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Our ref: HEM-13-20
Date: February 20, 2013

Subject: HEMATITE DECOMMISSIONING PROJECT – REQUEST FOR NRC
REVIEW OF REPORTS HDP-RPT-FSS-102, *DATA SUMMARY REPORT FOR
REUSE STOCKPILE 1*, AND HDP-RPT-FSS-103, *DATA SUMMARY REPORT
FOR REUSE STOCKPILE 3*, (License No. SNM-00033, Docket No. 070-00036)

References: 1) NRC (McConnell) letter to Westinghouse (Hackmann), dated November 9, 2011, "Approval of Westinghouse Hematite Physical Security Plan, dated July 28, 2011, Category I Contingency Safeguards Contingency Response and Contingency Security Training and Qualification Plans, dated July 28, 2011, and Fundamental Nuclear Material Control Plan, dated February 18, 2011; and Issuance of Hematite Amendment 59 (SNM-33)"

Reference 1 contains the current amendment to materials license SNM-33 issued by the U.S. Nuclear Regulatory Commission (NRC) to the Westinghouse Electric Company LLC (Westinghouse) for the Hematite Decommissioning Project (HDP). Condition 16 of SNM-33 incorporates by reference the HDP Decommissioning Plan (DP) and Westinghouse's responses to the NRC's Requests for Additional Information (RAIs). Section 14.3.2.3 of DP Chapter 14 contains requirements regarding radiological survey methodologies for soil intended to be used as backfill in an excavation.

The purpose of this letter is to provide for NRC review the results of the radiological survey methodologies for Soil Reuse Stockpiles 1 and 3 at HDP. Enclosure 1 contains the report HDP-RPT-FSS-102, *Data Summary Report for Reuse Stockpile 1*, and Enclosure 2 contains the report HDP-RPT-FSS-103, *Data Summary Report for Reuse Stockpile 3*. The objective of these reports is to document that the average radioactivity concentration (expressed as the sum contribution from all radionuclides) within this stockpile of reuse soil does not exceed the applicable derived concentration guideline levels approved via Reference 1.

NRC's review is requested at this time because: (a) HDP has near term plans to use this soil to backfill excavations, and (b) this review is part of the phased approach to documenting final status surveys as discussed DP Chapter 14. Your timely review of this report is important to the ongoing conduct of the remediation work per the schedule provided in DP Chapter 1.

Please contact me at 314-810-3376, should you have questions or need additional information.

Respectfully,



Dennis C. Richardson
Licensing Manager, Hematite Decommissioning Project

Enclosures: 1) Report HDP-RPT-FSS-102, *Data Summary Report for Reuse Stockpile 1*
1) Report HDP-RPT-FSS-103, *Data Summary Report for Reuse Stockpile 3*

cc:

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ENCLOSURE 1

REPORT HDP-RPT-FSS-102
DATA SUMMARY REPORT FOR REUSE STOCKPILE 1

Westinghouse Electric Company LLC
Hematite Decommissioning Project

Docket No. 070-00036



Hematite Decommissioning Project

Technical Report

NUMBER: HDP-RPT-FSS-102

TITLE: Data Summary Report for Reuse Stockpile 1

REVISION: 0

EFFECTIVE DATE: February 20, 2013

Approvals:

Author: Michelle E. Bresnahan*

Owner/ Manager Gerald J. Rood*

*Electronically approved records are authenticated in the electronic document management system

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APPENDIX A.....A-1

1.0 Soil Description

Reuse Soil Stockpile 1 is comprised of 5,017 tons of soil that originated from the burial pit overburden. The soil was segregated from other waste bearing soil during excavation, and transported to the lay-down area in 275 truckloads starting on 1/26/2012 and then continuing from 5/14/2012 through 7/30/2012. The soil was assayed by the box counter prior to placement in the lay-down area that occupies a portion of Land Survey Area 12 (LSA-12) as shown in Figures 1-1 and 1-2, below.

Figure 1-1, Location of Reuse Stockpile 1.

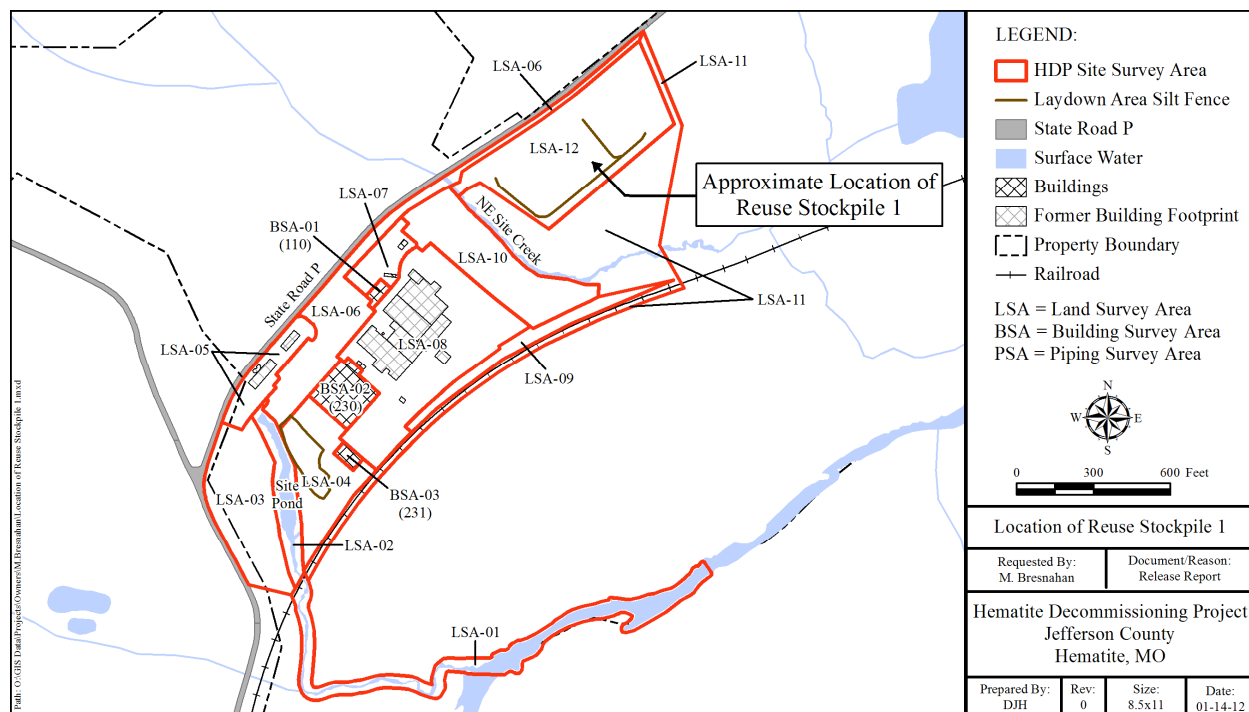


Figure 1-2, Reuse Stockpile 1, Aerial Photograph 08/02/2012



2.0 Reuse Soil Criteria

The objective of the soil characterization was to demonstrate that the average radioactivity concentration (expressed as the sum contribution from all radionuclides) within a stockpile of soil intended for use as backfill does not exceed the DCGL that is applicable to the depth of backfill placement relative to the final grade. The Uniform DCGL_w was conservatively used as the initial comparator to determine suitability for Reuse soil. Candidate soil was initially identified based on field measurements of gamma radiation level, and then confirmed through subsequent sampling and laboratory analysis. The following summarizes the decision rules applied to backfill soil:

- If sample results indicate that the average concentration in a stockpile is \leq Uniform stratum DCGL, then the soil may be placed as backfill within any strata;
- If sample results indicate that the average concentration in a stockpile is $>$ Uniform stratum DCGL, but \leq Root stratum DCGL, then the soil may be placed as backfill within the Root or Deep strata;
- If sample results indicate that a stockpile is $>$ Root stratum DCGL, but \leq Excavation DCGL, then the soil may only be placed as backfill within the Deep stratum.

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The dose contribution from Reuse soil will be added to dose from residual radioactivity within each survey unit in which the soil is placed to demonstrate that the total contribution will not exceed the site decommissioning criteria (25 mrem/yr).

3.0 Survey Design

Three options for scanning, segregating and sampling soil intended for Reuse during excavation and handling are described in subsection 14.3.2.3 of the HDP decommissioning plan (DO-08-004). Since the box counter was utilized for all loads of soil added to Reuse Stockpile 1, the approach defined in subsection 14.3.2.3.1 (*Survey Methodologies Utilizing HRGS*) was applied.

In summary, this approach provided for: (1) a gamma scan survey of 100 percent of the surface prior to excavation; (2) identification and segregation of waste, and soil likely to exceed the DCGL; (3) bulk analysis of the entire volume of soil intended for Reuse as backfill by gamma spectroscopy; and (4) and laboratory analysis of composite soil samples collected at random as the stockpile was accumulated. These survey elements were implemented in accordance with standard operating procedures: HDP-PR-HP-601 (*Remedial Action Support Surveys*); CS-IN-PR-016 (*Operation of the Guardian-III for use at Hematite Decommissioning Project*); and HDP-PR-FSS-710 (*Final Status Survey and Radiological Sampling of Reuse Soil*).

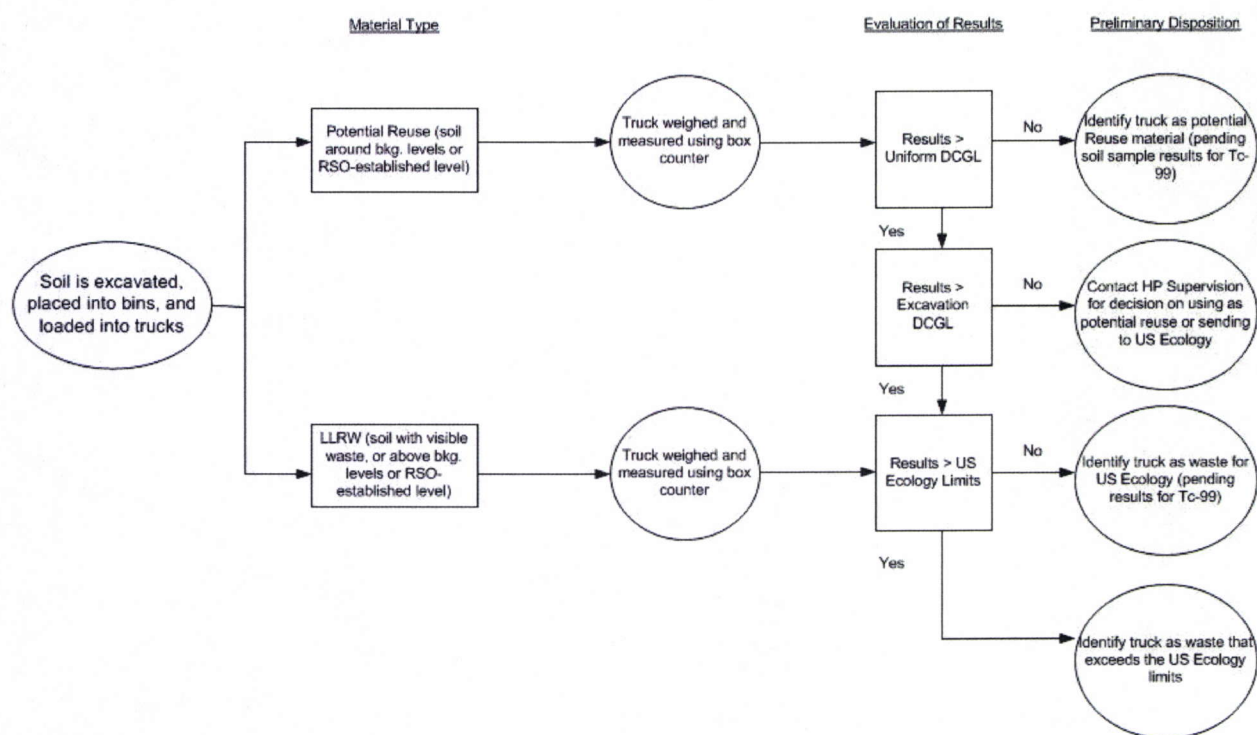
4.0 Survey Implementation

Prior to the excavation of soil, a gamma scan survey covering 100% of the subject surface area was performed and areas of elevated count rate were flagged for segregation. Waste soils and/or other large demolition debris were also segregated from the soil intended for Reuse.

After the gamma scan survey was complete, the soil was excavated and loaded into a dump truck with a capacity of approximately twenty (20) cubic yards, and then assayed using the box counter which is comprised of an array of calibrated high-purity germanium detectors. Soil that exceeded the Reuse criteria based on the gamma spectroscopy result was identified as not suitable for use as Reuse soil and was directed to the waste stream.

The soil not consigned to the waste stream was transported to Stockpile 1, dumped from the truck, and a gamma scan survey was performed on the surface of the pile to identify any locations of elevated count rate for subsequent removal. The criteria of the gamma scan survey at the Stockpile location established on 1/26/2012 was 2,000 net counts per minute (ncpm) as indicated by a NaI 2x2 detector. Based on the experience gained by comparing the count rate action level to the subsequent laboratory results over time, this action level was increased from 2,000 ncpm to 4,000 ncpm on 4/10/2012 and increased again from 4,000 ncpm to 12,000 ncpm on 7/30/2012 and remained at this level throughout the completion of Stockpile 1. Following the scan survey and removal of any locations of elevated count rate, a composite sample consisting of at least four aliquots was collected at random and submitted to an offsite laboratory for analysis. Figure 4-1, below, provides a summary of the process used to segregate Stockpile 1 Reuse soil.

Figure 4-1, Summary of Reuse Soil Segregation.



5.0 Survey and Sampling Results

Table 5.1 includes the summary results of all samples obtained from Reuse Soil Stockpile 1, and the associated sum of fractions when compared to the Uniform DCGL. The arithmetic average concentration resulted in a sum of fractions for Reuse Soil Stockpile 1 of 0.114. The weighted average SOF (considering the contribution of each individual load of soil) is 0.12. Figure 5.1 shows a statistical summary of Reuse Stockpile 1. The 95% confidence interval based on the mean of the sample results is 0.10156 to 0.12733. The 95% confidence interval based on the median of the sample results is 0.07977 to 0.09607. The 95% Chebyshev UCL (upper confidence limit) is 0.143 (shown in Appendix A).

There was one instance where a sample resulted in a SOF value greater than 1 when compared to the Uniform DCGL. On 6/4/2012, sample number 2795-RU-120604-02-04 had an SOF value of 1.21. The sample results were then compared to Root and Excavation DCGL values and the unity rule applied. The resulting SOF values were 1.01 and 0.29, respectively. The SOF results from sample 2795-RU-120604-02-04 described above are provided in Table 5-2.

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Table 5-1, Reuse Stockpile 1 Sample Data and Calculated SOF Values.							
Sample	Ra-226 DCGL=1.9 pCi/g Background=0.9 pCi/g	Tc-99 DCGL=25.1 pCi/g	Th-232 DCGL=2.0 pCi/g Background=1.0 pCi/g	U-234 DCGL=195.4 pCi/g	U-235 DCGL=51.6 pCi/g	U-238 DCGL=168.8 pCi/g	Sample SOF (Uniform DCGL)
2226-RU-120130-01-01	0.97 ± 0.13 (0.07)	2.18 ± 0.42 (0.43)	1.14 ± 0.17 (0.09)	6.35 (Inf. U235/U238)	0.35 ± 0.13 (0.18)	1.55 ± 0.38 (0.85)	0.24
2226-RU-120130-01-02	1.06 ± 0.14 (0.07)	4.61 ± 0.67 (0.50)	1.06 ± 0.15 (0.03)	11.79 (Inf. U235/U238)	0.65 ± 0.20 (0.21)	2.82 ± 0.84 (0.94)	0.39
2674-RU-120514-01-01	0.79 ± 0.11 (0.05)	< 0.02 ± 0.35 (0.60)	0.98 ± 0.14 (0.12)	3.25 (Inf. U235/U238)	0.17 ± 0.10 (0.15)	1.54 ± 0.59 (0.69)	0.03
2674-RU-120514-01-02	0.80 ± 0.10 (0.05)	< -0.01 ± 0.29 (0.51)	1.04 ± 0.14 (0.08)	2.96 (Inf. U235/U238)	0.16 ± 0.11 (0.13)	1.19 ± 0.52 (0.62)	0.05
2674-RU-120514-01-03	0.77 ± 0.09 (0.04)	< -0.13 ± 0.27 (0.49)	0.94 ± 0.12 (0.06)	4.10 (Inf. U235/U238)	0.23 ± 0.09 (0.13)	1.18 ± 0.37 (0.46)	0.03
2674-RU-120514-01-04	0.83 ± 0.10 (0.05)	< -0.06 ± 0.27 (0.46)	0.94 ± 0.13 (0.08)	2.36 (Inf. U235/U238)	0.13 ± 0.08 (0.12)	1.20 ± 0.43 (0.54)	0.02
2674-RU-120514-01-05	0.62 ± 0.09 (0.04)	< 0.25 ± 0.36 (0.59)	0.82 ± 0.13 (0.09)	3.88 (Inf. U235/U238)	0.21 ± 0.11 (0.13)	1.53 ± 0.47 (0.55)	0.04
2675-RU-120514-01-06	0.70 ± 0.09 (0.04)	< 0.31 ± 0.31 (0.51)	0.97 ± 0.13 (0.07)	2.72 (Inf. U235/U238)	0.15 ± 0.09 (0.12)	0.98 ± 0.37 (0.47)	0.03
2675-RU-120514-01-07	0.75 ± 0.10 (0.04)	< 0.11 ± 0.32 (0.54)	1.01 ± 0.13 (0.07)	2.40 (Inf. U235/U238)	0.13 ± 0.09 (0.12)	0.97 ± 0.22 (0.50)	0.03
2675-RU-120514-01-08	0.70 ± 0.09 (0.05)	< 0.04 ± 0.27 (0.46)	0.96 ± 0.15 (0.08)	4.32 (Inf. U235/U238)	0.24 ± 0.09 (0.12)	1.07 ± 0.47 (0.57)	0.03
2675-RU-120514-01-09	0.79 ± 0.10 (0.05)	< 0.02 ± 0.30 (0.52)	1.04 ± 0.13 (0.07)	2.10 (Inf. U235/U238)	< 0.11 ± 0.08 (0.12)	0.77 ± 0.24 (0.58)	0.04
2675-RU-120514-01-10	0.76 ± 0.10 (0.05)	< -0.09 ± 0.30 (0.53)	0.93 ± 0.15 (0.08)	3.21 (Inf. U235/U238)	0.18 ± 0.09 (0.12)	0.96 ± 0.24 (0.56)	0.03
2674-RU-120514-02-01	0.82 ± 0.10 (0.04)	< -0.11 ± 0.32 (0.57)	1.01 ± 0.13 (0.09)	4.41 (Inf. U235/U238)	0.24 ± 0.10 (0.12)	1.28 ± 0.42 (0.51)	0.04
2674-RU-120514-02-02	0.71 ± 0.09 (0.04)	< -0.23 ± 0.30 (0.54)	0.86 ± 0.11 (0.07)	5.11 (Inf. U235/U238)	0.28 ± 0.10 (0.12)	1.56 ± 0.40 (0.48)	0.04
2674-RU-120514-02-03	0.83 ± 0.10 (0.05)	< 0.02 ± 0.28 (0.48)	1.08 ± 0.14 (0.08)	2.43 (Inf. U235/U238)	< 0.13 ± 0.10 (0.17)	1.25 ± 0.46 (0.57)	0.06
2674-RU-120514-02-04	0.77 ± 0.10 (0.04)	< -0.12 ± 0.29 (0.51)	1.00 ± 0.14 (0.08)	1.73 (Inf. U235/U238)	< 0.09 ± 0.08 (0.12)	1.10 ± 0.41 (0.53)	0.02
2674-RU-120514-02-05	0.75 ± 0.10 (0.05)	< -0.07 ± 0.28 (0.49)	0.90 ± 0.14 (0.11)	3.28 (Inf. U235/U238)	0.18 ± 0.10 (0.18)	0.93 ± 0.27 (0.64)	0.03
2675-RU-120514-02-06	0.69 ± 0.09 (0.05)	< 0.23 ± 0.30 (0.49)	0.92 ± 0.12 (0.09)	4.05 (Inf. U235/U238)	0.22 ± 0.10 (0.13)	1.12 ± 0.39 (0.48)	0.04
2675-RU-120514-02-07	0.80 ± 0.10 (0.04)	< 0.05 ± 0.30 (0.52)	1.08 ± 0.14 (0.06)	1.67 (Inf. U235/U238)	< 0.09 ± 0.09 (0.15)	1.11 ± 0.37 (0.47)	0.06
2675-RU-120514-02-08	0.79 ± 0.10 (0.04)	< -0.02 ± 0.29 (0.50)	1.03 ± 0.14 (0.08)	2.06 (Inf. U235/U238)	< 0.11 ± 0.10 (0.16)	0.99 ± 0.23 (0.52)	0.03
2675-RU-120514-02-09	0.84 ± 0.10 (0.05)	< -0.02 ± 0.25 (0.43)	0.96 ± 0.13 (0.08)	3.34 (Inf. U235/U238)	0.18 ± 0.09 (0.13)	0.86 ± 0.22 (0.53)	0.03
2675-RU-120514-02-10	0.80 ± 0.10 (0.05)	< 0.11 ± 0.26 (0.44)	0.94 ± 0.13 (0.08)	1.81 (Inf. U235/U238)	< 0.10 ± 0.07 (0.11)	1.09 ± 0.50 (0.60)	0.02
2681-RU-120515-01-01	0.82 ± 0.11 (0.06)	< 0.18 ± 0.28 (0.46)	0.88 ± 0.13 (0.08)	4.04 (Inf. U235/U238)	0.22 ± 0.11 (0.13)	1.40 ± 0.46 (0.57)	0.04
2681-RU-120515-01-02	0.71 ± 0.10 (0.05)	0.58 ± 0.32 (0.48)	0.84 ± 0.12 (0.08)	4.94 (Inf. U235/U238)	0.27 ± 0.09 (0.12)	0.98 ± 0.25 (0.58)	0.06
2681-RU-120515-01-03	0.83 ± 0.10 (0.04)	< 0.12 ± 0.24 (0.41)	1.13 ± 0.14 (0.08)	2.98 (Inf. U235/U238)	0.16 ± 0.07 (0.10)	1.31 ± 0.48 (0.55)	0.10
2681-RU-120515-01-04	0.76 ± 0.10 (0.04)	< 0.26 ± 0.32 (0.52)	0.96 ± 0.12 (0.08)	2.38 (Inf. U235/U238)	0.13 ± 0.10 (0.12)	0.81 ± 0.20 (0.48)	0.03
2681-RU-120515-01-05	0.84 ± 0.11 (0.07)	< 0.38 ± 0.30 (0.48)	1.01 ± 0.15 (0.11)	3.68 (Inf. U235/U238)	0.20 ± 0.12 (0.16)	1.34 ± 0.46 (0.59)	0.05
2681-RU-120515-02-01	0.85 ± 0.11 (0.06)	< 0.04 ± 0.28 (0.49)	1.10 ± 0.15 (0.07)	1.72 (Inf. U235/U238)	< 0.09 ± 0.11 (0.18)	1.02 ± 0.28 (0.66)	0.07
2681-RU-120515-02-02	0.78 ± 0.10 (0.05)	< 0.07 ± 0.27 (0.46)	0.99 ± 0.14 (0.09)	2.65 (Inf. U235/U238)	0.14 ± 0.09 (0.11)	1.22 ± 0.46 (0.58)	0.03
2681-RU-120515-02-03	0.85 ± 0.10 (0.04)	< 0.30 ± 0.29 (0.47)	1.08 ± 0.15 (0.07)	4.60 (Inf. U235/U238)	0.25 ± 0.10 (0.11)	1.66 ± 0.52 (0.57)	0.09
2681-RU-120515-02-04	0.81 ± 0.10 (0.05)	< 0.21 ± 0.28 (0.46)	1.01 ± 0.14 (0.08)	2.46 (Inf. U235/U238)	0.13 ± 0.10 (0.13)	1.38 ± 0.47 (0.56)	0.04
2681-RU-120515-02-05	0.86 ± 0.11 (0.04)	< -0.09 ± 0.27 (0.47)	1.00 ± 0.13 (0.08)	2.75 (Inf. U235/U238)	0.15 ± 0.08 (0.12)	0.84 ± 0.23 (0.54)	0.02
2696-RU-120516-01-03	0.88 ± 0.11 (0.05)	< 0.16 ± 0.28 (0.47)	1.05 ± 0.14 (0.08)	2.13 (Inf. U235/U238)	< 0.11 ± 0.10 (0.16)	1.44 ± 0.49 (0.58)	0.05
2696-RU-120516-01-04	0.91 ± 0.11 (0.05)	< 0.19 ± 0.26 (0.43)	1.15 ± 0.15 (0.09)	5.01 (Inf. U235/U238)	0.27 ± 0.10 (0.14)	1.64 ± 0.53 (0.62)	0.13
2696-RU-120516-01-05	0.89 ± 0.11 (0.06)	< 0.05 ± 0.26 (0.44)	1.01 ± 0.15 (0.10)	4.04 (Inf. U235/U238)	0.22 ± 0.12 (0.16)	1.42 ± 0.57 (0.70)	0.04
2696-RU-120516-02-04	0.87 ± 0.11 (0.04)	< 0.17 ± 0.23 (0.39)	1.07 ± 0.15 (0.07)	3.52 (Inf. U235/U238)	0.19 ± 0.12 (0.14)	1.45 ± 0.46 (0.54)	0.07

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Table 5-1, Reuse Stockpile 1 Sample Data and Calculated SOF Values.							
Sample	Ra-226 DCGL=1.9 pCi/g Background=0.9 pCi/g	Tc-99 DCGL=25.1 pCi/g	Th-232 DCGL=2.0 pCi/g Background=1.0 pCi/g	U-234 DCGL=195.4 pCi/g	U-235 DCGL=51.6 pCi/g	U-238 DCGL=168.8 pCi/g	Sample SOF (Uniform DCGL)
2696-RU-120516-02-05	0.80 ± 0.11 (0.06)	< 0.03 ± 0.26 (0.45)	1.00 ± 0.15 (0.10)	4.58 (Inf. U235/U238)	0.25 ± 0.11 (0.17)	1.58 ± 0.53 (0.62)	0.04
2696-RU-120516-02-06	0.96 ± 0.12 (0.05)	< -0.02 ± 0.23 (0.40)	1.13 ± 0.14 (0.07)	2.91 (Inf. U235/U238)	0.15 ± 0.10 (0.14)	1.94 ± 0.56 (0.61)	0.13
2715-RU-120521-01-01	0.83 ± 0.10 (0.04)	< 0.02 ± 0.29 (0.50)	1.00 ± 0.14 (0.09)	2.48 (Inf. U235/U238)	< 0.13 ± 0.10 (0.16)	1.02 ± 0.25 (0.55)	0.02
2715-RU-120521-01-02	0.79 ± 0.10 (0.04)	< 0.13 ± 0.30 (0.50)	0.95 ± 0.12 (0.06)	3.08 (Inf. U235/U238)	0.17 ± 0.08 (0.12)	1.19 ± 0.44 (0.53)	0.03
2715-RU-120521-01-03	0.75 ± 0.10 (0.05)	< 0.04 ± 0.29 (0.49)	1.04 ± 0.15 (0.09)	0.48 (Inf. U235/U238)	< 0.02 ± 0.11 (0.18)	0.78 ± 0.24 (0.64)	0.03
2715-RU-120521-01-04	0.84 ± 0.12 (0.07)	< 0.06 ± 0.27 (0.46)	0.97 ± 0.14 (0.09)	1.57 (Inf. U235/U238)	< 0.08 ± 0.13 (0.23)	1.15 ± 0.72 (0.99)	0.02
2716-RU-120521-01-05	0.86 ± 0.11 (0.05)	< 0.00 ± 0.27 (0.46)	0.97 ± 0.15 (0.11)	1.39 (Inf. U235/U238)	< 0.07 ± 0.11 (0.18)	1.13 ± 0.52 (0.63)	0.02
2716-RU-120521-01-06	1.01 ± 0.12 (0.05)	< -0.01 ± 0.27 (0.47)	0.92 ± 0.13 (0.07)	10.14 (Inf. U235/U238)	0.56 ± 0.13 (0.17)	2.09 ± 0.48 (0.55)	0.13
2716-RU-120521-01-07	0.72 ± 0.09 (0.04)	< 0.07 ± 0.29 (0.49)	0.84 ± 0.12 (0.07)	7.57 (Inf. U235/U238)	0.42 ± 0.09 (0.11)	1.94 ± 0.46 (0.52)	0.06
2716-RU-120521-01-08	0.75 ± 0.10 (0.05)	< 0.21 ± 0.26 (0.43)	0.97 ± 0.14 (0.07)	4.32 (Inf. U235/U238)	0.24 ± 0.10 (0.12)	1.11 ± 0.26 (0.58)	0.04
2716-RU-120521-01-09	0.85 ± 0.11 (0.05)	2.18 ± 0.45 (0.50)	0.97 ± 0.13 (0.07)	8.15 (Inf. U235/U238)	0.45 ± 0.09 (0.11)	1.76 ± 0.46 (0.52)	0.15
2716-RU-120521-01-10	0.82 ± 0.10 (0.04)	< 0.13 ± 0.27 (0.45)	0.94 ± 0.12 (0.07)	4.39 (Inf. U235/U238)	0.24 ± 0.08 (0.12)	1.28 ± 0.40 (0.49)	0.04
2715-RU-120521-02-01	0.82 ± 0.10 (0.05)	0.67 ± 0.34 (0.52)	1.05 ± 0.13 (0.08)	4.31 (Inf. U235/U238)	0.24 ± 0.08 (0.12)	1.54 ± 0.50 (0.59)	0.09
2715-RU-120521-02-02	0.79 ± 0.10 (0.05)	< 0.06 ± 0.26 (0.45)	0.93 ± 0.12 (0.06)	2.99 (Inf. U235/U238)	0.16 ± 0.10 (0.12)	1.37 ± 0.43 (0.51)	0.03
2715-RU-120521-02-03	0.71 ± 0.09 (0.05)	< 0.23 ± 0.31 (0.50)	0.91 ± 0.13 (0.08)	3.57 (Inf. U235/U238)	0.19 ± 0.07 (0.12)	1.33 ± 0.46 (0.55)	0.04
2715-RU-120521-02-04	0.82 ± 0.10 (0.05)	< -0.13 ± 0.26 (0.46)	1.08 ± 0.13 (0.07)	0.96 (Inf. U235/U238)	< 0.04 ± 0.08 (0.15)	1.24 ± 0.43 (0.52)	0.05
2715-RU-120521-02-05	0.94 ± 0.12 (0.05)	< 0.02 ± 0.30 (0.51)	1.14 ± 0.14 (0.09)	2.76 (Inf. U235/U238)	0.15 ± 0.11 (0.13)	1.03 ± 0.27 (0.65)	0.11
2716-RU-120521-02-06	0.99 ± 0.13 (0.06)	< 0.12 ± 0.28 (0.47)	1.06 ± 0.15 (0.09)	7.67 (Inf. U235/U238)	0.42 ± 0.13 (0.14)	2.40 ± 0.61 (0.68)	0.14
2716-RU-120521-02-07	0.88 ± 0.11 (0.05)	< 0.02 ± 0.26 (0.44)	0.97 ± 0.13 (0.07)	11.05 (Inf. U235/U238)	0.61 ± 0.16 (0.16)	1.85 ± 0.58 (0.66)	0.08
2716-RU-120521-02-08	0.84 ± 0.11 (0.05)	0.64 ± 0.34 (0.52)	0.93 ± 0.13 (0.07)	9.05 (Inf. U235/U238)	0.50 ± 0.14 (0.15)	1.89 ± 0.61 (0.67)	0.09
2716-RU-120521-02-09	0.96 ± 0.11 (0.04)	0.89 ± 0.35 (0.51)	0.99 ± 0.13 (0.09)	5.73 (Inf. U235/U238)	0.32 ± 0.09 (0.12)	1.61 ± 0.48 (0.54)	0.11
2716-RU-120521-02-10	1.02 ± 0.12 (0.05)	6.59 ± 0.85 (0.51)	0.92 ± 0.13 (0.09)	10.68 (Inf. U235/U238)	0.59 ± 0.11 (0.14)	2.08 ± 0.49 (0.56)	0.40
2724-RU-120522-01-01	0.95 ± 0.11 (0.05)	< 0.12 ± 0.31 (0.53)	1.04 ± 0.13 (0.07)	4.42 (Inf. U235/U238)	0.24 ± 0.11 (0.16)	1.68 ± 0.53 (0.60)	0.09
2724-RU-120522-01-02	0.93 ± 0.12 (0.05)	< 0.01 ± 0.33 (0.57)	0.92 ± 0.14 (0.09)	3.85 (Inf. U235/U238)	0.21 ± 0.10 (0.13)	1.36 ± 0.54 (0.64)	0.05
2724-RU-120522-01-03	1.00 ± 0.12 (0.04)	< -0.15 ± 0.31 (0.55)	1.12 ± 0.14 (0.07)	1.98 (Inf. U235/U238)	< 0.10 ± 0.08 (0.11)	1.22 ± 0.39 (0.49)	0.13
2724-RU-120522-01-04	0.85 ± 0.10 (0.04)	< -0.11 ± 0.28 (0.50)	0.89 ± 0.11 (0.07)	1.73 (Inf. U235/U238)	< 0.09 ± 0.09 (0.14)	1.20 ± 0.37 (0.47)	0.02
2724-RU-120522-01-05	1.02 ± 0.12 (0.05)	< 0.39 ± 0.38 (0.61)	0.98 ± 0.14 (0.08)	5.19 (Inf. U235/U238)	0.28 ± 0.09 (0.13)	1.89 ± 0.53 (0.61)	0.12
2726-RU-120522-01-06	0.99 ± 0.12 (0.06)	< 0.10 ± 0.23 (0.38)	1.06 ± 0.15 (0.12)	3.34 (Inf. U235/U238)	0.18 ± 0.12 (0.16)	1.44 ± 0.31 (0.68)	0.11
2726-RU-120522-01-07	0.97 ± 0.12 (0.06)	< 0.22 ± 0.25 (0.41)	0.95 ± 0.17 (0.10)	5.53 (Inf. U235/U238)	0.30 ± 0.10 (0.14)	2.10 ± 0.63 (0.70)	0.09
2726-RU-120522-01-08	0.88 ± 0.11 (0.05)	< -0.09 ± 0.26 (0.46)	0.91 ± 0.12 (0.07)	2.16 (Inf. U235/U238)	< 0.12 ± 0.09 (0.12)	0.96 ± 0.26 (0.60)	0.02
2726-RU-120522-01-09	0.94 ± 0.12 (0.06)	< 0.28 ± 0.25 (0.40)	1.05 ± 0.14 (0.08)	3.82 (Inf. U235/U238)	0.21 ± 0.10 (0.12)	1.07 ± 0.26 (0.62)	0.09
2724-RU-120522-02-01	0.90 ± 0.11 (0.05)	< 0.12 ± 0.29 (0.49)	0.85 ± 0.12 (0.07)	3.69 (Inf. U235/U238)	0.20 ± 0.10 (0.13)	1.21 ± 0.35 (0.45)	0.03
2724-RU-120522-02-02	0.83 ± 0.10 (0.04)	< 0.01 ± 0.29 (0.49)	0.90 ± 0.12 (0.08)	3.23 (Inf. U235/U238)	0.18 ± 0.08 (0.11)	1.25 ± 0.43 (0.51)	0.03
2724-RU-120522-02-03	0.90 ± 0.11 (0.05)	< -0.02 ± 0.27 (0.47)	0.92 ± 0.14 (0.09)	1.73 (Inf. U235/U238)	< 0.09 ± 0.11 (0.17)	1.08 ± 0.48 (0.60)	0.02
2724-RU-120522-02-04	0.72 ± 0.09 (0.05)	< -0.08 ± 0.27 (0.47)	0.93 ± 0.12 (0.07)	2.81 (Inf. U235/U238)	0.15 ± 0.10 (0.12)	1.40 ± 0.43 (0.52)	0.03
2726-RU-120522-02-05	1.05 ± 0.14 (0.06)	< 0.04 ± 0.23 (0.39)	1.04 ± 0.17 (0.11)	4.04 (Inf. U235/U238)	0.22 ± 0.12 (0.16)	1.45 ± 0.42 (0.61)	0.13

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Table 5-1, Reuse Stockpile 1 Sample Data and Calculated SOF Values.							
Sample	Ra-226 DCGL=1.9 pCi/g Background=0.9 pCi/g	Tc-99 DCGL=25.1 pCi/g	Th-232 DCGL=2.0 pCi/g Background=1.0 pCi/g	U-234 DCGL=195.4 pCi/g	U-235 DCGL=51.6 pCi/g	U-238 DCGL=168.8 pCi/g	Sample SOF (Uniform DCGL)
2726-RU-120522-02-06	1.02 ± 0.12 (0.05)	< 0.06 ± 0.27 (0.47)	1.19 ± 0.16 (0.09)	4.59 (Inf. U235/U238)	0.25 ± 0.10 (0.17)	1.65 ± 0.57 (0.64)	0.20
2726-RU-120522-02-07	1.06 ± 0.13 (0.06)	< 0.03 ± 0.23 (0.40)	1.04 ± 0.14 (0.08)	4.50 (Inf. U235/U238)	0.25 ± 0.09 (0.14)	1.68 ± 0.55 (0.64)	0.14
2726-RU-120522-02-08	0.89 ± 0.12 (0.06)	< -0.02 ± 0.23 (0.40)	1.04 ± 0.16 (0.08)	4.00 (Inf. U235/U238)	0.22 ± 0.10 (0.14)	1.73 ± 0.67 (0.72)	0.05
2753-RU-120529-01-01	1.02 ± 0.12 (0.05)	< -0.01 ± 0.29 (0.51)	1.10 ± 0.14 (0.09)	2.33 (Inf. U235/U238)	< 0.12 ± 0.10 (0.17)	1.59 ± 0.52 (0.60)	0.14
2753-RU-120529-01-02	0.88 ± 0.11 (0.05)	< -0.23 ± 0.29 (0.53)	1.08 ± 0.14 (0.09)	2.11 (Inf. U235/U238)	< 0.11 ± 0.10 (0.15)	1.30 ± 0.44 (0.55)	0.06
2753-RU-120529-01-03	1.19 ± 0.15 (0.06)	< 0.03 ± 0.26 (0.44)	1.00 ± 0.15 (0.10)	6.53 (Inf. U235/U238)	0.36 ± 0.16 (0.17)	1.53 ± 0.50 (0.62)	0.20
2753-RU-120529-01-04	0.97 ± 0.12 (0.05)	< 0.08 ± 0.31 (0.53)	1.11 ± 0.14 (0.09)	6.88 (Inf. U235/U238)	0.38 ± 0.14 (0.16)	1.36 ± 0.50 (0.59)	0.15
2753-RU-120529-01-05	0.85 ± 0.10 (0.05)	< -0.04 ± 0.26 (0.46)	1.01 ± 0.13 (0.07)	1.85 (Inf. U235/U238)	< 0.09 ± 0.09 (0.11)	1.56 ± 0.44 (0.52)	0.03
2753-RU-120529-02-01	0.96 ± 0.12 (0.06)	< -0.05 ± 0.28 (0.49)	1.04 ± 0.15 (0.10)	3.55 (Inf. U235/U238)	0.19 ± 0.09 (0.14)	1.54 ± 0.52 (0.64)	0.08
2753-RU-120529-02-02	0.90 ± 0.11 (0.05)	0.70 ± 0.34 (0.51)	1.00 ± 0.13 (0.07)	7.42 (Inf. U235/U238)	0.41 ± 0.10 (0.12)	1.40 ± 0.42 (0.52)	0.08
2753-RU-120529-02-03	0.91 ± 0.11 (0.05)	< -0.28 ± 0.26 (0.47)	1.02 ± 0.14 (0.08)	4.53 (Inf. U235/U238)	0.25 ± 0.10 (0.15)	0.88 ± 0.24 (0.54)	0.05
2753-RU-120529-02-04	0.90 ± 0.11 (0.05)	< -0.07 ± 0.24 (0.43)	1.04 ± 0.13 (0.08)	4.07 (Inf. U235/U238)	0.22 ± 0.10 (0.13)	1.61 ± 0.47 (0.55)	0.05
2753-RU-120529-02-05	0.74 ± 0.09 (0.04)	< -0.05 ± 0.30 (0.53)	0.81 ± 0.11 (0.07)	4.47 (Inf. U235/U238)	0.24 ± 0.08 (0.10)	1.52 ± 0.48 (0.53)	0.04
2758-RU-120529-02-06	0.90 ± 0.11 (0.05)	< -0.10 ± 0.33 (0.58)	1.09 ± 0.15 (0.08)	4.02 (Inf. U235/U238)	0.22 ± 0.10 (0.14)	1.25 ± 0.53 (0.65)	0.08
2759-RU-120530-01-01	0.93 ± 0.11 (0.04)	< -0.08 ± 0.27 (0.48)	1.06 ± 0.14 (0.08)	3.41 (Inf. U235/U238)	0.18 ± 0.08 (0.11)	1.41 ± 0.53 (0.60)	0.08
2759-RU-120530-01-02	0.83 ± 0.10 (0.04)	< -0.12 ± 0.30 (0.54)	1.01 ± 0.13 (0.07)	5.23 (Inf. U235/U238)	0.29 ± 0.09 (0.11)	1.60 ± 0.42 (0.50)	0.05
2760-RU-120530-01-03	0.97 ± 0.13 (0.06)	< 0.17 ± 0.27 (0.45)	0.99 ± 0.15 (0.10)	4.74 (Inf. U235/U238)	0.26 ± 0.10 (0.14)	1.40 ± 0.31 (0.73)	0.08
2760-RU-120530-01-04	0.92 ± 0.11 (0.05)	< 0.25 ± 0.27 (0.44)	1.07 ± 0.14 (0.08)	7.42 (Inf. U235/U238)	0.41 ± 0.12 (0.15)	1.53 ± 0.56 (0.64)	0.11
2760-RU-120530-01-05	0.96 ± 0.12 (0.05)	< 0.44 ± 0.29 (0.45)	1.01 ± 0.13 (0.07)	6.21 (Inf. U235/U238)	0.34 ± 0.10 (0.13)	1.94 ± 0.52 (0.59)	0.10
2760-RU-120530-01-06	0.93 ± 0.12 (0.07)	0.69 ± 0.28 (0.40)	0.97 ± 0.16 (0.09)	6.56 (Inf. U235/U238)	0.36 ± 0.15 (0.17)	2.01 ± 0.62 (0.68)	0.10
2760-RU-120530-01-07	0.93 ± 0.11 (0.04)	1.46 ± 0.36 (0.42)	1.08 ± 0.13 (0.07)	9.78 (Inf. U235/U238)	0.54 ± 0.11 (0.13)	2.02 ± 0.48 (0.53)	0.19
2759-RU-120530-02-01	0.94 ± 0.11 (0.05)	< -0.05 ± 0.32 (0.56)	1.22 ± 0.17 (0.07)	5.47 (Inf. U235/U238)	0.30 ± 0.10 (0.14)	1.79 ± 0.58 (0.65)	0.18
2760-RU-120530-02-02	0.78 ± 0.09 (0.05)	0.84 ± 0.33 (0.46)	0.88 ± 0.11 (0.07)	3.47 (Inf. U235/U238)	0.19 ± 0.07 (0.11)	1.58 ± 0.45 (0.52)	0.06
2760-RU-120530-02-03	0.85 ± 0.10 (0.05)	< 0.25 ± 0.28 (0.46)	0.98 ± 0.14 (0.06)	6.90 (Inf. U235/U238)	0.38 ± 0.12 (0.13)	1.00 ± 0.24 (0.54)	0.06
2760-RU-120530-02-04	0.91 ± 0.12 (0.06)	< 0.11 ± 0.25 (0.43)	0.93 ± 0.14 (0.07)	6.34 (Inf. U235/U238)	0.35 ± 0.10 (0.14)	1.05 ± 0.27 (0.62)	0.06
2760-RU-120530-02-05	1.07 ± 0.13 (0.05)	< 0.28 ± 0.27 (0.44)	1.36 ± 0.20 (0.09)	7.29 (Inf. U235/U238)	0.40 ± 0.13 (0.15)	2.18 ± 0.65 (0.68)	0.34
2760-RU-120530-02-06	0.93 ± 0.11 (0.05)	1.00 ± 0.33 (0.43)	1.00 ± 0.13 (0.08)	10.86 (Inf. U235/U238)	0.60 ± 0.13 (0.15)	2.12 ± 0.53 (0.59)	0.14
2772-RU-120530-02-07	0.90 ± 0.12 (0.05)	0.89 ± 0.30 (0.41)	1.00 ± 0.15 (0.11)	5.99 (Inf. U235/U238)	0.33 ± 0.12 (0.15)	1.48 ± 0.55 (0.66)	0.08
2773-RU-120531-01-01	0.94 ± 0.11 (0.04)	0.79 ± 0.32 (0.45)	0.96 ± 0.13 (0.07)	8.51 (Inf. U235/U238)	0.47 ± 0.13 (0.15)	1.64 ± 0.51 (0.59)	0.11
2773-RU-120531-01-02	0.87 ± 0.11 (0.05)	0.67 ± 0.31 (0.46)	1.06 ± 0.14 (0.08)	4.38 (Inf. U235/U238)	0.24 ± 0.11 (0.15)	1.30 ± 0.43 (0.55)	0.09
2773-RU-120531-01-03	0.81 ± 0.10 (0.06)	< 0.06 ± 0.24 (0.42)	0.99 ± 0.15 (0.09)	3.70 (Inf. U235/U238)	0.20 ± 0.11 (0.15)	1.47 ± 0.56 (0.66)	0.03
2773-RU-120531-02-01	0.84 ± 0.10 (0.04)	0.56 ± 0.30 (0.46)	1.00 ± 0.13 (0.08)	5.09 (Inf. U235/U238)	0.28 ± 0.11 (0.12)	1.32 ± 0.36 (0.45)	0.06
2773-RU-120531-02-02	0.87 ± 0.11 (0.05)	< 0.32 ± 0.28 (0.44)	1.03 ± 0.14 (0.07)	4.91 (Inf. U235/U238)	0.27 ± 0.12 (0.14)	1.38 ± 0.45 (0.56)	0.07
2773-RU-120531-02-03	0.98 ± 0.12 (0.05)	< 0.34 ± 0.28 (0.45)	1.08 ± 0.14 (0.09)	3.32 (Inf. U235/U238)	0.18 ± 0.10 (0.13)	1.78 ± 0.50 (0.58)	0.13
2773-RU-120531-02-04	0.95 ± 0.12 (0.05)	< -0.01 ± 0.24 (0.42)	1.09 ± 0.14 (0.09)	1.88 (Inf. U235/U238)	< 0.10 ± 0.10 (0.17)	1.32 ± 0.47 (0.57)	0.09
2795-RU-120604-01-01	0.84 ± 0.10 (0.05)	< 0.13 ± 0.26 (0.43)	1.07 ± 0.15 (0.09)	5.84 (Inf. U235/U238)	0.32 ± 0.11 (0.13)	1.81 ± 0.52 (0.60)	0.09

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Table 5-1, Reuse Stockpile 1 Sample Data and Calculated SOF Values.							
Sample	Ra-226 DCGL=1.9 pCi/g Background=0.9 pCi/g	Tc-99 DCGL=25.1 pCi/g	Th-232 DCGL=2.0 pCi/g Background=1.0 pCi/g	U-234 DCGL=195.4 pCi/g	U-235 DCGL=51.6 pCi/g	U-238 DCGL=168.8 pCi/g	Sample SOF (Uniform DCGL)
2795-RU-120604-01-02	0.89 ± 0.11 (0.05)	0.78 ± 0.34 (0.50)	1.02 ± 0.13 (0.07)	8.36 (Inf. U235/U238)	0.46 ± 0.10 (0.13)	2.24 ± 0.62 (0.64)	0.11
2795-RU-120604-01-03	0.85 ± 0.10 (0.05)	2.97 ± 0.53 (0.51)	1.03 ± 0.15 (0.08)	9.09 (Inf. U235/U238)	0.50 ± 0.13 (0.16)	2.45 ± 0.65 (0.66)	0.20
2795-RU-120604-01-04	0.84 ± 0.11 (0.05)	< 0.22 ± 0.29 (0.49)	1.01 ± 0.13 (0.08)	6.52 (Inf. U235/U238)	0.36 ± 0.13 (0.16)	1.44 ± 0.55 (0.64)	0.06
2796-RU-120604-01-05	0.95 ± 0.12 (0.05)	< 0.00 ± 0.27 (0.47)	0.96 ± 0.14 (0.09)	3.48 (Inf. U235/U238)	0.19 ± 0.10 (0.13)	1.37 ± 0.48 (0.58)	0.06
2796-RU-120604-01-06	1.47 ± 0.17 (0.06)	< 0.46 ± 0.31 (0.48)	1.18 ± 0.15 (0.08)	5.83 (Inf. U235/U238)	0.32 ± 0.11 (0.15)	1.69 ± 0.53 (0.62)	0.45
2796-RU-120604-01-07	1.09 ± 0.13 (0.06)	0.44 ± 0.28 (0.43)	0.98 ± 0.14 (0.11)	2.73 (Inf. U235/U238)	< 0.14 ± 0.10 (0.15)	1.80 ± 0.61 (0.68)	0.14
2796-RU-120604-01-08	1.11 ± 0.13 (0.05)	< -0.17 ± 0.28 (0.51)	1.07 ± 0.15 (0.08)	2.58 (Inf. U235/U238)	< 0.14 ± 0.11 (0.19)	1.00 ± 0.26 (0.60)	0.17
2796-RU-120604-01-09	1.15 ± 0.14 (0.05)	< 0.20 ± 0.27 (0.44)	1.15 ± 0.16 (0.09)	1.39 (Inf. U235/U238)	< 0.07 ± 0.10 (0.16)	1.18 ± 0.37 (0.50)	0.23
2795-RU-120604-02-01	0.85 ± 0.11 (0.05)	< 0.35 ± 0.33 (0.55)	1.06 ± 0.13 (0.07)	4.37 (Inf. U235/U238)	0.24 ± 0.12 (0.15)	1.28 ± 0.28 (0.64)	0.08
2795-RU-120604-02-02	0.85 ± 0.11 (0.05)	0.47 ± 0.30 (0.47)	0.97 ± 0.13 (0.07)	8.63 (Inf. U235/U238)	0.48 ± 0.10 (0.12)	2.10 ± 0.51 (0.56)	0.08
2795-RU-120604-02-03	0.89 ± 0.11 (0.04)	0.75 ± 0.33 (0.49)	1.01 ± 0.15 (0.07)	14.32 (Inf. U235/U238)	0.79 ± 0.14 (0.13)	2.26 ± 0.56 (0.60)	0.14
2795-RU-120604-02-04	1.05 ± 0.14 (0.07)	< 0.41 ± 0.31 (0.51)	0.95 ± 0.14 (0.10)	182.21 (Inf. U235/U238)	8.38 ± 0.93 (0.39)	2.87 ± 0.82 (1.20)	1.21
2796-RU-120604-02-05	0.99 ± 0.12 (0.05)	< 0.14 ± 0.28 (0.47)	0.94 ± 0.13 (0.08)	4.89 (Inf. U235/U238)	0.27 ± 0.12 (0.15)	1.15 ± 0.47 (0.59)	0.09
2796-RU-120604-02-06	1.21 ± 0.14 (0.05)	< 0.24 ± 0.29 (0.48)	1.07 ± 0.14 (0.07)	6.62 (Inf. U235/U238)	0.36 ± 0.10 (0.13)	1.83 ± 0.47 (0.55)	0.26
2796-RU-120604-02-07	1.02 ± 0.12 (0.05)	0.49 ± 0.31 (0.48)	1.01 ± 0.13 (0.07)	5.85 (Inf. U235/U238)	0.32 ± 0.10 (0.12)	1.87 ± 0.52 (0.58)	0.13
2796-RU-120604-02-08	1.14 ± 0.14 (0.05)	< -0.05 ± 0.26 (0.46)	0.60 ± 0.11 (0.21)	2.14 (Inf. U235/U238)	< 0.11 ± 0.08 (0.13)	1.57 ± 0.33 (0.67)	0.15
2806-RU-120605-01-01	0.98 ± 0.12 (0.05)	< 0.28 ± 0.28 (0.45)	1.15 ± 0.15 (0.07)	4.57 (Inf. U235/U238)	0.25 ± 0.12 (0.13)	1.46 ± 0.48 (0.57)	0.17
2806-RU-120605-01-02	0.84 ± 0.10 (0.04)	< 0.16 ± 0.29 (0.49)	1.12 ± 0.15 (0.06)	1.43 (Inf. U235/U238)	< 0.07 ± 0.09 (0.14)	1.04 ± 0.40 (0.50)	0.08
2806-RU-120605-01-03	0.99 ± 0.12 (0.05)	< 0.12 ± 0.28 (0.47)	1.17 ± 0.16 (0.08)	2.64 (Inf. U235/U238)	< 0.14 ± 0.12 (0.17)	1.38 ± 0.54 (0.64)	0.16
2806-RU-120605-01-04	0.90 ± 0.11 (0.05)	< 0.10 ± 0.28 (0.48)	1.20 ± 0.14 (0.07)	2.83 (Inf. U235/U238)	0.15 ± 0.10 (0.13)	1.53 ± 0.53 (0.62)	0.13
2806-RU-120605-01-05	0.92 ± 0.12 (0.06)	< 0.25 ± 0.28 (0.46)	1.12 ± 0.16 (0.09)	2.91 (Inf. U235/U238)	0.16 ± 0.09 (0.13)	1.20 ± 0.50 (0.63)	0.11
2808-RU-120605-01-06	1.00 ± 0.12 (0.05)	< 0.34 ± 0.30 (0.49)	1.06 ± 0.13 (0.08)	3.26 (Inf. U235/U238)	0.17 ± 0.10 (0.11)	1.81 ± 0.50 (0.57)	0.13
2838-RU-120611-01-01	0.85 ± 0.11 (0.05)	< -0.03 ± 0.25 (0.44)	1.05 ± 0.13 (0.08)	2.33 (Inf. U235/U238)	0.12 ± 0.09 (0.12)	1.44 ± 0.50 (0.59)	0.05
2838-RU-120611-01-02	0.83 ± 0.10 (0.06)	< -0.08 ± 0.26 (0.45)	1.02 ± 0.14 (0.10)	2.27 (Inf. U235/U238)	< 0.12 ± 0.10 (0.16)	1.30 ± 0.43 (0.55)	0.03
2838-RU-120611-01-03	0.95 ± 0.12 (0.06)	< 0.36 ± 0.27 (0.43)	1.00 ± 0.14 (0.10)	2.80 (Inf. U235/U238)	< 0.15 ± 0.11 (0.19)	1.28 ± 0.48 (0.60)	0.07
2838-RU-120611-02-01	0.89 ± 0.11 (0.05)	< 0.11 ± 0.24 (0.40)	1.03 ± 0.14 (0.09)	1.80 (Inf. U235/U238)	< 0.09 ± 0.07 (0.11)	1.23 ± 0.44 (0.55)	0.04
2838-RU-120611-02-02	0.95 ± 0.12 (0.06)	< 0.03 ± 0.25 (0.43)	0.55 ± 0.13 (0.18)	3.94 (Inf. U235/U238)	0.21 ± 0.13 (0.16)	1.98 ± 0.56 (0.63)	0.06
2838-RU-120611-02-03	0.94 ± 0.12 (0.06)	< 0.40 ± 0.29 (0.45)	0.99 ± 0.14 (0.11)	6.34 (Inf. U235/U238)	0.35 ± 0.13 (0.17)	1.32 ± 0.59 (0.71)	0.08
2846-RU-120612-01-01	0.91 ± 0.12 (0.06)	< 0.20 ± 0.26 (0.43)	1.00 ± 0.14 (0.10)	2.31 (Inf. U235/U238)	< 0.12 ± 0.12 (0.18)	1.49 ± 0.43 (0.61)	0.04
2846-RU-120612-01-02	0.88 ± 0.10 (0.04)	< 0.19 ± 0.26 (0.44)	0.93 ± 0.12 (0.08)	6.19 (Inf. U235/U238)	0.34 ± 0.11 (0.13)	1.82 ± 0.47 (0.53)	0.06
2846-RU-120612-01-03	0.90 ± 0.11 (0.04)	< 0.35 ± 0.27 (0.43)	0.94 ± 0.12 (0.09)	7.97 (Inf. U235/U238)	0.44 ± 0.13 (0.15)	1.78 ± 0.54 (0.64)	0.07
2846-RU-120612-01-04	0.94 ± 0.12 (0.05)	< 0.19 ± 0.28 (0.47)	1.00 ± 0.14 (0.07)	4.20 (Inf. U235/U238)	0.23 ± 0.10 (0.12)	1.33 ± 0.45 (0.55)	0.06
2846-RU-120612-01-05	0.89 ± 0.11 (0.05)	< 0.19 ± 0.26 (0.44)	1.05 ± 0.14 (0.08)	4.14 (Inf. U235/U238)	0.23 ± 0.09 (0.12)	1.42 ± 0.48 (0.58)	0.07
2849-RU-120612-01-06	1.01 ± 0.14 (0.07)	< -0.05 ± 0.24 (0.42)	1.23 ± 0.19 (0.10)	5.98 (Inf. U235/U238)	0.33 ± 0.14 (0.17)	1.43 ± 0.40 (0.92)	0.22
2849-RU-120612-01-07	1.00 ± 0.14 (0.07)	< 0.16 ± 0.25 (0.41)	1.01 ± 0.15 (0.10)	6.16 (Inf. U235/U238)	0.34 ± 0.16 (0.19)	1.11 ± 0.34 (0.84)	0.11
2849-RU-120612-01-08	0.94 ± 0.13 (0.07)	< 0.11 ± 0.26 (0.44)	1.04 ± 0.18 (0.10)	4.89 (Inf. U235/U238)	0.27 ± 0.15 (0.21)	0.93 ± 0.35 (0.84)	0.08

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Table 5-1, Reuse Stockpile 1 Sample Data and Calculated SOF Values.							
Sample	Ra-226 DCGL=1.9 pCi/g Background=0.9 pCi/g	Tc-99 DCGL=25.1 pCi/g	Th-232 DCGL=2.0 pCi/g Background=1.0 pCi/g	U-234 DCGL=195.4 pCi/g	U-235 DCGL=51.6 pCi/g	U-238 DCGL=168.8 pCi/g	Sample SOF (Uniform DCGL)
2849-RU-120612-01-09	0.99 ± 0.14 (0.07)	< 0.07 ± 0.23 (0.39)	1.15 ± 0.19 (0.11)	3.96 (Inf. U235/U238)	0.21 ± 0.16 (0.21)	2.14 ± 0.88 (0.98)	0.16
2846-RU-120612-02-01	0.83 ± 0.11 (0.06)	< 0.21 ± 0.27 (0.45)	1.09 ± 0.15 (0.09)	4.21 (Inf. U235/U238)	0.23 ± 0.11 (0.15)	1.40 ± 0.60 (0.70)	0.09
2846-RU-120612-02-02	0.81 ± 0.10 (0.04)	< -0.04 ± 0.27 (0.47)	0.95 ± 0.12 (0.07)	4.95 (Inf. U235/U238)	0.27 ± 0.09 (0.12)	1.34 ± 0.40 (0.51)	0.04
2846-RU-120612-02-03	0.96 ± 0.12 (0.06)	< 0.18 ± 0.26 (0.42)	1.06 ± 0.14 (0.09)	10.17 (Inf. U235/U238)	0.56 ± 0.13 (0.13)	2.65 ± 0.60 (0.64)	0.15
2846-RU-120612-02-04	0.97 ± 0.12 (0.05)	< 0.14 ± 0.28 (0.47)	1.04 ± 0.15 (0.13)	4.21 (Inf. U235/U238)	0.23 ± 0.13 (0.15)	1.40 ± 0.57 (0.70)	0.10
2846-RU-120612-02-05	1.00 ± 0.12 (0.05)	< 0.24 ± 0.28 (0.46)	1.10 ± 0.14 (0.08)	4.59 (Inf. U235/U238)	0.25 ± 0.12 (0.15)	1.59 ± 0.52 (0.62)	0.15
2846-RU-120612-02-06	0.92 ± 0.11 (0.05)	< 0.42 ± 0.30 (0.47)	1.03 ± 0.15 (0.07)	3.36 (Inf. U235/U238)	0.18 ± 0.09 (0.13)	1.60 ± 0.51 (0.62)	0.07
2849-RU-120612-02-07	0.99 ± 0.13 (0.06)	< 0.09 ± 0.25 (0.43)	1.10 ± 0.16 (0.10)	6.04 (Inf. U235/U238)	0.33 ± 0.12 (0.16)	2.07 ± 0.72 (0.83)	0.15
2849-RU-120612-02-08	0.91 ± 0.14 (0.08)	< 0.32 ± 0.28 (0.45)	1.08 ± 0.18 (0.09)	5.11 (Inf. U235/U238)	0.28 ± 0.14 (0.21)	1.56 ± 0.80 (0.96)	0.10
2849-RU-120612-02-09	1.05 ± 0.15 (0.09)	< 0.14 ± 0.26 (0.44)	1.34 ± 0.23 (0.11)	2.83 (Inf. U235/U238)	< 0.15 ± 0.15 (0.27)	1.50 ± 0.70 (0.88)	0.28
2880-RU-120618-01-01	1.14 ± 0.14 (0.07)	< -0.13 ± 0.29 (0.51)	0.98 ± 0.15 (0.12)	5.65 (Inf. U235/U238)	0.31 ± 0.11 (0.16)	1.69 ± 0.58 (0.69)	0.17
2880-RU-120618-01-02	1.05 ± 0.13 (0.07)	< 0.22 ± 0.34 (0.56)	1.25 ± 0.17 (0.10)	5.33 (Inf. U235/U238)	0.29 ± 0.13 (0.16)	1.92 ± 0.68 (0.76)	0.26
2880-RU-120618-01-03	1.10 ± 0.14 (0.07)	< -0.17 ± 0.27 (0.49)	1.11 ± 0.17 (0.13)	2.69 (Inf. U235/U238)	< 0.14 ± 0.12 (0.17)	1.75 ± 0.66 (0.78)	0.19
2880-RU-120618-01-04	1.07 ± 0.13 (0.06)	< 0.01 ± 0.32 (0.55)	1.17 ± 0.16 (0.09)	3.05 (Inf. U235/U238)	0.16 ± 0.10 (0.13)	1.36 ± 0.49 (0.64)	0.20
2880-RU-120618-01-05	0.99 ± 0.12 (0.06)	< -0.21 ± 0.31 (0.55)	1.16 ± 0.15 (0.07)	1.82 (Inf. U235/U238)	< 0.09 ± 0.10 (0.15)	1.22 ± 0.51 (0.65)	0.15
2881-RU-120618-01-06	0.85 ± 0.12 (0.06)	< -0.10 ± 0.30 (0.53)	1.22 ± 0.20 (0.10)	1.89 (Inf. U235/U238)	< 0.10 ± 0.12 (0.19)	1.04 ± 0.29 (0.67)	0.13
2881-RU-120618-01-07	1.09 ± 0.13 (0.05)	< -0.04 ± 0.31 (0.54)	1.11 ± 0.14 (0.07)	5.34 (Inf. U235/U238)	0.29 ± 0.10 (0.13)	1.76 ± 0.54 (0.60)	0.20
2881-RU-120618-01-08	0.63 ± 0.08 (0.04)	< -0.25 ± 0.28 (0.50)	0.90 ± 0.12 (0.06)	2.89 (Inf. U235/U238)	0.16 ± 0.07 (0.10)	1.11 ± 0.36 (0.45)	0.02
2881-RU-120618-01-09	0.78 ± 0.10 (0.05)	< 0.07 ± 0.30 (0.51)	0.99 ± 0.13 (0.07)	3.11 (Inf. U235/U238)	0.17 ± 0.11 (0.13)	1.06 ± 0.25 (0.53)	0.03
2881-RU-120618-01-10	0.80 ± 0.10 (0.06)	< -0.09 ± 0.31 (0.55)	1.15 ± 0.16 (0.08)	4.02 (Inf. U235/U238)	0.22 ± 0.11 (0.14)	1.31 ± 0.47 (0.59)	0.11
2881-RU-120618-01-11	0.75 ± 0.10 (0.06)	< 0.52 ± 0.39 (0.62)	0.97 ± 0.13 (0.09)	4.60 (Inf. U235/U238)	0.25 ± 0.14 (0.16)	1.72 ± 0.59 (0.69)	0.06
2880-RU-120618-02-01	1.04 ± 0.13 (0.05)	< -0.06 ± 0.27 (0.48)	1.00 ± 0.13 (0.09)	5.34 (Inf. U235/U238)	0.29 ± 0.11 (0.14)	2.08 ± 0.59 (0.64)	0.12
2880-RU-120618-02-02	0.97 ± 0.14 (0.07)	< -0.25 ± 0.26 (0.47)	1.26 ± 0.17 (0.09)	4.17 (Inf. U235/U238)	0.23 ± 0.16 (0.19)	1.02 ± 0.29 (0.69)	0.20
2880-RU-120618-02-03	1.20 ± 0.15 (0.06)	< -0.05 ± 0.29 (0.51)	1.30 ± 0.18 (0.10)	2.98 (Inf. U235/U238)	0.16 ± 0.09 (0.14)	1.52 ± 0.73 (0.82)	0.34
2880-RU-120618-02-04	1.07 ± 0.13 (0.06)	< -0.01 ± 0.31 (0.54)	1.16 ± 0.15 (0.11)	1.38 (Inf. U235/U238)	< 0.07 ± 0.10 (0.16)	1.18 ± 0.42 (0.56)	0.18
2880-RU-120618-02-05	1.01 ± 0.12 (0.05)	< -0.04 ± 0.34 (0.60)	1.18 ± 0.16 (0.10)	2.78 (Inf. U235/U238)	0.15 ± 0.10 (0.14)	1.17 ± 0.50 (0.65)	0.17
2881-RU-120618-02-06	0.77 ± 0.10 (0.05)	< 0.05 ± 0.38 (0.65)	1.05 ± 0.14 (0.09)	5.85 (Inf. U235/U238)	0.32 ± 0.12 (0.14)	1.91 ± 0.55 (0.60)	0.07
2881-RU-120618-02-07	0.80 ± 0.10 (0.04)	< -0.04 ± 0.30 (0.52)	1.06 ± 0.14 (0.07)	4.18 (Inf. U235/U238)	0.23 ± 0.10 (0.13)	1.10 ± 0.25 (0.58)	0.06
2881-RU-120618-02-08	0.79 ± 0.10 (0.05)	< -0.08 ± 0.26 (0.45)	0.99 ± 0.13 (0.07)	7.59 (Inf. U235/U238)	0.42 ± 0.10 (0.13)	1.99 ± 0.56 (0.63)	0.06
2881-RU-120618-02-09	0.90 ± 0.12 (0.06)	< -0.26 ± 0.37 (0.67)	1.04 ± 0.15 (0.09)	1.92 (Inf. U235/U238)	< 0.10 ± 0.11 (0.18)	1.28 ± 0.52 (0.65)	0.04
2881-RU-120618-02-10	0.90 ± 0.12 (0.06)	< 0.30 ± 0.38 (0.62)	1.00 ± 0.13 (0.07)	4.40 (Inf. U235/U238)	0.24 ± 0.13 (0.15)	1.56 ± 0.53 (0.62)	0.05
2889-RU-120619-02-01	0.84 ± 0.10 (0.05)	< 0.04 ± 0.34 (0.58)	1.00 ± 0.14 (0.09)	4.36 (Inf. U235/U238)	0.24 ± 0.11 (0.14)	1.13 ± 0.26 (0.59)	0.04
2889-RU-120619-02-02	0.90 ± 0.11 (0.04)	< 0.01 ± 0.31 (0.54)	1.04 ± 0.13 (0.07)	7.43 (Inf. U235/U238)	0.41 ± 0.12 (0.13)	1.70 ± 0.43 (0.52)	0.08
2889-RU-120619-02-03	0.89 ± 0.11 (0.05)	< 0.18 ± 0.32 (0.54)	1.01 ± 0.13 (0.08)	7.51 (Inf. U235/U238)	0.41 ± 0.10 (0.12)	2.02 ± 0.56 (0.63)	0.07
2889-RU-120619-02-04	0.81 ± 0.10 (0.05)	< -0.01 ± 0.28 (0.49)	0.87 ± 0.14 (0.11)	9.60 (Inf. U235/U238)	0.53 ± 0.12 (0.15)	1.82 ± 0.67 (0.75)	0.07
2889-RU-120619-02-05	1.00 ± 0.12 (0.04)	< 0.16 ± 0.40 (0.67)	1.02 ± 0.13 (0.09)	6.60 (Inf. U235/U238)	0.36 ± 0.09 (0.13)	1.56 ± 0.49 (0.57)	0.12

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Table 5-1, Reuse Stockpile 1 Sample Data and Calculated SOF Values.							
Sample	Ra-226 DCGL=1.9 pCi/g Background=0.9 pCi/g	Tc-99 DCGL=25.1 pCi/g	Th-232 DCGL=2.0 pCi/g Background=1.0 pCi/g	U-234 DCGL=195.4 pCi/g	U-235 DCGL=51.6 pCi/g	U-238 DCGL=168.8 pCi/g	Sample SOF (Uniform DCGL)
2889-RU-120619-02-06	0.83 ± 0.10 (0.05)	< 0.15 ± 0.33 (0.55)	1.01 ± 0.13 (0.07)	6.34 (Inf. U235/U238)	0.35 ± 0.12 (0.14)	1.25 ± 0.25 (0.53)	0.06
2922-RU-120625-01-01	1.16 ± 0.21 (0.12)	< -0.03 ± 0.28 (0.49)	1.17 ± 0.22 (0.19)	8.52 (Inf. U235/U238)	0.47 ± 0.21 (0.32)	2.00 ± 1.30 (1.70)	0.29
2922-RU-120625-01-02	1.27 ± 0.20 (0.14)	< 0.13 ± 0.28 (0.47)	1.22 ± 0.23 (0.21)	4.74 (Inf. U235/U238)	< 0.26 ± 0.22 (0.35)	< 1.43 ± 0.60 (1.60)	0.35
2922-RU-120625-01-03	1.09 ± 0.18 (0.14)	< -0.08 ± 0.28 (0.48)	1.18 ± 0.22 (0.18)	8.71 (Inf. U235/U238)	0.48 ± 0.27 (0.43)	< 1.28 ± 0.66 (1.80)	0.25
2922-RU-120625-01-04	1.05 ± 0.16 (0.12)	< -0.05 ± 0.29 (0.50)	1.13 ± 0.22 (0.17)	2.80 (Inf. U235/U238)	< 0.15 ± 0.20 (0.44)	< 1.34 ± 0.55 (1.60)	0.17
2922-RU-120625-01-05	1.04 ± 0.20 (0.14)	< -0.11 ± 0.28 (0.49)	1.12 ± 0.28 (0.20)	4.24 (Inf. U235/U238)	< 0.23 ± 0.25 (0.41)	1.60 ± 1.10 (1.60)	0.17
2930-RU-120626-01-01	0.97 ± 0.13 (0.06)	< 0.10 ± 0.29 (0.49)	1.05 ± 0.16 (0.11)	3.89 (Inf. U235/U238)	0.21 ± 0.14 (0.19)	1.68 ± 0.59 (0.74)	0.10
2930-RU-120626-01-02	0.91 ± 0.13 (0.07)	< 0.31 ± 0.28 (0.45)	1.15 ± 0.17 (0.10)	2.76 (Inf. U235/U238)	< 0.15 ± 0.15 (0.25)	1.07 ± 0.37 (0.92)	0.12
2930-RU-120626-01-03	0.96 ± 0.14 (0.06)	< 0.25 ± 0.29 (0.47)	1.20 ± 0.18 (0.09)	5.08 (Inf. U235/U238)	0.28 ± 0.13 (0.20)	1.23 ± 0.35 (0.78)	0.18
2930-RU-120626-01-04	0.94 ± 0.13 (0.07)	< 0.04 ± 0.26 (0.46)	1.05 ± 0.16 (0.10)	5.46 (Inf. U235/U238)	0.30 ± 0.17 (0.18)	1.61 ± 0.64 (0.76)	0.09
2930-RU-120626-01-05	1.00 ± 0.15 (0.08)	< 0.27 ± 0.27 (0.43)	1.10 ± 0.19 (0.10)	4.78 (Inf. U235/U238)	0.26 ± 0.16 (0.23)	1.77 ± 0.79 (0.94)	0.15
2930-RU-120626-01-06	0.86 ± 0.12 (0.06)	< -0.14 ± 0.26 (0.47)	0.89 ± 0.15 (0.11)	4.71 (Inf. U235/U238)	0.26 ± 0.12 (0.17)	0.88 ± 0.33 (0.81)	0.03
2932-RU-120626-01-07	0.89 ± 0.13 (0.09)	< 0.45 ± 0.31 (0.49)	1.11 ± 0.18 (0.12)	4.82 (Inf. U235/U238)	0.26 ± 0.16 (0.22)	2.05 ± 0.81 (0.97)	0.11
2932-RU-120626-01-08	1.02 ± 0.13 (0.06)	< 0.21 ± 0.28 (0.46)	1.06 ± 0.15 (0.11)	4.37 (Inf. U235/U238)	0.24 ± 0.14 (0.23)	1.24 ± 0.36 (0.82)	0.14
2932-RU-120626-01-09	0.92 ± 0.12 (0.06)	< -0.04 ± 0.27 (0.48)	1.05 ± 0.16 (0.13)	3.10 (Inf. U235/U238)	0.17 ± 0.12 (0.17)	0.97 ± 0.35 (0.88)	0.06
2932-RU-120626-01-10	0.92 ± 0.13 (0.06)	< -0.07 ± 0.31 (0.55)	1.11 ± 0.16 (0.11)	6.19 (Inf. U235/U238)	0.34 ± 0.19 (0.21)	1.83 ± 0.65 (0.78)	0.11
2932-RU-120626-01-11	0.98 ± 0.14 (0.07)	< -0.09 ± 0.30 (0.54)	1.02 ± 0.16 (0.12)	6.19 (Inf. U235/U238)	0.34 ± 0.19 (0.21)	1.74 ± 0.70 (0.84)	0.10
2930-RU-120626-02-01	1.15 ± 0.15 (0.07)	< 0.08 ± 0.27 (0.46)	1.18 ± 0.17 (0.11)	3.88 (Inf. U235/U238)	0.21 ± 0.13 (0.19)	1.59 ± 0.74 (0.88)	0.26
2930-RU-120626-02-02	0.98 ± 0.13 (0.08)	< 0.23 ± 0.28 (0.47)	1.01 ± 0.15 (0.08)	3.90 (Inf. U235/U238)	0.21 ± 0.15 (0.21)	1.74 ± 0.78 (0.91)	0.09
2930-RU-120626-02-03	0.93 ± 0.13 (0.08)	< 0.10 ± 0.25 (0.42)	0.96 ± 0.16 (0.09)	4.19 (Inf. U235/U238)	0.23 ± 0.12 (0.18)	1.16 ± 0.33 (0.77)	0.05
2930-RU-120626-02-04	0.94 ± 0.12 (0.07)	< 0.19 ± 0.27 (0.44)	1.07 ± 0.16 (0.09)	5.28 (Inf. U235/U238)	0.29 ± 0.12 (0.19)	1.49 ± 0.65 (0.79)	0.11
2930-RU-120626-02-05	0.89 ± 0.13 (0.08)	< 0.25 ± 0.27 (0.45)	1.11 ± 0.18 (0.12)	5.33 (Inf. U235/U238)	0.29 ± 0.12 (0.17)	1.94 ± 0.67 (0.82)	0.11
2932-RU-120626-02-06	0.95 ± 0.13 (0.07)	< 0.19 ± 0.28 (0.48)	1.05 ± 0.16 (0.10)	5.15 (Inf. U235/U238)	0.28 ± 0.15 (0.20)	1.91 ± 0.67 (0.82)	0.10
2932-RU-120626-02-07	1.04 ± 0.14 (0.08)	< 0.03 ± 0.26 (0.45)	0.93 ± 0.16 (0.12)	6.63 (Inf. U235/U238)	0.36 ± 0.13 (0.17)	2.55 ± 0.75 (0.89)	0.13
2932-RU-120626-02-08	0.91 ± 0.12 (0.07)	< 0.26 ± 0.32 (0.53)	1.00 ± 0.15 (0.09)	7.09 (Inf. U235/U238)	0.39 ± 0.16 (0.19)	0.94 ± 0.32 (0.80)	0.07
2932-RU-120626-02-09	0.92 ± 0.14 (0.08)	< -0.02 ± 0.27 (0.46)	1.05 ± 0.18 (0.13)	5.62 (Inf. U235/U238)	0.31 ± 0.19 (0.23)	1.38 ± 0.75 (0.98)	0.08
2932-RU-120626-02-10	0.96 ± 0.14 (0.08)	< 0.14 ± 0.26 (0.43)	1.29 ± 0.18 (0.11)	2.65 (Inf. U235/U238)	< 0.14 ± 0.15 (0.26)	1.52 ± 0.79 (0.94)	0.21
2946-RU-120703-01-01	1.15 ± 0.15 (0.07)	< -0.16 ± 0.28 (0.50)	1.04 ± 0.16 (0.11)	5.11 (Inf. U235/U238)	0.28 ± 0.14 (0.18)	1.58 ± 0.73 (0.90)	0.19
2946-RU-120703-01-02	0.94 ± 0.14 (0.08)	< -0.07 ± 0.31 (0.55)	1.05 ± 0.18 (0.12)	2.46 (Inf. U235/U238)	< 0.13 ± 0.16 (0.27)	1.33 ± 0.72 (0.93)	0.07
2946-RU-120703-01-03	0.99 ± 0.14 (0.07)	< 0.07 ± 0.30 (0.51)	1.20 ± 0.18 (0.10)	5.07 (Inf. U235/U238)	0.28 ± 0.12 (0.17)	0.92 ± 0.35 (0.84)	0.19
2946-RU-120703-01-04	0.96 ± 0.14 (0.08)	< 0.02 ± 0.28 (0.50)	1.15 ± 0.17 (0.12)	4.20 (Inf. U235/U238)	0.23 ± 0.12 (0.20)	1.30 ± 0.57 (0.78)	0.14
2946-RU-120703-02-01	0.89 ± 0.12 (0.07)	< 0.11 ± 0.30 (0.51)	1.06 ± 0.15 (0.13)	5.62 (Inf. U235/U238)	0.31 ± 0.13 (0.21)	1.30 ± 0.35 (0.78)	0.08
2946-RU-120703-02-02	0.92 ± 0.12 (0.06)	< 0.00 ± 0.27 (0.47)	1.04 ± 0.16 (0.08)	6.44 (Inf. U235/U238)	0.35 ± 0.16 (0.20)	2.37 ± 0.69 (0.77)	0.08
2946-RU-120703-02-03	1.05 ± 0.14 (0.07)	< 0.10 ± 0.30 (0.51)	1.15 ± 0.17 (0.13)	2.65 (Inf. U235/U238)	< 0.14 ± 0.16 (0.26)	1.47 ± 0.80 (0.97)	0.18
2946-RU-120703-02-04	1.07 ± 0.14 (0.09)	< -0.23 ± 0.29 (0.53)	1.18 ± 0.20 (0.12)	3.19 (Inf. U235/U238)	< 0.17 ± 0.16 (0.26)	1.55 ± 0.75 (0.90)	0.21
2958-RU-120704-01-01	1.07 ± 0.14 (0.07)	< -0.15 ± 0.37 (0.66)	1.10 ± 0.16 (0.12)	3.17 (Inf. U235/U238)	< 0.17 ± 0.16 (0.20)	1.48 ± 0.74 (0.88)	0.17

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Table 5-1, Reuse Stockpile 1 Sample Data and Calculated SOF Values.							
Sample	Ra-226 DCGL=1.9 pCi/g Background=0.9 pCi/g	Tc-99 DCGL=25.1 pCi/g	Th-232 DCGL=2.0 pCi/g Background=1.0 pCi/g	U-234 DCGL=195.4 pCi/g	U-235 DCGL=51.6 pCi/g	U-238 DCGL=168.8 pCi/g	Sample SOF (Uniform DCGL)
2958-RU-120704-02-01	0.98 ± 0.14 (0.08)	< -0.11 ± 0.33 (0.59)	1.00 ± 0.16 (0.11)	2.46 (Inf. U235/U238)	< 0.13 ± 0.16 (0.24)	1.40 ± 0.64 (0.82)	0.07
2958-RU-120704-02-02	0.90 ± 0.14 (0.08)	< -0.21 ± 0.29 (0.52)	1.03 ± 0.18 (0.13)	1.99 (Inf. U235/U238)	< 0.10 ± 0.17 (0.27)	1.66 ± 0.73 (0.89)	0.04
2958-RU-120704-02-03	1.07 ± 0.14 (0.06)	< 0.15 ± 0.28 (0.47)	1.20 ± 0.20 (0.11)	15.39 (Inf. U235/U238)	0.84 ± 0.17 (0.20)	1.59 ± 0.66 (0.82)	0.30
2958-RU-120704-02-04	0.84 ± 0.11 (0.06)	< 0.03 ± 0.28 (0.48)	1.00 ± 0.15 (0.09)	5.64 (Inf. U235/U238)	0.31 ± 0.12 (0.16)	1.51 ± 0.62 (0.74)	0.04
2958-RU-120704-02-05	1.13 ± 0.15 (0.08)	< -0.07 ± 0.31 (0.54)	1.13 ± 0.17 (0.12)	9.25 (Inf. U235/U238)	0.51 ± 0.15 (0.21)	2.24 ± 0.81 (0.94)	0.26
2960-RU-120704-02-06	0.82 ± 0.13 (0.07)	< 0.05 ± 0.27 (0.45)	0.97 ± 0.16 (0.14)	4.43 (Inf. U235/U238)	< 0.24 ± 0.18 (0.25)	1.76 ± 0.73 (0.88)	0.04
2960-RU-120704-02-07	1.06 ± 0.15 (0.07)	< 0.05 ± 0.32 (0.54)	1.25 ± 0.22 (0.12)	7.46 (Inf. U235/U238)	0.41 ± 0.15 (0.19)	2.13 ± 0.58 (0.81)	0.27
2960-RU-120704-02-08	1.06 ± 0.14 (0.07)	< 0.26 ± 0.28 (0.46)	1.15 ± 0.19 (0.11)	5.56 (Inf. U235/U238)	0.30 ± 0.15 (0.19)	2.39 ± 0.85 (0.96)	0.22
2988-RU-120709-02-01	1.17 ± 0.16 (0.07)	< 0.09 ± 0.26 (0.44)	1.17 ± 0.18 (0.15)	2.42 (Inf. U235/U238)	< 0.13 ± 0.11 (0.19)	1.06 ± 0.37 (0.96)	0.25
2988-RU-120709-02-02	0.98 ± 0.13 (0.07)	< -0.33 ± 0.34 (0.63)	1.05 ± 0.16 (0.07)	2.93 (Inf. U235/U238)	< 0.16 ± 0.15 (0.24)	1.00 ± 0.35 (0.87)	0.09
2988-RU-120709-02-03	1.06 ± 0.14 (0.07)	< 0.20 ± 0.29 (0.47)	1.09 ± 0.15 (0.10)	7.09 (Inf. U235/U238)	0.39 ± 0.17 (0.22)	1.96 ± 0.76 (0.90)	0.19
2988-RU-120709-02-04	1.00 ± 0.13 (0.06)	< -0.13 ± 0.26 (0.46)	1.16 ± 0.20 (0.11)	3.33 (Inf. U235/U238)	0.18 ± 0.13 (0.18)	1.32 ± 0.36 (0.85)	0.16
2988-RU-120709-02-05	0.90 ± 0.13 (0.07)	< 0.14 ± 0.27 (0.46)	0.88 ± 0.17 (0.12)	4.96 (Inf. U235/U238)	0.27 ± 0.18 (0.21)	1.84 ± 0.74 (0.87)	0.05
2990-RU-120709-02-06	0.93 ± 0.12 (0.07)	< 0.11 ± 0.29 (0.50)	1.03 ± 0.16 (0.10)	4.59 (Inf. U235/U238)	0.25 ± 0.15 (0.20)	1.60 ± 0.63 (0.79)	0.07
2990-RU-120709-02-07	0.86 ± 0.13 (0.07)	< -0.02 ± 0.26 (0.45)	1.08 ± 0.17 (0.09)	5.81 (Inf. U235/U238)	0.32 ± 0.16 (0.25)	1.44 ± 0.77 (0.92)	0.08
2990-RU-120709-02-08	0.97 ± 0.13 (0.07)	< -0.02 ± 0.24 (0.42)	1.19 ± 0.20 (0.11)	6.90 (Inf. U235/U238)	0.38 ± 0.17 (0.20)	1.83 ± 0.71 (0.83)	0.19
2990-RU-120709-02-09	0.96 ± 0.13 (0.07)	< -0.08 ± 0.26 (0.46)	1.01 ± 0.14 (0.11)	7.08 (Inf. U235/U238)	0.39 ± 0.17 (0.19)	1.02 ± 0.32 (0.75)	0.09
2990-RU-120709-02-10	0.91 ± 0.14 (0.07)	< -0.28 ± 0.25 (0.47)	1.10 ± 0.22 (0.16)	3.16 (Inf. U235/U238)	< 0.17 ± 0.15 (0.27)	1.41 ± 0.39 (0.95)	0.08
2990-RU-120709-02-11	0.91 ± 0.13 (0.07)	< -0.02 ± 0.27 (0.48)	1.10 ± 0.16 (0.12)	7.45 (Inf. U235/U238)	0.41 ± 0.17 (0.19)	1.96 ± 0.70 (0.86)	0.11
2997-RU-120710-01-01	1.12 ± 0.14 (0.07)	< -0.02 ± 0.27 (0.48)	1.21 ± 0.18 (0.11)	5.27 (Inf. U235/U238)	0.29 ± 0.13 (0.17)	1.43 ± 0.58 (0.76)	0.26
2997-RU-120710-01-02	1.03 ± 0.13 (0.06)	< -0.19 ± 0.29 (0.53)	1.13 ± 0.18 (0.06)	5.16 (Inf. U235/U238)	0.28 ± 0.14 (0.19)	1.99 ± 0.76 (0.88)	0.18
2997-RU-120710-01-03	0.95 ± 0.13 (0.06)	< -0.33 ± 0.30 (0.55)	1.10 ± 0.18 (0.08)	6.54 (Inf. U235/U238)	0.36 ± 0.18 (0.20)	1.66 ± 0.63 (0.77)	0.13
2997-RU-120710-01-04	0.89 ± 0.13 (0.08)	< -0.15 ± 0.27 (0.49)	1.04 ± 0.18 (0.13)	3.60 (Inf. U235/U238)	< 0.19 ± 0.13 (0.24)	1.95 ± 0.78 (0.91)	0.05
2997-RU-120710-01-05	0.85 ± 0.13 (0.09)	< -0.15 ± 0.27 (0.48)	1.05 ± 0.16 (0.12)	6.08 (Inf. U235/U238)	0.33 ± 0.16 (0.28)	2.37 ± 0.88 (0.98)	0.08
2997-RU-120710-01-06	1.02 ± 0.13 (0.07)	< -0.10 ± 0.28 (0.50)	1.24 ± 0.18 (0.11)	5.76 (Inf. U235/U238)	0.31 ± 0.12 (0.18)	2.56 ± 0.88 (0.93)	0.23
2997-RU-120710-02-01	0.94 ± 0.13 (0.09)	< -0.16 ± 0.28 (0.51)	1.10 ± 0.18 (0.10)	7.78 (Inf. U235/U238)	0.43 ± 0.16 (0.22)	1.55 ± 0.39 (0.87)	0.13
2997-RU-120710-02-02	0.94 ± 0.13 (0.08)	< -0.10 ± 0.23 (0.40)	0.98 ± 0.17 (0.08)	9.06 (Inf. U235/U238)	0.50 ± 0.17 (0.19)	2.08 ± 0.74 (0.90)	0.09
3025-RU-120716-01-01	0.82 ± 0.11 (0.06)	< 0.17 ± 0.26 (0.43)	0.96 ± 0.14 (0.05)	1.99 (Inf. U235/U238)	< 0.10 ± 0.12 (0.22)	1.58 ± 0.62 (0.75)	0.03
3024-RU-120716-02-01	0.79 ± 0.11 (0.06)	< 0.09 ± 0.25 (0.42)	0.99 ± 0.15 (0.11)	5.99 (Inf. U235/U238)	0.33 ± 0.16 (0.19)	1.52 ± 0.36 (0.78)	0.05
3024-RU-120716-02-02	0.85 ± 0.11 (0.06)	< 0.21 ± 0.27 (0.44)	0.95 ± 0.15 (0.11)	7.12 (Inf. U235/U238)	0.39 ± 0.14 (0.17)	2.22 ± 0.63 (0.72)	0.07
3024-RU-120716-02-03	0.86 ± 0.12 (0.06)	< -0.06 ± 0.26 (0.46)	1.05 ± 0.16 (0.08)	6.94 (Inf. U235/U238)	0.38 ± 0.16 (0.19)	2.17 ± 0.69 (0.81)	0.08
3024-RU-120716-02-04	0.79 ± 0.11 (0.06)	< -0.04 ± 0.29 (0.51)	1.01 ± 0.16 (0.09)	6.39 (Inf. U235/U238)	0.35 ± 0.15 (0.20)	1.98 ± 0.59 (0.71)	0.06
3024-RU-120716-02-05	0.80 ± 0.11 (0.06)	< -0.14 ± 0.25 (0.45)	0.96 ± 0.14 (0.10)	3.35 (Inf. U235/U238)	0.18 ± 0.13 (0.16)	1.49 ± 0.34 (0.77)	0.03
3024-RU-120716-02-06	0.92 ± 0.13 (0.07)	< 0.03 ± 0.27 (0.46)	1.08 ± 0.18 (0.14)	3.11 (Inf. U235/U238)	< 0.17 ± 0.16 (0.24)	1.00 ± 0.37 (0.91)	0.08
3025-RU-120716-02-07	0.77 ± 0.10 (0.06)	15.90 ± 1.70 (0.50)	0.85 ± 0.13 (0.09)	18.01 (Inf. U235/U238)	0.99 ± 0.19 (0.18)	2.33 ± 0.69 (0.78)	0.76
3025-RU-120716-02-08	0.84 ± 0.12 (0.06)	< 0.10 ± 0.25 (0.42)	1.00 ± 0.16 (0.12)	3.28 (Inf. U235/U238)	0.18 ± 0.11 (0.16)	0.93 ± 0.32 (0.91)	0.03

Table 5-1, Reuse Stockpile 1 Sample Data and Calculated SOF Values.

Sample	Ra-226 DCGL=1.9 pCi/g Background=0.9 pCi/g	Tc-99 DCGL=25.1 pCi/g	Th-232 DCGL=2.0 pCi/g Background=1.0 pCi/g	U-234 DCGL=195.4 pCi/g	U-235 DCGL=51.6 pCi/g	U-238 DCGL=168.8 pCi/g	Sample SOF (Uniform DCGL)
3025-RU-120716-02-09	0.86 ± 0.13 (0.06)	< 0.13 ± 0.24 (0.40)	1.02 ± 0.16 (0.08)	3.71 (Inf. U235/U238)	0.20 ± 0.10 (0.16)	1.46 ± 0.74 (0.92)	0.05
3025-RU-120716-02-10	0.89 ± 0.12 (0.08)	< -0.05 ± 0.26 (0.46)	1.10 ± 0.15 (0.10)	5.28 (Inf. U235/U238)	0.29 ± 0.13 (0.16)	1.55 ± 0.66 (0.82)	0.09
3049-RU-120723-01-01	0.77 ± 0.11 (0.07)	< 0.32 ± 0.28 (0.44)	1.03 ± 0.15 (0.09)	5.07 (Inf. U235/U238)	0.28 ± 0.16 (0.20)	1.03 ± 0.30 (0.78)	0.07
3049-RU-120723-01-02	0.80 ± 0.11 (0.07)	< 0.10 ± 0.24 (0.40)	1.07 ± 0.17 (0.10)	8.70 (Inf. U235/U238)	0.48 ± 0.16 (0.19)	1.44 ± 0.36 (0.80)	0.10
3049-RU-120723-01-03	0.83 ± 0.12 (0.07)	< 0.26 ± 0.27 (0.43)	1.02 ± 0.16 (0.09)	5.11 (Inf. U235/U238)	0.28 ± 0.16 (0.19)	1.55 ± 0.70 (0.85)	0.06
3049-RU-120723-01-04	0.73 ± 0.13 (0.09)	< 0.28 ± 0.25 (0.40)	0.98 ± 0.19 (0.11)	4.76 (Inf. U235/U238)	0.26 ± 0.12 (0.19)	1.64 ± 0.59 (0.77)	0.05
3049-RU-120723-01-05	0.94 ± 0.13 (0.07)	< 0.29 ± 0.27 (0.43)	1.34 ± 0.19 (0.08)	12.13 (Inf. U235/U238)	0.67 ± 0.18 (0.22)	2.25 ± 0.75 (0.86)	0.29
3049-RU-120723-01-06	0.87 ± 0.14 (0.08)	< 0.17 ± 0.26 (0.43)	1.14 ± 0.19 (0.13)	11.51 (Inf. U235/U238)	0.63 ± 0.21 (0.23)	1.29 ± 0.39 (0.91)	0.16
3075-RU-120730-01-01	1.10 ± 0.07 (0.06)	< 0.04 ± 0.31 (0.53)	1.07 ± 0.08 (0.10)	4.73 (Inf. U235/U238)	0.26 ± 0.06 (0.16)	1.00 ± 0.14 (0.74)	0.18
3075-RU-120730-01-02	1.07 ± 0.07 (0.07)	< -0.12 ± 0.30 (0.53)	1.15 ± 0.10 (0.09)	4.26 (Inf. U235/U238)	0.24 ± 0.07 (0.19)	0.96 ± 0.17 (0.86)	0.20
3075-RU-120730-01-03	0.90 ± 0.06 (0.07)	< -0.09 ± 0.30 (0.53)	1.12 ± 0.08 (0.13)	7.15 (Inf. U235/U238)	0.39 ± 0.07 (0.19)	2.36 ± 0.38 (0.85)	0.12
3075-RU-120730-01-04	0.88 ± 0.06 (0.07)	< -0.18 ± 0.28 (0.51)	1.04 ± 0.08 (0.11)	8.00 (Inf. U235/U238)	0.44 ± 0.08 (0.19)	2.29 ± 0.38 (0.85)	0.08
3075-RU-120730-01-05	0.94 ± 0.07 (0.06)	< 0.06 ± 0.30 (0.50)	1.11 ± 0.08 (0.11)	6.96 (Inf. U235/U238)	0.38 ± 0.06 (0.16)	2.38 ± 0.31 (0.75)	0.13
3075-RU-120730-02-01	1.02 ± 0.07 (0.06)	< -0.17 ± 0.26 (0.47)	1.29 ± 0.09 (0.09)	3.07 (Inf. U235/U238)	< 0.16 ± 0.07 (0.19)	1.79 ± 0.36 (0.83)	0.24
3075-RU-120730-02-02	0.91 ± 0.06 (0.07)	< -0.08 ± 0.32 (0.56)	1.14 ± 0.08 (0.13)	5.46 (Inf. U235/U238)	0.30 ± 0.07 (0.17)	1.30 ± 0.35 (0.84)	0.11
3075-RU-120730-02-03	0.88 ± 0.07 (0.09)	< 0.05 ± 0.31 (0.53)	1.27 ± 0.10 (0.12)	6.56 (Inf. U235/U238)	0.36 ± 0.09 (0.23)	1.52 ± 0.22 (1.00)	0.19
3075-RU-120730-02-04	0.95 ± 0.06 (0.05)	< -0.09 ± 0.30 (0.52)	0.98 ± 0.08 (0.09)	6.43 (Inf. U235/U238)	0.36 ± 0.07 (0.17)	1.25 ± 0.17 (0.79)	0.07
3075-RU-120730-02-05	0.90 ± 0.06 (0.07)	< 0.14 ± 0.32 (0.54)	0.89 ± 0.08 (0.11)	4.66 (Inf. U235/U238)	0.25 ± 0.06 (0.17)	1.64 ± 0.18 (0.85)	0.04
3077-RU-120730-02-06	0.95 ± 0.12 (0.06)	< -0.08 ± 0.27 (0.48)	1.09 ± 0.16 (0.09)	6.53 (Inf. U235/U238)	0.36 ± 0.16 (0.18)	1.61 ± 0.54 (0.70)	0.12
3077-RU-120730-02-07	0.99 ± 0.13 (0.07)	< -0.01 ± 0.27 (0.47)	1.16 ± 0.18 (0.12)	5.34 (Inf. U235/U238)	0.29 ± 0.14 (0.19)	2.10 ± 0.72 (0.85)	0.17
3077-RU-120730-02-08	0.99 ± 0.13 (0.07)	< -0.15 ± 0.28 (0.51)	1.23 ± 0.17 (0.10)	10.50 (Inf. U235/U238)	0.58 ± 0.17 (0.20)	1.89 ± 0.64 (0.79)	0.24
3077-RU-120730-02-09	1.05 ± 0.16 (0.08)	< -0.10 ± 0.26 (0.47)	1.24 ± 0.23 (0.16)	4.41 (Inf. U235/U238)	0.24 ± 0.16 (0.20)	1.60 ± 0.41 (0.95)	0.24
3077-RU-120730-02-10	0.96 ± 0.13 (0.07)	< 0.33 ± 0.29 (0.46)	1.08 ± 0.16 (0.09)	6.61 (Inf. U235/U238)	0.36 ± 0.14 (0.19)	2.35 ± 0.68 (0.77)	0.14
Average	0.92	0.23	1.04	5.53	0.30	1.53	0.12
Minimum	0.62	-0.33	0.55	0.48	0.02	0.77	0.02
Maximum	1.47	15.90	1.36	182.21	8.38	2.87	1.21

- Notes:
1.

Data format: Result ± 2 σ MDA value). ‘<’ indicates result less than MDA.
2.

All units are pCi/g
3.

Ra-226 and Th-232 background subtracted prior to calculating SOF value. Negative SOF components set to zero in SOF calculation
4.

Average SOF for data set calculated using average radionuclide concentrations.

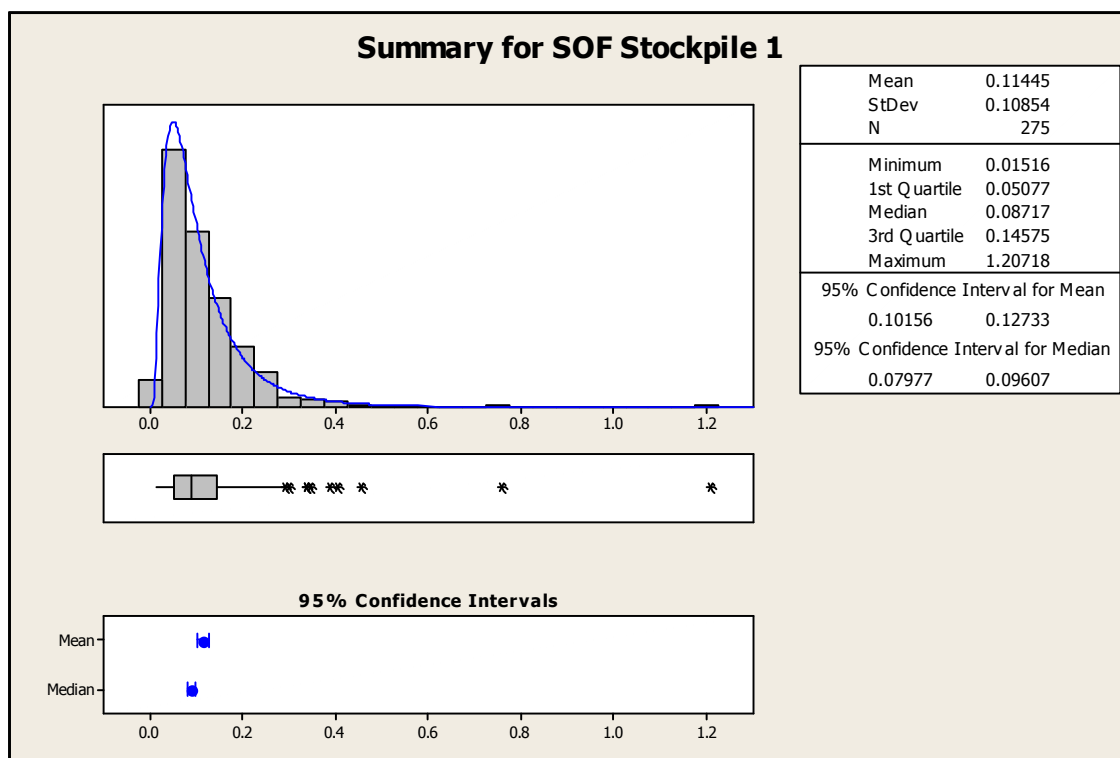
Table 5-2, Reuse Stockpile 1 Sample Data – Sample 2795-120604-02-04 compared to the Root and Excavation DCGL values.

Sample	Ra-226 DCGL=2.1 pCi/g Background=0.9 pCi/g	Tc-99 DCGL=30.1 pCi/g	Th-232 DCGL=2.0 pCi/g Background=1.0 pCi/g	U-234 DCGL=235.6 pCi/g	U-235 DCGL=64.1 pCi/g	U-238 DCGL=183.3 pCi/g	Sample SOF (Root DCGL)
2795-RU-120604-02-04	1.05 ± 0.14 (0.07)	< 0.41 ± 0.31 (0.51)	0.95 ± 0.14 (0.10)	182.21 (Inf. U235/U238)	8.38 ± 0.93 (0.39)	2.87 ± 0.82 (1.20)	1.01
Sample	Ra-226 DCGL=5.4 pCi/g Background=0.9 pCi/g	Tc-99 DCGL=74.0 pCi/g	Th-232 DCGL=5.2 pCi/g Background=1.0 pCi/g	U-234 DCGL=872.4 pCi/g	U-235 DCGL=208.1 pCi/g	U-238 DCGL=551.1 pCi/g	Sample SOF (Excavation DCGL)
2795-RU-120604-02-04	1.05 ± 0.14 (0.07)	< 0.41 ± 0.31 (0.51)	0.95 ± 0.14 (0.10)	182.21 (Inf. U235/U238)	8.38 ± 0.93 (0.39)	2.87 ± 0.82 (1.20)	0.29

Table 5-3, Reuse Stockpile 1 QC Sample Data

Sample	Ra-226 DCGL=1.9 pCi/g Background=0.9 pCi/g	Tc-99 DCGL=25.1 pCi/g	Th-232 DCGL=2.0 pCi/g Background=1.0 pCi/g	U-234 DCGL=195.4 pCi/g	U-235 DCGL=51.6 pCi/g	U-238 DCGL=168.8 pCi/g	Sample SOF (Uniform DCGL)
2675-RU-120514-02-09	0.84 ± 0.10 (0.05)	< -0.02 ± 0.25 (0.43)	0.96 ± 0.13 (0.08)	3.34 (Inf. U235/U238)	0.18 ± 0.09 (0.13)	0.86 ± 0.22 (0.53)	0.03
2675-RU-120514-02-09-FD	0.73 ± 0.09 (0.04)	< 0.25 ± 0.29 (0.48)	0.95 ± 0.12 (0.06)	2.58 (Inf. U235/U238)	0.14 ± 0.07 (0.11)	1.43 ± 0.45 (0.53)	0.03
2696-RU-120516-01-03	0.88 ± 0.11 (0.05)	< 0.16 ± 0.28 (0.47)	1.05 ± 0.14 (0.08)	2.13 (Inf. U235/U238)	< 0.11 ± 0.10 (0.16)	1.44 ± 0.49 (0.58)	0.05
2696-RU-120516-01-03-FD	0.87 ± 0.11 (0.04)	< 0.39 ± 0.32 (0.51)	0.96 ± 0.12 (0.07)	1.92 (Inf. U235/U238)	< 0.10 ± 0.10 (0.14)	1.20 ± 0.44 (0.55)	0.03
2716-RU-120521-02-09	0.96 ± 0.11 (0.04)	0.89 ± 0.35 (0.51)	0.99 ± 0.13 (0.09)	5.73 (Inf. U235/U238)	0.32 ± 0.09 (0.12)	1.61 ± 0.48 (0.54)	0.11
2716-RU-120521-02-09-FD	0.89 ± 0.11 (0.05)	< 0.15 ± 0.31 (0.51)	0.98 ± 0.12 (0.08)	4.27 (Inf. U235/U238)	0.23 ± 0.10 (0.12)	1.42 ± 0.41 (0.52)	0.04
2760-RU-120530-02-02	0.78 ± 0.09 (0.05)	0.84 ± 0.33 (0.46)	0.88 ± 0.11 (0.07)	3.47 (Inf. U235/U238)	0.19 ± 0.07 (0.11)	1.58 ± 0.45 (0.52)	0.06
2760-RU-120530-02-02-FD	0.93 ± 0.11 (0.05)	< 0.17 ± 0.27 (0.45)	1.04 ± 0.14 (0.07)	4.90 (Inf. U235/U238)	0.27 ± 0.11 (0.14)	1.21 ± 0.26 (0.60)	0.08
2796-RU-120604-01-06	1.47 ± 0.17 (0.06)	< 0.46 ± 0.31 (0.48)	1.18 ± 0.15 (0.08)	5.83 (Inf. U235/U238)	0.32 ± 0.11 (0.15)	1.69 ± 0.53 (0.62)	0.45
2796-RU-120604-01-06-FD	1.00 ± 0.12 (0.05)	< 0.13 ± 0.29 (0.49)	0.99 ± 0.15 (0.07)	3.88 (Inf. U235/U238)	0.21 ± 0.11 (0.13)	1.60 ± 0.51 (0.60)	0.09
2846-RU-120612-02-02	0.81 ± 0.10 (0.04)	< -0.04 ± 0.27 (0.47)	0.95 ± 0.12 (0.07)	4.95 (Inf. U235/U238)	0.27 ± 0.09 (0.12)	1.34 ± 0.40 (0.51)	0.04
2846-RU-120612-02-02-FD	0.93 ± 0.11 (0.05)	< 0.09 ± 0.29 (0.49)	0.96 ± 0.14 (0.10)	5.30 (Inf. U235/U238)	0.29 ± 0.10 (0.14)	1.70 ± 0.54 (0.62)	0.06
2881-RU-120618-02-07	0.80 ± 0.10 (0.04)	< -0.04 ± 0.30 (0.52)	1.06 ± 0.14 (0.07)	4.18 (Inf. U235/U238)	0.23 ± 0.10 (0.13)	1.10 ± 0.25 (0.58)	0.06
2881-RU-120618-02-07-FD	0.93 ± 0.11 (0.04)	< -0.05 ± 0.30 (0.52)	0.99 ± 0.13 (0.07)	2.25 (Inf. U235/U238)	< 0.12 ± 0.09 (0.14)	1.39 ± 0.45 (0.55)	0.04
2930-RU-120626-01-04	0.94 ± 0.13 (0.07)	< 0.04 ± 0.26 (0.46)	1.05 ± 0.16 (0.10)	5.46 (Inf. U235/U238)	0.30 ± 0.17 (0.18)	1.61 ± 0.64 (0.76)	0.09
2930-RU-120626-01-04-FD	1.00 ± 0.14 (0.07)	< 0.32 ± 0.28 (0.45)	1.16 ± 0.18 (0.12)	3.36 (Inf. U235/U238)	0.18 ± 0.13 (0.17)	1.61 ± 0.69 (0.84)	0.18
2958-RU-120704-02-04	0.84 ± 0.11 (0.06)	< 0.03 ± 0.28 (0.48)	1.00 ± 0.15 (0.09)	5.64 (Inf. U235/U238)	0.31 ± 0.12 (0.16)	1.51 ± 0.62 (0.74)	0.04
2958-RU-120704-02-04-FD	1.06 ± 0.14 (0.08)	< 0.08 ± 0.26 (0.44)	1.06 ± 0.17 (0.14)	8.16 (Inf. U235/U238)	0.45 ± 0.18 (0.20)	1.94 ± 0.68 (0.83)	0.18
2997-RU-120710-01-06	1.02 ± 0.13 (0.07)	< -0.10 ± 0.28 (0.50)	1.24 ± 0.18 (0.11)	5.76 (Inf. U235/U238)	0.31 ± 0.12 (0.18)	2.56 ± 0.88 (0.93)	0.23
2997-RU-120710-01-06-FD	0.90 ± 0.12 (0.06)	< -0.29 ± 0.27 (0.49)	0.96 ± 0.15 (0.09)	4.55 (Inf. U235/U238)	0.24 ± 0.12 (0.18)	2.47 ± 0.68 (0.78)	0.04
3025-RU-120716-02-09	0.86 ± 0.13 (0.06)	< 0.13 ± 0.24 (0.40)	1.02 ± 0.16 (0.08)	3.71 (Inf. U235/U238)	0.20 ± 0.10 (0.16)	1.46 ± 0.74 (0.92)	0.05
3025-RU-120716-02-09-FD	0.96 ± 0.13 (0.06)	< 0.00 ± 0.24 (0.42)	1.21 ± 0.20 (0.09)	6.35 (Inf. U235/U238)	0.35 ± 0.14 (0.18)	0.95 ± 0.29 (0.72)	0.18

Figure 5-1, Statistical Summary for Reuse Stockpile 1 Sample SOF Based on Uniform DCGL



6.0 Quality Control

6.1 Laboratory QC Measurements

Duplicate samples were collected at a 5% frequency in accordance with HDP-PR-FSS-703 (*Final Status Survey Quality Control*). Duplicate samples were evaluated per subsection 7.4.1.1 of MARLAP (*Multi-Agency Radiological Laboratory Analytical Protocols*) using the following equations:

If $\bar{x} < \text{DCGL}$:

$$\text{Statistic: } |x_1 - x_2|$$

Warning limit: 0.1415(DCGL)

Control limit: 0.2120(DCGL)

If $\bar{x} \geq \text{DCGL}$:

$$\text{Statistic: } \text{RPD}(\%) = \frac{|x_1 - x_2|}{\bar{x}} (100\%)$$

Warning limit: 14.15%

Control limit: 21.20%

where:

x_1 = activity of sample

x_2 = activity of field duplicate sample

\bar{x} = average activity

RPD=Relative Percent Difference

Out of the 275 total truckloads comprising Stockpile 1, 11 duplicate samples were collected. The results were documented on form HDP-PR-FSS-703-1. Form HDP-PR-FSS-703-1 indicates all duplicate samples collected show results less than the calculated limits with the exception of one sample. Table 6.1 below summarizes the results from the analysis of field duplicate samples. Table 5.3, Reuse Stockpile 1 QC Sample Data, (shown above) shows the field duplicate sample data.

Table 6-1, Summary of Laboratory QC Results

Nuclide	No. of samples	No. of times above the Warning Limit	No. of times above the Control Limit
Ra-226	11	0	1
Th-232	11	0	0
Tc-99	11	0	0
U-235	11	0	0

The one result that exceeded the control limit was sample 2796-RU-120604-01-06. Per procedure HDP-PR-FSS-703 an investigation was performed to determine if corrective actions were necessary. For Ra-226, the calculated statistic (0.41) only slightly exceeded the control limit (0.40). The activity of both samples was relatively close, considering the low activities and the errors associated with these activities. The activities of the other radionuclides with activities above MDA from this sample were consistent, and the calculated statistics were less than the warning limits, indicating this was likely not an issue with the sample homogeneity. A review of field duplicate samples previous to this sample were reviewed and historically the Ra-226 activity in past sample pairs was less than the warning limit, indicating this was not a systematic problem with the Ra-226 laboratory analysis. Based on the investigation, no corrective actions were determined to be necessary.

6.2 Selection of Personnel

All individuals assigned to perform FSS on soil defined as Reuse were qualified senior health physics technicians and were provided specific training on the sampling of Reuse soil.

6.3 Instrumentation Operation and Daily QC

The instruments used were operated in accordance with procedure HDP-PR-HP-416 (*Operation of the Ludlum 2221 for Final Status Survey*). Prior to and after use, a daily source check was performed to verify instrument response was within $\pm 20\%$ of the calculated mean based on the initial set-up of the instrument per HDP-PR-HP-411 (*Radiological Instrumentation*). All QC

check logs were reviewed for the appropriate dates and verified to have been both pre and post checked in accordance with the procedure with no discrepancies noted. All meters used were verified to be calibrated within the year.

6.4 Survey Records and Documentation

Sample results from Stockpile 1 are provided in Table 5.1 above. All sample results were independently reviewed, recorded and stored in accordance with procedure HDP-PR-FSS-721 (*Final Status Survey Data Evaluation*). All results from samples associated with Reuse Stockpile 1 were loaded into the Hematite FSS database and verified to be in units of pCi/g (picocuries per gram) consistent with the units used for the site DCGL values to which they were compared.

7.0 Data Quality Assessment (DQA)

- 1) Sample results were independently reviewed and validated in accordance with HDP-PR-FSS-721 (*Final Status Survey Data Evaluation*), and are provided in Table 5-1. Results with a SOF value greater than 1 when compared to the Uniform DCGL were then compared to the Root and Excavation DCGL values in accordance with Section 14.3.2.4 of the *Hematite Decommissioning Plan*.
- 2) All samples sent for analysis at the approved offsite laboratory (Test America) were tracked on a chain of custody form in accordance with HDP-PR-QA-006 (*Chain of Custody*).
- 3) Samples were collected at random locations, and gamma scan surveys were performed in accordance with procedure HDP-PR-FSS-710 (*Final Status Survey and Radiological Sampling of Reuse Soil*).
- 4) Duplicate samples were collected in accordance with HDP-PR-FSS-703 (*Final Status Survey Quality Control*). QC Sample Results were verified to meet the acceptance criteria as specified in HDP-PR-FSS-703 (*Final Status Survey Quality Control*).
- 5) Field and laboratory instruments were capable of detecting activity at a minimal detection concentration (MDC) less than the appropriate investigation level, and were verified to be operable prior to and after use in accordance with HDP-PR-HP-416 (*Operation of the Ludlum 2221 for Final Status Survey*).

8.0 Conclusions

The calculated average SOF value of Reuse Stockpile 1 when compared to the Uniform Stratum is 0.12, and the $UCL_{(0.95)}$ is 0.14. Therefore, based on the average SOF (0.12), the soil comprising Reuse Soil Stockpile 1 is suitable for Reuse as backfill within any stratum.

APPENDIX A

ProUCL 4.1 OUTPUT

Nonparametric UCL Statistics for Full Data Sets

User Selected Options

From File	SOF Stockpile 1.wst
Full Precision	OFF
Confidence Coefficient	95%
Number of Bootstrap Operations	2000

SOF

Number of Valid Observations	275
Number of Distinct Observations	36
Minimum	0.02
Maximum	1.21
Mean	0.115
Geometric Mean	0.0867
Median	0.09
SD	0.109
Variance	0.0118
Std. Error of Mean	0.00656
Coefficient of Variation	0.947
Skewness	4.945
Mean of log data	-2.445
SD of log data	0.738

Data do not follow a Discernable Distribution

95% Useful UCLs

Student's-t UCL	0.126
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95% UCLs (Adjusted for Skewness)

95% Adjusted-CLT UCL (Chen-1995)	0.128
95% Modified-t UCL (Johnson-1978)	0.126

Non-Parametric UCLs

95% CLT UCL	0.126
95% Jackknife UCL	0.126
95% Standard Bootstrap UCL	0.125

APPENDIX A
ProUCL 4.1 OUTPUT

95% Bootstrap-t UCL	0.128
95% Hall's Bootstrap UCL	0.13
95% Percentile Bootstrap UCL	0.127
95% BCA Bootstrap UCL	0.129
95% Chebyshev(Mean, Sd) UCL	0.143
97.5% Chebyshev(Mean, Sd) UCL	0.156
99% Chebyshev(Mean, Sd) UCL	0.18

Potential UCL to Use
Use 95% Chebyshev (Mean, Sd) UCL 0.143

Note: Suggestions regarding the selection of a 95% UCL are provided to help the user to select the most appropriate 95% UCL. These recommendations are based upon the results of the simulation studies summarized in Singh, Singh, and Iaci (2002) and Singh and Singh (2003). For additional insight, the user may want to consult a statistician.

ENCLOSURE 2

REPORT HDP-RPT-FSS-103
DATA SUMMARY REPORT FOR REUSE STOCKPILE 3

Westinghouse Electric Company LLC
Hematite Decommissioning Project

Docket No. 070-00036



Hematite Decommissioning Project

Technical Report

NUMBER: HDP-RPT-FSS-103

TITLE: Data Summary Report for Reuse Stockpile 3

REVISION: 0

EFFECTIVE DATE: February 20, 2013

Approvals:

Author: Michelle E. Bresnahan*

Owner/ Manager: Gerald J. Rood*

*Electronically approved records are authenticated in the electronic document management system

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APPENDIX A.....A-1

1.0 Soil Description

Reuse Soil Stockpile 3 is comprised of 4,705 tons of soil that originated from the burial pit overburden. The soil was segregated from other waste bearing soil during excavation, and transported to the lay-down area in 260 truckloads between 8/7/2012 and 1/8/2013. The soil was assayed by the box counter prior to placement in the lay-down area that occupies a portion of Land Survey Area 12 (LSA-12) as shown in Figures 1-1 and 1-2, below.

Figure 1-1, Location of Reuse Stockpile 3.

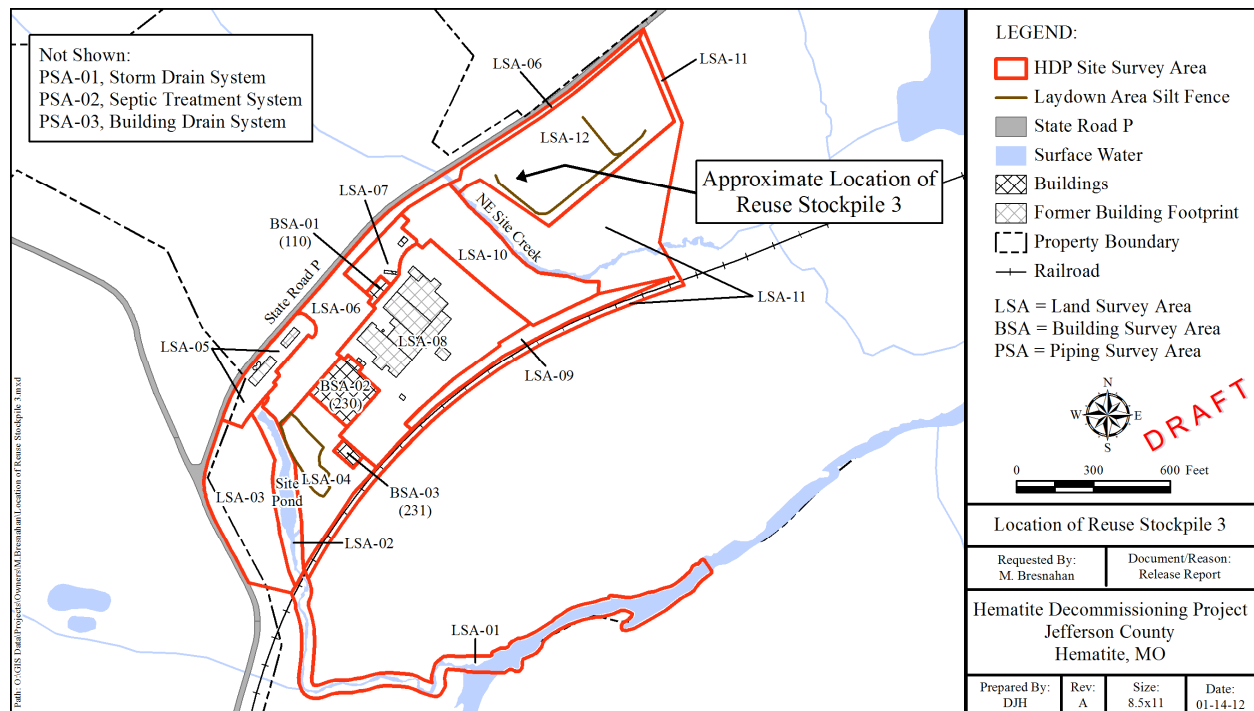


Figure 1-2, Reuse Stockpile 3, Aerial Photograph 12/06/2012



2.0 Reuse Soil Criteria

The objective of the soil characterization was to demonstrate that the average radioactivity concentration (expressed as the sum contribution from all radionuclides) within a stockpile of soil intended for use as backfill does not exceed the DCGL that is applicable to the depth of backfill placement relative to the final grade. The Uniform DCGL_w was conservatively used as the initial comparator to determine suitability for Reuse soil. Candidate soil was initially identified based on field measurements of gamma radiation level, and then confirmed through subsequent sampling and laboratory analysis. The following summarizes the decision rules applied to backfill soil:

- If sample results indicate that the average concentration in a stockpile is \leq Uniform stratum DCGL, then the soil may be placed as backfill within any strata;
- If sample results indicate that the average concentration in a stockpile is $>$ Uniform stratum DCGL, but \leq Root stratum DCGL, then the soil may be placed as backfill within the Root or Deep strata;
- If sample results indicate that a stockpile is $>$ Root stratum DCGL, but \leq Excavation DCGL, then the soil may only be placed as backfill within the Deep stratum.

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The dose contribution from Reuse soil will be added to dose from residual radioactivity within each survey unit in which the soil is placed to demonstrate that the total contribution will not exceed the site decommissioning criteria (25 mrem/yr).

3.0 Survey Design

Three options for scanning, segregating and sampling soil intended for Reuse during excavation and handling are described in subsection 14.3.2.3 of the HDP decommissioning plan (DO-08-004). Since the box counter was utilized for all loads of soil added to Reuse Stockpile 3, the approach defined in subsection 14.3.2.3.1 (*Survey Methodologies Utilizing HRGS*) was applied.

In summary, this approach provided for: (1) a gamma scan survey of 100 percent of the surface prior to excavation; (2) identification and segregation of waste, and soil likely to exceed the DCGL; (3) bulk analysis of the entire volume of soil intended for Reuse as backfill by gamma spectroscopy; and (4) and laboratory analysis of composite soil samples collected at random as the stockpile was accumulated. These survey elements were implemented in accordance with standard operating procedures: HDP-PR-HP-601 (*Remedial Action Support Surveys*); CS-IN-PR-016 (*Operation of the Guardian-III for use at Hematite Decommissioning Project*); and HDP-PR-FSS-710 (*Final Status Survey and Radiological Sampling of Reuse Soil*).

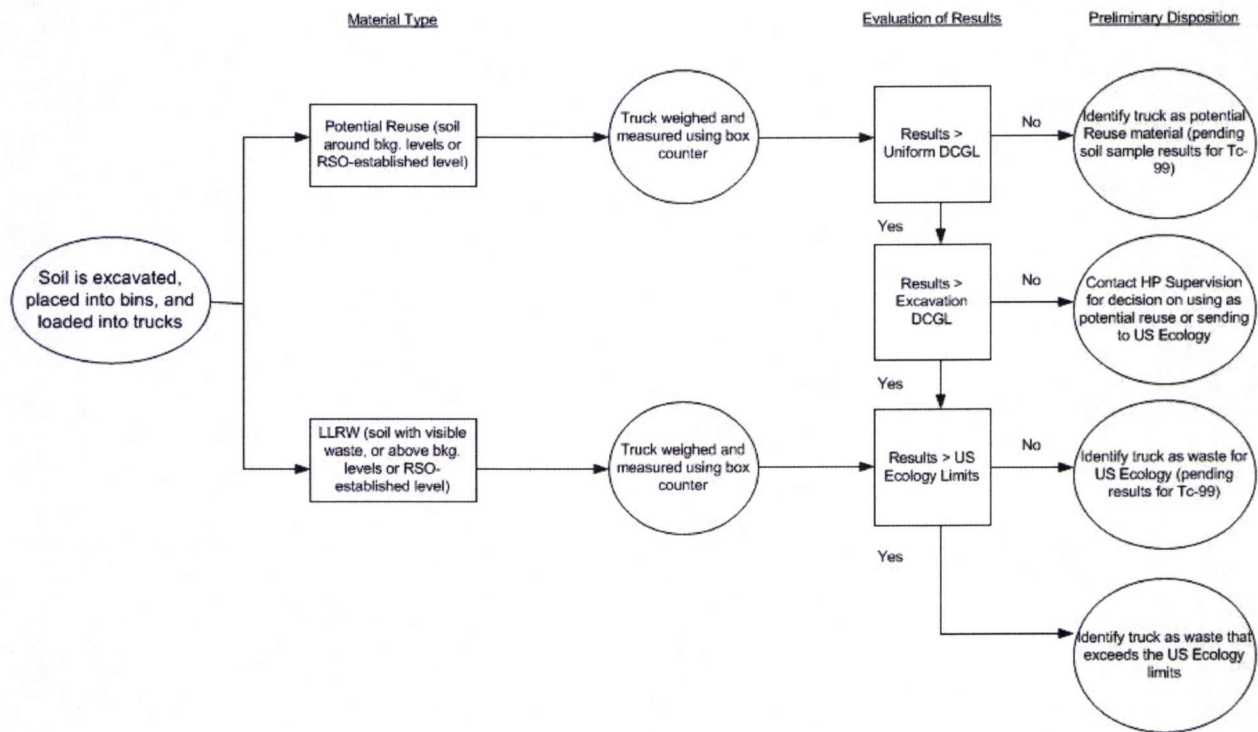
4.0 Survey Implementation

Prior to the excavation of soil, a gamma scan survey covering 100% of the subject surface area was performed and areas of elevated count rate were flagged for segregation. Waste soils and/or other large demolition debris were also segregated from the soil intended for Reuse.

After the gamma scan survey was complete, the soil was excavated and loaded into a dump truck with a capacity of approximately twenty (20) cubic yards, and then assayed using the box counter which is comprised of an array of calibrated high-purity germanium detectors. Soil that exceeded the Reuse criteria based on the gamma spectroscopy result was identified as not suitable for use as Reuse soil and was directed to the waste stream.

The soil not consigned to the waste stream was transported to Stockpile 3, dumped from the truck, and a gamma scan survey was performed on the surface of the pile to identify any locations of elevated count rate for subsequent removal. The criteria of the gamma scan survey at the Stockpile location established on 7/30/2012 was 12,000 net counts per minute (ncpm) as indicated by a NaI 2x2 detector. The 12,000 ncpm action limit was constant throughout the completion of Stockpile 3. Following the scan survey and removal of any locations of elevated count rate, a composite sample consisting of at least four aliquots was collected at random and submitted to an offsite laboratory for analysis. Figure 4-1, below, provides a summary of the process used to segregate Stockpile 3 Reuse soil.

Figure 4-1, Summary of Reuse Soil Segregation.



5.0 Survey and Sampling Results

Table 5.1 includes the summary results of all samples obtained from Reuse Soil Stockpile 3, and the associate sum of fractions when compared to the Uniform DCGLw. The arithmetic average concentration resulted in a sum of fractions for Reuse Soil Stockpile 3 of 0.17. The weighted average SOF (considering the contribution of each individual load of soil) is 0.17. Figure 5.1 shows a statistical summary of Reuse Stockpile 3. The 95% confidence interval based on the mean of the sample results is 0.1552 to 0.1886 and the 95% confidence interval based on the median of the sample results is 0.13 to 0.16. ProUCL 4.1 was used to calculate the non-parametric UCL statistics. The results indicate the data fit a lognormal distribution at a 5% confidence level. The 95% Chebyshev UCL (upper confidence limit) is 0.209 and the lognormal 95% UCL is 0.182 (shown in Appendix A).

There was one instance where a sample resulted in a SOF value greater than 1 when compared to the Uniform DCGL. On 10/2/2012, sample number 3470-RU-121002-02-04 had an SOF value of 1.51. The sample results were then compared to Root and Excavation DCGL values and the unity rule applied. The resulting SOF values were 1.40 and 0.52, respectively. The SOF results from sample 3470-RU-121002-02-04 described above are provided in Table 5-2.

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Table 5.1, Reuse Stockpile 3, Sample Data and Calculated SOF Values							
Sample	Ra-226 DCGL = 1.9 pCi/g Background = 0.9 pCi/g	Tc-99 DCGL = 25.1 pCi/g	Th-232 DCGL = 2 pCi/g Background = 1.0 pCi/g	U-234 DCGL = 195.4 pCi/g	U-235 DCGL = 51.6 pCi/g	U-238 DCGL = 168.8 pCi/g	Sample SOF (Uniform DCGL)
3116-RU-120807-01-01	0.95 ± 0.13 (0.07)	< -0.10 ± 0.29 (0.52)	0.99 ± 0.16 (0.13)	4.04 (Inf. U235/U238)	0.22 ± 0.13 (0.19)	1.42 ± 0.74 (0.89)	0.060
3116-RU-120807-01-02	0.80 ± 0.11 (0.06)	< -0.19 ± 0.30 (0.54)	0.92 ± 0.14 (0.07)	5.08 (Inf. U235/U238)	0.28 ± 0.15 (0.17)	0.76 ± 0.29 (0.71)	0.036
3116-RU-120807-01-03	0.92 ± 0.12 (0.05)	< -0.15 ± 0.28 (0.49)	1.05 ± 0.15 (0.09)	4.22 (Inf. U235/U238)	0.23 ± 0.10 (0.16)	1.51 ± 0.68 (0.78)	0.071
3116-RU-120807-01-04	0.83 ± 0.13 (0.07)	< -0.01 ± 0.30 (0.52)	0.99 ± 0.16 (0.11)	7.62 (Inf. U235/U238)	0.42 ± 0.15 (0.20)	1.13 ± 0.33 (0.77)	0.054
3118-RU-120807-01-05	1.08 ± 0.14 (0.06)	< 0.05 ± 0.29 (0.50)	1.09 ± 0.16 (0.10)	9.08 (Inf. U235/U238)	0.50 ± 0.13 (0.16)	2.36 ± 0.65 (0.76)	0.212
3118-RU-120807-01-06	1.04 ± 0.13 (0.07)	< 0.10 ± 0.33 (0.56)	1.17 ± 0.17 (0.08)	7.99 (Inf. U235/U238)	0.44 ± 0.17 (0.20)	2.07 ± 0.82 (0.97)	0.224
3152-RU-120813-01-01	1.02 ± 0.13 (0.07)	< 0.01 ± 0.31 (0.53)	1.05 ± 0.17 (0.10)	9.16 (Inf. U235/U238)	0.50 ± 0.17 (0.21)	3.07 ± 0.90 (0.96)	0.163
3152-RU-120813-01-02	0.88 ± 0.12 (0.06)	< -0.09 ± 0.28 (0.48)	0.95 ± 0.15 (0.10)	6.90 (Inf. U235/U238)	0.38 ± 0.17 (0.19)	1.77 ± 0.55 (0.70)	0.053
3152-RU-120813-01-03	0.98 ± 0.13 (0.07)	< -0.14 ± 0.32 (0.56)	1.10 ± 0.17 (0.12)	6.40 (Inf. U235/U238)	0.35 ± 0.12 (0.18)	2.07 ± 0.73 (0.86)	0.144
3152-RU-120813-01-04	1.37 ± 0.17 (0.08)	< -0.05 ± 0.34 (0.59)	1.26 ± 0.20 (0.12)	8.15 (Inf. U235/U238)	0.45 ± 0.16 (0.19)	1.77 ± 0.40 (0.85)	0.438
3153-RU-120813-01-05	0.88 ± 0.13 (0.07)	< 0.01 ± 0.26 (0.45)	1.10 ± 0.17 (0.08)	4.74 (Inf. U235/U238)	0.26 ± 0.16 (0.21)	1.43 ± 0.41 (0.94)	0.088
3153-RU-120813-01-06	1.11 ± 0.15 (0.08)	< 0.13 ± 0.27 (0.45)	1.01 ± 0.15 (0.10)	10.17 (Inf. U235/U238)	0.56 ± 0.14 (0.18)	2.69 ± 0.76 (0.86)	0.200
3153-RU-120813-01-07	0.95 ± 0.13 (0.08)	< 0.34 ± 0.28 (0.45)	1.10 ± 0.20 (0.10)	9.78 (Inf. U235/U238)	0.54 ± 0.19 (0.23)	2.02 ± 0.46 (0.99)	0.162
3152-RU-120813-02-01	0.90 ± 0.12 (0.07)	< -0.18 ± 0.29 (0.52)	1.00 ± 0.15 (0.10)	7.14 (Inf. U235/U238)	0.39 ± 0.12 (0.17)	2.40 ± 0.70 (0.79)	0.058
3152-RU-120813-02-02	0.92 ± 0.12 (0.06)	< -0.25 ± 0.32 (0.58)	1.19 ± 0.16 (0.09)	5.82 (Inf. U235/U238)	0.32 ± 0.13 (0.17)	1.59 ± 0.73 (0.85)	0.151
3152-RU-120813-02-03	0.99 ± 0.13 (0.07)	< -0.10 ± 0.31 (0.55)	0.96 ± 0.14 (0.11)	5.69 (Inf. U235/U238)	0.31 ± 0.14 (0.22)	1.99 ± 0.63 (0.75)	0.094
3153-RU-120813-02-04	1.03 ± 0.14 (0.08)	< 0.21 ± 0.28 (0.46)	0.99 ± 0.19 (0.12)	6.52 (Inf. U235/U238)	0.36 ± 0.15 (0.19)	1.42 ± 0.38 (0.87)	0.126
3153-RU-120813-02-05	1.20 ± 0.16 (0.08)	< 0.29 ± 0.28 (0.45)	1.06 ± 0.16 (0.11)	6.70 (Inf. U235/U238)	0.37 ± 0.17 (0.20)	1.49 ± 0.38 (0.88)	0.250
3153-RU-120813-02-06	1.92 ± 0.22 (0.08)	< 0.32 ± 0.29 (0.46)	0.99 ± 0.17 (0.10)	11.05 (Inf. U235/U238)	0.61 ± 0.20 (0.22)	2.39 ± 0.81 (0.93)	0.632
3153-RU-120813-02-07	0.99 ± 0.14 (0.07)	< 0.28 ± 0.29 (0.47)	1.07 ± 0.18 (0.12)	9.24 (Inf. U235/U238)	0.51 ± 0.19 (0.23)	1.62 ± 0.36 (0.76)	0.160
3211-RU-120821-01-01	0.87 ± 0.12 (0.05)	< -0.16 ± 0.32 (0.57)	0.89 ± 0.14 (0.09)	4.91 (Inf. U235/U238)	0.27 ± 0.12 (0.20)	1.35 ± 0.35 (0.82)	0.038
3211-RU-120821-01-02	0.90 ± 0.12 (0.06)	< -0.08 ± 0.26 (0.46)	1.04 ± 0.15 (0.09)	13.77 (Inf. U235/U238)	0.75 ± 0.15 (0.18)	1.37 ± 0.33 (0.71)	0.113
3211-RU-120821-01-03	0.91 ± 0.12 (0.06)	< -0.02 ± 0.31 (0.54)	1.00 ± 0.15 (0.08)	7.44 (Inf. U235/U238)	0.41 ± 0.13 (0.18)	1.10 ± 0.30 (0.66)	0.058
3211-RU-120821-01-04	0.96 ± 0.13 (0.06)	< -0.35 ± 0.28 (0.51)	1.01 ± 0.16 (0.10)	8.52 (Inf. U235/U238)	0.47 ± 0.14 (0.18)	1.41 ± 0.63 (0.76)	0.098
3211-RU-120821-01-05	0.90 ± 0.11 (0.06)	< -0.03 ± 0.26 (0.44)	1.09 ± 0.16 (0.07)	4.94 (Inf. U235/U238)	0.27 ± 0.13 (0.16)	1.62 ± 0.62 (0.76)	0.085
3211-RU-120821-02-07	0.99 ± 0.13 (0.05)	< -0.09 ± 0.43 (0.75)	1.02 ± 0.15 (0.10)	5.88 (Inf. U235/U238)	0.32 ± 0.15 (0.20)	2.19 ± 0.66 (0.78)	0.107
3211-RU-120821-02-08	0.89 ± 0.11 (0.05)	< -0.31 ± 0.45 (0.80)	1.04 ± 0.15 (0.06)	6.52 (Inf. U235/U238)	0.36 ± 0.12 (0.15)	1.44 ± 0.59 (0.73)	0.069
3211-RU-120821-02-09	0.92 ± 0.12 (0.06)	< -0.22 ± 0.25 (0.45)	1.04 ± 0.15 (0.10)	7.42 (Inf. U235/U238)	0.41 ± 0.15 (0.18)	1.39 ± 0.51 (0.67)	0.085
3211-RU-120821-02-10	0.98 ± 0.13 (0.05)	< -0.33 ± 0.31 (0.56)	1.04 ± 0.15 (0.11)	5.65 (Inf. U235/U238)	0.31 ± 0.11 (0.15)	1.68 ± 0.55 (0.67)	0.107
3245-RU-120827-01-01	1.16 ± 0.15 (0.07)	< -0.07 ± 0.29 (0.51)	1.09 ± 0.18 (0.16)	7.09 (Inf. U235/U238)	0.39 ± 0.17 (0.21)	0.94 ± 0.33 (0.84)	0.231
3245-RU-120827-01-02	1.09 ± 0.15 (0.08)	< 0.00 ± 0.28 (0.48)	0.98 ± 0.15 (0.10)	10.69 (Inf. U235/U238)	0.59 ± 0.19 (0.22)	1.77 ± 0.70 (0.86)	0.177
3245-RU-120827-01-03	1.00 ± 0.13 (0.07)	< 0.04 ± 0.30 (0.52)	1.01 ± 0.15 (0.08)	6.74 (Inf. U235/U238)	0.37 ± 0.16 (0.20)	1.97 ± 0.78 (0.91)	0.113

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Table 5.1, Reuse Stockpile 3, Sample Data and Calculated SOF Values							
Sample	Ra-226 DCGL = 1.9 pCi/g Background = 0.9 pCi/g	Tc-99 DCGL = 25.1 pCi/g	Th-232 DCGL = 2 pCi/g Background = 1.0 pCi/g	U-234 DCGL = 195.4 pCi/g	U-235 DCGL = 51.6 pCi/g	U-238 DCGL = 168.8 pCi/g	Sample SOF (Uniform DCGL)
3245-RU-120827-01-04	1.02 ± 0.14 (0.07)	< 0.08 ± 0.30 (0.52)	1.08 ± 0.17 (0.13)	6.95 (Inf. U235/U238)	0.38 ± 0.15 (0.19)	2.28 ± 0.79 (0.91)	0.163
3246-RU-120827-01-05	1.17 ± 0.16 (0.07)	< -0.30 ± 0.27 (0.50)	1.35 ± 0.21 (0.12)	6.94 (Inf. U235/U238)	0.38 ± 0.17 (0.21)	2.17 ± 0.75 (0.84)	0.373
3245-RU-120827-02-01	1.11 ± 0.14 (0.06)	< 0.14 ± 0.30 (0.50)	1.16 ± 0.17 (0.09)	9.05 (Inf. U235/U238)	0.50 ± 0.14 (0.19)	1.72 ± 0.66 (0.80)	0.262
3245-RU-120827-02-02	1.04 ± 0.13 (0.06)	< 0.03 ± 0.28 (0.49)	1.01 ± 0.14 (0.09)	4.40 (Inf. U235/U238)	0.24 ± 0.14 (0.18)	1.49 ± 0.59 (0.74)	0.116
3245-RU-120827-02-03	1.05 ± 0.14 (0.06)	< 0.15 ± 0.31 (0.52)	1.00 ± 0.15 (0.11)	8.19 (Inf. U235/U238)	0.45 ± 0.15 (0.18)	2.32 ± 0.68 (0.80)	0.149
3245-RU-120827-02-04	1.08 ± 0.14 (0.06)	< -0.16 ± 0.25 (0.45)	1.05 ± 0.16 (0.11)	6.36 (Inf. U235/U238)	0.35 ± 0.14 (0.20)	1.74 ± 0.63 (0.81)	0.169
3246-RU-120827-02-05	0.95 ± 0.14 (0.07)	< 0.07 ± 0.28 (0.48)	1.09 ± 0.15 (0.10)	6.01 (Inf. U235/U238)	0.33 ± 0.14 (0.18)	1.68 ± 0.67 (0.83)	0.121
3296-RU-120904-01-01	1.02 ± 0.13 (0.07)	< 0.44 ± 0.35 (0.56)	0.96 ± 0.15 (0.13)	5.80 (Inf. U235/U238)	0.32 ± 0.13 (0.19)	1.24 ± 0.34 (0.81)	0.124
3296-RU-120904-01-02	0.93 ± 0.12 (0.04)	< 0.43 ± 0.34 (0.53)	0.86 ± 0.14 (0.10)	4.92 (Inf. U235/U238)	0.27 ± 0.10 (0.15)	0.94 ± 0.29 (0.71)	0.069
3296-RU-120904-01-03	1.07 ± 0.15 (0.08)	< 0.16 ± 0.33 (0.55)	1.15 ± 0.21 (0.10)	2.56 (Inf. U235/U238)	< 0.14 ± 0.15 (0.26)	< 0.84 ± 0.37 (0.92)	0.192
3296-RU-120904-01-04	1.11 ± 0.14 (0.06)	< 0.21 ± 0.30 (0.49)	1.03 ± 0.17 (0.11)	6.16 (Inf. U235/U238)	0.34 ± 0.15 (0.18)	1.08 ± 0.30 (0.71)	0.178
3296-RU-120904-01-05	1.19 ± 0.15 (0.06)	< 0.13 ± 0.29 (0.49)	1.12 ± 0.15 (0.12)	5.13 (Inf. U235/U238)	0.28 ± 0.15 (0.19)	1.70 ± 0.64 (0.75)	0.260
3296-RU-120904-01-06	0.91 ± 0.12 (0.05)	< 0.04 ± 0.25 (0.43)	0.97 ± 0.14 (0.09)	6.01 (Inf. U235/U238)	0.33 ± 0.12 (0.16)	1.73 ± 0.56 (0.71)	0.054
3296-RU-120904-02-01	1.02 ± 0.14 (0.07)	< 0.56 ± 0.44 (0.69)	1.13 ± 0.17 (0.11)	5.65 (Inf. U235/U238)	0.31 ± 0.14 (0.19)	1.70 ± 0.74 (0.85)	0.195
3296-RU-120904-02-02	0.87 ± 0.12 (0.06)	< 0.05 ± 0.30 (0.52)	0.96 ± 0.14 (0.07)	4.22 (Inf. U235/U238)	0.23 ± 0.12 (0.16)	1.46 ± 0.56 (0.71)	0.037
3296-RU-120904-02-03	0.97 ± 0.13 (0.06)	< 0.43 ± 0.34 (0.53)	0.99 ± 0.17 (0.08)	4.56 (Inf. U235/U238)	0.25 ± 0.14 (0.17)	1.38 ± 0.58 (0.74)	0.090
3296-RU-120904-02-04	0.90 ± 0.12 (0.06)	< 0.29 ± 0.33 (0.55)	0.92 ± 0.15 (0.10)	4.24 (Inf. U235/U238)	0.23 ± 0.14 (0.19)	1.62 ± 0.75 (0.87)	0.047
3296-RU-120904-02-05	1.04 ± 0.14 (0.06)	< -0.04 ± 0.29 (0.50)	1.11 ± 0.17 (0.10)	3.70 (Inf. U235/U238)	< 0.20 ± 0.14 (0.23)	1.46 ± 0.59 (0.75)	0.160
3296-RU-120904-02-06	0.90 ± 0.12 (0.07)	< 0.10 ± 0.28 (0.47)	1.09 ± 0.16 (0.08)	4.36 (Inf. U235/U238)	0.24 ± 0.13 (0.18)	1.17 ± 0.62 (0.77)	0.083
3296-RU-120904-02-07	0.96 ± 0.14 (0.09)	< 0.11 ± 0.30 (0.51)	1.12 ± 0.20 (0.08)	5.65 (Inf. U235/U238)	0.31 ± 0.15 (0.19)	1.63 ± 0.75 (0.93)	0.141
3336-RU-120910-01-01	0.92 ± 0.13 (0.06)	< -0.04 ± 0.26 (0.46)	0.97 ± 0.15 (0.12)	4.73 (Inf. U235/U238)	0.26 ± 0.14 (0.18)	1.34 ± 0.35 (0.79)	0.048
3336-RU-120910-01-02	1.00 ± 0.13 (0.07)	0.54 ± 0.33 (0.50)	1.15 ± 0.17 (0.10)	6.88 (Inf. U235/U238)	0.38 ± 0.16 (0.19)	1.41 ± 0.65 (0.80)	0.200
3336-RU-120910-01-03	0.86 ± 0.11 (0.06)	< 0.46 ± 0.30 (0.47)	0.86 ± 0.14 (0.09)	4.08 (Inf. U235/U238)	0.22 ± 0.14 (0.18)	1.71 ± 0.56 (0.69)	0.054
3336-RU-120910-02-01	0.97 ± 0.12 (0.06)	< 0.06 ± 0.28 (0.47)	1.12 ± 0.16 (0.08)	4.59 (Inf. U235/U238)	0.25 ± 0.12 (0.17)	1.62 ± 0.62 (0.76)	0.137
3336-RU-120910-02-02	0.92 ± 0.12 (0.05)	< 0.43 ± 0.30 (0.47)	1.08 ± 0.16 (0.07)	6.18 (Inf. U235/U238)	0.34 ± 0.13 (0.21)	1.60 ± 0.70 (0.85)	0.115
3336-RU-120910-02-03	0.92 ± 0.13 (0.06)	< 0.03 ± 0.27 (0.47)	1.02 ± 0.15 (0.09)	4.72 (Inf. U235/U238)	0.26 ± 0.10 (0.16)	1.15 ± 0.34 (0.81)	0.058
3409-RU-120920-01-01	1.06 ± 0.15 (0.07)	< 0.05 ± 0.30 (0.52)	1.12 ± 0.19 (0.12)	4.35 (Inf. U235/U238)	0.24 ± 0.13 (0.20)	1.00 ± 0.33 (0.83)	0.179
3409-RU-120920-01-02	1.10 ± 0.14 (0.06)	< -0.06 ± 0.28 (0.49)	1.05 ± 0.15 (0.09)	6.41 (Inf. U235/U238)	0.35 ± 0.12 (0.16)	2.13 ± 0.70 (0.78)	0.182
3409-RU-120920-01-03	1.02 ± 0.14 (0.07)	< -0.08 ± 0.26 (0.47)	1.04 ± 0.19 (0.15)	4.78 (Inf. U235/U238)	0.26 ± 0.16 (0.25)	1.79 ± 0.80 (0.98)	0.123
3409-RU-120920-01-04	1.08 ± 0.14 (0.07)	< -0.12 ± 0.27 (0.48)	1.07 ± 0.16 (0.10)	5.30 (Inf. U235/U238)	0.29 ± 0.15 (0.19)	1.68 ± 0.63 (0.78)	0.172
3409-RU-120920-02-01	1.06 ± 0.15 (0.08)	< 0.23 ± 0.28 (0.45)	1.17 ± 0.21 (0.11)	4.96 (Inf. U235/U238)	0.27 ± 0.15 (0.20)	1.80 ± 0.76 (0.92)	0.220
3409-RU-120920-02-02	1.14 ± 0.15 (0.06)	< 0.23 ± 0.31 (0.51)	0.99 ± 0.15 (0.08)	5.19 (Inf. U235/U238)	0.28 ± 0.10 (0.15)	2.21 ± 0.72 (0.82)	0.181

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Table 5.1, Reuse Stockpile 3, Sample Data and Calculated SOF Values							
Sample	Ra-226 DCGL = 1.9 pCi/g Background = 0.9 pCi/g	Tc-99 DCGL = 25.1 pCi/g	Th-232 DCGL = 2 pCi/g Background = 1.0 pCi/g	U-234 DCGL = 195.4 pCi/g	U-235 DCGL = 51.6 pCi/g	U-238 DCGL = 168.8 pCi/g	Sample SOF (Uniform DCGL)
3409-RU-120920-02-03	1.15 ± 0.16 (0.08)	< 0.03 ± 0.26 (0.45)	1.17 ± 0.20 (0.13)	7.78 (Inf. U235/U238)	0.43 ± 0.20 (0.21)	1.51 ± 0.41 (0.97)	0.275
3409-RU-120920-02-04	1.07 ± 0.14 (0.07)	< 0.17 ± 0.29 (0.48)	0.94 ± 0.15 (0.10)	10.70 (Inf. U235/U238)	0.59 ± 0.17 (0.18)	1.61 ± 0.62 (0.79)	0.172
3436-RU-120925-01-05	0.87 ± 0.12 (0.06)	0.86 ± 0.34 (0.48)	1.05 ± 0.15 (0.09)	8.15 (Inf. U235/U238)	0.45 ± 0.14 (0.17)	1.54 ± 0.57 (0.73)	0.119
3436-RU-120925-01-06	0.96 ± 0.13 (0.07)	< 0.26 ± 0.31 (0.52)	1.05 ± 0.16 (0.09)	4.41 (Inf. U235/U238)	0.24 ± 0.12 (0.19)	1.61 ± 0.68 (0.83)	0.104
3436-RU-120925-01-07	0.92 ± 0.13 (0.06)	< -0.05 ± 0.26 (0.46)	1.10 ± 0.16 (0.09)	4.25 (Inf. U235/U238)	0.23 ± 0.12 (0.17)	1.70 ± 0.68 (0.80)	0.097
3436-RU-120925-01-08	0.94 ± 0.12 (0.06)	< 0.05 ± 0.27 (0.47)	1.04 ± 0.15 (0.10)	3.85 (Inf. U235/U238)	0.21 ± 0.14 (0.18)	1.32 ± 0.64 (0.77)	0.075
3436-RU-120925-02-01	0.98 ± 0.14 (0.06)	< 0.38 ± 0.27 (0.42)	1.20 ± 0.20 (0.10)	47.99 (Inf. U235/U238)	2.50 ± 0.33 (0.22)	2.33 ± 0.87 (1.00)	0.465
3436-RU-120925-02-02	1.11 ± 0.16 (0.08)	< 0.07 ± 0.28 (0.48)	1.03 ± 0.16 (0.12)	3.05 (Inf. U235/U238)	< 0.16 ± 0.16 (0.24)	1.85 ± 0.73 (0.88)	0.158
3436-RU-120925-02-03	1.06 ± 0.15 (0.08)	< 0.15 ± 0.31 (0.52)	1.13 ± 0.22 (0.16)	2.67 (Inf. U235/U238)	< 0.14 ± 0.15 (0.28)	1.55 ± 0.80 (0.99)	0.181
3436-RU-120925-02-04	1.03 ± 0.15 (0.08)	< 0.24 ± 0.27 (0.45)	1.08 ± 0.18 (0.16)	4.36 (Inf. U235/U238)	0.24 ± 0.18 (0.22)	1.10 ± 0.39 (0.94)	0.151
3470-RU-121002-01-01	1.08 ± 0.14 (0.07)	< -0.12 ± 0.26 (0.46)	0.87 ± 0.18 (0.11)	2.18 (Inf. U235/U238)	< 0.11 ± 0.13 (0.22)	1.77 ± 0.76 (0.91)	0.119
3470-RU-121002-01-02	1.01 ± 0.14 (0.07)	< -0.10 ± 0.28 (0.49)	0.98 ± 0.15 (0.09)	10.68 (Inf. U235/U238)	0.59 ± 0.19 (0.22)	1.96 ± 0.78 (0.91)	0.136
3470-RU-121002-01-03	0.92 ± 0.12 (0.07)	< 0.10 ± 0.27 (0.46)	1.10 ± 0.18 (0.11)	5.61 (Inf. U235/U238)	0.31 ± 0.14 (0.21)	0.98 ± 0.35 (0.89)	0.105
3470-RU-121002-01-04	0.95 ± 0.14 (0.09)	< -0.01 ± 0.26 (0.45)	1.18 ± 0.21 (0.12)	3.00 (Inf. U235/U238)	< 0.16 ± 0.15 (0.27)	1.50 ± 0.80 (0.99)	0.144
3470-RU-121002-01-05	0.93 ± 0.12 (0.06)	< 0.01 ± 0.28 (0.48)	0.89 ± 0.14 (0.10)	6.96 (Inf. U235/U238)	0.38 ± 0.14 (0.17)	2.33 ± 0.77 (0.86)	0.073
3470-RU-121002-01-06	0.92 ± 0.14 (0.07)	< -0.01 ± 0.36 (0.62)	1.13 ± 0.23 (0.16)	8.02 (Inf. U235/U238)	0.44 ± 0.19 (0.24)	2.38 ± 0.78 (0.95)	0.139
3470-RU-121002-01-07	0.99 ± 0.13 (0.07)	< 0.17 ± 0.28 (0.47)	1.05 ± 0.15 (0.12)	3.19 (Inf. U235/U238)	< 0.17 ± 0.13 (0.18)	1.61 ± 0.65 (0.81)	0.108
3470-RU-121002-01-08	0.90 ± 0.12 (0.07)	< -0.06 ± 0.26 (0.45)	1.05 ± 0.16 (0.09)	2.39 (Inf. U235/U238)	< 0.13 ± 0.13 (0.21)	0.85 ± 0.33 (0.80)	0.045
3470-RU-121002-01-09	0.89 ± 0.14 (0.09)	< -0.02 ± 0.28 (0.48)	1.11 ± 0.19 (0.11)	4.17 (Inf. U235/U238)	0.23 ± 0.15 (0.20)	1.00 ± 0.39 (0.99)	0.087
3470-RU-121002-02-01	0.92 ± 0.12 (0.07)	< -0.11 ± 0.29 (0.51)	1.00 ± 0.15 (0.11)	3.56 (Inf. U235/U238)	0.19 ± 0.13 (0.18)	1.81 ± 0.68 (0.84)	0.043
3470-RU-121002-02-02	1.00 ± 0.14 (0.07)	< -0.08 ± 0.27 (0.48)	1.16 ± 0.17 (0.10)	2.84 (Inf. U235/U238)	< 0.15 ± 0.10 (0.16)	1.54 ± 0.61 (0.76)	0.159
3470-RU-121002-02-03	1.03 ± 0.15 (0.07)	< -0.18 ± 0.26 (0.47)	1.03 ± 0.18 (0.17)	2.23 (Inf. U235/U238)	< 0.12 ± 0.16 (0.28)	0.98 ± 0.35 (0.89)	0.103
3470-RU-121002-02-04	2.33 ± 0.30 (0.11)	< -0.11 ± 0.28 (0.49)	2.09 ± 0.32 (0.18)	28.07 (Inf. U235/U238)	1.55 ± 0.40 (0.40)	6.00 ± 1.80 (2.00)	1.507
3470-RU-121002-02-05	0.94 ± 0.13 (0.07)	< -0.14 ± 0.25 (0.45)	0.95 ± 0.16 (0.14)	6.93 (Inf. U235/U238)	0.38 ± 0.16 (0.21)	2.07 ± 0.58 (0.72)	0.076
3470-RU-121002-02-06	1.07 ± 0.14 (0.07)	< -0.05 ± 0.35 (0.61)	1.20 ± 0.18 (0.08)	4.61 (Inf. U235/U238)	0.25 ± 0.13 (0.16)	1.75 ± 0.65 (0.80)	0.228
3470-RU-121002-02-07	1.05 ± 0.14 (0.08)	< -0.02 ± 0.28 (0.49)	1.06 ± 0.18 (0.15)	7.06 (Inf. U235/U238)	0.39 ± 0.18 (0.21)	1.49 ± 0.68 (0.88)	0.161
3470-RU-121002-02-08	1.04 ± 0.14 (0.06)	< 0.17 ± 0.29 (0.48)	1.04 ± 0.15 (0.10)	3.30 (Inf. U235/U238)	0.18 ± 0.12 (0.18)	1.11 ± 0.32 (0.77)	0.127
3470-RU-121002-02-09	0.89 ± 0.12 (0.06)	< 0.09 ± 0.31 (0.52)	1.01 ± 0.15 (0.11)	5.80 (Inf. U235/U238)	0.32 ± 0.13 (0.16)	0.96 ± 0.29 (0.71)	0.050
3478-RU-121003-01-01	1.01 ± 0.13 (0.05)	< 0.06 ± 0.25 (0.43)	1.02 ± 0.15 (0.13)	3.20 (Inf. U235/U238)	< 0.17 ± 0.14 (0.20)	1.66 ± 0.62 (0.77)	0.100
3478-RU-121003-01-02	0.99 ± 0.14 (0.08)	< 0.00 ± 0.33 (0.58)	1.10 ± 0.20 (0.14)	58.77 (Inf. U235/U238)	2.94 ± 0.39 (0.26)	1.87 ± 0.79 (1.00)	0.466
3478-RU-121003-01-03	0.98 ± 0.13 (0.08)	< -0.06 ± 0.33 (0.58)	1.27 ± 0.20 (0.07)	10.69 (Inf. U235/U238)	0.59 ± 0.18 (0.20)	1.76 ± 0.67 (0.85)	0.254
3478-RU-121003-01-04	0.91 ± 0.12 (0.08)	< -0.02 ± 0.29 (0.50)	1.05 ± 0.17 (0.11)	7.64 (Inf. U235/U238)	0.42 ± 0.14 (0.18)	2.06 ± 0.66 (0.79)	0.090

Hematite Decommissioning Project	Technical Report: HDP-RPT-FSS-103, <i>Data Summary Report for Reuse Stockpile 3</i>						
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Table 5.1, Reuse Stockpile 3, Sample Data and Calculated SOF Values							
Sample	Ra-226 DCGL = 1.9 pCi/g Background = 0.9 pCi/g	Tc-99 DCGL = 25.1 pCi/g	Th-232 DCGL = 2 pCi/g Background = 1.0 pCi/g	U-234 DCGL = 195.4 pCi/g	U-235 DCGL = 51.6 pCi/g	U-238 DCGL = 168.8 pCi/g	Sample SOF (Uniform DCGL)
3478-RU-121003-02-01	0.94 ± 0.14 (0.08)	< 0.05 ± 0.28 (0.48)	0.95 ± 0.17 (0.12)	17.25 (Inf. U235/U238)	0.94 ± 0.23 (0.25)	1.75 ± 0.76 (0.94)	0.140
3478-RU-121003-02-02	0.96 ± 0.13 (0.06)	< -0.07 ± 0.24 (0.43)	0.93 ± 0.17 (0.11)	17.20 (Inf. U235/U238)	0.94 ± 0.22 (0.25)	1.87 ± 0.72 (0.87)	0.149
3478-RU-121003-02-03	0.99 ± 0.14 (0.07)	< -0.25 ± 0.31 (0.57)	1.07 ± 0.16 (0.11)	7.47 (Inf. U235/U238)	0.41 ± 0.16 (0.19)	2.15 ± 0.81 (0.94)	0.141
3478-RU-121003-02-04	0.91 ± 0.13 (0.07)	< 0.15 ± 0.32 (0.54)	0.96 ± 0.14 (0.08)	11.06 (Inf. U235/U238)	0.61 ± 0.18 (0.21)	2.54 ± 0.74 (0.85)	0.095
3503-RU-121008-01-01	1.02 ± 0.14 (0.07)	< 0.10 ± 0.27 (0.46)	1.06 ± 0.15 (0.08)	2.74 (Inf. U235/U238)	< 0.15 ± 0.15 (0.23)	< 0.88 ± 0.31 (1.00)	0.119
3503-RU-121008-01-02	0.97 ± 0.13 (0.06)	< 0.14 ± 0.27 (0.45)	1.11 ± 0.18 (0.11)	5.09 (Inf. U235/U238)	0.27 ± 0.14 (0.18)	2.64 ± 0.82 (0.90)	0.144
3503-RU-121008-01-03	1.01 ± 0.13 (0.07)	< 0.07 ± 0.25 (0.43)	1.19 ± 0.17 (0.10)	6.18 (Inf. U235/U238)	0.34 ± 0.18 (0.21)	1.68 ± 0.65 (0.80)	0.204
3503-RU-121008-01-04	1.00 ± 0.13 (0.07)	< 0.25 ± 0.29 (0.47)	1.18 ± 0.19 (0.09)	6.24 (Inf. U235/U238)	0.34 ± 0.14 (0.22)	2.21 ± 0.68 (0.78)	0.204
3503-RU-121008-01-05	0.99 ± 0.13 (0.07)	< 0.39 ± 0.26 (0.40)	1.12 ± 0.16 (0.11)	11.28 (Inf. U235/U238)	0.62 ± 0.19 (0.22)	1.48 ± 0.36 (0.78)	0.201
3503-RU-121008-01-06	0.96 ± 0.13 (0.08)	< 0.15 ± 0.28 (0.47)	1.08 ± 0.16 (0.11)	7.61 (Inf. U235/U238)	0.42 ± 0.16 (0.20)	1.62 ± 0.78 (0.92)	0.134
3503-RU-121008-01-07	1.08 ± 0.14 (0.06)	< 0.32 ± 0.30 (0.49)	1.00 ± 0.15 (0.11)	3.16 (Inf. U235/U238)	< 0.17 ± 0.12 (0.19)	1.39 ± 0.65 (0.83)	0.135
3503-RU-121008-02-01	1.01 ± 0.15 (0.08)	< 0.15 ± 0.25 (0.41)	1.18 ± 0.17 (0.09)	2.86 (Inf. U235/U238)	< 0.15 ± 0.14 (0.26)	1.69 ± 0.77 (0.90)	0.181
3503-RU-121008-02-02	1.02 ± 0.14 (0.08)	< 0.13 ± 0.28 (0.48)	1.20 ± 0.21 (0.07)	6.71 (Inf. U235/U238)	0.37 ± 0.18 (0.20)	1.02 ± 0.34 (0.86)	0.216
3503-RU-121008-02-03	1.05 ± 0.15 (0.09)	< 0.23 ± 0.26 (0.43)	1.29 ± 0.20 (0.12)	6.70 (Inf. U235/U238)	0.37 ± 0.17 (0.21)	1.17 ± 0.40 (0.97)	0.282
3503-RU-121008-02-04	0.97 ± 0.13 (0.06)	< 0.43 ± 0.31 (0.49)	0.97 ± 0.15 (0.12)	4.28 (Inf. U235/U238)	0.23 ± 0.12 (0.19)	1.86 ± 0.76 (0.90)	0.091
3503-RU-121008-02-05	0.91 ± 0.13 (0.07)	0.63 ± 0.31 (0.47)	1.05 ± 0.17 (0.05)	13.49 (Inf. U235/U238)	0.74 ± 0.23 (0.26)	4.08 ± 0.99 (1.00)	0.163
3503-RU-121008-02-06	1.01 ± 0.13 (0.07)	< 0.38 ± 0.28 (0.44)	1.06 ± 0.15 (0.11)	5.64 (Inf. U235/U238)	0.31 ± 0.15 (0.18)	1.51 ± 0.57 (0.73)	0.147
3503-RU-121008-02-07	0.99 ± 0.15 (0.09)	< 0.14 ± 0.25 (0.42)	1.06 ± 0.19 (0.16)	6.22 (Inf. U235/U238)	0.34 ± 0.18 (0.21)	2.02 ± 0.78 (0.93)	0.133
3550-RU-121016-01-01	0.98 ± 0.14 (0.07)	< 0.08 ± 0.32 (0.55)	0.99 ± 0.18 (0.12)	8.70 (Inf. U235/U238)	0.48 ± 0.15 (0.23)	1.37 ± 0.70 (0.89)	0.107
3550-RU-121016-01-02	0.82 ± 0.12 (0.08)	< -0.04 ± 0.29 (0.51)	0.92 ± 0.14 (0.12)	3.51 (Inf. U235/U238)	0.19 ± 0.12 (0.17)	1.41 ± 0.62 (0.79)	0.030
3550-RU-121016-01-03	0.96 ± 0.13 (0.07)	< -0.08 ± 0.27 (0.48)	1.08 ± 0.16 (0.09)	8.61 (Inf. U235/U238)	0.47 ± 0.14 (0.18)	2.88 ± 0.83 (0.90)	0.142
3550-RU-121016-01-04	0.91 ± 0.13 (0.07)	< -0.09 ± 0.30 (0.52)	1.00 ± 0.16 (0.10)	6.40 (Inf. U235/U238)	0.35 ± 0.18 (0.22)	2.07 ± 0.66 (0.78)	0.057
3550-RU-121016-01-05	0.80 ± 0.12 (0.06)	< -0.09 ± 0.27 (0.47)	1.06 ± 0.16 (0.11)	3.20 (Inf. U235/U238)	< 0.17 ± 0.15 (0.22)	1.65 ± 0.71 (0.86)	0.059
3550-RU-121016-02-01	0.83 ± 0.11 (0.06)	< 0.15 ± 0.29 (0.49)	0.95 ± 0.14 (0.08)	5.26 (Inf. U235/U238)	0.29 ± 0.15 (0.22)	1.36 ± 0.57 (0.72)	0.047
3550-RU-121016-02-02	1.01 ± 0.13 (0.08)	< -0.17 ± 0.27 (0.49)	1.12 ± 0.17 (0.09)	7.42 (Inf. U235/U238)	0.41 ± 0.16 (0.21)	1.32 ± 0.36 (0.84)	0.172
3550-RU-121016-02-03	0.99 ± 0.14 (0.07)	< 0.05 ± 0.30 (0.51)	1.16 ± 0.17 (0.08)	6.92 (Inf. U235/U238)	0.38 ± 0.13 (0.16)	1.98 ± 0.69 (0.83)	0.184
3550-RU-121016-02-04	0.85 ± 0.12 (0.06)	< -0.15 ± 0.33 (0.58)	1.00 ± 0.16 (0.11)	6.16 (Inf. U235/U238)	0.34 ± 0.15 (0.19)	1.40 ± 0.54 (0.82)	0.046
3550-RU-121016-02-05	0.86 ± 0.11 (0.06)	< -0.03 ± 0.28 (0.50)	1.03 ± 0.16 (0.10)	8.52 (Inf. U235/U238)	0.47 ± 0.15 (0.18)	1.93 ± 0.69 (0.80)	0.079
3618-RU-121025-02-05	0.86 ± 0.12 (0.07)	< -0.02 ± 0.26 (0.45)	1.07 ± 0.15 (0.11)	7.62 (Inf. U235/U238)	0.42 ± 0.13 (0.18)	1.81 ± 0.70 (0.85)	0.093
3618-RU-121025-02-06	0.87 ± 0.12 (0.05)	< 0.01 ± 0.25 (0.44)	1.02 ± 0.16 (0.09)	10.93 (Inf. U235/U238)	0.60 ± 0.14 (0.16)	1.36 ± 0.34 (0.75)	0.086
3618-RU-121025-02-07	0.77 ± 0.12 (0.07)	< 0.05 ± 0.31 (0.53)	1.03 ± 0.16 (0.08)	9.60 (Inf. U235/U238)	0.53 ± 0.16 (0.19)	1.85 ± 0.56 (0.70)	0.087
3618-RU-121025-02-08	0.79 ± 0.12 (0.07)	< 0.20 ± 0.29 (0.47)	1.06 ± 0.15 (0.07)	18.16 (Inf. U235/U238)	0.99 ± 0.23 (0.25)	1.82 ± 0.77 (0.94)	0.161

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Table 5.1, Reuse Stockpile 3, Sample Data and Calculated SOF Values							
Sample	Ra-226 DCGL = 1.9 pCi/g Background = 0.9 pCi/g	Tc-99 DCGL = 25.1 pCi/g	Th-232 DCGL = 2 pCi/g Background = 1.0 pCi/g	U-234 DCGL = 195.4 pCi/g	U-235 DCGL = 51.6 pCi/g	U-238 DCGL = 168.8 pCi/g	Sample SOF (Uniform DCGL)
3618-RU-121025-02-09	0.74 ± 0.11 (0.06)	0.61 ± 0.33 (0.50)	1.00 ± 0.17 (0.11)	13.12 (Inf. U235/U238)	0.72 ± 0.20 (0.20)	1.62 ± 0.39 (0.87)	0.115
3629-RU-121029-01-05	1.12 ± 0.15 (0.08)	< 0.05 ± 0.30 (0.51)	1.01 ± 0.17 (0.13)	14.86 (Inf. U235/U238)	0.82 ± 0.19 (0.21)	2.39 ± 0.93 (1.00)	0.229
3629-RU-121029-01-06	1.10 ± 0.15 (0.06)	< 0.19 ± 0.30 (0.50)	0.98 ± 0.16 (0.08)	17.04 (Inf. U235/U238)	0.94 ± 0.20 (0.20)	2.68 ± 0.87 (0.95)	0.234
3629-RU-121029-01-07	1.05 ± 0.14 (0.07)	< 0.11 ± 0.30 (0.50)	1.07 ± 0.17 (0.11)	15.22 (Inf. U235/U238)	0.84 ± 0.21 (0.23)	3.43 ± 0.83 (0.92)	0.233
3629-RU-121029-01-08	1.15 ± 0.15 (0.07)	< 0.27 ± 0.31 (0.50)	1.09 ± 0.19 (0.12)	40.83 (Inf. U235/U238)	2.13 ± 0.33 (0.28)	2.02 ± 0.48 (0.98)	0.450
3629-RU-121029-01-09	1.04 ± 0.14 (0.07)	< -0.04 ± 0.26 (0.45)	1.04 ± 0.16 (0.12)	8.35 (Inf. U235/U238)	0.46 ± 0.17 (0.22)	2.06 ± 0.75 (0.88)	0.158
3629-RU-121029-02-06	1.04 ± 0.14 (0.07)	0.72 ± 0.32 (0.47)	1.08 ± 0.17 (0.13)	12.19 (Inf. U235/U238)	0.67 ± 0.21 (0.21)	1.58 ± 0.37 (0.80)	0.227
3629-RU-121029-02-07	1.06 ± 0.14 (0.07)	< 0.12 ± 0.27 (0.45)	1.03 ± 0.16 (0.09)	37.04 (Inf. U235/U238)	2.00 ± 0.30 (0.22)	3.04 ± 0.81 (0.93)	0.350
3629-RU-121029-02-08	1.22 ± 0.15 (0.06)	< 0.14 ± 0.27 (0.46)	1.06 ± 0.15 (0.09)	21.39 (Inf. U235/U238)	1.17 ± 0.23 (0.24)	2.37 ± 0.74 (0.89)	0.350
3629-RU-121029-02-09	1.03 ± 0.14 (0.07)	< 0.10 ± 0.29 (0.49)	1.25 ± 0.18 (0.11)	17.78 (Inf. U235/U238)	0.98 ± 0.23 (0.23)	2.63 ± 0.72 (0.85)	0.323
3661-RU-121031-01-01	0.94 ± 0.13 (0.06)	< -0.02 ± 0.32 (0.55)	1.03 ± 0.18 (0.09)	12.32 (Inf. U235/U238)	0.68 ± 0.19 (0.20)	2.14 ± 0.75 (0.89)	0.125
3661-RU-121031-01-02	0.88 ± 0.12 (0.06)	< 0.10 ± 0.30 (0.51)	0.90 ± 0.14 (0.07)	5.46 (Inf. U235/U238)	0.30 ± 0.11 (0.15)	1.61 ± 0.36 (0.77)	0.047
3661-RU-121031-01-03	0.83 ± 0.12 (0.07)	< 0.01 ± 0.30 (0.51)	0.96 ± 0.17 (0.11)	7.98 (Inf. U235/U238)	0.44 ± 0.16 (0.20)	1.18 ± 0.68 (0.88)	0.057
3661-RU-121031-01-04	1.14 ± 0.21 (0.13)	< -0.03 ± 0.33 (0.57)	1.08 ± 0.29 (0.12)	15.77 (Inf. U235/U238)	0.87 ± 0.33 (0.42)	2.50 ± 1.70 (2.10)	0.279
3661-RU-121031-01-05	0.92 ± 0.13 (0.07)	< -0.01 ± 0.31 (0.53)	1.21 ± 0.22 (0.10)	7.25 (Inf. U235/U238)	0.40 ± 0.16 (0.19)	1.72 ± 0.87 (1.00)	0.171
3661-RU-121031-02-01	0.95 ± 0.13 (0.06)	< 0.10 ± 0.29 (0.48)	1.09 ± 0.17 (0.09)	14.51 (Inf. U235/U238)	0.80 ± 0.17 (0.20)	2.23 ± 0.71 (0.86)	0.178
3661-RU-121031-02-02	0.88 ± 0.12 (0.06)	< 0.23 ± 0.31 (0.51)	1.06 ± 0.18 (0.09)	9.62 (Inf. U235/U238)	0.53 ± 0.16 (0.17)	1.39 ± 0.61 (0.78)	0.107
3661-RU-121031-02-03	0.90 ± 0.13 (0.07)	< -0.03 ± 0.32 (0.56)	1.14 ± 0.17 (0.13)	7.78 (Inf. U235/U238)	0.43 ± 0.15 (0.19)	1.50 ± 0.55 (0.73)	0.127
3661-RU-121031-02-04	0.98 ± 0.14 (0.07)	< -0.13 ± 0.30 (0.52)	0.95 ± 0.14 (0.11)	15.85 (Inf. U235/U238)	0.87 ± 0.22 (0.22)	1.95 ± 0.77 (0.91)	0.152
3661-RU-121031-02-05	0.90 ± 0.12 (0.07)	< -0.30 ± 0.26 (0.48)	0.93 ± 0.15 (0.12)	9.62 (Inf. U235/U238)	0.53 ± 0.19 (0.23)	2.37 ± 0.78 (0.93)	0.074
3702-RU-121106-01-01	0.93 ± 0.13 (0.07)	< 0.11 ± 0.29 (0.48)	0.96 ± 0.16 (0.12)	8.56 (Inf. U235/U238)	0.47 ± 0.16 (0.21)	2.48 ± 0.70 (0.80)	0.088
3702-RU-121106-01-02	0.89 ± 0.12 (0.07)	< -0.16 ± 0.31 (0.55)	1.05 ± 0.17 (0.11)	6.71 (Inf. U235/U238)	0.37 ± 0.17 (0.20)	1.66 ± 0.58 (0.74)	0.076
3702-RU-121106-01-03	0.96 ± 0.13 (0.06)	< 0.05 ± 0.33 (0.57)	1.09 ± 0.16 (0.08)	7.97 (Inf. U235/U238)	0.44 ± 0.15 (0.21)	1.78 ± 0.56 (0.71)	0.138
3702-RU-121106-01-04	1.15 ± 0.15 (0.07)	< -0.03 ± 0.29 (0.50)	1.03 ± 0.16 (0.11)	13.33 (Inf. U235/U238)	0.73 ± 0.19 (0.22)	4.12 ± 0.91 (0.95)	0.253
3702-RU-121106-01-05	0.94 ± 0.15 (0.09)	< 0.10 ± 0.32 (0.54)	0.96 ± 0.17 (0.14)	10.32 (Inf. U235/U238)	0.57 ± 0.22 (0.25)	2.16 ± 0.89 (1.00)	0.102
3702-RU-121106-01-06	1.01 ± 0.13 (0.07)	< 0.13 ± 0.26 (0.44)	1.07 ± 0.16 (0.10)	11.59 (Inf. U235/U238)	0.64 ± 0.18 (0.19)	2.14 ± 0.59 (0.73)	0.182
3702-RU-121106-01-07	1.13 ± 0.15 (0.07)	< 0.23 ± 0.36 (0.59)	1.08 ± 0.17 (0.12)	9.09 (Inf. U235/U238)	0.50 ± 0.15 (0.21)	2.44 ± 0.80 (0.92)	0.241
3702-RU-121106-01-08	1.16 ± 0.15 (0.08)	< 0.03 ± 0.28 (0.49)	1.08 ± 0.16 (0.09)	14.34 (Inf. U235/U238)	0.79 ± 0.20 (0.21)	2.11 ± 0.86 (0.97)	0.279
3702-RU-121106-01-09	0.84 ± 0.12 (0.06)	< 0.32 ± 0.32 (0.51)	1.04 ± 0.16 (0.13)	8.38 (Inf. U235/U238)	0.46 ± 0.16 (0.19)	2.45 ± 0.83 (0.93)	0.099
3702-RU-121106-02-01	0.92 ± 0.12 (0.05)	< 0.09 ± 0.33 (0.56)	1.08 ± 0.16 (0.07)	7.45 (Inf. U235/U238)	0.41 ± 0.15 (0.18)	2.01 ± 0.75 (0.86)	0.112
3702-RU-121106-02-02	0.94 ± 0.12 (0.06)	< 0.02 ± 0.28 (0.48)	1.03 ± 0.15 (0.10)	8.15 (Inf. U235/U238)	0.45 ± 0.13 (0.17)	1.63 ± 0.39 (0.87)	0.097
3702-RU-121106-02-03	0.99 ± 0.13 (0.07)	< 0.06 ± 0.32 (0.55)	1.09 ± 0.16 (0.09)	13.40 (Inf. U235/U238)	0.74 ± 0.20 (0.23)	2.83 ± 0.72 (0.84)	0.194

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Table 5.1, Reuse Stockpile 3, Sample Data and Calculated SOF Values							
Sample	Ra-226 DCGL = 1.9 pCi/g Background = 0.9 pCi/g	Tc-99 DCGL = 25.1 pCi/g	Th-232 DCGL = 2 pCi/g Background = 1.0 pCi/g	U-234 DCGL = 195.4 pCi/g	U-235 DCGL = 51.6 pCi/g	U-238 DCGL = 168.8 pCi/g	Sample SOF (Uniform DCGL)
3702-RU-121106-02-04	1.01 ± 0.13 (0.06)	< 0.07 ± 0.30 (0.51)	0.98 ± 0.15 (0.08)	10.64 (Inf. U235/U238)	0.58 ± 0.22 (0.22)	3.79 ± 0.88 (0.90)	0.149
3702-RU-121106-02-05	1.07 ± 0.14 (0.07)	< 0.19 ± 0.31 (0.52)	1.05 ± 0.15 (0.11)	16.84 (Inf. U235/U238)	0.93 ± 0.21 (0.20)	3.36 ± 0.94 (0.98)	0.246
3702-RU-121106-02-09	0.97 ± 0.14 (0.07)	< 0.02 ± 0.29 (0.49)	0.93 ± 0.17 (0.13)	7.97 (Inf. U235/U238)	0.44 ± 0.14 (0.18)	1.42 ± 0.36 (0.80)	0.095
3736-RU-121112-02-01	1.10 ± 0.15 (0.07)	< 0.08 ± 0.25 (0.42)	1.02 ± 0.17 (0.10)	6.65 (Inf. U235/U238)	0.36 ± 0.15 (0.19)	2.64 ± 0.74 (0.85)	0.175
3736-RU-121112-02-02	1.25 ± 0.17 (0.08)	< 0.10 ± 0.26 (0.45)	1.14 ± 0.17 (0.12)	16.50 (Inf. U235/U238)	0.91 ± 0.21 (0.24)	3.83 ± 0.96 (1.00)	0.383
3736-RU-121112-02-03	1.27 ± 0.16 (0.06)	< -0.21 ± 0.21 (0.40)	1.10 ± 0.17 (0.09)	8.21 (Inf. U235/U238)	0.45 ± 0.15 (0.20)	2.46 ± 0.74 (0.84)	0.310
3736-RU-121112-02-04	1.07 ± 0.14 (0.06)	< 0.11 ± 0.26 (0.44)	1.12 ± 0.16 (0.07)	3.01 (Inf. U235/U238)	< 0.16 ± 0.14 (0.22)	1.59 ± 0.69 (0.82)	0.182
3736-RU-121112-02-05	0.97 ± 0.13 (0.06)	< 0.21 ± 0.28 (0.46)	1.02 ± 0.16 (0.10)	4.74 (Inf. U235/U238)	0.26 ± 0.12 (0.16)	1.43 ± 0.68 (0.83)	0.093
3770-RU-121115-01-07	0.76 ± 0.10 (0.06)	9.10 ± 1.10 (0.40)	0.73 ± 0.12 (0.06)	9.42 (Inf. U235/U238)	0.52 ± 0.13 (0.16)	2.10 ± 0.73 (0.82)	0.433
3770-RU-121115-01-08	0.80 ± 0.11 (0.05)	8.44 ± 1.00 (0.43)	0.71 ± 0.13 (0.07)	11.07 (Inf. U235/U238)	0.61 ± 0.15 (0.14)	2.83 ± 0.66 (0.70)	0.422
3770-RU-121115-01-09	0.71 ± 0.10 (0.06)	10.80 ± 1.30 (0.60)	0.69 ± 0.12 (0.09)	11.59 (Inf. U235/U238)	0.64 ± 0.17 (0.21)	2.26 ± 0.57 (0.66)	0.515
3770-RU-121115-01-10	0.87 ± 0.13 (0.07)	8.60 ± 1.00 (0.40)	0.71 ± 0.18 (0.13)	14.49 (Inf. U235/U238)	0.80 ± 0.23 (0.28)	3.02 ± 0.84 (0.87)	0.450
3770-RU-121115-02-07	0.83 ± 0.12 (0.05)	10.60 ± 1.20 (0.50)	0.70 ± 0.11 (0.09)	9.27 (Inf. U235/U238)	0.51 ± 0.12 (0.15)	2.50 ± 0.61 (0.69)	0.494
3770-RU-121115-02-09	0.82 ± 0.12 (0.07)	6.68 ± 0.85 (0.47)	0.69 ± 0.14 (0.10)	16.15 (Inf. U235/U238)	0.89 ± 0.21 (0.21)	2.41 ± 0.45 (0.84)	0.380
3770-RU-121115-02-10	0.90 ± 0.12 (0.06)	< 0.41 ± 0.27 (0.43)	0.96 ± 0.14 (0.08)	5.30 (Inf. U235/U238)	0.29 ± 0.15 (0.18)	1.73 ± 0.70 (0.80)	0.059
3781-RU-121119-01-01	0.83 ± 0.12 (0.07)	0.81 ± 0.29 (0.40)	0.94 ± 0.16 (0.11)	8.92 (Inf. U235/U238)	0.49 ± 0.14 (0.16)	2.48 ± 0.70 (0.79)	0.102
3781-RU-121119-01-02	0.85 ± 0.13 (0.08)	< 0.38 ± 0.32 (0.50)	1.07 ± 0.17 (0.07)	13.22 (Inf. U235/U238)	0.73 ± 0.19 (0.24)	2.38 ± 0.68 (0.93)	0.146
3781-RU-121119-01-03	0.91 ± 0.13 (0.08)	< 0.03 ± 0.28 (0.48)	1.11 ± 0.19 (0.07)	9.10 (Inf. U235/U238)	0.50 ± 0.17 (0.22)	2.56 ± 0.92 (0.99)	0.133
3781-RU-121119-01-04	0.99 ± 0.13 (0.06)	< -0.06 ± 0.27 (0.47)	1.03 ± 0.16 (0.06)	7.63 (Inf. U235/U238)	0.42 ± 0.16 (0.19)	2.03 ± 0.37 (0.76)	0.122
3781-RU-121119-01-05	0.86 ± 0.11 (0.05)	< 0.05 ± 0.26 (0.45)	1.04 ± 0.16 (0.08)	12.86 (Inf. U235/U238)	0.71 ± 0.19 (0.19)	2.20 ± 0.61 (0.72)	0.115
3781-RU-121119-01-06	0.86 ± 0.12 (0.07)	0.55 ± 0.30 (0.46)	1.05 ± 0.16 (0.11)	10.68 (Inf. U235/U238)	0.59 ± 0.16 (0.18)	2.17 ± 0.73 (0.84)	0.126
3781-RU-121119-01-07	0.89 ± 0.14 (0.08)	< 0.26 ± 0.28 (0.45)	0.89 ± 0.15 (0.10)	10.14 (Inf. U235/U238)	0.56 ± 0.18 (0.22)	1.84 ± 0.71 (0.85)	0.084
3781-RU-121119-01-08	0.80 ± 0.11 (0.06)	0.68 ± 0.30 (0.44)	1.09 ± 0.15 (0.08)	5.27 (Inf. U235/U238)	0.29 ± 0.11 (0.17)	1.43 ± 0.33 (0.73)	0.113
3781-RU-121119-01-09	0.86 ± 0.13 (0.08)	< 0.35 ± 0.27 (0.44)	1.07 ± 0.19 (0.14)	6.02 (Inf. U235/U238)	0.33 ± 0.17 (0.21)	1.79 ± 0.71 (0.89)	0.097
3781-RU-121119-01-10	0.90 ± 0.12 (0.07)	< 0.13 ± 0.26 (0.43)	1.01 ± 0.14 (0.09)	6.38 (Inf. U235/U238)	0.35 ± 0.12 (0.19)	1.87 ± 0.70 (0.82)	0.061
3781-RU-121119-02-01	0.97 ± 0.14 (0.08)	< -0.08 ± 0.27 (0.48)	1.02 ± 0.17 (0.09)	12.32 (Inf. U235/U238)	0.68 ± 0.22 (0.25)	2.12 ± 0.74 (0.91)	0.136
3781-RU-121119-02-02	0.96 ± 0.14 (0.07)	< -0.14 ± 0.29 (0.52)	1.17 ± 0.20 (0.13)	10.17 (Inf. U235/U238)	0.56 ± 0.19 (0.21)	2.59 ± 0.93 (1.00)	0.195
3781-RU-121119-02-03	0.96 ± 0.13 (0.05)	< -0.10 ± 0.30 (0.52)	1.03 ± 0.16 (0.10)	12.31 (Inf. U235/U238)	0.68 ± 0.18 (0.18)	2.45 ± 0.68 (0.79)	0.137
3781-RU-121119-02-04	0.95 ± 0.13 (0.08)	< -0.13 ± 0.28 (0.50)	1.01 ± 0.16 (0.11)	17.02 (Inf. U235/U238)	0.94 ± 0.22 (0.21)	3.07 ± 0.88 (0.97)	0.155
3781-RU-121119-02-05	0.89 ± 0.13 (0.07)	< -0.19 ± 0.25 (0.44)	0.88 ± 0.18 (0.11)	11.10 (Inf. U235/U238)	0.61 ± 0.19 (0.22)	3.16 ± 0.93 (0.98)	0.087
3781-RU-121119-02-06	0.82 ± 0.12 (0.06)	< 0.09 ± 0.29 (0.49)	1.04 ± 0.15 (0.08)	8.33 (Inf. U235/U238)	0.46 ± 0.16 (0.18)	1.64 ± 0.55 (0.70)	0.085
3781-RU-121119-02-07	0.89 ± 0.13 (0.08)	< -0.17 ± 0.28 (0.50)	1.13 ± 0.19 (0.13)	7.82 (Inf. U235/U238)	0.43 ± 0.18 (0.22)	2.13 ± 0.83 (0.97)	0.126

Hematite Decommissioning Project	Technical Report: HDP-RPT-FSS-103, <i>Data Summary Report for Reuse Stockpile 3</i>						
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Table 5.1, Reuse Stockpile 3, Sample Data and Calculated SOF Values							
Sample	Ra-226 DCGL = 1.9 pCi/g Background = 0.9 pCi/g	Tc-99 DCGL = 25.1 pCi/g	Th-232 DCGL = 2 pCi/g Background = 1.0 pCi/g	U-234 DCGL = 195.4 pCi/g	U-235 DCGL = 51.6 pCi/g	U-238 DCGL = 168.8 pCi/g	Sample SOF (Uniform DCGL)
3781-RU-121119-02-08	0.93 ± 0.13 (0.06)	< -0.16 ± 0.25 (0.45)	1.13 ± 0.16 (0.08)	6.88 (Inf. U235/U238)	0.38 ± 0.19 (0.21)	1.40 ± 0.36 (0.89)	0.132
3781-RU-121119-02-09	0.82 ± 0.12 (0.08)	< -0.11 ± 0.28 (0.49)	1.00 ± 0.18 (0.12)	7.61 (Inf. U235/U238)	0.42 ± 0.16 (0.23)	1.29 ± 0.34 (0.76)	0.055
3781-RU-121119-02-10	0.83 ± 0.12 (0.06)	< -0.17 ± 0.27 (0.48)	1.08 ± 0.18 (0.13)	4.12 (Inf. U235/U238)	0.22 ± 0.14 (0.17)	1.99 ± 0.83 (0.90)	0.077
3793-RU-121120-01-01	0.63 ± 0.11 (0.07)	< 0.19 ± 0.26 (0.44)	0.71 ± 0.14 (0.11)	6.19 (Inf. U235/U238)	0.34 ± 0.12 (0.18)	1.74 ± 0.69 (0.81)	0.056
3793-RU-121120-01-03	0.63 ± 0.09 (0.05)	< -0.01 ± 0.27 (0.47)	0.79 ± 0.14 (0.07)	10.32 (Inf. U235/U238)	0.57 ± 0.13 (0.18)	1.78 ± 0.63 (0.72)	0.074
3793-RU-121120-01-05	0.83 ± 0.11 (0.06)	1.37 ± 0.37 (0.47)	1.06 ± 0.21 (0.11)	6.52 (Inf. U235/U238)	0.36 ± 0.14 (0.18)	1.14 ± 0.35 (0.83)	0.132
3793-RU-121120-01-07	0.73 ± 0.13 (0.08)	< 0.44 ± 0.29 (0.46)	1.01 ± 0.16 (0.09)	9.80 (Inf. U235/U238)	0.54 ± 0.20 (0.23)	2.42 ± 0.82 (0.90)	0.097
3830-RU-121127-01-01	0.86 ± 0.13 (0.07)	< -0.03 ± 0.31 (0.54)	1.16 ± 0.19 (0.08)	5.49 (Inf. U235/U238)	0.30 ± 0.16 (0.25)	1.75 ± 0.77 (0.93)	0.124
3830-RU-121127-01-02	0.93 ± 0.14 (0.09)	< 0.10 ± 0.30 (0.51)	1.01 ± 0.20 (0.10)	6.90 (Inf. U235/U238)	0.38 ± 0.16 (0.17)	0.98 ± 0.33 (0.80)	0.073
3830-RU-121127-01-03	0.97 ± 0.15 (0.09)	< -0.01 ± 0.27 (0.47)	1.06 ± 0.18 (0.15)	5.48 (Inf. U235/U238)	0.30 ± 0.15 (0.22)	1.69 ± 0.81 (1.00)	0.111
3830-RU-121127-01-04	0.95 ± 0.14 (0.08)	< 0.19 ± 0.30 (0.50)	1.09 ± 0.18 (0.13)	4.75 (Inf. U235/U238)	0.26 ± 0.12 (0.17)	1.50 ± 0.67 (0.85)	0.117
3830-RU-121127-01-05	0.88 ± 0.13 (0.06)	< 0.54 ± 0.36 (0.56)	1.08 ± 0.17 (0.08)	9.78 (Inf. U235/U238)	0.54 ± 0.16 (0.20)	1.88 ± 0.77 (0.89)	0.133
3830-RU-121127-01-06	0.87 ± 0.12 (0.07)	0.81 ± 0.35 (0.51)	0.87 ± 0.15 (0.06)	7.26 (Inf. U235/U238)	0.40 ± 0.14 (0.17)	1.86 ± 0.75 (0.86)	0.088
3830-RU-121127-02-04	0.83 ± 0.12 (0.06)	< 0.08 ± 0.26 (0.44)	1.02 ± 0.15 (0.11)	5.68 (Inf. U235/U238)	0.31 ± 0.13 (0.21)	1.91 ± 0.68 (0.83)	0.060
3830-RU-121127-02-05	0.83 ± 0.13 (0.06)	< 0.05 ± 0.28 (0.47)	1.11 ± 0.18 (0.17)	3.53 (Inf. U235/U238)	< 0.19 ± 0.18 (0.27)	1.53 ± 0.83 (1.00)	0.088
3874-RU-121203-02-01	1.06 ± 0.15 (0.08)	< -0.12 ± 0.15 (0.27)	1.05 ± 0.20 (0.13)	18.16 (Inf. U235/U238)	0.99 ± 0.20 (0.22)	1.84 ± 0.79 (0.98)	0.232
3874-RU-121203-02-02	1.06 ± 0.14 (0.07)	3.14 ± 0.41 (0.30)	0.95 ± 0.14 (0.11)	22.79 (Inf. U235/U238)	1.25 ± 0.25 (0.26)	2.71 ± 0.71 (0.83)	0.366
3874-RU-121203-02-03	0.97 ± 0.13 (0.06)	< -0.02 ± 0.18 (0.30)	1.03 ± 0.15 (0.10)	26.04 (Inf. U235/U238)	1.42 ± 0.22 (0.19)	2.67 ± 0.81 (0.90)	0.228
3874-RU-121203-02-04	1.04 ± 0.14 (0.07)	< 0.02 ± 0.17 (0.28)	1.01 ± 0.16 (0.08)	25.67 (Inf. U235/U238)	1.37 ± 0.24 (0.21)	1.74 ± 0.45 (0.93)	0.248
3874-RU-121203-02-05	1.13 ± 0.16 (0.07)	< -0.06 ± 0.18 (0.31)	0.99 ± 0.20 (0.16)	19.56 (Inf. U235/U238)	1.08 ± 0.25 (0.27)	3.40 ± 1.10 (1.20)	0.262
3874-RU-121203-02-06	1.04 ± 0.14 (0.07)	< 0.20 ± 0.17 (0.27)	1.12 ± 0.16 (0.08)	21.05 (Inf. U235/U238)	1.15 ± 0.24 (0.25)	2.24 ± 0.73 (0.88)	0.285
3874-RU-121203-02-07	1.02 ± 0.14 (0.07)	< 0.03 ± 0.18 (0.31)	1.05 ± 0.16 (0.07)	22.01 (Inf. U235/U238)	1.21 ± 0.21 (0.18)	2.87 ± 0.94 (1.00)	0.242
3874-RU-121203-02-08	1.04 ± 0.14 (0.07)	< 0.03 ± 0.19 (0.32)	1.06 ± 0.17 (0.11)	9.06 (Inf. U235/U238)	0.50 ± 0.16 (0.19)	1.99 ± 0.77 (0.88)	0.173
3874-RU-121203-02-09	1.02 ± 0.14 (0.07)	< 0.19 ± 0.19 (0.31)	0.98 ± 0.18 (0.12)	5.46 (Inf. U235/U238)	0.30 ± 0.17 (0.23)	1.51 ± 0.73 (0.90)	0.113
3874-RU-121203-02-10	1.00 ± 0.14 (0.08)	< 0.08 ± 0.19 (0.33)	1.20 ± 0.19 (0.07)	6.92 (Inf. U235/U238)	0.38 ± 0.16 (0.21)	0.85 ± 0.32 (0.82)	0.204
3920-RU-121210-02-01	1.04 ± 0.14 (0.07)	< 0.08 ± 0.40 (0.68)	1.12 ± 0.16 (0.11)	7.27 (Inf. U235/U238)	0.40 ± 0.14 (0.16)	1.92 ± 0.70 (0.83)	0.193
3920-RU-121210-02-02	1.07 ± 0.14 (0.07)	< 0.14 ± 0.31 (0.52)	1.06 ± 0.17 (0.08)	6.88 (Inf. U235/U238)	0.38 ± 0.17 (0.21)	1.53 ± 0.37 (0.81)	0.177
3920-RU-121210-02-03	1.02 ± 0.14 (0.07)	< -0.06 ± 0.30 (0.52)	1.15 ± 0.21 (0.14)	11.95 (Inf. U235/U238)	0.66 ± 0.20 (0.21)	2.29 ± 0.82 (0.95)	0.226
3920-RU-121210-02-04	1.00 ± 0.13 (0.06)	< 0.05 ± 0.31 (0.52)	1.04 ± 0.15 (0.08)	8.40 (Inf. U235/U238)	0.46 ± 0.15 (0.17)	2.60 ± 0.68 (0.75)	0.142
3920-RU-121210-02-05	1.11 ± 0.15 (0.06)	< 0.36 ± 0.32 (0.51)	1.05 ± 0.17 (0.09)	6.57 (Inf. U235/U238)	0.36 ± 0.15 (0.19)	2.02 ± 0.70 (0.86)	0.202
3920-RU-121210-02-06	1.14 ± 0.14 (0.07)	< 0.03 ± 0.31 (0.54)	0.95 ± 0.15 (0.12)	5.93 (Inf. U235/U238)	0.32 ± 0.14 (0.18)	2.45 ± 0.74 (0.82)	0.179
3920-RU-121210-02-07	1.19 ± 0.15 (0.06)	< 0.19 ± 0.31 (0.52)	1.13 ± 0.17 (0.10)	7.07 (Inf. U235/U238)	0.39 ± 0.13 (0.20)	1.16 ± 0.36 (0.85)	0.276

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Table 5.1, Reuse Stockpile 3, Sample Data and Calculated SOF Values							
Sample	Ra-226 DCGL = 1.9 pCi/g Background = 0.9 pCi/g	Tc-99 DCGL = 25.1 pCi/g	Th-232 DCGL = 2 pCi/g Background = 1.0 pCi/g	U-234 DCGL = 195.4 pCi/g	U-235 DCGL = 51.6 pCi/g	U-238 DCGL = 168.8 pCi/g	Sample SOF (Uniform DCGL)
3920-RU-121210-02-08	0.94 ± 0.13 (0.06)	< 0.11 ± 0.30 (0.51)	1.01 ± 0.16 (0.12)	5.25 (Inf. U235/U238)	0.29 ± 0.14 (0.19)	1.12 ± 0.31 (0.79)	0.070
3920-RU-121210-02-09	0.96 ± 0.14 (0.09)	< 0.19 ± 0.33 (0.54)	1.08 ± 0.21 (0.12)	4.00 (Inf. U235/U238)	0.22 ± 0.14 (0.19)	1.08 ± 0.34 (0.84)	0.110
3920-RU-121210-02-10	1.07 ± 0.14 (0.06)	< -0.01 ± 0.28 (0.48)	0.90 ± 0.14 (0.09)	3.75 (Inf. U235/U238)	< 0.20 ± 0.14 (0.22)	1.86 ± 0.62 (0.74)	0.124
3920-RU-121210-03-01	1.20 ± 0.16 (0.06)	< -0.07 ± 0.27 (0.47)	1.01 ± 0.16 (0.14)	5.46 (Inf. U235/U238)	0.30 ± 0.13 (0.20)	1.60 ± 0.35 (0.75)	0.206
3920-RU-121210-03-02	0.97 ± 0.15 (0.08)	< 0.02 ± 0.32 (0.55)	1.02 ± 0.18 (0.11)	5.13 (Inf. U235/U238)	0.28 ± 0.16 (0.19)	1.73 ± 0.79 (0.94)	0.090
3920-RU-121210-03-03	1.01 ± 0.13 (0.06)	< -0.04 ± 0.43 (0.74)	1.06 ± 0.17 (0.08)	4.95 (Inf. U235/U238)	0.27 ± 0.14 (0.17)	1.65 ± 0.70 (0.80)	0.128
4042-RU-130102-02-01	0.93 ± 0.14 (0.08)	0.66 ± 0.35 (0.53)	1.11 ± 0.18 (0.13)	10.17 (Inf. U235/U238)	0.56 ± 0.21 (0.24)	1.45 ± 0.46 (1.10)	0.169
4042-RU-130102-02-02	0.94 ± 0.12 (0.05)	0.72 ± 0.32 (0.46)	1.09 ± 0.16 (0.10)	11.05 (Inf. U235/U238)	0.61 ± 0.19 (0.21)	1.81 ± 0.71 (0.85)	0.174
4042-RU-130102-02-03	0.90 ± 0.13 (0.07)	0.72 ± 0.33 (0.49)	0.97 ± 0.15 (0.11)	14.50 (Inf. U235/U238)	0.79 ± 0.18 (0.20)	1.45 ± 0.37 (0.82)	0.127
4042-RU-130102-02-04	0.80 ± 0.12 (0.07)	0.67 ± 0.33 (0.50)	1.04 ± 0.15 (0.12)	10.70 (Inf. U235/U238)	0.59 ± 0.16 (0.18)	1.61 ± 0.41 (0.92)	0.122
4042-RU-130102-02-05	2.23 ± 0.28 (0.11)	< 0.41 ± 0.27 (0.42)	0.90 ± 0.19 (0.15)	9.79 (Inf. U235/U238)	0.54 ± 0.23 (0.27)	2.27 ± 0.89 (1.10)	0.790
4042-RU-130102-03-01	1.00 ± 0.15 (0.09)	< 0.38 ± 0.29 (0.46)	1.18 ± 0.23 (0.11)	8.53 (Inf. U235/U238)	0.47 ± 0.21 (0.23)	2.19 ± 0.88 (1.00)	0.224
4042-RU-130102-03-02	0.95 ± 0.11 (0.04)	< 0.36 ± 0.35 (0.57)	0.97 ± 0.13 (0.07)	11.23 (Inf. U235/U238)	0.62 ± 0.12 (0.13)	1.90 ± 0.58 (0.63)	0.121
4042-RU-130102-03-03	0.96 ± 0.13 (0.06)	0.64 ± 0.31 (0.47)	1.18 ± 0.17 (0.08)	9.78 (Inf. U235/U238)	0.54 ± 0.13 (0.16)	1.67 ± 0.82 (0.94)	0.217
4042-RU-130102-03-04	0.92 ± 0.12 (0.07)	< 0.27 ± 0.27 (0.44)	0.86 ± 0.15 (0.08)	2.75 (Inf. U235/U238)	< 0.15 ± 0.12 (0.22)	0.91 ± 0.33 (0.81)	0.044
4042-RU-130102-03-05	0.98 ± 0.14 (0.08)	< 0.17 ± 0.29 (0.49)	1.01 ± 0.17 (0.13)	5.98 (Inf. U235/U238)	0.33 ± 0.16 (0.19)	1.29 ± 0.34 (0.80)	0.099
4074-RU-130105-01-01	1.14 ± 0.15 (0.07)	< 0.00 ± 0.03 (0.34)	1.00 ± 0.19 (0.12)	7.27 (Inf. U235/U238)	0.40 ± 0.14 (0.19)	1.90 ± 0.82 (0.98)	0.183
4074-RU-130105-01-02	0.96 ± 0.14 (0.08)	< 0.00 ± 0.06 (0.35)	1.04 ± 0.17 (0.12)	3.68 (Inf. U235/U238)	0.19 ± 0.14 (0.19)	2.53 ± 0.92 (1.00)	0.089
4074-RU-130105-01-03	1.04 ± 0.15 (0.08)	0.50 ± 0.12 (0.34)	1.11 ± 0.18 (0.08)	13.05 (Inf. U235/U238)	0.72 ± 0.20 (0.23)	2.05 ± 0.89 (1.00)	0.241
4074-RU-130105-01-04	1.08 ± 0.16 (0.08)	< 0.00 ± 0.06 (0.34)	1.06 ± 0.20 (0.18)	9.96 (Inf. U235/U238)	0.55 ± 0.18 (0.23)	2.10 ± 0.72 (0.88)	0.199
4074-RU-130105-02-01	1.14 ± 0.18 (0.10)	< 0.00 ± 0.06 (0.35)	1.11 ± 0.19 (0.13)	5.44 (Inf. U235/U238)	< 0.29 ± 0.24 (0.39)	2.70 ± 1.80 (2.10)	0.231
4074-RU-130105-02-02	1.12 ± 0.15 (0.07)	< 0.00 ± 0.04 (0.35)	1.09 ± 0.18 (0.12)	10.70 (Inf. U235/U238)	0.59 ± 0.15 (0.19)	2.50 ± 0.88 (0.99)	0.242
4074-RU-130105-02-03	1.04 ± 0.15 (0.08)	1.29 ± 0.15 (0.35)	1.17 ± 0.18 (0.09)	5.34 (Inf. U235/U238)	0.29 ± 0.16 (0.20)	2.01 ± 0.87 (1.00)	0.255
4074-RU-130105-02-04	0.94 ± 0.13 (0.07)	2.26 ± 0.24 (0.34)	1.09 ± 0.16 (0.09)	9.96 (Inf. U235/U238)	0.55 ± 0.20 (0.22)	2.02 ± 0.75 (0.88)	0.230
4074-RU-130105-03-01	1.88 ± 0.22 (0.07)	< 0.00 ± 0.02 (0.34)	1.16 ± 0.20 (0.11)	5.87 (Inf. U235/U238)	0.32 ± 0.17 (0.20)	2.06 ± 0.76 (0.93)	0.644
4074-RU-130105-03-02	1.13 ± 0.16 (0.09)	0.84 ± 0.10 (0.35)	1.13 ± 0.18 (0.12)	14.54 (Inf. U235/U238)	0.80 ± 0.20 (0.21)	3.92 ± 0.91 (0.98)	0.333
4074-RU-130105-03-03	1.08 ± 0.16 (0.09)	< 0.00 ± 0.05 (0.34)	0.98 ± 0.19 (0.12)	9.49 (Inf. U235/U238)	0.52 ± 0.22 (0.24)	< 1.11 ± 0.38 (1.20)	0.160
4075-RU-130107-02-01	1.12 ± 0.13 (0.05)	1.14 ± 0.16 (0.34)	1.02 ± 0.13 (0.09)	16.57 (Inf. U235/U238)	0.91 ± 0.18 (0.18)	2.10 ± 0.82 (0.99)	0.286
4075-RU-130107-02-02	1.14 ± 0.16 (0.09)	1.44 ± 0.15 (0.34)	1.09 ± 0.18 (0.09)	12.33 (Inf. U235/U238)	0.68 ± 0.22 (0.26)	1.90 ± 0.77 (0.97)	0.316
4075-RU-130107-02-03	0.97 ± 0.13 (0.06)	1.17 ± 0.14 (0.34)	0.97 ± 0.16 (0.08)	9.42 (Inf. U235/U238)	0.52 ± 0.17 (0.22)	1.70 ± 0.69 (0.87)	0.152
4075-RU-130107-02-04	0.93 ± 0.12 (0.06)	0.45 ± 0.10 (0.35)	0.92 ± 0.14 (0.09)	6.17 (Inf. U235/U238)	0.34 ± 0.17 (0.20)	1.53 ± 0.65 (0.81)	0.081
4086-RU-130108-01-01	1.05 ± 0.15 (0.07)	< 0.00 ± 0.06 (0.32)	1.10 ± 0.17 (0.10)	7.10 (Inf. U235/U238)	0.39 ± 0.14 (0.18)	2.08 ± 0.82 (0.95)	0.185

Table 5.1, Reuse Stockpile 3, Sample Data and Calculated SOF Values

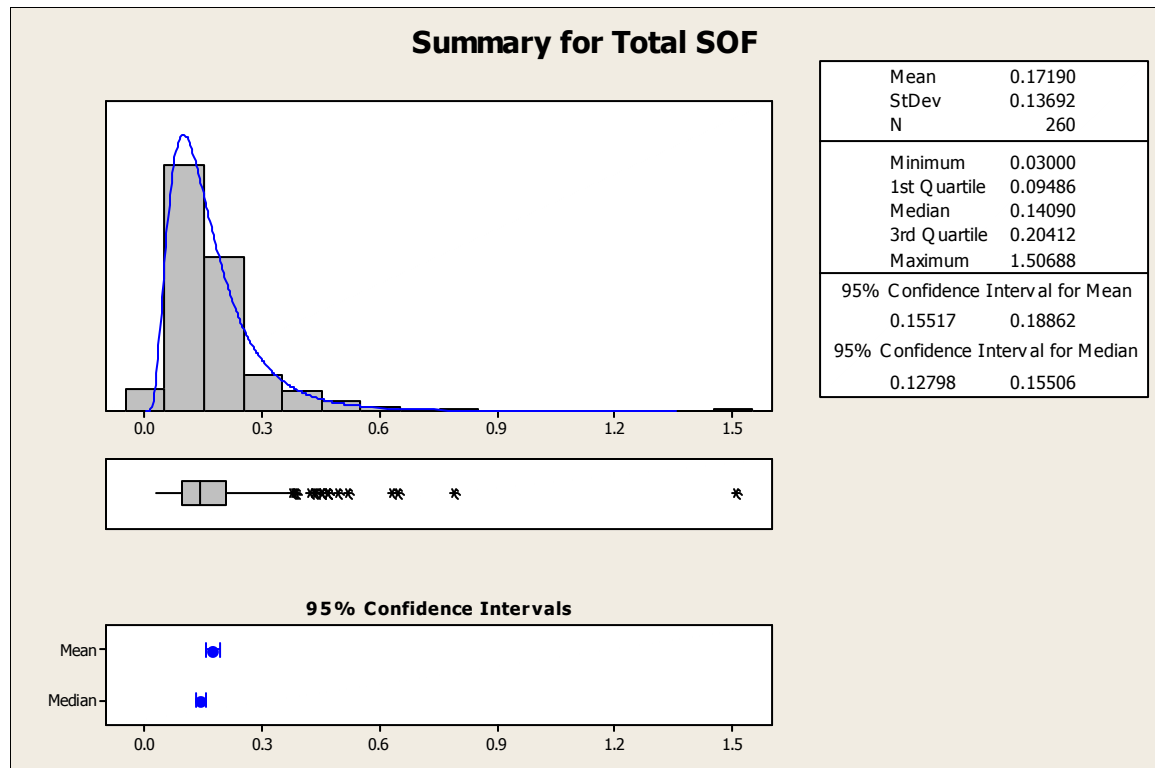
Sample	Ra-226 DCGL = 1.9 pCi/g Background = 0.9 pCi/g	Tc-99 DCGL = 25.1 pCi/g	Th-232 DCGL = 2 pCi/g Background = 1.0 pCi/g	U-234 DCGL = 195.4 pCi/g	U-235 DCGL = 51.6 pCi/g	U-238 DCGL = 168.8 pCi/g	Sample SOF (Uniform DCGL)
4086-RU-130108-01-02	1.16 ± 0.17 (0.09)	0.73 ± 0.13 (0.41)	1.01 ± 0.18 (0.19)	9.43 (Inf. U235/U238)	0.52 ± 0.20 (0.24)	2.27 ± 0.77 (0.96)	0.243
4086-RU-130108-01-03	1.18 ± 0.17 (0.09)	0.95 ± 0.13 (0.34)	1.09 ± 0.19 (0.13)	12.95 (Inf. U235/U238)	0.71 ± 0.23 (0.30)	< 1.54 ± 0.72 (1.90)	0.319
4086-RU-130108-01-04	1.10 ± 0.14 (0.07)	0.94 ± 0.10 (0.34)	1.08 ± 0.16 (0.10)	10.86 (Inf. U235/U238)	0.60 ± 0.21 (0.24)	2.02 ± 0.78 (0.92)	0.262
4086-RU-130108-01-05	0.96 ± 0.13 (0.07)	0.60 ± 0.07 (0.35)	1.07 ± 0.16 (0.10)	8.53 (Inf. U235/U238)	0.47 ± 0.15 (0.17)	2.11 ± 0.78 (0.89)	0.156
Average	0.99	0.36	1.04	8.98	0.49	1.90	0.17
Minimum	0.63	-0.35	0.69	2.18	0.11	0.76	0.03
Maximum	2.33	10.80	2.09	58.77	2.94	6.00	1.51

- Notes:
1. Data format: Result ± 2 σ MDA value). ‘<’ indicates result less than MDA.
 2. All units are pCi/g
 3. Ra-226 and Th-232 background subtracted prior to calculating SOF value. Negative SOF components set to zero in SOF calculation
 4. Average SOF for data set calculated using average radionuclide concentrations.

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Table 5-2, Reuse Stockpile 3 Sample Data – Sample 3470-121002-02-04 compared to the Root and Excavation DCGL values.							
Sample	Ra-226 DCGL=2.1 pCi/g Background=0.9 pCi/g	Tc-99 DCGL=30.1 pCi/g	Th-232 DCGL=2.0 pCi/g Background=1.0 pCi/g	U-234 DCGL=235.6 pCi/g	U-235 DCGL=64.1 pCi/g	U-238 DCGL=183.3 pCi/g	Sample SOF (Root DCGL)
3470-RU-121002-02-04	2.33 ± 0.30 (0.11)	< -0.11 ± 0.28 (0.49)	2.09 ± 0.32 (0.18)	28.07 (Inf. U235/U238)	1.55 ± 0.40 (0.40)	6.00 ± 1.80 (2.00)	1.40
Sample	Ra-226 DCGL=5.4 pCi/g Background=0.9 pCi/g	Tc-99 DCGL=74.0 pCi/g	Th-232 DCGL=5.2 pCi/g Background=1.0 pCi/g	U-234 DCGL=872.4 pCi/g	U-235 DCGL=208.1 pCi/g	U-238 DCGL=551.1 pCi/g	Sample SOF (Excavation DCGL)
3470-RU-121002-02-04	2.33 ± 0.30 (0.11)	< -0.11 ± 0.28 (0.49)	2.09 ± 0.32 (0.18)	28.07 (Inf. U235/U238)	1.55 ± 0.40 (0.40)	6.00 ± 1.80 (2.00)	0.52
Table 5-3, Reuse Stockpile 3 QC Sample Data							
Sample	Ra-226 DCGL = 1.9 pCi/g Background = 0.9 pCi/g	Tc-99 DCGL = 25.1 pCi/g	Th-232 DCGL = 2 pCi/g Background = 1.0 pCi/g	U-234 DCGL = 195.4 pCi/g	U-235 DCGL = 51.6 pCi/g	U-238 DCGL = 168.8 pCi/g	Sample SOF (Uniform DCGL)
3116-RU-120807-01-02-FD	0.86 ± 0.11 (0.05)	2.20 ± 0.46 (0.51)	0.97 ± 0.14 (0.09)	4.54 (Inf. U235/U238)	0.25 ± 0.12 (0.16)	1.21 ± 0.57 (0.71)	0.12
3116-RU-120807-01-02	0.80 ± 0.11 (0.06)	< -0.19 ± 0.30 (0.54)	0.92 ± 0.14 (0.07)	5.08 (Inf. U235/U238)	0.28 ± 0.15 (0.17)	0.76 ± 0.29 (0.71)	0.04
3153-RU-120813-02-07-FD	1.07 ± 0.14 (0.07)	< 0.31 ± 0.28 (0.45)	1.15 ± 0.16 (0.10)	7.52 (Inf. U235/U238)	0.41 ± 0.14 (0.20)	2.70 ± 0.79 (0.87)	0.24
3153-RU-120813-02-07	0.99 ± 0.14 (0.07)	< 0.28 ± 0.29 (0.47)	1.07 ± 0.18 (0.12)	9.24 (Inf. U235/U238)	0.51 ± 0.19 (0.23)	1.62 ± 0.36 (0.76)	0.16
3211-RU-120821-02-10-FD	0.82 ± 0.11 (0.06)	< -0.24 ± 0.30 (0.53)	1.02 ± 0.14 (0.07)	5.84 (Inf. U235/U238)	0.32 ± 0.15 (0.19)	1.81 ± 0.70 (0.82)	0.06
3211-RU-120821-02-10	0.98 ± 0.13 (0.05)	< -0.33 ± 0.31 (0.56)	1.04 ± 0.15 (0.11)	5.65 (Inf. U235/U238)	0.31 ± 0.11 (0.15)	1.68 ± 0.55 (0.67)	0.11
3296-RU-120904-01-05-FD	0.99 ± 0.13 (0.07)	< 0.03 ± 0.31 (0.53)	1.09 ± 0.16 (0.11)	6.18 (Inf. U235/U238)	0.34 ± 0.13 (0.16)	0.82 ± 0.30 (0.75)	0.14
3296-RU-120904-01-05	1.19 ± 0.15 (0.06)	< 0.13 ± 0.29 (0.49)	1.12 ± 0.15 (0.12)	5.13 (Inf. U235/U238)	0.28 ± 0.15 (0.19)	1.70 ± 0.64 (0.75)	0.26
3436-RU-120925-01-08-FD	0.95 ± 0.13 (0.07)	< -0.06 ± 0.27 (0.47)	0.98 ± 0.16 (0.09)	2.99 (Inf. U235/U238)	< 0.16 ± 0.14 (0.18)	1.42 ± 0.51 (0.69)	0.05
3436-RU-120925-01-08	0.94 ± 0.12 (0.06)	< 0.05 ± 0.27 (0.47)	1.04 ± 0.15 (0.10)	3.85 (Inf. U235/U238)	0.21 ± 0.14 (0.18)	1.32 ± 0.64 (0.77)	0.07
3470-RU-121002-01-09-FD	1.05 ± 0.14 (0.06)	< -0.23 ± 0.28 (0.51)	1.02 ± 0.16 (0.10)	3.63 (Inf. U235/U238)	0.20 ± 0.12 (0.17)	0.96 ± 0.32 (0.78)	0.12
3470-RU-121002-01-09	0.89 ± 0.14 (0.09)	< -0.02 ± 0.28 (0.48)	1.11 ± 0.19 (0.11)	4.17 (Inf. U235/U238)	0.23 ± 0.15 (0.20)	1.00 ± 0.39 (0.99)	0.09
3503-RU-121008-02-06-FD	0.97 ± 0.13 (0.06)	< 0.11 ± 0.26 (0.44)	1.11 ± 0.16 (0.09)	7.97 (Inf. U235/U238)	0.44 ± 0.15 (0.21)	1.45 ± 0.61 (0.79)	0.15
3503-RU-121008-02-06	1.01 ± 0.13 (0.07)	< 0.38 ± 0.28 (0.44)	1.06 ± 0.15 (0.11)	5.64 (Inf. U235/U238)	0.31 ± 0.15 (0.18)	1.51 ± 0.57 (0.73)	0.15
3629-RU-121029-01-06-FD	0.88 ± 0.13 (0.07)	< 0.30 ± 0.30 (0.48)	1.01 ± 0.15 (0.09)	11.95 (Inf. U235/U238)	0.65 ± 0.16 (0.18)	1.16 ± 0.34 (0.79)	0.10
3629-RU-121029-01-06	1.10 ± 0.15 (0.06)	< 0.19 ± 0.30 (0.50)	0.98 ± 0.16 (0.08)	17.04 (Inf. U235/U238)	0.94 ± 0.20 (0.20)	2.68 ± 0.87 (0.95)	0.23
3702-RU-121106-01-02-FD	0.93 ± 0.13 (0.08)	< -0.07 ± 0.27 (0.47)	1.01 ± 0.16 (0.08)	6.16 (Inf. U235/U238)	0.34 ± 0.16 (0.18)	1.20 ± 0.37 (0.88)	0.07
3702-RU-121106-01-02	0.89 ± 0.12 (0.07)	< -0.16 ± 0.31 (0.55)	1.05 ± 0.17 (0.11)	6.71 (Inf. U235/U238)	0.37 ± 0.17 (0.20)	1.66 ± 0.58 (0.74)	0.08
3781-RU-121119-01-10-FD	0.91 ± 0.12 (0.07)	< 0.10 ± 0.30 (0.51)	0.91 ± 0.14 (0.10)	5.66 (Inf. U235/U238)	0.31 ± 0.15 (0.20)	1.75 ± 0.73 (0.84)	0.05
3781-RU-121119-01-10	0.90 ± 0.12 (0.07)	< 0.13 ± 0.26 (0.43)	1.01 ± 0.14 (0.09)	6.38 (Inf. U235/U238)	0.35 ± 0.12 (0.19)	1.87 ± 0.70 (0.82)	0.06

Sample	Ra-226 DCGL = 1.9 pCi/g Background = 0.9 pCi/g	Tc-99 DCGL = 25.1 pCi/g	Th-232 DCGL = 2 pCi/g Background = 1.0 pCi/g	U-234 DCGL = 195.4 pCi/g	U-235 DCGL = 51.6 pCi/g	U-238 DCGL = 168.8 pCi/g	Sample SOF (Uniform DCGL)
3920-RU-121210-02-01-FD	1.03 ± 0.13 (0.07)	< 0.06 ± 0.30 (0.50)	1.09 ± 0.16 (0.11)	3.10 (Inf. U235/U238)	< 0.16 ± 0.16 (0.25)	2.10 ± 0.77 (0.90)	0.15
3920-RU-121210-02-01	1.04 ± 0.14 (0.07)	< 0.08 ± 0.40 (0.68)	1.12 ± 0.16 (0.11)	7.27 (Inf. U235/U238)	0.40 ± 0.14 (0.16)	1.92 ± 0.70 (0.83)	0.19
3920-RU-121210-02-03-FD	0.98 ± 0.13 (0.07)	< -0.02 ± 0.30 (0.51)	1.09 ± 0.16 (0.10)	7.64 (Inf. U235/U238)	0.42 ± 0.14 (0.17)	2.14 ± 0.66 (0.80)	0.15
3920-RU-121210-02-03	1.02 ± 0.14 (0.07)	< -0.06 ± 0.30 (0.52)	1.15 ± 0.21 (0.14)	11.95 (Inf. U235/U238)	0.66 ± 0.20 (0.21)	2.29 ± 0.82 (0.95)	0.23
3920-RU-121210-02-05-FD	0.97 ± 0.14 (0.08)	< -0.11 ± 0.30 (0.53)	1.13 ± 0.19 (0.10)	39.60 (Inf. U235/U238)	2.08 ± 0.30 (0.26)	2.13 ± 0.49 (1.00)	0.36
3920-RU-121210-02-05	1.11 ± 0.15 (0.06)	< 0.36 ± 0.32 (0.51)	1.05 ± 0.17 (0.09)	6.57 (Inf. U235/U238)	0.36 ± 0.15 (0.19)	2.02 ± 0.70 (0.86)	0.20
3920-RU-121210-02-10-FD	1.03 ± 0.13 (0.07)	< 0.27 ± 0.28 (0.46)	1.00 ± 0.14 (0.09)	6.00 (Inf. U235/U238)	0.33 ± 0.13 (0.17)	1.65 ± 0.55 (0.68)	0.13
3920-RU-121210-02-10	1.07 ± 0.14 (0.06)	< -0.01 ± 0.28 (0.48)	0.90 ± 0.14 (0.09)	3.75 (Inf. U235/U238)	< 0.20 ± 0.14 (0.22)	1.86 ± 0.62 (0.74)	0.12
4074-RU-130105-02-03-FD	1.08 ± 0.16 (0.10)	1.08 ± 0.17 (0.34)	0.98 ± 0.20 (0.16)	5.70 (Inf. U235/U238)	0.31 ± 0.16 (0.21)	2.13 ± 0.83 (1.00)	0.19
4074-RU-130105-02-03	1.04 ± 0.15 (0.08)	1.29 ± 0.15 (0.35)	1.17 ± 0.18 (0.09)	5.34 (Inf. U235/U238)	0.29 ± 0.16 (0.20)	2.01 ± 0.87 (1.00)	0.25

Figure 5-1, Statistical Summary for Reuse Stockpile 3 Sample SOF Based on Uniform DCGL



6.0 Quality Control

6.1 Laboratory QC Measurements

Duplicate samples were collected at a 5% frequency in accordance with HDP-PR-FSS-703 (*Final Status Survey Quality Control*). Duplicate samples were evaluated per subsection 7.4.1.1 of MARLAP (*Multi-Agency Radiological Laboratory Analytical Protocols*) using the following equations:

If $\bar{x} < \text{DCGL}$:

$$\text{Statistic: } |x_1 - x_2|$$

Warning limit: 0.1415(DCGL)

Control limit: 0.2120(DCGL)

If $\bar{x} \geq \text{DCGL}$:

$$\text{Statistic: RPD(\%)} = \frac{|x_1 - x_2|}{\bar{x}} (100\%)$$

Warning limit: 14.15%

Control limit: 21.20%

where:

x_1 = activity of sample

x_2 = activity of field duplicate sample

\bar{x} = average activity

RPD=Relative Percent Difference

Out of the 260 total truckloads comprising Stockpile 3, 15 duplicate samples were collected. The results were documented on form HDP-PR-FSS-703-1. Form HDP-PR-FSS-703-1 indicates all duplicate samples collected show results less than the calculated limits. Table 5.3 shows the field duplicate sample data and Table 6.1 summarizes the results from the analysis of field duplicate samples.

Table 6-1, Summary of Laboratory QC Results

Nuclide	No. of samples	No. of times above the Warning Limit	No. of times above the Control Limit
Ra-226	15	0	0
Th-232	15	0	0
Tc-99	15	0	0
U-235	15	0	0

6.2 Selection of Personnel

All individuals assigned to perform FSS on soil defined as Reuse were qualified senior health physics technicians and were provided specific training on the sampling of Reuse soil.

6.3 Instrumentation Operation and Daily QC

The instruments used were operated in accordance with procedure HDP-PR-HP-416 (*Operation of the Ludlum 2221 for Final Status Survey*). Prior to and after use, a daily source check was performed to verify instrument response was within $\pm 20\%$ of the calculated mean based on the initial set-up of the instrument per HDP-PR-HP-411 (*Radiological Instrumentation*). All QC check logs were reviewed for the appropriate dates and verified to have been both pre and post checked in accordance with the procedure with no discrepancies noted. All meters used were verified to be calibrated within the year.

6.4 Survey Records and Documentation

Sample results from Stockpile 3 are provided in Table 5.1. All sample results were independently reviewed, recorded and stored in accordance with procedure HDP-PR-FSS-721 (*Final Status Survey Data Evaluation*). All results from samples associated with Reuse Stockpile 3 were loaded into the Hematite FSS database and verified to be in units of pCi/g (picocuries per gram) consistent with the units used for the site DCGL values to which they were compared.

7.0 Data Quality Assessment (DQA)

- 1) Sample results were independently reviewed and validated in accordance with HDP-PR-FSS-721 (*Final Status Survey Data Evaluation*), and are provided in Table 5-1. Results with a SOF value greater than 1 when compared to the Uniform DCGL were then compared to the Root and Excavation DCGL values in accordance with Section 14.3.2.4 of the *Hematite Decommissioning Plan*.
- 2) All samples sent for analysis at the approved offsite laboratory (Test America) were tracked on a chain of custody form in accordance with HDP-PR-QA-006 (*Chain of Custody*).
- 3) Samples were collected at random and biased locations, and gamma scan surveys were performed in accordance with procedure HDP-PR-FSS-710 (*Final Status Survey and Radiological Sampling of Reuse Soil*).
- 4) Duplicate samples were collected in accordance with HDP-PR-FSS-703 (*Final Status Survey Quality Control*). QC Sample Results were verified to meet the acceptance criteria as specified in HDP-PR-FSS-703 (*Final Status Survey Quality Control*).
- 5) Field and laboratory instruments were capable of detecting activity at a minimal detection concentration (MDC) less than the appropriate investigation level, and were verified to be operable prior to and after use in accordance with HDP-PR-HP-416 (*Operation of the Ludlum 2221 for Final Status Survey*).

8.0 Conclusions

The calculated average SOF value of Reuse Stockpile 3 when compared to the Uniform Stratum is 0.17, and the lognormal $UCL_{(0.95)}$ is 0.182. Therefore, based on the average SOF (0.17), the soil comprising Reuse Soil Stockpile 3 is suitable for Reuse as backfill within any stratum.

APPENDIX A

ProUCL 4.1 OUTPUT

Nonparametric UCL Statistics for Full Data Sets

User Selected Options

From File	SOF Stockpile 3.wst
Full Precision	OFF
Confidence Coefficient	95%
Number of Bootstrap Operations	2000

SOF

Number of Valid Observations	260
Number of Distinct Observations	170
Minimum	0.03
Maximum	1.507
Mean	0.172
Geometric Mean	0.141
Median	0.141
SD	0.137
Variance	0.0187
Std. Error of Mean	0.00849
Coefficient of Variation	0.796
Skewness	4.594
Mean of log data	-1.957
SD of log data	0.608

95% Useful UCLs	
Student's-t UCL	0.186

95% UCLs (Adjusted for Skewness)	
95% Adjusted-CLT UCL (Chen-1995)	0.188
95% Modified-t UCL (Johnson-1978)	0.186

Non-Parametric UCLs	
95% CLT UCL	0.186
95% Jackknife UCL	0.186
95% Standard Bootstrap UCL	0.186
95% Bootstrap-t UCL	0.189
95% Hall's Bootstrap UCL	0.193

APPENDIX A

ProUCL 4.1 OUTPUT

95% Percentile Bootstrap UCL	0.187
95% BCA Bootstrap UCL	0.19
95% Chebyshev(Mean, Sd) UCL	0.209
97.5% Chebyshev(Mean, Sd) UCL	0.225
99% Chebyshev(Mean, Sd) UCL	0.256

Data appear Lognormal (0.05)
May want to try Lognormal UCLs

Lognormal UCL Statistics for Full Data Sets

User Selected Options

From File	SOF Stockpile 3.wst
Full Precision	OFF
Confidence Coefficient	95%
Number of Bootstrap Operations	2000

SOF

Number of Valid Observations	260
Number of Distinct Observations	170
Minimum of log data	-3.507
Maximum of log data	0.41
Mean of log data	-1.957
SD of log data	0.608
Variance of log data	0.369
Coefficient of Variation of raw data	0.796
Skewness of raw data	4.594

Lilliefors Test Statistic	0.0353
Lilliefors 5% Critical Value	0.0549

Data appear Lognormal at 5% Significance Level

95% UCL (Assuming Normal Distribution)	
95% Student's-t UCL	0.186

ML Estimates Assuming Lognormal Distribution

Mean	0.17
SD	0.113

APPENDIX A
ProUCL 4.1 OUTPUT

Coefficient of Variation	0.668
Skewness	2.303
Median	0.141
80% Quantile	0.236
90% Quantile	0.308
95% Quantile	0.384
99% Quantile	0.58
MVU Estimate of Median	0.141
MVU Estimate of Mean	0.17
MVU Estimate of SD	0.113
MVU Estimate of Standard Error of Mean	0.00694

Non-Parametric UCLs

95% Adjusted-CLT UCL (Adjusted for Skewness, Chen- 1995)	0.188
95% Modified-t UCL (Adjusted for Skewness, Johnson-1978))	0.186
95% Hall's Bootstrap UCL	0.191
95% Bootstrap t UCL	0.189
95% BCA Bootstrap UCL	0.189
95% Chebyshev (Mean, Sd) UCL	0.209
97.5% Chebyshev (Mean, Sd) UCL	0.225
99% Chebyshev (Mean, Sd) UCL	0.256

UCLs (Assuming Lognormal Distribution)

95% H-UCL	0.182
95% Chebyshev (MVUE) UCL	0.2
97.5% Chebyshev (MVUE) UCL	0.213
99% Chebyshev (MVUE) UCL	0.239

Potential UCL to Use	
Use 95% H-UCL	0.182

APPENDIX A
ProUCL 4.1 OUTPUT

ProUCL computes and outputs H-statistic based UCLs for historical reasons only. H-statistic often results in unstable (both high and low) values of UCL95 as shown in examples in the Technical Guide. It is therefore recommended to avoid the use of H-statistic based 95% UCLs. Use of nonparametric methods are preferred to compute UCL95 for skewed data sets which do not follow a gamma distribution.

Note: Suggestions regarding the selection of a 95% UCL are provided to help the user to select the most appropriate 95% UCL. These recommendations are based upon the results of the simulation studies summarized in Singh, Singh, and Iaci (2002) and Singh and Singh (2003). For additional insight, the user may want to consult a statistician.