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 four (44) 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

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 -0.24 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

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:

Instruction on how to use this template:

Test Result:

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

	Bkgd Ref (R)	Survey (S)
σ		
σ		
σ		

No.	Soil ID	Cs-137	Adjusted Cs-137	Area	Ranks	Reference Ranks

No.	Soil ID	Cs-137	Adjusted Cs-137	Area	Ranks	Reference Ranks

No.	Soil ID	Cs-137	Adjusted Cs-137	Area	Ranks	Reference Ranks

Wilcoxon Rank Sum Test -- (Strontium-90)

General Information:

Instruction on how to use this template:

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

No.	Soil ID	Sr-90	Adjusted Sr-90	Area	Ranks	Reference Ranks

No.	Soil ID	Sr-90	Adjusted Sr-90	Area	Ranks	Reference Ranks

	Activity	+/- 2σ Error	MDA	Non-detect?	Activity	+/- 2σ Error	MDA	Non-detect?	Activity	+/- 2σ Error	MDA	Non-detect?
Act78	2(NDA)-3vMDA											
	DA	-0.18	0.53	NDA								

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?
				% Non-Detects												

Appendix 2

Analytical Radionuclide Results

ISRA Soil Sample Results for Happy Valley

Project Name	Sampling Organization	Sampling Date	Sampling Location (General)	Sample Serial Number	Media Type	Isotope	Value	Error (+/-)	MDA	Non-Detect?	Units	Error Type	Analysis Protocol	Analysis Organization	Document	Status

ISRA Soil Sample Results for Happy Valley

Project Name	Sampling Organization	Sampling Date	Sampling Location (General)	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	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	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	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 HV Waste Characterization	MWH	07/01/2009	Happy Valley	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	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	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	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	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	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	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	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	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	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	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	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	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	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	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	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	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	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	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	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	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	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	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	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	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	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	07/01/2009	Happy Valley	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	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	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	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	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	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	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	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	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	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	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	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	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	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	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	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	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	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	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	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	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	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	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	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	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	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	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	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	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	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	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	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	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	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 Soil Sample Results for Happy Valley

Project Name	Sampling Organization	Sampling Date	Sampling Location (General)	Sample Serial Number	Media Type	Isotope	Value	Error (+/-)	MDA	Non-Detect?	Units	Error Type	Analysis Protocol	Analysis Organization	Document	Status

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ISRA Soil Sample Results for Happy Valley

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ISRA Soil Sample Results for Happy Valley

Project Name	Sampling Organization	Sampling Date	Sampling Location (General)	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	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	ISWC0014S001	Soil	Sodium-22	-0.00041	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	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	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	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	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	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	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	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	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	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	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	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	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 HV Waste Characterization	MWH	07/01/2009	Happy Valley	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	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	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	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	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	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	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	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	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	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	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	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	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	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	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	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	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	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	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	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	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	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	07/01/2009	Happy Valley	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	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	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	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	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	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	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	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	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	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	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	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	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	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	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	ISWC0020S001	Soil	Strontium-90	-0.0182Str3	15.1(Happy Valley)-1768.3(ISWC0019S001)-1885.7(Soil)-2049.5(Strontium-90)-1803.7(-0.00142)-1486.2(0.0243)-19al								
MWH	07/01/2009	Happy Valley	ISWC0010S001	Pre-remedial	Soil	Strontium-90	-0.00173	0.0272	0.0477	NDA	pCi/g	2 sigma				

ISRA Soil Sample Results for Happy Valley

Project Name	Sampling Organization	Sampling Date	Sampling Location (General)	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	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	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	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	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	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	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	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	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	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	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	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	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	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	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	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	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	ISWC0083RadS001	Soil	Strontium-90	0.0378	0.0236	0.0348		pCi/g	2 sigma	EPA 905.0 Modified	GEL	234376	Pre-remedial
ISRA HV Waste Characterization	MWH	8/17/2009	Happy Valley	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	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	07/01/2009	Happy Valley	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	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	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 Soil Sample Results for Happy Valley

Project Name	Sampling Organization	Sampling Date	Sampling Location (General)	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	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	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	07/01/2009	Happy Valley	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	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	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	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	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	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	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	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	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	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	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	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	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	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	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	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 HV Waste Characterization	MWH	07/01/2009	Happy Valley	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	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	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	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	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	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	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	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	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	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	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	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	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	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	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	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	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 Soil Sample Results for Happy Valley

Project Name	Sampling Organization	Sampling Date	Sampling Location (General)	Sample Serial Number	Media Type	Isotope	Value	Error (+/-)	MDA	Non-Detect?	Units	Error Type	Analysis Protocol	Analysis Organization	Document	Status

ISRA Soil Sample Results for Happy Valley

Project Name	Sampling Organization	Sampling Date	Sampling Location (General)	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	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	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	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	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	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	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	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	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	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	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	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	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	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	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	07/01/2009	Happy Valley	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	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	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	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	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	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	07/01/2009	Happy Valley	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	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	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	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	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	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	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	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	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 HV Waste Characterization	MWH	07/01/2009	Happy Valley	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	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	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	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	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	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	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	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	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	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	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	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	7/29/2009	Happy Valley	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	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	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	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	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	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	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	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	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	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	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	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	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	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	ISWC0093RadS001	Soil	Uranium-238	1.82	0.954	1.3	pCi/g	2 sigma	5.2.3	GEL	234325	Pre-remedial	

L HASL 300, 4.)]TJ 92.6973 0 TD[5.2.3)-3361.6(GEL)-3263.2(234325)-1436.7(Pre-remedial)]TJ 92.6973 -1.2642 TD[ISRA HV Waste Characterization)-2931.9(MWH)-2576.4(7/29/2009)-1287.1(on)-2931.9(MWH)-2576.4(55.257/2)-237 92/29/2009)-14787.1(Happy 8alley)-862.6(ISWC00