, issued on 8/11/09. Chromium (ranging from 14 ppm to 28 ppm) and Lead (ranging from 3.6 ppm to 34 ppm) were most significant from a regulatory standpoint, but both were well below their respective RCRA and California hazardous waste thresholds. All other regulated metals were insignificant with regard to regulatory thresholds.

Further Excavation Performed

Routine confirmation samples were collected from the bottom of HVS-2B-1 following excavation. Analytical results for the HVS-2B-1 confirmation sampling are presented in GEL Laboratories report 236436, issued on 9/10/09. One of the samples exhibited elevated Copper, which is regulated by California, but not under RCRA, at 1,550 ppm. A slightly elevated concentration of Lead was also detected at 54.3 ppm. These results suggested a small pocket of Copper and Lead impacted soil in this area.

As a result of the elevated concentrations, California Waste Extraction Tests (WET) were ordered for the samples to determine the status of the impacted soil relative to California Soluble Threshold Limit Concentration (STLC) thresholds. Additionally, another sample was collected from the area and submitted for analysis of Semi-Volatile Compound (SVOC) concentrations.

To assure proper management of the soil while the WET laboratory analyses were being performed regardless of testing outcomes, the soil was excavated to bedrock and contained in approved hazardous waste containers.

Results

Analytical results for the HVS-2B-1 California WET analyses are presented in GEL Laboratories report 237085, issued on 9/18/09 and revised 8/11/09. The WET results for Lead ranged from 1.85 mg/L to 2.11 mg/L, well below the STLC limit of 5 mg/L for Lead. The WET results for Copper ranged from 13.2 mg/L to 13.8 mg/L, again well below the STLC limit of 25 mg/L.

The SVOC results indicated only trace concentrations of two analytes, Pyrene at 0.0108 ppm and Bis(2-Ethylhexyl)phthalate at 0.0837 ppm.

Determination

According to analytical results and generator knowledge, the containerized soil from further excavation at Happy Valley HVS-2B-1:

Is Not a Listed Waste (generator knowledge)
Is Not ignitable (generator knowledge)
Is Not corrosive (generator knowledge)
Is Not reactive (generator knowledge)
Is Not toxic (analytical results and generator knowledge)
- Is Not Extremely or Acutely Hazardous Waste
- Does Not exceed any RCRA or Title 22 thresholds
- Is Not subject to the Prop. 65 listing
- Is Not subject to Title 22 Appendix X list
- Is Not known by experience or testing to pose a hazard to human health or environment because of its carcinogenicity, acute toxicity, chronic toxicity, bio-accumulative properties, or persistence in the environment.

The containerized soil from HVS-2B-1 is NON-HAZARDOUS.

INTERIM SOURCE REMOVAL ACTION (ISRA) - OUTFALL 008

HVS-2B-1 (Containerized Soil) WASTE CHARACTERIZATION RESULTS
THE BOEING COMPANY
SANTA SUSANA FIELD LABORATORY

			Object Name:			**HZET0300**	**HZET0300**	**ISWC0112**
			Sample Name:			HZET0300S001	HZET0300D001	ISWC0112S001
			Collection Date:			9/1/2009	9/1/2009	9/14/2009
			Sample Depth (feet)[a]:			3.5 - 4.0	3.5 - 4.0	--
ANALYTE	**UNITS**	**TTLC**	**WET Leachate Testing Trigger[b]**	**TCLP Leachate Testing Trigger[c]**	**STLC**	**RESULT**	**RESULT**	**RESULT**
METALS								
Copper	mg/kg	2,500	250	--	--	362	1,550	--
Copper, WET	mg/L	--	--	--	25	13.8	13.2	--
Lead	mg/kg	1,000	50	100	--	47.1	54.3	--
Lead, WET	mg/L	--	--	--	5	--	1.85	--
SVOCs								
1,2,4-Trichlorobenzene	µg/kg	--	--	--	--	--	--	<333
1,2-Dichlorobenzene	µg/kg	--	--	--	--	--	--	<333
1,2-Diphenylhydrazine/Azobenzene	µg/kg	--	--	--	--	--	--	<333
1,3-Dichlorobenzene	µg/kg	--	--	--	--	--	--	<333
1,4-Dichlorobenzene	µg/kg	--	--	150,000	--	--	--	<333
2,4,5-Trichlorophenol	µg/kg	--	--	8,000,000	--	--	--	<333
2,4,6-Trichlorophenol	µg/kg	--	--	40,000	--	--	--	<333
2,4-Dichlorophenol	µg/kg	--	--	--	--	--	--	<333
2,4-Dimethylphenol	µg/kg	--	--	--	--	--	--	<333
2,4-Dinitrophenol	µg/kg	--	--	--	--	--	--	<666
2,4-Dinitrotoluene	µg/kg	--	--	2,600	--	--	--	<333
2,6-Dinitrotoluene	µg/kg	--	--	--	--	--	--	<333
2-Chloronaphthalene	µg/kg	--	--	--	--	--	--	<33.3
2-Chlorophenol	µg/kg	--	--	--	--	--	--	<333
2-Methylnaphthalene	µg/kg	--	--	--	--	--	--	<33.3
2-Methylphenol	µg/kg	--	--	--	--	--	--	<333
2-Nitroaniline	µg/kg	--	--	--	--	--	--	<333
2-Nitrophenol	µg/kg	--	--	--	--	--	--	<333
3,3-Dichlorobenzidine	µg/kg	--	--	--	--	--	--	<333
3-Nitroaniline	µg/kg	--	--	--	--	--	--	<333
4,6-Dinitro-2-methylphenol	µg/kg	--	--	--	--	--	--	<333
4-Bromophenyl phenyl ether	µg/kg	--	--	--	--	--	--	<333
4-Chloro-3-methylphenol	µg/kg	--	--	--	--	--	--	<333
4-Chloroaniline	µg/kg	--	--	--	--	--	--	<333
4-Chlorophenyl-phenylether	µg/kg	--	--	--	--	--	--	<333
4-Methylphenol	µg/kg	--	--	--	--	--	--	<333
4-Nitroaniline	µg/kg	--	--	--	--	--	--	<333
4-Nitrophenol	µg/kg	--	--	--	--	--	--	<333
Acenaphthene	µg/kg	--	--	--	--	--	--	<33.3
Acenaphthylene	µg/kg	--	--	--	--	--	--	<33.3

INTERIM SOURCE REMOVAL ACTION (ISRA) - OUTFALL 008

HVS-2B-1 (Containerized Soil) WASTE CHARACTERIZATION RESULTS
THE BOEING COMPANY
SANTA SUSANA FIELD LABORATORY

			Object Name:			**HZET0300**	**HZET0300**	**ISWC0112**
			Sample Name:			HZET0300S001	HZET0300D001	ISWC0112S001
			Collection Date:			9/1/2009	9/1/2009	9/14/2009
			Sample Depth (feet)[a]:			3.5 - 4.0	3.5 - 4.0	--
ANALYTE	**UNITS**	**TTLC**	**WET Leachate Testing Trigger[b]**	**TCLP Leachate Testing Trigger[c]**	**STLC**	**RESULT**	**RESULT**	**RESULT**
Aniline	µg/kg	--	--	--	--	--	--	<333
Anthracene	µg/kg	--	--	--	--	--	--	<33.3
Benzidine	µg/kg	--	--	--	--	--	--	<333
Benzo(a)anthracene	µg/kg	--	--	--	--	--	--	<33.3
Benzo(a)pyrene	µg/kg	--	--	--	--	--	--	<33.3
Benzo(b)fluoranthene	µg/kg	--	--	--	--	--	--	<33.3
Benzo(ghi)perylene	µg/kg	--	--	--	--	--	--	<33.3
Benzo(k)fluoranthene	µg/kg	--	--	--	--	--	--	<33.3
Benzoic acid	µg/kg	--	--	--	--	--	--	<666
Benzyl alcohol	µg/kg	--	--	--	--	--	--	<333
Bis(2-chloroethoxy)methane	µg/kg	--	--	--	--	--	--	<333
Bis(2-chloroethyl)ether	µg/kg	--	--	--	--	--	--	<333
Bis(2-chloroisopropyl)ether	µg/kg	--	--	--	--	--	--	<333
bis(2-Ethylhexyl)phthalate	µg/kg	--	--	--	--	--	--	83.7 J
Butyl benzyl phthalate	µg/kg	--	--	--	--	--	--	<333
Chrysene	µg/kg	--	--	--	--	--	--	<33.3
Dibenzo(a,h)anthracene	µg/kg	--	--	--	--	--	--	<33.3
Dibenzofuran	µg/kg	--	--	--	--	--	--	<333
Diethylphthalate	µg/kg	--	--	--	--	--	--	<333
Dimethylphthalate	µg/kg	--	--	--	--	--	--	<333
Di-n-butylphthalate	µg/kg	--	--	--	--	--	--	<333
Di-n-octyl-phthalate	µg/kg	--	--	--	--	--	--	<333
Diphenylamine	µg/kg	--	--	--	--	--	--	<333
Fluoranthene	µg/kg	--	--	--	--	--	--	<33.3
Fluorene	µg/kg	--	--	--	--	--	--	<33.3
Hexachlorobenzene	µg/kg	--	--	2,600	--	--	--	<333
Hexachlorobutadiene	µg/kg	--	--	10,000	--	--	--	<333
Hexachlorocyclopentadiene	µg/kg	--	--	--	--	--	--	<333
Hexachloroethane	µg/kg	--	--	60,000	--	--	--	<333
Indeno(1,2,3-cd)pyrene	µg/kg	--	--	--	--	--	--	<33.3
Isophorone	µg/kg	--	--	--	--	--	--	<333
Naphthalene	µg/kg	--	--	--	--	--	--	<33.3
Nitrobenzene	µg/kg	--	--	40,000	--	--	--	<333
n-Nitrosodimethylamine	µg/kg	--	--	--	--	--	--	<333
n-Nitroso-di-n-propylamine	µg/kg	--	--	--	--	--	--	<333
Pentachlorophenol	µg/kg	17,000	17,000	2,000,000	--	--	--	<333

INTERIM SOURCE REMOVAL ACTION (ISRA) - OUTFALL 008

HVS-2B-1 (Containerized Soil) WASTE CHARACTERIZATION RESULTS
THE BOEING COMPANY
SANTA SUSANA FIELD LABORATORY

			Object Name:			**HZET0300**	**HZET0300**	**ISWC0112**
			Sample Name:			HZET0300S001	HZET0300D001	ISWC0112S001
			Collection Date:			9/1/2009	9/1/2009	9/14/2009
			Sample Depth (feet)[a]:			3.5 - 4.0	3.5 - 4.0	--
ANALYTE	**UNITS**	**TTLC**	**WET Leachate Testing Trigger[b]**	**TCLP Leachate Testing Trigger[c]**	**STLC**	**RESULT**	**RESULT**	**RESULT**
Phenanthrene	µg/kg	--	--	--	--	--	--	<33.3
Phenol	µg/kg	--	--	--	--	--	--	<333
Pyrene	µg/kg	--	--	--	--	--	--	10.8 J
RADIONUCLIDES	--	--	--	--	--	R	R	R

NOTES
"--" - not applicable
[a] feet below pre-existing ground surface
[b] - WET Leachate Testing Trigger = STLC limit * 10
[c] - TCLP Leachate Testing Trigger = TCLP limit * 20
J - Result is estimated
mg/kg - milligrams per kilogram
mg/L - milligrams per liter
µg/kg - micrograms per kilogram
R - Radiological analysis includes gamma spectroscopy (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), strontium-90, and tritium. Boeing has prepared a document that provides the radiological results and statistical analysis of the Outfall 008 waste characterization samples. Based on the results, the document certifies the soil represented by these waste characterization samples to be "radiologically" acceptable for shipment to Class 1, 2, and/or 3 disposal facilities. The analysis and data interpretation complies with procedures approved by the California Department of Public Health.

WASTE CHARACTERIZATION: IN-SITU SOIL LOCATED AT ISRA HAPPY VALLEY PLANNED EXCAVATION HVS-2B-2

Introduction

This report presents supporting detailed information for the July 16, 2009 in-situ characterization of prospective soil wastes from planned ISRA excavations at Happy Valley.

Background

In-situ characterization of soil destined to be excavated from Happy Valley in accordance with the ISRA Workplan was performed. A step-by-step approach was followed to accomplish characterization of the soil prior to excavation. The first step was to review available information regarding historical area usage and existing analytical data from past soil sampling in the Happy Valley (HV). The objective was to identify all substances that could have an impact on the determination of whether soil in each planned excavation footprint was hazardous or not.

The next step was to develop a random sampling plan for each of the planned excavation footprints to determine whether any of the identified substances are present at concentrations that require further investigation. An evaluation of the results of the initial random sampling was performed to determine whether the data was adequate for waste characterization based on the exhibited variance of any detected analytes and the relative difference between detected concentrations and regulatory thresholds. The soil was characterized non-hazardous when analyte concentrations among the samples exhibited a reasonably small variance and there was satisfactory margin between the mean of the samples and applicable regulatory thresholds. Otherwise, additional samples were collected and subjected to analysis or the soil was characterized as hazardous.

The review of historical information and existing analytical data relevant to planned excavation HVS-2B, which was later divided into two separate areas identified as HVS-2B-1 and HVS-2B-2, was based largely on the Group 1A RFI results. No major concerns with respect to hazardous waste characterization were revealed by the review, but it did suggest that any further analysis should focus on regulated metals. To obtain additional data relating to regulated metals, a random sampling plan was developed for collection of eight (8) samples from the planned excavation footprint. However, changes were made in the excavation plans after sampling was already completed. The original area was divided into two separate areas and an additional four (4) samples were collected to account for the new excavation footprint of HVS-2B-2. The samples were all analyzed for CAM 17 metals. All samples were collected, contained, and handled according to field practice requirements in SW-846.

Results

Analytical results for the HVS-2B-2 planned excavation area are presented in TestAmerica report ISG0121, issued on 7/15/09 and ISG2313, issued on 8/11/09. With the exception of one (1) sample that exhibited an elevated Chromium concentration, all regulated metals were well below applicable regulatory thresholds. Chromium and Lead were most significant from a regulatory standpoint. Chromium ranged from 3.6 ppm to 57 ppm compared to the TCLP 20 X threshold of 100 ppm, the CA TTLC threshold of 2,500 ppm, and the CA STLC 10 X threshold of 50 ppm. An STLC WET test was performed on the sample with elevated Chromium. The STLC result was 0.095 mg/L compared to the STLC hazardous waste threshold of 5 mg/L. With such

a dramatic reduction from the total Chromium concentration when the STLC WET leachate analysis was performed, further investigation of Chromium was determined to be unnecessary.

Lead ranged 3.6 ppm to 20 ppm compared to the TCLP 20 X threshold of 100 ppm, the CA TTLC threshold of 1,000 ppm, and the CA STLC 10 X threshold of 50 ppm. A slightly elevated concentration of Mercury was also detected in one (1) sample at 0.37 ppm compared to the TCLP 20 X threshold of 4 ppm, the CA TTLC threshold of 20 ppm, and the CA STLC 10 X threshold of 2 ppm. All other regulated metals were well below regulatory thresholds.

Determination

According to analytical results and generator knowledge, the soil in the planned excavation footprint of Happy Valley HVS-2B-2:

Is Not a Listed Waste (generator knowledge)
Is Not ignitable (generator knowledge)
Is Not corrosive (generator knowledge)
Is Not reactive (generator knowledge)
Is Not toxic (analytical results and generator knowledge)
- Is Not Extremely or Acutely Hazardous Waste
- Does Not exceed any RCRA or Title 22 thresholds
- Is Not subject to the Prop. 65 listing
- Is Not subject to Title 22 Appendix X list
- Is Not known by experience or testing to pose a hazard to human health or environment because of its carcinogenicity, acute toxicity, chronic toxicity, bio-accumulative properties, or persistence in the environment.

The soil in HVS-2B-2 is NON-HAZARDOUS.

INTERIM SOURCE REMOVAL ACTION (ISRA) - OUTFALL 008

HVS-2B WASTE CHARACTERIZATION RESULTS
THE BOEING COMPANY
SANTA SUSANA FIELD LABORATORY

			Object Name:			**ISWC0086**	**ISWC0087**	**ISWC0088**	**ISWC0089**
			Sample Name:			ISWC0086S001	ISWC0087S001	ISWC0088S001	ISWC0089S001
			Collection Date:			7/29/2009	7/29/2009	7/29/2009	7/29/2009
			Sample Depth (feet):			1.0 - 1.5	0.5 - 1.0	0.5 - 1.0	1.0 - 1.5
ANALYTE	**UNITS**	**TTLC**	**WET Leachate Testing Trigger[a]**	**TCLP Leachate Testing Trigger[b]**	**STLC**	**RESULT**	**RESULT**	**RESULT**	**RESULT**
METALS									
Antimony	mg/kg	500	150	--	--	<10	<10	<10	<10
Arsenic	mg/kg	500	50	100	--	5.1	4.5	4.6	4.5
Barium	mg/kg	10,000	1,000	2,000	--	81	83	82	81
Beryllium	mg/kg	75	7.5	--	--	0.66	0.63	0.58	0.63
Cadmium	mg/kg	100	10	20	--	<0.5	<0.5	0.89	<0.5
Chromium	mg/kg	500	50	100	--	29	27	57	28
Chromium, WET	mg/L	--	--	--	5	--	--	0.095	--
Cobalt	mg/kg	8,000	800	--	--	7.8	8	8.1	7.8
Copper	mg/kg	2,500	250	--	--	15	15	110	15
Lead	mg/kg	1,000	50	100	--	6.7	7.2	20	7.3
Mercury	mg/kg	20	2	4	--	0.0059 J	<0.033	0.37	<0.033
Molybdenum	mg/kg	3,500	3,500	--	--	<2	<2	1.1 J	<2
Nickel	mg/kg	2,000	200	--	--	14	14	40	15
Selenium	mg/kg	100	10	20	--	<2	<2	<2	<2
Silver	mg/kg	500	50	100	--	<1	<1	4.7	<1
Thallium	mg/kg	700	70	--	--	<10	<10	<10	<10
Vanadium	mg/kg	2,400	240	--	--	50	49	34	47
Zinc	mg/kg	5,000	2,500	--	--	61	61	100	60
RADIONUCLIDES	--	--	--	--	R	R	R	R	R

NOTES

"--" - not applicable

[a] - WET Leachate Testing Trigger = STLC limit * 10

[b] - TCLP Leachate Testing Trigger = TCLP limit * 20

B - analyte was detected in the associated method blank

J - Result is estimated

M2 - the matrix spike and/or matrix spike duplicate were below the acceptance limits due to matrix interference

mg/kg - milligrams per kilogram

mg/L - milligrams per liter

R - Radiological analysis includes gamma spectroscopy (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), strontium-90, and tritium. Boeing has prepared a document dated August 17, 2009 that provides the radiological results and statistical analysis of the Outfall 008 waste characterization samples. Based on the results, the document certifies the soil represented by these waste characterization samples to be "radiologically" acceptable for shipment to Class 1, 2, and/or 3 disposal facilities. The analysis and data interpretation complies with procedures approved by the California Department of Public Health.

This table presents only those waste characterization sample results that actually fall within the boundaries of the final, revised excavation footprints. Other results may have been used in the initial soil characterization, but no longer fall within the final excavation footprints. These results are not included in this table, but have been reassigned as data gap information and are reported elsewhere.

WASTE CHARACTERIZATION: IN-SITU SOIL LOCATED AT ISRA HAPPY VALLEY PLANNED EXCAVATION HVS-2C

Introduction

This report presents supporting detailed information for the July 16, 2009 in-situ characterization of prospective soil wastes from planned ISRA excavations at Happy Valley.

Background

In-situ characterization of soil destined to be excavated from Happy Valley in accordance with the ISRA Workplan was performed. A step-by-step approach was followed to accomplish characterization of the soil prior to excavation. The first step was to review available information regarding historical area usage and existing analytical data from past soil sampling in the Happy Valley (HV). The objective was to identify all substances that could have an impact on the determination of whether soil in each planned excavation footprint was hazardous or not.

The next step was to develop a random sampling plan for each of the planned excavation footprints to determine whether any of the identified substances are present at concentrations that require further investigation. An evaluation of the results of the initial random sampling was performed to determine whether the data was adequate for waste characterization based on the exhibited variance of any detected analytes and the relative difference between detected concentrations and regulatory thresholds. The soil was characterized non-hazardous when analyte concentrations among the samples exhibited a reasonably small variance and there was satisfactory margin between the mean of the samples and applicable regulatory thresholds. Otherwise, additional samples were collected and subjected to analysis or the soil was characterized as hazardous.

The review of historical information and existing analytical data relevant to planned excavation HVS-2C was based largely on the Group 1A RFI results. No major concerns with respect to hazardous waste characterization were revealed by the review, but it did suggest that any further analysis should focus on regulated metals. To obtain additional data relating to regulated metals, a random sampling plan was developed for collection of eight (8) samples from the planned excavation footprint. The samples were to be analyzed for CAM 17 metals. All samples were collected, contained, and handled according to field practice requirements in SW-846.

Results

Analytical results for the HVS-2C planned excavation area are presented in TestAmerica report ISG0117, issued on 7/15/09. All regulated metals were well below applicable regulatory thresholds. Chromium and Lead were most significant from a regulatory standpoint, but both were well below their respective RCRA and California hazardous waste thresholds. Chromium ranged from 12 ppm to 27 ppm compared to the TCLP 20 X threshold of 100 ppm, the CA TTLC threshold of 2,500 ppm, and the CA STLC 10 X threshold of 50 ppm. Similarly, Lead ranged 4.2 ppm to 24 ppm compared to the TCLP 20 X threshold of 100 ppm, the CA TTLC threshold of 1,000 ppm, and the CA STLC 10 X threshold of 50 ppm. All other regulated metals were well below regulatory thresholds.

Determination

According to analytical results and generator knowledge, the soil in the planned excavation footprint of Happy Valley HVS-2C:

Is Not a Listed Waste (generator knowledge)
Is Not ignitable (generator knowledge)
Is Not corrosive (generator knowledge)
Is Not reactive (generator knowledge)
Is Not toxic (analytical results and generator knowledge)
- Is Not Extremely or Acutely Hazardous Waste
- Does Not exceed any RCRA or Title 22 thresholds
- Is Not subject to the Prop. 65 listing
- Is Not subject to Title 22 Appendix X list
- Is Not known by experience or testing to pose a hazard to human health or environment because of its carcinogenicity, acute toxicity, chronic toxicity, bio-accumulative properties, or persistence in the environment.

The soil in HVS-2C is NON-HAZARDOUS.

INTERIM SOURCE REMOVAL ACTION (ISRA) - OUTFALL 008

HVS-2C WASTE CHARACTERIZATION RESULTS
THE BOEING COMPANY
SANTA SUSANA FIELD LABORATORY

			Object Name:		**ISWC0019**	**ISWC0020**	**ISWC0023**	**ISWC0024**
			Sample Name:		ISWC0019S001	ISWC0020S001	ISWC0023S001	ISWC0024S001
			Collection Date:		7/1/2009	7/1/2009	7/1/2009	7/1/2009
			Sample Depth (feet):		1.5 - 2.0	0.25 - 0.75	0 - 0.25	0.5 - 1.1
ANALYTE	**UNITS**	**TTLC**	**WET Leachate Testing Trigger[a]**	**TCLP Leachate Testing Trigger[b]**	**RESULT**	**RESULT**	**RESULT**	**RESULT**
METALS								
Antimony	mg/kg	500	150	--	<10	<10 M2	<10	<10
Arsenic	mg/kg	500	50	100	3.7	3.8	4.1	4.5
Barium	mg/kg	10,000	1,000	2,000	45	120	100	49
Beryllium	mg/kg	75	7.5	--	0.64	0.72	0.53	0.63
Cadmium	mg/kg	100	10	20	<0.5	<0.5	<0.5	<0.5
Chromium	mg/kg	500	50	100	12	13	14	15
Cobalt	mg/kg	8,000	800	--	3.3	6.4	3.4	3.3
Copper	mg/kg	2,500	250	--	5.6 B	7.6 B	8.3	6.2 B
Lead	mg/kg	1,000	50	100	4.2	7.2	16	4.3
Mercury	mg/kg	20	2	4	0.012 J	0.01 J	0.013 J	0.0089 J
Molybdenum	mg/kg	3,500	3,500	--	0.76 J	0.82 J	0.91 J	0.67 J
Nickel	mg/kg	2,000	200	--	6.9	8.3	9.1	8.1
Selenium	mg/kg	100	10	20	<2	<2	<2	<2
Silver	mg/kg	500	50	100	<1	<1	<1	<1
Thallium	mg/kg	700	70	--	<10	<10	<10	<10
Vanadium	mg/kg	2,400	240	--	23	23	24	26
Zinc	mg/kg	5,000	2,500	--	37	43	52	40
RADIONUCLIDES	--	--	--	--	R	R	R	R

NOTES

"--" - not applicable

[a] - WET Leachate Testing Trigger = STLC limit * 10

[b] - TCLP Leachate Testing Trigger = TCLP limit * 20

B - analyte was detected in the associated method blank

J - Result is estimated

M2 - the matrix spike and/or matrix spike duplicate were below the acceptance limits due to matrix interference

mg/kg - milligrams per kilogram

R - Radiological analysis includes gamma spectroscopy (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), strontium-90, and tritium. Boeing has prepared a document dated August 17, 2009 that provides the radiological results and statistical analysis of the Outfall 008 waste characterization samples. Based on the results, the document certifies the soil represented by these waste characterization samples to be "radiologically" acceptable for shipment to Class 1, 2, and/or 3 disposal facilities. The analysis and data interpretation complies with procedures approved by the California Department of Public Health.

This table presents only those waste characterization sample results that actually fall within the boundaries of the final, revised excavation footprints. Other results may have been used in the initial soil characterization, but no longer fall within the final excavation footprints. These results are not included in this table, but have been reassigned as data gap information and are reported elsewhere.

WASTE CHARACTERIZATION: IN-SITU SOIL LOCATED AT ISRA HAPPY VALLEY PLANNED EXCAVATION HVS-3

Introduction

This report presents supporting detailed information for the July 16, 2009 in-situ characterization of prospective soil wastes from planned ISRA excavations at Happy Valley.

Background

In-situ characterization of soil destined to be excavated from Happy Valley in accordance with the ISRA Workplan was performed. A step-by-step approach was followed to accomplish characterization of the soil prior to excavation. The first step was to review available information regarding historical area usage and existing analytical data from past soil sampling in the Happy Valley (HV). The objective was to identify all substances that could have an impact on the determination of whether soil in each planned excavation footprint was hazardous or not.

The next step was to develop a random sampling plan for each of the planned excavation footprints to determine whether any of the identified substances are present at concentrations that require further investigation. An evaluation of the results of the initial random sampling was performed to determine whether the data was adequate for waste characterization based on the exhibited variance of any detected analytes and the relative difference between detected concentrations and regulatory thresholds. The soil was characterized non-hazardous when analyte concentrations among the samples exhibited a reasonably small variance and there was satisfactory margin between the mean of the samples and applicable regulatory thresholds. Otherwise, additional samples were collected and subjected to analysis or the soil was characterized as hazardous.

The review of historical information and existing analytical data relevant to planned excavation HVS-3 was based largely on the Group 1A RFI results. No major concerns with respect to hazardous waste characterization were revealed by the review, but it did suggest that any further analysis should focus on regulated metals. To obtain additional data relating to regulated metals, a random sampling plan was developed for collection of eight (8) samples from the planned excavation footprint. The samples were to be analyzed for CAM 17 metals. All samples were collected, contained, and handled according to field practice requirements in SW-846.

Results

Analytical results for the HVS-3 planned excavation area are presented in TestAmerica report ISG0120, issued on 7/15/09. All regulated metals were well below applicable regulatory thresholds. Cadmium, Chromium, and Lead were most significant from a regulatory standpoint, but all three were well below their respective RCRA and California hazardous waste thresholds. Cadmium ranged from ND to 1.8 ppm compared to the TCLP 20 X threshold of 20 ppm, the CA TTLC threshold of 100 ppm, and the CA STLC 10 X threshold of 10 ppm. Chromium ranged from 12 ppm to 16 ppm compared to the TCLP 20 X threshold of 100 ppm, the CA TTLC threshold of 2,500 ppm, and the CA STLC 10 X threshold of 50 ppm. Similarly, Lead ranged 8.9 ppm to 24 ppm compared to the TCLP 20 X threshold of 100 ppm, the CA TTLC threshold of 1,000 ppm, and the CA STLC 10 X threshold of 50 ppm. Copper, which is a California only regulated metal, was also detected at slightly elevated concentrations ranging between 6.8 ppm and 180 ppm compared to the CA TTLC threshold of 2,500 ppm and the CA STLC 10 X threshold of 250 ppm. All other regulated metals are well below regulatory thresholds.

Determination

According to analytical results and generator knowledge, the soil in the planned excavation footprint of Happy Valley HVS-3:

Is Not a Listed Waste (generator knowledge)
Is Not ignitable (generator knowledge)
Is Not corrosive (generator knowledge)
Is Not reactive (generator knowledge)
Is Not toxic (analytical results and generator knowledge)
- Is Not Extremely or Acutely Hazardous Waste
- Does Not exceed any RCRA or Title 22 thresholds
- Is Not subject to the Prop. 65 listing
- Is Not subject to Title 22 Appendix X list
- Is Not known by experience or testing to pose a hazard to human health or environment because of its carcinogenicity, acute toxicity, chronic toxicity, bio-accumulative properties, or persistence in the environment.

The soil in HVS-3 is NON-HAZARDOUS.

INTERIM SOURCE REMOVAL ACTION (ISRA) - OUTFALL 008

HVS-3 WASTE CHARACTERIZATION RESULTS
THE BOEING COMPANY
SANTA SUSANA FIELD LABORATORY

			Object Name:		ISWC0009	ISWC0010	ISWC0011	ISWC0012	ISWC0013	ISWC0014	ISWC0015	ISWC0016
			Sample Name:		ISWC0009S001	ISWC0010S001	ISWC0011S001	ISWC0012S001	ISWC0013S001	ISWC0014S001	ISWC0015S001	ISWC0016S001
			Collection Date:		7/1/2009	7/1/2009	7/1/2009	7/1/2009	7/1/2009	7/1/2009	7/1/2009	7/1/2009
			Sample Depth (feet):		0.2 - 0.7	0.3 - 0.8	0 - 0.5	1.1 - 1.6	1.5 - 2.0	0 - 0.5	0 - 0.5	0 - 0.5
ANALYTE	**UNITS**	**TTLC**	**WET Leachate Testing Trigger[a]**	**TCLP Leachate Testing Trigger[b]**	**RESULT**	**RESULT**	**RESULT**	**RESULT**	**RESULT**	**RESULT**	**RESULT**	**RESULT**
METALS												
Antimony	mg/kg	500	150	--	<10	<10	<10	<10	<10	<10	<10	<10
Arsenic	mg/kg	500	50	100	4.6	4.3	4.9	3.8	4.3	3.6	5.9	4.8
Barium	mg/kg	10,000	1,000	2,000	66	51	53	59	48	47	54	51
Beryllium	mg/kg	75	7.5	--	0.55	0.54	0.55	0.56	0.57	0.44 J	0.45 J	0.58
Cadmium	mg/kg	100	10	20	0.45 J	<0.5	1.8	<0.5	<0.5	<0.5	<0.5	0.25 J
Chromium	mg/kg	500	50	100	13	12	14	12	16	11	12	16
Cobalt	mg/kg	8,000	800	--	4.4	3.5	4.1	3.7	3.4	3.3	3.7	4.1
Copper	mg/kg	2,500	250	--	180	6.8	9.7	7	6.8	8.4	29	10
Lead	mg/kg	1,000	50	100	25	10	10	9.4	8.9	12	20	14
Mercury	mg/kg	20	2	4	0.05	0.011 J	0.014 J	0.014 J	0.0072 J	0.016 J	0.013 J	0.013 J
Molybdenum	mg/kg	3,500	3,500	--	0.86 J	0.56 J	0.58 J	0.63 J	0.53 J	0.54 J	0.69 J	0.74 J
Nickel	mg/kg	2,000	200	--	9.9	8.7	9.2	8.2	8.9	7.4	8.5	8.9
Selenium	mg/kg	100	10	20	<2	<2	<2	<2	<2	<2	1.5 B, J	<2
Silver	mg/kg	500	50	100	1.0	<1	<1	<1	<1	<1	<1	<1
Thallium	mg/kg	700	70	--	<10	<10	<10	<10	<10	<10	<10	<10
Vanadium	mg/kg	2,400	240	--	23	21	23	21	24	19	21	25
Zinc	mg/kg	5,000	2,500	--	66	58	87	44	100	67	78	82
RADIONUCLIDES	--	--	--	--	R	R	R	R	R	R	R	R

NOTES

"--" - not applicable

[a] - WET Leachate Testing Trigger = STLC limit * 10

[b] - TCLP Leachate Testing Trigger = TCLP limit * 20

B - analyte was detected in the associated method blank

J - Result is estimated

M2 - the matrix spike and/or matrix spike duplicate were below the acceptance limits due to matrix interference

mg/kg - milligrams per kilogram

R - Radiological analysis includes gamma spectroscopy (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), strontium-90, and tritium. Boeing has prepared a document dated August 17, 2009 that provides the radiological results and statistical analysis of the Outfall 008 waste characterization samples. Based on the results, the document certifies the soil represented by these waste characterization samples to be "radiologically" acceptable for shipment to Class 1, 2, and/or 3 disposal facilities. The analysis and data interpretation complies with procedures approved by the California Department of Public Health.

WASTE CHARACTERIZATION: IN-SITU SOIL LOCATED AT ISRA HAPPY VALLEY PLANNED EXCAVATION HVS-4

Introduction

This report presents supporting detailed information for the July 16, 2009 in-situ characterization of prospective soil wastes from planned ISRA excavations at Happy Valley.

Background

In-situ characterization of soil destined to be excavated from Happy Valley in accordance with the ISRA Workplan was performed. A step-by-step approach was followed to accomplish characterization of the soil prior to excavation. The first step was to review available information regarding historical area usage and existing analytical data from past soil sampling in the Happy Valley (HV). The objective was to identify all substances that could have an impact on the determination of whether soil in each planned excavation footprint was hazardous or not.

The next step was to develop a random sampling plan for each of the planned excavation footprints to determine whether any of the identified substances are present at concentrations that require further investigation. An evaluation of the results of the initial random sampling was performed to determine whether the data was adequate for waste characterization based on the exhibited variance of any detected analytes and the relative difference between detected concentrations and regulatory thresholds. The soil was characterized non-hazardous when analyte concentrations among the samples exhibited a reasonably small variance and there was satisfactory margin between the mean of the samples and applicable regulatory thresholds. Otherwise, additional samples were collected and subjected to analysis or the soil was characterized as hazardous.

This is a very small area. The review of historical information and existing analytical data relevant to planned excavation HVS-4 was based largely on the Group 1A RFI results. No major concerns with respect to hazardous waste characterization were revealed by the review, but it did suggest that any further analysis should focus on regulated metals. To obtain additional data relating to regulated metals, a random sampling plan was developed for collection of four (4) samples from the planned excavation footprint. The samples were to be analyzed for CAM 17 metals. All samples were collected, contained, and handled according to field practice requirements in SW-846.

Results

Analytical results for the HVS-4 planned excavation area are presented in TestAmerica report ISG2313 issued on 8/11/09. All regulated metals were well below applicable regulatory thresholds. Chromium and Lead were most significant from a regulatory standpoint, but both were well below their respective RCRA and California hazardous waste thresholds. Chromium ranged from 13 ppm to 16 ppm compared to the TCLP 20 X threshold of 100 ppm, the CA TTLC threshold of 2,500 ppm, and the CA STLC 10 X threshold of 50 ppm. Similarly, Lead ranged 9.4 ppm to 12 ppm compared to the TCLP 20 X threshold of 100 ppm, the CA TTLC threshold of 1,000 ppm, and the CA STLC 10 X threshold of 50 ppm. All other regulated metals are well below regulatory thresholds.

Determination

According to analytical results and generator knowledge, the soil in the planned excavation footprint of Happy Valley HVS-4:

Is Not a Listed Waste (generator knowledge)
Is Not ignitable (generator knowledge)
Is Not corrosive (generator knowledge)
Is Not reactive (generator knowledge)
Is Not toxic (analytical results and generator knowledge)
- Is Not Extremely or Acutely Hazardous Waste
- Does Not exceed any RCRA or Title 22 thresholds
- Is Not subject to the Prop. 65 listing
- Is Not subject to Title 22 Appendix X list
- Is Not known by experience or testing to pose a hazard to human health or environment because of its carcinogenicity, acute toxicity, chronic toxicity, bio-accumulative properties, or persistence in the environment.

The soil in HVS-4 is NON-HAZARDOUS.

INTERIM SOURCE REMOVAL ACTION (ISRA) - OUTFALL 008

HVS-4 WASTE CHARACTERIZATION RESULTS
THE BOEING COMPANY
SANTA SUSANA FIELD LABORATORY

			Object Name:		**ISWC0090**	**ISWC0091**	**ISWC0092**	**ISWC0093**
			Sample Name:		ISWC0090S001	ISWC0091S001	ISWC0092S001	ISWC0093S001
			Collection Date:		7/29/2009	7/29/2009	7/29/2009	7/29/2009
			Sample Depth (feet):		0.1 - 0.2	0.5 - 1.0	0.0 - 0.3	0.5 - 1.0
ANALYTE	**UNITS**	**TTLC**	**WET Leachate Testing Trigger[a]**	**TCLP Leachate Testing Trigger[b]**	**RESULT**	**RESULT**	**RESULT**	**RESULT**
METALS								
Antimony	mg/kg	500	150	--	<10	<10	<10	<10
Arsenic	mg/kg	500	50	100	5	4	4.9	5.8
Barium	mg/kg	10,000	1,000	2,000	73	77	67	77
Beryllium	mg/kg	75	7.5	--	0.49 J	0.42 J	0.45 J	0.47 J
Cadmium	mg/kg	100	10	20	<0.5	<0.5	<0.5	<0.5
Chromium	mg/kg	500	50	100	15	13	15	16
Cobalt	mg/kg	8,000	800	--	5.2	4.3	4.4	5.5
Copper	mg/kg	2,500	250	--	15	9.2	11	12
Lead	mg/kg	1,000	50	100	12	9.4	11	9.5
Mercury	mg/kg	20	2	4	0.0094 J	0.012 J	0.013 J	0.021 J
Molybdenum	mg/kg	3,500	3,500	--	<2	<2	<2	<2
Nickel	mg/kg	2,000	200	--	12	8.8	10	13
Selenium	mg/kg	100	10	20	<2	<2	<2	<2
Silver	mg/kg	500	50	100	<1	<1	<1	<1
Thallium	mg/kg	700	70	--	<10	<10	<10	<10
Vanadium	mg/kg	2,400	240	--	30	25	26	32
Zinc	mg/kg	5,000	2,500	--	60	46	47	49
RADIONUCLIDES	--	--	--	--	R	R	R	R

NOTES

"--" - not applicable

[a] - WET Leachate Testing Trigger = STLC limit * 10

[b] - TCLP Leachate Testing Trigger = TCLP limit * 20

B - analyte was detected in the associated method blank

J - Result is estimated

M2 - the matrix spike and/or matrix spike duplicate were below the acceptance limits due to matrix interference

mg/kg - milligrams per kilogram

R - Radiological analysis includes gamma spectroscopy (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), strontium-90, and tritium. Boeing has prepared a document dated August 17, 2009 that provides the radiological results and statistical analysis of the Outfall 008 waste characterization samples. Based on the results, the document certifies the soil represented by these waste characterization samples to be "radiologically" acceptable for shipment to Class 1, 2, and/or 3 disposal facilities. The analysis and data interpretation complies with procedures approved by the California Department of Public Health.

WASTE CHARACTERIZATION: STOCKPILED SOIL FROM HVS-2D, HVS-3, AND EXCAVATION OF THE NATURAL GAS PIPELINE

Introduction

This report describes the waste characterization process and results pertaining to soil excavated during removal of what is believed to be an out-of-service natural gas pipeline and from designated ISRA locations in the SSFL Happy Valley.

Background

In-situ soil waste characterization was carried out at locations identified for excavation in the Happy Valley (Outfall 8) ISRA Workplan. A step-by-step approach was followed to accomplish characterization of the soil prior to excavation, including reviews of historical area usage and existing analytical data from past soil sampling, random sampling of each planned excavation footprint, and additional sampling as required for statistical integrity and ISRA project objective attainment confirmation. The results of all characterizations performed in Happy Valley prior to the present activity demonstrated that the excavated soils could be shipped off-site for disposal as non-hazardous waste. These determinations were based on 61 soil samples collected specifically for waste characterization and dozens of other samples analyzed during past soil survey and confirmation activities.

The present activity involves excavation and stockpiling of soil excavated from 3 non-contiguous ISRA locations in Happy Valley: HVS-2D, HVS-3, and the trench resulting from removal of an out-of-service natural gas pipeline.

HVS-2D

HVS-2D was located immediately adjacent to the original planned HVS-2A excavation footprint, which was subjected to in-situ sampling. Furthermore, HVS-2D was in close proximity to the revised HVS-2A excavation footprint (approximately 50 feet), where additional in-situ sampling was conducted to account for the change in planned excavation boundaries. For these reasons, waste characterization data from HVS-2A were also applicable to HVS-2D, and no additional in-situ sampling was conducted at this location.

Analytical results for the 15 samples collected in the original and revised HVS-2A planned excavation areas are presented in TestAmerica reports ISG0118, issued on 7/15/09; ISG2471, issued on 8/6/09; and ISG2313, issued on 8/11/09. All regulated metals were well below applicable regulatory thresholds. Chromium and Lead were most significant from a regulatory standpoint, but both were well below their respective RCRA and California hazardous waste thresholds. Chromium ranged from 9.7 ppm to 23 ppm compared to the TCLP 20 X threshold of 100 ppm, the CA TTLC threshold of 2,500 ppm, and the CA STLC 10 X threshold of 50 ppm. Similarly, Lead ranged 3.4 ppm to 33 ppm compared to the TCLP 20 X threshold of 100 ppm, the CA TTLC threshold of 1,000 ppm, and the CA STLC 10 X threshold of 50 ppm. Low concentrations of Selenium, a California only regulated metal, were also detected, ranging from ND to 1.5 ppm. The CA TTLC for Selenium is 100 ppm and the CA STLC 10 X threshold is 10 ppm. All other regulated metals are well below regulatory thresholds.

The soil in the area of HVS-2A was determined to be non-hazardous, and, consequently, so was the soil in HVS-2D. This determination was confirmed by a follow-up sample collected from

the bottom of the HVS-2D excavation. Lead in this sample was detected at a concentration of 4.63 ppm, which is far below applicable regulatory thresholds.

HVS-3

The review of historical information and existing analytical data relevant to planned excavation HVS-3 was based largely on the Group 1A RFI results. No major concerns with respect to hazardous waste characterization were revealed by the review, but it did suggest that any further analysis should focus on regulated metals. To obtain additional data relating to regulated metals, a random sampling plan was developed for collection of eight (8) samples from the planned excavation footprint. The samples were to be analyzed for CAM 17 metals. All samples were collected, contained, and handled according to field practice requirements in SW-846.

Analytical results for the HVS-3 planned excavation area are presented in TestAmerica report ISG0120, issued on 7/15/09. All regulated metals were well below applicable regulatory thresholds. Cadmium, Chromium, and Lead were most significant from a regulatory standpoint, but all three were well below their respective RCRA and California hazardous waste thresholds. Cadmium ranged from ND to 1.8 ppm compared to the TCLP 20 X threshold of 20 ppm, the CA TTLC threshold of 100 ppm, and the CA STLC 10 X threshold of 10 ppm. Chromium ranged from 12 ppm to 16 ppm compared to the TCLP 20 X threshold of 100 ppm, the CA TTLC threshold of 2,500 ppm, and the CA STLC 10 X threshold of 50 ppm. Similarly, Lead ranged 8.9 ppm to 24 ppm compared to the TCLP 20 X threshold of 100 ppm, the CA TTLC threshold of 1,000 ppm, and the CA STLC 10 X threshold of 50 ppm. Copper, which is a California only regulated metal, was also detected at slightly elevated concentrations ranging between 6.8 ppm and 180 ppm compared to the CA TTLC threshold of 2,500 ppm and the CA STLC 10 X threshold of 250 ppm. All other regulated metals are well below regulatory thresholds supporting the determination that the soil in HVS-3 is non-hazardous.

Pipeline Trench

Like HVS-2D, the pipeline identified for removal was located in the general area of HVS-2A. The waste characterization results from HVS-2A are applicable to soil excavated during trenching for pipeline removal, and the trench soil was determined to be non-hazardous. Following removal of the pipeline, 3 confirmation samples were collected from the bottom of the trench and analyzed for asbestos and Polychlorinated Biphenyls (PCB). No asbestos was observed. However, very low concentrations of PCBs were detected in the samples at a maximum of 0.1 ppm. The trench was over-excavated in accordance with ISRA project objectives, but concentrations at these levels are not significant with respect to hazardous waste regulations.

Excavated Soil Stockpile

Upon excavation, soil from HVS-2D, HVS-3, and the pipeline removal trench were transported to an asphalt surfaced staging area and stockpiled. At the completion of excavation activities, the stockpile contained a total of approximately 50 cubic yards of soil.

A single sample was randomly collected from the stockpile itself. Analytical results are presented in TestAmerica report ISJ2591, issued on 11/16/09. No PCBs were detected in the sample. All detected regulated metals were at very low concentrations. Chromium and Lead were the most significant detections with respect to hazardous waste regulations. However, Chromium was detected at 15 ppm, compared with the RCRA 20X threshold of 100 ppm and

the California STLC WET threshold of 50 ppm. All other regulated metals exhibited an even greater divergence from applicable regulatory thresholds.

Determination

According to analytical results and generator knowledge, the soil in the stockpile containing material from Happy Valley HVS-2D, HVS-3, and the pipeline excavation trench:

Is Not a Listed Waste (generator knowledge)
Is Not ignitable (generator knowledge)
Is Not corrosive (generator knowledge)
Is Not reactive (generator knowledge)
Is Not characteristically toxic (analytical results and generator knowledge)
- Is Not Extremely or Acutely Hazardous Waste
- Does Not exceed any RCRA or Title 22 thresholds
- Is Not subject to the Prop. 65 listing if it is applied to 22 CCR 66261.24(a)(7)
- Is Not subject to the Title 22 Appendix X list
- Is Not known by experience or testing to pose a hazard to human health or environment because of its carcinogenicity, acute toxicity, chronic toxicity, bioaccumulative properties, or persistence in the environment.

The soil in the stockpile containing soil from Happy Valley HVS-2D, HVS-3, and the pipeline excavation trench is NON-HAZARDOUS.

INTERIM SOURCE REMOVAL ACTION (ISRA) - OUTFALL 008

HVS-2D, HVS-3, AND PIPELINE NEAR HVS-2A SOIL WASTE CHARACTERIZATION RESULTS
THE BOEING COMPANY
SANTA SUSANA FIELD LABORATORY

			Object Name:		**ISWC0113**
			Sample Name:		ISWC0113S001
			Collection Date:		10/22/2009
			Sample Depth (feet):		--[a]
ANALYTE	**UNITS**	**TTLC**	**WET Leachate Testing Trigger[a]**	**TCLP Leachate Testing Trigger[b]**	**RESULT**
METALS					
Antimony	mg/kg	500	150	--	<0.88
Arsenic	mg/kg	500	50	100	6.9
Barium	mg/kg	10,000	1,000	2,000	57
Beryllium	mg/kg	75	7.5	--	0.67
Cadmium	mg/kg	100	10	20	0.42 J
Chromium	mg/kg	500	50	100	15
Cobalt	mg/kg	8,000	800	--	6
Copper	mg/kg	2,500	250	--	9.2
Lead	mg/kg	1,000	50	100	11
Mercury	mg/kg	20	2	4	<0.012
Molybdenum	mg/kg	3,500	3,500	--	<0.20
Nickel	mg/kg	2,000	200	--	9.4
Selenium	mg/kg	100	10	20	<1.0
Silver	mg/kg	500	50	100	<0.80
Thallium	mg/kg	700	70	--	<0.79
Vanadium	mg/kg	2,400	240	--	26
Zinc	mg/kg	5,000	2,500	--	40
ASBESTOS					
Asbestos	%	1%	--	--	<0.0003
PCBs					
Aroclor 1016	mg/kg	50	50	--	<0.050
Aroclor 1221	mg/kg	50	50	--	<0.050
Aroclor 1232	mg/kg	50	50	--	<0.050
Aroclor 1242	mg/kg	50	50	--	<0.050
Aroclor 1248	mg/kg	50	50	--	<0.050
Aroclor 1254	mg/kg	50	50	--	<0.050
Aroclor 1260	mg/kg	50	50	--	<0.050
RADIONUCLIDES	--	--	--	--	R

INTERIM SOURCE REMOVAL ACTION (ISRA) - OUTFALL 008

HVS-2D, HVS-3, AND PIPELINE NEAR HVS-2A SOIL WASTE CHARACTERIZATION RESULTS
THE BOEING COMPANY
SANTA SUSANA FIELD LABORATORY

NOTES

Sample was randomly collected from a stockpile containing soil from HVS-2D, HVS-3, and from below the pipeline near HVS-2A

"--" - not applicable

[a] - No sample depth because sample was collected from a stockpile

[b] - WET Leachate Testing Trigger = STLC limit * 10

[c] - TCLP Leachate Testing Trigger = TCLP limit * 20

J - Result is estimated

mg/kg - milligrams per kilogram

R - Radiological analysis includes gamma spectroscopy (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), strontium-90, and tritium. Boeing has prepared a document that provides the radiological results and statistical analysis of the Outfall 008 waste characterization samples. Based on the results, the document certifies the soil represented by these waste characterization samples to be "radiologically" acceptable for shipment to Class 1, 2, and/or 3 disposal facilities. The analysis and data interpretation complies with procedures approved by the California Department of Public Health.

Happy Valley 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 Happy Valley Interim Source Removal Action (ISRA) area. This analysis and data interpretation complies with procedures approved by the California Department of Public Health[1].

Forty eight (48) 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 ~0.04 pCi/g and ~0.04 pCi/g respectively. Minimum detectable activity for tritium averaged ~1.0 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-1505[2] and DTSC guidance[3] (See Appendix 1). 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 report[4]. 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.

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[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 Happy Valley ISRA area does not exceed the local background for Cs-137. The incremental dose from Cs-137 above background is therefore zero mrem/y. The highest Cs-137 result is 0.113 pCi/g which is less than the highest background result. The highest non-background subtracted Cs-137 result is less than an effective dose of 0.08 mrem/y[6].

Strontium-90 - Based on the results of the statistical analysis of Appendix 1, soil to be excavated from the Happy Valley ISRA area does not exceed the local background for Sr-90. The incremental dose from Sr-90 above background is therefore zero mrem/y. The highest Sr-90 result is 0.042 pCi/g which is less than the highest background result. The highest non-background subtracted Sr-90 result is less than an effective dose of 0.013 mrem/y[6].

Tritium - All tritium results are non-detect, the average tritium result is -0.22 pCi/g and the highest non-detect tritium result is 0.39 pCi/g. The highest non-detect, non-background subtracted tritium result is less than an effective dose of 0.0055 mrem/y[6].

This waste is certified to be "radiologically" acceptable for shipment to, and disposal at, any Class 1, 2 or 3 disposal facility. There are no radiological controls or restrictions imposed on future disposition or use of this soil.

This waste meets the requirements of disposal facility permits[7,8] and complies with the California Health & Safety Code[9].

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 Happy Valley ISRA area is

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[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

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 material[10].

Phil Rutherford
Manager, Health, Safety & Radiation Services

[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 (R) by more than the DCGL.

The null hypothesis, Ho, is: Survey sample concentrations exceed those in the background
The alternative hypothesis, Ha, 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:	48
Z-value for Alpha	1.645
Critical Value	2785
Sum of Reference Ranks	3286

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 alterrnative 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	0.027
Max	0.213	0.113
Min	0.015	-0.023
σ	0.062	0.034
m-1.96*σ	-0.035	-0.040
m+1.96*σ	0.210	0.094

No.	Soil ID	Cs-137	Adjusted Cs-137	Area	Ranks	Reference Ranks
1		0.092	0.092	R	74	74
2		0.020	0.020	R	32	32
3		0.020	0.020	R	32	32
4		0.100	0.100	R	78.5	78.5
5		0.020	0.020	R	32	32
6		0.158	0.158	R	91.5	91.5
7		0.175	0.175	R	93	93
8		0.209	0.209	R	98	98
9		0.180	0.180	R	94	94
10		0.030	0.030	R	43	43
11		0.213	0.213	R	99	99
12		0.025	0.025	R	38	38
13		0.020	0.020	R	32	32
14		0.020	0.020	R	32	32
15		0.074	0.074	R	66	66
16		0.147	0.147	R	87	87
17		0.100	0.100	R	78.5	78.5
18		0.067	0.067	R	63.5	63.5
19		0.099	0.099	R	77	77

No.	Soil ID	Cs-137	Adjusted Cs-137	Area	Ranks	Reference Ranks
20		0.101	0.101	R	80	80
21		0.148	0.148	R	88	88
22		0.153	0.153	R	90	90
23		0.025	0.025	R	38	38
24		0.188	0.188	R	95	95
25		0.198	0.198	R	97	97
26		0.030	0.030	R	43	43
27		0.079	0.079	R	69	69
28		0.158	0.158	R	91.5	91.5
29		0.109	0.109	R	82	82
30		0.059	0.059	R	60	60
31		0.067	0.067	R	63.5	63.5
32		0.113	0.113	R	83.5	83.5
33		0.015	0.015	R	25	25
34		0.031	0.031	R	45	45
35		0.042	0.042	R	54	54
36		0.097	0.097	R	75.5	75.5
37		0.015	0.015	R	25	25
38		0.020	0.020	R	32	32
39		0.085	0.085	R	71	71
40		0.080	0.080	R	70	70
41		0.015	0.015	R	25	25
42		0.020	0.020	R	32	32
43		0.035	0.035	R	48.5	48.5
44		0.035	0.035	R	48.5	48.5
45		0.025	0.025	R	38	38
46		0.150	0.150	R	89	89
47		0.140	0.140	R	85.5	85.5
48		0.190	0.190	R	96	96
49		0.097	0.097	R	75.5	75.5
50		0.030	0.030	R	43	43
51		0.140	0.140	R	85.5	85.5
52	ISWC0001S001	-0.010	-0.010	S	6	0
53	ISWC0002S001	0.008	0.008	S	20	0
54	ISWC0003S001	0.000	0.000	S	11.5	0
55	ISWC0004S001	0.018	0.018	S	27	0
56	ISWC0005S001	0.040	0.040	S	51	0
57	ISWC0006S001	0.052	0.052	S	57	0
58	ISWC0009S001	0.087	0.087	S	72	0
59	ISWC0010S001	0.087	0.087	S	73	0
60	ISWC0011S001	0.065	0.065	S	62	0
61	ISWC0012S001	0.034	0.034	S	47	0
62	ISWC0013S001	0.023	0.023	S	36	0
63	ISWC0014S001	0.070	0.070	S	65	0
64	ISWC0015S001	0.113	0.113	S	83.5	0
65	ISWC0016S001	0.029	0.029	S	40	0
66	ISWC0019S001	0.001	0.001	S	14	0
67	ISWC0020S001	0.042	0.042	S	55	0
68	ISWC0023S001	0.041	0.041	S	52	0
69	ISWC0024S001	-0.001	-0.001	S	10	0
70	ISWC0028S001	0.036	0.036	S	50	0
71	ISWC0041S001	0.001	0.001	S	15	0
72	ISWC0042S001	-0.022	-0.022	S	2	0
73	ISWC0043S001	0.000	0.000	S	13	0
74	ISWC0044S001	-0.002	-0.002	S	9	0
75	ISWC0045S001	0.031	0.031	S	46	0
76	ISWC0046S001	0.102	0.102	S	81	0
77	ISWC0047S001	-0.003	-0.003	S	8	0
78	ISWC0048S001	0.018	0.018	S	28	0
79	ISWC0077RadS001	0.047	0.047	S	56	0
80	ISWC0078RadS001	0.007	0.007	S	19	0
81	ISWC0079RadS001	-0.013	-0.013	S	4	0

No.	Soil ID	Cs-137	Adjusted Cs-137	Area	Ranks	Reference Ranks
82	ISWC0080RadS001	0.003	0.003	S	18	0
83	ISWC0081RadS001	-0.010	-0.010	S	5	0
84	ISWC0084RadS001	0.010	0.010	S	21	0
85	ISWC0085RadS001	0.001	0.001	S	16	0
86	ISWC0086RadS001	0.010	0.010	S	22	0
87	ISWC0087RadS001	0.042	0.042	S	53	0
88	ISWC0088RadS001	-0.019	-0.019	S	3	0
89	ISWC0089RadS001	0.002	0.002	S	17	0
90	ISWC0090RadS001	0.058	0.058	S	59	0
91	ISWC0091RadS001	0.061	0.061	S	61	0
92	ISWC0092RadS001	0.074	0.074	S	67	0
93	ISWC0093RadS001	0.012	0.012	S	23	0
94	ISWC0082RadS001	0.076	0.076	S	68	0
95	ISWC0083RadS001	0.000	0.000	S	11.5	0
96	ISWC0094RadS001	-0.005	-0.005	S	7	0
97	ISWC0095RadS001	-0.023	-0.023	S	1	0
98	ISWC0112S001	0.030	0.030	S	41	0
99	ISWC0113S001	0.054	0.054	S	58	0
				Sum	4950	3285.5

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 (R) by more than the DCGL.

The null hypothesis, Ho, is: Survey sample concentrations exceed those in the background
The alternative hypothesis, Ha, 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:	48
Z-value for Alpha	1.645
Critical Value	2785
Sum of Reference Ranks	3471

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 alterrnative 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	0.016
Max	0.130	0.042
Min	0.005	-0.018
σ	0.030	0.016
m-1.96*σ	-0.008	-0.015
m+1.96*σ	0.109	0.048

No.	Soil ID	Sr-90	Adjusted Sr-90	Area	Ranks	Reference Ranks
1		0.030	0.030	R	49	49
2		0.010	0.010	R	22.5	22.5
3		0.045	0.045	R	74.5	74.5
4		0.045	0.045	R	74.5	74.5
5		0.050	0.050	R	84	84
6		0.040	0.040	R	64	64
7		0.035	0.035	R	54.5	54.5
8		0.050	0.050	R	84	84
9		0.050	0.050	R	84	84
10		0.130	0.130	R	98.5	98.5
11		0.120	0.120	R	97	97
12		0.040	0.040	R	64	64
13		0.045	0.045	R	74.5	74.5
14		0.130	0.130	R	98.5	98.5
15		0.050	0.050	R	84	84
16		0.088	0.088	R	92	92
17		0.080	0.080	R	89	89
18		0.100	0.100	R	96	96
19		0.069	0.069	R	88	88
20		0.097	0.097	R	94	94
21		0.084	0.084	R	91	91

No.	Soil ID	Sr-90	Adjusted Sr-90	Area	Ranks	Reference Ranks
22		0.098	0.098	R	95	95
23		0.045	0.045	R	74.5	74.5
24		0.045	0.045	R	74.5	74.5
25		0.020	0.020	R	30	30
26		0.045	0.045	R	74.5	74.5
27		0.089	0.089	R	93	93
28		0.050	0.050	R	84	84
29		0.045	0.045	R	74.5	74.5
30		0.050	0.050	R	84	84
31		0.045	0.045	R	74.5	74.5
32		0.040	0.040	R	64	64
33		0.045	0.045	R	74.5	74.5
34		0.045	0.045	R	74.5	74.5
35		0.045	0.045	R	74.5	74.5
36		0.025	0.025	R	39.5	39.5
37		0.082	0.082	R	90	90
38		0.045	0.045	R	74.5	74.5
39		0.040	0.040	R	64	64
40		0.035	0.035	R	54.5	54.5
41		0.025	0.025	R	39.5	39.5
42		0.005	0.005	R	17	17
43		0.020	0.020	R	30	30
44		0.010	0.010	R	22.5	22.5
45		0.020	0.020	R	30	30
46		0.020	0.020	R	30	30
47		0.050	0.050	R	84	84
48		0.030	0.030	R	49	49
49		0.030	0.030	R	49	49
50		0.020	0.020	R	30	30
51		0.040	0.040	R	64	64
52	ISWC0001S001	0.024	0.024	S	35.5	0
53	ISWC0002S001	0.015	0.015	S	27	0
54	ISWC0003S001	0.001	0.001	S	13	0
55	ISWC0004S001	0.025	0.025	S	38	0
56	ISWC0005S001	0.022	0.022	S	33	0
57	ISWC0006S001	0.042	0.042	S	67	0
58	ISWC0009S001	0.027	0.027	S	42	0
59	ISWC0010S001	-0.002	-0.002	S	5	0
60	ISWC0011S001	0.024	0.024	S	35.5	0
61	ISWC0012S001	0.034	0.034	S	53	0
62	ISWC0013S001	0.030	0.030	S	46	0
63	ISWC0014S001	0.036	0.036	S	57	0
64	ISWC0015S001	0.003	0.003	S	15	0
65	ISWC0016S001	0.009	0.009	S	21	0
66	ISWC0019S001	-0.001	-0.001	S	6	0
67	ISWC0020S001	-0.018	-0.018	S	1	0
68	ISWC0023S001	0.037	0.037	S	59	0
69	ISWC0024S001	0.025	0.025	S	37	0
70	ISWC0028S001	0.033	0.033	S	52	0
71	ISWC0041S001	0.036	0.036	S	56	0
72	ISWC0042S001	0.009	0.009	S	20	0
73	ISWC0043S001	0.005	0.005	S	16	0
74	ISWC0044S001	-0.001	-0.001	S	7	0
75	ISWC0045S001	-0.010	-0.010	S	2	0
76	ISWC0046S001	0.038	0.038	S	60	0
77	ISWC0047S001	0.037	0.037	S	58	0
78	ISWC0048S001	-0.001	-0.001	S	8	0
79	ISWC0077RadS001	0.031	0.031	S	51	0
80	ISWC0078RadS001	0.000	0.000	S	12	0
81	ISWC0079RadS001	0.002	0.002	S	14	0
82	ISWC0080RadS001	0.023	0.023	S	34	0
83	ISWC0081RadS001	0.014	0.014	S	26	0
84	ISWC0084RadS001	0.008	0.008	S	19	0

No.	Soil ID	Sr-90	Adjusted Sr-90	Area	Ranks	Reference Ranks
85	ISWC0085RadS001	0.042	0.042	S	68	0
86	ISWC0086RadS001	0.000	0.000	S	10	0
87	ISWC0087RadS001	0.000	0.000	S	9	0
88	ISWC0088RadS001	0.005	0.005	S	18	0
89	ISWC0089RadS001	0.010	0.010	S	24	0
90	ISWC0090RadS001	0.030	0.030	S	47	0
91	ISWC0091RadS001	0.027	0.027	S	43	0
92	ISWC0092RadS001	0.026	0.026	S	41	0
93	ISWC0093RadS001	0.027	0.027	S	44	0
94	ISWC0082RadS001	0.000	0.000	S	11	0
95	ISWC0083RadS001	0.038	0.038	S	61	0
96	ISWC0094RadS001	-0.004	-0.004	S	4	0
97	ISWC0095RadS001	-0.010	-0.010	S	3	0
98	ISWC0112S001	0.011	0.011	S	25	0
99	ISWC0113S001	0.028	0.028	S	45	0
				Sum	4950	3471

Soil Data from Happy Valley ISRA

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	ISWC0001S001	N/A	7/1/2009	233955	-0.0102	0.0289	0.0501	NDA	0.0237	0.0284	0.0479	NDA	-0.271	0.381	0.757	NDA
2	ISWC0002S001	N/A	7/1/2009	233955	0.00772	0.021	0.0372	NDA	0.0154	0.0261	0.0449	NDA	-0.723	0.768	1.37	NDA
3	ISWC0003S001	N/A	7/1/2009	233955	0	0.0561	0.052	NDA	0.000558	0.0236	0.0473	NDA	0.342	0.468	0.798	NDA
4	ISWC0004S001	N/A	7/1/2009	233955	0.0181	0.0229	0.0416	NDA	0.0247	0.027	0.0446	NDA	-0.56	0.784	1.39	NDA
5	ISWC0005S001	N/A	7/1/2009	233955	0.0396	0.0286	0.0507	NDA	0.0217	0.025	0.0421	NDA	-0.883	0.745	1.34	NDA
6	ISWC0006S001	N/A	7/1/2009	233955	0.0524	0.0418	0.0459		0.0415	0.0231	0.0322		-0.946	0.768	1.39	NDA
7	ISWC0009S001	N/A	7/1/2009	233955	0.0865	0.037	0.0343		0.027	0.028	0.0468	NDA	0.387	0.46	0.774	NDA
8	ISWC0010S001	N/A	7/1/2009	233955	0.0868	0.0252	0.0295		-0.00173	0.0272	0.0477	NDA	0.124	0.445	0.765	NDA
9	ISWC0011S001	N/A	7/1/2009	233955	0.0654	0.0389	0.0423		0.0237	0.0279	0.0469	NDA	0	0.437	0.76	NDA
10	ISWC0012S001	N/A	7/1/2009	233955	0.0342	0.0414	0.0482	NDA	0.0344	0.0254	0.0413	NDA	-0.412	0.423	0.762	NDA
11	ISWC0013S001	N/A	7/1/2009	233955	0.0231	0.0247	0.0452	NDA	0.0298	0.0281	0.0468	NDA	-0.164	0.43	0.757	NDA
12	ISWC0014S001	N/A	7/1/2009	233955	0.0704	0.0289	0.0323		0.0361	0.0196	0.0276		-0.297	0.425	0.758	NDA
13	ISWC0015S001	N/A	7/1/2009	233955	0.113	0.0458	0.0383		0.0034	0.0253	0.0456	NDA	-0.164	0.431	0.76	NDA
14	ISWC0016S001	N/A	7/1/2009	233955	0.0291	0.0277	0.0493	NDA	0.00886	0.0183	0.0327	NDA	-0.0409	0.434	0.757	NDA
15	ISWC0019S001	N/A	7/1/2009	233955	0.000785	0.0212	0.0362	NDA	-0.00142	0.0243	0.0454	NDA	-0.343	0.788	1.39	NDA
16	ISWC0020S001	N/A	7/1/2009	233955	0.0421	0.0202	0.0242		-0.0182	0.0257	0.0469	NDA	-0.994	0.75	1.36	NDA
17	ISWC0023S001	N/A	7/1/2009	233955	0.0408	0.0219	0.027		0.0371	0.0289	0.0475	NDA	-0.776	0.776	1.39	NDA
18	ISWC0024S001	N/A	7/1/2009	233955	-0.00101	0.0189	0.0321	NDA	0.0245	0.0284	0.0478	NDA	0.052	0.444	0.768	NDA
19	ISWC0028S001	N/A	7/1/2009	233955	0.0361	0.025	0.0453	NDA	0.0329	0.0269	0.043	NDA	0.174	0.443	0.758	NDA
20	ISWC0041S001	N/A	7/1/2009	233955	0.000885	0.0165	0.0292	NDA	0.0359	0.0232	0.0373	NDA	0.155	0.408	0.723	NDA
21	ISWC0042S001	N/A	7/1/2009	233955	-0.0218	0.025	0.038	NDA	0.00868	0.0256	0.0444	NDA	-0.728	0.773	1.38	NDA
22	ISWC0043S001	N/A	7/1/2009	233955	0.000188	0.0206	0.0362	NDA	0.00492	0.022	0.0381	NDA	-1.08	0.761	1.38	NDA
23	ISWC0044S001	N/A	7/1/2009	233955	-0.00186	0.0209	0.0356	NDA	-0.00133	0.0222	0.0398	NDA	-0.386	0.786	1.39	NDA
24	ISWC0045S001	N/A	7/1/2009	233955	0.0312	0.0345	0.0401	NDA	-0.01	0.0267	0.0481	NDA	-0.509	0.772	1.37	NDA
25	ISWC0046S001	N/A	7/1/2009	233955	0.102	0.0279	0.0283		0.0375	0.0217	0.032		-0.428	0.782	1.38	NDA
26	ISWC0047S001	N/A	7/1/2009	233955	-0.00259	0.0197	0.0346	NDA	0.0365	0.0283	0.0462	NDA	-1.12	0.777	1.41	NDA
27	ISWC0048S001	N/A	7/1/2009	233955	0.0182	0.0286	0.051	NDA	-0.000557	0.0173	0.0334	NDA	-0.435	0.779	1.38	NDA
28	ISWC0077RadS001	N/A	7/29/2009	234325	0.0466	0.0253	0.0324		0.0307	0.0238	0.0372	NDA	-0.202	0.488	0.946	NDA
29	ISWC0078RadS001	N/A	7/29/2009	234325	0.00741	0.0218	0.0384	NDA	0.0004	0.0232	0.0459	NDA	-0.0891	0.508	0.958	NDA
30	ISWC0079RadS001	N/A	7/29/2009	234325	-0.0128	0.0199	0.0342	NDA	0.00167	0.0184	0.0353	NDA	-0.0547	0.524	0.981	NDA
31	ISWC0080RadS001	N/A	7/29/2009	234325	0.00257	0.0275	0.0485	NDA	0.0227	0.019	0.0295	NDA	0.26	0.346	0.588	NDA
32	ISWC0081RadS001	N/A	7/29/2009	234325	-0.0104	0.0237	0.0405	NDA	0.0142	0.017	0.0287	NDA	-0.198	0.479	0.928	NDA
33	ISWC0084RadS001	N/A	7/29/2009	234325	0.00972	0.0292	0.0503	NDA	0.00833	0.0263	0.0455	NDA	0.124	0.529	0.954	NDA
34	ISWC0085RadS001	N/A	7/29/2009	234325	0.00143	0.0315	0.054	NDA	0.0419	0.0261	0.0419	NDA	-0.0553	0.529	0.99	NDA
35	ISWC0086RadS001	N/A	7/29/2009	234325	0.0101	0.0252	0.043	NDA	0.000108	0.0164	0.0334	NDA	-0.0265	0.511	0.951	NDA
36	ISWC0087RadS001	N/A	7/29/2009	234325	0.0416	0.0345	0.0431	NDA	3.85E-05	0.0223	0.0397	NDA	0	0.516	0.955	NDA
37	ISWC0088RadS001	N/A	7/29/2009	234325	-0.0187	0.0256	0.0429	NDA	0.00507	0.0218	0.0381	NDA	0.155	0.342	0.598	NDA
38	ISWC0089RadS001	N/A	7/29/2009	234325	0.00158	0.0276	0.0449	NDA	0.0103	0.0272	0.0471	NDA	-0.0415	0.528	0.943	NDA
39	ISWC0090RadS001	N/A	7/29/2009	234325	0.0578	0.0398	0.0413		0.0299	0.0272	0.0451	NDA	-0.0613	0.484	0.898	NDA
40	ISWC0091RadS001	N/A	7/29/2009	234325	0.0611	0.0403	0.044		0.0272	0.0283	0.0472	NDA	-0.183	0.513	0.987	NDA
41	ISWC0092RadS001	N/A	7/29/2009	234325	0.0743	0.0305	0.0407		0.0264	0.0247	0.041	NDA	0.0279	0.537	0.951	NDA
42	ISWC0093RadS001	N/A	7/29/2009	234325	0.0124	0.0255	0.0441	NDA	0.0273	0.0216	0.0333	NDA	-0.331	0.483	0.963	NDA
43	ISWC0082RadS001	N/A	7/30/2009	234376	0.076	0.0434	0.0391		0.000193	0.0153	0.0306	NDA	0.217	0.391	0.677	NDA
44	ISWC0083RadS001	N/A	7/30/2009	234376	0	0.0279	0.053	NDA	0.0378	0.0236	0.0348		0.0694	0.379	0.677	NDA
45	ISWC0094RadS001	N/A	8/17/2009	235405	-0.00482	0.0288	0.0505	NDA	-0.00381	0.026	0.0476	NDA	-0.0872	0.703	1.25	NDA
46	ISWC0095RadS001	N/A	8/17/2009	235405	-0.023	0.0254	0.0409	NDA	-0.00968	0.0123	0.0296	NDA	-0.423	0.678	1.24	NDA
47	ISWC0112S001	N/A	9/14/2009	237286	0.0299	0.0257	0.0465	NDA	0.0108	0.024	0.0436	NDA	0.187	0.603	1.03	NDA
48	ISWC0113S001	N/A	10/22/2009	239640	0.0537	0.0358	0.0435		0.0276	0.0257	0.0414	NDA	0.182	0.408	0.702	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	0.027		0.041		0.016		0.041		-0.220		1.008	
Maximum	0.113		0.054		0.042		0.048		0.387		1.410	
Minimum	-0.023		0.024		-0.018		0.028		-1.120		0.588	

Soil Data from Happy Valley ISRA

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?
				Count				48				48				48
				Number of Non-Detects				33				44				48
				% Non-Detects				69%				92%				100%

Appendix 2

Analytical Radionuclide Results

ISRA Soil Sample Results for Happy Valley

Project Name	Sampling Organization	Sampling Date	Sampling Location (General)	Sampling Location (Specific)	Sample Serial Number	Media Type	Isotope	Value	Error (+/-)	MDA	Non-Detect?	Units	Error Type	Analysis Protocol	Analysis Organization	Document	Status
ISRA HV Waste Characterization	MWH	07/01/2009	Happy Valley	ISWC0001	ISWC0001S001	Soil	Americium-241	0.0438	0.0418	0.0699	NDA	pCi/g	2 sigma	EML HASL 300, 4.5.2.3	GEL	233955	Pre-remedial
ISRA HV Waste Characterization	MWH	07/01/2009	Happy Valley	ISWC0002	ISWC0002S001	Soil	Americium-241	0.0763	0.0943	0.159	NDA	pCi/g	2 sigma	EML HASL 300, 4.5.2.3	GEL	233955	Pre-remedial
ISRA HV Waste Characterization	MWH	07/01/2009	Happy Valley	ISWC0003	ISWC0003S001	Soil	Americium-241	0	0.045	0.0779	NDA	pCi/g	2 sigma	EML HASL 300, 4.5.2.3	GEL	233955	Pre-remedial
ISRA HV Waste Characterization	MWH	07/01/2009	Happy Valley	ISWC0004	ISWC0004S001	Soil	Americium-241	0.0361	0.0653	0.111	NDA	pCi/g	2 sigma	EML HASL 300, 4.5.2.3	GEL	233955	Pre-remedial
ISRA HV Waste Characterization	MWH	07/01/2009	Happy Valley	ISWC0005	ISWC0005S001	Soil	Americium-241	0.0356	0.088	0.135	NDA	pCi/g	2 sigma	EML HASL 300, 4.5.2.3	GEL	233955	Pre-remedial
ISRA HV Waste Characterization	MWH	07/01/2009	Happy Valley	ISWC0006	ISWC0006S001	Soil	Americium-241	0.0882	0.12	0.187	NDA	pCi/g	2 sigma	EML HASL 300, 4.5.2.3	GEL	233955	Pre-remedial
ISRA HV Waste Characterization	MWH	07/01/2009	Happy Valley	ISWC0009	ISWC0009S001	Soil	Americium-241	0.041	0.0327	0.0551	NDA	pCi/g	2 sigma	EML HASL 300, 4.5.2.3	GEL	233955	Pre-remedial
ISRA HV Waste Characterization	MWH	07/01/2009	Happy Valley	ISWC0010	ISWC0010S001	Soil	Americium-241	0.0682	0.075	0.121	NDA	pCi/g	2 sigma	EML HASL 300, 4.5.2.3	GEL	233955	Pre-remedial
ISRA HV Waste Characterization	MWH	07/01/2009	Happy Valley	ISWC0011	ISWC0011S001	Soil	Americium-241	0.117	0.15	0.256	NDA	pCi/g	2 sigma	EML HASL 300, 4.5.2.3	GEL	233955	Pre-remedial
ISRA HV Waste Characterization	MWH	07/01/2009	Happy Valley	ISWC0012	ISWC0012S001	Soil	Americium-241	0.0361	0.0433	0.0728	NDA	pCi/g	2 sigma	EML HASL 300, 4.5.2.3	GEL	233955	Pre-remedial
ISRA HV Waste Characterization	MWH	07/01/2009	Happy Valley	ISWC0013	ISWC0013S001	Soil	Americium-241	0.102	0.109	0.202	NDA	pCi/g	2 sigma	EML HASL 300, 4.5.2.3	GEL	233955	Pre-remedial
ISRA HV Waste Characterization	MWH	07/01/2009	Happy Valley	ISWC0014	ISWC0014S001	Soil	Americium-241	-0.00247	0.142	0.237	NDA	pCi/g	2 sigma	EML HASL 300, 4.5.2.3	GEL	233955	Pre-remedial
ISRA HV Waste Characterization	MWH	07/01/2009	Happy Valley	ISWC0015	ISWC0015S001	Soil	Americium-241	0.000668	0.0912	0.154	NDA	pCi/g	2 sigma	EML HASL 300, 4.5.2.3	GEL	233955	Pre-remedial
ISRA HV Waste Characterization	MWH	07/01/2009	Happy Valley	ISWC0016	ISWC0016S001	Soil	Americium-241	0	0.0359	0.064	NDA	pCi/g	2 sigma	EML HASL 300, 4.5.2.3	GEL	233955	Pre-remedial
ISRA HV Waste Characterization	MWH	07/01/2009	Happy Valley	ISWC0019	ISWC0019S001	Soil	Americium-241	0.032	0.0285	0.0492	NDA	pCi/g	2 sigma	EML HASL 300, 4.5.2.3	GEL	233955	Pre-remedial
ISRA HV Waste Characterization	MWH	07/01/2009	Happy Valley	ISWC0020	ISWC0020S001	Soil	Americium-241	0.024	0.0997	0.169	NDA	pCi/g	2 sigma	EML HASL 300, 4.5.2.3	GEL	233955	Pre-remedial
ISRA HV Waste Characterization	MWH	07/01/2009	Happy Valley	ISWC0023	ISWC0023S001	Soil	Americium-241	0.0277	0.0587	0.0903	NDA	pCi/g	2 sigma	EML HASL 300, 4.5.2.3	GEL	233955	Pre-remedial
ISRA HV Waste Characterization	MWH	07/01/2009	Happy Valley	ISWC0024	ISWC0024S001	Soil	Americium-241	0.0735	0.131	0.218	NDA	pCi/g	2 sigma	EML HASL 300, 4.5.2.3	GEL	233955	Pre-remedial
ISRA HV Waste Characterization	MWH	07/01/2009	Happy Valley	ISWC0028	ISWC0028S001	Soil	Americium-241	-0.00721	0.0853	0.134	NDA	pCi/g	2 sigma	EML HASL 300, 4.5.2.3	GEL	233955	Pre-remedial
ISRA HV Waste Characterization	MWH	07/01/2009	Happy Valley	ISWC0041	ISWC0041S001	Soil	Americium-241	-0.00475	0.0946	0.17	NDA	pCi/g	2 sigma	EML HASL 300, 4.5.2.3	GEL	233955	Pre-remedial
ISRA HV Waste Characterization	MWH	07/01/2009	Happy Valley	ISWC0042	ISWC0042S001	Soil	Americium-241	-0.0522	0.108	0.201	NDA	pCi/g	2 sigma	EML HASL 300, 4.5.2.3	GEL	233955	Pre-remedial
ISRA HV Waste Characterization	MWH	07/01/2009	Happy Valley	ISWC0043	ISWC0043S001	Soil	Americium-241	0.0281	0.0606	0.103	NDA	pCi/g	2 sigma	EML HASL 300, 4.5.2.3	GEL	233955	Pre-remedial
ISRA HV Waste Characterization	MWH	07/01/2009	Happy Valley	ISWC0044	ISWC0044S001	Soil	Americium-241	0.0134	0.0753	0.126	NDA	pCi/g	2 sigma	EML HASL 300, 4.5.2.3	GEL	233955	Pre-remedial
ISRA HV Waste Characterization	MWH	07/01/2009	Happy Valley	ISWC0045	ISWC0045S001	Soil	Americium-241	0.0854	0.101	0.172	NDA	pCi/g	2 sigma	EML HASL 300, 4.5.2.3	GEL	233955	Pre-remedial
ISRA HV Waste Characterization	MWH	07/01/2009	Happy Valley	ISWC0046	ISWC0046S001	Soil	Americium-241	0.00218	0.0854	0.139	NDA	pCi/g	2 sigma	EML HASL 300, 4.5.2.3	GEL	233955	Pre-remedial
ISRA HV Waste Characterization	MWH	07/01/2009	Happy Valley	ISWC0047	ISWC0047S001	Soil	Americium-241	0.0723	0.0713	0.121	NDA	pCi/g	2 sigma	EML HASL 300, 4.5.2.3	GEL	233955	Pre-remedial
ISRA HV Waste Characterization	MWH	07/01/2009	Happy Valley	ISWC0048	ISWC0048S001	Soil	Americium-241	0.0194	0.0848	0.129	NDA	pCi/g	2 sigma	EML HASL 300, 4.5.2.3	GEL	233955	Pre-remedial
ISRA HV Waste Characterization	MWH	7/29/2009	Happy Valley	ISWC0077	ISWC0077RadS001	Soil	Americium-241	0.0444	0.104	0.178	NDA	pCi/g	2 sigma	EML HASL 300, 4.5.2.3	GEL	234325	Pre-remedial
ISRA HV Waste Characterization	MWH	7/29/2009	Happy Valley	ISWC0078	ISWC0078RadS001	Soil	Americium-241	0.0576	0.0979	0.163	NDA	pCi/g	2 sigma	EML HASL 300, 4.5.2.3	GEL	234325	Pre-remedial
ISRA HV Waste Characterization	MWH	7/29/2009	Happy Valley	ISWC0079	ISWC0079RadS001	Soil	Americium-241	0.0602	0.072	0.122	NDA	pCi/g	2 sigma	EML HASL 300, 4.5.2.3	GEL	234325	Pre-remedial
ISRA HV Waste Characterization	MWH	7/29/2009	Happy Valley	ISWC0080	ISWC0080RadS001	Soil	Americium-241	0.0571	0.0393	0.0636	NDA	pCi/g	2 sigma	EML HASL 300, 4.5.2.3	GEL	234325	Pre-remedial
ISRA HV Waste Characterization	MWH	7/29/2009	Happy Valley	ISWC0081	ISWC0081RadS001	Soil	Americium-241	0.0281	0.114	0.196	NDA	pCi/g	2 sigma	EML HASL 300, 4.5.2.3	GEL	234325	Pre-remedial
ISRA HV Waste Characterization	MWH	7/29/2009	Happy Valley	ISWC0084	ISWC0084RadS001	Soil	Americium-241	0.0579	0.0415	0.0708	NDA	pCi/g	2 sigma	EML HASL 300, 4.5.2.3	GEL	234325	Pre-remedial
ISRA HV Waste Characterization	MWH	7/29/2009	Happy Valley	ISWC0085	ISWC0085RadS001	Soil	Americium-241	0.0558	0.0431	0.0655	NDA	pCi/g	2 sigma	EML HASL 300, 4.5.2.3	GEL	234325	Pre-remedial
ISRA HV Waste Characterization	MWH	7/29/2009	Happy Valley	ISWC0086	ISWC0086RadS001	Soil	Americium-241	0.0995	0.0861	0.14	NDA	pCi/g	2 sigma	EML HASL 300, 4.5.2.3	GEL	234325	Pre-remedial
ISRA HV Waste Characterization	MWH	7/29/2009	Happy Valley	ISWC0087	ISWC0087RadS001	Soil	Americium-241	0.0587	0.119	0.187	NDA	pCi/g	2 sigma	EML HASL 300, 4.5.2.3	GEL	234325	Pre-remedial
ISRA HV Waste Characterization	MWH	7/29/2009	Happy Valley	ISWC0088	ISWC0088RadS001	Soil	Americium-241	0.0917	0.115	0.191	NDA	pCi/g	2 sigma	EML HASL 300, 4.5.2.3	GEL	234325	Pre-remedial
ISRA HV Waste Characterization	MWH	7/29/2009	Happy Valley	ISWC0089	ISWC0089RadS001	Soil	Americium-241	0.0465	0.101	0.166	NDA	pCi/g	2 sigma	EML HASL 300, 4.5.2.3	GEL	234325	Pre-remedial
ISRA HV Waste Characterization	MWH	7/29/2009	Happy Valley	ISWC0090	ISWC0090RadS001	Soil	Americium-241	0.057	0.0386	0.0635	NDA	pCi/g	2 sigma	EML HASL 300, 4.5.2.3	GEL	234325	Pre-remedial
ISRA HV Waste Characterization	MWH	7/29/2009	Happy Valley	ISWC0091	ISWC0091RadS001	Soil	Americium-241	0.0361	0.0405	0.0691	NDA	pCi/g	2 sigma	EML HASL 300, 4.5.2.3	GEL	234325	Pre-remedial
ISRA HV Waste Characterization	MWH	7/29/2009	Happy Valley	ISWC0092	ISWC0092RadS001	Soil	Americium-241	0.00232	0.132	0.235	NDA	pCi/g	2 sigma	EML HASL 300, 4.5.2.3	GEL	234325	Pre-remedial
ISRA HV Waste Characterization	MWH	7/29/2009	Happy Valley	ISWC0093	ISWC0093RadS001	Soil	Americium-241	0.0458	0.0866	0.142	NDA	pCi/g	2 sigma	EML HASL 300, 4.5.2.3	GEL	234325	Pre-remedial
ISRA HV Waste Characterization	MWH	7/30/2009	Happy Valley	ISWC0082	ISWC0082RadS001	Soil	Americium-241	0.0519	0.14	0.241	NDA	pCi/g	2 sigma	EML HASL 300, 4.5.2.3	GEL	234376	Pre-remedial
ISRA HV Waste Characterization	MWH	7/30/2009	Happy Valley	ISWC0083	ISWC0083RadS001	Soil	Americium-241	-0.0451	0.0703	0.112	NDA	pCi/g	2 sigma	EML HASL 300, 4.5.2.3	GEL	234376	Pre-remedial
ISRA HV Waste Characterization	MWH	8/17/2009	Happy Valley	ISWC0094	ISWC0094RadS001	Soil	Americium-241	0	0.0435	0.0735	NDA	pCi/g	2 sigma	EML HASL 300, 4.5.2.3	GEL	235405	Pre-remedial
ISRA HV Waste Characterization	MWH	8/17/2009	Happy Valley	ISWC0095	ISWC0095RadS001	Soil	Americium-241	0.00138	0.0376	0.0619	NDA	pCi/g	2 sigma	EML HASL 300, 4.5.2.3	GEL	235405	Pre-remedial
ISRA HV Waste Characterization	MWH	9/14/2009	Happy Valley	ISWC0112	ISWC0112S001	Soil	Americium-241	0.129	0.129	0.217	NDA	pCi/g	2 sigma	EML HASL 300, 4.5.2.3	GEL	237286	Pre-remedial
ISRA HV Waste Characterization	MWH	10/22/2009	Happy Valley	ISWC0113	ISWC0113S001	Soil	Americium-241	-0.03	0.0839	0.129	NDA	pCi/g	2 sigma	DOE HASL 300, 4.5.2.3/Ga-01-R	GEL	239640	Waste
ISRA HV Waste Characterization	MWH	07/01/2009	Happy Valley	ISWC0001	ISWC0001S001	Soil	Cesium-134	0	0.0634	0.0746	NDA	pCi/g	2 sigma	EML HASL 300, 4.5.2.3	GEL	233955	Pre-remedial
ISRA HV Waste Characterization	MWH	07/01/2009	Happy Valley	ISWC0002	ISWC0002S001	Soil	Cesium-134	0	0.0445	0.0544	NDA	pCi/g	2 sigma	EML HASL 300, 4.5.2.3	GEL	233955	Pre-remedial
ISRA HV Waste Characterization	MWH	07/01/2009	Happy Valley	ISWC0003	ISWC0003S001	Soil	Cesium-134	0	0.0428	0.0722	NDA	pCi/g	2 sigma	EML HASL 300, 4.5.2.3	GEL	233955	Pre-remedial
ISRA HV Waste Characterization	MWH	07/01/2009	Happy Valley	ISWC0004	ISWC0004S001	Soil	Cesium-134	0	0.0444	0.0571	NDA	pCi/g	2 sigma	EML HASL 300, 4.5.2.3	GEL	233955	Pre-remedial
ISRA HV Waste Characterization	MWH	07/01/2009	Happy Valley	ISWC0005	ISWC0005S001	Soil	Cesium-134	0	0.0483	0.0672	NDA	pCi/g	2 sigma	EML HASL 300, 4.5.2.3	GEL	233955	Pre-remedial
ISRA HV Waste Characterization	MWH	07/01/2009	Happy Valley	ISWC0006	ISWC0006S001	Soil	Cesium-134	0	0.0558	0.071	NDA	pCi/g	2 sigma	EML HASL 300, 4.5.2.3	GEL	233955	Pre-remedial
ISRA HV Waste Characterization	MWH	07/01/2009	Happy Valley	ISWC0009	ISWC0009S001	Soil	Cesium-134	0	0.0421	0.0528	NDA	pCi/g	2 sigma	EML HASL 300, 4.5.2.3	GEL	233955	Pre-remedial
ISRA HV Waste Characterization	MWH	07/01/2009	Happy Valley	ISWC0010	ISWC0010S001	Soil	Cesium-134	0	0.0314	0.0396	NDA	pCi/g	2 sigma	EML HASL 300, 4.5.2.3	GEL	233955	Pre-remedial
ISRA HV Waste Characterization	MWH	07/01/2009	Happy Valley	ISWC0011	ISWC0011S001	Soil	Cesium-134	0	0.0453	0.0591	NDA	pCi/g	2 sigma	EML HASL 300, 4.5.2.3	GEL	233955	Pre-remedial
ISRA HV Waste Characterization	MWH	07/01/2009	Happy Valley	ISWC0012	ISWC0012S001	Soil	Cesium-134	0.0628	0.0442	0.069	NDA	pCi/g	2 sigma	EML HASL 300, 4.5.2.3	GEL	233955	Pre-remedial
ISRA HV Waste Characterization	MWH	07/01/2009	Happy Valley	ISWC0013	ISWC0013S001	Soil	Cesium-134	0	0.0413	0.058	NDA	pCi/g	2 sigma	EML HASL 300, 4.5.2.3	GEL	233955	Pre-remedial
ISRA HV Waste Characterization	MWH	07/01/2009	Happy Valley	ISWC0014	ISWC0014S001	Soil	Cesium-134	0	0.0397	0.0557	NDA	pCi/g	2 sigma	EML HASL 300, 4.5.2.3	GEL	233955	Pre-remedial
ISRA HV Waste Characterization	MWH	07/01/2009	Happy Valley	ISWC0015	ISWC0015S001	Soil	Cesium-134	0	0.0351	0.0564	NDA	pCi/g	2 sigma	EML HASL 300, 4.5.2.3	GEL	233955	Pre-remedial
ISRA HV Waste Characterization	MWH	07/01/2009	Happy Valley	ISWC0016	ISWC0016S001	Soil	Cesium-134	0	0.038	0.0632	NDA	pCi/g	2 sigma	EML HASL 300, 4.5.2.3	GEL	233955	Pre-remedial
ISRA HV Waste Characterization	MWH	07/01/2009	Happy Valley	ISWC0019	ISWC0019S001	Soil	Cesium-134	0	0.0351	0.0503	NDA	pCi/g	2 sigma	EML HASL 300, 4.5.2.3	GEL	233955	Pre-remedial
ISRA HV Waste Characterization	MWH	07/01/2009	Happy Valley	ISWC0020	ISWC0020S001	Soil	Cesium-134	0	0.03	0.0419	NDA	pCi/g	2 sigma	EML HASL 300, 4.5.2.3	GEL	233955	Pre-remedial
ISRA HV Waste Characterization	MWH	07/01/2009	Happy Valley	ISWC0023	ISWC0023S001	Soil	Cesium-134	0	0.0331	0.0384	NDA	pCi/g	2 sigma	EML HASL 300, 4.5.2.3	GEL	233955	Pre-remedial
ISRA HV Waste Characterization	MWH	07/01/2009	Happy Valley	ISWC0024	ISWC0024S001	Soil	Cesium-134	0	0.0294	0.0433	NDA	pCi/g	2 sigma	EML HASL 300, 4.5.2.3	GEL	233955	Pre-remedial
ISRA HV Waste Characterization	MWH	07/01/2009	Happy Valley	ISWC0028	ISWC0028S001	Soil	Cesium-134	0	0.0465	0.055	NDA	pCi/g	2 sigma	EML HASL 300, 4.5.2.3	GEL	233955	Pre-remedial
ISRA HV Waste Characterization	MWH	07/01/2009	Happy Valley	ISWC0041	ISWC0041S001	Soil	Cesium-134	0	0.0358	0.0429	NDA	pCi/g	2 sigma	EML HASL 300, 4.5.2.3	GEL	233955	Pre-remedial

ISRA Soil Sample Results for Happy Valley

Project Name	Sampling Organization	Sampling Date	Sampling Location (General)	Sampling Location (Specific)	Sample Serial Number	Media Type	Isotope	Value	Error (+/-)	MDA	Non-Detect?	Units	Error Type	Analysis Protocol	Analysis Organization	Document	Status
ISRA HV Waste Characterization	MWH	07/01/2009	Happy Valley	ISWC0042	ISWC0042S001	Soil	Cesium-134	0	0.0519	0.0602	NDA	pCi/g	2 sigma	EML HASL 300, 4.5.2.3	GEL	233955	Pre-remedial
ISRA HV Waste Characterization	MWH	07/01/2009	Happy Valley	ISWC0043	ISWC0043S001	Soil	Cesium-134	0	0.0346	0.0536	NDA	pCi/g	2 sigma	EML HASL 300, 4.5.2.3	GEL	233955	Pre-remedial
ISRA HV Waste Characterization	MWH	07/01/2009	Happy Valley	ISWC0044	ISWC0044S001	Soil	Cesium-134	0	0.0355	0.054	NDA	pCi/g	2 sigma	EML HASL 300, 4.5.2.3	GEL	233955	Pre-remedial
ISRA HV Waste Characterization	MWH	07/01/2009	Happy Valley	ISWC0045	ISWC0045S001	Soil	Cesium-134	0.0523	0.0339	0.0524	NDA	pCi/g	2 sigma	EML HASL 300, 4.5.2.3	GEL	233955	Pre-remedial
ISRA HV Waste Characterization	MWH	07/01/2009	Happy Valley	ISWC0046	ISWC0046S001	Soil	Cesium-134	0	0.0342	0.042	NDA	pCi/g	2 sigma	EML HASL 300, 4.5.2.3	GEL	233955	Pre-remedial
ISRA HV Waste Characterization	MWH	07/01/2009	Happy Valley	ISWC0047	ISWC0047S001	Soil	Cesium-134	0	0.0388	0.0511	NDA	pCi/g	2 sigma	EML HASL 300, 4.5.2.3	GEL	233955	Pre-remedial
ISRA HV Waste Characterization	MWH	07/01/2009	Happy Valley	ISWC0048	ISWC0048S001	Soil	Cesium-134	0	0.0488	0.0711	NDA	pCi/g	2 sigma	EML HASL 300, 4.5.2.3	GEL	233955	Pre-remedial
ISRA HV Waste Characterization	MWH	7/29/2009	Happy Valley	ISWC0077	ISWC0077RadS001	Soil	Cesium-134	0	0.029	0.042	NDA	pCi/g	2 sigma	EML HASL 300, 4.5.2.3	GEL	234325	Pre-remedial
ISRA HV Waste Characterization	MWH	7/29/2009	Happy Valley	ISWC0078	ISWC0078RadS001	Soil	Cesium-134	0.0395	0.0289	0.0527	NDA	pCi/g	2 sigma	EML HASL 300, 4.5.2.3	GEL	234325	Pre-remedial
ISRA HV Waste Characterization	MWH	7/29/2009	Happy Valley	ISWC0079	ISWC0079RadS001	Soil	Cesium-134	0	0.0347	0.0525	NDA	pCi/g	2 sigma	EML HASL 300, 4.5.2.3	GEL	234325	Pre-remedial
ISRA HV Waste Characterization	MWH	7/29/2009	Happy Valley	ISWC0080	ISWC0080RadS001	Soil	Cesium-134	0	0.0424	0.0684	NDA	pCi/g	2 sigma	EML HASL 300, 4.5.2.3	GEL	234325	Pre-remedial
ISRA HV Waste Characterization	MWH	7/29/2009	Happy Valley	ISWC0081	ISWC0081RadS001	Soil	Cesium-134	0	0.0551	0.0598	NDA	pCi/g	2 sigma	EML HASL 300, 4.5.2.3	GEL	234325	Pre-remedial
ISRA HV Waste Characterization	MWH	7/29/2009	Happy Valley	ISWC0084	ISWC0084RadS001	Soil	Cesium-134	0	0.0369	0.063	NDA	pCi/g	2 sigma	EML HASL 300, 4.5.2.3	GEL	234325	Pre-remedial
ISRA HV Waste Characterization	MWH	7/29/2009	Happy Valley	ISWC0085	ISWC0085RadS001	Soil	Cesium-134	0	0.0435	0.0793	NDA	pCi/g	2 sigma	EML HASL 300, 4.5.2.3	GEL	234325	Pre-remedial
ISRA HV Waste Characterization	MWH	7/29/2009	Happy Valley	ISWC0086	ISWC0086RadS001	Soil	Cesium-134	0.0577	0.0324	0.0594	NDA	pCi/g	2 sigma	EML HASL 300, 4.5.2.3	GEL	234325	Pre-remedial
ISRA HV Waste Characterization	MWH	7/29/2009	Happy Valley	ISWC0087	ISWC0087RadS001	Soil	Cesium-134	0	0.0406	0.064	NDA	pCi/g	2 sigma	EML HASL 300, 4.5.2.3	GEL	234325	Pre-remedial
ISRA HV Waste Characterization	MWH	7/29/2009	Happy Valley	ISWC0088	ISWC0088RadS001	Soil	Cesium-134	0	0.0419	0.0583	NDA	pCi/g	2 sigma	EML HASL 300, 4.5.2.3	GEL	234325	Pre-remedial
ISRA HV Waste Characterization	MWH	7/29/2009	Happy Valley	ISWC0089	ISWC0089RadS001	Soil	Cesium-134	0.0371	0.0532	0.0609	NDA	pCi/g	2 sigma	EML HASL 300, 4.5.2.3	GEL	234325	Pre-remedial
ISRA HV Waste Characterization	MWH	7/29/2009	Happy Valley	ISWC0090	ISWC0090RadS001	Soil	Cesium-134	0	0.0316	0.059	NDA	pCi/g	2 sigma	EML HASL 300, 4.5.2.3	GEL	234325	Pre-remedial
ISRA HV Waste Characterization	MWH	7/29/2009	Happy Valley	ISWC0091	ISWC0091RadS001	Soil	Cesium-134	0	0.0506	0.0629	NDA	pCi/g	2 sigma	EML HASL 300, 4.5.2.3	GEL	234325	Pre-remedial
ISRA HV Waste Characterization	MWH	7/29/2009	Happy Valley	ISWC0092	ISWC0092RadS001	Soil	Cesium-134	0	0.0449	0.0542	NDA	pCi/g	2 sigma	EML HASL 300, 4.5.2.3	GEL	234325	Pre-remedial
ISRA HV Waste Characterization	MWH	7/29/2009	Happy Valley	ISWC0093	ISWC0093RadS001	Soil	Cesium-134	0	0.0395	0.0557	NDA	pCi/g	2 sigma	EML HASL 300, 4.5.2.3	GEL	234325	Pre-remedial
ISRA HV Waste Characterization	MWH	7/30/2009	Happy Valley	ISWC0082	ISWC0082RadS001	Soil	Cesium-134	0	0.0464	0.0587	NDA	pCi/g	2 sigma	EML HASL 300, 4.5.2.3	GEL	234376	Pre-remedial
ISRA HV Waste Characterization	MWH	7/30/2009	Happy Valley	ISWC0083	ISWC0083RadS001	Soil	Cesium-134	0	0.0425	0.0616	NDA	pCi/g	2 sigma	EML HASL 300, 4.5.2.3	GEL	234376	Pre-remedial
ISRA HV Waste Characterization	MWH	8/17/2009	Happy Valley	ISWC0094	ISWC0094RadS001	Soil	Cesium-134	0	0.0701	0.0752	NDA	pCi/g	2 sigma	EML HASL 300, 4.5.2.3	GEL	235405	Pre-remedial
ISRA HV Waste Characterization	MWH	8/17/2009	Happy Valley	ISWC0095	ISWC0095RadS001	Soil	Cesium-134	0	0.0352	0.063	NDA	pCi/g	2 sigma	EML HASL 300, 4.5.2.3	GEL	235405	Pre-remedial
ISRA HV Waste Characterization	MWH	9/14/2009	Happy Valley	ISWC0112	ISWC0112S001	Soil	Cesium-134	0	0.0612	0.0634	NDA	pCi/g	2 sigma	EML HASL 300, 4.5.2.3	GEL	237286	Pre-remedial
ISRA HV Waste Characterization	MWH	10/22/2009	Happy Valley	ISWC0113	ISWC0113S001	Soil	Cesium-134	0	0.0385	0.0585	NDA	pCi/g	2 sigma	DOE HASL 300, 4.5.2.3/Ga-01-R	GEL	239640	Waste
ISRA HV Waste Characterization	MWH	07/01/2009	Happy Valley	ISWC0001	ISWC0001S001	Soil	Cesium-137	-0.0102	0.0289	0.0501	NDA	pCi/g	2 sigma	EML HASL 300, 4.5.2.3	GEL	233955	Pre-remedial
ISRA HV Waste Characterization	MWH	07/01/2009	Happy Valley	ISWC0002	ISWC0002S001	Soil	Cesium-137	0.00772	0.021	0.0372	NDA	pCi/g	2 sigma	EML HASL 300, 4.5.2.3	GEL	233955	Pre-remedial
ISRA HV Waste Characterization	MWH	07/01/2009	Happy Valley	ISWC0003	ISWC0003S001	Soil	Cesium-137	0	0.0561	0.052	NDA	pCi/g	2 sigma	EML HASL 300, 4.5.2.3	GEL	233955	Pre-remedial
ISRA HV Waste Characterization	MWH	07/01/2009	Happy Valley	ISWC0004	ISWC0004S001	Soil	Cesium-137	0.0181	0.0229	0.0416	NDA	pCi/g	2 sigma	EML HASL 300, 4.5.2.3	GEL	233955	Pre-remedial
ISRA HV Waste Characterization	MWH	07/01/2009	Happy Valley	ISWC0005	ISWC0005S001	Soil	Cesium-137	0.0396	0.0286	0.0507	NDA	pCi/g	2 sigma	EML HASL 300, 4.5.2.3	GEL	233955	Pre-remedial
ISRA HV Waste Characterization	MWH	07/01/2009	Happy Valley	ISWC0006	ISWC0006S001	Soil	Cesium-137	0.0524	0.0418	0.0459		pCi/g	2 sigma	EML HASL 300, 4.5.2.3	GEL	233955	Pre-remedial
ISRA HV Waste Characterization	MWH	07/01/2009	Happy Valley	ISWC0009	ISWC0009S001	Soil	Cesium-137	0.0865	0.037	0.0343		pCi/g	2 sigma	EML HASL 300, 4.5.2.3	GEL	233955	Pre-remedial
ISRA HV Waste Characterization	MWH	07/01/2009	Happy Valley	ISWC0010	ISWC0010S001	Soil	Cesium-137	0.0868	0.0252	0.0295		pCi/g	2 sigma	EML HASL 300, 4.5.2.3	GEL	233955	Pre-remedial
ISRA HV Waste Characterization	MWH	07/01/2009	Happy Valley	ISWC0011	ISWC0011S001	Soil	Cesium-137	0.0654	0.0389	0.0423		pCi/g	2 sigma	EML HASL 300, 4.5.2.3	GEL	233955	Pre-remedial
ISRA HV Waste Characterization	MWH	07/01/2009	Happy Valley	ISWC0012	ISWC0012S001	Soil	Cesium-137	0.0342	0.0414	0.0482	NDA	pCi/g	2 sigma	EML HASL 300, 4.5.2.3	GEL	233955	Pre-remedial
ISRA HV Waste Characterization	MWH	07/01/2009	Happy Valley	ISWC0013	ISWC0013S001	Soil	Cesium-137	0.0231	0.0247	0.0452	NDA	pCi/g	2 sigma	EML HASL 300, 4.5.2.3	GEL	233955	Pre-remedial
ISRA HV Waste Characterization	MWH	07/01/2009	Happy Valley	ISWC0014	ISWC0014S001	Soil	Cesium-137	0.0704	0.0289	0.0323		pCi/g	2 sigma	EML HASL 300, 4.5.2.3	GEL	233955	Pre-remedial
ISRA HV Waste Characterization	MWH	07/01/2009	Happy Valley	ISWC0015	ISWC0015S001	Soil	Cesium-137	0.113	0.0458	0.0383		pCi/g	2 sigma	EML HASL 300, 4.5.2.3	GEL	233955	Pre-remedial
ISRA HV Waste Characterization	MWH	07/01/2009	Happy Valley	ISWC0016	ISWC0016S001	Soil	Cesium-137	0.0291	0.0277	0.0493	NDA	pCi/g	2 sigma	EML HASL 300, 4.5.2.3	GEL	233955	Pre-remedial
ISRA HV Waste Characterization	MWH	07/01/2009	Happy Valley	ISWC0019	ISWC0019S001	Soil	Cesium-137	0.000785	0.0212	0.0362	NDA	pCi/g	2 sigma	EML HASL 300, 4.5.2.3	GEL	233955	Pre-remedial
ISRA HV Waste Characterization	MWH	07/01/2009	Happy Valley	ISWC0020	ISWC0020S001	Soil	Cesium-137	0.0421	0.0202	0.0242		pCi/g	2 sigma	EML HASL 300, 4.5.2.3	GEL	233955	Pre-remedial
ISRA HV Waste Characterization	MWH	07/01/2009	Happy Valley	ISWC0023	ISWC0023S001	Soil	Cesium-137	0.0408	0.0219	0.027		pCi/g	2 sigma	EML HASL 300, 4.5.2.3	GEL	233955	Pre-remedial
ISRA HV Waste Characterization	MWH	07/01/2009	Happy Valley	ISWC0024	ISWC0024S001	Soil	Cesium-137	-0.00101	0.0189	0.0321	NDA	pCi/g	2 sigma	EML HASL 300, 4.5.2.3	GEL	233955	Pre-remedial
ISRA HV Waste Characterization	MWH	07/01/2009	Happy Valley	ISWC0028	ISWC0028S001	Soil	Cesium-137	0.0361	0.025	0.0453	NDA	pCi/g	2 sigma	EML HASL 300, 4.5.2.3	GEL	233955	Pre-remedial
ISRA HV Waste Characterization	MWH	07/01/2009	Happy Valley	ISWC0041	ISWC0041S001	Soil	Cesium-137	0.000885	0.0165	0.0292	NDA	pCi/g	2 sigma	EML HASL 300, 4.5.2.3	GEL	233955	Pre-remedial
ISRA HV Waste Characterization	MWH	07/01/2009	Happy Valley	ISWC0042	ISWC0042S001	Soil	Cesium-137	-0.0218	0.025	0.038	NDA	pCi/g	2 sigma	EML HASL 300, 4.5.2.3	GEL	233955	Pre-remedial
ISRA HV Waste Characterization	MWH	07/01/2009	Happy Valley	ISWC0043	ISWC0043S001	Soil	Cesium-137	0.000188	0.0206	0.0362	NDA	pCi/g	2 sigma	EML HASL 300, 4.5.2.3	GEL	233955	Pre-remedial
ISRA HV Waste Characterization	MWH	07/01/2009	Happy Valley	ISWC0044	ISWC0044S001	Soil	Cesium-137	-0.00186	0.0209	0.0356	NDA	pCi/g	2 sigma	EML HASL 300, 4.5.2.3	GEL	233955	Pre-remedial
ISRA HV Waste Characterization	MWH	07/01/2009	Happy Valley	ISWC0045	ISWC0045S001	Soil	Cesium-137	0.0312	0.0345	0.0401	NDA	pCi/g	2 sigma	EML HASL 300, 4.5.2.3	GEL	233955	Pre-remedial
ISRA HV Waste Characterization	MWH	07/01/2009	Happy Valley	ISWC0046	ISWC0046S001	Soil	Cesium-137	0.102	0.0279	0.0283		pCi/g	2 sigma	EML HASL 300, 4.5.2.3	GEL	233955	Pre-remedial
ISRA HV Waste Characterization	MWH	07/01/2009	Happy Valley	ISWC0047	ISWC0047S001	Soil	Cesium-137	-0.00259	0.0197	0.0346	NDA	pCi/g	2 sigma	EML HASL 300, 4.5.2.3	GEL	233955	Pre-remedial
ISRA HV Waste Characterization	MWH	07/01/2009	Happy Valley	ISWC0048	ISWC0048S001	Soil	Cesium-137	0.0182	0.0286	0.051	NDA	pCi/g	2 sigma	EML HASL 300, 4.5.2.3	GEL	233955	Pre-remedial
ISRA HV Waste Characterization	MWH	7/29/2009	Happy Valley	ISWC0077	ISWC0077RadS001	Soil	Cesium-137	0.0466	0.0253	0.0324		pCi/g	2 sigma	EML HASL 300, 4.5.2.3	GEL	234325	Pre-remedial
ISRA HV Waste Characterization	MWH	7/29/2009	Happy Valley	ISWC0078	ISWC0078RadS001	Soil	Cesium-137	0.00741	0.0218	0.0384	NDA	pCi/g	2 sigma	EML HASL 300, 4.5.2.3	GEL	234325	Pre-remedial
ISRA HV Waste Characterization	MWH	7/29/2009	Happy Valley	ISWC0079	ISWC0079RadS001	Soil	Cesium-137	-0.0128	0.0199	0.0342	NDA	pCi/g	2 sigma	EML HASL 300, 4.5.2.3	GEL	234325	Pre-remedial
ISRA HV Waste Characterization	MWH	7/29/2009	Happy Valley	ISWC0080	ISWC0080RadS001	Soil	Cesium-137	0.00257	0.0275	0.0485	NDA	pCi/g	2 sigma	EML HASL 300, 4.5.2.3	GEL	234325	Pre-remedial
ISRA HV Waste Characterization	MWH	7/29/2009	Happy Valley	ISWC0081	ISWC0081RadS001	Soil	Cesium-137	-0.0104	0.0237	0.0405	NDA	pCi/g	2 sigma	EML HASL 300, 4.5.2.3	GEL	234325	Pre-remedial
ISRA HV Waste Characterization	MWH	7/29/2009	Happy Valley	ISWC0084	ISWC0084RadS001	Soil	Cesium-137	0.00972	0.0292	0.0503	NDA	pCi/g	2 sigma	EML HASL 300, 4.5.2.3	GEL	234325	Pre-remedial
ISRA HV Waste Characterization	MWH	7/29/2009	Happy Valley	ISWC0085	ISWC0085RadS001	Soil	Cesium-137	0.00143	0.0315	0.054	NDA	pCi/g	2 sigma	EML HASL 300, 4.5.2.3	GEL	234325	Pre-remedial
ISRA HV Waste Characterization	MWH	7/29/2009	Happy Valley	ISWC0086	ISWC0086RadS001	Soil	Cesium-137	0.0101	0.0252	0.043	NDA	pCi/g	2 sigma	EML HASL 300, 4.5.2.3	GEL	234325	Pre-remedial
ISRA HV Waste Characterization	MWH	7/29/2009	Happy Valley	ISWC0087	ISWC0087RadS001	Soil	Cesium-137	0.0416	0.0345	0.0431	NDA	pCi/g	2 sigma	EML HASL 300, 4.5.2.3	GEL	234325	Pre-remedial
ISRA HV Waste Characterization	MWH	7/29/2009	Happy Valley	ISWC0088	ISWC0088RadS001	Soil	Cesium-137	-0.0187	0.0256	0.0429	NDA	pCi/g	2 sigma	EML HASL 300, 4.5.2.3	GEL	234325	Pre-remedial
ISRA HV Waste Characterization	MWH	7/29/2009	Happy Valley	ISWC0089	ISWC0089RadS001	Soil	Cesium-137	0.00158	0.0276	0.0449	NDA	pCi/g	2 sigma	EML HASL 300, 4.5.2.3	GEL	234325	Pre-remedial
ISRA HV Waste Characterization	MWH	7/29/2009	Happy Valley	ISWC0090	ISWC0090RadS001	Soil	Cesium-137	0.0578	0.0398	0.0413		pCi/g	2 sigma	EML HASL 300, 4.5.2.3	GEL	234325	Pre-remedial
ISRA HV Waste Characterization	MWH	7/29/2009	Happy Valley	ISWC0091	ISWC0091RadS001	Soil	Cesium-137	0.0611	0.0403	0.044		pCi/g	2 sigma	EML HASL 300, 4.5.2.3	GEL	234325	Pre-remedial

ISRA Soil Sample Results for Happy Valley

Project Name	Sampling Organization	Sampling Date	Sampling Location (General)	Sampling Location (Specific)	Sample Serial Number	Media Type	Isotope	Value	Error (+/-)	MDA	Non-Detect?	Units	Error Type	Analysis Protocol	Analysis Organization	Document	Status
ISRA HV Waste Characterization	MWH	7/29/2009	Happy Valley	ISWC0092	ISWC0092RadS001	Soil	Cesium-137	0.0743	0.0305	0.0407		pCi/g	2 sigma	EML HASL 300, 4.5.2.3	GEL	234325	Pre-remedial
ISRA HV Waste Characterization	MWH	7/29/2009	Happy Valley	ISWC0093	ISWC0093RadS001	Soil	Cesium-137	0.0124	0.0255	0.0441	NDA	pCi/g	2 sigma	EML HASL 300, 4.5.2.3	GEL	234325	Pre-remedial
ISRA HV Waste Characterization	MWH	7/30/2009	Happy Valley	ISWC0082	ISWC0082RadS001	Soil	Cesium-137	0.076	0.0434	0.0391		pCi/g	2 sigma	EML HASL 300, 4.5.2.3	GEL	234376	Pre-remedial
ISRA HV Waste Characterization	MWH	7/30/2009	Happy Valley	ISWC0083	ISWC0083RadS001	Soil	Cesium-137	0	0.0279	0.053	NDA	pCi/g	2 sigma	EML HASL 300, 4.5.2.3	GEL	234376	Pre-remedial
ISRA HV Waste Characterization	MWH	8/17/2009	Happy Valley	ISWC0094	ISWC0094RadS001	Soil	Cesium-137	-0.00482	0.0288	0.0505	NDA	pCi/g	2 sigma	EML HASL 300, 4.5.2.3	GEL	235405	Pre-remedial
ISRA HV Waste Characterization	MWH	8/17/2009	Happy Valley	ISWC0095	ISWC0095RadS001	Soil	Cesium-137	-0.023	0.0254	0.0409	NDA	pCi/g	2 sigma	EML HASL 300, 4.5.2.3	GEL	235405	Pre-remedial
ISRA HV Waste Characterization	MWH	9/14/2009	Happy Valley	ISWC0112	ISWC0112S001	Soil	Cesium-137	0.0299	0.0257	0.0465	NDA	pCi/g	2 sigma	EML HASL 300, 4.5.2.3	GEL	237286	Pre-remedial
ISRA HV Waste Characterization	MWH	10/22/2009	Happy Valley	ISWC0113	ISWC0113S001	Soil	Cesium-137	0.0537	0.0358	0.0435		pCi/g	2 sigma	DOE HASL 300, 4.5.2.3/Ga-01-R	GEL	239640	Waste
ISRA HV Waste Characterization	MWH	07/01/2009	Happy Valley	ISWC0001	ISWC0001S001	Soil	Cobalt-60	0.031	0.0293	0.0551	NDA	pCi/g	2 sigma	EML HASL 300, 4.5.2.3	GEL	233955	Pre-remedial
ISRA HV Waste Characterization	MWH	07/01/2009	Happy Valley	ISWC0002	ISWC0002S001	Soil	Cobalt-60	0.0124	0.0206	0.0371	NDA	pCi/g	2 sigma	EML HASL 300, 4.5.2.3	GEL	233955	Pre-remedial
ISRA HV Waste Characterization	MWH	07/01/2009	Happy Valley	ISWC0003	ISWC0003S001	Soil	Cobalt-60	0.014	0.0322	0.0561	NDA	pCi/g	2 sigma	EML HASL 300, 4.5.2.3	GEL	233955	Pre-remedial
ISRA HV Waste Characterization	MWH	07/01/2009	Happy Valley	ISWC0004	ISWC0004S001	Soil	Cobalt-60	0.000528	0.0241	0.0411	NDA	pCi/g	2 sigma	EML HASL 300, 4.5.2.3	GEL	233955	Pre-remedial
ISRA HV Waste Characterization	MWH	07/01/2009	Happy Valley	ISWC0005	ISWC0005S001	Soil	Cobalt-60	-0.0154	0.0309	0.0489	NDA	pCi/g	2 sigma	EML HASL 300, 4.5.2.3	GEL	233955	Pre-remedial
ISRA HV Waste Characterization	MWH	07/01/2009	Happy Valley	ISWC0006	ISWC0006S001	Soil	Cobalt-60	0.00362	0.0326	0.0548	NDA	pCi/g	2 sigma	EML HASL 300, 4.5.2.3	GEL	233955	Pre-remedial
ISRA HV Waste Characterization	MWH	07/01/2009	Happy Valley	ISWC0009	ISWC0009S001	Soil	Cobalt-60	0.0124	0.0215	0.0373	NDA	pCi/g	2 sigma	EML HASL 300, 4.5.2.3	GEL	233955	Pre-remedial
ISRA HV Waste Characterization	MWH	07/01/2009	Happy Valley	ISWC0010	ISWC0010S001	Soil	Cobalt-60	-0.0049	0.0173	0.029	NDA	pCi/g	2 sigma	EML HASL 300, 4.5.2.3	GEL	233955	Pre-remedial
ISRA HV Waste Characterization	MWH	07/01/2009	Happy Valley	ISWC0011	ISWC0011S001	Soil	Cobalt-60	-0.0224	0.0252	0.0397	NDA	pCi/g	2 sigma	EML HASL 300, 4.5.2.3	GEL	233955	Pre-remedial
ISRA HV Waste Characterization	MWH	07/01/2009	Happy Valley	ISWC0012	ISWC0012S001	Soil	Cobalt-60	0.00573	0.0276	0.0467	NDA	pCi/g	2 sigma	EML HASL 300, 4.5.2.3	GEL	233955	Pre-remedial
ISRA HV Waste Characterization	MWH	07/01/2009	Happy Valley	ISWC0013	ISWC0013S001	Soil	Cobalt-60	0.0227	0.0245	0.0451	NDA	pCi/g	2 sigma	EML HASL 300, 4.5.2.3	GEL	233955	Pre-remedial
ISRA HV Waste Characterization	MWH	07/01/2009	Happy Valley	ISWC0014	ISWC0014S001	Soil	Cobalt-60	0.01	0.0268	0.0443	NDA	pCi/g	2 sigma	EML HASL 300, 4.5.2.3	GEL	233955	Pre-remedial
ISRA HV Waste Characterization	MWH	07/01/2009	Happy Valley	ISWC0015	ISWC0015S001	Soil	Cobalt-60	0.00574	0.0238	0.041	NDA	pCi/g	2 sigma	EML HASL 300, 4.5.2.3	GEL	233955	Pre-remedial
ISRA HV Waste Characterization	MWH	07/01/2009	Happy Valley	ISWC0016	ISWC0016S001	Soil	Cobalt-60	0.0232	0.026	0.047	NDA	pCi/g	2 sigma	EML HASL 300, 4.5.2.3	GEL	233955	Pre-remedial
ISRA HV Waste Characterization	MWH	07/01/2009	Happy Valley	ISWC0019	ISWC0019S001	Soil	Cobalt-60	0.0189	0.0207	0.0369	NDA	pCi/g	2 sigma	EML HASL 300, 4.5.2.3	GEL	233955	Pre-remedial
ISRA HV Waste Characterization	MWH	07/01/2009	Happy Valley	ISWC0020	ISWC0020S001	Soil	Cobalt-60	0.00346	0.019	0.0289	NDA	pCi/g	2 sigma	EML HASL 300, 4.5.2.3	GEL	233955	Pre-remedial
ISRA HV Waste Characterization	MWH	07/01/2009	Happy Valley	ISWC0023	ISWC0023S001	Soil	Cobalt-60	0.012	0.0157	0.0276	NDA	pCi/g	2 sigma	EML HASL 300, 4.5.2.3	GEL	233955	Pre-remedial
ISRA HV Waste Characterization	MWH	07/01/2009	Happy Valley	ISWC0024	ISWC0024S001	Soil	Cobalt-60	-0.0233	0.0177	0.027	NDA	pCi/g	2 sigma	EML HASL 300, 4.5.2.3	GEL	233955	Pre-remedial
ISRA HV Waste Characterization	MWH	07/01/2009	Happy Valley	ISWC0028	ISWC0028S001	Soil	Cobalt-60	0.00378	0.0262	0.0446	NDA	pCi/g	2 sigma	EML HASL 300, 4.5.2.3	GEL	233955	Pre-remedial
ISRA HV Waste Characterization	MWH	07/01/2009	Happy Valley	ISWC0041	ISWC0041S001	Soil	Cobalt-60	0.00524	0.0171	0.0296	NDA	pCi/g	2 sigma	EML HASL 300, 4.5.2.3	GEL	233955	Pre-remedial
ISRA HV Waste Characterization	MWH	07/01/2009	Happy Valley	ISWC0042	ISWC0042S001	Soil	Cobalt-60	0.0157	0.0238	0.0424	NDA	pCi/g	2 sigma	EML HASL 300, 4.5.2.3	GEL	233955	Pre-remedial
ISRA HV Waste Characterization	MWH	07/01/2009	Happy Valley	ISWC0043	ISWC0043S001	Soil	Cobalt-60	0.0138	0.0216	0.0388	NDA	pCi/g	2 sigma	EML HASL 300, 4.5.2.3	GEL	233955	Pre-remedial
ISRA HV Waste Characterization	MWH	07/01/2009	Happy Valley	ISWC0044	ISWC0044S001	Soil	Cobalt-60	0.0121	0.0217	0.0381	NDA	pCi/g	2 sigma	EML HASL 300, 4.5.2.3	GEL	233955	Pre-remedial
ISRA HV Waste Characterization	MWH	07/01/2009	Happy Valley	ISWC0045	ISWC0045S001	Soil	Cobalt-60	-0.00392	0.0227	0.0376	NDA	pCi/g	2 sigma	EML HASL 300, 4.5.2.3	GEL	233955	Pre-remedial
ISRA HV Waste Characterization	MWH	07/01/2009	Happy Valley	ISWC0046	ISWC0046S001	Soil	Cobalt-60	-0.00415	0.0169	0.0286	NDA	pCi/g	2 sigma	EML HASL 300, 4.5.2.3	GEL	233955	Pre-remedial
ISRA HV Waste Characterization	MWH	07/01/2009	Happy Valley	ISWC0047	ISWC0047S001	Soil	Cobalt-60	0.0177	0.0219	0.0387	NDA	pCi/g	2 sigma	EML HASL 300, 4.5.2.3	GEL	233955	Pre-remedial
ISRA HV Waste Characterization	MWH	07/01/2009	Happy Valley	ISWC0048	ISWC0048S001	Soil	Cobalt-60	-0.000664	0.0293	0.0479	NDA	pCi/g	2 sigma	EML HASL 300, 4.5.2.3	GEL	233955	Pre-remedial
ISRA HV Waste Characterization	MWH	7/29/2009	Happy Valley	ISWC0077	ISWC0077RadS001	Soil	Cobalt-60	-0.00887	0.0175	0.0287	NDA	pCi/g	2 sigma	EML HASL 300, 4.5.2.3	GEL	234325	Pre-remedial
ISRA HV Waste Characterization	MWH	7/29/2009	Happy Valley	ISWC0078	ISWC0078RadS001	Soil	Cobalt-60	0.00771	0.022	0.0388	NDA	pCi/g	2 sigma	EML HASL 300, 4.5.2.3	GEL	234325	Pre-remedial
ISRA HV Waste Characterization	MWH	7/29/2009	Happy Valley	ISWC0079	ISWC0079RadS001	Soil	Cobalt-60	-0.00895	0.0199	0.0317	NDA	pCi/g	2 sigma	EML HASL 300, 4.5.2.3	GEL	234325	Pre-remedial
ISRA HV Waste Characterization	MWH	7/29/2009	Happy Valley	ISWC0080	ISWC0080RadS001	Soil	Cobalt-60	-0.00915	0.0287	0.0467	NDA	pCi/g	2 sigma	EML HASL 300, 4.5.2.3	GEL	234325	Pre-remedial
ISRA HV Waste Characterization	MWH	7/29/2009	Happy Valley	ISWC0081	ISWC0081RadS001	Soil	Cobalt-60	-0.0187	0.0248	0.039	NDA	pCi/g	2 sigma	EML HASL 300, 4.5.2.3	GEL	234325	Pre-remedial
ISRA HV Waste Characterization	MWH	7/29/2009	Happy Valley	ISWC0084	ISWC0084RadS001	Soil	Cobalt-60	-0.00514	0.0267	0.0436	NDA	pCi/g	2 sigma	EML HASL 300, 4.5.2.3	GEL	234325	Pre-remedial
ISRA HV Waste Characterization	MWH	7/29/2009	Happy Valley	ISWC0085	ISWC0085RadS001	Soil	Cobalt-60	-0.0157	0.034	0.0534	NDA	pCi/g	2 sigma	EML HASL 300, 4.5.2.3	GEL	234325	Pre-remedial
ISRA HV Waste Characterization	MWH	7/29/2009	Happy Valley	ISWC0086	ISWC0086RadS001	Soil	Cobalt-60	0.00238	0.0241	0.0404	NDA	pCi/g	2 sigma	EML HASL 300, 4.5.2.3	GEL	234325	Pre-remedial
ISRA HV Waste Characterization	MWH	7/29/2009	Happy Valley	ISWC0087	ISWC0087RadS001	Soil	Cobalt-60	-0.00714	0.0259	0.0418	NDA	pCi/g	2 sigma	EML HASL 300, 4.5.2.3	GEL	234325	Pre-remedial
ISRA HV Waste Characterization	MWH	7/29/2009	Happy Valley	ISWC0088	ISWC0088RadS001	Soil	Cobalt-60	0.00462	0.0233	0.0407	NDA	pCi/g	2 sigma	EML HASL 300, 4.5.2.3	GEL	234325	Pre-remedial
ISRA HV Waste Characterization	MWH	7/29/2009	Happy Valley	ISWC0089	ISWC0089RadS001	Soil	Cobalt-60	0.00226	0.0274	0.0461	NDA	pCi/g	2 sigma	EML HASL 300, 4.5.2.3	GEL	234325	Pre-remedial
ISRA HV Waste Characterization	MWH	7/29/2009	Happy Valley	ISWC0090	ISWC0090RadS001	Soil	Cobalt-60	-0.0252	0.0295	0.0376	NDA	pCi/g	2 sigma	EML HASL 300, 4.5.2.3	GEL	234325	Pre-remedial
ISRA HV Waste Characterization	MWH	7/29/2009	Happy Valley	ISWC0091	ISWC0091RadS001	Soil	Cobalt-60	-0.0113	0.0298	0.0432	NDA	pCi/g	2 sigma	EML HASL 300, 4.5.2.3	GEL	234325	Pre-remedial
ISRA HV Waste Characterization	MWH	7/29/2009	Happy Valley	ISWC0092	ISWC0092RadS001	Soil	Cobalt-60	0.013	0.0244	0.0435	NDA	pCi/g	2 sigma	EML HASL 300, 4.5.2.3	GEL	234325	Pre-remedial
ISRA HV Waste Characterization	MWH	7/29/2009	Happy Valley	ISWC0093	ISWC0093RadS001	Soil	Cobalt-60	-1.38E-05	0.0259	0.0412	NDA	pCi/g	2 sigma	EML HASL 300, 4.5.2.3	GEL	234325	Pre-remedial
ISRA HV Waste Characterization	MWH	7/30/2009	Happy Valley	ISWC0082	ISWC0082RadS001	Soil	Cobalt-60	0.0117	0.0248	0.0442	NDA	pCi/g	2 sigma	EML HASL 300, 4.5.2.3	GEL	234376	Pre-remedial
ISRA HV Waste Characterization	MWH	7/30/2009	Happy Valley	ISWC0083	ISWC0083RadS001	Soil	Cobalt-60	-0.0193	0.0257	0.0409	NDA	pCi/g	2 sigma	EML HASL 300, 4.5.2.3	GEL	234376	Pre-remedial
ISRA HV Waste Characterization	MWH	8/17/2009	Happy Valley	ISWC0094	ISWC0094RadS001	Soil	Cobalt-60	0.0281	0.0331	0.061	NDA	pCi/g	2 sigma	EML HASL 300, 4.5.2.3	GEL	235405	Pre-remedial
ISRA HV Waste Characterization	MWH	8/17/2009	Happy Valley	ISWC0095	ISWC0095RadS001	Soil	Cobalt-60	0.000591	0.0233	0.0392	NDA	pCi/g	2 sigma	EML HASL 300, 4.5.2.3	GEL	235405	Pre-remedial
ISRA HV Waste Characterization	MWH	9/14/2009	Happy Valley	ISWC0112	ISWC0112S001	Soil	Cobalt-60	-0.0173	0.0254	0.0395	NDA	pCi/g	2 sigma	EML HASL 300, 4.5.2.3	GEL	237286	Pre-remedial
ISRA HV Waste Characterization	MWH	10/22/2009	Happy Valley	ISWC0113	ISWC0113S001	Soil	Cobalt-60	0.0367	0.0267	0.0491	NDA	pCi/g	2 sigma	DOE HASL 300, 4.5.2.3/Ga-01-R	GEL	239640	Waste
ISRA HV Waste Characterization	MWH	07/01/2009	Happy Valley	ISWC0001	ISWC0001S001	Soil	Europium-152	-0.079	0.0811	0.109	NDA	pCi/g	2 sigma	EML HASL 300, 4.5.2.3	GEL	233955	Pre-remedial
ISRA HV Waste Characterization	MWH	07/01/2009	Happy Valley	ISWC0002	ISWC0002S001	Soil	Europium-152	-0.0263	0.0906	0.0929	NDA	pCi/g	2 sigma	EML HASL 300, 4.5.2.3	GEL	233955	Pre-remedial
ISRA HV Waste Characterization	MWH	07/01/2009	Happy Valley	ISWC0003	ISWC0003S001	Soil	Europium-152	0.00222	0.0761	0.119	NDA	pCi/g	2 sigma	EML HASL 300, 4.5.2.3	GEL	233955	Pre-remedial
ISRA HV Waste Characterization	MWH	07/01/2009	Happy Valley	ISWC0004	ISWC0004S001	Soil	Europium-152	-0.0132	0.0564	0.0948	NDA	pCi/g	2 sigma	EML HASL 300, 4.5.2.3	GEL	233955	Pre-remedial
ISRA HV Waste Characterization	MWH	07/01/2009	Happy Valley	ISWC0005	ISWC0005S001	Soil	Europium-152	-0.0286	0.071	0.112	NDA	pCi/g	2 sigma	EML HASL 300, 4.5.2.3	GEL	233955	Pre-remedial
ISRA HV Waste Characterization	MWH	07/01/2009	Happy Valley	ISWC0006	ISWC0006S001	Soil	Europium-152	-0.0816	0.0871	0.121	NDA	pCi/g	2 sigma	EML HASL 300, 4.5.2.3	GEL	233955	Pre-remedial
ISRA HV Waste Characterization	MWH	07/01/2009	Happy Valley	ISWC0009	ISWC0009S001	Soil	Europium-152	-0.0203	0.0518	0.0795	NDA	pCi/g	2 sigma	EML HASL 300, 4.5.2.3	GEL	233955	Pre-remedial
ISRA HV Waste Characterization	MWH	07/01/2009	Happy Valley	ISWC0010	ISWC0010S001	Soil	Europium-152	-0.0543	0.0569	0.0729	NDA	pCi/g	2 sigma	EML HASL 300, 4.5.2.3	GEL	233955	Pre-remedial
ISRA HV Waste Characterization	MWH	07/01/2009	Happy Valley	ISWC0011	ISWC0011S001	Soil	Europium-152	-0.0164	0.0584	0.098	NDA	pCi/g	2 sigma	EML HASL 300, 4.5.2.3	GEL	233955	Pre-remedial
ISRA HV Waste Characterization	MWH	07/01/2009	Happy Valley	ISWC0012	ISWC0012S001	Soil	Europium-152	-0.00983	0.0779	0.112	NDA	pCi/g	2 sigma	EML HASL 300, 4.5.2.3	GEL	233955	Pre-remedial
ISRA HV Waste Characterization	MWH	07/01/2009	Happy Valley	ISWC0013	ISWC0013S001	Soil	Europium-152	0.0125	0.0642	0.0993	NDA	pCi/g	2 sigma	EML HASL 300, 4.5.2.3	GEL	233955	Pre-remedial
ISRA HV Waste Characterization	MWH	07/01/2009	Happy Valley	ISWC0014	ISWC0014S001	Soil	Europium-152	0.0161	0.06	0.0944	NDA	pCi/g	2 sigma	EML HASL 300, 4.5.2.3	GEL	233955	Pre-remedial

ISRA Soil Sample Results for Happy Valley

Project Name	Sampling Organization	Sampling Date	Sampling Location (General)	Sampling Location (Specific)	Sample Serial Number	Media Type	Isotope	Value	Error (+/-)	MDA	Non-Detect?	Units	Error Type	Analysis Protocol	Analysis Organization	Document	Status
ISRA HV Waste Characterization	MWH	07/01/2009	Happy Valley	ISWC0015	ISWC0015S001	Soil	Europium-152	-0.0101	0.0618	0.0996	NDA	pCi/g	2 sigma	EML HASL 300, 4.5.2.3	GEL	233955	Pre-remedial
ISRA HV Waste Characterization	MWH	07/01/2009	Happy Valley	ISWC0016	ISWC0016S001	Soil	Europium-152	-0.054	0.0752	0.101	NDA	pCi/g	2 sigma	EML HASL 300, 4.5.2.3	GEL	233955	Pre-remedial
ISRA HV Waste Characterization	MWH	07/01/2009	Happy Valley	ISWC0019	ISWC0019S001	Soil	Europium-152	-0.039	0.0587	0.0825	NDA	pCi/g	2 sigma	EML HASL 300, 4.5.2.3	GEL	233955	Pre-remedial
ISRA HV Waste Characterization	MWH	07/01/2009	Happy Valley	ISWC0020	ISWC0020S001	Soil	Europium-152	0.00197	0.0418	0.0652	NDA	pCi/g	2 sigma	EML HASL 300, 4.5.2.3	GEL	233955	Pre-remedial
ISRA HV Waste Characterization	MWH	07/01/2009	Happy Valley	ISWC0023	ISWC0023S001	Soil	Europium-152	-0.0179	0.05	0.0662	NDA	pCi/g	2 sigma	EML HASL 300, 4.5.2.3	GEL	233955	Pre-remedial
ISRA HV Waste Characterization	MWH	07/01/2009	Happy Valley	ISWC0024	ISWC0024S001	Soil	Europium-152	-0.00356	0.061	0.0825	NDA	pCi/g	2 sigma	EML HASL 300, 4.5.2.3	GEL	233955	Pre-remedial
ISRA HV Waste Characterization	MWH	07/01/2009	Happy Valley	ISWC0028	ISWC0028S001	Soil	Europium-152	-0.00641	0.073	0.098	NDA	pCi/g	2 sigma	EML HASL 300, 4.5.2.3	GEL	233955	Pre-remedial
ISRA HV Waste Characterization	MWH	07/01/2009	Happy Valley	ISWC0041	ISWC0041S001	Soil	Europium-152	0.0195	0.0496	0.0761	NDA	pCi/g	2 sigma	EML HASL 300, 4.5.2.3	GEL	233955	Pre-remedial
ISRA HV Waste Characterization	MWH	07/01/2009	Happy Valley	ISWC0042	ISWC0042S001	Soil	Europium-152	-0.0414	0.0725	0.11	NDA	pCi/g	2 sigma	EML HASL 300, 4.5.2.3	GEL	233955	Pre-remedial
ISRA HV Waste Characterization	MWH	07/01/2009	Happy Valley	ISWC0043	ISWC0043S001	Soil	Europium-152	-0.0291	0.058	0.0919	NDA	pCi/g	2 sigma	EML HASL 300, 4.5.2.3	GEL	233955	Pre-remedial
ISRA HV Waste Characterization	MWH	07/01/2009	Happy Valley	ISWC0044	ISWC0044S001	Soil	Europium-152	-0.0552	0.0597	0.0886	NDA	pCi/g	2 sigma	EML HASL 300, 4.5.2.3	GEL	233955	Pre-remedial
ISRA HV Waste Characterization	MWH	07/01/2009	Happy Valley	ISWC0045	ISWC0045S001	Soil	Europium-152	-0.00271	0.0605	0.0983	NDA	pCi/g	2 sigma	EML HASL 300, 4.5.2.3	GEL	233955	Pre-remedial
ISRA HV Waste Characterization	MWH	07/01/2009	Happy Valley	ISWC0046	ISWC0046S001	Soil	Europium-152	-0.0289	0.0467	0.0697	NDA	pCi/g	2 sigma	EML HASL 300, 4.5.2.3	GEL	233955	Pre-remedial
ISRA HV Waste Characterization	MWH	07/01/2009	Happy Valley	ISWC0047	ISWC0047S001	Soil	Europium-152	0.0212	0.0514	0.0859	NDA	pCi/g	2 sigma	EML HASL 300, 4.5.2.3	GEL	233955	Pre-remedial
ISRA HV Waste Characterization	MWH	07/01/2009	Happy Valley	ISWC0048	ISWC0048S001	Soil	Europium-152	-0.0197	0.0718	0.115	NDA	pCi/g	2 sigma	EML HASL 300, 4.5.2.3	GEL	233955	Pre-remedial
ISRA HV Waste Characterization	MWH	7/29/2009	Happy Valley	ISWC0077	ISWC0077RadS001	Soil	Europium-152	-0.0127	0.0512	0.0759	NDA	pCi/g	2 sigma	EML HASL 300, 4.5.2.3	GEL	234325	Pre-remedial
ISRA HV Waste Characterization	MWH	7/29/2009	Happy Valley	ISWC0078	ISWC0078RadS001	Soil	Europium-152	0.0259	0.0755	0.0962	NDA	pCi/g	2 sigma	EML HASL 300, 4.5.2.3	GEL	234325	Pre-remedial
ISRA HV Waste Characterization	MWH	7/29/2009	Happy Valley	ISWC0079	ISWC0079RadS001	Soil	Europium-152	-0.0146	0.0489	0.0857	NDA	pCi/g	2 sigma	EML HASL 300, 4.5.2.3	GEL	234325	Pre-remedial
ISRA HV Waste Characterization	MWH	7/29/2009	Happy Valley	ISWC0080	ISWC0080RadS001	Soil	Europium-152	-0.0172	0.0782	0.107	NDA	pCi/g	2 sigma	EML HASL 300, 4.5.2.3	GEL	234325	Pre-remedial
ISRA HV Waste Characterization	MWH	7/29/2009	Happy Valley	ISWC0081	ISWC0081RadS001	Soil	Europium-152	0.000825	0.0577	0.102	NDA	pCi/g	2 sigma	EML HASL 300, 4.5.2.3	GEL	234325	Pre-remedial
ISRA HV Waste Characterization	MWH	7/29/2009	Happy Valley	ISWC0084	ISWC0084RadS001	Soil	Europium-152	-0.0612	0.0718	0.109	NDA	pCi/g	2 sigma	EML HASL 300, 4.5.2.3	GEL	234325	Pre-remedial
ISRA HV Waste Characterization	MWH	7/29/2009	Happy Valley	ISWC0085	ISWC0085RadS001	Soil	Europium-152	-0.011	0.0859	0.117	NDA	pCi/g	2 sigma	EML HASL 300, 4.5.2.3	GEL	234325	Pre-remedial
ISRA HV Waste Characterization	MWH	7/29/2009	Happy Valley	ISWC0086	ISWC0086RadS001	Soil	Europium-152	0.0103	0.0672	0.103	NDA	pCi/g	2 sigma	EML HASL 300, 4.5.2.3	GEL	234325	Pre-remedial
ISRA HV Waste Characterization	MWH	7/29/2009	Happy Valley	ISWC0087	ISWC0087RadS001	Soil	Europium-152	-0.0939	0.0866	0.104	NDA	pCi/g	2 sigma	EML HASL 300, 4.5.2.3	GEL	234325	Pre-remedial
ISRA HV Waste Characterization	MWH	7/29/2009	Happy Valley	ISWC0088	ISWC0088RadS001	Soil	Europium-152	0.0371	0.0645	0.111	NDA	pCi/g	2 sigma	EML HASL 300, 4.5.2.3	GEL	234325	Pre-remedial
ISRA HV Waste Characterization	MWH	7/29/2009	Happy Valley	ISWC0089	ISWC0089RadS001	Soil	Europium-152	-0.037	0.0663	0.0957	NDA	pCi/g	2 sigma	EML HASL 300, 4.5.2.3	GEL	234325	Pre-remedial
ISRA HV Waste Characterization	MWH	7/29/2009	Happy Valley	ISWC0090	ISWC0090RadS001	Soil	Europium-152	-0.0256	0.0765	0.0997	NDA	pCi/g	2 sigma	EML HASL 300, 4.5.2.3	GEL	234325	Pre-remedial
ISRA HV Waste Characterization	MWH	7/29/2009	Happy Valley	ISWC0091	ISWC0091RadS001	Soil	Europium-152	0.0209	0.0685	0.109	NDA	pCi/g	2 sigma	EML HASL 300, 4.5.2.3	GEL	234325	Pre-remedial
ISRA HV Waste Characterization	MWH	7/29/2009	Happy Valley	ISWC0092	ISWC0092RadS001	Soil	Europium-152	0.0267	0.0564	0.0945	NDA	pCi/g	2 sigma	EML HASL 300, 4.5.2.3	GEL	234325	Pre-remedial
ISRA HV Waste Characterization	MWH	7/29/2009	Happy Valley	ISWC0093	ISWC0093RadS001	Soil	Europium-152	0.0389	0.0835	0.105	NDA	pCi/g	2 sigma	EML HASL 300, 4.5.2.3	GEL	234325	Pre-remedial
ISRA HV Waste Characterization	MWH	7/30/2009	Happy Valley	ISWC0082	ISWC0082RadS001	Soil	Europium-152	0.0142	0.0595	0.0944	NDA	pCi/g	2 sigma	EML HASL 300, 4.5.2.3	GEL	234376	Pre-remedial
ISRA HV Waste Characterization	MWH	7/30/2009	Happy Valley	ISWC0083	ISWC0083RadS001	Soil	Europium-152	-0.0594	0.0702	0.101	NDA	pCi/g	2 sigma	EML HASL 300, 4.5.2.3	GEL	234376	Pre-remedial
ISRA HV Waste Characterization	MWH	8/17/2009	Happy Valley	ISWC0094	ISWC0094RadS001	Soil	Europium-152	0.0137	0.0983	0.12	NDA	pCi/g	2 sigma	EML HASL 300, 4.5.2.3	GEL	235405	Pre-remedial
ISRA HV Waste Characterization	MWH	8/17/2009	Happy Valley	ISWC0095	ISWC0095RadS001	Soil	Europium-152	-0.00132	0.0584	0.0998	NDA	pCi/g	2 sigma	EML HASL 300, 4.5.2.3	GEL	235405	Pre-remedial
ISRA HV Waste Characterization	MWH	9/14/2009	Happy Valley	ISWC0112	ISWC0112S001	Soil	Europium-152	-0.0843	0.0883	0.11	NDA	pCi/g	2 sigma	EML HASL 300, 4.5.2.3	GEL	237286	Pre-remedial
ISRA HV Waste Characterization	MWH	10/22/2009	Happy Valley	ISWC0113	ISWC0113S001	Soil	Europium-152	-0.0419	0.0694	0.0993	NDA	pCi/g	2 sigma	DOE HASL 300, 4.5.2.3/Ga-01-R	GEL	239640	Waste
ISRA HV Waste Characterization	MWH	07/01/2009	Happy Valley	ISWC0001	ISWC0001S001	Soil	Europium-154	-0.138	0.101	0.156	NDA	pCi/g	2 sigma	EML HASL 300, 4.5.2.3	GEL	233955	Pre-remedial
ISRA HV Waste Characterization	MWH	07/01/2009	Happy Valley	ISWC0002	ISWC0002S001	Soil	Europium-154	-0.000749	0.0669	0.115	NDA	pCi/g	2 sigma	EML HASL 300, 4.5.2.3	GEL	233955	Pre-remedial
ISRA HV Waste Characterization	MWH	07/01/2009	Happy Valley	ISWC0003	ISWC0003S001	Soil	Europium-154	-0.0349	0.0906	0.148	NDA	pCi/g	2 sigma	EML HASL 300, 4.5.2.3	GEL	233955	Pre-remedial
ISRA HV Waste Characterization	MWH	07/01/2009	Happy Valley	ISWC0004	ISWC0004S001	Soil	Europium-154	0.0704	0.0724	0.131	NDA	pCi/g	2 sigma	EML HASL 300, 4.5.2.3	GEL	233955	Pre-remedial
ISRA HV Waste Characterization	MWH	07/01/2009	Happy Valley	ISWC0005	ISWC0005S001	Soil	Europium-154	-0.0516	0.0888	0.14	NDA	pCi/g	2 sigma	EML HASL 300, 4.5.2.3	GEL	233955	Pre-remedial
ISRA HV Waste Characterization	MWH	07/01/2009	Happy Valley	ISWC0006	ISWC0006S001	Soil	Europium-154	-0.149	0.111	0.161	NDA	pCi/g	2 sigma	EML HASL 300, 4.5.2.3	GEL	233955	Pre-remedial
ISRA HV Waste Characterization	MWH	07/01/2009	Happy Valley	ISWC0009	ISWC0009S001	Soil	Europium-154	-0.0306	0.0663	0.109	NDA	pCi/g	2 sigma	EML HASL 300, 4.5.2.3	GEL	233955	Pre-remedial
ISRA HV Waste Characterization	MWH	07/01/2009	Happy Valley	ISWC0010	ISWC0010S001	Soil	Europium-154	0.0191	0.0552	0.0959	NDA	pCi/g	2 sigma	EML HASL 300, 4.5.2.3	GEL	233955	Pre-remedial
ISRA HV Waste Characterization	MWH	07/01/2009	Happy Valley	ISWC0011	ISWC0011S001	Soil	Europium-154	0.0217	0.0849	0.149	NDA	pCi/g	2 sigma	EML HASL 300, 4.5.2.3	GEL	233955	Pre-remedial
ISRA HV Waste Characterization	MWH	07/01/2009	Happy Valley	ISWC0012	ISWC0012S001	Soil	Europium-154	-0.0927	0.0959	0.149	NDA	pCi/g	2 sigma	EML HASL 300, 4.5.2.3	GEL	233955	Pre-remedial
ISRA HV Waste Characterization	MWH	07/01/2009	Happy Valley	ISWC0013	ISWC0013S001	Soil	Europium-154	-0.0543	0.075	0.122	NDA	pCi/g	2 sigma	EML HASL 300, 4.5.2.3	GEL	233955	Pre-remedial
ISRA HV Waste Characterization	MWH	07/01/2009	Happy Valley	ISWC0014	ISWC0014S001	Soil	Europium-154	0.0197	0.0692	0.121	NDA	pCi/g	2 sigma	EML HASL 300, 4.5.2.3	GEL	233955	Pre-remedial
ISRA HV Waste Characterization	MWH	07/01/2009	Happy Valley	ISWC0015	ISWC0015S001	Soil	Europium-154	-0.0445	0.0795	0.129	NDA	pCi/g	2 sigma	EML HASL 300, 4.5.2.3	GEL	233955	Pre-remedial
ISRA HV Waste Characterization	MWH	07/01/2009	Happy Valley	ISWC0016	ISWC0016S001	Soil	Europium-154	-0.0337	0.0842	0.142	NDA	pCi/g	2 sigma	EML HASL 300, 4.5.2.3	GEL	233955	Pre-remedial
ISRA HV Waste Characterization	MWH	07/01/2009	Happy Valley	ISWC0019	ISWC0019S001	Soil	Europium-154	-0.0265	0.0662	0.112	NDA	pCi/g	2 sigma	EML HASL 300, 4.5.2.3	GEL	233955	Pre-remedial
ISRA HV Waste Characterization	MWH	07/01/2009	Happy Valley	ISWC0020	ISWC0020S001	Soil	Europium-154	0.00688	0.0494	0.0857	NDA	pCi/g	2 sigma	EML HASL 300, 4.5.2.3	GEL	233955	Pre-remedial
ISRA HV Waste Characterization	MWH	07/01/2009	Happy Valley	ISWC0023	ISWC0023S001	Soil	Europium-154	-0.00506	0.0521	0.0877	NDA	pCi/g	2 sigma	EML HASL 300, 4.5.2.3	GEL	233955	Pre-remedial
ISRA HV Waste Characterization	MWH	07/01/2009	Happy Valley	ISWC0024	ISWC0024S001	Soil	Europium-154	-0.0345	0.0634	0.0922	NDA	pCi/g	2 sigma	EML HASL 300, 4.5.2.3	GEL	233955	Pre-remedial
ISRA HV Waste Characterization	MWH	07/01/2009	Happy Valley	ISWC0028	ISWC0028S001	Soil	Europium-154	-0.0178	0.0754	0.126	NDA	pCi/g	2 sigma	EML HASL 300, 4.5.2.3	GEL	233955	Pre-remedial
ISRA HV Waste Characterization	MWH	07/01/2009	Happy Valley	ISWC0041	ISWC0041S001	Soil	Europium-154	-0.0433	0.0496	0.0794	NDA	pCi/g	2 sigma	EML HASL 300, 4.5.2.3	GEL	233955	Pre-remedial
ISRA HV Waste Characterization	MWH	07/01/2009	Happy Valley	ISWC0042	ISWC0042S001	Soil	Europium-154	-0.0719	0.0747	0.115	NDA	pCi/g	2 sigma	EML HASL 300, 4.5.2.3	GEL	233955	Pre-remedial
ISRA HV Waste Characterization	MWH	07/01/2009	Happy Valley	ISWC0043	ISWC0043S001	Soil	Europium-154	-0.0608	0.0684	0.109	NDA	pCi/g	2 sigma	EML HASL 300, 4.5.2.3	GEL	233955	Pre-remedial
ISRA HV Waste Characterization	MWH	07/01/2009	Happy Valley	ISWC0044	ISWC0044S001	Soil	Europium-154	0.0229	0.0645	0.112	NDA	pCi/g	2 sigma	EML HASL 300, 4.5.2.3	GEL	233955	Pre-remedial
ISRA HV Waste Characterization	MWH	07/01/2009	Happy Valley	ISWC0045	ISWC0045S001	Soil	Europium-154	-0.0234	0.0721	0.119	NDA	pCi/g	2 sigma	EML HASL 300, 4.5.2.3	GEL	233955	Pre-remedial
ISRA HV Waste Characterization	MWH	07/01/2009	Happy Valley	ISWC0046	ISWC0046S001	Soil	Europium-154	-0.0498	0.0523	0.0853	NDA	pCi/g	2 sigma	EML HASL 300, 4.5.2.3	GEL	233955	Pre-remedial
ISRA HV Waste Characterization	MWH	07/01/2009	Happy Valley	ISWC0047	ISWC0047S001	Soil	Europium-154	0.068	0.0651	0.117	NDA	pCi/g	2 sigma	EML HASL 300, 4.5.2.3	GEL	233955	Pre-remedial
ISRA HV Waste Characterization	MWH	07/01/2009	Happy Valley	ISWC0048	ISWC0048S001	Soil	Europium-154	-0.0324	0.0979	0.156	NDA	pCi/g	2 sigma	EML HASL 300, 4.5.2.3	GEL	233955	Pre-remedial
ISRA HV Waste Characterization	MWH	7/29/2009	Happy Valley	ISWC0077	ISWC0077RadS001	Soil	Europium-154	-0.0034	0.0584	0.0992	NDA	pCi/g	2 sigma	EML HASL 300, 4.5.2.3	GEL	234325	Pre-remedial
ISRA HV Waste Characterization	MWH	7/29/2009	Happy Valley	ISWC0078	ISWC0078RadS001	Soil	Europium-154	-0.0291	0.071	0.119	NDA	pCi/g	2 sigma	EML HASL 300, 4.5.2.3	GEL	234325	Pre-remedial
ISRA HV Waste Characterization	MWH	7/29/2009	Happy Valley	ISWC0079	ISWC0079RadS001	Soil	Europium-154	0.039	0.0632	0.11	NDA	pCi/g	2 sigma	EML HASL 300, 4.5.2.3	GEL	234325	Pre-remedial
ISRA HV Waste Characterization	MWH	7/29/2009	Happy Valley	ISWC0080	ISWC0080RadS001	Soil	Europium-154	-0.051	0.0921	0.148	NDA	pCi/g	2 sigma	EML HASL 300, 4.5.2.3	GEL	234325	Pre-remedial
ISRA HV Waste Characterization	MWH	7/29/2009	Happy Valley	ISWC0081	ISWC0081RadS001	Soil	Europium-154	0.0143	0.0837	0.144	NDA	pCi/g	2 sigma	EML HASL 300, 4.5.2.3	GEL	234325	Pre-remedial

ISRA Soil Sample Results for Happy Valley

Project Name	Sampling Organization	Sampling Date	Sampling Location (General)	Sampling Location (Specific)	Sample Serial Number	Media Type	Isotope	Value	Error (+/-)	MDA	Non-Detect?	Units	Error Type	Analysis Protocol	Analysis Organization	Document	Status
ISRA HV Waste Characterization	MWH	7/29/2009	Happy Valley	ISWC0084	ISWC0084RadS001	Soil	Europium-154	0.018	0.0856	0.145	NDA	pCi/g	2 sigma	EML HASL 300, 4.5.2.3	GEL	234325	Pre-remedial
ISRA HV Waste Characterization	MWH	7/29/2009	Happy Valley	ISWC0085	ISWC0085RadS001	Soil	Europium-154	-0.0414	0.118	0.19	NDA	pCi/g	2 sigma	EML HASL 300, 4.5.2.3	GEL	234325	Pre-remedial
ISRA HV Waste Characterization	MWH	7/29/2009	Happy Valley	ISWC0086	ISWC0086RadS001	Soil	Europium-154	0.0322	0.0777	0.134	NDA	pCi/g	2 sigma	EML HASL 300, 4.5.2.3	GEL	234325	Pre-remedial
ISRA HV Waste Characterization	MWH	7/29/2009	Happy Valley	ISWC0087	ISWC0087RadS001	Soil	Europium-154	-0.00591	0.0832	0.137	NDA	pCi/g	2 sigma	EML HASL 300, 4.5.2.3	GEL	234325	Pre-remedial
ISRA HV Waste Characterization	MWH	7/29/2009	Happy Valley	ISWC0088	ISWC0088RadS001	Soil	Europium-154	0.000284	0.0797	0.138	NDA	pCi/g	2 sigma	EML HASL 300, 4.5.2.3	GEL	234325	Pre-remedial
ISRA HV Waste Characterization	MWH	7/29/2009	Happy Valley	ISWC0089	ISWC0089RadS001	Soil	Europium-154	0.0414	0.0816	0.143	NDA	pCi/g	2 sigma	EML HASL 300, 4.5.2.3	GEL	234325	Pre-remedial
ISRA HV Waste Characterization	MWH	7/29/2009	Happy Valley	ISWC0090	ISWC0090RadS001	Soil	Europium-154	0.0491	0.0803	0.138	NDA	pCi/g	2 sigma	EML HASL 300, 4.5.2.3	GEL	234325	Pre-remedial
ISRA HV Waste Characterization	MWH	7/29/2009	Happy Valley	ISWC0091	ISWC0091RadS001	Soil	Europium-154	-0.0475	0.0897	0.145	NDA	pCi/g	2 sigma	EML HASL 300, 4.5.2.3	GEL	234325	Pre-remedial
ISRA HV Waste Characterization	MWH	7/29/2009	Happy Valley	ISWC0092	ISWC0092RadS001	Soil	Europium-154	0.0351	0.0722	0.128	NDA	pCi/g	2 sigma	EML HASL 300, 4.5.2.3	GEL	234325	Pre-remedial
ISRA HV Waste Characterization	MWH	7/29/2009	Happy Valley	ISWC0093	ISWC0093RadS001	Soil	Europium-154	0.0427	0.0726	0.127	NDA	pCi/g	2 sigma	EML HASL 300, 4.5.2.3	GEL	234325	Pre-remedial
ISRA HV Waste Characterization	MWH	7/30/2009	Happy Valley	ISWC0082	ISWC0082RadS001	Soil	Europium-154	-0.0536	0.0733	0.12	NDA	pCi/g	2 sigma	EML HASL 300, 4.5.2.3	GEL	234376	Pre-remedial
ISRA HV Waste Characterization	MWH	7/30/2009	Happy Valley	ISWC0083	ISWC0083RadS001	Soil	Europium-154	-0.0204	0.0771	0.129	NDA	pCi/g	2 sigma	EML HASL 300, 4.5.2.3	GEL	234376	Pre-remedial
ISRA HV Waste Characterization	MWH	8/17/2009	Happy Valley	ISWC0094	ISWC0094RadS001	Soil	Europium-154	-0.00746	0.106	0.176	NDA	pCi/g	2 sigma	EML HASL 300, 4.5.2.3	GEL	235405	Pre-remedial
ISRA HV Waste Characterization	MWH	8/17/2009	Happy Valley	ISWC0095	ISWC0095RadS001	Soil	Europium-154	0.106	0.084	0.155	NDA	pCi/g	2 sigma	EML HASL 300, 4.5.2.3	GEL	235405	Pre-remedial
ISRA HV Waste Characterization	MWH	9/14/2009	Happy Valley	ISWC0112	ISWC0112S001	Soil	Europium-154	-0.0308	0.0892	0.146	NDA	pCi/g	2 sigma	EML HASL 300, 4.5.2.3	GEL	237286	Pre-remedial
ISRA HV Waste Characterization	MWH	10/22/2009	Happy Valley	ISWC0113	ISWC0113S001	Soil	Europium-154	-0.0456	0.0795	0.128	NDA	pCi/g	2 sigma	DOE HASL 300, 4.5.2.3/Ga-01-R	GEL	239640	Waste
ISRA HV Waste Characterization	MWH	07/01/2009	Happy Valley	ISWC0001	ISWC0001S001	Soil	Manganese-54	0.0266	0.0315	0.0571	NDA	pCi/g	2 sigma	EML HASL 300, 4.5.2.3	GEL	233955	Pre-remedial
ISRA HV Waste Characterization	MWH	07/01/2009	Happy Valley	ISWC0002	ISWC0002S001	Soil	Manganese-54	0.00706	0.0216	0.0375	NDA	pCi/g	2 sigma	EML HASL 300, 4.5.2.3	GEL	233955	Pre-remedial
ISRA HV Waste Characterization	MWH	07/01/2009	Happy Valley	ISWC0003	ISWC0003S001	Soil	Manganese-54	0.0153	0.0312	0.0562	NDA	pCi/g	2 sigma	EML HASL 300, 4.5.2.3	GEL	233955	Pre-remedial
ISRA HV Waste Characterization	MWH	07/01/2009	Happy Valley	ISWC0004	ISWC0004S001	Soil	Manganese-54	0.011	0.0238	0.0417	NDA	pCi/g	2 sigma	EML HASL 300, 4.5.2.3	GEL	233955	Pre-remedial
ISRA HV Waste Characterization	MWH	07/01/2009	Happy Valley	ISWC0005	ISWC0005S001	Soil	Manganese-54	0	0.041	0.0474	NDA	pCi/g	2 sigma	EML HASL 300, 4.5.2.3	GEL	233955	Pre-remedial
ISRA HV Waste Characterization	MWH	07/01/2009	Happy Valley	ISWC0006	ISWC0006S001	Soil	Manganese-54	-0.0162	0.0316	0.0521	NDA	pCi/g	2 sigma	EML HASL 300, 4.5.2.3	GEL	233955	Pre-remedial
ISRA HV Waste Characterization	MWH	07/01/2009	Happy Valley	ISWC0009	ISWC0009S001	Soil	Manganese-54	0.0294	0.0205	0.0368	NDA	pCi/g	2 sigma	EML HASL 300, 4.5.2.3	GEL	233955	Pre-remedial
ISRA HV Waste Characterization	MWH	07/01/2009	Happy Valley	ISWC0010	ISWC0010S001	Soil	Manganese-54	-0.0135	0.018	0.0293	NDA	pCi/g	2 sigma	EML HASL 300, 4.5.2.3	GEL	233955	Pre-remedial
ISRA HV Waste Characterization	MWH	07/01/2009	Happy Valley	ISWC0011	ISWC0011S001	Soil	Manganese-54	0.00773	0.0237	0.0415	NDA	pCi/g	2 sigma	EML HASL 300, 4.5.2.3	GEL	233955	Pre-remedial
ISRA HV Waste Characterization	MWH	07/01/2009	Happy Valley	ISWC0012	ISWC0012S001	Soil	Manganese-54	-0.00257	0.0278	0.048	NDA	pCi/g	2 sigma	EML HASL 300, 4.5.2.3	GEL	233955	Pre-remedial
ISRA HV Waste Characterization	MWH	07/01/2009	Happy Valley	ISWC0013	ISWC0013S001	Soil	Manganese-54	0.000638	0.0244	0.0419	NDA	pCi/g	2 sigma	EML HASL 300, 4.5.2.3	GEL	233955	Pre-remedial
ISRA HV Waste Characterization	MWH	07/01/2009	Happy Valley	ISWC0014	ISWC0014S001	Soil	Manganese-54	0.0035	0.0231	0.0401	NDA	pCi/g	2 sigma	EML HASL 300, 4.5.2.3	GEL	233955	Pre-remedial
ISRA HV Waste Characterization	MWH	07/01/2009	Happy Valley	ISWC0015	ISWC0015S001	Soil	Manganese-54	-0.00113	0.0262	0.042	NDA	pCi/g	2 sigma	EML HASL 300, 4.5.2.3	GEL	233955	Pre-remedial
ISRA HV Waste Characterization	MWH	07/01/2009	Happy Valley	ISWC0016	ISWC0016S001	Soil	Manganese-54	0.00334	0.028	0.0493	NDA	pCi/g	2 sigma	EML HASL 300, 4.5.2.3	GEL	233955	Pre-remedial
ISRA HV Waste Characterization	MWH	07/01/2009	Happy Valley	ISWC0019	ISWC0019S001	Soil	Manganese-54	0.0254	0.0221	0.0396	NDA	pCi/g	2 sigma	EML HASL 300, 4.5.2.3	GEL	233955	Pre-remedial
ISRA HV Waste Characterization	MWH	07/01/2009	Happy Valley	ISWC0020	ISWC0020S001	Soil	Manganese-54	0.0196	0.0188	0.0271	NDA	pCi/g	2 sigma	EML HASL 300, 4.5.2.3	GEL	233955	Pre-remedial
ISRA HV Waste Characterization	MWH	07/01/2009	Happy Valley	ISWC0023	ISWC0023S001	Soil	Manganese-54	0	0.0216	0.026	NDA	pCi/g	2 sigma	EML HASL 300, 4.5.2.3	GEL	233955	Pre-remedial
ISRA HV Waste Characterization	MWH	07/01/2009	Happy Valley	ISWC0024	ISWC0024S001	Soil	Manganese-54	0.00466	0.0184	0.0325	NDA	pCi/g	2 sigma	EML HASL 300, 4.5.2.3	GEL	233955	Pre-remedial
ISRA HV Waste Characterization	MWH	07/01/2009	Happy Valley	ISWC0028	ISWC0028S001	Soil	Manganese-54	0.00568	0.0237	0.042	NDA	pCi/g	2 sigma	EML HASL 300, 4.5.2.3	GEL	233955	Pre-remedial
ISRA HV Waste Characterization	MWH	07/01/2009	Happy Valley	ISWC0041	ISWC0041S001	Soil	Manganese-54	0.01	0.0171	0.0302	NDA	pCi/g	2 sigma	EML HASL 300, 4.5.2.3	GEL	233955	Pre-remedial
ISRA HV Waste Characterization	MWH	07/01/2009	Happy Valley	ISWC0042	ISWC0042S001	Soil	Manganese-54	0.015	0.0252	0.0457	NDA	pCi/g	2 sigma	EML HASL 300, 4.5.2.3	GEL	233955	Pre-remedial
ISRA HV Waste Characterization	MWH	07/01/2009	Happy Valley	ISWC0043	ISWC0043S001	Soil	Manganese-54	-0.0138	0.0222	0.0364	NDA	pCi/g	2 sigma	EML HASL 300, 4.5.2.3	GEL	233955	Pre-remedial
ISRA HV Waste Characterization	MWH	07/01/2009	Happy Valley	ISWC0044	ISWC0044S001	Soil	Manganese-54	-0.00993	0.0212	0.0363	NDA	pCi/g	2 sigma	EML HASL 300, 4.5.2.3	GEL	233955	Pre-remedial
ISRA HV Waste Characterization	MWH	07/01/2009	Happy Valley	ISWC0045	ISWC0045S001	Soil	Manganese-54	0.00143	0.0229	0.0403	NDA	pCi/g	2 sigma	EML HASL 300, 4.5.2.3	GEL	233955	Pre-remedial
ISRA HV Waste Characterization	MWH	07/01/2009	Happy Valley	ISWC0046	ISWC0046S001	Soil	Manganese-54	-0.00594	0.0172	0.0291	NDA	pCi/g	2 sigma	EML HASL 300, 4.5.2.3	GEL	233955	Pre-remedial
ISRA HV Waste Characterization	MWH	07/01/2009	Happy Valley	ISWC0047	ISWC0047S001	Soil	Manganese-54	0.00601	0.0216	0.038	NDA	pCi/g	2 sigma	EML HASL 300, 4.5.2.3	GEL	233955	Pre-remedial
ISRA HV Waste Characterization	MWH	07/01/2009	Happy Valley	ISWC0048	ISWC0048S001	Soil	Manganese-54	0.0283	0.0294	0.0529	NDA	pCi/g	2 sigma	EML HASL 300, 4.5.2.3	GEL	233955	Pre-remedial
ISRA HV Waste Characterization	MWH	7/29/2009	Happy Valley	ISWC0077	ISWC0077RadS001	Soil	Manganese-54	0.00456	0.0182	0.0317	NDA	pCi/g	2 sigma	EML HASL 300, 4.5.2.3	GEL	234325	Pre-remedial
ISRA HV Waste Characterization	MWH	7/29/2009	Happy Valley	ISWC0078	ISWC0078RadS001	Soil	Manganese-54	0.0233	0.0227	0.0407	NDA	pCi/g	2 sigma	EML HASL 300, 4.5.2.3	GEL	234325	Pre-remedial
ISRA HV Waste Characterization	MWH	7/29/2009	Happy Valley	ISWC0079	ISWC0079RadS001	Soil	Manganese-54	0.000982	0.0198	0.0345	NDA	pCi/g	2 sigma	EML HASL 300, 4.5.2.3	GEL	234325	Pre-remedial
ISRA HV Waste Characterization	MWH	7/29/2009	Happy Valley	ISWC0080	ISWC0080RadS001	Soil	Manganese-54	0.0234	0.0269	0.0482	NDA	pCi/g	2 sigma	EML HASL 300, 4.5.2.3	GEL	234325	Pre-remedial
ISRA HV Waste Characterization	MWH	7/29/2009	Happy Valley	ISWC0081	ISWC0081RadS001	Soil	Manganese-54	-0.0107	0.0235	0.039	NDA	pCi/g	2 sigma	EML HASL 300, 4.5.2.3	GEL	234325	Pre-remedial
ISRA HV Waste Characterization	MWH	7/29/2009	Happy Valley	ISWC0084	ISWC0084RadS001	Soil	Manganese-54	-9.41E-05	0.0263	0.0458	NDA	pCi/g	2 sigma	EML HASL 300, 4.5.2.3	GEL	234325	Pre-remedial
ISRA HV Waste Characterization	MWH	7/29/2009	Happy Valley	ISWC0085	ISWC0085RadS001	Soil	Manganese-54	0.00229	0.0327	0.0555	NDA	pCi/g	2 sigma	EML HASL 300, 4.5.2.3	GEL	234325	Pre-remedial
ISRA HV Waste Characterization	MWH	7/29/2009	Happy Valley	ISWC0086	ISWC0086RadS001	Soil	Manganese-54	0.0146	0.0238	0.0423	NDA	pCi/g	2 sigma	EML HASL 300, 4.5.2.3	GEL	234325	Pre-remedial
ISRA HV Waste Characterization	MWH	7/29/2009	Happy Valley	ISWC0087	ISWC0087RadS001	Soil	Manganese-54	-0.00633	0.0254	0.0429	NDA	pCi/g	2 sigma	EML HASL 300, 4.5.2.3	GEL	234325	Pre-remedial
ISRA HV Waste Characterization	MWH	7/29/2009	Happy Valley	ISWC0088	ISWC0088RadS001	Soil	Manganese-54	0.0128	0.0249	0.044	NDA	pCi/g	2 sigma	EML HASL 300, 4.5.2.3	GEL	234325	Pre-remedial
ISRA HV Waste Characterization	MWH	7/29/2009	Happy Valley	ISWC0089	ISWC0089RadS001	Soil	Manganese-54	0.00636	0.0257	0.0438	NDA	pCi/g	2 sigma	EML HASL 300, 4.5.2.3	GEL	234325	Pre-remedial
ISRA HV Waste Characterization	MWH	7/29/2009	Happy Valley	ISWC0090	ISWC0090RadS001	Soil	Manganese-54	0.0063	0.0235	0.0408	NDA	pCi/g	2 sigma	EML HASL 300, 4.5.2.3	GEL	234325	Pre-remedial
ISRA HV Waste Characterization	MWH	7/29/2009	Happy Valley	ISWC0091	ISWC0091RadS001	Soil	Manganese-54	0.00143	0.0246	0.043	NDA	pCi/g	2 sigma	EML HASL 300, 4.5.2.3	GEL	234325	Pre-remedial
ISRA HV Waste Characterization	MWH	7/29/2009	Happy Valley	ISWC0092	ISWC0092RadS001	Soil	Manganese-54	0.0129	0.0202	0.036	NDA	pCi/g	2 sigma	EML HASL 300, 4.5.2.3	GEL	234325	Pre-remedial
ISRA HV Waste Characterization	MWH	7/29/2009	Happy Valley	ISWC0093	ISWC0093RadS001	Soil	Manganese-54	-0.00855	0.024	0.0408	NDA	pCi/g	2 sigma	EML HASL 300, 4.5.2.3	GEL	234325	Pre-remedial
ISRA HV Waste Characterization	MWH	7/30/2009	Happy Valley	ISWC0082	ISWC0082RadS001	Soil	Manganese-54	0.00713	0.0221	0.0389	NDA	pCi/g	2 sigma	EML HASL 300, 4.5.2.3	GEL	234376	Pre-remedial
ISRA HV Waste Characterization	MWH	7/30/2009	Happy Valley	ISWC0083	ISWC0083RadS001	Soil	Manganese-54	0.00748	0.0252	0.0434	NDA	pCi/g	2 sigma	EML HASL 300, 4.5.2.3	GEL	234376	Pre-remedial
ISRA HV Waste Characterization	MWH	8/17/2009	Happy Valley	ISWC0094	ISWC0094RadS001	Soil	Manganese-54	-0.000916	0.03	0.052	NDA	pCi/g	2 sigma	EML HASL 300, 4.5.2.3	GEL	235405	Pre-remedial
ISRA HV Waste Characterization	MWH	8/17/2009	Happy Valley	ISWC0095	ISWC0095RadS001	Soil	Manganese-54	0.00139	0.0235	0.0417	NDA	pCi/g	2 sigma	EML HASL 300, 4.5.2.3	GEL	235405	Pre-remedial
ISRA HV Waste Characterization	MWH	9/14/2009	Happy Valley	ISWC0112	ISWC0112S001	Soil	Manganese-54	-0.0215	0.0233	0.0381	NDA	pCi/g	2 sigma	EML HASL 300, 4.5.2.3	GEL	237286	Pre-remedial
ISRA HV Waste Characterization	MWH	10/22/2009	Happy Valley	ISWC0113	ISWC0113S001	Soil	Manganese-54	0.028	0.0253	0.0445	NDA	pCi/g	2 sigma	DOE HASL 300, 4.5.2.3/Ga-01-R	GEL	239640	Waste
ISRA HV Waste Characterization	MWH	07/01/2009	Happy Valley	ISWC0001	ISWC0001S001	Soil	Potassium-40	24.7	2.41	0.419		pCi/g	2 sigma	EML HASL 300, 4.5.2.3	GEL	233955	Pre-remedial
ISRA HV Waste Characterization	MWH	07/01/2009	Happy Valley	ISWC0002	ISWC0002S001	Soil	Potassium-40	24.2	2.03	0.24		pCi/g	2 sigma	EML HASL 300, 4.5.2.3	GEL	233955	Pre-remedial
ISRA HV Waste Characterization	MWH	07/01/2009	Happy Valley	ISWC0003	ISWC0003S001	Soil	Potassium-40	23.3	1.84	0.327		pCi/g	2 sigma	EML HASL 300, 4.5.2.3	GEL	233955	Pre-remedial
ISRA HV Waste Characterization	MWH	07/01/2009	Happy Valley	ISWC0004	ISWC0004S001	Soil	Potassium-40	24.7	2.3	0.331		pCi/g	2 sigma	EML HASL 300, 4.5.2.3	GEL	233955	Pre-remedial

ISRA Soil Sample Results for Happy Valley

Project Name	Sampling Organization	Sampling Date	Sampling Location (General)	Sampling Location (Specific)	Sample Serial Number	Media Type	Isotope	Value	Error (+/-)	MDA	Non-Detect?	Units	Error Type	Analysis Protocol	Analysis Organization	Document	Status
ISRA HV Waste Characterization	MWH	07/01/2009	Happy Valley	ISWC0005	ISWC0005S001	Soil	Potassium-40	22.1	2.02	0.338		pCi/g	2 sigma	EML HASL 300, 4.5.2.3	GEL	233955	Pre-remedial
ISRA HV Waste Characterization	MWH	07/01/2009	Happy Valley	ISWC0006	ISWC0006S001	Soil	Potassium-40	21.4	2.22	0.514		pCi/g	2 sigma	EML HASL 300, 4.5.2.3	GEL	233955	Pre-remedial
ISRA HV Waste Characterization	MWH	07/01/2009	Happy Valley	ISWC0009	ISWC0009S001	Soil	Potassium-40	23.7	1.66	0.283		pCi/g	2 sigma	EML HASL 300, 4.5.2.3	GEL	233955	Pre-remedial
ISRA HV Waste Characterization	MWH	07/01/2009	Happy Valley	ISWC0010	ISWC0010S001	Soil	Potassium-40	26.1	2.05	0.232		pCi/g	2 sigma	EML HASL 300, 4.5.2.3	GEL	233955	Pre-remedial
ISRA HV Waste Characterization	MWH	07/01/2009	Happy Valley	ISWC0011	ISWC0011S001	Soil	Potassium-40	25.5	2.12	0.343		pCi/g	2 sigma	EML HASL 300, 4.5.2.3	GEL	233955	Pre-remedial
ISRA HV Waste Characterization	MWH	07/01/2009	Happy Valley	ISWC0012	ISWC0012S001	Soil	Potassium-40	25	1.93	0.346		pCi/g	2 sigma	EML HASL 300, 4.5.2.3	GEL	233955	Pre-remedial
ISRA HV Waste Characterization	MWH	07/01/2009	Happy Valley	ISWC0013	ISWC0013S001	Soil	Potassium-40	24.5	2.31	0.305		pCi/g	2 sigma	EML HASL 300, 4.5.2.3	GEL	233955	Pre-remedial
ISRA HV Waste Characterization	MWH	07/01/2009	Happy Valley	ISWC0014	ISWC0014S001	Soil	Potassium-40	24.6	2.33	0.326		pCi/g	2 sigma	EML HASL 300, 4.5.2.3	GEL	233955	Pre-remedial
ISRA HV Waste Characterization	MWH	07/01/2009	Happy Valley	ISWC0015	ISWC0015S001	Soil	Potassium-40	26.6	2.16	0.304		pCi/g	2 sigma	EML HASL 300, 4.5.2.3	GEL	233955	Pre-remedial
ISRA HV Waste Characterization	MWH	07/01/2009	Happy Valley	ISWC0016	ISWC0016S001	Soil	Potassium-40	22.7	1.66	0.389		pCi/g	2 sigma	EML HASL 300, 4.5.2.3	GEL	233955	Pre-remedial
ISRA HV Waste Characterization	MWH	07/01/2009	Happy Valley	ISWC0019	ISWC0019S001	Soil	Potassium-40	23.1	1.6	0.292		pCi/g	2 sigma	EML HASL 300, 4.5.2.3	GEL	233955	Pre-remedial
ISRA HV Waste Characterization	MWH	07/01/2009	Happy Valley	ISWC0020	ISWC0020S001	Soil	Potassium-40	22.7	2.04	0.208		pCi/g	2 sigma	EML HASL 300, 4.5.2.3	GEL	233955	Pre-remedial
ISRA HV Waste Characterization	MWH	07/01/2009	Happy Valley	ISWC0023	ISWC0023S001	Soil	Potassium-40	23.8	1.84	0.221		pCi/g	2 sigma	EML HASL 300, 4.5.2.3	GEL	233955	Pre-remedial
ISRA HV Waste Characterization	MWH	07/01/2009	Happy Valley	ISWC0024	ISWC0024S001	Soil	Potassium-40	22.4	1.85	0.247		pCi/g	2 sigma	EML HASL 300, 4.5.2.3	GEL	233955	Pre-remedial
ISRA HV Waste Characterization	MWH	07/01/2009	Happy Valley	ISWC0028	ISWC0028S001	Soil	Potassium-40	25.7	2.13	0.339		pCi/g	2 sigma	EML HASL 300, 4.5.2.3	GEL	233955	Pre-remedial
ISRA HV Waste Characterization	MWH	07/01/2009	Happy Valley	ISWC0041	ISWC0041S001	Soil	Potassium-40	21.6	1.77	0.209		pCi/g	2 sigma	EML HASL 300, 4.5.2.3	GEL	233955	Pre-remedial
ISRA HV Waste Characterization	MWH	07/01/2009	Happy Valley	ISWC0042	ISWC0042S001	Soil	Potassium-40	19.8	1.61	0.279		pCi/g	2 sigma	EML HASL 300, 4.5.2.3	GEL	233955	Pre-remedial
ISRA HV Waste Characterization	MWH	07/01/2009	Happy Valley	ISWC0043	ISWC0043S001	Soil	Potassium-40	20.3	1.96	0.326		pCi/g	2 sigma	EML HASL 300, 4.5.2.3	GEL	233955	Pre-remedial
ISRA HV Waste Characterization	MWH	07/01/2009	Happy Valley	ISWC0044	ISWC0044S001	Soil	Potassium-40	21.4	1.66	0.26		pCi/g	2 sigma	EML HASL 300, 4.5.2.3	GEL	233955	Pre-remedial
ISRA HV Waste Characterization	MWH	07/01/2009	Happy Valley	ISWC0045	ISWC0045S001	Soil	Potassium-40	25.6	2.34	0.328		pCi/g	2 sigma	EML HASL 300, 4.5.2.3	GEL	233955	Pre-remedial
ISRA HV Waste Characterization	MWH	07/01/2009	Happy Valley	ISWC0046	ISWC0046S001	Soil	Potassium-40	22.5	2.02	0.226		pCi/g	2 sigma	EML HASL 300, 4.5.2.3	GEL	233955	Pre-remedial
ISRA HV Waste Characterization	MWH	07/01/2009	Happy Valley	ISWC0047	ISWC0047S001	Soil	Potassium-40	25	1.84	0.278		pCi/g	2 sigma	EML HASL 300, 4.5.2.3	GEL	233955	Pre-remedial
ISRA HV Waste Characterization	MWH	07/01/2009	Happy Valley	ISWC0048	ISWC0048S001	Soil	Potassium-40	22.2	2.16	0.473		pCi/g	2 sigma	EML HASL 300, 4.5.2.3	GEL	233955	Pre-remedial
ISRA HV Waste Characterization	MWH	7/29/2009	Happy Valley	ISWC0077	ISWC0077RadS001	Soil	Potassium-40	25.4	2.06	0.207		pCi/g	2 sigma	EML HASL 300, 4.5.2.3	GEL	234325	Pre-remedial
ISRA HV Waste Characterization	MWH	7/29/2009	Happy Valley	ISWC0078	ISWC0078RadS001	Soil	Potassium-40	23.9	2.01	0.291		pCi/g	2 sigma	EML HASL 300, 4.5.2.3	GEL	234325	Pre-remedial
ISRA HV Waste Characterization	MWH	7/29/2009	Happy Valley	ISWC0079	ISWC0079RadS001	Soil	Potassium-40	26.9	1.97	0.292		pCi/g	2 sigma	EML HASL 300, 4.5.2.3	GEL	234325	Pre-remedial
ISRA HV Waste Characterization	MWH	7/29/2009	Happy Valley	ISWC0080	ISWC0080RadS001	Soil	Potassium-40	24.6	2.34	0.372		pCi/g	2 sigma	EML HASL 300, 4.5.2.3	GEL	234325	Pre-remedial
ISRA HV Waste Characterization	MWH	7/29/2009	Happy Valley	ISWC0081	ISWC0081RadS001	Soil	Potassium-40	23.6	2.03	0.325		pCi/g	2 sigma	EML HASL 300, 4.5.2.3	GEL	234325	Pre-remedial
ISRA HV Waste Characterization	MWH	7/29/2009	Happy Valley	ISWC0084	ISWC0084RadS001	Soil	Potassium-40	21.9	1.76	0.353		pCi/g	2 sigma	EML HASL 300, 4.5.2.3	GEL	234325	Pre-remedial
ISRA HV Waste Characterization	MWH	7/29/2009	Happy Valley	ISWC0085	ISWC0085RadS001	Soil	Potassium-40	23.4	2.35	0.478		pCi/g	2 sigma	EML HASL 300, 4.5.2.3	GEL	234325	Pre-remedial
ISRA HV Waste Characterization	MWH	7/29/2009	Happy Valley	ISWC0086	ISWC0086RadS001	Soil	Potassium-40	22	1.8	0.335		pCi/g	2 sigma	EML HASL 300, 4.5.2.3	GEL	234325	Pre-remedial
ISRA HV Waste Characterization	MWH	7/29/2009	Happy Valley	ISWC0087	ISWC0087RadS001	Soil	Potassium-40	23.4	2.23	0.324		pCi/g	2 sigma	EML HASL 300, 4.5.2.3	GEL	234325	Pre-remedial
ISRA HV Waste Characterization	MWH	7/29/2009	Happy Valley	ISWC0088	ISWC0088RadS001	Soil	Potassium-40	22.8	1.95	0.363		pCi/g	2 sigma	EML HASL 300, 4.5.2.3	GEL	234325	Pre-remedial
ISRA HV Waste Characterization	MWH	7/29/2009	Happy Valley	ISWC0089	ISWC0089RadS001	Soil	Potassium-40	21.7	1.88	0.388		pCi/g	2 sigma	EML HASL 300, 4.5.2.3	GEL	234325	Pre-remedial
ISRA HV Waste Characterization	MWH	7/29/2009	Happy Valley	ISWC0090	ISWC0090RadS001	Soil	Potassium-40	19.1	1.45	0.353		pCi/g	2 sigma	EML HASL 300, 4.5.2.3	GEL	234325	Pre-remedial
ISRA HV Waste Characterization	MWH	7/29/2009	Happy Valley	ISWC0091	ISWC0091RadS001	Soil	Potassium-40	23.1	1.79	0.413		pCi/g	2 sigma	EML HASL 300, 4.5.2.3	GEL	234325	Pre-remedial
ISRA HV Waste Characterization	MWH	7/29/2009	Happy Valley	ISWC0092	ISWC0092RadS001	Soil	Potassium-40	24.1	2.29	0.337		pCi/g	2 sigma	EML HASL 300, 4.5.2.3	GEL	234325	Pre-remedial
ISRA HV Waste Characterization	MWH	7/29/2009	Happy Valley	ISWC0093	ISWC0093RadS001	Soil	Potassium-40	24	1.87	0.338		pCi/g	2 sigma	EML HASL 300, 4.5.2.3	GEL	234325	Pre-remedial
ISRA HV Waste Characterization	MWH	7/30/2009	Happy Valley	ISWC0082	ISWC0082RadS001	Soil	Potassium-40	23.9	1.97	0.336		pCi/g	2 sigma	EML HASL 300, 4.5.2.3	GEL	234376	Pre-remedial
ISRA HV Waste Characterization	MWH	7/30/2009	Happy Valley	ISWC0083	ISWC0083RadS001	Soil	Potassium-40	26	2.46	0.355		pCi/g	2 sigma	EML HASL 300, 4.5.2.3	GEL	234376	Pre-remedial
ISRA HV Waste Characterization	MWH	8/17/2009	Happy Valley	ISWC0094	ISWC0094RadS001	Soil	Potassium-40	21.4	2.19	0.372		pCi/g	2 sigma	EML HASL 300, 4.5.2.3	GEL	235405	Pre-remedial
ISRA HV Waste Characterization	MWH	8/17/2009	Happy Valley	ISWC0095	ISWC0095RadS001	Soil	Potassium-40	20.1	1.62	0.383		pCi/g	2 sigma	EML HASL 300, 4.5.2.3	GEL	235405	Pre-remedial
ISRA HV Waste Characterization	MWH	9/14/2009	Happy Valley	ISWC0112	ISWC0112S001	Soil	Potassium-40	22.5	1.87	0.37		pCi/g	2 sigma	EML HASL 300, 4.5.2.3	GEL	237286	Pre-remedial
ISRA HV Waste Characterization	MWH	10/22/2009	Happy Valley	ISWC0113	ISWC0113S001	Soil	Potassium-40	22.6	1.9	0.463		pCi/g	2 sigma	DOE HASL 300, 4.5.2.3/Ga-01-R	GEL	239640	Waste
ISRA HV Waste Characterization	MWH	07/01/2009	Happy Valley	ISWC0001	ISWC0001S001	Soil	Sodium-22	-0.0494	0.0361	0.0564	NDA	pCi/g	2 sigma	EML HASL 300, 4.5.2.3	GEL	233955	Pre-remedial
ISRA HV Waste Characterization	MWH	07/01/2009	Happy Valley	ISWC0002	ISWC0002S001	Soil	Sodium-22	-0.00381	0.0242	0.0413	NDA	pCi/g	2 sigma	EML HASL 300, 4.5.2.3	GEL	233955	Pre-remedial
ISRA HV Waste Characterization	MWH	07/01/2009	Happy Valley	ISWC0003	ISWC0003S001	Soil	Sodium-22	-0.0136	0.0326	0.0531	NDA	pCi/g	2 sigma	EML HASL 300, 4.5.2.3	GEL	233955	Pre-remedial
ISRA HV Waste Characterization	MWH	07/01/2009	Happy Valley	ISWC0004	ISWC0004S001	Soil	Sodium-22	0.0228	0.0261	0.0472	NDA	pCi/g	2 sigma	EML HASL 300, 4.5.2.3	GEL	233955	Pre-remedial
ISRA HV Waste Characterization	MWH	07/01/2009	Happy Valley	ISWC0005	ISWC0005S001	Soil	Sodium-22	-0.0186	0.032	0.0505	NDA	pCi/g	2 sigma	EML HASL 300, 4.5.2.3	GEL	233955	Pre-remedial
ISRA HV Waste Characterization	MWH	07/01/2009	Happy Valley	ISWC0006	ISWC0006S001	Soil	Sodium-22	-0.0535	0.0398	0.058	NDA	pCi/g	2 sigma	EML HASL 300, 4.5.2.3	GEL	233955	Pre-remedial
ISRA HV Waste Characterization	MWH	07/01/2009	Happy Valley	ISWC0009	ISWC0009S001	Soil	Sodium-22	-0.0108	0.0239	0.0393	NDA	pCi/g	2 sigma	EML HASL 300, 4.5.2.3	GEL	233955	Pre-remedial
ISRA HV Waste Characterization	MWH	07/01/2009	Happy Valley	ISWC0010	ISWC0010S001	Soil	Sodium-22	0.00835	0.0199	0.0347	NDA	pCi/g	2 sigma	EML HASL 300, 4.5.2.3	GEL	233955	Pre-remedial
ISRA HV Waste Characterization	MWH	07/01/2009	Happy Valley	ISWC0011	ISWC0011S001	Soil	Sodium-22	0.013	0.0304	0.0538	NDA	pCi/g	2 sigma	EML HASL 300, 4.5.2.3	GEL	233955	Pre-remedial
ISRA HV Waste Characterization	MWH	07/01/2009	Happy Valley	ISWC0012	ISWC0012S001	Soil	Sodium-22	-0.0272	0.0342	0.0539	NDA	pCi/g	2 sigma	EML HASL 300, 4.5.2.3	GEL	233955	Pre-remedial
ISRA HV Waste Characterization	MWH	07/01/2009	Happy Valley	ISWC0013	ISWC0013S001	Soil	Sodium-22	-0.0185	0.0269	0.0439	NDA	pCi/g	2 sigma	EML HASL 300, 4.5.2.3	GEL	233955	Pre-remedial
ISRA HV Waste Characterization	MWH	07/01/2009	Happy Valley	ISWC0014	ISWC0014S001	Soil	Sodium-22	-0.000413	0.0252	0.0433	NDA	pCi/g	2 sigma	EML HASL 300, 4.5.2.3	GEL	233955	Pre-remedial
ISRA HV Waste Characterization	MWH	07/01/2009	Happy Valley	ISWC0015	ISWC0015S001	Soil	Sodium-22	-0.0155	0.0287	0.0468	NDA	pCi/g	2 sigma	EML HASL 300, 4.5.2.3	GEL	233955	Pre-remedial
ISRA HV Waste Characterization	MWH	07/01/2009	Happy Valley	ISWC0016	ISWC0016S001	Soil	Sodium-22	-0.0123	0.0304	0.0513	NDA	pCi/g	2 sigma	EML HASL 300, 4.5.2.3	GEL	233955	Pre-remedial
ISRA HV Waste Characterization	MWH	07/01/2009	Happy Valley	ISWC0019	ISWC0019S001	Soil	Sodium-22	-0.00966	0.0238	0.0402	NDA	pCi/g	2 sigma	EML HASL 300, 4.5.2.3	GEL	233955	Pre-remedial
ISRA HV Waste Characterization	MWH	07/01/2009	Happy Valley	ISWC0020	ISWC0020S001	Soil	Sodium-22	-0.00351	0.0181	0.0309	NDA	pCi/g	2 sigma	EML HASL 300, 4.5.2.3	GEL	233955	Pre-remedial
ISRA HV Waste Characterization	MWH	07/01/2009	Happy Valley	ISWC0023	ISWC0023S001	Soil	Sodium-22	-0.00216	0.0188	0.0316	NDA	pCi/g	2 sigma	EML HASL 300, 4.5.2.3	GEL	233955	Pre-remedial
ISRA HV Waste Characterization	MWH	07/01/2009	Happy Valley	ISWC0024	ISWC0024S001	Soil	Sodium-22	-0.0127	0.0228	0.0332	NDA	pCi/g	2 sigma	EML HASL 300, 4.5.2.3	GEL	233955	Pre-remedial
ISRA HV Waste Characterization	MWH	07/01/2009	Happy Valley	ISWC0028	ISWC0028S001	Soil	Sodium-22	-0.00556	0.0272	0.0454	NDA	pCi/g	2 sigma	EML HASL 300, 4.5.2.3	GEL	233955	Pre-remedial
ISRA HV Waste Characterization	MWH	07/01/2009	Happy Valley	ISWC0041	ISWC0041S001	Soil	Sodium-22	-0.0166	0.0179	0.0287	NDA	pCi/g	2 sigma	EML HASL 300, 4.5.2.3	GEL	233955	Pre-remedial
ISRA HV Waste Characterization	MWH	07/01/2009	Happy Valley	ISWC0042	ISWC0042S001	Soil	Sodium-22	-0.0267	0.0268	0.0413	NDA	pCi/g	2 sigma	EML HASL 300, 4.5.2.3	GEL	233955	Pre-remedial
ISRA HV Waste Characterization	MWH	07/01/2009	Happy Valley	ISWC0043	ISWC0043S001	Soil	Sodium-22	-0.0241	0.0247	0.0391	NDA	pCi/g	2 sigma	EML HASL 300, 4.5.2.3	GEL	233955	Pre-remedial
ISRA HV Waste Characterization	MWH	07/01/2009	Happy Valley	ISWC0044	ISWC0044S001	Soil	Sodium-22	0.00749	0.0232	0.0401	NDA	pCi/g	2 sigma	EML HASL 300, 4.5.2.3	GEL	233955	Pre-remedial
ISRA HV Waste Characterization	MWH	07/01/2009	Happy Valley	ISWC0045	ISWC0045S001	Soil	Sodium-22	-0.00943	0.0259	0.0426	NDA	pCi/g	2 sigma	EML HASL 300, 4.5.2.3	GEL	233955	Pre-remedial

ISRA Soil Sample Results for Happy Valley

Project Name	Sampling Organization	Sampling Date	Sampling Location (General)	Sampling Location (Specific)	Sample Serial Number	Media Type	Isotope	Value	Error (+/-)	MDA	Non-Detect?	Units	Error Type	Analysis Protocol	Analysis Organization	Document	Status
ISRA HV Waste Characterization	MWH	07/01/2009	Happy Valley	ISWC0046	ISWC0046S001	Soil	Sodium-22	-0.0159	0.0187	0.0308	NDA	pCi/g	2 sigma	EML HASL 300, 4.5.2.3	GEL	233955	Pre-remedial
ISRA HV Waste Characterization	MWH	07/01/2009	Happy Valley	ISWC0047	ISWC0047S001	Soil	Sodium-22	0.0181	0.0239	0.042	NDA	pCi/g	2 sigma	EML HASL 300, 4.5.2.3	GEL	233955	Pre-remedial
ISRA HV Waste Characterization	MWH	07/01/2009	Happy Valley	ISWC0048	ISWC0048S001	Soil	Sodium-22	-0.00901	0.0349	0.056	NDA	pCi/g	2 sigma	EML HASL 300, 4.5.2.3	GEL	233955	Pre-remedial
ISRA HV Waste Characterization	MWH	7/29/2009	Happy Valley	ISWC0077	ISWC0077RadS001	Soil	Sodium-22	-0.00888	0.0212	0.0352	NDA	pCi/g	2 sigma	EML HASL 300, 4.5.2.3	GEL	234325	Pre-remedial
ISRA HV Waste Characterization	MWH	7/29/2009	Happy Valley	ISWC0078	ISWC0078RadS001	Soil	Sodium-22	-0.0122	0.0254	0.0423	NDA	pCi/g	2 sigma	EML HASL 300, 4.5.2.3	GEL	234325	Pre-remedial
ISRA HV Waste Characterization	MWH	7/29/2009	Happy Valley	ISWC0079	ISWC0079RadS001	Soil	Sodium-22	0.0114	0.0226	0.0391	NDA	pCi/g	2 sigma	EML HASL 300, 4.5.2.3	GEL	234325	Pre-remedial
ISRA HV Waste Characterization	MWH	7/29/2009	Happy Valley	ISWC0080	ISWC0080RadS001	Soil	Sodium-22	-0.0178	0.0328	0.0528	NDA	pCi/g	2 sigma	EML HASL 300, 4.5.2.3	GEL	234325	Pre-remedial
ISRA HV Waste Characterization	MWH	7/29/2009	Happy Valley	ISWC0081	ISWC0081RadS001	Soil	Sodium-22	0.00471	0.0298	0.0511	NDA	pCi/g	2 sigma	EML HASL 300, 4.5.2.3	GEL	234325	Pre-remedial
ISRA HV Waste Characterization	MWH	7/29/2009	Happy Valley	ISWC0084	ISWC0084RadS001	Soil	Sodium-22	0.00553	0.0306	0.0517	NDA	pCi/g	2 sigma	EML HASL 300, 4.5.2.3	GEL	234325	Pre-remedial
ISRA HV Waste Characterization	MWH	7/29/2009	Happy Valley	ISWC0085	ISWC0085RadS001	Soil	Sodium-22	-0.0145	0.042	0.0676	NDA	pCi/g	2 sigma	EML HASL 300, 4.5.2.3	GEL	234325	Pre-remedial
ISRA HV Waste Characterization	MWH	7/29/2009	Happy Valley	ISWC0086	ISWC0086RadS001	Soil	Sodium-22	0.0121	0.0277	0.0477	NDA	pCi/g	2 sigma	EML HASL 300, 4.5.2.3	GEL	234325	Pre-remedial
ISRA HV Waste Characterization	MWH	7/29/2009	Happy Valley	ISWC0087	ISWC0087RadS001	Soil	Sodium-22	-0.00146	0.0297	0.0491	NDA	pCi/g	2 sigma	EML HASL 300, 4.5.2.3	GEL	234325	Pre-remedial
ISRA HV Waste Characterization	MWH	7/29/2009	Happy Valley	ISWC0088	ISWC0088RadS001	Soil	Sodium-22	-0.00158	0.0282	0.0485	NDA	pCi/g	2 sigma	EML HASL 300, 4.5.2.3	GEL	234325	Pre-remedial
ISRA HV Waste Characterization	MWH	7/29/2009	Happy Valley	ISWC0089	ISWC0089RadS001	Soil	Sodium-22	0.0167	0.0292	0.0512	NDA	pCi/g	2 sigma	EML HASL 300, 4.5.2.3	GEL	234325	Pre-remedial
ISRA HV Waste Characterization	MWH	7/29/2009	Happy Valley	ISWC0090	ISWC0090RadS001	Soil	Sodium-22	0.0133	0.0288	0.0491	NDA	pCi/g	2 sigma	EML HASL 300, 4.5.2.3	GEL	234325	Pre-remedial
ISRA HV Waste Characterization	MWH	7/29/2009	Happy Valley	ISWC0091	ISWC0091RadS001	Soil	Sodium-22	-0.0223	0.0324	0.0516	NDA	pCi/g	2 sigma	EML HASL 300, 4.5.2.3	GEL	234325	Pre-remedial
ISRA HV Waste Characterization	MWH	7/29/2009	Happy Valley	ISWC0092	ISWC0092RadS001	Soil	Sodium-22	0.009	0.026	0.0457	NDA	pCi/g	2 sigma	EML HASL 300, 4.5.2.3	GEL	234325	Pre-remedial
ISRA HV Waste Characterization	MWH	7/29/2009	Happy Valley	ISWC0093	ISWC0093RadS001	Soil	Sodium-22	0.015	0.0258	0.0451	NDA	pCi/g	2 sigma	EML HASL 300, 4.5.2.3	GEL	234325	Pre-remedial
ISRA HV Waste Characterization	MWH	7/30/2009	Happy Valley	ISWC0082	ISWC0082RadS001	Soil	Sodium-22	-0.0221	0.0261	0.0423	NDA	pCi/g	2 sigma	EML HASL 300, 4.5.2.3	GEL	234376	Pre-remedial
ISRA HV Waste Characterization	MWH	7/30/2009	Happy Valley	ISWC0083	ISWC0083RadS001	Soil	Sodium-22	-0.0116	0.0277	0.0458	NDA	pCi/g	2 sigma	EML HASL 300, 4.5.2.3	GEL	234376	Pre-remedial
ISRA HV Waste Characterization	MWH	8/17/2009	Happy Valley	ISWC0094	ISWC0094RadS001	Soil	Sodium-22	-0.00266	0.0376	0.0626	NDA	pCi/g	2 sigma	EML HASL 300, 4.5.2.3	GEL	235405	Pre-remedial
ISRA HV Waste Characterization	MWH	8/17/2009	Happy Valley	ISWC0095	ISWC0095RadS001	Soil	Sodium-22	0.0381	0.0299	0.0553	NDA	pCi/g	2 sigma	EML HASL 300, 4.5.2.3	GEL	235405	Pre-remedial
ISRA HV Waste Characterization	MWH	9/14/2009	Happy Valley	ISWC0112	ISWC0112S001	Soil	Sodium-22	-0.0103	0.0318	0.052	NDA	pCi/g	2 sigma	EML HASL 300, 4.5.2.3	GEL	237286	Pre-remedial
ISRA HV Waste Characterization	MWH	10/22/2009	Happy Valley	ISWC0113	ISWC0113S001	Soil	Sodium-22	-0.0168	0.0283	0.0454	NDA	pCi/g	2 sigma	DOE HASL 300, 4.5.2.3/Ga-01-R	GEL	239640	Waste
ISRA HV Waste Characterization	MWH	07/01/2009	Happy Valley	ISWC0001	ISWC0001S001	Soil	Strontium-90	0.0237	0.0284	0.0479	NDA	pCi/g	2 sigma	EPA 905.0 Modified	GEL	233955	Pre-remedial
ISRA HV Waste Characterization	MWH	07/01/2009	Happy Valley	ISWC0002	ISWC0002S001	Soil	Strontium-90	0.0154	0.0261	0.0449	NDA	pCi/g	2 sigma	EPA 905.0 Modified	GEL	233955	Pre-remedial
ISRA HV Waste Characterization	MWH	07/01/2009	Happy Valley	ISWC0003	ISWC0003S001	Soil	Strontium-90	0.000558	0.0236	0.0473	NDA	pCi/g	2 sigma	EPA 905.0 Modified	GEL	233955	Pre-remedial
ISRA HV Waste Characterization	MWH	07/01/2009	Happy Valley	ISWC0004	ISWC0004S001	Soil	Strontium-90	0.0247	0.027	0.0446	NDA	pCi/g	2 sigma	EPA 905.0 Modified	GEL	233955	Pre-remedial
ISRA HV Waste Characterization	MWH	07/01/2009	Happy Valley	ISWC0005	ISWC0005S001	Soil	Strontium-90	0.0217	0.025	0.0421	NDA	pCi/g	2 sigma	EPA 905.0 Modified	GEL	233955	Pre-remedial
ISRA HV Waste Characterization	MWH	07/01/2009	Happy Valley	ISWC0006	ISWC0006S001	Soil	Strontium-90	0.0415	0.0231	0.0322		pCi/g	2 sigma	EPA 905.0 Modified	GEL	233955	Pre-remedial
ISRA HV Waste Characterization	MWH	07/01/2009	Happy Valley	ISWC0009	ISWC0009S001	Soil	Strontium-90	0.027	0.028	0.0468	NDA	pCi/g	2 sigma	EPA 905.0 Modified	GEL	233955	Pre-remedial
ISRA HV Waste Characterization	MWH	07/01/2009	Happy Valley	ISWC0010	ISWC0010S001	Soil	Strontium-90	-0.00173	0.0272	0.0477	NDA	pCi/g	2 sigma	EPA 905.0 Modified	GEL	233955	Pre-remedial
ISRA HV Waste Characterization	MWH	07/01/2009	Happy Valley	ISWC0011	ISWC0011S001	Soil	Strontium-90	0.0237	0.0279	0.0469	NDA	pCi/g	2 sigma	EPA 905.0 Modified	GEL	233955	Pre-remedial
ISRA HV Waste Characterization	MWH	07/01/2009	Happy Valley	ISWC0012	ISWC0012S001	Soil	Strontium-90	0.0344	0.0254	0.0413	NDA	pCi/g	2 sigma	EPA 905.0 Modified	GEL	233955	Pre-remedial
ISRA HV Waste Characterization	MWH	07/01/2009	Happy Valley	ISWC0013	ISWC0013S001	Soil	Strontium-90	0.0298	0.0281	0.0468	NDA	pCi/g	2 sigma	EPA 905.0 Modified	GEL	233955	Pre-remedial
ISRA HV Waste Characterization	MWH	07/01/2009	Happy Valley	ISWC0014	ISWC0014S001	Soil	Strontium-90	0.0361	0.0196	0.0276		pCi/g	2 sigma	EPA 905.0 Modified	GEL	233955	Pre-remedial
ISRA HV Waste Characterization	MWH	07/01/2009	Happy Valley	ISWC0015	ISWC0015S001	Soil	Strontium-90	0.0034	0.0253	0.0456	NDA	pCi/g	2 sigma	EPA 905.0 Modified	GEL	233955	Pre-remedial
ISRA HV Waste Characterization	MWH	07/01/2009	Happy Valley	ISWC0016	ISWC0016S001	Soil	Strontium-90	0.00886	0.0183	0.0327	NDA	pCi/g	2 sigma	EPA 905.0 Modified	GEL	233955	Pre-remedial
ISRA HV Waste Characterization	MWH	07/01/2009	Happy Valley	ISWC0019	ISWC0019S001	Soil	Strontium-90	-0.00142	0.0243	0.0454	NDA	pCi/g	2 sigma	EPA 905.0 Modified	GEL	233955	Pre-remedial
ISRA HV Waste Characterization	MWH	07/01/2009	Happy Valley	ISWC0020	ISWC0020S001	Soil	Strontium-90	-0.0182	0.0257	0.0469	NDA	pCi/g	2 sigma	EPA 905.0 Modified	GEL	233955	Pre-remedial
ISRA HV Waste Characterization	MWH	07/01/2009	Happy Valley	ISWC0023	ISWC0023S001	Soil	Strontium-90	0.0371	0.0289	0.0475	NDA	pCi/g	2 sigma	EPA 905.0 Modified	GEL	233955	Pre-remedial
ISRA HV Waste Characterization	MWH	07/01/2009	Happy Valley	ISWC0024	ISWC0024S001	Soil	Strontium-90	0.0245	0.0284	0.0478	NDA	pCi/g	2 sigma	EPA 905.0 Modified	GEL	233955	Pre-remedial
ISRA HV Waste Characterization	MWH	07/01/2009	Happy Valley	ISWC0028	ISWC0028S001	Soil	Strontium-90	0.0329	0.0269	0.043	NDA	pCi/g	2 sigma	EPA 905.0 Modified	GEL	233955	Pre-remedial
ISRA HV Waste Characterization	MWH	07/01/2009	Happy Valley	ISWC0041	ISWC0041S001	Soil	Strontium-90	0.0359	0.0232	0.0373	NDA	pCi/g	2 sigma	EPA 905.0 Modified	GEL	233955	Pre-remedial
ISRA HV Waste Characterization	MWH	07/01/2009	Happy Valley	ISWC0042	ISWC0042S001	Soil	Strontium-90	0.00868	0.0256	0.0444	NDA	pCi/g	2 sigma	EPA 905.0 Modified	GEL	233955	Pre-remedial
ISRA HV Waste Characterization	MWH	07/01/2009	Happy Valley	ISWC0043	ISWC0043S001	Soil	Strontium-90	0.00492	0.022	0.0381	NDA	pCi/g	2 sigma	EPA 905.0 Modified	GEL	233955	Pre-remedial
ISRA HV Waste Characterization	MWH	07/01/2009	Happy Valley	ISWC0044	ISWC0044S001	Soil	Strontium-90	-0.00133	0.0222	0.0398	NDA	pCi/g	2 sigma	EPA 905.0 Modified	GEL	233955	Pre-remedial
ISRA HV Waste Characterization	MWH	07/01/2009	Happy Valley	ISWC0045	ISWC0045S001	Soil	Strontium-90	-0.01	0.0267	0.0481	NDA	pCi/g	2 sigma	EPA 905.0 Modified	GEL	233955	Pre-remedial
ISRA HV Waste Characterization	MWH	07/01/2009	Happy Valley	ISWC0046	ISWC0046S001	Soil	Strontium-90	0.0375	0.0217	0.032		pCi/g	2 sigma	EPA 905.0 Modified	GEL	233955	Pre-remedial
ISRA HV Waste Characterization	MWH	07/01/2009	Happy Valley	ISWC0047	ISWC0047S001	Soil	Strontium-90	0.0365	0.0283	0.0462	NDA	pCi/g	2 sigma	EPA 905.0 Modified	GEL	233955	Pre-remedial
ISRA HV Waste Characterization	MWH	07/01/2009	Happy Valley	ISWC0048	ISWC0048S001	Soil	Strontium-90	-0.000557	0.0173	0.0334	NDA	pCi/g	2 sigma	EPA 905.0 Modified	GEL	233955	Pre-remedial
ISRA HV Waste Characterization	MWH	7/29/2009	Happy Valley	ISWC0077	ISWC0077RadS001	Soil	Strontium-90	0.0307	0.0238	0.0372	NDA	pCi/g	2 sigma	EPA 905.0 Modified	GEL	234325	Pre-remedial
ISRA HV Waste Characterization	MWH	7/29/2009	Happy Valley	ISWC0078	ISWC0078RadS001	Soil	Strontium-90	0.0004	0.0232	0.0459	NDA	pCi/g	2 sigma	EPA 905.0 Modified	GEL	234325	Pre-remedial
ISRA HV Waste Characterization	MWH	7/29/2009	Happy Valley	ISWC0079	ISWC0079RadS001	Soil	Strontium-90	0.00167	0.0184	0.0353	NDA	pCi/g	2 sigma	EPA 905.0 Modified	GEL	234325	Pre-remedial
ISRA HV Waste Characterization	MWH	7/29/2009	Happy Valley	ISWC0080	ISWC0080RadS001	Soil	Strontium-90	0.0227	0.019	0.0295	NDA	pCi/g	2 sigma	EPA 905.0 Modified	GEL	234325	Pre-remedial
ISRA HV Waste Characterization	MWH	7/29/2009	Happy Valley	ISWC0081	ISWC0081RadS001	Soil	Strontium-90	0.0142	0.017	0.0287	NDA	pCi/g	2 sigma	EPA 905.0 Modified	GEL	234325	Pre-remedial
ISRA HV Waste Characterization	MWH	7/29/2009	Happy Valley	ISWC0084	ISWC0084RadS001	Soil	Strontium-90	0.00833	0.0263	0.0455	NDA	pCi/g	2 sigma	EPA 905.0 Modified	GEL	234325	Pre-remedial
ISRA HV Waste Characterization	MWH	7/29/2009	Happy Valley	ISWC0085	ISWC0085RadS001	Soil	Strontium-90	0.0419	0.0261	0.0419	NDA	pCi/g	2 sigma	EPA 905.0 Modified	GEL	234325	Pre-remedial
ISRA HV Waste Characterization	MWH	7/29/2009	Happy Valley	ISWC0086	ISWC0086RadS001	Soil	Strontium-90	0.000108	0.0164	0.0334	NDA	pCi/g	2 sigma	EPA 905.0 Modified	GEL	234325	Pre-remedial
ISRA HV Waste Characterization	MWH	7/29/2009	Happy Valley	ISWC0087	ISWC0087RadS001	Soil	Strontium-90	3.85E-05	0.0223	0.0397	NDA	pCi/g	2 sigma	EPA 905.0 Modified	GEL	234325	Pre-remedial
ISRA HV Waste Characterization	MWH	7/29/2009	Happy Valley	ISWC0088	ISWC0088RadS001	Soil	Strontium-90	0.00507	0.0218	0.0381	NDA	pCi/g	2 sigma	EPA 905.0 Modified	GEL	234325	Pre-remedial
ISRA HV Waste Characterization	MWH	7/29/2009	Happy Valley	ISWC0089	ISWC0089RadS001	Soil	Strontium-90	0.0103	0.0272	0.0471	NDA	pCi/g	2 sigma	EPA 905.0 Modified	GEL	234325	Pre-remedial
ISRA HV Waste Characterization	MWH	7/29/2009	Happy Valley	ISWC0090	ISWC0090RadS001	Soil	Strontium-90	0.0299	0.0272	0.0451	NDA	pCi/g	2 sigma	EPA 905.0 Modified	GEL	234325	Pre-remedial
ISRA HV Waste Characterization	MWH	7/29/2009	Happy Valley	ISWC0091	ISWC0091RadS001	Soil	Strontium-90	0.0272	0.0283	0.0472	NDA	pCi/g	2 sigma	EPA 905.0 Modified	GEL	234325	Pre-remedial
ISRA HV Waste Characterization	MWH	7/29/2009	Happy Valley	ISWC0092	ISWC0092RadS001	Soil	Strontium-90	0.0264	0.0247	0.041	NDA	pCi/g	2 sigma	EPA 905.0 Modified	GEL	234325	Pre-remedial
ISRA HV Waste Characterization	MWH	7/29/2009	Happy Valley	ISWC0093	ISWC0093RadS001	Soil	Strontium-90	0.0273	0.0216	0.0333	NDA	pCi/g	2 sigma	EPA 905.0 Modified	GEL	234325	Pre-remedial
ISRA HV Waste Characterization	MWH	7/30/2009	Happy Valley	ISWC0082	ISWC0082RadS001	Soil	Strontium-90	0.000193	0.0153	0.0306	NDA	pCi/g	2 sigma	EPA 905.0 Modified	GEL	234376	Pre-remedial
ISRA HV Waste Characterization	MWH	7/30/2009	Happy Valley	ISWC0083	ISWC0083RadS001	Soil	Strontium-90	0.0378	0.0236	0.0348		pCi/g	2 sigma	EPA 905.0 Modified	GEL	234376	Pre-remedial

ISRA Soil Sample Results for Happy Valley

Project Name	Sampling Organization	Sampling Date	Sampling Location (General)	Sampling Location (Specific)	Sample Serial Number	Media Type	Isotope	Value	Error (+/-)	MDA	Non-Detect?	Units	Error Type	Analysis Protocol	Analysis Organization	Document	Status
ISRA HV Waste Characterization	MWH	8/17/2009	Happy Valley	ISWC0094	ISWC0094RadS001	Soil	Strontium-90	-0.00381	0.026	0.0476	NDA	pCi/g	2 sigma	EPA 905.0 Modified	GEL	235405	Pre-remedial
ISRA HV Waste Characterization	MWH	8/17/2009	Happy Valley	ISWC0095	ISWC0095RadS001	Soil	Strontium-90	-0.00968	0.0123	0.0296	NDA	pCi/g	2 sigma	EPA 905.0 Modified	GEL	235405	Pre-remedial
ISRA HV Waste Characterization	MWH	9/14/2009	Happy Valley	ISWC0112	ISWC0112S001	Soil	Strontium-90	0.0108	0.024	0.0436	NDA	pCi/g	2 sigma	EPA 905.0 Modified	GEL	237286	Pre-remedial
ISRA HV Waste Characterization	MWH	10/22/2009	Happy Valley	ISWC0113	ISWC0113S001	Soil	Strontium-90	0.0276	0.0257	0.0414	NDA	pCi/g	2 sigma	EPA 905.0 Modified	GEL	239640	Waste
ISRA HV Waste Characterization	MWH	07/01/2009	Happy Valley	ISWC0001	ISWC0001S001	Soil	Thorium-228	1.38	0.153	0.0622		pCi/g	2 sigma	EML HASL 300, 4.5.2.3	GEL	233955	Pre-remedial
ISRA HV Waste Characterization	MWH	07/01/2009	Happy Valley	ISWC0002	ISWC0002S001	Soil	Thorium-228	1.41	0.119	0.0551		pCi/g	2 sigma	EML HASL 300, 4.5.2.3	GEL	233955	Pre-remedial
ISRA HV Waste Characterization	MWH	07/01/2009	Happy Valley	ISWC0003	ISWC0003S001	Soil	Thorium-228	1.27	0.129	0.0626		pCi/g	2 sigma	EML HASL 300, 4.5.2.3	GEL	233955	Pre-remedial
ISRA HV Waste Characterization	MWH	07/01/2009	Happy Valley	ISWC0004	ISWC0004S001	Soil	Thorium-228	1.44	0.151	0.054		pCi/g	2 sigma	EML HASL 300, 4.5.2.3	GEL	233955	Pre-remedial
ISRA HV Waste Characterization	MWH	07/01/2009	Happy Valley	ISWC0005	ISWC0005S001	Soil	Thorium-228	1.48	0.145	0.0615		pCi/g	2 sigma	EML HASL 300, 4.5.2.3	GEL	233955	Pre-remedial
ISRA HV Waste Characterization	MWH	07/01/2009	Happy Valley	ISWC0006	ISWC0006S001	Soil	Thorium-228	1.29	0.123	0.0676		pCi/g	2 sigma	EML HASL 300, 4.5.2.3	GEL	233955	Pre-remedial
ISRA HV Waste Characterization	MWH	07/01/2009	Happy Valley	ISWC0009	ISWC0009S001	Soil	Thorium-228	1.33	0.125	0.0451		pCi/g	2 sigma	EML HASL 300, 4.5.2.3	GEL	233955	Pre-remedial
ISRA HV Waste Characterization	MWH	07/01/2009	Happy Valley	ISWC0010	ISWC0010S001	Soil	Thorium-228	1.49	0.117	0.0415		pCi/g	2 sigma	EML HASL 300, 4.5.2.3	GEL	233955	Pre-remedial
ISRA HV Waste Characterization	MWH	07/01/2009	Happy Valley	ISWC0011	ISWC0011S001	Soil	Thorium-228	1.5	0.139	0.0558		pCi/g	2 sigma	EML HASL 300, 4.5.2.3	GEL	233955	Pre-remedial
ISRA HV Waste Characterization	MWH	07/01/2009	Happy Valley	ISWC0012	ISWC0012S001	Soil	Thorium-228	1.51	0.177	0.0627		pCi/g	2 sigma	EML HASL 300, 4.5.2.3	GEL	233955	Pre-remedial
ISRA HV Waste Characterization	MWH	07/01/2009	Happy Valley	ISWC0013	ISWC0013S001	Soil	Thorium-228	1.47	0.128	0.0578		pCi/g	2 sigma	EML HASL 300, 4.5.2.3	GEL	233955	Pre-remedial
ISRA HV Waste Characterization	MWH	07/01/2009	Happy Valley	ISWC0014	ISWC0014S001	Soil	Thorium-228	1.39	0.122	0.0536		pCi/g	2 sigma	EML HASL 300, 4.5.2.3	GEL	233955	Pre-remedial
ISRA HV Waste Characterization	MWH	07/01/2009	Happy Valley	ISWC0015	ISWC0015S001	Soil	Thorium-228	1.2	0.104	0.0536		pCi/g	2 sigma	EML HASL 300, 4.5.2.3	GEL	233955	Pre-remedial
ISRA HV Waste Characterization	MWH	07/01/2009	Happy Valley	ISWC0016	ISWC0016S001	Soil	Thorium-228	1.51	0.149	0.0539		pCi/g	2 sigma	EML HASL 300, 4.5.2.3	GEL	233955	Pre-remedial
ISRA HV Waste Characterization	MWH	07/01/2009	Happy Valley	ISWC0019	ISWC0019S001	Soil	Thorium-228	1.48	0.142	0.0432		pCi/g	2 sigma	EML HASL 300, 4.5.2.3	GEL	233955	Pre-remedial
ISRA HV Waste Characterization	MWH	07/01/2009	Happy Valley	ISWC0020	ISWC0020S001	Soil	Thorium-228	1.68	0.135	0.0396		pCi/g	2 sigma	EML HASL 300, 4.5.2.3	GEL	233955	Pre-remedial
ISRA HV Waste Characterization	MWH	07/01/2009	Happy Valley	ISWC0023	ISWC0023S001	Soil	Thorium-228	1.42	0.112	0.0381		pCi/g	2 sigma	EML HASL 300, 4.5.2.3	GEL	233955	Pre-remedial
ISRA HV Waste Characterization	MWH	07/01/2009	Happy Valley	ISWC0024	ISWC0024S001	Soil	Thorium-228	1.65	0.146	0.0491		pCi/g	2 sigma	EML HASL 300, 4.5.2.3	GEL	233955	Pre-remedial
ISRA HV Waste Characterization	MWH	07/01/2009	Happy Valley	ISWC0028	ISWC0028S001	Soil	Thorium-228	1.49	0.127	0.0554		pCi/g	2 sigma	EML HASL 300, 4.5.2.3	GEL	233955	Pre-remedial
ISRA HV Waste Characterization	MWH	07/01/2009	Happy Valley	ISWC0041	ISWC0041S001	Soil	Thorium-228	1.34	0.109	0.0497		pCi/g	2 sigma	EML HASL 300, 4.5.2.3	GEL	233955	Pre-remedial
ISRA HV Waste Characterization	MWH	07/01/2009	Happy Valley	ISWC0042	ISWC0042S001	Soil	Thorium-228	1.25	0.112	0.0605		pCi/g	2 sigma	EML HASL 300, 4.5.2.3	GEL	233955	Pre-remedial
ISRA HV Waste Characterization	MWH	07/01/2009	Happy Valley	ISWC0043	ISWC0043S001	Soil	Thorium-228	1.25	0.133	0.0534		pCi/g	2 sigma	EML HASL 300, 4.5.2.3	GEL	233955	Pre-remedial
ISRA HV Waste Characterization	MWH	07/01/2009	Happy Valley	ISWC0044	ISWC0044S001	Soil	Thorium-228	1.32	0.12	0.0518		pCi/g	2 sigma	EML HASL 300, 4.5.2.3	GEL	233955	Pre-remedial
ISRA HV Waste Characterization	MWH	07/01/2009	Happy Valley	ISWC0045	ISWC0045S001	Soil	Thorium-228	1.28	0.106	0.0551		pCi/g	2 sigma	EML HASL 300, 4.5.2.3	GEL	233955	Pre-remedial
ISRA HV Waste Characterization	MWH	07/01/2009	Happy Valley	ISWC0046	ISWC0046S001	Soil	Thorium-228	1.44	0.115	0.0406		pCi/g	2 sigma	EML HASL 300, 4.5.2.3	GEL	233955	Pre-remedial
ISRA HV Waste Characterization	MWH	07/01/2009	Happy Valley	ISWC0047	ISWC0047S001	Soil	Thorium-228	1.49	0.164	0.051		pCi/g	2 sigma	EML HASL 300, 4.5.2.3	GEL	233955	Pre-remedial
ISRA HV Waste Characterization	MWH	07/01/2009	Happy Valley	ISWC0048	ISWC0048S001	Soil	Thorium-228	1.51	0.142	0.0623		pCi/g	2 sigma	EML HASL 300, 4.5.2.3	GEL	233955	Pre-remedial
ISRA HV Waste Characterization	MWH	7/29/2009	Happy Valley	ISWC0077	ISWC0077RadS001	Soil	Thorium-228	1.47	0.117	0.0481		pCi/g	2 sigma	EML HASL 300, 4.5.2.3	GEL	234325	Pre-remedial
ISRA HV Waste Characterization	MWH	7/29/2009	Happy Valley	ISWC0078	ISWC0078RadS001	Soil	Thorium-228	1.43	0.121	0.0559		pCi/g	2 sigma	EML HASL 300, 4.5.2.3	GEL	234325	Pre-remedial
ISRA HV Waste Characterization	MWH	7/29/2009	Happy Valley	ISWC0079	ISWC0079RadS001	Soil	Thorium-228	1.6	0.176	0.0513		pCi/g	2 sigma	EML HASL 300, 4.5.2.3	GEL	234325	Pre-remedial
ISRA HV Waste Characterization	MWH	7/29/2009	Happy Valley	ISWC0080	ISWC0080RadS001	Soil	Thorium-228	1.78	0.187	0.0567		pCi/g	2 sigma	EML HASL 300, 4.5.2.3	GEL	234325	Pre-remedial
ISRA HV Waste Characterization	MWH	7/29/2009	Happy Valley	ISWC0081	ISWC0081RadS001	Soil	Thorium-228	1.41	0.148	0.0607		pCi/g	2 sigma	EML HASL 300, 4.5.2.3	GEL	234325	Pre-remedial
ISRA HV Waste Characterization	MWH	7/29/2009	Happy Valley	ISWC0084	ISWC0084RadS001	Soil	Thorium-228	1.45	0.17	0.0627		pCi/g	2 sigma	EML HASL 300, 4.5.2.3	GEL	234325	Pre-remedial
ISRA HV Waste Characterization	MWH	7/29/2009	Happy Valley	ISWC0085	ISWC0085RadS001	Soil	Thorium-228	1.63	0.177	0.0627		pCi/g	2 sigma	EML HASL 300, 4.5.2.3	GEL	234325	Pre-remedial
ISRA HV Waste Characterization	MWH	7/29/2009	Happy Valley	ISWC0086	ISWC0086RadS001	Soil	Thorium-228	1.35	0.127	0.0598		pCi/g	2 sigma	EML HASL 300, 4.5.2.3	GEL	234325	Pre-remedial
ISRA HV Waste Characterization	MWH	7/29/2009	Happy Valley	ISWC0087	ISWC0087RadS001	Soil	Thorium-228	1.42	0.122	0.0621		pCi/g	2 sigma	EML HASL 300, 4.5.2.3	GEL	234325	Pre-remedial
ISRA HV Waste Characterization	MWH	7/29/2009	Happy Valley	ISWC0088	ISWC0088RadS001	Soil	Thorium-228	1.25	0.114	0.0622		pCi/g	2 sigma	EML HASL 300, 4.5.2.3	GEL	234325	Pre-remedial
ISRA HV Waste Characterization	MWH	7/29/2009	Happy Valley	ISWC0089	ISWC0089RadS001	Soil	Thorium-228	1.3	0.115	0.0549		pCi/g	2 sigma	EML HASL 300, 4.5.2.3	GEL	234325	Pre-remedial
ISRA HV Waste Characterization	MWH	7/29/2009	Happy Valley	ISWC0090	ISWC0090RadS001	Soil	Thorium-228	1.4	0.163	0.0564		pCi/g	2 sigma	EML HASL 300, 4.5.2.3	GEL	234325	Pre-remedial
ISRA HV Waste Characterization	MWH	7/29/2009	Happy Valley	ISWC0091	ISWC0091RadS001	Soil	Thorium-228	1.48	0.171	0.0583		pCi/g	2 sigma	EML HASL 300, 4.5.2.3	GEL	234325	Pre-remedial
ISRA HV Waste Characterization	MWH	7/29/2009	Happy Valley	ISWC0092	ISWC0092RadS001	Soil	Thorium-228	1.32	0.117	0.054		pCi/g	2 sigma	EML HASL 300, 4.5.2.3	GEL	234325	Pre-remedial
ISRA HV Waste Characterization	MWH	7/29/2009	Happy Valley	ISWC0093	ISWC0093RadS001	Soil	Thorium-228	1.53	0.139	0.059		pCi/g	2 sigma	EML HASL 300, 4.5.2.3	GEL	234325	Pre-remedial
ISRA HV Waste Characterization	MWH	7/30/2009	Happy Valley	ISWC0082	ISWC0082RadS001	Soil	Thorium-228	1.54	0.141	0.0572		pCi/g	2 sigma	EML HASL 300, 4.5.2.3	GEL	234376	Pre-remedial
ISRA HV Waste Characterization	MWH	7/30/2009	Happy Valley	ISWC0083	ISWC0083RadS001	Soil	Thorium-228	1.64	0.17	0.0583		pCi/g	2 sigma	EML HASL 300, 4.5.2.3	GEL	234376	Pre-remedial
ISRA HV Waste Characterization	MWH	8/17/2009	Happy Valley	ISWC0094	ISWC0094RadS001	Soil	Thorium-228	1.36	0.152	0.07		pCi/g	2 sigma	EML HASL 300, 4.5.2.3	GEL	235405	Pre-remedial
ISRA HV Waste Characterization	MWH	8/17/2009	Happy Valley	ISWC0095	ISWC0095RadS001	Soil	Thorium-228	1.27	0.126	0.0524		pCi/g	2 sigma	EML HASL 300, 4.5.2.3	GEL	235405	Pre-remedial
ISRA HV Waste Characterization	MWH	9/14/2009	Happy Valley	ISWC0112	ISWC0112S001	Soil	Thorium-228	1.32	0.12	0.0678		pCi/g	2 sigma	EML HASL 300, 4.5.2.3	GEL	237286	Pre-remedial
ISRA HV Waste Characterization	MWH	10/22/2009	Happy Valley	ISWC0113	ISWC0113S001	Soil	Thorium-228	1.31	0.123	0.0557		pCi/g	2 sigma	DOE HASL 300, 4.5.2.3/Ga-01-R	GEL	239640	Waste
ISRA HV Waste Characterization	MWH	07/01/2009	Happy Valley	ISWC0001	ISWC0001S001	Soil	Thorium-232	1.4	0.254	0.165		pCi/g	2 sigma	EML HASL 300, 4.5.2.3	GEL	233955	Pre-remedial
ISRA HV Waste Characterization	MWH	07/01/2009	Happy Valley	ISWC0002	ISWC0002S001	Soil	Thorium-232	1.64	0.251	0.124		pCi/g	2 sigma	EML HASL 300, 4.5.2.3	GEL	233955	Pre-remedial
ISRA HV Waste Characterization	MWH	07/01/2009	Happy Valley	ISWC0003	ISWC0003S001	Soil	Thorium-232	1.19	0.234	0.178		pCi/g	2 sigma	EML HASL 300, 4.5.2.3	GEL	233955	Pre-remedial
ISRA HV Waste Characterization	MWH	07/01/2009	Happy Valley	ISWC0004	ISWC0004S001	Soil	Thorium-232	1.5	0.25	0.119		pCi/g	2 sigma	EML HASL 300, 4.5.2.3	GEL	233955	Pre-remedial
ISRA HV Waste Characterization	MWH	07/01/2009	Happy Valley	ISWC0005	ISWC0005S001	Soil	Thorium-232	1.71	0.319	0.144		pCi/g	2 sigma	EML HASL 300, 4.5.2.3	GEL	233955	Pre-remedial
ISRA HV Waste Characterization	MWH	07/01/2009	Happy Valley	ISWC0006	ISWC0006S001	Soil	Thorium-232	1.3	0.294	0.158		pCi/g	2 sigma	EML HASL 300, 4.5.2.3	GEL	233955	Pre-remedial
ISRA HV Waste Characterization	MWH	07/01/2009	Happy Valley	ISWC0009	ISWC0009S001	Soil	Thorium-232	1.33	0.215	0.117		pCi/g	2 sigma	EML HASL 300, 4.5.2.3	GEL	233955	Pre-remedial
ISRA HV Waste Characterization	MWH	07/01/2009	Happy Valley	ISWC0010	ISWC0010S001	Soil	Thorium-232	1.69	0.227	0.0965		pCi/g	2 sigma	EML HASL 300, 4.5.2.3	GEL	233955	Pre-remedial
ISRA HV Waste Characterization	MWH	07/01/2009	Happy Valley	ISWC0011	ISWC0011S001	Soil	Thorium-232	1.4	0.25	0.132		pCi/g	2 sigma	EML HASL 300, 4.5.2.3	GEL	233955	Pre-remedial
ISRA HV Waste Characterization	MWH	07/01/2009	Happy Valley	ISWC0012	ISWC0012S001	Soil	Thorium-232	1.63	0.283	0.157		pCi/g	2 sigma	EML HASL 300, 4.5.2.3	GEL	233955	Pre-remedial
ISRA HV Waste Characterization	MWH	07/01/2009	Happy Valley	ISWC0013	ISWC0013S001	Soil	Thorium-232	1.61	0.277	0.139		pCi/g	2 sigma	EML HASL 300, 4.5.2.3	GEL	233955	Pre-remedial
ISRA HV Waste Characterization	MWH	07/01/2009	Happy Valley	ISWC0014	ISWC0014S001	Soil	Thorium-232	1.48	0.25	0.129		pCi/g	2 sigma	EML HASL 300, 4.5.2.3	GEL	233955	Pre-remedial
ISRA HV Waste Characterization	MWH	07/01/2009	Happy Valley	ISWC0015	ISWC0015S001	Soil	Thorium-232	1.27	0.236	0.116		pCi/g	2 sigma	EML HASL 300, 4.5.2.3	GEL	233955	Pre-remedial
ISRA HV Waste Characterization	MWH	07/01/2009	Happy Valley	ISWC0016	ISWC0016S001	Soil	Thorium-232	1.64	0.253	0.15		pCi/g	2 sigma	EML HASL 300, 4.5.2.3	GEL	233955	Pre-remedial
ISRA HV Waste Characterization	MWH	07/01/2009	Happy Valley	ISWC0019	ISWC0019S001	Soil	Thorium-232	1.4	0.226	0.126		pCi/g	2 sigma	EML HASL 300, 4.5.2.3	GEL	233955	Pre-remedial
ISRA HV Waste Characterization	MWH	07/01/2009	Happy Valley	ISWC0020	ISWC0020S001	Soil	Thorium-232	1.62	0.235	0.0879		pCi/g	2 sigma	EML HASL 300, 4.5.2.3	GEL	233955	Pre-remedial

ISRA Soil Sample Results for Happy Valley

Project Name	Sampling Organization	Sampling Date	Sampling Location (General)	Sampling Location (Specific)	Sample Serial Number	Media Type	Isotope	Value	Error (+/-)	MDA	Non-Detect?	Units	Error Type	Analysis Protocol	Analysis Organization	Document	Status
ISRA HV Waste Characterization	MWH	07/01/2009	Happy Valley	ISWC0023	ISWC0023S001	Soil	Thorium-232	1.51	0.211	0.0899		pCi/g	2 sigma	EML HASL 300, 4.5.2.3	GEL	233955	Pre-remedial
ISRA HV Waste Characterization	MWH	07/01/2009	Happy Valley	ISWC0024	ISWC0024S001	Soil	Thorium-232	1.56	0.217	0.0987		pCi/g	2 sigma	EML HASL 300, 4.5.2.3	GEL	233955	Pre-remedial
ISRA HV Waste Characterization	MWH	07/01/2009	Happy Valley	ISWC0028	ISWC0028S001	Soil	Thorium-232	1.58	0.262	0.131		pCi/g	2 sigma	EML HASL 300, 4.5.2.3	GEL	233955	Pre-remedial
ISRA HV Waste Characterization	MWH	07/01/2009	Happy Valley	ISWC0041	ISWC0041S001	Soil	Thorium-232	1.49	0.237	0.0932		pCi/g	2 sigma	EML HASL 300, 4.5.2.3	GEL	233955	Pre-remedial
ISRA HV Waste Characterization	MWH	07/01/2009	Happy Valley	ISWC0042	ISWC0042S001	Soil	Thorium-232	1.38	0.232	0.141		pCi/g	2 sigma	EML HASL 300, 4.5.2.3	GEL	233955	Pre-remedial
ISRA HV Waste Characterization	MWH	07/01/2009	Happy Valley	ISWC0043	ISWC0043S001	Soil	Thorium-232	1.34	0.233	0.123		pCi/g	2 sigma	EML HASL 300, 4.5.2.3	GEL	233955	Pre-remedial
ISRA HV Waste Characterization	MWH	07/01/2009	Happy Valley	ISWC0044	ISWC0044S001	Soil	Thorium-232	1.39	0.212	0.122		pCi/g	2 sigma	EML HASL 300, 4.5.2.3	GEL	233955	Pre-remedial
ISRA HV Waste Characterization	MWH	07/01/2009	Happy Valley	ISWC0045	ISWC0045S001	Soil	Thorium-232	1.56	0.243	0.123		pCi/g	2 sigma	EML HASL 300, 4.5.2.3	GEL	233955	Pre-remedial
ISRA HV Waste Characterization	MWH	07/01/2009	Happy Valley	ISWC0046	ISWC0046S001	Soil	Thorium-232	1.47	0.231	0.0894		pCi/g	2 sigma	EML HASL 300, 4.5.2.3	GEL	233955	Pre-remedial
ISRA HV Waste Characterization	MWH	07/01/2009	Happy Valley	ISWC0047	ISWC0047S001	Soil	Thorium-232	1.64	0.26	0.12		pCi/g	2 sigma	EML HASL 300, 4.5.2.3	GEL	233955	Pre-remedial
ISRA HV Waste Characterization	MWH	07/01/2009	Happy Valley	ISWC0048	ISWC0048S001	Soil	Thorium-232	1.27	0.257	0.162		pCi/g	2 sigma	EML HASL 300, 4.5.2.3	GEL	233955	Pre-remedial
ISRA HV Waste Characterization	MWH	7/29/2009	Happy Valley	ISWC0077	ISWC0077RadS001	Soil	Thorium-232	1.46	0.229	0.106		pCi/g	2 sigma	EML HASL 300, 4.5.2.3	GEL	234325	Pre-remedial
ISRA HV Waste Characterization	MWH	7/29/2009	Happy Valley	ISWC0078	ISWC0078RadS001	Soil	Thorium-232	1.46	0.246	0.136		pCi/g	2 sigma	EML HASL 300, 4.5.2.3	GEL	234325	Pre-remedial
ISRA HV Waste Characterization	MWH	7/29/2009	Happy Valley	ISWC0079	ISWC0079RadS001	Soil	Thorium-232	1.7	0.267	0.113		pCi/g	2 sigma	EML HASL 300, 4.5.2.3	GEL	234325	Pre-remedial
ISRA HV Waste Characterization	MWH	7/29/2009	Happy Valley	ISWC0080	ISWC0080RadS001	Soil	Thorium-232	1.76	0.278	0.156		pCi/g	2 sigma	EML HASL 300, 4.5.2.3	GEL	234325	Pre-remedial
ISRA HV Waste Characterization	MWH	7/29/2009	Happy Valley	ISWC0081	ISWC0081RadS001	Soil	Thorium-232	1.18	0.241	0.133		pCi/g	2 sigma	EML HASL 300, 4.5.2.3	GEL	234325	Pre-remedial
ISRA HV Waste Characterization	MWH	7/29/2009	Happy Valley	ISWC0084	ISWC0084RadS001	Soil	Thorium-232	1.45	0.259	0.152		pCi/g	2 sigma	EML HASL 300, 4.5.2.3	GEL	234325	Pre-remedial
ISRA HV Waste Characterization	MWH	7/29/2009	Happy Valley	ISWC0085	ISWC0085RadS001	Soil	Thorium-232	1.66	0.301	0.183		pCi/g	2 sigma	EML HASL 300, 4.5.2.3	GEL	234325	Pre-remedial
ISRA HV Waste Characterization	MWH	7/29/2009	Happy Valley	ISWC0086	ISWC0086RadS001	Soil	Thorium-232	1.41	0.229	0.147		pCi/g	2 sigma	EML HASL 300, 4.5.2.3	GEL	234325	Pre-remedial
ISRA HV Waste Characterization	MWH	7/29/2009	Happy Valley	ISWC0087	ISWC0087RadS001	Soil	Thorium-232	1.38	0.274	0.148		pCi/g	2 sigma	EML HASL 300, 4.5.2.3	GEL	234325	Pre-remedial
ISRA HV Waste Characterization	MWH	7/29/2009	Happy Valley	ISWC0088	ISWC0088RadS001	Soil	Thorium-232	1.41	0.236	0.144		pCi/g	2 sigma	EML HASL 300, 4.5.2.3	GEL	234325	Pre-remedial
ISRA HV Waste Characterization	MWH	7/29/2009	Happy Valley	ISWC0089	ISWC0089RadS001	Soil	Thorium-232	1.19	0.253	0.143		pCi/g	2 sigma	EML HASL 300, 4.5.2.3	GEL	234325	Pre-remedial
ISRA HV Waste Characterization	MWH	7/29/2009	Happy Valley	ISWC0090	ISWC0090RadS001	Soil	Thorium-232	1.03	0.201	0.141		pCi/g	2 sigma	EML HASL 300, 4.5.2.3	GEL	234325	Pre-remedial
ISRA HV Waste Characterization	MWH	7/29/2009	Happy Valley	ISWC0091	ISWC0091RadS001	Soil	Thorium-232	1.48	0.252	0.14		pCi/g	2 sigma	EML HASL 300, 4.5.2.3	GEL	234325	Pre-remedial
ISRA HV Waste Characterization	MWH	7/29/2009	Happy Valley	ISWC0092	ISWC0092RadS001	Soil	Thorium-232	1.43	0.246	0.118		pCi/g	2 sigma	EML HASL 300, 4.5.2.3	GEL	234325	Pre-remedial
ISRA HV Waste Characterization	MWH	7/29/2009	Happy Valley	ISWC0093	ISWC0093RadS001	Soil	Thorium-232	1.59	0.237	0.13		pCi/g	2 sigma	EML HASL 300, 4.5.2.3	GEL	234325	Pre-remedial
ISRA HV Waste Characterization	MWH	7/30/2009	Happy Valley	ISWC0082	ISWC0082RadS001	Soil	Thorium-232	1.45	0.232	0.13		pCi/g	2 sigma	EML HASL 300, 4.5.2.3	GEL	234376	Pre-remedial
ISRA HV Waste Characterization	MWH	7/30/2009	Happy Valley	ISWC0083	ISWC0083RadS001	Soil	Thorium-232	1.47	0.256	0.141		pCi/g	2 sigma	EML HASL 300, 4.5.2.3	GEL	234376	Pre-remedial
ISRA HV Waste Characterization	MWH	8/17/2009	Happy Valley	ISWC0094	ISWC0094RadS001	Soil	Thorium-232	1.33	0.245	0.179		pCi/g	2 sigma	EML HASL 300, 4.5.2.3	GEL	235405	Pre-remedial
ISRA HV Waste Characterization	MWH	8/17/2009	Happy Valley	ISWC0095	ISWC0095RadS001	Soil	Thorium-232	1.4	0.251	0.144		pCi/g	2 sigma	EML HASL 300, 4.5.2.3	GEL	235405	Pre-remedial
ISRA HV Waste Characterization	MWH	9/14/2009	Happy Valley	ISWC0112	ISWC0112S001	Soil	Thorium-232	1.46	0.247	0.145		pCi/g	2 sigma	EML HASL 300, 4.5.2.3	GEL	237286	Pre-remedial
ISRA HV Waste Characterization	MWH	10/22/2009	Happy Valley	ISWC0113	ISWC0113S001	Soil	Thorium-232	1.17	0.221	0.15		pCi/g	2 sigma	DOE HASL 300, 4.5.2.3/Ga-01-R	GEL	239640	Waste
ISRA HV Waste Characterization	MWH	07/01/2009	Happy Valley	ISWC0001	ISWC0001S001	Soil	Tritium	-0.271	0.381	0.757	NDA	pCi/g	2 sigma	EPA 906.0 Modified	GEL	233955	Pre-remedial
ISRA HV Waste Characterization	MWH	07/01/2009	Happy Valley	ISWC0002	ISWC0002S001	Soil	Tritium	-0.723	0.768	1.37	NDA	pCi/g	2 sigma	EPA 906.0 Modified	GEL	233955	Pre-remedial
ISRA HV Waste Characterization	MWH	07/01/2009	Happy Valley	ISWC0003	ISWC0003S001	Soil	Tritium	0.342	0.468	0.798	NDA	pCi/g	2 sigma	EPA 906.0 Modified	GEL	233955	Pre-remedial
ISRA HV Waste Characterization	MWH	07/01/2009	Happy Valley	ISWC0004	ISWC0004S001	Soil	Tritium	-0.56	0.784	1.39	NDA	pCi/g	2 sigma	EPA 906.0 Modified	GEL	233955	Pre-remedial
ISRA HV Waste Characterization	MWH	07/01/2009	Happy Valley	ISWC0005	ISWC0005S001	Soil	Tritium	-0.883	0.745	1.34	NDA	pCi/g	2 sigma	EPA 906.0 Modified	GEL	233955	Pre-remedial
ISRA HV Waste Characterization	MWH	07/01/2009	Happy Valley	ISWC0006	ISWC0006S001	Soil	Tritium	-0.946	0.768	1.39	NDA	pCi/g	2 sigma	EPA 906.0 Modified	GEL	233955	Pre-remedial
ISRA HV Waste Characterization	MWH	07/01/2009	Happy Valley	ISWC0009	ISWC0009S001	Soil	Tritium	0.387	0.46	0.774	NDA	pCi/g	2 sigma	EPA 906.0 Modified	GEL	233955	Pre-remedial
ISRA HV Waste Characterization	MWH	07/01/2009	Happy Valley	ISWC0010	ISWC0010S001	Soil	Tritium	0.124	0.445	0.765	NDA	pCi/g	2 sigma	EPA 906.0 Modified	GEL	233955	Pre-remedial
ISRA HV Waste Characterization	MWH	07/01/2009	Happy Valley	ISWC0011	ISWC0011S001	Soil	Tritium	0	0.437	0.76	NDA	pCi/g	2 sigma	EPA 906.0 Modified	GEL	233955	Pre-remedial
ISRA HV Waste Characterization	MWH	07/01/2009	Happy Valley	ISWC0012	ISWC0012S001	Soil	Tritium	-0.412	0.423	0.762	NDA	pCi/g	2 sigma	EPA 906.0 Modified	GEL	233955	Pre-remedial
ISRA HV Waste Characterization	MWH	07/01/2009	Happy Valley	ISWC0013	ISWC0013S001	Soil	Tritium	-0.164	0.43	0.757	NDA	pCi/g	2 sigma	EPA 906.0 Modified	GEL	233955	Pre-remedial
ISRA HV Waste Characterization	MWH	07/01/2009	Happy Valley	ISWC0014	ISWC0014S001	Soil	Tritium	-0.297	0.425	0.758	NDA	pCi/g	2 sigma	EPA 906.0 Modified	GEL	233955	Pre-remedial
ISRA HV Waste Characterization	MWH	07/01/2009	Happy Valley	ISWC0015	ISWC0015S001	Soil	Tritium	-0.164	0.431	0.76	NDA	pCi/g	2 sigma	EPA 906.0 Modified	GEL	233955	Pre-remedial
ISRA HV Waste Characterization	MWH	07/01/2009	Happy Valley	ISWC0016	ISWC0016S001	Soil	Tritium	-0.0409	0.434	0.757	NDA	pCi/g	2 sigma	EPA 906.0 Modified	GEL	233955	Pre-remedial
ISRA HV Waste Characterization	MWH	07/01/2009	Happy Valley	ISWC0019	ISWC0019S001	Soil	Tritium	-0.343	0.788	1.39	NDA	pCi/g	2 sigma	EPA 906.0 Modified	GEL	233955	Pre-remedial
ISRA HV Waste Characterization	MWH	07/01/2009	Happy Valley	ISWC0020	ISWC0020S001	Soil	Tritium	-0.994	0.75	1.36	NDA	pCi/g	2 sigma	EPA 906.0 Modified	GEL	233955	Pre-remedial
ISRA HV Waste Characterization	MWH	07/01/2009	Happy Valley	ISWC0023	ISWC0023S001	Soil	Tritium	-0.776	0.776	1.39	NDA	pCi/g	2 sigma	EPA 906.0 Modified	GEL	233955	Pre-remedial
ISRA HV Waste Characterization	MWH	07/01/2009	Happy Valley	ISWC0024	ISWC0024S001	Soil	Tritium	0.052	0.444	0.768	NDA	pCi/g	2 sigma	EPA 906.0 Modified	GEL	233955	Pre-remedial
ISRA HV Waste Characterization	MWH	07/01/2009	Happy Valley	ISWC0028	ISWC0028S001	Soil	Tritium	0.174	0.443	0.758	NDA	pCi/g	2 sigma	EPA 906.0 Modified	GEL	233955	Pre-remedial
ISRA HV Waste Characterization	MWH	07/01/2009	Happy Valley	ISWC0041	ISWC0041S001	Soil	Tritium	0.155	0.408	0.723	NDA	pCi/g	2 sigma	EPA 906.0 Modified	GEL	233955	Pre-remedial
ISRA HV Waste Characterization	MWH	07/01/2009	Happy Valley	ISWC0042	ISWC0042S001	Soil	Tritium	-0.728	0.773	1.38	NDA	pCi/g	2 sigma	EPA 906.0 Modified	GEL	233955	Pre-remedial
ISRA HV Waste Characterization	MWH	07/01/2009	Happy Valley	ISWC0043	ISWC0043S001	Soil	Tritium	-1.08	0.761	1.38	NDA	pCi/g	2 sigma	EPA 906.0 Modified	GEL	233955	Pre-remedial
ISRA HV Waste Characterization	MWH	07/01/2009	Happy Valley	ISWC0044	ISWC0044S001	Soil	Tritium	-0.386	0.786	1.39	NDA	pCi/g	2 sigma	EPA 906.0 Modified	GEL	233955	Pre-remedial
ISRA HV Waste Characterization	MWH	07/01/2009	Happy Valley	ISWC0045	ISWC0045S001	Soil	Tritium	-0.509	0.772	1.37	NDA	pCi/g	2 sigma	EPA 906.0 Modified	GEL	233955	Pre-remedial
ISRA HV Waste Characterization	MWH	07/01/2009	Happy Valley	ISWC0046	ISWC0046S001	Soil	Tritium	-0.428	0.782	1.38	NDA	pCi/g	2 sigma	EPA 906.0 Modified	GEL	233955	Pre-remedial
ISRA HV Waste Characterization	MWH	07/01/2009	Happy Valley	ISWC0047	ISWC0047S001	Soil	Tritium	-1.12	0.777	1.41	NDA	pCi/g	2 sigma	EPA 906.0 Modified	GEL	233955	Pre-remedial
ISRA HV Waste Characterization	MWH	07/01/2009	Happy Valley	ISWC0048	ISWC0048S001	Soil	Tritium	-0.435	0.779	1.38	NDA	pCi/g	2 sigma	EPA 906.0 Modified	GEL	233955	Pre-remedial
ISRA HV Waste Characterization	MWH	7/29/2009	Happy Valley	ISWC0077	ISWC0077RadS001	Soil	Tritium	-0.202	0.488	0.946	NDA	pCi/g	2 sigma	EPA 906.0 Modified	GEL	234325	Pre-remedial
ISRA HV Waste Characterization	MWH	7/29/2009	Happy Valley	ISWC0078	ISWC0078RadS001	Soil	Tritium	-0.0891	0.508	0.958	NDA	pCi/g	2 sigma	EPA 906.0 Modified	GEL	234325	Pre-remedial
ISRA HV Waste Characterization	MWH	7/29/2009	Happy Valley	ISWC0079	ISWC0079RadS001	Soil	Tritium	-0.0547	0.524	0.981	NDA	pCi/g	2 sigma	EPA 906.0 Modified	GEL	234325	Pre-remedial
ISRA HV Waste Characterization	MWH	7/29/2009	Happy Valley	ISWC0080	ISWC0080RadS001	Soil	Tritium	0.26	0.346	0.588	NDA	pCi/g	2 sigma	EPA 906.0 Modified	GEL	234325	Pre-remedial
ISRA HV Waste Characterization	MWH	7/29/2009	Happy Valley	ISWC0081	ISWC0081RadS001	Soil	Tritium	-0.198	0.479	0.928	NDA	pCi/g	2 sigma	EPA 906.0 Modified	GEL	234325	Pre-remedial
ISRA HV Waste Characterization	MWH	7/29/2009	Happy Valley	ISWC0084	ISWC0084RadS001	Soil	Tritium	0.124	0.529	0.954	NDA	pCi/g	2 sigma	EPA 906.0 Modified	GEL	234325	Pre-remedial
ISRA HV Waste Characterization	MWH	7/29/2009	Happy Valley	ISWC0085	ISWC0085RadS001	Soil	Tritium	-0.0553	0.529	0.99	NDA	pCi/g	2 sigma	EPA 906.0 Modified	GEL	234325	Pre-remedial
ISRA HV Waste Characterization	MWH	7/29/2009	Happy Valley	ISWC0086	ISWC0086RadS001	Soil	Tritium	-0.0265	0.511	0.951	NDA	pCi/g	2 sigma	EPA 906.0 Modified	GEL	234325	Pre-remedial
ISRA HV Waste Characterization	MWH	7/29/2009	Happy Valley	ISWC0087	ISWC0087RadS001	Soil	Tritium	0	0.516	0.955	NDA	pCi/g	2 sigma	EPA 906.0 Modified	GEL	234325	Pre-remedial

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ISRA HV Waste Characterization	MWH	7/29/2009	Happy Valley	ISWC0088	ISWC0088RadS001	Soil	Tritium	0.155	0.342	0.598	NDA	pCi/g	2 sigma	EPA 906.0 Modified	GEL	234325	Pre-remedial
ISRA HV Waste Characterization	MWH	7/29/2009	Happy Valley	ISWC0089	ISWC0089RadS001	Soil	Tritium	-0.0415	0.528	0.943	NDA	pCi/g	2 sigma	EPA 906.0 Modified	GEL	234325	Pre-remedial
ISRA HV Waste Characterization	MWH	7/29/2009	Happy Valley	ISWC0090	ISWC0090RadS001	Soil	Tritium	-0.0613	0.484	0.898	NDA	pCi/g	2 sigma	EPA 906.0 Modified	GEL	234325	Pre-remedial
ISRA HV Waste Characterization	MWH	7/29/2009	Happy Valley	ISWC0091	ISWC0091RadS001	Soil	Tritium	-0.183	0.513	0.987	NDA	pCi/g	2 sigma	EPA 906.0 Modified	GEL	234325	Pre-remedial
ISRA HV Waste Characterization	MWH	7/29/2009	Happy Valley	ISWC0092	ISWC0092RadS001	Soil	Tritium	0.0279	0.537	0.951	NDA	pCi/g	2 sigma	EPA 906.0 Modified	GEL	234325	Pre-remedial
ISRA HV Waste Characterization	MWH	7/29/2009	Happy Valley	ISWC0093	ISWC0093RadS001	Soil	Tritium	-0.331	0.483	0.963	NDA	pCi/g	2 sigma	EPA 906.0 Modified	GEL	234325	Pre-remedial
ISRA HV Waste Characterization	MWH	7/30/2009	Happy Valley	ISWC0082	ISWC0082RadS001	Soil	Tritium	0.217	0.391	0.677	NDA	pCi/g	2 sigma	EPA 906.0 Modified	GEL	234376	Pre-remedial
ISRA HV Waste Characterization	MWH	7/30/2009	Happy Valley	ISWC0083	ISWC0083RadS001	Soil	Tritium	0.0694	0.379	0.677	NDA	pCi/g	2 sigma	EPA 906.0 Modified	GEL	234376	Pre-remedial
ISRA HV Waste Characterization	MWH	8/17/2009	Happy Valley	ISWC0094	ISWC0094RadS001	Soil	Tritium	-0.0872	0.703	1.25	NDA	pCi/g	2 sigma	EPA 906.0 Modified	GEL	235405	Pre-remedial
ISRA HV Waste Characterization	MWH	8/17/2009	Happy Valley	ISWC0095	ISWC0095RadS001	Soil	Tritium	-0.423	0.678	1.24	NDA	pCi/g	2 sigma	EPA 906.0 Modified	GEL	235405	Pre-remedial
ISRA HV Waste Characterization	MWH	9/14/2009	Happy Valley	ISWC0112	ISWC0112S001	Soil	Tritium	0.187	0.603	1.03	NDA	pCi/g	2 sigma	EPA 906.0 Modified	GEL	237286	Pre-remedial
ISRA HV Waste Characterization	MWH	10/22/2009	Happy Valley	ISWC0113	ISWC0113S001	Soil	Tritium	0.182	0.408	0.702	NDA	pCi/g	2 sigma	EPA 906.0 Modified	GEL	239640	Waste
ISRA HV Waste Characterization	MWH	07/01/2009	Happy Valley	ISWC0001	ISWC0001S001	Soil	Uranium-235	0.131	0.126	0.227	NDA	pCi/g	2 sigma	EML HASL 300, 4.5.2.3	GEL	233955	Pre-remedial
ISRA HV Waste Characterization	MWH	07/01/2009	Happy Valley	ISWC0002	ISWC0002S001	Soil	Uranium-235	0.0664	0.127	0.226	NDA	pCi/g	2 sigma	EML HASL 300, 4.5.2.3	GEL	233955	Pre-remedial
ISRA HV Waste Characterization	MWH	07/01/2009	Happy Valley	ISWC0003	ISWC0003S001	Soil	Uranium-235	0.025	0.135	0.24	NDA	pCi/g	2 sigma	EML HASL 300, 4.5.2.3	GEL	233955	Pre-remedial
ISRA HV Waste Characterization	MWH	07/01/2009	Happy Valley	ISWC0004	ISWC0004S001	Soil	Uranium-235	0.028	0.122	0.208	NDA	pCi/g	2 sigma	EML HASL 300, 4.5.2.3	GEL	233955	Pre-remedial
ISRA HV Waste Characterization	MWH	07/01/2009	Happy Valley	ISWC0005	ISWC0005S001	Soil	Uranium-235	0.0804	0.153	0.244	NDA	pCi/g	2 sigma	EML HASL 300, 4.5.2.3	GEL	233955	Pre-remedial
ISRA HV Waste Characterization	MWH	07/01/2009	Happy Valley	ISWC0006	ISWC0006S001	Soil	Uranium-235	0.0383	0.168	0.267	NDA	pCi/g	2 sigma	EML HASL 300, 4.5.2.3	GEL	233955	Pre-remedial
ISRA HV Waste Characterization	MWH	07/01/2009	Happy Valley	ISWC0009	ISWC0009S001	Soil	Uranium-235	0.0737	0.104	0.179	NDA	pCi/g	2 sigma	EML HASL 300, 4.5.2.3	GEL	233955	Pre-remedial
ISRA HV Waste Characterization	MWH	07/01/2009	Happy Valley	ISWC0010	ISWC0010S001	Soil	Uranium-235	0.121	0.132	0.171	NDA	pCi/g	2 sigma	EML HASL 300, 4.5.2.3	GEL	233955	Pre-remedial
ISRA HV Waste Characterization	MWH	07/01/2009	Happy Valley	ISWC0011	ISWC0011S001	Soil	Uranium-235	0.0514	0.129	0.228	NDA	pCi/g	2 sigma	EML HASL 300, 4.5.2.3	GEL	233955	Pre-remedial
ISRA HV Waste Characterization	MWH	07/01/2009	Happy Valley	ISWC0012	ISWC0012S001	Soil	Uranium-235	0.167	0.143	0.256	NDA	pCi/g	2 sigma	EML HASL 300, 4.5.2.3	GEL	233955	Pre-remedial
ISRA HV Waste Characterization	MWH	07/01/2009	Happy Valley	ISWC0013	ISWC0013S001	Soil	Uranium-235	0.0719	0.128	0.224	NDA	pCi/g	2 sigma	EML HASL 300, 4.5.2.3	GEL	233955	Pre-remedial
ISRA HV Waste Characterization	MWH	07/01/2009	Happy Valley	ISWC0014	ISWC0014S001	Soil	Uranium-235	0.159	0.132	0.228	NDA	pCi/g	2 sigma	EML HASL 300, 4.5.2.3	GEL	233955	Pre-remedial
ISRA HV Waste Characterization	MWH	07/01/2009	Happy Valley	ISWC0015	ISWC0015S001	Soil	Uranium-235	0.117	0.13	0.224	NDA	pCi/g	2 sigma	EML HASL 300, 4.5.2.3	GEL	233955	Pre-remedial
ISRA HV Waste Characterization	MWH	07/01/2009	Happy Valley	ISWC0016	ISWC0016S001	Soil	Uranium-235	0.0882	0.138	0.21	NDA	pCi/g	2 sigma	EML HASL 300, 4.5.2.3	GEL	233955	Pre-remedial
ISRA HV Waste Characterization	MWH	07/01/2009	Happy Valley	ISWC0019	ISWC0019S001	Soil	Uranium-235	0	0.152	0.16	NDA	pCi/g	2 sigma	EML HASL 300, 4.5.2.3	GEL	233955	Pre-remedial
ISRA HV Waste Characterization	MWH	07/01/2009	Happy Valley	ISWC0020	ISWC0020S001	Soil	Uranium-235	0.0771	0.0929	0.155	NDA	pCi/g	2 sigma	EML HASL 300, 4.5.2.3	GEL	233955	Pre-remedial
ISRA HV Waste Characterization	MWH	07/01/2009	Happy Valley	ISWC0023	ISWC0023S001	Soil	Uranium-235	0	0.0954	0.156	NDA	pCi/g	2 sigma	EML HASL 300, 4.5.2.3	GEL	233955	Pre-remedial
ISRA HV Waste Characterization	MWH	07/01/2009	Happy Valley	ISWC0024	ISWC0024S001	Soil	Uranium-235	0.165	0.133	0.186	NDA	pCi/g	2 sigma	EML HASL 300, 4.5.2.3	GEL	233955	Pre-remedial
ISRA HV Waste Characterization	MWH	07/01/2009	Happy Valley	ISWC0028	ISWC0028S001	Soil	Uranium-235	0.0918	0.133	0.229	NDA	pCi/g	2 sigma	EML HASL 300, 4.5.2.3	GEL	233955	Pre-remedial
ISRA HV Waste Characterization	MWH	07/01/2009	Happy Valley	ISWC0041	ISWC0041S001	Soil	Uranium-235	0.066	0.11	0.189	NDA	pCi/g	2 sigma	EML HASL 300, 4.5.2.3	GEL	233955	Pre-remedial
ISRA HV Waste Characterization	MWH	07/01/2009	Happy Valley	ISWC0042	ISWC0042S001	Soil	Uranium-235	-0.105	0.141	0.235	NDA	pCi/g	2 sigma	EML HASL 300, 4.5.2.3	GEL	233955	Pre-remedial
ISRA HV Waste Characterization	MWH	07/01/2009	Happy Valley	ISWC0043	ISWC0043S001	Soil	Uranium-235	-0.00919	0.119	0.202	NDA	pCi/g	2 sigma	EML HASL 300, 4.5.2.3	GEL	233955	Pre-remedial
ISRA HV Waste Characterization	MWH	07/01/2009	Happy Valley	ISWC0044	ISWC0044S001	Soil	Uranium-235	0.154	0.158	0.205	NDA	pCi/g	2 sigma	EML HASL 300, 4.5.2.3	GEL	233955	Pre-remedial
ISRA HV Waste Characterization	MWH	07/01/2009	Happy Valley	ISWC0045	ISWC0045S001	Soil	Uranium-235	-0.0406	0.129	0.222	NDA	pCi/g	2 sigma	EML HASL 300, 4.5.2.3	GEL	233955	Pre-remedial
ISRA HV Waste Characterization	MWH	07/01/2009	Happy Valley	ISWC0046	ISWC0046S001	Soil	Uranium-235	0.0735	0.0942	0.165	NDA	pCi/g	2 sigma	EML HASL 300, 4.5.2.3	GEL	233955	Pre-remedial
ISRA HV Waste Characterization	MWH	07/01/2009	Happy Valley	ISWC0047	ISWC0047S001	Soil	Uranium-235	0.0917	0.121	0.209	NDA	pCi/g	2 sigma	EML HASL 300, 4.5.2.3	GEL	233955	Pre-remedial
ISRA HV Waste Characterization	MWH	07/01/2009	Happy Valley	ISWC0048	ISWC0048S001	Soil	Uranium-235	-0.059	0.152	0.234	NDA	pCi/g	2 sigma	EML HASL 300, 4.5.2.3	GEL	233955	Pre-remedial
ISRA HV Waste Characterization	MWH	7/29/2009	Happy Valley	ISWC0077	ISWC0077RadS001	Soil	Uranium-235	0.0538	0.111	0.19	NDA	pCi/g	2 sigma	EML HASL 300, 4.5.2.3	GEL	234325	Pre-remedial
ISRA HV Waste Characterization	MWH	7/29/2009	Happy Valley	ISWC0078	ISWC0078RadS001	Soil	Uranium-235	0.0379	0.129	0.227	NDA	pCi/g	2 sigma	EML HASL 300, 4.5.2.3	GEL	234325	Pre-remedial
ISRA HV Waste Characterization	MWH	7/29/2009	Happy Valley	ISWC0079	ISWC0079RadS001	Soil	Uranium-235	-0.0533	0.123	0.207	NDA	pCi/g	2 sigma	EML HASL 300, 4.5.2.3	GEL	234325	Pre-remedial
ISRA HV Waste Characterization	MWH	7/29/2009	Happy Valley	ISWC0080	ISWC0080RadS001	Soil	Uranium-235	0.0529	0.122	0.213	NDA	pCi/g	2 sigma	EML HASL 300, 4.5.2.3	GEL	234325	Pre-remedial
ISRA HV Waste Characterization	MWH	7/29/2009	Happy Valley	ISWC0081	ISWC0081RadS001	Soil	Uranium-235	0.0242	0.133	0.234	NDA	pCi/g	2 sigma	EML HASL 300, 4.5.2.3	GEL	234325	Pre-remedial
ISRA HV Waste Characterization	MWH	7/29/2009	Happy Valley	ISWC0084	ISWC0084RadS001	Soil	Uranium-235	0.0773	0.134	0.241	NDA	pCi/g	2 sigma	EML HASL 300, 4.5.2.3	GEL	234325	Pre-remedial
ISRA HV Waste Characterization	MWH	7/29/2009	Happy Valley	ISWC0085	ISWC0085RadS001	Soil	Uranium-235	0.119	0.137	0.227	NDA	pCi/g	2 sigma	EML HASL 300, 4.5.2.3	GEL	234325	Pre-remedial
ISRA HV Waste Characterization	MWH	7/29/2009	Happy Valley	ISWC0086	ISWC0086RadS001	Soil	Uranium-235	0.0445	0.137	0.228	NDA	pCi/g	2 sigma	EML HASL 300, 4.5.2.3	GEL	234325	Pre-remedial
ISRA HV Waste Characterization	MWH	7/29/2009	Happy Valley	ISWC0087	ISWC0087RadS001	Soil	Uranium-235	-0.0782	0.158	0.253	NDA	pCi/g	2 sigma	EML HASL 300, 4.5.2.3	GEL	234325	Pre-remedial
ISRA HV Waste Characterization	MWH	7/29/2009	Happy Valley	ISWC0088	ISWC0088RadS001	Soil	Uranium-235	0.0915	0.145	0.252	NDA	pCi/g	2 sigma	EML HASL 300, 4.5.2.3	GEL	234325	Pre-remedial
ISRA HV Waste Characterization	MWH	7/29/2009	Happy Valley	ISWC0089	ISWC0089RadS001	Soil	Uranium-235	0.0389	0.138	0.226	NDA	pCi/g	2 sigma	EML HASL 300, 4.5.2.3	GEL	234325	Pre-remedial
ISRA HV Waste Characterization	MWH	7/29/2009	Happy Valley	ISWC0090	ISWC0090RadS001	Soil	Uranium-235	0.129	0.169	0.202	NDA	pCi/g	2 sigma	EML HASL 300, 4.5.2.3	GEL	234325	Pre-remedial
ISRA HV Waste Characterization	MWH	7/29/2009	Happy Valley	ISWC0091	ISWC0091RadS001	Soil	Uranium-235	0.17	0.14	0.243	NDA	pCi/g	2 sigma	EML HASL 300, 4.5.2.3	GEL	234325	Pre-remedial
ISRA HV Waste Characterization	MWH	7/29/2009	Happy Valley	ISWC0092	ISWC0092RadS001	Soil	Uranium-235	0.0622	0.125	0.216	NDA	pCi/g	2 sigma	EML HASL 300, 4.5.2.3	GEL	234325	Pre-remedial
ISRA HV Waste Characterization	MWH	7/29/2009	Happy Valley	ISWC0093	ISWC0093RadS001	Soil	Uranium-235	0.0246	0.143	0.244	NDA	pCi/g	2 sigma	EML HASL 300, 4.5.2.3	GEL	234325	Pre-remedial
ISRA HV Waste Characterization	MWH	7/30/2009	Happy Valley	ISWC0082	ISWC0082RadS001	Soil	Uranium-235	0.0678	0.121	0.218	NDA	pCi/g	2 sigma	EML HASL 300, 4.5.2.3	GEL	234376	Pre-remedial
ISRA HV Waste Characterization	MWH	7/30/2009	Happy Valley	ISWC0083	ISWC0083RadS001	Soil	Uranium-235	0.125	0.137	0.24	NDA	pCi/g	2 sigma	EML HASL 300, 4.5.2.3	GEL	234376	Pre-remedial
ISRA HV Waste Characterization	MWH	8/17/2009	Happy Valley	ISWC0094	ISWC0094RadS001	Soil	Uranium-235	-0.118	0.145	0.243	NDA	pCi/g	2 sigma	EML HASL 300, 4.5.2.3	GEL	235405	Pre-remedial
ISRA HV Waste Characterization	MWH	8/17/2009	Happy Valley	ISWC0095	ISWC0095RadS001	Soil	Uranium-235	0.126	0.121	0.22	NDA	pCi/g	2 sigma	EML HASL 300, 4.5.2.3	GEL	235405	Pre-remedial
ISRA HV Waste Characterization	MWH	9/14/2009	Happy Valley	ISWC0112	ISWC0112S001	Soil	Uranium-235	0.0911	0.15	0.263	NDA	pCi/g	2 sigma	EML HASL 300, 4.5.2.3	GEL	237286	Pre-remedial
ISRA HV Waste Characterization	MWH	10/22/2009	Happy Valley	ISWC0113	ISWC0113S001	Soil	Uranium-235	0.00624	0.142	0.201	NDA	pCi/g	2 sigma	DOE HASL 300, 4.5.2.3/Ga-01-R	GEL	239640	Waste
ISRA HV Waste Characterization	MWH	07/01/2009	Happy Valley	ISWC0001	ISWC0001S001	Soil	Uranium-238	0.783	0.508	0.657		pCi/g	2 sigma	EML HASL 300, 4.5.2.3	GEL	233955	Pre-remedial
ISRA HV Waste Characterization	MWH	07/01/2009	Happy Valley	ISWC0002	ISWC0002S001	Soil	Uranium-238	1.11	1.12	1.28	NDA	pCi/g	2 sigma	EML HASL 300, 4.5.2.3	GEL	233955	Pre-remedial
ISRA HV Waste Characterization	MWH	07/01/2009	Happy Valley	ISWC0003	ISWC0003S001	Soil	Uranium-238	0.983	0.619	0.744		pCi/g	2 sigma	EML HASL 300, 4.5.2.3	GEL	233955	Pre-remedial
ISRA HV Waste Characterization	MWH	07/01/2009	Happy Valley	ISWC0004	ISWC0004S001	Soil	Uranium-238	1.82	0.942	0.946		pCi/g	2 sigma	EML HASL 300, 4.5.2.3	GEL	233955	Pre-remedial
ISRA HV Waste Characterization	MWH	07/01/2009	Happy Valley	ISWC0005	ISWC0005S001	Soil	Uranium-238	1.44	0.967	1.2		pCi/g	2 sigma	EML HASL 300, 4.5.2.3	GEL	233955	Pre-remedial
ISRA HV Waste Characterization	MWH	07/01/2009	Happy Valley	ISWC0006	ISWC0006S001	Soil	Uranium-238	0.454	1.14	1.56	NDA	pCi/g	2 sigma	EML HASL 300, 4.5.2.3	GEL	233955	Pre-remedial
ISRA HV Waste Characterization	MWH	07/01/2009	Happy Valley	ISWC0009	ISWC0009S001	Soil	Uranium-238	0.821	0.43	0.531		pCi/g	2 sigma	EML HASL 300, 4.5.2.3	GEL	233955	Pre-remedial
ISRA HV Waste Characterization	MWH	07/01/2009	Happy Valley	ISWC0010	ISWC0010S001	Soil	Uranium-238	1.17	0.819	0.983		pCi/g	2 sigma	EML HASL 300, 4.5.2.3	GEL	233955	Pre-remedial

ISRA Soil Sample Results for Happy Valley

Project Name	Sampling Organization	Sampling Date	Sampling Location (General)	Sampling Location (Specific)	Sample Serial Number	Media Type	Isotope	Value	Error (+/-)	MDA	Non-Detect?	Units	Error Type	Analysis Protocol	Analysis Organization	Document	Status
ISRA HV Waste Characterization	MWH	07/01/2009	Happy Valley	ISWC0011	ISWC0011S001	Soil	Uranium-238	1.32	1.41	1.87	NDA	pCi/g	2 sigma	EML HASL 300, 4.5.2.3	GEL	233955	Pre-remedial
ISRA HV Waste Characterization	MWH	07/01/2009	Happy Valley	ISWC0012	ISWC0012S001	Soil	Uranium-238	1.7	0.686	0.713		pCi/g	2 sigma	EML HASL 300, 4.5.2.3	GEL	233955	Pre-remedial
ISRA HV Waste Characterization	MWH	07/01/2009	Happy Valley	ISWC0013	ISWC0013S001	Soil	Uranium-238	0.889	0.947	1.66	NDA	pCi/g	2 sigma	EML HASL 300, 4.5.2.3	GEL	233955	Pre-remedial
ISRA HV Waste Characterization	MWH	07/01/2009	Happy Valley	ISWC0014	ISWC0014S001	Soil	Uranium-238	1.47	1.47	1.74	NDA	pCi/g	2 sigma	EML HASL 300, 4.5.2.3	GEL	233955	Pre-remedial
ISRA HV Waste Characterization	MWH	07/01/2009	Happy Valley	ISWC0015	ISWC0015S001	Soil	Uranium-238	1.14	1.15	1.31	NDA	pCi/g	2 sigma	EML HASL 300, 4.5.2.3	GEL	233955	Pre-remedial
ISRA HV Waste Characterization	MWH	07/01/2009	Happy Valley	ISWC0016	ISWC0016S001	Soil	Uranium-238	1.42	0.661	0.615		pCi/g	2 sigma	EML HASL 300, 4.5.2.3	GEL	233955	Pre-remedial
ISRA HV Waste Characterization	MWH	07/01/2009	Happy Valley	ISWC0019	ISWC0019S001	Soil	Uranium-238	1.06	0.533	0.476		pCi/g	2 sigma	EML HASL 300, 4.5.2.3	GEL	233955	Pre-remedial
ISRA HV Waste Characterization	MWH	07/01/2009	Happy Valley	ISWC0020	ISWC0020S001	Soil	Uranium-238	1.28	1.05	1.28	NDA	pCi/g	2 sigma	EML HASL 300, 4.5.2.3	GEL	233955	Pre-remedial
ISRA HV Waste Characterization	MWH	07/01/2009	Happy Valley	ISWC0023	ISWC0023S001	Soil	Uranium-238	0.779	0.701	0.78	NDA	pCi/g	2 sigma	EML HASL 300, 4.5.2.3	GEL	233955	Pre-remedial
ISRA HV Waste Characterization	MWH	07/01/2009	Happy Valley	ISWC0024	ISWC0024S001	Soil	Uranium-238	0.81	1.67	1.65	NDA	pCi/g	2 sigma	EML HASL 300, 4.5.2.3	GEL	233955	Pre-remedial
ISRA HV Waste Characterization	MWH	07/01/2009	Happy Valley	ISWC0028	ISWC0028S001	Soil	Uranium-238	1.67	1.05	1.12		pCi/g	2 sigma	EML HASL 300, 4.5.2.3	GEL	233955	Pre-remedial
ISRA HV Waste Characterization	MWH	07/01/2009	Happy Valley	ISWC0041	ISWC0041S001	Soil	Uranium-238	0.829	0.885	1.35	NDA	pCi/g	2 sigma	EML HASL 300, 4.5.2.3	GEL	233955	Pre-remedial
ISRA HV Waste Characterization	MWH	07/01/2009	Happy Valley	ISWC0042	ISWC0042S001	Soil	Uranium-238	0.68	0.927	1.72	NDA	pCi/g	2 sigma	EML HASL 300, 4.5.2.3	GEL	233955	Pre-remedial
ISRA HV Waste Characterization	MWH	07/01/2009	Happy Valley	ISWC0043	ISWC0043S001	Soil	Uranium-238	1.68	0.899	0.894		pCi/g	2 sigma	EML HASL 300, 4.5.2.3	GEL	233955	Pre-remedial
ISRA HV Waste Characterization	MWH	07/01/2009	Happy Valley	ISWC0044	ISWC0044S001	Soil	Uranium-238	1.85	0.92	1.1		pCi/g	2 sigma	EML HASL 300, 4.5.2.3	GEL	233955	Pre-remedial
ISRA HV Waste Characterization	MWH	07/01/2009	Happy Valley	ISWC0045	ISWC0045S001	Soil	Uranium-238	2.47	1.24	1.41		pCi/g	2 sigma	EML HASL 300, 4.5.2.3	GEL	233955	Pre-remedial
ISRA HV Waste Characterization	MWH	07/01/2009	Happy Valley	ISWC0046	ISWC0046S001	Soil	Uranium-238	1.21	0.83	1.1		pCi/g	2 sigma	EML HASL 300, 4.5.2.3	GEL	233955	Pre-remedial
ISRA HV Waste Characterization	MWH	07/01/2009	Happy Valley	ISWC0047	ISWC0047S001	Soil	Uranium-238	0.823	0.929	1.06	NDA	pCi/g	2 sigma	EML HASL 300, 4.5.2.3	GEL	233955	Pre-remedial
ISRA HV Waste Characterization	MWH	07/01/2009	Happy Valley	ISWC0048	ISWC0048S001	Soil	Uranium-238	0.811	1	1.11	NDA	pCi/g	2 sigma	EML HASL 300, 4.5.2.3	GEL	233955	Pre-remedial
ISRA HV Waste Characterization	MWH	7/29/2009	Happy Valley	ISWC0077	ISWC0077RadS001	Soil	Uranium-238	1.01	1.08	1.44	NDA	pCi/g	2 sigma	EML HASL 300, 4.5.2.3	GEL	234325	Pre-remedial
ISRA HV Waste Characterization	MWH	7/29/2009	Happy Valley	ISWC0078	ISWC0078RadS001	Soil	Uranium-238	0.266	1.04	1.36	NDA	pCi/g	2 sigma	EML HASL 300, 4.5.2.3	GEL	234325	Pre-remedial
ISRA HV Waste Characterization	MWH	7/29/2009	Happy Valley	ISWC0079	ISWC0079RadS001	Soil	Uranium-238	1.53	0.953	1.07		pCi/g	2 sigma	EML HASL 300, 4.5.2.3	GEL	234325	Pre-remedial
ISRA HV Waste Characterization	MWH	7/29/2009	Happy Valley	ISWC0080	ISWC0080RadS001	Soil	Uranium-238	1.51	0.569	0.628		pCi/g	2 sigma	EML HASL 300, 4.5.2.3	GEL	234325	Pre-remedial
ISRA HV Waste Characterization	MWH	7/29/2009	Happy Valley	ISWC0081	ISWC0081RadS001	Soil	Uranium-238	1.6	1.53	1.57		pCi/g	2 sigma	EML HASL 300, 4.5.2.3	GEL	234325	Pre-remedial
ISRA HV Waste Characterization	MWH	7/29/2009	Happy Valley	ISWC0084	ISWC0084RadS001	Soil	Uranium-238	1.71	0.719	0.722		pCi/g	2 sigma	EML HASL 300, 4.5.2.3	GEL	234325	Pre-remedial
ISRA HV Waste Characterization	MWH	7/29/2009	Happy Valley	ISWC0085	ISWC0085RadS001	Soil	Uranium-238	1.68	0.616	0.635		pCi/g	2 sigma	EML HASL 300, 4.5.2.3	GEL	234325	Pre-remedial
ISRA HV Waste Characterization	MWH	7/29/2009	Happy Valley	ISWC0086	ISWC0086RadS001	Soil	Uranium-238	1.08	0.849	1.23	NDA	pCi/g	2 sigma	EML HASL 300, 4.5.2.3	GEL	234325	Pre-remedial
ISRA HV Waste Characterization	MWH	7/29/2009	Happy Valley	ISWC0087	ISWC0087RadS001	Soil	Uranium-238	1.01	0.98	1.59	NDA	pCi/g	2 sigma	EML HASL 300, 4.5.2.3	GEL	234325	Pre-remedial
ISRA HV Waste Characterization	MWH	7/29/2009	Happy Valley	ISWC0088	ISWC0088RadS001	Soil	Uranium-238	1.25	1.22	1.55	NDA	pCi/g	2 sigma	EML HASL 300, 4.5.2.3	GEL	234325	Pre-remedial
ISRA HV Waste Characterization	MWH	7/29/2009	Happy Valley	ISWC0089	ISWC0089RadS001	Soil	Uranium-238	0.486	1.22	1.33	NDA	pCi/g	2 sigma	EML HASL 300, 4.5.2.3	GEL	234325	Pre-remedial
ISRA HV Waste Characterization	MWH	7/29/2009	Happy Valley	ISWC0090	ISWC0090RadS001	Soil	Uranium-238	1.66	0.631	0.607		pCi/g	2 sigma	EML HASL 300, 4.5.2.3	GEL	234325	Pre-remedial
ISRA HV Waste Characterization	MWH	7/29/2009	Happy Valley	ISWC0091	ISWC0091RadS001	Soil	Uranium-238	1.1	0.648	0.689		pCi/g	2 sigma	EML HASL 300, 4.5.2.3	GEL	234325	Pre-remedial
ISRA HV Waste Characterization	MWH	7/29/2009	Happy Valley	ISWC0092	ISWC0092RadS001	Soil	Uranium-238	0.626	1.31	1.8	NDA	pCi/g	2 sigma	EML HASL 300, 4.5.2.3	GEL	234325	Pre-remedial
ISRA HV Waste Characterization	MWH	7/29/2009	Happy Valley	ISWC0093	ISWC0093RadS001	Soil	Uranium-238	1.82	0.954	1.3		pCi/g	2 sigma	EML HASL 300, 4.5.2.3	GEL	234325	Pre-remedial
ISRA HV Waste Characterization	MWH	7/30/2009	Happy Valley	ISWC0082	ISWC0082RadS001	Soil	Uranium-238	0.392	1.47	1.89	NDA	pCi/g	2 sigma	EML HASL 300, 4.5.2.3	GEL	234376	Pre-remedial
ISRA HV Waste Characterization	MWH	7/30/2009	Happy Valley	ISWC0083	ISWC0083RadS001	Soil	Uranium-238	2.46	1.23	0.989		pCi/g	2 sigma	EML HASL 300, 4.5.2.3	GEL	234376	Pre-remedial
ISRA HV Waste Characterization	MWH	8/17/2009	Happy Valley	ISWC0094	ISWC0094RadS001	Soil	Uranium-238	1.43	0.658	0.713		pCi/g	2 sigma	EML HASL 300, 4.5.2.3	GEL	235405	Pre-remedial
ISRA HV Waste Characterization	MWH	8/17/2009	Happy Valley	ISWC0095	ISWC0095RadS001	Soil	Uranium-238	1.75	0.743	0.594		pCi/g	2 sigma	EML HASL 300, 4.5.2.3	GEL	235405	Pre-remedial
ISRA HV Waste Characterization	MWH	9/14/2009	Happy Valley	ISWC0112	ISWC0112S001	Soil	Uranium-238	1.42	1.28	1.69	NDA	pCi/g	2 sigma	EML HASL 300, 4.5.2.3	GEL	237286	Pre-remedial
ISRA HV Waste Characterization	MWH	10/22/2009	Happy Valley	ISWC0113	ISWC0113S001	Soil	Uranium-238	0	1.1	1.09	NDA	pCi/g	2 sigma	DOE HASL 300, 4.5.2.3/Ga-01-R	GEL	239640	Waste

WASTE CHARACTERIZATION: IN-SITU SOIL LOCATED AT
ISRA AREA II PLANNED EXCAVATION A2LF-1

Introduction

This report presents supporting detailed information for the September 3, 2009 in-situ characterization of prospective soil wastes from planned ISRA excavations in SSFL Area II.

Background

In-situ characterization of soil destined to be excavated from designated locations in SSFL Area II in accordance with the ISRA Workplan was performed. A step-by-step approach was followed to accomplish characterization of the soil prior to excavation. The first step was to review available information regarding historical area usage and existing analytical data from past soil sampling in the applicable SSFL Area II locations. The objective was to identify all substances that could have an impact on the determination of whether soil in each planned excavation footprint was hazardous or not.

The next step was to develop a random sampling plan for each of the planned excavation footprints to determine whether any of the identified substances are present at concentrations that require further investigation. An evaluation of the results of the initial random sampling was performed to determine whether the data was adequate for waste characterization based on the exhibited variance of any detected analytes and the relative difference between detected concentrations and regulatory thresholds. The soil was characterized non-hazardous when analyte concentrations among the samples exhibited a reasonably small variance and there was satisfactory margin between the mean of the samples and applicable regulatory thresholds. Otherwise, additional samples were collected and subjected to analysis or the soil was characterized as hazardous.

The review of historical information and existing analytical data relevant to planned excavation A2LF-1 was based largely on the Group 2 RFI results. Evaluation of these data and other sources of relevant information suggested that Petroleum Hydrocarbons (TPH), Volatile Organic Compounds (VOC), Regulated metals, Polychlorinated Biphenyls (PCB), and Semi-Volatile Organic Compounds (SVOC) should be addressed in the A2LF-1 excavation footprint. A random sampling plan was developed for collection of Four (4) samples from the planned excavation footprint, taking into account the relatively small area to be excavated. The samples were analyzed for TPH, VOC, CAM 17 metals, PCBs, and SVOCs. All samples were collected, contained, and handled according to field practice requirements in SW-846.

Results

Analytical results for the A2LF-1 planned excavation area are presented in TestAmerica report ISI0508 issued on 9/25/09. TPH in the C10 - C40 range was detected in all of the samples. Concentrations were low, with a maximum of 54 mg/kg. No Petroleum Hydrocarbons in the C6 - C12 range (gasoline) were detected. A trace concentration of Acetone was detected at 0.015 mg/kg, possibly a lab artifact. No other VOCs were detected. No SVOCs were detected, and no PCBs were detected.

Low concentrations of some regulated metals were detected. Chromium was detected at concentrations ranging from 17 mg/kg to 23 mg/kg. Lead was detected at concentrations

ranging from 2.6 mg/kg to 13 mg/kg. These and all other detected regulated metals were well below regulatory thresholds.

Determination

According to analytical results and generator knowledge, the soil in the planned excavation footprint of SSFL Area II A2LF-1:

Is Not a Listed Waste (generator knowledge)
Is Not ignitable (generator knowledge)
Is Not corrosive (generator knowledge)
Is Not reactive (generator knowledge)
Is Not toxic (analytical results and generator knowledge)
- Is Not Extremely or Acutely Hazardous Waste
- Does not exceed any RCRA or Title 22 thresholds
- Is Not subject to the Prop. 65 listing
- Is Not subject to Title 22 Appendix X list
- Is Not known by experience or testing to pose a hazard to human health or environment because of its carcinogenicity, acute toxicity, chronic toxicity, bio-accumulative properties, or persistence in the environment.

The soil in A2LF-1 is NON-HAZARDOUS.

INTERIM SOURCE REMOVAL ACTION (ISRA) - OUTFALL 009

A2LF-1 WASTE CHARACTERIZATION RESULTS
THE BOEING COMPANY
SANTA SUSANA FIELD LABORATORY

			Object Name:		**ISWC0104**	**ISWC0105**	**ISWC0106**	**ISWC0107**
			Sample Name:		ISWC0104S001	ISWC0105S001	ISWC0106S001	ISWC0107S001
			Collection Date:		9/3/2009	9/3/2009	9/3/2009	9/3/2009
			Sample Depth (feet):		0.1 - 0.6	0.4 - 0.9	1.5 - 2.0	0.1 - 0.6
ANALYTE	**UNITS**	**TTLC**	**WET Leachate Testing Trigger[a]**	**TCLP Leachate Testing Trigger[b]**	**RESULT**	**RESULT**	**RESULT**	**RESULT**
METALS								
Antimony	mg/kg	500	150	--	<10	<10	<10	<10
Arsenic	mg/kg	500	50	100	4.2	4.8	4.2	4.4
Barium	mg/kg	10,000	1,000	2,000	88	84	61	70
Beryllium	mg/kg	75	7.5	--	0.64	0.64	0.58	0.57
Cadmium	mg/kg	100	10	20	<0.50	<0.50	<0.50	<0.50
Chromium	mg/kg	500	50	100	23	23	18	18
Cobalt	mg/kg	8,000	800	--	5.8	5.9	4.8	5.1
Copper	mg/kg	2,500	250	--	9.5	8.8	6.9	9.2
Lead	mg/kg	1,000	50	100	13	4.5	2.6	5.9
Mercury	mg/kg	20	2	4	0.015 J	0.012 J	0.0067 J	0.013 J
Molybdenum	mg/kg	3,500	3,500	--	<2.0	<2.0	<2.0	<2.0
Nickel	mg/kg	2,000	200	--	18	17	14	14
Selenium	mg/kg	100	10	20	<2.0	<2.0	<2.0	<2.0
Silver	mg/kg	500	50	100	<1.0	<1.0	<1.0	<1.0
Thallium	mg/kg	700	70	--	<10	<10	<10	<10
Vanadium	mg/kg	2,400	240	--	38	38	30	32
Zinc	mg/kg	5,000	2,500	--	62	54	43	50
TPH								
Volatile Fuel Hydrocarbons (C6-C12)	mg/kg	--	--	--	0.014	0.011	0.010	0.015
TPH DRO (C10-C24)	mg/kg	--	--	--	15	<5.0	<5.0	10
TPH EFH (C10-C40)	mg/kg	--	--	--	54	22	14	48
TPH ORO (C25-C40)	mg/kg	--	--	--	39	18	9.7	38
PCBs								
Aroclor 1016	ug/kg	50,000	50,000	--	<50	<50	<50	<50
Aroclor 1221	ug/kg	50,000	50,000	--	<50	<50	<50	<50
Aroclor 1232	ug/kg	50,000	50,000	--	<50	<50	<50	<50
Aroclor 1242	ug/kg	50,000	50,000	--	<50	<50	<50	<50
Aroclor 1248	ug/kg	50,000	50,000	--	<50	<50	<50	<50
Aroclor 1254	ug/kg	50,000	50,000	--	<50	<50	<50	<50
Aroclor 1260	ug/kg	50,000	50,000	--	<50	<50	<50	<50
VOCs								
1,1,1,2-Tetrachloroethane	ug/kg	--	--	--	<2.0	<2.0	<2.0 I	<1.9
1,1,1-Trichloroethane	ug/kg	--	--	--	<0.99	<0.98	<0.99	<0.97
1,1,2,2-Tetrachloroethane	ug/kg	--	--	--	<2.0 I	<2.0 I	<2.0 I	<1.9 I
1,1,2-Trichloroethane	ug/kg	--	--	--	<0.99	<0.98	<0.99	<0.97

INTERIM SOURCE REMOVAL ACTION (ISRA) - OUTFALL 009

A2LF-1 WASTE CHARACTERIZATION RESULTS
THE BOEING COMPANY
SANTA SUSANA FIELD LABORATORY

			Object Name:		**ISWC0104**	**ISWC0105**	**ISWC0106**	**ISWC0107**
			Sample Name:		ISWC0104S001	ISWC0105S001	ISWC0106S001	ISWC0107S001
			Collection Date:		9/3/2009	9/3/2009	9/3/2009	9/3/2009
			Sample Depth (feet):		0.1 - 0.6	0.4 - 0.9	1.5 - 2.0	0.1 - 0.6
ANALYTE	**UNITS**	**TTLC**	**WET Leachate Testing Trigger[a]**	**TCLP Leachate Testing Trigger[b]**	**RESULT**	**RESULT**	**RESULT**	**RESULT**
1,1-Dichloroethane	ug/kg	--	--	--	<0.99	<0.98	<0.99	<0.97
1,1-Dichloroethene	ug/kg	--	--	14,000	<2.0	<2.0	<2.0	<1.9
1,1-Dichloropropene	ug/kg	--	--	--	<0.99	<0.98	<0.99	<0.97
1,2,3-Trichlorobenzene	ug/kg	--	--	--	<2.0 C, I, M2, R-3	<2.0 I	<2.0 I	<1.9 I
1,2,3-Trichloropropane	ug/kg	--	--	--	<2.0 I, M1	<2.0 I	<2.0 I	<1.9 I
1,2,4-Trichlorobenzene	ug/kg	--	--	--	<2.0 I, M2	<2.0 I	<2.0 I	<1.9 I
1,2,4-Trimethylbenzene	ug/kg	--	--	--	<0.99 I, M1, R-3	<0.98 I	<0.99 I	<0.97 I
1,2-Dibromo-3-chloropropane	ug/kg	--	--	--	<9.9 I	<9.8 I	<9.9 I	<9.7 I
1,2-Dibromoethane (EDB)	ug/kg	--	--	--	<0.99	<0.98	<0.99 I	<0.97
1,2-Dichlorobenzene	ug/kg	--	--	--	<0.99 I	<0.98 I	<0.99 I	<0.97 I
1,2-Dichloroethane	ug/kg	--	--	10,000	<0.99	<0.98	<0.99	<0.97
1,2-Dichloropropane	ug/kg	--	--	--	<0.99	<0.98	<0.99	<0.97
1,3,5-Trimethylbenzene	ug/kg	--	--	--	<0.99 I, M1	<0.98 I	<0.99 I	<0.97 I
1,3-Dichlorobenzene	ug/kg	--	--	--	<0.99 C, I	<0.98 I	<0.99 I	<0.97 I
1,3-Dichloropropane	ug/kg	--	--	--	<0.99	<0.98	<0.99 I	<0.97
1,4-Dichlorobenzene	ug/kg	--	--	--	<0.99 I	<0.98 I	<0.99 I	<0.97 I
2,2-Dichloropropane	ug/kg	--	--	--	<0.99	<0.98	<0.99	<0.97
2-Butanone (MEK)	ug/kg	--	--	4,000,000	<9.9	<9.8	<9.9	<9.7
2-Chlorotoluene	ug/kg	--	--	--	<2.0 I	<2.0 I	<2.0 I	<1.9 I
2-Hexanone	ug/kg	--	--	--	<9.9	<9.8	<9.9 I	<9.7
4-Chlorotoluene	ug/kg	--	--	--	<2.0 I, M1	<2.0 I	<2.0 I	<1.9 I
4-Methyl-2-pentanone (MIBK)	ug/kg	--	--	--	<5.0	<4.9	<4.9	<4.9
Acetone	ug/kg	--	--	--	<9.9	<9.8	<9.9	15
Benzene	ug/kg	--	--	10,000	<0.99	<0.98	<0.99	<0.97
Bromobenzene	ug/kg	--	--	--	<2.0 I, M1, R-3	<2.0 I	<2.0 I	<1.9 I
Bromochloromethane	ug/kg	--	--	--	<2.0	<2.0	<2.0	<1.9
Bromodichloromethane	ug/kg	--	--	--	<0.99	<0.98	<0.99	<0.97
Bromoform	ug/kg	--	--	--	<2.0	<2.0	<2.0 I	<1.9
Bromomethane	ug/kg	--	--	--	<2.0	<2.0	<2.0	<1.9
Carbon Disulfide	ug/kg	--	--	--	<5.0	<4.9	<4.9	<4.9
Carbon tetrachloride	ug/kg	--	--	10,000	<2.0	<2.0	<2.0	<1.9
Chlorobenzene	ug/kg	--	--	2,000,000	<0.99	<0.98	<0.99 I	<0.97
Chloroethane	ug/kg	--	--	--	<2.0	<2.0	<2.0	<1.9
Chloroform	ug/kg	--	--	120,000	<0.99	<0.98	<0.99	<0.97
Chloromethane	ug/kg	--	--	--	<2.0	<2.0	<2.0	<1.9
cis-1,2-Dichloroethene	ug/kg	--	--	--	<0.99	<0.98	<0.99	<0.97

INTERIM SOURCE REMOVAL ACTION (ISRA) - OUTFALL 009

A2LF-1 WASTE CHARACTERIZATION RESULTS
THE BOEING COMPANY
SANTA SUSANA FIELD LABORATORY

			Object Name:		**ISWC0104**	**ISWC0105**	**ISWC0106**	**ISWC0107**
			Sample Name:		ISWC0104S001	ISWC0105S001	ISWC0106S001	ISWC0107S001
			Collection Date:		9/3/2009	9/3/2009	9/3/2009	9/3/2009
			Sample Depth (feet):		0.1 - 0.6	0.4 - 0.9	1.5 - 2.0	0.1 - 0.6
ANALYTE	**UNITS**	**TTLC**	**WET Leachate Testing Trigger[a]**	**TCLP Leachate Testing Trigger[b]**	**RESULT**	**RESULT**	**RESULT**	**RESULT**
cis-1,3-Dichloropropene	ug/kg	--	--	--	<0.99	<0.98 L	<0.99 L	<0.97 L
Dibromochloromethane	ug/kg	--	--	--	<0.99	<0.98	<0.99 I	<0.97
Dibromomethane	ug/kg	--	--	--	<0.99	<0.98	<0.99	<0.97
Dichlorodifluoromethane	ug/kg	--	--	--	<5.0	<4.9	<4.9	<4.9
Ethylbenzene	ug/kg	--	--	--	<0.99	<0.98	<0.99 I	<0.97
Hexachlorobutadiene	ug/kg	--	--	--	<2.0 C, I	<2.0 I	<2.0 I	<1.9 I
Isopropylbenzene	ug/kg	--	--	--	<0.99 I, M1	<0.98 I	<0.99 I	<0.97 I
m,p-Xylenes	ug/kg	--	--	--	<2.0	<2.0	<2.0 I	<1.9
Methylene chloride	ug/kg	--	--	--	<9.9	<9.8	<9.9	<9.7
Methyl-tert-butyl Ether (MTBE)	ug/kg	--	--	--	<2.0	<2.0	<2.0	<1.9
Naphthalene	ug/kg	--	--	--	<2.0 I	<2.0 I	<2.0 I	<1.9 I
n-Butylbenzene	ug/kg	--	--	--	<2.0 I	<2.0 I	<2.0 I	<1.9 I
n-Propylbenzene	ug/kg	--	--	--	<0.99 I, M1	<0.98 I	<0.99 I	<0.97 I
o-Xylene	ug/kg	--	--	--	<0.99	<0.98	<0.99 I	<0.97
p-Isopropyltoluene	ug/kg	--	--	--	<0.99 C, I	<0.98 I	<0.99 I	<0.97 I
sec-Butylbenzene	ug/kg	--	--	--	<2.0 I	<2.0 I	<2.0 I	<1.9 I
Styrene	ug/kg	--	--	--	<0.99	<0.98	<0.99 I	<0.97
tert-Butylbenzene	ug/kg	--	--	--	<2.0 C, I, M1, R-3	<2.0 I	<2.0 I	<1.9 I
Tetrachloroethene	ug/kg	--	--	14,000	<0.99	<0.98	<0.99 I	<0.97
Toluene	ug/kg	--	--	--	<0.99	<0.98	<0.99	<0.97
trans-1,2-Dichloroethene	ug/kg	--	--	--	<0.99	<0.98	<0.99	<0.97
trans-1,3-Dichloropropene	ug/kg	--	--	--	<0.99	<0.98	<0.99	<0.97
Trichloroethene	ug/kg	2,040,000	2,040,000	10,000	<0.99	<0.98	<0.99	<0.97
Trichlorofluoromethane	ug/kg	--	--	--	<2.0	<2.0	<2.0	<1.9
Vinyl acetate	ug/kg	--	--	--	<5.0 M2	<4.9	<4.9	<4.9
Vinyl chloride	ug/kg	--	--	4,000	<2.0	<2.0	<2.0	<1.9
SVOCs								
1,2,4-Trichlorobenzene	ug/kg	--	--	--	<330	<330	<330	<330
1,2-Dichlorobenzene	ug/kg	--	--	--	<330	<330	<330	<330
1,2-Diphenylhydrazine/Azobenzene	ug/kg	--	--	--	<330	<330	<330	<330
1,3-Dichlorobenzene	ug/kg	--	--	--	<330	<330	<330	<330
1,4-Dichlorobenzene	ug/kg	--	--	150,000	<330	<330	<330	<330
2,4,5-Trichlorophenol	ug/kg	--	--	8,000,000	<330	<330	<330	<330
2,4,6-Trichlorophenol	ug/kg	--	--	40,000	<330	<330	<330	<330
2,4-Dichlorophenol	ug/kg	--	--	--	<330	<330	<330	<330
2,4-Dimethylphenol	ug/kg	--	--	--	<330	<330	<330	<330

INTERIM SOURCE REMOVAL ACTION (ISRA) - OUTFALL 009

A2LF-1 WASTE CHARACTERIZATION RESULTS
THE BOEING COMPANY
SANTA SUSANA FIELD LABORATORY

			Object Name:		**ISWC0104**	**ISWC0105**	**ISWC0106**	**ISWC0107**
			Sample Name:		ISWC0104S001	ISWC0105S001	ISWC0106S001	ISWC0107S001
			Collection Date:		9/3/2009	9/3/2009	9/3/2009	9/3/2009
			Sample Depth (feet):		0.1 - 0.6	0.4 - 0.9	1.5 - 2.0	0.1 - 0.6
ANALYTE	**UNITS**	**TTLC**	**WET Leachate Testing Trigger[a]**	**TCLP Leachate Testing Trigger[b]**	**RESULT**	**RESULT**	**RESULT**	**RESULT**
2,4-Dinitrophenol	ug/kg	--	--	--	<660	<660	<660	<660
2,4-Dinitrotoluene	ug/kg	--	--	2,600	<330	<330	<330	<330
2,6-Dinitrotoluene	ug/kg	--	--	--	<330	<330	<330	<330
2-Chloronaphthalene	ug/kg	--	--	--	<330	<330	<330	<330
2-Chlorophenol	ug/kg	--	--	--	<330	<330	<330	<330
2-Methylnaphthalene	ug/kg	--	--	--	<330	<330	<330	<330
2-Methylphenol	ug/kg	--	--	--	<330	<330	<330	<330
2-Nitroaniline	ug/kg	--	--	--	<330	<330	<330	<330
2-Nitrophenol	ug/kg	--	--	--	<330	<330	<330	<330
3,3'-Dichlorobenzidine	ug/kg	--	--	--	<830	<830	<830	<830
3-Nitroaniline	ug/kg	--	--	--	<330	<330	<330	<330
4,6-Dinitro-2-methylphenol	ug/kg	--	--	--	<420	<420	<420	<420
4-Bromophenyl phenyl ether	ug/kg	--	--	--	<330	<330	<330	<330
4-Chloro-3-methylphenol	ug/kg	--	--	--	<330	<330	<330	<330
4-Chloroaniline	ug/kg	--	--	--	<330	<330	<330	<330
4-Chlorophenyl phenyl ether	ug/kg	--	--	--	<330	<330	<330	<330
4-Methylphenol	ug/kg	--	--	--	<330 L	<330 L	<330 L	<330 L
4-Nitroaniline	ug/kg	--	--	--	<830	<830	<830	<830
4-Nitrophenol	ug/kg	--	--	--	<830	<830	<830	<830
Acenaphthene	ug/kg	--	--	--	<330	<330	<330	<330
Acenaphthylene	ug/kg	--	--	--	<330	<330	<330	<330
Aniline	ug/kg	--	--	--	<420	<420	<420	<420
Anthracene	ug/kg	--	--	--	<330	<330	<330	<330
Benzidine	ug/kg	--	--	--	<660	<660	<660	<660
Benzo(a)anthracene	ug/kg	--	--	--	<330	<330	<330	<330
Benzo(a)pyrene	ug/kg	--	--	--	<330	<330	<330	<330
Benzo(b)fluoranthene	ug/kg	--	--	--	<330	<330	<330	<330
Benzo(g,h,i)perylene	ug/kg	--	--	--	<330	<330	<330	<330
Benzo(k)fluoranthene	ug/kg	--	--	--	<330	<330	<330	<330
Benzoic acid	ug/kg	--	--	--	<830	<830	<830	<830
Benzyl alcohol	ug/kg	--	--	--	<330	<330	<330	<330
Bis(2-chloroethoxy)methane	ug/kg	--	--	--	<330	<330	<330	<330
Bis(2-chloroethyl)ether	ug/kg	--	--	--	<170	<170	<170	<170
Bis(2-chloroisopropyl)ether	ug/kg	--	--	--	<330	<330	<330	<330
Bis(2-ethylhexyl)phthalate	ug/kg	--	--	--	<330	<330	<330	<330
Butyl benzyl phthalate	ug/kg	--	--	--	<330	<330	<330	<330

INTERIM SOURCE REMOVAL ACTION (ISRA) - OUTFALL 009

A2LF-1 WASTE CHARACTERIZATION RESULTS
THE BOEING COMPANY
SANTA SUSANA FIELD LABORATORY

			Object Name:		**ISWC0104**	**ISWC0105**	**ISWC0106**	**ISWC0107**
			Sample Name:		ISWC0104S001	ISWC0105S001	ISWC0106S001	ISWC0107S001
			Collection Date:		9/3/2009	9/3/2009	9/3/2009	9/3/2009
			Sample Depth (feet):		0.1 - 0.6	0.4 - 0.9	1.5 - 2.0	0.1 - 0.6
ANALYTE	**UNITS**	**TTLC**	**WET Leachate Testing Trigger[a]**	**TCLP Leachate Testing Trigger[b]**	**RESULT**	**RESULT**	**RESULT**	**RESULT**
Chrysene	ug/kg	--	--	--	<330	<330	<330	<330
Dibenz(a,h)anthracene	ug/kg	--	--	--	<420	<420	<420	<420
Dibenzofuran	ug/kg	--	--	--	<330	<330	<330	<330
Diethyl phthalate	ug/kg	--	--	--	<330	<330	<330	<330
Dimethyl phthalate	ug/kg	--	--	--	<330	<330	<330	<330
Di-n-butyl phthalate	ug/kg	--	--	--	<330	<330	<330	<330
Di-n-octyl phthalate	ug/kg	--	--	--	<330	<330	<330	<330
Fluoranthene	ug/kg	--	--	--	<330	<330	<330	<330
Fluorene	ug/kg	--	--	--	<330	<330	<330	<330
Hexachlorobenzene	ug/kg	--	--	2,600	<330	<330	<330	<330
Hexachlorobutadiene	ug/kg	--	--	10,000	<330	<330	<330	<330
Hexachlorocyclopentadiene	ug/kg	--	--	--	<830	<830	<830	<830
Hexachloroethane	ug/kg	--	--	60,000	<330	<330	<330	<330
Indeno(1,2,3-cd)pyrene	ug/kg	--	--	--	<330	<330	<330	<330
Isophorone	ug/kg	--	--	--	<330	<330	<330	<330
Naphthalene	ug/kg	--	--	--	<330	<330	<330	<330
Nitrobenzene	ug/kg	--	--	40,000	<330	<330	<330	<330
N-Nitrosodimethylamine	ug/kg	--	--	--	<330	<330	<330	<330
N-Nitroso-di-n-propylamine	ug/kg	--	--	--	<250	<250	<250	<250
N-Nitrosodiphenylamine	ug/kg	--	--	--	<330	<330	<330	<330
Pentachlorophenol	ug/kg	17,000	17,000	2,000,000	<830	<830	<830	<830
Phenanthrene	ug/kg	--	--	--	<330	<330	<330	<330
Phenol	ug/kg	--	--	--	<330	<330	<330	<330
Pyrene	ug/kg	--	--	--	<330	<330	<330	<330
RADIONUCLIDES	--	--	--	--	R	R	R	R

INTERIM SOURCE REMOVAL ACTION (ISRA) - OUTFALL 009

A2LF-1 WASTE CHARACTERIZATION RESULTS
THE BOEING COMPANY
SANTA SUSANA FIELD LABORATORY

Notes:

"--" - not analyzed / not applicable

[1] - WET Leachate Testing Trigger = STLC limit * 10

[2] - TCLP Leachate Testing Trigger = TCLP limit * 20

I - Internal Standard recovery was outside of method limits. Matrix interference was confirmed.

J - Estimated value. Analyte detected at a level less than the Reporting Limit (RL) and greater than or equal to the Method Detection Limit (MDL). The user of this data should be aware that this data is of limited reliability.

L - Laboratory Control Sample and/or Laboratory Control Sample Duplicate recovery was above the acceptance limits. Analyte not detected, data not impacted.

M1 - The MS and/or MSD were above the acceptance limits due to sample matrix interference. See Blank Spike (LCS).

M2 - The MS and/or MSD were below the acceptance limits due to sample matrix interference. See Blank Spike (LCS).

M7 - The MS and/or MSD were above the acceptance limits. See Blank Spike (LCS).

µg/kg - micrograms per kilogram

mg/kg - milligrams per kilogram

R - Radiological analysis includes gamma spectroscopy (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), strontium-90, and tritium. Boeing has prepared a document dated September 21, 2009 that provides the radiological results and statistical analysis of the Outfall 009 A2LF waste characterization samples. Based on the results, the document certifies the soil represented by these waste characterization samples to be "radiologically" acceptable for shipment to Class 1, 2, and/or 3 disposal facilities. The analysis and data interpretation complies with procedures approved by the California Department of Public Health.

R-3 - The RPD exceeded the acceptance limit due to sample matrix effects

RL1 - Reporting limit raised due to sample matrix effects.

WASTE CHARACTERIZATION: IN-SITU SOIL LOCATED AT
ISRA AREA II PLANNED EXCAVATION A2LF-3

Introduction

This report presents supporting detailed information for the September 3, 2009 in-situ characterization of prospective soil wastes from planned ISRA excavations in SSFL Area II.

Background

In-situ characterization of soil destined to be excavated from designated locations in SSFL Area II in accordance with the ISRA Workplan was performed. A step-by-step approach was followed to accomplish characterization of the soil prior to excavation. The first step was to review available information regarding historical area usage and existing analytical data from past soil sampling in the applicable SSFL Area II locations. The objective was to identify all substances that could have an impact on the determination of whether soil in each planned excavation footprint was hazardous or not.

The next step was to develop a random sampling plan for each of the planned excavation footprints to determine whether any of the identified substances are present at concentrations that require further investigation. An evaluation of the results of the initial random sampling was performed to determine whether the data was adequate for waste characterization based on the exhibited variance of any detected analytes and the relative difference between detected concentrations and regulatory thresholds. The soil was characterized non-hazardous when analyte concentrations among the samples exhibited a reasonably small variance and there was satisfactory margin between the mean of the samples and applicable regulatory thresholds. Otherwise, additional samples were collected and subjected to analysis or the soil was characterized as hazardous.

The review of historical information and existing analytical data relevant to planned excavation A2LF-3 was based largely on the Group 2 RFI results. Evaluation of these data and other sources of relevant information suggested that Petroleum Hydrocarbons (TPH), Volatile Organic Compounds (VOC), Regulated metals, Polychlorinated Biphenyls (PCB), and Semi-Volatile Organic Compounds (SVOC) should be addressed in the A2LF-3 excavation footprint. A random sampling plan was developed for collection of Four (4) samples from the planned excavation footprint, taking into account the relatively small area to be excavated. The samples were analyzed for TPH, VOC, CAM 17 metals, PCBs, and SVOCs. All samples were collected, contained, and handled according to field practice requirements in SW-846.

Results

Analytical results for the A2LF-3 planned excavation area are presented in TestAmerica report ISI0508 issued on 9/25/09. TPH in the C10 - C40 range was detected in all of the samples. Concentrations were low, with a maximum of 150 mg/kg. No Petroleum Hydrocarbons in the C6 - C12 range (gasoline) were detected. A trace concentration of Acetone was detected at 0.009 mg/kg, as well as Toluene at a concentration of 0.0008 mg/kg. No other VOCs were detected. SVOCs were detected, but all were below an individual and collective concentration of 1 mg/kg in any given sample. No PCBs were detected.

Regulated metals were detected, and in one case exceeded the California STLC 10 X rule requiring the performance of the WET leachate test. Chromium was detected at concentrations

ranging from 17 mg/kg to 27 mg/kg. Lead was detected at concentrations ranging from 27 mg/kg to 74 mg/kg. The required California WET for Lead was conducted on the sample that exceeded the total Lead 50 ppm threshold and resulted in a leachate concentration of 3.7 mg/L. Although this is below the California STLC hazardous waste threshold, other factors were also of importance in characterizing this soil. The Lead detections were not tightly grouped. Consequently, a large variance, and the proximity of the mean concentration to the regulatory threshold, indicated that additional sampling was needed before analytical results could be considered representative of the average soil characteristics.

All other detected regulated metals were well below regulatory thresholds.

Determination

According to analytical results and generator knowledge, the soil in the planned excavation footprint of SSFL Area II A2LF-3:

Is Not a Listed Waste (generator knowledge)
Is Not ignitable (generator knowledge)
Is Not corrosive (generator knowledge)
Is Not reactive (generator knowledge)
Is potentially toxic (analytical results and generator knowledge)
- Is Not Extremely or Acutely Hazardous Waste
- **May exceed the Title 22 threshold for Lead**
- Is Not subject to the Prop. 65 listing
- Is Not subject to Title 22 Appendix X list
- Is Not known by experience or testing to pose a hazard to human health or environment because of its carcinogenicity, acute toxicity, chronic toxicity, bio-accumulative properties, or persistence in the environment.

The soil in A2LF-3 will be managed as HAZARDOUS in lieu of additional sampling.

INTERIM SOURCE REMOVAL ACTION (ISRA) - OUTFALL 009

A2LF-3 WASTE CHARACTERIZATION RESULTS
THE BOEING COMPANY
SANTA SUSANA FIELD LABORATORY

			Object Name:			**ISWC0108**	**ISWC0109**	**ISWC0110**	**ISWC0111**
			Sample Name:			ISWC0108S001	ISWC0109S001	ISWC0110S001	ISWC0111S001
			Collection Date:			9/3/2009	9/3/2009	9/3/2009	9/3/2009
			Sample Depth (feet):			0.5 - 1.0	0.0 - 0.2	0.0 - 0.2	1.0 - 1.5
ANALYTE	**UNITS**	**TTLC**	**WET Leachate Testing Trigger[a]**	**TCLP Leachate Testing Trigger[b]**	**STLC**	**RESULT**	**RESULT**	**RESULT**	**RESULT**
METALS									
Antimony	mg/kg	500	150	--	--	<10	<10	<10	<10
Arsenic	mg/kg	500	50	100	--	7.0	5.4	5.7	4.7
Barium	mg/kg	10,000	1,000	2,000	--	91	78	90	68
Beryllium	mg/kg	75	7.5	--	--	0.74	0.69	0.61	0.56
Cadmium	mg/kg	100	10	20	--	<0.50	<0.50	<0.50	<0.50
Chromium	mg/kg	500	50	100	--	27	20	19	17
Cobalt	mg/kg	8,000	800	--	--	6.4	5.4	5.2	4.6
Copper	mg/kg	2,500	250	--	--	12	10	10	8.1
Lead	mg/kg	1,000	50	100	--	44	27	30	74
Lead, WET	mg/L	--	--	--	5	--	--	--	3.7
Mercury	mg/kg	20	2	4	--	0.020 J	0.034	0.028 J	0.015 J
Molybdenum	mg/kg	3,500	3,500	--	--	<2.0	<2.0	<2.0	<2.0
Nickel	mg/kg	2,000	200	--	--	18	14	14	12
Selenium	mg/kg	100	10	20	--	<2.0	<2.0	<2.0	<2.0
Silver	mg/kg	500	50	100	--	<1.0	<1.0	<1.0	<1.0
Thallium	mg/kg	700	70	--	--	<10	<10	<10	<10
Vanadium	mg/kg	2,400	240	--	--	41	36	34	32
Zinc	mg/kg	5,000	2,500	--	--	70	58	61	53
TPH									
Volatile Fuel Hydrocarbons (C6-C12)	mg/kg	--	--	--	--	0.012	0.013	0.014	0.053
TPH DRO (C10-C24)	mg/kg	--	--	--	--	9.3	34	22	27
TPH EFH (C10-C40)	mg/kg	--	--	--	--	46	150	120	120 M1
TPH ORO (C25-C40)	mg/kg	--	--	--	--	36	120	100	93
PCBs									
Aroclor 1016	ug/kg	50,000	50,000	--	--	<50	<50	<50	<50
Aroclor 1221	ug/kg	50,000	50,000	--	--	<50	<50	<50	<50
Aroclor 1232	ug/kg	50,000	50,000	--	--	<50	<50	<50	<50
Aroclor 1242	ug/kg	50,000	50,000	--	--	<50	<50	<50	<50
Aroclor 1248	ug/kg	50,000	50,000	--	--	<50	<50	<50	<50
Aroclor 1254	ug/kg	50,000	50,000	--	--	<50	<50	<50	<50
Aroclor 1260	ug/kg	50,000	50,000	--	--	<50	<50	<50	<50
VOCs									
1,1,1,2-Tetrachloroethane	ug/kg	--	--	--	--	<1.9	<2.0 I	<4.0 RL1	<2.0
1,1,1-Trichloroethane	ug/kg	--	--	--	--	<0.97	<1.0	<2.0 RL1	<0.99
1,1,2,2-Tetrachloroethane	ug/kg	--	--	--	--	<1.9 I	<2.0 I	<4.0 RL1, I	<2.0

INTERIM SOURCE REMOVAL ACTION (ISRA) - OUTFALL 009

A2LF-3 WASTE CHARACTERIZATION RESULTS
THE BOEING COMPANY
SANTA SUSANA FIELD LABORATORY

			Object Name:			**ISWC0108**	**ISWC0109**	**ISWC0110**	**ISWC0111**
			Sample Name:			ISWC0108S001	ISWC0109S001	ISWC0110S001	ISWC0111S001
			Collection Date:			9/3/2009	9/3/2009	9/3/2009	9/3/2009
			Sample Depth (feet):			0.5 - 1.0	0.0 - 0.2	0.0 - 0.2	1.0 - 1.5
ANALYTE	**UNITS**	**TTLC**	**WET Leachate Testing Trigger[a]**	**TCLP Leachate Testing Trigger[b]**	**STLC**	**RESULT**	**RESULT**	**RESULT**	**RESULT**
1,1,2-Trichloroethane	ug/kg	--	--	--	--	<0.97	<1.0	<2.0 RL1	<0.99
1,1-Dichloroethane	ug/kg	--	--	--	--	<0.97	<1.0	<2.0 RL1	<0.99
1,1-Dichloroethene	ug/kg	--	--	14,000	--	<1.9	<2.0	<4.0 RL1	<2.0
1,1-Dichloropropene	ug/kg	--	--	--	--	<0.97	<1.0	<2.0 RL1	<0.99
1,2,3-Trichlorobenzene	ug/kg	--	--	--	--	<1.9 I	<2.0 I	<4.0 RL1, I	<2.0
1,2,3-Trichloropropane	ug/kg	--	--	--	--	<1.9 I	<2.0 I	<4.0 RL1, I	<2.0 M1
1,2,4-Trichlorobenzene	ug/kg	--	--	--	--	<1.9 I	<2.0 I	<4.0 RL1, I	<2.0
1,2,4-Trimethylbenzene	ug/kg	--	--	--	--	<0.97 I	<1.0 I	<2.0 RL1, I	<0.99
1,2-Dibromo-3-chloropropane	ug/kg	--	--	--	--	<9.7 I	<10 I	<20 RL1, I	<9.9
1,2-Dibromoethane (EDB)	ug/kg	--	--	--	--	<0.97	<1.0 I	<2.0 RL1	<0.99
1,2-Dichlorobenzene	ug/kg	--	--	--	--	<0.97 I	<1.0 I	<2.0 RL1, I	<0.99
1,2-Dichloroethane	ug/kg	--	--	10,000	--	<0.97	<1.0	<2.0 RL1	<0.99
1,2-Dichloropropane	ug/kg	--	--	--	--	<0.97	<1.0	<2.0 RL1	<0.99
1,3,5-Trimethylbenzene	ug/kg	--	--	--	--	<0.97 I	<1.0 I	<2.0 RL1, I	<0.99
1,3-Dichlorobenzene	ug/kg	--	--	--	--	<0.97 I	<1.0 I	<2.0 RL1, I	<0.99
1,3-Dichloropropane	ug/kg	--	--	--	--	<0.97	<1.0 I	<2.0 RL1	<0.99
1,4-Dichlorobenzene	ug/kg	--	--	--	--	<0.97 I	<1.0 I	<2.0 RL1, I	<0.99
2,2-Dichloropropane	ug/kg	--	--	--	--	<0.97	<1.0	<2.0 RL1	<0.99
2-Butanone (MEK)	ug/kg	--	--	4,000,000	--	<9.7	<10	<20 RL1	<9.9
2-Chlorotoluene	ug/kg	--	--	--	--	<1.9 I	<2.0 I	<4.0 RL1, I	<2.0
2-Hexanone	ug/kg	--	--	--	--	<9.7	<10 I	<20 RL1	<9.9
4-Chlorotoluene	ug/kg	--	--	--	--	<1.9 I	<2.0 I	<4.0 RL1, I	<2.0
4-Methyl-2-pentanone (MIBK)	ug/kg	--	--	--	--	<4.8	<5.0	<10 RL1	<4.9
Acetone	ug/kg	--	--	--	--	<9.7	<10	<20 RL1	<9.9 M1, R-3
Benzene	ug/kg	--	--	10,000	--	<0.97	<1.0	<2.0 RL1	<0.99
Bromobenzene	ug/kg	--	--	--	--	<1.9 I	<2.0 I	<4.0 RL1, I	<2.0
Bromochloromethane	ug/kg	--	--	--	--	<1.9	<2.0	<4.0 RL1	<2.0
Bromodichloromethane	ug/kg	--	--	--	--	<0.97	<1.0	<2.0 RL1	<0.99
Bromoform	ug/kg	--	--	--	--	<1.9	<2.0 I	<4.0 RL1	<2.0
Bromomethane	ug/kg	--	--	--	--	<1.9	<2.0	<4.0 RL1	<2.0
Carbon Disulfide	ug/kg	--	--	--	--	<4.8	<5.0	<10 RL1	<4.9
Carbon tetrachloride	ug/kg	--	--	10,000	--	<1.9	<2.0	<4.0 RL1	<2.0
Chlorobenzene	ug/kg	--	--	2,000,000	--	<0.97	<1.0 I	<2.0 RL1	<0.99
Chloroethane	ug/kg	--	--	--	--	<1.9	<2.0	<4.0 RL1	<2.0
Chloroform	ug/kg	--	--	120,000	--	<0.97	<1.0	<2.0 RL1	<0.99
Chloromethane	ug/kg	--	--	--	--	<1.9	<2.0	<4.0 RL1	<2.0

INTERIM SOURCE REMOVAL ACTION (ISRA) - OUTFALL 009

A2LF-3 WASTE CHARACTERIZATION RESULTS
THE BOEING COMPANY
SANTA SUSANA FIELD LABORATORY

			Object Name:			**ISWC0108**	**ISWC0109**	**ISWC0110**	**ISWC0111**
			Sample Name:			ISWC0108S001	ISWC0109S001	ISWC0110S001	ISWC0111S001
			Collection Date:			9/3/2009	9/3/2009	9/3/2009	9/3/2009
			Sample Depth (feet):			0.5 - 1.0	0.0 - 0.2	0.0 - 0.2	1.0 - 1.5
ANALYTE	**UNITS**	**TTLC**	**WET Leachate Testing Trigger[a]**	**TCLP Leachate Testing Trigger[b]**	**STLC**	**RESULT**	**RESULT**	**RESULT**	**RESULT**
cis-1,2-Dichloroethene	ug/kg	--	--	--	--	<0.97	<1.0	<2.0 RL1	<0.99
cis-1,3-Dichloropropene	ug/kg	--	--	--	--	<0.97 L	<1.0 L	<2.0 RL1, L	<0.99 L, M7
Dibromochloromethane	ug/kg	--	--	--	--	<0.97	<1.0 I	<2.0 RL1	<0.99
Dibromomethane	ug/kg	--	--	--	--	<0.97	<1.0	<2.0 RL1	<0.99
Dichlorodifluoromethane	ug/kg	--	--	--	--	<4.8	<5.0	<10 RL1	<4.9
Ethylbenzene	ug/kg	--	--	--	--	<0.97	<1.0 I	<2.0 RL1	<0.99
Hexachlorobutadiene	ug/kg	--	--	--	--	<1.9 I	<2.0 I	<4.0 RL1, I	<2.0
Isopropylbenzene	ug/kg	--	--	--	--	<0.97 I	<1.0 I	<2.0 RL1, I	<0.99
m,p-Xylenes	ug/kg	--	--	--	--	<1.9	<2.0 I	<4.0 RL1	<2.0
Methylene chloride	ug/kg	--	--	--	--	<9.7	<10	<20 RL1	<9.9
Methyl-tert-butyl Ether (MTBE)	ug/kg	--	--	--	--	<1.9	<2.0	<4.0 RL1	<2.0
Naphthalene	ug/kg	--	--	--	--	<1.9 I	<2.0 I	<4.9 I	<2.0
n-Butylbenzene	ug/kg	--	--	--	--	<1.9 I	<2.0 I	<4.0 RL1, I	<2.0
n-Propylbenzene	ug/kg	--	--	--	--	<0.97 I	<1.0 I	<2.0 RL1, I	<0.99
o-Xylene	ug/kg	--	--	--	--	<0.97	<1.0 I	<2.0 RL1	<0.99
p-Isopropyltoluene	ug/kg	--	--	--	--	<0.97 I	<1.0 I	<2.0 RL1, I	<0.99
sec-Butylbenzene	ug/kg	--	--	--	--	<1.9 I	<2.0 I	<4.0 RL1, I	<2.0
Styrene	ug/kg	--	--	--	--	<0.97	<1.0 I	<2.0 RL1	<0.99
tert-Butylbenzene	ug/kg	--	--	--	--	<1.9 I	<2.0 I	<4.0 RL1, I	<2.0
Tetrachloroethene	ug/kg	--	--	14,000	--	<0.97	<1.0 I	<2.0 RL1	<0.99
Toluene	ug/kg	--	--	--	--	<0.97	<1.0	<2.0 RL1	<0.99
trans-1,2-Dichloroethene	ug/kg	--	--	--	--	<0.97	<1.0	<2.0 RL1	<0.99
trans-1,3-Dichloropropene	ug/kg	--	--	--	--	<0.97	<1.0	<2.0 RL1	<0.99
Trichloroethene	ug/kg	2,040,000	2,040,000	10,000	--	<0.97	<1.0	<2.0 RL1	<0.99
Trichlorofluoromethane	ug/kg	--	--	--	--	<1.9	<2.0	<4.0 RL1	<2.0
Vinyl acetate	ug/kg	--	--	--	--	<4.8	<5.0	<10 RL1	<4.9 M2
Vinyl chloride	ug/kg	--	--	4,000	--	<1.9	<2.0	<4.0 RL1	<2.0
SVOCs									
1,2,4-Trichlorobenzene	ug/kg	--	--	--	--	<330	<330	<330	<330
1,2-Dichlorobenzene	ug/kg	--	--	--	--	<330	<330	<330	<330
1,2-Diphenylhydrazine/Azobenzene	ug/kg	--	--	--	--	<330	<330	<330	<330
1,3-Dichlorobenzene	ug/kg	--	--	--	--	<330	<330	<330	<330
1,4-Dichlorobenzene	ug/kg	--	--	150,000	--	<330	<330	<330	<330
2,4,5-Trichlorophenol	ug/kg	--	--	8,000,000	--	<330	<330	<330	<330
2,4,6-Trichlorophenol	ug/kg	--	--	40,000	--	<330	<330	<330	<330
2,4-Dichlorophenol	ug/kg	--	--	--	--	<330	<330	<330	<330

INTERIM SOURCE REMOVAL ACTION (ISRA) - OUTFALL 009

A2LF-3 WASTE CHARACTERIZATION RESULTS
THE BOEING COMPANY
SANTA SUSANA FIELD LABORATORY

			Object Name:			**ISWC0108**	**ISWC0109**	**ISWC0110**	**ISWC0111**
			Sample Name:			ISWC0108S001	ISWC0109S001	ISWC0110S001	ISWC0111S001
			Collection Date:			9/3/2009	9/3/2009	9/3/2009	9/3/2009
			Sample Depth (feet):			0.5 - 1.0	0.0 - 0.2	0.0 - 0.2	1.0 - 1.5
ANALYTE	**UNITS**	**TTLC**	**WET Leachate Testing Trigger[a]**	**TCLP Leachate Testing Trigger[b]**	**STLC**	**RESULT**	**RESULT**	**RESULT**	**RESULT**
2,4-Dimethylphenol	ug/kg	--	--	--	--	<330	<330	<330	<330
2,4-Dinitrophenol	ug/kg	--	--	--	--	<660	<660	<660	<660
2,4-Dinitrotoluene	ug/kg	--	--	2,600	--	<330	<330	<330	<330
2,6-Dinitrotoluene	ug/kg	--	--	--	--	<330	<330	<330	<330
2-Chloronaphthalene	ug/kg	--	--	--	--	<330	<330	<330	<330
2-Chlorophenol	ug/kg	--	--	--	--	<330	<330	<330	<330
2-Methylnaphthalene	ug/kg	--	--	--	--	<330	<330	<330	<330
2-Methylphenol	ug/kg	--	--	--	--	<330	<330	<330	<330
2-Nitroaniline	ug/kg	--	--	--	--	<330	<330	<330	<330
2-Nitrophenol	ug/kg	--	--	--	--	<330	<330	<330	<330
3,3'-Dichlorobenzidine	ug/kg	--	--	--	--	<830	<830	<830	<830
3-Nitroaniline	ug/kg	--	--	--	--	<330	<330	<330	<330
4,6-Dinitro-2-methylphenol	ug/kg	--	--	--	--	<420	<420	<420	<420
4-Bromophenyl phenyl ether	ug/kg	--	--	--	--	<330	<330	<330	<330
4-Chloro-3-methylphenol	ug/kg	--	--	--	--	<330	<330	<330	<330
4-Chloroaniline	ug/kg	--	--	--	--	<330	<330	<330	<330
4-Chlorophenyl phenyl ether	ug/kg	--	--	--	--	<330	<330	<330	<330
4-Methylphenol	ug/kg	--	--	--	--	<330 L	<330	<330 L	<330 L
4-Nitroaniline	ug/kg	--	--	--	--	<830	<830	<830	<830
4-Nitrophenol	ug/kg	--	--	--	--	<830	<830	<830	<830
Acenaphthene	ug/kg	--	--	--	--	<330	<330	<330	<330
Acenaphthylene	ug/kg	--	--	--	--	<330	<330	<330	<330
Aniline	ug/kg	--	--	--	--	<420	<420	<420	<420
Anthracene	ug/kg	--	--	--	--	<330	<330	<330	<330
Benzidine	ug/kg	--	--	--	--	<660	<660	<660	<660
Benzo(a)anthracene	ug/kg	--	--	--	--	<330	<330	<330	<330
Benzo(a)pyrene	ug/kg	--	--	--	--	<330	<330	<330	<330
Benzo(b)fluoranthene	ug/kg	--	--	--	--	<330	<330	<330	<330
Benzo(g,h,i)perylene	ug/kg	--	--	--	--	<330	<330	<330	<330
Benzo(k)fluoranthene	ug/kg	--	--	--	--	<330	<330	<330	<330
Benzoic acid	ug/kg	--	--	--	--	<830	<830	<830	<830
Benzyl alcohol	ug/kg	--	--	--	--	<330	<330	<330	<330
Bis(2-chloroethoxy)methane	ug/kg	--	--	--	--	<330	<330	<330	<330
Bis(2-chloroethyl)ether	ug/kg	--	--	--	--	<170	<170	<170	<170
Bis(2-chloroisopropyl)ether	ug/kg	--	--	--	--	<330	<330	<330	<330
Bis(2-ethylhexyl)phthalate	ug/kg	--	--	--	--	430	<330	<330	<330

INTERIM SOURCE REMOVAL ACTION (ISRA) - OUTFALL 009

A2LF-3 WASTE CHARACTERIZATION RESULTS
THE BOEING COMPANY
SANTA SUSANA FIELD LABORATORY

			Object Name:			**ISWC0108**	**ISWC0109**	**ISWC0110**	**ISWC0111**
			Sample Name:			ISWC0108S001	ISWC0109S001	ISWC0110S001	ISWC0111S001
			Collection Date:			9/3/2009	9/3/2009	9/3/2009	9/3/2009
			Sample Depth (feet):			0.5 - 1.0	0.0 - 0.2	0.0 - 0.2	1.0 - 1.5
ANALYTE	**UNITS**	**TTLC**	**WET Leachate Testing Trigger[a]**	**TCLP Leachate Testing Trigger[b]**	**STLC**	**RESULT**	**RESULT**	**RESULT**	**RESULT**
Butyl benzyl phthalate	ug/kg	--	--	--	--	<330	<330	<330	<330
Chrysene	ug/kg	--	--	--	--	<330	<330	<330	<330
Dibenz(a,h)anthracene	ug/kg	--	--	--	--	<420	<420	<420	<420
Dibenzofuran	ug/kg	--	--	--	--	<330	<330	<330	<330
Diethyl phthalate	ug/kg	--	--	--	--	<330	<330	<330	<330
Dimethyl phthalate	ug/kg	--	--	--	--	<330	<330	<330	<330
Di-n-butyl phthalate	ug/kg	--	--	--	--	<330	<330	<330	<330
Di-n-octyl phthalate	ug/kg	--	--	--	--	<330	<330	<330	<330
Fluoranthene	ug/kg	--	--	--	--	<330	<330	<330	<330
Fluorene	ug/kg	--	--	--	--	<330	<330	<330	<330
Hexachlorobenzene	ug/kg	--	--	2,600	--	<330	<330	<330	<330
Hexachlorobutadiene	ug/kg	--	--	10,000	--	<330	<330	<330	<330
Hexachlorocyclopentadiene	ug/kg	--	--	--	--	<830	<830	<830	<830
Hexachloroethane	ug/kg	--	--	60,000	--	<330	<330	<330	<330
Indeno(1,2,3-cd)pyrene	ug/kg	--	--	--	--	<330	<330	<330	<330
Isophorone	ug/kg	--	--	--	--	<330	<330	<330	<330
Naphthalene	ug/kg	--	--	--	--	<330	<330	<330	<330
Nitrobenzene	ug/kg	--	--	40,000	--	<330	<330	<330	<330
N-Nitrosodimethylamine	ug/kg	--	--	--	--	<330	<330	<330	<330
N-Nitroso-di-n-propylamine	ug/kg	--	--	--	--	<250	<250	<250	<250
N-Nitrosodiphenylamine	ug/kg	--	--	--	--	<330	<330	<330	<330
Pentachlorophenol	ug/kg	17,000	17,000	2,000,000	--	<830	<830	<830	<830
Phenanthrene	ug/kg	--	--	--	--	<330	<330	<330	<330
Phenol	ug/kg	--	--	--	--	<330	<330	<330	<330
Pyrene	ug/kg	--	--	--	--	<330	<330	<330	<330
RADIONUCLIDES	--	--	--	--	--	R	R	R	R

INTERIM SOURCE REMOVAL ACTION (ISRA) - OUTFALL 009

A2LF-3 WASTE CHARACTERIZATION RESULTS
THE BOEING COMPANY
SANTA SUSANA FIELD LABORATORY

Notes:

"--" - not analyzed / not applicable

[1] - WET Leachate Testing Trigger = STLC limit * 10

[2] - TCLP Leachate Testing Trigger = TCLP limit * 20

I - Internal Standard recovery was outside of method limits. Matrix interference was confirmed.

J - Estimated value. Analyte detected at a level less than the Reporting Limit (RL) and greater than or equal to the Method Detection Limit (MDL). The user of this data should be aware that this data is of limited reliability.

L - Laboratory Control Sample and/or Laboratory Control Sample Duplicate recovery was above the acceptance limits. Analyte not detected, data not impacted.

M1 - The MS and/or MSD were above the acceptance limits due to sample matrix interference. See Blank Spike (LCS).

M2 - The MS and/or MSD were below the acceptance limits due to sample matrix interference. See Blank Spike (LCS).

M7 - The MS and/or MSD were above the acceptance limits. See Blank Spike (LCS).

µg/kg - micrograms per kilogram

mg/kg - milligrams per kilogram

mg/L - milligrams per liter

R - Radiological analysis includes gamma spectroscopy (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), strontium-90, and tritium. Boeing has prepared a document dated September 21, 2009 that provides the radiological results and statistical analysis of the Outfall 009 A2LF waste characterization samples. Based on the results, the document certifies the soil represented by these waste characterization samples to be "radiologically" acceptable for shipment to Class 1, 2, and/or 3 disposal facilities. The analysis and data interpretation complies with procedures approved by the California Department of Public Health.

R-3 - The RPD exceeded the acceptance limit due to sample matrix effects

RL1 - Reporting limit raised due to sample matrix effects.

Area II Landfill 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 Area II Landfill Interim Source Removal Action (ISRA) area. This analysis and data interpretation complies with procedures approved by the California Department of Public Health[1].

Eight (8) 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 ~0.044 pCi/g and ~0.040 pCi/g respectively. Minimum detectable activity for tritium averaged 0.82 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-1505[2] and DTSC guidance[3] (See Appendix 1). 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 report[4]. 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.

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[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 Area II Landfill ISRA area does not exceed the local background for Cs-137. The incremental dose from Cs-137 above background is therefore zero mrem/y. The highest Cs-137 result is 0.178 pCi/g which is less than the highest background result. The highest non-background subtracted Cs-137 result is equivalent to an effective dose of 0.125 mrem/y[6].

Strontium-90 - Based on the results of the statistical analysis of Appendix 1, soil to be excavated from the Area II Landfill ISRA area does not exceed the local background for Sr-90. The incremental dose from Sr-90 above background is therefore zero mrem/y. The highest Sr-90 result is 0.029 pCi/g which is less than the highest background result. The highest non-background subtracted Sr-90 result is equivalent to an effective dose of 0.0089 mrem/y[6].

Tritium - All tritium results are non-detect, the average tritium result is -0.31 pCi/g and the highest non-detect tritium result is -0.136 pCi/g. The highest non-detect, non-background subtracted tritium result is equivalent to an effective dose of 0.0 mrem/y[6].

This waste is certified to be "radiologically" acceptable for shipment to, and disposal at, any Class 1, 2 or 3 disposal facility. There are no radiological controls or restrictions imposed on future disposition or use of this soil.

This waste meets the requirements of disposal facility permits[7,8] and complies with the California Health & Safety Code[9].

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 Area II Landfill ISRA area

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[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 5 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

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 material[10].

Phil Rutherford
Manager, Health, Safety & Radiation Services

[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 (R) by more than the DCGL.

The null hypothesis, Ho, is: Survey sample concentrations exceed those in the background
The alternative hypothesis, Ha, 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)	0.12
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:	8
Z-value for Alpha	1.645
Critical Value	1604
Sum of Reference Ranks	1714

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 alterrnative 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	0.090
Max	0.213	0.178
Min	0.015	-0.018
σ	0.062	0.069
m-1.96*σ	-0.035	-0.046
m+1.96*σ	0.210	0.225

No.	Soil ID	Cs-137	Adjusted Cs-137	Area	Ranks	Reference Ranks
1		0.092	0.217	R	36	36
2		0.020	0.145	R	14	14
3		0.020	0.145	R	14	14
4		0.100	0.225	R	40.5	40.5
5		0.020	0.145	R	14	14
6		0.158	0.283	R	51.5	51.5
7		0.175	0.300	R	53	53
8		0.209	0.334	R	58	58
9		0.180	0.305	R	54	54
10		0.030	0.155	R	22	22
11		0.213	0.338	R	59	59
12		0.025	0.150	R	19	19
13		0.020	0.145	R	14	14
14		0.020	0.145	R	14	14
15		0.074	0.199	R	32	32
16		0.147	0.272	R	47	47
17		0.100	0.225	R	40.5	40.5
18		0.067	0.192	R	30.5	30.5
19		0.099	0.224	R	39	39

No.	Soil ID	Cs-137	Adjusted Cs-137	Area	Ranks	Reference Ranks
20		0.101	0.226	R	42	42
21		0.148	0.273	R	48	48
22		0.153	0.278	R	50	50
23		0.025	0.150	R	19	19
24		0.188	0.313	R	55	55
25		0.198	0.323	R	57	57
26		0.030	0.155	R	22	22
27		0.079	0.204	R	33	33
28		0.158	0.283	R	51.5	51.5
29		0.109	0.234	R	43	43
30		0.059	0.184	R	29	29
31		0.067	0.192	R	30.5	30.5
32		0.113	0.238	R	44	44
33		0.015	0.140	R	9	9
34		0.031	0.156	R	24	24
35		0.042	0.167	R	27	27
36		0.097	0.222	R	37.5	37.5
37		0.015	0.140	R	9	9
38		0.020	0.145	R	14	14
39		0.085	0.210	R	35	35
40		0.080	0.205	R	34	34
41		0.015	0.140	R	9	9
42		0.020	0.145	R	14	14
43		0.035	0.160	R	25.5	25.5
44		0.035	0.160	R	25.5	25.5
45		0.025	0.150	R	19	19
46		0.150	0.275	R	49	49
47		0.140	0.265	R	45.5	45.5
48		0.190	0.315	R	56	56
49		0.097	0.222	R	37.5	37.5
50		0.030	0.155	R	22	22
51		0.140	0.265	R	45.5	45.5
52	ISWC0104RadS001	0.122	0.122	S	4	0
53	ISWC0105RadS001	0.123	0.123	S	5	0
54	ISWC0106RadS001	-0.018	-0.018	S	1	0
55	ISWC0107RadS001	0.025	0.025	S	3	0
56	ISWC0108RadS001	0.134	0.134	S	7	0
57	ISWC0109RadS001	0.128	0.128	S	6	0
58	ISWC0110RadS001	0.178	0.178	S	28	0
59	ISWC0111RadS001	0.024	0.024	S	2	0
				Sum	1770	1714

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 (R) by more than the DCGL.

The null hypothesis, Ho, is: Survey sample concentrations exceed those in the background
The alternative hypothesis, Ha, 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)	0.06
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:	8
Z-value for Alpha	1.645
Critical Value	1604
Sum of Reference Ranks	1734

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 alterrnative 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	0.013
Max	0.130	0.029
Min	0.005	0.004
σ	0.030	0.010
m-1.96*σ	-0.008	-0.007
m+1.96*σ	0.109	0.033

No.	Soil ID	Sr-90	Adjusted Sr-90	Area	Ranks	Reference Ranks
1		0.030	0.090	R	20	20
2		0.010	0.070	R	10.5	10.5
3		0.045	0.105	R	34.5	34.5
4		0.045	0.105	R	34.5	34.5
5		0.050	0.110	R	44	44
6		0.040	0.100	R	26	26
7		0.035	0.095	R	22.5	22.5
8		0.050	0.110	R	44	44
9		0.050	0.110	R	44	44
10		0.130	0.190	R	58.5	58.5
11		0.120	0.180	R	57	57
12		0.040	0.100	R	26	26
13		0.045	0.105	R	34.5	34.5
14		0.130	0.190	R	58.5	58.5
15		0.050	0.110	R	44	44
16		0.088	0.148	R	52	52
17		0.080	0.140	R	49	49
18		0.100	0.160	R	56	56
19		0.069	0.129	R	48	48
20		0.097	0.157	R	54	54
21		0.084	0.144	R	51	51

No.	Soil ID	Sr-90	Adjusted Sr-90	Area	Ranks	Reference Ranks
22		0.098	0.158	R	55	55
23		0.045	0.105	R	34.5	34.5
24		0.045	0.105	R	34.5	34.5
25		0.020	0.080	R	14	14
26		0.045	0.105	R	34.5	34.5
27		0.089	0.149	R	53	53
28		0.050	0.110	R	44	44
29		0.045	0.105	R	34.5	34.5
30		0.050	0.110	R	44	44
31		0.045	0.105	R	34.5	34.5
32		0.040	0.100	R	26	26
33		0.045	0.105	R	34.5	34.5
34		0.045	0.105	R	34.5	34.5
35		0.045	0.105	R	34.5	34.5
36		0.025	0.085	R	17.5	17.5
37		0.082	0.142	R	50	50
38		0.045	0.105	R	34.5	34.5
39		0.040	0.100	R	26	26
40		0.035	0.095	R	22.5	22.5
41		0.025	0.085	R	17.5	17.5
42		0.005	0.065	R	9	9
43		0.020	0.080	R	14	14
44		0.010	0.070	R	10.5	10.5
45		0.020	0.080	R	14	14
46		0.020	0.080	R	14	14
47		0.050	0.110	R	44	44
48		0.030	0.090	R	20	20
49		0.030	0.090	R	20	20
50		0.020	0.080	R	14	14
51		0.040	0.100	R	26	26
52	ISWC0104RadS001	0.008	0.008	S	5	0
53	ISWC0105RadS001	0.029	0.029	S	8	0
54	ISWC0106RadS001	0.027	0.027	S	7	0
55	ISWC0107RadS001	0.005	0.005	S	2	0
56	ISWC0108RadS001	0.017	0.017	S	6	0
57	ISWC0109RadS001	0.004	0.004	S	1	0
58	ISWC0110RadS001	0.007	0.007	S	4	0
59	ISWC0111RadS001	0.007	0.007	S	3	0
				Sum	1770	1734

Soil Data from Area II Landfill ISRA

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	ISWC0104RadS001	N/A	9/3/2009	236678	0.122	0.0529	0.0437		0.00767	0.0224	0.0415	NDA	-0.136	0.51	0.915	NDA
2	ISWC0105RadS001	N/A	9/3/2009	236678	0.123	0.0418	0.0459		0.0287	0.0245	0.0393	NDA	-0.486	0.486	0.909	NDA
3	ISWC0106RadS001	N/A	9/3/2009	236678	-0.0176	0.0223	0.0368	NDA	0.0273	0.0272	0.0443	NDA	-0.365	0.493	0.908	NDA
4	ISWC0107RadS001	N/A	9/3/2009	236678	0.0254	0.0233	0.042	NDA	0.00488	0.0207	0.0398	NDA	-0.368	0.498	0.917	NDA
5	ISWC0108RadS001	N/A	9/3/2009	236678	0.134	0.0496	0.0536		0.0172	0.0223	0.0381	NDA	-0.222	0.517	0.934	NDA
6	ISWC0109RadS001	N/A	9/3/2009	236678	0.128	0.0389	0.0373		0.00413	0.021	0.0405	NDA	-0.411	0.499	0.922	NDA
7	ISWC0110RadS001	N/A	9/3/2009	236678	0.178	0.0445	0.0465		0.00741	0.0162	0.0295	NDA	-0.325	0.497	0.91	NDA
8	ISWC0111RadS001	N/A	9/3/2009	236678	0.0244	0.0243	0.0449	NDA	0.00713	0.0234	0.0443	NDA	-0.165	0.516	0.927	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	0.090		0.044		0.013		0.040		-0.310		0.918	
Maximum	0.178		0.054		0.029		0.044		-0.136		0.934	
Minimum	-0.018		0.037		0.004		0.030		-0.486		0.908	
Count				8				8				8
Number of Non-Detects				3				8				8
% Non-Detects				38%				100%				100%

Appendix 2

Analytical Radionuclide Results

ISRA Soil Sample Results for Area II Landfill

Project Name	Sampling Organization	Sampling Date	Sampling Location (General)	Sampling Location (Specific)	Sample Serial Number	Media Type	Isotope	Value	Error (+/-)	MDA	Non-Detect?	Units	Error Type	Analysis Protocol	Analysis Organization	Document	Status
ISRA Waste Characterization	MWH	9/3/2009	A2LF	ISWC0104	ISWC0104RadS001	Soil	Americium-241	-0.0227	0.182	0.336	NDA	pCi/g	2 sigma	EML HASL 300, 4.5.2.3	GEL	236678	Pre-remedial
ISRA Waste Characterization	MWH	9/3/2009	A2LF	ISWC0105	ISWC0105RadS001	Soil	Americium-241	0.0143	0.118	0.203	NDA	pCi/g	2 sigma	EML HASL 300, 4.5.2.3	GEL	236678	Pre-remedial
ISRA Waste Characterization	MWH	9/3/2009	A2LF	ISWC0106	ISWC0106RadS001	Soil	Americium-241	-0.00775	0.128	0.239	NDA	pCi/g	2 sigma	EML HASL 300, 4.5.2.3	GEL	236678	Pre-remedial
ISRA Waste Characterization	MWH	9/3/2009	A2LF	ISWC0107	ISWC0107RadS001	Soil	Americium-241	-0.0246	0.0843	0.144	NDA	pCi/g	2 sigma	EML HASL 300, 4.5.2.3	GEL	236678	Pre-remedial
ISRA Waste Characterization	MWH	9/3/2009	A2LF	ISWC0108	ISWC0108RadS001	Soil	Americium-241	0.048	0.0399	0.0699	NDA	pCi/g	2 sigma	EML HASL 300, 4.5.2.3	GEL	236678	Pre-remedial
ISRA Waste Characterization	MWH	9/3/2009	A2LF	ISWC0109	ISWC0109RadS001	Soil	Americium-241	0.137	0.11	0.183	NDA	pCi/g	2 sigma	EML HASL 300, 4.5.2.3	GEL	236678	Pre-remedial
ISRA Waste Characterization	MWH	9/3/2009	A2LF	ISWC0110	ISWC0110RadS001	Soil	Americium-241	0.0921	0.106	0.173	NDA	pCi/g	2 sigma	EML HASL 300, 4.5.2.3	GEL	236678	Pre-remedial
ISRA Waste Characterization	MWH	9/3/2009	A2LF	ISWC0111	ISWC0111RadS001	Soil	Americium-241	0.0779	0.112	0.187	NDA	pCi/g	2 sigma	EML HASL 300, 4.5.2.3	GEL	236678	Pre-remedial
ISRA Waste Characterization	MWH	9/3/2009	A2LF	ISWC0104	ISWC0104RadS001	Soil	Cesium-134	0	0.0483	0.0636	NDA	pCi/g	2 sigma	EML HASL 300, 4.5.2.3	GEL	236678	Pre-remedial
ISRA Waste Characterization	MWH	9/3/2009	A2LF	ISWC0105	ISWC0105RadS001	Soil	Cesium-134	0	0.0425	0.061	NDA	pCi/g	2 sigma	EML HASL 300, 4.5.2.3	GEL	236678	Pre-remedial
ISRA Waste Characterization	MWH	9/3/2009	A2LF	ISWC0106	ISWC0106RadS001	Soil	Cesium-134	0	0.0311	0.0556	NDA	pCi/g	2 sigma	EML HASL 300, 4.5.2.3	GEL	236678	Pre-remedial
ISRA Waste Characterization	MWH	9/3/2009	A2LF	ISWC0107	ISWC0107RadS001	Soil	Cesium-134	0	0.0451	0.0531	NDA	pCi/g	2 sigma	EML HASL 300, 4.5.2.3	GEL	236678	Pre-remedial
ISRA Waste Characterization	MWH	9/3/2009	A2LF	ISWC0108	ISWC0108RadS001	Soil	Cesium-134	0.0442	0.0366	0.0673	NDA	pCi/g	2 sigma	EML HASL 300, 4.5.2.3	GEL	236678	Pre-remedial
ISRA Waste Characterization	MWH	9/3/2009	A2LF	ISWC0109	ISWC0109RadS001	Soil	Cesium-134	0.0383	0.0374	0.0531	NDA	pCi/g	2 sigma	EML HASL 300, 4.5.2.3	GEL	236678	Pre-remedial
ISRA Waste Characterization	MWH	9/3/2009	A2LF	ISWC0110	ISWC0110RadS001	Soil	Cesium-134	0	0.0413	0.0616	NDA	pCi/g	2 sigma	EML HASL 300, 4.5.2.3	GEL	236678	Pre-remedial
ISRA Waste Characterization	MWH	9/3/2009	A2LF	ISWC0111	ISWC0111RadS001	Soil	Cesium-134	0	0.0296	0.0572	NDA	pCi/g	2 sigma	EML HASL 300, 4.5.2.3	GEL	236678	Pre-remedial
ISRA Waste Characterization	MWH	9/3/2009	A2LF	ISWC0104	ISWC0104RadS001	Soil	Cesium-137	0.122	0.0529	0.0437		pCi/g	2 sigma	EML HASL 300, 4.5.2.3	GEL	236678	Pre-remedial
ISRA Waste Characterization	MWH	9/3/2009	A2LF	ISWC0105	ISWC0105RadS001	Soil	Cesium-137	0.123	0.0418	0.0459		pCi/g	2 sigma	EML HASL 300, 4.5.2.3	GEL	236678	Pre-remedial
ISRA Waste Characterization	MWH	9/3/2009	A2LF	ISWC0106	ISWC0106RadS001	Soil	Cesium-137	-0.0176	0.0223	0.0368	NDA	pCi/g	2 sigma	EML HASL 300, 4.5.2.3	GEL	236678	Pre-remedial
ISRA Waste Characterization	MWH	9/3/2009	A2LF	ISWC0107	ISWC0107RadS001	Soil	Cesium-137	0.0254	0.0233	0.042	NDA	pCi/g	2 sigma	EML HASL 300, 4.5.2.3	GEL	236678	Pre-remedial
ISRA Waste Characterization	MWH	9/3/2009	A2LF	ISWC0108	ISWC0108RadS001	Soil	Cesium-137	0.134	0.0496	0.0536		pCi/g	2 sigma	EML HASL 300, 4.5.2.3	GEL	236678	Pre-remedial
ISRA Waste Characterization	MWH	9/3/2009	A2LF	ISWC0109	ISWC0109RadS001	Soil	Cesium-137	0.128	0.0389	0.0373		pCi/g	2 sigma	EML HASL 300, 4.5.2.3	GEL	236678	Pre-remedial
ISRA Waste Characterization	MWH	9/3/2009	A2LF	ISWC0110	ISWC0110RadS001	Soil	Cesium-137	0.178	0.0445	0.0465		pCi/g	2 sigma	EML HASL 300, 4.5.2.3	GEL	236678	Pre-remedial
ISRA Waste Characterization	MWH	9/3/2009	A2LF	ISWC0111	ISWC0111RadS001	Soil	Cesium-137	0.0244	0.0243	0.0449	NDA	pCi/g	2 sigma	EML HASL 300, 4.5.2.3	GEL	236678	Pre-remedial
ISRA Waste Characterization	MWH	9/3/2009	A2LF	ISWC0104	ISWC0104RadS001	Soil	Cobalt-60	-0.0118	0.0242	0.0384	NDA	pCi/g	2 sigma	EML HASL 300, 4.5.2.3	GEL	236678	Pre-remedial
ISRA Waste Characterization	MWH	9/3/2009	A2LF	ISWC0105	ISWC0105RadS001	Soil	Cobalt-60	0.00764	0.0259	0.0448	NDA	pCi/g	2 sigma	EML HASL 300, 4.5.2.3	GEL	236678	Pre-remedial
ISRA Waste Characterization	MWH	9/3/2009	A2LF	ISWC0106	ISWC0106RadS001	Soil	Cobalt-60	0.0118	0.0242	0.043	NDA	pCi/g	2 sigma	EML HASL 300, 4.5.2.3	GEL	236678	Pre-remedial
ISRA Waste Characterization	MWH	9/3/2009	A2LF	ISWC0107	ISWC0107RadS001	Soil	Cobalt-60	0.000442	0.0236	0.0401	NDA	pCi/g	2 sigma	EML HASL 300, 4.5.2.3	GEL	236678	Pre-remedial
ISRA Waste Characterization	MWH	9/3/2009	A2LF	ISWC0108	ISWC0108RadS001	Soil	Cobalt-60	0.00422	0.0301	0.0519	NDA	pCi/g	2 sigma	EML HASL 300, 4.5.2.3	GEL	236678	Pre-remedial
ISRA Waste Characterization	MWH	9/3/2009	A2LF	ISWC0109	ISWC0109RadS001	Soil	Cobalt-60	-0.0123	0.0248	0.0397	NDA	pCi/g	2 sigma	EML HASL 300, 4.5.2.3	GEL	236678	Pre-remedial
ISRA Waste Characterization	MWH	9/3/2009	A2LF	ISWC0110	ISWC0110RadS001	Soil	Cobalt-60	0.0181	0.0226	0.0411	NDA	pCi/g	2 sigma	EML HASL 300, 4.5.2.3	GEL	236678	Pre-remedial
ISRA Waste Characterization	MWH	9/3/2009	A2LF	ISWC0111	ISWC0111RadS001	Soil	Cobalt-60	-0.00352	0.0241	0.041	NDA	pCi/g	2 sigma	EML HASL 300, 4.5.2.3	GEL	236678	Pre-remedial
ISRA Waste Characterization	MWH	9/3/2009	A2LF	ISWC0104	ISWC0104RadS001	Soil	Europium-152	0.024	0.0994	0.123	NDA	pCi/g	2 sigma	EML HASL 300, 4.5.2.3	GEL	236678	Pre-remedial
ISRA Waste Characterization	MWH	9/3/2009	A2LF	ISWC0105	ISWC0105RadS001	Soil	Europium-152	-0.0542	0.0719	0.0981	NDA	pCi/g	2 sigma	EML HASL 300, 4.5.2.3	GEL	236678	Pre-remedial
ISRA Waste Characterization	MWH	9/3/2009	A2LF	ISWC0106	ISWC0106RadS001	Soil	Europium-152	-0.0644	0.061	0.0886	NDA	pCi/g	2 sigma	EML HASL 300, 4.5.2.3	GEL	236678	Pre-remedial
ISRA Waste Characterization	MWH	9/3/2009	A2LF	ISWC0107	ISWC0107RadS001	Soil	Europium-152	-0.0671	0.0547	0.0882	NDA	pCi/g	2 sigma	EML HASL 300, 4.5.2.3	GEL	236678	Pre-remedial
ISRA Waste Characterization	MWH	9/3/2009	A2LF	ISWC0108	ISWC0108RadS001	Soil	Europium-152	0.0286	0.0795	0.123	NDA	pCi/g	2 sigma	EML HASL 300, 4.5.2.3	GEL	236678	Pre-remedial
ISRA Waste Characterization	MWH	9/3/2009	A2LF	ISWC0109	ISWC0109RadS001	Soil	Europium-152	-0.0016	0.0634	0.0971	NDA	pCi/g	2 sigma	EML HASL 300, 4.5.2.3	GEL	236678	Pre-remedial
ISRA Waste Characterization	MWH	9/3/2009	A2LF	ISWC0110	ISWC0110RadS001	Soil	Europium-152	-0.0339	0.0836	0.11	NDA	pCi/g	2 sigma	EML HASL 300, 4.5.2.3	GEL	236678	Pre-remedial
ISRA Waste Characterization	MWH	9/3/2009	A2LF	ISWC0111	ISWC0111RadS001	Soil	Europium-152	-0.0347	0.0682	0.102	NDA	pCi/g	2 sigma	EML HASL 300, 4.5.2.3	GEL	236678	Pre-remedial
ISRA Waste Characterization	MWH	9/3/2009	A2LF	ISWC0104	ISWC0104RadS001	Soil	Europium-154	-0.0829	0.0862	0.133	NDA	pCi/g	2 sigma	EML HASL 300, 4.5.2.3	GEL	236678	Pre-remedial
ISRA Waste Characterization	MWH	9/3/2009	A2LF	ISWC0105	ISWC0105RadS001	Soil	Europium-154	-0.0272	0.0794	0.132	NDA	pCi/g	2 sigma	EML HASL 300, 4.5.2.3	GEL	236678	Pre-remedial
ISRA Waste Characterization	MWH	9/3/2009	A2LF	ISWC0106	ISWC0106RadS001	Soil	Europium-154	-0.0598	0.0695	0.112	NDA	pCi/g	2 sigma	EML HASL 300, 4.5.2.3	GEL	236678	Pre-remedial
ISRA Waste Characterization	MWH	9/3/2009	A2LF	ISWC0107	ISWC0107RadS001	Soil	Europium-154	-0.0816	0.0776	0.12	NDA	pCi/g	2 sigma	EML HASL 300, 4.5.2.3	GEL	236678	Pre-remedial
ISRA Waste Characterization	MWH	9/3/2009	A2LF	ISWC0108	ISWC0108RadS001	Soil	Europium-154	0.0163	0.0975	0.169	NDA	pCi/g	2 sigma	EML HASL 300, 4.5.2.3	GEL	236678	Pre-remedial
ISRA Waste Characterization	MWH	9/3/2009	A2LF	ISWC0109	ISWC0109RadS001	Soil	Europium-154	0.0131	0.0697	0.119	NDA	pCi/g	2 sigma	EML HASL 300, 4.5.2.3	GEL	236678	Pre-remedial
ISRA Waste Characterization	MWH	9/3/2009	A2LF	ISWC0110	ISWC0110RadS001	Soil	Europium-154	-0.0692	0.0695	0.109	NDA	pCi/g	2 sigma	EML HASL 300, 4.5.2.3	GEL	236678	Pre-remedial
ISRA Waste Characterization	MWH	9/3/2009	A2LF	ISWC0111	ISWC0111RadS001	Soil	Europium-154	-0.0589	0.0734	0.119	NDA	pCi/g	2 sigma	EML HASL 300, 4.5.2.3	GEL	236678	Pre-remedial
ISRA Waste Characterization	MWH	9/3/2009	A2LF	ISWC0104	ISWC0104RadS001	Soil	Lead-214	1.07	0.136	0.0868		pCi/g	2 sigma	EML HASL 300, 4.5.2.3	GEL	236678	Pre-remedial
ISRA Waste Characterization	MWH	9/3/2009	A2LF	ISWC0105	ISWC0105RadS001	Soil	Lead-214	1.13	0.144	0.0748		pCi/g	2 sigma	EML HASL 300, 4.5.2.3	GEL	236678	Pre-remedial
ISRA Waste Characterization	MWH	9/3/2009	A2LF	ISWC0106	ISWC0106RadS001	Soil	Lead-214	0.916	0.113	0.0695		pCi/g	2 sigma	EML HASL 300, 4.5.2.3	GEL	236678	Pre-remedial
ISRA Waste Characterization	MWH	9/3/2009	A2LF	ISWC0109	ISWC0109RadS001	Soil	Lead-214	0.918	0.106	0.0721		pCi/g	2 sigma	EML HASL 300, 4.5.2.3	GEL	236678	Pre-remedial
ISRA Waste Characterization	MWH	9/3/2009	A2LF	ISWC0111	ISWC0111RadS001	Soil	Lead-214	0.981	0.12	0.0708		pCi/g	2 sigma	EML HASL 300, 4.5.2.3	GEL	236678	Pre-remedial
ISRA Waste Characterization	MWH	9/3/2009	A2LF	ISWC0104	ISWC0104RadS001	Soil	Manganese-54	-0.00929	0.0253	0.043	NDA	pCi/g	2 sigma	EML HASL 300, 4.5.2.3	GEL	236678	Pre-remedial
ISRA Waste Characterization	MWH	9/3/2009	A2LF	ISWC0105	ISWC0105RadS001	Soil	Manganese-54	-0.00354	0.0239	0.0403	NDA	pCi/g	2 sigma	EML HASL 300, 4.5.2.3	GEL	236678	Pre-remedial
ISRA Waste Characterization	MWH	9/3/2009	A2LF	ISWC0106	ISWC0106RadS001	Soil	Manganese-54	-0.00153	0.0208	0.0357	NDA	pCi/g	2 sigma	EML HASL 300, 4.5.2.3	GEL	236678	Pre-remedial
ISRA Waste Characterization	MWH	9/3/2009	A2LF	ISWC0107	ISWC0107RadS001	Soil	Manganese-54	-0.0271	0.0231	0.0366	NDA	pCi/g	2 sigma	EML HASL 300, 4.5.2.3	GEL	236678	Pre-remedial
ISRA Waste Characterization	MWH	9/3/2009	A2LF	ISWC0108	ISWC0108RadS001	Soil	Manganese-54	0.0429	0.0292	0.054	NDA	pCi/g	2 sigma	EML HASL 300, 4.5.2.3	GEL	236678	Pre-remedial
ISRA Waste Characterization	MWH	9/3/2009	A2LF	ISWC0109	ISWC0109RadS001	Soil	Manganese-54	0.00149	0.0228	0.0396	NDA	pCi/g	2 sigma	EML HASL 300, 4.5.2.3	GEL	236678	Pre-remedial
ISRA Waste Characterization	MWH	9/3/2009	A2LF	ISWC0110	ISWC0110RadS001	Soil	Manganese-54	0.00378	0.0235	0.04	NDA	pCi/g	2 sigma	EML HASL 300, 4.5.2.3	GEL	236678	Pre-remedial
ISRA Waste Characterization	MWH	9/3/2009	A2LF	ISWC0111	ISWC0111RadS001	Soil	Manganese-54	0.00084	0.0234	0.0405	NDA	pCi/g	2 sigma	EML HASL 300, 4.5.2.3	GEL	236678	Pre-remedial
ISRA Waste Characterization	MWH	9/3/2009	A2LF	ISWC0104	ISWC0104RadS001	Soil	Potassium-40	22.4	1.99	0.376		pCi/g	2 sigma	EML HASL 300, 4.5.2.3	GEL	236678	Pre-remedial
ISRA Waste Characterization	MWH	9/3/2009	A2LF	ISWC0105	ISWC0105RadS001	Soil	Potassium-40	22.3	1.94	0.368		pCi/g	2 sigma	EML HASL 300, 4.5.2.3	GEL	236678	Pre-remedial
ISRA Waste Characterization	MWH	9/3/2009	A2LF	ISWC0106	ISWC0106RadS001	Soil	Potassium-40	23.4	2.23	0.294		pCi/g	2 sigma	EML HASL 300, 4.5.2.3	GEL	236678	Pre-remedial
ISRA Waste Characterization	MWH	9/3/2009	A2LF	ISWC0107	ISWC0107RadS001	Soil	Potassium-40	21.8	1.82	0.267		pCi/g	2 sigma	EML HASL 300, 4.5.2.3	GEL	236678	Pre-remedial

ISRA Soil Sample Results for Area II Landfill

Project Name	Sampling Organization	Sampling Date	Sampling Location (General)	Sampling Location (Specific)	Sample Serial Number	Media Type	Isotope	Value	Error (+/-)	MDA	Non-Detect?	Units	Error Type	Analysis Protocol	Analysis Organization	Document	Status
ISRA Waste Characterization	MWH	9/3/2009	A2LF	ISWC0108	ISWC0108RadS001	Soil	Potassium-40	21.6	1.68	0.388		pCi/g	2 sigma	EML HASL 300, 4.5.2.3	GEL	236678	Pre-remedial
ISRA Waste Characterization	MWH	9/3/2009	A2LF	ISWC0109	ISWC0109RadS001	Soil	Potassium-40	22	2.07	0.315		pCi/g	2 sigma	EML HASL 300, 4.5.2.3	GEL	236678	Pre-remedial
ISRA Waste Characterization	MWH	9/3/2009	A2LF	ISWC0110	ISWC0110RadS001	Soil	Potassium-40	22	1.91	0.328		pCi/g	2 sigma	EML HASL 300, 4.5.2.3	GEL	236678	Pre-remedial
ISRA Waste Characterization	MWH	9/3/2009	A2LF	ISWC0111	ISWC0111RadS001	Soil	Potassium-40	21	1.8	0.345		pCi/g	2 sigma	EML HASL 300, 4.5.2.3	GEL	236678	Pre-remedial
ISRA Waste Characterization	MWH	9/3/2009	A2LF	ISWC0104	ISWC0104RadS001	Soil	Sodium-22	-0.03	0.0307	0.0474	NDA	pCi/g	2 sigma	EML HASL 300, 4.5.2.3	GEL	236678	Pre-remedial
ISRA Waste Characterization	MWH	9/3/2009	A2LF	ISWC0105	ISWC0105RadS001	Soil	Sodium-22	-0.0099	0.0283	0.0468	NDA	pCi/g	2 sigma	EML HASL 300, 4.5.2.3	GEL	236678	Pre-remedial
ISRA Waste Characterization	MWH	9/3/2009	A2LF	ISWC0106	ISWC0106RadS001	Soil	Sodium-22	-0.0291	0.0253	0.0397	NDA	pCi/g	2 sigma	EML HASL 300, 4.5.2.3	GEL	236678	Pre-remedial
ISRA Waste Characterization	MWH	9/3/2009	A2LF	ISWC0107	ISWC0107RadS001	Soil	Sodium-22	-0.0294	0.0276	0.0428	NDA	pCi/g	2 sigma	EML HASL 300, 4.5.2.3	GEL	236678	Pre-remedial
ISRA Waste Characterization	MWH	9/3/2009	A2LF	ISWC0108	ISWC0108RadS001	Soil	Sodium-22	0.00484	0.0347	0.0601	NDA	pCi/g	2 sigma	EML HASL 300, 4.5.2.3	GEL	236678	Pre-remedial
ISRA Waste Characterization	MWH	9/3/2009	A2LF	ISWC0109	ISWC0109RadS001	Soil	Sodium-22	0.0045	0.0248	0.0422	NDA	pCi/g	2 sigma	EML HASL 300, 4.5.2.3	GEL	236678	Pre-remedial
ISRA Waste Characterization	MWH	9/3/2009	A2LF	ISWC0110	ISWC0110RadS001	Soil	Sodium-22	-0.0266	0.0249	0.0388	NDA	pCi/g	2 sigma	EML HASL 300, 4.5.2.3	GEL	236678	Pre-remedial
ISRA Waste Characterization	MWH	9/3/2009	A2LF	ISWC0111	ISWC0111RadS001	Soil	Sodium-22	-0.0202	0.0262	0.0426	NDA	pCi/g	2 sigma	EML HASL 300, 4.5.2.3	GEL	236678	Pre-remedial
ISRA Waste Characterization	MWH	9/3/2009	A2LF	ISWC0104	ISWC0104RadS001	Soil	Strontium-90	0.00767	0.0224	0.0415	NDA	pCi/g	2 sigma	EPA 905.0 Modified	GEL	236678	Pre-remedial
ISRA Waste Characterization	MWH	9/3/2009	A2LF	ISWC0105	ISWC0105RadS001	Soil	Strontium-90	0.0287	0.0245	0.0393	NDA	pCi/g	2 sigma	EPA 905.0 Modified	GEL	236678	Pre-remedial
ISRA Waste Characterization	MWH	9/3/2009	A2LF	ISWC0106	ISWC0106RadS001	Soil	Strontium-90	0.0273	0.0272	0.0443	NDA	pCi/g	2 sigma	EPA 905.0 Modified	GEL	236678	Pre-remedial
ISRA Waste Characterization	MWH	9/3/2009	A2LF	ISWC0107	ISWC0107RadS001	Soil	Strontium-90	0.00488	0.0207	0.0398	NDA	pCi/g	2 sigma	EPA 905.0 Modified	GEL	236678	Pre-remedial
ISRA Waste Characterization	MWH	9/3/2009	A2LF	ISWC0108	ISWC0108RadS001	Soil	Strontium-90	0.0172	0.0223	0.0381	NDA	pCi/g	2 sigma	EPA 905.0 Modified	GEL	236678	Pre-remedial
ISRA Waste Characterization	MWH	9/3/2009	A2LF	ISWC0109	ISWC0109RadS001	Soil	Strontium-90	0.00413	0.021	0.0405	NDA	pCi/g	2 sigma	EPA 905.0 Modified	GEL	236678	Pre-remedial
ISRA Waste Characterization	MWH	9/3/2009	A2LF	ISWC0110	ISWC0110RadS001	Soil	Strontium-90	0.00741	0.0162	0.0295	NDA	pCi/g	2 sigma	EPA 905.0 Modified	GEL	236678	Pre-remedial
ISRA Waste Characterization	MWH	9/3/2009	A2LF	ISWC0111	ISWC0111RadS001	Soil	Strontium-90	0.00713	0.0234	0.0443	NDA	pCi/g	2 sigma	EPA 905.0 Modified	GEL	236678	Pre-remedial
ISRA Waste Characterization	MWH	9/3/2009	A2LF	ISWC0104	ISWC0104RadS001	Soil	Thorium-228	1.53	0.147	0.0692		pCi/g	2 sigma	EML HASL 300, 4.5.2.3	GEL	236678	Pre-remedial
ISRA Waste Characterization	MWH	9/3/2009	A2LF	ISWC0105	ISWC0105RadS001	Soil	Thorium-228	1.53	0.16	0.0599		pCi/g	2 sigma	EML HASL 300, 4.5.2.3	GEL	236678	Pre-remedial
ISRA Waste Characterization	MWH	9/3/2009	A2LF	ISWC0106	ISWC0106RadS001	Soil	Thorium-228	1.47	0.127	0.0527		pCi/g	2 sigma	EML HASL 300, 4.5.2.3	GEL	236678	Pre-remedial
ISRA Waste Characterization	MWH	9/3/2009	A2LF	ISWC0107	ISWC0107RadS001	Soil	Thorium-228	1.4	0.117	0.0516		pCi/g	2 sigma	EML HASL 300, 4.5.2.3	GEL	236678	Pre-remedial
ISRA Waste Characterization	MWH	9/3/2009	A2LF	ISWC0108	ISWC0108RadS001	Soil	Thorium-228	1.45	0.151	0.0628		pCi/g	2 sigma	EML HASL 300, 4.5.2.3	GEL	236678	Pre-remedial
ISRA Waste Characterization	MWH	9/3/2009	A2LF	ISWC0109	ISWC0109RadS001	Soil	Thorium-228	1.38	0.114	0.0548		pCi/g	2 sigma	EML HASL 300, 4.5.2.3	GEL	236678	Pre-remedial
ISRA Waste Characterization	MWH	9/3/2009	A2LF	ISWC0110	ISWC0110RadS001	Soil	Thorium-228	1.41	0.124	0.0638		pCi/g	2 sigma	EML HASL 300, 4.5.2.3	GEL	236678	Pre-remedial
ISRA Waste Characterization	MWH	9/3/2009	A2LF	ISWC0111	ISWC0111RadS001	Soil	Thorium-228	1.37	0.121	0.0598		pCi/g	2 sigma	EML HASL 300, 4.5.2.3	GEL	236678	Pre-remedial
ISRA Waste Characterization	MWH	9/3/2009	A2LF	ISWC0104	ISWC0104RadS001	Soil	Thorium-232	1.55	0.259	0.147		pCi/g	2 sigma	EML HASL 300, 4.5.2.3	GEL	236678	Pre-remedial
ISRA Waste Characterization	MWH	9/3/2009	A2LF	ISWC0105	ISWC0105RadS001	Soil	Thorium-232	1.6	0.27	0.138		pCi/g	2 sigma	EML HASL 300, 4.5.2.3	GEL	236678	Pre-remedial
ISRA Waste Characterization	MWH	9/3/2009	A2LF	ISWC0106	ISWC0106RadS001	Soil	Thorium-232	1.58	0.277	0.12		pCi/g	2 sigma	EML HASL 300, 4.5.2.3	GEL	236678	Pre-remedial
ISRA Waste Characterization	MWH	9/3/2009	A2LF	ISWC0107	ISWC0107RadS001	Soil	Thorium-232	1.35	0.234	0.125		pCi/g	2 sigma	EML HASL 300, 4.5.2.3	GEL	236678	Pre-remedial
ISRA Waste Characterization	MWH	9/3/2009	A2LF	ISWC0108	ISWC0108RadS001	Soil	Thorium-232	1.37	0.248	0.168		pCi/g	2 sigma	EML HASL 300, 4.5.2.3	GEL	236678	Pre-remedial
ISRA Waste Characterization	MWH	9/3/2009	A2LF	ISWC0109	ISWC0109RadS001	Soil	Thorium-232	1.29	0.226	0.135		pCi/g	2 sigma	EML HASL 300, 4.5.2.3	GEL	236678	Pre-remedial
ISRA Waste Characterization	MWH	9/3/2009	A2LF	ISWC0110	ISWC0110RadS001	Soil	Thorium-232	1.64	0.268	0.143		pCi/g	2 sigma	EML HASL 300, 4.5.2.3	GEL	236678	Pre-remedial
ISRA Waste Characterization	MWH	9/3/2009	A2LF	ISWC0111	ISWC0111RadS001	Soil	Thorium-232	1.41	0.232	0.115		pCi/g	2 sigma	EML HASL 300, 4.5.2.3	GEL	236678	Pre-remedial
ISRA Waste Characterization	MWH	9/3/2009	A2LF	ISWC0104	ISWC0104RadS001	Soil	Tritium	-0.136	0.51	0.915	NDA	pCi/g	2 sigma	EPA 906.0 Modified	GEL	236678	Pre-remedial
ISRA Waste Characterization	MWH	9/3/2009	A2LF	ISWC0105	ISWC0105RadS001	Soil	Tritium	-0.486	0.486	0.909	NDA	pCi/g	2 sigma	EPA 906.0 Modified	GEL	236678	Pre-remedial
ISRA Waste Characterization	MWH	9/3/2009	A2LF	ISWC0106	ISWC0106RadS001	Soil	Tritium	-0.365	0.493	0.908	NDA	pCi/g	2 sigma	EPA 906.0 Modified	GEL	236678	Pre-remedial
ISRA Waste Characterization	MWH	9/3/2009	A2LF	ISWC0107	ISWC0107RadS001	Soil	Tritium	-0.368	0.498	0.917	NDA	pCi/g	2 sigma	EPA 906.0 Modified	GEL	236678	Pre-remedial
ISRA Waste Characterization	MWH	9/3/2009	A2LF	ISWC0108	ISWC0108RadS001	Soil	Tritium	-0.222	0.517	0.934	NDA	pCi/g	2 sigma	EPA 906.0 Modified	GEL	236678	Pre-remedial
ISRA Waste Characterization	MWH	9/3/2009	A2LF	ISWC0109	ISWC0109RadS001	Soil	Tritium	-0.411	0.499	0.922	NDA	pCi/g	2 sigma	EPA 906.0 Modified	GEL	236678	Pre-remedial
ISRA Waste Characterization	MWH	9/3/2009	A2LF	ISWC0110	ISWC0110RadS001	Soil	Tritium	-0.325	0.497	0.91	NDA	pCi/g	2 sigma	EPA 906.0 Modified	GEL	236678	Pre-remedial
ISRA Waste Characterization	MWH	9/3/2009	A2LF	ISWC0111	ISWC0111RadS001	Soil	Tritium	-0.165	0.516	0.927	NDA	pCi/g	2 sigma	EPA 906.0 Modified	GEL	236678	Pre-remedial
ISRA Waste Characterization	MWH	9/3/2009	A2LF	ISWC0104	ISWC0104RadS001	Soil	Uranium-235	0.103	0.153	0.275	NDA	pCi/g	2 sigma	EML HASL 300, 4.5.2.3	GEL	236678	Pre-remedial
ISRA Waste Characterization	MWH	9/3/2009	A2LF	ISWC0105	ISWC0105RadS001	Soil	Uranium-235	-0.106	0.141	0.233	NDA	pCi/g	2 sigma	EML HASL 300, 4.5.2.3	GEL	236678	Pre-remedial
ISRA Waste Characterization	MWH	9/3/2009	A2LF	ISWC0106	ISWC0106RadS001	Soil	Uranium-235	0.0594	0.126	0.217	NDA	pCi/g	2 sigma	EML HASL 300, 4.5.2.3	GEL	236678	Pre-remedial
ISRA Waste Characterization	MWH	9/3/2009	A2LF	ISWC0107	ISWC0107RadS001	Soil	Uranium-235	0.0255	0.12	0.206	NDA	pCi/g	2 sigma	EML HASL 300, 4.5.2.3	GEL	236678	Pre-remedial
ISRA Waste Characterization	MWH	9/3/2009	A2LF	ISWC0108	ISWC0108RadS001	Soil	Uranium-235	0.252	0.195	0.229		pCi/g	2 sigma	EML HASL 300, 4.5.2.3	GEL	236678	Pre-remedial
ISRA Waste Characterization	MWH	9/3/2009	A2LF	ISWC0109	ISWC0109RadS001	Soil	Uranium-235	0.0801	0.142	0.241	NDA	pCi/g	2 sigma	EML HASL 300, 4.5.2.3	GEL	236678	Pre-remedial
ISRA Waste Characterization	MWH	9/3/2009	A2LF	ISWC0110	ISWC0110RadS001	Soil	Uranium-235	0.126	0.165	0.244	NDA	pCi/g	2 sigma	EML HASL 300, 4.5.2.3	GEL	236678	Pre-remedial
ISRA Waste Characterization	MWH	9/3/2009	A2LF	ISWC0111	ISWC0111RadS001	Soil	Uranium-235	0.0967	0.175	0.227	NDA	pCi/g	2 sigma	EML HASL 300, 4.5.2.3	GEL	236678	Pre-remedial
ISRA Waste Characterization	MWH	9/3/2009	A2LF	ISWC0104	ISWC0104RadS001	Soil	Uranium-238	-1.17	1.44	2.51	NDA	pCi/g	2 sigma	EML HASL 300, 4.5.2.3	GEL	236678	Pre-remedial
ISRA Waste Characterization	MWH	9/3/2009	A2LF	ISWC0105	ISWC0105RadS001	Soil	Uranium-238	1.52	1.58	1.6	NDA	pCi/g	2 sigma	EML HASL 300, 4.5.2.3	GEL	236678	Pre-remedial
ISRA Waste Characterization	MWH	9/3/2009	A2LF	ISWC0106	ISWC0106RadS001	Soil	Uranium-238	0.215	1.04	1.88	NDA	pCi/g	2 sigma	EML HASL 300, 4.5.2.3	GEL	236678	Pre-remedial
ISRA Waste Characterization	MWH	9/3/2009	A2LF	ISWC0107	ISWC0107RadS001	Soil	Uranium-238	1.34	1.17	1.28		pCi/g	2 sigma	EML HASL 300, 4.5.2.3	GEL	236678	Pre-remedial
ISRA Waste Characterization	MWH	9/3/2009	A2LF	ISWC0108	ISWC0108RadS001	Soil	Uranium-238	0.777	0.727	0.685		pCi/g	2 sigma	EML HASL 300, 4.5.2.3	GEL	236678	Pre-remedial
ISRA Waste Characterization	MWH	9/3/2009	A2LF	ISWC0109	ISWC0109RadS001	Soil	Uranium-238	1.06	0.885	1.48	NDA	pCi/g	2 sigma	EML HASL 300, 4.5.2.3	GEL	236678	Pre-remedial
ISRA Waste Characterization	MWH	9/3/2009	A2LF	ISWC0110	ISWC0110RadS001	Soil	Uranium-238	2.96	1.61	1.43		pCi/g	2 sigma	EML HASL 300, 4.5.2.3	GEL	236678	Pre-remedial
ISRA Waste Characterization	MWH	9/3/2009	A2LF	ISWC0111	ISWC0111RadS001	Soil	Uranium-238	1.24	1.29	1.52	NDA	pCi/g	2 sigma	EML HASL 300, 4.5.2.3	GEL	236678	Pre-remedial