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Revision 0

SALTSTONE SAMPLING SUMMARY
for
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1.0 Introduction

Samples of emplaced saltstone are desirable to confirm certain assumptions of properties of the waste form used in the Performance Assessment (PA) and to compare with the properties of saltstone samples prepared in the laboratory. Saltstone currently exists within Saltstone Disposal Facility (SDF) vault 4. The most recent pours are located in cell "D", but Cell "E" contains saltstone poured in late 2007 which has much lower radiological dose rates. Since cell "E" represents recent, cured, contact handlable, saltstone with minimal ALARA concerns, this cell was selected for sampling.

During the week of September 16, 2008, WSRC performed core drilling of saltstone from cell "E" of vault 4. The intent of this document is to capture information related to the core drilling event including weather conditions at the time of sampling, sample locations and best estimates of sample depths, color, consistency, and radiological survey information.

Since this type of sample collection has not been performed on actual saltstone material prior to this evolution, the initial sampling approach is summarized in the first section of this document to provide context and background of the pre-job planning effort prior to attempting this activity. Each of the Sample Summaries below summarize the data and notes for a specific sample location. Currently, no analytical testing has been performed and no conclusions can be drawn or inferred from the data presented here.

2.0 Pre-Job Planning

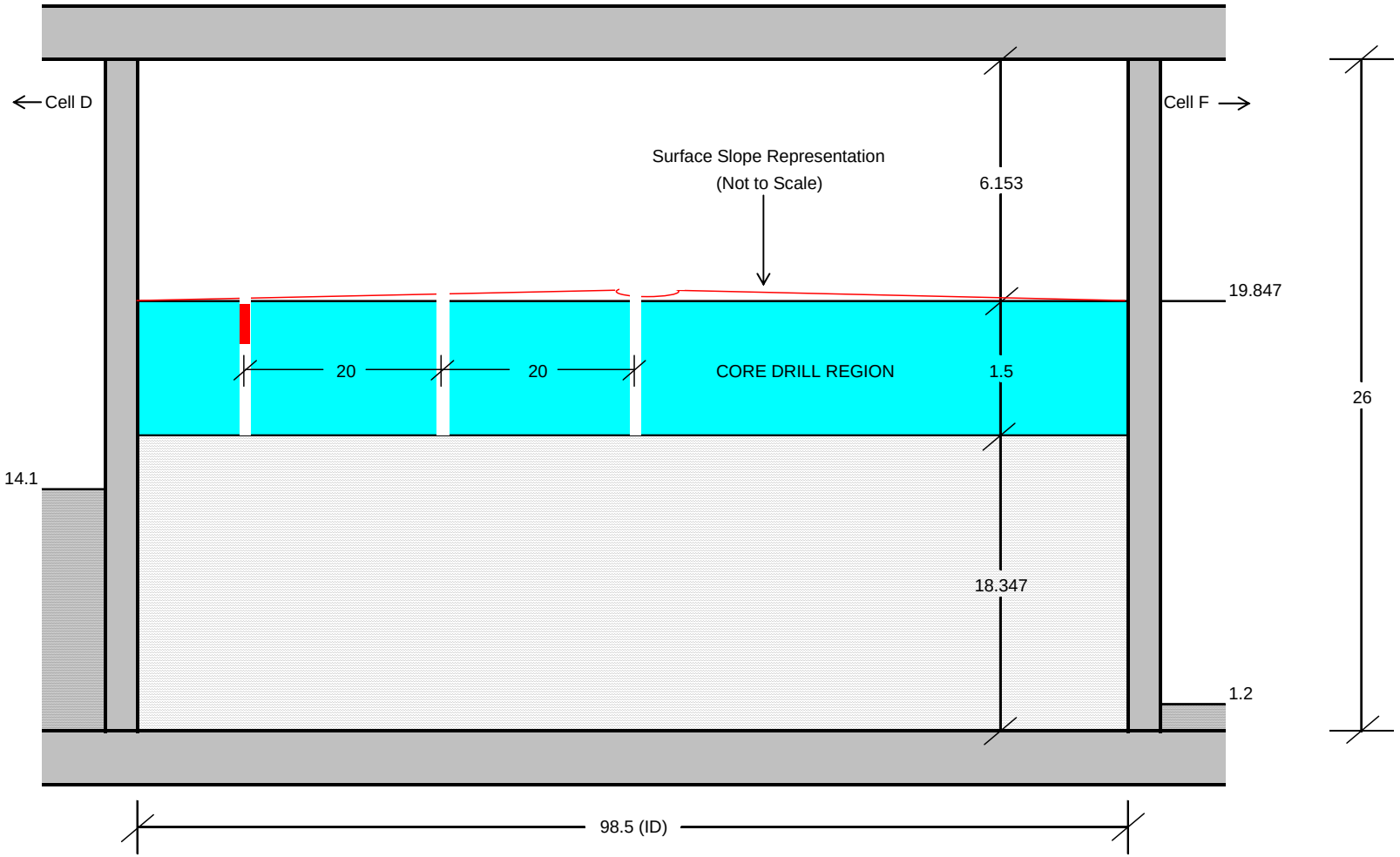
Planning activities for core drilling involved multiple meetings with Savannah River National Lab (SRNL) Analysts and core drill teams, Site Regulatory Integration and Planning (SRIP), and SDF facility engineering to coordinate analytical requirements with facility implementation. The core boring technique was recognized to be potentially destructive to some or all of the properties of interest. However, from an analytical perspective the most desirable core bore procedure employed the dry (not water lubricant) technique. It was recognized that if dry coring was not successful then wet cores (employing water as a lubricant) would be used, but could significantly alter the properties of interest.

In addition, blast furnace slag is added to the saltstone to enhance its reducing capacity. As oxygen is introduced to the sample from various aspects of the core drilling operation, oxidation of the sample will begin to occur. From an analytical perspective, the sample handling and storage was recognized as a probable source of oxidation and actions to minimize this effect were desirable.

2.1 Anticipated Saltstone Conditions

The targeted saltstone material was emplaced during December 2007 and had undergone at least 90 days of curing at the time of sampling. From camera inspections of the inside of the cell observed by SRIP personnel the surface of the saltstone appeared dry. The anticipated configuration of the vault and saltstone materials are presented in Figure 2.1-1 below.

Figure 2.1-1: Cell E, Side View

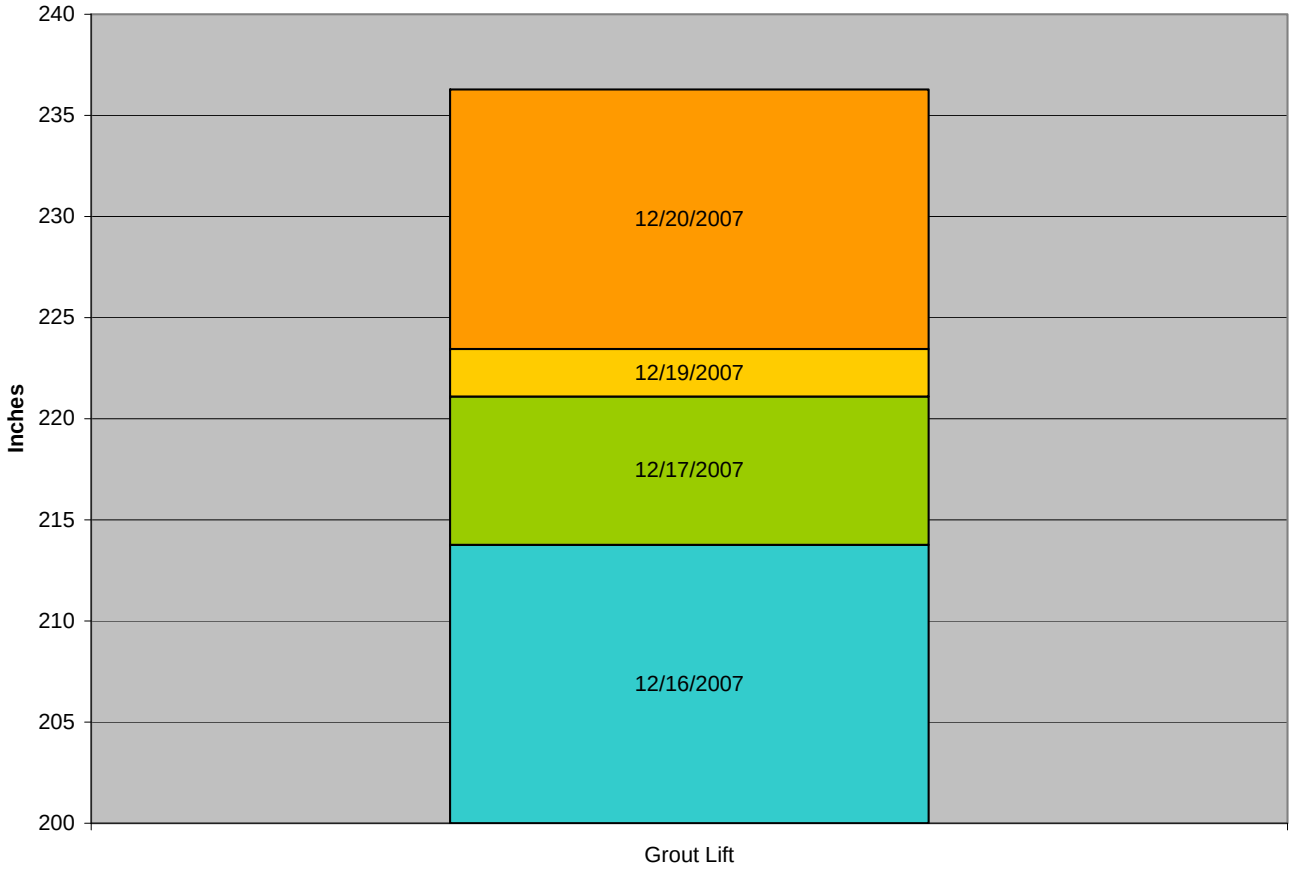


Note: All dimensions referenced on the diagram are in feet. One inch cell height = 6,048 gallons saltstone.

2.2 Planned Depth

Access points to the cell are predominantly by 3" diameter ports located in a grid pattern on the roof. Measurement of critical parameters typically requires a 1 to 2 diameter to length sample dimension. Given the constraints of the access ports, 2 in. diameter by 4 in long cylindrical samples were selected as the target sample dimensions. For this reason, a 2 in. drill bit was selected for the core drilling operation. The initial core depth of 1.5 ft. (or 18 in.) was chosen to provide 3 core sections of 6 in length. This would provide the nominal sample dimensions with some margin in the length. In addition, as indicated in Figure 2.1-2, Cell E saltstone Lifts diagram, drilling a total depth of 18 in. would cross multiple layers of saltstone and may provide insight into possible layering effects.

Figure 2.1-2: Cell E, 2007 Saltstone Lifts



Note: The approximate depth of emplaced saltstone from the last 4 Cell E production runs is represented in Figure 2.1-2.

2.3 Saltstone Production Facility Data

The parameters that may be measured can be influenced, among other things, by the "recipe" by which the saltstone is made. Variables such as the water-to-premix ratio, the specific gravity of the salt feed solution, the salt solution feed rate, and the composition of the salt solution itself may influence the material properties of saltstone.

In order to capture data relevant to the saltstone core material extracted from the disposal facility, pertinent operational data for the top four lifts of Saltstone in Cell E were obtained from the Saltstone Run Worksheet. The Saltstone Run Worksheet summarizes operational data taken from the facility in a single worksheet and is presented in table 2.3-1, Relevant Saltstone Run Worksheet Data.

Table 2.3-1: Relevant Saltstone Run Worksheet Data

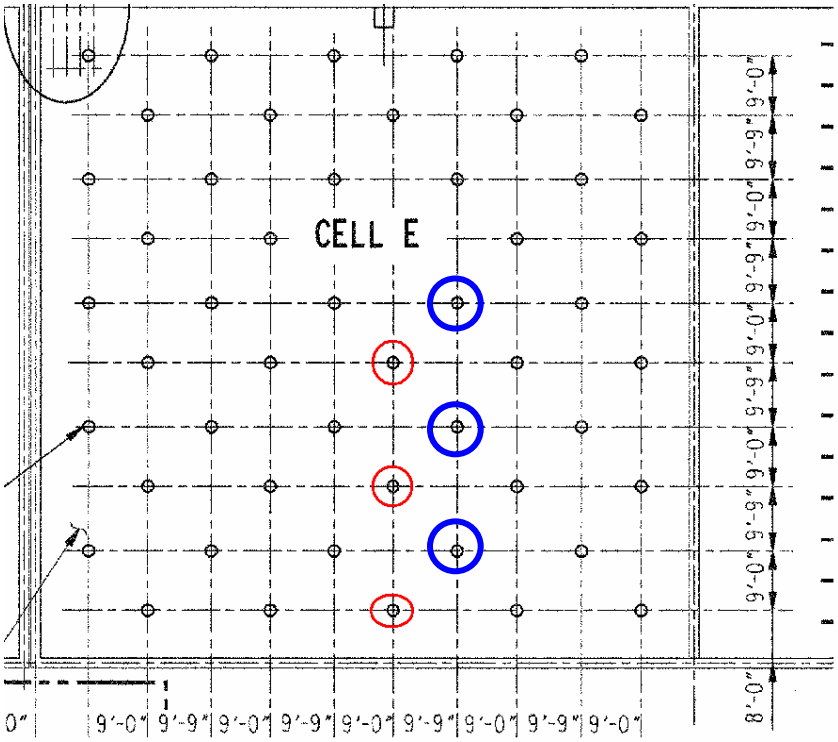
Run Dates	Target / Actual / Estimate	12/16/2007	12/17/2007	12/19/2007	12/20/2007
Batch		DDA Batch 2[1]	DDA Batch 2[1]	DDA Batch 2[1]	DDA Batch 2[1]
Calc Water Weight % in SFT	A	76-80	76-80	76-80	76-80
Flyash (lb / batch)	T	2700	2700	2700	2700
Cement (lb / batch)	T	600	600	600	600
Slag (lb / batch)	T	2700	2700	2700	2700
W/P Ratio	T	0.61+/- 0.02	0.61+/- 0.02	0.60+/- 0.02	0.60+/- 0.02
Dry Feed Rate (ton/hr)	T	35 +/- .5 T/H	35 +/- .5 T/H	35 +/- .5 T/H	35 +/- .5 T/H
SFT SPG Range	T	1.17 – 1.20	1.17 - 1.20	1.17 - 1.20	1.17 – 1.20
Daratard (GPM)	A	0.23	0.23	0.23	0.23
Clear Air (GPM)	A	0.14	0.14	0.14	0.14
Calc Salt Solution (GPM)	A	95.5+/-2 GPM	95.5+/-2 GPM	94.0+/-2 GPM	94.0+/-2 GPM
Grout Flow (GPM)	Est	177	177	175	175

[1] DDA Batch 2 Salt Solution Analytical Data from WSRC-TR-2008-00080, Zeigler, K. E. and Bibler, N. E, Results for the Third Quarter 2007 Tank 50H WAC Slurry Sample: Chemical and Radionuclide Contaminant Results, Savannah River National Laboratory, Rev. 1, July, 2008

2.4 Planned Spatial Locations

Locations selected for core drilling were limited by the ability to access the saltstone from the cell roof. The cell roof contains multiple access ports arranged in a standard grid pattern (shown below). The red circled ports indicate the optimum, planned drill locations. In addition to the port locations, the cell roof contains various operational equipment such as ventilation ducts, electrical conduits and grout lines that either obstruct personnel or drill equipment, or could present safety concerns to the workers. Because of this, the actual drill locations were relocated as indicated by the blue circles presented in Figure 2.4-1.

Figure 2.4-1: Vault 4, Cell E Coring Locations



Three spatial locations were selected ranging from near the center of the cell where the grout enters the cell moving towards the outer wall of the cell, nominally 18 ft. apart. Selecting these spatial locations linearly from center to edge the samples may provide insight into potential effects on the grout as it moves from the center of the cell where it enters toward the wall of the cell.

2.5 Sample Management

To identify the nine planned cores a sample identification system was developed in the work documents using a combination of core spatial location and core depth to identify the sample. Thus, the first sample, represented on Figure 2.1-1, Cell E – Side View in red, was collected from sample location 1, depth location 1 and is identified as sample 1-1.

Sample containers were fabricated to minimize the effect of oxidation, as well as enhance the transportability of the samples. These sample containers were essentially stainless steel tubes that could be closed and evacuated to minimize exposure to air. As a consequence of the design, the container provides shielding during handling and transport.

All samples were to be staged in their sample containers on the vault roof until the drilling was complete. The samples containers were to then be shipped together to the SRNL receiving facility.

2.6 Mock Up Testing

SRNL personnel involved in the physical core drilling conducted mock up testing in the lab using the drill equipment and saltstone simulants. As a result of this testing, SRNL personnel anticipated that the softer the saltstone the more difficult it would be to remove the core from the drill bit.

2.7 Video Recording

Tank farm personnel were contacted to arrange video recording of the coring process under the vault roof. The primary purpose of the video was to provide real time observation of the core drill operations. The video cameras were to be dropped through a roof access point and each core drill recorded for archival.

2.8 Work Order Development

Per facility requirements job specific work order 00871023-01 was developed to document planned work activities and provide direction for work in the field.

3.0 Sample Summaries

Cores of emplaced saltstone were obtained during the week of September 15, 2008. Critical information related to each core is summarized in Table 3.0-1. More detailed information for individual cores is provided in the rest of Section 3.0.

Table 3.0-1: Saltstone Core Sample Collection Summary Data, September 2008

Core ID		Collection Date	Core Depth (in)	Core Conditions			Maximum Dose Rates (mRem/hr)			Maximum Transferable Contamination		Sample Collection Notes
Access Port Location	Depth Position			Length (in)	Drilling Conditions	Color	Extremity	Skin	Whole Body	Alpha	Beta-Gamma	
1	1	16-Sep-08	0-4	2	Dry	Teal	2.5	1	1	<200	40,000	►Material smeared on the drill bit ►Humid Day ►Moisture observed inside glove bag ►Core material was described as soft, muddy, and crumbly
1	2	16-Sep-08	4-10	6	Dry	Teal	2.5	1	1	<200	40,000	Sample is stuck hard within the drill bit
1	3	16-Sep-08	10-14	3 - 4	Wet*	Dark Teal	2.5	1	1	<200	40,000	
2	1	17-Sep-08	0-6	2	Wet*	Dark Teal	3	1	1	<200	80,000	4" of pieces
2	2	17-Sep-08	6-10	3	Wet*	Dark Teal	3	1	1	<200	80,000	►1" chunk ►Some pieces fell out of the bit during retrieval
2	3	17-Sep-08	10-14	4	Wet*	Dark Teal	3	1	1	<200	80,000	

Table 3.0-1: Saltstone Core Sample Collection Summary Data, September 2008 (Continued)

Core ID		Collection Date	Core Depth (in)	Core Conditions			Maximum Dose Rates (mRem/hr)			Maximum Transferable Contamination		Sample Collection Notes
Access Port Location	Depth Position			Length (in)	Drilling Conditions	Color	Extremity	Skin	Whole Body	Alpha	Beta-Gamma	
3	1	17-Sep-08	0-6	4	Dry**	Teal	3	1	1	<200	40,000	►2" of crumbly material ►Appeared similar to day old concrete with moisture (Mathison) ►Core location 3 was drilled easire than core location 1. Comparison to location 2 not valid since wet drill technique was used (drill crew)
3	2	17-Sep-08	6-13	6	Dry**	Olive Green	3	1	1	<200	80,000	►Core broke into 2 pieces (4" and 2") ► Easily removed from the bit ► Core location 3 was drilled easire than core location 1. Comparison to location 2 not valid since wet drill technique was used (drill crew)
3	3	18-Sep-08	13-20	6	Dry**	Olive Green	2.5	1	1	<200	20,000	►Easily removed from the bit ► Core location 3 was drilled easire than core location 1. Comparison to location 2 not valid since wet drill technique was used (drill crew)

* Wet technique used to facilitate sample removal from drill bit.

** Dry technique requested by SRNL regardless of ability to remove from drill bit.

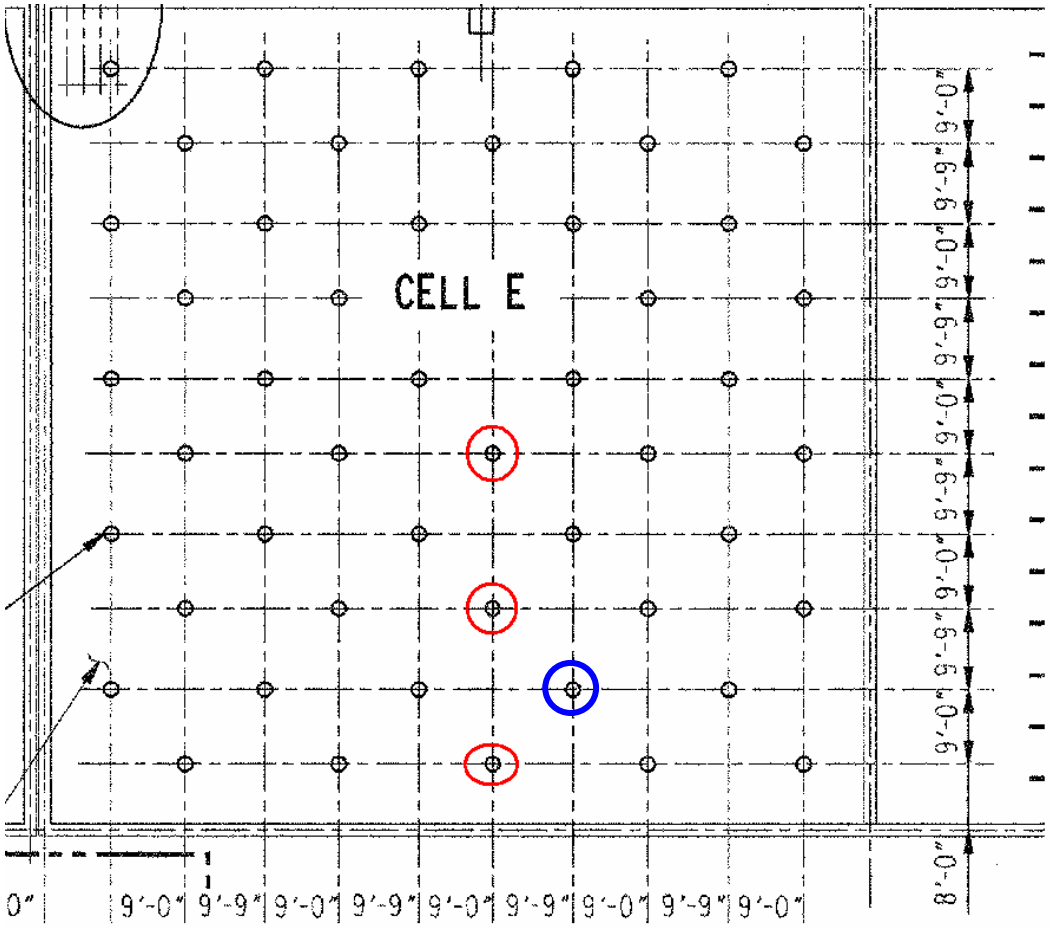
3.1 Core 1

Cores from locations 1-1 and 1-2 were obtained on Tuesday, September 16, 2008 using the dry core (i.e. without water as a lubricant) technique. The drill team had difficulty removing cores 1-1 and 1-2 from the bit and so Core 1-3 was obtained using the wet technique. All core drilling and sample retrieval occurred during the morning. Radiological Control surveys are included in Appendix A. The general area dose rate for core 1 sample activities was recorded as 7 mRem/Hr. The maximum dose rate obtained from sample material removed from core location 1 was 2.5 mRem/Hr Extremity, 1 mRem/Hr Skin 1 mRem/Hr Whole Body and was found on the drill bit. The maximum transferable contamination levels detected within the glove bag were <200 dpm alpha / 100 cm^2 and 40,000 dpm beta-gamma / 100 cm^2.

3.1.1 Location

Core location 1 is the closest core to the west wall of Vault 4, Cell E. It was approximately 18 ft from the surface of the wall as indicated by the blue circled area in Figure 3.1-1.

Figure 3.1-1: Core Location # 1



3.1.2 Weather Conditions

Ambient weather conditions for September 16, 2008 were recorded by the SRNL Atmospheric Technology Center are presented in Table 3.1-2.

Table 3.1-2: Meteorological Data, September 16, 2008

Tower Location	Greenwich Mean Time	Dew Point (F)	DQ	Temp. (F)	DQ	Relative Humidity (%)	DQ
H	16SEP08:00:00	66.87	G	80.66	G	56	G
H	16SEP08:00:15	66.82	G	80.12	G	57.28	G
H	16SEP08:00:30	66.48	G	79.68	G	57.61	G
H	16SEP08:00:45	66.39	G	79.57	G	56.62	G
H	16SEP08:01:00	66.5	G	79.34	G	57.5	G
H	16SEP08:01:15	66.46	G	79.1	G	58.08	G
H	16SEP08:01:30	66.43	G	78.91	G	58.72	G
H	16SEP08:01:45	66.35	G	78.91	G	59.88	G
H	16SEP08:02:00	66.33	G	79.38	G	59.84	G
H	16SEP08:02:15	66.29	G	79.18	G	59.66	G
H	16SEP08:02:30	66.38	G	78.96	G	60.33	G
H	16SEP08:02:45	66.43	G	78.34	G	60.77	G
H	16SEP08:03:00	66.41	G	77.67	G	61.66	G
H	16SEP08:03:15	66.32	G	77.21	G	62.47	G
H	16SEP08:03:30	66.18	G	76.8	G	62.93	G
H	16SEP08:03:45	65.93	G	76.55	G	63.47	G
H	16SEP08:04:00	65.71	G	76.06	G	64	G
H	16SEP08:04:15	65.77	G	75.87	G	65.67	G
H	16SEP08:04:30	65.19	G	75.18	G	66.3	G
H	16SEP08:04:45	65.03	G	74.95	G	67.3	G
H	16SEP08:05:00	64.6	G	74.64	G	67.09	G
H	16SEP08:05:15	64.27	G	74.21	G	66.21	G
H	16SEP08:05:30	64.26	G	73.95	G	66.16	G
H	16SEP08:05:45	64.39	G	73.71	G	66.8	G
H	16SEP08:06:00	64.64	G	73.49	G	67.15	G
H	16SEP08:06:15	64.84	G	73.4	G	68.05	G
H	16SEP08:06:30	64.7	G	73.31	G	67.84	G
H	16SEP08:06:45	64.67	G	73.11	G	68.16	G
H	16SEP08:07:00	64.61	G	73.02	G	69.69	G
H	16SEP08:07:15	64.32	G	72.76	G	70.84	G
H	16SEP08:07:30	64.16	G	72.57	G	70.61	G
H	16SEP08:07:45	64.14	G	72.5	G	69.63	G
H	16SEP08:08:00	63.93	G	72.36	G	71.21	G
H	16SEP08:08:15	64.32	G	72.19	G	71.19	G
H	16SEP08:08:30	64.43	G	72.2	G	71.86	G
H	16SEP08:08:45	64.13	G	72.42	G	73.11	G
H	16SEP08:09:00	64.05	G	72.46	G	72.93	G

Table 3.1-2: Meteorological Data, September 16,2008 (Continued)

Tower Location	Greenwich Mean Time	Dew Point (F)	DQ	Temp. (F)	DQ	Relative Humidity (%)	DQ
H	16SEP08:09:15	64	G	72.42	G	73	G
H	16SEP08:09:30	63.74	G	72.58	G	74.05	G
H	16SEP08:09:45	63.37	G	72.46	G	74.93	G
H	16SEP08:10:00	63.13	G	71.99	G	74.95	G
H	16SEP08:10:15	63.08	G	71.75	G	75.21	G
H	16SEP08:10:30	62.99	G	71.55	G	75.62	G
H	16SEP08:10:45	62.98	G	71.51	G	76.04	G
H	16SEP08:11:00	63.07	G	71.82	G	76.36	G
H	16SEP08:11:15	63.22	G	71.9	G	76.85	G
H	16SEP08:11:30	63.46	G	72.04	G	77.47	G
H	16SEP08:11:45	63.57	G	72.06	G	77.71	G
H	16SEP08:12:00	63.75	G	72.24	G	77.81	G
H	16SEP08:12:15	64.09	G	72.82	G	77.94	G
H	16SEP08:12:30	64.31	G	73.2	G	77.92	G
H	16SEP08:12:45	64.15	G	73.15	G	77.62	G
H	16SEP08:13:00	64.03	G	72.9	G	77.75	G
H	16SEP08:13:15	64.14	G	73.03	G	77.93	G
H	16SEP08:13:30	64.43	G	73.25	G	78.3	G
H	16SEP08:13:45	64.76	G	73.94	G	77.66	G
H	16SEP08:14:00	65.05	G	74.75	G	77.18	G
H	16SEP08:14:15	65.28	G	75.44	G	76.14	G
H	16SEP08:14:30	65.18	G	75.51	G	74.52	G
H	16SEP08:14:45	64.98	G	75.57	G	73.31	G
H	16SEP08:15:00	65.46	G	77.19	G	72.36	G
H	16SEP08:15:15	65.37	G	76.9	G	71.47	G
H	16SEP08:15:30	65.6	G	77.74	G	69.94	G
H	16SEP08:15:45	66.4	G	79.39	G	69.18	G
H	16SEP08:16:00	66.56	G	80.06	G	69.04	G
H	16SEP08:16:15	66.35	G	80.81	G	67.84	G
H	16SEP08:16:30	66.75	G	82	G	66.75	G
H	16SEP08:16:45	66.34	G	80.47	G	67.19	G
H	16SEP08:17:00	65.94	G	79.24	G	69.17	G
H	16SEP08:17:15	65.22	G	78.4	G	70.06	G
H	16SEP08:17:30	64.82	G	78.94	G	70.3	G
H	16SEP08:17:45	64.92	G	79.98	G	70.05	G
H	16SEP08:18:00	65.1	G	79.98	G	69.05	G
H	16SEP08:18:15	65.44	G	80.77	G	67.59	G
H	16SEP08:18:30	65.5	G	80.18	G	66.83	G
H	16SEP08:18:45	65.05	G	80.48	G	65.86	G
H	16SEP08:19:00	65.43	G	81.29	G	64.94	G
H	16SEP08:19:15	65.05	G	80.6	G	65.08	G

Table 3.1-2: Meteorological Data, September 16,2008 (Continued)

Tower Location	Greenwich Mean Time	Dew Point (F)	DQ	Temp. (F)	DQ	Relative Humidity (%)	DQ
H	16SEP08:19:30	64.01	G	79.21	G	65.07	G
H	16SEP08:19:45	63.85	G	78.89	G	65.49	G
H	16SEP08:20:00	63.26	G	78.36	G	65.72	G
H	16SEP08:20:15	62.96	G	77.75	G	65.68	G
H	16SEP08:20:30	62.69	G	77.69	G	65.74	G
H	16SEP08:20:45	62.24	G	76.87	G	65.85	G
H	16SEP08:21:00	61.97	G	76.65	G	65.54	G
H	16SEP08:21:15	61.85	G	76.31	G	65.56	G
H	16SEP08:21:30	61.37	G	75.61	G	66.16	G
H	16SEP08:21:45	61.17	G	74.83	G	66.68	G
H	16SEP08:22:00	60.9	G	74.27	G	67.7	G
H	16SEP08:22:15	60.55	G	73.33	G	68.66	G
H	16SEP08:22:30	60.46	G	72.89	G	69.37	G
H	16SEP08:22:45	60.17	G	72.19	G	69.64	G
H	16SEP08:23:00	59.95	G	71.97	G	69.55	G
H	16SEP08:23:15	59.52	G	71.5	G	69.65	G
H	16SEP08:23:30	59.26	G	71.13	G	69.74	G
H	16SEP08:23:45	59.05	G	70.8	G	69.91	G

3.1.3 Core Conditions

Cores 1-1 and 1-2 were drilled dry (i.e. without water as a lubricant). Core 1-2 lodged in the bit and could not safely be removed by hand. Because of this core 1-3 was drilled wet to facilitate removal from the bit. Each core section is described and pictured individually as follows:

Core 1-1

Core 1-1 was drilled from the top of the saltstone surface to a depth of approximately 4 inches. Approximately 2 inches of the core remained contiguous during removal from the bit. For each sample the drill team noted the color of the core. In this case the core appeared teal in color and was described as a soft, crumbly consistency. The drill crew noted that material remained smeared on the drill bit. The core drill team described the smeared material as having the consistency of mud.

Figure 3.1-2: Core 1-1 View

Core 1-2

Core 1-2 was drilled from approximately 4 in. to a depth of approximately 10 in. Approximately 6 inches of the core remained in the bit and could not be removed. The core appeared teal in color.

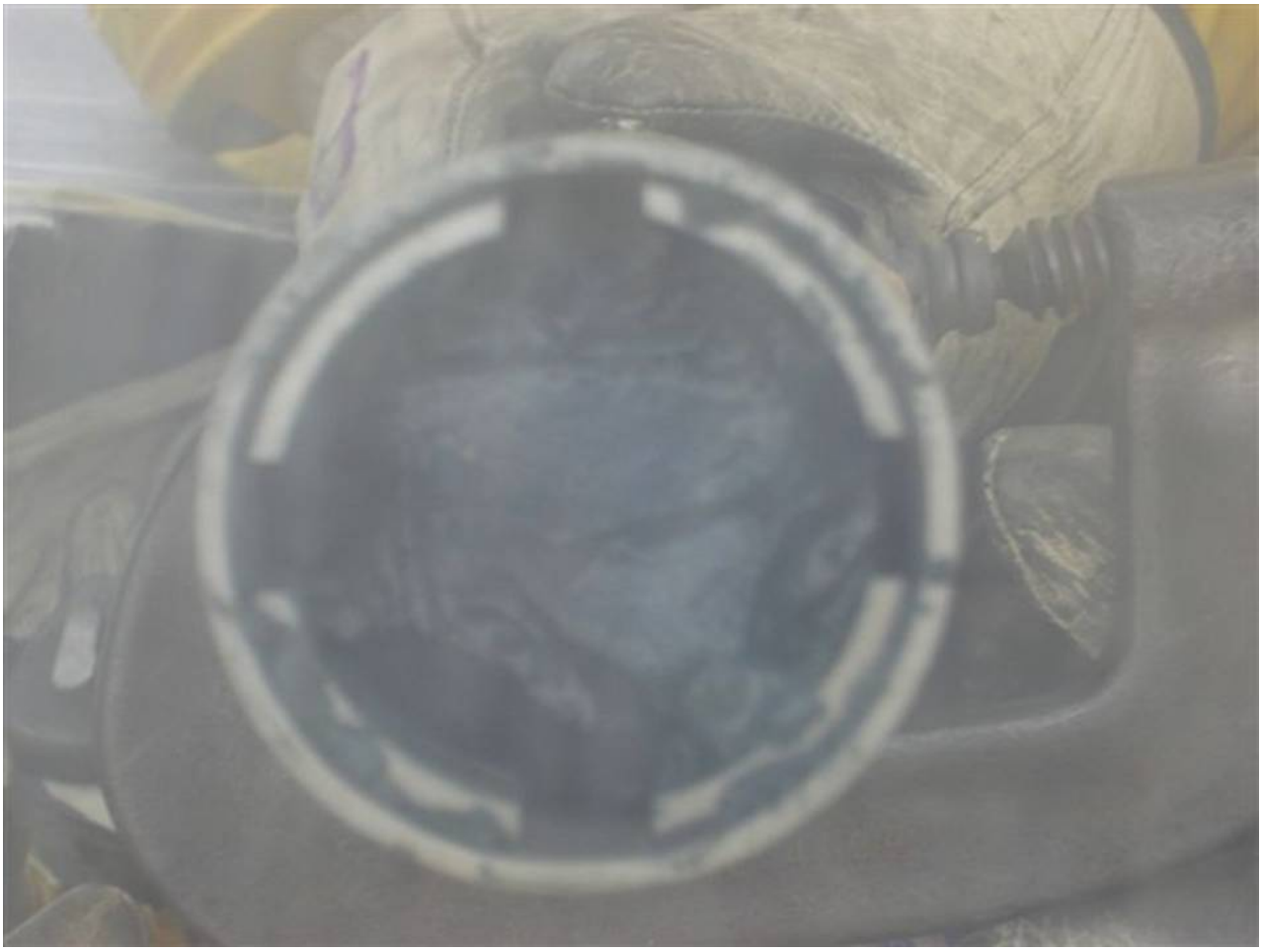
Figure 3.1-3: Core 1-2 View

Core 1-3

Core 1-3 was drilled from approximately 10 in. to a depth of approximately 14 in using the wet core technique. A core of from 3 – 4 in. was as removed. The core appeared dark teal in color.

Figure 3.1-4: Core 1-3, View 1

Figure 3.1-5: Core 1-3, View 2



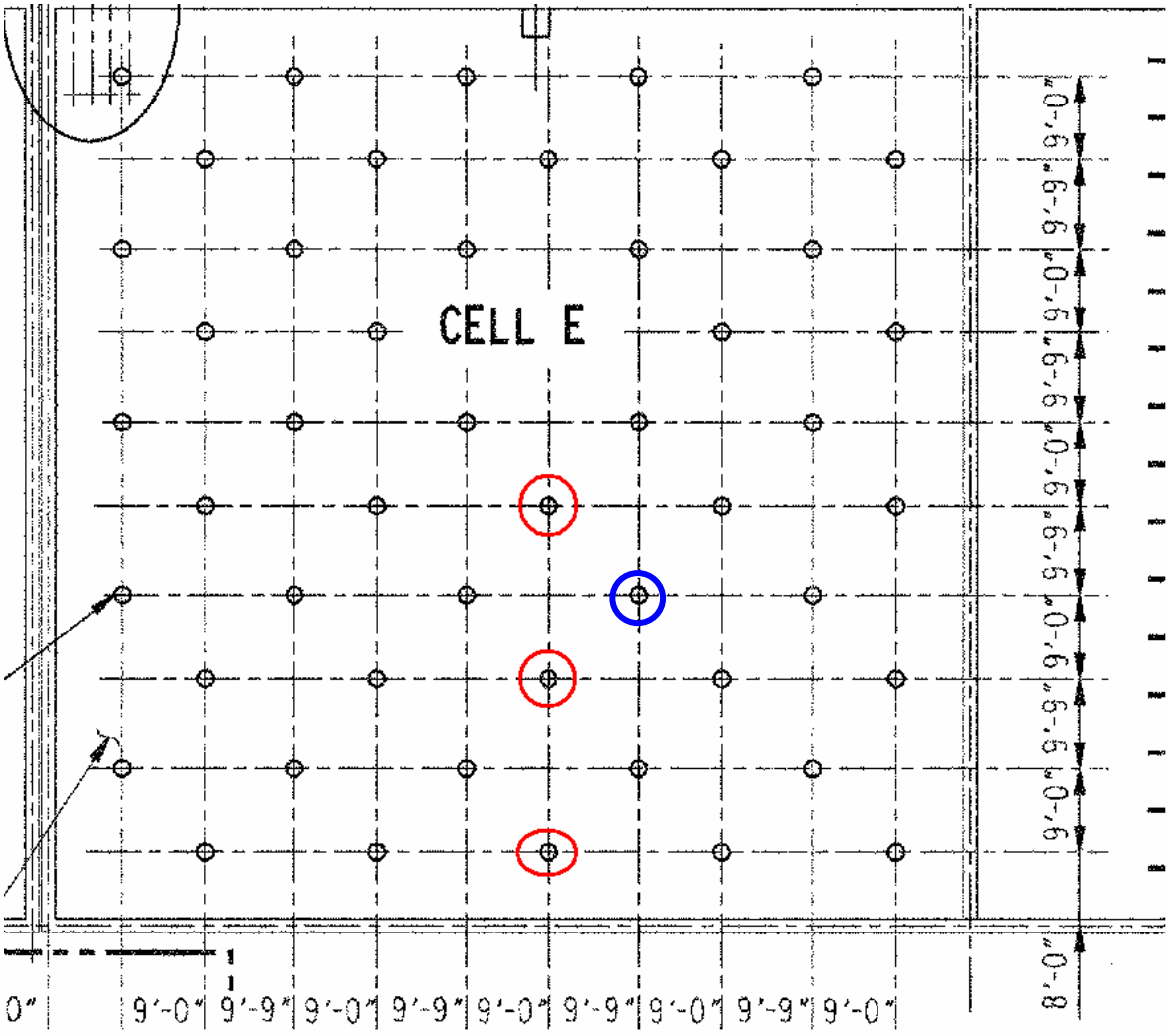
3.2 Core 2

Cores from location 2 were all obtained on Wednesday, September 17, 2008 using the wet core technique. All core drilling and sample retrieval occurred during the morning. Radiological Control surveys are included in Appendix A. The general area dose rate for core 2 sample activities was recorded as 7 mRem/Hr. The maximum dose rate obtained from sample material removed during activities of Sept. 17, 2008 during the day (day 2 included sample retrieval from both location 2 and location 3) was 3 mRem/Hr Extremity, 1 mRem/Hr Skin 1 mRem/Hr Whole Body and was found on the samples. The maximum transferable contamination levels detected within the glove bag were <200 dpm alpha / 100 cm^2 and 80,000 dpm beta-gamma / 100 cm^2.

3.2.1 Location

Core location 2 is was approximately 36 ft from the surface of the Vault 2 Cell E west wall as indicated by the blue circled area in Figure 3.2-1.

Figure 3.2-1: Core Location #2



3.2.2 Weather Conditions

Ambient weather conditions for September 17, 2008 were recorded by the SRNL Atmospheric Technology Center are presented in Table 3.2-1.

Table 3.2-1: Meteorological Data, September 17, 2008

Tower Location	Greenwich Mean Time	Dew Point (F)	DQ	Temp. (F)	DQ	Relative Humidity (%)	DQ
H	17SEP08:00:00	58.81	G	70.61	G	70.1	G
H	17SEP08:00:15	58.43	G	70.13	G	70.37	G
H	17SEP08:00:30	58.2	G	69.82	G	70.4	G
H	17SEP08:00:45	58.13	G	69.58	G	70.38	G
H	17SEP08:01:00	58.06	G	69.59	G	70.16	G
H	17SEP08:01:15	57.99	G	69.56	G	70.06	G
H	17SEP08:01:30	57.91	G	69.35	G	70.24	G
H	17SEP08:01:45	57.76	G	69.06	G	70.33	G
H	17SEP08:02:00	57.72	G	68.91	G	70.41	G
H	17SEP08:02:15	57.64	G	68.89	G	70.47	G
H	17SEP08:02:30	57.53	G	68.84	G	70.42	G
H	17SEP08:02:45	57.41	G	68.56	G	70.4	G
H	17SEP08:03:00	57.41	G	68.58	G	70.63	G
H	17SEP08:03:15	57.36	G	68.59	G	70.71	G
H	17SEP08:03:30	57.32	G	68.6	G	70.68	G
H	17SEP08:03:45	57.28	G	68.59	G	70.63	G
H	17SEP08:04:00	57.3	G	68.53	G	70.72	G
H	17SEP08:04:15	57.32	G	68.51	G	70.77	G
H	17SEP08:04:30	57.38	G	68.48	G	71.04	G
H	17SEP08:04:45	57.46	G	68.48	G	71.27	G
H	17SEP08:05:00	57.52	G	68.38	G	71.49	G
H	17SEP08:05:15	57.57	G	68.4	G	71.89	G
H	17SEP08:05:30	57.64	G	68.21	G	72.67	G
H	17SEP08:05:45	57.53	G	67.91	G	73.47	G
H	17SEP08:06:00	57.44	G	67.47	G	74.23	G
H	17SEP08:06:15	57.44	G	66.96	G	74.89	G
H	17SEP08:06:30	57.51	G	66.81	G	75.55	G
H	17SEP08:06:45	57.55	G	66.64	G	75.89	G
H	17SEP08:07:00	57.8	G	66.62	G	76.64	G
H	17SEP08:07:15	57.88	G	66.54	G	76.82	G
H	17SEP08:07:30	57.87	G	66.59	G	76.66	G
H	17SEP08:07:45	57.93	G	66.59	G	76.74	G
H	17SEP08:08:00	57.99	G	66.55	G	76.81	G
H	17SEP08:08:15	58.25	G	66.63	G	77.28	G
H	17SEP08:08:30	58.57	G	66.66	G	77.87	G
H	17SEP08:08:45	58.97	G	66.78	G	78.75	G
H	17SEP08:09:00	59.37	G	66.84	G	79.62	G
H	17SEP08:09:15	59.51	G	66.92	G	79.85	G
H	17SEP08:09:30	59.81	G	67.04	G	80.51	G
H	17SEP08:09:45	59.91	G	67.14	G	80.61	G
H	17SEP08:10:00	60.02	G	67.24	G	80.66	G

Table 3.2-1: Meteorological Data, September 17, 2008 (Continued)

Tower Location	Greenwich Mean Time	Dew Point (F)	DQ	Temp. (F)	DQ	Relative Humidity (%)	DQ
H	17SEP08:10:15	60.05	G	67.36	G	80.57	G
H	17SEP08:10:30	60.11	G	67.42	G	80.56	G
H	17SEP08:10:45	60.1	G	67.6	G	80.32	G
H	17SEP08:11:00	60.16	G	67.6	G	80.31	G
H	17SEP08:11:15	60.16	G	67.64	G	80.22	G
H	17SEP08:11:30	60.15	G	67.77	G	80.19	G
H	17SEP08:11:45	60.12	G	67.83	G	80.17	G
H	17SEP08:12:00	60.13	G	67.9	G	80.14	G
H	17SEP08:12:15	60.2	G	67.93	G	80.18	G
H	17SEP08:12:30	60.21	G	67.95	G	80.08	G
H	17SEP08:12:45	60.18	G	68.01	G	79.95	G
H	17SEP08:13:00	60.33	G	68.17	G	80	G
H	17SEP08:13:15	60.43	G	68.48	G	79.48	G
H	17SEP08:13:30	60.35	G	68.88	G	78.54	G
H	17SEP08:13:45	60.13	G	68.93	G	78	G
H	17SEP08:14:00	60.05	G	68.74	G	77.91	G
H	17SEP08:14:15	59.97	G	68.84	G	77.27	G
H	17SEP08:14:30	59.93	G	68.93	G	77.12	G
H	17SEP08:14:45	59.41	G	69.13	G	75.5	G
H	17SEP08:15:00	58.94	G	68.92	G	74.56	G
H	17SEP08:15:15	58.63	G	68.9	G	73.85	G
H	17SEP08:15:30	58.66	G	69.13	G	73.25	G
H	17SEP08:15:45	58.85	G	69.62	G	72.85	G
H	17SEP08:16:00	58.74	G	69.6	G	73.21	G
H	17SEP08:16:15	58.67	G	69.65	G	72.61	G
H	17SEP08:16:30	58.87	G	70.1	G	71.86	G
H	17SEP08:16:45	58.96	G	70.39	G	71.42	G
H	17SEP08:17:00	58.87	G	70.73	G	70.71	G
H	17SEP08:17:15	58.72	G	70.45	G	69.94	G
H	17SEP08:17:30	58.91	G	70.94	G	69.34	G
H	17SEP08:17:45	58.83	G	71.18	G	68.55	G
H	17SEP08:18:00	58.82	G	71.23	G	68.6	G
H	17SEP08:18:15	59	G	71.61	G	68.86	G
H	17SEP08:18:30	59.14	G	71.9	G	68.88	G
H	17SEP08:18:45	58.86	G	71.51	G	68.69	G
H	17SEP08:19:00	58.98	G	71.73	G	68.33	G
H	17SEP08:19:15	58.9	G	71.56	G	67.86	G
H	17SEP08:19:30	58.86	G	71.7	G	67.5	G
H	17SEP08:19:45	59.08	G	72.11	G	67.22	G
H	17SEP08:20:00	58.95	G	71.96	G	67.09	G
H	17SEP08:20:15	59.13	G	72.71	G	66.72	G

Table 3.2-1: Meteorological Data, September 17, 2008 (Continued)

Tower Location	Greenwich Mean Time	Dew Point (F)	DQ	Temp. (F)	DQ	Relative Humidity (%)	DQ
H	17SEP08:20:30	59.38	G	73.8	G	66.29	G
H	17SEP08:20:45	59.08	G	73.32	G	65.5	G
H	17SEP08:21:00	59.01	G	73.09	G	64.97	G
H	17SEP08:21:15	59.09	G	73.05	G	64.99	G
H	17SEP08:21:30	59.31	G	73.54	G	64.81	G
H	17SEP08:21:45	59.03	G	73.17	G	64.21	G
H	17SEP08:22:00	58.91	G	72.8	G	64.52	G
H	17SEP08:22:15	58.68	G	72.28	G	64.47	G
H	17SEP08:22:30	58.32	G	71.95	G	65.03	G
H	17SEP08:22:45	57.75	G	71.15	G	64.98	G
H	17SEP08:23:00	57.56	G	70.72	G	65.34	G
H	17SEP08:23:15	57.1	G	70.18	G	64.74	G
H	17SEP08:23:30	56.59	G	69.6	G	64.36	G
H	17SEP08:23:45	55.88	G	68.66	G	63.01	G

3.2.3 Core Conditions

Cores 2-1 through 2-3 were drilled using the wet technique. All cores exhibited the dark teal color similar to core 1-3. Pieces of the sample material were observed falling from core 2-2. Both cores 2-1 and 2-2 were difficult to retrieve. The core drill team observed that the outer surface of the core seemed to be softened and believed that effect to be due to the water lubricant used here. Cores 2-1 and 2-2 had to be retrieved using the retrieval tool but the samples did not break off at the base (as the tool was designed to do). Rather, the drill crew had to work the sample bit twisting and lifting to break the core from the saltstone matrix. This resulted in the cores breaking into shorter segments than anticipated.

Core 2-1

Core 2-1 was drilled from the top of the saltstone surface to a depth of approximately 6 in. Approximately 4 inches of the pieces of core material and a 2 in. core were removal from the bit. The core material appeared dark teal in color.

Figure 3.2-2: Core 2-1 View

Core 2-2

Core 2-2 was drilled from approximately 6 in. to a depth of approximately 10 in. Approximately 3 inches of the core was removed along with a 1 in. "chunk" of core. The core appeared dark teal in color. Real time video showed that some pieces of material fell from the bit back onto the top of the saltstone monolith as the bit was being removed from the cell.

Figure 3.2-3: Core 2-2 View

Core 2-3

Core 2-3 was drilled from approximately 10 in. to a depth of approximately 14 in. Approximately 4 inches of the core was removed. The core appeared dark teal in color.

Figure 3.2-4: Core 2-3 View

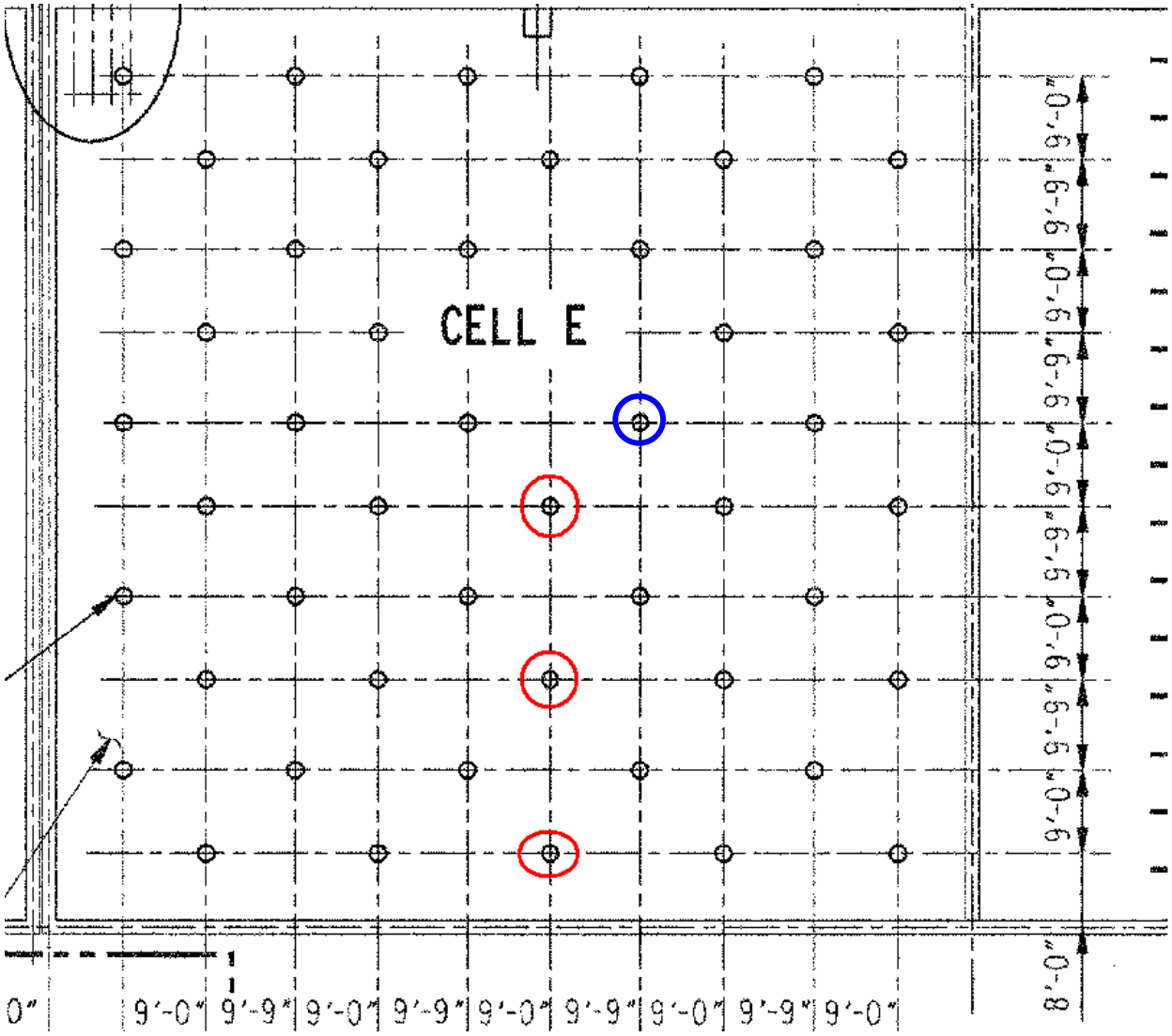
3.3 Core 3

Two cores from location 3 were obtained on Wednesday, September 17, 2008 and one on Thursday September 18, 2008 using the dry core technique at the request of SRNL. Radiological Control surveys are included in Appendix A. The general area dose rate for core 3 sample activities was recorded as 7 mRem/Hr. The maximum dose rate obtained from sample material removed from core location 3 on Sept. 18, 2008 was 2.5 mRem/Hr Extremity, 1 mRem/Hr Skin 1 mRem/Hr Whole Body and was found on the sample. The maximum transferable contamination levels detected within the glove bag on Sept. 18, 2008 were <200 dpm alpha / 100 cm^2 and 20,000 dpm beta-gamma / 100 cm^2.

3.3.1 Location

Core location 3 is was approximately 54 ft from the surface of the Vault 2 Cell E west wall as indicated by the blue circled area in Figure 3.3-1.

Figure 3.3-1: Core Location #3



3.3.2 Weather Conditions

Ambient weather conditions for September 17, 2008 and September 18, 2008 were recorded by the SRNL Atmospheric Technology Center are presented in Tables 3.2-1 and 3.3-1 respectively.

Table 3.3-1: Meteorological Data, September 18, 2008

Tower Location	Greenwich Mean Time	Dew Point (F)	DQ	Temp. (F)	DQ	Relative Humidity (%)	DQ
H	18SEP08:00:00	55.69	G	68.08	G	63.32	G
H	18SEP08:00:15	55.61	G	67.61	G	63.35	G
H	18SEP08:00:30	55.54	G	67.07	G	63.43	G
H	18SEP08:00:45	55.59	G	66.9	G	63.76	G
H	18SEP08:01:00	55.63	G	66.62	G	63.84	G
H	18SEP08:01:15	55.7	G	66.67	G	65.01	G
H	18SEP08:01:30	55.76	G	66.88	G	65.39	G
H	18SEP08:01:45	55.69	G	67	G	65.98	G
H	18SEP08:02:00	55.46	G	67.1	G	64.95	G
H	18SEP08:02:15	55.62	G	66.98	G	65.36	G
H	18SEP08:02:30	55.67	G	67.11	G	66.05	G
H	18SEP08:02:45	55.68	G	67.17	G	65.17	G
H	18SEP08:03:00	55.78	G	67.05	G	65.32	G
H	18SEP08:03:15	55.68	G	67.29	G	64.91	G
H	18SEP08:03:30	55.55	G	67.22	G	64.7	G
H	18SEP08:03:45	55.33	G	67.28	G	63.67	G
H	18SEP08:04:00	55.15	G	67.16	G	63.12	G
H	18SEP08:04:15	55.01	G	66.39	G	63.57	G
H	18SEP08:04:30	54.84	G	65.81	G	63.06	G
H	18SEP08:04:45	54.85	G	65.04	G	63.44	G
H	18SEP08:05:00	54.55	G	64.3	G	62.51	G
H	18SEP08:05:15	54.64	G	63.81	G	63.69	G
H	18SEP08:05:30	54.74	G	63.4	G	63.96	G
H	18SEP08:05:45	55	G	63.63	G	65.51	G
H	18SEP08:06:00	54.64	G	64	G	63.84	G
H	18SEP08:06:15	54.74	G	63.91	G	64.97	G
H	18SEP08:06:30	54.61	G	64.03	G	65.97	G
H	18SEP08:06:45	54.59	G	64.3	G	66.81	G
H	18SEP08:07:00	54.62	G	64.76	G	67.3	G
H	18SEP08:07:15	54.62	G	64.81	G	66.87	G
H	18SEP08:07:30	54.8	G	64.94	G	67.39	G
H	18SEP08:07:45	54.96	G	65.03	G	67.81	G
H	18SEP08:08:00	55.2	G	65.01	G	68.43	G
H	18SEP08:08:15	55.21	G	64.67	G	69.49	G
H	18SEP08:08:30	55.25	G	64.83	G	69.75	G
H	18SEP08:08:45	55.22	G	64.87	G	70.22	G
H	18SEP08:09:00	55.12	G	64.77	G	70.37	G
H	18SEP08:09:15	54.95	G	65.07	G	69.81	G
H	18SEP08:09:30	54.85	G	65.3	G	69.52	G
H	18SEP08:09:45	54.75	G	65.48	G	69.27	G
H	18SEP08:10:00	54.44	G	65.65	G	68.22	G

Table 3.3-1: Meteorological Data, September 18, 2008 (Continued)

Tower Location	Greenwich Mean Time	Dew Point (F)	DQ	Temp. (F)	DQ	Relative Humidity (%)	DQ
H	18SEP08:10:15	54.01	G	65.78	G	67.16	G
H	18SEP08:10:30	53.66	G	65.4	G	66.8	G
H	18SEP08:10:45	53.28	G	64.88	G	66.29	G
H	18SEP08:11:00	53.01	G	64.88	G	66.13	G
H	18SEP08:11:15	52.9	G	64.94	G	66.25	G
H	18SEP08:11:30	52.89	G	64.88	G	66.65	G
H	18SEP08:11:45	52.81	G	65.04	G	66.47	G
H	18SEP08:12:00	52.86	G	64.94	G	66.68	G
H	18SEP08:12:15	52.93	G	65.09	G	66.79	G
H	18SEP08:12:30	53.16	G	65.96	G	66.34	G
H	18SEP08:12:45	53.15	G	66.34	G	64.72	G
H	18SEP08:13:00	53.35	G	67.26	G	63.45	G
H	18SEP08:13:15	53.12	G	67.48	G	61.08	G
H	18SEP08:13:30	53.78	G	68.82	G	60.42	G
H	18SEP08:13:45	53.66	G	69.4	G	60.27	G
H	18SEP08:14:00	54.05	G	69.88	G	60.03	G
H	18SEP08:14:15	54.79	G	71.25	G	59	G
H	18SEP08:14:30	54.33	G	72.43	G	56.5	G
H	18SEP08:14:45	55.09	G	73.68	G	56.53	G
H	18SEP08:15:00	54.75	G	73.21	G	54.88	G
H	18SEP08:15:15	54.26	G	73.39	G	53.17	G
H	18SEP08:15:30	54.39	G	74.96	G	52.32	G
H	18SEP08:15:45	54.37	G	74.37	G	53.27	G
H	18SEP08:16:00	54.91	G	74.42	G	54.04	G
H	18SEP08:16:15	56.29	G	77.2	G	54.01	G
H	18SEP08:16:30	56.55	G	77.01	G	54.18	G
H	18SEP08:16:45	57	G	78.46	G	53.27	G
H	18SEP08:17:00	57.63	G	79.62	G	52.82	G
H	18SEP08:17:15	57.94	G	80.37	G	52.47	G
H	18SEP08:17:30	57.84	G	80.46	G	51.91	G
H	18SEP08:17:45	57.74	G	81.28	G	50.56	G
H	18SEP08:18:00	57.75	G	81.19	G	50.32	G
H	18SEP08:18:15	57.77	G	80.44	G	49.91	G
H	18SEP08:18:30	57.31	G	79.12	G	49.52	G
H	18SEP08:18:45	57.65	G	80.5	G	49.63	G
H	18SEP08:19:00	58.12	G	80.96	G	49.24	G
H	18SEP08:19:15	57.35	G	80.01	G	48.44	G
H	18SEP08:19:30	57.58	G	79.19	G	49.58	G
H	18SEP08:19:45	57.78	G	79.76	G	48.85	G
H	18SEP08:20:00	57.92	G	80.5	G	48.51	G
H	18SEP08:20:15	57.31	G	79.95	G	47.61	G

Table 3.3-1: Meteorological Data, September 18, 2008 (Continued)

Tower Location	Greenwich Mean Time	Dew Point (F)	DQ	Temp. (F)	DQ	Relative Humidity (%)	DQ
H	18SEP08:20:30	57.08	G	80.13	G	47.12	G
H	18SEP08:20:45	57.7	G	80.17	G	47.34	G
H	18SEP08:21:00	57.19	G	78.37	G	48.21	G
H	18SEP08:21:15	57.73	G	78.26	G	48.11	G
H	18SEP08:21:30	57.53	G	78.79	G	48.16	G
H	18SEP08:21:45	57.64	G	77.14	G	48.91	G
H	18SEP08:22:00	57.93	G	76.05	G	49.78	G
H	18SEP08:22:15	57.6	G	75.34	G	49.36	G
H	18SEP08:22:30	57.59	G	74.88	G	49.73	G
H	18SEP08:22:45	57.28	G	74.18	G	50.16	G
H	18SEP08:23:00	56.79	G	73.34	G	49.4	G
H	18SEP08:23:15	56.68	G	72.48	G	49.41	G
H	18SEP08:23:30	56.83	G	71.78	G	50.09	G
H	18SEP08:23:45	57	G	71.09	G	50.68	G

3.3.3 Core Conditions

Cores 3-1 and 3-2 were drilled Wednesday, September 17 and core 3-3 was drilled Thursday, September 18. All cores from location 3 were drilled using the dry technique at the request of SRNL. The core drill crew noted that core location 3 was significantly different from the other locations in that it seemed easier to drill than the core 1 location and the team was able to retrieve the cores from the bit. The drill crew noted that it was not valid to compare the ease of drilling to core location 2 since these were obtained using the wet method.

Core 3-1

Core 3-1 was drilled from the top of the saltstone surface to a depth of approximately 6 in. Approximately 4 inches of core material was removed from the saltstone using a sample retrieval tool along with approximately 2 in of crumbly material. The core material appeared teal in color.

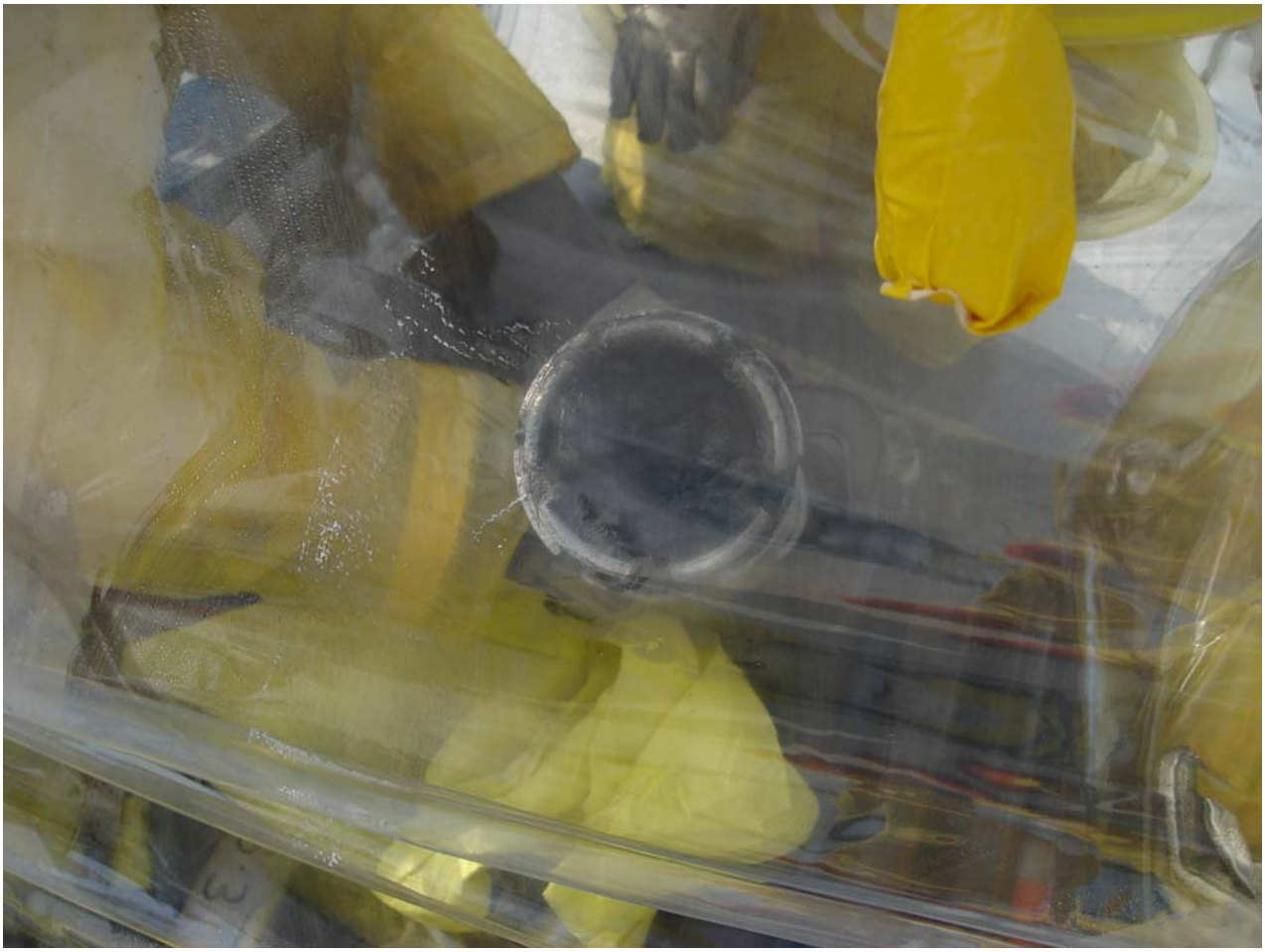
Core 3-2

Core 3-2 was drilled from approximately 6 in. to a depth of approximately 13 in. Approximately 6 inches of the core was removed but broke into a 4" and 2" section during removal from the bit. The core material appeared olive green in color.

Core 3-3

Core 3-3 was drilled from approximately 13 in. to a depth of approximately 20 in. Approximately 6 inches of the core was removed from the bit. The core material appeared olive green in color.

Figure 3.3-2: Core 3 View



Appendix A: Grout Sampling Surveys

VSDS Standard Map RSLS

Survey DWPF-M-20080915-7

General Information

Title: Saltstone Vault 4 - Cell E Grout Sampling

Survey Date/Time: 09/15/2008 15:30
Lead Inspector: JONES, ROSA M
Survey Type: Job Coverage
Work Order/Task #: 871023
Counted By: Facility Inspector
KCN: w7862
RWP #: 08-ZZZ-007
Facility: ZZZ
Status: Approved by: KISSIAH, STEPHANIE RHODES, 09/16/2008
Ready For Review by: DAVIS, THERESA ANN, 09/16/2008

Additional Inspectors

Inspector	Cmp Alt	Approve
BRAXTON, CARL O'NEAL JR	w6865	☑

Dose Rate (DR) Object Prefixes/Suffixes

Dose Rates with Prefixes:	Dose Rates with No Prefixes:	Default Prefixes:	Default Suffixes:
E = Extrem		HS = Hot Spot	"n" = Neutron
GA = GA WB			"b" = Beta
S = Skin			"c" = Corrected

Postings Legend

CA=Contamination Area
RA=Radiation Area

Instruments Used

#	Instrument Model	Instrument Serial #
1	12-110	3781
2	12-110	3712
3	12-Alpha	6913
4	RO-20	CMC008425
5	HandECount	CMC011378

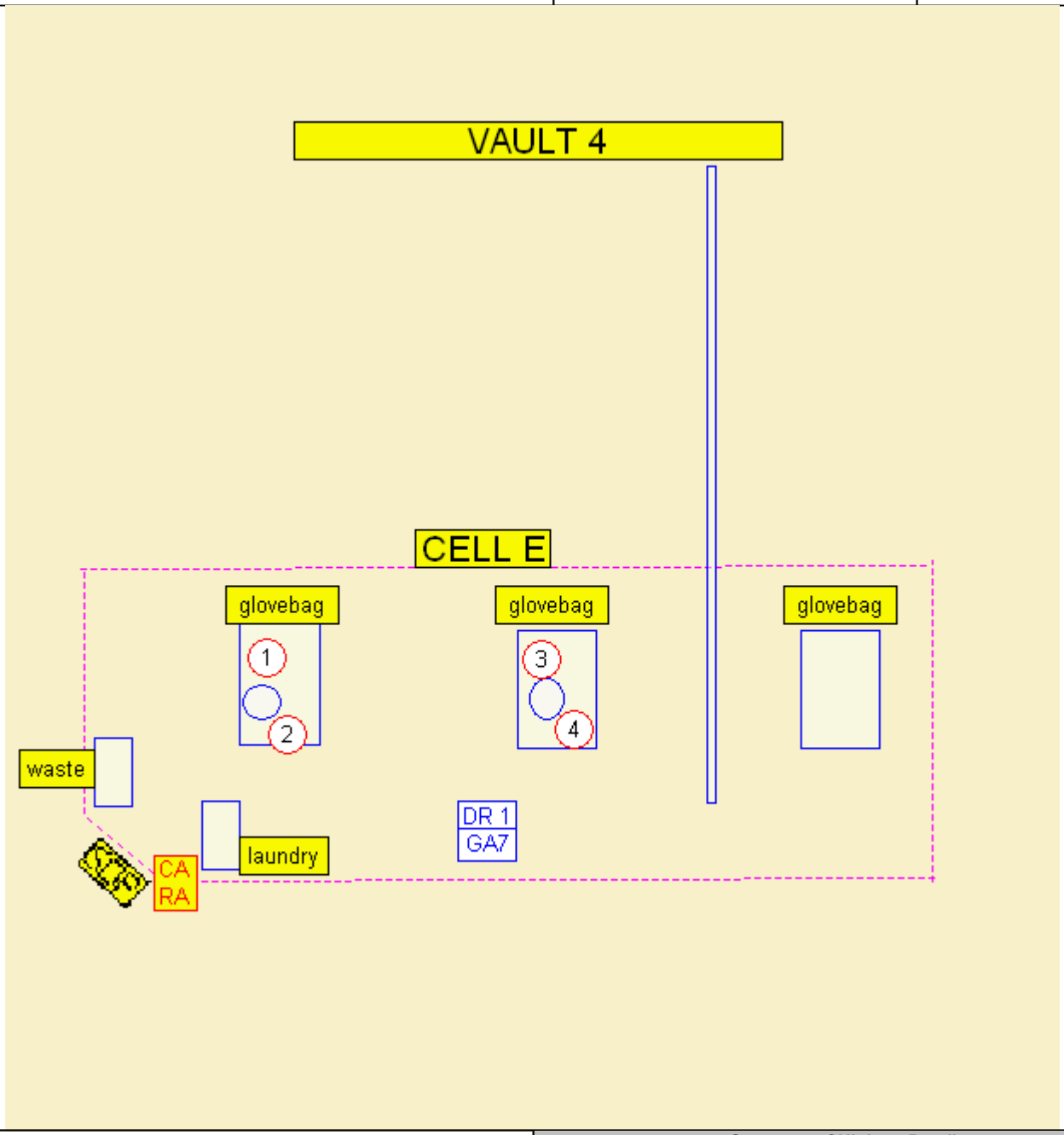
VSDS Standard Map RSLS

Comments:

Performed set-up work for SRNL to do grout sampling on Vault 4 Cell E in three (3) different ports. Work to begin on Tuesday. One glovebag was certified on today and certification paperwork (OSR 4-863) was placed in work package. All smears of area during cap removal were <20 d/m alpha, <200 d/m beta-gamma/100cm2. Dose rate in the area was 7 mrem/hr general area. Approximately 1500 ft2. from RBA to RA/CA for work.

VSDS Standard Map RSLS

BLANK MAP	Survey #: DWPF-M-20080915-7	Date/Time: 09/15/2008 15:30



Comments:

Summary of Highest Readings
(All available values may not be listed)

Smears	Air Samples & Wipes
4) <20 DPM/100 cm2 α 4) <200 DPM/100 cm2 β/γ	

Type: Job Coverage

Symbol Legend (for example only) RWP #: 08-ZZZ-007

15 Smear
15 Large Area
15 Air Sample
15 Direct Probe
DR Dose Rate

Unless otherwise noted, dose rates in mrem/hr.

Lead Inspector: JONES, ROSA M

Status: Approved by: KISSIAH, STEPHANIE RHODES, 09/16/2008

Location Code: S221000

Bldg/Area Name: MISCELLANEOUS

Location Description: BLANK MAP

Data Point Details

Survey #: DWPF-M-20080915-7

Map: COMMON\MISCELLANEOUS\BLANK MAP

#	Type	Inst.	Value	Units	Position	Notes
1	DR γ	N/A	GA 7	mrem/hr		
1	Smear	N/A	α <20	DPM/100 cm2	Sample port cap area	
		N/A	β/γ <200	DPM/100 cm2		
2	Smear	N/A	α <20	DPM/100 cm2	Sample port cap area	
		N/A	β/γ <200	DPM/100 cm2		
3	Smear	N/A	α <20	DPM/100 cm2	Sample port Cap area	
		N/A	β/γ <200	DPM/100 cm2		
4	Smear	N/A	α <20	DPM/100 cm2	Sample port cap area	
		N/A	β/γ <200	DPM/100 cm2		
	Text		VAULT 4			
	Text		CELL E			
	Text		waste			
	Text		laundry			
	Text		glovebag			
	Text		glovebag			
	Text		glovebag			
	Posting		CA RA		Cell E Grout Sampling Area	

VSDS Standard Map RSLS

Survey DWPF-M-20080916-2

General Information

Title: Saltstone Vault 4 - Cell E Grout Sampling

Survey Date/Time: 09/16/2008 07:35

Survey Type: Job Coverage

Counted By: Facility Inspector

RWP #: 08-ZZZ-136

Facility: ZZZ

Status: Approved by: KISSIAH, STEPHANIE RHODES, 09/16/2008

Lead Inspector: HICKS, ROBERT HUGHES

Work Order/Task #: 871023

KCN: w8955

Ready For Review by: LILLY, KEVIN BRUCE, 09/16/2008

Additional Inspectors

Inspector	Cmp Alt	Approve
BRAXTON, CARL O'NEAL JR	w6865	☑

Dose Rate (DR) Object Prefixes/Suffixes

Dose Rates with Prefixes:
E = Extrem
GA = GA WB
S = Skin

Dose Rates with No Prefixes:

Default Prefixes:
HS = Hot Spot

Default Suffixes:
"n" = Neutron
"b" = Beta
"c" = Corrected

Postings Legend

CA=Contamination Area

RA=Radiation Area

Instruments Used

#	Instrument Model	Instrument Serial #
1	12-110	CMC003662
2	12-110	3712
3	12-Alpha	CMC006862
4	12-Alpha	CMC006718
5	RO-20	CMC008425
6	RO-20	CMC007974

Comments:

Performed survey for SRNL to perform Core grout sampling on Cell E.
All sampling performed inside of certified glove bag.
PAS sampling performed during all sampling activities.

Max. Dose Rate: found was on drill bit of 2.5/E,1/S,1WB mRem/hr. General dose rate for area was 7/GA mRem/hr.
Max. Large Area: ND alpha, 40,000 dpm beta-gamma (interior of glovebag)
Max. Transferable contamination: <200 dpm alpha, 40,000 dpm beta-gamma/ 100cm2 (interior of glovebag)

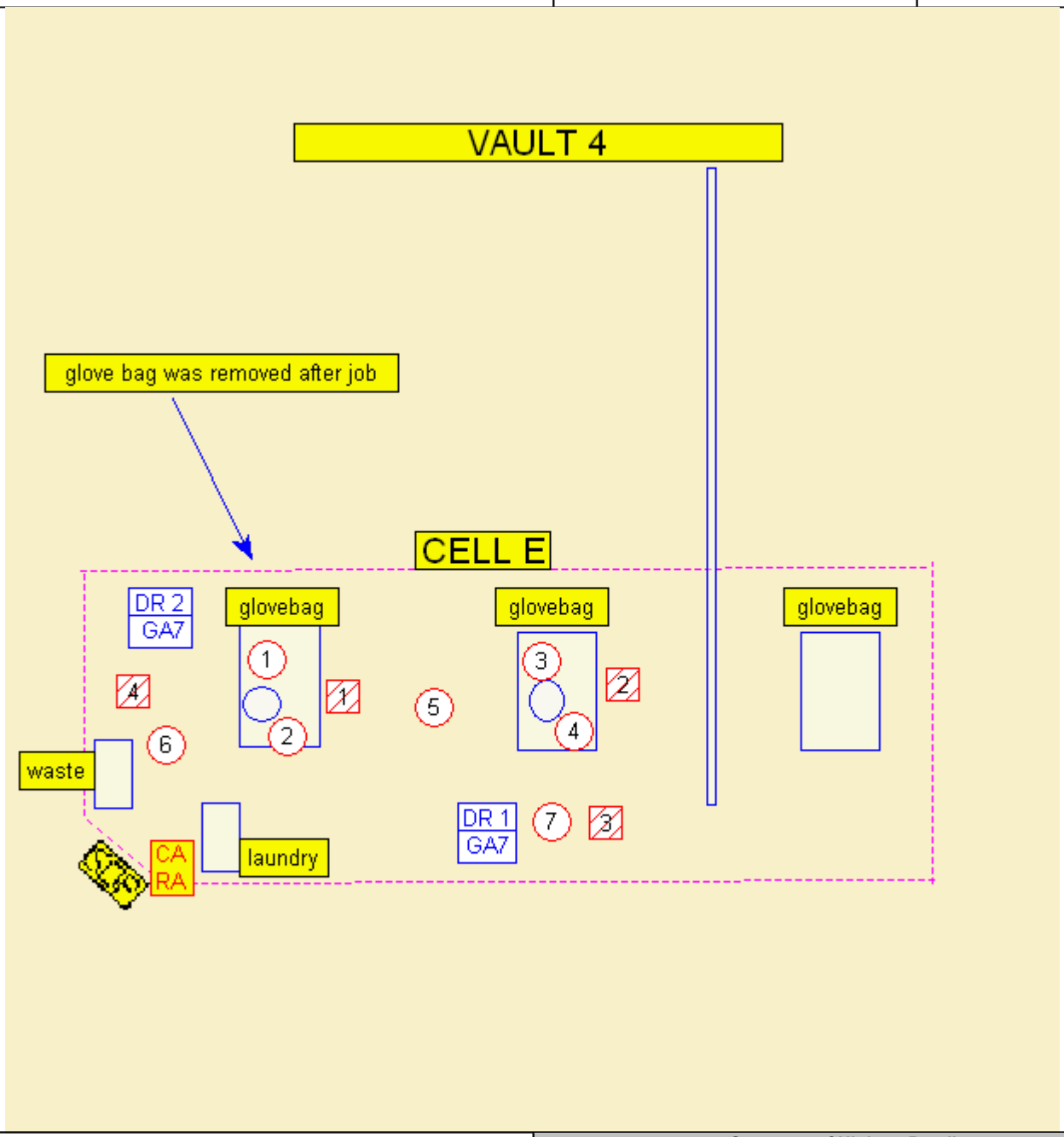
Installed inspection camera in 3" port adjacent to sample port for visual inspection.
Core drill twist sealed cut and taped and removed from glovebag.
Glovebag was removed from sample port and bagged, tagged and is awaiting disposal in CA.
All smears were < 200 d/m alpha, < 1000 d/m beta gamma / 100 cm2.

Removed three samples taken from 451-4Z vault and two drill bits with partial samples. Max rate for all was 2.5/E,1/S,1/WB mRem/hr. All samples were doubled bagged and transported to RCO countroom and stored in hood per Operations request. All disc smears were < 20d/m alpha, < 200 d/m beta gamma / 100 cm2.

All RCO Action steps were completed within work package.

VSDS Standard Map RSLS

Map: 1	BLANK MAP	Survey #: DWPF-M-20080916-2	Date/Time: 09/16/2008 07:35



Comments:

Summary of Highest Readings
(All available values may not be listed)

Smears	Air Samples & Wipes
7) <200 DPM/100 cm2 α	Wipe 4) ND DPM/Wipe α
7) <1000 DPM/100 cm2 β/γ	Wipe 4) ND DPM/Wipe β/γ

Type: Job Coverage

Symbol Legend (for example only) RWP #: 08-ZZZ-136

15 Smear
15 Large Area
15 Air Sample
15 Direct Probe
DR Dose Rate

Unless otherwise noted, dose rates in mrem/hr.

Lead Inspector: HICKS, ROBERT HUGHES

Status: Approved by: KISSIAH, STEPHANIE RHODES, 09/16/2008

Location Code: S221000

Bldg/Area Name: MISCELLANEOUS

Location Description: BLANK MAP

Data Point Details

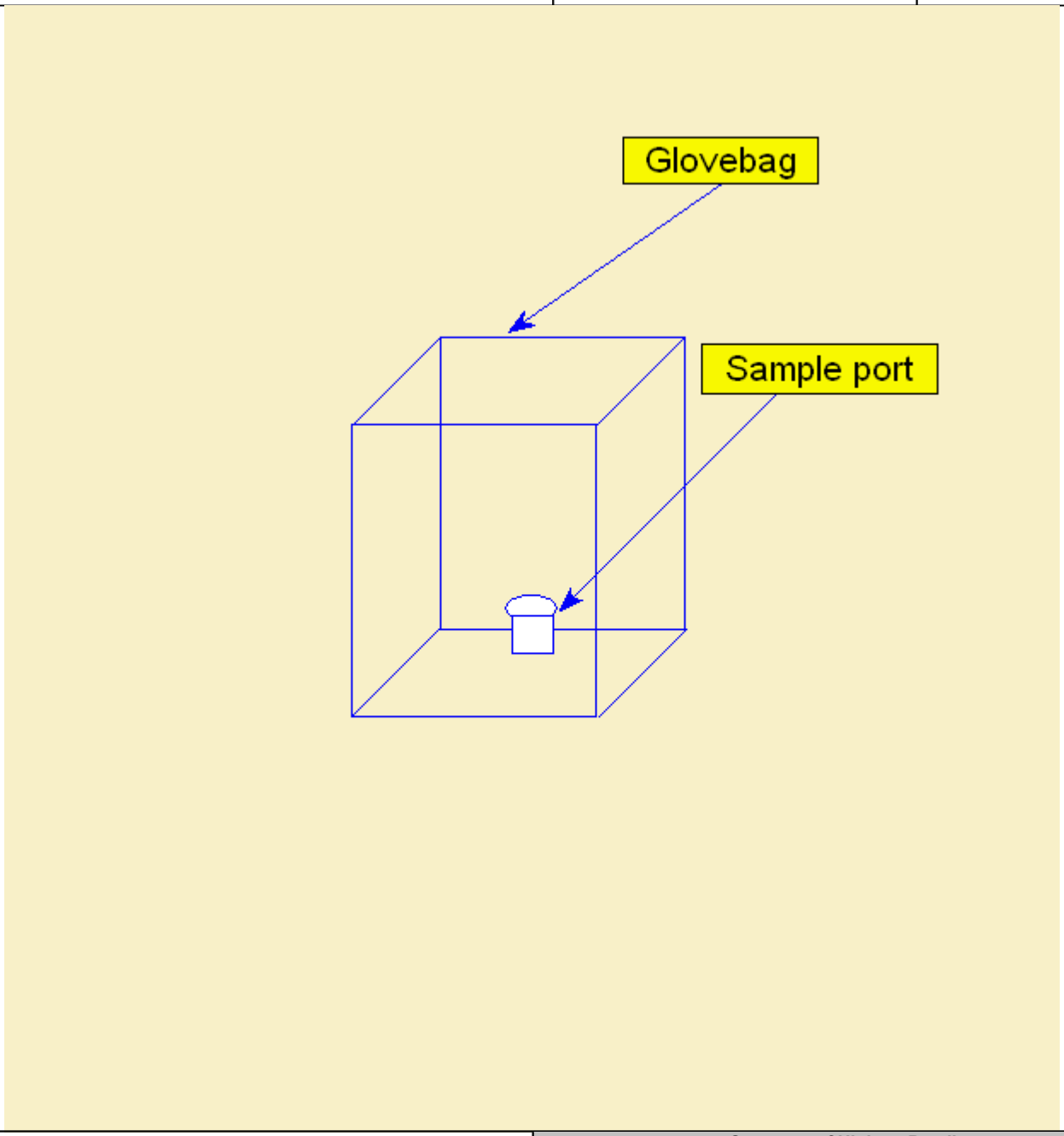
Survey #: DWPF-M-20080916-2

Map: 1 - COMMON\MISCELLANEOUS\BLANK MAP

#	Type	Inst.	Value	Units	Position	Notes
1	DR γ	N/A	GA 7	mrem/hr	General Area	
2	DR γ	N/A	GA 7	mrem/hr	general work area	
1	Smear	N/A	α <200	DPM/100 cm2	glove bag (outside)	
		N/A	β/γ <1000	DPM/100 cm2		
2	Smear	N/A	α <200	DPM/100 cm2	glove bag (outside)	
		N/A	β/γ <1000	DPM/100 cm2		
3	Smear	N/A	α <200	DPM/100 cm2	glove bag outside	
		N/A	β/γ <1000	DPM/100 cm2		
4	Smear	N/A	α <200	DPM/100 cm2	glove bag outside	
		N/A	β/γ <1000	DPM/100 cm2		
5	Smear	N/A	α <200	DPM/100 cm2	roof	
		N/A	β/γ <1000	DPM/100 cm2		
6	Smear	N/A	α <200	DPM/100 cm2	roof	
		N/A	β/γ <1000	DPM/100 cm2		
7	Smear	N/A	α <200	DPM/100 cm2	roof	
		N/A	β/γ <1000	DPM/100 cm2		
1	Wipe		α ND	DPM/Wipe	glove bag outside	
			β/γ ND	DPM/Wipe		
2	Wipe		α ND	DPM/Wipe	glove bag outside	
			β/γ ND	DPM/Wipe		
3	Wipe		α ND	DPM/Wipe	roof	
			β/γ ND	DPM/Wipe		
4	Wipe		α ND	DPM/Wipe	roof	
			β/γ ND	DPM/Wipe		
	Text		VAULT 4			
	Text		CELL E			
	Text		waste			
	Text		laundry			
	Text		glovebag			
	Text		glovebag			
	Text		glovebag			
	Text		glove bag was removed after job			Glove bag was removed after job. All smears were < 200 d/m alpha, < 1000 d/m beta gamma / 100cm2
	Posting		CA RA		Cell Grout sampling area	

VSDS Standard Map RSLS

Map: 2	BLANK MAP	Survey #: DWPF-M-20080916-2	Date/Time: 09/16/2008 07:35



Comments:

Summary of Highest Readings
(All available values may not be listed)

Smears	Air Samples & Wipes

Type: Job Coverage

Symbol Legend (for example only) RWP #: 08-ZZZ-136

15 Smear
15 Large Area
15 Air Sample
15 Direct Probe
DR Dose Rate

Unless otherwise noted, dose rates in mrem/hr.

Lead Inspector: HICKS, ROBERT HUGHES

Status: Approved by: KISSIAH, STEPHANIE RHODES, 09/16/2008

Location Code: S221000

Bldg/Area Name: MISCELLANEOUS

Location Description: BLANK MAP

Data Point Details

Survey #: DWPF-M-20080916-2

Map: 2 - COMMON\MISCELLANEOUS\BLANK MAP

#	Type	Inst.	Value	Units	Position	Notes
	Text		Glovebag			
	Text		Sample port			

VSDS Standard Map RSLS

Survey DWPF-M-20080917-2

General Information

Title: Saltstone Vault 4 - Cell E Grout Sampling

Survey Date/Time: 09/17/2008 10:10

Survey Type: Job Coverage

Counted By: Facility Inspector

RWP #: 08-ZZZ-136

Facility: ZZZ

Status: Approved by: KISSIAH, STEPHANIE RHODES, 09/18/2008

Lead Inspector: HICKS, ROBERT HUGHES

Work Order/Task #: 871023

KCN: w8955

Ready For Review by: BRAXTON, CARL, 09/18/2008

Additional Inspectors

Inspector	Cmp Alt	Approve
BRAXTON, CARL	w6865	☑

Dose Rate (DR) Object Prefixes/Suffixes

Dose Rates with Prefixes:	Dose Rates with No Prefixes:	Default Prefixes:	Default Suffixes:
E = Extrem	W Body	HS = Hot Spot	"n" = Neutron
GA = GA WB			"b" = Beta
S = Skin			"c" = Corrected

Postings Legend

CA=Contamination Area

RA=Radiation Area

Instruments Used

#	Instrument Model	Instrument Serial #
1	12-110	CMC003662
2	12-110	3712
3	12-Alpha	CMC006718
4	RO-20	CMC008425
5	RO-20	CMC007974

Comments:

Performed survey for SRNL to continue Core grout sampling on Cell E. A total of five samples were pulled.
All sampling performed inside of certified glove bag. PAS sampling performed during all sampling activities.

Max. Dose Rate: found was 3.0/E,1/S,1WB mRem/hr on samples. General dose rate for area was 7/GA mRem/hr.
Max. Large Area: ND alpha, 100,000 dpm beta-gamma (interior of glovebag)
Max. Transferable contamination: <200 dpm alpha, 80,000 dpm beta-gamma/ 100cm2 (interior of glovebag floor)

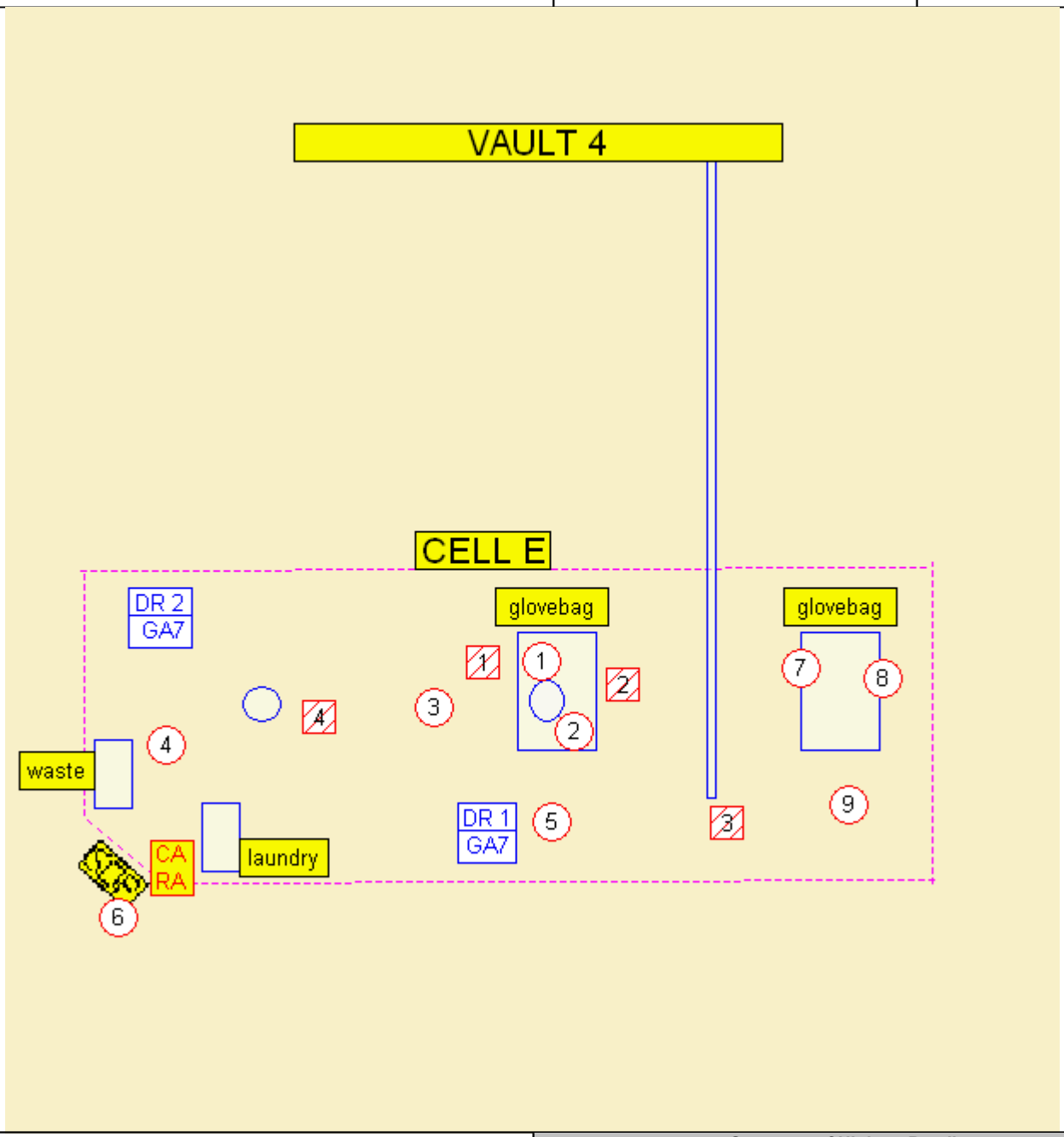
Core drill twist sealed cut and taped and removed from glovebag from glovebag #2 and installed in glove bag #3.
all smears were < 200 d/m alpha, < 1000 d/m beta gamma/ 100 cm2
Glovebag was removed from sample port and bagged, tagged and is awaiting disposal in CA.
All smears were < 200 d/m alpha, < 1000 d/m beta gamma / 100 cm2.

Removed five samples taken from 451-4Z vault. Max rate for all was
3.0/E,1/S,1/WB mRem/hr. All samples were double bagged and transported to RCO countroom and stored in hood
per Operations request. All disc smears were < 20d/m alpha, < 200 d/m beta gamma / 100 cm2 on outside of bagged samples.

All RCO Action steps were completed within work package.

VSDS Standard Map RSLS

Map: 1	BLANK MAP	Survey #: DWPF-M-20080917-2	Date/Time: 09/17/2008 10:10



Comments:

Summary of Highest Readings
(All available values may not be listed)

Smears	Air Samples & Wipes
9) <200 DPM/100 cm2 α	Wipe 4) ND DPM/Wipe α
9) <1000 DPM/100 cm2 β/γ	Wipe 4) ND DPM/Wipe β/γ

Type: Job Coverage

Symbol Legend (for example only) RWP #: 08-ZZZ-136

15 Smear
15 Large Area
15 Air Sample
15 Direct Probe
DR Dose Rate

Unless otherwise noted, dose rates in mrem/hr.

Lead Inspector: HICKS, ROBERT HUGHES

Status: Approved by: KISSIAH, STEPHANIE RHODES, 09/18/2008

Location Code: S221000

Bldg/Area Name: MISCELLANEOUS

Location Description: BLANK MAP

Data Point Details

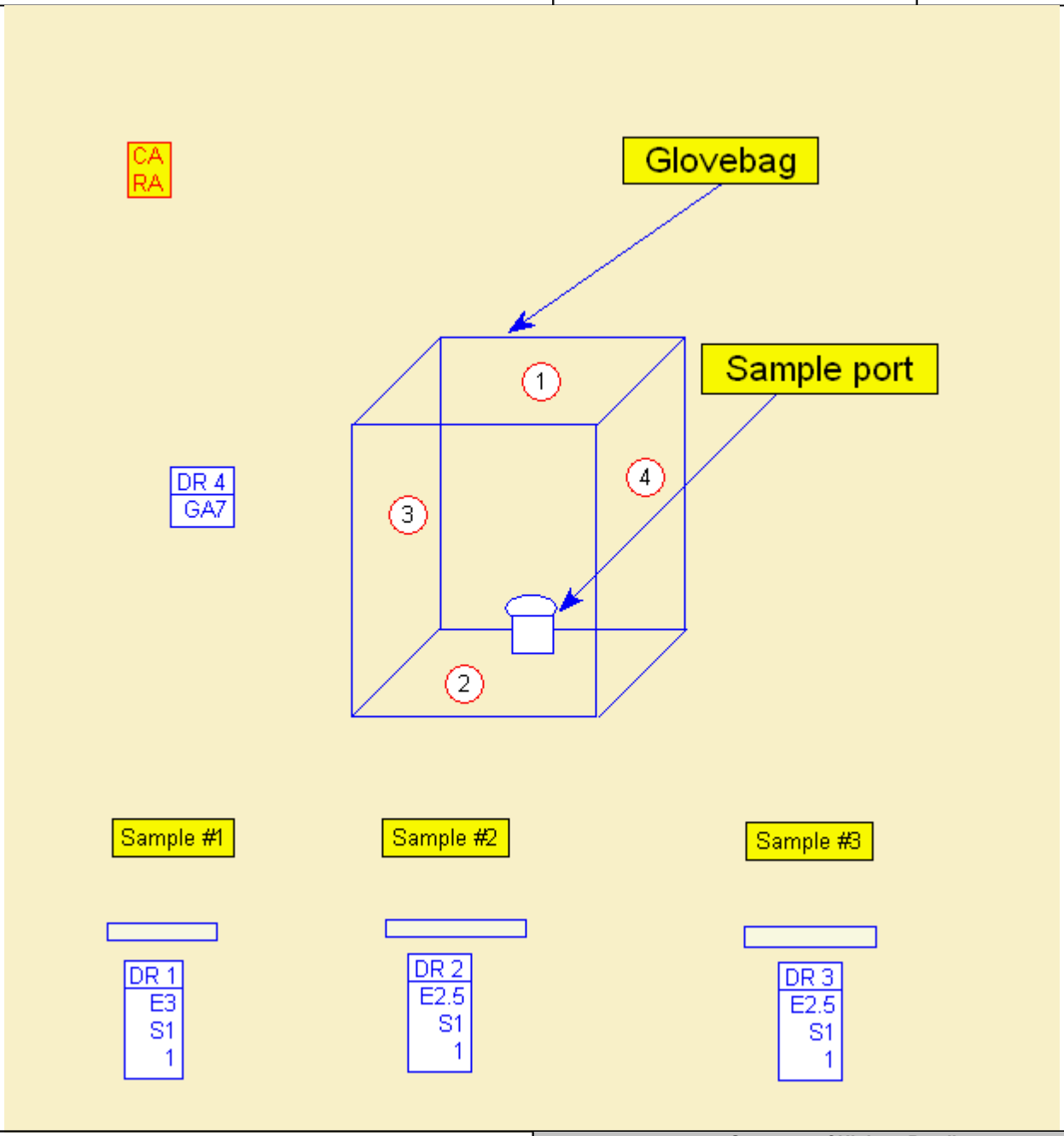
Survey #: DWPF-M-20080917-2

Map: 1 - COMMON\MISCELLANEOUS\BLANK MAP

#	Type	Inst.	Value	Units	Position	Notes
1	DR γ	N/A	GA 7	mrem/hr	General Area	
2	DR γ	N/A	GA 7	mrem/hr	general work area	
1	Smear	N/A	α <200	DPM/100 cm2	glove bag outside	
		N/A	β/γ <1000	DPM/100 cm2		
2	Smear	N/A	α <200	DPM/100 cm2	glove bag outside	
		N/A	β/γ <1000	DPM/100 cm2		
3	Smear	N/A	α <200	DPM/100 cm2	roof	
		N/A	β/γ <1000	DPM/100 cm2		
4	Smear	N/A	α <200	DPM/100 cm2	roof	
		N/A	β/γ <1000	DPM/100 cm2		
5	Smear	N/A	α <200	DPM/100 cm2	roof	
		N/A	β/γ <1000	DPM/100 cm2		
6	Smear	N/A	α <20	DPM/100 cm2	SOP	
		N/A	β/γ <200	DPM/100 cm2		
		N/A	Tritium N/A	DPM/100 cm2		
7	Smear	N/A	α <200	DPM/100 cm2	glove bag outside	
		N/A	β/γ <1000	DPM/100 cm2		
8	Smear	N/A	α <200	DPM/100 cm2	glove bag outside	
		N/A	β/γ <1000	DPM/100 cm2		
9	Smear	N/A	α <200	DPM/100 cm2	roof	
		N/A	β/γ <1000	DPM/100 cm2		
1	Wipe		α ND	DPM/Wipe	glove bag outside	
			β/γ ND	DPM/Wipe		
2	Wipe		α ND	DPM/Wipe	glove bag outside	
			β/γ ND	DPM/Wipe		
3	Wipe		α ND	DPM/Wipe	roof	
			β/γ ND	DPM/Wipe		
4	Wipe		α ND	DPM/Wipe	roof	
			β/γ ND	DPM/Wipe		
	Text		VAULT 4			
	Text		CELL E			
	Text		waste			
	Text		laundry			
	Text		glovebag			
	Text		glovebag			
	Posting		CA RA		Cell Grout sampling area	

VSDS Standard Map RSLS

Map: 2	BLANK MAP	Survey #: DWPF-M-20080917-2	Date/Time: 09/17/2008 10:10



Comments:

Summary of Highest Readings
(All available values may not be listed)

Smears	Air Samples & Wipes
4) <200 DPM/100 cm2 α 2) 80000 DPM/100 cm2 β/γ	

Type: Job Coverage

Symbol Legend (for example only) RWP #: 08-ZZZ-136

15 Smear
15 Large Area
15 Air Sample
15 Direct Probe
DR Dose Rate

Unless otherwise noted, dose rates in mrem/hr.

Lead Inspector: HICKS, ROBERT HUGHES

Status: Approved by: KISSIAH, STEPHANIE RHODES, 09/18/2008

Location Code: S221000

Bldg/Area Name: MISCELLANEOUS

Location Description: BLANK MAP

Data Point Details

Survey #: DWPF-M-20080917-2

Map: 2 - COMMON\MISCELLANEOUS\BLANK MAP

#	Type	Inst.	Value	Units	Position	Notes
1	DR γ	N/A	E 3	mrem/hr	sample holder	
		N/A	S 1	mrem/hr		
		N/A	1	mrem/hr		
2	DR γ	N/A	E 2.5	mrem/hr	sample holder	
		N/A	S 1	mrem/hr		
		N/A	1	mrem/hr		
3	DR γ	N/A	E 2.5	mrem/hr	sample holder	
		N/A	S 1	mrem/hr		
		N/A	1	mrem/hr		
4	DR γ	N/A	GA 7	mrem/hr	vault work area	
1	Smear	N/A	α <200	DPM/100 cm2	Interior of glovebag	background for area
		N/A	β/γ 10000	DPM/100 cm2		
		N/A	Tritium N/A	DPM/100 cm2		
2	Smear	N/A	α <200	DPM/100 cm2	Interior of glovebag	floor of glovebag
		N/A	β/γ 80000	DPM/100 cm2		
		N/A	Tritium N/A	DPM/100 cm2		
3	Smear	N/A	α <200	DPM/100 cm2	Interior of glovebag	background for area
		N/A	β/γ 10000	DPM/100 cm2		
		N/A	Tritium N/A	DPM/100 cm2		
4	Smear	N/A	α <200	DPM/100 cm2	Interior of glovebag	background for area
		N/A	β/γ 10000	DPM/100 cm2		
		N/A	Tritium N/A	DPM/100 cm2		
	Text		Glovebag			
	Text		Sample port			
	Text		Sample #1			
	Text		Sample #2			
	Text		Sample #3			
	Posting		CA RA		Cell E Grout Sampling Area	

VSDS Standard Map RSLS

Survey DWPF-M-20080918-7

General Information

Title: Saltstone Vault 4 - Cell E Grout Sampling

Survey Date/Time: 09/18/2008 14:02
Lead Inspector: BRAXTON, CARL
Survey Type: Job Coverage
Work Order/Task #: 871023
Counted By: Facility Inspector
KCN: w6865
RWP #: 08-ZZZ-136
Facility: ZZZ
Status: Approved by: KISSIAH, STEPHANIE RHODES, 09/18/2008
Ready For Review by: HICKS, ROBERT HUGHES, 09/18/2008

Additional Inspectors

Inspector	Cmp Alt	Approve
HICKS, ROBERT HUGHES	w8955	☑

Dose Rate (DR) Object Prefixes/Suffixes

Dose Rates with Prefixes:	Dose Rates with No Prefixes:	Default Prefixes:	Default Suffixes:
E = Extrem	W Body	HS = Hot Spot	"n" = Neutron
GA = GA WB			"b" = Beta
S = Skin			"c" = Corrected

Postings Legend

CA=Contamination Area
RA=Radiation Area

Instruments Used

#	Instrument Model	Instrument Serial #
1	12-110	CMC003662
2	12-110	CMC003712
3	12-Alpha	CMC006718
4	RO-20	CMC008425
5	HandECount	CMC002729
6	HandECount	CMC004656
7	HandECount	CMC010411
8	HandECount	CMC010413
9	HandECount	CMC011296
10	HandECount	CMC011377
11	Electra Plus	CMC011378

Comments:

Performed survey for SRNL to complete last Core grout sampling on Cell E. All sampling performed inside of certified glove bag. PAS sampling performed during all sampling activities.

Max. Dose Rate: found was 2.5 /E,1/S,1WB mRem/hr @ samples. General dose rate for area was 7/GA mRem/hr.
Max. Large Area: ND alpha, 40,000 dpm beta-gamma (interior of glovebag)
Max. Transferable contamination: <200 dpm alpha, 20,000 dpm beta-gamma/ 100cm2 (interior of glovebag floor)

Core drill was b-lined cut and taped and removed from glovebag #3. Flex hose was removed from drill
inside of Rad bag and threaded end was bagged and tagged. Unit was disc smeared, all results were < 20 d/m alpha
< 200 d/m beta gamma/ 100 cm2. Pipe located on end of drill was hollow and was not accessible for survey or decon
and end was doubled bagged and tagged. All disc smears were <20 d/m alpha, < 200 d/m beta gamma / 100 cm2.
Max direct probe results for drill unit which was doubled bagged was ND for alpha and beta gamma. Unit was transported to RMA sealand for storage.

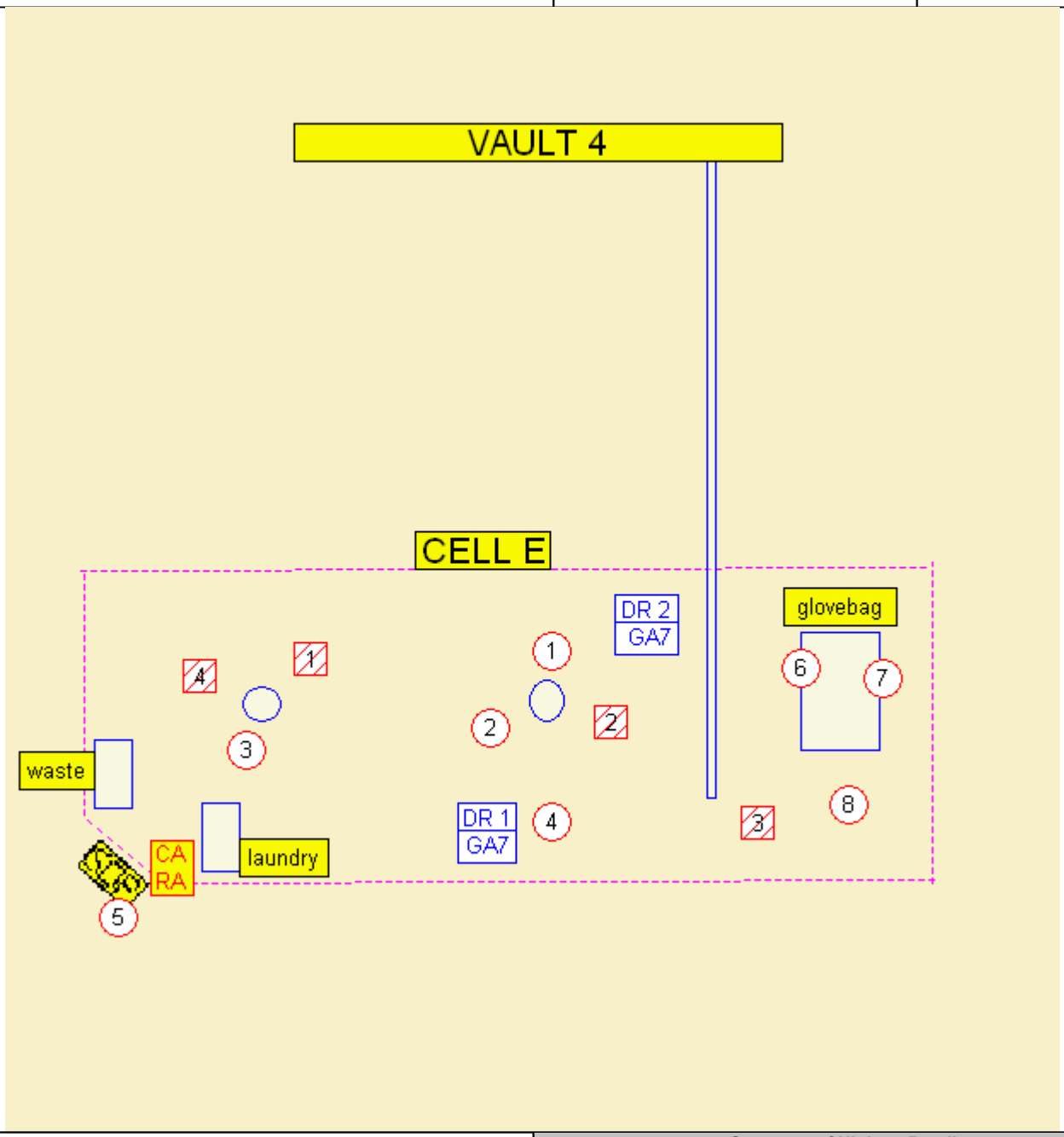
Glovebag was removed from sample port and bagged, tagged. All smears were < 200 d/m alpha, < 1000 d/m beta gamma / 100 cm2. At completion of job all sample ports / vault floor were disc smeared, all results were < 20 d/m alpha, < 200 d/m beta gamma/100 cm2. All tools clothing and waste recepticals were surveyed and approximately 1500 sq. ft. was rolled back from Radiation/Contamination to Radiation area. Shift manager was notified.

All waste and laundry bags were doubled bagged, tagged and flown down from roof area and waste was placed into B-25 located on East side.

All RCO Action steps were completed within work package.

VSDS Standard Map RSLS

Map: 1	BLANK MAP	Survey #: DWPF-M-20080918-7	Date/Time: 09/18/2008 14:02



Comments:

Summary of Highest Readings
(All available values may not be listed)

Smears	Air Samples & Wipes
8) <200 DPM/100 cm2 α	Wipe 4) ND DPM/Wipe α
8) <1000 DPM/100 cm2 β/γ	Wipe 4) ND DPM/Wipe β/γ

Type: Job Coverage

Symbol Legend (for example only) RWP #: 08-ZZZ-136

15 Smear
15 Large Area
15 Air Sample
15 Direct Probe
DR Dose Rate

Unless otherwise noted, dose rates in mrem/hr.

Lead Inspector: BRAXTON, CARL

Status: Approved by: KISSIAH, STEPHANIE RHODES, 09/18/2008

Location Code: S221000

Bldg/Area Name: MISCELLANEOUS

Location Description: BLANK MAP

Data Point Details

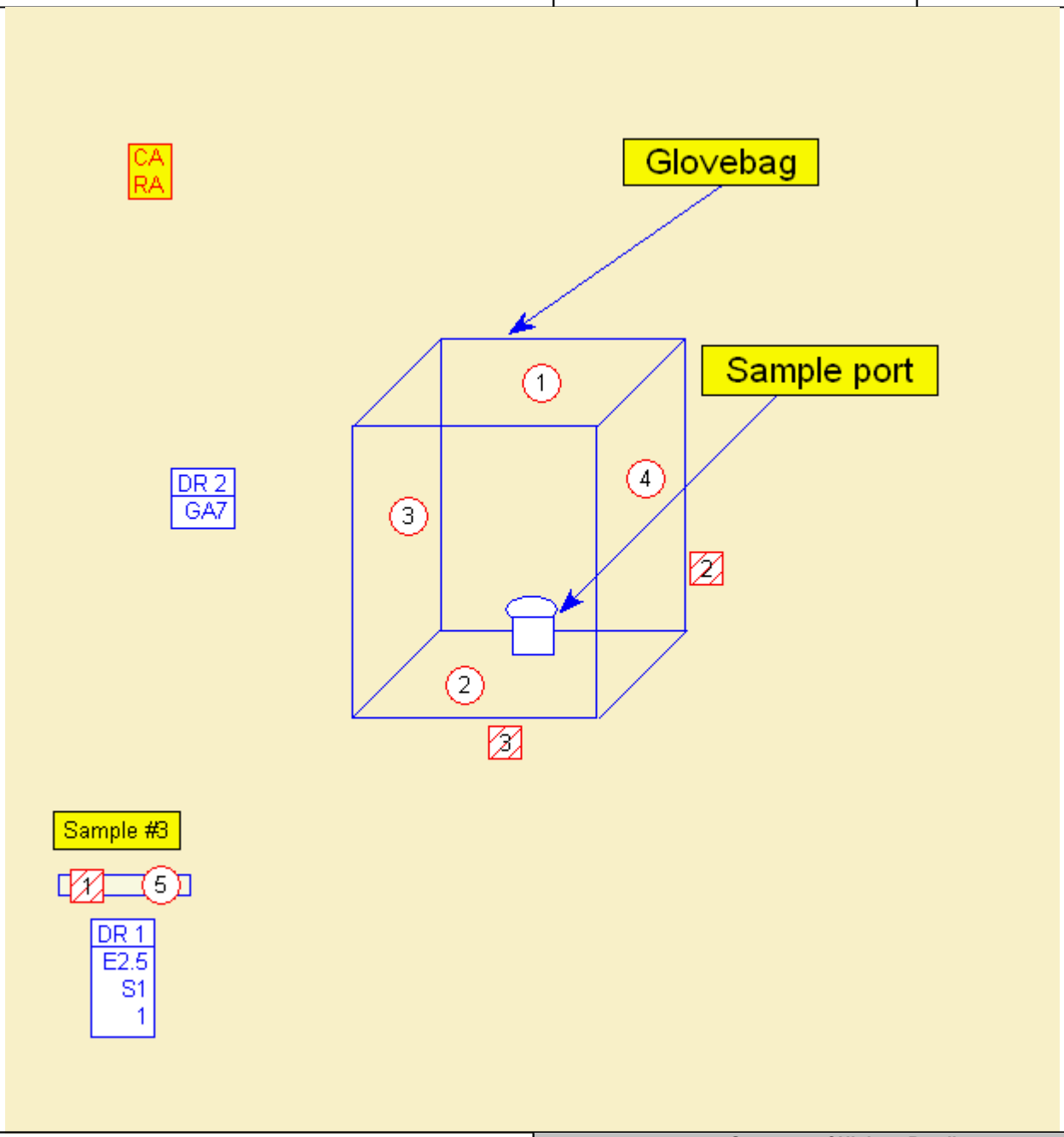
Survey #: DWPF-M-20080918-7

Map: 1 - COMMON\MISCELLANEOUS\BLANK MAP

#	Type	Inst.	Value	Units	Position	Notes
1	DR γ	N/A	GA 7	mrem/hr	General Area	
2	DR γ	N/A	GA 7	mrem/hr	general work area	
1	Smear	N/A	α <200	DPM/100 cm2	glove bag outside	
		N/A	β/γ <1000	DPM/100 cm2		
2	Smear	N/A	α <200	DPM/100 cm2	roof	
		N/A	β/γ <1000	DPM/100 cm2		
3	Smear	N/A	α <200	DPM/100 cm2	roof	
		N/A	β/γ <1000	DPM/100 cm2		
4	Smear	N/A	α <200	DPM/100 cm2	roof	
		N/A	β/γ <1000	DPM/100 cm2		
5	Smear	N/A	α <20	DPM/100 cm2	SOP	
		N/A	β/γ <200	DPM/100 cm2		
		N/A	Tritium N/A	DPM/100 cm2		
6	Smear	N/A	α <200	DPM/100 cm2	glove bag outside	
		N/A	β/γ <1000	DPM/100 cm2		
7	Smear	N/A	α <200	DPM/100 cm2	glove bag outside	
		N/A	β/γ <1000	DPM/100 cm2		
8	Smear	N/A	α <200	DPM/100 cm2	roof	
		N/A	β/γ <1000	DPM/100 cm2		
1	Wipe		α ND	DPM/Wipe	glove bag outside	
			β/γ ND	DPM/Wipe		
2	Wipe		α ND	DPM/Wipe	glove bag outside	
			β/γ ND	DPM/Wipe		
3	Wipe		α ND	DPM/Wipe	roof	
			β/γ ND	DPM/Wipe		
4	Wipe		α ND	DPM/Wipe	roof	
			β/γ ND	DPM/Wipe		
	Text		VAULT 4			
	Text		CELL E			
	Text		waste			
	Text		laundry			
	Text		glovebag			
	Posting		CA RA		Cell Grout sampling area	

VSDS Standard Map RSLS

Map: 2	BLANK MAP	Survey #: DWPF-M-20080918-7	Date/Time: 09/18/2008 14:02



Comments:

Summary of Highest Readings
(All available values may not be listed)

Smears	Air Samples & Wipes
4) <200 DPM/100 cm2 α 2) 20000 DPM/100 cm2 β/γ	Wipe 3) ND DPM/Wipe α Wipe 3) ND DPM/Wipe β/γ

Type: Job Coverage

Symbol Legend (for example only) RWP #: 08-ZZZ-136

15 Smear
15 Large Area
15 Air Sample
15 Direct Probe
DR Dose Rate

Unless otherwise noted, dose rates in mrem/hr.

Lead Inspector: BRAXTON, CARL

Status: Approved by: KISSIAH, STEPHANIE RHODES, 09/18/2008

Location Code: S221000

Bldg/Area Name: MISCELLANEOUS

Location Description: BLANK MAP

Data Point Details

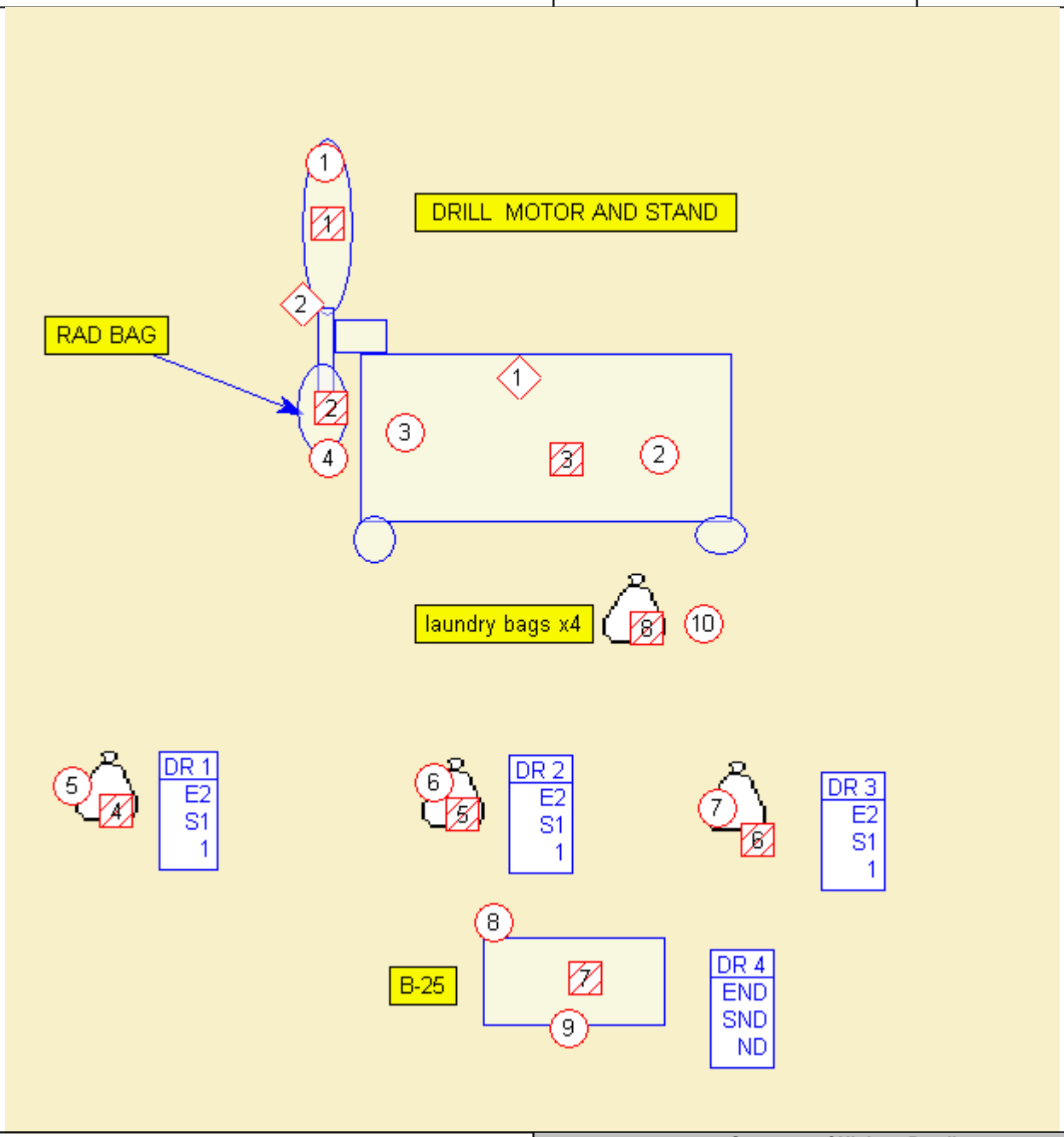
Survey #: DWPF-M-20080918-7

Map: 2 - COMMON\MISCELLANEOUS\BLANK MAP

#	Type	Inst.	Value	Units	Position	Notes
1	DR γ	N/A	E 2.5	mrem/hr	sample holder	
		N/A	S 1	mrem/hr		
		N/A	1	mrem/hr		
2	DR γ	N/A	GA 7	mrem/hr	vault work area	
1	Smear	N/A	α <200	DPM/100 cm2	Interior of glovebag	background for area
		N/A	β/γ 10000	DPM/100 cm2		
		N/A	Tritium N/A	DPM/100 cm2		
2	Smear	N/A	α <200	DPM/100 cm2	Interior of glovebag	floor of glovebag
		N/A	β/γ 20000	DPM/100 cm2		
		N/A	Tritium N/A	DPM/100 cm2		
3	Smear	N/A	α <200	DPM/100 cm2	Interior of glovebag	background for area
		N/A	β/γ 10000	DPM/100 cm2		
		N/A	Tritium N/A	DPM/100 cm2		
4	Smear	N/A	α <200	DPM/100 cm2	Interior of glovebag	background for area
		N/A	β/γ 10000	DPM/100 cm2		
		N/A	Tritium N/A	DPM/100 cm2		
5	Smear	N/A	α <20	DPM/100 cm2	SAMPLE 3	
		N/A	β/γ <200	DPM/100 cm2		
		N/A	Tritium N/A	DPM/100 cm2		
1	Wipe		α ND	DPM/Wipe	SAMPLE #3	
			β/γ ND	DPM/Wipe		
2	Wipe		α ND	DPM/Wipe	outside of glove bag	
			β/γ ND	DPM/Wipe		
3	Wipe		α ND	DPM/Wipe	outside of glove bag	
			β/γ ND	DPM/Wipe		
	Text		Glovebag			
	Text		Sample port			
	Text		Sample #3			
	Posting		CA RA		Vault 4 Cell E grout sampling area	

VSDS Standard Map RSLS

Map: 3	BLANK MAP	Survey #: DWPF-M-20080918-7	Date/Time: 09/18/2008 14:02



Comments:

Summary of Highest Readings
(All available values may not be listed)

Smears	Air Samples & Wipes
10) <20 DPM/100 cm2 α 10) <200 DPM/100 cm2 β/γ	Wipe 8) ND DPM/Wipe α Wipe 8) ND DPM/Wipe β/γ

Type: Job Coverage

Symbol Legend (for example only) RWP #: 08-ZZZ-136

15 Smear
15 Large Area
15 Air Sample
15 Direct Probe
DR Dose Rate

Unless otherwise noted, dose rates in mrem/hr.

Lead Inspector: BRAXTON, CARL

Status: Approved by: KISSIAH, STEPHANIE RHODES, 09/18/2008

Location Code: S221000

Bldg/Area Name: MISCELLANEOUS

Location Description: BLANK MAP

Data Point Details

Survey #: DWPF-M-20080918-7

Map: 3 - COMMON\MISCELLANEOUS\BLANK MAP

#	Type	Inst.	Value	Units	Position	Notes
1	DR γ	N/A	E 2	mrem/hr	BAGGED GLOVE BAG	
		N/A	S 1	mrem/hr		
		N/A	1	mrem/hr		
2	DR γ	N/A	E 2	mrem/hr	GLOVE BAG	
		N/A	S 1	mrem/hr		
		N/A	1	mrem/hr		
3	DR γ	N/A	E 2	mrem/hr	GLOVE BAG	
		N/A	S 1	mrem/hr		
		N/A	1	mrem/hr		
4	DR γ	N/A	E ND	mrem/hr	B-25	
		N/A	S ND	mrem/hr		
		N/A	ND	mrem/hr		
1	Smear	N/A	α <20	DPM/100 cm2	MOTOR	
		N/A	β/γ <200	DPM/100 cm2		
2	Smear	N/A	α <20	DPM/100 cm2	STAND	
		N/A	β/γ <200	DPM/100 cm2		
3	Smear	N/A	α <20	DPM/100 cm2	STAND	
		N/A	β/γ <200	DPM/100 cm2		
4	Smear	N/A	α <20	DPM/100 cm2	PIPE EXT.	
		N/A	β/γ <200	DPM/100 cm2		
5	Smear	N/A	α <20	DPM/100 cm2	GLOVE BAG WASTE	2 SMEARS
		N/A	β/γ <200	DPM/100 cm2		
6	Smear	N/A	α <20	DPM/100 cm2	GLOVE BAG WASTE	2 SMEARS
		N/A	β/γ <200	DPM/100 cm2		
7	Smear	N/A	α <20	DPM/100 cm2	GLOVE BAG WASTE	2 SMEARS
		N/A	β/γ <200	DPM/100 cm2		
8	Smear	N/A	α <20	DPM/100 cm2	B-25	4 SMEARS
		N/A	β/γ <200	DPM/100 cm2		
9	Smear	N/A	α <20	DPM/100 cm2	B-25	4 SMEARS
		N/A	β/γ <200	DPM/100 cm2		
10	Smear	N/A	α <20	DPM/100 cm2	LAUNDRY BAGS	2 SMEARS PER BAG
		N/A	β/γ <200	DPM/100 cm2		
1	Wipe		α ND	DPM/Wipe	DRILL MOTOR	
			β/γ ND	DPM/Wipe		
2	Wipe		α ND	DPM/Wipe	WERE FLEX HOSE WAS REMOVED	
			β/γ ND	DPM/Wipe		
3	Wipe		α ND	DPM/Wipe	DRILL STAND/TABLE	
			β/γ ND	DPM/Wipe		
4	Wipe		α ND	DPM/Wipe	GLOVE BAG WASTE	
			β/γ ND	DPM/Wipe		
5	Wipe		α ND	DPM/Wipe	GLOVE BAG WASTE	
			β/γ ND	DPM/Wipe		
6	Wipe		α ND	DPM/Wipe	GLOVE BAG WASTE	
			β/γ ND	DPM/Wipe		
7	Wipe		α ND	DPM/Wipe	B-25	
			β/γ ND	DPM/Wipe		
8	Wipe		α ND	DPM/Wipe	LAUNDRY BAGS	
			β/γ ND	DPM/Wipe		
1	Direct	N/A	α ND	DPM/100 cm2 (T)	STAND	
		N/A	β/γ ND	DPM/100 cm2 (T)		
2	Direct	N/A	α ND	DPM/100 cm2 (T)	DRILL MOTOR / PIPE	
		N/A	β/γ ND	DPM/100 cm2 (T)		

Data Point Details

Survey #: DWPF-M-20080918-7

Map: 3 - COMMON\MISCELLANEOUS\BLANK MAP

#	Type	Inst.	Value	Units	Position	Notes
	Text		DRILL MOTOR AND STAND			
	Text		RAD BAG			
	Text		B-25			
	Text		laundry bags x4			