

**Final Status Survey Report**  
**Appendix 2**  
**BTM-02, Final Status Survey Plan Improvements**

**Beltsville Agricultural Research Center (BARC)**  
**Low Level Radioactive Burial site (LLRBS)**  
**Beltsville, Maryland**



**Prepared for:**

U.S. Army Field Support Command  
Rock Island, Illinois

*Prepared by:*

***TPMC-EnergySolutions Environmental Services, LLC***

**Contract No. W52P1J-11-D-0001**



# **BARC Technical Memo Final Status Survey Plan Improvements**

**BTM-02**

**Rev. 2**

**Low Level Radioactive Burial Site Remediation  
Beltsville Agricultural Research Center  
Beltsville, Maryland**

**Contract No. W52P1J-11-D-0001**

**Prepared for:**



**United States Department of Agriculture**

*Prepared by:*

***TPMC-EnergySolutions Environmental Services, LLC***



**May 2014**

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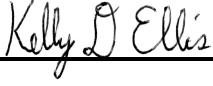

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**Technical Memo – Title Page**

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## **1.0 PURPOSE**

This document compares guidance provided in the Multi-Agency Radiation Survey and Site Investigation Manual (MARSSIM, NUREG 1575) to the requirements specified in the BARC final status survey plan (FSSP) regarding surveys that support removal of the BARC low level radioactive burial site (LLRBS) from the U.S. Department of Agriculture's (USDA) radioactive materials license. It then suggests modifications to the FSSP that will result in more consistency with MARSSIM guidance.

## **2.0 BACKGROUND**

The USDA located at Beltsville, MD requires the free release/decommissioning, and license termination of the BARC burial sites. The FSSP was prepared by Cabrera Services for the USDA and approved by the Nuclear Regulatory Commission (NRC) in January 2012. TPMC-EnergySolutions Environmental Services, LLC (TES) was selected to perform the decommissioning activities and began site mobilization in May 2013.

## **3.0 DISCUSSION**

The Multi-Agency Radiation Survey and Site Investigation Manual (MARSSIM, NUREG 1575) provides information on planning, conducting, evaluating, and documenting building and surface soil final status radiological surveys for demonstrating compliance with dose or risk-based regulations or standards. MARSSIM is a multi-agency consensus document that was developed collaboratively by four Federal agencies having authority and control over radioactive materials: Department of Defense (DOD), Department of Energy (DOE), Environmental Protection Agency (EPA), and Nuclear Regulatory Commission (NRC). Its objective is to provide a consistent approach for building and surface soil final status surveys to meet established dose or risk-based release criteria, while at the same time encouraging an effective use of resources.

The BARC decommissioning plan (DP), which includes the FSSP, is part of the USDA's radioactive material license. It provides historical information regarding the BARC Site and defines the requirements for the performance of decommissioning activities.

The final status survey (FSS) was designed in accordance with MARSSIM guidance and is being performed to support the release of the BARC Low-Level Radioactive Burial Site (LLRBS) for unrestricted use. The FSSP states that MARSSIM provides acceptable methodology to demonstrate compliance with project cleanup goals. In no instance does the FSSP indicate that a departure from the guidance presented in MARSSIM is intended. The FSSP provides project specific survey and sampling requirements that were designed using the guidance presented in MARSSIM, and if properly executed, should result in the release of the BARC site from the USDA's radioactive material license. Section 3.7 of the FSSP provides detail regarding the number of sample locations and the amount of survey coverage.

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### 3.1 Determining the Number of Data Points for Statistical Tests

Section 5.5 of MARSSIM specifies the criteria and methods used to design final status surveys. MARSSIM Section 5.5.2.2 contains the criteria for determining the number of data points for statistical tests when the contaminant is present in background. Select portions of Section 5.5.2.2 are provided below as underlined and italicized text to aid the reader in understanding the final status survey design.

The comparison of measurements from the reference area and survey unit is made using the WRS test, which should be conducted for each survey unit...

This section introduces several terms and statistical parameters that will be used to determine the number of data points needed to apply the nonparametric tests. An example is provided to better illustrate the application of these statistical concepts.

Survey design data from the BARC decommissioning plan will be presented in the example.

**Calculate the Relative Shift.** The lower bound of the gray region (LBGR) is selected during the DQO Process along with the target values for  $\alpha$  and  $\beta$ . The width of the gray region, equal to  $(DCGL_W - LBGR)$ , is a parameter that is central to the WRS test. This parameter is also referred to as the shift,  $\Delta$ . The absolute size of the shift is actually of less importance than the relative shift,  $\Delta/\sigma$ , where  $\sigma$  is an estimate of the standard deviation of the measured values in the survey unit. This estimate of  $\sigma$  includes both the real spatial variability in the quantity being measured and the precision of the chosen measurement system. The relative shift,  $\Delta/\sigma$ , is an expression of the resolution of the measurements in units of measurement uncertainty.

The shift ( $\Delta = DCGL_W - LBGR$ ) and the estimated standard deviation in the measurements of the contaminant ( $\sigma_r$  and  $\sigma_s$ ) are used to calculate the relative shift,  $\Delta/\sigma$ .

From Section 3.7.1 of the FSSP:

$$\frac{\Delta}{\sigma} = \frac{DCGL_W - LBGR}{\sigma}$$

The  $DCGL_W$  is equal to a sum of the ratios value of 1. The LBGR is set at half the  $DCGL_W$  and has a value of 0.5.  $\sigma$  is estimated as 0.3 times the  $DCGL_W$  ( $0.3 \times 1 = 0.3$ ) or 0.3.

$$\frac{\Delta}{\sigma} = \frac{1 - 0.5}{0.3} = \frac{0.5}{0.3} = 1.67$$

**Determine  $P_r$ .** The probability that a random measurement from the survey unit exceeds a random measurement from the background reference area by less than the  $DCGL_W$  when the survey unit median is equal to the LBGR above background is defined as  $P_r$ .  $P_r$  is used in Equation 5-1 for determining the number of measurements to be performed during the survey. Table 5.1 lists relative shift values and values for  $P_r$ . Using the relative shift calculated in the preceding section, the value of  $P_r$  can be obtained from Table 5.1. Information on calculating individual values of  $P_r$  is available in NUREG-1505 (NRC 1998).

If the actual value of the relative shift is not listed in Table 5.1, always select the next lower value that appears in the table. For example,  $\Delta/\sigma = 1.67$  does not appear in Table 5.1. The next lower value is 1.6, so the value of  $P_r$  would be **0.871014**.

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Table 5.1 Values of  $P_r$  for Given Values of the Relative Shift,  $\Delta/\sigma$ , when the Contaminant is Present in Background

$\Delta/\sigma$	$P_r$	$\Delta/\sigma$	$P_r$
0.1	0.528182	1.4	0.838864
0.2	0.556223	1.5	0.855541
0.3	0.583985	<b>1.6</b>	<b>0.871014</b>
0.4	0.611335	1.7	0.885299
0.5	0.638143	1.8	0.898420
0.6	0.664290	1.9	0.910413
0.7	0.689665	2.0	0.921319
0.8	0.714167	2.25	0.944167
0.9	0.737710	2.5	0.961428
1.0	0.760217	2.75	0.974067
1.1	0.781627	3.0	0.983039
1.2	0.801892	3.5	0.993329
1.3	0.820978	4.0	0.997658

If  $\Delta/\sigma > 4.0$ , use  $P_r = 1.000000$

**Determine Decision Error Percentiles.** *The next step in this process is to determine the percentiles,  $Z_{1-\alpha}$  and  $Z_{1-\beta}$ , represented by the selected decision error levels,  $\alpha$  and  $\beta$ , respectively (see Table 5.2).  $Z_{1-\alpha}$  and  $Z_{1-\beta}$  are standard statistical values (Harnett 1975).*

Table 5.2 Percentiles Represented by Selected Values of  $\alpha$  and  $\beta$

$\alpha$ (or $\beta$ )	$Z_{1-\alpha}$ (or $Z_{1-\beta}$ )	$\alpha$ (or $\beta$ )	$Z_{1-\alpha}$ (or $Z_{1-\beta}$ )
0.005	2.576	0.10	1.282
0.01	2.326	0.15	1.036
0.015	2.241	0.20	0.842
0.025	1.960	0.25	0.674
<b>0.05</b>	<b>1.645</b>	0.30	0.524

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Section 3.7.2 of the FSSP establishes the values for  $\alpha$  and  $\beta = 0.05$  with a corresponding  $Z_{1-\alpha}$  and  $Z_{1-\beta} = 1.645$ .

**Calculate Number of Data Points for WRS Test.** *The number of data points, N, to be obtained from each reference area/survey unit pair for the WRS test is next calculated using Equation 5-1:*

$$N = \frac{(Z_{1-\alpha} + Z_{1-\beta})^2}{3(P_r - 0.5)^2} \quad (5-1)$$

For the BARC project:

$$N = \frac{(Z_{1-\alpha} + Z_{1-\beta})^2}{3(P_r - 0.5)^2} = \frac{(1.645 + 1.645)^2}{3(0.871014 - 0.5)^2} = \frac{(3.29)^2}{3(0.371014)^2} = \frac{10.8241}{0.412954} = 26.21$$

The value of N calculated using equation 5-1 is an approximation based on estimates of  $\sigma$  and  $P_r$ , so there is some uncertainty associated with this calculation. In addition, there will be some missing or unusable data from any survey. The rate of missing or unusable measurements, R, expected to occur in survey units or reference areas and the uncertainty associated with the calculation of N should be accounted for during survey planning. The number of data points should be increased by 20%, and rounded up, over the values calculated using equation 5-1 to obtain sufficient data points to attain the desired power level with the statistical tests and allow for possible lost or unusable data. The value of 20% is selected to account for a reasonable amount of uncertainty in the parameters used to calculate N and still allow flexibility to account for some lost or unusable data. The recommended 20% correction factor should be applied as a minimum value. Experience and site-specific considerations should be used to increase the correction factor if required. If the user determines that the 20% increase in the number of measurements is excessive for a specific site, a retrospective power curve should be used to demonstrate that the survey design provides adequate power to support the decision (see Appendix I).

For BARC:

$$N \text{ with 20\% overage} = N + (N \cdot 0.2) = 26.21 + (26.21 \cdot 0.2) = 26.21 + 5.242 = 31.452$$

N must be divisible by two; therefore the value 31.452 is rounded up to the next whole number divisible by two, which in this case is 32.

$$N = 32$$

N is the total number of data points for each survey unit/reference area combination. The N data points are divided between the survey unit, n, and the reference area, m. The simplest method for distributing the N data points is to assign half the data points to the survey unit and half to the reference area, so  $n=m=N/2$ . This means that N/2 measurements are performed in each survey unit, and N/2 measurements are performed in each reference area. If more than one survey unit is associated with a particular reference area, N/2 measurements should be performed in each survey unit and N/2 measurements should be performed in the reference area.

$$N/2 = 16$$

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**Table 5.3 Values of N/2 for Use with the Wilcoxon Rank Sum Test**

$\Delta/\sigma$	$\alpha=0.01$					$\alpha=0.025$					$\alpha=0.05$					$\alpha=0.10$					$\alpha=0.25$				
	$\beta$					$\beta$					$\beta$					$\beta$					$\beta$				
	0.01	0.025	0.05	0.10	0.25	0.01	0.025	0.05	0.10	0.25	0.01	0.025	0.05	0.10	0.25	0.01	0.025	0.05	0.10	0.25	0.01	0.025	0.05	0.10	0.25
0.1	5452	4627	3972	3278	2268	4627	3870	3273	2646	1748	3972	3273	2726	2157	1355	3278	2646	2157	1655	964	2268	1748	1355	964	459
0.2	1370	1163	998	824	570	1163	973	823	665	440	998	823	685	542	341	824	665	542	416	243	570	440	341	243	116
0.3	614	521	448	370	256	521	436	369	298	197	448	369	307	243	153	370	298	243	187	109	256	197	153	109	52
0.4	350	297	255	211	146	297	248	210	170	112	255	210	175	139	87	211	170	139	106	62	146	112	87	62	30
0.5	227	193	166	137	95	193	162	137	111	73	166	137	114	90	57	137	111	90	69	41	95	73	57	41	20
0.6	161	137	117	97	67	137	114	97	78	52	117	97	81	64	40	97	78	64	49	29	67	52	40	29	14
0.7	121	103	88	73	51	103	86	73	59	39	88	73	61	48	30	73	59	48	37	22	51	39	30	22	11
0.8	95	81	69	57	40	81	68	57	46	31	69	57	48	38	24	57	46	38	29	17	40	31	24	17	8
0.9	77	66	56	47	32	66	55	46	38	25	56	46	39	31	20	47	38	31	24	14	32	25	20	14	7
1.0	64	55	47	39	27	55	46	39	32	21	47	39	32	26	16	39	32	26	20	12	27	21	16	12	6
1.1	55	47	40	33	23	47	39	33	27	18	40	33	28	22	14	33	27	22	17	10	23	18	14	10	5
1.2	48	41	35	29	20	41	34	29	24	16	35	29	24	19	12	29	24	19	15	9	20	16	12	9	4
1.3	43	36	31	26	18	36	30	26	21	14	31	26	22	17	11	26	21	17	13	8	18	14	11	8	4
1.4	38	32	28	23	16	32	27	23	19	13	28	23	19	15	10	23	19	15	12	7	16	13	10	7	4
1.5	35	30	25	21	15	30	25	21	17	11	25	21	18	14	9	21	17	14	11	7	15	11	9	7	3
1.6	32	27	23	19	14	27	23	19	16	11	23	19	16	13	8	19	16	13	10	6	14	11	8	6	3
1.7	30	25	22	18	13	25	21	18	15	10	22	18	15	12	8	18	15	12	9	6	13	10	8	6	3
1.8	28	24	20	17	12	24	20	17	14	9	20	17	14	11	7	17	14	11	9	5	12	9	7	5	3
1.9	26	22	19	16	11	22	19	16	13	9	19	16	13	11	7	16	13	11	8	5	11	9	7	5	3
2.0	25	21	18	15	11	21	18	15	12	8	18	15	13	10	7	15	12	10	8	5	11	8	7	5	3
2.25	22	19	16	14	10	19	16	14	11	8	16	14	11	9	6	14	11	9	7	4	10	8	6	4	2
2.5	21	18	15	13	9	18	15	13	10	7	15	13	11	9	6	13	10	9	7	4	9	7	6	4	2
2.75	20	17	15	12	9	17	14	12	10	7	15	12	10	8	5	12	10	8	6	4	9	7	5	4	2
3.0	19	16	14	12	8	16	14	12	10	6	14	12	10	8	5	12	10	8	6	4	8	6	5	4	2
3.5	18	16	13	11	8	16	13	11	9	6	13	11	9	8	5	11	9	8	6	4	8	6	5	4	2
4.0	18	15	13	11	8	15	13	11	9	6	13	11	9	7	5	11	9	7	6	4	8	6	5	4	2

*MARSSIM Table 5.3 provides a list of the number of data points used to demonstrate compliance using the WRS test for selected values of  $\alpha$  and  $\beta$  (decision errors), and the relative shift ( $\Delta/\sigma$ ). The values listed in Table 5.3 represent the number of measurements to be performed in each survey unit as well as in the corresponding reference area. The values were calculated using Equation 5-1 and increased by 20% for the reasons discussed in the previous section.*

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In section 3.7.2 of the FSSP, N/2 is correctly taken from Table 5.3 in MARSSIM as 16 (which matches the result of the calculation previously presented), but then the value is increased by an additional 20% to a value of 20 without technical justification.

Using the design data in the FSSP and the guidance presented in MARSSIM we have verified through calculations that N/2 can be conservatively set at a value of 16.

It is important to note that Section 3.7.2 of the FSSP further states that a minimum of 20 sample locations is required in each Class 1 survey unit (disposal pit bottoms and interstitial soil), each Class 2 survey unit (soil from five to six feet below original surface grade), each Class 3 survey unit (soil from original surface grade to five feet below original surface grade), and the reference area. With the exception of the specified value for N/2, these requirements are consistent with MARSSIM guidance.

### **3.2 Volumetric Survey and Sampling Protocols**

MARSSIM does not address volumetric survey and sampling protocols. However the FSSP provides a method for applying MARSSIM guidance to a given volume of soil and is presented in section 3.11 of the FSSP. The section relating to Class 1 survey units consisting of interstitial soils is presented below:

*Systematic soil samples will be collected from Class 1 interstitial soils at a rate of one sample for every 398 cubic yards of soil; given that MARSSIM does not address depth and sampling per unit volume, this volumetric sampling rate is approximated by multiplying the six-inch thickness of the Class 1 lifts by the MARSSIM recommended size limitation for a Class 1 area (2,000 m<sup>2</sup> or 2,392 square yards 0.167 yards depth [i.e., six inches depth] = 398 cubic yards of soil).*

While a Class 1 volumetric survey unit is reasonably defined as 398 yd<sup>3</sup> of soil, it is inconsistent with MARSSIM guidance to collect only one sample from each of these survey units. It would be much more appropriate to increase the sampling rate to 16 samples per 398 yd<sup>3</sup> of Class 1 interstitial soils as explained in the previous section.

### **3.3 Field Scanning Surveys of Land Areas**

Both MARSSIM and the FSSP prescribe that scanning surveys be performed as part of a final status survey of land areas. Excerpts from both MARSSIM and the FSSP are included below to better highlight their guidance.

MARSSIM Chapter 6 clearly prescribes the performance of gamma scan surveys for land areas:

Scan MDCs for Structure Surfaces and Land Areas. The survey design for determining the number of data points for areas of elevated activity (see Section 5.5.2.4) depends on the scan MDC for the selected instrumentation. In general, alpha or beta scans are performed on structure surfaces to satisfy the elevated activity measurements survey design, while gamma scans are performed for land areas.

The many reasons for performing only gamma scan surveys on land areas are further detailed in NRC report NUREG-1507, *Minimum Detectable Concentrations with Typical Radiation Survey Instruments for Various Contaminants and Field Conditions*, (NRC 1998).

The FSSP satisfies the scanning requirement for land areas through the performance of beta and gamma walkover surveys. However Section 3.1 of the FSSP contains the following passage:

*Beta scan surveys do not have calculated MDCs because these surveys are for qualitative use only; beta scan survey data is intended solely for the purpose of locating areas of elevated radioactivity to direct biased sample collection.*

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From the excerpts presented above we can conclude the following:

- MARSSIM requires gamma scans of land areas when performing final status surveys;
- The beta scan surveys prescribed in the FSSP are for qualitative use only and, unlike gamma scan survey results, cannot be correlated to a value of residual radioactivity.

Therefore the FSSP should prescribe that only gamma scan surveys be performed on land areas.

### **3.4 Assumed Extents of Contamination versus Final Depth of Excavation**

This section discusses the project planning assumption that residual contamination at the BARC LLRBS extends vertically to a depth of 15 feet below grade and the impact of this assumption on specified project excavation requirements.

#### **3.4.1 MARSSIM**

As previously stated in section 3.0, MARSSIM provides information on planning, conducting, evaluating, and documenting building and surface soil final status radiological surveys for demonstrating compliance with dose or risk-based regulations or standards. It therefore provides no guidance relative to the physical extent of waste removal activities.

#### **3.4.2 BARC DP**

The BARC DP references a depth of 15 feet in 2 instances as identified below.

1. BARC DP Section 3.0, Radiological Status of the LLRBS (page 3-4), contains the following passage, which is historical information that specifies no project requirements:

*Soil borings were advanced beneath the excavated burial pits as well in a background reference area. Soil borings from the background reference area were similar to previous results, while the boring beneath Pit 1 encountered a three-foot clay lens at a depth of 12 to 15 feet. This lens was not encountered beneath every pit nor in borings on the outside edges of the LLRBS.*

2. BARC DP Appendix B, Site-Specific Derived Concentration Guideline Level, Section 3.2, Conceptual Site Model (CSM, page 3-1), contains the following passage, which relates only to the modeling assumptions used to generate the DCGLs and again specifies no project requirements:

*The thickness of the contaminated zone is assumed to be 15 feet (4.57 meter). As a part of decommissioning plan, soils below the soil DCGL will be re-used as a fill material for the Site.*

#### **3.4.3 BARC FSSP**

The FSSP references a depth of 15 feet in 5 instances as identified below.

1. Section 2.10, Conceptual Site Model (page 9), contains the following passage, which relates only to the modeling assumptions used to generate the DCGLs and again specifies no project requirements:

*The thickness of the contaminated zone is assumed to be 15 feet (4.6 meter). In addition, during the decommissioning of the site, soils below DCGL criteria will be used as a backfill material for the Site.*

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2. Section 3.6, Identify Survey Units (page 17), contains the following passages, which are specific to survey unit design but not to the actual extents of the residual contamination:

*The Site has three types of survey units:*

- *Class 1 (soil from disposal pit bottoms to 15 feet below original surface grade and interstitial soil residing below a height of six feet below original surface grade between individual disposal pits throughout the North Field area)*
- *Class 2 (soil from five to six feet below original surface grade)*
- *Class 3 (soil from original surface grade to five feet below original surface grade)*

*Since the limits of the final disposal pit excavations are unknown prior to remediation activities, each excavation area will be evaluated for size and subdivided into suitable MARSSIM compliant Class 1 survey units before initiating the final status surveys. Several areas of excavation together totaling 2,000 m<sup>2</sup> will be combined to comprise a single Class 1 survey unit.*

3. Section 3.11, Final Status Survey Methodology Summary, contains the following passage, which establishes a requirement to excavate to 15 feet below grade:

*Once all interstitial soils have been excavated and transported to the laydown area, the excavated areas within the North Field area will represent a single, large excavation. Any material remaining of the upper 15 feet of material below original surface grade (consisting of clean fill, waste, contaminated soil, and interstitial soil present within each disposal pit) will be excavated and removed. (FSSP page 22)*

4. Section 4.4, Step 4(A): Define the Study Boundaries, (FSSP page 25), contains the following passage, which is specific to survey unit design and project scope but has no direct application to excavation requirements:

*The populations of interest for the Site are the concentration of ROCs and their associated SORs in Class 1 areas (soil from disposal pit bottoms to 15 feet below original surface grade and interstitial soil from between individual disposal pits), Class 2 areas (soil from five to six feet below original surface grade), and Class 3 areas (soil from original surface grade to five feet below original surface grade). The population will be subdivided, as necessary, through the use of survey units.*

5. Section 4.4, Step 4(B): Define the Study Boundaries, (FSSP page 25), contains the following passage, which is specific to survey unit design and project scope but has no direct application to excavation requirements:

*The spatial boundaries of this project are horizontally limited to the land area within the North Field of the Site. Vertically, the boundaries are limited to the bottoms of the exhumed disposal pits, 15 feet below original ground surface, and the groundwater interface (approximately 25 feet below original ground surface).*



#### **3.4.4 Excavation Depth Recommendations**

The excerpts presented above clearly show that the depths, 5 feet, 6 feet, and 15 feet, are assumptions that were used to estimate the physical extents of the waste pits for project planning purposes. Waste removal activities at the burial site have revealed that there are no uniform depths associated with the pits. For example, the DP and FSSP indicate that there is 6 feet of non-waste material above each pit, when in fact some of the pits have only 2 to 3 feet of non-waste material covering them. The bottoms of the pits have been reached at non-uniform depths as well, and the horizontal distance between the pits varies from less than a foot to several feet.

To account for these variances the project has implemented the following administrative controls:

1. The cover material above each pit is removed slowly and cautiously until the top of the waste pit is detected. At this point, regardless of depth; any cover material remaining above the pit becomes part of the waste envelope.
2. The first foot of bounding interstitial soil, on all sides and the bottom of the waste pit, is considered part of the waste envelope.
3. Excavation of the pit is considered complete when the waste envelope has been removed.

These administrative controls provide high confidence that all of the waste in each pit is recovered for disposal and that non-waste soil planned for reuse is acceptable for unconditional release while minimizing unnecessary sampling of undisturbed soil.

Therefore the project recommends that the excavation depth requirement specified in Section 3.11 of the FSSP (detailed in Section 3.4.3.3 above) be modified in the following manner:

*Once all interstitial soils have been excavated and transported to the laydown area, the excavated areas within the North Field area will represent a single, large excavation. ~~Any material remaining of the upper 15 feet of material below original surface grade (consisting of clean fill, waste, contaminated soil, and interstitial soil present within each disposal pit) will be excavated and removed.~~ The excavation bottom will be contoured as necessary to provide a relatively smooth surface suitable for the performance of planned survey and sampling activities.*

#### **3.5 Excavation Bottom Final Status Survey Design**

The following survey design, which incorporates the recommendations presented previously in this technical memo, is recommended for the performance of the final status survey of the excavation bottom.

##### **3.5.1 Survey Units**

The excavation area will be divided into three survey units, similar to those shown in Figure BTM-02-1, Excavation Bottom FSS Design Method. The portion of the excavation bottom which was previously occupied by the burial site will be divided into two Class 1 survey units, each having an area of approximately 1,455 m<sup>2</sup>. The portion of the excavation bottom surrounding the Class 1 survey units will comprise one Class 3 survey unit with an area of approximately 1,395 m<sup>2</sup>.

**Figure BTM-02-1**  
**Excavation Bottom FSS Design Method**

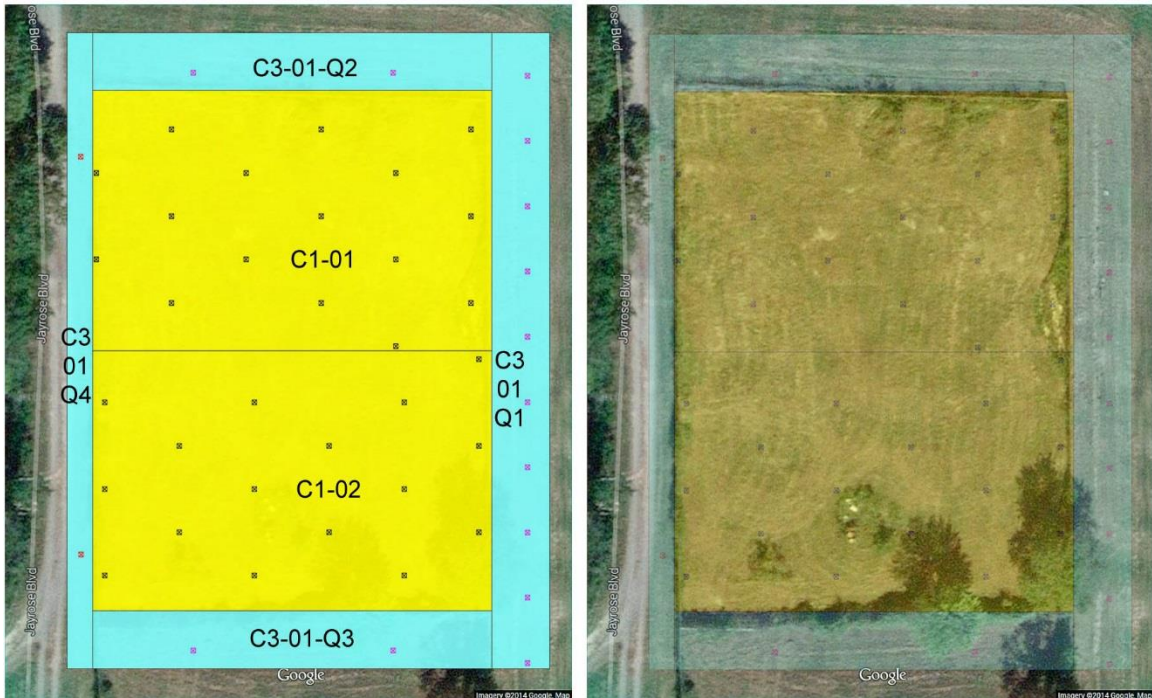


Figure BTM-02-1 survey units and sample locations are presented to convey an understanding of the survey design with respect to the survey unit layout and the sample distribution pattern with associated grid spacing. The actual survey units and sample locations, while quite similar to those illustrated, will be marginally different since they will be generated using the final GPS coordinates of the entire excavation, which will not be acquired until excavation activities are complete.

### 3.5.2 Survey and Sampling

Gamma scan surveys will be performed on 100% of the accessible surfaces of each survey unit.

Sixteen (16) systematic samples will be collected from each survey unit. Systematic sample locations will be established using a triangular grid pattern with a random start point. The samples in the Class 3 survey unit will be biased towards the downslope (eastern) portion of the survey unit. This will be accomplished by dividing the survey unit into the four quadrants as shown in Figure BTM-02-1, then distributing the samples as shown in the Table BTM-02-1 below:

**Table BTM-02-1**  
**Survey Unit Systematic Sampling**

Survey Unit	Quadrant	Samples	Area (m <sup>2</sup> )	Sample Density (m <sup>2</sup> /sample)
C1-01	N/A	16	1,455	91
C1-02	N/A	16	1,455	91
C3-01	1	10	517	52
C3-01	2	2	324	162
C3-01	3	2	324	162
C3-01	4	2	230	115

Number of samples in Class 3 Quadrants may be adjusted to achieve a sample density between 40 and 200, biased downslope.

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**MARSSIM / Decommissioning Plan Comparison**

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**May 12, 2014**

#### **4.0 SUMMARY**

The observations presented in this technical memo are summarized below:

1. Consistent with MARSSIM guidance, N/2 can be established at a value of 16 for the BARC project.
  - a. The number of samples, which will be used for statistical testing, that are collected from each Class 1 interstitial soils survey unit should be increased from 1 sample to 16 samples.
  - b. The number of samples, which will be used for statistical testing, that are collected from all other survey units should be decreased from 20 samples to 16 samples.
2. The requirement to perform beta and gamma walkover surveys as part of the final status survey should be modified to require only gamma scan surveys of land areas.
3. The requirement to excavate to a depth of 15 feet below grade should be modified to require excavation to a relative depth of 1 foot below each waste pit with the excavation bottom contoured as necessary to provide a relatively smooth surface suitable for the performance of planned survey and sampling activities.
4. The survey design described in Section 3.5 of this document, consisting of two Class 1 survey units surrounded by one Class 3 survey unit, should be adopted for the final status survey of the excavation bottom.

#### **5.0 REFERENCES**

- DoD, DOE, NRC, and EPA; Multi-Agency Radiation Survey and Site Investigation Manual (MARSSIM), NUREG-1575, Rev. 2, August 2000.
- NRC, Minimum Detectable Concentrations with Typical Radiation Survey Instruments for Various Contaminants and Field Conditions, NUREG-1507, June 1998.
- CABRERA SERVICES, Decommissioning Plan, BARC LLRWS. Revised Final. January 2012.

**Final Status Survey Report**  
**Appendix 3**  
**BTM-06, Post Excavation Sampling of**  
**Water and Undisturbed Soil**

**Beltsville Agricultural Research Center (BARC)**  
**Low Level Radioactive Burial site (LLRBS)**  
**Beltsville, Maryland**



**Prepared for:**

U.S. Army Field Support Command  
Rock Island, Illinois

*Prepared by:*

***TPMC-EnergySolutions Environmental Services, LLC***

**Contract No. W52P1J-11-D-0001**



# **BARC Technical Memo Post Excavation Sampling of Water and Undisturbed Soil**

**BTM-06**

**Rev. 0**

**Low Level Radioactive Burial Site Remediation  
Beltsville Agricultural Research Center  
Beltsville, Maryland**

**Contract No. W52P1J-11-D-0001**

**Prepared for:**



**United States Department of Agriculture**

*Prepared by:*

***TPMC-EnergySolutions Environmental Services, LLC***



**October 2015**

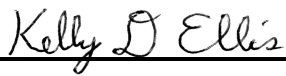

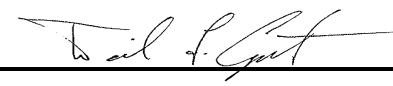
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**Post Excavation Sampling of Water and Undisturbed Soil**

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**Technical Memo – Title Page**

WORK  
INSTRUCTION

Project:		Project No.	91003
		TM No.	BTM-06
		Rev. No.	0
		Effective Date:	October 28, 2015
Written By/Date			
Kelly Ellis	October 28, 2015		
Reviewed By/Date			
Brian Clayman	October 28, 2015		
Approved By/Date			
Dan Caputo	October 28, 2015		

Title: Post Excavation Sampling of Water and Undisturbed Soil

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**Post Excavation Sampling of Water and Undisturbed Soil**

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## **1.0 PURPOSE**

This document details the approach for post excavation sampling of undisturbed soil and water for the Comprehensive Environmental Response, Compensation, and Liability Act (CERCLA) closure and the Nuclear Regulatory Commission (NRC) license termination of the Beltsville Agricultural Research Center Low Level Radioactive Burial Site, (BARC LLRBS).

## **2.0 BACKGROUND**

The USDA located in Beltsville, MD requires the free release/decommissioning, NRC license termination, and CERCLA closure of the BARC LLRBS. The BARC LLRBS decommissioning plan (DP) was prepared by Cabrera Services for the United States Department of Agriculture (USDA) and approved by the NRC in January 2012. TPMC-EnergySolutions Environmental Services 2008, LLC (TES) was selected to perform the decommissioning activities and began site mobilization in May 2013. TES completed major site decommissioning activities and demobilized from the site in August 2014.

## **3.0 POST EXCAVATION SAMPLING FOR EPA CLOSURE**

The BARC project was planned with an emphasis on the termination of the BARC LLRBS NRC license. Consequently the BARC project documents contain limited guidance regarding CERCLA closure. Excerpts from the BARC project documents that contain guidance regarding CERCLA closure are provided below. The Environmental Protection Agency (EPA) is in general agreement with the need for site closure and for the proposed vadose zone soil and water sampling plan, which is described in Section 3.4.

### **3.1 BARC Performance Work Statement (PWS) CERCLA Closure Guidance**

The following excerpts are from the PWS:

#### *(TASK 4) Site Sampling*

*Once the NRC has free released the site the CERCLA related sampling requirements may be conducted. If the CERCLA sampling does not interfere with the NRC free release requirements, sampling can be performed concurrently. The analysis of the soil samples to be collected will include the EPA Target Compound List for Volatile organic compounds (Method 8260B, BETX (Method 8020/8021), Semi-volatile organic compounds (Method 8270C), Polynuclear Aromatics (PAH 8207C), Organochlorine Pesticides (Method 8081A), Organophosphorus Pesticides (Method 8141), Herbicides (Method 8151) and EDB and DBCP (Method 8011).*

*The number of NRC closure samples is based on the estimates from the DP and the MARSSIM (NUREG-1575, Multi Agency Radiation Survey and Site Investigation Manual) requirements. The CERCLA analytical soil samples are based on the collection of 10 discrete soil samples from 0-6 inches (See attachment 4). The main waste streams that are projected to be developed during this project are Mixed waste (organics, LSV, etc), Hazardous waste (metals, organics, etc), LLRW (NORM and small sources), and contaminated soil. Projected amounts of each type of material are described in the DP. These samples will be used to release the site for the NRC and the EPA. All sample data results must be in Level 4 data packs. Samples are required to have independent third party verification of the results.*

#### *TASK 8. FINAL STATUS SURVEY REPORT (FSSR)*



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*A stand-alone data report will be submitted and shall contain the required documentation to evaluate the site for further action under the CERCLA program. This data report will contain figures, photos, and data result tables (data shall be linked to GPS and downloaded to a posting plot). Data validation will follow the requirements as set forth in the USDA 2007 BARC Master Quality Assurance Project Plan. This document will provide the appropriate data review and summary for the final post removal sampling. These results are to be compared to the EPA Region III's RBC for a potential no further action risk evaluation. This document will present those contaminants of potential concern that remain above the RBC's for soil.*

### **3.2 BARC DP CERCLA Closure Guidance**

The following excerpts are from the BARC DP:

#### *5.3 Surface and Groundwater*

*... As part of the subsequent BARC CERCLA investigation, semiannual groundwater monitoring will continue for the next five years.*

#### *8.1 Effluent Monitoring Program*

*Since groundwater monitoring is continuing on a semi-annual basis as part of the BARC CERCLA investigation, additional monitoring will not be needed as a part of the DP.*

### **3.3 BARC Sampling and Analysis Plan (SAP) CERCLA Closure Guidance**

The following excerpts are from the BARC SAP, Rev. 1:

#### *SAP WORKSHEET #14 – SUMMARY OF PROJECT TASKS*

*Once the NRC has free released the site the CERCLA related sampling requirements will be conducted. If the CERCLA sampling does not interfere with the NRC free release requirements, sampling can be performed concurrently. The CERCLA Sampling Design, including the specific number and location of samples, will be determined when excavation is nearly complete in order to appropriately quantify the sample area and identify any biased sample locations. The CERCLA Sampling Design will be appended to this SAP and then reviewed and approved as a revision to the SAP.*

#### *Analysis*

*EPA Target Compound List for Volatile organic compounds (Method 8260B), Semi-volatile organic compounds (Method 8270C), Organochlorine Pesticides (Method 8081A), Organophosphorus Pesticides (Method 8141), Herbicides (Method 8151) and TAL metals (6010B and 7471) - Off-site Laboratory*

### **3.4 Amended BARC CERCLA Sampling Effort**

The BARC LLRBS CERCLA Sampling Design, as agreed upon by USDA and EPA, is detailed in the following subsections.

#### **3.4.1 CERCLA Sample Locations**

The CERCLA sample design consists of the following sample types and locations:

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*Soil samples will be collected from the 0-6 inch interval of undisturbed soil at 12 locations within the excavation (see Figure 1 and 2);*

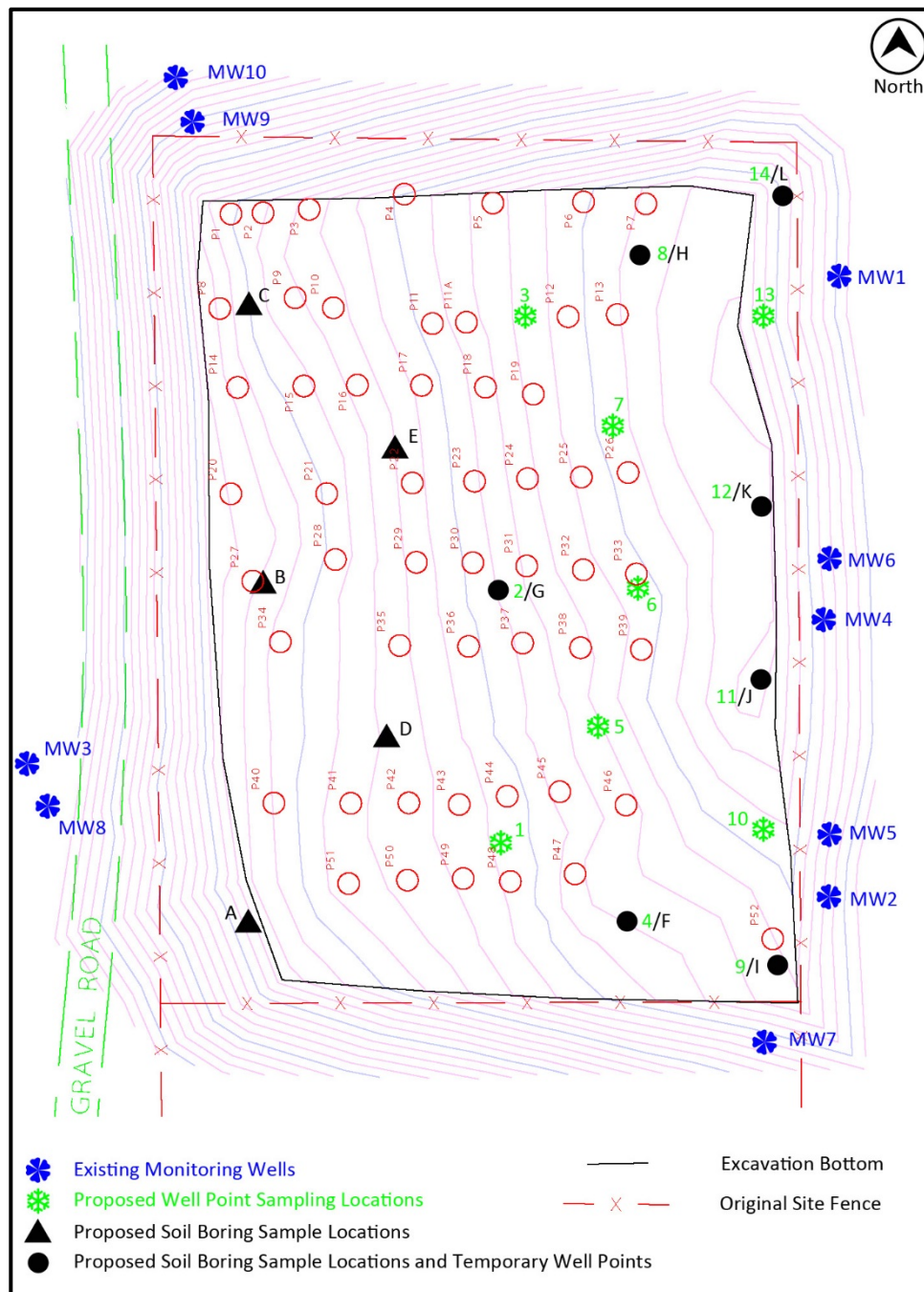
*Groundwater samples will be collected from 14 locations within the excavation (see Figure 1 and 2);*

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Figure 1  
Excavation Sample Locations

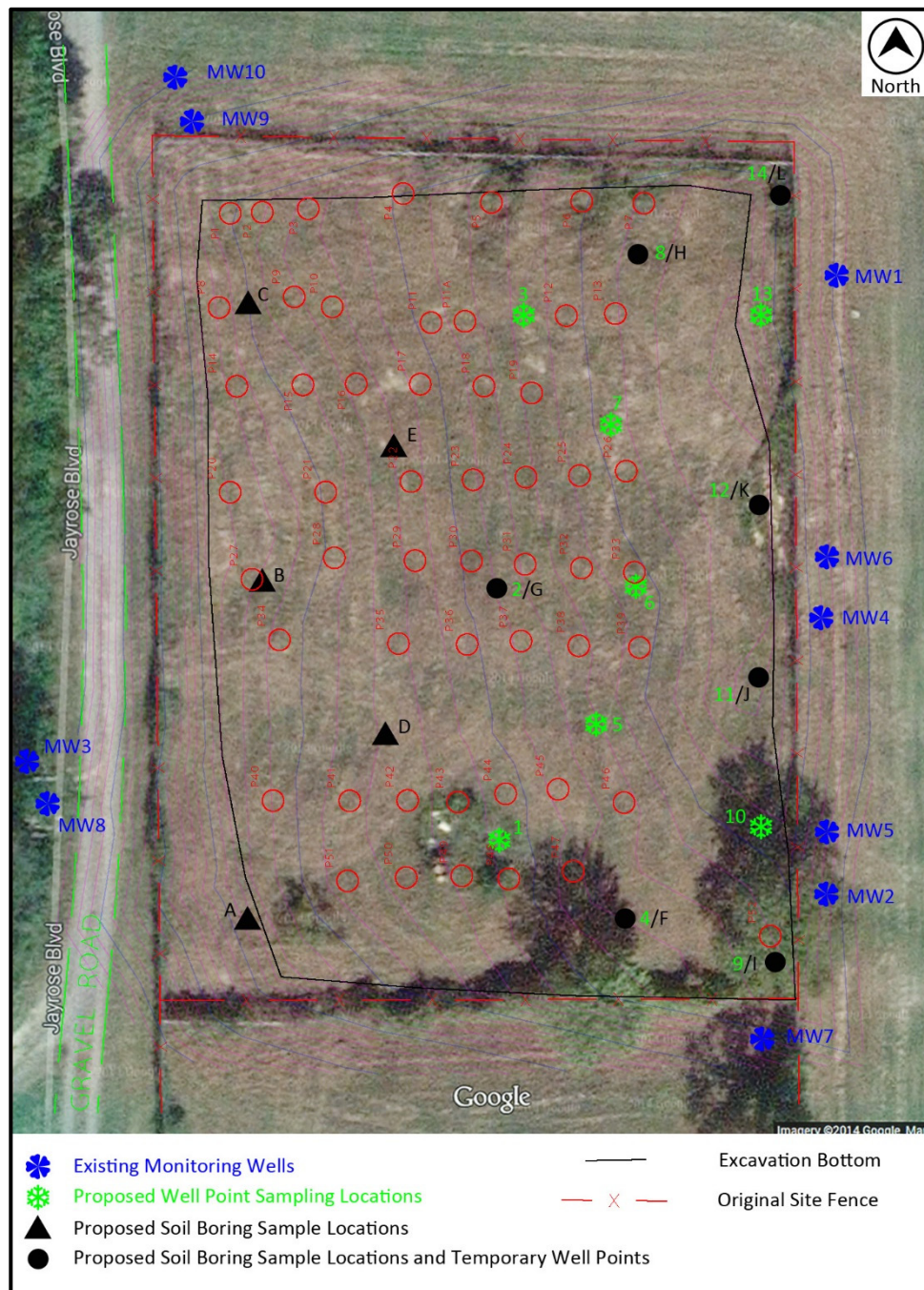


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Figure 2  
Excavation Sample Locations with Satellite Background Image





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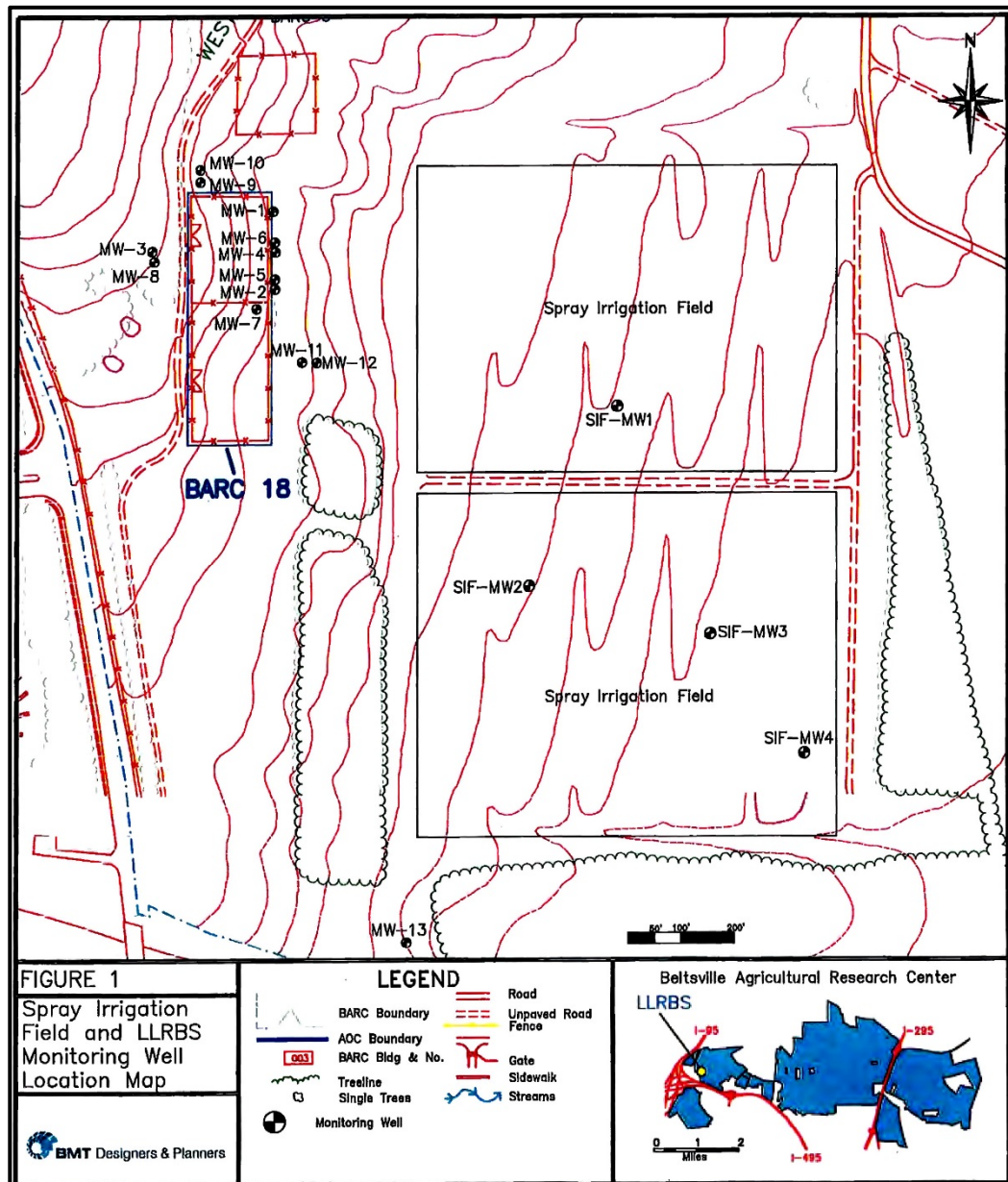
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Groundwater samples will be collected from 13 existing monitoring wells (see Figure 3);

Groundwater samples will be collected from 4 new monitoring wells in the spray irrigation fields (see Figure 3);

**Figure 3**  
**Monitoring Well Sample Locations**





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Three surface water samples will be collected from the Little Paint Branch Creek.

**Figure 4**  
**BARC LLRBS Excavation and Little Paint Branch Creek**



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**3.4.2 CERCLA Closure Sampling Method for Soil**

Samples will be collected from each designated soil sample location in the following manner:

The borings will be collected using the direct push method. A soil sample, of sufficient quantity to support the specified laboratory analyses, will be collected from the top 6 inches of the first soil core comprised of undisturbed soil. This will include the collection of three 5-gram En Core® samples for Volatile Organic Chemical (VOC) analysis.

**3.4.3 CERCLA Closure Sampling Method for Vadose Zone Groundwater.**

Each designated boring/monitoring well will be sampled for groundwater. A filtered water sample, of sufficient quantity to support the specified laboratory analyses, will be collected in a manner that is consistent with EPA's low flow groundwater sampling protocol (EQASOP-GW 001 dated January 19, 2010). When performing low flow groundwater sampling, water quality parameters including dissolved oxygen, temperature, salinity, pH, specific conductivity, oxidation-reduction potential (ORP), and turbidity will be measured and recorded. Sampling will be performed once all parameters have stabilized per EPA guidance documents.

Three additional 40ml Volatile Organic Analysis (VOA) vials will be collected from the unfiltered groundwater sample for VOC analysis.

**3.4.4 CERCLA Closure Sample Analyses**

The list of analyses presented below has been developed with the cooperation of EPA and USDA for the analysis of samples collected to support CERCLA closure of the BARC LLRBS:

Chemical Contaminants of Concern:

Volatile organic compounds	Method 8260C
Semi-volatile organic compounds (including 1,4-Dioxane)	Method 8270D
Organochlorine Pesticides	Method 8081B
Polychlorinated Biphenyls (PCBs)	Method 8082A
Herbicides	Method 8151A
TAL (Target Analyte List) metals	Method 6010C
Mercury	Method 7470A

Radiological Contaminants of Concern:

Ra-226 and other gamma emitting nuclides (e.g., Cs-137, Pb-210)	EPA 901.1
Sr-90	DOE 905.0
H-3 (Tritium)	EPA 906.0

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C-14	EERF C-01-1
CI-36	TAL-STL ST-RC-0036
Ni-59/Ni-63	TAL-STL ST-RC-0055

These analyses will be performed on both soil and groundwater samples.

#### **4.0 POST EXCAVATION SAMPLING FOR NRC LICENSE TERMINATION**

The Multi-Agency Radiation Survey and Site Investigation Manual (MARSSIM, NUREG 1575) provides information on planning, conducting, evaluating, and documenting building and surface soil final status radiological surveys for demonstrating compliance with dose or risk-based regulations or standards. MARSSIM is a multi-agency consensus document that was developed collaboratively by four Federal agencies having authority and control over radioactive materials: Department of Defense (DOD), Department of Energy (DOE), EPA, and NRC. Its objective is to provide a consistent approach for building and surface soil final status surveys to meet established dose or risk-based release criteria, while at the same time encouraging an effective use of resources.

The goal of NUREG/CR-7021 is to extend MARSSIM principles (average and local checks) into the vadose zone.

The DP, which includes the Final Status Survey Plan (FSSP), is part of the USDA's radioactive material license. It provides historical information regarding the BARC LLRBS and defines the requirements for the performance of decommissioning activities. The BARC LLRBS FSSP attempts to apply MARSSIM principles, written for surface evaluations, to BARC LLRBS license termination activities, which involve subsurface evaluations.

##### **4.1 Current Vadose Zone Final Status Survey (FSS) Sampling Requirements**

The following excerpt from the FSSP details the existing vadose zone FSS sampling requirements.

*Section 3.10 Direct Push Sampling*

*To characterize the deeper subsurface vadose zone soils and groundwater below each disposal pit, a direct push sampling system (or equivalent) will be lowered into the disposal pit and core samples will be collected from the center of the disposal pit in four-foot lengths until groundwater is reached.*

*Four-foot Geoprobe™ core sections will be advanced until the groundwater interface is reached. Each four-foot Geoprobe™ core section will be surveyed for beta and gamma radiation, and one soil sample will be collected from the location exhibiting the most elevated activity from the four soil cores. A composite sample will be collected from the top foot of the first soil core, comprising the floor of the disposal pit. Another sample will be collected at the soil interface with groundwater. Therefore it is anticipated that three subsurface soil samples from each disposal pit will be selected and submitted for laboratory analysis. It is anticipated that the water table will be encountered approximately 25 feet below original surface grade in the vicinity of LLRBS and that the floor of each disposal pit will be encountered approximately 10 feet below original surface grade.*

*Filtered and unfiltered groundwater samples will be collected from a temporary well.*

Therefore, if executed as currently approved, 265 samples will be collected and analyzed to evaluate the vadose zone for the FSS.



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**4.2 NUREG/CR-7021, A Subsurface Decision Model for Supporting Environmental Compliance**

The following excerpts from NUREG/CR-7021 highlight guidance that is relevant to vadose zone FSS evaluation at the BARC project.

Section 1, Introduction

*...The best alternative from a conservative public health perspective is to respond to these limitations by removing the entire subsurface in the impacted region. The boundary of the impact region could be checked by MARSSIM techniques. After removal is complete, the newly revealed subterranean surface could be approached with the surface methods described in MARSSIM.*

Section 3, Overview of the Subsurface Decision Framework

*In a surface assessment, exposure scenarios are well defined, measurements are easily accessible, and comprehensive scans provide a safety net regarding whether a survey unit is safe or not. MARSSIM takes advantage of these factors through a well-defined set of hypothesis tests and scanning technologies to determine number and placement of samples. In the subsurface, exposure scenarios are less clear, measurements are highly inaccessible, and no comprehensive scans exist. In lieu of some technological breakthrough in subsurface measurements, there are only three broad possibilities.*

- 1. Continue to approach the problem in a rigid and classical manner despite the lack of comprehensive scanning data and the cost of sample collection. Accept only the highest quality measurements and use only simple, formal hypothesis tests. The number of samples is likely to be few in number, highly correlated, and poorly represent the total volume of the study area. While a MARSSIM styled hypothesis test, such as Sign Test or Wilcoxon Rank sum, can certainly be applied, its practical worth may be highly questionable without a clear exposure outcome that depends on the site average.*
- 2. Dig the entire site up and sample or scan as you go. For example, scrape off a few inches to a foot or so at a time and MARSSIM is repeated on each revealed surface until a level is reached that passes.*
- 3. Acknowledge the reality of the situation, including the cost of lab measurements, the severe limitations of scanning, the heterogeneity of the subsurface, and the likely presence of spatial correlation. Use a framework that can bring and use all information and knowledge available, particularly those with an emphasis on the spatial context. Such a framework should integrate and maximize various types of input, resulting in a better informed decision.*

*The first option simply is not feasible, as a matter of course. The number of lab measurements is likely to be insufficient to make any kind of decision at a fine spatial granularity (i.e., local activity). In addition, the spatial context is almost completely impossible to ignore when dealing with the subsurface. The second option may be preferable from a public view but may not be affordable from a principle party's view, except for well-funded or small sites. That is, remove anything that might possibly be contaminated, including a lot of uncontaminated soil, if necessary. In lieu of remediation for the entire site, this discussion will focus on the final option.*

Section 9, Compliance Support Phase

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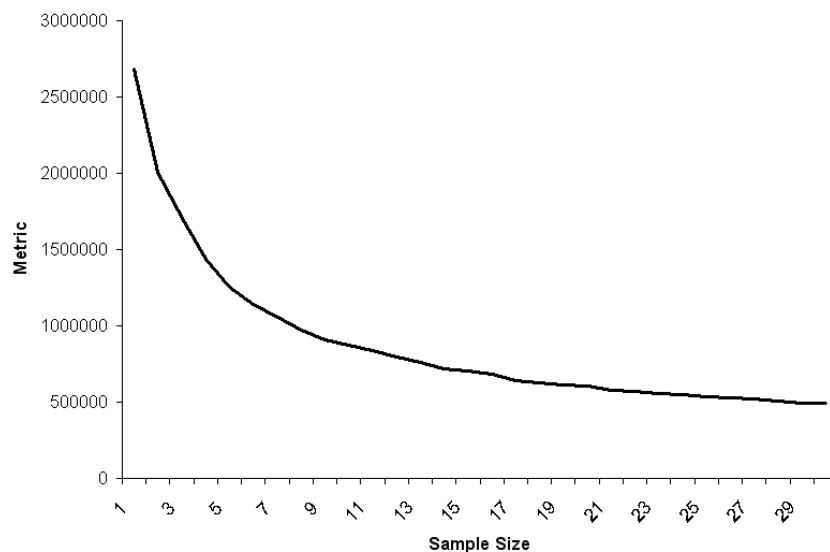
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*Sample Size (Number of Samples)*

*As discussed in the scoping phase, some sample designs, such as check and cover, can provide a metric based determination of the number of samples. Designs that place new samples based on minimizing or maximizing some value can report the progress as each new sample is produced. In the case of check and cover, the goal is to minimize the maximum sum of value-weighted distances. In Figure 9.10, the addition of each new sample produces a smaller minimization. Eventually, the curve will flatten out, indicating a smaller return on investment for each additional sample.*

**Check and Cover Metric**



*Figure 9.10 Sample design metrics can indicate when each additional sample is providing little additional information.*

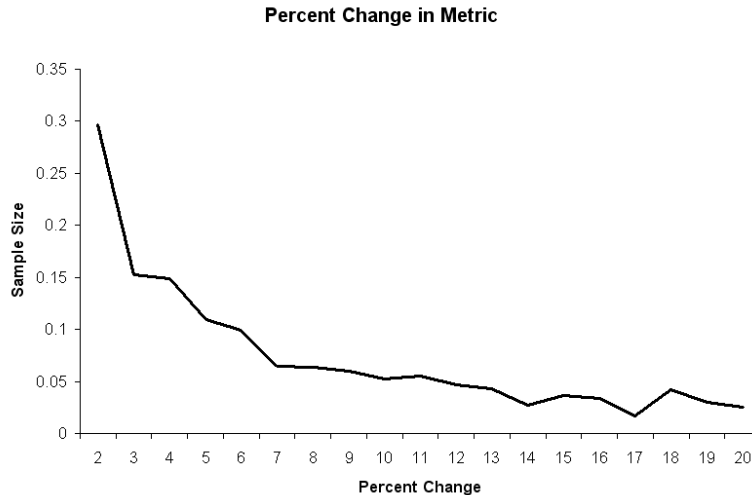
*As the curve flattens out, the value of each sample in discovering an elevated zone is diminishing. From a compliance support view, the number of samples could be selected based on this shape while considering the cost of each new sample. The cost of each sample can be offset through the use of field detection and secondary measurement values. This approach provides a connection between the goal of sound science and the reality of financial limitations.*

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*For the NUREG/CR-7021 Example Case, after about 11 samples, the percent change is less than 5%. Therefore 11 samples were chosen for evaluating the NUREG/CR-7021 Example Case.*



#### **4.3 Comparison of NUREG/CR-7021 Guidance to FSSP Requirements**

The preferred method identified in NUREG/CR-7021 (ignoring cost) is to dig up the entire site and sample and/or scan as you go. This method provides high confidence that residual radioactivity is within prescribed limits and eliminates access limitations normally associated with vadose zone evaluation. When this method is employed geo-probe sampling is not normally required as the lower physical boundary of the impacted zone is evaluated using normal MARSSIM protocols.

One could argue that this method has been employed at the BARC project and that no further vadose zone FSS sampling is required. However a more conservative solution is to further evaluate the remaining vadose zone of the LLRBS excavation in the manner previously described in Section 3.4 for CERCLA sampling. The number of vadose zone sample locations inside the excavation is more conservative than the recommendations presented in NUREG/CR-7021. Therefore the proposed methodology is consistent with the NUREG/CR-7021 interpretation of the MARSSIM guidance. The 26 sample locations that have been identified inside the excavation area for CERCLA sampling will serve as vadose zone FSS sample locations, consisting of 12 soil samples and 14 water samples.

#### **5.0 SUMMARY**

The observations presented in this technical memo are summarized below:

1. CERCLA closure sampling will consist of the following:
  - a. Soil samples will be collected from the 0-6 inch interval of undisturbed soil at 12 locations within the excavation;
  - b. Groundwater samples will be collected from 14 locations within the excavation;
  - c. Groundwater samples will be collected from 13 existing monitoring wells;

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- d. Groundwater samples will be collected from 4 new monitoring wells in the spray irrigation fields;
  - e. Three surface water samples will be collected from the Little Paint Branch Creek.
- 2. Vadose zone FSS sampling will consist of the following:
  - a. Soil samples will be collected from the 0-6 inch interval of undisturbed soil at 12 locations within the excavation;
  - b. Groundwater samples will be collected from 14 locations within the excavation;
- 3. The soil borings will be collected using the direct push method. A soil sample, of sufficient quantity to support the specified laboratory analyses, will be collected from the top 6 inches of the first soil core comprised of undisturbed soil. This will include the collection of three 5-gram En Core® samples for VOC analysis.
- 4. Each designated boring/monitoring well will be sampled for groundwater. A filtered water sample, of sufficient quantity to support the specified laboratory analyses, will be collected in a manner that is consistent with EPA's low flow groundwater sampling protocol (EQASOP-GW 001 dated January 19, 2010). When performing low flow groundwater sampling, water quality parameters including dissolved oxygen, temperature, salinity, pH, specific conductivity, ORP, and turbidity will be measured and recorded. Sampling will be performed once all parameters have stabilized per EPA guidance documents.
  - a. Three additional 40ml VOA vials will be collected from the unfiltered groundwater sample for VOC analysis.

**6.0 REFERENCES**

Correspondence; Dana Jackson (USDA) to Sarah Kloss (EPA) dated Tuesday, February 03, 2015 5:04 PM. Subject: FW: Sampling Parameters

DoD, DOE, NRC, and EPA; Multi-Agency Radiation Survey and Site Investigation Manual (MARSSIM), NUREG-1575, Rev. 1, August 2000.

A Subsurface Decision Model for Supporting Environmental Compliance, NUREG/CR-7021, January 2012

CABRERA SERVICES, Decommissioning Plan, BARC LLRWS. Revised Final. January 2012.

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**Appendix 4**  
**BWI-01, Field Sampling for License Termination**

**Beltsville Agricultural Research Center (BARC)**  
**Low Level Radioactive Burial site (LLRBS)**  
**Beltsville, Maryland**



**Prepared for:**

U.S. Army Field Support Command  
Rock Island, Illinois

*Prepared by:*

***TPMC-EnergySolutions Environmental Services, LLC***

**Contract No. W52P1J-11-D-0001**



# **BARC Work Instruction Field Sampling for License Termination**

**BWI-01**

**Rev. 2**

**Low Level Radioactive Burial Site Remediation  
Beltsville Agricultural Research Center  
Beltsville, Maryland**

**Contract No. W52P1J-11-D-0001**

**Prepared for:**



**United States Department of Agriculture**

*Prepared by:*

***TPMC-EnergySolutions Environmental Services, LLC***



**August 2013**

**BARC Work Instruction  
Field Sampling for License Termination**

**BWI-01, Rev. 2**

**August 15, 2013**

**Work Instruction – Title Page**

WORK  
INSTRUCTION

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Title: Field Sampling for License Termination

**BARC Work Instruction  
Field Sampling for License Termination**

**BWI-01, Rev. 2**

**August 15, 2013**

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Attachment 1, Chain of Custody Record Example

Attachment 2, Sample Log Example



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**1.0 PURPOSE AND SCOPE**

This work instruction provides guidance regarding the collection, identification, and analysis of soil and water samples that will be used to support NRC license termination or CERCLA closure on the BARC project.

**2.0 PREREQUISITES**

All personnel have current Hazardous Waste and Emergency Response (HAZWOPER), respiratory protection, including medical clearance and project Safety, Radiation Worker II, U.S. Department of Transportation (DOT) & Resource Conservation and Recovery Act (RCRA) training.

An approved Radiation Work Permit (RWP) & Activity Hazard Analysis (AHA) is available and all persons have been briefed – indicated by signature.

Personnel have been briefed on this work instruction – indicated by signature.

Sufficient ice (or equivalent) is available to support refrigerated shipment of En Core® samples and samples that will be analyzed for metals.

Tools, equipment and supplies are available at the work area as needed.

**3.0 PRECAUTIONS**

If at any time during the performance of this procedure personnel are unclear as how to proceed, stop and contact project supervision for clarification / direction.

**DO NOT ENTER** waste pits until a competent person has designated the excavation safe for personnel entry.

En Core® **samples have a 48 hour hold time** and should be shipped the same day they are collected. The En Core® coring bodies are single use devices that should only be used with an En Core® T-handle and/or En Core® extrusion tool.

**4.0 TOOLS AND EQUIPMENT**

The list of tools and equipment presented below is not all-encompassing or exclusive. It is presented as an aid to help the user quickly gather up the tools and equipment commonly needed to perform sample collection. Additional and/or equivalent items may be used in lieu of those listed.

2 Gallon resealable plastic storage bags	Utility Cart
1 Gallon resealable plastic storage bags	Sample Log
Stainless steel trowel	Liquinox®
Stainless steel bucket	Sprayer Bottles
Nitrile gloves	GPS
Ice	Sample containers
Tent	T-Handle

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**5.0 PROCEDURAL STEPS**

**5.1 Sample Analyses**

Samples collected at BARC may be analyzed for radiological contaminants of concern, chemical contaminants of concern, or both. This information can be most easily communicated to the sampler and the laboratory through the use of analytical groups. The BARC project will have three analytical groups for off-site analysis. In all cases the off-site laboratory will perform the most current version of the respective analysis. For this reason revision letter designators are not included with the test method.

**5.1.1 Analytical Group A**

This analytical group will be used for chemical analysis of backfill and borrow material. It consists of the following analytical methods and analytes:

4 oz. Amber Jar	Method 3060/7196	Total Cr (VI)
	Method 6020	Metals (ICP/MS)
	Method 7471	Mercury
	Method 8081	Total Pesticides (GC)
	Method 8082	Polychlorinated biphenyls
	Method 9012	Cyanide
4 oz. Amber Jar	Method 8270	Semi-volatile organic compounds
	Method 8290	TCDF/TCDD (Furans/Dioxins)
6 En Core® samples	Method 8015	DAI-Ethylene glycol (TPH-purgeable)
	Method 8260	Volatile organic compounds

A complete "Analytical Group A" sample will consist of two 4 oz. amber jars and 6 En Core® samples (plus one 40 ml VOA trip blank per cooler when En Core® samples are present).

If a shipment to the off-site laboratory consists solely of En Core® samples then a 2 ounce jar must be filled with sample media from each sample location where En Core® samples were collected and included with the shipment.

**5.1.2 Analytical Group B**

This analytical group will be used for radiological analysis of all soil samples that are analyzed at the off-site laboratory. It consists of the following analytical methods and analytes:

Method EERF C-01 mod	<sup>14</sup> C
Method GL-Rad-A033	<sup>36</sup> Cl
Method RESL Ni-1mod	<sup>63</sup> Ni
Method 905.0 mod	<sup>90</sup> Sr - Total Strontium
Method 906.0 mod	<sup>3</sup> H (Tritium)
Gamma Spectroscopy Scan (Method 901.1 mod/HASL 300)	<sup>226</sup> Ra, <sup>210</sup> Pb, <sup>137</sup> Cs, and other gamma emitting isotopes

These samples will be collected in resealable plastic bags.

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**5.1.3 Analytical Group C**

This analytical group will be used for chemical analysis of CERCLA soil samples. It consists of the following analytical methods and analytes:

Method 6010	TAL (Target Analyte List) metals
Method 7471	Mercury
Method 8011	EDB and DBCP
Method 8081	Organochlorine Pesticides
Method 8141	Organophosphorus Pesticides
Method 8151	Herbicides
Method 8260	Volatile organic compounds (includes BETX)
Method 8270	Semi-volatile organic compounds (includes PAH)

A complete "Analytical Group C" sample will be defined in a later version of this work instruction.

**5.2 Sample Tracking**

**5.2.1 Sample Numbering**

The sample numbering system will contain elements to ensure that all sample numbers conform to the following criteria:

- All sample numbers shall be unique;
- Sample numbers shall identify the project;
- Sample numbers shall identify the type of material being sampled;
- Sample numbers shall identify the sample location;

Sample numbering will be in the following form:

**BLT - SSU - 01 - C1 - SO - 01**

Where,

**BLT** indicates the site (Beltsville);

**SSU** indicates that it is a stockpile survey unit; BM indicates borrow material; FSS indicates final status survey.

**01** indicates survey unit number one.

**C1** indicates MARSSIM survey unit classification; Class 1, Class2, or Class 3

**SO** indicates the sample media ("SO" = soil, "MW" = monitoring well, "TW" = temporary well, "WS" = waste, solid, "WL" = waste, liquid);

**01** indicates the sequential sample location (01-99) for the survey unit;

This work instruction may be updated at a later date to reflect refinements in the sample numbering system. Updates to the work instruction will be communicated to the use of the next sequential revision number and the document date.

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**5.2.2 Field Logbook**

A permanently bound field logbook with consecutively numbered pages, used for sampling activities only, will be assigned to this project. All entries will be recorded in indelible black or blue ink. At the end of each work day, the logbook pages will be signed by the responsible sampler, and any unused portions of the logbook pages will be crossed out, signed, and dated. If it is necessary to transfer the logbook to another person, the person relinquishing the logbook will sign and date the last page used, and the person receiving the logbook will sign and date the next page to be used. At a minimum, the logbook will contain the following information:

- Project name and site location
- Date and time
- Personnel in attendance
- General weather information
- Work performed
- Field observations
- Sampling performed, including specifics such as location, type of sample, type of analyses, and sample identification
- Field analyses performed, including results, instrument checks, problems, and calibration records for field instruments
- Descriptions of deviations from the SAP
- Problems encountered and corrective action taken
- Identification of field QC samples
- QC activities
- Verbal or written instructions
- Any other events that may affect the samples

**5.2.3 Sample Log**

The sample log is intended to serve as an index of sample activities. It contains information similar to that found on the Chain of Custody (COC) record. An example of the sample log is provided as Attachment 2. An electronic sample log (e.g. Excel) may be used provided it captures the information shown on the example.

**5.2.4 Chain of Custody (COC) record**

The Chain of Custody (COC) record, Attachment 1, will be the controlling document to ensure that sample custody is maintained. A sample is considered to be in custody if the following conditions have been observed:

- In actual possession or in view of the person who collected the samples;
- Locked in a secure area;
- Placed in an area restricted to authorized personnel;
- Placed in a container and secured with an official seal, so that the sample cannot be reached without breaking the seal.

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Each time the sample custody is transferred, the former custodian will sign the COC, relinquishing custody, and the new custodian will sign the COC indicating that they have received custody of sample. The date, time, and project or company affiliation will accompany each signature. Custody seals will be strategically affixed to sample containers in a manner to prevent tampering (as determined by the sampler/shipping broker).

The on-site laboratory will archive the samples collected from BARC LLRBS and maintain their custody. Samples submitted for off-site analysis shall be held for up to 90 calendar days after sample collection, at which time the samples will be disposed of by the laboratory.

In addition to providing a custody exchange record for the samples, the COC record serves as a formal request for sample analyses. The COC records will be completed, signed, and distributed as follows:

- A copy provided to the on-site or off-site analytical laboratory with the samples
- One copy retained on-site for inclusion in the project files

### **5.2.5 Sample Labels**

Sample labels typically will be computer-generated at the time the COC is prepared. (Labels may also be hand-written.) Sample labels will be filled out in indelible black or blue ink and affixed to sample containers at the time of sample collection. Each sample container will be labeled with the following, at a minimum:

- Sample identification number
- Sample collection date (month/day/year)
- Time of collection (24-hour clock) from the start of sampling
- Sampler's initials
- Preservative (if any)
- Sample weight (data completed by laboratory)

When a resealable plastic bag is used to collect samples for radiological analysis, the sample bag will be directly marked with indelible ink. If this sample is then transferred to a container, the lid of the container will be labeled. If containers are too small to fit the entire above-listed sample information, at a minimum the container will be labeled with the sample number.

## **5.3 Differentially-Corrected Global Positioning System (DGPS)**

### **5.3.1 DGPS Project Activities**

A DGPS will be used for the following project activities:

- Marking survey unit perimeters;
- Calculating survey unit dimensions by, at a minimum, logging the corners of the survey units;
- Marking sample locations in the field;
- Recording the perimeter of the completed excavation;
- Performing gamma walkover surveys;
- Recording the location of identified pits;
- Recording the location of identified anomalies.

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**5.3.2 DGPS Gamma Walkover Surveys**

The FSSP (Section 3.8) requires a Trimble Pathfinder Pro-XRS (or equivalent) DGPS to perform gamma walk over surveys. Energy Solutions, the owner of the DGPS equipment proposed for use on the BARC project, has performed an evaluation and determined that the equipment is equivalent to a Trimble Pathfinder Pro-XRS when used to perform gamma walk over surveys. When performing gamma walkover surveys the data from the ratemeter/scaler will be automatically logged into the DGPS unit at the rate of once per second.

DGPS data collected during the performance of gamma walkover surveys will be processed daily, as necessary, and the data will be reviewed for errors caused by fluctuations/interferences in the DGPS signal. Data processing specialists will inform the Project Manager or designee of any identified deficiencies and will make corrections as directed. Conversions, errors, corrections, and/or adjustments to project data shall be documented in a logbook.

**5.3.3 Survey Limitations of DGPS**

Although the DGPS unit identifies its position using the signals from several satellites, DGPS positioning may be affected by overhead obstructions during the course of survey. A loss of satellite signal due to these obstructions may prevent collection of location data, depending on the severity of the loss and the positional filter settings in use in the DGPS unit. If this occurs, data collection will not resume until a satellite lock is regained (usually by moving past the obstruction) and the positional filter requirements are satisfied. If the signal is lost during a survey, the operator shall continue to walk at constant velocity in a straight line until a satellite lock has been reestablished or until a boundary is reached. In such cases, due to positional filter settings in the DGPS unit, gamma logging does not occur.

At the discretion of the Project Manager or designee, logging filters may be temporarily overridden to enable gamma logging without a DGPS lock for brief periods. In such cases, it is especially important to proceed at a constant velocity so that locations for data collected in this manner can be interpolated or extrapolated. The surveyor will need to inform the data processing specialist if the gamma count rates between pairs of DGPS positional data change considerably. Such information will be entered in project logs, as appropriate. Interpolation and/or extrapolation of gamma data positions beyond good DGPS locations require additional post-processing programs or hand editing of data. It is desirable, therefore, to begin and end a survey path with good DGPS positions. The survey crew shall extend the beginning or end of a survey path (in a straight line) beyond a designated boundary in order to obtain satellite lock, if necessary. On occasion, it may not be possible to get a good satellite lock because of satellite positions in the sky or technical problems with the satellite system. In this case, a short wait (e.g., one-half hour) is usually sufficient to regain a satellite lock. If necessary, survey paths without good satellite locks will be repeated and/or hand surveyed and located.

**5.3.4 DGPS Quality Control (QC)**

DGPS QC will be accomplished through the use of calibration points, by reviewing plotted survey data, and by keeping detailed field notes. A calibration point is a location with known horizontal and vertical coordinates (e.g., a benchmark) that can be used to check the accuracy of DGPS data. Calibration points will ensure that the differential position corrections are being calculated properly, and that equipment is performing according to the manufacturer's specifications. One or more DGPS calibration points will be established prior to beginning the FSS

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DGPS calibration points shall be established and used in the following manner:

- Calibration points shall be set in convenient locations near the areas to be surveyed and clear of overhead obstructions. Existing unique features such as manholes, fire hydrants, or other permanent features may serve as calibration points.
- At each calibration point, ten initial DGPS position readings will be collected, each having at least a one-minute duration. Each set of ten readings will be used to develop the average position of the applicable calibration point.
- Position data shall be collected at one of the calibration points before and after survey performance.
- Data shall be collected at the calibration point at least twice daily when in use.
- Each time calibration point data are collected, the result shall be compared to the average location of that point. Measurements differing from the average by more than one meter will be investigated and corrective measures will be implemented as appropriate.

#### **5.4 Field Sample Collection**

Samples (excluding En Core® samples) will be collected using a stainless steel trowel. To ensure that enough material is collected to allow sample splitting between the on-site lab and the off-site lab approximately 2 gallons of sample material will be collected in resealable plastic bags. Any rocks, twigs, roots, etc., that can be easily separated from the sample media will be put back into the hole at the time of collection.

Sample containers will be labeled before or during sample collection. Sample media will be homogenized using stainless steel implements before being placed in the proper laboratory container for on-site and/or off-site analysis.

#### **5.5 En Core® Sampling Method**

En Core® samples will be collected from the sample container or from the soil directly as follows:

1. Sampling personnel will don a new pair of disposable nitrile gloves immediately before collecting soil samples at each location.
2. Holding the coring body, push the plunger rod down until the small O-ring rests against the tabs. This will ensure that the plunger will move easily.
3. Depress the locking lever on the En Core T-handle. Place the coring body (with the plunger end first) into the open end of the T-handle, aligning the slots of the coring body with the locking pins in the T-handle. Twist the coring body clockwise to lock the pins in the slots then ensure that the sampler is locked in place. The sampler is now ready for use.
4. To collect a sample; hold the T-handle and push the coring body into the soil until the coring body is full. When full, the small O-ring will be centered in the T-handle viewing hole. Remove the sampler from the soil then wipe any excess soil from the coring body exterior.
5. Cap the coring body while it is still on the T-handle. The cap should be pushed over the flat area of the ridge. Push and twist the cap to lock it in place so that it seals the sampler.

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6. Remove the capped sample by depressing the locking lever on the T-handle while twisting and pulling the sampler from the T-handle.
7. Place the En Core® sample in its aluminum bag then seal the bag.
8. Three En Core® samples may be placed in one aluminum bag for consolidation purposes.
9. Ensure that a sample label is completed and attached to the outside of the aluminum bag.
10. Place the aluminum bag inside a re-sealable bag then apply a custody seal to the re-sealable bag in a manner to prevent tampering. Place the sealed re-sealable bag inside another re-sealable bag before putting the sample in a cooler chilled with ice (or equivalent)

## **5.6 Sample Equipment Decontamination**

Sampling equipment will be screened for radiological contaminants at the frequency and in the manner prescribed by radiation protection personnel.

Before collecting a sample the sampling equipment will be decontaminated to prevent the introduction of foreign material into samples and to prevent cross-contamination between samples. Decontamination water may be placed back in the hole where the sample was obtained or collected in approved DOT containers.

The following steps are presented as a guide for the general decontamination of non-disposable sampling equipment:

1. Wash with non-phosphate detergent and water solution.
2. Rinse with potable water.
3. Rinse again with potable water.

The waste manager will provide guidance and direction for handling any containerized rinsate.

## **5.7 Class 3 Backfill Material**

The top 5 feet of soil in the planned excavation area is considered one Class 3 survey unit and has an estimated volume of 7,300 yd<sup>3</sup>. Soil above individual pits will be excavated in one-foot increments to ensure each individual pit's specific location is identified in a controlled manner. The excavated soil will be transported to a stockpile area where it will be laid out in six-inch lifts.

### **5.7.1 Sampling**

When a maximum of 398 yd<sup>3</sup> of material have been placed in one of the laydown areas then that area will be evaluated as follows:

- A gamma walkover scan survey will be performed on 100% of the exposed surfaces;
- The scan survey data will be used to identify the area exhibiting the highest activity, where one sample will be collected;
- The sample location will be identified in the field using GPS equipment;
- A minimum of 20 samples will be collected from the entire Class 3 survey unit (not each 398 yd<sup>3</sup> portion). The samples will be subjected to Analytical Group A and B analysis at the off-site laboratory as well as radiological analysis at the on-site laboratory.



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**5.7.2 Reclassification**

A few excerpts from MARSSIM regarding the reclassification of survey units are included below:

From Chapter 4.4

- Note that areas containing contamination in excess of the DCGL<sub>w</sub> prior to remediation should be classified as Class 1 areas.
- As a survey progresses, reevaluation of this classification may be necessary based on newly acquired survey data. For example, if contamination is identified in a Class 3 area, an investigation and reevaluation of that area should be performed to determine if the Class 3 area classification is appropriate. Typically, the investigation will result in part or all of the area being reclassified as Class 1 or Class 2.

From Chapter 5.5.3.2

- Investigation levels for Class 3 areas should be established to identify areas of elevated activity that may indicate the presence of residual radioactivity. Scanning survey locations that exceed the investigation level should be flagged for further investigation. The results of the investigation and basis for reclassifying all or part of the survey unit as Class 1 or Class 2 should be included in the final status survey report.

Several methods will be employed during the excavation of the Class 3 material to minimize the potential for moving waste material to the laydown areas. Project personnel will visually inspect the soil for any suspicious material during excavation. This could include sealed sources, vials, containers, bones, or any other debris that is not anticipated to be present. Personnel will also be alert for the presence of chemical contaminants which may be identified by unusual odors or colors in the soil. Remedial action support surveys will also be performed in the excavation area to periodically monitor for the presence of residual radioactivity.

Upon discovery of any of the aforementioned items personnel performing the excavation will notify project management. If possible a digital image will be collected and stored with the project files. A GPS device will be used to identify the location of the anomaly for future reference. An entry will be made in the operations field logbook containing details of the discovery including:

- The date and time of the discovery;
- A general description of the item or material;
- The condition of the item or material (e.g. was it broken or intact, any indications of leakage, etc.);
- Any radiological and/or chemical field data associated with the discovery;
- Details of the remediation process used to containerize the waste material;
- An estimate of the quantity of material classified as waste including the bounding soil.

The license termination manager will perform an evaluation using the information collected to determine the best path forward. This evaluation will be formally documented and included in the final status survey report. This could result in the reclassification of a portion of the Class 3 survey unit as Class 1. If reclassified, the Class 1 portion of the overburden will be included with other Class 1 backfill material and surveyed/sampled as described in Section 5.8. While reclassification is somewhat subjective in nature, the following factors will be considered:

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Factors contributing to a small area of impact:

- The physical makeup of the item/material does not lend itself to easily spreading contamination. This could be true of a piece of activated metal, a sealed source, or a liquid scintillation vial that is intact and shows no signs of leakage.
- There is no indication of the presence of low energy beta emitting radionuclides.

Factors contributing to a larger area of impact:

- The physical makeup of the item/material lends itself to easily spreading contamination. This could be true of broken liquid scintillation vials, ruptured containers, or contaminated soil.
- There is indication of the presence of low energy beta emitting radionuclides, which tend to be highly mobile.

Three possible scenarios associated with the area of elevated activity that has been identified by scan surveys in the southwest region of the landfill will be discussed here to further communicate the reclassification rationale.

1. The anomaly is a region of contaminated soil with the presence of bones and laboratory debris. In this scenario there is a high probability for the migration of contamination into the soil surrounding the anomaly. The anomaly, along with several feet of bounding material, would be containerized and evaluated by the waste manager for disposal. Soil would be removed until there was no further indication of the presence of contamination. The portion of the Class 3 survey unit below and beside the remediated area would be reclassified and included for evaluation with other Class 1 backfill material as described in Section 5.8. The size of the reclassified portion depends largely on the size of the remediation area. A good rule of thumb to follow for this scenario would be that the radius of the bounding Class 1 area, beginning at the edge of the remediation area, would be equal to the diameter of the remediation area. For example if the anomaly measured 3 feet across and then we removed an additional 2 feet of soil on all sides of the anomaly the remediation area would measure approximately 7 feet across (2+3+2). Therefore the class I survey unit would extend an additional 7 feet horizontally in all directions. This would produce a Class 1 area approximately 21 feet in diameter that extends down vertically to the bottom of the excavation.
2. The anomaly is a sealed cesium 137 button source that is not leaking. In this scenario there is a low probability for the migration of contamination into the soil surrounding the anomaly, however the presence of the source does justify reclassification of some portion of the Class 3 survey unit. The source, along with 1 foot of bounding material, would be containerized and evaluated by the waste manager for disposal. The portion of the Class 3 survey unit below and beside the remediated area would be reclassified and included for evaluation with other Class 1 backfill material as described in Section 5.8. For this scenario an area that is roughly the size of a disposal pit (10'x10') could be considered. This would produce a Class 1 area approximately 10 feet in diameter that extends down vertically to the bottom of the excavation.
3. The anomaly is a stone that contains high levels of naturally occurring radioactivity. The stone would be segregated from other materials and evaluated by gamma spectroscopy analysis at the on-site laboratory. The presence of this stone, which is clearly not USDA legacy waste, does not justify the reclassification of a portion of the Class 3 survey unit. Therefore no further action would be required beyond thoroughly documenting the event.

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**5.8 Class 1 Backfill Material Sampling**

Once the waste materials have been removed from a given disposal pit, the interstitial soil between individual disposal pits will be excavated and transported to a stockpile area where it will be laid out in six-inch lifts.

When 398 yd<sup>3</sup> of material have been placed in one of the laydown areas then that area will be considered a stockpile survey unit and the following activities will be performed:

- A gamma walkover scan survey will be performed on 100% of the exposed surfaces;
- 20 systematic sample locations will be plotted using VSP software (or equivalent). The sample locations will use a triangular grid pattern with a random start point;
- The sample locations will be identified in the field using GPS equipment;
- A soil sample will be collected from each of the 20 sample locations for radiological analysis at the on-site laboratory;
- One off-site sample will be collected from each survey unit. The location of this sample will be determined using a random number generator and the range 1-20, which will place the off-site sample location at one of the 20 systematic sample locations in the survey unit. The sample will be subjected to Analytical Group A and B analysis.

**5.9 Borrow Material Sampling**

Off-site borrow material sampling will be performed at a rate of one sample for every 398 cubic yards of soil. The samples will be collected to support Analytical Group A and B analysis. Additionally, prior to initial shipment of borrow material, TES will retrieve and review sampling data from the borrow source to ensure that the material is acceptable prior to delivery. Acceptance criteria can be found in the site-specific sampling and analysis plan.

**5.10 Reference Area Sampling**

A background reference area will be established in an area deemed to be free of radiological contaminants. After the reference area is established, the following activities will be performed:

- A gamma walkover scan survey will be performed on 100% of the exposed surfaces;
- 20 systematic sample locations will be plotted using VSP software (or equivalent). The sample locations will use a triangular grid pattern with a random start point;
- The sample locations will be identified in the field using GPS equipment;
- Soil samples will be collected from each of the 20 systematic sample locations and then subjected to Analytical Group B analysis at the off-site laboratory as well as radiological analysis at the on-site laboratory.

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**5.11 Final Status Survey Sampling**

The entire excavated area will be divided up into Class 1 survey units with a maximum size of 2,000 m<sup>2</sup>, or about 2,390 yd<sup>2</sup>. For each survey unit the following activities will be performed:

- A gamma walkover scan survey will be performed on 100% of the exposed surfaces;
- 20 systematic sample locations will be plotted using VSP software (or equivalent). The sample locations will use a triangular grid pattern with a random start point;
- The sample locations will be identified in the field using GPS equipment;
- A minimum of two biased sample locations will be identified using the results of the gamma walkover scan surveys;
- Soil samples will be collected from each of the 20 systematic sample locations, and the biased sample locations, and then subjected to Analytical Group B analysis at the off-site laboratory as well as radiological analysis at the on-site laboratory.

**5.12 Vadose Zone Soil and Ground Water Sampling**

During pit excavation GPS coordinates will be obtained from the bottom center of each excavated pit using a GPS device.

To characterize the deeper subsurface vadose zone soils and groundwater below each pit, a Geoprobe™ direct push sampling system (or equivalent) will be used to collect core samples from the center of each pit. Four-foot Geoprobe™ core sections will be advanced until the groundwater interface is reached. It is anticipated that three subsurface soil samples from each disposal pit will be selected and submitted for laboratory analysis as follows:

1. Each four-foot Geoprobe™ core section will be surveyed for gamma radiation, and one soil sample will be collected from the location exhibiting the most elevated activity from the four soil cores.
2. A composite sample will be collected from the top foot of the first soil core, comprising the floor of the disposal pit.
3. Another sample will be collected at the soil interface with groundwater.
4. The samples will be subjected to Analytical Group B analysis at the off-site laboratory as well as radiological analysis at the on-site laboratory.

Groundwater samples will be collected from the temporary well created by the hollow GeoProbe casing with a peristaltic pump. Both filtered and unfiltered samples will be collected and then subjected to Analytical Group B analysis at the off-site laboratory as well as radiological analysis at the on-site laboratory.

**BARC Work Instruction  
Field Sampling for License Termination**

**BWI-01, Rev. 2**

**August 15, 2013**

**5.13 CERCLA Sampling**

Once the NRC has agreed to unconditionally release the site from the USDA's radioactive material license the CERCLA related sampling activities will be conducted. If CERCLA sampling does not interfere with NRC release activities, sampling can be performed concurrently. The CERCLA Sampling Design, including the specific number and location of samples, will be determined when excavation is nearly complete in order to appropriately quantify the sample area and identify any biased sample locations.

CERCLA samples will be categorized as Analytical Group C.

**5.14 Soil Sampling Quality Assurance**

Soil samples will be sent to a laboratory chosen to perform QA analyses on samples collected for 14C (method EERF C-01 mod), 36Cl (method GL-Rad-A033), 63Ni (method RESL Ni-1 mod), 90Sr (method 905.0 mod), 3H (method 906.0 mod), and gamma spectroscopy scan (method 901.1 mod/HASL 300) for 226Ra, 210Pb, 137Cs, and other gamma emitting isotopes. Duplicate samples will be scheduled at a rate of 5% of samples collected. The samples will be numbered using a unique identifier and will be sent to the laboratory for analysis.

**6.0 RECORDS**

Field Logbook

Chain of Custody records, See Attachment 1

Sample Log, See Attachment 2

**7.0 REFERENCES**

CABRERA SERVICES; 2012; Decommissioning Plan, BARC LLRWS, Revised Final; January

TES; 2013; BARC Sampling and Analysis Plan, Revision 1, July

EnergySolutions; 2007; SOP CS-FO-PR-003, Soil Surveys; Collection of Water, Sediment, Vegetation and Soil Samples; and Chain-of-Custody Procedure

# BARC Work Instruction Field Sampling for License Termination, Attachment 1

BWI-01, Rev. 2

August 15, 2013

## TestAmerica St. Louis

13715 Rider Trail North

Earth City, MO 63045

phone 314.298.8566 fax 314.298.8757

## Chain of Custody Record



TestAmerica Laboratories, Inc.

<b>Client Contact</b> TES 2008 222 Valley Creek Boulevard Suite 210 Exton, PA 19341 (509) 205-2213 Phone N/A FAX Project Name: BARC LLRBS Backfill Operation Site: BARC P O # W52P1J-09-R-0118		<b>Project Manager: Brian Clayman</b> Tel/Fax: _____ <b>Analysis Turnaround Time</b> <input type="checkbox"/> CALENDAR DAYS <input type="checkbox"/> WORKING DAYS TAT if different from Below See Contract _____ <input type="checkbox"/> 2 weeks <input type="checkbox"/> 1 week <input type="checkbox"/> 2 days <input type="checkbox"/> 1 day		<b>Site Contact: Kelly Ellis</b> Lab Contact: Awalt, Jayna K Date: _____ Carrier: _____		COC No: BARC _____ of _____ COCs Sampler: _____ <b>For Lab Use Only:</b> Walk-in Client: _____ Lab Sampling: _____ Job / SDG No.: _____ Sample Specific Notes: _____																															
<b>Regulatory Program:</b> <input type="checkbox"/> DW <input type="checkbox"/> NPDES <input type="checkbox"/> RCRA <input type="checkbox"/> Other: _____																																					
Sample Identification	Sampled By (Initials)	Sample Date	Sample Time	Sample Type (C=Comp, G=Grab)	Matrix	# of Cont.	Filtered Sample (Y / N)	Perform MS / MSD (Y / N)	Group A	Group B	Group C																										
Example																																					
<b>Preservation Used:</b> 1= Ice, 2= HCl; 3= H2SO4; 4=HNO3; 5=NaOH; 6= Other _____																																					
<b>Possible Hazard Identification:</b> Are any samples from a listed EPA Hazardous Waste? Please List any EPA Waste Codes for the sample in the Comments Section if the lab is to dispose of the sample. <input type="checkbox"/> Non-Hazard <input type="checkbox"/> Flammable <input type="checkbox"/> Skin Irritant <input type="checkbox"/> Poison B <input type="checkbox"/> Unknown							<b>Sample Disposal ( A fee may be assessed if samples are retained longer than 1 month)</b> <input type="checkbox"/> Return to Client <input type="checkbox"/> Disposal by Lab <input type="checkbox"/> Archive for _____ Months																														
<b>Special Instructions/QC Requirements &amp; Comments:</b> _____ _____ _____																																					
Custody Seals Intact: <input type="checkbox"/> Yes <input type="checkbox"/> No				Custody Seal No.: _____				Cooler Temp. (°C): Obs'd: _____				Corr'd: _____				Therm ID No.: _____																					
Relinquished by:				Company:		Date/Time:		Received by:				Company:				Date/Time:																					
Relinquished by:				Company:		Date/Time:		Received by:				Company:				Date/Time:																					
Relinquished by:				Company:		Date/Time:		Received by:				Company:				Date/Time:																					
Relinquished by:				Company:		Date/Time:		Received by:				Company:				Date/Time:																					
Relinquished by:				Company:		Date/Time:		Received in Laboratory by:				Company:				Date/Time:																					



**Final Status Survey Report**  
**Appendix 5**  
**Background Reference Area**  
**Survey and Sample Results**

**Beltsville Agricultural Research Center (BARC)**  
**Low Level Radioactive Burial site (LLRBS)**  
**Beltsville, Maryland**



**Prepared for:**

U.S. Army Field Support Command  
Rock Island, Illinois

*Prepared by:*

***TPMC-EnergySolutions Environmental Services, LLC***

**Contract No. W52P1J-11-D-0001**

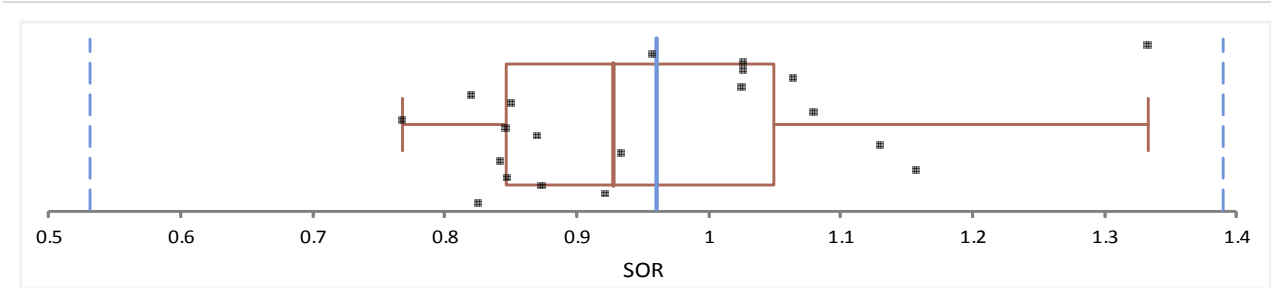




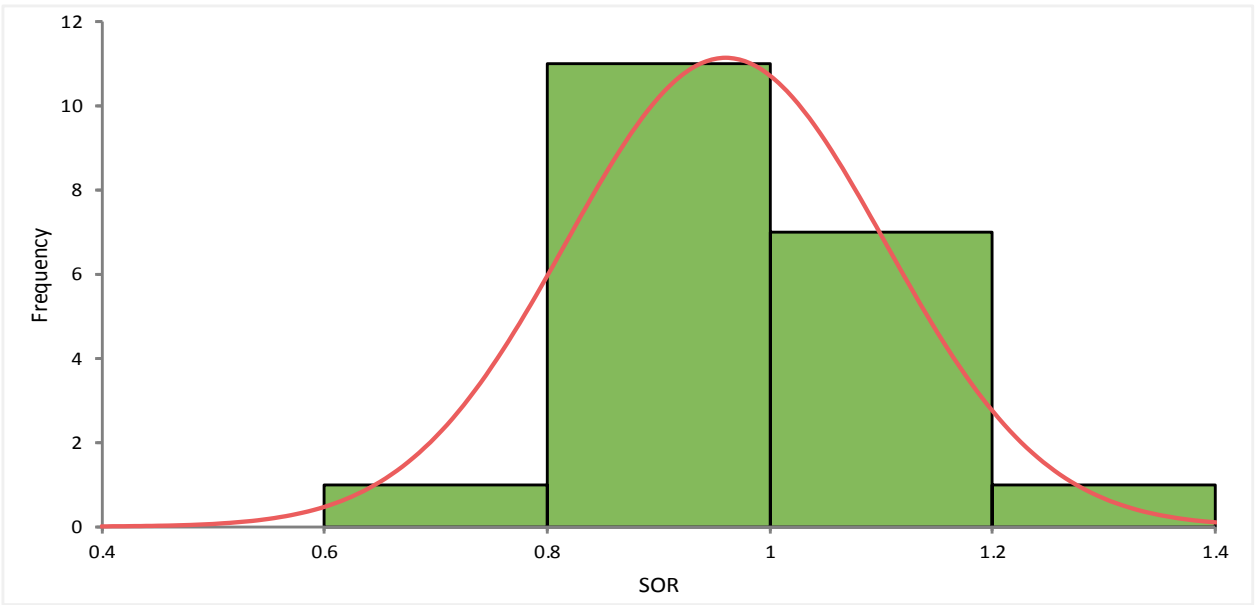
Background Reference Area

Sample Results Summary

Sample ID	BLT-RA-SO-01	BLT-RA-SO-02	BLT-RA-SO-03	BLT-RA-SO-04	BLT-RA-SO-05	BLT-RA-SO-06	BLT-RA-SO-07	BLT-RA-SO-08	BLT-RA-SO-09	BLT-RA-SO-10	BLT-RA-SO-11	BLT-RA-SO-12	BLT-RA-SO-13	BLT-RA-SO-14	BLT-RA-SO-15	BLT-RA-SO-16	BLT-RA-SO-17	BLT-RA-SO-18	BLT-RA-SO-19	BLT-RA-SO-20	Avg	Min	Max
SOR	0.826	0.921	0.873	0.847	1.158	0.842	0.934	1.130	0.870	0.846	0.768	1.079	0.851	0.821	1.026	1.065	1.026	1.026	0.958	1.333	0.960	0.768	1.333
Net SOR	0.019	0.031	0.012	0.032	0.202	0.028	0.031	0.188	0.001	0.047	0.000	0.135	0.001	0.015	0.079	0.121	0.076	0.076	0.036	0.388	0.076	0.000	0.388
SOR + 1	1.826	1.921	1.873	1.847	2.158	1.842	1.934	2.130	1.870	1.846	1.768	2.079	1.851	1.821	2.026	2.065	2.026	2.026	1.958	2.333	1.960	1.768	2.333



N   20	
SOR	Mean 0.960024639 SE 0.031995990 SD 0.143090417 Variance 0.020474867 Skewness 1.0 Kurtosis 0.75
SOR	Minimum 0.76785525 1st quartile 0.846637499 Median 0.927723848 3rd quartile 1.048939542 Maximum 1.33283227 IQR 0.202302043
Quantile	SOR
0.050	0.786330390
0.950	1.271550074



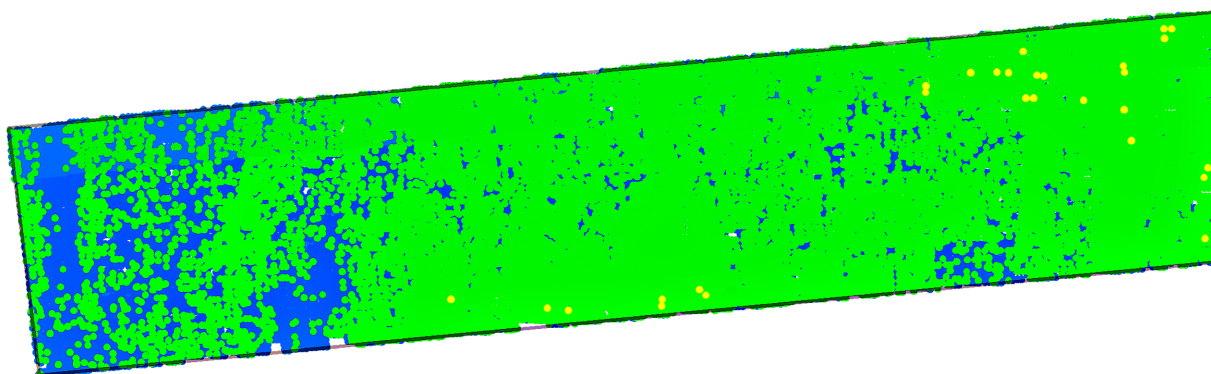
Frequency Distribution					
Class	Frequency	Relative frequency	Density	Cumulative frequency	Cumulative relative frequency
≥0.6 to <0.8	1	0.050	0.2500	1	0.050
≥0.8 to <1	11	0.550	2.7500	12	0.600
≥1 to <1.2	7	0.350	1.7500	19	0.950
≥1.2 to <1.4	1	0.050	0.2500	20	1.000

# BARC LLRBS FSSR Appendix 5


## Background Reference Area

## Scan Plot

### Background Reference Area Scan Survey

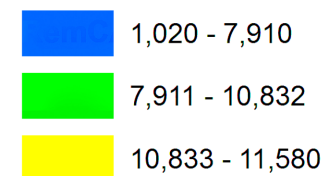


## Legend

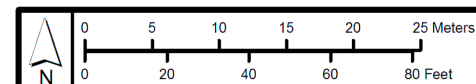
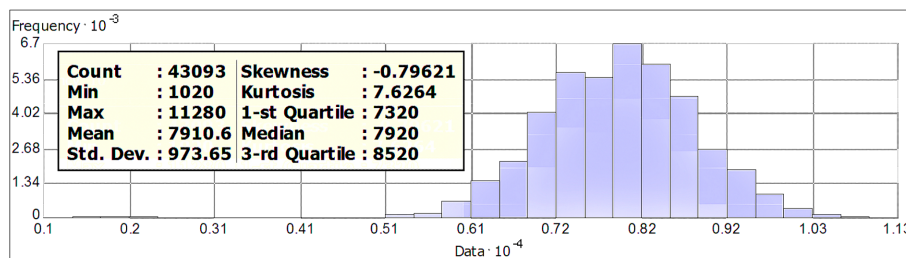
 Reference Area

**FIDLER Gross CPM**

**RemCAT**



Data Collected 07/26/13 - 07/30/13



Background Reference Area  
Beltsville, MD

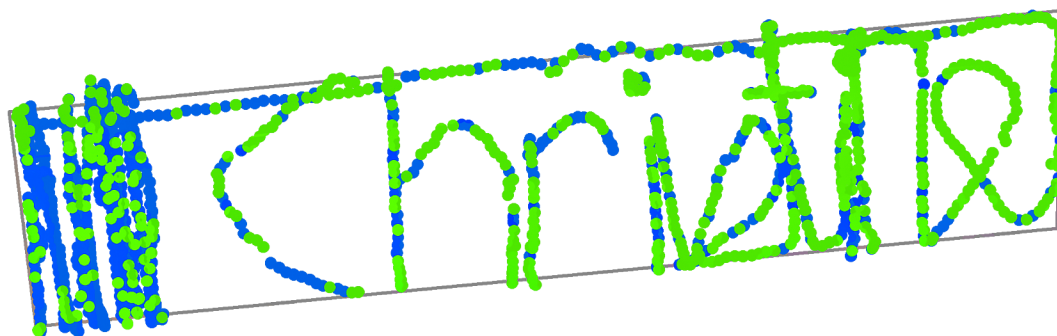


Date	07/30/13
Drawing	13072901.a

Background Reference Area

Scan Plot

Background Reference Area  
Additional Scan Survey for Universal  
Color Ramp Development



Legend

FIDLER Gross CPM

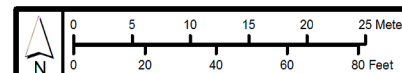
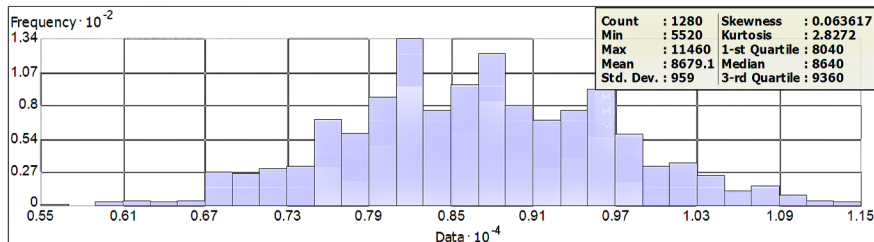
S/N - 012269

5520 - 8679

8680 - 11460

Reference Area

Data Collected 08/20/13



Background Reference Area  
Beltsville, MD

ENERGY SOLUTIONS

Date 08/21/13  
Drawing 13082101.a

# BARC LLRBS FSSR Appendix 5

## Background Reference Area

## Scan Data Color Ramp

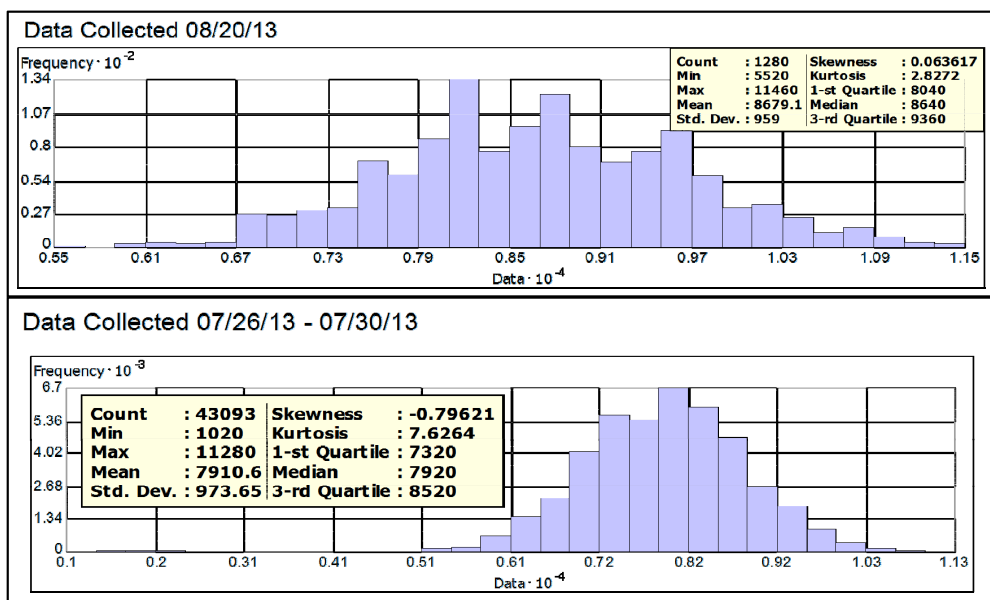
### BARC Reference Area Data Assessment

#### Backpack (Data collected 8/20/13)

Count	1,280
Mean	8,679 cpm
Median	8,640 cpm
Standard Deviation	959 cpm
Relative Error	11.0%
Minimum	5,520 cpm
Maximum	11,460 cpm

#### RemCAT (Data collected July 2013)

Count (all)	65,529
Count (<5,000 cpm)	255
Mean	7,858 cpm
Median	7,860 cpm
Standard Deviation	975 cpm
Relative Error	12.4%
Minimum	1,020 cpm
Maximum	11,760 cpm



#### Backpack to RemCAT Comparison

Mean % change	-9.5%
Mean difference	821 cpm
Median % change	-9.0%
Median difference	780 cpm
Standard Deviation % change	1.6%
Minimum % change	-81.5%
Maximum % change	2.6%

<http://www.percent-change.com/>

#### GIS Color Ramp

Color	Range (cpm)	Statistical Range
Blue	Min to 8,269	0 - Mean
Green	8,270 to 11,193	Mean to +3σ
Yellow	11,194 to 14,119	+3s to +6σ
L. Orange	14,120 to 25,000	
M. Orange	25,001 to 50,000	
D. Orange	> 50,000	

#### Recommendation

Because both distributions are within their relative errors, use the average of the means and medians and the maximum standard deviation.

Mean	8,269 cpm
Standard Deviation	975 cpm
Median	8,250 cpm

BARC LLRBS FSSR  
Appendix 5

Background Reference Area													Individual Sample Results					
Sample ID	Matrix	Collected	Analyzed	Method	Analyte	CAS	Result	TES Result	Unit	% Uncertainty	Footnotes	RL/CRDL	MDL/MDA	DCGL	Ratio	RA Mean	Net Result	Net Ratio
BLT-RA-SO-01	Solid	7/17/2013 10:40	8/21/2013 8:25	EERF C-01-1	C-14	14762-75-5	0.355	1.2	pCi/g	0.721	U	5	1.2	21	0.057	1.005	0.195	0.009
BLT-RA-SO-01	Solid	7/17/2013 10:40	8/8/2013 10:42	TAL-STL STL-RC-0036	Cl-36	13981-43-6	-0.254	0.504	pCi/g	0.258	U	1	0.504	13.2	0.038	0.510	(0.006)	0
BLT-RA-SO-01	Solid	7/17/2013 10:40	8/21/2013 16:29	EPA 901.1	Cs-137	10045-97-3	0.142	0.142	pCi/g	0.0216		0.2	0.0139	16.9	0.008	0.096	0.046	0.003
BLT-RA-SO-01	Solid	7/17/2013 10:40	8/9/2013 6:41	EPA 906.0	H-3	10028-17-8	1.15	1.15	pCi/g	0.459		1	0.64	121	0.010	0.414	0.736	0.006
BLT-RA-SO-01	Solid	7/17/2013 10:40	8/17/2013 2:19	TAL-STL STL-RC-0055	Ni-63	13981-37-8	-0.0463	1.85	pCi/g	1.07	U	5	1.85	77954	0.000	1.889	(0.039)	0
BLT-RA-SO-01	Solid	7/17/2013 10:40	8/21/2013 16:29	EPA 901.1	Pb-210	14255-04-0	0.709	0.709	pCi/g	0.332		0.3	0.451	1.9	0.373	0.907	(0.198)	0
BLT-RA-SO-01	Solid	7/17/2013 10:40	8/21/2013 16:29	EPA 901.1	Ra-226	13982-63-3	0.665	0.665	pCi/g	0.0792		0.1	0.0332	2.2	0.302	0.771	(0.106)	0
BLT-RA-SO-01	Solid	7/17/2013 10:40	8/20/2013 15:24	DOE 905.0	Sr-90	STL02023	0.0246	0.174	pCi/g	0.102	U	1	0.174	4.7	0.037	0.172	0.002	0.000
													BLT-RA-SO-01	SOR	0.826		Net SOR	0.019
BLT-RA-SO-02	Solid	7/17/2013 10:49	8/16/2013 1:21	EERF C-01-1	C-14	14762-75-5	0.524	1.64	pCi/g	0.989	U	5	1.64	21	0.078	1.005	0.635	0.030
BLT-RA-SO-02	Solid	7/17/2013 10:49	8/8/2013 10:42	TAL-STL STL-RC-0036	Cl-36	13981-43-6	0.0649	0.507	pCi/g	0.292	U	1	0.507	13.2	0.038	0.510	(0.003)	0
BLT-RA-SO-02	Solid	7/17/2013 10:49	8/21/2013 16:31	EPA 901.1	Cs-137	10045-97-3	0.0691	0.0691	pCi/g	0.0207		0.2	0.0205	16.9	0.004	0.096	(0.027)	0
BLT-RA-SO-02	Solid	7/17/2013 10:49	8/6/2013 18:46	EPA 906.0	H-3	10028-17-8	0.0902	0.448	pCi/g	0.258	U	1	0.448	121	0.004	0.414	0.034	0.000
BLT-RA-SO-02	Solid	7/17/2013 10:49	8/17/2013 3:27	TAL-STL STL-RC-0055	Ni-63	13981-37-8	-0.0473	1.91	pCi/g	1.11	U	5	1.91	77954	0.000	1.889	0.021	0.000
BLT-RA-SO-02	Solid	7/17/2013 10:49	8/21/2013 16:31	EPA 901.1	Pb-210	14255-04-0	0.848	0.848	pCi/g	0.41		0.3	0.548	1.9	0.446	0.907	(0.059)	0
BLT-RA-SO-02	Solid	7/17/2013 10:49	8/21/2013 16:31	EPA 901.1	Ra-226	13982-63-3	0.693	0.693	pCi/g	0.0863		0.1	0.0399	2.2	0.315	0.771	(0.078)	0
BLT-RA-SO-02	Solid	7/17/2013 10:49	8/20/2013 15:24	DOE 905.0	Sr-90	STL02023	0.0559	0.168	pCi/g	0.101	U	1	0.168	4.7	0.036	0.172	(0.004)	0
													BLT-RA-SO-02	SOR	0.921		Net SOR	0.031
BLT-RA-SO-03	Solid	7/17/2013 11:02	8/21/2013 8:48	EERF C-01-1	C-14	14762-75-5	-0.146	1.22	pCi/g	0.691	U	5	1.22	21	0.058	1.005	0.215	0.010
BLT-RA-SO-03	Solid	7/17/2013 11:02	8/8/2013 10:42	TAL-STL STL-RC-0036	Cl-36	13981-43-6	-0.00543	0.529	pCi/g	0.299	U	1	0.529	13.2	0.040	0.510	0.019	0.001
BLT-RA-SO-03	Solid	7/17/2013 11:02	8/22/2013 2:37	EPA 901.1	Cs-137	10045-97-3	0.0988	0.0988	pCi/g	0.0211		0.2	0.0213	16.9	0.006	0.096	0.003	0.000
BLT-RA-SO-03	Solid	7/17/2013 11:02	8/6/2013 19:32	EPA 906.0	H-3	10028-17-8	0.225	0.425	pCi/g	0.262	U	1	0.425	121	0.004	0.414	0.011	0.000
BLT-RA-SO-03	Solid	7/17/2013 11:02	8/17/2013 4:34	TAL-STL STL-RC-0055	Ni-63	13981-37-8	0.377	1.75	pCi/g	1.04	U	5	1.75	77954	0.000	1.889	(0.139)	0
BLT-RA-SO-03	Solid	7/17/2013 11:02	8/22/2013 2:37	EPA 901.1	Pb-210	14255-04-0	0.816	0.816	pCi/g	0.355		0.3	0.48	1.9	0.429	0.907	(0.091)	0
BLT-RA-SO-03	Solid	7/17/2013 11:02	8/22/2013 2:37	EPA 901.1	Ra-226	13982-63-3	0.663	0.663	pCi/g	0.0826		0.1	0.0433	2.2	0.301	0.771	(0.108)	0
BLT-RA-SO-03	Solid	7/17/2013 11:02	8/20/2013 15:25	DOE 905.0	Sr-90	STL02023	0.0997	0.165	pCi/g	0.102	U	1	0.165	4.7	0.035	0.172	(0.007)	0
													BLT-RA-SO-03	SOR	0.873		Net SOR	0.012
BLT-RA-SO-04	Solid	7/17/2013 11:00	8/21/2013 9:12	EERF C-01-1	C-14	14762-75-5	0.206	1.22	pCi/g	0.717	U	5	1.22	21	0.058	1.005	0.215	0.010
BLT-RA-SO-04	Solid	7/17/2013 11:00	8/8/2013 10:42	TAL-STL STL-RC-0036	Cl-36	13981-43-6	0.164	0.524	pCi/g	0.311	U	1	0.524	13.2	0.040	0.510	0.014	0.001
BLT-RA-SO-04	Solid	7/17/2013 11:00	8/22/2013 2:38	EPA 901.1	Cs-137	10045-97-3	0.086	0.086	pCi/g	0.0178		0.2	0.0155	16.9	0.005	0.096	(0.010)	0
BLT-RA-SO-04	Solid	7/17/2013 11:00	8/6/2013 20:32	EPA 906.0	H-3	10028-17-8	0.238	0.391	pCi/g	0.244	U	1	0.391	121	0.003	0.414	(0.023)	0
BLT-RA-SO-04	Solid	7/17/2013 11:00	8/17/2013 5:42	TAL-STL STL-RC-0055	Ni-63	13981-37-8	1.37	2.18	pCi/g	1.35	U	5	2.18	77954	0.000	1.889	0.291	0.000
BLT-RA-SO-04	Solid	7/17/2013 11:00	8/22/2013 2:38	EPA 901.1	Pb-210	14255-04-0	0.632	0.632	pCi/g	0.321		0.3	0.438	1.9	0.333	0.907	(0.275)	0
BLT-RA-SO-04	Solid	7/17/2013 11:00	8/22/2013 2:38	EPA 901.1	Ra-226	13982-63-3	0.817	0.817	pCi/g	0.0951		0.1	0.0315	2.2	0.371	0.771	0.046	0.021
BLT-RA-SO-04	Solid	7/17/2013 11:00	8/20/2013 15:25	DOE 905.0	Sr-90	STL02023	0.173	0.173	pCi/g	0.103		1	0.159	4.7	0.037	0.172	0.001	0.000
													BLT-RA-SO-04	SOR	0.847		Net SOR	0.032
BLT-RA-SO-05	Solid	7/17/2013 13:53	8/21/2013 9:36	EERF C-01-1	C-14	14762-75-5	0.185	1.26	pCi/g	0.739	U	5	1.26	21	0.060	1.005	0.255	0.012
BLT-RA-SO-05	Solid	7/17/2013 13:53	8/8/2013 10:42	TAL-STL STL-RC-0036	Cl-36	13981-43-6	0.204	0.468	pCi/g	0.283	U	1	0.468	13.2	0.035	0.510	(0.042)	0
BLT-RA-SO-05	Solid	7/17/2013 13:53	8/23/2013 3:52	EPA 901.1	Cs-137	10045-97-3	0.0792	0.0792	pCi/g	0.0209		0.2	0.0181	16.9	0.005	0.096	(0.017)	0
BLT-RA-SO-05	Solid	7/17/2013 13:53	8/6/2013 21:20	EPA 906.0	H-3	10028-17-8	0.144	0.367	pCi/g	0.22	U	1	0.367	121	0.003	0.414	(0.047)	0
BLT-RA-SO-05	Solid	7/17/2013 13:53	8/17/2013 6:49	TAL-STL STL-RC-0055	Ni-63	13981-37-8	0	2.18	pCi/g	1.27	U	5	2.18	77954	0.000	1.889	0.291	0.000
BLT-RA-SO-05	Solid	7/17/2013 13:53	8/23/2013 3:52	EPA 901.1	Pb-210	14255-04-0	1.2	1.2	pCi/g	0.413		0.3	0.513	1.9	0.632	0.907	0.293	0.154
BLT-RA-SO-05	Solid	7/17/2013 13:53	8/23/2013 3:52	EPA 901.1	Ra-226	13982-63-3	0.85	0.85	pCi/g	0.096		0.1	0.0371	2.2	0.386	0.771	0.079	0.036
BLT-RA-SO-05	Solid	7/17/2013 13:53	8/20/2013 15:25	DOE 905.0	Sr-90	STL02023	0.0747	0.172	pCi/g	0.104	U	1	0.172	4.7	0.037	0.172	0.000	0.000
													BLT-RA-SO-05	SOR	1.158		Net SOR	0.202



BARC LLRBS FSSR  
Appendix 5

Background Reference Area												Individual Sample Results						
Sample ID	Matrix	Collected	Analyzed	Method	Analyte	CAS	Result	TES Result	Unit	% Uncertainty	Footnotes	RL/CRDL	MDL/MDA	DCGL	Ratio	RA Mean	Net Result	Net Ratio
BLT-RA-SO-06	Solid	7/17/2013 10:34	8/16/2013 2:57	EERF C-01-1	C-14	14762-75-5	-0.812	1.56	pCi/g	0.866	U	5	1.56	21	0.074	1.005	0.555	0.026
BLT-RA-SO-06	Solid	7/17/2013 10:34	8/8/2013 10:42	TAL-STL STL-RC-0036	Cl-36	13981-43-6	0.179	0.471	pCi/g	0.282	U	1	0.471	13.2	0.036	0.510	(0.039)	0
BLT-RA-SO-06	Solid	7/17/2013 10:34	8/23/2013 3:50	EPA 901.1	Cs-137	10045-97-3	0.126	0.126	pCi/g	0.0247		0.2	0.02	16.9	0.007	0.096	0.030	0.002
BLT-RA-SO-06	Solid	7/17/2013 10:34	8/6/2013 22:07	EPA 906.0	H-3	10028-17-8	0.236	0.379	pCi/g	0.239	U	1	0.379	121	0.003	0.414	(0.035)	0
BLT-RA-SO-06	Solid	7/17/2013 10:34	8/17/2013 7:57	TAL-STL STL-RC-0055	Ni-63	13981-37-8	-0.37	2.12	pCi/g	1.21	U	5	2.12	77954	0.000	1.889	0.231	0.000
BLT-RA-SO-06	Solid	7/17/2013 10:34	8/23/2013 3:50	EPA 901.1	Pb-210	14255-04-0	0.722	0.722	pCi/g	0.459		0.3	0.649	1.9	0.380	0.907	(0.185)	0
BLT-RA-SO-06	Solid	7/17/2013 10:34	8/23/2013 3:50	EPA 901.1	Ra-226	13982-63-3	0.678	0.678	pCi/g	0.0903		0.1	0.0436	2.2	0.308	0.771	(0.093)	0
BLT-RA-SO-06	Solid	7/17/2013 10:34	8/20/2013 15:11	DOE 905.0	Sr-90	STL02023	0.0789	0.155	pCi/g	0.0948	U	1	0.155	4.7	0.033	0.172	(0.017)	0
													BLT-RA-SO-06	SOR	0.842		Net SOR	0.028
BLT-RA-SO-07	Solid	7/18/2013 15:30	8/16/2013 19:13	EERF C-01-1	C-14	14762-75-5	0.482	0.831	pCi/g	0.51	U	5	0.831	21	0.040	1.005	(0.174)	0
BLT-RA-SO-07	Solid	7/18/2013 15:30	8/9/2013 10:05	TAL-STL STL-RC-0036	Cl-36	13981-43-6	0.128	0.538	pCi/g	0.317	U	1	0.538	13.2	0.041	0.510	0.028	0.002
BLT-RA-SO-07	Solid	7/18/2013 15:30	8/23/2013 3:52	EPA 901.1	Cs-137	10045-97-3	0.121	0.121	pCi/g	0.0188		0.2	0.0127	16.9	0.007	0.096	0.025	0.001
BLT-RA-SO-07	Solid	7/18/2013 15:30	8/6/2013 22:55	EPA 906.0	H-3	10028-17-8	0.308	0.365	pCi/g	0.241	U	1	0.365	121	0.003	0.414	(0.049)	0
BLT-RA-SO-07	Solid	7/18/2013 15:30	8/20/2013 10:39	TAL-STL STL-RC-0055	Ni-63	13981-37-8	0.158	1.89	pCi/g	1.1	U *	5	1.89	77954	0.000	1.889	0.001	0.000
BLT-RA-SO-07	Solid	7/18/2013 15:30	8/23/2013 3:52	EPA 901.1	Pb-210	14255-04-0	0.959	0.959	pCi/g	0.329		0.3	0.396	1.9	0.505	0.907	0.052	0.028
BLT-RA-SO-07	Solid	7/18/2013 15:30	8/23/2013 3:52	EPA 901.1	Ra-226	13982-63-3	0.67	0.67	pCi/g	0.0793		0.1	0.0275	2.2	0.305	0.771	(0.101)	0
BLT-RA-SO-07	Solid	7/18/2013 15:30	8/20/2013 15:11	DOE 905.0	Sr-90	STL02023	0.132	0.161	pCi/g	0.102	U	1	0.161	4.7	0.034	0.172	(0.011)	0
													BLT-RA-SO-07	SOR	0.934		Net SOR	0.031
BLT-RA-SO-08	Solid	7/18/2013 15:20	8/19/2013 17:49	EERF C-01-1	C-14	14762-75-5	0.566	0.754	pCi/g	0.469	U	5	0.754	21	0.036	1.005	(0.251)	0
BLT-RA-SO-08	Solid	7/18/2013 15:20	8/9/2013 10:05	TAL-STL STL-RC-0036	Cl-36	13981-43-6	0.0435	0.49	pCi/g	0.28	U	1	0.49	13.2	0.037	0.510	(0.020)	0
BLT-RA-SO-08	Solid	7/18/2013 15:20	8/23/2013 3:51	EPA 901.1	Cs-137	10045-97-3	0.0397	0.0397	pCi/g	0.0131		0.2	0.0218	16.9	0.002	0.096	(0.057)	0
BLT-RA-SO-08	Solid	7/18/2013 15:20	8/6/2013 23:19	EPA 906.0	H-3	10028-17-8	0.246	0.393	pCi/g	0.246	U	1	0.393	121	0.003	0.414	(0.021)	0
BLT-RA-SO-08	Solid	7/18/2013 15:20	8/20/2013 12:54	TAL-STL STL-RC-0055	Ni-63	13981-37-8	0.396	1.78	pCi/g	1.06	U *	5	1.78	77954	0.000	1.889	(0.109)	0
BLT-RA-SO-08	Solid	7/18/2013 15:20	8/23/2013 3:51	EPA 901.1	Pb-210	14255-04-0	1.26	1.26	pCi/g	0.541		0.3	0.656	1.9	0.663	0.907	0.353	0.186
BLT-RA-SO-08	Solid	7/18/2013 15:20	8/23/2013 3:51	EPA 901.1	Ra-226	13982-63-3	0.777	0.777	pCi/g	0.0904		0.1	0.029	2.2	0.353	0.771	0.006	0.003
BLT-RA-SO-08	Solid	7/18/2013 15:20	8/20/2013 15:11	DOE 905.0	Sr-90	STL02023	-0.0238	0.165	pCi/g	0.0944	U	1	0.165	4.7	0.035	0.172	(0.007)	0
													BLT-RA-SO-08	SOR	1.130		Net SOR	0.188
BLT-RA-SO-09	Solid	7/18/2013 15:07	8/16/2013 22:37	EERF C-01-1	C-14	14762-75-5	-0.227	0.763	pCi/g	0.442	U	5	0.763	21	0.036	1.005	(0.242)	0
BLT-RA-SO-09	Solid	7/18/2013 15:07	8/9/2013 10:05	TAL-STL STL-RC-0036	Cl-36	13981-43-6	0.167	0.518	pCi/g	0.308	U	1	0.518	13.2	0.039	0.510	0.008	0.001
BLT-RA-SO-09	Solid	7/18/2013 15:07	8/23/2013 3:55	EPA 901.1	Cs-137	10045-97-3	0.0857	0.0857	pCi/g	0.0159		0.2	0.0122	16.9	0.005	0.096	(0.011)	0
BLT-RA-SO-09	Solid	7/18/2013 15:07	8/6/2013 23:43	EPA 906.0	H-3	10028-17-8	0.166	0.376	pCi/g	0.228	U	1	0.376	121	0.003	0.414	(0.038)	0
BLT-RA-SO-09	Solid	7/18/2013 15:07	8/20/2013 14:02	TAL-STL STL-RC-0055	Ni-63	13981-37-8	0.192	1.74	pCi/g	1.02	U *	5	1.74	77954	0.000	1.889	(0.149)	0
BLT-RA-SO-09	Solid	7/18/2013 15:07	8/23/2013 3:55	EPA 901.1	Pb-210	14255-04-0	0.867	0.867	pCi/g	0.295		0.3	0.336	1.9	0.456	0.907	(0.040)	0
BLT-RA-SO-09	Solid	7/18/2013 15:07	8/23/2013 3:55	EPA 901.1	Ra-226	13982-63-3	0.66	0.66	pCi/g	0.0773		0.1	0.0293	2.2	0.300	0.771	(0.111)	0
BLT-RA-SO-09	Solid	7/18/2013 15:07	8/20/2013 15:12	DOE 905.0	Sr-90	STL02023	0.0255	0.141	pCi/g	0.0827	U	1	0.141	4.7	0.030	0.172	(0.031)	0
													BLT-RA-SO-09	SOR	0.870		Net SOR	0.001
BLT-RA-SO-10	Solid	7/17/2013 14:01	8/16/2013 3:21	EERF C-01-1	C-14	14762-75-5	-0.73	1.68	pCi/g	0.942	U	5	1.68	21	0.080	1.005	0.675	0.032
BLT-RA-SO-10	Solid	7/17/2013 14:01	8/8/2013 10:42	TAL-STL STL-RC-0036	Cl-36	13981-43-6	0.703	0.703	pCi/g	0.354		1	0.516	13.2	0.053	0.510	0.193	0.015
BLT-RA-SO-10	Solid	7/17/2013 14:01	8/23/2013 3:51	EPA 901.1	Cs-137	10045-97-3	0.0675	0.0675	pCi/g	0.0181		0.2	0.0206	16.9	0.004	0.096	(0.029)	0
BLT-RA-SO-10	Solid	7/17/2013 14:01	8/6/2013 22:31	EPA 906.0	H-3	10028-17-8	0.123	0.364	pCi/g	0.217	U	1	0.364	121	0.003	0.414	(0.050)	0
BLT-RA-SO-10	Solid	7/17/2013 14:01	8/17/2013 9:04	TAL-STL STL-RC-0055	Ni-63	13981-37-8	0.238	2.19	pCi/g	1.28	U	5	2.19	77954	0.000	1.889	0.301	0.000
BLT-RA-SO-10	Solid	7/17/2013 14:01	8/23/2013 3:51	EPA 901.1	Pb-210	14255-04-0	0.66	0.66	pCi/g	0.376		0.3	0.496	1.9	0.347	0.907	(0.247)	0
BLT-RA-SO-10	Solid	7/17/2013 14:01	8/23/2013 3:51	EPA 901.1	Ra-226	13982-63-3	0.72	0.72	pCi/g	0.0868		0.1	0.0397	2.2	0.327	0.771	(0.051)	0
BLT-RA-SO-10	Solid	7/17/2013 14:01	8/20/2013 15:11	DOE 905.0	Sr-90	STL02023	0.0554	0.148	pCi/g	0.0887	U	1	0.148	4.7	0.031	0.172	(0.024)	0
													BLT-RA-SO-10	SOR	0.846		Net SOR	0.047

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Appendix 5

Background Reference Area													Individual Sample Results						
Sample ID	Matrix	Collected	Analyzed	Method	Analyte	CAS	Result	TES Result	Unit	% Uncertainty	Footnotes	RL/CRDL	MDL/MDA	DCGL	Ratio	RA Mean	Net Result	Net Ratio	
BLT-RA-SO-11	Solid	7/18/2013 14:52	8/16/2013 23:45	EERF C-01-1	C-14	14762-75-5	-0.194	0.818	pCi/g	0.473	U	5	0.818	21	0.039	1.005	(0.187)	0	
BLT-RA-SO-11	Solid	7/18/2013 14:52	8/9/2013 10:05	TAL-STL STL-RC-0036	Cl-36	13981-43-6	-0.0473	0.475	pCi/g	0.264	U	1	0.475	13.2	0.036	0.510	(0.035)	0	
BLT-RA-SO-11	Solid	7/18/2013 14:52	8/23/2013 3:56	EPA 901.1	Cs-137	10045-97-3	0.0701	0.0701	pCi/g	0.0196		0.2	0.0175	16.9	0.004	0.096	(0.026)	0	
BLT-RA-SO-11	Solid	7/18/2013 14:52	8/7/2013 0:07	EPA 906.0	H-3	10028-17-8	0.126	0.377	pCi/g	0.221	U	1	0.377	121	0.003	0.414	(0.037)	0	
BLT-RA-SO-11	Solid	7/18/2013 14:52	8/20/2013 15:09	TAL-STL STL-RC-0055	Ni-63	13981-37-8	0.0839	1.77	pCi/g	1.03	U *	5	1.77	77954	0.000	1.889	(0.119)	0	
BLT-RA-SO-11	Solid	7/18/2013 14:52	8/23/2013 3:56	EPA 901.1	Pb-210	14255-04-0	0.354	0.585	pCi/g	0.404	U	0.3	0.585	1.9	0.308	0.907	(0.322)	0	
BLT-RA-SO-11	Solid	7/18/2013 14:52	8/23/2013 3:56	EPA 901.1	Ra-226	13982-63-3	0.758	0.758	pCi/g	0.0916		0.1	0.0399	2.2	0.345	0.771	(0.013)	0	
BLT-RA-SO-11	Solid	7/18/2013 14:52	8/20/2013 15:12	DOE 905.0	Sr-90	STL02023	-0.00288	0.156	pCi/g	0.0902	U	1	0.156	4.7	0.033	0.172	(0.016)	0	
													BLT-RA-SO-11	SOR	0.768		Net SOR	0.000	
BLT-RA-SO-12	Solid	7/18/2013 14:35	8/17/2013 2:01	EERF C-01-1	C-14	14762-75-5	-0.352	0.814	pCi/g	0.467	U	5	0.814	21	0.039	1.005	(0.191)	0	
BLT-RA-SO-12	Solid	7/18/2013 14:35	8/9/2013 10:05	TAL-STL STL-RC-0036	Cl-36	13981-43-6	0.264	0.514	pCi/g	0.315	U	1	0.514	13.2	0.039	0.510	0.004	0.000	
BLT-RA-SO-12	Solid	7/18/2013 14:35	8/23/2013 3:57	EPA 901.1	Cs-137	10045-97-3	0.0856	0.0856	pCi/g	0.0191		0.2	0.0163	16.9	0.005	0.096	(0.011)	0	
BLT-RA-SO-12	Solid	7/18/2013 14:35	8/7/2013 0:31	EPA 906.0	H-3	10028-17-8	0.258	0.374	pCi/g	0.239	U	1	0.374	121	0.003	0.414	(0.040)	0	
BLT-RA-SO-12	Solid	7/18/2013 14:35	8/20/2013 16:17	TAL-STL STL-RC-0055	Ni-63	13981-37-8	-0.0746	1.77	pCi/g	1.02	U *	5	1.77	77954	0.000	1.889	(0.119)	0	
BLT-RA-SO-12	Solid	7/18/2013 14:35	8/23/2013 3:57	EPA 901.1	Pb-210	14255-04-0	1.15	1.15	pCi/g	0.416		0.3	0.51	1.9	0.605	0.907	0.243	0.128	
BLT-RA-SO-12	Solid	7/18/2013 14:35	8/23/2013 3:57	EPA 901.1	Ra-226	13982-63-3	0.787	0.787	pCi/g	0.0907		0.1	0.0346	2.2	0.358	0.771	0.016	0.007	
BLT-RA-SO-12	Solid	7/18/2013 14:35	8/20/2013 15:12	DOE 905.0	Sr-90	STL02023	0.0607	0.143	pCi/g	0.0863	U	1	0.143	4.7	0.030	0.172	(0.029)	0	
													BLT-RA-SO-12	SOR	1.079		Net SOR	0.135	
BLT-RA-SO-13	Solid	7/18/2013 14:26	8/17/2013 3:09	EERF C-01-1	C-14	14762-75-5	-0.101	0.8	pCi/g	0.467	U	5	0.8	21	0.038	1.005	(0.205)	0	
BLT-RA-SO-13	Solid	7/18/2013 14:26	8/9/2013 10:05	TAL-STL STL-RC-0036	Cl-36	13981-43-6	0.184	0.466	pCi/g	0.28	U	1	0.466	13.2	0.035	0.510	(0.044)	0	
BLT-RA-SO-13	Solid	7/18/2013 14:26	8/23/2013 3:56	EPA 901.1	Cs-137	10045-97-3	0.101	0.101	pCi/g	0.0209		0.2	0.0177	16.9	0.006	0.096	0.005	0.000	
BLT-RA-SO-13	Solid	7/18/2013 14:26	8/7/2013 0:55	EPA 906.0	H-3	10028-17-8	0.486	0.486	pCi/g	0.273		1	0.387	121	0.004	0.414	0.072	0.001	
BLT-RA-SO-13	Solid	7/18/2013 14:26	8/20/2013 17:24	TAL-STL STL-RC-0055	Ni-63	13981-37-8	0.749	1.83	pCi/g	1.1	U *	5	1.83	77954	0.000	1.889	(0.059)	0	
BLT-RA-SO-13	Solid	7/18/2013 14:26	8/23/2013 3:56	EPA 901.1	Pb-210	14255-04-0	0.748	0.748	pCi/g	0.401		0.3	0.532	1.9	0.394	0.907	(0.159)	0	
BLT-RA-SO-13	Solid	7/18/2013 14:26	8/23/2013 3:56	EPA 901.1	Ra-226	13982-63-3	0.754	0.754	pCi/g	0.096		0.1	0.047	2.2	0.343	0.771	(0.017)	0	
BLT-RA-SO-13	Solid	7/18/2013 14:26	8/20/2013 15:12	DOE 905.0	Sr-90	STL02023	0.00175	0.147	pCi/g	0.0847	U	1	0.147	4.7	0.031	0.172	(0.025)	0	
													BLT-RA-SO-13	SOR	0.851		Net SOR	0.001	
BLT-RA-SO-14	Solid	7/18/2013 14:19	8/17/2013 4:17	EERF C-01-1	C-14	14762-75-5	-0.297	0.795	pCi/g	0.458	U	5	0.795	21	0.038	1.005	(0.210)	0	
BLT-RA-SO-14	Solid	7/18/2013 14:19	8/9/2013 10:05	TAL-STL STL-RC-0036	Cl-36	13981-43-6	0.0918	0.471	pCi/g	0.275	U	1	0.471	13.2	0.036	0.510	(0.039)	0	
BLT-RA-SO-14	Solid	7/18/2013 14:19	8/23/2013 3:57	EPA 901.1	Cs-137	10045-97-3	0.0542	0.0542	pCi/g	0.0183		0.2	0.0197	16.9	0.003	0.096	(0.042)	0	
BLT-RA-SO-14	Solid	7/18/2013 14:19	8/6/2013 15:45	EPA 906.0	H-3	10028-17-8	0.118	0.341	pCi/g	0.202	U	1	0.341	121	0.003	0.414	(0.073)	0	
BLT-RA-SO-14	Solid	7/18/2013 14:19	8/20/2013 18:32	TAL-STL STL-RC-0055	Ni-63	13981-37-8	0.0382	1.83	pCi/g	1.06	U *	5	1.83	77954	0.000	1.889	(0.059)	0	
BLT-RA-SO-14	Solid	7/18/2013 14:19	8/23/2013 3:57	EPA 901.1	Pb-210	14255-04-0	0.653	0.653	pCi/g	0.464		0.3	0.611	1.9	0.344	0.907	(0.254)	0	
BLT-RA-SO-14	Solid	7/18/2013 14:19	8/23/2013 3:57	EPA 901.1	Ra-226	13982-63-3	0.804	0.804	pCi/g	0.0962		0.1	0.0418	2.2	0.365	0.771	0.033	0.015	
BLT-RA-SO-14	Solid	7/18/2013 14:19	8/20/2013 15:12	DOE 905.0	Sr-90	STL02023	0.0552	0.15	pCi/g	0.0902	U	1	0.15	4.7	0.032	0.172	(0.022)	0	
													BLT-RA-SO-14	SOR	0.821		Net SOR	0.015	
BLT-RA-SO-15	Solid	7/18/2013 15:13	8/17/2013 5:25	EERF C-01-1	C-14	14762-75-5	-0.078	0.782	pCi/g	0.459	U	5	0.782	21	0.037	1.005	(0.223)	0	
BLT-RA-SO-15	Solid	7/18/2013 15:13	8/9/2013 10:05	TAL-STL STL-RC-0036	Cl-36	13981-43-6	-0.0629	0.483	pCi/g	0.267	U	1	0.483	13.2	0.037	0.510	(0.027)	0	
BLT-RA-SO-15	Solid	7/18/2013 15:13	8/21/2013 15:49	EPA 901.1	Cs-137	10045-97-3	0.107	0.107	pCi/g	0.0156		0.2	0.013	16.9	0.006	0.096	0.011	0.001	
BLT-RA-SO-15	Solid	7/18/2013 15:13	8/6/2013 16:33	EPA 906.0	H-3	10028-17-8	0.16	0.336	pCi/g	0.207	U	1	0.336	121	0.003	0.414	(0.078)	0	
BLT-RA-SO-15	Solid	7/18/2013 15:13	8/20/2013 19:39	TAL-STL STL-RC-0055	Ni-63	13981-37-8	0.225	1.85	pCi/g	1.09	U *	5	1.85	77954	0.000	1.889	(0.039)	0	
BLT-RA-SO-15	Solid	7/18/2013 15:13	8/21/2013 15:49	EPA 901.1	Pb-210	14255-04-0	1.03	1.03	pCi/g	0.272		0.3	0.319	1.9	0.542	0.907	0.123	0.065	
BLT-RA-SO-15	Solid	7/18/2013 15:13	8/21/2013 15:49	EPA 901.1	Ra-226	13982-63-3	0.787	0.787	pCi/g	0.0909		0.1	0.0324	2.2	0.358	0.771	0.016	0.007	
BLT-RA-SO-15	Solid	7/18/2013 15:13	8/12/2013 21:57	DOE 905.0	Sr-90	STL02023	0.00557	0.202	pCi/g	0.114	U	1	0.202	4.7	0.043	0.172	0.030	0.006	
													BLT-RA-SO-15	SOR	1.026		Net SOR	0.079	

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Appendix 5

Background Reference Area													Individual Sample Results					
Sample ID	Matrix	Collected	Analyzed	Method	Analyte	CAS	Result	TES Result	Unit	% Uncertainty	Footnotes	RL/CRDL	MDL/MDA	DCGL	Ratio	RA Mean	Net Result	Net Ratio
BLT-RA-SO-16	Solid	7/18/2013 14:55	8/17/2013 6:33	EERF C-01-1	C-14	14762-75-5	-0.116	0.762	pCi/g	0.443	U	5	0.762	21	0.036	1.005	(0.243)	0
BLT-RA-SO-16	Solid	7/18/2013 14:55	8/9/2013 10:05	TAL-STL STL-RC-0036	Cl-36	13981-43-6	0.163	0.463	pCi/g	0.276	U	1	0.463	13.2	0.035	0.510	(0.047)	0
BLT-RA-SO-16	Solid	7/18/2013 14:55	8/22/2013 8:35	EPA 901.1	Cs-137	10045-97-3	0.0835	0.0835	pCi/g	0.018		0.2	0.0161	16.9	0.005	0.096	(0.013)	0
BLT-RA-SO-16	Solid	7/18/2013 14:55	8/6/2013 17:21	EPA 906.0	H-3	10028-17-8	0.266	0.352	pCi/g	0.23	U	1	0.352	121	0.003	0.414	(0.062)	0
BLT-RA-SO-16	Solid	7/18/2013 14:55	8/20/2013 20:47	TAL-STL STL-RC-0055	Ni-63	13981-37-8	1.06	1.84	pCi/g	1.13	U *	5	1.84	77954	0.000	1.889	(0.049)	0
BLT-RA-SO-16	Solid	7/18/2013 14:55	8/22/2013 8:35	EPA 901.1	Pb-210	14255-04-0	1.01	1.01	pCi/g	0.334		0.3	0.458	1.9	0.532	0.907	0.103	0.054
BLT-RA-SO-16	Solid	7/18/2013 14:55	8/22/2013 8:35	EPA 901.1	Ra-226	13982-63-3	0.917	0.917	pCi/g	0.105		0.1	0.0383	2.2	0.417	0.771	0.146	0.066
BLT-RA-SO-16	Solid	7/18/2013 14:55	8/12/2013 21:57	DOE 905.0	Sr-90	STL02023	0.0465	0.176	pCi/g	0.103	U	1	0.176	4.7	0.037	0.172	0.004	0.001
													BLT-RA-SO-16	SOR	1.065		Net SOR	0.121
BLT-RA-SO-17	Solid	7/18/2013 14:48	8/17/2013 7:41	EERF C-01-1	C-14	14762-75-5	-0.119	0.797	pCi/g	0.466	U	5	0.797	21	0.038	1.005	(0.208)	0
BLT-RA-SO-17	Solid	7/18/2013 14:48	8/9/2013 13:34	TAL-STL STL-RC-0036	Cl-36	13981-43-6	0.401	0.534	pCi/g	0.337	U	1	0.534	13.2	0.040	0.510	0.024	0.002
BLT-RA-SO-17	Solid	7/18/2013 14:48	8/22/2013 8:36	EPA 901.1	Cs-137	10045-97-3	0.124	0.124	pCi/g	0.0234		0.2	0.0185	16.9	0.007	0.096	0.028	0.002
BLT-RA-SO-17	Solid	7/18/2013 14:48	8/6/2013 17:44	EPA 906.0	H-3	10028-17-8	0.29	0.349	pCi/g	0.23	U	1	0.349	121	0.003	0.414	(0.065)	0
BLT-RA-SO-17	Solid	7/18/2013 14:48	8/20/2013 21:54	TAL-STL STL-RC-0055	Ni-63	13981-37-8	0.559	1.81	pCi/g	1.08	U *	5	1.81	77954	0.000	1.889	(0.079)	0
BLT-RA-SO-17	Solid	7/18/2013 14:48	8/22/2013 8:36	EPA 901.1	Pb-210	14255-04-0	0.955	0.955	pCi/g	0.385		0.3	0.498	1.9	0.503	0.907	0.048	0.025
BLT-RA-SO-17	Solid	7/18/2013 14:48	8/22/2013 8:36	EPA 901.1	Ra-226	13982-63-3	0.865	0.865	pCi/g	0.102		0.1	0.0404	2.2	0.393	0.771	0.094	0.043
BLT-RA-SO-17	Solid	7/18/2013 14:48	8/12/2013 21:57	DOE 905.0	Sr-90	STL02023	-0.00455	0.195	pCi/g	0.109	U	1	0.195	4.7	0.041	0.172	0.023	0.005
													BLT-RA-SO-17	SOR	1.026		Net SOR	0.076
BLT-RA-SO-18	Solid	7/18/2013 14:36	8/17/2013 8:49	EERF C-01-1	C-14	14762-75-5	-0.227	0.82	pCi/g	0.473	U	5	0.82	21	0.039	1.005	(0.185)	0
BLT-RA-SO-18	Solid	7/18/2013 14:36	8/9/2013 13:34	TAL-STL STL-RC-0036	Cl-36	13981-43-6	0.207	0.516	pCi/g	0.31	U	1	0.516	13.2	0.039	0.510	0.006	0.000
BLT-RA-SO-18	Solid	7/18/2013 14:36	8/22/2013 8:37	EPA 901.1	Cs-137	10045-97-3	0.158	0.158	pCi/g	0.0338		0.2	0.0267	16.9	0.009	0.096	0.062	0.004
BLT-RA-SO-18	Solid	7/18/2013 14:36	8/6/2013 18:08	EPA 906.0	H-3	10028-17-8	0.13	0.341	pCi/g	0.204	U	1	0.341	121	0.003	0.414	(0.073)	0
BLT-RA-SO-18	Solid	7/18/2013 14:36	8/20/2013 23:02	TAL-STL STL-RC-0055	Ni-63	13981-37-8	0.514	1.88	pCi/g	1.12	U *	5	1.88	77954	0.000	1.889	(0.009)	0
BLT-RA-SO-18	Solid	7/18/2013 14:36	8/22/2013 8:37	EPA 901.1	Pb-210	14255-04-0	0.945	0.945	pCi/g	0.421		0.3	0.645	1.9	0.497	0.907	0.038	0.020
BLT-RA-SO-18	Solid	7/18/2013 14:36	8/22/2013 8:37	EPA 901.1	Ra-226	13982-63-3	0.87	0.87	pCi/g	0.11		0.1	0.0443	2.2	0.395	0.771	0.099	0.045
BLT-RA-SO-18	Solid	7/18/2013 14:36	8/12/2013 21:57	DOE 905.0	Sr-90	STL02023	0.141	0.203	pCi/g	0.128	U	1	0.203	4.7	0.043	0.172	0.031	0.007
													BLT-RA-SO-18	SOR	1.026		Net SOR	0.076
BLT-RA-SO-19	Solid	7/18/2013 14:26	8/17/2013 9:56	EERF C-01-1	C-14	14762-75-5	-0.315	0.817	pCi/g	0.47	U	5	0.817	21	0.039	1.005	(0.188)	0
BLT-RA-SO-19	Solid	7/18/2013 14:26	8/9/2013 13:34	TAL-STL STL-RC-0036	Cl-36	13981-43-6	0.334	0.548	pCi/g	0.339	U	1	0.548	13.2	0.042	0.510	0.038	0.003
BLT-RA-SO-19	Solid	7/18/2013 14:26	8/22/2013 8:32	EPA 901.1	Cs-137	10045-97-3	0.0729	0.0729	pCi/g	0.0169		0.2	0.0143	16.9	0.004	0.096	(0.023)	0
BLT-RA-SO-19	Solid	7/18/2013 14:26	8/6/2013 18:32	EPA 906.0	H-3	10028-17-8	0.264	0.326	pCi/g	0.215	U	1	0.326	121	0.003	0.414	(0.088)	0
BLT-RA-SO-19	Solid	7/18/2013 14:26	8/21/2013 0:09	TAL-STL STL-RC-0055	Ni-63	13981-37-8	0.251	1.83	pCi/g	1.08	U *	5	1.83	77954	0.000	1.889	(0.059)	0
BLT-RA-SO-19	Solid	7/18/2013 14:26	8/22/2013 8:32	EPA 901.1	Pb-210	14255-04-0	0.855	0.855	pCi/g	0.294		0.3	0.343	1.9	0.450	0.907	(0.052)	0
BLT-RA-SO-19	Solid	7/18/2013 14:26	8/22/2013 8:32	EPA 901.1	Ra-226	13982-63-3	0.816	0.816	pCi/g	0.0924		0.1	0.0293	2.2	0.371	0.771	0.045	0.020
BLT-RA-SO-19	Solid	7/18/2013 14:26	8/12/2013 21:57	DOE 905.0	Sr-90	STL02023	0.102	0.233	pCi/g	0.141	U	1	0.233	4.7	0.050	0.172	0.061	0.013
													BLT-RA-SO-19	SOR	0.958		Net SOR	0.036
BLT-RA-SO-20	Solid	7/18/2013 14:00	8/17/2013 11:04	EERF C-01-1	C-14	14762-75-5	-0.528	0.771	pCi/g	0.439	U	5	0.771	21	0.037	1.005	(0.234)	0
BLT-RA-SO-20	Solid	7/18/2013 14:00	8/9/2013 13:34	TAL-STL STL-RC-0036	Cl-36	13981-43-6	-0.0999	0.47	pCi/g	0.256	U	1	0.47	13.2	0.036	0.510	(0.040)	0
BLT-RA-SO-20	Solid	7/18/2013 14:00	8/22/2013 8:33	EPA 901.1	Cs-137	10045-97-3	0.153	0.153	pCi/g	0.0238		0.2	0.0161	16.9	0.009	0.096	0.057	0.003
BLT-RA-SO-20	Solid	7/18/2013 14:00	8/6/2013 18:56	EPA 906.0	H-3	10028-17-8	0.265	0.342	pCi/g	0.224	U	1	0.342	121	0.003	0.414	(0.072)	0
BLT-RA-SO-20	Solid	7/18/2013 14:00	8/21/2013 1:17	TAL-STL STL-RC-0055	Ni-63	13981-37-8	0.695	1.78	pCi/g	1.07	U *	5	1.78	77954	0.000	1.889	(0.109)	0
BLT-RA-SO-20	Solid	7/18/2013 14:00	8/22/2013 8:33	EPA 901.1	Pb-210	14255-04-0	1.53	1.53	pCi/g	0.545		0.3	0.676	1.9	0.805	0.907	0.623	0.328
BLT-RA-SO-20	Solid	7/18/2013 14:00	8/22/2013 8:33	EPA 901.1	Ra-226	13982-63-3	0.878	0.878	pCi/g	0.103		0.1	0.0411	2.2	0.399	0.771	0.107	0.048
BLT-RA-SO-20	Solid	7/18/2013 14:00	8/12/2013 21:57	DOE 905.0	Sr-90	STL02023	0.0606	0.208	pCi/g	0.123	U	1	0.208	4.7	0.044	0.172	0.036	0.008
													BLT-RA-SO-20	SOR	1.333		Net SOR	0.388



**Final Status Survey Report  
Appendix 6  
Class 1 FSSU-01  
Survey and Sample Results**

**Beltsville Agricultural Research Center (BARC)  
Low Level Radioactive Burial site (LLRBS)  
Beltsville, Maryland**



**Prepared for:**

U.S. Army Field Support Command  
Rock Island, Illinois

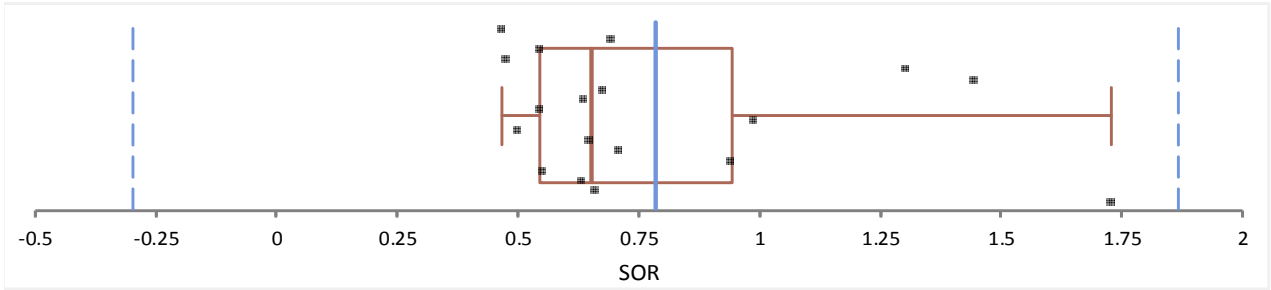
*Prepared by:*

***TPMC-EnergySolutions Environmental Services, LLC***

**Contract No. W52P1J-11-D-0001**

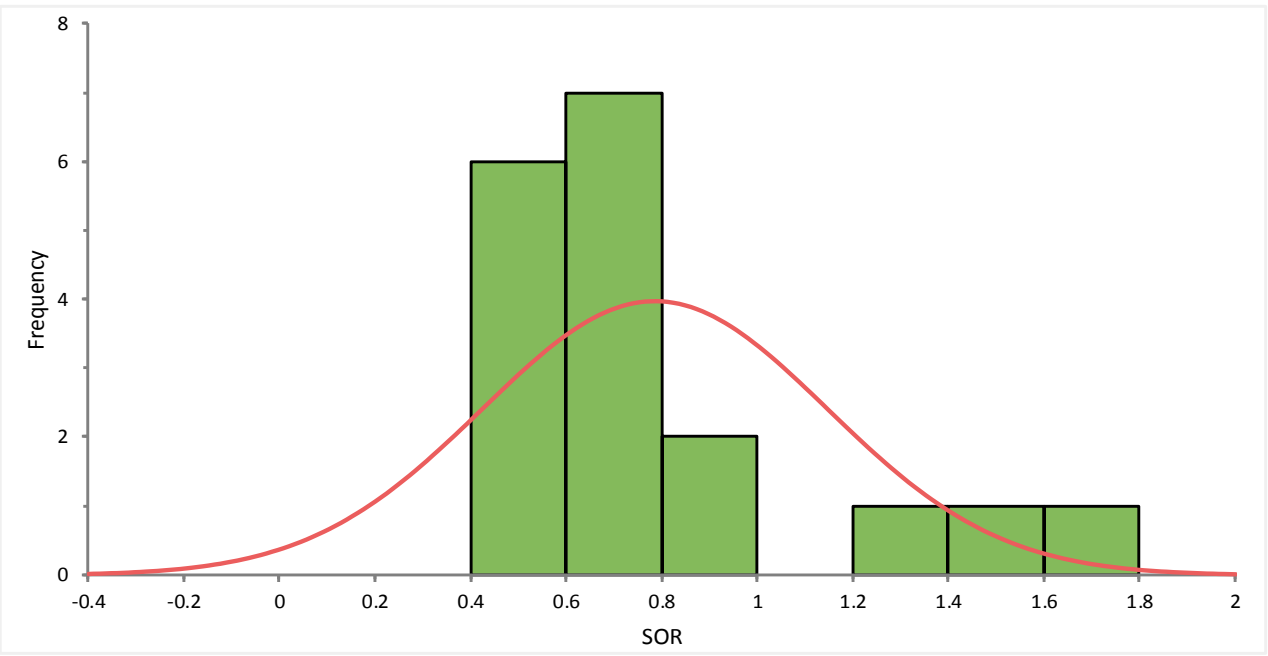


Statistics & Decisions	SU	RA	Sample ID	BLT-FSSB-C1-01-SO-01	BLT-FSS-C1-01-SO-01	BLT-FSS-C1-01-SO-02	BLT-FSS-C1-01-SO-03	BLT-FSS-C1-01-SO-04	BLT-FSS-C1-01-SO-05	BLT-FSS-C1-01-SO-06	BLT-FSS-C1-01-SO-07	BLT-FSS-C1-01-SO-08	BLT-FSS-C1-01-SO-08-FD01	BLT-FSS-C1-01-SO-09	BLT-FSS-C1-01-SO-10	BLT-FSS-C1-01-SO-11	BLT-FSS-C1-01-SO-12	BLT-FSS-C1-01-SO-13	BLT-FSS-C1-01-SO-14	BLT-FSS-C1-01-SO-15	BLT-FSS-C1-01-SO-16
Avg	0.785	0.960	SOR	1.727	0.659	0.632	0.552	0.939	0.707	0.646	0.499	0.988	0.545	0.637	0.674	1.445	1.304	0.474	0.544	0.693	0.465
Min	0.465	0.768	Net SOR	0.792	0.000	0.000	0.000	0.113	0.001	0.001	0.001	0.213	0.001	0.001	0.025	0.900	0.365	0.033	0.008	0.006	0.001
Max	1.727	1.333																			
SU Max SOR - RA Min SOR	0.959																				
SU Avg SOR - RA Avg SOR	-0.175																				
SU meets release criterion																					



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	Mean	SE	SD	Variance	Skewness	Kurtosis
SOR	0.784988596	0.085086157	0.360989990	0.130313773	1.6	1.77
	Minimum	1st quartile	Median	3rd quartile	Maximum	IQR
SOR	0.46516227	0.544713145	0.652628346	0.943201449	1.72714645	0.398488304
Quantile	SOR					
0.050	0.467384153					
0.950	1.656594939					



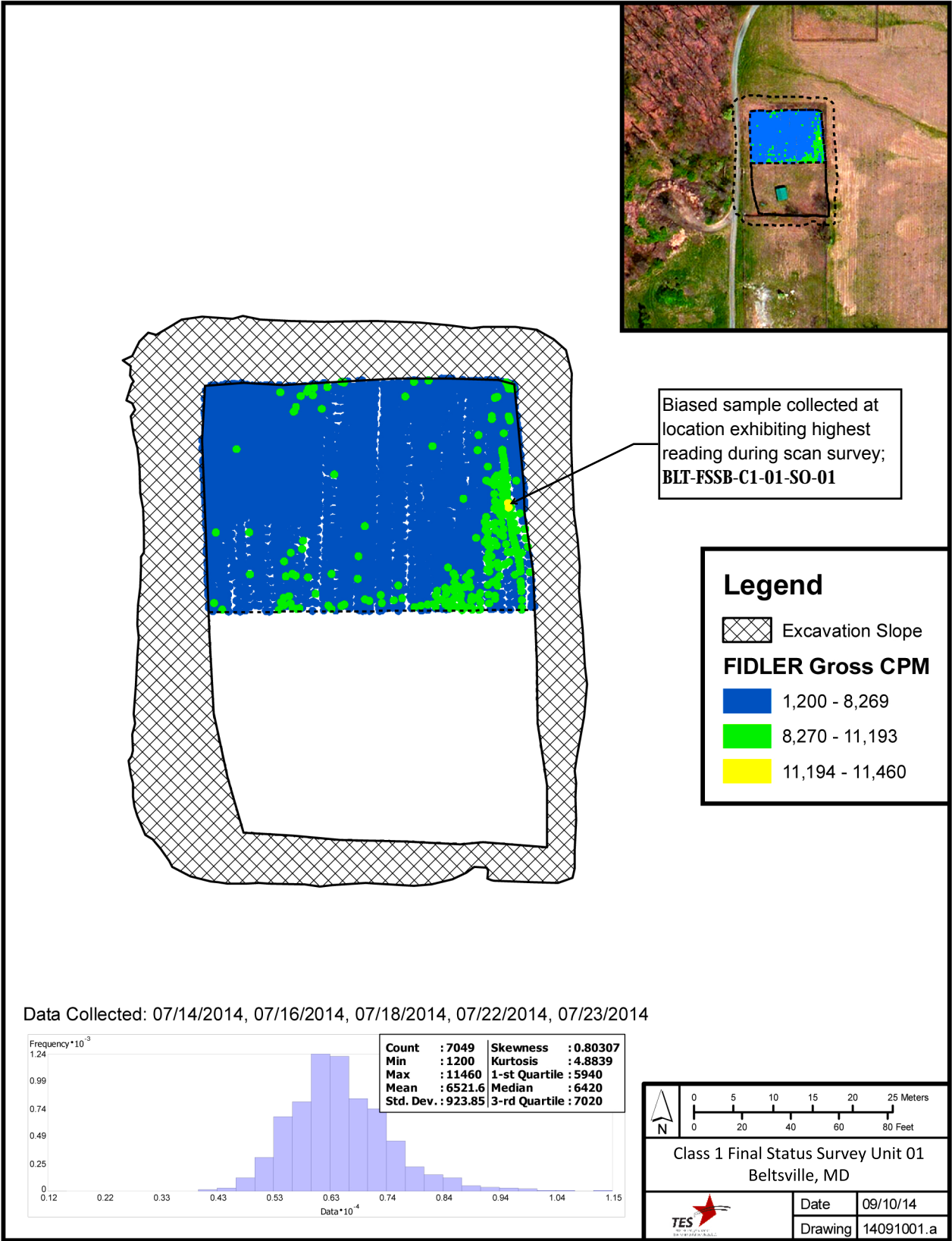
Frequency Distribution

Class	Frequency	Relative frequency	Density	Cumulative frequency	Cumulative relative frequency
≥0.4 to <0.6	6	0.333	1.6667	6	0.333
≥0.6 to <0.8	7	0.389	1.9444	13	0.722
≥0.8 to <1	2	0.111	0.5556	15	0.833
≥1 to <1.2	0	0.000	0.0000	15	0.833
≥1.2 to <1.4	1	0.056	0.2778	16	0.889
≥1.4 to <1.6	1	0.056	0.2778	17	0.944
≥1.6 to <1.8	1	0.056	0.2778	18	1.000

BARC LLRBS FSSR  
Appendix 6

Class 1 FSSU 01

Scan Plot



BARC LLRBS FSSR Appendix 6													Individual Sample Results					
Class 1 FSSU 01																		
Sample ID	Matrix	Collected	Analyzed	Method	Analyte	CAS	Result	TES Result	Unit	% Uncertainty	Footnotes	RL/CRDL	MDL/MDA	DCGL	Ratio	RA Mean	Net Result	Net Ratio
BLT-FSSB-C1-01-SO-01	Solid	7/28/2014 13:40	8/25/2014 23:15	EERF C-01-1	C-14	14762-75-5	-0.0937	0.842	pCi/g	0.494	U	5	0.842	21	0.040	1.005	(0.163)	0
BLT-FSSB-C1-01-SO-01	Solid	7/28/2014 13:40	8/14/2014 16:00	TAL-STL ST-RC-0036	Cl-36	13981-43-6	0.154	0.324	pCi/g	0.196	U	1	0.324	13.2	0.025	0.510	(0.186)	0
BLT-FSSB-C1-01-SO-01	Solid	7/28/2014 13:40	9/15/2014 13:57	DOE GA-01-R	Cs-137	10045-97-3	0.0227	0.052	pCi/g	0.0315	U	0.2	0.052	16.9	0.003	0.096	(0.044)	0
BLT-FSSB-C1-01-SO-01	Solid	7/28/2014 13:40	8/19/2014 1:15	EPA 906.0	H-3	10028-17-8	0.197	0.402	pCi/g	0.245	U	1	0.402	121	0.003	0.414	(0.012)	0
BLT-FSSB-C1-01-SO-01	Solid	7/28/2014 13:40	8/23/2014 8:04	TAL-STL ST-RC-0055	Ni-63	13981-37-8	1.86	1.86	pCi/g	0.801		5	1.22	77954	0.000	1.889	(0.029)	0
BLT-FSSB-C1-01-SO-01	Solid	7/28/2014 13:40	9/15/2014 13:57	DOE GA-01-R	Pb-210	14255-04-0	2.04	2.04	pCi/g	0.992		1	1.14	1.9	1.074	0.907	1.133	0.596
BLT-FSSB-C1-01-SO-01	Solid	7/28/2014 13:40	9/15/2014 13:57	DOE GA-01-R	Ra-226	13982-63-3	1.19	1.19	pCi/g	0.171		0.1	0.099	2.2	0.541	0.771	0.419	0.190
BLT-FSSB-C1-01-SO-01	Solid	7/28/2014 13:40	8/20/2014 14:42	DOE 905.0	Sr-90	STL02023	0.142	0.195	pCi/g	0.123	U	1	0.195	4.7	0.041	0.172	0.023	0.005
													BLT-FSSB-C1-01-SO-01	SOR	1.727		Net SOR	0.792
BLT-FSS-C1-01-SO-01	Solid	7/24/2014 14:00	8/23/2014 0:50	EERF C-01-1	C-14	14762-75-5	-0.0268	0.816	pCi/g	0.476	U	5	0.816	21	0.039	1.005	(0.189)	0
BLT-FSS-C1-01-SO-01	Solid	7/24/2014 14:00	8/5/2014 11:45	TAL-STL ST-RC-0036	Cl-36	13981-43-6	-0.139	0.404	pCi/g	0.227	U	1	0.404	13.2	0.031	0.510	(0.106)	0
BLT-FSS-C1-01-SO-01	Solid	7/24/2014 14:00	8/21/2014 16:15	EPA 901.1	Cs-137	10045-97-3	-0.00199	0.0244	pCi/g	0.0138	U	0.2	0.0244	16.9	0.001	0.096	(0.072)	0
BLT-FSS-C1-01-SO-01	Solid	7/24/2014 14:00	8/19/2014 2:42	EPA 906.0	H-3	10028-17-8	0.268	0.438	pCi/g	0.276	U	1	0.438	121	0.004	0.414	0.024	0.000
BLT-FSS-C1-01-SO-01	Solid	7/24/2014 14:00	8/16/2014 20:49	TAL-STL ST-RC-0055	Ni-63	13981-37-8	1.78	2.54	pCi/g	1.51	U	5	2.54	77954	0.000	1.889	0.651	0.000
BLT-FSS-C1-01-SO-01	Solid	7/24/2014 14:00	8/21/2014 16:15	EPA 901.1	Pb-210	14255-04-0	0.653	0.653	pCi/g	0.359		1	0.473	1.9	0.344	0.907	(0.254)	0
BLT-FSS-C1-01-SO-01	Solid	7/24/2014 14:00	8/21/2014 16:15	EPA 901.1	Ra-226	13982-63-3	0.468	0.468	pCi/g	0.0779		0.1	0.0436	2.2	0.213	0.771	(0.303)	0
BLT-FSS-C1-01-SO-01	Solid	7/24/2014 14:00	8/10/2014 21:25	DOE 905.0	Sr-90	STL02023	-0.0327	0.132	pCi/g	0.0701	U	1	0.132	4.7	0.028	0.172	(0.040)	0
													BLT-FSS-C1-01-SO-01	SOR	0.659		Net SOR	0.000
BLT-FSS-C1-01-SO-02	Solid	7/24/2014 14:05	8/23/2014 1:57	EERF C-01-1	C-14	14762-75-5	0.191	0.837	pCi/g	0.496	U	5	0.837	21	0.040	1.005	(0.168)	0
BLT-FSS-C1-01-SO-02	Solid	7/24/2014 14:05	8/5/2014 11:46	TAL-STL ST-RC-0036	Cl-36	13981-43-6	-0.0385	0.344	pCi/g	0.195	U	1	0.344	13.2	0.026	0.510	(0.166)	0
BLT-FSS-C1-01-SO-02	Solid	7/24/2014 14:05	8/21/2014 16:18	EPA 901.1	Cs-137	10045-97-3	0.011	0.0346	pCi/g	0.0204	U	0.2	0.0346	16.9	0.002	0.096	(0.062)	0
BLT-FSS-C1-01-SO-02	Solid	7/24/2014 14:05	8/19/2014 3:05	EPA 906.0	H-3	10028-17-8	0.343	0.443	pCi/g	0.285	U	1	0.443	121	0.004	0.414	0.029	0.000
BLT-FSS-C1-01-SO-02	Solid	7/24/2014 14:05	8/16/2014 23:02	TAL-STL ST-RC-0055	Ni-63	13981-37-8	2.55	2.55	pCi/g	1.51		5	2.5	77954	0.000	1.889	0.661	0.000
BLT-FSS-C1-01-SO-02	Solid	7/24/2014 14:05	8/21/2014 16:18	EPA 901.1	Pb-210	14255-04-0	0.244	0.641	pCi/g	0.378	U	1	0.641	1.9	0.337	0.907	(0.266)	0
BLT-FSS-C1-01-SO-02	Solid	7/24/2014 14:05	8/21/2014 16:18	EPA 901.1	Ra-226	13982-63-3	0.421	0.421	pCi/g	0.0824		0.1	0.0492	2.2	0.191	0.771	(0.350)	0
BLT-FSS-C1-01-SO-02	Solid	7/24/2014 14:05	8/10/2014 21:25	DOE 905.0	Sr-90	STL02023	0.0328	0.15	pCi/g	0.0866	U	1	0.15	4.7	0.032	0.172	(0.022)	0
													BLT-FSS-C1-01-SO-02	SOR	0.632		Net SOR	0.000
BLT-FSS-C1-01-SO-03	Solid	7/24/2014 14:10	8/23/2014 3:04	EERF C-01-1	C-14	14762-75-5	0.14	0.81	pCi/g	0.481	U	5	0.81	21	0.039	1.005	(0.195)	0
BLT-FSS-C1-01-SO-03	Solid	7/24/2014 14:10	8/5/2014 11:46	TAL-STL ST-RC-0036	Cl-36	13981-43-6	0.00122	0.338	pCi/g	0.195	U	1	0.338	13.2	0.026	0.510	(0.172)	0
BLT-FSS-C1-01-SO-03	Solid	7/24/2014 14:10	8/21/2014 18:48	EPA 901.1	Cs-137	10045-97-3	0.00151	0.0233	pCi/g	0.0131	U	0.2	0.0233	16.9	0.001	0.096	(0.073)	0
BLT-FSS-C1-01-SO-03	Solid	7/24/2014 14:10	8/19/2014 3:28	EPA 906.0	H-3	10028-17-8	0.21	0.411	pCi/g	0.257	U	1	0.411	121	0.003	0.414	(0.003)	0
BLT-FSS-C1-01-SO-03	Solid	7/24/2014 14:10	8/17/2014 1:16	TAL-STL ST-RC-0055	Ni-63	13981-37-8	2.02	2.53	pCi/g	1.5	U	5	2.53	77954	0.000	1.889	0.641	0.000
BLT-FSS-C1-01-SO-03	Solid	7/24/2014 14:10	8/21/2014 18:48	EPA 901.1	Pb-210	14255-04-0	0.502	0.502	pCi/g	0.356		1	0.47	1.9	0.264	0.907	(0.405)	0
BLT-FSS-C1-01-SO-03	Solid	7/24/2014 14:10	8/21/2014 18:48	EPA 901.1	Ra-226	13982-63-3	0.414	0.414	pCi/g	0.0726		0.1	0.0442	2.2	0.188	0.771	(0.357)	0
BLT-FSS-C1-01-SO-03	Solid	7/24/2014 14:10	8/10/2014 21:25	DOE 905.0	Sr-90	STL02023	0.0476	0.145	pCi/g	0.0854	U	1	0.145	4.7	0.031	0.172	(0.027)	0
													BLT-FSS-C1-01-SO-03	SOR	0.552		Net SOR	0.000
BLT-FSS-C1-01-SO-04	Solid	7/24/2014 14:15	8/23/2014 4:11	EERF C-01-1	C-14	14762-75-5	0.87	0.87	pCi/g	0.509		5	0.793	21	0.041	1.005	(0.135)	0
BLT-FSS-C1-01-SO-04	Solid	7/24/2014 14:15	8/5/2014 11:46	TAL-STL ST-RC-0036	Cl-36	13981-43-6	0.259	0.357	pCi/g	0.222	U	1	0.357	13.2	0.027	0.510	(0.153)	0
BLT-FSS-C1-01-SO-04	Solid	7/24/2014 14:15	8/21/2014 9:56	EPA 901.1	Cs-137	10045-97-3	-0.00137	0.025	pCi/g	0.0138	U	0.2	0.025	16.9	0.001	0.096	(0.071)	0
BLT-FSS-C1-01-SO-04	Solid	7/24/2014 14:15	8/18/2014 21:37	EPA 906.0	H-3	10028-17-8	0.435	0.521	pCi/g	0.33	U	1	0.521	121	0.004	0.414	0.107	0.001
BLT-FSS-C1-01-SO-04	Solid	7/24/2014 14:15	8/20/2014 2:26	TAL-STL ST-RC-0055	Ni-63	13981-37-8	1.87	1.87	pCi/g	0.69		5	1.04	77954	0.000	1.889	(0.019)	0
BLT-FSS-C1-01-SO-04	Solid	7/24/2014 14:15	8/21/2014 9:56	EPA 901.1	Pb-210	14255-04-0	1.12	1.12	pCi/g	0.518		1	0.631	1.9	0.589	0.907	0.213	0.112
BLT-FSS-C1-01-SO-04	Solid	7/24/2014 14:15	8/21/2014 9:56	EPA 901.1	Ra-226	13982-63-3	0.553	0.553	pCi/g	0.0928		0.1	0.055	2.2	0.251	0.771	(0.218)	0
BLT-FSS-C1-01-SO-04	Solid	7/24/2014 14:15	8/18/2014 15:57	DOE 905.0	Sr-90	STL02023	0.0301	0.113	pCi/g	0.0667	U	1	0.113	4.7	0.024	0.172	(0.059)	0
													BLT-FSS-C1-01-SO-04	SOR	0.939		Net SOR	0.113

BARC LLRBS FSSR Appendix 6													Individual Sample Results					
Class 1 FSSU 01																		
Sample ID	Matrix	Collected	Analyzed	Method	Analyte	CAS	Result	TES Result	Unit	% Uncertainty	Footnotes	RL/CRDL	MDL/MDA	DCGL	Ratio	RA Mean	Net Result	Net Ratio
BLT-FSS-C1-01-SO-05	Solid	7/24/2014 14:20	8/23/2014 5:18	EERF C-01-1	C-14	14762-75-5	-0.365	0.799	pCi/g	0.457	U	5	0.799	21	0.038	1.005	(0.206)	0
BLT-FSS-C1-01-SO-05	Solid	7/24/2014 14:20	8/5/2014 11:46	TAL-STL ST-RC-0036	Cl-36	13981-43-6	-0.0062	0.376	pCi/g	0.217	U	1	0.376	13.2	0.028	0.510	(0.134)	0
BLT-FSS-C1-01-SO-05	Solid	7/24/2014 14:20	8/21/2014 9:58	EPA 901.1	Cs-137	10045-97-3	0.00883	0.0299	pCi/g	0.0175	U	0.2	0.0299	16.9	0.002	0.096	(0.066)	0
BLT-FSS-C1-01-SO-05	Solid	7/24/2014 14:20	8/18/2014 22:24	EPA 906.0	H-3	10028-17-8	0.201	0.519	pCi/g	0.31	U	1	0.519	121	0.004	0.414	0.105	0.001
BLT-FSS-C1-01-SO-05	Solid	7/24/2014 14:20	8/20/2014 4:27	TAL-STL ST-RC-0055	Ni-63	13981-37-8	0.479	0.988	pCi/g	0.6	U	5	0.988	77954	0.000	1.889	(0.901)	0
BLT-FSS-C1-01-SO-05	Solid	7/24/2014 14:20	8/21/2014 9:58	EPA 901.1	Pb-210	14255-04-0	0.799	0.799	pCi/g	0.427		1	0.534	1.9	0.421	0.907	(0.108)	0
BLT-FSS-C1-01-SO-05	Solid	7/24/2014 14:20	8/21/2014 9:58	EPA 901.1	Ra-226	13982-63-3	0.416	0.416	pCi/g	0.0832		0.1	0.0489	2.2	0.189	0.771	(0.355)	0
BLT-FSS-C1-01-SO-05	Solid	7/24/2014 14:20	8/18/2014 15:57	DOE 905.0	Sr-90	STL02023	0.0537	0.118	pCi/g	0.0711	U	1	0.118	4.7	0.025	0.172	(0.054)	0
													BLT-FSS-C1-01-SO-05	SOR	0.707		Net SOR	0.001
BLT-FSS-C1-01-SO-06	Solid	7/24/2014 14:25	8/23/2014 6:25	EERF C-01-1	C-14	14762-75-5	0.0535	0.798	pCi/g	0.471	U	5	0.798	21	0.038	1.005	(0.207)	0
BLT-FSS-C1-01-SO-06	Solid	7/24/2014 14:25	8/5/2014 11:46	TAL-STL ST-RC-0036	Cl-36	13981-43-6	-0.0753	0.356	pCi/g	0.201	U	1	0.356	13.2	0.027	0.510	(0.154)	0
BLT-FSS-C1-01-SO-06	Solid	7/24/2014 14:25	8/22/2014 14:53	EPA 901.1	Cs-137	10045-97-3	0.0051	0.023	pCi/g	0.0133	U	0.2	0.023	16.9	0.001	0.096	(0.073)	0
BLT-FSS-C1-01-SO-06	Solid	7/24/2014 14:25	8/18/2014 23:11	EPA 906.0	H-3	10028-17-8	0.0185	0.514	pCi/g	0.293	U	1	0.514	121	0.004	0.414	0.100	0.001
BLT-FSS-C1-01-SO-06	Solid	7/24/2014 14:25	8/20/2014 6:29	TAL-STL ST-RC-0055	Ni-63	13981-37-8	0.186	1.04	pCi/g	0.625	U	5	1.04	77954	0.000	1.889	(0.849)	0
BLT-FSS-C1-01-SO-06	Solid	7/24/2014 14:25	8/22/2014 14:53	EPA 901.1	Pb-210	14255-04-0	0.672	0.672	pCi/g	0.405		1	0.494	1.9	0.354	0.907	(0.235)	0
BLT-FSS-C1-01-SO-06	Solid	7/24/2014 14:25	8/22/2014 14:53	EPA 901.1	Ra-226	13982-63-3	0.411	0.411	pCi/g	0.066		0.1	0.0306	2.2	0.187	0.771	(0.360)	0
BLT-FSS-C1-01-SO-06	Solid	7/24/2014 14:25	8/18/2014 15:57	DOE 905.0	Sr-90	STL02023	0.165	0.165	pCi/g	0.0791		1	0.12	4.7	0.035	0.172	(0.007)	0
													BLT-FSS-C1-01-SO-06	SOR	0.646		Net SOR	0.001
BLT-FSS-C1-01-SO-07	Solid	7/24/2014 14:30	8/23/2014 7:32	EERF C-01-1	C-14	14762-75-5	-0.178	0.786	pCi/g	0.456	U	5	0.786	21	0.037	1.005	(0.219)	0
BLT-FSS-C1-01-SO-07	Solid	7/24/2014 14:30	8/5/2014 11:46	TAL-STL ST-RC-0036	Cl-36	13981-43-6	0.18	0.33	pCi/g	0.201	U	1	0.33	13.2	0.025	0.510	(0.180)	0
BLT-FSS-C1-01-SO-07	Solid	7/24/2014 14:30	8/21/2014 11:24	EPA 901.1	Cs-137	10045-97-3	-0.00548	0.0289	pCi/g	0.0166	U	0.2	0.0289	16.9	0.002	0.096	(0.067)	0
BLT-FSS-C1-01-SO-07	Solid	7/24/2014 14:30	8/18/2014 23:35	EPA 906.0	H-3	10028-17-8	-0.0124	0.503	pCi/g	0.286	U	1	0.503	121	0.004	0.414	0.089	0.001
BLT-FSS-C1-01-SO-07	Solid	7/24/2014 14:30	8/20/2014 8:31	TAL-STL ST-RC-0055	Ni-63	13981-37-8	0.125	1.05	pCi/g	0.625	U	5	1.05	77954	0.000	1.889	(0.839)	0
BLT-FSS-C1-01-SO-07	Solid	7/24/2014 14:30	8/21/2014 11:24	EPA 901.1	Pb-210	14255-04-0	0.415	0.429	pCi/g	0.294	U	1	0.429	1.9	0.226	0.907	(0.478)	0
BLT-FSS-C1-01-SO-07	Solid	7/24/2014 14:30	8/21/2014 11:24	EPA 901.1	Ra-226	13982-63-3	0.399	0.399	pCi/g	0.0735		0.1	0.0433	2.2	0.181	0.771	(0.372)	0
BLT-FSS-C1-01-SO-07	Solid	7/24/2014 14:30	8/18/2014 15:58	DOE 905.0	Sr-90	STL02023	0.0429	0.11	pCi/g	0.0662	U	1	0.11	4.7	0.023	0.172	(0.062)	0
													BLT-FSS-C1-01-SO-07	SOR	0.499		Net SOR	0.001
BLT-FSS-C1-01-SO-08	Solid	7/24/2014 14:35	8/23/2014 8:39	EERF C-01-1	C-14	14762-75-5	-0.0981	0.807	pCi/g	0.469	U	5	0.807	21	0.038	1.005	(0.198)	0
BLT-FSS-C1-01-SO-08	Solid	7/24/2014 14:35	8/5/2014 11:46	TAL-STL ST-RC-0036	Cl-36	13981-43-6	0.178	0.352	pCi/g	0.214	U	1	0.352	13.2	0.027	0.510	(0.158)	0
BLT-FSS-C1-01-SO-08	Solid	7/24/2014 14:35	8/21/2014 11:25	EPA 901.1	Cs-137	10045-97-3	-0.0035	0.036	pCi/g	0.0203	U	0.2	0.036	16.9	0.002	0.096	(0.060)	0
BLT-FSS-C1-01-SO-08	Solid	7/24/2014 14:35	8/18/2014 23:58	EPA 906.0	H-3	10028-17-8	0	0.52	pCi/g	0.293	U	1	0.52	121	0.004	0.414	0.106	0.001
BLT-FSS-C1-01-SO-08	Solid	7/24/2014 14:35	8/20/2014 10:32	TAL-STL ST-RC-0055	Ni-63	13981-37-8	0.244	1.02	pCi/g	0.615	U	5	1.02	77954	0.000	1.889	(0.869)	0
BLT-FSS-C1-01-SO-08	Solid	7/24/2014 14:35	8/21/2014 11:25	EPA 901.1	Pb-210	14255-04-0	1.31	1.31	pCi/g	0.425		1	0.456	1.9	0.689	0.907	0.403	0.212
BLT-FSS-C1-01-SO-08	Solid	7/24/2014 14:35	8/21/2014 11:25	EPA 901.1	Ra-226	13982-63-3	0.448	0.448	pCi/g	0.0821		0.1	0.0429	2.2	0.204	0.771	(0.323)	0
BLT-FSS-C1-01-SO-08	Solid	7/24/2014 14:35	8/18/2014 15:58	DOE 905.0	Sr-90	STL02023	0.0911	0.108	pCi/g	0.0677	U	1	0.108	4.7	0.023	0.172	(0.064)	0
													BLT-FSS-C1-01-SO-08	SOR	0.988		Net SOR	0.213
BLT-FSS-C1-01-SO-08-FD01	Solid	7/24/2014 14:35	8/23/2014 9:47	EERF C-01-1	C-14	14762-75-5	-0.339	0.797	pCi/g	0.456	U	5	0.797	21	0.038	1.005	(0.208)	0
BLT-FSS-C1-01-SO-08-FD01	Solid	7/24/2014 14:35	8/5/2014 11:46	TAL-STL ST-RC-0036	Cl-36	13981-43-6	0.00615	0.368	pCi/g	0.213	U	1	0.368	13.2	0.028	0.510	(0.142)	0
BLT-FSS-C1-01-SO-08-FD01	Solid	7/24/2014 14:35	8/21/2014 11:23	EPA 901.1	Cs-137	10045-97-3	-0.000956	0.0217	pCi/g	0.012	U	0.2	0.0217	16.9	0.001	0.096	(0.075)	0
BLT-FSS-C1-01-SO-08-FD01	Solid	7/24/2014 14:35	8/19/2014 0:22	EPA 906.0	H-3	10028-17-8	0.0677	0.494	pCi/g	0.287	U	1	0.494	121	0.004	0.414	0.080	0.001
BLT-FSS-C1-01-SO-08-FD01	Solid	7/24/2014 14:35	8/20/2014 12:34	TAL-STL ST-RC-0055	Ni-63	13981-37-8	-0.0709	1.04	pCi/g	0.612	U	5	1.04	77954	0.000	1.889	(0.849)	0
BLT-FSS-C1-01-SO-08-FD01	Solid	7/24/2014 14:35	8/21/2014 11:23	EPA 901.1	Pb-210	14255-04-0	0.508	0.508	pCi/g	0.328		1	0.452	1.9	0.267	0.907	(0.399)	0
BLT-FSS-C1-01-SO-08-FD01	Solid	7/24/2014 14:35	8/21/2014 11:23	EPA 901.1	Ra-226	13982-63-3	0.398	0.398	pCi/g	0.0726		0.1	0.0442	2.2	0.181	0.771	(0.373)	0
BLT-FSS-C1-01-SO-08-FD01	Solid	7/24/2014 14:35	8/18/2014 15:58	DOE 905.0	Sr-90	STL02023	-0.0267	0.119	pCi/g	0.0669	U	1	0.119	4.7	0.025	0.172	(0.053)	0
													BLT-FSS-C1-01-SO-08-FD01	SOR	0.545		Net SOR	0.001



BARC LLRBS FSSR Appendix 6														Individual Sample Results				
Class 1 FSSU 01																		
Sample ID	Matrix	Collected	Analyzed	Method	Analyte	CAS	Result	TES Result	Unit	% Uncertainty	Footnotes	RL/CRDL	MDL/MDA	DCGL	Ratio	RA Mean	Net Result	Net Ratio
BLT-FSS-C1-01-SO-09	Solid	7/24/2014 14:40	8/23/2014 10:54	EERF C-01-1	C-14	14762-75-5	-0.0865	0.809	pCi/g	0.472	U	5	0.809	21	0.039	1.005	(0.196)	0
BLT-FSS-C1-01-SO-09	Solid	7/24/2014 14:40	8/5/2014 18:34	TAL-STL ST-RC-0036	Cl-36	13981-43-6	-0.00865	0.416	pCi/g	0.241	U	1	0.416	13.2	0.032	0.510	(0.094)	0
BLT-FSS-C1-01-SO-09	Solid	7/24/2014 14:40	8/21/2014 11:28	EPA 901.1	Cs-137	10045-97-3	0.0142	0.0326	pCi/g	0.0197	U	0.2	0.0326	16.9	0.002	0.096	(0.064)	0
BLT-FSS-C1-01-SO-09	Solid	7/24/2014 14:40	8/19/2014 0:45	EPA 906.0	H-3	10028-17-8	0.142	0.516	pCi/g	0.303	U	1	0.516	121	0.004	0.414	0.102	0.001
BLT-FSS-C1-01-SO-09	Solid	7/24/2014 14:40	8/20/2014 14:36	TAL-STL ST-RC-0055	Ni-63	13981-37-8	0.254	1.03	pCi/g	0.616	U	5	1.03	77954	0.000	1.889	(0.859)	0
BLT-FSS-C1-01-SO-09	Solid	7/24/2014 14:40	8/21/2014 11:28	EPA 901.1	Pb-210	14255-04-0	0.312	0.613	pCi/g	0.441	U	1	0.613	1.9	0.323	0.907	(0.294)	0
BLT-FSS-C1-01-SO-09	Solid	7/24/2014 14:40	8/21/2014 11:28	EPA 901.1	Ra-226	13982-63-3	0.469	0.469	pCi/g	0.083		0.1	0.0307	2.2	0.213	0.771	(0.302)	0
BLT-FSS-C1-01-SO-09	Solid	7/24/2014 14:40	8/18/2014 15:58	DOE 905.0	Sr-90	STL02023	0.0317	0.115	pCi/g	0.0684	U	1	0.115	4.7	0.024	0.172	(0.057)	0
BLT-FSS-C1-01-SO-09														SOR	0.637		Net SOR	0.001
BLT-FSS-C1-01-SO-10	Solid	7/24/2014 14:45	8/23/2014 12:01	EERF C-01-1	C-14	14762-75-5	-0.219	0.796	pCi/g	0.459	U	5	0.796	21	0.038	1.005	(0.209)	0
BLT-FSS-C1-01-SO-10	Solid	7/24/2014 14:45	8/5/2014 18:34	TAL-STL ST-RC-0036	Cl-36	13981-43-6	0.832	0.832	pCi/g	0.278		1	0.395	13.2	0.063	0.510	0.322	0.024
BLT-FSS-C1-01-SO-10	Solid	7/24/2014 14:45	8/22/2014 14:54	EPA 901.1	Cs-137	10045-97-3	0.000455	0.0298	pCi/g	0.0163	U	0.2	0.0298	16.9	0.002	0.096	(0.066)	0
BLT-FSS-C1-01-SO-10	Solid	7/24/2014 14:45	8/19/2014 1:09	EPA 906.0	H-3	10028-17-8	-0.15	0.516	pCi/g	0.281	U	1	0.516	121	0.004	0.414	0.102	0.001
BLT-FSS-C1-01-SO-10	Solid	7/24/2014 14:45	8/20/2014 16:37	TAL-STL ST-RC-0055	Ni-63	13981-37-8	0.409	1.02	pCi/g	0.617	U	5	1.02	77954	0.000	1.889	(0.869)	0
BLT-FSS-C1-01-SO-10	Solid	7/24/2014 14:45	8/22/2014 14:54	EPA 901.1	Pb-210	14255-04-0	0.682	0.682	pCi/g	0.41		1	0.506	1.9	0.359	0.907	(0.225)	0
BLT-FSS-C1-01-SO-10	Solid	7/24/2014 14:45	8/22/2014 14:54	EPA 901.1	Ra-226	13982-63-3	0.382	0.382	pCi/g	0.0747		0.1	0.0446	2.2	0.174	0.771	(0.389)	0
BLT-FSS-C1-01-SO-10	Solid	7/24/2014 14:45	8/19/2014 7:40	DOE 905.0	Sr-90	STL02023	0.139	0.162	pCi/g	0.103	U	1	0.162	4.7	0.034	0.172	(0.010)	0
BLT-FSS-C1-01-SO-10														SOR	0.674		Net SOR	0.025
BLT-FSS-C1-01-SO-11	Solid	7/24/2014 14:50	8/23/2014 13:08	EERF C-01-1	C-14	14762-75-5	-0.296	0.805	pCi/g	0.463	U	5	0.805	21	0.038	1.005	(0.200)	0
BLT-FSS-C1-01-SO-11	Solid	7/24/2014 14:50	8/5/2014 18:34	TAL-STL ST-RC-0036	Cl-36	13981-43-6	0.0939	0.399	pCi/g	0.237	U	1	0.399	13.2	0.030	0.510	(0.111)	0
BLT-FSS-C1-01-SO-11	Solid	7/24/2014 14:50	8/21/2014 12:17	EPA 901.1	Cs-137	10045-97-3	0.00349	0.0244	pCi/g	0.0139	U	0.2	0.0244	16.9	0.001	0.096	(0.072)	0
BLT-FSS-C1-01-SO-11	Solid	7/24/2014 14:50	8/19/2014 1:33	EPA 906.0	H-3	10028-17-8	0.0374	0.509	pCi/g	0.293	U	1	0.509	121	0.004	0.414	0.095	0.001
BLT-FSS-C1-01-SO-11	Solid	7/24/2014 14:50	8/20/2014 18:39	TAL-STL ST-RC-0055	Ni-63	13981-37-8	0.109	1.07	pCi/g	0.638	U	5	1.07	77954	0.000	1.889	(0.819)	0
BLT-FSS-C1-01-SO-11	Solid	7/24/2014 14:50	8/21/2014 12:17	EPA 901.1	Pb-210	14255-04-0	0.494	0.494	pCi/g	0.359		1	0.481	1.9	0.260	0.907	(0.413)	0
BLT-FSS-C1-01-SO-11	Solid	7/24/2014 14:50	8/21/2014 12:17	EPA 901.1	Ra-226	13982-63-3	0.384	0.384	pCi/g	0.0739		0.1	0.0502	2.2	0.175	0.771	(0.387)	0
BLT-FSS-C1-01-SO-11	Solid	7/24/2014 14:50	8/19/2014 7:40	DOE 905.0	Sr-90	STL02023	4.4	4.4	pCi/g	0.416		1	0.179	4.7	0.936	0.172	4.228	0.900
BLT-FSS-C1-01-SO-11														SOR	1.445		Net SOR	0.900
BLT-FSS-C1-01-SO-12	Solid	7/24/2014 14:55	8/23/2014 14:15	EERF C-01-1	C-14	14762-75-5	0.281	0.8	pCi/g	0.482	U	5	0.8	21	0.038	1.005	(0.205)	0
BLT-FSS-C1-01-SO-12	Solid	7/24/2014 14:55	8/5/2014 18:34	TAL-STL ST-RC-0036	Cl-36	13981-43-6	0.0196	0.386	pCi/g	0.224	U	1	0.386	13.2	0.029	0.510	(0.124)	0
BLT-FSS-C1-01-SO-12	Solid	7/24/2014 14:55	8/21/2014 12:16	EPA 901.1	Cs-137	10045-97-3	-0.00104	0.0532	pCi/g	0.0296	U	0.2	0.0532	16.9	0.003	0.096	(0.043)	0
BLT-FSS-C1-01-SO-12	Solid	7/24/2014 14:55	8/19/2014 1:56	EPA 906.0	H-3	10028-17-8	0.0581	0.597	pCi/g	0.343	U	1	0.597	121	0.005	0.414	0.183	0.002
BLT-FSS-C1-01-SO-12	Solid	7/24/2014 14:55	8/20/2014 20:41	TAL-STL ST-RC-0055	Ni-63	13981-37-8	0.562	1.06	pCi/g	0.651	U	5	1.06	77954	0.000	1.889	(0.829)	0
BLT-FSS-C1-01-SO-12	Solid	7/24/2014 14:55	8/21/2014 12:16	EPA 901.1	Pb-210	14255-04-0	1.38	1.38	pCi/g	0.736		1	0.943	1.9	0.726	0.907	0.473	0.249
BLT-FSS-C1-01-SO-12	Solid	7/24/2014 14:55	8/21/2014 12:16	EPA 901.1	Ra-226	13982-63-3	0.992	0.992	pCi/g	0.164		0.1	0.0944	2.2	0.451	0.771	0.221	0.100
BLT-FSS-C1-01-SO-12	Solid	7/24/2014 14:55	8/19/2014 7:40	DOE 905.0	Sr-90	STL02023	0.24	0.24	pCi/g	0.125		1	0.187	4.7	0.051	0.172	0.068	0.015
BLT-FSS-C1-01-SO-12														SOR	1.304		Net SOR	0.365
BLT-FSS-C1-01-SO-13	Solid	7/24/2014 15:00	8/23/2014 15:22	EERF C-01-1	C-14	14762-75-5	-0.0501	0.826	pCi/g	0.481	U	5	0.826	21	0.039	1.005	(0.179)	0
BLT-FSS-C1-01-SO-13	Solid	7/24/2014 15:00	8/5/2014 18:34	TAL-STL ST-RC-0036	Cl-36	13981-43-6	0.173	0.344	pCi/g	0.209	U	1	0.344	13.2	0.026	0.510	(0.166)	0
BLT-FSS-C1-01-SO-13	Solid	7/24/2014 15:00	8/21/2014 12:16	EPA 901.1	Cs-137	10045-97-3	0.00548	0.0241	pCi/g	0.0138	U	0.2	0.0241	16.9	0.001	0.096	(0.072)	0
BLT-FSS-C1-01-SO-13	Solid	7/24/2014 15:00	8/19/2014 2:20	EPA 906.0	H-3	10028-17-8	-0.187	0.495	pCi/g	0.268	U	1	0.495	121	0.004	0.414	0.081	0.001
BLT-FSS-C1-01-SO-13	Solid	7/24/2014 15:00	8/20/2014 22:42	TAL-STL ST-RC-0055	Ni-63	13981-37-8	0.00904	1.06	pCi/g	0.63	U	5	1.06	77954	0.000	1.889	(0.829)	0
BLT-FSS-C1-01-SO-13	Solid	7/24/2014 15:00	8/21/2014 12:16	EPA 901.1	Pb-210	14255-04-0	0.137	0.454	pCi/g	0.26	U	1	0.454	1.9	0.239	0.907	(0.453)	0
BLT-FSS-C1-01-SO-13	Solid	7/24/2014 15:00	8/21/2014 12:16	EPA 901.1	Ra-226	13982-63-3	0.21	0.21	pCi/g	0.0452		0.1	0.0259	2.2	0.095	0.771	(0.561)	0
BLT-FSS-C1-01-SO-13	Solid	7/24/2014 15:00	8/19/2014 7:40	DOE 905.0	Sr-90	STL02023	0.323	0.323	pCi/g	0.121		1	0.169	4.7	0.069	0.172	0.151	0.032
BLT-FSS-C1-01-SO-13														SOR	0.474		Net SOR	0.033

Class 1 FSSU 01

BARC LLRBS FSSR  
Appendix 6

Individual Sample Results

Sample ID	Matrix	Collected	Analyzed	Method	Analyte	CAS	Result	TES Result	Unit	% Uncertainty	Footnotes	RL/CRDL	MDL/MDA	DCGL	Ratio	RA Mean	Net Result	Net Ratio
BLT-FSS-C1-01-SO-14	Solid	7/24/2014 15:05	8/23/2014 16:29	EERF C-01-1	C-14	14762-75-5	0.169	0.807	pCi/g	0.48	U	5	0.807	21	0.038	1.005	(0.198)	0
BLT-FSS-C1-01-SO-14	Solid	7/24/2014 15:05	8/5/2014 18:34	TAL-STL ST-RC-0036	Cl-36	13981-43-6	0.106	0.34	pCi/g	0.202	U	1	0.34	13.2	0.026	0.510	(0.170)	0
BLT-FSS-C1-01-SO-14	Solid	7/24/2014 15:05	8/21/2014 12:16	EPA 901.1	Cs-137	10045-97-3	0.00125	0.0225	pCi/g	0.0126	U	0.2	0.0225	16.9	0.001	0.096	(0.074)	0
BLT-FSS-C1-01-SO-14	Solid	7/24/2014 15:05	8/19/2014 2:44	EPA 906.0	H-3	10028-17-8	0.226	0.521	pCi/g	0.312	U	1	0.521	121	0.004	0.414	0.107	0.001
BLT-FSS-C1-01-SO-14	Solid	7/24/2014 15:05	8/21/2014 0:44	TAL-STL ST-RC-0055	Ni-63	13981-37-8	0.142	1.04	pCi/g	0.624	U	5	1.04	77954	0.000	1.889	(0.849)	0
BLT-FSS-C1-01-SO-14	Solid	7/24/2014 15:05	8/21/2014 12:16	EPA 901.1	Pb-210	14255-04-0	0.366	0.481	pCi/g	0.357	U	1	0.481	1.9	0.253	0.907	(0.426)	0
BLT-FSS-C1-01-SO-14	Solid	7/24/2014 15:05	8/21/2014 12:16	EPA 901.1	Ra-226	13982-63-3	0.39	0.39	pCi/g	0.0681		0.1	0.0377	2.2	0.177	0.771	(0.381)	0
BLT-FSS-C1-01-SO-14	Solid	7/24/2014 15:05	8/19/2014 7:41	DOE 905.0	Sr-90	STL02023	0.204	0.204	pCi/g	0.096		1	0.138	4.7	0.043	0.172	0.032	0.007
BLT-FSS-C1-01-SO-14														SOR	0.544		Net SOR	0.008
BLT-FSS-C1-01-SO-15	Solid	7/24/2014 15:10	8/23/2014 17:36	EERF C-01-1	C-14	14762-75-5	0.248	0.816	pCi/g	0.488	U	5	0.816	21	0.039	1.005	(0.189)	0
BLT-FSS-C1-01-SO-15	Solid	7/24/2014 15:10	8/5/2014 18:34	TAL-STL ST-RC-0036	Cl-36	13981-43-6	0.228	0.357	pCi/g	0.22	U	1	0.357	13.2	0.027	0.510	(0.153)	0
BLT-FSS-C1-01-SO-15	Solid	7/24/2014 15:10	8/21/2014 12:19	EPA 901.1	Cs-137	10045-97-3	-0.00916	0.0388	pCi/g	0.0227	U	0.2	0.0388	16.9	0.002	0.096	(0.057)	0
BLT-FSS-C1-01-SO-15	Solid	7/24/2014 15:10	8/19/2014 3:07	EPA 906.0	H-3	10028-17-8	0.0307	0.509	pCi/g	0.291	U	1	0.509	121	0.004	0.414	0.095	0.001
BLT-FSS-C1-01-SO-15	Solid	7/24/2014 15:10	8/21/2014 2:46	TAL-STL ST-RC-0055	Ni-63	13981-37-8	0.595	1.03	pCi/g	0.623	U	5	1.03	77954	0.000	1.889	(0.859)	0
BLT-FSS-C1-01-SO-15	Solid	7/24/2014 15:10	8/21/2014 12:19	EPA 901.1	Pb-210	14255-04-0	0.109	0.624	pCi/g	0.362	U	1	0.624	1.9	0.328	0.907	(0.283)	0
BLT-FSS-C1-01-SO-15	Solid	7/24/2014 15:10	8/21/2014 12:19	EPA 901.1	Ra-226	13982-63-3	0.55	0.55	pCi/g	0.0922		0.1	0.0402	2.2	0.250	0.771	(0.221)	0
BLT-FSS-C1-01-SO-15	Solid	7/24/2014 15:10	8/19/2014 7:41	DOE 905.0	Sr-90	STL02023	0.198	0.198	pCi/g	0.102		1	0.149	4.7	0.042	0.172	0.026	0.006
BLT-FSS-C1-01-SO-15														SOR	0.693		Net SOR	0.006
BLT-FSS-C1-01-SO-16	Solid	7/24/2014 15:15	8/18/2014 22:58	EERF C-01-1	C-14	14762-75-5	-0.347	0.806	pCi/g	0.458	U	5	0.806	21	0.038	1.005	(0.199)	0
BLT-FSS-C1-01-SO-16	Solid	7/24/2014 15:15	8/5/2014 18:34	TAL-STL ST-RC-0036	Cl-36	13981-43-6	0.172	0.374	pCi/g	0.226	U	1	0.374	13.2	0.028	0.510	(0.136)	0
BLT-FSS-C1-01-SO-16	Solid	7/24/2014 15:15	8/21/2014 12:56	EPA 901.1	Cs-137	10045-97-3	0.00457	0.0202	pCi/g	0.0116	U	0.2	0.0202	16.9	0.001	0.096	(0.076)	0
BLT-FSS-C1-01-SO-16	Solid	7/24/2014 15:15	8/19/2014 3:31	EPA 906.0	H-3	10028-17-8	-0.0856	0.497	pCi/g	0.277	U	1	0.497	121	0.004	0.414	0.083	0.001
BLT-FSS-C1-01-SO-16	Solid	7/24/2014 15:15	8/21/2014 4:48	TAL-STL ST-RC-0055	Ni-63	13981-37-8	0.284	1.08	pCi/g	0.647	U	5	1.08	77954	0.000	1.889	(0.809)	0
BLT-FSS-C1-01-SO-16	Solid	7/24/2014 15:15	8/21/2014 12:56	EPA 901.1	Pb-210	14255-04-0	0.319	0.408	pCi/g	0.296	U	1	0.408	1.9	0.215	0.907	(0.499)	0
BLT-FSS-C1-01-SO-16	Solid	7/24/2014 15:15	8/21/2014 12:56	EPA 901.1	Ra-226	13982-63-3	0.326	0.326	pCi/g	0.0574		0.1	0.028	2.2	0.148	0.771	(0.445)	0
BLT-FSS-C1-01-SO-16	Solid	7/24/2014 15:15	8/19/2014 7:41	DOE 905.0	Sr-90	STL02023	0.0535	0.142	pCi/g	0.0844	U	1	0.142	4.7	0.030	0.172	(0.030)	0
BLT-FSS-C1-01-SO-16														SOR	0.465		Net SOR	0.001

**Final Status Survey Report  
Appendix 7  
Class 1 FSSU-02  
Survey and Sample Results**

**Beltsville Agricultural Research Center (BARC)  
Low Level Radioactive Burial site (LLRBS)  
Beltsville, Maryland**



**Prepared for:**

U.S. Army Field Support Command  
Rock Island, Illinois

*Prepared by:*

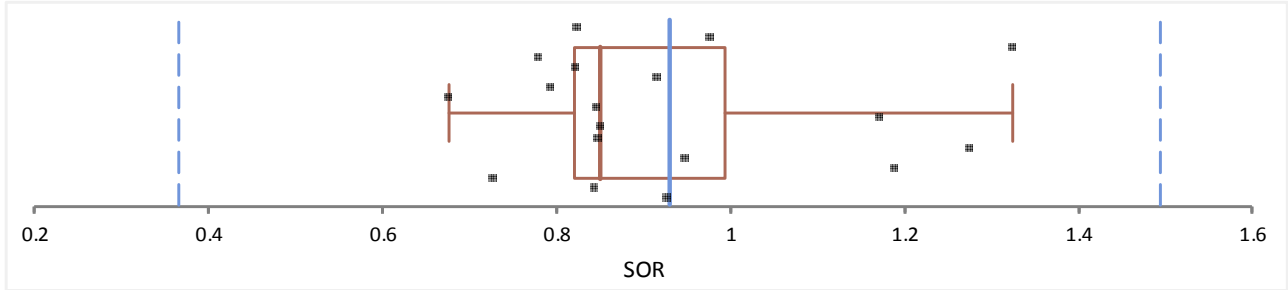
***TPMC-EnergySolutions Environmental Services, LLC***

**Contract No. W52P1J-11-D-0001**

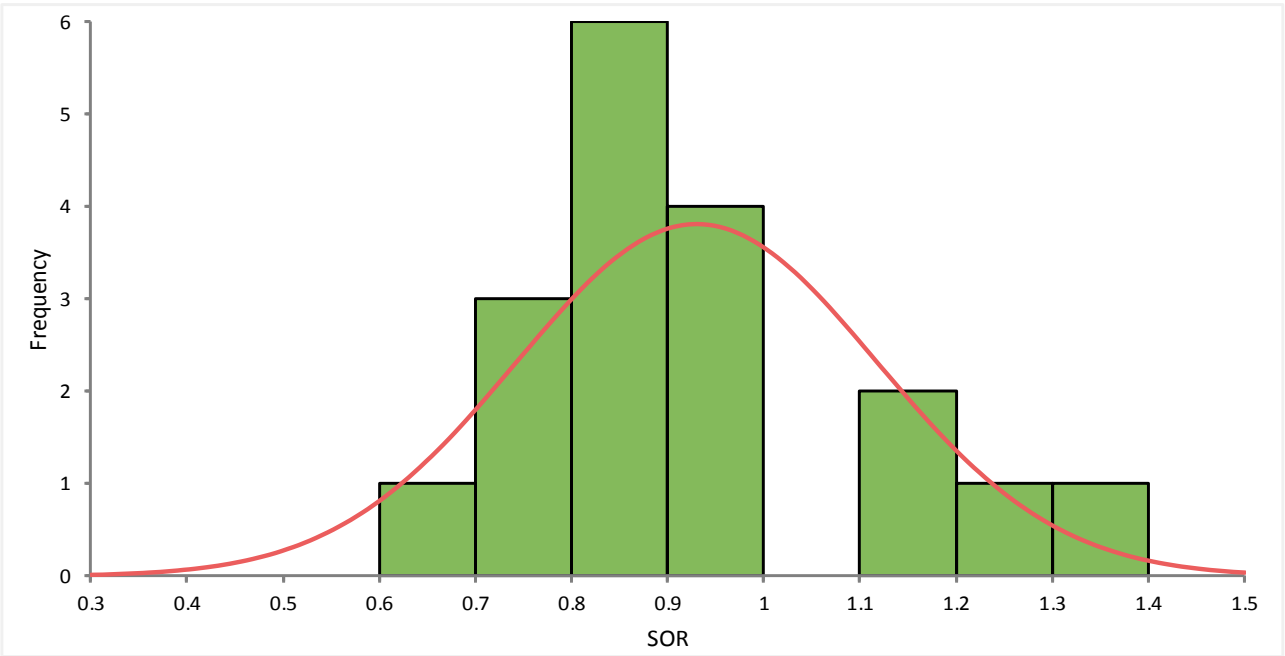




Statistics & Decisions	SU	RA	Sample ID	BLT-FSSB-C1-02-SO-01	BLT-FSS-C1-02-SO-01	BLT-FSS-C1-02-SO-02	BLT-FSS-C1-02-SO-02-FD02	BLT-FSS-C1-02-SO-03	BLT-FSS-C1-02-SO-04	BLT-FSS-C1-02-SO-05	BLT-FSS-C1-02-SO-06	BLT-FSS-C1-02-SO-07	BLT-FSS-C1-02-SO-08	BLT-FSS-C1-02-SO-09	BLT-FSS-C1-02-SO-10	BLT-FSS-C1-02-SO-11	BLT-FSS-C1-02-SO-12	BLT-FSS-C1-02-SO-13	BLT-FSS-C1-02-SO-14	BLT-FSS-C1-02-SO-15	BLT-FSS-C1-02-SO-16
Avg	0.930	0.960	SOR	0.927	0.844	0.727	1.188	0.947	1.276	0.847	0.852	1.172	0.845	0.676	0.793	0.915	0.823	0.780	1.324	0.977	0.824
Min	0.676	0.768	Net SOR	0.080	0.001	0.001	0.260	0.016	0.344	0.001	0.023	0.259	0.114	0.014	0.018	0.016	0.014	0.014	0.407	0.070	0.005
Max	1.324	1.333																			
SU Max SOR - RA Min SOR	0.556																				
SU Avg SOR - RA Avg SOR	-0.030																				
SU meets release criterion																					

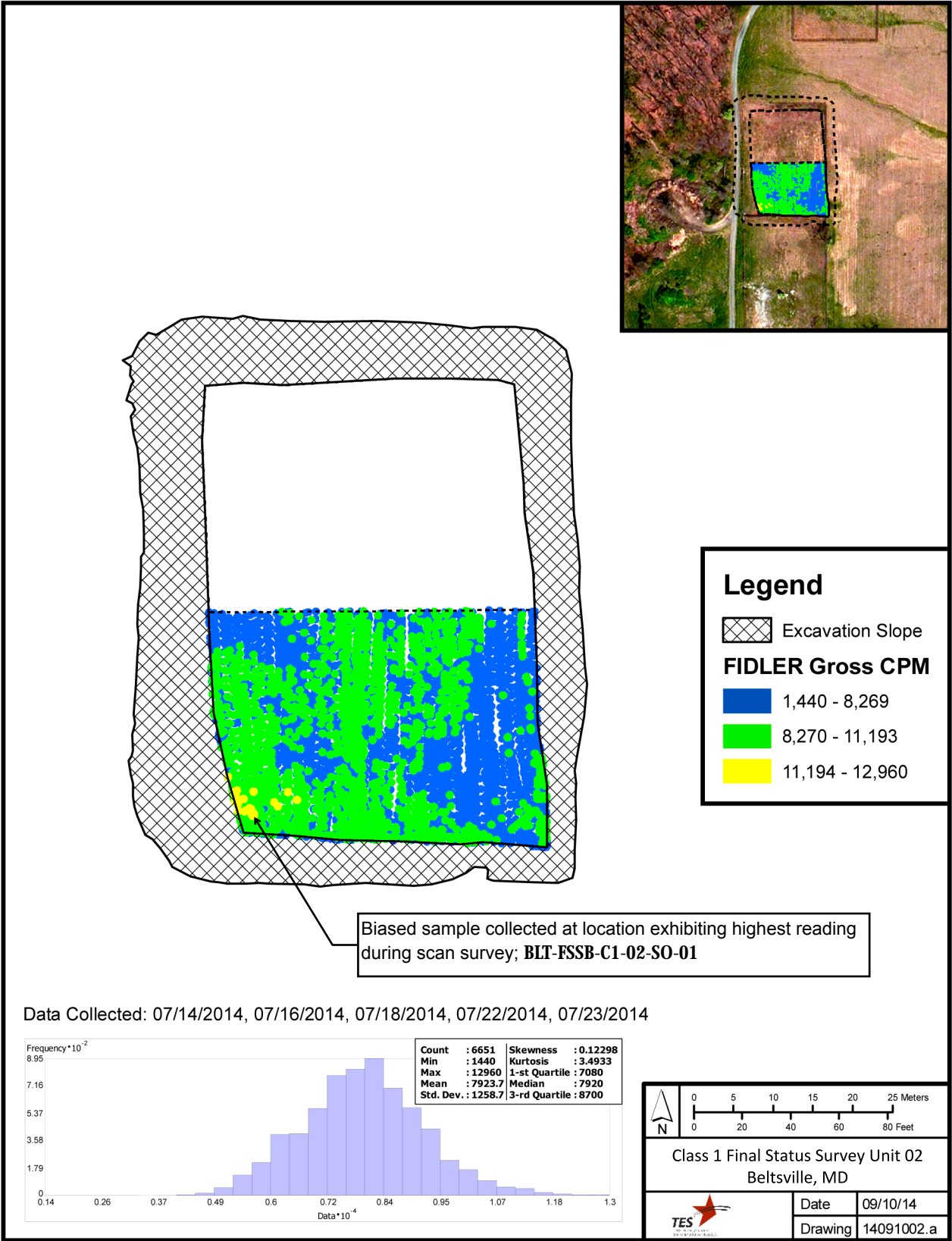


N		18					
		Mean	SE	SD	Variance	Skewness	Kurtosis
SOR		0.929783725	0.044292207	0.187915920	0.035312393	1.0	-0.01
		Minimum	1st quartile	Median	3rd quartile	Maximum	IQR
SOR		0.67576410	0.820292728	0.849187508	0.993083892	1.32428920	0.172791164
Quantile		SOR					
0.050		0.688504940					
0.950		1.312132230					



Frequency Distribution

Class	Frequency	Relative frequency	Density	Cumulative frequency	Cumulative relative frequency
≥0.6 to <0.7	1	0.056	0.5556	1	0.056
≥0.7 to <0.8	3	0.167	1.6667	4	0.222
≥0.8 to <0.9	6	0.333	3.3333	10	0.556
≥0.9 to <1	4	0.222	2.2222	14	0.778
≥1 to <1.1	0	0.000	0.0000	14	0.778
≥1.1 to <1.2	2	0.111	1.1111	16	0.889
≥1.2 to <1.3	1	0.056	0.5556	17	0.944
≥1.3 to <1.4	1	0.056	0.5556	18	1.000



BARC LLRBS FSSR Appendix 7														Individual Sample Results				
Class 1 FSSU 02																		
Sample ID	Matrix	Collected	Analyzed	Method	Analyte	CAS	Result	TES Result	Unit	% Uncertainty	Footnotes	RL/CRDL	MDL/MDA	DCGL	Ratio	RA Mean	Net Result	Net Ratio
BLT-FSSB-C1-02-SO-01	Solid	7/28/2014 13:35	8/15/2014 12:08	EERF C-01-1	C-14	14762-75-5	-0.775	0.927	pCi/g	0.525	U	5	0.927	21	0.044	1.005	(0.078)	0
BLT-FSSB-C1-02-SO-01	Solid	7/28/2014 13:35	8/14/2014 16:00	TAL-STL ST-RC-0036	Cl-36	13981-43-6	0.0706	0.326	pCi/g	0.192	U	1	0.326	13.2	0.025	0.510	(0.184)	0
BLT-FSSB-C1-02-SO-01	Solid	7/28/2014 13:35	9/15/2014 14:02	DOE GA-01-R	Cs-137	10045-97-3	0.00471	0.0416	pCi/g	0.0243	U	0.2	0.0416	16.9	0.002	0.096	(0.055)	0
BLT-FSSB-C1-02-SO-01	Solid	7/28/2014 13:35	8/19/2014 1:39	EPA 906.0	H-3	10028-17-8	0.172	0.365	pCi/g	0.221	U	1	0.365	121	0.003	0.414	(0.049)	0
BLT-FSSB-C1-02-SO-01	Solid	7/28/2014 13:35	8/23/2014 10:17	TAL-STL ST-RC-0055	Ni-63	13981-37-8	0	1.21	pCi/g	0.716	U	5	1.21	77954	0.000	1.889	(0.679)	0
BLT-FSSB-C1-02-SO-01	Solid	7/28/2014 13:35	9/15/2014 14:02	DOE GA-01-R	Pb-210	14255-04-0	0.456	1.04	pCi/g	0.713	U	1	1.04	1.9	0.547	0.907	0.133	0.070
BLT-FSSB-C1-02-SO-01	Solid	7/28/2014 13:35	9/15/2014 14:02	DOE GA-01-R	Ra-226	13982-63-3	0.569	0.569	pCi/g	0.0987		0.1	0.0809	2.2	0.259	0.771	(0.202)	0
BLT-FSSB-C1-02-SO-01	Solid	7/28/2014 13:35	8/20/2014 14:44	DOE 905.0	Sr-90	STL02023	0.0243	0.219	pCi/g	0.125	U	1	0.219	4.7	0.047	0.172	0.047	0.010
BLT-FSSB-C1-02-SO-01														SOR	0.927		Net SOR	0.080
BLT-FSS-C1-02-SO-01	Solid	7/24/2014 17:00	8/19/2014 1:12	EERF C-01-1	C-14	14762-75-5	-0.587	0.812	pCi/g	0.454	U	5	0.812	21	0.039	1.005	(0.193)	0
BLT-FSS-C1-02-SO-01	Solid	7/24/2014 17:00	8/14/2014 7:46	TAL-STL ST-RC-0036	Cl-36	13981-43-6	0.0759	0.316	pCi/g	0.186	U	1	0.316	13.2	0.024	0.510	(0.194)	0
BLT-FSS-C1-02-SO-01	Solid	7/24/2014 17:00	9/15/2014 1:54	DOE GA-01-R	Cs-137	10045-97-3	-0.00884	0.0342	pCi/g	0.0204	U	0.2	0.0342	16.9	0.002	0.096	(0.062)	0
BLT-FSS-C1-02-SO-01	Solid	7/24/2014 17:00	8/19/2014 3:55	EPA 906.0	H-3	10028-17-8	0.0419	0.485	pCi/g	0.28	U	1	0.485	121	0.004	0.414	0.071	0.001
BLT-FSS-C1-02-SO-01	Solid	7/24/2014 17:00	8/21/2014 6:49	TAL-STL ST-RC-0055	Ni-63	13981-37-8	-0.179	1.05	pCi/g	0.623	U	5	1.05	77954	0.000	1.889	(0.839)	0
BLT-FSS-C1-02-SO-01	Solid	7/24/2014 17:00	9/15/2014 1:54	DOE GA-01-R	Pb-210	14255-04-0	0.446	0.875	pCi/g	0.52	U	1	0.875	1.9	0.461	0.907	(0.032)	0
BLT-FSS-C1-02-SO-01	Solid	7/24/2014 17:00	9/15/2014 1:54	DOE GA-01-R	Ra-226	13982-63-3	0.622	0.622	pCi/g	0.0946		0.1	0.0613	2.2	0.283	0.771	(0.149)	0
BLT-FSS-C1-02-SO-01	Solid	7/24/2014 17:00	8/19/2014 7:41	DOE 905.0	Sr-90	STL02023	-0.00502	0.153	pCi/g	0.0851	U	1	0.153	4.7	0.033	0.172	(0.019)	0
BLT-FSS-C1-02-SO-01														SOR	0.844		Net SOR	0.001
BLT-FSS-C1-02-SO-02	Solid	7/24/2014 16:55	8/19/2014 3:26	EERF C-01-1	C-14	14762-75-5	-0.21	0.789	pCi/g	0.454	U	5	0.789	21	0.038	1.005	(0.216)	0
BLT-FSS-C1-02-SO-02	Solid	7/24/2014 16:55	8/14/2014 7:46	TAL-STL ST-RC-0036	Cl-36	13981-43-6	0.292	0.337	pCi/g	0.212	U	1	0.337	13.2	0.026	0.510	(0.173)	0
BLT-FSS-C1-02-SO-02	Solid	7/24/2014 16:55	9/15/2014 3:24	DOE GA-01-R	Cs-137	10045-97-3	0.0000171	0.0244	pCi/g	0.0141	U	0.2	0.0244	16.9	0.001	0.096	(0.072)	0
BLT-FSS-C1-02-SO-02	Solid	7/24/2014 16:55	8/19/2014 4:18	EPA 906.0	H-3	10028-17-8	-0.226	0.485	pCi/g	0.259	U	1	0.485	121	0.004	0.414	0.071	0.001
BLT-FSS-C1-02-SO-02	Solid	7/24/2014 16:55	8/21/2014 8:51	TAL-STL ST-RC-0055	Ni-63	13981-37-8	-0.0762	0.993	pCi/g	0.589	U	5	0.993	77954	0.000	1.889	(0.896)	0
BLT-FSS-C1-02-SO-02	Solid	7/24/2014 16:55	9/15/2014 3:24	DOE GA-01-R	Pb-210	14255-04-0	0.686	0.686	pCi/g	0.513		1	0.676	1.9	0.361	0.907	(0.221)	0
BLT-FSS-C1-02-SO-02	Solid	7/24/2014 16:55	9/15/2014 3:24	DOE GA-01-R	Ra-226	13982-63-3	0.575	0.575	pCi/g	0.0854		0.1	0.0493	2.2	0.261	0.771	(0.196)	0
BLT-FSS-C1-02-SO-02	Solid	7/24/2014 16:55	8/19/2014 7:41	DOE 905.0	Sr-90	STL02023	0.0219	0.168	pCi/g	0.0961	U	1	0.168	4.7	0.036	0.172	(0.004)	0
BLT-FSS-C1-02-SO-02														SOR	0.727		Net SOR	0.001
BLT-FSS-C1-02-SO-02-FD02	Solid	7/24/2014 16:55	8/19/2014 4:33	EERF C-01-1	C-14	14762-75-5	-0.159	0.814	pCi/g	0.469	U	5	0.814	21	0.039	1.005	(0.191)	0
BLT-FSS-C1-02-SO-02-FD02	Solid	7/24/2014 16:55	8/14/2014 7:46	TAL-STL ST-RC-0036	Cl-36	13981-43-6	-0.0106	0.335	pCi/g	0.192	U	1	0.335	13.2	0.025	0.510	(0.175)	0
BLT-FSS-C1-02-SO-02-FD02	Solid	7/24/2014 16:55	9/15/2014 3:25	DOE GA-01-R	Cs-137	10045-97-3	-0.0112	0.0427	pCi/g	0.0406	U	0.2	0.0427	16.9	0.003	0.096	(0.054)	0
BLT-FSS-C1-02-SO-02-FD02	Solid	7/24/2014 16:55	8/19/2014 4:42	EPA 906.0	H-3	10028-17-8	-0.0119	0.487	pCi/g	0.276	U	1	0.487	121	0.004	0.414	0.073	0.001
BLT-FSS-C1-02-SO-02-FD02	Solid	7/24/2014 16:55	8/21/2014 10:53	TAL-STL ST-RC-0055	Ni-63	13981-37-8	0.357	1.02	pCi/g	0.621	U	5	1.02	77954	0.000	1.889	(0.869)	0
BLT-FSS-C1-02-SO-02-FD02	Solid	7/24/2014 16:55	9/15/2014 3:25	DOE GA-01-R	Pb-210	14255-04-0	1.4	1.4	pCi/g	0.728		1	0.81	1.9	0.737	0.907	0.493	0.260
BLT-FSS-C1-02-SO-02-FD02	Solid	7/24/2014 16:55	9/15/2014 3:25	DOE GA-01-R	Ra-226	13982-63-3	0.765	0.765	pCi/g	0.113		0.1	0.0589	2.2	0.348	0.771	(0.006)	0
BLT-FSS-C1-02-SO-02-FD02	Solid	7/24/2014 16:55	8/19/2014 7:41	DOE 905.0	Sr-90	STL02023	0.055	0.156	pCi/g	0.0923	U	1	0.156	4.7	0.033	0.172	(0.016)	0
BLT-FSS-C1-02-SO-02-FD02														SOR	1.188		Net SOR	0.260
BLT-FSS-C1-02-SO-03	Solid	7/24/2014 16:52	8/19/2014 5:41	EERF C-01-1	C-14	14762-75-5	-0.532	0.805	pCi/g	0.453	U	5	0.805	21	0.038	1.005	(0.200)	0
BLT-FSS-C1-02-SO-03	Solid	7/24/2014 16:52	8/14/2014 7:47	TAL-STL ST-RC-0036	Cl-36	13981-43-6	0.222	0.343	pCi/g	0.211	U	1	0.343	13.2	0.026	0.510	(0.167)	0
BLT-FSS-C1-02-SO-03	Solid	7/24/2014 16:52	9/15/2014 3:27	DOE GA-01-R	Cs-137	10045-97-3	-0.00156	0.0293	pCi/g	0.0171	U	0.2	0.0293	16.9	0.002	0.096	(0.067)	0
BLT-FSS-C1-02-SO-03	Solid	7/24/2014 16:52	8/19/2014 5:05	EPA 906.0	H-3	10028-17-8	0.0236	0.479	pCi/g	0.275	U	1	0.479	121	0.004	0.414	0.065	0.001
BLT-FSS-C1-02-SO-03	Solid	7/24/2014 16:52	8/21/2014 12:54	TAL-STL ST-RC-0055	Ni-63	13981-37-8	1.31	1.31	pCi/g	0.624		5	0.97	77954	0.000	1.889	(0.579)	0
BLT-FSS-C1-02-SO-03	Solid	7/24/2014 16:52	9/15/2014 3:27	DOE GA-01-R	Pb-210	14255-04-0	0.92	0.92	pCi/g	0.51		1	0.638	1.9	0.484	0.907	0.013	0.007
BLT-FSS-C1-02-SO-03	Solid	7/24/2014 16:52	9/15/2014 3:27	DOE GA-01-R	Ra-226	13982-63-3	0.791	0.791	pCi/g	0.111		0.1	0.0612	2.2	0.360	0.771	0.020	0.009
BLT-FSS-C1-02-SO-03	Solid	7/24/2014 16:52	8/19/2014 7:41	DOE 905.0	Sr-90	STL02023	0.0106	0.156	pCi/g	0.0884	U	1	0.156	4.7	0.033	0.172	(0.016)	0
BLT-FSS-C1-02-SO-03														SOR	0.947		Net SOR	0.016

BARC LLRBS FSSR Appendix 7													Individual Sample Results					
Class 1 FSSU 02																		
Sample ID	Matrix	Collected	Analyzed	Method	Analyte	CAS	Result	TES Result	Unit	% Uncertainty	Footnotes	RL/CRDL	MDL/MDA	DCGL	Ratio	RA Mean	Net Result	Net Ratio
BLT-FSS-C1-02-SO-04	Solid	7/24/2014 16:50	8/19/2014 6:48	EERF C-01-1	C-14	14762-75-5	-0.0683	0.804	pCi/g	0.469	U	5	0.804	21	0.038	1.005	(0.201)	0
BLT-FSS-C1-02-SO-04	Solid	7/24/2014 16:50	8/14/2014 7:47	TAL-STL ST-RC-0036	Cl-36	13981-43-6	0.0699	0.327	pCi/g	0.193	U	1	0.327	13.2	0.025	0.510	(0.183)	0
BLT-FSS-C1-02-SO-04	Solid	7/24/2014 16:50	9/15/2014 3:27	DOE GA-01-R	Cs-137	10045-97-3	0.0291	0.0291	pCi/g	0.0206		0.2	0.0288	16.9	0.002	0.096	(0.067)	0
BLT-FSS-C1-02-SO-04	Solid	7/24/2014 16:50	8/19/2014 5:29	EPA 906.0	H-3	10028-17-8	-0.00597	0.472	pCi/g	0.27	U	1	0.472	121	0.004	0.414	0.058	0.000
BLT-FSS-C1-02-SO-04	Solid	7/24/2014 16:50	8/21/2014 14:56	TAL-STL ST-RC-0055	Ni-63	13981-37-8	0.767	1	pCi/g	0.621	U	5	1	77954	0.000	1.889	(0.889)	0
BLT-FSS-C1-02-SO-04	Solid	7/24/2014 16:50	9/15/2014 3:27	DOE GA-01-R	Pb-210	14255-04-0	1.54	1.54	pCi/g	0.87		1	1.1	1.9	0.811	0.907	0.633	0.333
BLT-FSS-C1-02-SO-04	Solid	7/24/2014 16:50	9/15/2014 3:27	DOE GA-01-R	Ra-226	13982-63-3	0.794	0.794	pCi/g	0.122		0.1	0.0814	2.2	0.361	0.771	0.023	0.010
BLT-FSS-C1-02-SO-04	Solid	7/24/2014 16:50	8/19/2014 7:41	DOE 905.0	Sr-90	STL02023	0.0948	0.167	pCi/g	0.102	U	1	0.167	4.7	0.036	0.172	(0.005)	0
													BLT-FSS-C1-02-SO-04	SOR	1.276		Net SOR	0.344
BLT-FSS-C1-02-SO-05	Solid	7/24/2014 16:47	8/19/2014 7:55	EERF C-01-1	C-14	14762-75-5	-0.237	0.794	pCi/g	0.457	U	5	0.794	21	0.038	1.005	(0.211)	0
BLT-FSS-C1-02-SO-05	Solid	7/24/2014 16:47	8/14/2014 7:47	TAL-STL ST-RC-0036	Cl-36	13981-43-6	0.0401	0.347	pCi/g	0.203	U	1	0.347	13.2	0.026	0.510	(0.163)	0
BLT-FSS-C1-02-SO-05	Solid	7/24/2014 16:47	9/15/2014 3:28	DOE GA-01-R	Cs-137	10045-97-3	0.000388	0.0309	pCi/g	0.0177	U	0.2	0.0309	16.9	0.002	0.096	(0.065)	0
BLT-FSS-C1-02-SO-05	Solid	7/24/2014 16:47	8/19/2014 5:53	EPA 906.0	H-3	10028-17-8	0.0601	0.482	pCi/g	0.28	U	1	0.482	121	0.004	0.414	0.068	0.001
BLT-FSS-C1-02-SO-05	Solid	7/24/2014 16:47	8/21/2014 16:58	TAL-STL ST-RC-0055	Ni-63	13981-37-8	-0.0793	1.03	pCi/g	0.612	U	5	1.03	77954	0.000	1.889	(0.859)	0
BLT-FSS-C1-02-SO-05	Solid	7/24/2014 16:47	9/15/2014 3:28	DOE GA-01-R	Pb-210	14255-04-0	0.598	0.888	pCi/g	0.601	U	1	0.888	1.9	0.467	0.907	(0.019)	0
BLT-FSS-C1-02-SO-05	Solid	7/24/2014 16:47	9/15/2014 3:28	DOE GA-01-R	Ra-226	13982-63-3	0.601	0.601	pCi/g	0.0988		0.1	0.0728	2.2	0.273	0.771	(0.170)	0
BLT-FSS-C1-02-SO-05	Solid	7/24/2014 16:47	8/19/2014 7:41	DOE 905.0	Sr-90	STL02023	-0.0418	0.171	pCi/g	0.0923	U	1	0.171	4.7	0.036	0.172	(0.001)	0
													BLT-FSS-C1-02-SO-05	SOR	0.847		Net SOR	0.001
BLT-FSS-C1-02-SO-06	Solid	7/24/2014 16:45	8/19/2014 9:02	EERF C-01-1	C-14	14762-75-5	-0.0495	0.814	pCi/g	0.473	U	5	0.814	21	0.039	1.005	(0.191)	0
BLT-FSS-C1-02-SO-06	Solid	7/24/2014 16:45	8/14/2014 7:47	TAL-STL ST-RC-0036	Cl-36	13981-43-6	-0.0211	0.35	pCi/g	0.201	U	1	0.35	13.2	0.027	0.510	(0.160)	0
BLT-FSS-C1-02-SO-06	Solid	7/24/2014 16:45	9/15/2014 3:29	DOE GA-01-R	Cs-137	10045-97-3	0.000735	0.028	pCi/g	0.0161	U	0.2	0.028	16.9	0.002	0.096	(0.068)	0
BLT-FSS-C1-02-SO-06	Solid	7/24/2014 16:45	8/18/2014 19:52	EPA 906.0	H-3	10028-17-8	0.116	0.361	pCi/g	0.212	U	1	0.361	121	0.003	0.414	(0.053)	0
BLT-FSS-C1-02-SO-06	Solid	7/24/2014 16:45	8/22/2014 3:19	TAL-STL ST-RC-0055	Ni-63	13981-37-8	0	1.2	pCi/g	0.696	U	5	1.2	77954	0.000	1.889	(0.689)	0
BLT-FSS-C1-02-SO-06	Solid	7/24/2014 16:45	9/15/2014 3:29	DOE GA-01-R	Pb-210	14255-04-0	0.86	0.867	pCi/g	0.686	U	1	0.867	1.9	0.456	0.907	(0.040)	0
BLT-FSS-C1-02-SO-06	Solid	7/24/2014 16:45	9/15/2014 3:29	DOE GA-01-R	Ra-226	13982-63-3	0.585	0.585	pCi/g	0.0968		0.1	0.0663	2.2	0.266	0.771	(0.186)	0
BLT-FSS-C1-02-SO-06	Solid	7/24/2014 16:45	8/20/2014 11:25	DOE 905.0	Sr-90	STL02023	0.0262	0.279	pCi/g	0.16	U	1	0.279	4.7	0.059	0.172	0.107	0.023
													BLT-FSS-C1-02-SO-06	SOR	0.852		Net SOR	0.023
BLT-FSS-C1-02-SO-07	Solid	7/24/2014 16:42	8/19/2014 10:09	EERF C-01-1	C-14	14762-75-5	1.66	1.66	pCi/g	0.559		5	0.792	21	0.079	1.005	0.655	0.031
BLT-FSS-C1-02-SO-07	Solid	7/24/2014 16:42	8/14/2014 7:47	TAL-STL ST-RC-0036	Cl-36	13981-43-6	0.32	0.343	pCi/g	0.217	U	1	0.343	13.2	0.026	0.510	(0.167)	0
BLT-FSS-C1-02-SO-07	Solid	7/24/2014 16:42	9/15/2014 9:37	DOE GA-01-R	Cs-137	10045-97-3	0.73	0.73	pCi/g	0.106		0.2	0.0466	16.9	0.043	0.096	0.634	0.038
BLT-FSS-C1-02-SO-07	Solid	7/24/2014 16:42	8/18/2014 20:38	EPA 906.0	H-3	10028-17-8	2.67	2.67	pCi/g	0.49		1	0.36	121	0.022	0.414	2.256	0.019
BLT-FSS-C1-02-SO-07	Solid	7/24/2014 16:42	8/22/2014 7:44	TAL-STL ST-RC-0055	Ni-63	13981-37-8	0	1.22	pCi/g	0.715	U	5	1.22	77954	0.000	1.889	(0.669)	0
BLT-FSS-C1-02-SO-07	Solid	7/24/2014 16:42	9/15/2014 9:37	DOE GA-01-R	Pb-210	14255-04-0	0.899	1.21	pCi/g	0.828	U	1	1.21	1.9	0.637	0.907	0.303	0.160
BLT-FSS-C1-02-SO-07	Solid	7/24/2014 16:42	9/15/2014 9:37	DOE GA-01-R	Ra-226	13982-63-3	0.695	0.695	pCi/g	0.129		0.1	0.0845	2.2	0.316	0.771	(0.076)	0
BLT-FSS-C1-02-SO-07	Solid	7/24/2014 16:42	8/20/2014 11:25	DOE 905.0	Sr-90	STL02023	0.201	0.228	pCi/g	0.147	U	1	0.228	4.7	0.049	0.172	0.056	0.012
													BLT-FSS-C1-02-SO-07	SOR	1.172		Net SOR	0.259
BLT-FSS-C1-02-SO-08	Solid	7/24/2014 16:40	8/19/2014 11:16	EERF C-01-1	C-14	14762-75-5	0.0134	0.802	pCi/g	0.468	U	5	0.802	21	0.038	1.005	(0.203)	0
BLT-FSS-C1-02-SO-08	Solid	7/24/2014 16:40	8/14/2014 7:47	TAL-STL ST-RC-0036	Cl-36	13981-43-6	0.11	0.32	pCi/g	0.191	U	1	0.32	13.2	0.024	0.510	(0.190)	0
BLT-FSS-C1-02-SO-08	Solid	7/24/2014 16:40	9/15/2014 9:41	DOE GA-01-R	Cs-137	10045-97-3	0.0236	0.0301	pCi/g	0.0244	U	0.2	0.0301	16.9	0.002	0.096	(0.066)	0
BLT-FSS-C1-02-SO-08	Solid	7/24/2014 16:40	8/18/2014 21:24	EPA 906.0	H-3	10028-17-8	0.601	0.601	pCi/g	0.272		1	0.36	121	0.005	0.414	0.187	0.002
BLT-FSS-C1-02-SO-08	Solid	7/24/2014 16:40	8/22/2014 9:57	TAL-STL ST-RC-0055	Ni-63	13981-37-8	0	1.21	pCi/g	0.709	U	5	1.21	77954	0.000	1.889	(0.679)	0
BLT-FSS-C1-02-SO-08	Solid	7/24/2014 16:40	9/15/2014 9:41	DOE GA-01-R	Pb-210	14255-04-0	-0.316	1.1	pCi/g	1.19	U	1	1.1	1.9	0.579	0.907	0.193	0.102
BLT-FSS-C1-02-SO-08	Solid	7/24/2014 16:40	9/15/2014 9:41	DOE GA-01-R	Ra-226	13982-63-3	0.33	0.33	pCi/g	0.0671		0.1	0.0556	2.2	0.150	0.771	(0.441)	0
BLT-FSS-C1-02-SO-08	Solid	7/24/2014 16:40	8/20/2014 11:26	DOE 905.0	Sr-90	STL02023	-0.011	0.221	pCi/g	0.122	U	1	0.221	4.7	0.047	0.172	0.049	0.010
													BLT-FSS-C1-02-SO-08	SOR	0.845		Net SOR	0.114



BARC LLRBS FSSR Appendix 7														Individual Sample Results					
Class 1 FSSU 02																			
Sample ID	Matrix	Collected	Analyzed	Method	Analyte	CAS	Result	TES Result	Unit	% Uncertainty	Footnotes	RL/CRDL	MDL/MDA	DCGL	Ratio	RA Mean	Net Result	Net Ratio	
BLT-FSS-C1-02-SO-09	Solid	7/24/2014 16:35	8/19/2014 12:23	EERF C-01-1	C-14	14762-75-5	-0.196	0.823	pCi/g	0.472	U	5	0.823	21	0.039	1.005	(0.182)	0	
BLT-FSS-C1-02-SO-09	Solid	7/24/2014 16:35	8/14/2014 7:47	TAL-STL ST-RC-0036	Cl-36	13981-43-6	-0.0783	0.331	pCi/g	0.186	U	1	0.331	13.2	0.025	0.510	(0.179)	0	
BLT-FSS-C1-02-SO-09	Solid	7/24/2014 16:35	9/15/2014 9:42	DOE GA-01-R	Cs-137	10045-97-3	-0.00709	0.0268	pCi/g	0.0159	U	0.2	0.0268	16.9	0.002	0.096	(0.069)	0	
BLT-FSS-C1-02-SO-09	Solid	7/24/2014 16:35	8/18/2014 21:47	EPA 906.0	H-3	10028-17-8	0.0916	0.367	pCi/g	0.211	U	1	0.367	121	0.003	0.414	(0.047)	0	
BLT-FSS-C1-02-SO-09	Solid	7/24/2014 16:35	8/22/2014 12:09	TAL-STL ST-RC-0055	Ni-63	13981-37-8	0	1.21	pCi/g	0.715	U	5	1.21	77954	0.000	1.889	(0.679)	0	
BLT-FSS-C1-02-SO-09	Solid	7/24/2014 16:35	9/15/2014 9:42	DOE GA-01-R	Pb-210	14255-04-0	0.434	0.669	pCi/g	0.49	U	1	0.669	1.9	0.352	0.907	(0.238)	0	
BLT-FSS-C1-02-SO-09	Solid	7/24/2014 16:35	9/15/2014 9:42	DOE GA-01-R	Ra-226	13982-63-3	0.45	0.45	pCi/g	0.0746		0.1	0.0491	2.2	0.205	0.771	(0.321)	0	
BLT-FSS-C1-02-SO-09	Solid	7/24/2014 16:35	8/20/2014 11:26	DOE 905.0	Sr-90	STL02023	0.053	0.236	pCi/g	0.138	U	1	0.236	4.7	0.050	0.172	0.064	0.014	
BLT-FSS-C1-02-SO-09														SOR	0.676		Net SOR	0.014	
BLT-FSS-C1-02-SO-10	Solid	7/24/2014 16:30	8/19/2014 13:30	EERF C-01-1	C-14	14762-75-5	0.0178	0.798	pCi/g	0.467	U	5	0.798	21	0.038	1.005	(0.207)	0	
BLT-FSS-C1-02-SO-10	Solid	7/24/2014 16:30	8/14/2014 7:47	TAL-STL ST-RC-0036	Cl-36	13981-43-6	-0.015	0.341	pCi/g	0.196	U	1	0.341	13.2	0.026	0.510	(0.169)	0	
BLT-FSS-C1-02-SO-10	Solid	7/24/2014 16:30	9/15/2014 9:44	DOE GA-01-R	Cs-137	10045-97-3	0.0152	0.0347	pCi/g	0.0258	U	0.2	0.0347	16.9	0.002	0.096	(0.062)	0	
BLT-FSS-C1-02-SO-10	Solid	7/24/2014 16:30	8/18/2014 22:11	EPA 906.0	H-3	10028-17-8	-0.0946	0.361	pCi/g	0.182	U	1	0.361	121	0.003	0.414	(0.053)	0	
BLT-FSS-C1-02-SO-10	Solid	7/24/2014 16:30	8/22/2014 14:22	TAL-STL ST-RC-0055	Ni-63	13981-37-8	1.86	1.86	pCi/g	0.777		5	1.22	77954	0.000	1.889	(0.029)	0	
BLT-FSS-C1-02-SO-10	Solid	7/24/2014 16:30	9/15/2014 9:44	DOE GA-01-R	Pb-210	14255-04-0	0.469	0.813	pCi/g	0.499	U	1	0.813	1.9	0.428	0.907	(0.094)	0	
BLT-FSS-C1-02-SO-10	Solid	7/24/2014 16:30	9/15/2014 9:44	DOE GA-01-R	Ra-226	13982-63-3	0.532	0.532	pCi/g	0.0882		0.1	0.0522	2.2	0.242	0.771	(0.239)	0	
BLT-FSS-C1-02-SO-10	Solid	7/24/2014 16:30	8/20/2014 11:26	DOE 905.0	Sr-90	STL02023	0.148	0.256	pCi/g	0.157	U	1	0.256	4.7	0.054	0.172	0.084	0.018	
BLT-FSS-C1-02-SO-10														SOR	0.793		Net SOR	0.018	
BLT-FSS-C1-02-SO-11	Solid	7/24/2014 16:25	8/19/2014 14:37	EERF C-01-1	C-14	14762-75-5	-0.0728	0.827	pCi/g	0.478	U	5	0.827	21	0.039	1.005	(0.178)	0	
BLT-FSS-C1-02-SO-11	Solid	7/24/2014 16:25	8/14/2014 15:59	TAL-STL ST-RC-0036	Cl-36	13981-43-6	0.139	0.355	pCi/g	0.214	U	1	0.355	13.2	0.027	0.510	(0.155)	0	
BLT-FSS-C1-02-SO-11	Solid	7/24/2014 16:25	9/15/2014 9:47	DOE GA-01-R	Cs-137	10045-97-3	0.013	0.0283	pCi/g	0.0172	U	0.2	0.0283	16.9	0.002	0.096	(0.068)	0	
BLT-FSS-C1-02-SO-11	Solid	7/24/2014 16:25	8/18/2014 22:34	EPA 906.0	H-3	10028-17-8	0.205	0.372	pCi/g	0.229	U	1	0.372	121	0.003	0.414	(0.042)	0	
BLT-FSS-C1-02-SO-11	Solid	7/24/2014 16:25	8/22/2014 16:35	TAL-STL ST-RC-0055	Ni-63	13981-37-8	0.924	1.21	pCi/g	0.748	U	5	1.21	77954	0.000	1.889	(0.679)	0	
BLT-FSS-C1-02-SO-11	Solid	7/24/2014 16:25	9/15/2014 9:47	DOE GA-01-R	Pb-210	14255-04-0	0.905	0.905	pCi/g	0.461		1	0.586	1.9	0.476	0.907	(0.002)	0	
BLT-FSS-C1-02-SO-11	Solid	7/24/2014 16:25	9/15/2014 9:47	DOE GA-01-R	Ra-226	13982-63-3	0.694	0.694	pCi/g	0.096		0.1	0.0535	2.2	0.315	0.771	(0.077)	0	
BLT-FSS-C1-02-SO-11	Solid	7/24/2014 16:25	8/20/2014 11:26	DOE 905.0	Sr-90	STL02023	0.211	0.245	pCi/g	0.156	U	1	0.245	4.7	0.052	0.172	0.073	0.016	
BLT-FSS-C1-02-SO-11														SOR	0.915		Net SOR	0.016	
BLT-FSS-C1-02-SO-12	Solid	7/24/2014 16:20	8/19/2014 15:44	EERF C-01-1	C-14	14762-75-5	0.66	0.806	pCi/g	0.504	U	5	0.806	21	0.038	1.005	(0.199)	0	
BLT-FSS-C1-02-SO-12	Solid	7/24/2014 16:20	8/14/2014 15:59	TAL-STL ST-RC-0036	Cl-36	13981-43-6	-0.166	0.39	pCi/g	0.219	U	1	0.39	13.2	0.030	0.510	(0.120)	0	
BLT-FSS-C1-02-SO-12	Solid	7/24/2014 16:20	9/15/2014 9:49	DOE GA-01-R	Cs-137	10045-97-3	0.00245	0.0271	pCi/g	0.0156	U	0.2	0.0271	16.9	0.002	0.096	(0.069)	0	
BLT-FSS-C1-02-SO-12	Solid	7/24/2014 16:20	8/18/2014 22:57	EPA 906.0	H-3	10028-17-8	0.283	0.356	pCi/g	0.231	U	1	0.356	121	0.003	0.414	(0.058)	0	
BLT-FSS-C1-02-SO-12	Solid	7/24/2014 16:20	8/22/2014 18:48	TAL-STL ST-RC-0055	Ni-63	13981-37-8	0.922	1.21	pCi/g	0.739	U	5	1.21	77954	0.000	1.889	(0.679)	0	
BLT-FSS-C1-02-SO-12	Solid	7/24/2014 16:20	9/15/2014 9:49	DOE GA-01-R	Pb-210	14255-04-0	0.479	0.869	pCi/g	0.621	U	1	0.869	1.9	0.457	0.907	(0.038)	0	
BLT-FSS-C1-02-SO-12	Solid	7/24/2014 16:20	9/15/2014 9:49	DOE GA-01-R	Ra-226	13982-63-3	0.533	0.533	pCi/g	0.0908		0.1	0.0684	2.2	0.242	0.771	(0.238)	0	
BLT-FSS-C1-02-SO-12	Solid	7/24/2014 16:20	8/20/2014 11:27	DOE 905.0	Sr-90	STL02023	-0.0134	0.238	pCi/g	0.133	U	1	0.238	4.7	0.051	0.172	0.066	0.014	
BLT-FSS-C1-02-SO-12														SOR	0.823		Net SOR	0.014	
BLT-FSS-C1-02-SO-13	Solid	7/24/2014 16:15	8/19/2014 16:51	EERF C-01-1	C-14	14762-75-5	0.127	0.814	pCi/g	0.481	U	5	0.814	21	0.039	1.005	(0.191)	0	
BLT-FSS-C1-02-SO-13	Solid	7/24/2014 16:15	8/14/2014 16:00	TAL-STL ST-RC-0036	Cl-36	13981-43-6	0.344	0.376	pCi/g	0.237	U	1	0.376	13.2	0.028	0.510	(0.134)	0	
BLT-FSS-C1-02-SO-13	Solid	7/24/2014 16:15	9/15/2014 9:50	DOE GA-01-R	Cs-137	10045-97-3	0.00934	0.0183	pCi/g	0.0112	U	0.2	0.0183	16.9	0.001	0.096	(0.078)	0	
BLT-FSS-C1-02-SO-13	Solid	7/24/2014 16:15	8/18/2014 23:20	EPA 906.0	H-3	10028-17-8	0.333	0.364	pCi/g	0.241	U	1	0.364	121	0.003	0.414	(0.050)	0	
BLT-FSS-C1-02-SO-13	Solid	7/24/2014 16:15	8/22/2014 21:00	TAL-STL ST-RC-0055	Ni-63	13981-37-8	0.919	1.2	pCi/g	0.726	U	5	1.2	77954	0.000	1.889	(0.689)	0	
BLT-FSS-C1-02-SO-13	Solid	7/24/2014 16:15	9/15/2014 9:50	DOE GA-01-R	Pb-210	14255-04-0	0.617	0.869	pCi/g	0.599	U	1	0.869	1.9	0.457	0.907	(0.038)	0	
BLT-FSS-C1-02-SO-13	Solid	7/24/2014 16:15	9/15/2014 9:50	DOE GA-01-R	Ra-226	13982-63-3	0.442	0.442	pCi/g	0.0684		0.1	0.0469	2.2	0.201	0.771	(0.329)	0	
BLT-FSS-C1-02-SO-13	Solid	7/24/2014 16:15	8/20/2014 11:27	DOE 905.0	Sr-90	STL02023	0.109	0.238	pCi/g	0.144	U	1	0.238	4.7	0.051	0.172	0.066	0.014	
BLT-FSS-C1-02-SO-13														SOR	0.780		Net SOR	0.014	

BARC LLRBS FSSR Appendix 7													Individual Sample Results						
Class 1 FSSU 02																			
Sample ID	Matrix	Collected	Analyzed	Method	Analyte	CAS	Result	TES Result	Unit	% Uncertainty	Footnotes	RL/CRDL	MDL/MDA	DCGL	Ratio	RA Mean	Net Result	Net Ratio	
BLT-FSS-C1-02-SO-14	Solid	7/24/2014 16:10	8/19/2014 17:58	EERF C-01-1	C-14	14762-75-5	0.0683	0.842	pCi/g	0.491	U	5	0.842	21	0.040	1.005	(0.163)	0	
BLT-FSS-C1-02-SO-14	Solid	7/24/2014 16:10	8/14/2014 16:00	TAL-STL ST-RC-0036	Cl-36	13981-43-6	-0.11	0.376	pCi/g	0.213	U	1	0.376	13.2	0.028	0.510	(0.134)	0	
BLT-FSS-C1-02-SO-14	Solid	7/24/2014 16:10	9/15/2014 13:48	DOE GA-01-R	Cs-137	10045-97-3	-0.00229	0.0447	pCi/g	0.0253	U	0.2	0.0447	16.9	0.003	0.096	(0.052)	0	
BLT-FSS-C1-02-SO-14	Solid	7/24/2014 16:10	8/18/2014 23:43	EPA 906.0	H-3	10028-17-8	0.087	0.361	pCi/g	0.207	U	1	0.361	121	0.003	0.414	(0.053)	0	
BLT-FSS-C1-02-SO-14	Solid	7/24/2014 16:10	8/22/2014 23:13	TAL-STL ST-RC-0055	Ni-63	13981-37-8	0.923	1.21	pCi/g	0.728	U	5	1.21	77954	0.000	1.889	(0.679)	0	
BLT-FSS-C1-02-SO-14	Solid	7/24/2014 16:10	9/15/2014 13:48	DOE GA-01-R	Pb-210	14255-04-0	1.65	1.65	pCi/g	0.972		1	1.31	1.9	0.868	0.907	0.743	0.391	
BLT-FSS-C1-02-SO-14	Solid	7/24/2014 16:10	9/15/2014 13:48	DOE GA-01-R	Ra-226	13982-63-3	0.724	0.724	pCi/g	0.138		0.1	0.0876	2.2	0.329	0.771	(0.047)	0	
BLT-FSS-C1-02-SO-14	Solid	7/24/2014 16:10	8/20/2014 11:27	DOE 905.0	Sr-90	STL02023	0.0588	0.247	pCi/g	0.144	U	1	0.247	4.7	0.053	0.172	0.075	0.016	
													BLT-FSS-C1-02-SO-14	SOR	1.324		Net SOR	0.407	
BLT-FSS-C1-02-SO-15	Solid	7/24/2014 16:05	8/15/2014 5:20	EERF C-01-1	C-14	14762-75-5	-0.742	0.933	pCi/g	0.529	U	5	0.933	21	0.044	1.005	(0.072)	0	
BLT-FSS-C1-02-SO-15	Solid	7/24/2014 16:05	8/14/2014 16:00	TAL-STL ST-RC-0036	Cl-36	13981-43-6	0.149	0.311	pCi/g	0.188	U	1	0.311	13.2	0.024	0.510	(0.199)	0	
BLT-FSS-C1-02-SO-15	Solid	7/24/2014 16:05	9/15/2014 13:49	DOE GA-01-R	Cs-137	10045-97-3	0.0195	0.0338	pCi/g	0.0221	U	0.2	0.0338	16.9	0.002	0.096	(0.062)	0	
BLT-FSS-C1-02-SO-15	Solid	7/24/2014 16:05	8/19/2014 0:06	EPA 906.0	H-3	10028-17-8	0.162	0.365	pCi/g	0.221	U	1	0.365	121	0.003	0.414	(0.049)	0	
BLT-FSS-C1-02-SO-15	Solid	7/24/2014 16:05	8/23/2014 1:26	TAL-STL ST-RC-0055	Ni-63	13981-37-8	0.932	1.22	pCi/g	0.754	U	5	1.22	77954	0.000	1.889	(0.669)	0	
BLT-FSS-C1-02-SO-15	Solid	7/24/2014 16:05	9/15/2014 13:49	DOE GA-01-R	Pb-210	14255-04-0	0.385	1.03	pCi/g	0.73	U	1	1.03	1.9	0.542	0.907	0.123	0.065	
BLT-FSS-C1-02-SO-15	Solid	7/24/2014 16:05	9/15/2014 13:49	DOE GA-01-R	Ra-226	13982-63-3	0.705	0.705	pCi/g	0.117		0.1	0.0787	2.2	0.320	0.771	(0.066)	0	
BLT-FSS-C1-02-SO-15	Solid	7/24/2014 16:05	8/21/2014 7:06	DOE 905.0	Sr-90	STL02023	0.0985	0.194	pCi/g	0.118	U	1	0.194	4.7	0.041	0.172	0.022	0.005	
													BLT-FSS-C1-02-SO-15	SOR	0.977		Net SOR	0.070	
BLT-FSS-C1-02-SO-16	Solid	7/24/2014 16:00	8/25/2014 20:59	EERF C-01-1	C-14	14762-75-5	0.146	0.846	pCi/g	0.508	U	5	0.846	21	0.040	1.005	(0.159)	0	
BLT-FSS-C1-02-SO-16	Solid	7/24/2014 16:00	8/14/2014 16:00	TAL-STL ST-RC-0036	Cl-36	13981-43-6	0.188	0.311	pCi/g	0.191	U	1	0.311	13.2	0.024	0.510	(0.199)	0	
BLT-FSS-C1-02-SO-16	Solid	7/24/2014 16:00	9/15/2014 13:52	DOE GA-01-R	Cs-137	10045-97-3	-0.00394	0.0324	pCi/g	0.019	U	0.2	0.0324	16.9	0.002	0.096	(0.064)	0	
BLT-FSS-C1-02-SO-16	Solid	7/24/2014 16:00	8/19/2014 0:29	EPA 906.0	H-3	10028-17-8	0.196	0.371	pCi/g	0.228	U	1	0.371	121	0.003	0.414	(0.043)	0	
BLT-FSS-C1-02-SO-16	Solid	7/24/2014 16:00	8/23/2014 3:39	TAL-STL ST-RC-0055	Ni-63	13981-37-8	1.86	1.86	pCi/g	0.792		5	1.22	77954	0.000	1.889	(0.029)	0	
BLT-FSS-C1-02-SO-16	Solid	7/24/2014 16:00	9/15/2014 13:52	DOE GA-01-R	Pb-210	14255-04-0	0.75	0.805	pCi/g	0.603	U	1	0.805	1.9	0.424	0.907	(0.102)	0	
BLT-FSS-C1-02-SO-16	Solid	7/24/2014 16:00	9/15/2014 13:52	DOE GA-01-R	Ra-226	13982-63-3	0.638	0.638	pCi/g	0.0987		0.1	0.0606	2.2	0.290	0.771	(0.133)	0	
BLT-FSS-C1-02-SO-16	Solid	7/24/2014 16:00	8/21/2014 7:06	DOE 905.0	Sr-90	STL02023	0.0435	0.194	pCi/g	0.113	U	1	0.194	4.7	0.041	0.172	0.022	0.005	
													BLT-FSS-C1-02-SO-16	SOR	0.824		Net SOR	0.005	

**Final Status Survey Report  
Appendix 8  
Class 3 FSSU-01  
Survey and Sample Results**

**Beltsville Agricultural Research Center (BARC)  
Low Level Radioactive Burial site (LLRBS)  
Beltsville, Maryland**



**Prepared for:**

U.S. Army Field Support Command  
Rock Island, Illinois

*Prepared by:*

***TPMC-EnergySolutions Environmental Services, LLC***

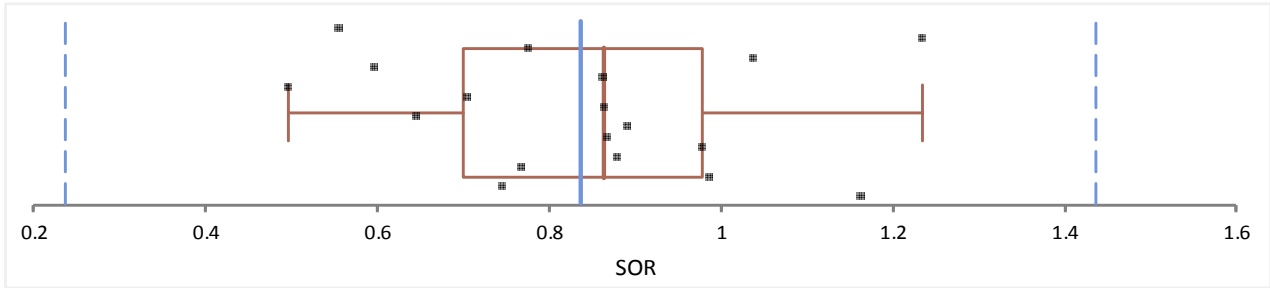
**Contract No. W52P1J-11-D-0001**



## Appendix 8

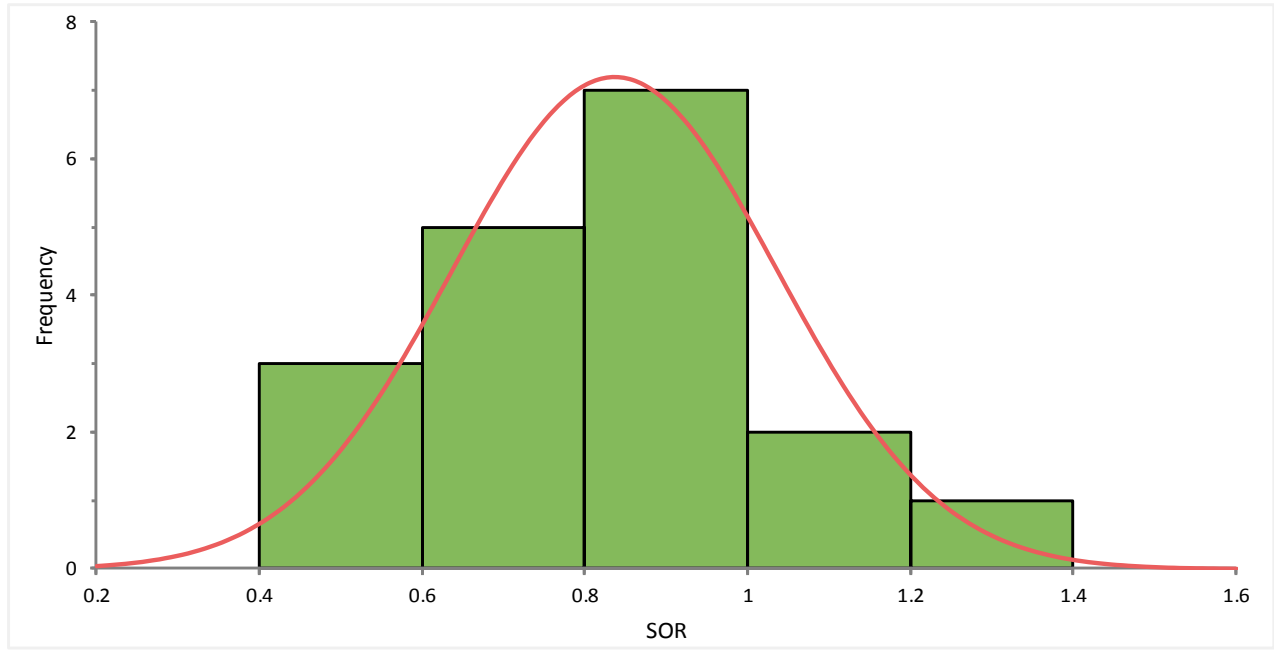
## Class 3 FSSU 01

## Sample Results Summary

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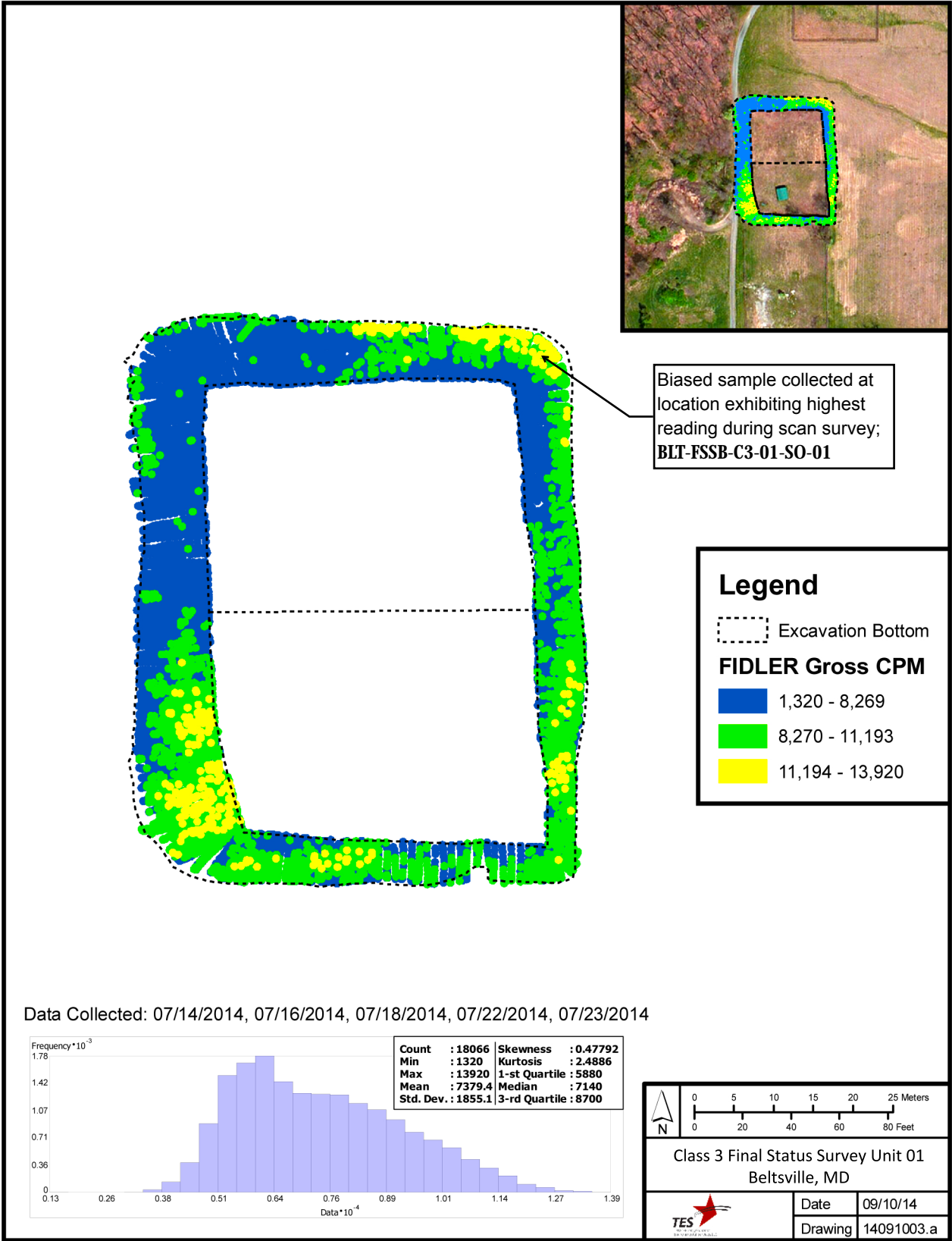
	Mean	SE	SD	Variance	Skewness	Kurtosis
SOR	0.836221779	0.047093039	0.199798844	0.039919578	0.2	-0.26
	Minimum	1st quartile	Median	3rd quartile	Maximum	IQR
SOR	0.49645588	0.699494938	0.863113506	0.978836226	1.23419816	0.279341288
Quantile	SOR					
0.050	0.511087191					
0.950	1.216615204					



### Frequency Distribution

Class	Frequency	Relative frequency	Density	Cumulative frequency	Cumulative relative frequency
≥0.4 to <0.6	3	0.167	0.8333	3	0.167
≥0.6 to <0.8	5	0.278	1.3889	8	0.444
≥0.8 to <1	7	0.389	1.9444	15	0.833
≥1 to <1.2	2	0.111	0.5556	17	0.944
≥1.2 to <1.4	1	0.056	0.2778	18	1.000





BARC LLRBS FSSR Appendix 8													Individual Sample Results					
Class 3 FSSU 01																		
Sample ID	Matrix	Collected	Analyzed	Method	Analyte	CAS	Result	TES Result	Unit	% Uncertainty	Footnotes	RL/CRDL	MDL/MDA	DCGL	Ratio	RA Mean	Net Result	Net Ratio
BLT-FSSB-C3-01-SO-01	Solid	7/28/2014 13:45	8/15/2014 9:52	EERF C-01-1	C-14	14762-75-5	-0.537	0.939	pCi/g	0.537	U	5	0.939	21	0.045	1.005	(0.066)	0.000
BLT-FSSB-C3-01-SO-01	Solid	7/28/2014 13:45	8/14/2014 16:00	TAL-STL ST-RC-0036	Cl-36	13981-43-6	0.062	0.342	pCi/g	0.201	U	1	0.342	13.2	0.026	0.510	(0.168)	0.000
BLT-FSSB-C3-01-SO-01	Solid	7/28/2014 13:45	9/15/2014 13:55	DOE GA-01-R	Cs-137	10045-97-3	-0.0104	0.0509	pCi/g	0.0435	U	0.2	0.0509	16.9	0.003	0.096	(0.045)	0.000
BLT-FSSB-C3-01-SO-01	Solid	7/28/2014 13:45	8/19/2014 0:52	EPA 906.0	H-3	10028-17-8	0.255	0.379	pCi/g	0.24	U	1	0.379	121	0.003	0.414	(0.035)	0.000
BLT-FSSB-C3-01-SO-01	Solid	7/28/2014 13:45	8/23/2014 5:51	TAL-STL ST-RC-0055	Ni-63	13981-37-8	0	1.21	pCi/g	0.707	U	5	1.21	77954	0.000	1.889	(0.679)	0.000
BLT-FSSB-C3-01-SO-01	Solid	7/28/2014 13:45	9/15/2014 13:55	DOE GA-01-R	Pb-210	14255-04-0	0.922	1.16	pCi/g	0.721	U	1	1.16	1.9	0.611	0.907	0.253	0.133
BLT-FSSB-C3-01-SO-01	Solid	7/28/2014 13:45	9/15/2014 13:55	DOE GA-01-R	Ra-226	13982-63-3	0.952	0.952	pCi/g	0.148		0.1	0.083	2.2	0.433	0.771	0.181	0.082
BLT-FSSB-C3-01-SO-01	Solid	7/28/2014 13:45	8/21/2014 7:06	DOE 905.0	Sr-90	STL02023	0.148	0.206	pCi/g	0.129	U	1	0.206	4.7	0.044	0.172	0.034	0.007
													BLT-FSSB-C3-01-SO-01	SOR	1.164		Net SOR	0.223
BLT-FSS-C3-01-Q1-SO-01	Solid	7/24/2014 16:00	8/7/2014 19:24	EERF C-01-1	C-14	14762-75-5	0.116	0.742	pCi/g	0.436	U	5	0.742	21	0.035	1.005	(0.263)	0.000
BLT-FSS-C3-01-Q1-SO-01	Solid	7/24/2014 16:00	8/5/2014 18:36	TAL-STL ST-RC-0036	Cl-36	13981-43-6	0.17	0.35	pCi/g	0.212	U	1	0.35	13.2	0.027	0.510	(0.160)	0.000
BLT-FSS-C3-01-Q1-SO-01	Solid	7/24/2014 16:00	8/21/2014 13:09	EPA 901.1	Cs-137	10045-97-3	0.00768	0.0248	pCi/g	0.0146	U	0.2	0.0248	16.9	0.001	0.096	(0.071)	0.000
BLT-FSS-C3-01-Q1-SO-01	Solid	7/24/2014 16:00	8/18/2014 19:24	EPA 906.0	H-3	10028-17-8	-0.104	0.439	pCi/g	0.227	U	1	0.439	121	0.004	0.414	0.025	0.000
BLT-FSS-C3-01-Q1-SO-01	Solid	7/24/2014 16:00	8/15/2014 4:44	TAL-STL ST-RC-0055	Ni-63	13981-37-8	2.96	2.96	pCi/g	1.57		5	2.57	77954	0.000	1.889	1.071	0.000
BLT-FSS-C3-01-Q1-SO-01	Solid	7/24/2014 16:00	8/21/2014 13:09	EPA 901.1	Pb-210	14255-04-0	0.728	0.728	pCi/g	0.477		1	0.58	1.9	0.383	0.907	(0.179)	0.000
BLT-FSS-C3-01-Q1-SO-01	Solid	7/24/2014 16:00	8/21/2014 13:09	EPA 901.1	Ra-226	13982-63-3	0.574	0.574	pCi/g	0.0894		0.1	0.0428	2.2	0.261	0.771	(0.197)	0.000
BLT-FSS-C3-01-Q1-SO-01	Solid	7/24/2014 16:00	8/10/2014 20:52	DOE 905.0	Sr-90	STL02023	-0.00742	0.165	pCi/g	0.0922	U	1	0.165	4.7	0.035	0.172	(0.007)	0.000
													BLT-FSS-C3-01-Q1-SO-01	SOR	0.746		Net SOR	0.000
BLT-FSS-C3-01-Q1-SO-02	Solid	7/24/2014 16:02	8/7/2014 20:32	EERF C-01-1	C-14	14762-75-5	0.135	0.734	pCi/g	0.434	U	5	0.734	21	0.035	1.005	(0.271)	0.000
BLT-FSS-C3-01-Q1-SO-02	Solid	7/24/2014 16:02	8/6/2014 6:57	TAL-STL ST-RC-0036	Cl-36	13981-43-6	-0.106	0.411	pCi/g	0.233	U	1	0.411	13.2	0.031	0.510	(0.099)	0.000
BLT-FSS-C3-01-Q1-SO-02	Solid	7/24/2014 16:02	8/21/2014 13:10	EPA 901.1	Cs-137	10045-97-3	-0.0102	0.0581	pCi/g	0.0337	U	0.2	0.0581	16.9	0.003	0.096	(0.038)	0.000
BLT-FSS-C3-01-Q1-SO-02	Solid	7/24/2014 16:02	8/18/2014 20:10	EPA 906.0	H-3	10028-17-8	0.219	0.436	pCi/g	0.269	U	1	0.436	121	0.004	0.414	0.022	0.000
BLT-FSS-C3-01-Q1-SO-02	Solid	7/24/2014 16:02	8/15/2014 6:58	TAL-STL ST-RC-0055	Ni-63	13981-37-8	2.97	2.97	pCi/g	1.64		5	2.7	77954	0.000	1.889	1.081	0.000
BLT-FSS-C3-01-Q1-SO-02	Solid	7/24/2014 16:02	8/21/2014 13:10	EPA 901.1	Pb-210	14255-04-0	1.07	1.07	pCi/g	0.584		1	0.73	1.9	0.563	0.907	0.163	0.086
BLT-FSS-C3-01-Q1-SO-02	Solid	7/24/2014 16:02	8/21/2014 13:10	EPA 901.1	Ra-226	13982-63-3	0.71	0.71	pCi/g	0.127		0.1	0.0747	2.2	0.323	0.771	(0.061)	0.000
BLT-FSS-C3-01-Q1-SO-02	Solid	7/24/2014 16:02	8/10/2014 21:20	DOE 905.0	Sr-90	STL02023	0.09	0.129	pCi/g	0.0805	U	1	0.129	4.7	0.027	0.172	(0.043)	0.000
													BLT-FSS-C3-01-Q1-SO-02	SOR	0.986		Net SOR	0.086
BLT-FSS-C3-01-Q1-SO-03	Solid	7/24/2014 16:05	8/18/2014 17:22	EERF C-01-1	C-14	14762-75-5	0.523	0.767	pCi/g	0.471	U	5	0.767	21	0.037	1.005	(0.238)	0.000
BLT-FSS-C3-01-Q1-SO-03	Solid	7/24/2014 16:05	8/6/2014 6:57	TAL-STL ST-RC-0036	Cl-36	13981-43-6	1.13	1.13	pCi/g	0.295		1	0.391	13.2	0.086	0.510	0.620	0.047
BLT-FSS-C3-01-Q1-SO-03	Solid	7/24/2014 16:05	8/21/2014 13:58	EPA 901.1	Cs-137	10045-97-3	0.0103	0.0308	pCi/g	0.0182	U	0.2	0.0308	16.9	0.002	0.096	(0.065)	0.000
BLT-FSS-C3-01-Q1-SO-03	Solid	7/24/2014 16:05	8/18/2014 20:56	EPA 906.0	H-3	10028-17-8	-0.00637	0.446	pCi/g	0.245	U	1	0.446	121	0.004	0.414	0.032	0.000
BLT-FSS-C3-01-Q1-SO-03	Solid	7/24/2014 16:05	8/15/2014 9:11	TAL-STL ST-RC-0055	Ni-63	13981-37-8	3.89	3.89	pCi/g	1.64		5	2.6	77954	0.000	1.889	2.001	0.000
BLT-FSS-C3-01-Q1-SO-03	Solid	7/24/2014 16:05	8/21/2014 13:58	EPA 901.1	Pb-210	14255-04-0	0.6	0.6	pCi/g	0.378		1	0.537	1.9	0.316	0.907	(0.307)	0.000
BLT-FSS-C3-01-Q1-SO-03	Solid	7/24/2014 16:05	8/21/2014 13:58	EPA 901.1	Ra-226	13982-63-3	0.64	0.64	pCi/g	0.104		0.1	0.0528	2.2	0.291	0.771	(0.131)	0.000
BLT-FSS-C3-01-Q1-SO-03	Solid	7/24/2014 16:05	8/10/2014 21:20	DOE 905.0	Sr-90	STL02023	0.137	0.154	pCi/g	0.0995	U	1	0.154	4.7	0.033	0.172	(0.018)	0.000
													BLT-FSS-C3-01-Q1-SO-03	SOR	0.767		Net SOR	0.047
BLT-FSS-C3-01-Q1-SO-04	Solid	7/24/2014 16:10	8/12/2014 10:43	EERF C-01-1	C-14	14762-75-5	0.261	1.5	pCi/g	0.874	U	5	1.5	21	0.071	1.005	0.495	0.024
BLT-FSS-C3-01-Q1-SO-04	Solid	7/24/2014 16:10	8/6/2014 6:57	TAL-STL ST-RC-0036	Cl-36	13981-43-6	-0.0835	0.402	pCi/g	0.229	U	1	0.402	13.2	0.030	0.510	(0.108)	0.000
BLT-FSS-C3-01-Q1-SO-04	Solid	7/24/2014 16:10	8/21/2014 13:59	EPA 901.1	Cs-137	10045-97-3	-0.000427	0.0323	pCi/g	0.0175	U	0.2	0.0323	16.9	0.002	0.096	(0.064)	0.000
BLT-FSS-C3-01-Q1-SO-04	Solid	7/24/2014 16:10	8/18/2014 21:19	EPA 906.0	H-3	10028-17-8	-0.00707	0.443	pCi/g	0.243	U	1	0.443	121	0.004	0.414	0.029	0.000
BLT-FSS-C3-01-Q1-SO-04	Solid	7/24/2014 16:10	8/15/2014 11:25	TAL-STL ST-RC-0055	Ni-63	13981-37-8	3.02	3.02	pCi/g	1.62		5	2.68	77954	0.000	1.889	1.131	0.000
BLT-FSS-C3-01-Q1-SO-04	Solid	7/24/2014 16:10	8/21/2014 13:59	EPA 901.1	Pb-210	14255-04-0	0.736	0.736	pCi/g	0.575		1	0.716	1.9	0.387	0.907	(0.171)	0.000
BLT-FSS-C3-01-Q1-SO-04	Solid	7/24/2014 16:10	8/21/2014 13:59	EPA 901.1	Ra-226	13982-63-3	0.784	0.784	pCi/g	0.123		0.1	0.0495	2.2	0.356	0.771	0.013	0.006
BLT-FSS-C3-01-Q1-SO-04	Solid	7/24/2014 16:10	8/10/2014 21:20	DOE 905.0	Sr-90	STL02023	-0.0261	0.133	pCi/g	0.0709	U	1	0.133	4.7	0.028	0.172	(0.039)	0.000
													BLT-FSS-C3-01-Q1-SO-04	SOR	0.880		Net SOR	0.030

Class 3 FSSU 01

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Appendix 8

Individual Sample Results

Sample ID	Matrix	Collected	Analyzed	Method	Analyte	CAS	Result	TES Result	Unit	% Uncertainty	Footnotes	RL/CRDL	MDL/MDA	DCGL	Ratio	RA Mean	Net Result	Net Ratio
BLT-FSS-C3-01-Q1-SO-04-FD03	Solid	7/24/2014 16:10	8/12/2014 11:29	EERF C-01-1	C-14	14762-75-5	1.02	1.53	pCi/g	0.943	U	5	1.53	21	0.073	1.005	0.525	0.025
BLT-FSS-C3-01-Q1-SO-04-FD03	Solid	7/24/2014 16:10	8/6/2014 6:58	TAL-STL ST-RC-0036	Cl-36	13981-43-6	0.123	0.384	pCi/g	0.229	U	1	0.384	13.2	0.029	0.510	(0.126)	0
BLT-FSS-C3-01-Q1-SO-04-FD03	Solid	7/24/2014 16:10	8/21/2014 13:56	EPA 901.1	Cs-137	10045-97-3	-0.00354	0.0263	pCi/g	0.015	U	0.2	0.0263	16.9	0.002	0.096	(0.070)	0
BLT-FSS-C3-01-Q1-SO-04-FD03	Solid	7/24/2014 16:10	8/18/2014 21:42	EPA 906.0	H-3	10028-17-8	0.164	0.43	pCi/g	0.26	U	1	0.43	121	0.004	0.414	0.016	0.000
BLT-FSS-C3-01-Q1-SO-04-FD03	Solid	7/24/2014 16:10	8/15/2014 13:38	TAL-STL ST-RC-0055	Ni-63	13981-37-8	1.97	2.65	pCi/g	1.55	U	5	2.65	77954	0.000	1.889	0.761	0.000
BLT-FSS-C3-01-Q1-SO-04-FD03	Solid	7/24/2014 16:10	8/21/2014 13:56	EPA 901.1	Pb-210	14255-04-0	0.927	0.927	pCi/g	0.531		1	0.645	1.9	0.488	0.907	0.020	0.011
BLT-FSS-C3-01-Q1-SO-04-FD03	Solid	7/24/2014 16:10	8/21/2014 13:56	EPA 901.1	Ra-226	13982-63-3	0.776	0.776	pCi/g	0.113		0.1	0.0472	2.2	0.353	0.771	0.005	0.002
BLT-FSS-C3-01-Q1-SO-04-FD03	Solid	7/24/2014 16:10	8/10/2014 21:20	DOE 905.0	Sr-90	STL02023	-0.0999	0.143	pCi/g	0.0678	U	1	0.143	4.7	0.030	0.172	(0.029)	0
BLT-FSS-C3-01-Q1-SO-04-FD03														SOR	0.978		Net SOR	0.038
BLT-FSS-C3-01-Q1-SO-05	Solid	7/24/2014 16:11	8/12/2014 11:52	EERF C-01-1	C-14	14762-75-5	0.329	1.5	pCi/g	0.881	U	5	1.5	21	0.071	1.005	0.495	0.024
BLT-FSS-C3-01-Q1-SO-05	Solid	7/24/2014 16:11	8/6/2014 6:58	TAL-STL ST-RC-0036	Cl-36	13981-43-6	-0.0756	0.343	pCi/g	0.193	U	1	0.343	13.2	0.026	0.510	(0.167)	0
BLT-FSS-C3-01-Q1-SO-05	Solid	7/24/2014 16:11	8/21/2014 13:59	EPA 901.1	Cs-137	10045-97-3	0.0175	0.0361	pCi/g	0.022	U	0.2	0.0361	16.9	0.002	0.096	(0.060)	0
BLT-FSS-C3-01-Q1-SO-05	Solid	7/24/2014 16:11	8/18/2014 22:05	EPA 906.0	H-3	10028-17-8	0.049	0.422	pCi/g	0.241	U	1	0.422	121	0.003	0.414	0.008	0.000
BLT-FSS-C3-01-Q1-SO-05	Solid	7/24/2014 16:11	8/15/2014 15:52	TAL-STL ST-RC-0055	Ni-63	13981-37-8	5.31	5.31	pCi/g	1.73		5	2.57	77954	0.000	1.889	3.421	0.000
BLT-FSS-C3-01-Q1-SO-05	Solid	7/24/2014 16:11	8/21/2014 13:59	EPA 901.1	Pb-210	14255-04-0	0.0512	0.851	pCi/g	0.49	U	1	0.851	1.9	0.448	0.907	(0.056)	0
BLT-FSS-C3-01-Q1-SO-05	Solid	7/24/2014 16:11	8/21/2014 13:59	EPA 901.1	Ra-226	13982-63-3	0.642	0.642	pCi/g	0.117		0.1	0.0657	2.2	0.292	0.771	(0.129)	0
BLT-FSS-C3-01-Q1-SO-05	Solid	7/24/2014 16:11	8/10/2014 21:20	DOE 905.0	Sr-90	STL02023	0.0278	0.118	pCi/g	0.0678	U	1	0.118	4.7	0.025	0.172	(0.054)	0
BLT-FSS-C3-01-Q1-SO-05														SOR	0.868		Net SOR	0.024
BLT-FSS-C3-01-Q1-SO-06	Solid	7/24/2014 16:12	8/12/2014 12:16	EERF C-01-1	C-14	14762-75-5	1.04	1.49	pCi/g	0.925	U	5	1.49	21	0.071	1.005	0.485	0.023
BLT-FSS-C3-01-Q1-SO-06	Solid	7/24/2014 16:12	8/6/2014 6:58	TAL-STL ST-RC-0036	Cl-36	13981-43-6	-0.0665	0.341	pCi/g	0.192	U	1	0.341	13.2	0.026	0.510	(0.169)	0
BLT-FSS-C3-01-Q1-SO-06	Solid	7/24/2014 16:12	8/21/2014 14:57	EPA 901.1	Cs-137	10045-97-3	0.0413	0.0413	pCi/g	0.0238		0.2	0.0248	16.9	0.002	0.096	(0.055)	0
BLT-FSS-C3-01-Q1-SO-06	Solid	7/24/2014 16:12	8/18/2014 22:28	EPA 906.0	H-3	10028-17-8	0.173	0.424	pCi/g	0.257	U	1	0.424	121	0.004	0.414	0.010	0.000
BLT-FSS-C3-01-Q1-SO-06	Solid	7/24/2014 16:12	8/15/2014 18:06	TAL-STL ST-RC-0055	Ni-63	13981-37-8	3.78	3.78	pCi/g	1.53		5	2.34	77954	0.000	1.889	1.891	0.000
BLT-FSS-C3-01-Q1-SO-06	Solid	7/24/2014 16:12	8/21/2014 14:57	EPA 901.1	Pb-210	14255-04-0	0.903	0.903	pCi/g	0.443		1	0.572	1.9	0.475	0.907	(0.004)	0
BLT-FSS-C3-01-Q1-SO-06	Solid	7/24/2014 16:12	8/21/2014 14:57	EPA 901.1	Ra-226	13982-63-3	0.625	0.625	pCi/g	0.101		0.1	0.054	2.2	0.284	0.771	(0.146)	0
BLT-FSS-C3-01-Q1-SO-06	Solid	7/24/2014 16:12	8/10/2014 21:20	DOE 905.0	Sr-90	STL02023	0.000839	0.14	pCi/g	0.0774	U	1	0.14	4.7	0.030	0.172	(0.032)	0
BLT-FSS-C3-01-Q1-SO-06														SOR	0.892		Net SOR	0.023
BLT-FSS-C3-01-Q1-SO-07	Solid	7/24/2014 16:15	8/12/2014 12:39	EERF C-01-1	C-14	14762-75-5	-0.514	1.49	pCi/g	0.819	U	5	1.49	21	0.071	1.005	0.485	0.023
BLT-FSS-C3-01-Q1-SO-07	Solid	7/24/2014 16:15	8/6/2014 6:58	TAL-STL ST-RC-0036	Cl-36	13981-43-6	0.614	0.614	pCi/g	0.245		1	0.356	13.2	0.047	0.510	0.104	0.008
BLT-FSS-C3-01-Q1-SO-07	Solid	7/24/2014 16:15	8/21/2014 14:58	EPA 901.1	Cs-137	10045-97-3	-0.0035	0.0333	pCi/g	0.0189	U	0.2	0.0333	16.9	0.002	0.096	(0.063)	0
BLT-FSS-C3-01-Q1-SO-07	Solid	7/24/2014 16:15	8/18/2014 22:52	EPA 906.0	H-3	10028-17-8	0.24	0.44	pCi/g	0.274	U	1	0.44	121	0.004	0.414	0.026	0.000
BLT-FSS-C3-01-Q1-SO-07	Solid	7/24/2014 16:15	8/15/2014 20:19	TAL-STL ST-RC-0055	Ni-63	13981-37-8	3.13	3.13	pCi/g	1.64		5	2.69	77954	0.000	1.889	1.241	0.000
BLT-FSS-C3-01-Q1-SO-07	Solid	7/24/2014 16:15	8/21/2014 14:58	EPA 901.1	Pb-210	14255-04-0	0.363	0.511	pCi/g	0.346	U	1	0.511	1.9	0.269	0.907	(0.396)	0
BLT-FSS-C3-01-Q1-SO-07	Solid	7/24/2014 16:15	8/21/2014 14:58	EPA 901.1	Ra-226	13982-63-3	0.493	0.493	pCi/g	0.087		0.1	0.052	2.2	0.224	0.771	(0.278)	0
BLT-FSS-C3-01-Q1-SO-07	Solid	7/24/2014 16:15	8/10/2014 21:20	DOE 905.0	Sr-90	STL02023	0.0148	0.137	pCi/g	0.0774	U	1	0.137	4.7	0.029	0.172	(0.035)	0
BLT-FSS-C3-01-Q1-SO-07														SOR	0.645		Net SOR	0.031
BLT-FSS-C3-01-Q1-SO-08	Solid	7/24/2014 16:20	8/12/2014 13:02	EERF C-01-1	C-14	14762-75-5	-0.189	1.49	pCi/g	0.841	U	5	1.49	21	0.071	1.005	0.485	0.023
BLT-FSS-C3-01-Q1-SO-08	Solid	7/24/2014 16:20	8/6/2014 6:58	TAL-STL ST-RC-0036	Cl-36	13981-43-6	0.21	0.374	pCi/g	0.229	U	1	0.374	13.2	0.028	0.510	(0.136)	0
BLT-FSS-C3-01-Q1-SO-08	Solid	7/24/2014 16:20	8/21/2014 14:59	EPA 901.1	Cs-137	10045-97-3	-0.00606	0.0407	pCi/g	0.0233	U	0.2	0.0407	16.9	0.002	0.096	(0.056)	0
BLT-FSS-C3-01-Q1-SO-08	Solid	7/24/2014 16:20	8/18/2014 23:15	EPA 906.0	H-3	10028-17-8	0.235	0.458	pCi/g	0.28	U	1	0.458	121	0.004	0.414	0.044	0.000
BLT-FSS-C3-01-Q1-SO-08	Solid	7/24/2014 16:20	8/15/2014 22:33	TAL-STL ST-RC-0055	Ni-63	13981-37-8	2.47	2.47	pCi/g	1.47		5	2.41	77954	0.000	1.889	0.581	0.000
BLT-FSS-C3-01-Q1-SO-08	Solid	7/24/2014 16:20	8/21/2014 14:59	EPA 901.1	Pb-210	14255-04-0	0.288	0.787	pCi/g	0.466	U	1	0.787	1.9	0.414	0.907	(0.120)	0
BLT-FSS-C3-01-Q1-SO-08	Solid	7/24/2014 16:20	8/21/2014 14:59	EPA 901.1	Ra-226	13982-63-3	0.687	0.687	pCi/g	0.119		0.1	0.065	2.2	0.312	0.771	(0.084)	0
BLT-FSS-C3-01-Q1-SO-08	Solid	7/24/2014 16:20	8/10/2014 21:24	DOE 905.0	Sr-90	STL02023	-0.0277	0.15	pCi/g	0.081	U	1	0.15	4.7	0.032	0.172	(0.022)	0
BLT-FSS-C3-01-Q1-SO-08														SOR	0.864		Net SOR	0.023

BARC LLRBS FSSR Appendix 8																			Individual Sample Results				
Class 3 FSSU 01																							
Sample ID	Matrix	Collected	Analyzed	Method	Analyte	CAS	Result	TES Result	Unit	% Uncertainty	Footnotes	RL/CRDL	MDL/MDA	DCGL	Ratio	RA Mean	Net Result	Net Ratio					
BLT-FSS-C3-01-Q1-SO-09	Solid	7/24/2014 16:30	8/12/2014 13:25	EERF C-01-1	C-14	14762-75-5	0.601	1.51	pCi/g	0.906	U	5	1.51	21	0.072	1.005	0.505	0.024					
BLT-FSS-C3-01-Q1-SO-09	Solid	7/24/2014 16:30	8/6/2014 6:59	TAL-STL ST-RC-0036	Cl-36	13981-43-6	0.0966	0.353	pCi/g	0.209	U	1	0.353	13.2	0.027	0.510	(0.157)	0					
BLT-FSS-C3-01-Q1-SO-09	Solid	7/24/2014 16:30	8/21/2014 15:00	EPA 901.1	Cs-137	10045-97-3	-0.0016	0.0317	pCi/g	0.0174	U	0.2	0.0317	16.9	0.002	0.096	(0.065)	0					
BLT-FSS-C3-01-Q1-SO-09	Solid	7/24/2014 16:30	8/18/2014 23:38	EPA 906.0	H-3	10028-17-8	0.125	0.431	pCi/g	0.254	U	1	0.431	121	0.004	0.414	0.017	0.000					
BLT-FSS-C3-01-Q1-SO-09	Solid	7/24/2014 16:30	8/16/2014 0:46	TAL-STL ST-RC-0055	Ni-63	13981-37-8	3.51	3.51	pCi/g	1.59		5	2.55	77954	0.000	1.889	1.621	0.000					
BLT-FSS-C3-01-Q1-SO-09	Solid	7/24/2014 16:30	8/21/2014 15:00	EPA 901.1	Pb-210	14255-04-0	0.587	0.587	pCi/g	0.391		1	0.517	1.9	0.309	0.907	(0.320)	0					
BLT-FSS-C3-01-Q1-SO-09	Solid	7/24/2014 16:30	8/21/2014 15:00	EPA 901.1	Ra-226	13982-63-3	0.391	0.391	pCi/g	0.0719		0.1	0.0283	2.2	0.178	0.771	(0.380)	0					
BLT-FSS-C3-01-Q1-SO-09	Solid	7/24/2014 16:30	8/10/2014 21:24	DOE 905.0	Sr-90	STL02023	0.534	0.534	pCi/g	0.126		1	0.142	4.7	0.114	0.172	0.362	0.077					
BLT-FSS-C3-01-Q1-SO-09														SOR	0.704		Net SOR	0.101					
BLT-FSS-C3-01-Q1-SO-10	Solid	7/24/2014 16:40	8/12/2014 13:48	EERF C-01-1	C-14	14762-75-5	-0.185	1.5	pCi/g	0.845	U	5	1.5	21	0.071	1.005	0.495	0.024					
BLT-FSS-C3-01-Q1-SO-10	Solid	7/24/2014 16:40	8/6/2014 6:59	TAL-STL ST-RC-0036	Cl-36	13981-43-6	0.163	0.331	pCi/g	0.201	U	1	0.331	13.2	0.025	0.510	(0.179)	0					
BLT-FSS-C3-01-Q1-SO-10	Solid	7/24/2014 16:40	8/21/2014 15:36	EPA 901.1	Cs-137	10045-97-3	-0.00347	0.0225	pCi/g	0.0128	U	0.2	0.0225	16.9	0.001	0.096	(0.074)	0					
BLT-FSS-C3-01-Q1-SO-10	Solid	7/24/2014 16:40	8/19/2014 0:01	EPA 906.0	H-3	10028-17-8	0.0294	0.431	pCi/g	0.241	U	1	0.431	121	0.004	0.414	0.017	0.000					
BLT-FSS-C3-01-Q1-SO-10	Solid	7/24/2014 16:40	8/16/2014 3:00	TAL-STL ST-RC-0055	Ni-63	13981-37-8	2.95	2.95	pCi/g	1.6		5	2.6	77954	0.000	1.889	1.061	0.000					
BLT-FSS-C3-01-Q1-SO-10	Solid	7/24/2014 16:40	8/21/2014 15:36	EPA 901.1	Pb-210	14255-04-0	0.461	0.461	pCi/g	0.308		1	0.394	1.9	0.243	0.907	(0.446)	0					
BLT-FSS-C3-01-Q1-SO-10	Solid	7/24/2014 16:40	8/21/2014 15:36	EPA 901.1	Ra-226	13982-63-3	0.273	0.273	pCi/g	0.052		0.1	0.0305	2.2	0.124	0.771	(0.498)	0					
BLT-FSS-C3-01-Q1-SO-10	Solid	7/24/2014 16:40	8/10/2014 21:24	DOE 905.0	Sr-90	STL02023	0.0247	0.133	pCi/g	0.0767	U	1	0.133	4.7	0.028	0.172	(0.039)	0					
BLT-FSS-C3-01-Q1-SO-10														SOR	0.496		Net SOR	0.024					
BLT-FSS-C3-01-Q2-SO-11	Solid	7/24/2014 15:20	8/12/2014 14:11	EERF C-01-1	C-14	14762-75-5	-0.177	1.54	pCi/g	0.863	U	5	1.54	21	0.073	1.005	0.535	0.025					
BLT-FSS-C3-01-Q2-SO-11	Solid	7/24/2014 15:20	8/6/2014 6:59	TAL-STL ST-RC-0036	Cl-36	13981-43-6	0.324	0.348	pCi/g	0.221	U	1	0.348	13.2	0.026	0.510	(0.162)	0					
BLT-FSS-C3-01-Q2-SO-11	Solid	7/24/2014 15:20	8/21/2014 15:35	EPA 901.1	Cs-137	10045-97-3	0	0.0528	pCi/g	0.00712	U	0.2	0.0528	16.9	0.003	0.096	(0.043)	0					
BLT-FSS-C3-01-Q2-SO-11	Solid	7/24/2014 15:20	8/19/2014 0:24	EPA 906.0	H-3	10028-17-8	0.0891	0.426	pCi/g	0.247	U	1	0.426	121	0.004	0.414	0.012	0.000					
BLT-FSS-C3-01-Q2-SO-11	Solid	7/24/2014 15:20	8/16/2014 5:14	TAL-STL ST-RC-0055	Ni-63	13981-37-8	2.61	2.61	pCi/g	1.5		5	2.46	77954	0.000	1.889	0.721	0.000					
BLT-FSS-C3-01-Q2-SO-11	Solid	7/24/2014 15:20	8/21/2014 15:35	EPA 901.1	Pb-210	14255-04-0	0.811	0.811	pCi/g	0.489		1	0.636	1.9	0.427	0.907	(0.096)	0					
BLT-FSS-C3-01-Q2-SO-11	Solid	7/24/2014 15:20	8/21/2014 15:35	EPA 901.1	Ra-226	13982-63-3	0.651	0.651	pCi/g	0.11		0.1	0.0626	2.2	0.296	0.771	(0.120)	0					
BLT-FSS-C3-01-Q2-SO-11	Solid	7/24/2014 15:20	8/10/2014 21:24	DOE 905.0	Sr-90	STL02023	0.0751	0.156	pCi/g	0.0946	U	1	0.156	4.7	0.033	0.172	(0.016)	0					
BLT-FSS-C3-01-Q2-SO-11														SOR	0.862		Net SOR	0.026					
BLT-FSS-C3-01-Q2-SO-12	Solid	7/24/2014 15:25	8/12/2014 14:34	EERF C-01-1	C-14	14762-75-5	-0.058	1.49	pCi/g	0.847	U	5	1.49	21	0.071	1.005	0.485	0.023					
BLT-FSS-C3-01-Q2-SO-12	Solid	7/24/2014 15:25	8/6/2014 6:59	TAL-STL ST-RC-0036	Cl-36	13981-43-6	0.124	0.371	pCi/g	0.221	U	1	0.371	13.2	0.028	0.510	(0.139)	0					
BLT-FSS-C3-01-Q2-SO-12	Solid	7/24/2014 15:25	8/21/2014 15:35	EPA 901.1	Cs-137	10045-97-3	0.00279	0.0247	pCi/g	0.0136	U	0.2	0.0247	16.9	0.001	0.096	(0.072)	0					
BLT-FSS-C3-01-Q2-SO-12	Solid	7/24/2014 15:25	8/19/2014 0:47	EPA 906.0	H-3	10028-17-8	0.111	0.432	pCi/g	0.253	U	1	0.432	121	0.004	0.414	0.018	0.000					
BLT-FSS-C3-01-Q2-SO-12	Solid	7/24/2014 15:25	8/16/2014 7:27	TAL-STL ST-RC-0055	Ni-63	13981-37-8	2.67	2.67	pCi/g	1.43		5	2.3	77954	0.000	1.889	0.781	0.000					
BLT-FSS-C3-01-Q2-SO-12	Solid	7/24/2014 15:25	8/21/2014 15:35	EPA 901.1	Pb-210	14255-04-0	0.164	0.585	pCi/g	0.339	U	1	0.585	1.9	0.308	0.907	(0.322)	0					
BLT-FSS-C3-01-Q2-SO-12	Solid	7/24/2014 15:25	8/21/2014 15:35	EPA 901.1	Ra-226	13982-63-3	0.337	0.337	pCi/g	0.0702		0.1	0.0466	2.2	0.153	0.771	(0.434)	0					
BLT-FSS-C3-01-Q2-SO-12	Solid	7/24/2014 15:25	8/10/2014 21:24	DOE 905.0	Sr-90	STL02023	0.0887	0.144	pCi/g	0.0888	U	1	0.144	4.7	0.031	0.172	(0.028)	0					
BLT-FSS-C3-01-Q2-SO-12														SOR	0.596		Net SOR	0.023					
BLT-FSS-C3-01-Q3-SO-13	Solid	7/24/2014 15:45	8/12/2014 14:57	EERF C-01-1	C-14	14762-75-5	-0.201	1.48	pCi/g	0.831	U	5	1.48	21	0.070	1.005	0.475	0.023					
BLT-FSS-C3-01-Q3-SO-13	Solid	7/24/2014 15:45	8/6/2014 16:42	TAL-STL ST-RC-0036	Cl-36	13981-43-6	-0.0698	0.412	pCi/g	0.236	U	1	0.412	13.2	0.031	0.510	(0.098)	0					
BLT-FSS-C3-01-Q3-SO-13	Solid	7/24/2014 15:45	8/21/2014 15:38	EPA 901.1	Cs-137	10045-97-3	0.0113	0.043	pCi/g	0.0251	U	0.2	0.043	16.9	0.003	0.096	(0.053)	0					
BLT-FSS-C3-01-Q3-SO-13	Solid	7/24/2014 15:45	8/19/2014 1:10	EPA 906.0	H-3	10028-17-8	0.22	0.432	pCi/g	0.266	U	1	0.432	121	0.004	0.414	0.018	0.000					
BLT-FSS-C3-01-Q3-SO-13	Solid	7/24/2014 15:45	8/16/2014 9:41	TAL-STL ST-RC-0055	Ni-63	13981-37-8	3.4	3.4	pCi/g	1.65		5	2.69	77954	0.000	1.889	1.511	0.000					
BLT-FSS-C3-01-Q3-SO-13	Solid	7/24/2014 15:45	8/21/2014 15:38	EPA 901.1	Pb-210	14255-04-0	1.07	1.07	pCi/g	0.616		1	0.757	1.9	0.563	0.907	0.163	0.086					
BLT-FSS-C3-01-Q3-SO-13	Solid	7/24/2014 15:45	8/21/2014 15:38	EPA 901.1	Ra-226	13982-63-3	0.745	0.745	pCi/g	0.132		0.1	0.0799	2.2	0.339	0.771	(0.026)	0					
BLT-FSS-C3-01-Q3-SO-13	Solid	7/24/2014 15:45	8/10/2014 21:24	DOE 905.0	Sr-90	STL02023	0.075	0.127	pCi/g	0.078	U	1	0.127	4.7	0.027	0.172	(0.045)	0					
BLT-FSS-C3-01-Q3-SO-13														SOR	1.037		Net SOR	0.109					



Class 3 FSSU 01

BARC LLRBS FSSR  
Appendix 8

Individual Sample Results

Sample ID	Matrix	Collected	Analyzed	Method	Analyte	CAS	Result	TES Result	Unit	% Uncertainty	Footnotes	RL/CRDL	MDL/MDA	DCGL	Ratio	RA Mean	Net Result	Net Ratio
BLT-FSS-C3-01-Q3-SO-14	Solid	7/24/2014 15:50	8/22/2014 20:21	EERF C-01-1	C-14	14762-75-5	-0.0676	0.825	pCi/g	0.479	U	5	0.825	21	0.039	1.005	(0.180)	0
BLT-FSS-C3-01-Q3-SO-14	Solid	7/24/2014 15:50	8/6/2014 16:42	TAL-STL ST-RC-0036	Cl-36	13981-43-6	0.706	0.706	pCi/g	0.268		1	0.393	13.2	0.053	0.510	0.196	0.015
BLT-FSS-C3-01-Q3-SO-14	Solid	7/24/2014 15:50	8/21/2014 16:16	EPA 901.1	Cs-137	10045-97-3	-0.00045	0.0268	pCi/g	0.0147	U	0.2	0.0268	16.9	0.002	0.096	(0.069)	0
BLT-FSS-C3-01-Q3-SO-14	Solid	7/24/2014 15:50	8/19/2014 1:33	EPA 906.0	H-3	10028-17-8	0.389	0.445	pCi/g	0.293	U	1	0.445	121	0.004	0.414	0.031	0.000
BLT-FSS-C3-01-Q3-SO-14	Solid	7/24/2014 15:50	8/16/2014 11:54	TAL-STL ST-RC-0055	Ni-63	13981-37-8	2.36	2.52	pCi/g	1.51	U	5	2.52	77954	0.000	1.889	0.631	0.000
BLT-FSS-C3-01-Q3-SO-14	Solid	7/24/2014 15:50	8/21/2014 16:16	EPA 901.1	Pb-210	14255-04-0	0.669	0.669	pCi/g	0.366		1	0.583	1.9	0.352	0.907	(0.238)	0
BLT-FSS-C3-01-Q3-SO-14	Solid	7/24/2014 15:50	8/21/2014 16:16	EPA 901.1	Ra-226	13982-63-3	0.651	0.651	pCi/g	0.105		0.1	0.0549	2.2	0.296	0.771	(0.120)	0
BLT-FSS-C3-01-Q3-SO-14	Solid	7/24/2014 15:50	8/10/2014 21:24	DOE 905.0	Sr-90	STL02023	0.1	0.144	pCi/g	0.0898	U	1	0.144	4.7	0.031	0.172	(0.028)	0
BLT-FSS-C3-01-Q3-SO-14														SOR	0.777		Net SOR	0.015
BLT-FSS-C3-01-Q4-SO-15	Solid	7/24/2014 15:35	8/22/2014 22:35	EERF C-01-1	C-14	14762-75-5	-0.0178	0.794	pCi/g	0.466	U	5	0.794	21	0.038	1.005	(0.211)	0
BLT-FSS-C3-01-Q4-SO-15	Solid	7/24/2014 15:35	8/6/2014 16:42	TAL-STL ST-RC-0036	Cl-36	13981-43-6	-0.0408	0.405	pCi/g	0.233	U	1	0.405	13.2	0.031	0.510	(0.105)	0
BLT-FSS-C3-01-Q4-SO-15	Solid	7/24/2014 15:35	8/21/2014 16:16	EPA 901.1	Cs-137	10045-97-3	-0.0132	0.0485	pCi/g	0.0285	U	0.2	0.0485	16.9	0.003	0.096	(0.048)	0
BLT-FSS-C3-01-Q4-SO-15	Solid	7/24/2014 15:35	8/19/2014 1:56	EPA 906.0	H-3	10028-17-8	0.0417	0.454	pCi/g	0.255	U	1	0.454	121	0.004	0.414	0.040	0.000
BLT-FSS-C3-01-Q4-SO-15	Solid	7/24/2014 15:35	8/16/2014 14:08	TAL-STL ST-RC-0055	Ni-63	13981-37-8	2.04	2.47	pCi/g	1.48	U	5	2.47	77954	0.000	1.889	0.581	0.000
BLT-FSS-C3-01-Q4-SO-15	Solid	7/24/2014 15:35	8/21/2014 16:16	EPA 901.1	Pb-210	14255-04-0	1.24	1.24	pCi/g	0.63		1	0.799	1.9	0.653	0.907	0.333	0.175
BLT-FSS-C3-01-Q4-SO-15	Solid	7/24/2014 15:35	8/21/2014 16:16	EPA 901.1	Ra-226	13982-63-3	1.05	1.05	pCi/g	0.152		0.1	0.0582	2.2	0.477	0.771	0.279	0.127
BLT-FSS-C3-01-Q4-SO-15	Solid	7/24/2014 15:35	8/10/2014 21:24	DOE 905.0	Sr-90	STL02023	0.0159	0.137	pCi/g	0.0776	U	1	0.137	4.7	0.029	0.172	(0.035)	0
BLT-FSS-C3-01-Q4-SO-15														SOR	1.234		Net SOR	0.302
BLT-FSS-C3-01-Q4-SO-16	Solid	7/24/2014 15:30	8/22/2014 23:42	EERF C-01-1	C-14	14762-75-5	-0.201	0.792	pCi/g	0.458	U	5	0.792	21	0.038	1.005	(0.213)	0
BLT-FSS-C3-01-Q4-SO-16	Solid	7/24/2014 15:30	8/6/2014 16:42	TAL-STL ST-RC-0036	Cl-36	13981-43-6	0.396	0.396	pCi/g	0.244		1	0.382	13.2	0.030	0.510	(0.114)	0
BLT-FSS-C3-01-Q4-SO-16	Solid	7/24/2014 15:30	8/21/2014 16:17	EPA 901.1	Cs-137	10045-97-3	0.00131	0.0265	pCi/g	0.0144	U	0.2	0.0265	16.9	0.002	0.096	(0.070)	0
BLT-FSS-C3-01-Q4-SO-16	Solid	7/24/2014 15:30	8/19/2014 2:19	EPA 906.0	H-3	10028-17-8	-0.00869	0.432	pCi/g	0.237	U	1	0.432	121	0.004	0.414	0.018	0.000
BLT-FSS-C3-01-Q4-SO-16	Solid	7/24/2014 15:30	8/16/2014 18:35	TAL-STL ST-RC-0055	Ni-63	13981-37-8	2.11	2.49	pCi/g	1.49	U	5	2.49	77954	0.000	1.889	0.601	0.000
BLT-FSS-C3-01-Q4-SO-16	Solid	7/24/2014 15:30	8/21/2014 16:17	EPA 901.1	Pb-210	14255-04-0	0.56	0.56	pCi/g	0.324		1	0.422	1.9	0.295	0.907	(0.347)	0
BLT-FSS-C3-01-Q4-SO-16	Solid	7/24/2014 15:30	8/21/2014 16:17	EPA 901.1	Ra-226	13982-63-3	0.349	0.349	pCi/g	0.0712		0.1	0.0445	2.2	0.159	0.771	(0.422)	0
BLT-FSS-C3-01-Q4-SO-16	Solid	7/24/2014 15:30	8/10/2014 21:24	DOE 905.0	Sr-90	STL02023	0.00935	0.135	pCi/g	0.0762	U	1	0.135	4.7	0.029	0.172	(0.037)	0
BLT-FSS-C3-01-Q4-SO-16														SOR	0.555		Net SOR	0.000

**Final Status Survey Report  
Appendix 9  
Class 1 SSU-01  
Survey and Sample Results**

**Beltsville Agricultural Research Center (BARC)  
Low Level Radioactive Burial site (LLRBS)  
Beltsville, Maryland**



**Prepared for:**

U.S. Army Field Support Command  
Rock Island, Illinois

*Prepared by:*

***TPMC-EnergySolutions Environmental Services, LLC***

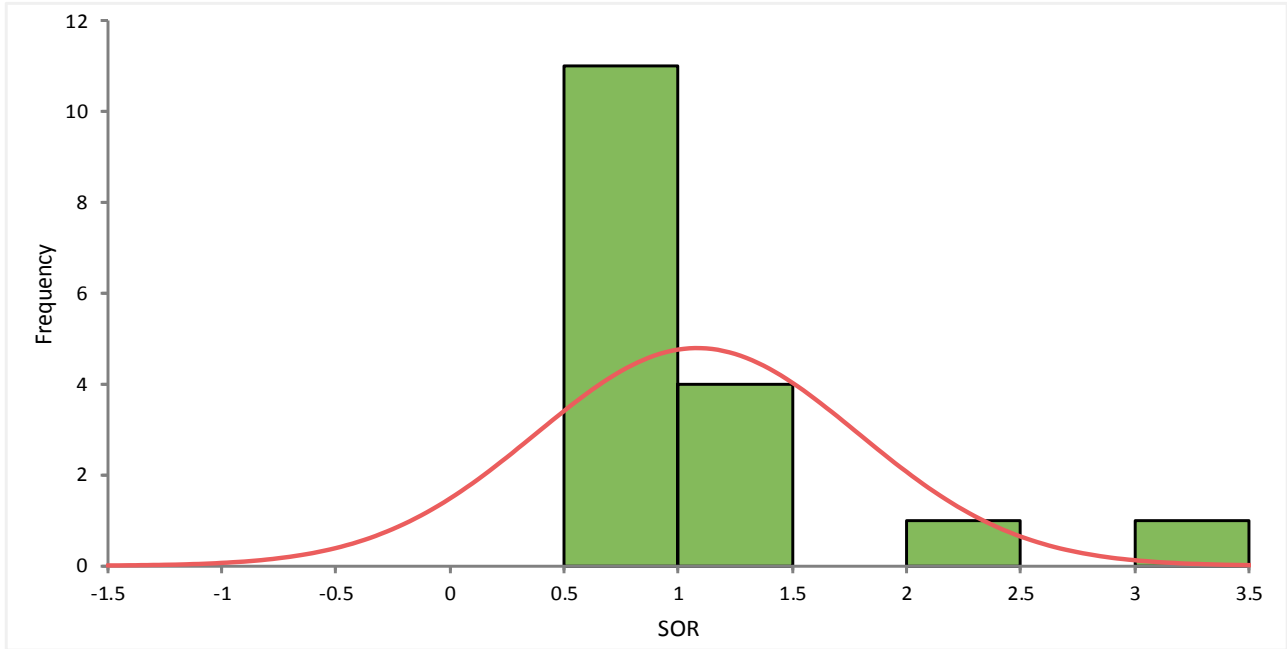
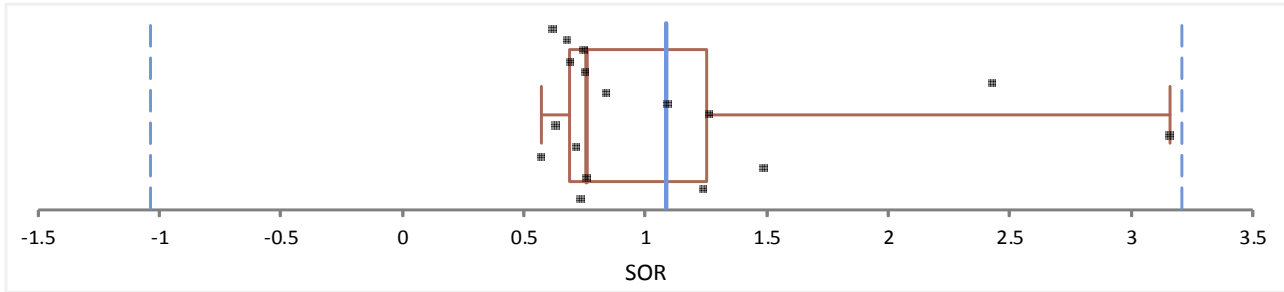
**Contract No. W52P1J-11-D-0001**



## Appendix 9

## Class 1 SSU 01

## Sample Results Summary

[illegible]

N	17					
	Mean	SE	SD	Variance	Skewness	Kurtosis
SOR	1.084858202	0.171453319	0.706920144	0.499736091	2.2	4.45
	Minimum	1st quartile	Median	3rd quartile	Maximum	IQR
SOR	0.57226118	0.687416284	0.756126851	1.250259743	3.16221874	0.562843458
Quantile	SOR					
0.050	0.581694677					
0.950	3.016293718					

Class	Frequency	Relative frequency	Density	Cumulative frequency	Cumulative relative frequency
≥0.5 to <1	11	0.647	1.2941	11	0.647
≥1 to <1.5	4	0.235	0.4706	15	0.882
≥1.5 to <2	0	0.000	0.0000	15	0.882
≥2 to <2.5	1	0.059	0.1176	16	0.941
≥2.5 to <3	0	0.000	0.0000	16	0.941
≥3 to <3.5	1	0.059	0.1176	17	1.000

**BARC LLRBS FSSR**  
**Appendix 9**

**Class 1 SSU 01**

**WRS Test**

**Wilcoxon Rank Sum Test**  
**BARC SU: C1\_SSU\_01**

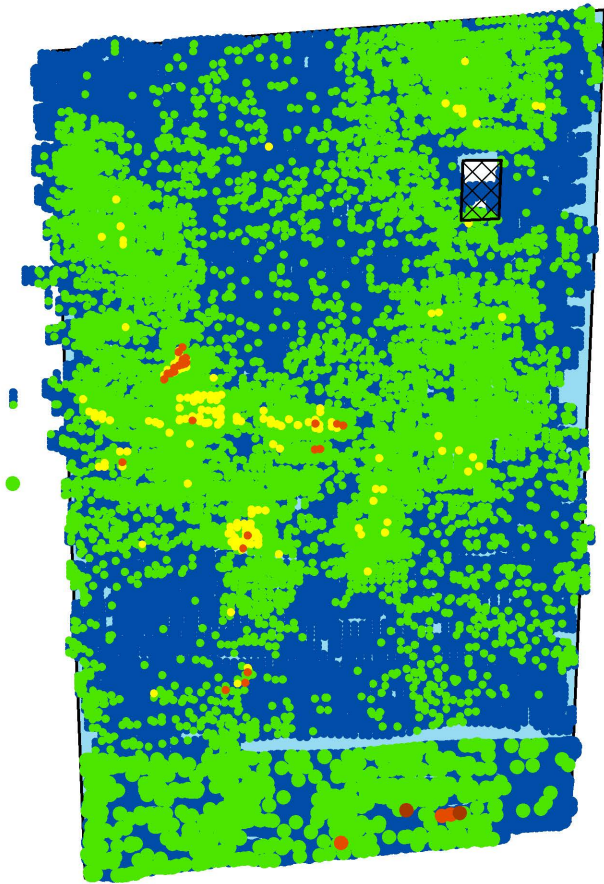
Data	Area	RA Data + DCGL	Ranks	RA Ranks
0.825706805	RA	1.825706805	18	18
0.921380538	RA	1.921380538	25	25
0.873495699	RA	1.873495699	24	24
0.846944061	RA	1.846944061	21	21
1.157740287	RA	2.157740287	34	34
0.841743122	RA	1.841743122	19	19
0.934067157	RA	1.934067157	26	26
1.13009195	RA	2.13009195	33	33
0.870092312	RA	1.870092312	23	23
0.846418527	RA	1.846418527	20	20
0.767855247	RA	1.767855247	16	16
1.079295965	RA	2.079295965	32	32
0.851102683	RA	1.851102683	22	22
0.820641368	RA	1.820641368	17	17
1.025772216	RA	2.025772216	28	28
1.065078933	RA	2.065078933	31	31
1.02595448	RA	2.02595448	29	29
1.026344395	RA	2.026344395	30	30
0.957934772	RA	1.957934772	27	27
1.332832267	RA	2.332832267	35	35
0.737137933	SU	0.737137933	7	0
1.242125648	SU	1.242125648	13	0
0.759800825	SU	0.759800825	10	0
1.489104836	SU	1.489104836	15	0
0.572261175	SU	0.572261175	1	0
0.71989914	SU	0.71989914	6	0
3.162218744	SU	3.162218744	37	0
0.633383675	SU	0.633383675	3	0
1.266527931	SU	1.266527931	14	0
1.09154311	SU	1.09154311	12	0
0.841404638	SU	0.841404638	11	0
2.432593612	SU	2.432593612	36	0
0.756126851	SU	0.756126851	9	0
0.691002661	SU	0.691002661	5	0
0.747786447	SU	0.747786447	8	0
0.68024353	SU	0.68024353	4	0
0.619428684	SU	0.619428684	2	0
Sum =			703	510
DCGL	1	(same units as measurement results)		
<i>m</i>	20	<div> Passes WRS Test  See App. 16, Elevated Measurement  Comparison (EMC) </div>		
<i>n</i>	17			
<i>z</i>	1.65			
<i>WRS<sub>crit</sub></i>	434			
<i>W<sub>r</sub></i>	510			



Class 1 SSU 01

Scan Plot

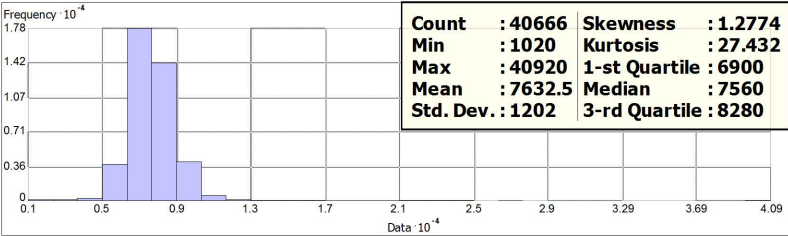
Class 1  
Stockpile Survey Unit 01  
Initial Scan



Legend

- Laydown Area B
  - Soil Survey Unit 01 (21,706.1 ft<sup>2</sup>)
  - Well Plate
- FIDLER Gross CPM**
- 1,020 - 8,269
  - 8,270 - 11,193
  - 11,194 - 14,118
  - 14,119 - 25,000
  - 25,001 - 40,920

Data Collected 09/04/13 - 09/06/13, 09/09/13



Laydown Area B, Class 1, SSU01  
Beltsville, MD

Date: 09/10/13  
Drawing: 13091002.a

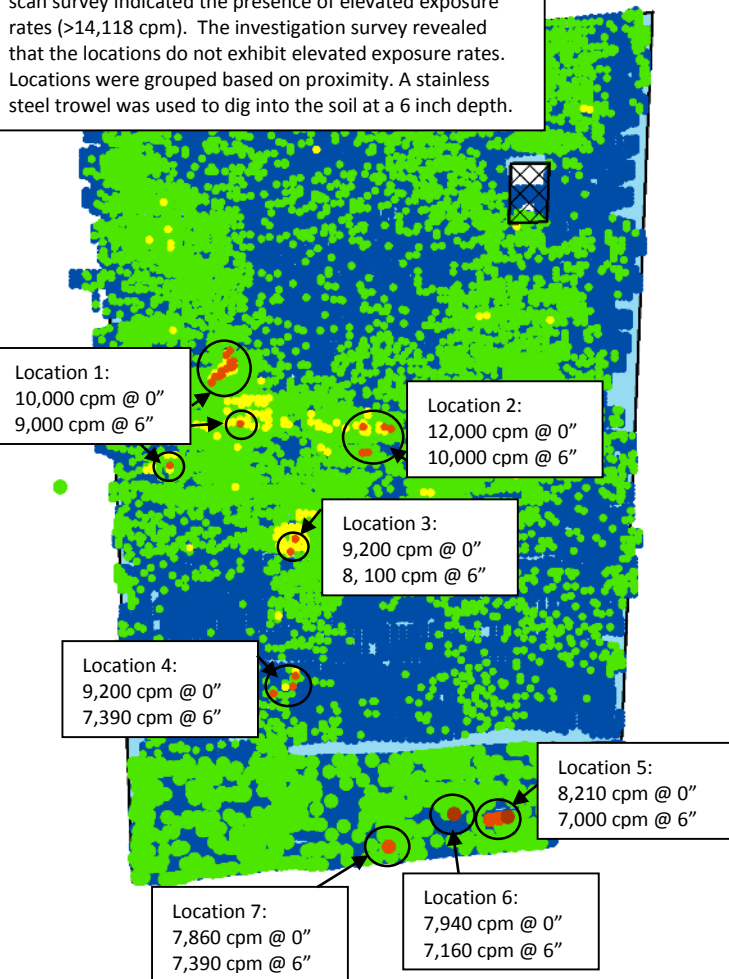
Class 1 SSU 01

Scan Plot

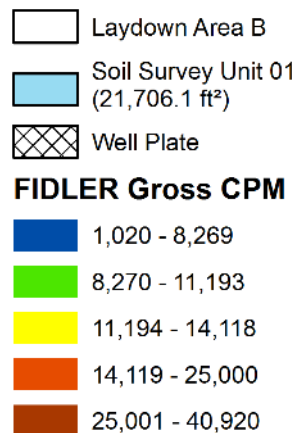
Class 1  
Stockpile Survey Unit 01  
Investigation

**Investigation Date:** September 10, 2013

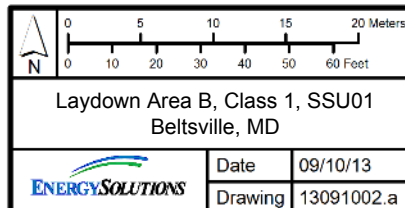
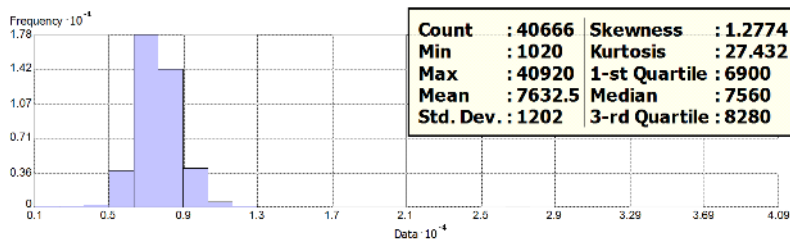
**Comments:** Investigated seven locations where the initial scan survey indicated the presence of elevated exposure rates (>14,118 cpm). The investigation survey revealed that the locations do not exhibit elevated exposure rates. Locations were grouped based on proximity. A stainless steel trowel was used to dig into the soil at a 6 inch depth.



**Legend**



Data Collected 09/04/13 - 09/06/13, 09/09/13



BARC LLRBS FSSR Appendix 9													Individual Sample Results					
Class 1 SSU 01																		
Sample ID	Matrix	Collected	Analyzed	Method	Analyte	CAS	Result	TES Result	Unit	% Uncertainty	Footnotes	RL/CRDL	MDL/MDA	DCGL	Ratio	RA Mean	Net Result	Net Ratio
BLT-SSU-01-C1-SO-01	Solid	7/29/2014 13:43	8/15/2014 13:17	EERF C-01-1	C-14	14762-75-5	-0.752	0.926	pCi/g	0.525	U	5	0.926	21	0.044	1.005	(0.079)	0
BLT-SSU-01-C1-SO-01	Solid	7/29/2014 13:43	8/13/2014 10:51	TAL-STL ST-RC-0036	Cl-36	13981-43-6	0.264	0.406	pCi/g	0.25	U	1	0.406	13.2	0.031	0.510	(0.104)	0
BLT-SSU-01-C1-SO-01	Solid	7/29/2014 13:43	8/26/2014 19:03	EPA 901.1	Cs-137	10045-97-3	-0.00395	0.0357	pCi/g	0.02	U	0.2	0.0357	16.9	0.002	0.096	(0.061)	0
BLT-SSU-01-C1-SO-01	Solid	7/29/2014 13:43	8/19/2014 21:30	EPA 906.0	H-3	10028-17-8	1.79	1.79	pCi/g	0.414		1	0.395	121	0.015	0.414	1.376	0.011
BLT-SSU-01-C1-SO-01	Solid	7/29/2014 13:43	8/23/2014 12:29	TAL-STL ST-RC-0055	Ni-63	13981-37-8	3.38	3.38	pCi/g	0.844		5	1.1	77954	0.000	1.889	1.491	0.000
BLT-SSU-01-C1-SO-01	Solid	7/29/2014 13:43	8/26/2014 19:03	EPA 901.1	Pb-210	14255-04-0	0.397	0.662	pCi/g	0.396	U	1	0.662	1.9	0.348	0.907	(0.245)	0
BLT-SSU-01-C1-SO-01	Solid	7/29/2014 13:43	8/26/2014 19:03	EPA 901.1	Ra-226	13982-63-3	0.561	0.561	pCi/g	0.101		0.1	0.0558	2.2	0.255	0.771	(0.210)	0
BLT-SSU-01-C1-SO-01	Solid	7/29/2014 13:43	8/20/2014 14:44	DOE 905.0	Sr-90	STL02023	0.0518	0.197	pCi/g	0.115	U	1	0.197	4.7	0.042	0.172	0.025	0.005
													BLT-SSU-01-C1-SO-01	SOR	0.737		Net SOR	0.017
BLT-SSU-01-C1-SO-02	Solid	7/29/2014 13:27	8/15/2014 14:25	EERF C-01-1	C-14	14762-75-5	12.5	12.5	pCi/g	1.62		5	0.929	21	0.595	1.005	11.495	0.547
BLT-SSU-01-C1-SO-02	Solid	7/29/2014 13:27	8/13/2014 10:53	TAL-STL ST-RC-0036	Cl-36	13981-43-6	0.281	0.332	pCi/g	0.209	U	1	0.332	13.2	0.025	0.510	(0.178)	0
BLT-SSU-01-C1-SO-02	Solid	7/29/2014 13:27	8/26/2014 19:04	EPA 901.1	Cs-137	10045-97-3	0.214	0.214	pCi/g	0.041		0.2	0.0263	16.9	0.013	0.096	0.118	0.007
BLT-SSU-01-C1-SO-02	Solid	7/29/2014 13:27	8/19/2014 22:16	EPA 906.0	H-3	10028-17-8	2.46	2.46	pCi/g	0.48		1	0.395	121	0.020	0.414	2.046	0.017
BLT-SSU-01-C1-SO-02	Solid	7/29/2014 13:27	8/23/2014 14:42	TAL-STL ST-RC-0055	Ni-63	13981-37-8	0.876	1.15	pCi/g	0.705	U	5	1.15	77954	0.000	1.889	(0.739)	0
BLT-SSU-01-C1-SO-02	Solid	7/29/2014 13:27	8/26/2014 19:04	EPA 901.1	Pb-210	14255-04-0	0.602	0.602	pCi/g	0.386		1	0.52	1.9	0.317	0.907	(0.305)	0
BLT-SSU-01-C1-SO-02	Solid	7/29/2014 13:27	8/26/2014 19:04	EPA 901.1	Ra-226	13982-63-3	0.505	0.505	pCi/g	0.0831		0.1	0.0401	2.2	0.230	0.771	(0.266)	0
BLT-SSU-01-C1-SO-02	Solid	7/29/2014 13:27	8/20/2014 14:45	DOE 905.0	Sr-90	STL02023	0.0747	0.199	pCi/g	0.118	U	1	0.199	4.7	0.042	0.172	0.027	0.006
													BLT-SSU-01-C1-SO-02	SOR	1.242		Net SOR	0.577
BLT-SSU-01-C1-SO-03	Solid	7/29/2014 13:56	8/15/2014 15:35	EERF C-01-1	C-14	14762-75-5	-0.182	0.936	pCi/g	0.546	U	5	0.936	21	0.045	1.005	(0.069)	0
BLT-SSU-01-C1-SO-03	Solid	7/29/2014 13:56	8/13/2014 10:53	TAL-STL ST-RC-0036	Cl-36	13981-43-6	0.29	0.364	pCi/g	0.228	U	1	0.364	13.2	0.028	0.510	(0.146)	0
BLT-SSU-01-C1-SO-03	Solid	7/29/2014 13:56	8/26/2014 19:46	EPA 901.1	Cs-137	10045-97-3	0.199	0.199	pCi/g	0.0382		0.2	0.0219	16.9	0.012	0.096	0.103	0.006
BLT-SSU-01-C1-SO-03	Solid	7/29/2014 13:56	8/19/2014 23:02	EPA 906.0	H-3	10028-17-8	4.59	4.59	pCi/g	0.683		1	0.397	121	0.038	0.414	4.176	0.035
BLT-SSU-01-C1-SO-03	Solid	7/29/2014 13:56	8/23/2014 16:55	TAL-STL ST-RC-0055	Ni-63	13981-37-8	0.851	1.11	pCi/g	0.685	U	5	1.11	77954	0.000	1.889	(0.779)	0
BLT-SSU-01-C1-SO-03	Solid	7/29/2014 13:56	8/26/2014 19:46	EPA 901.1	Pb-210	14255-04-0	0.333	0.665	pCi/g	0.395	U	1	0.665	1.9	0.350	0.907	(0.242)	0
BLT-SSU-01-C1-SO-03	Solid	7/29/2014 13:56	8/26/2014 19:46	EPA 901.1	Ra-226	13982-63-3	0.53	0.53	pCi/g	0.0912		0.1	0.0545	2.2	0.241	0.771	(0.241)	0
BLT-SSU-01-C1-SO-03	Solid	7/29/2014 13:56	8/20/2014 14:45	DOE 905.0	Sr-90	STL02023	-0.0174	0.221	pCi/g	0.122	U	1	0.221	4.7	0.047	0.172	0.049	0.010
													BLT-SSU-01-C1-SO-03	SOR	0.760		Net SOR	0.051
BLT-SSU-01-C1-SO-04	Solid	7/29/2014 11:11	8/15/2014 16:43	EERF C-01-1	C-14	14762-75-5	-0.246	0.928	pCi/g	0.54	U	5	0.928	21	0.044	1.005	(0.077)	0
BLT-SSU-01-C1-SO-04	Solid	7/29/2014 11:11	8/13/2014 10:53	TAL-STL ST-RC-0036	Cl-36	13981-43-6	0.444	0.444	pCi/g	0.23		1	0.351	13.2	0.034	0.510	(0.066)	0
BLT-SSU-01-C1-SO-04	Solid	7/29/2014 11:11	8/26/2014 19:49	EPA 901.1	Cs-137	10045-97-3	0.168	0.168	pCi/g	0.0441		0.2	0.0337	16.9	0.010	0.096	0.072	0.004
BLT-SSU-01-C1-SO-04	Solid	7/29/2014 11:11	8/19/2014 23:25	EPA 906.0	H-3	10028-17-8	0.429	0.429	pCi/g	0.266		1	0.389	121	0.004	0.414	0.015	0.000
BLT-SSU-01-C1-SO-04	Solid	7/29/2014 11:11	8/23/2014 19:08	TAL-STL ST-RC-0055	Ni-63	13981-37-8	1.73	1.73	pCi/g	0.731		5	1.13	77954	0.000	1.889	(0.159)	0
BLT-SSU-01-C1-SO-04	Solid	7/29/2014 11:11	8/26/2014 19:49	EPA 901.1	Pb-210	14255-04-0	1.49	1.49	pCi/g	0.737		1	0.941	1.9	0.784	0.907	0.583	0.307
BLT-SSU-01-C1-SO-04	Solid	7/29/2014 11:11	8/26/2014 19:49	EPA 901.1	Ra-226	13982-63-3	1.23	1.23	pCi/g	0.171		0.1	0.077	2.2	0.559	0.771	0.459	0.208
BLT-SSU-01-C1-SO-04	Solid	7/29/2014 11:11	8/20/2014 14:46	DOE 905.0	Sr-90	STL02023	-0.0252	0.256	pCi/g	0.142	U	1	0.256	4.7	0.054	0.172	0.084	0.018
													BLT-SSU-01-C1-SO-04	SOR	1.489		Net SOR	0.538
BLT-SSU-01-C1-SO-05	Solid	7/29/2014 11:23	8/15/2014 17:51	EERF C-01-1	C-14	14762-75-5	0.778	0.939	pCi/g	0.585	U	5	0.939	21	0.045	1.005	(0.066)	0
BLT-SSU-01-C1-SO-05	Solid	7/29/2014 11:23	8/13/2014 10:54	TAL-STL ST-RC-0036	Cl-36	13981-43-6	0.335	0.357	pCi/g	0.226	U	1	0.357	13.2	0.027	0.510	(0.153)	0
BLT-SSU-01-C1-SO-05	Solid	7/29/2014 11:23	8/26/2014 19:45	EPA 901.1	Cs-137	10045-97-3	0.0554	0.0554	pCi/g	0.0189		0.2	0.0154	16.9	0.003	0.096	(0.041)	0
BLT-SSU-01-C1-SO-05	Solid	7/29/2014 11:23	8/19/2014 23:48	EPA 906.0	H-3	10028-17-8	0.607	0.607	pCi/g	0.291		1	0.4	121	0.005	0.414	0.193	0.002
BLT-SSU-01-C1-SO-05	Solid	7/29/2014 11:23	8/23/2014 21:20	TAL-STL ST-RC-0055	Ni-63	13981-37-8	0.861	1.13	pCi/g	0.693	U	5	1.13	77954	0.000	1.889	(0.759)	0
BLT-SSU-01-C1-SO-05	Solid	7/29/2014 11:23	8/26/2014 19:45	EPA 901.1	Pb-210	14255-04-0	0.454	0.46	pCi/g	0.333	U	1	0.46	1.9	0.242	0.907	(0.447)	0
BLT-SSU-01-C1-SO-05	Solid	7/29/2014 11:23	8/26/2014 19:45	EPA 901.1	Ra-226	13982-63-3	0.443	0.443	pCi/g	0.0795		0.1	0.0441	2.2	0.201	0.771	(0.328)	0
BLT-SSU-01-C1-SO-05	Solid	7/29/2014 11:23	8/20/2014 14:46	DOE 905.0	Sr-90	STL02023	0.117	0.229	pCi/g	0.139	U	1	0.229	4.7	0.049	0.172	0.057	0.012
													BLT-SSU-01-C1-SO-05	SOR	0.572		Net SOR	0.014

BARC LLRBS FSSR Appendix 9													Individual Sample Results					
Class 1 SSU 01																		
Sample ID	Matrix	Collected	Analyzed	Method	Analyte	CAS	Result	TES Result	Unit	% Uncertainty	Footnotes	RL/CRDL	MDL/MDA	DCGL	Ratio	RA Mean	Net Result	Net Ratio
BLT-SSU-01-C1-SO-06	Solid	7/29/2014 10:58	8/15/2014 18:59	EERF C-01-1	C-14	14762-75-5	-0.428	0.93	pCi/g	0.536	U	5	0.93	21	0.044	1.005	(0.075)	0
BLT-SSU-01-C1-SO-06	Solid	7/29/2014 10:58	8/13/2014 10:54	TAL-STL ST-RC-0036	Cl-36	13981-43-6	0.292	0.366	pCi/g	0.229	U	1	0.366	13.2	0.028	0.510	(0.144)	0
BLT-SSU-01-C1-SO-06	Solid	7/29/2014 10:58	8/26/2014 19:46	EPA 901.1	Cs-137	10045-97-3	-0.0000825	0.0379	pCi/g	0.0208	U	0.2	0.0379	16.9	0.002	0.096	(0.058)	0
BLT-SSU-01-C1-SO-06	Solid	7/29/2014 10:58	8/20/2014 0:11	EPA 906.0	H-3	10028-17-8	0.663	0.663	pCi/g	0.293		1	0.39	121	0.005	0.414	0.249	0.002
BLT-SSU-01-C1-SO-06	Solid	7/29/2014 10:58	8/23/2014 23:33	TAL-STL ST-RC-0055	Ni-63	13981-37-8	1.77	1.77	pCi/g	0.75		5	1.15	77954	0.000	1.889	(0.119)	0
BLT-SSU-01-C1-SO-06	Solid	7/29/2014 10:58	8/26/2014 19:46	EPA 901.1	Pb-210	14255-04-0	0.141	0.695	pCi/g	0.4	U	1	0.695	1.9	0.366	0.907	(0.212)	0
BLT-SSU-01-C1-SO-06	Solid	7/29/2014 10:58	8/26/2014 19:46	EPA 901.1	Ra-226	13982-63-3	0.502	0.502	pCi/g	0.0991		0.1	0.059	2.2	0.228	0.771	(0.269)	0
BLT-SSU-01-C1-SO-06	Solid	7/29/2014 10:58	8/20/2014 14:46	DOE 905.0	Sr-90	STL02023	0.111	0.217	pCi/g	0.132	U	1	0.217	4.7	0.046	0.172	0.045	0.010
													BLT-SSU-01-C1-SO-06	SOR	0.720		Net SOR	0.012
BLT-SSU-01-C1-SO-07	Solid	9/6/2013 15:42	9/24/2013 14:02	EERF C-01-1	C-14	14762-75-5	0.0683	1.47	pCi/g	0.848	U	5	1.47	21	0.070	1.005	0.465	0.022
BLT-SSU-01-C1-SO-07	Solid	9/6/2013 15:42	9/24/2013 15:52	TAL-STL STL-RC-0036	Cl-36	13981-43-6	0.0983	0.355	pCi/g	0.211	U	1	0.355	13.2	0.027	0.510	(0.155)	0
BLT-SSU-01-C1-SO-07	Solid	9/6/2013 15:42	10/2/2013 7:09	EPA 901.1	Cs-137	10045-97-3	-0.00342	0.016	pCi/g	0.00961	U	0.2	0.016	16.9	0.001	0.096	(0.080)	0
BLT-SSU-01-C1-SO-07	Solid	9/6/2013 15:42	9/23/2013 17:25	EPA 906.0	H-3	10028-17-8	-0.19	0.383	pCi/g	0.203	U	1	0.383	121	0.003	0.414	(0.031)	0
BLT-SSU-01-C1-SO-07	Solid	9/6/2013 15:42	9/24/2013 22:54	TAL-STL STL-RC-0055	Ni-63	13981-37-8	-0.0205	1.77	pCi/g	1.03	U	5	1.77	77954	0.000	1.889	(0.119)	0
BLT-SSU-01-C1-SO-07	Solid	9/6/2013 15:42	10/2/2013 7:09	EPA 901.1	Pb-210	14255-04-0	2.9	2.9	pCi/g	0.448		1	0.331	1.9	1.526	0.907	1.993	1.049
BLT-SSU-01-C1-SO-07	Solid	9/6/2013 15:42	10/2/2013 7:09	EPA 901.1	Ra-226	13982-63-3	3.27	3.27	pCi/g	0.345		0.1	0.0283	2.2	1.486	0.771	2.499	1.136
BLT-SSU-01-C1-SO-07	Solid	9/6/2013 15:42	9/16/2013 18:17	DOE 905.0	Sr-90	STL02023	0.0973	0.228	pCi/g	0.137	U	1	0.228	4.7	0.049	0.172	0.056	0.012
													BLT-SSU-01-C1-SO-07	SOR	3.162		Net SOR	2.219
BLT-SSU-01-C1-SO-08	Solid	7/29/2014 10:22	8/15/2014 20:07	EERF C-01-1	C-14	14762-75-5	-0.4	0.94	pCi/g	0.541	U	5	0.94	21	0.045	1.005	(0.065)	0
BLT-SSU-01-C1-SO-08	Solid	7/29/2014 10:22	8/13/2014 10:52	TAL-STL ST-RC-0036	Cl-36	13981-43-6	0.357	0.371	pCi/g	0.236	U	1	0.371	13.2	0.028	0.510	(0.139)	0
BLT-SSU-01-C1-SO-08	Solid	7/29/2014 10:22	8/26/2014 19:47	EPA 901.1	Cs-137	10045-97-3	0.0793	0.0793	pCi/g	0.0258		0.2	0.0213	16.9	0.005	0.096	(0.017)	0
BLT-SSU-01-C1-SO-08	Solid	7/29/2014 10:22	8/20/2014 0:34	EPA 906.0	H-3	10028-17-8	0.482	0.482	pCi/g	0.28		1	0.405	121	0.004	0.414	0.068	0.001
BLT-SSU-01-C1-SO-08	Solid	7/29/2014 10:22	8/23/2014 0:19	TAL-STL ST-RC-0055	Ni-63	13981-37-8	2.15	2.37	pCi/g	1.45	U	5	2.37	77954	0.000	1.889	0.481	0.000
BLT-SSU-01-C1-SO-08	Solid	7/29/2014 10:22	8/26/2014 19:47	EPA 901.1	Pb-210	14255-04-0	0.518	0.518	pCi/g	0.337		1	0.479	1.9	0.273	0.907	(0.389)	0
BLT-SSU-01-C1-SO-08	Solid	7/29/2014 10:22	8/26/2014 19:47	EPA 901.1	Ra-226	13982-63-3	0.507	0.507	pCi/g	0.0835		0.1	0.0428	2.2	0.230	0.771	(0.264)	0
BLT-SSU-01-C1-SO-08	Solid	7/29/2014 10:22	8/21/2014 16:15	DOE 905.0	Sr-90	STL02023	0.023	0.229	pCi/g	0.13	U	1	0.229	4.7	0.049	0.172	0.057	0.012
													BLT-SSU-01-C1-SO-08	SOR	0.633		Net SOR	0.013
BLT-SSU-01-C1-SO-09	Solid	7/29/2014 9:46	8/15/2014 21:15	EERF C-01-1	C-14	14762-75-5	-0.405	0.919	pCi/g	0.531	U	5	0.919	21	0.044	1.005	(0.086)	0
BLT-SSU-01-C1-SO-09	Solid	7/29/2014 9:46	8/13/2014 17:44	TAL-STL ST-RC-0036	Cl-36	13981-43-6	-0.256	0.427	pCi/g	0.236	U	1	0.427	13.2	0.032	0.510	(0.083)	0
BLT-SSU-01-C1-SO-09	Solid	7/29/2014 9:46	8/26/2014 20:30	EPA 901.1	Cs-137	10045-97-3	0.00994	0.0292	pCi/g	0.0174	U	0.2	0.0292	16.9	0.002	0.096	(0.067)	0
BLT-SSU-01-C1-SO-09	Solid	7/29/2014 9:46	8/20/2014 0:57	EPA 906.0	H-3	10028-17-8	0.985	0.985	pCi/g	0.332		1	0.399	121	0.008	0.414	0.571	0.005
BLT-SSU-01-C1-SO-09	Solid	7/29/2014 9:46	8/23/2014 4:23	TAL-STL ST-RC-0055	Ni-63	13981-37-8	5.08	5.08	pCi/g	2.67		5	4.26	77954	0.000	1.889	3.191	0.000
BLT-SSU-01-C1-SO-09	Solid	7/29/2014 9:46	8/26/2014 20:30	EPA 901.1	Pb-210	14255-04-0	1.38	1.38	pCi/g	0.487		1	0.56	1.9	0.726	0.907	0.473	0.249
BLT-SSU-01-C1-SO-09	Solid	7/29/2014 9:46	8/26/2014 20:30	EPA 901.1	Ra-226	13982-63-3	0.899	0.899	pCi/g	0.121		0.1	0.0394	2.2	0.409	0.771	0.128	0.058
BLT-SSU-01-C1-SO-09	Solid	7/29/2014 9:46	8/21/2014 16:16	DOE 905.0	Sr-90	STL02023	0.0908	0.214	pCi/g	0.128	U	1	0.214	4.7	0.046	0.172	0.042	0.009
													BLT-SSU-01-C1-SO-09	SOR	1.267		Net SOR	0.321
BLT-SSU-01-C1-SO-09-FD05	Solid	7/29/2014 9:46	8/15/2014 22:23	EERF C-01-1	C-14	14762-75-5	0.183	0.917	pCi/g	0.547	U	5	0.917	21	0.044	1.005	(0.088)	0
BLT-SSU-01-C1-SO-09-FD05	Solid	7/29/2014 9:46	8/13/2014 17:44	TAL-STL ST-RC-0036	Cl-36	13981-43-6	0.0806	0.395	pCi/g	0.233	U	1	0.395	13.2	0.030	0.510	(0.115)	0
BLT-SSU-01-C1-SO-09-FD05	Solid	7/29/2014 9:46	8/26/2014 20:29	EPA 901.1	Cs-137	10045-97-3	0	0.0531	pCi/g	0.02	U	0.2	0.0531	16.9	0.003	0.096	(0.043)	0
BLT-SSU-01-C1-SO-09-FD05	Solid	7/29/2014 9:46	8/20/2014 1:20	EPA 906.0	H-3	10028-17-8	1.04	1.04	pCi/g	0.328		1	0.382	121	0.009	0.414	0.626	0.005
BLT-SSU-01-C1-SO-09-FD05	Solid	7/29/2014 9:46	8/23/2014 6:24	TAL-STL ST-RC-0055	Ni-63	13981-37-8	2.07	3.86	pCi/g	2.28	U	5	3.86	77954	0.000	1.889	1.971	0.000
BLT-SSU-01-C1-SO-09-FD05	Solid	7/29/2014 9:46	8/26/2014 20:29	EPA 901.1	Pb-210	14255-04-0	1.07	1.07	pCi/g	0.442		1	0.556	1.9	0.563	0.907	0.163	0.086
BLT-SSU-01-C1-SO-09-FD05	Solid	7/29/2014 9:46	8/26/2014 20:29	EPA 901.1	Ra-226	13982-63-3	0.881	0.881	pCi/g	0.129		0.1	0.0574	2.2	0.400	0.771	0.110	0.050
BLT-SSU-01-C1-SO-09-FD05	Solid	7/29/2014 9:46	8/21/2014 16:16	DOE 905.0	Sr-90	STL02023	0.0811	0.2	pCi/g	0.119	U	1	0.2	4.7	0.043	0.172	0.028	0.006
													BLT-SSU-01-C1-SO-09-FD05	SOR	1.092		Net SOR	0.147



BARC LLRBS FSSR Appendix 9													Individual Sample Results					
Class 1 SSU 01																		
Sample ID	Matrix	Collected	Analyzed	Method	Analyte	CAS	Result	TES Result	Unit	% Uncertainty	Footnotes	RL/CRDL	MDL/MDA	DCGL	Ratio	RA Mean	Net Result	Net Ratio
BLT-SSU-01-C1-SO-10	Solid	7/29/2014 10:05	8/15/2014 23:31	EERF C-01-1	C-14	14762-75-5	-0.0268	0.917	pCi/g	0.539	U	5	0.917	21	0.044	1.005	(0.088)	0
BLT-SSU-01-C1-SO-10	Solid	7/29/2014 10:05	8/13/2014 17:44	TAL-STL ST-RC-0036	Cl-36	13981-43-6	-0.193	0.408	pCi/g	0.227	U	1	0.408	13.2	0.031	0.510	(0.102)	0
BLT-SSU-01-C1-SO-10	Solid	7/29/2014 10:05	8/26/2014 20:30	EPA 901.1	Cs-137	10045-97-3	-0.00874	0.0447	pCi/g	0.0258	U	0.2	0.0447	16.9	0.003	0.096	(0.052)	0
BLT-SSU-01-C1-SO-10	Solid	7/29/2014 10:05	8/20/2014 1:43	EPA 906.0	H-3	10028-17-8	0.44	0.44	pCi/g	0.269		1	0.394	121	0.004	0.414	0.026	0.000
BLT-SSU-01-C1-SO-10	Solid	7/29/2014 10:05	8/23/2014 8:26	TAL-STL ST-RC-0055	Ni-63	13981-37-8	4.75	4.75	pCi/g	2.85		5	4.6	77954	0.000	1.889	2.861	0.000
BLT-SSU-01-C1-SO-10	Solid	7/29/2014 10:05	8/26/2014 20:30	EPA 901.1	Pb-210	14255-04-0	0.562	0.756	pCi/g	0.461	U	1	0.756	1.9	0.398	0.907	(0.151)	0
BLT-SSU-01-C1-SO-10	Solid	7/29/2014 10:05	8/26/2014 20:30	EPA 901.1	Ra-226	13982-63-3	0.698	0.698	pCi/g	0.123		0.1	0.0659	2.2	0.317	0.771	(0.073)	0
BLT-SSU-01-C1-SO-10	Solid	7/29/2014 10:05	8/21/2014 16:16	DOE 905.0	Sr-90	STL02023	0.207	0.213	pCi/g	0.138	U	1	0.213	4.7	0.045	0.172	0.041	0.009
													BLT-SSU-01-C1-SO-10	SOR	0.841		Net SOR	0.009
BLT-SSU-01-C1-SO-11	Solid	7/29/2014 9:33	8/16/2014 0:39	EERF C-01-1	C-14	14762-75-5	0.239	0.925	pCi/g	0.554	U	5	0.925	21	0.044	1.005	(0.080)	0
BLT-SSU-01-C1-SO-11	Solid	7/29/2014 9:33	8/13/2014 17:44	TAL-STL ST-RC-0036	Cl-36	13981-43-6	0.274	0.337	pCi/g	0.212	U	1	0.337	13.2	0.026	0.510	(0.173)	0
BLT-SSU-01-C1-SO-11	Solid	7/29/2014 9:33	8/26/2014 20:31	EPA 901.1	Cs-137	10045-97-3	-0.0106	0.0398	pCi/g	0.0236	U	0.2	0.0398	16.9	0.002	0.096	(0.056)	0
BLT-SSU-01-C1-SO-11	Solid	7/29/2014 9:33	8/20/2014 2:06	EPA 906.0	H-3	10028-17-8	0.475	0.475	pCi/g	0.272		1	0.391	121	0.004	0.414	0.061	0.001
BLT-SSU-01-C1-SO-11	Solid	7/29/2014 9:33	8/23/2014 10:28	TAL-STL ST-RC-0055	Ni-63	13981-37-8	2.93	4.51	pCi/g	2.69	U	5	4.51	77954	0.000	1.889	2.621	0.000
BLT-SSU-01-C1-SO-11	Solid	7/29/2014 9:33	8/26/2014 20:31	EPA 901.1	Pb-210	14255-04-0	2.3	2.3	pCi/g	0.705		1	0.767	1.9	1.211	0.907	1.393	0.733
BLT-SSU-01-C1-SO-11	Solid	7/29/2014 9:33	8/26/2014 20:31	EPA 901.1	Ra-226	13982-63-3	2.39	2.39	pCi/g	0.282		0.1	0.0676	2.2	1.086	0.771	1.619	0.736
BLT-SSU-01-C1-SO-11	Solid	7/29/2014 9:33	8/21/2014 16:16	DOE 905.0	Sr-90	STL02023	0.281	0.281	pCi/g	0.142		1	0.206	4.7	0.060	0.172	0.109	0.023
													BLT-SSU-01-C1-SO-11	SOR	2.433		Net SOR	1.493
BLT-SSU-01-C1-SO-12	Solid	7/29/2014 9:18	8/18/2014 22:06	EERF C-01-1	C-14	14762-75-5	0.714	0.786	pCi/g	0.495	U	5	0.786	21	0.037	1.005	(0.219)	0
BLT-SSU-01-C1-SO-12	Solid	7/29/2014 9:18	8/13/2014 17:44	TAL-STL ST-RC-0036	Cl-36	13981-43-6	-0.0349	0.335	pCi/g	0.19	U	1	0.335	13.2	0.025	0.510	(0.175)	0
BLT-SSU-01-C1-SO-12	Solid	7/29/2014 9:18	8/26/2014 21:09	EPA 901.1	Cs-137	10045-97-3	0.00193	0.0247	pCi/g	0.014	U	0.2	0.0247	16.9	0.001	0.096	(0.072)	0
BLT-SSU-01-C1-SO-12	Solid	7/29/2014 9:18	8/20/2014 2:29	EPA 906.0	H-3	10028-17-8	0.255	0.401	pCi/g	0.251	U	1	0.401	121	0.003	0.414	(0.013)	0
BLT-SSU-01-C1-SO-12	Solid	7/29/2014 9:18	8/23/2014 12:29	TAL-STL ST-RC-0055	Ni-63	13981-37-8	2.85	4.22	pCi/g	2.52	U	5	4.22	77954	0.000	1.889	2.331	0.000
BLT-SSU-01-C1-SO-12	Solid	7/29/2014 9:18	8/26/2014 21:09	EPA 901.1	Pb-210	14255-04-0	0.648	0.648	pCi/g	0.347		1	0.463	1.9	0.341	0.907	(0.259)	0
BLT-SSU-01-C1-SO-12	Solid	7/29/2014 9:18	8/26/2014 21:09	EPA 901.1	Ra-226	13982-63-3	0.667	0.667	pCi/g	0.1		0.1	0.0466	2.2	0.303	0.771	(0.104)	0
BLT-SSU-01-C1-SO-12	Solid	7/29/2014 9:18	8/21/2014 16:16	DOE 905.0	Sr-90	STL02023	0.164	0.208	pCi/g	0.132	U	1	0.208	4.7	0.044	0.172	0.036	0.008
													BLT-SSU-01-C1-SO-12	SOR	0.756		Net SOR	0.008
BLT-SSU-01-C1-SO-13	Solid	7/30/2014 7:42	8/19/2014 0:21	EERF C-01-1	C-14	14762-75-5	0.553	0.753	pCi/g	0.469	U	5	0.753	21	0.036	1.005	(0.252)	0
BLT-SSU-01-C1-SO-13	Solid	7/30/2014 7:42	8/13/2014 17:44	TAL-STL ST-RC-0036	Cl-36	13981-43-6	0.016	0.36	pCi/g	0.209	U	1	0.36	13.2	0.027	0.510	(0.150)	0
BLT-SSU-01-C1-SO-13	Solid	7/30/2014 7:42	8/26/2014 21:07	EPA 901.1	Cs-137	10045-97-3	-0.00207	0.0349	pCi/g	0.0196	U	0.2	0.0349	16.9	0.002	0.096	(0.061)	0
BLT-SSU-01-C1-SO-13	Solid	7/30/2014 7:42	8/20/2014 2:52	EPA 906.0	H-3	10028-17-8	0.191	0.409	pCi/g	0.248	U	1	0.409	121	0.003	0.414	(0.005)	0
BLT-SSU-01-C1-SO-13	Solid	7/30/2014 7:42	8/23/2014 14:31	TAL-STL ST-RC-0055	Ni-63	13981-37-8	5.64	5.64	pCi/g	2.71		5	4.29	77954	0.000	1.889	3.751	0.000
BLT-SSU-01-C1-SO-13	Solid	7/30/2014 7:42	8/26/2014 21:07	EPA 901.1	Pb-210	14255-04-0	0.488	0.633	pCi/g	0.387	U	1	0.633	1.9	0.333	0.907	(0.274)	0
BLT-SSU-01-C1-SO-13	Solid	7/30/2014 7:42	8/26/2014 21:07	EPA 901.1	Ra-226	13982-63-3	0.537	0.537	pCi/g	0.0928		0.1	0.0512	2.2	0.244	0.771	(0.234)	0
BLT-SSU-01-C1-SO-13	Solid	7/30/2014 7:42	8/21/2014 16:16	DOE 905.0	Sr-90	STL02023	0.161	0.212	pCi/g	0.134	U	1	0.212	4.7	0.045	0.172	0.040	0.009
													BLT-SSU-01-C1-SO-13	SOR	0.691		Net SOR	0.009
BLT-SSU-01-C1-SO-14	Solid	7/29/2014 8:53	8/22/2014 18:07	EERF C-01-1	C-14	14762-75-5	0.277	0.79	pCi/g	0.477	U	5	0.79	21	0.038	1.005	(0.215)	0
BLT-SSU-01-C1-SO-14	Solid	7/29/2014 8:53	9/9/2014 20:45	TAL-STL ST-RC-0036	Cl-36	13981-43-6	0.0679	0.379	pCi/g	0.223	U	1	0.379	13.2	0.029	0.510	(0.131)	0
BLT-SSU-01-C1-SO-14	Solid	7/29/2014 8:53	9/11/2014 14:10	EPA 901.1	Cs-137	10045-97-3	-0.0141	0.0301	pCi/g	0.949	U	0.2	0.0301	16.9	0.002	0.096	(0.066)	0
BLT-SSU-01-C1-SO-14	Solid	7/29/2014 8:53	8/20/2014 3:15	EPA 906.0	H-3	10028-17-8	0.402	0.404	pCi/g	0.27	U	1	0.404	121	0.003	0.414	(0.010)	0
BLT-SSU-01-C1-SO-14	Solid	7/29/2014 8:53	8/29/2014 3:50	TAL-STL ST-RC-0055	Ni-63	13981-37-8	3.55	3.55	pCi/g	1.49		5	2.33	77954	0.000	1.889	1.661	0.000
BLT-SSU-01-C1-SO-14	Solid	7/29/2014 8:53	9/11/2014 14:10	EPA 901.1	Pb-210	14255-04-0	0.752	0.806	pCi/g	0.531	U	1	0.806	1.9	0.424	0.907	(0.101)	0
BLT-SSU-01-C1-SO-14	Solid	7/29/2014 8:53	9/11/2014 14:10	EPA 901.1	Ra-226	13982-63-3	0.453	0.453	pCi/g	0.08		0.1	0.0616	2.2	0.206	0.771	(0.318)	0
BLT-SSU-01-C1-SO-14	Solid	7/29/2014 8:53	8/27/2014 15:41	DOE 905.0	Sr-90	STL02023	0.113	0.217	pCi/g	0.132	U	1	0.217	4.7	0.046	0.172	0.045	0.010
													BLT-SSU-01-C1-SO-14	SOR	0.748		Net SOR	0.010

Sample ID	Matrix	Collected	Analyzed	Method	Analyte	CAS	Result	TES Result	Unit	% Uncertainty	Footnotes	RL/CRDL	MDL/MDA	DCGL	Ratio	RA Mean	Net Result	Net Ratio
BLT-SSU-01-C1-SO-15	Solid	7/29/2014 16:04	8/19/2014 1:30	EERF C-01-1	C-14	14762-75-5	0.748	0.771	pCi/g	0.489	U	5	0.771	21	0.037	1.005	(0.234)	0
BLT-SSU-01-C1-SO-15	Solid	7/29/2014 16:04	8/13/2014 17:44	TAL-STL ST-RC-0036	Cl-36	13981-43-6	-0.0425	0.356	pCi/g	0.203	U	1	0.356	13.2	0.027	0.510	(0.154)	0
BLT-SSU-01-C1-SO-15	Solid	7/29/2014 16:04	8/26/2014 21:08	EPA 901.1	Cs-137	10045-97-3	-0.000895	0.0342	pCi/g	0.0189	U	0.2	0.0342	16.9	0.002	0.096	(0.062)	0
BLT-SSU-01-C1-SO-15	Solid	7/29/2014 16:04	8/20/2014 3:38	EPA 906.0	H-3	10028-17-8	0.367	0.396	pCi/g	0.262	U	1	0.396	121	0.003	0.414	(0.018)	0
BLT-SSU-01-C1-SO-15	Solid	7/29/2014 16:04	8/23/2014 16:33	TAL-STL ST-RC-0055	Ni-63	13981-37-8	4.35	5.38	pCi/g	3.23	U	5	5.38	77954	0.000	1.889	3.491	0.000
BLT-SSU-01-C1-SO-15	Solid	7/29/2014 16:04	8/26/2014 21:08	EPA 901.1	Pb-210	14255-04-0	0.564	0.564	pCi/g	0.421		1	0.562	1.9	0.297	0.907	(0.343)	0
BLT-SSU-01-C1-SO-15	Solid	7/29/2014 16:04	8/26/2014 21:08	EPA 901.1	Ra-226	13982-63-3	0.59	0.59	pCi/g	0.0984		0.1	0.0442	2.2	0.268	0.771	(0.181)	0
BLT-SSU-01-C1-SO-15	Solid	7/29/2014 16:04	8/21/2014 16:17	DOE 905.0	Sr-90	STL02023	0.0477	0.217	pCi/g	0.126	U	1	0.217	4.7	0.046	0.172	0.045	0.010
BLT-SSU-01-C1-SO-15														SOR	0.680		Net SOR	0.010
BLT-SSU-01-C1-SO-16	Solid	7/30/2014 7:30	8/19/2014 3:46	EERF C-01-1	C-14	14762-75-5	0.379	0.755	pCi/g	0.461	U	5	0.755	21	0.036	1.005	(0.250)	0
BLT-SSU-01-C1-SO-16	Solid	7/30/2014 7:30	8/13/2014 17:45	TAL-STL ST-RC-0036	Cl-36	13981-43-6	0.0533	0.36	pCi/g	0.211	U	1	0.36	13.2	0.027	0.510	(0.150)	0
BLT-SSU-01-C1-SO-16	Solid	7/30/2014 7:30	8/26/2014 21:09	EPA 901.1	Cs-137	10045-97-3	0.00918	0.0245	pCi/g	0.0146	U	0.2	0.0245	16.9	0.001	0.096	(0.072)	0
BLT-SSU-01-C1-SO-16	Solid	7/30/2014 7:30	8/20/2014 4:01	EPA 906.0	H-3	10028-17-8	0.521	0.521	pCi/g	0.274		1	0.386	121	0.004	0.414	0.107	0.001
BLT-SSU-01-C1-SO-16	Solid	7/30/2014 7:30	8/23/2014 18:34	TAL-STL ST-RC-0055	Ni-63	13981-37-8	2.52	5.25	pCi/g	3.06	U	5	5.25	77954	0.000	1.889	3.361	0.000
BLT-SSU-01-C1-SO-16	Solid	7/30/2014 7:30	8/26/2014 21:09	EPA 901.1	Pb-210	14255-04-0	0.537	0.559	pCi/g	0.421	U	1	0.559	1.9	0.294	0.907	(0.348)	0
BLT-SSU-01-C1-SO-16	Solid	7/30/2014 7:30	8/26/2014 21:09	EPA 901.1	Ra-226	13982-63-3	0.462	0.462	pCi/g	0.0793		0.1	0.0462	2.2	0.210	0.771	(0.309)	0
BLT-SSU-01-C1-SO-16	Solid	7/30/2014 7:30	8/21/2014 16:17	DOE 905.0	Sr-90	STL02023	0.217	0.217	pCi/g	0.135		1	0.203	4.7	0.046	0.172	0.045	0.010
BLT-SSU-01-C1-SO-16														SOR	0.619		Net SOR	0.011

**Final Status Survey Report  
Appendix 10  
Class 1 SSU-02  
Survey and Sample Results**

**Beltsville Agricultural Research Center (BARC)  
Low Level Radioactive Burial site (LLRBS)  
Beltsville, Maryland**



**Prepared for:**

U.S. Army Field Support Command  
Rock Island, Illinois

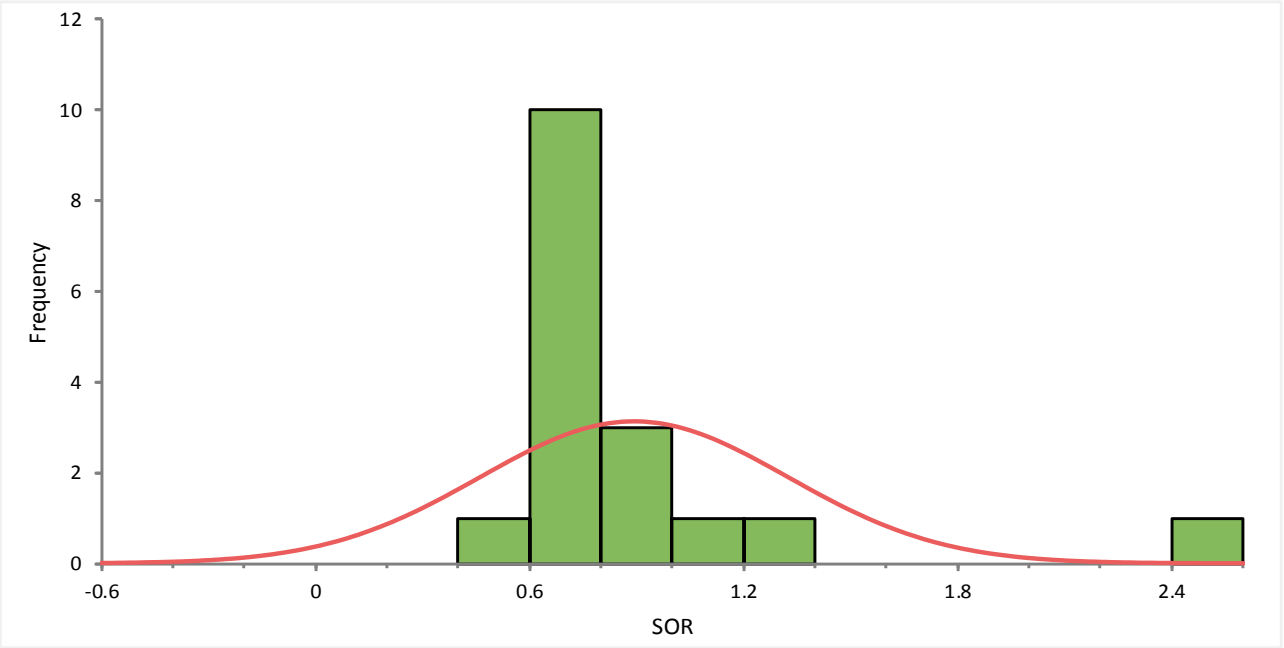
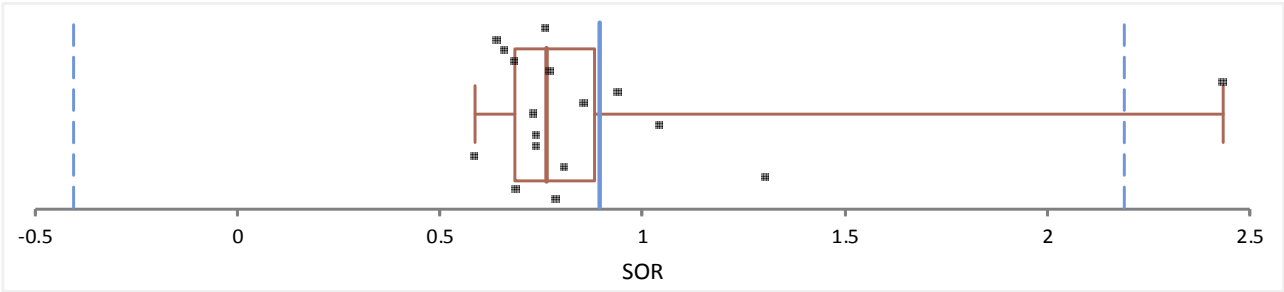
*Prepared by:*

***TPMC-EnergySolutions Environmental Services, LLC***

**Contract No. W52P1J-11-D-0001**



Statistics & Decisions	SU	RA	Sample ID	BLT-SSU-02-C1-SO-01	BLT-SSU-02-C1-SO-01-FD04	BLT-SSU-02-C1-SO-02	BLT-SSU-02-C1-SO-03	BLT-SSU-02-C1-SO-04	BLT-SSU-02-C1-SO-05	BLT-SSU-02-C1-SO-06	BLT-SSU-02-C1-SO-07	BLT-SSU-02-C1-SO-08	BLT-SSU-02-C1-SO-09	BLT-SSU-02-C1-SO-10	BLT-SSU-02-C1-SO-11	BLT-SSU-02-C1-SO-12	BLT-SSU-02-C1-SO-13	BLT-SSU-02-C1-SO-14	BLT-SSU-02-C1-SO-15	BLT-SSU-02-C1-SO-16
Avg	0.893	0.960	SOR	0.787	0.688	1.303	0.809	0.586	0.740	0.741	1.041	0.734	0.855	0.938	2.433	0.773	0.684	0.660	0.642	0.762
Min	0.586	0.768	Net SOR	0.007	0.015	0.351	0.092	0.029	0.006	0.027	0.126	0.015	0.036	0.028	1.487	0.003	0.005	0.002	0.003	0.001
Max	2.433	1.333																		
SU Max SOR - RA Min SOR	1.665																			
SU Avg SOR - RA Avg SOR	-0.067																			
Perform WRS Test & EMC																				



Frequency Distribution

Class	Frequency	Relative frequency	Density	Cumulative frequency	Cumulative relative frequency
≥0.4 to <0.6	1	0.059	0.2941	1	0.059
≥0.6 to <0.8	10	0.588	2.9412	11	0.647
≥0.8 to <1	3	0.176	0.8824	14	0.824
≥1 to <1.2	1	0.059	0.2941	15	0.882
≥1.2 to <1.4	1	0.059	0.2941	16	0.941
≥1.4 to <1.6	0	0.000	0.0000	16	0.941
≥1.6 to <1.8	0	0.000	0.0000	16	0.941
≥1.8 to <2	0	0.000	0.0000	16	0.941
≥2 to <2.2	0	0.000	0.0000	16	0.941
≥2.2 to <2.4	0	0.000	0.0000	16	0.941
≥2.4 to <2.6	1	0.059	0.2941	17	1.000

N		17					
	Mean	SE	SD	Variance	Skewness	Kurtosis	
SOR	0.892701529	0.104741997	0.431862317	0.186505061	3.2	11.21	
	Minimum	1st quartile	Median	3rd quartile	Maximum	IQR	
SOR	0.58604469	0.686650939	0.762208656	0.882461048	2.43287556	0.195810109	
	Quantile	SOR					
	0.050	0.597326520					
	0.950	2.206986411					



**BARC LLRBS FSSR**  
**Appendix 10**

**Class 1 SSU 02**

**WRS Test**

**Wilcoxon Rank Sum Test**  
**BARC SU: C1\_SSU\_02**

Data	Area	RA Data + DCGL	Ranks	RA Ranks
0.825706805	RA	1.825706805	19	19
0.921380538	RA	1.921380538	26	26
0.873495699	RA	1.873495699	25	25
0.846944061	RA	1.846944061	22	22
1.157740287	RA	2.157740287	35	35
0.841743122	RA	1.841743122	20	20
0.934067157	RA	1.934067157	27	27
1.13009195	RA	2.13009195	34	34
0.870092312	RA	1.870092312	24	24
0.846418527	RA	1.846418527	21	21
0.767855247	RA	1.767855247	17	17
1.079295965	RA	2.079295965	33	33
0.851102683	RA	1.851102683	23	23
0.820641368	RA	1.820641368	18	18
1.025772216	RA	2.025772216	29	29
1.065078933	RA	2.065078933	32	32
1.02595448	RA	2.02595448	30	30
1.026344395	RA	2.026344395	31	31
0.957934772	RA	1.957934772	28	28
1.332832267	RA	2.332832267	36	36
0.786551275	SU	0.786551275	11	0
0.688142055	SU	0.688142055	5	0
1.30342983	SU	1.30342983	16	0
0.808560653	SU	0.808560653	12	0
0.586044694	SU	0.586044694	1	0
0.739743823	SU	0.739743823	7	0
0.741163138	SU	0.741163138	8	0
1.041329252	SU	1.041329252	15	0
0.733755666	SU	0.733755666	6	0
0.854510337	SU	0.854510337	13	0
0.938362471	SU	0.938362471	14	0
2.432875557	SU	2.432875557	37	0
0.772966313	SU	0.772966313	10	0
0.683668706	SU	0.683668706	4	0
0.660159746	SU	0.660159746	3	0
0.642453823	SU	0.642453823	2	0
0.762208656	SU	0.762208656	9	0
Sum =			703	530
DCGL	1	(same units as measurement results)		
<i>m</i>	20	<div> <div>Passes WRS Test</div> <div>See App. 16, Elevated Measurement Comparison (EMC)</div> </div>		
<i>n</i>	17			
<i>z</i>	1.65			
<i>WRS<sub>crit</sub></i>	434			
<i>W<sub>r</sub></i>	530			

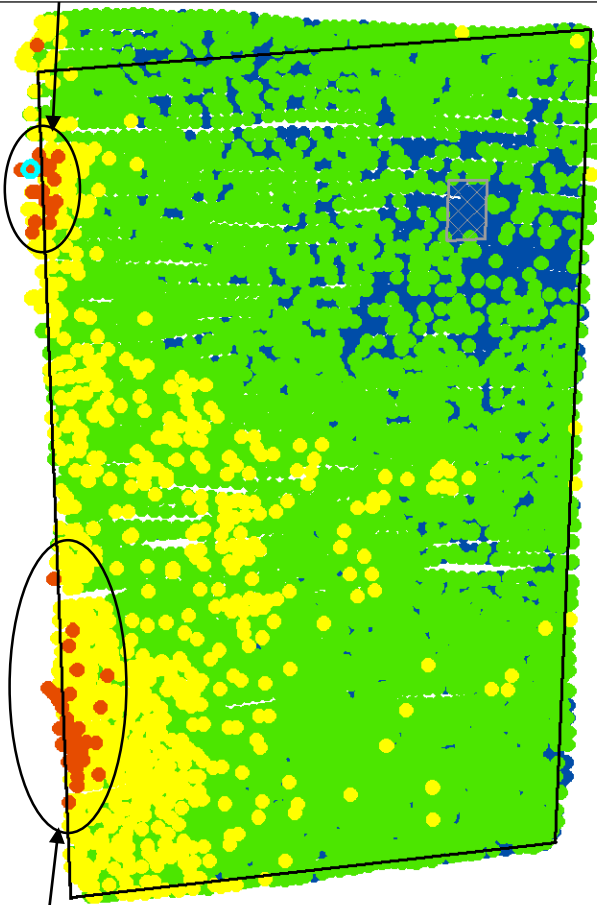
# BARC LLRBS FSSR Appendix 10

Class 1 SSU 02

Scan Plot

Class 1  
Stockpile Survey Unit 02  
Initial Scan

Location 1  
At the surface, maximum gamma activity was recorded at 17,200 cpm (highlighted by the light blue circle). Background activity for this location fluctuated between 7,000 and 9,000 cpm.



Location 2  
At the surface, maximum gamma activity was recorded in excess of 14,119 cpm but less than 17,220 cpm. Background activity for this location fluctuated between 7,000 and 9,000 cpm.



During the initial gamma walkover survey intermodal containers loaded with waste were staged along the west boundary of the Laydown Area.

## Legend

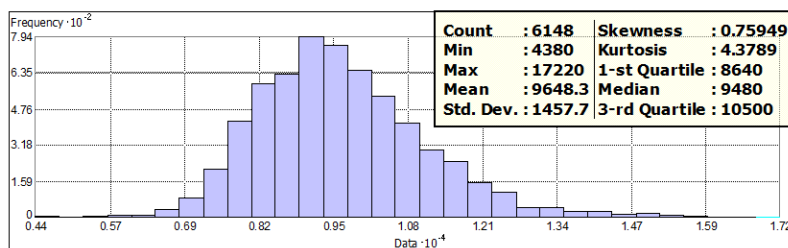
- Laydown Area B
- Well Plate
- Soil Survey Unit 02 (21,706.1 ft<sup>2</sup>)

## FIDLER Gross CPM

- 4,380 - 8,269
- 8,270 - 11,193
- 11,194 - 14,118
- 14,119 - 17,220

NOTE: The data presented in this drawing has been differentially corrected.

## Data Collected 10/03/2013



Laydown Area B, Class 1, SSU02  
Beltsville, MD

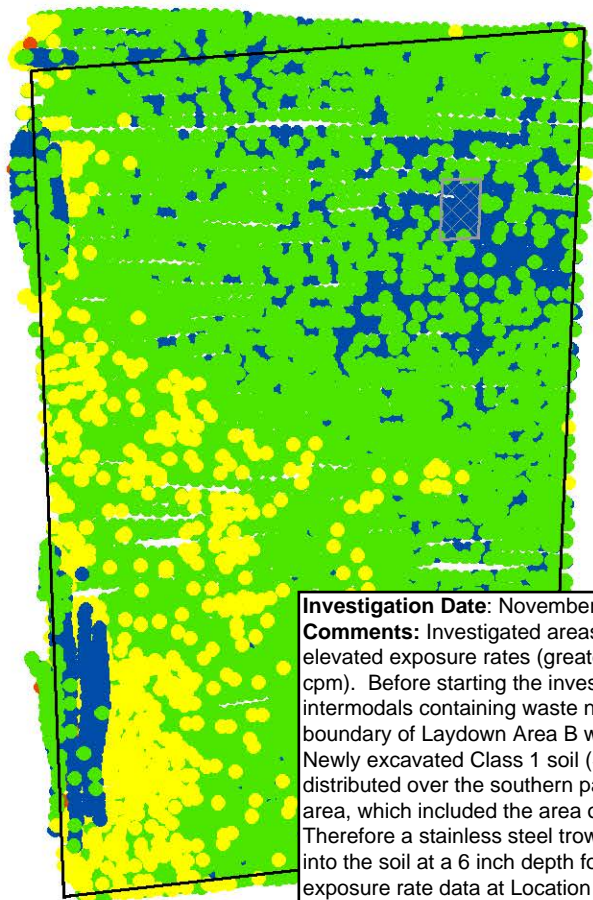
	Date	10/24/13
	Drawing	13100401.c

# BARC LLRBS FSSR Appendix 10

Class 1 SSU 02

Scan Plot




Class 1  
Stockpile Survey Unit 02  
Updated Scan







**Investigation Date:** November 04, 2013  
**Comments:** Investigated areas exhibiting elevated exposure rates (greater than 14,119 cpm). Before starting the investigation the intermodals containing waste near the west boundary of Laydown Area B were removed. Newly excavated Class 1 soil (SSU03) was distributed over the southern part of the laydown area, which included the area over Location 2. Therefore a stainless steel trowel was used to dig into the soil at a 6 inch depth for collection of exposure rate data at Location 2. New survey data was collected in Location 1 and Location 2 and substitutes for the initial survey data. Analysis indicates that exposure rates at Location 1 and Location 2 are well within background fluctuations. Therefore, no removal of soil from these areas was required.






## Legend

-  Laydown Area B
-  Well Plate
-  Soil Survey Unit 02 (21,706.1 ft<sup>2</sup>)

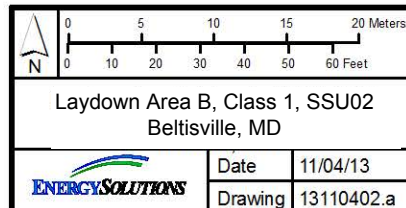
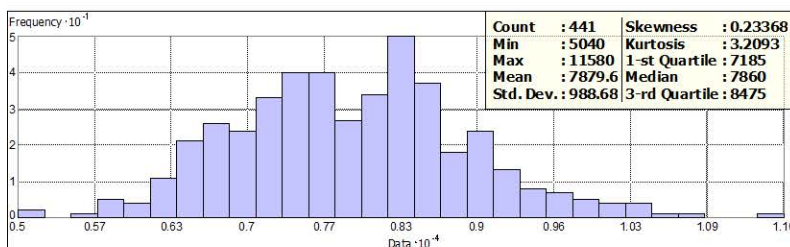
## FIDLER Gross CPM

-  4,380 - 8,269
-  8,270 - 11,193
-  11,194 - 14,118
-  14,119 - 17,220

## FIDLER Gross CPM

-  5,040 - 8,269
-  8,270 - 11,193
-  11,194 - 11,580

Data Collected 11/04/2013



BARC LLRBS FSSR Appendix 10													Individual Sample Results					
Class 1 SSU 02																		
Sample ID	Matrix	Collected	Analyzed	Method	Analyte	CAS	Result	TES Result	Unit	% Uncertainty	Footnotes	RL/CRDL	MDL/MDA	DCGL	Ratio	RA Mean	Net Result	Net Ratio
BLT-SSU-02-C1-SO-01	Solid	7/29/2014 13:40	8/19/2014 4:54	EERF C-01-1	C-14	14762-75-5	-0.0134	0.767	pCi/g	0.448	U	5	0.767	21	0.037	1.005	(0.238)	0
BLT-SSU-02-C1-SO-01	Solid	7/29/2014 13:40	8/13/2014 17:45	TAL-STL ST-RC-0036	Cl-36	13981-43-6	0.154	0.364	pCi/g	0.219	U	1	0.364	13.2	0.028	0.510	(0.146)	0
BLT-SSU-02-C1-SO-01	Solid	7/29/2014 13:40	8/26/2014 21:52	EPA 901.1	Cs-137	10045-97-3	0	0.0526	pCi/g	0.0171	U	0.2	0.0526	16.9	0.003	0.096	(0.044)	0
BLT-SSU-02-C1-SO-01	Solid	7/29/2014 13:40	8/20/2014 4:24	EPA 906.0	H-3	10028-17-8	1.1	1.1	pCi/g	0.339		1	0.389	121	0.009	0.414	0.686	0.006
BLT-SSU-02-C1-SO-01	Solid	7/29/2014 13:40	8/23/2014 20:36	TAL-STL ST-RC-0055	Ni-63	13981-37-8	2.43	4.72	pCi/g	2.85	U	5	4.72	77954	0.000	1.889	2.831	0.000
BLT-SSU-02-C1-SO-01	Solid	7/29/2014 13:40	8/26/2014 21:52	EPA 901.1	Pb-210	14255-04-0	0.388	0.78	pCi/g	0.466	U	1	0.78	1.9	0.411	0.907	(0.127)	0
BLT-SSU-02-C1-SO-01	Solid	7/29/2014 13:40	8/26/2014 21:52	EPA 901.1	Ra-226	13982-63-3	0.575	0.575	pCi/g	0.107		0.1	0.0578	2.2	0.261	0.771	(0.196)	0
BLT-SSU-02-C1-SO-01	Solid	7/29/2014 13:40	8/21/2014 16:17	DOE 905.0	Sr-90	STL02023	0.174	0.18	pCi/g	0.118	U	1	0.18	4.7	0.038	0.172	0.008	0.002
													BLT-SSU-02-C1-SO-01	SOR	0.787		Net SOR	0.007
LT-SSU-02-C1-SO-01-FD04	Solid	7/29/2014 13:40	8/19/2014 6:02	EERF C-01-1	C-14	14762-75-5	0.281	0.754	pCi/g	0.456	U	5	0.754	21	0.036	1.005	(0.251)	0
LT-SSU-02-C1-SO-01-FD04	Solid	7/29/2014 13:40	8/13/2014 17:45	TAL-STL ST-RC-0036	Cl-36	13981-43-6	-0.00985	0.367	pCi/g	0.211	U	1	0.367	13.2	0.028	0.510	(0.143)	0
LT-SSU-02-C1-SO-01-FD04	Solid	7/29/2014 13:40	8/26/2014 21:50	EPA 901.1	Cs-137	10045-97-3	0.0137	0.0304	pCi/g	0.0184	U	0.2	0.0304	16.9	0.002	0.096	(0.066)	0
LT-SSU-02-C1-SO-01-FD04	Solid	7/29/2014 13:40	8/20/2014 4:47	EPA 906.0	H-3	10028-17-8	1.13	1.13	pCi/g	0.348		1	0.4	121	0.009	0.414	0.716	0.006
LT-SSU-02-C1-SO-01-FD04	Solid	7/29/2014 13:40	8/23/2014 22:38	TAL-STL ST-RC-0055	Ni-63	13981-37-8	3.34	4.98	pCi/g	2.96	U	5	4.98	77954	0.000	1.889	3.091	0.000
LT-SSU-02-C1-SO-01-FD04	Solid	7/29/2014 13:40	8/26/2014 21:50	EPA 901.1	Pb-210	14255-04-0	0.554	0.554	pCi/g	0.395		1	0.541	1.9	0.292	0.907	(0.353)	0
LT-SSU-02-C1-SO-01-FD04	Solid	7/29/2014 13:40	8/26/2014 21:50	EPA 901.1	Ra-226	13982-63-3	0.607	0.607	pCi/g	0.0967		0.1	0.0447	2.2	0.276	0.771	(0.164)	0
LT-SSU-02-C1-SO-01-FD04	Solid	7/29/2014 13:40	8/21/2014 16:17	DOE 905.0	Sr-90	STL02023	0.161	0.215	pCi/g	0.136	U	1	0.215	4.7	0.046	0.172	0.043	0.009
													BLT-SSU-02-C1-SO-01-FD04	SOR	0.688		Net SOR	0.015
BLT-SSU-02-C1-SO-02	Solid	10/15/2013 10:40	10/28/2013 0:28	EERF C-01-1	C-14	14762-75-5	0	1.61	pCi/g	0.923	U	5	1.61	21	0.077	1.005	0.605	0.029
BLT-SSU-02-C1-SO-02	Solid	10/15/2013 10:40	11/5/2013 7:17	TAL-STL STL-RC-0036	Cl-36	13981-43-6	-0.165	0.467	pCi/g	0.247	U	1	0.467	13.2	0.035	0.510	(0.043)	0
BLT-SSU-02-C1-SO-02	Solid	10/15/2013 10:40	11/8/2013 2:24	EPA 901.1	Cs-137	10045-97-3	0.0106	0.0259	pCi/g	0.0157	U	0.2	0.0259	16.9	0.002	0.096	(0.070)	0
BLT-SSU-02-C1-SO-02	Solid	10/15/2013 10:40	11/5/2013 11:12	EPA 906.0	H-3	10028-17-8	0.0286	0.444	pCi/g	0.246	U	1	0.444	121	0.004	0.414	0.030	0.000
BLT-SSU-02-C1-SO-02	Solid	10/15/2013 10:40	10/31/2013 4:30	TAL-STL STL-RC-0055	Ni-63	13981-37-8	-1.2	4.76	pCi/g	2.74	U	5	4.76	77954	0.000	1.889	2.871	0.000
BLT-SSU-02-C1-SO-02	Solid	10/15/2013 10:40	11/8/2013 2:24	EPA 901.1	Pb-210	14255-04-0	1.28	1.28	pCi/g	0.587		1	0.713	1.9	0.674	0.907	0.373	0.196
BLT-SSU-02-C1-SO-02	Solid	10/15/2013 10:40	11/8/2013 2:24	EPA 901.1	Ra-226	13982-63-3	1.03	1.03	pCi/g	0.128		0.1	0.052	2.2	0.468	0.771	0.259	0.118
BLT-SSU-02-C1-SO-02	Solid	10/15/2013 10:40	10/29/2013 16:45	DOE 905.0	Sr-90	STL02023	-0.0644	0.208	pCi/g	0.11	U	1	0.208	4.7	0.044	0.172	0.036	0.008
													BLT-SSU-02-C1-SO-02	SOR	1.303		Net SOR	0.351
BLT-SSU-02-C1-SO-03	Solid	7/29/2014 13:55	8/19/2014 7:10	EERF C-01-1	C-14	14762-75-5	1.54	1.54	pCi/g	0.54		5	0.772	21	0.073	1.005	0.535	0.025
BLT-SSU-02-C1-SO-03	Solid	7/29/2014 13:55	8/14/2014 7:45	TAL-STL ST-RC-0036	Cl-36	13981-43-6	0.011	0.388	pCi/g	0.225	U	1	0.388	13.2	0.029	0.510	(0.122)	0
BLT-SSU-02-C1-SO-03	Solid	7/29/2014 13:55	8/26/2014 21:51	EPA 901.1	Cs-137	10045-97-3	0.322	0.322	pCi/g	0.0562		0.2	0.026	16.9	0.019	0.096	0.226	0.013
BLT-SSU-02-C1-SO-03	Solid	7/29/2014 13:55	8/20/2014 5:10	EPA 906.0	H-3	10028-17-8	5.66	5.66	pCi/g	0.781		1	0.397	121	0.047	0.414	5.246	0.043
BLT-SSU-02-C1-SO-03	Solid	7/29/2014 13:55	8/24/2014 0:39	TAL-STL ST-RC-0055	Ni-63	13981-37-8	4.25	4.54	pCi/g	2.77	U	5	4.54	77954	0.000	1.889	2.651	0.000
BLT-SSU-02-C1-SO-03	Solid	7/29/2014 13:55	8/26/2014 21:51	EPA 901.1	Pb-210	14255-04-0	0.327	0.68	pCi/g	0.404	U	1	0.68	1.9	0.358	0.907	(0.227)	0
BLT-SSU-02-C1-SO-03	Solid	7/29/2014 13:55	8/26/2014 21:51	EPA 901.1	Ra-226	13982-63-3	0.518	0.518	pCi/g	0.0873		0.1	0.0366	2.2	0.235	0.771	(0.253)	0
BLT-SSU-02-C1-SO-03	Solid	7/29/2014 13:55	8/21/2014 16:17	DOE 905.0	Sr-90	STL02023	0.179	0.219	pCi/g	0.139	U	1	0.219	4.7	0.047	0.172	0.047	0.010
													BLT-SSU-02-C1-SO-03	SOR	0.809		Net SOR	0.092
BLT-SSU-02-C1-SO-04	Solid	7/29/2014 11:07	8/19/2014 8:18	EERF C-01-1	C-14	14762-75-5	0.113	0.768	pCi/g	0.455	U	5	0.768	21	0.037	1.005	(0.237)	0
BLT-SSU-02-C1-SO-04	Solid	7/29/2014 11:07	8/14/2014 7:45	TAL-STL ST-RC-0036	Cl-36	13981-43-6	0.0461	0.419	pCi/g	0.246	U	1	0.419	13.2	0.032	0.510	(0.091)	0
BLT-SSU-02-C1-SO-04	Solid	7/29/2014 11:07	8/26/2014 21:52	EPA 901.1	Cs-137	10045-97-3	0.134	0.134	pCi/g	0.0283		0.2	0.0179	16.9	0.008	0.096	0.038	0.002
BLT-SSU-02-C1-SO-04	Solid	7/29/2014 11:07	8/20/2014 5:33	EPA 906.0	H-3	10028-17-8	1.65	1.65	pCi/g	0.401		1	0.398	121	0.014	0.414	1.236	0.010
BLT-SSU-02-C1-SO-04	Solid	7/29/2014 11:07	8/24/2014 2:41	TAL-STL ST-RC-0055	Ni-63	13981-37-8	5.98	5.98	pCi/g	2.96		5	4.69	77954	0.000	1.889	4.091	0.000
BLT-SSU-02-C1-SO-04	Solid	7/29/2014 11:07	8/26/2014 21:52	EPA 901.1	Pb-210	14255-04-0	0.474	0.474	pCi/g	0.33		1	0.468	1.9	0.249	0.907	(0.433)	0
BLT-SSU-02-C1-SO-04	Solid	7/29/2014 11:07	8/26/2014 21:52	EPA 901.1	Ra-226	13982-63-3	0.426	0.426	pCi/g	0.0804		0.1	0.0501	2.2	0.194	0.771	(0.345)	0
BLT-SSU-02-C1-SO-04	Solid	7/29/2014 11:07	8/21/2014 16:17	DOE 905.0	Sr-90	STL02023	-0.1	0.249	pCi/g	0.131	U	1	0.249	4.7	0.053	0.172	0.077	0.016
													BLT-SSU-02-C1-SO-04	SOR	0.586		Net SOR	0.029



BARC LLRBS FSSR Appendix 10													Individual Sample Results					
Class 1 SSU 02																		
Sample ID	Matrix	Collected	Analyzed	Method	Analyte	CAS	Result	TES Result	Unit	% Uncertainty	Footnotes	RL/CRDL	MDL/MDA	DCGL	Ratio	RA Mean	Net Result	Net Ratio
BLT-SSU-02-C1-SO-05	Solid	7/29/2014 11:20	8/19/2014 9:26	EERF C-01-1	C-14	14762-75-5	-0.113	0.759	pCi/g	0.442	U	5	0.759	21	0.036	1.005	(0.246)	0
BLT-SSU-02-C1-SO-05	Solid	7/29/2014 11:20	8/22/2014 13:04	TAL-STL ST-RC-0036	Cl-36	13981-43-6	0.114	0.449	pCi/g	0.262	U	1	0.449	13.2	0.034	0.510	(0.061)	0
BLT-SSU-02-C1-SO-05	Solid	7/29/2014 11:20	8/26/2014 10:41	EPA 901.1	Cs-137	10045-97-3	0.0126	0.0273	pCi/g	0.0166	U	0.2	0.0273	16.9	0.002	0.096	(0.069)	0
BLT-SSU-02-C1-SO-05	Solid	7/29/2014 11:20	8/20/2014 12:21	EPA 906.0	H-3	10028-17-8	0.404	0.496	pCi/g	0.313	U	1	0.496	121	0.004	0.414	0.082	0.001
BLT-SSU-02-C1-SO-05	Solid	7/29/2014 11:20	8/24/2014 4:43	TAL-STL ST-RC-0055	Ni-63	13981-37-8	8.51	8.51	pCi/g	3.31		5	5.06	77954	0.000	1.889	6.621	0.000
BLT-SSU-02-C1-SO-05	Solid	7/29/2014 11:20	8/26/2014 10:41	EPA 901.1	Pb-210	14255-04-0	0.76	0.76	pCi/g	0.413		1	0.506	1.9	0.400	0.907	(0.147)	0
BLT-SSU-02-C1-SO-05	Solid	7/29/2014 11:20	8/26/2014 10:41	EPA 901.1	Ra-226	13982-63-3	0.489	0.489	pCi/g	0.0846		0.1	0.0489	2.2	0.222	0.771	(0.282)	0
BLT-SSU-02-C1-SO-05	Solid	7/29/2014 11:20	8/21/2014 16:18	DOE 905.0	Sr-90	STL02023	0.193	0.195	pCi/g	0.128	U	1	0.195	4.7	0.041	0.172	0.023	0.005
													BLT-SSU-02-C1-SO-05	SOR	0.740		Net SOR	0.006
BLT-SSU-02-C1-SO-06	Solid	7/29/2014 10:55	8/19/2014 10:34	EERF C-01-1	C-14	14762-75-5	0.259	0.765	pCi/g	0.459	U	5	0.765	21	0.036	1.005	(0.240)	0
BLT-SSU-02-C1-SO-06	Solid	7/29/2014 10:55	8/22/2014 13:04	TAL-STL ST-RC-0036	Cl-36	13981-43-6	0.282	0.478	pCi/g	0.294	U	1	0.478	13.2	0.036	0.510	(0.032)	0
BLT-SSU-02-C1-SO-06	Solid	7/29/2014 10:55	8/26/2014 10:43	EPA 901.1	Cs-137	10045-97-3	0.00725	0.0301	pCi/g	0.0174	U	0.2	0.0301	16.9	0.002	0.096	(0.066)	0
BLT-SSU-02-C1-SO-06	Solid	7/29/2014 10:55	8/20/2014 13:09	EPA 906.0	H-3	10028-17-8	0.474	0.481	pCi/g	0.311	U	1	0.481	121	0.004	0.414	0.067	0.001
BLT-SSU-02-C1-SO-06	Solid	7/29/2014 10:55	8/24/2014 6:44	TAL-STL ST-RC-0055	Ni-63	13981-37-8	5.81	5.81	pCi/g	3.34		5	5.39	77954	0.000	1.889	3.921	0.000
BLT-SSU-02-C1-SO-06	Solid	7/29/2014 10:55	8/26/2014 10:43	EPA 901.1	Pb-210	14255-04-0	0.737	0.737	pCi/g	0.412		1	0.535	1.9	0.388	0.907	(0.170)	0
BLT-SSU-02-C1-SO-06	Solid	7/29/2014 10:55	8/26/2014 10:43	EPA 901.1	Ra-226	13982-63-3	0.466	0.466	pCi/g	0.0941		0.1	0.0639	2.2	0.212	0.771	(0.305)	0
BLT-SSU-02-C1-SO-06	Solid	7/29/2014 10:55	8/21/2014 16:25	DOE 905.0	Sr-90	STL02023	0.296	0.296	pCi/g	0.152		1	0.223	4.7	0.063	0.172	0.124	0.026
													BLT-SSU-02-C1-SO-06	SOR	0.741		Net SOR	0.027
BLT-SSU-02-C1-SO-07	Solid	7/29/2014 10:40	8/19/2014 11:42	EERF C-01-1	C-14	14762-75-5	1.12	1.12	pCi/g	0.505		5	0.759	21	0.053	1.005	0.115	0.005
BLT-SSU-02-C1-SO-07	Solid	7/29/2014 10:40	8/22/2014 13:04	TAL-STL ST-RC-0036	Cl-36	13981-43-6	0.374	0.46	pCi/g	0.293	U	1	0.46	13.2	0.035	0.510	(0.050)	0
BLT-SSU-02-C1-SO-07	Solid	7/29/2014 10:40	8/26/2014 10:49	EPA 901.1	Cs-137	10045-97-3	0	0.0568	pCi/g	0.0212	U	0.2	0.0568	16.9	0.003	0.096	(0.039)	0
BLT-SSU-02-C1-SO-07	Solid	7/29/2014 10:40	8/20/2014 13:56	EPA 906.0	H-3	10028-17-8	0.526	0.526	pCi/g	0.315		1	0.48	121	0.004	0.414	0.112	0.001
BLT-SSU-02-C1-SO-07	Solid	7/29/2014 10:40	8/24/2014 8:46	TAL-STL ST-RC-0055	Ni-63	13981-37-8	3.29	4.73	pCi/g	2.84	U	5	4.73	77954	0.000	1.889	2.841	0.000
BLT-SSU-02-C1-SO-07	Solid	7/29/2014 10:40	8/26/2014 10:49	EPA 901.1	Pb-210	14255-04-0	0.834	0.834	pCi/g	0.637		1	0.798	1.9	0.439	0.907	(0.073)	0
BLT-SSU-02-C1-SO-07	Solid	7/29/2014 10:40	8/26/2014 10:49	EPA 901.1	Ra-226	13982-63-3	0.999	0.999	pCi/g	0.151		0.1	0.0643	2.2	0.454	0.771	0.228	0.103
BLT-SSU-02-C1-SO-07	Solid	7/29/2014 10:40	8/21/2014 16:25	DOE 905.0	Sr-90	STL02023	0.0193	0.246	pCi/g	0.139	U	1	0.246	4.7	0.052	0.172	0.074	0.016
													BLT-SSU-02-C1-SO-07	SOR	1.041		Net SOR	0.126
BLT-SSU-02-C1-SO-08	Solid	7/29/2014 10:16	8/19/2014 12:50	EERF C-01-1	C-14	14762-75-5	0.0491	0.761	pCi/g	0.448	U	5	0.761	21	0.036	1.005	(0.244)	0
BLT-SSU-02-C1-SO-08	Solid	7/29/2014 10:16	8/22/2014 13:04	TAL-STL ST-RC-0036	Cl-36	13981-43-6	0.145	0.481	pCi/g	0.283	U	1	0.481	13.2	0.036	0.510	(0.029)	0
BLT-SSU-02-C1-SO-08	Solid	7/29/2014 10:16	8/26/2014 12:53	EPA 901.1	Cs-137	10045-97-3	0.0122	0.0357	pCi/g	0.0212	U	0.2	0.0357	16.9	0.002	0.096	(0.061)	0
BLT-SSU-02-C1-SO-08	Solid	7/29/2014 10:16	8/20/2014 14:19	EPA 906.0	H-3	10028-17-8	0.437	0.477	pCi/g	0.305	U	1	0.477	121	0.004	0.414	0.063	0.001
BLT-SSU-02-C1-SO-08	Solid	7/29/2014 10:16	8/24/2014 10:48	TAL-STL ST-RC-0055	Ni-63	13981-37-8	4.25	4.3	pCi/g	2.65	U	5	4.3	77954	0.000	1.889	2.411	0.000
BLT-SSU-02-C1-SO-08	Solid	7/29/2014 10:16	8/26/2014 12:53	EPA 901.1	Pb-210	14255-04-0	0.281	0.662	pCi/g	0.39	U	1	0.662	1.9	0.348	0.907	(0.245)	0
BLT-SSU-02-C1-SO-08	Solid	7/29/2014 10:16	8/26/2014 12:53	EPA 901.1	Ra-226	13982-63-3	0.563	0.563	pCi/g	0.105		0.1	0.0606	2.2	0.256	0.771	(0.208)	0
BLT-SSU-02-C1-SO-08	Solid	7/29/2014 10:16	8/21/2014 16:25	DOE 905.0	Sr-90	STL02023	0.112	0.238	pCi/g	0.144	U	1	0.238	4.7	0.051	0.172	0.066	0.014
													BLT-SSU-02-C1-SO-08	SOR	0.734		Net SOR	0.015
BLT-SSU-02-C1-SO-09	Solid	7/29/2014 9:44	8/19/2014 13:58	EERF C-01-1	C-14	14762-75-5	0.428	0.774	pCi/g	0.473	U	5	0.774	21	0.037	1.005	(0.231)	0
BLT-SSU-02-C1-SO-09	Solid	7/29/2014 9:44	8/22/2014 13:04	TAL-STL ST-RC-0036	Cl-36	13981-43-6	0.00736	0.471	pCi/g	0.265	U	1	0.471	13.2	0.036	0.510	(0.039)	0
BLT-SSU-02-C1-SO-09	Solid	7/29/2014 9:44	8/26/2014 19:48	EPA 901.1	Cs-137	10045-97-3	-0.0117	0.0497	pCi/g	0.0628	U	0.2	0.0497	16.9	0.003	0.096	(0.047)	0
BLT-SSU-02-C1-SO-09	Solid	7/29/2014 9:44	8/20/2014 14:43	EPA 906.0	H-3	10028-17-8	1.22	1.22	pCi/g	0.373		1	0.48	121	0.010	0.414	0.806	0.007
BLT-SSU-02-C1-SO-09	Solid	7/29/2014 9:44	8/24/2014 12:49	TAL-STL ST-RC-0055	Ni-63	13981-37-8	6.43	6.43	pCi/g	2.99		5	4.71	77954	0.000	1.889	4.541	0.000
BLT-SSU-02-C1-SO-09	Solid	7/29/2014 9:44	8/26/2014 19:48	EPA 901.1	Pb-210	14255-04-0	0.478	0.935	pCi/g	0.601	U	1	0.935	1.9	0.492	0.907	0.028	0.015
BLT-SSU-02-C1-SO-09	Solid	7/29/2014 9:44	8/26/2014 19:48	EPA 901.1	Ra-226	13982-63-3	0.497	0.497	pCi/g	0.0998		0.1	0.0739	2.2	0.226	0.771	(0.274)	0
BLT-SSU-02-C1-SO-09	Solid	7/29/2014 9:44	8/21/2014 16:26	DOE 905.0	Sr-90	STL02023	0.117	0.239	pCi/g	0.145	U	1	0.239	4.7	0.051	0.172	0.067	0.014
													BLT-SSU-02-C1-SO-09	SOR	0.855		Net SOR	0.036

BARC LLRBS FSSR Appendix 10													Individual Sample Results					
Class 1 SSU 02																		
Sample ID	Matrix	Collected	Analyzed	Method	Analyte	CAS	Result	TES Result	Unit	% Uncertainty	Footnotes	RL/CRDL	MDL/MDA	DCGL	Ratio	RA Mean	Net Result	Net Ratio
BLT-SSU-02-C1-SO-10	Solid	7/29/2014 10:03	8/19/2014 15:06	EERF C-01-1	C-14	14762-75-5	0.86	0.86	pCi/g	0.497		5	0.774	21	0.041	1.005	(0.145)	0
BLT-SSU-02-C1-SO-10	Solid	7/29/2014 10:03	8/22/2014 13:04	TAL-STL ST-RC-0036	Cl-36	13981-43-6	0.665	0.665	pCi/g	0.335		1	0.492	13.2	0.050	0.510	0.155	0.012
BLT-SSU-02-C1-SO-10	Solid	7/29/2014 10:03	8/26/2014 14:15	EPA 901.1	Cs-137	10045-97-3	-0.00458	0.0431	pCi/g	0.0243	U	0.2	0.0431	16.9	0.003	0.096	(0.053)	0
BLT-SSU-02-C1-SO-10	Solid	7/29/2014 10:03	8/20/2014 15:07	EPA 906.0	H-3	10028-17-8	0.866	0.866	pCi/g	0.344		1	0.482	121	0.007	0.414	0.452	0.004
BLT-SSU-02-C1-SO-10	Solid	7/29/2014 10:03	8/24/2014 14:51	TAL-STL ST-RC-0055	Ni-63	13981-37-8	3.03	4.67	pCi/g	2.79	U	5	4.67	77954	0.000	1.889	2.781	0.000
BLT-SSU-02-C1-SO-10	Solid	7/29/2014 10:03	8/26/2014 14:15	EPA 901.1	Pb-210	14255-04-0	-0.207	0.879	pCi/g	8.3	U	1	0.879	1.9	0.463	0.907	(0.028)	0
BLT-SSU-02-C1-SO-10	Solid	7/29/2014 10:03	8/26/2014 14:15	EPA 901.1	Ra-226	13982-63-3	0.717	0.717	pCi/g	0.124		0.1	0.0606	2.2	0.326	0.771	(0.054)	0
BLT-SSU-02-C1-SO-10	Solid	7/29/2014 10:03	8/21/2014 16:26	DOE 905.0	Sr-90	STL02023	0.147	0.229	pCi/g	0.142	U	1	0.229	4.7	0.049	0.172	0.057	0.012
													BLT-SSU-02-C1-SO-10	SOR	0.938		Net SOR	0.028
BLT-SSU-02-C1-SO-11	Solid	7/29/2014 9:30	8/19/2014 16:14	EERF C-01-1	C-14	14762-75-5	0.546	0.784	pCi/g	0.485	U	5	0.784	21	0.037	1.005	(0.221)	0
BLT-SSU-02-C1-SO-11	Solid	7/29/2014 9:30	8/22/2014 13:04	TAL-STL ST-RC-0036	Cl-36	13981-43-6	1.02	1.02	pCi/g	0.367		1	0.496	13.2	0.077	0.510	0.510	0.039
BLT-SSU-02-C1-SO-11	Solid	7/29/2014 9:30	8/26/2014 14:06	EPA 901.1	Cs-137	10045-97-3	0.0067	0.0372	pCi/g	0.0216	U	0.2	0.0372	16.9	0.002	0.096	(0.059)	0
BLT-SSU-02-C1-SO-11	Solid	7/29/2014 9:30	8/20/2014 15:30	EPA 906.0	H-3	10028-17-8	0.465	0.48	pCi/g	0.31	U	1	0.48	121	0.004	0.414	0.066	0.001
BLT-SSU-02-C1-SO-11	Solid	7/29/2014 9:30	8/24/2014 16:53	TAL-STL ST-RC-0055	Ni-63	13981-37-8	2.89	4.22	pCi/g	2.53	U	5	4.22	77954	0.000	1.889	2.331	0.000
BLT-SSU-02-C1-SO-11	Solid	7/29/2014 9:30	8/26/2014 14:06	EPA 901.1	Pb-210	14255-04-0	2.36	2.36	pCi/g	0.686		1	0.748	1.9	1.242	0.907	1.453	0.765
BLT-SSU-02-C1-SO-11	Solid	7/29/2014 9:30	8/26/2014 14:06	EPA 901.1	Ra-226	13982-63-3	2.22	2.22	pCi/g	0.264		0.1	0.0609	2.2	1.009	0.771	1.449	0.658
BLT-SSU-02-C1-SO-11	Solid	7/29/2014 9:30	8/21/2014 16:26	DOE 905.0	Sr-90	STL02023	0.286	0.286	pCi/g	0.144		1	0.21	4.7	0.061	0.172	0.114	0.024
													BLT-SSU-02-C1-SO-11	SOR	2.433		Net SOR	1.487
BLT-SSU-02-C1-SO-12	Solid	7/29/2014 9:15	8/19/2014 17:22	EERF C-01-1	C-14	14762-75-5	0.437	0.787	pCi/g	0.48	U	5	0.787	21	0.037	1.005	(0.218)	0
BLT-SSU-02-C1-SO-12	Solid	7/29/2014 9:15	8/25/2014 15:37	TAL-STL ST-RC-0036	Cl-36	13981-43-6	0.412	0.525	pCi/g	0.331	U	1	0.525	13.2	0.040	0.510	0.015	0.001
BLT-SSU-02-C1-SO-12	Solid	7/29/2014 9:15	8/26/2014 14:10	EPA 901.1	Cs-137	10045-97-3	-0.00537	0.0366	pCi/g	0.0209	U	0.2	0.0366	16.9	0.002	0.096	(0.060)	0
BLT-SSU-02-C1-SO-12	Solid	7/29/2014 9:15	8/20/2014 15:54	EPA 906.0	H-3	10028-17-8	0.613	0.613	pCi/g	0.313		1	0.462	121	0.005	0.414	0.199	0.002
BLT-SSU-02-C1-SO-12	Solid	7/29/2014 9:15	9/5/2014 0:32	TAL-STL ST-RC-0055	Ni-63	13981-37-8	1.94	4	pCi/g	2.4	U	5	4	77954	0.000	1.889	2.111	0.000
BLT-SSU-02-C1-SO-12	Solid	7/29/2014 9:15	8/26/2014 14:10	EPA 901.1	Pb-210	14255-04-0	0.423	0.727	pCi/g	0.439	U	1	0.727	1.9	0.383	0.907	(0.180)	0
BLT-SSU-02-C1-SO-12	Solid	7/29/2014 9:15	8/26/2014 14:10	EPA 901.1	Ra-226	13982-63-3	0.596	0.596	pCi/g	0.1		0.1	0.0481	2.2	0.271	0.771	(0.175)	0
BLT-SSU-02-C1-SO-12	Solid	7/29/2014 9:15	8/26/2014 18:54	DOE 905.0	Sr-90	STL02023	0.0865	0.164	pCi/g	0.1	U	1	0.164	4.7	0.035	0.172	(0.008)	0
													BLT-SSU-02-C1-SO-12	SOR	0.773		Net SOR	0.003
BLT-SSU-02-C1-SO-13	Solid	7/30/2014 7:40	8/19/2014 18:30	EERF C-01-1	C-14	14762-75-5	-0.0491	0.763	pCi/g	0.445	U	5	0.763	21	0.036	1.005	(0.242)	0
BLT-SSU-02-C1-SO-13	Solid	7/30/2014 7:40	8/25/2014 15:37	TAL-STL ST-RC-0036	Cl-36	13981-43-6	-0.197	0.562	pCi/g	0.304	U	1	0.562	13.2	0.043	0.510	0.052	0.004
BLT-SSU-02-C1-SO-13	Solid	7/30/2014 7:40	8/26/2014 14:09	EPA 901.1	Cs-137	10045-97-3	0.0236	0.0309	pCi/g	0.0199	U	0.2	0.0309	16.9	0.002	0.096	(0.065)	0
BLT-SSU-02-C1-SO-13	Solid	7/30/2014 7:40	8/20/2014 16:17	EPA 906.0	H-3	10028-17-8	0.162	0.482	pCi/g	0.287	U	1	0.482	121	0.004	0.414	0.068	0.001
BLT-SSU-02-C1-SO-13	Solid	7/30/2014 7:40	9/5/2014 4:36	TAL-STL ST-RC-0055	Ni-63	13981-37-8	1.79	4.87	pCi/g	2.93	U	5	4.87	77954	0.000	1.889	2.981	0.000
BLT-SSU-02-C1-SO-13	Solid	7/30/2014 7:40	8/26/2014 14:09	EPA 901.1	Pb-210	14255-04-0	0.681	0.681	pCi/g	0.426		1	0.559	1.9	0.358	0.907	(0.226)	0
BLT-SSU-02-C1-SO-13	Solid	7/30/2014 7:40	8/26/2014 14:09	EPA 901.1	Ra-226	13982-63-3	0.456	0.456	pCi/g	0.0823		0.1	0.0514	2.2	0.207	0.771	(0.315)	0
BLT-SSU-02-C1-SO-13	Solid	7/30/2014 7:40	8/26/2014 18:54	DOE 905.0	Sr-90	STL02023	0.097	0.156	pCi/g	0.0964	U	1	0.156	4.7	0.033	0.172	(0.016)	0
													BLT-SSU-02-C1-SO-13	SOR	0.684		Net SOR	0.005
BLT-SSU-02-C1-SO-14	Solid	7/29/2014 8:50	8/19/2014 19:38	EERF C-01-1	C-14	14762-75-5	0.392	0.766	pCi/g	0.467	U	5	0.766	21	0.036	1.005	(0.239)	0
BLT-SSU-02-C1-SO-14	Solid	7/29/2014 8:50	8/25/2014 15:37	TAL-STL ST-RC-0036	Cl-36	13981-43-6	0.00738	0.533	pCi/g	0.302	U	1	0.533	13.2	0.040	0.510	0.023	0.002
BLT-SSU-02-C1-SO-14	Solid	7/29/2014 8:50	8/26/2014 15:00	EPA 901.1	Cs-137	10045-97-3	-0.00269	0.0266	pCi/g	0.015	U	0.2	0.0266	16.9	0.002	0.096	(0.070)	0
BLT-SSU-02-C1-SO-14	Solid	7/29/2014 8:50	8/20/2014 16:41	EPA 906.0	H-3	10028-17-8	0.494	0.494	pCi/g	0.313		1	0.481	121	0.004	0.414	0.080	0.001
BLT-SSU-02-C1-SO-14	Solid	7/29/2014 8:50	9/5/2014 6:38	TAL-STL ST-RC-0055	Ni-63	13981-37-8	2.85	4.07	pCi/g	2.5	U	5	4.07	77954	0.000	1.889	2.181	0.000
BLT-SSU-02-C1-SO-14	Solid	7/29/2014 8:50	8/26/2014 15:00	EPA 901.1	Pb-210	14255-04-0	0.492	0.571	pCi/g	0.419	U	1	0.571	1.9	0.301	0.907	(0.336)	0
BLT-SSU-02-C1-SO-14	Solid	7/29/2014 8:50	8/26/2014 15:00	EPA 901.1	Ra-226	13982-63-3	0.537	0.537	pCi/g	0.0894		0.1	0.0481	2.2	0.244	0.771	(0.234)	0
BLT-SSU-02-C1-SO-14	Solid	7/29/2014 8:50	8/26/2014 18:54	DOE 905.0	Sr-90	STL02023	0.122	0.155	pCi/g	0.0984	U	1	0.155	4.7	0.033	0.172	(0.017)	0
													BLT-SSU-02-C1-SO-14	SOR	0.660		Net SOR	0.002

Sample ID	Matrix	Collected	Analyzed	Method	Analyte	CAS	Result	TES Result	Unit	% Uncertainty	Footnotes	RL/CRDL	MDL/MDA	DCGL	Ratio	RA Mean	Net Result	Net Ratio
BLT-SSU-02-C1-SO-15	Solid	7/29/2014 16:00	8/19/2014 20:46	EERF C-01-1	C-14	14762-75-5	0.167	0.773	pCi/g	0.46	U	5	0.773	21	0.037	1.005	(0.232)	0
BLT-SSU-02-C1-SO-15	Solid	7/29/2014 16:00	8/25/2014 15:37	TAL-STL ST-RC-0036	Cl-36	13981-43-6	-0.218	0.548	pCi/g	0.294	U	1	0.548	13.2	0.042	0.510	0.038	0.003
BLT-SSU-02-C1-SO-15	Solid	7/29/2014 16:00	8/26/2014 14:58	EPA 901.1	Cs-137	10045-97-3	-0.000152	0.0357	pCi/g	0.0197	U	0.2	0.0357	16.9	0.002	0.096	(0.061)	0
BLT-SSU-02-C1-SO-15	Solid	7/29/2014 16:00	8/20/2014 17:05	EPA 906.0	H-3	10028-17-8	0.425	0.469	pCi/g	0.301	U	1	0.469	121	0.004	0.414	0.055	0.000
BLT-SSU-02-C1-SO-15	Solid	7/29/2014 16:00	9/5/2014 8:39	TAL-STL ST-RC-0055	Ni-63	13981-37-8	0.854	4.69	pCi/g	2.78	U	5	4.69	77954	0.000	1.889	2.801	0.000
BLT-SSU-02-C1-SO-15	Solid	7/29/2014 16:00	8/26/2014 14:58	EPA 901.1	Pb-210	14255-04-0	0.633	0.633	pCi/g	0.473		1	0.602	1.9	0.333	0.907	(0.274)	0
BLT-SSU-02-C1-SO-15	Solid	7/29/2014 16:00	8/26/2014 14:58	EPA 901.1	Ra-226	13982-63-3	0.419	0.419	pCi/g	0.0867		0.1	0.0583	2.2	0.190	0.771	(0.352)	0
BLT-SSU-02-C1-SO-15	Solid	7/29/2014 16:00	8/26/2014 18:55	DOE 905.0	Sr-90	STL02023	0.0742	0.162	pCi/g	0.0977	U	1	0.162	4.7	0.034	0.172	(0.010)	0
BLT-SSU-02-C1-SO-15														SOR	0.642		Net SOR	0.003
BLT-SSU-02-C1-SO-16	Solid	7/30/2014 7:27	8/19/2014 21:54	EERF C-01-1	C-14	14762-75-5	0.424	0.771	pCi/g	0.471	U	5	0.771	21	0.037	1.005	(0.234)	0
BLT-SSU-02-C1-SO-16	Solid	7/30/2014 7:27	8/25/2014 15:37	TAL-STL ST-RC-0036	Cl-36	13981-43-6	-0.074	0.449	pCi/g	0.243	U	1	0.449	13.2	0.034	0.510	(0.061)	0
BLT-SSU-02-C1-SO-16	Solid	7/30/2014 7:27	8/26/2014 14:59	EPA 901.1	Cs-137	10045-97-3	0.016	0.0308	pCi/g	0.0189	U	0.2	0.0308	16.9	0.002	0.096	(0.065)	0
BLT-SSU-02-C1-SO-16	Solid	7/30/2014 7:27	8/20/2014 17:28	EPA 906.0	H-3	10028-17-8	0.52	0.52	pCi/g	0.316		1	0.486	121	0.004	0.414	0.106	0.001
BLT-SSU-02-C1-SO-16	Solid	7/30/2014 7:27	9/5/2014 10:41	TAL-STL ST-RC-0055	Ni-63	13981-37-8	0.838	4.75	pCi/g	2.8	U	5	4.75	77954	0.000	1.889	2.861	0.000
BLT-SSU-02-C1-SO-16	Solid	7/30/2014 7:27	8/26/2014 14:59	EPA 901.1	Pb-210	14255-04-0	0.686	0.686	pCi/g	0.384		1	0.524	1.9	0.361	0.907	(0.221)	0
BLT-SSU-02-C1-SO-16	Solid	7/30/2014 7:27	8/26/2014 14:59	EPA 901.1	Ra-226	13982-63-3	0.645	0.645	pCi/g	0.103		0.1	0.0497	2.2	0.293	0.771	(0.126)	0
BLT-SSU-02-C1-SO-16	Solid	7/30/2014 7:27	8/26/2014 18:55	DOE 905.0	Sr-90	STL02023	0.067	0.146	pCi/g	0.0876	U	1	0.146	4.7	0.031	0.172	(0.026)	0
BLT-SSU-02-C1-SO-16														SOR	0.762		Net SOR	0.001

**Final Status Survey Report  
Appendix 11  
Class 1 SSU-03  
Survey and Sample Results**

**Beltsville Agricultural Research Center (BARC)  
Low Level Radioactive Burial site (LLRBS)  
Beltsville, Maryland**



**Prepared for:**

U.S. Army Field Support Command  
Rock Island, Illinois

*Prepared by:*

***TPMC-EnergySolutions Environmental Services, LLC***

**Contract No. W52P1J-11-D-0001**





A histogram showing the frequency distribution of SOR values. The x-axis is labeled 'SOR' and ranges from 0.4 to 1.2. The y-axis is labeled 'Frequency' and ranges from 0 to 7. The histogram consists of six green bars with black outlines. A red normal distribution curve is overlaid on the histogram, peaking at a frequency of approximately 5.5 for an SOR value of about 0.75.

SOR Range	Frequency
0.5 - 0.6	2
0.6 - 0.7	2
0.7 - 0.8	7
0.8 - 0.9	3
0.9 - 1.0	2

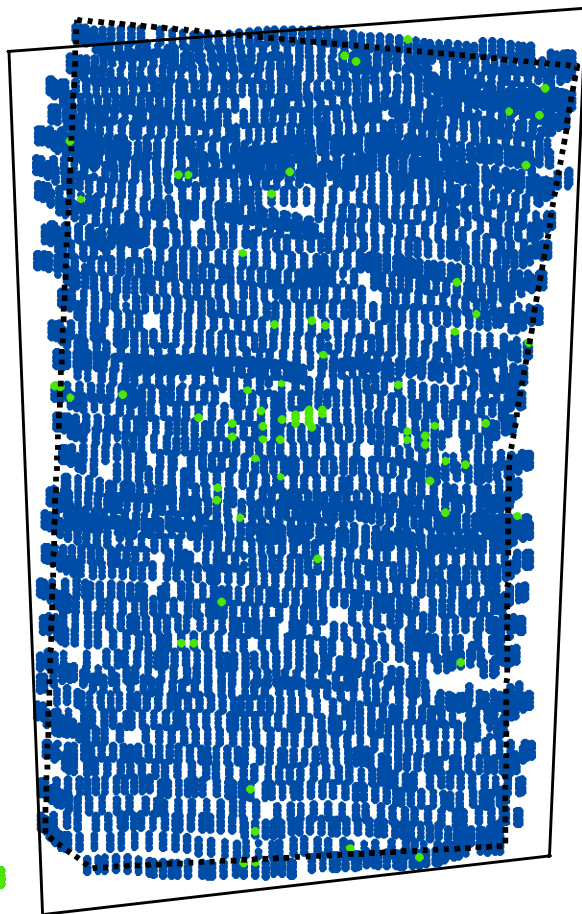
Frequency Distribution					
Class	Frequency	Relative frequency	Density	Cumulative frequency	Cumulative relative frequency
≥0.5 to <0.6	2	0.125	1.2500	2	0.125
≥0.6 to <0.7	2	0.125	1.2500	4	0.250
≥0.7 to <0.8	7	0.438	4.3750	11	0.688
≥0.8 to <0.9	3	0.188	1.8750	14	0.875
≥0.9 to <1	2	0.125	1.2500	16	1.000

BARC LLRBS FSSR  
Appendix 11

Class 1 SSU 03

Scan Plot

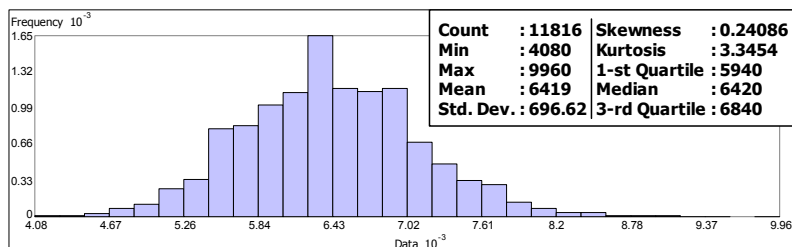
Class 1  
Stockpile Survey Unit 03  
Initial & Final Scan



### Legend

- Laydown Area B
- Soil Survey Unit 03  
(17,916 ft<sup>2</sup>)
- FIDLER Gross CPM**
- 1,020 - 8,269
- 8,270 - 9,960

Data Collected 12/03/2013 and 12/04/2013.  
Histogram does not include data <3000 CPM.



 N	0    3    6    9    12    15    18 Meters 0    10    20    30    40    50    60 Feet				
Laydown Area B, Class 1, SSU03 Beltsville, MD					
	<table border="1" style="width: 100%; border-collapse: collapse;"> <tr> <td style="width: 50%;">Date</td> <td>12/04/13</td> </tr> <tr> <td>Drawing</td> <td>13120402.b</td> </tr> </table>	Date	12/04/13	Drawing	13120402.b
Date	12/04/13				
Drawing	13120402.b				

Class 1 SSU 03

BARC LLRBS FSSR  
Appendix 11

Individual Sample Results

Sample ID	Matrix	Collected	Analyzed	Method	Analyte	CAS	Result	TES Result	Unit	% Uncertainty	Footnotes	RL/CRDL	MDL/MDA	DCGL	Ratio	RA Mean	Net Result	Net Ratio
BLT-SSU-03-C1-SO-01	Solid	7/29/2014 13:39	8/27/2014 12:37	EERF C-01-1	C-14	14762-75-5	-0.248	0.851	pCi/g	0.49	U	5	0.851	21	0.041	1.005	(0.154)	0
BLT-SSU-03-C1-SO-01	Solid	7/29/2014 13:39	8/25/2014 15:37	TAL-STL ST-RC-0036	Cl-36	13981-43-6	0.138	0.445	pCi/g	0.261	U	1	0.445	13.2	0.034	0.510	(0.065)	0
BLT-SSU-03-C1-SO-01	Solid	7/29/2014 13:39	8/26/2014 15:01	EPA 901.1	Cs-137	10045-97-3	0.0105	0.0394	pCi/g	0.023	U	0.2	0.0394	16.9	0.002	0.096	(0.057)	0
BLT-SSU-03-C1-SO-01	Solid	7/29/2014 13:39	8/20/2014 17:52	EPA 906.0	H-3	10028-17-8	1.51	1.51	pCi/g	0.398		1	0.482	121	0.012	0.414	1.096	0.009
BLT-SSU-03-C1-SO-01	Solid	7/29/2014 13:39	9/5/2014 12:43	TAL-STL ST-RC-0055	Ni-63	13981-37-8	0.967	3.85	pCi/g	2.29	U	5	3.85	77954	0.000	1.889	1.961	0.000
BLT-SSU-03-C1-SO-01	Solid	7/29/2014 13:39	8/26/2014 15:01	EPA 901.1	Pb-210	14255-04-0	-0.185	0.701	pCi/g	11.2	U	1	0.701	1.9	0.369	0.907	(0.206)	0
BLT-SSU-03-C1-SO-01	Solid	7/29/2014 13:39	8/26/2014 15:01	EPA 901.1	Ra-226	13982-63-3	0.56	0.56	pCi/g	0.101		0.1	0.0489	2.2	0.255	0.771	(0.211)	0
BLT-SSU-03-C1-SO-01	Solid	7/29/2014 13:39	8/26/2014 18:55	DOE 905.0	Sr-90	STL02023	0.128	0.157	pCi/g	0.1	U	1	0.157	4.7	0.033	0.172	(0.015)	0
BLT-SSU-03-C1-SO-01														SOR	0.746		Net SOR	0.009
BLT-SSU-03-C1-SO-02	Solid	7/29/2014 13:23	8/27/2014 14:51	EERF C-01-1	C-14	14762-75-5	-0.671	0.829	pCi/g	0.467	U	5	0.829	21	0.039	1.005	(0.176)	0
BLT-SSU-03-C1-SO-02	Solid	7/29/2014 13:23	8/25/2014 15:38	TAL-STL ST-RC-0036	Cl-36	13981-43-6	0.429	0.484	pCi/g	0.31	U	1	0.484	13.2	0.037	0.510	(0.026)	0
BLT-SSU-03-C1-SO-02	Solid	7/29/2014 13:23	8/26/2014 15:49	EPA 901.1	Cs-137	10045-97-3	0.0742	0.0742	pCi/g	0.0277		0.2	0.0251	16.9	0.004	0.096	(0.022)	0
BLT-SSU-03-C1-SO-02	Solid	7/29/2014 13:23	8/20/2014 18:15	EPA 906.0	H-3	10028-17-8	0.557	0.557	pCi/g	0.314		1	0.473	121	0.005	0.414	0.143	0.001
BLT-SSU-03-C1-SO-02	Solid	7/29/2014 13:23	9/5/2014 14:44	TAL-STL ST-RC-0055	Ni-63	13981-37-8	3.75	6	pCi/g	3.64	U	5	6	77954	0.000	1.889	4.111	0.000
BLT-SSU-03-C1-SO-02	Solid	7/29/2014 13:23	8/26/2014 15:49	EPA 901.1	Pb-210	14255-04-0	0.934	0.934	pCi/g	0.428		1	0.56	1.9	0.492	0.907	0.027	0.014
BLT-SSU-03-C1-SO-02	Solid	7/29/2014 13:23	8/26/2014 15:49	EPA 901.1	Ra-226	13982-63-3	0.706	0.706	pCi/g	0.105		0.1	0.0466	2.2	0.321	0.771	(0.065)	0
BLT-SSU-03-C1-SO-02	Solid	7/29/2014 13:23	8/26/2014 18:55	DOE 905.0	Sr-90	STL02023	0.127	0.173	pCi/g	0.109	U	1	0.173	4.7	0.037	0.172	0.001	0.000
BLT-SSU-03-C1-SO-02														SOR	0.935		Net SOR	0.016
BLT-SSU-03-C1-SO-03	Solid	7/29/2014 13:51	8/27/2014 17:05	EERF C-01-1	C-14	14762-75-5	0.234	0.849	pCi/g	0.507	U	5	0.849	21	0.040	1.005	(0.156)	0
BLT-SSU-03-C1-SO-03	Solid	7/29/2014 13:51	8/25/2014 15:38	TAL-STL ST-RC-0036	Cl-36	13981-43-6	0.79	0.79	pCi/g	0.332		1	0.461	13.2	0.060	0.510	0.280	0.021
BLT-SSU-03-C1-SO-03	Solid	7/29/2014 13:51	8/26/2014 15:50	EPA 901.1	Cs-137	10045-97-3	0.107	0.107	pCi/g	0.0329		0.2	0.0272	16.9	0.006	0.096	0.011	0.001
BLT-SSU-03-C1-SO-03	Solid	7/29/2014 13:51	8/20/2014 18:39	EPA 906.0	H-3	10028-17-8	5.52	5.52	pCi/g	0.746		1	0.482	121	0.046	0.414	5.106	0.042
BLT-SSU-03-C1-SO-03	Solid	7/29/2014 13:51	9/5/2014 16:46	TAL-STL ST-RC-0055	Ni-63	13981-37-8	1.07	3.75	pCi/g	2.23	U	5	3.75	77954	0.000	1.889	1.861	0.000
BLT-SSU-03-C1-SO-03	Solid	7/29/2014 13:51	8/26/2014 15:50	EPA 901.1	Pb-210	14255-04-0	0.53	0.583	pCi/g	0.472	U	1	0.583	1.9	0.307	0.907	(0.324)	0
BLT-SSU-03-C1-SO-03	Solid	7/29/2014 13:51	8/26/2014 15:50	EPA 901.1	Ra-226	13982-63-3	0.49	0.49	pCi/g	0.0903		0.1	0.0524	2.2	0.223	0.771	(0.281)	0
BLT-SSU-03-C1-SO-03	Solid	7/29/2014 13:51	8/26/2014 18:56	DOE 905.0	Sr-90	STL02023	-0.0883	0.179	pCi/g	0.0913	U	1	0.179	4.7	0.038	0.172	0.007	0.002
BLT-SSU-03-C1-SO-03														SOR	0.720		Net SOR	0.066
BLT-SSU-03-C1-SO-04	Solid	7/29/2014 11:05	8/27/2014 18:12	EERF C-01-1	C-14	14762-75-5	0.73	0.856	pCi/g	0.534	U	5	0.856	21	0.041	1.005	(0.149)	0
BLT-SSU-03-C1-SO-04	Solid	7/29/2014 11:05	8/25/2014 15:38	TAL-STL ST-RC-0036	Cl-36	13981-43-6	-0.0519	0.483	pCi/g	0.266	U	1	0.483	13.2	0.037	0.510	(0.027)	0
BLT-SSU-03-C1-SO-04	Solid	7/29/2014 11:05	8/26/2014 15:51	EPA 901.1	Cs-137	10045-97-3	0.0177	0.028	pCi/g	0.0176	U	0.2	0.028	16.9	0.002	0.096	(0.068)	0
BLT-SSU-03-C1-SO-04	Solid	7/29/2014 11:05	8/20/2014 19:03	EPA 906.0	H-3	10028-17-8	0.384	0.5	pCi/g	0.313	U	1	0.5	121	0.004	0.414	0.086	0.001
BLT-SSU-03-C1-SO-04	Solid	7/29/2014 11:05	9/5/2014 18:48	TAL-STL ST-RC-0055	Ni-63	13981-37-8	1.51	4.3	pCi/g	2.56	U	5	4.3	77954	0.000	1.889	2.411	0.000
BLT-SSU-03-C1-SO-04	Solid	7/29/2014 11:05	8/26/2014 15:51	EPA 901.1	Pb-210	14255-04-0	0.554	0.554	pCi/g	0.335		1	0.533	1.9	0.292	0.907	(0.353)	0
BLT-SSU-03-C1-SO-04	Solid	7/29/2014 11:05	8/26/2014 15:51	EPA 901.1	Ra-226	13982-63-3	0.464	0.464	pCi/g	0.0853		0.1	0.053	2.2	0.211	0.771	(0.307)	0
BLT-SSU-03-C1-SO-04	Solid	7/29/2014 11:05	8/26/2014 18:56	DOE 905.0	Sr-90	STL02023	0.0259	0.165	pCi/g	0.0945	U	1	0.165	4.7	0.035	0.172	(0.007)	0
BLT-SSU-03-C1-SO-04														SOR	0.621		Net SOR	0.001
BLT-SSU-03-C1-SO-05	Solid	7/29/2014 11:17	8/27/2014 19:20	EERF C-01-1	C-14	14762-75-5	0.205	0.841	pCi/g	0.501	U	5	0.841	21	0.040	1.005	(0.164)	0
BLT-SSU-03-C1-SO-05	Solid	7/29/2014 11:17	8/25/2014 15:38	TAL-STL ST-RC-0036	Cl-36	13981-43-6	0.166	0.468	pCi/g	0.278	U	1	0.468	13.2	0.035	0.510	(0.042)	0
BLT-SSU-03-C1-SO-05	Solid	7/29/2014 11:17	8/26/2014 15:52	EPA 901.1	Cs-137	10045-97-3	0.00615	0.0261	pCi/g	0.0152	U	0.2	0.0261	16.9	0.002	0.096	(0.070)	0
BLT-SSU-03-C1-SO-05	Solid	7/29/2014 11:17	8/20/2014 19:26	EPA 906.0	H-3	10028-17-8	0.207	0.488	pCi/g	0.293	U	1	0.488	121	0.004	0.414	0.074	0.001
BLT-SSU-03-C1-SO-05	Solid	7/29/2014 11:17	9/5/2014 20:49	TAL-STL ST-RC-0055	Ni-63	13981-37-8	0.377	5.4	pCi/g	3.15	U	5	5.4	77954	0.000	1.889	3.511	0.000
BLT-SSU-03-C1-SO-05	Solid	7/29/2014 11:17	8/26/2014 15:52	EPA 901.1	Pb-210	14255-04-0	0.466	0.502	pCi/g	0.395	U	1	0.502	1.9	0.264	0.907	(0.405)	0
BLT-SSU-03-C1-SO-05	Solid	7/29/2014 11:17	8/26/2014 15:52	EPA 901.1	Ra-226	13982-63-3	0.417	0.417	pCi/g	0.0741		0.1	0.0432	2.2	0.190	0.771	(0.354)	0
BLT-SSU-03-C1-SO-05	Solid	7/29/2014 11:17	8/26/2014 18:56	DOE 905.0	Sr-90	STL02023	0.107	0.175	pCi/g	0.108	U	1	0.175	4.7	0.037	0.172	0.003	0.001
BLT-SSU-03-C1-SO-05														SOR	0.572		Net SOR	0.001

<div> <div>Class 1 SSU 03</div> <div> <div>BARC LLRBS FSSR</div> <div>Appendix 11</div> </div> <div>Individual Sample Results</div> </div>																		
Sample ID	Matrix	Collected	Analyzed	Method	Analyte	CAS	Result	TES Result	Unit	% Uncertainty	Footnotes	RL/CRDL	MDL/MDA	DCGL	Ratio	RA Mean	Net Result	Net Ratio
BLT-SSU-03-C1-SO-06	Solid	7/29/2014 10:51	8/27/2014 20:27	EERF C-01-1	C-14	14762-75-5	0.969	0.969	pCi/g	0.551		5	0.862	21	0.046	1.005	(0.036)	0
BLT-SSU-03-C1-SO-06	Solid	7/29/2014 10:51	8/25/2014 15:39	TAL-STL ST-RC-0036	Cl-36	13981-43-6	-0.0815	0.488	pCi/g	0.267	U	1	0.488	13.2	0.037	0.510	(0.022)	0
BLT-SSU-03-C1-SO-06	Solid	7/29/2014 10:51	8/26/2014 15:54	EPA 901.1	Cs-137	10045-97-3	0.00743	0.0392	pCi/g	0.0224	U	0.2	0.0392	16.9	0.002	0.096	(0.057)	0
BLT-SSU-03-C1-SO-06	Solid	7/29/2014 10:51	8/20/2014 19:50	EPA 906.0	H-3	10028-17-8	0.531	0.531	pCi/g	0.325		1	0.5	121	0.004	0.414	0.117	0.001
BLT-SSU-03-C1-SO-06	Solid	7/29/2014 10:51	9/5/2014 22:51	TAL-STL ST-RC-0055	Ni-63	13981-37-8	2.85	3.95	pCi/g	2.44	U	5	3.95	77954	0.000	1.889	2.061	0.000
BLT-SSU-03-C1-SO-06	Solid	7/29/2014 10:51	8/26/2014 15:54	EPA 901.1	Pb-210	14255-04-0	0.214	0.718	pCi/g	0.418	U	1	0.718	1.9	0.378	0.907	(0.189)	0
BLT-SSU-03-C1-SO-06	Solid	7/29/2014 10:51	8/26/2014 15:54	EPA 901.1	Ra-226	13982-63-3	0.505	0.505	pCi/g	0.0991		0.1	0.0615	2.2	0.230	0.771	(0.266)	0
BLT-SSU-03-C1-SO-06	Solid	7/29/2014 10:51	8/26/2014 18:56	DOE 905.0	Sr-90	STL02023	0.0982	0.175	pCi/g	0.107	U	1	0.175	4.7	0.037	0.172	0.003	0.001
BLT-SSU-03-C1-SO-06														SOR	0.735		Net SOR	0.002
BLT-SSU-03-C1-SO-07	Solid	7/29/2014 10:34	8/27/2014 21:34	EERF C-01-1	C-14	14762-75-5	-0.0592	0.892	pCi/g	0.516	U	5	0.892	21	0.042	1.005	(0.113)	0
BLT-SSU-03-C1-SO-07	Solid	7/29/2014 10:34	8/25/2014 15:39	TAL-STL ST-RC-0036	Cl-36	13981-43-6	0.226	0.498	pCi/g	0.3	U	1	0.498	13.2	0.038	0.510	(0.012)	0
BLT-SSU-03-C1-SO-07	Solid	7/29/2014 10:34	8/26/2014 16:28	EPA 901.1	Cs-137	10045-97-3	-0.00226	0.0273	pCi/g	0.0154	U	0.2	0.0273	16.9	0.002	0.096	(0.069)	0
BLT-SSU-03-C1-SO-07	Solid	7/29/2014 10:34	8/20/2014 20:13	EPA 906.0	H-3	10028-17-8	0.615	0.615	pCi/g	0.329		1	0.495	121	0.005	0.414	0.201	0.002
BLT-SSU-03-C1-SO-07	Solid	7/29/2014 10:34	9/6/2014 0:52	TAL-STL ST-RC-0055	Ni-63	13981-37-8	3.21	6.63	pCi/g	3.98	U	5	6.63	77954	0.000	1.889	4.741	0.000
BLT-SSU-03-C1-SO-07	Solid	7/29/2014 10:34	8/26/2014 16:28	EPA 901.1	Pb-210	14255-04-0	0.891	0.891	pCi/g	0.414		1	0.543	1.9	0.469	0.907	(0.016)	0
BLT-SSU-03-C1-SO-07	Solid	7/29/2014 10:34	8/26/2014 16:28	EPA 901.1	Ra-226	13982-63-3	0.759	0.759	pCi/g	0.108		0.1	0.0425	2.2	0.345	0.771	(0.012)	0
BLT-SSU-03-C1-SO-07	Solid	7/29/2014 10:34	8/26/2014 18:56	DOE 905.0	Sr-90	STL02023	-0.0606	0.15	pCi/g	0.0753	U	1	0.15	4.7	0.032	0.172	(0.022)	0
BLT-SSU-03-C1-SO-07														SOR	0.933		Net SOR	0.002
BLT-SSU-03-C1-SO-08	Solid	7/29/2014 10:13	8/27/2014 22:41	EERF C-01-1	C-14	14762-75-5	1.34	1.34	pCi/g	0.576		5	0.869	21	0.064	1.005	0.335	0.016
BLT-SSU-03-C1-SO-08	Solid	7/29/2014 10:13	8/25/2014 19:08	TAL-STL ST-RC-0036	Cl-36	13981-43-6	0.226	0.499	pCi/g	0.3	U	1	0.499	13.2	0.038	0.510	(0.011)	0
BLT-SSU-03-C1-SO-08	Solid	7/29/2014 10:13	8/26/2014 16:31	EPA 901.1	Cs-137	10045-97-3	0.0104	0.0327	pCi/g	0.0192	U	0.2	0.0327	16.9	0.002	0.096	(0.064)	0
BLT-SSU-03-C1-SO-08	Solid	7/29/2014 10:13	8/20/2014 20:37	EPA 906.0	H-3	10028-17-8	0.641	0.641	pCi/g	0.326		1	0.482	121	0.005	0.414	0.227	0.002
BLT-SSU-03-C1-SO-08	Solid	7/29/2014 10:13	9/6/2014 2:54	TAL-STL ST-RC-0055	Ni-63	13981-37-8	2.81	4.11	pCi/g	2.53	U	5	4.11	77954	0.000	1.889	2.221	0.000
BLT-SSU-03-C1-SO-08	Solid	7/29/2014 10:13	8/26/2014 16:31	EPA 901.1	Pb-210	14255-04-0	0.379	0.756	pCi/g	0.451	U	1	0.756	1.9	0.398	0.907	(0.151)	0
BLT-SSU-03-C1-SO-08	Solid	7/29/2014 10:13	8/26/2014 16:31	EPA 901.1	Ra-226	13982-63-3	0.556	0.556	pCi/g	0.102		0.1	0.0571	2.2	0.253	0.771	(0.215)	0
BLT-SSU-03-C1-SO-08	Solid	7/29/2014 10:13	8/26/2014 18:56	DOE 905.0	Sr-90	STL02023	-0.0636	0.17	pCi/g	0.0884	U	1	0.17	4.7	0.036	0.172	(0.002)	0
BLT-SSU-03-C1-SO-08														SOR	0.796		Net SOR	0.018
BLT-SSU-03-C1-SO-09	Solid	7/30/2014 9:42	8/27/2014 23:48	EERF C-01-1	C-14	14762-75-5	-0.176	0.875	pCi/g	0.502	U	5	0.875	21	0.042	1.005	(0.130)	0
BLT-SSU-03-C1-SO-09	Solid	7/30/2014 9:42	8/20/2014 15:22	TAL-STL ST-RC-0036	Cl-36	13981-43-6	0.122	0.398	pCi/g	0.237	U	1	0.398	13.2	0.030	0.510	(0.112)	0
BLT-SSU-03-C1-SO-09	Solid	7/30/2014 9:42	8/27/2014 17:30	EPA 901.1	Cs-137	10045-97-3	0.0062	0.0234	pCi/g	0.0137	U	0.2	0.0234	16.9	0.001	0.096	(0.073)	0
BLT-SSU-03-C1-SO-09	Solid	7/30/2014 9:42	9/4/2014 0:09	EPA 906.0	H-3	10028-17-8	1.33	1.33	pCi/g	0.389		1	0.497	121	0.011	0.414	0.916	0.008
BLT-SSU-03-C1-SO-09	Solid	7/30/2014 9:42	9/6/2014 4:56	TAL-STL ST-RC-0055	Ni-63	13981-37-8	5.23	5.23	pCi/g	2.97		5	4.69	77954	0.000	1.889	3.341	0.000
BLT-SSU-03-C1-SO-09	Solid	7/30/2014 9:42	8/27/2014 17:30	EPA 901.1	Pb-210	14255-04-0	0.535	0.535	pCi/g	0.395		1	0.498	1.9	0.282	0.907	(0.372)	0
BLT-SSU-03-C1-SO-09	Solid	7/30/2014 9:42	8/27/2014 17:30	EPA 901.1	Ra-226	13982-63-3	0.352	0.352	pCi/g	0.0634		0.1	0.0388	2.2	0.160	0.771	(0.419)	0
BLT-SSU-03-C1-SO-09	Solid	7/30/2014 9:42	8/26/2014 18:56	DOE 905.0	Sr-90	STL02023	0.0898	0.163	pCi/g	0.0994	U	1	0.163	4.7	0.035	0.172	(0.009)	0
BLT-SSU-03-C1-SO-09														SOR	0.561		Net SOR	0.008
BLT-SSU-03-C1-SO-10	Solid	7/29/2014 10:00	8/28/2014 0:55	EERF C-01-1	C-14	14762-75-5	0.203	0.847	pCi/g	0.505	U	5	0.847	21	0.040	1.005	(0.158)	0
BLT-SSU-03-C1-SO-10	Solid	7/29/2014 10:00	8/20/2014 15:22	TAL-STL ST-RC-0036	Cl-36	13981-43-6	-0.0734	0.313	pCi/g	0.175	U	1	0.313	13.2	0.024	0.510	(0.197)	0
BLT-SSU-03-C1-SO-10	Solid	7/29/2014 10:00	8/27/2014 17:59	EPA 901.1	Cs-137	10045-97-3	0.000598	0.0317	pCi/g	0.0175	U	0.2	0.0317	16.9	0.002	0.096	(0.065)	0
BLT-SSU-03-C1-SO-10	Solid	7/29/2014 10:00	9/4/2014 0:56	EPA 906.0	H-3	10028-17-8	0.677	0.677	pCi/g	0.328		1	0.485	121	0.006	0.414	0.263	0.002
BLT-SSU-03-C1-SO-10	Solid	7/29/2014 10:00	9/6/2014 6:57	TAL-STL ST-RC-0055	Ni-63	13981-37-8	4.11	4.31	pCi/g	2.7	U	5	4.31	77954	0.000	1.889	2.421	0.000
BLT-SSU-03-C1-SO-10	Solid	7/29/2014 10:00	8/27/2014 17:59	EPA 901.1	Pb-210	14255-04-0	0.73	0.73	pCi/g	0.345		1	0.526	1.9	0.384	0.907	(0.177)	0
BLT-SSU-03-C1-SO-10	Solid	7/29/2014 10:00	8/27/2014 17:59	EPA 901.1	Ra-226	13982-63-3	0.532	0.532	pCi/g	0.1		0.1	0.0603	2.2	0.242	0.771	(0.239)	0
BLT-SSU-03-C1-SO-10	Solid	7/29/2014 10:00	8/26/2014 18:57	DOE 905.0	Sr-90	STL02023	0.0569	0.159	pCi/g	0.0943	U	1	0.159	4.7	0.034	0.172	(0.013)	0
BLT-SSU-03-C1-SO-10														SOR	0.731		Net SOR	0.002

<div> <div>Class 1 SSU 03</div> <div> <div>BARC LLRBS FSSR</div> <div>Appendix 11</div> </div> <div>Individual Sample Results</div> </div>																		
Sample ID	Matrix	Collected	Analyzed	Method	Analyte	CAS	Result	TES Result	Unit	% Uncertainty	Footnotes	RL/CRDL	MDL/MDA	DCGL	Ratio	RA Mean	Net Result	Net Ratio
BLT-SSU-03-C1-SO-11	Solid	7/29/2014 9:28	8/28/2014 2:02	EERF C-01-1	C-14	14762-75-5	3	3	pCi/g	0.8		5	1.12	21	0.143	1.005	1.995	0.095
BLT-SSU-03-C1-SO-11	Solid	7/29/2014 9:28	8/20/2014 15:22	TAL-STL ST-RC-0036	Cl-36	13981-43-6	0.321	0.337	pCi/g	0.214	U	1	0.337	13.2	0.026	0.510	(0.173)	0
BLT-SSU-03-C1-SO-11	Solid	7/29/2014 9:28	8/27/2014 17:58	EPA 901.1	Cs-137	10045-97-3	0.00536	0.0273	pCi/g	0.0155	U	0.2	0.0273	16.9	0.002	0.096	(0.069)	0
BLT-SSU-03-C1-SO-11	Solid	7/29/2014 9:28	9/4/2014 1:20	EPA 906.0	H-3	10028-17-8	0.34	0.463	pCi/g	0.291	U	1	0.463	121	0.004	0.414	0.049	0.000
BLT-SSU-03-C1-SO-11	Solid	7/29/2014 9:28	9/6/2014 8:59	TAL-STL ST-RC-0055	Ni-63	13981-37-8	2.36	4.21	pCi/g	2.55	U	5	4.21	77954	0.000	1.889	2.321	0.000
BLT-SSU-03-C1-SO-11	Solid	7/29/2014 9:28	8/27/2014 17:58	EPA 901.1	Pb-210	14255-04-0	0.739	0.739	pCi/g	0.434		1	0.578	1.9	0.389	0.907	(0.168)	0
BLT-SSU-03-C1-SO-11	Solid	7/29/2014 9:28	8/27/2014 17:58	EPA 901.1	Ra-226	13982-63-3	0.531	0.531	pCi/g	0.1		0.1	0.0631	2.2	0.241	0.771	(0.240)	0
BLT-SSU-03-C1-SO-11	Solid	7/29/2014 9:28	8/26/2014 18:57	DOE 905.0	Sr-90	STL02023	0.00646	0.16	pCi/g	0.0897	U	1	0.16	4.7	0.034	0.172	(0.012)	0
BLT-SSU-03-C1-SO-11														SOR	0.838		Net SOR	0.095
BLT-SSU-03-C1-SO-12	Solid	7/30/2014 9:13	8/28/2014 3:09	EERF C-01-1	C-14	14762-75-5	-0.5	0.829	pCi/g	0.472	U	5	0.829	21	0.039	1.005	(0.176)	0
BLT-SSU-03-C1-SO-12	Solid	7/30/2014 9:13	8/20/2014 15:23	TAL-STL ST-RC-0036	Cl-36	13981-43-6	0.247	0.348	pCi/g	0.216	U	1	0.348	13.2	0.026	0.510	(0.162)	0
BLT-SSU-03-C1-SO-12	Solid	7/30/2014 9:13	8/27/2014 18:04	EPA 901.1	Cs-137	10045-97-3	0.00699	0.0272	pCi/g	0.0159	U	0.2	0.0272	16.9	0.002	0.096	(0.069)	0
BLT-SSU-03-C1-SO-12	Solid	7/30/2014 9:13	9/4/2014 2:07	EPA 906.0	H-3	10028-17-8	0.837	0.837	pCi/g	0.341		1	0.483	121	0.007	0.414	0.423	0.003
BLT-SSU-03-C1-SO-12	Solid	7/30/2014 9:13	9/6/2014 11:01	TAL-STL ST-RC-0055	Ni-63	13981-37-8	3.24	4.62	pCi/g	2.83	U	5	4.62	77954	0.000	1.889	2.731	0.000
BLT-SSU-03-C1-SO-12	Solid	7/30/2014 9:13	8/27/2014 18:04	EPA 901.1	Pb-210	14255-04-0	0.772	0.772	pCi/g	0.456		1	0.574	1.9	0.406	0.907	(0.135)	0
BLT-SSU-03-C1-SO-12	Solid	7/30/2014 9:13	8/27/2014 18:04	EPA 901.1	Ra-226	13982-63-3	0.603	0.603	pCi/g	0.0987		0.1	0.0541	2.2	0.274	0.771	(0.168)	0
BLT-SSU-03-C1-SO-12	Solid	7/30/2014 9:13	8/26/2014 18:57	DOE 905.0	Sr-90	STL02023	0.0493	0.18	pCi/g	0.105	U	1	0.18	4.7	0.038	0.172	0.008	0.002
BLT-SSU-03-C1-SO-12														SOR	0.793		Net SOR	0.005
BLT-SSU-03-C1-SO-13	Solid	7/30/2014 7:38	8/28/2014 4:17	EERF C-01-1	C-14	14762-75-5	-0.0892	0.876	pCi/g	0.504	U	5	0.876	21	0.042	1.005	(0.129)	0
BLT-SSU-03-C1-SO-13	Solid	7/30/2014 7:38	8/20/2014 15:23	TAL-STL ST-RC-0036	Cl-36	13981-43-6	0.282	0.331	pCi/g	0.208	U	1	0.331	13.2	0.025	0.510	(0.179)	0
BLT-SSU-03-C1-SO-13	Solid	7/30/2014 7:38	8/27/2014 18:44	EPA 901.1	Cs-137	10045-97-3	0.0342	0.0342	pCi/g	0.0164		0.2	0.0159	16.9	0.002	0.096	(0.062)	0
BLT-SSU-03-C1-SO-13	Solid	7/30/2014 7:38	9/4/2014 2:31	EPA 906.0	H-3	10028-17-8	0.59	0.59	pCi/g	0.33		1	0.503	121	0.005	0.414	0.176	0.001
BLT-SSU-03-C1-SO-13	Solid	7/30/2014 7:38	9/6/2014 13:02	TAL-STL ST-RC-0055	Ni-63	13981-37-8	2.04	4.19	pCi/g	2.51	U	5	4.19	77954	0.000	1.889	2.301	0.000
BLT-SSU-03-C1-SO-13	Solid	7/30/2014 7:38	8/27/2014 18:44	EPA 901.1	Pb-210	14255-04-0	1.06	1.06	pCi/g	0.493		1	0.557	1.9	0.558	0.907	0.153	0.081
BLT-SSU-03-C1-SO-13	Solid	7/30/2014 7:38	8/27/2014 18:44	EPA 901.1	Ra-226	13982-63-3	0.464	0.464	pCi/g	0.0777		0.1	0.0446	2.2	0.211	0.771	(0.307)	0
BLT-SSU-03-C1-SO-13	Solid	7/30/2014 7:38	8/26/2014 18:57	DOE 905.0	Sr-90	STL02023	0.0258	0.149	pCi/g	0.0853	U	1	0.149	4.7	0.032	0.172	(0.023)	0
BLT-SSU-03-C1-SO-13														SOR	0.874		Net SOR	0.082
BLT-SSU-03-C1-SO-14	Solid	12/4/2013 14:11	12/12/2013 22:56	EERF C-01-1	C-14	14762-75-5	-0.203	1.44	pCi/g	0.827	U	5	1.44	21	0.069	1.005	0.435	0.021
BLT-SSU-03-C1-SO-14	Solid	12/4/2013 14:11	1/8/2014 16:16	TAL-STL STL-RC-0036	Cl-36	13981-43-6	0.155	0.391	pCi/g	0.235	U	1	0.391	13.2	0.030	0.510	(0.119)	0
BLT-SSU-03-C1-SO-14	Solid	12/4/2013 14:11	1/3/2014 21:36	EPA 901.1	Cs-137	10045-97-3	-0.00317	0.0157	pCi/g	0.118	U	0.2	0.0157	16.9	0.001	0.096	(0.081)	0
BLT-SSU-03-C1-SO-14	Solid	12/4/2013 14:11	12/24/2013 4:44	EPA 906.0	H-3	10028-17-8	0.15	0.37	pCi/g	0.22	U	1	0.37	121	0.003	0.414	(0.044)	0
BLT-SSU-03-C1-SO-14	Solid	12/4/2013 14:11	12/27/2013 0:29	TAL-STL STL-RC-0055	Ni-63	13981-37-8	-0.0182	3.46	pCi/g	2.03	U	5	3.46	77954	0.000	1.889	1.571	0.000
BLT-SSU-03-C1-SO-14	Solid	12/4/2013 14:11	1/3/2014 21:36	EPA 901.1	Pb-210	14255-04-0	0.538	0.538	pCi/g	0.207		1	0.251	1.9	0.283	0.907	(0.369)	0
BLT-SSU-03-C1-SO-14	Solid	12/4/2013 14:11	1/3/2014 21:36	EPA 901.1	Ra-226	13982-63-3	0.493	0.493	pCi/g	0.0621		0.1	0.0254	2.2	0.224	0.771	(0.278)	0
BLT-SSU-03-C1-SO-14	Solid	12/4/2013 14:11	12/17/2013 8:45	DOE 905.0	Sr-90	STL02023	0.0854	0.183	pCi/g	0.11	U	1	0.183	4.7	0.039	0.172	0.011	0.002
BLT-SSU-03-C1-SO-14														SOR	0.648		Net SOR	0.023
BLT-SSU-03-C1-SO-15	Solid	7/29/2014 15:55	8/28/2014 5:24	EERF C-01-1	C-14	14762-75-5	-0.359	0.863	pCi/g	0.492	U	5	0.863	21	0.041	1.005	(0.142)	0
BLT-SSU-03-C1-SO-15	Solid	7/29/2014 15:55	8/20/2014 15:23	TAL-STL ST-RC-0036	Cl-36	13981-43-6	-0.166	0.352	pCi/g	0.193	U	1	0.352	13.2	0.027	0.510	(0.158)	0
BLT-SSU-03-C1-SO-15	Solid	7/29/2014 15:55	8/27/2014 18:44	EPA 901.1	Cs-137	10045-97-3	-0.0000958	0.0394	pCi/g	0.022	U	0.2	0.0394	16.9	0.002	0.096	(0.057)	0
BLT-SSU-03-C1-SO-15	Solid	7/29/2014 15:55	9/4/2014 2:54	EPA 906.0	H-3	10028-17-8	0.533	0.533	pCi/g	0.313		1	0.479	121	0.004	0.414	0.119	0.001
BLT-SSU-03-C1-SO-15	Solid	7/29/2014 15:55	9/6/2014 15:04	TAL-STL ST-RC-0055	Ni-63	13981-37-8	0.623	4.58	pCi/g	2.66	U	5	4.58	77954	0.000	1.889	2.691	0.000
BLT-SSU-03-C1-SO-15	Solid	7/29/2014 15:55	8/27/2014 18:44	EPA 901.1	Pb-210	14255-04-0	0.358	0.7	pCi/g	0.419	U	1	0.7	1.9	0.368	0.907	(0.207)	0
BLT-SSU-03-C1-SO-15	Solid	7/29/2014 15:55	8/27/2014 18:44	EPA 901.1	Ra-226	13982-63-3	0.554	0.554	pCi/g	0.104		0.1	0.0604	2.2	0.252	0.771	(0.217)	0
BLT-SSU-03-C1-SO-15	Solid	7/29/2014 15:55	8/26/2014 18:57	DOE 905.0	Sr-90	STL02023	0.801	0.801	pCi/g	0.16		1	0.151	4.7	0.170	0.172	0.629	0.134
BLT-SSU-03-C1-SO-15														SOR	0.865		Net SOR	0.135



BARC LLRBS FSSR  
Appendix 11

Class 1 SSU 03

Individual Sample Results

Sample ID	Matrix	Collected	Analyzed	Method	Analyte	CAS	Result	TES Result	Unit	% Uncertainty	Footnotes	RL/CRDL	MDL/MDA	DCGL	Ratio	RA Mean	Net Result	Net Ratio
BLT-SSU-03-C1-SO-16	Solid	7/29/2014 7:25	8/28/2014 6:31	EERF C-01-1	C-14	14762-75-5	-0.0644	0.859	pCi/g	0.502	U	5	0.859	21	0.041	1.005	(0.146)	0
BLT-SSU-03-C1-SO-16	Solid	7/29/2014 7:25	8/20/2014 15:15	TAL-STL ST-RC-0036	Cl-36	13981-43-6	0.0496	0.345	pCi/g	0.202	U	1	0.345	13.2	0.026	0.510	(0.165)	0
BLT-SSU-03-C1-SO-16	Solid	7/29/2014 7:25	8/27/2014 18:24	EPA 901.1	Cs-137	10045-97-3	0.0053	0.0429	pCi/g	0.0242	U	0.2	0.0429	16.9	0.003	0.096	(0.053)	0
BLT-SSU-03-C1-SO-16	Solid	7/29/2014 7:25	9/4/2014 3:18	EPA 906.0	H-3	10028-17-8	0.856	0.856	pCi/g	0.343		1	0.483	121	0.007	0.414	0.442	0.004
BLT-SSU-03-C1-SO-16	Solid	7/29/2014 7:25	9/6/2014 17:06	TAL-STL ST-RC-0055	Ni-63	13981-37-8	3.04	3.95	pCi/g	2.43	U	5	3.95	77954	0.000	1.889	2.061	0.000
BLT-SSU-03-C1-SO-16	Solid	7/29/2014 7:25	8/27/2014 18:24	EPA 901.1	Pb-210	14255-04-0	0.661	0.678	pCi/g	0.508	U	1	0.678	1.9	0.357	0.907	(0.229)	0
BLT-SSU-03-C1-SO-16	Solid	7/29/2014 7:25	8/27/2014 18:24	EPA 901.1	Ra-226	13982-63-3	0.549	0.549	pCi/g	0.109		0.1	0.0658	2.2	0.250	0.771	(0.222)	0
BLT-SSU-03-C1-SO-16	Solid	7/29/2014 7:25	8/26/2014 18:57	DOE 905.0	Sr-90	STL02023	0.0273	0.162	pCi/g	0.0927	U	1	0.162	4.7	0.034	0.172	(0.010)	0
BLT-SSU-03-C1-SO-16														SOR	0.718		Net SOR	0.004

**Final Status Survey Report  
Appendix 12  
Class 1 SSU-04  
Survey and Sample Results**

**Beltsville Agricultural Research Center (BARC)  
Low Level Radioactive Burial site (LLRBS)  
Beltsville, Maryland**



**Prepared for:**

U.S. Army Field Support Command  
Rock Island, Illinois

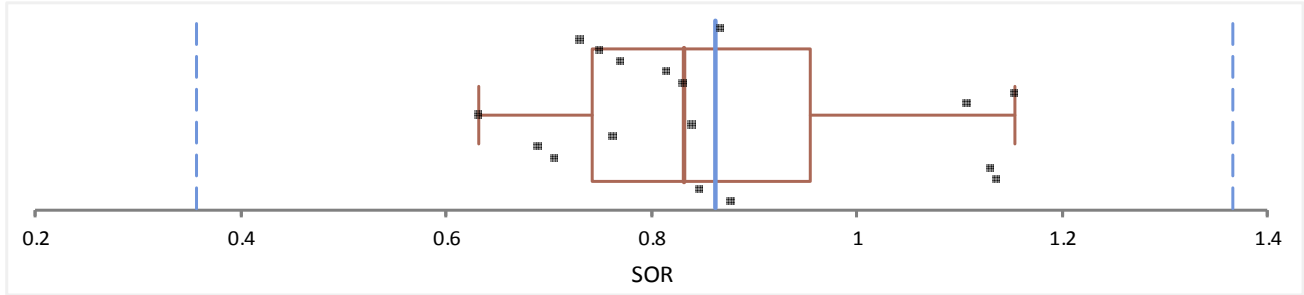
*Prepared by:*

***TPMC-EnergySolutions Environmental Services, LLC***

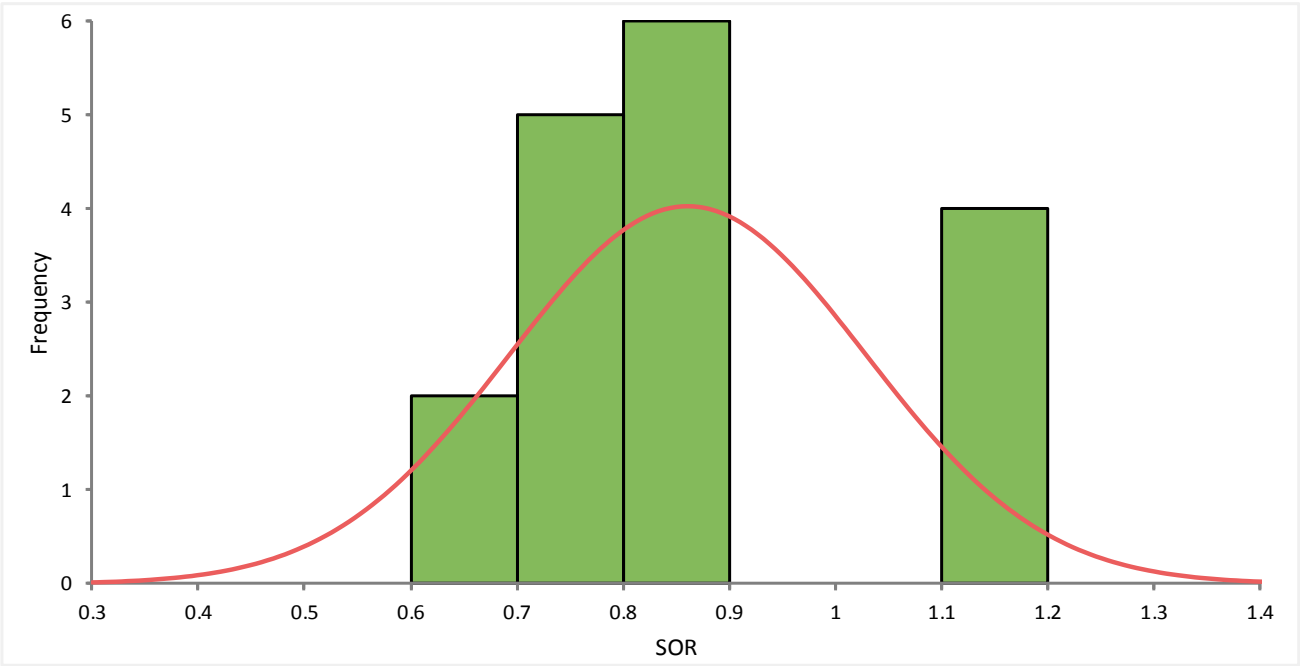
**Contract No. W52P1J-11-D-0001**



Statistics & Decisions	SU	RA	Sample ID	BLT-SSU-04-C1-SO-01	BLT-SSU-04-C1-SO-02	BLT-SSU-04-C1-SO-03	BLT-SSU-04-C1-SO-04	BLT-SSU-04-C1-SO-05	BLT-SSU-04-C1-SO-06	BLT-SSU-04-C1-SO-07	BLT-SSU-04-C1-SO-08	BLT-SSU-04-C1-SO-09	BLT-SSU-04-C1-SO-10	BLT-SSU-04-C1-SO-11	BLT-SSU-04-C1-SO-12	BLT-SSU-04-C1-SO-13	BLT-SSU-04-C1-SO-14	BLT-SSU-04-C1-SO-15	BLT-SSU-04-C1-SO-16	BLT-SSU-04-C1-SO-16-FD03
Avg	0.861	0.960	SOR	0.877	0.846	1.137	1.130	0.705	0.690	0.763	0.839	0.632	1.107	1.153	0.831	0.814	0.770	0.749	0.730	0.867
Min	0.632	0.768	Net SOR	0.193	0.103	0.270	0.550	0.030	0.010	0.036	0.087	0.010	0.180	0.231	0.075	0.011	0.011	0.073	0.067	0.057
Max	1.153	1.333																		
SU Max SOR - RA Min SOR	0.385																			
SU Avg SOR - RA Avg SOR	-0.099																			
SU meets release criterion																				



N		17				
</						



Frequency Distribution					
Class	Frequency	Relative frequency	Density	Cumulative frequency	Cumulative relative frequency
≥0.6 to <0.7	2	0.118	1.1765	2	0.118
≥0.7 to <0.8	5	0.294	2.9412	7	0.412
≥0.8 to <0.9	6	0.353	3.5294	13	0.765
≥0.9 to <1	0	0.000	0.0000	13	0.765
≥1 to <1.1	0	0.000	0.0000	13	0.765
≥1.1 to <1.2	4	0.235	2.3529	17	1.000

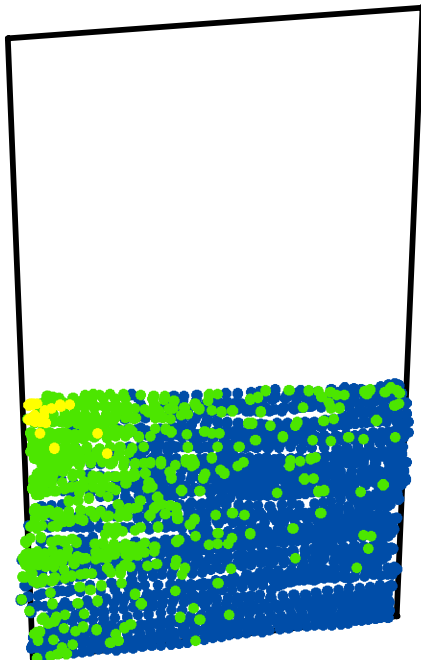


# BARC LLRBS FSSR Appendix 12

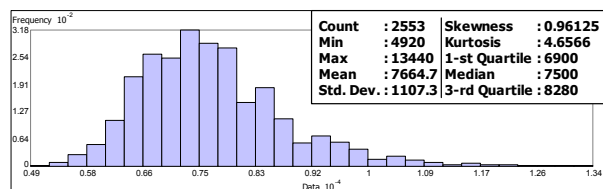
Class 1 SSU 04

Scan Plot

Class 1  
Stockpile Survey Unit 04  
Final Scan



ES041709A - Data Collected: 04/19/2014

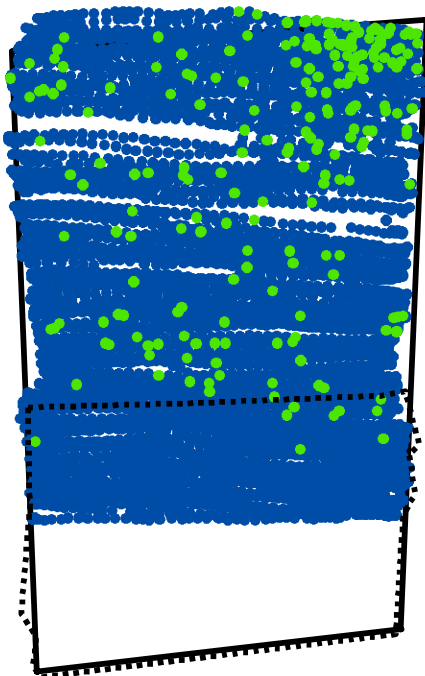


## Legend

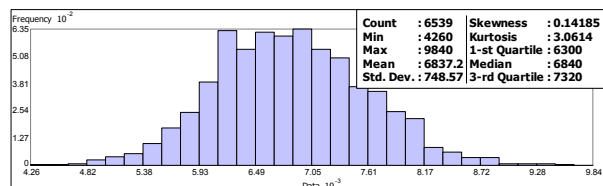
- Laydown Area B
- ES041709A GWS Outline

## FIDLER Gross CPM

- 4,920 - 8,269
- 8,270 - 11,193
- 11,194 - 14,118



ES041715A - Data Collected: 04/19/2014



0 5 10 15 20 25 Meters

0 20 40 60 80 Feet

Laydown Area B, Class 1, SSU04  
Beltsville, MD

Date	04/21/14
Drawing	14042101.a

Note: Data contained in the top survey has been affected by shine from the source intermodal staged on the west side of the Laydown Area. The survey below shows the rest of the survey once the intermodal was moved to the northeast portion of the site where it did not obscure the walkover data. The dotted line on the bottom survey shows how the two datasets overlap.

<div> <div>Class 1 SSU 04</div> <div> <div>BARC LLRBS FSSR</div> <div>Appendix 12</div> </div> <div>Individual Sample Results</div> </div>																		
Sample ID	Matrix	Collected	Analyzed	Method	Analyte	CAS	Result	TES Result	Unit	% Uncertainty	Footnotes	RL/CRDL	MDL/MDA	DCGL	Ratio	RA Mean	Net Result	Net Ratio
BLT-SSU-04-C1-SO-01	Solid	7/29/2014 13:35	8/28/2014 7:38	EERF C-01-1	C-14	14762-75-5	0.914	0.914	pCi/g	0.518		5	0.81	21	0.044	1.005	(0.091)	0
BLT-SSU-04-C1-SO-01	Solid	7/29/2014 13:35	8/20/2014 15:15	TAL-STL ST-RC-0036	Cl-36	13981-43-6	0.0414	0.358	pCi/g	0.209	U	1	0.358	13.2	0.027	0.510	(0.152)	0
BLT-SSU-04-C1-SO-01	Solid	7/29/2014 13:35	8/27/2014 19:40	EPA 901.1	Cs-137	10045-97-3	0.0499	0.0499	pCi/g	0.0197		0.2	0.0187	16.9	0.003	0.096	(0.046)	0
BLT-SSU-04-C1-SO-01	Solid	7/29/2014 13:35	9/4/2014 3:41	EPA 906.0	H-3	10028-17-8	22.8	22.8	pCi/g	2.25		1	0.475	121	0.188	0.414	22.386	0.185
BLT-SSU-04-C1-SO-01	Solid	7/29/2014 13:35	9/6/2014 0:00	TAL-STL ST-RC-0055	Ni-63	13981-37-8	3	3	pCi/g	1.26		5	1.95	77954	0.000	1.889	1.111	0.000
BLT-SSU-04-C1-SO-01	Solid	7/29/2014 13:35	8/27/2014 19:40	EPA 901.1	Pb-210	14255-04-0	0.625	0.625	pCi/g	0.406		1	0.526	1.9	0.329	0.907	(0.282)	0
BLT-SSU-04-C1-SO-01	Solid	7/29/2014 13:35	8/27/2014 19:40	EPA 901.1	Ra-226	13982-63-3	0.531	0.531	pCi/g	0.0823		0.1	0.0356	2.2	0.241	0.771	(0.240)	0
BLT-SSU-04-C1-SO-01	Solid	7/29/2014 13:35	8/27/2014 14:06	DOE 905.0	Sr-90	STL02023	0.202	0.21	pCi/g	0.137	U	1	0.21	4.7	0.045	0.172	0.038	0.008
BLT-SSU-04-C1-SO-01														SOR	0.877		Net SOR	0.193
BLT-SSU-04-C1-SO-02	Solid	7/29/2014 13:20	8/28/2014 8:45	EERF C-01-1	C-14	14762-75-5	0.655	0.863	pCi/g	0.535	U	5	0.863	21	0.041	1.005	(0.142)	0
BLT-SSU-04-C1-SO-02	Solid	7/29/2014 13:20	8/20/2014 16:27	TAL-STL ST-RC-0036	Cl-36	13981-43-6	0.237	0.378	pCi/g	0.232	U	1	0.378	13.2	0.029	0.510	(0.132)	0
BLT-SSU-04-C1-SO-02	Solid	7/29/2014 13:20	8/27/2014 19:40	EPA 901.1	Cs-137	10045-97-3	0.254	0.254	pCi/g	0.0518		0.2	0.0305	16.9	0.015	0.096	0.158	0.009
BLT-SSU-04-C1-SO-02	Solid	7/29/2014 13:20	9/4/2014 4:05	EPA 906.0	H-3	10028-17-8	1.9	1.9	pCi/g	0.441		1	0.503	121	0.016	0.414	1.486	0.012
BLT-SSU-04-C1-SO-02	Solid	7/29/2014 13:20	9/6/2014 4:25	TAL-STL ST-RC-0055	Ni-63	13981-37-8	0	2.08	pCi/g	1.23	U	5	2.08	77954	0.000	1.889	0.191	0.000
BLT-SSU-04-C1-SO-02	Solid	7/29/2014 13:20	8/27/2014 19:40	EPA 901.1	Pb-210	14255-04-0	0.396	0.721	pCi/g	0.431	U	1	0.721	1.9	0.379	0.907	(0.186)	0
BLT-SSU-04-C1-SO-02	Solid	7/29/2014 13:20	8/27/2014 19:40	EPA 901.1	Ra-226	13982-63-3	0.547	0.547	pCi/g	0.102		0.1	0.0581	2.2	0.249	0.771	(0.224)	0
BLT-SSU-04-C1-SO-02	Solid	7/29/2014 13:20	8/27/2014 14:06	DOE 905.0	Sr-90	STL02023	0.552	0.552	pCi/g	0.183		1	0.239	4.7	0.117	0.172	0.380	0.081
BLT-SSU-04-C1-SO-02														SOR	0.846		Net SOR	0.103
BLT-SSU-04-C1-SO-03	Solid	7/29/2014 13:48	8/28/2014 9:52	EERF C-01-1	C-14	14762-75-5	3.03	3.03	pCi/g	0.685		5	0.844	21	0.144	1.005	2.025	0.096
BLT-SSU-04-C1-SO-03	Solid	7/29/2014 13:48	8/20/2014 16:27	TAL-STL ST-RC-0036	Cl-36	13981-43-6	0.3	0.348	pCi/g	0.219	U	1	0.348	13.2	0.026	0.510	(0.162)	0
BLT-SSU-04-C1-SO-03	Solid	7/29/2014 13:48	8/27/2014 22:47	EPA 901.1	Cs-137	10045-97-3	1.36	1.36	pCi/g	0.169		0.2	0.0333	16.9	0.080	0.096	1.264	0.075
BLT-SSU-04-C1-SO-03	Solid	7/29/2014 13:48	9/4/2014 4:29	EPA 906.0	H-3	10028-17-8	7.08	7.08	pCi/g	0.888		1	0.497	121	0.059	0.414	6.666	0.055
BLT-SSU-04-C1-SO-03	Solid	7/29/2014 13:48	9/6/2014 6:38	TAL-STL ST-RC-0055	Ni-63	13981-37-8	4.53	4.53	pCi/g	1.39		5	1.96	77954	0.000	1.889	2.641	0.000
BLT-SSU-04-C1-SO-03	Solid	7/29/2014 13:48	8/27/2014 22:47	EPA 901.1	Pb-210	14255-04-0	0.324	0.847	pCi/g	0.503	U	1	0.847	1.9	0.446	0.907	(0.060)	0
BLT-SSU-04-C1-SO-03	Solid	7/29/2014 13:48	8/27/2014 22:47	EPA 901.1	Ra-226	13982-63-3	0.663	0.663	pCi/g	0.127		0.1	0.0823	2.2	0.301	0.771	(0.108)	0
BLT-SSU-04-C1-SO-03	Solid	7/29/2014 13:48	8/27/2014 14:06	DOE 905.0	Sr-90	STL02023	0.375	0.375	pCi/g	0.166		1	0.238	4.7	0.080	0.172	0.203	0.043
BLT-SSU-04-C1-SO-03														SOR	1.137		Net SOR	0.270
BLT-SSU-04-C1-SO-04	Solid	7/29/2014 11:02	8/28/2014 10:59	EERF C-01-1	C-14	14762-75-5	0.696	0.853	pCi/g	0.532	U	5	0.853	21	0.041	1.005	(0.152)	0
BLT-SSU-04-C1-SO-04	Solid	7/29/2014 11:02	8/20/2014 16:28	TAL-STL ST-RC-0036	Cl-36	13981-43-6	0.303	0.344	pCi/g	0.217	U	1	0.344	13.2	0.026	0.510	(0.166)	0
BLT-SSU-04-C1-SO-04	Solid	7/29/2014 11:02	8/27/2014 22:46	EPA 901.1	Cs-137	10045-97-3	0.00281	0.0274	pCi/g	0.0157	U	0.2	0.0274	16.9	0.002	0.096	(0.069)	0
BLT-SSU-04-C1-SO-04	Solid	7/29/2014 11:02	9/4/2014 4:52	EPA 906.0	H-3	10028-17-8	1.39	1.39	pCi/g	0.392		1	0.493	121	0.011	0.414	0.976	0.008
BLT-SSU-04-C1-SO-04	Solid	7/29/2014 11:02	9/6/2014 8:51	TAL-STL ST-RC-0055	Ni-63	13981-37-8	2.85	2.85	pCi/g	1.19		5	1.85	77954	0.000	1.889	0.961	0.000
BLT-SSU-04-C1-SO-04	Solid	7/29/2014 11:02	8/27/2014 22:46	EPA 901.1	Pb-210	14255-04-0	0.376	0.469	pCi/g	0.334	U	1	0.469	1.9	0.247	0.907	(0.438)	0
BLT-SSU-04-C1-SO-04	Solid	7/29/2014 11:02	8/27/2014 22:46	EPA 901.1	Ra-226	13982-63-3	0.494	0.494	pCi/g	0.077		0.1	0.0369	2.2	0.225	0.771	(0.277)	0
BLT-SSU-04-C1-SO-04	Solid	7/29/2014 11:02	8/27/2014 14:07	DOE 905.0	Sr-90	STL02023	2.72	2.72	pCi/g	0.347		1	0.247	4.7	0.579	0.172	2.548	0.542
BLT-SSU-04-C1-SO-04														SOR	1.130		Net SOR	0.550
BLT-SSU-04-C1-SO-05	Solid	7/29/2014 11:13	9/18/2014 16:42	EERF C-01-1	C-14	14762-75-5	0.546	0.816	pCi/g	0.512	U	5	0.816	21	0.039	1.005	(0.189)	0
BLT-SSU-04-C1-SO-05	Solid	7/29/2014 11:13	8/20/2014 16:28	TAL-STL ST-RC-0036	Cl-36	13981-43-6	0.204	0.354	pCi/g	0.216	U	1	0.354	13.2	0.027	0.510	(0.156)	0
BLT-SSU-04-C1-SO-05	Solid	7/29/2014 11:13	8/27/2014 20:19	EPA 901.1	Cs-137	10045-97-3	0.0422	0.0422	pCi/g	0.0196		0.2	0.0271	16.9	0.002	0.096	(0.054)	0
BLT-SSU-04-C1-SO-05	Solid	7/29/2014 11:13	9/4/2014 5:16	EPA 906.0	H-3	10028-17-8	0.599	0.599	pCi/g	0.317		1	0.473	121	0.005	0.414	0.185	0.002
BLT-SSU-04-C1-SO-05	Solid	7/29/2014 11:13	9/6/2014 11:04	TAL-STL ST-RC-0055	Ni-63	13981-37-8	3.01	3.01	pCi/g	1.28		5	1.95	77954	0.000	1.889	1.121	0.000
BLT-SSU-04-C1-SO-05	Solid	7/29/2014 11:13	8/27/2014 20:19	EPA 901.1	Pb-210	14255-04-0	0.345	0.665	pCi/g	0.396	U	1	0.665	1.9	0.350	0.907	(0.242)	0
BLT-SSU-04-C1-SO-05	Solid	7/29/2014 11:13	8/27/2014 20:19	EPA 901.1	Ra-226	13982-63-3	0.478	0.478	pCi/g	0.0814		0.1	0.0473	2.2	0.217	0.771	(0.293)	0
BLT-SSU-04-C1-SO-05	Solid	7/29/2014 11:13	8/27/2014 14:07	DOE 905.0	Sr-90	STL02023	0.304	0.304	pCi/g	0.161		1	0.239	4.7	0.065	0.172	0.132	0.028
BLT-SSU-04-C1-SO-05														SOR	0.705		Net SOR	0.030

BARC LLRBS FSSR Appendix 12													Individual Sample Results					
Class 1 SSU 04																		
Sample ID	Matrix	Collected	Analyzed	Method	Analyte	CAS	Result	TES Result	Unit	% Uncertainty	Footnotes	RL/CRDL	MDL/MDA	DCGL	Ratio	RA Mean	Net Result	Net Ratio
BLT-SSU-04-C1-SO-06	Solid	7/29/2014 10:49	9/7/2014 12:05	EERF C-01-1	C-14	14762-75-5	0.459	0.749	pCi/g	0.468	U	5	0.749	21	0.036	1.005	(0.256)	0
BLT-SSU-04-C1-SO-06	Solid	7/29/2014 10:49	8/21/2014 13:54	TAL-STL ST-RC-0036	Cl-36	13981-43-6	-0.038	0.41	pCi/g	0.237	U	1	0.41	13.2	0.031	0.510	(0.100)	0
BLT-SSU-04-C1-SO-06	Solid	7/29/2014 10:49	8/27/2014 20:19	EPA 901.1	Cs-137	10045-97-3	0.0163	0.0368	pCi/g	0.0223	U	0.2	0.0368	16.9	0.002	0.096	(0.059)	0
BLT-SSU-04-C1-SO-06	Solid	7/29/2014 10:49	9/4/2014 5:40	EPA 906.0	H-3	10028-17-8	0.611	0.611	pCi/g	0.329		1	0.498	121	0.005	0.414	0.197	0.002
BLT-SSU-04-C1-SO-06	Solid	7/29/2014 10:49	9/6/2014 13:16	TAL-STL ST-RC-0055	Ni-63	13981-37-8	0	2.02	pCi/g	1.2	U	5	2.02	77954	0.000	1.889	0.131	0.000
BLT-SSU-04-C1-SO-06	Solid	7/29/2014 10:49	8/27/2014 20:19	EPA 901.1	Pb-210	14255-04-0	0.533	0.586	pCi/g	0.442	U	1	0.586	1.9	0.308	0.907	(0.321)	0
BLT-SSU-04-C1-SO-06	Solid	7/29/2014 10:49	8/27/2014 20:19	EPA 901.1	Ra-226	13982-63-3	0.578	0.578	pCi/g	0.0948		0.1	0.0331	2.2	0.263	0.771	(0.193)	0
BLT-SSU-04-C1-SO-06	Solid	7/29/2014 10:49	8/27/2014 14:07	DOE 905.0	Sr-90	STL02023	0.111	0.21	pCi/g	0.128	U	1	0.21	4.7	0.045	0.172	0.038	0.008
													BLT-SSU-04-C1-SO-06	SOR	0.690		Net SOR	0.010
BLT-SSU-04-C1-SO-07	Solid	7/29/2014 10:29	9/7/2014 14:19	EERF C-01-1	C-14	14762-75-5	1.12	1.12	pCi/g	0.508		5	0.749	21	0.053	1.005	0.115	0.005
BLT-SSU-04-C1-SO-07	Solid	7/29/2014 10:29	8/21/2014 13:54	TAL-STL ST-RC-0036	Cl-36	13981-43-6	-0.0109	0.391	pCi/g	0.226	U	1	0.391	13.2	0.030	0.510	(0.119)	0
BLT-SSU-04-C1-SO-07	Solid	7/29/2014 10:29	8/27/2014 21:00	EPA 901.1	Cs-137	10045-97-3	0.00425	0.0416	pCi/g	0.0235	U	0.2	0.0416	16.9	0.002	0.096	(0.055)	0
BLT-SSU-04-C1-SO-07	Solid	7/29/2014 10:29	9/4/2014 6:03	EPA 906.0	H-3	10028-17-8	0.512	0.512	pCi/g	0.309		1	0.475	121	0.004	0.414	0.098	0.001
BLT-SSU-04-C1-SO-07	Solid	7/29/2014 10:29	9/6/2014 15:29	TAL-STL ST-RC-0055	Ni-63	13981-37-8	4.45	4.45	pCi/g	1.35		5	1.93	77954	0.000	1.889	2.561	0.000
BLT-SSU-04-C1-SO-07	Solid	7/29/2014 10:29	8/27/2014 21:00	EPA 901.1	Pb-210	14255-04-0	0.679	0.68	pCi/g	0.513	U	1	0.68	1.9	0.358	0.907	(0.227)	0
BLT-SSU-04-C1-SO-07	Solid	7/29/2014 10:29	8/27/2014 21:00	EPA 901.1	Ra-226	13982-63-3	0.547	0.547	pCi/g	0.109		0.1	0.0709	2.2	0.249	0.771	(0.224)	0
BLT-SSU-04-C1-SO-07	Solid	7/29/2014 10:29	8/27/2014 14:08	DOE 905.0	Sr-90	STL02023	0.313	0.313	pCi/g	0.141		1	0.198	4.7	0.067	0.172	0.141	0.030
													BLT-SSU-04-C1-SO-07	SOR	0.763		Net SOR	0.036
BLT-SSU-04-C1-SO-08	Solid	7/29/2014 10:10	9/1/2014 19:39	EERF C-01-1	C-14	14762-75-5	1.76	1.76	pCi/g	0.554		5	0.766	21	0.084	1.005	0.755	0.036
BLT-SSU-04-C1-SO-08	Solid	7/29/2014 10:10	8/21/2014 13:55	TAL-STL ST-RC-0036	Cl-36	13981-43-6	0.27	0.405	pCi/g	0.25	U	1	0.405	13.2	0.031	0.510	(0.105)	0
BLT-SSU-04-C1-SO-08	Solid	7/29/2014 10:10	8/27/2014 22:59	EPA 901.1	Cs-137	10045-97-3	0.0151	0.0341	pCi/g	0.0206	U	0.2	0.0341	16.9	0.002	0.096	(0.062)	0
BLT-SSU-04-C1-SO-08	Solid	7/29/2014 10:10	9/4/2014 6:27	EPA 906.0	H-3	10028-17-8	0.613	0.613	pCi/g	0.322		1	0.483	121	0.005	0.414	0.199	0.002
BLT-SSU-04-C1-SO-08	Solid	7/29/2014 10:10	9/6/2014 17:42	TAL-STL ST-RC-0055	Ni-63	13981-37-8	4.75	4.75	pCi/g	1.44		5	2.05	77954	0.000	1.889	2.861	0.000
BLT-SSU-04-C1-SO-08	Solid	7/29/2014 10:10	8/27/2014 22:59	EPA 901.1	Pb-210	14255-04-0	0.587	0.665	pCi/g	0.411	U	1	0.665	1.9	0.350	0.907	(0.242)	0
BLT-SSU-04-C1-SO-08	Solid	7/29/2014 10:10	8/27/2014 22:59	EPA 901.1	Ra-226	13982-63-3	0.62	0.62	pCi/g	0.106		0.1	0.0581	2.2	0.282	0.771	(0.151)	0
BLT-SSU-04-C1-SO-08	Solid	7/29/2014 10:10	8/27/2014 14:08	DOE 905.0	Sr-90	STL02023	0.402	0.402	pCi/g	0.151		1	0.201	4.7	0.086	0.172	0.230	0.049
													BLT-SSU-04-C1-SO-08	SOR	0.839		Net SOR	0.087
BLT-SSU-04-C1-SO-09	Solid	7/29/2014 9:40	9/1/2014 20:46	EERF C-01-1	C-14	14762-75-5	0.528	0.773	pCi/g	0.48	U	5	0.773	21	0.037	1.005	(0.232)	0
BLT-SSU-04-C1-SO-09	Solid	7/29/2014 9:40	8/21/2014 13:55	TAL-STL ST-RC-0036	Cl-36	13981-43-6	0	0.326	pCi/g	0.187	U	1	0.326	13.2	0.025	0.510	(0.184)	0
BLT-SSU-04-C1-SO-09	Solid	7/29/2014 9:40	8/27/2014 20:57	EPA 901.1	Cs-137	10045-97-3	0.00615	0.025	pCi/g	0.0145	U	0.2	0.025	16.9	0.001	0.096	(0.071)	0
BLT-SSU-04-C1-SO-09	Solid	7/29/2014 9:40	9/4/2014 6:50	EPA 906.0	H-3	10028-17-8	0.897	0.897	pCi/g	0.347		1	0.485	121	0.007	0.414	0.483	0.004
BLT-SSU-04-C1-SO-09	Solid	7/29/2014 9:40	9/6/2014 19:54	TAL-STL ST-RC-0055	Ni-63	13981-37-8	1.4	1.82	pCi/g	1.12	U	5	1.82	77954	0.000	1.889	(0.069)	0
BLT-SSU-04-C1-SO-09	Solid	7/29/2014 9:40	8/27/2014 20:57	EPA 901.1	Pb-210	14255-04-0	0.566	0.566	pCi/g	0.339		1	0.477	1.9	0.298	0.907	(0.341)	0
BLT-SSU-04-C1-SO-09	Solid	7/29/2014 9:40	8/27/2014 20:57	EPA 901.1	Ra-226	13982-63-3	0.485	0.485	pCi/g	0.0837		0.1	0.0486	2.2	0.220	0.771	(0.286)	0
BLT-SSU-04-C1-SO-09	Solid	7/29/2014 9:40	8/27/2014 14:08	DOE 905.0	Sr-90	STL02023	0.164	0.201	pCi/g	0.128	U	1	0.201	4.7	0.043	0.172	0.029	0.006
													BLT-SSU-04-C1-SO-09	SOR	0.632		Net SOR	0.010
BLT-SSU-04-C1-SO-10	Solid	4/14/2014 16:15	4/23/2014 6:06	EERF C-01-1	C-14	14762-75-5	1.7	1.7	pCi/g	0.591		5	0.85	21	0.081	1.005	0.695	0.033
BLT-SSU-04-C1-SO-10	Solid	4/14/2014 16:15	4/23/2014 15:04	TAL-STL ST-RC-0036	Cl-36	13981-43-6	0.0509	0.467	pCi/g	0.267	U	1	0.467	13.2	0.035	0.510	(0.043)	0
BLT-SSU-04-C1-SO-10	Solid	4/14/2014 16:15	5/8/2014 1:51	EPA 901.1	Cs-137	10045-97-3	0.0177	0.0337	pCi/g	0.0206	U	0.2	0.0337	16.9	0.002	0.096	(0.063)	0
BLT-SSU-04-C1-SO-10	Solid	4/14/2014 16:15	5/6/2014 14:26	EPA 906.0	H-3	10028-17-8	0.728	0.728	pCi/g	0.283		1	0.385	121	0.006	0.414	0.314	0.003
BLT-SSU-04-C1-SO-10	Solid	4/14/2014 16:15	4/25/2014 7:28	TAL-STL ST-RC-0055	Ni-63	13981-37-8	1.98	4.03	pCi/g	2.39	U	5	4.03	77954	0.000	1.889	2.141	0.000
BLT-SSU-04-C1-SO-10	Solid	4/14/2014 16:15	5/8/2014 1:51	EPA 901.1	Pb-210	14255-04-0	1.18	1.18	pCi/g	0.674		1	0.932	1.9	0.621	0.907	0.273	0.144
BLT-SSU-04-C1-SO-10	Solid	4/14/2014 16:15	5/8/2014 1:51	EPA 901.1	Ra-226	13982-63-3	0.744	0.744	pCi/g	0.11		0.1	0.0704	2.2	0.338	0.771	(0.027)	0
BLT-SSU-04-C1-SO-10	Solid	4/14/2014 16:15	4/27/2014 10:44	DOE 905.0	Sr-90	STL02023	0.0173	0.11	pCi/g	0.0642	U	1	0.11	4.7	0.023	0.172	(0.062)	0
													BLT-SSU-04-C1-SO-10	SOR	1.107		Net SOR	0.180

BARC LLRBS FSSR Appendix 12													Individual Sample Results					
Class 1 SSU 04																		
Sample ID	Matrix	Collected	Analyzed	Method	Analyte	CAS	Result	TES Result	Unit	% Uncertainty	Footnotes	RL/CRDL	MDL/MDA	DCGL	Ratio	RA Mean	Net Result	Net Ratio
BLT-SSU-04-C1-SO-11	Solid	7/29/2014 9:26	9/1/2014 21:53	EERF C-01-1	C-14	14762-75-5	0.334	0.751	pCi/g	0.457	U	5	0.751	21	0.036	1.005	(0.254)	0
BLT-SSU-04-C1-SO-11	Solid	7/29/2014 9:26	8/21/2014 13:55	TAL-STL ST-RC-0036	Cl-36	13981-43-6	0.0989	0.436	pCi/g	0.253	U	1	0.436	13.2	0.033	0.510	(0.074)	0
BLT-SSU-04-C1-SO-11	Solid	7/29/2014 9:26	8/27/2014 20:57	EPA 901.1	Cs-137	10045-97-3	0.00566	0.0455	pCi/g	0.0259	U	0.2	0.0455	16.9	0.003	0.096	(0.051)	0
BLT-SSU-04-C1-SO-11	Solid	7/29/2014 9:26	9/4/2014 7:14	EPA 906.0	H-3	10028-17-8	0.448	0.471	pCi/g	0.303	U	1	0.471	121	0.004	0.414	0.057	0.000
BLT-SSU-04-C1-SO-11	Solid	7/29/2014 9:26	9/6/2014 22:07	TAL-STL ST-RC-0055	Ni-63	13981-37-8	1.57	2.04	pCi/g	1.23	U	5	2.04	77954	0.000	1.889	0.151	0.000
BLT-SSU-04-C1-SO-11	Solid	7/29/2014 9:26	8/27/2014 20:57	EPA 901.1	Pb-210	14255-04-0	1.32	1.32	pCi/g	0.67		1	0.753	1.9	0.695	0.907	0.413	0.218
BLT-SSU-04-C1-SO-11	Solid	7/29/2014 9:26	8/27/2014 20:57	EPA 901.1	Ra-226	13982-63-3	0.733	0.733	pCi/g	0.132		0.1	0.073	2.2	0.333	0.771	(0.038)	0
BLT-SSU-04-C1-SO-11	Solid	7/29/2014 9:26	8/27/2014 14:08	DOE 905.0	Sr-90	STL02023	0.233	0.233	pCi/g	0.127		1	0.185	4.7	0.050	0.172	0.061	0.013
													BLT-SSU-04-C1-SO-11	SOR	1.153		Net SOR	0.231
BLT-SSU-04-C1-SO-12	Solid	7/29/2014 9:10	9/1/2014 23:01	EERF C-01-1	C-14	14762-75-5	-0.0721	0.767	pCi/g	0.447	U	5	0.767	21	0.037	1.005	(0.238)	0
BLT-SSU-04-C1-SO-12	Solid	7/29/2014 9:10	8/21/2014 13:55	TAL-STL ST-RC-0036	Cl-36	13981-43-6	0.158	0.335	pCi/g	0.203	U	1	0.335	13.2	0.025	0.510	(0.175)	0
BLT-SSU-04-C1-SO-12	Solid	7/29/2014 9:10	8/27/2014 20:57	EPA 901.1	Cs-137	10045-97-3	-0.0029	0.03	pCi/g	0.017	U	0.2	0.03	16.9	0.002	0.096	(0.066)	0
BLT-SSU-04-C1-SO-12	Solid	7/29/2014 9:10	9/4/2014 7:38	EPA 906.0	H-3	10028-17-8	0.486	0.495	pCi/g	0.317	U	1	0.495	121	0.004	0.414	0.081	0.001
BLT-SSU-04-C1-SO-12	Solid	7/29/2014 9:10	9/7/2014 0:20	TAL-STL ST-RC-0055	Ni-63	13981-37-8	1.33	1.73	pCi/g	1.07	U	5	1.73	77954	0.000	1.889	(0.159)	0
BLT-SSU-04-C1-SO-12	Solid	7/29/2014 9:10	8/27/2014 20:57	EPA 901.1	Pb-210	14255-04-0	0.743	0.743	pCi/g	0.344		1	0.491	1.9	0.391	0.907	(0.164)	0
BLT-SSU-04-C1-SO-12	Solid	7/29/2014 9:10	8/27/2014 20:57	EPA 901.1	Ra-226	13982-63-3	0.573	0.573	pCi/g	0.092		0.1	0.0475	2.2	0.260	0.771	(0.198)	0
BLT-SSU-04-C1-SO-12	Solid	7/29/2014 9:10	8/27/2014 14:09	DOE 905.0	Sr-90	STL02023	0.523	0.523	pCi/g	0.168		1	0.214	4.7	0.111	0.172	0.351	0.075
													BLT-SSU-04-C1-SO-12	SOR	0.831		Net SOR	0.075
BLT-SSU-04-C1-SO-13	Solid	7/30/2014 7:36	9/2/2014 0:08	EERF C-01-1	C-14	14762-75-5	0.278	0.775	pCi/g	0.467	U	5	0.775	21	0.037	1.005	(0.230)	0
BLT-SSU-04-C1-SO-13	Solid	7/30/2014 7:36	8/21/2014 13:56	TAL-STL ST-RC-0036	Cl-36	13981-43-6	0.134	0.324	pCi/g	0.195	U	1	0.324	13.2	0.025	0.510	(0.186)	0
BLT-SSU-04-C1-SO-13	Solid	7/30/2014 7:36	8/27/2014 21:41	EPA 901.1	Cs-137	10045-97-3	0.00456	0.0327	pCi/g	0.0181	U	0.2	0.0327	16.9	0.002	0.096	(0.064)	0
BLT-SSU-04-C1-SO-13	Solid	7/30/2014 7:36	9/4/2014 8:01	EPA 906.0	H-3	10028-17-8	0.319	0.498	pCi/g	0.304	U	1	0.498	121	0.004	0.414	0.084	0.001
BLT-SSU-04-C1-SO-13	Solid	7/30/2014 7:36	9/7/2014 2:32	TAL-STL ST-RC-0055	Ni-63	13981-37-8	2.94	2.94	pCi/g	1.24		5	1.91	77954	0.000	1.889	1.051	0.000
BLT-SSU-04-C1-SO-13	Solid	7/30/2014 7:36	8/27/2014 21:41	EPA 901.1	Pb-210	14255-04-0	0.222	0.847	pCi/g	0.495	U	1	0.847	1.9	0.446	0.907	(0.060)	0
BLT-SSU-04-C1-SO-13	Solid	7/30/2014 7:36	8/27/2014 21:41	EPA 901.1	Ra-226	13982-63-3	0.56	0.56	pCi/g	0.109		0.1	0.0683	2.2	0.255	0.771	(0.211)	0
BLT-SSU-04-C1-SO-13	Solid	7/30/2014 7:36	8/27/2014 14:11	DOE 905.0	Sr-90	STL02023	0.15	0.219	pCi/g	0.136	U	1	0.219	4.7	0.047	0.172	0.047	0.010
													BLT-SSU-04-C1-SO-13	SOR	0.814		Net SOR	0.011
BLT-SSU-04-C1-SO-14	Solid	7/29/2014 8:47	9/7/2014 16:33	EERF C-01-1	C-14	14762-75-5	0.135	0.747	pCi/g	0.452	U	5	0.747	21	0.036	1.005	(0.258)	0
BLT-SSU-04-C1-SO-14	Solid	7/29/2014 8:47	8/21/2014 13:56	TAL-STL ST-RC-0036	Cl-36	13981-43-6	0.264	0.336	pCi/g	0.21	U	1	0.336	13.2	0.025	0.510	(0.174)	0
BLT-SSU-04-C1-SO-14	Solid	7/29/2014 8:47	8/27/2014 23:11	EPA 901.1	Cs-137	10045-97-3	0.00552	0.0384	pCi/g	0.0218	U	0.2	0.0384	16.9	0.002	0.096	(0.058)	0
BLT-SSU-04-C1-SO-14	Solid	7/29/2014 8:47	9/4/2014 8:25	EPA 906.0	H-3	10028-17-8	0.442	0.484	pCi/g	0.308	U	1	0.484	121	0.004	0.414	0.070	0.001
BLT-SSU-04-C1-SO-14	Solid	7/29/2014 8:47	9/7/2014 4:44	TAL-STL ST-RC-0055	Ni-63	13981-37-8	1.51	1.96	pCi/g	1.23	U	5	1.96	77954	0.000	1.889	0.071	0.000
BLT-SSU-04-C1-SO-14	Solid	7/29/2014 8:47	8/27/2014 23:11	EPA 901.1	Pb-210	14255-04-0	0.648	0.695	pCi/g	0.553	U	1	0.695	1.9	0.366	0.907	(0.212)	0
BLT-SSU-04-C1-SO-14	Solid	7/29/2014 8:47	8/27/2014 23:11	EPA 901.1	Ra-226	13982-63-3	0.637	0.637	pCi/g	0.112		0.1	0.0594	2.2	0.290	0.771	(0.134)	0
BLT-SSU-04-C1-SO-14	Solid	7/29/2014 8:47	8/27/2014 14:11	DOE 905.0	Sr-90	STL02023	0.195	0.223	pCi/g	0.143	U	1	0.223	4.7	0.047	0.172	0.051	0.011
													BLT-SSU-04-C1-SO-14	SOR	0.770		Net SOR	0.011
BLT-SSU-04-C1-SO-15	Solid	7/29/2014 15:50	9/16/2014 2:36	EERF C-01-1	C-14	14762-75-5	-0.691	1.58	pCi/g	0.864	U	5	1.58	21	0.075	1.005	0.575	0.027
BLT-SSU-04-C1-SO-15	Solid	7/29/2014 15:50	8/21/2014 17:23	TAL-STL ST-RC-0036	Cl-36	13981-43-6	0.43	0.489	pCi/g	0.313	U	1	0.489	13.2	0.037	0.510	(0.021)	0
BLT-SSU-04-C1-SO-15	Solid	7/29/2014 15:50	8/27/2014 10:44	EPA 901.1	Cs-137	10045-97-3	0.00282	0.0392	pCi/g	0.0219	U	0.2	0.0392	16.9	0.002	0.096	(0.057)	0
BLT-SSU-04-C1-SO-15	Solid	7/29/2014 15:50	8/22/2014 14:59	EPA 906.0	H-3	10028-17-8	0.237	0.514	pCi/g	0.309	U	1	0.514	121	0.004	0.414	0.100	0.001
BLT-SSU-04-C1-SO-15	Solid	7/29/2014 15:50	9/7/2014 6:57	TAL-STL ST-RC-0055	Ni-63	13981-37-8	3.06	3.06	pCi/g	1.29		5	1.99	77954	0.000	1.889	1.171	0.000
BLT-SSU-04-C1-SO-15	Solid	7/29/2014 15:50	8/27/2014 10:44	EPA 901.1	Pb-210	14255-04-0	0.308	0.611	pCi/g	0.426	U	1	0.611	1.9	0.322	0.907	(0.296)	0
BLT-SSU-04-C1-SO-15	Solid	7/29/2014 15:50	8/27/2014 10:44	EPA 901.1	Ra-226	13982-63-3	0.498	0.498	pCi/g	0.0978		0.1	0.0614	2.2	0.226	0.771	(0.273)	0
BLT-SSU-04-C1-SO-15	Solid	7/29/2014 15:50	8/27/2014 14:12	DOE 905.0	Sr-90	STL02023	0.384	0.384	pCi/g	0.154		1	0.212	4.7	0.082	0.172	0.212	0.045
													BLT-SSU-04-C1-SO-15	SOR	0.749		Net SOR	0.073

Sample ID	Matrix	Collected	Analyzed	Method	Analyte	CAS	Result	TES Result	Unit	% Uncertainty	Footnotes	RL/CRDL	MDL/MDA	DCGL	Ratio	RA Mean	Net Result	Net Ratio
BLT-SSU-04-C1-SO-16	Solid	7/30/2014 7:22	9/16/2014 3:22	EERF C-01-1	C-14	14762-75-5	-0.0223	1.58	pCi/g	0.904	U	5	1.58	21	0.075	1.005	0.575	0.027
BLT-SSU-04-C1-SO-16	Solid	7/30/2014 7:22	8/21/2014 17:24	TAL-STL ST-RC-0036	Cl-36	13981-43-6	0.254	0.473	pCi/g	0.288	U	1	0.473	13.2	0.036	0.510	(0.037)	0
BLT-SSU-04-C1-SO-16	Solid	7/30/2014 7:22	8/27/2014 10:43	EPA 901.1	Cs-137	10045-97-3	0.00045	0.0309	pCi/g	0.0172	U	0.2	0.0309	16.9	0.002	0.096	(0.065)	0
BLT-SSU-04-C1-SO-16	Solid	7/30/2014 7:22	8/22/2014 15:46	EPA 906.0	H-3	10028-17-8	0.353	0.512	pCi/g	0.318	U	1	0.512	121	0.004	0.414	0.098	0.001
BLT-SSU-04-C1-SO-16	Solid	7/30/2014 7:22	9/7/2014 9:09	TAL-STL ST-RC-0055	Ni-63	13981-37-8	3.07	3.07	pCi/g	1.29		5	1.99	77954	0.000	1.889	1.181	0.000
BLT-SSU-04-C1-SO-16	Solid	7/30/2014 7:22	8/27/2014 10:43	EPA 901.1	Pb-210	14255-04-0	0.481	0.556	pCi/g	0.383	U	1	0.556	1.9	0.293	0.907	(0.351)	0
BLT-SSU-04-C1-SO-16	Solid	7/30/2014 7:22	8/27/2014 10:43	EPA 901.1	Ra-226	13982-63-3	0.538	0.538	pCi/g	0.0936		0.1	0.0515	2.2	0.245	0.771	(0.233)	0
BLT-SSU-04-C1-SO-16	Solid	7/30/2014 7:22	8/27/2014 14:12	DOE 905.0	Sr-90	STL02023	0.355	0.355	pCi/g	0.168		1	0.243	4.7	0.076	0.172	0.183	0.039
BLT-SSU-04-C1-SO-16														SOR	0.730		Net SOR	0.067
BLT-SSU-04-C1-SO-16-FD03	Solid	7/30/2014 7:22	9/16/2014 4:09	EERF C-01-1	C-14	14762-75-5	-0.787	1.64	pCi/g	0.891	U	5	1.64	21	0.078	1.005	0.635	0.030
BLT-SSU-04-C1-SO-16-FD03	Solid	7/30/2014 7:22	8/21/2014 17:24	TAL-STL ST-RC-0036	Cl-36	13981-43-6	0.129	0.489	pCi/g	0.286	U	1	0.489	13.2	0.037	0.510	(0.021)	0
BLT-SSU-04-C1-SO-16-FD03	Solid	7/30/2014 7:22	8/27/2014 11:32	EPA 901.1	Cs-137	10045-97-3	-0.000325	0.0387	pCi/g	0.0213	U	0.2	0.0387	16.9	0.002	0.096	(0.058)	0
BLT-SSU-04-C1-SO-16-FD03	Solid	7/30/2014 7:22	8/22/2014 16:33	EPA 906.0	H-3	10028-17-8	0.46	0.53	pCi/g	0.334	U	1	0.53	121	0.004	0.414	0.116	0.001
BLT-SSU-04-C1-SO-16-FD03	Solid	7/30/2014 7:22	9/7/2014 11:22	TAL-STL ST-RC-0055	Ni-63	13981-37-8	1.49	1.93	pCi/g	1.21	U	5	1.93	77954	0.000	1.889	0.041	0.000
BLT-SSU-04-C1-SO-16-FD03	Solid	7/30/2014 7:22	8/27/2014 11:32	EPA 901.1	Pb-210	14255-04-0	0.778	0.778	pCi/g	0.44		1	0.576	1.9	0.409	0.907	(0.129)	0
BLT-SSU-04-C1-SO-16-FD03	Solid	7/30/2014 7:22	8/27/2014 11:32	EPA 901.1	Ra-226	13982-63-3	0.603	0.603	pCi/g	0.0992		0.1	0.0349	2.2	0.274	0.771	(0.168)	0
BLT-SSU-04-C1-SO-16-FD03	Solid	7/30/2014 7:22	8/27/2014 14:12	DOE 905.0	Sr-90	STL02023	0.291	0.291	pCi/g	0.149		1	0.219	4.7	0.062	0.172	0.119	0.025
BLT-SSU-04-C1-SO-16-FD03														SOR	0.867		Net SOR	0.057



**Final Status Survey Report  
Appendix 13  
Class 1 SSU-05  
Survey and Sample Results**

**Beltsville Agricultural Research Center (BARC)  
Low Level Radioactive Burial site (LLRBS)  
Beltsville, Maryland**



**Prepared for:**

U.S. Army Field Support Command  
Rock Island, Illinois

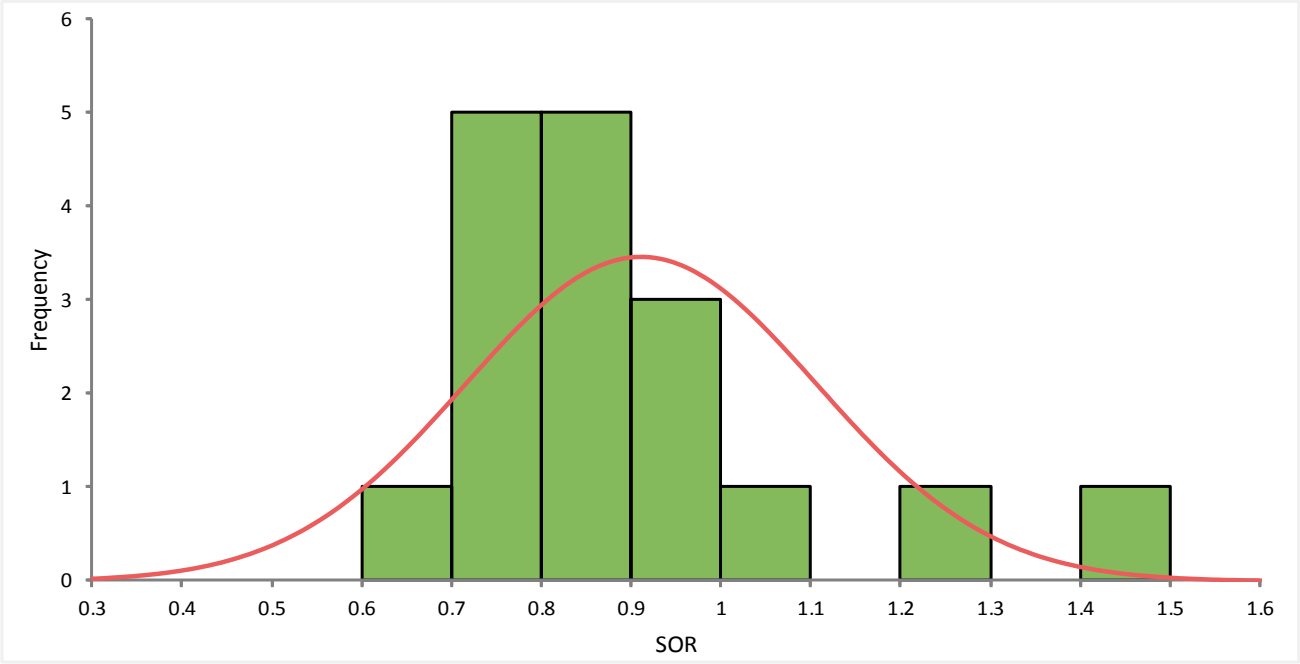
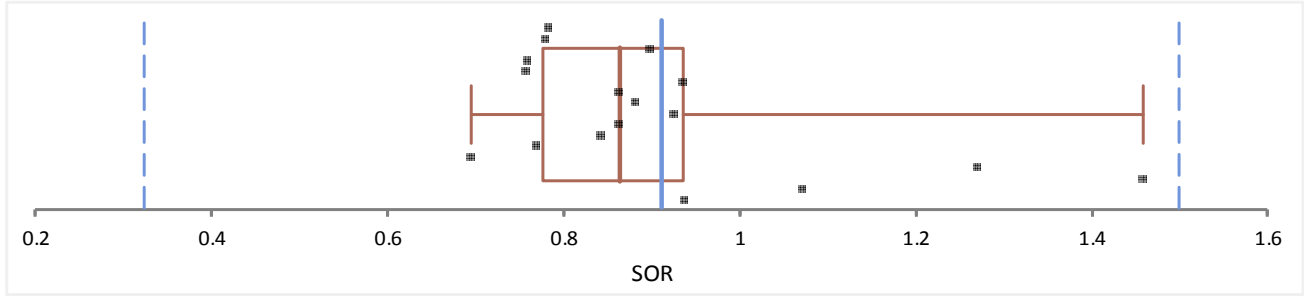
*Prepared by:*

***TPMC-EnergySolutions Environmental Services, LLC***

**Contract No. W52P1J-11-D-0001**



Statistics & Decisions	SU	RA	Sample ID	BLT-SSU-05-C1-SO-01	BLT-SSU-05-C1-SO-02	BLT-SSU-05-C1-SO-03	BLT-SSU-05-C1-SO-03-FD02	BLT-SSU-05-C1-SO-04	BLT-SSU-05-C1-SO-05	BLT-SSU-05-C1-SO-06	BLT-SSU-05-C1-SO-07	BLT-SSU-05-C1-SO-08	BLT-SSU-05-C1-SO-09	BLT-SSU-05-C1-SO-10	BLT-SSU-05-C1-SO-11	BLT-SSU-05-C1-SO-12	BLT-SSU-05-C1-SO-13	BLT-SSU-05-C1-SO-14	BLT-SSU-05-C1-SO-15	BLT-SSU-05-C1-SO-16
Avg	0.911	0.960	SOR	0.937	1.072	1.459	1.269	0.695	0.770	0.843	0.863	0.926	0.882	0.863	0.935	0.758	0.759	0.898	0.779	0.782
Min	0.695	0.768	Net SOR	0.191	0.285	0.556	0.415	0.054	0.017	0.050	0.048	0.090	0.060	0.046	0.057	0.044	0.050	0.048	0.053	0.035
Max	1.459	1.333																		
SU Max SOR - RA Min SOR	0.691																			
SU Avg SOR - RA Avg SOR	-0.049																			
SU meets release criterion																				



Frequency Distribution

N		17				
	Mean	SE	SD	Variance	Skewness	Kurtosis
SOR	0.911191036	0.047490421	0.195808023	0.038340782	1.8	3.25
	Minimum	1st quartile	Median	3rd quartile	Maximum	IQR
SOR	0.69458217	0.775910829	0.863282196	0.935616576	1.45909219	0.159705747
Quantile	SOR					
0.050	0.707286453					
0.950	1.421102601					

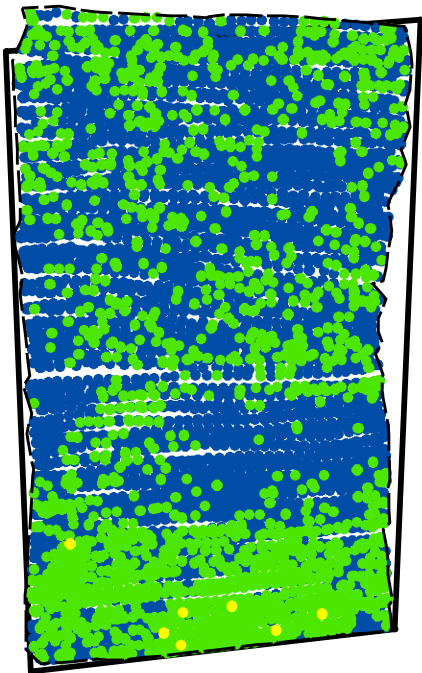
Class	Frequency	Relative frequency	Density	Cumulative frequency	Cumulative relative frequency
≥0.6 to <0.7	1	0.059	0.5882	1	0.059
≥0.7 to <0.8	5	0.294	2.9412	6	0.353
≥0.8 to <0.9	5	0.294	2.9412	11	0.647
≥0.9 to <1	3	0.176	1.7647	14	0.824
≥1 to <1.1	1	0.059	0.5882	15	0.882
≥1.1 to <1.2	0	0.000	0.0000	15	0.882
≥1.2 to <1.3	1	0.059	0.5882	16	0.941
≥1.3 to <1.4	0	0.000	0.0000	16	0.941
≥1.4 to <1.5	1	0.059	0.5882	17	1.000




Class 1 SSU 05


Scan Plot

Class 1  
Stockpile Survey Unit 05  
Initial & Final Scan





**Legend**


 Laydown Area B

 Soil Survey Unit  
(21,307.3 ft<sup>2</sup>)

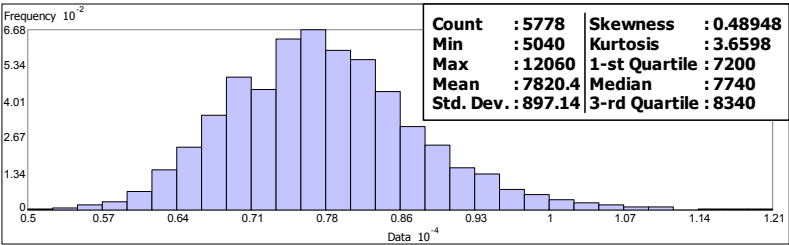
**FIDLER Gross CPM**


 4,260 - 8,269

 8,270 - 11,193


 11,194 - 12,060

Data Collected: 05/14/2014



 0 5 10 15 20 25 Meters  
0 20 40 60 80 Feet

Laydown Area B, Class 1, SSU05  
Beltsville, MD

 Date 05/15/14  
Drawing 14051511.a

<div> <div>Class 1 SSU 05</div> <div> <div>BARC LLRBS FSSR</div> <div>Appendix 13</div> </div> <div>Individual Sample Results</div> </div>																		
Sample ID	Matrix	Collected	Analyzed	Method	Analyte	CAS	Result	TES Result	Unit	% Uncertainty	Footnotes	RL/CRDL	MDL/MDA	DCGL	Ratio	RA Mean	Net Result	Net Ratio
BLT-SSU-05-C1-SO-01	Solid	7/29/2014 13:33	9/16/2014 4:32	EERF C-01-1	C-14	14762-75-5	2.11	2.11	pCi/g	1.07		5	1.61	21	0.100	1.005	1.105	0.053
BLT-SSU-05-C1-SO-01	Solid	7/29/2014 13:33	8/22/2014 8:53	TAL-STL ST-RC-0036	Cl-36	13981-43-6	0.301	0.525	pCi/g	0.321	U	1	0.525	13.2	0.040	0.510	0.015	0.001
BLT-SSU-05-C1-SO-01	Solid	7/29/2014 13:33	8/27/2014 11:31	EPA 901.1	Cs-137	10045-97-3	0.0087	0.0262	pCi/g	0.0154	U	0.2	0.0262	16.9	0.002	0.096	(0.070)	0
BLT-SSU-05-C1-SO-01	Solid	7/29/2014 13:33	8/22/2014 16:57	EPA 906.0	H-3	10028-17-8	10.1	10.1	pCi/g	1.15		1	0.512	121	0.083	0.414	9.686	0.080
BLT-SSU-05-C1-SO-01	Solid	7/29/2014 13:33	9/7/2014 13:34	TAL-STL ST-RC-0055	Ni-63	13981-37-8	3.04	3.04	pCi/g	1.3		5	1.97	77954	0.000	1.889	1.151	0.000
BLT-SSU-05-C1-SO-01	Solid	7/29/2014 13:33	8/27/2014 11:31	EPA 901.1	Pb-210	14255-04-0	0.721	0.721	pCi/g	0.388		1	0.502	1.9	0.379	0.907	(0.186)	0
BLT-SSU-05-C1-SO-01	Solid	7/29/2014 13:33	8/27/2014 11:31	EPA 901.1	Ra-226	13982-63-3	0.523	0.523	pCi/g	0.0863		0.1	0.0395	2.2	0.238	0.771	(0.248)	0
BLT-SSU-05-C1-SO-01	Solid	7/29/2014 13:33	8/27/2014 14:12	DOE 905.0	Sr-90	STL02023	0.442	0.442	pCi/g	0.155		1	0.199	4.7	0.094	0.172	0.270	0.058
BLT-SSU-05-C1-SO-01														SOR	0.937		Net SOR	0.191
BLT-SSU-05-C1-SO-02	Solid	7/29/2014 13:17	9/16/2014 4:55	EERF C-01-1	C-14	14762-75-5	3.77	3.77	pCi/g	1.22		5	1.64	21	0.180	1.005	2.765	0.132
BLT-SSU-05-C1-SO-02	Solid	7/29/2014 13:17	8/22/2014 8:53	TAL-STL ST-RC-0036	Cl-36	13981-43-6	-0.123	0.559	pCi/g	0.308	U	1	0.559	13.2	0.042	0.510	0.049	0.004
BLT-SSU-05-C1-SO-02	Solid	7/29/2014 13:17	8/27/2014 11:29	EPA 901.1	Cs-137	10045-97-3	1.13	1.13	pCi/g	0.136		0.2	0.0299	16.9	0.067	0.096	1.034	0.061
BLT-SSU-05-C1-SO-02	Solid	7/29/2014 13:17	8/22/2014 17:21	EPA 906.0	H-3	10028-17-8	3.46	3.46	pCi/g	0.573		1	0.512	121	0.029	0.414	3.046	0.025
BLT-SSU-05-C1-SO-02	Solid	7/29/2014 13:17	9/7/2014 15:47	TAL-STL ST-RC-0055	Ni-63	13981-37-8	1.43	1.85	pCi/g	1.14	U	5	1.85	77954	0.000	1.889	(0.039)	0
BLT-SSU-05-C1-SO-02	Solid	7/29/2014 13:17	8/27/2014 11:29	EPA 901.1	Pb-210	14255-04-0	0.726	0.726	pCi/g	0.493		1	0.626	1.9	0.382	0.907	(0.181)	0
BLT-SSU-05-C1-SO-02	Solid	7/29/2014 13:17	8/27/2014 11:29	EPA 901.1	Ra-226	13982-63-3	0.6	0.6	pCi/g	0.0984		0.1	0.0525	2.2	0.273	0.771	(0.171)	0
BLT-SSU-05-C1-SO-02	Solid	7/29/2014 13:17	8/27/2014 14:12	DOE 905.0	Sr-90	STL02023	0.47	0.47	pCi/g	0.168		1	0.224	4.7	0.100	0.172	0.298	0.063
BLT-SSU-05-C1-SO-02														SOR	1.072		Net SOR	0.285
BLT-SSU-05-C1-SO-03	Solid	7/29/2014 13:45	9/16/2014 5:41	EERF C-01-1	C-14	14762-75-5	4.95	4.95	pCi/g	1.31		5	1.62	21	0.236	1.005	3.945	0.188
BLT-SSU-05-C1-SO-03	Solid	7/29/2014 13:45	8/22/2014 8:54	TAL-STL ST-RC-0036	Cl-36	13981-43-6	0.124	0.542	pCi/g	0.317	U	1	0.542	13.2	0.041	0.510	0.032	0.002
BLT-SSU-05-C1-SO-03	Solid	7/29/2014 13:45	8/27/2014 12:08	EPA 901.1	Cs-137	10045-97-3	2.37	2.37	pCi/g	0.268		0.2	0.0266	16.9	0.140	0.096	2.274	0.135
BLT-SSU-05-C1-SO-03	Solid	7/29/2014 13:45	8/22/2014 18:08	EPA 906.0	H-3	10028-17-8	12.2	12.2	pCi/g	1.35		1	0.555	121	0.101	0.414	11.786	0.097
BLT-SSU-05-C1-SO-03	Solid	7/29/2014 13:45	9/7/2014 20:14	TAL-STL ST-RC-0055	Ni-63	13981-37-8	5.83	5.83	pCi/g	1.41		5	1.89	77954	0.000	1.889	3.941	0.000
BLT-SSU-05-C1-SO-03	Solid	7/29/2014 13:45	8/27/2014 12:08	EPA 901.1	Pb-210	14255-04-0	1.09	1.09	pCi/g	0.64		1	0.756	1.9	0.574	0.907	0.183	0.096
BLT-SSU-05-C1-SO-03	Solid	7/29/2014 13:45	8/27/2014 12:08	EPA 901.1	Ra-226	13982-63-3	0.647	0.647	pCi/g	0.102		0.1	0.0451	2.2	0.294	0.771	(0.124)	0
BLT-SSU-05-C1-SO-03	Solid	7/29/2014 13:45	8/27/2014 14:13	DOE 905.0	Sr-90	STL02023	0.345	0.345	pCi/g	0.156		1	0.22	4.7	0.073	0.172	0.173	0.037
BLT-SSU-05-C1-SO-03														SOR	1.459		Net SOR	0.556
BLT-SSU-05-C1-SO-03-FD02	Solid	7/29/2014 13:45	9/16/2014 5:18	EERF C-01-1	C-14	14762-75-5	4.95	4.95	pCi/g	1.31		5	1.62	21	0.236	1.005	3.945	0.188
BLT-SSU-05-C1-SO-03-FD02	Solid	7/29/2014 13:45	8/22/2014 8:53	TAL-STL ST-RC-0036	Cl-36	13981-43-6	-0.0541	0.533	pCi/g	0.297	U	1	0.533	13.2	0.040	0.510	0.023	0.002
BLT-SSU-05-C1-SO-03-FD02	Solid	7/29/2014 13:45	8/27/2014 12:09	EPA 901.1	Cs-137	10045-97-3	2.04	2.04	pCi/g	0.231		0.2	0.0363	16.9	0.121	0.096	1.944	0.115
BLT-SSU-05-C1-SO-03-FD02	Solid	7/29/2014 13:45	8/22/2014 17:44	EPA 906.0	H-3	10028-17-8	11.2	11.2	pCi/g	1.25		1	0.525	121	0.093	0.414	10.786	0.089
BLT-SSU-05-C1-SO-03-FD02	Solid	7/29/2014 13:45	9/7/2014 17:59	TAL-STL ST-RC-0055	Ni-63	13981-37-8	2.98	2.98	pCi/g	1.29		5	1.94	77954	0.000	1.889	1.091	0.000
BLT-SSU-05-C1-SO-03-FD02	Solid	7/29/2014 13:45	8/27/2014 12:09	EPA 901.1	Pb-210	14255-04-0	0.846	0.846	pCi/g	0.569		1	0.702	1.9	0.445	0.907	(0.061)	0
BLT-SSU-05-C1-SO-03-FD02	Solid	7/29/2014 13:45	8/27/2014 12:09	EPA 901.1	Ra-226	13982-63-3	0.609	0.609	pCi/g	0.0958		0.1	0.0504	2.2	0.277	0.771	(0.162)	0
BLT-SSU-05-C1-SO-03-FD02	Solid	7/29/2014 13:45	8/27/2014 14:12	DOE 905.0	Sr-90	STL02023	0.271	0.271	pCi/g	0.144		1	0.212	4.7	0.058	0.172	0.099	0.021
BLT-SSU-05-C1-SO-03-FD02														SOR	1.269		Net SOR	0.415
BLT-SSU-05-C1-SO-04	Solid	7/29/2014 10:59	9/16/2014 6:04	EERF C-01-1	C-14	14762-75-5	-0.104	1.6	pCi/g	0.911	U	5	1.6	21	0.076	1.005	0.595	0.028
BLT-SSU-05-C1-SO-04	Solid	7/29/2014 10:59	8/22/2014 8:54	TAL-STL ST-RC-0036	Cl-36	13981-43-6	0.0993	0.452	pCi/g	0.262	U	1	0.452	13.2	0.034	0.510	(0.058)	0
BLT-SSU-05-C1-SO-04	Solid	7/29/2014 10:59	8/27/2014 12:07	EPA 901.1	Cs-137	10045-97-3	-0.0106	0.041	pCi/g	0.0239	U	0.2	0.041	16.9	0.002	0.096	(0.055)	0
BLT-SSU-05-C1-SO-04	Solid	7/29/2014 10:59	8/22/2014 18:32	EPA 906.0	H-3	10028-17-8	1.1	1.1	pCi/g	0.375		1	0.51	121	0.009	0.414	0.686	0.006
BLT-SSU-05-C1-SO-04	Solid	7/29/2014 10:59	8/28/2014 1:17	TAL-STL ST-RC-0055	Ni-63	13981-37-8	9.74	9.74	pCi/g	2.05		5	2.56	77954	0.000	1.889	7.851	0.000
BLT-SSU-05-C1-SO-04	Solid	7/29/2014 10:59	8/27/2014 12:07	EPA 901.1	Pb-210	14255-04-0	0.373	0.535	pCi/g	0.358	U	1	0.535	1.9	0.282	0.907	(0.372)	0
BLT-SSU-05-C1-SO-04	Solid	7/29/2014 10:59	8/27/2014 12:07	EPA 901.1	Ra-226	13982-63-3	0.516	0.516	pCi/g	0.0925		0.1	0.0489	2.2	0.235	0.771	(0.255)	0
BLT-SSU-05-C1-SO-04	Solid	7/29/2014 10:59	8/27/2014 15:45	DOE 905.0	Sr-90	STL02023	0.242	0.265	pCi/g	0.169	U	1	0.265	4.7	0.056	0.172	0.093	0.020
BLT-SSU-05-C1-SO-04														SOR	0.695		Net SOR	0.054

BARC LLRBS FSSR Appendix 13														Individual Sample Results				
Class 1 SSU 05																		
Sample ID	Matrix	Collected	Analyzed	Method	Analyte	CAS	Result	TES Result	Unit	% Uncertainty	Footnotes	RL/CRDL	MDL/MDA	DCGL	Ratio	RA Mean	Net Result	Net Ratio
BLT-SSU-05-C1-SO-05	Solid	6/23/2014 9:45	7/10/2014 1:04	EERF C-01-1	C-14	14762-75-5	1.18	1.18	pCi/g	0.543		5	0.82	21	0.056	1.005	0.175	0.008
BLT-SSU-05-C1-SO-05	Solid	6/23/2014 9:45	7/1/2014 16:05	TAL-STL ST-RC-0036	Cl-36	13981-43-6	0.18	0.309	pCi/g	0.189	U	1	0.309	13.2	0.023	0.510	(0.201)	0
BLT-SSU-05-C1-SO-05	Solid	6/23/2014 9:45	7/18/2014 1:33	EPA 901.1	Cs-137	10045-97-3	0.0732	0.0732	pCi/g	0.0152		0.2	0.0119	16.9	0.004	0.096	(0.023)	0
BLT-SSU-05-C1-SO-05	Solid	6/23/2014 9:45	7/2/2014 19:05	EPA 906.0	H-3	10028-17-8	0.704	0.704	pCi/g	0.261		1	0.347	121	0.006	0.414	0.290	0.002
BLT-SSU-05-C1-SO-05	Solid	6/23/2014 9:45	7/10/2014 4:36	TAL-STL ST-RC-0055	Ni-63	13981-37-8	9.27	9.27	pCi/g	3.14		5	4.59	77954	0.000	1.889	7.381	0.000
BLT-SSU-05-C1-SO-05	Solid	6/23/2014 9:45	7/18/2014 1:33	EPA 901.1	Pb-210	14255-04-0	0.75	0.75	pCi/g	0.256		1	0.284	1.9	0.395	0.907	(0.157)	0
BLT-SSU-05-C1-SO-05	Solid	6/23/2014 9:45	7/18/2014 1:33	EPA 901.1	Ra-226	13982-63-3	0.534	0.534	pCi/g	0.0675		0.1	0.0273	2.2	0.243	0.771	(0.237)	0
BLT-SSU-05-C1-SO-05	Solid	6/23/2014 9:45	7/8/2014 15:35	DOE 905.0	Sr-90	STL02023	0.0938	0.201	pCi/g	0.121	U	1	0.201	4.7	0.043	0.172	0.029	0.006
BLT-SSU-05-C1-SO-05														SOR	0.770		Net SOR	0.017
BLT-SSU-05-C1-SO-06	Solid	7/29/2014 10:47	9/16/2014 6:27	EERF C-01-1	C-14	14762-75-5	-0.387	1.63	pCi/g	0.907	U	5	1.63	21	0.078	1.005	0.625	0.030
BLT-SSU-05-C1-SO-06	Solid	7/29/2014 10:47	8/22/2014 8:54	TAL-STL ST-RC-0036	Cl-36	13981-43-6	-0.0469	0.446	pCi/g	0.244	U	1	0.446	13.2	0.034	0.510	(0.064)	0
BLT-SSU-05-C1-SO-06	Solid	7/29/2014 10:47	8/27/2014 12:06	EPA 901.1	Cs-137	10045-97-3	0.0455	0.0455	pCi/g	0.0202		0.2	0.0206	16.9	0.003	0.096	(0.051)	0
BLT-SSU-05-C1-SO-06	Solid	7/29/2014 10:47	8/22/2014 18:55	EPA 906.0	H-3	10028-17-8	0.198	0.518	pCi/g	0.309	U	1	0.518	121	0.004	0.414	0.104	0.001
BLT-SSU-05-C1-SO-06	Solid	7/29/2014 10:47	8/28/2014 3:30	TAL-STL ST-RC-0055	Ni-63	13981-37-8	1.66	2.18	pCi/g	1.33	U	5	2.18	77954	0.000	1.889	0.291	0.000
BLT-SSU-05-C1-SO-06	Solid	7/29/2014 10:47	8/27/2014 12:06	EPA 901.1	Pb-210	14255-04-0	0.783	0.783	pCi/g	0.424		1	0.573	1.9	0.412	0.907	(0.124)	0
BLT-SSU-05-C1-SO-06	Solid	7/29/2014 10:47	8/27/2014 12:06	EPA 901.1	Ra-226	13982-63-3	0.564	0.564	pCi/g	0.0925		0.1	0.0481	2.2	0.256	0.771	(0.207)	0
BLT-SSU-05-C1-SO-06	Solid	7/29/2014 10:47	8/27/2014 15:45	DOE 905.0	Sr-90	STL02023	0.0539	0.262	pCi/g	0.153	U	1	0.262	4.7	0.056	0.172	0.090	0.019
BLT-SSU-05-C1-SO-06														SOR	0.843		Net SOR	0.050
BLT-SSU-05-C1-SO-07	Solid	7/29/2014 10:27	9/16/2014 6:50	EERF C-01-1	C-14	14762-75-5	1.07	1.61	pCi/g	0.989	U	5	1.61	21	0.077	1.005	0.605	0.029
BLT-SSU-05-C1-SO-07	Solid	7/29/2014 10:27	8/22/2014 8:54	TAL-STL ST-RC-0036	Cl-36	13981-43-6	-0.0896	0.489	pCi/g	0.266	U	1	0.489	13.2	0.037	0.510	(0.021)	0
BLT-SSU-05-C1-SO-07	Solid	7/29/2014 10:27	8/27/2014 13:47	EPA 901.1	Cs-137	10045-97-3	0.0132	0.0408	pCi/g	0.0241	U	0.2	0.0408	16.9	0.002	0.096	(0.055)	0
BLT-SSU-05-C1-SO-07	Solid	7/29/2014 10:27	8/22/2014 19:19	EPA 906.0	H-3	10028-17-8	0.512	0.52	pCi/g	0.335	U	1	0.52	121	0.004	0.414	0.106	0.001
BLT-SSU-05-C1-SO-07	Solid	7/29/2014 10:27	8/28/2014 5:43	TAL-STL ST-RC-0055	Ni-63	13981-37-8	2.1	2.75	pCi/g	1.71	U	5	2.75	77954	0.000	1.889	0.861	0.000
BLT-SSU-05-C1-SO-07	Solid	7/29/2014 10:27	8/27/2014 13:47	EPA 901.1	Pb-210	14255-04-0	0.245	0.783	pCi/g	0.459	U	1	0.783	1.9	0.412	0.907	(0.124)	0
BLT-SSU-05-C1-SO-07	Solid	7/29/2014 10:27	8/27/2014 13:47	EPA 901.1	Ra-226	13982-63-3	0.607	0.607	pCi/g	0.11		0.1	0.0633	2.2	0.276	0.771	(0.164)	0
BLT-SSU-05-C1-SO-07	Solid	7/29/2014 10:27	8/27/2014 15:45	DOE 905.0	Sr-90	STL02023	0.256	0.256	pCi/g	0.151		1	0.228	4.7	0.054	0.172	0.084	0.018
BLT-SSU-05-C1-SO-07														SOR	0.863		Net SOR	0.048
BLT-SSU-05-C1-SO-08	Solid	7/29/2014 10:09	9/16/2014 7:13	EERF C-01-1	C-14	14762-75-5	2.63	2.63	pCi/g	1.12		5	1.64	21	0.125	1.005	1.625	0.077
BLT-SSU-05-C1-SO-08	Solid	7/29/2014 10:09	8/22/2014 8:54	TAL-STL ST-RC-0036	Cl-36	13981-43-6	0.167	0.473	pCi/g	0.28	U	1	0.473	13.2	0.036	0.510	(0.037)	0
BLT-SSU-05-C1-SO-08	Solid	7/29/2014 10:09	8/27/2014 13:48	EPA 901.1	Cs-137	10045-97-3	0.0605	0.0605	pCi/g	0.0254		0.2	0.0256	16.9	0.004	0.096	(0.036)	0
BLT-SSU-05-C1-SO-08	Solid	7/29/2014 10:09	8/22/2014 19:42	EPA 906.0	H-3	10028-17-8	0.468	0.489	pCi/g	0.316	U	1	0.489	121	0.004	0.414	0.075	0.001
BLT-SSU-05-C1-SO-08	Solid	7/29/2014 10:09	8/28/2014 7:55	TAL-STL ST-RC-0055	Ni-63	13981-37-8	4.89	4.89	pCi/g	1.49		5	2.14	77954	0.000	1.889	3.001	0.000
BLT-SSU-05-C1-SO-08	Solid	7/29/2014 10:09	8/27/2014 13:48	EPA 901.1	Pb-210	14255-04-0	0.873	0.873	pCi/g	0.462		1	0.581	1.9	0.459	0.907	(0.034)	0
BLT-SSU-05-C1-SO-08	Solid	7/29/2014 10:09	8/27/2014 13:48	EPA 901.1	Ra-226	13982-63-3	0.548	0.548	pCi/g	0.0922		0.1	0.0484	2.2	0.249	0.771	(0.223)	0
BLT-SSU-05-C1-SO-08	Solid	7/29/2014 10:09	8/27/2014 15:46	DOE 905.0	Sr-90	STL02023	0.153	0.228	pCi/g	0.142	U	1	0.228	4.7	0.049	0.172	0.056	0.012
BLT-SSU-05-C1-SO-08														SOR	0.926		Net SOR	0.090
BLT-SSU-05-C1-SO-09	Solid	7/29/2014 9:36	9/16/2014 7:36	EERF C-01-1	C-14	14762-75-5	-0.473	1.64	pCi/g	0.901	U	5	1.64	21	0.078	1.005	0.635	0.030
BLT-SSU-05-C1-SO-09	Solid	7/29/2014 9:36	8/22/2014 8:55	TAL-STL ST-RC-0036	Cl-36	13981-43-6	0.134	0.455	pCi/g	0.267	U	1	0.455	13.2	0.034	0.510	(0.055)	0
BLT-SSU-05-C1-SO-09	Solid	7/29/2014 9:36	8/27/2014 13:49	EPA 901.1	Cs-137	10045-97-3	0.0036	0.0309	pCi/g	0.0176	U	0.2	0.0309	16.9	0.002	0.096	(0.065)	0
BLT-SSU-05-C1-SO-09	Solid	7/29/2014 9:36	8/22/2014 20:06	EPA 906.0	H-3	10028-17-8	0.393	0.495	pCi/g	0.312	U	1	0.495	121	0.004	0.414	0.081	0.001
BLT-SSU-05-C1-SO-09	Solid	7/29/2014 9:36	8/28/2014 10:08	TAL-STL ST-RC-0055	Ni-63	13981-37-8	0	2.19	pCi/g	1.29	U	5	2.19	77954	0.000	1.889	0.301	0.000
BLT-SSU-05-C1-SO-09	Solid	7/29/2014 9:36	8/27/2014 13:49	EPA 901.1	Pb-210	14255-04-0	0.844	0.844	pCi/g	0.403		1	0.533	1.9	0.444	0.907	(0.063)	0
BLT-SSU-05-C1-SO-09	Solid	7/29/2014 9:36	8/27/2014 13:49	EPA 901.1	Ra-226	13982-63-3	0.557	0.557	pCi/g	0.0897		0.1	0.0452	2.2	0.253	0.771	(0.214)	0
BLT-SSU-05-C1-SO-09	Solid	7/29/2014 9:36	8/27/2014 15:46	DOE 905.0	Sr-90	STL02023	0.31	0.31	pCi/g	0.17		1	0.254	4.7	0.066	0.172	0.138	0.029
BLT-SSU-05-C1-SO-09														SOR	0.882		Net SOR	0.060

BARC LLRBS FSSR Appendix 13													Individual Sample Results					
Class 1 SSU 05																		
Sample ID	Matrix	Collected	Analyzed	Method	Analyte	CAS	Result	TES Result	Unit	% Uncertainty	Footnotes	RL/CRDL	MDL/MDA	DCGL	Ratio	RA Mean	Net Result	Net Ratio
BLT-SSU-05-C1-SO-10	Solid	7/29/2014 9:58	9/16/2014 7:59	EERF C-01-1	C-14	14762-75-5	0.541	1.61	pCi/g	0.955	U	5	1.61	21	0.077	1.005	0.605	0.029
BLT-SSU-05-C1-SO-10	Solid	7/29/2014 9:58	8/22/2014 8:55	TAL-STL ST-RC-0036	Cl-36	13981-43-6	0.342	0.481	pCi/g	0.301	U	1	0.481	13.2	0.036	0.510	(0.029)	0
BLT-SSU-05-C1-SO-10	Solid	7/29/2014 9:58	8/27/2014 15:40	EPA 901.1	Cs-137	10045-97-3	0.0165	0.0271	pCi/g	0.0169	U	0.2	0.0271	16.9	0.002	0.096	(0.069)	0
BLT-SSU-05-C1-SO-10	Solid	7/29/2014 9:58	8/22/2014 20:30	EPA 906.0	H-3	10028-17-8	0.531	0.531	pCi/g	0.328		1	0.507	121	0.004	0.414	0.117	0.001
BLT-SSU-05-C1-SO-10	Solid	7/29/2014 9:58	8/28/2014 12:21	TAL-STL ST-RC-0055	Ni-63	13981-37-8	1.67	2.19	pCi/g	1.34	U	5	2.19	77954	0.000	1.889	0.301	0.000
BLT-SSU-05-C1-SO-10	Solid	7/29/2014 9:58	8/27/2014 15:40	EPA 901.1	Pb-210	14255-04-0	0.852	0.852	pCi/g	0.429		1	0.558	1.9	0.448	0.907	(0.055)	0
BLT-SSU-05-C1-SO-10	Solid	7/29/2014 9:58	8/27/2014 15:40	EPA 901.1	Ra-226	13982-63-3	0.535	0.535	pCi/g	0.088		0.1	0.049	2.2	0.243	0.771	(0.236)	0
BLT-SSU-05-C1-SO-10	Solid	7/29/2014 9:58	8/27/2014 15:46	DOE 905.0	Sr-90	STL02023	0.247	0.247	pCi/g	0.157		1	0.24	4.7	0.053	0.172	0.075	0.016
													BLT-SSU-05-C1-SO-10	SOR	0.863		Net SOR	0.046
BLT-SSU-05-C1-SO-11	Solid	7/29/2014 9:25	9/16/2014 8:22	EERF C-01-1	C-14	14762-75-5	-0.459	1.55	pCi/g	0.865	U	5	1.55	21	0.074	1.005	0.545	0.026
BLT-SSU-05-C1-SO-11	Solid	7/29/2014 9:25	8/22/2014 8:55	TAL-STL ST-RC-0036	Cl-36	13981-43-6	0.0685	0.469	pCi/g	0.269	U	1	0.469	13.2	0.036	0.510	(0.041)	0
BLT-SSU-05-C1-SO-11	Solid	7/29/2014 9:25	8/27/2014 15:41	EPA 901.1	Cs-137	10045-97-3	0.00235	0.0384	pCi/g	0.0213	U	0.2	0.0384	16.9	0.002	0.096	(0.058)	0
BLT-SSU-05-C1-SO-11	Solid	7/29/2014 9:25	8/22/2014 20:53	EPA 906.0	H-3	10028-17-8	0.27	0.506	pCi/g	0.308	U	1	0.506	121	0.004	0.414	0.092	0.001
BLT-SSU-05-C1-SO-11	Solid	7/29/2014 9:25	8/28/2014 14:33	TAL-STL ST-RC-0055	Ni-63	13981-37-8	4.25	4.25	pCi/g	1.79		5	2.79	77954	0.000	1.889	2.361	0.000
BLT-SSU-05-C1-SO-11	Solid	7/29/2014 9:25	8/27/2014 15:41	EPA 901.1	Pb-210	14255-04-0	0.942	0.942	pCi/g	0.6		1	0.708	1.9	0.496	0.907	0.035	0.019
BLT-SSU-05-C1-SO-11	Solid	7/29/2014 9:25	8/27/2014 15:41	EPA 901.1	Ra-226	13982-63-3	0.605	0.605	pCi/g	0.108		0.1	0.0568	2.2	0.275	0.771	(0.166)	0
BLT-SSU-05-C1-SO-11	Solid	7/29/2014 9:25	8/27/2014 15:46	DOE 905.0	Sr-90	STL02023	0.185	0.228	pCi/g	0.145	U	1	0.228	4.7	0.049	0.172	0.056	0.012
													BLT-SSU-05-C1-SO-11	SOR	0.935		Net SOR	0.057
BLT-SSU-05-C1-SO-12	Solid	7/29/2014 9:10	9/16/2014 8:45	EERF C-01-1	C-14	14762-75-5	0.187	1.59	pCi/g	0.92	U	5	1.59	21	0.076	1.005	0.585	0.028
BLT-SSU-05-C1-SO-12	Solid	7/29/2014 9:10	8/22/2014 8:55	TAL-STL ST-RC-0036	Cl-36	13981-43-6	-0.0199	0.492	pCi/g	0.275	U	1	0.492	13.2	0.037	0.510	(0.018)	0
BLT-SSU-05-C1-SO-12	Solid	7/29/2014 9:10	8/27/2014 15:42	EPA 901.1	Cs-137	10045-97-3	-0.00187	0.0344	pCi/g	0.0192	U	0.2	0.0344	16.9	0.002	0.096	(0.062)	0
BLT-SSU-05-C1-SO-12	Solid	7/29/2014 9:10	8/22/2014 21:17	EPA 906.0	H-3	10028-17-8	0.347	0.523	pCi/g	0.322	U	1	0.523	121	0.004	0.414	0.109	0.001
BLT-SSU-05-C1-SO-12	Solid	7/29/2014 9:10	8/28/2014 16:46	TAL-STL ST-RC-0055	Ni-63	13981-37-8	1.68	2.2	pCi/g	1.35	U	5	2.2	77954	0.000	1.889	0.311	0.000
BLT-SSU-05-C1-SO-12	Solid	7/29/2014 9:10	8/27/2014 15:42	EPA 901.1	Pb-210	14255-04-0	0.51	0.548	pCi/g	0.368	U	1	0.548	1.9	0.288	0.907	(0.359)	0
BLT-SSU-05-C1-SO-12	Solid	7/29/2014 9:10	8/27/2014 15:42	EPA 901.1	Ra-226	13982-63-3	0.656	0.656	pCi/g	0.105		0.1	0.051	2.2	0.298	0.771	(0.115)	0
BLT-SSU-05-C1-SO-12	Solid	7/29/2014 9:10	8/27/2014 15:46	DOE 905.0	Sr-90	STL02023	0.205	0.245	pCi/g	0.156	U	1	0.245	4.7	0.052	0.172	0.073	0.016
													BLT-SSU-05-C1-SO-12	SOR	0.758		Net SOR	0.044
BLT-SSU-05-C1-SO-13	Solid	7/30/2014 7:34	9/16/2014 9:08	EERF C-01-1	C-14	14762-75-5	-0.712	1.6	pCi/g	0.872	U	5	1.6	21	0.076	1.005	0.595	0.028
BLT-SSU-05-C1-SO-13	Solid	7/30/2014 7:34	8/22/2014 8:55	TAL-STL ST-RC-0036	Cl-36	13981-43-6	0.606	0.606	pCi/g	0.33		1	0.493	13.2	0.046	0.510	0.096	0.007
BLT-SSU-05-C1-SO-13	Solid	7/30/2014 7:34	8/27/2014 16:26	EPA 901.1	Cs-137	10045-97-3	0.00291	0.026	pCi/g	0.0147	U	0.2	0.026	16.9	0.002	0.096	(0.070)	0
BLT-SSU-05-C1-SO-13	Solid	7/30/2014 7:34	8/22/2014 21:40	EPA 906.0	H-3	10028-17-8	0.265	0.535	pCi/g	0.321	U	1	0.535	121	0.004	0.414	0.121	0.001
BLT-SSU-05-C1-SO-13	Solid	7/30/2014 7:34	8/28/2014 18:59	TAL-STL ST-RC-0055	Ni-63	13981-37-8	6.02	6.02	pCi/g	1.82		5	2.63	77954	0.000	1.889	4.131	0.000
BLT-SSU-05-C1-SO-13	Solid	7/30/2014 7:34	8/27/2014 16:26	EPA 901.1	Pb-210	14255-04-0	0.636	0.636	pCi/g	0.339		1	0.467	1.9	0.335	0.907	(0.271)	0
BLT-SSU-05-C1-SO-13	Solid	7/30/2014 7:34	8/27/2014 16:26	EPA 901.1	Ra-226	13982-63-3	0.542	0.542	pCi/g	0.0882		0.1	0.0415	2.2	0.246	0.771	(0.229)	0
BLT-SSU-05-C1-SO-13	Solid	7/30/2014 7:34	8/27/2014 15:47	DOE 905.0	Sr-90	STL02023	0.182	0.236	pCi/g	0.149	U	1	0.236	4.7	0.050	0.172	0.064	0.014
													BLT-SSU-05-C1-SO-13	SOR	0.759		Net SOR	0.050
BLT-SSU-05-C1-SO-14	Solid	7/29/2014 8:45	9/16/2014 9:31	EERF C-01-1	C-14	14762-75-5	-0.428	1.62	pCi/g	0.901	U	5	1.62	21	0.077	1.005	0.615	0.029
BLT-SSU-05-C1-SO-14	Solid	7/29/2014 8:45	8/22/2014 12:38	TAL-STL ST-RC-0036	Cl-36	13981-43-6	-0.0293	0.529	pCi/g	0.297	U	1	0.529	13.2	0.040	0.510	0.019	0.001
BLT-SSU-05-C1-SO-14	Solid	7/29/2014 8:45	8/27/2014 16:25	EPA 901.1	Cs-137	10045-97-3	-0.00855	0.0484	pCi/g	0.0279	U	0.2	0.0484	16.9	0.003	0.096	(0.048)	0
BLT-SSU-05-C1-SO-14	Solid	7/29/2014 8:45	8/22/2014 22:04	EPA 906.0	H-3	10028-17-8	0.247	0.521	pCi/g	0.314	U	1	0.521	121	0.004	0.414	0.107	0.001
BLT-SSU-05-C1-SO-14	Solid	7/29/2014 8:45	8/28/2014 21:12	TAL-STL ST-RC-0055	Ni-63	13981-37-8	1.6	2.1	pCi/g	1.27	U	5	2.1	77954	0.000	1.889	0.211	0.000
BLT-SSU-05-C1-SO-14	Solid	7/29/2014 8:45	8/27/2014 16:25	EPA 901.1	Pb-210	14255-04-0	0.462	0.772	pCi/g	0.602	U	1	0.772	1.9	0.406	0.907	(0.135)	0
BLT-SSU-05-C1-SO-14	Solid	7/29/2014 8:45	8/27/2014 16:25	EPA 901.1	Ra-226	13982-63-3	0.691	0.691	pCi/g	0.118		0.1	0.0545	2.2	0.314	0.771	(0.080)	0
BLT-SSU-05-C1-SO-14	Solid	7/29/2014 8:45	8/27/2014 15:47	DOE 905.0	Sr-90	STL02023	0.164	0.251	pCi/g	0.155	U	1	0.251	4.7	0.053	0.172	0.079	0.017
													BLT-SSU-05-C1-SO-14	SOR	0.898		Net SOR	0.048

Sample ID	Matrix	Collected	Analyzed	Method	Analyte	CAS	Result	TES Result	Unit	% Uncertainty	Footnotes	RL/CRDL	MDL/MDA	DCGL	Ratio	RA Mean	Net Result	Net Ratio
BLT-SSU-05-C1-SO-15	Solid	7/29/2014 9:05	9/16/2014 9:55	EERF C-01-1	C-14	14762-75-5	0	1.57	pCi/g	0.901	U	5	1.57	21	0.075	1.005	0.565	0.027
BLT-SSU-05-C1-SO-15	Solid	7/29/2014 9:05	8/22/2014 12:37	TAL-STL ST-RC-0036	Cl-36	13981-43-6	0.0296	0.525	pCi/g	0.299	U	1	0.525	13.2	0.040	0.510	0.015	0.001
BLT-SSU-05-C1-SO-15	Solid	7/29/2014 9:05	8/27/2014 16:24	EPA 901.1	Cs-137	10045-97-3	-0.00351	0.0341	pCi/g	0.0193	U	0.2	0.0341	16.9	0.002	0.096	(0.062)	0
BLT-SSU-05-C1-SO-15	Solid	7/29/2014 9:05	8/22/2014 22:28	EPA 906.0	H-3	10028-17-8	0.884	0.884	pCi/g	0.36		1	0.514	121	0.007	0.414	0.470	0.004
BLT-SSU-05-C1-SO-15	Solid	7/29/2014 9:05	8/28/2014 23:24	TAL-STL ST-RC-0055	Ni-63	13981-37-8	1.89	2.48	pCi/g	1.54	U	5	2.48	77954	0.000	1.889	0.591	0.000
BLT-SSU-05-C1-SO-15	Solid	7/29/2014 9:05	8/27/2014 16:24	EPA 901.1	Pb-210	14255-04-0	0.659	0.659	pCi/g	0.39		1	0.537	1.9	0.347	0.907	(0.248)	0
BLT-SSU-05-C1-SO-15	Solid	7/29/2014 9:05	8/27/2014 16:24	EPA 901.1	Ra-226	13982-63-3	0.55	0.55	pCi/g	0.0937		0.1	0.0479	2.2	0.250	0.771	(0.221)	0
BLT-SSU-05-C1-SO-15	Solid	7/29/2014 9:05	8/27/2014 15:47	DOE 905.0	Sr-90	STL02023	0.264	0.273	pCi/g	0.177	U	1	0.273	4.7	0.058	0.172	0.101	0.022
BLT-SSU-05-C1-SO-15														SOR	0.779		Net SOR	0.053
BLT-SSU-05-C1-SO-16	Solid	7/29/2014 7:20	9/16/2014 10:18	EERF C-01-1	C-14	14762-75-5	-0.378	1.59	pCi/g	0.894	U	5	1.59	21	0.076	1.005	0.585	0.028
BLT-SSU-05-C1-SO-16	Solid	7/29/2014 7:20	8/22/2014 12:38	TAL-STL ST-RC-0036	Cl-36	13981-43-6	-0.0146	0.563	pCi/g	0.319	U	1	0.563	13.2	0.043	0.510	0.053	0.004
BLT-SSU-05-C1-SO-16	Solid	7/29/2014 7:20	8/27/2014 17:05	EPA 901.1	Cs-137	10045-97-3	0.00881	0.0246	pCi/g	0.0146	U	0.2	0.0246	16.9	0.001	0.096	(0.072)	0
BLT-SSU-05-C1-SO-16	Solid	7/29/2014 7:20	9/12/2014 16:29	EPA 906.0	H-3	10028-17-8	0.139	0.503	pCi/g	0.296	U	1	0.503	121	0.004	0.414	0.089	0.001
BLT-SSU-05-C1-SO-16	Solid	7/29/2014 7:20	8/29/2014 1:37	TAL-STL ST-RC-0055	Ni-63	13981-37-8	2.27	2.98	pCi/g	1.85	U	5	2.98	77954	0.000	1.889	1.091	0.000
BLT-SSU-05-C1-SO-16	Solid	7/29/2014 7:20	8/27/2014 17:05	EPA 901.1	Pb-210	14255-04-0	0.732	0.732	pCi/g	0.419		1	0.53	1.9	0.385	0.907	(0.175)	0
BLT-SSU-05-C1-SO-16	Solid	7/29/2014 7:20	8/27/2014 17:05	EPA 901.1	Ra-226	13982-63-3	0.515	0.515	pCi/g	0.0824		0.1	0.0413	2.2	0.234	0.771	(0.256)	0
BLT-SSU-05-C1-SO-16	Solid	7/29/2014 7:20	8/28/2014 19:28	DOE 905.0	Sr-90	STL02023	0.0564	0.183	pCi/g	0.108	U	1	0.183	4.7	0.039	0.172	0.011	0.002
BLT-SSU-05-C1-SO-16														SOR	0.782		Net SOR	0.035



**Final Status Survey Report  
Appendix 14  
Class 1 SSU-06  
Survey and Sample Results**

**Beltsville Agricultural Research Center (BARC)  
Low Level Radioactive Burial site (LLRBS)  
Beltsville, Maryland**



**Prepared for:**

U.S. Army Field Support Command  
Rock Island, Illinois

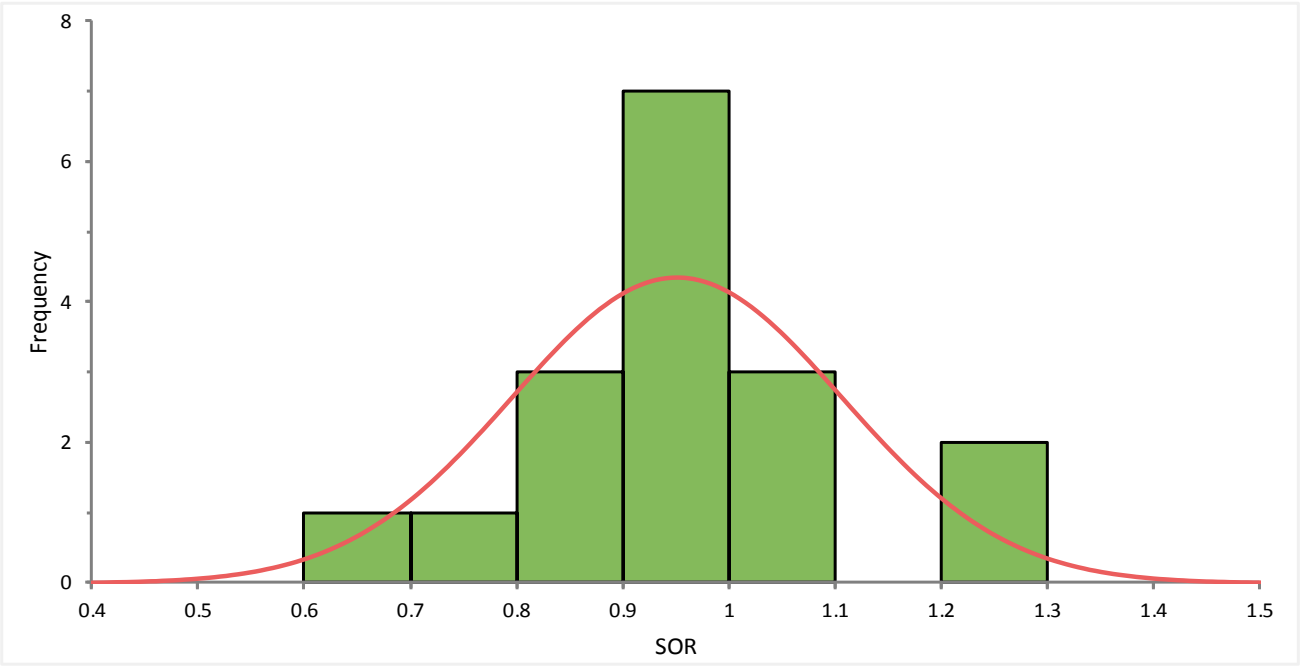
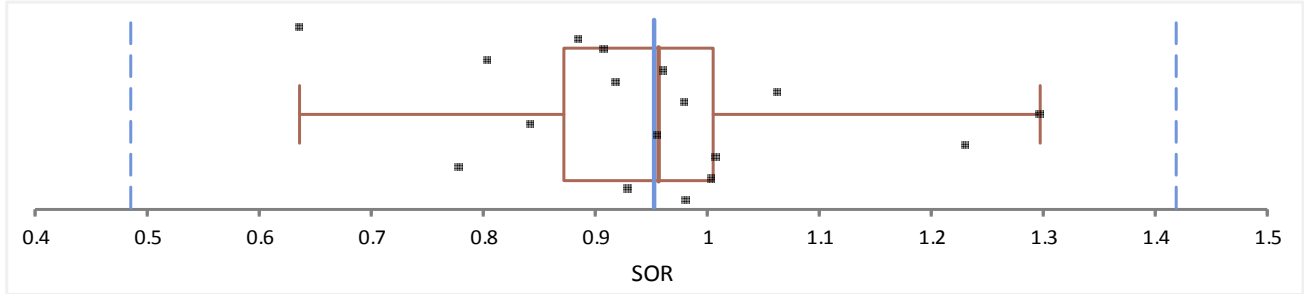
*Prepared by:*

***TPMC-EnergySolutions Environmental Services, LLC***

**Contract No. W52P1J-11-D-0001**



Statistics & Decisions	SU	RA	Sample ID	BLT-SSU-06-C1-SO-01	BLT-SSU-06-C1-SO-02	BLT-SSU-06-C1-SO-03	BLT-SSU-06-C1-SO-04	BLT-SSU-06-C1-SO-05	BLT-SSU-06-C1-SO-06	BLT-SSU-06-C1-SO-07	BLT-SSU-06-C1-SO-08	BLT-SSU-06-C1-SO-09	BLT-SSU-06-C1-SO-10	BLT-SSU-06-C1-SO-11	BLT-SSU-06-C1-SO-11-FD01	BLT-SSU-06-C1-SO-12	BLT-SSU-06-C1-SO-13	BLT-SSU-06-C1-SO-14	BLT-SSU-06-C1-SO-15	BLT-SSU-06-C1-SO-16
Avg	0.951	0.960	SOR	0.981	0.929	1.004	0.779	1.007	1.229	0.956	0.842	1.296	0.980	1.062	0.918	0.961	0.803	0.908	0.885	0.635
Min	0.635	0.768	Net SOR	0.094	0.239	0.078	0.046	0.098	0.284	0.046	0.016	0.500	0.065	0.146	0.024	0.041	0.001	0.007	0.038	0.002
Max	1.296	1.333																		
SU Max SOR - RA Min SOR	0.529																			
SU Avg SOR - RA Avg SOR	-0.009																			
SU meets release criterion																				



N		17				

Frequency Distribution

Class	Frequency	Relative frequency	Density	Cumulative frequency	Cumulative relative frequency
≥0.6 to <0.7	1	0.059	0.5882	1	0.059
≥0.7 to <0.8	1	0.059	0.5882	2	0.118
≥0.8 to <0.9	3	0.176	1.7647	5	0.294
≥0.9 to <1	7	0.412	4.1176	12	0.706
≥1 to <1.1	3	0.176	1.7647	15	0.882
≥1.1 to <1.2	0	0.000	0.0000	15	0.882
≥1.2 to <1.3	2	0.118	1.1765	17	1.000

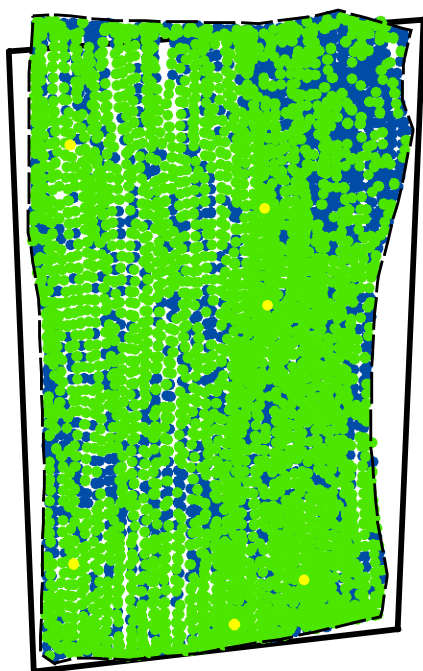


BARC LLRBS FSSR  
Appendix 14



Class 1 SSU 06

Scan Plot




Class 1  
Stockpile Survey Unit 06  
Initial & Final Scan



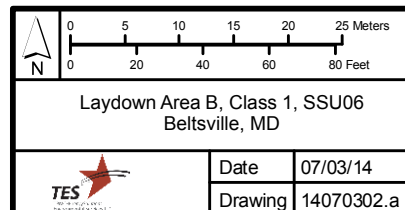
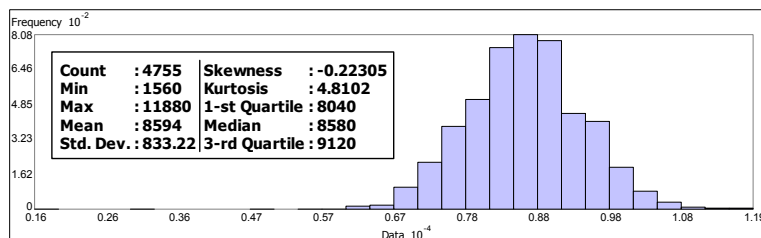
**Legend**

-  Laydown Area B
-  Soil Survey Unit  
(19,984.5 ft<sup>2</sup>)

**FIDLER Gross CPM**

-  1,560 - 8,269
-  8,270 - 11,193
-  11,194 - 11,880

Data Collected: 07/03/2014



Class 1 SSU 06

BARC LLRBS FSSR  
Appendix 14

Individual Sample Results

Sample ID	Matrix	Collected	Analyzed	Method	Analyte	CAS	Result	TES Result	Unit	% Uncertainty	Footnotes	RL/CRDL	MDL/MDA	DCGL	Ratio	RA Mean	Net Result	Net Ratio
BLT-SSU-06-C1-SO-01	Solid	7/21/2014 11:25	8/7/2014 18:16	EERF C-01-1	C-14	14762-75-5	2.15	2.15	pCi/g	0.568		5	0.744	21	0.102	1.005	1.145	0.055
BLT-SSU-06-C1-SO-01	Solid	7/21/2014 11:25	7/28/2014 17:41	TAL-STL ST-RC-0036	Cl-36	13981-43-6	-0.181	0.413	pCi/g	0.231	U	1	0.413	13.2	0.031	0.510	(0.097)	0
BLT-SSU-06-C1-SO-01	Solid	7/21/2014 11:25	8/18/2014 9:04	EPA 901.1	Cs-137	10045-97-3	0.175	0.175	pCi/g	0.0381		0.2	0.0267	16.9	0.010	0.096	0.079	0.005
BLT-SSU-06-C1-SO-01	Solid	7/21/2014 11:25	8/14/2014 3:00	EPA 906.0	H-3	10028-17-8	4.2	4.2	pCi/g	0.678		1	0.468	121	0.035	0.414	3.786	0.031
BLT-SSU-06-C1-SO-01	Solid	7/21/2014 11:25	8/5/2014 23:55	TAL-STL ST-RC-0055	Ni-63	13981-37-8	2.51	2.75	pCi/g	1.69	U	5	2.75	77954	0.000	1.889	0.861	0.000
BLT-SSU-06-C1-SO-01	Solid	7/21/2014 11:25	8/18/2014 9:04	EPA 901.1	Pb-210	14255-04-0	0.834	0.834	pCi/g	0.518		1	0.638	1.9	0.439	0.907	(0.073)	0
BLT-SSU-06-C1-SO-01	Solid	7/21/2014 11:25	8/18/2014 9:04	EPA 901.1	Ra-226	13982-63-3	0.711	0.711	pCi/g	0.107		0.1	0.0511	2.2	0.323	0.771	(0.060)	0
BLT-SSU-06-C1-SO-01	Solid	7/21/2014 11:25	8/7/2014 18:14	DOE 905.0	Sr-90	STL02023	0.112	0.189	pCi/g	0.117	U	1	0.189	4.7	0.040	0.172	0.017	0.004
BLT-SSU-06-C1-SO-01														SOR	0.981		Net SOR	0.094
BLT-SSU-06-C1-SO-02	Solid	7/8/2014 14:15	7/26/2014 0:19	EERF C-01-1	C-14	14762-75-5	3.56	3.56	pCi/g	0.722		5	0.819	21	0.170	1.005	2.555	0.122
BLT-SSU-06-C1-SO-02	Solid	7/8/2014 14:15	7/20/2014 11:43	TAL-STL ST-RC-0036	Cl-36	13981-43-6	0.237	0.321	pCi/g	0.2	U	1	0.321	13.2	0.024	0.510	(0.189)	0
BLT-SSU-06-C1-SO-02	Solid	7/8/2014 14:15	8/1/2014 1:30	EPA 901.1	Cs-137	10045-97-3	1.35	1.35	pCi/g	0.156		0.2	0.0317	16.9	0.080	0.096	1.254	0.074
BLT-SSU-06-C1-SO-02	Solid	7/8/2014 14:15	7/29/2014 12:01	EPA 906.0	H-3	10028-17-8	2.23	2.23	pCi/g	0.451		1	0.364	121	0.018	0.414	1.816	0.015
BLT-SSU-06-C1-SO-02	Solid	7/8/2014 14:15	7/25/2014 23:36	TAL-STL ST-RC-0055	Ni-63	13981-37-8	0.865	4.21	pCi/g	2.48	U	5	4.21	77954	0.000	1.889	2.321	0.000
BLT-SSU-06-C1-SO-02	Solid	7/8/2014 14:15	8/1/2014 1:30	EPA 901.1	Pb-210	14255-04-0	0.588	0.588	pCi/g	0.351		1	0.46	1.9	0.309	0.907	(0.319)	0
BLT-SSU-06-C1-SO-02	Solid	7/8/2014 14:15	8/1/2014 1:30	EPA 901.1	Ra-226	13982-63-3	0.578	0.578	pCi/g	0.0874		0.1	0.045	2.2	0.263	0.771	(0.193)	0
BLT-SSU-06-C1-SO-02	Solid	7/8/2014 14:15	7/16/2014 16:34	DOE 905.0	Sr-90	STL02023	0.302	0.302	pCi/g	0.142		1	0.203	4.7	0.064	0.172	0.130	0.028
BLT-SSU-06-C1-SO-02														SOR	0.929		Net SOR	0.239
BLT-SSU-06-C1-SO-03	Solid	7/21/2014 11:18	8/7/2014 17:08	EERF C-01-1	C-14	14762-75-5	1.51	1.51	pCi/g	0.519		5	0.741	21	0.072	1.005	0.505	0.024
BLT-SSU-06-C1-SO-03	Solid	7/21/2014 11:18	7/28/2014 7:05	TAL-STL ST-RC-0036	Cl-36	13981-43-6	-0.0247	0.37	pCi/g	0.212	U	1	0.37	13.2	0.028	0.510	(0.140)	0
BLT-SSU-06-C1-SO-03	Solid	7/21/2014 11:18	8/15/2014 12:39	EPA 901.1	Cs-137	10045-97-3	0.149	0.149	pCi/g	0.0337		0.2	0.0218	16.9	0.009	0.096	0.053	0.003
BLT-SSU-06-C1-SO-03	Solid	7/21/2014 11:18	8/14/2014 2:37	EPA 906.0	H-3	10028-17-8	1.01	1.01	pCi/g	0.372		1	0.475	121	0.008	0.414	0.596	0.005
BLT-SSU-06-C1-SO-03	Solid	7/21/2014 11:18	8/5/2014 21:53	TAL-STL ST-RC-0055	Ni-63	13981-37-8	2.43	2.55	pCi/g	1.58	U	5	2.55	77954	0.000	1.889	0.661	0.000
BLT-SSU-06-C1-SO-03	Solid	7/21/2014 11:18	8/15/2014 12:39	EPA 901.1	Pb-210	14255-04-0	0.911	0.911	pCi/g	0.512		1	0.653	1.9	0.479	0.907	0.004	0.002
BLT-SSU-06-C1-SO-03	Solid	7/21/2014 11:18	8/15/2014 12:39	EPA 901.1	Ra-226	13982-63-3	0.718	0.718	pCi/g	0.113		0.1	0.0592	2.2	0.326	0.771	(0.053)	0
BLT-SSU-06-C1-SO-03	Solid	7/21/2014 11:18	8/7/2014 18:14	DOE 905.0	Sr-90	STL02023	0.379	0.379	pCi/g	0.147		1	0.198	4.7	0.081	0.172	0.207	0.044
BLT-SSU-06-C1-SO-03														SOR	1.004		Net SOR	0.078
BLT-SSU-06-C1-SO-04	Solid	7/21/2014 11:30	8/7/2014 16:00	EERF C-01-1	C-14	14762-75-5	1.7	1.7	pCi/g	0.521		5	0.714	21	0.081	1.005	0.695	0.033
BLT-SSU-06-C1-SO-04	Solid	7/21/2014 11:30	7/28/2014 7:05	TAL-STL ST-RC-0036	Cl-36	13981-43-6	0.126	0.349	pCi/g	0.209	U	1	0.349	13.2	0.026	0.510	(0.161)	0
BLT-SSU-06-C1-SO-04	Solid	7/21/2014 11:30	8/15/2014 12:39	EPA 901.1	Cs-137	10045-97-3	0.228	0.228	pCi/g	0.0512		0.2	0.0323	16.9	0.013	0.096	0.132	0.008
BLT-SSU-06-C1-SO-04	Solid	7/21/2014 11:30	8/14/2014 2:13	EPA 906.0	H-3	10028-17-8	0.591	0.591	pCi/g	0.32		1	0.46	121	0.005	0.414	0.177	0.001
BLT-SSU-06-C1-SO-04	Solid	7/21/2014 11:30	8/5/2014 19:52	TAL-STL ST-RC-0055	Ni-63	13981-37-8	7.87	7.87	pCi/g	1.99		5	2.64	77954	0.000	1.889	5.981	0.000
BLT-SSU-06-C1-SO-04	Solid	7/21/2014 11:30	8/15/2014 12:39	EPA 901.1	Pb-210	14255-04-0	0.606	0.606	pCi/g	0.426		1	0.585	1.9	0.319	0.907	(0.301)	0
BLT-SSU-06-C1-SO-04	Solid	7/21/2014 11:30	8/15/2014 12:39	EPA 901.1	Ra-226	13982-63-3	0.646	0.646	pCi/g	0.111		0.1	0.0633	2.2	0.294	0.771	(0.125)	0
BLT-SSU-06-C1-SO-04	Solid	7/21/2014 11:30	8/7/2014 18:14	DOE 905.0	Sr-90	STL02023	0.109	0.189	pCi/g	0.116	U	1	0.189	4.7	0.040	0.172	0.017	0.004
BLT-SSU-06-C1-SO-04														SOR	0.779		Net SOR	0.046
BLT-SSU-06-C1-SO-05	Solid	7/21/2014 11:19	8/7/2014 14:52	EERF C-01-1	C-14	14762-75-5	1.23	1.23	pCi/g	0.499		5	0.737	21	0.059	1.005	0.225	0.011
BLT-SSU-06-C1-SO-05	Solid	7/21/2014 11:19	7/28/2014 7:05	TAL-STL ST-RC-0036	Cl-36	13981-43-6	-0.00861	0.333	pCi/g	0.191	U	1	0.333	13.2	0.025	0.510	(0.177)	0
BLT-SSU-06-C1-SO-05	Solid	7/21/2014 11:19	8/15/2014 12:38	EPA 901.1	Cs-137	10045-97-3	0.109	0.109	pCi/g	0.0287		0.2	0.0218	16.9	0.006	0.096	0.013	0.001
BLT-SSU-06-C1-SO-05	Solid	7/21/2014 11:19	8/14/2014 1:49	EPA 906.0	H-3	10028-17-8	0.334	0.476	pCi/g	0.301	U	1	0.476	121	0.004	0.414	0.062	0.001
BLT-SSU-06-C1-SO-05	Solid	7/21/2014 11:19	8/5/2014 17:50	TAL-STL ST-RC-0055	Ni-63	13981-37-8	2.06	2.59	pCi/g	1.58	U	5	2.59	77954	0.000	1.889	0.701	0.000
BLT-SSU-06-C1-SO-05	Solid	7/21/2014 11:19	8/15/2014 12:38	EPA 901.1	Pb-210	14255-04-0	1.01	1.01	pCi/g	0.521		1	0.665	1.9	0.532	0.907	0.103	0.054
BLT-SSU-06-C1-SO-05	Solid	7/21/2014 11:19	8/15/2014 12:38	EPA 901.1	Ra-226	13982-63-3	0.689	0.689	pCi/g	0.11		0.1	0.0513	2.2	0.313	0.771	(0.082)	0
BLT-SSU-06-C1-SO-05	Solid	7/21/2014 11:19	8/7/2014 18:14	DOE 905.0	Sr-90	STL02023	0.322	0.322	pCi/g	0.168		1	0.247	4.7	0.069	0.172	0.150	0.032
BLT-SSU-06-C1-SO-05														SOR	1.007		Net SOR	0.098

BARC LLRBS FSSR Appendix 14														Individual Sample Results				
Class 1 SSU 06																		
Sample ID	Matrix	Collected	Analyzed	Method	Analyte	CAS	Result	TES Result	Unit	% Uncertainty	Footnotes	RL/CRDL	MDL/MDA	DCGL	Ratio	RA Mean	Net Result	Net Ratio
BLT-SSU-06-C1-SO-06	Solid	7/21/2014 11:12	8/7/2014 13:44	EERF C-01-1	C-14	14762-75-5	3.82	3.82	pCi/g	0.712		5	0.75	21	0.182	1.005	2.815	0.134
BLT-SSU-06-C1-SO-06	Solid	7/21/2014 11:12	7/28/2014 7:05	TAL-STL ST-RC-0036	Cl-36	13981-43-6	0.0538	0.352	pCi/g	0.206	U	1	0.352	13.2	0.027	0.510	(0.158)	0
BLT-SSU-06-C1-SO-06	Solid	7/21/2014 11:12	8/15/2014 11:56	EPA 901.1	Cs-137	10045-97-3	0.121	0.121	pCi/g	0.0483		0.2	0.0384	16.9	0.007	0.096	0.025	0.001
BLT-SSU-06-C1-SO-06	Solid	7/21/2014 11:12	8/14/2014 1:25	EPA 906.0	H-3	10028-17-8	0.124	0.492	pCi/g	0.285	U	1	0.492	121	0.004	0.414	0.078	0.001
BLT-SSU-06-C1-SO-06	Solid	7/21/2014 11:12	8/5/2014 15:48	TAL-STL ST-RC-0055	Ni-63	13981-37-8	2.99	2.99	pCi/g	1.49		5	2.33	77954	0.000	1.889	1.101	0.000
BLT-SSU-06-C1-SO-06	Solid	7/21/2014 11:12	8/15/2014 11:56	EPA 901.1	Pb-210	14255-04-0	0.951	0.951	pCi/g	0.662		1	0.852	1.9	0.501	0.907	0.044	0.023
BLT-SSU-06-C1-SO-06	Solid	7/21/2014 11:12	8/15/2014 11:56	EPA 901.1	Ra-226	13982-63-3	0.766	0.766	pCi/g	0.146		0.1	0.0885	2.2	0.348	0.771	(0.005)	0
BLT-SSU-06-C1-SO-06	Solid	7/21/2014 11:12	8/7/2014 18:14	DOE 905.0	Sr-90	STL02023	0.756	0.756	pCi/g	0.191		1	0.215	4.7	0.161	0.172	0.584	0.124
BLT-SSU-06-C1-SO-06														SOR	1.229		Net SOR	0.284
BLT-SSU-06-C1-SO-07	Solid	7/21/2014 11:10	8/7/2014 12:36	EERF C-01-1	C-14	14762-75-5	1.11	1.11	pCi/g	0.489		5	0.73	21	0.053	1.005	0.105	0.005
BLT-SSU-06-C1-SO-07	Solid	7/21/2014 11:10	7/28/2014 7:05	TAL-STL ST-RC-0036	Cl-36	13981-43-6	-0.168	0.378	pCi/g	0.209	U	1	0.378	13.2	0.029	0.510	(0.132)	0
BLT-SSU-06-C1-SO-07	Solid	7/21/2014 11:10	8/18/2014 1:46	EPA 901.1	Cs-137	10045-97-3	0.0964	0.0964	pCi/g	0.0296		0.2	0.0262	16.9	0.006	0.096	0.000	0.000
BLT-SSU-06-C1-SO-07	Solid	7/21/2014 11:10	8/14/2014 1:01	EPA 906.0	H-3	10028-17-8	-0.0109	0.486	pCi/g	0.264	U	1	0.486	121	0.004	0.414	0.072	0.001
BLT-SSU-06-C1-SO-07	Solid	7/21/2014 11:10	8/5/2014 13:47	TAL-STL ST-RC-0055	Ni-63	13981-37-8	1.94	2.33	pCi/g	1.44	U	5	2.33	77954	0.000	1.889	0.441	0.000
BLT-SSU-06-C1-SO-07	Solid	7/21/2014 11:10	8/18/2014 1:46	EPA 901.1	Pb-210	14255-04-0	0.874	0.874	pCi/g	0.525		1	0.664	1.9	0.460	0.907	(0.033)	0
BLT-SSU-06-C1-SO-07	Solid	7/21/2014 11:10	8/18/2014 1:46	EPA 901.1	Ra-226	13982-63-3	0.72	0.72	pCi/g	0.109		0.1	0.0468	2.2	0.327	0.771	(0.051)	0
BLT-SSU-06-C1-SO-07	Solid	7/21/2014 11:10	8/7/2014 18:14	DOE 905.0	Sr-90	STL02023	0.362	0.362	pCi/g	0.159		1	0.224	4.7	0.077	0.172	0.190	0.040
BLT-SSU-06-C1-SO-07														SOR	0.956		Net SOR	0.046
BLT-SSU-06-C1-SO-08	Solid	7/21/2014 11:03	8/7/2014 11:28	EERF C-01-1	C-14	14762-75-5	0.273	0.728	pCi/g	0.44	U	5	0.728	21	0.035	1.005	(0.277)	0
BLT-SSU-06-C1-SO-08	Solid	7/21/2014 11:03	7/28/2014 7:05	TAL-STL ST-RC-0036	Cl-36	13981-43-6	0.177	0.355	pCi/g	0.216	U	1	0.355	13.2	0.027	0.510	(0.155)	0
BLT-SSU-06-C1-SO-08	Solid	7/21/2014 11:03	8/15/2014 12:00	EPA 901.1	Cs-137	10045-97-3	0.0838	0.0838	pCi/g	0.0281		0.2	0.0257	16.9	0.005	0.096	(0.012)	0
BLT-SSU-06-C1-SO-08	Solid	7/21/2014 11:03	8/14/2014 0:13	EPA 906.0	H-3	10028-17-8	0.36	0.481	pCi/g	0.305	U	1	0.481	121	0.004	0.414	0.067	0.001
BLT-SSU-06-C1-SO-08	Solid	7/21/2014 11:03	8/5/2014 11:45	TAL-STL ST-RC-0055	Ni-63	13981-37-8	2.09	2.66	pCi/g	1.63	U	5	2.66	77954	0.000	1.889	0.771	0.000
BLT-SSU-06-C1-SO-08	Solid	7/21/2014 11:03	8/15/2014 12:00	EPA 901.1	Pb-210	14255-04-0	0.876	0.876	pCi/g	0.491		1	0.613	1.9	0.461	0.907	(0.031)	0
BLT-SSU-06-C1-SO-08	Solid	7/21/2014 11:03	8/15/2014 12:00	EPA 901.1	Ra-226	13982-63-3	0.57	0.57	pCi/g	0.0959		0.1	0.0545	2.2	0.259	0.771	(0.201)	0
BLT-SSU-06-C1-SO-08	Solid	7/21/2014 11:03	8/7/2014 18:14	DOE 905.0	Sr-90	STL02023	0.226	0.243	pCi/g	0.156	U	1	0.243	4.7	0.052	0.172	0.071	0.015
BLT-SSU-06-C1-SO-08														SOR	0.842		Net SOR	0.016
BLT-SSU-06-C1-SO-09	Solid	7/21/2014 11:04	8/7/2014 10:18	EERF C-01-1	C-14	14762-75-5	11.4	11.4	pCi/g	1.46		5	0.733	21	0.543	1.005	10.395	0.495
BLT-SSU-06-C1-SO-09	Solid	7/21/2014 11:04	7/28/2014 7:04	TAL-STL ST-RC-0036	Cl-36	13981-43-6	-0.158	0.339	pCi/g	0.185	U	1	0.339	13.2	0.026	0.510	(0.171)	0
BLT-SSU-06-C1-SO-09	Solid	7/21/2014 11:04	8/15/2014 11:55	EPA 901.1	Cs-137	10045-97-3	0.0617	0.0617	pCi/g	0.0247		0.2	0.0223	16.9	0.004	0.096	(0.035)	0
BLT-SSU-06-C1-SO-09	Solid	7/21/2014 11:04	8/13/2014 23:25	EPA 906.0	H-3	10028-17-8	0.00617	0.463	pCi/g	0.254	U	1	0.463	121	0.004	0.414	0.049	0.000
BLT-SSU-06-C1-SO-09	Solid	7/21/2014 11:04	8/5/2014 9:43	TAL-STL ST-RC-0055	Ni-63	13981-37-8	1.1	2.5	pCi/g	1.49	U	5	2.5	77954	0.000	1.889	0.611	0.000
BLT-SSU-06-C1-SO-09	Solid	7/21/2014 11:04	8/15/2014 11:55	EPA 901.1	Pb-210	14255-04-0	0.671	0.671	pCi/g	0.471		1	0.638	1.9	0.353	0.907	(0.236)	0
BLT-SSU-06-C1-SO-09	Solid	7/21/2014 11:04	8/15/2014 11:55	EPA 901.1	Ra-226	13982-63-3	0.718	0.718	pCi/g	0.116		0.1	0.0604	2.2	0.326	0.771	(0.053)	0
BLT-SSU-06-C1-SO-09	Solid	7/21/2014 11:04	8/7/2014 18:14	DOE 905.0	Sr-90	STL02023	0.169	0.192	pCi/g	0.123	U	1	0.192	4.7	0.041	0.172	0.020	0.004
BLT-SSU-06-C1-SO-09														SOR	1.296		Net SOR	0.500
BLT-SSU-06-C1-SO-10	Solid	7/21/2014 10:56	8/7/2014 8:01	EERF C-01-1	C-14	14762-75-5	1.09	1.09	pCi/g	0.485		5	0.727	21	0.052	1.005	0.085	0.004
BLT-SSU-06-C1-SO-10	Solid	7/21/2014 10:56	7/28/2014 7:04	TAL-STL ST-RC-0036	Cl-36	13981-43-6	0.0235	0.342	pCi/g	0.198	U	1	0.342	13.2	0.026	0.510	(0.168)	0
BLT-SSU-06-C1-SO-10	Solid	7/21/2014 10:56	8/15/2014 10:44	EPA 901.1	Cs-137	10045-97-3	0.0193	0.0467	pCi/g	0.028	U	0.2	0.0467	16.9	0.003	0.096	(0.050)	0
BLT-SSU-06-C1-SO-10	Solid	7/21/2014 10:56	8/13/2014 23:01	EPA 906.0	H-3	10028-17-8	0.145	0.466	pCi/g	0.273	U	1	0.466	121	0.004	0.414	0.052	0.000
BLT-SSU-06-C1-SO-10	Solid	7/21/2014 10:56	8/5/2014 7:41	TAL-STL ST-RC-0055	Ni-63	13981-37-8	1.45	2.31	pCi/g	1.4	U	5	2.31	77954	0.000	1.889	0.421	0.000
BLT-SSU-06-C1-SO-10	Solid	7/21/2014 10:56	8/15/2014 10:44	EPA 901.1	Pb-210	14255-04-0	0.757	0.85	pCi/g	0.623	U	1	0.85	1.9	0.447	0.907	(0.057)	0
BLT-SSU-06-C1-SO-10	Solid	7/21/2014 10:56	8/15/2014 10:44	EPA 901.1	Ra-226	13982-63-3	0.888	0.888	pCi/g	0.151		0.1	0.0801	2.2	0.404	0.771	0.117	0.053
BLT-SSU-06-C1-SO-10	Solid	7/21/2014 10:56	8/7/2014 18:14	DOE 905.0	Sr-90	STL02023	0.117	0.207	pCi/g	0.127	U	1	0.207	4.7	0.044	0.172	0.035	0.008
BLT-SSU-06-C1-SO-10														SOR	0.980		Net SOR	0.065

BARC LLRBS FSSR Appendix 14																	Individual Sample Results			
Class 1 SSU 06																				
Sample ID	Matrix	Collected	Analyzed	Method	Analyte	CAS	Result	TES Result	Unit	% Uncertainty	Footnotes	RL/CRDL	MDL/MDA	DCGL	Ratio	RA Mean	Net Result	Net Ratio		
BLT-SSU-06-C1-SO-11	Solid	7/21/2014 10:55	7/26/2014 10:23	EERF C-01-1	C-14	14762-75-5	-0.446	0.81	pCi/g	0.46	U	5	0.81	21	0.039	1.005	(0.195)	0		
BLT-SSU-06-C1-SO-11	Solid	7/21/2014 10:55	7/28/2014 7:04	TAL-STL ST-RC-0036	Cl-36	13981-43-6	-0.126	0.402	pCi/g	0.226	U	1	0.402	13.2	0.030	0.510	(0.108)	0		
BLT-SSU-06-C1-SO-11	Solid	7/21/2014 10:55	8/15/2014 10:43	EPA 901.1	Cs-137	10045-97-3	0	0.0455	pCi/g	0.0149	U	0.2	0.0455	16.9	0.003	0.096	(0.051)	0		
BLT-SSU-06-C1-SO-11	Solid	7/21/2014 10:55	8/13/2014 22:14	EPA 906.0	H-3	10028-17-8	0.185	0.48	pCi/g	0.285	U	1	0.48	121	0.004	0.414	0.066	0.001		
BLT-SSU-06-C1-SO-11	Solid	7/21/2014 10:55	8/5/2014 3:37	TAL-STL ST-RC-0055	Ni-63	13981-37-8	3.58	3.58	pCi/g	1.72		5	2.67	77954	0.000	1.889	1.691	0.000		
BLT-SSU-06-C1-SO-11	Solid	7/21/2014 10:55	8/15/2014 10:43	EPA 901.1	Pb-210	14255-04-0	1.17	1.17	pCi/g	0.523		1	0.631	1.9	0.616	0.907	0.263	0.139		
BLT-SSU-06-C1-SO-11	Solid	7/21/2014 10:55	8/15/2014 10:43	EPA 901.1	Ra-226	13982-63-3	0.72	0.72	pCi/g	0.108		0.1	0.052	2.2	0.327	0.771	(0.051)	0		
BLT-SSU-06-C1-SO-11	Solid	7/21/2014 10:55	8/7/2014 18:10	DOE 905.0	Sr-90	STL02023	0.166	0.204	pCi/g	0.13	U	1	0.204	4.7	0.043	0.172	0.032	0.007		
BLT-SSU-06-C1-SO-11														SOR	1.062		Net SOR	0.146		
BLT-SSU-06-C1-SO-11-FD01	Solid	7/21/2014 10:55	8/7/2014 5:45	EERF C-01-1	C-14	14762-75-5	0.955	0.955	pCi/g	0.478		5	0.731	21	0.045	1.005	(0.050)	0		
BLT-SSU-06-C1-SO-11-FD01	Solid	7/21/2014 10:55	7/28/2014 7:04	TAL-STL ST-RC-0036	Cl-36	13981-43-6	0.123	0.382	pCi/g	0.228	U	1	0.382	13.2	0.029	0.510	(0.128)	0		
BLT-SSU-06-C1-SO-11-FD01	Solid	7/21/2014 10:55	8/18/2014 1:45	EPA 901.1	Cs-137	10045-97-3	0.00563	0.0328	pCi/g	0.0185	U	0.2	0.0328	16.9	0.002	0.096	(0.063)	0		
BLT-SSU-06-C1-SO-11-FD01	Solid	7/21/2014 10:55	8/13/2014 22:38	EPA 906.0	H-3	10028-17-8	-0.0534	0.47	pCi/g	0.252	U	1	0.47	121	0.004	0.414	0.056	0.000		
BLT-SSU-06-C1-SO-11-FD01	Solid	7/21/2014 10:55	8/5/2014 5:39	TAL-STL ST-RC-0055	Ni-63	13981-37-8	1.98	2.42	pCi/g	1.5	U	5	2.42	77954	0.000	1.889	0.531	0.000		
BLT-SSU-06-C1-SO-11-FD01	Solid	7/21/2014 10:55	8/18/2014 1:45	EPA 901.1	Pb-210	14255-04-0	0.838	0.838	pCi/g	0.572		1	0.708	1.9	0.441	0.907	(0.069)	0		
BLT-SSU-06-C1-SO-11-FD01	Solid	7/21/2014 10:55	8/18/2014 1:45	EPA 901.1	Ra-226	13982-63-3	0.741	0.741	pCi/g	0.124		0.1	0.0618	2.2	0.337	0.771	(0.030)	0		
BLT-SSU-06-C1-SO-11-FD01	Solid	7/21/2014 10:55	8/7/2014 18:14	DOE 905.0	Sr-90	STL02023	0.28	0.28	pCi/g	0.133		1	0.19	4.7	0.060	0.172	0.108	0.023		
BLT-SSU-06-C1-SO-11-FD01														SOR	0.918		Net SOR	0.024		
BLT-SSU-06-C1-SO-12	Solid	7/21/2014 10:48	7/26/2014 9:16	EERF C-01-1	C-14	14762-75-5	-0.423	0.819	pCi/g	0.466	U	5	0.819	21	0.039	1.005	(0.186)	0		
BLT-SSU-06-C1-SO-12	Solid	7/21/2014 10:48	8/18/2014 15:55	TAL-STL ST-RC-0036	Cl-36	13981-43-6	-0.0642	0.384	pCi/g	0.219	U	1	0.384	13.2	0.029	0.510	(0.126)	0		
BLT-SSU-06-C1-SO-12	Solid	7/21/2014 10:48	8/15/2014 10:42	EPA 901.1	Cs-137	10045-97-3	0.0119	0.0431	pCi/g	0.0253	U	0.2	0.0431	16.9	0.003	0.096	(0.053)	0		
BLT-SSU-06-C1-SO-12	Solid	7/21/2014 10:48	8/13/2014 21:50	EPA 906.0	H-3	10028-17-8	0.0679	0.471	pCi/g	0.267	U	1	0.471	121	0.004	0.414	0.057	0.000		
BLT-SSU-06-C1-SO-12	Solid	7/21/2014 10:48	8/5/2014 1:36	TAL-STL ST-RC-0055	Ni-63	13981-37-8	4.6	4.6	pCi/g	1.71		5	2.56	77954	0.000	1.889	2.711	0.000		
BLT-SSU-06-C1-SO-12	Solid	7/21/2014 10:48	8/15/2014 10:42	EPA 901.1	Pb-210	14255-04-0	0.871	0.871	pCi/g	0.521		1	0.695	1.9	0.458	0.907	(0.036)	0		
BLT-SSU-06-C1-SO-12	Solid	7/21/2014 10:48	8/15/2014 10:42	EPA 901.1	Ra-226	13982-63-3	0.85	0.85	pCi/g	0.129		0.1	0.0494	2.2	0.386	0.771	0.079	0.036		
BLT-SSU-06-C1-SO-12	Solid	7/21/2014 10:48	8/7/2014 18:10	DOE 905.0	Sr-90	STL02023	0.139	0.195	pCi/g	0.122	U	1	0.195	4.7	0.041	0.172	0.023	0.005		
BLT-SSU-06-C1-SO-12														SOR	0.961		Net SOR	0.041		
BLT-SSU-06-C1-SO-13	Solid	7/21/2014 10:50	7/26/2014 8:09	EERF C-01-1	C-14	14762-75-5	0.221	0.828	pCi/g	0.495	U	5	0.828	21	0.039	1.005	(0.177)	0		
BLT-SSU-06-C1-SO-13	Solid	7/21/2014 10:50	7/28/2014 7:04	TAL-STL ST-RC-0036	Cl-36	13981-43-6	-0.23	0.413	pCi/g	0.228	U	1	0.413	13.2	0.031	0.510	(0.097)	0		
BLT-SSU-06-C1-SO-13	Solid	7/21/2014 10:50	8/15/2014 10:43	EPA 901.1	Cs-137	10045-97-3	0.0287	0.0287	pCi/g	0.0146		0.2	0.0135	16.9	0.002	0.096	(0.068)	0		
BLT-SSU-06-C1-SO-13	Solid	7/21/2014 10:50	8/13/2014 21:26	EPA 906.0	H-3	10028-17-8	0.00461	0.492	pCi/g	0.27	U	1	0.492	121	0.004	0.414	0.078	0.001		
BLT-SSU-06-C1-SO-13	Solid	7/21/2014 10:50	8/4/2014 23:34	TAL-STL ST-RC-0055	Ni-63	13981-37-8	6.13	6.13	pCi/g	1.79		5	2.5	77954	0.000	1.889	4.241	0.000		
BLT-SSU-06-C1-SO-13	Solid	7/21/2014 10:50	8/15/2014 10:43	EPA 901.1	Pb-210	14255-04-0	0.835	0.835	pCi/g	0.366		1	0.491	1.9	0.439	0.907	(0.072)	0		
BLT-SSU-06-C1-SO-13	Solid	7/21/2014 10:50	8/15/2014 10:43	EPA 901.1	Ra-226	13982-63-3	0.551	0.551	pCi/g	0.0894		0.1	0.0457	2.2	0.250	0.771	(0.220)	0		
BLT-SSU-06-C1-SO-13	Solid	7/21/2014 10:50	8/7/2014 18:10	DOE 905.0	Sr-90	STL02023	0.0558	0.172	pCi/g	0.101	U	1	0.172	4.7	0.037	0.172	0.000	0.000		
BLT-SSU-06-C1-SO-13														SOR	0.803		Net SOR	0.001		
BLT-SSU-06-C1-SO-14	Solid	7/21/2014 10:45	7/26/2014 7:02	EERF C-01-1	C-14	14762-75-5	-0.263	0.813	pCi/g	0.468	U	5	0.813	21	0.039	1.005	(0.192)	0		
BLT-SSU-06-C1-SO-14	Solid	7/21/2014 10:45	7/25/2014 16:16	TAL-STL ST-RC-0036	Cl-36	13981-43-6	0.13	0.371	pCi/g	0.222	U	1	0.371	13.2	0.028	0.510	(0.139)	0		
BLT-SSU-06-C1-SO-14	Solid	7/21/2014 10:45	8/15/2014 10:00	EPA 901.1	Cs-137	10045-97-3	0.00876	0.0466	pCi/g	0.0267	U	0.2	0.0466	16.9	0.003	0.096	(0.050)	0		
BLT-SSU-06-C1-SO-14	Solid	7/21/2014 10:45	8/13/2014 21:02	EPA 906.0	H-3	10028-17-8	-0.0283	0.485	pCi/g	0.262	U	1	0.485	121	0.004	0.414	0.071	0.001		
BLT-SSU-06-C1-SO-14	Solid	7/21/2014 10:45	8/4/2014 21:32	TAL-STL ST-RC-0055	Ni-63	13981-37-8	2.37	2.47	pCi/g	1.53	U	5	2.47	77954	0.000	1.889	0.581	0.000		
BLT-SSU-06-C1-SO-14	Solid	7/21/2014 10:45	8/15/2014 10:00	EPA 901.1	Pb-210	14255-04-0	0.795	0.837	pCi/g	0.63	U	1	0.837	1.9	0.441	0.907	(0.070)	0		
BLT-SSU-06-C1-SO-14	Solid	7/21/2014 10:45	8/15/2014 10:00	EPA 901.1	Ra-226	13982-63-3	0.785	0.785	pCi/g	0.134		0.1	0.0617	2.2	0.357	0.771	0.014	0.006		
BLT-SSU-06-C1-SO-14	Solid	7/21/2014 10:45	8/7/2014 18:10	DOE 905.0	Sr-90	STL02023	0.137	0.172	pCi/g	0.11	U	1	0.172	4.7	0.037	0.172	0.000	0.000		
BLT-SSU-06-C1-SO-14														SOR	0.908		Net SOR	0.007		

Sample ID	Matrix	Collected	Analyzed	Method	Analyte	CAS	Result	TES Result	Unit	% Uncertainty	Footnotes	RL/CRDL	MDL/MDA	DCGL	Ratio	RA Mean	Net Result	Net Ratio
BLT-SSU-06-C1-SO-15	Solid	7/21/2014 10:35	7/26/2014 5:55	EERF C-01-1	C-14	14762-75-5	0.2	0.83	pCi/g	0.496	U	5	0.83	21	0.040	1.005	(0.175)	0
BLT-SSU-06-C1-SO-15	Solid	7/21/2014 10:35	7/25/2014 16:15	TAL-STL ST-RC-0036	Cl-36	13981-43-6	0.151	0.349	pCi/g	0.211	U	1	0.349	13.2	0.026	0.510	(0.161)	0
BLT-SSU-06-C1-SO-15	Solid	7/21/2014 10:35	8/18/2014 1:44	EPA 901.1	Cs-137	10045-97-3	0.0178	0.0341	pCi/g	0.021	U	0.2	0.0341	16.9	0.002	0.096	(0.062)	0
BLT-SSU-06-C1-SO-15	Solid	7/21/2014 10:35	8/13/2014 20:38	EPA 906.0	H-3	10028-17-8	-0.0338	0.465	pCi/g	0.252	U	1	0.465	121	0.004	0.414	0.051	0.000
BLT-SSU-06-C1-SO-15	Solid	7/21/2014 10:35	8/4/2014 17:29	TAL-STL ST-RC-0055	Ni-63	13981-37-8	2.65	2.65	pCi/g	1.59		5	2.57	77954	0.000	1.889	0.761	0.000
BLT-SSU-06-C1-SO-15	Solid	7/21/2014 10:35	8/18/2014 1:44	EPA 901.1	Pb-210	14255-04-0	0.971	0.971	pCi/g	0.431		1	0.553	1.9	0.511	0.907	0.064	0.034
BLT-SSU-06-C1-SO-15	Solid	7/21/2014 10:35	8/18/2014 1:44	EPA 901.1	Ra-226	13982-63-3	0.577	0.577	pCi/g	0.11		0.1	0.0692	2.2	0.262	0.771	(0.194)	0
BLT-SSU-06-C1-SO-15	Solid	7/21/2014 10:35	8/7/2014 18:10	DOE 905.0	Sr-90	STL02023	0.125	0.187	pCi/g	0.117	U	1	0.187	4.7	0.040	0.172	0.015	0.003
BLT-SSU-06-C1-SO-15														SOR	0.885		Net SOR	0.038
BLT-SSU-06-C1-SO-16	Solid	7/21/2014 10:28	7/26/2014 4:48	EERF C-01-1	C-14	14762-75-5	-0.2	0.825	pCi/g	0.478	U	5	0.825	21	0.039	1.005	(0.180)	0
BLT-SSU-06-C1-SO-16	Solid	7/21/2014 10:28	7/25/2014 16:14	TAL-STL ST-RC-0036	Cl-36	13981-43-6	0.177	0.354	pCi/g	0.215	U	1	0.354	13.2	0.027	0.510	(0.156)	0
BLT-SSU-06-C1-SO-16	Solid	7/21/2014 10:28	8/15/2014 10:10	EPA 901.1	Cs-137	10045-97-3	0.00618	0.0275	pCi/g	0.016	U	0.2	0.0275	16.9	0.002	0.096	(0.069)	0
BLT-SSU-06-C1-SO-16	Solid	7/21/2014 10:28	8/13/2014 20:14	EPA 906.0	H-3	10028-17-8	0.137	0.476	pCi/g	0.277	U	1	0.476	121	0.004	0.414	0.062	0.001
BLT-SSU-06-C1-SO-16	Solid	7/21/2014 10:28	8/4/2014 15:27	TAL-STL ST-RC-0055	Ni-63	13981-37-8	1.86	2.48	pCi/g	1.52	U	5	2.48	77954	0.000	1.889	0.591	0.000
BLT-SSU-06-C1-SO-16	Solid	7/21/2014 10:28	8/15/2014 10:10	EPA 901.1	Pb-210	14255-04-0	0.523	0.523	pCi/g	0.346		1	0.487	1.9	0.275	0.907	(0.384)	0
BLT-SSU-06-C1-SO-16	Solid	7/21/2014 10:28	8/15/2014 10:10	EPA 901.1	Ra-226	13982-63-3	0.549	0.549	pCi/g	0.0896		0.1	0.0487	2.2	0.250	0.771	(0.222)	0
BLT-SSU-06-C1-SO-16	Solid	7/21/2014 10:28	8/7/2014 18:10	DOE 905.0	Sr-90	STL02023	0.158	0.181	pCi/g	0.117	U	1	0.181	4.7	0.039	0.172	0.009	0.002
BLT-SSU-06-C1-SO-16														SOR	0.635		Net SOR	0.002