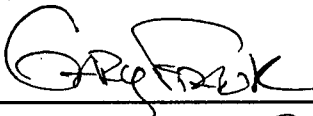
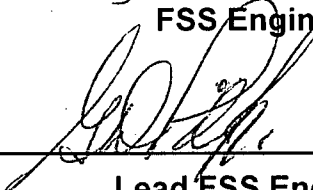


Rancho Seco
Final Status Survey Summary Report
April 1, 2008
South Retention Basin
Survey Unit F8480012

Prepared By:  Date: 4-1-2008
FSS Engineer

Reviewed By:  Date: 4/2/08
Lead FSS Engineer

Approved By:  Date: 5-8-08
Dismantlement Superintendent, Radiological

FINAL STATUS SURVEY SUMMARY REPORT

Survey Unit:

F8480012, South Retention Basin

Survey Unit Description:

Operating History: This area is located at the southwest corner of the site. The area surrounds the structures that were used for containment and final treatment of liquid effluents prior to their release from the site. Contaminated resin was reported to have been found in the basins. Operating records and the HSA document occurrences of radioactive material with the potential for a release of radioactivity associated with this survey area. Records confirmed the presence of radioactive material within the area and basin sediment/soil contamination levels up to ~290 pCi/g. In addition, soil contamination levels up to ~5 pCi/g prior to some decontamination activities.

Site Characterization: Soil samples were collected and showed Cs-137 at mean activity levels of 0.086 pCi/g and a maximum activity of 0.196 pCi/g. Based on the classification procedure (DSIP-0020) and levels of gross activity reported, the soil area around the asphalt was determined to be Class 3.

HSA Events: LER-8812.

Survey Unit Design Information:

The Survey Unit Design Parameters are presented in Table 1 below. The survey unit and measurement locations are depicted on the maps in Attachment 1. Direct measurement locations were determined using a random-start, fixed grid pattern and 1388 m² were scanned for approximately 100% coverage. Soil samples were collected at each direct measurement location and analyzed by HPGe detector. The instrumentation used for the survey along with the MDC values are listed in Tables 2-1 and 2-2 in Attachment 2.

Table 1. Survey Unit Design Parameters

Survey Design Parameter	Value	Comment
Survey Area:	F848	South Retention Basin
Survey Unit:	0012	Open Land Area
Class:	1	LTP Table 5-4
SU Area (m²):	1388	
Evaluator:	Gary Frank	
DCGL for Cs-137 surrogate (pCi/g):	52.6	
DCGL for Co-60 (pCi/g):	12.6	
Area Factor:	1.2	Class 1
Design DCGL_{emc} (pCi/g):	64.8	Class 1
LBGR (pCi/g):	25.6	Adjusted
Design Sigma (pCi/g):	0.49	DTBD-06-001, Table 5-4A or B
Type I Error:	0.05	
Type II Error:	0.05	
Sample Area (m²):	99.1	Class 1
Total Area Scanned (m²):	1388	
Scan Coverage (%):	100%	Class 1
Z_{1-α}:	1.645	
Z_{1-β}:	1.645	
Sign P:	0.99865	
Calculated Relative Shift:	55.1	
Relative Shift Used:	3	Uses 3.0 if Rel Shift >3
N-Value:	11	
Design N-Value + 20%:	14	NUREG-1575 Table 5-5
Grid Spacing L:	10	Class 1

Survey Results:

A total of 21 direct measurements were made in F8480012. The results are shown in Table 2-1. Statistical data including the mean, median, and standard deviation are shown in Table 2-2. All of the direct measurements were less than Unity. None of the scan measurements indicated areas of elevated activity. Soil samples were counted to the MDCs shown in Table 2-1 of Attachment 2.

In situ gamma spectroscopy (ISOCS) was performed on the soil on the floor of the basin. Forty-five ISOCS scans were made and the maximum as left value for Cs-137 was 2.62 pCi/g and for Co-60 0.238 pCi/g. In addition, 116 scan measurements were performed with the 2350-1 and 44-10 detector to look for discrete particles in the basin floor, walls, and trench which resulted in 100% coverage. One scan grid (Grid 98) showed initial soil activity greater than the DCGL_w. Seventy-nine of the particle scans had count rates greater than the investigation criterion of 9300 c/m. Grids exceeding the investigation criteria were sampled and evaluated as shown in Table 3-1. Initial results greater than the DCGL_w (Grid 98) was remediated and sampled at depth to ensure there was no downward migration of activity,

Table 2-1. Direct Measurement Results
(all activity values in pCi/g)

Sample ID	Cs137				Co60				Unity Total
	MDA	Activity	Uncertainty	Unity Value	MDA	Activity	Uncertainty	Unity Value	
F8480012S0001SS	8.19E-02	3.42E00	1.80E-01	0.0651	4.88E-02	3.06E-01	5.07E-02	0.0243	0.0893
F8480012S0002SS	6.76E-02	5.77E-01	8.08E-02	0.011	8.92E-02	<8.92E-02		0.0071	0.018
F8480012S0003SS	3.91E-02	<3.91E-02		0.0007	4.09E-02	<4.09E-02		0.0032	0.004
F8480012S0004SS	8.00E-02	8.27E-01	9.98E-02	0.0157	5.63E-02	9.93E-02	3.40E-02	0.0079	0.0236
F8480012S0005SS	6.03E-02	3.27E-01	6.08E-02	0.0062	7.72E-02	<7.72E-02		0.0061	0.0123
F8480012S0006SS	7.21E-02	1.42E00	1.18E-01	0.0271	7.48E-02	2.26E-01	4.81E-02	0.0179	0.045
F8480012S0007SS	7.25E-02	1.84E00	1.32E-01	0.0349	5.17E-02	8.72E-02	3.23E-02	0.0069	0.0419
F8480012S0008SS	1.23E-01	9.30E00	3.01E-01	0.1768	7.48E-02	6.67E-01	7.25E-02	0.053	0.2298
F8480012S0009SS	6.22E-02	4.09E-01	6.79E-02	0.0078	8.07E-02	<8.07E-02		0.0064	0.0142
F8480012S0010SS	4.90E-02	1.08E-01	4.02E-02	0.0021	5.43E-02	<5.43E-02		0.0043	0.0064
F8480012S0011SS	6.28E-02	1.39E00	1.15E-01	0.0263	5.43E-02	1.81E-01	3.95E-02	0.0144	0.0407
F8480012S0012SS	5.98E-02	6.75E00	2.23E-01	0.1283	5.03E-02	2.18E-01	3.88E-02	0.0173	0.1456
F8480012S0013SS	6.76E-02	1.57E00	1.23E-01	0.0298	1.06E-01	<1.06E-01		0.0084	0.0382
F8480012S0014SS	4.14E-02	1.96E-01	4.39E-02	0.0037	4.64E-02	<4.64E-02		0.0037	0.0074
F8480012S0015SS	7.41E-02	1.37E00	1.17E-01	0.0261	7.80E-02	<7.80E-02		0.0062	0.0323
F8480012S0016SS	4.86E-02	<4.86E-02		0.0009	4.69E-02	<4.69E-02		0.0037	0.0046
F8480012S0017SS	6.55E-02	8.72E-01	9.21E-02	0.0166	3.74E-02	<3.74E-02		0.003	0.0195
F8480012S0018SS	1.37E-01	2.08E01	4.57E-01	0.3952	6.73E-02	3.28E-01	5.74E-02	0.026	0.4212
F8480012S0019SS	8.25E-02	<8.25E-02		0.0016	3.67E-02	<3.67E-02		0.0029	0.0045
F8480012S0020SS	5.86E-02	<5.86E-02		0.0011	5.10E-02	<5.10E-02		0.004	0.0052
F8480012S0021SS	5.34E-02	<5.34E-02		0.001	4.96E-02	<4.96E-02		0.0039	0.005

Table 2-2. Direct Measurements Results Summary

	Cs137 Activity (pCi/g)	Co60 Activity (pCi/g)	Cs137 Unity	Co60 Unity	Unity Total
DCGLw	52.6	12.6			
Mean	2.45E00	1.38E-01	0.0466	0.011	0.0576
Median	8.27E-01	8.07E-02	0.0157	0.0064	0.0195
Standard Deviation	4.82E00	1.50E-01	0.0915	0.0119	0.0999
Cs137 Activity Range (pCi/g)	3.91E-02 to 2.08E01				
Co60 Activity Range (pCi/g)	3.67E-02 to 6.67E-01				
Cs137 Unity Range	0.0007 to 0.3952				
Co60 Unity Range	0.0029 to 0.053				
Total Unity Range	0.004 to 0.4212				
Sample Count	21				

Survey Unit Data Assessment:

The survey design required 21 direct measurements for the Sign Test. The critical value and the results of the Sign Test are presented in Table 3. The sample mean and median values were less than the DCGL. The sample standard deviation was less than the design standard deviation so no additional samples were required.

Table 3. Data Assessment Results

Survey Results Parameter	Value	Comment
Actual Direct Measurements (N):	21	
Median (Unity):	0.020	
Mean (Unity):	0.058	
Direct Measurement Std Deviation (Unity):	0.100	
Maximum (Unity):	0.421	
Sign Test Final N Value:	21	
S+ Value:	21	
Critical Value:	14	
Sufficient Samples Collected:	Yes	
Maximum Value < Unitized DCGL:	Yes	
Median Value < Unitized DCGL:	Yes	
Mean Value < Unitized DCGL:	Yes	
Maximum Value < DCGL_{mc} (Unity):	Yes	Class 1
Standard Deviation <= Sigma:	Investigate	Cs-137/Co-60 <0.5 DCGL _w
Pass the Sign Test?	Yes	
Reject the Null Hypothesis?	Yes	
Does the Survey Unit Pass All Criteria?	Investigate	Survey Passes

Survey Unit Investigations and Results:

Seventy-nine investigations were required for the scan measurements and the results are reported in Attachment 3. The EMC unity rule was not exceeded as shown in Table 3-1.

ALARA Statement:

As stated in Chapter 4 of the LTP, as long as the residual activity within the survey unit is less than the DCGL, the ALARA criterion has been met.

Changes in Initial Survey Unit Assumptions:

The survey unit was designed as a Class 1 land survey and the sample results are consistent with that classification. The variability of the survey results was greater than the characterization data used for survey design. Forty-three areas of elevated activity were detected. Therefore the EMC criterion was met.

Conclusion:

The FSS of this survey unit was properly designed as a Class 1 survey based on Table 5-4 of the LTP. The required number of direct measurements was made and the scan coverage met the requirement of Table 5-6 of the LTP. All of the direct measurements were less than Unity. No investigations were required.

The direct measurement data support rejection of the null hypothesis, providing high confidence that the survey unit satisfied the release criteria and that the data quality objectives were met.

It is concluded that survey unit F8480012 meets the release criteria of 10CFR20.1402.

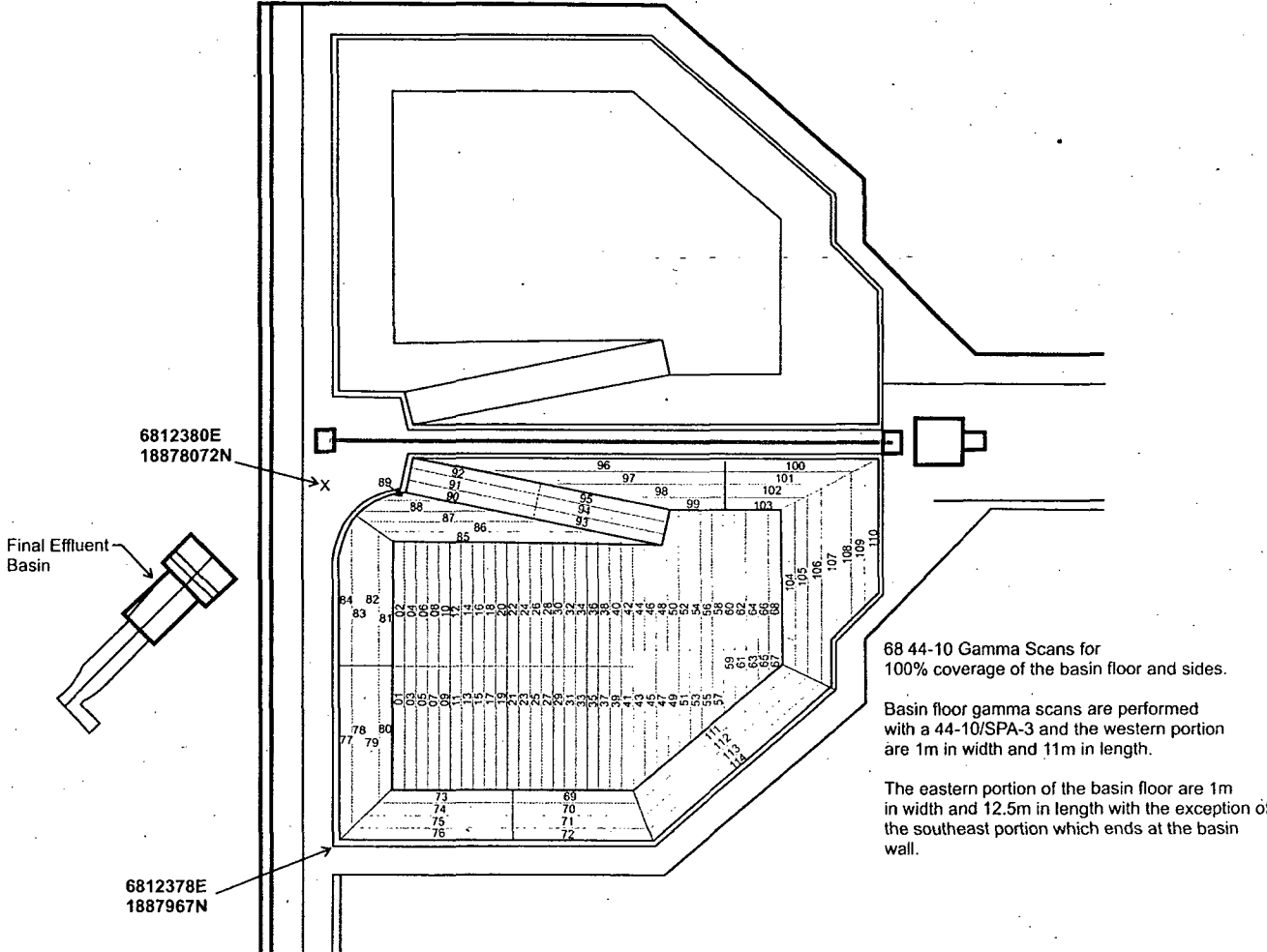
Attachment 1

Maps

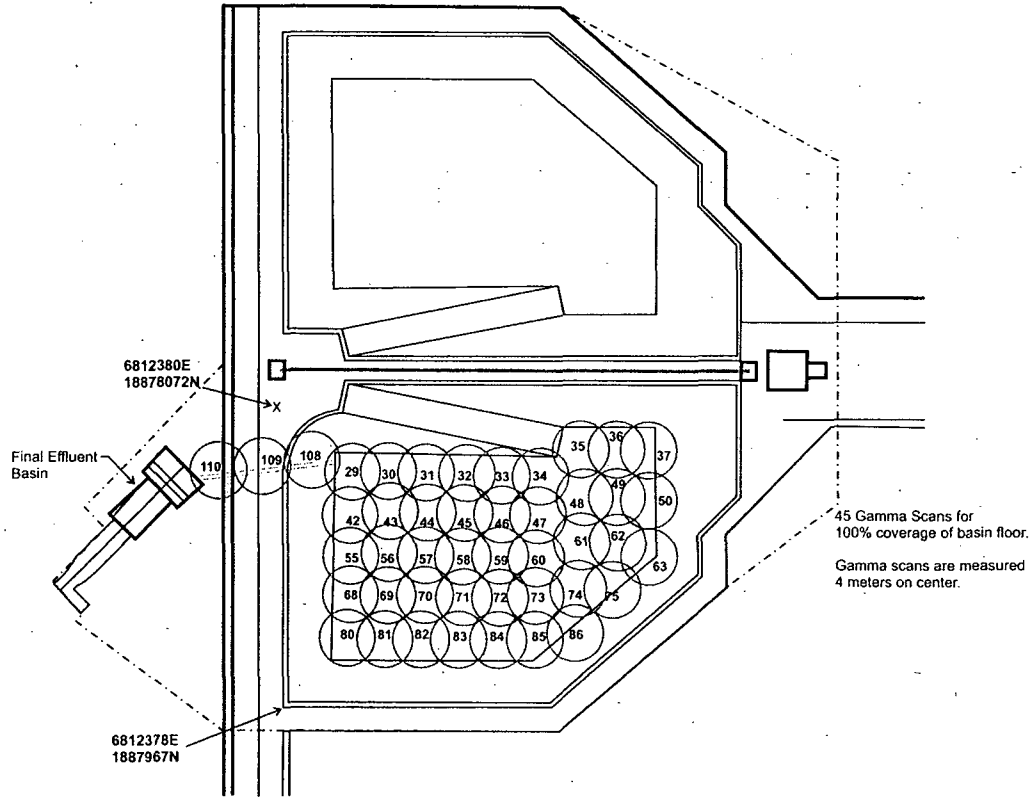
April 1, 2008

Survey Unit F8480012

South Retention Basin Post Concrete Removal Gamma Scan Survey

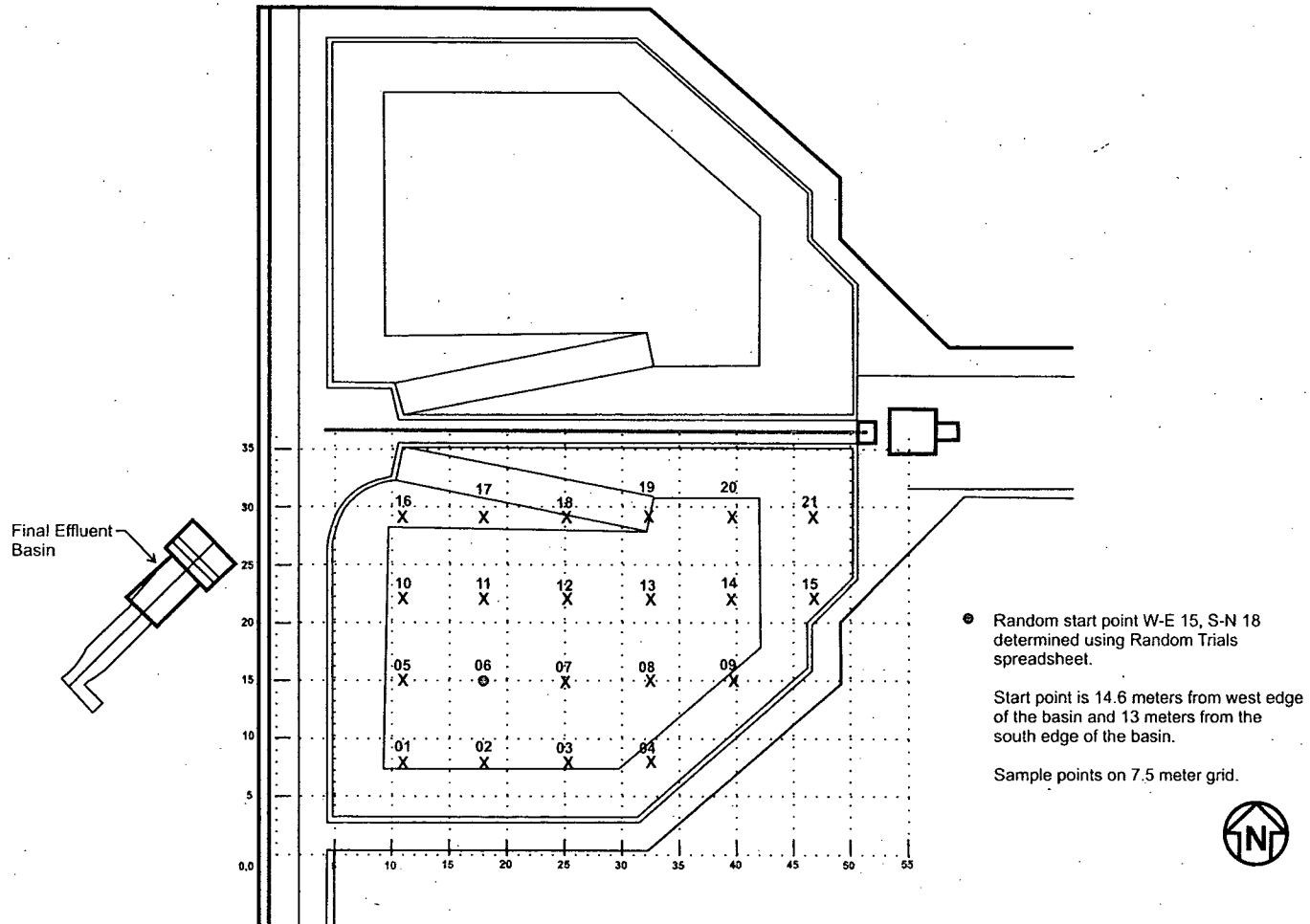


South Retention Basin Gamma Scan Survey



F8480012-M2

South Retention Basin Survey Gamma/Soil Sample Directs



Attachment 2

Instrumentation

April 1, 2008

Survey Unit F8480012

Table 2-1. Survey Unit Instrumentation

Instrument	Detector Model No.	Detector Serial No.	MDC
HPGe	N/A	05047773	Soil –0.123 pCi/g Cs-137
HPGe	N/A	05069128	Soil – 0.137 pCi/g Cs-137
ISOCS	N/A	2983947	Soil – 0.212 pCi/g Cs-137 Soil – 0.238 pCi/g Co-60
2350-1	44-10	171374	5.2 pCi/g Cs-137
2350-1	44-10	171992	5.2 pCi/g Cs-137
2350-1	44-10	171995	5.2 pCi/g Cs-137
2350-1	SPA-3	404397	5.2 pCi/g Cs-137

Table 2-2. Investigation Criteria and DCGL

Instrument	Parameter	Value
ISOCS	Investigation Criteria - Scan	Soil – 26.3 pCi/g Cs-137 Soil – 6.3 pCi/g Co-60
All	DCGL _w	52.6 Cs-137 12.6 Co-60
All	DCGL _{EMC}	Soil 69 pCi/g Cs-137
2x2 NaI	Investigation Criteria – Scan	9300 cpm

Attachment 3

Investigation

April 1, 2008

Survey Unit F8480012

Table 3-1 Survey Unit Investigation

<i>Grid</i>	<i>Investigation Level (pCi/g)</i>	<i>Initial Value (pCi/g)</i>	<i>Investigation Result (pCi/g)</i>	<i>Elevated Area (m²)</i>	<i>Area Factor</i>	<i>DCGL_{emc}</i>	<i>Investigation Result (pCi/g)</i>	<i>DCGL_{emc} Unity Fraction</i>
1	52.6	21	21	1	11.3	594.38	21	0.0312
1	12.5	2.04	2.04	1	11.8	147.5	2.04	0.0129
2	52.6	19.6	19.6	1	11.3	594.38	19.6	0.0289
2	12.5	1.95	1.95	1	11.8	147.5	1.95	0.0123
4	52.6	6.34	6.34	1	11.3	594.38	6.34	0.0065
4	12.5	0.083	0.083	1	11.8	147.5	0.083	0.0000
8	52.6	9.5	9.5	1	11.3	594.38	9.5	0.0119
8	12.5	0.3	0.3	1	11.8	147.5	0.3	0.0011
14	52.6	8.35	8.35	1	11.3	594.38	8.35	0.0099
14	12.5	0.19	0.19	1	11.8	147.5	0.19	0.0004
16	52.6	8.18	8.18	1	11.3	594.38	8.18	0.0096
16	12.5	0.32	0.32	1	11.8	147.5	0.32	0.0012
17	52.6	5.95	5.95	1	11.3	594.38	5.95	0.0059
17	12.5	0.12	0.12	1	11.8	147.5	0.12	0.0000
18	52.6	4.29	4.29	1	11.3	594.38	4.29	0.0031
18	12.5	0.23	0.23	1	11.8	147.5	0.23	0.0006
19	52.6	8	8	1	11.3	594.38	8	0.0093
19	12.5	0.36	0.36	1	11.8	147.5	0.36	0.0015
20	52.6	3.38	3.38	1	11.3	594.38	3.38	0.0016
20	12.5	0.06	0.06	1	11.8	147.5	0.06	0.0000
21	52.6	17.2	17.2	1	11.3	594.38	17.2	0.0248
21	12.5	0.65	0.65	1	11.8	147.5	0.65	0.0035

Grid	Investigation Level (pCi/g)	Initial Value (pCi/g)	Investigation Result (pCi/g)	Elevated Area (m ²)	Area Factor	DCGL _{emc}	Investigation Result (pCi/g)	DCGL _{emc} Unity Fraction
22	52.6	3.35	3.35	1	11.3	594.38	3.35	0.0015
22	12.5	0.09	0.09	1	11.8	147.5	0.09	0.0000
23	52.6	9.8	9.8	1	11.3	594.38	9.8	0.0124
23	12.5	0.74	0.74	1	11.8	147.5	0.74	0.0041
24	52.6	4.42	4.42	1	11.3	594.38	4.42	0.0033
24	12.5	0.098	0.098	1	11.8	147.5	0.098	0.0000
25	52.6	7.04	7.04	1	11.3	594.38	7.04	0.0077
25	12.5	0.42	0.42	1	11.8	147.5	0.42	0.0019
26	52.6	7.83	7.83	1	11.3	594.38	7.83	0.0091
26	12.5	0.19	0.19	1	11.8	147.5	0.19	0.0004
27	52.6	9.45	9.45	1	11.3	594.38	9.45	0.0118
27	12.5	0.11	0.11	1	11.8	147.5	0.11	0.0000
28	52.6	14.9	14.9	1	11.3	594.38	14.9	0.0209
28	12.5	10.8	10.8	1	11.8	147.5	10.8	0.0723
29	52.6	3.81	3.81	1	11.3	594.38	3.81	0.0023
29	12.5	0.16	0.16	1	11.8	147.5	0.16	0.0001
30	52.6	11.2	11.2	1	11.3	594.38	11.2	0.0147
30	12.5	0.71	0.71	1	11.8	147.5	0.71	0.0039
31	52.6	7.05	7.05	1	11.3	594.38	7.05	0.0077
31	12.5	0.28	0.28	1	11.8	147.5	0.28	0.0010
32	52.6	6.64	6.64	1	11.3	594.38	6.64	0.0070
32	12.5	0.15	0.15	1	11.8	147.5	0.15	0.0001
33	52.6	7.01	7.01	1	11.3	594.38	7.01	0.0077
33	12.5	0.28	0.28	1	11.8	147.5	0.28	0.0010

<i>Grid</i>	<i>Investigation Level (pCi/g)</i>	<i>Initial Value (pCi/g)</i>	<i>Investigation Result (pCi/g)</i>	<i>Elevated Area (m²)</i>	<i>Area Factor</i>	<i>DCGL_{emc}</i>	<i>Investigation Result (pCi/g)</i>	<i>DCGL_{emc} Unity Fraction</i>
34	52.6	1.41	1.41	1	11.3	594.38	1.41	0.0000
34	12.5	0.19	0.19	1	11.8	147.5	0.19	0.0004
35	52.6	6.07	6.07	1	11.3	594.38	6.07	0.0061
35	12.5	0.41	0.41	1	11.8	147.5	0.41	0.0018
36	52.6	4.81	4.81	1	11.3	594.38	4.81	0.0040
36	12.5	0.1	0.1	1	11.8	147.5	0.1	0.0000
38	52.6	3.69	3.69	1	11.3	594.38	3.69	0.0021
38	12.5	0.16	0.16	1	11.8	147.5	0.16	0.0001
39	52.6	2.17	2.17	1	11.3	594.38	2.17	0.0000
39	12.5	0.2	0.2	1	11.8	147.5	0.2	0.0004
41	52.6	4.31	4.31	1	11.3	594.38	4.31	0.0031
41	12.5	0.43	0.43	1	11.8	147.5	0.43	0.0020
43	52.6	8.79	8.79	1	11.3	594.38	8.79	0.0107
43	12.5	0.3	0.3	1	11.8	147.5	0.3	0.0011
45	52.6	3.93	3.93	1	11.3	594.38	3.93	0.0025
45	12.5	0.18	0.18	1	11.8	147.5	0.18	0.0003
49	52.6	6.23	6.23	1	11.3	594.38	6.23	0.0064
49	12.5	0.83	0.83	1	11.8	147.5	0.83	0.0047
64	52.6	2.44	2.44	1	11.3	594.38	2.44	0.0000
64	12.5	0.16	0.16	1	11.8	147.5	0.16	0.0001
68	52.6	2.16	2.16	1	11.3	594.38	2.16	0.0000
68	12.5	0.1	0.1	1	11.8	147.5	0.1	0.0000
69	52.6	15	15	1	11.3	594.38	15	0.0211
69	12.5	1.04	1.04	1	11.8	147.5	1.04	0.0061

Grid	Investigation Level (pCi/g)	Initial Value (pCi/g)	Investigation Result (pCi/g)	Elevated Area (m ²)	Area Factor	DCGL _{emc}	Investigation Result (pCi/g)	DCGL _{emc} Unity Fraction
70	52.6	11.5	11.5	1	11.3	594.38	11.5	0.0152
70	12.5	1.13	1.13	1	11.8	147.5	1.13	0.0067
71	52.6	10.3	10.3	1	11.3	594.38	10.3	0.0132
71	12.5	0.41	0.41	1	11.8	147.5	0.41	0.0018
72	52.6	28.3	28.3	1	11.3	594.38	28.3	0.0435
72	12.5	2.58	2.58	1	11.8	147.5	2.58	0.0166
73	52.6	6.09	6.09	1	11.3	594.38	6.09	0.0061
73	12.5	1.1	1.1	1	11.8	147.5	1.1	0.0065
74	52.6	2.67	2.67	1	11.3	594.38	2.67	0.0004
74	12.5	0.13	0.13	1	11.8	147.5	0.13	0.0000
75	52.6	1.9	1.9	1	11.3	594.38	1.9	0.0000
75	12.5	0.08	0.08	1	11.8	147.5	0.08	0.0000
76	52.6	0.089	0.089	1	11.3	594.38	0.089	0.0000
76	12.5	0.058	0.058	1	11.8	147.5	0.058	0.0000
77	52.6	0.18	0.18	1	11.3	594.38	0.18	0.0000
77	12.5	0.057	0.057	1	11.8	147.5	0.057	0.0000
78	52.6	0.06	0.06	1	11.3	594.38	0.06	0.0000
78	12.5	0.06	0.06	1	11.8	147.5	0.06	0.0000
79	52.6	0.12	0.12	1	11.3	594.38	0.12	0.0000
79	12.5	0.04	0.04	1	11.8	147.5	0.04	0.0000
80	52.6	4.01	4.01	1	11.3	594.38	4.01	0.0026
80	12.5	0.66	0.66	1	11.8	147.5	0.66	0.0035
81	52.6	0.74	0.74	1	11.3	594.38	0.74	0.0000
81	12.5	0.08	0.08	1	11.8	147.5	0.08	0.0000
82	52.6	17.3	17.3	1	11.3	594.38	17.3	0.0250
82	12.5	1.28	1.28	1	11.8	147.5	1.28	0.0077

Grid	Investigation Level (pCi/g)	Initial Value (pCi/g)	Investigation Result (pCi/g)	Elevated Area (m ²)	Area Factor	DCGL _{emc}	Investigation Result (pCi/g)	DCGL _{emc} Unity Fraction
83	52.6	31.4	31.4	1	11.3	594.38	31.4	0.0487
83	12.5	3.93	3.93	1	11.8	147.5	3.93	0.0257
84	52.6	8.02	8.02	1	11.3	594.38	8.02	0.0094
84	12.5	0.53	0.53	1	11.8	147.5	0.53	0.0027
85	52.6	7.52	7.52	1	11.3	594.38	7.52	0.0085
85	12.5	0.28	0.28	1	11.8	147.5	0.28	0.0010
86	52.6	17.5	17.5	1	11.3	594.38	17.5	0.0253
86	12.5	0.32	0.32	1	11.8	147.5	0.32	0.0012
87	52.6	24.9	0.584	1	11.3	594.38	0.584	0.0000
87	12.5	0.28	0.0827	1	11.8	147.5	0.0827	0.0000
88	52.6	21.2	21.2	1	11.3	594.38	21.2	0.0315
88	12.5	0.2	0.2	1	11.8	147.5	0.2	0.0004
90	52.6	0.3	0.3	1	11.3	594.38	0.3	0.0000
90	12.5	0.06	0.06	1	11.8	147.5	0.06	0.0000
93	52.6	36.3	36.3	1	11.3	594.38	36.3	0.0570
93	12.5	0.8	0.8	1	11.8	147.5	0.8	0.0045
94	52.6	1.44	1.44	1	11.3	594.38	1.44	0.0000
94	12.5	0.07	0.07	1	11.8	147.5	0.07	0.0000
95	52.6	3.73	3.73	1	11.3	594.38	3.73	0.0022
95	12.5	0.1	0.1	1	11.8	147.5	0.1	0.0000
96	52.6	21.4	21.4	1	11.3	594.38	21.4	0.0319
96	12.5	0.2	0.2	1	11.8	147.5	0.2	0.0004
97	52.6	6.87	6.87	1	11.3	594.38	6.87	0.0074
97	12.5	0.15	0.15	1	11.8	147.5	0.15	0.0001
98	52.6	79.8	0.62	1	11.3	594.38	0.62	0.0000
98	12.5	1.64	0.08	1	11.8	147.5	0.08	0.0000

<i>Grid</i>	<i>Investigation Level (pCi/g)</i>	<i>Initial Value (pCi/g)</i>	<i>Investigation Result (pCi/g)</i>	<i>Elevated Area (m²)</i>	<i>Area Factor</i>	<i>DCGL_{emc}</i>	<i>Investigation Result (pCi/g)</i>	<i>DCGL_{emc} Unity Fraction</i>
99	52.6	0.32	0.32	1	11.3	594.38	0.32	0.0000
99	12.5	0.06	0.06	1	11.8	147.5	0.06	0.0000
100	52.6	5.87	5.87	1	11.3	594.38	5.87	0.0058
100	12.5	0.16	0.16	1	11.8	147.5	0.16	0.0001
101	52.6	14.8	14.8	1	11.3	594.38	14.8	0.0208
101	12.5	0.2	0.2	1	11.8	147.5	0.2	0.0004
102	52.6	10.7	10.7	1	11.3	594.38	10.7	0.0139
102	12.5	0.31	0.31	1	11.8	147.5	0.31	0.0012
103	52.6	6.1	6.1	1	11.3	594.38	6.1	0.0103
103	12.5	0.36	0.36	1	11.8	147.5	0.36	0.0015
104	52.6	1.17	1.17	1	11.3	594.38	1.17	0.0000
104	12.5	0.12	0.12	1	11.8	147.5	0.12	0.0000
105	52.6	0.07	0.07	1	11.3	594.38	0.07	0.0000
105	12.5	0.055	0.055	1	11.8	147.5	0.055	0.0000
106	52.6	0.037	0.037	1	11.3	594.38	0.037	0.0000
106	12.5	0.033	0.033	1	11.8	147.5	0.033	0.0000
107	52.6	3.3	3.3	1	11.3	594.38	3.3	0.0014
107	12.5	0.08	0.08	1	11.8	147.5	0.08	0.0000
108	52.6	1.21	1.21	1	11.3	594.38	1.21	0.0000
108	12.5	0.1	0.1	1	11.8	147.5	0.1	0.0000
109	52.6	0.05	0.05	1	11.3	594.38	0.05	0.0000
109	12.5	0.03	0.03	1	11.8	147.5	0.03	0.0000
110	52.6	13.9	13.9	1	11.3	594.38	13.9	0.0193
110	12.5	0.8	0.8	1	11.8	147.5	0.8	0.0045
111	52.6	0.58	0.58	1	11.3	594.38	0.58	0.0000
111	12.5	0.08	0.08	1	11.8	147.5	0.08	0.0000

Grid	Investigation Level (pCi/g)	Initial Value (pCi/g)	Investigation Result (pCi/g)	Elevated Area (m ²)	Area Factor	DCGL _{emc}	Investigation Result (pCi/g)	DCGL _{emc} Unity Fraction
112	52.6	0.08	0.08	1	11.3	594.38	0.08	0.0000
112	12.5	0.07	0.07	1	11.8	147.5	0.07	0.0000
113	52.6	0.08	0.08	1	11.3	594.38	0.08	0.0000
113	12.5	0.07	0.07	1	11.8	147.5	0.07	0.0000
114	52.6	0.15	0.15	1	11.3	594.38	0.15	0.0000
114	12.5	0.08	0.08	1	11.8	147.5	0.08	0.0000
Survey Unit Remainder						DCGL = 52.6 12.6	SU Mean = 2.45 0.138	0.0466 0.011
EMC Unity Sum								0.9840

Grid 98 was above the DCGL_w requiring remediation. Grids 87 and 98 were sampled at 6" to 12" and 12" to 18" to ensure migration of activity had not occurred.

The first result for each grid is the Cs-137 results, the second result (shaded) is Co-60.

Attachment 4

Data Assessment

April 1, 2008

Survey Unit F8480012.

