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POST-REMEDIAL ACTION REPORT FOR THE MATERIAL STAGING AREA WORK ZONE (WP-437/RU018)

WELDON SPRING SITE REMEDIAL ACTION PROJECT
WELDON SPRING, MISSOURI

MARCH 2001 **REV. 0**

RECORD

U.S. Department of Energy
Oak Ridge Operations Office
Weldon Spring Site Remedial Action Project

Prepared by MK-Ferguson Company and Jacobs Engineering Group

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MORRISON KNUDSEN CORPORATION MK-FERGUSON GROUP Weldon Spring Site Remedial Action Project Contract No. DE-AC05-86OR21548	Rev. No. 0
PLAN TITLE: Post-Remedial Action Report for the Material Staging Area Work Zone (WP-437/RU018)	

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DOE/OR/21548-874

Weldon Spring Site Remedial Action Project

Post-Remedial Action Report for the Material Staging Area Work Zone (WP-437/RU018)

EXECUTIVE SUMMARY

Revision 0

March 2001

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Prepared for

U.S. DEPARTMENT OF ENERGY
Oak Ridge Operations office
Under Contract DE-AC05-86OR21548

EXECUTIVE SUMMARY

Work Package-437 (WP-437) consists of 12 work zones and, due to the magnitude of the work package, a distinct Post-Remedial Action Report will address each zone separately. This report refers specifically to activities in the Materials Staging Area (MSA) work zone.

Contaminated soil was removed from the MSA as specified in the *Record of Decision for Remedial Action at the Chemical Plant Area of the Weldon Spring Site* (ROD). The objective of this action was to ensure that contaminated areas within the work zone were remediated to meet the cleanup criteria specified in the *Chemical Plant Area Cleanup Attainment Confirmation Plan.* The sample locations and analytical parameters are identified in the *Confirmation Sampling Plan Details for the Disposal Cell Facility (WP-437)* (Sampling Plan). The sampling frequency, sampling methods, and statistical evaluation were performed in accordance with the *Chemical Plant Area Cleanup Attainment Confirmation Plan.*

The MSA has been designated as Remedial Unit (RU) 18 and subdivided into confirmation units (CUs) that measure approximately 2,000 m^2 each. The work zone includes the material staging area, the MSA retention basin, and a portion of the Ash Pond isolation dike. Contaminants of concern (COCs) were identified for each CU using characterization soil sample results. COCs identified for RU018 included Radium-226, Radium-228, Thorium-230, Uranium-238, lead, trinitrotoluene (TNT), and polychlorinated biphenyls (PCBs). This post-remedial action report summarizes the remediation of 19 CUs as defined in the *Sampling Plan*, and one additional CU that was added to the work package during field activities.

Remedial activities for each CU included excavation of contaminated soil, radiological walkover surveying, and confirmation soil sampling. Preliminary results were reviewed and the CU was released to the subcontractor for backfilling and final grading. When the final analytical results were received, the data were compared to the preliminary results to verify that the established cleanup standards were achieved. Final analytical results for RU018 are presented below. This table was generated using the final data set compiled from all samples representing soils left in place.

SUMMARY OF ANALYTICAL RESULTS FOR RU018 IN WP-437

CONTAMINANT	NO. OF SAMPLES	CONCENTRATION RANGE	AVERAGE CONCENTRATION	SURFACE ALARA	SURFACE CRITERIA	RESULTS >ALARA
Ra-226 (pCi/g)	370	0.43 - 1.90	1.29	5.00	6.20	0
Ra-228 (pCi/g)	370	0.48 - 1.75	1.19	5.00	6.20	0
Total Radium (pCi/g)	370	0.98 - 3.36	2.48	5.00	6.20	0
Th-230 (pCi/g)	17	0.71 - 5.97	1.52	5.00	6.20	1
Th-232 (pCi/g)	12	0.97-1.67	1.17	5.00	6.20	0
U-238 (pCi/g)	415	0.86 - 22.30	1.86	30.00	120.00	0
PAH (mg/kg)	3	0.00 - 0.03	0.01	0.44	5.60	0
Pb (mg/kg)	4	11.00 - 13.40	12.55	240	450	0
PCB (mg/kg)	37	0.00 - 1.90	0.05	0.65	8.00	1
TNT (mg/kg)	8	0.11 - 0.76	0.21	14	140	0

As indicated above, the average concentration for each COC was below the corresponding cleanup criteria and the ALARA goal. COC averages were calculated for each CU and found to be below ALARA, and the average radiological contaminant concentration in each 100 m^2 area was below cleanup criteria. Based on the analytical results presented above, all CUs within RU018 were released for unrestricted use.

DOE/OR/21548-874

Weldon Spring Site Remedial Action Project

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ABSTRACT

Work Package 437 (WP-437) has been divided into 12 work zones. This report details the confirmation field activities and analytical results for contaminated soil removal of the Materials Staging Area portion of WP-437. This 14-acre area is further subdivided into 20 confirmation units.

Materials stockpiled at the Materials Staging Area included asbestos-containing materials, metal debris and machinery from building demolition, roll-off boxes containing personal protection equipment, polychlorinated biphenyl (PCB) contaminated concrete, non-regulated wood debris, brine material from the site water treatment plant, and roll-off boxes containing filter cake from the same water treatment plant.

Soil characterization results and pre-excavation walkovers determined that the work zones contained contaminant concentrations that exceeded the ALARA goals established in the *Record of Decision for Remedial Action at the Chemical Plant Area of the Weldon Spring Site*. Remediation was designed to achieve surface ALARA goals, and confirmation of soil remediation was required to meet ROD cleanup standards. Final confirmation data verify that the established goals and standards were achieved.

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1. INTRODUCTION

1.1 Purpose

WP-437 is divided into 12 work zones, 11 of which are identified in Figure 1-1. In addition, there is the Vicinity Property DA-6 work zone located off site just west of the Ash Pond work zone. This report details the confirmation field activities and analytical results for contaminated soil removal of the Materials Staging Area (MSA) portion of Work Package-437 (WP-437). The 14-acre former MSA work zone is further subdivided into 20 confirmation units (CUs) that are collectively known as remedial unit (RU) 18 and are identified in Figure 1-2.

Materials stockpiled at the MSA included asbestos-containing materials, metal debris and machinery from building demolition, roll-off boxes containing personal protection equipment, polychlorinated biphenyl (PCB) contaminated concrete, non-regulated wood debris, brine material from the site water treatment plant, and roll-off boxes containing filter cake from the same water treatment plant.

Soil characterization results and pre-excavation walkovers of the WP-437 work zones determined that the work zones contained contaminant concentrations that exceeded the As Low As Reasonably Achievable (ALARA) goals established in the *Record of Decision for Remedial Action at the Chemical Plant Area of the Weldon Spring Site* (ROD) (Ref. 1). Remediation was designed to achieve surface ALARA goals, and confirmation of soil remediation to the ROD cleanup standards was required.

1.2 Scope

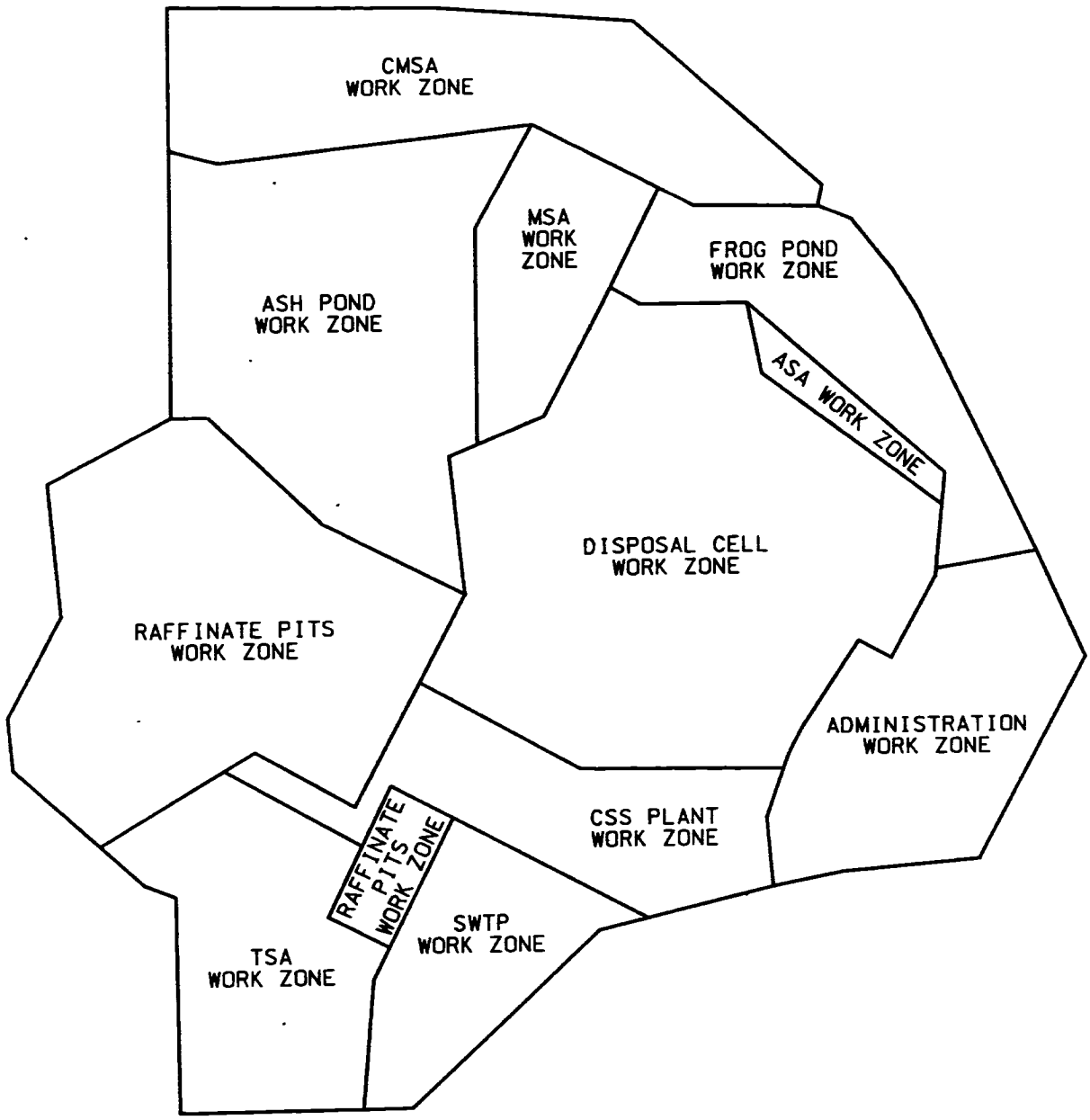
This report describes only the remedial activities and confirmation surveying and sampling conducted on contaminated soils within RU018. Confirmation walkovers and soil sampling were conducted in accordance with the *Confirmation Sampling Plan Details for the Disposal Cell Facility (WP-437)* (Ref. 2). This plan was developed to ensure that the objectives identified in the *Chemical Plant Area Cleanup Attainment Confirmation Plan* (Ref. 3) were accomplished, and to ensure that established remediation requirements of the ROD were met.

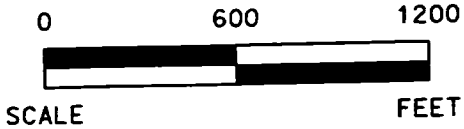
1.3 Remediation and Confirmation Process

This report details the activities conducted to remediate the MSA portion of WP-437, which consists of CUs 170 through 188, and CU396. Remediation consisted of excavation of contaminated soils and debris. Following the remediation activities, walkovers were conducted and confirmation samples were collected to ensure that all contaminated materials had been remediated.

The entire remediation process included characterization sampling, historical data review, contaminants of concern (COC) identification, confirmation plan development, contaminated

soil excavation, radiological walkover surveys, confirmation soil sampling, preliminary and final data review, completion of disposition forms, quality assurance/quality control (QA/QC) review, summary of findings and conclusions, and closure report preparation.





WP-437 WORK ZONE DESIGNATIONS

FIGURE 1-1

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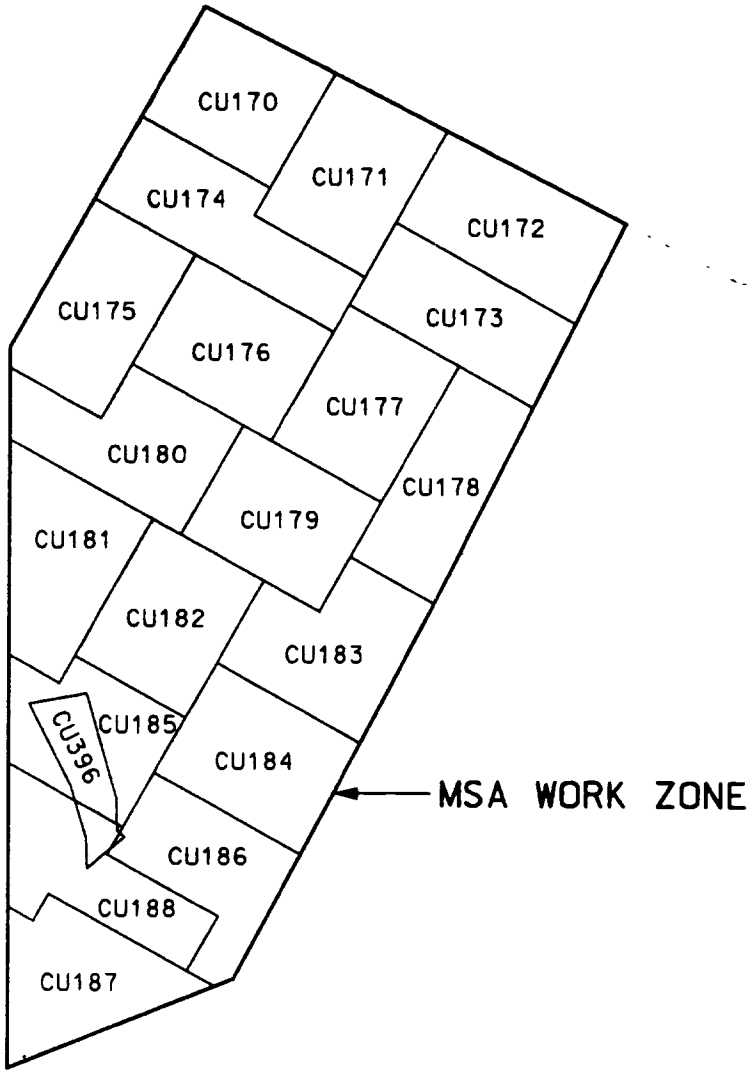
ORIGINATOR:	LB	DRAWN BY:	GLN	DATE:	2/7/01



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0 200 400

SCALE FEET

CONFIRMATION UNITS IN REMEDIAL UNIT 18

FIGURE 1-2

REPORT NO.:	DOE/OR/21548-874	EXHIBIT NO.:	A/CP/002/0101		
ORIGINATOR:	LB	DRAWN BY:	GLN	DATE:	1/2/01

2. PRE-REMEDIATION ACTIVITIES

2.1 Review of Characterization Data

Contaminants of concern (COCs) were identified for each confirmation unit by reviewing results of characterization data. The full process for identifying COCs is detailed in the *Confirmation Sampling Plan Details for the Disposal Cell Facility (WP-437)* (Ref. 2). Radiological COCs identified for RU018 were Radium-226 (Ra-226), Radium-228 (Ra-228), Thorium-230 (Th-230), and Uranium-238 (U-238). Chemical COCs were lead, polychlorinated biphenyls (PCBs), and trinitrotoluene (TNT). Polynuclear aromatic hydrocarbons (PAH) were added as a COC in affected areas of CU181 when cinders were identified during remediation activities.

2.2 Data Quality Objectives

Data Quality Objectives (DQOs) were identified to specify data quality and ensure that the data would be sufficient to support the decision making process throughout remedial activities, including the confirmation process. Confirmation DQOs were developed for sampling and analyzing soils during remediation and for the subsequent data evaluation. The DQOs were designed to make statistically defensible decisions regarding attainment of cleanup standards. Sampling and analytical programs for the WP-437 work zones were designed in accordance with DQOs stated in the *Chemical Plant Area Cleanup Attainment Confirmation Plan* (Ref. 3).

2.3 Cleanup Standards

The objective of the Department of Energy (DOE) ALARA process is to reduce exposures and risks associated with residual contamination. The ROD (Ref. 1) established two different sets of cleanup standards: risk-based cleanup criteria and As Low As Reasonably Achievable (ALARA) goals. Remedial activities for WP-437 were designed to remove soil where the COC concentrations were found by characterization or during remediation activities to be above ALARA goals. Table 2-1 summarizes the cleanup criteria and ALARA goals established in the ROD that are applicable for COCs in the MSA work zone. Throughout the remedial activities at RU018, COC concentrations were evaluated with the ALARA process.

2.4 Cleanup Confirmation Process

The cleanup confirmation process is used to determine, under the remedial guidelines, if remediation activities have achieved the cleanup standards. Figure 2-1 shows the cleanup confirmation process for remedial activities conducted at the WP-437 area.

The decision-making process specifies how the data will be applied and evaluated within the cleanup confirmation process. The decision-making process includes provisions for any hot

spots that may be encountered by applying a formula to determine the acceptable concentration for the COC.

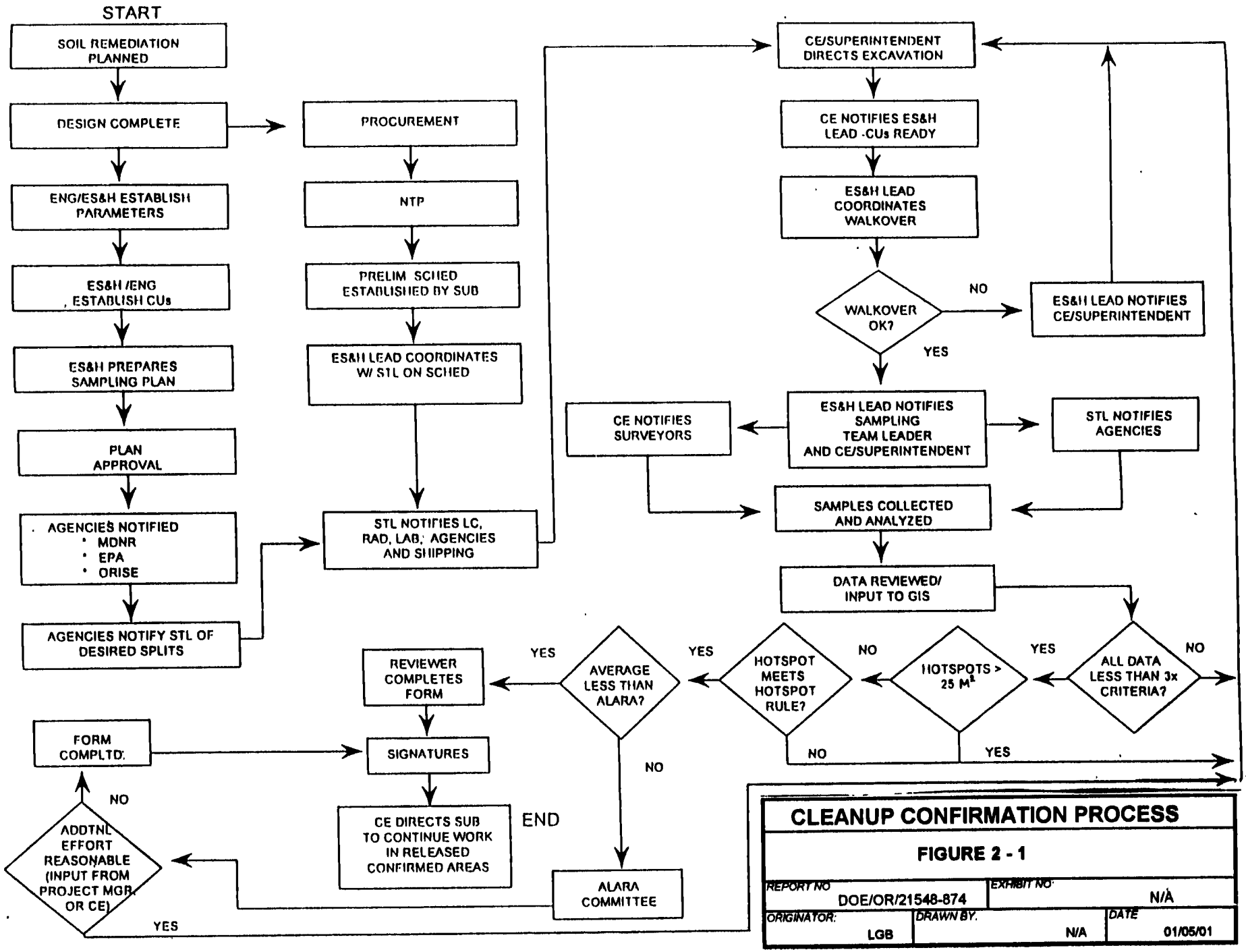
Table 2-1 ROD Cleanup Standards for COCs within the WP-437 MSA Work Zone

	SURFACE [a]		SUBSURFACE [b]	
RADIONUCLIDE	ALARA	CRITERIA	ALARA	CRITERIA
Ra-226 (pCi/g)	5.0	6.2	5.0	16.2
Ra-228 (pCi/g)	5.0	6.2	5.0	16.2
Total Radium (pCi/g)	5.0	6.2	5.0	16.2
Th-230 (pCi/g)	5.0	6.2	5.0	16.2
U-238 (pCi/g)	30.0	120	30.0	120.0
Chemical				
PAH (mg/kg)	0.44	5.6	5.6	56
Pb (mg/kg)	240	450	450	4,500
PCB (mg/kg)	0.65	8	8	80
TNT (mg/kg)	14	140	140	1,400

(a) Values listed for surface soils apply to concentrations within the upper 15 cm (6 in.) of the soil column.

(b) Values for subsurface apply to concentrations in soils below 15 cm (6 in.).

Source: *Record of Decision for Remedial Action at the Chemical Plant Area of the Weldon Spring Site* (Ref 1)



CLEANUP CONFIRMATION PROCESS

FIGURE 2 - 1

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DOE/OR/21548-874	N/A	
ORIGINATOR: LGB	DRAWN BY: N/A	DATE 01/05/01

3. REMEDIAL ACTIVITIES

3.1 Excavation Activities

Contaminated soils and other debris from the material staging area (MSA) work zone were first excavated to design depth as detailed in the MSA work zone specifications (Ref. 7). After the initial excavation was complete, radiological walkover surveys were conducted to evaluate the need for additional excavation. The walkover surveys were conducted using a 2 in. x 2 in. sodium iodide (NaI) scintillation detector. When the surveys indicated no additional excavation was needed, confirmation soil samples were collected.

Confirmation results were then reviewed, and additional excavation and confirmation sampling was conducted in hot spot areas, if necessary. After achieving cleanup standards, a disposition form was completed with preliminary analytical results. The form was reviewed and signed by authorized project personnel. The confirmation unit (CU) was then released back to the subcontractor.

3.2 Field Activities

Field activities completed during remediation, such as walkover surveys and soil sampling, were conducted in accordance with procedures specified in the *Confirmation Sampling Plan Details for the Disposal Cell Facility (WP-437)* (Ref. 2). Field activities were conducted to achieve and document sampling objectives specified in the *Chemical Plant Area Cleanup Attainment Confirmation Plan* (Ref. 3). All sampling and remedial action surveys were conducted and documented in accordance with Weldon Spring Site Remedial Action Project (WSSRAP) Environmental Safety and Health (ES&H) procedures.

3.2.1 Walkover Surveys

Radiological walkover surveys were conducted after excavation was completed to determine if confirmation sample collection could begin. The surveys were conducted using a 2 in. x 2 in. NaI scintillation detector. The survey readings were within an acceptable range (less than 1.5 times background) throughout the entire work zone. The ranges for each CU are listed in the CU Summary Forms in Section 4 of this report. Copies of the final walkover forms can be found in Appendix A.

3.2.2 Soil Sampling

Once the walkovers were sufficiently completed, soil sampling was conducted as part of the confirmation process. The sampling locations for CUs in RU018 are shown in the figures in Section 4. Analytical suites for the CUs were dependant upon the COC list developed from historical information and characterization data, as discussed in Section 2.

One Thorium-230 hot spot was encountered during confirmation of this RU. The location was further remediated in accordance with the guidelines established in the *Chemical Plant Area Cleanup Attainment Confirmation Plan* (Ref. 3). The subsequent survey and confirmation sample results indicated that contaminants were below cleanup criteria and the averages were less than ALARA; therefore, no further remediation was conducted for RU018. Disposition forms were completed following the receipt of preliminary analytical data for all CUs within the MSA work zone.

3.3 Laboratory Activities

Radiological analyses for RU018 were conducted at the on-site laboratory in accordance with the *Project Management Contractor Quality Assurance Program* (Ref. 4) and the *Environmental Quality Assurance Project Plan* (EQAjP) (Ref. 5). Chemical analyses for RU018 were conducted at subcontracted off-site laboratories using Contract Laboratory Program (CLP) methodologies. Summaries of the analytical results for each CU can be found in Section 4 of this report. Analytical data were subjected to data evaluation and validation upon receipt from the laboratory.

3.4 Verification Activities

The Oak Ridge Institute for Science and Education (ORISE) was contracted by the DOE to verify confirmation soil sampling in the chemical plant area. Verification activities included independent walkover radiological surveys and collection and analysis of soil samples to verify proper disposition of CUs. Field verification activities were conducted in accordance with ORISE's final survey plan (Ref. 8). ORISE verification indicated no hot spots were identified with RU018.

4. CONFIRMATION UNIT RESULTS SUMMARY

This section summarizes the confirmation unit analytical results for the 20 CUs in RU018. In total, 415 locations were sampled between March 1998 and July 2000. Preliminary results were below cleanup criteria with the exception of one Thorium-230 hot spot in CU396. The area was reexcavated and the location was resampled. The resample results were less than ALARA. Average COC concentrations for RU018 remained below ALARA goals and all 100 m^2 averages were less than criteria.

After the preliminary data were reviewed, disposition forms were completed and signed by authorized reviewers. Based on the preliminary confirmation data, all CUs in RU018 were fully released as complying with surface cleanup standards.

Note that the preliminary data were the initial results available immediately from the laboratory and were used for releases. These preliminary results could vary from the final results based upon laboratory quality checks or Weldon Spring Site Remedial Action Project (WSSRAP) verification activities.

Upon receipt of the data packages, the final data were reviewed and compared to the preliminary data. The final analytical results agreed with the preliminary results and indicated that the remedial activities were completed. The final results met the cleanup standards as detailed in the *Chemical Plant Area Cleanup Area Attainment Confirmation Plan* (Ref. 3) for all CUs in RU018. Tables 4-1 through 4-20 and associated figures provide the confirmation details for each CU. The final data are presented in Appendix B.

Table 4 - 1 Summary of CU170

CU: 170 RU: 18

COC: Ra-226 [X], Ra-228 [X], Th-230 [ ], Th-232 [ ], U-238 [X], As [ ], Cr [ ], Pb [ ], Tl [ ], PAH [ ], PCB [ ], TNT [ ]

Reference Figure: 4 - 1

DATE RELEASED FOR UNRESTRICTED USE: 10 / 1 / 98

CLEANUP STANDARD [X] SURFACE [ ] SUBSURFACE

EACH 100m^2 < CRITERIA? [X] YES [ ] NO

LOCATION DESCRIPTION: *This CU is located in the northwest corner of the MSA work zone.*

WALKOVER SURVEY INFORMATION

BACKGROUND: *11000* cpm

FINAL SURVEY(S) BELOW 1.5 X BACKGROUND ? [X] YES [ ] NO

DATE(S) SCANNED: *9/28/98*

CONFIRMATION SAMPLING INFORMATION

TOTAL # OF SAMPLE LOCATIONS : 27

TOTAL # OF UTILITY SAMPLES : N/A

AVERAGES < ALARA? [X] YES [ ] NO

HOTSPOTS? [ ] YES [X] NO

ADDITIONAL EXCAVATION REQUIRED? [ ] YES [X] NO

GENERAL COMMENTS - *All results are below ALARA.*

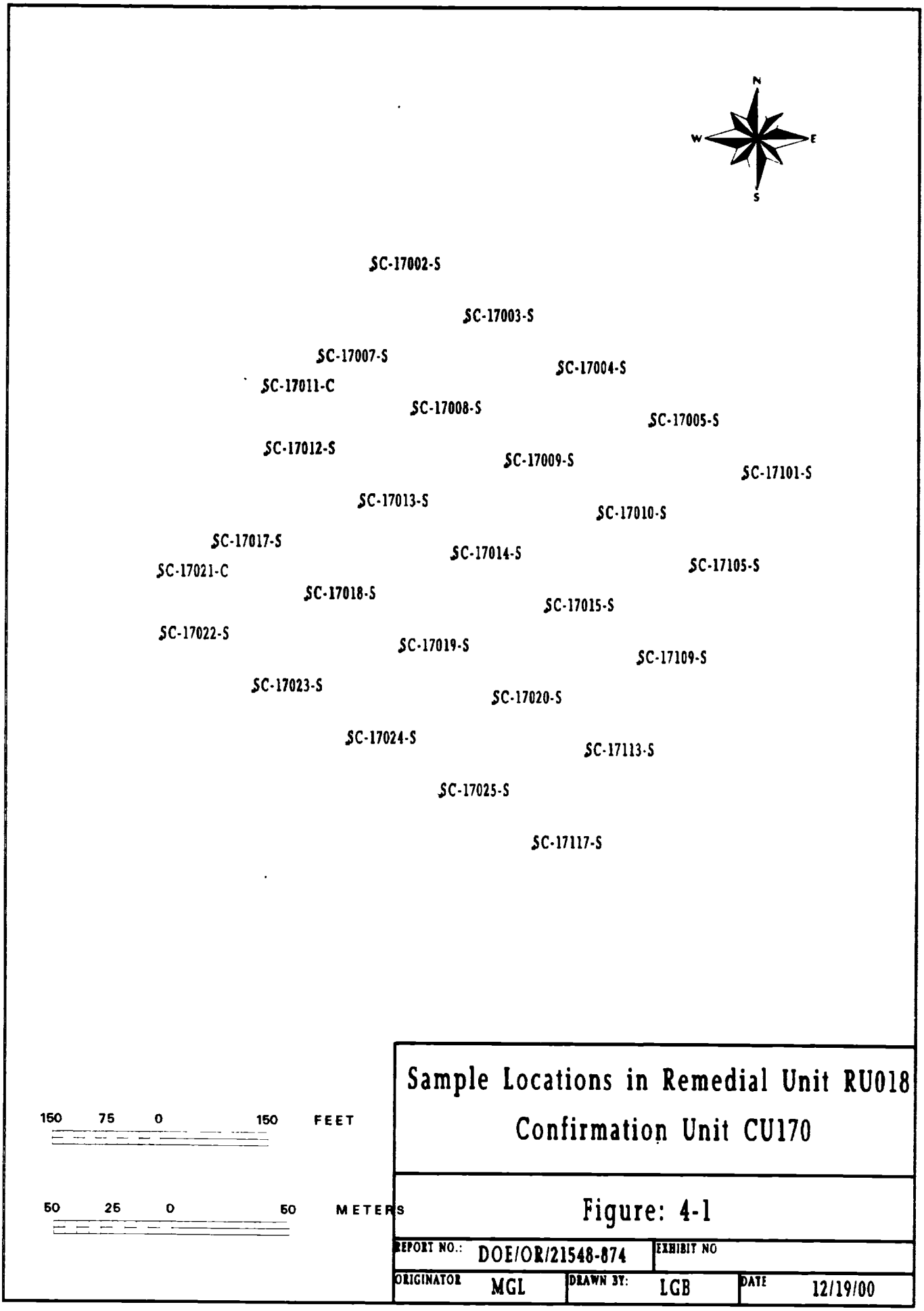
ORISE ACTION - *None*

ALARA COMMITTEE ACTION - *None*

CU SUMMARY DATA

Ra-226	27	1.1 - 1.68	1.41	5	6.2	0	0
Ra-228	27	0.57 - 1.63	1.24	5	6.2	0	0
Total Radium	27	1.97 - 3.26	2.65	5	6.2	0	0
U-238	27	1.35 - 2.54	1.79	30	120	0	0

NOTE: Radiological contaminants are listed in pCi/g.



Sample Locations in Remedial Unit RU018
Confirmation Unit CU170

Figure: 4-1

REPORT NO.:	DOE/OR/21548-874	EXHIBIT NO			
ORIGINATOR	MGL	DRAWN BY:	LGB	DATE	12/19/00

Table 4 -2 Summary of CU171

CU: 171 RU: 18

COC: Ra-226 [X], Ra-228 [X], Th-230 [ ], Th-232 [ ], U-238 [X]; As [ ], Cr [ ], Pb [ ], Tl [ ], PAH [ ], PCB [X], TNT [ ]

Reference Figure: 4 - 2

DATE RELEASED FOR UNRESTRICTED USE: 10 / 6 / 98

CLEANUP STANDARD [X] SURFACE [ ] SUBSURFACE

EACH 100m^2 < CRITERIA? [X] YES [ ] NO

LOCATION DESCRIPTION: *This CU is located along the north border of the MSA work zone.*

WALKOVER SURVEY INFORMATION

BACKGROUND: *11000* cpm

FINAL SURVEY(S) BELOW 1.5 X BACKGROUND ? [X] YES [ ] NO

DATE(S) SCANNED: *9/28/98*

CONFIRMATION SAMPLING INFORMATION

TOTAL # OF SAMPLE LOCATIONS : 30

TOTAL # OF UTILITY SAMPLES : 0

AVERAGES < ALARA? [X] YES [ ] NO

HOTSPOTS? [ ] YES [X] NO

ADDITIONAL EXCAVATION REQUIRED? [ ] YES [X] NO

GENERAL COMMENTS - *One PCB result > ALARA, but average is < criteria.*

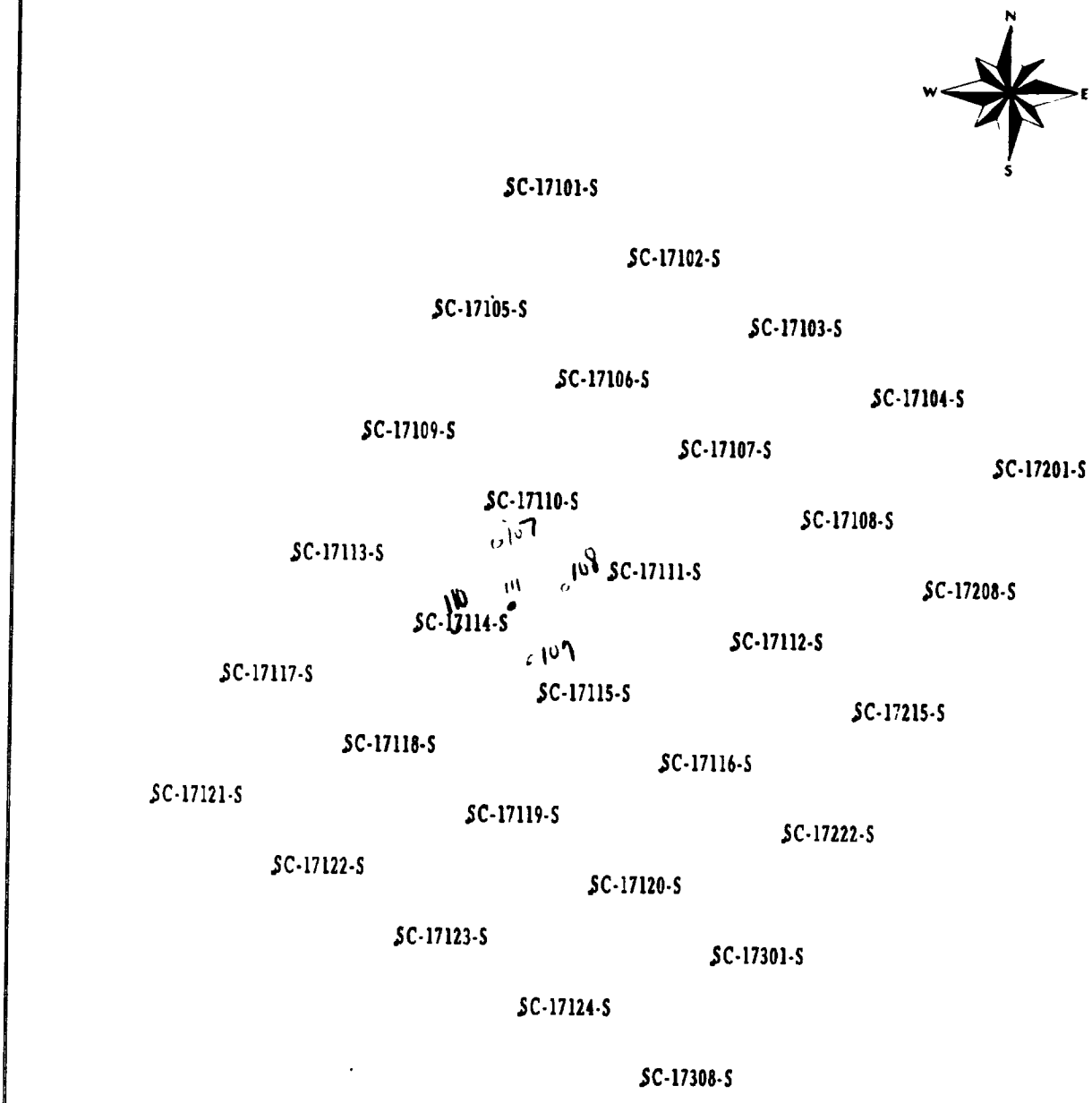
ORISE ACTION - *None*

ALARA COMMITTEE ACTION - *None*

CU SUMMARY DATA

Ra-226	30	1.11 - 1.77	1.37	5	6.2	0	0
Ra-228	30	0.61 - 1.63	1.22	5	6.2	0	0
Total Radium	30	1.94 - 3.04	2.58	5	6.2	0	0
U-238	30	1.34 - 2.15	1.67	30	120	0	0
PCB	6	0 - 1.9	0.32	0.65	8	1	0

NOTE: Radiological contaminants are listed in pCi/g. Chemical contaminants are listed in mg/kg.



150 75 0 150 FEET

50 25 0 50 METERS

Sample Locations in Remedial Unit RU018
Confirmation Unit CU171

Figure: 4-2

REPORT NO	DOE/OR/21548-874	EXHIBIT NO			
ORIGINATOR	MGL	DRAWN BY	LGB	DATE	12/19/00

Table 4 - 3 Summary of CU172

CU: 172 RU: 18

COC				
	Ra-226	X	As	
	Ra-228	X	Cr	
	Th-230		Pb	
	Th-232		Tl	
	U-238	X	PAH	
			PCB	X
Reference Figure:	4 - 3		TNT	

DATE RELEASED FOR UNRESTRICTED USE: 10 / 6 / 98

CLEANUP STANDARD [X] SURFACE [ ] SUBSURFACE

EACH 100m^2 < CRITERIA? [X] YES [ ] NO

LOCATION DESCRIPTION: *This CU is located in the northeast corner of the MSA work zone.*

WALKOVER SURVEY INFORMATION

BACKGROUND: *11000* cpm

FINAL SURVEY(S) BELOW 1.5 X BACKGROUND ? [X] YES [ ] NO

DATE(S) SCANNED: *9/28/98*

CONFIRMATION SAMPLING INFORMATION

TOTAL # OF SAMPLE LOCATIONS : 32

AVERAGES < ALARA? [X] YES [ ] NO

HOTSPOTS? [ ] YES [X] NO

TOTAL # OF UTILITY SAMPLES : 0

ADDITIONAL EXCAVATION REQUIRED? [ ] YES [X] NO

GENERAL COMMENTS - *All results are below ALARA.*

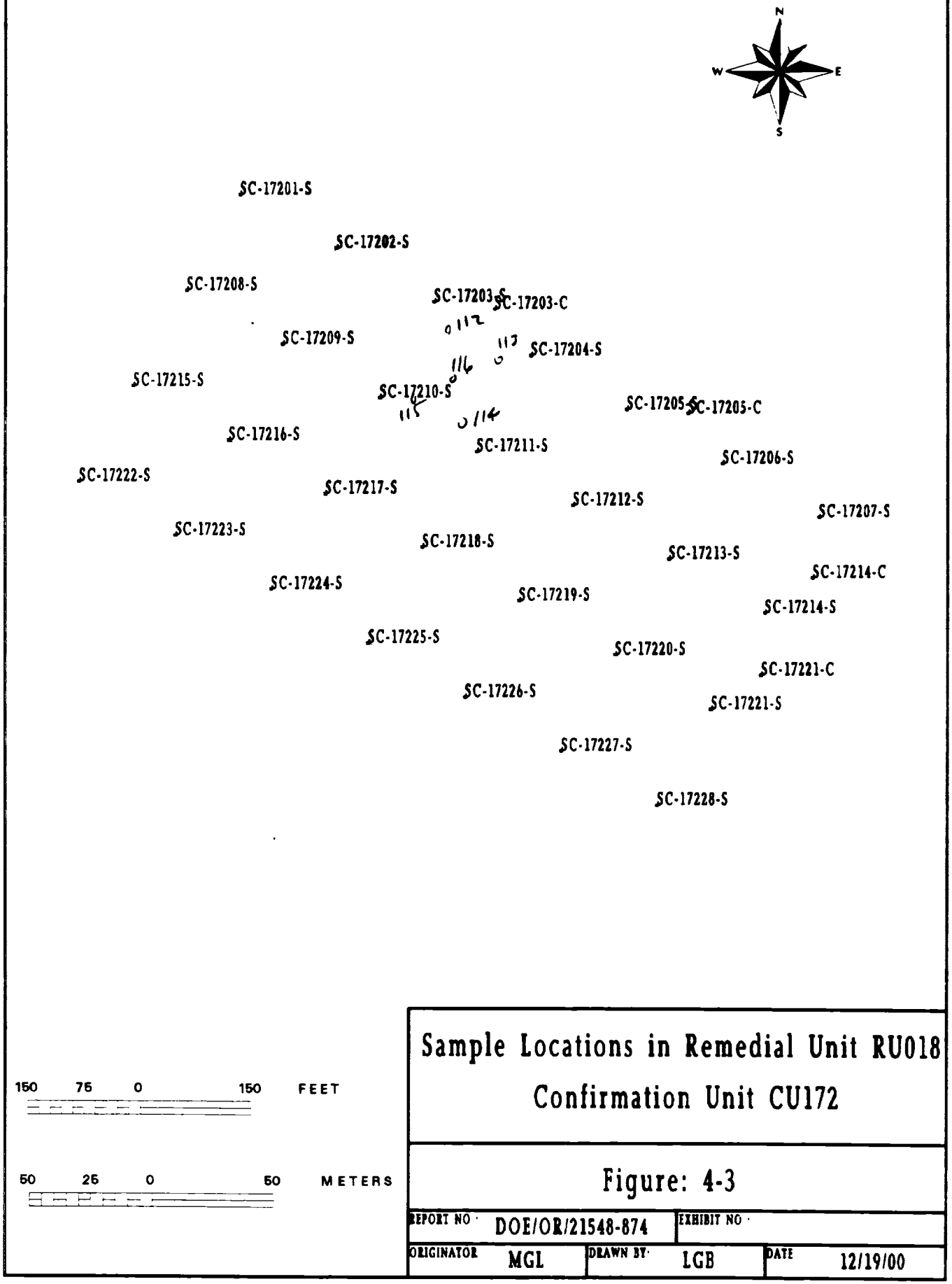
ORISE ACTION - *None*

ALARA COMMITTEE ACTION - *None*

CU SUMMARY DATA

Ra-226	32	1.00 - 1.58	1.31	5	6.2	0	0
Ra-228	32	0.57 - 1.58	1.16	5	6.2	0	0
Total Radium	32	1.70 - 3.02	2.47	5	6.2	0	0
U-238	32	1.29 - 2.72	1.73	30	120	0	0
PCB	11	0 - 0.04	0.003	0.65	8	0	0

NOTE. Radiological contaminants are listed in pCi/g. Chemical contaminants are listed in mg/kg.



Sample Locations in Remedial Unit RU018
Confirmation Unit CU172

Figure: 4-3

REPORT NO:	DOE/OR/21548-874	EXHIBIT NO:			
ORIGINATOR	MGL	DRAWN BY:	LGB	DATE	12/19/00

Table 4 - 4 Summary of CU173

CU: 173 RU: 18

COC: Ra-226 [X], Ra-228 [X], Th-230 [ ], Th-232 [ ], U-238 [X]; As [ ], Cr [ ], Pb [ ], Tl [ ], PAH [ ], PCB [ ], TNT [ ]

Reference Figure: 4 - 4

DATE RELEASED FOR UNRESTRICTED USE: 10 / 21 / 98

CLEANUP STANDARD [X] SURFACE [ ] SUBSURFACE

EACH 100m² < CRITERIA? [X] YES [ ] NO

LOCATION DESCRIPTION: *This CU is located in the northeast area of the MSA work zone.*

WALKOVER SURVEY INFORMATION

BACKGROUND: *4200* (shielded) - *11000* (not shielded) cpm

FINAL SURVEY(S) BELOW 1.5 X BACKGROUND ? [X] YES [ ] NO

DATE(S) SCANNED: *9/28/98 10/16/98*

CONFIRMATION SAMPLING INFORMATION

TOTAL # OF SAMPLE LOCATIONS : 28

TOTAL # OF UTILITY SAMPLES : 0

AVERAGES < ALARA? [X] YES [ ] NO

HOTSPOTS? [ ] YES [X] NO

ADDITIONAL EXCAVATION REQUIRED? [ ] YES [X] NO

GENERAL COMMENTS - *All results are below ALARA.*

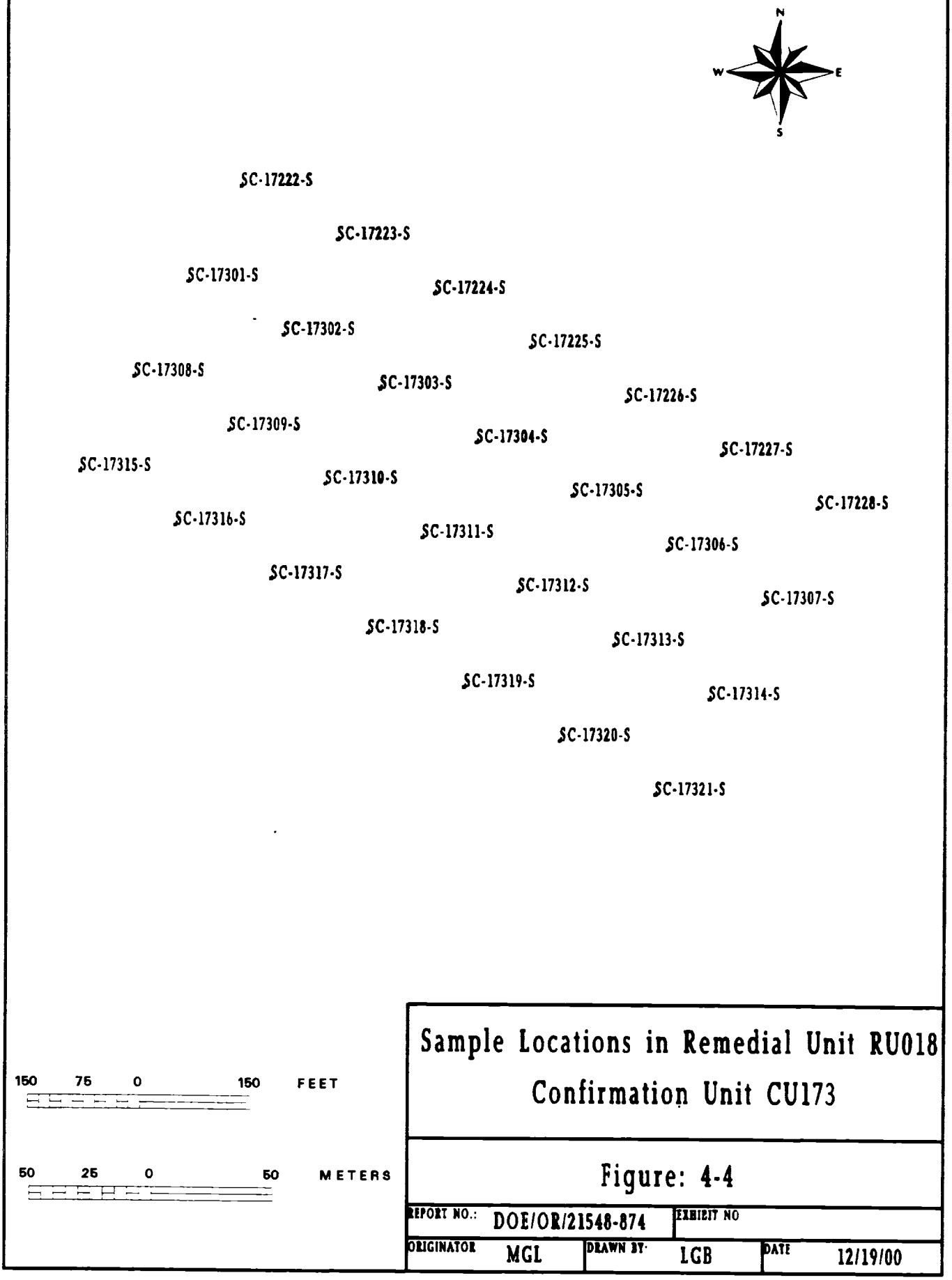
ORISE ACTION - *None*

ALARA COMMITTEE ACTION - *None*

CU SUMMARY DATA

Ra-226	28	0.85 - 1.56	1.27	5	6.2	0	0
Ra-228	28	0.65 - 1.70	1.28	5	6.2	0	0
Total Radium	28	1.89 - 3.03	2.55	5	6.2	0	0
U-238	28	1.23 - 1.99	1.63	30	120	0	0

NOTE: Radiological contaminants are listed in pCi/g.



Sample Locations in Remedial Unit RU018
Confirmation Unit CU173

Figure: 4-4

REPORT NO.:	DOE/OR/21548-874	EXHIBIT NO			
ORIGINATOR	MGL	DRAWN BY:	LGB	DATE	12/19/00

Table 4 - 5 Summary of CU174

CU: 174 RU: 18

COC				
	Ra-226	X	As	
	Ra-228	X	Cr	
	Th-230		Pb	
	Th-232		Tl	
	U-238	X	PAH	
			PCB	
Reference Figure: 4 - 5			TNT	

DATE RELEASED FOR UNRESTRICTED USE: 10 / 6 / 98

CLEANUP STANDARD [X] SURFACE [ ] SUBSURFACE

EACH 100m² < CRITERIA? [X] YES [ ] NO

LOCATION DESCRIPTION: *This CU is located in the northwest area of the MSA work zone.*

WALKOVER SURVEY INFORMATION

BACKGROUND: *11000* cpm

FINAL SURVEY(S) BELOW 1.5 X BACKGROUND ? [X] YES [ ] NO

DATE(S) SCANNED: *9/28/98*

CONFIRMATION SAMPLING INFORMATION

TOTAL # OF SAMPLE LOCATIONS : 32

TOTAL # OF UTILITY SAMPLES : 0

AVERAGES < ALARA? [X] YES [ ] NO

HOTSPOTS? [ ] YES [X] NO

ADDITIONAL EXCAVATION REQUIRED? [ ] YES [X] NO

GENERAL COMMENTS - *All results are below ALARA.*

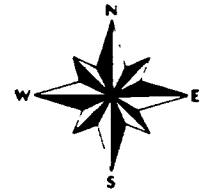
ORISE ACTION - *None*

ALARA COMMITTEE ACTION - *None*

CU SUMMARY DATA

Ra-226	32	1.19 - 1.88	1.45	5	6.2	0	0
Ra-228	32	0.57 - 1.55	1.22	5	6.2	0	0
Total Radium	32	1.87 - 3.27	2.68	5	6.2	0	0
U-238	32	1.34 - 3.16	1.76	30	120	0	0

NOTE: Radiological contaminants are listed in pCi/g.



SC-17022-S
SC-17023-S
SC-17402-S
SC-17024-S
SC-17403-S
SC-17025-S
SC-17407-S
SC-17404-S
SC-17117-S
SC-17408-S
SC-17405-S
SC-17416-S
SC-17409-S
SC-17121-S
SC-17417-S
SC-17410-S
SC-17122-S
SC-17418-S
SC-17411-S
SC-17123-S
SC-17419-S
SC-17412-S
SC-17124-S
SC-17420-S
SC-17413-S
SC-17308-S
SC-17421-S
SC-17414-S
SC-17422-S
SC-17315-S
SC-17423-S
SC-17701-S

150 75 0 150 FEET

50 25 0 50 METERS

Sample Locations in Remedial Unit RU018
Confirmation Unit CU174

Figure: 4-5

REPORT NO.:	DOE/OR/21548-874	EXHIBIT NO			
ORIGINATOR	MGL	DRAWN BY:	LGB	DATE	12/19/00

Table 4 - 6 Summary of CU175

CU: 175 RU: 18

COC: Ra-226 [X], Ra-228 [X], Th-230 [ ], Th-232 [ ], U-238 [X], As [ ], Cr [ ], Pb [ ], Tl [ ], PAH [ ], PCB [ ], TNT [ ]

Reference Figure: 4 - 6

DATE RELEASED FOR UNRESTRICTED USE: 6 / 30 / 00

CLEANUP STANDARD [X] SURFACE [ ] SUBSURFACE

EACH 100m^2 < CRITERIA? [X] YES [ ] NO

LOCATION DESCRIPTION: *This CU is located along the northwest border of the MSA work zone.*

WALKOVER SURVEY INFORMATION

BACKGROUND: *10,000 - 11,000* cpm

FINAL SURVEY(S) BELOW 1.5 X BACKGROUND ? [X] YES [ ] NO

DATE(S) SCANNED: *9/30/98 6/22/00*

CONFIRMATION SAMPLING INFORMATION

TOTAL # OF SAMPLE LOCATIONS : 31

TOTAL # OF UTILITY SAMPLES : 0

AVERAGES < ALARA? [X] YES [ ] NO

HOTSPOTS? [ ] YES [X] NO

ADDITIONAL EXCAVATION REQUIRED? [ ] YES [X] NO

GENERAL COMMENTS - *All results are below ALARA.*

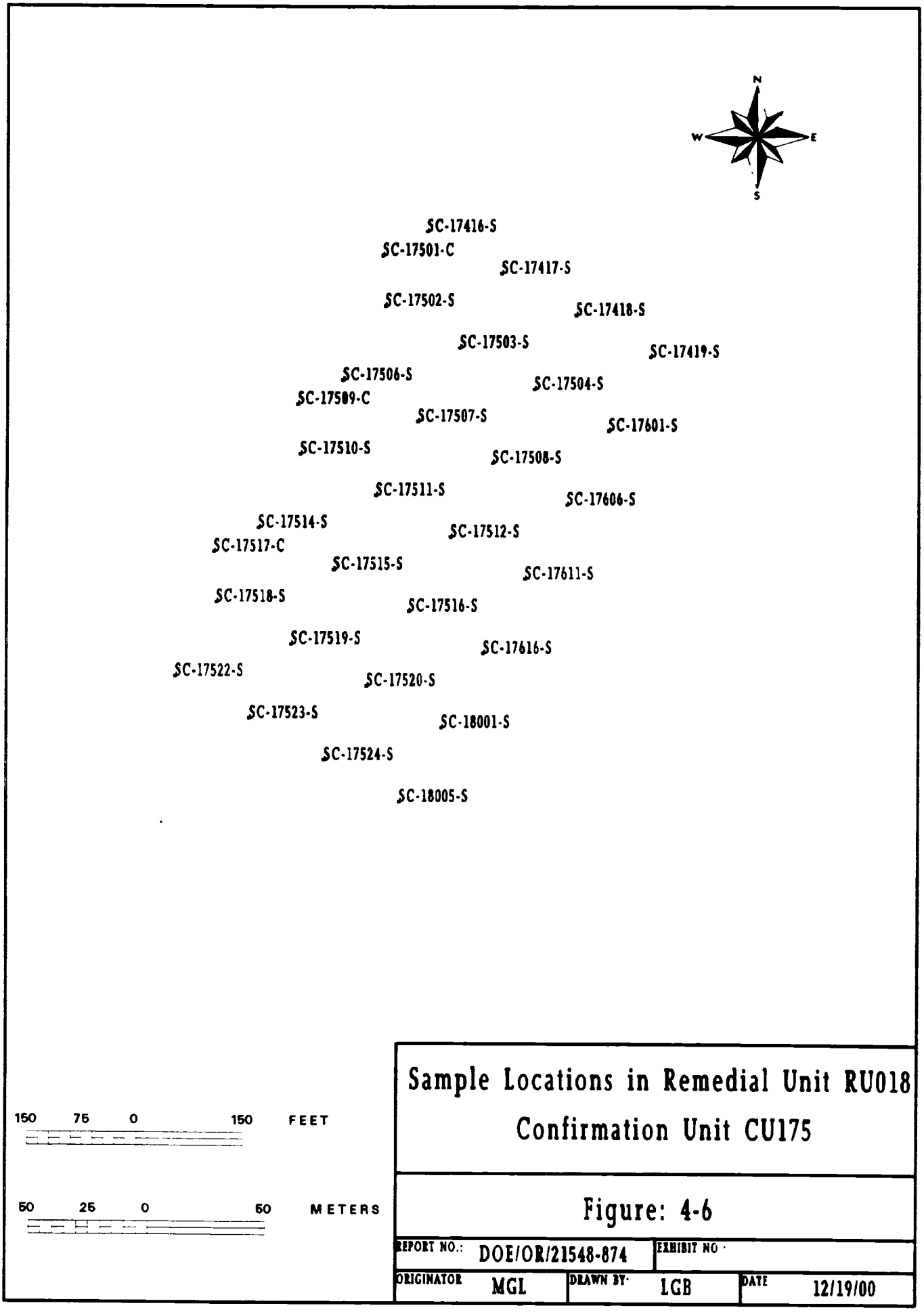
ORISE ACTION - *None*

ALARA COMMITTEE ACTION - *None*

CU SUMMARY DATA

Ra-226	29	0.84 - 1.78	1.36	5	6.2	0	0
Ra-228	29	0.58 - 1.75	1.22	5	6.2	0	0
Total Radium	29	1.77 - 3.09	2.57	5	6.2	0	0
U-238	31	1.19 - 5.71	2.15	30	120	0	0

NOTE: Radiological contaminants are listed in pCi/g.



Sample Locations in Remedial Unit RU018
Confirmation Unit CU175

Figure: 4-6

REPORT NO.:	DOE/OR/21548-874	EXHIBIT NO ·			
ORIGINATOR	MGL	DRAWN BY·	LGB	DATE	12/19/00

Table 4 - 7 Summary of CU176

CU: 176 RU: 18

COC: Ra-226 [X], Ra-228 [X], Th-230 [ ], Th-232 [ ], U-238 [X], As [ ], Cr [ ], Pb [ ], Tl [ ], PAH [ ], PCB [ ], TNT [ ]

Reference Figure: 4 - 7

DATE RELEASED FOR UNRESTRICTED USE: 10 / 6 / 98

CLEANUP STANDARD [X] SURFACE [ ] SUBSURFACE

EACH 100m^2 < CRITERIA? [X] YES [ ] NO

LOCATION DESCRIPTION: *This CU is located in the north central portion of the MSA work zone.*

WALKOVER SURVEY INFORMATION

BACKGROUND: *11000* cpm

FINAL SURVEY(S) BELOW 1.5 X BACKGROUND ? [X] YES [ ] NO

DATE(S) SCANNED: *9/30/98*

CONFIRMATION SAMPLING INFORMATION

TOTAL # OF SAMPLE LOCATIONS : 30

TOTAL # OF UTILITY SAMPLES : 0

AVERAGES < ALARA? [X] YES [ ] NO

HOTSPOTS? [ ] YES [X] NO

ADDITIONAL EXCAVATION REQUIRED? [ ] YES [X] NO

GENERAL COMMENTS - *All results are below ALARA.*

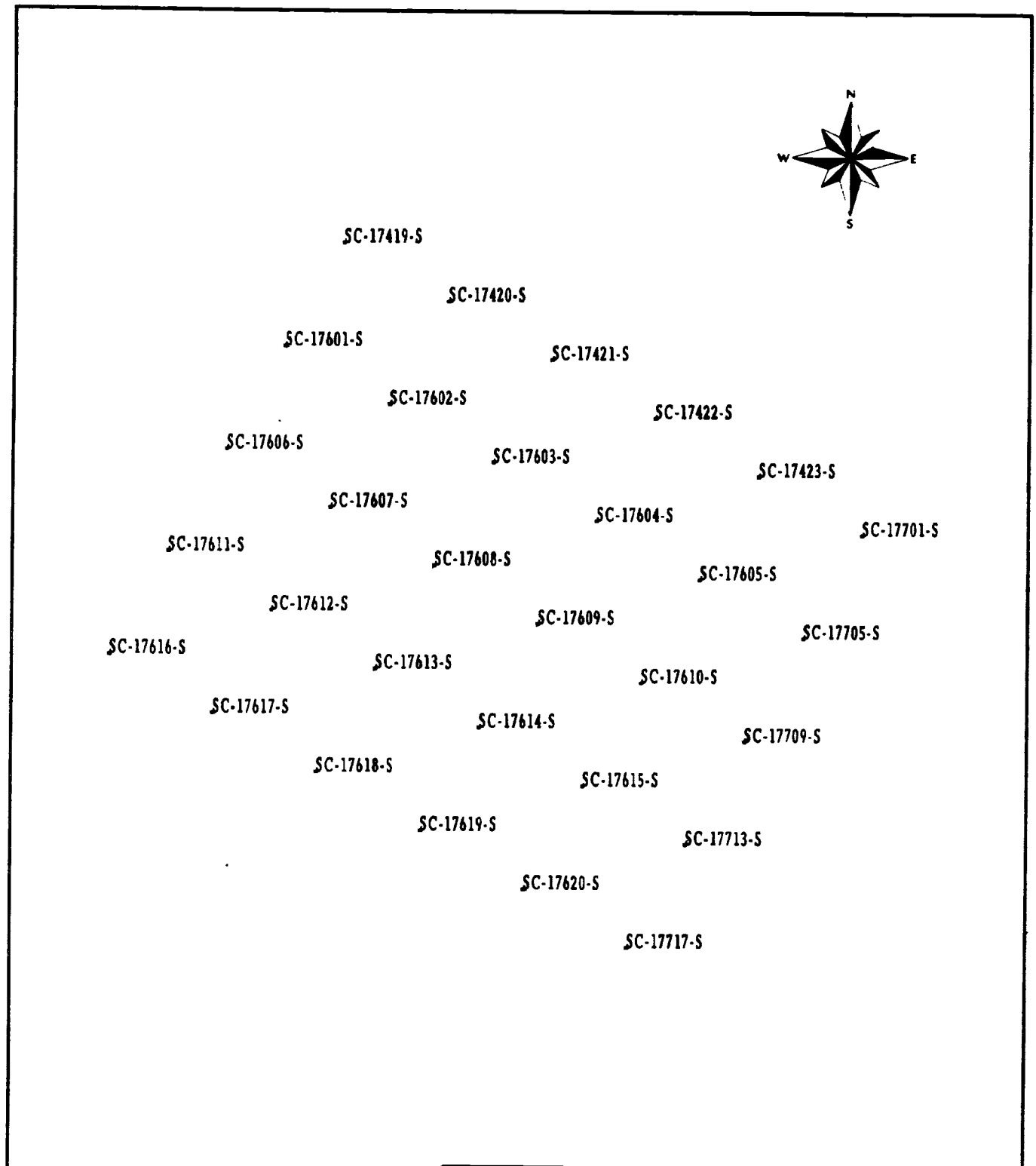
ORISE ACTION - *None*

ALARA COMMITTEE ACTION - *None*

CU SUMMARY DATA

Ra-226	30	0.96 - 1.64	1.43	5	6.2	0	0
Ra-228	30	0.57 - 1.60	1.24	5	6.2	0	0
Total Radium	30	1.87 - 3.12	2.67	5	6.2	0	0
U-238	30	1.33 - 6.15	1.94	30	120	0	0

NOTE: Radiological contaminants are listed in pCi/g.



150 75 0 150 FEET

50 25 0 50 METERS

Sample Locations in Remedial Unit RU018
Confirmation Unit CU176

Figure: 4-7

REPORT NO.:	DOE/OR/21548-874	EXHIBIT NO:			
ORIGINATOR:	MGL	DRAWN BY:	LGB	DATE	12/19/00

Table 4 - 8 Summary of CU177

CU: 177 RU: 18

COC: Ra-226 [X], Ra-228 [X], Th-230 [ ], Th-232 [ ], U-238 [X]; As [ ], Cr [ ], Pb [ ], Tl [ ], PAH [ ], PCB [ ], TNT [ ]

Reference Figure: 4 - 8

DATE RELEASED FOR UNRESTRICTED USE: 10 / 21 / 98

CLEANUP STANDARD [X] SURFACE [ ] SUBSURFACE

EACH 100m² < CRITERIA? [X] YES [ ] NO

LOCATION DESCRIPTION: *This CU is located in the north central portion of the MSA work zone.*

WALKOVER SURVEY INFORMATION

BACKGROUND: *4200* (shielded) - *11000* (not shielded) cpm

FINAL SURVEY(S) BELOW 1.5 X BACKGROUND ? [X] YES [ ] NO

DATE(S) SCANNED: *9/30/98 10/16/98*

CONFIRMATION SAMPLING INFORMATION

TOTAL # OF SAMPLE LOCATIONS : 30

TOTAL # OF UTILITY SAMPLES : 0

AVERAGES < ALARA? [X] YES [ ] NO

HOTSPOTS? [ ] YES [X] NO

ADDITIONAL EXCAVATION REQUIRED? [ ] YES [X] NO

GENERAL COMMENTS - *All results are below ALARA.*

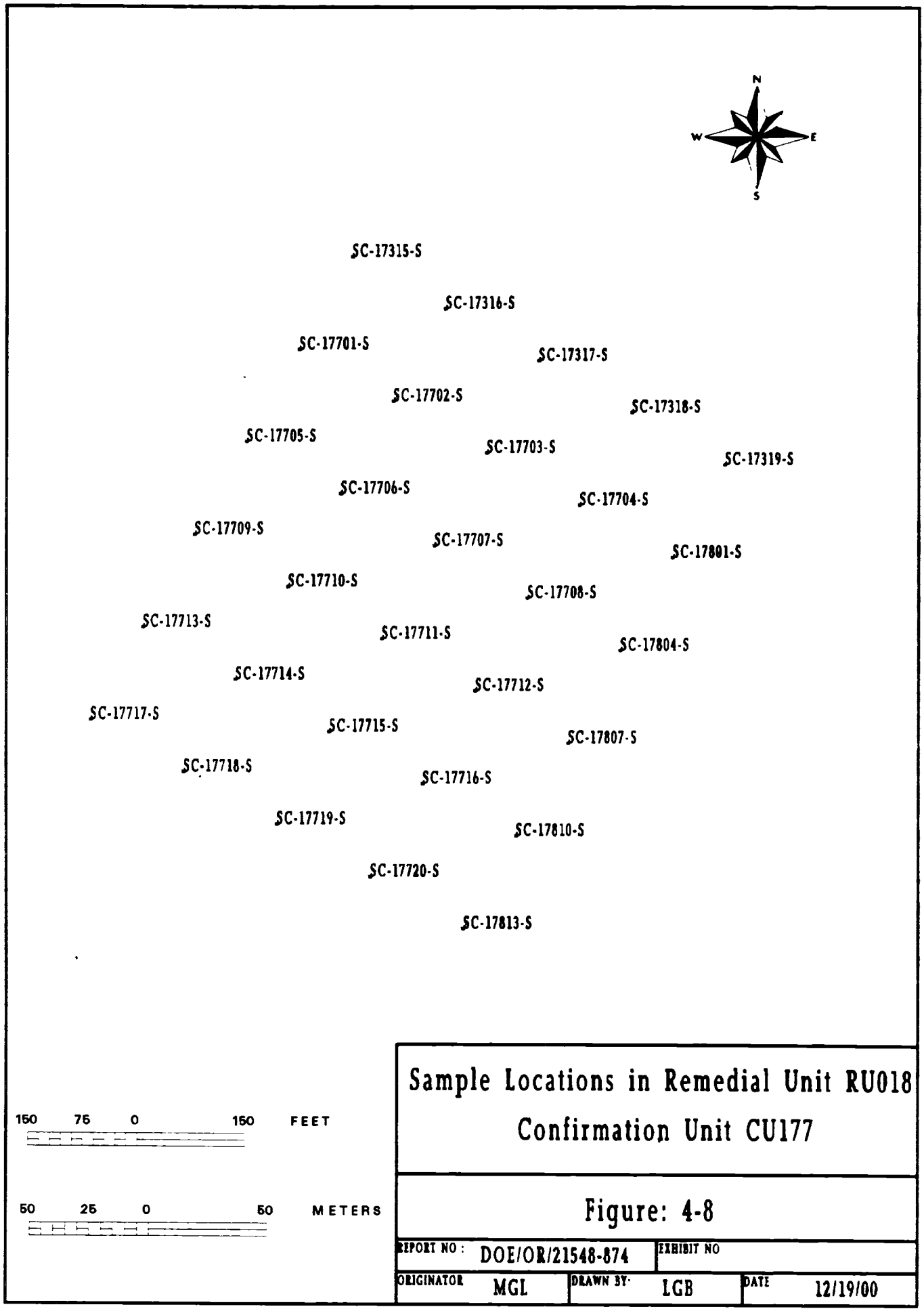
ORISE ACTION - *None*

ALARA COMMITTEE ACTION - *None*

CU SUMMARY DATA

Ra-226	30	0.96 - 1.60	1.26	5	6.2	0	0
Ra-228	30	0.60 - 1.70	1.25	5	6.2	0	0
Total Radium	30	1.76 - 2.92	2.51	5	6.2	0	0
U-238	30	1.27 - 2.06	1.58	.30	120	0	0

NOTE: Radiological contaminants are listed in pCi/g.



Sample Locations in Remedial Unit RU018
Confirmation Unit CU177

Figure: 4-8

REPORT NO :	DOE/OR/21548-874	EXHIBIT NO			
ORIGINATOR	MGL	DRAWN BY:	LGB	DATE	12/19/00

Table 4 - 9 Summary of CU178

CU: 178 RU: 18

COC: Ra-226 [X], Ra-228 [X], Th-230 [ ], Th-232 [ ], U-238 [X]; As [ ], Cr [ ], Pb [ ], Tl [ ], PAH [ ], PCB [ ], TNT [ ]

Reference Figure: 4 - 9

DATE RELEASED FOR UNRESTRICTED USE: 10 / 21 / 98

CLEANUP STANDARD [X] SURFACE [ ] SUBSURFACE

EACH 100m² < CRITERIA? [X] YES [ ] NO

LOCATION DESCRIPTION: *This CU is located along the east border of the MSA work zone.*

WALKOVER SURVEY INFORMATION

BACKGROUND: *4200* (shielded) cpm

FINAL SURVEY(S) BELOW 1.5 X BACKGROUND ? [X] YES [ ] NO

DATE(S) SCANNED: *10/16/98*

CONFIRMATION SAMPLING INFORMATION

TOTAL # OF SAMPLE LOCATIONS : *29*

TOTAL # OF UTILITY SAMPLES : *0*

AVERAGES < ALARA? [X] YES [ ] NO

HOTSPOTS? [ ] YES [X] NO

ADDITIONAL EXCAVATION REQUIRED? [ ] YES [X] NO

GENERAL COMMENTS - *All results are below ALARA.*

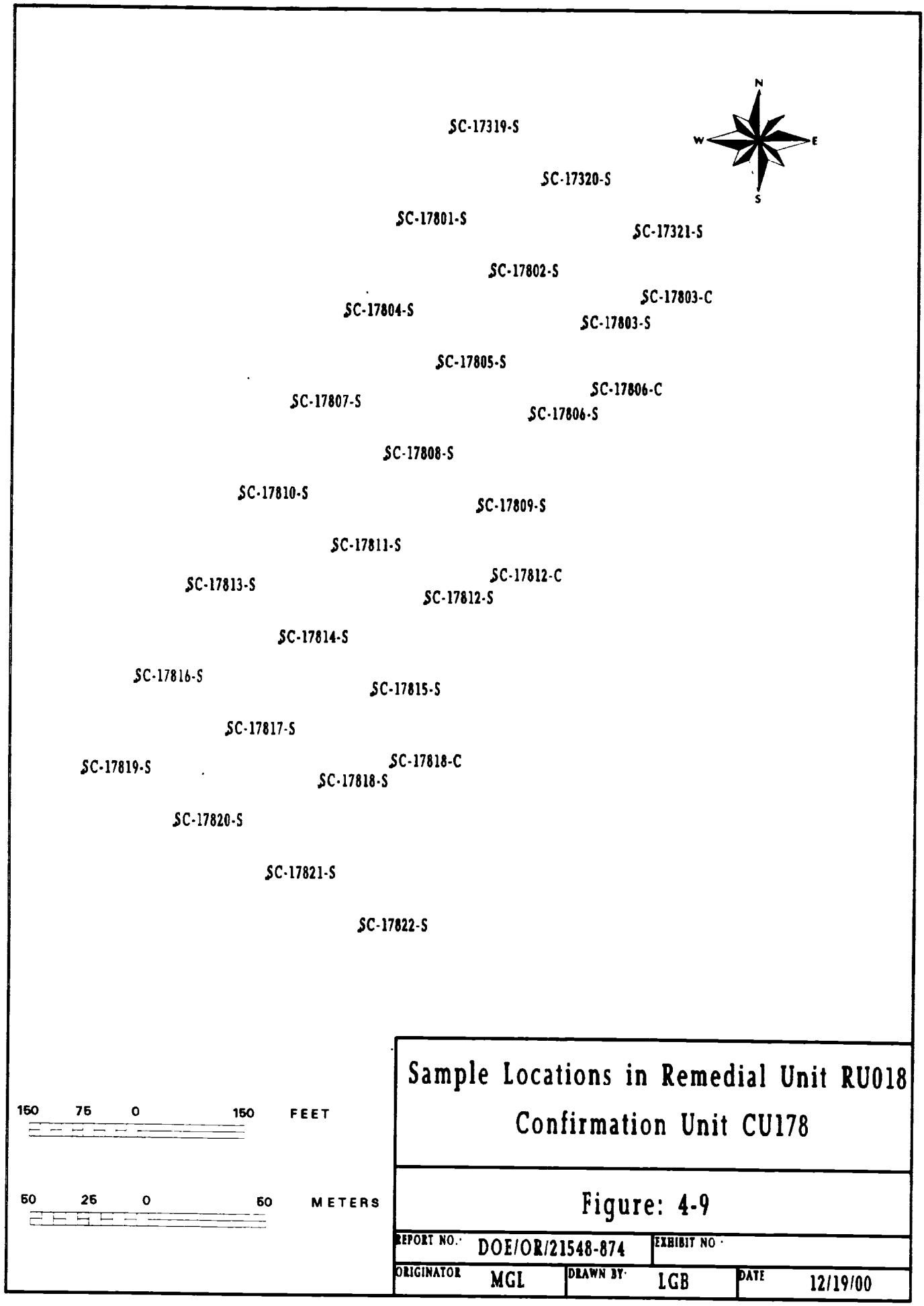
ORISE ACTION - *None*

ALARA COMMITTEE ACTION - *None*

CU SUMMARY DATA

Ra-226	29	0.80 - 1.46	1.11	5	6.2	0	0
Ra-228	29	0.59 - 1.63	1.3	5	6.2	0	0
Total Radium	29	1.53 - 2.89	2.41	5	6.2	0	0
U-238	29	1.23 - 3.08	1.66	30	120	0	0

NOTE: Radiological contaminants are listed in pCi/g.



Sample Locations in Remedial Unit RU018
Confirmation Unit CU178

Figure: 4-9

REPORT NO.	DOE/OR/21548-874	EXHIBIT NO.			
ORIGINATOR	MGL	DRAWN BY	LGB	DATE	12/19/00

Table 4 - 10 Summary of CU179

CU: 179 RU: 18

COC: Ra-226 X; Ra-228 X; Th-230 ; Th-232 ; U-238 X; As ; Cr ; Pb ; Tl ; PAH ; PCB X; TNT

Reference Figure: 4 - 10

DATE RELEASED FOR UNRESTRICTED USE: 10 / 30 / 98

CLEANUP STANDARD: X SURFACE ; SUBSURFACE

EACH 100m^2 < CRITERIA? X YES ; NO

LOCATION DESCRIPTION: *This CU is located in the center of the MSA work zone.*

WALKOVER SURVEY INFORMATION

BACKGROUND: *6000* (shielded) cpm

FINAL SURVEY(S) BELOW 1.5 X BACKGROUND ? X YES ; NO

DATE(S) SCANNED: *10/23/98*

CONFIRMATION SAMPLING INFORMATION

TOTAL # OF SAMPLE LOCATIONS : *30*

TOTAL # OF UTILITY SAMPLES : *0*

AVERAGES < ALARA? X YES ; NO

HOTSPOTS? YES ; X NO

ADDITIONAL EXCAVATION REQUIRED? YES ; X NO

GENERAL COMMENTS - *All results are below ALARA.*

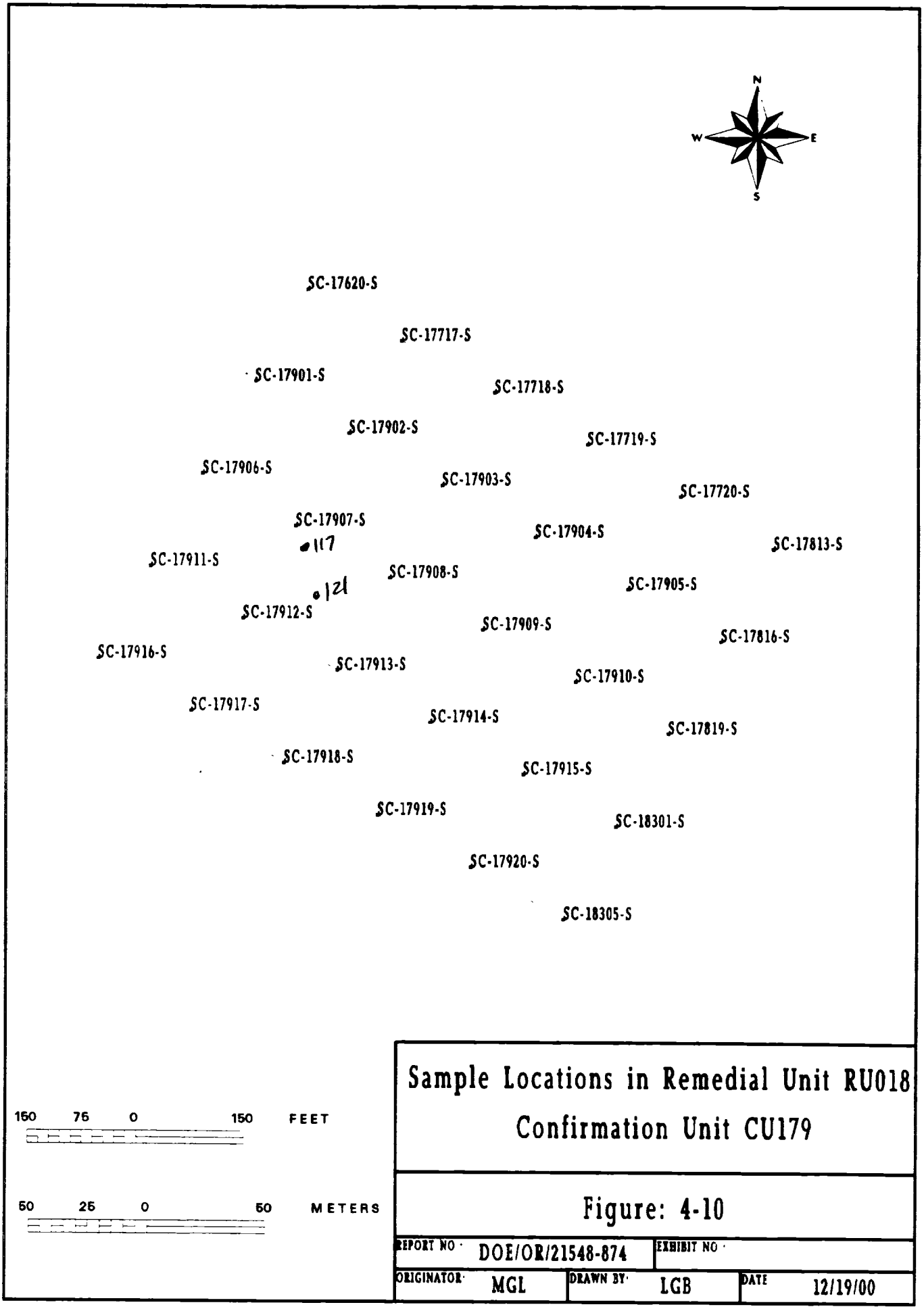
ORISE ACTION - *None*

ALARA COMMITTEE ACTION - *None*

CU SUMMARY DATA

Ra-226	30	0.43 - 1.67	1.28	5	6.2	0	0
Ra-228	30	0.52 - 1.59	1.16	5	6.2	0	0
Total Radium	30	0.98 - 3.17	2.44	5	6.2	0	0
U-238	30	1.30 - 2.10	1.65	30	120	0	0
PCB	19	results < detection limit	N/A	0.65	8	0	0

NOTE: Radiological contaminants are listed in pCi/g. Chemical contaminants are listed in mg/kg.



Sample Locations in Remedial Unit RU018
Confirmation Unit CU179

Figure: 4-10

REPORT NO:	DOE/OR/21548-874	EXHIBIT NO:			
ORIGINATOR:	MGL	DRAWN BY:	LGB	DATE	12/19/00

Table 4 - 11 Summary of CU180

CU: 180 RU: 18

COC: Ra-226 X; Ra-228 X; Th-230 ; Th-232 ; U-238 X; As ; Cr ; Pb ; Tl ; PAH ; PCB X; TNT

Reference Figure: 4 - 11

DATE RELEASED FOR UNRESTRICTED USE: 7 / 3 / 00

CLEANUP STANDARD: X SURFACE ; SUBSURFACE

EACH 100m^2 < CRITERIA? X YES ; NO

LOCATION DESCRIPTION: *This CU is located along the west border of the MSA work zone.*

WALKOVER SURVEY INFORMATION

BACKGROUND: *4,800 - 10,000* cpm (shielded) (unshielded)

FINAL SURVEY(S) BELOW 1.5 X BACKGROUND ? X YES ; NO

DATE(S) SCANNED: *10/26/98 6/22/00*

CONFIRMATION SAMPLING INFORMATION

TOTAL # OF SAMPLE LOCATIONS : 32

TOTAL # OF UTILITY SAMPLES . 0

AVERAGES < ALARA? X YES ; NO

HOTSPOTS? ; YES X NO

ADDITIONAL EXCAVATION REQUIRED? ; YES X NO

GENERAL COMMENTS - *All results are below ALARA.*

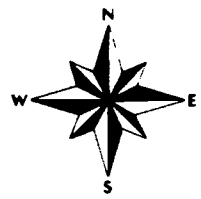
ORISE ACTION - *None*

ALARA COMMITTEE ACTION - *None*

CU SUMMARY DATA

Ra-226	29	0.43 - 1.66	1.25	5	6.2	0	0
Ra-228	29	0.55 - 1.53	1.17	5	6.2	0	0
Total Radium	29	0.98 - 2.91	2.42	5	6.2	0	0
U-238	32	1.18 - 22.30	2.42	30	120	0	0
PCB	4	results < detection limit	N/A	0.65	8	0	0

NOTE: Radiological contaminants are listed in pCi/g. Chemical contaminants are listed in mg/kg.



SC-17616-S
SC-17522-S
SC-17617-S
SC-17523-S
SC-18001-S
SC-17618-S
SC-17524-S
SC-18002-S
SC-17619-S
SC-18011-S
SC-18005-S
SC-18003-S
SC-17620-S
SC-18012-S
SC-18006-S
SC-18004-S
SC-18018-S
SC-18013-S
SC-18007-S
SC-17901-S
SC-18019-S
SC-18014-S
SC-18008-S
SC-18020-S
SC-18015-S
SC-17906-S
SC-18021-S
SC-18016-S
SC-18022-S
SC-17911-S
SC-18023-S
SC-17916-S

150 75 0 150 FEET

50 25 0 50 METERS

Sample Locations in Remedial Unit RU018
Confirmation Unit CU180

Figure: 4-11

REPORT NO.:	DOE/OR/21548-874	EXHIBIT NO ·			
ORIGINATOR·	MGL	DRAWN BY·	LGB	DATE	12/19/00

Table 4 - 12 Summary of CU181

CU: 181 RU: 18

COC				
	Ra-226	X	As	
	Ra-228	X	Cr	
	Th-230	X	Pb	X
	Th-232		Tl	
	U-238	X	PAH	X
			PCB	
Reference Figure: 4 - 12			TNT	X

DATE RELEASED FOR UNRESTRICTED USE: 7 / 19 / 00

CLEANUP STANDARD [X] SURFACE [ ] SUBSURFACE

EACH 100m² < CRITERIA? [X] YES [ ] NO

LOCATION DESCRIPTION: *This CU is located along the west border of the MSA work zone.*

WALKOVER SURVEY INFORMATION

BACKGROUND: *4,800 - 11,000* cpm (shielded) (unshielded)

FINAL SURVEY(S) BELOW 1.5 X BACKGROUND ? [X] YES [ ] NO

DATE(S) SCANNED: *10/26/98 1/28/99 6/22/00 7/5/00*

CONFIRMATION SAMPLING INFORMATION

TOTAL # OF SAMPLE LOCATIONS : 32

TOTAL # OF UTILITY SAMPLES : 0

AVERAGES < ALARA? [X] YES [ ] NO

HOTSPOTS? [ ] YES [X] NO

ADDITIONAL EXCAVATION REQUIRED? [ ] YES [X] NO

GENERAL COMMENTS - *Nitroaromatics were identified in soil beneath the cell haul ramp, thus TNT was added as a COC in this area and two biased sample locations were added to confirm removal of the nitroaromatics Excavation of the cell haul ramp yielded cinders, thus the area was resampled for radiological COCs and PAHs.*

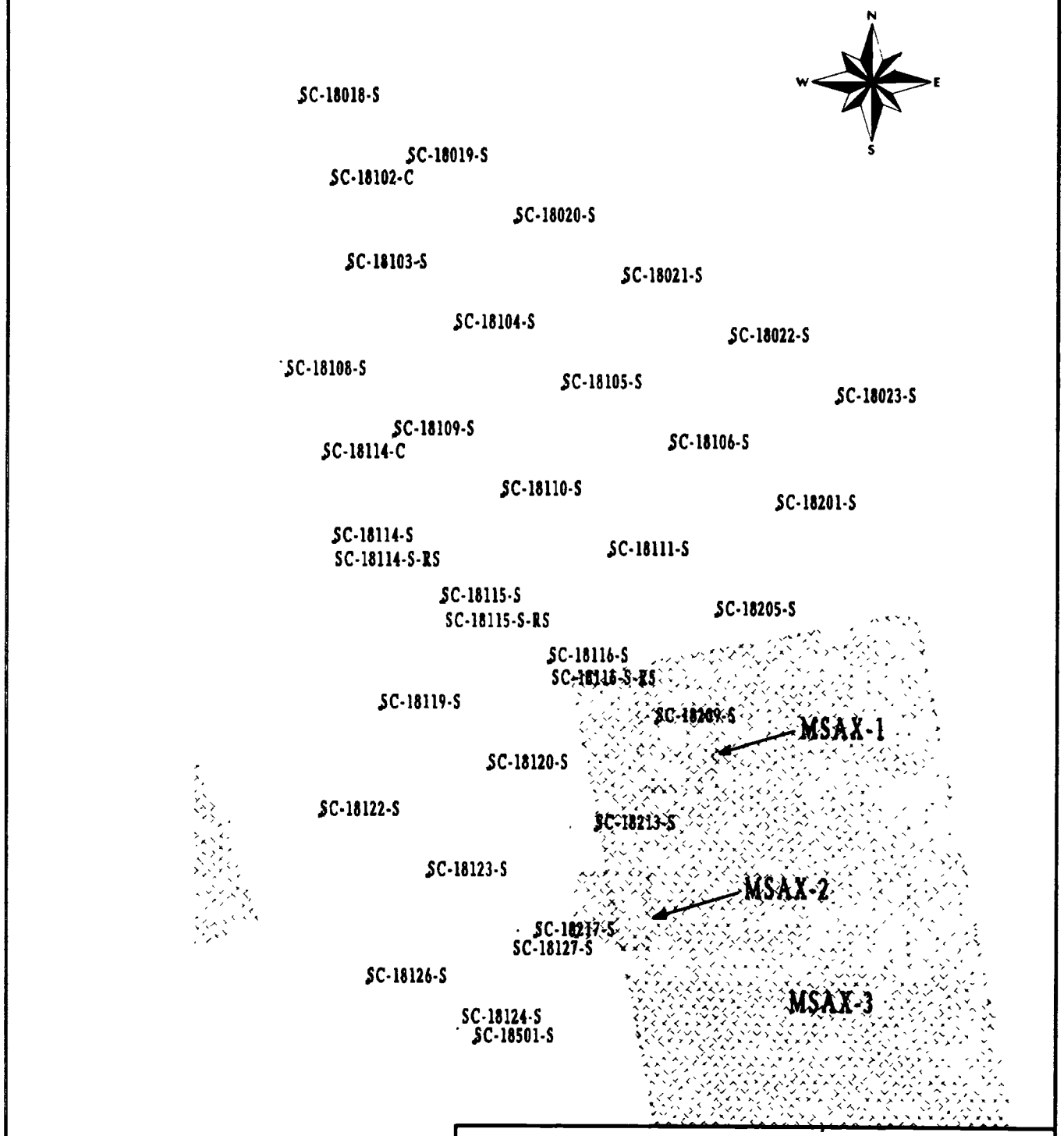
ORISE ACTION - *None*

ALARA COMMITTEE ACTION - *None*

CU SUMMARY DATA

Ra-226	13	0.29 - 1.82	1.25	5	6.2	0	0
Ra-228	13	0.38 - 1.51	0.98	5	6.2	0	0
Total Radium	13	0.67 - 3.10	2.23	5	6.2	0	0
Th-230	5	0.71 - 1.38	0.96	5	6.2	0	0
U-238	30	1.05 - 3.90	1.95	30	120	0	0
Lead	2	12.8 - 13.0	12.9	240	450	0	0
PAH	3	0 - 0.03	0.01	0.44	5.6	0	0
TNT	4	0.11 - 0.76	0.29	14	140	0	0

NOTE. Radiological contaminants are listed in pCi/g. Chemical contaminants are listed in mg/kg. Nitro-aromatics are listed in ug/g.



150 75 0 150 FEET

50 25 0 50 METERS

Sample Locations in Remedial Unit RU018
Confirmation Unit CU181

Figure: 4-12

REPORT NO :	DOE/OR/21548-874	EXHIBIT NO :			
ORIGINATOR	MGL	DRAWN BY:	LGB	DATE	1/16/01

Table 4 - 13 Summary of CU182

CU: 182 RU: 18

COC				
	Ra-226	X	As	
	Ra-228	X	Cr	
	Th-230		Pb	X
	Th-232		Tl	
	U-238	X	PAH	
			PCB	X
Reference Figure:	4 - 13		TNT	X

DATE RELEASED FOR UNRESTRICTED USE: 11 / 3 / 98

CLEANUP STANDARD [X] SURFACE [ ] SUBSURFACE

EACH 100m² < CRITERIA? [X] YES [ ] NO

LOCATION DESCRIPTION: *This CU is located in the center of the MSA work zone.*

WALKOVER SURVEY INFORMATION

BACKGROUND: *4800* (shielded) cpm

FINAL SURVEY(S) BELOW 1.5 X BACKGROUND ? [X] YES [ ] NO

DATE(S) SCANNED: *10/26/98*

CONFIRMATION SAMPLING INFORMATION

TOTAL # OF SAMPLE LOCATIONS : 30

AVERAGES < ALARA? [X] YES [ ] NO

HOTSPOTS? [ ] YES [X] NO

TOTAL # OF UTILITY SAMPLES : 0

ADDITIONAL EXCAVATION REQUIRED? [ ] YES [X] NO

GENERAL COMMENTS - *MSAX-3 was originally identified as a possible lead contamination area based on the structure that occupied the location. Further characterization efforts to confirm or deny lead contamination were not possible until the structure was removed, which occurred after the Sampling Plan was developed. All characterization results were less than ALARA, so Pb was removed as a COC within this area. (Reference IOCs from Melissa Lutz - 10/6/98 and 5/6/99.) SC-18217-S was offset in order to represent MSAX-2.*

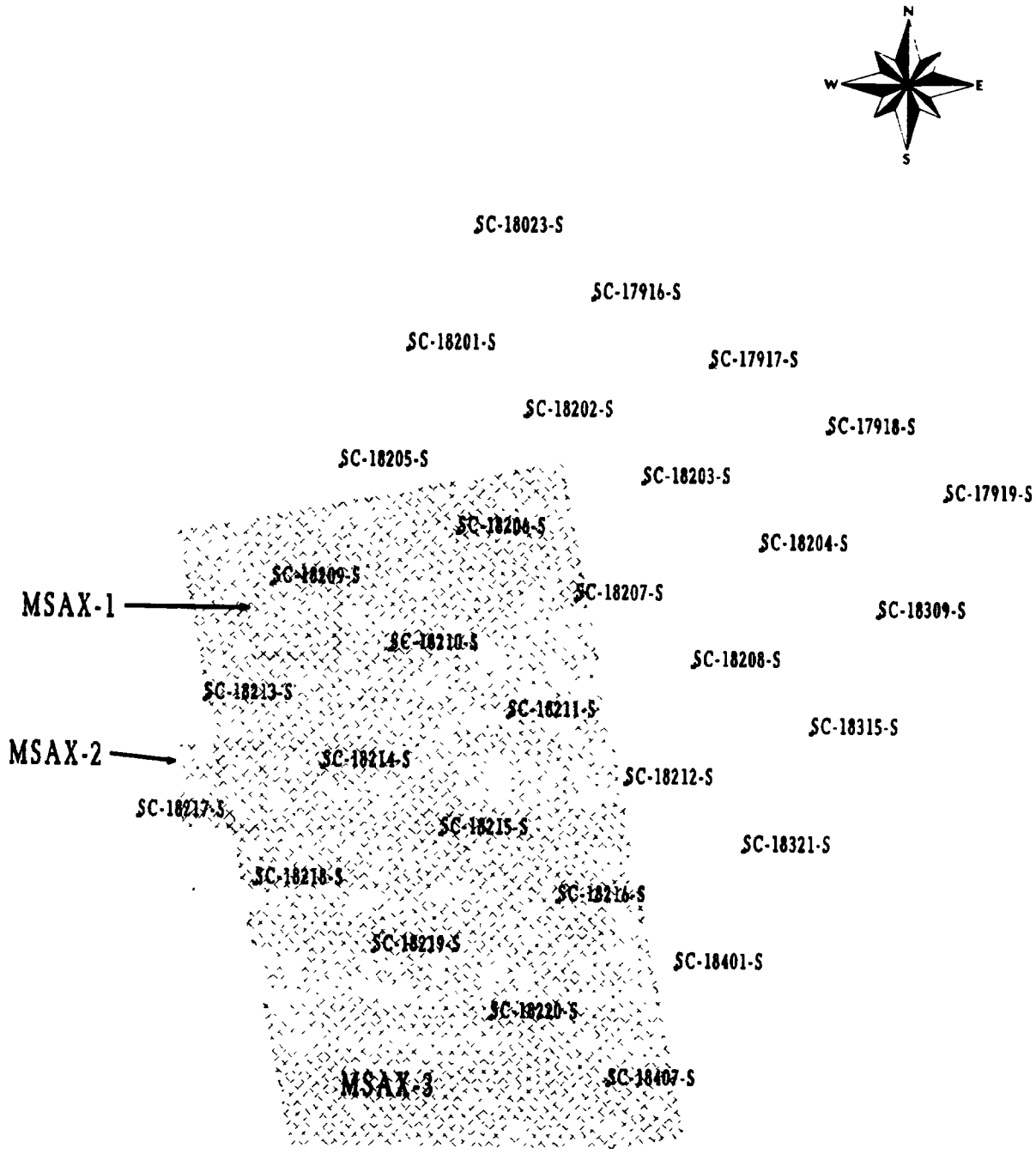
ORISE ACTION - *None*

ALARA COMMITTEE ACTION - *None*

CU SUMMARY DATA

Ra-226	30	0.92 - 1.65	0.81	5	6.2	0	0
Ra-228	30	0.59 - 1.55	1.19	5	6.2	0	0
Total Radium	30	1.86 - 2.98	2.49	5	6.2	0	0
U-238	30	1.34 - 3.59	1.73	30	120	0	0
Lead	4	11.0 - 13.4	12.55	240	450	0	0
PCB	4	0	N/A	0.65	8	0	0
TNT	4	0.11 - 0.24	0.28	14	140	0	0

NOTE: Radiological contaminants are listed in pCi/g. Chemical contaminants are listed in mg/kg. Nitro-aromatics are listed in ug/g.



150 75 0 150 FEET

50 25 0 50 METERS

Sample Locations in Remedial Unit RU018
Confirmation Unit CU182

Figure: 4-13

REPORT NO :	DOE/OR/21548-874	EXHIBIT NO :			
ORIGINATOR:	MGL	DRAWN BY:	LGB	DATE	12/19/00

Table 4 - 14 Summary of CU183

CU: 183 RU: 18

COC				
	Ra-226	X	As	
	Ra-228	X	Cr	
	Th-230		Pb	
	Th-232		Tl	
	U-238	X	PAH	
			PCB	X
Reference Figure:	4 - 14		TNT	

DATE RELEASED FOR UNRESTRICTED USE: 11 / 3 / 98

CLEANUP STANDARD [X] SURFACE [ ] SUBSURFACE

EACH 100m² < CRITERIA? [X] YES [ ] NO

LOCATION DESCRIPTION: *This CU is located along the east edge of the MSA work zone.*

WALKOVER SURVEY INFORMATION

BACKGROUND: *6000* (shielded) cpm

FINAL SURVEY(S) BELOW 1.5 X BACKGROUND ? [X] YES [ ] NO

DATE(S) SCANNED: *10/22/98*

CONFIRMATION SAMPLING INFORMATION

TOTAL # OF SAMPLE LOCATIONS : 32

TOTAL # OF UTILITY SAMPLES : 0

AVERAGES < ALARA? [X] YES [ ] NO

HOTSPOTS? [ ] YES [X] NO

ADDITIONAL EXCAVATION REQUIRED? [ ] YES [X] NO

GENERAL COMMENTS - *All results are below ALARA.*

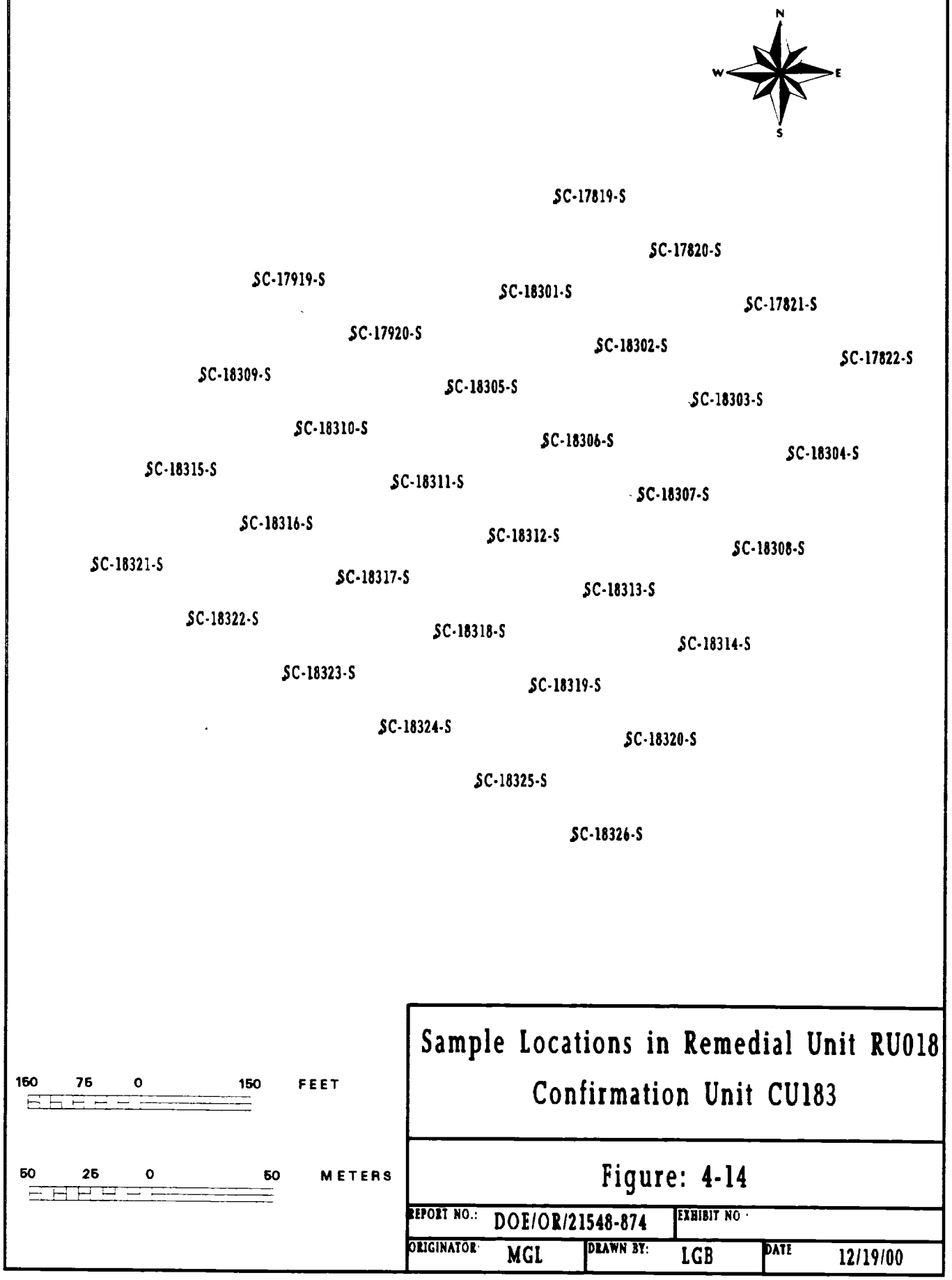
ORISE ACTION - *None*

ALARA COMMITTEE ACTION - *None*

CU SUMMARY DATA

Ra-226	32	0.94 - 1.66	1.25	5	6.2	0	0
Ra-228	32	0.55 - 1.62	1.16	5	6.2	0	0
Total Radium	32	1.53 - 3.02	2.40	5	6.2	0	0
U-238	32	1.27 - 3.59	1.80	. 30	120	0	0
PCB	2	results < detection limit	N/A	0.65	8	0	0

NOTE: Radiological contaminants are listed in pCi/g. Chemical contaminants are listed in mg/kg.



Sample Locations in Remedial Unit RU018
Confirmation Unit CU183

Figure: 4-14

REPORT NO.:	DOE/OR/21548-874	EXHIBIT NO			
ORIGINATOR	MGL	DRAWN BY:	LGB	DATE	12/19/00

Table 4 - 15 Summary of CU184

CU: 184 RU: 18

COC: Ra-226 [X], Ra-228 [X], Th-230 [ ], Th-232 [ ], U-238 [X], As [ ], Cr [ ], Pb [ ], Tl [ ], PAH [ ], PCB [ ], TNT [ ]

Reference Figure: 4 - 15

DATE RELEASED FOR UNRESTRICTED USE: 11 / 2 / 98

CLEANUP STANDARD [X] SURFACE [ ] SUBSURFACE

EACH 100m² < CRITERIA? [X] YES [ ] NO

LOCATION DESCRIPTION: *This CU is located along the east edge of the MSA work zone.*

WALKOVER SURVEY INFORMATION

BACKGROUND: *6,000 - 12,000* cpm (shielded) (not shielded)

FINAL SURVEY(S) BELOW 1.5 X BACKGROUND ? [X] YES [ ] NO

DATE(S) SCANNED: *3/3/98 4/2/98 10/22/98*

CONFIRMATION SAMPLING INFORMATION

TOTAL # OF SAMPLE LOCATIONS : 30

TOTAL # OF UTILITY SAMPLES : 0

AVERAGES < ALARA? [X] YES [ ] NO

HOTSPOTS? [ ] YES [X] NO

ADDITIONAL EXCAVATION REQUIRED? [ ] YES [X] NO

GENERAL COMMENTS - *All results are below ALARA.*

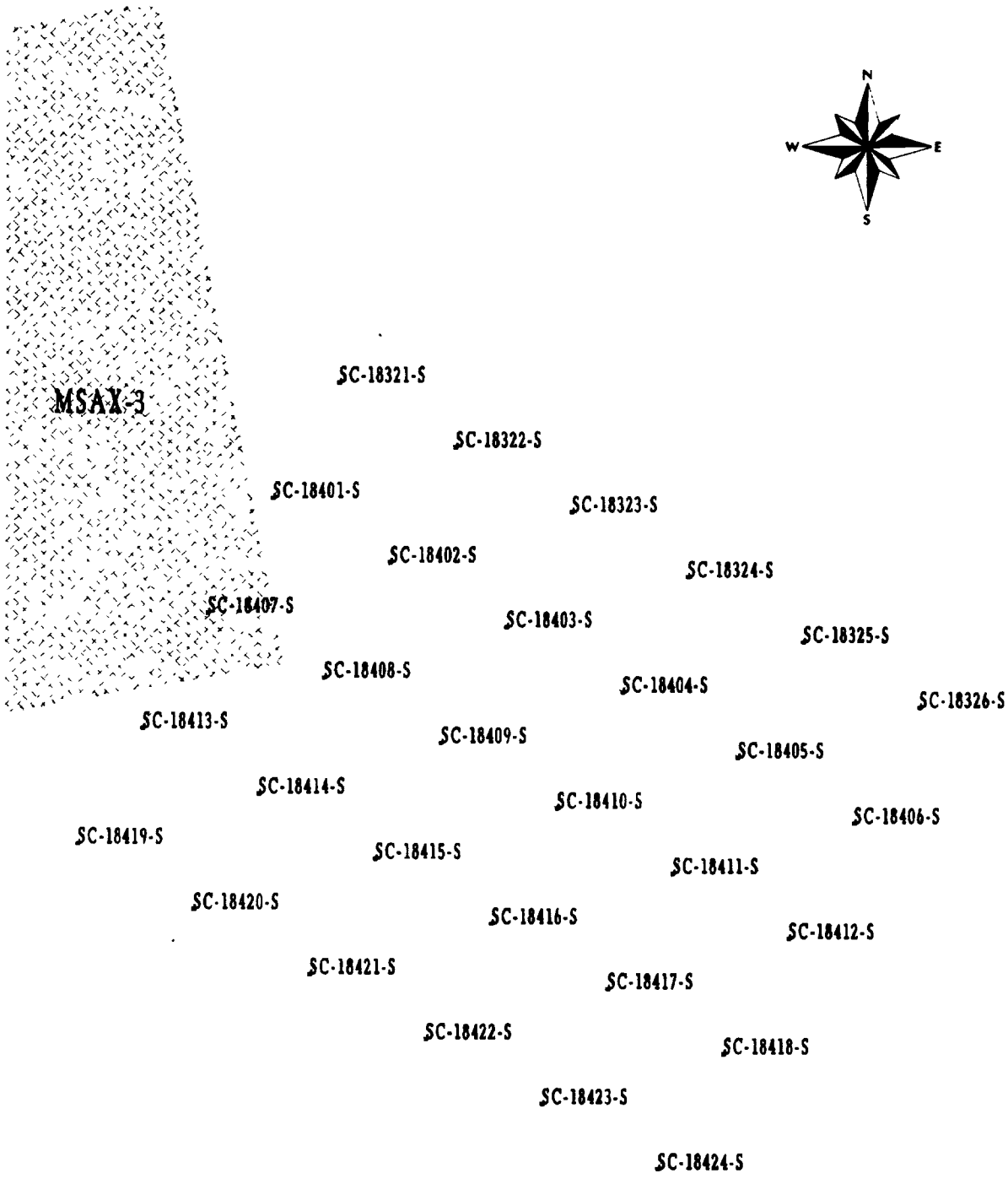
ORISE ACTION - *None*

ALARA COMMITTEE ACTION - *None*

CU SUMMARY DATA

Ra-226	30	1.01 - 1.90	1.35	5	6.2	0	0
Ra-228	30	0.48 - 1.59	1.07	5	6.2	0	0
Total Radium	30	1.57 - 3.36	2.42	5	6.2	0	0
U-238	30	1.32 - 3.59	1.85	30	120	0	0

NOTE: Radiological contaminants are listed in pCi/g.



150 75 0 150 FEET

50 25 0 50 METERS

Sample Locations in Remedial Unit RU018
Confirmation Unit CU184

Figure: 4-15

REPORT NO.:	DOE/OR/21548-874	EXHIBIT NO ·			
ORIGINATOR·	MGL	DRAWN BY·	LGB	DATE	12/19/00

Table 4 - 16 Summary of CU185

CU: 185 RU: 18

COC: Ra-226 X; Ra-228 X; Th-230 ; Th-232 ; U-238 X; As ; Cr ; Pb X; Tl ; PAH ; PCB ; TNT X

Reference Figure: 4 - 16

DATE RELEASED FOR UNRESTRICTED USE: 2 / 2 / 99

CLEANUP STANDARD [X] SURFACE [ ] SUBSURFACE

EACH 100m^2 < CRITERIA? [X] YES [ ] NO

LOCATION DESCRIPTION: *This CU is located along the south-west edge of the MSA work zone.*

WALKOVER SURVEY INFORMATION

BACKGROUND: *4,800 - 14,564* cpm (shielded) (not shielded)

FINAL SURVEY(S) BELOW 1.5 X BACKGROUND ? [X] YES [ ] NO

DATE(S) SCANNED: *3/3/98 3/30/98 10/26/98 1/28/99*

CONFIRMATION SAMPLING INFORMATION

TOTAL # OF SAMPLE LOCATIONS : 27

TOTAL # OF UTILITY SAMPLES . 0

AVERAGES < ALARA? [X] YES [ ] NO

HOTSPOTS? [ ] YES [X] NO

ADDITIONAL EXCAVATION REQUIRED? [ ] YES [X] NO

GENERAL COMMENTS - *All results are below ALARA.*

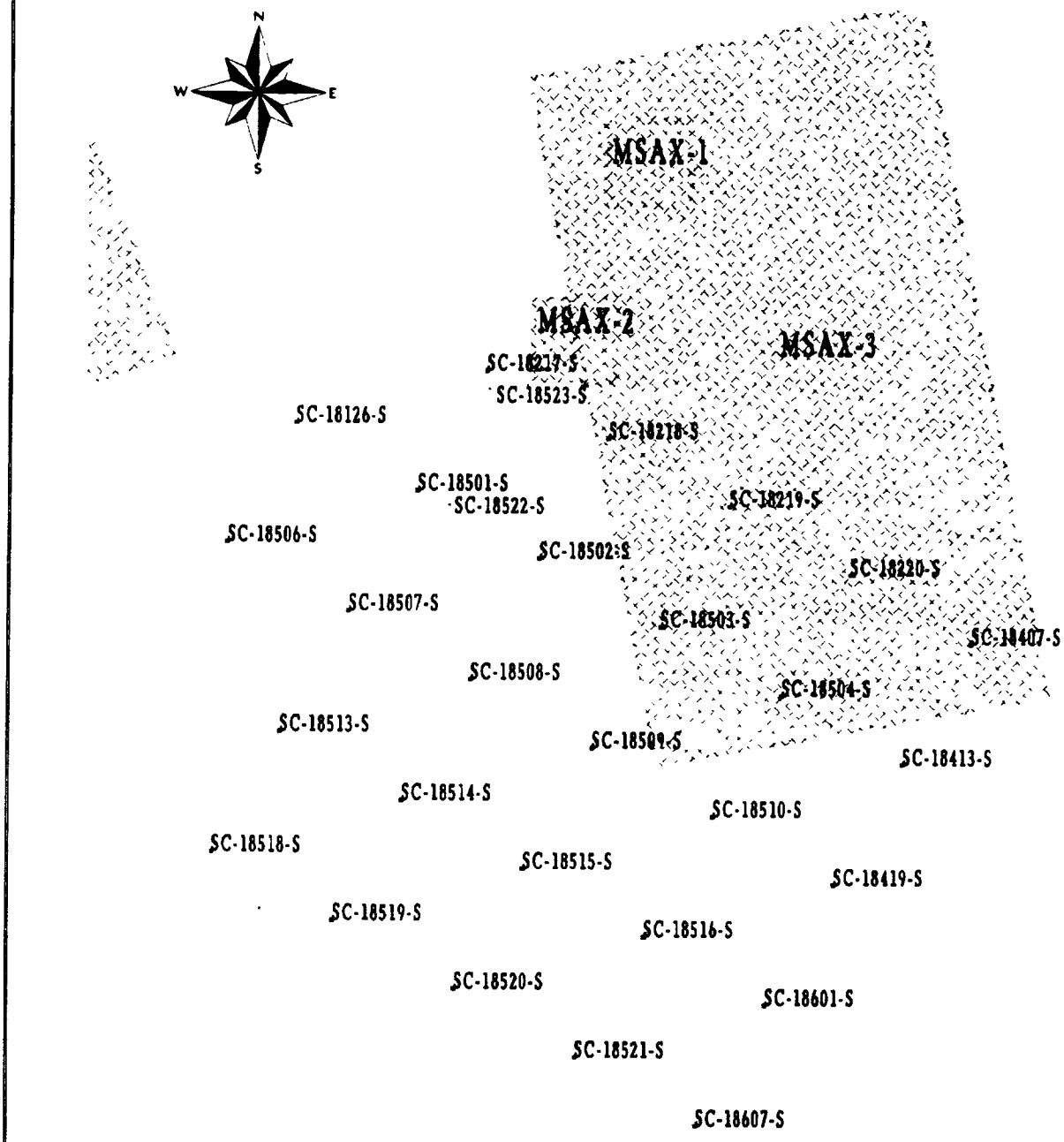
ORISE ACTION - *None*

ALARA COMMITTEE ACTION - *None*

CU SUMMARY DATA

Ra-226	27	0.96 - 1.9	1.36	5	6.2	0	0
Ra-228	27	0.56 - 1.47	1.16	5	6.2	0	0
Total Radium	27	1.52 - 3.36	2.52	5	6.2	0	0
U-238	27	1.26 - 5.10	1.89	30	120	0	0
Lead	1	12.8	12.8	240	450	0	0
TNT	3	0.15	0.15	14	140	0	0

NOTE: Radiological contaminants are listed in pCi/g. Chemical contaminants are listed in mg/kg. Nitro-aromatics are listed in ug/g.



150 75 0 150 FEET

60 25 0 60 METERS

Sample Locations in Remedial Unit RU018
Confirmation Unit CU185

Figure: 4-16

REPORT NO:	DOE/OR/21548-874	EXHIBIT NO:			
ORIGINATOR:	MGL	DRAWN BY:	LGB	DATE	1/16/01

Table 4 - 17 Summary of CU186

CU: 186 RU: 18

COC: Ra-226 [X], Ra-228 [X], Th-230 [ ], Th-232 [ ], U-238 [X]; As [ ], Cr [ ], Pb [ ], Tl [ ], PAH [ ], PCB [ ], TNT [ ]

Reference Figure: 4 - 17

DATE RELEASED FOR UNRESTRICTED USE: 4 / 6 / 98

CLEANUP STANDARD [X] SURFACE [ ] SUBSURFACE

EACH 100m^2 < CRITERIA? [X] YES [ ] NO

LOCATION DESCRIPTION: *This CU is located along the south-east edge of the MSA work zone.*

WALKOVER SURVEY INFORMATION

BACKGROUND: *10,000* cpm

FINAL SURVEY(S) BELOW 1.5 X BACKGROUND ? [X] YES [ ] NO

DATE(S) SCANNED: *3/30/98*

CONFIRMATION SAMPLING INFORMATION

TOTAL # OF SAMPLE LOCATIONS : *28*

TOTAL # OF UTILITY SAMPLES : *0*

AVERAGES < ALARA? [X] YES [ ] NO

HOTSPOTS? [ ] YES [X] NO

ADDITIONAL EXCAVATION REQUIRED? [ ] YES [X] NO

GENERAL COMMENTS - *All results are below ALARA.*

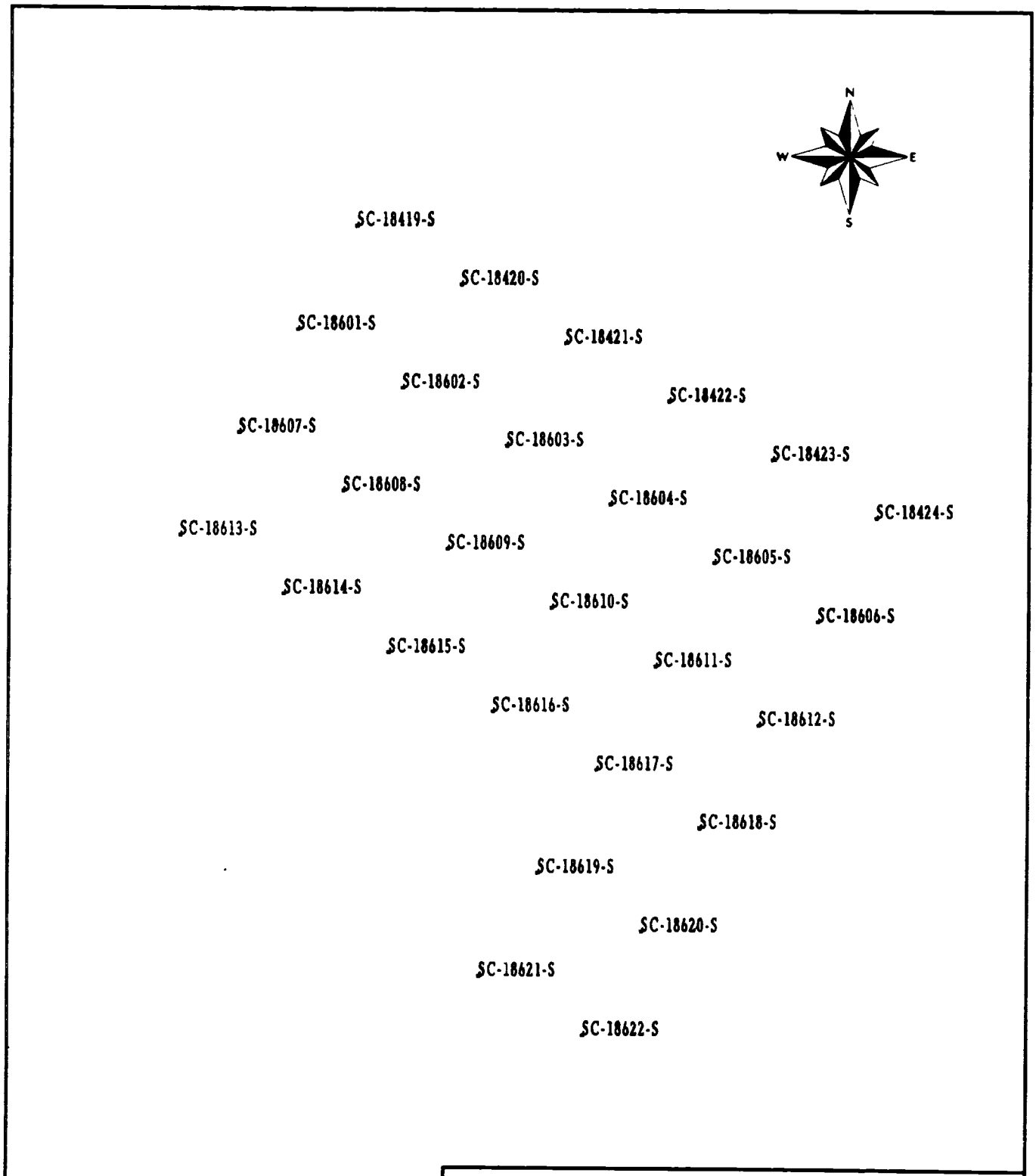
ORISE ACTION - *None*

ALARA COMMITTEE ACTION - *None*

CU SUMMARY DATA

Ra-226	28	0.79 - 1.90	1.30	5	6.2	0	0
Ra-228	28	0.56 - 1.47	1.19	5	6.2	0	0
Total Radium	28	1.46 - 3.36	2.49	5	6.2	0	0
U-238	28	1.27 - 2.75	1.83	30	120	0	0

NOTE: Radiological contaminants are listed in pCi/g.



Sample Locations in Remedial Unit RU018
Confirmation Unit CU186

Figure: 4-17

REPORT NO:	DOE/OR/21548-874	EXHIBIT NO:			
ORIGINATOR:	MGL	DRAWN BY:	LGB	DATE	12/19/00

Table 4 - 18 Summary of CU187

CU: 187 RU: 18

COC: Ra-226 [X], Ra-228 [X], Th-230 [ ], Th-232 [ ], U-238 [X], As [ ], Cr [ ], Pb [ ], Tl [ ], PAH [ ], PCB [ ], TNT [ ]

Reference Figure: 4 - 18

DATE RELEASED FOR UNRESTRICTED USE: 3 / 19 / 98

CLEANUP STANDARD [X] SURFACE [ ] SUBSURFACE

EACH 100m² < CRITERIA? [X] YES [ ] NO

LOCATION DESCRIPTION: *This CU is located at the southern tip of the MSA work zone.*

WALKOVER SURVEY INFORMATION

BACKGROUND: *10,000* cpm

FINAL SURVEY(S) BELOW 1.5 X BACKGROUND ? [X] YES [ ] NO

DATE(S) SCANNED: *3/14/98*

CONFIRMATION SAMPLING INFORMATION

TOTAL # OF SAMPLE LOCATIONS : 28

TOTAL # OF UTILITY SAMPLES : 0

AVERAGES < ALARA? [X] YES [ ] NO

HOTSPOTS? [ ] YES [X] NO

ADDITIONAL EXCAVATION REQUIRED? [ ] YES [X] NO

GENERAL COMMENTS - *All results are below ALARA.*

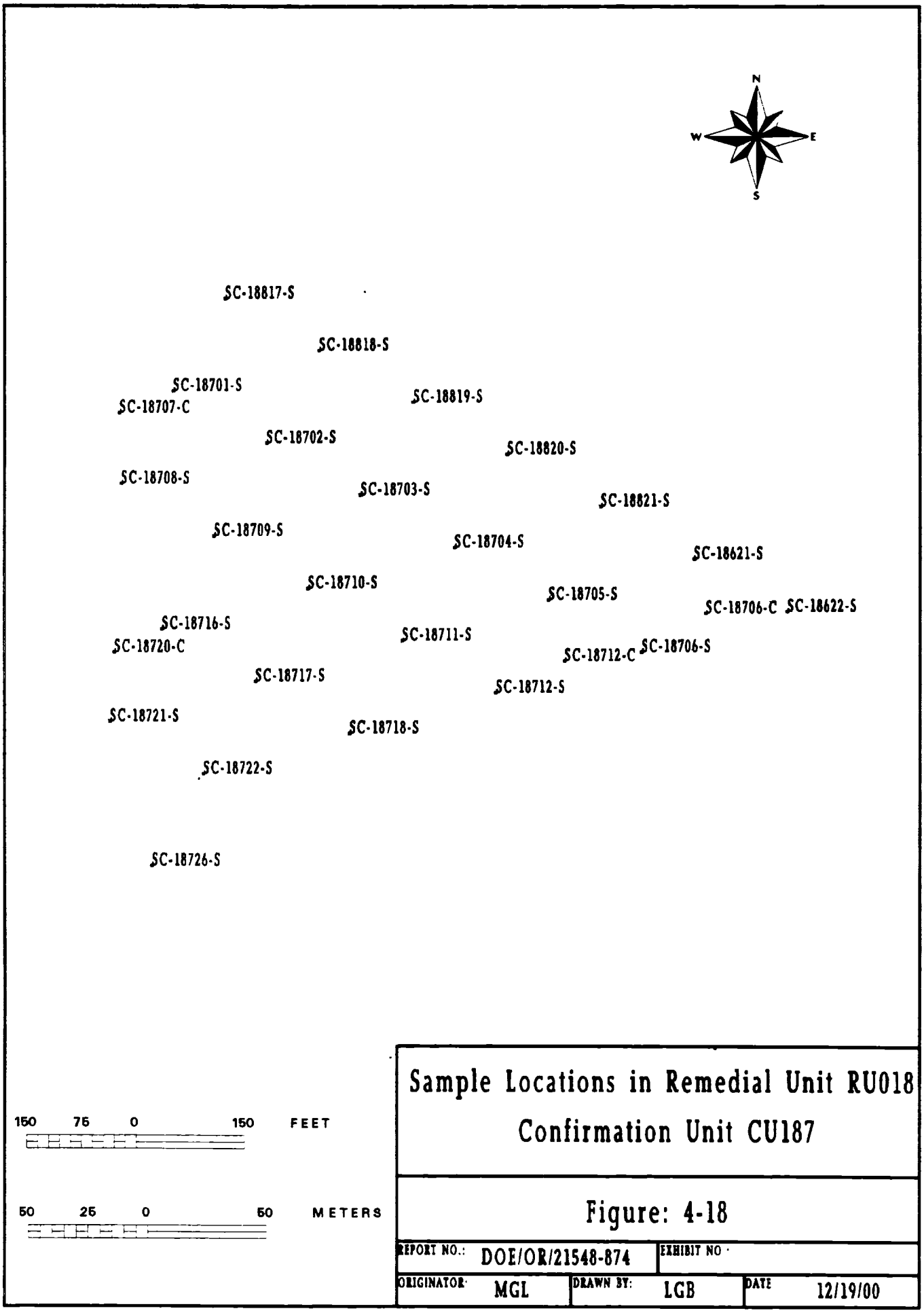
ORISE ACTION - *None*

ALARA COMMITTEE ACTION - *None*

CU SUMMARY DATA

Ra-226	28	0.96 - 1.60	1.28	5	6.2	0	0
Ra-228	28	0.59 - 1.40	1.19	5	6.2	0	0
Total Radium	28	1.77 - 3.00	2.48	5	6.2	0	0
U-238	28	1.32 - 4.05	2.14	30	120	0	0

NOTE: Radiological contaminants are listed in pCi/g.



Sample Locations in Remedial Unit RU018
Confirmation Unit CU187

Figure: 4-18

REPORT NO.:	DOE/OR/21548-874	EXHIBIT NO ·			
ORIGINATOR:	MGL	DRAWN BY:	LGB	DATE	12/19/00

Table 4 - 19 Summary of CU188

CU: 188 RU: 18

COC				
	Ra-226	X	As	
	Ra-228	X	Cr	
	Th-230		Pb	
	Th-232		Tl	
	U-238	X	PAH	
			PCB	
Reference Figure: 4 - 19			TNT	

DATE RELEASED FOR UNRESTRICTED USE: 4 / 3 / 98

CLEANUP STANDARD [X] SURFACE [ ] SUBSURFACE

EACH 100m^2 < CRITERIA? [X] YES [ ] NO

LOCATION DESCRIPTION: *This CU is located at the south-west portion of the MSA work zone.*

WALKOVER SURVEY INFORMATION

BACKGROUND: *10,000 - 12,000* cpm

FINAL SURVEY(S) BELOW 1.5 X BACKGROUND ? [X] YES [ ] NO

DATE(S) SCANNED: *3/16/98 3/30/98*

CONFIRMATION SAMPLING INFORMATION

TOTAL # OF SAMPLE LOCATIONS : 29

TOTAL # OF UTILITY SAMPLES : 0

AVERAGES < ALARA? [X] YES [ ] NO

HOTSPOTS? [ ] YES [X] NO

ADDITIONAL EXCAVATION REQUIRED? [ ] YES [X] NO

GENERAL COMMENTS - *All results are below ALARA.*

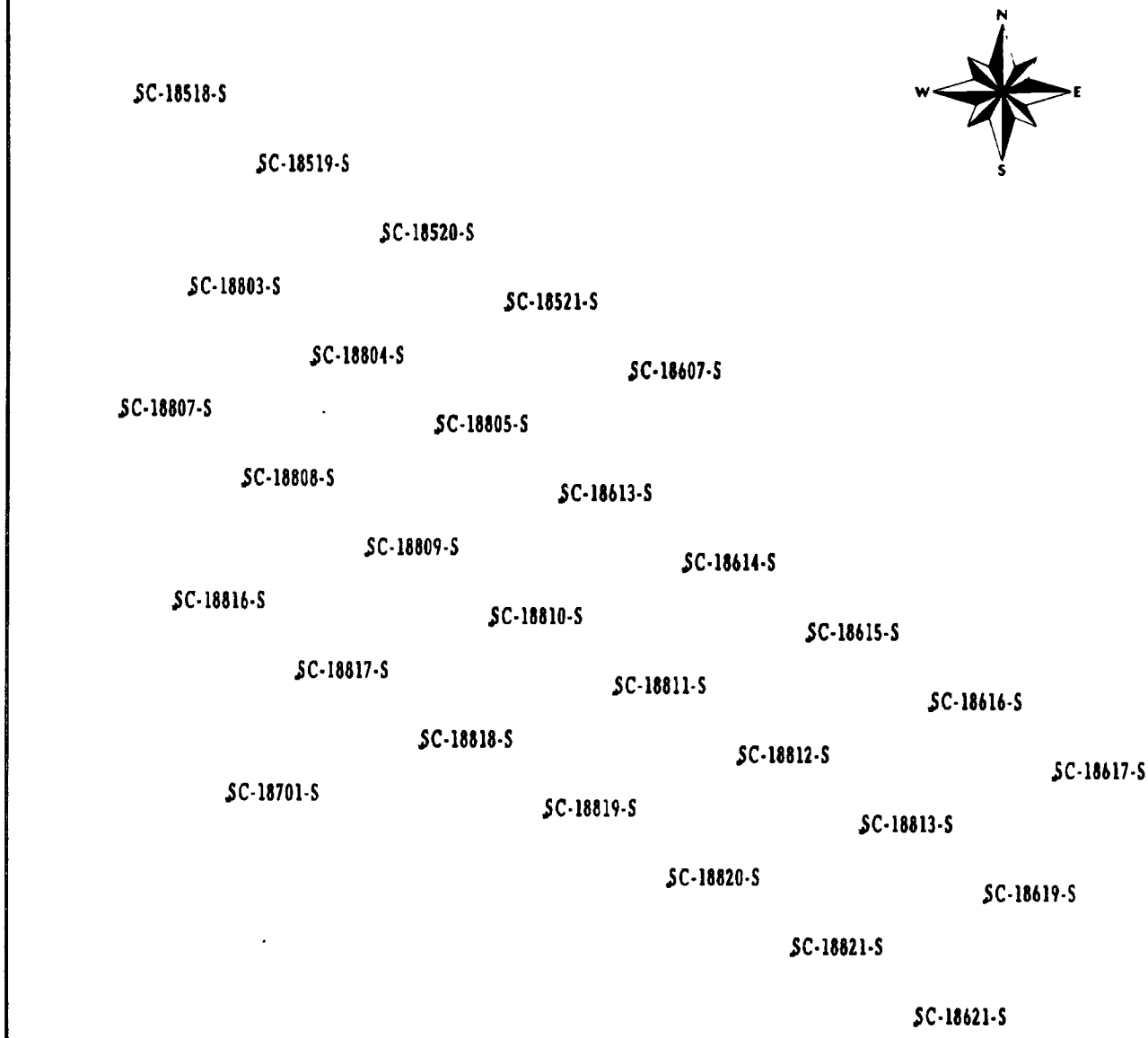
ORISE ACTION - *None*

ALARA COMMITTEE ACTION - *None*

CU SUMMARY DATA

Ra-226	29	0.73 - 1.69	1.16	5	6.2	0	0
Ra-228	29	0.66 - 1.47	1.23	5	6.2	0	0
Total Radium	29	1.76 - 3.16	2.34	5	6.2	0	0
U-238	29	1.21 - 5.14	2.12	30	120	0	0

NOTE: Radiological contaminants are listed in pCi/g.



150 75 0 150 FEET

50 25 0 50 METERS

Sample Locations in Remedial Unit RU018
Confirmation Unit CU188

Figure: 4-19

REPORT NO.:	DOE/OR/21548-874	EXHIBIT NO ·			
ORIGINATOR	MGL	DRAWN BY:	LGB	DATE	12/19/00

Table 4 - 20 Summary of CU396

CU: 396 RU: 18

COC: Ra-226 X; Ra-228 X; Th-230 X; Th-232 X; U-238 X; As; Cr; Pb; Tl; PAH; PCB; TNT

Reference Figure: 4 - 20

DATE RELEASED FOR UNRESTRICTED USE: 3 / 20 / 00

CLEANUP STANDARD: X SURFACE; SUBSURFACE

EACH 100m^2 < CRITERIA? X YES; NO

LOCATION DESCRIPTION: *This CU encompasses the temporary haul ramp leading into the northwest corner of the disposal cell, and the trench that ran along side of it.*

WALKOVER SURVEY INFORMATION

BACKGROUND: *approx. 4500 - 6400* cpm

FINAL SURVEY(S) BELOW 1.5 X BACKGROUND ? X YES; NO

DATE(S) SCANNED: *3/9/00*

CONFIRMATION SAMPLING INFORMATION

TOTAL # OF SAMPLE LOCATIONS . 12

TOTAL # OF UTILITY SAMPLES : 12

AVERAGES < ALARA? X YES; NO

HOTSPOTS? X YES; NO

ADDITIONAL EXCAVATION REQUIRED? X YES; NO

GENERAL COMMENTS - *One hotspot was identified at SC-39609-U (Th-230). The area was excavated and resampled. Results are less than criteria. One Th-230 result > ALARA, but < criteria.*

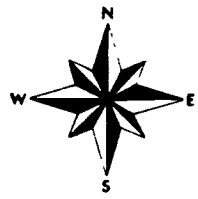
ORISE ACTION - *None*

ALARA COMMITTEE ACTION - *None*

CU SUMMARY DATA

Ra-226	12	0.53 - 0.92	0.73	5	6.2	0	0
Ra-228	12	0.95 - 1.63	1.14	5	6.2	0	0
Total Radium	12	1.57 - 2.44	1.87	5	6.2	0	0
Th-230	12	0.99 - 5.97	1.75	5	6.2	1	0
Th-232	12	0.97 - 1.67	1.17	5	6.2	0	0
U-238	12	0.86 - 4.05	1.32	30	120	0	0

NOTE: Radiological contaminants are listed in pCi/g.



SC-39601-U

SC-39607-U

SC-39602-U

SC-39608-U

SC-39603-U

SC-39609-U

SC-39609-U-RS

SC-39604-U

SC-39610-U

SC-39605-U

SC-39611-U

SC-39606-U

SC-39612-U

150 75 0 150 FEET

50 25 0 50 METERS

Sample Locations in Remedial Unit RU018
Confirmation Unit CU396

Figure: 4-20

REPORT NO.:	DOE/OR/21548-874	EXHIBIT NO.:			
ORIGINATOR	MGL	DRAWN BY:	LGB	DATE	12/19/00

5. DATA EVALUATION

WP-437 final analytical data were evaluated to determine whether data quality objectives (DQOs) developed for the Weldon Spring Site Remedial Action Project (WSSRAP) were met and to ensure that acceptable overall data quality results were generated from these remedial activities. The data were evaluated in accordance with the *Project Management Contractor Quality Assurance Program* (Ref. 4) and the *Environmental Quality Assurance Project Plan* (Ref. 5). The data evaluation process was completed by data verification, data review, data validation, and data management activities as stated in the *Chemical Plant Area Cleanup Area Attainment Confirmation Plan* (Ref. 3).

5.1 Data Verification

Data verification was conducted in accordance with ES&H 4.9.1, *Environmental Monitoring Data Verification*, to ensure that documentation and data were reported in compliance with established reporting requirements and standard operating procedures (SOPs), and to ensure that all analyses were performed by the laboratories. All analytical results received from the laboratory were reviewed to verify that samples were properly handled according to WSSRAP protocol. The following factors were reviewed and evaluated: sample identification, chain of custody, holding times, sample preservation requirements, sample analysis request forms, data reviews, laboratory tracking, data reporting requirements, and the database transfer.

5.2 Data Review

Data packages were reviewed to ensure that final data were properly identified, analyzed, and reported, and that they met data quality requirements (DQRs). The data were also reviewed to check for inconsistencies with the field quality control (QC) samples. Final analytical results were also compared with the preliminary results to identify any changes in data.

During confirmation of WP-437 areas, which included RU018, soil samples were obtained in accordance with the details provided in the *Confirmation Sampling Plan Details for the Disposal Cell Facility* (WP-437) (Ref. 2). This plan specifies that quality control samples were to be taken at a frequency of 1 per 20 samples or 5%. The samples included duplicates, field replicates, secondary duplicates, matrix spikes/matrix spike duplicates, and equipment blanks. Since the 5% requirement was based on all WP-437 confirmation sampling, the quality control data will be discussed in a separate report entitled *WP-437 Confirmation Quality Control Results Report*, which will be prepared later.

5.3 Data Validation

Data validation was performed on 10% of all analytical data generated from the confirmation sampling activities. Data validation was conducted in accordance with ES&H 4.9.2, *Environmental Monitoring Data Validation*. Note that the validation of 10% of the

data was based on all confirmation data collected for WP-437, and not 10% of each work zone. The percentage of confirmation data validated will be discussed in the *WP-437 Confirmation Quality Control Results Report*.

6. SUMMARY OF CLOSURE REPORT FINDINGS

The MSA work zone portion of WP-437 consisted of the 20 confirmation units within RU018. Summary information regarding the remedial activities is presented in Section 4 of this report.

6.1 Data Evaluation

After remediation was completed, preliminary results were used to complete disposition forms in accordance with ES&H 1.2.1, *Soil Remediation Disposition Process*. Based on the preliminary results, each CU was released when disposition forms were reviewed and signed by authorized project personnel.

6.2 Summary of WP-437 Confirmation Results

Table 6-1 provides a summary of the total number of samples collected and analyzed for each contaminant during remedial activities in RU018. The number of results and the minimum, maximum, and average concentrations are also provided for each contaminant. The table was generated using data sets compiled from all samples that represented soils left in place.

Table 6-1 Summary Totals for RU018

CONTAMINANT	NO. OF SAMPLES	CONCENTRATION RANGE	AVERAGE CONCENTRATION	SURFACE ALARA	SURFACE CRITERIA	RESULTS >ALARA
Ra-226 (pCi/g)	370	0.43 - 1.90	1.29	5.00	6.20	0
Ra-228 (pCi/g)	370	0.48 - 1.75	1.19	5.00	6.20	0
Total Radium (pCi/g)	370	0.98 - 3.36	2.48	5.00	6.20	0
Th-230 (pCi/g)	17	0.71 - 5.97	1.52	5.00	6.20	1
Th-232 (pCi/g)	12	0.97-1.67	1.17	5.00	6.20	0
U-238 (pCi/g)	415	0.86 - 22.30	1.86	30.00	120.00	0
PAH (mg/kg)	3	0.00 - 0.03	0.01	0.44	5.60	0
Pb (mg/kg)	4	11.00 - 13.40	12.55	240	450	0
PCB (mg/kg)	37	0.00 - 1.90	0.05	0.65	8.00	1
TNT (mg/kg)	8	0.11 - 0.76	0.21	14	140	0

Analytical results generated from the remedial activities indicated that the average concentrations for each COC were below the ALARA goal. For each of the 20 CUs, COC averages were also below ALARA. All 100 m^2 averages were less than criteria.

6.3 Summary of Chemical Plant Confirmation Results

To meet the requirements of the ROD, more than 50% of the results for each parameter had to be less than the ALARA goal. Table 6-2 summarizes the cumulative results to date.

Table 6-2 Summary Totals for Confirmation

CONTAMINANT	NO. OF SAMPLES	MINIMUM CONCENTRATION	MAXIMUM CONCENTRATION	AVERAGE CONCENTRATION	RESULTS > ALARA
Arsenic (mg/kg)	875	0.48	34.10	7.43	0
Chromium (mg/kg)	1,286	3.80	41.60	14.10	0
Pb (mg/kg)	1,009	2.40	817.00	16.99	2
Thallium (mg/kg)	253	0.12	5.20	1.35	0
TNT (mg/kg)	85	0.00	34.00	0.86	1
PAH (mg/kg)	661	0.00	6.65	0.19	76
PCB (mg/kg)	1,485	0.00	6.00	0.04	21
Ra-226 (pCi/g)	2,584	0.33	9.43	1.33	3
Ra-228 (pCi/g)	2,393	0.30	6.60	1.25	2
Th-230 (pCi/g)	1,651	0.09	23.10	1.58	30
Th-232 (pCi/g)	1,870	0.31	6.77	1.30	2
U-238 (pCi/g)	4,000	0.39	228.00	3.70	46
Toluene (mg/kg)	4	0.00	3.40	0.85	0

NOTE This table contains summary results from cumulative confirmation including WP-253, WP-399, WP-420, WP-458, WP-461, WP-471, WP-437 (RU017), and WP-437 (RU018).

6.4 Comparison of Standard Deviations

This section compares the estimated standard deviations calculated following U. S. Environmental Protection Agency (EPA) guidelines with deviations calculated using confirmation results. Since no existing remediation data were available to calculate the standard deviation (sigma), the *Chemical Plant Area Cleanup Area Attainment Confirmation Plan* (Ref. 3) estimated sigma using the range (assuming the average concentration remaining after remediation would not exceed cleanup criteria) divided by six. To determine whether the specified level of precision was obtained, a comparison was made between the estimated sigma and the calculated sigma using the RU018 results.

The comparison indicated that the specified level of precision (a false positive = 0.05 and a false negative = 0.20) was obtained. With the exception of Th-230, all of the calculation sigmas were are less than the estimated sigmas, indicating that the minimum specified precision was met. Table 6-3 presents the estimated sigma and calculated sigmas for each COC.

Table 6-3 Comparison of Standard Deviations

COC	Estimated Sigma(a)	RU018 Sigma (b)	Cumulative Sigma (c)
Arsenic (mg/kg)	12.5	N/A	3.57
Chromium (mg/kg)	18.3	N/A	5.00
Lead (mg/kg)	75	1.06	30.46
Thallium (mg/kg	3.3	N/A	1.31
PAH (mg/kg)	0.93	0.02	0.55
PCB (mg/kg)	1.33	0.31	0.30
TNT (mg/kg)	23.3	0.22	4.07
Ra-226 (pCi/g)	1.03	0.23	0.36
Ra-228 (pCi/g)	1.03	0.27	0.35
Th-230 (pCi/g)	1.03	1.25	1.36
Th-232 (pCi/g)	1.03	0.18	0.37
U-238 (pCi/g)	20	1.18	8.64

(a) Sigma estimated in the *Attainment Plan* (Ref. 3).
(b) Sigma calculated using only the WP-437 (RU018) confirmation results.
(c) Sigma calculated using cumulative confirmation results (WP-253, WP-399, WP-458, WP-461, WP-471, WP-437 [RU017], and WP-437 [RU018]).

The RU018 calculated sigma and the cumulative sigma for Th-230 exceeded the estimated sigma. For the RU018 calculated sigma, this is a factor of few data points and one location approaching criteria with the remainder near background. For the cumulative sigma, this is a factor of hot spots left in place based upon subsurface criteria in previous CUs. The estimated standard deviation, recalculated for Th-230 using subsurface criteria, is 2.7. The cumulative sigma is less than the estimated subsurface sigma.

7. REFERENCES

1. U.S. Department of Energy. *Record of Decision for Remedial Action at the Chemical Plant Area of the Weldon Spring Site*. Rev. 0. DOE/OR/21548-376. Oak Ridge Field Office. St. Charles, MO. September 1993.

2. MK-Ferguson Company and Jacobs Engineering Group. *Confirmation Sampling Plan Details for the Disposal Cell Facility (WP-437)*. Rev. 0. DOE/OR/21548-706. Prepared for the U.S. Department of Energy, Oak Ridge Operations Office. St. Charles, MO. January 1998.

3. MK-Ferguson Company and Jacobs Engineering Group. *Chemical Plant Area Cleanup Attainment Confirmation Plan*. Rev. 3. DOE/OR/21548-491. Prepared for the U.S. Department of Energy, Oak Ridge Operations Office. St. Charles, MO. December 1995.

4. MK-Ferguson Company and Jacobs Engineering Group. *Project Management Contractor Quality Assurance Program Implementation Plan*. Rev. 3. DOE/OR/21548-506. Prepared for the U.S. Department of Energy, Oak Ridge Operations Office. St. Charles, MO. November 2000.

5. MK-Ferguson Company and Jacobs Engineering Group. *Environmental Quality Assurance Project Plan*. Rev. 5. DOE/OR/21548-352. Prepared for the U.S. Department of Energy, Oak Ridge Operations Office. St. Charles, MO. November 2000.

6. MK-Ferguson Company and Jacobs Engineering Group. *Remedial Investigation for the Chemical Plant Area of the Weldon Spring Site*. Rev. 0. 2 Vols. DOE/OR/21548-074. Prepared for the U.S. Department of Energy, Oak Ridge Field Office, Weldon Spring Site Remedial Action Project. St. Charles, MO. November 1992.

7. MK-Ferguson Company. *MSA Work Zone Specifications*. Rev. 8. Specification Document No. 3840-7-437-02301. Prepared for the U.S. Department of Energy Weldon Spring Site Remedial Action Project. St. Charles, MO. August 1996.

8. Oak Ridge Institute for Science and Education. *Final Verification Survey Plan for the Chemical Plant Area Weldon Spring Site Remedial Action Project, Weldon Spring, Missouri* Prepared by the Environmental Survey and Site Assessment Program, Energy/Environment Systems Division, for the U.S. Department of Energy. Weldon Spring, Missouri. December 7, 1995.

PROCEDURES

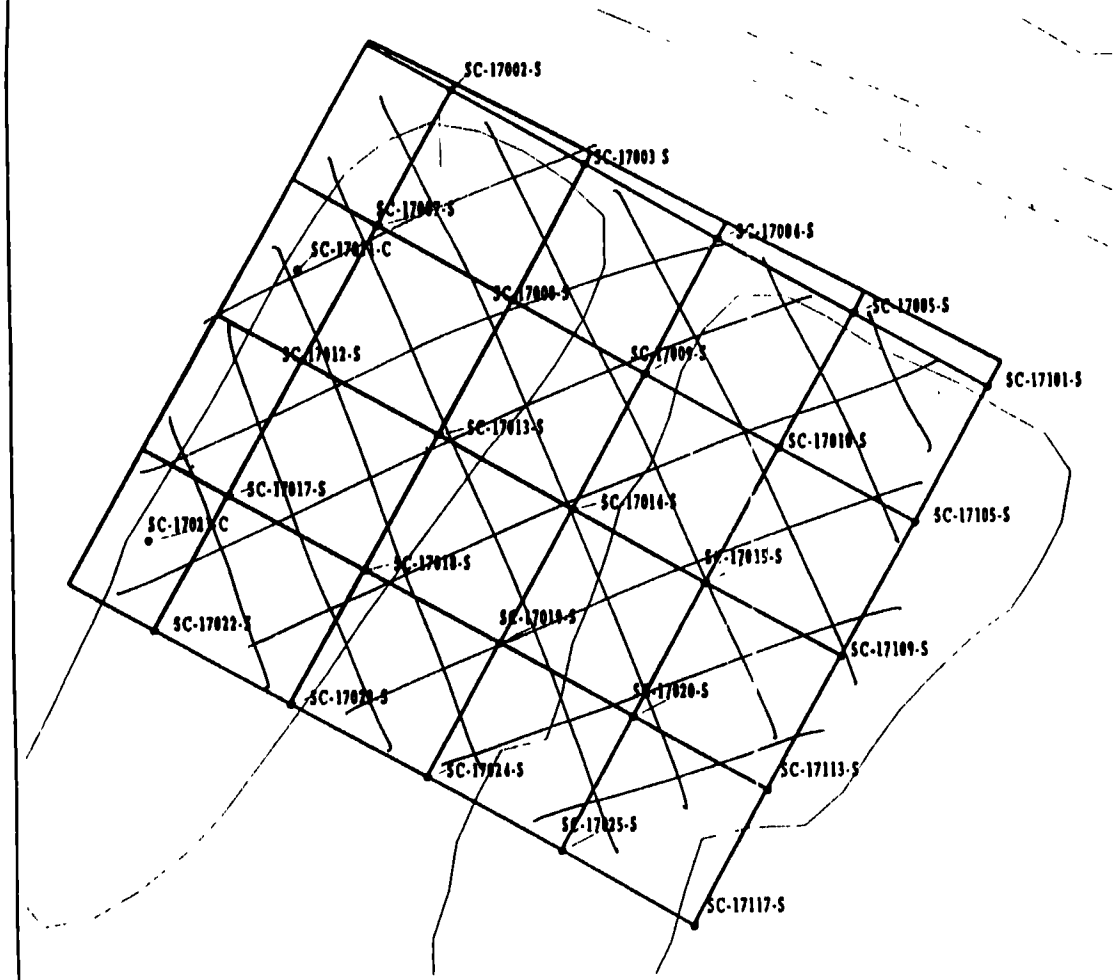
ES&H 1.2.1, *Soil Remediation Disposition Process*
ES&H 4.9.1, *Environmental Monitoring Data Verification*
ES&H 4.9.2, *Environmental Monitoring Data Validation*

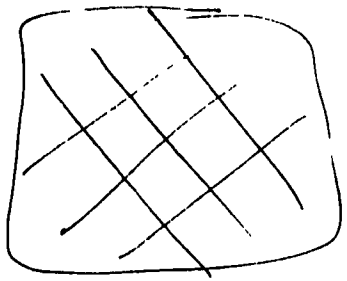
ACRONYMS

ALARA	as low as reasonably achievable
COC	contaminant of concern
CPM	counts per minute
CU	confirmation unit
DOE	Department of Energy
DQO	Data Quality Objectives
DQR	Data Quality Requirements
EQAPjP	Environmental Quality Assurance Project Plan
MSA	Materials Staging Area
NaI	sodium iodide
ORISE	Oak Ridge Institute for Science and Education
Pb	lead
PAH	polynuclear aromatic hydrocarbons
PCB	polychlorinated biphenyl
PMC	Project Management Contractor
QA	quality assurance
QC	quality control
ROD	Record of Decision for Remedial Action at the Chemical Plant Area of the Weldon Spring Site
RU	remedial unit
SOP	standard operating procedure
TNT	trinitrotoluene
WP	work package
WSSRAP	Weldon Spring Site Remedial Action Project

APPENDIX A
Final Walkover Forms

Radiation Survey Form WP 437, RU018CU170

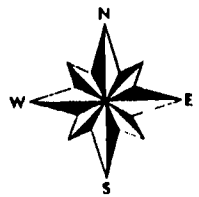




Area Surveyed

15 7.5 0 15 METERS

45 22.5 0 45 FEET



WSSRAP GIS

Meter Model#: 2221 / 2221 Detector Model#: 44-10 "3" / 44-10 "H"

Meter Serial#: 89636 / 117611 Detector Serial#: 126403 / 126402

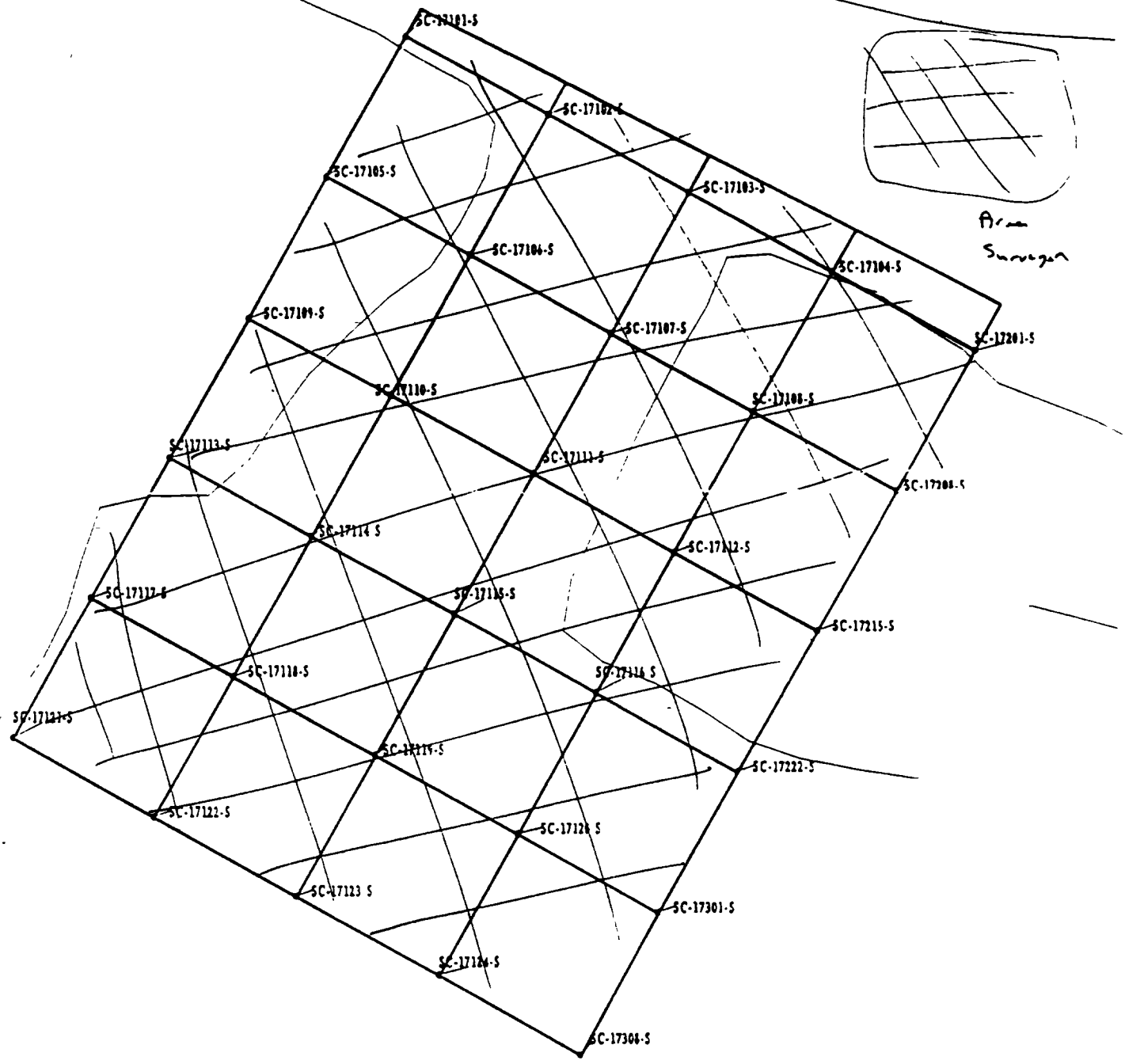
Calibration Due: 11-20-98 / 1-8-99 Calibration Due: 1-21-99 / 1-22-99

Survey Date/Time: 9/29/98 Field Bkg.: 11,000

Surveyor(s): C. Hanna & J. Hankins

Comments: Area was surveyed and found to be below 1.5 times background

Radiation Survey Form WP 437, RU018 CU171



WSSRAP GIS

15 7.5 0 METERS

45 22.5 0 FEET

Meter: Model#: 2221 / 2221 Detector Model#: 8x8 NaI "J" 2"

Meter Serial#. 89636 / 117611 Detector Serial#. 126403 / 126462

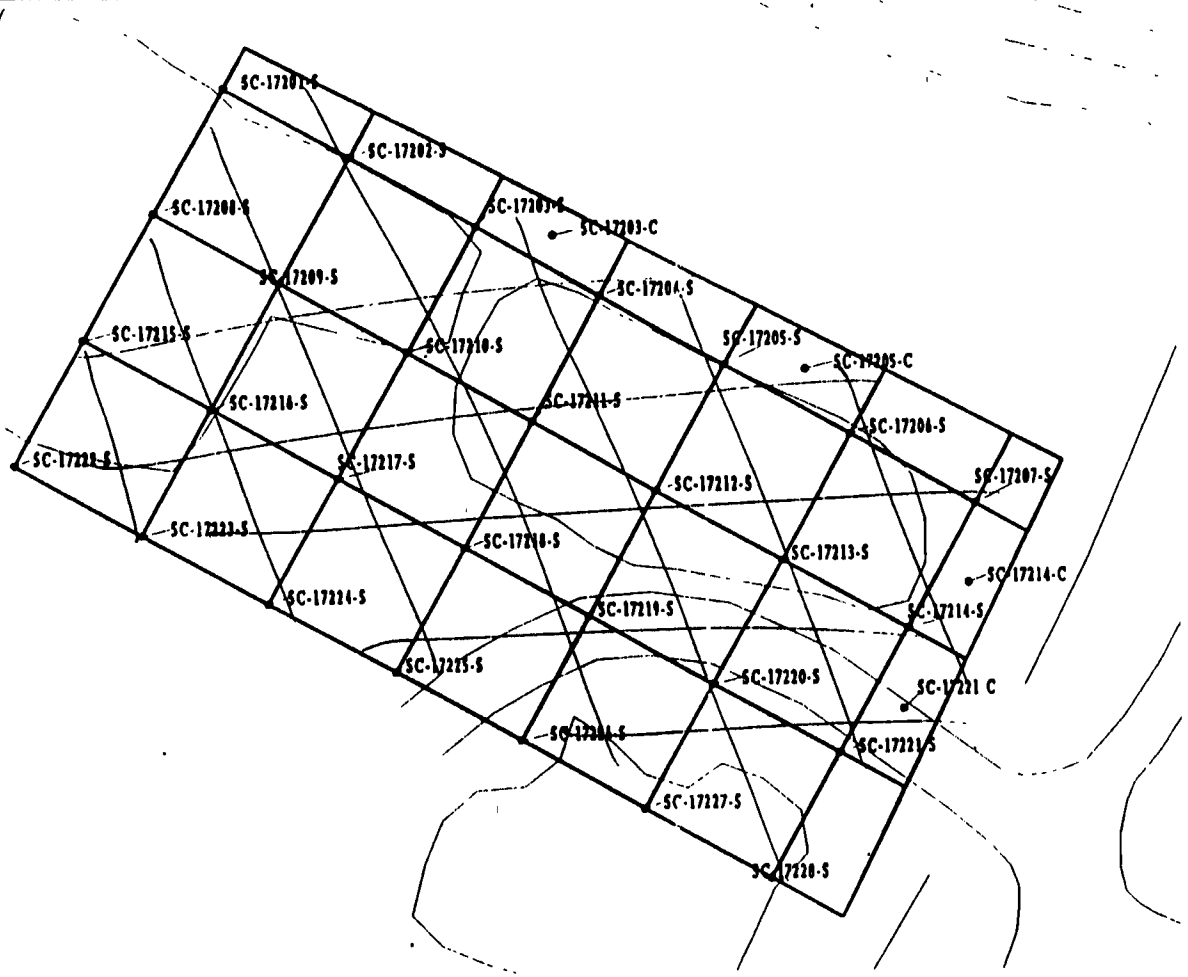
Calibration Due: 11-20-98 / 1-8-99 Calibration Due: 1-21-99 / 1-22-99

Survey Date/Time: 9/29/98 Field Bkg.: 11,000

Surveyor(s): C. Hanner & J. Hankins

Comments: Area was surveyed and found to be below 1.5 times background

Radiation Survey Form WP 437, RU018CU172



15 7.5 0 15 METERS

45 22.5 0 45 FEET

N E S

WSSRAP GIS

Meter Model#: 2221 | 2221 Detector Model#: 2x2 NaI "J" & "K"

Meter Serial#: 89636 | 117611 Detector Serial#: 126403 | 126402

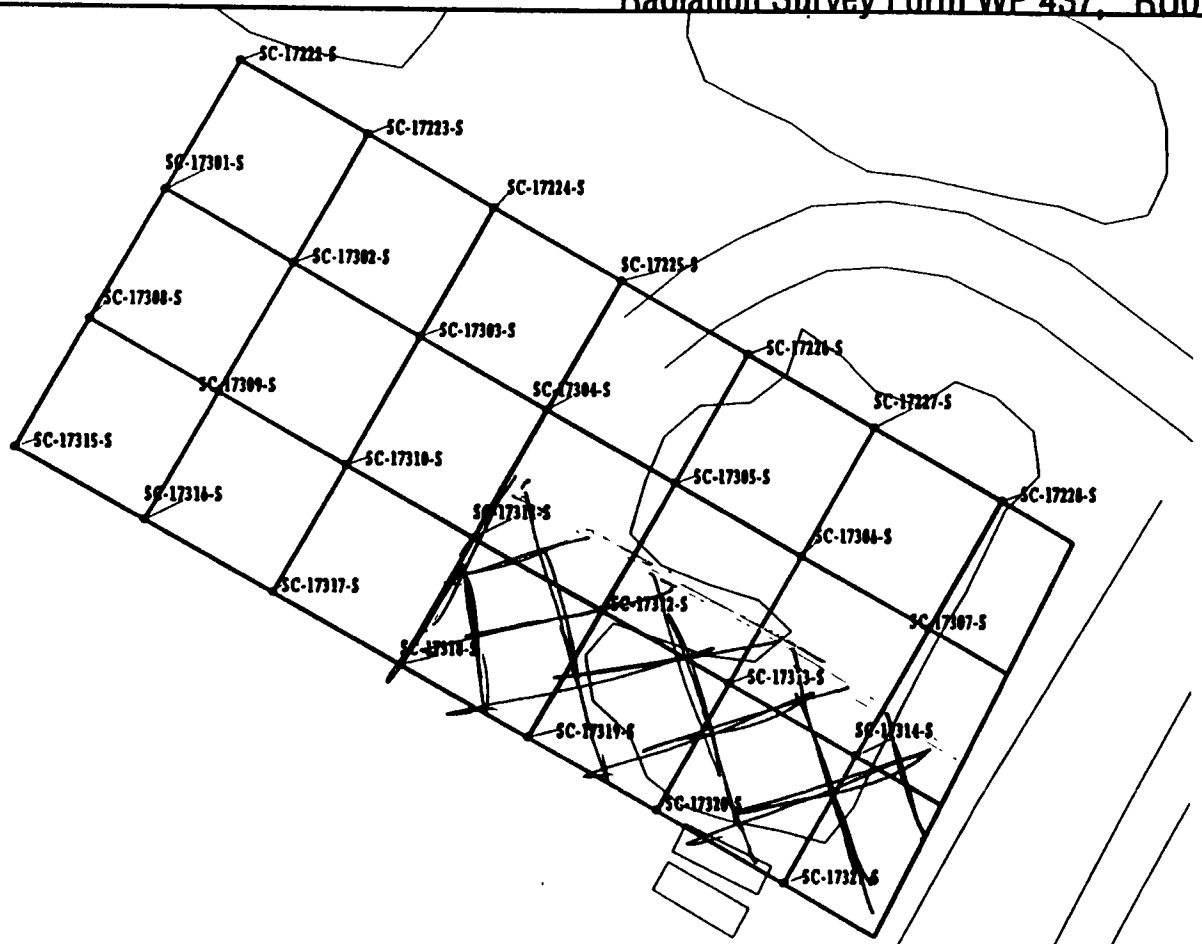
Calibration Due: 11-20-99 | 1-8-99 Calibration Due: 1-21-99 | 1-22-99

Survey Date/Time: 9/28/99 Field Bkg.: 11,000

Surveyor(s): C. Hanna & J. Rankins

Comments: Area was surveyed but found to be below 15 Times background

Radiation Survey Form WP 437, RU018CU173



Area Surveyed

WSSRAP GIS

15 7.5 0 15 METERS

45 22.5 0 45 FEET

N E S W

Meter Model#: 2221 Detector Model#: 2x2 NaI "J"

Meter Serial#: 117611 Detector Serial#: 126402

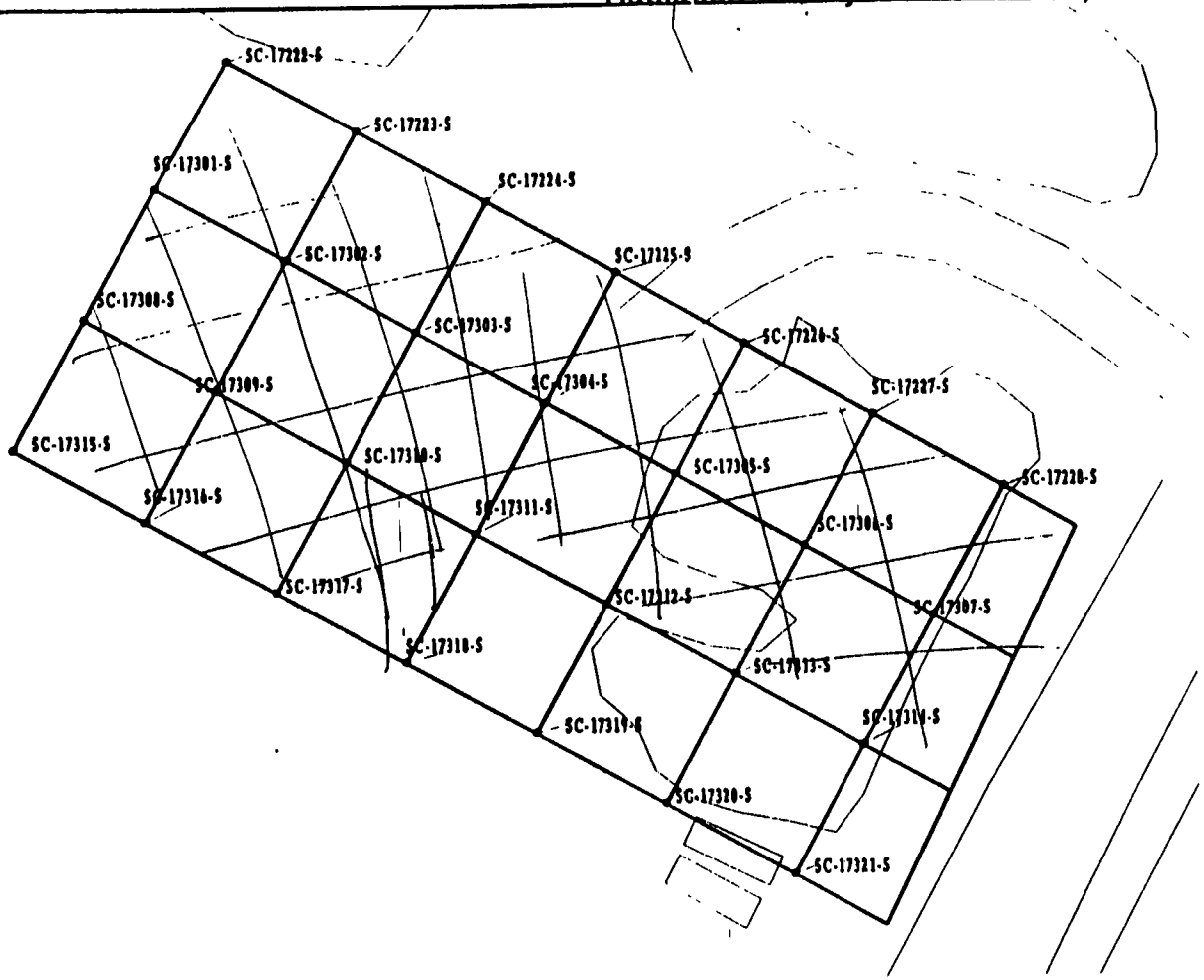
Calibration Due: 1-8-99 Calibration Due: 1-22-99

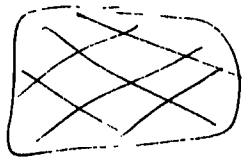
Survey Date/Time: 10-16-98 Field Bkg.: 4200 (shielded)

Surveyor(s): C. Hamm

Comments: Area was surveyed and found to be below 1.5 times background

Radiation Survey Form WP 437, RU018CU173





WSSRAP GIS

15 7.5 0 15 METERS

45 22.5 0 45 FEET

N
W E
S

Meter Model#: 2221 | 2221 Detector Model#: 2x2 NaI "J" & "K"

Meter Serial#: 89636 | 117611 Detector Serial#: 126403 | 126402

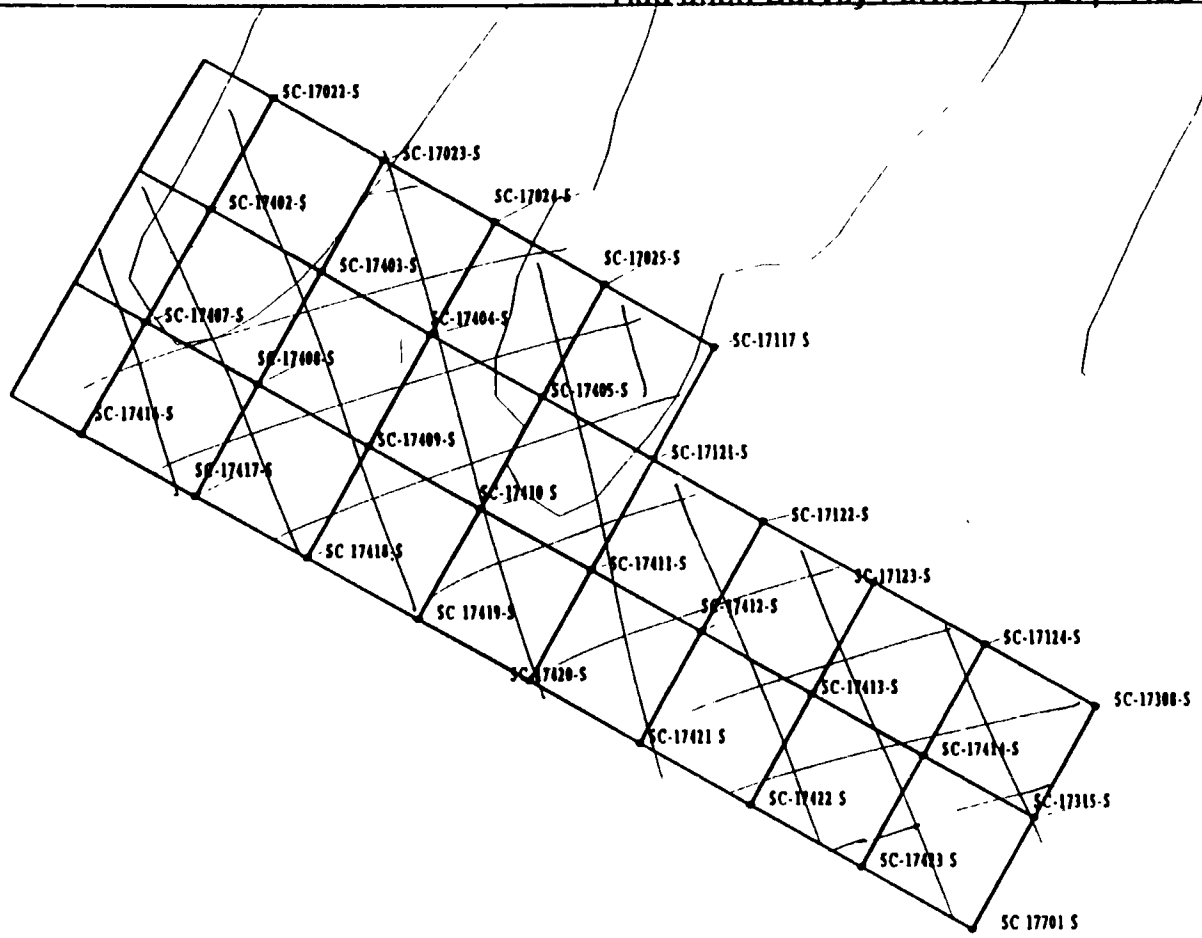
Calibration Due: 11-20-98 | 1-8-99 Calibration Due: 1-21-99 | 1-22-99

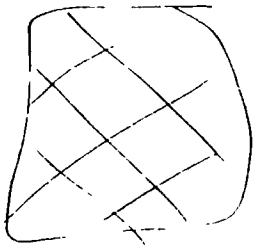
Survey Date/Time: 9/28/98 Field Bkg.: 11,000

Surveyor(s): C. Hanna & J. Rankins

Comments: Area was surveyed and found to be 1.5 times background

Radiation Survey Form WP 437, RU018CU174



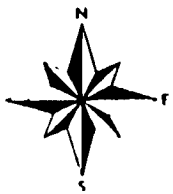


Area Surveyed

WSSRAP GIS

15 7.5 0 15 METERS

46 22.5 0 46 FEET



Meter Model#. 2221 / 2221 Detector Model#. 2x2 NaI "J" & "K"

Meter Serial#. 89636 / 117611 Detector Serial#. 126403 / 126402

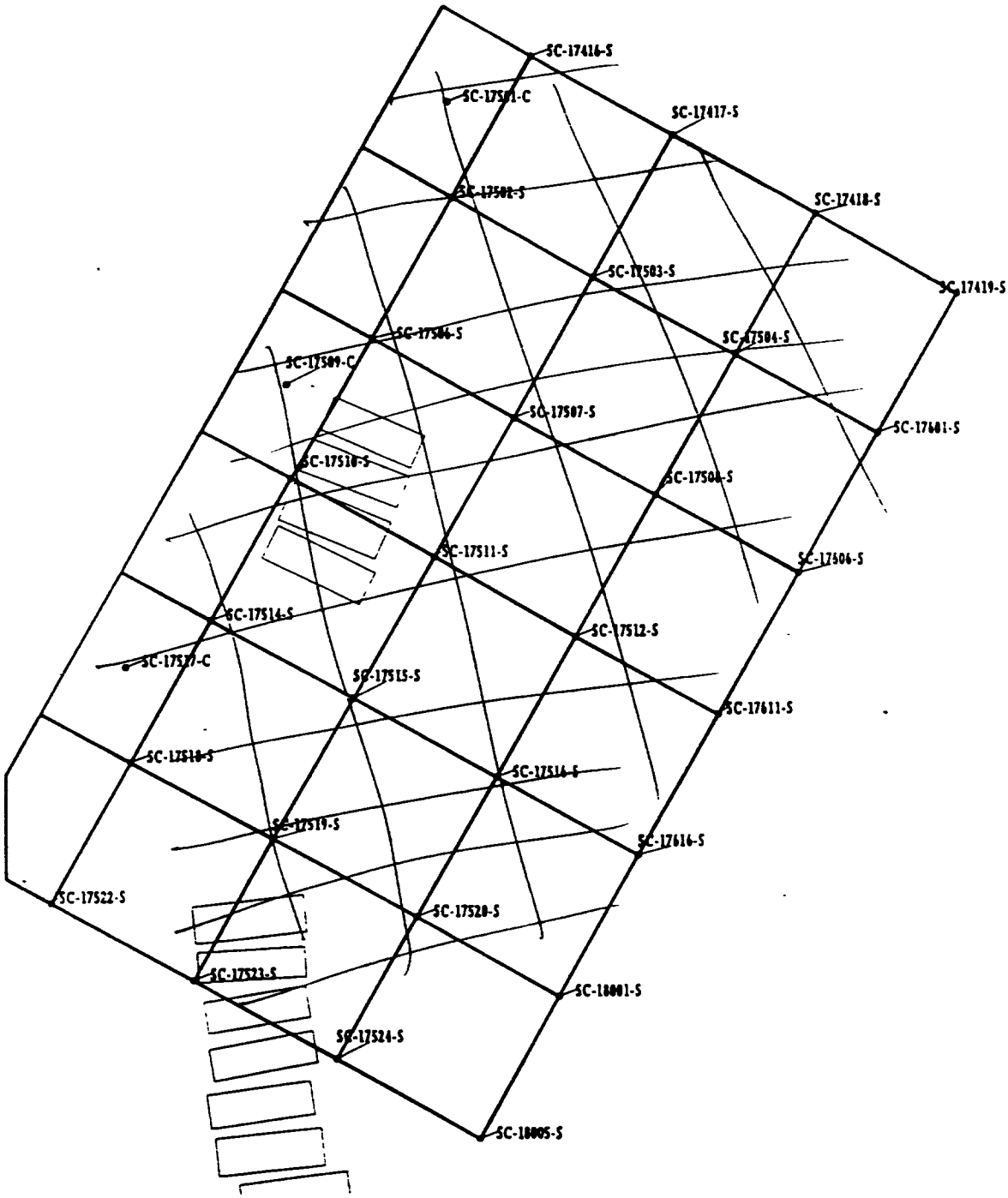
Calibration Due: 11-20-98 / 1-8-99 Calibration Due: 1-21-99 / 1-22-99

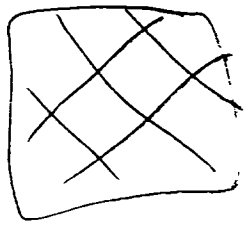
Survey Date/Time: 9/28/98 Field Bkg: 11,000

Surveyor(s) E. Hanna & J. Rankins

Comments Area was surveyed and found to be 1.5 times background

Radiation Survey Form WP 437, RU018 CU175





Area Surveyed

WSSRAP GIS

15 7.5 0 METERS

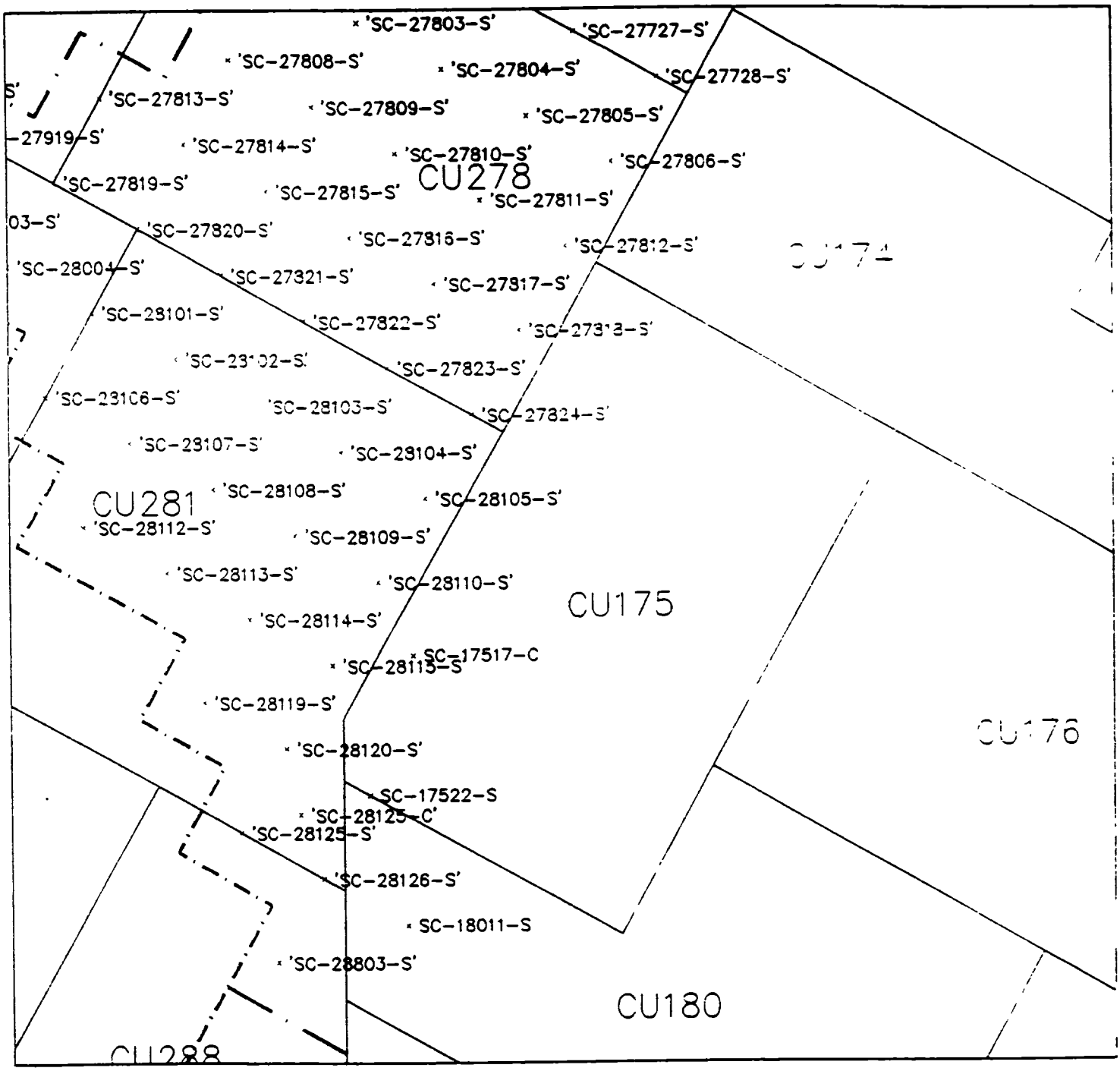
45 22.5 0 FEET

N E S

Meter Model#: 2221 / 2221
Meter Serial#: 127247 / 89636
Calibration Due: 11/20/98 11/20/98
Survey Date/Time: 9/30/98
Surveyor(s): C. Hanner & L. Hagoss

Detector Model#: 4529 / 4330
Detector Serial#: 126403 / 126402
Calibration Due: 1-22-99 1-22-99
Field Bkg.: 11,000

Comments: Area was surveyed and found to be below 1.5 times background



LEGEND

'SC-32506-S' SAMPLE POINTS PINNED

PINNING LIMITS

N

GRAPHIC SCALE

50 0 50 100

(IN FEET)

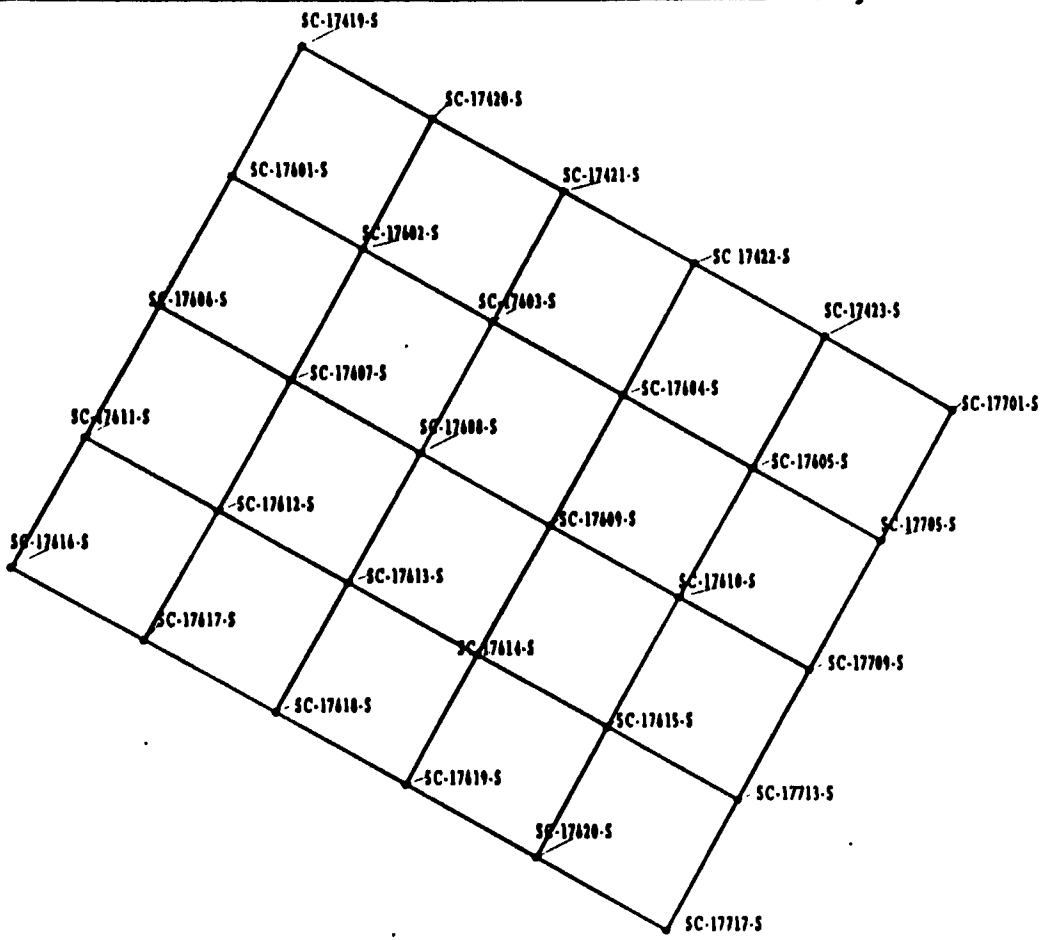
1 inch = 50 ft.

Radiation Survey Form WP 437, RU 18 CU 175

Date Plotted 6/23/00 DEO CAD

Meter Model #	2221	Detector Model #	2x2 P
Meter Serial #	154199	Detector Serial #	17606
Calibration Due:	2/9/01	Calibration Due:	11/2/01
Survey Date / Time:	6/22/00 -AM	Field Bkg.	10,000 CPM
Surveyor(s):	T. Brower		
Comments:	All readings +/- 5 Bkg		

Radiation Survey Form WP 437, RU018CU176



15 7.5 0 15 METERS

45 22.5 0 45 FEET

S

WSSRAP GIS

Meter Model#: 2221 / 2221 Detector Model#: 4329/4330

Meter Serial#: 127242 / 89636 Detector Serial#: 126405 / 126402

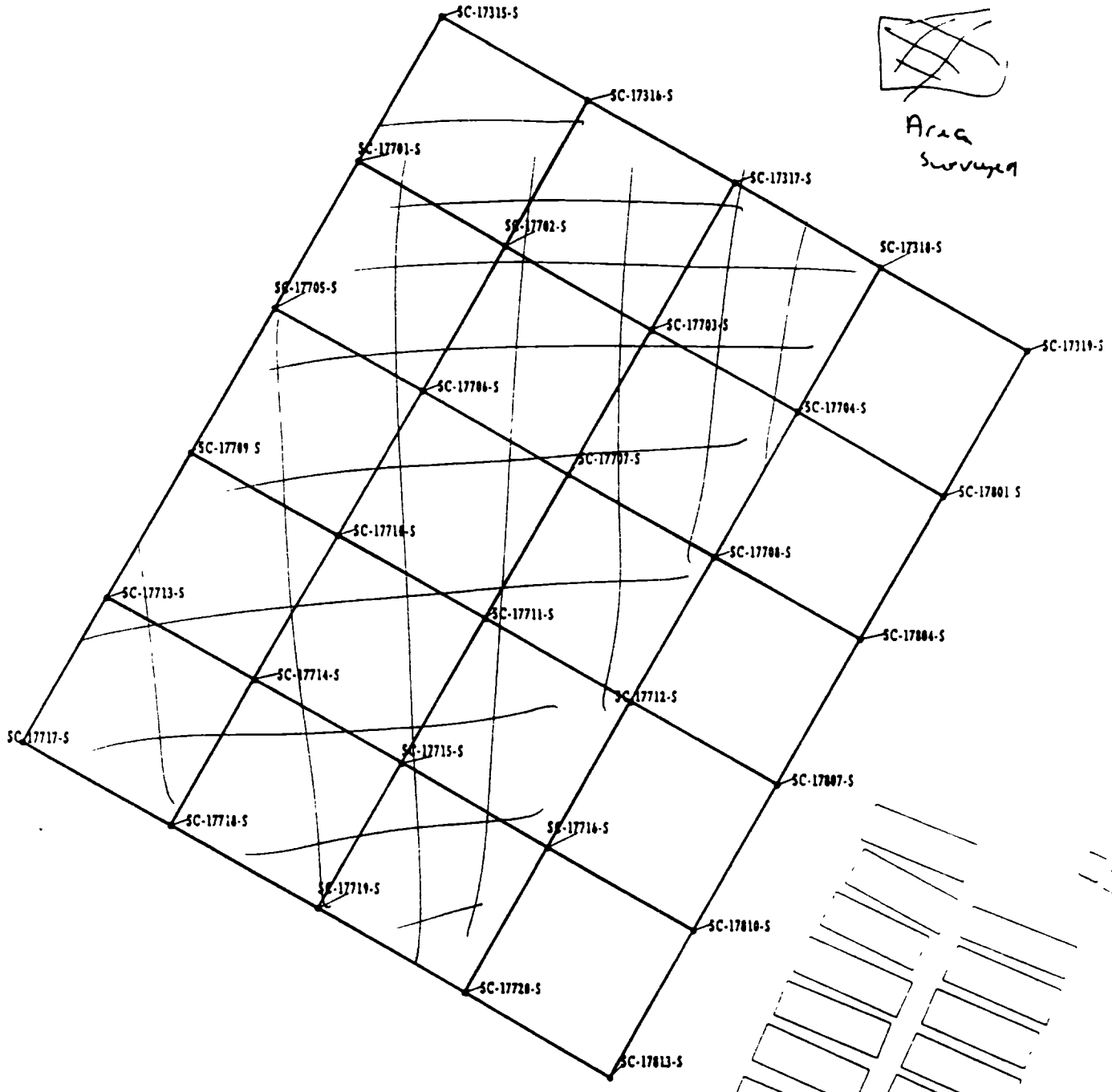
Calibration Due: 11/20/99 / 11/20/99 Calibration Due: 1-22-99 / 1-21-99

Survey Date/Time: 9/30/99 Field Bkg.: 11,000

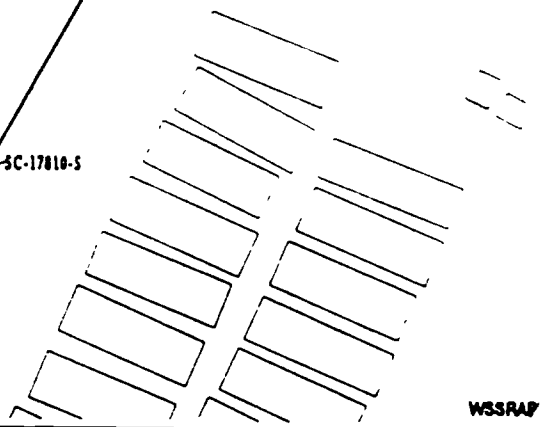
Surveyor(s): C. Hanna & L. Haggoss

Comments: Area was surveyed and found to be below 1.5 times background

Radiation Survey Form WP 437, RU018 CU177



Area Surveyed



WSSRAP GIS

15 7.5 0 METERS

45 22.5 0 FEET

Meter Model#: 2221 / 2221

Meter Serial#: 127247 / 89636

Calibration Due: 11/20/98 11/20/99

Survey Date/Time: 9/30/98

Detector Model#: 4329 / 4330

Detector Serial#: 126402 / 126403

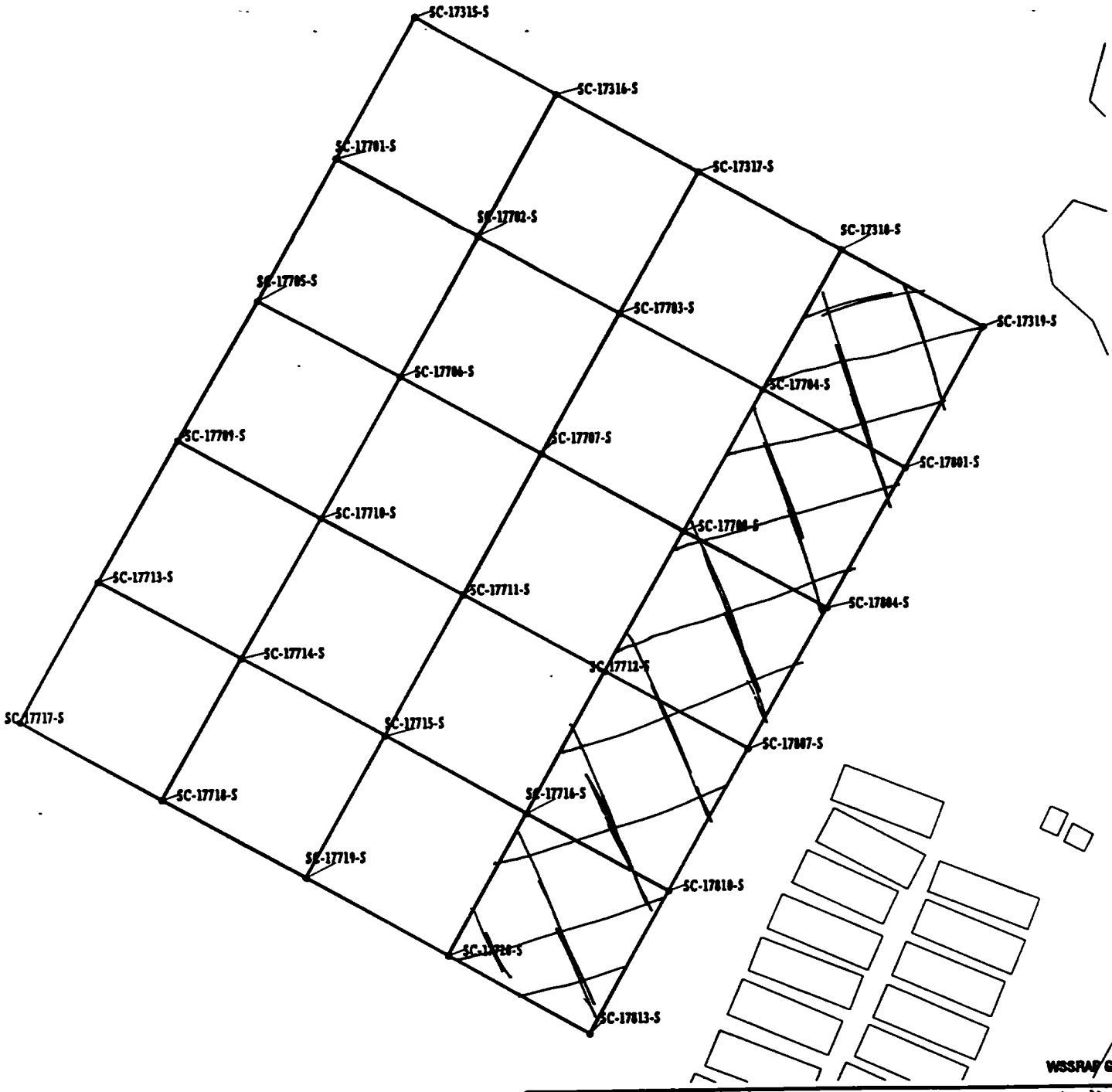
Calibration Due: 1-22-99 / 1-22-99

Field Bkg.: 11,000

Surveyor(s): C. Hamm & L. Hagoss

Comments: Area was surveyed and found to be below 1.5 times background

Radiation Survey Form WP 437, RU018 CU177



WSSRAP/GIS

15 7.5 0 METERS

45 22.5 0 FEET

N W E S

Meter Model#: 2221

Meter Serial#: 117611

Calibration Due: 1-8-99

Survey Date/Time: 10-16-98

Surveyor(s): C. Hanner

Detector Model#: 2x2 NaI "J"

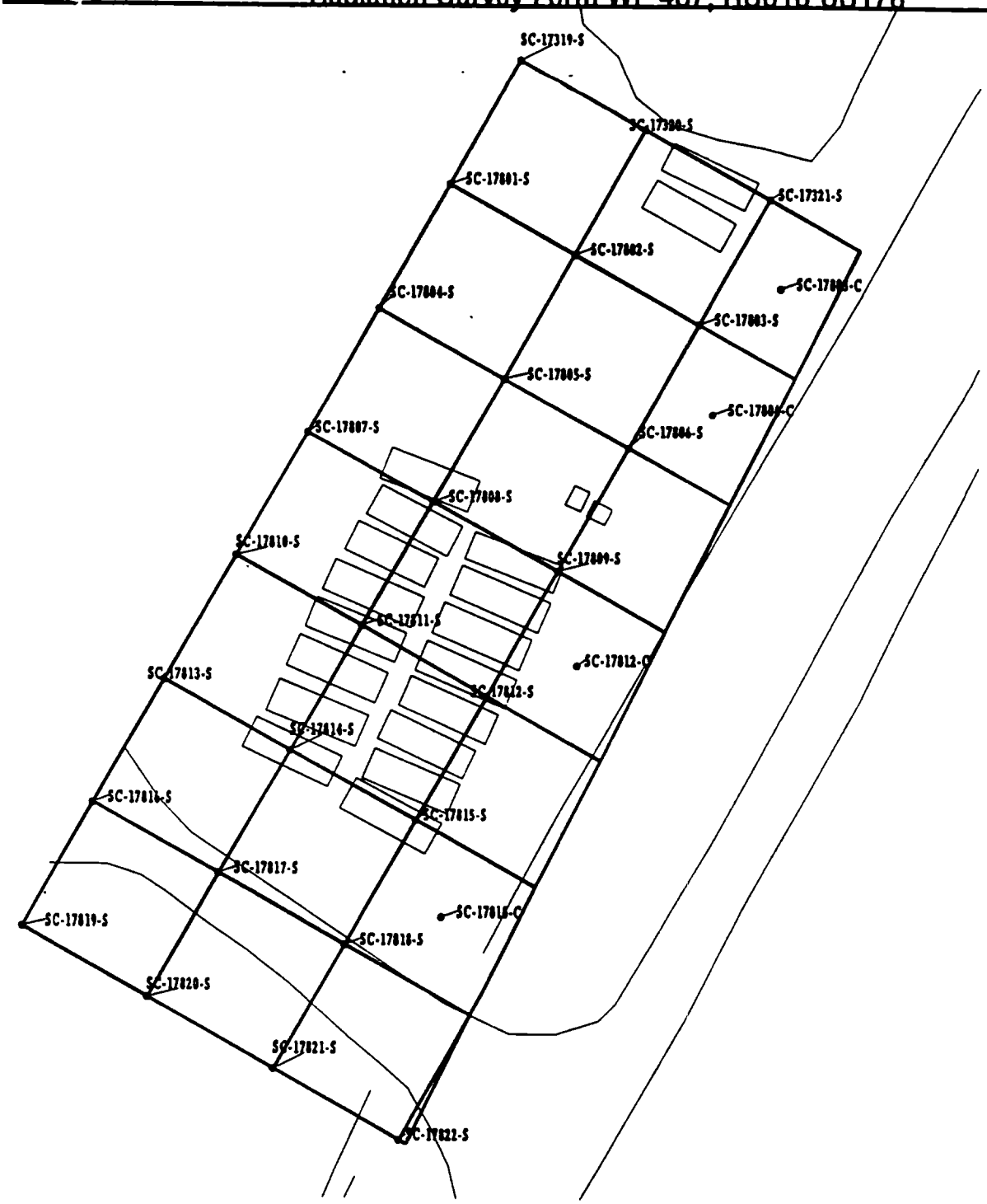
Detector Serial#: 126402

Calibration Due: 1-22-99

Field Bkg.: 4200 (Shielded)

Comments: Area was surveyed and found to be below 6 times background

Radiation Survey Form WP 437, RU018 CU178



WSSRAP GIS

15 7.5 0 METERS

45 22.5 0 FEET

Meter Model#: 2221

Meter Serial#: 117611

Calibration Due: 1-8-99

Survey Date/Time: 10-16-98

Surveyor(s): C. Hanner

Detector Model#: 2x2 NaI 4" 5"

Detector Serial#: 126402

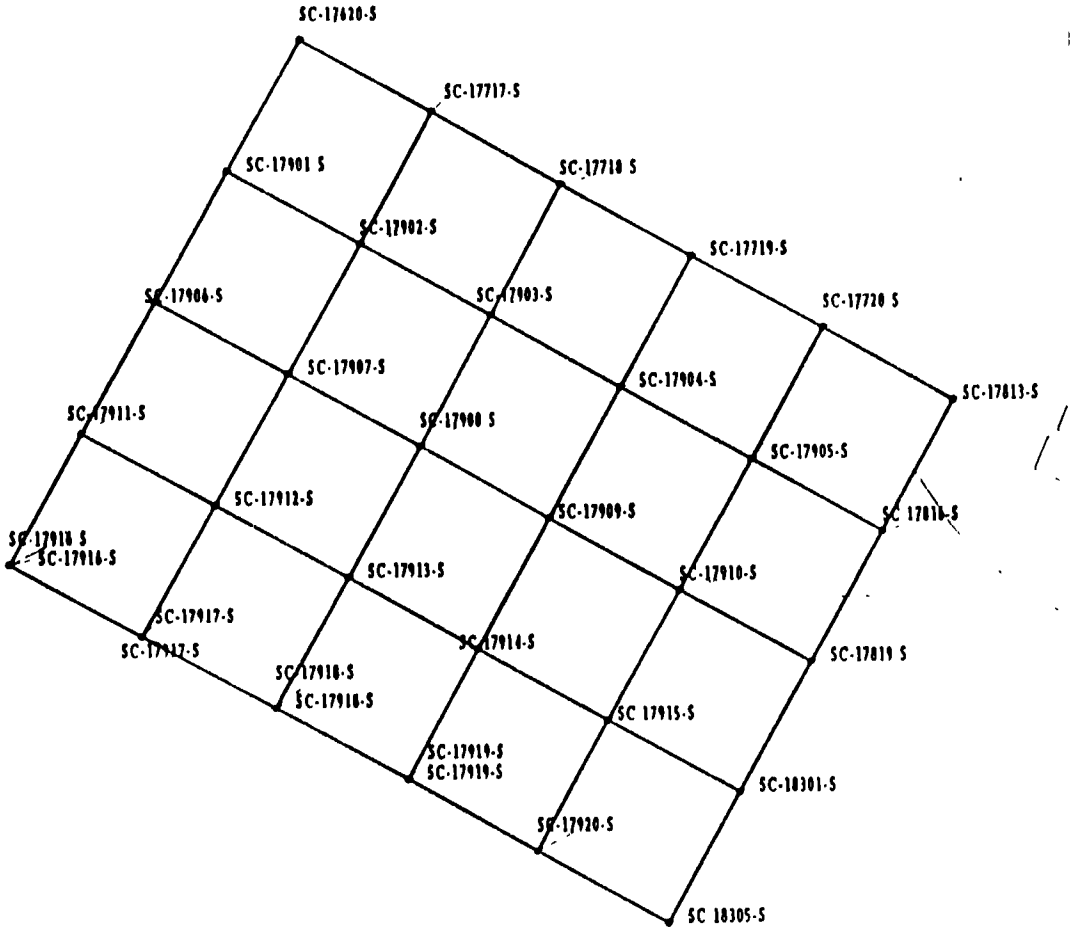
Calibration Due: 1-22-99

Field Bkg.: 4200 (shielded)

Comments: Area was surveyed and found to be below 1.5 times background

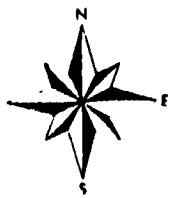
Accepted 10/23/98 (JM)

Radiation Survey Form WP 437, RU018CU179



15 7.5 0 15 METERS

45 22.5 0 45 FEET



WSSRAP GIS

Meter Model#: 2221 / 2221 Detector Model#: 2x2 NaI "K" & "J"

Meter Serial#: 89636 / 117611 Detector Serial#: 126403 / 126402

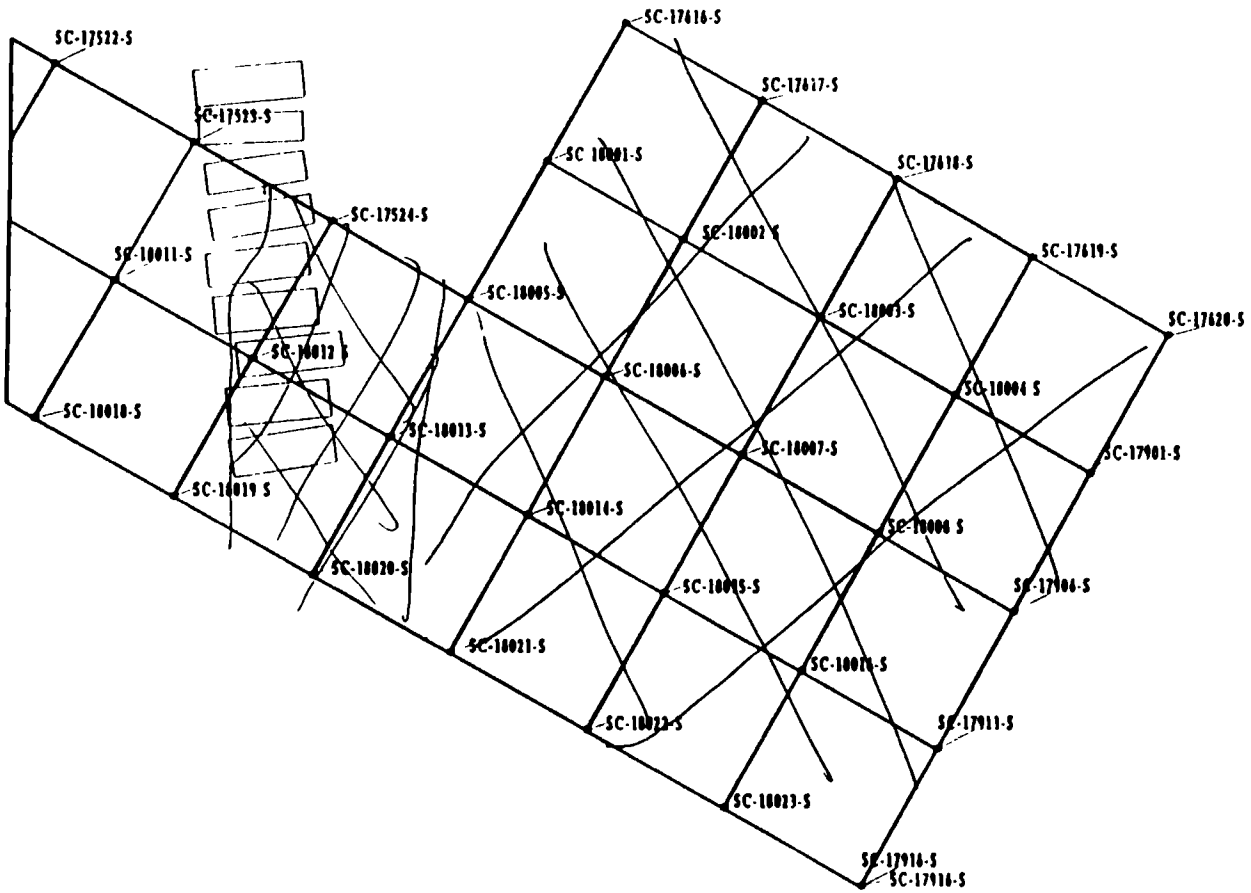
Calibration Due: 11-20-98 / 1-8-99 Calibration Due: 1-21-99 / 1-22-99

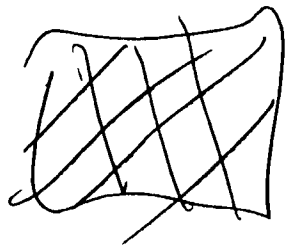
Survey Date/Time: 10-28-98 Field Bkg.: 6000 (shielded)

Surveyor(s): C. Hamm & J. Hankins

Comments: Area surveyed and found to be below 1.5 times background

Radiation Survey Form WP 437, RU018CU180

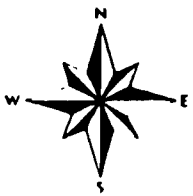




Surveyed Area

15 7.5 0 15 METERS

45 22.5 0 45 FEET



WSSRAP GIS

Meter Model#: 2221 Detector Model#: 2x2 NaI "K"

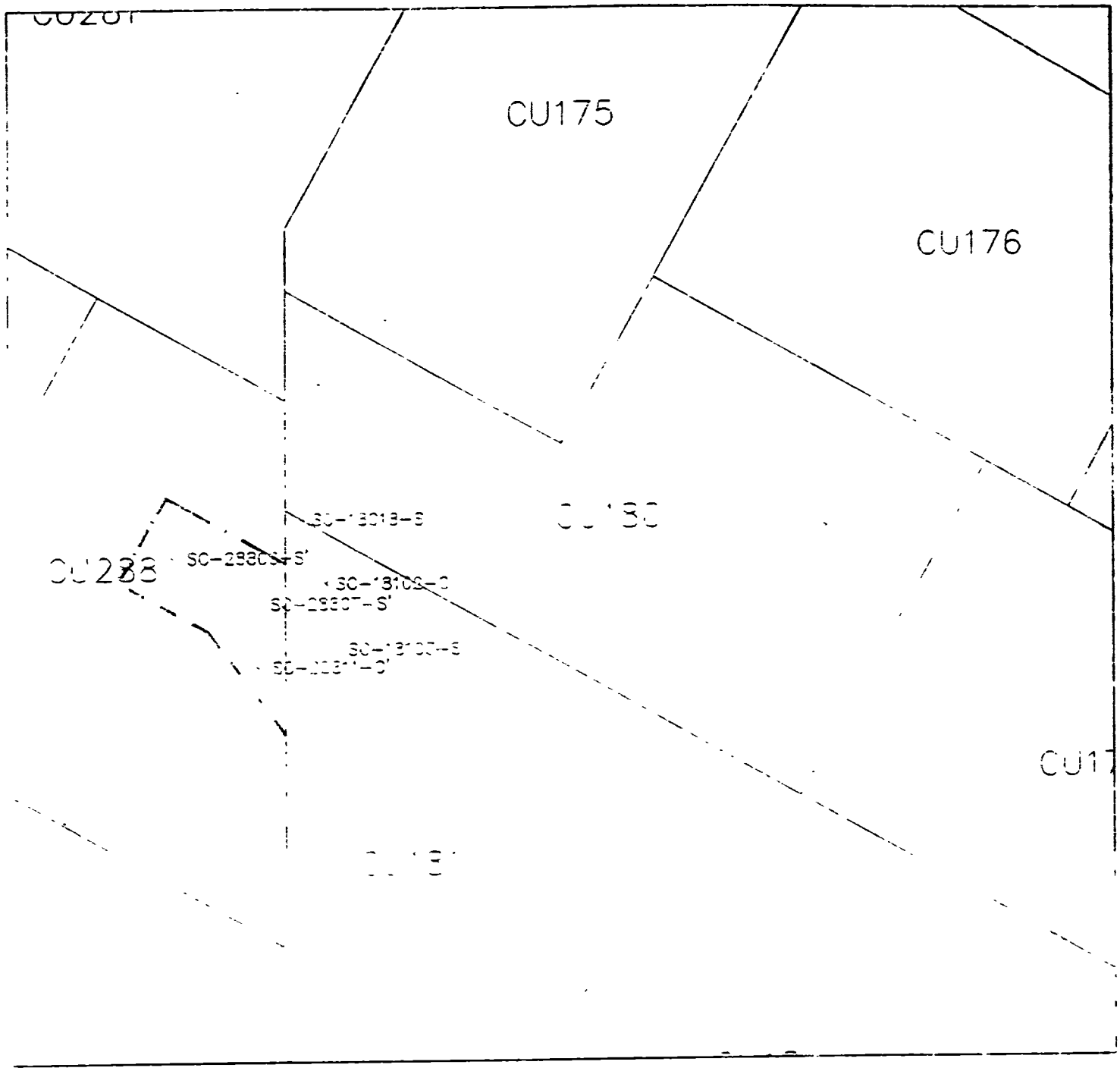
Meter Serial#: 117611 Detector Serial#: 126402

Calibration Due: 1-8-99 Calibration Due: 1-22-99

Survey Date/Time: 10-26-99 Field Bkg: 4800 (shielded)

Surveyor(s): J. Rankins

Comments: Area surveyed and found to be below 1.5 times background



LEGEND

SC-32606-S SAMPLE POINTS PINNED
PINNING LIMITS

N

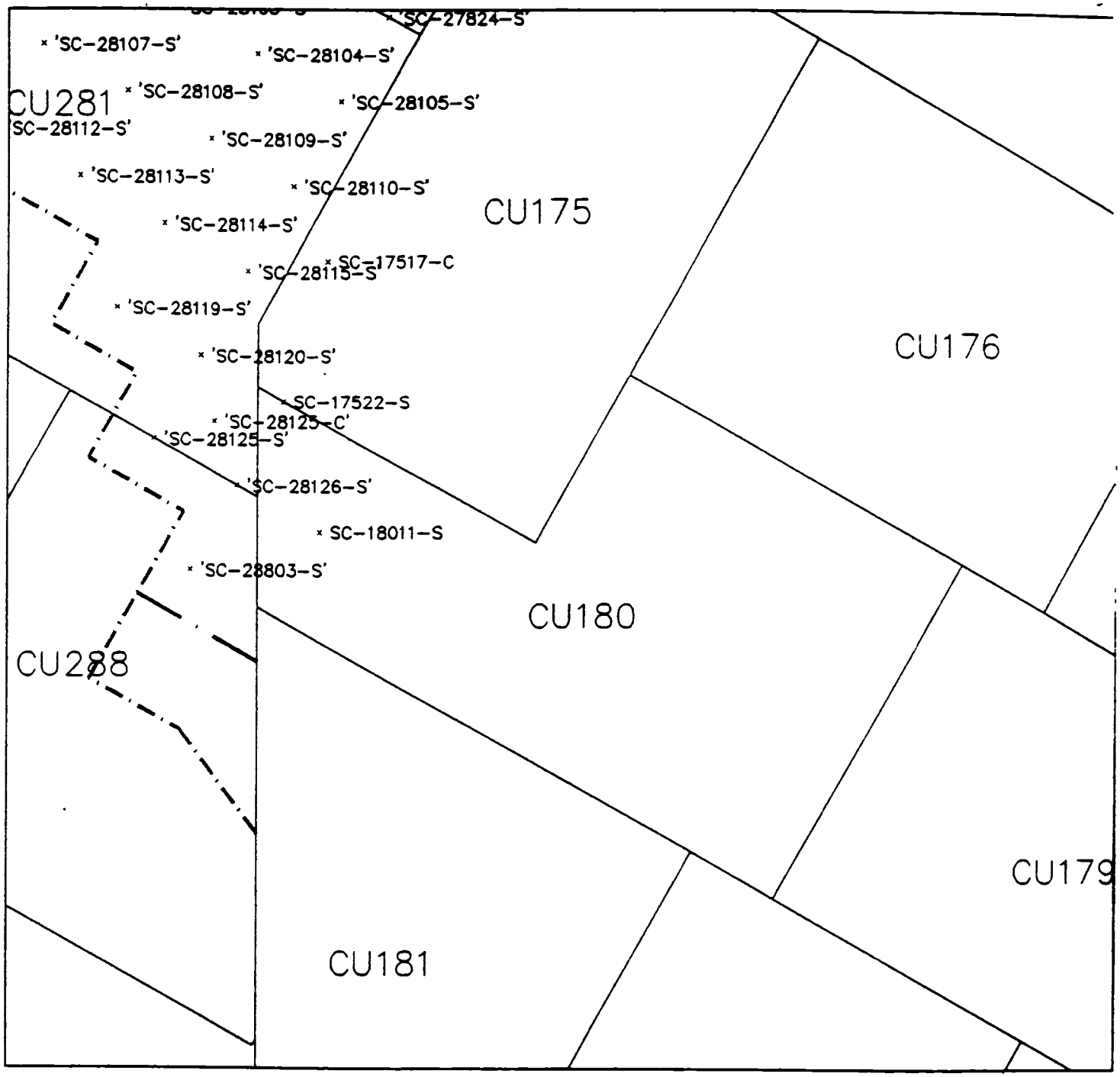
GRAPHIC SCALE

50 0 50 100

(IN FEET)
1 inch = 50 ft.

Radiation Survey Form WP 437 ... 18 CU 180
Date Plotted 6/23/00 DEC CAD

Meter Model #	2221	Detector Model #:	2x2 P
Meter Serial #:	154199	Detector Serial #:	17606
Calibration Due:	2/9/01	Calibration Due:	1/21/01
Survey Date / Time:	6/22/00	Field Bkg.	10,000 CPM
Surveyors:	T Brewer		
Comments:	4.1 readings <1.5 Bkg		



LEGEND

'SC-32606-S' SAMPLE POINTS PINNED

PINNING LIMITS

N

GRAPHIC SCALE

50 0 50 100

(IN FEET)

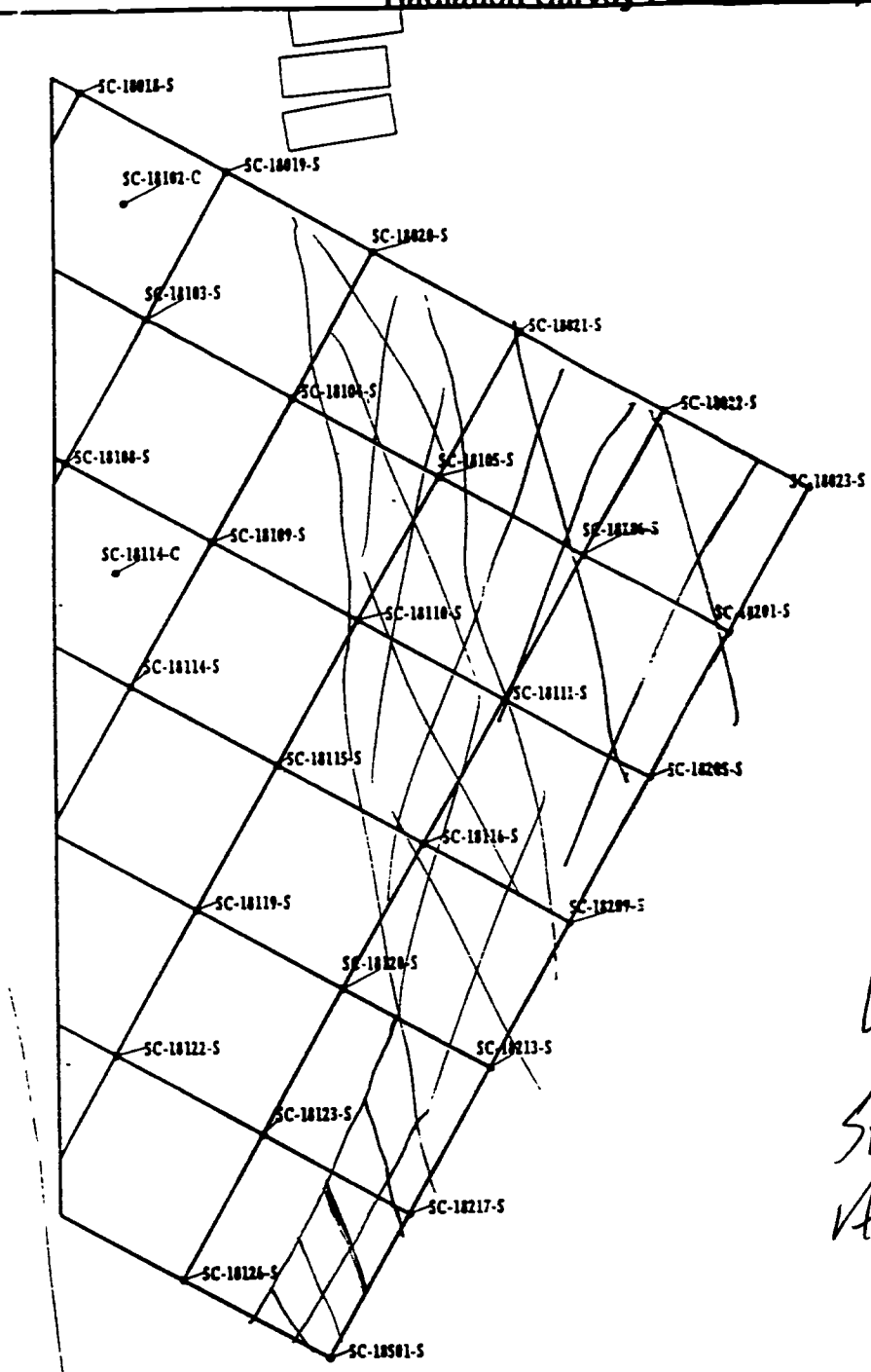
1 inch = 50 ft.

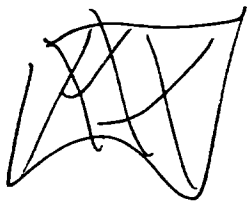
Radiation Survey Form WP 437, RU 18 CU 180

Date Plotted 6/23/00 DBO CAD

Meter Model #:	2221	Detector Model #:	2x2 P
Meter Serial #:	154199	Detector Serial #:	17606
Calibration Due:	2/9/01	Calibration Due:	1/21/01
Survey Date / Time:	4/22/00	Field Bkg.:	10,000 CPM
Surveyor(s):	T. Brower		
Comments:	All readings ≤ 1.5 Bkg.		

Radiation Survey Form WP 437, RU018 CU181





Surveyed Area

WSSRAP GIS

15 7.5 0 METERS

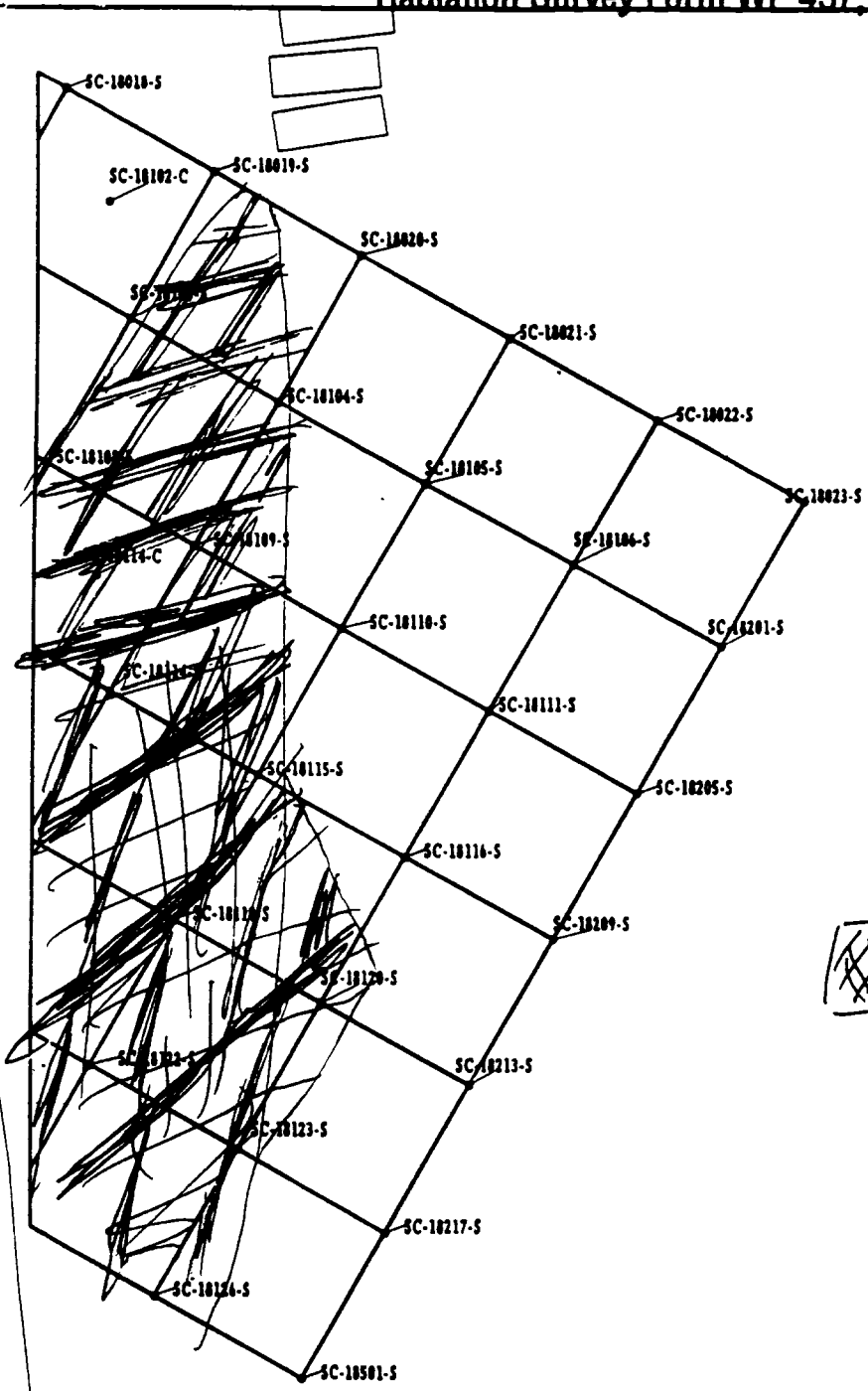
45 22.5 0 FEET

Meter Model#: 2221
Meter Serial#: 117611
Calibration Due: 1-8-99
Survey Date/Time: 10-26-99
Surveyor(s): J. Rankins

Detector Model#: 2x2 NaI "K"
Detector Serial#: 126402
Calibration Due: 1-22-99
Field Bkg.: 4800 (Shielded)

Comments: Area Surveyed and Found to be below 1.5 times background

Radiation Survey Form WP 437, RU018 CU181



Area Surveyed

15 7.5 0 METERS

45 22.5 0 FEET

WSSRAP GIS

Meter Model#: 2221 Detector Model#: 2x2 NaI F

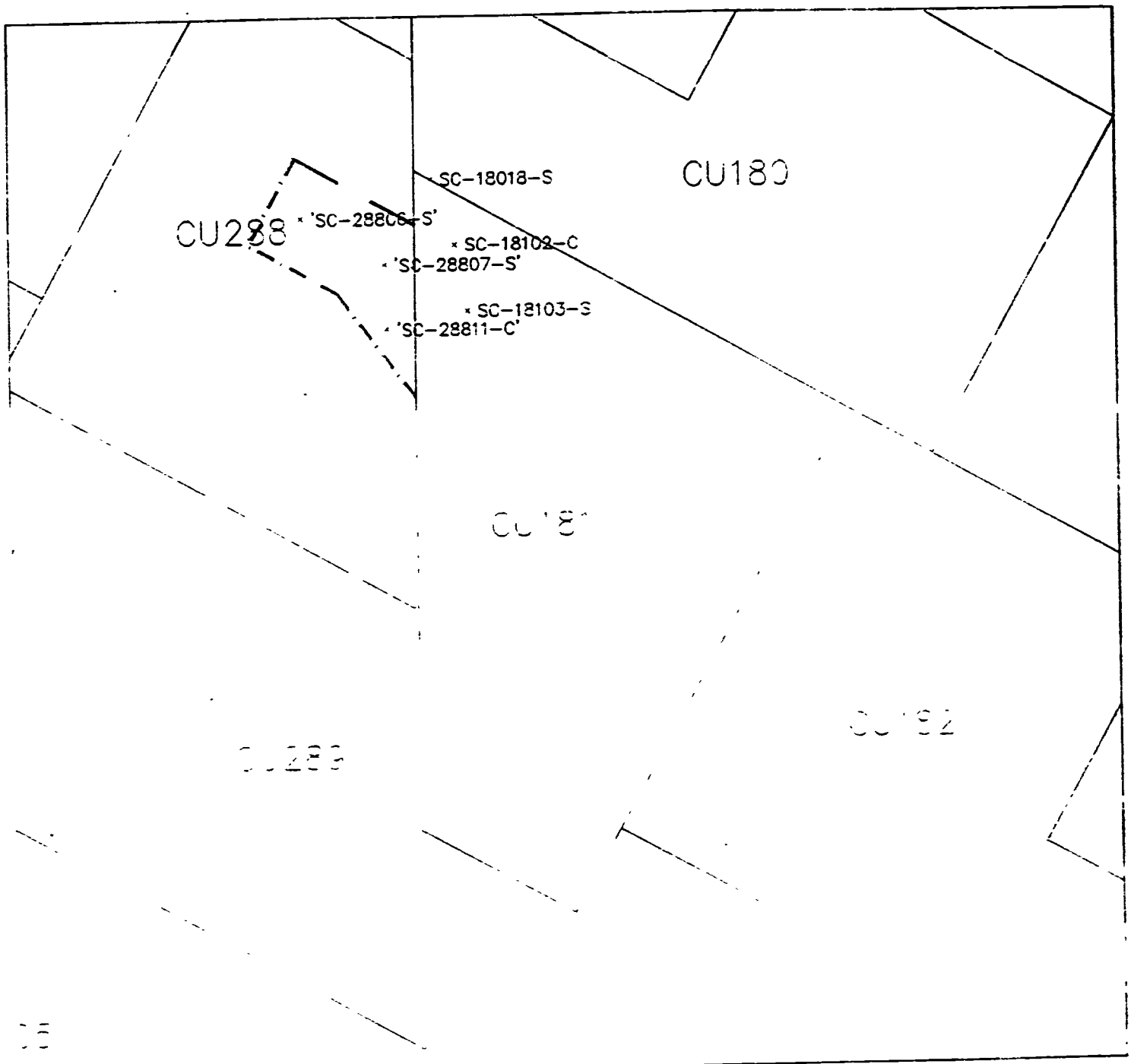
Meter Serial#: 127252 Detector Serial#: 122191

Calibration Due: 8-27-99 Calibration Due: 8-11-99

Survey Date/Time: 1-22-99 (1400) Field Bkg.: 11,000 cpm

Surveyor(s): Leon Hagoss

Comments: The area above shown has been Surveyed and found to be less than 1½ Back-ground.



LEGEND

SC-[illegible]-S SAMPLE POINTS PINNED

PINNING LIMITS

N

GRAPHIC SCALE

50 0 50 100

(IN FEET)

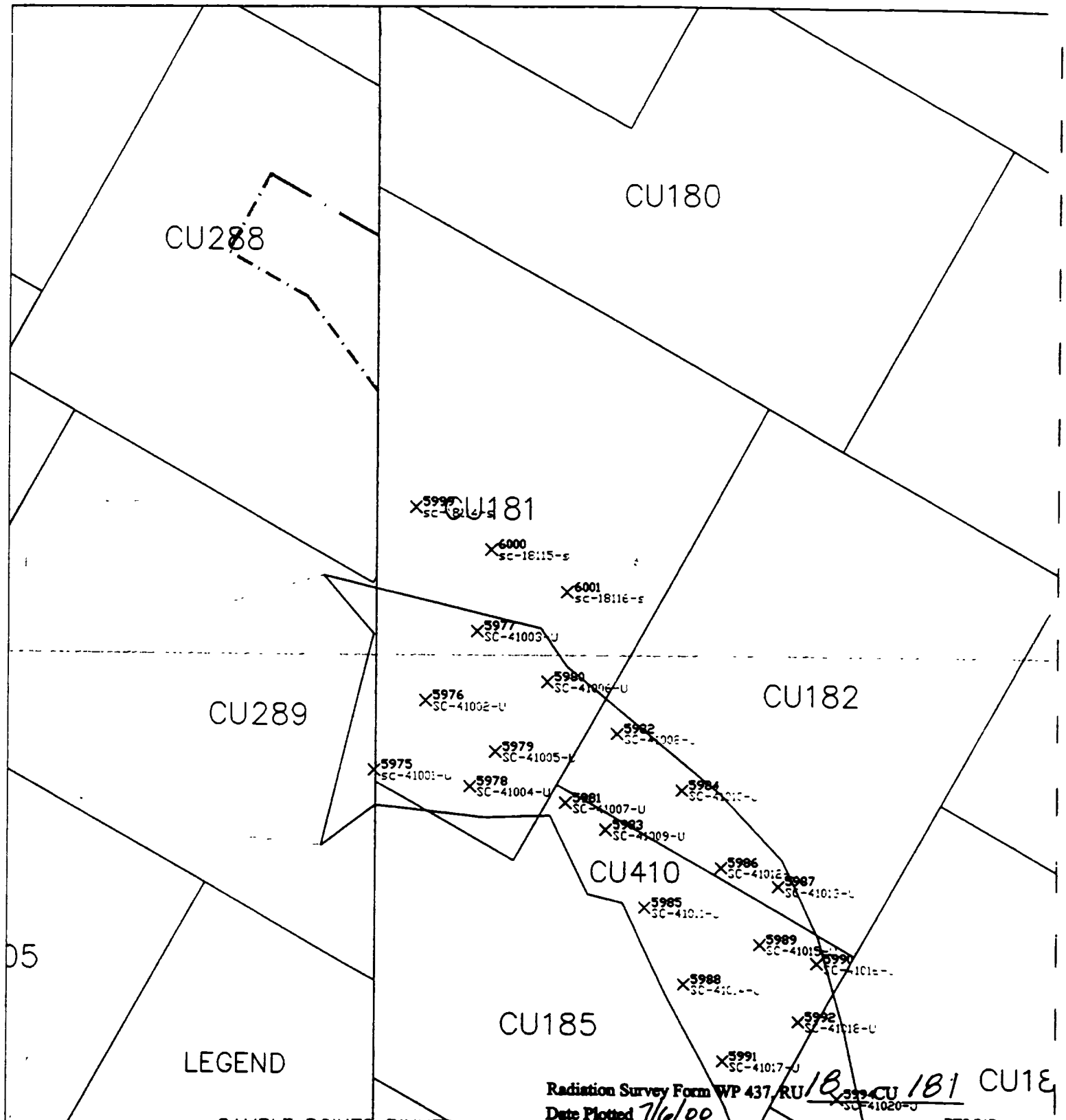
1 inch = 50 ft.

Radiation Survey Form WP [illegible], RC [illegible] CU 181

Date Plotted 6/23/00

DEC CAD

Meter Model #:	2221	Detector Model #:	2x2 P
Meter Serial #:	154199	Detector Serial #:	17606
Calibration Due:	2/9/01	Calibration Due:	1/21/01
Survey Date / Time:	6/22/00	Field Bkg:	10,000 CPM
Surveyor(s):	T. Brown		
Comments:	1" readings w/5 Bkg		



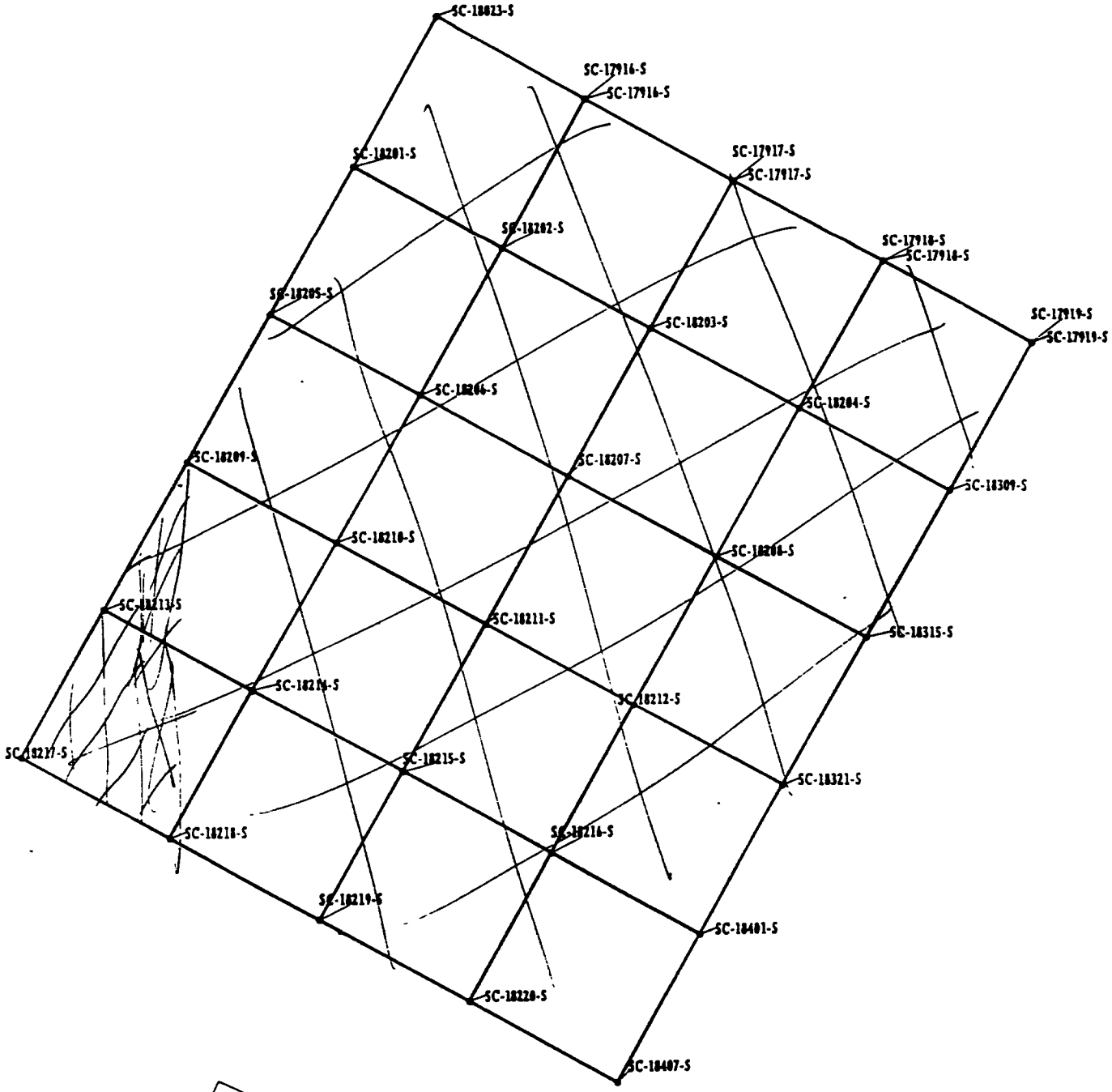
Radiation Survey Form WP 437.RU 18 CU 181 CU18

Date Plotted 7/6/00

DBO CAD

Meter Model #:	2221	Detector Model #:	2x2 "P"
Meter Serial #:	154199	Detector Serial #:	17606
Calibration Due:	2/9/01	Calibration Due:	1/21/01
Survey Date / Time:	7/5/00	Field Bkg.:	10,000 cpm
Surveyor(s):	T. Brower		
Comments:	All readings <1.5 Bkg		

Radiation Survey Form WP 437, RU018 CU182



WSSRAP GIS

15 7.5 0 METERS

45 22.5 0 FEET

Meter Model#: 2221

Meter Serial#: 117611

Calibration Due: 1-8-99

Survey Date/Time: 10-26-99

Surveyor(s): J. Rankins

Detector Model#: 2x2 NaI "K"

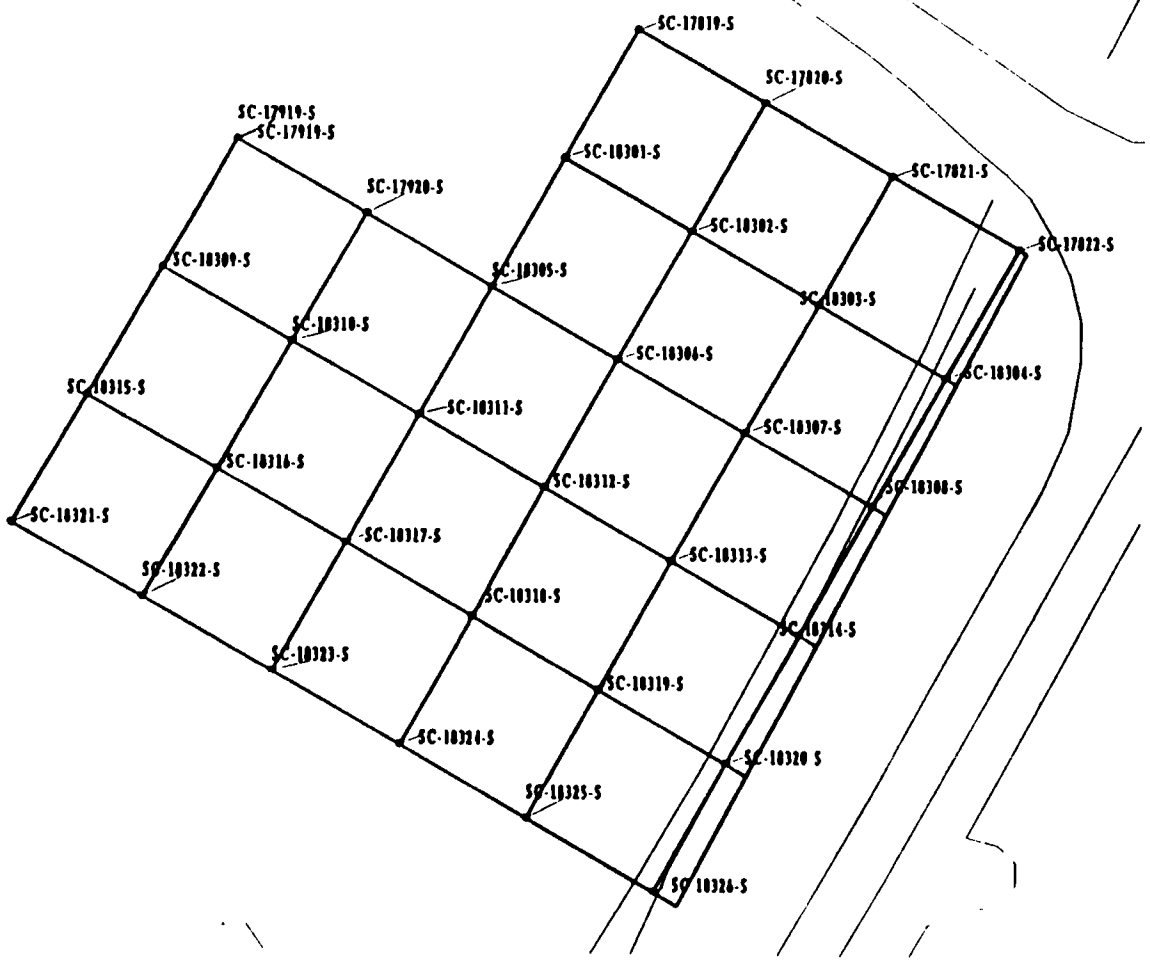
Detector Serial#: 126402

Calibration Due: 1-22-99

Field Bkg.: 4800 (shielded)

Comments: Area surveyed and found to be below 1.5 times background

Radiation Survey Form WP 437, RU018CU183



15 7.5 0 15 METERS

45 22.5 0 45 FEET

N W E S

WSSRAP GIS

Meter Model#: 2221 / 2221 Detector Model#: 2x2 NaI "K" & "J"

Meter Serial#: 99636 / 117611 Detector Serial#: 126903 / 126402

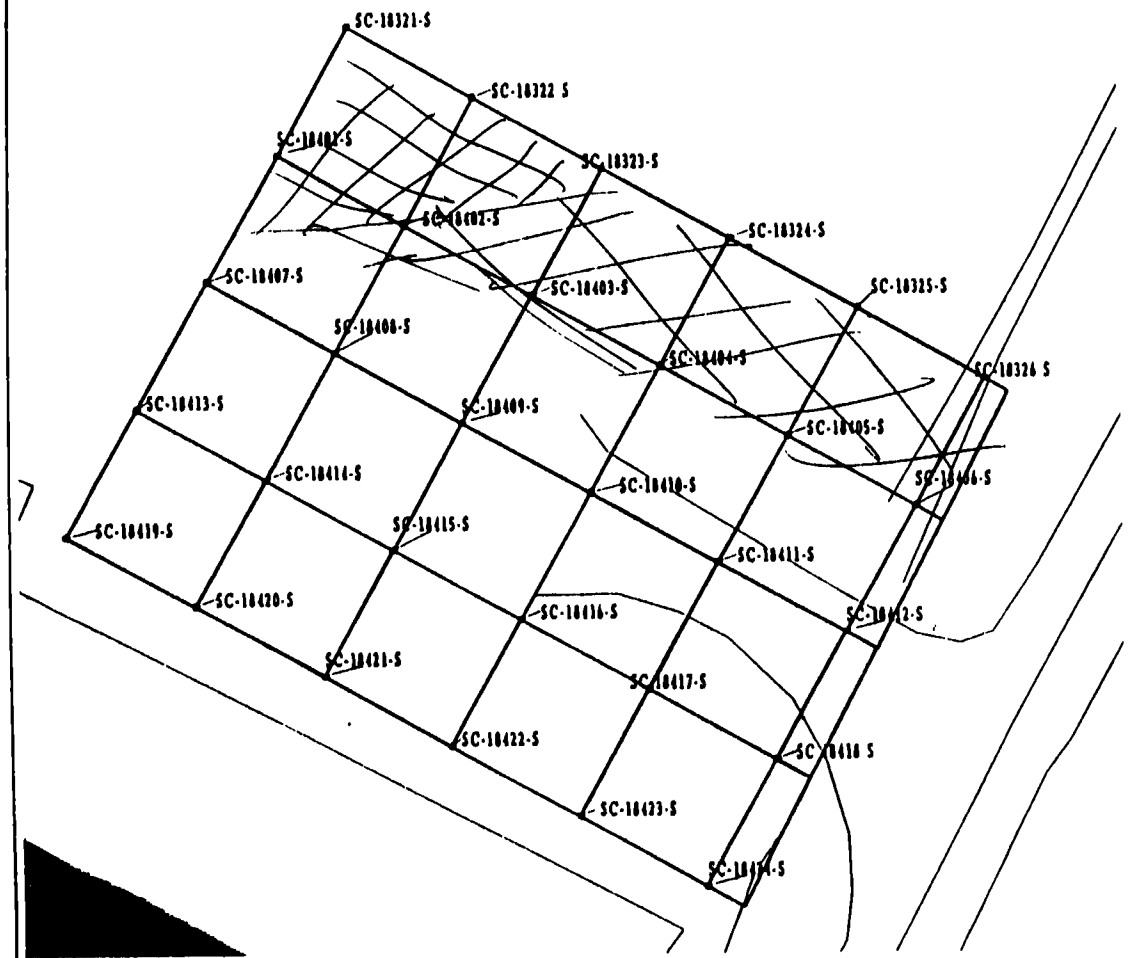
Calibration Due: 11-20-98 / 1-8-99 Calibration Due: 1-21-99 / 1-22-99

Survey Date/Time: ~~8 feet~~ 10-22-98 Field Bkg: 6000 (shielded)

Surveyor(s): C. Hanner & J. Rankins

Comments: Area surveyed and found to be below 1.5 times background

Radiation Survey Form WP 437, RU018CU184



Area Surveyed

WSSRAP GIS

Meter Model#: 2221 | 2221 Detector Model#: 2x2 NaI "K" & "S"

Meter Serial#: 89636 | 117611 Detector Serial#: 126403 | 126402

Calibration Due: 11-20-98 | 1-8-99 Calibration Due: 1-21-99 | 1-22-99

Survey Date/Time: 10-22-98 Field Bkg.: 6000 (shielded)

Surveyor(s): S. Hannr & J. Rankins

Comments: Area Surveyed and found to be below 1.5 times background

15 7.5 0 15 METERS

45 22.6 0 45 FEET

N W E S

Radiation Survey Form WP 437. RU018CU184

Area Surveyed

WSSRAP GIS

15 7.5 0 15 METERS

45 22.5 0 45 FEET

N W E S

Meter Model#: Ludlum 2221 Detector Model#: 2X2 NaI

Meter Serial#: 126506 / 125470 Detector Serial#: 122191F / 122608I

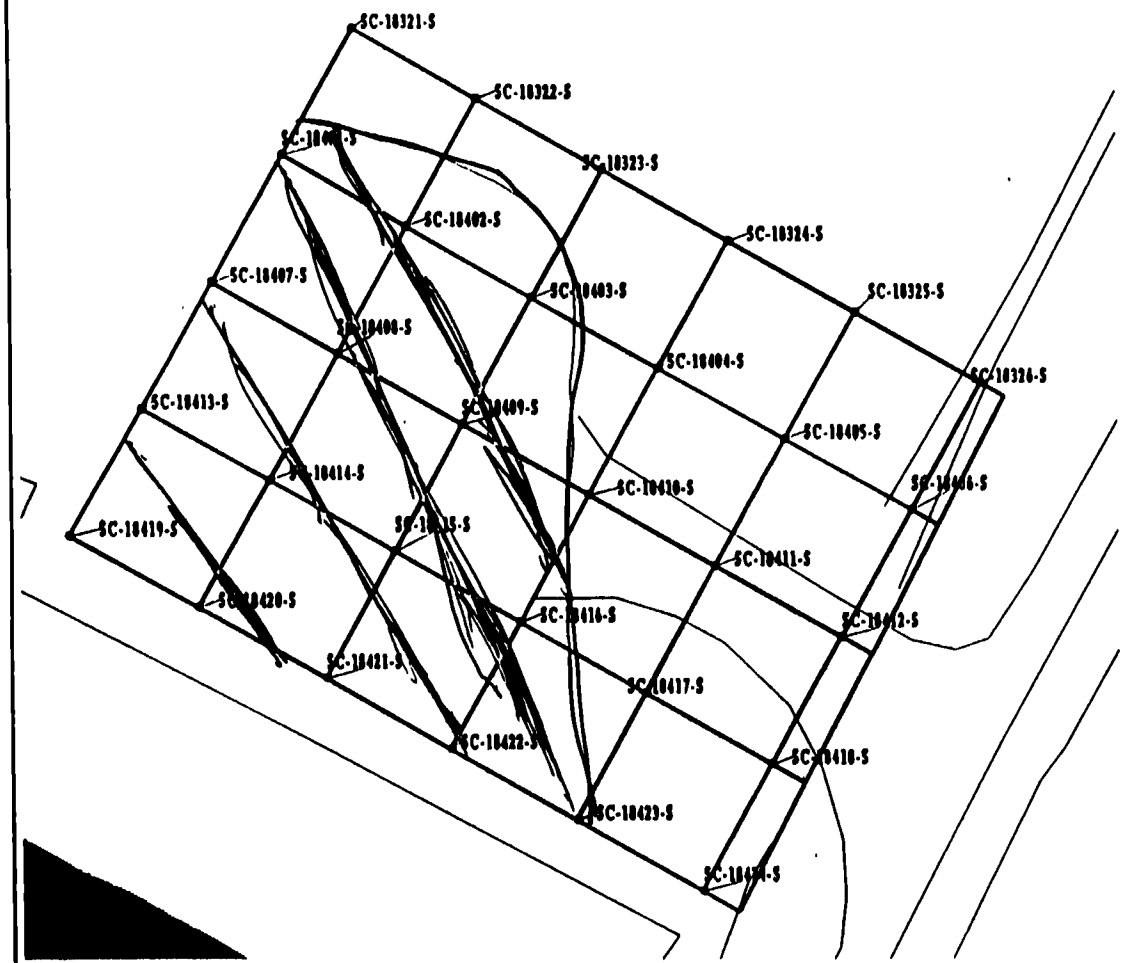
Calibration Due: 6-25-98 / 11-20-98 Calibration Due: 7-24-98 / 5-5-98

Survey Date/Time: 4-2-98 (0900-1600) Field Bkg.: 10500cpm / 10000cpm

Surveyor(s): L. Hagess / M. Pacheco

Comments: The above area surveyed and found to be Less than 1½ back-ground

Radiation Survey Form WP 437, RU018CU184



15 7.5 0 15 METERS

45 22.5 0 45 FEET

N W E S

WSSRAP GIS

Meter Model#: Ludl 2221/Ludl 2221 Detector Model#: Ludl 2x2 NaI

Meter Serial#: 125470/126506 Detector Serial#: 122608/122191

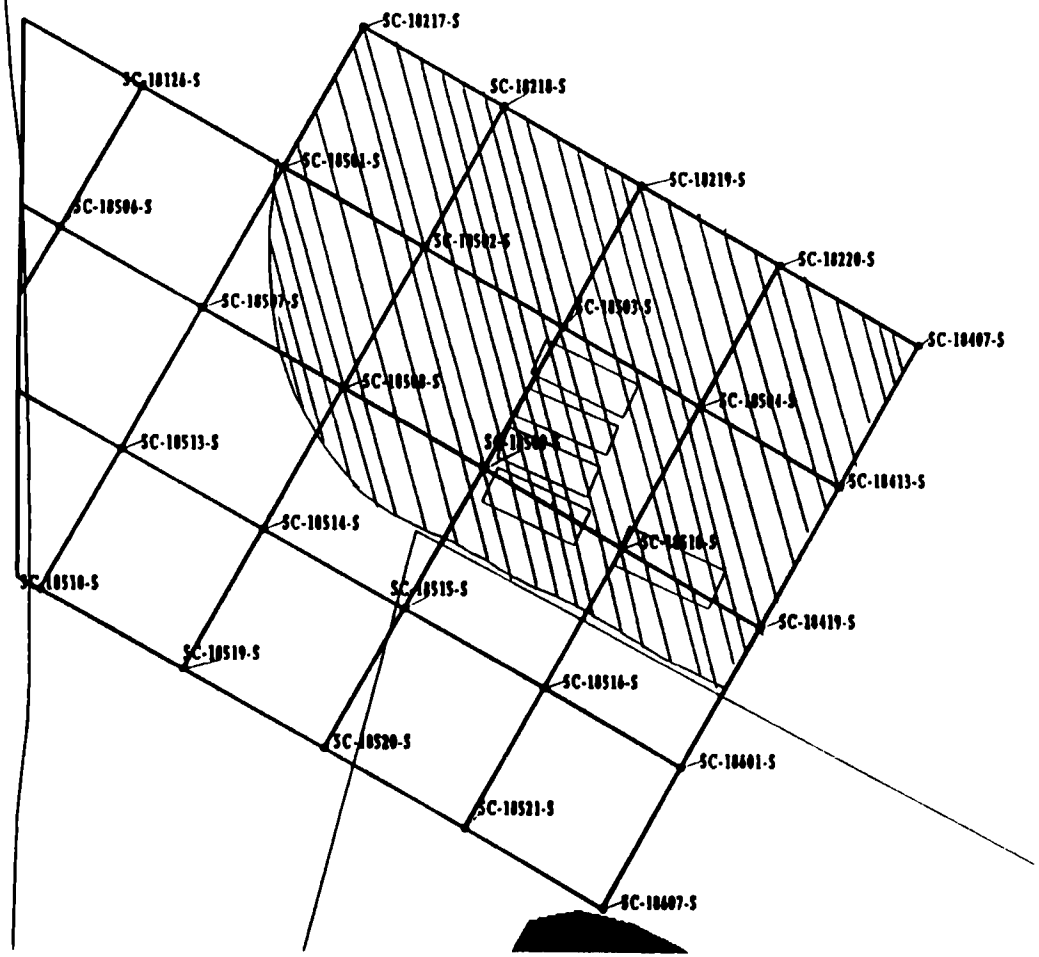
Calibration Due: 11/20/98/6/25/98 Calibration Due: 5/5/98/7/24/98

Survey Date/Time: 3/3/98/13:30 Field Bkg.: 10,000cpm/12000cpm

Surveyor(s): J. Bowhay, M. Smith

Comments: AREA NEAR NORTHEAST BORDER WAS APPROXIMATELY 2 X BACKGROUND DUE TO CONTAMINATED DITCH RUNNING ALONG BORDER. ALL OTHER AREAS LESS THAN 1.5 X BACKGROUND.

Radiation Survey Form WP 437, RU018CU185



15 7.5 0 15 METERS

45 22.5 0 45 FEET

N
W E
S

WSSRAP GI8

Meter Model#: Ludlum Model 2220 Detector Model#: Ludlum Model 44-10

Meter Serial#: 48400 / 48407 Detector Serial#: 126402 / 122912

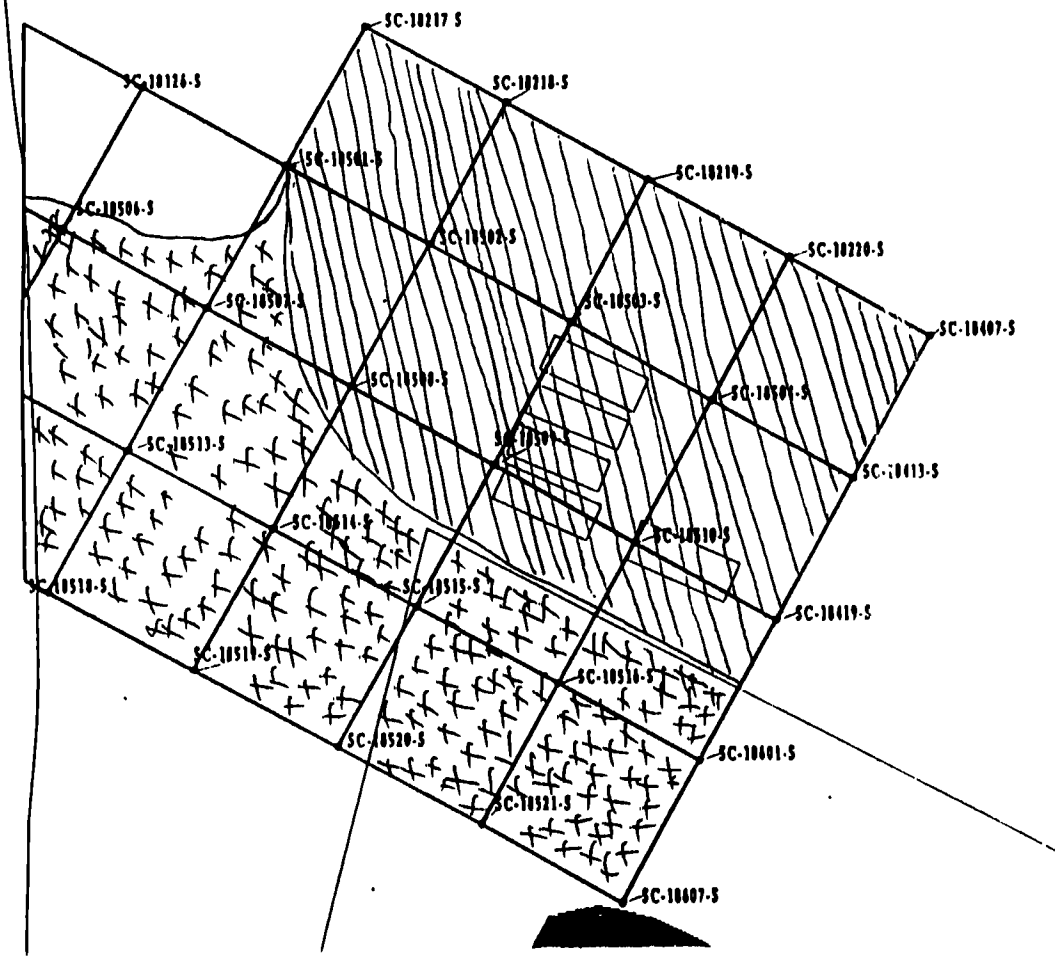
Calibration Due: 12-11-98 / 11-20-98 Calibration Due: 1-22-99 / 11-17-98

Survey Date/Time: MARCH 3RD 1998/1430 Field Bkg.: 14564 / 11349

Surveyor(s): CURT PREBE; T. Willfong

Comments: Shaded area surveyed and found to be less than 1.5X background.

Radiation Survey Form WP 437, BU018CU185



AREA SURVEYED

15 7.5 0 15 METERS

45 22.5 0 45 FEET

N E S W

WSSRAP

Meter Model#: Ludlum 2220 Detector Model#: 44-10 "F" / "I"

Meter Serial#: 126506 / 125470 Detector Serial#: 122191 / 2260

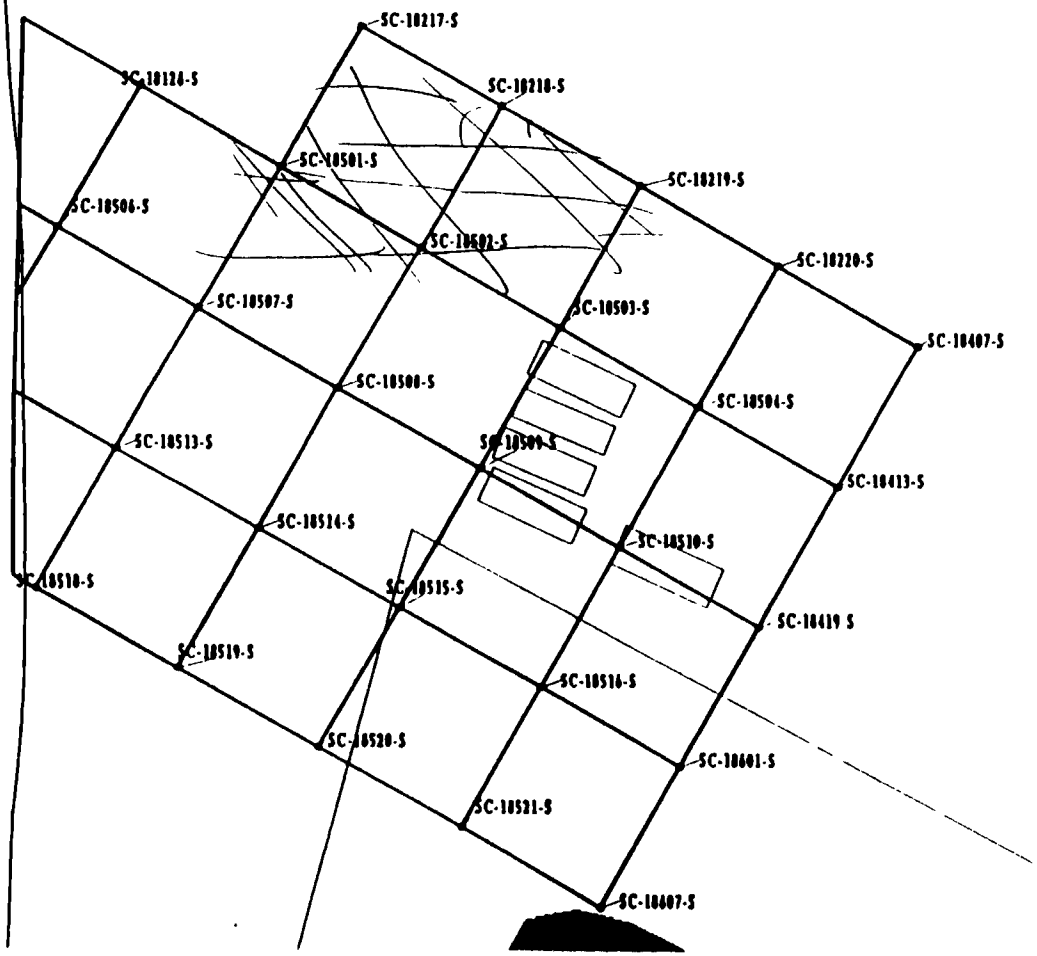
Calibration Due: 6-25-98 / 5-5-98 Calibration Due: 7-24-98 / 11-20-9

Survey Date/Time: 3-30-98 / 1000 Field Bkg.: 10,000

Surveyor(s): M. Pacheco / L. Hagoss

Comments: Area surveyed was found to be < 1.5 x background.

Radiation Survey Form WP 437. RU018CU185

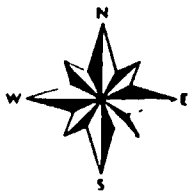


Area Surveyed

WSSRAP GIS

15 7.5 0 15 METERS

45 22.5 0 45 FEET



Meter Model#: 2221 Detector Model#: 2x2 NaI 4"x4"

Meter Serial#: 117611 Detector Serial#: 126402

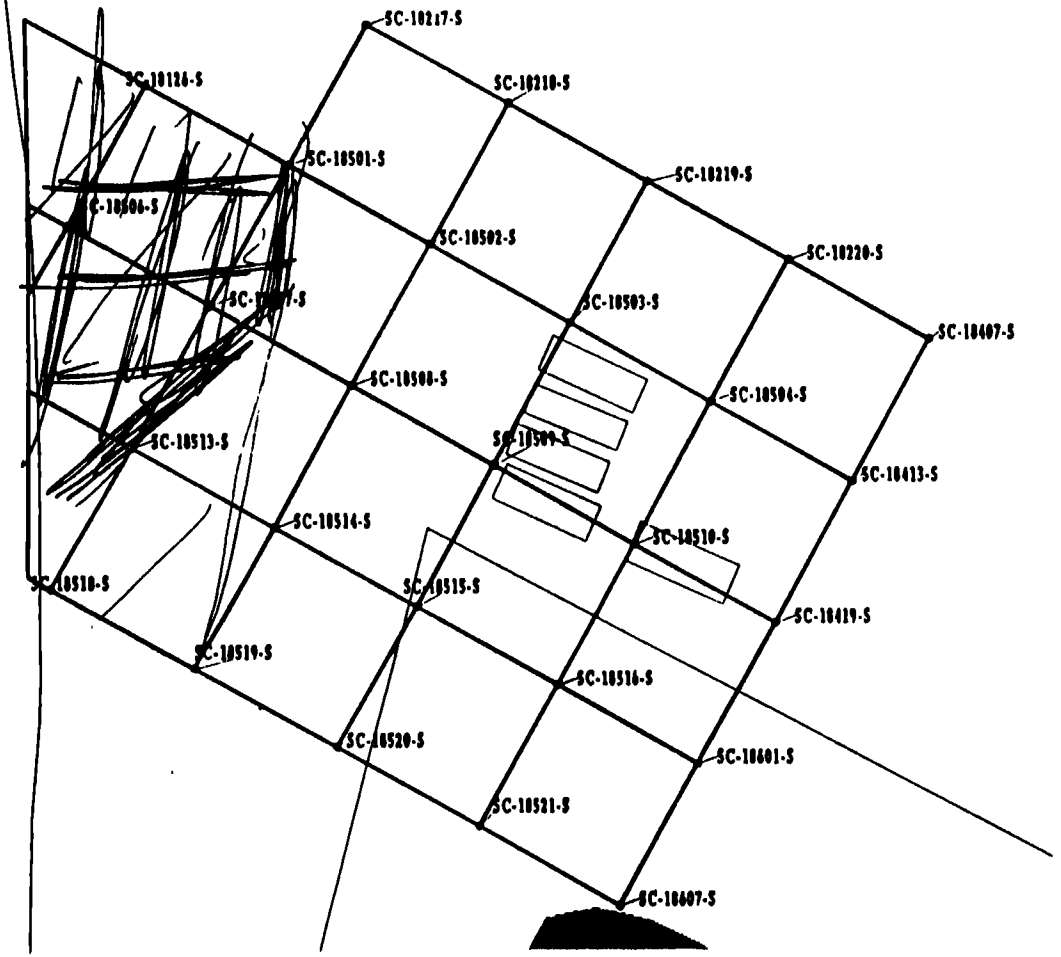
Calibration Due: 1-8-99 Calibration Due: 1-22-99

Survey Date/Time: 10-26-98 Field Bkg.: 4900 (shielded)

Surveyor(s): J. Rankins

Comments: Area surveyed and found to be below 1.5 times background

Radiation Survey Form WP 437, RU018CU185



Area Surveyed

15 7.5 0 15 METERS

45 22.5 0 45 FEET

N W E S

WSSRAP GIS

Meter Model#: 2221 Detector Model#: NaI 2x2 "F"

Meter Serial#: 127252 Detector Serial#: 122191

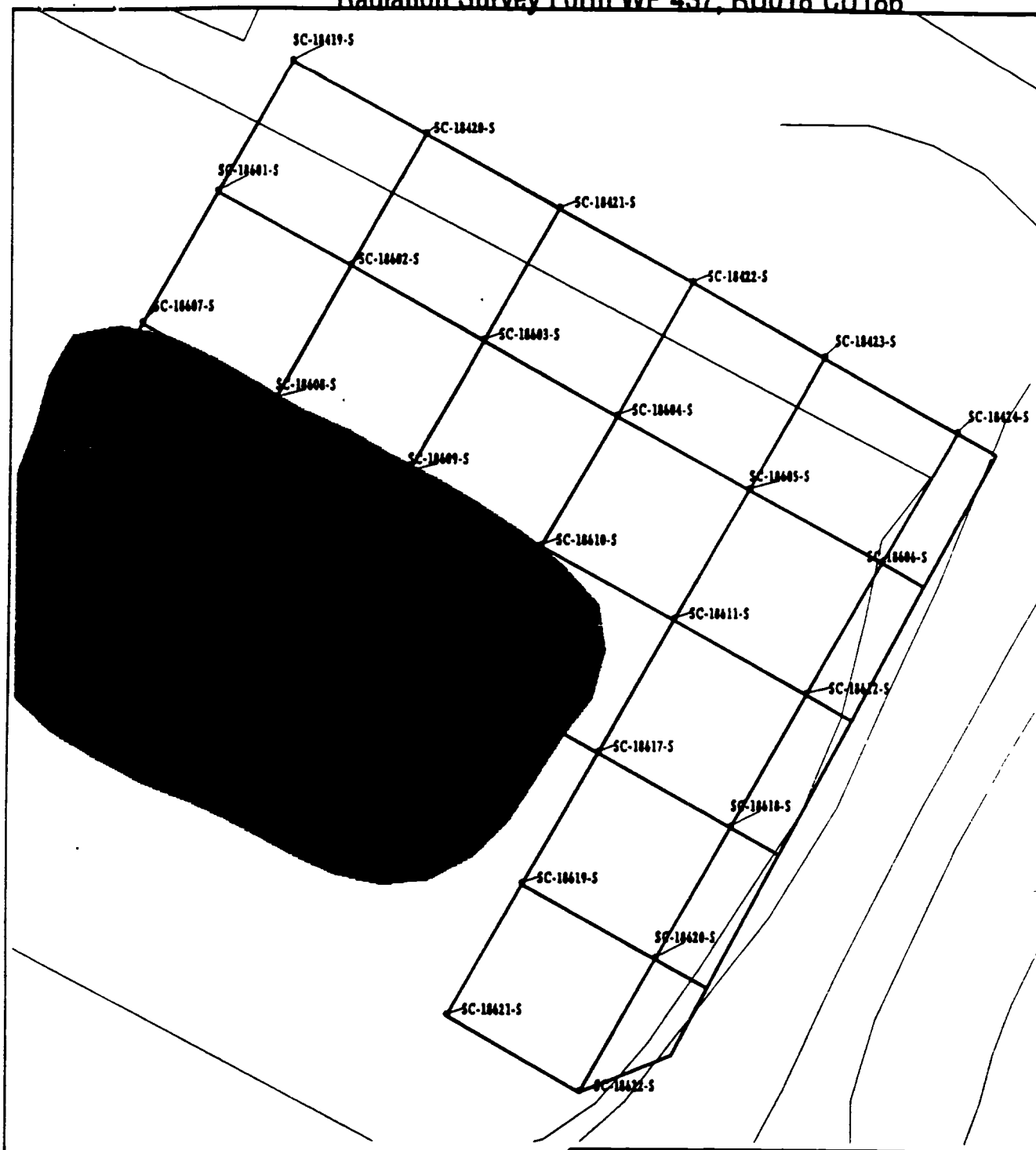
Calibration Due: 8-27-99 Calibration Due: 8-11-99

Survey Date/Time: 1-28-99 (1400) Field Bkg.: 14000 CPM

Surveyor(s): Leon Hagoss

Comments: The area above shown has been surveyed and found to be less than 1½ Background.

Radiation Survey Form WP 437, RU018 CU186



WSSRAP GIS

15 7.5 0 METERS

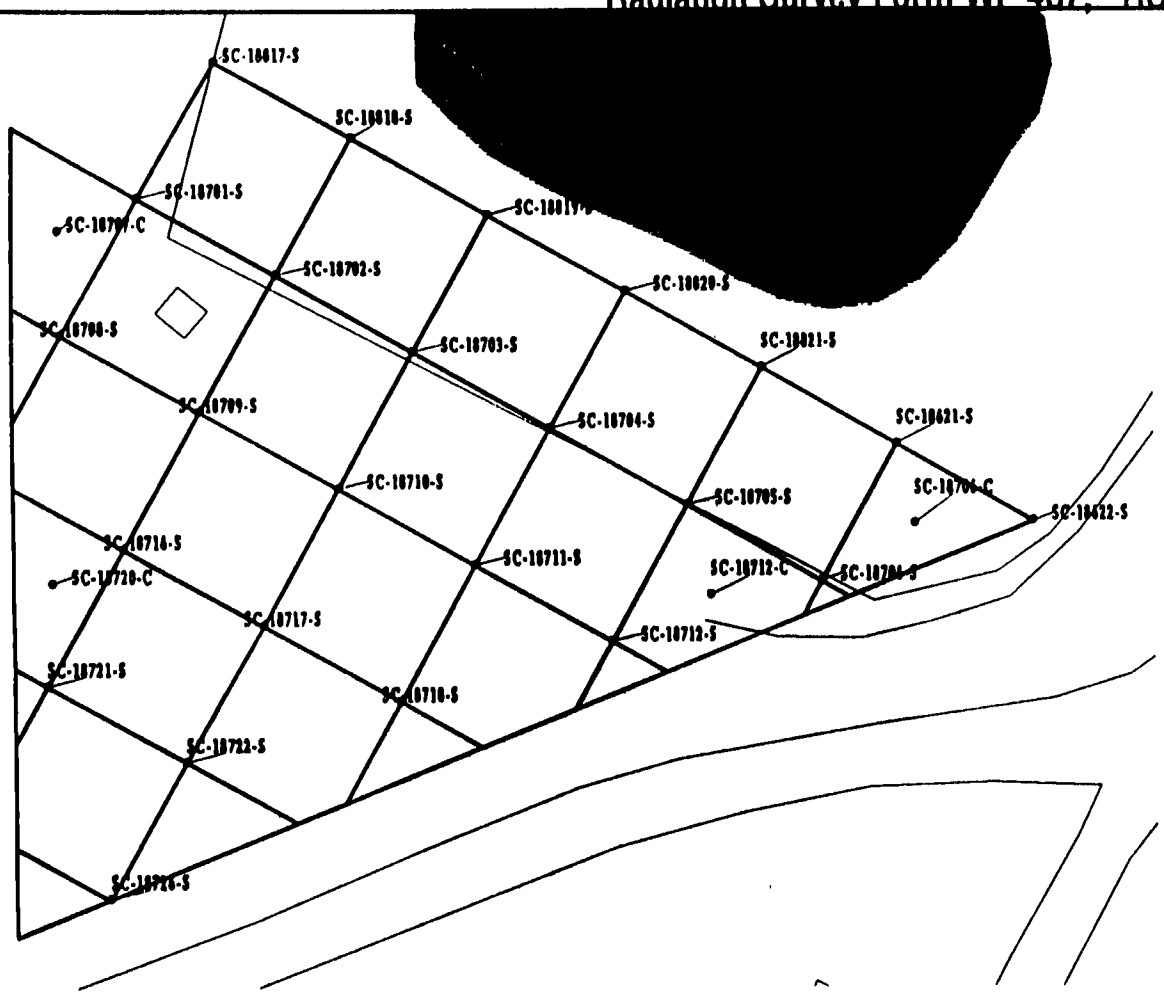
45 22.5 0 FEET

N W E S

Meter Model#: Ludlum 2220
Meter Serial#: 126506 / 125470
Calibration Due: 6/25/98 / 5.5.98
Survey Date/Time: 3.30.98 / ~~1400~~ 1530 JT
Surveyor(s): L Hegess M Pacheco
Comments: The above areas were surveyed & found to be less than 1.5 k background.

Detector Model#: 4410
Detector Serial#: 122191F / 122608
Calibration Due: 7.24.98 / 11.20.98
Field Blg.: 10,000 cpm

Radiation Survey Form WP 437, RU018CU187



15 7.5 0 15 METERS

45 22.5 0 45 FEET

N
W E
S

WSSRAP GI8

Meter Model#: 2221 Detector Model#: NaI 2x2

Meter Serial#: 117617/126506/125470 Detector Serial#: "C" 065321 / "F" 122191 / "H" 122608

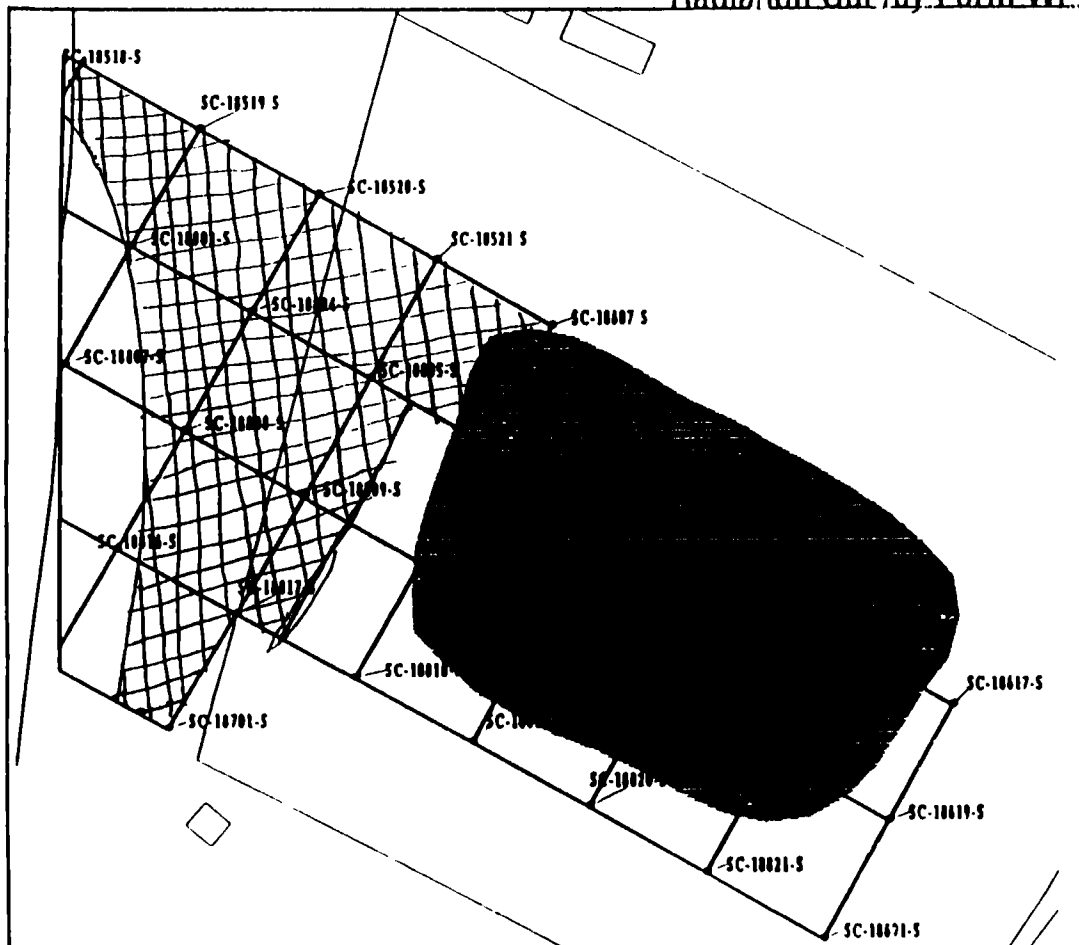
Calibration Due: 8-8-98/6-25-98/11-20-98 Calibration Due: 4-23-98/7-29-98/5-5-98

Survey Date/Time: 3-14-98 / 0830 Field Bkg.: 10,000

Surveyor(s): M. Pacheco/Bowhay/Hagoss

Comments: Area was found to be less than 1 1/2 times background.

Radiation Survey Form WF 437, RU018CU188



AREA SURVEYED

15 7.5 0 15 METERS

45 22.5 0 45 FEET

N
W E
S

WSSRAP 018

Meter Model#: Ludlum 2220 Detector Model#: Model 44-10 "E" / "I"

Meter Serial#: 126506/125470 Detector Serial#: 122191/122608

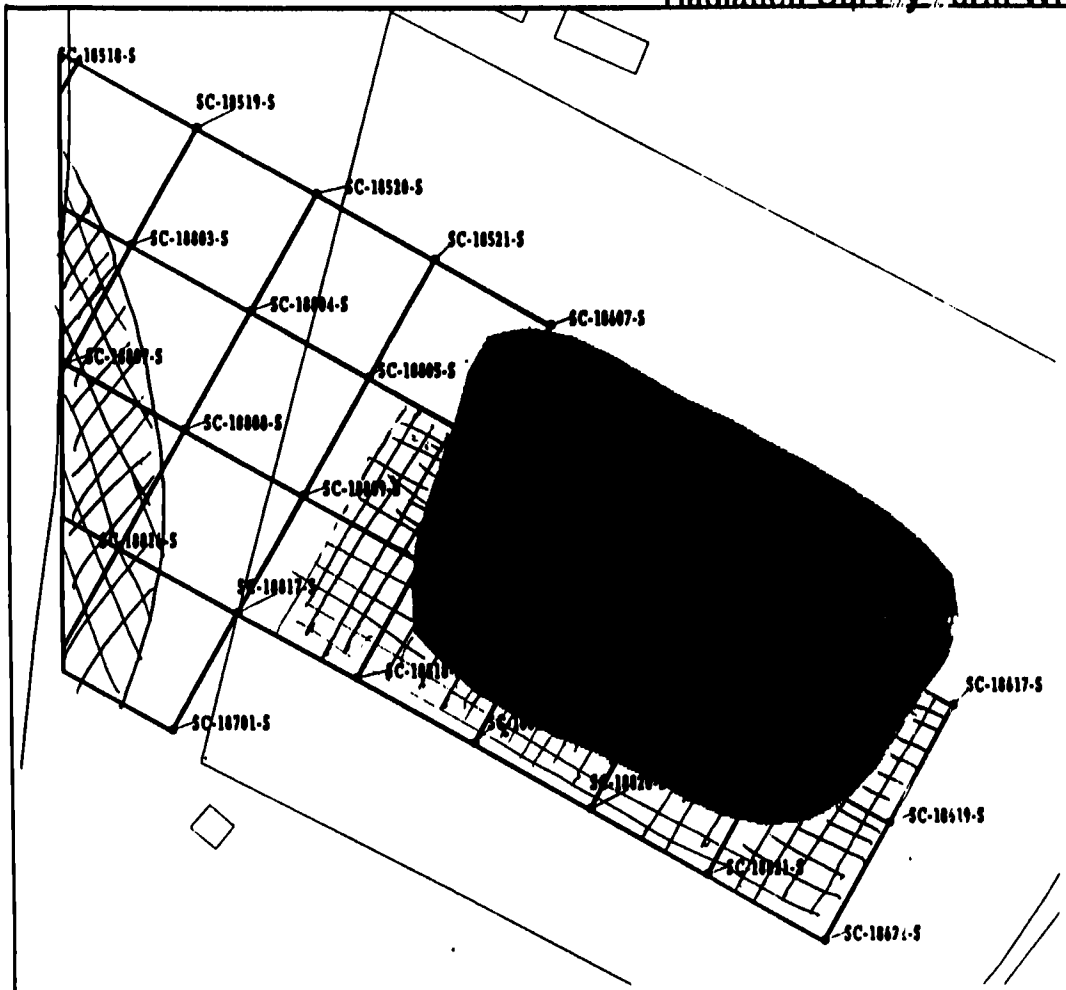
Calibration Due: 6-25-98/6-5-98 Calibration Due: 7-24-98/11-20-98

Survey Date/Time: 3-30-98/1000 Field Bkg.: 10,000

Surveyor(s): M. Pacheco / L. Hagoss

Comments: Area surveyed was found to be ≤ 1.5 x background.

Radiation Survey Form WP 437, RU018CU188



Area surveyed

15 7.5 0 15 METERS

45 22.5 0 45 FEET

N W E S

WSSRAP GIS

Meter Model#: 2221 Detector Model#: NaI 2X2 "C"

Meter Serial#: 117617 / 125470 Detector Serial#: 065321 / 122608

Calibration Due: 8-8-98 / 11-20-98 Calibration Due: 4-23-98 / 5-5-98

Survey Date/Time: 3-16-98 / 1000 Field Bkg.: 12,000

Surveyor(s): M. Pacheco / L. Hagoss

Comments: Area was found to be less than 1½ times background.

Thursday 3-9-00 "Day Shift"

0630- Setting up control points for today's field activities. Was int
that RCRA training for craftsmen & laborers will be h
for the first part of the morning.
0900- Training done. Working at TSA, Cell, & decon pad. Tim swiped
shell; no contam. detected. John observing activity at northwest ce
ramp. Excavating surface contamination off of ramp entrance/e
into the cell. Performing 2x2 walkover on the ramp.
1030- Eric's observing TSA activity. Soil removal in progress on east
perimeter. Sediment/soil are being hauled from the basin. Also
material on south section of the basin for surveyors to shoot a sample
1130- Lunch
1235- Crew back to work.
1300- Eric's performing 2x2 survey on southwest corner of TSA basin.
walkover was found to be <1.5x bkg; (Bkg: 4700 cpm)
1530- At decon pad, CAT 345 trackhoe decon complete. Tracks visua
inspected, released from decon pad. Eric performing 2x2 northw
corner of TSA basin; area <1.5x bkg
1630- At northwest corner ramp of cell, area to be cleaned and bought
were <1.5x bkg. Fred Fry was notified & samplers were notified
confirmation
1645- Mikes collecting GA samples
1700- Eric's ~~to~~ securing control points
1730- Done for today

E. H.

Continued on Page

Signed 3-9-00 Date

Read and Understood By

Signed 5/16/00 Date

Linda Broody

From: David Fleming
Sent: Friday, January 12, 2001 9:58 AM
To: Linda Broody
Cc: Melissa Lutz
Subject: Estimated 2x2 Background for CU 396 Walkover

A walkover was performed in CU 396 on 3-9-00 by ES&H technician Jonathan Rankins using 2x2 "M" with the following parameters:

Meter Model # 2221	Detector Model # 2x2 NaI "M"
Meter Serial # 117617	Detector Serial # 130764
Calibration Due: 10-13-00	Calibration Due: 9-24-00
Survey Date: 3-9-00	Field Background: Not Recorded

This walkover was documented in WP-437 Logbook # 2000-0005 on the 3-7-00 day shift entry. It was recorded that all results were less than 1.5 times background, however the background count rate was not recorded. Also, no walkover survey form was generated for CU 396.

Site experience has shown that the background count rate in various areas for a given 2x2 NaI scintillation detector does not vary greatly so long as there are no significant sources of above-background gamma radiation present, and the local terrains are similar (i.e., similar soil topography, similar amounts of rock or standing water present, etc.). These conditions were true for walkovers performed around 3-9-00 in other CUs using 2x2 NaI "M" with the following background count rates, documented on walkover survey forms in our files:

CU 208 walkover performed on 3-1-00, bkg = 4,500 cpm
CU 349 walkover performed on 3-7-00, bkg = 6,400 cpm
CU 208 & 210 walkovers performed on 3-13-00, bkg = 4,500 cpm
CU 225 & 226 walkovers performed on 3-24-00, bkg = 6,000 cpm
CU 208 walkover performed on 4-20-00, bkg = 6,000 cpm
CU 208 walkover performed on 4-23-00, bkg = 5,700 cpm

Therefore, I believe an appropriate estimate for the background count rate for the 3-9-00 CU 396 walkover would be 4,500 to 6,400 cpm.

APPENDIX B
Final Data

APPENDIX B WP-437 RU18 FINAL DATA

WSSRAP_ID	DATE_SAM	PARAMETER	CONC	DL	UNITS
SC-18124-S	7/14/2000	2,4,6-TRINITROTOLUENE	0.155	0.31	UG/G
SC-18127-S	7/14/2000	2,4,6-TRINITROTOLUENE	0.145	0.29	UG/G
SC-18209-S	10/27/1998	2,4,6-TRINITROTOLUENE	0.76	0.23	UG/G
SC-18210-S	10/27/1998	2,4,6-TRINITROTOLUENE	0.12	0.24	UG/G
SC-18214-S	10/27/1998	2,4,6-TRINITROTOLUENE	0.115	0.23	UG/G
SC-18217-S	10/27/1998	2,4,6-TRINITROTOLUENE	0.11	0.22	UG/G
SC-18522-S	7/14/2000	2,4,6-TRINITROTOLUENE	0.15	0.3	UG/G
SC-18523-S	7/14/2000	2,4,6-TRINITROTOLUENE	0.15	0.3	UG/G
SC-17102-S	9/29/1998	AROCLOR-1248	0	40	UG/KG
SC-17103-S	9/29/1998	AROCLOR-1248	0	40	UG/KG
SC-17106-S	9/29/1998	AROCLOR-1248	0	390	UG/KG
SC-17107-S	9/29/1998	AROCLOR-1248	0	38	UG/KG
SC-17110-S	9/29/1998	AROCLOR-1248	0	40	UG/KG
SC-17111-S	9/29/1998	AROCLOR-1248	0	38	UG/KG
SC-17203-C	9/29/1998	AROCLOR-1248	0	38	UG/KG
SC-17204-S	9/29/1998	AROCLOR-1248	0	40	UG/KG
SC-17205-C	9/29/1998	AROCLOR-1248	0	38	UG/KG
SC-17205-S	9/29/1998	AROCLOR-1248	0	41	UG/KG
SC-17206-S	9/29/1998	AROCLOR-1248	0	38	UG/KG
SC-17207-S	9/29/1998	AROCLOR-1248	0	36	UG/KG
SC-17211-S	9/29/1998	AROCLOR-1248	0	38	UG/KG
SC-17212-S	9/29/1998	AROCLOR-1248	0	38	UG/KG
SC-17213-S	9/29/1998	AROCLOR-1248	0	35	UG/KG
SC-17214-C	9/29/1998	AROCLOR-1248	0	36	UG/KG
SC-17214-S	9/29/1998	AROCLOR-1248	0	39	UG/KG
SC-17901-S	10/23/1998	AROCLOR-1248	0	42	UG/KG
SC-17902-S	10/23/1998	AROCLOR-1248	0	39	UG/KG
SC-17903-S	10/23/1998	AROCLOR-1248	0	38	UG/KG
SC-17904-S	10/23/1998	AROCLOR-1248	0	38	UG/KG
SC-17905-S	10/23/1998	AROCLOR-1248	0	37	UG/KG
SC-17906-S	10/23/1998	AROCLOR-1248	0	40	UG/KG
SC-17907-S	10/23/1998	AROCLOR-1248	0	43	UG/KG
SC-17908-S	10/23/1998	AROCLOR-1248	0	41	UG/KG
SC-17909-S	10/23/1998	AROCLOR-1248	0	39	UG/KG
SC-17910-S	10/23/1998	AROCLOR-1248	0	37	UG/KG
SC-17911-S	10/23/1998	AROCLOR-1248	0	37	UG/KG
SC-17912-S	10/23/1998	AROCLOR-1248	0	38	UG/KG
SC-17913-S	10/23/1998	AROCLOR-1248	0	35	UG/KG
SC-17914-S	10/23/1998	AROCLOR-1248	0	40	UG/KG
SC-17915-S	10/23/1998	AROCLOR-1248	0	36	UG/KG
SC-17916-S	10/23/1998	AROCLOR-1248	0	41	UG/KG
SC-17917-S	10/23/1998	AROCLOR-1248	0	37	UG/KG
SC-17918-S	10/23/1998	AROCLOR-1248	0	36	UG/KG
SC-17919-S	10/23/1998	AROCLOR-1248	0	40	UG/KG
SC-17920-S	10/23/1998	AROCLOR-1248	0	36	UG/KG
SC-17102-S	9/29/1998	AROCLOR-1254	0	40	UG/KG
SC-17103-S	9/29/1998	AROCLOR-1254	0	40	UG/KG
SC-17106-S	9/29/1998	AROCLOR-1254	1900	390	UG/KG

APPENDIX B WP-437 RU18 FINAL DATA

WSSRAP_ID	DATE_SAM	PARAMETER	CONC	DL	UNITS
SC-17107-S	9/29/1998	AROCLOR-1254	0	38	UG/KG
SC-17110-S	9/29/1998	AROCLOR-1254	0	40	UG/KG
SC-17111-S	9/29/1998	AROCLOR-1254	0	38	UG/KG
SC-17203-C	9/29/1998	AROCLOR-1254	0	38	UG/KG
SC-17204-S	9/29/1998	AROCLOR-1254	0	40	UG/KG
SC-17205-C	9/29/1998	AROCLOR-1254	0	38	UG/KG
SC-17205-S	9/29/1998	AROCLOR-1254	0	41	UG/KG
SC-17206-S	9/29/1998	AROCLOR-1254	0	38	UG/KG
SC-17207-S	9/29/1998	AROCLOR-1254	0	36	UG/KG
SC-17211-S	9/29/1998	AROCLOR-1254	0	38	UG/KG
SC-17212-S	9/29/1998	AROCLOR-1254	0	38	UG/KG
SC-17213-S	9/29/1998	AROCLOR-1254	0	35	UG/KG
SC-17214-C	9/29/1998	AROCLOR-1254	0	36	UG/KG
SC-17214-S	9/29/1998	AROCLOR-1254	0	39	UG/KG
SC-17901-S	10/23/1998	AROCLOR-1254	0	42	UG/KG
SC-17902-S	10/23/1998	AROCLOR-1254	0	39	UG/KG
SC-17903-S	10/23/1998	AROCLOR-1254	0	38	UG/KG
SC-17904-S	10/23/1998	AROCLOR-1254	0	38	UG/KG
SC-17905-S	10/23/1998	AROCLOR-1254	0	37	UG/KG
SC-17906-S	10/23/1998	AROCLOR-1254	0	40	UG/KG
SC-17907-S	10/23/1998	AROCLOR-1254	0	43	UG/KG
SC-17908-S	10/23/1998	AROCLOR-1254	0	41	UG/KG
SC-17909-S	10/23/1998	AROCLOR-1254	0	39	UG/KG
SC-17910-S	10/23/1998	AROCLOR-1254	0	37	UG/KG
SC-17911-S	10/23/1998	AROCLOR-1254	0	37	UG/KG
SC-17912-S	10/23/1998	AROCLOR-1254	0	38	UG/KG
SC-17913-S	10/23/1998	AROCLOR-1254	0	35	UG/KG
SC-17914-S	10/23/1998	AROCLOR-1254	0	40	UG/KG
SC-17915-S	10/23/1998	AROCLOR-1254	0	36	UG/KG
SC-17916-S	10/23/1998	AROCLOR-1254	0	41	UG/KG
SC-17917-S	10/23/1998	AROCLOR-1254	0	37	UG/KG
SC-17918-S	10/23/1998	AROCLOR-1254	0	36	UG/KG
SC-17919-S	10/23/1998	AROCLOR-1254	0	40	UG/KG
SC-17920-S	10/23/1998	AROCLOR-1254	0	36	UG/KG
SC-17102-S	9/29/1998	AROCLOR-1260	0	40	UG/KG
SC-17103-S	9/29/1998	AROCLOR-1260	0	40	UG/KG
SC-17106-S	9/29/1998	AROCLOR-1260	0	390	UG/KG
SC-17107-S	9/29/1998	AROCLOR-1260	0	38	UG/KG
SC-17110-S	9/29/1998	AROCLOR-1260	0	40	UG/KG
SC-17111-S	9/29/1998	AROCLOR-1260	0	38	UG/KG
SC-17203-C	9/29/1998	AROCLOR-1260	0	38	UG/KG
SC-17204-S	9/29/1998	AROCLOR-1260	0	40	UG/KG
SC-17205-C	9/29/1998	AROCLOR-1260	0	38	UG/KG
SC-17205-S	9/29/1998	AROCLOR-1260	0	41	UG/KG
SC-17206-S	9/29/1998	AROCLOR-1260	0	38	UG/KG
SC-17207-S	9/29/1998	AROCLOR-1260	0	36	UG/KG
SC-17211-S	9/29/1998	AROCLOR-1260	0	38	UG/KG
SC-17212-S	9/29/1998	AROCLOR-1260	0	38	UG/KG

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WSSRAP_ID	DATE_SAM	PARAMETER	CONC	DL	UNITS
SC-17213-S	9/29/1998	AROCLOR-1260	0	35	UG/KG
SC-17214-C	9/29/1998	AROCLOR-1260	0	36	UG/KG
SC-17214-S	9/29/1998	AROCLOR-1260	0	39	UG/KG
SC-17901-S	10/23/1998	AROCLOR-1260	0	42	UG/KG
SC-17902-S	10/23/1998	AROCLOR-1260	0	39	UG/KG
SC-17903-S	10/23/1998	AROCLOR-1260	0	38	UG/KG
SC-17904-S	10/23/1998	AROCLOR-1260	0	38	UG/KG
SC-17905-S	10/23/1998	AROCLOR-1260	0	37	UG/KG
SC-17906-S	10/23/1998	AROCLOR-1260	0	40	UG/KG
SC-17907-S	10/23/1998	AROCLOR-1260	0	43	UG/KG
SC-17908-S	10/23/1998	AROCLOR-1260	0	41	UG/KG
SC-17909-S	10/23/1998	AROCLOR-1260	0	39	UG/KG
SC-17910-S	10/23/1998	AROCLOR-1260	0	37	UG/KG
SC-17911-S	10/23/1998	AROCLOR-1260	0	37	UG/KG
SC-17912-S	10/23/1998	AROCLOR-1260	0	38	UG/KG
SC-17913-S	10/23/1998	AROCLOR-1260	0	35	UG/KG
SC-17914-S	10/23/1998	AROCLOR-1260	0	40	UG/KG
SC-17915-S	10/23/1998	AROCLOR-1260	0	36	UG/KG
SC-17916-S	10/23/1998	AROCLOR-1260	0	41	UG/KG
SC-17917-S	10/23/1998	AROCLOR-1260	0	37	UG/KG
SC-17918-S	10/23/1998	AROCLOR-1260	0	36	UG/KG
SC-17919-S	10/23/1998	AROCLOR-1260	0	40	UG/KG
SC-17920-S	10/23/1998	AROCLOR-1260	0	36	UG/KG
SC-17018-S-RS	10/15/1998	BENZO(A)ANTHRACENE	0	4.4	UG/KG
SC-18114-S-RS	7/6/2000	BENZO(A)ANTHRACENE	0	18	UG/KG
SC-18115-S-RS	7/6/2000	BENZO(A)ANTHRACENE	0	18	UG/KG
SC-18116-S-RS	7/6/2000	BENZO(A)ANTHRACENE	0	18	UG/KG
SC-17018-S-RS	10/15/1998	BENZO(A)PYRENE	0	7.3	UG/KG
SC-18114-S-RS	7/6/2000	BENZO(A)PYRENE	0	18	UG/KG
SC-18115-S-RS	7/6/2000	BENZO(A)PYRENE	0	18	UG/KG
SC-18116-S-RS	7/6/2000	BENZO(A)PYRENE	0	18	UG/KG
SC-17018-S-RS	10/15/1998	BENZO(B)FLUORANTHENE	0	5.8	UG/KG
SC-18114-S-RS	7/6/2000	BENZO(B)FLUORANTHENE	0	18	UG/KG
SC-18115-S-RS	7/6/2000	BENZO(B)FLUORANTHENE	0	18	UG/KG
SC-18116-S-RS	7/6/2000	BENZO(B)FLUORANTHENE	0	18	UG/KG
SC-17018-S-RS	10/15/1998	BENZO(K)FLUORANTHENE	0	5.3	UG/KG
SC-18114-S-RS	7/6/2000	BENZO(K)FLUORANTHENE	0	18	UG/KG
SC-18115-S-RS	7/6/2000	BENZO(K)FLUORANTHENE	0	18	UG/KG
SC-18116-S-RS	7/6/2000	BENZO(K)FLUORANTHENE	0	18	UG/KG
SC-17018-S-RS	10/15/1998	CHRYSENE	0	48	UG/KG
SC-18114-S-RS	7/6/2000	CHRYSENE	0	18	UG/KG
SC-18115-S-RS	7/6/2000	CHRYSENE	0	18	UG/KG
SC-18116-S-RS	7/6/2000	CHRYSENE	28	18	UG/KG
SC-17018-S-RS	10/15/1998	INDENO(1,2,3-CD)PYRENE	0	14	UG/KG
SC-18114-S-RS	7/6/2000	INDENO(1,2,3-CD)PYRENE	0	18	UG/KG
SC-18115-S-RS	7/6/2000	INDENO(1,2,3-CD)PYRENE	0	18	UG/KG
SC-18116-S-RS	7/6/2000	INDENO(1,2,3-CD)PYRENE	0	18	UG/KG
SC-18209-S	10/27/1998	LEAD	13	7.06	UG/G

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WSSRAP_ID	DATE_SAM	PARAMETER	CONC	DL	UNITS
SC-18210-S	10/27/1998	LEAD	13.4	7.97	UG/G
SC-18214-S	10/27/1998	LEAD	11	7.05	UG/G
SC-18217-S	10/27/1998	LEAD	12.8	7 4	UG/G
SC-17002-S	9/29/1998	RADIUM-226	1 23	0.34	PCI/G
SC-17003-S	9/29/1998	RADIUM-226	1.42	0.31	PCI/G
SC-17004-S	9/29/1998	RADIUM-226	1.48	0.38	PCI/G
SC-17005-S	9/29/1998	RADIUM-226	1.1	0.33	PCI/G
SC-17007-S	9/29/1998	RADIUM-226	1.51	0.33	PCI/G
SC-17008-S	9/29/1998	RADIUM-226	1.36	0.24	PCI/G
SC-17009-S	9/29/1998	RADIUM-226	1 33	0.22	PCI/G
SC-17010-S	9/29/1998	RADIUM-226	1.4	0.36	PCI/G
SC-17011-C	9/29/1998	RADIUM-226	1.5	0.31	PCI/G
SC-17012-S	9/29/1998	RADIUM-226	1.46	0 4	PCI/G
SC-17013-S	9/29/1998	RADIUM-226	1.2	0.22	PCI/G
SC-17014-S	9/29/1998	RADIUM-226	1 38	0.34	PCI/G
SC-17015-S	9/29/1998	RADIUM-226	1.52	0.26	PCI/G
SC-17017-S	9/29/1998	RADIUM-226	1.68	0 41	PCI/G
SC-17018-S	9/29/1998	RADIUM-226	1.62	0.31	PCI/G
SC-17018-S-RS	10/15/1998	RADIUM-226	1.66	0.32	PCI/G
SC-17019-S	9/29/1998	RADIUM-226	1.25	0 39	PCI/G
SC-17020-S	9/29/1998	RADIUM-226	1.43	0 34	PCI/G
SC-17021-C	9/29/1998	RADIUM-226	1.6	0.37	PCI/G
SC-17022-S	9/29/1998	RADIUM-226	1.62	0 25	PCI/G
SC-17023-S	9/29/1998	RADIUM-226	1 35	0.33	PCI/G
SC-17024-S	9/29/1998	RADIUM-226	1.49	0.21	PCI/G
SC-17025-S	9/29/1998	RADIUM-226	1.39	0.25	PCI/G
SC-17101-S	9/29/1998	RADIUM-226	1 11	0.42	PCI/G
SC-17102-S	9/29/1998	RADIUM-226	1.31	0 27	PCI/G
SC-17103-S	9/29/1998	RADIUM-226	1.44	0.46	PCI/G
SC-17104-S	9/29/1998	RADIUM-226	1.3	0 26	PCI/G
SC-17105-S	9/29/1998	RADIUM-226	1.25	0.36	PCI/G
SC-17106-S	9/29/1998	RADIUM-226	1 15	0 28	PCI/G
SC-17107-S	9/29/1998	RADIUM-226	1.39	0.29	PCI/G
SC-17108-S	9/29/1998	RADIUM-226	1 34	0.28	PCI/G
SC-17109-S	9/29/1998	RADIUM-226	1 51	0 35	PCI/G
SC-17110-S	9/29/1998	RADIUM-226	1.42	0.24	PCI/G
SC-17111-S	9/29/1998	RADIUM-226	1.77	0.26	PCI/G
SC-17112-S	9/29/1998	RADIUM-226	1 5	0.24	PCI/G
SC-17113-S	9/29/1998	RADIUM-226	1.21	0.42	PCI/G
SC-17114-S	9/29/1998	RADIUM-226	1.39	0 26	PCI/G
SC-17115-S	9/29/1998	RADIUM-226	1.27	0.44	PCI/G
SC-17116-S	9/29/1998	RADIUM-226	1.19	0.29	PCI/G
SC-17117-S	9/29/1998	RADIUM-226	1.52	0.45	PCI/G
SC-17118-S	9/29/1998	RADIUM-226	1.28	0.24	PCI/G
SC-17119-S	9/29/1998	RADIUM-226	1.44	0 36	PCI/G
SC-17120-S	9/29/1998	RADIUM-226	1.34	0.3	PCI/G
SC-17121-S	9/29/1998	RADIUM-226	1 5	0.29	PCI/G
SC-17122-S	9/29/1998	RADIUM-226	1.5	0.28	PCI/G

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WSSRAP_ID	DATE_SAM	PARAMETER	CONC	DL	UNITS
SC-17123-S	9/29/1998	RADIUM-226	1.33	0.28	PCI/G
SC-17124-S	9/29/1998	RADIUM-226	1.45	0.28	PCI/G
SC-17201-S	9/29/1998	RADIUM-226	1.15	0.3	PCI/G
SC-17202-S	9/29/1998	RADIUM-226	1.56	0.24	PCI/G
SC-17203-C	9/29/1998	RADIUM-226	1.35	0.39	PCI/G
SC-17203-S	9/29/1998	RADIUM-226	1.44	0.33	PCI/G
SC-17204-S	9/29/1998	RADIUM-226	1.34	0.3	PCI/G
SC-17205-C	9/29/1998	RADIUM-226	1.29	0.27	PCI/G
SC-17205-S	9/29/1998	RADIUM-226	1.3	0.23	PCI/G
SC-17206-S	9/29/1998	RADIUM-226	1.4	0.29	PCI/G
SC-17207-S	9/29/1998	RADIUM-226	1.26	0.35	PCI/G
SC-17208-S	9/29/1998	RADIUM-226	1.43	0.29	PCI/G
SC-17209-S	9/29/1998	RADIUM-226	1.34	0.37	PCI/G
SC-17210-S	9/29/1998	RADIUM-226	1.58	0.27	PCI/G
SC-17211-S	9/29/1998	RADIUM-226	1.22	0.33	PCI/G
SC-17212-S	9/29/1998	RADIUM-226	1.31	0.39	PCI/G
SC-17213-S	9/29/1998	RADIUM-226	1.35	0.2	PCI/G
SC-17214-C	9/29/1998	RADIUM-226	1.26	0.38	PCI/G
SC-17214-S	9/29/1998	RADIUM-226	1.3	0.28	PCI/G
SC-17215-S	9/29/1998	RADIUM-226	1.29	0.4	PCI/G
SC-17216-S	9/29/1998	RADIUM-226	1.39	0.28	PCI/G
SC-17217-S	9/29/1998	RADIUM-226	1.45	0.36	PCI/G
SC-17218-S	9/29/1998	RADIUM-226	1.11	0.27	PCI/G
SC-17219-S	9/29/1998	RADIUM-226	1.47	0.33	PCI/G
SC-17220-S	9/29/1998	RADIUM-226	1.2	0.28	PCI/G
SC-17221-C	9/29/1998	RADIUM-226	1.13	0.3	PCI/G
SC-17221-S	9/29/1998	RADIUM-226	1	0.3	PCI/G
SC-17222-S	9/29/1998	RADIUM-226	1.2	0.29	PCI/G
SC-17223-S	9/29/1998	RADIUM-226	1.53	0.29	PCI/G
SC-17224-S	9/29/1998	RADIUM-226	1.34	0.34	PCI/G
SC-17225-S	9/29/1998	RADIUM-226	1.41	0.28	PCI/G
SC-17226-S	9/29/1998	RADIUM-226	1.19	0.39	PCI/G
SC-17227-S	9/29/1998	RADIUM-226	1.27	0.26	PCI/G
SC-17228-S	9/29/1998	RADIUM-226	1.13	0.42	PCI/G
SC-17301-S	9/29/1998	RADIUM-226	1.56	0.25	PCI/G
SC-17302-S	9/30/1998	RADIUM-226	1.27	0.43	PCI/G
SC-17303-S	9/30/1998	RADIUM-226	1.37	0.29	PCI/G
SC-17304-S	9/30/1998	RADIUM-226	1.34	0.46	PCI/G
SC-17305-S	9/30/1998	RADIUM-226	1.53	0.26	PCI/G
SC-17306-S	9/30/1998	RADIUM-226	1.06	0.32	PCI/G
SC-17307-S	9/30/1998	RADIUM-226	0.99	0.3	PCI/G
SC-17308-S	9/29/1998	RADIUM-226	1.45	0.33	PCI/G
SC-17309-S	9/30/1998	RADIUM-226	1.41	0.31	PCI/G
SC-17310-S	9/30/1998	RADIUM-226	1.47	0.29	PCI/G
SC-17311-S	9/30/1998	RADIUM-226	1.23	0.34	PCI/G
SC-17312-S	9/30/1998	RADIUM-226	0.85	0.3	PCI/G
SC-17313-S	9/30/1998	RADIUM-226	1.15	0.27	PCI/G
SC-17314-S	9/30/1998	RADIUM-226	1.09	0.28	PCI/G

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WSSRAP_ID	DATE_SAM	PARAMETER	CONC	DL	UNITS
SC-17315-S	9/30/1998	RADIUM-226	1.44	0.33	PCI/G
SC-17316-S	9/30/1998	RADIUM-226	1.32	0.47	PCI/G
SC-17317-S	9/30/1998	RADIUM-226	1.44	0 26	PCI/G
SC-17318-S	9/30/1998	RADIUM-226	1.22	0.39	PCI/G
SC-17319-S	10/16/1998	RADIUM-226	1.12	0.22	PCI/G
SC-17320-S	10/16/1998	RADIUM-226	1.08	0.23	PCI/G
SC-17321-S	10/16/1998	RADIUM-226	0.99	0.23	PCI/G
SC-17402-S	9/30/1998	RADIUM-226	1.39	0.31	PCI/G
SC-17403-S	9/30/1998	RADIUM-226	1.33	0.38	PCI/G
SC-17404-S	9/30/1998	RADIUM-226	1.49	0.24	PCI/G
SC-17405-S	9/30/1998	RADIUM-226	1.49	0 35	PCI/G
SC-17407-S	9/30/1998	RADIUM-226	1.64	0.32	PCI/G
SC-17408-S	9/30/1998	RADIUM-226	1 3	0.36	PCI/G
SC-17409-S	9/30/1998	RADIUM-226	1.66	0.31	PCI/G
SC-17410-S	9/30/1998	RADIUM-226	1.22	0 29	PCI/G
SC-17411-S	9/30/1998	RADIUM-226	1.88	0.29	PCI/G
SC-17412-S	9/30/1998	RADIUM-226	1 34	0.37	PCI/G
SC-17413-S	9/30/1998	RADIUM-226	1.66	0.26	PCI/G
SC-17414-S	9/30/1998	RADIUM-226	1.32	0.39	PCI/G
SC-17416-S	9/30/1998	RADIUM-226	1.78	0.31	PCI/G
SC-17417-S	9/30/1998	RADIUM-226	1.38	0 3	PCI/G
SC-17418-S	9/30/1998	RADIUM-226	1.45	0.33	PCI/G
SC-17419-S	9/30/1998	RADIUM-226	1 5	0.31	PCI/G
SC-17420-S	9/30/1998	RADIUM-226	1.59	0 27	PCI/G
SC-17421-S	9/30/1998	RADIUM-226	1.3	0 4	PCI/G
SC-17422-S	9/30/1998	RADIUM-226	1 36	0 3	PCI/G
SC-17423-S	9/30/1998	RADIUM-226	1.24	0 35	PCI/G
SC-17501-C	9/30/1998	RADIUM-226	1.26	0 36	PCI/G
SC-17502-S	9/30/1998	RADIUM-226	1.21	0.36	PCI/G
SC-17503-S	9/30/1998	RADIUM-226	1.21	0.23	PCI/G
SC-17504-S	9/30/1998	RADIUM-226	1.58	0.28	PCI/G
SC-17506-S	9/30/1998	RADIUM-226	1.53	0 27	PCI/G
SC-17507-S	9/30/1998	RADIUM-226	1.33	0 37	PCI/G
SC-17508-S	9/30/1998	RADIUM-226	1.49	0 32	PCI/G
SC-17509-C	9/30/1998	RADIUM-226	1 17	0.27	PCI/G
SC-17510-S	9/30/1998	RADIUM-226	1.45	0 24	PCI/G
SC-17511-S	9/30/1998	RADIUM-226	1.44	0 47	PCI/G
SC-17512-S	9/30/1998	RADIUM-226	1.47	0.3	PCI/G
SC-17514-S	9/30/1998	RADIUM-226	1 19	0.34	PCI/G
SC-17515-S	9/30/1998	RADIUM-226	1 51	0 26	PCI/G
SC-17516-S	9/30/1998	RADIUM-226	1.46	0 36	PCI/G
SC-17518-S	9/30/1998	RADIUM-226	1.37	0.22	PCI/G
SC-17519-S	9/30/1998	RADIUM-226	1.27	0 33	PCI/G
SC-17520-S	9/30/1998	RADIUM-226	1.2	0 28	PCI/G
SC-17523-S	9/30/1998	RADIUM-226	1.66	0.33	PCI/G
SC-17524-S	9/30/1998	RADIUM-226	0.99	0.22	PCI/G
SC-17601-S	10/1/1998	RADIUM-226	1.43	0 39	PCI/G
SC-17602-S	10/1/1998	RADIUM-226	1 49	0.28	PCI/G

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WSSRAP_ID	DATE_SAM	PARAMETER	CONC	DL	UNITS
SC-17603-S	10/1/1998	RADIUM-226	1.64	0.37	PCI/G
SC-17604-S	10/1/1998	RADIUM-226	1.52	0.3	PCI/G
SC-17605-S	10/1/1998	RADIUM-226	1.46	0.45	PCI/G
SC-17606-S	10/1/1998	RADIUM-226	1.42	0.26	PCI/G
SC-17607-S	10/1/1998	RADIUM-226	1.56	0.45	PCI/G
SC-17608-S	10/1/1998	RADIUM-226	1.5	0.29	PCI/G
SC-17609-S	10/1/1998	RADIUM-226	1.33	0.43	PCI/G
SC-17610-S	10/1/1998	RADIUM-226	1.54	0.25	PCI/G
SC-17611-S	10/1/1998	RADIUM-226	1.26	0.45	PCI/G
SC-17612-S	10/1/1998	RADIUM-226	1.58	0.26	PCI/G
SC-17613-S	10/1/1998	RADIUM-226	1.54	0.4	PCI/G
SC-17614-S	10/1/1998	RADIUM-226	1.57	0.33	PCI/G
SC-17615-S	10/1/1998	RADIUM-226	1.51	0.35	PCI/G
SC-17616-S	10/1/1998	RADIUM-226	1.57	0.28	PCI/G
SC-17617-S	10/1/1998	RADIUM-226	1.31	0.38	PCI/G
SC-17618-S	10/1/1998	RADIUM-226	1.52	0.3	PCI/G
SC-17619-S	10/1/1998	RADIUM-226	1.52	0.47	PCI/G
SC-17620-S	10/1/1998	RADIUM-226	1.58	0.32	PCI/G
SC-17701-S	9/30/1998	RADIUM-226	1.19	0.24	PCI/G
SC-17702-S	10/1/1998	RADIUM-226	1.31	0.25	PCI/G
SC-17703-S	10/1/1998	RADIUM-226	1.41	0.31	PCI/G
SC-17704-S	10/16/1998	RADIUM-226	0.99	0.36	PCI/G
SC-17705-S	10/1/1998	RADIUM-226	1.6	0.33	PCI/G
SC-17706-S	10/1/1998	RADIUM-226	1.34	0.25	PCI/G
SC-17707-S	10/1/1998	RADIUM-226	1.24	0.42	PCI/G
SC-17708-S	10/16/1998	RADIUM-226	1.21	0.3	PCI/G
SC-17709-S	10/1/1998	RADIUM-226	1.08	0.25	PCI/G
SC-17710-S	10/1/1998	RADIUM-226	1.16	0.36	PCI/G
SC-17711-S	10/1/1998	RADIUM-226	1.6	0.29	PCI/G
SC-17712-S	10/16/1998	RADIUM-226	1.34	0.39	PCI/G
SC-17713-S	10/1/1998	RADIUM-226	0.96	0.41	PCI/G
SC-17714-S	10/1/1998	RADIUM-226	1.49	0.25	PCI/G
SC-17715-S	10/1/1998	RADIUM-226	1.26	0.41	PCI/G
SC-17716-S	10/16/1998	RADIUM-226	1.34	0.27	PCI/G
SC-17717-S	10/1/1998	RADIUM-226	1.16	0.26	PCI/G
SC-17718-S	10/1/1998	RADIUM-226	1.38	0.22	PCI/G
SC-17719-S	10/16/1998	RADIUM-226	1.01	0.31	PCI/G
SC-17720-S	10/16/1998	RADIUM-226	1.33	0.27	PCI/G
SC-17801-S	10/16/1998	RADIUM-226	1.16	0.27	PCI/G
SC-17802-S	10/16/1998	RADIUM-226	0.91	0.29	PCI/G
SC-17803-C	10/16/1998	RADIUM-226	1.36	0.3	PCI/G
SC-17803-S	10/16/1998	RADIUM-226	0.95	0.33	PCI/G
SC-17804-S	10/16/1998	RADIUM-226	1.1	0.26	PCI/G
SC-17805-S	10/16/1998	RADIUM-226	1.01	0.35	PCI/G
SC-17806-C	10/16/1998	RADIUM-226	1.46	0.25	PCI/G
SC-17806-S	10/16/1998	RADIUM-226	0.87	0.34	PCI/G
SC-17807-S	10/16/1998	RADIUM-226	1.12	0.3	PCI/G
SC-17808-S	10/16/1998	RADIUM-226	0.98	0.33	PCI/G

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WSSRAP_ID	DATE_SAM	PARAMETER	CONC	DL	UNITS
SC-17809-S	10/16/1998	RADIUM-226	0.8	0.25	PCI/G
SC-17810-S	10/16/1998	RADIUM-226	1.26	0.29	PCI/G
SC-17811-S	10/16/1998	RADIUM-226	1	0.32	PCI/G
SC-17812-C	10/16/1998	RADIUM-226	1.36	0.34	PCI/G
SC-17812-S	10/16/1998	RADIUM-226	0.94	0.28	PCI/G
SC-17813-S	10/16/1998	RADIUM-226	1.19	0.34	PCI/G
SC-17814-S	10/16/1998	RADIUM-226	1.06	0.37	PCI/G
SC-17815-S	10/16/1998	RADIUM-226	1.15	0.31	PCI/G
SC-17816-S	10/16/1998	RADIUM-226	1.25	0.42	PCI/G
SC-17817-S	10/16/1998	RADIUM-226	1.05	0.24	PCI/G
SC-17818-C	10/16/1998	RADIUM-226	1.26	0.34	PCI/G
SC-17818-S	10/16/1998	RADIUM-226	1 06	0.27	PCI/G
SC-17819-S	10/16/1998	RADIUM-226	0.94	0.35	PCI/G
SC-17820-S	10/16/1998	RADIUM-226	1.1	0.22	PCI/G
SC-17821-S	10/16/1998	RADIUM-226	1.21	0.36	PCI/G
SC-17822-S	10/16/1998	RADIUM-226	1.41	0.28	PCI/G
SC-17901-S	10/23/1998	RADIUM-226	1 25	0.38	PCI/G
SC-17902-S	10/23/1998	RADIUM-226	1 5	0.27	PCI/G
SC-17903-S	10/23/1998	RADIUM-226	1.44	0.33	PCI/G
SC-17904-S	10/23/1998	RADIUM-226	0.66	0.27	PCI/G
SC-17905-S	10/23/1998	RADIUM-226	1.36	0 36	PCI/G
SC-17906-S	10/23/1998	RADIUM-226	1.25	0.29	PCI/G
SC-17907-S	10/23/1998	RADIUM-226	1 37	0.29	PCI/G
SC-17908-S	10/23/1998	RADIUM-226	1.4	0.32	PCI/G
SC-17909-S	10/23/1998	RADIUM-226	1.15	0 36	PCI/G
SC-17910-S	10/23/1998	RADIUM-226	1.61	0 22	PCI/G
SC-17911-S	10/23/1998	RADIUM-226	0.425	0.85	PCI/G
SC-17912-S	10/23/1998	RADIUM-226	1.38	0.27	PCI/G
SC-17913-S	10/23/1998	RADIUM-226	1.59	0 36	PCI/G
SC-17914-S	10/23/1998	RADIUM-226	1.28	0.28	PCI/G
SC-17915-S	10/23/1998	RADIUM-226	1.67	0.29	PCI/G
SC-17916-S	10/23/1998	RADIUM-226	1.27	0 29	PCI/G
SC-17917-S	10/23/1998	RADIUM-226	1.24	0 36	PCI/G
SC-17918-S	10/23/1998	RADIUM-226	1.31	0.24	PCI/G
SC-17919-S	10/23/1998	RADIUM-226	1.4	0 41	PCI/G
SC-17920-S	10/23/1998	RADIUM-226	1.45	0 22	PCI/G
SC-18001-S	10/1/1998	RADIUM-226	0.84	0.38	PCI/G
SC-18002-S	10/27/1998	RADIUM-226	1.36	0.26	PCI/G
SC-18003-S	10/27/1998	RADIUM-226	1.25	0.36	PCI/G
SC-18004-S	10/27/1998	RADIUM-226	1.48	0.3	PCI/G
SC-18005-S	10/27/1998	RADIUM-226	0.92	0.37	PCI/G
SC-18006-S	10/27/1998	RADIUM-226	1 01	0.31	PCI/G
SC-18007-S	10/27/1998	RADIUM-226	1 05	0.32	PCI/G
SC-18008-S	10/27/1998	RADIUM-226	1.27	0.26	PCI/G
SC-18012-S	10/27/1998	RADIUM-226	1.27	0 3	PCI/G
SC-18013-S	10/27/1998	RADIUM-226	1.28	0.27	PCI/G
SC-18014-S	10/27/1998	RADIUM-226	1.18	0.36	PCI/G
SC-18015-S	10/27/1998	RADIUM-226	1.41	0 24	PCI/G

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WSSRAP_ID	DATE_SAM	PARAMETER	CONC	DL	UNITS
SC-18016-S	10/27/1998	RADIUM-226	1.31	0.33	PCI/G
SC-18019-S	10/27/1998	RADIUM-226	1.26	0.29	PCI/G
SC-18020-S	10/27/1998	RADIUM-226	1.34	0.34	PCI/G
SC-18021-S	10/27/1998	RADIUM-226	1.27	0.24	PCI/G
SC-18022-S	10/27/1998	RADIUM-226	1.15	0.32	PCI/G
SC-18023-S	10/27/1998	RADIUM-226	1.22	0.22	PCI/G
SC-18201-S	10/27/1998	RADIUM-226	1.32	0.37	PCI/G
SC-18202-S	10/27/1998	RADIUM-226	1.38	0.23	PCI/G
SC-18203-S	10/27/1998	RADIUM-226	1.36	0.4	PCI/G
SC-18204-S	10/27/1998	RADIUM-226	1.09	0.33	PCI/G
SC-18205-S	10/27/1998	RADIUM-226	1.11	0.31	PCI/G
SC-18206-S	10/27/1998	RADIUM-226	1.1	0.27	PCI/G
SC-18207-S	10/27/1998	RADIUM-226	1.25	0.4	PCI/G
SC-18208-S	10/27/1998	RADIUM-226	1.32	0.33	PCI/G
SC-18209-S	10/27/1998	RADIUM-226	1.55	0.34	PCI/G
SC-18210-S	10/27/1998	RADIUM-226	1.65	0.23	PCI/G
SC-18211-S	10/27/1998	RADIUM-226	1.22	0.38	PCI/G
SC-18212-S	10/27/1998	RADIUM-226	1.3	0.23	PCI/G
SC-18213-S	10/27/1998	RADIUM-226	0.92	0.39	PCI/G
SC-18214-S	10/27/1998	RADIUM-226	1.33	0.36	PCI/G
SC-18215-S	10/27/1998	RADIUM-226	1.22	0.49	PCI/G
SC-18216-S	10/27/1998	RADIUM-226	1.36	0.32	PCI/G
SC-18217-S	10/27/1998	RADIUM-226	1.36	0.41	PCI/G
SC-18218-S	10/27/1998	RADIUM-226	1.09	0.27	PCI/G
SC-18219-S	10/27/1998	RADIUM-226	1.34	0.3	PCI/G
SC-18220-S	3/3/1998	RADIUM-226	1.39	0.38	PCI/G
SC-18301-S	10/23/1998	RADIUM-226	1.07	0.36	PCI/G
SC-18302-S	10/23/1998	RADIUM-226	1.05	0.45	PCI/G
SC-18303-S	10/23/1998	RADIUM-226	1.11	0.24	PCI/G
SC-18304-S	10/23/1998	RADIUM-226	1.03	0.33	PCI/G
SC-18305-S	10/23/1998	RADIUM-226	1.47	0.34	PCI/G
SC-18306-S	10/23/1998	RADIUM-226	1.32	0.46	PCI/G
SC-18307-S	10/23/1998	RADIUM-226	0.97	0.26	PCI/G
SC-18308-S	10/23/1998	RADIUM-226	1.23	0.41	PCI/G
SC-18309-S	10/23/1998	RADIUM-226	1.32	0.26	PCI/G
SC-18310-S	10/23/1998	RADIUM-226	1.42	0.44	PCI/G
SC-18311-S	10/23/1998	RADIUM-226	1.24	0.29	PCI/G
SC-18312-S	10/23/1998	RADIUM-226	1.27	0.34	PCI/G
SC-18313-S	10/23/1998	RADIUM-226	1.05	0.27	PCI/G
SC-18314-S	10/23/1998	RADIUM-226	1.1	0.39	PCI/G
SC-18315-S	10/23/1998	RADIUM-226	1.18	0.27	PCI/G
SC-18316-S	10/23/1998	RADIUM-226	1.42	0.37	PCI/G
SC-18317-S	10/23/1998	RADIUM-226	1.31	0.32	PCI/G
SC-18318-S	10/23/1998	RADIUM-226	1.41	0.28	PCI/G
SC-18319-S	10/23/1998	RADIUM-226	0.96	0.35	PCI/G
SC-18320-S	10/27/1998	RADIUM-226	1.36	0.29	PCI/G
SC-18321-S	10/23/1998	RADIUM-226	1.49	0.26	PCI/G
SC-18322-S	10/23/1998	RADIUM-226	1.04	0.23	PCI/G

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WSSRAP_ID	DATE_SAM	PARAMETER	CONC	DL	UNITS
SC-18323-S	10/23/1998	RADIUM-226	1.5	0.25	PCI/G
SC-18324-S	4/3/1998	RADIUM-226	1.16	0.31	PCI/G
SC-18325-S	4/3/1998	RADIUM-226	1.2	0.24	PCI/G
SC-18326-S	4/3/1998	RADIUM-226	1 66	0.34	PCI/G
SC-18401-S	10/27/1998	RADIUM-226	1 41	0.21	PCI/G
SC-18402-S	3/3/1998	RADIUM-226	1.53	0.25	PCI/G
SC-18403-S	3/3/1998	RADIUM-226	1.33	0 3	PCI/G
SC-18404-S	4/3/1998	RADIUM-226	1.22	0.27	PCI/G
SC-18405-S	4/3/1998	RADIUM-226	1.01	0 35	PCI/G
SC-18406-S	4/3/1998	RADIUM-226	1.48	0.28	PCI/G
SC-18407-S	3/3/1998	RADIUM-226	1.58	0.26	PCI/G
SC-18408-S	3/3/1998	RADIUM-226	1.52	0 3	PCI/G
SC-18409-S	3/3/1998	RADIUM-226	1.3	0 3	PCI/G
SC-18410-S	4/3/1998	RADIUM-226	1.41	0.27	PCI/G
SC-18411-S	4/3/1998	RADIUM-226	1.24	0.24	PCI/G
SC-18412-S	4/3/1998	RADIUM-226	1.05	0.25	PCI/G
SC-18413-S	3/3/1998	RADIUM-226	1.15	0 34	PCI/G
SC-18414-S	3/3/1998	RADIUM-226	1.13	0 32	PCI/G
SC-18415-S	3/3/1998	RADIUM-226	1.31	0 45	PCI/G
SC-18416-S	3/3/1998	RADIUM-226	1.09	0.27	PCI/G
SC-18417-S	4/3/1998	RADIUM-226	1.26	0 31	PCI/G
SC-18418-S	4/3/1998	RADIUM-226	1.53	0 38	PCI/G
SC-18419-S	3/3/1998	RADIUM-226	1.9	0 36	PCI/G
SC-18420-S	3/3/1998	RADIUM-226	1.45	0.29	PCI/G
SC-18421-S	3/3/1998	RADIUM-226	1.29	0 35	PCI/G
SC-18422-S	3/3/1998	RADIUM-226	1 61	0 3	PCI/G
SC-18423-S	4/1/1998	RADIUM-226	1.12	0 29	PCI/G
SC-18424-S	4/3/1998	RADIUM-226	1 65	0 24	PCI/G
SC-18502-S	10/27/1998	RADIUM-226	1.19	0 34	PCI/G
SC-18503-S	3/3/1998	RADIUM-226	1 47	0 29	PCI/G
SC-18504-S	3/3/1998	RADIUM-226	1.41	0.3	PCI/G
SC-18509-S	3/3/1998	RADIUM-226	0.96	0.35	PCI/G
SC-18510-S	3/3/1998	RADIUM-226	1	0.24	PCI/G
SC-18516-S	4/1/1998	RADIUM-226	1.9	0.29	PCI/G
SC-18520-S	4/1/1998	RADIUM-226	1 62	0 36	PCI/G
SC-18521-S	4/1/1998	RADIUM-226	1.07	0 28	PCI/G
SC-18601-S	4/1/1998	RADIUM-226	1.65	0 36	PCI/G
SC-18602-S	4/1/1998	RADIUM-226	1.28	0.32	PCI/G
SC-18603-S	4/1/1998	RADIUM-226	1.17	0.26	PCI/G
SC-18604-S	4/1/1998	RADIUM-226	1 26	0 32	PCI/G
SC-18605-S	4/1/1998	RADIUM-226	1.21	0.23	PCI/G
SC-18606-S	4/3/1998	RADIUM-226	1.64	0 42	PCI/G
SC-18607-S	4/1/1998	RADIUM-226	1 06	0 42	PCI/G
SC-18608-S	4/1/1998	RADIUM-226	1.05	0 26	PCI/G
SC-18609-S	4/1/1998	RADIUM-226	0.86	0 33	PCI/G
SC-18610-S	4/1/1998	RADIUM-226	1 01	0.24	PCI/G
SC-18611-S	4/1/1998	RADIUM-226	1 43	0.38	PCI/G
SC-18612-S	4/3/1998	RADIUM-226	1.37	0 26	PCI/G

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WSSRAP_ID	DATE_SAM	PARAMETER	CONC	DL	UNITS
SC-18613-S	4/1/1998	RADIUM-226	1.17	0.29	PCI/G
SC-18614-S	4/1/1998	RADIUM-226	0.91	0.26	PCI/G
SC-18615-S	4/1/1998	RADIUM-226	0.84	0.28	PCI/G
SC-18616-S	4/1/1998	RADIUM-226	0.79	0.4	PCI/G
SC-18617-S	4/1/1998	RADIUM-226	1.37	0.21	PCI/G
SC-18618-S	4/3/1998	RADIUM-226	1.26	0.27	PCI/G
SC-18619-S	4/1/1998	RADIUM-226	1.69	0.38	PCI/G
SC-18620-S	4/1/1998	RADIUM-226	1.59	0.17	PCI/G
SC-18621-S	3/16/1998	RADIUM-226	1.39	0.35	PCI/G
SC-18622-S	3/16/1998	RADIUM-226	1.41	0.26	PCI/G
SC-18702-S	3/16/1998	RADIUM-226	1.29	0.36	PCI/G
SC-18703-S	3/16/1998	RADIUM-226	1.09	0.25	PCI/G
SC-18704-S	3/16/1998	RADIUM-226	1.35	0.28	PCI/G
SC-18705-S	3/16/1998	RADIUM-226	1.6	0.29	PCI/G
SC-18706-C	3/16/1998	RADIUM-226	1.18	0.42	PCI/G
SC-18706-S	3/16/1998	RADIUM-226	1.19	0.41	PCI/G
SC-18805-S	4/1/1998	RADIUM-226	1.41	0.22	PCI/G
SC-18809-S	4/1/1998	RADIUM-226	1.39	0.37	PCI/G
SC-18810-S	4/1/1998	RADIUM-226	1.15	0.24	PCI/G
SC-18811-S	4/1/1998	RADIUM-226	0.73	0.35	PCI/G
SC-18812-S	4/1/1998	RADIUM-226	0.81	0.26	PCI/G
SC-18813-S	4/1/1998	RADIUM-226	1.09	0.27	PCI/G
SC-18817-S	3/16/1998	RADIUM-226	1.46	0.3	PCI/G
SC-18818-S	3/16/1998	RADIUM-226	1.51	0.39	PCI/G
SC-18819-S	3/16/1998	RADIUM-226	1.26	0.28	PCI/G
SC-18820-S	3/16/1998	RADIUM-226	0.96	0.23	PCI/G
SC-18821-S	3/16/1998	RADIUM-226	0.97	0.36	PCI/G
SC-39601-U	3/10/2000	RADIUM-226	0.8	0.22	PCI/G
SC-39602-U	3/10/2000	RADIUM-226	0.82	0.27	PCI/G
SC-39603-U	3/10/2000	RADIUM-226	0.72	0.26	PCI/G
SC-39604-U	3/10/2000	RADIUM-226	0.79	0.26	PCI/G
SC-39605-U	3/10/2000	RADIUM-226	0.67	0.22	PCI/G
SC-39606-U	3/10/2000	RADIUM-226	0.62	0.25	PCI/G
SC-39607-U	3/10/2000	RADIUM-226	0.81	0.24	PCI/G
SC-39608-U	3/10/2000	RADIUM-226	0.68	0.34	PCI/G
SC-39609-U	3/10/2000	RADIUM-226	0.92	0.29	PCI/G
SC-39610-U	3/10/2000	RADIUM-226	0.53	0.21	PCI/G
SC-39611-U	3/10/2000	RADIUM-226	0.73	0.26	PCI/G
SC-39612-U	3/10/2000	RADIUM-226	0.67	0.27	PCI/G
SC-17002-S	9/29/1998	RADIUM-228	1.19	0.5	PCI/G
SC-17003-S	9/29/1998	RADIUM-228	1.22	0.45	PCI/G
SC-17004-S	9/29/1998	RADIUM-228	1.23	0.52	PCI/G
SC-17005-S	9/29/1998	RADIUM-228	1.29	0.32	PCI/G
SC-17007-S	9/29/1998	RADIUM-228	1.29	0.58	PCI/G
SC-17008-S	9/29/1998	RADIUM-228	1.17	0.41	PCI/G
SC-17009-S	9/29/1998	RADIUM-228	1.41	0.34	PCI/G
SC-17010-S	9/29/1998	RADIUM-228	1.34	0.49	PCI/G
SC-17011-C	9/29/1998	RADIUM-228	1.49	0.48	PCI/G

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WSSRAP_ID	DATE_SAM	PARAMETER	CONC	DL	UNITS
SC-17012-S	9/29/1998	RADIUM-228	0.565	1 13	PCI/G
SC-17013-S	9/29/1998	RADIUM-228	1.04	0 46	PCI/G
SC-17014-S	9/29/1998	RADIUM-228	0.585	1.17	PCI/G
SC-17015-S	9/29/1998	RADIUM-228	1.34	0 36	PCI/G
SC-17017-S	9/29/1998	RADIUM-228	1.58	0 56	PCI/G
SC-17018-S	9/29/1998	RADIUM-228	1.22	0.38	PCI/G
SC-17018-S-RS	10/15/1998	RADIUM-228	1.24	0.56	PCI/G
SC-17019-S	9/29/1998	RADIUM-228	1.08	0.44	PCI/G
SC-17020-S	9/29/1998	RADIUM-228	1.25	0 45	PCI/G
SC-17021-C	9/29/1998	RADIUM-228	1.25	0.54	PCI/G
SC-17022-S	9/29/1998	RADIUM-228	1.24	0.3	PCI/G
SC-17023-S	9/29/1998	RADIUM-228	1.45	0 57	PCI/G
SC-17024-S	9/29/1998	RADIUM-228	1 37	0.41	PCI/G
SC-17025-S	9/29/1998	RADIUM-228	0.96	0.36	PCI/G
SC-17101-S	9/29/1998	RADIUM-228	1 14	0 66	PCI/G
SC-17102-S	9/29/1998	RADIUM-228	1 31	0 28	PCI/G
SC-17103-S	9/29/1998	RADIUM-228	0.625	1 25	PCI/G
SC-17104-S	9/29/1998	RADIUM-228	1 25	0.46	PCI/G
SC-17105-S	9/29/1998	RADIUM-228	1 31	0 36	PCI/G
SC-17106-S	9/29/1998	RADIUM-228	1.26	0 45	PCI/G
SC-17107-S	9/29/1998	RADIUM-228	1	0 49	PCI/G
SC-17108-S	9/29/1998	RADIUM-228	1 12	0 5	PCI/G
SC-17109-S	9/29/1998	RADIUM-228	1.36	0.7	PCI/G
SC-17110-S	9/29/1998	RADIUM-228	1 21	0 33	PCI/G
SC-17111-S	9/29/1998	RADIUM-228	1 27	0 53	PCI/G
SC-17112-S	9/29/1998	RADIUM-228	1 25	0 32	PCI/G
SC-17113-S	9/29/1998	RADIUM-228	1 63	0 5	PCI/G
SC-17114-S	9/29/1998	RADIUM-228	1.44	0 33	PCI/G
SC-17115-S	9/29/1998	RADIUM-228	1 29	0.48	PCI/G
SC-17116-S	9/29/1998	RADIUM-228	1 01	0 49	PCI/G
SC-17117-S	9/29/1998	RADIUM-228	1 45	0 35	PCI/G
SC-17118-S	9/29/1998	RADIUM-228	1 27	0 33	PCI/G
SC-17119-S	9/29/1998	RADIUM-228	1 34	0 17	PCI/G
SC-17120-S	9/29/1998	RADIUM-228	1.28	0 3	PCI/G
SC-17121-S	9/29/1998	RADIUM-228	1 37	0 61	PCI/G
SC-17122-S	9/29/1998	RADIUM-228	1.24	0 37	PCI/G
SC-17123-S	9/29/1998	RADIUM-228	0 61	1.22	PCI/G
SC-17124-S	9/29/1998	RADIUM-228	1 26	0.42	PCI/G
SC-17201-S	9/29/1998	RADIUM-228	1.08	0.57	PCI/G
SC-17202-S	9/29/1998	RADIUM-228	1 15	0 41	PCI/G
SC-17203-C	9/29/1998	RADIUM-228	1.21	0.42	PCI/G
SC-17203-S	9/29/1998	RADIUM-228	1 21	0.46	PCI/G
SC-17204-S	9/29/1998	RADIUM-228	1 37	0.66	PCI/G
SC-17205-C	9/29/1998	RADIUM-228	1 16	0.36	PCI/G
SC-17205-S	9/29/1998	RADIUM-228	1 58	0.37	PCI/G
SC-17206-S	9/29/1998	RADIUM-228	1.22	0 36	PCI/G
SC-17207-S	9/29/1998	RADIUM-228	1.22	0.27	PCI/G
SC-17208-S	9/29/1998	RADIUM-228	1 04	0.47	PCI/G

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WSSRAP_ID	DATE_SAM	PARAMETER	CONC	DL	UNITS
SC-17209-S	9/29/1998	RADIUM-228	1.17	0.53	PCI/G
SC-17210-S	9/29/1998	RADIUM-228	1.44	0.43	PCI/G
SC-17211-S	9/29/1998	RADIUM-228	1.42	0.36	PCI/G
SC-17212-S	9/29/1998	RADIUM-228	0.585	1.17	PCI/G
SC-17213-S	9/29/1998	RADIUM-228	1.21	0.38	PCI/G
SC-17214-C	9/29/1998	RADIUM-228	0.9	0.48	PCI/G
SC-17214-S	9/29/1998	RADIUM-228	1.33	0.43	PCI/G
SC-17215-S	9/29/1998	RADIUM-228	1.2	0.49	PCI/G
SC-17216-S	9/29/1998	RADIUM-228	1.06	0.45	PCI/G
SC-17217-S	9/29/1998	RADIUM-228	1.08	0.76	PCI/G
SC-17218-S	9/29/1998	RADIUM-228	0.82	0.38	PCI/G
SC-17219-S	9/29/1998	RADIUM-228	1.01	0.27	PCI/G
SC-17220-S	9/29/1998	RADIUM-228	0.94	0.35	PCI/G
SC-17221-C	9/29/1998	RADIUM-228	0.565	1.13	PCI/G
SC-17221-S	9/29/1998	RADIUM-228	1.44	0.39	PCI/G
SC-17222-S	9/29/1998	RADIUM-228	1.1	0.61	PCI/G
SC-17223-S	9/29/1998	RADIUM-228	1.28	0.32	PCI/G
SC-17224-S	9/29/1998	RADIUM-228	1.56	0.45	PCI/G
SC-17225-S	9/29/1998	RADIUM-228	1.16	0.25	PCI/G
SC-17226-S	9/29/1998	RADIUM-228	1.09	0.44	PCI/G
SC-17227-S	9/29/1998	RADIUM-228	1.34	0.4	PCI/G
SC-17228-S	9/29/1998	RADIUM-228	1.25	0.47	PCI/G
SC-17301-S	9/29/1998	RADIUM-228	1.36	0.37	PCI/G
SC-17302-S	9/30/1998	RADIUM-228	0.65	1.3	PCI/G
SC-17303-S	9/30/1998	RADIUM-228	1.09	0.39	PCI/G
SC-17304-S	9/30/1998	RADIUM-228	1.24	0.52	PCI/G
SC-17305-S	9/30/1998	RADIUM-228	1.5	0.39	PCI/G
SC-17306-S	9/30/1998	RADIUM-228	1.56	0.39	PCI/G
SC-17307-S	9/30/1998	RADIUM-228	1.55	0.29	PCI/G
SC-17308-S	9/29/1998	RADIUM-228	1.38	0.4	PCI/G
SC-17309-S	9/30/1998	RADIUM-228	1.04	0.42	PCI/G
SC-17310-S	9/30/1998	RADIUM-228	1.4	0.39	PCI/G
SC-17311-S	9/30/1998	RADIUM-228	0.66	1.32	PCI/G
SC-17312-S	9/30/1998	RADIUM-228	1.47	0.58	PCI/G
SC-17313-S	9/30/1998	RADIUM-228	1.31	0.42	PCI/G
SC-17314-S	9/30/1998	RADIUM-228	1.51	0.35	PCI/G
SC-17315-S	9/30/1998	RADIUM-228	1.26	0.44	PCI/G
SC-17316-S	9/30/1998	RADIUM-228	1.08	0.5	PCI/G
SC-17317-S	9/30/1998	RADIUM-228	1.29	0.42	PCI/G
SC-17318-S	9/30/1998	RADIUM-228	1.7	0.54	PCI/G
SC-17319-S	10/16/1998	RADIUM-228	1.26	0.45	PCI/G
SC-17320-S	10/16/1998	RADIUM-228	1.42	0.42	PCI/G
SC-17321-S	10/16/1998	RADIUM-228	1.38	0.36	PCI/G
SC-17402-S	9/30/1998	RADIUM-228	1.51	0.42	PCI/G
SC-17403-S	9/30/1998	RADIUM-228	0.565	1.13	PCI/G
SC-17404-S	9/30/1998	RADIUM-228	1.45	0.32	PCI/G
SC-17405-S	9/30/1998	RADIUM-228	1.41	0.64	PCI/G
SC-17407-S	9/30/1998	RADIUM-228	1.23	0.4	PCI/G

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WSSRAP_ID	DATE_SAM	PARAMETER	CONC	DL	UNITS
SC-17408-S	9/30/1998	RADIUM-228	1 18	0.63	PCI/G
SC-17409-S	9/30/1998	RADIUM-228	1.15	0 42	PCI/G
SC-17410-S	9/30/1998	RADIUM-228	1.16	0.57	PCI/G
SC-17411-S	9/30/1998	RADIUM-228	1 39	0.47	PCI/G
SC-17412-S	9/30/1998	RADIUM-228	1.27	0.6	PCI/G
SC-17413-S	9/30/1998	RADIUM-228	1.34	0.32	PCI/G
SC-17414-S	9/30/1998	RADIUM-228	1.23	0.51	PCI/G
SC-17416-S	9/30/1998	RADIUM-228	1.31	0.4	PCI/G
SC-17417-S	9/30/1998	RADIUM-228	1.31	0.46	PCI/G
SC-17418-S	9/30/1998	RADIUM-228	1.55	0.46	PCI/G
SC-17419-S	9/30/1998	RADIUM-228	1.19	0.6	PCI/G
SC-17420-S	9/30/1998	RADIUM-228	1.39	0.4	PCI/G
SC-17421-S	9/30/1998	RADIUM-228	0 595	1.19	PCI/G
SC-17422-S	9/30/1998	RADIUM-228	1.48	0.42	PCI/G
SC-17423-S	9/30/1998	RADIUM-228	0.63	1.26	PCI/G
SC-17501-C	9/30/1998	RADIUM-228	1.15	0 4	PCI/G
SC-17502-S	9/30/1998	RADIUM-228	0.62	1 24	PCI/G
SC-17503-S	9/30/1998	RADIUM-228	1.09	0.39	PCI/G
SC-17504-S	9/30/1998	RADIUM-228	0.585	1.17	PCI/G
SC-17506-S	9/30/1998	RADIUM-228	1.07	0 36	PCI/G
SC-17507-S	9/30/1998	RADIUM-228	1.51	0 41	PCI/G
SC-17508-S	9/30/1998	RADIUM-228	1.11	0 41	PCI/G
SC-17509-C	9/30/1998	RADIUM-228	1 75	0 5	PCI/G
SC-17510-S	9/30/1998	RADIUM-228	1 27	0.45	PCI/G
SC-17511-S	9/30/1998	RADIUM-228	1.41	0 48	PCI/G
SC-17512-S	9/30/1998	RADIUM-228	1.45	0 36	PCI/G
SC-17514-S	9/30/1998	RADIUM-228	0.58	1.16	PCI/G
SC-17515-S	9/30/1998	RADIUM-228	1.27	0.41	PCI/G
SC-17516-S	9/30/1998	RADIUM-228	1.23	0.62	PCI/G
SC-17518-S	9/30/1998	RADIUM-228	1 51	0.36	PCI/G
SC-17519-S	9/30/1998	RADIUM-228	1.53	0.38	PCI/G
SC-17520-S	9/30/1998	RADIUM-228	1.2	0.37	PCI/G
SC-17523-S	9/30/1998	RADIUM-228	0.605	1 21	PCI/G
SC-17524-S	9/30/1998	RADIUM-228	1 28	0 37	PCI/G
SC-17601-S	10/1/1998	RADIUM-228	1 4	0.53	PCI/G
SC-17602-S	10/1/1998	RADIUM-228	1.58	0.48	PCI/G
SC-17603-S	10/1/1998	RADIUM-228	1.33	0 76	PCI/G
SC-17604-S	10/1/1998	RADIUM-228	1.6	0.29	PCI/G
SC-17605-S	10/1/1998	RADIUM-228	1.29	0.53	PCI/G
SC-17606-S	10/1/1998	RADIUM-228	1.36	0 43	PCI/G
SC-17607-S	10/1/1998	RADIUM-228	1.51	0.65	PCI/G
SC-17608-S	10/1/1998	RADIUM-228	1.31	0 48	PCI/G
SC-17609-S	10/1/1998	RADIUM-228	1.21	0 57	PCI/G
SC-17610-S	10/1/1998	RADIUM-228	1.24	0.46	PCI/G
SC-17611-S	10/1/1998	RADIUM-228	1.32	0 65	PCI/G
SC-17612-S	10/1/1998	RADIUM-228	1.23	0 43	PCI/G
SC-17613-S	10/1/1998	RADIUM-228	1.17	0 65	PCI/G
SC-17614-S	10/1/1998	RADIUM-228	1 42	0 43	PCI/G

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WSSRAP_ID	DATE_SAM	PARAMETER	CONC	DL	UNITS
SC-17615-S	10/1/1998	RADIUM-228	0.57	1.14	PCI/G
SC-17616-S	10/1/1998	RADIUM-228	1.31	0.44	PCI/G
SC-17617-S	10/1/1998	RADIUM-228	1.3	0.47	PCI/G
SC-17618-S	10/1/1998	RADIUM-228	1.29	0.38	PCI/G
SC-17619-S	10/1/1998	RADIUM-228	1.29	0.59	PCI/G
SC-17620-S	10/1/1998	RADIUM-228	1.3	0.45	PCI/G
SC-17701-S	9/30/1998	RADIUM-228	1.22	0.42	PCI/G
SC-17702-S	10/1/1998	RADIUM-228	1.01	0.54	PCI/G
SC-17703-S	10/1/1998	RADIUM-228	1.32	0.41	PCI/G
SC-17704-S	10/16/1998	RADIUM-228	1.35	0.43	PCI/G
SC-17705-S	10/1/1998	RADIUM-228	1.28	0.58	PCI/G
SC-17706-S	10/1/1998	RADIUM-228	1.06	0.33	PCI/G
SC-17707-S	10/1/1998	RADIUM-228	1.27	0.27	PCI/G
SC-17708-S	10/16/1998	RADIUM-228	1.29	0.33	PCI/G
SC-17709-S	10/1/1998	RADIUM-228	1.13	0.36	PCI/G
SC-17710-S	10/1/1998	RADIUM-228	0.595	1.19	PCI/G
SC-17711-S	10/1/1998	RADIUM-228	1.3	0.36	PCI/G
SC-17712-S	10/16/1998	RADIUM-228	1.29	0.76	PCI/G
SC-17713-S	10/1/1998	RADIUM-228	1.04	0.47	PCI/G
SC-17714-S	10/1/1998	RADIUM-228	0.98	0.47	PCI/G
SC-17715-S	10/1/1998	RADIUM-228	1.07	0.58	PCI/G
SC-17716-S	10/16/1998	RADIUM-228	1.49	0.42	PCI/G
SC-17717-S	10/1/1998	RADIUM-228	1.19	0.35	PCI/G
SC-17718-S	10/1/1998	RADIUM-228	1.12	0.35	PCI/G
SC-17719-S	10/16/1998	RADIUM-228	1.56	0.44	PCI/G
SC-17720-S	10/16/1998	RADIUM-228	1.38	0.4	PCI/G
SC-17801-S	10/16/1998	RADIUM-228	1.44	0.37	PCI/G
SC-17802-S	10/16/1998	RADIUM-228	1.38	0.53	PCI/G
SC-17803-C	10/16/1998	RADIUM-228	1.22	0.42	PCI/G
SC-17803-S	10/16/1998	RADIUM-228	0.65	1.3	PCI/G
SC-17804-S	10/16/1998	RADIUM-228	1.32	0.31	PCI/G
SC-17805-S	10/16/1998	RADIUM-228	1.54	0.57	PCI/G
SC-17806-C	10/16/1998	RADIUM-228	1.32	0.35	PCI/G
SC-17806-S	10/16/1998	RADIUM-228	1.27	0.63	PCI/G
SC-17807-S	10/16/1998	RADIUM-228	1.5	0.42	PCI/G
SC-17808-S	10/16/1998	RADIUM-228	1.14	0.6	PCI/G
SC-17809-S	10/16/1998	RADIUM-228	1.48	0.33	PCI/G
SC-17810-S	10/16/1998	RADIUM-228	1.36	0.47	PCI/G
SC-17811-S	10/16/1998	RADIUM-228	1.26	0.53	PCI/G
SC-17812-C	10/16/1998	RADIUM-228	1.44	0.35	PCI/G
SC-17812-S	10/16/1998	RADIUM-228	1.21	0.58	PCI/G
SC-17813-S	10/16/1998	RADIUM-228	1.4	0.39	PCI/G
SC-17814-S	10/16/1998	RADIUM-228	1.41	0.53	PCI/G
SC-17815-S	10/16/1998	RADIUM-228	1.2	0.3	PCI/G
SC-17816-S	10/16/1998	RADIUM-228	1.1	0.55	PCI/G
SC-17817-S	10/16/1998	RADIUM-228	1.34	0.33	PCI/G
SC-17818-C	10/16/1998	RADIUM-228	1.63	0.4	PCI/G
SC-17818-S	10/16/1998	RADIUM-228	1.29	0.44	PCI/G

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WSSRAP_ID	DATE_SAM	PARAMETER	CONC	DL	UNITS
SC-17819-S	10/16/1998	RADIUM-228	0.585	1.17	PCI/G
SC-17820-S	10/16/1998	RADIUM-228	1.49	0.48	PCI/G
SC-17821-S	10/16/1998	RADIUM-228	1.53	0.37	PCI/G
SC-17822-S	10/16/1998	RADIUM-228	1.15	0.38	PCI/G
SC-17901-S	10/23/1998	RADIUM-228	1.46	0.52	PCI/G
SC-17902-S	10/23/1998	RADIUM-228	1.07	0.41	PCI/G
SC-17903-S	10/23/1998	RADIUM-228	1.12	0.49	PCI/G
SC-17904-S	10/23/1998	RADIUM-228	0.52	0.31	PCI/G
SC-17905-S	10/23/1998	RADIUM-228	1.21	0 61	PCI/G
SC-17906-S	10/23/1998	RADIUM-228	1.16	0.46	PCI/G
SC-17907-S	10/23/1998	RADIUM-228	1.59	0.6	PCI/G
SC-17908-S	10/23/1998	RADIUM-228	1.39	0.41	PCI/G
SC-17909-S	10/23/1998	RADIUM-228	1 21	0.44	PCI/G
SC-17910-S	10/23/1998	RADIUM-228	1 56	0 44	PCI/G
SC-17911-S	10/23/1998	RADIUM-228	0.55	1 1	PCI/G
SC-17912-S	10/23/1998	RADIUM-228	1.23	0.37	PCI/G
SC-17913-S	10/23/1998	RADIUM-228	1 06	0 5	PCI/G
SC-17914-S	10/23/1998	RADIUM-228	1.19	0.39	PCI/G
SC-17915-S	10/23/1998	RADIUM-228	1.02	0 45	PCI/G
SC-17916-S	10/23/1998	RADIUM-228	1.2	0.42	PCI/G
SC-17917-S	10/23/1998	RADIUM-228	1 03	0 55	PCI/G
SC-17918-S	10/23/1998	RADIUM-228	1.18	0 32	PCI/G
SC-17919-S	10/23/1998	RADIUM-228	0.64	1 28	PCI/G
SC-17920-S	10/23/1998	RADIUM-228	1 2	0.41	PCI/G
SC-18001-S	10/1/1998	RADIUM-228	0 94	0 63	PCI/G
SC-18002-S	10/27/1998	RADIUM-228	1 2	0.38	PCI/G
SC-18003-S	10/27/1998	RADIUM-228	1 53	0 54	PCI/G
SC-18004-S	10/27/1998	RADIUM-228	1.28	0 36	PCI/G
SC-18005-S	10/27/1998	RADIUM-228	1.36	0 51	PCI/G
SC-18006-S	10/27/1998	RADIUM-228	1 08	0.38	PCI/G
SC-18007-S	10/27/1998	RADIUM-228	1 21	0 58	PCI/G
SC-18008-S	10/27/1998	RADIUM-228	1.25	0 34	PCI/G
SC-18012-S	10/27/1998	RADIUM-228	1 13	0 54	PCI/G
SC-18013-S	10/27/1998	RADIUM-228	1.4	0 36	PCI/G
SC-18014-S	10/27/1998	RADIUM-228	0.96	0 56	PCI/G
SC-18015-S	10/27/1998	RADIUM-228	1 5	0.35	PCI/G
SC-18016-S	10/27/1998	RADIUM-228	1 16	0 53	PCI/G
SC-18019-S	10/27/1998	RADIUM-228	1.2	0 42	PCI/G
SC-18020-S	10/27/1998	RADIUM-228	0.555	1 11	PCI/G
SC-18021-S	10/27/1998	RADIUM-228	1.23	0 37	PCI/G
SC-18022-S	10/27/1998	RADIUM-228	0.615	1 23	PCI/G
SC-18023-S	10/27/1998	RADIUM-228	1.51	0 39	PCI/G
SC-18201-S	10/27/1998	RADIUM-228	0.59	1 18	PCI/G
SC-18202-S	10/27/1998	RADIUM-228	1.48	0.45	PCI/G
SC-18203-S	10/27/1998	RADIUM-228	1.47	0.62	PCI/G
SC-18204-S	10/27/1998	RADIUM-228	1.09	0 37	PCI/G
SC-18205-S	10/27/1998	RADIUM-228	1.18	0 67	PCI/G
SC-18206-S	10/27/1998	RADIUM-228	1.32	0 41	PCI/G

WSSRAP_ID	DATE_SAM	PARAMETER	CONC	DL	UNITS
SC-18207-S	10/27/1998	RADIUM-228	1.23	0.43	PCI/G
SC-18208-S	10/27/1998	RADIUM-228	1.5	0.34	PCI/G
SC-18209-S	10/27/1998	RADIUM-228	0.59	1.18	PCI/G
SC-18210-S	10/27/1998	RADIUM-228	1.11	0.41	PCI/G
SC-18211-S	10/27/1998	RADIUM-228	0.635	1.27	PCI/G
SC-18212-S	10/27/1998	RADIUM-228	1.16	0.4	PCI/G
SC-18213-S	10/27/1998	RADIUM-228	1.34	0.63	PCI/G
SC-18214-S	10/27/1998	RADIUM-228	1.25	0.3	PCI/G
SC-18215-S	10/27/1998	RADIUM-228	0.64	1.28	PCI/G
SC-18216-S	10/27/1998	RADIUM-228	1.27	0.38	PCI/G
SC-18217-S	10/27/1998	RADIUM-228	1.14	0.24	PCI/G
SC-18218-S	10/27/1998	RADIUM-228	1.42	0.34	PCI/G
SC-18219-S	10/27/1998	RADIUM-228	1.31	0.42	PCI/G
SC-18220-S	3/3/1998	RADIUM-228	1.22	0.44	PCI/G
SC-18301-S	10/23/1998	RADIUM-228	1.23	0.27	PCI/G
SC-18302-S	10/23/1998	RADIUM-228	1.29	0.37	PCI/G
SC-18303-S	10/23/1998	RADIUM-228	1.62	0.4	PCI/G
SC-18304-S	10/23/1998	RADIUM-228	1	0.45	PCI/G
SC-18305-S	10/23/1998	RADIUM-228	1.31	0.41	PCI/G
SC-18306-S	10/23/1998	RADIUM-228	1.42	0.64	PCI/G
SC-18307-S	10/23/1998	RADIUM-228	1.39	0.45	PCI/G
SC-18308-S	10/23/1998	RADIUM-228	0.56	1.12	PCI/G
SC-18309-S	10/23/1998	RADIUM-228	1.38	0.39	PCI/G
SC-18310-S	10/23/1998	RADIUM-228	0.655	1.31	PCI/G
SC-18311-S	10/23/1998	RADIUM-228	1.13	0.47	PCI/G
SC-18312-S	10/23/1998	RADIUM-228	1.2	0.53	PCI/G
SC-18313-S	10/23/1998	RADIUM-228	1.08	0.34	PCI/G
SC-18314-S	10/23/1998	RADIUM-228	1.24	0.54	PCI/G
SC-18315-S	10/23/1998	RADIUM-228	1.36	0.4	PCI/G
SC-18316-S	10/23/1998	RADIUM-228	1.53	0.41	PCI/G
SC-18317-S	10/23/1998	RADIUM-228	1.26	0.27	PCI/G
SC-18318-S	10/23/1998	RADIUM-228	1.08	0.34	PCI/G
SC-18319-S	10/23/1998	RADIUM-228	0.83	0.61	PCI/G
SC-18320-S	10/27/1998	RADIUM-228	1.23	0.37	PCI/G
SC-18321-S	10/23/1998	RADIUM-228	1.38	0.5	PCI/G
SC-18322-S	10/23/1998	RADIUM-228	0.545	1.09	PCI/G
SC-18323-S	10/23/1998	RADIUM-228	1.31	0.38	PCI/G
SC-18324-S	4/3/1998	RADIUM-228	0.97	0.65	PCI/G
SC-18325-S	4/3/1998	RADIUM-228	1	0.41	PCI/G
SC-18326-S	4/3/1998	RADIUM-228	1.36	0.53	PCI/G
SC-18401-S	10/27/1998	RADIUM-228	1.55	0.18	PCI/G
SC-18402-S	3/3/1998	RADIUM-228	1.03	0.3	PCI/G
SC-18403-S	3/3/1998	RADIUM-228	0.61	1.22	PCI/G
SC-18404-S	4/3/1998	RADIUM-228	1.01	0.35	PCI/G
SC-18405-S	4/3/1998	RADIUM-228	0.56	1.12	PCI/G
SC-18406-S	4/3/1998	RADIUM-228	1.41	0.46	PCI/G
SC-18407-S	3/3/1998	RADIUM-228	1.4	0.28	PCI/G
SC-18408-S	3/3/1998	RADIUM-228	0.64	1.28	PCI/G

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WSSRAP_ID	DATE_SAM	PARAMETER	CONC	DL	UNITS
SC-18409-S	3/3/1998	RADIUM-228	1.12	0.43	PCI/G
SC-18410-S	4/3/1998	RADIUM-228	0.48	0.96	PCI/G
SC-18411-S	4/3/1998	RADIUM-228	1.21	0.48	PCI/G
SC-18412-S	4/3/1998	RADIUM-228	0.575	1 15	PCI/G
SC-18413-S	3/3/1998	RADIUM-228	0.555	1.11	PCI/G
SC-18414-S	3/3/1998	RADIUM-228	1	0.39	PCI/G
SC-18415-S	3/3/1998	RADIUM-228	1.25	0 64	PCI/G
SC-18416-S	3/3/1998	RADIUM-228	1 24	0.43	PCI/G
SC-18417-S	4/3/1998	RADIUM-228	1.15	0.3	PCI/G
SC-18418-S	4/3/1998	RADIUM-228	1 59	0.55	PCI/G
SC-18419-S	3/3/1998	RADIUM-228	1.46	0.63	PCI/G
SC-18420-S	3/3/1998	RADIUM-228	1.33	0 44	PCI/G
SC-18421-S	3/3/1998	RADIUM-228	0.605	1.21	PCI/G
SC-18422-S	3/3/1998	RADIUM-228	1 15	0.34	PCI/G
SC-18423-S	4/1/1998	RADIUM-228	1 19	0 53	PCI/G
SC-18424-S	4/3/1998	RADIUM-228	1 27	0.52	PCI/G
SC-18502-S	10/27/1998	RADIUM-228	1.17	0.47	PCI/G
SC-18503-S	3/3/1998	RADIUM-228	1 2	0 53	PCI/G
SC-18504-S	3/3/1998	RADIUM-228	1.19	0.38	PCI/G
SC-18509-S	3/3/1998	RADIUM-228	0.56	1.12	PCI/G
SC-18510-S	3/3/1998	RADIUM-228	0.93	0 32	PCI/G
SC-18516-S	4/1/1998	RADIUM-228	1 18	0 41	PCI/G
SC-18520-S	4/1/1998	RADIUM-228	1.09	0.46	PCI/G
SC-18521-S	4/1/1998	RADIUM-228	1.17	0 5	PCI/G
SC-18601-S	4/1/1998	RADIUM-228	1.24	0 56	PCI/G
SC-18602-S	4/1/1998	RADIUM-228	1.22	0 34	PCI/G
SC-18603-S	4/1/1998	RADIUM-228	1.42	0.31	PCI/G
SC-18604-S	4/1/1998	RADIUM-228	1 44	0 65	PCI/G
SC-18605-S	4/1/1998	RADIUM-228	1 3	0.36	PCI/G
SC-18606-S	4/3/1998	RADIUM-228	1 29	0 58	PCI/G
SC-18607-S	4/1/1998	RADIUM-228	1.47	0 59	PCI/G
SC-18608-S	4/1/1998	RADIUM-228	1 24	0 26	PCI/G
SC-18609-S	4/1/1998	RADIUM-228	0.6	1 2	PCI/G
SC-18610-S	4/1/1998	RADIUM-228	1.33	0 42	PCI/G
SC-18611-S	4/1/1998	RADIUM-228	1 16	0.63	PCI/G
SC-18612-S	4/3/1998	RADIUM-228	1.08	0 43	PCI/G
SC-18613-S	4/1/1998	RADIUM-228	1.19	0 36	PCI/G
SC-18614-S	4/1/1998	RADIUM-228	0.85	0 46	PCI/G
SC-18615-S	4/1/1998	RADIUM-228	1.36	0.34	PCI/G
SC-18616-S	4/1/1998	RADIUM-228	1 23	0.62	PCI/G
SC-18617-S	4/1/1998	RADIUM-228	1 39	0 47	PCI/G
SC-18618-S	4/3/1998	RADIUM-228	0.56	1.12	PCI/G
SC-18619-S	4/1/1998	RADIUM-228	1 47	0.63	PCI/G
SC-18620-S	4/1/1998	RADIUM-228	0.6	1 2	PCI/G
SC-18621-S	3/16/1998	RADIUM-228	1 34	0 43	PCI/G
SC-18622-S	3/16/1998	RADIUM-228	1 4	0.34	PCI/G
SC-18702-S	3/16/1998	RADIUM-228	1 19	0 25	PCI/G
SC-18703-S	3/16/1998	RADIUM-228	1 24	0 49	PCI/G

APPENDIX B WP-437 RU18 FINAL DATA

WSSRAP_ID	DATE_SAM	PARAMETER	CONC	DL	UNITS
SC-18704-S	3/16/1998	RADIUM-228	1.29	0.35	PCI/G
SC-18705-S	3/16/1998	RADIUM-228	1.4	0.39	PCI/G
SC-18706-C	3/16/1998	RADIUM-228	0.585	1.17	PCI/G
SC-18706-S	3/16/1998	RADIUM-228	1.4	0.43	PCI/G
SC-18805-S	4/1/1998	RADIUM-228	1.39	0.31	PCI/G
SC-18809-S	4/1/1998	RADIUM-228	1.35	0.63	PCI/G
SC-18810-S	4/1/1998	RADIUM-228	1.1	0.31	PCI/G
SC-18811-S	4/1/1998	RADIUM-228	1.19	0.49	PCI/G
SC-18812-S	4/1/1998	RADIUM-228	1.17	0.38	PCI/G
SC-18813-S	4/1/1998	RADIUM-228	1.24	0.29	PCI/G
SC-18817-S	3/16/1998	RADIUM-228	1.26	0.41	PCI/G
SC-18818-S	3/16/1998	RADIUM-228	0.66	1.32	PCI/G
SC-18819-S	3/16/1998	RADIUM-228	1.26	0.41	PCI/G
SC-18820-S	3/16/1998	RADIUM-228	1.26	0.37	PCI/G
SC-18821-S	3/16/1998	RADIUM-228	1.24	0.37	PCI/G
SC-39601-U	3/10/2000	RADIUM-228	1.07	0.29	PCI/G
SC-39602-U	3/10/2000	RADIUM-228	1.07	0.37	PCI/G
SC-39603-U	3/10/2000	RADIUM-228	1.29	0.42	PCI/G
SC-39604-U	3/10/2000	RADIUM-228	1.03	0.35	PCI/G
SC-39605-U	3/10/2000	RADIUM-228	1.06	0.35	PCI/G
SC-39606-U	3/10/2000	RADIUM-228	0.95	0.34	PCI/G
SC-39607-U	3/10/2000	RADIUM-228	1.63	0.32	PCI/G
SC-39608-U	3/10/2000	RADIUM-228	1.2	0.42	PCI/G
SC-39609-U	3/10/2000	RADIUM-228	1.16	0.44	PCI/G
SC-39610-U	3/10/2000	RADIUM-228	1.1	0.37	PCI/G
SC-39611-U	3/10/2000	RADIUM-228	1.08	0.39	PCI/G
SC-39612-U	3/10/2000	RADIUM-228	1.01	0.37	PCI/G
SC-18105-S	10/27/1998	THORIUM-230	0.74	0.62	PCI/G
SC-18106-S	10/27/1998	THORIUM-230	1.04	0.62	PCI/G
SC-18110-S	10/27/1998	THORIUM-230	1.38	0.62	PCI/G
SC-18111-S	10/27/1998	THORIUM-230	0.93	0.62	PCI/G
SC-18116-S	10/27/1998	THORIUM-230	0.71	0.62	PCI/G
SC-39601-U	3/10/2000	THORIUM-230	0.99	0.65	PCI/G
SC-39602-U	3/10/2000	THORIUM-230	1.32	0.64	PCI/G
SC-39603-U	3/10/2000	THORIUM-230	0.99	0.64	PCI/G
SC-39604-U	3/10/2000	THORIUM-230	2.44	0.64	PCI/G
SC-39605-U	3/10/2000	THORIUM-230	1.06	0.65	PCI/G
SC-39606-U	3/10/2000	THORIUM-230	1.01	0.64	PCI/G
SC-39607-U	3/10/2000	THORIUM-230	1.34	0.64	PCI/G
SC-39608-U	3/10/2000	THORIUM-230	1.25	0.64	PCI/G
SC-39609-U	3/10/2000	THORIUM-230	13.6	0.64	PCI/G
SC-39609-U-RS	3/15/2000	THORIUM-230	2.52	0.64	PCI/G
SC-39610-U	3/10/2000	THORIUM-230	1.01	0.64	PCI/G
SC-39611-U	3/10/2000	THORIUM-230	5.97	0.65	PCI/G
SC-39612-U	3/10/2000	THORIUM-230	1.15	0.64	PCI/G
SC-17002-S	9/29/1998	URANIUM-238	1.83	2.85	PCI/G
SC-17003-S	9/29/1998	URANIUM-238	1.455	2.91	PCI/G
SC-17004-S	9/29/1998	URANIUM-238	1.955	3.91	PCI/G

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WSSRAP_ID	DATE_SAM	PARAMETER	CONC	DL	UNITS
SC-17005-S	9/29/1998	URANIUM-238	1.375	2.75	PCI/G
SC-17007-S	9/29/1998	URANIUM-238	1.93	3.86	PCI/G
SC-17008-S	9/29/1998	URANIUM-238	1.415	2.83	PCI/G
SC-17009-S	9/29/1998	URANIUM-238	1.46	2.26	PCI/G
SC-17010-S	9/29/1998	URANIUM-238	1.975	3 95	PCI/G
SC-17011-C	9/29/1998	URANIUM-238	1.445	2 89	PCI/G
SC-17012-S	9/29/1998	URANIUM-238	1.995	3.99	PCI/G
SC-17013-S	9/29/1998	URANIUM-238	1.345	2.69	PCI/G
SC-17014-S	9/29/1998	URANIUM-238	1.87	3.74	PCI/G
SC-17015-S	9/29/1998	URANIUM-238	1.46	2.92	PCI/G
SC-17017-S	9/29/1998	URANIUM-238	2.16	4.32	PCI/G
SC-17018-S	9/29/1998	URANIUM-238	1.375	2.75	PCI/G
SC-17018-S-RS	10/15/1998	URANIUM-238	2.08	4.16	PCI/G
SC-17019-S	9/29/1998	URANIUM-238	2.005	4 01	PCI/G
SC-17020-S	9/29/1998	URANIUM-238	2.54	2.48	PCI/G
SC-17021-C	9/29/1998	URANIUM-238	2.09	4.18	PCI/G
SC-17022-S	9/29/1998	URANIUM-238	1.41	2.82	PCI/G
SC-17023-S	9/29/1998	URANIUM-238	1 965	3.93	PCI/G
SC-17024-S	9/29/1998	URANIUM-238	1.425	2.85	PCI/G
SC-17025-S	9/29/1998	URANIUM-238	1.365	2.73	PCI/G
SC-17101-S	9/29/1998	URANIUM-238	1.97	3 94	PCI/G
SC-17102-S	9/29/1998	URANIUM-238	1.415	2.83	PCI/G
SC-17103-S	9/29/1998	URANIUM-238	1.975	3 95	PCI/G
SC-17104-S	9/29/1998	URANIUM-238	1.435	2 87	PCI/G
SC-17105-S	9/29/1998	URANIUM-238	2.03	4 06	PCI/G
SC-17106-S	9/29/1998	URANIUM-238	1.535	3.07	PCI/G
SC-17107-S	9/29/1998	URANIUM-238	1.965	3.93	PCI/G
SC-17108-S	9/29/1998	URANIUM-238	1 335	2 67	PCI/G
SC-17109-S	9/29/1998	URANIUM-238	1.99	3 98	PCI/G
SC-17110-S	9/29/1998	URANIUM-238	1 465	2.93	PCI/G
SC-17111-S	9/29/1998	URANIUM-238	2.03	4.06	PCI/G
SC-17112-S	9/29/1998	URANIUM-238	1.435	2 87	PCI/G
SC-17113-S	9/29/1998	URANIUM-238	1 85	3 7	PCI/G
SC-17114-S	9/29/1998	URANIUM-238	1.385	2.77	PCI/G
SC-17115-S	9/29/1998	URANIUM-238	2 145	4.29	PCI/G
SC-17116-S	9/29/1998	URANIUM-238	1.365	2 73	PCI/G
SC-17117-S	9/29/1998	URANIUM-238	1 84	3 68	PCI/G
SC-17118-S	9/29/1998	URANIUM-238	1.345	2.69	PCI/G
SC-17119-S	9/29/1998	URANIUM-238	1.955	3 91	PCI/G
SC-17120-S	9/29/1998	URANIUM-238	1.365	2 73	PCI/G
SC-17121-S	9/29/1998	URANIUM-238	1.97	3 94	PCI/G
SC-17122-S	9/29/1998	URANIUM-238	1 42	2 84	PCI/G
SC-17123-S	9/29/1998	URANIUM-238	1.945	3.89	PCI/G
SC-17124-S	9/29/1998	URANIUM-238	1 335	2 67	PCI/G
SC-17201-S	9/29/1998	URANIUM-238	1.825	3 65	PCI/G
SC-17202-S	9/29/1998	URANIUM-238	1.355	2 71	PCI/G
SC-17203-C	9/29/1998	URANIUM-238	1.87	3 74	PCI/G
SC-17203-S	9/29/1998	URANIUM-238	1.415	2 83	PCI/G

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WSSRAP_ID	DATE_SAM	PARAMETER	CONC	DL	UNITS
SC-17204-S	9/29/1998	URANIUM-238	1.915	3.83	PCI/G
SC-17205-C	9/29/1998	URANIUM-238	1.425	2.85	PCI/G
SC-17205-S	9/29/1998	URANIUM-238	2.12	4.24	PCI/G
SC-17206-S	9/29/1998	URANIUM-238	1.42	2.84	PCI/G
SC-17207-S	9/29/1998	URANIUM-238	1.835	3.67	PCI/G
SC-17208-S	9/29/1998	URANIUM-238	1.47	2.26	PCI/G
SC-17209-S	9/29/1998	URANIUM-238	1.875	3.75	PCI/G
SC-17210-S	9/29/1998	URANIUM-238	1.97	2.59	PCI/G
SC-17211-S	9/29/1998	URANIUM-238	1.365	2.73	PCI/G
SC-17212-S	9/29/1998	URANIUM-238	1.82	3.64	PCI/G
SC-17213-S	9/29/1998	URANIUM-238	1.285	2.57	PCI/G
SC-17214-C	9/29/1998	URANIUM-238	1.855	3.71	PCI/G
SC-17214-S	9/29/1998	URANIUM-238	1.42	2.84	PCI/G
SC-17215-S	9/29/1998	URANIUM-238	1.93	3.86	PCI/G
SC-17216-S	9/29/1998	URANIUM-238	2.53	2.09	PCI/G
SC-17217-S	9/29/1998	URANIUM-238	2.14	4.28	PCI/G
SC-17218-S	9/29/1998	URANIUM-238	2.72	1.82	PCI/G
SC-17219-S	9/29/1998	URANIUM-238	1.805	3.61	PCI/G
SC-17220-S	9/29/1998	URANIUM-238	1.305	2.61	PCI/G
SC-17221-C	9/29/1998	URANIUM-238	1.82	3.64	PCI/G
SC-17221-S	9/29/1998	URANIUM-238	1.385	2.77	PCI/G
SC-17222-S	9/29/1998	URANIUM-238	1.955	3.91	PCI/G
SC-17223-S	9/29/1998	URANIUM-238	1.43	2.86	PCI/G
SC-17224-S	9/29/1998	URANIUM-238	1.805	3.61	PCI/G
SC-17225-S	9/29/1998	URANIUM-238	1.335	2.67	PCI/G
SC-17226-S	9/29/1998	URANIUM-238	1.77	3.54	PCI/G
SC-17227-S	9/29/1998	URANIUM-238	1.37	2.74	PCI/G
SC-17228-S	9/29/1998	URANIUM-238	1.905	3.81	PCI/G
SC-17301-S	9/29/1998	URANIUM-238	1.455	2.91	PCI/G
SC-17302-S	9/30/1998	URANIUM-238	1.95	3.9	PCI/G
SC-17303-S	9/30/1998	URANIUM-238	1.305	2.61	PCI/G
SC-17304-S	9/30/1998	URANIUM-238	1.91	3.82	PCI/G
SC-17305-S	9/30/1998	URANIUM-238	1.4	2.8	PCI/G
SC-17306-S	9/30/1998	URANIUM-238	1.915	3.83	PCI/G
SC-17307-S	9/30/1998	URANIUM-238	1.245	2.49	PCI/G
SC-17308-S	9/29/1998	URANIUM-238	1.395	2.79	PCI/G
SC-17309-S	9/30/1998	URANIUM-238	1.985	3.97	PCI/G
SC-17310-S	9/30/1998	URANIUM-238	1.29	2.58	PCI/G
SC-17311-S	9/30/1998	URANIUM-238	1.945	3.89	PCI/G
SC-17312-S	9/30/1998	URANIUM-238	1.91	3.82	PCI/G
SC-17313-S	9/30/1998	URANIUM-238	1.325	2.65	PCI/G
SC-17314-S	9/30/1998	URANIUM-238	1.875	3.75	PCI/G
SC-17315-S	9/30/1998	URANIUM-238	1.405	2.81	PCI/G
SC-17316-S	9/30/1998	URANIUM-238	1.895	3.79	PCI/G
SC-17317-S	9/30/1998	URANIUM-238	1.315	2.63	PCI/G
SC-17318-S	9/30/1998	URANIUM-238	1.925	3.85	PCI/G
SC-17319-S	10/16/1998	URANIUM-238	1.365	2.73	PCI/G
SC-17320-S	10/16/1998	URANIUM-238	1.915	3.83	PCI/G

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WSSRAP_ID	DATE_SAM	PARAMETER	CONC	DL	UNITS
SC-17321-S	10/16/1998	URANIUM-238	1.23	2 46	PCI/G
SC-17402-S	9/30/1998	URANIUM-238	1.455	2 91	PCI/G
SC-17403-S	9/30/1998	URANIUM-238	2.04	4 08	PCI/G
SC-17404-S	9/30/1998	URANIUM-238	1.36	2.72	PCI/G
SC-17405-S	9/30/1998	URANIUM-238	2.44	3 02	PCI/G
SC-17407-S	9/30/1998	URANIUM-238	1.375	2.75	PCI/G
SC-17408-S	9/30/1998	URANIUM-238	3.16	3.11	PCI/G
SC-17409-S	9/30/1998	URANIUM-238	2.43	2.11	PCI/G
SC-17410-S	9/30/1998	URANIUM-238	1.89	3.78	PCI/G
SC-17411-S	9/30/1998	URANIUM-238	2.02	2 67	PCI/G
SC-17412-S	9/30/1998	URANIUM-238	2.09	4.18	PCI/G
SC-17413-S	9/30/1998	URANIUM-238	1.42	2.84	PCI/G
SC-17414-S	9/30/1998	URANIUM-238	1.965	3 93	PCI/G
SC-17416-S	9/30/1998	URANIUM-238	1.34	2 68	PCI/G
SC-17417-S	9/30/1998	URANIUM-238	2.205	4 41	PCI/G
SC-17418-S	9/30/1998	URANIUM-238	1.42	2 84	PCI/G
SC-17419-S	9/30/1998	URANIUM-238	2.02	4 04	PCI/G
SC-17420-S	9/30/1998	URANIUM-238	1.485	2.97	PCI/G
SC-17421-S	9/30/1998	URANIUM-238	2.02	4.04	PCI/G
SC-17422-S	9/30/1998	URANIUM-238	1.415	2 83	PCI/G
SC-17423-S	9/30/1998	URANIUM-238	1 945	3 89	PCI/G
SC-17501-C	9/30/1998	URANIUM-238	1.345	2.69	PCI/G
SC-17502-S	9/30/1998	URANIUM-238	4.36	3.97	PCI/G
SC-17503-S	9/30/1998	URANIUM-238	5.71	2 45	PCI/G
SC-17504-S	9/30/1998	URANIUM-238	1.835	3.67	PCI/G
SC-17506-S	9/30/1998	URANIUM-238	2.01	2.26	PCI/G
SC-17507-S	9/30/1998	URANIUM-238	1 87	3.74	PCI/G
SC-17508-S	9/30/1998	URANIUM-238	5.61	2 45	PCI/G
SC-17509-C	9/30/1998	URANIUM-238	1.82	3 64	PCI/G
SC-17510-S	9/30/1998	URANIUM-238	1.44	2 88	PCI/G
SC-17511-S	9/30/1998	URANIUM-238	3.4	2.07	PCI/G
SC-17512-S	9/30/1998	URANIUM-238	1.385	2 77	PCI/G
SC-17514-S	9/30/1998	URANIUM-238	2 11	4.22	PCI/G
SC-17515-S	9/30/1998	URANIUM-238	1 395	2.79	PCI/G
SC-17516-S	9/30/1998	URANIUM-238	2.11	4 22	PCI/G
SC-17518-S	9/30/1998	URANIUM-238	1.425	2 85	PCI/G
SC-17519-S	9/30/1998	URANIUM-238	1.95	3.9	PCI/G
SC-17520-S	9/30/1998	URANIUM-238	1 365	2 73	PCI/G
SC-17523-S	9/30/1998	URANIUM-238	1.97	3.94	PCI/G
SC-17524-S	9/30/1998	URANIUM-238	1.345	2.69	PCI/G
SC-17601-S	10/1/1998	URANIUM-238	1.935	3.87	PCI/G
SC-17602-S	10/1/1998	URANIUM-238	1.39	2.78	PCI/G
SC-17603-S	10/1/1998	URANIUM-238	1.955	3.91	PCI/G
SC-17604-S	10/1/1998	URANIUM-238	2.34	1.94	PCI/G
SC-17605-S	10/1/1998	URANIUM-238	1.87	3.74	PCI/G
SC-17606-S	10/1/1998	URANIUM-238	1.415	2.83	PCI/G
SC-17607-S	10/1/1998	URANIUM-238	6.15	3 21	PCI/G
SC-17608-S	10/1/1998	URANIUM-238	1.425	2.85	PCI/G

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WSSRAP_ID	DATE_SAM	PARAMETER	CONC	DL	UNITS
SC-17609-S	10/1/1998	URANIUM-238	1.87	3.74	PCI/G
SC-17610-S	10/1/1998	URANIUM-238	1.45	2.9	PCI/G
SC-17611-S	10/1/1998	URANIUM-238	1.815	3.63	PCI/G
SC-17612-S	10/1/1998	URANIUM-238	2.08	2.33	PCI/G
SC-17613-S	10/1/1998	URANIUM-238	2.215	4.43	PCI/G
SC-17614-S	10/1/1998	URANIUM-238	1.4	2.8	PCI/G
SC-17615-S	10/1/1998	URANIUM-238	2.02	4.04	PCI/G
SC-17616-S	10/1/1998	URANIUM-238	3.18	1.9	PCI/G
SC-17617-S	10/1/1998	URANIUM-238	2.035	4.07	PCI/G
SC-17618-S	10/1/1998	URANIUM-238	1.41	2.82	PCI/G
SC-17619-S	10/1/1998	URANIUM-238	2.08	4.16	PCI/G
SC-17620-S	10/1/1998	URANIUM-238	1.435	2.87	PCI/G
SC-17701-S	9/30/1998	URANIUM-238	1.34	2.68	PCI/G
SC-17702-S	10/1/1998	URANIUM-238	1.885	3.77	PCI/G
SC-17703-S	10/1/1998	URANIUM-238	1.345	2.69	PCI/G
SC-17704-S	10/16/1998	URANIUM-238	2.055	4.11	PCI/G
SC-17705-S	10/1/1998	URANIUM-238	1.87	3.74	PCI/G
SC-17706-S	10/1/1998	URANIUM-238	1.39	2.78	PCI/G
SC-17707-S	10/1/1998	URANIUM-238	1.895	3.79	PCI/G
SC-17708-S	10/16/1998	URANIUM-238	1.405	2.81	PCI/G
SC-17709-S	10/1/1998	URANIUM-238	1.385	2.77	PCI/G
SC-17710-S	10/1/1998	URANIUM-238	1.87	3.74	PCI/G
SC-17711-S	10/1/1998	URANIUM-238	1.425	2.85	PCI/G
SC-17712-S	10/16/1998	URANIUM-238	1.85	3.59	PCI/G
SC-17713-S	10/1/1998	URANIUM-238	1.915	3.83	PCI/G
SC-17714-S	10/1/1998	URANIUM-238	1.43	2.86	PCI/G
SC-17715-S	10/1/1998	URANIUM-238	1.855	3.71	PCI/G
SC-17716-S	10/16/1998	URANIUM-238	1.4	2.8	PCI/G
SC-17717-S	10/1/1998	URANIUM-238	1.33	2.66	PCI/G
SC-17718-S	10/1/1998	URANIUM-238	1.425	2.85	PCI/G
SC-17719-S	10/16/1998	URANIUM-238	1.825	3.65	PCI/G
SC-17720-S	10/16/1998	URANIUM-238	1.41	2.82	PCI/G
SC-17801-S	10/16/1998	URANIUM-238	1.355	2.71	PCI/G
SC-17802-S	10/16/1998	URANIUM-238	1.915	3.83	PCI/G
SC-17803-C	10/16/1998	URANIUM-238	1.435	2.87	PCI/G
SC-17803-S	10/16/1998	URANIUM-238	1.82	3.64	PCI/G
SC-17804-S	10/16/1998	URANIUM-238	1.415	2.83	PCI/G
SC-17805-S	10/16/1998	URANIUM-238	1.86	3.72	PCI/G
SC-17806-C	10/16/1998	URANIUM-238	1.42	2.84	PCI/G
SC-17806-S	10/16/1998	URANIUM-238	1.915	3.83	PCI/G
SC-17807-S	10/16/1998	URANIUM-238	1.27	2.54	PCI/G
SC-17808-S	10/16/1998	URANIUM-238	1.97	3.94	PCI/G
SC-17809-S	10/16/1998	URANIUM-238	1.34	2.68	PCI/G
SC-17810-S	10/16/1998	URANIUM-238	1.86	3.72	PCI/G
SC-17811-S	10/16/1998	URANIUM-238	1.785	3.57	PCI/G
SC-17812-C	10/16/1998	URANIUM-238	1.51	3.02	PCI/G
SC-17812-S	10/16/1998	URANIUM-238	1.76	3.52	PCI/G
SC-17813-S	10/16/1998	URANIUM-238	1.31	2.62	PCI/G

APPENDIX B WP-437 RU18 FINAL DATA

WSSRAP_ID	DATE_SAM	PARAMETER	CONC	DL	UNITS
SC-17814-S	10/16/1998	URANIUM-238	1.875	3.75	PCI/G
SC-17815-S	10/16/1998	URANIUM-238	1.36	2.72	PCI/G
SC-17816-S	10/16/1998	URANIUM-238	1.97	3.94	PCI/G
SC-17817-S	10/16/1998	URANIUM-238	1.385	2 77	PCI/G
SC-17818-C	10/16/1998	URANIUM-238	1.93	3.86	PCI/G
SC-17818-S	10/16/1998	URANIUM-238	1.295	2.59	PCI/G
SC-17819-S	10/16/1998	URANIUM-238	1 84	3.68	PCI/G
SC-17820-S	10/16/1998	URANIUM-238	1.35	2 7	PCI/G
SC-17821-S	10/16/1998	URANIUM-238	1.665	3.33	PCI/G
SC-17822-S	10/16/1998	URANIUM-238	3.08	2.61	PCI/G
SC-17901-S	10/23/1998	URANIUM-238	2.1	4.2	PCI/G
SC-17902-S	10/23/1998	URANIUM-238	1.43	2.86	PCI/G
SC-17903-S	10/23/1998	URANIUM-238	1.985	3 97	PCI/G
SC-17904-S	10/23/1998	URANIUM-238	1.5	2.01	PCI/G
SC-17905-S	10/23/1998	URANIUM-238	1.815	3.63	PCI/G
SC-17906-S	10/23/1998	URANIUM-238	1.455	2.91	PCI/G
SC-17907-S	10/23/1998	URANIUM-238	2.09	4.18	PCI/G
SC-17908-S	10/23/1998	URANIUM-238	1.42	2.84	PCI/G
SC-17909-S	10/23/1998	URANIUM-238	1.91	3 82	PCI/G
SC-17910-S	10/23/1998	URANIUM-238	1.435	2 87	PCI/G
SC-17911-S	10/23/1998	URANIUM-238	1.975	3 95	PCI/G
SC-17912-S	10/23/1998	URANIUM-238	1.34	2.68	PCI/G
SC-17913-S	10/23/1998	URANIUM-238	1.945	3.89	PCI/G
SC-17914-S	10/23/1998	URANIUM-238	1.3	2 6	PCI/G
SC-17915-S	10/23/1998	URANIUM-238	1.965	3 93	PCI/G
SC-17916-S	10/23/1998	URANIUM-238	1.41	2 82	PCI/G
SC-17917-S	10/23/1998	URANIUM-238	1.905	3 81	PCI/G
SC-17918-S	10/23/1998	URANIUM-238	1 35	2 7	PCI/G
SC-17919-S	10/23/1998	URANIUM-238	1.955	3 91	PCI/G
SC-17920-S	10/23/1998	URANIUM-238	1 31	2.62	PCI/G
SC-18001-S	10/1/1998	URANIUM-238	1.85	3.7	PCI/G
SC-18002-S	10/27/1998	URANIUM-238	1.35	2.7	PCI/G
SC-18003-S	10/27/1998	URANIUM-238	1.995	3.99	PCI/G
SC-18004-S	10/27/1998	URANIUM-238	1.445	2.89	PCI/G
SC-18005-S	10/27/1998	URANIUM-238	1.95	3 9	PCI/G
SC-18006-S	10/27/1998	URANIUM-238	1.18	1 65	PCI/G
SC-18007-S	10/27/1998	URANIUM-238	1 895	3 79	PCI/G
SC-18008-S	10/27/1998	URANIUM-238	1.375	2 75	PCI/G
SC-18012-S	10/27/1998	URANIUM-238	22.3	4 96	PCI/G
SC-18013-S	10/27/1998	URANIUM-238	1.415	2.83	PCI/G
SC-18014-S	10/27/1998	URANIUM-238	1.905	3.81	PCI/G
SC-18015-S	10/27/1998	URANIUM-238	1.36	2.72	PCI/G
SC-18016-S	10/27/1998	URANIUM-238	1.885	3.77	PCI/G
SC-18019-S	10/27/1998	URANIUM-238	1.89	1.81	PCI/G
SC-18020-S	10/27/1998	URANIUM-238	1 855	3 71	PCI/G
SC-18021-S	10/27/1998	URANIUM-238	1.47	2.94	PCI/G
SC-18022-S	10/27/1998	URANIUM-238	1.89	3.78	PCI/G
SC-18023-S	10/27/1998	URANIUM-238	1.415	2.83	PCI/G

APPENDIX B WP-437 RU18 FINAL DATA

WSSRAP_ID	DATE_SAM	PARAMETER	CONC	DL	UNITS
SC-18104-S	10/27/1998	URANIUM-238	1.91	3.82	PCI/G
SC-18105-S	10/27/1998	URANIUM-238	1.36	2.72	PCI/G
SC-18106-S	10/27/1998	URANIUM-238	1.895	3.79	PCI/G
SC-18108-S	1/29/1999	URANIUM-238	2.05	4.1	PCI/G
SC-18109-S	1/29/1999	URANIUM-238	3.9	2.25	PCI/G
SC-18110-S	10/27/1998	URANIUM-238	1.43	2.86	PCI/G
SC-18111-S	10/27/1998	URANIUM-238	1.965	3.93	PCI/G
SC-18114-C	1/29/1999	URANIUM-238	2.205	4.41	PCI/G
SC-18114-S	1/29/1999	URANIUM-238	3.39	2.48	PCI/G
SC-18115-S	1/29/1999	URANIUM-238	3.64	2.45	PCI/G
SC-18116-S	10/27/1998	URANIUM-238	1.52	3.04	PCI/G
SC-18119-S	1/29/1999	URANIUM-238	1.495	2.99	PCI/G
SC-18120-S	1/29/1999	URANIUM-238	3.12	2.51	PCI/G
SC-18122-S	1/29/1999	URANIUM-238	1.6	2.12	PCI/G
SC-18123-S	1/29/1999	URANIUM-238	1.97	3.58	PCI/G
SC-18126-S	1/29/1999	URANIUM-238	1.87	1.78	PCI/G
SC-18201-S	10/27/1998	URANIUM-238	2.04	4.08	PCI/G
SC-18202-S	10/27/1998	URANIUM-238	1.41	2.82	PCI/G
SC-18203-S	10/27/1998	URANIUM-238	2.085	4.17	PCI/G
SC-18204-S	10/27/1998	URANIUM-238	1.36	2.72	PCI/G
SC-18205-S	10/27/1998	URANIUM-238	1.825	3.65	PCI/G
SC-18206-S	10/27/1998	URANIUM-238	1.34	2.68	PCI/G
SC-18207-S	10/27/1998	URANIUM-238	1.985	3.97	PCI/G
SC-18208-S	10/27/1998	URANIUM-238	1.395	2.79	PCI/G
SC-18209-S	10/27/1998	URANIUM-238	1.975	3.95	PCI/G
SC-18210-S	10/27/1998	URANIUM-238	1.575	3.15	PCI/G
SC-18211-S	10/27/1998	URANIUM-238	1.885	3.77	PCI/G
SC-18212-S	10/27/1998	URANIUM-238	1.395	2.79	PCI/G
SC-18213-S	10/27/1998	URANIUM-238	1.725	3.45	PCI/G
SC-18214-S	10/27/1998	URANIUM-238	1.4	2.8	PCI/G
SC-18215-S	10/27/1998	URANIUM-238	1.79	3.58	PCI/G
SC-18216-S	10/27/1998	URANIUM-238	1.39	2.78	PCI/G
SC-18217-S	10/27/1998	URANIUM-238	2.13	2.55	PCI/G
SC-18218-S	10/27/1998	URANIUM-238	1.345	2.69	PCI/G
SC-18219-S	10/27/1998	URANIUM-238	1.76	3.52	PCI/G
SC-18220-S	3/3/1998	URANIUM-238	1.925	3.85	PCI/G
SC-18301-S	10/23/1998	URANIUM-238	1.915	3.83	PCI/G
SC-18302-S	10/23/1998	URANIUM-238	1.825	3.65	PCI/G
SC-18303-S	10/23/1998	URANIUM-238	1.265	2.53	PCI/G
SC-18304-S	10/23/1998	URANIUM-238	1.975	3.95	PCI/G
SC-18305-S	10/23/1998	URANIUM-238	1.385	2.77	PCI/G
SC-18306-S	10/23/1998	URANIUM-238	1.935	3.87	PCI/G
SC-18307-S	10/23/1998	URANIUM-238	1.31	2.62	PCI/G
SC-18308-S	10/23/1998	URANIUM-238	2.065	4.13	PCI/G
SC-18309-S	10/23/1998	URANIUM-238	1.64	2.47	PCI/G
SC-18310-S	10/23/1998	URANIUM-238	1.905	3.81	PCI/G
SC-18311-S	10/23/1998	URANIUM-238	1.37	2.74	PCI/G
SC-18312-S	10/23/1998	URANIUM-238	1.84	3.68	PCI/G

APPENDIX B WP-437 RU18 FINAL DATA

WSSRAP_ID	DATE_SAM	PARAMETER	CONC	DL	UNITS
SC-18313-S	10/23/1998	URANIUM-238	1.36	2.03	PCI/G
SC-18314-S	10/23/1998	URANIUM-238	1.995	3.99	PCI/G
SC-18315-S	10/23/1998	URANIUM-238	1.435	2.87	PCI/G
SC-18316-S	10/23/1998	URANIUM-238	2.17	4.34	PCI/G
SC-18317-S	10/23/1998	URANIUM-238	1.985	3.97	PCI/G
SC-18318-S	10/23/1998	URANIUM-238	1.41	2.82	PCI/G
SC-18319-S	10/23/1998	URANIUM-238	1.925	3 85	PCI/G
SC-18320-S	10/27/1998	URANIUM-238	1.435	2.87	PCI/G
SC-18321-S	10/23/1998	URANIUM-238	3.59	2.17	PCI/G
SC-18322-S	10/23/1998	URANIUM-238	1.815	3.63	PCI/G
SC-18323-S	10/23/1998	URANIUM-238	1.46	2 92	PCI/G
SC-18324-S	4/3/1998	URANIUM-238	1.81	3.21	PCI/G
SC-18325-S	4/3/1998	URANIUM-238	1.345	2 69	PCI/G
SC-18326-S	4/3/1998	URANIUM-238	1.995	3.99	PCI/G
SC-18401-S	10/27/1998	URANIUM-238	2 09	4 18	PCI/G
SC-18402-S	3/3/1998	URANIUM-238	2.37	2.31	PCI/G
SC-18403-S	3/3/1998	URANIUM-238	2.05	4 1	PCI/G
SC-18404-S	4/3/1998	URANIUM-238	2.43	1.92	PCI/G
SC-18405-S	4/3/1998	URANIUM-238	1.885	3.77	PCI/G
SC-18406-S	4/3/1998	URANIUM-238	1 5	3	PCI/G
SC-18407-S	3/3/1998	URANIUM-238	1.455	2.91	PCI/G
SC-18408-S	3/3/1998	URANIUM-238	1.97	3 94	PCI/G
SC-18409-S	3/3/1998	URANIUM-238	1.475	2.95	PCI/G
SC-18410-S	4/3/1998	URANIUM-238	1.965	3 93	PCI/G
SC-18411-S	4/3/1998	URANIUM-238	1.32	2 64	PCI/G
SC-18412-S	4/3/1998	URANIUM-238	1.86	3 72	PCI/G
SC-18413-S	3/3/1998	URANIUM-238	1.665	3 33	PCI/G
SC-18414-S	3/3/1998	URANIUM-238	1 53	1 75	PCI/G
SC-18415-S	3/3/1998	URANIUM-238	1.93	3.86	PCI/G
SC-18416-S	3/3/1998	URANIUM-238	1.335	2.67	PCI/G
SC-18417-S	4/3/1998	URANIUM-238	1.405	2 81	PCI/G
SC-18418-S	4/3/1998	URANIUM-238	2.225	4.45	PCI/G
SC-18419-S	3/3/1998	URANIUM-238	2.28	4 56	PCI/G
SC-18420-S	3/3/1998	URANIUM-238	1.565	3.13	PCI/G
SC-18421-S	3/3/1998	URANIUM-238	1 99	3 98	PCI/G
SC-18422-S	3/3/1998	URANIUM-238	1.585	3.17	PCI/G
SC-18423-S	4/1/1998	URANIUM-238	1.95	3 9	PCI/G
SC-18424-S	4/3/1998	URANIUM-238	1.62	2.58	PCI/G
SC-18501-S	10/27/1998	URANIUM-238	1 41	2 82	PCI/G
SC-18502-S	10/27/1998	URANIUM-238	2.005	4 01	PCI/G
SC-18503-S	3/3/1998	URANIUM-238	2.09	4.18	PCI/G
SC-18504-S	3/3/1998	URANIUM-238	1.35	2.7	PCI/G
SC-18506-S	1/29/1999	URANIUM-238	1.825	3.65	PCI/G
SC-18507-S	4/2/1998	URANIUM-238	1.345	2.69	PCI/G
SC-18508-S	4/1/1998	URANIUM-238	1.47	2 94	PCI/G
SC-18509-S	3/3/1998	URANIUM-238	1.755	3.51	PCI/G
SC-18510-S	3/3/1998	URANIUM-238	1 255	2 51	PCI/G
SC-18513-S	4/1/1998	URANIUM-238	2 67	2 37	PCI/G

APPENDIX B WP-437 RU18 FINAL DATA

WSSRAP_ID	DATE_SAM	PARAMETER	CONC	DL	UNITS
SC-18514-S	4/1/1998	URANIUM-238	1.85	3.7	PCI/G
SC-18515-S	4/1/1998	URANIUM-238	1.39	2.78	PCI/G
SC-18516-S	4/1/1998	URANIUM-238	1.32	2.64	PCI/G
SC-18518-S	4/1/1998	URANIUM-238	5.1	1.99	PCI/G
SC-18519-S	4/1/1998	URANIUM-238	1.825	3.65	PCI/G
SC-18520-S	4/1/1998	URANIUM-238	2.005	4.01	PCI/G
SC-18521-S	4/1/1998	URANIUM-238	2.08	2.24	PCI/G
SC-18601-S	4/1/1998	URANIUM-238	2.06	4.12	PCI/G
SC-18602-S	4/1/1998	URANIUM-238	1.78	2.03	PCI/G
SC-18603-S	4/1/1998	URANIUM-238	1.385	2.77	PCI/G
SC-18604-S	4/1/1998	URANIUM-238	1.8	3.6	PCI/G
SC-18605-S	4/1/1998	URANIUM-238	1.43	2.86	PCI/G
SC-18606-S	4/3/1998	URANIUM-238	2.2	4.4	PCI/G
SC-18607-S	4/1/1998	URANIUM-238	1.895	3.79	PCI/G
SC-18608-S	4/1/1998	URANIUM-238	1.62	1.77	PCI/G
SC-18609-S	4/1/1998	URANIUM-238	1.745	3.49	PCI/G
SC-18610-S	4/1/1998	URANIUM-238	1.27	2.54	PCI/G
SC-18611-S	4/1/1998	URANIUM-238	2.05	4.1	PCI/G
SC-18612-S	4/3/1998	URANIUM-238	1.8	2.51	PCI/G
SC-18613-S	4/1/1998	URANIUM-238	1.93	1.95	PCI/G
SC-18614-S	4/1/1998	URANIUM-238	1.93	3.86	PCI/G
SC-18615-S	4/1/1998	URANIUM-238	1.365	2.73	PCI/G
SC-18616-S	4/1/1998	URANIUM-238	1.875	3.75	PCI/G
SC-18617-S	4/1/1998	URANIUM-238	1.35	2.7	PCI/G
SC-18618-S	4/3/1998	URANIUM-238	1.89	3.78	PCI/G
SC-18619-S	4/1/1998	URANIUM-238	1.875	3.75	PCI/G
SC-18620-S	4/1/1998	URANIUM-238	2.1	4.2	PCI/G
SC-18621-S	3/16/1998	URANIUM-238	2.25	4.5	PCI/G
SC-18622-S	3/16/1998	URANIUM-238	2.75	2.51	PCI/G
SC-18701-S	3/16/1998	URANIUM-238	2.1	2.83	PCI/G
SC-18702-S	3/16/1998	URANIUM-238	2.105	4.21	PCI/G
SC-18703-S	3/16/1998	URANIUM-238	1.485	2.97	PCI/G
SC-18704-S	3/16/1998	URANIUM-238	3.36	3.54	PCI/G
SC-18705-S	3/16/1998	URANIUM-238	3.75	2	PCI/G
SC-18706-C	3/16/1998	URANIUM-238	2.085	4.17	PCI/G
SC-18706-S	3/16/1998	URANIUM-238	2.215	4.43	PCI/G
SC-18707-C	3/16/1998	URANIUM-238	2.215	4.43	PCI/G
SC-18708-S	3/16/1998	URANIUM-238	2.345	4.69	PCI/G
SC-18709-S	3/16/1998	URANIUM-238	1.4	2.8	PCI/G
SC-18710-S	3/16/1998	URANIUM-238	1.885	3.77	PCI/G
SC-18711-S	3/16/1998	URANIUM-238	1.475	2.95	PCI/G
SC-18712-C	3/16/1998	URANIUM-238	2.15	4.3	PCI/G
SC-18712-S	3/16/1998	URANIUM-238	1.4	2.8	PCI/G
SC-18716-S	3/16/1998	URANIUM-238	1.84	3.68	PCI/G
SC-18717-S	3/16/1998	URANIUM-238	1.85	3.7	PCI/G
SC-18718-S	3/16/1998	URANIUM-238	2.05	2.29	PCI/G
SC-18720-C	3/16/1998	URANIUM-238	1.37	2.74	PCI/G
SC-18721-S	3/16/1998	URANIUM-238	1.97	3.94	PCI/G

APPENDIX B WP-437 RU18 FINAL DATA

WSSRAP_ID	DATE_SAM	PARAMETER	CONC	DL	UNITS
SC-18722-S	3/16/1998	URANIUM-238	2.14	4.28	PCI/G
SC-18726-S	3/16/1998	URANIUM-238	1.32	2.64	PCI/G
SC-18803-S	3/17/1998	URANIUM-238	2.215	4.43	PCI/G
SC-18804-S	4/1/1998	URANIUM-238	1.445	2 89	PCI/G
SC-18805-S	4/1/1998	URANIUM-238	1.415	2.83	PCI/G
SC-18807-S	3/18/1998	URANIUM-238	1.925	3.85	PCI/G
SC-18808-S	3/17/1998	URANIUM-238	1.39	2.78	PCI/G
SC-18809-S	4/1/1998	URANIUM-238	2.16	4.32	PCI/G
SC-18810-S	4/1/1998	URANIUM-238	1.39	2 78	PCI/G
SC-18811-S	4/1/1998	URANIUM-238	1.76	3.52	PCI/G
SC-18812-S	4/1/1998	URANIUM-238	1.205	2.41	PCI/G
SC-18813-S	4/1/1998	URANIUM-238	1.395	2.79	PCI/G
SC-18816-S	3/17/1998	URANIUM-238	5.14	3.26	PCI/G
SC-18817-S	3/16/1998	URANIUM-238	4.05	1.89	PCI/G
SC-18818-S	3/16/1998	URANIUM-238	2.18	4 36	PCI/G
SC-18819-S	3/16/1998	URANIUM-238	1.395	2.79	PCI/G
SC-18820-S	3/16/1998	URANIUM-238	1.885	3 77	PCI/G
SC-18821-S	3/16/1998	URANIUM-238	3	1 98	PCI/G
SC-39601-U	3/10/2000	URANIUM-238	0 975	1.95	PCI/G
SC-39602-U	3/10/2000	URANIUM-238	1.13	2.26	PCI/G
SC-39603-U	3/10/2000	URANIUM-238	1.04	2 08	PCI/G
SC-39604-U	3/10/2000	URANIUM-238	1.135	2.27	PCI/G
SC-39605-U	3/10/2000	URANIUM-238	1 115	2 23	PCI/G
SC-39606-U	3/10/2000	URANIUM-238	1 095	2 19	PCI/G
SC-39607-U	3/10/2000	URANIUM-238	0.86	1 72	PCI/G
SC-39608-U	3/10/2000	URANIUM-238	1.085	2.17	PCI/G
SC-39609-U	3/10/2000	URANIUM-238	4.05	2 34	PCI/G
SC-39610-U	3/10/2000	URANIUM-238	1.05	2 1	PCI/G
SC-39611-U	3/10/2000	URANIUM-238	1.145	2 29	PCI/G
SC-39612-U	3/10/2000	URANIUM-238	1 115	2 23	PCI/G

APPENDIX C
RU018 Sample Location Coordinates

WP437 RU18 SAMPLE LOCATION COORDINATES

SAMPLE LOCATION	NORTHING	EASTING	ELEVATION
SC-17002-S	1044619.51	754717.31	645.96
SC-17003-S	1044603.43	754746.05	645.24
SC-17004-S	1044587.47	754774.57	645.02
SC-17005-S	1044571.41	754803.23	645.36
SC-17007-S	1044590.91	754701.28	642.26
SC-17008-S	1044574.82	754730.00	643.00
SC-17009-S	1044558.78	754758.65	643.23
SC-17010-S	1044542.74	754787.30	643.56
SC-17011-C	1044581.53	754684.45	641.80
SC-17012-S	1044562.27	754685.28	642.46
SC-17013-S	1044546.16	754714.11	643.25
SC-17014-S	1044530.18	754742.56	643.74
SC-17015-S	1044514.18	754771.19	644.46
SC-17017-S	1044533.62	754669.27	641.23
SC-17018-S	1044517.61	754697.86	639.77
SC-17019-S	1000501.55	754726.56	644.35
SC-17020-S	1044485.55	754755.11	644.65
SC-17021-C	1044524.29	754652.36	641.69
SC-17022-S	1044504.97	754653.33	642.09
SC-17023-S	1044488.95	754681.90	643.92
SC-17024-S	1044472.94	754710.52	644.33
SC-17025-S	1044456.91	754739.17	645.25
SC-17101-S	1044555.42	754831.76	645.86
SC-17102-S	1044539.35	754860.50	645.61
SC-17103-S	1044523.34	754889.11	645.16
SC-17104-S	1044507.30	754917.75	644.05
SC-17105-S	1044526.74	754815.88	643.73
SC-17106-S	1044510.76	754844.42	643.87
SC-17107-S	1044494.72	754873.05	643.79
SC-17108-S	1044478.63	754901.91	644.01
SC-17109-S	1044498.13	754799.83	644.33
SC-17110-S	1044482.09	754828.51	644.99
SC-17111-S	1044466 08	754857.10	644.38
SC-17112-S	1044450.05	754885.70	644.64
SC-17113-S	1044469.49	754783.88	644.89
SC-17114-S	1044453.50	754812.34	645.64
SC-17115-S	1044437.48	754840.98	645.81
SC-17116-S	1044421.43	754869.73	645.29
SC-17117-S	1044440.89	754767.70	645.46
SC-17118-S	1044424.87	754796.29	645.98
SC-17119-S	1044408.82	754825.03	646.39
SC-17120-S	1044392.81	754853.61	646.45
SC-17121-S	1044412.27	754751.68	645.48
SC-17122-S	1044396.23	754780.42	646.07
SC-17123-S	1044380.22	754809.01	646.70
SC-17124-S	1044364.19	754837.64	646.96
SC-17201-S	1044491.28	754946.38	643.13
SC-17202-S	1044475.28	754974.95	642.91
SC-17203-C	1044457.16	755021.38	645.21
SC-17103-S	1044459.24	755003.60	642.22
SC-17204-S	1044443.18	755032.30	641.30
SC-17205-C	1044426.10	755079.24	645.52
SC-17205-S	1044427.16	755060.92	641.63
SC-17206-S	1044411.13	755089.64	640.70
SC-17207-S	1044395.25	755118.22	639.84
SC-17208-S	1044462.68	754930.26	643.82
SC-17209-S	1044446.83	754958.22	643.49
SC-17210-S	1044430.63	754987.48	643.12
SC-17211-S	1044414.59	755016.19	642.61
SC-17212-S	1044398.55	755044.75	642.28
SC-17213-S	1044382.49	755073.34	641.44
SC-17214-C	1044377.11	755116.34	645.36
SC-17214-S	1044366.60	755102.14	640.43
SC-17215-S	1044434.03	754914.35	644.78

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SC-17216-S	1044418.00	754943.00	642.89
SC-17217-S	1044401.98	754971 51	643 92
SC-17218-S	1044385.96	755000.13	643 01
SC-17219-S	1044369.98	755028.92	642 57
SC-17220-S	1044353.95	755057.48	642 18
SC-17221-C	1044348.14	755101.05	646 14
SC-17221-S	1044337.80	755086 00	639 23
SC-17222-S	1044405.41	754898.35	644 77
SC-17223-S	1044389.39	754926 90	644 58
SC-17224-S	1044373.37	754955.56	643.81
SC-17225-S	1044357.34	754984 14	642.42
SC-17226-S	1044341.34	755012 83	642.69
SC-17227-S	1044325.21	755041.33	641 78
SC-17228-S	1044309.31	755070.06	639.50
SC-17301-S	1044376 78	754882.18	645.85
SC-17302-S	1044360 73	754910.69	644 47
SC-17303-S	1044344 77	754939 61	643 84
SC-17304-S	1044328.75	754968 20	643 38
SC-17305-S	1044312.67	754996 72	642.71
SC-17306-S	1044296 76	755025 45	641 24
SC-17307-S	1044280.63	755054 00	639 20
SC-17308-S	1044348 15	754866 19	646.25
SC-17309-S	1044332.12	754894 80	643 99
SC-17310-S	1044316 13	754923 52	644.43
SC-17311-S	1044300 17	754952 23	643.50
SC-17312-S	1044283 98	754980 64	642.63
SC-17313-S	1044268 08	755009 39	641.46
SC-17314-S	1044252 07	755038 01	639.44
SC-17315-S	1044319 57	754850 30	646.15
SC-17316-S	1044303.56	754878 94	644.43
SC-17317-S	1044287 41	754907.31	645.22
SC-17318-S	1044271.50	754936 12	644 04
SC-17319-S	1044255 31	754964 55	643.08
SC-17320-S	1044239 16	754993 11	641.72
SC-17321-S	1044223 44	755021.97	638.60
SC-17402-S	1044476.35	754637 30	642 31
SC-17403-S	1044460 36	754665 80	643 73
SC-17404-S	1044444 33	754694 29	644 04
SC-17405-S	1044428.28	754723 09	644 78
SC-17407-S	1044447 72	754621 40	640 92
SC-17408-S	1044431.73	754650.01	643 12
SC-17409-S	1044415 70	754678.58	643 50
SC-17410-S	1044399 66	754706.84	644 86
SC-17411-S	1044383.64	754735 53	644 51
SC-17412-S	1044367.62	754764.35	645 74
SC-17413-S	1044351.59	754792 96	646 84
SC-17414-S	1044335.55	754821 50	647 50
SC-17416-S	1044419.12	754605 14	641 35
SC-17417-S	1044403.09	754633.88	643 18
SC-17418-S	1044387.08	754662.65	643.88
SC-17419-S	1044371.05	754691 17	644 79
SC-17420-S	1044355.01	754719.67	644.94
SC-17421-S	1044339.00	754748 35	646 23
SC-17422-S	1044322.95	754776 90	646.85
SC-17423-S	1044306.99	754805 71	647 18
SC-17501-C	1044409.83	754588 04	643.20
SC-17502-S	1044390.46	754589 08	641.32
SC-17503-S	1044374 47	754617 76	643 06
SC-17504-S	1044358.44	754646 39	643 41
SC-17506-S	1044361.88	754573 00	641 13
SC-17507-S	1044345.83	754601 83	642 41
SC-17508-S	1044329 79	754630 32	642 18
SC-17509-C	1044352 56	754555 96	643.83
SC-17510-S	1044333.24	754557 25	640 97
SC-17511-S	1044285 08	754642 63	643 51

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SC-17512-S	1044301.16	754614.18	642.29
SC-17514-S	1044304.60	754540.93	640.21
SC-17515-S	1044288.57	754569.57	642.45
SC-17516-S	1044272.58	754598.32	642.77
SC-17517-C	1044295.30	754523.73	647.28
SC-17518-S	1044275.97	754524.88	645.81
SC-17519-S	1044259.98	754553.73	641.80
SC-17520-S	1044243.88	754582.13	642.61
SC-17522-S	1044247.37	754509.05	643.08
SC-17523-S	1044231.32	754537.60	639.82
SC-17524-S	1044215.40	754566.41	641.90
SC-17601-S	1044342.39	754674.83	644.33
SC-17602-S	1044326.36	754703.54	645.05
SC-17603-S	1044310.35	754732.24	645.62
SC-17604-S	1044294.28	754760.66	646.39
SC-17605-S	1044278.35	754789.58	646.77
SC-17606-S	1044313.78	754658.89	644.03
SC-17607-S	1044297.78	754687.66	644.48
SC-17608-S	1044281.71	754716.16	645.25
SC-17609-S	1044265.69	754744.82	645.87
SC-17610-S	1044249.67	754773.43	646.42
SC-17611-S	1044285.08	754642.63	643.51
SC-17612-S	1044269.02	754671.21	643.54
SC-17613-S	1044253.10	754700.17	644.55
SC-17614-S	1044237.04	754728.70	645.73
SC-17615-S	1044221.17	754757.71	645.72
SC-17616-S	1044256.57	754627.05	643.18
SC-17617-S	1044250.50	754655.55	643.85
SC-17618-S	1044224.38	754683.97	644.44
SC-17619-S	1044208.50	754712.86	644.67
SC-17620-S	1044192.35	754741.28	644.87
SC-17701-S	1044290.87	754834.07	646.80
SC-17702-S	1044274.86	754862.74	645.34
SC-17703-S	1044258.79	754891.35	644.70
SC-17704-S	1044242.67	754919.84	643.52
SC-17705-S	1044262.19	754817.96	646.39
SC-17706-S	1044246.35	754846.93	645.19
SC-17707-S	1044230.23	754875.39	643.92
SC-17708-S	1044214.05	754903.83	643.47
SC-17709-S	1044233.65	754802.10	645.64
SC-17710-S	1044217.68	754830.82	644.24
SC-17711-S	1044201.60	754859.37	644.10
SC-17712-S	1044185.53	754887.94	643.39
SC-17713-S	1044205.02	754786.09	645.44
SC-17714-S	1044189.08	754814.80	644.27
SC-17715-S	1044173.01	754843.39	643.66
SC-17716-S	1044156.86	754871.88	643.16
SC-17717-S	1044176.37	754770.00	644.11
SC-17718-S	1044160.41	754798.74	644.00
SC-17719-S	1044144.57	754827.55	643.30
SC-17720-S	1044128.34	754855.95	642.31
SC-17801-S	1044226.80	754948.65	643.10
SC-17802-S	1044210.77	754977.29	641.71
SC-17803-C	1044203.21	755024.54	646.35
SC-17803-S	1044194.66	755005.87	637.83
SC-17804-S	1044197.99	754932.47	642.87
SC-17805-S	1044182.15	754961.26	641.78
SC-17806-C	1044174.36	755009.30	646.63
SC-17806-S	1044166.08	754989.88	637.61
SC-17807-S	1044169.48	754916.56	642.88
SC-17808-S	1044153.39	754945.15	641.80
SC-17809-S	1044137.39	754973.80	638.21
SC-17810-S	1044140.81	754900.50	642.34
SC-17811-S	1044125.00	754929.30	641.49
SC-17812-C	1044115.83	754978.41	645.95

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SC-17812-S	1044109.03	754957 94	639.22
SC-17813-S	1044112 42	754884.66	641 90
SC-17814-S	1044095.87	754912.92	641.45
SC-17815-S	1044080 15	754941.75	639.38
SC-17816-S	1044083.45	754868 37	640 93
SC-17817-S	1044067.65	754897 18	641 45
SC-17818-C	1044058.02	754947 87	646.75
SC-17818-S	1044051.68	754925 81	640 72
SC-17819-S	1044055.33	754852 74	641.63
SC-17820-S	1044038.67	754880.91	640.44
SC-17821-S	1044023.11	754909 82	639.19
SC-17822-S	1044007 10	754938 45	649.95
SC-17901-S	1044163.50	754725 26	644 67
SC-17902-S	1044147.41	754753.83	643 17
SC-17903-S	1044131.88	754782.71	643 78
SC-17904-S	1044115 70	754811 27	642.61
SC-17905-S	1044099 65	754839.84	641.72
SC-17906-S	1044134 99	754709.29	644 49
SC-17907-S	1044119.45	754738.16	644 72
SC-17908-S	1044103 17	754766.65	643 57
SC-17909-S	1044086.89	754795 11	641 31
SC-17910-S	1044070.89	754823.73	641 63
SC-17911-S	1044106.40	754693 27	644 11
SC-17912-S	1044090.35	754721 87	644 86
SC-17913-S	1044074.64	754750.68	644 37
SC-17914-S	1044058.56	754779.30	642.23
SC-17915-S	1044042 70	754808 07	641.49
SC-17916-S	1044077 81	754677 26	643.64
SC-17917-S	1044061.53	754705 77	644 18
SC-17918-S	1044045.90	754734 59	644 05
SC-17919-S	1044029.85	754763 21	642 51
SC-17920-S	1044013 96	754791.94	641 15
SC-18001-S	1044227 90	754610 95	642 55
SC-18002-S	1044211 91	754639 51	642 97
SC-18003-S	1044195.68	754668 08	643 62
SC-18004-S	1044179 40	754696 60	643 65
SC-18005-S	1044199 78	754594.93	642 83
SC-18006-S	1044182 95	754623 43	643 12
SC-18007-S	1044167 09	754652 06	643 52
SC-18008-S	1044150.83	754680.62	643 74
SC-18011-S	1044202.47	754521 57	645 99
SC-18012-S	1044186.23	754550 17	638.86
SC-18013-S	1044170.90	75578 85	642.52
SC-18014-S	1044154.60	754607 45	643 66
SC-18015-S	1044138 87	754636 16	643 95
SC-18016-S	1044122 41	754664 66	644 01
SC-18018-S	1044173.82	754505 55	643 54
SC-18019-S	1044158.16	754534 19	645 25
SC-18020-S	1044142 16	754562.83	641 95
SC-18021-S	1044126.23	754591.44	642 82
SC-18022-S	1044109 59	754619 96	643 35
SC-18023-S	1044093.75	754648 63	643 87
SC-18102-C	1044151.87	754513.93	643.82
SC-18103-S	1044129.39	754518 16	642.63
SC-18104-S	1044113.59	754544 32	645 70
SC-18105-S	1044097 27	754575.40	641 11
SC-18106-S	1044081 49	754604 03	641 23
SC-18108-S	1044100 77	75402 11	639 02
SC-18109-S	1044084.75	754530 75	640 16
SC-18110-S	1044068.60	754559 35	638 24
SC-18111-S	1044052.96	754588 04	639 49
SC-18114-C	1044078.61	754511 90	638 31
SC-18114-S-RS	1044056.62	754514 59	635.27
SC-18115-S-RS	1044040 39	754543 30	632 17
SC-18116-S-RS	1044024 49	754571 96	636 28

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SC-18119-S	1044011.35	754527.31	633.55
SC-18120-S	1043995.55	754555.95	640.78
SC-18122-S	1043982.80	754511.30	633.31
SC-18123-S	1043966.88	754539.93	635.06
SC-18124-S	1043930.41	754541.44	636.14
SC-18126-S	1043938.29	754523.89	635.57
SC-18127-S	1043953.43	754562.62	634.41
SC-18201-S	1044065.12	754632.60	642.42
SC-18202-S	1044049.32	754661.29	642.75
SC-18203-S	1044033.12	754689.83	642.96
SC-18204-S	1044017.17	754718.50	643.33
SC-18205-S	1044037.01	754616.72	640.15
SC-18206-S	1044021.00	754645.39	641.42
SC-18207-S	104404.51	754673.82	641.67
SC-18208-S	1043988.54	754702.48	641.99
SC-18209-S	1044008.20	754600.64	629.74
SC-18210-S	1043992.04	754629.23	639.66
SC-18211-S	1043976.07	754657.88	639.90
SC-18212-S	1043960.50	754686.81	641.36
SC-18213-S	1043979.24	754584.63	637.00
SC-18214-S	1043963.18	754613.34	639.02
SC-18215-S	1043947.37	754641.82	640.86
SC-18216-S	1043931.49	754670.39	640.92
SC-18217-S	1043951.04	754568.58	642.64
SC-18218-S	1043934.60	754597.11	637.09
SC-18219-S	1043918.73	754625.79	634.78
SC-18220-S	1043903.10	754654.42	640.05
SC-18301-S	1044026.45	754836.51	641.31
SC-18302-S	1044010.45	754865.18	639.73
SC-18303-S	1043994.46	754893.85	638.68
SC-18304-S	1043978.01	754921.89	647.91
SC-18305-S	1043997.84	754820.50	641.16
SC-18306-S	1043981.50	754848.79	640.40
SC-18307-S	1043965.48	754877.90	637 74
SC-18308-S	1043949.59	754906.16	647.13
SC-18309-S	1044001.40	754747.04	642.63
SC-18310-S	1043985.19	754775.80	641.61
SC-18311-S	1043969.21	754804.37	640.17
SC-18312-S	1043953.16	754833.04	639.36
SC-18313-S	1043937.28	754861.51	636.84
SC-18314-S	1043921.03	754890.33	646.32
SC-18315-S	1043972.50	754731.20	641.94
SC-18316-S	1043956.66	754759.70	641.15
SC-18317-S	1043940.16	754787.99	640.25
SC-18318-S	1043924.40	754816.91	638.96
SC-18319-S	1043908.44	754845.57	638.34
SC-18320-S	1043892.45	754874.27	646.67*
SC-18321-S	1043944.02	754715.15	641.02
SC-18322-S	1043928.03	754743.83	642.00
SC-18323-S	1043911.95	754772.41	636.53
SC-18324-S	1043896.00	754800.76	639.58
SC-18325-S	1043879.96	754829.36	638.33
SC-18326-S	1043864.00	754857.91	645.51
SC-18401-S	1043915.32	754699.07	635.16
SC-18402-S	1043899.47	754727.77	641.09
SC-18403-S	1043883.34	754756.06	640.41
SC-18404-S	1043867.32	754784.82	639.64
SC-18405-S	1043851.43	754813.15	638.12
SC-18406-S	1043835.17	754842.27	645.30
SC-18407-S	1043886.56	754682.98	640.44
SC-18408-S	1043870.62	754711.69	640.52
SC-18409-S	1043854.50	754740.23	639.87
SC-18410-S	1043838.65	754768.92	639.59
SC-18411-S	1043822.73	754797.20	638.37
SC-18412-S	1043806.51	754826.40	646.59

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SC-18413-S	1043857.99	754667.00	639 76
SC-18414-S	1043842.04	754695.67	639.91
SC-18415-S	1043825.89	754724.23	639.54
SC-18416-S	1043810.03	754752.80	638 93
SC-18417-S	1043794.06	754781 30	638.13
SC-18418-S	1043777 94	754810 16	646.48
SC-18419-S	1043829.41	754650 99	639.19
SC-18420-S	1043813.36	754679 63	639.40
SC-18421-S	1043797.34	754708 23	639.45
SC-18422-S	1043781.33	754737.05	638.50
SC-18423-S	1043765.34	754765.39	639.83
SC-18424-S	1043749.42	754793.80	645 82
SC-18501-S	1043922 19	754552.53	636.15
SC-18502-S	104396.02	754581 11	637.08
SC-18503-S	1043889.98	754609.74	638.41
SC-18504-S	1043874.15	754638.43	639.22
SC-18506-S	1043909.45	754507.87	633.86
SC-18507-S	1043893.55	754536.48	630 64
SC-18508-S	1043877.50	754565.18	635.80
SC-18509-S	1043861.34	754593 76	638 31
SC-18510-S	1043845.44	754622.38	638 88
SC-18513-S	1043864.92	754520 49	633.82
SC-18514-S	1043848.91	754549 07	634.36
SC-18515-S	1043832.85	754577 81	635.03
SC-18516-S	1043816.86	754606 30	636 21
SC-18518-S	1043836.29	754504.45	632 55
SC-18519-S	1043820.27	754533.07	634.27
SC-18520-S	1043804.26	754561 77	634.07
SC-18521-S	1043788.23	754590 36	635.19
SC-18522-S	1043916.51	754563 10	633.71
SC-18523-S	1043945.31	754568 06	631.38
SC-18601-S	1043800.80	754635 09	637.36
SC-18602-S	1043784.80	754663.54	640.78
SC-18603-S	1043768 77	754692.17	640.42
SC-18604-S	1043752 77	754721 03	636 02
SC-18605-S	1043736.71	754749.47	638 69
SC-18606-S	1043720 57	754778.52	644 25
SC-18607-S	1043772.23	754619 04	629 20
SC-18608-S	1043756.17	754647 70	627 96
SC-18609-S	1043740.13	754676.16	626.64
SC-18610-S	1043724.18	754704.99	626.32
SC-18611-S	1043708.14	754733.51	634 49
SC-18612-S	1043692.09	754761 98	643 19
SC-18613-S	1043743.64	754603 10	626 02
SC-18614-S	1043727.51	754631.50	624 32
SC-18615-S	1043711.56	754660 24	625 01
SC-18616-S	1043695.74	754689.21	625.82
SC-18617-S	1043679.47	754717 44	633 08
SC-18618-S	1043663.40	754746.23	641 98
SC-18619-S	1043650.82	754701.40	634 60
SC-18620-S	1043634.80	754730 06	639.61
SC-18621-S	1043622.20	754685.38	638.38
SC-18622-S	1043606.13	754714.08	644.61
SC-18701-S	1043673.71	754526 20	637.85
SC-18702-S	1046357.69	754554.89	639.51
SC-18703-S	1043641 66	754583.46	640 60
SC-18704-S	1043625.61	754612.00	641 79
SC-18705-S	1043609.61	754640.73	642.59
SC-18706-C	1043605.51	754688 99	643.27
SC-18706-S	1043593 60	754669.40	642.60
SC-18707-C	1043666 93	754509 70	635.17
SC-18708-S	1043645 10	754510.33	635.29
SC-18709-S	1043629 07	754538 91	637 16
SC-18710-S	1043613 04	754567 48	638 67
SC-18711-S	1043596 97	754595 95	640 00

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SC-18712-C	1043590.74	754645.66	640.94
SC-18712-S	1043580.95	754624.63	641.69
SC-18716-S	1043600.43	754522.78	638.14
SC-18717-S	1043584.37	754551.35	640.16
SC-18718-S	1043568.34	754579.95	642.80
SC-18720-C	1043593.25	754508.15	636.54
SC-18721-S	1043571.82	754506.88	638.08
SC-18722-S	1043555.74	754535.28	640.47
SC-18726-S	1043527.43	754519.54	641.24
SC-18803-S	1043791.64	754517.00	634.47
SC-18804-S	1043775.64	754545.75	638.75
SC-18805-S	1043759.63	754574.41	637.32
SC-18807-S	1043762.96	754500.78	632.33
SC-18808-S	1043747.06	754529.83	636.97
SC-18809-S	1043731.01	754558.37	639.38
SC-18810-S	1043714.89	754586.80	628.31
SC-18811-S	1043698.95	754615.62	623.80
SC-18812-S	1043682.90	754644.18	624.43
SC-18813-S	1043666.80	754672.70	624.80
SC-18816-S	1043718.27	754514.10	634.63
SC-18817-S	1043702.39	754542.44	639.43
SC-18818-S	1043686.32	754570.83	633.17
SC-18819-S	1043670.28	754599.45	631.35
SC-18820-S	1043654.25	754628.04	632.06
SC-18821-S	1043638.25	754656.80	633 12
SC-39601-U	1043909.66	754568.24	641.70
SC-39602-U	1043879.86	754580.61	645.26
SC-39603-U	1043850.24	754594.15	649.02
SC-39604-U	1043820.29	754605.42	652.49
SC-39605-U	1043787.16	754611.22	654.75
SC-39606-U	1043759.97	754614.19	659.03
SC-39607-U	1043901.69	754528.21	638.52
SC-39608-U	1043872.01	754543.47	640.06
SC-39609-U-RS	1043841.92	754555.18	644.56*
SC-39610-U	1043812.63	754567.56	650.61
SC-39611-U	1043782.83	754577.80	655.00
SC-39612-U	1043750.28	754583.21	661.12

* approximate elevation as determined by as-built topo