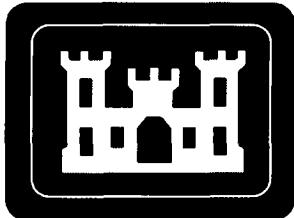

FINAL

POST-REMEDIAL ACTION REPORT FOR THE ST. LOUIS DOWNTOWN SITE CITY-OWNED VICINITY PROPERTY

ST. LOUIS, MISSOURI

SEPTEMBER 1999



U.S. Army Corps of Engineers
St. Louis District Office
Formerly Utilized Sites Remedial Action Program

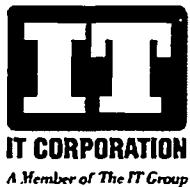
**Remedial Action Summary for City Property
St. Louis Downtown Site,
St. Louis, Missouri**

Submitted to:

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September 27, 1999

Revision 0

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LIST OF ACRONYMS

FUSRAP	Formerly Used Sites Remedial Action Program
HISS	Hazelwood Interim Storage Site
IT	International Technology Corporation
MARSSIM	Multi-Agency Radiation Survey and Site Investigation Manual
MCW	Mallinckrodt Chemical Works
MED	Manhattan Engineer District
ROD	Record of Decision
SAIC	Science Applications International Corporation
SLDS	St. Louis Downtown Site
SOR	Sum of Ratios
SU	survey unit
USACE	U.S. Army Corps of Engineers
VP	Vicinity Property

1.0 INTRODUCTION

This report describes the remedial action conducted as part of the Formerly Utilized Sites Remedial Action Program (FUSRAP) at St. Louis Downtown Site (SLDS), City-Owned Vicinity Property (City VP). The location of SLDS is shown in Figure 1. The City VP is located immediately east of the Mallinckrodt Inc., site in downtown St. Louis, Missouri, as shown in Figure 2. Major features of the City VP are shown in Figure 3.

FUSRAP was established to identify and clean up, or otherwise control, sites where residual radioactive contamination (exceeding current cleanup guidelines) remains from the early years of the nation's atomic weapons program or from commercial (non-governmental) operations that caused conditions necessitating their inclusion in the program by Congress. The U.S. Army Corps of Engineers (USACE) took over the administration and execution of cleanup of FUSRAP sites as authorized by the Energy and Water Development Appropriations Act in October 1997.

The objectives of FUSRAP, as they apply to the St. Louis site, are as follows:

- evaluate sites used to support former Manhattan Engineer District and U.S. Atomic Energy Commission nuclear development activities;
- remove or otherwise control contamination on sites identified as contaminated above current cleanup guidelines;
- achieve and maintain compliance with applicable criteria for the protection of human health and the environment;
- maintain compliance with applicable or relevant and appropriate requirements; and
- certify the site, to the extent practicable, for use without radiological restrictions after remediation.

The International Technology Corporation (IT) was contracted by USACE as the remediation contractor for the removal of contaminated material from the City VP. Science Applications International Corporation (SAIC) was contracted by the USACE to prepare and implement the final status survey plan and to evaluate the final status survey results.

The primary objective of this report is to document and assess the effectiveness of the remedial action conducted at the City VP.

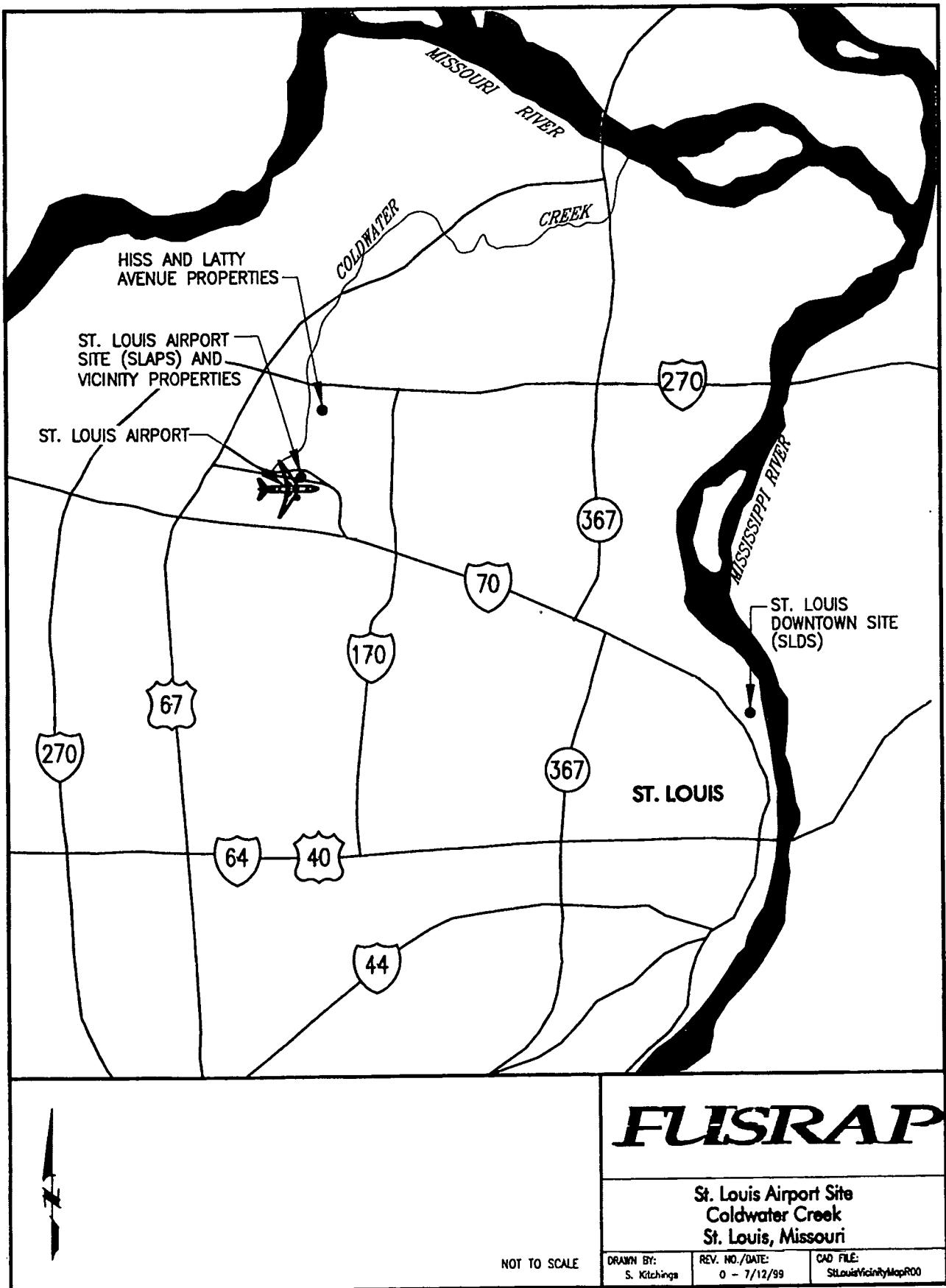


Figure 1. Location of the FUSRAP Sites in St. Louis, Missouri

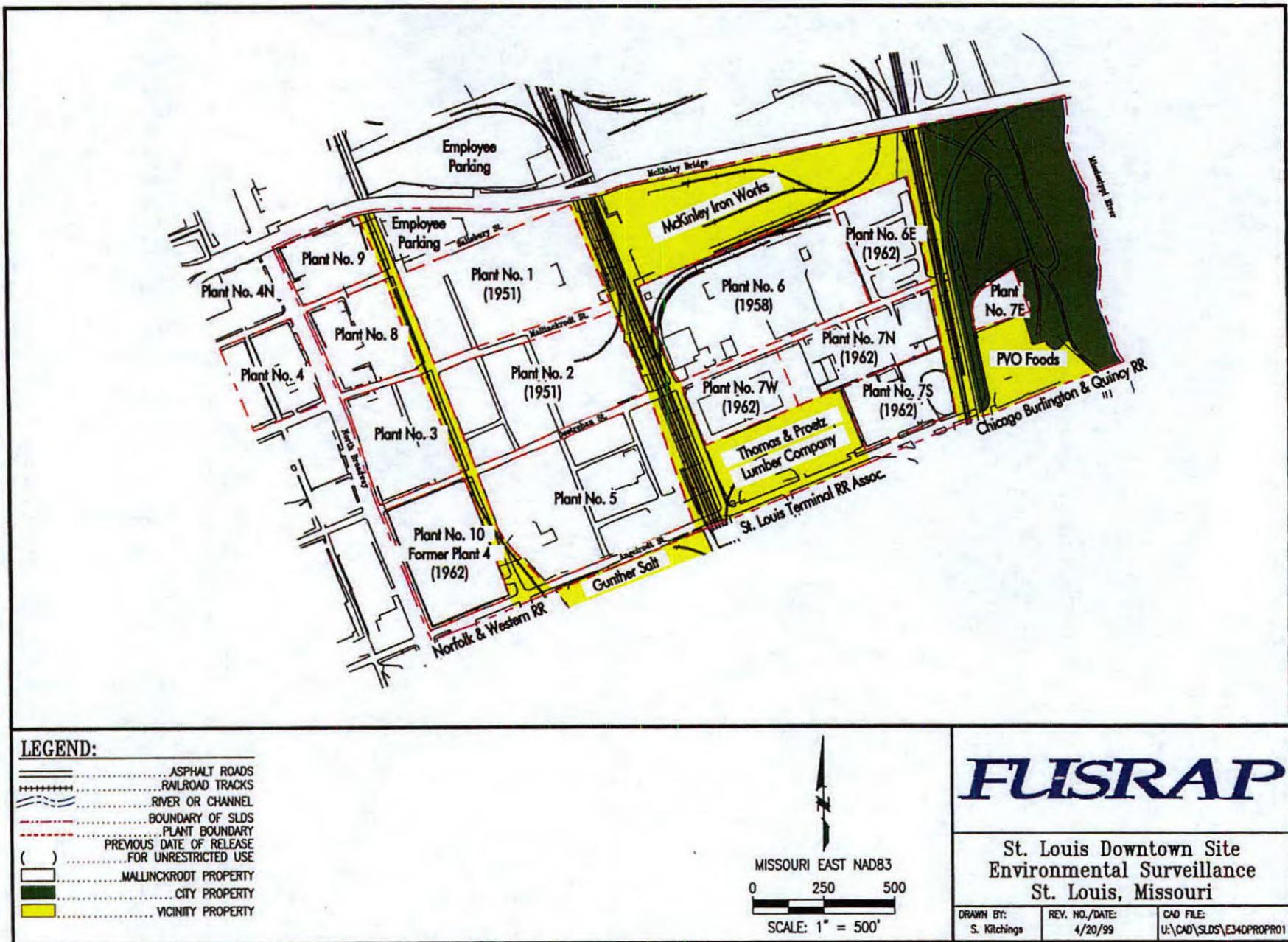


Figure 2. Saint Louis Downtown Site

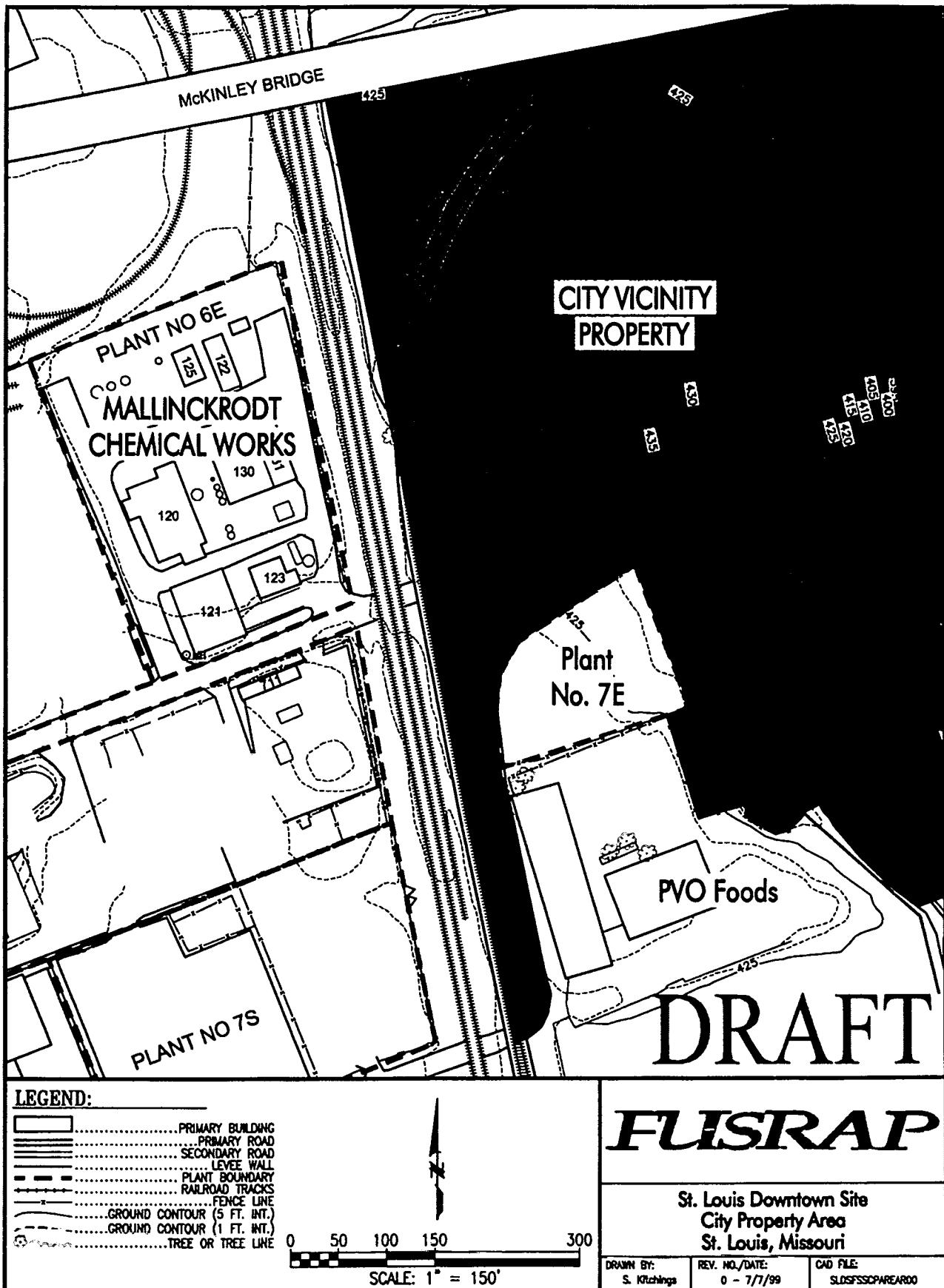


Figure 3. SLDS City Property before Remedial Action

2.0 SITE DESCRIPTION AND HISTORY

Mallinckrodt Inc., or The Mallinckrodt Chemical Works (MCW) (as the St. Louis-based manufacturing operation was previously named), is one of the older chemical manufacturing companies in the United States. In the early 1940s, MCW became the first commercial producer of purified uranium feed materials as a prime contractor of the U. S. Army Corps of Engineers' Manhattan Engineer District (MED) and the U. S. Atomic Energy Commission. MCW's uranium project (which later became the Uranium Division) operated a uranium processing facility in St. Louis, Missouri, from 1942 until 1957.

Within two months, MCW had carried out a bench scale test for the purification of uranium "black oxide" (U_3O_8) using the ether extraction process, built and tested a pilot plant, and constructed and placed into operation a production plant capable of producing more than one ton of purified uranium (uranium dioxide, UO_2) per day (Mallinckrodt 1962). In 1944, driven by the war effort's ever increasing demand for highly purified uranium, the MED began to look for a means of expanding the extraction capabilities of the companies providing the unpurified uranium to MCW. By July 1944, Mallinckrodt began its own development work to extract and purify uranium directly from high-grade pitchblende ore at their St. Louis facility. By 1946, Plant 6, designed to extract uranium from pitchblende ore, was fully operational (Mason 1977).

The majority of the radioactive contamination at SLDS is believed to be the result of fugitive losses of materials (dusts, solid materials, or liquids). During the remedial investigation of the SLDS, analytical results indicated that offsite areas (vicinity properties) surrounding the Mallinckrodt property were also contaminated. The City VP, located east of the Mallinckrodt site and adjacent to the Mississippi River, was most likely contaminated as a result of surface water runoff suspending contaminants and transporting them to the city property. (DOE 1995)

IT's remediation of the City VP began with remedial design in August 1998 and continued through the completion of site restoration on June 11, 1999. Details of the remedial action are included in the *Remedial Action Summary Report for the Remediation of the St. Louis Downtown Site, City-Owned Vicinity Property*, as Appendix A of this document.

After the remedial action was completed, SAIC conducted final status surveys and specified locations for final status soil sampling to verify that the residual radioactivity in the remediated area was below the established cleanup goals. IT collected the samples. Details of the final status survey methodology, and the associated data quality assessment, are included in the *Radiological Final Status Survey Plan for Accessible Soil Within Plant 1, Plant 2, and the City Property at the St. Louis Downtown Site – St. Louis, Missouri* (USACE 1999) and the *City Property Final Status Survey Data Quality Assessment* as Appendix B of this document, respectively.

3.0 REMEDIAL ACTION GUIDELINES

The remedial action guideline for the remediation of the City VP was established in the *Record of Decision for the St. Louis Downtown Site* (ROD) (USACE 1998). The concentration-based remedial action guidelines set forth in the ROD are

- 5 pCi/g for Ra-226 or Th-230 and Ra-228 or Th-232 (surface soils, up to 15 cm depth),
- 15 pCi/g for Ra-226 or Th-230 and Ra-228 or Th-232 (subsurface soils, below 15 cm depth), and
- 50 pCi/g for U-238 (all depths).

Ra-226 is a decay product of Th-230 and Ra-228 is a decay product of Th-232. These guidelines were developed assuming secular equilibrium (equal activity) between the parent-progeny pairs. As a result of processing the uranium ores, the radioactive materials around the St. Louis sites have been disrupted from secular equilibrium. Consequently, these individual radionuclides were not compared individually with their respective guideline. Instead, the higher concentration of the Th-230/Ra-226 pair and the Th-232/Ra-228 pair in each sample were used for comparison with guidelines.

The potential presence of multiple contaminants requires that the sum-of-ratios (SOR) criterion for soils be satisfied to meet the guideline specified in the ROD. To demonstrate compliance with this criterion the above-background concentration of each of the primary contaminants is divided by the respective guideline level for that radionuclide to determine a ratio to the guideline. The SOR is then determined and compared with unity (1.0) as follows:

For the top 15 cm (6 in) of soil,

$$\frac{\text{Higher of Th - 230 or Ra - 226}}{5 \text{ pCi/g}} + \frac{\text{Higher of Th - 232 or Ra - 228}}{5 \text{ pCi/g}} + \frac{\text{U - 238}}{50 \text{ pCi/g}} = \text{SOR}$$

For any 15 cm thick interval deeper than 15 cm,

$$\frac{\text{Higher of Th - 230 or Ra - 226}}{15 \text{ pCi/g}} + \frac{\text{Higher of Th - 232 or Ra - 228}}{15 \text{ pCi/g}} + \frac{\text{U - 238}}{50 \text{ pCi/g}} = \text{SOR}$$

For an area represented by a particular sample set to comply with the soil criteria, the average SOR must be less than 1.0 (within a specified level of confidence).

4.0 REMEDIAL ACTION SUMMARY

The remediation of the impacted area at the City VP involved the removal of radioactively contaminated soil from six separate excavation areas designated A through F in

Figure 4. In addition, several isolated areas exceeding cleanup levels were detected and removed as a result of Class 2 Final Status Survey sampling, which are designated as Areas G in Figure 4. Altogether, approximately 4,300 cubic yards (in situ) of soil were removed. This material was transported to the soil storage and loadout facility on the west side of the City VP where it was loaded into railcars and shipped to a licensed radioactive waste disposal facility.

During the course of the remediation, field surveys were performed and post-remedial action samples were collected. Several post-remedial action samples indicated several small areas of elevated contamination above criteria that required additional remediation beyond the design. After additional soils were removed, these areas were resurveyed and resampled.

After all of the additional areas had been remediated, the areas were subjected to final status verification surveys in accordance with the *Radiological Final Status Survey Plan for Accessible Soil Within Plant 1, Plant 2, and the City Property at the St. Louis Downtown Site – St. Louis Missouri* (USACE 1999). Results of the data assessment indicated that the remediated areas had achieved the remedial action objectives and could be released from radiological restrictions.

Details of the remedial action and post-remedial action survey and sampling activities are included as Appendix A. A detailed discussion of the final status surveys and sampling, as well as the data quality assessment, are included as Appendix B.

5.0 POST-REMEDIAL ACTION MEASUREMENTS

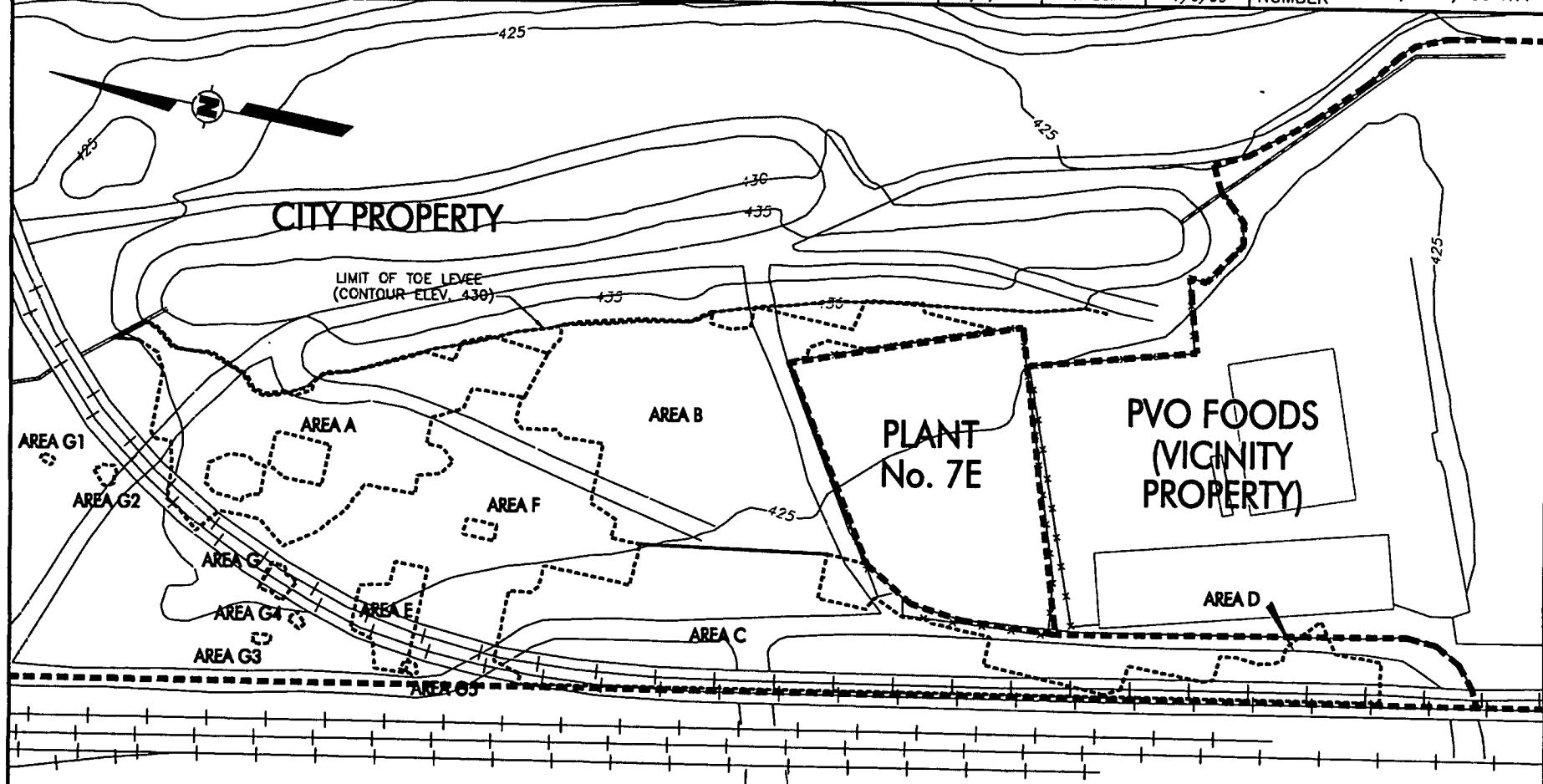
The City VP was divided in accordance with Multi-Agency Radiation Survey and Site Investigation Manual (MARSSIM) Guidance into Class 1 Areas (areas that had radioactive contamination prior to remediation) and a Class 2 Area (an area that has a potential for radioactive contamination due to its proximity to contaminated areas, but is not expected to exceed the guideline) for the purpose of final status sampling. The separate areas were assigned as specified by MARSSIM guidance, which limits survey unit (SU) sizes for different classes of survey areas. An SU in a Class 1 area may be up to 2,000 m². Class 2 SUs may be from 2,000 m² to 10,000 m². The largest Class 1 SU was 1,520 m². The City VP was divided into 9 Class 1 survey units (grouping the isolated areas found during the final status survey excavated as Area G together with excavation Area E as SU5) and 1 Class 2 SU (SU 10) shown in Figure 5. As indicated in Figure 5, there was some overlap among the survey units. As each excavation area was remediated, surface radiation surveys and confirmation sampling were conducted by the remedial action contractor to determine when the cleanup criteria had been achieved. After IT had determined that the criteria had been met, SAIC conducted a walkover survey of the area and specified sample locations for the final status sampling. The reference grid established for the collection of final status samples is described in USACE 1999. IT collected the final status samples.

The boundaries of the survey units were kept consistent with the excavation areas, where possible, within the MARSSIM constraint on the size of a survey unit. Area A, for example, was too large to be a single survey unit, thus it was divided into Survey units 1 and 2 with areas of 1,070 m² and 1,000 m² respectively. The additional areas requiring excavation discovered during the Final Status Survey were grouped together and included with the smallest excavation

PLOT DATE: 6/11/99
PLOT SCALE: 1 = 100

X-REF	DRAWN BY	EDIT BY	APPROVED BY	DRAWING NUMBER
	A. Smith 6/5/99	P. Holm 7/9/99	J. Bain 7/9/99	99013/DWGS/F36-A44

FUS264P/092999



LEGEND:

- LIMITS OF WORK AREAS
- AREA OF EXCAVATION
- AREA OF EXCAVATION

SOURCE: I 1999

FUSRAP
U.S. ARMY CORPS OF ENGINEERS
KANSAS CITY DISTRICT (CENWK)
ST. LOUIS DISTRICT (CEMVS)

FIGURE 3
EXCAVATION AREAS AT THE CITY VP
CITY PROPERTY
ST. LOUIS DOWNTOWN SITE
ST. LOUIS, MISSOURI

Figure 4. Excavation Areas at the City VP

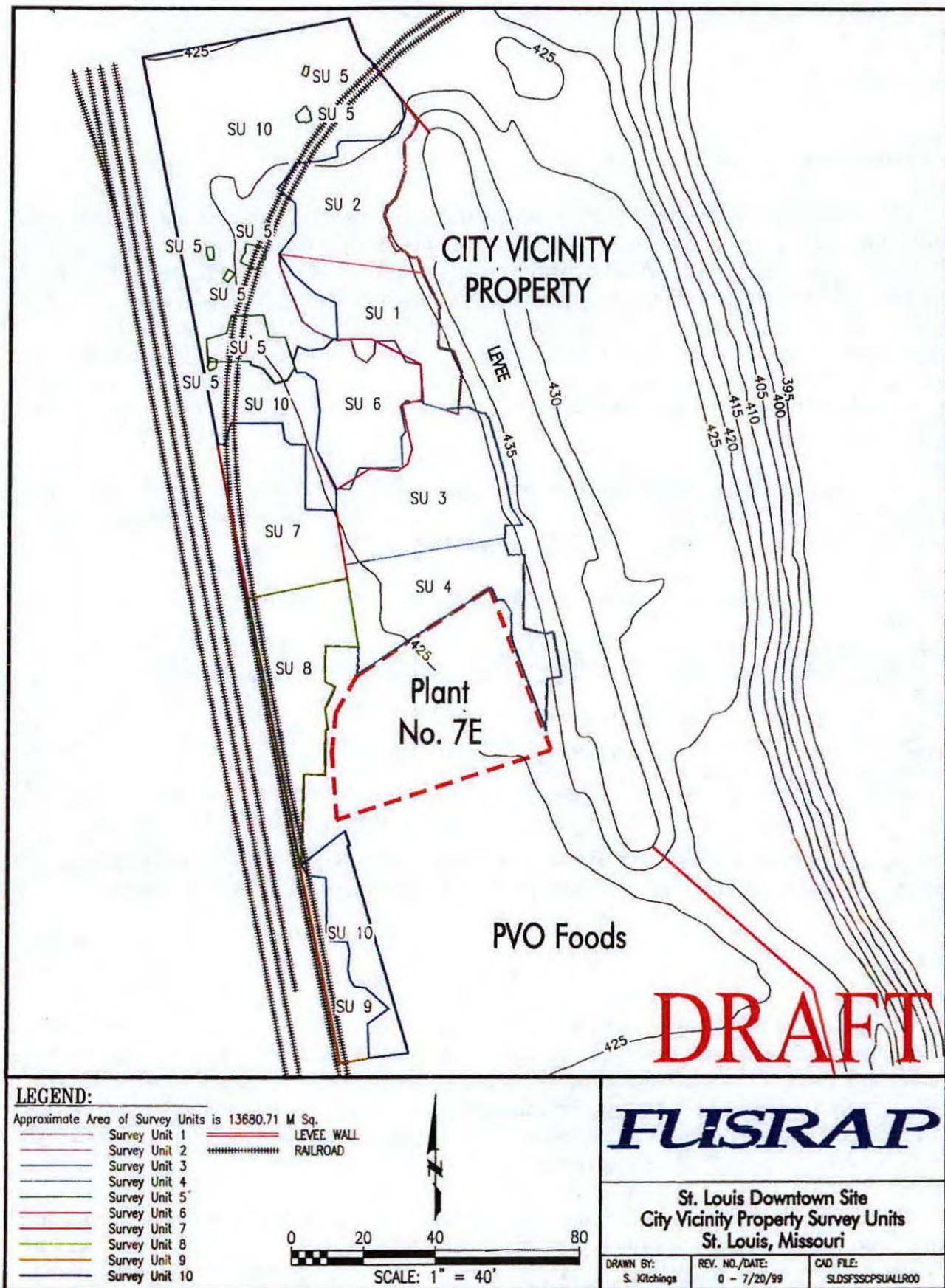


Figure 5. MARSSIM Final Status Survey Units at the City VP

area (Area E) as SU 5, even though the components of SU5 were not contiguous. Areas of the site that were not excavated were combined in the Class 2 survey unit SU 10, which had a total area of 5,058 m².

5.1 SURVEY MEASUREMENTS

Sodium iodide radiation detection instruments were used to detect areas of elevated activity during the excavation of contaminated soils. When an area was completely excavated, a 100 percent walkover survey was also performed with the sodium iodide radiation detection instrument and documented prior to the collection of confirmation samples. Locations exceeding the action level established in the field were investigated and either sampled or remediated as deemed appropriate. When additional soils were removed, the area was re-scanned to demonstrate effectiveness of the remediation. The final status survey walkover and sampling were not conducted until the confirmation survey and samples indicated that the cleanup criteria had been attained.

The field radiation detection survey instruments (and their functional and performance specifications) used during the surveys are listed in Table 1 below. Detection sensitivities were determined following the guidance of NUREG-1507 (NRC 1998).

Table 1. Radiological Field Survey Instruments

Description	Application	Approximate Detection Sensitivity (pCi/g)
Ludlum Model 44-10; 2-inch × 2-inch NaI gamma scintillation detector	Gamma scans of all surfaces	Th-230=2120; Ra-226=2.8; and U-238= 39
Ludlum Model 2221; Scaler/ratemeter (with earphones)	Readout instrument for gamma scintillation detector	N/A

Refinements to the detection sensitivity estimates were made, as necessary, on the basis of actual instrument response and background data gathered during site survey activities.

5.2 SOIL SAMPLING

When the gamma walkover survey and confirmation samples indicated the area was below criteria, a random-start sampling location pattern was established, and soil samples were collected following the Final Status Survey Plan (USACE 1999). Samples were collected (approximately 1 kg of soil per sample) to a depth of 15 cm, packaged and uniquely identified in accordance with chain-of-custody and site-specific procedures and transported to the laboratory for analysis. Sample locations are shown in Figure 6.

Precision and accuracy are determined by the analysis of field duplicate samples and split samples. Precision is measured by comparing the analytical results of the field duplicates, which are samples taken at the same location as the sample they duplicate and analyzed in the same

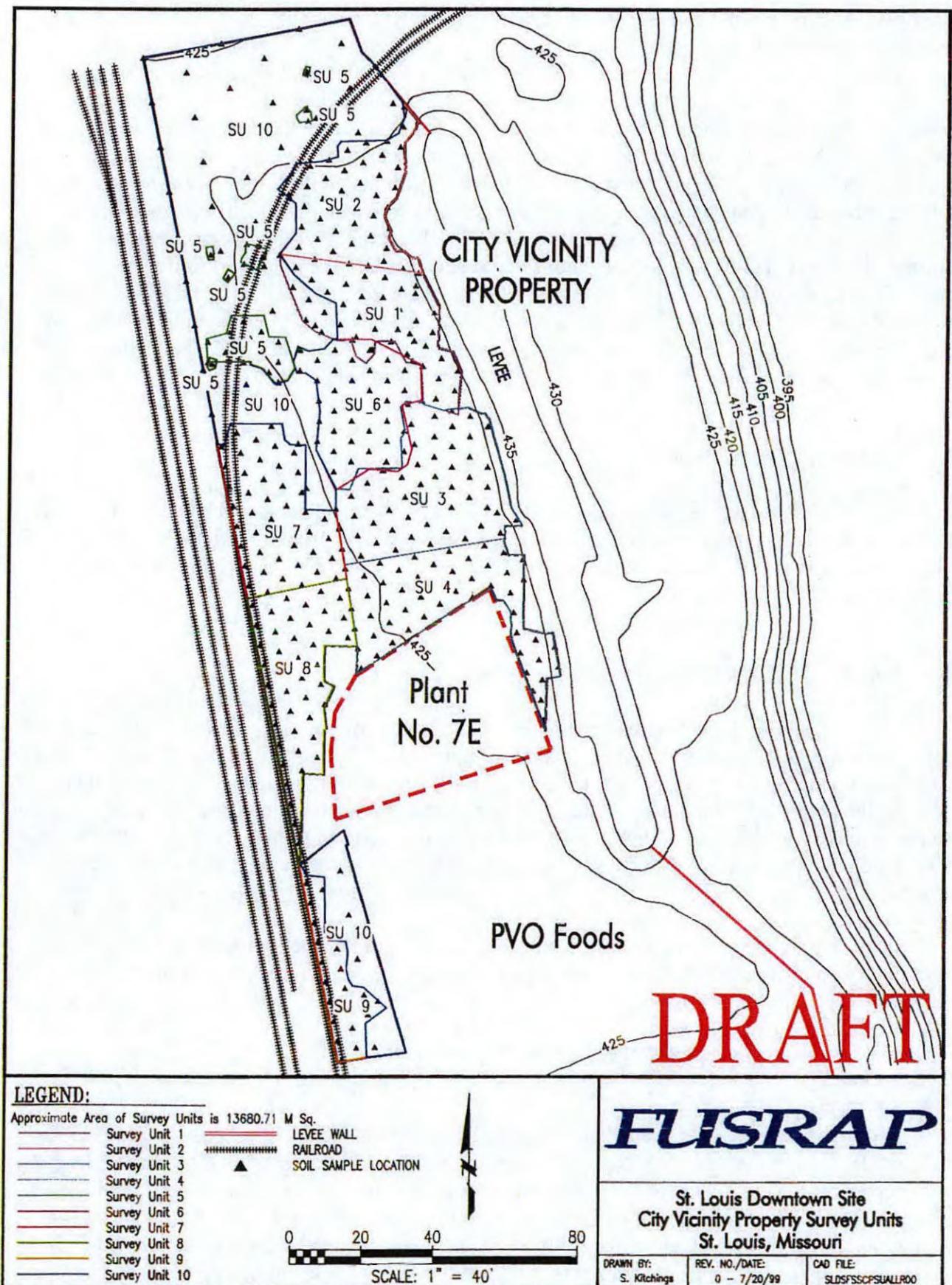


Figure 6. MARSSIM Sample Locations at the City VP

laboratory. Accuracy is measured by comparing the results of the split samples, which are aliquots of samples analyzed by a separate laboratory. The split samples were analyzed by Quanterra Environmental Services. The DQOs established for this Final Status Survey require that about 20% of the total number of samples should be duplicated and split with another laboratory. A total of 27 splits and duplicates were obtained out of 432 samples collected during the Final Status Survey, or 1 field duplicate and 1 split sample for every 16 regular samples. The results are shown in Table 2. The objectives set by the Final Status Survey Plan were to achieve a relative percent difference between duplicate samples and split samples of 30% or less within the statistical counting error for values determined at levels greater than 2 pCi/g. Measurements determined at levels below 2 pCi/g were considered acceptable if the values were within 1 pCi/g. Of the 27 sets of quality assurance samples, 94% of the field duplicate comparisons indicated acceptable precision and 93% of the QA split sample comparisons indicated acceptable accuracy. Given the inherent heterogeneity of soil and the low level of activity measured, the precision and accuracy are acceptable and the data are useable for their intended purpose.

5.3 SAMPLE ANALYSIS

Samples were transferred to the USACE radioanalytical laboratory located at the HISS for analyses in accordance with documented laboratory-specific standard methods (SAIC 1999). Samples were dried, homogenized, and analyzed for U-238, Th-230, Ra-226, U-235, Pa-231, Ac-227, Th-232, Ra-228, and Th-228.

5.4 DATA EVALUATION

The evaluation of final status sample data included the calculation of the sum-of-ratios to determine if the SOR exceeded 1.0 in order to determine compliance with the ROD. Where additional remediation was performed, based on survey or sampling results, scans and sampling of the newly excavated area were repeated. Where screening analyses did not indicate residual activity in excess of limits, an aliquot was obtained from each sample for Th-230 analysis, and the remainder of the sample was sealed in calibrated-geometry containers for high-resolution gamma spectrometry.

A minimum of 5 percent replicate samples were collected for field quality control purposes. Other quality control activities were incorporated into specific field and analytical procedures.

6.0 POST-REMEDIATION STATUS

The cleanup criteria presented in the ROD are considered to have been attained if the average SOR in an SU is less than unity. The subsurface criteria were used in all excavated areas as all such areas were to be backfilled with at least 15 cm of cover following final status sampling. The SOR was based on the surface criteria in the Class 2 area (SU10) for the surface samples and on the subsurface criteria for samples taken at depths exceeding 15 cm. The analytical results for the final status samples indicated that the residual radioactivity on the City VP

Table 2. Split and Field Duplicate Samples

Area	Sample Type ^a	Station	Uranium-	Uranium-238	Uranium-	Uranium-	Thorium-	Thorium-	Thorium-	Radium-226	Radium-226	Radium-226	Thorium-	Thorium-	Thorium-	Radium-228	Radium-228	Radium-228	Radium-228
			238 Qual. ²	(pCi/g)	238 Error	238 MDA	230 Qual. ²	(pCi/g)	230 Error	Qual. ³	(pCi/g)	Error	MDA	232 Qual. ³	(pCi/g)	232 Error	MDA	Qual. ³	(pCi/g)
SUI	FD	SLD010	<	3.52	1.52	3.66	3.97	1.05	0.12	2.40	0.15	0.06	1.21	0.50	0.12	0.85	0.11	0.11	0.09
SUI	GR	SLD010		4.01	1.43	3.17	3.51	1.00	0.13	1.83	0.12	0.06	1.14	0.50	0.23	1.04	0.12	0.08	
SUI	SP	SLD010		9.44	0.83	0.25	2.99	0.78	0.08	2.42	0.12	0.04	1.13	0.35	0.07	1.44	0.11	0.06	
SUI	FD	SLD024	<	1.93	1.47	3.55	3.48	1.08	0.33	1.97	0.13	0.06	1.08	0.53	0.28	0.85	0.10	0.08	
SUI	GR	SLD024	<	3.02	1.52	3.71	2.71	0.82	0.26	2.43	0.15	0.06	0.70	0.37	0.12	0.80	0.10	0.09	
SUI	SP	SLD024		2.65	0.37	0.24	3.99	1.06	0.11	2.25	0.12	0.05	0.90	0.31	0.10	0.94	0.09	0.11	
SU10	FD	SLD368	<	1.36	0.73	3.06	2.70	0.96	0.17	10.90	0.07	0.04	2.01	0.80	0.31	0.57	0.07	0.07	
SU10	GR	SLD368	<	0.85	0.78	3.34	2.89	0.95	0.15	10.94	0.07	0.04	0.71	0.41	0.15	0.50	0.07	0.07	
SU10	SP	SLD368	<	0.75	0.00	0.48	1.16	0.00	0.04	10.93	0.00	0.04	0.67	0.00	0.04	<	0.47	0.00	0.18
SU10	FD	SLD402	<	1.04	1.43	3.81	2.23	0.81	0.15	10.87	0.07	0.09	1.12	0.54	0.15	1.01	0.11	0.08	
SU10	GR	SLD402	<	1.98	1.73	3.84	1.47	0.62	0.27	10.88	0.07	0.06	1.06	0.51	0.14	1.02	0.12	0.08	
SU10	SP	SLD402		0.45	0.00	0.23	1.33	0.00	0.18	10.70	0.00	0.04	1.00	0.00	0.14	0.87	0.00	0.09	
SU10	FD	SLD429		4.82	1.49	2.60	2.92	0.94	0.32	1.30	0.09	0.04	1.16	0.53	0.14	0.60	0.08	0.07	
SU10	GR	SLD429		5.18	1.55	2.83	3.47	1.06	0.14	1.21	0.09	0.05	1.01	0.50	0.14	0.57	0.07	0.07	
SU10	SP	SLD429		3.91	0.00	0.31	2.14	0.00	0.07	1.18	0.00	0.05	0.79	0.00	0.06	0.53	0.00	0.11	
U10 Su	FD	SLD368	<	0.58	1.39	3.63	2.08	0.76	0.32	10.67	0.06	0.05	0.74	0.41	0.14	0.84	0.10	0.08	
U10 Su	GR	SLD368	<	1.14	1.45	4.03	2.76	0.97	0.31	11.15	0.09	0.05	1.05	0.54	0.17	0.64	0.09	0.08	
U10 Su	SP	SLD368		0.74	0.00	0.23	2.24	0.00	0.06	11.17	0.00	0.04	0.86	0.00	0.08	0.66	0.00	0.10	
U10 Su	FD	SLD402	<	3.78	2.73	5.60	3.79	1.06	0.23	3.14	0.20	0.09	1.04	0.47	0.23	1.03	0.14	0.13	
U10 Su	GR	SLD402		7.57	2.76	4.62	4.25	1.20	0.14	2.43	0.16	0.16	1.35	0.58	0.14	1.01	0.13	0.13	
U10 Su	SP	SLD402		2.14	0.00	0.39	4.98	0.00	0.12	2.48	0.00	0.04	1.23	0.00	0.09	0.93	0.00	0.08	
U10 Su	FD	SLD429	<	3.31	1.86	3.74	4.19	1.25	0.16	1.70	0.12	0.06	1.57	0.67	0.16	0.89	0.12	0.10	
U10 Su	GR	SLD429	<	3.93	2.51	4.31	3.51	1.06	0.14	1.59	0.11	0.06	1.89	0.71	0.14	0.81	0.11	0.09	
U10 Su	SP	SLD429		1.51	0.00	0.24	2.50	0.00	0.11	1.54	0.00	0.05	1.18	0.00	0.12	0.76	0.00	0.11	
SU2	FD	SLD048	<	2.80	1.92	4.82	4.01	1.12	0.13	2.43	0.16	0.06	1.01	0.47	0.13	0.86	0.12	0.10	
SU2	GR	SLD048	<	2.96	1.38	3.70	4.48	1.22	0.33	2.31	0.15	0.06	1.16	0.52	0.13	0.92	0.11	0.09	
SU2	SP	SLD048		2.51	0.49	0.32	4.32	1.14	0.14	2.72	0.16	0.10	1.07	0.36	0.10	0.96	0.17	0.19	
SU2	FD	SLD073	<	0.66	1.01	2.95	1.60	0.69	0.17	0.84	0.07	0.03	1.04	0.54	0.17	0.34	0.05	0.06	
SU2	GR	SLD073	<	1.25	1.01	3.11	2.21	0.77	0.34	0.85	0.07	0.04	1.10	0.50	0.14	0.41	0.07	0.06	
SU2	SP	SLD073	<	1.01	0.47	0.50	1.61	0.44	0.09	0.78	0.08	0.09	0.43	0.16	0.08	<	0.60	0.29	0.24
SU2	FD	SLD083	<	1.37	1.39	4.07	1.63	0.72	0.42	1.01	0.09	0.05	1.68	0.72	0.17	1.10	0.12	0.09	
SU2	GR	SLD083	<	0.92	0.94	4.00	2.59	0.95	0.17	0.98	0.08	0.05	1.56	0.70	0.32	1.02	0.11	0.07	
SU2	SP	SLD083	<	-1.04	0.43	0.48	1.81	0.56	0.17	0.82	0.09	0.09	1.30	0.43	0.14	<	1.01	0.37	0.32
SU3	FD	SLD114	<	0.77	1.82	4.14	7.79	1.81	0.33	2.28	0.15	0.06	1.16	0.51	0.13	0.93	0.11	0.08	
SU3	GR	SLD114	<	2.96	1.75	4.01	7.83	1.83	0.34	2.35	0.15	0.06	1.09	0.50	0.13	0.89	0.11	0.09	
SU3	SP	SLD114		2.48	0.00	0.18	4.19	0.00	0.16	4.47	0.00	0.05	0.49	0.00	0.09	0.83	0.00	0.10	
SU3	FD	SLD416	<	3.40	1.18	4.83	2.56	0.84	0.14	2.99	0.21	0.06	1.10	0.51	0.14	1.05	0.12	0.10	
SU3	GR	SLD416	<	3.71	1.16	4.26	3.09	0.95	0.14	2.10	0.16	0.06	1.05	0.49	0.14	0.83	0.10	0.09	
SU3	SP	SLD416		4.20	0.00	0.41	3.30	0.00	0.03	2.80	0.00	0.04	1.20	0.00	0.03	0.79	0.00	0.09	
SU4	FD	SLD137	<	1.31	0.71	2.98	2.14	0.74	0.33	1.25	0.10	0.04	1.02	0.47	0.13	0.75	0.09	0.06	
SU4	GR	SLD137	<	2.07	0.81	3.08	3.44	1.00	0.32	1.34	0.10	0.04	1.09	0.49	0.13	0.69	0.09	0.07	
SU4	SP	SLD137		1.87	0.00	0.20	1.70	0.00	0.09	1.31	0.00	0.05	0.73	0.00	0.08	0.73	0.00	0.10	
SU4	FD	SLD149	<	1.13	0.69	2.58	4.69	1.09	0.22	0.98	0.08	0.04	0.79	0.36	0.18	0.49	0.07	0.05	
SU4	GR	SLD149	<	2.28	0.86	3.12	2.23	0.75	0.31	1.25	0.10	0.04	1.06	0.48	0.13	0.55	0.08	0.06	
SU4	SP	SLD149		2.04	0.00	0.17	4.72	0.00	0.17	1.58	0.00	0.05	1.33	0.00	0.11	0.44	0.00	0.10	
SU4	FD	SLD175	<	0.49	0.40	2.02	0.68	0.37	0.23	0.39	0.04	0.03	0.20	0.04	0.04	0.20	0.04	0.04	
SU4	GR	SLD175	<	0.83	0.54	2.09	0.83	0.43	0.32	0.38	0.04	0.03	0.34	0.26	0.13	0.17	0.04	0.04	
SU4	SP	SLD175	<	0.11	0.00	0.25	0.93	0.00	0.14	0.44	0.00	0.04	0.21	0.00	0.13	<	0.13	0.00	0.12
SU4	FD	SLD188	<	3.79	2.08	5.40	4.62	1.20	0.23	2.22	0.15	0.07	1.04	0.47	0.12	0.95	0.14	0.11	
SU4	GR	SLD188		4.29	2.03	4.09	3.63	1.02	0.23	2.12	0.14	0.06	1.09	0.48	0.12	0.90	0.12	0.12	

Table 2. Split and Field Duplicate Samples

Area	Sample Type ¹	Station	Uranium-238 Qual. ²	Uranium-238 (pCi/g)	Uranium-238 Error	Uranium-238 MDA	Thorium-230 Qual. ²	Thorium-230 (pCi/g)	Thorium-230 Error	Thorium-230 MDA	Radium-226 Qual. ²	Radium-226 (pCi/g)	Radium-226 Error	Radium-226 MDA	Thorium-232 Qual. ²	Thorium-232 (pCi/g)	Thorium-232 Error	Thorium-232 MDA	Radium-228 Qual. ²	Radium-228 (pCi/g)	Radium-228 Error	Radium-228 MDA
SU4	SP	SLD188	<	3.64	0.00	0.22	<	3.78	0.00	0.21	<	2.46	0.00	0.06	<	0.96	0.00	0.15	<	0.88	0.00	0.12
SU5	FD	SLD197	<	4.04	1.27	4.85	<	2.67	0.85	0.33	<	3.36	0.24	0.06	<	1.40	0.57	0.13	<	1.11	0.13	0.10
SU5	GR	SLD197	<	4.49	1.35	5.24	<	2.76	0.85	0.13	<	3.43	0.24	0.07	<	1.39	0.56	0.23	<	1.11	0.13	0.10
SU5	SP	SLD197	<	3.42	0.00	0.20	<	3.13	0.00	0.05	<	3.36	0.00	0.05	<	1.05	0.00	0.03	<	0.98	0.00	0.10
SU5	FD	SLD432	<	2.48	0.99	3.70	<	2.81	0.98	0.31	<	1.54	0.10	0.05	<	0.92	0.50	0.17	<	0.71	0.09	0.07
SU5	GR	SLD432	<	2.00	0.78	2.49	<	2.11	0.73	0.13	<	1.12	0.08	0.04	<	0.79	0.42	0.29	<	0.54	0.07	0.06
SU5	SP	SLD432	<	1.59	0.25	1.82	<	0.10	<	<	<	1.22	0.05	<	<	0.91	0.08	<	<	0.68	0.00	0.10
SU6	FD	SLD231	<	2.07	1.01	3.73	<	9.31	3.25	0.49	<	1.92	0.14	0.05	<	1.03	0.91	0.90	<	0.76	0.10	0.09
SU6	GR	SLD231	<	1.60	0.83	4.00	<	1.63	0.64	0.14	<	1.61	0.12	0.04	<	0.61	0.37	0.14	<	0.68	0.08	0.06
SU6	SP	SLD231	<	3.02	0.00	0.20	<	3.62	0.00	0.13	<	2.72	0.00	0.06	<	1.09	0.00	0.06	<	1.03	0.00	0.12
SU6	FD	SLD253	<	3.35	1.16	4.17	<	3.12	0.93	0.32	<	2.46	0.18	0.05	<	1.03	0.47	0.13	<	0.86	0.10	0.08
SU6	GR	SLD253	<	2.66	1.17	4.83	<	3.17	0.99	0.27	<	2.42	0.17	0.05	*	1.22	0.55	0.14	<	0.85	0.11	0.08
SU6	SP	SLD253	<	2.55	0.00	0.21	<	4.46	0.00	0.09	<	2.74	0.00	0.05	<	1.06	0.00	0.07	<	0.94	0.00	0.11
SU7	FD	SLD265	<	10.15	1.91	4.36	<	2.87	0.89	0.24	<	0.05	0.00	0.00	<	0.62	0.36	0.13	<	0.47	0.08	0.07
SU7	GR	SLD265	<	10.60	1.98	3.33	<	5.58	1.46	0.32	<	1.56	0.12	0.05	<	0.83	0.45	0.27	<	0.48	0.08	0.08
SU7	SP	SLD265	<	10.70	0.00	0.29	<	3.59	0.00	0.06	<	1.85	0.00	0.05	<	0.47	0.00	0.03	<	0.48	0.00	0.17
SU7	FD	SLD288	<	1.05	0.89	2.33	<	1.53	0.61	0.25	<	0.65	0.05	0.03	<	0.55	0.34	0.13	<	0.18	0.04	0.04
SU7	GR	SLD288	<	1.11	1.07	2.90	<	1.30	0.54	0.13	<	0.71	0.06	0.04	<	0.14	0.06	0.06	<	0.14	0.06	0.06
SU7	SP	SLD288	<	0.95	0.00	0.19	<	1.32	0.00	0.19	<	0.65	0.00	0.05	<	0.22	0.00	0.12	<	0.28	0.00	0.17
SU8	FD	SLD315	<	2.36	0.86	3.50	<	3.29	1.06	0.16	<	1.57	0.12	0.05	<	1.33	0.60	0.16	<	0.91	0.10	0.07
SU8	GR	SLD315	<	1.56	0.82	3.13	<	2.67	0.83	0.30	<	1.69	0.12	0.05	<	1.66	0.61	0.23	<	0.84	0.09	0.06
SU8	SP	SLD315	<	2.42	0.00	0.21	<	2.47	0.00	0.09	<	1.44	0.00	0.05	<	0.68	0.00	0.09	<	0.84	0.00	0.10
SU8	FD	SLD327	<	4.01	1.67	3.32	<	1.89	0.72	0.15	<	1.39	0.11	0.05	<	1.44	0.62	0.27	<	0.71	0.10	0.07
SU8	GR	SLD327	<	3.05	1.24	2.70	<	1.85	0.70	0.34	<	1.17	0.09	0.04	<	0.39	0.30	0.26	<	0.60	0.08	0.06
SU8	SP	SLD327	<	4.21	0.00	0.22	<	1.78	0.00	0.13	<	1.60	0.00	0.04	<	0.85	0.00	0.10	<	0.87	0.00	0.08
SU8	FD	SLD345	<	12.07	2.01	4.95	<	4.59	1.20	0.13	<	2.08	0.16	0.07	<	0.51	0.32	0.13	<	0.69	0.11	0.10
SU8	GR	SLD345	<	6.05	1.67	4.16	<	2.02	0.68	0.33	<	1.39	0.11	0.06	<	0.51	0.30	0.11	<	0.60	0.09	0.08
SU8	SP	SLD345	<	13.60	0.00	0.20	<	4.08	0.00	0.07	<	1.94	0.00	0.05	<	0.67	0.00	0.09	<	0.70	0.00	0.09
SU9	FD	SLD356	<	6.36	2.06	3.80	<	3.38	1.14	0.47	<	2.75	0.17	0.07	<	1.08	0.56	0.17	<	1.09	0.13	0.10
SU9	GR	SLD356	<	6.47	2.79	5.96	<	3.64	1.28	0.35	<	2.79	0.18	0.09	<	2.08	0.90	0.20	<	0.98	0.14	0.12
SU9	SP	SLD356	<	3.22	0.00	0.18	<	5.06	0.00	0.16	<	2.74	0.00	0.05	<	0.83	0.00	0.09	<	0.74	0.00	0.10

¹FD = Field Duplicate Sample; GR = Grab Sample; SP = Split Sample² = < indicates analyte not detected in sample

meets the requirements of the remedial design and are below the concentration-based guidelines. Only a few individual samples had SORs calculated for final status survey samples that exceeded 1.0. The mean SOR in each Survey Unit was well below the cleanup goal of 1.0. Table 3 summarizes the final status sample results for the primary radionuclides detected at the site. Table 4 presents a summary for each survey unit. Table 5 presents the data summary for the reference (background) sample set. Although the number of nondetects for some of the analytes may seem high, the detection limit achieved was less than the MARSSIM recommendation of 50% of the DCGL and, in most cases, was less than 10% of the DCGL. The complete final status sample data set is presented in Appendix B of this report.

In addition to evaluating the data against the cleanup criteria established by the ROD, dose calculations were performed to determine the dose to the potential maximally exposed individual. This assessment revealed that the maximally exposed industrial/commercial worker spending an entire 25-year career working within the most elevated remaining area detected would receive a dose of only 10 mrem/yr, less than half the ARAR dose limit. No credit was taken for the shielding afforded by the soil covering the contaminated material in calculating the dose to the maximally exposed individual. A sitewide dose was also calculated using the actual cover conditions (i.e., cover equal to backfill dept in the Class 1 areas and no cover in the Class 2 areas). The additional dose above background for the City Property as a whole was estimated at 0.6 mrem/yr. The detailed evaluations performed to verify compliance with the criteria are included in Appendix B of this report.

Table 3. Summary of Final Status Sample Results from the City VP

Table 4. Summary of Final Status Sample Results from the City VP by Survey Unit

Statistic	U-238 (pCi/g)	Th-230 (pCi/g)	Ra-226 (pCi/g)	U-235 (pCi/g)	Pa-231 (pCi/g)	Ac-227 (pCi/g)	Th-232 (pCi/g)	Ra-228 (pCi/g)	Th-228 (pCi/g)	SOR ¹ _G	SOR ¹ _N
Survey Unit Data Summary SU 1 (Class 1) 1,071 m²											
Mean	3.05	4.99	2.49	0.23	0.15	0.13	1.02	0.87	1.12	0.47	0.24
Median	3.12	4.02	2.15	0.23	0.13	0.11	1.04	0.88	1.15	0.41	0.17
UCL-95	3.34	5.89	2.77	0.26	0.22	0.17	1.09	0.92	1.21	-	-
St. Dev	1.20	3.21	1.27	0.13	0.27	0.14	0.28	0.20	0.37	0.23	0.22
Range	4.12	6.92	6.22	0.42	1.07	0.46	1.14	0.82	1.15	0.54	0.45
Maximum	5.82	19.60	6.45	0.58	0.66	0.67	1.72	1.24	2.02	1.41	1.19
Detects ²	5	49	49	16	0	3	49	49	49	-	-
No. Samples (n)	49	49	49	49	49	49	49	49	49	49	49
Survey Unit Data Summary SU 2 (Class 1) 1,000 m²											
Mean	2.68	4.26	2.26	0.23	0.31	0.18	1.09	0.80	1.09	0.41	0.19
Median	2.17	3.11	1.94	0.22	0.31	0.13	1.11	0.84	1.07	0.32	0.10
UCL-95	3.14	5.19	2.73	0.26	0.41	0.22	1.16	0.84	1.22	-	-
St. Dev	1.81	3.37	1.38	0.13	0.41	0.18	0.28	0.18	0.41	0.25	0.24
Range	4.39	6.30	3.98	0.49	2.59	0.48	1.18	0.96	1.84	0.49	0.38
Maximum	8.86	18.61	6.65	0.50	2.25	0.75	1.61	1.13	2.24	1.37	1.15
Detects ²	6	44	44	19	0	5	44	44	44	-	-
No. Samples (n)	44	44	44	44	44	44	44	44	44	44	44
Survey Unit Data Summary SU 3 (Class 1) 1,520 m²											
Mean	2.79	5.20	1.97	0.19	0.25	0.11	1.19	0.94	1.38	0.48	0.26
Median	2.61	4.28	1.94	0.19	0.25	0.08	1.15	0.88	1.28	0.44	0.21
UCL-95	3.07	6.12	2.09	0.22	0.34	0.14	1.30	1.00	1.51	-	-
St. Dev	1.16	3.02	0.48	0.10	0.36	0.13	0.46	0.24	0.54	0.22	0.22
Range	6.15	10.74	2.63	0.47	1.66	0.69	2.44	1.04	1.84	0.76	0.75
Maximum	6.85	12.96	3.67	0.41	1.34	0.64	3.06	1.84	3.69	1.14	0.91
Detects ²	7	51	51	19	0	2	50	51	51	-	-
No. Samples (n)	51	51	51	51	51	50	51	51	51	51	51
Survey Unit Data Summary SU 4 (Class 1) 1,213 m²											
Mean	3.18	3.90	1.90	0.22	0.24	0.14	0.97	0.75	1.10	0.40	0.19
Median	1.94	2.87	1.39	0.17	0.21	0.09	0.93	0.77	1.14	0.33	0.11
UCL-95	4.23	4.64	2.33	0.28	0.31	0.19	1.05	0.81	1.18	-	-
St. Dev	4.67	3.77	1.89	0.26	0.29	0.20	0.37	0.26	0.37	0.29	0.28
Range	6.69	11.17	2.67	0.45	0.98	0.26	1.54	0.92	1.45	0.87	0.72
Maximum	34.56	22.73	12.77	1.79	1.46	0.92	2.07	1.33	2.02	1.67	1.44
Detects ²	10	55	54	17	0	3	54	54	54	-	-
No. Samples (n)	55	55	55	55	55	55	55	55	55	55	55
Survey Unit Data Summary SU 5 (Class 1) 336 m²											
Mean	7.12	4.52	2.76	0.44	0.16	0.19	1.14	0.84	1.30	0.53	0.30
Median	4.52	4.20	2.69	0.38	0.16	0.18	1.11	0.85	1.29	0.53	0.31
UCL-95	10.40	5.38	3.16	0.63	0.28	0.24	1.33	0.93	1.42	-	-
St. Dev	6.07	1.82	1.12	0.27	0.34	0.13	0.40	0.25	0.33	0.22	0.21
Range	25.32	6.21	3.61	1.17	1.21	0.61	1.01	0.94	1.24	0.97	0.92
Maximum	26.80	8.32	5.60	1.22	0.78	0.59	2.20	1.32	1.86	1.17	0.94
Detects ²	14	23	23	18	0	2	23	23	23	-	-
No. Samples (n)	23	23	23	23	23	23	23	23	23	23	23

Table 4. Summary of Final Status Sample Results from the City VP by Survey Unit (cont.)

Statistic	U-238 (pCi/g)	Th-230 (pCi/g)	Ra-226 (pCi/g)	U-235 (pCi/g)	Pa-231 (pCi/g)	Ac-227 (pCi/g)	Th-232 (pCi/g)	Ra-228 (pCi/g)	Th-228 (pCi/g)	SOR ¹ _G	SOR ¹ _N
Survey Unit Data Summary SU 6 (Class 1) 1,004 m²											
Mean	2.74	4.60	2.18	0.22	0.21	0.12	1.10	0.82	1.32	0.44	0.21
Median	2.44	3.86	2.08	0.21	0.23	0.14	1.10	0.80	1.27	0.40	0.17
UCL-95	3.03	5.37	2.37	0.25	0.27	0.15	1.16	0.86	1.43	-	-
St. Dev	1.09	2.46	0.63	0.10	0.20	0.08	0.24	0.15	0.41	0.18	0.18
Range	2.92	5.73	1.66	0.36	0.92	0.31	1.05	0.42	0.99	0.45	0.40
Maximum	5.70	12.96	3.97	0.41	0.71	0.27	1.66	1.35	2.65	1.07	0.84
Detects ²	4	40	40	15	0	1	40	40	40	-	-
No. Samples (n)	40	40	40	40	40	40	40	40	40	40	40
Survey Unit Data Summary SU 7 (Class 1) 1,162 m²											
Mean	5.52	3.97	2.07	0.33	0.13	0.17	0.93	0.76	1.10	0.44	0.23
Median	4.75	3.06	1.93	0.28	0.13	0.16	0.97	0.82	1.06	0.40	0.18
UCL-95	7.67	4.68	2.39	0.38	0.21	0.20	1.01	0.83	1.23	-	-
St. Dev	3.99	2.48	1.18	0.22	0.33	0.12	0.32	0.29	0.37	0.21	0.20
Range	12.80	6.75	2.58	0.78	1.58	0.51	1.24	1.35	1.39	0.72	0.60
Maximum	15.81	14.09	7.78	0.79	0.92	0.61	1.42	1.48	1.91	1.08	0.85
Detects ²	23	45	45	20	0	1	45	45	45	-	-
No. Samples (n)	45	45	45	45	45	45	45	45	45	45	45
Survey Unit Data Summary SU 8 (Class 1) 1,119 m²											
Mean	8.82	4.93	2.22	0.51	0.12	0.14	0.92	0.71	1.05	0.57	0.35
Median	4.89	3.91	1.76	0.32	0.11	0.12	0.96	0.68	1.01	0.42	0.19
UCL-95	13.20	6.00	2.56	0.70	0.19	0.17	1.01	0.78	1.14	-	-
St. Dev	10.14	3.08	1.28	0.50	0.29	0.13	0.34	0.27	0.37	0.38	0.37
Range	14.03	8.48	2.99	0.99	0.97	0.30	1.55	1.29	1.77	0.69	0.62
Maximum	47.67	14.84	6.70	2.33	1.19	0.59	1.76	1.50	1.99	2.01	1.79
Detects ²	27	44	44	32	0	1	44	44	44	-	-
No. Samples (n)	44	44	44	44	44	44	44	44	44	44	44
Survey Unit Data Summary SU 9 (Class 1) 435 m²											
Mean	7.64	3.42	2.75	0.44	0.16	0.42	0.78	0.89	0.91	0.49	0.27
Median	4.63	3.39	1.92	0.28	0.10	0.22	0.65	0.70	0.79	0.38	0.15
UCL-95	12.10	4.04	3.74	0.70	0.38	0.61	1.16	1.23	1.11	-	-
St. Dev	12.29	1.44	3.17	0.63	0.59	0.51	0.50	0.92	0.54	0.50	0.48
Range	18.04	4.47	2.72	1.08	1.62	1.75	1.99	0.86	1.85	0.70	0.63
Maximum	60.36	6.65	16.02	3.02	2.09	1.83	2.08	4.79	2.03	2.60	2.32
Detects ²	14	22	22	11	0	0	20	22	22	-	-
No. Samples (n)	22	22	22	22	22	22	22	22	22	22	22
Survey Unit Data Summary SU 10 (Class 2 Surface) 5,058 m²											
Mean	2.84	2.96	1.24	0.17	0.16	0.07	1.02	0.68	1.22	0.85	0.27
Median	1.72	2.81	1.02	0.12	0.12	0.06	1.09	0.71	1.17	0.79	0.19
UCL-95	3.71	3.32	1.43	0.22	0.24	0.09	1.11	0.75	1.31	-	-
St. Dev	3.31	1.13	0.72	0.17	0.27	0.06	0.37	0.25	0.36	0.29	0.26
Range	2.44	3.14	1.41	0.20	0.78	0.19	1.44	0.72	1.35	0.80	0.54
Maximum	17.11	5.31	3.71	0.82	1.18	0.22	1.94	1.27	2.07	1.5	0.96
Detects ²	7	41	41	12	0	0	40	41	41	-	-
No. Samples (n)	41	41	41	41	41	41	41	41	41	41	41

Table 4. Summary of Final Status Sample Results from the City VP by Survey Unit (cont.)

Statistic	U-238 (pCi/g)	Th-230 (pCi/g)	Ra-226 (pCi/g)	U-235 (pCi/g)	Pa-231 (pCi/g)	Ac-227 (pCi/g)	Th-232 (pCi/g)	Ra-228 (pCi/g)	Th-228 (pCi/g)	SOR ¹ _C	SOR ¹ _N
Survey Unit Data Summary SU 10 (Class 2 Subsurface) 5,058 m²											
Mean	3.80	3.48	1.93	0.23	0.35	0.05	1.10	0.83	1.56	0.38	0.16
Median	3.37	3.21	1.81	0.21	0.37	0.01	1.05	0.87	1.49	0.35	0.12
UCL-95	4.84	3.99	2.45	0.30	0.45	0.09	1.30	0.93	1.84	-	-
St. Dev	2.48	1.21	0.81	0.16	0.25	0.10	0.39	0.23	0.51	0.14	0.13
Range	8.67	5.65	3.05	0.57	0.82	0.34	1.28	0.89	1.77	0.60	0.59
Maximum	9.81	7.63	3.76	0.59	0.79	0.27	1.90	1.22	2.63	0.83	0.60
Detects ²	5	17	17	5	0	1	17	17	17	-	-
No. Samples (n)	17	17	17	17	17	17	17	17	17	17	17

¹ The sum of ratios was based on the subsurface criteria (15/15/50) for all units except SU 10 surface.

² Detection limits are at least 50% of the DCGLs, consistent with the DQOs and MARSSIM, and in most cases, achieve 10% of the DCGLs.

Table 5. St. Louis Downtown Site Reference Area Data

Statistic	U-238 (pCi/g)	Th-230 (pCi/g)	Ra-226 (pCi/g)	U-235 (pCi/g)	Pa-231 (pCi/g)	Ac-227 (pCi/g)	Th-232 (pCi/g)	Ra-228 (pCi/g)	Th-228 (pCi/g)	SOR (5/5/50)	SOR (15/15/50)
Reference Area Data Summary											
Mean	1.44	1.94	2.78	0.09	0.89	0.14	1.09	0.95	1.16	0.82	0.29
Median	1.16	1.66	2.53	0.08	0.98	0.11	1.07	0.97	1.10	0.76	0.27
UCL-95	1.67	2.18	3.04	0.12	1.12	0.18	1.18	1.00	1.26	—	—
St. Dev	0.75	0.76	0.89	0.08	0.76	0.14	0.29	0.17	0.35	0.21	0.08
Range	3.19	3.19	3.93	0.33	2.55	0.80	1.25	0.82	1.59	0.95	0.35
Detects	32	32	32	0	13	7	32	32	32	—	—
No. Samples (n)	32	32	32	32	32	32	32	32	32	32	32

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APPENDIX A

**REMEDIAL ACTION SUMMARY REPORT FOR THE
REMEDIATION ACTIVITIES AT THE
ST. LOUIS DOWNTOWN SITE, CITY-OWNED VICINITY PROPERTY**

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List of Acronyms and Abbreviations

AEC	U.S. Atomic Energy Commission
CEMVS	U.S. Army Corps of Engineers, St. Louis District
COC	contaminant(s) of concern
CQCP	Contractor Quality Control Plan
ft	feet
FUSRAP	Formerly Utilized Sites Remedial Action Program
in.	inch(es)
IT	IT Corporation
MARSSIM	<i>Multi-Agency Radiation Survey and Site Investigation Manual</i>
MED	Manhattan Engineer District
MSD	Metropolitan St. Louis Sewer District
RAO	Remedial action objectives
RAS	Remedial Action Summary
RAWP	Remedial Action Work Plan
RI	remedial investigation
ROD	Record of Decision
SAIC	Science Applications International Corporation
SLDS	Saint Louis Downtown Site
SOR	sum of ratio
SSH	Site Safety and Health Plan
TLD	Thermoluminescent dosimeters
USACE	U.S. Army Corp of Engineers

1.0 Introduction

This Remedial Action Summary (RAS) presents a description of remedial action activities conducted at City Property at the St. Louis Downtown Site (SLDS) under the Formerly Utilized Sites Remedial Action Program (FUSRAP). This RAS has been prepared on behalf of the U.S. Army Corps of Engineers (USACE), St. Louis District, under the Total Environmental Restoration Contract No. DACW41-98-D9006, Task Order 0002. The scope of work for Task Order 0002 is the remediation of the FUSRAP SLDS according to the provisions and criteria set forth in the *Record of Decision for the St. Louis Downtown Site, St. Louis Missouri* (ROD) (CEMVS, 1998a). The selected remedy in the ROD calls for the excavation and offsite disposal of accessible, contaminated soils that are attributable to work performed in support of the Manhattan Engineer District (MED) and its successor the U.S. Atomic Energy Commission (AEC). The primary contaminants of concern at the SLDS City Property are radium, thorium, and uranium.

The City Property is 1 of 13 separate work areas within the SLDS and was the first work area to be remediated under the ROD (CEMVS, 1998a). The scope of work for the remedial action at City Property was the removal of all accessible soil containing concentrations above the ROD specified cleanup criteria. Remedial action activities (i.e., design through backfilling and site restoration) were conducted between September 1998 and June 1999.

This RAS has been organized into seven sections to follow the U.S. Environmental Protection Agency guidance contained in 9355.0-39FS, *Remedial Action Report – Documentation for Operable Unit Completion* (1992). The contents of each chapter are discussed below.

Chapter 1.0 – Introduction

- Presents an introduction to this RAS summarizing the objective and scope, description of the City Property, and previous investigations.

Chapter 2.0 – Chronology of City Property Remedial Action Events

- Summarizes the sequencing of remedial activities beginning with remedial design activities through backfilling and site restoration.

Chapter 3.0 – Performance Standards and Construction Quality Control

- Describes the performance standards and construction quality control measures implemented during the excavation and confirmation sampling activities. Deviations from performance standards are also discussed.

APPENDIX B

**ST. LOUIS DOWNTOWN SITE, CITY-OWNED PROPERTY
FINAL STATUS SURVEY DATA QUALITY ASSESSMENT**

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B.1 INTRODUCTION

This appendix presents the Data Quality Assessment (DQA) for the St. Louis Downtown Site (SLDS) City Property final status survey. The DQA determines whether the final status survey was an adequate test of the defined remediation goals and whether the data associated with each survey unit satisfies those goals. A final status survey was performed over the 10 City Property survey units. This survey included a gamma walkover survey and the collection of 484 soil samples. The intent of the final status survey was to determine whether the area satisfies dose-based and concentration-based criteria as defined in *Radiological Final Status Survey Plan for Accessible Soil Within Plant 1, Plant 2 and the City Property at the St. Louis Downtown Site, St. Louis Missouri* (USACE 1999a). The dose criterion is defined as follows:

The residual radiological dose shall not exceed the Nuclear Regulatory Commission (NRC) dose limit of 25 mrem/yr, as defined in 10 CFR 20 Subpart E.

The U.S. Nuclear Regulatory Commission (NRC) criterion is considered an applicable or relevant and appropriate requirement (ARAR) in the ROD and is included in the final status survey plan to be consistent with criteria for other SLDS properties.

Concentration criteria are defined using sum of the ratios (SOR) calculations. The SOR calculations for surface (top 15 cm) and subsurface (below 15 cm) are defined as follows:

$$SOR_{top\ 15\ cm} = \frac{(higher\ of\ Th - 230_N\ or\ Ra - 226_N) + (higher\ of\ Th - 232_N\ or\ Ra - 228_N)}{5\ pCi/g} + \frac{U - 238_N}{50\ pCi/g}$$

$$SOR_{below\ 15\ cm} = \frac{(higher\ of\ Th - 230_N\ or\ Ra - 226_N) + (higher\ of\ Th - 232_N\ or\ Ra - 228_N)}{15\ pCi/g} + \frac{U - 238_N}{50\ pCi/g}$$

where the subscript "N" represents net, above background, concentrations. To satisfy the concentration criteria, the SOR must not exceed 1.0 averaged over each survey unit. The Wilcoxon Rank Sum (WRS) statistical test is used to demonstrate that each survey unit as a whole is below the derived concentration guideline level (DCGL).

The final status survey was performed in accordance with USACE 1999a and using the guidance provided in the *Multi-Agency Radiation Survey and Site Investigation Manual (MARSSIM)* (DoD 1997). The DQA is based on guidance from Chapter 8 and Appendix I in MARSSIM. The City Property site is identified with other SLDS landmarks in Figure 2 of the main text of this document.

A DQA is a scientific and statistical evaluation that determines if site data are of the right type, quality, and quantity to support the intended use (DoD 1997). The five steps in the DQA process are as follows:

1. review the Data Quality Objectives (DQOs) and survey design;
2. conduct a preliminary data review;
3. select a statistical test;

4. verify the assumptions of the statistical test; and
5. draw conclusions from the data.

Each step is discussed in the following sections. This DQA demonstrates that each City Property survey unit satisfied dose-based and concentration-based criteria and statistical tests as outlined in USACE 1999a and supports releasing each unit for unrestricted industrial use. If a unit did not satisfy the dose-based criterion, concentration-based criterion, or statistical tests, additional material would have been removed and the final status survey repeated. The evaluation of site data is provided in Section B.3.

B.2 REVIEW FINAL STATUS SURVEY DESIGN

USACE 1999a outlines the design for the City Property final status survey. The design includes DQOs, the basis for these objectives, the expected radiological conditions at the site, the number and location of sampling points, and the requirements for demonstrating compliance with DCGLs. The following are key components of the City Property survey design:

- The probability that the site will be declared to be below the criteria when the average SOR is greater than 1.0 (Type I error) and the probability that the site will be declared to exceed the criteria when the average SOR is less than 1.0 (Type II error) were each set to 0.05.
- For planning purposes, the concentration ratio of Ra-226, Th-230, Th-232, and U-238 (normalized to Ra-226) were set to 1.0:2.1:0.17:5.2, respectively, based on survey data from a previous Plant 10 excavation (ORISE 1996).
- The standard deviations for Ra-226, Th-230, Th-232, and U-238 were set to 1.9 pCi/g, 3.0 pCi/g, 1.9 pCi/g and 35.1 pCi/g, respectively, based on survey data from a previous Plant 10 excavation (ORISE 1996).
- The evaluation of small areas of elevated activity was based on the dose assessment approach outlined in the Feasibility Study (USACE 1998a) and consistent with Morton 1998.
- The DCGL_w was set to 1.0 using the SOR approach. (Note that the W in DCGL_w stands for WRS, the statistical test used to evaluate radionuclides of concern that are present in background.)

Using this information, and considering that potential site contaminants are present in background, a minimum of 32 survey unit (SU) samples would satisfy WRS statistical requirements. The evaluation for areas with elevated activity demonstrated that the sample density using 32 samples was adequate (i.e., no additional samples were required). The survey design was based on 1,000 m² Class 1 SUs, so each sample would represent no more than 31.3 m² and a grid spacing of 6.0 meters. The survey design was also based on 5,000 m² Class 2 SUs so each sample would represent approximately 156 m² and a grid spacing of 13.4 meters (USACE 1999a).

Since the survey plan was originally developed, data have been collected to support final status survey activities in St. Louis (the Plant 10 data were not necessarily collected using the

same methods, or using the same remediation goals). This new data includes 32 samples from the reference areas located to the north and south of SLDS and data collected directly from the City Property survey unit. In addition, site-specific dose assessments may now be performed that are more appropriate for the City Property project than the generic assessment used in the survey plan. Therefore, this DQA utilizes the updated site data and dose assessment information to evaluate final status survey results.

B.3 PRELIMINARY DATA REVIEW

A preliminary data review identifies patterns and anomalies in the data and may provide an early indication of whether a survey unit will pass or fail statistical tests (i.e., whether additional material should be removed). This review includes four components:

1. a review of data quality indicators,
2. a comparison of survey unit data to the concentration-based cleanup goal,
3. a comparison of survey unit data to reference area data and a review of relevant parameters (e.g., mean, median, standard deviation, etc.), and
4. a residual dose assessment for each survey unit and small areas of elevated activity.

The preliminary data review is also used to present the data in tabular and graphical form.

B.3.1 DATA QUALITY INDICATORS

Data quality indicators were reviewed for precision, accuracy, representativeness, completeness, and comparability. These indicators are summarized in Section 4.6 of the final status survey plan and are presented in detail in the quality assurance section of the *Sampling and Analysis Guide for the St. Louis Site* (USACE 1999c). The following paragraphs are provided to present the findings of the data review.

In general, radionuclides were detected at low levels (near background). At low levels, small differences in observed results would result in large relative percent differences. The final status survey plan required investigation of results that were at least 50% of the cleanup goal criteria. This was not necessary for U-238 as most of the results were an order of magnitude below the cleanup goal.

Field duplicate and split sample radiochemical results were evaluated to assess the general precision and accuracy obtained during the course of these investigations. Isotopic values for U-238, Th-230, Th-232, Ra-226, and Ra-228 were compared for 27 field duplicate pairs and 27 QA split sample pairs. Evaluation criteria were set at a relative percent difference (RPD) of 30% or within the statistical counting error, for values determined at levels greater than 2 pCi/g. Measurements determined at levels less than 2 pCi/g were considered acceptable when the values were within 1 pCi/g. Based on these evaluation criteria 94% of the field duplicate comparisons indicated acceptable precision, and 93% of the QA split sample comparisons indicated acceptable accuracy. Given the inherent heterogeneity of soils and the low levels of activity being measured

(most values were determined at levels below 5 pCi/g), the precision and accuracy for this work are considered acceptable and the data are useable for their intended purpose.

Representativeness, comparability, and completeness are subjective decisions based on the sampling strategy and the ability of the data to meet requirements. Data were collected according to plan using a MARSSIM grid sampling technique to ensure representativeness of the data to actual site conditions. The data were collected and analyzed according to the methods presented in the sampling and analysis plan. Adherence to the sampling and analysis plan ensures the data to be comparable to one another (with the exception of the above argument for the split sample results). The data were validated according to the quality assurance project plan for St. Louis. No rejected data were observed. In fact very few qualifiers were assigned to the dataset. This would indicate the data met acceptable criteria for completeness and that at least 90% of the data were acceptable for statistical testing.

B.3.2 COMPARISON TO CONCENTRATION-BASED CLEANUP GOALS

Three concentration-based criteria are considered at the City Property. First, the average Ra-226 concentration can not exceed 15 pCi/g over any 100 m² (5 pCi/g at the surface). Second, average SOR_N over the entire SU < 1.0. Third, the sample population from each survey unit must pass the WRS test. It is conceivable that the WRS requirement may be satisfied without satisfying the 100 m² criterion, and vice versa. Therefore, each criterion is considered explicitly for each SU.

Data from the City Property SUs and the SLDS reference areas are summarized in Attachment B-1. The concentrations listed are reported values that may be below the minimum detectable activity (MDA) or detection error. The entire City Property data set, including qualifiers, MDAs, and errors, is presented in Attachment B-2. Attachment B-1 is provided to present SOR estimates, a means for comparison to reference area data, and a summary of survey unit data. (Note that Attachments B-1 and B-2 contain subsurface data for SU10, a Class 2 survey unit. While subsurface data were not required at SU10, these samples were collected to provide assurance that material had not been covered or buried which would otherwise go undetected during the surface sampling campaign. Given that subsurface results at SU10 do not contain a single result with an SOR > 1.0, and these data were not required by USACE 1999a, subsurface samples from SU10 are not evaluated any further in this DQA.)

In Attachment B-1, the net SOR value (SOR_N) represents the SOR after background was subtracted as is required by the concentration-based cleanup criterion. The gross SOR value (SOR_G) includes background and is used only for completing the WRS test. The SOR_N and SOR_G formulas for Class 1 survey units are provided below:

$$SOR_G = \frac{(higher\ of\ Th - 230_G\ or\ Ra - 226_G) + (higher\ of\ Th - 232_G\ or\ Ra - 228_G)}{15\ pCi/g} + \frac{U - 238_G}{50\ pCi/g}$$

$$SOR_N = \frac{(higher\ of\ Th - 230_N\ or\ Ra - 226_N) + (higher\ of\ Th - 232_N\ or\ Ra - 228_N)}{15\ pCi/g} + \frac{U - 238_N}{50\ pCi/g}$$

where it is assumed that all Class 1 units will be covered with at least 15 cm (6 inches) of backfill following verification that cleanup goals are satisfied. For Class 2 surface soils, the radium and thorium limit is 5 pCi/g instead of 15 pCi/g. Figures B-1a through B-10a show the location of each sample within SU1 through SU10, respectively. Figures B-1b through B-10b show the SOR_N calculations for each sample for SU1 through SU10, respectively. Data points with an SOR less than or equal to 1.0 are illustrated as triangles. Data points with an SOR greater than 1.0 are illustrated as circles.

Results indicate that no individual sample in units SU3, SU5, SU6, SU7, or SU10 exceeds the SOR_N cleanup criterion of unity (i.e., 1.0). In these units, the WRS test is not necessary given that the survey unit as a whole can not be found above criterion if no individual sample exceeds the criterion. Therefore, these survey units automatically pass the WRS test. In addition, no 100 m² area may exceed an average Ra-226 concentration of 15 pCi/g. If no individual sample exceeds an SOR of 1.0, then the Ra-226 concentration cannot exceed 15 pCi/g. Therefore, SU3, SU5, SU6, SU7, and SU10 are shown to satisfy the concentration-based criterion with no additional testing required.

A total of seven individual sample subsurface results in the remaining five survey units exceed an SOR of 1.0. These samples are listed with the corresponding survey unit below:

- SU1: SLD038 at SOR = 1.185;
- SU2: SLD065 at SOR = 1.154;
- SU4: SLDA15 at SOR = 1.438;
- SU8: SLD332 at SOR = 1.042, SLD344 at SOR = 1.052, and SLDC19 at SOR = 1.793; and
- SU9: SLDD20 at SOR = 2.317.

Samples SLDA15, SLDC19 and SLDD20 are biased samples taken in areas of elevated activity discovered during gamma walkover surveys. Each of these biased samples represents an area less than 2 m². Samples SLD038, SLD065, SLD332, and SLD344 are systematic samples representing surface areas between 23.3 and 25.4 m². When results from elevated samples are grouped with adjacent samples, all areas in all SUs satisfy the 100 m² criterion as shown in Table B-1.

The results listed in Table B-1 indicate that the areas containing elevated activity satisfy the 100 m² concentration criterion. Although SU4 and SU9 contain individual biased sample results with an SOR greater than 1.0, when averaged with adjacent sample results, these units satisfy the concentration-based criterion. Although elevated samples in SU1, SU2, and SU8 satisfy the 100 m² criterion, the WRS test is also performed on systematic sample data as an additional verification that the concentration criterion is satisfied (see Section B.4). All elevated sample results are evaluated further in Section B.3.3 as part of the residual dose assessment.

In summary, SU3, SU4, SU5, SU6, SU7, SU9, and SU10 all satisfy concentration-based criteria. SU1, SU2, and SU8 satisfy the 100 m² criterion but must undergo the WRS test to determine if both concentration-based criteria are satisfied.

Table B-1. Evaluation of 100 m² Criterion

Survey Unit	Sample Number ¹	(A) Ra-226	(B) Effective Surface Area (m ²)	(C) Area Weighted Average ²
SU1	SLD038	0.23	23.3	1.76
	SLD037	2.36	23.3	
	SLD408 (SU3)	2.48	23.9	
	SLD409 (SU3)	1.94	23.9	
SU2	SLD065	2.33	23.8	2.35
	SLD068	3.56	23.8	
	SLD069	2.12	23.8	
	SLD061	1.40	23.8	
SU4	SLDA15	3.48	1.5	3.17
	SLD177	1.74	22.9	
	SLDA14	12.77	1.5	
	SLD183	3.96	22.9	
SU8	SLD332	4.28	25.4	3.37
	SLD330	3.27	25.4	
	SLD334	2.24	25.4	
	SLD328	3.69	25.4	
SU8 ³	SLD344	5.36	25.4	2.83
	SLD342	3.12	25.4	
	SLD343	1.18	25.4	
	SLD345	1.39	25.4	
	SLDC19	6.70	1.9	
SU9	SLDD20	16.02	1.1	2.12
	SLD347	2.82	25.4	
	SLD348	2.03	21.8	
	SLD349	1.54	21.8	
	SLD350	1.27	21.8	

¹ Samples with an SOR > 1.0 (in bold text) and adjacent samples.

² $\Sigma [(A_i) \times (B_i) / \Sigma (\text{all } B)]$, where i is the sample. Total area may be less than 100 m².

³ The total area appears to be > 100 m². However, the area for SLDC19 is double counted as it is not subtracted from one of the other samples.

B.3.3 COMPARISON TO THE REFERENCE AREA AND EVALUATION OF PARAMETERS

Although each SU appears to satisfy criteria based on average SOR_N values alone, an additional evaluation of site data is performed to complete the DQA. Attachment B-1 lists sample results for systematic, biased, and reference area data (reference data are discussed in detail in USACE 1999b). The data shows that U-238, Th-230, and Ra-226 are the primary contaminants of concern and the Th-230 concentrations generally dominate the Ra-226 concentrations. That is, of the seven SOR results greater than 1.0, only once is the Ra-226 concentration greater than the Th-230 concentration. (Recall that the SOR calculation considers the greater of Th-230 or Ra-226.) Results for other radionuclides are generally within the range of background or contribute negligibly to SOR calculations.

Uranium-238 concentrations are lognormally distributed in SU5, SU7, and SU8. In all other survey units, the distribution was different from normal and lognormal or too few detected

results (greater than the MDA and error) were available. Thorium-230 concentrations are lognormally distributed in all 10 SUs. Radium-226 concentrations are lognormally distributed in SU2, SU3, SU6, SU7, SU8, and SU9. The distribution is normal in SU5 and different from lognormal or normal in SU1, SU4, and SU10. The distribution of radionuclides suggest anthropogenic disturbed material are still present in site soils. A comparison of the SU data and the reference area summary statistics confirms that U-238 and Th-230 are present above background over much of the City Property.

As seen in Attachments B-1 and B-2, U-238 was measured above detection limits in only 10 to 50 percent of the samples, Pa-231 was never detected, and Ac-227 and U-235 were rarely detected. These data reflect the expected limitations in detection capabilities and generally do not adversely impact the ability to evaluate survey units. If there is an impact, it exists while estimating SOR values. That is, SOR values including U-238 below detection limits are likely to overestimate true values. For this DQA, it is assumed that all radionuclides are present at the reported value even if below detection limits. It is noted that the MDAs for U-238, Th-230, and Ra-226 achieved better than 10 percent of their respective DCGL, well within the range recommended in Section 7.2.2.6 of MARSSIM.

Prior to the collection of systematic final status survey samples, a final gamma walkover survey using a hand-held 2-inch by 2-inch NaI detector was performed over each City Property survey unit. The background while performing the survey was found to be between 10,000 and 19,000 counts per minute (CPM). During this walkover, the surveyor identified 11 areas potentially containing elevated levels of radioactive materials. Results from these areas are listed as the last few samples per SU, where appropriate, in Attachment B-1. Results of the walkover survey including surveys around the 11 potentially elevated areas are presented in Attachment B-3.

The City Property was broken into 10 survey units, consisting of 9 Class 1 units (SU1 – SU9) and one Class 2 unit (SU10). The surface area of SU3, the largest Class 1 unit, is 1,520 m². This area is 420 m² larger than the 1,100 m² Class 1 limit set in USACE 1999a but less than the 2,000 m² suggested area size presented in MARSSIM for Class 1 areas. The surface area of the Class 2 unit is 5,060 m² (USACE 1999a limits Class 2 units to 5,500 m²). While one SU exceeds the recommended surface areas listed in USACE 1999a (see Attachment B-3), all SUs exceed the required sample density.

The comparison to reference area data and evaluation of parameters, while pointing out some limitations in the data, confirm that data are sufficient to assess the pending release of the City Property.

B.3.4 RESIDUAL DOSE ASSESSMENT

A site-specific dose assessment was performed using the commercial/industrial worker exposure scenario defined in the SLDS FS (USACE 1998a). Source terms were developed by subtracting average background concentrations from the appropriate UCL-95 concentrations providing estimates of reasonable maximum exposure point concentrations (EPCs). Background was estimated using the 32 samples collected from the reference areas (see Attachments B-1 and B-2). If the UCL-95 concentration is less than the average background, the EPC was set to zero

to avoid negative dose estimates. Doses were explicitly calculated for small areas containing elevated activity as well as for each survey unit and the overall site (Table B-2).

Table B-2. Residual Dose Above Background

Survey Unit	Average SOR	Residual Dose (mrem/yr)
SU1	0.24	3.6
SU2	0.20	2.9
SU3	0.26	4.1
SU4	0.19	3.0
SU5	0.30	6.9
SU6	0.21	3.0
SU7	0.23	2.2
SU8	0.35	3.2
SU9	0.27	6.7
SU10	0.24	1.4
Entire Site	0.24	0.6

NA = not applicable. No elevated area remaining in the survey unit.

Doses for SU1–10 assume no cover. The entire site dose assumes cover depth equal to backfill depth for SU1–9 and no cover for SU10.

The seven samples with the elevated concentrations were evaluated to determine if, under a worst case scenario, the commercial/industrial worker could receive an unacceptable dose while exposed to small areas of elevated activity. These estimates assumed a surface area of approximately 3 – 30 m² according to the effective area presented in Attachment B-1. Dose results for each sample are presented in Table B-3. Results indicate that the maximum dose of 10.2 mrem/yr is well below the dose rate limit of 25 mrem/yr.

Table B-3. Dose Estimates for Areas of Elevated Activity

Survey Unit	Sample Number	SOR	Allowable SOR	Effective Surface Area (m ²)	Dose Estimate (mrem/yr)
SU1	SLD038	1.185	1.66	23.3	9.2
SU2	SLD065	1.154	1.62	23.8	8.8
SU4	SLDA15	1.438	6.46	1.5	4.4
SU8	SLD332	1.042	1.62	25.4	7.23
SU8	SLD344	1.052	1.62	25.4	7.8
SU8	SLDC19	1.793	5.62	1.9	5.5
SU9	SLDD20	2.317	7.76	1.1	10.2

In summary, dose estimates for elevated measurements and dose estimates averaged over the survey units satisfy the dose-based criterion at the City Property.

B.4 SELECT A STATISTICAL TEST

Because the radionuclide contaminants of concern are present in background, the WRS test is selected as the appropriate statistical test. The WRS test shifts reference area data by the DCGL_w. If the SU data are significantly above the shifted reference area data, the unit fails the test and additional material must be removed. As stated in Table 8.2 in MARSSIM, if the difference between the largest survey unit measurement and the smallest reference area (background) measurement is less than the DCGL_w, the survey unit meets the criterion. At the City Property, only three SUs, SUs 1, 2, and 8, contain systematic sample results requiring the WRS test. The tests, shown in Attachment B-4, show that both SUs pass the WRS test. Therefore, all survey units at the City Property satisfy the statistical test.

B.5 VERIFY THE ASSUMPTIONS OF THE STATISTICAL TEST

As described in Section B.2, the survey design used data from a site near the City Property to calculate the number of samples necessary to satisfy statistical tests. Once site data were available, these calculations were repeated to confirm that enough samples were collected. Using the standard deviations for Th-230, Ra-226, and U-238 from the SU data summary in Attachment B-1 and repeating the steps outlined in the survey plan, the calculations to obtain the number of samples required for the WRS test for SU 1 are presented below. Calculations were repeated for all other survey units using the same approach.

The relative shift (Δ/σ) was calculated given values for the DCGL, LBGR, and σ . The DCGL was set to 1.0, so the LBGR = DCGL/2 = 0.5. The value for Δ was, therefore, DCGL - LBGR = (1.0) - (0.5) = 0.5. The specific values of σ for SU1 are Ra-226, 1.27 pCi/g; U-238, 1.21; and Th-230, 3.25 pCi/g. Using these values, the weighted standard deviation was calculated as follows:

$$\sigma = \sqrt{\left(\frac{\sigma_{Ra}}{DCGL_{Ra}}\right)^2 + \left(\frac{\sigma_U}{DCGL_U}\right)^2 + \left(\frac{\sigma_{Th}}{DCGL_{Th}}\right)^2} = \sqrt{\left(\frac{1.27}{15}\right)^2 + \left(\frac{1.21}{50}\right)^2 + \left(\frac{3.25}{15}\right)^2} = 0.234$$

Using this value and a Δ of 0.5, the relative shift (Δ/σ) for the survey unit was calculated to be 2.14. This value falls within the MARSSIM recommended range of 1 to 3 for Δ/σ . From Table 5.3 in MARSSIM and given 0.05 for the Type I error and 0.05 for the Type II error, the number of systematic samples required for the survey unit was estimated to be 12. The original survey plan called for 32 samples to be taken and 46 were actually collected (2 biased samples were also collected).

This calculation shows that more than enough samples were collected to satisfy the WRS statistical test in SU1. Using the same approach, it was determined that more than enough samples were collected in all SUs, as shown in Table B-4.

Table B-4. Number of Samples Statistically Required and Number of Samples Taken

Survey Unit	Minimum Systematic Samples Required	Number of Systematic Samples Collected
SU1	12	46
SU2	13	42
SU3	11	51
SU4	10	53
SU5	11	22
SU6	10	38
SU7	11	45
SU8	10	43
SU9	11	20
SU10	9	41
SU10 Subsurface	10	17

This DQA has shown that more than a sufficient number of samples were collected to satisfy statistical requirements, that DQOs were originally followed (noting the exceptions in Section B.3.1) and then adjusted in this report to account for additional site data and information, and that ample reference area samples were available. Based on this information, it appears that the methods used to assess City Property survey units are sufficient and that the site release criteria have been satisfied.

B.6 ALARA ANALYSIS

An evaluation was performed consistent with NRC *Draft Regulatory Guide DG-4006* as a measure of the cost effectiveness of not removing soil in the remaining seven areas with SORs in excess of 1.0. According to this guidance, if the benefits of remediation are less than the cost of remediation, then the levels of residual radioactivity are ALARA without taking additional remedial action. DG-4006 gives the formula for calculating the benefit from averted dose as

$$B_{AD} = \$2,000 \times PW(AD_{\text{collective}})$$

where

B_{AD} = benefit from averted dose for a remediation action

\$2,000 = value in dollars of a person-rem averted

$PW(AD_{\text{collective}})$ = present worth of future collective averted dose.

The present worth of the future averted collective dose can be calculated from the following equation:

$$PW(AD_{\text{collective}}) = P_D \times A \times 0.025 \times F \times \frac{\text{Conc}}{DCGL_W} \times \frac{1 - e^{-(r+\lambda)N}}{r + \lambda}$$

where

P_D = population density for the critical group scenario in people/m², 0.0004 from DG-4006.

A = area being evaluated in m², 102.4 m² is used as the sum of the areas exceeding an SOR of 1.

0.025 = annual dose to an average member of the critical group from residual radioactivity at the DCGL_w concentration in rems/yr.
 F = fraction of the residual activity removed by the remedial action, in this case F = 1 to represent all areas exceeding an SOR of 1.
 Conc = average concentration of residual radioactivity in the area being evaluated, pCi/g. The area weighted SOR for the remaining elevated areas of the City VP is 1.14.
 DCGL_w = derived concentration guideline, in this case, SOR = 1.
 r = monetary discount rate, 0.03/yr as recommended by DG-4006.
 λ = radiological decay constant. U-238 was chosen as the representative decay constant because this would give the most conservative result (highest present worth factor).
 N = number of years over which the collective dose will be calculated, 1000 as recommended by DG-4006.

Although the SOR = 1 value that was used as the DCGL for the City VP is not based on the 25 mrem standard used in the equation, using 0.025 is a conservative approach as evidenced by the fact that the predicted doses from the elevated areas are all less than 10 mrem/yr. Using these equations, the benefit from the averted dose (B_{AD}) was calculated to be \$78.

The cost of remediating the remaining areas was based on actual costs incurred by remediation contractors during similar projects in the St. Louis district, but does not include overhead, mobilization, and other related costs that DG-4006 allows to be considered in an ALARA analysis. The estimated cost of excavation, transportation, and disposal of the remaining elevated areas is \$17,700. The cost of further remediation greatly exceeds the economic benefit of the averted dose, therefore the action is ALARA.

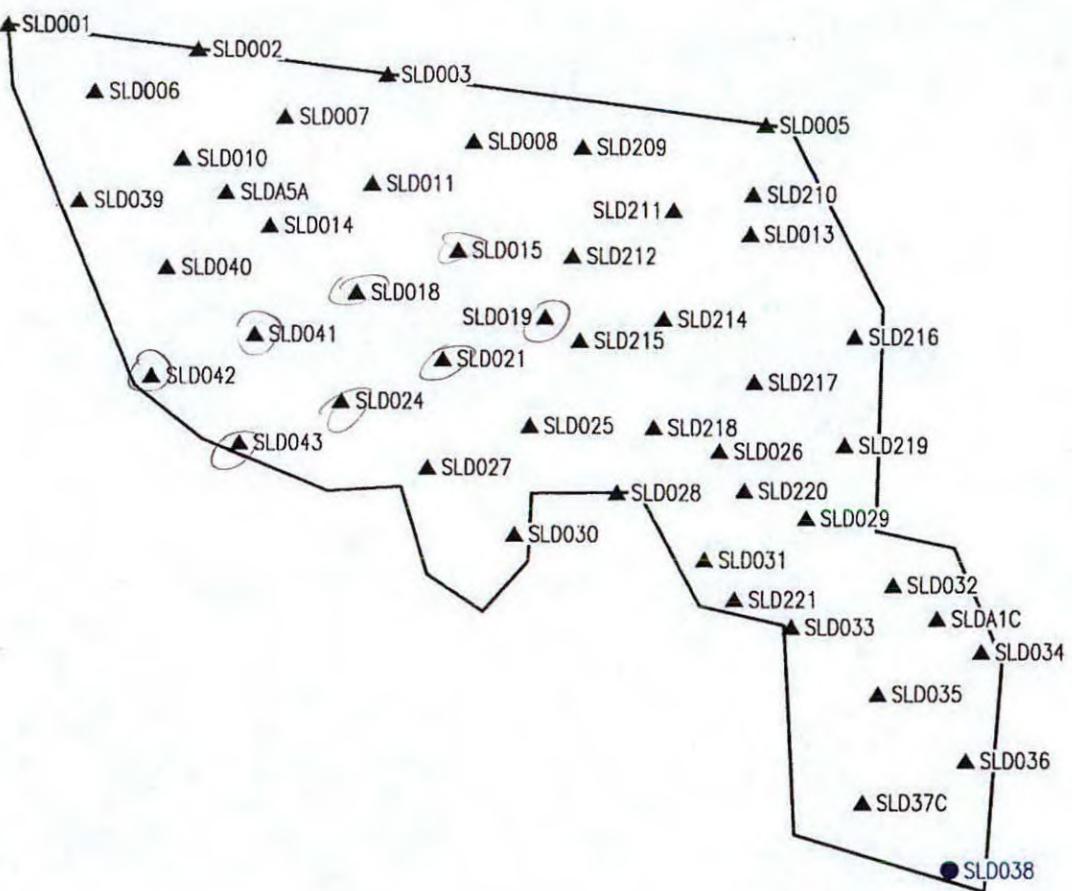
B.7 CONCLUSIONS

The residual radioactivity in soil at the City Property meets the requirements as specified in the survey design, the DQOs, and this DQA. The concentration-based criteria for Th-230, Ra-226, Th-232, Ra-228, and U-238 have been satisfied, noting that no SOR_N value exceeds the limit of 1.0 when averaged over the SU, and no Ra-226 concentration averaged over 100 m² exceeds 15 pCi/g. The dose-based limit has been satisfied noting that the maximum dose of approximately 10 mrem/yr was due to a small area of elevated activity. The survey unit also satisfies the statistical requirements with all 10 survey units passing the WRS test. Given that the concentration-based criterion, the dose-based criterion, and the statistical tests have been satisfied, all City Property survey units should be released for unrestricted use.

B.8. REFERENCES

- DoD 1997. *Multi-Agency Radiation Survey and Site Investigation Manual (MARSSIM)*, NUREG-1575, EPA 402-R-97-016, December.
- Morton 1998. *Evaluation of Plans for Radiological Survey in Soil at the SLDS and Vicinity Properties*, H.W. Morton, September 4.
- NRC 1998. *Decommissioning Compliance with the Radiological Criteria for License Termination*, Draft Regulator Guide DG-4006, Office of Nuclear Regulatory Research, Washington, DC, August.
- ORISE 1996. *Verification Survey of the Plant 10 Area at the St. Louis Downtown Site Mallinckrodt Specialty Chemical Company, St. Louis, Missouri*, Draft Report, Environmental and Health Sciences Division, Oak Ridge, Tennessee, September.
- SAIC 1999. *Calculation Package: City Property Data Quality Assessment*, accession number 1331.19990412.002, March.
- USACE 1998a. *Feasibility Study for the St. Louis Downtown Site, St. Louis, Missouri*, St. Louis District Office, April.
- USACE 1998b. *Record of Decision for the St. Louis Downtown Site, St. Louis, Missouri*, St. Louis District Office, October.
- USACE 1999a. *Radiological Final Status Survey Plan for Accessible Soil within Plant 1, Plant 2 and the City Property at the St. Louis Downtown Site, St. Louis Missouri*, St. Louis District Office, May.
- USACE 1999b. *Background Soils Characterization Report for the St. Louis Downtown Site, St. Louis, Missouri*, St. Louis District Office, March.
- USACE 1999c. *Sampling and Analysis Guide for the St. Louis Site, St. Louis Missouri*, St. Louis District Office, July.
- Yu, C., A.J. Zielen, L. Cheng, Y. Yuan, L. Jones, D. LePoinre, et al. 1993. *Manual for Implementing Residual Radioactive Material Guidelines Using RESRAD, Version 5.0* (working draft), ANL/EAP/D-2, ANL-Environmental Assessment Division, Argonne, Illinois, September.

FIGURES



DRAFT

LEGEND:

Approximate Area of Survey Unit 1 is 1070.59 M Sq.

- ▲ Sample Location with SOR < 1.0
- Sample Location with SOR > 1.0

0 2 4 6 8 10 20
SCALE: 1" = 10'

FUSRAP

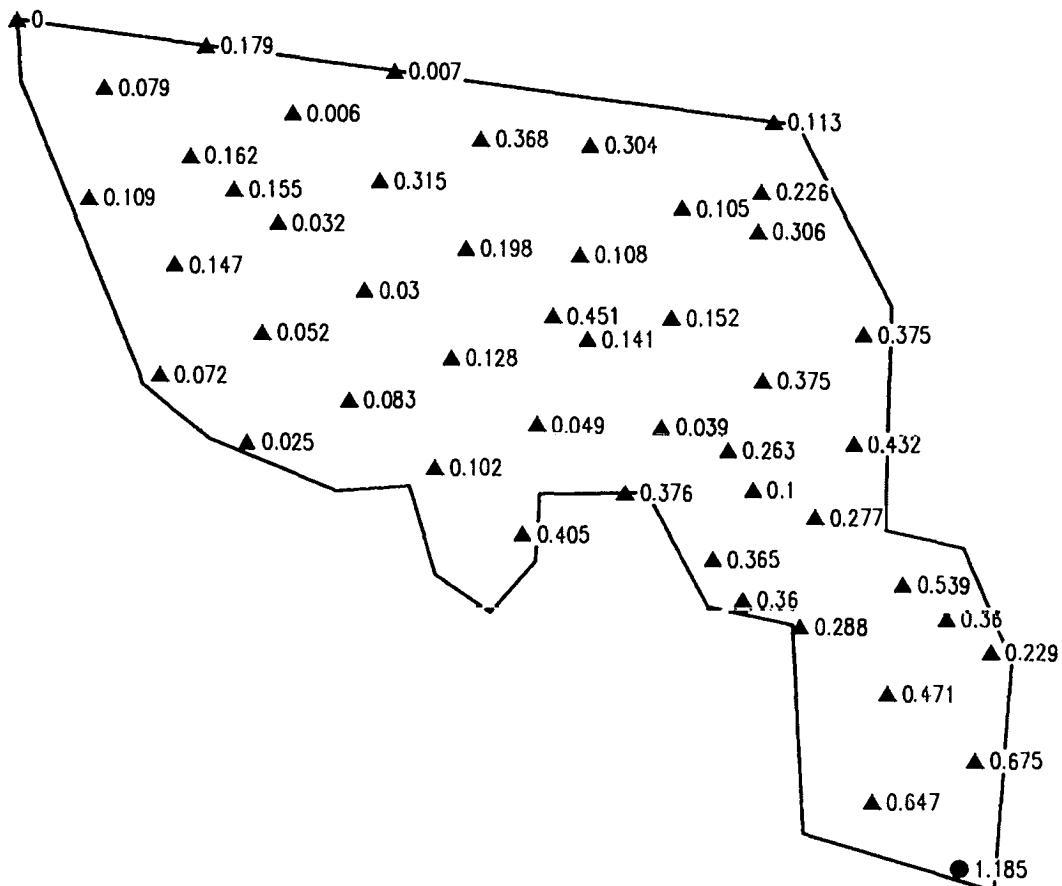
St. Louis Downtown Site
City Property Survey Unit 1
St. Louis, Missouri

DRAWN BY:
S. Kitchings

REV. NO./DATE:
0 - 8/24/99

CAD FILE:
SLDSFSSCPUSU01R00

Figure 1a. SLDS City Property Survey Unit 1



DRAFT

LEGEND:

Approximate Area of Survey Unit 1 is 1070.59 M Sq.

- ▲ Sample Location with SOR < 1.0
- Sample Location with SOR > 1.0
- 0.123 SOR Value

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SCALE: 1" = 10'

FUSRAP

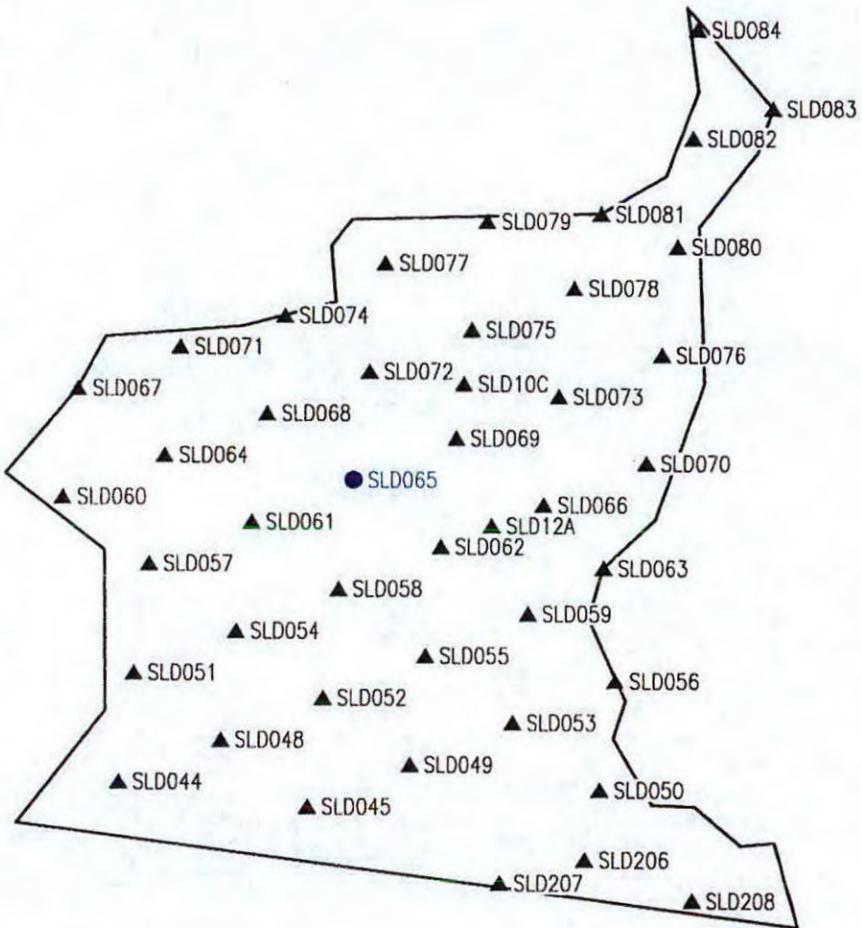
St. Louis Downtown Site
City Property Survey Unit 1
St. Louis, Missouri

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S. Kitchens

REV. NO./DATE:
0 - 8/24/99

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SLDSFSSCPUSU1R00

Figure 1b. SLDS City Property Survey Unit 1

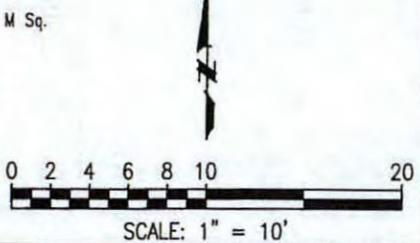


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Approximate Area of Survey Unit 2 is 1000.44 M Sq.

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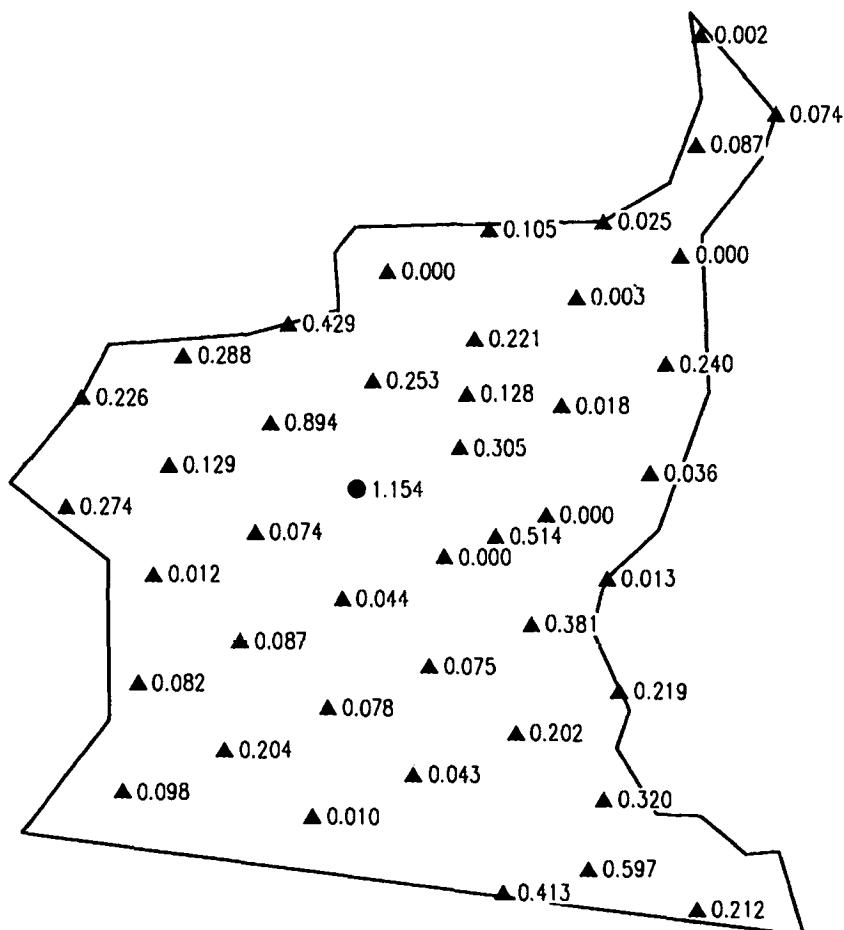
St. Louis Downtown Site
City Property Survey Unit 2
St. Louis, Missouri

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S. Kitchings

REV. NO./DATE:
0 - 6/27/99

CAD FILE:
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Figure 2a. SLDS City Property Survey Unit 2

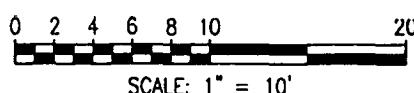


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LEGEND:

Approximate Area of Survey Unit 2 is 1000.44 M Sq.

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- Sample Location with SOR > 1.0
- 0.123 SOR Value

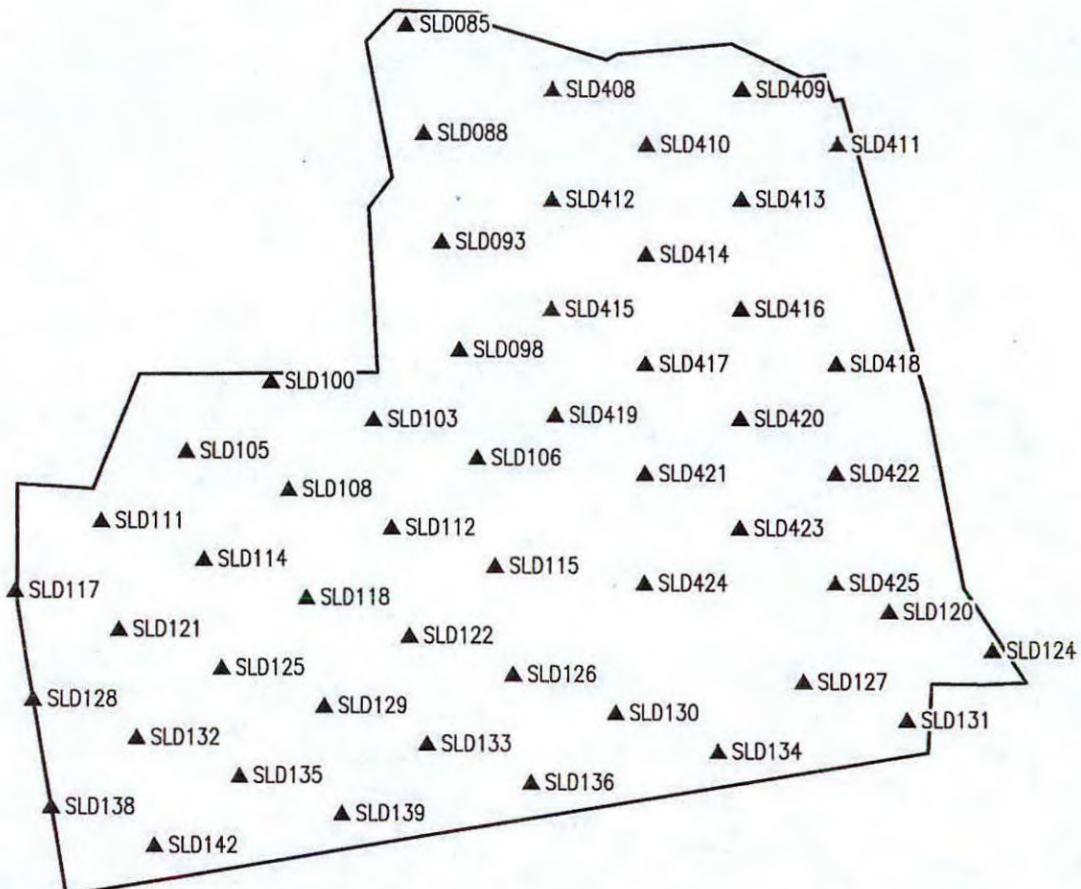


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St. Louis Downtown Site
City Property Survey Unit 2
St. Louis, Missouri

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Figure 2b. SLDS City Property Survey Unit 2

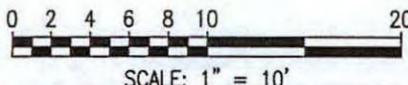


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LEGEND:

Approximate Area of Survey Unit 3 is 1520.18 M Sq.

▲ Sample Location with SOR < 1.0

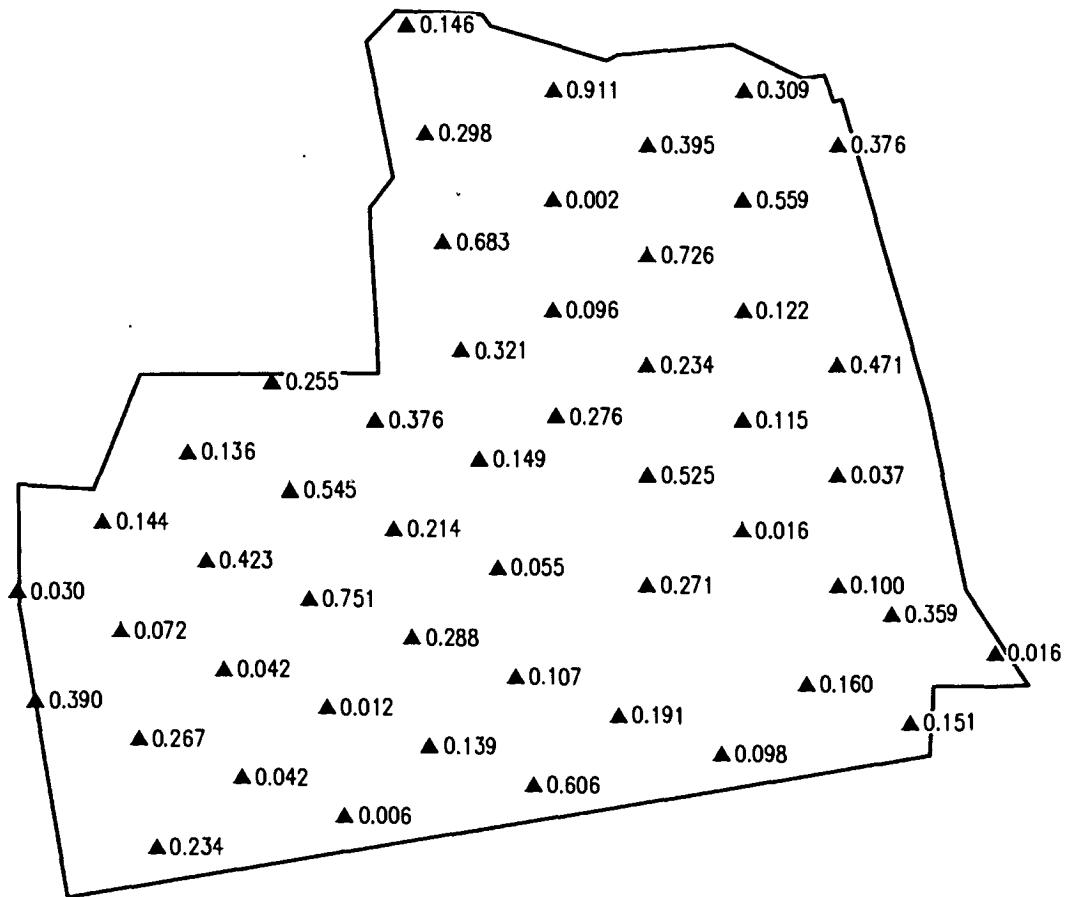


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St. Louis Downtown Site
City Property Survey Unit 3
St. Louis, Missouri

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Figure 3a. SLDS City Property Survey Unit 3



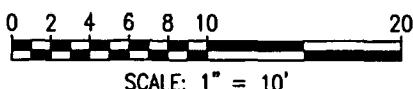
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LEGEND:

Approximate Area of Survey Unit 3 is 1520.18 M Sq.

▲ Sample Location with SOR < 1.0

0.123 SOR Value



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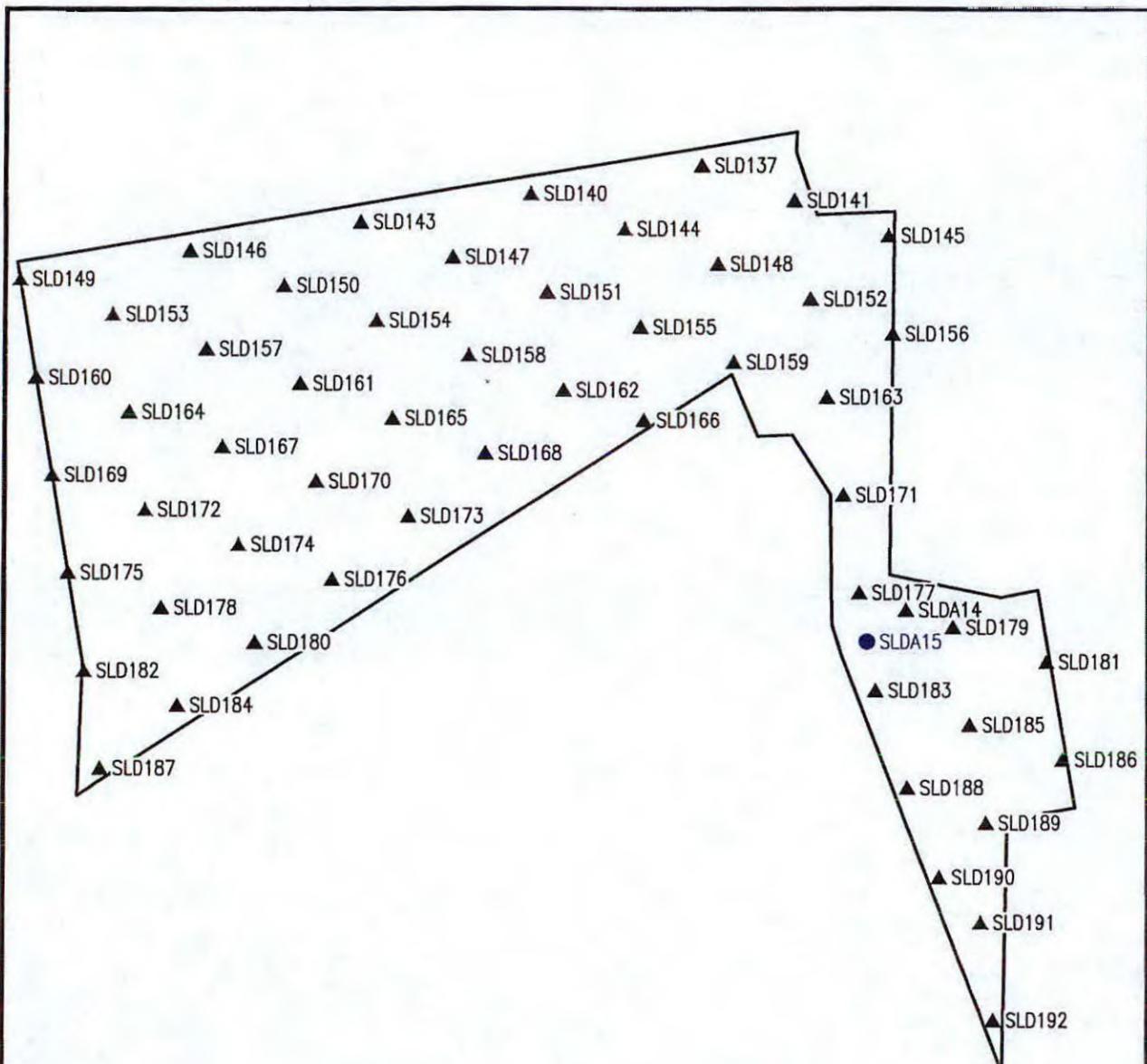
St. Louis Downtown Site
City Property Survey Unit 3
St. Louis, Missouri

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0 - 8/24/99

CAD FILE:
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Figure 3b. SLDS City Property Survey Unit 3

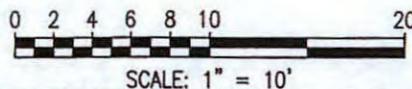


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LEGEND:

Approximate Area of Survey Unit 4 is 1212.94 M Sq.

- ▲ Sample Location with SOR < 1.0
- Sample Location with SOR > 1.0



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St. Louis Downtown Site
City Property Survey Unit 4
St. Louis, Missouri

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Figure 4a. SLDS City Property Survey Unit 4

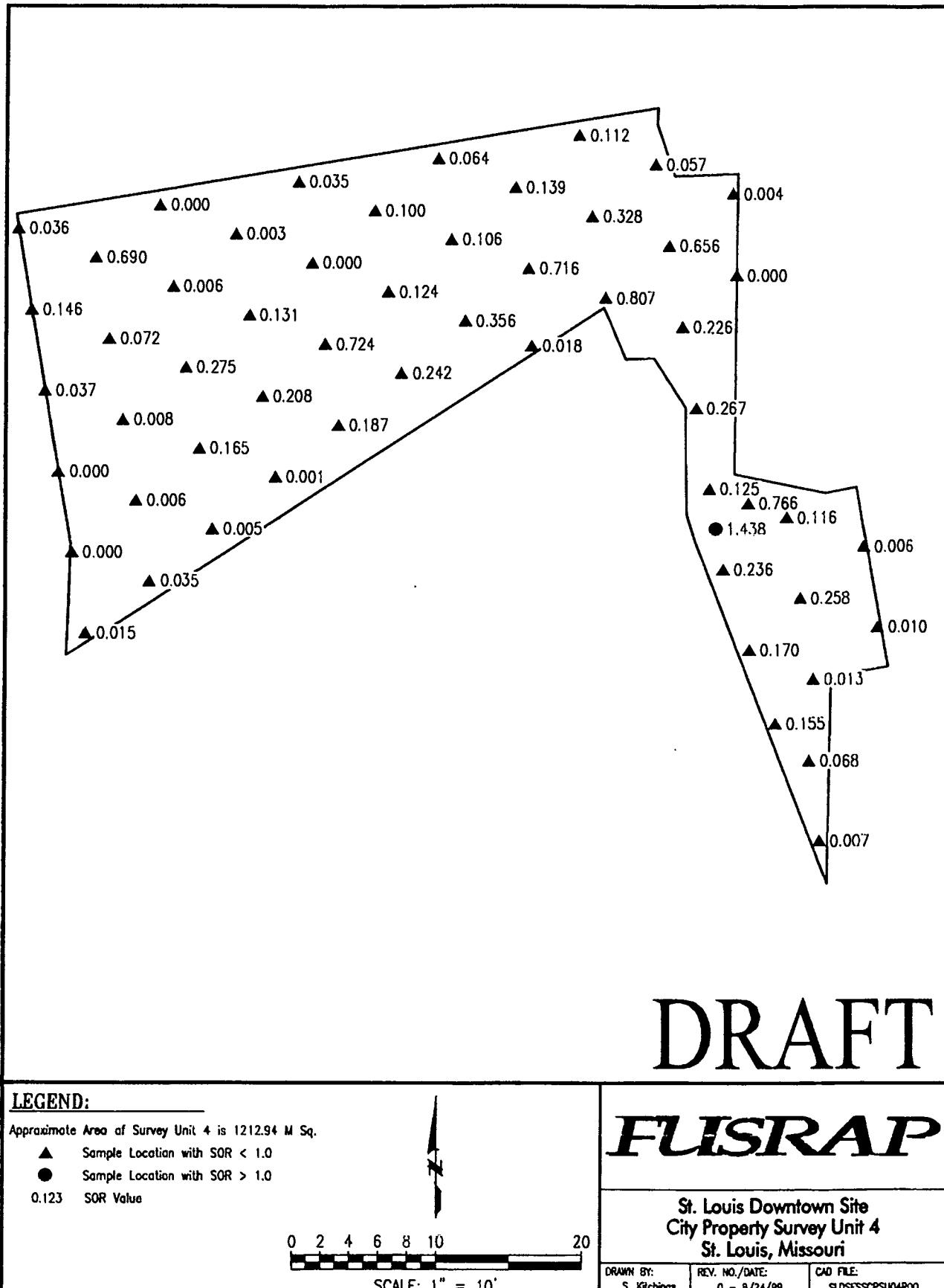
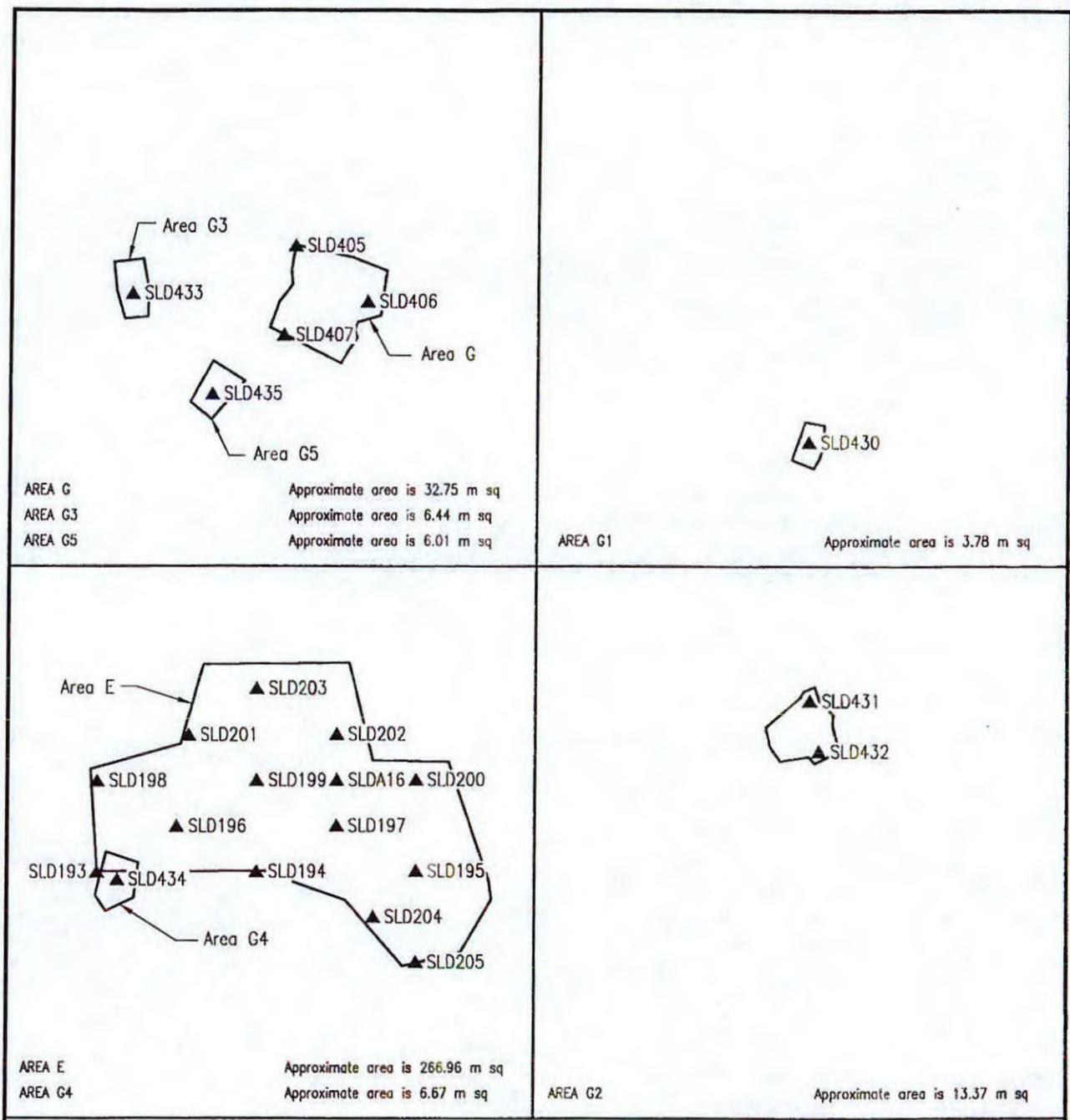


Figure 4b. SLDS City Property Survey Unit 4

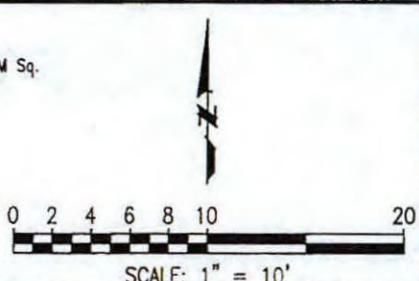


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LEGEND:

Approximate Area of Survey Unit 5 is 335.98 M Sq.

▲ Sample Location with SOR < 1.0



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St. Louis Downtown Site
City Property Survey Unit 5
St. Louis, Missouri

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Figure 5a. SLDS City Property Survey Unit 5

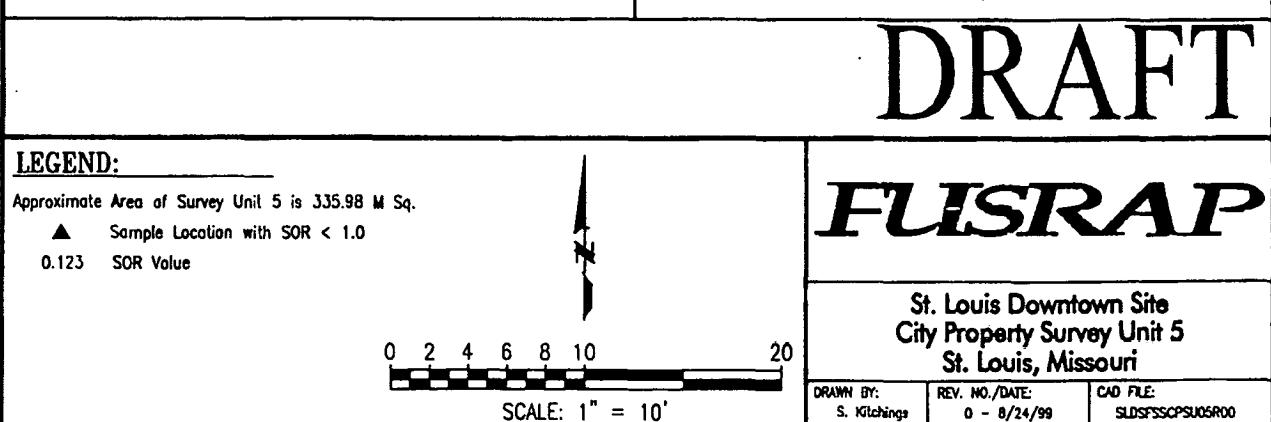
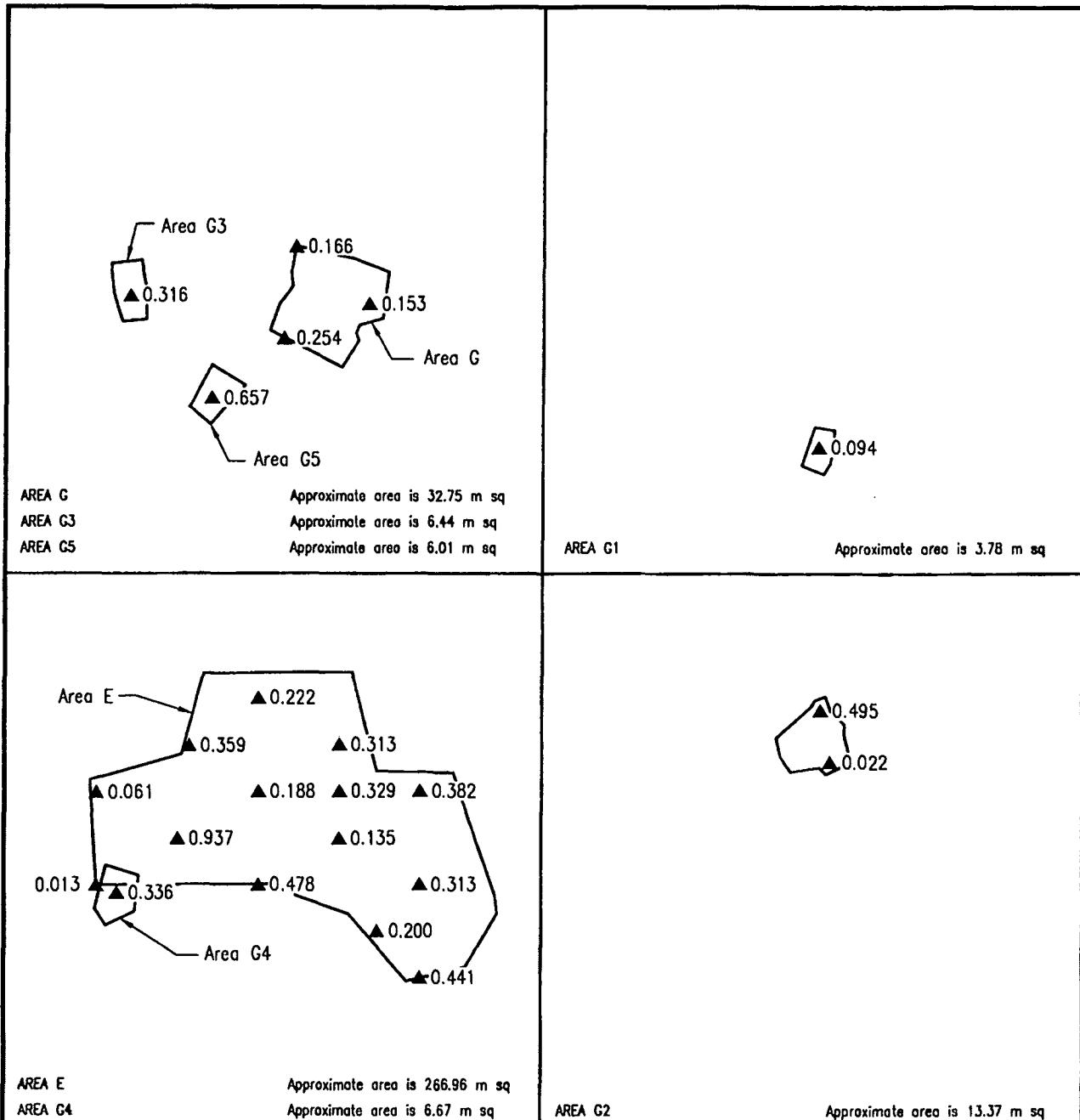
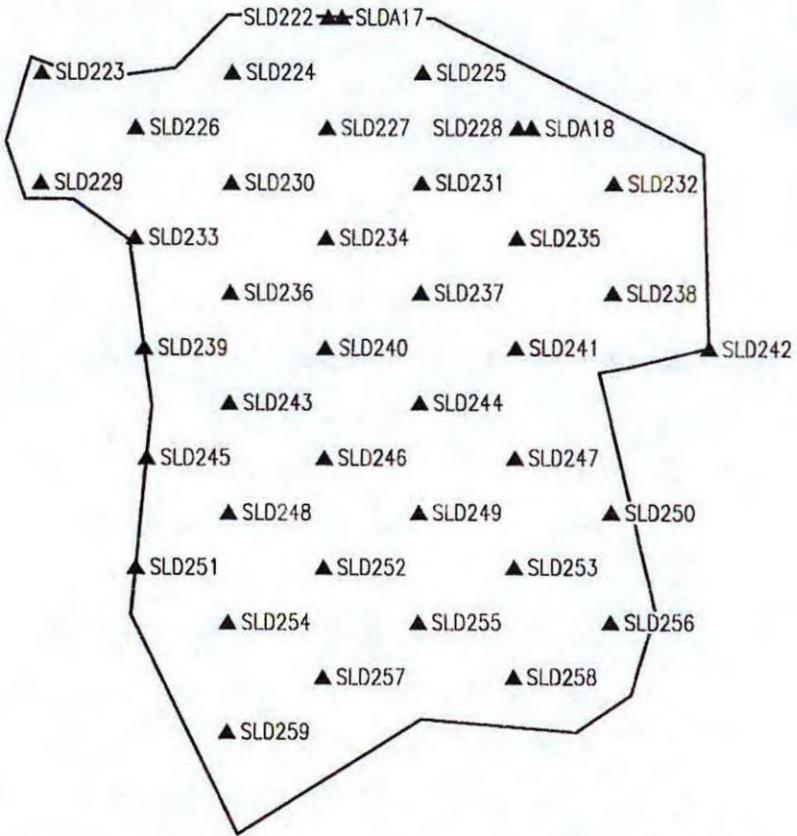


Figure 5b. SLDS City Property Survey Unit 5

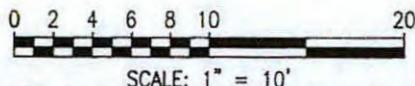


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LEGEND:

Approximate Area of Survey Unit 6 is 1004.17 M Sq.

▲ Sample Location with SOR < 1.0

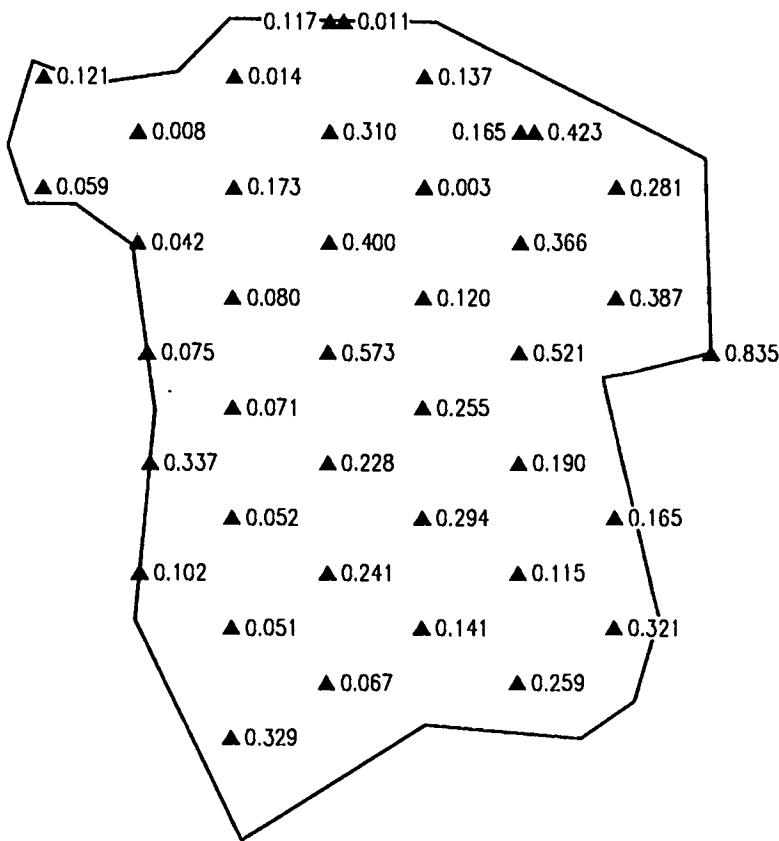


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St. Louis Downtown Site
City Property Survey Unit 6
St. Louis, Missouri

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Figure 6a. SLDS City Property Survey Unit 6

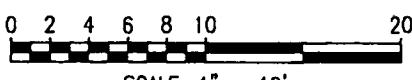


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LEGEND:

Approximate Area of Survey Unit 6 is 1004.17 M Sq.

- ▲ Sample Location with SOR < 1.0
- 0.123 SOR Value



FLISTRAP

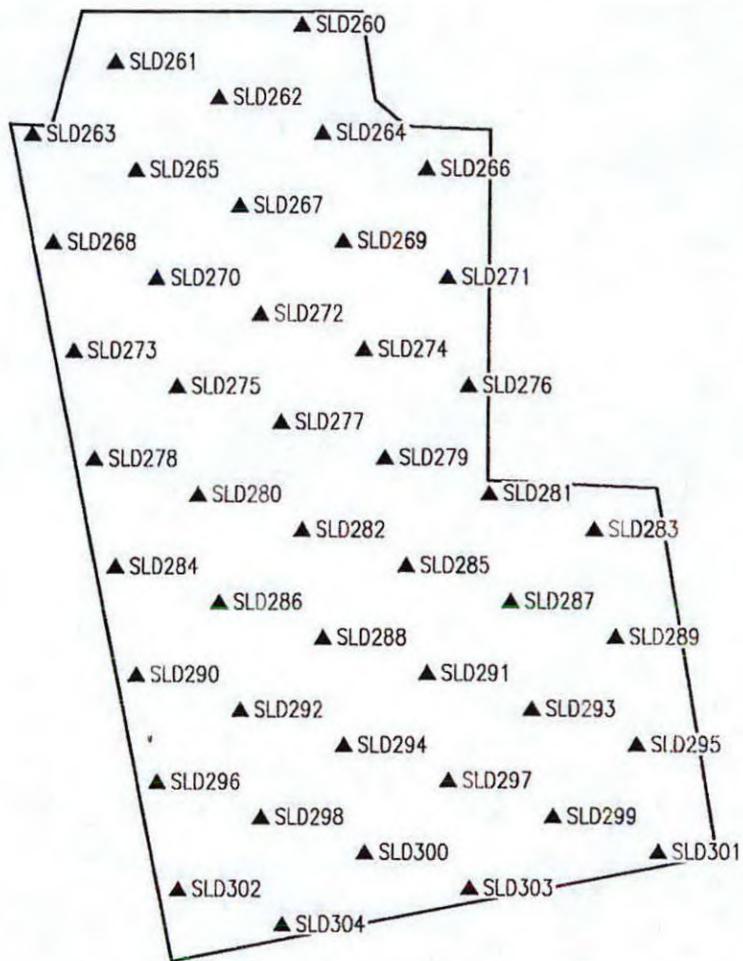
St. Louis Downtown Site
City Property Survey Unit 6
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REV. NO./DATE:
0 - 8/24/99

CAD FILE:
SLDSFSSCPUS06R00

Figure 6b. SLDS City Property Survey Unit 6



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LEGEND:

Approximate Area of Survey Unit 7 is 1161.81 M Sq.

▲ Sample Location with SOR < 1.0

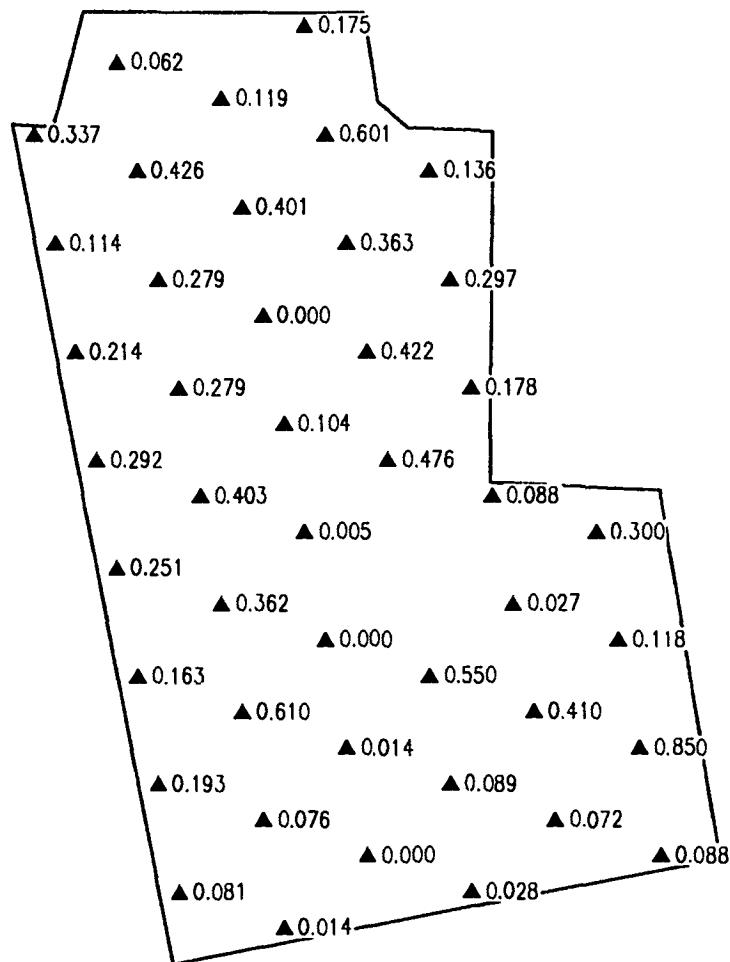
0 2 4 6 8 10 20
SCALE: 1" = 10'

FUSRAP

St. Louis Downtown Site
City Property Survey Unit 7
St. Louis, Missouri

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Figure 7a. SLDS City Property Survey Unit 7



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LEGEND:

Approximate Area of Survey Unit 7 is 1161.81 M Sq.

▲ Sample Location with SOR < 1.0

0.123 SOR Value

0 2 4 6 8 10 20
SCALE: 1" = 10'

FUSRAP

St. Louis Downtown Site
City Property Survey Unit 7
St. Louis, Missouri

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S. Kitchings

REV. NO./DATE:
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CAD FILE:
SLDSFSSCPSU07R00

Figure 7b. SLDS City Property Survey Unit 7

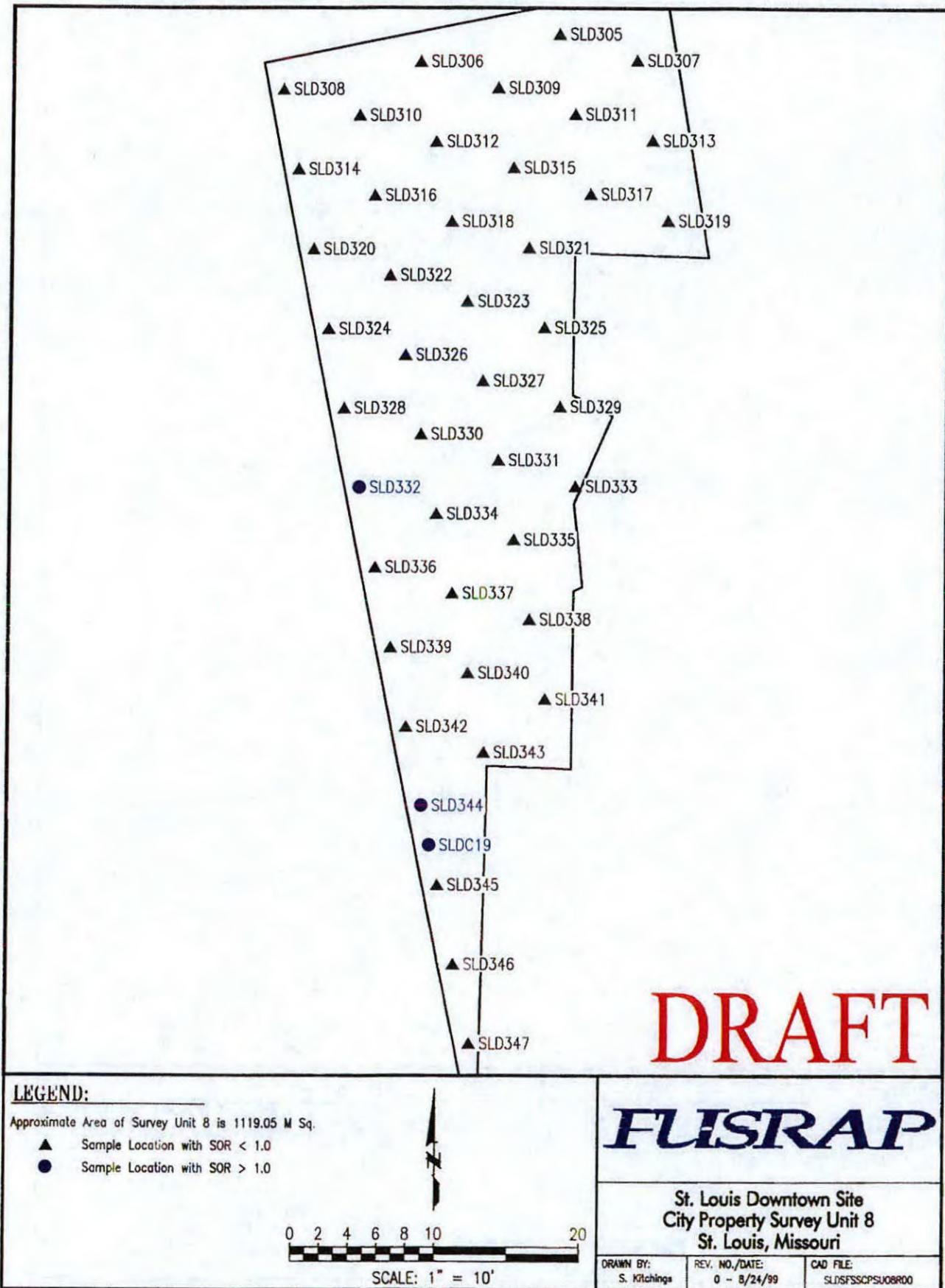


Figure 8a. SLDS City Property Survey Unit 8

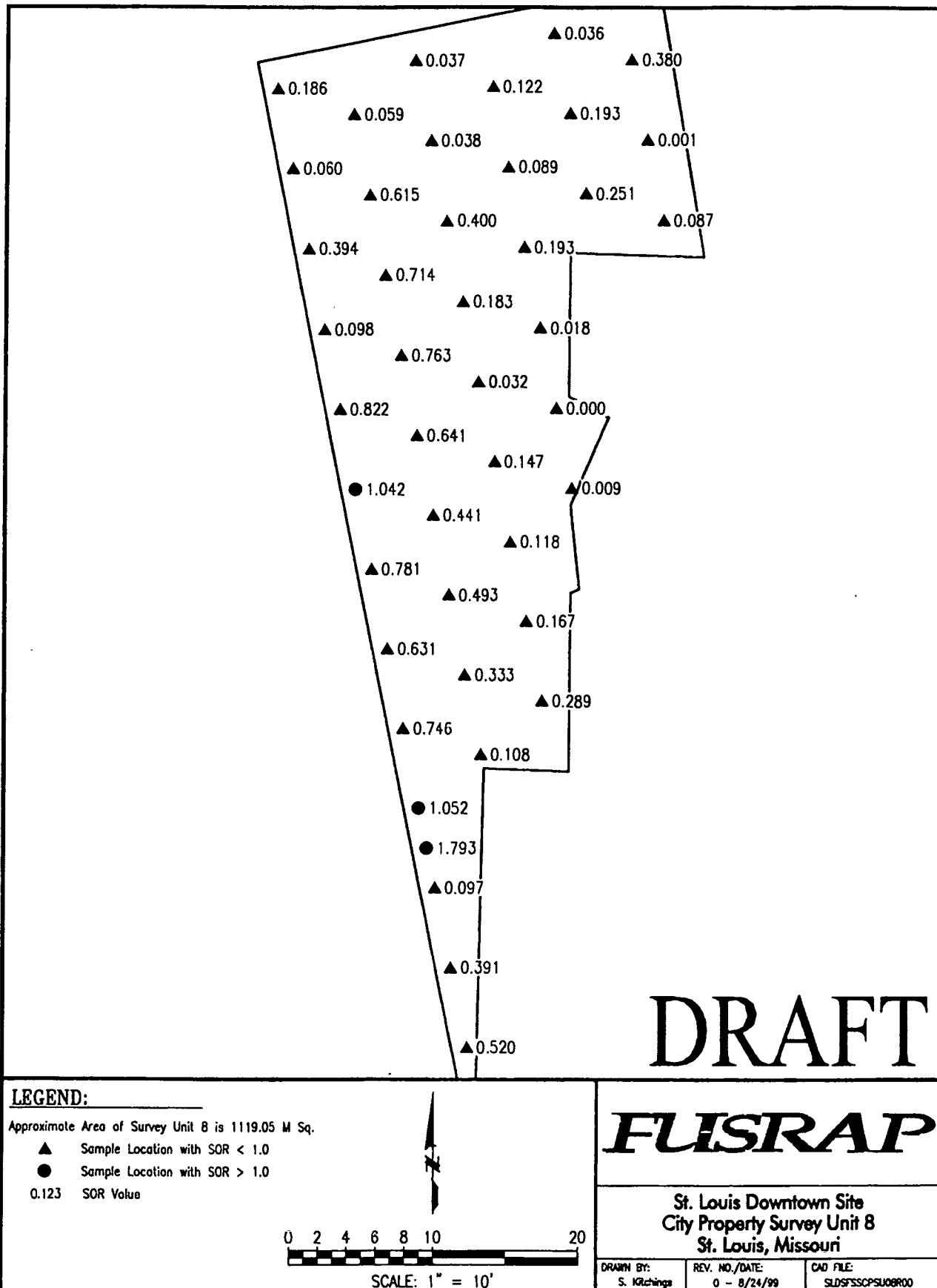
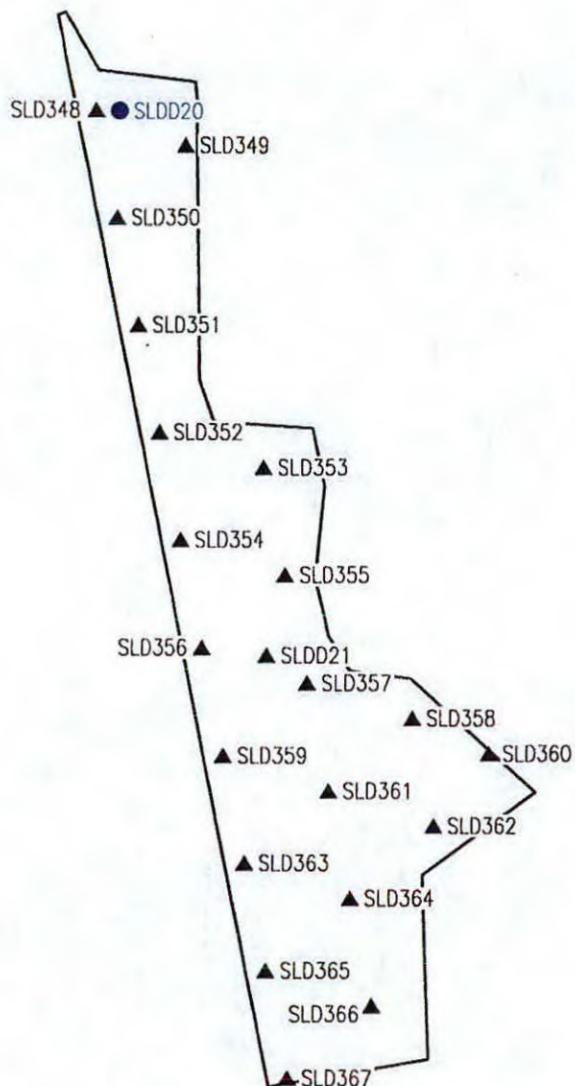


Figure 8b. SLDS City Property Survey Unit 8



DRAFT

LEGEND:

Approximate Area of Survey Unit 9 is 434.69 M Sq.

- ▲ Sample Location with SOR < 1.0
- Sample Location with SOR > 1.0

0 2 4 6 8 10 20
SCALE: 1" = 10'

FUSRAP

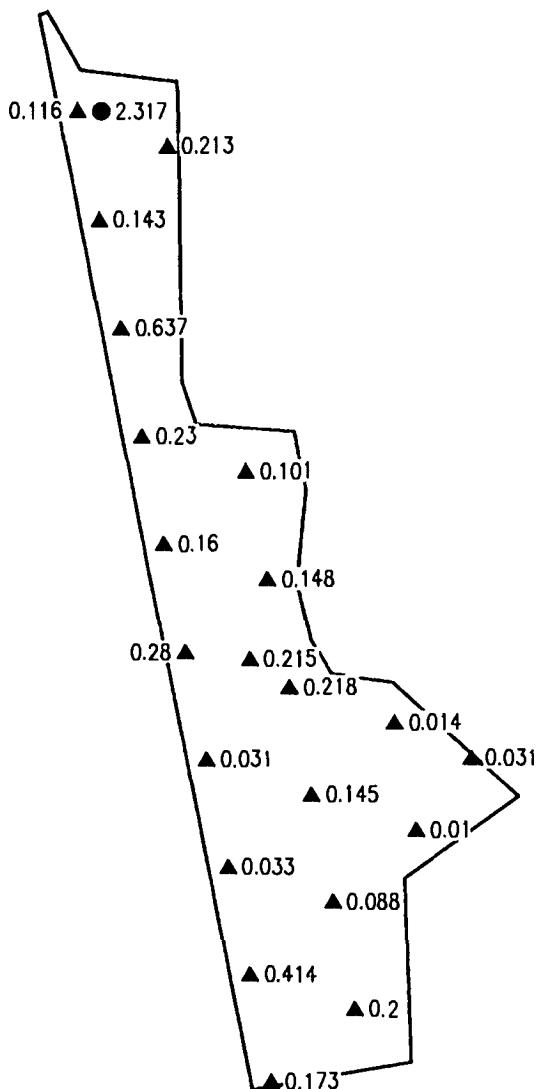
St. Louis Downtown Site
City Property Survey Unit 9
St. Louis, Missouri

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S. Kitchings

REV. NO./DATE:
1 - 8/27/99

CAD FILE:
SLDSFSSCPUS09R01

Figure 9a. SLDS City Property Survey Unit 9

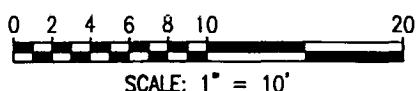


DRAFT

LEGEND:

Approximate Area of Survey Unit 9 is 434.69 M Sq.

- ▲ Sample Location with SOR < 1.0
- Sample Location with SOR > 1.0
- 0.123 SOR Value



FUSRAP

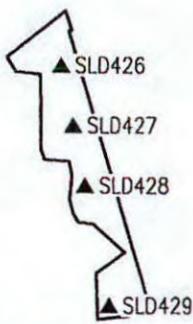
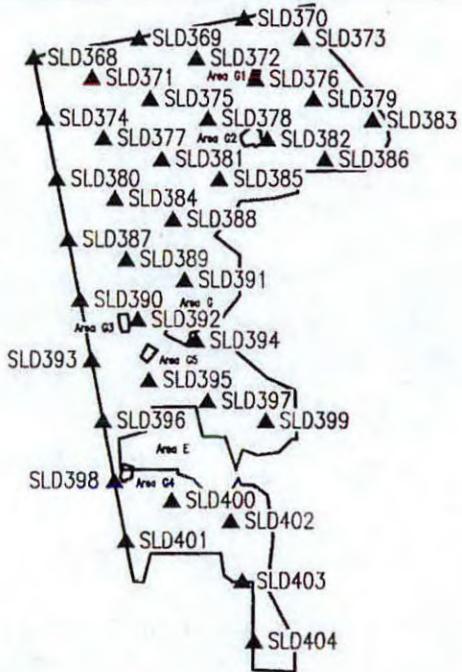
St. Louis Downtown Site
City Property Survey Unit 9
St. Louis, Missouri

DRAWN BY:
S. Kitchings

REV. NO./DATE:
1 - 8/27/09

CAD FILE:
SLDSFSSCPUS09R01

Figure 9b. SLDS City Property Survey Unit 9

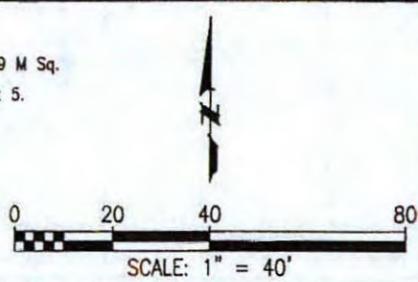


DRAFT

LEGEND:

Approximate Area of Survey Unit 10 is 5058.09 M Sq.
Areas G through G5 & E make up Survey Unit 5.

▲ Sample Location with SOR < 1.0

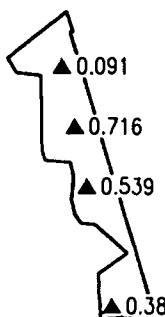
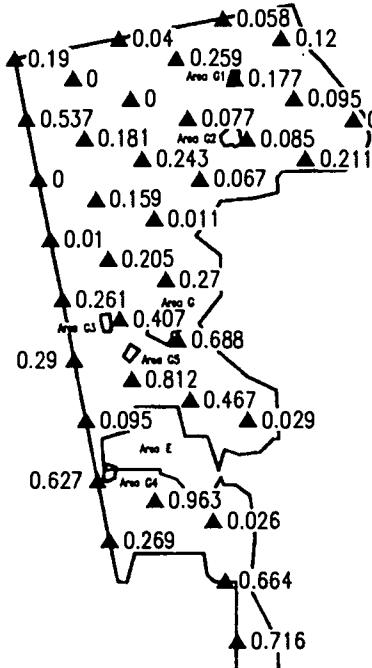


FUSRAP

St. Louis Downtown Site
City Property Survey Unit 10
St. Louis, Missouri

DRAWN BY: S. Kitchings	REV. NO./DATE: 0 - 8/24/99	CAD FILE: SLDSFSSCPSU10R00
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Figure 10a. SLDS City Property Survey Unit 10



DRAFT

FLISRAP

LEGEND:

Approximate Area of Survey Unit 10 is 5058.09 M Sq.

Areas G through G5 & E make up Survey Unit 5.

▲ Sample Location with SOR < 1.0

0.123 SOR Value

0 20 40 80
SCALE: 1" = 40'

St. Louis Downtown Site
City Property Survey Unit 10
St. Louis, Missouri

DRAWN BY:
S. Kitchings

REV. NO./DATE:
0 - 8/24/93

CAD FILE:
SLDS:SSCPSU10R00

Figure 10b. SLDS City Property Survey Unit 10

ATTACHMENT B-1

SUMMARY OF CITY PROPERTY FINAL STATUS SURVEY DATA

The data from each survey unit is presented in the tables in this appendix. For each table, the background statistical summary is printed at the top. The background sums of ratios (SOR_B) are shown for both the surface (5/5/50) and the subsurface (15/15/50) criteria in the last two columns. A summary of the survey unit is presented below the background summary with both the gross sum of ratios (SOR_G) before subtracting background, and the net sum of ratios (SOR_N) after subtracting background. The results for each sample (including background) are presented in the statistical summary. The values in the area column indicate what area each sample represents.

Attachment B-1. Summary of City Property Final Status Survey Data

Reference Area Data Summary

Statistic	Area (m ²)	U-238 (pCi/g)	Th-230 (pCi/g)	Ra-226 (pCi/g)	U-235 (pCi/g)	Pa-231 (pCi/g)	Ac-227 (pCi/g)	Th-232 (pCi/g)	Ra-228 (pCi/g)	Th-228 (pCi/g)	SOR _B (S/S/50)	SOR _B (15/15/50)
Mean	-	1.44	1.94	2.78	0.09	0.89	0.14	1.09	0.95	1.16	0.82	0.29
Median	-	1.16	1.66	2.53	0.08	0.98	0.11	1.07	0.97	1.10	0.76	0.27
UCL-95	-	1.67	2.18	3.04	0.12	1.12	0.18	1.18	1.00	1.26	-	-
St. Dev	-	0.75	0.76	0.89	0.08	0.76	0.14	0.29	0.17	0.35	0.21	0.08
Range	-	3.19	3.19	3.93	0.33	2.55	0.80	1.25	0.82	1.59	0.95	0.35
Detects	-	32	32	32	0	13	7	32	32	32	-	-
No. Samples (n)	-	32	32	32	32	32	32	32	32	32	32	32

Survey Unit Data Summary SU 1 (Class 1)

Statistic/Sample	Area (m ²)	U-238 (pCi/g)	Th-230 (pCi/g)	Ra-226 (pCi/g)	U-235 (pCi/g)	Pa-231 (pCi/g)	Ac-227 (pCi/g)	Th-232 (pCi/g)	Ra-228 (pCi/g)	Th-228 (pCi/g)	SOR _C (15/15/50)	SOR _N (15/15/50)
Mean	-	3.05	4.99	2.49	0.23	0.17	0.13	1.03	0.87	1.12	0.470	0.244
Median	-	3.12	4.02	2.15	0.23	0.13	0.11	1.04	0.88	1.14	0.418	0.179
UCL-95	-	3.34	5.89	2.77	0.26	0.22	0.17	1.09	0.92	1.21	-	-
St. Dev	-	1.20	3.21	1.27	0.13	0.29	0.13	0.28	0.20	0.37	0.224	0.218
Range	-	4.12	6.92	6.22	0.50	1.50	0.46	1.24	0.82	1.15	0.545	0.451
Maximum	-	5.82	19.60	6.45	0.58	1.02	0.67	1.72	1.24	2.02	1.408	1.185
Detects	-	5	49	49	16	0	3	49	49	49	-	-
No. Samples (n)	-	49	49	49	49	49	49	49	49	49	49	49

SLD001	23.3	1.07	1.13	0.79	0.11	0.33	0.08	0.55	0.32	0.49	0.133	0.000
SLD002	23.3	3.12	4.02	1.94	0.22	-0.17	-0.06	1.19	0.90	1.09	0.410	0.179
SLD003	23.3	1.79	1.66	1.41	0.03	0.11	0.04	0.73	0.83	1.16	0.202	0.007
SLD005	23.3	2.18	3.23	1.95	0.12	0.26	0.07	1.28	1.01	0.57	0.344	0.113
SLD006	23.3	2.14	2.91	2.15	0.12	0.14	0.10	0.88	0.77	1.42	0.295	0.079
SLD007	23.3	1.73	1.85	1.39	0.04	-0.08	0.06	0.94	0.75	1.24	0.221	0.006
SLD008	23.3	5.19	6.04	6.45	0.36	-0.25	0.31	1.39	1.11	1.46	0.626	0.368
SLD010	23.3	4.01	3.51	1.83	0.38	0.12	0.05	1.14	1.04	1.08	0.390	0.162
SLD011	23.3	3.62	6.01	2.62	0.20	0.02	0.08	0.74	0.95	0.73	0.536	0.315
SLD013	23.3	3.24	5.60	3.67	0.46	1.02	0.11	1.49	0.98	1.04	0.537	0.306
SLD014	23.3	1.91	2.28	1.89	0.24	0.12	0.10	0.62	0.67	0.47	0.235	0.032
SLD015	23.3	2.46	4.60	1.79	0.15	-0.02	0.13	1.10	0.79	1.22	0.429	0.198
SLD018	23.3	2.70	1.95	1.74	0.09	0.13	0.03	1.15	0.75	0.92	0.261	0.030
SLD019	23.3	3.64	8.05	3.99	0.30	-0.22	0.35	1.03	0.92	1.62	0.678	0.451
SLD021	23.3	1.35	3.86	1.28	0.08	0.39	0.11	1.02	0.63	1.44	0.352	0.128
SLD024	23.3	3.02	2.71	2.43	0.20	0.59	0.19	0.70	0.80	1.14	0.294	0.083
SLD025	23.3	1.16	2.67	0.74	0.11	0.07	0.03	0.25	0.29	0.52	0.221	0.049
SLD026	23.3	2.81	5.47	1.46	0.23	0.38	-0.11	0.83	0.73	1.16	0.476	0.263
SLD027	23.3	3.35	2.66	3.06	0.38	0.44	0.09	1.33	1.08	1.50	0.360	0.102
SLD028	23.3	3.42	6.89	1.75	0.17	0.35	0.08	1.19	0.83	1.39	0.607	0.376
SLD029	23.3	2.99	5.63	2.48	0.21	0.38	0.00	1.07	0.90	1.17	0.506	0.277
SLD030	23.3	1.84	7.89	1.50	0.16	0.05	0.07	0.88	0.57	0.82	0.621	0.405
SLD031	23.3	1.81	7.30	2.49	0.21	0.00	0.15	1.07	0.69	0.65	0.594	0.365
SLD032	23.3	2.29	9.26	2.13	0.27	0.17	0.22	1.61	0.84	1.61	0.770	0.539
SLD033	23.3	3.63	5.36	3.25	0.31	-0.23	0.11	1.18	1.19	2.00	0.509	0.288
SLD034	23.3	1.10	5.34	1.02	0.20	0.15	0.21	0.95	0.98	0.83	0.443	0.229
SLD035	23.3	5.67	7.70	2.13	0.32	0.58	0.53	0.77	0.99	1.18	0.693	0.471
SLD036	23.3	3.12	11.22	2.32	0.24	0.11	0.13	1.43	0.93	1.32	0.906	0.675
SLD038	23.3	1.83	19.60	0.23	0.36	0.43	0.25	0.97	0.91	1.06	1.408	1.185
SLD039	23.3	3.44	2.97	2.09	0.29	0.38	0.05	1.08	0.88	1.25	0.339	0.109
SLD040	23.3	3.28	3.59	2.89	0.25	0.09	0.01	0.95	0.66	1.45	0.368	0.147
SLD041	23.3	1.46	2.72	1.15	0.11	0.13	0.12	0.78	0.62	0.94	0.263	0.052
SLD042	23.3	3.87	2.29	1.53	-0.04	0.13	0.18	1.10	0.79	1.05	0.303	0.072
SLD043	23.3	2.71	1.79	2.17	0.18	0.51	0.16	0.93	0.76	0.85	0.261	0.025
SLD209	23.3	5.04	5.07	5.94	0.44	0.61	0.14	1.42	1.16	1.33	0.591	0.304
SLD210	23.3	4.27	4.48	3.35	0.58	0.27	0.21	0.97	0.94	0.83	0.449	0.226

Attachment B-1. Summary of City Property Final Status Survey Data

Survey Unit Data Summary SU 1 (Class 1)

Statistic/Sample	Area (m ²)	U-238 (pCi/g)	Th-230 (pCi/g)	Ra-226 (pCi/g)	U-235 (pCi/g)	Pa-231 (pCi/g)	Ac-227 (pCi/g)	Th-232 (pCi/g)	Ra-228 (pCi/g)	Th-228 (pCi/g)	SOR _C (15/15/50)	SOR _N (15/15/50)
SLD211	23.3	2.47	3.13	3.58	0.29	-0.48	0.12	1.07	1.02	0.87	0.359	0.105
SLD212	23.3	2.25	3.26	3.41	0.45	0.29	0.03	0.59	1.00	0.75	0.339	0.108
SLD214	23.3	3.35	3.60	4.03	0.30	0.04	0.26	0.88	1.00	0.71	0.402	0.152
SLD215	23.3	5.01	2.78	3.69	0.27	0.47	0.11	1.05	1.08	1.19	0.418	0.141
SLD216	23.3	5.44	5.74	4.67	0.35	-0.14	0.15	1.72	1.15	1.44	0.606	0.375
SLD217	23.3	5.82	5.90	5.04	0.27	0.66	0.33	1.44	1.24	2.02	0.606	0.375
SLD218	23.3	2.42	2.24	1.77	0.11	0.33	0.02	0.77	0.82	1.34	0.252	0.039
SLD219	23.3	3.15	7.89	2.15	0.33	0.17	0.07	1.11	0.80	1.35	0.663	0.432
SLD220	23.3	3.23	2.90	1.72	0.05	0.12	0.11	0.79	0.82	0.68	0.313	0.100
SLD221	23.3	4.17	6.32	3.20	0.36	-0.40	0.10	1.19	1.15	1.78	0.584	0.360
SLD37C	23.3	3.73	10.96	2.36	0.26	-0.13	0.14	1.04	0.88	0.78	0.875	0.647
SLDA1C	0.4	2.60	7.00	2.38	0.10	0.27	0.67	0.82	0.79	1.02	0.573	0.360
SLDA5A	0.4	3.39	3.62	2.85	0.07	-0.32	0.04	1.15	0.96	0.98	0.386	0.155

Attachment B-1. Summary of City Property Final Status Survey Data

Reference Area Data Summary

Statistic	Area (m ²)	U-238 (pCi/g)	Th-230 (pCi/g)	Ra-226 (pCi/g)	U-235 (pCi/g)	Pa-231 (pCi/g)	Ac-227 (pCi/g)	Th-232 (pCi/g)	Ra-228 (pCi/g)	Th-228 (pCi/g)	SOR _B (5/5/50)	SOR _B (15/15/50)
Mean	-	1.44	1.94	2.78	0.09	0.89	0.14	1.09	0.95	1.16	0.82	0.29
Median	-	1.16	1.66	2.53	0.08	0.98	0.11	1.07	0.97	1.10	0.76	0.27
UCL-95	-	1.67	2.18	3.04	0.12	1.12	0.18	1.18	1.00	1.26	-	-
St. Dev	-	0.75	0.76	0.89	0.08	0.76	0.14	0.29	0.17	0.35	0.21	0.08
Range	-	3.19	3.19	3.93	0.33	2.55	0.80	1.25	0.82	1.59	0.95	0.35
Detects	-	32	32	32	0	13	7	32	32	32	-	-
No. Samples (n)	-	32	32	32	32	32	32	32	32	32	32	32

Survey Unit Data Summary SU 2 (Class 1)

Statistic/Sample	Area (m ²)	U-238 (pCi/g)	Th-230 (pCi/g)	Ra-226 (pCi/g)	U-235 (pCi/g)	Pa-231 (pCi/g)	Ac-227 (pCi/g)	Th-232 (pCi/g)	Ra-228 (pCi/g)	Th-228 (pCi/g)	SOR _G (15/15/50)	SOR _N (15/15/50)
Mean	-	2.68	4.26	2.26	0.23	0.31	0.18	1.09	0.80	1.09	0.410	0.195
Median	-	2.17	3.11	1.94	0.22	0.31	0.13	1.11	0.84	1.07	0.318	0.102
UCL-95	-	3.14	5.19	2.73	0.26	0.41	0.22	1.16	0.84	1.22	-	-
St. Dev	-	1.81	3.37	1.38	0.13	0.41	0.18	0.28	0.18	0.41	0.248	0.238
Range	-	4.39	6.30	3.98	0.49	2.59	0.48	1.18	0.96	1.84	0.487	0.381
Maximum	-	8.86	18.61	6.65	0.50	2.25	0.75	1.61	1.13	2.24	1.373	1.154
Detects	-	6	44	44	19	0	5	44	44	44	-	-
No. Samples (n)	-	44	44	44	44	44	44	44	44	44	44	44

SLD044	23.8	2.82	3.00	1.94	0.09	-0.31	0.07	0.83	0.72	1.18	0.312	0.098
SLD045	23.8	1.93	1.78	1.38	0.03	2.25	0.21	1.10	0.70	0.76	0.231	0.010
SLD048	23.8	2.96	4.48	2.31	0.28	0.54	0.14	1.16	0.92	1.50	0.435	0.204
SLD049	23.8	1.95	2.44	1.36	0.09	0.37	-0.04	1.09	0.86	0.75	0.274	0.043
SLD050	23.8	4.98	5.52	4.14	0.26	0.47	0.15	1.25	0.89	1.14	0.551	0.320
SLD051	23.8	1.51	3.13	1.42	0.19	-0.13	0.01	1.12	0.68	1.06	0.314	0.082
SLD052	23.8	1.23	3.11	1.71	0.06	0.03	-0.03	0.76	0.77	0.81	0.283	0.078
SLD053	23.8	2.61	4.49	3.51	0.33	0.85	0.20	1.23	1.01	1.10	0.434	0.202
SLD054	23.8	2.55	2.71	1.99	0.16	0.41	0.44	1.30	1.13	2.24	0.318	0.087
SLD055	23.8	1.73	2.98	2.90	0.26	0.04	0.23	1.02	0.87	1.24	0.301	0.075
SLD056	23.8	4.00	4.03	4.11	0.34	0.49	0.08	1.52	0.87	1.23	0.455	0.219
SLD057	23.8	1.44	2.12	1.31	0.17	0.32	0.06	0.75	0.65	0.65	0.220	0.012
SLD058	23.8	2.08	2.35	1.68	0.22	0.04	0.21	1.16	0.67	0.85	0.276	0.044
SLD059	23.8	2.72	7.17	4.69	0.28	0.34	0.42	1.19	0.86	1.17	0.612	0.381
SLD060	23.8	4.92	4.92	3.88	0.47	0.22	0.17	1.18	1.00	0.70	0.505	0.274
SLD061	23.8	2.06	2.73	1.40	0.17	-0.04	0.09	1.23	0.68	0.56	0.305	0.074
SLD062	23.8	1.30	0.87	0.71	0.07	-0.31	0.00	0.51	0.71	0.50	0.131	0.000
SLD063	23.8	1.28	2.13	1.57	0.30	0.00	0.19	0.73	0.85	0.94	0.224	0.013
SLD064	23.8	2.25	3.11	1.67	0.19	0.13	0.19	1.61	0.73	1.51	0.360	0.129
SLD065	23.8	3.59	18.61	2.33	0.37	0.60	0.41	0.91	0.68	0.72	1.373	1.154
SLD066	23.8	0.91	1.24	0.76	0.20	0.15	0.08	0.89	0.83	1.10	0.160	0.000
SLD067	23.8	4.88	4.06	3.33	0.40	0.38	0.34	1.34	0.89	0.86	0.458	0.226
SLD068	23.8	6.80	13.74	3.56	0.46	0.44	0.61	1.00	0.72	0.90	1.119	0.894
SLD069	23.8	2.52	6.18	2.12	0.24	0.37	0.11	1.10	0.82	1.04	0.536	0.305
SLD070	23.8	0.66	2.12	0.97	-0.02	-0.14	0.10	1.45	0.84	1.33	0.251	0.036
SLD071	23.8	3.36	5.69	2.11	0.27	0.09	0.04	0.73	0.65	1.08	0.495	0.288
SLD072	23.8	3.61	4.86	2.57	0.22	0.74	0.25	1.32	0.47	1.06	0.484	0.253
SLD073	23.8	1.25	2.21	0.85	0.18	0.42	0.07	1.10	0.41	0.64	0.246	0.018
SLD074	23.8	3.00	7.91	2.21	0.30	0.17	0.28	0.87	0.65	0.99	0.645	0.429
SLD075	23.8	8.86	2.92	2.09	0.50	0.23	0.54	1.20	0.87	1.19	0.452	0.221
SLD076	23.8	2.04	5.35	2.75	0.14	0.64	0.29	1.10	0.64	0.85	0.471	0.240
SLD077	23.8	0.81	1.29	0.75	0.06	0.11	0.05	0.34	0.17	0.40	0.125	0.000
SLD078	23.8	0.82	1.98	1.13	0.22	0.03	0.09	0.78	0.73	1.18	0.200	0.003
SLD079	23.8	1.70	3.44	1.94	0.25	0.27	0.05	0.76	0.75	1.01	0.314	0.105
SLD080	23.8	0.65	1.55	0.85	0.14	0.36	0.05	0.90	0.94	0.92	0.179	0.000
SLD081	23.8	1.19	1.30	1.09	0.15	0.46	0.01	1.47	1.01	1.80	0.208	0.025

Attachment B-1. Summary of City Property Final Status Survey Data

Survey Unit Data Summary SU 2 (Class 1)

Statistic/Sample	Area (m²)	U-238 (pCi/g)	Th-230 (pCi/g)	Ra-226 (pCi/g)	U-235 (pCi/g)	Pa-231 (pCi/g)	Ac-227 (pCi/g)	Th-232 (pCi/g)	Ra-228 (pCi/g)	Th-228 (pCi/g)	SOR_C (15/15/50)	SOR_N (15/15/50)
SLD082	23.8	1.69	2.84	0.96	0.05	0.51	0.01	1.43	0.94	1.88	0.318	0.087
SLD083	23.8	0.92	2.59	0.98	0.04	0.20	0.04	1.56	1.02	1.99	0.295	0.074
SLD084	23.8	0.59	1.55	0.80	0.21	-0.34	0.15	1.05	0.97	0.49	0.185	0.002
SLD206	23.8	5.36	9.40	6.65	0.45	0.12	0.42	1.41	1.02	1.13	0.828	0.597
SLD207	23.8	5.90	6.80	5.32	0.46	0.39	0.07	0.87	0.88	1.86	0.630	0.413
SLD208	23.8	3.11	4.56	3.88	0.19	0.39	0.24	1.15	0.93	1.11	0.443	0.212
SLD10C	1.4	2.63	3.47	1.82	0.27	0.29	0.00	1.13	0.85	1.15	0.359	0.128
SLD12A	11.1	4.86	8.51	4.12	0.44	0.90	0.75	1.21	0.74	1.55	0.745	0.514

Attachment B-1. Summary of City Property Final Status Survey Data

Reference Area Data Summary												
Statistic	Area (m ²)	U-238 (pCi/g)	Th-230 (pCi/g)	Ra-226 (pCi/g)	U-235 (pCi/g)	Pa-231 (pCi/g)	Ac-227 (pCi/g)	Th-232 (pCi/g)	Ra-228 (pCi/g)	Th-228 (pCi/g)	SOR _B (S/S/50)	SOR _B (15/15/50)
Mean	-	1.44	1.94	2.78	0.09	0.89	0.14	1.09	0.95	1.16	0.82	0.29
Median	-	1.16	1.66	2.53	0.08	0.98	0.11	1.07	0.97	1.10	0.76	0.27
UCL-95	-	1.67	2.18	3.04	0.12	1.12	0.18	1.18	1.00	1.26	-	-
St. Dev	-	0.75	0.76	0.89	0.08	0.76	0.14	0.29	0.17	0.35	0.21	0.08
Range	-	3.19	3.19	3.93	0.33	2.55	0.80	1.25	0.82	1.59	0.95	0.35
Detects	-	32	32	32	0	13	7	32	32	32	-	-
No. Samples (m)	-	32	32	32	32	32	32	32	32	32	32	32
Survey Unit Data Summary SU 3 (Class 1)												
Statistic/Sample	Area (m ²)	U-238 (pCi/g)	Th-230 (pCi/g)	Ra-226 (pCi/g)	U-235 (pCi/g)	Pa-231 (pCi/g)	Ac-227 (pCi/g)	Th-232 (pCi/g)	Ra-228 (pCi/g)	Th-228 (pCi/g)	SOR _G (15/15/50)	SOR _N (15/15/50)
Mean	-	2.79	5.20	1.97	0.19	0.25	0.11	1.19	0.94	1.38	0.484	0.260
Median	-	2.61	4.28	1.94	0.19	0.25	0.08	1.15	0.88	1.28	0.443	0.214
UCL-95	-	3.07	6.12	2.09	0.22	0.34	0.14	1.30	1.00	1.51	-	-
St. Dev	-	1.16	3.02	0.48	0.10	0.36	0.13	0.46	0.24	0.54	0.222	0.219
Range	-	6.15	10.74	2.63	0.47	1.66	0.69	2.44	1.04	1.84	0.756	0.749
Maximum	-	6.85	12.96	3.67	0.41	1.34	0.64	3.06	1.84	3.69	1.142	0.911
Detects	-	7	51	51	19	0	2	50	51	51	-	-
No. Samples (n)	-	51	51	51	51	51	50	51	51	51	51	51
SLD085	27.7	2.59	3.79	2.03	0.12	0.33	0.64	0.96	0.77	1.24	0.368	0.146
SLD088	27.7	4.38	5.43	3.67	0.21	0.96	0.53	0.94	1.04	1.45	0.519	0.298
SLD093	27.7	6.85	9.77	2.72	0.40	0.69	0.07	1.89	1.11	1.52	0.914	0.683
SLD098	27.7	2.93	5.91	1.59	0.21	0.49	0.03	1.49	0.88	1.16	0.552	0.321
SLD100	27.7	1.91	4.28	1.94	0.16	0.87	0.17	2.44	1.69	2.32	0.486	0.255
SLD103	27.7	1.88	6.89	2.04	0.19	0.31	0.02	1.65	1.34	2.49	0.607	0.376
SLD105	27.7	2.16	3.60	1.68	0.21	1.34	0.04	1.26	0.76	1.26	0.367	0.136
SLD106	27.7	1.96	3.98	1.79	0.21	0.65	0.11	1.00	0.98	1.35	0.371	0.149
SLD108	27.7	2.21	9.89	2.27	0.17	0.41	0.24	0.90	0.77	1.00	0.764	0.545
SLD111	27.7	3.11	3.60	2.39	0.28	0.17	0.22	1.09	0.91	1.08	0.375	0.144
SLD112	27.7	4.76	3.85	2.79	0.23	-0.28	0.01	1.37	1.25	1.80	0.443	0.214
SLD114	27.7	2.96	7.83	2.35	0.27	-0.26	0.05	1.09	0.89	1.79	0.654	0.423
SLD115	27.7	3.22	2.23	1.80	0.08	0.47	0.13	0.56	0.85	0.67	0.270	0.055
SLD117	27.7	2.87	1.96	1.60	0.20	0.43	0.05	0.90	0.75	0.72	0.248	0.030
SLD118	27.7	3.97	12.36	2.44	0.14	-0.12	0.10	0.00	1.04	1.06	0.973	0.751
SLD120	27.7	2.61	6.82	1.98	0.23	0.30	0.31	0.90	1.10	1.28	0.580	0.359
SLD121	27.7	2.82	2.61	1.40	0.02	0.14		0.67	0.73	1.04	0.279	0.072
SLD122	27.7	2.37	5.87	1.81	0.14	-0.31	0.07	1.20	0.91	1.44	0.519	0.288
SLD124	27.7	1.08	1.62	1.04	0.02	0.41	0.11	1.33	0.98	1.24	0.218	0.016
SLD125	27.7	2.24	2.29	1.82	0.15	0.36	0.03	1.14	0.84	0.80	0.273	0.042
SLD126	27.7	3.49	2.71	1.95	0.22	0.01	0.02	1.31	0.94	0.93	0.338	0.107
SLD127	27.7	2.37	4.07	1.65	0.15	0.23	0.19	0.91	0.88	1.46	0.379	0.160
SLD128	27.7	1.73	7.70	1.90	0.16	0.07	0.02	0.89	0.75	1.39	0.607	0.390
SLD129	27.7	2.06	1.91	1.48	0.14	0.27	-0.05	0.88	0.66	1.03	0.227	0.012
SLD130	27.7	1.83	4.56	1.39	0.04	0.15	-0.03	1.22	0.97	2.37	0.422	0.191
SLD131	27.7	1.60	3.64	2.11	0.01	-0.16	0.07	1.61	1.33	1.94	0.382	0.151
SLD132	27.7	2.06	5.70	2.28	0.19	-0.13	0.18	1.15	0.90	0.79	0.498	0.267
SLD133	27.7	4.71	2.62	2.23	0.33	-0.32	0.13	1.52	1.12	1.89	0.370	0.139
SLD134	27.7	3.20	2.88	1.71	0.14	-0.07	0.04	0.99	0.94	1.25	0.322	0.098
SLD135	27.7	1.34	2.57	1.29	0.08	0.15	0.08	0.58	0.65	0.81	0.241	0.042
SLD136	27.7	1.01	10.94	1.57	0.18	0.22	-0.02	1.18	0.77	1.23	0.828	0.606
SLD139	27.7	0.70	1.86	1.32	0.04	0.50	0.10	1.18	0.83	0.77	0.217	0.006
SLD142	27.7	1.77	5.29	1.47	0.13	0.25	0.04	1.15	0.77	0.82	0.465	0.234
SLD408	23.9	3.70	12.96	2.48	0.33	0.27	-0.05	3.06	1.84	3.69	1.142	0.911
SLD409	23.9	3.62	5.78	1.94	0.26	-0.19	0.14	1.23	0.88	1.14	0.540	0.309
SLD410	23.9	3.73	6.88	2.59	0.37	0.40	0.22	1.40	1.00	1.98	0.627	0.395

Attachment B-1. Summary of City Property Final Status Survey Data

Survey Unit Data Summary SU 3 (Class 1)

Statistic/Sample	Area (m ²)	U-238 (pCi/g)	Th-230 (pCi/g)	Ra-226 (pCi/g)	U-235 (pCi/g)	Pa-231 (pCi/g)	Ac-227 (pCi/g)	Th-232 (pCi/g)	Ra-228 (pCi/g)	Th-228 (pCi/g)	SOR _C (15/15/50)	SOR _N (15/15/50)
SLD411	23.9	3.10	7.09	2.67	0.30	0.69	0.39	0.92	0.93	1.36	0.597	0.376
SLD412	23.9	1.56	1.89	1.81	0.18	0.16	0.07	0.90	0.70	0.88	0.217	0.002
SLD413	23.9	3.34	9.62	2.24	0.27	-0.15	0.15	1.23	0.82	1.49	0.790	0.559
SLD414	23.9	4.74	11.36	2.95	0.36	0.59	0.10	1.57	1.25	1.62	0.957	0.726
SLD415	23.9	2.37	3.11	1.44	0.12	0.02	0.07	0.74	0.70	1.37	0.304	0.096
SLD416	23.9	3.71	3.09	2.10	0.38	0.60	0.01	1.05	0.83	0.65	0.350	0.122
SLD417	23.9	4.15	4.51	2.23	0.41	0.11	0.04	1.22	0.87	1.07	0.465	0.234
SLD418	23.9	4.01	8.04	1.78	0.22	0.32	0.13	1.29	0.76	1.59	0.702	0.471
SLD419	23.9	2.75	5.68	1.80	0.12	0.05	0.09	0.88	0.96	1.66	0.498	0.276
SLD420	23.9	2.56	2.89	1.67	-0.07	0.32	0.08	1.54	1.16	1.04	0.347	0.115
SLD421	23.9	2.72	9.31	1.94	0.23	1.00	0.17	1.22	0.88	1.48	0.756	0.525
SLD422	23.9	2.16	2.23	1.92	0.19	0.38	0.16	1.09	1.00	1.61	0.265	0.037
SLD423	23.9	1.95	2.03	1.66	0.20	0.13	0.03	0.92	0.71	1.59	0.236	0.016
SLD424	23.9	3.88	5.02	1.95	0.25	-0.14	0.03	1.35	0.80	1.07	0.502	0.271
SLD425	23.9	1.74	2.80	2.01	0.28	-0.22	0.03	1.65	0.85	1.49	0.331	0.100

Attachment B-1. Summary of City Property Final Status Survey Data

Reference Area Data Summary												
Statistic	Area (m ²)	U-238 (pCi/g)	Th-230 (pCi/g)	Ra-226 (pCi/g)	U-235 (pCi/g)	Pa-231 (pCi/g)	Ac-227 (pCi/g)	Th-232 (pCi/g)	Ra-228 (pCi/g)	Th-228 (pCi/g)	SOR _B (5/5/50)	SOR _B (15/15/50)
Mean	-	1.44	1.94	2.78	0.09	0.89	0.14	1.09	0.95	1.16	0.82	0.29
Median	-	1.16	1.66	2.53	0.08	0.98	0.11	1.07	0.97	1.10	0.76	0.27
UCL-95	-	1.67	2.18	3.04	0.12	1.12	0.18	1.18	1.00	1.26	-	-
St. Dev	-	0.75	0.76	0.89	0.08	0.76	0.14	0.29	0.17	0.35	0.21	0.08
Range	-	3.19	3.19	3.93	0.33	2.55	0.80	1.25	0.82	1.59	0.95	0.35
Detects	-	32	32	32	0	13	7	32	32	32	-	-
No. Samples (m)	-	32	32	32	32	32	32	32	32	32	32	32

Survey Unit Data Summary SU 4 (Class 1)												
Statistic/Sample	Area (m ²)	U-238 (pCi/g)	Th-230 (pCi/g)	Ra-226 (pCi/g)	U-235 (pCi/g)	Pa-231 (pCi/g)	Ac-227 (pCi/g)	Th-232 (pCi/g)	Ra-228 (pCi/g)	Th-228 (pCi/g)	SOR _G (15/15/50)	SOR _N (15/15/50)
Mean	-	3.18	3.90	1.90	0.22	0.24	0.14	0.97	0.75	1.10	0.399	0.190
Median	-	1.94	2.87	1.39	0.17	0.21	0.09	0.93	0.77	1.14	0.325	0.106
UCL-95	-	4.23	4.64	2.33	0.28	0.31	0.19	1.05	0.81	1.18	-	-
St. Dev	-	4.67	3.77	1.89	0.26	0.29	0.20	0.37	0.26	0.37	0.294	0.278
Range	-	6.69	11.17	2.67	0.45	0.98	0.26	1.54	0.92	1.45	0.866	0.716
Maximum	-	34.56	22.73	12.77	1.79	1.46	0.92	2.07	1.33	2.02	1.670	1.438
Detects	-	10	55	54	17	0	3	54	54	54	-	-
No. Samples (n)	-	55	55	55	55	55	55	55	55	55	55	55
SLD137	22.9	2.07	3.44	1.34	0.16	-0.13	-0.01	1.09	0.69	1.46	0.343	0.112
SLD140	22.9	1.79	2.22	1.04	0.26	0.10	0.04	1.67	0.55	0.89	0.295	0.064
SLD141	22.9	1.10	2.79	1.08	0.10	0.28	0.12	0.94	0.94	1.06	0.271	0.057
SLD143	22.9	2.61	2.11	1.65	0.24	0.30	0.02	0.98	0.83	1.41	0.258	0.035
SLD144	22.9	1.21	4.03	1.22	0.10	0.49	0.04	1.08	0.67	1.23	0.365	0.139
SLD145	22.9	1.01	1.52	0.69	0.05	0.35	0.06	1.03	1.01	1.07	0.190	0.004
SLD146	22.9	1.09	1.86	1.10	0.18	0.21	0.07	0.81	0.54	0.70	0.200	0.000
SLD147	22.9	3.26	2.90	1.58	0.14	0.00	0.09	1.00	0.71	1.45	0.325	0.100
SLD148	22.9	1.01	6.86	1.25	0.02	0.05	0.07	0.67	0.73	0.62	0.526	0.328
SLD149	22.9	2.28	2.23	1.25	0.15	-0.04	0.00	1.06	0.55	1.23	0.265	0.036
SLD150	22.9	1.30	1.99	0.70	0.15	-0.01	0.04	0.86	0.47	1.00	0.216	0.003
SLD151	22.9	3.29	2.98	2.10	0.09	0.24	0.18	0.85	0.78	1.50	0.321	0.106
SLD152	22.9	3.94	10.54	1.42	0.22	0.10	0.17	1.58	0.79	1.35	0.887	0.656
SLD153	22.9	1.96	11.94	1.85	0.24	0.21	0.09	1.29	0.49	0.73	0.921	0.690
SLD154	22.9	1.07	1.68	1.01	0.14	0.14	0.15	0.82	0.87	0.99	0.191	0.000
SLD155	22.9	7.22	10.84	3.05	0.45	0.63	0.21	0.74	1.05	1.29	0.937	0.716
SLD156	22.9	0.97	1.57	1.00	0.06	0.43	0.07	0.78	0.95	1.16	0.187	0.000
SLD157	22.9	1.75	1.06	0.78	0.09	0.32	0.10	0.57	0.36	0.36	0.144	0.006
SLD158	22.9	2.51	3.27	1.93	0.23	0.29	0.14	1.30	0.76	0.94	0.355	0.124
SLD159	22.9	3.39	13.44	8.26	0.48	0.67	0.33	1.12	0.94	1.27	1.038	0.807
SLD160	22.9	1.48	3.40	1.09	0.17	0.12	0.10	1.82	0.39	0.65	0.378	0.146
SLD161	22.9	4.36	3.03	1.39	0.26	-0.02	0.06	0.64	0.68	1.45	0.335	0.131
SLD162	22.9	1.94	6.68	2.42	0.26	0.00	0.21	1.54	1.08	1.49	0.587	0.356
SLD163	22.9	1.30	4.36	1.66	0.13	0.48	-0.01	2.07	0.86	1.66	0.455	0.226
SLD164	22.9	1.88	2.63	1.35	0.14	0.50	0.10	1.35	0.78	1.40	0.303	0.072
SLD165	22.9	34.56	2.87	1.50	1.79	0.42	0.12	0.90	0.55	1.12	0.943	0.724
SLD166	22.9	1.80	2.10	1.49	0.18	0.02	0.03	1.04	0.59	0.91	0.245	0.018
SLD167	22.9	0.93	6.07	1.30	0.07	0.35	0.11	0.87	0.46	0.84	0.481	0.275
SLD168	22.9	6.55	4.04	2.06	0.42	0.19	0.12	0.88	0.78	0.65	0.459	0.242
SLD169	22.9	1.38	2.49	1.08	0.08	0.00	0.10	0.33	0.61	0.92	0.234	0.037
SLD170	22.9	2.46	4.75	0.99	0.26	-0.16	0.04	0.58	0.31	1.14	0.405	0.208
SLD171	22.9	8.21	3.92	2.38	0.35	0.34	0.03	0.94	0.83	1.05	0.488	0.267
SLD172	22.9	1.85	1.92	1.02	0.17	0.09	0.00	0.78	0.63	0.85	0.217	0.008
SLD173	22.9	2.75	4.11	2.02	0.22	0.25	0.33	1.33	1.18	1.29	0.418	0.187
SLD174	22.9	2.84	3.99	1.98	0.21	0.48	0.00	0.88	0.77	1.14	0.381	0.165
SLD175	22.9	0.83	0.83	0.38	0.05	0.09	-0.03	0.34	0.17	0.68	0.095	0.000

Attachment B-1. Summary of City Property Final Status Survey Data

Survey Unit Data Summary SU 4 (Class 1)

Statistic/Sample	Area (m²)	U-238 (pCi/g)	Th-230 (pCi/g)	Ra-226 (pCi/g)	U-235 (pCi/g)	Pa-231 (pCi/g)	Ac-227 (pCi/g)	Th-232 (pCi/g)	Ra-228 (pCi/g)	Th-228 (pCi/g)	SOR_C (15/15/50)	SOR_N (15/15/50)
SLD176	22.9	1.48	1.85	1.12	0.06	0.14	0.00	0.77	0.60	1.19	0.204	0.001
SLD177	22.9	2.22	3.59	1.74	0.03	0.13	0.12	0.72	0.67	1.02	0.332	0.125
SLD178	22.9	1.74	1.22	0.93	0.07	0.22	0.10	0.93	0.63	0.54	0.178	0.006
SLD179	22.9	3.18	2.84	2.12	0.00	-0.01	0.07	1.42	0.91	0.93	0.348	0.116
SLD180	22.9	1.71	1.75	1.13	0.21	0.05	0.01	0.94	0.62	1.51	0.214	0.005
SLD181	22.9	1.44	1.01	1.01	0.11	0.55	0.09	0.96	1.04	1.37	0.165	0.006
SLD182	22.9	0.53	0.77	0.69	0.07	-0.08	0.73	0.13	0.13	0.05	0.071	0.000
SLD183	22.9	7.35	3.51	3.96	0.56	0.47	0.84	0.82	1.15	1.35	0.488	0.236
SLD184	22.9	3.21	1.08	1.06	0.08	0.03	0.68	0.38	0.54	0.74	0.172	0.035
SLD185	22.9	5.77	4.13	3.61	0.44	-0.06	0.03	1.20	1.33	1.88	0.479	0.258
SLD186	22.9	0.96	1.64	1.21	0.10	0.38	-0.02	0.55	1.09	0.73	0.201	0.010
SLD187	22.9	2.20	1.19	1.33	0.22	0.33	-0.05	0.49	0.48	0.75	0.165	0.015
SLD188	22.9	4.29	3.63	2.12	0.22	0.12	0.11	1.09	0.90	1.14	0.400	0.170
SLD189	22.9	1.79	1.99	1.68	0.17	0.80	0.03	0.68	0.98	1.20	0.234	0.013
SLD190	22.9	4.19	3.21	2.53	0.33	0.79	0.16	1.33	0.87	2.02	0.386	0.155
SLD191	22.9	1.75	2.74	1.92	0.16	0.13	0.14	0.84	1.07	1.61	0.289	0.068
SLD192	22.9	1.63	1.74	1.90	0.12	-0.35	0.24	1.14	0.96	1.43	0.235	0.007
SLDA14	1.5	6.23	7.29	12.77	0.73	1.46	0.92	0.91	1.01	1.00	1.043	0.766
SLDA15	1.5	3.28	22.73	3.48	0.18	0.54	0.36	1.33	0.98	1.14	1.670	1.438

Attachment B-1. Summary of City Property Final Status Survey Data

Reference Area Data Summary

Statistic	Area (m ²)	U-238 (pCi/g)	Th-230 (pCi/g)	Ra-226 (pCi/g)	U-235 (pCi/g)	Pa-231 (pCi/g)	Ac-227 (pCi/g)	Th-232 (pCi/g)	Ra-228 (pCi/g)	Th-228 (pCi/g)	SOR _B (5/5/50)	SOR _B (15/15/50)
Mean	-	1.44	1.94	2.78	0.09	0.89	0.14	1.09	0.95	1.16	0.82	0.29
Median	-	1.16	1.66	2.53	0.08	0.98	0.11	1.07	0.97	1.10	0.76	0.27
UCL-95	-	1.67	2.18	3.04	0.12	1.12	0.18	1.18	1.00	1.26	-	-
St. Dev	-	0.75	0.76	0.89	0.08	0.76	0.14	0.29	0.17	0.35	0.21	0.08
Range	-	3.19	3.19	3.93	0.33	2.55	0.80	1.25	0.82	1.59	0.95	0.35
Detects	-	32	32	32	0	13	7	32	32	32	-	-
No. Samples (m)	-	32	32	32	32	32	32	32	32	32	32	32

Survey Unit Data Summary SU 5 (Class 1)

Statistic/Sample	Area (m ²)	U-238 (pCi/g)	Th-230 (pCi/g)	Ra-226 (pCi/g)	U-235 (pCi/g)	Pa-231 (pCi/g)	Ac-227 (pCi/g)	Th-232 (pCi/g)	Ra-228 (pCi/g)	Th-228 (pCi/g)	SOR _C (15/15/50)	SOR _N (15/15/50)
Mean	-	7.12	4.52	2.76	0.44	0.16	0.19	1.14	0.84	1.30	0.527	0.298
Median	-	4.52	4.20	2.69	0.38	0.16	0.18	1.11	0.85	1.29	0.532	0.313
UCL-95	-	10.40	5.38	3.16	0.63	0.28	0.24	1.33	0.93	1.42	-	-
St. Dev	-	6.07	1.82	1.12	0.27	0.34	0.13	0.40	0.25	0.33	0.216	0.212
Range	-	25.32	6.21	3.61	1.17	1.21	0.61	1.01	0.94	1.24	0.970	0.924
Maximum	-	26.80	8.32	5.60	1.22	0.78	0.59	2.20	1.32	1.86	1.168	0.937
Detects	-	14	23	23	18	0	2	23	23	23	-	-
No. Samples (n)	-	23	23	23	23	23	23	23	23	23	23	23

SLD193	16.6	1.48	2.13	0.77	0.05	-0.10	0.08	0.39	0.22	0.52	0.198	0.013
SLD194	16.6	13.32	5.55	3.02	0.68	0.36	0.17	0.99	0.74	1.16	0.702	0.478
SLD195	16.6	3.65	5.97	3.79	0.27	0.64	0.17	0.64	0.92	1.69	0.532	0.313
SLD196	16.6	26.80	8.32	3.56	1.22	-0.03	0.23	1.16	0.45	1.46	1.168	0.937
SLD197	16.6	4.49	2.76	3.43	0.27	-0.25	0.31	1.39	1.11	1.11	0.411	0.135
SLD198	16.6	3.66	2.17	1.78	0.30	0.43	0.17	1.12	0.81	1.17	0.293	0.061
SLD199	16.6	4.52	3.56	2.47	0.38	-0.18	0.18	1.37	1.08	1.71	0.419	0.188
SLD200	16.6	2.91	7.23	4.38	0.38	0.05	0.59	1.05	0.88	1.29	0.610	0.382
SLD201	16.6	10.64	4.56	1.99	0.58	0.23	0.20	0.88	0.57	0.92	0.575	0.359
SLD202	16.6	7.75	4.74	3.53	0.39	-0.29	0.29	1.05	0.78	1.19	0.541	0.313
SLD203	16.6	4.96	4.00	3.46	0.41	0.27	0.21	0.96	1.16	1.51	0.443	0.222
SLD204	16.6	7.12	3.24	2.58	0.53	0.62	0.20	0.93	0.85	0.87	0.420	0.200
SLD205	16.6	17.07	3.87	2.69	0.92	0.23	0.21	0.88	0.71	1.05	0.658	0.441
SLD405	10.9	3.61	3.70	3.00	0.27	0.03	0.12	1.13	1.02	1.07	0.394	0.166
SLD406	10.9	3.17	3.66	2.25	0.21	-0.57	-0.02	1.15	0.98	1.75	0.384	0.153
SLD407	10.9	2.91	5.31	3.47	0.33	0.49	0.35	0.79	0.80	1.76	0.466	0.254
SLD430	3.8	1.57	3.01	1.03	0.16	0.09	0.09	1.40	0.74	1.42	0.325	0.094
SLD431	6.7	4.29	7.61	3.28	0.33	0.48	0.21	1.99	0.90	1.86	0.726	0.495
SLD432	6.7	2.00	2.11	1.12	0.14	-0.16	-0.01	0.79	0.54	1.02	0.233	0.022
SLD433	6.4	5.88	4.24	2.00	0.55	0.16	0.14	2.20	1.04	1.29	0.547	0.316
SLD434	6.7	10.46	4.26	2.34	0.64	0.01	0.04	1.11	0.94	1.57	0.567	0.336
SLD435	6	14.75	7.70	1.98	0.69	0.45	0.06	1.19	0.77	1.25	0.888	0.657
SLDA16	1.9	6.77	4.20	5.60	0.42	0.78	0.32	1.61	1.32	1.30	0.616	0.329

Attachment B-1. Summary of City Property Final Status Survey Data

Survey Unit Data Summary SU 5 (Class 1)

Statistic/Sample	Area (m ²)	U-238 (pCi/g)	Th-230 (pCi/g)	Ra-226 (pCi/g)	U-235 (pCi/g)	Pa-231 (pCi/g)	Ac-227 (pCi/g)	Th-232 (pCi/g)	Ra-228 (pCi/g)	Th-228 (pCi/g)	SOR _G (15/15/50)	SOR _N (15/15/50)
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Attachment B-1. Summary of City Property Final Status Survey Data

Reference Area Data Summary

Statistic	Area (m ²)	U-238 (pCi/g)	Th-230 (pCi/g)	Ra-226 (pCi/g)	U-235 (pCi/g)	Pa-231 (pCi/g)	Ac-227 (pCi/g)	Th-232 (pCi/g)	Ra-228 (pCi/g)	Th-228 (pCi/g)	SOR _B (5/5/50)	SOR _B (15/15/50)
Mean	-	1.44	1.94	2.78	0.09	0.89	0.14	1.09	0.95	1.16	0.82	0.29
Median	-	1.16	1.66	2.53	0.08	0.98	0.11	1.07	0.97	1.10	0.76	0.27
UCL-95	-	1.67	2.18	3.04	0.12	1.12	0.18	1.18	1.00	1.26	-	-
St. Dev	-	0.75	0.76	0.89	0.08	0.76	0.14	0.29	0.17	0.35	0.21	0.08
Range	-	3.19	3.19	3.93	0.33	2.55	0.80	1.25	0.82	1.59	0.95	0.35
Detects	-	32	32	32	0	13	7	32	32	32	-	-
No. Samples (n)	-	32	32	32	32	32	32	32	32	32	32	32

Survey Unit Data Summary SU 6 (Class 1)

Statistic/Sample	Area (m ²)	U-238 (pCi/g)	Th-230 (pCi/g)	Ra-226 (pCi/g)	U-235 (pCi/g)	Pa-231 (pCi/g)	Ac-227 (pCi/g)	Th-232 (pCi/g)	Ra-228 (pCi/g)	Th-228 (pCi/g)	SOR _G (15/15/50)	SOR _N (15/15/50)
Mean	-	2.74	4.60	2.18	0.22	0.21	0.12	1.10	0.82	1.32	0.436	0.211
Median	-	2.44	3.86	2.08	0.21	0.23	0.14	1.10	0.80	1.27	0.395	0.165
UCL-95	-	3.03	5.37	2.37	0.25	0.27	0.15	1.16	0.86	1.43	-	-
St. Dev	-	1.09	2.46	0.63	0.10	0.20	0.08	0.24	0.15	0.41	0.179	0.177
Range	-	2.92	5.73	1.66	0.36	0.92	0.31	1.05	0.42	0.99	0.445	0.397
Maximum	-	5.70	12.96	3.97	0.41	0.71	0.27	1.66	1.35	2.65	1.066	0.835
Detects	-	4	40	40	15	0	1	40	40	40	-	-
No. Samples (n)	-	40	40	40	40	40	40	40	40	40	40	40

SLD222	26.4	2.27	3.45	1.56	0.26	0.27	0.16	0.86	0.70	1.09	0.333	0.117
SLD223	26.4	1.43	3.76	1.41	0.17	0.22	0.07	0.81	0.57	0.98	0.333	0.121
SLD224	26.4	1.97	1.99	1.42	0.10	0.02	0.05	1.04	0.71	0.98	0.241	0.014
SLD225	26.4	4.35	3.05	2.91	0.36	0.42	0.19	1.17	0.79	1.21	0.368	0.137
SLD226	26.4	1.47	1.88	1.43	0.16	0.23	0.14	1.20	0.74	0.87	0.235	0.008
SLD227	26.4	1.43	6.02	1.72	0.23	0.29	0.05	1.66	0.79	0.66	0.541	0.310
SLD228	26.4	2.93	3.95	2.56	0.30	0.37	0.22	1.12	0.94	1.34	0.397	0.165
SLD229	26.4	2.26	2.58	1.25	0.20	-0.09	0.08	0.80	0.57	1.12	0.271	0.059
SLD230	26.4	2.36	4.20	2.02	0.08	0.24	0.07	1.15	0.80	1.03	0.404	0.173
SLD231	26.4	1.60	1.63	1.61	0.15	-0.09	0.15	0.61	0.68	0.69	0.186	0.003
SLD232	26.4	2.73	5.72	2.55	0.26	0.71	0.09	1.10	0.99	1.23	0.509	0.281
SLD233	26.4	2.07	2.39	1.81	0.05	0.07	0.08	0.91	0.85	1.03	0.261	0.042
SLD234	26.4	1.65	7.36	1.94	0.26	0.35	0.09	1.61	0.80	1.65	0.631	0.400
SLD235	26.4	3.20	6.90	2.63	0.41	0.33	0.11	0.99	0.85	1.62	0.590	0.366
SLD236	26.4	1.71	3.00	1.49	0.07	0.12	0.02	1.16	0.75	1.25	0.312	0.080
SLD237	26.4	2.41	3.45	2.05	0.21	-0.21	0.18	1.03	0.86	1.47	0.347	0.120
SLD238	26.4	2.93	7.30	2.36	0.19	0.14	0.21	0.91	0.85	1.22	0.606	0.387
SLD239	26.4	2.23	2.69	1.76	0.12	0.28	0.13	1.24	0.83	1.57	0.307	0.075
SLD240	26.4	2.95	10.08	2.71	0.30	0.41	0.14	0.98	0.87	1.43	0.796	0.573
SLD241	26.4	3.74	8.96	2.92	0.28	0.23	0.15	1.20	0.95	1.34	0.752	0.521
SLD242	26.4	5.70	12.96	2.17	0.36	0.62	0.03	1.32	0.82	1.36	1.066	0.835
SLD243	26.4	2.47	2.45	2.16	0.16	-0.06	0.21	1.34	0.77	1.40	0.302	0.071
SLD244	26.4	2.75	5.38	2.34	0.21	0.07	0.17	1.03	0.65	1.28	0.482	0.255
SLD245	26.4	1.89	6.58	1.82	0.17	0.39	0.14	1.38	0.82	2.21	0.568	0.337
SLD246	26.4	3.11	4.86	2.51	0.28	0.11	0.27	0.97	0.80	1.24	0.451	0.228
SLD247	26.4	2.63	4.35	2.69	0.28	-0.21	0.23	0.98	1.03	1.42	0.411	0.190
SLD248	26.4	2.09	2.38	1.64	0.08	0.45	0.06	1.24	0.68	1.57	0.283	0.052
SLD249	26.4	4.81	5.01	3.04	0.27	0.14	0.07	1.43	1.01	1.21	0.526	0.294
SLD250	26.4	4.98	3.35	2.71	0.31	0.33	0.18	1.06	0.93	1.29	0.394	0.165
SLD251	26.4	1.89	3.33	1.52	0.13	0.25	0.15	0.99	0.74	1.19	0.326	0.102
SLD252	26.4	2.32	5.03	1.51	0.12	0.39	0.14	1.35	0.80	1.47	0.472	0.241
SLD253	26.4	2.66	3.17	2.42	0.31	0.24	0.13	1.22	0.85	1.42	0.346	0.115
SLD254	26.4	1.63	2.54	1.67	0.11	0.57	0.07	1.20	0.71	1.01	0.282	0.051
SLD255	26.4	3.06	3.57	1.87	0.21	0.08	0.11	0.66	0.73	1.09	0.348	0.141
SLD256	26.4	3.07	6.25	2.65	0.34	0.16	0.24	1.09	0.96	2.41	0.551	0.321
SLD257	26.4	2.12	2.72	1.68	0.13	0.19	0.04	1.12	0.69	0.85	0.298	0.067

Attachment B-1. Summary of City Property Final Status Survey Data

Survey Unit Data Summary SU 6 (Class 1)

Statistic/Sample	Area	U-238 (m²)	Th-230 (pCi/g)	Ra-226 (pCi/g)	U-235 (pCi/g)	Pa-231 (pCi/g)	Ac-227 (pCi/g)	Th-232 (pCi/g)	Ra-228 (pCi/g)	Th-228 (pCi/g)	SOR_C (15/15/50)	SOR_N (15/15/50)
SLD258	26.4	4.83	4.39	3.97	0.39	0.01	0.25	1.51	1.35	1.29	0.490	0.259
SLD259	26.4	4.65	5.91	3.26	0.33	0.07	0.21	0.90	0.91	0.84	0.548	0.329
SLDA17	1.5	1.65	2.04	2.11	0.17	0.20	-0.09	0.97	0.70	1.73	0.238	0.011
SLDA18	1.5	3.46	7.55	3.37	0.40	0.27	-0.01	0.75	1.08	2.65	0.645	0.423

Attachment B-1. Summary of City Property Final Status Survey Data

Reference Area Data Summary

Statistic	Area (m ²)	U-238 (pCi/g)	Th-230 (pCi/g)	Ra-226 (pCi/g)	U-235 (pCi/g)	Pa-231 (pCi/g)	Ac-227 (pCi/g)	Th-232 (pCi/g)	Ra-228 (pCi/g)	Th-228 (pCi/g)	SOR _B (5/5/50)	SOR _B (15/15/50)
Mean	-	1.44	1.94	2.78	0.09	0.89	0.14	1.09	0.95	1.16	0.82	0.29
Median	-	1.16	1.66	2.53	0.08	0.98	0.11	1.07	0.97	1.10	0.76	0.27
UCL-95	-	1.67	2.18	3.04	0.12	1.12	0.18	1.18	1.00	1.26	-	-
St. Dev	-	0.75	0.76	0.89	0.08	0.76	0.14	0.29	0.17	0.35	0.21	0.08
Range	-	3.19	3.19	3.93	0.33	2.55	0.80	1.25	0.82	1.59	0.95	0.35
Detects	-	32	32	32	0	13	7	32	32	32	-	-
No. Samples (n)	-	32	32	32	32	32	32	32	32	32	32	32

Survey Unit Data Summary SU 7 (Class 1)

Statistic/Sample	Area (m ²)	U-238 (pCi/g)	Th-230 (pCi/g)	Ra-226 (pCi/g)	U-235 (pCi/g)	Pa-231 (pCi/g)	Ac-227 (pCi/g)	Th-232 (pCi/g)	Ra-228 (pCi/g)	Th-228 (pCi/g)	SOR _C (15/15/50)	SOR _N (15/15/50)
Mean	-	5.52	3.97	2.07	0.33	0.13	0.17	0.93	0.76	1.10	0.444	0.231
Median	-	4.75	3.06	1.93	0.28	0.13	0.16	0.97	0.82	1.06	0.400	0.178
UCL-95	-	7.67	4.68	2.39	0.38	0.21	0.20	1.01	0.83	1.23	-	-
St. Dev	-	3.99	2.48	1.18	0.22	0.33	0.12	0.32	0.29	0.37	0.213	0.196
Range	-	12.80	6.75	2.58	0.78	1.58	0.51	1.24	1.35	1.39	0.717	0.601
Maximum	-	15.81	14.09	7.78	0.79	0.92	0.61	1.42	1.48	1.91	1.081	0.850
Detects	-	23	45	45	20	0	1	45	45	45	-	-
No. Samples (n)	-	45	45	45	45	45	45	45	45	45	45	45

SLD260	25.8	6.31	3.1	2.01	0.48	0.23	0.1	0.89	0.91	1.65	0.394	0.175
SLD261	25.8	1.1	2.87	0.94	0.07	0.02	0.01	0.93	0.39	0.69	0.275	0.062
SLD262	25.8	0.81	3.73	0.87	0.11	0.05	0.1	0.16	0.16	0.71	0.276	0.119
SLD263	25.8	11.52	3.88	1.74	0.73	0.06	0.12	1.19	0.76	1.51	0.568	0.337
SLD264	25.8	13.61	7.02	2	0.78	0.75	0.19	1.38	0.83	0.9	0.832	0.601
SLD265	25.8	10.6	5.58	1.56	0.69	0.05	0.2	0.83	0.48	0.88	0.639	0.426
SLD266	25.8	3.64	3.18	2.04	0.15	-0.1	0.16	1.04	1.08	1.23	0.357	0.136
SLD267	25.8	11.85	4.79	2.1	0.53	-0.1	0.2	1.13	0.8	1.11	0.632	0.401
SLD268	25.8	3.77	2.74	1.82	0.15	-0.06	0.13	1.31	0.91	1.02	0.345	0.114
SLD269	25.8	6.61	5.84	2.9	0.39	0.64	0.25	0.86	0.86	0.84	0.579	0.363
SLD270	25.8	8.74	3.91	2.33	0.41	-0.1	0.19	1.12	0.95	1.8	0.510	0.279
SLD271	25.8	5.72	5.12	3.29	0.56	0.3	0.24	0.85	0.83	0.97	0.512	0.297
SLD272	25.8	0.99	1.13	0.77	0.13	0.01	0.01	0.3	0.21	0.58	0.115	0.000
SLD273	25.8	7.68	3.13	1.82	0.4	-0.17	0.14	1.25	0.83	1.34	0.446	0.214
SLD274	25.8	2.73	7.88	2.4	0.31	0.67	0.45	0.93	0.91	0.75	0.642	0.422
SLD275	25.8	12.55	2.55	2.21	0.63	0.44	0.21	1.33	0.75	0.74	0.510	0.279
SLD276	25.8	7.15	2.37	1.72	0.28	0.4	0.31	1.14	1.48	1.28	0.400	0.178
SLD277	25.8	3.31	2.94	1.07	0.13	0.08	0.13	0.47	0.41	0.92	0.294	0.104
SLD278	25.8	12.62	2.97	1.94	0.7	-0.02	0.16	1.01	0.82	0.83	0.518	0.292
SLD279	25.8	5.87	7.75	2.25	0.47	0.38	0.23	0.79	0.78	1.4	0.687	0.476
SLD280	25.8	4.93	4.58	7.78	0.5	0.92	0.61	0.96	0.64	1.41	0.681	0.403
SLD281	25.8	3.02	2.78	1.46	0.1	-0.41	0.21	1.1	0.82	1.44	0.319	0.088
SLD282	25.8	1.7	1.24	0.74	0.12	0.13	0.03	0.24	0.13	0.56	0.133	0.005
SLD283	25.8	6.1	4.87	3.32	0.33	-0.83	0.24	1.27	1.03	1.82	0.531	0.300
SLD284	25.8	11.2	2.65	3	0.66	-0.18	0.18	0.79	1.07	1.36	0.495	0.251
SLD285	25.8	8.83	4.35	3.05	0.46	-0.15	-0.06	1.17	1.07	0.74	0.545	0.317
SLD286	25.8	4.75	6.05	3.92	0.43	0.2	0.19	1.42	1.17	1.03	0.593	0.362
SLD287	25.8	1.59	2.3	1.02	0.03	0.13	0.17	0.51	0.72	1.06	0.233	0.027
SLD288	25.8	1.11	1.3	0.71	0	-0.26	0	0.14	0.14	0.41	0.118	0.000
SLD289	25.8	3.24	3.13	2.07	0.19	-0.06	0.33	0.99	0.98	1.15	0.339	0.118
SLD290	25.8	6.37	2.91	1.93	0.33	0.39	0.15	0.63	0.82	0.69	0.376	0.163
SLD291	25.8	3.35	9.62	2.09	0.22	0.19	0.32	0.97	0.92	1.24	0.773	0.550
SLD292	25.8	15.81	6.61	2.98	0.79	0.31	0.14	1.26	0.74	1.55	0.841	0.610
SLD293	25.8	6.95	6.36	3.34	0.23	0.27	0.35	1.08	1.02	1.27	0.635	0.410
SLD294	25.8	1.73	1.51	0.92	0.07	0.43	0.05	1.22	0.6	1.21	0.217	0.014
SLD295	25.8	3.27	14.09	2.03	0.17	-0.4	0.22	1.15	0.93	1.64	1.081	0.850

Attachment B-1. Summary of City Property Final Status Survey Data

Survey Unit Data Summary SU 7 (Class 1)

Statistic/Sample	Area (m ²)	U-238 (pCi/g)	Th-230 (pCi/g)	Ra-226 (pCi/g)	U-235 (pCi/g)	Pa-231 (pCi/g)	Ac-227 (pCi/g)	Th-232 (pCi/g)	Ra-228 (pCi/g)	Th-228 (pCi/g)	SOR _G (15/15/50)	SOR _N (15/15/50)
SLD296	25.8	7.88	2.84	3.09	0.44	-0.13	0.13	1.16	1	1.01	0.441	0.193
SLD297	25.8	2.42	2.98	1.32	0.15	0.08	0.05	0.82	0.47	1.2	0.302	0.089
SLD298	25.8	4.98	2.02	1.89	0.33	0.35	0.12	0.76	0.8	1.4	0.288	0.076
SLD299	25.8	1.6	2.8	1.72	0.25	0.13	0.13	1.26	0.84	1.91	0.303	0.072
SLD300	25.8	0.93	1.6	0.85	0.12	0.21	0.07	0.84	0.29	0.98	0.181	0.000
SLD301	25.8	2.12	3.06	1.73	0.16	0.23	0.27	0.67	0.76	0.74	0.297	0.088
SLD302	25.8	3.55	2.52	1.84	0.26	-0.24	0.13	1	0.84	1.42	0.306	0.081
SLD303	25.8	1.69	2.28	1.09	0.14	0.5	0.13	0.79	0.48	0.65	0.238	0.028
SLD304	25.8	2.15	1.76	1.6	0.11	0.33	0.12	0.59	0.64	0.68	0.203	0.014

Attachment B-1. Summary of City Property Final Status Survey Data

Reference Area Data Summary

Statistic	Area (m ²)	U-238 (pCi/g)	Th-230 (pCi/g)	Ra-226 (pCi/g)	U-235 (pCi/g)	Pa-231 (pCi/g)	Ac-227 (pCi/g)	Th-232 (pCi/g)	Ra-228 (pCi/g)	Th-228 (pCi/g)	SOR _B (5/5/50)	SOR _B (15/15/50)
Mean	-	1.44	1.94	2.78	0.09	0.89	0.14	1.09	0.95	1.16	0.82	0.29
Median	-	1.16	1.66	2.53	0.08	0.98	0.11	1.07	0.97	1.10	0.76	0.27
UCL-95	-	1.67	2.18	3.04	0.12	1.12	0.18	1.18	1.00	1.26	-	-
St. Dev	-	0.75	0.76	0.89	0.08	0.76	0.14	0.29	0.17	0.35	0.21	0.08
Range	-	3.19	3.19	3.93	0.33	2.55	0.80	1.25	0.82	1.59	0.95	0.35
Detects	-	32	32	32	0	13	7	32	32	32	-	-
No. Samples (m)	-	32	32	32	32	32	32	32	32	32	32	32

Survey Unit Data Summary SU 8 (Class 1)

Statistic/Sample	Area (m ²)	U-238 (pCi/g)	Th-230 (pCi/g)	Ra-226 (pCi/g)	U-235 (pCi/g)	Pa-231 (pCi/g)	Ac-227 (pCi/g)	Th-232 (pCi/g)	Ra-228 (pCi/g)	Th-228 (pCi/g)	SOR _C (15/15/50)	SOR _N (15/15/50)
Mean	-	8.82	4.93	2.22	0.51	0.12	0.14	0.92	0.71	1.05	0.567	0.354
Median	-	4.89	3.91	1.76	0.32	0.11	0.12	0.96	0.68	1.01	0.421	0.193
UCL-95	-	13.20	6.00	2.56	0.70	0.19	0.17	1.01	0.78	1.14	-	-
St. Dev	-	10.14	3.08	1.28	0.50	0.29	0.13	0.34	0.27	0.37	0.378	0.370
Range	-	14.03	8.48	2.99	0.99	0.97	0.30	1.55	1.29	1.77	0.691	0.615
Maximum	-	47.67	14.84	6.70	2.33	1.19	0.59	1.76	1.50	1.99	2.014	1.793
Detects	-	27	44	44	32	0	1	44	44	44	-	-
No. Samples (n)	-	44	44	44	44	44	44	44	44	44	44	44
SLD305	25.4	1.75	2.39	1.66	0.18	-0.06	0.15	0.88	0.75	1.45	0.253	0.036
SLD306	25.4	1.43	2.49	1.25	0.08	0.14	0.07	0.28	0.38	0.59	0.220	0.037
SLD307	25.4	15.10	3.55	3.46	1.04	0.53	0.14	0.59	0.73	0.57	0.587	0.380
SLD308	25.4	2.70	3.69	3.24	0.32	-0.02	0.22	1.76	1.50	1.99	0.417	0.186
SLD309	25.4	1.80	3.66	1.33	0.23	0.00	0.26	0.81	0.62	0.91	0.334	0.122
SLD310	25.4	1.50	2.78	1.11	0.05	-0.32	0.07	1.12	0.53	0.67	0.290	0.059
SLD311	25.4	2.55	4.50	1.32	0.21	-0.03	0.02	0.99	0.79	0.79	0.417	0.193
SLD312	25.4	1.68	2.44	1.08	0.06	0.11	0.07	0.56	0.55	0.64	0.234	0.038
SLD313	25.4	1.51	1.48	0.47	0.09	-0.26	0.00	0.21	0.21	0.49	0.143	0.001
SLD314	25.4	2.12	2.61	1.04	0.18	0.11	0.07	1.12	0.66	1.37	0.291	0.060
SLD315	25.4	1.58	2.67	1.69	0.17	-0.07	0.12	1.66	0.84	0.54	0.320	0.089
SLD316	25.4	6.45	9.67	2.63	0.45	0.29	0.13	0.67	0.66	1.27	0.818	0.615
SLD317	25.4	3.69	5.03	1.66	0.28	0.14	-0.03	0.48	0.50	0.73	0.442	0.251
SLD318	25.4	7.09	6.24	1.76	0.39	-0.11	0.04	0.83	0.63	0.88	0.613	0.400
SLD319	25.4	2.83	2.83	1.76	0.41	0.15	-0.04	0.96	0.59	0.64	0.309	0.087
SLD320	25.4	5.96	6.49	1.81	0.34	0.22	0.06	1.08	0.86	1.75	0.624	0.394
SLD321	25.4	4.42	3.91	2.54	0.24	-0.14	0.10	1.12	0.73	1.15	0.424	0.193
SLD322	25.4	7.96	10.69	4.18	0.47	0.70	0.28	0.98	0.86	1.19	0.937	0.714
SLD323	25.4	5.39	3.23	2.30	0.32	0.31	0.31	1.13	1.22	1.71	0.404	0.183
SLD324	25.4	4.66	2.44	1.26	0.24	-0.16	0.12	0.94	0.63	1.54	0.319	0.098
SLD325	25.4	1.89	2.07	1.69	0.18	0.05	0.07	1.04	0.54	0.97	0.245	0.018
SLD326	25.4	31.85	3.94	2.75	1.27	-0.36	0.36	1.42	1.21	1.36	0.994	0.763
SLD327	25.4	3.05	1.85	1.17	0.15	0.17	0.08	0.39	0.60	0.80	0.224	0.032
SLD328	25.4	23.27	7.72	3.69	1.21	0.05	0.08	0.67	0.77	1.06	1.031	0.822
SLD329	25.4	1.07	1.19	0.57	0.18	0.10	-0.01	0.40	0.21	0.22	0.127	0.000
SLD330	25.4	6.22	9.81	3.27	0.47	0.37	0.44	1.41	0.98	1.02	0.872	0.641
SLD331	25.4	5.40	2.96	2.01	0.33	-0.44	0.21	0.99	0.69	1.31	0.371	0.147
SLD332	25.4	26.06	10.19	4.28	1.42	0.03	0.34	1.02	0.84	1.15	1.269	1.042
SLD333	25.4	1.90	1.51	0.92	0.16	-0.28	0.14	0.42	0.40	1.13	0.167	0.009
SLD334	25.4	11.86	5.40	2.24	0.72	0.09	0.15	1.13	0.87	0.96	0.673	0.441
SLD335	25.4	2.18	3.49	0.92	0.17	0.18	-0.02	0.79	0.51	1.17	0.329	0.118
SLD336	25.4	16.14	9.24	2.74	0.88	0.34	0.23	0.87	0.75	1.34	0.997	0.781
SLD337	25.4	8.47	7.23	2.38	0.40	0.19	0.13	0.93	0.62	0.99	0.713	0.493
SLD338	25.4	3.24	3.91	1.65	0.23	0.48	0.16	0.95	0.40	1.23	0.389	0.167
SLD339	25.4	21.89	5.10	3.29	1.01	0.39	0.07	1.26	0.96	1.46	0.862	0.631
SLD340	25.4	4.90	5.90	1.57	0.32	0.19	-0.03	0.79	0.44	0.99	0.544	0.333

Attachment B-1. Summary of City Property Final Status Survey Data

Survey Unit Data Summary SU 8 (Class 1)

Statistic/Sample	Area (m²)	U-238 (pCi/g)	Th-230 (pCi/g)	Ra-226 (pCi/g)	U-235 (pCi/g)	Pa-231 (pCi/g)	Ac-227 (pCi/g)	Th-232 (pCi/g)	Ra-228 (pCi/g)	Th-228 (pCi/g)	SOR_G (15/15/50)	SOR_N (15/15/50)
SLD341	25.4	4.88	5.24	1.47	0.28	0.20	0.11	1.05	0.48	0.92	0.517	0.289
SLD342	25.4	12.73	9.75	3.12	0.84	0.47	0.16	0.97	0.73	0.97	0.969	0.746
SLD343	25.4	3.27	3.01	1.18	0.26	-0.06	0.05	0.79	0.41	0.84	0.319	0.108
SLD344	25.4	31.94	8.56	5.36	1.91	0.01	0.36	1.10	0.74	0.75	1.283	1.052
SLD345	25.4	6.05	2.02	1.39	0.33	0.12	0.01	0.51	0.60	0.61	0.296	0.097
SLD346	25.4	12.89	4.02	2.83	0.71	-0.16	0.20	1.45	1.23	1.43	0.622	0.391
SLD347	25.4	17.07	4.98	2.82	0.82	0.31	0.11	0.86	1.02	1.26	0.741	0.520
SLDC19	1.9	47.67	14.84	6.70	2.33	1.19	0.59	1.07	1.07	1.18	2.014	1.793

Attachment B-1. Summary of City Property Final Status Survey Data

Reference Area Data Summary

Statistic	Area (m ²)	U-238 (pCi/g)	Th-230 (pCi/g)	Ra-226 (pCi/g)	U-235 (pCi/g)	Pa-231 (pCi/g)	Ac-227 (pCi/g)	Th-232 (pCi/g)	Ra-228 (pCi/g)	Th-228 (pCi/g)	SOR _B (5/5/50)	SOR _N (15/15/50)
Mean	-	1.44	1.94	2.78	0.09	0.89	0.14	1.09	0.95	1.16	0.82	0.29
Median	-	1.16	1.66	2.53	0.08	0.98	0.11	1.07	0.97	1.10	0.76	0.27
UCL-95	-	1.67	2.18	3.04	0.12	1.12	0.18	1.18	1.00	1.26	-	-
St. Dev	-	0.75	0.76	0.89	0.08	0.76	0.14	0.29	0.17	0.35	0.21	0.08
Range	-	3.19	3.19	3.93	0.33	2.55	0.80	1.25	0.82	1.59	0.95	0.35
Detects	-	32	32	32	0	13	7	32	32	32	-	-
No. Samples (n)	-	32	32	32	32	32	32	32	32	32	32	32

Survey Unit Data Summary SU 9 (Class 1)

Statistic/Sample	Area (m ²)	U-238 (pCi/g)	Th-230 (pCi/g)	Ra-226 (pCi/g)	U-235 (pCi/g)	Pa-231 (pCi/g)	Ac-227 (pCi/g)	Th-232 (pCi/g)	Ra-228 (pCi/g)	Th-228 (pCi/g)	SOR _G (15/15/50)	SOR _N (15/15/50)
Mean	-	7.64	3.42	2.75	0.44	0.16	0.42	0.78	0.89	0.91	0.486	0.269
Median	-	4.63	3.39	1.92	0.28	0.10	0.22	0.65	0.70	0.79	0.375	0.154
UCL-95	-	12.10	4.04	3.74	0.70	0.38	0.61	1.16	1.23	1.11	-	-
St. Dev	-	12.29	1.44	3.17	0.63	0.59	0.51	0.50	0.92	0.54	0.497	0.479
Range	-	18.04	4.47	2.72	1.08	1.62	1.75	1.99	0.86	1.85	0.702	0.627
Maximum	-	60.36	6.65	16.02	3.02	2.09	1.83	2.08	4.79	2.03	2.595	2.317
Detects	-	14	22	22	11	0	0	20	22	22	-	-
No. Samples (n)	-	22	22	22	22	22	22	22	22	22	22	22
SLD348	21.8	6.07	2.09	2.03	0.21	0.86	0.21	1.30	0.92	1.43	0.347	0.116
SLD349	21.8	6.74	3.54	1.54	0.32	0.07	0.19	0.71	0.66	0.48	0.418	0.213
SLD350	21.8	5.01	3.02	1.27	0.28	-0.26	0.07	0.74	0.65	0.52	0.351	0.143
SLD351	21.8	18.76	6.19	2.13	1.14	0.46	0.16	1.20	0.70	0.85	0.868	0.637
SLD352	21.8	7.94	3.44	2.52	0.39	0.09	0.10	0.58	0.92	1.01	0.449	0.230
SLD353	21.8	5.10	2.36	1.58	0.10	0.38	-0.01	0.81	0.70	0.89	0.313	0.101
SLD354	21.8	4.56	3.36	2.56	0.35	0.11	0.25	0.98	0.99	1.26	0.381	0.160
SLD355	21.8	6.30	2.71	3.34	0.78	0.33	0.17	0.37	0.89	0.72	0.408	0.148
SLD356	21.8	6.47	3.64	2.79	0.28	-0.20	1.74	2.08	0.98	1.94	0.511	0.280
SLD357	21.8	4.55	4.28	3.09	0.44	0.45	0.06	0.45	0.80	1.17	0.430	0.218
SLD358	21.8	2.12	1.72	0.62	0.06	0.04	0.16	0.09	0.13	0.09	0.166	0.014
SLD359	21.8	3.00	1.79	0.93	0.31	0.45	0.62	0.46	0.54	0.57	0.215	0.031
SLD360	21.8	0.72	2.41	1.11	0.06	0.33	0.39	0.32	0.33	0.42	0.197	0.031
SLD361	21.8	3.76	3.42	1.53	0.12	0.34	0.13	0.92	0.38	0.50	0.365	0.145
SLD362	21.8	1.79	1.99	0.88	0.12	0.00	0.25	0.50	0.17	0.42	0.202	0.010
SLD363	21.8	3.07	1.91	1.25	0.17	-0.09	0.93	0.49	0.58	0.57	0.227	0.033
SLD364	21.8	2.26	3.01	1.81	0.17	-0.38	0.72	0.32	0.56	0.92	0.283	0.088
SLD365	21.8	5.74	6.65	3.15	0.52	-0.59	0.22	1.30	1.10	2.03	0.645	0.414
SLD366	21.8	4.55	3.52	4.65	0.15	0.43	1.83	0.31	1.15	0.45	0.478	0.200
SLD367	21.8	4.51	3.61	1.06	0.21	-0.61	0.72	0.58	0.47	0.56	0.370	0.173
SLDD20	1.1	60.36	6.57	16.02	3.02	2.09	0.37	1.80	4.79	1.97	2.395	2.317
SLDD21	2.8	4.70	3.99	4.64	0.50	-0.76	0.01	0.91	1.14	1.15	0.479	0.215

Attachment B-1. Summary of City Property Final Status Survey Data

Survey Unit Data Summary SU 9 (Class 1)

Statistic/Sample	Area (m ²)	U-238 (pCi/g)	Th-230 (pCi/g)	Ra-226 (pCi/g)	U-235 (pCi/g)	Pa-231 (pCi/g)	Ac-227 (pCi/g)	Th-232 (pCi/g)	Ra-228 (pCi/g)	Th-228 (pCi/g)	SOR _C (15/15/50)	SOR _N (15/15/50)
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Attachment B-1. Summary of City Property Final Status Survey Data

Reference Area Data Summary												
Statistic	Area (m ²)	U-238 (pCi/g)	Th-230 (pCi/g)	Ra-226 (pCi/g)	U-235 (pCi/g)	Pa-231 (pCi/g)	Ac-227 (pCi/g)	Th-232 (pCi/g)	Ra-228 (pCi/g)	Th-228 (pCi/g)	SOR _B (5/5/50)	SOR _B (15/15/50)
Mean	-	1.44	1.94	2.78	0.09	0.89	0.14	1.09	0.95	1.16	0.82	0.29
Median	-	1.16	1.66	2.53	0.08	0.98	0.11	1.07	0.97	1.10	0.76	0.27
UCL-95	-	1.67	2.18	3.04	0.12	1.12	0.18	1.18	1.00	1.26	-	-
St. Dev	-	0.75	0.76	0.89	0.08	0.76	0.14	0.29	0.17	0.35	0.21	0.08
Range	-	3.19	3.19	3.93	0.33	2.55	0.80	1.25	0.82	1.59	0.95	0.35
Detects	-	32	32	32	0	13	7	32	32	32	-	-
No. Samples (n)	-	32	32	32	32	32	32	32	32	32	32	32

Survey Unit Data Summary SU 10 (Class 2 Surface)												
Statistic/Sample	Area (m ²)	U-238 (pCi/g)	Th-230 (pCi/g)	Ra-226 (pCi/g)	U-235 (pCi/g)	Pa-231 (pCi/g)	Ac-227 (pCi/g)	Th-232 (pCi/g)	Ra-228 (pCi/g)	Th-228 (pCi/g)	SOR _G (5/5/50)	SOR _N (5/5/50)
Mean	-	2.84	2.96	1.24	0.17	0.16	0.07	1.02	0.68	1.22	0.853	0.269
Median	-	1.72	2.81	1.02	0.12	0.12	0.06	1.09	0.71	1.17	0.786	0.190
UCL-95	-	3.71	3.32	1.43	0.22	0.24	0.09	1.11	0.75	1.31	-	-
St. Dev	-	3.31	1.13	0.72	0.17	0.27	0.06	0.37	0.25	0.36	0.291	0.263
Range	-	2.44	3.14	1.41	0.20	0.78	0.19	1.44	0.72	1.35	0.799	0.537
Maximum	-	17.11	5.31	3.71	0.82	1.18	0.22	1.94	1.27	2.07	1.518	0.963
Detects	-	7	41	41	12	0	0	40	41	41	-	-
No. Samples (n)	-	41	41	41	41	41	41	41	41	41	41	41

SLD368	123.4	0.85	2.89	0.94	0.09	0.04	0.05	0.71	0.50	1.25	0.737	0.190
SLD369	123.4	0.89	2.14	0.70	0.08	0.23	0.06	0.55	0.48	1.32	0.556	0.040
SLD370	123.4	0.96	2.23	0.64	0.01	-0.10	0.04	0.65	0.41	1.01	0.595	0.058
SLD371	123.4	0.32	1.75	0.52	0.16	0.07	-0.02	0.38	0.17	0.81	0.432	0.000
SLD372	123.4	1.72	3.07	1.53	0.13	0.03	0.10	1.23	0.66	1.07	0.894	0.259
SLD373	123.4	1.38	2.54	0.72	0.13	0.26	0.12	0.80	0.79	1.24	0.696	0.120
SLD374	123.4	2.76	4.41	1.93	0.16	0.25	0.04	1.18	0.72	0.93	1.173	0.537
SLD375	123.4	0.60	1.27	0.53	0.04	0.24	0.02	0.54	0.14	0.67	0.374	0.000
SLD376	123.4	1.54	2.57	1.01	0.12	0.12	0.12	1.34	0.72	1.50	0.813	0.177
SLD377	123.4	1.70	2.82	1.18	0.10	0.41	0.05	0.73	0.48	1.22	0.744	0.181
SLD378	123.4	0.77	2.06	0.67	0.02	0.24	0.01	1.36	0.56	1.25	0.699	0.077
SLD379	123.4	2.02	2.22	0.74	0.15	-0.09	0.03	1.23	0.71	1.36	0.730	0.095
SLD380	123.4	0.91	1.50	0.84	0.06	-0.16	0.05	0.78	0.57	1.13	0.474	0.000
SLD381	123.4	2.01	3.10	1.09	0.06	0.01	0.13	0.86	0.76	1.57	0.832	0.243
SLD382	123.4	1.60	2.35	0.87	0.21	0.53	0.15	1.09	0.74	1.72	0.720	0.085
SLD383	123.4	0.48	1.63	0.81	0.10	0.19	0.12	0.97	0.86	0.94	0.530	0.000
SLD384	123.4	1.02	2.11	0.84	0.05	-0.08	0.06	1.72	0.69	1.75	0.786	0.159
SLD385	123.4	0.82	2.09	0.71	0.07	0.12	-0.02	1.28	0.85	1.16	0.690	0.067
SLD386	123.4	1.04	2.15	0.75	0.05	0.31	0.10	1.94	0.80	1.12	0.839	0.211
SLD387	123.4	1.68	1.97	1.02	0.07	0.38	-0.01	0.28	0.30	0.40	0.488	0.010
SLD388	123.4	0.81	1.90	0.80	0.14	-0.19	0.06	1.15	0.88	1.74	0.626	0.011
SLD389	123.4	2.92	2.81	1.21	0.18	-0.12	0.13	1.10	0.78	1.06	0.840	0.205
SLD390	123.4	2.63	3.13	1.52	0.10	0.02	0.03	0.92	0.63	1.52	0.863	0.261
SLD391	123.4	0.97	3.29	0.72	0.01	-0.25	0.01	0.88	0.66	1.09	0.853	0.270
SLD392	123.4	2.73	3.82	1.89	0.19	0.27	0.18	1.12	0.87	1.61	1.043	0.407
SLD393	123.4	2.68	3.07	1.51	0.13	0.34	0.02	1.29	0.83	1.70	0.926	0.290
SLD394	123.4	11.08	4.42	1.34	0.50	-0.19	0.12	1.09	0.50	1.66	1.324	0.688
SLD395	123.4	8.86	5.26	1.23	0.56	0.45	0.05	0.70	0.44	0.73	1.369	0.812
SLD396	123.4	2.13	2.35	1.27	0.12	0.12	0.08	1.03	0.80	0.81	0.719	0.095
SLD397	123.4	2.73	3.94	1.62	0.15	-0.01	0.10	1.30	0.67	1.38	1.103	0.467
SLD398	123.4	3.95	4.40	3.57	0.34	1.18	0.13	1.52	1.27	2.07	1.263	0.627
SLD399	123.4	0.54	1.86	0.75	0.01	0.06	0.15	1.24	0.95	1.39	0.631	0.029
SLD400	123.4	17.11	5.19	1.02	0.82	0.11	0.11	0.69	0.29	1.10	1.518	0.963
SLD401	123.4	2.03	3.23	0.76	0.10	0.02	-0.04	0.40	0.29	0.77	0.767	0.269
SLD402	123.4	1.98	1.47	0.88	0.09	0.45	0.05	1.06	1.02	1.16	0.546	0.026
SLD403	123.4	7.48	4.21	3.71	0.48	0.62	0.22	1.54	1.23	1.56	1.300	0.664

Attachment B-1. Summary of City Property Final Status Survey Data

Statistic/Sample	Area (m ²)	Survey Unit Data Summary SU 10 (Class 2 Surface)										
		U-238 (pCi/g)	Th-230 (pCi/g)	Ra-226 (pCi/g)	U-235 (pCi/g)	Pa-231 (pCi/g)	Ac-227 (pCi/g)	Th-232 (pCi/g)	Ra-228 (pCi/g)	Th-228 (pCi/g)	SOR _C (S/S/50)	SOR _N (S/S/50)
SLD404	123.4	2.51	5.31	1.93	0.09	0.47	0.12	1.20	1.00	0.99	1.352	0.716
SLD426	123.4	0.62	2.27	1.03	0.21	-0.16	0.03	1.22	0.95	1.17	0.710	0.091
SLD427	123.4	7.19	4.84	2.29	0.51	0.39	0.04	1.20	0.79	1.47	1.352	0.716
SLD428	123.4	5.22	4.26	2.45	0.29	0.08	0.05	0.47	0.58	0.85	1.072	0.539
SLD429	123.4	5.18	3.47	1.23	0.26	0.07	0.10	1.01	0.57	0.63	1.000	0.380

Attachment B-1. Summary of City Property Final Status Survey Data

Reference Area Data Summary

Statistic	Area (m ²)	U-238 (pCi/g)	Th-230 (pCi/g)	Ra-226 (pCi/g)	U-235 (pCi/g)	Pa-231 (pCi/g)	Ac-227 (pCi/g)	Th-232 (pCi/g)	Ra-228 (pCi/g)	Th-228 (pCi/g)	SOR _B (S/5/50)	SOR _B (15/15/50)
Mean	-	1.44	1.94	2.78	0.09	0.89	0.14	1.09	0.95	1.16	0.82	0.29
Median	-	1.16	1.66	2.53	0.08	0.98	0.11	1.07	0.97	1.10	0.76	0.27
UCL-95	-	1.67	2.18	3.04	0.12	1.12	0.18	1.18	1.00	1.26	-	-
St. Dev	-	0.75	0.76	0.89	0.08	0.76	0.14	0.29	0.17	0.35	0.21	0.08
Range	-	3.19	3.19	3.93	0.33	2.55	0.80	1.25	0.82	1.59	0.95	0.35
Detects	-	32	32	32	0	13	7	32	32	32	-	-
No. Samples (n)	-	32	32	32	32	32	32	32	32	32	32	32

Survey Unit Data Summary SU 10 (Class 2 Subsurface)

Statistic/Sample	Area (m ²)	U-238 (pCi/g)	Th-230 (pCi/g)	Ra-226 (pCi/g)	U-235 (pCi/g)	Pa-231 (pCi/g)	Ac-227 (pCi/g)	Th-232 (pCi/g)	Ra-228 (pCi/g)	Th-228 (pCi/g)	SOR _G (15/15/50)	SOR _N (15/15/50)
Mean	-	3.80	3.48	1.93	0.23	0.35	0.05	1.10	0.83	1.56	0.384	0.162
Median	-	3.37	3.21	1.81	0.21	0.37	0.01	1.05	0.87	1.49	0.345	0.124
UCL-95	-	4.84	3.99	2.45	0.30	0.45	0.09	1.30	0.93	1.84	-	-
St. Dev	-	2.48	1.21	0.81	0.16	0.25	0.10	0.39	0.23	0.51	0.138	0.133
Range	-	8.67	5.65	3.05	0.57	0.82	0.34	1.28	0.89	1.77	0.602	0.592
Maximum	-	9.81	7.63	3.76	0.59	0.79	0.27	1.90	1.22	2.63	0.832	0.600
Detects	-	5	17	17	5	0	1	17	17	17	-	-
No. Samples (n)	-	17	17	17	17	17	17	17	17	17	17	17

SLD368	123.4	1.14	2.76	1.15	0.05	0.61	0.04	1.05	0.64	1.43	0.277	0.055
SLD371	123.4	1.59	3.31	1.02	0.16	0.39	0.09	0.99	0.87	2.63	0.318	0.094
SLD374	123.4	3.37	3.89	3.76	0.32	0.63	-0.07	1.13	1.22	1.76	0.408	0.187
SLD377	123.4	4.64	2.86	1.4	0.13	0.37	0.13	0.85	0.95	2.52	0.347	0.126
SLD380	123.4	2.67	2.7	1.99	0.11	0.63	0.13	1.31	0.82	1.49	0.321	0.090
SLD383	123.4	2.36	3.21	1.24	0.02	0.34	-0.04	0.62	0.53	1.43	0.303	0.103
SLD386	123.4	1.4	3.13	0.71	0.21	0.02	-0.03	0.77	0.33	0.92	0.288	0.079
SLD389	123.4	4.47	4.02	3.19	0.58	0.15	0.01	1.24	1.07	2.02	0.440	0.209
SLD392	123.4	3.25	2.87	2.32	0.21	-0.03	-0.05	1.49	0.87	1.73	0.356	0.125
SLD395	123.4	9.81	7.63	2.73	0.59	0.31	0.22	1.9	1.04	1.91	0.832	0.600
SLD398	123.4	1.47	3.74	1.76	0.25	0.19	0	0.85	0.93	1.49	0.341	0.120
SLD401	123.4	3.44	3.18	2.4	0.21	0.79	-0.04	0.71	0.97	0.96	0.345	0.124
SLD402	123.4	7.57	4.25	2.43	0.25	0.58	0.19	1.35	1.01	1.47	0.525	0.294
SLD426	123.4	1.72	1.98	1.2	0.16	0.4	0.05	0.85	0.94	1.62	0.229	0.008
SLD427	123.4	3.99	2.64	1.81	0.12	0.11	0	0.62	0.55	0.86	0.297	0.098
SLD428	123.4	7.7	3.5	2.15	0.43	0	0.27	1.05	0.64	1.2	0.457	0.229
SLD429	123.4	3.93	3.51	1.59	0.16	0.42	-0.05	1.89	0.81	1.06	0.439	0.207

ATTACHMENT B-2

CITY PROPERTY FINAL STATUS SURVEY DATA

Sample Type:

The sample types include regular or grab samples (designated GR in the sample type column), field duplicate samples (designated FD), and split samples (SP).

Data Qualifiers:

Only one data qualifier is used in this table. “<” indicates that the sample measurement was below the minimum detectable activity for that sample (the analyte was not detected in the sample).

Minimum Detectable Activity (MDA):

The Minimum Detectable Activity (MDA) should be viewed as an estimated level of activity that is achievable with a specific instrument, measurement method and type of sample. Its value is dependent on the characteristics and conditions of the measurement system, as well as the sample characteristics. A typical MDA can be calculated for any radionuclide from typical sample characteristics that are usually those of the standard from which the detector is calibrated.

The MDA for a specific radionuclide may vary from one sample to the next depending on the characteristics of the sample (i.e., weight or volume different from the standard, interfering radioactivity, etc.). It, therefore, must be recognized that an MDA established for one set of conditions may not be applicable to all other conditions.

Counting Uncertainty:

Counting uncertainty, or data error, is defined as the statistical sample standard deviation, which is an approximation of the population standard deviation, and is numerically defined as the square root of the number of counts obtained from a detector. This relationship holds true, provided that the distribution of the counts follows the Poisson distribution. Units for counting uncertainty are the same as for the reported result and the MDA.

Attachment B-2. City Property Final Status Survey Data

Area	Sample Type	Sample ID	Ac-227 Qual.*	Ac-227 (pCi/g)	Ac-227 Error	Ac-227 MDA	Pa-231 Qual.*	Pa-231 (pCi/g)	Pa-231 Error	Pa-231 MDA	Ra-226 Qual.*	Ra-226 (pCi/g)	Ra-226 Error	Ra-226 MDA
SU1	GR	ITD00001	<	0.08	0.05	0.12	<	0.33	0.38	0.60	0.79	0.06	0.06	0.04
SU1	GR	ITD00002	<	-0.06	0.14	0.19	<	-0.17	0.63	0.93	1.94	0.13	0.06	
SU1	GR	ITD00003	<	0.04	0.13	0.19	<	0.11	0.58	0.88	1.41	0.10	0.05	
SU1	GR	ITD00005	<	0.07	0.15	0.22	<	0.26	0.66	1.00	1.95	0.13	0.06	
SU1	GR	ITD00006	<	0.10	0.14	0.20	<	0.14	0.79	0.87	2.15	0.13	0.05	
SU1	GR	ITD00007	<	0.06	0.13	0.19	<	-0.08	0.53	0.88	1.39	0.10	0.06	
SU1	GR	ITD00008	<	0.31	0.22	0.33	<	-0.25	0.96	1.41	6.45	0.33	0.09	
SU1	GR	ITD00010	<	0.05	0.14	0.20	<	0.12	0.61	0.91	1.83	0.12	0.06	
SU1	FD	ITD10010	<	0.26	0.13	0.20	<	0.71	0.62	0.93	2.40	0.15	0.06	
SU1	SP	ITD20010	<	0.23	0.09	0.16	<	0.00	0.69	0.98	2.42	0.12	0.04	
SU1	GR	ITD00011	<	0.08	0.13	0.20	<	0.02	0.57	0.84	2.62	0.18	0.05	
SU1	GR	ITD00013	<	0.11	0.15	0.23	<	1.02	0.65	1.02	3.67	0.25	0.07	
SU1	GR	ITD00014	<	0.10	0.11	0.17	<	0.12	0.52	0.77	1.89	0.14	0.05	
SU1	GR	ITD00015	<	0.13	0.04	0.16	<	-0.02	0.48	0.71	1.79	0.13	0.05	
SU1	GR	ITD00018	<	0.03	0.11	0.17	<	0.13	0.50	0.75	1.74	0.13	0.05	
SU1	GR	ITD00019	<	0.35	0.21	0.25	<	-0.22	0.76	1.11	3.99	0.22	0.07	
SU1	GR	ITD00021	<	0.11	0.12	0.18	<	0.39	0.50	0.78	1.28	0.09	0.05	
SU1	GR	ITD00024	<	0.19	0.09	0.20	<	0.59	0.62	0.96	2.43	0.15	0.06	
SU1	FD	ITD10024	<	0.11	0.10	0.20	<	0.00	0.59	0.88	1.97	0.13	0.06	
SU1	SP	ITD20024	<	0.21	0.11	0.16	<	0.23	0.59	1.00	2.25	0.12	0.05	
SU1	GR	ITD00025	<	0.03	0.08	0.11	<	0.07	0.34	0.52	0.74	0.06	0.04	
SU1	GR	ITD00026	<	-0.11	0.13	0.17	<	0.38	0.57	0.84	1.46	0.11	0.05	
SU1	GR	ITD00027	<	0.09	0.16	0.24	<	0.44	0.75	1.14	3.06	0.19	0.07	
SU1	GR	ITD00028	<	0.08	0.13	0.18	<	0.35	0.59	0.90	1.75	0.12	0.06	
SU1	GR	ITD00029	<	0.00	0.13	0.19	<	0.38	0.57	0.87	2.48	0.18	0.05	
SU1	GR	ITD00030	<	0.07	0.09	0.14	<	0.05	0.42	0.63	1.50	0.11	0.04	
SU1	GR	ITD00031	<	0.15	0.13	0.20	<	0.00	0.58	0.85	2.49	0.18	0.05	
SU1	GR	ITD00032	<	0.22	0.10	0.16	<	0.17	0.52	0.78	2.13	0.15	0.05	
SU1	GR	ITD00033	<	0.11	0.14	0.21	<	-0.23	0.94	0.98	3.25	0.22	0.06	
SU1	GR	ITD00034	<	0.21	0.10	0.17	<	0.15	0.51	0.76	1.02	0.08	0.05	
SU1	GR	ITD00035	<	0.53	0.13	0.17	<	0.58	0.64	0.98	2.13	0.16	0.06	
SU1	GR	ITD00036	<	0.13	0.13	0.20	<	0.11	0.58	0.86	2.32	0.16	0.05	
SU1	GR	ITD00038	<	0.25	0.15	0.22	<	0.43	0.62	0.94	0.23	0.06	0.01	
SU1	GR	ITD00039	<	0.05	0.15	0.21	<	0.38	0.62	0.95	2.09	0.14	0.06	
SU1	GR	ITD00040	<	0.01	0.15	0.21	<	0.09	0.67	0.99	2.89	0.17	0.06	
SU1	GR	ITD00041	<	0.12	0.11	0.16	<	0.13	0.45	0.68	1.15	0.09	0.04	
SU1	GR	ITD00042	<	0.18	0.13	0.19	<	0.13	0.57	0.86	1.53	0.11	0.05	
SU1	GR	ITD00043	<	0.16	0.12	0.19	<	0.51	0.54	0.83	2.17	0.16	0.05	
SU1	GR	ITD00209	<	0.14	0.19	0.28	<	0.61	0.85	1.29	5.94	0.39	0.08	
SU1	GR	ITD00210	<	0.21	0.15	0.24	<	0.27	0.68	1.02	3.35	0.23	0.07	
SU1	GR	ITD00211	<	0.12	0.15	0.24	<	-0.48	0.73	1.03	3.58	0.25	0.06	

Attachment B-2. City Property Final Status Survey Data

Area	Sample	Type	Sample ID	Ac-227 Qual.*	Ac-227 (pCi/g)	Ac-227 Error	Ac-227 MDA	Pa-231 Qual.*	Pa-231 (pCi/g)	Pa-231 Error	Pa-231 MDA	Ra-226 Qual.*	Ra-226 (pCi/g)	Ra-226 Error	Ra-226 MDA
SU1	GR	ITD00212	<	0.03	0.15	0.23	<	0.29	0.68	1.02	3.41	0.24	0.06		
SU1	GR	ITD00214	<	0.26	0.18	0.25	<	0.04	0.73	1.07	4.03	0.27	0.07		
SU1	GR	ITD00215	<	0.11	0.15	0.23	<	0.47	0.93	1.03	3.69	0.25	0.63		
SU1	GR	ITD00216	<	0.15	0.17	0.27	<	-0.14	0.83	1.21	4.67	0.32	0.08		
SU1	GR	ITD00217	<	0.33	0.25	0.34	<	0.66	1.10	1.59	5.04	0.29	0.09		
SU1	GR	ITD00218	<	0.02	0.14	0.20	<	0.33	0.57	0.87	1.77	0.12	0.06		
SU1	GR	ITD00219	<	0.07	0.14	0.21	<	0.17	0.65	0.93	2.15	0.14	0.06		
SU1	GR	ITD00220	<	0.11	0.15	0.22	<	0.12	0.67	0.96	1.72	0.12	0.06		
SU1	GR	ITD00221	<	0.10	0.17	0.25	<	-0.40	0.79	1.08	3.20	0.20	0.07		
SU1	GR	ITD00A37C	<	0.14	0.15	0.22	<	-0.13	0.67	0.93	2.36	0.15	0.06		
SU1	GR	ITD00A1C	<	0.67	0.18	0.27	<	0.27	0.67	0.97	2.38	0.17	0.06		
SU1	GR	ITD00A5A	<	0.04	0.17	0.25	<	-0.32	0.75	1.03	2.85	0.17	0.07		
SU2	GR	ITD00044	<	0.07	0.15	0.19	<	-0.31	0.58	0.83	1.94	0.13	0.05		
SU2	GR	ITD00045	<	0.21	0.15	0.22	<	2.25	1.27	1.00	1.38	0.11	0.06		
SU2	GR	ITD00048	<	0.14	0.14	0.21	<	0.54	0.70	0.99	2.31	0.15	0.06		
SU2	FD	ITD10048	<	0.03	0.16	0.22	<	0.13	0.72	1.08	2.43	0.16	0.06		
SU2	SP	ITD20048	<	0.13	0.15	0.22	<	-0.26	0.97	1.62	2.72	0.16	0.10		
SU2	GR	ITD00049	<	-0.04	0.14	0.19	<	0.37	0.61	0.94	1.36	0.10	0.06		
SU2	GR	ITD00050	<	0.15	0.18	0.27	<	0.47	0.69	1.15	4.14	0.23	0.07		
SU2	GR	ITD00051	<	0.01	0.13	0.18	<	-0.13	0.57	0.83	1.42	0.10	0.05		
SU2	GR	ITD00052	<	-0.03	0.14	0.20	<	0.03	0.61	0.92	1.71	0.12	0.06		
SU2	GR	ITD00053	<	0.20	0.10	0.23	<	0.85	0.78	1.21	3.51	0.21	0.07		
SU2	GR	ITD00054	<	0.44	0.17	0.25	<	0.41	0.62	0.96	1.99	0.13	0.06		
SU2	GR	ITD00055	<	0.23	0.11	0.29	<	0.04	0.71	1.05	2.90	0.18	0.07		
SU2	GR	ITD00056	<	0.08	0.15	0.22	<	0.49	0.67	1.02	4.11	0.27	0.06		
SU2	GR	ITD00057	<	0.06	0.10	0.15	<	0.32	0.44	0.68	1.31	0.10	0.04		
SU2	GR	ITD00058	<	0.21	0.12	0.18	<	0.04	0.52	0.76	1.68	0.13	0.05		
SU2	GR	ITD00059	<	0.42	0.14	0.24	<	0.34	0.69	1.03	4.69	0.31	0.06		
SU2	GR	ITD00060	<	0.17	0.10	0.22	<	0.22	0.69	1.03	3.88	0.26	0.06		
SU2	GR	ITD00061	<	0.09	0.10	0.16	<	-0.04	0.47	0.69	1.40	0.11	0.04		
SU2	GR	ITD00062	<	0.00	0.09	0.13	<	-0.31	0.40	0.55	0.71	0.06	0.03		
SU2	GR	ITD00063	<	0.19	0.12	0.19	<	0.00	0.46	0.77	1.57	0.12	0.05		
SU2	GR	ITD00064	<	0.19	0.11	0.17	<	0.13	0.47	0.70	1.67	0.12	0.04		
SU2	GR	ITD00065	<	0.41	0.09	0.15	<	0.60	0.53	0.82	2.33	0.16	0.05		
SU2	GR	ITD00066	<	0.08	0.09	0.14	<	0.15	0.41	0.62	0.76	0.07	0.04		
SU2	GR	ITD00067	<	0.34	0.13	0.23	<	0.38	0.67	1.02	3.33	0.23	0.06		
SU2	GR	ITD00068	<	0.61	0.13	0.18	<	0.44	0.63	0.96	3.56	0.24	0.06		
SU2	GR	ITD00069	<	0.11	0.15	0.22	<	0.37	0.60	0.92	2.12	0.14	0.06		
SU2	GR	ITD00070	<	0.10	0.12	0.18	<	-0.14	0.54	0.78	0.97	0.08	0.05		
SU2	GR	ITD00071	<	0.04	0.11	0.17	<	0.09	0.54	0.80	2.11	0.15	0.05		
SU2	GR	ITD00072		0.25	0.10	0.15	<	0.74	0.53	0.83	2.57	0.18	0.05		

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Area	Sample	Type	Sample ID	Ac-227 Qual.*	Ac-227 (pCi/g)	Ac-227 Error	Ac-227 MDA	Pa-231 Qual.*	Pa-231 (pCi/g)	Pa-231 Error	Pa-231 MDA	Ra-226 Qual.*	Ra-226 (pCi/g)	Ra-226 Error	Ra-226 MDA
SU2	GR	ITD00073	<	0.07	0.06	0.14	<	0.42	0.40	0.68	0.85	0.07	0.07	0.04	
SU2	FD	ITD10073	<	0.08	0.09	0.13	<	-0.11	0.37	0.54	0.84	0.07	0.07	0.03	
SU2	SP	ITD20073	<	-0.02	0.13	0.19	<	0.12	0.86	1.46	0.78	0.08	0.08	0.09	
SU2	GR	ITD00074	<	0.28	0.12	0.18	<	0.17	0.50	0.76	2.21	0.16	0.16	0.05	
SU2	GR	ITD00075	<	0.54	0.16	0.24	<	0.23	0.60	0.91	2.09	0.14	0.14	0.06	
SU2	GR	ITD00076	<	0.29	0.13	0.20	<	0.64	0.55	0.85	2.75	0.19	0.19	0.05	
SU2	GR	ITD00077	<	0.05	0.08	0.12	<	0.11	0.38	0.57	0.75	0.06	0.06	0.04	
SU2	GR	ITD00078	<	0.09	0.12	0.18	<	0.03	0.51	0.76	1.13	0.08	0.08	0.05	
SU2	GR	ITD00079	<	0.05	0.12	0.18	<	0.27	0.50	0.76	1.94	0.14	0.14	0.05	
SU2	GR	ITD00080	<	0.05	0.10	0.15	<	0.36	0.42	0.65	0.85	0.07	0.07	0.04	
SU2	GR	ITD00081	<	0.01	0.13	0.18	<	0.46	0.42	0.85	1.09	0.09	0.09	0.05	
SU2	GR	ITD00082	<	0.01	0.13	0.18	<	0.51	0.55	0.86	0.96	0.08	0.08	0.05	
SU2	GR	ITD00083	<	0.04	0.11	0.17	<	0.20	0.51	0.76	0.98	0.08	0.08	0.05	
SU2	FD	ITD10083	<	1.87	0.29	0.34	<	-0.37	0.57	0.81	1.01	0.09	0.09	0.05	
SU2	SP	ITD20083	<	-0.08	0.18	0.21	<	-1.60	1.50	1.57	0.82	0.09	0.09	0.09	
SU2	GR	ITD00084	<	0.15	0.14	0.18	<	-0.34	0.57	0.82	0.80	0.07	0.07	0.05	
SU2	GR	ITD00A10C	<	0.00	0.14	0.20	<	0.29	0.63	0.91	1.82	0.12	0.12	0.06	
SU2	GR	ITD00A12A		0.75	0.15	0.21	<	0.90	0.75	1.23	4.12	0.22	0.22	0.07	
SU2	GR	ITD00206	<	0.42	0.20	0.27	<	0.12	0.78	1.15	6.65	0.43	0.43	0.07	
SU2	GR	ITD00207	<	0.07	0.17	0.26	<	0.39	0.80	1.21	5.32	0.35	0.35	0.07	
SU2	GR	ITD00208		0.24	0.10	0.21	<	0.39	0.64	0.97	3.88	0.26	0.26	0.07	
SU3	GR	ITD00085	<	0.64	0.17	0.25	<	0.33	0.62	0.91	2.03	0.13	0.13	0.06	
SU3	GR	ITD00088	<	0.53	0.20	0.31	<	0.96	0.85	1.26	3.67	0.22	0.22	0.08	
SU3	GR	ITD00093	<	0.07	0.16	0.23	<	0.69	0.73	1.08	2.72	0.17	0.17	0.06	
SU3	GR	ITD00098	<	0.03	0.12	0.18	<	0.49	0.53	0.81	1.59	0.12	0.12	0.05	
SU3	GR	ITD00100	<	0.17	0.13	0.22	<	0.87	0.60	0.93	1.94	0.14	0.14	0.06	
SU3	GR	ITD00103	<	0.02	0.13	0.20	<	0.31	0.59	0.90	2.04	0.15	0.15	0.05	
SU3	GR	ITD00105	<	0.04	0.10	0.16	<	1.34	0.80	0.74	1.68	0.12	0.12	0.04	
SU3	GR	ITD00106	<	0.11	0.12	0.18	<	0.65	0.67	0.80	1.79	0.13	0.13	0.05	
SU3	GR	ITD00108	<	0.24	0.13	0.19	<	0.41	0.57	0.87	2.27	0.16	0.16	0.05	
SU3	GR	ITD00111	<	0.22	0.13	0.20	<	0.17	0.69	0.99	2.39	0.15	0.15	0.06	
SU3	GR	ITD00112	<	0.01	0.17	0.24	<	-0.28	0.78	1.08	2.79	0.18	0.18	0.07	
SU3	GR	ITD00114	<	0.05	0.15	0.22	<	-0.26	0.69	0.94	2.35	0.15	0.15	0.06	
SU3	FD	ITD10114	<	-0.07	0.14	0.20	<	0.54	0.74	0.96	2.28	0.15	0.15	0.06	
SU3	SP	ITD20114	<	0.12	0.00	0.14	<	0.01	0.00	1.02	4.47	0.00	0.00	0.05	
SU3	GR	ITD00115	<	0.13	0.14	0.20	<	0.47	0.65	0.96	1.80	0.13	0.13	0.06	
SU3	GR	ITD00117	<	0.05	0.13	0.19	<	0.43	0.59	0.87	1.60	0.11	0.11	0.05	
SU3	GR	ITD00118	<	0.10	0.17	0.25	<	-0.12	0.72	1.01	2.44	0.16	0.16	0.07	
SU3	GR	ITD00120	<	0.31	0.15	0.22	<	0.30	0.68	0.98	1.98	0.13	0.13	0.06	
SU3	GR	ITD00121	<	0.07	0.14	0.20	<	0.14	0.56	0.80	1.40	0.10	0.10	0.05	
SU3	GR	ITD00122	<	0.07	0.14	0.20	<	-0.31	0.66	0.89	1.81	0.13	0.13	0.06	

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Area	Sample	Type	Sample ID	Ac-227 Qual.*	Ac-227 (pCi/g)	Ac-227 Error	Ac-227 MDA	Pa-231 Qual.*	Pa-231 (pCi/g)	Pa-231 Error	Pa-231 MDA	Ra-226 Qual.*	Ra-226 (pCi/g)	Ra-226 Error	Ra-226 MDA
SU3	GR	ITD00124	<	0.11	0.12	0.18	<	0.41	0.55	0.81		1.04	0.08	0.05	
SU3	GR	ITD00125	<	0.03	0.13	0.19	<	0.36	0.60	0.87		1.82	0.12	0.05	
SU3	GR	ITD00126	<	0.02	0.14	0.20	<	0.01	0.64	0.90		1.95	0.13	0.06	
SU3	GR	ITD00127		0.19	0.12	0.18	<	0.23	0.62	0.89		1.65	0.11	0.06	
SU3	GR	ITD00128	<	0.02	0.13	0.19	<	0.07	0.62	0.88		1.90	0.12	0.06	
SU3	GR	ITD00129	<	-0.05	0.12	0.17	<	0.27	0.54	0.78		1.48	0.10	0.05	
SU3	GR	ITD00130	<	-0.03	0.14	0.19	<	0.15	0.64	0.91		1.39	0.10	0.05	
SU3	GR	ITD00131	<	0.07	0.15	0.23	<	-0.16	0.72	0.99		2.11	0.14	0.06	
SU3	GR	ITD00132	<	0.18	0.14	0.21	<	-0.13	0.68	0.95		2.28	0.15	0.06	
SU3	GR	ITD00133	<	0.13	0.07	0.22	<	-0.32	0.77	1.05		2.23	0.15	0.07	
SU3	GR	ITD00134	<	0.04	0.13	0.19	<	-0.07	0.59	0.82		1.71	0.11	0.05	
SU3	GR	ITD00135	<	0.08	0.09	0.14	<	0.15	0.40	0.60		1.29	0.10	0.04	
SU3	GR	ITD00136	<	-0.02	0.10	0.15	<	0.22	0.49	0.73		1.57	0.12	0.04	
SU3	GR	ITD00139	<	0.10	0.10	0.16	<	0.50	0.46	0.71		1.32	0.10	0.04	
SU3	GR	ITD00142	<	0.04	0.10	0.15	<	0.25	0.46	0.69		1.47	0.11	0.04	
SU3	GR	ITD00408	<	-0.05	0.16	0.22	<	0.27	0.55	0.98		2.48	0.18	0.06	
SU3	GR	ITD00409	<	0.14	0.10	0.20	<	-0.19	0.54	0.82		1.94	0.15	0.05	
SU3	GR	ITD00410	<	0.22	0.15	0.21	<	0.40	0.58	0.92		2.59	0.19	0.06	
SU3	GR	ITD00411		0.39	0.11	0.18	<	0.69	0.52	0.88		2.67	0.19	0.06	
SU3	GR	ITD00412	<	0.07	0.13	0.20	<	0.16	0.57	0.89		1.81	0.14	0.05	
SU3	GR	ITD00413	<	0.15	0.13	0.18	<	-0.15	0.53	0.80		2.24	0.16	0.05	
SU3	GR	ITD00414	<	0.10	0.15	0.22	<	0.59	0.61	0.98		2.95	0.20	0.06	
SU3	GR	ITD00415	<	0.07	0.08	0.16	<	0.02	0.45	0.69		1.44	0.11	0.04	
SU3	GR	ITD00416	<	0.01	0.14	0.20	<	0.60	0.55	0.90		2.10	0.16	0.06	
SU3	FD	ITD10416	<	0.24	0.12	0.22	<	0.78	0.63	1.01		2.99	0.21	0.06	
SU3	SP	ITD20416		0.19	0.00	0.14	<	-0.49	0.00	0.98		2.80	0.00	0.04	
SU3	GR	ITD00417	<	0.04	0.17	0.24	<	0.11	0.65	1.02		2.23	0.17	0.06	
SU3	GR	ITD00418	<	0.13	0.11	0.17	<	0.32	0.50	0.80		1.78	0.13	0.05	
SU3	GR	ITD00419	<	0.09	0.13	0.19	<	0.05	0.54	0.84		1.80	0.14	0.05	
SU3	GR	ITD00420	<	0.08	0.15	0.24	<	0.32	0.70	1.10		1.67	0.12	0.07	
SU3	GR	ITD00421	<	0.17	0.14	0.23	<	1.00	0.63	1.04		1.94	0.13	0.06	
SU3	GR	ITD00422	<	0.16	0.13	0.21	<	0.38	0.59	0.94		1.92	0.13	0.06	
SU3	GR	ITD00423	<	0.03	0.12	0.19	<	0.13	0.56	0.87		1.66	0.11	0.06	
SU3	GR	ITD00424	<	0.03	0.13	0.20	<	-0.14	0.60	0.91		1.95	0.12	0.06	
SU3	GR	ITD00425	<	0.03	0.13	0.21	<	-0.22	0.64	0.95		2.01	0.13	0.06	
SU4	GR	ITD00137	<	-0.01	0.10	0.15	<	-0.13	0.45	0.65		1.34	0.10	0.04	
SU4	FD	ITD10137	<	0.03	0.09	0.14	<	0.09	0.45	0.67		1.25	0.10	0.04	
SU4	SP	ITD20137	<	0.20	0.00	0.14	<	-0.32	0.00	0.93		1.31	0.00	0.05	
SU4	GR	ITD00140	<	0.04	0.08	0.13	<	0.10	0.38	0.57		1.04	0.08	0.04	
SU4	GR	ITD00141	<	0.12	0.11	0.16	<	0.28	0.48	0.73		1.08	0.09	0.05	
SU4	GR	ITD00143	<	0.02	0.10	0.15	<	0.30	0.48	0.72		1.65	0.12	0.04	

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Area	Sample Type	Sample ID	Ac-227 Qual.*	Ac-227 (pCi/g)	Ac-227 Error	Ac-227 MDA	Pa-231 Qual.*	Pa-231 (pCi/g)	Pa-231 Error	Pa-231 MDA	Ra-226 Qual.*	Ra-226 (pCi/g)	Ra-226 Error	Ra-226 MDA
SU4	GR	ITD00144	<	0.04	0.10	0.15	<	0.49	0.45	0.70	1.22	0.10	0.04	
SU4	GR	ITD00145	<	0.06	0.10	0.16	<	0.35	0.47	0.72	0.69	0.07	0.05	
SU4	GR	ITD00146	<	0.07	0.09	0.14	<	0.21	0.40	0.61	1.10	0.09	0.04	
SU4	GR	ITD00147	<	0.09	0.10	0.16	<	0.00	0.50	0.74	1.58	0.12	0.05	
SU4	GR	ITD00148	<	0.07	0.10	0.16	<	0.05	0.45	0.67	1.25	0.10	0.04	
SU4	GR	ITD00149	<	0.00	0.09	0.14	<	-0.04	0.43	0.63	1.25	0.10	0.04	
SU4	FD	ITD10149	<	-0.01	0.09	0.13	<	0.19	0.38	0.58	0.98	0.08	0.04	
SU4	SP	ITD20149	<	0.19	0.00	0.13	<	-0.02	0.00	0.97	1.58	0.00	0.05	
SU4	GR	ITD00150	<	0.04	0.08	0.11	<	-0.01	0.34	0.50	0.70	0.06	0.03	
SU4	GR	ITD00151	<	0.18	0.07	0.19	<	0.24	0.56	0.84	2.10	0.15	0.05	
SU4	GR	ITD00152	<	0.17	0.10	0.16	<	0.10	0.44	0.66	1.42	0.11	0.04	
SU4	GR	ITD00153	<	0.09	0.10	0.15	<	0.21	0.42	0.64	1.85	0.13	0.04	
SU4	GR	ITD00154	<	0.15	0.10	0.16	<	0.14	0.46	0.70	1.01	0.08	0.04	
SU4	GR	ITD00155	<	0.21	0.13	0.21	<	0.63	0.81	0.93	3.05	0.21	0.06	
SU4	GR	ITD00156	<	0.07	0.08	0.15	<	0.43	0.43	0.75	1.00	0.08	0.04	
SU4	GR	ITD00157	<	0.10	0.07	0.11	<	0.32	0.32	0.51	0.78	0.06	0.03	
SU4	GR	ITD00158	<	0.14	0.07	0.17	<	0.29	0.51	0.78	1.93	0.14	0.04	
SU4	GR	ITD00159	<	0.33	0.14	0.24	<	0.67	0.85	1.28	8.26	0.52	0.08	
SU4	GR	ITD00160	<	0.10	0.04	0.12	<	0.12	0.36	0.54	1.09	0.08	0.03	
SU4	GR	ITD00161	<	0.06	0.10	0.15	<	-0.02	0.42	0.62	1.39	0.10	0.04	
SU4	GR	ITD00162	<	0.21	0.13	0.21	<	0.00	0.58	0.86	2.42	0.17	0.05	
SU4	GR	ITD00163	<	-0.01	0.11	0.16	<	0.48	0.48	0.73	1.66	0.12	0.05	
SU4	GR	ITD00164	<	0.10	0.10	0.16	<	0.50	0.45	0.70	1.35	0.10	0.04	
SU4	GR	ITD00165	<	0.12	0.11	0.16	<	0.42	0.47	0.72	1.50	0.11	0.05	
SU4	GR	ITD00166	<	0.03	0.11	0.17	<	0.02	0.48	0.71	1.49	0.11	0.05	
SU4	GR	ITD00167	<	0.11	0.09	0.14	<	0.35	0.46	0.64	1.30	0.10	0.04	
SU4	GR	ITD00168	<	0.12	0.12	0.18	<	0.19	0.49	0.74	2.06	0.15	0.05	
SU4	GR	ITD00169	<	0.10	0.09	0.14	<	0.00	0.39	0.58	1.08	0.09	0.04	
SU4	GR	ITD00170	<	0.04	0.08	0.13	<	-0.16	0.40	0.58	0.99	0.08	0.04	
SU4	GR	ITD00171	<	0.03	0.12	0.18	<	0.34	0.53	0.80	2.38	0.17	0.05	
SU4	GR	ITD00172	<	0.00	0.10	0.14	<	0.09	0.42	0.63	1.02	0.08	0.04	
SU4	GR	ITD00173	<	0.33	0.11	0.20	<	0.25	0.60	0.90	2.02	0.15	0.05	
SU4	GR	ITD00174	<	0.00	0.11	0.17	<	0.48	0.53	0.82	1.98	0.14	0.05	
SU4	GR	ITD00175	<	-0.03	0.08	0.08	<	0.09	0.24	0.37	0.38	0.04	0.03	
SU4	FD	ITD10175	<	0.07	0.06	0.09	<	-0.01	0.28	0.46	0.39	0.04	0.03	
SU4	SP	ITD20175	<	0.07	0.00	0.11	<	-0.02	0.00	0.82	0.44	0.00	0.04	
SU4	GR	ITD00176	<	0.00	0.14	0.15	<	0.14	0.47	0.71	1.12	0.09	0.05	
SU4	GR	ITD00177	<	0.12	0.12	0.18	<	0.13	0.53	0.80	1.74	0.13	0.05	
SU4	GR	ITD00178	<	0.10	0.09	0.14	<	0.22	0.42	0.64	0.93	0.08	0.04	
SU4	GR	ITD00179	<	0.07	0.15	0.22	<	-0.01	0.69	1.01	2.12	0.16	0.07	
SU4	GR	ITD00180	<	0.01	0.10	0.14	<	0.05	0.42	0.62	1.13	0.09	0.04	

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Area	Sample	Sample ID	Ac-227 Qual.*	Ac-227 (pCi/g)	Ac-227 Error	Ac-227 MDA	P _a -231 Qual.*	P _a -231 (pCi/g)	P _a -231 Error	P _a -231 MDA	Ra-226 Qual.*	Ra-226 (pCi/g)	Ra-226 Error	Ra-226 MDA
SU4	GR	ITD00181	<	0.09	0.11	0.17	<	0.55	0.49	0.77	<	1.01	0.09	0.05
SU4	GR	ITD00182	<	0.73	0.14	0.19	<	-0.08	0.41	0.56	<	0.69	0.10	0.11
SU4	GR	ITD00183	<	0.84	0.22	0.32	<	0.47	0.81	1.17		3.96	0.22	0.08
SU4	GR	ITD00184	<	0.68	0.17	0.22	<	0.03	0.48	0.68		1.06	0.08	0.04
SU4	GR	ITD00185	<	0.03	0.19	0.28	<	-0.06	0.85	1.20		3.61	0.21	0.08
SU4	GR	ITD00186	<	-0.02	0.13	0.19	<	0.38	0.61	0.89		1.21	0.10	0.06
SU4	GR	ITD00187	<	-0.05	0.12	0.17	<	0.33	0.59	0.87		1.33	0.10	0.05
SU4	GR	ITD00188	<	0.11	0.16	0.23	<	0.12	0.74	1.05		2.12	0.14	0.06
SU4	FD	ITD10188	<	0.03	0.17	0.24	<	0.50	0.79	1.16		2.22	0.15	0.07
SU4	SP	ITD20188	<	0.36	0.00	0.19	<	-0.27	0.00	1.09		2.46	0.00	0.06
SU4	GR	ITD00189	<	0.03	0.14	0.21	<	0.80	0.72	0.98		1.68	0.12	0.06
SU4	GR	ITD00190	<	0.16	0.17	0.25	<	0.79	0.76	1.13		2.53	0.17	0.07
SU4	GR	ITD00191	<	0.14	0.16	0.23	<	0.13	0.70	1.00		1.92	0.13	0.07
SU4	GR	ITD00192	<	0.24	0.15	0.23	<	-0.35	0.69	0.93		1.90	0.13	0.06
SU4	GR	ITD000A14		0.92	0.20	0.30	<	1.46	1.10	1.66		12.77	0.79	0.10
SU4	GR	ITD000A15		0.36	0.13	0.19	<	0.54	0.67	1.02		3.48	0.24	0.06
SU5	GR	ITD00193	<	0.08	0.07	0.11	<	-0.10	0.29	0.47		0.77	0.06	0.03
SU5	GR	ITD00194	<	0.17	0.14	0.21	<	0.36	0.65	0.99		3.02	0.21	0.06
SU5	GR	ITD00195	<	0.17	0.19	0.22	<	0.64	0.65	0.99		3.79	0.25	0.06
SU5	GR	ITD00196	<	0.23	0.17	0.24	<	-0.03	0.79	1.16		3.56	0.25	0.07
SU5	GR	ITD00197	<	0.31	0.13	0.23	<	-0.25	0.72	1.04		3.43	0.24	0.07
SU5	FD	ITD10197	<	0.23	0.18	0.23	<	-0.01	0.68	0.99		3.56	0.24	0.06
SU5	SP	ITD20197	<	0.17	0.00	0.14	<	-0.16	0.00	0.98		3.36	0.00	0.05
SU5	GR	ITD00198	<	0.17	0.12	0.18	<	0.43	0.53	0.77		1.78	0.13	0.05
SU5	GR	ITD00199	<	0.18	0.13	0.21	<	-0.18	0.58	0.85		2.47	0.17	0.06
SU5	GR	ITD00200	<	0.59	0.14	0.24	<	0.05	0.65	0.96		4.38	0.29	0.06
SU5	GR	ITD00201	<	0.20	0.14	0.22	<	0.23	0.65	0.97		1.99	0.15	0.06
SU5	GR	ITD00202	<	0.29	0.17	0.25	<	-0.29	0.70	1.00		3.53	0.24	0.06
SU5	GR	ITD00203	<	0.21	0.15	0.24	<	0.27	0.69	1.04		3.46	0.24	0.06
SU5	GR	ITD00204	<	0.20	0.14	0.22	<	0.62	0.59	0.91		2.58	0.19	0.06
SU5	GR	ITD00205	<	0.21	0.14	0.20	<	0.23	0.58	0.87		2.69	0.19	0.06
SU5	GR	ITD00405	<	0.12	0.16	0.23	<	0.03	0.67	1.03		3.00	0.18	0.06
SU5	GR	ITD00406	<	-0.02	0.19	0.22	<	-0.57	0.65	0.94		2.25	0.14	0.06
SU5	GR	ITD00407		0.35	0.12	0.20	<	0.49	0.69	1.10		3.47	0.21	0.07
SU5	GR	ITD00430	<	0.09	0.11	0.17	<	0.09	0.59	0.68		1.03	0.08	0.05
SU5	GR	ITD00431		0.21	0.12	0.21	<	0.48	0.67	1.07		3.28	0.20	0.07
SU5	SP	ITD20432		0.15		0.15	<	0.20		1.00		1.22		0.05
SU5	GR	ITD00432	<	-0.01	0.10	0.14	<	-0.16	0.40	0.61		1.12	0.08	0.04
SU5	FD	ITD10432	<	0.16	0.12	0.18	<	0.34	0.50	0.80		1.54	0.10	0.05
SU5	GR	ITD00433	<	0.14	0.15	0.23	<	0.16	0.63	0.99		2.00	0.14	0.06
SU5	GR	ITD00434	<	0.04	0.14	0.21	<	0.01	0.59	0.91		2.34	0.15	0.06

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Area	Sample Type	Sample ID	Ac-227 Qual.*	Ac-227 (pCi/g)	Ac-227 Error	Ac-227 MDA	Pa-231 Qual.*	Pa-231 (pCi/g)	Pa-231 Error	Pa-231 MDA	Ra-226 Qual.*	Ra-226 (pCi/g)	Ra-226 Error	Ra-226 MDA
SU5	GR	ITD00435	<	0.06	0.16	0.23	<	0.45	0.65	1.04		1.98	0.13	0.06
SU5	GR	ITD000A16	<	0.32	0.22	0.32	<	0.78	0.97	1.41		5.60	0.30	0.08
SU6	GR	ITD00222	<	0.16	0.12	0.16	<	0.27	0.45	0.69		1.56	0.12	0.04
SU6	GR	ITD00223	<	0.07	0.08	0.13	<	0.22	0.36	0.55		1.41	0.10	0.03
SU6	GR	ITD00224	<	0.05	0.10	0.15	<	0.02	0.47	0.70		1.42	0.11	0.04
SU6	GR	ITD00225	<	0.19	0.15	0.24	<	0.42	0.64	0.98		2.91	0.21	0.07
SU6	GR	ITD00226	<	0.14	0.10	0.15	<	0.23	0.45	0.68		1.43	0.11	0.04
SU6	GR	ITD00227	<	0.05	0.12	0.18	<	0.29	0.55	0.84		1.72	0.13	0.05
SU6	GR	ITD00228	<	0.22	0.12	0.19	<	0.37	0.51	0.77		2.56	0.18	0.05
SU6	GR	ITD00229	<	0.08	0.07	0.14	<	-0.09	0.43	0.63		1.25	0.10	0.04
SU6	GR	ITD00230	<	0.07	0.13	0.19	<	0.24	0.59	0.89		2.02	0.15	0.05
SU6	GR	ITD00231	<	0.15	0.11	0.17	<	-0.09	0.46	0.66		1.61	0.12	0.04
SU6	FD	ITD10231	<	0.10	0.12	0.19	<	0.05	0.53	0.78		1.92	0.14	0.05
SU6	SP	ITD20231	<	0.42	0.00	0.16	<	-0.41	0.00	1.01		2.72	0.00	0.06
SU6	GR	ITD00232	<	0.09	0.03	0.18	<	0.71	0.54	0.84		2.55	0.18	0.05
SU6	GR	ITD00233	<	0.08	0.11	0.18	<	0.07	0.53	0.78		1.81	0.13	0.05
SU6	GR	ITD00234	<	0.09	0.12	0.19	<	0.35	0.51	0.78		1.94	0.14	0.05
SU6	GR	ITD00235	<	0.11	0.13	0.20	<	0.33	0.55	0.83		2.63	0.18	0.05
SU6	GR	ITD00236	<	0.02	0.13	0.16	<	0.12	0.45	0.68		1.49	0.11	0.05
SU6	GR	ITD00237	<	0.18	0.12	0.19	<	-0.21	0.77	0.79		2.05	0.15	0.05
SU6	GR	ITD00238	<	0.21	0.13	0.20	<	0.14	0.55	0.83		2.36	0.17	0.06
SU6	GR	ITD00239	<	0.13	0.11	0.17	<	0.28	0.51	0.77		1.76	0.13	0.05
SU6	GR	ITD00240	<	0.14	0.17	0.21	<	0.41	0.59	0.90		2.71	0.19	0.06
SU6	GR	ITD00241	<	0.15	0.13	0.20	<	0.23	0.60	0.89		2.92	0.20	0.05
SU6	GR	ITD00242	<	0.03	0.13	0.19	<	0.62	0.55	0.85		2.17	0.16	0.05
SU6	GR	ITD00243	<	0.21	0.13	0.21	<	-0.06	0.54	0.79		2.16	0.16	0.05
SU6	GR	ITD00244	<	0.17	0.12	0.19	<	0.07	0.54	0.81		2.34	0.16	0.05
SU6	GR	ITD00245	<	0.14	0.11	0.18	<	0.39	0.54	0.82		1.82	0.13	0.05
SU6	GR	ITD00246		0.27	0.11	0.15	<	0.11	0.51	0.77		2.51	0.17	0.05
SU6	GR	ITD00247	<	0.23	0.13	0.20	<	-0.21	0.57	0.83		2.69	0.19	0.05
SU6	GR	ITD00248	<	0.06	0.11	0.16	<	0.45	0.45	0.70		1.64	0.12	0.04
SU6	GR	ITD00249	<	0.07	0.15	0.21	<	0.14	0.62	0.93		3.04	0.21	0.06
SU6	GR	ITD00250	<	0.18	0.15	0.22	<	0.33	0.63	0.96		2.71	0.19	0.06
SU6	GR	ITD00251	<	0.15	0.11	0.17	<	0.25	0.48	0.73		1.52	0.12	0.04
SU6	GR	ITD00252	<	0.14	0.11	0.16	<	0.39	0.45	0.70		1.51	0.11	0.05
SU6	GR	ITD00253	<	0.13	0.14	0.20	<	0.24	0.55	0.84		2.42	0.17	0.05
SU6	FD	ITD10253	<	0.05	0.13	0.19	<	0.32	0.56	0.86		2.46	0.18	0.05
SU6	SP	ITD20253	<	0.05	0.00	0.15	<	-0.08	0.00	0.98		2.74	0.00	0.05
SU6	GR	ITD00254	<	0.07	0.08	0.16	<	0.57	0.45	0.71		1.67	0.12	0.04
SU6	GR	ITD00255	<	0.11	0.11	0.16	<	0.08	0.45	0.67		1.87	0.13	0.04
SU6	GR	ITD00256	<	0.24	0.13	0.20	<	0.16	0.55	0.83		2.65	0.19	0.05

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Area	Sample Type	Sample ID	Ac-227 Qual.*	Ac-227 (pCi/g)	Ac-227 Error	Ac-227 MDA	Pa-231 Qual.*	Pa-231 (pCi/g)	Pa-231 Error	Pa-231 MDA	Ra-226 Qual.*	Ra-226 (pCi/g)	Ra-226 Error	Ra-226 MDA
SU6	GR	ITD00257	<	0.04	0.11	0.15	<	0.19	0.44	0.67	1.68	0.12	0.04	
SU6	GR	ITD00258	<	0.25	0.20	0.30	<	0.01	0.93	1.31	3.97	0.23	0.09	
SU6	GR	ITD00259	<	0.21	0.17	0.25	<	0.07	0.71	1.00	3.26	0.18	0.06	
SU6	GR	ITD00A17	<	-0.09	0.13	0.18	<	0.20	0.66	0.94	2.11	0.16	0.06	
SU6	GR	ITD00A18	<	-0.01	0.20	0.29	<	0.27	1.00	1.43	3.37	0.27	0.09	
SU7	GR	ITD00260	<	0.10	0.13	0.20	<	0.23	0.57	0.86	2.01	0.15	0.06	
SU7	GR	ITD00261	<	0.01	0.08	0.12	<	0.02	0.33	0.49	0.94	0.07	0.03	
SU7	GR	ITD00262	<	0.10	0.06	0.10	<	0.05	0.25	0.42	0.87	0.07	0.03	
SU7	GR	ITD00263	<	0.12	0.12	0.18	<	0.06	0.54	0.81	1.74	0.13	0.05	
SU7	GR	ITD00264	<	0.19	0.14	0.22	<	0.75	0.59	0.92	2.00	0.15	0.06	
SU7	GR	ITD00265	<	0.20	0.11	0.18	<	0.05	0.55	0.82	1.56	0.12	0.05	
SU7	FD	ITD10265					<	1.01	0.84	0.76	0.05	0.00	0.00	
SU7	SP	ITD20265	<	-0.04	0.00	0.15	<	-0.17	0.00	1.00	1.85	0.00	0.05	
SU7	GR	ITD00266	<	0.16	0.14	0.22	<	-0.10	0.82	0.87	2.04	0.15	0.06	
SU7	GR	ITD00267	<	0.20	0.13	0.21	<	-0.10	0.59	0.86	2.10	0.15	0.05	
SU7	GR	ITD00268	<	0.13	0.13	0.20	<	-0.06	0.56	0.82	1.82	0.14	0.05	
SU7	GR	ITD00269	<	0.25	0.15	0.23	<	0.64	0.63	0.97	2.90	0.20	0.06	
SU7	GR	ITD00270	<	0.19	0.13	0.20	<	-0.10	0.57	0.83	2.33	0.17	0.06	
SU7	GR	ITD00271	<	0.24	0.17	0.22	<	0.30	0.63	0.95	3.29	0.22	0.06	
SU7	GR	ITD00272	<	0.01	0.08	0.11	<	0.01	0.34	0.48	0.77	0.06	0.03	
SU7	GR	ITD00273	<	0.14	0.11	0.21	<	-0.17	0.70	0.97	1.82	0.13	0.06	
SU7	GR	ITD00274	<	0.45	0.18	0.27	<	0.67	0.74	1.09	2.40	0.15	0.06	
SU7	GR	ITD00275	<	0.21	0.15	0.23	<	0.44	0.65	0.96	2.21	0.15	0.07	
SU7	GR	ITD00276	<	0.31	0.17	0.27	<	0.40	0.76	1.10	1.72	0.13	0.07	
SU7	GR	ITD00277	<	0.13	0.10	0.15	<	0.08	0.44	0.62	1.07	0.08	0.04	
SU7	GR	ITD00278	<	0.16	0.14	0.21	<	-0.02	0.63	0.88	1.94	0.13	0.06	
SU7	GR	ITD00279	<	0.23	0.16	0.24	<	0.38	0.65	0.96	2.25	0.14	0.06	
SU7	GR	ITD00280		0.61	0.17	0.27	<	0.92	1.00	1.46	7.78	0.36	0.09	
SU7	GR	ITD00281	<	0.21	0.14	0.21	<	-0.41	0.68	0.91	1.46	0.11	0.06	
SU7	GR	ITD00282	<	0.03	0.08	0.12	<	0.13	0.32	0.52	0.74	0.06	0.03	
SU7	GR	ITD00283	<	0.24	0.19	0.28	<	-0.83	0.86	1.13	3.32	0.20	0.07	
SU7	GR	ITD00284	<	0.18	0.17	0.25	<	-0.18	0.77	1.06	3.00	0.18	0.07	
SU7	GR	ITD00285A	<	-0.06	0.16	0.25	<	-0.15	0.75	1.14	3.05	0.19	0.07	
SU7	GR	ITD00286	<	0.19	0.21	0.30	<	0.20	0.89	1.27	3.92	0.24	0.08	
SU7	GR	ITD00287	<	0.17	0.13	0.21	<	0.13	0.66	0.94	1.02	0.09	0.06	
SU7	GR	ITD00288	<	0.00	0.09	0.13	<	-0.26	0.44	0.58	0.71	0.06	0.04	
SU7	FD	ITD10288	<	0.03	0.08	0.12	<	0.17	0.34	0.50	0.65	0.05	0.03	
SU7	SP	ITD20288	<	0.05	0.00	0.15	<	0.21	0.00	1.00	0.65	0.00	0.05	
SU7	GR	ITD00289	<	0.33	0.16	0.24	<	-0.06	0.68	0.95	2.07	0.14	0.06	
SU7	GR	ITD00290	<	0.15	0.14	0.21	<	0.39	0.59	0.87	1.93	0.13	0.06	
SU7	GR	ITD00291	<	0.32	0.17	0.27	<	0.19	0.77	1.10	2.09	0.15	0.07	

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Area	Sample Type	Sample ID	Ac-227 Qual.*	Ac-227 (pCi/g)	Ac-227 Error	Ac-227 MDA	Pa-231 Qual.*	Pa-231 (pCi/g)	Pa-231 Error	Pa-231 MDA	Ra-226 Qual.*	Ra-226 (pCi/g)	Ra-226 Error	Ra-226 MDA
SU7	GR	ITD00292	<	0.14	0.18	0.26	<	0.31	0.80	1.15	2.98	0.19	0.07	
SU7	GR	ITD00293	<	0.35	0.17	0.27	<	0.27	0.79	1.14	3.34	0.21	0.07	
SU7	GR	ITD00294	<	0.05	0.10	0.15	<	0.43	0.42	0.64	0.92	0.07	0.04	
SU7	GR	ITD00295	<	0.22	0.16	0.23	<	-0.40	0.72	0.96	2.03	0.14	0.06	
SU7	GR	ITD00296	<	0.13	0.18	0.26	<	-0.13	0.78	1.08	3.09	0.19	0.07	
SU7	GR	ITD00297	<	0.05	0.11	0.16	<	0.08	0.49	0.69	1.32	0.09	0.04	
SU7	GR	ITD00298	<	0.12	0.04	0.20	<	0.35	0.57	0.84	1.89	0.13	0.05	
SU7	GR	ITD00299	<	0.13	0.13	0.19	<	0.13	0.57	0.81	1.72	0.12	0.05	
SU7	GR	ITD00300	<	0.07	0.08	0.12	<	0.21	0.36	0.53	0.85	0.06	0.03	
SU7	GR	ITD00301	<	0.27	0.14	0.21	<	0.23	0.60	0.87	1.73	0.12	0.06	
SU7	GR	ITD00302	<	0.13	0.13	0.20	<	-0.24	0.58	0.79	1.84	0.12	0.05	
SU7	GR	ITD00303	<	0.13	0.11	0.16	<	0.50	0.47	0.71	1.09	0.08	0.04	
SU7	GR	ITD00304	<	0.12	0.12	0.18	<	0.33	0.54	0.79	1.60	0.11	0.05	
SU8	GR	ITD00305	<	0.15	0.13	0.19	<	-0.06	0.57	0.79	1.66	0.12	0.05	
SU8	GR	ITD00306	<	0.07	0.10	0.15	<	0.14	0.44	0.63	1.25	0.08	0.04	
SU8	GR	ITD00307	<	0.14	0.17	0.25	<	0.53	0.76	1.12	3.46	0.20	0.07	
SU8	GR	ITD00308	<	0.22	0.16	0.24	<	-0.02	0.72	1.01	3.24	0.18	0.06	
SU8	GR	ITD00309	<	0.26	0.12	0.18	<	0.00	0.51	0.72	1.33	0.09	0.05	
SU8	GR	ITD00310	<	0.07	0.04	0.14	<	-0.32	0.38	0.53	1.11	0.09	0.04	
SU8	GR	ITD00311	<	0.02	0.11	0.16	<	-0.03	0.50	0.74	1.32	0.10	0.04	
SU8	GR	ITD00312	<	0.07	0.10	0.14	<	0.11	0.40	0.60	1.08	0.09	0.04	
SU8	GR	ITD00313	<	0.00	0.07	0.10	<	-0.26	0.30	0.46	0.47	0.05	0.03	
SU8	GR	ITD00314	<	0.07	0.11	0.16	<	0.11	0.48	0.72	1.04	0.09	0.05	
SU8	GR	ITD00315	<	0.12	0.08	0.16	<	-0.07	0.43	0.63	1.69	0.12	0.05	
SU8	FD	ITD10315	<	0.11	0.12	0.18	<	-0.10	0.51	0.75	1.57	0.12	0.05	
SU8	SP	ITD20315	<	-0.03	0.00	0.14	<	0.18	0.00	0.98	1.44	0.00	0.05	
SU8	GR	ITD00316	<	0.13	0.14	0.20	<	0.29	0.58	0.88	2.63	0.18	0.06	
SU8	GR	ITD00317	<	-0.03	0.11	0.16	<	0.14	0.48	0.72	1.66	0.13	0.05	
SU8	GR	ITD00318	<	0.04	0.13	0.19	<	-0.11	0.52	0.76	1.76	0.14	0.05	
SU8	GR	ITD00319	<	-0.04	0.13	0.18	<	0.15	0.54	0.81	1.76	0.14	0.05	
SU8	GR	ITD00320	<	0.06	0.12	0.18	<	0.22	0.52	0.79	1.81	0.13	0.05	
SU8	GR	ITD00321	<	0.10	0.12	0.18	<	-0.14	0.51	0.75	2.54	0.18	0.05	
SU8	GR	ITD00322	<	0.28	0.21	0.31	<	0.70	0.86	1.26	4.18	0.29	0.08	
SU8	GR	ITD00323	<	0.31	0.17	0.26	<	0.31	0.68	0.99	2.30	0.17	0.06	
SU8	GR	ITD00324	<	0.12	0.12	0.18	<	-0.16	0.49	0.68	1.26	0.09	0.05	
SU8	GR	ITD00325	<	0.07	0.11	0.17	<	0.05	0.48	0.68	1.69	0.11	0.05	
SU8	GR	ITD00326	<	0.36	0.19	0.29	<	-0.36	0.90	1.24	2.75	0.21	0.08	
SU8	GR	ITD00327	<	0.08	0.11	0.16	<	0.17	0.53	0.76	1.17	0.09	0.04	
SU8	FD	ITD10327	<	0.01	0.13	0.18	<	0.13	0.55	0.79	1.39	0.11	0.05	
SU8	SP	ITD20327	<	0.13	0.00	0.14	<	-1.18	0.00	0.94	1.60	0.00	0.04	
SU8	GR	ITD00328	<	0.08	0.18	0.26	<	0.05	0.81	1.14	3.69	0.22	0.07	

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Area	Sample	Sample ID	Ac-227 Qual.*	Ac-227 (pCi/g)	Ac-227 Error	Ac-227 MDA	Pa-231 Qual.*	Pa-231 (pCi/g)	Pa-231 Error	Pa-231 MDA	Ra-226 Qual.*	Ra-226 (pCi/g)	Ra-226 Error	Ra-226 MDA
SU8	GR	ITD00329	<	-0.01	0.09	0.12	<	0.10	0.42	0.61		0.57	0.06	0.04
SU8	GR	ITD00330	<	0.44	0.20	0.31	<	0.37	1.15	1.31		3.27	0.21	0.08
SU8	GR	ITD00331	<	0.21	0.17	0.26	<	-0.44	0.79	1.05		2.01	0.14	0.07
SU8	GR	ITD00332	<	0.34	0.26	0.30	<	0.03	0.90	1.27		4.28	0.25	0.08
SU8	GR	ITD00333	<	0.14	0.09	0.15	<	-0.28	0.45	0.60		0.92	0.07	0.04
SU8	GR	ITD00334	<	0.15	0.08	0.27	<	0.09	0.73	1.09		2.24	0.17	0.07
SU8	GR	ITD00335	<	-0.02	0.10	0.14	<	0.18	0.42	0.64		0.92	0.08	0.04
SU8	GR	ITD00336	<	0.23	0.17	0.19	<	0.34	0.58	0.88		2.74	0.19	0.05
SU8	GR	ITD00337	<	0.13	0.18	0.26	<	0.19	0.75	1.13		2.38	0.18	0.07
SU8	GR	ITD00338	<	0.16	0.13	0.17	<	0.48	0.48	0.76		1.65	0.12	0.05
SU8	GR	ITD00339	<	0.07	0.18	0.25	<	0.39	0.73	1.11		3.29	0.23	0.07
SU8	GR	ITD00340	<	-0.03	0.13	0.18	<	0.19	0.57	0.86		1.57	0.13	0.05
SU8	GR	ITD00341	<	0.11	0.12	0.18	<	0.20	0.50	0.76		1.47	0.11	0.05
SU8	GR	ITD00342	<	0.16	0.18	0.27	<	0.47	0.81	1.24		3.12	0.23	0.08
SU8	GR	ITD00343	<	0.05	0.13	0.19	<	-0.06	0.55	0.81		1.18	0.10	0.05
SU8	GR	ITD00344		0.36	0.20	0.30	<	0.01	1.01	1.49		5.36	0.37	0.10
SU8	GR	ITD00345	<	0.01	0.13	0.19	<	0.12	0.55	0.84		1.39	0.11	0.06
SU8	FD	ITD10345	<	0.11	0.10	0.23	<	0.07	0.66	0.99		2.08	0.16	0.07
SU8	SP	ITD20345	<	0.07	0.00	0.13	<	-0.45	0.00	0.89		1.94	0.00	0.05
SU8	GR	ITD00346	<	0.20	0.22	0.32	<	-0.16	0.94	1.31		2.83	0.19	0.09
SU8	GR	ITD00347	<	0.11	0.22	0.32	<	0.31	1.00	1.44		2.82	0.19	0.09
SU8	GR	ITD00C19	<	0.59	0.30	0.43	<	1.19	1.39	2.04		6.70	0.39	0.13
SU9	GR	ITD00348	<	0.21	0.19	0.28	<	0.86	1.05	1.23		2.03	0.15	0.08
SU9	GR	ITD00349	<	0.19	0.17	0.26	<	0.07	0.84	1.19		1.54	0.13	0.08
SU9	GR	ITD00350	<	0.07	0.14	0.21	<	-0.26	0.69	0.94		1.27	0.10	0.06
SU9	GR	ITD00351	<	0.16	0.19	0.28	<	0.46	0.86	1.26		2.13	0.16	0.08
SU9	GR	ITD00352	<	0.10	0.25	0.29	<	0.09	0.88	1.25		2.52	0.18	0.08
SU9	GR	ITD00353	<	-0.01	0.17	0.24	<	0.38	0.74	1.08		1.58	0.12	0.07
SU9	GR	ITD00354	<	0.25	0.17	0.25	<	0.11	0.94	1.05		2.56	0.17	0.07
SU9	GR	ITD00355	<	0.17	0.21	0.31	<	0.33	0.92	1.33		3.34	0.21	0.09
SU9	GR	ITD00356	<	1.74	0.32	0.49	<	-0.20	0.93	1.31		2.79	0.18	0.09
SU9	FD	ITD10356	<	0.17	0.16	0.39	<	-0.01	0.77	1.11		2.75	0.17	0.07
SU9	SP	ITD20356	<	0.03	0.00	0.14	<	0.38	0.00	1.02		2.74	0.00	0.05
SU9	GR	ITD00357	<	0.06	0.21	0.30	<	0.45	0.90	1.31		3.09	0.20	0.09
SU9	GR	ITD00358	<	0.16	0.09	0.15	<	0.04	0.36	0.61		0.62	0.05	0.04
SU9	GR	ITD00359	<	0.62	0.14	0.23	<	0.45	0.49	0.75		0.93	0.07	0.05
SU9	GR	ITD00360	<	0.39	0.11	0.18	<	0.33	0.41	0.63		1.11	0.08	0.04
SU9	GR	ITD00361	<	0.13	0.10	0.30	<	0.34	0.55	0.84		1.53	0.11	0.06
SU9	GR	ITD00362	<	0.25	0.11	0.18	<	0.00	0.44	0.63		0.88	0.07	0.04
SU9	GR	ITD00363	<	0.93	0.18	0.30	<	-0.09	0.64	0.91		1.25	0.10	0.06
SU9	GR	ITD00364	<	0.72	0.19	0.32	<	-0.38	0.62	0.98		1.81	0.12	0.07

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Area	Sample Type	Sample ID	Ac-227 Qual.*	Ac-227 (pCi/g)	Ac-227 Error	Ac-227 MDA	Pa-231 Qual.*	Pa-231 (pCi/g)	Pa-231 Error	Pa-231 MDA	Ra-226 Qual.*	Ra-226 (pCi/g)	Ra-226 Error	Ra-226 MDA
SU9	GR	ITD00365	<	0.22	0.21	0.50	<	-0.59	1.06	1.46	3.15	0.20	0.09	
SU9	GR	ITD00366	<	1.83	0.30	0.43	<	0.43	0.93	1.37	4.65	0.26	0.09	
SU9	GR	ITD00367	<	0.72	0.16	0.26	<	-0.61	0.60	0.79	1.06	0.08	0.05	
SU9	GR	ITD00D20	<	0.37	0.77	1.13	<	2.09	3.73	5.41	16.02	0.94	0.33	
SU9	GR	ITD00D21	<	0.01	0.21	0.30	<	-0.76	1.00	1.34	4.64	0.27	0.09	
SU10	GR	ITD00368	<	0.05	0.10	0.15	<	0.04	0.43	0.67	0.94	0.07	0.04	
SU10	FD	ITD10368	<	0.06	0.09	0.14	<	0.27	0.40	0.64	0.90	0.07	0.04	
SU10	SP	ITD20368	<	0.10	0.00	0.15	<	-0.17	0.00	0.89	0.93	0.00	0.04	
SU10	GR	ITD00369	<	0.06	0.09	0.14	<	0.23	0.43	0.70	0.70	0.06	0.04	
SU10	GR	ITD00370	<	0.04	0.08	0.13	<	-0.10	0.36	0.54	0.64	0.05	0.04	
SU10	GR	ITD00371	<	-0.02	0.07	0.09	<	0.07	0.26	0.42	0.52	0.04	0.03	
SU10	GR	ITD00372	<	0.10	0.12	0.18	<	0.03	0.50	0.78	1.53	0.10	0.05	
SU10	GR	ITD00373	<	0.12	0.11	0.17	<	0.26	0.47	0.76	0.72	0.06	0.04	
SU10	GR	ITD00374	<	0.04	0.12	0.17	<	0.25	0.51	0.80	1.93	0.12	0.05	
SU10	GR	ITD00375	<	0.02	0.07	0.10	<	0.24	0.36	0.51	0.53	0.04	0.03	
SU10	GR	ITD00376	<	0.12	0.11	0.17	<	0.12	0.46	0.73	1.01	0.08	0.05	
SU10	GR	ITD00377	<	0.05	0.09	0.14	<	0.41	0.40	0.71	1.18	0.08	0.04	
SU10	GR	ITD00378	<	0.01	0.09	0.14	<	0.24	0.41	0.65	0.67	0.06	0.04	
SU10	GR	ITD00379	<	0.03	0.11	0.16	<	-0.09	0.48	0.74	0.74	0.06	0.05	
SU10	GR	ITD00380	<	0.05	0.10	0.15	<	-0.16	0.43	0.65	0.84	0.07	0.04	
SU10	GR	ITD00381	<	0.13	0.08	0.19	<	0.01	0.56	0.87	1.09	0.08	0.05	
SU10	GR	ITD00382	<	0.15	0.11	0.18	<	0.53	0.48	0.80	0.87	0.07	0.05	
SU10	GR	ITD00383	<	0.12	0.13	0.19	<	0.19	0.53	0.84	0.81	0.07	0.05	
SU10	GR	ITD00384	<	0.06	0.11	0.17	<	-0.08	0.49	0.76	0.84	0.07	0.05	
SU10	GR	ITD00385	<	-0.02	0.12	0.17	<	0.12	0.48	0.76	0.71	0.06	0.05	
SU10	GR	ITD00386	<	0.10	0.07	0.18	<	0.31	0.52	0.73	0.75	0.06	0.05	
SU10	GR	ITD00387	<	-0.01	0.10	0.15	<	0.38	0.42	0.71	1.02	0.08	0.05	
SU10	GR	ITD00388	<	0.06	0.07	0.18	<	-0.19	0.50	0.76	0.80	0.07	0.05	
SU10	GR	ITD00389	<	0.13	0.12	0.18	<	-0.12	0.46	0.80	1.21	0.09	0.05	
SU10	GR	ITD00390	<	0.03	0.13	0.19	<	0.02	0.53	0.82	1.52	0.11	0.05	
SU10	GR	ITD00391	<	0.01	0.10	0.15	<	-0.25	0.49	0.73	0.72	0.06	0.04	
SU10	GR	ITD00392	<	0.18	0.14	0.22	<	0.27	0.86	1.01	1.89	0.13	0.06	
SU10	GR	ITD00393	<	0.02	0.11	0.17	<	0.34	0.52	0.81	1.51	0.10	0.09	
SU10	GR	ITD00394	<	0.12	0.05	0.18	<	-0.19	0.62	0.92	1.34	0.09	0.06	
SU10	GR	ITD00395	<	0.05	0.12	0.19	<	0.45	0.82	0.97	1.23	0.09	0.06	
SU10	GR	ITD00396	<	0.08	0.13	0.21	<	0.12	0.65	1.02	1.27	0.10	0.06	
SU10	GR	ITD00397	<	0.10	0.11	0.18	<	-0.01	0.52	0.79	1.62	0.11	0.05	
SU10	GR	ITD00398	<	0.13	0.17	0.27	<	1.18	0.79	1.28	3.57	0.21	0.08	
SU10	GR	ITD00399	<	0.15	0.13	0.17	<	0.06	0.51	0.78	0.75	0.06	0.05	
SU10	GR	ITD00400	<	0.11	0.10	0.16	<	0.11	0.53	0.82	1.02	0.07	0.05	
SU10	GR	ITD00401	<	-0.04	0.08	0.12	<	0.02	0.37	0.57	0.76	0.06	0.04	

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Area	Sample	Sample ID	Ac-227 Qual.*	Ac-227 (pCi/g)	Ac-227 Error	Ac-227 MDA	Pa-231 Qual.*	Pa-231 (pCi/g)	Pa-231 Error	Pa-231 MDA	Ra-226 Qual.*	Ra-226 (pCi/g)	Ra-226 Error	Ra-226 MDA
SU10	GR	ITD00402	<	0.05	0.11	0.18	<	0.45	0.53	0.86		0.88	0.07	0.06
SU10	FD	ITD10402	<	0.10	0.11	0.18		1.07	0.54	0.91		0.87	0.07	0.09
SU10	SP	ITD20402	<	0.01	0.00	0.13	<	0.14	0.00	0.83		0.70	0.00	0.04
SU10	GR	ITD00403	<	0.22	0.15	0.27	<	0.62	0.80	1.25		3.71	0.22	0.08
SU10	GR	ITD00404	<	0.12	0.15	0.25	<	0.47	0.73	1.17		1.93	0.13	0.07
SU10	GR	ITD00426	<	0.03	0.11	0.18	<	-0.16	0.55	0.82		1.03	0.08	0.05
SU10	GR	ITD00427	<	0.04	0.13	0.20	<	0.39	0.61	0.95		2.29	0.14	0.06
SU10	GR	ITD00428	<	0.05	0.11	0.18	<	0.08	0.56	0.85		2.45	0.15	0.05
SU10	GR	ITD00429	<	0.10	0.10	0.16	<	0.07	0.49	0.75		1.23	0.09	0.05
SU10	FD	ITD10429	<	0.12	0.09	0.16	<	0.73	0.54	0.78		1.30	0.09	0.04
SU10	SP	ITD20429	<	0.10	0.00	0.16	<	-0.09	0.00	1.00		1.18	0.00	0.05
SU10 Sub	GR	ITD0A368	<	0.04	0.11	0.18	<	0.61	0.56	0.93		1.15	0.09	0.05
SU10 Sub	FD	ITD1A368	<	0.05	0.10	0.17	<	0.41	0.49	0.79		0.67	0.06	0.05
SU10 Sub	SP	ITD2A368	<	0.11	0.00	0.13	<	-0.37	0.00	0.87		1.17	0.00	0.04
SU10 Sub	GR	ITD0A371	<	0.09	0.12	0.20	<	0.39	0.56	0.91		1.02	0.08	0.05
SU10 Sub	GR	ITD0A374	<	-0.07	0.20	0.30	<	0.63	0.90	1.42		3.76	0.23	0.09
SU10 Sub	GR	ITD0A377	<	0.13	0.12	0.20	<	0.37	0.59	0.94		1.40	0.10	0.06
SU10 Sub	GR	ITD0A380	<	0.13	0.17	0.27	<	0.63	0.78	1.26		1.99	0.14	0.08
SU10 Sub	GR	ITD0A383	<	-0.04	0.14	0.21	<	0.34	0.61	0.99		1.24	0.10	0.07
SU10 Sub	GR	ITD0A386	<	-0.03	0.10	0.15	<	0.02	0.49	0.76		0.71	0.06	0.04
SU10 Sub	GR	ITD0A389	<	0.01	0.19	0.29	<	0.15	0.90	1.39		3.19	0.20	0.08
SU10 Sub	GR	ITD0A392	<	-0.05	0.15	0.23	<	-0.03	0.68	1.03		2.32	0.15	0.07
SU10 Sub	GR	ITD0A395	<	0.22	0.16	0.29	<	0.31	0.82	1.29		2.73	0.18	0.09
SU10 Sub	GR	ITD0A398	<	0.00	0.14	0.21	<	0.19	0.86	0.98		1.76	0.12	0.06
SU10 Sub	GR	ITD0A401	<	-0.04	0.15	0.23	<	0.79	0.72	1.15		2.40	0.15	0.07
SU10 Sub	GR	ITD0A402	<	0.19	0.18	0.29	<	0.58	0.81	1.30		2.43	0.16	0.16
SU10 Sub	FD	ITD1A402		0.35	0.20	0.31	<	0.28	0.92	1.44		3.14	0.20	0.09
SU10 Sub	SP	ITD2A402	<	0.19	0.00	0.16	<	-0.39	0.00	0.96		2.48	0.00	0.04
SU10 Sub	GR	ITD0A426	<	0.05	0.13	0.20	<	0.40	0.66	1.05		1.20	0.10	0.06
SU10 Sub	GR	ITD0A427	<	0.00	0.12	0.19	<	0.11	0.60	0.92		1.81	0.12	0.06
SU10 Sub	GR	ITD0A428		0.27	0.24	0.21	<	0.00	0.62	0.95		2.15	0.14	0.06
SU10 Sub	GR	ITD0A429	<	-0.05	0.14	0.21	<	0.42	0.64	1.03		1.59	0.11	0.06
SU10 Sub	FD	ITD1A429	<	0.04	0.14	0.22	<	0.13	0.69	1.07		1.70	0.12	0.06
SU10 Sub	SP	ITD2A429	<	0.01	0.00	0.15	<	-0.43	0.00	0.96		1.54	0.00	0.05

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Area	Sample Type	Sample ID	Ra-228 Qual.*	Ra-228 (pCi/g)	Ra-228 Error	Ra-228 MDA	Th-228 Qual.*	Th-228 (pCi/g)	Th-228 Error	Th-228 MDA	Th-230 Qual.*	Th-230 (pCi/g)	Th-230 Error	Th-230 MDA
SU1	GR	ITC00001		0.32	0.06	0.05		0.49	0.31	0.25		1.13	0.48	0.21
SU1	GR	ITC00002		0.90	0.11	0.09		1.09	0.52	0.15		4.02	1.18	0.15
SU1	GR	ITC00003		0.83	0.11	0.08		1.16	0.51	0.23		1.66	0.63	0.28
SU1	GR	ITC00005		1.01	0.13	0.10		0.57	0.33	0.22		3.23	0.92	0.12
SU1	GR	ITC00006		0.77	0.10	0.08		1.42	0.56	0.30		2.91	0.87	0.30
SU1	GR	ITC00007		0.75	0.10	0.08		1.24	0.52	0.22		1.85	0.66	0.27
SU1	GR	ITC00008		1.11	0.14	0.14		1.46	0.56	0.25		6.04	1.41	0.11
SU1	GR	ITC00010		1.04	0.12	0.08		1.08	0.49	0.31		3.51	1.00	0.13
SU1	FD	ITC10010		0.88	0.11	0.09		0.98	0.45	0.22		3.97	1.05	0.12
SU1	SP	ITC20010		1.44	0.11	0.08		0.98	0.31	0.10		2.99	0.78	0.08
SU1	GR	ITC00011		0.95	0.12	0.08		0.73	0.40	0.28		6.01	1.46	0.13
SU1	GR	ITC00013		0.98	0.12	0.10		1.04	0.49	0.13		5.60	1.43	0.13
SU1	GR	ITC00014		0.67	0.09	0.08		0.47	0.28	0.19		2.28	0.68	0.22
SU1	GR	ITC00015		0.79	0.10	0.07		1.22	0.50	0.21		4.60	1.16	0.25
SU1	GR	ITC00018		0.75	0.10	0.07		0.92	0.45	0.34		1.95	0.69	0.31
SU1	GR	ITC00019		0.92	0.12	0.11		1.62	0.62	0.28		8.05	1.84	0.24
SU1	GR	ITC00021		0.63	0.09	0.08		1.44	0.60	0.26		3.86	1.12	0.31
SU1	GR	ITC00024		0.80	0.10	0.09		1.14	0.49	0.22		2.71	0.82	0.26
SU1	FD	ITC10024		0.85	0.10	0.08		1.47	0.63	0.28		3.48	1.08	0.33
SU1	SP	ITC20024		0.94	0.09	0.11		1.01	0.34	0.11		3.99	1.06	0.11
SU1	GR	ITC00025		0.29	0.05	0.05		0.52	0.34	0.30		2.67	0.87	0.13
SU1	GR	ITC00026		0.73	0.09	0.08		1.16	0.50	0.30		5.47	1.34	0.30
SU1	GR	ITC00027		1.08	0.13	0.10		1.50	0.58	0.23		2.66	0.83	0.12
SU1	GR	ITC00028		0.83	0.11	0.08		1.39	0.60	0.31		6.89	1.70	0.14
SU1	GR	ITC00029		0.90	0.11	0.13		1.17	0.55	0.27		5.63	1.48	0.36
SU1	GR	ITC00030		0.57	0.07	0.06		0.82	0.44	0.26		7.89	1.87	0.14
SU1	GR	ITC00031		0.69	0.09	0.09		0.65	0.38	0.33		7.30	1.72	0.13
SU1	GR	ITC00032		0.84	0.10	0.08		1.61	0.77	0.37		9.26	2.50	0.20
SU1	GR	ITC00033		1.19	0.12	0.09		2.00	0.81	0.38		5.36	1.54	0.17
SU1	GR	ITC00034		0.98	0.11	0.07		0.83	0.39	0.20		5.34	1.25	0.11
SU1	GR	ITC00035		0.99	0.13	0.08		1.18	0.50	0.29		7.70	1.70	0.12
SU1	GR	ITC00036		0.93	0.11	0.08		1.32	0.58	0.27		11.22	2.51	0.14
SU1	GR	ITC00038		0.91	0.11	0.09		1.06	0.51	0.31		19.60	4.06	0.31
SU1	GR	ITC00039		0.88	0.12	0.09		1.25	0.52	0.26		2.97	0.87	0.12
SU1	GR	ITC00040		0.66	0.10	0.09		1.45	0.57	0.23		3.59	1.01	0.12
SU1	GR	ITC00041		0.62	0.08	0.06		0.94	0.43	0.25		2.72	0.81	0.11
SU1	GR	ITC00042		0.79	0.10	0.09		1.05	0.47	0.22		2.29	0.74	0.12
SU1	GR	ITC00043		0.76	0.09	0.07		0.85	0.41	0.12		1.79	0.62	0.12
SU1	GR	ITC00209		1.16	0.14	0.12		1.33	0.53	0.22		5.07	1.25	0.22
SU1	GR	ITC00210		0.94	0.12	0.10		0.83	0.41	0.22		4.48	1.16	0.30
SU1	GR	ITC00211		1.02	0.13	0.10		0.87	0.44	0.37		3.13	0.91	0.30

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Area	Sample Type	Sample ID	Ra-228 Qual.*	Ra-228 (pCi/g)	Ra-228 Error	Ra-228 MDA	Th-228 Qual.*	Th-228 (pCi/g)	Th-228 Error	Th-228 MDA	Th-230 Qual.*	Th-230 (pCi/g)	Th-230 Error	Th-230 MDA
SU1	GR	ITD00212		1.00	0.13	0.09		0.75	0.38	0.25		3.26	0.91	0.21
SU1	GR	ITD00214		1.00	0.13	0.10		0.71	0.37	0.12		3.60	1.00	0.27
SU1	GR	ITD00215		1.08	0.13	0.10		1.19	0.49	0.21		2.78	0.82	0.12
SU1	GR	ITD00216		1.15	0.14	0.13		1.44	0.56	0.26		5.74	1.38	0.30
SU1	GR	ITD00217		1.24	0.18	0.13		2.02	0.72	0.24		5.90	1.47	0.32
SU1	GR	ITD00218		0.82	0.10	0.09		1.34	0.53	0.12		2.24	0.72	0.29
SU1	GR	ITD00219		0.80	0.11	0.09		1.35	0.53	0.26		7.89	1.73	0.22
SU1	GR	ITD00220		0.82	0.11	0.09		0.68	0.38	0.37		2.90	0.87	0.32
SU1	GR	ITD00221		1.15	0.14	0.10		1.78	0.63	0.21		6.32	1.46	0.21
SU1	GR	ITD00A37C		0.88	0.11	0.09		0.78	0.44	0.42		10.96	2.40	0.37
SU1	GR	ITD00A1C		0.79	0.11	0.08		1.02	0.46	0.29		7.00	1.59	0.12
SU1	GR	ITD00A5A		0.96	0.13	0.10		0.98	0.44	0.21		3.62	0.98	0.21
SU2	GR	ITD00044		0.72	0.09	0.09		1.18	0.48	0.24		3.00	0.84	0.11
SU2	GR	ITD00045		0.70	0.11	0.10		0.76	0.38	0.21		1.78	0.62	0.11
SU2	GR	ITD00048		0.92	0.11	0.09		1.50	0.60	0.24		4.48	1.22	0.33
SU2	FD	ITD10048		0.86	0.12	0.10		1.35	0.57	0.38		4.01	1.12	0.13
SU2	SP	ITD20048		0.96	0.17	0.19		1.21	0.39	0.14		4.32	1.14	0.14
SU2	GR	ITD00049		0.86	0.11	0.09		0.75	0.38	0.25		2.44	0.76	0.25
SU2	GR	ITD00050		0.89	0.12	0.10		1.14	0.52	0.25		5.52	1.42	0.30
SU2	GR	ITD00051		0.68	0.10	0.08		1.06	0.48	0.31		3.13	0.92	0.12
SU2	GR	ITD00052		0.77	0.10	0.09		0.81	0.42	0.24		3.11	0.94	0.13
SU2	GR	ITD00053		1.01	0.13	0.11		1.10	0.51	0.33		4.49	1.22	0.13
SU2	GR	ITD00054		1.13	0.14	0.08		2.24	0.79	0.26		2.71	0.89	0.14
SU2	GR	ITD00055		0.87	0.13	0.09		1.24	0.51	0.22		2.98	0.88	0.30
SU2	GR	ITD00056		0.87	0.12	0.10		1.23	0.53	0.40		4.03	1.08	0.12
SU2	GR	ITD00057		0.65	0.08	0.06		0.65	0.31	0.20		2.12	0.62	0.24
SU2	GR	ITD00058		0.67	0.09	0.07		0.85	0.43	0.31		2.35	0.77	0.28
SU2	GR	ITD00059		0.86	0.11	0.09		1.17	0.52	0.29		7.17	1.69	0.13
SU2	GR	ITD00060		1.00	0.12	0.10		0.70	0.38	0.24		4.92	1.27	0.32
SU2	GR	ITD00061		0.68	0.09	0.07		0.56	0.36	0.40		2.73	0.84	0.12
SU2	GR	ITD00062		0.71	0.08	0.05		0.50	0.30	0.24		0.87	0.41	0.29
SU2	GR	ITD00063		0.85	0.10	0.08		0.94	0.43	0.27		2.13	0.68	0.24
SU2	GR	ITD00064		0.73	0.08	0.06		1.51	0.59	0.28		3.11	0.92	0.13
SU2	GR	ITD00065		0.68	0.09	0.07		0.72	0.39	0.23		18.61	3.59	0.12
SU2	GR	ITD00066		0.83	0.09	0.06		1.10	0.51	0.33		1.24	0.54	0.13
SU2	GR	ITD00067		0.89	0.11	0.10		0.86	0.43	0.23		4.06	1.10	0.13
SU2	GR	ITD00068		0.72	0.10	0.09		0.90	0.43	0.23		13.74	2.78	0.31
SU2	GR	ITD00069		0.82	0.11	0.09		1.04	0.49	0.29		6.18	1.51	0.13
SU2	GR	ITD00070		0.84	0.10	0.08		1.33	0.60	0.28		2.12	0.79	0.15
SU2	GR	ITD00071		0.65	0.08	0.08		1.08	0.66	0.55		5.69	1.81	0.22
SU2	GR	ITD00072		0.47	0.08	0.07		1.06	0.56	0.32		4.86	1.44	0.17

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Area	Sample Type	Sample ID	Ra-228 Qual.*	Ra-228 (pCi/g)	Ra-228 Error	Ra-228 MDA	Th-228 Qual.*	Th-228 (pCi/g)	Th-228 Error	Th-228 MDA	Th-230 Qual.*	Th-230 (pCi/g)	Th-230 Error	Th-230 MDA
SU2	GR	ITD00073		0.41	0.07	0.06		0.64	0.38	0.25		2.21	0.77	0.34
SU2	FD	ITD10073		0.34	0.05	0.06		1.10	0.58	0.49		1.60	0.69	0.17
SU2	SP	ITD20073	<	0.60	0.29	0.24		0.42	0.16	0.10		1.61	0.44	0.09
SU2	GR	ITD00074		0.65	0.09	0.06		0.99	0.51	0.28		7.91	1.95	0.33
SU2	GR	ITD00075		0.87	0.12	0.08		1.19	0.59	0.30		2.92	1.00	0.36
SU2	GR	ITD00076		0.64	0.09	0.08		0.85	0.43	0.24		5.35	1.36	0.13
SU2	GR	ITD00077		0.17	0.04	0.05		0.40	0.28	0.29		1.29	0.52	0.12
SU2	GR	ITD00078		0.73	0.09	0.08		1.18	0.51	0.28		1.98	0.69	0.12
SU2	GR	ITD00079		0.75	0.10	0.08		1.01	0.46	0.22		3.44	0.97	0.30
SU2	GR	ITD00080		0.94	0.10	0.06		0.92	0.40	0.30		1.55	0.53	0.10
SU2	GR	ITD00081		1.01	0.12	0.08		1.80	0.67	0.29		1.30	0.56	0.35
SU2	GR	ITD00082		0.94	0.12	0.08		1.88	0.72	0.32		2.84	0.93	0.32
SU2	GR	ITD00083		1.02	0.11	0.07		1.99	0.81	0.43		2.59	0.95	0.17
SU2	FD	ITD10083		1.10	0.12	0.09		2.49	0.92	0.31		1.63	0.72	0.42
SU2	SP	ITD20083	<	1.01	0.37	0.32		1.24	0.42	0.21		1.81	0.56	0.17
SU2	GR	ITD00084		0.97	0.11	0.08		0.49	0.35	0.28		1.55	0.65	0.15
SU2	GR	ITD00A10C		0.85	0.11	0.09		1.15	0.49	0.22		3.47	0.98	0.12
SU2	GR	ITD00A12A		0.74	0.11	0.11		1.55	0.58	0.26		8.51	1.85	0.29
SU2	GR	ITD00206		1.02	0.13	0.11		1.13	0.49	0.23		9.40	2.03	0.31
SU2	GR	ITD00207		0.88	0.12	0.12		1.86	0.67	0.38		6.80	1.58	0.34
SU2	GR	ITD00208		0.93	0.11	0.08		1.11	0.48	0.12		4.56	1.17	0.30
SU3	GR	ITD00085		0.77	0.11	0.08		1.24	0.65	0.52		3.79	1.27	0.46
SU3	GR	ITD00088		1.04	0.13	0.11		1.45	0.70	0.45		5.43	1.61	0.46
SU3	GR	ITD00093		1.11	0.14	0.09		1.52	0.84	0.70		9.77	2.84	0.55
SU3	GR	ITD00098		0.88	0.10	0.08		1.16	0.52	0.24		5.91	1.46	0.29
SU3	GR	ITD00100		1.69	0.16	0.09		2.32	0.77	0.24		4.28	1.15	0.28
SU3	GR	ITD00103		1.34	0.14	0.08		2.49	0.89	0.29		6.89	1.78	0.29
SU3	GR	ITD00105		0.76	0.09	0.07		1.26	0.55	0.25		3.60	1.06	0.33
SU3	GR	ITD00106		0.98	0.12	0.07		1.35	0.58	0.41		3.98	1.13	0.33
SU3	GR	ITD00108		0.77	0.10	0.08		1.00	0.47	0.13		9.89	2.16	0.28
SU3	GR	ITD00111		0.91	0.11	0.09		1.08	0.52	0.31		3.60	1.07	0.14
SU3	GR	ITD00112		1.25	0.15	0.10		1.80	0.70	0.27		3.85	1.13	0.14
SU3	GR	ITD00114		0.89	0.11	0.09		1.79	0.68	0.30		7.83	1.83	0.34
SU3	FD	ITD10114		0.93	0.11	0.08		1.66	0.64	0.36		7.79	1.81	0.33
SU3	SP	ITD20114		0.83	0.00	0.10		0.63	0.00	0.14		4.19	0.00	0.16
SU3	GR	ITD00115		0.85	0.11	0.09		0.67	0.41	0.37		2.23	0.78	0.26
SU3	GR	ITD00117		0.75	0.10	0.08		0.72	0.37	0.24		1.96	0.65	0.11
SU3	GR	ITD00118		1.04	0.13	0.10		1.06	0.54	0.34		12.36	2.80	0.15
SU3	GR	ITD00120		1.10	0.13	0.09		1.28	0.52	0.26		6.82	1.56	0.29
SU3	GR	ITD00121		0.73	0.09	0.07		1.04	0.46	0.25		2.61	0.79	0.28
SU3	GR	ITD00122		0.91	0.12	0.09		1.44	0.64	0.29		5.87	1.57	0.29

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Area	Sample	Type	Sample ID	Ra-228 Qual.*	Ra-228 (pCi/g)	Ra-228 Error	Ra-228 MDA	Th-228 Qual.*	Th-228 (pCi/g)	Th-228 Error	Th-228 MDA	Th-230 Qual.*	Th-230 (pCi/g)	Th-230 Error	Th-230 MDA
SU3	GR	ITD00124		0.98	0.11	0.07		1.24	0.51	0.29		1.62	0.59	0.22	
SU3	GR	ITD00125		0.84	0.10	0.08		0.80	0.42	0.29		2.29	0.77	0.13	
SU3	GR	ITD00126		0.94	0.12	0.08		0.93	0.45	0.30		2.71	0.83	0.12	
SU3	GR	ITD00127		0.88	0.10	0.08		1.46	0.60	0.29		4.07	1.13	0.29	
SU3	GR	ITD00128		0.75	0.11	0.08		1.39	0.93	0.64		7.70	2.80	0.64	
SU3	GR	ITD00129		0.66	0.10	0.08		1.03	0.46	0.28		1.91	0.64	0.21	
SU3	GR	ITD00130		0.97	0.12	0.08		2.37	0.88	0.35		4.56	1.34	0.35	
SU3	GR	ITD00131		1.33	0.15	0.10		1.94	0.74	0.32		3.64	1.09	0.15	
SU3	GR	ITD00132		0.90	0.12	0.09		0.79	0.40	0.26		5.70	1.37	0.12	
SU3	GR	ITD00133		1.12	0.14	0.09		1.89	0.82	0.35		2.62	1.01	0.55	
SU3	GR	ITD00134		0.94	0.11	0.08		1.25	0.53	0.30		2.88	0.87	0.12	
SU3	GR	ITD00135		0.65	0.08	0.05		0.81	0.43	0.29		2.57	0.83	0.13	
SU3	GR	ITD00136		0.77	0.09	0.07		1.23	0.53	0.24		10.94	2.32	0.13	
SU3	GR	ITD00139		0.83	0.09	0.07		0.77	0.44	0.41		1.86	0.71	0.35	
SU3	GR	ITD00142		0.77	0.09	0.06		0.82	0.44	0.34		5.29	1.37	0.14	
SU3	GR	ITD00408		1.84	0.17	0.10		3.69	1.21	0.42		12.96	3.06	0.32	
SU3	GR	ITD00409		0.88	0.11	0.09		1.14	0.55	0.37		5.78	1.54	0.33	
SU3	GR	ITD00410		1.00	0.12	0.09		1.98	0.80	0.17		6.88	1.86	0.17	
SU3	GR	ITD00411		0.93	0.11	0.09		1.36	0.59	0.34		7.09	1.72	0.25	
SU3	GR	ITD00412		0.70	0.10	0.09		0.88	0.51	0.40		1.89	0.77	0.30	
SU3	GR	ITD00413		0.82	0.10	0.08		1.49	0.69	0.17		9.62	2.44	0.32	
SU3	GR	ITD00414		1.25	0.13	0.10		1.62	0.67	0.28		11.36	2.59	0.28	
SU3	GR	ITD00415		0.70	0.09	0.08		1.37	0.68	0.34		3.11	1.11	0.19	
SU3	GR	ITD00416		0.83	0.10	0.09		0.65	0.38	0.14		3.09	0.95	0.14	
SU3	FD	ITD10416		1.05	0.12	0.10		1.45	0.60	0.25		2.56	0.84	0.14	
SU3	SP	ITD20416		0.79	0.00	0.09		1.20	0.00	0.07		3.30	0.00	0.03	
SU3	GR	ITD00417		0.87	0.11	0.11		1.07	0.51	0.25		4.51	1.25	0.14	
SU3	GR	ITD00418		0.76	0.09	0.07		1.59	0.70	0.30		8.04	2.06	0.30	
SU3	GR	ITD00419		0.96	0.11	0.09		1.66	0.68	0.15		5.68	1.51	0.15	
SU3	GR	ITD00420		1.16	0.14	0.11		1.04	0.52	0.36		2.89	0.94	0.27	
SU3	GR	ITD00421		0.88	0.12	0.08		1.48	0.62	0.37		9.31	2.12	0.30	
SU3	GR	ITD00422		1.00	0.12	0.09		1.61	0.60	0.22		2.23	0.74	0.12	
SU3	GR	ITD00423		0.71	0.10	0.08		1.59	0.65	0.38		2.03	0.74	0.26	
SU3	GR	ITD00424		0.80	0.10	0.08		1.07	0.52	0.35		5.02	1.35	0.26	
SU3	GR	ITD00425		0.85	0.11	0.09		1.49	0.63	0.15		2.80	0.93	0.28	
SU4	GR	ITD00137		0.69	0.09	0.07		1.46	0.59	0.32		3.44	1.00	0.32	
SU4	FD	ITD10137		0.75	0.09	0.06		1.14	0.52	0.33		2.14	0.74	0.33	
SU4	SP	ITD20137		0.73	0.00	0.10		0.71	0.00	0.11		1.70	0.00	0.09	
SU4	GR	ITD00140		0.55	0.07	0.05		0.89	0.45	0.32		2.22	0.75	0.13	
SU4	GR	ITD00141		0.94	0.11	0.07		1.06	0.71	0.54		2.79	1.19	0.29	
SU4	GR	ITD00143		0.83	0.09	0.07		1.41	0.59	0.29		2.11	0.74	0.13	

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Area	Sample	Type	Sample ID	Ra-228 Qual.*	Ra-228 (pCi/g)	Ra-228 Error	Ra-228 MDA	Th-228 Qual.*	Th-228 (pCi/g)	Th-228 Error	Th-228 MDA	Th-230 Qual.*	Th-230 (pCi/g)	Th-230 Error	Th-230 MDA
SU4	GR	ITD00144			0.67	0.09	0.07		1.23	0.61	0.32		4.03	1.27	0.32
SU4	GR	ITD00145			1.01	0.11	0.07		1.07	0.47	0.22		1.52	0.58	0.29
SU4	GR	ITD00146			0.54	0.07	0.06		0.70	0.41	0.40		1.86	0.68	0.35
SU4	GR	ITD00147			0.71	0.10	0.07		1.45	0.58	0.24		2.90	0.88	0.13
SU4	GR	ITD00148			0.73	0.09	0.07		0.62	0.35	0.22		6.86	1.58	0.27
SU4	GR	ITD00149			0.55	0.08	0.06		1.23	0.53	0.28		2.23	0.75	0.31
SU4	FD	ITD10149			0.49	0.07	0.05		0.97	0.41	0.18		4.69	1.09	0.22
SU4	SP	ITD20149			0.44	0.00	0.10		1.30	0.00	0.17		4.72	0.00	0.17
SU4	GR	ITD00150			0.47	0.06	0.05		1.00	0.47	0.24		1.99	0.71	0.24
SU4	GR	ITD00151			0.78	0.10	0.09		1.50	0.54	0.23		2.98	0.83	0.20
SU4	GR	ITD00152			0.79	0.09	0.06		1.35	0.56	0.24		10.54	2.30	0.33
SU4	GR	ITD00153			0.49	0.07	0.06		0.73	0.37	0.33		11.94	2.31	0.29
SU4	GR	ITD00154			0.87	0.10	0.06		0.99	0.42	0.19		1.68	0.57	0.10
SU4	GR	ITD00155			1.05	0.12	0.09		1.29	0.54	0.23		10.84	2.29	0.31
SU4	GR	ITD00156			0.95	0.11	0.07		1.16	0.47	0.23		1.57	0.56	0.26
SU4	GR	ITD00157			0.36	0.05	0.05		0.36	0.34	0.34		1.06	0.61	0.45
SU4	GR	ITD00158			0.76	0.09	0.08		0.94	0.58	0.54		3.27	1.18	0.48
SU4	GR	ITD00159			0.94	0.12	0.12		1.27	0.64	0.31		13.44	3.25	0.18
SU4	GR	ITD00160			0.39	0.06	0.05		0.65	0.46	0.34		3.40	1.21	0.40
SU4	GR	ITD00161			0.68	0.08	0.07		1.45	0.68	0.35		3.03	1.06	0.39
SU4	GR	ITD00162			1.08	0.13	0.08		1.49	0.64	0.27		6.68	1.71	0.32
SU4	GR	ITD00163			0.86	0.10	0.07		1.66	0.69	0.28		4.36	1.28	0.28
SU4	GR	ITD00164			0.78	0.09	0.06		1.40	0.69	0.39		2.63	1.00	0.33
SU4	GR	ITD00165			0.55	0.07	0.07		1.12	0.52	0.25		2.87	0.92	0.33
SU4	GR	ITD00166			0.59	0.08	0.07		0.91	0.53	0.49		2.10	0.83	0.43
SU4	GR	ITD00167			0.46	0.07	0.06		0.84	0.45	0.26		6.07	1.55	0.14
SU4	GR	ITD00168			0.78	0.09	0.07		0.65	0.37	0.23		4.04	1.10	0.27
SU4	GR	ITD00169			0.61	0.08	0.06		0.92	0.45	0.27		2.49	0.81	0.33
SU4	GR	ITD00170			0.31	0.05	0.05		1.14	0.52	0.25		4.75	1.27	0.30
SU4	GR	ITD00171			0.83	0.10	0.07		1.05	0.43	0.19		3.92	0.98	0.19
SU4	GR	ITD00172			0.63	0.08	0.07		0.85	0.43	0.27		1.92	0.67	0.23
SU4	GR	ITD00173			1.18	0.13	0.07		1.29	0.56	0.25		4.11	1.15	0.34
SU4	GR	ITD00174			0.77	0.09	0.07		1.14	0.56	0.46		3.99	1.18	0.37
SU4	GR	ITD00175			0.17	0.04	0.04		0.68	0.38	0.13		0.83	0.43	0.32
SU4	FD	ITD10175			0.20	0.04	0.04		0.59	0.35	0.23		0.68	0.37	0.23
SU4	SP	ITD20175	<		0.13	0.00	0.12		0.23	0.00	0.17		0.93	0.00	0.14
SU4	GR	ITD00176			0.60	0.08	0.07		1.19	0.56	0.33		1.85	0.72	0.28
SU4	GR	ITD00177			0.67	0.09	0.08		1.02	0.45	0.21		3.59	0.98	0.29
SU4	GR	ITD00178			0.63	0.08	0.06		0.54	0.36	0.39		1.22	0.53	0.34
SU4	GR	ITD00179			0.91	0.12	0.09		0.93	0.43	0.21		2.84	0.83	0.11
SU4	GR	ITD00180			0.62	0.08	0.07		1.51	0.64	0.15		1.75	0.70	0.33

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Area	Sample	Type	Sample ID	Ra-228 Qual.*	Ra-228 (pCi/g)	Ra-228 Error	Ra-228 MDA	Th-228 Qual.*	Th-228 (pCi/g)	Th-228 Error	Th-228 MDA	Th-230 Qual.*	Th-230 (pCi/g)	Th-230 Error	Th-230 MDA
SU4	GR	ITD00181			1.04	0.11	0.07		1.37	0.49	0.21		1.01	0.41	0.23
SU4	GR	ITD00182	<		0.13	0.06	0.09	<	0.05	0.12	0.27		0.77	0.46	0.35
SU4	GR	ITD00183			1.15	0.15	0.11		1.35	0.66	0.45		3.51	1.18	0.40
SU4	GR	ITD00184			0.54	0.09	0.07		0.74	0.47	0.30		1.08	0.58	0.18
SU4	GR	ITD00185			1.33	0.16	0.12		1.88	0.80	0.30		4.13	1.32	0.35
SU4	GR	ITD00186			1.09	0.13	0.08		0.73	0.45	0.32		1.64	0.71	0.36
SU4	GR	ITD00187			0.48	0.09	0.08		0.75	0.42	0.25		1.19	0.54	0.30
SU4	GR	ITD00188			0.90	0.12	0.12		1.14	0.50	0.23		3.63	1.02	0.23
SU4	FD	ITD10188			0.95	0.14	0.11		1.40	0.56	0.27		4.62	1.20	0.23
SU4	SP	ITD20188			0.88	0.00	0.12		0.76	0.00	0.14		3.78	0.00	0.21
SU4	GR	ITD00189			0.98	0.12	0.09		1.20	0.50	0.22		1.99	0.67	0.29
SU4	GR	ITD00190			0.87	0.12	0.11		2.02	0.74	0.41		3.21	0.98	0.36
SU4	GR	ITD00191			1.07	0.13	0.10		1.61	0.57	0.20		2.74	0.79	0.11
SU4	GR	ITD00192			0.96	0.12	0.09		1.43	0.55	0.21		1.74	0.61	0.28
SU4	GR	ITD000A14			1.01	0.14	0.14		1.00	0.46	0.23		7.29	1.67	0.23
SU4	GR	ITD000A15			0.98	0.11	0.10		1.14	0.50	0.28		22.73	4.29	0.23
SU5	GR	ITD00193			0.22	0.04	0.04		0.52	0.32	0.22		2.13	0.70	0.12
SU5	GR	ITD00194			0.74	0.11	0.08		1.16	0.52	0.32		5.55	1.40	0.32
SU5	GR	ITD00195			0.92	0.11	0.09		1.69	0.82	0.40		5.97	1.85	0.48
SU5	GR	ITD00196			0.45	0.10	0.10		1.46	0.60	0.38		8.32	1.90	0.33
SU5	GR	ITD00197			1.11	0.13	0.10		1.11	0.50	0.28		2.76	0.85	0.13
SU5	FD	ITD10197			1.11	0.13	0.10		1.71	0.66	0.36		2.67	0.85	0.33
SU5	SP	ITD20197			0.98	0.00	0.10		1.13	0.00	0.05		3.13	0.00	0.05
SU5	GR	ITD00198			0.81	0.10	0.07		1.17	0.52	0.28		2.17	0.74	0.13
SU5	GR	ITD00199			1.08	0.11	0.08		1.71	0.65	0.29		3.56	1.03	0.25
SU5	GR	ITD00200			0.88	0.12	0.09		1.29	0.56	0.30		7.23	1.73	0.14
SU5	GR	ITD00201			0.57	0.09	0.09		0.92	0.47	0.31		4.56	1.26	0.14
SU5	GR	ITD00202			0.78	0.11	0.10		1.19	0.50	0.22		4.74	1.20	0.12
SU5	GR	ITD00203			1.16	0.13	0.10		1.51	0.59	0.27		4.00	1.09	0.31
SU5	GR	ITD00204			0.85	0.11	0.10		0.87	0.43	0.26		3.24	0.93	0.30
SU5	GR	ITD00205			0.71	0.10	0.09		1.05	0.46	0.25		3.87	1.02	0.12
SU5	GR	ITD00405			1.02	0.11	0.09		1.07	0.48	0.27		3.70	1.03	0.27
SU5	GR	ITD00406			0.98	0.11	0.09		1.75	0.75	0.18		3.66	1.20	0.39
SU5	GR	ITD00407			0.80	0.11	0.10		1.76	0.74	0.31		5.31	1.51	0.17
SU5	GR	ITD00430			0.74	0.09	0.07		1.42	0.63	0.38		3.01	0.98	0.28
SU5	GR	ITD00431			0.90	0.12	0.09		1.86	0.76	0.30		7.61	1.95	0.16
SU5	SP	ITD20432			0.68		0.10		1.06		0.12		1.82		0.10
SU5	GR	ITD00432			0.54	0.07	0.06		1.02	0.48	0.32		2.11	0.73	0.13
SU5	FD	ITD10432			0.71	0.09	0.07		1.69	0.73	0.37		2.81	0.98	0.31
SU5	GR	ITD00433			1.04	0.12	0.09		1.29	0.57	0.31		4.24	1.21	0.14
SU5	GR	ITD00434			0.94	0.10	0.09		1.57	0.67	0.29		4.26	1.27	0.16

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Area	Sample Type	Sample ID	Ra-228 Qual.*	Ra-228 (pCi/g)	Ra-228 Error	Ra-228 MDA	Th-228 Qual.*	Th-228 (pCi/g)	Th-228 Error	Th-228 MDA	Th-230 Qual.*	Th-230 (pCi/g)	Th-230 Error	Th-230 MDA
SU5	GR	ITD00435		0.77	0.11	0.10		1.25	0.58	0.15		7.70	1.92	0.29
SU5	GR	ITD000A16		1.32	0.17	0.13		1.30	0.56	0.29		4.20	1.15	0.13
SU6	GR	ITD00222		0.70	0.09	0.06		1.09	0.50	0.29		3.45	1.01	0.24
SU6	GR	ITD00223		0.57	0.07	0.05		0.98	0.46	0.27		3.76	1.03	0.12
SU6	GR	ITD00224		0.71	0.09	0.06		0.98	0.44	0.25		1.99	0.66	0.11
SU6	GR	ITD00225		0.79	0.11	0.10		1.21	0.51	0.23		3.05	0.89	0.23
SU6	GR	ITD00226		0.74	0.09	0.07		0.87	0.43	0.27		1.88	0.66	0.30
SU6	GR	ITD00227		0.79	0.10	0.08		0.66	0.38	0.29		6.02	1.49	0.33
SU6	GR	ITD00228		0.94	0.10	0.07		1.34	0.60	0.39		3.95	1.16	0.36
SU6	GR	ITD00229		0.57	0.08	0.06		1.12	0.51	0.32		2.58	0.83	0.13
SU6	GR	ITD00230		0.80	0.10	0.08		1.03	0.48	0.29		4.20	1.14	0.24
SU6	GR	ITD00231		0.68	0.08	0.06		0.69	0.40	0.31		1.63	0.64	0.14
SU6	FD	ITD10231		0.76	0.10	0.09		4.95	2.18	1.07		9.31	3.25	0.49
SU6	SP	ITD20231		1.03	0.00	0.12		0.90	0.00	0.14		3.62	0.00	0.13
SU6	GR	ITD00232		0.99	0.11	0.08		1.23	0.53	0.24		5.72	1.43	0.24
SU6	GR	ITD00233		0.85	0.10	0.07		1.03	0.53	0.29		2.39	0.86	0.29
SU6	GR	ITD00234		0.80	0.10	0.08		1.65	0.66	0.31		7.36	1.78	0.26
SU6	GR	ITD00235		0.85	0.10	0.08		1.62	0.64	0.33		6.90	1.67	0.37
SU6	GR	ITD00236		0.75	0.10	0.07		1.25	0.57	0.32		3.00	0.96	0.14
SU6	GR	ITD00237		0.86	0.11	0.08		1.47	0.57	0.27		3.45	0.97	0.12
SU6	GR	ITD00238		0.85	0.11	0.08		1.22	0.51	0.26		7.30	1.65	0.26
SU6	GR	ITD00239		0.83	0.10	0.08		1.57	0.65	0.27		2.69	0.90	0.27
SU6	GR	ITD00240		0.87	0.11	0.08		1.43	0.61	0.31		10.08	2.26	0.26
SU6	GR	ITD00241		0.95	0.11	0.09		1.34	0.56	0.29		8.96	2.02	0.35
SU6	GR	ITD00242		0.82	0.10	0.09		1.36	0.61	0.33		12.96	2.85	0.15
SU6	GR	ITD00243		0.77	0.10	0.08		1.40	0.56	0.23		2.45	0.78	0.23
SU6	GR	ITD00244		0.65	0.09	0.07		1.28	0.53	0.29		5.38	1.32	0.22
SU6	GR	ITD00245		0.82	0.10	0.08		2.21	0.90	0.41		6.58	1.87	0.19
SU6	GR	ITD00246		0.80	0.09	0.08		1.24	0.55	0.33		4.86	1.28	0.13
SU6	GR	ITD00247		1.03	0.12	0.08		1.42	0.62	0.27		4.35	1.25	0.43
SU6	GR	ITD00248		0.68	0.09	0.07		1.57	0.63	0.33		2.38	0.80	0.13
SU6	GR	ITD00249		1.01	0.11	0.08		1.21	0.53	0.28		5.01	1.29	0.28
SU6	GR	ITD00250		0.93	0.12	0.09		1.29	0.54	0.23		3.35	0.96	0.23
SU6	GR	ITD00251		0.74	0.09	0.09		1.19	0.54	0.30		3.33	1.00	0.30
SU6	GR	ITD00252		0.80	0.10	0.06		1.47	0.65	0.29		5.03	1.42	0.30
SU6	GR	ITD00253		0.85	0.11	0.08		1.42	0.61	0.32		3.17	0.99	0.27
SU6	FD	ITD10253		0.86	0.10	0.08		0.79	0.42	0.28		3.12	0.93	0.32
SU6	SP	ITD20253		0.94	0.00	0.11		1.05	0.00	0.14		4.46	0.00	0.09
SU6	GR	ITD00254		0.71	0.08	0.07		1.01	0.46	0.27		2.54	0.79	0.12
SU6	GR	ITD00255		0.73	0.09	0.06		1.09	0.48	0.26		3.57	0.98	0.12
SU6	GR	ITD00256		0.96	0.12	0.07		2.41	0.97	0.37		6.25	1.85	0.54

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Area	Sample	Sample ID	Ra-228 Qual.*	Ra-228 (pCi/g)	Ra-228 Error	Ra-228 MDA	Th-228 Qual.*	Th-228 (pCi/g)	Th-228 Error	Th-228 MDA	Th-230 Qual.*	Th-230 (pCi/g)	Th-230 Error	Th-230 MDA
SU6	GR	ITD00257		0.69	0.08	0.07		0.85	0.44	0.33		2.72	0.86	0.13
SU6	GR	ITD00258		1.35	0.16	0.12		1.29	0.54	0.23		4.39	1.16	0.23
SU6	GR	ITD00259		0.91	0.12	0.09		0.84	0.42	0.27		5.91	1.43	0.23
SU6	GR	ITD00A17		0.70	0.10	0.09		1.73	0.67	0.26		2.04	0.73	0.14
SU6	GR	ITD00A18		1.08	0.17	0.13		2.65	1.04	0.20		7.55	2.16	0.45
SU7	GR	ITD00260		0.91	0.11	0.09		1.65	0.68	0.33		3.10	1.00	0.15
SU7	GR	ITD00261		0.39	0.06	0.05		0.69	0.42	0.33		2.87	0.95	0.37
SU7	GR	ITD00262		0.16	0.04	0.04		0.71	0.40	0.29		3.73	1.06	0.24
SU7	GR	ITD00263		0.76	0.10	0.08		1.51	0.64	0.27		3.88	1.14	0.27
SU7	GR	ITD00264		0.83	0.12	0.09		0.90	0.48	0.32		7.02	1.74	0.32
SU7	GR	ITD00265		0.48	0.08	0.08		0.88	0.47	0.32		5.58	1.46	0.32
SU7	FD	ITD10265		0.47	0.08	0.07		0.62	0.37	0.24		2.87	0.89	0.24
SU7	SP	ITD20265	<	0.48	0.00	0.17		0.60	0.00	0.06		3.59	0.00	0.06
SU7	GR	ITD00266		1.08	0.12	0.09		1.23	0.56	0.35		3.18	0.99	0.26
SU7	GR	ITD00267		0.80	0.10	0.08		1.11	0.53	0.35		4.79	1.30	0.38
SU7	GR	ITD00268		0.91	0.11	0.09		1.02	0.52	0.33		2.74	0.91	0.15
SU7	GR	ITD00269		0.86	0.11	0.09		0.84	0.47	0.34		5.84	1.57	0.16
SU7	GR	ITD00270		0.95	0.11	0.08		1.80	0.72	0.28		3.91	1.18	0.44
SU7	GR	ITD00271		0.83	0.11	0.08		0.97	0.47	0.32		5.12	1.31	0.13
SU7	GR	ITD00272		0.21	0.04	0.05		0.58	0.32	0.20		1.13	0.45	0.11
SU7	GR	ITD00273		0.83	0.11	0.10		1.34	0.56	0.29		3.13	0.94	0.13
SU7	GR	ITD00274		0.91	0.12	0.09		0.75	0.44	0.33		7.88	1.92	0.28
SU7	GR	ITD00275		0.75	0.10	0.09		0.74	0.41	0.32		2.55	0.83	0.40
SU7	GR	ITD00276		1.48	0.16	0.10		1.28	0.51	0.21		2.37	0.74	0.11
SU7	GR	ITD00277		0.41	0.07	0.06		0.92	0.48	0.27		2.94	0.96	0.36
SU7	GR	ITD00278		0.82	0.10	0.08		0.83	0.43	0.24		2.97	0.91	0.13
SU7	GR	ITD00279		0.78	0.11	0.08		1.40	0.61	0.27		7.75	1.89	0.15
SU7	GR	ITD00280		0.64	0.11	0.13		1.41	0.58	0.29		4.58	1.22	0.13
SU7	GR	ITD00281		0.82	0.11	0.08		1.44	0.64	0.34		2.78	0.95	0.16
SU7	GR	ITD00282		0.13	0.05	0.05		0.56	0.35	0.28		1.24	0.53	0.24
SU7	GR	ITD00283		1.03	0.14	0.11		1.82	0.73	0.36		4.87	1.37	0.43
SU7	GR	ITD00284		1.07	0.13	0.10		1.36	0.69	0.35		2.65	1.02	0.19
SU7	GR	ITD00285A		1.07	0.13	0.12		0.74	0.43	0.27		4.35	1.24	0.27
SU7	GR	ITD00286		1.17	0.15	0.12		1.03	0.50	0.26		6.05	1.52	0.14
SU7	GR	ITD00287		0.72	0.11	0.09		1.06	0.49	0.24		2.30	0.77	0.13
SU7	GR	ITD00288		0.14	0.06	0.06		0.41	0.30	0.29		1.30	0.54	0.13
SU7	FD	ITD10288		0.18	0.04	0.04		0.43	0.31	0.30		1.53	0.61	0.25
SU7	SP	ITD20288	<	0.28	0.00	0.17	<	0.17	0.00	0.19		1.32	0.00	0.19
SU7	GR	ITD00289		0.98	0.12	0.10		1.15	0.54	0.32		3.13	0.98	0.36
SU7	GR	ITD00290		0.82	0.11	0.08		0.69	0.39	0.25		2.91	0.90	0.13
SU7	GR	ITD00291		0.92	0.12	0.11		1.24	0.56	0.26		9.62	2.19	0.14

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Area	Sample Type	Sample ID	Ra-228 Qual.*	Ra-228 (pCi/g)	Ra-228 Error	Ra-228 MDA	Th-228 Qual.*	Th-228 (pCi/g)	Th-228 Error	Th-228 MDA	Th-230 Qual.*	Th-230 (pCi/g)	Th-230 Error	Th-230 MDA
SU7	GR	ITD00292		0.74	0.11	0.10		1.55	0.64	0.27		6.61	1.66	0.14
SU7	GR	ITD00293		1.02	0.13	0.11		1.27	0.56	0.31		6.36	1.58	0.14
SU7	GR	ITD00294		0.60	0.08	0.06		1.21	0.55	0.30		1.51	0.62	0.26
SU7	GR	ITD00295		0.93	0.12	0.09		1.64	0.65	0.34		14.09	2.96	0.40
SU7	GR	ITD00296		1.00	0.13	0.10		1.01	0.49	0.26		2.84	0.90	0.14
SU7	GR	ITD00297		0.47	0.08	0.06		1.20	0.52	0.28		2.98	0.91	0.31
SU7	GR	ITD00298		0.80	0.10	0.08		1.40	0.60	0.26		2.02	0.74	0.14
SU7	GR	ITD00299		0.84	0.10	0.08		1.91	0.69	0.28		2.80	0.87	0.13
SU7	GR	ITD00300		0.29	0.06	0.05		0.98	0.46	0.27		1.60	0.60	0.23
SU7	GR	ITD00301		0.76	0.09	0.08		0.74	0.41	0.32		3.06	0.95	0.40
SU7	GR	ITD00302		0.84	0.10	0.08		1.42	0.68	0.34		2.52	0.96	0.46
SU7	GR	ITD00303		0.48	0.08	0.06		0.65	0.39	0.25		2.28	0.79	0.14
SU7	GR	ITD00304		0.64	0.09	0.08		0.68	0.35	0.20		1.76	0.61	0.11
SU8	GR	ITD00305		0.75	0.09	0.07		1.45	0.60	0.25		2.39	0.80	0.13
SU8	GR	ITD00306		0.38	0.06	0.06		0.59	0.39	0.33		2.49	0.87	0.15
SU8	GR	ITD00307		0.73	0.12	0.10		0.57	0.40	0.36		3.55	1.14	0.30
SU8	GR	ITD00308		1.50	0.16	0.09		1.99	0.71	0.31		3.69	1.05	0.39
SU8	GR	ITD00309		0.62	0.08	0.07		0.91	0.48	0.27		3.66	1.12	0.15
SU8	GR	ITD00310		0.53	0.07	0.06		0.67	0.40	0.26		2.78	0.90	0.14
SU8	GR	ITD00311		0.79	0.10	0.07		0.79	0.44	0.27		4.50	1.26	0.14
SU8	GR	ITD00312		0.55	0.08	0.05		0.64	0.38	0.28		2.44	0.80	0.24
SU8	GR	ITD00313		0.21	0.05	0.05		0.49	0.37	0.39		1.48	0.67	0.49
SU8	GR	ITD00314		0.66	0.09	0.07		1.37	0.65	0.31		2.61	0.95	0.17
SU8	GR	ITD00315		0.84	0.09	0.06		0.54	0.33	0.23		2.67	0.83	0.30
SU8	FD	ITD10315		0.91	0.10	0.07		1.62	0.69	0.29		3.29	1.06	0.16
SU8	SP	ITD20315		0.84	0.00	0.10		0.94	0.00	0.12		2.47	0.00	0.09
SU8	GR	ITD00316		0.66	0.09	0.08		1.27	0.53	0.23		9.67	2.09	0.12
SU8	GR	ITD00317		0.50	0.08	0.07		0.73	0.40	0.24		5.03	1.31	0.13
SU8	GR	ITD00318		0.63	0.09	0.08		0.88	0.47	0.31		6.24	1.59	0.14
SU8	GR	ITD00319		0.59	0.09	0.08		0.64	0.39	0.30		2.83	0.90	0.14
SU8	GR	ITD00320		0.86	0.10	0.06		1.75	0.69	0.31		6.49	1.64	0.26
SU8	GR	ITD00321		0.73	0.09	0.08		1.15	0.56	0.37		3.91	1.18	0.47
SU8	GR	ITD00322		0.86	0.13	0.11		1.19	0.52	0.24		10.69	2.33	0.13
SU8	GR	ITD00323		1.22	0.13	0.10		1.71	0.59	0.23		3.23	0.88	0.11
SU8	GR	ITD00324		0.63	0.09	0.07		1.54	0.65	0.32		2.44	0.85	0.27
SU8	GR	ITD00325		0.54	0.08	0.07		0.97	0.48	0.33		2.07	0.75	0.42
SU8	GR	ITD00326		1.21	0.16	0.12		1.36	0.66	0.32		3.94	1.27	0.17
SU8	GR	ITD00327		0.60	0.08	0.06		0.80	0.44	0.31		1.85	0.70	0.34
SU8	FD	ITD10327		0.71	0.10	0.07		1.03	0.51	0.27		1.89	0.72	0.15
SU8	SP	ITD20327		0.87	0.00	0.08		0.84	0.00	0.09		1.78	0.00	0.13
SU8	GR	ITD00328		0.77	0.12	0.11		1.06	0.52	0.27		7.72	1.88	0.14

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Area	Sample	Type	Sample ID	Ra-228 Qual.*	Ra-228 (pCi/g)	Ra-228 Error	Ra-228 MDA	Th-228 Qual.*	Th-228 (pCi/g)	Th-228 Error	Th-228 MDA	Th-230 Qual.*	Th-230 (pCi/g)	Th-230 Error	Th-230 MDA
SU8	GR	ITD00329			0.21	0.06	0.06	<	0.22	0.21	0.23		1.19	0.51	0.12
SU8	GR	ITD00330			0.98	0.13	0.10		1.02	0.52	0.32		9.81	2.33	0.15
SU8	GR	ITD00331			0.69	0.11	0.11		1.31	0.66	0.40		2.96	1.07	0.33
SU8	GR	ITD00332			0.84	0.12	0.11		1.15	0.55	0.36		10.19	2.39	0.45
SU8	GR	ITD00333			0.40	0.07	0.06		1.13	0.51	0.24		1.51	0.59	0.13
SU8	GR	ITD00334			0.87	0.12	0.10		0.96	0.49	0.31		5.40	1.42	0.14
SU8	GR	ITD00335			0.51	0.08	0.06		1.17	0.61	0.40		3.49	1.17	0.33
SU8	GR	ITD00336			0.75	0.09	0.08		1.34	0.57	0.33		9.24	2.06	0.41
SU8	GR	ITD00337			0.62	0.11	0.11		0.99	0.50	0.28		7.23	1.80	0.15
SU8	GR	ITD00338			0.40	0.07	0.07		1.23	0.56	0.27		3.91	1.15	0.36
SU8	GR	ITD00339			0.96	0.12	0.11		1.46	0.56	0.22		5.10	1.26	0.30
SU8	GR	ITD00340			0.44	0.08	0.10		0.99	0.47	0.24		5.90	1.45	0.13
SU8	GR	ITD00341			0.48	0.08	0.08		0.92	0.47	0.26		5.24	1.37	0.14
SU8	GR	ITD00342			0.73	0.12	0.12		0.97	0.49	0.31		9.75	2.21	0.14
SU8	GR	ITD00343			0.41	0.07	0.08		0.84	0.47	0.34		3.01	0.99	0.15
SU8	GR	ITD00344			0.74	0.13	0.15		0.75	0.38	0.25		8.56	1.83	0.21
SU8	GR	ITD00345			0.60	0.09	0.08		0.61	0.35	0.28		2.02	0.68	0.33
SU8	FD	ITD10345			0.69	0.11	0.10		0.79	0.41	0.23		4.59	1.20	0.13
SU8	SP	ITD20345			0.70	0.00	0.09		0.72	0.00	0.15		4.08	0.00	0.07
SU8	GR	ITD00346			1.23	0.16	0.13		1.43	0.55	0.21		4.02	1.05	0.11
SU8	GR	ITD00347			1.02	0.15	0.13		1.26	0.56	0.30		4.98	1.33	0.14
SU8	GR	ITD00C19			1.07	0.18	0.19		1.18	0.77	0.66		14.84	3.55	0.56
SU9	GR	ITD00348			0.92	0.14	0.13		1.43	0.55	0.25		2.09	0.69	0.21
SU9	GR	ITD00349			0.66	0.11	0.10		0.48	0.31	0.28		3.54	0.98	0.35
SU9	GR	ITD00350			0.65	0.10	0.09		0.52	0.32	0.22		3.02	0.89	0.12
SU9	GR	ITD00351			0.70	0.11	0.11		0.85	0.59	0.47		6.19	1.99	0.52
SU9	GR	ITD00352			0.92	0.14	0.12		1.01	0.53	0.27		3.44	1.11	0.16
SU9	GR	ITD00353			0.70	0.12	0.11		0.89	0.49	0.27		2.36	0.87	0.16
SU9	GR	ITD00354			0.99	0.13	0.09		1.26	0.63	0.31		3.36	1.15	0.18
SU9	GR	ITD00355			0.89	0.14	0.12		0.72	0.49	0.40		2.71	1.05	0.20
SU9	GR	ITD00356			0.98	0.14	0.12		1.94	0.87	0.40		3.64	1.28	0.35
SU9	FD	ITD10356			1.09	0.13	0.10		1.20	0.61	0.38		3.38	1.14	0.47
SU9	SP	ITD20356			0.74	0.00	0.10		0.78	0.00	0.14		5.06	0.00	0.16
SU9	GR	ITD00357			0.80	0.13	0.12		1.17	0.61	0.30		4.28	1.36	0.18
SU9	GR	ITD00358			0.13	0.04	0.05	<	0.09	0.22	0.50		1.72	0.95	0.29
SU9	GR	ITD00359			0.54	0.08	0.07		0.57	0.39	0.31		1.79	0.73	0.16
SU9	GR	ITD00360			0.33	0.06	0.05		0.42	0.32	0.29		2.41	0.85	0.25
SU9	GR	ITD00361			0.38	0.08	0.08		0.50	0.39	0.40		3.42	1.17	0.49
SU9	GR	ITD00362			0.17	0.05	0.06		0.42	0.36	0.33		1.99	0.85	0.19
SU9	GR	ITD00363			0.58	0.09	0.08		0.57	0.43	0.33		1.91	0.84	0.44
SU9	GR	ITD00364			0.56	0.10	0.09		0.92	0.60	0.39		3.01	1.20	0.39

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Area	Sample Type	Sample ID	Ra-228 Qual.*	Ra-228 (pCi/g)	Ra-228 Error	Ra-228 MDA	Th-228 Qual.*	Th-228 (pCi/g)	Th-228 Error	Th-228 MDA	Th-230 Qual.*	Th-230 (pCi/g)	Th-230 Error	Th-230 MDA
SU9	GR	ITD00365		1.10	0.15	0.14		2.03	0.86	0.32		6.65	1.88	0.19
SU9	GR	ITD00366		1.15	0.13	0.10		0.45	0.36	0.30		3.52	1.18	0.18
SU9	GR	ITD00367		0.47	0.08	0.07		0.56	0.43	0.39		3.61	1.25	0.20
SU9	GR	ITD00D20		4.79	0.58	0.53		1.97	0.75	0.33		6.57	1.68	0.33
SU9	GR	ITD00D21		1.14	0.15	0.12		1.15	0.53	0.30		3.99	1.14	0.37
SU10	GR	ITC00368		0.50	0.07	0.07		1.25	0.58	0.33		2.89	0.95	0.15
SU10	FD	ITC10368		0.57	0.07	0.07		1.17	0.59	0.31		2.70	0.96	0.17
SU10	SP	ITC20368	<	0.47	0.00	0.18		0.59	0.00	0.04		1.16	0.00	0.04
SU10	GR	ITC00369		0.48	0.07	0.05		1.32	0.59	0.31		2.14	0.76	0.31
SU10	GR	ITC00370		0.41	0.06	0.05		1.01	0.51	0.31		2.23	0.78	0.14
SU10	GR	ITC00371		0.17	0.04	0.04		0.81	0.50	0.42		1.75	0.74	0.32
SU10	GR	ITC00372		0.66	0.09	0.07		1.07	0.57	0.37		3.07	1.04	0.31
SU10	GR	ITC00373		0.79	0.09	0.07		1.24	0.56	0.25		2.54	0.83	0.14
SU10	GR	ITC00374		0.72	0.09	0.08		0.93	0.55	0.39		4.41	1.37	0.18
SU10	GR	ITC00375		0.14	0.04	0.05		0.67	0.42	0.33		1.27	0.58	0.15
SU10	GR	ITC00376		0.72	0.09	0.07		1.50	0.62	0.25		2.57	0.84	0.25
SU10	GR	ITC00377		0.48	0.06	0.06		1.22	0.54	0.13		2.82	0.88	0.13
SU10	GR	ITC00378		0.56	0.07	0.06		1.25	0.58	0.15		2.06	0.76	0.15
SU10	GR	ITC00379		0.71	0.09	0.07		1.36	0.69	0.35		2.22	0.89	0.19
SU10	GR	ITD00380		0.57	0.08	0.07		1.13	0.62	0.39		1.50	0.72	0.19
SU10	GR	ITD00381		0.76	0.09	0.08		1.57	0.80	0.37		3.10	1.18	0.22
SU10	GR	ITD00382		0.74	0.09	0.07		1.72	0.84	0.43		2.35	0.99	0.43
SU10	GR	ITD00383		0.86	0.09	0.08		0.94	0.57	0.39		1.63	0.75	0.19
SU10	GR	ITD00384		0.69	0.09	0.08		1.75	0.97	0.61		2.11	1.05	0.47
SU10	GR	ITD00385		0.85	0.10	0.08		1.16	0.66	0.41		2.09	0.90	0.35
SU10	GR	ITD00386		0.80	0.09	0.08		1.12	0.63	0.33		2.15	0.90	0.19
SU10	GR	ITD00387		0.30	0.06	0.06		0.40	0.36	0.38		1.97	0.84	0.19
SU10	GR	ITD00388		0.88	0.10	0.08		1.74	0.82	0.40		1.90	0.84	0.20
SU10	GR	ITD00389		0.78	0.09	0.07		1.06	0.63	0.37		2.81	1.11	0.37
SU10	GR	ITD00390		0.63	0.09	0.08		1.52	0.73	0.19		3.13	1.14	0.19
SU10	GR	ITD00391		0.66	0.08	0.06		1.09	0.65	0.22		3.29	1.24	0.22
SU10	GR	ITD00392		0.87	0.11	0.10		1.61	0.92	0.48		3.82	1.54	0.28
SU10	GR	ITD00393		0.83	0.09	0.07		1.70	0.77	0.41		3.07	1.09	0.18
SU10	GR	ITD00394		0.50	0.09	0.09		1.66	0.73	0.31		4.42	1.33	0.17
SU10	GR	ITD00395		0.44	0.08	0.08		0.73	0.46	0.36		5.26	1.49	0.36
SU10	GR	ITD00396		0.80	0.11	0.09		0.81	0.43	0.29		2.35	0.78	0.13
SU10	GR	ITD00397		0.67	0.08	0.07		1.38	0.68	0.44		3.94	1.26	0.33
SU10	GR	ITD00398		1.27	0.14	0.11		2.07	0.87	0.41		4.40	1.40	0.35
SU10	GR	ITD00399		0.95	0.10	0.07		1.39	0.58	0.24		1.86	0.67	0.13
SU10	GR	ITD00400		0.29	0.06	0.07		1.10	0.54	0.32		5.19	1.39	0.14
SU10	GR	ITD00401		0.29	0.05	0.06		0.77	0.47	0.35		3.23	1.05	0.16

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Area	Sample Type	Sample ID	Ra-228 Qual.*	Ra-228 (pCi/g)	Ra-228 Error	Ra-228 MDA	Th-228 Qual.*	Th-228 (pCi/g)	Th-228 Error	Th-228 MDA	Th-230 Qual.*	Th-230 (pCi/g)	Th-230 Error	Th-230 MDA
SU10	GR	ITD00402		1.02	0.12	0.08		1.16	0.55	0.27		1.47	0.62	0.27
SU10	FD	ITD10402		1.01	0.11	0.08		1.35	0.61	0.15		2.23	0.81	0.15
SU10	SP	ITD20402		0.87	0.00	0.09		1.57	0.00	0.16		1.33	0.00	0.18
SU10	GR	ITD00403		1.23	0.13	0.11		1.56	0.69	0.16		4.21	1.26	0.16
SU10	GR	ITD00404		1.00	0.13	0.10		0.99	0.55	0.32		5.31	1.54	0.17
SU10	GR	ITD00426		0.95	0.10	0.08		1.17	0.54	0.26		2.27	0.79	0.31
SU10	GR	ITD00427		0.79	0.10	0.08		1.47	0.63	0.27		4.84	1.35	0.27
SU10	GR	ITD00428		0.58	0.08	0.07		0.85	0.46	0.35		4.26	1.20	0.14
SU10	GR	ITD00429		0.57	0.07	0.07		0.63	0.39	0.27		3.47	1.06	0.14
SU10	FD	ITD10429		0.60	0.08	0.07		1.24	0.57	0.35		2.92	0.94	0.32
SU10	SP	ITD20429		0.53	0.00	0.11		1.01	0.00	0.12		2.14	0.00	0.07
SU10 Sub	GR	ITD0A368		0.64	0.09	0.08		1.43	0.67	0.37		2.76	0.97	0.31
SU10 Sub	FD	ITD1A368		0.84	0.10	0.08		1.71	0.68	0.32		2.08	0.76	0.32
SU10 Sub	SP	ITD2A368		0.66	0.00	0.10		0.79	0.00	0.09		2.24	0.00	0.06
SU10 Sub	GR	ITD0A371		0.87	0.11	0.09		2.63	1.00	0.33		3.31	1.13	0.18
SU10 Sub	GR	ITD0A374		1.22	0.15	0.12		1.76	0.72	0.38		3.89	1.17	0.15
SU10 Sub	GR	ITD0A377		0.95	0.11	0.08		2.52	0.96	0.33		2.86	1.02	0.33
SU10 Sub	GR	ITD0A380		0.82	0.12	0.12		1.49	0.64	0.33		2.70	0.91	0.33
SU10 Sub	GR	ITD0A383		0.53	0.09	0.09		1.43	0.68	0.45		3.21	1.08	0.17
SU10 Sub	GR	ITD0A386		0.33	0.07	0.07		0.92	0.53	0.32		3.13	1.07	0.17
SU10 Sub	GR	ITD0A389		1.07	0.15	0.12		2.02	0.82	0.17		4.02	1.25	0.31
SU10 Sub	GR	ITD0A392		0.87	0.12	0.10		1.73	0.67	0.25		2.87	0.91	0.25
SU10 Sub	GR	ITD0A395		1.04	0.13	0.13		1.91	0.86	0.49		7.63	2.14	0.20
SU10 Sub	GR	ITD0A398		0.93	0.11	0.10		1.49	0.75	0.53		3.74	1.28	0.36
SU10 Sub	GR	ITD0A401		0.97	0.12	0.11		0.96	0.48	0.30		3.18	0.97	0.14
SU10 Sub	GR	ITD0A402		1.01	0.13	0.13		1.47	0.62	0.31		4.25	1.20	0.14
SU10 Sub	FD	ITD1A402		1.03	0.14	0.13		1.28	0.55	0.34		3.79	1.06	0.23
SU10 Sub	SP	ITD2A402		0.93	0.00	0.08		1.20	0.00	0.07		4.98	0.00	0.12
SU10 Sub	GR	ITD0A426		0.94	0.11	0.10		1.62	0.63	0.24		1.98	0.71	0.24
SU10 Sub	GR	ITD0A427		0.55	0.08	0.08		0.86	0.47	0.15		2.64	0.91	0.28
SU10 Sub	GR	ITD0A428		0.64	0.09	0.09		1.20	0.54	0.25		3.50	1.04	0.14
SU10 Sub	GR	ITD0A429		0.81	0.11	0.09		1.06	0.52	0.39		3.51	1.06	0.14
SU10 Sub	FD	ITD1A429		0.89	0.12	0.10		1.89	0.76	0.39		4.19	1.25	0.16
SU10 Sub	SP	ITD2A429		0.76	0.00	0.11		1.17	0.00	0.11		2.50	0.00	0.11

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Area	Sample Type	Sample ID	Th-232 Qual.*	Th-232 (pCi/g)	Th-232 Error	Th-232 MDA	U-235 Qual.*	U-235 (pCi/g)	U-235 Error	U-235 MDA	U-238 Qual.*	U-238 (pCi/g)	U-238 Error	U-238 MDA
SU1	GR	ITD00001		0.55	0.32	0.11	<	0.11	0.12	0.14	<	1.07	0.76	2.72
SU1	GR	ITD00002		1.19	0.55	0.15	<	0.22	0.18	0.22	<	3.12	1.58	4.20
SU1	GR	ITD00003		0.73	0.39	0.23	<	0.03	0.15	0.20	<	1.79	1.38	3.52
SU1	GR	ITD00005		1.28	0.52	0.12	<	0.12	0.12	0.22	<	2.18	1.66	3.95
SU1	GR	ITD00006		0.88	0.42	0.12	<	0.12	0.17	0.21	<	2.14	1.29	3.23
SU1	GR	ITD00007		0.94	0.44	0.12	<	0.04	0.15	0.21	<	1.73	1.37	3.49
SU1	GR	ITD00008		1.39	0.54	0.11	<	0.36	0.29	0.35	<	5.19	2.40	5.55
SU1	GR	ITD00010		1.14	0.50	0.23		0.38	0.14	0.20		4.01	1.43	3.17
SU1	FD	ITD10010		1.21	0.50	0.12	<	0.26	0.17	0.23	<	3.52	1.52	3.66
SU1	SP	ITD20010		1.13	0.35	0.07		0.39	0.12	0.14		9.44	0.83	0.25
SU1	GR	ITD00011		0.74	0.40	0.24	<	0.20	0.18	0.22	<	3.62	1.08	3.75
SU1	GR	ITD00013		1.49	0.60	0.13		0.46	0.17	0.24	<	3.24	1.19	4.44
SU1	GR	ITD00014		0.62	0.32	0.19		0.24	0.13	0.18	<	1.91	0.81	3.20
SU1	GR	ITD00015		1.10	0.47	0.11	<	0.15	0.11	0.18	<	2.46	0.88	3.45
SU1	GR	ITD00018		1.15	0.50	0.12	<	0.09	0.12	0.18	<	2.70	1.00	3.70
SU1	GR	ITD00019		1.03	0.47	0.13		0.30	0.18	0.26	<	3.64	1.76	4.84
SU1	GR	ITD00021		1.02	0.50	0.26	<	0.08	0.10	0.18	<	1.35	1.31	3.27
SU1	GR	ITD00024		0.70	0.37	0.12		0.20	0.12	0.20	<	3.02	1.52	3.71
SU1	FD	ITD10024		1.08	0.53	0.28	<	0.11	0.13	0.20	<	1.93	1.47	3.55
SU1	SP	ITD20024		0.90	0.31	0.10	<	0.12	0.11	0.15		2.65	0.37	0.24
SU1	GR	ITD00025		0.25	0.23	0.13	<	0.11	0.08	0.12	<	1.16	0.83	2.34
SU1	GR	ITD00026		0.83	0.41	0.12		0.23	0.17	0.19	<	2.81	1.14	3.40
SU1	GR	ITD00027		1.33	0.54	0.12		0.38	0.24	0.27	<	3.35	1.61	3.97
SU1	GR	ITD00028		1.19	0.54	0.26	<	0.17	0.17	0.21	<	3.42	1.67	3.67
SU1	GR	ITD00029		1.07	0.51	0.14	<	0.21	0.16	0.23	<	2.99	1.12	4.79
SU1	GR	ITD00030		0.88	0.45	0.14		0.16	0.11	0.15	<	1.84	0.80	2.53
SU1	GR	ITD00031		1.07	0.49	0.13	<	0.21	0.19	0.22	<	1.81	1.15	5.11
SU1	GR	ITD00032		1.61	0.76	0.20		0.27	0.12	0.19	<	2.29	0.94	3.57
SU1	GR	ITD00033		1.18	0.59	0.32	<	0.31	0.18	0.22	<	3.63	1.07	4.23
SU1	GR	ITD00034		0.95	0.42	0.11	<	0.20	0.16	0.19	<	1.10	0.78	3.87
SU1	GR	ITD00035		0.77	0.39	0.12		0.32	0.19	0.23		5.67	1.24	4.07
SU1	GR	ITD00036		1.43	0.61	0.14		0.24	0.14	0.20	<	3.12	1.06	4.10
SU1	GR	ITD00038		0.97	0.48	0.14		0.36	0.18	0.22	<	1.83	1.06	4.42
SU1	GR	ITD00039		1.08	0.47	0.22	<	0.29	0.18	0.23	<	3.44	1.54	3.96
SU1	GR	ITD00040		0.95	0.45	0.12	<	0.25	0.21	0.24	<	3.28	1.69	3.85
SU1	GR	ITD00041		0.78	0.39	0.21	<	0.11	0.11	0.17	<	1.46	0.93	2.58
SU1	GR	ITD00042		1.10	0.48	0.12	<	-0.04	0.13	0.19		3.87	1.68	3.49
SU1	GR	ITD00043		0.93	0.43	0.12	<	0.18	0.14	0.20	<	2.71	1.05	3.44
SU1	GR	ITD00209		1.42	0.54	0.12		0.44	0.20	0.30	<	5.04	1.85	6.32
SU1	GR	ITD00210		0.97	0.44	0.12		0.58	0.22	0.24	<	4.27	1.26	4.62
SU1	GR	ITD00211		1.07	0.47	0.12	<	0.29	0.20	0.26	<	2.47	1.28	4.84

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Area	Sample	Type	Sample ID	Th-232 Qual.*	Th-232 (pCi/g)	Th-232 Error	Th-232 MDA	U-235 Qual.*	U-235 (pCi/g)	U-235 Error	U-235 MDA	U-238 Qual.*	U-238 (pCi/g)	U-238 Error	U-238 MDA
SU1	GR	ITD00212		0.59	0.33	0.11		<	0.45	0.22	0.24	<	2.25	1.21	4.86
SU1	GR	ITD00214		0.88	0.42	0.12		<	0.30	0.24	0.28	<	3.35	1.32	5.04
SU1	GR	ITD00215		1.05	0.46	0.26		<	0.27	0.21	0.26		5.01	1.29	1.74
SU1	GR	ITD00216		1.72	0.62	0.12			0.35	0.22	0.29		5.44	1.72	4.94
SU1	GR	ITD00217		1.44	0.58	0.13		<	0.27	0.24	0.36	<	5.82	2.86	7.21
SU1	GR	ITD00218		0.77	0.38	0.12		<	0.11	0.16	0.22	<	2.42	1.45	3.37
SU1	GR	ITD00219		1.11	0.47	0.12		<	0.33	0.18	0.22	<	3.15	1.42	3.64
SU1	GR	ITD00220		0.79	0.39	0.12		<	0.05	0.17	0.22	<	3.23	1.59	3.85
SU1	GR	ITD00221		1.19	0.49	0.12		<	0.36	0.23	0.28	<	4.17	2.34	5.44
SU1	GR	ITD00A37C		1.04	0.49	0.13		<	0.26	0.23	0.24	<	3.73	1.61	4.11
SU1	GR	ITD00A1C		0.82	0.40	0.12		<	0.10	0.14	0.22	<	2.60	1.48	4.04
SU1	GR	ITD00A5A		1.15	0.48	0.12		<	0.07	0.16	0.26	<	3.39	1.66	4.51
SU2	GR	ITD00044		0.83	0.39	0.20		<	0.09	0.15	0.21	<	2.82	1.45	3.61
SU2	GR	ITD00045		1.10	0.47	0.11		<	0.03	0.13	0.22	<	1.93	1.74	5.03
SU2	GR	ITD00048		1.16	0.52	0.13		<	0.28	0.23	0.23	<	2.96	1.38	3.70
SU2	FD	ITD10048		1.01	0.47	0.13		<	0.24	0.20	0.25	<	2.80	1.92	4.82
SU2	SP	ITD20048		1.07	0.36	0.10		<	0.24	0.21	0.21		2.51	0.49	0.32
SU2	GR	ITD00049		1.09	0.47	0.21		<	0.09	0.13	0.19	<	1.95	1.14	3.28
SU2	GR	ITD00050		1.25	0.54	0.14		<	0.26	0.21	0.27	<	4.98	2.49	5.66
SU2	GR	ITD00051		1.12	0.49	0.23			0.19	0.14	0.19	<	1.51	1.37	3.38
SU2	GR	ITD00052		0.76	0.40	0.13		<	0.06	0.13	0.21	<	1.23	1.57	4.49
SU2	GR	ITD00053		1.23	0.54	0.13			0.33	0.18	0.26	<	2.61	1.81	4.28
SU2	GR	ITD00054		1.30	0.57	0.14		<	0.16	0.17	0.23	<	2.55	1.77	4.07
SU2	GR	ITD00055		1.02	0.46	0.12			0.26	0.17	0.24	<	1.73	1.63	3.88
SU2	GR	ITD00056		1.52	0.58	0.12		<	0.34	0.21	0.27	<	4.00	1.26	4.08
SU2	GR	ITD00057		0.75	0.34	0.17			0.17	0.11	0.16	<	1.44	0.81	3.98
SU2	GR	ITD00058		1.16	0.50	0.13			0.22	0.13	0.18	<	2.08	1.10	4.16
SU2	GR	ITD00059		1.19	0.52	0.13		<	0.28	0.18	0.25	<	2.72	1.40	4.73
SU2	GR	ITD00060		1.18	0.51	0.13			0.47	0.18	0.24		4.92	1.36	4.50
SU2	GR	ITD00061		1.23	0.51	0.12		<	0.17	0.17	0.18	<	2.06	0.80	3.84
SU2	GR	ITD00062		0.51	0.30	0.20		<	0.07	0.09	0.14	<	1.30	0.61	3.42
SU2	GR	ITD00063		0.73	0.36	0.11		<	0.30	0.22	0.21	<	1.28	0.77	4.28
SU2	GR	ITD00064		1.61	0.61	0.23			0.19	0.13	0.17	<	2.25	0.73	3.19
SU2	GR	ITD00065		0.91	0.44	0.12			0.37	0.16	0.18	<	3.59	1.27	3.66
SU2	GR	ITD00066		0.89	0.45	0.13		<	0.20	0.14	0.16	<	0.91	0.67	3.44
SU2	GR	ITD00067		1.34	0.54	0.12			0.40	0.17	0.23		4.88	1.32	4.46
SU2	GR	ITD00068		1.00	0.46	0.12			0.46	0.16	0.23		6.80	1.59	4.68
SU2	GR	ITD00069		1.10	0.50	0.24			0.24	0.18	0.20	<	2.52	1.51	4.00
SU2	GR	ITD00070		1.45	0.62	0.15		<	-0.02	0.11	0.17	<	0.66	1.20	3.55
SU2	GR	ITD00071		0.73	0.51	0.22			0.27	0.12	0.19	<	3.36	1.11	3.71
SU2	GR	ITD00072		1.32	0.63	0.17		<	0.22	0.16	0.21	<	3.61	1.13	4.47

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Area	Sample Type	Sample ID	Th-232 Qual.*	Th-232 (pCi/g)	Th-232 Error	Th-232 MDA	U-235 Qual.*	U-235 (pCi/g)	U-235 Error	U-235 MDA	U-238 Qual.*	U-238 (pCi/g)	U-238 Error	U-238 MDA
SU2	GR	ITD00073		1.10	0.50	0.14		0.18	0.11	0.15	<	1.25	1.01	3.11
SU2	FD	ITD10073		1.04	0.54	0.17	<	0.12	0.08	0.14	<	0.66	1.01	2.95
SU2	SP	ITD20073		0.43	0.16	0.08	<	0.22	0.21	0.16	<	1.01	0.47	0.50
SU2	GR	ITD00074		0.87	0.47	0.28		0.30	0.13	0.18	<	3.00	0.98	3.25
SU2	GR	ITD00075		1.20	0.58	0.16		0.50	0.22	0.22		8.86	2.13	3.57
SU2	GR	ITD00076		1.10	0.49	0.13	<	0.14	0.13	0.20	<	2.04	0.99	4.20
SU2	GR	ITD00077		0.34	0.25	0.12	<	0.06	0.08	0.13	<	0.81	0.71	1.77
SU2	GR	ITD00078		0.78	0.40	0.12	<	0.22	0.18	0.19	<	0.82	1.10	4.11
SU2	GR	ITD00079		0.76	0.39	0.12	<	0.25	0.17	0.19	<	1.70	0.78	3.50
SU2	GR	ITD00080		0.90	0.38	0.10	<	0.14	0.11	0.16	<	0.65	0.75	3.58
SU2	GR	ITD00081		1.47	0.59	0.24	<	0.15	0.14	0.19	<	1.19	1.46	4.06
SU2	GR	ITD00082		1.43	0.60	0.14	<	0.05	0.12	0.20	<	1.69	1.56	3.95
SU2	GR	ITD00083		1.56	0.70	0.32	<	0.04	0.12	0.18	<	0.92	0.94	4.00
SU2	FD	ITD10083		1.68	0.72	0.17	<	0.10	0.18	0.21	<	1.37	1.39	4.07
SU2	SP	ITD20083		1.30	0.43	0.14	<	-0.07	0.15	0.17	<	-1.04	0.43	0.48
SU2	GR	ITD00084		1.05	0.52	0.15		0.21	0.13	0.18	<	0.59	1.24	3.78
SU2	GR	ITD00A10C		1.13	0.49	0.27		0.27	0.16	0.20	<	2.63	1.61	4.54
SU2	GR	ITD00A12A		1.21	0.50	0.12	<	0.44	0.21	0.28	<	4.86	2.01	4.58
SU2	GR	ITD00206		1.41	0.56	0.12		0.45	0.19	0.28	<	5.36	1.75	5.40
SU2	GR	ITD00207		0.87	0.42	0.12		0.46	0.20	0.28		5.90	1.63	4.83
SU2	GR	ITD00208		1.15	0.49	0.12	<	0.19	0.16	0.26	<	3.11	1.22	4.36
SU3	GR	ITD00085		0.96	0.55	0.19	<	0.12	0.12	0.21	<	2.59	1.54	4.08
SU3	GR	ITD00088		0.94	0.54	0.18	<	0.21	0.24	0.29	<	4.38	1.90	4.95
SU3	GR	ITD00093		1.89	0.92	0.24		0.40	0.21	0.24		6.85	1.89	4.08
SU3	GR	ITD00098		1.49	0.59	0.13		0.21	0.15	0.18	<	2.93	1.03	3.52
SU3	GR	ITD00100		2.44	0.79	0.24	<	0.16	0.14	0.21	<	1.91	1.11	4.60
SU3	GR	ITD00103		1.65	0.69	0.16	<	0.19	0.15	0.21	<	1.88	0.90	4.75
SU3	GR	ITD00105		1.26	0.55	0.14		0.21	0.13	0.17	<	2.16	0.89	4.31
SU3	GR	ITD00106		1.00	0.48	0.14		0.21	0.15	0.19	<	1.96	1.03	5.12
SU3	GR	ITD00108		0.90	0.44	0.13	<	0.17	0.15	0.21	<	2.21	1.10	4.31
SU3	GR	ITD00111		1.09	0.51	0.14		0.28	0.18	0.22	<	3.11	1.57	3.67
SU3	GR	ITD00112		1.37	0.59	0.14	<	0.23	0.17	0.24		4.76	1.80	4.33
SU3	GR	ITD00114		1.09	0.50	0.13		0.27	0.15	0.21	<	2.96	1.75	4.01
SU3	FD	ITD10114		1.16	0.51	0.13	<	0.24	0.23	0.23	<	0.77	1.82	4.14
SU3	SP	ITD20114		0.49	0.00	0.09		0.23	0.00	0.11		2.48	0.00	0.18
SU3	GR	ITD00115		0.56	0.35	0.14	<	0.08	0.16	0.22	<	3.22	1.84	4.54
SU3	GR	ITD00117		0.90	0.41	0.11	<	0.20	0.15	0.20		2.87	1.32	2.82
SU3	GR	ITD00118	<	0.00	0.00	4.04	<	0.14	0.21	0.25		3.97	2.07	3.83
SU3	GR	ITD00120		0.90	0.42	0.12		0.23	0.17	0.20	<	2.61	1.91	4.72
SU3	GR	ITD00121		0.67	0.35	0.11	<	0.02	0.11	0.18	<	2.82	1.53	4.14
SU3	GR	ITD00122		1.20	0.57	0.15	<	0.14	0.17	0.22	<	2.37	1.43	3.32

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Area	Sample	Type	Sample ID	Th-232 Qual.*	Th-232 (pCi/g)	Th-232 Error	Th-232 MDA	U-235 Qual.*	U-235 (pCi/g)	U-235 Error	U-235 MDA	U-238 Qual.*	U-238 (pCi/g)	U-238 Error	U-238 MDA
SU3	GR	ITD00124		1.33	0.52	0.12	<	0.02	0.11	0.19	<	1.08	1.17	3.52	
SU3	GR	ITD00125		1.14	0.50	0.13	<	0.15	0.15	0.19	<	2.24	1.27	3.47	
SU3	GR	ITD00126		1.31	0.53	0.12		0.22	0.20	0.21	<	3.49	1.87	4.14	
SU3	GR	ITD00127		0.91	0.45	0.24	<	0.15	0.13	0.19	<	2.37	1.59	4.01	
SU3	GR	ITD00128		0.89	0.71	0.34	<	0.16	0.16	0.21	<	1.73	1.37	3.86	
SU3	GR	ITD00129		0.88	0.41	0.11	<	0.14	0.16	0.19	<	2.06	1.44	3.76	
SU3	GR	ITD00130		1.22	0.58	0.30	<	0.04	0.18	0.21	<	1.83	1.20	3.38	
SU3	GR	ITD00131		1.61	0.65	0.15	<	0.01	0.14	0.24	<	1.60	1.75	4.44	
SU3	GR	ITD00132		1.15	0.49	0.12	<	0.19	0.19	0.22	<	2.06	1.75	4.38	
SU3	GR	ITD00133		1.52	0.71	0.19	<	0.33	0.25	0.27		4.71	1.95	4.32	
SU3	GR	ITD00134		0.99	0.45	0.12	<	0.14	0.15	0.21	<	3.20	1.23	3.54	
SU3	GR	ITD00135		0.58	0.35	0.13	<	0.08	0.13	0.16	<	1.34	0.74	3.68	
SU3	GR	ITD00136		1.18	0.51	0.13	<	0.18	0.15	0.18	<	1.01	0.73	3.41	
SU3	GR	ITD00139		1.18	0.53	0.14	<	0.04	0.10	0.17	<	0.70	0.81	3.75	
SU3	GR	ITD00142		1.15	0.52	0.14	<	0.13	0.13	0.17	<	1.77	0.82	3.21	
SU3	GR	ITD00408		3.06	1.06	0.32		0.33	0.17	0.24	<	3.70	1.18	4.53	
SU3	GR	ITD00409		1.23	0.57	0.15		0.26	0.14	0.20	<	3.62	1.17	4.16	
SU3	GR	ITD00410		1.40	0.65	0.17		0.37	0.14	0.21	<	3.73	1.28	4.44	
SU3	GR	ITD00411		0.92	0.46	0.14		0.30	0.14	0.22	<	3.10	1.15	4.32	
SU3	GR	ITD00412		0.90	0.50	0.30	<	0.18	0.19	0.20	<	1.56	0.97	4.70	
SU3	GR	ITD00413		1.23	0.61	0.17		0.27	0.13	0.19	<	3.34	0.95	3.76	
SU3	GR	ITD00414		1.57	0.66	0.15		0.36	0.17	0.23		4.74	1.35	4.66	
SU3	GR	ITD00415		0.74	0.48	0.34	<	0.12	0.13	0.18	<	2.37	0.84	2.89	
SU3	GR	ITD00416		1.05	0.49	0.14		0.38	0.15	0.20	<	3.71	1.16	4.26	
SU3	FD	ITD10416		1.10	0.51	0.14		0.25	0.17	0.23	<	3.40	1.18	4.83	
SU3	SP	ITD20416		1.20	0.00	0.03	<	0.31	0.00	0.19		4.20	0.00	0.41	
SU3	GR	ITD00417		1.22	0.55	0.25		0.41	0.19	0.24	<	4.15	1.28	5.03	
SU3	GR	ITD00418		1.29	0.61	0.17		0.22	0.12	0.18		4.01	0.98	3.36	
SU3	GR	ITD00419		0.88	0.47	0.15	<	0.12	0.20	0.20	<	2.75	1.05	4.60	
SU3	GR	ITD00420		1.54	0.64	0.27	<	-0.07	0.15	0.24	<	2.56	2.16	5.11	
SU3	GR	ITD00421		1.22	0.54	0.14	<	0.23	0.18	0.24	<	2.72	1.48	4.01	
SU3	GR	ITD00422		1.09	0.48	0.12	<	0.19	0.18	0.23	<	2.16	1.66	4.63	
SU3	GR	ITD00423		0.92	0.46	0.14		0.20	0.13	0.19	<	1.95	1.61	4.24	
SU3	GR	ITD00424		1.35	0.58	0.26		0.25	0.18	0.21	<	3.88	1.57	3.95	
SU3	GR	ITD00425		1.65	0.67	0.15	<	0.28	0.19	0.23	<	1.74	1.32	4.02	
SU4	GR	ITD00137		1.09	0.49	0.13	<	0.16	0.12	0.16	<	2.07	0.81	3.08	
SU4	FD	ITD10137		1.02	0.47	0.13	<	0.10	0.13	0.17	<	1.31	0.71	2.98	
SU4	SP	ITD20137		0.73	0.00	0.08	<	0.15	0.00	0.13		1.87	0.00	0.20	
SU4	GR	ITD00140		1.67	0.63	0.24	<	0.26	0.17	0.16	<	1.79	0.66	3.26	
SU4	GR	ITD00141		0.94	0.11	0.07	<	0.10	0.14	0.18	<	1.10	0.76	3.89	
SU4	GR	ITD00143		0.98	0.47	0.13		0.24	0.12	0.16	<	2.61	0.93	3.73	

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Area	Sample Type	Sample ID	Th-232 Qual.*	Th-232 (pCi/g)	Th-232 Error	Th-232 MDA	U-235 Qual.*	U-235 (pCi/g)	U-235 Error	U-235 MDA	U-238 Qual.*	U-238 (pCi/g)	U-238 Error	U-238 MDA
SU4	GR	ITD00144		1.08	0.56	0.17	<	0.10	0.13	0.16	<	1.21	0.75	2.91
SU4	GR	ITD00145		1.03	0.46	0.12	<	0.05	0.15	0.17	<	1.01	0.80	4.23
SU4	GR	ITD00146		0.81	0.42	0.13	<	0.18	0.10	0.15	<	1.09	0.81	3.18
SU4	GR	ITD00147		1.00	0.47	0.28	<	0.14	0.11	0.17	<	3.26	0.85	3.34
SU4	GR	ITD00148		0.67	0.36	0.12	<	0.02	0.10	0.17	<	1.01	0.80	3.57
SU4	GR	ITD00149		1.06	0.48	0.13	<	0.15	0.11	0.16	<	2.28	0.86	3.12
SU4	FD	ITD10149		0.79	0.36	0.18	<	0.08	0.11	0.15	<	1.13	0.69	2.58
SU4	SP	ITD20149		1.33	0.00	0.11	<	0.15	0.00	0.12		2.04	0.00	0.17
SU4	GR	ITD00150		0.86	0.43	0.13		0.15	0.12	0.12	<	1.30	0.67	2.74
SU4	GR	ITD00151		0.85	0.39	0.11	<	0.09	0.17	0.21	<	3.29	1.03	4.03
SU4	GR	ITD00152		1.58	0.62	0.24		0.22	0.14	0.16		3.94	0.97	3.40
SU4	GR	ITD00153		1.29	0.49	0.11	<	0.24	0.15	0.17	<	1.96	0.76	2.84
SU4	GR	ITD00154		0.82	0.38	0.23	<	0.14	0.10	0.17	<	1.07	0.86	4.18
SU4	GR	ITD00155		0.74	0.39	0.12		0.45	0.15	0.23		7.22	1.72	4.05
SU4	GR	ITD00156		0.78	0.37	0.11	<	0.06	0.10	0.17	<	0.97	0.79	3.51
SU4	GR	ITD00157		0.57	0.43	0.34	<	0.09	0.08	0.12	<	1.75	0.68	2.83
SU4	GR	ITD00158		1.30	0.66	0.20		0.23	0.15	0.19	<	2.51	0.95	3.48
SU4	GR	ITD00159		1.12	0.60	0.37	<	0.48	0.25	0.32	<	3.39	1.45	5.45
SU4	GR	ITD00160		1.82	0.81	0.20		0.17	0.09	0.14	<	1.48	0.65	2.20
SU4	GR	ITD00161		0.64	0.42	0.17		0.26	0.10	0.16		4.36	1.03	3.16
SU4	GR	ITD00162		1.54	0.65	0.27	<	0.26	0.18	0.22	<	1.94	0.90	4.13
SU4	GR	ITD00163		2.07	0.79	0.16	<	0.13	0.11	0.18	<	1.30	0.79	3.39
SU4	GR	ITD00164		1.35	0.66	0.18	<	0.14	0.11	0.18	<	1.88	0.80	3.68
SU4	GR	ITD00165		0.90	0.46	0.25		1.79	0.21	0.21		34.56	4.04	3.08
SU4	GR	ITD00166		1.04	0.54	0.17	<	0.18	0.14	0.18	<	1.80	0.89	3.31
SU4	GR	ITD00167		0.87	0.46	0.30	<	0.07	0.12	0.15	<	0.93	0.74	3.19
SU4	GR	ITD00168		0.88	0.43	0.13		0.42	0.14	0.19		6.55	1.36	3.39
SU4	GR	ITD00169		0.33	0.25	0.13	<	0.08	0.11	0.15	<	1.38	0.82	2.72
SU4	GR	ITD00170		0.58	0.36	0.25		0.26	0.09	0.12	<	2.46	0.72	2.57
SU4	GR	ITD00171		0.94	0.40	0.10		0.35	0.15	0.20		8.21	1.64	3.82
SU4	GR	ITD00172		0.78	0.40	0.12		0.17	0.12	0.16	<	1.85	0.85	3.83
SU4	GR	ITD00173		1.33	0.57	0.25		0.22	0.16	0.20	<	2.75	1.26	4.39
SU4	GR	ITD00174		0.88	0.47	0.15	<	0.21	0.14	0.20	<	2.84	1.00	4.16
SU4	GR	ITD00175		0.34	0.26	0.13	<	0.05	0.04	0.10	<	0.83	0.54	2.09
SU4	FD	ITD10175		0.20	0.04	0.04	<	0.06	0.07	0.11	<	0.49	0.40	2.02
SU4	SP	ITD20175		0.21	0.00	0.13	<	-0.01	0.00	0.10		0.11	0.00	0.25
SU4	GR	ITD00176		0.77	0.43	0.15	<	0.06	0.10	0.17	<	1.48	0.84	3.61
SU4	GR	ITD00177		0.72	0.37	0.12	<	0.03	0.12	0.20	<	2.22	1.03	3.21
SU4	GR	ITD00178		0.93	0.45	0.13	<	0.07	0.15	0.16	<	1.74	0.67	2.94
SU4	GR	ITD00179		1.42	0.55	0.25	<	0.00	0.15	0.24	<	3.18	1.12	3.91
SU4	GR	ITD00180		0.94	0.49	0.15		0.21	0.13	0.15	<	1.71	0.81	3.90

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Area	Sample Type	Sample ID	Th-232 Qual.*	Th-232 (pCi/g)	Th-232 Error	Th-232 MDA	U-235 Qual.*	U-235 (pCi/g)	U-235 Error	U-235 MDA	U-238 Qual.*	U-238 (pCi/g)	U-238 Error	U-238 MDA
SU4	GR	ITD00181		0.96	0.39	0.09	<	0.11	0.11	0.18	<	1.44	0.92	4.02
SU4	GR	ITD00182	<	0.13	0.06	0.09	<	0.07	0.09	0.13	<	0.53	1.20	2.28
SU4	GR	ITD00183		0.82	0.48	0.17		0.56	0.24	0.27		7.35	2.29	3.81
SU4	GR	ITD00184		0.38	0.34	0.35	<	0.08	0.13	0.17		3.21	1.37	2.84
SU4	GR	ITD00185		1.20	0.61	0.18	<	0.44	0.28	0.31		5.77	2.26	4.82
SU4	GR	ITD00186		0.55	0.38	0.17	<	0.10	0.12	0.20	<	0.96	1.39	3.96
SU4	GR	ITD00187		0.49	0.33	0.25		0.22	0.15	0.17	<	2.20	1.39	3.09
SU4	GR	ITD00188		1.09	0.48	0.12	<	0.22	0.17	0.24		4.29	2.03	4.09
SU4	FD	ITD10188		1.04	0.47	0.12		0.25	0.16	0.25	<	3.79	2.08	5.40
SU4	SP	ITD20188		0.96	0.00	0.15	<	0.24	0.00	0.14		3.64	0.00	0.22
SU4	GR	ITD00189		0.68	0.36	0.22	<	0.17	0.12	0.21	<	1.79	1.43	3.86
SU4	GR	ITD00190		1.33	0.56	0.13		0.33	0.17	0.24	<	4.19	1.76	4.20
SU4	GR	ITD00191		0.84	0.39	0.23	<	0.16	0.17	0.23	<	1.75	1.44	3.78
SU4	GR	ITD00192		1.14	0.47	0.11	<	0.12	0.20	0.22	<	1.63	1.49	3.83
SU4	GR	ITD000A14		0.91	0.43	0.12	<	0.73	0.37	0.42	<	6.23	2.00	7.27
SU4	GR	ITD000A15		1.33	0.54	0.12	<	0.18	0.23	0.26	<	3.28	1.28	4.62
SU5	GR	ITD00193		0.39	0.27	0.12	<	0.05	0.09	0.12	<	1.48	0.65	2.01
SU5	GR	ITD00194		0.99	0.46	0.13		0.68	0.18	0.23		13.32	2.11	4.17
SU5	GR	ITD00195		0.64	0.47	0.40		0.27	0.15	0.22	<	3.65	1.11	4.30
SU5	GR	ITD00196		1.16	0.51	0.13		1.22	0.20	0.26		26.80	3.76	4.49
SU5	GR	ITD00197		1.39	0.56	0.23		0.27	0.18	0.25	<	4.49	1.35	5.24
SU5	FD	ITD10197		1.40	0.57	0.13	<	0.18	0.17	0.24	<	4.04	1.27	4.85
SU5	SP	ITD20197		1.05	0.00	0.03		0.25	0.00	0.12		3.42	0.00	0.20
SU5	GR	ITD00198		1.12	0.50	0.24	<	0.30	0.16	0.21		3.66	1.01	3.02
SU5	GR	ITD00199		1.37	0.57	0.13		0.38	0.21	0.21		4.52	1.25	4.11
SU5	GR	ITD00200		1.05	0.49	0.14	<	0.38	0.20	0.25	<	2.91	1.13	4.28
SU5	GR	ITD00201		0.88	0.45	0.14		0.58	0.18	0.21		10.64	1.87	3.37
SU5	GR	ITD00202		1.05	0.46	0.12		0.39	0.19	0.25		7.75	1.61	4.27
SU5	GR	ITD00203		0.96	0.45	0.12		0.41	0.19	0.25		4.96	1.42	4.29
SU5	GR	ITD00204		0.93	0.43	0.12		0.53	0.17	0.22		7.12	1.53	4.28
SU5	GR	ITD00205		0.88	0.41	0.21		0.92	0.18	0.22		17.07	2.27	3.20
SU5	GR	ITD00405		1.13	0.49	0.12		0.27	0.17	0.22	<	3.61	0.99	4.84
SU5	GR	ITD00406		1.15	0.59	0.33		0.21	0.14	0.20	<	3.17	1.27	4.96
SU5	GR	ITD00407		0.79	0.46	0.17		0.33	0.20	0.25	<	2.91	1.32	4.73
SU5	GR	ITD00430		1.40	0.61	0.15		0.16	0.11	0.16	<	1.57	0.88	3.00
SU5	GR	ITD00431		1.99	0.78	0.16		0.33	0.18	0.23		4.29	1.44	4.25
SU5	SP	ITD20432		0.91	0.08		<	0.02		0.14		1.59		0.25
SU5	GR	ITD00432		0.79	0.42	0.29	<	0.14	0.10	0.15	<	2.00	0.78	2.49
SU5	FD	ITD10432		0.92	0.50	0.17	<	0.12	0.12	0.16	<	2.48	0.99	3.70
SU5	GR	ITD00433		2.20	0.78	0.14		0.55	0.18	0.21		5.88	1.13	4.23
SU5	GR	ITD00434		1.11	0.55	0.16		0.64	0.17	0.21		10.46	1.66	3.88

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Area	Sample Type	Sample ID	Th-232 Qual.*	Th-232 (pCi/g)	Th-232 Error	Th-232 MDA	U-235 Qual.*	U-235 (pCi/g)	U-235 Error	U-235 MDA	U-238 Qual.*	U-238 (pCi/g)	U-238 Error	U-238 MDA
SU5	GR	ITD00435		1.19	0.56	0.15		0.69	0.19	0.23		14.75	2.08	4.14
SU5	GR	ITD000A16		1.61	0.62	0.13	<	0.42	0.25	0.34		6.77	2.19	5.56
SU6	GR	ITD00222		0.86	0.43	0.13		0.26	0.12	0.16		2.27	0.83	3.08
SU6	GR	ITD00223		0.81	0.41	0.12	<	0.17	0.13	0.15		1.43	0.58	2.03
SU6	GR	ITD00224		1.04	0.45	0.11	<	0.10	0.09	0.17		1.97	0.88	3.64
SU6	GR	ITD00225		1.17	0.50	0.12		0.36	0.19	0.23		4.35	1.60	6.70
SU6	GR	ITD00226		1.20	0.50	0.12	<	0.16	0.13	0.17		1.47	0.75	3.06
SU6	GR	ITD00227		1.66	0.63	0.13	<	0.23	0.14	0.21		1.43	0.98	3.40
SU6	GR	ITD00228		1.12	0.53	0.14		0.30	0.13	0.19		2.93	1.00	3.88
SU6	GR	ITD00229		0.80	0.42	0.24		0.20	0.13	0.15		2.26	0.86	2.91
SU6	GR	ITD00230		1.15	0.51	0.13	<	0.08	0.17	0.21		2.36	1.09	4.77
SU6	GR	ITD00231		0.61	0.37	0.14	<	0.15	0.11	0.17		1.60	0.83	4.00
SU6	FD	ITD10231		1.03	0.91	0.90		0.24	0.15	0.19		2.07	1.01	3.73
SU6	SP	ITD20231		1.09	0.00	0.06		0.20	0.00	0.12		3.02	0.00	0.20
SU6	GR	ITD00232		1.10	0.49	0.13	<	0.26	0.16	0.21		2.73	0.82	3.28
SU6	GR	ITD00233		0.91	0.49	0.15	<	0.05	0.12	0.19		2.07	0.94	3.53
SU6	GR	ITD00234		1.61	0.64	0.14		0.26	0.14	0.18		1.65	0.84	3.75
SU6	GR	ITD00235		0.99	0.47	0.13		0.41	0.16	0.20		3.20	1.04	3.81
SU6	GR	ITD00236		1.16	0.53	0.14	<	0.07	0.12	0.17		1.71	0.79	3.90
SU6	GR	ITD00237		1.03	0.46	0.12		0.21	0.15	0.19		2.41	0.85	4.41
SU6	GR	ITD00238		0.91	0.43	0.22	<	0.19	0.19	0.22		2.93	1.05	3.45
SU6	GR	ITD00239		1.24	0.56	0.15	<	0.12	0.12	0.20		2.23	0.90	3.68
SU6	GR	ITD00240		0.98	0.48	0.14	<	0.30	0.19	0.24		2.95	1.11	4.22
SU6	GR	ITD00241		1.20	0.52	0.13		0.28	0.17	0.21		3.74	1.21	4.05
SU6	GR	ITD00242		1.32	0.59	0.15		0.36	0.15	0.20		5.70	1.43	3.50
SU6	GR	ITD00243		1.34	0.54	0.12	<	0.16	0.19	0.21		2.47	1.41	3.87
SU6	GR	ITD00244		1.03	0.46	0.12		0.21	0.17	0.19		2.75	0.98	3.38
SU6	GR	ITD00245		1.38	0.68	0.19	<	0.17	0.19	0.20		1.89	0.89	3.50
SU6	GR	ITD00246		0.97	0.46	0.13	<	0.28	0.20	0.21		3.11	0.91	3.93
SU6	GR	ITD00247		0.98	0.49	0.15		0.28	0.14	0.20		2.63	1.06	3.87
SU6	GR	ITD00248		1.24	0.54	0.13	<	0.08	0.12	0.17		2.09	0.76	3.47
SU6	GR	ITD00249		1.43	0.57	0.23		0.27	0.15	0.22		4.81	1.42	4.14
SU6	GR	ITD00250		1.06	0.47	0.12		0.31	0.17	0.22		4.98	1.39	5.90
SU6	GR	ITD00251		0.99	0.48	0.25	<	0.13	0.12	0.17		1.89	0.78	3.90
SU6	GR	ITD00252		1.35	0.61	0.16	<	0.12	0.10	0.17		2.32	0.83	2.96
SU6	GR	ITD00253		1.22	0.55	0.14	<	0.31	0.19	0.21		2.66	1.17	4.83
SU6	FD	ITD10253		1.03	0.47	0.13	<	0.20	0.17	0.20		3.33	1.16	4.17
SU6	SP	ITD20253		1.06	0.00	0.07	<	0.32	0.00	0.13		2.53	0.00	0.21
SU6	GR	ITD00254		1.20	0.50	0.12	<	0.11	0.12	0.16		1.63	0.75	3.78
SU6	GR	ITD00255		0.66	0.36	0.12	<	0.21	0.17	0.18		3.06	0.86	2.79
SU6	GR	ITD00256		1.09	0.60	0.20		0.34	0.15	0.20		3.07	1.29	5.40

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Area	Sample Type	Sample ID	Th-232 Qual.*	Th-232 (pCi/g)	Th-232 Error	Th-232 MDA	U-235 Qual.*	U-235 (pCi/g)	U-235 Error	U-235 MDA	U-238 Qual.*	U-238 (pCi/g)	U-238 Error	U-238 MDA
SU6	GR	ITD00257		1.12	0.50	0.13	<	0.13	0.12	0.17	<	2.12	0.99	3.91
SU6	GR	ITD00258		1.51	0.58	0.12	<	0.39	0.29	0.33	<	4.83	2.13	5.85
SU6	GR	ITD00259		0.90	0.43	0.12	<	0.33	0.19	0.26		4.65	1.90	4.35
SU6	GR	ITD00A17		0.97	0.47	0.14	<	0.17	0.18	0.22	<	1.65	1.62	4.37
SU6	GR	ITD00A18		0.75	0.50	0.20		0.40	0.23	0.30	<	3.46	2.37	5.24
SU7	GR	ITD00260		0.89	0.47	0.15		0.48	0.18	0.21		6.31	1.49	3.94
SU7	GR	ITD00261		0.93	0.48	0.15	<	0.07	0.08	0.13	<	1.10	0.51	2.86
SU7	GR	ITD00262		0.16	0.04	0.04	<	0.11	0.08	0.11	<	0.81	0.46	1.91
SU7	GR	ITD00263		1.19	0.55	0.15		0.73	0.18	0.20		11.52	2.02	3.65
SU7	GR	ITD00264		1.38	0.60	0.27		0.78	0.18	0.24		13.61	2.34	4.14
SU7	GR	ITD00265		0.83	0.45	0.27		0.69	0.16	0.19		10.60	1.98	3.33
SU7	FD	ITD10265		0.62	0.36	0.13		0.73	0.18	0.20		10.15	1.91	4.36
SU7	SP	ITD20265		0.47	0.00	0.03		0.65	0.00	0.13		10.70	0.00	0.29
SU7	GR	ITD00266		1.04	0.50	0.14	<	0.15	0.20	0.23	<	3.64	1.21	3.73
SU7	GR	ITD00267		1.13	0.52	0.14		0.53	0.17	0.20		11.85	1.85	3.60
SU7	GR	ITD00268		1.31	0.58	0.15	<	0.15	0.15	0.21	<	3.77	1.17	4.04
SU7	GR	ITD00269		0.86	0.47	0.15		0.39	0.14	0.23		6.61	1.43	3.79
SU7	GR	ITD00270		1.12	0.54	0.15		0.41	0.17	0.22		8.74	1.63	3.83
SU7	GR	ITD00271		0.85	0.43	0.13		0.56	0.23	0.23		5.72	1.46	4.05
SU7	GR	ITD00272		0.30	0.23	0.20	<	0.13	0.10	0.13	<	0.99	1.04	2.67
SU7	GR	ITD00273		1.25	0.53	0.13		0.40	0.16	0.21		7.68	2.03	4.02
SU7	GR	ITD00274		0.93	0.48	0.15	<	0.31	0.22	0.25	<	2.73	1.54	4.44
SU7	GR	ITD00275		1.33	0.55	0.13		0.63	0.17	0.23		12.55	2.42	4.15
SU7	GR	ITD00276		1.14	0.48	0.11	<	0.28	0.24	0.27		7.15	2.20	4.37
SU7	GR	ITD00277		0.47	0.34	0.27	<	0.13	0.10	0.15		3.31	1.13	2.53
SU7	GR	ITD00278		1.01	0.48	0.24		0.70	0.18	0.22		12.62	2.01	3.43
SU7	GR	ITD00279		0.79	0.44	0.27	<	0.47	0.20	0.25		5.87	1.82	4.29
SU7	GR	ITD00280		0.96	0.47	0.24	<	0.50	0.29	0.35	<	4.93	2.48	5.01
SU7	GR	ITD00281		1.10	0.54	0.16	<	0.10	0.14	0.21	<	3.02	1.63	3.57
SU7	GR	ITD00282		0.24	0.22	0.13	<	0.12	0.11	0.13	<	1.70	0.97	2.22
SU7	GR	ITD00283		1.27	0.58	0.15		0.33	0.17	0.27		6.10	2.04	4.61
SU7	GR	ITD00284		0.79	0.50	0.19		0.66	0.19	0.25		11.20	2.42	3.80
SU7	GR	ITD00285A		1.17	0.55	0.27		0.46	0.19	0.27		8.83	2.25	4.70
SU7	GR	ITD00286		1.42	0.59	0.26	<	0.43	0.25	0.32	<	4.75	2.63	5.35
SU7	GR	ITD00287		0.51	0.33	0.24	<	0.03	0.13	0.22	<	1.59	1.84	4.44
SU7	GR	ITD00288		0.14	0.06	0.06	<	0.00	0.08	0.14	<	1.11	1.07	2.90
SU7	FD	ITD10288		0.55	0.34	0.13	<	0.03	0.07	0.12	<	1.05	0.89	2.33
SU7	SP	ITD20288		0.22	0.00	0.12	<	0.08	0.00	0.13		0.93	0.00	0.19
SU7	GR	ITD00289		0.99	0.49	0.27	<	0.19	0.16	0.22	<	3.24	1.65	4.20
SU7	GR	ITD00290		0.63	0.37	0.25		0.33	0.16	0.20		6.37	1.76	3.41
SU7	GR	ITD00291		0.97	0.48	0.26	<	0.22	0.19	0.24	<	3.35	1.68	4.75

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Area	Sample Type	Sample ID	Th-232 Qual.*	Th-232 (pCi/g)	Th-232 Error	Th-232 MDA	U-235 Qual.*	U-235 (pCi/g)	U-235 Error	U-235 MDA	U-238 Qual.*	U-238 (pCi/g)	U-238 Error	U-238 MDA
SU7	GR	ITD00292		1.26	0.57	0.27		0.79	0.22	0.26		15.81	2.90	4.63
SU7	GR	ITD00293		1.08	0.50	0.14	<	0.23	0.20	0.26		6.95	2.13	5.17
SU7	GR	ITD00294		1.22	0.54	0.14	<	0.07	0.09	0.15	<	1.73	1.13	2.81
SU7	GR	ITD00295		1.15	0.52	0.14	<	0.17	0.17	0.23	<	3.27	1.70	3.73
SU7	GR	ITD00296		1.16	0.52	0.14		0.44	0.18	0.25		7.88	2.12	4.44
SU7	GR	ITD00297		0.82	0.42	0.23	<	0.15	0.11	0.16	<	2.42	1.04	2.88
SU7	GR	ITD00298		0.76	0.42	0.26		0.33	0.14	0.19		4.98	1.31	3.67
SU7	GR	ITD00299		1.26	0.53	0.13		0.25	0.14	0.19	<	1.60	1.41	2.89
SU7	GR	ITD00300		0.84	0.42	0.23		0.12	0.09	0.12	<	0.93	0.99	2.40
SU7	GR	ITD00301		0.67	0.38	0.13	<	0.16	0.14	0.21	<	2.12	1.32	3.43
SU7	GR	ITD00302		1.00	0.56	0.34	<	0.26	0.15	0.21		3.55	1.76	3.22
SU7	GR	ITD00303		0.79	0.43	0.25	<	0.14	0.11	0.15	<	1.69	1.25	2.74
SU7	GR	ITD00304		0.59	0.33	0.20	<	0.11	0.12	0.18	<	2.15	1.25	2.96
SU8	GR	ITD00305		0.88	0.45	0.25	<	0.18	0.18	0.20	<	1.75	1.35	3.91
SU8	GR	ITD00306		0.28	0.25	0.15	<	0.08	0.09	0.15	<	1.43	1.04	2.67
SU8	GR	ITD00307		0.59	0.39	0.16		1.04	0.23	0.25		15.10	2.46	4.09
SU8	GR	ITD00308		1.76	0.65	0.13		0.32	0.17	0.23	<	2.70	1.65	3.52
SU8	GR	ITD00309		0.81	0.44	0.15	<	0.23	0.18	0.18	<	1.80	1.25	2.95
SU8	GR	ITD00310		1.12	0.52	0.26	<	0.05	0.11	0.15	<	1.50	0.78	3.46
SU8	GR	ITD00311		0.99	0.49	0.27		0.21	0.14	0.17	<	2.55	1.03	4.03
SU8	GR	ITD00312		0.56	0.34	0.13	<	0.06	0.09	0.15	<	1.68	0.84	2.37
SU8	GR	ITD00313		0.21	0.05	0.05	<	0.09	0.08	0.12	<	1.51	0.63	2.42
SU8	GR	ITD00314		1.12	0.57	0.17		0.18	0.12	0.17	<	2.12	0.85	3.95
SU8	GR	ITD00315		1.66	0.61	0.23	<	0.17	0.12	0.17	<	1.58	0.82	3.13
SU8	FD	ITD10315		1.33	0.60	0.16		0.24	0.15	0.17	<	2.36	0.86	3.50
SU8	SP	ITD20315		0.68	0.00	0.09	<	0.14	0.00	0.13		2.42	0.00	0.21
SU8	GR	ITD00316		0.67	0.37	0.23		0.45	0.16	0.21		6.45	1.46	3.99
SU8	GR	ITD00317		0.48	0.32	0.24		0.28	0.13	0.18	<	3.69	0.85	3.74
SU8	GR	ITD00318		0.83	0.45	0.26		0.39	0.18	0.19		7.09	1.40	3.81
SU8	GR	ITD00319		0.96	0.47	0.14	<	0.41	0.20	0.21	<	2.83	1.14	4.56
SU8	GR	ITD00320		1.08	0.51	0.14		0.34	0.16	0.19		5.96	1.39	3.32
SU8	GR	ITD00321		1.12	0.54	0.15		0.24	0.14	0.19		4.42	1.08	3.30
SU8	GR	ITD00322		0.98	0.47	0.24		0.47	0.21	0.29		7.96	2.52	4.80
SU8	GR	ITD00323		1.13	0.46	0.11		0.32	0.19	0.23		5.39	1.73	3.36
SU8	GR	ITD00324		0.94	0.48	0.27		0.24	0.13	0.17		4.66	1.44	2.98
SU8	GR	ITD00325		1.04	0.49	0.13	<	0.18	0.13	0.18	<	1.89	1.13	2.60
SU8	GR	ITD00326		1.42	0.66	0.17		1.27	0.28	0.30		31.85	4.40	4.77
SU8	GR	ITD00327		0.39	0.30	0.26	<	0.15	0.11	0.17		3.05	1.24	2.70
SU8	FD	ITD10327		1.44	0.62	0.27		0.27	0.13	0.19		4.01	1.67	3.32
SU8	SP	ITD20327		0.85	0.00	0.10	<	0.38	0.00	0.14		4.21	0.00	0.22
SU8	GR	ITD00328		0.67	0.40	0.27		1.21	0.24	0.28		23.27	3.35	4.55

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Area	Sample Type	Sample ID	Th-232 Qual.*	Th-232 (pCi/g)	Th-232 Error	Th-232 MDA	U-235 Qual.*	U-235 (pCi/g)	U-235 Error	U-235 MDA	U-238 Qual.*	U-238 (pCi/g)	U-238 Error	U-238 MDA
SU8	GR	ITD00329		0.40	0.28	0.23	<	0.18	0.14	0.14	<	1.07	0.83	2.99
SU8	GR	ITD00330		1.41	0.61	0.15		0.47	0.21	0.29		6.22	2.29	5.41
SU8	GR	ITD00331		0.99	0.55	0.18		0.33	0.21	0.25		5.40	2.08	3.21
SU8	GR	ITD00332		1.02	0.50	0.14		1.42	0.26	0.29		26.06	3.84	4.82
SU8	GR	ITD00333		0.42	0.29	0.13		0.16	0.10	0.14	<	1.90	0.98	2.20
SU8	GR	ITD00334		1.13	0.52	0.14		0.72	0.21	0.27		11.86	2.25	4.94
SU8	GR	ITD00335		0.79	0.48	0.18		0.17	0.11	0.14	<	2.18	0.80	3.59
SU8	GR	ITD00336		0.87	0.44	0.13		0.88	0.19	0.21		16.14	2.34	3.88
SU8	GR	ITD00337		0.93	0.48	0.15		0.40	0.20	0.26		8.47	1.91	5.50
SU8	GR	ITD00338		0.95	0.48	0.27		0.23	0.14	0.18	<	3.24	1.17	3.50
SU8	GR	ITD00339		1.26	0.52	0.22		1.01	0.23	0.29		21.89	3.16	7.08
SU8	GR	ITD00340		0.79	0.41	0.24		0.32	0.15	0.19		4.90	1.30	3.55
SU8	GR	ITD00341		1.05	0.50	0.26		0.28	0.14	0.20		4.88	1.23	3.60
SU8	GR	ITD00342		0.97	0.48	0.26		0.84	0.23	0.30		12.73	2.61	4.88
SU8	GR	ITD00343		0.79	0.45	0.15	<	0.26	0.21	0.22		3.27	1.17	3.20
SU8	GR	ITD00344		1.10	0.46	0.11		1.91	0.33	0.38		31.94	4.80	7.41
SU8	GR	ITD00345		0.51	0.30	0.11		0.33	0.17	0.21		6.05	1.67	4.16
SU8	FD	ITD10345		0.51	0.32	0.13		0.71	0.21	0.24		12.07	2.01	4.95
SU8	SP	ITD20345		0.67	0.00	0.09		0.68	0.00	0.11		13.60	0.00	0.20
SU8	GR	ITD00346		1.45	0.55	0.21		0.71	0.25	0.32		12.89	2.53	6.09
SU8	GR	ITD00347		0.86	0.44	0.14		0.82	0.26	0.33		17.07	3.51	5.58
SU8	GR	ITD00C19		1.07	0.18	0.19		2.33	0.41	0.45		47.67	7.03	8.15
SU9	GR	ITD00348		1.30	0.51	0.11	<	0.21	0.25	0.26		6.07	2.01	4.87
SU9	GR	ITD00349		0.71	0.36	0.11		0.32	0.19	0.27		6.74	2.12	4.67
SU9	GR	ITD00350		0.74	0.38	0.12	<	0.28	0.20	0.25		5.01	1.78	3.82
SU9	GR	ITD00351		1.20	0.70	0.40		1.14	0.23	0.29		18.76	2.73	5.01
SU9	GR	ITD00352		0.58	0.39	0.27		0.39	0.20	0.30		7.94	2.66	4.89
SU9	GR	ITD00353		0.81	0.47	0.27	<	0.10	0.15	0.26		5.10	2.08	5.00
SU9	GR	ITD00354		0.98	0.55	0.30		0.35	0.16	0.25		4.56	1.76	4.36
SU9	GR	ITD00355		0.37	0.34	0.20		0.78	0.33	0.30		6.30	2.30	5.24
SU9	GR	ITD00356		2.08	0.90	0.20	<	0.28	0.24	0.34		6.47	2.79	5.96
SU9	FD	ITD10356		1.08	0.56	0.17		0.44	0.16	0.28		6.36	2.06	3.80
SU9	SP	ITD20356		0.83	0.00	0.09		0.28	0.00	0.11		3.22	0.00	0.18
SU9	GR	ITD00357	<	0.45	0.35	0.18		0.44	0.23	0.29	<	4.55	2.26	4.74
SU9	GR	ITD00358	<	0.09	0.22	0.50	<	0.06	0.09	0.15	<	2.12	1.10	2.91
SU9	GR	ITD00359		0.46	0.34	0.16		0.31	0.12	0.17	<	3.00	1.79	4.29
SU9	GR	ITD00360		0.32	0.27	0.15	<	0.06	0.09	0.15	<	0.72	1.32	2.62
SU9	GR	ITD00361		0.92	0.52	0.18	<	0.12	0.17	0.24		3.76	1.55	3.16
SU9	GR	ITD00362		0.50	0.39	0.19	<	0.12	0.12	0.16	<	1.79	0.99	2.67
SU9	GR	ITD00363		0.49	0.39	0.33	<	0.17	0.14	0.23	<	3.07	2.07	4.75
SU9	GR	ITD00364	<	0.32	0.34	0.39	<	0.17	0.20	0.25	<	2.26	1.70	3.78

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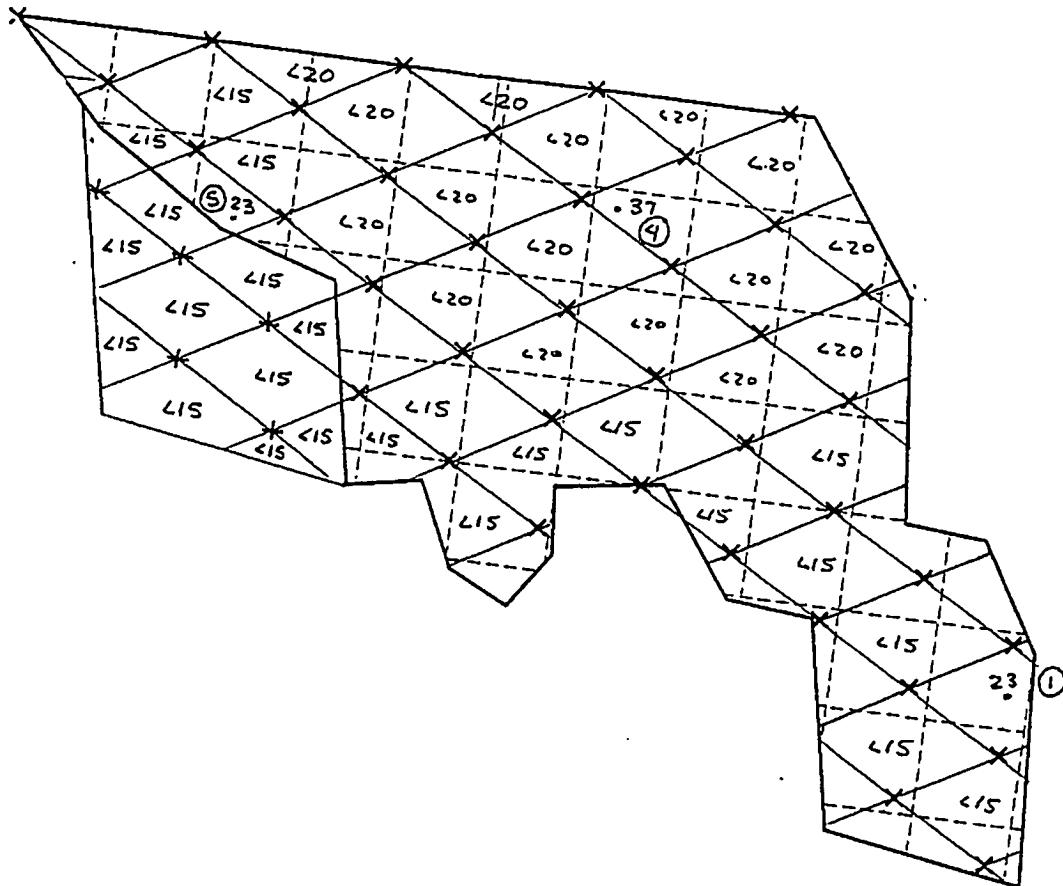
Area	Sample Type	Sample ID	Th-232 Qual.*	Th-232 (pCi/g)	Th-232 Error	Th-232 MDA	U-235 Qual.*	U-235 (pCi/g)	U-235 Error	U-235 MDA	U-238 Qual.*	U-238 (pCi/g)	U-238 Error	U-238 MDA
SU9	GR	ITD00365		1.30	0.65	0.32		0.52	0.26	0.33		5.74	2.68	5.44
SU9	GR	ITD00366		0.31	0.30	0.30	<	0.15	0.28	0.36		4.55	2.36	4.09
SU9	GR	ITD00367		0.58	0.42	0.20		0.21	0.13	0.19		4.51	1.61	2.98
SU9	GR	ITD00D20		1.80	0.71	0.28		3.02	1.02	1.17		60.36	12.55	20.00
SU9	GR	ITD00D21		0.91	0.46	0.14		0.50	0.22	0.31	<	4.70	1.94	5.03
SU10	GR	ITD00368		0.71	0.41	0.15	<	0.09	0.10	0.15	<	0.85	0.78	3.34
SU10	FD	ITD10368		2.01	0.80	0.31	<	0.01	0.09	0.14	<	1.36	0.73	3.06
SU10	SP	ITD20368		0.67	0.00	0.04	<	-0.10	0.00	0.16	<	0.75	0.00	0.48
SU10	GR	ITD00369		0.55	0.36	0.26	<	0.08	0.11	0.14	<	0.89	0.77	2.76
SU10	GR	ITD00370		0.65	0.39	0.31	<	0.01	0.07	0.12	<	0.96	0.63	2.42
SU10	GR	ITD00371		0.38	0.32	0.17		0.16	0.08	0.09	<	0.32	0.44	2.09
SU10	GR	ITD00372		1.23	0.60	0.17	<	0.13	0.11	0.17	<	1.72	1.08	3.93
SU10	GR	ITD00373		0.80	0.42	0.13	<	0.13	0.13	0.16	<	1.38	0.84	3.88
SU10	GR	ITD00374		1.18	0.60	0.18	<	0.16	0.13	0.17	<	2.76	0.99	3.11
SU10	GR	ITD00375		0.54	0.36	0.28	<	0.04	0.08	0.11	<	0.60	0.55	2.39
SU10	GR	ITD00376		1.34	0.56	0.13	<	0.12	0.10	0.17	<	1.54	0.81	3.16
SU10	GR	ITD00377		0.73	0.40	0.13	<	0.10	0.10	0.15	<	1.70	0.87	3.27
SU10	GR	ITD00378		1.36	0.59	0.15	<	0.02	0.08	0.14	<	0.77	0.70	3.25
SU10	GR	ITD00379		1.23	0.63	0.35	<	0.15	0.14	0.17	<	2.02	0.82	3.54
SU10	GR	ITD00380		0.78	0.50	0.19	<	0.06	0.09	0.15	<	0.91	0.78	3.43
SU10	GR	ITD00381		0.86	0.56	0.37	<	0.06	0.14	0.18	<	2.01	0.96	4.26
SU10	GR	ITD00382		1.09	0.63	0.37		0.21	0.18	0.17	<	1.60	0.85	3.70
SU10	GR	ITD00383		0.97	0.57	0.39	<	0.10	0.12	0.17	<	0.48	0.98	4.15
SU10	GR	ITD00384		1.72	0.92	0.27	<	0.05	0.10	0.17	<	1.02	0.84	2.99
SU10	GR	ITD00385		1.28	0.67	0.20	<	0.07	0.16	0.16	<	0.82	0.86	4.04
SU10	GR	ITD00386		1.94	0.84	0.19	<	0.05	0.09	0.16	<	1.04	0.84	4.06
SU10	GR	ITD00387	<	0.28	0.29	0.19	<	0.07	0.10	0.15	<	1.68	0.78	2.54
SU10	GR	ITD00388		1.15	0.63	0.34	<	0.14	0.14	0.17	<	0.81	0.91	4.19
SU10	GR	ITD00389		1.10	0.63	0.21		0.18	0.14	0.17	<	2.92	1.02	3.99
SU10	GR	ITD00390		0.92	0.55	0.19	<	0.10	0.11	0.19	<	2.63	0.97	3.49
SU10	GR	ITD00391		0.88	0.56	0.22	<	0.01	0.09	0.15	<	0.97	0.87	3.05
SU10	GR	ITD00392		1.12	0.73	0.48	<	0.19	0.17	0.22	<	2.73	1.05	4.23
SU10	GR	ITD00393		1.29	0.64	0.18	<	0.13	0.12	0.19	<	2.68	1.45	2.95
SU10	GR	ITD00394		1.09	0.56	0.31		0.50	0.16	0.21		11.08	2.43	3.93
SU10	GR	ITD00395		0.70	0.44	0.30		0.56	0.13	0.20		8.86	2.15	3.59
SU10	GR	ITD00396		1.03	0.48	0.29	<	0.12	0.18	0.23	<	2.13	1.65	4.20
SU10	GR	ITD00397		1.30	0.63	0.18	<	0.15	0.17	0.20	<	2.73	1.64	3.12
SU10	GR	ITD00398		1.52	0.71	0.19		0.34	0.20	0.27	<	3.95	2.20	4.95
SU10	GR	ITD00399		1.24	0.53	0.13	<	0.01	0.10	0.17	<	0.54	1.17	3.44
SU10	GR	ITD00400		0.69	0.40	0.14		0.82	0.15	0.18		17.11	2.33	2.84
SU10	GR	ITD00401		0.40	0.32	0.30	<	0.10	0.11	0.14	<	2.03	1.02	2.28

Attachment B-2. City Property Final Status Survey Data

Area	Sample	Sample ID	Th-232 Qual.*	Th-232 (pCi/g)	Th-232 Error	Th-232 MDA	U-235 Qual.*	U-235 (pCi/g)	U-235 Error	U-235 MDA	U-238 Qual.*	U-238 (pCi/g)	U-238 Error	U-238 MDA
SU10	GR	ITD00402		1.06	0.51	0.14	<	0.09	0.12	0.20	<	1.98	1.73	3.84
SU10	FD	ITD10402		1.12	0.54	0.15	<	0.08	0.19	0.20	<	1.04	1.43	3.81
SU10	SP	ITD20402		1.00	0.00	0.14	<	-0.06	0.00	0.12		0.45	0.00	0.23
SU10	GR	ITD00403		1.54	0.67	0.16		0.48	0.21	0.30		7.48	2.16	4.28
SU10	GR	ITD00404		1.20	0.60	0.32	<	0.09	0.16	0.26	<	2.51	1.67	4.72
SU10	GR	ITD00426		1.22	0.54	0.14		0.21	0.16	0.19	<	0.62	1.23	3.36
SU10	GR	ITD00427		1.20	0.55	0.15		0.51	0.16	0.21		7.19	1.86	3.25
SU10	GR	ITD00428		0.47	0.32	0.14		0.29	0.17	0.21		5.22	1.64	2.98
SU10	GR	ITD00429		1.01	0.50	0.14		0.26	0.13	0.20		5.18	1.55	2.83
SU10	FD	ITD10429		1.16	0.53	0.14		0.30	0.14	0.17		4.82	1.49	2.60
SU10	SP	ITD20429		0.79	0.00	0.06	<	0.14	0.00	0.17		3.91	0.00	0.31
SU10 Sub	GR	ITD0A368		1.05	0.54	0.17	<	0.05	0.12	0.20	<	1.14	1.45	4.03
SU10 Sub	FD	ITD1A368		0.74	0.41	0.14	<	0.02	0.10	0.17	<	0.58	1.39	3.63
SU10 Sub	SP	ITD2A368		0.86	0.00	0.08	<	0.00	0.00	0.13		0.74	0.00	0.23
SU10 Sub	GR	ITD0A371		0.99	0.55	0.18	<	0.16	0.14	0.21	<	1.59	1.70	3.80
SU10 Sub	GR	ITD0A374		1.13	0.54	0.15	<	0.32	0.22	0.33	<	3.37	2.39	5.31
SU10 Sub	GR	ITD0A377		0.85	0.50	0.18	<	0.13	0.15	0.20		4.64	1.94	3.97
SU10 Sub	GR	ITD0A380		1.31	0.58	0.15	<	0.11	0.22	0.28	<	2.67	2.71	5.41
SU10 Sub	GR	ITD0A383		0.62	0.41	0.17	<	0.02	0.14	0.23	<	2.36	1.49	4.48
SU10 Sub	GR	ITD0A386		0.77	0.47	0.17		0.21	0.11	0.15	<	1.40	1.15	3.18
SU10 Sub	GR	ITD0A389		1.24	0.60	0.17		0.58	0.30	0.34	<	4.47	2.47	5.66
SU10 Sub	GR	ITD0A392		1.49	0.60	0.13	<	0.21	0.18	0.26	<	3.25	2.14	4.10
SU10 Sub	GR	ITD0A395		1.90	0.84	0.20		0.59	0.25	0.29		9.81	3.15	4.99
SU10 Sub	GR	ITD0A398		0.85	0.53	0.36		0.25	0.16	0.24	<	1.47	1.42	4.13
SU10 Sub	GR	ITD0A401		0.71	0.40	0.14	<	0.21	0.21	0.27	<	3.44	2.01	4.17
SU10 Sub	GR	ITD0A402		1.35	0.58	0.14	<	0.25	0.19	0.28		7.57	2.76	4.62
SU10 Sub	FD	ITD1A402		1.04	0.47	0.23		0.44	0.25	0.31	<	3.78	2.73	5.60
SU10 Sub	SP	ITD2A402		1.23	0.00	0.09	<	0.08	0.00	0.18		2.14	0.00	0.39
SU10 Sub	GR	ITD0A426		0.85	0.43	0.13	<	0.16	0.17	0.23	<	1.72	1.54	4.01
SU10 Sub	GR	ITD0A427		0.62	0.39	0.15	<	0.12	0.16	0.22		3.99	1.64	3.88
SU10 Sub	GR	ITD0A428		1.05	0.49	0.14		0.43	0.15	0.23		7.70	2.00	3.80
SU10 Sub	GR	ITD0A429		1.89	0.71	0.14	<	0.16	0.21	0.24	<	3.93	2.51	4.31
SU10 Sub	FD	ITD1A429		1.57	0.67	0.16		0.26	0.20	0.23	<	3.31	1.86	3.74
SU10 Sub	SP	ITD2A429		1.18	0.00	0.12	<	0.00	0.00	0.16		1.51	0.00	0.24

* < indicates analyte was not detected in the sample

ATTACHMENT B-3
GAMMA WALKOVER SURVEY MAPS



Meter Model#:	<u>2221</u>	Detector Model#:	<u>44-10</u>
Meter Serial#:	<u>149935</u>	Detector Serial#:	<u>150647</u>
Calibration Due:	<u>7-25-99</u>	Calibration Due:	<u>5-26-99</u>
Survey Date/Time:	<u>19/28/98 0800</u>	Field BKG.:	<u>10,000 ~15,000</u>
Surveyor(s):	<u>J. Scott</u>		
Comments:	<u>2 FIELD BACKGROUNDS #1 = 10,000</u>		
	<u>BKG #2 = 15,000 ALL LEVELS 1.5 X Relevant</u>		
	<u>BACKGROUND NOTED</u>		

NOTES:

All distances are in meters.



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International Corporation

St. Louis Downtown Site
City Property Area A1 SU 1
St. Louis, Missouri

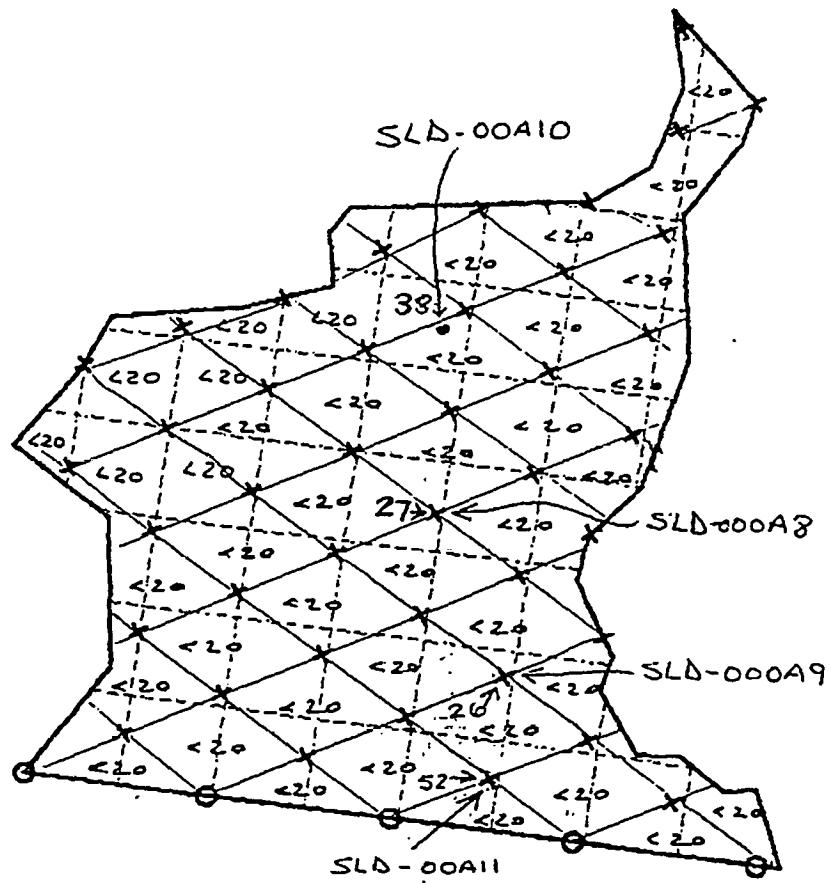
DRAWN BY: S. Kichings	REV. NO./DATE: 0 - 10/22/98	CAD FILE: SLSCPAISU1
--------------------------	--------------------------------	-------------------------

Figure 11. Walkover Survey Results – SU1

FROM :

PHONE NO. :

Oct. 28 1998 12:44PM P2



Meter Model#:	<u>2221</u>	Detector Model#:	<u>44-10</u>
Meter Serial#:	<u>149935</u>	Detector Serial#:	<u>150647</u>
Calibration Due:	<u>7-25-99</u>	Calibration Due:	<u>5-26-99</u>
Survey Date/Time:	<u>10-29-98</u>		
Field Bkgd: <u>18,000</u>			
Surveyor(s): <u>Aaron Martinez / Joe Scott</u>			
Comments: <u>UNLESS OTHERWISE NOTED ALL AREAS LESS THAN 20,000 CPM</u>			

NOTES: City Property A1-2

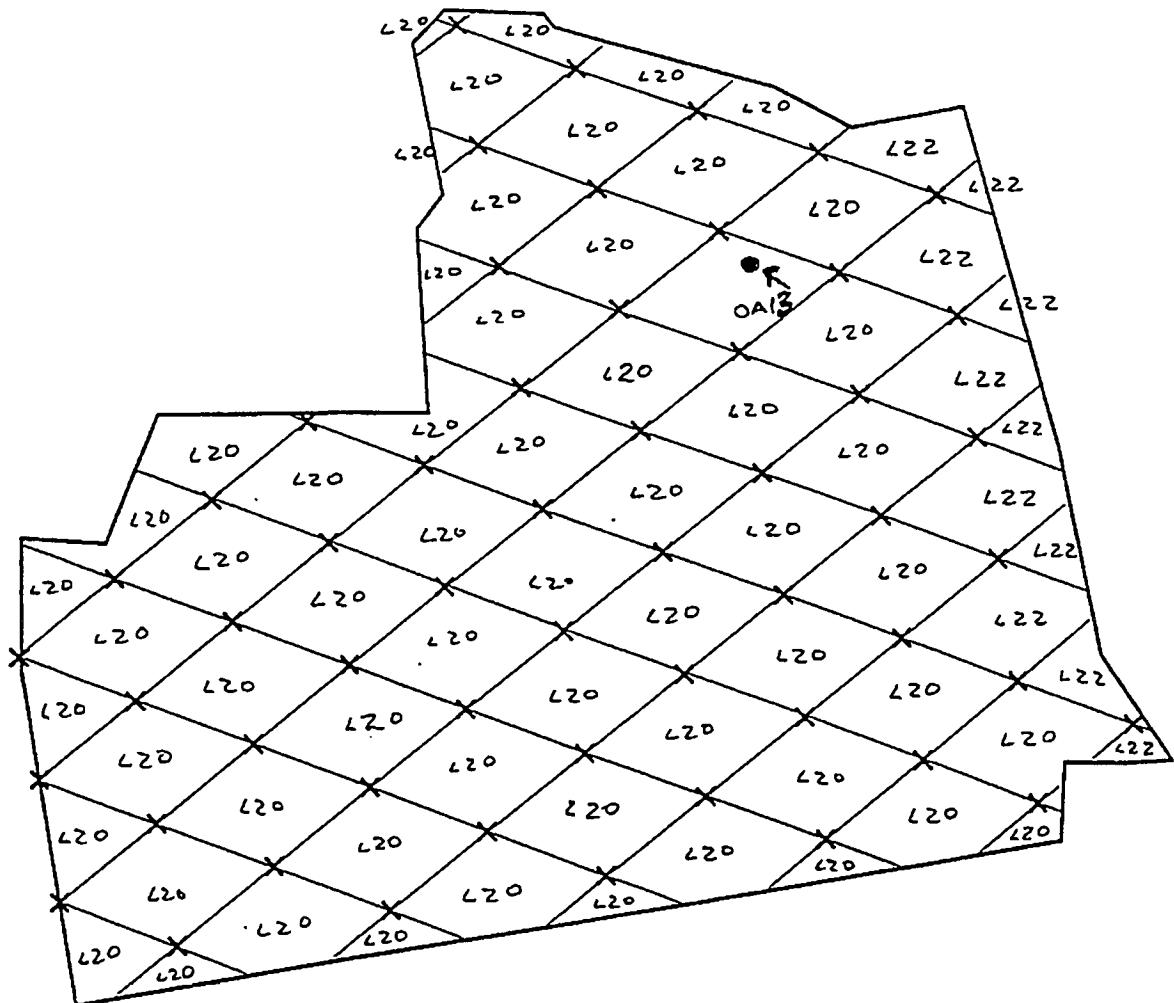
Approximate area is 1000.44 m²

() Sample collected as part of survey unit 1 (SU 1)

Science Applications
International CorporationSt. Louis Downtown Site
City Property Area A2 SU 2
St. Louis, Missouri

DRAWN BY: S. Kleckner REV. NO./DATE: 0 - 10/28/98 CAD FILE: SLDSOMAP2012

Figure 12. Walkover Survey Results – SU2



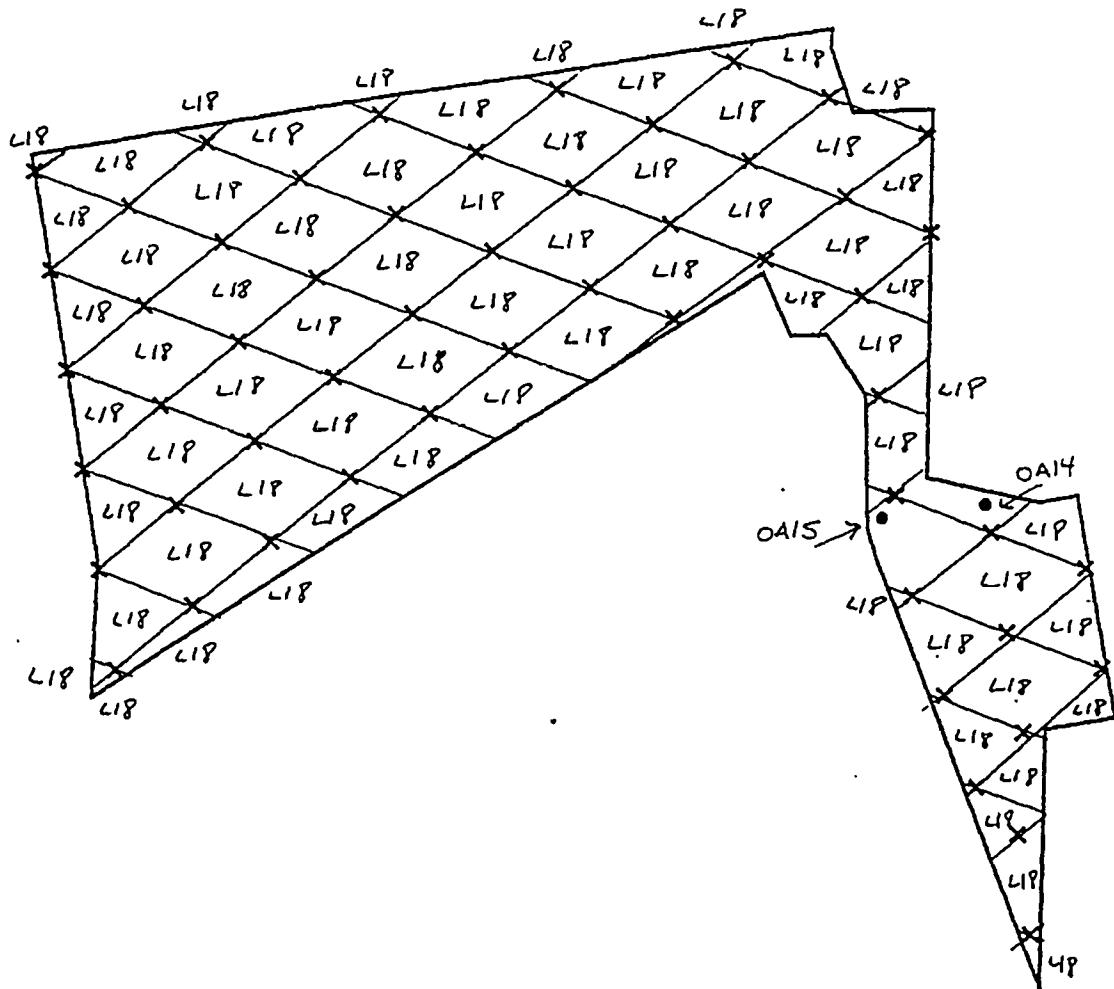
Meter Model#:	<u>2221</u>	Detector Model#:	<u>Y4-10</u>
Meter Serial#:	<u>149945</u>	Detector Serial#:	<u>PRI03835</u>
Calibration Due:	<u>7-17-99</u>	Calibration Due:	<u>10-12-99</u>
Survey Date/time:	<u>11-11-98 / 1430</u>	Field BKG.:	<u>18,000</u>
Surveyor(s):	<u>Antonio Martinez / Eric Caldwell</u>		
Comments:	<hr/> <hr/> <hr/>		

NOTES:

Approximate area is 1497.51 m sq

 Science Applications International Corporation		
St. Louis Downtown Site City Property Area B1 SU 1 St. Louis, Missouri		
DRAWN BY: <u>S. Kitchens</u>	REV. NO./DATE: <u>0 - 11/9/98</u>	CAD FILE: <u>SUDSP001SUV1</u>

Figure 13. Walkover Survey Results – SU3



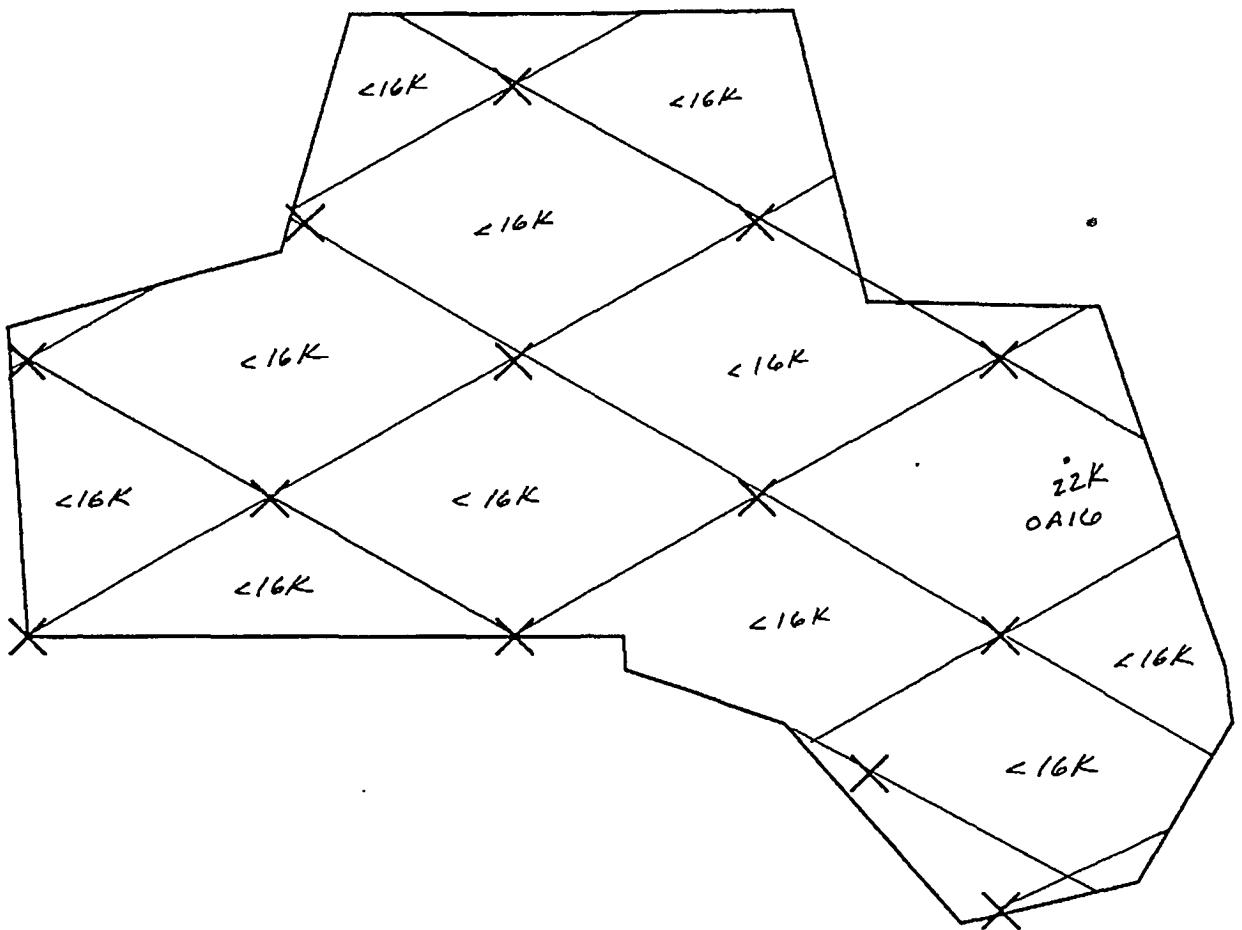
Meter Model#:	<u>Z221</u>	Detector Model#:	<u>44-10</u>
Meter Serial#:	<u>149945</u>	Detector Serial#:	<u>PR103835</u>
Calibration Due:	<u>7-17-99</u>	Calibration Due:	<u>10-12-99</u>
Survey Date/Time:	<u>11-11-98 / 1400</u>	Field BKG.:	<u>16,000</u>
Surveyor(s):	<u>ANTONIO MARTINEZ / ERIC CALOWELL</u>		
Comments:	<hr/> <hr/> <hr/>		

NOTES:

Approximate area is 1212.94 m sq

 Science Applications International Corporation		
St. Louis Downtown Site City Property Area B2 SU 2 St. Louis, Missouri		
DRAWS BY: S. Kichings	REV. NO./DATE: 0 - 11/9/98	CAD FILE: SL0SCP022SU2

Figure 14. Walkover Survey Results – SU4



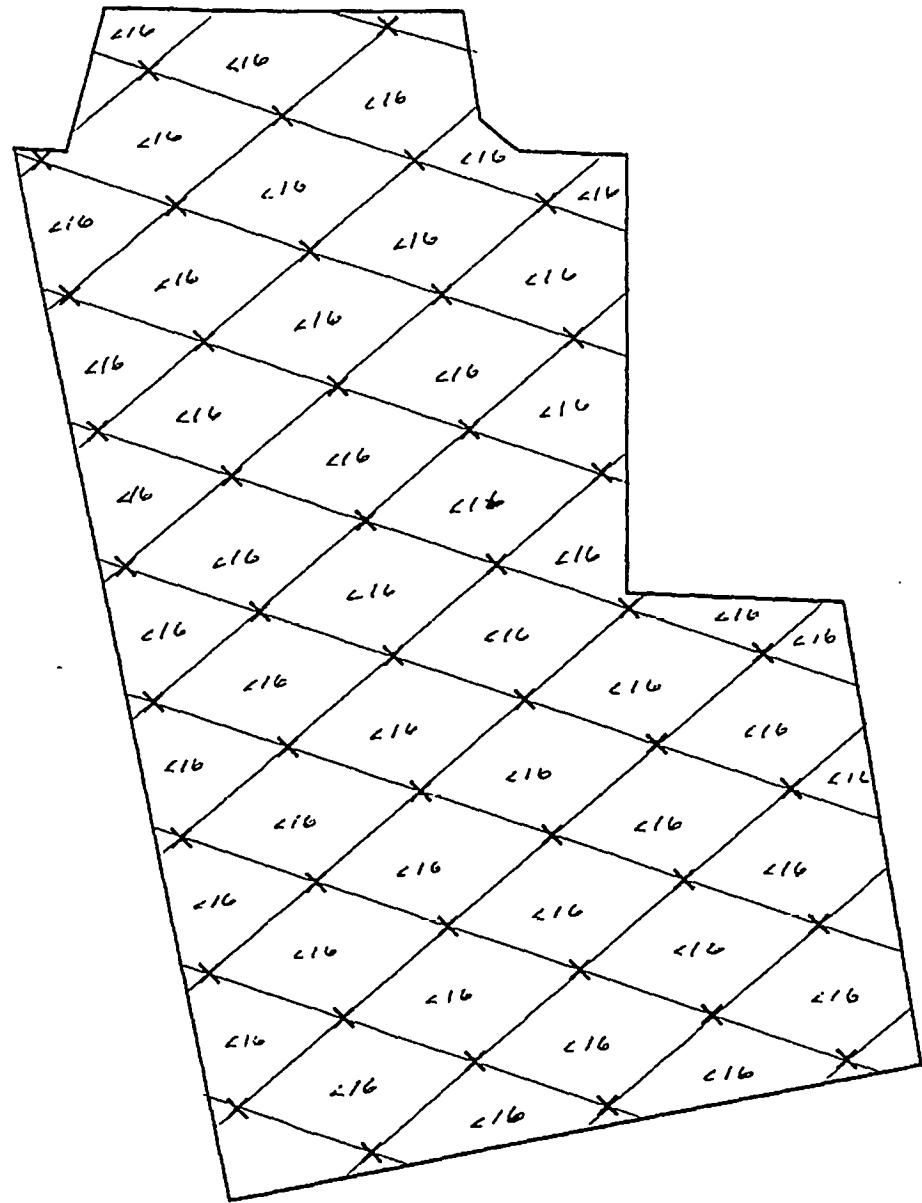
Meter Model#:	<u>Z2Z1</u>	Detector Model#:	<u>44-10</u>
Meter Serial#:	<u>149935</u>	Detector Serial#:	<u>150647</u>
Calibration Due:	<u>7-25-99</u>	Calibration Due:	<u>5-26-99</u>
Survey Date/Time:	<u>11-18-98</u>	Field BKG.:	<u>14,000</u>
Surveyor(s):	<u>Eric Caldwell ERIC CALDWELL</u>		
Comments:	<u>ONE HOT SPOT AT 22,000. THE REST OF THE AREA IS LESS THAN 2000 ABOVE BACKGROUND.</u>		

NOTES:

Approximate area is 215.65 m sq

 Science Applications International Corporation		
St. Louis Downtown Site City Property Area E SU 5 St. Louis, Missouri		
DRAWN BY: S. Kichings	REV. NO./DATE: 0 - 11/11/98	CAD FILE: SLSCPESUS

Figure 15. Walkover Survey Results – SU5



Meter Model#:	<u>2221</u>	Detector Model#:	<u>44-10</u>
Meter Serial#:	<u>149935</u>	Detector Serial#:	<u>PR150647</u>
Calibration Due:	<u>22 JULY 99</u>	Calibration Due:	<u>5-26-99</u>
Survey Date/Time:	<u>11-20-98</u>	Field BKG.:	<u>14,000</u>
Surveyor(s):	<u>ERIC CALOWELL</u>		
Comments:	<hr/> <hr/> <hr/>		

NOTES: _____

Approximate area is 1161.81 m sq

 Science Applications International Corporation		
St. Louis Downtown Site City Property Area C1 SU 7 St. Louis, Missouri		
DRAWN BY:	REV. NO./DATE:	CAD FILE:
S. Kitchens	0 - 11/21/98	SLSDSPC1SU7

Figure 16. Walkover Survey Results – SU6

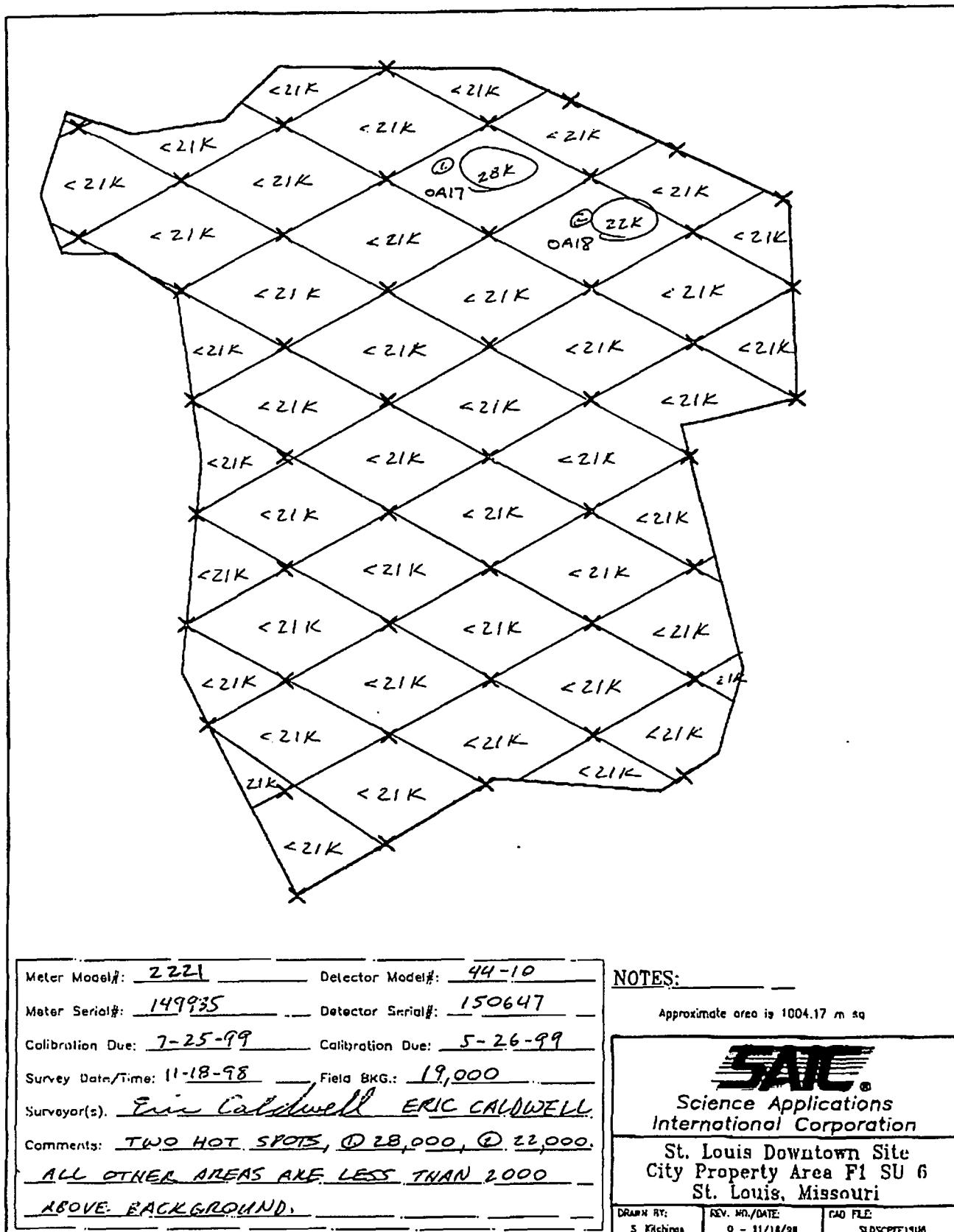
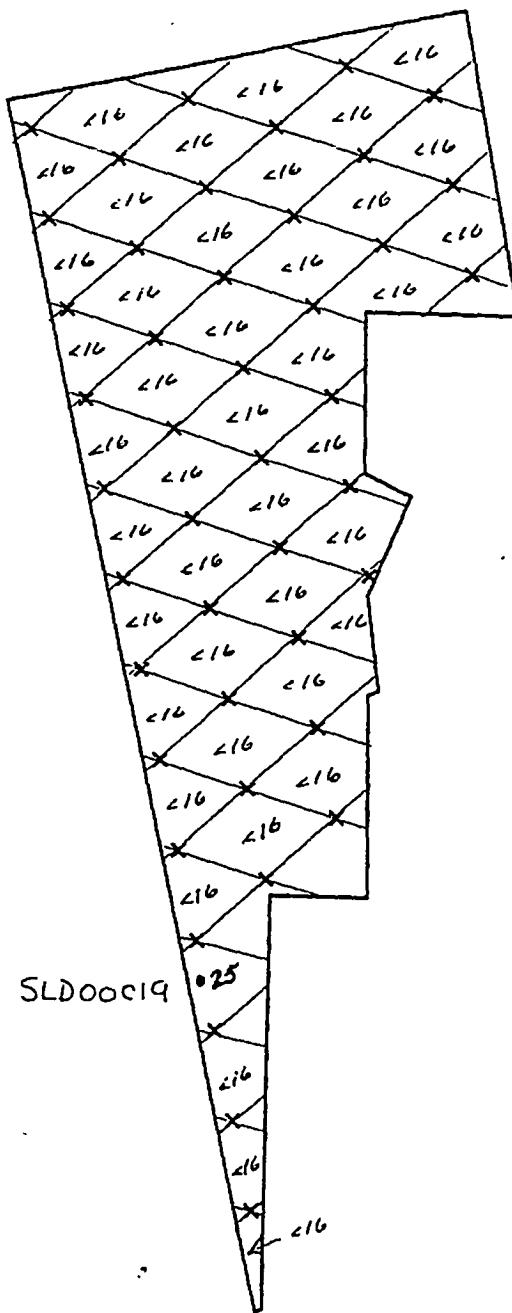


Figure 17. Walkover Survey Results – SU7



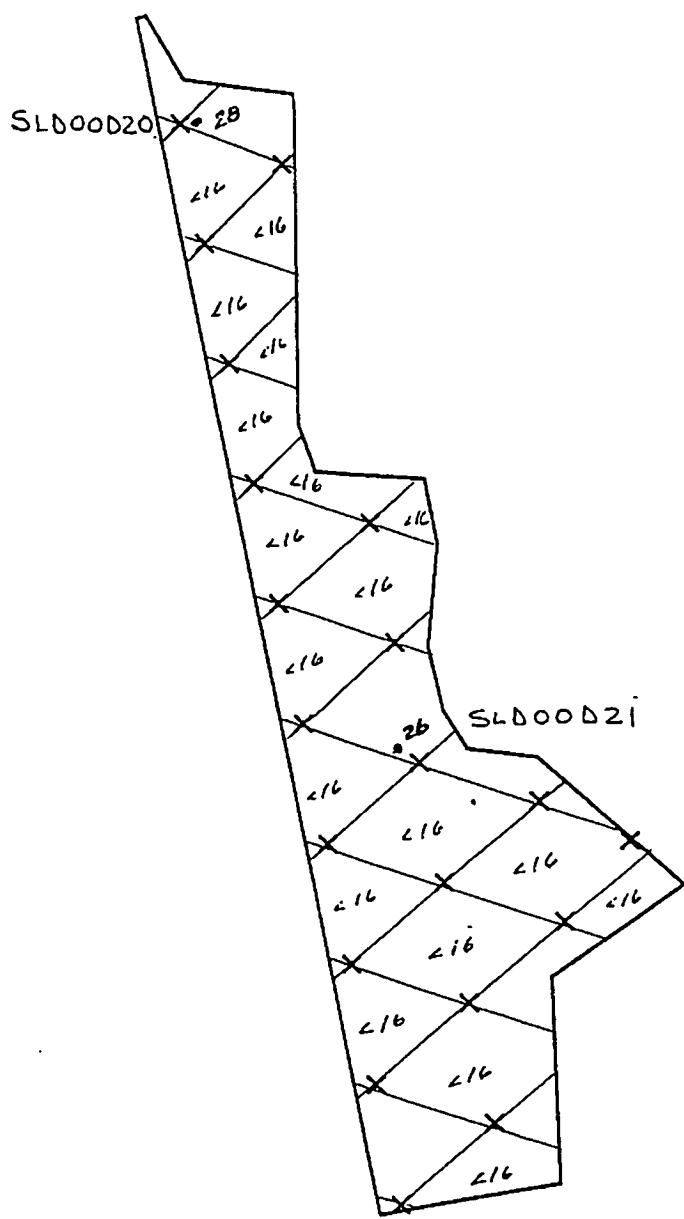
Meter Model#:	<u>2221</u>	Detector Model#:	<u>YY-10</u>
Meter Serial#:	<u>149935</u>	Detector Serial#:	<u>PR150647</u>
Calibration Due:	<u>22 JULY 99</u>	Calibration Due:	<u>5-26-99</u>
Survey Date/Time:	<u>11-20-98</u>	Field BKG.:	<u>14,000</u>
Surveyor(s):	<u>ERIC CALDWELL</u>		
Comments:	<hr/> <hr/> <hr/>		

NOTES:

Approximate area is 1119.05 m sq

 Science Applications International Corporation		
St. Louis Downtown Site City Property Area C2 SU 8 St. Louis, Missouri		
DRAWN BY: S. Kitchings	REV. NO./DATE: 0 - 11/22/98	CAD FILE: SLDSCPC2SU8

Figure 18. Walkover Survey Results – SU8



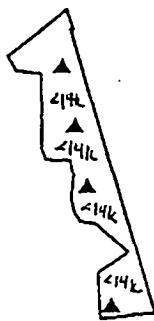
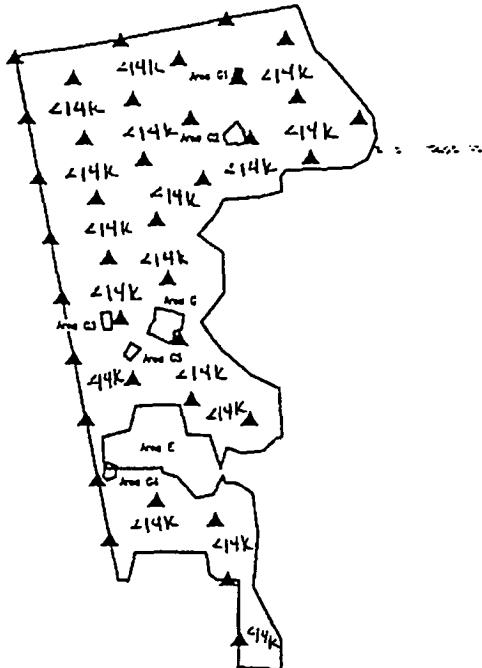
Meter Model#:	<u>2221</u>	Detector Model#:	<u>44-10</u>
Meter Serial#:	<u>149935</u>	Detector Serial#:	<u>PR150647</u>
Calibration Due:	<u>22 JULY 99</u>	Calibration Due:	<u>5-26-99</u>
Survey Date/Time:	<u>11-23-99 / 1200</u>	Field BKG.:	<u>14,000 CPM</u>
Surveyor(s):	<u>ANTONIO MARTINEZ / ERIC CALDWELL</u>		
Comments:	<hr/> <hr/>		

NOTES: _____

Approximate area is 434.69 m²

 Science Applications International Corporation		
St. Louis Downtown Site City Property Area D SU 9 St. Louis, Missouri		
DRAWN BY: S. Kitchings	REV. NO./DATE: 0 - 11/22/98	CAD FILE: SL0SCPOSU9

Figure 19. Walkover Survey Results – SU9



DRAFT

Meter Model#:	2221	Detector Model#:	44-10
Meter Serial#:	149935	Detector Serial#:	150647
Calibration Due:	1/25/99	Calibration Due:	5/26/99
Survey Date/Time:	12/10/98	Field BKG.:	12,000 cpm
Surveyor(s):	ERIC CALDWELL, DAVE LYERLA		
Comments:	All areas < 2000 cpm above background		

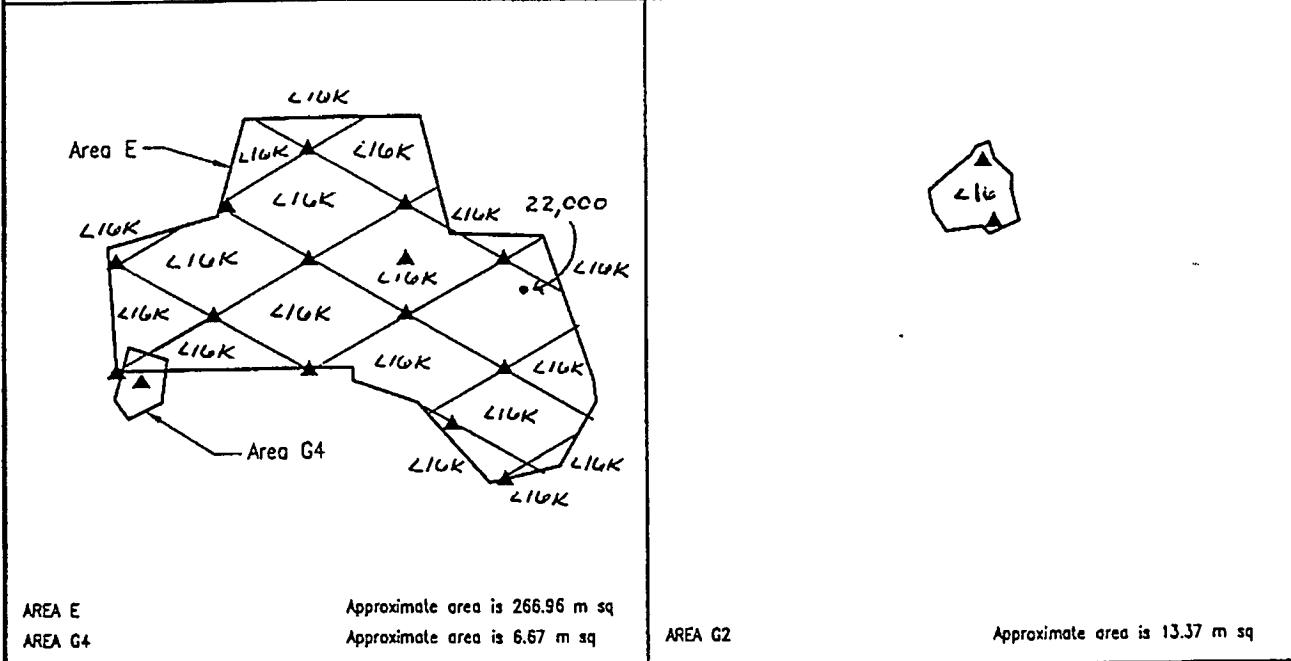
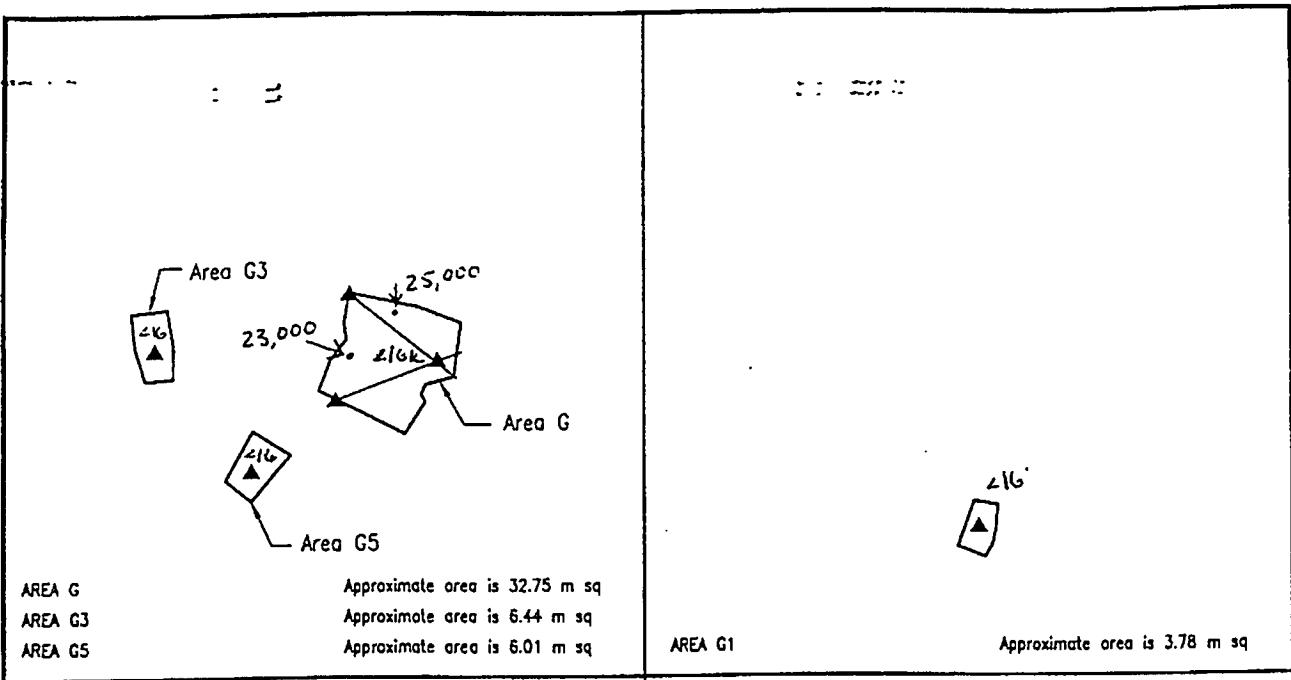


Science Applications
International Corporation

St. Louis Downtown Site
City Property Survey Unit 10
St. Louis, Missouri

DRAWN BY: S. Kitchens	REV. NO./DATE: 0 - 8/24/98	CAD FILE: SLDPS10R00
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Figure 20. Walkover Survey Results – SU 10



Meter Model#:	<u>2221</u>	Detector Model#:	<u>44-1C</u>	NOTES:
Meter Serial#:	<u>149935</u>	Detector Serial#:	<u>150647</u>	
Calibration Due:	<u>7/25/99</u>	Calibration Due:	<u>5/26/99</u>	
Survey Date/Time:	<u>11/13/98 / 14/11/98</u>	Field BKG.:	<u>14,000</u>	
Surveyor(s):	<u>ERIC CALDWELL</u>			
Comments:	<u>3 AREAS LOCATED WITH COUNTS > 2000 cpm ABOVE BACKGROUND. AREAS SAMPLED / INVESTIGATED. ALL OTHER AREAS < 2000 cpm ABOVE BACKGROUND!</u>			

Figure 21. Walkover Survey Results – Area G

ATTACHMENT B-4

WILCOXON RANK SUM TEST INPUT 1 RESULTS

Attachment B-4. Wilcoxon Rank Sum Test Input/Results

Survey Unit 1

DCGL_w = 1.0 Cleanup goal
 alpha = 0.050 Type I error required by DQOs
 n = 46 Number of survey unit sample
 m = 32 Number of reference area samples

Result = **PASS** Critical Value = 1426
 Sum of Reference Area Ranks = 2002

Sample ID	SOR	Area	Adjusted SOR	Rank	Reference Area Ranks
SLD00001	0.245	R	1.245	56	56
SLD00002	0.246	R	1.246	57	57
SLD00022	0.298	R	1.298	66	66
SLD00023	0.292	R	1.292	64	64
SLD00041	0.272	R	1.272	63	63
SLD00042	0.309	R	1.309	69	69
SLD00043	0.314	R	1.314	70	70
SLD00044	0.337	R	1.337	73	73
SLD00061	0.332	R	1.332	72	72
SLD00062	0.297	R	1.297	65	65
SLD00063	0.224	R	1.224	51	51
SLD00081	0.270	R	1.270	62	62
SLD00082	0.304	R	1.304	68	68
SLD00083	0.226	R	1.226	52	52
SLD00101	0.405	R	1.405	76	76
SLD00102	0.380	R	1.380	75	75
SLD00103	0.300	R	1.300	67	67
SLD00121	0.347	R	1.347	74	74
SLD00122	0.264	R	1.264	60	60
SLD00123	0.325	R	1.325	71	71
SLD00141	0.544	R	1.544	79	79
SLD00142	0.491	R	1.491	78	78
SLD00143	0.242	R	1.242	54	54
SLD00144	0.252	R	1.252	58	58
SLD00161	0.194	R	1.194	47	47
SLD00162	0.227	R	1.227	53	53
SLD00181	0.220	R	1.220	50	50
SLD00201	0.255	R	1.255	59	59
SLD00202	0.265	R	1.265	61	61
SLD00241	0.201	R	1.201	48	48
SLD00242	0.244	R	1.244	55	55
SLD00243	0.209	R	1.209	49	49
SLD001	0.133	S	0.133	1	0
SLD002	0.410	S	0.410	23	0
SLD003	0.202	S	0.202	2	0
SLD005	0.344	S	0.344	16	0
SLD006	0.295	S	0.295	11	0
SLD007	0.221	S	0.221	4	0
SLD008	0.626	S	0.626	40	0
SLD010	0.390	S	0.390	21	0
SLD011	0.536	S	0.536	31	0
SLD013	0.537	S	0.537	32	0
SLD014	0.235	S	0.235	5	0
SLD015	0.429	S	0.429	25	0
SLD018	0.261	S	0.261	7	0
SLD019	0.678	S	0.678	42	0
SLD021	0.352	S	0.352	17	0

Attachment B-4. Wilcoxon Rank Sum Test Input/Results

Sample ID	SOR	Area	Adjusted SOR	Rank	Reference Area Ranks
SLD024	0.294	S	0.294	10	0
SLD025	0.221	S	0.221	3	0
SLD026	0.476	S	0.476	28	0
SLD027	0.360	S	0.360	19	0
SLD028	0.607	S	0.607	38	0
SLD029	0.506	S	0.506	29	0
SLD030	0.621	S	0.621	39	0
SLD031	0.594	S	0.594	35	0
SLD032	0.770	S	0.770	44	0
SLD033	0.509	S	0.509	30	0
SLD034	0.443	S	0.443	26	0
SLD035	0.693	S	0.693	43	0
SLD036	0.906	S	0.906	46	0
SLD038	1.408	S	1.408	77	0
SLD039	0.339	S	0.339	14	0
SLD040	0.368	S	0.368	20	0
SLD041	0.263	S	0.263	9	0
SLD042	0.303	S	0.303	12	0
SLD043	0.261	S	0.261	8	0
SLD209	0.591	S	0.591	34	0
SLD210	0.449	S	0.449	27	0
SLD211	0.359	S	0.359	18	0
SLD212	0.339	S	0.339	15	0
SLD214	0.402	S	0.402	22	0
SLD215	0.418	S	0.418	24	0
SLD216	0.606	S	0.606	37	0
SLD217	0.606	S	0.606	36	0
SLD218	0.252	S	0.252	6	0
SLD219	0.663	S	0.663	41	0
SLD220	0.313	S	0.313	13	0
SLD221	0.584	S	0.584	33	0
SLD37C	0.875	S	0.875	45	0

Attachment B-4. Wilcoxon Rank Sum Test Input/Results

Survey Unit 2

DCGL_w = 1.0 Cleanup goal
 alpha = 0.050 Type 1 error required by DQOs
 n = 42 Number of survey unit sample
 m = 32 Number of reference area samples

Result = **PASS** Critical Value = 1426
 Sum of Reference Area Ranks = 1844

Sample ID	SOR	Area	Adjusted SOR	Rank	Reference Area Ranks
SLD00001	0.245	R	1.245	51	51
SLD00002	0.246	R	1.246	52	52
SLD00022	0.298	R	1.298	61	61
SLD00023	0.292	R	1.292	59	59
SLD00041	0.272	R	1.272	58	58
SLD00042	0.309	R	1.309	64	64
SLD00043	0.314	R	1.314	65	65
SLD00044	0.337	R	1.337	68	68
SLD00061	0.332	R	1.332	67	67
SLD00062	0.297	R	1.297	60	60
SLD00063	0.224	R	1.224	46	46
SLD00081	0.270	R	1.270	57	57
SLD00082	0.304	R	1.304	63	63
SLD00083	0.226	R	1.226	47	47
SLD00101	0.405	R	1.405	72	72
SLD00102	0.380	R	1.380	71	71
SLD00103	0.300	R	1.300	62	62
SLD00121	0.347	R	1.347	69	69
SLD00122	0.264	R	1.264	55	55
SLD00123	0.325	R	1.325	66	66
SLD00141	0.544	R	1.544	74	74
SLD00142	0.491	R	1.491	73	73
SLD00143	0.242	R	1.242	49	49
SLD00144	0.252	R	1.252	53	53
SLD00161	0.194	R	1.194	42	42
SLD00162	0.227	R	1.227	48	48
SLD00181	0.220	R	1.220	45	45
SLD00201	0.255	R	1.255	54	54
SLD00202	0.265	R	1.265	56	56
SLD00241	0.201	R	1.201	43	43
SLD00242	0.244	R	1.244	50	50
SLD00243	0.209	R	1.209	44	44
SLD044	0.312	S	0.312	19	0
SLD045	0.231	S	0.231	10	0
SLD048	0.435	S	0.435	26	0
SLD049	0.274	S	0.274	13	0
SLD050	0.551	S	0.551	36	0
SLD051	0.314	S	0.314	20	0
SLD052	0.203	S	0.203	15	0
SLD053	0.434	S	0.434	25	0
SLD054	0.318	S	0.318	22	0
SLD055	0.301	S	0.301	17	0
SLD056	0.455	S	0.455	29	0
SLD057	0.220	S	0.220	8	0
SLD058	0.276	S	0.276	14	0
SLD059	0.612	S	0.612	37	0
SLD060	0.505	S	0.505	34	0

Attachment B-4. Wilcoxon Rank Sum Test Input/Results

Sample ID	SOR	Area	Adjusted SOR	Rank	Reference Area Ranks
SLD061	0.305	S	0.305	18	0
SLD062	0.131	S	0.131	2	0
SLD063	0.224	S	0.224	9	0
SLD064	0.360	S	0.360	24	0
SLD065	1.373	S	1.373	70	0
SLD066	0.160	S	0.160	3	0
SLD067	0.458	S	0.458	30	0
SLD068	1.119	S	1.119	41	0
SLD069	0.536	S	0.536	35	0
SLD070	0.251	S	0.251	12	0
SLD071	0.495	S	0.495	33	0
SLD072	0.484	S	0.484	32	0
SLD073	0.246	S	0.246	11	0
SLD074	0.645	S	0.645	39	0
SLD075	0.452	S	0.452	28	0
SLD076	0.471	S	0.471	31	0
SLD077	0.125	S	0.125	1	0
SLD078	0.200	S	0.200	6	0
SLD079	0.314	S	0.314	21	0
SLD080	0.179	S	0.179	4	0
SLD081	0.208	S	0.208	7	0
SLD082	0.318	S	0.318	23	0
SLD083	0.295	S	0.295	16	0
SLD084	0.185	S	0.185	5	0
SLD206	0.828	S	0.828	40	0
SLD207	0.630	S	0.630	38	0
SLD208	0.443	S	0.443	27	0

Attachment B-4. Wilcoxon Rank Sum Test Input/Results

Survey Unit 8

DCGL_w = 1.0 Cleanup goal
 alpha = 0.050 Type I error required by DQOs
 n = 43 Number of survey unit sample
 m = 32 Number of reference area samples

Result = **PASS** Critical Value = 1426
 Sum of Reference Area Ranks = 1872

Sample ID	SOR	Area	Adjusted SOR	Rank	Reference Area Ranks
SLD00001	0.245	R	1.245	51	51
SLD00002	0.246	R	1.246	52	52
SLD00022	0.298	R	1.298	63	63
SLD00023	0.292	R	1.292	61	61
SLD00041	0.272	R	1.272	59	59
SLD00042	0.309	R	1.309	66	66
SLD00043	0.314	R	1.314	67	67
SLD00044	0.337	R	1.337	70	70
SLD00061	0.332	R	1.332	69	69
SLD00062	0.297	R	1.297	62	62
SLD00063	0.224	R	1.224	46	46
SLD00081	0.270	R	1.270	58	58
SLD00082	0.304	R	1.304	65	65
SLD00083	0.226	R	1.226	47	47
SLD00101	0.405	R	1.405	73	73
SLD00102	0.380	R	1.380	72	72
SLD00103	0.300	R	1.300	64	64
SLD00121	0.347	R	1.347	71	71
SLD00122	0.264	R	1.264	55	55
SLD00123	0.325	R	1.325	68	68
SLD00141	0.544	R	1.544	75	75
SLD00142	0.491	R	1.491	74	74
SLD00143	0.242	R	1.242	49	49
SLD00144	0.252	R	1.252	53	53
SLD00161	0.194	R	1.194	42	42
SLD00162	0.227	R	1.227	48	48
SLD00181	0.220	R	1.220	45	45
SLD00201	0.255	R	1.255	54	54
SLD00202	0.265	R	1.265	56	56
SLD00241	0.201	R	1.201	43	43
SLD00242	0.244	R	1.244	50	50
SLD00243	0.209	R	1.209	44	44
SLD305	0.253	S	0.253	8	0
SLD306	0.220	S	0.220	4	0
SLD307	0.587	S	0.587	27	0
SLD308	0.417	S	0.417	22	0
SLD309	0.334	S	0.334	17	0
SLD310	0.290	S	0.290	9	0
SLD311	0.417	S	0.417	21	0
SLD312	0.234	S	0.234	6	0
SLD313	0.143	S	0.143	2	0
SLD314	0.291	S	0.291	10	0
SLD315	0.320	S	0.320	15	0
SLD316	0.818	S	0.818	34	0
SLD317	0.442	S	0.442	24	0
SLD318	0.613	S	0.613	28	0
SLD319	0.309	S	0.309	12	0
SLD320	0.624	S	0.624	30	0

Attachment B-4. Wilcoxon Rank Sum Test Input/Results

Sample ID	SOR	Area	Adjusted SOR	Rank	Reference Area Ranks
SLD321	0.424	S	0.424	23	0
SLD322	0.937	S	0.937	37	0
SLD323	0.404	S	0.404	20	0
SLD324	0.319	S	0.319	13	0
SLD325	0.245	S	0.245	7	0
SLD326	0.994	S	0.994	39	0
SLD327	0.224	S	0.224	5	0
SLD328	1.031	S	1.031	41	0
SLD329	0.127	S	0.127	1	0
SLD330	0.872	S	0.872	36	0
SLD331	0.371	S	0.371	18	0
SLD332	1.269	S	1.269	57	0
SLD333	0.167	S	0.167	3	0
SLD334	0.673	S	0.673	31	0
SLD335	0.329	S	0.329	16	0
SLD336	0.997	S	0.997	40	0
SLD337	0.713	S	0.713	32	0
SLD338	0.389	S	0.389	19	0
SLD339	0.862	S	0.862	35	0
SLD340	0.544	S	0.544	26	0
SLD341	0.517	S	0.517	25	0
SLD342	0.969	S	0.969	38	0
SLD343	0.319	S	0.319	14	0
SLD344	1.283	S	1.283	60	0
SLD345	0.296	S	0.296	11	0
SLD346	0.622	S	0.622	29	0
SLD347	0.741	S	0.741	33	0

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