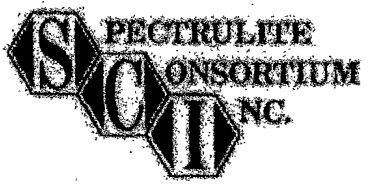
FINAL RADIOLOGICAL CHARACTERIZATION REPORT ON THE SPECTRULITE CONSORTIUM INC. MADISON, IL FACILITY



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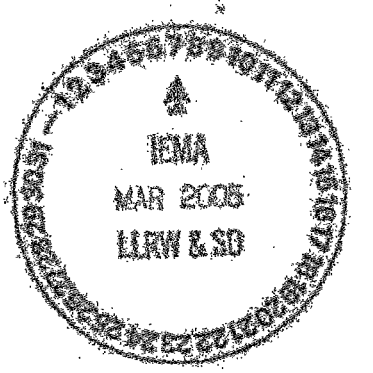

Radiological Characterization Report for the Spectrulite Consortium Inc. Madison, IL Facility

FINAL

March 2005

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Summary of Changes

This *Project Closure Report* is a final version. Any changed sections of future versions will be identified in the text.

Addendum Number	Date	Comments
Draft Version	02/03/2005	New Document
Revision 0, Final	03/04/2005	Format updated, additional maps added to Appendix D

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DOCUMENT TITLE:

Radiological Characterization Report for the Spectrulite Consortium Inc. Madison, IL Facility

FINAL

March 2005

APPROVALS

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1. Introduction and Purpose

This document provides the results of the radiological characterization of the Spectrulite Consortium Inc. (SCI) facility located in Madison, Illinois. Characterization of the facility was performed in accordance with the Final Radiological Characterization Survey Plan for the Spectrulite Consortium Inc. Madison, IL Facility (Ref 1), which was submitted to the IEMA, Nuclear Safety Division on April 30th, 2004.

The goal of the characterization effort was to provide an accurate evaluation of the radiological status of the SCI facility. The results of the measurements and sampling data have been used to evaluate the residual radiological contamination with respect to the Decontamination Guidelines contained in Illinois Administrative Code Title 32, Chapter II, Section 340, Appendix A (Ref.2), hereafter referred to as "decontamination guidelines". These decontamination guidelines have been included in this report as Appendix A.

This radiological investigation methodology used during the characterization effort was based on two primary guidance documents:

1. NUREG-1575, Multi-Agency Radiation Survey and Site Investigation Manual, (MARSSIM), Rev. 1, August 2000 (Ref. 3).
2. Draft NUREG/CR-5849, Manual for Conducting Radiological Surveys in Support of License Termination, June 1992 (Ref. 4).

The characterization effort was conducted in support of SCI's intention to terminate its Radioactive Materials License, number IL-01750-01. This report identifies radiologically impacted areas of the facility that will require remediation and/or further evaluation prior to the eventual termination of SCI's Radioactive Material's license.

2. Site History

The SCI site consists of a large, multi-sectional complex of ten interconnecting buildings with a total under-roof surface area of approximately 1.4 million square feet (32 acres). The plant is located at 1001 College Street on an 81-acre parcel of land located near the intersection of College and Weaver Streets in Madison, Illinois. SCI is the current owner of the buildings and property described above. In August 2003 Magnesium Elektron, Inc. (MEL) took ownership of the production operations at the facility. MEL is currently engaged in magnesium production activities at the site; however SCI retains ownership of the buildings and is the entity with responsibility for the radioactive materials license. A vicinity map is provided in Figure 1-1 and a site map is provided in Figure 1-2. Figure 1-2 includes building designation numbers for facilities at the site.

The U.S. War Services Administration originally constructed the facilities in the early 1940's for production of steel tank turrets to support WWII operations. Steel manufacturing operations ceased in 1945, at the conclusion of the war. Dow Chemical Company subsequently purchased the plant in 1951 and operated the facilities for the manufacture of aluminum and magnesium products until 1969, at which time the facilities were sold on a lease-purchase agreement to

another firm. During the operation of the facility by Dow Chemical, a thorium-based hardener was used in magnesium alloys under a U.S. Atomic Energy Commission (AEC) license that dated from January 1, 1958.

During the late 1950s and early 1960s, the facility was also used for extrusion of uranium metal and straightening of extruded uranium rods for the AEC, predecessor of the current U.S. Department of Energy (DOE). Dow Chemical Company conducted this work under subcontract to the Uranium Division of the Mallinckrodt Chemical Works.

Remediation of uranium contamination was completed in 2000 under the Formerly Utilized Site Remedial Action Program (FUSRAP). The cleanup involved removal of residual contaminated dust from overhead beams that exceeded 20 pCi/g total uranium. Further, a limit of 300 pCi/g total uranium was established for difficult-to-access overhead surfaces.

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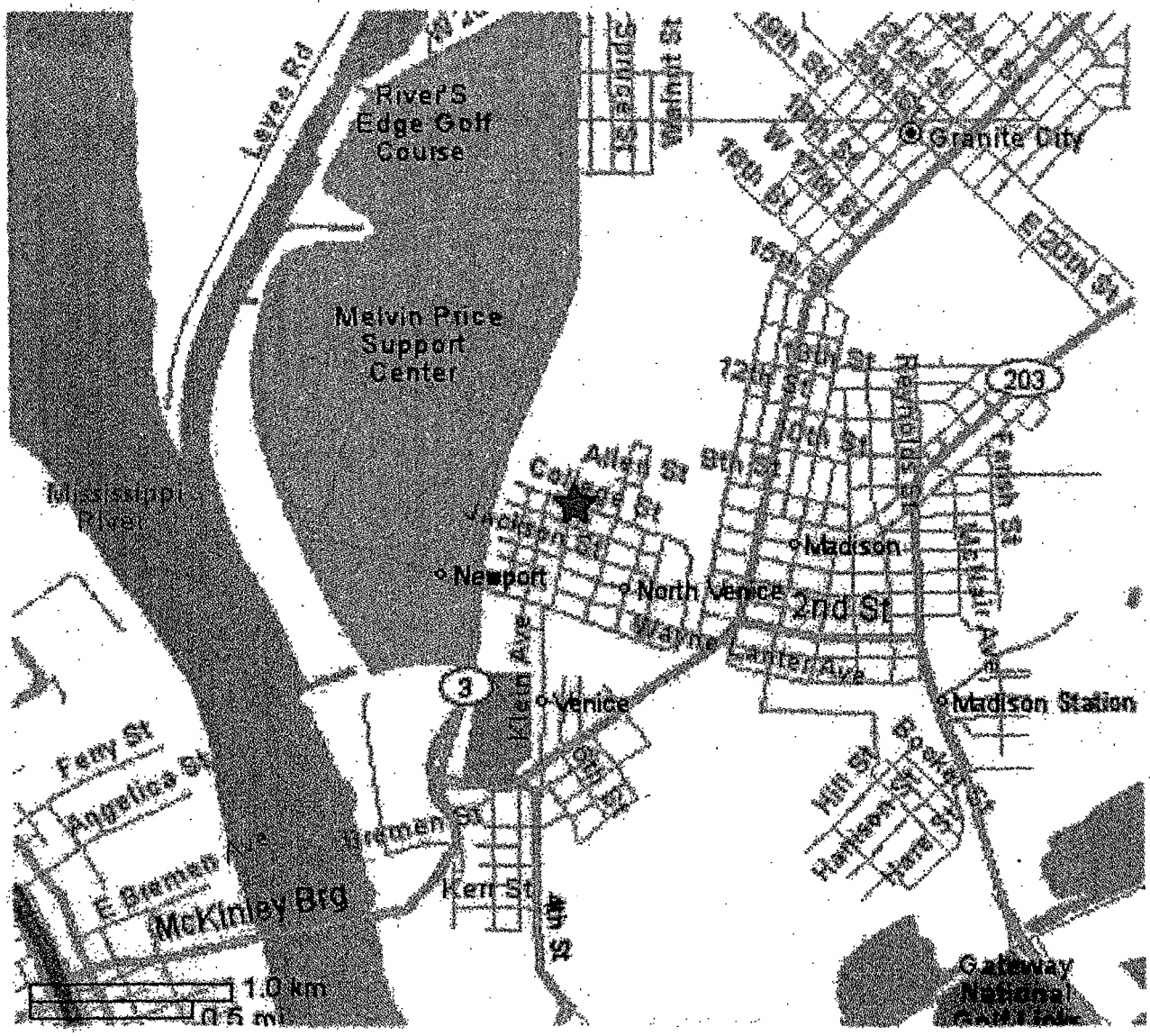

Figure 2-1
Vicinity Map

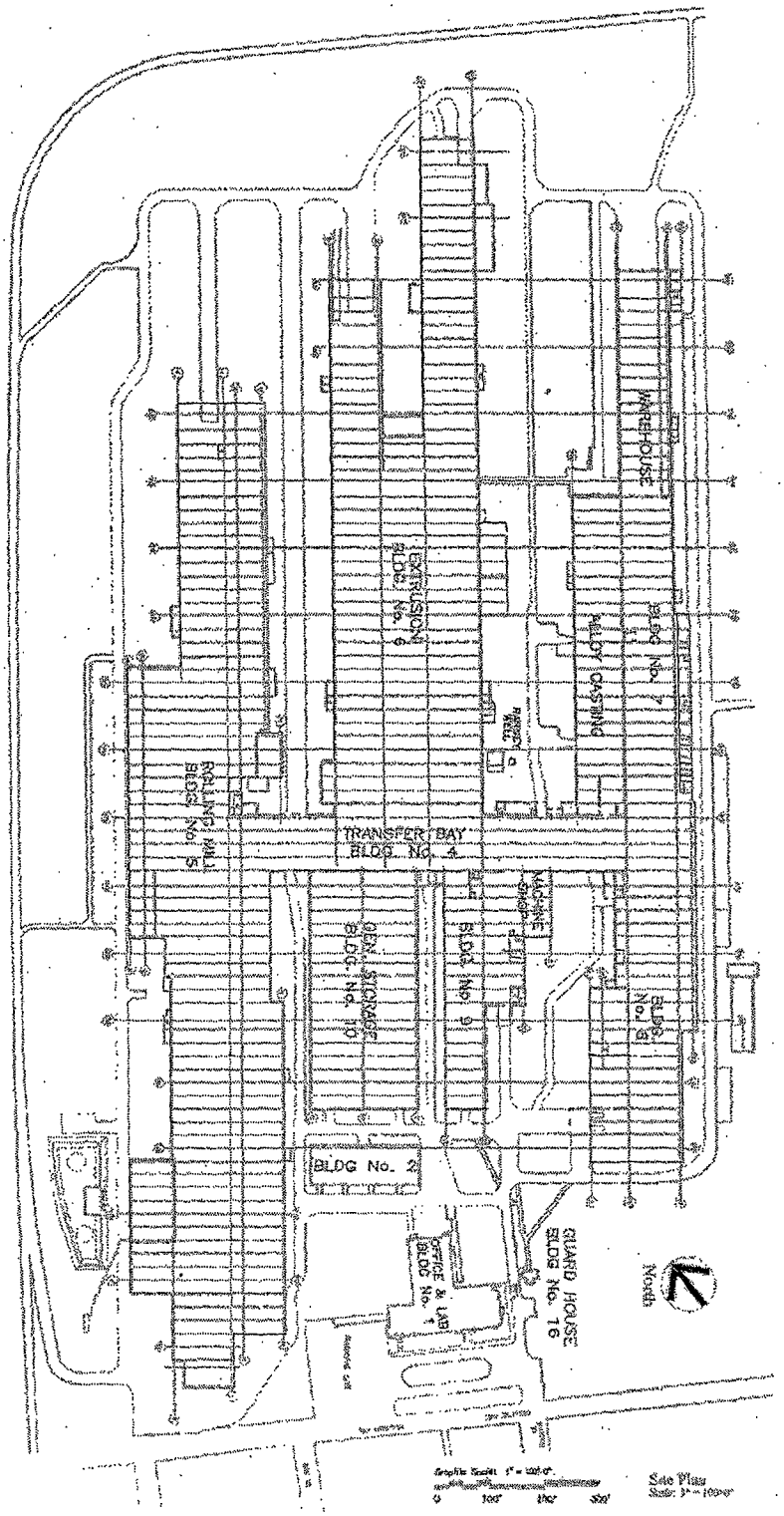

Figure 2-2
Facility Map

3. Prior Radiological Investigations

The SCI facility has been the subject of various radiological characterization efforts in the past. The results of the prior characterization activities are provided in the.

- 1998 Stan A. Huber Consultants, Inc. –Investigated Building 7 Dross Storage Room after removal of leaking barrels. Soil sampling immediately adjacent or room yields soil samples with 4.6 pCi/g or less. The report states that the elevated exposure readings (20 – 50 uR/hr in the Building 7 Casting Area) are attributable to naturally occurring radionuclides in the brick.

- 1989 Oak Ridge National Laboratory (DOE) – Investigated floor and overhead beams of Building 6 for uranium contamination. Uranium content up to 360 pCi/g. Thorium 232 up to 7 pCi/g. (Ref 5)

- 2000 USACE – Remedial Investigation of Building 6, continuation of 1989 study under the FUSRAP. Gamma Exposure rates considered to be representative of normal levels. (Ref 6)

- 2003 – Pangea Inc. conducted a *Radiological Scoping Survey Report, Rev. 0* dated July 2003 (Ref. 7)

- 2004 – Prior to beginning the characterization effort, Pangea Inc. conducted sampling of an example piece of the Mg-Th product. The sampling yielded 15.2 pCi/g of Th-232 and 152 pCi/g of Th-230. Activity levels of Th-232 daughter products were 1-2 orders of magnitude above those of Th-232. The results of this sampling have been included as Appendix D.

A summary of the conclusions from the latter (Scoping Survey) report is provided below.

1. Elevated removable contamination and gamma flux rates were noted on the floors and walls of the Thorium Dross Storage Room located in Building 7.

2. Gamma flux rates of up to five times background were observed near soils from the "wash-out" area. Several pieces of Mg-Th product were identified from gamma flux monitoring.

3. Isolated areas that exhibited significantly elevated gamma count rates that were found to be attributable to the presence of items containing or manufactured from Mg-Th metal. These items have been subsequently collected and consolidated into a Mg-Th storage area in Building 6.

4. Gamma walkover surveys conducted on the floor surfaces within the buildings indicated elevated gamma count rates in isolated locations, particularly where refractory brick was present, in Buildings 5 and 7. The gamma count rates associated with refractory brick were typically in the range of 25,000 cpm, as compared to typical indoor background count rates of approximately 4,000 to 7,000 cpm. This gamma fluence rate equates to an estimated exposure rate of approximately 30 μR/hr on contact, which is well below the Illinois Decontamination Guidelines, which identify a gamma dose rate limit of 250

μR/hr at 1 cm. It was determined that further investigations would be necessary to evaluate the impact of the naturally occurring radionuclides in the refractory brick and to verify that the presence of radioactivity in those areas is not associated with previous Mg-Th operations.

5. All direct alpha measurements were found to be well below the surface contamination guideline levels (1000 dpm/100 cm2 average and 5000 dpm/100cm2 maximum) identified in the Illinois Decontamination Guidelines. Removable alpha activity measurements were also shown to be below the State criteria of 33 dpm/100cm2 (average) and 100 dpm/100cm2 (maximum), except in the dross storage room located in Building 5, where the maximum removable alpha activity was 264 dpm/100cm2.

6. One hundred percent of the dust samples collected from the overhead beams in Buildings 4, 7 and 8 indicated the Th-232 concentration were less than 5 pCi/g above background. In Building 5, however, eight of the ten of the dust samples collected from the overhead beams contained Th-232 at concentrations above 5 pCi/g. The presence of higher contamination levels may be attributable to the fact that cutting operations of Mg-Th alloys previously took place within this building.

7. The sampling conducted on the overhead beams did not evaluate the total surface activity per unit area. Additional sampling was therefore required to determine surface activity levels in comparison to the Illinois Decontamination Guidelines.

8. Soil sampling indicated that a typical background soil concentration is approximately 1 pCi/g Th-232. Sampling results also indicated that Th-232 concentrations are present at the site in concentrations that exceed the State of Illinois Decontamination Guidelines. The primary area of contamination is located adjacent to and west of Building 7. The highest Th-232 soil concentration, approximately 1200 pCi/g, was measured in this area. A smaller area of contamination is located west of Building 5.

4. Building Interior Survey Methods and Results

The characterization of the Madison, IL facilities was focused on two main areas of interest, i.e., characterization of building interiors and characterization of exterior (soil contamination) areas. This section describes the methodologies used in the characterization of the internal areas, and the results of that investigation. Interior surveys included static measurements of alpha and beta radioactivity on floor and wall areas, scanning of floor areas and collection of debris/dust scraping from the overhead beams. Characterization of external areas is discussed in Section 5 of this report.

4.1 Classification of Building Interior Areas

As described in Characterization Survey Plan (Ref 1), areas to be investigated were separated into survey units using the protocol suggested by MARSSIM. All Survey Units were subjected to at least 30 direct alpha/beta measurements in static locations determined by using a triangular distribution with a randomized starting point. If alpha activity levels of any static scan were

determined to be higher than 100 dpm/100 cm^2, the area was subject to additional survey for removable activity via cloth smears. Class 1 and 2 Survey Units were subject to a scan with either a gas flow proportional counter or a ZnS based Scintillator probe sensitive to alpha and beta emissions. Scan rates were sufficiently slow to allow minimum detectable activities (MDAs) of no more than 200 dpm/100 cm2, or 20% of the applicable decontamination guidelines of 1000 dpm/1000 cm2. (Ref 2).

Two areas were determined to meet the Class 1 criteria, i.e. "Areas that have, or had prior to remediation, a potential for radioactive contamination (based on site operating history) or known contamination (based on previous radiation surveys) above the [cleanup limit]". The two areas, The Non-destructive Testing room in Building 8 and the Dross Storage Room in Building 7, were each treated as a single survey unit and subjected to a 100% scan. Both survey units included walls and ceilings (up to 8 feet) and contained less than 100 m^2 of surface area.

Two areas were determined to meet the Class 2 criteria, i.e. "Areas that have, or had prior to remediation, a potential for radioactive contamination, but are not expected to exceed the [cleanup limit]". The two areas, Building 5 and the Building 7 Casting Area, were separated into forty-two (42) Class 2 survey units consisting on no more than 1000 m^2 of surface area. All of the floors within the Class 2 survey units were subject to 10% scans. Due to the height of the ceilings and horizontal construction members and the high density of the wastes derived from cutting and shearing operations, there is little reason to suspect significant adherence to vertical surfaces. Therefore, no walls or ceilings were included within the Class 2 survey units.

4.2 Building Interior Static Measurement Results

Static surveys were conducted using a Ludlum 43-93 alpha/beta scintillation probe. Instruments were response checked before use and daily backgrounds were generated using five selected non-impacted areas in Building 9. These same five background generation areas were used throughout the characterization effort. Example response check and background generation records have been included in Appendix E.

4.2.1 Building 5 Static Survey Results

Building 5 was separated into thirty-seven (37) Class 2 Units for radiological survey. All static measurements, both fixed and removable, were found to be below the alpha decontamination guidelines of 1000 dpm/100 cm^2 and the beta decontamination guidelines of 1200 dpm/100 cm^2. Results of all static surveys have been included as Appendix B. Maps of the 37 Class 2 survey units have been included as Figure 4-1, *Building 5 Southern Survey Units* and Figure 4-2, *Building 5 Northern Survey Units*. The concept of "Plant North" was used in the design of all building interior survey units, to simplify recording of results and the replication of figures. The coordinate system used at the SCI plant has been replicated within the Class 2 survey units to simplify demarcations and because most of the support columns used in the plant's construction are spaced at 25-foot intervals, forming a natural grid. Grids lines running from the south to the north (plant north) are numbered, while the grid lines running from west to east are lettered. Table 4-1, *Building 5 Static Survey Results*, has been included to show the size of the individual survey units and their maximum measured activity levels.

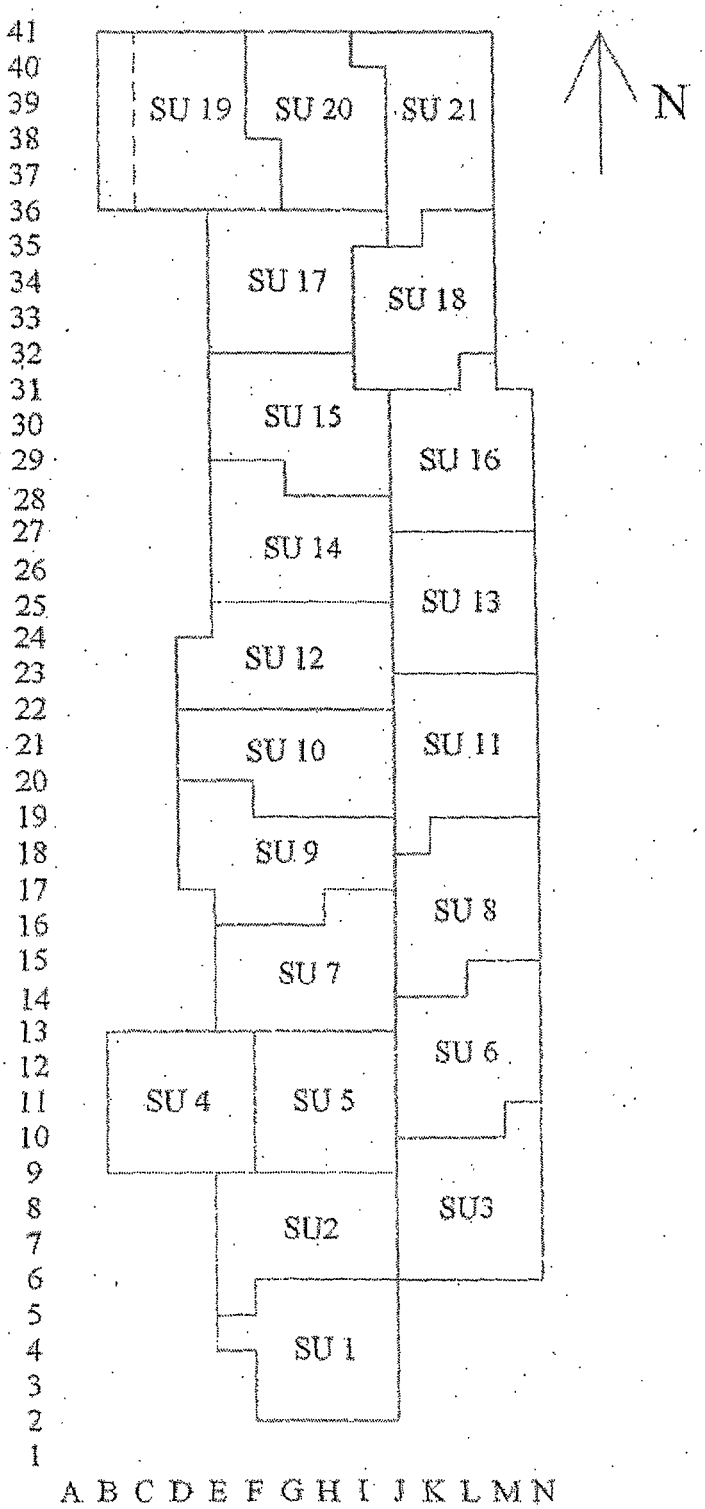

Figure 4-1
Building 5 Southern Survey Units

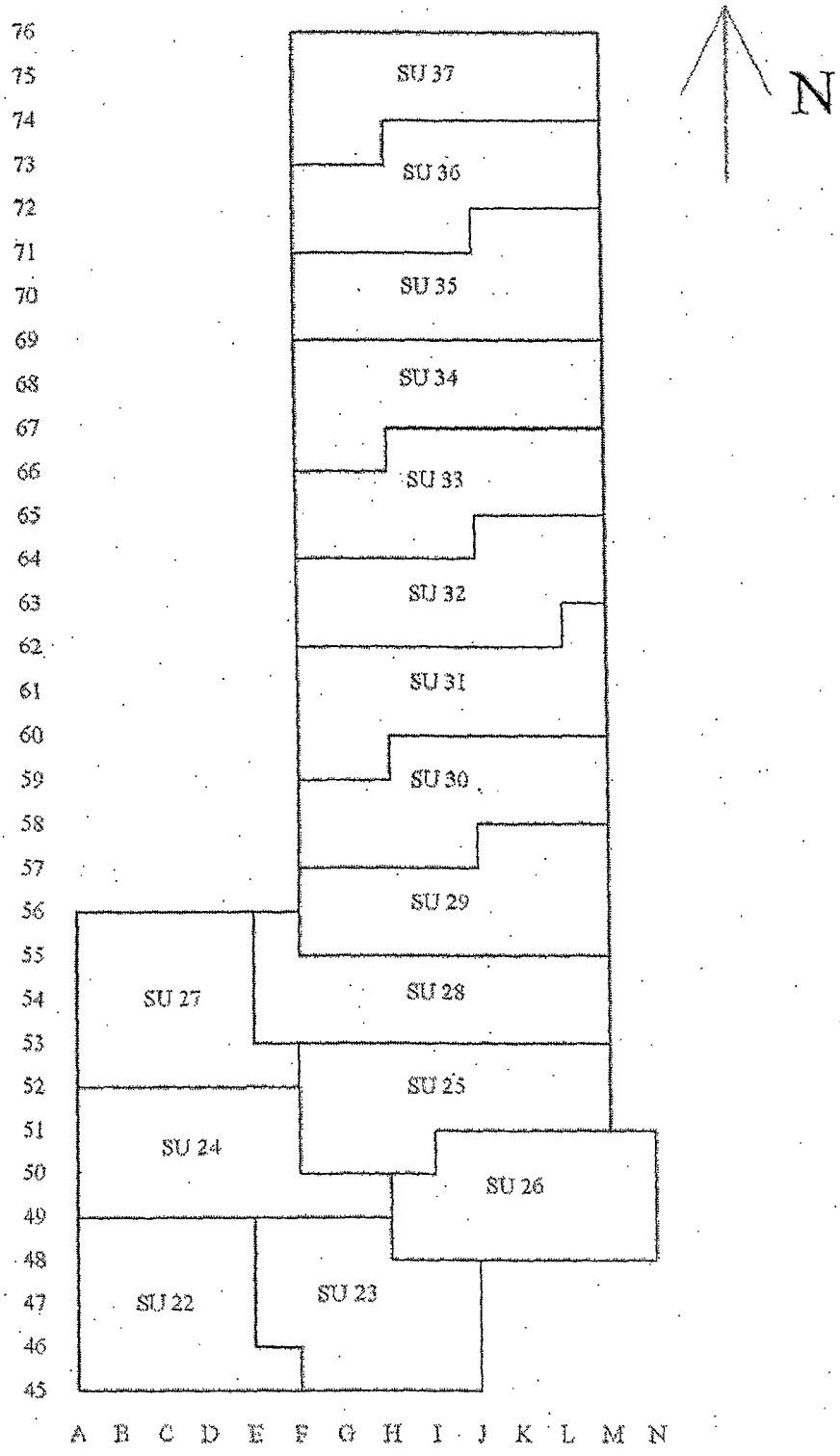

Figure 4-2
Building 5 Northern Survey Units

Survey Unit	Surface Area (m^2)	Maximum Activity (dpm/100cm^2)	
		Alpha	Beta
SU 1	987	43	135
SU 2	929	49	168
SU 3	987	81	210
SU 4	929	63	99
SU 5	929	52	201
SU 6	987	52	429
SU 7	987	79	363
SU 8	987	212	639
SU 9	987	120	270
SU 10	929	63	303
SU 11	987	110	369
SU 12	987	85	684
SU 13	929	85	228
SU 14	987	50	501
SU 15	987	39	387
SU 16	987	31	273
SU 17	987	60	273
SU 18	987	50	588
SU 19	987	84	138

Survey Unit	Surface Area (m^2)	Maximum Activity (dpm/100cm^2)	
		Alpha	Beta
SU 20	987	100	189
SU 21	987	78	333
SU 22	987	127	357
SU 23	987	62	144
SU 24	987	99	192
SU 25	987	531	84
SU 26	987	77	90
SU 27	987	104	279
SU 28	987	131	210
SU 29	987	43	270
SU 30	929	76	189
SU 31	987	65	150
SU 32	929	421	522
SU 33	929	54	165
SU 34	929	227	126
SU 35	987	32	111
SU 36	929	32	78
SU 37	929	27	135

Table 4-1
Building 5 Static Survey Results

4.2.2 Building 7 Static Survey Results

Building 7 contained 6 survey units, five (5) Class 2 survey units in the Casting Area, and one (1) Class 1 survey unit in the Dross Storage Room. Maps of the five Class 2 survey units have been included as Figure 4-3, *Building 7 Casting Area Survey Units*. While multiple beta/gamma measurements were found to be elevated (above background), all static measurements taken in the Class 2 survey units were found to have activity levels below decontamination guidelines. Static measurements taken on refractory brick show considerable difference between measured beta/gamma and alpha activity levels.

Multiple static measurements taken in the Dross Storage Room Class 1 area (SU 44) were found to exceed decontamination guidelines. Contamination levels were found to be highest on the floor, exceeding the decontamination guidelines by an order of magnitude. Measurements on the west, north, and south walls were also found to exceed decontamination guidelines. Table 4-2, *Building 7 Static Survey Results*, has been included to show the size of the individual survey units and their maximum measured activity levels.

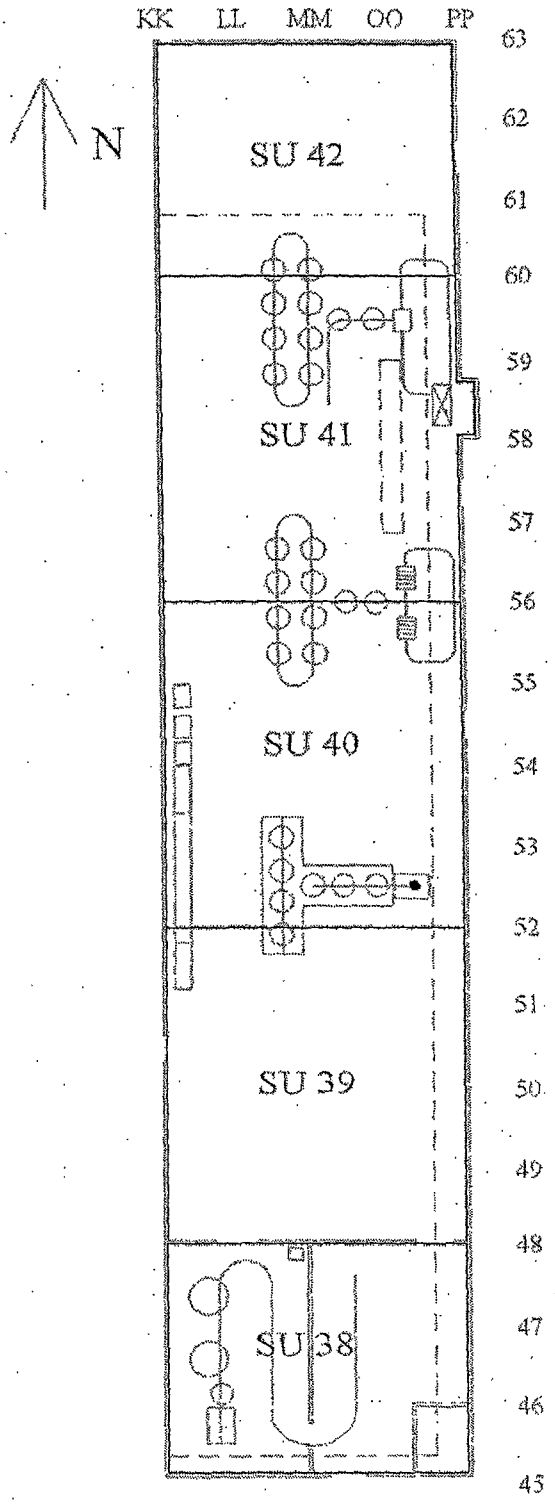

Figure 4-3
Building 7 Casting Area Survey Units

Survey Unit	Surface Area (m^2)	Maximum Activity ($dpm/100cm^2$)	
		Alpha	Beta
SU 38	554	48	1548
SU 39	779	22	1413
SU 40	852	81	1251

Survey Unit	Surface Area (m^2)	Maximum Activity ($dpm/100cm^2$)	
		Alpha	Beta
SU 41	836	53	1047
SU 42	586	53	1206
SU 44	52	2705	5484

Table 4-2
Building 7 Static Survey Results

4.2.3 Building 8 Static Survey Results

Building 8 Contained one (1) Class 1 survey unit, the Non-Destructive Testing (NDT) Room. All static measurements taken in the NDT room were found to be below the decontamination guidelines. The highest measured levels within the NDT room (SU 43) were 50 dpm/100 cm2 of alpha activity and 492 dpm/100 cm^2 of beta activity.

4.2.4 Static Survey Quality Control Results

Approximately 11% of all static survey results were duplicated to ensure quality control goals were met. The average absolute difference for alpha measurements was 25%. The maximum absolute difference for alpha measurements was 157%, which is calculated as a difference of 54 dpm/100 cm^2. The average absolute difference for beta measurements was 7%. The maximum absolute difference for beta measurements was 36%, which is calculated as a difference of 225 dpm/100 cm^2.

4.3 Scanning Survey Results

Scanning surveys were conducted using a Ludlum 43-37 gas flow proportional detector that can detect both alpha and beta radiation for floors and a 43-37 or 43-93 alpha/beta scintillation probe for walls. The 43-37 was allowed to purge for no less than 60 minutes before use. Instruments were response checked before use and daily backgrounds were generated using five selected non-impacted areas in Building 9. The 43-37 was used in two configurations: 1) as part of horizontally mounted, cart-based system, and 2) as an independent probe for scanning wall sections. If a wall section was inaccessible due to the size of the 43-37 probe or the limitations of the gas delivery system, an α/β scintillator was used. At least 10% of all scanning survey results were duplicated to ensure quality control goals were met.

4.3.1 Building 5 Floor Scan Results

All survey units within Building 5 were classified as Class 2 survey units, and were subjected to survey of at least 10% of the floor area. Table 4-3, *Building 5 Static Survey Results*, has been

included to show the size of the individual survey units and their maximum measured activity levels.

Survey Unit	Surface Area (m^2)	Maximum Activity ($dpm/100cm^2$)
SU 1	987	292
SU 2	929	402
SU 3	987	259
SU 4	929	317
SU 5	929	343
SU 6	987	486
SU 7	987	422
SU 8	987	1504
SU 9	987	486
SU 10	929	446
SU 11	987	388
SU 12	987	536
SU 13	929	512
SU 14	987	438
SU 15	987	409
SU 16	987	539
SU 17	987	365
SU 18	987	409
SU 19	987	469

Survey Unit	Surface Area (m^2)	Maximum Activity ($dpm/100cm^2$)
SU 20	987	483
SU 21	987	333
SU 22	987	383
SU 23	987	321
SU 24	987	513
SU 25	987	291
SU 26	987	303
SU 27	987	281
SU 28	987	385
SU 29	987	301
SU 30	929	261
SU 31	987	611
SU 32	929	1133
SU 33	929	223
SU 34	929	287
SU 35	987	299
SU 36	929	251
SU 37	929	215

Table 4-3
Building 5 Scanning Survey Results

In thirty-six (36) of 37 survey units, all scanning measurements were below the decontamination guideline of 1000 dpm/100 cm^2 established for alpha surface activity. Results of the scanning surveys have been included as Appendix C. Only two survey units, SU 8 and SU 32, were found to exhibit activity above 1000 dpm/100 cm^2. An annealing oven in SU 8 contains refractory brick that impacted the measurements in a localized area around the oven. The remainder of SU 8 exhibits more typical (near or at background) activity levels. Static measurements near the oven exhibit elevated activity levels, but all measurements were below decontamination guidelines.

SU 32 was the former location of a pickling line, which had been removed from the site prior to the characterization effort. Elevated activity was found in only one location in SU34, a drain. The drain in question is located near the western wall of Building 5, approximately twenty (20) feet from an area of elevated activity outside of Building 5. The area west of Building 5 was the subject of gamma walkover surveys and soil sampling discussed in Section 5 of this report.

4.3.2 Building 7 Floor Scan Results

The six (6) Class 2 survey units in the Building 7 Casting Area were subject to a scanning survey that encompassed 10% of the surface area. The results of the scanning surveys of Building 7 show elevated (above background) activity levels in most of the Class 2 survey units. Elevated activity level measurements within the Building 7 Casting Area are believed to be directly attributable to the naturally occurring radioisotopes found in the refractory brick that forms much of the area's flooring. Both the isotopic analysis of the refractory bricks and the disparity between alpha and beta activity levels found in the static measurements support this hypothesis. Further discussion of the composition of the refractory brick can be found in Section 4.4 of this report.

As a Class 1 survey unit, the Dross Storage Room (SU 44) was subject to a 100% survey. Measurements taken during the survey of the SU 44 indicate activity levels above decontamination guidelines. Table 4-4, *Building 7 Scanning Survey Results*, has been included to show the size of the individual survey units and their maximum measured activity levels.

Survey Unit	Surface Area (m^2)	Maximum Activity (dpm/100cm^2)
SU 38	554	1663
SU 39	799	1707
SU 40	852	1153

Survey Unit	Surface Area (m^2)	Maximum Activity (dpm/100cm^2)
SU 41	836	1137
SU 42	586	908
SU 44	52	35,879

Table 4-4
Building 7 Scanning Survey Results

4.3.3 Building 8 Scanning Survey Results

As a class 1 survey unit, the Non-destruction Testing (NDT) Room (SU 43) was subject to a scanning survey that encompasses 100% of the surface area of the room. While some measurements indicated elevated activity (above background), all measurements taken in the NDT Room were found to be below the decontamination guidelines. The highest measured activity level within the NDT Room (SU 43) was a beta emission of 1163 dpm/100 cm^2.

4.4 Rafter Sampling

Results of the 2003 Scoping Survey indicate elevated activity in dust found on the overhead beams (rafters) of Building 5. However, the methodology used in 2003 Scoping Survey did not quantify surface activity levels. In an attempt to address that issue, all rafter samples collected during this characterization effort were taken from a uniform area size, a 5" x 5" (161 cm^2) square. The uniformity of sample area did not result in uniform sample mass, however, as the amount of materials settled onto the rafters varied greatly from building to building. The smallest sample was 2.4 grams (Building 4) and the largest sample was 576 grams (Building 7 Casting Area). Table 4-5 has been included to show the average sample weight, and average

activity concentrations. Prior to sample collection, the samples areas were surveyed with a Ludlum 43-93 alpha/beta scintillator. The samples were then containerized and sent to the lab for analysis for gross alpha/beta activity. The results of the lab analysis indicate activity levels above applicable surface decontamination guidelines for both alpha and beta emissions. The activity concentrations measured via gross alpha/beta analysis are, on average, significantly higher that the earlier activity concentrations measured by the 2003 scoping survey via isotopic Thorium analysis. The gamma spectroscopy analysis indicates that the activity contribution of Thorium 232 and its daughter products is variable and in some samples accounts for as low as 25% of the total activity measured via the gross alpha/beta analysis. Due to the low activity contribution of Thorium to the activity levels measured, application of the decontamination guidelines to the gross alpha/beta results may not be appropriate. Complete results of the Rafter Sampling, including results of the direct alpha/beta survey, have been included in Appendix F.

Sampling Area	Average Sample Mass (g)	Average Gross Alpha Activity Concentration (pCi/g)	Average Gross Beta Activity Concentration (pCi/g)	Average Alpha Surface Activity Levels (dpm / 100 cm²)	Average Beta Surface Activity Levels (dpm / 100 cm²)
B4	153	57.7	33.3	12,100	7000
B5	61	19.5	21.3	1600	1800
B6	142	21.8	24.2	4200	4700
B7	239	33.9	31.7	11,100	10,400
B7 Casting	432	32.5	39.7	19,200	23,400
B8	307	16.2	25.9	6800	10,900

Table 4-5
Average Rafter Sampling Results

4.5 Refractory Brick Sampling

Refractory bricks can be found in several buildings of the SCI facility, most notably in the Building 7 Casting Area, the heat treatment oven of Building 5, and in the storage areas of Building 4. During the scoping survey of 2003, it was noted that elevated activity measurements in several areas were likely due to naturally occurring radiation emitted by nearby refractory bricks. As a part of this characterization effort, a representative sampling of the refractory bricks found on site were sent to the lab for analysis. Four types of refractory bricks were found in the SCI Facility: 1) New Flat Rectangular Bricks, 2) Used Brick from the Building 7 Casting Area, 3) Excess Oven Bricks from Building 5 and 10, and 4) Interlocking Oven Bricks from Building 5. All the samples collected were visibly free of product, and none evidenced elevated removable activity. The refractory brick samples were subjected to gamma spectroscopy and isotopic thorium laboratory analysis. Results of the sampling (in pCi/g) have been included as Table 4-6, *Refractory Brick Sampling Results* and Table 4-7, *Refractory Brick Isotopic Summary*. Lab analysis indicates that the refractory bricks contain elevated levels of radioactive isotopes, mostly from the Thorium-232 and Uranium-238 decay chains. The levels of activity indicated would be sufficient to register as elevated beta or gamma activity on any radiological survey performed in an area that contained or was near refractory bricks. In areas where the flooring is

made of refractory bricks, such as the Building 7 Casting Area, the background activity levels would be much higher than in areas where these materials are not present.

Brick Type	Sample Number	Ac 228	Bi 212	Bi 214	Pb 210	Pb 212	Pb 214	K 40
1	SCI-RB-N-FR	3.6		2.90	4.3	2.95	3.32	
2	SCI-RB-V-C	2.14		1.59		3.16	1.75	9.5
3	SCI-RB-V-B5B10	2.32	0.7	1.73		2.25	1.68	7.5
4	SCI-RB-INTER-B5	3.4	2.0	2.61		3.92	2.49	6.7
Brick Type	Sample Number	Ra 228	Tl 208	Th 228	Th 230	Th 232	Th 234	U 238
1	SCI-RB-N-FR	3.58	0.95	3.79	3.63	3.58		
2	SCI-RB-V-C	2.14	1.18	2.70	1.73	2.14		
3	SCI-RB-V-B5B10	2.32	0.78	1.84	1.54	2.32		
4	SCI-RB-INTER-B5	3.42	1.01	3.68	3.51	3.42	4.53	4.53

Table 4-6
Refractory Brick Sampling Results

Brick Type	Sample Number	Total Activity Concentration	Th-232 + Daughters Activity Contribution	Percent Contribution
1	SCI-RB-N-FR	32.6	18.45	57%
2	SCI-RB-V-C	28.03	13.46	48%
3	SCI-RB-V-B5B10	24.98	12.53	50%
4	SCI-RB-INTER-B5	45.22	20.85	46%

Table 4-7
Refractory Brick Isotopic Summary

5. Building Exterior Characterization Methods and Results

Based on the results of the Scoping Survey, two exterior areas were identified that exhibited elevated radioactivity. The first area is located North of Building 4 bound by the west wall of Building 7 and the east Building 6. The second, a much smaller area, is located directly west of the location of a former pickling operation inside Building 5. Using the data obtained during gamma walkover surveys, the areas were classified for further investigation per the MARSSIM protocol. The large area north of Building 4 was separated into five (5) Class 1 survey units, and one (1) Class 2 survey unit. The area west of Building 5 was determined to meet the Class 1 criteria, and was small enough to require only one survey unit. The location of the two areas has been indicated in Figure 5-1, *Locations of Exterior Survey Units*.

5.1 Gamma Walkover Methodology

Gamma walkover surveys were performed using a Ludlum 44-10 2" x 2" NaI detector tasked to a Ludlum 2221 meter. Whenever possible, the data from the gamma walkover surveys was captured using a Trimble XT handheld GPS/datalogger. The GPS/datalogger made it possible to record measurements once per second with both sensor data and location. During post-

processing, the data was used to create detailed activity level maps to aid in the evaluation of areas for characterization and eventual remediation. The activity level map of the area north of Building 4 has been included as Figure 5-3, *Gamma Walkover Survey Measurements.*

GPS-based walkover survey methods are capable of providing excellent information about he spatial distribution of contamination in a survey area; however, such systems rely on signals from a network of constantly moving satellites. As such, there are limitations in close proximity to tall structures, causing decreased accuracy, or even entirely disabling the ability of GPS system to determine position. In those portions of the outdoor survey unit areas where the GPS signal was not reliable, data was recorded manually.

5.2 Gamma Walkover Survey Results

Gamma walkover surveys of the area north of Building 4 were performed using the GPS data-logging methodology described above. While activity levels near the "pot wash" area in the southeast portion of this area were above the decontamination guidelines, most of the locations exhibited activity levels at or near background. Two potential hot spots were located outside of the "pot wash" area along the roadway to the north. These elevated activity levels required separating most of the area into five (SU 1 - 5) Class 1 survey units. The remainder of the area was captured in a Class 2 survey unit, SU 6. A figure showing the setup of the survey units has been included as Figure 5-2, *Location of Survey Units 1 -6.* A figure showing the results of the GPS walkover survey has been included as Figure 5-3, *Gamma Walkover Survey Measurements.* Color temperature indicates activity levels. Greens indicate background or near background activity levels, yellow indicates levels at least 1.5 times background, orange indicates levels at least 3 times background, and red indicates levels greater than 5 times background.

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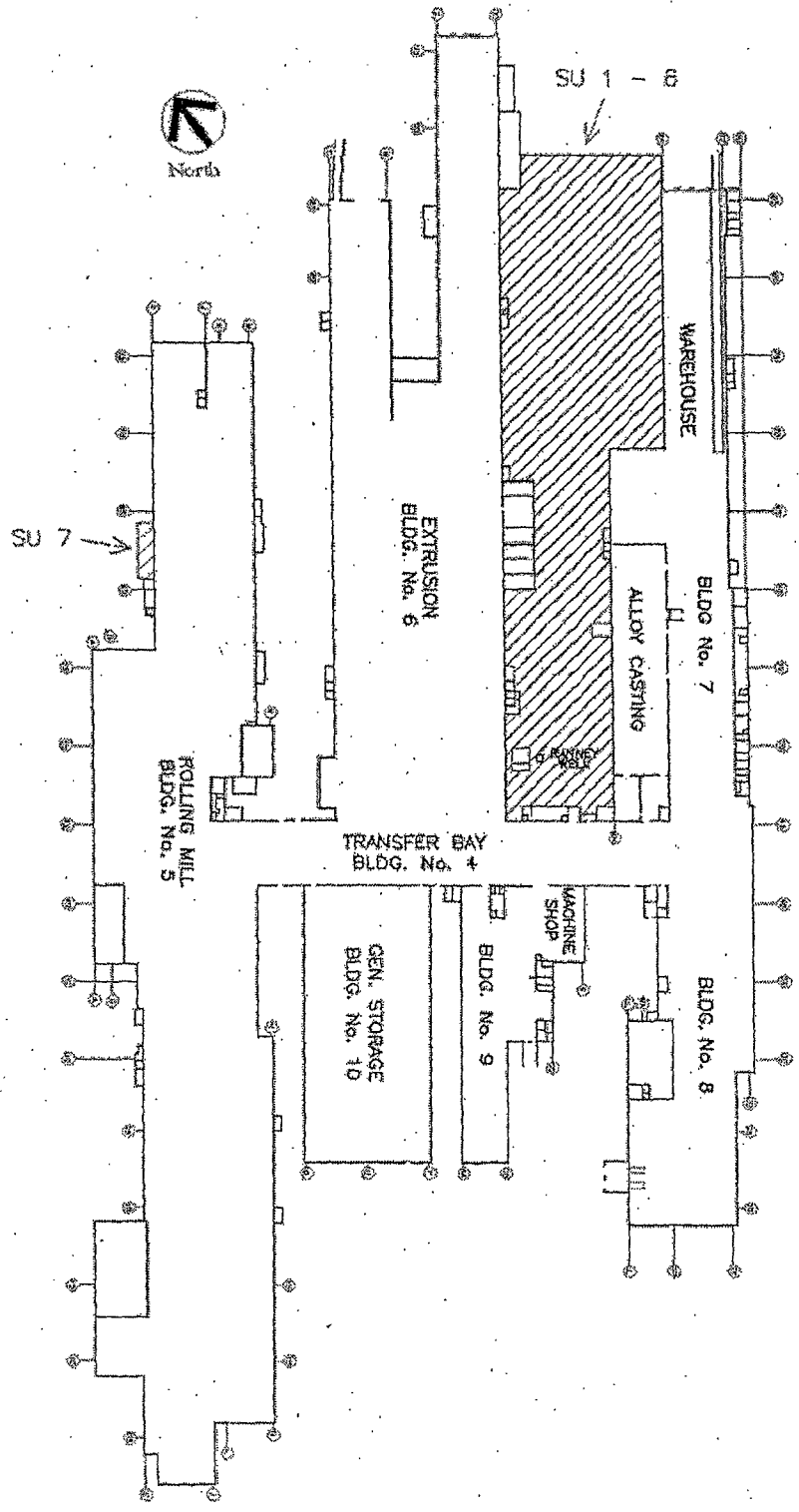


Figure 5-1
Locations of Exterior Survey Units

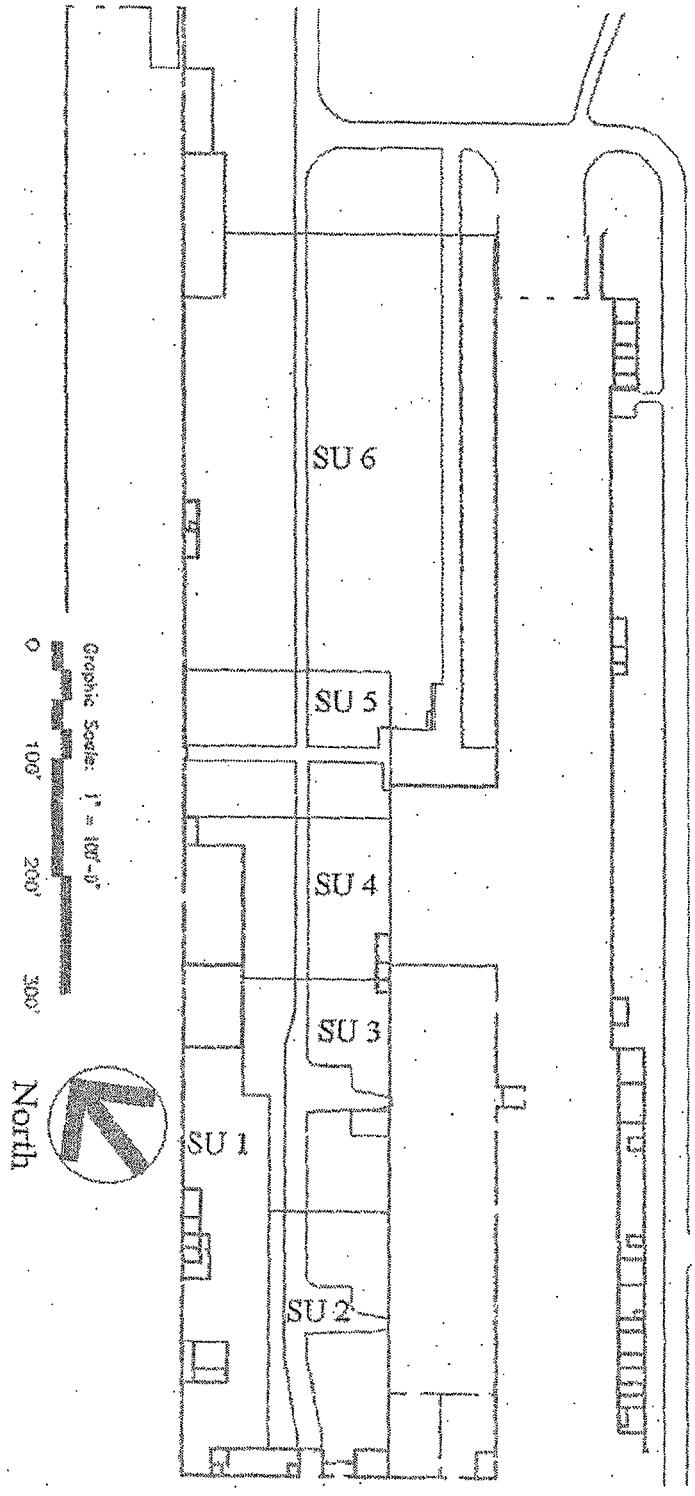
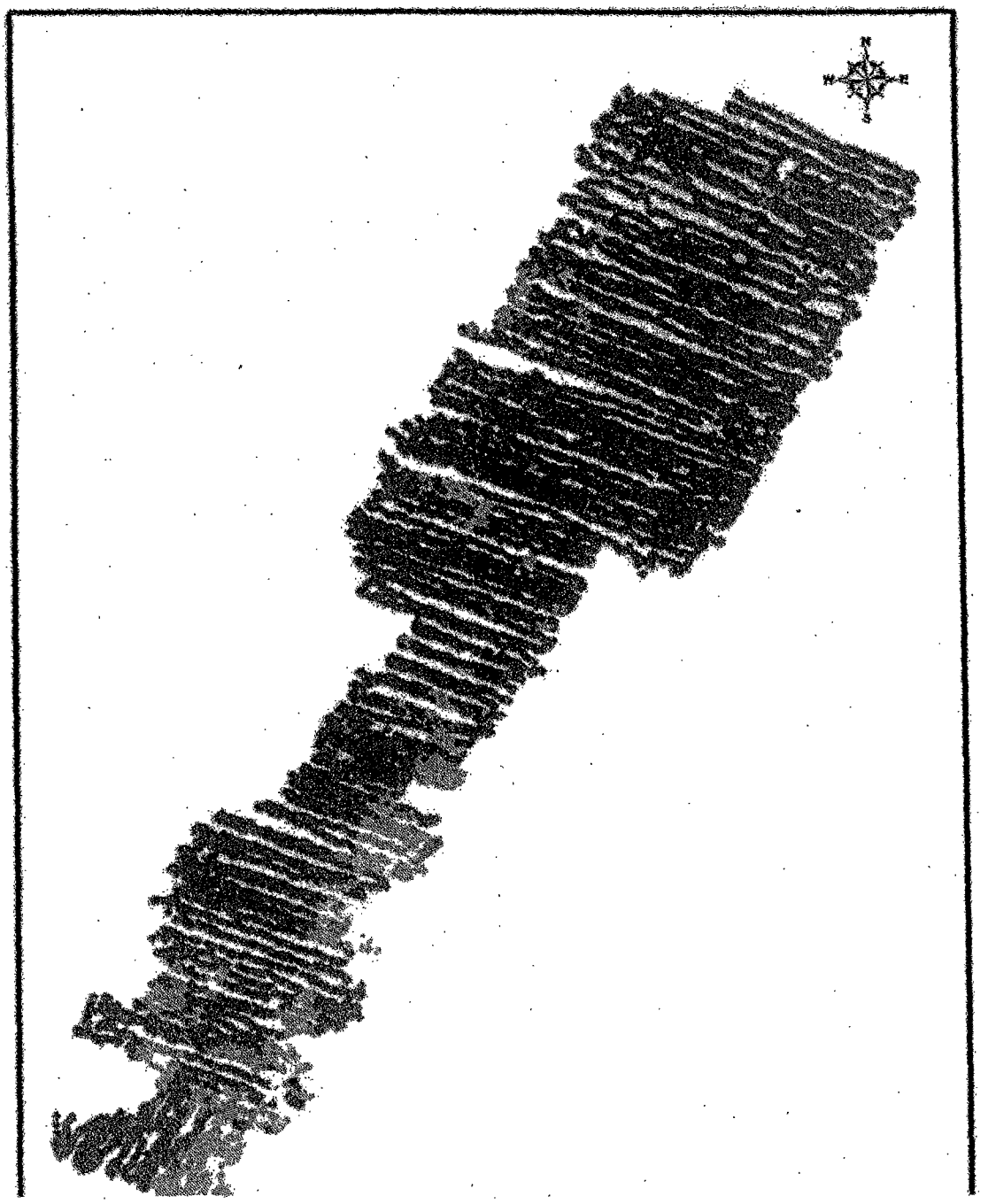


Figure 5-2
Location of Survey Units 1 -6


N
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The gamma walkover survey of the area west of building 5 (SU 7) was completed without using the GPS walkover methodology. Due to the proximity of the contaminated soils to the western wall of Building 5 (approximately 8.5 feet), satellite signals were masked preventing the use of the GPS datalogger. The gamma walkover survey was performed manually, and indicated that the only area of elevated activity was that of a hot spot located during the 2003 scoping survey. The position of the elevated activity levels in SU 7 is very near that of drain with elevated activity level inside of Building 5 (SU 32). The elevated activity levels in SU 7 would appear to be directly related to the pickling line formerly located in Building 5.

5.3 Soil Sampling Methods and Results

Sampling was accomplished using a truck mounted, direct-push, soil sampling rig driving two-inch wide, four foot long (2" x 48") macrocores. The soil captured within the polyester tubes was measured and split into eight (8) sections to correspond to the six-inch (6") intervals that were necessarily compressed within the core sample. The core sections were then homogenized and screened using a Ludlum 44-9 Geiger-Mueller detector. The first two samples from every core, corresponding to the top twelve inches (12"), were sent to the lab for analysis, along with any samples that evidenced activity levels at or higher than twice background. In addition, any samples "above" the elevated sample were sent to lab along with the sample directly below the elevated sample. Every tenth sample was split to ensure that quality control goals were met. Soil colors and types were logged, and all samples were archived for later retrieval.

Soil sampling locations were initially laid out using a triangular pattern without bias to utilities or the limitations of sampling equipment. The individual positions were then adjusted to allow for sample acquisition. Underground utilities servicing Buildings 4, 5, and 6 are extensive and any future sampling or remediation efforts should account for the profusion of buried lines.

Results of the sampling have been included as Figure 5-4, *Soil Sampling Results* and Figure 5-5, *SU 7 Soil Sampling Results*. Color temperature indicates the depth of soils found to have activity levels higher than 5 pCi/g. Full sampling results have been included as Appendix G. Locations of elevated activity found during soil sampling correspond to locations of elevated activity found during the GPS walkover survey. The isotope most commonly found to have elevated activity levels during lab analysis of the soil samples was Potassium-40. K-40 was detected in multiple samples in concentrations above 5 pCi/g. These concentrations are representative of normal background concentrations for common soil types in this region. For this reason, K-40 data is not included in Figures 5-4 or 5-5.

No soils found in SU 6 had activity levels above decontamination guidelines. Only one soil sample in SU 5 was found to have activity levels above decontamination guidelines, 7.52 pCi/g at 6" of depth. SU 1 contained 5 samples with activity levels above decontamination guidelines, none deeper than 12" or higher than 11.9 pCi/g. Activity levels in these areas are consistent with earlier soil sampling results from the 2003 Scoping survey.

Soils with activity level in excess of the decontamination guidelines were found at 18 – 24 inches in SU 2, SU 3, SU 4, and SU 7. SU 2 has activity levels as high as 208 pCi/g and activity levels above decontamination guidelines in 17/35 locations. SU 3 has activity levels as high as 397

pCi/g and activity levels above decontamination guidelines in 12/34 locations. SU 4 has activity levels as high as 648 pCi/g and activity levels above decontamination guidelines in 7/30 locations. SU 7 has activity levels as high as 43.6 pCi/g and activity levels above decontamination guidelines in 3/30 locations. Discounting the highest of the biased soil sampling results, activity levels in these areas are analogous to those taken during the scoping survey, whose average biased sample results were approximately 81 pCi/g. None of the samples taken from the unbiased sampling grid during the exterior characterization effort was found to have activity levels at or above the 1220 pCi/g found during the biased sampling of the scoping survey.

Survey Unit	Number of Samples	Number of Samples w/ Activity above	Max Depth of Elevated Activity	Max Th-230 Activity	Max Th-232 Activity
SU 1	30	5	12"	11.9	3.7
SU 2	35	17	18"	208	25.5
SU 3	34	12	18"	397	34.9
SU 4	30	7	18"	648	157
SU 5	34	1	6"	7.5	1.8
SU 6	33	0	N/A	2.8	1.6
SU 7	30	3	24"	43.6	25.2

Table 5-1
Soil Sampling Results

Impacted soils with activity levels exceeding the decontamination guidelines cover approximately 18,000 square feet, mostly from survey units north of Building 4. Volume estimates for soil requiring remediation, assuming removal of 12-24 inches of soil, approach 20,000 cubic feet. In SU 2 and SU 3, the activity levels of Th-230 are an order of magnitude higher than those of Th-232, which matches the activity level found in the sampled Mg-Th material mentioned in Section 3.0

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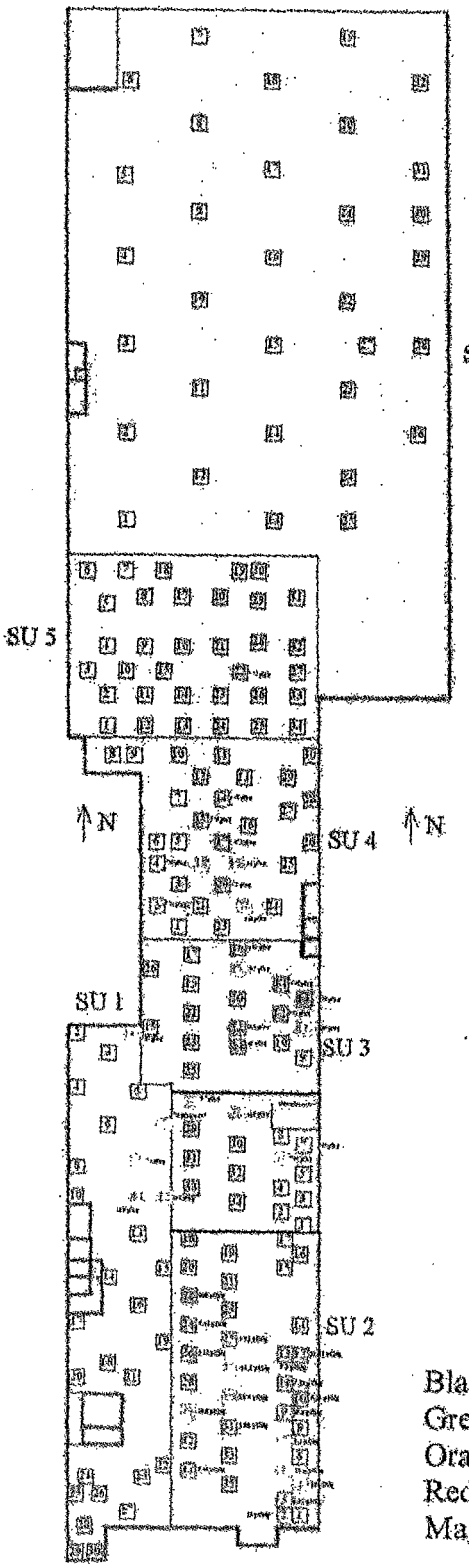

LEGEND

Black	Activity levels < 5 pCi/g.
Green	Elevated Activity at 0" - 6"
Orange	Elevated Activity at 6" - 12"
Red	Elevated Activity at 12" - 24"
Magenta	Elevated Activity at 24" – 36

Figure 5-4
Soil Sampling Results

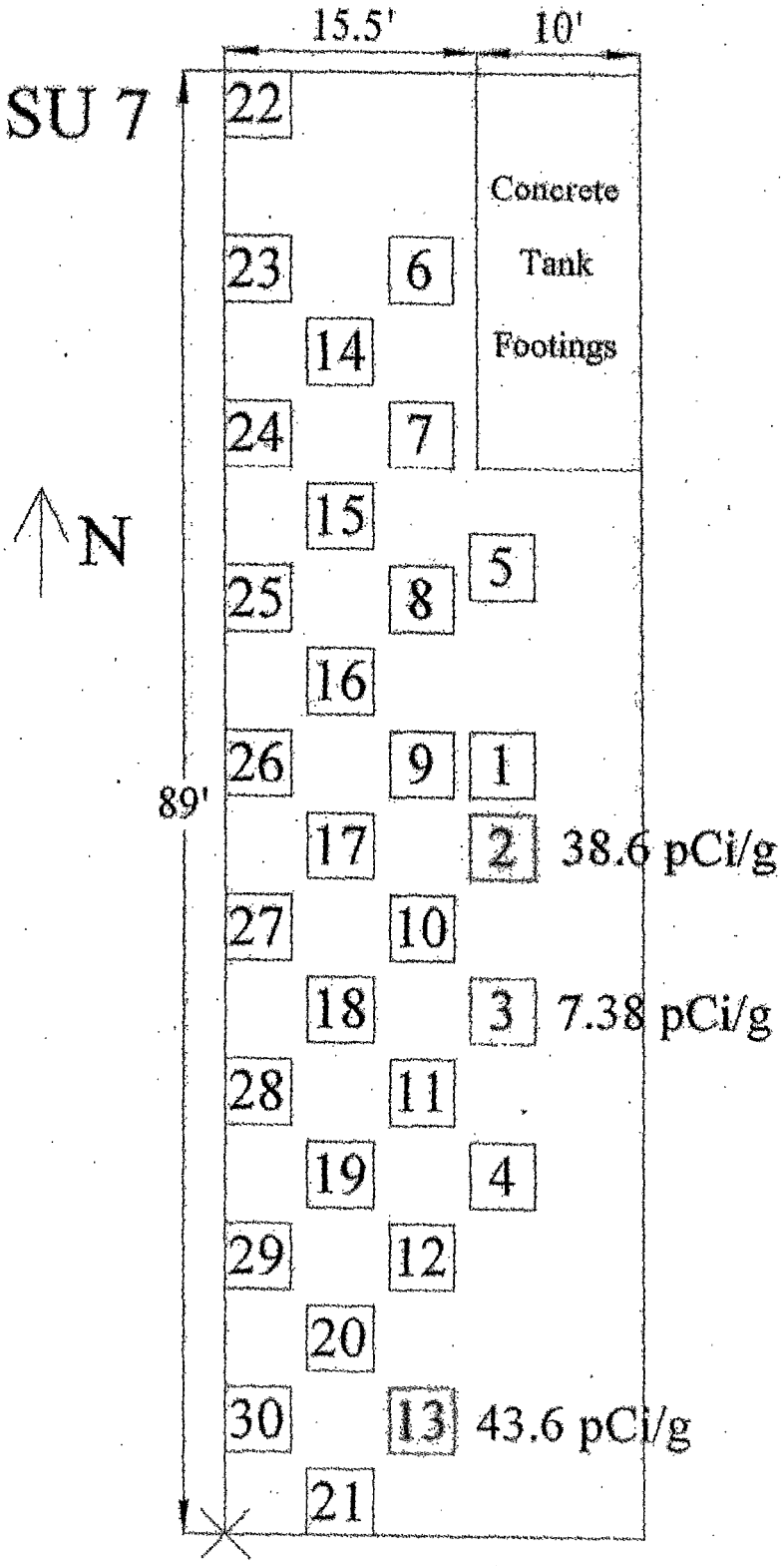

Figure 5-5
SU7 Soil Sampling Results

6. Summary and Conclusions

The purpose of the radiological characterization of the SCI Madison, IL Facility was to gather data on the radiological conditions of the Madison Plant in sufficient detail to determine the status of the facility with respect the Decontamination Guidelines promulgated under the State of Illinois. The data will be used to support remediation and eventual termination of the SCI Radioactive Materials License, License No. IL-01750-01. More specifically, the characterization effort was conducted to determine the radiological condition of previously identified areas in Building 5, 7, and 8 and quantify any elevated activity levels or residual materials. This was done through the use of static surveys capable of detecting and quantifying alpha and beta emissions and floor scans using a gas flow floor scanners also capable of detecting both alpha and beta emissions. A total of 44 interior Class 1 and Class 2 survey units were subjected to static and scanning surveys. Rafters throughout Buildings 4, 5, 6, 7, and 8 were surveyed for elevated activity levels and samples of accumulated dust were analyzed for radiological content.

Exterior areas were also characterized via gamma walkover surveys and subsequent soil sampling. A total of 226 soil cores were removed, evaluated, separated, scanned, and placed into a total of 1854 sample jars. A total of 549 samples were sent off-site for laboratory analysis. The remainder were archived for retained for possible future analysis.

Conclusions

1. The Building 7 Dross Storage Room floor and portions of the lower wall areas exceed the State of Illinois decontamination guidelines.
2. Soils located north of Building 4 and west of Building 5 (up to a depth of 24") are significantly above the State of Illinois decontamination guideline of 5 pCi/g for Thorium-232.
3. Soils located north of Building 4 and west of Building 5 (up to a depth of 24") are significantly above the State of Illinois decontamination guideline of 5 pCi/g for thorium.
4. Elevated surface activity levels found in the Building 7 Casting Area and SU 8 in Building 5 are directly attributable to naturally occurring radioactive material found in refractory brick.
5. Elevated activity levels found in the rafter samples exceed the surface activity decontamination guidelines. It should be noted that other naturally occurring radionuclides are present in the rafter dust in addition to Th-232 and its daughter products.

7. References

1. Pangea Inc., *Final Radiological Characterization Survey Plan for the Spectrulite Consortium Inc. Facility,* Rev. 0, April 2004.
2. 32 Ill. Adm. Code, Chapter II, Section 340, Appendix A, *Decontamination Guidelines.*
3. NUREG-1575, USEPA, NRC, DOD, and DOE, *Multi-Agency Radiation Survey and Site Investigation Manual,* (MARSSIM), Rev. 1, August 2000.
4. Draft NUREG/CR-5849, *Manual for Conducting Radiological Surveys in Support of License Termination*, June 1992.
5. Oak Ridge National Laboratory, *Preliminary Results of the Radiological Survey at the Former Dow Chemical Company Site, Madison, Illinois*, ORNL/TM-11552, December 1990.
6. U.S. Army Corps of Engineers, St. Louis District Office, *Remedial Investigation Report for the Madison Site, Madison, Illinois,* January 2000.

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Appendix A

State of Illinois Decontamination Guidelines

Section 340.APPENDIX A Decontamination Guidelines

a) Surface Contamination Guide

Alpha Emitters:

Removable	555 mBq per 100 cm^2 = 15 pCi per 100 cm^2 = 33 dmp per 100 cm^2	average over any one surface
	1.67 Bq per 100 cm^2 = 45 pCi per 100 cm^2 = 100 dpm per 100 cm^2	maximum
Total (fixed)	16.7 Bq per 100 cm^2 = 450 pCi per 100 cm^2 = 1,000 dpm per 100 cm^2	average over any one surface
	83.3 Bq per 100 cm^2 = 2,250 pCi per 100 cm^2 = 5,000 dpm per 100 cm^2	maximum

2.5 microSv per hour at 1 cm from surface =
250 microrem per hour at 1 cm from surface

Beta-Gamma Emitters:

Removable (all beta-gamma emitters except hydrogen-3)	3.7 Bq per 100 cm^2 = 100 pCi per 100 cm^2	average over any one surface
	18.5 Bq per 100 cm^2 = 500 pCi per 100 cm^2	maximum
Removable (hydrogen-3)	37 Bq per 100 cm^2 = 1,000 pCi per 100 cm^2	average over any one surface
	185 Bq per 100 cm^2 = 5,000 pCi per 100 cm^2	maximum

Total 2.5 microSv per hour at 1 cm from surface =
(fixed) 250 microrem per hour at 1 cm from surface

b) Concentration in air and water: Appendix B, Table I and II of 10 CFR 20.

c) Concentrations in soil and other materials except water:

1) Radioactive material except source material and radium: Column II of 32 Ill. Adm. Code 330.Appendix A.

2) Source material and radium: Concentration of radionuclides above background concentrations for total radium, averaged over areas of 100 square meters, shall not exceed:

A) 185 mBq (5 pCi) per gram of dry soil, averaged over the first 15 centimeters below the surface; and

B) 185 mBq (5 pCi) per gram of dry soil, averaged over layers of 15 centimeters thickness more than 15 centimeters below the surface.

d) The level of gamma radiation measured at a distance of 100 centimeters from the surface shall not exceed background.

AGENCY NOTE: This Appendix shall be used only as a guide. The Department may require lower values in specific instances, depending upon radionuclides, type of surface, intended present and future use, etc.

Appendix B

Static Survey Results

Exhibit A
Radiological Survey Report Form

Description: Characterization Survey - Survey Unit 1

Date: 11/26/2001	Time: 1009	Survey No: CS-102604-01	RWP No: N/A

Purpose of Survey (For Release Surveys Include Recipient): Static Measurements in SU 1

Instrument Data — Instrument Manufacturer(s): [illegible] ☐ [illegible] ☐ Ludlum ☒ ☐ ☐

Detector Type	Detector S/N	Detector Cal Due	Meter Type	Meter S/N	Meter Cal Due	Radiation Type	Bkgd (cpm)	Efficiency Factor	MDA (dpm)
43-10-1	PR173144	02/28/05	2929	190612	02/28/05	α	0.47	2.9	8.3
						β/γ	48.2	2.3	56.3
43-93	PR260132	02/12/05	2224	170280	02/12/05	α	15	5.4	77.3
						β/γ	240	3.0	173
44-9	PR200119	02/13/04	3	171251	02/13/05	β/γ (Only)	47	30	713
N/A	N/A	N/A	Model 19	8575	02/28/05	Exposure	N/A	N/A	N/A

Survey Results		Smearable Results				Direct Readings				
Sample Number	Description/Location	Gross α Removable CPM	Net α Removable dpm/100 cm²	Gross β/γ Removable CPM	Net β/γ Removable dpm/100 cm²	Gross α CPM	Net α dpm/100 cm²	Gross β/γ CPM	Net β/γ dpm/100 cm²	Exposure Rate µR
1	sample locations (see map)					26	62	226	48	N/A
2						7	-43	240	-62	
3						21	-33	235	-21	
4						24	-8	247	21	
5						12	-16	239	-63	
6						17	11	261	3	
7				N/A		34	-8	236	-45	
8						35	0	273	30	
9						11	-32	276	48	
10						3	-54	256	-73	
11						16	5	266	42	
12						10	-27	271	48	
13						27	11	281	83	
14						16	1	253	72	
15						12	-16	291	111	

Remarks: Field Background(s) for 43-93 generated on 5-26-04

"NCD" = No Contamination Detected, i.e. < MDA

Technician(s) Signature / Date: [signature] / 11-26-04 N/A /

Project Review: [signature] / [date] QA Review: N/A /

Exhibit B

Radiological Survey Report Form

Description: Characterization Survey - Survey Unit 1

Date: 08/24/2004 | Time: 1000 | Survey No: [illegible] | RWP No: N/A

	Survey Results	Smearable Results				Direct Readings				
Sample Number	Description/Results	Gross α Removable CPM	Net α Removable dpm/100 cm²	Gross β/γ Removable CPM	Net β/γ Removable dpm/100 cm²	Gross α CPM	Net α dpm/100 cm²	Gross β/γ CPM	Net β/γ dpm/100 cm²	Exposure Rate uR
16	Sample Location (see map)					10	-22	232	-35	
17						15	6	232	-35	
18						10	-27	305	125	
19						22	38	246	-42	
20						11	-32	274	42	
21						15	0	258	-6	
22						13	-11	250	-30	
23						12	-41	290	90	
24						10	-27	262	6	
25						16	8	293	99	
26						18	0	242	-51	
27		N/A				10	-27	272	38	N/A
28						12	-16	271	25	
29						14	-5	263	34	
30						12	-16	249	-93	
31	Duplicate Count for #4					13	-16	289	64	
32	Duplicate Count for #15					15	5	272	39	
33	Duplicate Count for #20					19	22	268	24	
34	Duplicate Count for #24					13	-22	239	-3	
35	N/A							N/A		
36										
37										
38										
39										

Remarks: Field Background for [illegible]

Technician(s) Signature / Date: [signature] [illegible] N/A /

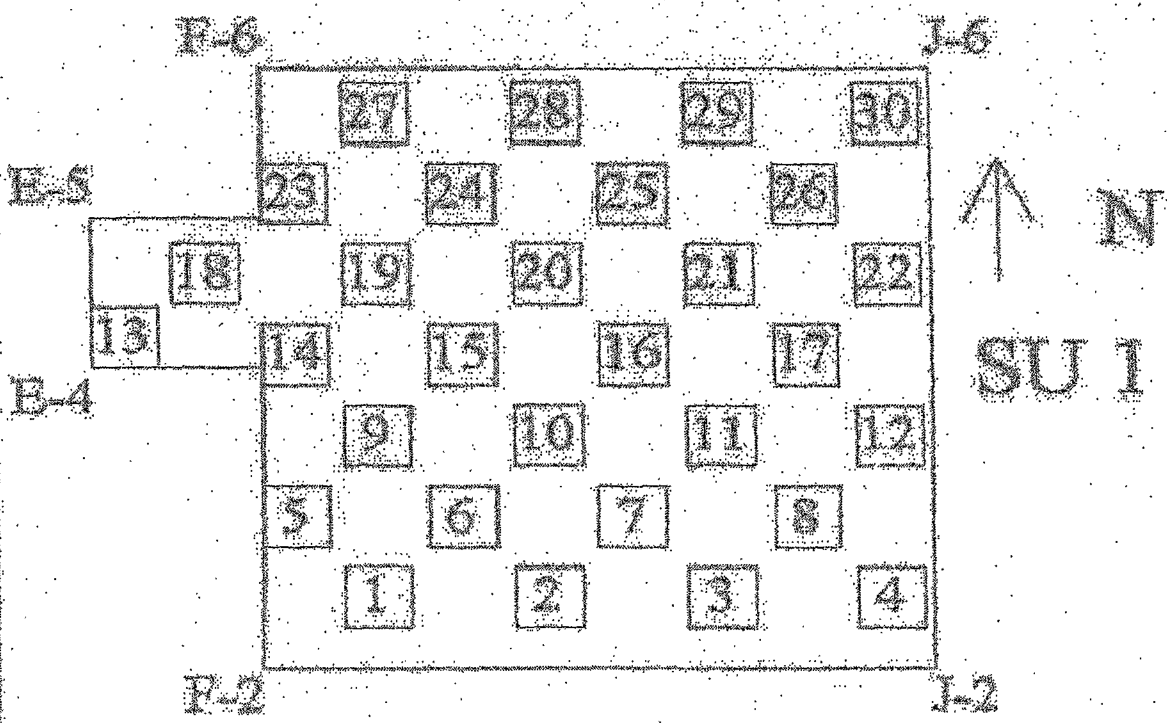
Program Review: [signature] [illegible] Other Review: N/A /

Exhibit C

Radiological Survey Report Form

Description:	Characterization Survey - Survey Unit 1						
Date:	[illegible]	Time:	[illegible]	Survey No:	[illegible]	RWP No:	N/A

Survey Diagram:



Legend: [illegible]

Remarks:	N/A		
Technician(s) Signature / Date:	[signature] [illegible]	N/A	/
Reviewer:	[signature] [illegible]	[illegible]	N/A /

Exhibit A
Radiological Survey Report Form

Description: Characterization Survey - Survey Unit 2

Date: 08/27/2004	Time: 0730	Survey No: CH-082704-01	RWP No: N/A

Purpose of Survey (For Release Surveys Include Recipient): Static Measurements in SU 2

Instrument Data — Instrument Manufacturer/Model: ☐ Bicron ☐ Ludlum ☒ ☐ ☐

Detector Type	Detector S/N	Detector Cal Due	Meter Type	Meter S/N	Meter Cal Due	Radiation Type	Bkgd. (cpm)	Conversion Factor	MDA (dpm)
43-89-1	[illegible]	02/20/05	2929	[illegible]	02/20/05	α	0.2	2.9	41
						β/γ	392	2.3	36.2
43-93	[illegible]	01/13/05	2224	[illegible]	01/13/05	α	12	3.4	60.3
						β/γ	267	2.6	174
44-9	[illegible]	01/13/05	3	[illegible]	01/13/05	β/γ (GM)	47	30	743
N/A	N/A	N/A	Model 19	[illegible]	[illegible]	Exposure	N/A	N/A	N/A

Survey Results / **Removable Results** / **Direct Readings**

Sample Number	Description/Results	Gross α Removable CPM	Net α Removable dpm/100 cm²	Gross β/γ Removable CPM	Net β/γ Removable dpm/100 cm²	Gross α CPM	Net α dpm/100 cm²	Gross β/γ CPM	Net β/γ dpm/100 cm²	Exposure Rate μR
1	Sample Locations (see map)	N/A				14	17	285	81	N/A
2	↓					15	22	302	135	
3						12	0	224	-99	
4						10	-11	260	89	
5						14	11	244	-29	
6						10	-11	246	3	
7						15	9	294	111	
8						13	16	248	-33	
9						24	14	236	-63	
10						8	-22	267	128	
11						15	16	223	-102	
12						10	33	285	114	
13						12	0	260	27	
14						16	22	254	-8	
15						18	11	279	66	↓

Remarks: Field Backgrounds for 43-93 performed on 8/27/04

*NCD = No Contamination Detected, i.e. < MDA

Technician(s) Signature / Date: [signature] 8.27.04 / N/A /

Health Physics Review: [signature] 8/27/04 Other Review: N/A /

Exhibit B

Radiological Survey Report Form

Description: Characterization Survey - Survey Unit 2

Date: 08/27/2004 | Time: 0730 | Survey No: [illegible] | RWP No: N/A

Survey Results		Smear/LS Results				Direct Readings				
Sample Number	Description/Results	[illegible]	[illegible]	[illegible]	[illegible]	Gross α CPM	Net α dpm/100cm²	Gross β/γ CPM	Net β/γ dpm/100cm²	Dose Rate
16	Sample Locations (see map)					21	40	272	47	
17						14	11	263	34	
18						10	33	205	-146	
19						16	22	224	-108	
20						16	21	253	9	
21						11	-5	259	6	
22						6	-10	267	30	
23						20	33	267	120	
24						17	27	309	165	
25						6	-25	315	165	
26						20	39	234	-129	
27			N/A			11	-5	241	31	N/A
28						15	16	309	120	
29						12	0	258	27	
30						12	-6	236	39	
31						15	5	249	-25	
32	Duplicate Counts for #6					12	0	209	-136	
33	Duplicate Counts for #10					10	16	256	-9	
34	Duplicate Counts for #17					10	-11	251	-9	
35	Duplicate Counts for #29					15	16	250	-31	
36										
37	N/A						N/A			
38										
39										

Remarks: Field Backgrounds for 31-35 generated on 8/27/04

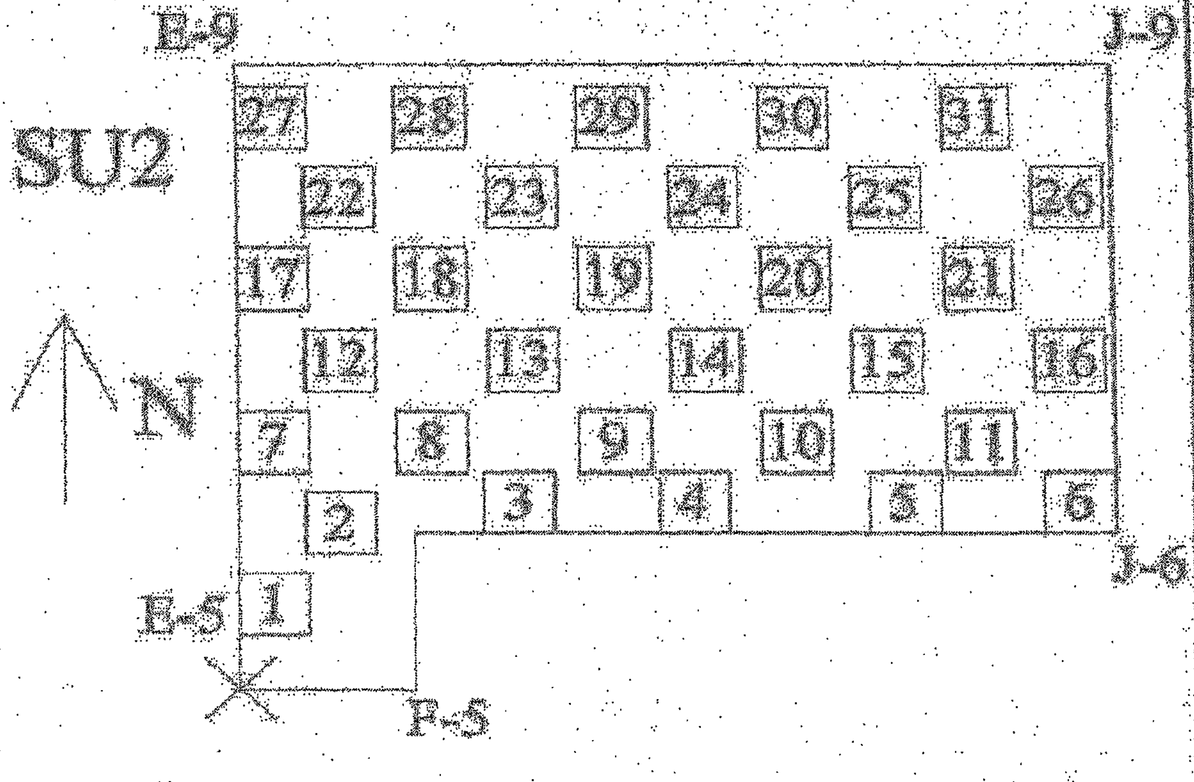
Technician(s) Signature / Date: [signature] / 8-27-04 | N/A /

Peer Review: [signature] 8/27/04 | Other Reviewer: N/A /

Exhibit C
Radiological Survey Report Form

Description:	Characterization Survey - Survey Unit 2						
Date:	08/27/2004	Time:	0730	Survey No:	CH-082704-01	RWP No:	N/A

Survey Diagram



Legend: [illegible] [illegible] [illegible]

Remarks: The Origin of Survey Unit [illegible] is marked by X in the [illegible] corner of the SU.

Technician(s) Signature / Date: [signature] [illegible] N/A /

Reviewer: [signature] [illegible] Review: N/A /

Exhibit A
Radiological Survey Report Form

Description: Characterization Survey - Survey Unit 3

Date: 08/27/2004 | Time: 0950 | Survey No: CH-082704-02 | RWP No: N/A

Purpose of Survey (For Release Surveys Include Requester): Static Measurements in SU 3

Instrument Data — Removable Contamination Survey [ ] Smear [ ] Lasco [X] [ ] [ ]

Detector Type	Detector ID	Detector Cal Due	Meter Type	Meter ID	Meter Cal Due	Sensitivity	Bkgd (cpm)	Correction Factor	MDA (dpm)
43-93-4	PR139134	[illegible]	2360	190632	[illegible]	α	0.42	1.0	4.1
						β/γ	403	1.4	10.2
43-93	PR204132	[illegible]	2224	190820	[illegible]	α	12	3.4	92.3
						β/γ	237	3.0	178
44-9	PR302553	[illegible]	3	171234	[illegible]	β/γ (Gnd)	47	10	313
N/A	N/A	N/A	Ludlum 19	83780	[illegible]	Exposure	N/A	N/A	N/A

Survey Results		Removable Results				Direct Readings				
Sample Number	Description/Results	Gross α Removable CPM	Net α Removable dpm/100 cm²	Gross β/γ Removable CPM	Net β/γ Removable dpm/100 cm²	Gross α CPM	Net α dpm/100 cm²	Gross β/γ CPM	Net β/γ dpm/100 cm²	Exposure Rate μR
1	Sample Locations (see map)					12	0	263	21	N/A
2						12	0	254	-9	
3						14	23	267	13	
4						13	23	291	102	
5						19	-11	260	32	
6						16	23	214	-129	
7			N/A			16	23	263	108	
8						11	-9	261	21	
9						10	-11	315	168	
10						14	17	263	78	
11						14	11	302	157	
12						15	16	257	9	
13						12	0	234	80	
14						23	41	267	129	
15						12	0	267	160	

Remarks: Field Backgrounds for 43-93 generated on 8/27/04.

[illegible] Fixed Contamination Detected [illegible]

Technician(s) Signature / Date: [signature] 8/27/04 N/A /

Program Review: [signature] [illegible] Client Review: N/A /

Exhibit B
Radiological Survey Report Form

Description: Characterization Survey - Survey Unit 3

Date: 03/27/2004 | Time: 0900 | Survey No.: CH-032704-02 | RWP No.: N/A

Survey Results		Smearable Results				Direct Readings				
Sample Number	Description/Location	[illegible] Removable CPM	[illegible] Removable dpm/100cm²	[illegible] Removable CPM	[illegible] Removable dpm/100cm²	Gross α CPM	Net α dpm/100cm²	Gross β-γ CPM	Net β-γ dpm/100cm²	Exposure Rate µR
16	Sample Locations (see map)					17	27	271	42	
17						16	22	301	102	
18						21	40	310	150	
19						11	-4	245	-26	
20						13	-7	250	23	
21						19	30	327	216	
22						13	5	272	45	
23						20	11	280	37	
24						13	-3	272	45	
25						11	-3	260	9	
26						22	24	284	87	
27			N/A			14	11	237	-40	N/A
28						11	-3	271	42	
29						16	22	285	65	
30						13	0	259	126	
31	Duplicate Counts for #3					12	0	306	145	
32	Duplicate Counts for #8					15	16	243	-32	
33	Duplicate Counts for #16					10	-11	274	36	
34	Duplicate Counts for #21					10	-11	301	133	
35	Duplicate Counts for #30					13	3	259	6	
36	N/A					N/A				
37										
38										
39										

Remarks: Field Backgrounds for [illegible]

Technician(s) Signature / Date: [illegible] / [illegible] N/A /

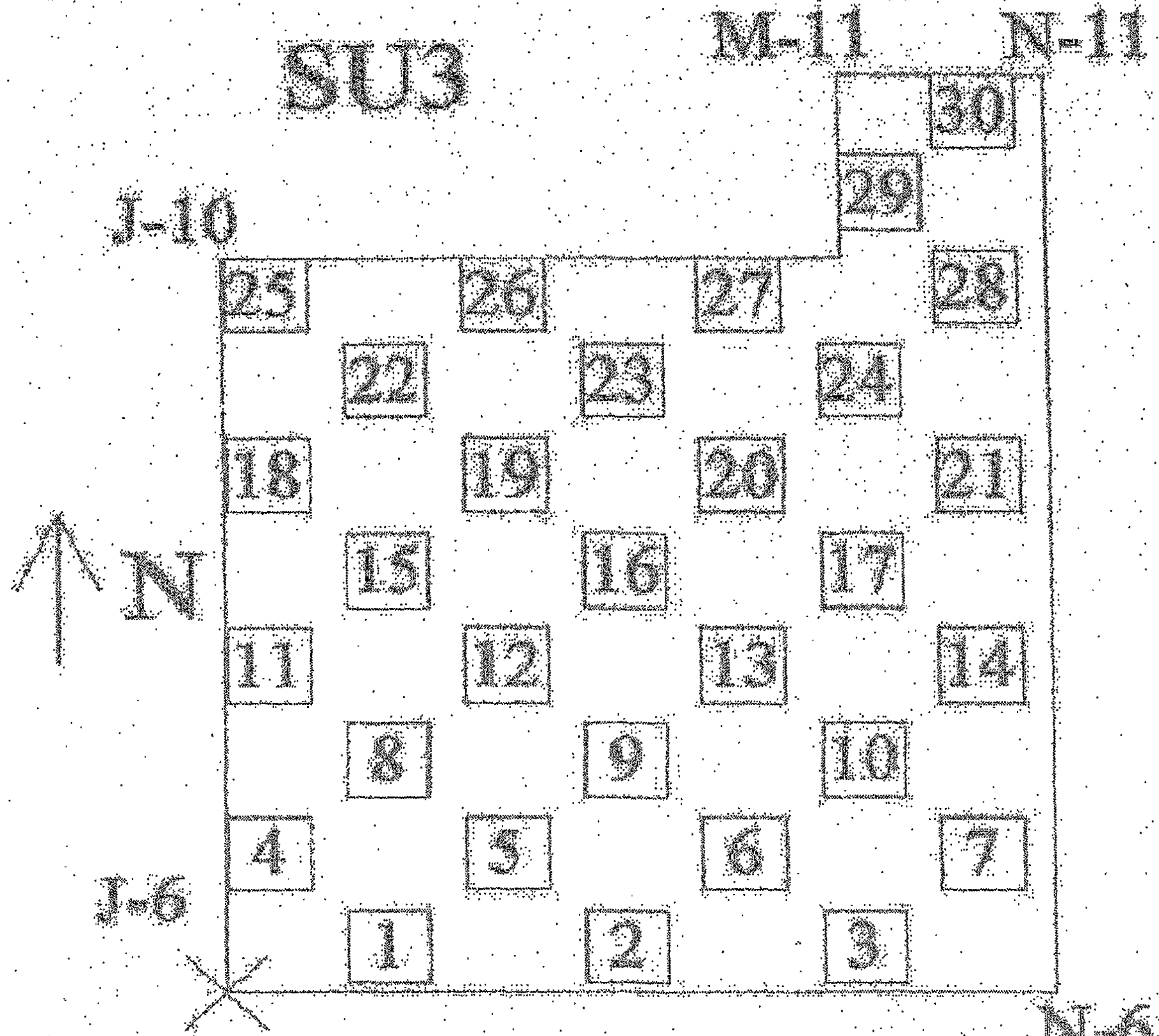
Project Review: [illegible] [illegible] Client Review: N/A /

Exhibit C

Radiological Survey Report Form

Description:	Characterization Survey - Survey Unit 3						
Date:	08/27/2004	Time:	0900	Survey No.:	CH-082704-02	RWP No.:	N/A

Survey Diagram:



Legend: [illegible] Locations [illegible] Boundary

Remarks: The Origin of Survey Unit 3 [illegible] in the southwest corner of the SU.

Technician(s) Signature / Date: [signature] / 8-27-04 N/A /

Designated Reviewer: [signature] Other Reviewer: N/A /

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Exhibit A

Radiological Survey Report Form

Description: Characterization Survey - Survey Unit 4

Date: 08/30/2004 | Time: 0730 | Survey No: CH-0430(4-01) | RWP No: N/A

Purpose of Survey (For Release Surveys Include Recipient): Static Measurements in SU 4

Instrument Data — Instrument Manufacturer: Eberline ☐ Bicron ☐ Ludlum ☒ ☐ ☐

Detector Type	Detector S/N	Detector Cal Due	Meter Type	Meter S/N	Meter Cal Due	Sensitivity	Bkgd (cpm)	Correction Factor	MDA (dpm)
[illegible]	PR179154	[illegible]	2929	196402	[illegible]	α	0.40	3.9	31
						β-γ	49.3	2.3	56.3
43-93	PR200133	02/12/05	2224	189399	02/12/05	α	11.0	3.4	67.2
						β-γ	269	2.0	175
44-9	PR209223	02/15/04	3	171274	07/15/04	Bkg (cpm)	47	30	212
N/A	N/A	N/A	Model 19	43??	12/20/04	Exposure	N/A	N/A	N/A

Sample Number	Description/Results		Gross α Removable CPM	Net α Removable dpm/100 cm²	Gross β-γ Removable CPM	Net β-γ Removable dpm/100 cm²	Gross α CPM	Net α dpm/100 cm²	Gross β-γ CPM	Net β-γ dpm/100 cm²	Exposure Rate µR
1	Sample Locations (see map)		N/A				12	-7	298	-29	N/A
2							8	-43	236	-66	
3							19	42	288	54	
4							14	13	231	-63	
5							11	-2	260	9	
6							15	26	263	-25	
7							6	-39	438	-13	
8							16	25	209	-46	
9							12	4	267	21	
10							12	4	286	75	
11							13	9	251	-27	
12							14	10	238	-6	
13							9	-42	270	20	
14							10	29	188	-201	
15							9	-15	235	-64	

Remarks: Field Background for 43-93 generated on 8/30/04

"NCD" = No Contamination Detected, i.e., < MDA

Technician(s) Signature / Date: [signature] 8.30.04 / N/A /

Program Review: [signature] 8/31/04 Client Review: N/A /

Exhibit B

Radiological Survey Report Form

Description: Characterization Survey – Survey Unit 4

Date: 08/30/2004 | Time: 0700 | Survey No: CH-083004-01 | RWP No: N/A

Survey Results		Smearable Results				Direct Readings				
Sample Number	Description/Results	Gross α Removable CPM	Net α Removable dpm/100 cm²	Gross β/γ Removable CPM	Net β/γ Removable dpm/100 cm²	Gross α CPM	Net α dpm/100 cm²	Gross β/γ CPM	Net β/γ dpm/100 cm²	Exposure Rate (R)
16	Sample Locations (see map)	N/A				7	-21	241	-48	N/A
17						18	25	202	-173	
18						14	13	186	-226	
19						16	35	217	-195	
20						30	47	225	-25	
21						11	-2	232	-65	
22						23	63	240	3	
23						11	-2	232	-61	
24						12	-4	271	32	
25						11	-2	238	-36	
26						16	35	237	-15	
27						11	-2	245	-42	
28						13	4	268	24	
29						6	-29	229	-104	
30						10	15	201	-123	
31	Duplicate Count for #1					13	8	250	40	
32	Duplicate Count for #11					16	25	257	-9	
33	Duplicate Count for #18					16	25	171	-267	
34	Duplicate Count for #21					8	-13	271	33	
35	N/A					N/A				
36										
37										
38										
39										

Remarks: Field Backgrounds for [illegible] presented on [illegible]

Sample Location 24 is a biased location taken in lieu of original, blocked location

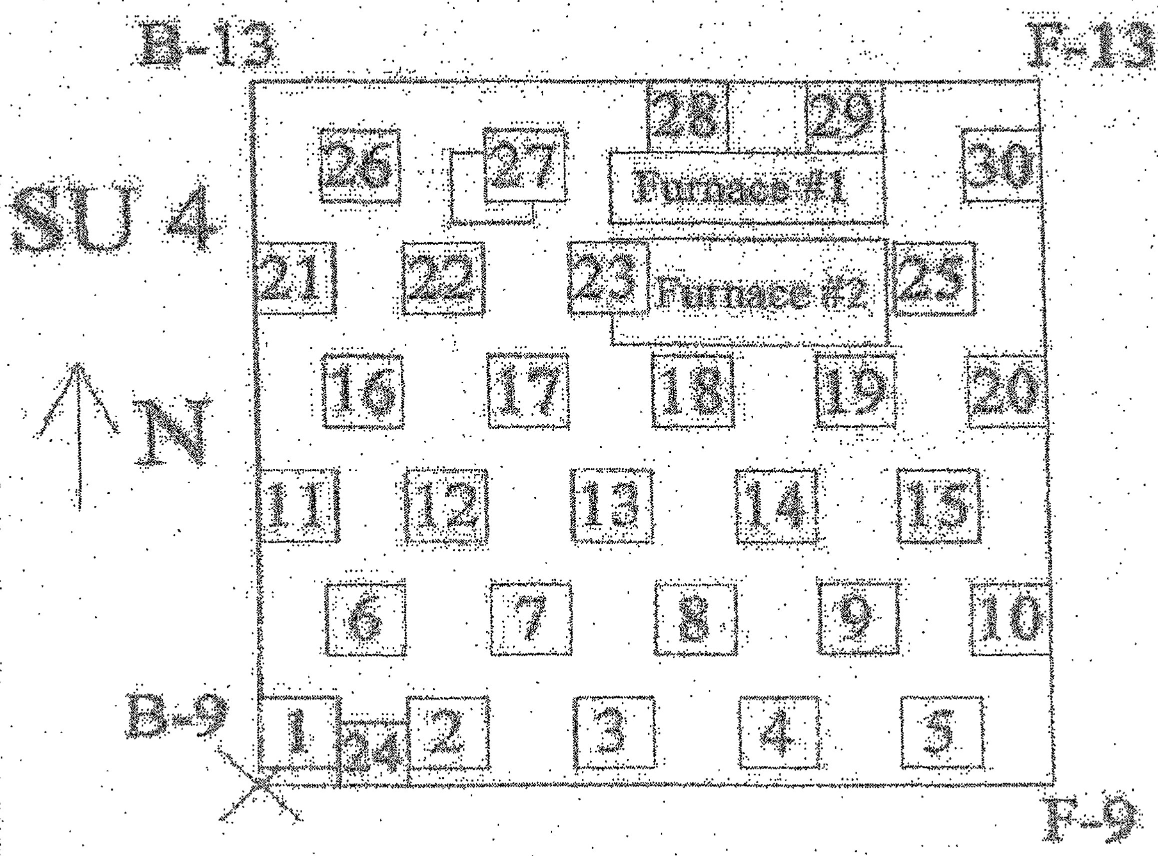
Technician(s) Signature / Date: [signature] / N/A /

Range Review: [signature] [illegible] Client Review: N/A /

Exhibit C
Radiological Survey Report Form

Description:	Characterization Survey - Survey Unit 4						
Date:	08/30/2004	Time:	1700	Survey No:	CH-083004-07	RWP No:	N/A

Survey Diagram:



Legend: (#) Fixed/Removable Locations; # Exposure Rates (µR/hr); -x-x- Project Area Boundary

Remarks:	The Origin of Survey Unit [illegible] is marked by X in the SW corner of the SU. [illegible] Location 24 was moved [illegible] 25 & 30 were displaced [illegible] north.
Technician(s) Signature / Date:	[signature] 08.30.04 N/A /
Reviewer:	[signature] [illegible] Client Review: N/A /

Exhibit A
Radiological Survey Report Form

Description: Characterization Survey - Survey Unit 5

Date: 08/30/2006 | Time: 0930 | Survey No: CH-083006-02 | RWP No: N/A

Purpose of Survey (For Release Surveys Include Recipient): Static Measurements in SU 5

Instrument Data — Instrument Manufacturer(s) Eberline ☐ Bicron ☐ Ludlum ☒ ☐ ☐

Detector Type	Detector S/N	Detector Cal Due	Meter Type	Meter S/N	Meter Cal Due	Scale/Action	Eff. (cpm)	Background	MDA (dpm)
43-10-1	PR173134	03/08/07	2929	176042	03/08/07	α	0.40	2.0	9.1
						βγ	492	2.3	25.2
43-93	PR-206132	02/12/08	2224	199230	02/12/08	α	113	3.4	67.2
						βγ	200	33	192
44-9	PR202232	03/15/04	3	171254	03/15/04	βγ (Shld)	67	39	713
N/A	N/A	N/A	Model 19	4579	12/20/06	Exposure	N/A	N/A	N/A

Sample Number	Description/Results		Gross α Removable CPM	Net α Removable dpm/100 cm²	Gross βγ Removable CPM	Net βγ Removable dpm/100 cm²	Gross α CPM	Net α dpm/100 cm²	Gross βγ CPM	Net βγ dpm/100 cm²	Exposure Rate μR
1	Sample Locations (see map)		N/A				13	4	236	42	N/A
2							12	25	295	108	
3							11	-2	275	39	
4							13	4	235	45	
5							13	9	277	51	
6							10	20	238	-6	
7							12	4	265	87	
8							11	31	282	49	
9							17	31	283	60	
10							17	34	252	124	
11							12	4	266	76	
12							15	20	249	-1	
13							11	5	247	21	
14							9	-12	257	125	
15							6	-20	279	35	

Remarks: Field Background for 43-93 [illegible]

"NCD" = No Contamination Detected, i.e. < MDA

Technician(s) Signature / Date: [signature] / 8-31-06 | N/A /

Reviewed By/Date: [signature] / 9/1/06 | Client Review: N/A /

Exhibit B
Radiological Survey Report Form

Description: Characterization Survey - Survey Unit 3

Date: 08/30/2004 | Time: 0830 | Survey No: CH-083004-03 | RWP No: N/A

Survey Results		Smearable Results				Direct Readings				
Sample Number	Description/Results	Gross α Removable CPM	Net α Removable dpm/100 cm²	Gross β/γ Removable CPM	Net β/γ Removable dpm/100 cm²	Gross α CPM	Net α dpm/100 cm²	Gross β/γ CPM	Net β/γ dpm/100 cm²	Exposure Rate μR
16	Sample Locations (see map)	N/A				11	-2	272	36	N/A
17	↓					21	52	306	106	
18						12	9	250	-9	
19						12	4	251	-27	
20						7	-23	233	-43	
21						12	4	264	18	
22						14	15	259	-24	
23						14	15	234	-48	
24						8	-20	241	-53	
25						9	-30	240	-40	
26						17	31	271	42	
27						18	35	243	-34	
28						13	9	272	36	
29						15	20	263	9	
30						12	21	237	-40	
31	Duplicate Count for #16					21	52	269	37	
32	Duplicate Count for #12					21	30	327	201	
33	Duplicate Count for #15					7	-20	233	-75	
34	Duplicate Count for #22					14	15	243	-45	
35	Duplicate Count for #29					10	42	233	-41	
36	N/A					N/A				
37										
38										
39										

Remarks: Field Backgrounds for [illegible]

Technician(s) Signature / Date: [signature] 08/30/04 N/A /

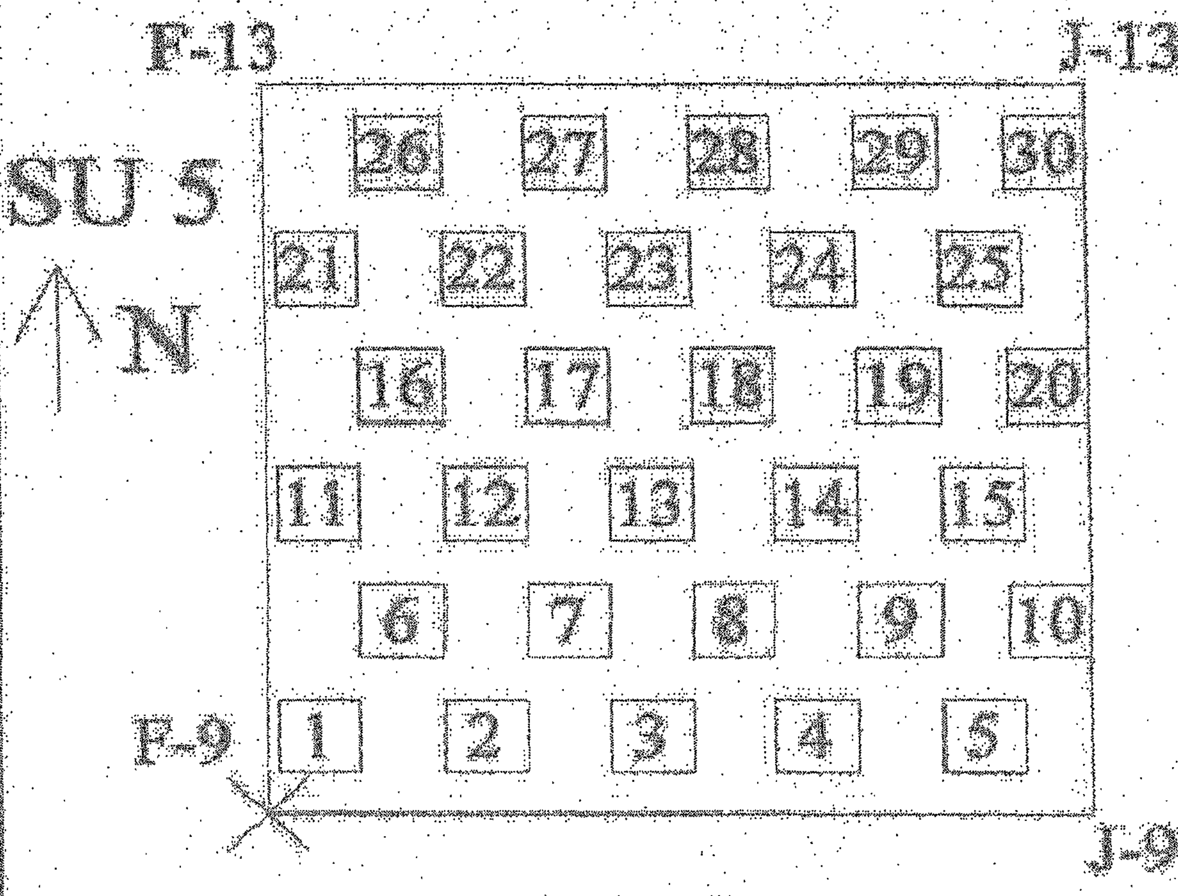
Proper Review: [signature] / [illegible] Client Review: N/A /

Exhibit C

Radiological Survey Report Form

Description:	Characterization Survey - Survey Unit 5						
Date:	[illegible]	Time:	0830	Survey No:	[illegible]	RWP No:	N/A

Survey Diagram:



Legend: (#) Fixed/Systematic Location   # Exposure Rates (µR/hr)   —X—X—X— Posted Area Boundary

Remarks: The Origin of Survey Unit [illegible] is marked by X in the SW corner of the SU.

Technician(s) Signature / Date:	[illegible signature]	[illegible]	N/A	/
Project Review:	[illegible signature]	[illegible] Client Review:	N/A	/

Exhibit 4
Radiological Survey Report Form

Description: Characterization Survey - Survey Unit 6

Date: 08/30/2004	Time: 1000	Survey No: CH-083004-03	RWP No: N/A

Purpose of Survey (For Release Surveys Include Recipients): Static Measurements in SU 6

Instrument Data: Instrument Results Attached to Report ☐ Smears ☐ Lab ☒ ☐ ☐

Instrument Type	Detector S/N	Detector Cal Due	Meter Type	Meter S/N	Meter Cal Due	Sensitivities	Bkg. (cpm)	Counting Time	MDA (dpm)
43-10-1	PR175154	03/08/05	2929	158652	03/08/05	α	1.82	30	91
						βγ	492	23	363
43-93	PR280152	02/12/05	2224	180620	02/12/05	α	112	54	67.5
						βγ	246	1.0	155
44-9	PR263525	08/13/04	3	172294	08/13/04	βγ (Cs)	47	30	712
N/A	N/A	N/A	Model 19	67270	02/08/05	Exposure	N/A	N/A	N/A

Survey Results		Removable Results				Direct Readings				
Sample Number	Description/Results	Gross α Removable CPM	Net α Removable dpm/100 cm²	Gross βγ Removable CPM	Net βγ Removable dpm/100 cm²	Gross α CPM	Net α dpm/100 cm²	Gross βγ CPM	Net βγ dpm/100 cm²	Exposure Rate μR
1	Sample Locations (see map)	N/A				13	9	228	-66	N/A
2						5	-12	300	-6	
3						11	-2	270	48	
4						11	-2	258	-4	
5						15	20	265	54	
6						17	31	270	30	
7						10	-7	270	30	
8						27	23	305	135	
9						15	20	300	253	
10						21	32	318	178	
11						20	41	278	54	
12						15	20	265	15	
13						11	12	285	66	
14						10	-8	268	13	
15						11	-8	318	148	

Remarks: Field Backgrounds for 43-93 generated on 8/30/04

*NCD = No Contamination Detected, i.e. <MDA

Technician(s) Signature / Date: [signature] / 8-30-04   N/A /

Survey Review: [signature] 8/31/04   Chem Review: N/A /

Exhibit B
Radiological Survey Report Form

Description: Characterization Survey - Survey Unit 5

Date: 08/11/2004 | Time: 1000 | Survey No: CH-08?2004-03 | RWP No: N/A

Survey Results		Smearable Results				Direct Readings				
Sample Number	Description/Remarks	Gross α Removable CPM	Net α Removable dpm/100 cm²	Gross β/γ Removable CPM	Net β/γ Removable dpm/100 cm²	Gross α CPM	Net α Direct dpm/100 cm²	Gross β/γ CPM	Net β/γ Direct dpm/100 cm²	Exposure Rate µR/h
16	Sample Locations (see map)					12	31	305	125	
17						14	15	240	-30	
18						10	-7	268	23	
19						16	26	319	137	
20						11	-2	269	87	
21						17	31	262	15	
22						9	-12	274	33	
23						10	-7	217	-69	
24						9	-12	267	81	
25						11	-8	288	15	
26						10	-6	307	21	
27		N/A				10	-7	200	-152	N/A
28						15	20	368	144	
29						14	13	221	-417	
30						18	36	385	426	
31	Duplicate Counts for #5					7	-23	297	119	
32	Duplicate Counts for #4					11	-4	294	102	
33	Duplicate Counts for #15					10	-5	303	120	
34	Duplicate Counts for #20					11	-2	261	5	
35	Duplicate Counts for #30					15	20	380	140	
36	N/A					N/A				
37										
38										
39										

Remarks: Field Background for 43-93 [illegible]

Technician(s) Signature / Date: [signature] 08/?/04 | N/A /

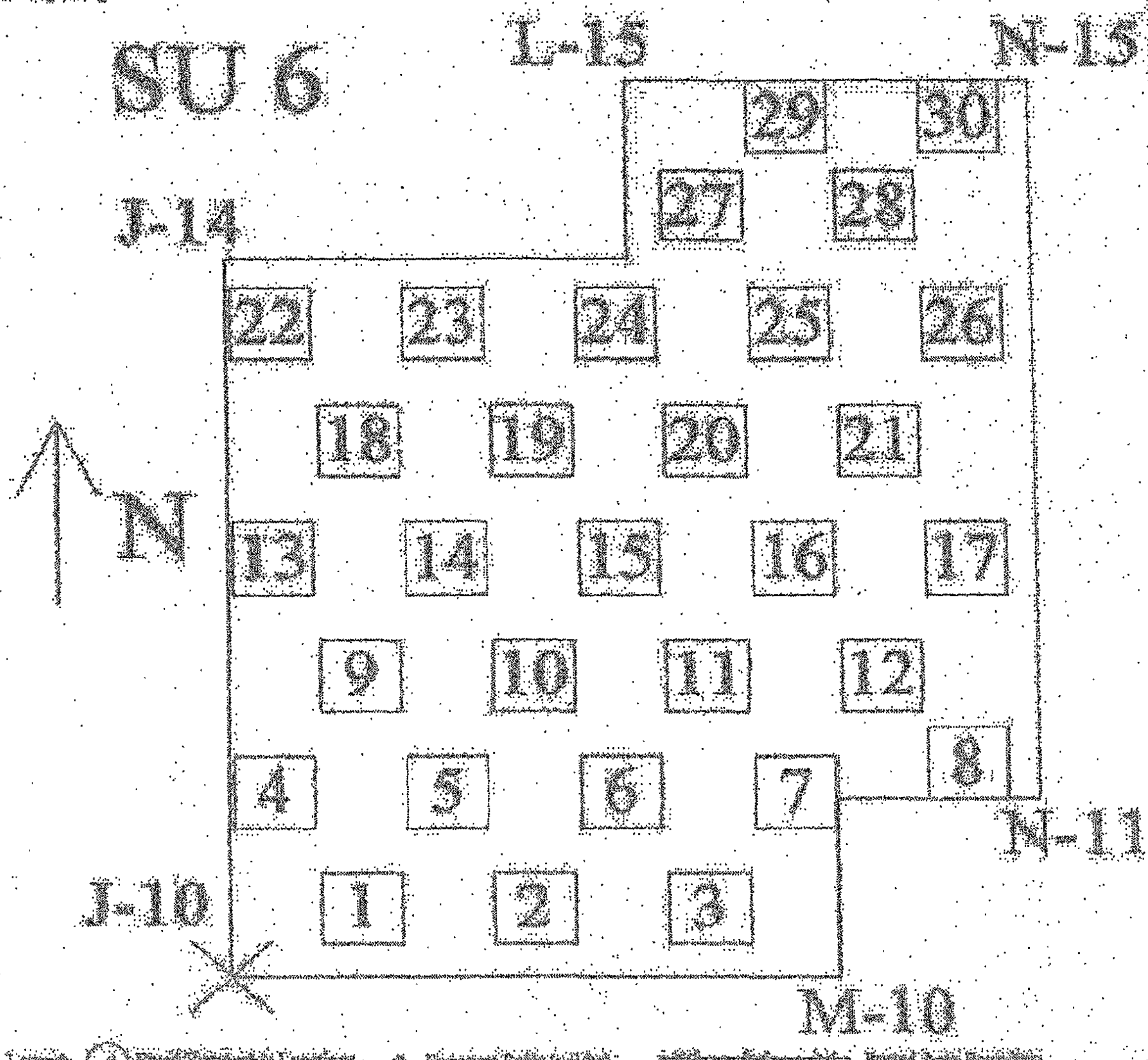
Program Review: [signature] | Client Review: N/A /

Exhibit C

Radiological Survey Report Form

Description:	Characterization Survey - Survey Unit 6						
Date:	08/10/2004	Time:	1000	Survey No:	CH-083004-01	RWP No:	N/A

Survey Diagram:



Legend: (#) Fixed/Smear/Soil Locations ▲ Exposure Rate (μR/hr) ——×——×——×—— Fenced Area Boundary

Remarks: The Origin of Survey Unit (0 ft E, 0 ft N) is marked by "X" in the SW corner of the SU.

Technician Signature / Date:	[signature]	[date]	N/A /
Program Review:	[signature] [date]	Client Review:	N/A /

Exhibit A
Radiological Survey Report Form

Description: Characterization Survey - Survey Unit 7

Date:	08/30/2004	Time:	1300	Survey No:	CH-083004-04	RWP No:	N/A

Purpose of Survey (For Release Surveys Include Recipient): Static Measurements in SU 7

Instrument Data — Instrument Manufacturer(s): Bicron [ ] Eberline [ ] Ludlum [X] [ ] [ ]

Detector Type	Detector S/N	Detector Cal Due	Meter Type	Meter S/N	Meter Cal Due	Applicability	Bkgd. (cpm)	Counting Factor	MDA (dpm)
43-10-1	PR139334	[illegible]	2929	190642	[illegible]	α	0.32	29	9.1
						β/γ	39.4	33	26.5
43-93	PR260722	03/13/05	2121	190238	02/13/05	α	13.3	34	67.3
						β/γ	200	30	173
44-9	PR203920	03/15/04	3	171259	03/15/04	β/γ (Sig)	47	30	713
N/A	N/A	N/A	Model 19	85778	02/23/05	Exposure	N/A	N/A	N/A

Survey Results		Smearable Results				Direct Readings				
Sample Number	Description/Details	Gross α Removable CPM	Net α Removable dpm/100 cm²	Gross β/γ Removable CPM	Net β/γ Removable dpm/100 cm²	Gross α CPM	Net α dpm/100 cm²	Gross β/γ CPM	Net β/γ dpm/100 cm²	Exposure Rate μR
1	Sample Locations (see map)					12	4	284	265	N/A
2						22	39	210	177	
3						11	-45	400	120	
4						26	79	303	193	
5						16	22	281	13	
6						11	-8	272	56	
7						44	69	304	132	
8						10	-7	307	141	
9						23	63	289	97	
10						26	79	306	138	
11						10	-7	307	171	
12						16	35	250	-30	
13						17	31	348	-48	
14						20	47	309	147	
15						10	-7	282	-38	

Remarks: Field Background for 43-93 [illegible] on 8/30/04

"NCD" = No Contamination Detected, i.e. < MDA

Technician(s) Signature / Date: [signature] / [illegible] | N/A /

Project Review: [signature] / [illegible] | Client Review: N/A /

Exhibit B
Radiological Survey Report Form

Description: Characterization Survey - Survey Unit 7

Date:	03/30/2004	Time:	1300	Survey No:	CH-03[illegible]04	RWP No:	N/A

Survey Results		Smearable Results				Direct Readings				
Sample Number	Description/Results	Gross α Removable CPM	Net α Removable dpm/100 cm²	Gross β/γ Removable CPM	Net β/γ Removable dpm/100 cm²	Gross α CPM	Net α Static dpm/100 cm²	Gross β/γ CPM	Net β/γ Static dpm/100 cm²	Exposure Rate uR
16	Sample Locations (see map)	N/A				12	4	285	76	N/A
17						19	34	329	207	
18						12	0	306	129	
19						13	20	284	12	
20						15	30	275	39	
21						23	62	272	55	
22						7	-23	244	-86	
23						11	-2	309	138	
24						10	-7	295	99	
25						7	-23	260	24	
26						16	25	297	110	
27						11	-3	284	72	
28						18	38	314	168	
29						7	-23	301	133	
30						11	-2	272	30	
31						13	4	272	35	
32	Duplicate Count for #1					10	-7	308	144	
33	Duplicate Count for #14					14	15	310	150	
34	Duplicate Count for #15					15	20	312	156	
35	Duplicate Count for #28					20	47	324	192	
36	N/A					N/A				
37										
38										
39										

Remarks: Field Backgrounds for 43-93 obtained on 3/30/04

Technician(s) Signature / Date: [signature] 03-30-04 N/A /

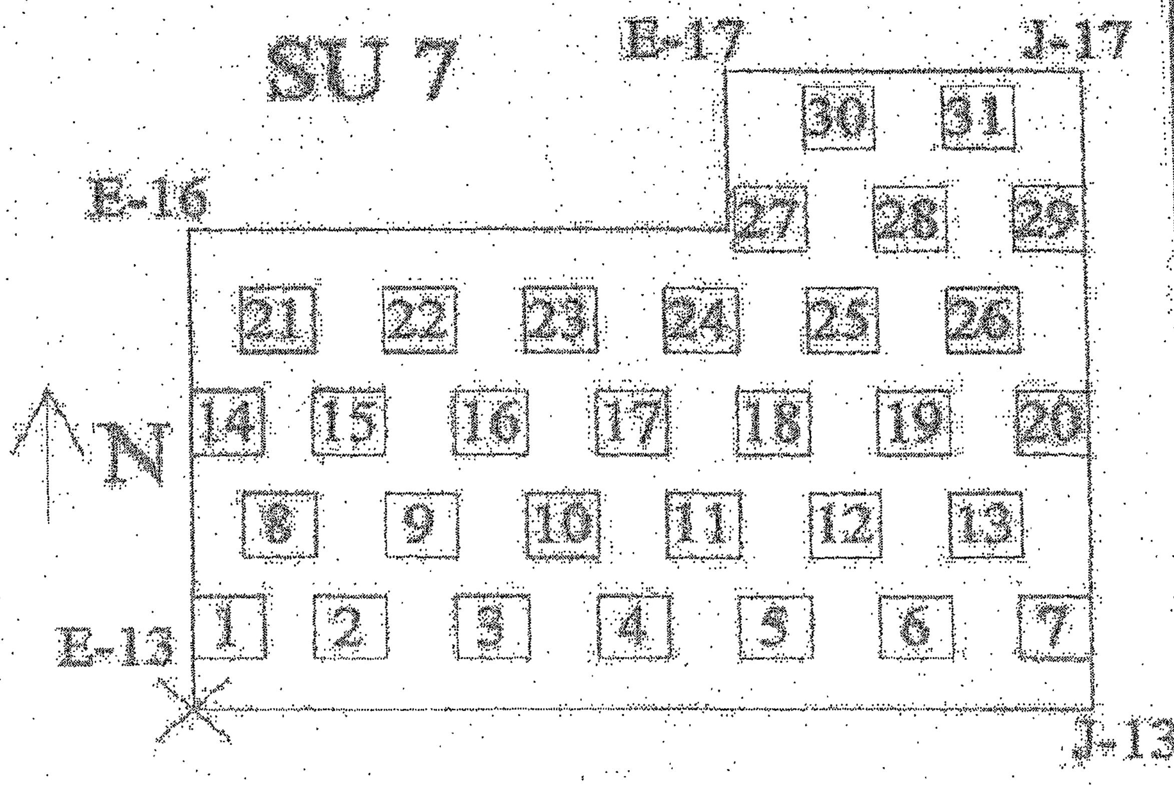
Project Reviewer: [signature] 3/1/04 Client Reviewer: N/A /

Exhibit C

Radiological Survey Report Form

Description: Characterization Survey - Survey Unit 7			
Date: [illegible]	Time: [illegible]	Survey No.: [illegible]	RWP No.: N/A

Survey Diagram



Legend: [illegible] [illegible] [illegible]

Remarks: The [illegible]

Technician(s) Signature / Date: [illegible] N/A

Program Review: [illegible] Peer Review: N/A

Exhibit A
Radiological Survey Report Form

Description: Characterization Survey - Survey Unit 1					
Date: 08/24/2004	Time: 0730	Survey No: [illegible]		RWP No:	N/A
Purpose of Survey (For Release Surveys Include Recipient): Static Measurements in SU 8					

Instrument Data — Instrument Manufacturer: [illegible] ☐ Eberline ☐ Ludlum ☒ ☐ ☐

Detector Type	Detector S/N	Detector Cal Due	Meter Type	Meter S/N	Meter Cal Due	Sensitivity	Bkgd. (cpm)	Count Time	MDA (dpm)
43-89-1	[illegible]	[illegible]	2929	[illegible]	[illegible]	α	0.82	2.0	9.1
						β/γ	463	2.3	93.3
43-93	[illegible]	01/12/05	2221	[illegible]	03/12/05	α	11.1	2.1	68.5
						β/γ	297	2.0	177
44-9	[illegible]	03/15/04	3	[illegible]	03/15/04	β-γ (CPM)	47	30	712
N/A	N/A	N/A	Model 19	[illegible]	02/09/05	Exposure	N/A	N/A	N/A

Survey Results		Smearable Results				Direct Readings				
Sample Number	Description/Results	Gross α Removable CPM	Net α Removable dpm/100 cm²	Gross β/γ Removable CPM	Net β/γ Removable dpm/100 cm²	Gross α CPM	Net α dpm/100 cm²	Gross β/γ CPM	Net β/γ dpm/100 cm²	Exposure Rate µR
1	Sample Locations (see map)	N/A				19	34	326	-87	[illegible]
2						20	43	251	-97	
3						14	12	307	128	
4						10	7	272	33	
5						15	-2	292	87	
6						18	41	253	-84	
7						13	7	234	-40	
8						22	46	311	132	
9						13	7	260	29	
10						13	7	272	16	
11						13	7	285	163	
12						13	7	696	-183	
13						7	-24	225	64	
14						18	24	286	30	
15						30	49	275	34	

Remarks: Field Background info for 43-93 generated on [illegible]

[illegible]

Technician(s) Signature / Date: [signature] 8.24.04 / N/A /

Radiological Review: [signature] [illegible] Client Review: N/A /

Exhibit B
Radiological Survey Report Form

Description: Characterization Survey - Survey Unit 8

Date: 08/31/2004 | Time: 0720 | Survey No: CH-083104-01 | RWP No: N/A

Survey Results		Smearable Results				Direct Readings				
Sample Number	Description/Results	Gross cpm Removable CPM	Net Removable dpm/100 cm²	[illegible] CPM	Net [illegible] dpm/100 cm²	Gross ct CPM	[illegible] 100 cm²	[illegible] CPM	[illegible] 100 cm²	[illegible]
16	Sample Locations (see map)					20	45	302	105	
17						27	83	307	130	
18						16	23	400	309	
19						22	36	361	7	
20						17	26	291	72	
21						16	23	301	42	
22						23	51	340	215	
23						26	131	404	311	
24						16	23	277	190	
25						10	8	297	90	
26						25	153	450	320	
27			N/A			30	92	437	310	N/A
28						25	81	340	219	
29						14	12	291	72	
30						11	212	414	441	
31						26	73	349	296	
32	Duplicate Count of #1					11	-4	305	-185	
33	Duplicate Count of #10					15	18	342	225	
34	Duplicate Count of #26					36	131	350	309	
35	Duplicate Count of #30					11	212	414	441	
36										
37	N/A						N/A			
38										
39										

Remarks: Field Backgrounds for 13-?? measured on 8/3/04

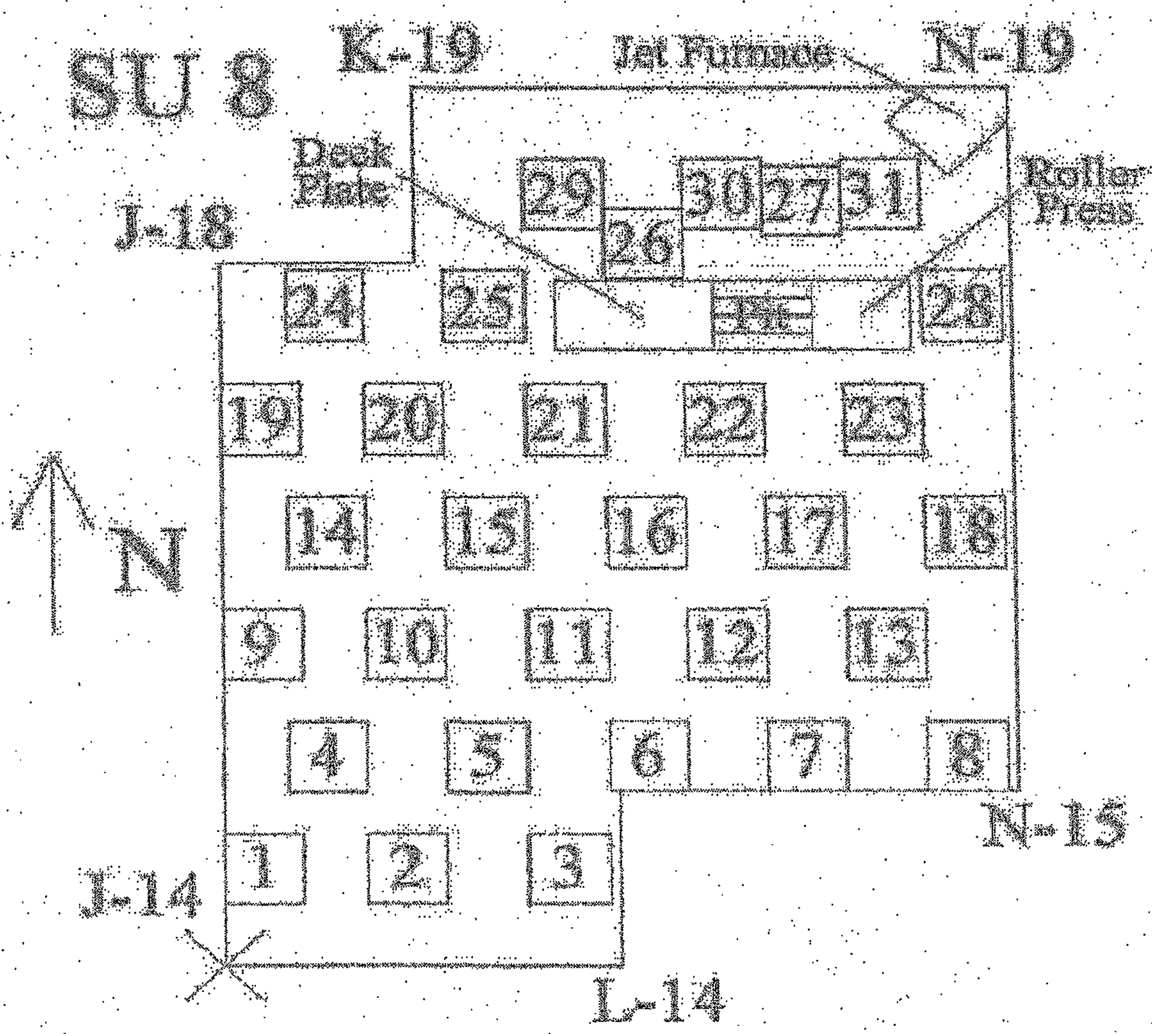
Technician(s) Signature / Date: [signature] / 8-31-04 | N/A /

Project Reviewer: [signature] / 9/2/04 | Client Reviewer: N/A /

Exhibit C
Radiological Survey Report Form

Description:	Characterization Survey – Survey Unit 8						
Date:	1?/31/2004	Time:	0720	Survey No.:	CH-[illegible]-01	RWP No.:	N/A

Survey Diagram:



Legend: (#) Fixed/Removable Location   # [illegible] Rates (µR/hr)   Posted Area Boundary

Remarks: The Origin of Survey Unit 8 ([illegible]) is marked with "X" in the SW corner of the SU. Sample Location 28 was [illegible] displaced ([illegible] North) due to obstructions. Sample Location 17 was displaced (1.5 ft. North) due to [illegible].

Technician Signature / Date:	[signature] / [illegible]	N/A	/
Supervisor Review:	[signature] / [illegible]	Client Review:	N/A /

Exhibit A
Radiological Survey Report Form

Description: Characterization Survey - Survey Unit 9

Date: 08/31/2004 | Time: 0850 | Survey No.: CH-083104-02 | RWP No.: N/A

Purpose of Survey (For Release Surveys Include Recipient): Static Measurements in SU-9

Instrument Data — Integrated Measurement in Minutes ☐ Scaler ☐ Ludlum ☒ ☐ ☐

Detector Type	Detector S/N	Detector Cal Due	Meter Type	Meter S/N	Meter Cal Due	Scale/Mode	Bkgd. (cpm)	Efficiency Factor	MDA (dpm)
43-18-1	[illegible]	[illegible]	2929	[illegible]	[illegible]	α	0.??	8.9	21
						β/γ	49.1	13	86.2
43-93	[illegible]	[illegible]	2224	[illegible]	[illegible]	α	11.3	3.4	86.5
						β/γ	247	3.9	107
43-68	[illegible]	03/15/04	3	171234	03/14/04	β/γ (Gas)	47	30	719
N/A	N/A	N/A	Model 19	[illegible]	[illegible]	Exposure	N/A	N/A	N/A

Sample Number	Survey Results: Description/Results		Removable Results: Gross α Removable CPM	Net α Removable dpm/100 cm²	Gross β/γ Removable CPM	Net β/γ Removable dpm/100 cm²	Direct Readings: Gross α CPM	Net α dpm/100 cm²	Gross β/γ CPM	Net β/γ dpm/100 cm²	Exposure Rate µR
1	Sample Locations (see map)		N/A				11	-4	280	46	N/A
2							9	-15	256	-13	
3							14	12	250	9	
4							6	-31	239	48	
5							17	22	233	-93	
6							14	12	205	-95	
7							18	24	307	130	
8							9	-15	277	30	
9							13	7	306	123	
10							13	7	241	-25	
11							13	7	314	141	
12							18	-4	308	123	
13							19	30	290	-69	
14							13	-4	268	-3	
15							9	-15	270	23	

Remarks: Field Background counts for 43-93 generated on 8/31/04

[illegible]

Technician(s) Signature / Date: / 8-31-04 N/A /

Project Review: 11/10/04 Client Review: N/A /

Exhibit B
Radiological Survey Report Form

Description:	Characterization Survey - Survey Unit 9										
Date: 08/31/2004	Time: 0830	Survey No.: CH-083104-02				RWP No.: N/A					

Sample Number	Survey Results: Description/Results	Smearable Results: Gross α Removable CPM	Net α Removable dpm/100 cm²	Gross β/γ Removable CPM	Net β/γ Removable dpm/100 cm²	Direct Readings: Gross α CPM	Net α dpm/100 cm²	Gross β/γ CPM	Net β/γ dpm/100 cm²	Exposure Rate µR
16	Sample Locations (see map)	N/A				12	3	267	129	N/A
17						13	7	249	24	
18						4	-20	176	37	
19						17	20	271	17	
20						12	2	306	117	
21						10	-15	262	-15	
22						14	14	263	-6	
23						11	-4	259	-30	
24						10	7	284	31	
25						14	12	340	212	
26						34	120	557	370	
27						14	12	275	38	
28						18	24	367	150	
29						11	-4	259	-24	
30						11	-4	284	31	
31	Duplicate Count of #3					10	-8	221	-138	
32	Duplicate Count of #12					12	2	237	-30	
33	Duplicate Count of #21					10	-9	263	42	
34	Duplicate Count of #26					17	29	303	136	
35	N/A					N/A				
36										
37										
38										
39										

Remarks: Field backgrounds for 43-93 generated on 8/3/04 [illegible]

Technician(s) Signature / Date: [signature] 8/31/04 N/A /

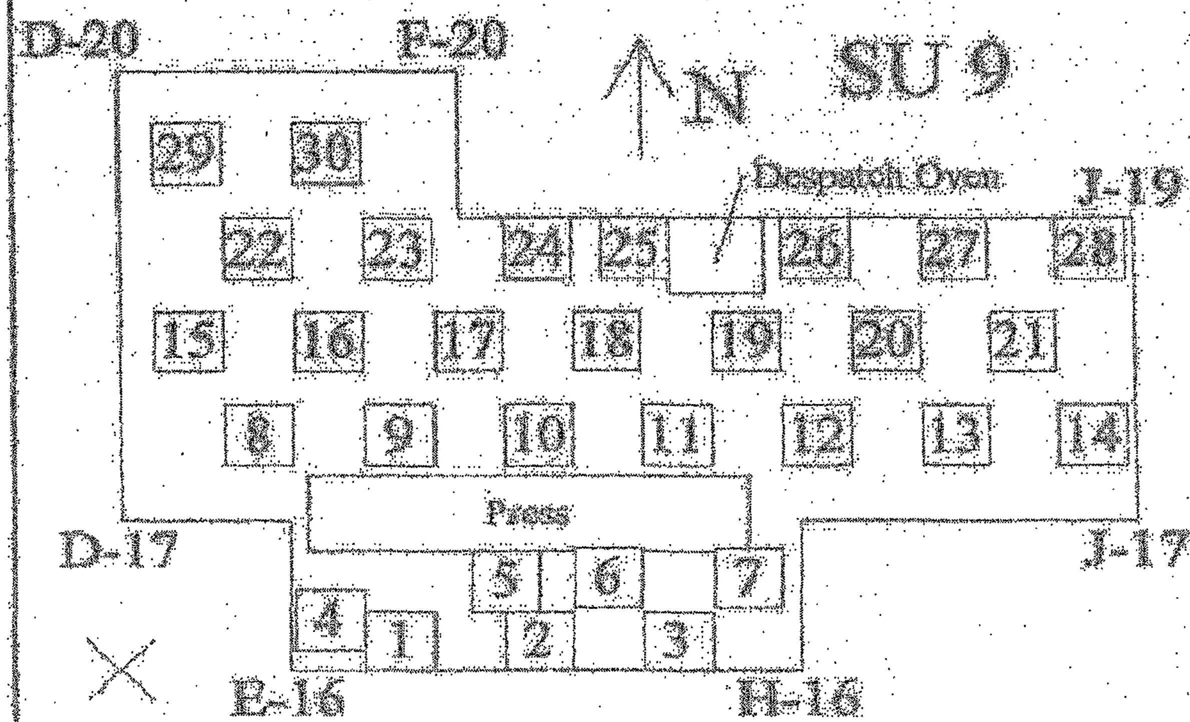
Reviewer / Date: [signature] 9/2/04 Health Physics Review: N/A /

Exhibit C

Radiological Survey Report Form

Description:	Characterization Survey - Survey Unit 9						
Date:	08/31/2004	Time:	0850	Survey No:	CH-083104-02	RWP No:	N/A

Survey Diagram:



Legend: (#) Fixed/Removable Location   -#- Exposure Rate (µR/hr)   —✕—✕—✕— Posted Area Boundary

Remarks: The Origin of Survey Unit (E-16.5, D-20.5) is marked by X in the SW corner of the SU. Sample locations 1, 2, & 3 were displaced 5 ft. north due to a pit. Sample Locations 4, 5, 6, 7 were displaced 8 - 15 feet south. Sample location 25 was displaced 5 ft west.

Technician(s) Signature / Date:	[signature] / 8/31/04	N/A	/
Project Review:	[signature] / 8/31/04	Other Review: N/A	/

Exhibit A
Radiological Survey Report Form

Description: Characterization Survey - Survey Unit 10

Date: 02/01/2004	Time: 0700	Survey No: CH-SU10-04-01	RWP No: N/A

Purpose of Survey (For Release Surveys Include Radiological): Static Measurements in SU 10

Instrument Data — Instrument Manufacturer(s): Eberline [ ] Ludlum [X] [ ] [ ]

Detector Type	Detector S/N	Detector Cal Due	Meter Type	Meter S/N	Meter Cal Due	Sensitivities	Bkgd. (cpm)	Counting Time	MDA (dpm)
43-[illegible]	PR179154	[illegible]	2221	180612	[illegible]	α	0.42	20	8.1
						β/γ	463	23	36.3
43-[illegible]	PR[illegible]	[illegible]	2224	190[illegible]	02/12/05	α	1.3	30	7.6
						β/γ	214	3.0	176
44-9	PR[illegible]	[illegible]	3	175254	[illegible]	β/γ (CPM)	47	30	313
N/A	N/A	N/A	Model 19	8574	[illegible]	Exposure	N/A	N/A	N/A

Sample Number	Description/Results	Gross α Removable CPM	Net α Removable dpm/100 cm²	Gross β/γ Removable CPM	Net β/γ Removable dpm/100 cm²	Gross α CPM	Net α dpm/100 cm²	Gross β/γ CPM	Net β/γ dpm/100 cm²	Exposure Rate μR
	Survey Results	**Smearable Results**				**Direct Readings**				
1	Sample Locations (see map)					14	-2	297	09	N/A
2						15	-7	294	8	
3						16	9	356	236	
4						17	13	308	102	
5						13	4	283	34	
6						17	15	273	27	
7						10	-23	349	343	
8						20	03	303	134	
9						11	-13	353	-6	
10						14	-2	377	38	
11						18	9	246	35	
12						10	24	225	-112	
13						21	36	264	10	
14						10	-23	414	430	
15						20	31	307	51	

Remarks: Field Background for 43-93 generated on SU 104

"NCD" = No Contamination Detected (< MDA)

Technician(s) Signature/Date: [signature] 1-31-04 N/A

Reviewed By: [signature] [illegible] Client Review: N/A

Exhibit B
Radiological Survey Report Form

Description: Characterization Survey - Survey Unit 10

Date: 09/01/2004 | Time: 0700 | Survey No: CH-[illegible] | RWP No: N/A

Survey Results		Removable Results				Direct Readings				
Sample Number	Description/Results	Gross α Removable CPM	Net α Removable dpm/100 cm²	Gross β Removable CPM	Net β Removable dpm/100 cm²	Gross α CPM	Net α dpm/100 cm²	Gross β/γ CPM	Net β/γ dpm/100 cm²	Exposure Rate µR
16	Sample Locations (see map)	N/A				12	30	[illegible]	60	N/A
17						17	15	291	29	
18						10	-9	277	29	
19						21	26	286	72	
20						19	23	287	59	
21						13	-7	366	202	
22						15	13	350	158	
23						16	9	258	22	
24						13	-7	224	-40	
25						13	-7	243	-38	
26						17	13	234	-40	
27						12	-12	329	165	
28						13	-9	329	180	
29						16	9	268	72	
30						15	4	273	37	
31	Duplicate Count #5					19	25	310	135	
32	Duplicate Count #16					25	58	336	218	
33	Duplicate Count #19					22	42	304	130	
34	Duplicate Count #30					13	-7	313	142	
35	N/A					N/A				
36										
37										
38										
39										

Remarks: Field Backgrounds for [illegible] generated on [illegible]

Technician(s) Signature/Date: [signature] [illegible] N/A

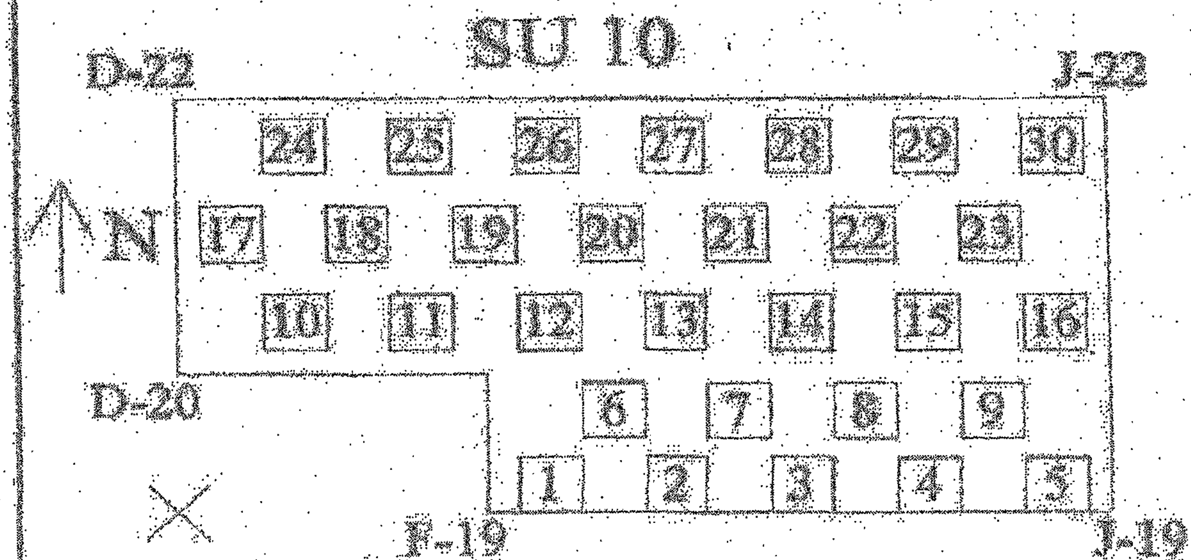
Program Reviewer: [signature] Client Reviewer: N/A

Exhibit C

Radiological Survey Report Form

Description:	Characterization Survey – Survey Unit 10						
Date:	09/01/2004	Time:	0700	Survey No.:	CH-090104-01	RWP No.:	N/A

Survey Diagram:



Legend: (#) Fixed/Removable Locations #. Exposure Rate in R/hr —X—X—X— Posted Area Boundary

Remarks: The Origin of Survey Unit ([illegible]) is marked by X in the SW corner of the [illegible]

Technician(s) Signature (Date):	[illegible]	N/A	/
Project Review:	[illegible]	Other Review:	N/A /

Exhibit A
Radiological Survey Report Form

Description: Characterization Survey - Survey Unit 11

Date: 08/31/2004	Time: 1145	Survey No: CH-083104-03	RWP No: N/A

Purpose of Survey (For Release Surveys Include Recipient): Static Measurements in SU 11

Instrument Data — Instrument Manufacturer's Name: [illegible] ☐ Bicron ☐ Ludlum ☒ ☐ ☐

Detector Type	Detector S/N	Detector Cal Due	Meter Type	Meter S/N	Meter Cal Due	[illegible]	Bkgd. (cpm)	Correction Factor	MDA (dpm)
[illegible]	PR179134	[illegible]	2929	190012	[illegible]	α	0.42	[illegible]	[illegible]
						β/γ	49.2	2.3	56.5
[illegible]	PR200122	[illegible]	2224	190220	[illegible]	α	117	[illegible]	61.4
						β/γ	242	3.9	177
44-9	PR[illegible]	[illegible]	3	171253	[illegible]	[illegible]	47	30	713
N/A	N/A	N/A	Model 19	[illegible]	[illegible]	Exposure	N/A	N/A	N/A

Survey Results		Removable Results				Direct Readings				
Sample Number	Description/Results	Gross α Removable CPM	Net α Removable dpm/100 cm²	Gross β/γ Removable CPM	Net β/γ Removable dpm/100 cm²	Gross α CPM	Net α dpm/100 cm²	Gross β/γ CPM	Net β/γ dpm/100 cm²	Exposure Rate
1	Sample Locations (see map)	N/A				10	36	320	216	N/A
2						10	23	294	81	
3						10	-9	300	109	
4						11	-9	288	21	
5						15	23	321	163	
6						16	12	288	63	
7						18	34	310	120	
8						24	65	280	66	
9						17	29	315	144	
10						19	39	293	72	
11						9	-15	277	30	
12						14	12	294	81	
13						26	88	327	180	
14						15	18	285	94	
15						9	-15	280	39	

Remarks: Field Background for 43-[illegible] performed on 8/31/04

NCDC = No Contamination Detected [illegible]

Technician(s) Signature / Date: [signature] 8/31/04 N/A /

Reviewer: [signature] 8/31/04 [illegible] Review: N/A /

Exhibit B
Radiological Survey Report Form

Description: Characterization Survey - Survey Unit 11

Date: 08/31/2004 | Time: 1145 | Survey No: CH-083104-03 | RWP No: N/A

Survey Results		Smearable Results				Direct Readings				
Sample Number	Description/Remarks	Gross Removable CPM	Beta Removable dpm/100 cm²	Gross Removable CPM	Alpha Removable dpm/100 cm²	Gross CPM	Net dpm/100 cm²	Gross Bkg CPM	Net Beta dpm/100 cm²	Exposure Rate uR
16	Sample Locations (see map)					11	-4	247	-9	
17						13	13	289	37	
18						32	110	231	-18	
19						14	12	283	41	
20						8	-20	300	60	
21						15	18	269	6	
22						15	16	293	75	
23						8	-20	309	105	
24						11	-4	269	93	
25						26	35	295	56	
26						11	-4	309	117	
27			N/A			18	29	294	87	N/A
28						7	-23	317	130	
29						10	-9	292	73	
30						16	9	271	12	
31	Duplicate Count for #10					10	39	301	89	
32	Duplicate Count for #12					14	13	294	81	
33	Duplicate Count for #30					13	7	266	-3	
34	Duplicate Count for #30					18	34	257	40	
35										
36										
37	N/A						N/A			
38										
39										

Remarks: Field Backgrounds for [illegible] generated on 8/31/04

Technician(s) Signature / Date: [signature] 8/31/04 N/A /

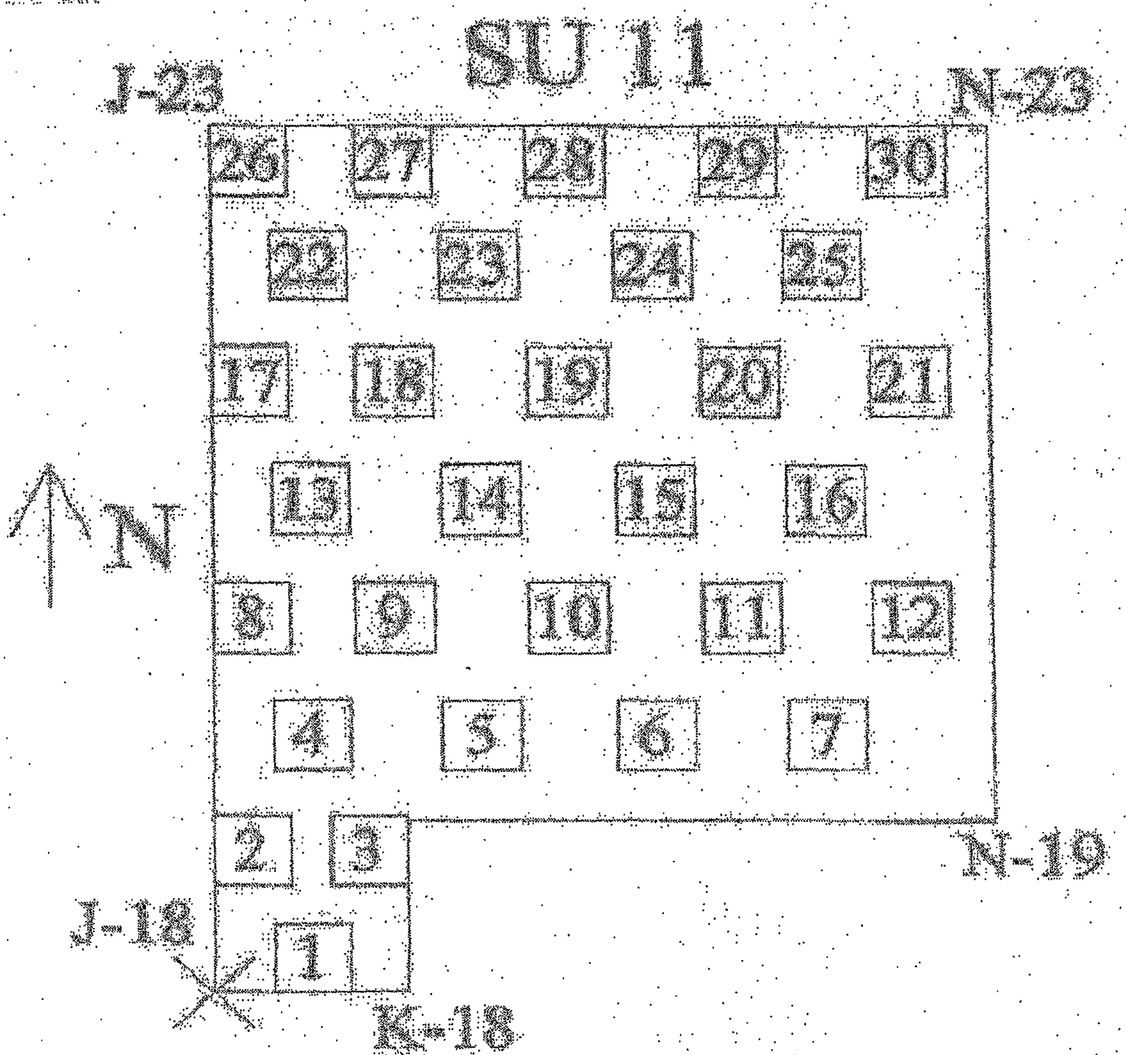
Range Reviewer: [signature] / 8/31/04 Client Reviewer: N/A /

Exhibit C

Radiological Survey Report Form

Description:	Characterization Survey - Survey Unit 11						
Date:	[illegible]	Time:	[illegible]	Survey No:	[illegible]	RWP No:	N/A

Survey Diagram



Legend: [illegible]

Remarks: The Origin of Survey Unit [illegible]

Technician(s) Signature/Date: [illegible] N/A

Health Review: [illegible] N/A

Exhibit A
Radiological Survey Report Form

Description: Characterization Survey - Survey Unit 12

Date: [illegible] | Time: [illegible] | Survey No: CH-[illegible]-02 | RWP No: N/A

Purpose of Survey (For Release Surveys Include Rack/Line): Static Measurements in SU 12

Instrument Data — Instrument Manufacturer(s): Eberline ☐ Bicron ☐ Ludlum ☒ ☐ ☐

Detector Type	Detector S/N	Detector Cal. Date	Meter Type	Meter S/N	Meter Cal Date	Sensitivities	Bkgd. (cpm)	Conversion Factor	MDA (dpm)
43-89-1	[illegible]	[illegible]	2350	[illegible]	[illegible]	α	[illegible]	2.9	9.1
						β/γ	[illegible]	2.3	[illegible]
43-93	PR[illegible]132	[illegible]	2224	190220	[illegible]	α	1.3	[illegible]	[illegible]
						β/γ	[illegible]	3.0	[illegible]
44-9	[illegible]	[illegible]	3	171[illegible]	[illegible]	β/γ (CPM)	[illegible]	[illegible]	[illegible]
N/A	N/A	N/A	Model 19	[illegible]	[illegible]	Exposure	[illegible]	N/A	N/A

Survey Results		Removable Results				Direct Readings				
Sample Number	Description/Results	Gross α Removable CPM	Net α Removable dpm/100 cm²	Gross β/γ Removable CPM	Net β/γ Removable dpm/100 cm²	Gross α CPM	Net α dpm/100 cm²	Gross β/γ CPM	Net β/γ dpm/100 cm²	Exposure Rate µR
1	Sample locations (See map)	NCD				7	-30	[illegible]	[illegible]	N/A
2						30	[illegible]	[illegible]	270	
3						15	4	232	[illegible]	
4						30	[illegible]	[illegible]	[illegible]	
5						13	4	226	[illegible]	
6						[illegible]	9	[illegible]	[illegible]	
7						13	4	239	-105	
8						11	-18	301	[illegible]	
9						13	-7	[illegible]	[illegible]	
10						[illegible]	[illegible]	[illegible]	213	
11						17	[illegible]	[illegible]	27	
12						13	-12	[illegible]	[illegible]	
13						17	13	312	[illegible]	
14						10	-9	[illegible]	[illegible]	
15						10	[illegible]	[illegible]	[illegible]	

Remarks: Field Background [illegible]

"NCD" = No Contamination Detected [illegible]

Technician(s) Signature / Date: [signature] / [illegible] | N/A /

Prepared / Reviewer: [signature] / [illegible] | N/A /

Exhibit B
Radiological Survey Report Form

Description: Characterization Survey - Survey Unit 12

Date: 09/01/2004 | Time: 0835 | Survey No: CH-090104-02 | RWP No: N/A

Sample Number	Description/Location	Gross α Removable CPM	Net α Removable dpm/100 cm²	Gross β/γ Removable CPM	Net β/γ Removable dpm/100 cm²	Gross α CPM	Net α dpm/100 cm²	Gross β/γ CPM	Net β/γ dpm/100 cm²	Exposure Rate µR/hr
	Survey Results	**Smearable Results**				**Direct Readings**				
16	Sample Locations (see map)	N/A				10	-23	349	243	N/A
17						13	-7	243	-83	
18						6	-29	326	138	
19						13	4	326	136	
20						12	-3	235	33	
21						12	-6	285	63	
22						15	-9	307	124	
23						4	-35	283	57	
24						12	-12	230	-42	
25						10	-13	241	-49	
26						19	-12	267	9	
27						24	34	249	275	
28						23	47	305	126	
29						27	15	258	6	
30						15	23	229	38	
31	Duplicate Count for #4					12	-13	319	133	
32	Duplicate Count for #13					14	-2	276	-24	
33	Duplicate Count for #22					13	-7	250	43	
34	Duplicate Count for #25					23	37	276	43	
35	N/A					N/A				
36										
37										
38										
39										

Remarks: Field backgrounds for [illegible] presented on [illegible]

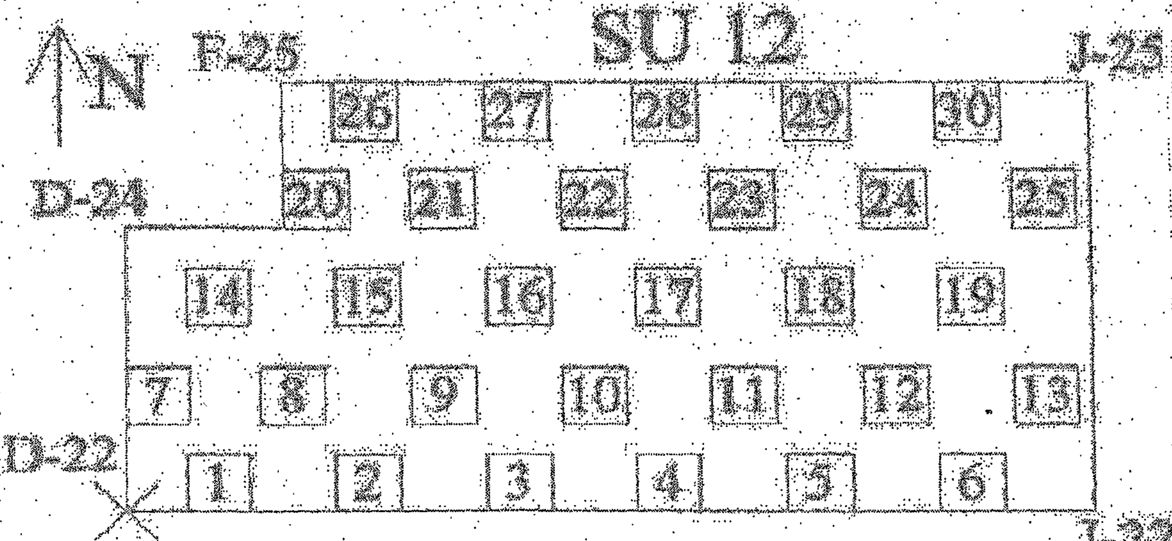
Technician(s) Signature / Date: [illegible] [illegible] N/A

Project Review: [illegible] [illegible] Client Review: N/A

Exhibit C
Radiological Survey Report Form

Description:	Characterization Survey – Survey Unit 12						
Date:	06/12/2004	Time:	0815	Survey No:	CH-0001 06.02	RWP No:	N/A

Survey Diagram:



Legend: (#) Fixed/Removable Location   # Exposure Rate (µR/hr)   —X—X—X— Posted Area Boundary

Remarks: The Origin of Survey Unit [illegible] is marked by X in the SW corner [illegible]

Technician(s) Signature / Date:	[signature]	/9/1/04	N/A
Program Review:	[signature] 7/1/04	Client Review:	N/A

Exhibit A
Radiological Survey Report Form

Description: Characterization Survey - Survey Unit 13

Date: 09/01/2004	Time: 01035	Survey No: CH-090104-03	RWP No: N/A

Purpose of Survey (For Release Surveys Include Recipient): Static Measurements in SU 13

Instrument Data [illegible] ☐ [illegible] ☐ [illegible] ☒ ☐ ☐

Detector Type	Detector S/N	Detector Cal Due	Meter Type	Meter S/N	Meter Cal Due	[illegible]	Bkgd. (cpm)	Correction Factor	MDA (dpm)
43-10-1	PR177534	[illegible]	2929	178813	08/08/04	α	0.42	2.9	9.1
						βγ	40.2	2.3	56.3
43-93	PR200132	02/12/05	2224	190226	02/12/05	α	14.3	5.6	73.6
						βγ	244	2.5	193
44-9	PR203339	02/15/04	3	171254	02/15/04	βγ (CPM)	47	20	719
N/A	N/A	N/A	Model 19	[illegible]	01/09/05	Exposure	N/A	N/A	N/A

Sample Number	Survey Results: Description/Results	Smearable Results: Gross α Removable CPM	Net α Removable dpm/100 cm²	Gross βγ Removable CPM	Net βγ Removable dpm/100 cm²	Direct Readings: Gross α CPM	Net α dpm/100 cm²	Gross βγ CPM	Net βγ dpm/100 cm²	Exposure Rate µR
1	Sample Locations (see map)	N/A				11	-18	249	-45	N/A
2						16	20	285	60	
3						11	-18	300	117	
4						8	-34	227	-111	
5						17	15	290	99	
6						18	29	340	236	
7						18	25	283	91	
8						18	25	315	180	
9						9	-29	233	-93	
10						26	69	313	162	
11						20	81	231	[illegible]	
12						18	20	247	-9	
13						10	-23	282	30	
14						13	4	261	6	
15	↓					21	36	310	188	

Remarks: Field Background for 43-93 presented on 9/01/04

"NCD" = [illegible]

Technician(s) Signature / Date: [signature] 9.1.04 N/A /

Designee Review: [signature] [illegible] Client Review: N/A /

Exhibit B
Radiological Survey Report Form

Description: Characterization Survey - Survey Unit 13

Date: 03/01/2004 | Time: 01015 | Survey No: CH-030104-03 | RWP No: N/A

Sample Number	Description/Results		Gross α Removable (CPM)	Net α Removable dpm/100 cm²	Gross β/γ Removable (CPM)	Net β/γ Removable dpm/100 cm²	Gross α (CPM)	Net α dpm/100 cm²	Gross β/γ (CPM)	Net β/γ dpm/100 cm²	Exposure Rate µR
16	Sample Locations (see map)						20	31	297	75	
17							13	6	274	27	
18							19	15	300	105	
19							13	47	280	72	
20							12	43	342	234	
21							13	4	276	-40	
22							18	23	274	30	
23							14	-2	265	-65	
24							16	23	280	37	
25							12	22	297	90	
26							18	20	312	144	
27				N/A			12	12	253	2	N/A
28							24	31	226	-114	
29							17	15	283	83	
30							19	24	313	153	
31	Duplicate Count for #5						21	26	321	88	
32	Duplicate Count for #13						17	19	287	29	
33	Duplicate Count for #19						22	44	260	73	
34	Duplicate Count for #26						24	36	297	69	
35											
36											
37	N/A							N/A			
38											
39											

Remarks: Field measurements for 43-73 performed on 3/01/04

Technician(s) Signature/Date: [signature] 3/1/04 N/A

Project Review: [signature] 3/2/04 Client Review: N/A

Description: Characterization Survey - Survey Unit 13

Survey Diagram:

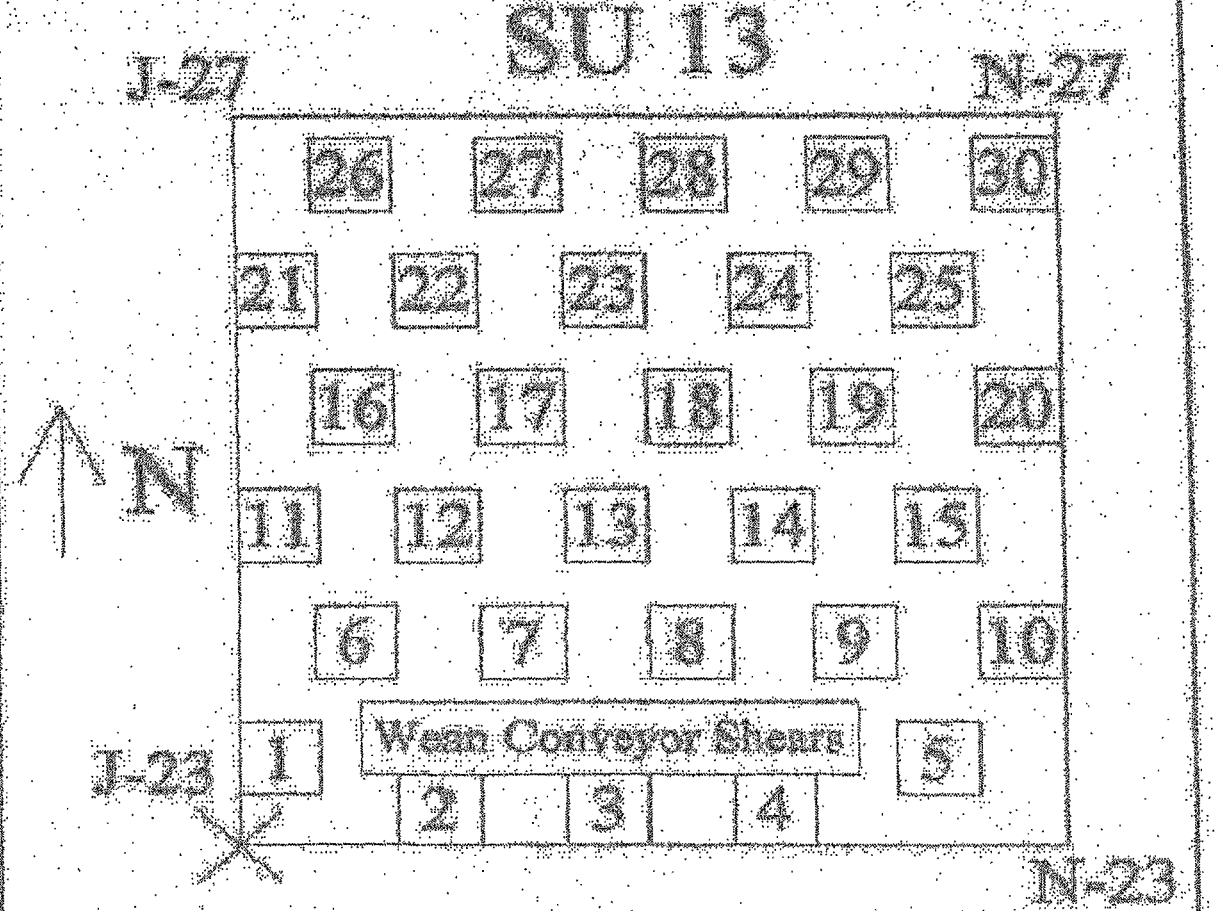


Exhibit A
Radiological Survey Report Form

Description: Characterization Survey - Survey Unit 14

Date: 09/02/2004 | Time: 0835 | Survey No.: CH-090204-01 | RWP No.: N/A

Purpose of Survey (For Release Surveys Include Height(s)): Static Measurements in SU 14

Instrument Data | Indicate Alarm/Scaler Status [illegible] | Ratemeter ☐ | Other ☒

Detector Type	Detector S/N	Detector Cal Due	Meter Type	Meter S/N	Meter Cal Due	Background	Bkgd (cpm)	Efficiency Factor	MDA (dpm)
43-10-1	PR[illegible]	[illegible]	2929	[illegible]	[illegible]	α	[illegible]	20	[illegible]
						β/γ	40.2	23	[illegible]
43-68	PR[illegible]	[illegible]	2360	[illegible]	[illegible]	α	[illegible]	[illegible]	[illegible]
						β/γ	[illegible]	[illegible]	[illegible]
44-9	PR[illegible]	03/11/04	3	171254	03/15/05	β/γ (GM)	47	20	313
N/A	N/A	N/A	Model 19	[illegible]	[illegible]	Exposure	N/A	N/A	N/A

Survey Results		Smearable Results				Direct Readings				
Sample Number	Description/Results	Gross α Removable CPM	Net α Removable dpm/100 cm²	Gross β/γ Removable CPM	Net β/γ Removable dpm/100 cm²	Gross α CPM	Net α dpm/100cm²	Gross β/γ CPM	Net β/γ dpm/100 cm²	Exposure Rate uR
1	Sample Locations (see map)					10	33	267	126	N/A
2						20	39	315	204	
3						19	37	304	201	
4						10	35	277	150	
5						15	12	286	177	
6						14	6	292	181	
7						22	40	323	184	
8						14	6	281	192	
9						6	-37	250	216	
10						16	17	269	185	
11						14	17	265	114	
12						13	1	262	165	
13						31	6	296	204	
14						12	-4	239	99	
15						11	-10	269	138	

Remarks: Field background for 43-93 presented on [illegible]

RCT = [illegible]

Technician(s) Signature/Date: [signature] [illegible] N/A /

Reviewer: [signature] [illegible] Client Review: N/A /

Exhibit B
Radiological Survey Report Form

Description: Characterization Survey - Survey Unit 14

Date: 06/02/2004 | Time: 0825 | Survey No: CH-060204-01 | RWP No: N/A

Survey Results		Smearable Results				Direct Readings				
Sample Number	Description/Results	Gross α Removable CPM	Net α Removable dpm/100cm²	Gross β/γ Removable CPM	Net β/γ Removable dpm/100cm²	Gross α CPM	Net α dpm/100cm²	Gross β/γ CPM	Net β/γ dpm/100cm²	Exposure Rate mR/hr
16	Sample Locations (systematic)					21	40	311	252	
17						14	6	304	401	
18						25	71	274	161	
19						8	-20	274	147	
20						13	11	249	88	
21						18	1	285	176	
22						13	1	291	182	
23						25	48	249	96	
24						9	-31	228	32	
25						14	6	238	98	
26						21	34	247	60	
27			N/A			15	23	300	216	N/A
28						11	-10	304	231	
29						16	17	345	257	
30						8	-20	312	229	
31						17	27	296	204	
32	Duplicate Count for #16					9	-21	282	163	
33	Duplicate Count for #19					17	23	280	177	
34	Duplicate Count for #23					12	-4	277	156	
35	Duplicate Count for #30					14	12	293	186	
36										
37	N/A						N/A			
38										
39										

Remarks: Field Background for α/β [illegible]

Technician(s) Signature / Date: [signature] 6/2/04 | N/A /

Project Review: [signature] 6/2/04 | Client Review: N/A /

[illegible]
Rev. [illegible]
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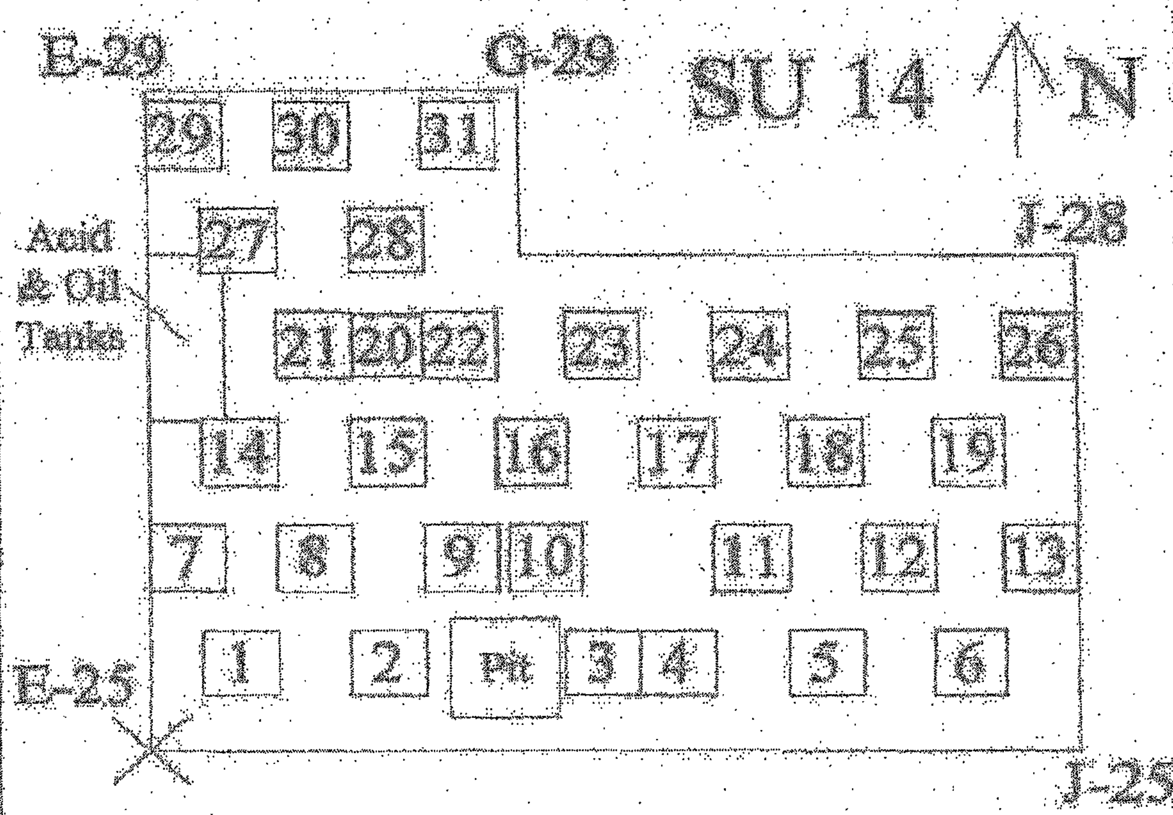
Exhibit C
Radiological Survey Report Form

Page 3 of 3

Description:	Characterization Survey - Survey Unit 14						
Date:	09/02/2004	Time:	0835	Survey No.:	CH-090204-01	RWP No.:	N/A

Survey Diagram



Legend: [illegible] [illegible] [illegible] [illegible]

Remarks:	The Origin of Survey Unit [illegible] is marked by X in the SW corner of this SU. Sample Location [illegible] has been displaced [illegible] feet east. Sample Location [illegible] has been displaced [illegible] feet to the west. Sample Location [illegible] has been displaced [illegible] feet to the east.
Technician(s) Signature / Date:	[signature] [illegible] N/A /
Program Reviewer:	[signature] [illegible] Other Reviewer: N/A /

HS-RSP-209-04
Rev. 0
Page 13 of 15

Exhibit A
Radiological Survey Report Form

Description: Characterization Survey - Survey Unit 15

Date: 09/02/2004	Time: 1820	Survey No. CH-090204-03	RWP No: N/A

Purpose of Survey (For Release Surveys Include Recipient): Static Measurements in SU 15

Instrument Data — [illegible] ☐ [illegible] ☐ [illegible] ☒ ☐ ☐

Detector Type	Detector S/N	Detector Cal Due	Meter Type	Meter S/N	Meter Cal Due	[illegible]	Bkgd (cpm)	[illegible]	MDA [illegible]
43-10-1	PR179154	[illegible]	2929	190412	[illegible]	α	1.12	22	9.1
						βγ	472	23	36.8
43-93	PR260132	[illegible]	2224	190420	[illegible]	α	12.3	34	71.7
						βγ	377	20	164
44-9	PR264215	[illegible]	2	171254	[illegible]	βγ (Cs)	47	30	713
N/A	N/A	N/A	Model 19	[illegible]	[illegible]	Gamma	N/A	N/A	N/A

Survey Results		Smearable Results				Direct Readings				
Sample Number	Description/Location	Gross α Removable CPM	Net α Removable dpm/100cm²	Gross βγ Removable CPM	Net βγ Removable dpm/100cm²	Gross α CPM	Net α dpm/100cm²	Gross βγ CPM	Net βγ dpm/100cm²	Exposure Rate [illegible]
1	Sample Locations (see map)					10	-45	250	36	N/A
2						17	92	291	109	
3						13	22	279	136	
4						10	-15	259	138	
5						6	-36	262	105	
6						5	-61	253	91	
7						16	6	316	137	
8						15	35	281	133	
9						12	1	273	138	
10						15	15	287	130	
11						9	-31	265	124	
12						9	-31	248	48	
13						20	28	301	223	
14						20	76	293	172	
15						15	28	316	151	

Remarks: Field backgrounds for [illegible] performed on [illegible]

NCD = No Contamination Detected, i.e. < MDA

Technician(s) Signature / Date: [signature] 9-2-04 | N/A /

Reviewed by: [signature] [illegible] Client Review: N/A /

Exhibit B
Radiological Survey Report Form

Description: Characterization Survey - Survey Unit 15

Date: 04/02/2004 | Time: 0820 | Survey No.: CL140-0104-02 | RWP No.: N/A

Survey Results		Smearable Results				Direct Readings				
Sample Number	Description/Results	Gross α Removable CPM	Net α Removable dpm/100 cm²	Gross β/γ Removable CPM	Net β/γ Removable dpm/100 cm²	Gross α CPM	Net α dpm/100 cm²	Gross β/γ CPM	Net β/γ dpm/100 cm²	Exposure Rate μR
16	Sample Locations (see map)	N/A				16	17	303	226	N/A
17	↓					18	28	270	125	
18						15	23	264	141	
19						16	15	240	90	
20						17	23	278	136	
21						17	14	273	138	
22						17	33	306	207	
23						16	26	301	130	
24						30	35	279	150	
25						18	35	289	150	
26						15	12	280	139	
27						9	-21	265	304	
28						13	-4	225	84	
29						14	6	234	21	
30						9	-31	397	270	
31	Duplicate Counts for #9					14	8	283	183	
32	Duplicate Counts for #16					14	6	301	222	
33	Duplicate Counts for #21					10	-15	289	165	
34	N/A					N/A				
35										
36										
37										
38										
39										

Remarks: Field Backgrounds for 43-93 generated on 3/31/04

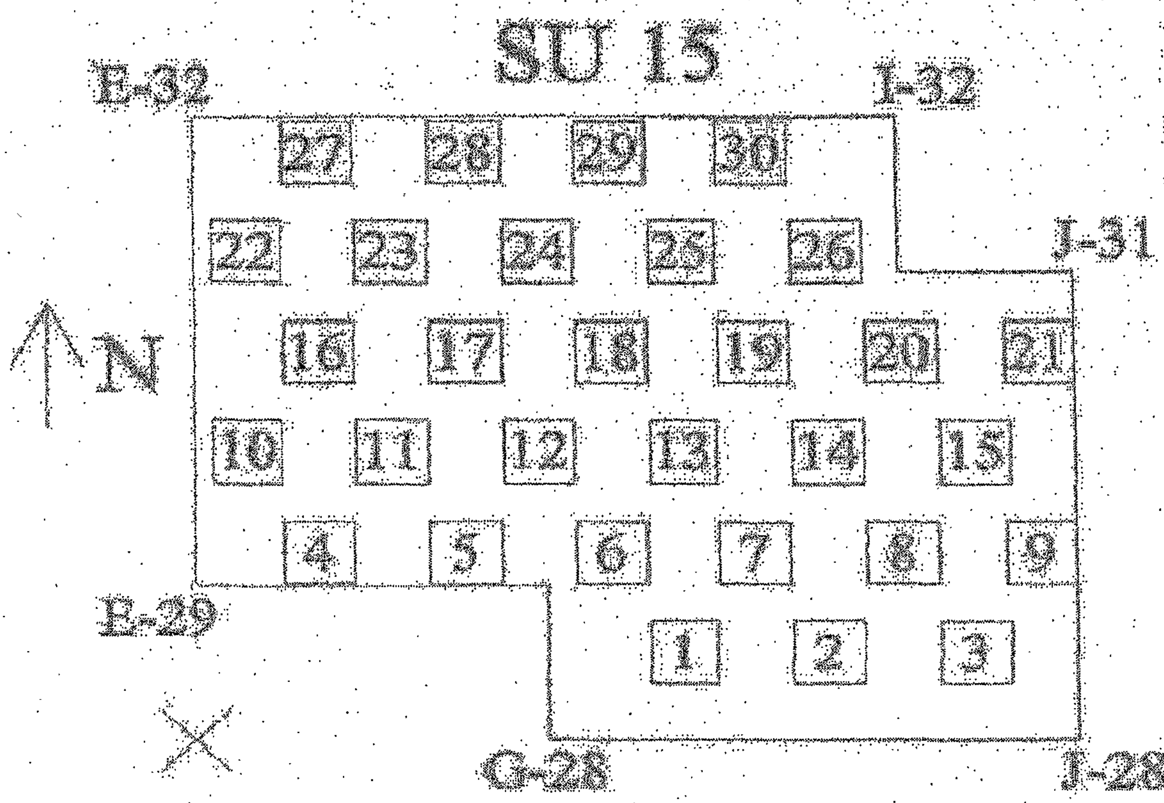
Technician(s) Signature / Date: [signature] 1 Apr 04 | N/A

Radcon Review: [signature] 4/2/04 | Printed Name: N/A

Exhibit C
Radiological Survey Report Form

Description:	Characterization Survey – Survey Unit 15						
Date:	[illegible]	Time:	[illegible]	Survey No:	[illegible]	RWP No:	N/A

Survey Diagram



Legend: (#) Fixed/Geographic Identifier; Δ Exposure Rate Reading; —X—X—X— Posted Area Boundary

Remarks: The Origin of Survey Unit (0 ft E, 0 ft N) is marked by X in the SW corner of the SU.

Technician(s) Signature / Date: [signature] [illegible] N/A /

Reviewer: [signature] [illegible] Other Review: N/A /

Exhibit A
Radiological Survey Report Form

Description:	Characterization Survey - Survey Unit 16						
Date:	[illegible]/2004	Time:	12:45	Survey No.:	CH-[illegible]-04	RWP No.:	N/A
Purpose of Survey (For Release Surveys Include Recipient):	Static Measurements in SU 16						

Instrument Data: Integrated Measurement [illegible] ☐ Scaler ☐ [illegible] ☒ ☐ ☐

Detector Type	Detector S/N	Detector Cal. Due	Meter Type	Meter S/N	Meter Cal. Due	Count Mode	Bkgd. (cpm)	Efficiency (%)	MDA (dpm)
43-[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	α	3.48	29	9.1
						βγ	242	23	563
43-93	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	α	14.1	3.4	15.9
						βγ	204	30	170
44-9	[illegible]	[illegible]	3	[illegible]	[illegible]	βγ(CPM)	47	30	773
N/A	N/A	N/A	Model 19	[illegible]	[illegible]	Exposure	N/A	N/A	N/A

Survey Results		Smearable Results				Direct Readings				
Sample Number	Description/Results	Gross α Removable CPM	Net α Removable dpm/100 cm²	Gross β/γ Removable CPM	Net β/γ Removable dpm/100 cm²	Gross α CPM	Net α dpm/100 cm²	Gross β/γ CPM	Net β/γ dpm/100 cm²	Exposure Rate μR
1	Sample Locations (see map)					20	31	282	41	N/A
2						11	-18	253	-9	
3						6	-43	289	73	
4						14	-2	308	133	
5						12	-12	206	-173	
6						14	-3	265	81	
7			N/A			17	13	263	3	
8						13	-4	235	-92	
9						12	-8	251	51	
10						11	-18	211	-209	
11						17	15	261	41	
12						13	-5	252	38	
13						4	-53	241	-19	
14						10	-30	252	-43	
15						10	-33	270	67	

Remarks: Field Background data for 43-93 generated on [illegible]

[illegible]

Technician(s) Signature / Date: [signature] 1 [illegible] 04 N/A /

Reviewed By: [signature] [illegible] Date Reviewed: N/A /

Exhibit B
Radiological Survey Report Form

Description: Characterization Survey - Survey Unit 16

Date: 09/01/2004 | Time: 1246 | Survey No.: CH-090104-34 | RWP No.: N/A

Sample Number	Description/Results	Gross α Removable CPM	Net α Removable dpm/100 cm²	Gross βγ Removable CPM	Net βγ Removable dpm/100 cm²	Gross α CPM	Net α dpm/100 cm²	Gross βγ CPM	Net βγ dpm/100 cm²	Exposure Rate μR
	Survey Results	Smearable Results				Direct Readings				
16	Sample Locations (see map)	N/A				12	4	199	-154	N/A
17	↓					13	-5	280	48	
18						17	15	381	111	
19						15	4	306	96	
20						10	-23	198	-222	
21						12	-12	300	108	
22						26	83	337	233	
23						18	20	294	50	
24						14	-2	302	110	
25						10	-23	254	-30	
26						12	-13	263	-5	
27						18	4	263	273	
28						11	-18	314	150	
29						15	-4	319	155	
30						13	-5	251	-40	
31						13	-7	257	69	
32	Duplicate Count for #4					14	-2	298	102	
33	Duplicate Count for #17					20	31	279	85	
34	Duplicate Count for #21					18	4	265	3	
35	N/A					N/A				
36										
37										
38										
39										

Remarks: Field Backgrounds for 43-93 generated on 9/01/04

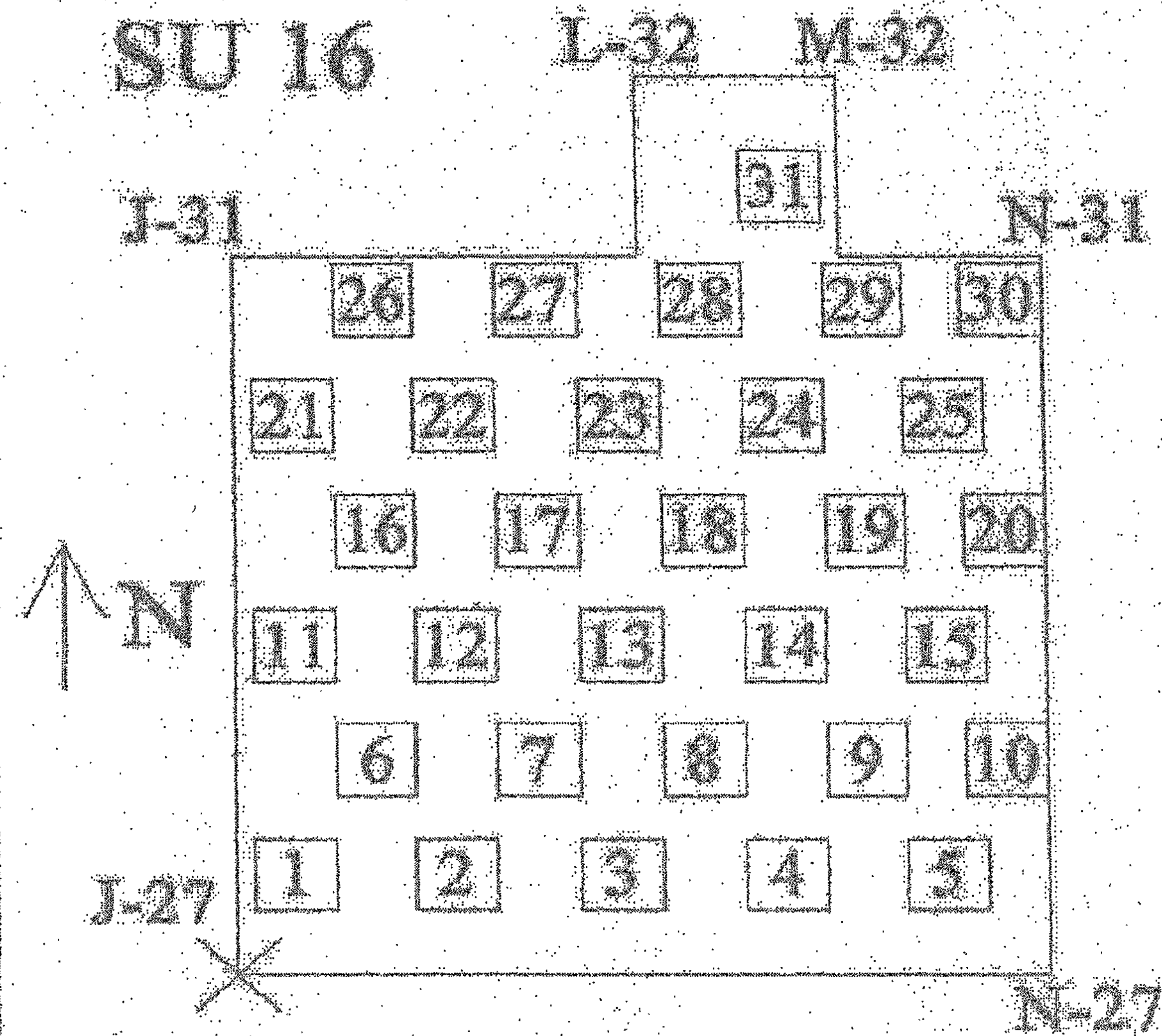
Technician(s) Signature/Date: [signature] 9-1-04 N/A /

Project Review: [signature] [date] Client Review: N/A /

Exhibit C
Radiological Survey Report Form

Description:	Characterization Survey - Survey Unit 16				
Date: 09/01/2004	Time: 1245	Survey No:	CH-090104-01	RWP No:	N/A

Survey Diagram:



Legend: (#) Fixed/Removable Locations # Exposure Rate [illegible] —X—X—X— Posted Area Boundary

Remarks: The Origin of Survey Unit (0 ft E, 0 ft N) is marked by X in the SW corner of the SU. Sample Locations 2, 3, & 4 have been displaced 5 feet to the south due to the presence of the West Conveyor Silos.

Technician(s) Signature/Date:	[signature]	[illegible]	NA /
Project Review:	[signature] [illegible]	Other Review:	NA /

Exhibit A
Radiological Survey Report Form

Description: Characterization Survey - Survey Unit 17

Date: 09/02/2004 | Time: 1000 | Survey No: CH-[illegible]-02 | RWP No: N/A

Purpose of Survey (For Release Surveys include Recipient): Static Measurements at SU 17

Instrument Data — Removable Measurements in Means: ☐ Parallax ☐ Cal/box: [illegible] ☐ ☐

Detector Type	Detector S/N	Detector Cal Due	Meter Type	Meter S/N	Meter Cal Due	Sensitivities	Eff.	Counting Time	MDA
43-10-1	PR175154	[illegible]	2929	190612	[illegible]	α	[illegible]	29	9.1
						βγ	40.5	23	24.3
43-93	PR295132	02/14/05	2224	190220	02/12/05	α	12.8	54	71.1
						βγ	22.1	335	165
44-9	PR202325	03/10/04	3	171254	[illegible]	βγ (Dist)	47	130	713
N/A	N/A	N/A	Model 19	[illegible]	[illegible]	Exposure	N/A	N/A	N/A

Sample Number	Survey Results: Description/Results	Removable Results: Gross α Removable CPM	Net α Removable dpm/100 cm²	Gross βγ Removable CPM	Net βγ Removable dpm/100 cm²	Direct Readings: Gross α CPM	Net α dpm/100 cm²	Gross βγ CPM	Net βγ dpm/100 cm²	Exposure Rate µR
1	Sample Locations (see map)					10	-15	319	218	N/A
2						14	6	287	186	
3						13	1	284	171	
4						20	39	285	174	
5						12	-4	251	[illegible]	
6						13	-4	259	78	
7						24	69	123	-41	
8						10	-13	281	165	
9						14	5	280	178	
10						12	-4	[illegible]	21	
11						15	13	[illegible]	201	
12						19	22	[illegible]	[illegible]	
13						16	17	[illegible]	[illegible]	
14						9	-31	[illegible]	35	
15						11	-16	[illegible]	[illegible]	

Remarks: Field background(s) [illegible] generated on [illegible]

"NCP" = No Contamination Present [illegible]

Technician Signature / Date: [signature] 9.[illegible].04 | N/A

Reviewed By: [signature] [illegible] | Other Review: N/A

Exhibit B
Radiological Survey Report Form

Description: Characterization Survey - Survey Unit 17

Date: 09/02/2004 | Time: 1000 | Survey No: CH-090204-03 | RWP No: N/A

Survey Results		Smearable Results				Direct Readings				
Sample Number	Description/Location	Gross α Removable CPM	Net α Removable dpm/100cm²	Gross βγ Removable CPM	Net βγ Removable dpm/100cm²	Gross α CPM	Net α dpm/100cm²	Gross βγ CPM	Net βγ dpm/100cm²	Exposure Rate µR
16	Sample Location(s) (see map)	N/A				11	-10	265	114	N/A
17						12	-4	261	165	
18						17	23	282	95	
19						8	-26	219	-29	
20						10	-17	271	159	
21						9	-21	251	72	
22						14	6	251	33	
23						15	12	228	3	
24						14	17	245	86	
25						19	34	257	30	
26						17	23	225	15	
27						10	-15	216	-32	
28						16	28	262	230	
29						9	-41	256	87	
30						5	-42	263	108	
31	Duplicate Counts for #5					19	33	251	72	
32	Duplicate Counts for #14					10	-15	222	-15	
33	Duplicate Counts for #23					14	6	245	16	
34	N/A					N/A				
35										
36										
37										
38										
39										

Remarks: Field Backgrounds for 15-33 generated on 9/2/04

Technician(s) Signature / Date: [signature] 9/02/04 | N/A /

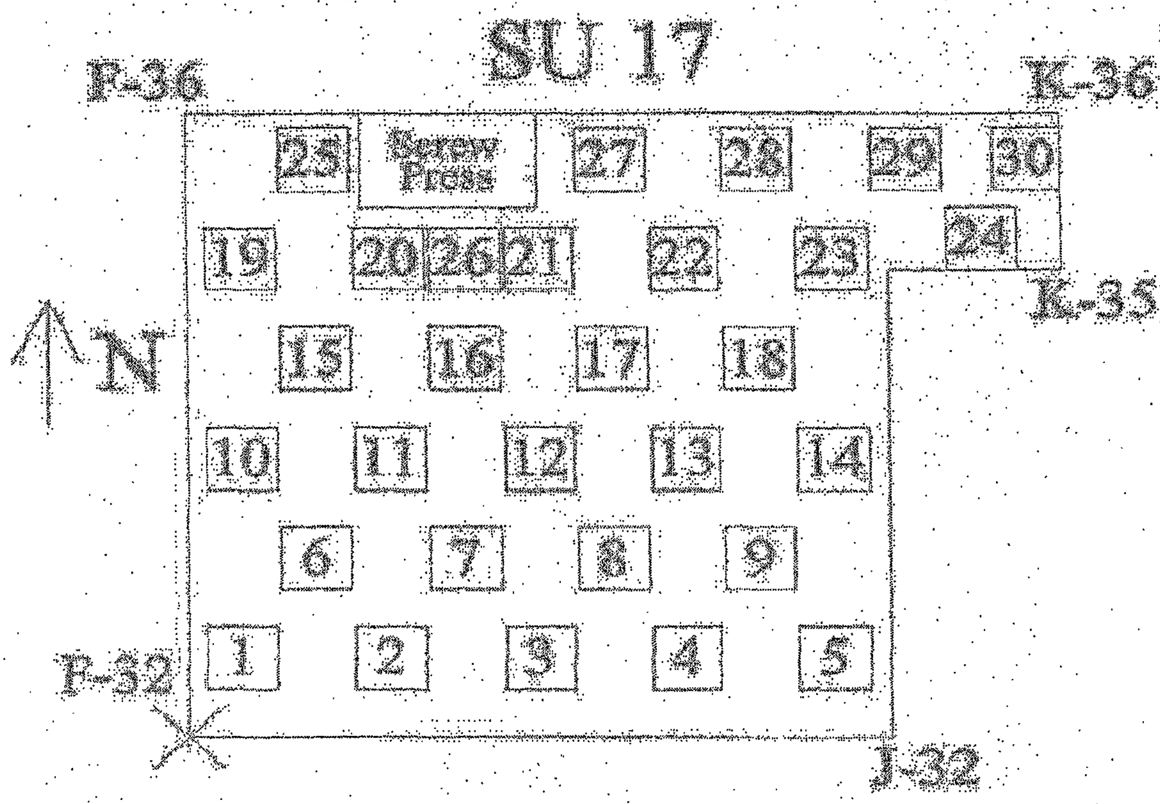
Ranger Review: [signature] 9/2/04 | Client Review: N/A /

Exhibit C

Radiological Survey Report Form

Description:	Characterization Survey - Survey Unit 17						
Date:	09/02/2004	Time:	1000	Survey No.:	[illegible]	RWP No.:	N/A

Survey Diagram:



Legend: [illegible] Location [illegible] [illegible] Area Boundary

Remarks: The Origin of Survey Unit ([illegible]) is marked as X in the SW corner of the SU. Sample Location [illegible] 12 feet south

Technician(s) Signature / Date:	[signature]	/ [illegible]	N/A	/
Program Review:	[signature]	[illegible] Other Review:	N/A	/

Exhibit A
Radiological Survey Report Form

Description: Characterization Survey - Survey Unit 18

Date: 09/02/2004 | Time: 1245 | Survey No: CH-090204-04 | RWP No: N/A

Purpose of Survey (For Release Surveys Include Recipient): Static Measurements in SU 18

Instrument Data — Instrument Monitoring [illegible] ☐ Routine ☐ Daily ☒ ☐ ☐

Detector Type	Detector S/N	Detector Cal Due	Meter Type	Meter S/N	Meter Cal Due	[illegible]	Bkgd (cpm)	[illegible]	MDA [illegible]
43-10-1	[illegible]	[illegible]	2929	[illegible]	[illegible]	α	0.42	2.5	9.1
						β/γ	49.2	25	94.3
43-89	[illegible]	02/12/05	2224	[illegible]	[illegible]	α	12.8	5.4	71.3
						β/γ	223	3.9	164
44-9	[illegible]	[illegible]	3	[illegible]	02/12/04	β/γ(cpm)	47	30	713
N/A	N/A	N/A	Model 19	[illegible]	[illegible]	Exposure	N/A	N/A	N/A

Sample Number	Description/Results	Gross α Removable CPM	Net α Removable dpm/100 cm²	Gross β/γ Removable CPM	Net β/γ Removable dpm/100 cm²	Gross α CPM	Net α dpm/100 cm²	Gross β/γ CPM	Net β/γ dpm/100 cm²	Exposure Rate μR
1	Sample Locations (see map)					9	-21	305	214	N/A
2						11	-10	307	218	
3						11	-10	303	248	
4						15	17	309	227	
5						14	6	261	142	
6						10	-13	308	234	
7						10	-13	223	-12	
8						10	17	296	207	
9						12	-4	271	133	
10						11	-20	291	182	
11						14	4	270	139	
12						16	15	270	139	
13						15	22	299	189	
14						12	27	303	225	
15						16	27	309	234	

Remarks: Field Background for 43-89 [illegible] on 9/02/04

*NCD = No Contamination Detected, i.e. < MDA

Technician(s) Signature / Date: [signature] 9.2.04 | N/A /

Project Review: [signature] 9/2/04 | Client Review: N/A /

Exhibit B
Radiological Survey Report Form

Description: Characterization Survey - Survey Unit 18										
Date: 09/03/2004	Time: 1245		Survey No: CH-090204-04				RWP No: N/A			
Survey Results		**Smearable Results**				**Direct Readings**				
Sample Number	Description/Results	Smeared Removable CPM	Net α Removable dpm/100 cm²	Gross βγ Removable CPM	Net βγ Removable dpm/100 cm²	Gross α CPM	Net α dpm/100 cm²	Gross βγ CPM	Net βγ dpm/100 cm²	Exposure Rate
16	Sample Locations (see map)	N/A				10	15	240	26	N/A
17	↓					10	-15	307	224	
18						10	-15	267	120	
19						10	-15	250	49	
20						13	-9	123	569	
21						14	17	230	139	
22						13	-4	243	42	
23						14	6	250	90	
24						11	-10	271	133	
25						12	-4	294	201	
26						13	1	305	234	
27						21	30	303	177	
28						17	23	303	177	
29						13	-16	234	21	
30						21	44	253	78	
31	Duplicate Count for #18					17	23	292	185	
32	Duplicate Count for #17					14	6	305	234	
33	Duplicate Count for #26					13	1	301	222	
34	N/A					N/A				
35										
36										
37										
38										
39										

Remarks: Field backgrounds for 13-87 presented on 9/02/04

Technician(s) Signature / Date: / 9-2-04 N/A /

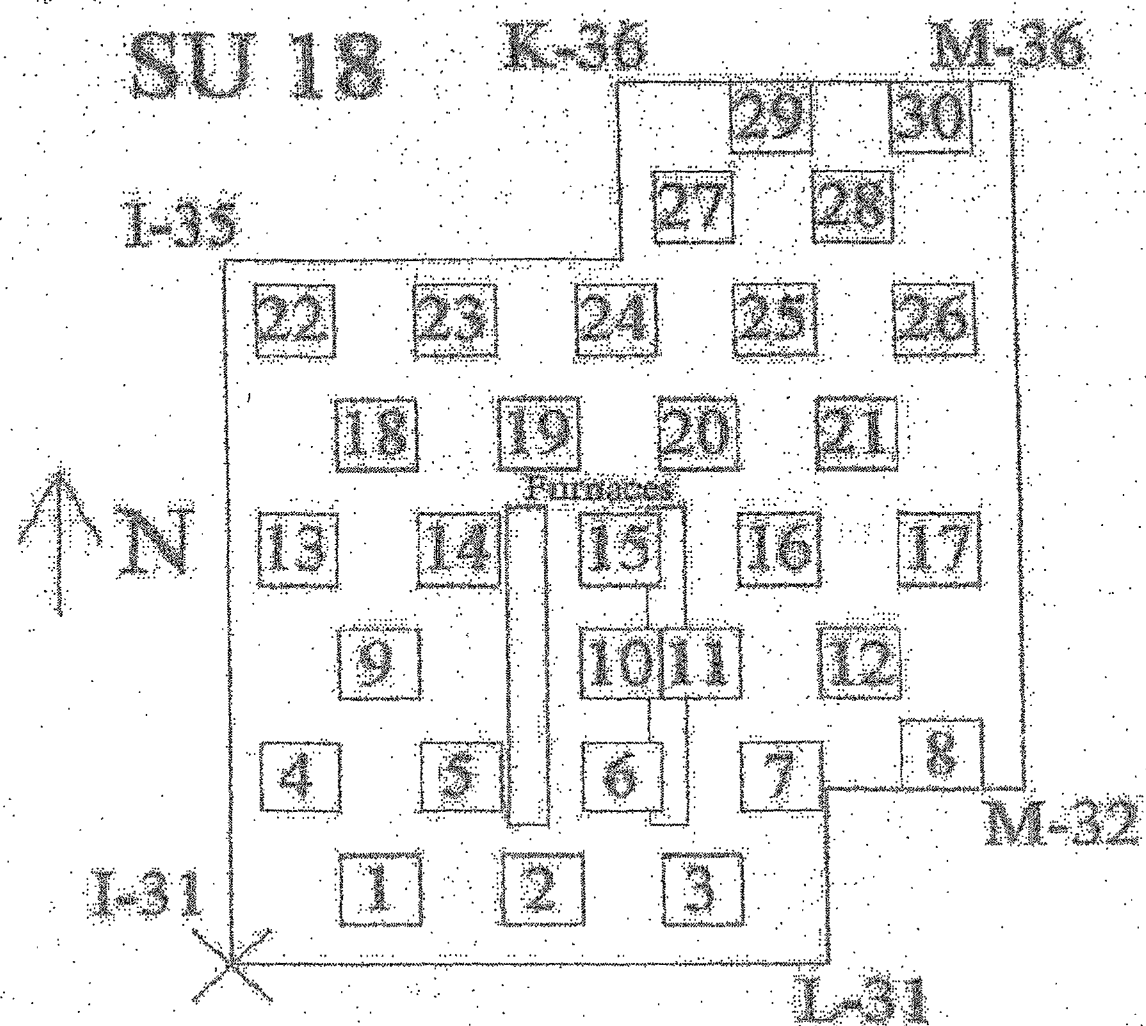
Reviewer: Clerk Review: N/A /

Exhibit C

Radiological Survey Report Form

Description:	Characterization Survey - Survey Unit 18						
Date:	09/02/2004	Time:	1245	Survey No:	C-0-090204-04	RWP No:	N/A

Survey Diagram:



Legend: (#) Fixed/Removable Location; #: Exposure Rates (μR/hr); —X—X—X— Posted Area Boundary

Remarks: The Origin of Survey Unit (0 ft E, 0 ft N) is marked by X in the SW corner of the SU. Sample Location 10 was displaced 10 feet east.

Technician(s) Signature / Date:	[signature] 1/9/2004	N/A	/
Data Reviewer:	[signature] 1/9/2004	Chart Reviewer: N/A	/

Exhibit A
Radiological Survey Report Form

Description:	Characterization Survey - Survey Unit 19				
Date: 09/03/2004	Time: 0845	Survey No:	CH-090304-01	RWP No:	N/A
Purpose of Survey (For Release Surveys Include Recipient):	Static Measurements in SU 19				

Instrument Data — Instrument Maintenance for Meters ☐ Nuclear ☐ Ludlum ☒ ☐ ☐

Detector Type	Detector S/N	Detector Cal Due	Meter Type	Meter S/N	Meter Cal Due	Efficiency	Bkgd. (cpm)	Correction Factor	MDA (dpm)
43-89-1	PR079194	03/08/05	2929	190612	03/08/05	α	0.43	10	9.1
						β/γ	457	3.3	54.4
43-93	PR200122	03/12/05	2224	190230	03/12/05	α	3.3	3.4	10.2
						β/γ	250	3.3	178
44-9	PR200209	03/13/04	3	171241	03/13/04	β/γ (Cnt)	47	30	713
N/A	N/A	N/A	Model 19	[illegible]	[illegible]	Exposure	N/A	N/A	N/A

Sample Number	Description/Results	Gross α Removable CPM	Net α Removable dpm/100 cm²	Gross β/γ Removable CPM	Net β/γ Removable dpm/100 cm²	Gross α CPM	Net α dpm/100 cm²	Gross β/γ CPM	Net β/γ dpm/100 cm²	Exposure Rate µR
1	Sample Locations (see map)	N/A				6	-35	314	138	N/A
2						14	8	310	129	
3						11	46	315	135	
4						8	-24	249	-117	
5						13	9	270	23	
6						16	19	306	114	
7						22	97	281	39	
8						19	39	271	6	
9						7	-49	261	-31	
10						23	91	263	0	
11						24	62	300	81	
12						20	61	309	33	
13						12	-4	269	-55	
14						11	3	250	-60	
15						17	51	267	-3	

Remarks: [illegible] background for 43-93 [illegible]

[illegible]

Technician(s) Signature / Date: [signature] 9.3.04 N/A /

Reviewed By: [signature] 9/3/04 Client Review: N/A /

EXHIBIT B

Radiological Survey Report Form

Description: Characterization Survey - Survey Unit 19

Date: 09/03/2004	Time: 0645	Survey No: CH-090304-01	RWP No: N/A

Survey Results		Smearable Results				Direct Readings				
Sample Number	Description/Results	Gross α Removable CPM	Net α Removable dpm/100 cm²	Gross β/γ Removable CPM	Net β/γ Removable dpm/100 cm²	Gross α CPM	Net α dpm/100 cm²	Gross β/γ CPM	Net β/γ dpm/100 cm²	Exposure Rate µR
16	Sample Locations (see map)	N/A				17	24	282	103	N/A
17						13	3	246	-60	
18						26	35	278	30	
19						8	-24	274	13	
20						17	24	288	68	
21						13	12	280	50	
22						12	-2	277	27	
23						22	31	268	-40	
24						12	-2	266	[illegible]	
25						25	34	303	63	
26						17	24	263	-13	
27						16	19	305	51	
28						22	31	309	85	
29						18	30	324	108	
30						13	3	180	-237	
31						15	14	249	-87	
32	Duplicate Count for #18					16	19	330	170	
33	Duplicate Count for #19					25	30	316	144	
34	Duplicate Count for #25					24	43	301	-80	
35	N/A					N/A				
36										
37										
38										
39										

Remarks: Field Backgrounds for 43-47 [illegible] on 9/13/04

Technician(s) Signature / Date: [signature] 9/3/04 N/A /

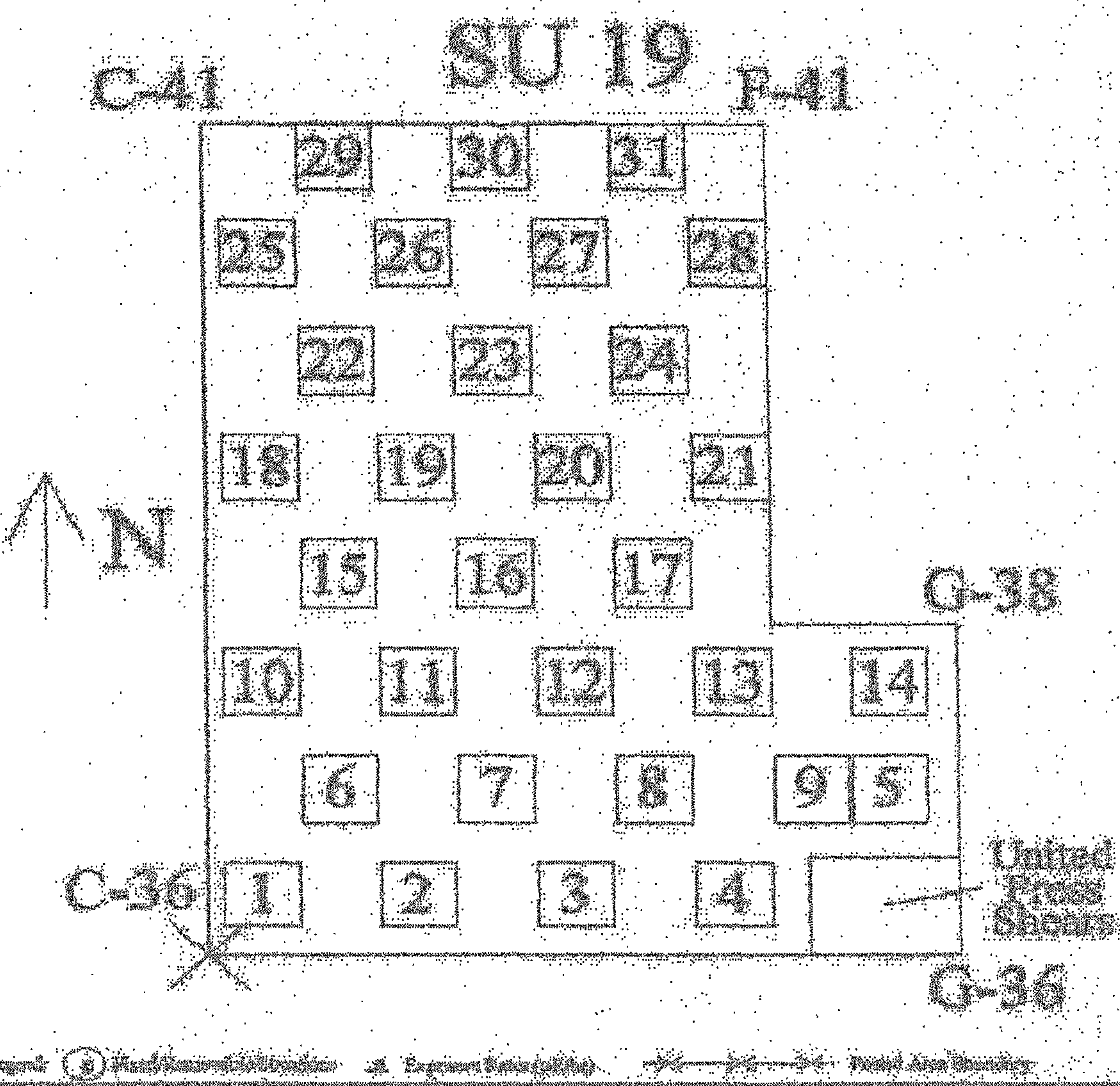
Program Review: [signature] 9/3/04 Client Review: N/A /

Exhibit C

Radiological Survey Report Form

Description:	Characterization Survey - Survey Unit 19						
Date:	[illegible]/2004	Time:	[illegible]	Survey No:	[illegible]	RWP No:	N/A

Survey Diagram:



Legend: [illegible]

Remarks: [illegible]

Technician Signature / Date:	[signature] [illegible]		N/A
[illegible]	[signature] [illegible]	[illegible]	N/A

Exhibit A
Radiological Survey Report Form

Description: Characterization Survey - Survey Unit 20

Date: 03/03/2004	Time: 0820	Survey No.: CH040303-02	RWP No.: N/A

Purpose of Survey (For Release Surveys Include Recipient): Static Measurements in SU 20

Instrument Data — Instrument Manufacturer(s): Eberline ☐ Ludlum ☒ ☐ ☐

Detector Type	Detector S/N	Detector Cal. Due	Meter Type	Meter S/N	Meter Cal Due	Sensitivities	Bkgd. (cpm)	Correction Factor	MDA (dpm)
43-10-1	PR179414	05/2005	2929	190612	03/26/04	α	0.82	2.0	9.1
						βγ	49.2	2.3	50.3
43-93	PR209126	02/12/05	2224	190230	02/12/05	α	12.5	3.4	70.9
						βγ	268	3.8	378
44-9	PR261535	03/13/04	3	171284	03/13/04	βγ (cpm)	40	10	413
N/A	N/A	N/A	Model 19	8078	02/20/05	Exposure	N/A	N/A	N/A

Survey Results		Smearable Results				Direct Readings				
Sample Number	Description/Results	Gross α Removable CPM	Net α Removable dpm/100 cm²	Gross β/γ Removable CPM	Net β/γ Removable dpm/100 cm²	Gross α CPM	Net α dpm/100 cm²	Gross β/γ CPM	Net β/γ dpm/100 cm²	Exposure Rate μR
1	Sample Locations (see map)					28	24	310	54	N/A
2						15	19	239	49	
3						8	24	277	27	
4						17	23	319	147	
5						18	50	315	138	
6						17	24	321	134	
7			N/A			30	41	285	109	
8						51	100	284	29	
9						16	35	255	37	
10						17	24	277	27	
11						16	19	268	172	
12						13	8	292	72	
13						19	30	259	80	
14						14	8	287	31	
15						14	8	290	36	

Remarks: β/γ Backgrounds for 43-93 [illegible]

NCD = No Contamination Detected, i.e. < MDA

Tech/Reviewer Signature / Date: [signature] 3-3-04 N/A

Project Review: [signature] [illegible] Client Review: N/A

Exhibit B
Radiological Survey Report Form

Description: Characterization Survey - Survey Unit 30

Date: 09/03/2004 | Time: 0820 | Survey No: CH-0803-04-02 | RWP No: N/A

Sample Number	Survey Results: Description/Results	Smearable Results: Gross α Removable CPM	Net α Removable dpm/100cm²	Gross β/γ Removable CPM	Net β/γ Removable dpm/100cm²	Direct Readings: Gross α CPM	Net α dpm/100cm²	Gross β/γ CPM	Net β/γ dpm/100cm²	Exposure Rate uR
16	Sample Locations (see map)					17	24	250	1	
17						18	30	281	39	
18						11	8	323	163	
19						15	14	326	165	
20						18	30	282	42	
21						11	8	280	38	
22						20	34	310	136	
23						19	33	283	43	
24						6	23	321	149	
25						12	3	287	47	
26						12	3	315	141	
27			N/A			16	19	318	150	N/A
28						15	14	307	117	
29						18	30	303	133	
30						17	24	345	231	
31	Duplicate Count for #3					18	14	274	38	
32	Duplicate Count for #20					17	24	277	27	
33	Duplicate Count for #30					15	14	330	156	
34										
35										
36	N/A							N/A		
37										
38										
39										

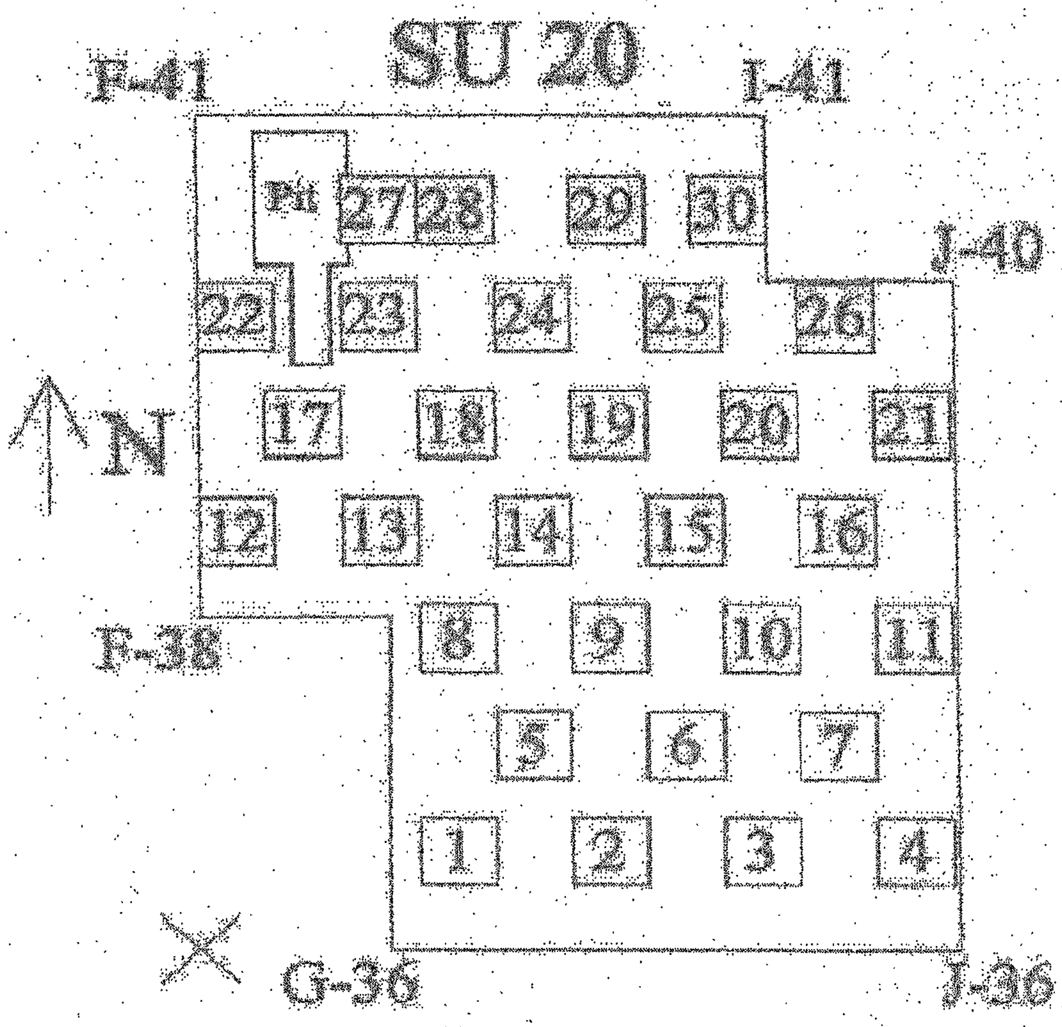
Remarks: Field Backgrounds for 15-33 presented on [illegible]

Technician(s) Signature / Date: [signature] / 9-3-04 | N/A /

Project Review: [signature] / [illegible] | Client Review: N/A /

Description: Characterization Survey – Survey Unit 20			
Date: 05/03/2004	Time: [illegible]	Survey No: CH-050304-02	RWP No: N/A

Survey Diagram:



Legend: (#) Fixed/Removable Location   # Exposure Rate (uR/hr)   —✕—✕—✕— Posted Area Boundary

Remarks: The Origin of Survey Unit (0 ft N, 0 ft E) is marked by X in the SW corner of the SU. Sample Location 27 was displaced 10 feet east.

Technician(s) Signature / Date:	[signature] [illegible]	N/A /
Reviewer Signature:	[signature] [illegible] Chem Reviewer:	N/A /

Exhibit A
Radiological Survey Report Form

Description: Characterization Survey - Survey Unit 21

Date: 09/03/2004	Time: 0935	Survey No: CH-090304-03	RWP No: N/A

Purpose of Survey (For Release Surveys Include Recipient): Static Measurements in SU-21

Instrument Data: [illegible] ☐ [illegible] ☐ [illegible] ☒ ☐ ☐

Detector Type	Detector S/N	Detector Cal Due	Meter Type	Meter S/N	Meter Cal Due	Bkgd/Mode	Bkgd (cpm)	Efficiency (%)	MDA (dpm)
43-10-1	PR179139	02/04/05	2929	196812	08/26/04	α	0.42	29	21
						β/γ	49.2	24	362
43-93	PR106832	03/12/05	2224	192810	12/13/04	α	12.5	24	19.6
						β/γ	260	25	128
44-9	PR206325	03/12/05	3	171354	03/15/05	β/γ (Chk)	47	20	713
N/A	N/A	N/A	Model 19	8576	03/09/05	Exposure	N/A	N/A	N/A

Sample Number	Description/Remarks		Removable Results: Gross α Removable CPM	Net α Removable dpm/100 cm²	Gross β/γ Removable CPM	Net β/γ Removable dpm/100 cm²	Direct Readings: Gross α CPM	Net α dpm/100 cm²	Gross β/γ CPM	Net β/γ dpm/100 cm²	Exposure Rate μR
1	Sample Locations (see Map)						15	34	289	-64	N/A
2							15	5	256	92	
3							20	41	271	8	
4							18	41	263	-3	
5							18	30	268	3	
6							13	-7	260	116	
7							17	34	318	130	
8							19	35	262	72	
9							16	19	277	27	
10							17	24	262	43	
11							13	5	256	-4	
12							19	39	309	90	
13							16	10	265	82	
14							17	28	310	139	
15							21	48	265	6	

Remarks: Field Background [illegible] performed on 9/3/04

[illegible]

Technician Signature/Date: [signature] 9/3/04 | N/A /

Review: [signature] 9/3/04 | [illegible] Review: N/A /

Exhibit B
Radiological Survey Report Form

Description: Characterization Survey - Survey Unit 21

Date: 09/03/2004 | Time: 0935 | Survey No.: CH-[illegible] | RWP No.: N/A

Survey Results		Smearable Results				Direct Readings				
Sample Number	Description/Results	Gross α Removable CPM	Net α Removable dpm/100cm²	Gross β/γ Removable CPM	Net β/γ Removable dpm/100cm²	Gross α CPM	Net α dpm/100cm²	Gross β/γ CPM	Net β/γ dpm/100cm²	Exposure Rate µR
16	Sample Locations (see map)	N/A				12	-3	232	-50	N/A
17	↓					13	3	238	-30	
18						22	31	285	31	
19						12	-3	257	22	
20						17	24	317	147	
21						11	-8	292	42	
22						14	8	223	-43	
23						11	-8	223	-40	
24						17	24	408	138	
25						13	3	247	-63	
26						11	-8	296	34	
27						17	24	324	148	
28						14	8	270	6	
29						22	78	211	-171	
30						12	-3	240	-45	
31	Duplicate Count for #1					16	19	288	8	
32	Duplicate Count for #16					13	3	238	-30	
33	Duplicate Count for #26					11	-8	249	-37	
34	N/A					N/A				
35										
36										
37										
38										
39										↓

Remarks: Field Background counts for 43-43 generated on 9/03/04

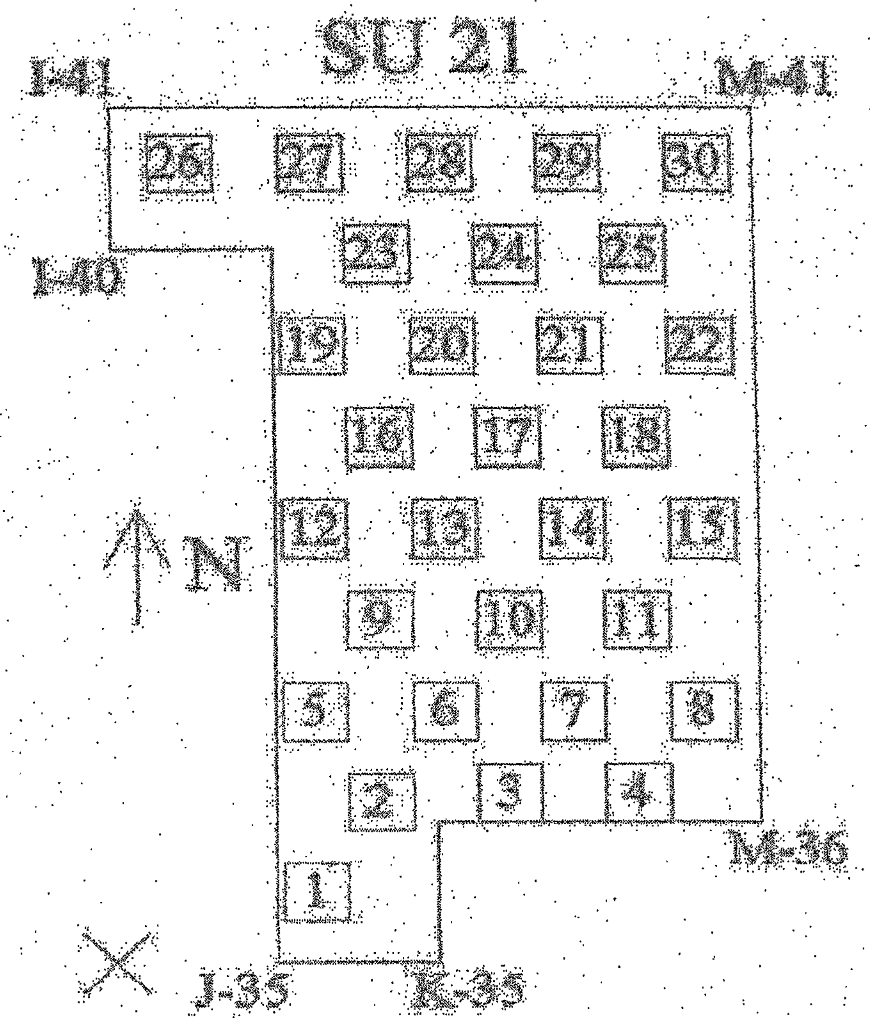
Technician Signature / Date: 9-3-04 | N/A

Peer Review: [illegible] | Client Review: N/A

Exhibit C
Radiological Survey Report Form

Description:	Characterization Survey - Survey Unit 21						
Date:	09/03/2004	Time:	[illegible]	Survey No.:	CR-090304-30	RWP No.:	N/A

Survey Diagram:



Legend: [illegible] Fixed/Removable Locations [illegible] Exposure Rate (μR/hr) [illegible] Posted Area Boundary

Remarks: The Origin of Survey Unit [illegible] is marked by X in the SW corner of the SU.

Technician(s) Signature / Date: [illegible]

Project Review: [illegible] Other Review: [illegible]

Exhibit A
Radiological Survey Report Form

Description: Characterization Survey - Survey Unit 22

Date: 10/19/2004 | Time: 1200 | Survey No: CH-0903-04-01 | RWP No: N/A

Purpose of Survey (For Release Surveys Include Recipient): Static Measurements in SU 23

Instrument Data — Instrument Manufacturer: Eberline ☐ Ludlum ☒ ☐ ☐

Detector Type	Detector SN	Detector Cal Due	Meter Type	Meter SN	Meter Cal Due	Efficiency	Bkgd (cpm)	Correction Factor	MDA (dpm)
43-10-1	PR179194	02/08/05	2929	190812	06/08/05	α	0.42	4.4	9.1
						β/γ	19.2	2.3	46.3
43-93	PR240122	03/19/05	2224	190230	02/18/05	α	12.9	9.2	70.1
						β/γ	300	2.0	676
44-9	PR282325	02/15/04	3	172214	03/12/04	β/γ (CPM)	91	69	713
N/A	N/A	N/A	Model 19	2075	02/09/04	Exposure	N/A	N/A	N/A

Sample Number	Description/Results		Smearable Results: Gross α Removable CPM	α Removable dpm/100cm²	Gross β/γ Removable CPM	β/γ Removable dpm/100cm²	Direct Readings: Gross α CPM	Net α dpm/100cm²	Gross β/γ CPM	Net β/γ dpm/100cm²	Exposure Rate μR
1	Sample Locations (see map)						18	201	313	129	N/A
2							35	95	254	46	
3							17	84	311	183	
4							9	-89	254	-192	
5							15	89	271	79	
6							18	50	284	81	
7							21	46	285	-87	
8							12	-3	300	93	
9							14	8	275	78	
10							26	127	327	257	
11							31	100	290	90	
12							19	80	285	30	
13							14	-8	331	103	
14							21	86	307	117	
15							18	30	306	-9	

Remarks: Field Backgrounds for 43-93 generated on 10/13/04

NCD = No Contamination Detected, i.e. < MDA

Technician(s) Signature/Date: [signature] 10/19/04 N/A /

Project Review: [signature] 10/20/04 Client Review: N/A /

Exhibit B
Radiological Survey Report Form

Description: Characterization Survey - Survey Unit 22

Date: 09/05/2004 | Time: 1320 | Survey No.: CH-090504-04 | RWP No.: N/A

Survey Results		Smearable Results				Direct Readings				
Sample Number	Description/Results	Gross α Removable CPM	Net α Removable dpm/100cm²	Gross βγ Removable CPM	Net βγ Removable dpm/100 cm²	Gross α CPM	Net α dpm/100 cm²	Gross βγ CPM	Net βγ dpm/100 cm²	Dose Rate μR
16	Sample Locations (see map)					20	64	270	34	
17	↓					13	3	303	169	
18						18	30	301	36	
19						25	78	276	324	
20						16	10	273	18	
21						12	-5	271	15	
22						21	-46	240	-24	
23						17	20	245	-60	
24						24	92	284	78	
25						14	-8	302	103	
26						19	25	250	-24	
27			N/A			13	7	240	-44	N/A
28						6	-45	303	102	
29						19	25	292	73	
30	↓					16	19	301	104	
31	Duplicate Count for #1					15	14	281	109	
32	Duplicate Count for #15					17	24	230	60	
33	Duplicate Count for #30					18	19	270	22	
34										
35										
36	N/A						N/A			
37										
38										
39										↓

Remarks: Field Background for 13-33 generated on 9/05/04

Technician(s) Signature / Date: [signature] 9/5/04 N/A /

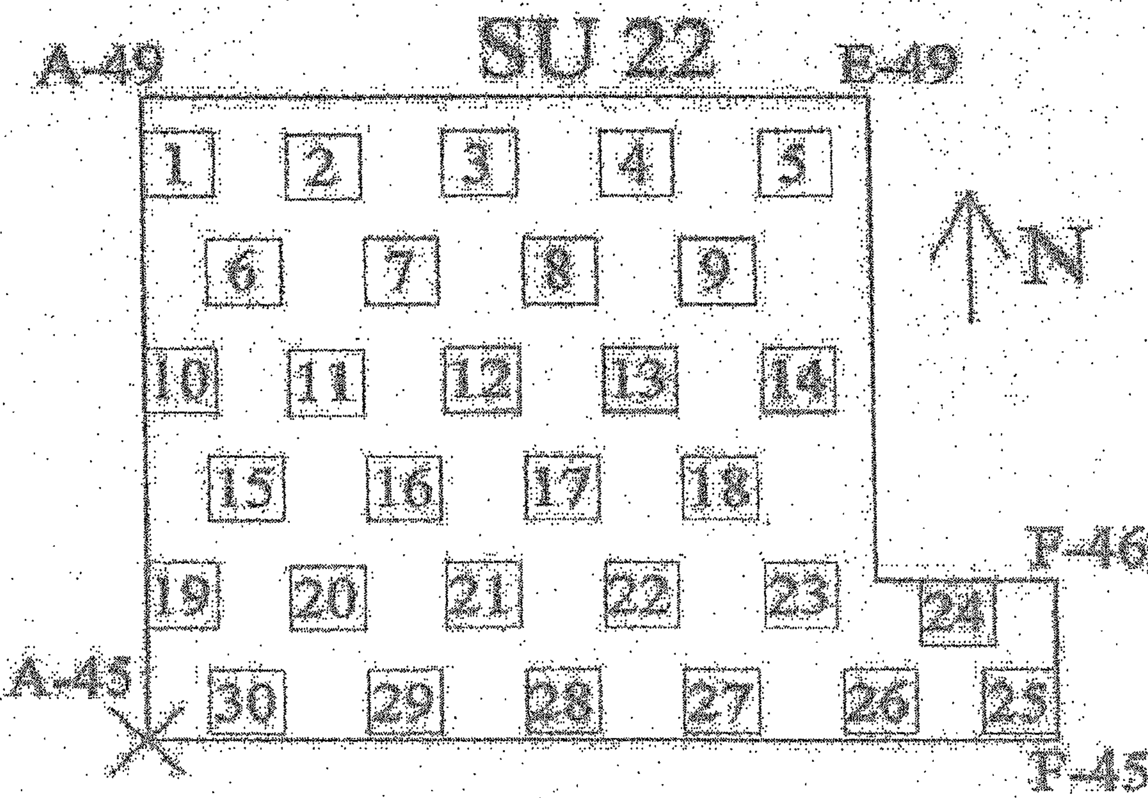
Person Review: [signature] 9/5/04 Client Review: N/A /

Exhibit C

Radiological Survey Report Form

Description:	Characterization Survey - Survey Unit 22						
Date:	09/03/2004	Time:	1230	Survey No:	CH-090304-04	RWP No:	N/A

Survey Diagram:



Legend: Fixed/Removable Locations — Exposure Rates (µR/hr) — Posted Area Boundary

Remarks: The Origin of Survey Lines (0' E, 0' N) is marked by X in the SW corner of the SU.

Technician(s) Signature/Date:	[illegible] [illegible]		N/A /
Project Review:	[illegible] [illegible]	Client Review:	N/A /

Exhibit A
Radiological Survey Report Form

Description: Characterization Survey - Survey Unit 22

Date:	10/05/2004	Time:	1300	Survey No:	CH-091004-05	RWP No:	N/A

Purpose of Survey (For Release Surveys Include Recipient): Static Measurements in SU 22

Instrument Data — Indicate Meas/Efficiency/MDA Basis: [ ] Emission [ ] Location [X] [ ] [ ]

Detector Type	Detector S/N	Detector Cal Due	Meter Type	Meter S/N	Meter Cal Due	Sensitivities	Bkgd. (cpm)	Correction factors	MDA (dpm)
43-89DJ	PR179156	02/08/05	2929	190842	[illegible]	α	0.42	2.9	9.7
						β/γ	48.2	2.3	56.2
43-68	PR200334	[illegible]	2125	198220	10/12/05	α	12.6	2.8	70.6
						β/γ	248	3.0	192
44-9	PR245015	10/13/04	3	171254	[illegible]	β/γ(CPM)	47	38	713
N/A	N/A	N/A	Micro R 19	87/18	[illegible]	Exposure	N/A	N/A	N/A

Survey Results		Smearable Results				Direct Readings				
Sample Number	Description/Results	Gross α Removable CPM	Net α Removable dpm/100 cm²	Gross β/γ Removable CPM	Net β/γ Removable dpm/100 cm²	Gross α CPM	Net α dpm/100 cm²	Gross β/γ CPM	Net β/γ dpm/100 cm²	Exposure Rate µR
1	Sample Locations (see map)					18	30	207	-33	N/A
2						12	-3	219	-147	
3						14	3	300	[illegible]	
4						13	-3	[illegible]	[illegible]	
5						16	19	322	302	
6						17	24	305	[illegible]	
7						16	19	280	65	
8						14	8	310	105	
9						12	-8	[illegible]	-4	
10						9	-19	201	[illegible]	
11						11	8	239	-30	
12						16	19	216	145	
13						13	14	297	97	
14						14	15	269	-8	
15						17	33	277	27	

Remarks: Field Background for 43-68 generated on 9/13/04

NCD = No Contamination Detected, i.e., ≤ MDA

Technician(s) Signature / Date: [signature] 10.5.04 N/A

Program Review: [signature] [illegible] Client Review: N/A

Exhibit B
Radiological Survey Report Form

Description: Characterization Survey - Survey Unit 23

Date: 09/03/2004 | Time: 1300 | Survey No: CH-090304-03 | RWP No: N/A

Sample Number	Description/Results	Gross α Removable CPM	Net α Removable dpm/100 cm²	Gross β/γ Removable CPM	Net β/γ Removable dpm/100 cm²	Gross α CPM	Net α dpm/100 cm²	Gross β/γ CPM	Net β/γ dpm/100 cm²	Dose Rate mR
	Survey Results	Swipe Results				Direct Readings				
16	Sample Locations (see map)	N/A				12	5	307	117	N/A
17						15	14	305 (?)	94	
18						17	24	301 (?)	43	
19						16	35 (?)	311 (?)	139 (?)	
20						10	-14	254	78	
21						15	14	308	68 (?)	
22						9	-10	263 (?)	59 (?)	
23						20	41	305	111	
24						12	-13 (?)	282 (?)	82 (?)	
25						28	62	300	78 (?)	
26						13	-2 (?)	256 (?)	4	
27						17	24	282	5 (?)	
28						23	46	292 (?)	86 (?)	
29						15	25	268 (?)	-21	
30						15	14	257	-50 (?)	
31	Duplicate Count for #16					12	-2	311	120	
32	Duplicate Count for #17					17	29	283	46	
33	Duplicate Count for #21					18	30	293 (?)	84 (?)	
34	N/A					N/A				
35										
36										
37										
38										
39										

Remarks: Field Backgrounds for 13-93 generated on [illegible]

Technician(s) Signature/Date: [signature] 10/03/04 N/A /

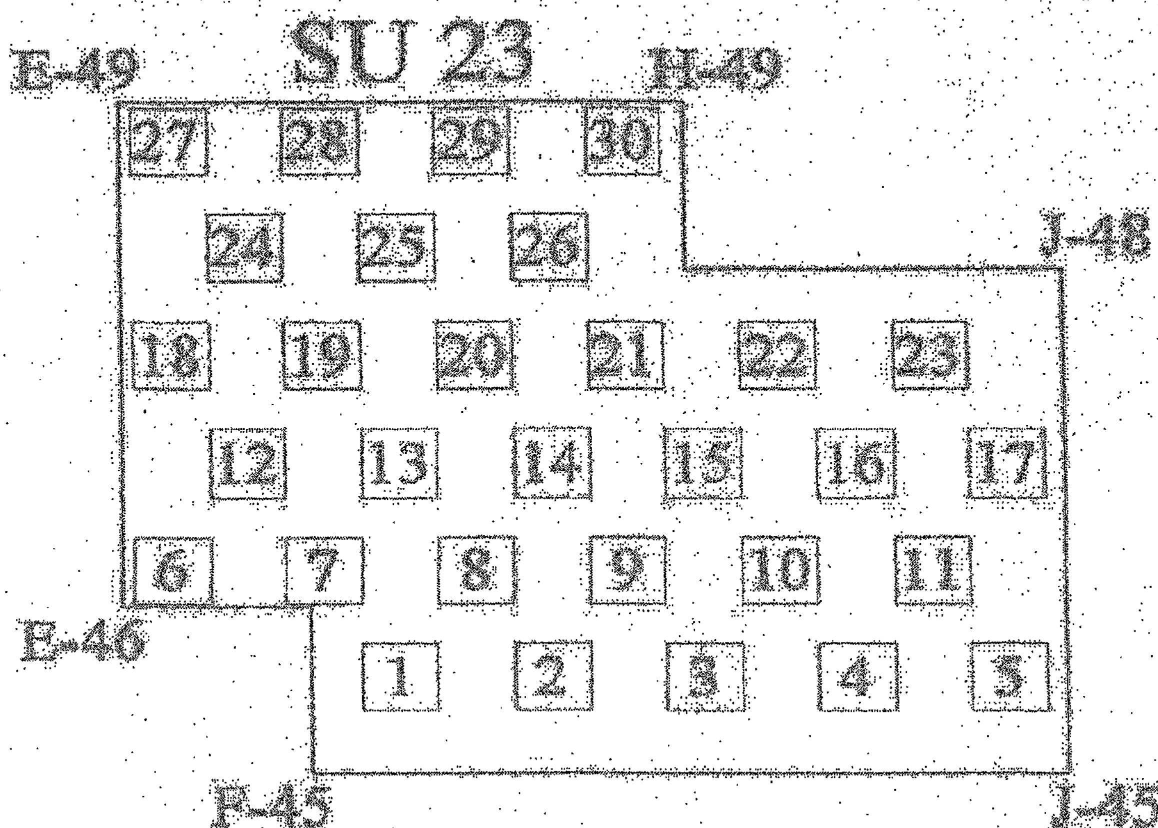
Project Review: [signature] [illegible] Other Review: N/A /

Exhibit C

Radiological Survey Report Form

Description:	Characterization Survey - Survey Unit 23						
Date:	[illegible]	Time:	[illegible]	Survey No:	[illegible]	RWP No:	N/A

Survey Diagram:



Legend: [illegible]

Remarks: The Origin of Survey Unit [illegible] is marked by X in the [illegible] corner of the SU.

Technician(s) Signature / Date:	[signature] [illegible]	N/A	/
Project Review:	[signature] [illegible]	Client Review: N/A	/

Exhibit A
Radiological Survey Report Form

Description: Characterization Survey - Survey Unit 24

Date: 05/07/2004	Time: 0730	Survey No.: CH-050704-01	RWP No.: N/A

Purpose of Survey (For Release Surveys Include Recipient): Static Measurements in SU 24

Instrument Data — Instrument Manufacturer(s): Bicron ☐ Eberline ☐ Ludlum ☒ ☐ ☐

Detector Type	Detector S/N	Detector Cal Due	Meter Type	Meter S/N	Meter Cal Due	Radiation	Bkgd. (cpm)	Correction Factor	MDA (dpm)
43-10-1	PR179139	10/08/05	2929	189632	05/09/05	α	0.42	2.5	9.1
						β/γ	39.3	2.2	55.3
43-93	PR268192	02/13/05	2224	188230	02/10/07	α	12.7	8.5	71.4
						β/γ	270	8.6	178
44-9	PR282020	03/13/05	3	171254	03/15/04	β/γ (CPM)	87	30	713
N/A	N/A	N/A	Model 19	83?96	02/09/05	Exposure	N/A	N/A	N/A

Survey Results		Smearable Results				Direct Readings				
Sample Number	Description/Results	Gross α Removable CPM	Net α Removable dpm/100 cm²	Gross β/γ Removable CPM	Net β/γ Removable dpm/100 cm²	Gross α CPM	Net α dpm/100 cm²	Gross β/γ CPM	Net β/γ dpm/100 cm²	Exposure Rate µR
1	Sample Locations (see map)					21	45	265	+12	N/A
2						31	93	242	-21	
3						29	88	310	138	
4						11	-9	252	-114	
5						11	-9	304	-154	
6						20	56	310	136	
7						18	29	316	138	
8						13	2	266	-31	
9						18	28	290	60	
10						13	2	290	36	
11						13	2	315	138	
12						20	30	334	182	
13						15	12	310	120	
14						12	-8	201	-187	
15						11	-9	220	-160	

Remarks: Field Background for 43-93 performed on 5/07/04

NCD = No Contamination Detected, i.e. < MDA

Technician(s) Signature/Date: [signature] / 5-7-04   N/A /

Project Review: [signature] 5/7/04   Other Review: N/A /

Exhibit 9
Radiological Survey Report Form

Description: Characterization Survey - Survey Unit 34

Date: 09/07/2004 | Time: 0730 | Survey No: CH-090704-01 | RWP No: N/A

Survey Results		Smearable Results				Direct Readings				
Sample Number	Description/Results	Gross α Removable CPM	Net α Removable dpm/100 cm²	Gross β/γ Removable CPM	Net β/γ Removable dpm/100 cm²	Gross α CPM	Net α dpm/100 cm²	Gross β/γ CPM	Net β/γ dpm/100 cm²	Exposure Rate µR/h
16	Sample Locations (see map)	N/A				8	-38	223	-128	N/A
17						30	39	368	-6	
18						26	72	283	-13	
19						17	23	127	-160	
20						10	-15	227	-230	
21						9	-20	243	-76	
22						10	-15	235	-135	
23						18	79	305	105	
24						14	7	290	94	
25						16	27	280	50	
26						17	33	258	-4	
27						18	39	231	-117	
28						9	-20	301	-207	
29						16	12	150	-212	
30						18	40	301	95	
31	Duplicate Count for #1					19	34	215	133	
32	Duplicate Count for #18					23	61	302	96	
33	Duplicate Count for #28					10	-15	215	-102	
34	N/A					N/A				
35										
36										
37										
38										
39										
40										

Remarks: Field Backgrounds for 16-33 generated on 9/07/04

Technician(s) Signature/Date: [signature] 9/23/04 | N/A

Project Review: [signature] | QA/Client Review: N/A

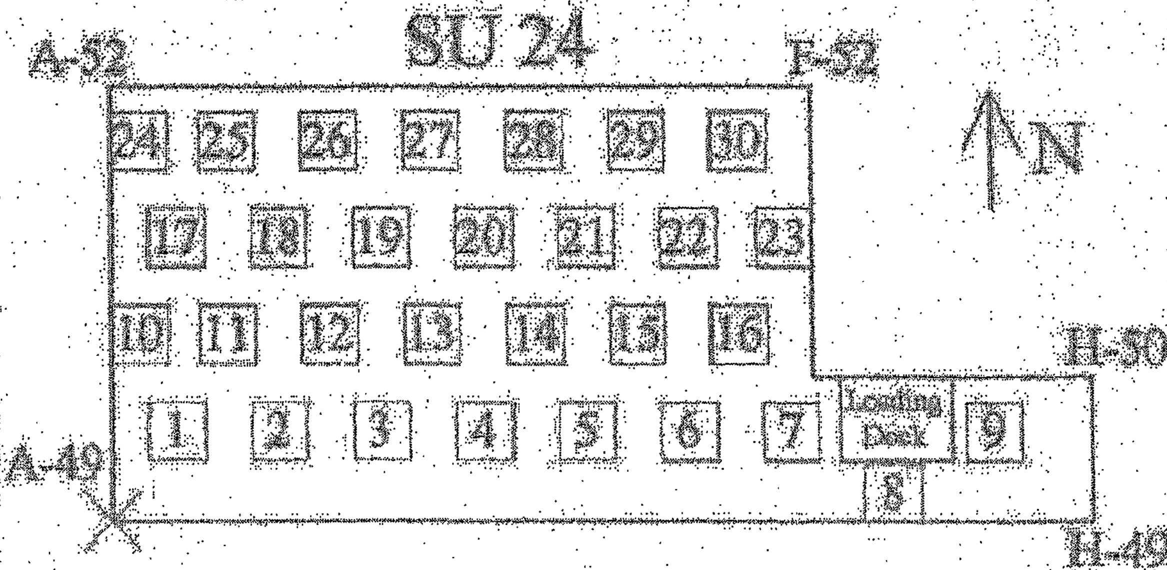
Exhibit C

Radiological Survey Report Form

Description: Characterization Survey - Survey Unit 24

Date: [illegible]/2004 | Time: 0730 | Survey No: [illegible] | RWP No: N/A

Survey Diagram:



Legend: [illegible]

Remarks: [illegible]

Technician(s) Signature/Date: [signature] / [illegible] N/A /

Program Reviewer: [signature] [illegible] Other Reviewer: N/A /

Exhibit A
Radiological Survey Report Form

Description: Characterization Survey - Survey Unit 23

Date: [illegible]/2004 | Time: [illegible] | Survey No: [illegible]-02 | RWP No: N/A

Purpose of Survey (For Release Surveys Include Recipient): Static Measurements in SU 23

Instrument Data — Returned Meter/Detector(s): Bases ☐ Failures ☐ Locker ☒ ☐ ☐

Detector Type	Detector SN	Detector Cal Due	Meter Type	Meter SN	Meter Cal Due	Eff/Units	Bkgd. (cpm)	Count Time (min)	MDA (dpm)
43-89-1	[illegible]	[illegible]	2929	[illegible]	[illegible]	α	1.42	22	91
						β/γ	162	23	363
43-37	[illegible]	[illegible]	2224	[illegible]	[illegible]	α	127	34	713
						β/γ	270	34	159
44-9	[illegible]	[illegible]	3	171344	[illegible]	β/γ (CPM)	47	30	713
N/A	N/A	N/A	Model 19	[illegible]	[illegible]	Exposure	N/A	N/A	N/A

Survey Results		Smearable Results				Direct Readings				
Sample Number	Description/Results	Gross α Removable CPM	Net α Removable dpm/100 cm²	Gross β/γ Removable CPM	Net β/γ Removable dpm/100 cm²	Gross α CPM	Net α dpm/100 cm²	Gross β/γ CPM	Net β/γ dpm/100 cm²	Exposure Rate μR
1	Sample Locations (see map)	N/A				10	-13	263	-21	N/A
2						14	7	241	-87	
3						12	-9	227	-59	
4						9	-20	247	-71	
5						20	30	232	-114	
6						11	-8	240	-70	
7						23	30	219	-63	
8						15	18	236	-102	
9						8	-25	195	-215	
10						14	7	229	-123	
11						13	2	251	-37	
12						21	35	247	-62	
13						18	20	235	-69	
14						11	-9	252	-93	
15						12	-4	251	-37	

Remarks: Field Background for [illegible] provided on [illegible]

NCD = No Contamination Detected, [illegible] MDA

Technician(s) Signature/Date: [signature] [illegible] N/A /

Person Review: [signature] [illegible] Final Review: N/A /

Exhibit [illegible]
Radiological Survey Report Form

Description: Characterization Survey - Survey Unit 25

Date: 09/07/2004 | Time: 0900 | Survey No: CH-090704-02 | RWP No: N/A

Survey Results		Smearable Results				Direct Readings				
Sample Number	Description/Results	Gross α Removable CPM	Net α Removable dpm/100cm²	Gross β/γ Removable CPM	Net β/γ Removable dpm/100cm²	Gross α CPM	Net α dpm/100cm²	Gross β/γ CPM	Net β/γ dpm/100cm²	Exposure Rate µR
16	Sample Locations (see map)					15	12	238	-126	
17						8	-33	232	-114	
18						15	12	238	83	
19						18	30	259	-35	
20						22	30	260	69	
21						10	34	240	-81	
22						20	39	296	84	
23						8	-35	243	-81	
24						10	-13	237	21	
25						111	593	261	-37	
26						12	-6	235	-107	
27			N/A			20	40	281	63	N/A
28						23	56	275	6	
29						13	2	261	-37	
30						18	38	238	-100	
31	Duplicate Count for #1					10	-17	234	-128	
32	Duplicate Count for #14					18	29	230	0	
33	Duplicate Count for #23					10	-17	250	-80	
34										
35										
36	N/A						N/A			
37										
38										
39										

Remarks: [illegible]

Technician(s) Signature / Date: [signature] / [illegible] / N/A /

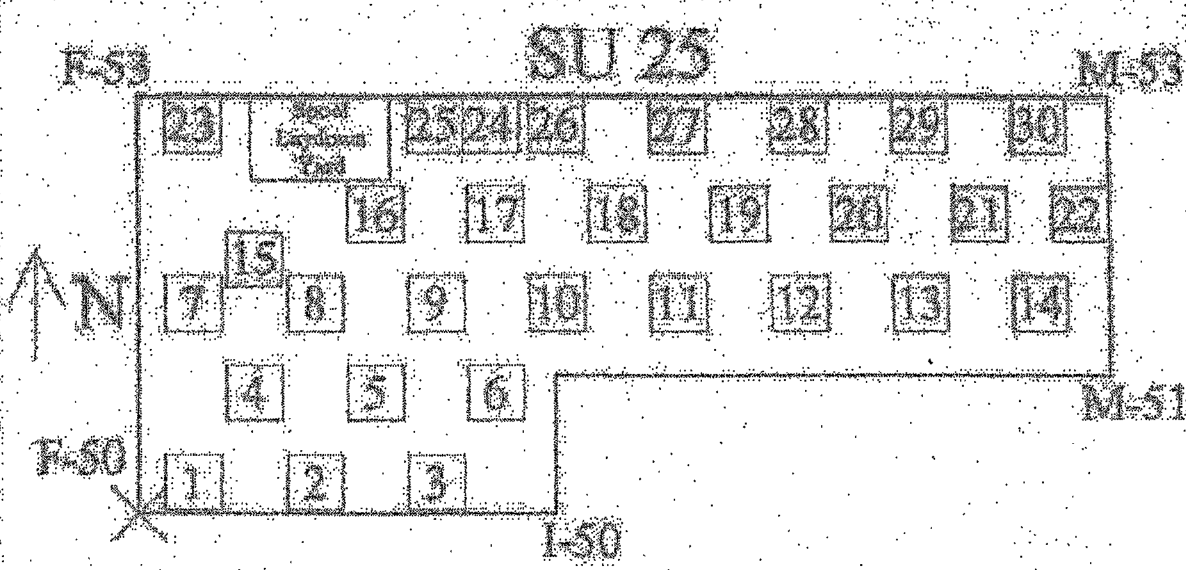
Survey Reviewer: [signature] / [illegible] Additional Review: N/A /

Exhibit C

Radiological Survey Report Form

Description:	Characterization Survey - Survey Unit 25						
Date:	09/07/2004	Time:	0900	Survey No:	CH-090704-02	RWP No:	N/A

Survey Diagram:



Legend: (#) Fixed Measurement Locations   Exposure Rates (µR/hr)   Posted Area Boundary

Remarks: The Origin of Survey Unit (0 ft E, 0 ft N) is marked by X in the SW corner of the SU.

Technician(s) Signature / Date: [signature] [illegible] N/A /

[illegible] Review: [signature] [illegible] Review: N/A /

Exhibit A
Radiological Survey Report Form

Description:	Characterization Survey - Survey Unit 26
Date: 10/07/2004	Time: 1230
Survey No.: CH-040704-03	RWP No.: N/A
Purpose of Survey (For Release Surveys Include Recipient):	Static Measurements in SU 26

Instrument Data — [illegible] ☐ Floor ☐ Ladder ☒ ☐ ☐

Detector Type	Detector S/N	Detector Cal Due	Meter Type	Meter S/N	Meter Cal Due	Sensitivities	Bkgd. (cpm)	Correction Factor	MDA (dpm)
43-10-1	PR179134	[illegible]	2929	[illegible]	[illegible]	α	0.42	2.9	8.1
						β/γ	48.2	2.3	36.2
43-93	[illegible]	[illegible]	2224	[illegible]	[illegible]	α	12.2	4.9	71.4
						β/γ	270	3.0	178
44-9	[illegible]	[illegible]	3	[illegible]	[illegible]	β/γ (Cnt)	47	39	763
N/A	N/A	N/A	Model 19	[illegible]	[illegible]	Exposure	N/A	N/A	N/A

Sample Number	Description/Results	Removable Results: Gross α Removable CPM	Net α Removable dpm/100 cm²	Gross β/γ Removable CPM	Net β/γ Removable dpm/100 cm²	Direct Readings: Gross α CPM	Net α dpm/100 cm²	Gross β/γ CPM	Net β/γ dpm/100 cm²	Exposure Rate µR
1	Sample Locations (see map)	N/A				14	9	259	-35	N/A
2	↓					17	23	260	-30	
3						17	23	262	-24	
4						8	-22	276	18	
5						20	39	300	90	
6						15	12	267	-8	
7						17	23	250	-60	
8						17	23	214	-168	
9						14	7	276	18	
10						13	2	291	63	
11						17	23	203	-204	
12						27	72	262	-24	
13						19	34	195	-226	
14						14	7	264	-18	
15	↓					16	18	229	-123	↓

Remarks: Field background for 43-93 generated on 10/7/04

*ND = No Detectable Activity, i.e. < MDA

Technician(s) Signature / Date: [signature] 10/7/04 N/A /

Prepared/Reviewed By: [signature] [illegible] Other Review: N/A /

Exhibit [illegible]
Radiological Survey Report Form

Description: Characterization Survey - Survey Unit 26

Date: 09/07/2004 | Time: 1216 | Survey No.: [illegible] | RWP No.: N/A

Survey Results		Smearable Results				Direct Readings				
Sample Number	Description/Results	Gross β Removable in CPM	Net β Removable (dpm/100 cm²)	Gross α Removable CPM	Net α Removable (dpm/100 cm²)	Gross α CPM	Net α (dpm/100 cm²)	Gross β/γ CPM	Net β/γ (dpm/100 cm²)	Exposure Rate
16	Sample Locations (see map)	N/A				11	-6	252	-56	N/A
17						14	7	268	41	
18						10	-18	271	5	
19						26	72	266	-12	
20						11	-8	281	36	
21						15	12	278	24	
22						13	2	287	84	
23						12	-4	287	-170	
24						13	8	234	-48	
25						18	-19	249	-61	
26						9	-28	252	-219	
27						14	7	261	-37	
28						10	-25	240	-90	
29						17	23	252	-54	
30						18	20	238	-98	
31	Duplicate Count for #23					14	7	229	-135	
32	Duplicate Count for #24					16	20	271	5	
33	Duplicate Count for #25					18	29	283	39	
34	N/A					N/A				
35										
36										
37										
38										
39										

Remarks: [illegible]

Technician's Signature / Date: [signature] [illegible] N/A

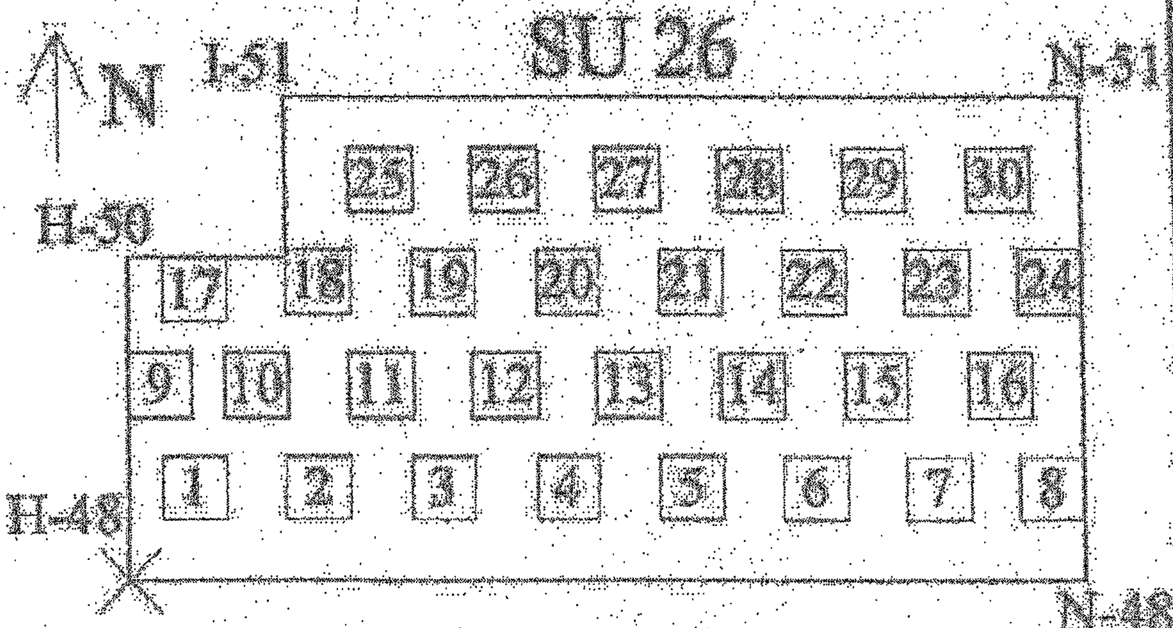
Charge Review: [signature] [illegible] Client Review: N/A

Exhibit C

Radiological Survey Report Form

Description: Characterization Survey - Survey Unit 26			
Date: [illegible]	Time: 1230	Survey No.: [illegible]	RWP No.: N/A

Survey Diagram:



Legend: (#) Fixed/Static Point Locations [illegible] [illegible] Survey Area Boundary

Remarks: The Origin of Survey Unit [illegible] is marked by X in the SW corner of the SU.

Technician(s) Signature / Date: [illegible] N/A

Prepare Review: [illegible] N/A

Exhibit A
Radiological Survey Report Form

Description: Characterization Survey - Survey Unit 27

Date: [illegible] | Time: 1300 | Survey No: [illegible] | RWP No: N/A

Purpose of Survey (For Release Surveys Include Radiability): Static Measurements in SU 27

Instrument Data — [illegible] ☐ [illegible] ☐ [illegible] ☒ ☐ ☐

Detector Type	Detector S/N	Detector Cal Due	Meter Type	Meter S/N	Meter Cal Due	[illegible]	Bkgd Level	[illegible]	MDA [illegible]
[illegible]	[illegible]	[illegible]	2929	196612	[illegible]	α	0.43	2.9	9.1
						β/γ	46.2	2.1	96.3
43-93	[illegible]	[illegible]	[illegible]	190250	[illegible]	α	127	6.4	71.6
						β/γ	270	3.0	170
44-9	[illegible]	03/15/04	3	171254	[illegible]	β/γ (GM)	47	20	715
N/A	N/A	N/A	Model 19	[illegible]	[illegible]	Exposure	N/A	N/A	N/A

Survey Results		Removable Results				Direct Readings				
Sample Number	Description/Results	Gross α Removable CPM	Net α Removable dpm/100 cm²	Gross β/γ Removable CPM	Net β/γ Removable dpm/100 cm²	Gross α CPM	Net α dpm/100 cm²	Gross β/γ CPM	Net β/γ dpm/100 cm²	Exposure Rate [illegible]
1	Sample Locations (see map)					23	30	263	-4	N/A
2						14	7	200	-7	
3						17	25	207	-159	
4						21	43	231	3	
5						18	25	291	72	
6						18	7	241	-27	
7						14	7	270	9	
8						19	54	231	2	
9						17	23	242	-44	
10						4	-25	263	-204	
11						18	7	207	110	
12						12	5	201	-202	
13						20	39	297	80	
14						13	2	266	-12	
15						18	7	297	81	

Remarks: Field Background(s) for 43-93 generated on [illegible]

NCP = No Contamination Present, i.e. < MDA

Technician(s) Signature / Date: [signature] [illegible] N/A

Review: [signature] [illegible] Review: N/A

Exhibit B
Radiological Survey Report Form

Description: Characterization Survey - Survey Unit 7

Date: 09/07/2004 | Time: 1300 | Survey No.: CH-090704-04 | RWP No.: N/A

		Smearable Results				Direct Readings				
Survey Results										
Sample Number	Description/Results	Gross α Removable CPM	Net α Removable dpm/100 cm²	Gross β/γ Removable CPM	Net β/γ Removable dpm/100 cm²	Gross α CPM	Net α dpm/100 cm²	Gross β/γ CPM	Net β/γ dpm/100 cm²	Exposure Rate µR/h
16	Sample Locations (see map)	N/A				21	10	239	43	N/A
17						10	14	211	-117	
18						16	23	264	30	
19						14	7	322	230	
20						10	-13	237	-69	
21						12	-4	205	-192	
22						15	12	208	114	
23						33	104	314	132	
24						10	-13	267	-9	
25						17	23	313	125	
26						16	15	282	56	
27						22	39	294	72	
28						22	40	302	96	
29						11	-9	254	-13	
30						18	29	363	179	
31	Duplicate Count for #1					22	39	258	-6	
32	Duplicate Count for #14					20	34	275	38	
33	Duplicate Count for #22					12	-4	306	107	
34	N/A					N/A				
35										
36										
37										
38										
39										

Remarks: Net β Backgrounds for #1-33 generated on 09/7/04

Technician Signature / Date: [signature] 9/07/04 | N/A /

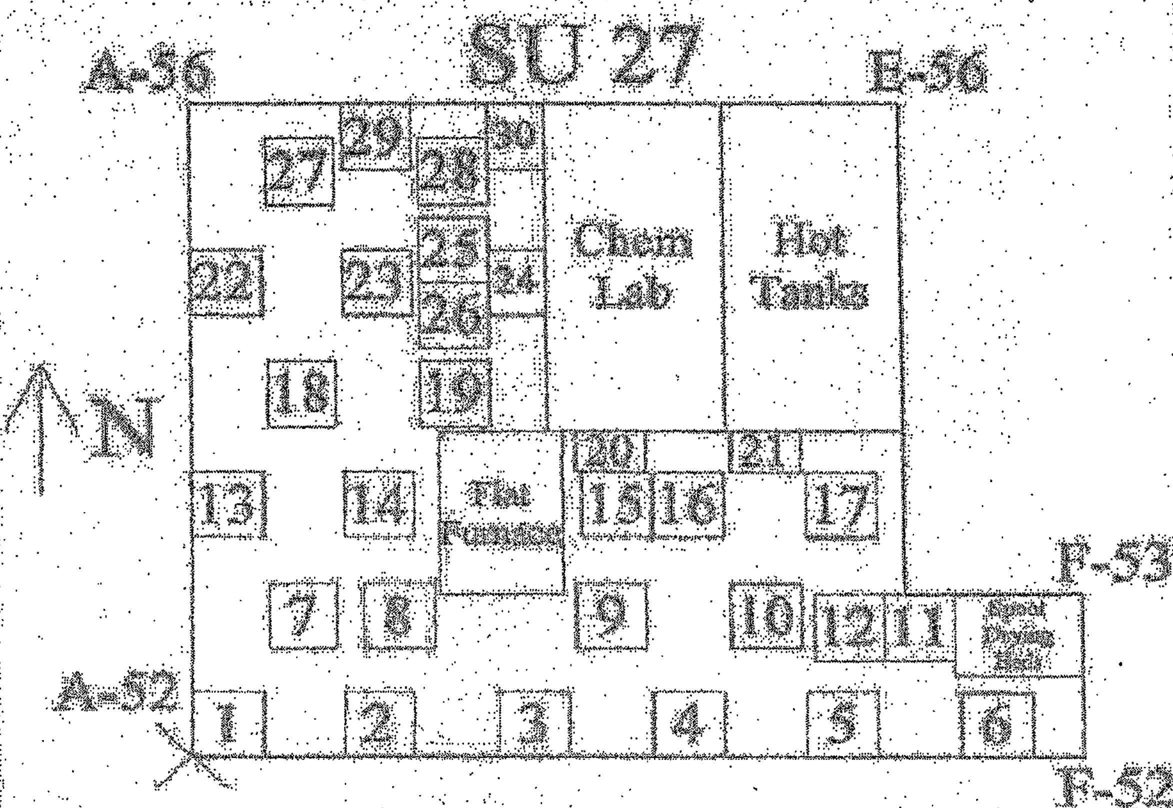
Sample Reviewer: [signature] 9/12/04 | Chart Reviewer: N/A /

Exhibit C

Radiological Survey Report Form

Description:	Characterization Survey - Survey Unit 27						
Date:	[illegible]/2004	Time:	1300	Survey No.:	CH-090704-04	RWP No.:	N/A

Survey Diagram:



Legend: [illegible] Direct/Removable Locations [illegible] Exposure Rates (μR/hr) —X—X—X— Posted Area Boundary

Remarks: The Origin of Survey Unit [illegible] is marked by X in the SW corner of the SU.

Technician(s) Signature / Date: [signature] / 9.[illegible] N/A /

Results Review: [signature] [illegible] Other Reviews: N/A /

Exhibit A

Radiological Survey Report Form

Description: Characterization Survey - Survey Unit 38

Date: 09/17/2004 | Time: 1315 | Survey No.: CH-090704-45 | RWP No.: N/A

Purpose of Survey (For Release Surveys include Recipient): Static Measurements in SU 38

Instrument Data — Instrument Manufacturer(s): Eberline ☐ Ludlum ☒ ☐ ☐

Detector Type	Detector S/N	Detector Cal Due	Meter Type	Meter S/N	Meter Cal Due	Radiation	Bkgd. (cpm)	Detection Factor	MDA (dpm)
43-89	PR179134	[illegible]	2929	190513	[illegible]	α	11.43	2.9	8.1
						β/γ	49.2	2.1	66.3
43-89	[illegible]	[illegible]	2224	190230	02/11/05	α	12.7	3.4	71.4
						β/γ	270	3.0	179
44-9	[illegible]	05/2005	3	171254	[illegible]	β/γ (GM)	47	10	115
N/A	N/A	N/A	Model 19	[illegible]	02/04/05	Exposure	N/A	N/A	N/A

Sample Number	Description/Results		Removable Results: Gross α Removable CPM	Net α Removable dpm/100cm²	Gross β/γ Removable CPM	Net β/γ Removable dpm/100cm²	Direct Readings: Gross α CPM	Net α dpm/100cm²	Gross β/γ CPM	Net β/γ dpm/100cm²	Exposure Rate µR
1	Sample Locations (see map)						16	19	214	-165	N/A
2							17	23	216	-150	
3							18	25	244	-22	
4							18	30	250	-69	
5							18	29	261	-37	
6							10	-15	229	-125	
7							11	-9	225	-114	
8							14	12	220	-93	
9							15	12	275	13	
10							27	101	310	126	
11							10	-15	219	-133	
12							11	-6	258	54	
13							21	43	242	-44	
14							17	22	245	-73	
15							13	15	268	-4	

Remarks: Field Background for 43-89 determined on 9/17/04

NCF = No Contamination Found, i.e. < MDA

Technician(s) Signature / Date: [signature] 9-17-2004 N/A /

Program Review: [signature] Peer Review: N/A /

Exhibit B
Radiological Survey Report Form

Description: Characterization Survey - Survey Unit 28

Date: 09/07/2004	Time: 1415	Survey No: CH-090704-05	RWP No: N/A

Survey Results		Smearable Results				Direct Readings				
Sample Number	Description/Results	Gross α Removable CPM	Net α Removable dpm/100 cm²	Gross β/γ Removable CPM	Net β/γ Removable dpm/100 cm²	Gross α CPM	Net α dpm/100 cm²	Gross β/γ CPM	Net β/γ dpm/100 cm²	Exposure Rate μR/h
16	Sample locations (typical)					11	9	252	-51	
17						12	-4	238	-35	
18						17	25	265	-19	
19						13	20	273	5	
20						14	12	208	-131	
21						10	39	263	-12	
22						17	31	262	-60	
23						15	2	269	-170	
24						19	24	245	-111	
25						7	-31	244	-46	
26						11	-4	295	46	
27			N/A			15	32	266	-2	N/A
28						17	25	258	-36	
29						19	20	257	-37	
30						14	7	240	-105	
31	Duplicate Count for #16					22	38	249	210	
32	Duplicate Count for #21					11	-4	243	-81	
33	Duplicate Count for #29					14	7	277	31	
34										
35										
36	N/A							N/A		
37										
38										
39										

Comments: Field Backgrounds for [illegible] generated on 9/07/04.

Technician(s) Signature / Date: [signature] / 9/7/04 N/A /

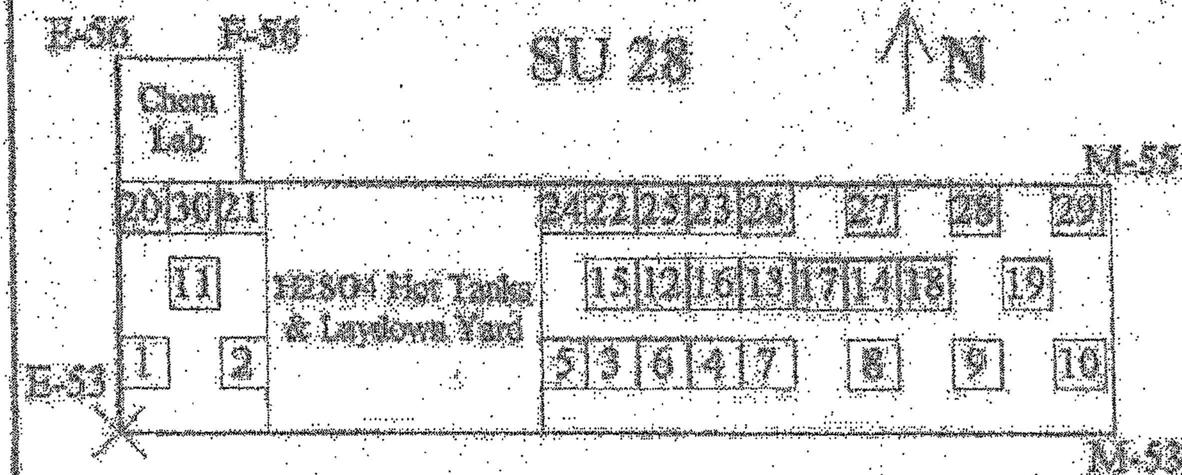
Reviewer: [signature] 9/[illegible]/04 Client Reviewer: N/A /

Exhibit C

Radiological Survey Report Form

Description:	Characterization Survey - Survey Unit 28						
Date:	09/07/2004	Time:	1415	Survey No:	CH-090704-03	RWP No:	N/A

Survey Diagram:



Legend: (#) Fixed/Removable Locations △ Exposure Rate (µR/h) —x—x—x— Posted Area Boundary

Remarks: The Origin of Survey Unit (0 N, 0 E) is marked by X in the SW corner of the SU.

Technician(s) Signature / Date: [signature] / 9-7-04 N/A /

Program Review: [signature] / [illegible] Other Reviewer: N/A /

Exhibit A

Radiological Survey Report Form

Description:	Characterization Survey – Survey Unit 29						
Date:	09/08/2004	Time:	0745	Survey No:	CS-[illegible]-01	RWP No:	N/A
Purpose of Survey (For Release Surveys Include Recipient):	Static Measurements in SU 29						

Instrument Data — Instrument Measurements for: Direct ☐ Smear ☐ Lab ☒ ☐ ☐

Detector Type	Detector S/N	Detector Cal. Due	Meter Type	Meter S/N	Meter Cal. Due	Sensitivity	High Level	Operating Plateau	MDA (dpm)
43-10-1	PR179134	[illegible]	2929	190612	[illegible]	α	0.42	2.9	9.1
						β/γ	40.2	2.1	54.3
43-89	PR[illegible]	02/12/05	2224	190[illegible]	02/12/05	α	153	5.8	77.2
						β/γ	231	2.8	192
44-9	PR[illegible]	03/13/05	3	175254	[illegible]	β/γ (GM)	47	20	713
N/A	N/A	N/A	Model 19	[illegible]	02/03/05	Exposure	N/A	N/A	N/A

Survey Results		Removable Results				Direct Readings				
Sample Number	Description/Results	Gross α Removable CPM	Net α Removable dpm/100 cm²	Gross β/γ Removable CPM	Net β/γ Removable dpm/100 cm²	Gross α CPM	Net α dpm/100 cm²	Gross β/γ CPM	Net β/γ dpm/100 cm²	Exposure Rate μR
1	Sample Locations (see map)					15	9	297	138	N/A
2						17	22	312	3	
3						16	14	260	27	
4						15	16	253	12	
5						14	5	276	24	
6						13	-5	307	93	
7				N/A		13	10	271	60	
8						13	0	257	13	
9						8	-27	263	38	
10						11	-41	277	32	
11						15	14	249	-9	
12						12	-8	238	-39	
13						9	-32	232	-48	
14						16	14	265	33	
15						16	16	289	117	

Remarks: Field Background for 43-89 performed on [illegible]

[illegible] = [illegible] Detected, i.e. < MDA

Technician(s) Signature / Date: [signature] 9/8/04 N/A /

Technical Review: [signature] [illegible] Data Review: N/A /

Exhibit B
Radiological Survey Report Form

Description: Characterization Survey - Survey Unit 29

Date: 09/08/2004 | Time: 0742 | Survey No.: CH-090804-01 | RWP No.: N/A

Survey Results		Removable Results				Direct Readings				
Sample Number	Description/Results	Gross α Removable CPM	Net α Removable dpm/100 cm²	Gross β/γ Removable CPM	Net β/γ Removable dpm/100 cm²	Gross α CPM	Net α dpm/100 cm²	Gross β/γ CPM	Net β/γ dpm/100 cm²	Exposure Rate
16	Sample Locations (per map)					20	38	292	8	
17						18	27	287	48	
18						13	8	303	-116	
19						7	-22	303	110	
20						15	11	315	102	
21						17	24	341	-27	
22						15	9	317	-108	
23						18	15	281	99	
24						15	8	280	87	
25						10	-16	273	72	
26						24	51	212	-85	
27		N/A				14	5	213	-115	N/A
28						12	0	216	-108	
29						15	11	282	47	
30						15	11	242	-27	
31	Duplicate Count for #23					21	42	292	123	
32	Duplicate Count for #29					11	-11	341	230	
33	Duplicate Count for #30					14	3	331	60	
34										
35	N/A							N/A		
36										
37										
38										
39										

Remarks: Field Background for 31-33 collected on 9/08/04

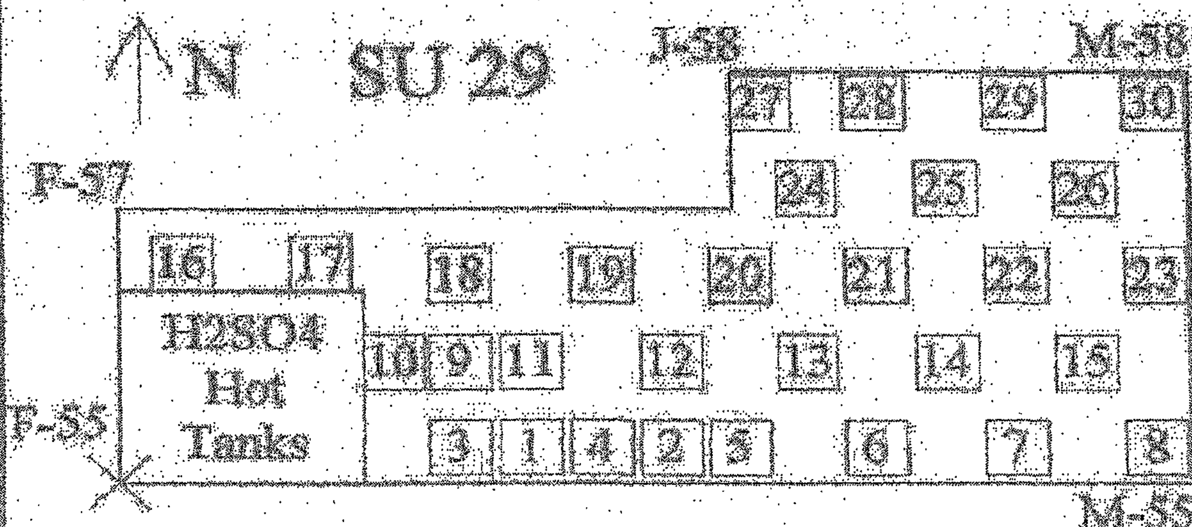
Technician(s) Signature / Date: [illegible] / [illegible] | N/A /

Form Review: [illegible] / [illegible] | Other Review: N/A /

Exhibit C
Radiological Survey Report Form

Description:	Characterization Survey - Survey Unit 29						
Date:	09/08/2004	Time:	0745	Survey No:	CH-090804-01	RWP No:	N/A

Survey Diagram:



Legend: Fixed/Removable Location; Exposure Rate; Posted Area Boundary

Remarks: The Origin of Survey Unit 29 (E, N, 0, 0) is marked by X in the SW corner of Grid F-55.

Technician(s) Signature / Date:			N/A	
Program Reviewer:		Client Reviewer:	N/A	

Exhibit A
Radiological Survey Report Form

Description:	Characterization Survey - Survey Unit 30				
Date: 09/03/2004	Time: 0900	Survey No.	CH-090304-[illegible]	RWP No.	N/A
Purpose of Survey (For Release Surveys Include Recipient):	Static Measurements in SU 30				

Instrument Data — Instrument Manufacturer or Model: ☐ Eberline ☐ Ludlum ☒ ☐ ☐

Detector Type	Detector S/N	Detector Cal Due	Meter Type	Meter S/N	Meter Cal Due	Sensitivity	Bkgd. Reading	Correction Factor	MDA (dpm)
43-[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	α	[illegible]	27	[illegible]
						βγ	[illegible]	23	[illegible]
[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	α	130	3.4	[illegible]
						βγ	291	3.0	172
44-9	[illegible]	03/13/04	3	171[illegible]	03/14/05	βγ (CPM)	97	30	713
N/A	N/A	N/A	Model 19	[illegible]	[illegible]	Exposure	N/A	N/A	N/A

Survey Results		Smearable Results				Direct Readings				
Sample Number	Description/Results	Gross α Removable CPM	Net α Removable dpm/100 cm²	Gross βγ Removable CPM	Net βγ Removable dpm/100 cm²	Gross α CPM	Net α dpm/100 cm²	Gross βγ CPM	Net βγ dpm/100 cm²	Exposure Rate µR
1	Sample Locations (see map)					35	14	300	-15	N/A
2						29	20	296	97	
3						10	-16	268	-129	
4						27	21	294	36	
5						20	18	293	21	
6						18	27	270	30	
7						16	16	268	-129	
8						17	32	278	-51	
9						10	-16	271	60	
10						20	18	293	75	
11						15	11	213	-114	
12						17	22	232	-37	
13						14	27	249	-93	
14						17	23	288	42	
15						23	33	334	-51	

Remarks: Field backgrounds for 43-[illegible] generated on [illegible]

NDA = No Detectable Activity, Detected, i.e. < MDA

Technician(s) Signature / Date: [signature] / [illegible] N/A /

Reviewed By/Date: [signature] / [illegible] Other Reviewer: N/A /

Exhibit 9

Radiological Survey Report Form

Description: Characterization Survey - Survey Unit 38										
Date: 09/08/2004	Time: 0900	Survey No: CH-09/08/04-02			RWP No: N/A					
Survey Results		Smearable Results				Direct Readings				
Sample Number	Description/Results	Gross α Removable CPM	Net α Removable dpm/100 cm²	Gross βγ Removable CPM	Net βγ Removable dpm/100 cm²	Gross α CPM	Net α dpm/100 cm²	Gross βγ CPM	Net βγ dpm/100 cm²	Exposure Rate µR
16	Sample Locations (see map)					7	-20	239	44	
17						21	43	211	-120	
18						11	-25	250	31	
19						13	0	248	-8	
20						8	-20	270	97	
21						23	45	195	-165	
22						11	-11	248	21	
23						13	0	214	-111	
24						16	16	283	20	
25						15	6	216	-201	
26						27	74	291	129	
27						16	16	226	-70	N/A
28		N/A				19	32	213	-117	
29						14	5	184	-201	
30						13	0	167	-253	
31	Duplicate Count for #6					18	16	261	30	
32	Duplicate Count for #9					17	32	291	130	
33	Duplicate Count for #10					19	22	286	87	
34										
35										
36	N/A						N/A			
37										
38										
39										

Remarks: [illegible]

Technician(s) Signature / Date: [signature] 9/8/04 N/A /

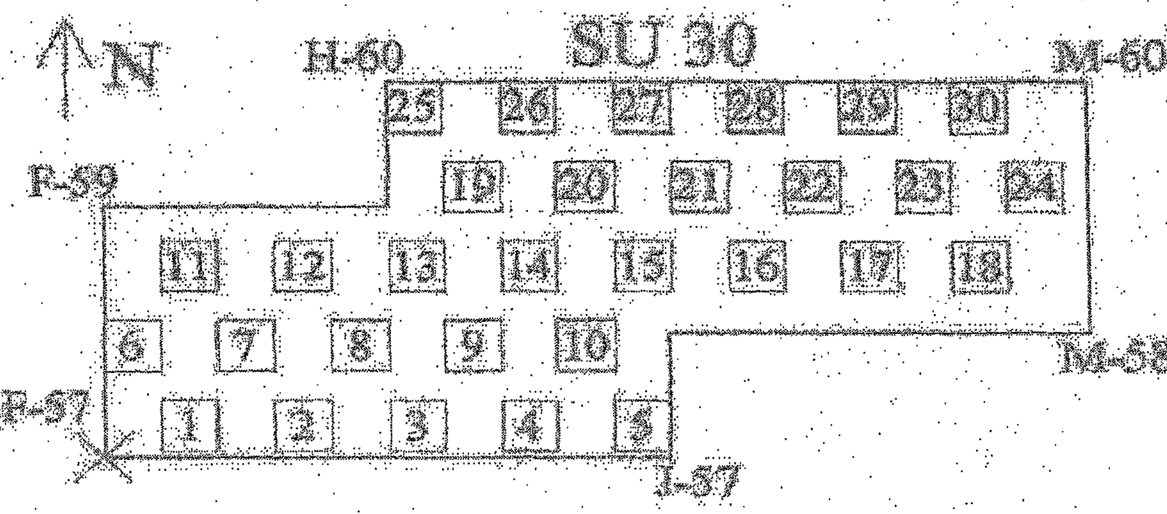
Project Review: [signature] [illegible] Client Review: N/A /

Exhibit C

Radiological Survey Report Form

Description:	Characterization Survey - Survey Unit 30						
Date:	[illegible]	Time:	0900	Survey No.:	[illegible]	RWP No.:	N/A

Survey Diagram:



Legend: [illegible] Locations [illegible] [illegible] Area Boundary

Remarks: [illegible]

[illegible] Signature / Date:	[signature]	[illegible]	N/A	/
[illegible] Review:	[signature]	[illegible] Review:	N/A	/

Exhibit A
Radiological Survey Report Form

Description: Characterization Survey - Survey Unit 31

Date: 09/08/2004 | Time: 01000 | Survey No: CH-090804-41 | RWP No: N/A

Purpose of Survey (For Release Surveys Include Rad Controls): Static Measurements in SU31

Instrument Data — Instrument Manufacturer(s): Eberline ☐ Bicron ☐ Ludlum ☒ ☐ ☐

Detector Type	Detector S/N	Detector Cal Due	Meter Type	Meter S/N	Meter Cal Due	Sensitivities	Bkgd. (cpm)	Counting Time	MDA (dpm)
[illegible]	PR179130	12/22/05	2929	120572	09/08/04	α	0.42	20	61
						βγ	302	2.3	36.3
43-93	PR208152	02/12/05	2221	179120	02/12/05	α	14.0	24	25.3
						βγ	251	30	172
44-9	PR208124	03/15/04	3	171204	03/15/04	βγ (cpm)	47	30	113
N/A	N/A	N/A	Model 19	4373	10/20/05	Exposure	N/A	N/A	N/A

Sample Number	Description/Results	Gross α Removable CPM	Net α Removable dpm/100 cm^2	Gross βγ Removable CPM	Net βγ Removable dpm/100 cm^2	Gross α CPM	Net α dpm/100 cm^2	Gross βγ CPM	Net βγ dpm/100 cm^2	Exposure Rate μR
1	Sample Locations (see map)	[illegible]				21	43	297	153	N/A
2						19	37	309	93	
3						18	27	291	120	
4						14	25	307	79	
5						13	11	295	105	
6						18	37	231	0	
7						15	33	253	56	
8						12	5	221	-29	
9						11	11	246	-15	
10						7	-23	249	-6	
11						15	11	222	-69	
12						13	11	231	-40	
13						19	33	268	39	
14						10	4	221	[illegible]	
15						10	16	177	-134	

Remarks: Field Background for 43-93 generated on 9/08/04

Technician(s) Signature / Date: [signature] 9/08/04 N/A /

Project Review: [signature] 9/08/04 Client Review: N/A /

Exhibit B
Radiological Survey Report Form

Description: Characterization Survey - Survey Unit 3

Date: 09/08/2004 | Time: 01000 | Survey No: CH-090804-03 | RWP No: N/A

Sample Number	Description/Location	Gross α Removable CPM	Net α Removable dpm/100cm²	Gross β/γ Removable CPM	Net β/γ Removable dpm/100cm²	Gross α CPM	Net α dpm/100 cm²	Gross β/γ CPM	Net β/γ dpm/100 cm²	Exposure Rate μR/h
	Survey Results	**Smearable Results**				**Direct Readings**				
16	Sample Locations (see map)					16	16	221	-36	
17						14	9	211	-120	
18						8	-37	232	-37	
19						12	22	254	96	
20						10	21	283	6	
21						15	65	237	-42	
22						15	43	277	24	
23						21	43	237	-48	
24						15	11	251	-9	
25						8	-27	259	12	
26						10	-16	236	-29	
27			N/A			9	-25	236	-49	N/A
28						13	07	263	20	
29						10	-16	175	-49	
30						10	-16	245	-18	
31	Duplicate Count for #1					23	64	301	159	
32	Duplicate Count for #20					22	49	279	84	
33	Duplicate Count for #30					9	-25	268	-21	
34	N/A					N/A				
35										
36										
37										
38										
39										

Remarks: Field Backgrounds for #1-#3 ... [illegible]

Technician(s) Signature / Date: [signature] 9/8/04 N/A

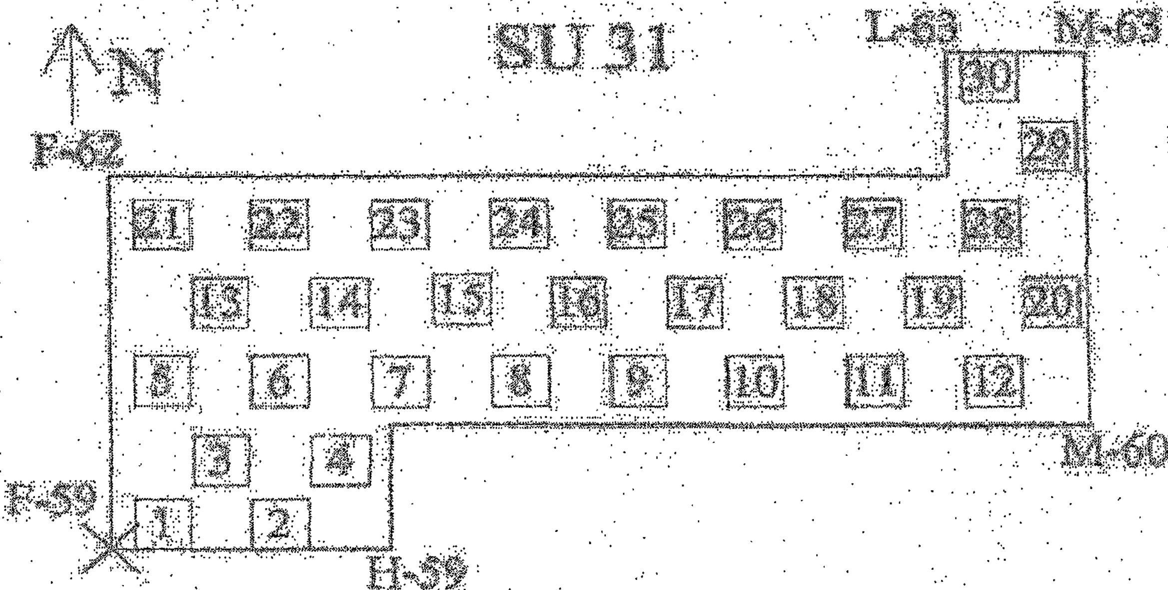
Project Review: [signature] 9/8/04 Client Review: N/A

Exhibit C

Radiological Survey Report Form

Description:	Characterization Survey - Survey Unit 31						
Date:	[illegible]	Time:	01:00	Survey No:	[illegible]	RWP No:	N/A

Survey Diagram:



Legend: [illegible] [illegible] [illegible] [illegible]

Remarks: [illegible]

Technician(s) Signature / Date: [illegible] N/A

[illegible] Review: [illegible] [illegible] Review: N/A

Exhibit A

Radiological Survey Report Form

Description: Characterization Survey - Survey Unit 32									
Date: 05/08/2004		Time: 1329		Survey No:	CU-050804-04		RWP No:	N/A	
Purpose of Survey (For Release Surveys Include Recipient): Static Measurements in SU 32									
Instrument Data		Instrument Manufacturer(s): Eberline ☐ Bicron ☐ Ludlum ☒ ☐ ☐							
Detector Type	Detector S/N	Detector Cal Due	Meter Type	Meter S/N	Meter Cal Due	[illegible]	Bkgd. (cpm)	Counting Time	MDA (dpm)
43-10-1	[illegible]	[illegible]	2929	190612	[illegible]	α	[illegible]	2.5	9.1
						β/γ	[illegible]	1.1	[illegible]
43-93	[illegible]	[illegible]	2224	[illegible]	[illegible]	α	[illegible]	[illegible]	[illegible]
						β/γ	[illegible]	[illegible]	[illegible]
44-9	PR283835	[illegible]	3	171254	[illegible]	β/γ (CPM)	40	[illegible]	[illegible]
N/A	N/A	N/A	Model 19	[illegible]	[illegible]	Exposure	N/A	N/A	N/A

Survey Results		Smearable Results				Direct Readings				
Sample Number	Description/Results	Gross α Removable CPM	Net α Removable dpm/100 cm²	Gross β/γ Removable CPM	Net β/γ Removable dpm/100 cm²	Gross α CPM	Net α dpm/100 cm²	Gross β/γ CPM	Net β/γ dpm/100 cm²	Exposure Rate [illegible]
1	Sample Locations (see map)	N/A				30	108	435	322	N/A
2						14	5	256	90	
3						18	27	260	43	
4						15	11	272	63	
5						10	-18	251	57	
6						8	-32	242	-27	
7						12	3	264	40	
8						14	3	257	120	
9						21	42	270	57	
10						13	3	253	6	
11						13	6	250	54	
12						12	9	244	21	
13						16	11	231	-30	
14						8	-27	241	9	
15						30	102	262	81	

Remarks: Field backgrounds for 43-93 generated on [illegible]

[illegible] = Radiation/Contamination Boundary [illegible]

Technician(s) Signature / Date: [signature] [illegible] N/A /

Project Review: [signature] [illegible] Client Review: N/A /

Exhibit II

Radiological Survey Report Form

Description: Characterization Survey - Survey Unit 32

Date: 09/09/2004 | Time: 1220 | Survey No: CH-090804-04 | RWP No: N/A

Survey Results		Smearable Results				Direct Readings				
Sample Number	Description/Results	Gross α Removable CPM	Net α Removable dpm/100 cm²	Gross β/γ Removable CPM	Net β/γ Removable dpm/100 cm²	Gross α CPM	Net α dpm/100 cm²	Gross β/γ CPM	Net β/γ dpm/100 cm²	Exposure Rate µR
16	Sample Locations (see map)					13	9	251	101	
17						17	25	236	-40	
18						12	-5	275	74	
19						10	-18	215	-100	
20						20	38	208	-129	
21						13	-2	241	-26	
22						13	6	236	-45	
23						16	27	262	33	
24						13	9	240	-33	
25						13	8	251	6	
26						13	5	262	33	
27			N/A			9	-22	230	-63	N/A
28						12	-3	241	-30	
29						26	70	269	-27	
30						14	5	222	-76	
31	Duplicate Count for #1					51	121	470	507	
32	Duplicate Count for #11					15	11	251	8	
33	Duplicate Count for #24					15	11	249	-6	
34										
35										
36	N/A							N/A		
37										
38										
39										

Remarks: Field backgrounds for [illegible]

Technician(s) Signature / Date: [signature] 14 [illegible] N/A /

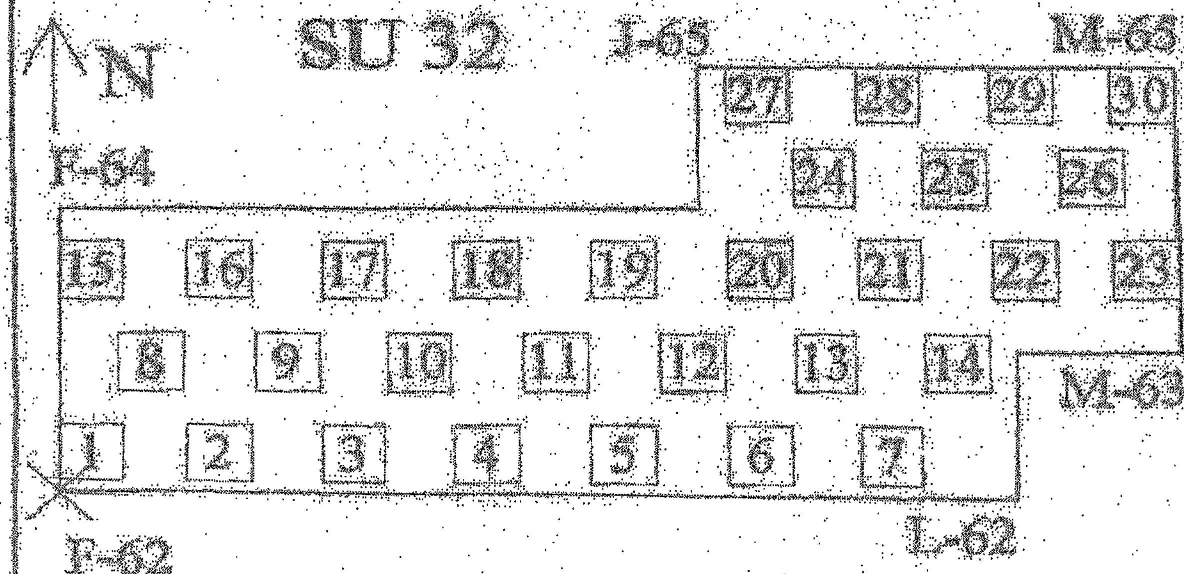
Validation Review: [signature] [illegible]/04 Count Review: N/A /

Exhibit C

Radiological Survey Report Form

Description:	Characterization Survey - Survey Unit 32						
Date:	09/08/2009	Time:	1220	Survey No:	CIS-090804-04	RWP No:	N/A

Survey Diagram



Legend: (#) ... Locations ... Posted Area Boundary

Remarks: The Origin of Survey Unit ... by X in the SW corner of the SU.

Radiological Signature / Date: [illegible] [illegible] N/A /

Reviewer: [illegible] [illegible] Other Reviewer: N/A /

Exhibit A

Radiological Survey Report Form

Description: Characterization Survey - Survey Unit 33

Date: 08/10/2004 | Time: 0740 | Survey No: CH-091004-01 | RWP No: N/A

Purpose of Survey (For Release Surveys include Recipient): Static Measurements in SU 33

Instrument Data — Instrument Note/Records by Upon [ ] Bkg/Bkgd [ ] Ludlum [X] [ ] [ ]

Detector Type	Detector S/N	Detector Cal Due	Meter Type	Meter S/N	Meter Cal Due	Sensitivity	Bkgd (cpm)	Efficiency (cpm)	MDA (dpm)
43-10-1	PR172134	03/09/05	2929	190612	04/04/05	α	132	29	9.1
						βγ	40.2	23	40.2
43-68	PR204132	02/12/05	2221	159520	02/12/05	α	10.0	3.4	72.3
						βγ	298	3.9	176
44-9	PR201235	01/13/04	3	175284	02/13/04	βγ (CPM)	41	30	712
N/A	N/A	N/A	Model 19	3573	02/09/05	Exposure	N/A	N/A	N/A

Survey Results		Smearable Results				Direct Readings				
Sample Number	Description/Results	Gross α Removable CPM	Net α Removable dpm/100 cm²	Gross Bγ Removable CPM	Net Bγ Removable dpm/100 cm²	Gross α CPM	Net α dpm/100 cm²	Gross Bγ CPM	Net Bγ dpm/100 cm²	Exposure Rate (R)
1	Sample Locations (see map)					14	-5	241	-69	N/A
2						4	-30	263	-5	
3						12	11	263	-3	
4						20	27	293	31	
5						3	-38	254	-50	
6						4	-43	250	-42	
7						11	-23	271	21	
8						12	-16	262	-4	
9						14	-5	222	-126	
10						17	11	227	-81	
11						23	43	234	-150	
12						8	-34	263	-67	
13						18	-29	265	2	
14						12	-23	310	105	
15						16	8	248	-48	

Remarks: Field Background for 43-68 generated on 8/10/04

*MDC of the Confirmation Survey ... (SMDA)

Technician(s) Signature / Date: [signature] 12-10-04 | N/A

Report Reviewer: [signature] 8/10/04 | Chem Review: N/A

Exhibit B
Radiological Survey Report Form

Description: Characterization Survey - Survey Unit 13

Date: 09/10/2004 | Time: 0740 | Survey No: CH-091004-01 | RWP No: N/A

Sample Number	Description/Location	Gross α Removable CPM	Net α Removable dpm/100 cm²	Gross βγ Removable CPM	Net βγ Removable dpm/100 cm²	Gross α CPM	Net α dpm/100cm²	Gross βγ CPM	Net βγ dpm/100cm²	Exposure Rate μR
	Survey Results	**Removable Results**				**Direct Readings**				
16	Sample Locations (see map)	N/A				14	-5	229	-12	N/A
17						13	6	207	-141	
18						15	-22	257	-27	
19						11	-32	253	88	
20						9	-43	193	-307	
21						12	-16	207	-171	
22						15	9	184	-303	
23						20	18	224	-138	
24						17	11	212	-236	
25						16	2	247	2	
26						14	-5	238	-78	
27						14	-5	235	-90	
28						11	-22	203	-183	
29						12	-18	219	-125	
30						23	24	227	-117	
31	Duplicate Count for #5					10	-27	261	-9	
32	Duplicate Count for #18					9	-36	240	45	
33	Duplicate Count for #30					24	40	238	-75	
34	N/A					N/A				
35										
36										
37										
38										
39										

Remarks: Field Background for 42-93 [illegible] on 9/10/04

Technician(s) Signature / Date: [signature] 9/10/04 | N/A

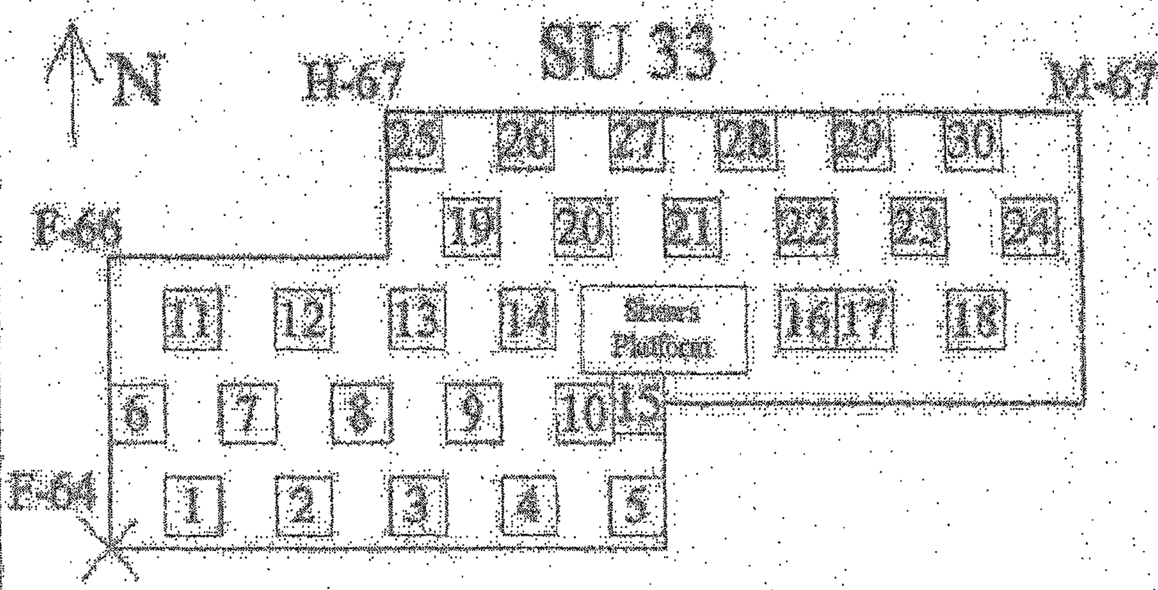
Designer Review: [signature] 9/10/04 | Client Review: N/A

Exhibit C

Radiological Survey Report Form

Description:	Characterization Survey - Survey Unit 33						
Date:	[illegible]	Time:	[illegible]	Survey No:	[illegible]	RWP No:	N/A

Survey Diagram



Legend: (#) Fixed/Removable Location; ## Exposure Rate (µR/hr); —X—X—X— Posted Area Boundary

Remarks: The Origin of Survey Unit ([illegible]) is marked by X in the SW corner of the SU.

Technician Signature / Date:	[illegible]	[illegible]	N/A
Peer Review:	[illegible]	Client Review:	N/A

Exhibit A
Radiological Survey Report Form

Description: Characterization Survey – Survey Unit 34

Date: 09/08/2004	Time: 1345	Survey No: CH-090804-05	RWP No: N/A

Purpose of Survey (For Release Surveys Include Recipient): Static Measurements in SU 34

Instrument Data | Instrument Manufacturer(s): Eberline ☐ Bicron ☐ Ludlum ☒ ☐ ☐

Detector Type	Detector SN	Detector Cal Due	Meter Type	Meter SN	Meter Cal Due	Sensitivity	Bkgd (cpm)	Efficiency Factor	MDA (dpm)
43-10-1	[illegible]	[illegible]	2929	[illegible]	[illegible]	α	16.2	8.0	9.1
						β/γ	25.3	1.8	56.3
43-89	[illegible]	[illegible]	2224	[illegible]	[illegible]	α	13.6	8.4	72.2
						β/γ	221	3.8	132
[illegible]	[illegible]	[illegible]	3	[illegible]	[illegible]	[illegible]	47	10	713
N/A	N/A	N/A	Model 19	[illegible]	[illegible]	[illegible]	N/A	N/A	N/A

Survey Results		Smearable Results				Direct Readings				
Sample Number	Description/Results	Gross α Removable CPM	Net α Removable dpm/100 cm²	Gross β/γ Removable CPM	Net β/γ Removable dpm/100 cm²	Gross α CPM	Net α dpm/100 cm²	Gross β/γ CPM	Net β/γ dpm/100 cm²	Exposure Rate µR
1	Sample Locations (see map)	N/A				13	0	148	-309	N/A
2						35	227	308	-120	
3						37	22	259	32	
4						14	9	220	-49	
5						12	-2	253	6	
6						12	-15	246	-18	
7						14	5	265	109	
8						9	-32	308	-59	
9						11	-13	281	20	
10						14	5	251	6	
11						15	11	302	-147	
12						10	-16	254	10	
13						8	-32	232	-87	
14						9	-23	230	-58	
15						10	-39	251	-30	

Remarks: Field Backgrounds for 43-89 performed on 9/8/04

[illegible]

Technician(s) Signature / Date: [signature] 9/8/04 N/A

Project Review: [signature] [illegible] Client Review: N/A

Exhibit B
Radiological Survey Report Form

Description: Characterization Survey - Survey Unit 34

Date: 09/08/2014 | Time: 1345 | Survey No: CH-090814-03 | RWP No: N/A

Survey Results		Smearable Results				Direct Readings				
Sample Number	Description/Location	Gross α Removable CPM	Net α Removable dpm/100cm²	Gross β/γ Removable CPM	Net β/γ Removable dpm/100cm²	Gross α CPM	Net α dpm/100cm²	Gross β/γ CPM	Net β/γ dpm/100cm²	Exposure Rate µR
16	Sample Locations (see map)					10	33	259	24	
17						11	-41	244	21	
18						11	-41	287	108	
19						10	-36	256	16	
20						16	20	234	13	
21						23	54	289	59	
22						12	-5	213	-104	
23						14	5	269	86	
24						13	6	236	41	
25						13	0	292	159	
26						11	-11	230	-69	
27		N/A				9	-23	224	51	N/A
28						20	38	209	-138	
29						12	-5	232	-29	
30						12	-5	236	17	
31	Duplicate Count for #1					14	5	165	-218	
32	Duplicate Count for #14					10	-36	234	96	
33	Duplicate Count for #23					13	6	264	39	
34										
35										
36	N/A						N/A			
37										
38										
39										

Remarks: Field Backgrounds for 12-24 generated on 9/08/14

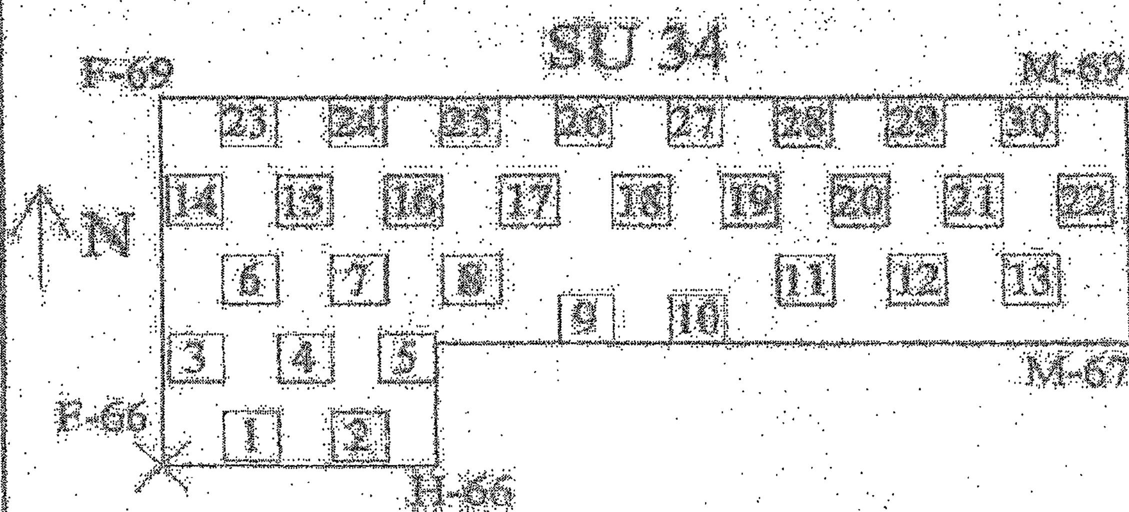
Technician(s) Signature / Date: [signature] 9-8-14 N/A

Survey Reviewer: [signature] 9/8/14 Client Reviewer: N/A

Exhibit C
Radiological Survey Report Form

Description:	Characterization Survey - Survey Unit 34						
Date:	[illegible]/2004	Time:	1345	Survey No:	[illegible]	RWP No:	N/A

Survey Diagram:



Legend: Fixed/Removable Locations; [illegible]; [illegible] Area Boundary

Remarks: The Origin of Survey Unit [illegible] is marked by X in the SW corner of the SU.

Technician(s) Signature/ Date:	[signature]	[illegible]	N/A	/
Preparer Review:	[signature]	[illegible] Chem Review:	N/A	/

Exhibit A
Radiological Survey Report Form

Description: Characterization Survey - Survey Unit 35

Date: 09/10/2004 | Time: 0835 | Survey No: CH-091004-02 | RWP No.: N/A

Purpose of Survey (For Release Surveys Include Recipient): Static Measurements in SU 35

Instrument Data — Instrument Manufacturer: Eberline ☐ Bicron ☐ Ludlum ☒ ☐ ☐

Detector Type	Detector S/N	Detector Cal Due	Meter Type	Meter S/N	Meter Cal Due	[illegible]	Bkgd (cpm)	[illegible]	MDA (dpm)
43-89-1	PR173134	03/09/05	2929	190672	03/09/05	α	3.49	2.9	9.1
						βγ	40.5	2.3	80.5
43-93	PR200132	02/12/05	2224	196210	02/12/05	α	13.3	5.4	77.3
						βγ	204	2.0	178
44-2	PR263710	03/15/04	3	171234	03/15/04	βγ (keV)	45	30	733
N/A	N/A	N/A	Model 19	85718	02/03/05	Exposure	N/A	N/A	N/A

Sample Number	Description/Results		Gross α Removable CPM	Net α Removable dpm/100 cm²	Gross βγ Removable CPM	Net βγ Removable dpm/100 cm²	Gross α CPM	Net α dpm/100 cm²	Gross βγ CPM	Net βγ dpm/100 cm²	Exposure Rate μR
1	Sample Locations (see map)		N/A				14	-2	231	81	N/A
2							10	-37	251	-39	
3							12	-15	234	-40	
4							17	17	188	-125	
5							15	9	234	-50	
6							10	-23	274	30	
7							9	-42	231	-39	
8							15	23	298	162	
9							14	16	310	142	
10							8	-48	185	-207	
11							7	-40	270	36	
12							16	5	102	-158	
13							15	8	232	-126	
14							14	9	279	27	
15							14	-5	238	-79	

Remarks: Field Backgrounds for G-M performed on 9/10/04

[illegible]

Technician's Signature/Date: [signature] 09/10/04 [illegible] N/A /

[illegible] Review: [signature] [illegible] [illegible] Review: N/A /

Exhibit B

Radiological Survey Report Form

Description: Characterization Survey - Survey Unit 35

Date: 09/19/2004 | Time: 0855 | Survey No: CH-09192004-02 | RWP No: N/A

Survey Results			Smearable Results				Direct Readings				
Sample Number	Description/Results		Gross α Smearable CPM	Net α Removable dpm/100 cm²	Gross β/γ Removable CPM	Net β/γ Removable dpm/100 cm²	Gross α CPM	Net α dpm/100 cm²	Gross β/γ CPM	Net β/γ dpm/100 cm²	Exposure Rate [illegible]
16	Random Locations (see map)						18	52	303	111	
17							8	-34	210	-252	
18							13	-21	233	-83	
19							16	2	253	-35	
20							17	11	209	-165	
21							16	-27	236	-54	
22							11	-24	223	-105	
23							14	-8	281	31	
24							18	22	280	66	
25							17	11	281	31	
26							18	-41	262	-6	
27				N/A			9	-32	251	-29	N/A
28							16	-3	246	-81	
29							12	-11	211	-139	
30							14	-2	280	78	
31	Duplicate Count for 15						18	20	240	-32	
32	Duplicate Count for 19						10	-32	205	-127	
33	Duplicate Count for 819						21	32	258	-31	
34											
35											
36	N/A							N/A			
37											
38											
39											

Remarks: Field Backgrounds for 47-55 generated on 9/18/2004

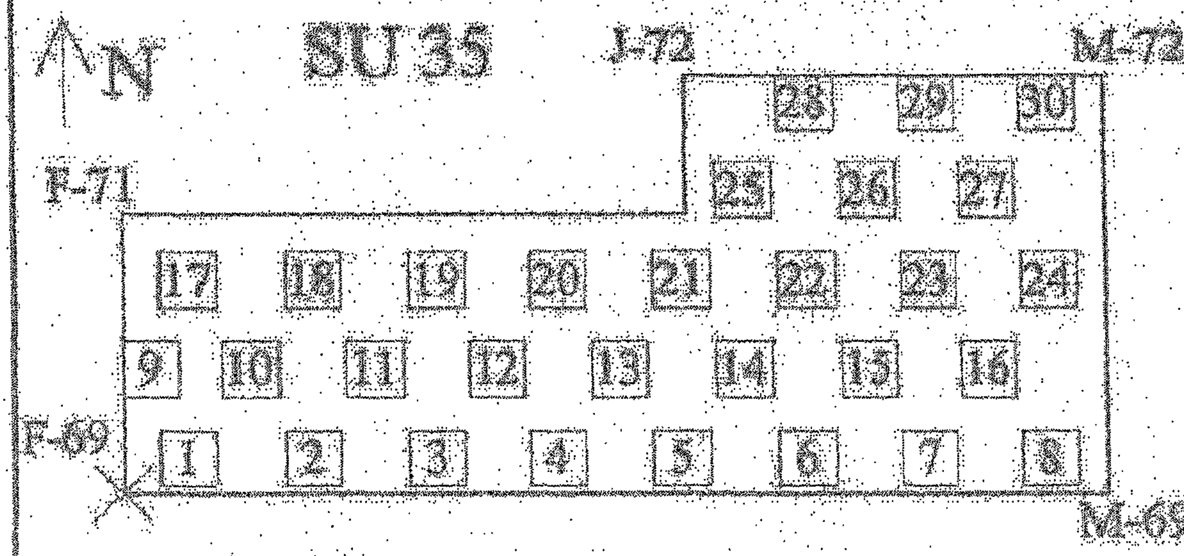
Technician(s) Signature / Date: [signature] / 9-19-04 N/A /

Peer Review: [signature] [illegible] Client Review: N/A /

Exhibit C
Radiological Survey Report Form

Description:	Characterization Survey – Survey Unit 35						
Date:	09/10/2004	Time:	0835	Survey No:	CH-0910/04-02	RWP No:	N/A

Survey Diagram:



Legend: Fixed/Removable Locations; Exposure Rates (µR/hr); Posted Area Boundary

Remarks: The Original Survey Unit (0' E/E, 0' N/S) is marked by X in the SW corner of the SU.

Technician(s) Signature / Date:	[signature]	[date]	N/A	/
Designer Review:	[signature]	[illegible]	Client Reviewer:	N/A

Exhibit A
Radiological Survey Report Form

Description: Characterization Survey - Survey Unit 35

Date: 09/1?/2004 | Time: 01015 | Survey No: CH-051-2004-03 | RWP No: N/A

Purpose of Survey (For Release Surveys Include Receipt #): Static Measurements in SU 3[illegible]

Instrument Data — Integrated Measurements / Discrete Points ☐ Plastic ☐ Lathe ☒ ☐ ☐

Detector Type	Detector S/N	Detector Cal Due	Meter Type	Meter S/N	Meter Cal Due	Efficiency	Bkgd. (cpm)	Count Time	MDC (dpm)
43-[illegible]	PR[illegible]	[illegible]	2[illegible]	[illegible]	[illegible]	α	5[illegible]	29	93
						βγ	482	13	26.3
43-[illegible]	PR[illegible]	[illegible]	2[illegible]	19[illegible]	[illegible]	α	151	13	71.3
						βγ	2[illegible]	59	1[illegible]
44-9	PR[illegible]	[illegible]/13/04	3	17[illegible]	[illegible]	βγ (Cpm)	49	39	712
N/A	N/A	N/A	Model 19	8573	[illegible]	Exposure	N/A	N/A	N/A

Sample Number	Description/Results	Gross α Removable CPM	Net α Removable dpm/100 cm²	Gross β/γ Removable CPM	Net β/γ Removable dpm/100 cm²	Gross α CPM	Net α dpm/100 cm²	Gross βγ CPM	Net βγ dpm/100 cm²	Exposure Rate
1	Sample Locations (see map)					10	-27	179	-255	N/A
2						13	0	231	-99	
3						16	5	223	-103	
4						18	3	225	-123	
5						15	0	211	-159	
6						31	32	238	-120	
7						11	-22	219	-135	
8						30	27	272	34	
9						13	-13	234	-90	
10						8	-38	225	-117	
11						10	-27	244	-60	
12						14	-5	224	-120	
13						17	11	281	31	
14						14	5	225	-117	
15						9	-43	1[illegible]	-2[illegible]	

Remarks: Field Measurements for 43-[illegible] [illegible]

[illegible]

Technician(s) Signature / Date: [signature] [illegible] N/A

Project Review: [signature] [illegible] Other Review: N/A

Exhibit B
Radiological Survey Report Form

Description: Characterization Survey - Survey Unit 15

Date: 09/10/2004 | Time: 01015 | Survey No: CH-09100403 | RWP No: N/A

Sample Number	Description/Location	Gross α Removable CPM	Net α Removable dpm/100 cm²	Gross β/γ Removable CPM	Net β/γ Removable dpm/100 cm²	Gross α CPM	Net α dpm/100 cm²	Gross β/γ CPM	Net β/γ dpm/100 cm²	Exposure Rate
	Survey Results	Smearable Results				Direct Readings				
16	Sample Locations (see map)					10	-27	276	-42	
17						20	22	260	48	
18						13	-11	290	78	
19						6	-38	208	-108	
20						11	-23	212	-136	
21						13	0	267	-4	
22						9	-33	208	-158	
23						13	-21	226	66	
24						10	-27	311	69	
25						15	-5	192	-222	
26						16	5	250	-84	
27						10	-27	221	-129	
28						12	-11	209	-109	
29						4	-32	273	21	
30						11	-22	257	31	
31	Duplicate Count for #2					13	8	261	89	
32	Duplicate Count for #11					15	0	309	65	
33	Duplicate Count for #13					9	-27	293	57	
34										
35										
36										
37										
38										
39										

Remarks: Field Background for 43-89 generated on 9/10/04

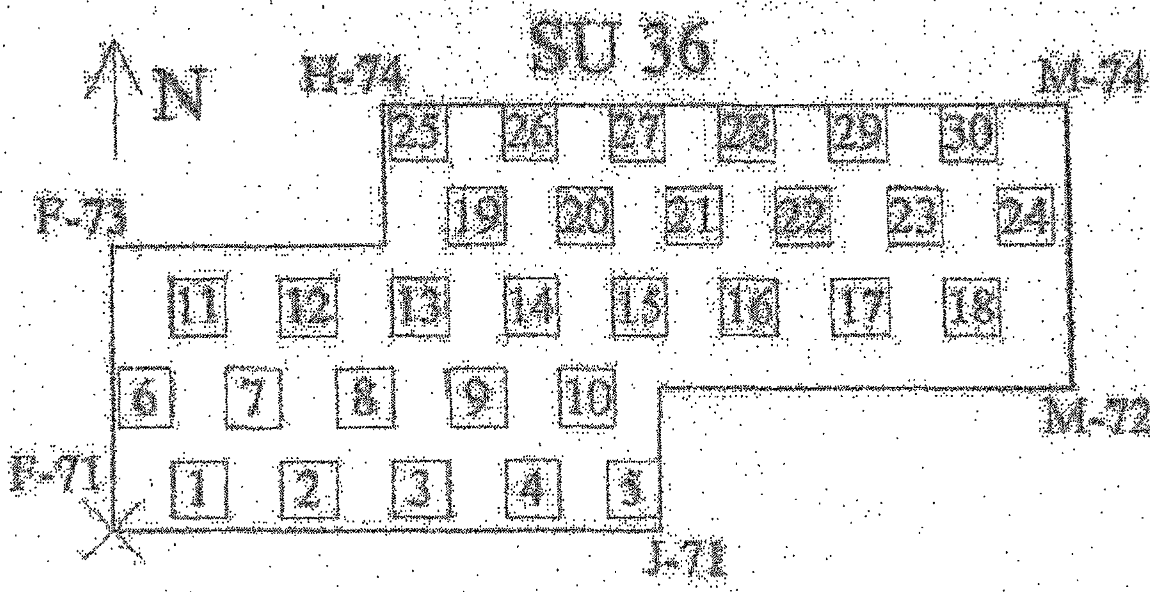
Technician(s) Signature / Date: [illegible] / [illegible] | N/A /

Foreman Review: [illegible] [illegible] | Other Review: N/A /

Exhibit C
Radiological Survey Report Form

Description: Characterization Survey – Survey Unit 36							
Date:	09/10/2004	Time:	[illegible]	Survey No.	CH-[illegible]-03	RWP No:	N/A

Survey Diagram



Legend: [illegible] [illegible] Survey Area Boundary

Remarks: The Origin of Survey Unit [illegible] is marked by X in the SW corner of the [illegible].

Technician(s) Signature/Date:	[signature] / [illegible]	N/A	/
[illegible] Review:	[signature]	[illegible] Review:	N/A /

Exhibit A
Radiological Survey Report Form

Description:	Characterization Survey - Survey Unit 37						
Date:	09/[illegible]/2004	Time:	1256	Survey No.:	CH-09 [illegible]-04	RWP No.:	N/A
Purpose of Survey (For Release Surveys include Radiology):	Static Measurements in SU 37						

Instrument Data — Instrument Manufacturer: [illegible] ☐ Eberline ☐ Ludlum ☒ ☐ ☐

Detector Type	Detector SN	Detector Cal Due	Meter Type	Meter SN	Meter Cal Due	Sensitivity	[illegible] (cpm)	Count Time (min)	MDA [illegible]
43-10-1	PR[illegible]	02/08/05	2929	196617	[illegible]	α	9.43	2.3	91
						βγ	49.2	2.3	86.3
43-93	PR[illegible]	[illegible]	2224	[illegible]	[illegible]	α	13.0	2.4	77.3
						βγ	2.44	2.4	176
44-9	PR[illegible]	[illegible]	3	171234	[illegible]	βγ (GM)	47	30	725
N/A	N/A	N/A	Model 19	[illegible]	[illegible]	Exposure	N/A	N/A	N/A

Sample Number	Survey Results: Description/Results	Smearable Results: Gross α Removable CPM	Net α Removable dpm/100 cm²	Gross β/γ Removable CPM	Net β/γ Removable dpm/100 cm²	Direct Readings: Gross α CPM	Net α dpm/100 cm²	Gross β/γ CPM	Net β/γ dpm/100 cm²	Exposure Rate (µR/hr)
1	Sample Locations (see map)	N/A				15	0	291	60	N/A
2						7	-42	244	-40	
3						12	-16	257	-21	
4						17	11	196	-209	
5						13	-11	209	-168	
6						16	5	258	3	
7						13	-13	256	-24	
8						16	5	235	-84	
9						15	0	260	13	
10						15	0	294	102	
11						14	-5	298	135	
12						13	-11	238	-76	
13						12	-19	275	32	
14						20	27	218	-138	
15						18	16	194	-210	

Remarks: Field Backgrounds for [illegible] [illegible] on [illegible]

"NCD" = No Contamination Detected i.e. < MDA

Technician(s) Signature / Date:	[illegible]	[illegible]	N/A	/
Survey Review:	[illegible]	[illegible]	Client Review: N/A	/

Exhibit B
Radiological Survey Report Form

Description: Characterization Survey - Survey Unit 37

Date: 09/10/2004 | Time: 1255 | Survey No: CH-091004-04 | RWP No: N/A

Survey Results		Smearable Results				Direct Readings				
Sample Number	Description/Results	Gross α Removable CPM	Net α Removable dpm/100cm²	Gross β/γ Removable CPM	Net β/γ Removable dpm/100 cm²	Gross α CPM	Net α dpm/100 cm²	Gross β/γ CPM	Net β/γ dpm/100 cm²	Exposure Rate uR
16	Sample Locations (see map)	N/A				15	-11	178	-228	N/A
17						13	-11	259	-25	
18						14	-8	271	21	
19						10	-27	248	-48	
20						17	11	250	-32	
21						16	5	265	3	
22						14	-5	250	-42	
23						8	-34	253	-96	
24						18	22	295	102	
25						17	11	180	-352	
26						11	-23	245	-57	
27						22	43	228	-108	
28						17	11	205	-117	
29						14	-5	231	-98	
30						20	-27	190	-485	
31	Duplicate Count for #2					10	-27	251	-39	
32	Duplicate Count for #14					19	22	248	-48	
33	Duplicate Count for #27					14	-9	261	-138	
34	N/A					N/A				
35										
36										
37										
38										
39										

Remarks: Field Backgrounds for 43-93 generated on 9/10/04

Technician(s) Signature/Date: [signature] [date] N/A

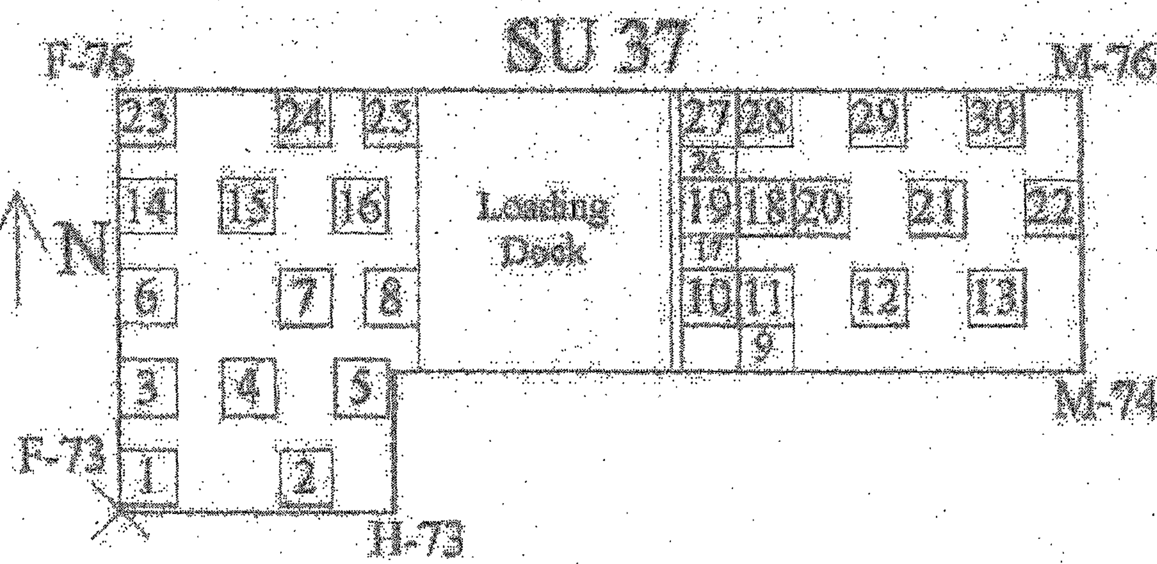
Project Review: [signature] [date] Client Review: N/A

Exhibit C
Radiological Survey Report Form

Description: Characterization Survey – Survey Unit 37

Date: 09/10/2004	Time: 1255	Survey No: CH-091004-04	RWP No: N/A

Survey Diagram:



Legend: (#) Fixed/Removable Location ▲ Exposure Rate (µR/hr) —×—×—×— Posted Area Boundary

Remarks: The Original Survey Unit (0 ft E, 0 ft N) is marked by X in the SW corner of the SU.

Technician(s) Signature / Date: [signature] / [date] N/A /

Ranger Review: [signature] / [date] Client Review: N/A /

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Exhibit A
Radiological Survey Report Form

Description: Characterization Survey - Smear Surveys for Building 5

Date: 10/25/2004 | Time: 0745 | Survey No.: CH-102504-01 | RWP No.: N/A

Purpose of Survey (For Release Surveys Include Recipient): Removable activity measured on static survey points with elevated activity from Survey Units listed below.

Instrument Data — Instrument Efficiencies(s) (using [ ] Ehatron [ ] Tc-99m [X] [ ] [ ])

Detector Type	Detector SN	Detector Cal Due	Meter Type	Meter SN	Meter Cal Due	Radiation Type	Bkgd. (cpm)	Efficiency (%)	MDA (dpm)
43-10-1	PR179134	02/03/05	2929	190612	08/18/05	α	0.8	2.9	11.4
						βγ	49.8	2.3	56.7
43-89	PR208152	03/12/05	2224	190230	03/12/05	α	N/A	5.4	N/A
						βγ	N/A	3.0	N/A
44-9	PR205713	09/15/04	3	171254	08/13/05	βγ (CPM)	47	39	710
N/A	N/A	N/A	Model 19	8574	02/09/05	Exposure	N/A	N/A	N/A

Survey Results		Smearable Results				Direct Readings				
Sample Number	Description/Remarks	Gross α Removable CPM	Net α Removable dpm/100 cm²	Gross βγ Removable CPM	Net βγ Removable dpm/100 cm²	Gross α CPM	Net α dpm/100 cm²	Gross βγ CPM	Net βγ dpm/100 cm²	Exposure Rate µR
1	SU 8 #23	1	1	40	-6					
2	SU 8 #26	0	-2	40	-33					
3	SU 13 #27	3	12	31	-4					
4	SU 23 #30	3	4	54	10					
5	SU 9 #28	2	3	41	-20					
6	SU 11 #16	0	-2	36	-42					
7	SU 22 #10	0	-2	46	-9					
8	SU 22 #11	0	-2	51	3			NDC		
9	SU 25 #23	1	1	32	-9					
10	SU 27 #23	0	-2	42	-18					
11	SU 28 #10	0	-2	38	-23					
12	SU 32 #1	1	1	42	-18					
13	SU 32 #1 (Dup)	1	1	38	-29					
14	SU 31 #2	0	-2	51	3					
15	SU 34 #2 (Dup)	0	-2	40	-23					

Remarks:

"NDC" = No Contamination Detected ≤ MDA

Technician(s) Signature / Date: [signature] / 10-25-04 | N/A /

Project Review: [signature] / 10/26/04 | Client Review: N/A /

Exhibit A
Radiological Survey Report Form

Description: Characterization Survey - Survey Unit 33			
Date: 09/15/2004	Time: 0830	Survey No.: CH-091501-01	RWP No.: N/A
Purpose of Survey (For Release Surveys Include Recipient): Static Measurements in SU 33			

Instrument Data [illegible] ☐ [illegible] ☐ [illegible] ☒ ☐ ☐

Detector Type	Detector S/N	Detector Cal Due	Meter Type	Meter S/N	Meter Cal Due	[illegible]	Bkgd. (cpm)	[illegible]	MDA (dpm)
43-10-1	PR173124	10/08/03	2929	190672	10/08/04	α	0.42	2.0	9.1
						β/γ	252	2.1	96.3
43-93	PR200132	10/12/03	2224	190830	02/12/03	α	12.2	5.4	70.0
						β/γ	269	8.0	155
44-9	PR205327	03/12/04	3	172254	03/12/04	β/γ (CPM)	47	98	713
N/A	N/A	N/A	Micro 17	4578	12/09/02	Exposure	N/A	N/A	N/A

Survey Results		Smearable Results				Direct Readings				
Sample Number	Description/Results	Gross α Removable CPM	Net α Removable dpm/100 cm²	Gross β/γ Removable CPM	Net β/γ Removable dpm/100 cm²	Gross α CPM	Net α dpm/100 cm²	Gross β/γ CPM	Net β/γ dpm/100 cm²	Exposure Rate μR
1	Sample Locations (see map)	N/A				9	-17	336	161	N/A
2						15	15	332	312	
3						16	10	305	708	
4						7	-23	237	284	
5						21	48	240	-37	
6						17	20	243	-78	
7						13	4	328	172	
8						15	4	332	179	
9						13	-6	238	27	
10						10	-12	259	-20	
11						13	4	343	28	
12						18	31	265	-42	
13						16	11	277	24	
14						10	-12	285	40	
15						8	-23	300	603	

Remarks: Field Backgrounds for 43-93 performed on 9/15/04

[illegible]

Technician(s) Signature / Date:	10-15-04		N/A
Health Physics Review:	[illegible]	Other Signatures:	N/A

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Exhibit B
Radiological Survey Report Form

Description: Characterization Survey - Survey Unit 38

Date: 09/15/2004 | Time: 08:39 | Survey No: CH-091504-01 | RWP No: N/A

Survey Results		Smear/Air Results				Direct Readings				
Sample Number	Description/Results	Gross α Removable CPM	Net α Removable dpm/100 cm²	Gross β/γ Removable CPM	Net β/γ Removable dpm/100 cm²	Gross α CPM	Net α dpm/100 cm²	Gross β/γ CPM	Net β/γ dpm/100 cm²	Exposure Rate uR
16	Sample Locations (see map)					9	-39	496	931	
17						12	-1	497	949	
18						14	10	264	-15	
19						20	42	276	21	
20						15	21	271	4	
21						18	21	248	-43	
22						13	-1	690	1263	
23						13	-1	227	-120	
24						14	10	401	306	
25						11	-6	607	1244	
26						10	-13	270	21	
27						12	-1	247	-66	N/A
28		N/A				12	6	301	90	
29						12	-1	747	1934	
30						12	-6	238	147	
31						10	-12	249	-40	
32						14	10	282	39	
33						13	4	264	-15	
34						13	4	301	86	
35						13	4	502	806	
36						12	-1	785	1343	
37						13	-1	504	805	
38						9	-23	259	-30	
39						10	-23	390	803	

Remarks: Field Backgrounds for 43-93 generated on 9/15/04

Technician(s) Signature / Date: [signature] 9/15/04 N/A /

Program Review: [signature] 9/20/04 Other Review: N/A /

Exhibit B
Radiological Survey Report Form

Description: Characterization Survey - Survey Unit 38

Date: 09/15/2004 | Time: 0830 | Survey No: CH-091501-03 | RWP No: N/A

Sample Number	Description/Results	Gross α Removable CPM	Net α Removable dpm/100 cm²	Gross β/γ Removable CPM	Net β/γ Removable dpm/100 cm²	Gross α CPM	Net α dpm/100 cm²	Gross β/γ CPM	Net β/γ dpm/100 cm²	Exposure Rate µR
	Survey Results	**Smearable Results**				**Direct Readings**				
40	Sample Locations (see map)					11	-6	348	297	
41						13	18	513	132	
42						16	31	239	-96	
43						17	36	230	-117	
44	Duplicate Count for # 3					15	15	512	129	
45	Duplicate Count for # 4					16	51	391	66	
46	Duplicate Count for # 31					12	-1	238	-93	
47	Duplicate Count for # 40					12	-4	269	231	
48										
49										
50										
51										N/A
52			N/A							
53										
54										
55	N/A							N/A		
56										
57										
58										
59										
60										
61										
62										
63										

Remarks: Field Backgrounds for 43-93 generated on 9/13/04

Technician(s) Signature / Date: [signature] 9-15-04 / N/A /

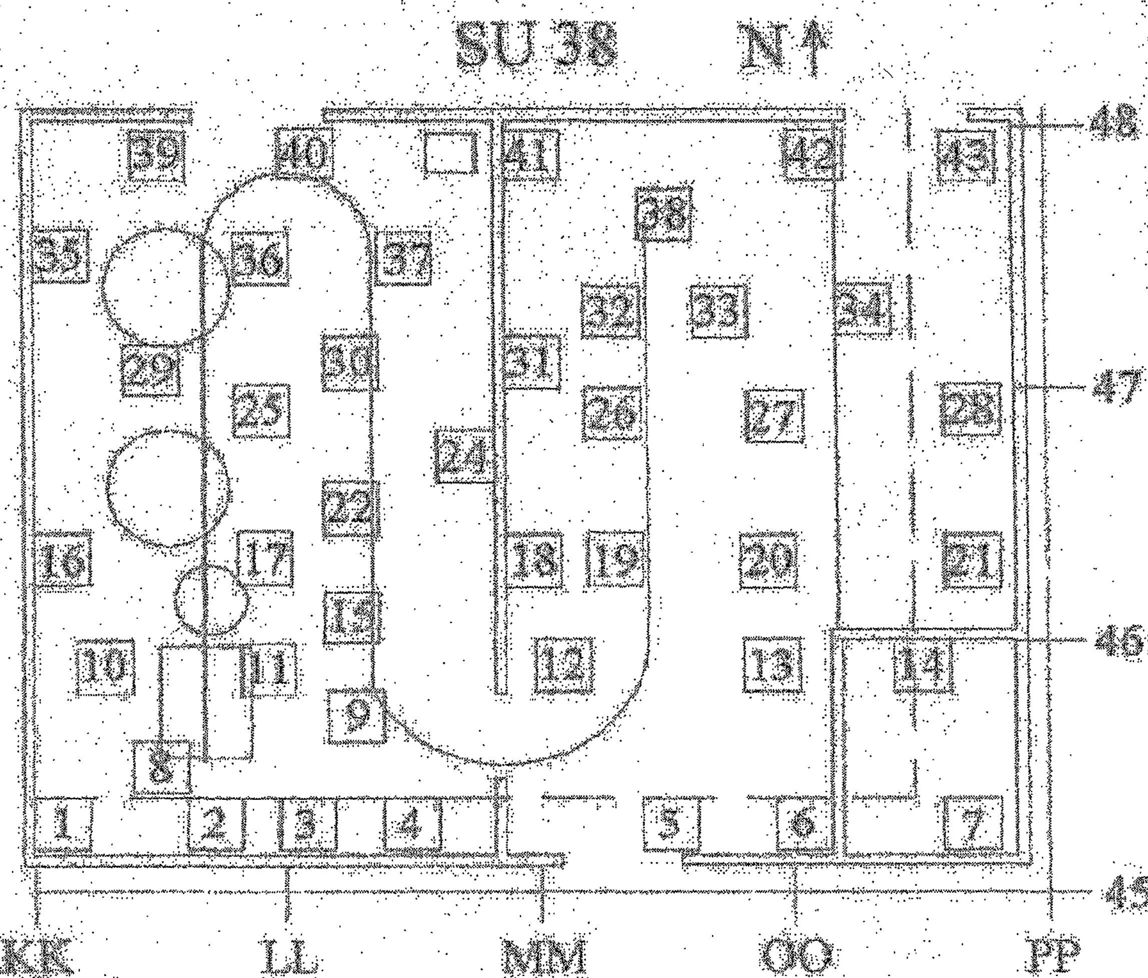
Peer Review: [signature] 9/20/04 Close Review: N/A /

Exhibit C

Radiological Survey Report Form

Description:	Characterization Survey - Survey Unit 38						
Date:	09/13/2004	Time:	0830	Survey No:	CH-091301-01	RWP No:	N/A

Survey Diagram:



Legend: (#) Fixed/Removable Locations — Exposure Rate (µR/hr) — [illegible] Area Boundary

Remarks: The Origin of Survey Unit ([illegible]) is marked by X in the SW corner of the SU.

Technician(s) Signature / Date:	[signature]	[illegible]	N/A	/
Preparer Review:	[signature]	[signature] Client Review:	N/A	/

Exhibit A
Radiological Survey Report Form

Description: Characterization Survey - Survey Unit 39

Date: 09/29/2004	Time: 0800	Survey No: CH-092904-01	RWP No: N/A

Purpose of Survey (For Release Surveys Include Recipient): Static Measurements in SU 39

Instrument Data — Instrument Nameplate(s) Posted ☐ Weighted ☐ Lathing ☒ ☐ ☐

Detector Type	Detector SN	Detector Cal Due	Meter Type	Meter SN	Meter Cal Due	Sensitivities	Bkgd. (cpm)	Correction Factor	MDA (dpm)
43-10-1	PR179154	[illegible]	2929	190812	[illegible]	α	0.80	2.0	9.1
						βγ	49.2	2.5	38.3
43-93	PR208332	02/12/03	2224	190327	02/12/05	α	18.0	2.4	24.8
						βγ	204	2.0	176
44-9	PR210202	03/15/04	3	171254	03/15/05	βγ (Ehd)	47	30	712
N/A	N/A	N/A	Model 19	25178	02/05/05	Exposure	N/A	N/A	N/A

Sample Number	Description/Results	Gross α Removable CPM	Net α Removable dpm/100 cm²	Gross βγ Removable CPM	Net βγ Removable dpm/100 cm²	Gross α CPM	Net α dpm/100 cm²	Gross βγ CPM	Net βγ dpm/100 cm²	Exposure Rate uR
	Survey Results	**Smearable Results**				**Direct Readings**				
1	Sample Locations (see map)	NDC				18	22	381	351	N/A
2	↓					14	6	353	287	↓
3						16	32	302	179	
4						13	-3	372	324	
5						12	-11	329	168	
6						14	0	337	306	
7						8	-32	304	120	
8						15	5	395	1413	
9						13	-5	316	156	
10						8	-22	252	-6	
11						5	-49	260	21	
12						18	32	319	162	
13						10	-24	309	128	
14						7	-38	453	1164	
15						12	-11	259	-18	

Remarks: Field backgrounds for 43-93 generated on 9/29/04

*NDC = No Detectable Contamination (Smears), i.e. < MDA

Tech(s) Signature / Date: [signature] 9.29.04 N/A /

Project Review: [signature] 9/29/04 Client Review: N/A /

Exhibit B
Radiological Survey Report Form

Description: Characterization Survey - Survey Unit 39

Date: 09/29/2004 | Time: 0800 | Survey No.: CH-092904-01 | RWP No.: N/A

Survey Results		Smearable Results				Direct Readings				
Sample Number	Description/Results	Gross α Removable CPM	Net α Removable dpm/100 cm²	Gross β/γ Removable CPM	Net β/γ Removable dpm/100 cm²	Gross α CPM	Net α dpm/100 cm²	Gross β/γ CPM	Net β/γ dpm/100 cm²	Exposure Rate uR
16	Sample Locations (see map)	N/A				5	-43	381	240	N/A
17						12	-21	408	316	
18						10	-22	337	279	
19						17	16	388	376	
20						12	5	410	438	
21						11	-45	347	249	
22						8	-23	374	336	
23						6	-43	341	311	
24						17	16	408	606	
25						10	-22	327	195	
26						15	-8	353	305	
27						9	-47	347	240	
28						13	-3	353	267	
29						17	16	450	618	
30						14	6	408	678	
31						12	16	351	281	
32						15	-5	395	393	
33						14	0	569	915	
34	Duplicate Count #1					12	14	354	270	
35	Duplicate Count #10					9	-27	380	405	
36	Duplicate Count #31					13	-6	340	248	
37	N/A					N/A				
38										
39										

Remarks: [illegible] Backgrounds for 43-68 [illegible] on 9/29/04

Technician(s) Signature / Date: [signature] / 9.29.04 | N/A /

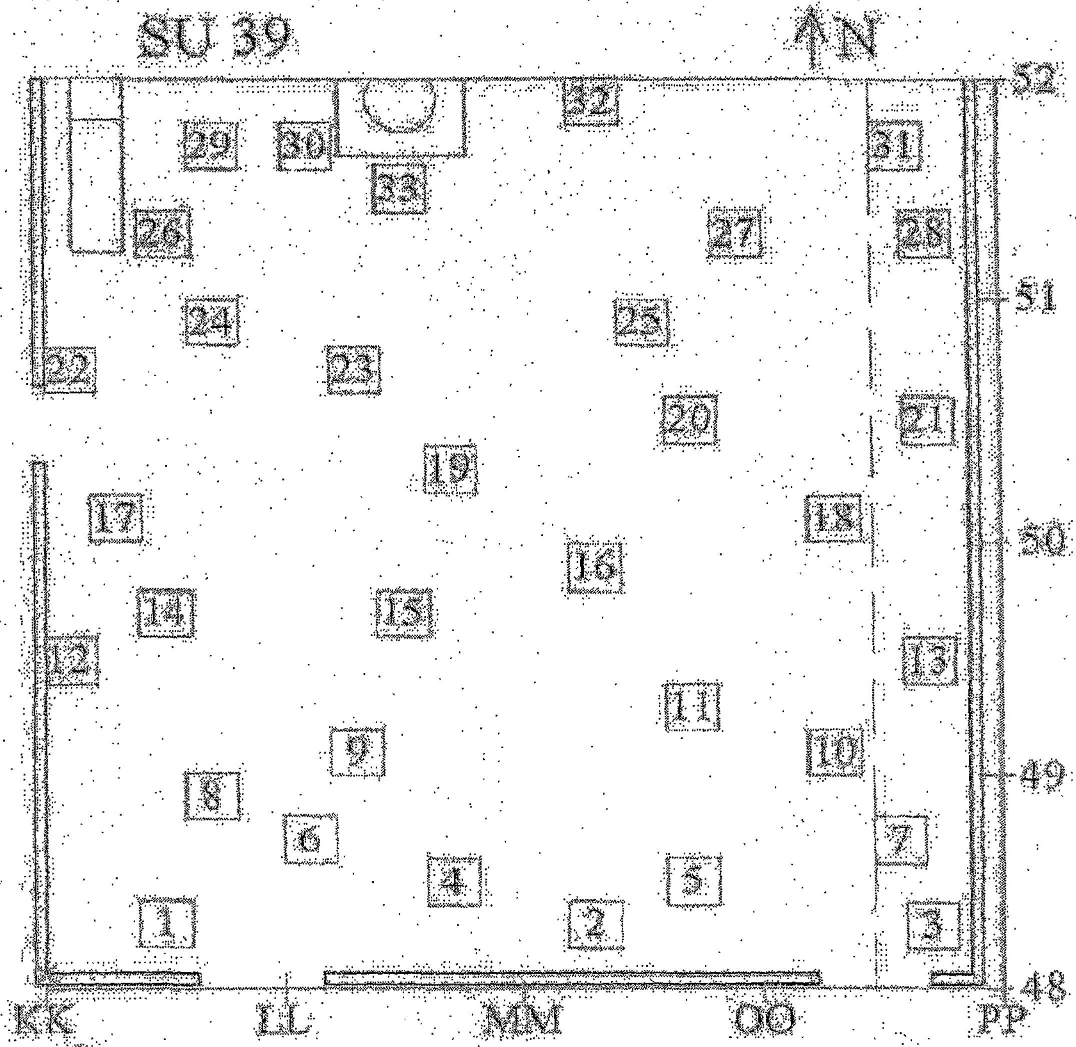
Design Review: [signature] 10/5/04 Client Review: N/A /

Exhibit C

Radiological Survey Report Form

Description:	Characterization Survey - Survey Unit 39						
Date:	09/29/2004	Time:	0800	Survey No:	CH-092004-81	RWP No.:	N/A

Survey Diagram:



Legend: [illegible]

Remarks: [illegible]

Technician(s) Signature / Date: [signature] [illegible] N/A

Reviewer: [signature] [illegible] N/A

Exhibit A

Radiological Survey Report Form

Description:	Characterization Survey - Survey Unit 40				
Date: 10/13/2004	Time: 0800	Survey No:	CH-101304-01	RWP No:	N/A
Purpose of Survey (For Release Surveys Include Recipient):	Static Measurements in SU 40				

Instrument Data — Instrument Manufacturer: Bicron ☐ Eberline ☐ Ludlum ☒ ☐ ☐

Detector Type	Detector SN	Detector Cal Due	Meter Type	Meter SN	Meter Cal Due	Sensitivity/Mode	Bkgd. (cpm)	Correction Factor	MDA (dpm)
43-10-1	PR129724	02/06/05	2929	190812	02/06/04	α	0.42	3.9	9.4
						βγ	44.2	2.3	263
43-93	PR300132	02/12/03	2224	190230	02/12/03	α	10.0	3.6	43.7
						βγ	203	3.0	116
44-9	PR202351	03/15/04	3	171234	03/15/04	βγ (CPM)	47	30	712
N/A	N/A	N/A	Model 19	85174	08/09/04	Exposure	N/A	N/A	N/A

Sample Number	Description/Remarks	Gross α Removable CPM	Net α Removable dpm/100 cm²	Gross βγ Removable CPM	Net βγ Removable dpm/100 cm²	Gross α CPM	Net α dpm/100 cm²	Gross βγ CPM	Net βγ dpm/100 cm²	Exposure Rate μR
1	Sample Locations (see map)					13	47	353	370	N/A
2						16	32	302	127	
3						18	48	328	495	
4						25	81	374	323	
5						10	8	340	231	
6						7	-18	330	261	
7						12	11	490	831	
8			N/A			9	-3	315	736	
9						22	68	465	603	
10						12	11	337	222	
11						14	22	540	831	
12						13	25	532	867	
13						11	5	548	915	
14						15	18	445	681	
15						16	27	401	414	

Remarks: Field Backgrounds for 43-93 generated on 10/13/04

*NCD = No Contamination Detected, i.e., < MDA

Technician(s) Signature / Date: [signature] / 10/13/04 N/A /

Padgett Review: [signature] Other Review: N/A /

Exhibit B
Radiological Survey Report Form

Description: Characterization Survey - Survey Unit 40

Date: 10/13/2004 | Time: 0800 | Survey No: CH-101304-01 | RWP No: N/A

Survey Results		Smearable Results				Direct Readings				
Sample Number	Description/Results	Gross α Removable CPM	Net α Removable dpm/100 cm²	Gross β/γ Removable CPM	Net β/γ Removable dpm/100 cm²	Gross α CPM	Net α dpm/100 cm²	Gross β/γ CPM	Net β/γ dpm/100 cm²	Exposure Rate μR
16	Sample Location(s) (see map)	N/A				6	-22	258	-15	N/A
17						14	22	528	920	
18						4	-3	451	561	
19						16	32	455	576	
20						14	22	558	885	
21						11	8	378	345	
22						12	13	323	183	
23						10	0	529	788	
24						9	-5	480	651	
25						8	-3	258	-15	
26						16	43	283	90	
27						13	16	428	516	
28						19	41	476	609	
29						7	-16	450	561	
30						11	16	312	149	
31						18	42	468	908	
32						9	-3	680	1231	
33	Duplicate Count #2					9	-5	298	103	
34	Duplicate Count #11					14	22	440	631	
35	Duplicate Count #24					22	45	368	415	
36	N/A					N/A				
37										
38										
39										

Remarks: Field Backgrounds for 13-33 presented on 10/13/04.

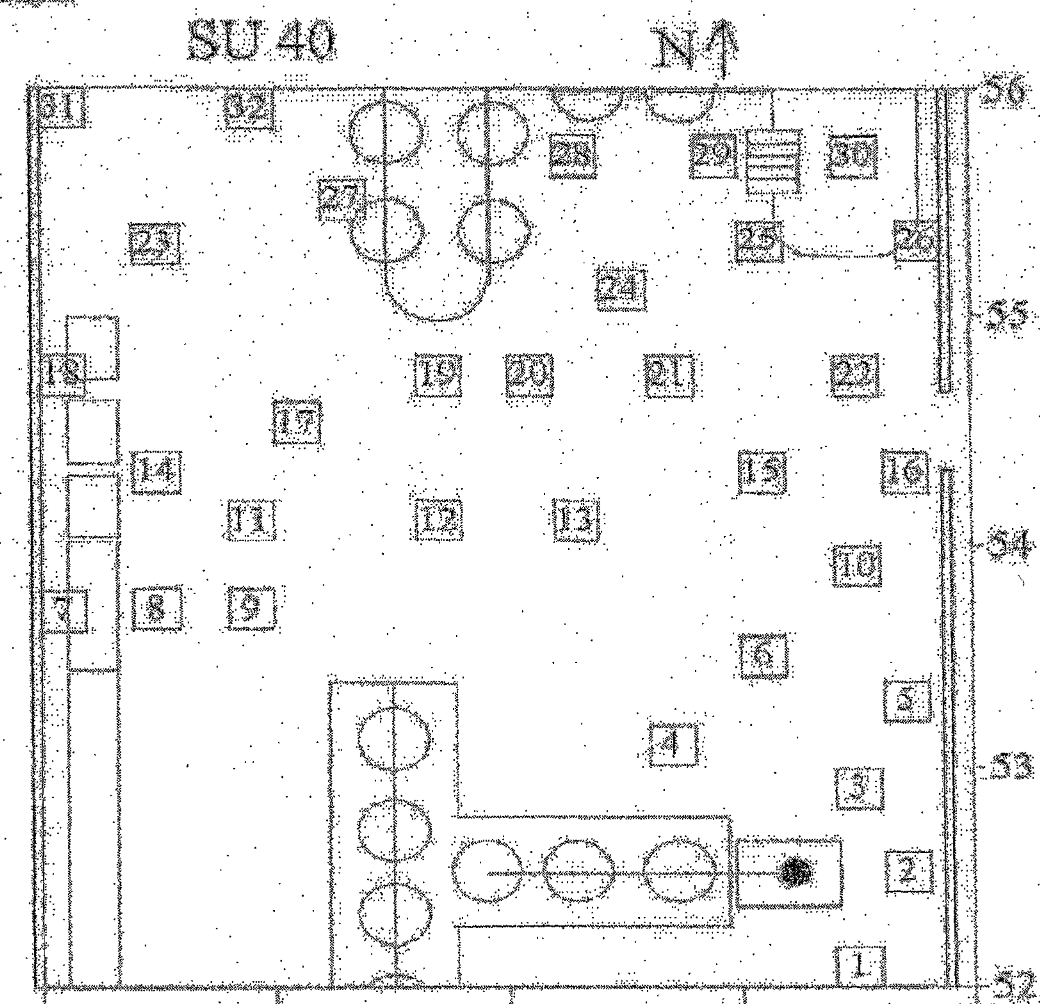
Technician(s) Signature / Date: [signature] 10.13.04 | N/A /

Reagan Review: [signature] 10/15/04 | Client Review: N/A /

Exhibit C
Radiological Survey Report Form

Description: Characterization Survey – Survey Unit 40			
Date: 10/13/2004	Time: 0800	Survey No: CH-101304-01	RWP No: N/A

Survey Diagram:



Legend: (#) Fixed/Removable Location(s) #. [illegible] —X—X—X— Posted Area Boundary

Remarks: The Origin of Survey Unit [illegible] is marked by X in the SW corner of the SU.

Technician(s) Signature / Date: [signature] [illegible] N/A /

Program Review: [signature] [illegible] Other Review: N/A /

Exhibit A
Radiological Survey Report Form

Description: Characterization Survey - Survey Unit 41

Date: 09/21/2004 | Time: 1245 | Survey No: CH-092104-41 | RWP No: N/A

Purpose of Survey (For Release Surveys Include Recipient): Static Measurements in SU 41

Instrument Data — Instrument Manufacturer: Eberline [ ] Bicron [ ] Ludlum [X] [ ] [ ]

Detector Type	Detector S/N	Detector Cal Due	Meter Type	Meter S/N	Meter Cal Due	Bkg/Cnt Rad	Bkgd. (cpm)	Conversion Factor	MDC (dpm)
43-10-1	PR170153	01/20/05	2929	190812	08/20/04	α	0.45	22	9.1
						βγ	402	23	16.5
43-93	PR204133	02/12/05	2224	190220	02/12/05	α	12.2	3.4	70.0
						βγ	287	2.0	174
44-9	PR205377	08/03/04	3	172134	03/15/05	βγ (Grid)	47	38	715
N/A	N/A	N/A	Model 19	4398	12/09/05	Exposure	N/A	N/A	N/A

Sample Number	Description/Results	Gross α Removable (CPM)	Net α Removable dpm/100cm²	Gross βγ Removable CPM	Net βγ Removable dpm/100cm²	Gross α CPM	Net α dpm/100cm²	Gross βγ CPM	Net βγ dpm/100cm²	Exposure Rate µR
1	Sample Locations (see map)	N/A				11	-6	313	108	N/A
2						14	21	578	562	
3						22	53	319	106	
4						10	-12	497	720	
5						17	-6	353	303	
6						6	-44	205	24	
7						12	-1	464	630	
8						20	33	313	264	
9						12	-8	403	438	
10						13	8	336	237	
11						15	15	220	189	
12						10	-18	242	-45	
13						12	-3	456	773	
14						15	-3	393	408	
15						12	4	262	165	

Remarks: Field Backgrounds for 43-93 generated on 9/21/04

"MDC" = Minimum Detectable Concentration, <MDA

Technician(s) Signature / Date: [signature] 9.21.04 | N/A /

Plan Review: [signature] 9/23/04 | Other Review: N/A /

Exhibit B
Radiological Survey Report Form

Description: Characterization Survey - Survey Unit 43

Date: 09/21/2004 | Time: 1345 | Survey No.: CH-092104-01 | RWP No.: N/A

Survey Results		Smearable Results				Direct Readings				
Sample Number	Description/Results	Gross α Removable CPM	Net α Removable dpm/100cm²	Gross β/γ Removable CPM	Net β/γ Removable dpm/100cm²	Gross α CPM	Net α dpm/100cm²	Gross β/γ CPM	Net β/γ dpm/100cm²	Exposure Rate µR
16	Sample Locations (see map)					19	-13	532	551	
17						12	-1	329	246	
18						22	53	467	828	
19						14	10	850	1047	
20						15	13	580	987	
21						19	37	395	114	
22						11	-6	147	-350	
23						15	15	506	347	
24						16	-13	456	712	
25						12	-1	361	359	
26						19	37	258	423	
27		N/A				13	4	539	406	N/A
28						15	4	449	396	
29						13	-1	453	504	
30						12	-1	265	28	
31	Duplicate Count #4					14	13	357	840	
32	Duplicate Count #21					13	-1	291	102	
33	Duplicate Count #24					9	-17	476	657	
34	N/A					N/A				
35										
36										
37										
38										
39										

Remarks: Field Backgrounds for 43-02 generated on 9/21/04

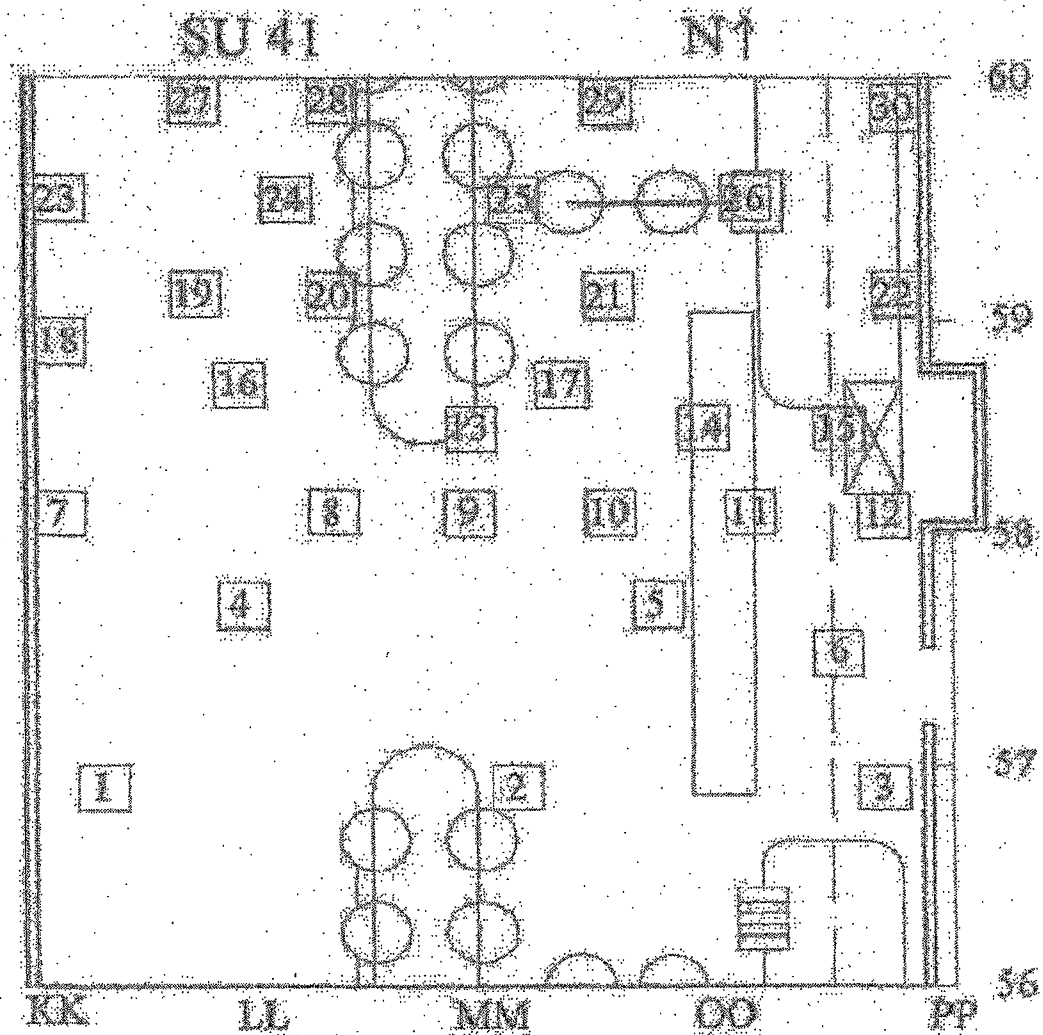
Technician(s) Signature / Date: [signature] / 9.21.04 N/A /

Progress Review: [signature] 9/21/04 Client Review: N/A /

Exhibit C
Radiological Survey Report Form

Description: Characterization Survey - Survey Unit 41			
Date: 09/21/2004	Time: 1245	Survey No: CH-092104-01	RWP No: N/A

Survey Diagram:



Legend: (#) Fixed/Removable Locations # Exposure Rate Location —X—X—X— Posted Area Boundary

Remarks: The Origin of Survey Unit (0 ft E, 0 ft N) is marked by X's in the SW corner of the SU.

Technician(s) Signature / Date: [signature] 9.21.04 N/A /

Survey Review: [signature] 9/21/04 Other Review: N/A /

Exhibit A
Radiological Survey Report Form

Description: Characterization Survey - Survey Unit 42

Date: 09/21/2004	Time: 1330	Survey No: CH-092101-02	RWP No: N/A

Purpose of Survey (For Release Surveys Include Recipient): Static Measurements in SU 42

Instrument Data — Instrument Manufacturer(s): Eberline ☐ Bicron ☐ Ludlum ☒ ☐ ☐

Detector Type	Detector S/N	Detector Cal Due	Meter Type	Meter S/N	Meter Cal Due	Sensitivities	Bkgd (cpm)	Correction Factor	MDA (dpm)
43-10-1	PR179154	02/08/05	2929	190612	08/06/04	α	0.42	29	43
						β/γ	49.2	23	56.3
43-93	PR200122	02/14/05	2224	140230	02/12/05	α	12.3	3.4	78.0
						β/γ	257	8.0	164
44-9	PR203333	02/12/04	3	171254	02/12/04	β/γ (CPM)	40	30	71.2
N/A	N/A	N/A	Model 19	86798	02/09/05	Exposure	N/A	N/A	N/A

Survey Results		Smearable Results				Direct Readings				
Sample Number	Description/Results	Gross α Removable CPM	Net α Removable dpm/100 cm²	Gross β/γ Removable CPM	Net β/γ Removable dpm/100 cm²	Gross α CPM	Net α dpm/100 cm²	Gross β/γ CPM	Net β/γ dpm/100 cm²	Exposure Rate uR
1	Sample Locations (see map)					16	23	496	717	N/A
2						17	26	333	228	
3						8	-23	433	534	
4						13	4	324	201	
5						13	4	363	294	
6						16	21	467	630	
7						18	31	460	472	
8					N/A	13	4	351	322	
9						18	31	302	136	
10						9	-17	399	334	
11						10	-12	378	366	
12						17	26	397	420	
13						15	18	334	231	
14						14	10	262	15	
15						13	4	352	296	

Remarks: Field Backgrounds for 43-93 generated on 9/21/04

*DCF = [illegible] Lt. = NDA

Technician(s) Signature / Date: [signature] 9.21.04 N/A /

Review/Reviewer: [signature] [illegible] Chem Reviewer: N/A /

Exhibit B
Radiological Survey Report Form

Description: Characterization Survey - Survey Unit 42

Date: 09/27/2004 | Time: 1330 | Survey No: CH-092101-02 | RWP No: N/A

Sample Number	Description/Location	Gross α Removable CPM	Net α Removable dpm/100cm²	Gross β/γ Removable CPM	Net β/γ Removable dpm/100 cm²	Gross α CPM	Net α dpm/100 cm²	Gross β/γ CPM	Net β/γ dpm/100cm²	Exposure Rate µR
	Survey Results	**Smearable Results**				**Direct Readings**				
16	Sample Locations (see map)	N/A				8	-23	259	6	N/A
17	↓					16	21	349	276	
18						9	-17	639	1265	
19						9	-17	351	282	
20						22	83	354	297	
21						13	4	327	210	
22						10	-13	327	210	
23						9	-17	276	37	
24						17	36	301	132	
25						11	-9	262	13	
26						10	-12	297	121	
27						30	82	354	251	
28						8	-23	109	-174	
29						10	-12	294	111	
30						6	-33	260	8	
31						17	36	231	-73	
32						10	-12	314	191	
33						13	4	249	-24	
34	↓					8	-23	305	147	
35	Duplicate Count #10					18	13	310	186	
36	Duplicate Count #18					19	37	309	140	
37	Duplicate Count #30					16	27	319	218	
38	N/A					N/A				
39										↓

Remarks: Field Backgrounds for 43-91 generated on 9/21/04

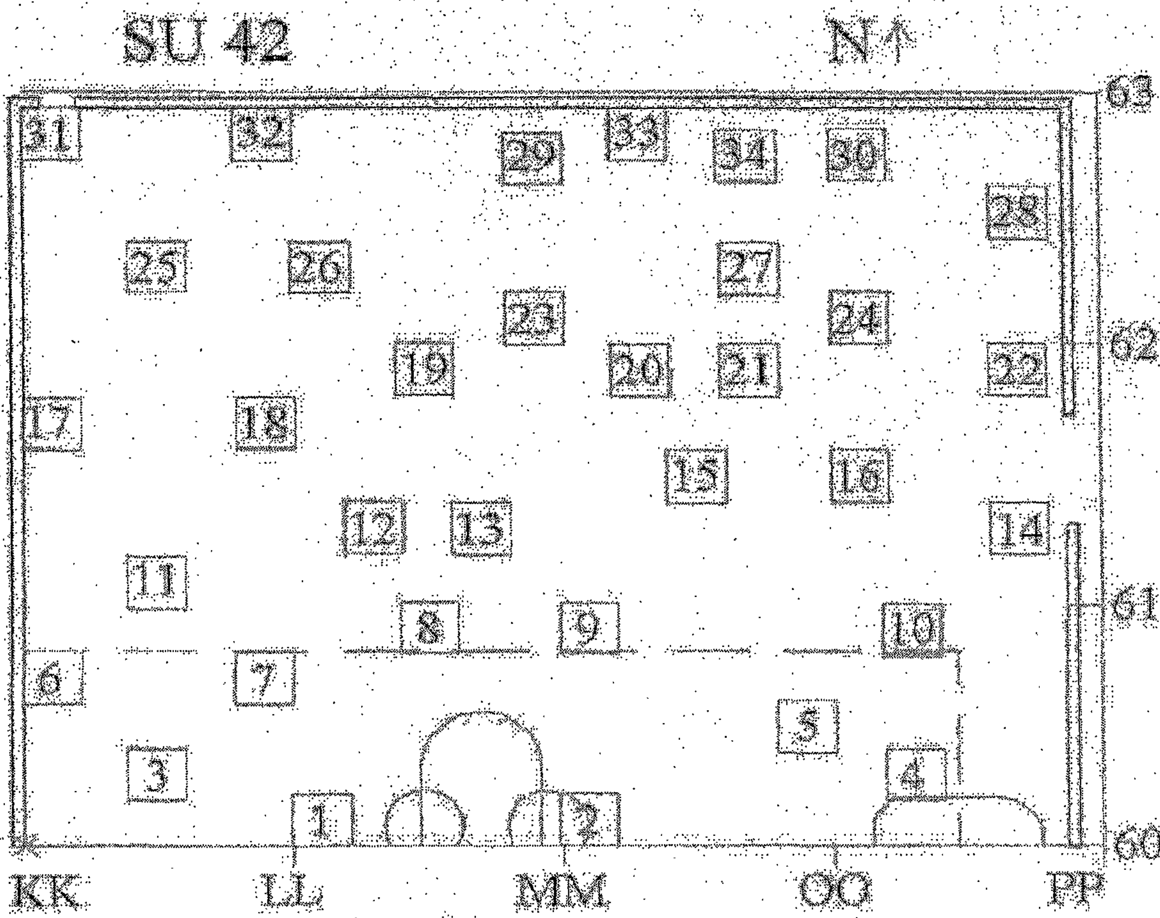
Technician(s) Signature / Date: [signature] / 9/27/04 N/A /

Program Reviewer: [signature] 9/28/04 Client Reviewer: N/A /

Exhibit C
Radiological Survey Report Form

Description:	Characterization Survey - Survey Unit 42						
Date:	09/21/2004	Time:	1330	Survey No:	CH-092101-42	RWP No:	N/A

Survey Diagram



Legend: (#) Fixed/Removable Locations; ▲ Exposure Rate (μR/hr); —X—X—X— Posted Area Boundary

Remarks: The Origin of Survey Unit (0 ft E, 0 ft N) is marked by X in the SW corner of the SU.

Technician(s) Signature / Date:	9-21-04 [signature]	N/A	/
Prepared/Reviewed:	[signature] 9/22/04	Client Review: N/A	/

Exhibit A
Radiological Survey Report Form

Description:	Characterization Survey – Survey Unit 43				
Date: 10/21/2004	Time: 1400	Survey No:	CH-102104-01	RWP No:	N/A
Purpose of Survey (For Release Surveys include Recipient):	Static Measurements in SU 43				

Instrument Data — Instrument Manufacturer(s) Bicron ☐ Eberline ☐ Ludlum ☒ ☐ ☐

Detector Type	Detector S/N	Detector Cal Due	Meter Type	Meter S/N	Meter Cal Due	Sensitivities	Bkgd (cpm)	Correction Factor	MDA (dpm)
43-10-1	PR179134	03/08/05	2929	190813	03/08/04	α	0.42	22	8.1
						β/γ	40.2	23	56.3
43-93	PR200132	03/12/05	2224	190230	03/12/05	α	14.7	34	71.4
						β/γ	260	30	175
44-9	PR252234	03/15/04	3	171234	03/15/04	β/γ (CPM)	42	30	213
N/A	N/A	N/A	Model 19	8378	02/09/05	Exposure	N/A	N/A	N/A

Survey Results		Smearable Results				Direct Readings				
Sample Number	Description/Results	Gross α Removable CPM	Net α Removable dpm/100 cm²	Gross β/γ Removable CPM	Net β/γ Removable dpm/100 cm²	Gross α CPM	Net α dpm/100 cm²	Gross β/γ CPM	Net β/γ dpm/100 cm²	Exposure Rate µR
1	Sample Locations (see map)					18	7	287	-4	N/A
2						15	2	257	51	
3						18	18	311	139	
4						19	24	300	110	
5						14	7	333	225	
6						16	14	200	-60	
7						18	29	194	-102	
8			N/A			10	-15	336	128	
9						14	7	424	402	
10						14	7	333	225	
11						12	-4	321	113	
12						10	-15	336	108	
13						17	12	362	234	
14						14	7	338	228	
15						8	-15	323	223	

Remarks: Field Backgrounds for 83-85 [illegible] 10/21/04

*NDA = No Detectable Activity Detected, i.e. < MDA

Technician(s) Signature / Date: [signature] / 10.21.04 — N/A /

Program Review: [signature] / [illegible] — Client Review: N/A /

Exhibit B
Radiological Survey Report Form

Description: Characterization Survey - Survey Unit 43

Date: 10/21/2004 | Time: 1400 | Survey No: CU-102104-01 | RWP No: N/A

Survey Results		Smearable Results				Direct Readings				
Sample Number	Description/Results	Gross α Removable CPM	Net α Removable dpm/100 cm²	Gross β/γ Removable CPM	Net β/γ Removable dpm/100 cm²	Gross α CPM	Net α dpm/100 cm²	Gross β/γ CPM	Net β/γ dpm/100 cm²	Exposure Rate
16	Sample Locations (see map)	N/A				10	-43	295	403	N/A
17						8	-20	222	-114	
18						17	33	248	-43	
19						6	-36	300	-132	
20						12	-4	215	-144	
21						11	-9	197	-129	
22						18	29	231	-78	
23						6	-36	403	201	
24						18	29	196	-192	
25						12	2	249	-32	
26						14	7	220	-58	
27						11	-9	272	38	
28						10	-13	317	-125	
29						10	-15	267	6	
30						8	-26	275	45	
31	Duplicate Count for # 1					23	59	185	-223	
32	Duplicate Count for # 2					14	7	309	147	
33	Duplicate Count for # 3					15	13	282	60	
34	Duplicate Count for # 4					12	-4	320	207	
35	N/A					N/A				
36										
37										
38										
39										

Remarks: Field Backgrounds for 43-45 performed on 10/21/04

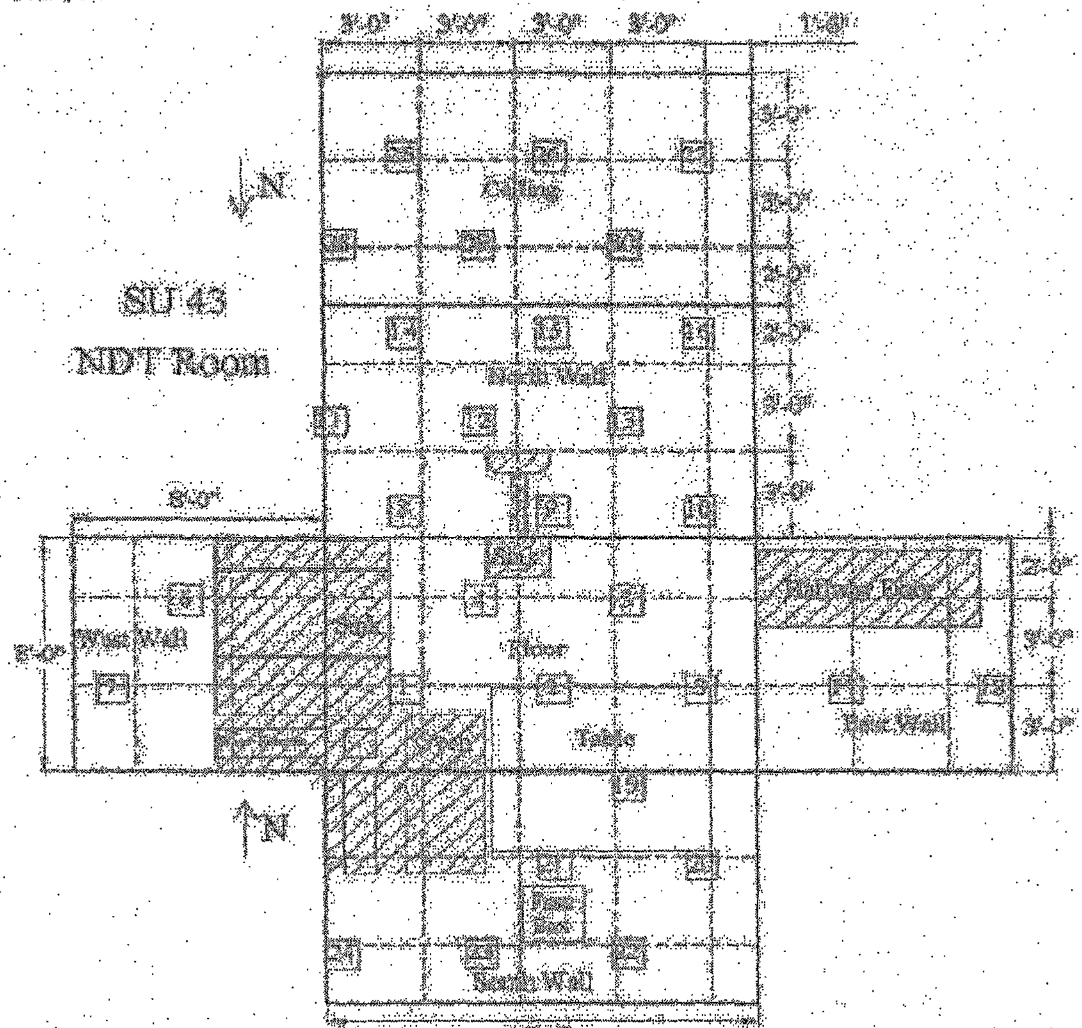
Technician(s) Signature / Date: [signature] 10/21/04 | N/A /

Project Review: [signature] 10/21/04 | Client Review: N/A /

Exhibit C
Radiological Survey Report Form

Description:	Characterization Survey - Survey Unit 43						
Date:	10/21/2004	Time:	1400	Survey No:	CH-102104-01	RWP No.:	N/A

Survey Diagram:



Legend: (#) Fixed/Removable Locations · Exposure Rates (µR/hr) · Project Area Boundary

Remarks: The Origin of Survey Unit (0 ft E, 0 ft N) is marked by X in the SW corner of the SU.

Technician(s) Signature / Date: [signature] 10/21/04 N/A /

Project Review: [signature] 10/25/04 Other Review: N/A /

Exhibit A
Radiological Survey Report Form

Description: Characterization Survey - Survey Unit 44 (Dross Storage Room)

Date: 10/22/2004 | Time: 0845 | Survey No: CH-102204.01 | RWP No: N/A

Purpose of Survey (For Release Surveys Include Recipient): Static Measurements in SU 44

Instrument Data — Instrument Manufacturer(s): Bicron ☐ Eberline ☐ Ludlum ☒ ☐ ☐

Detector Type	Detector SN	Detector Cal Due	Meter Type	Meter SN	Meter Cal Due	Sensitivities	Bkgd. (cpm)	Correction Factor	MDA (dpm)
43-10-1	PR179154	03/08/05	2929	190812	03/08/05	α	0.42	2.9	9.1
						β/γ	49.2	2.3	40.3
43-93	PR200132	02/12/05	2224	190220	02/12/05	α	13.0	5.4	72.2
						β/γ	207	3.6	177
44-9	PR203325	02/13/05	3	171254	02/13/05	β/γ (CPM)	47	30	713
N/A	N/A	N/A	Model 19	8578	03/08/05	Exposure	N/A	N/A	N/A

Survey Results		Smearable Results				Direct Readings				
Sample Number	Description/Results	Gross α Removable CPM	Net α Removable dpm/100 cm²	Gross β/γ Removable CPM	Net β/γ Removable dpm/100 cm²	Gross α CPM	Net α dpm/100 cm²	Gross β/γ CPM	Net β/γ dpm/100 cm²	Exposure Rate µR
1	Sample Locations (see map)	34	96			344	1787	2085	5989	N/A
2		12	33			125	605	784	1551	
3		12	33			278	1431	1044	2301	
4		48	136			315	1631	1390	3196	
5		35	99			441	2311	1805	4614	
6		13	36			173	875	803	1814	
7		45	127			414	2305	1766	4317	
8		30	86	N/A		434	2273	924	1971	
9		35	99			192	967	1080	2439	
10						37	130	676	1237	
11						31	97	337	330	
12			N/A			34	59	375	324	
13						21	43	343	235	
14						16	16	313	138	
15						17	12	292	76	

Remarks: Field Backgrounds for 43-93 performed on 10/22/04. Some of walls above 8' indicate activity less than 2x Bkgd w/ a 44-9.

"NCD" = No Contamination Detected, i.e. ≤ MDA

Technician(s) Signature / Date: [signature] 10/22/04 N/A /

Design Review: [signature] 10/23/04 Client Review: N/A /

Exhibit B
Radiological Survey Report Form

Description: Characterization Survey - Survey Unit 44 (Dross Storage Room)

Date: 10/22/2004 | Time: 0845 | Survey No.: CH-102204-01 | RWP No.: N/A

Survey Results		Smearable Results				Direct Readings				
Sample Number	Description/Results	Gross α Removable CPM	Net α Removable dpm/100 cm²	Gross β/γ Removable CPM	Net β/γ Removable dpm/100 cm²	Gross α CPM	Net α dpm/100 cm²	Gross β/γ CPM	Net β/γ dpm/100 cm²	Exposure Rate (R)
16	Sample Locations (see map)	2	5	N/A	N/A	37	228	311	132	
17		N/A				22	49	374	21	
18						16	16	270	9	
19						16	16	363	112	
20						24	89	320	129	
21						14	5	357	200	
22						17	22	371	212	
23						18	27	430	346	
24						24	59	353	259	
25		14	44	N/A		73	319	532	765	
26		12	22			73	385	546	697	
27		39	110			175	875	1338	3213	N/A
28		N/A				30	84	518	753	
29						14	5	464	591	
30						23	34	463	358	
31	Duplicate Count for #3					245	2323	1704	4381	
32	Duplicate Count for #14					14	5	329	186	
33	Duplicate Count for #29					21	42	503	708	
34	N/A	N/A				N/A				
35										
36										
37										
38										
39										

Remarks: Field Backgrounds for 43-93 generated on 10/21/04. Survey of walls above 8' indicates activity less than 2x Bkgd w/ #44-9.

Technician(s) Signature / Date: [signature] / 10/22/04   N/A /

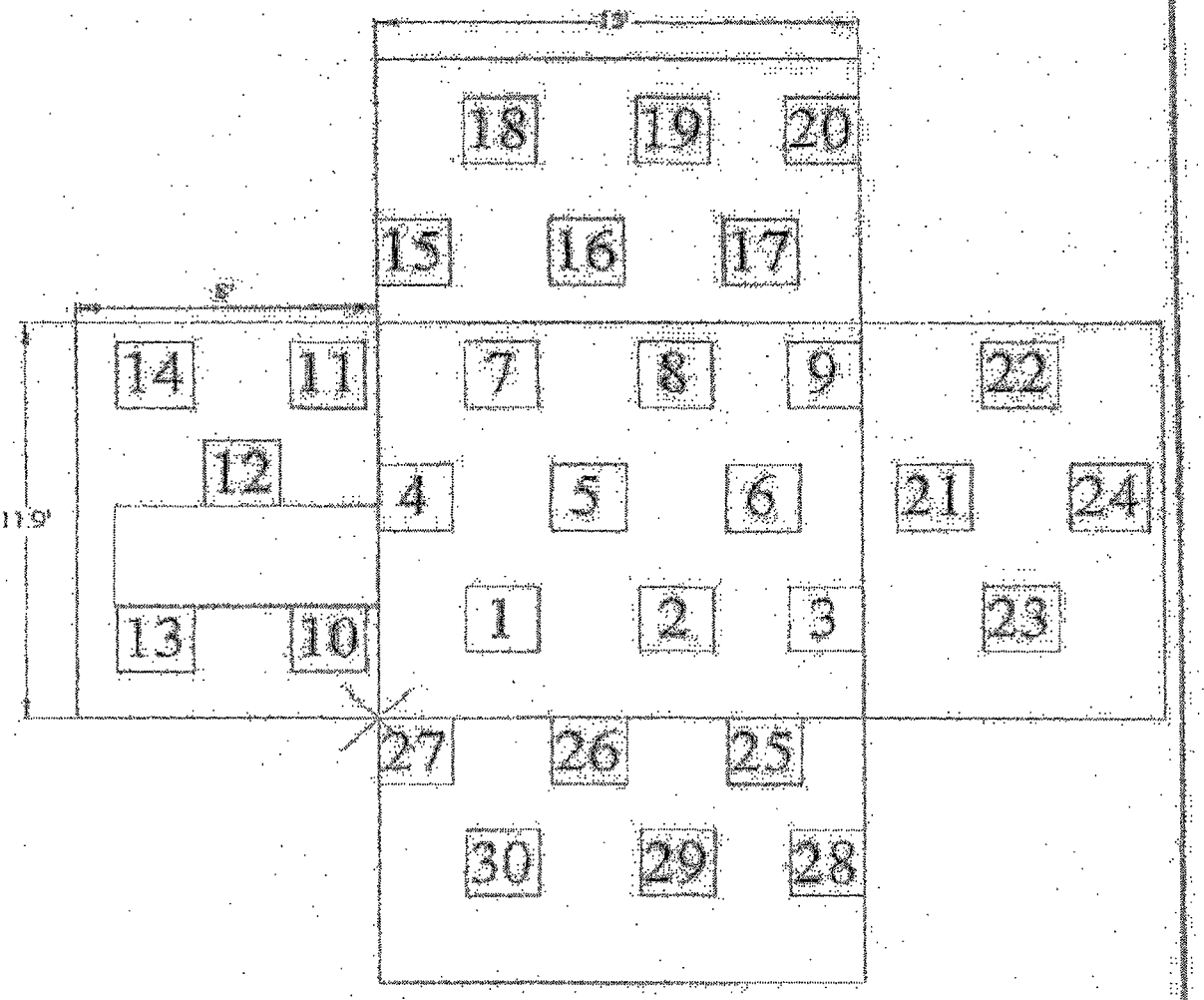
Project Review: [signature] 10/22/04   Client Review: N/A /

Exhibit C
Radiological Survey Report Form

Description: Characterization Survey - Survey Unit #4 (Drum Storage Room)

Date: 10/22/2004 | Time: 0845 | Survey No: CH-102204-01 | RWP No: N/A

Survey Diagram



Legend: (#) Fixed/Removable Locations (R) Exposure Rates (uR/hr) Posted Area Boundary

Remarks: The Origin of Survey Unit (0 ft E, 0 ft N) is marked by X in the SW corner of the SU.

Technician(s) Signature / Date: 10/22/04 N/A

Purgus Review: Client Review: N/A

Appendix C

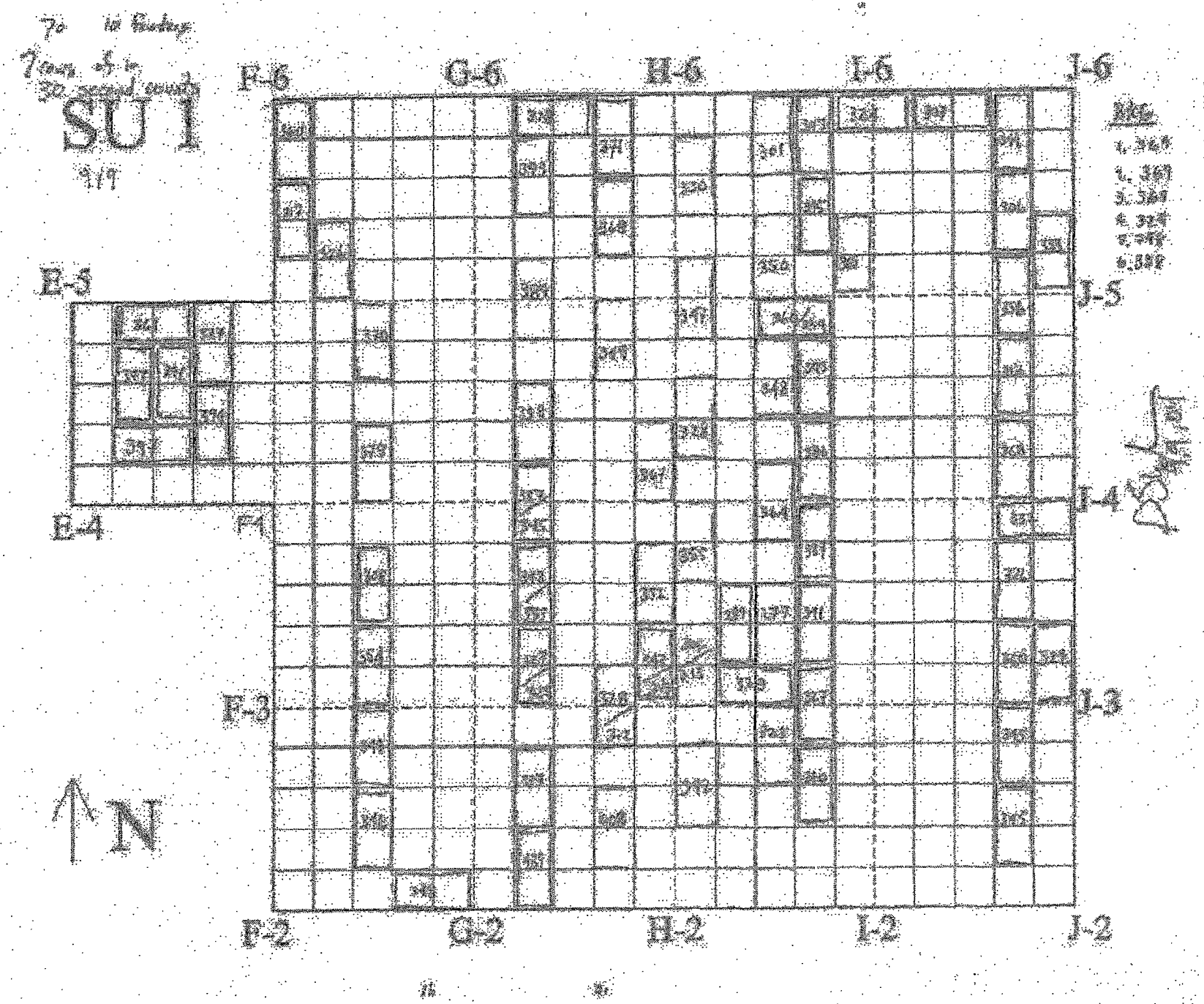
Scanning Survey Results

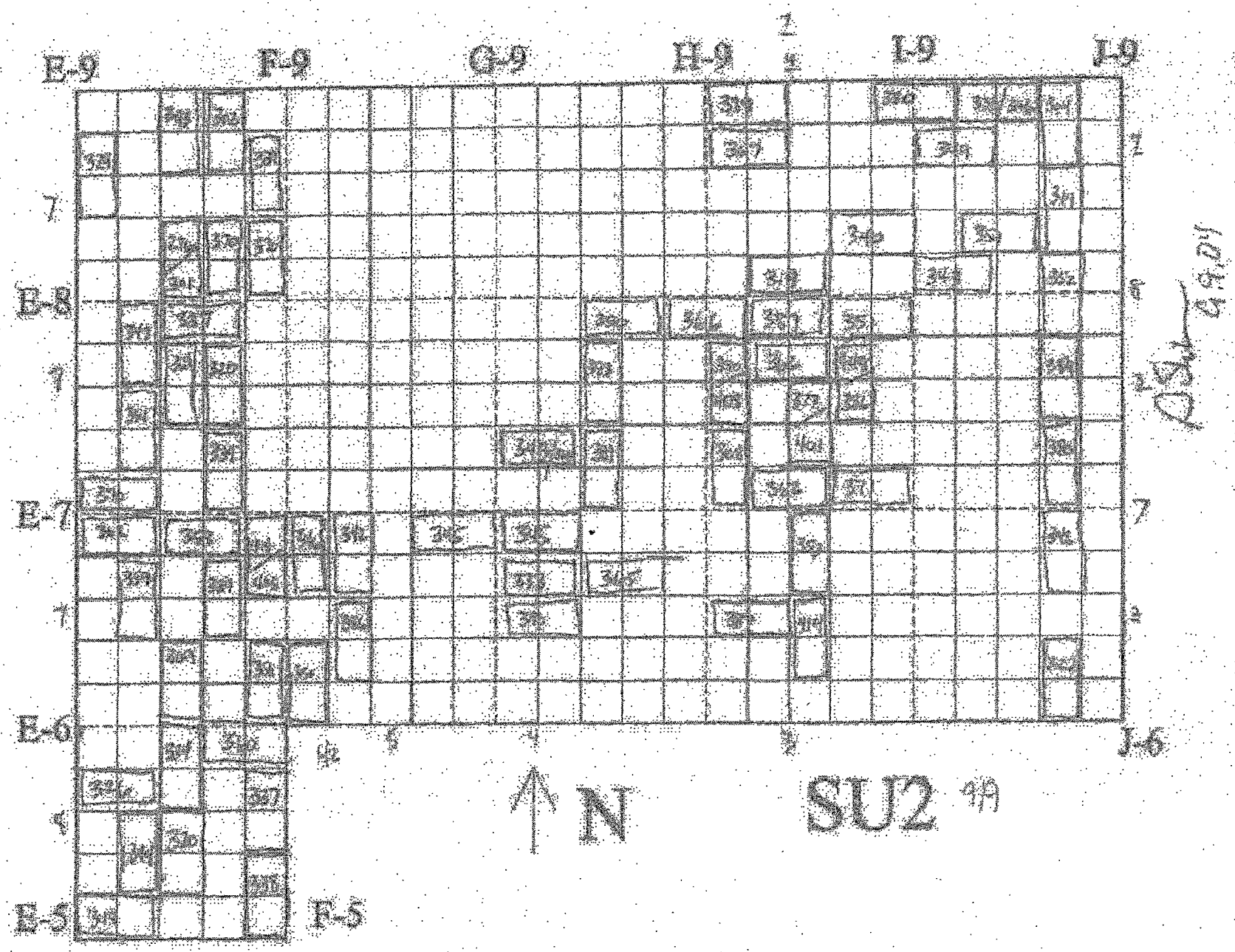
Attached within this appendix are the results of scanning surveys performed in Buildings 5, 7, and 8. These are copies of the actual field survey performed with a 43-37 gas proportional floor scanner, and as such are not in units of activity. The numbers recorded on the field survey forms are for 30-second counts. Each one of these 30-second counts corresponds to a 10 ft x 1.5 ft area scanned at 4 feet per second. This scan speed was developed to ensure that the minimum detectable activity levels remained below 200 dpm/100 cm2. The efficiency of the 43-37 was approximately 28% for alpha and 24% for beta emissions. The active probe area is 582 cm^2. A summary of the daily backgrounds is listed below.

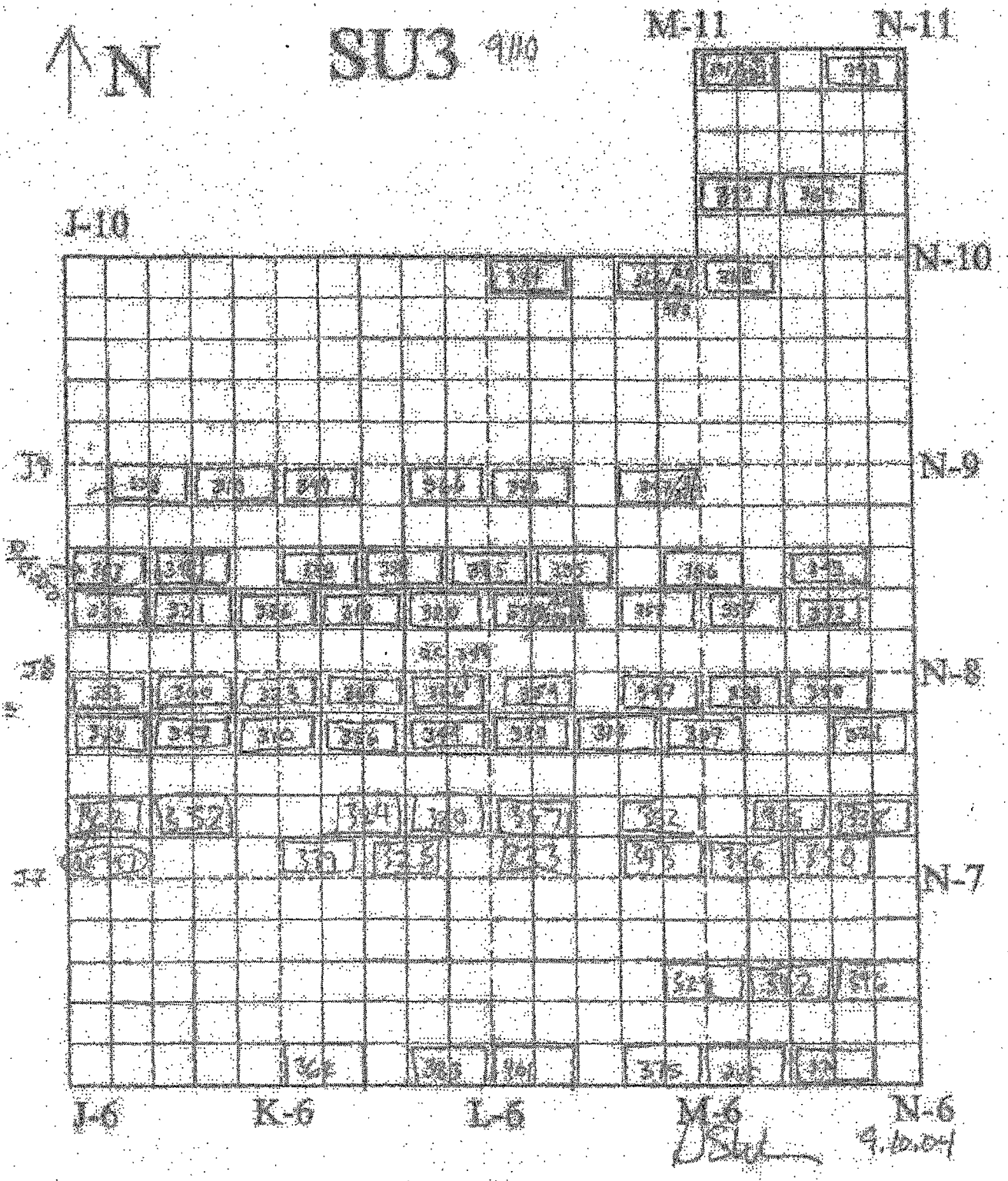
Date	Background
9/9/2004	706
9/10/2004	776
9/13/2004	695
9/14/2004	712
9/15/2004	721
9/16/2004	728
9/17/2004	793
9/20/2004	704

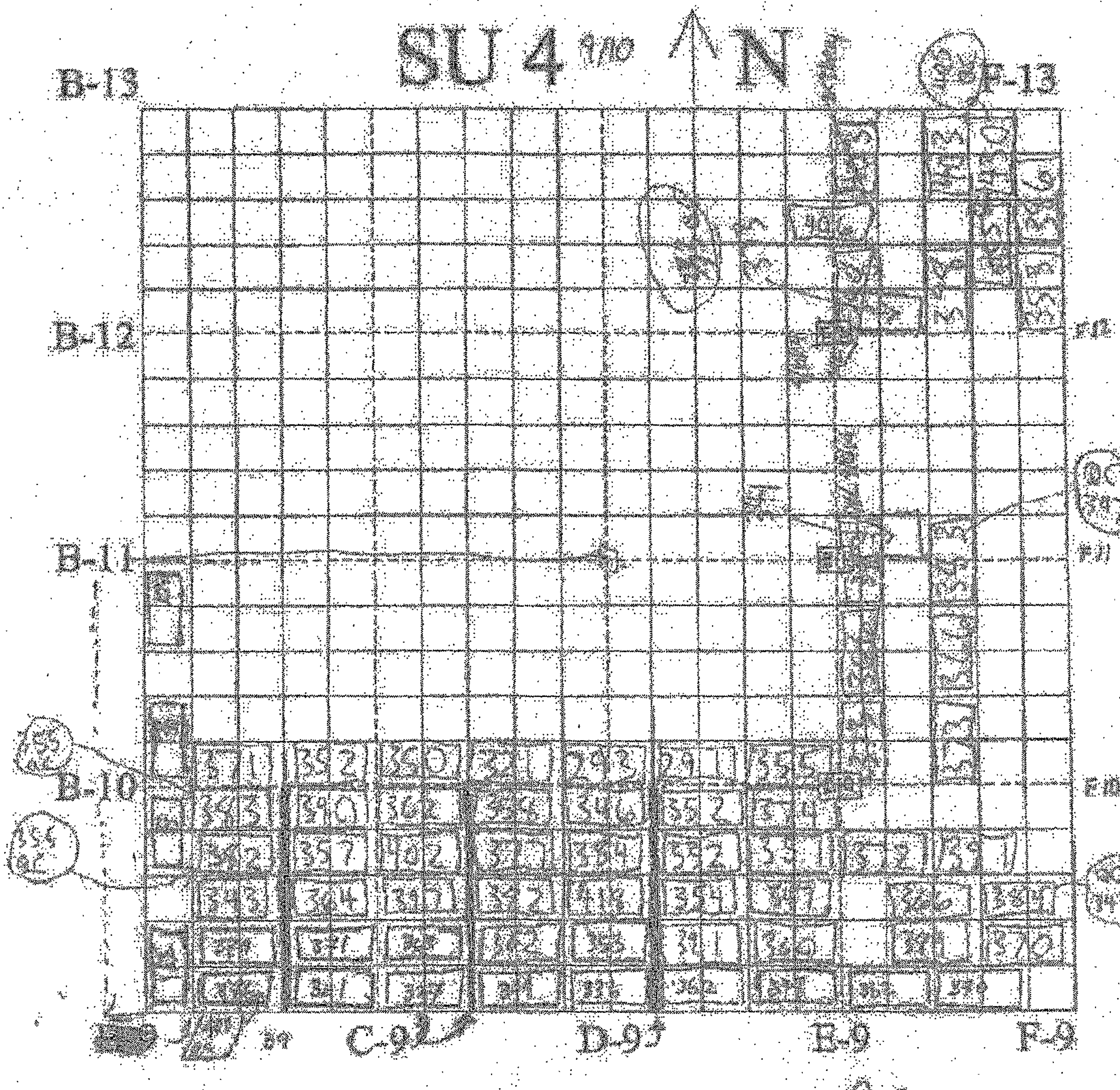
Date	Background
9/21/2004	701
9/29/2004	690
10/4/2004	664
10/6/2004	581
10/7/2004	641
10/8/2004	636
10/21/2004	458
10/22/2004	444

Table C-1
Daily Backgrounds of the 43-37 Floor Scanner

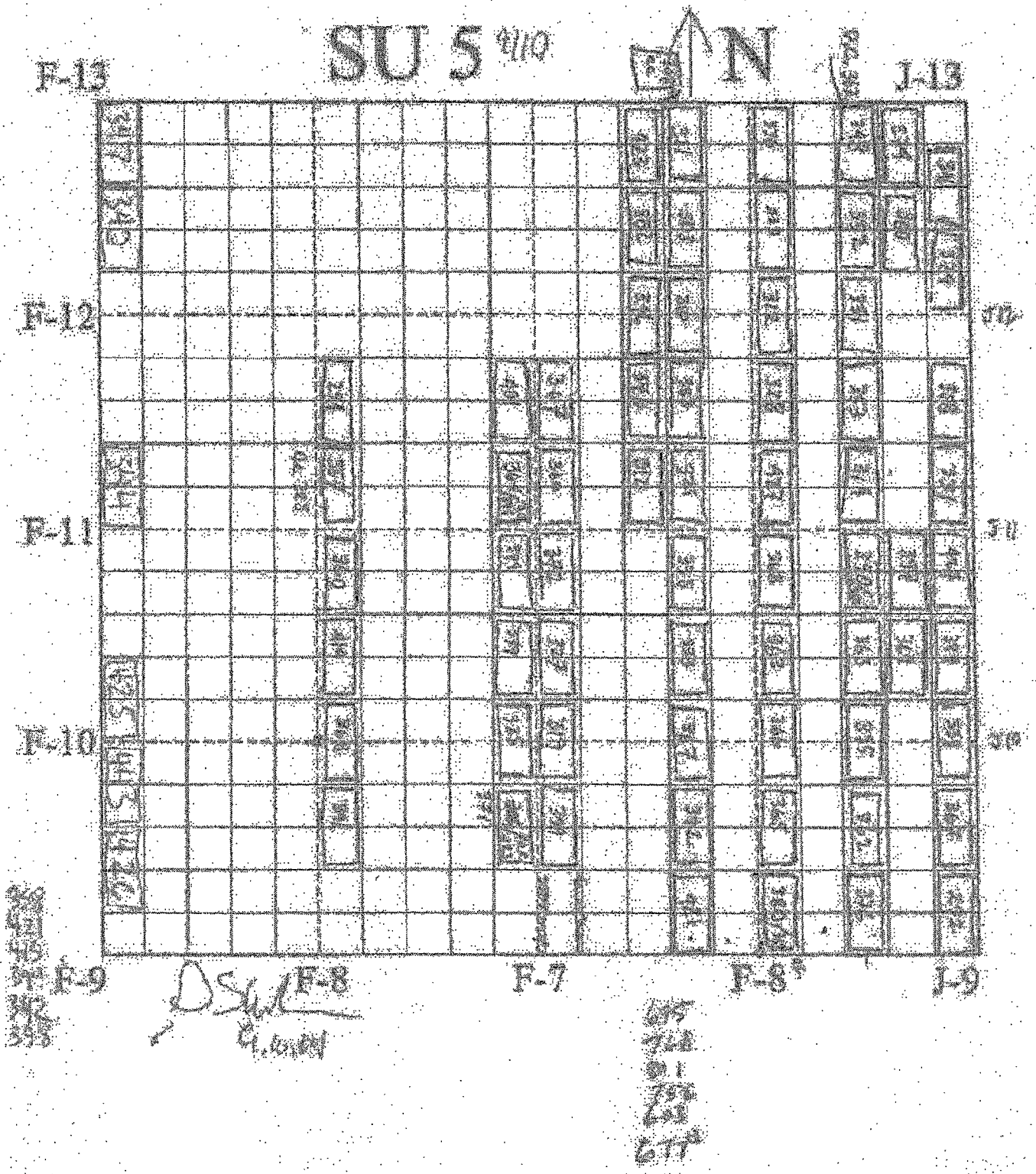

SU 1
F-6
G-6
H-6
I-6
J-6
E-5
J-5
E-4
F-1
I-4
F-3
I-3
F-2
G-2
H-2
I-2
J-2
N

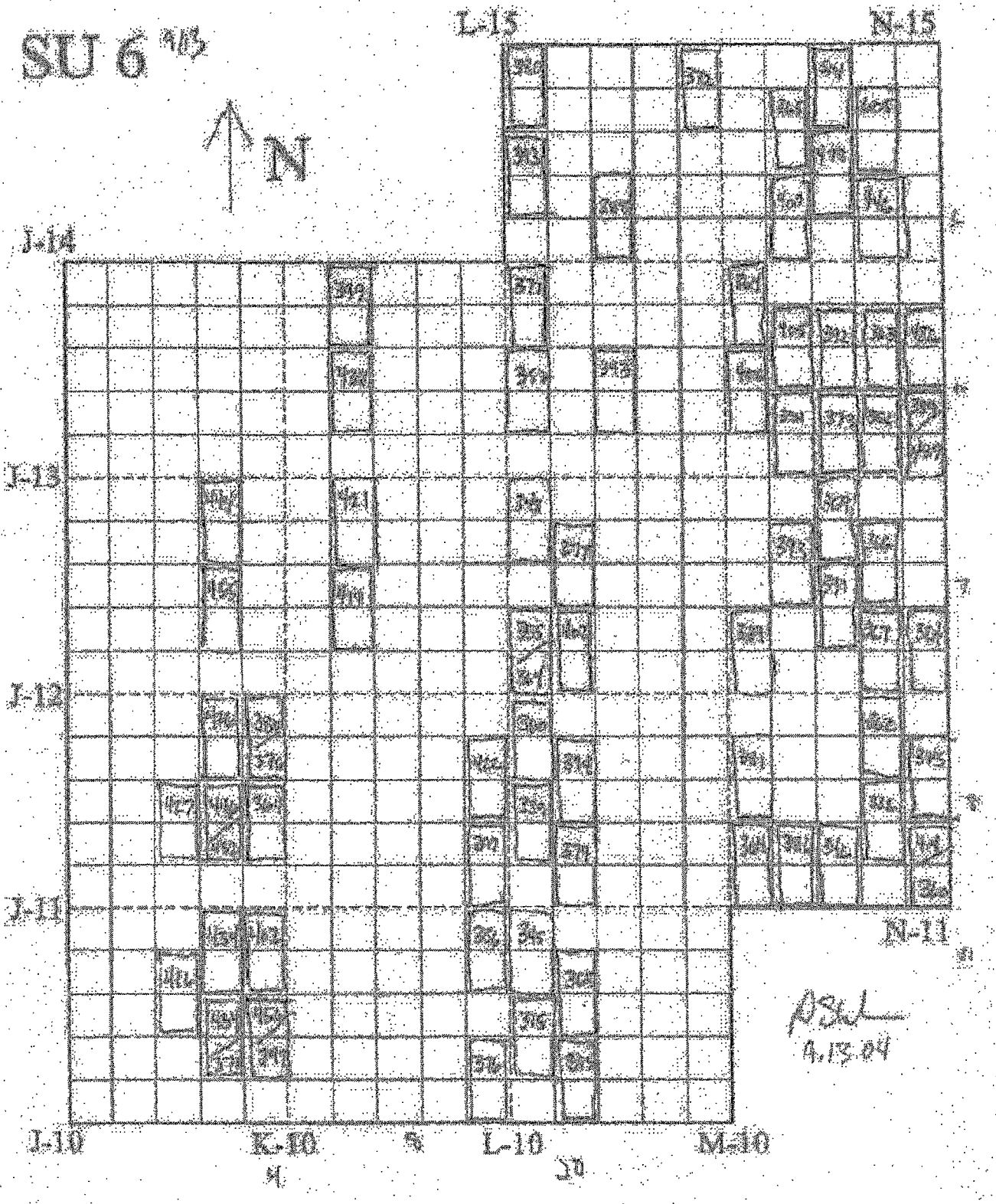

E-9
F-9
G-9
H-9
I-9
J-9
B-8
E-7
E-6
E-5
F-5
J-6
N
SU2

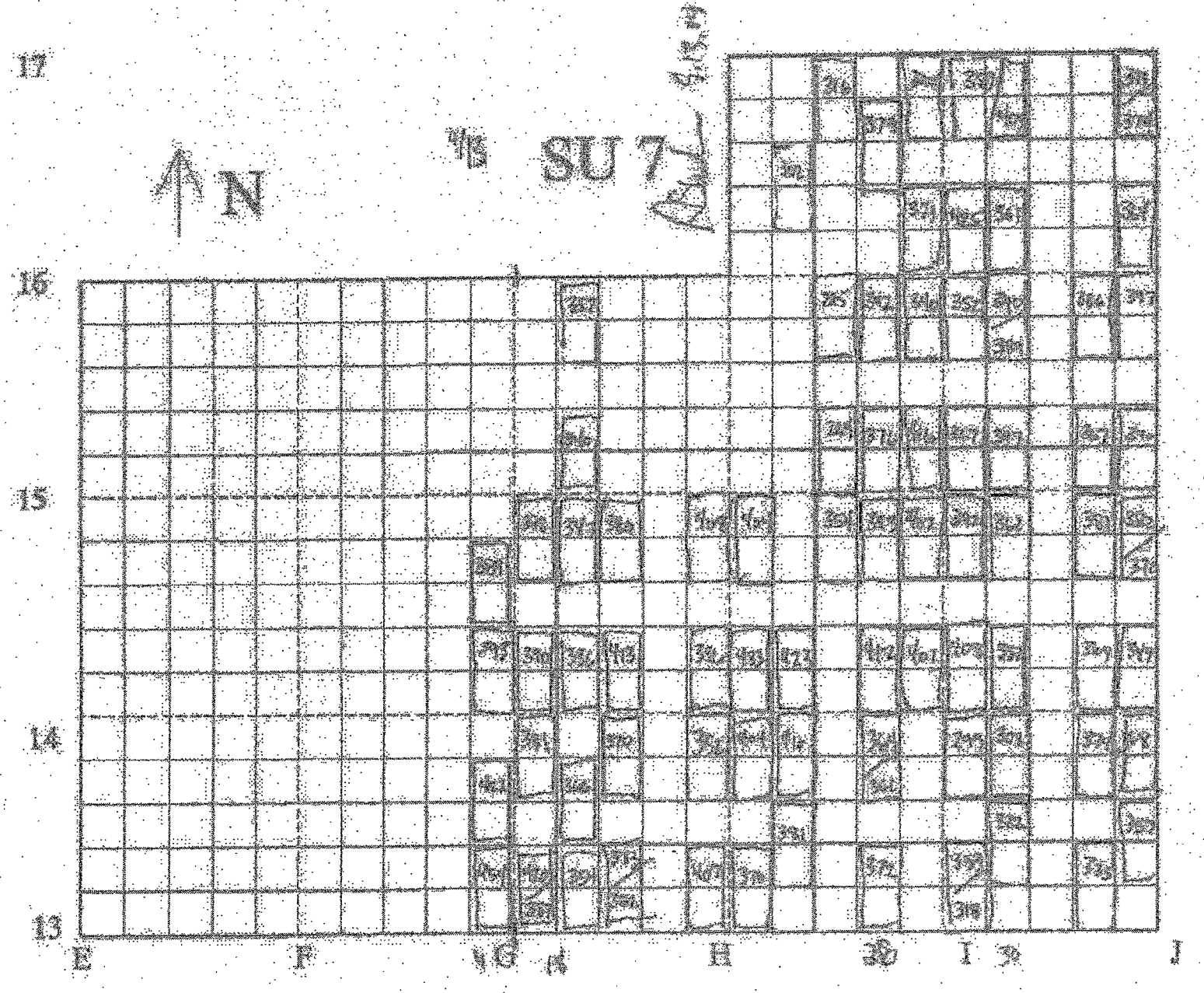

N
SU3
M-11
N-11
J-10
N-10
N-9
N-8
N-7
J-6
K-6
L-6
M-6
N-6



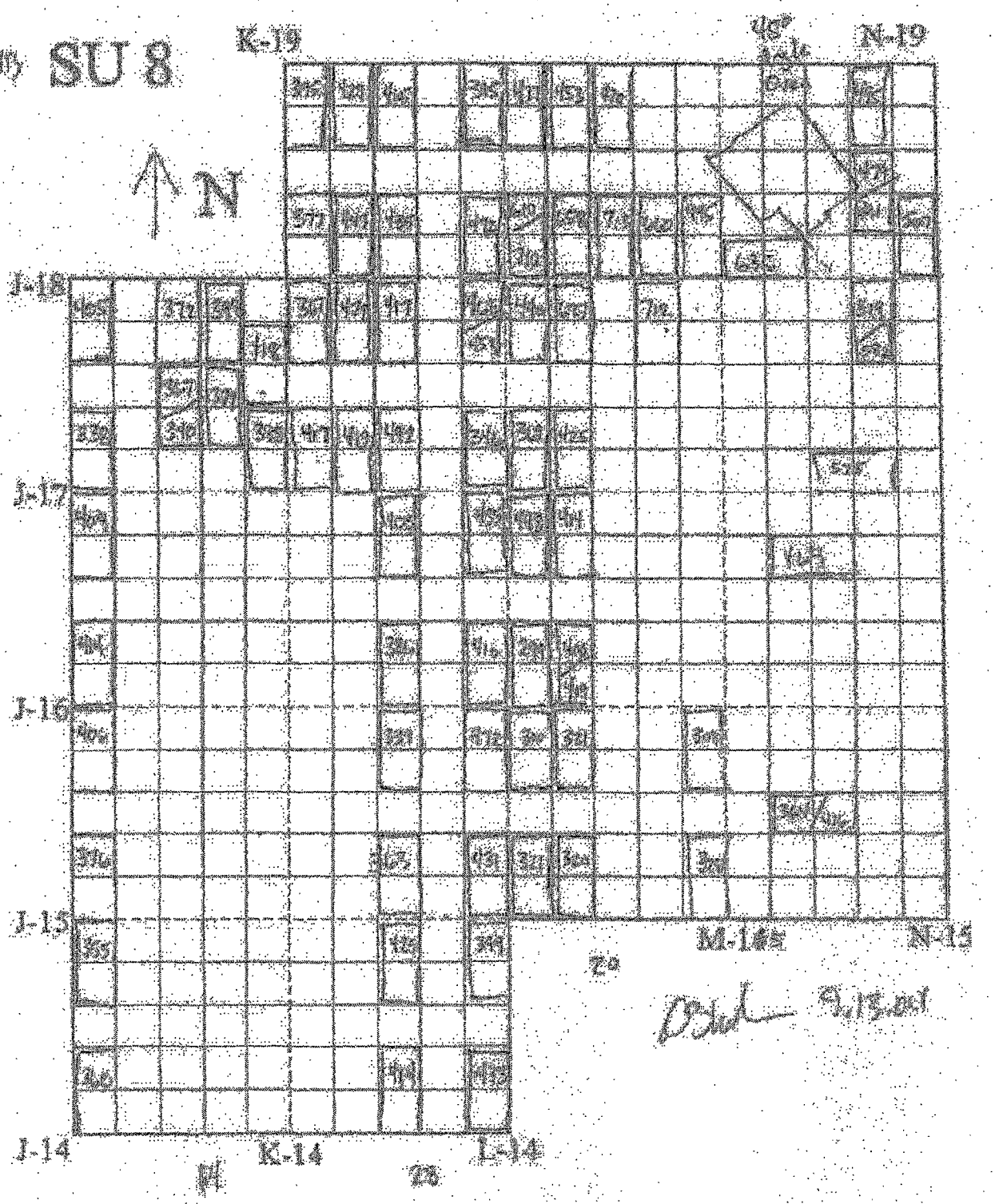
NEW CONCRETE C-10 to D-10

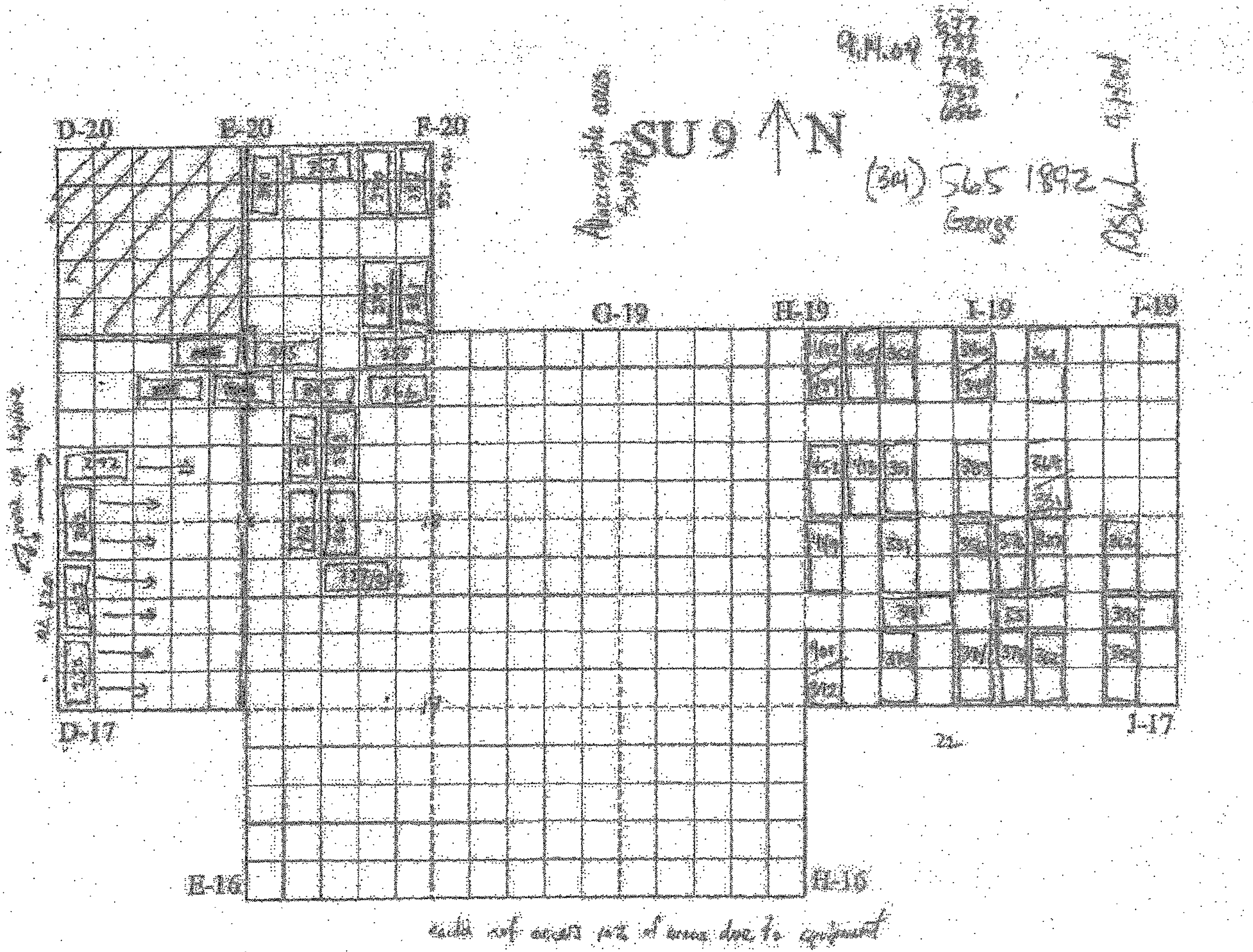

SU 5
N
F-13
J-13
F-12
J-12
F-11
J-11
F-10
J-10
F-9
F-8
F-7
F-8
J-9


SU 6
N
L-15
N-15
J-14
J-13
J-12
J-11
N-11
J-10
K-10
L-10
M-10
4.15.04

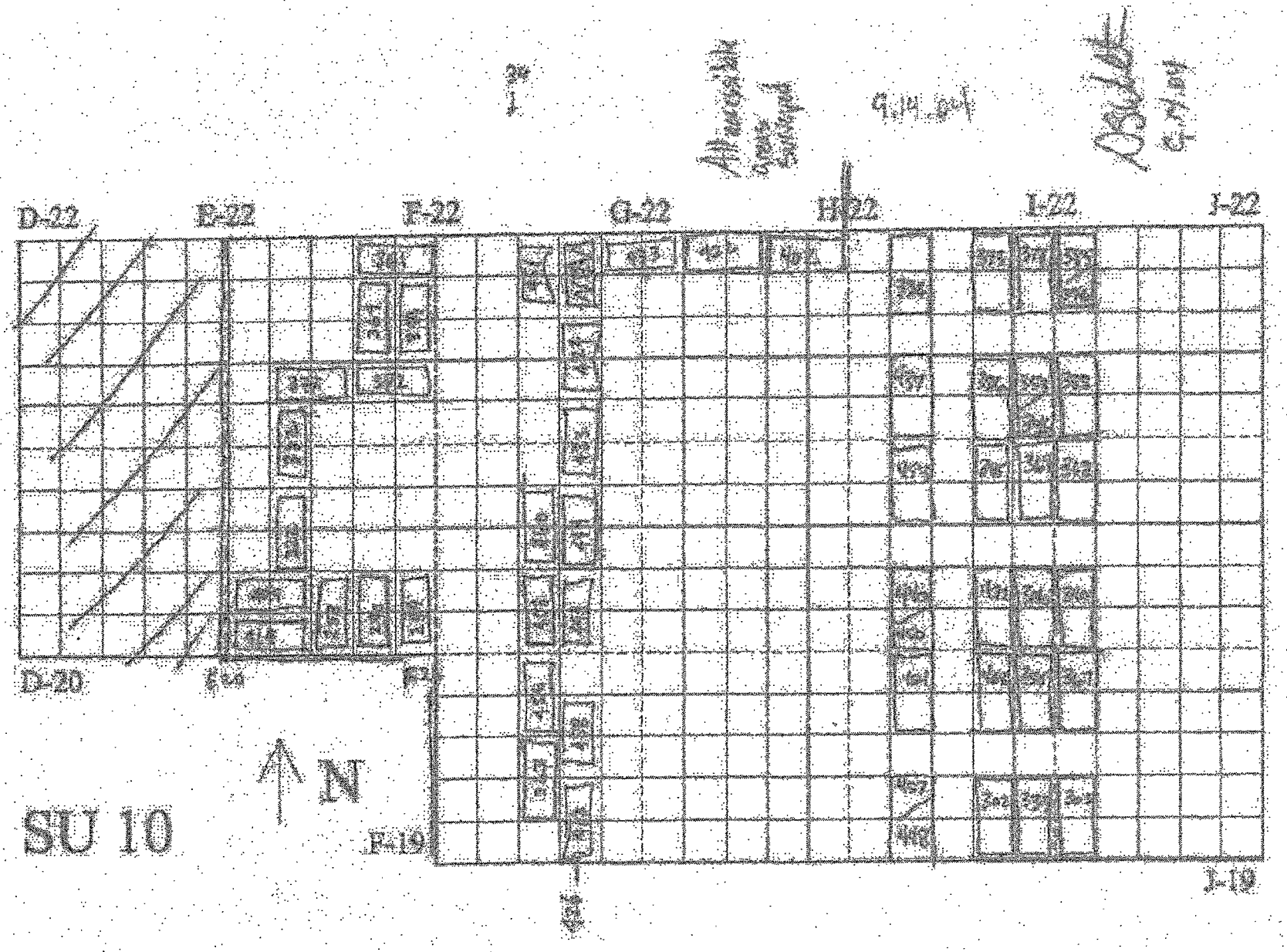

N
SU 7
17
16
15
14
13
E
F
G
H
I
J

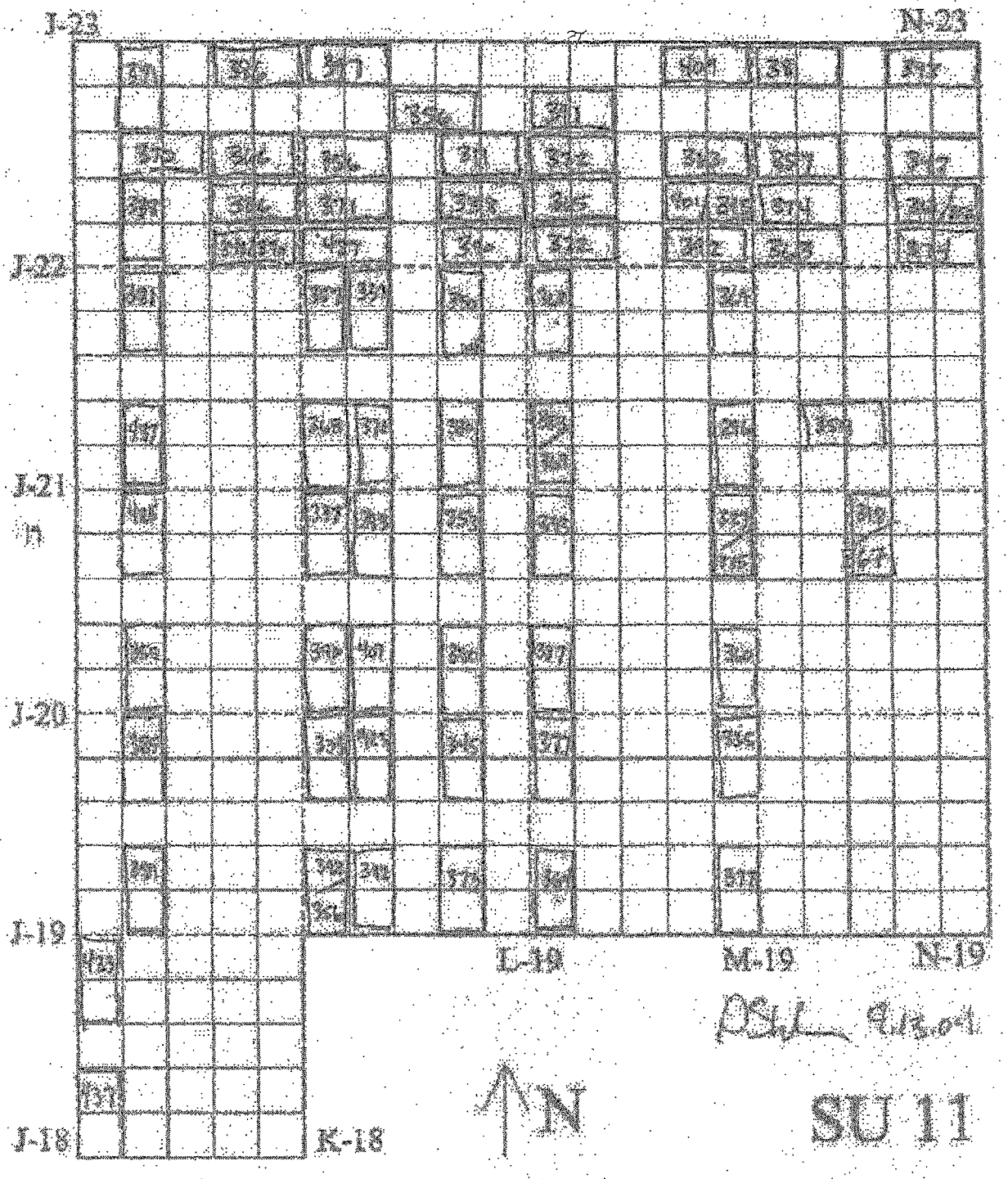
SU 8

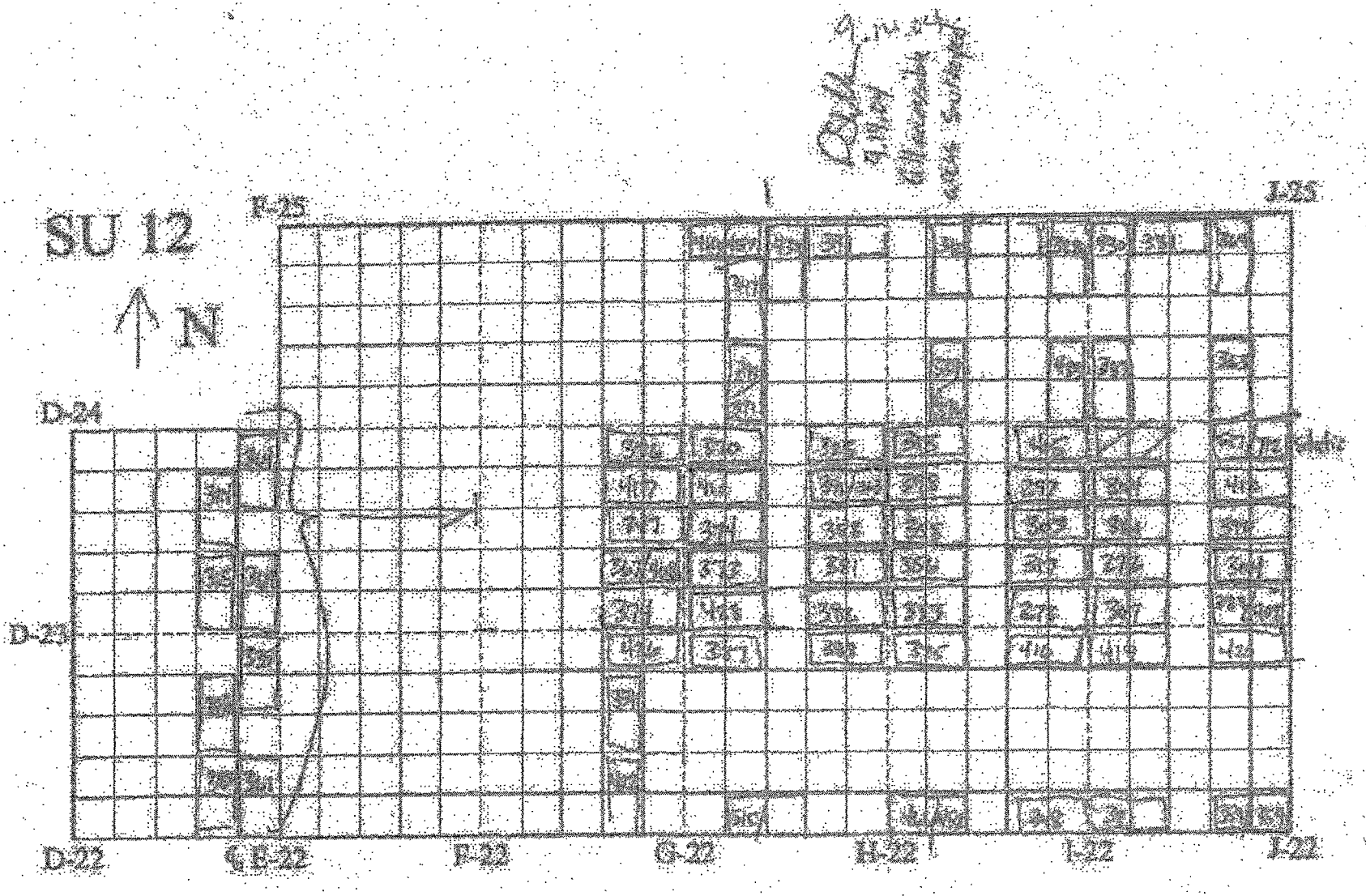


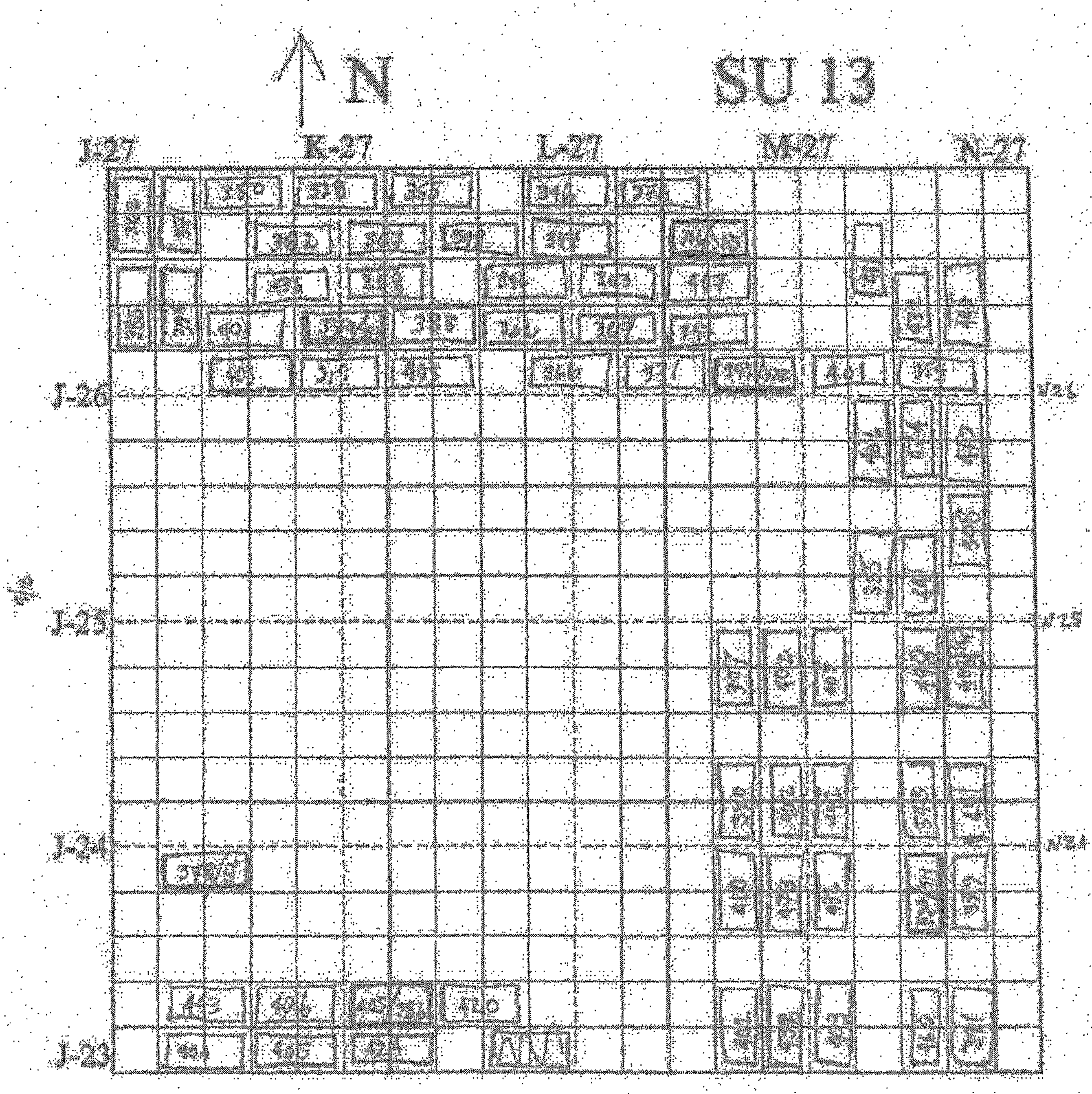


SU 9
N
D-20
E-20
F-20
G-19
H-19
I-19
J-19
D-17
J-17
E-16
H-16
9.14.09
(304) 565 1892
George
21


D-22
E-22
F-22
G-22
H-22
I-22
J-22
D-20
F-19
I-19
N
SU 10


J-23
N-23
J-22
J-21
J-20
J-19
J-18
K-18
L-19
M-19
N-19
N
SU 11

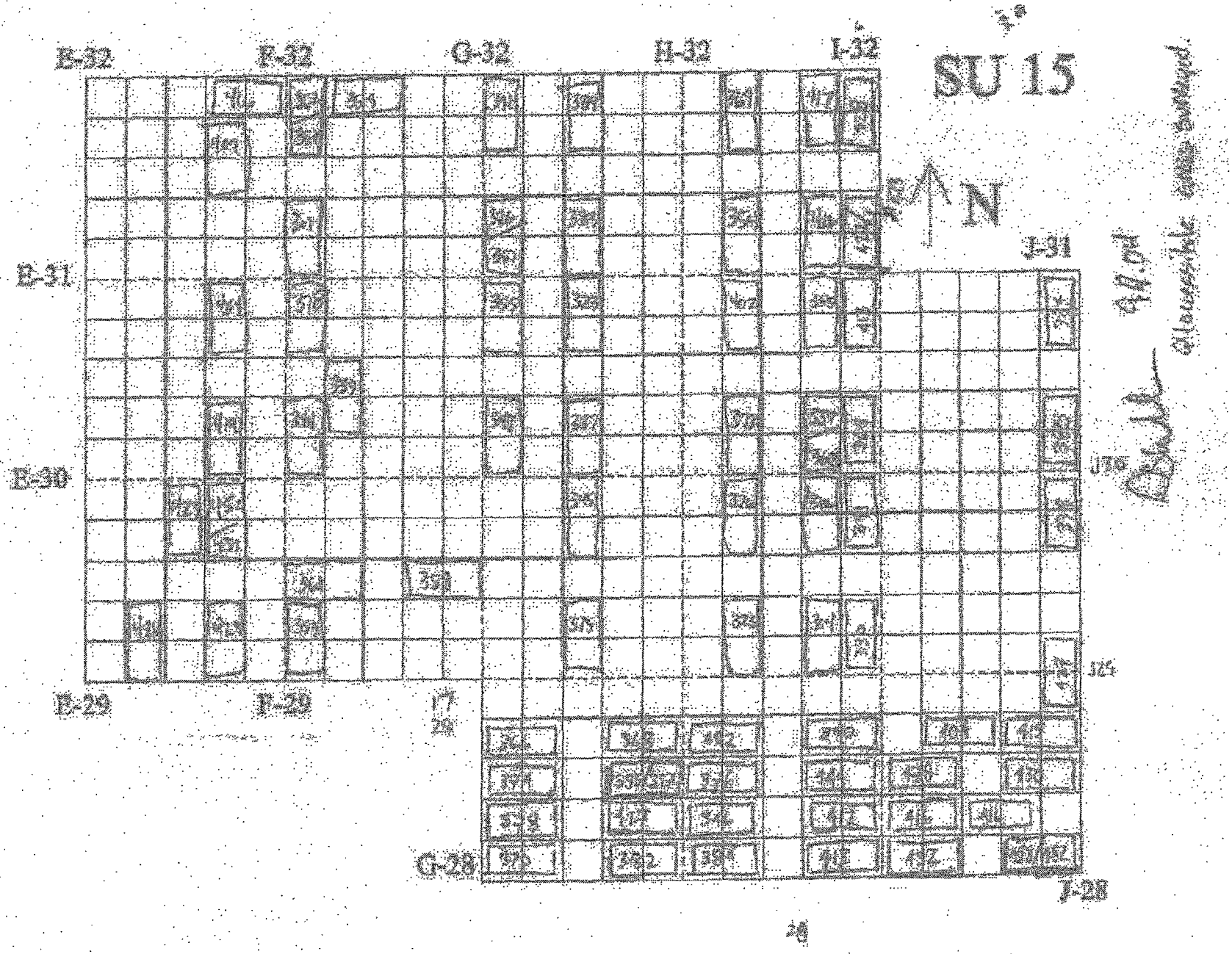

SU 12
N
F-25
J-25
D-24
D-23
D-22
E-22
F-22
G-22
H-22
I-22
J-22



9.11.04

All accessible areas surveyed

SU 14
N
E-29
F-29
G-29
H-28
I-28
J-28
E-28
E-27
E-26
E-25


SU 15
N
E-32
F-32
G-32
H-32
I-32
J-31
E-31
E-30
E-29
F-29
G-28
J-28

9.17.04

SU 16

N

L-32 M-32

J-31 K-31 N-31

J-30

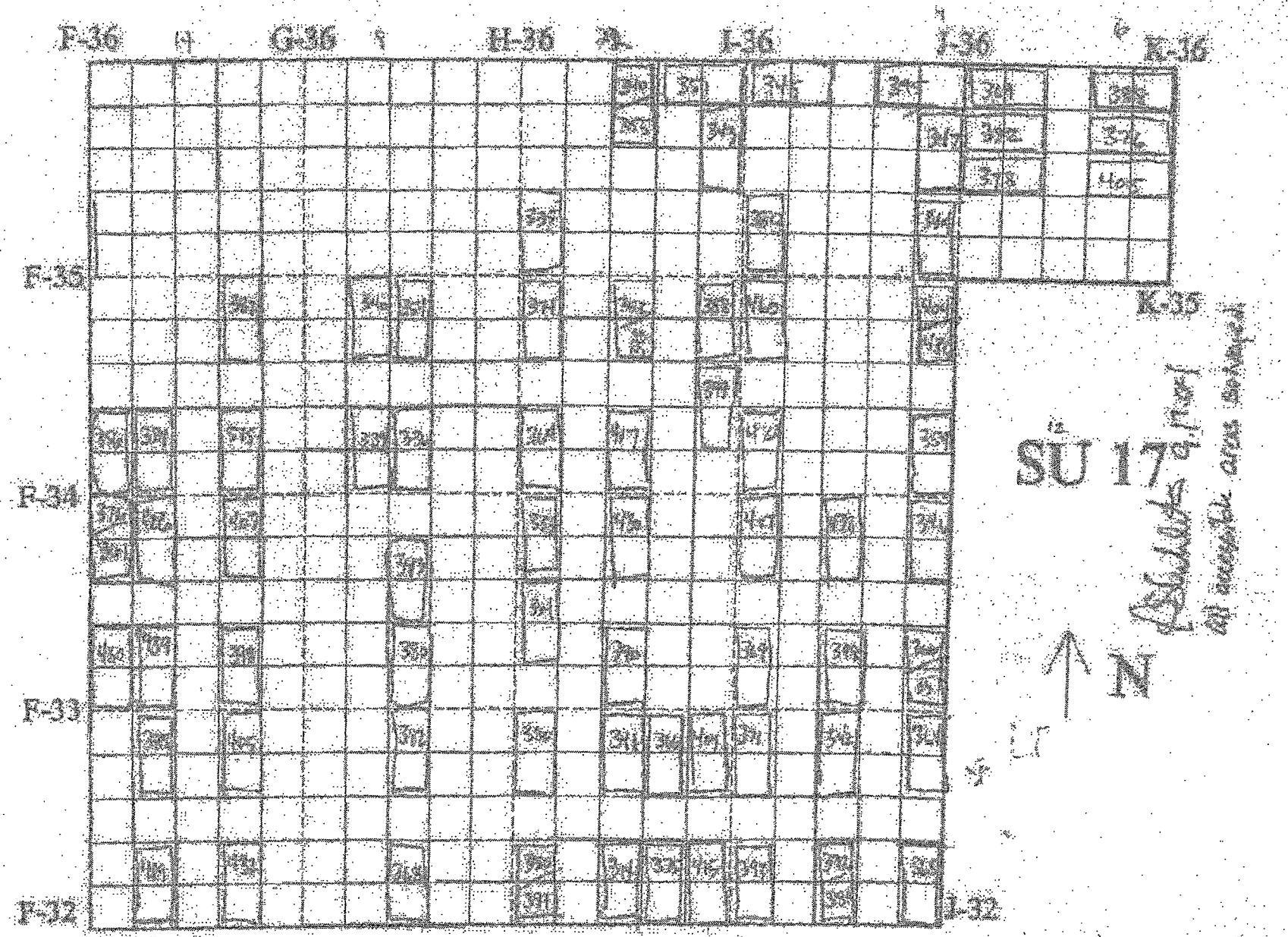
J-29

J-28

J-27

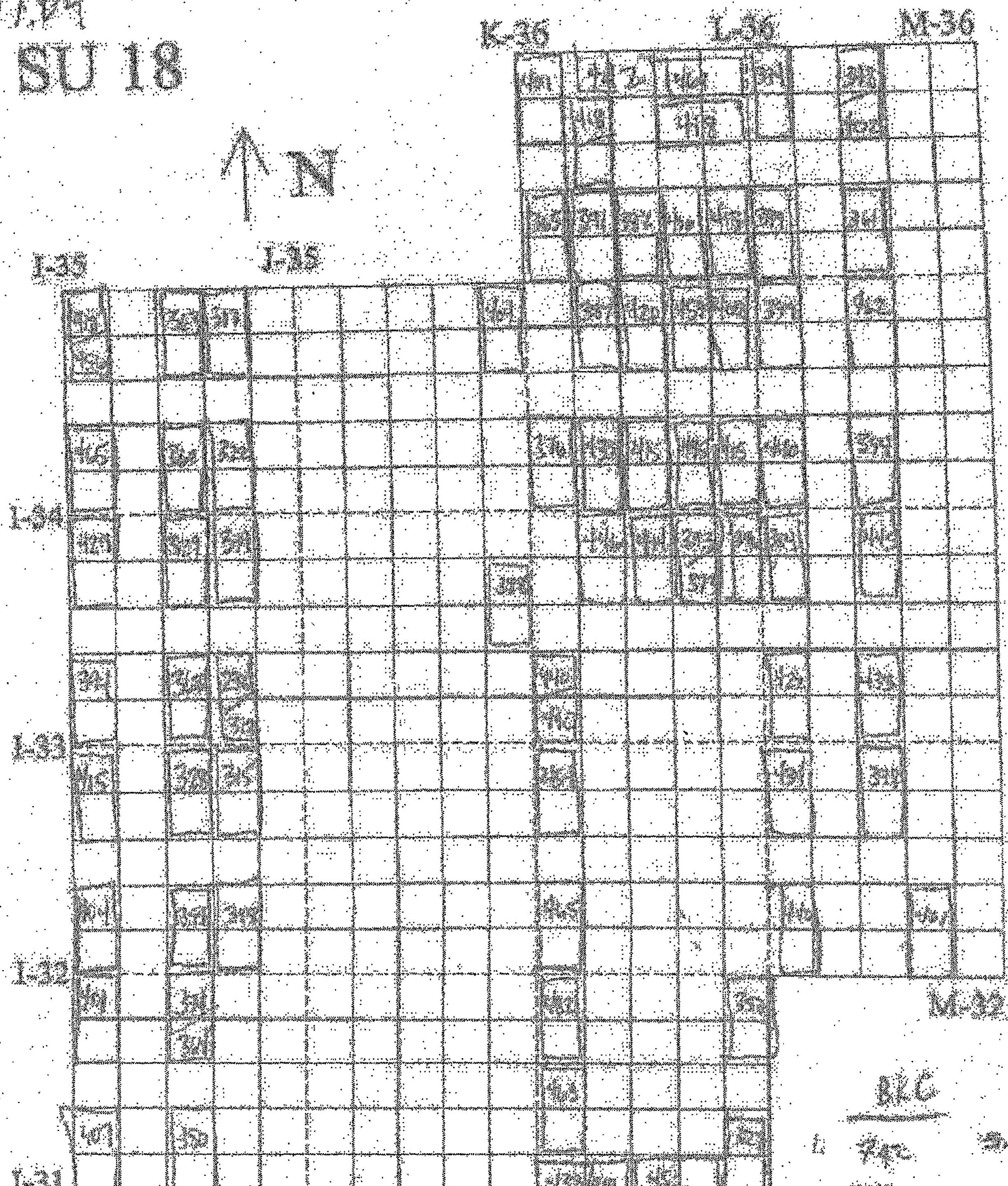
9.17.04

all accessible units surveyed.


F-36
G-36
H-36
I-36
J-36
K-36
F-35
K-35
F-34
F-33
F-32
J-32
SU 17
N

9.17.04

SU 18



[signature] 9.17.04 [illegible]

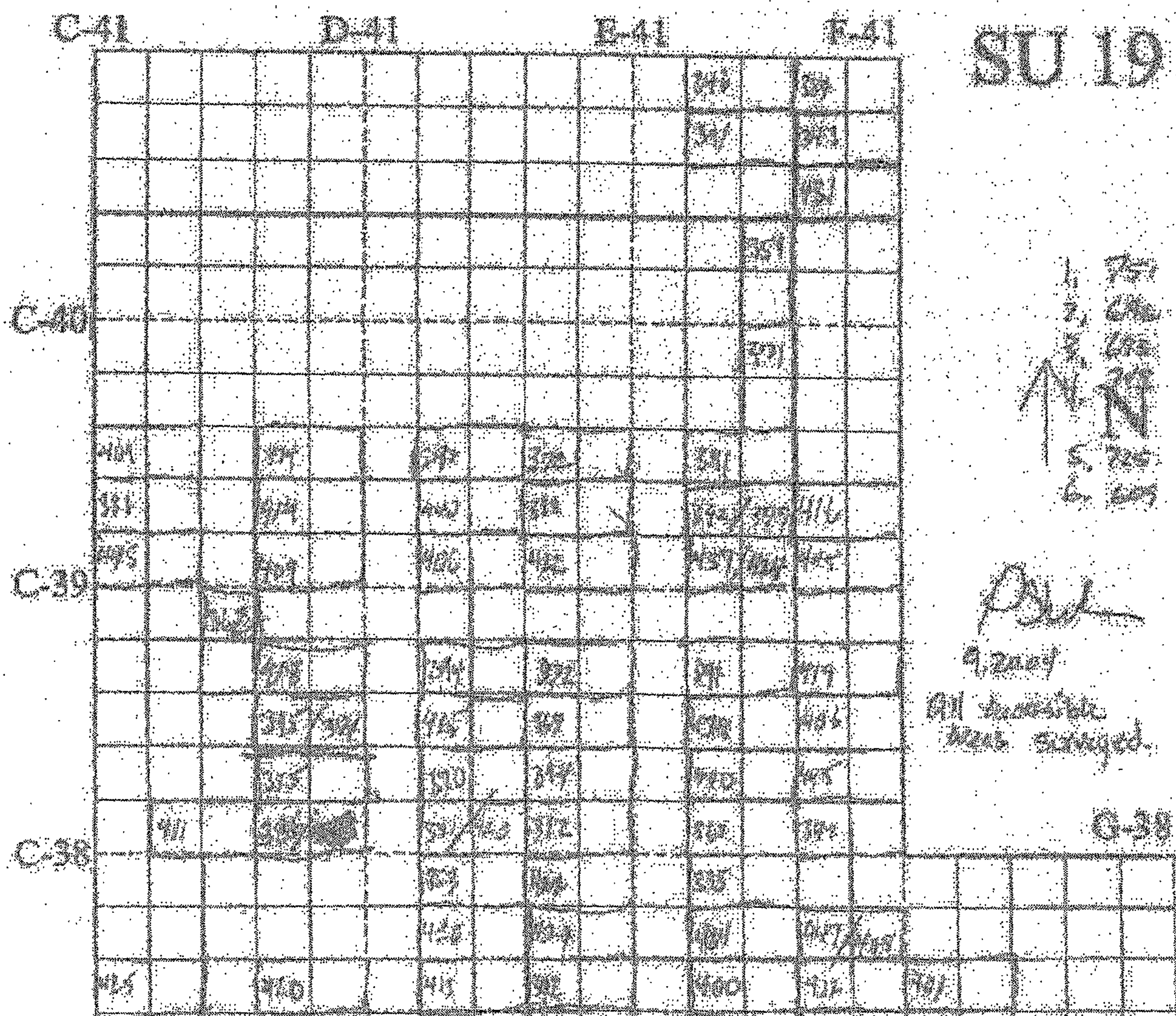
All accessible areas surveyed

BKG

1. [illegible]
2. 776
3. 818
4. 776
5. 771
6. 585

9.25.04

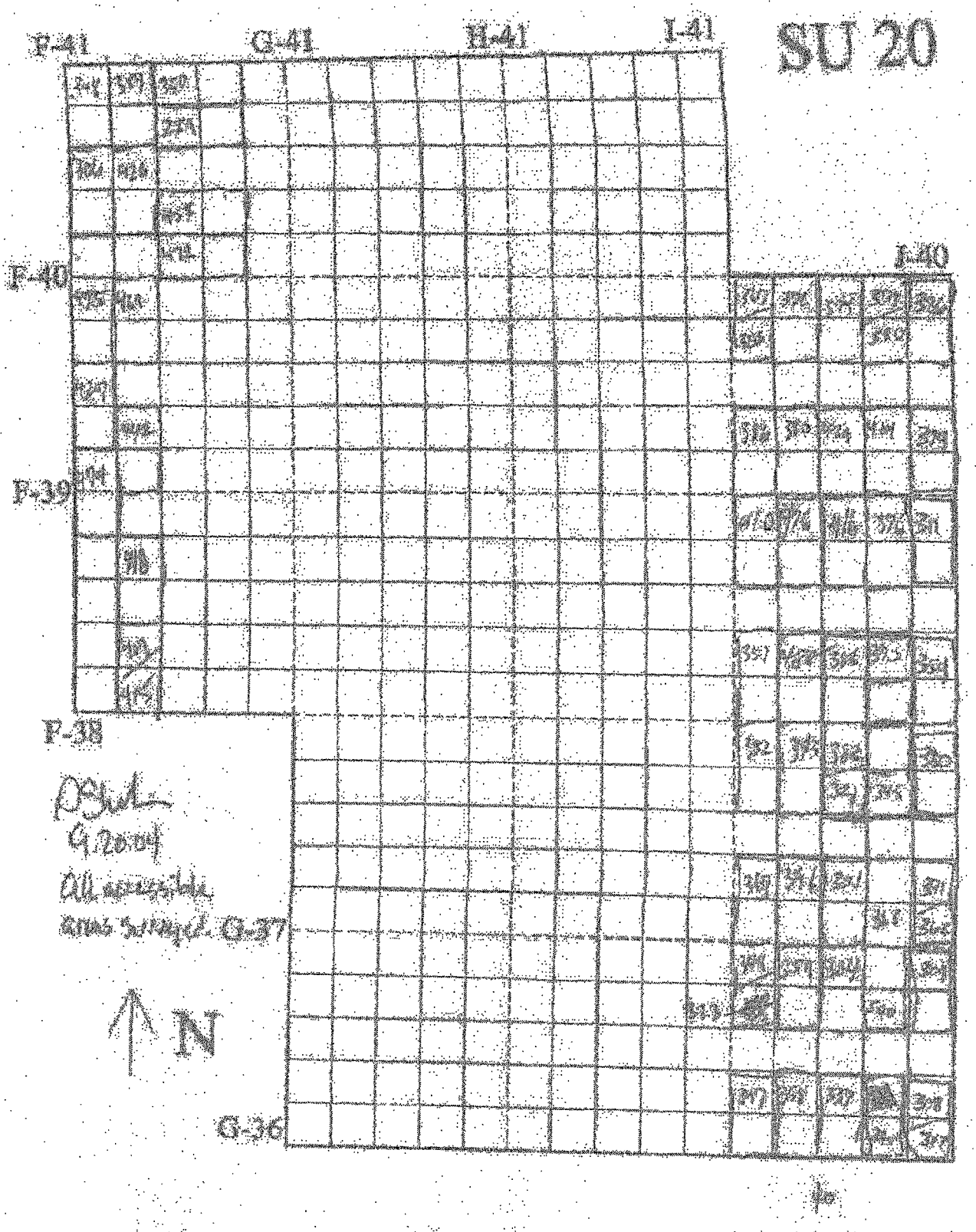
SU 19



N

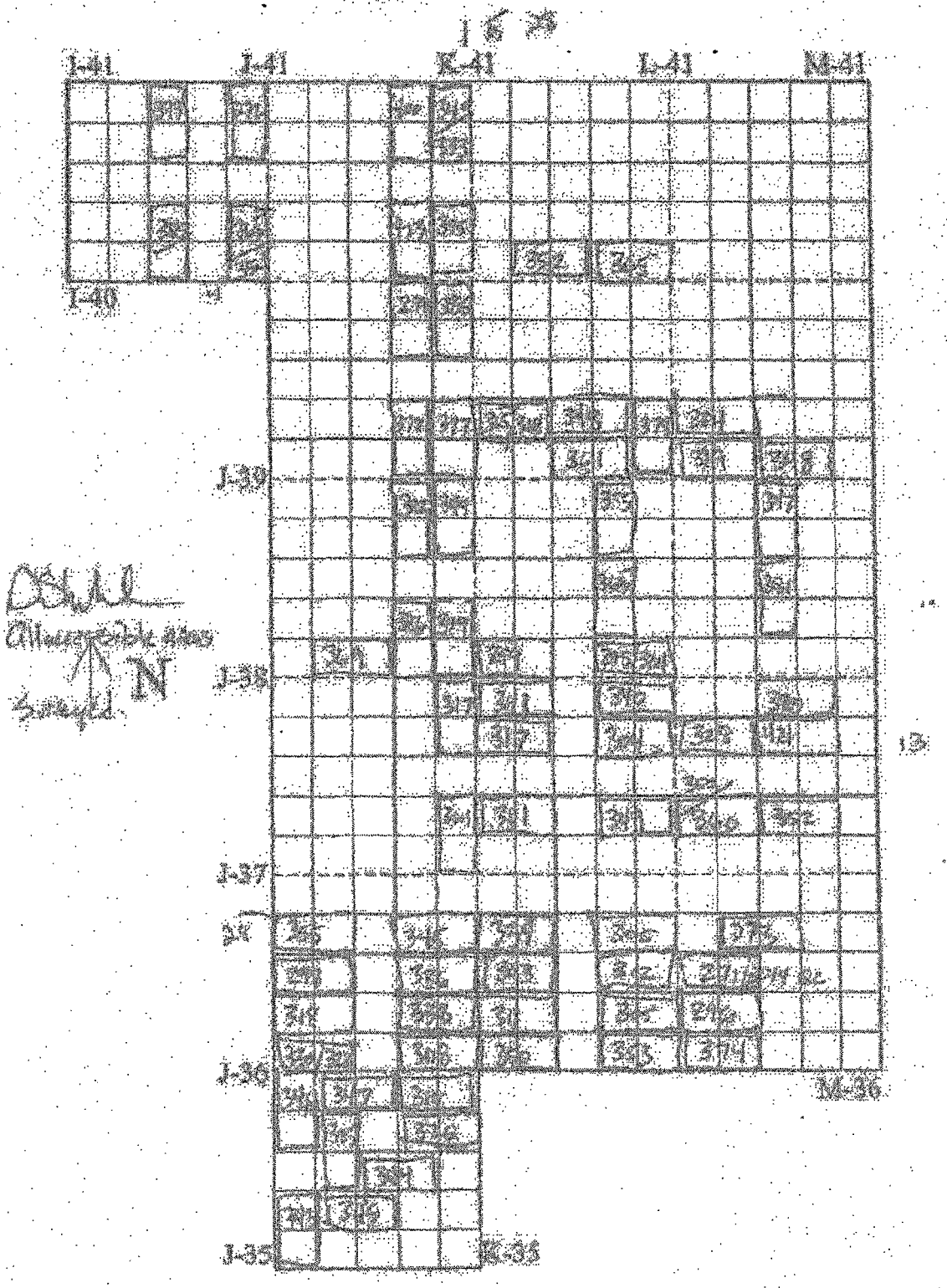
9.2004

All accessible areas surveyed.

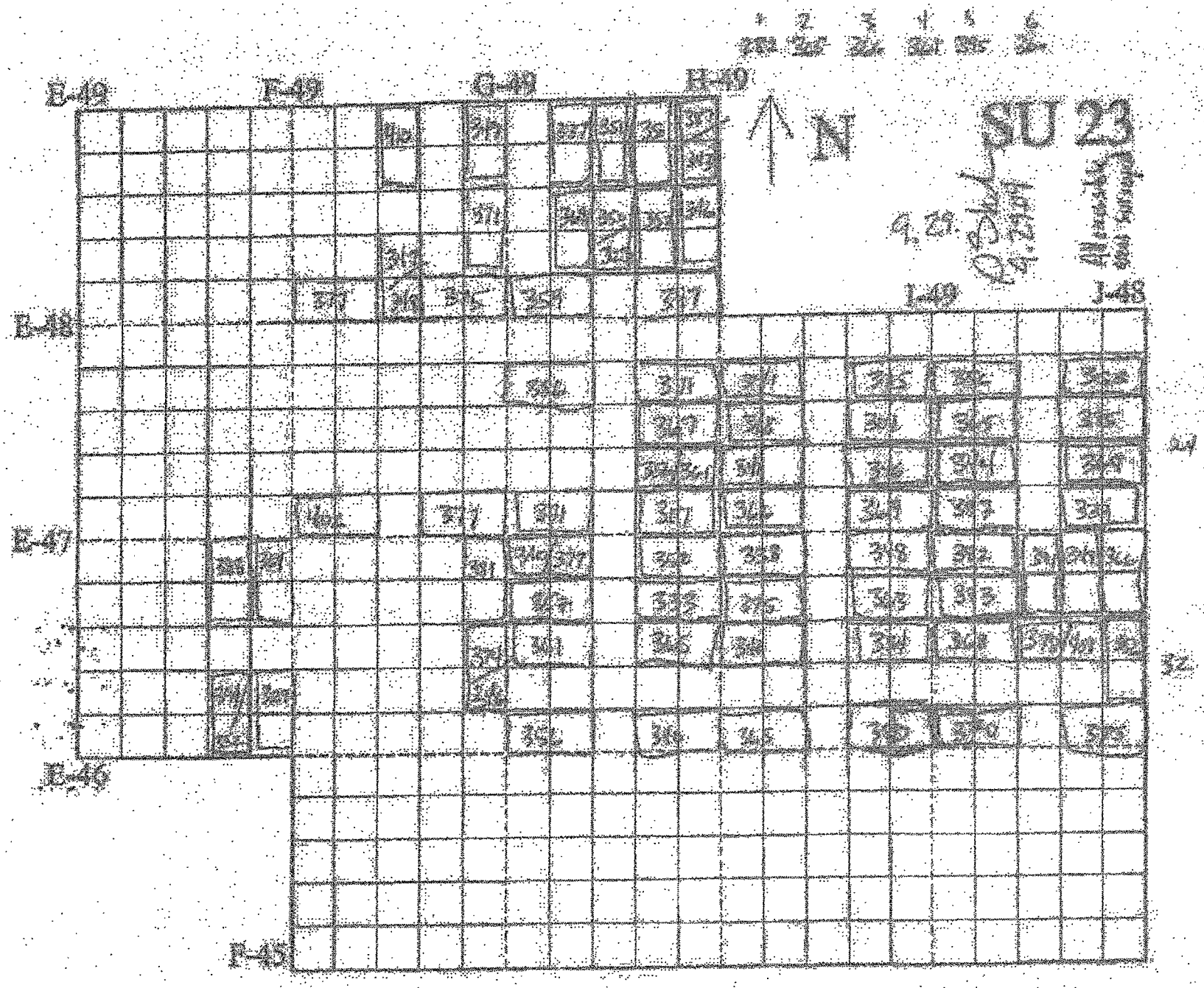

SU 20
F-41
G-41
H-41
I-41
F-40
I-40
F-39
F-38
G-36
N

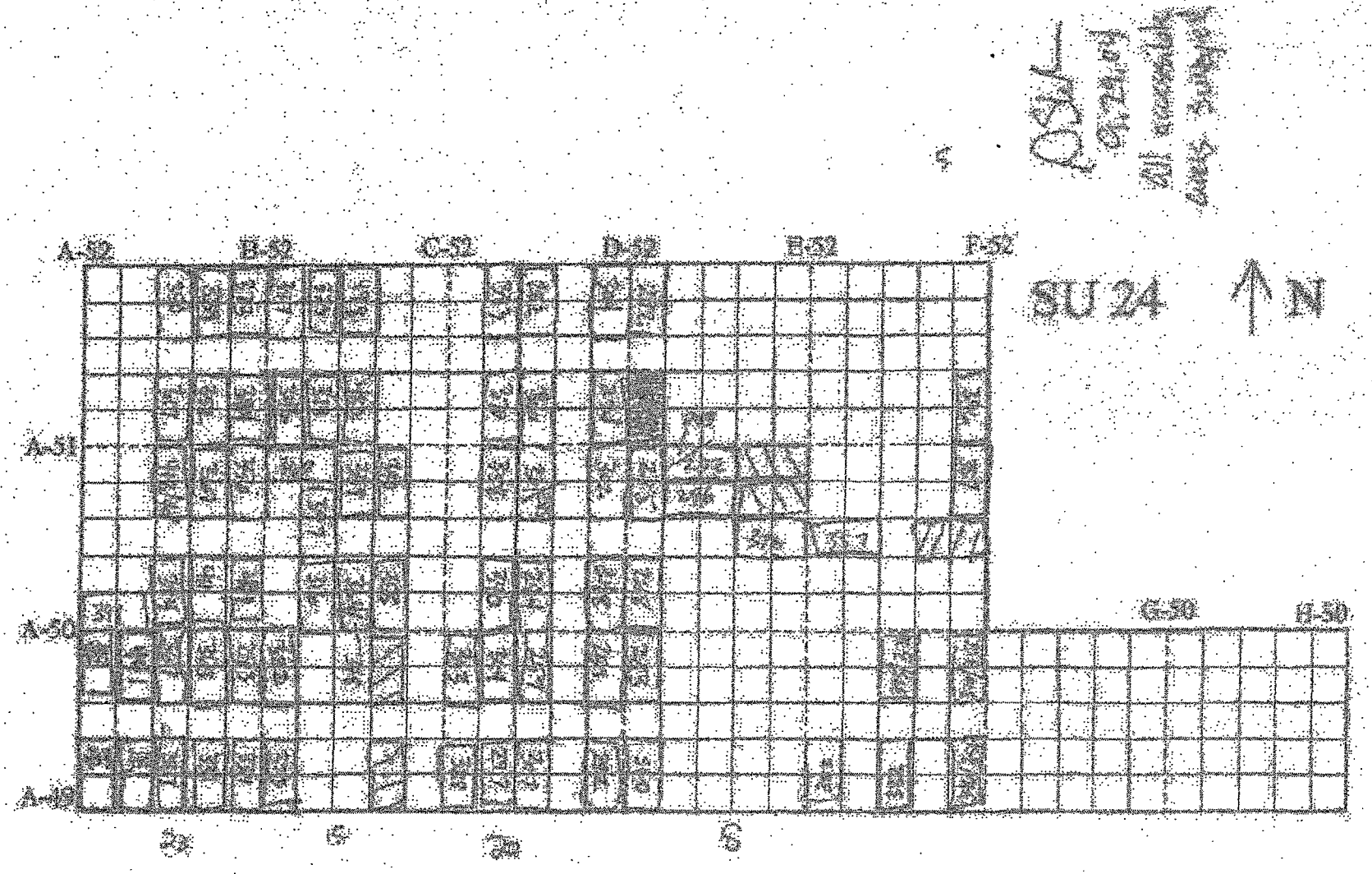
SU 21

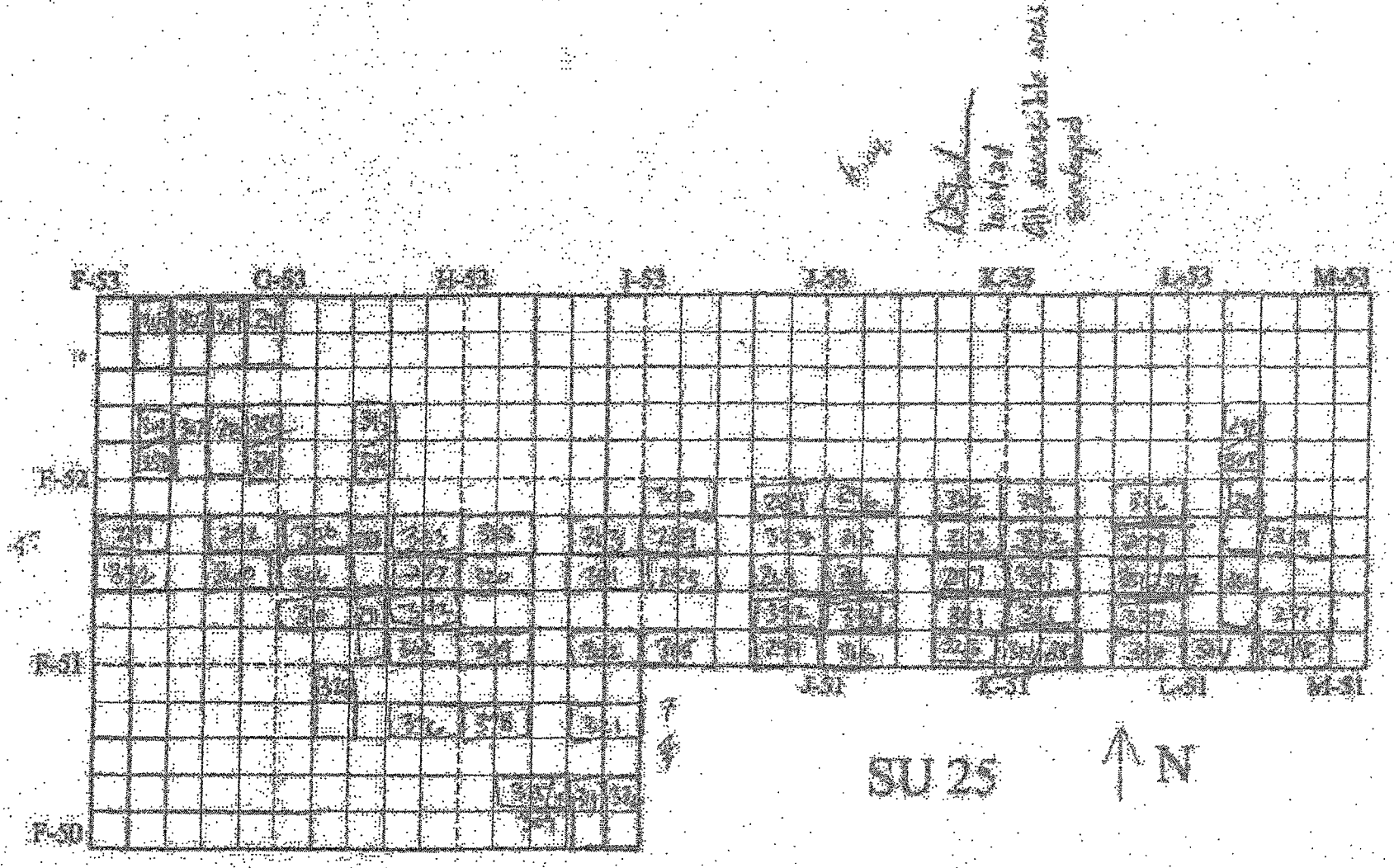
9.2004

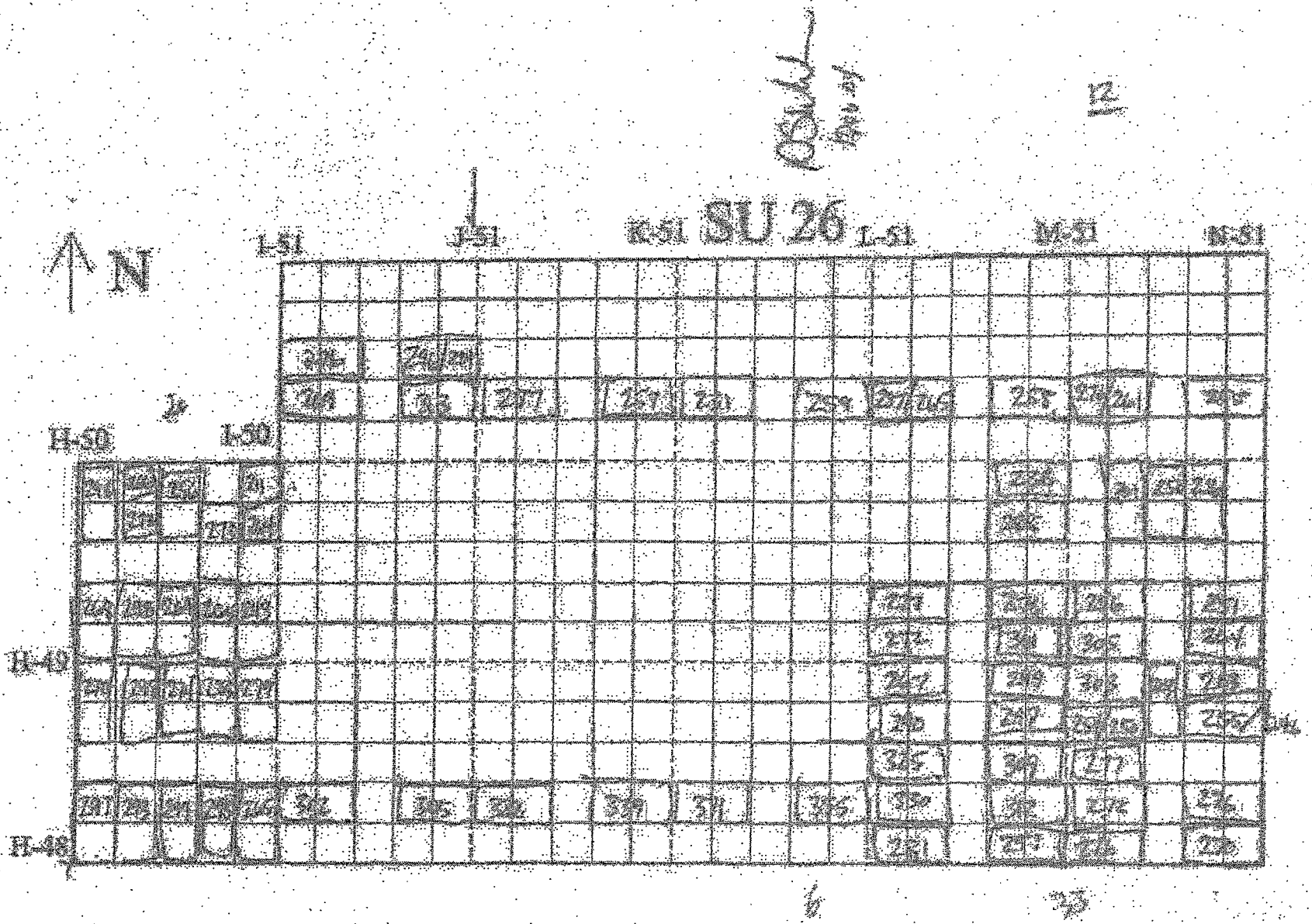


A-49
B-49
C-49
D-49
E-49
A-48
A-47
A-46
A-45
F-46
SU 22
N


E-49
F-49
G-49
H-49
I-49
J-48
E-48
E-47
E-46
F-45
N
SU 23


A-52
B-52
C-52
D-52
E-52
F-52
A-51
A-50
A-49
G-50
H-50
SU 24
N


F-53
G-53
H-53
I-53
J-53
K-53
L-53
M-53
F-52
F-51
F-50
J-51
K-51
L-51
M-51
SU 25
N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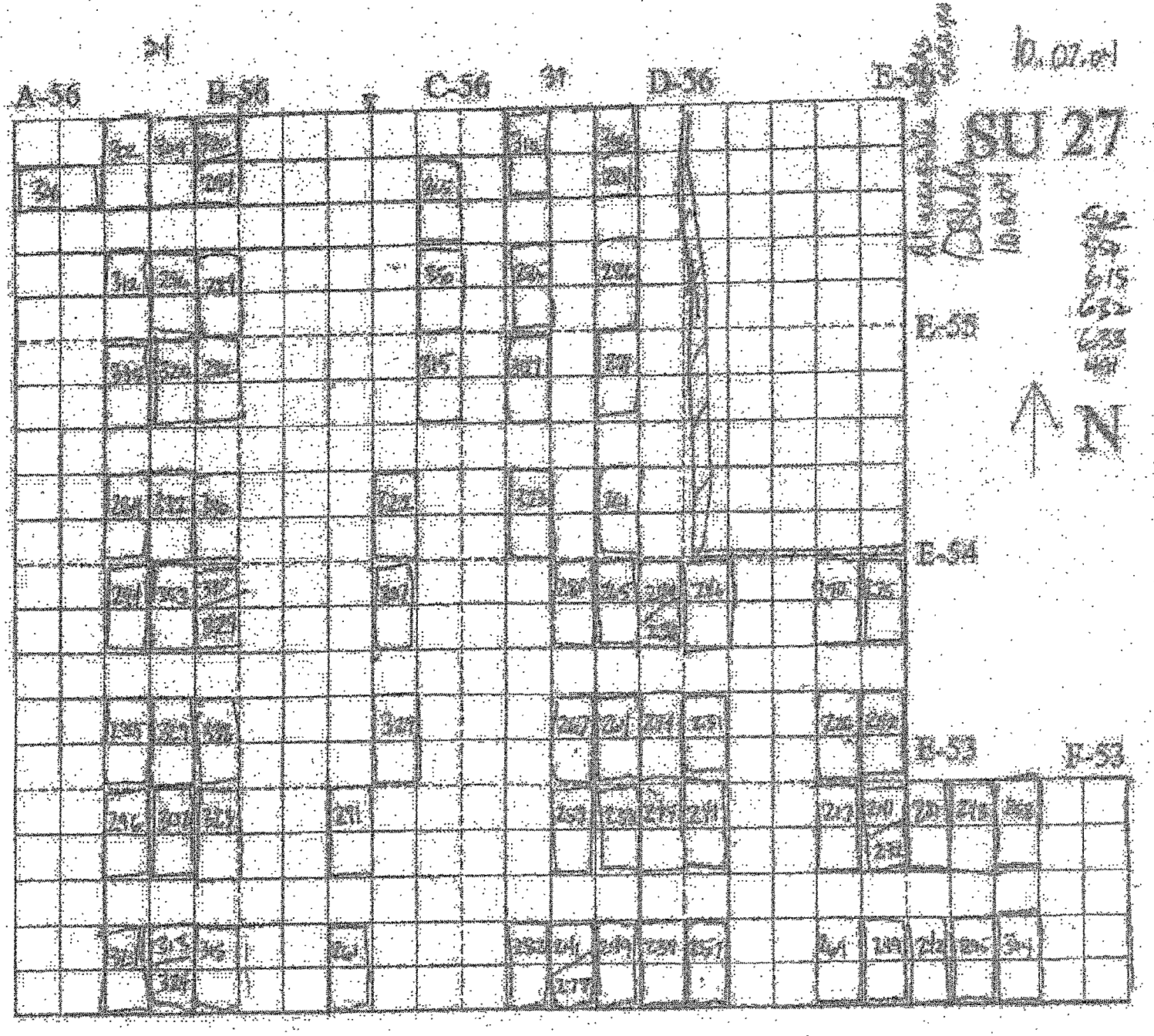
K-51
L-51
M-51
N-51
H-50
I-50
H-49
H-48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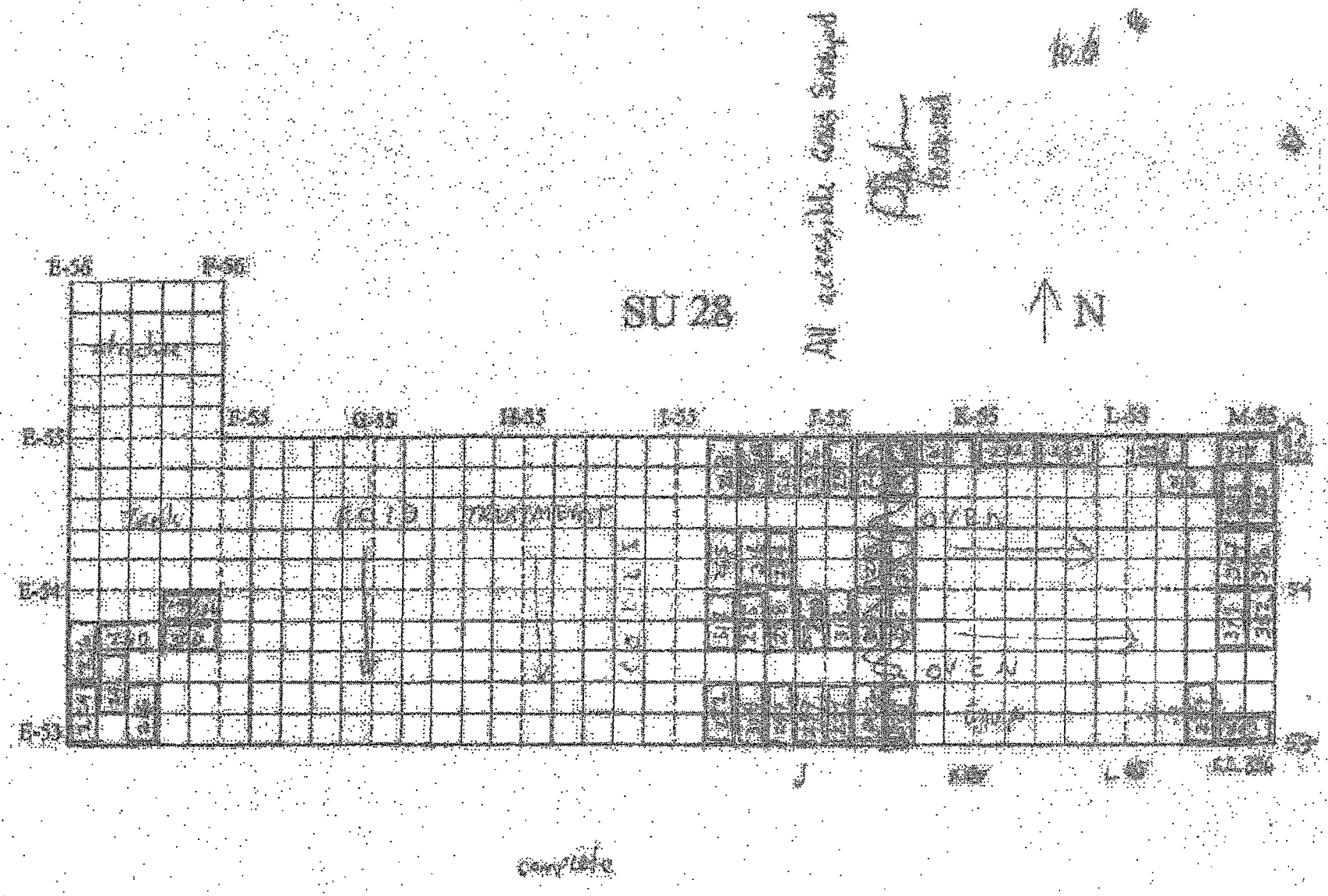
B-56
C-56
D-56
E-56
E-55
E-54
E-53
F-53
SU 27
N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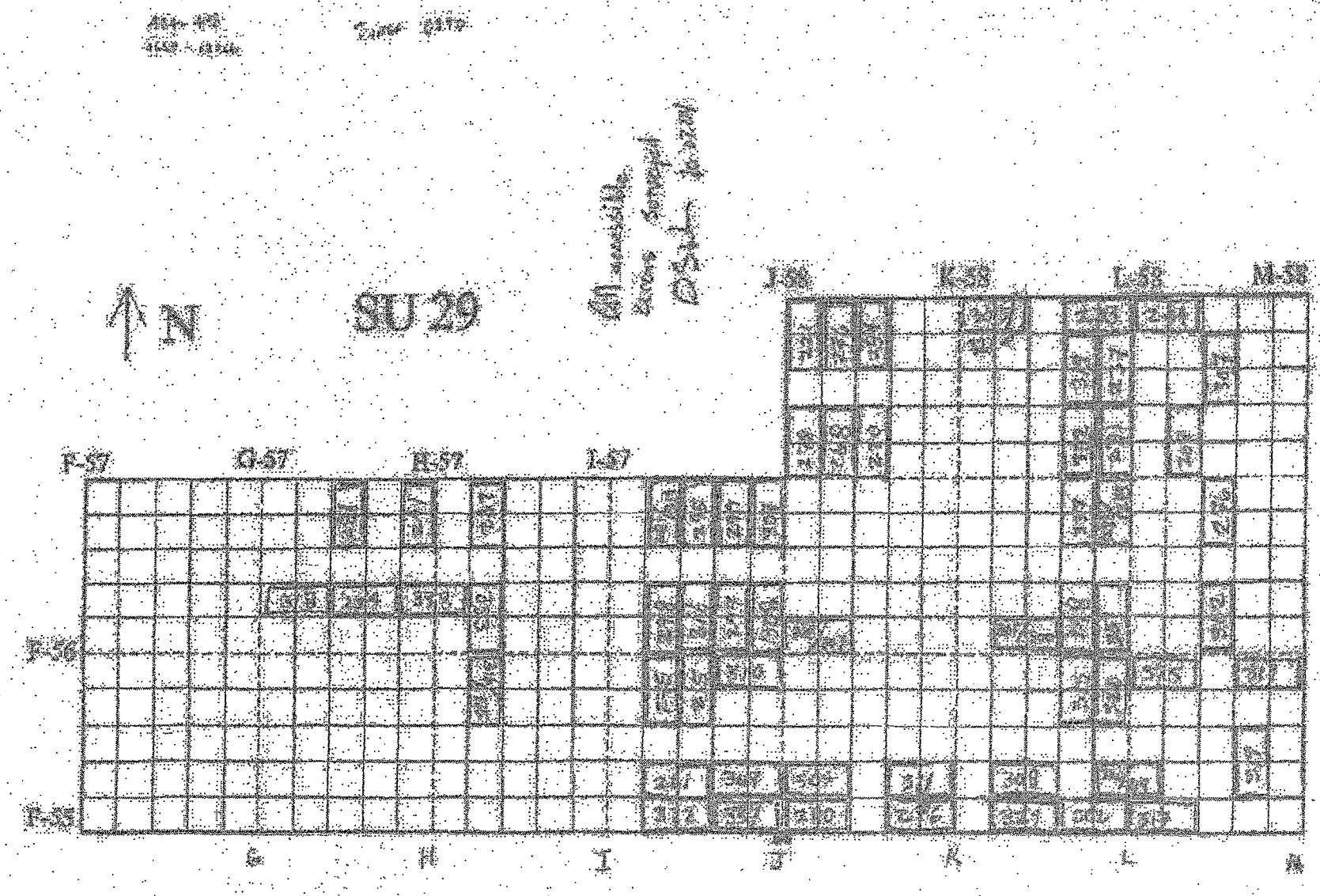
N
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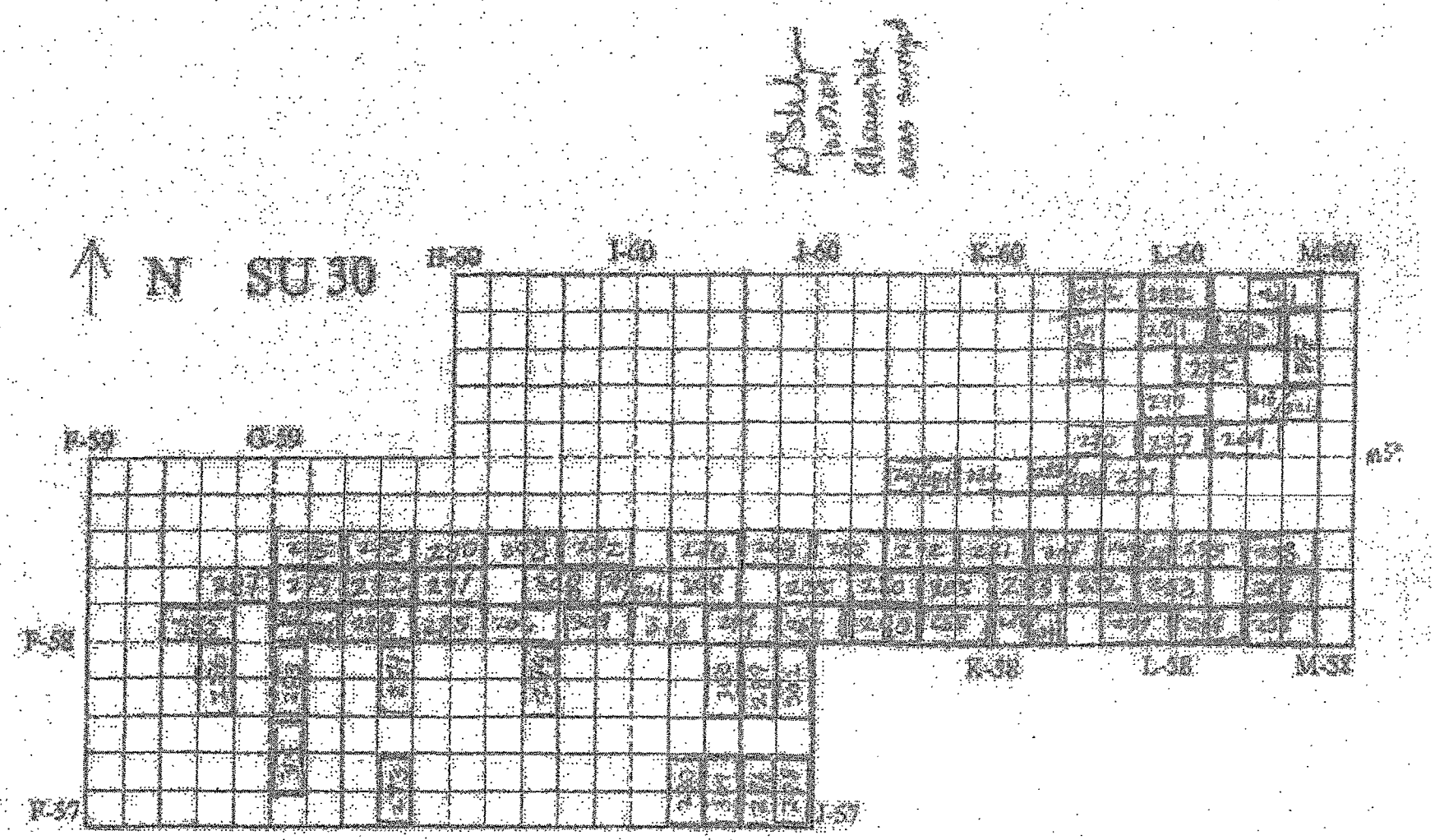
J-56
K-56
L-56
M-56
F-57
G-57
H-57
I-57
F-56
F-55
G
H
I
J
K
L
M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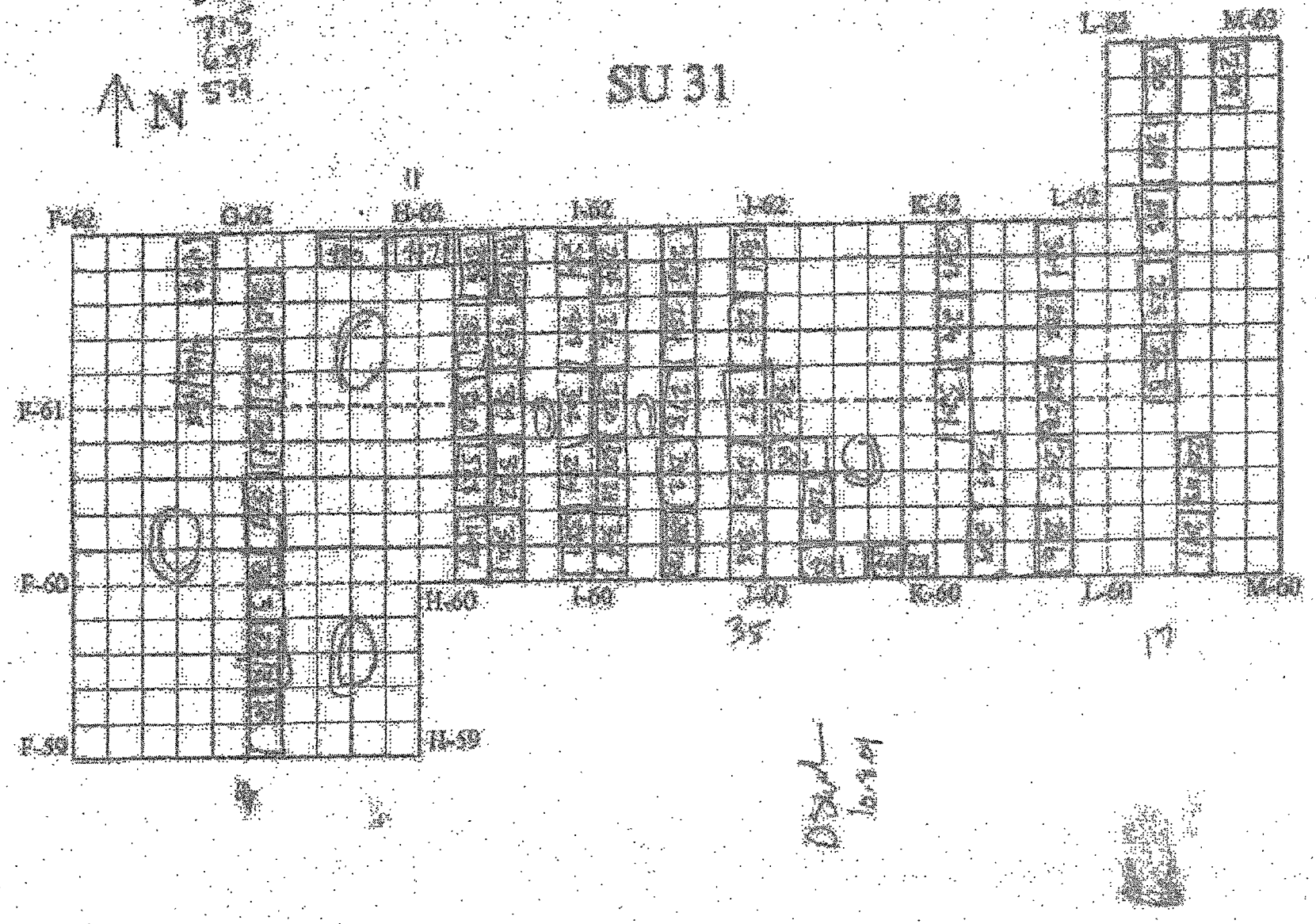
SU 30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N
F-62
G-62
H-62
I-62
J-62
K-62
L-62
M-62
L-61
F-60
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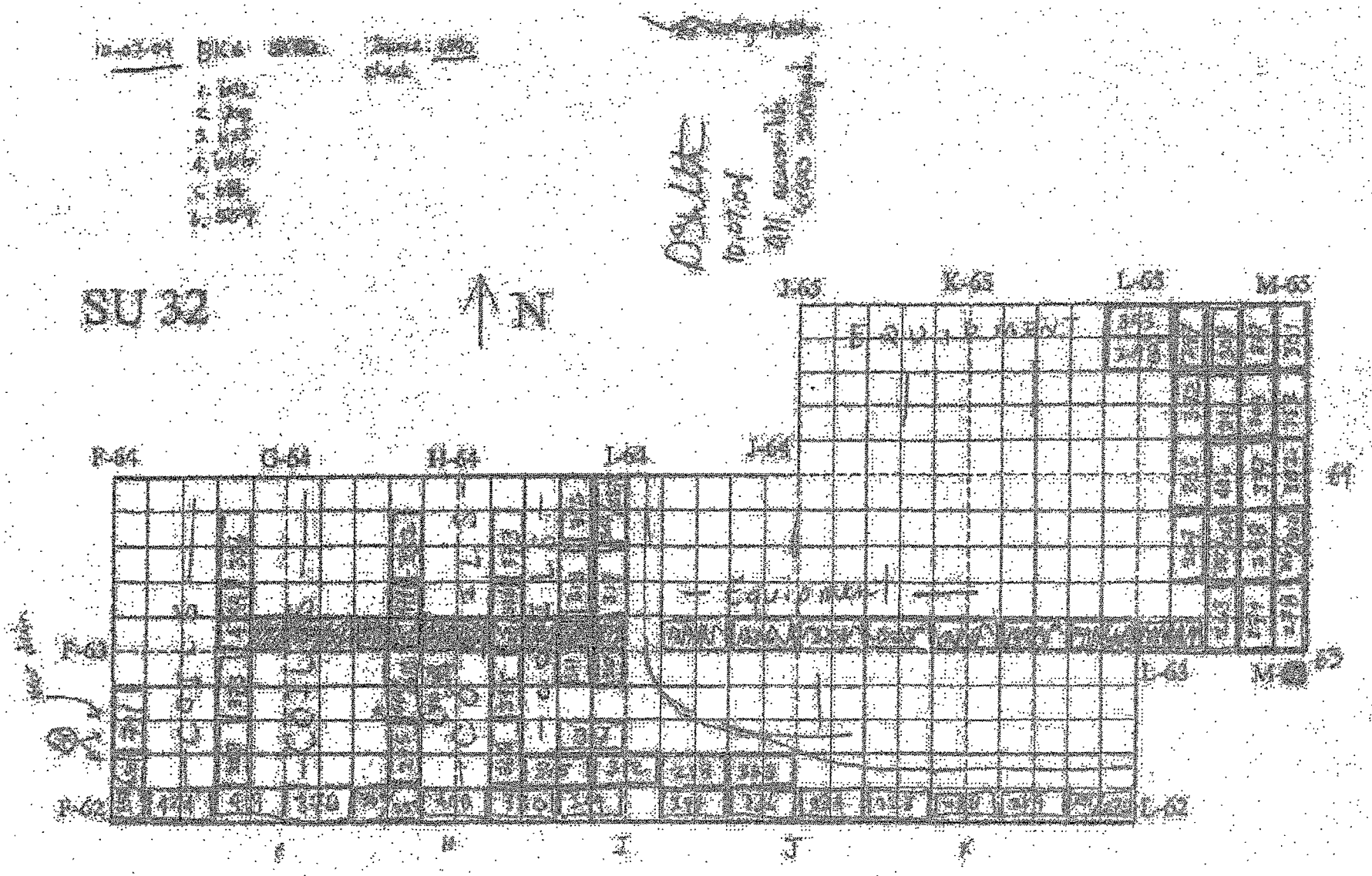
J-60
K-60
L-60
M-60
F-59
H-59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J-65
K-65
L-65
M-65
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G-64
H-64
I-64
J-64
K-64
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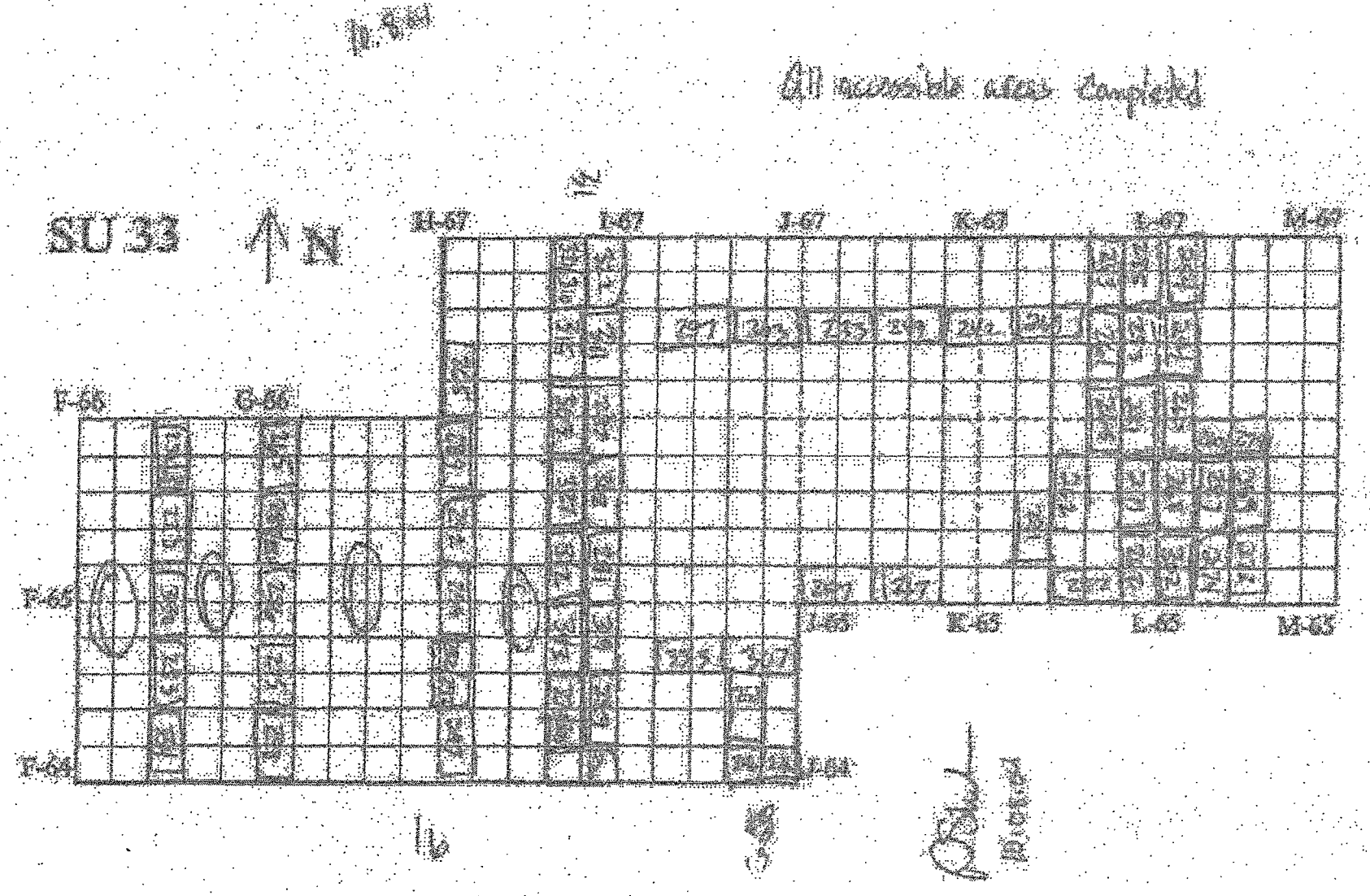
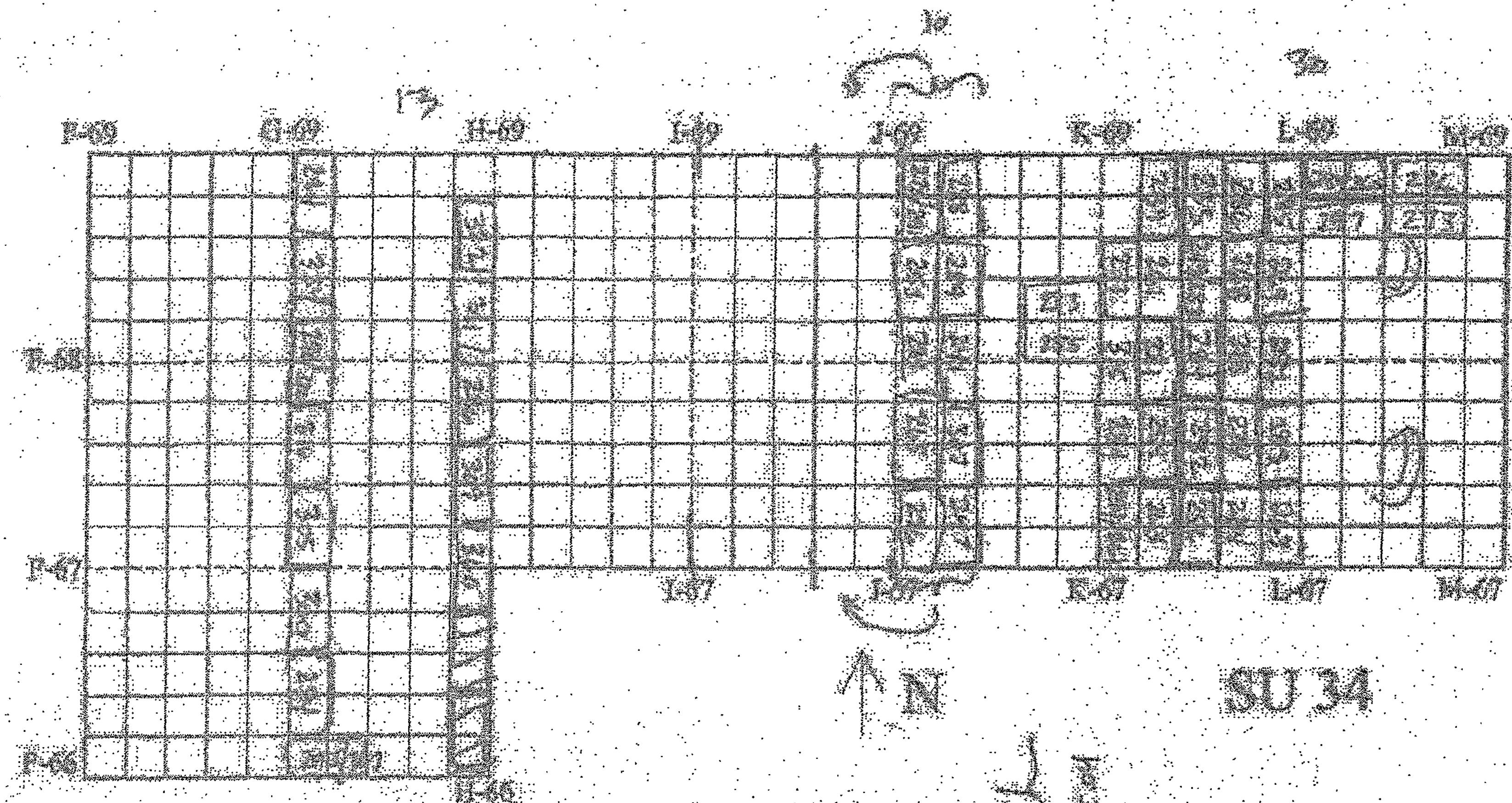
L-62
G
H
I
J
K

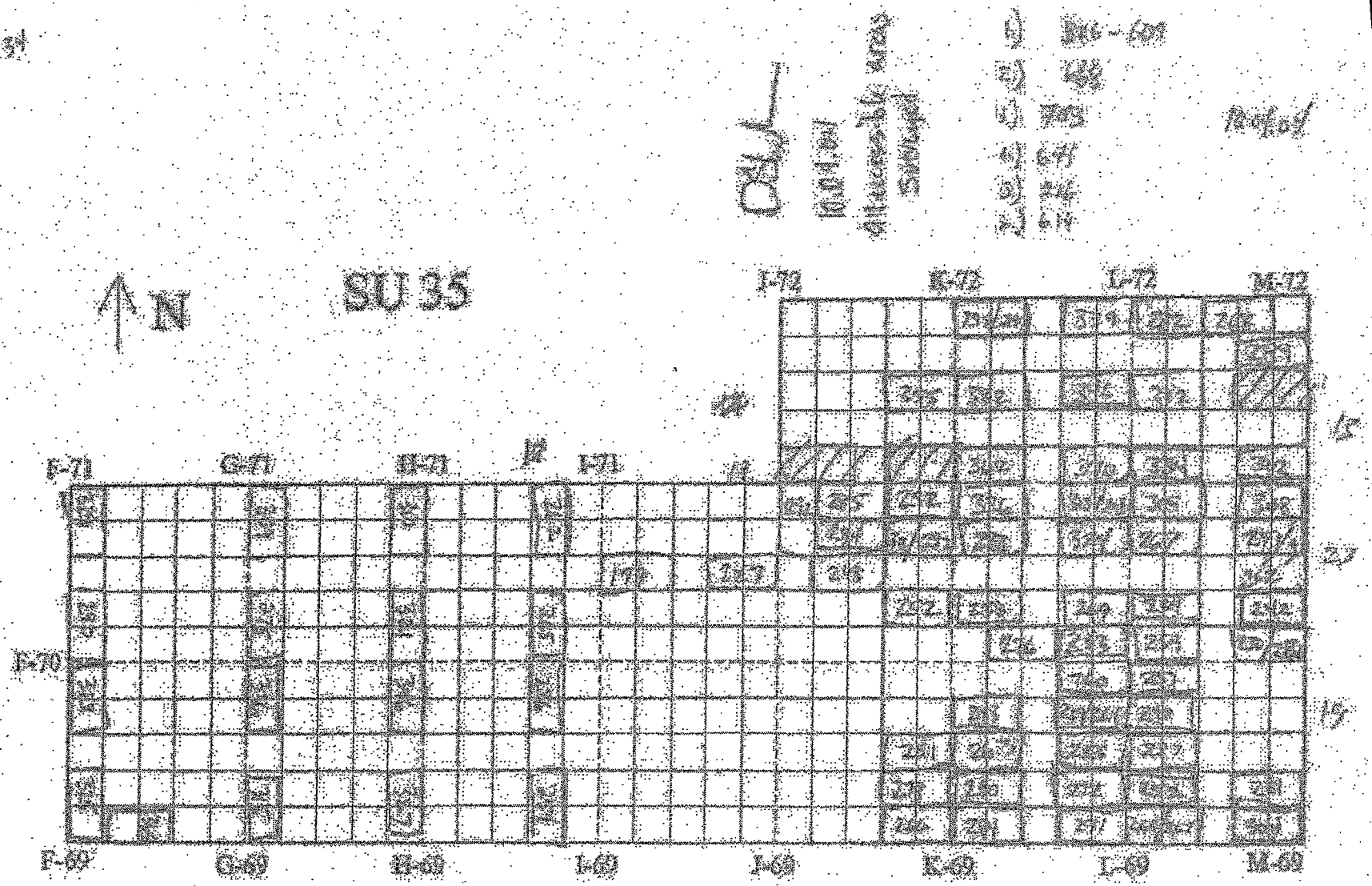

SU 33
N
All accessible areas completed
L-67
K-67
J-67
K-63
L-67
M-67
F-66
G-66
F-65
F-64
J-65
K-65
L-65
M-65

10.9.09

All accessible areas surveyed

53




N
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G-71
H-71
I-71
J-71
K-72
L-72
M-72
F-70
F-69
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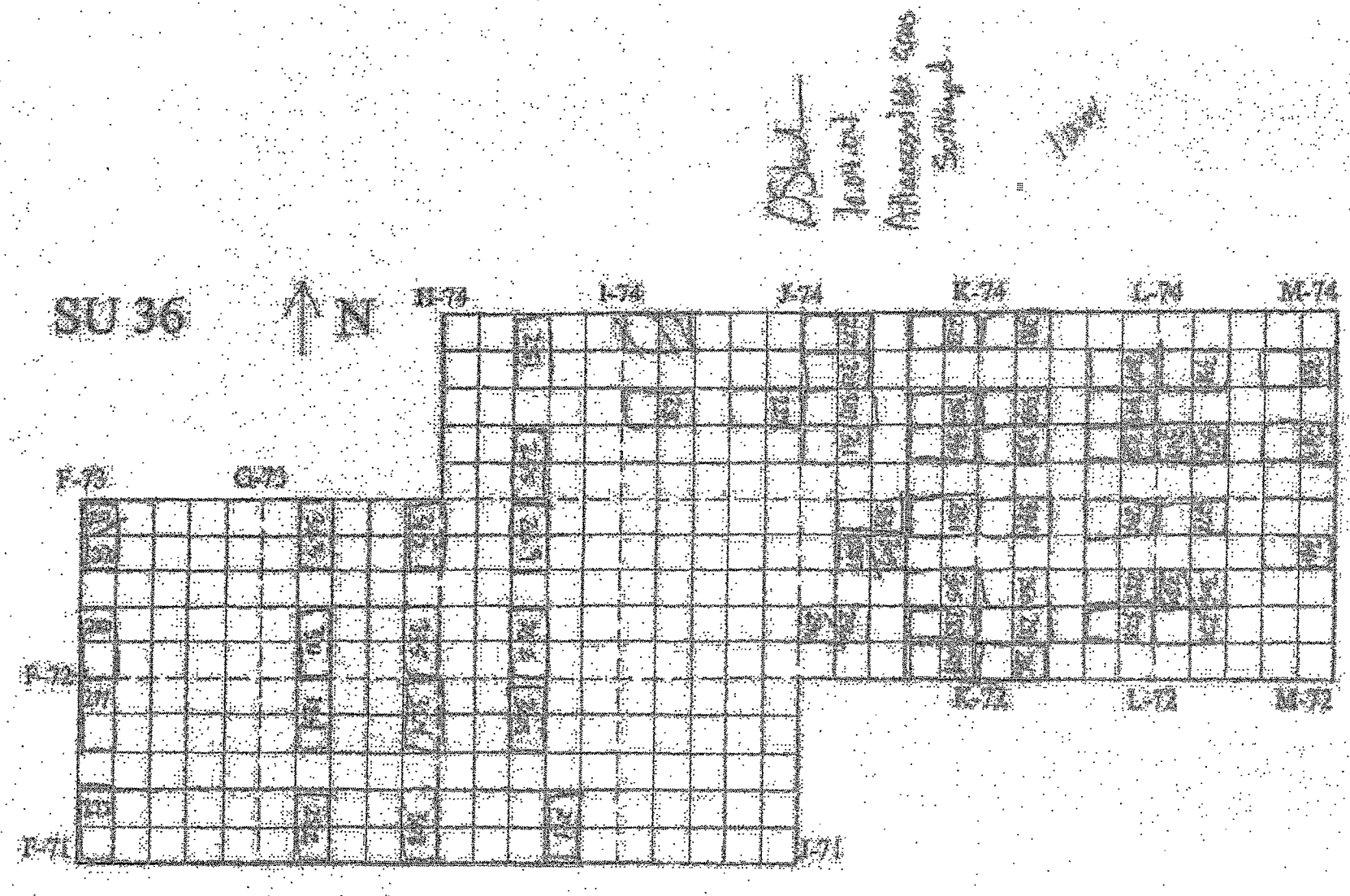
H-69
I-69
J-69
K-69
L-69
M-69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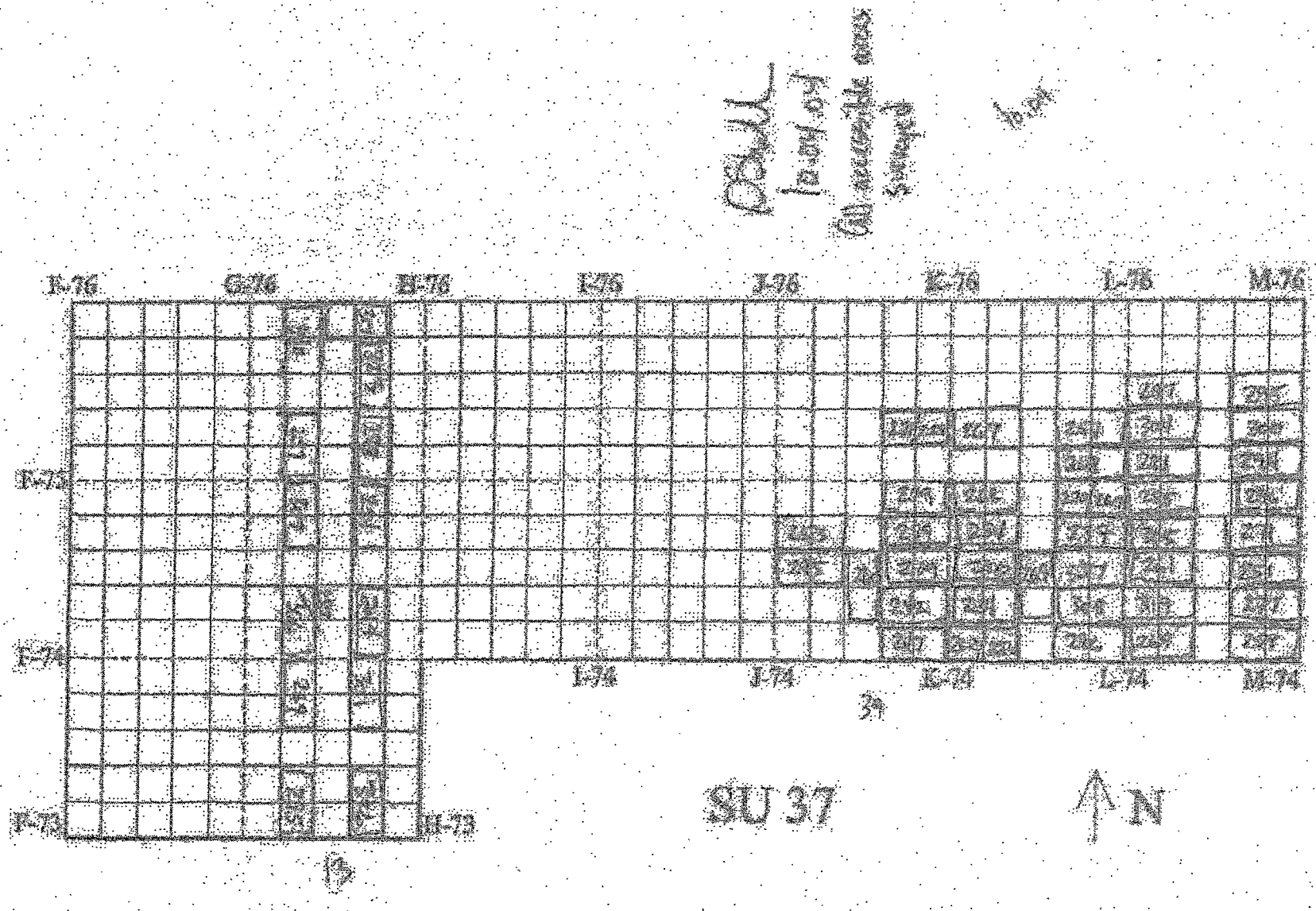
M-72
F-71
H-71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J-76
E-76
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M-76
K-75
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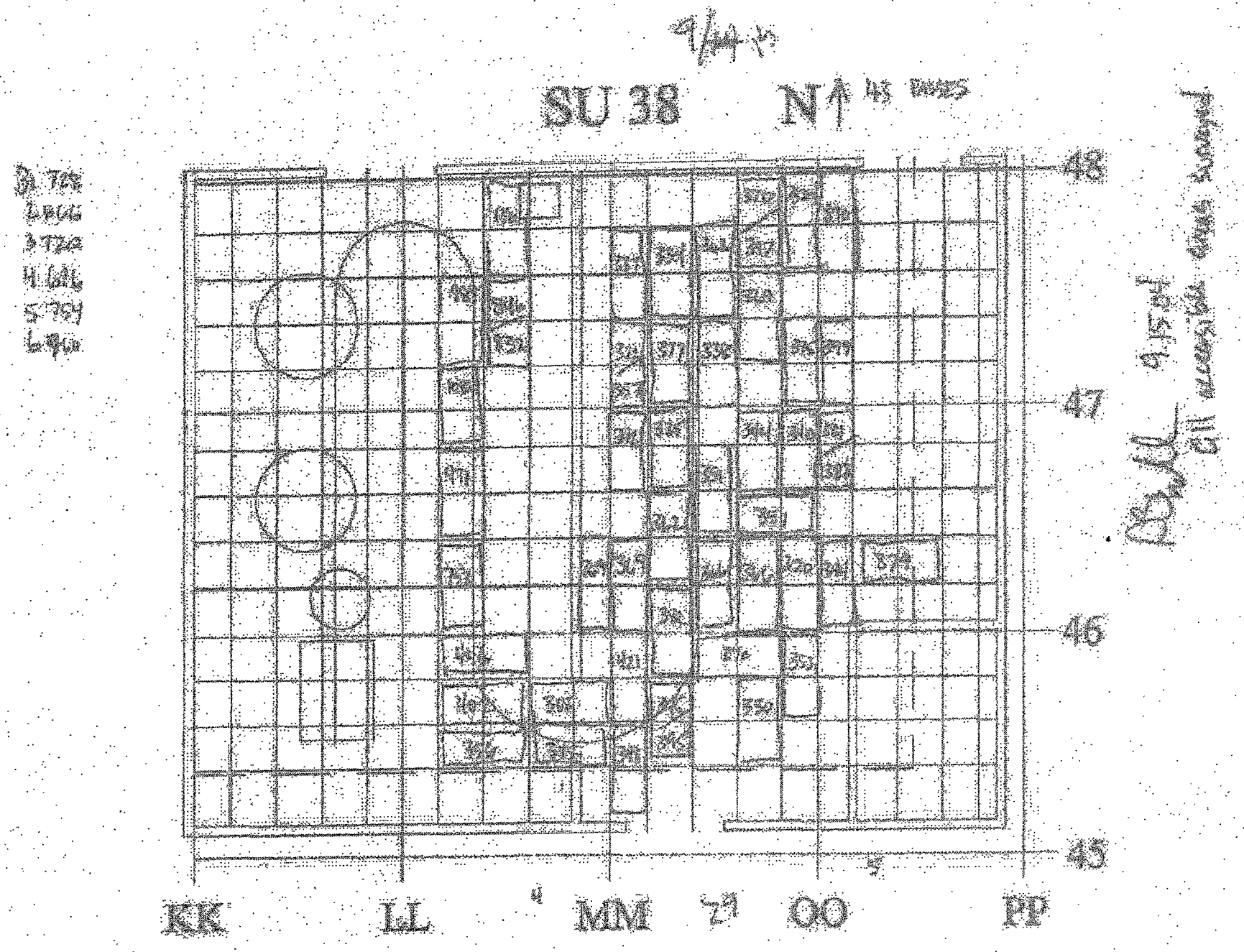
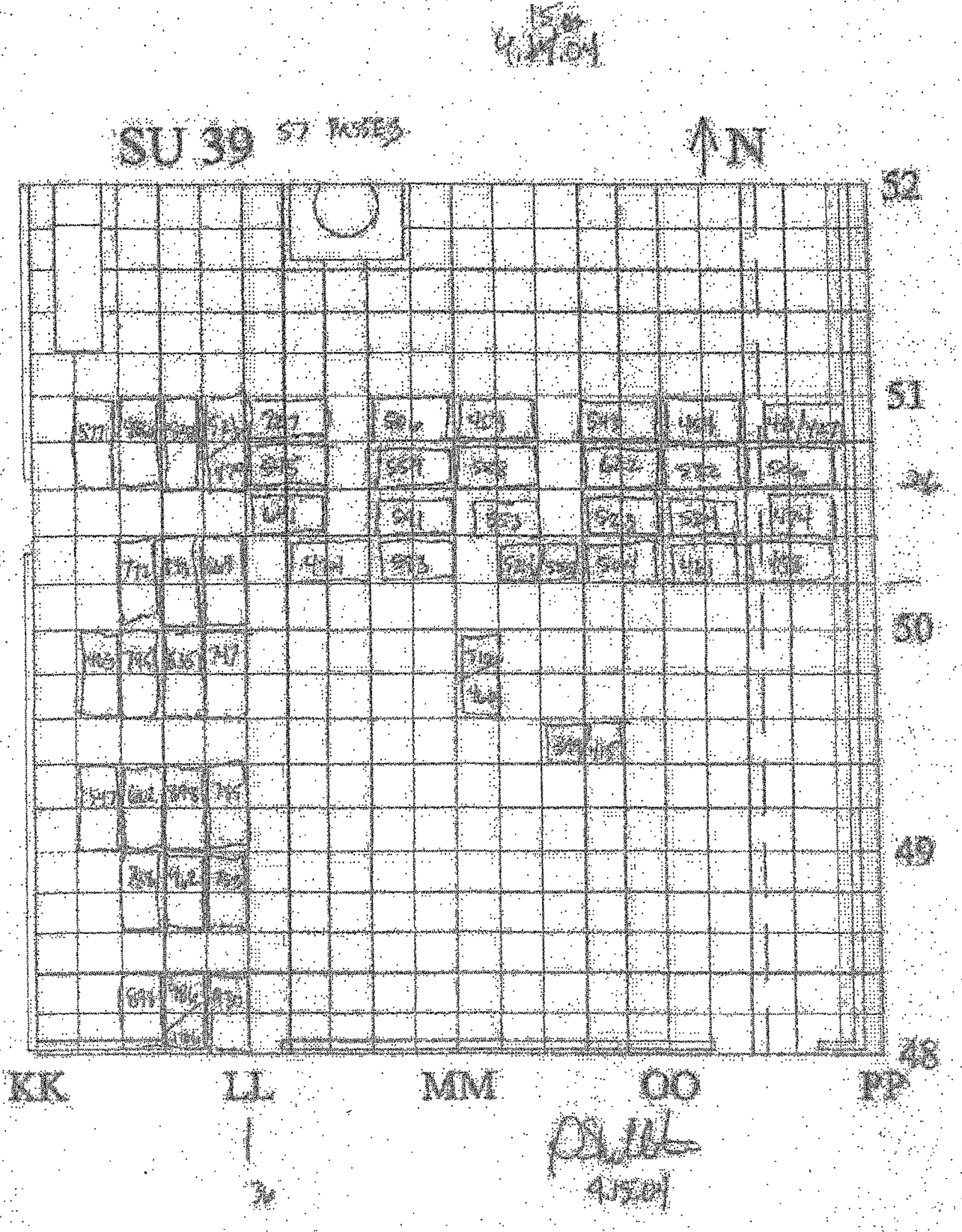
E-74
L-74
M-74
K-73
H-73
SU 37
N


SU 38
N
48
47
46
45
KK
LL
MM
OO
PP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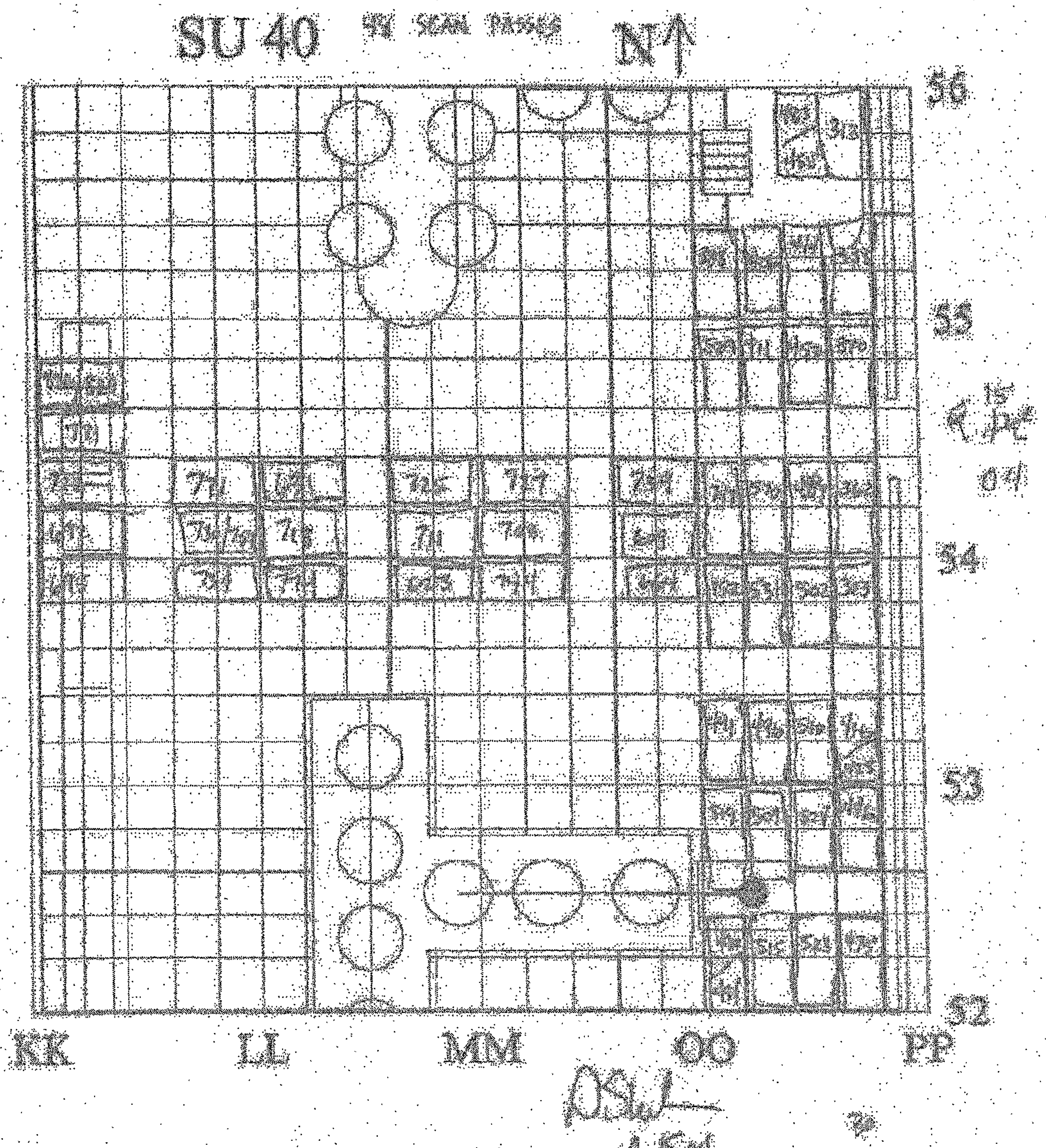
51
50
49
48
KK
LL
MM
OO
PP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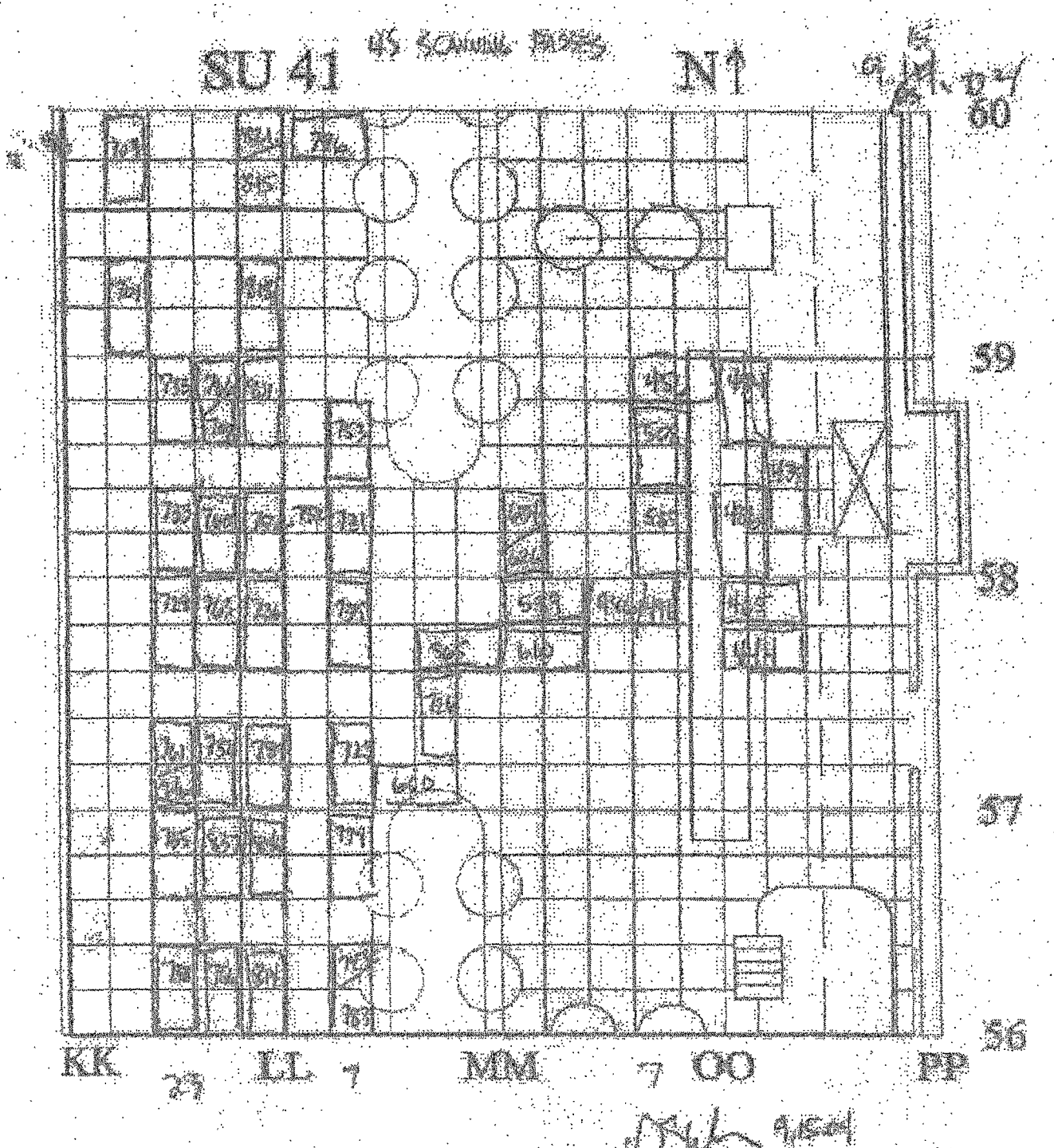
N
56
55
54
53
52
KK
LL
MM
OO
PP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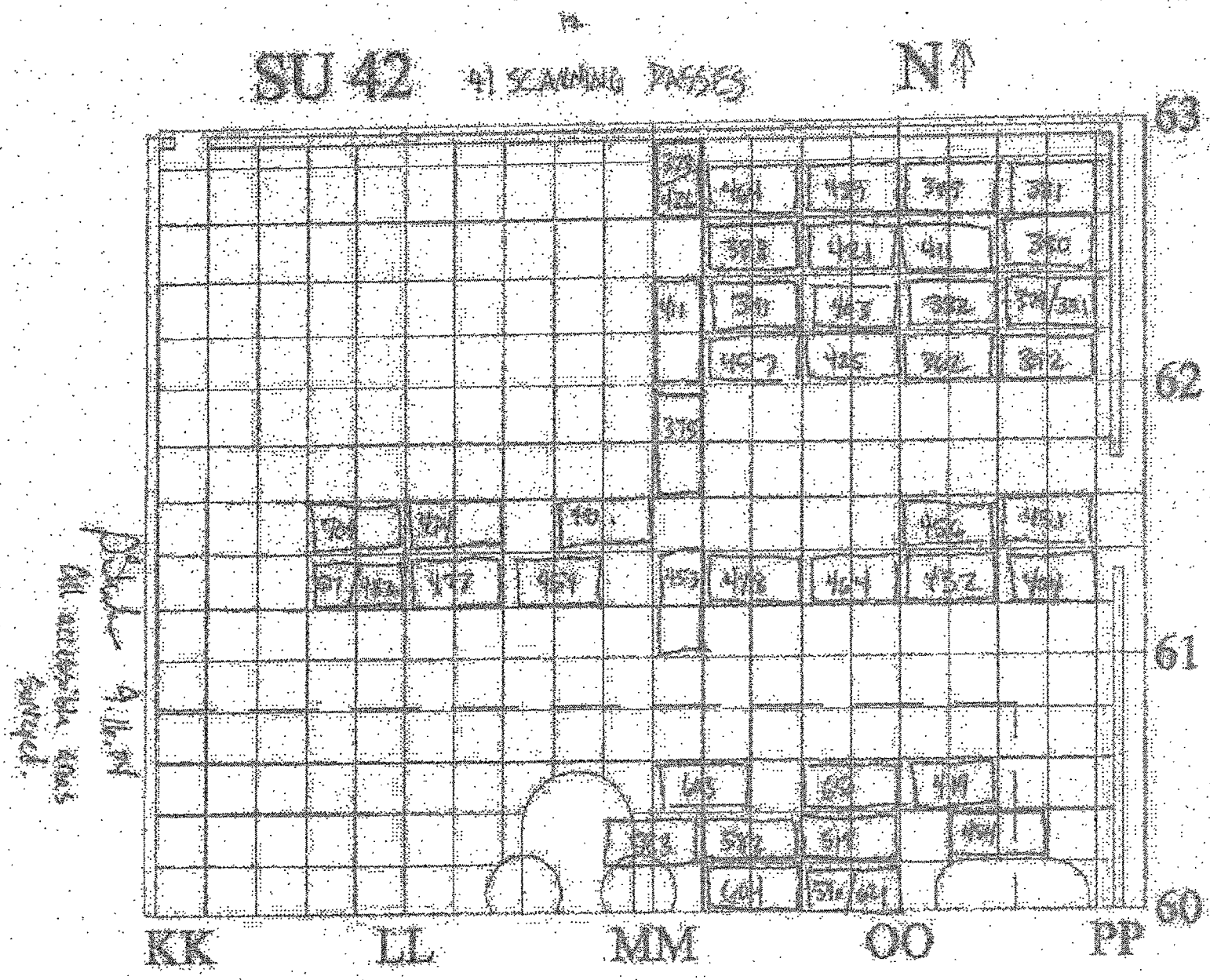
N
60
59
58
57
56
KK
LL
MM
OO
PP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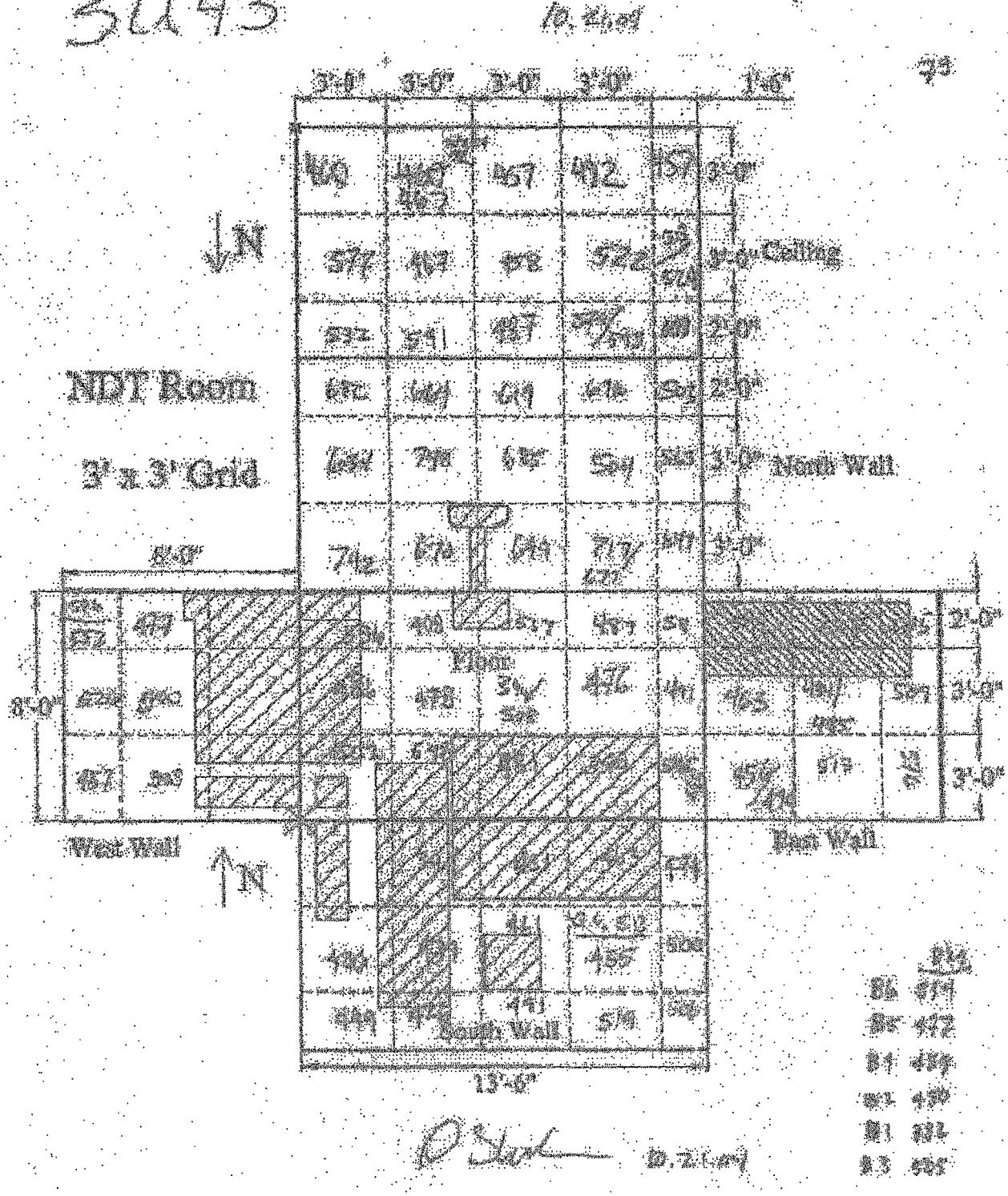
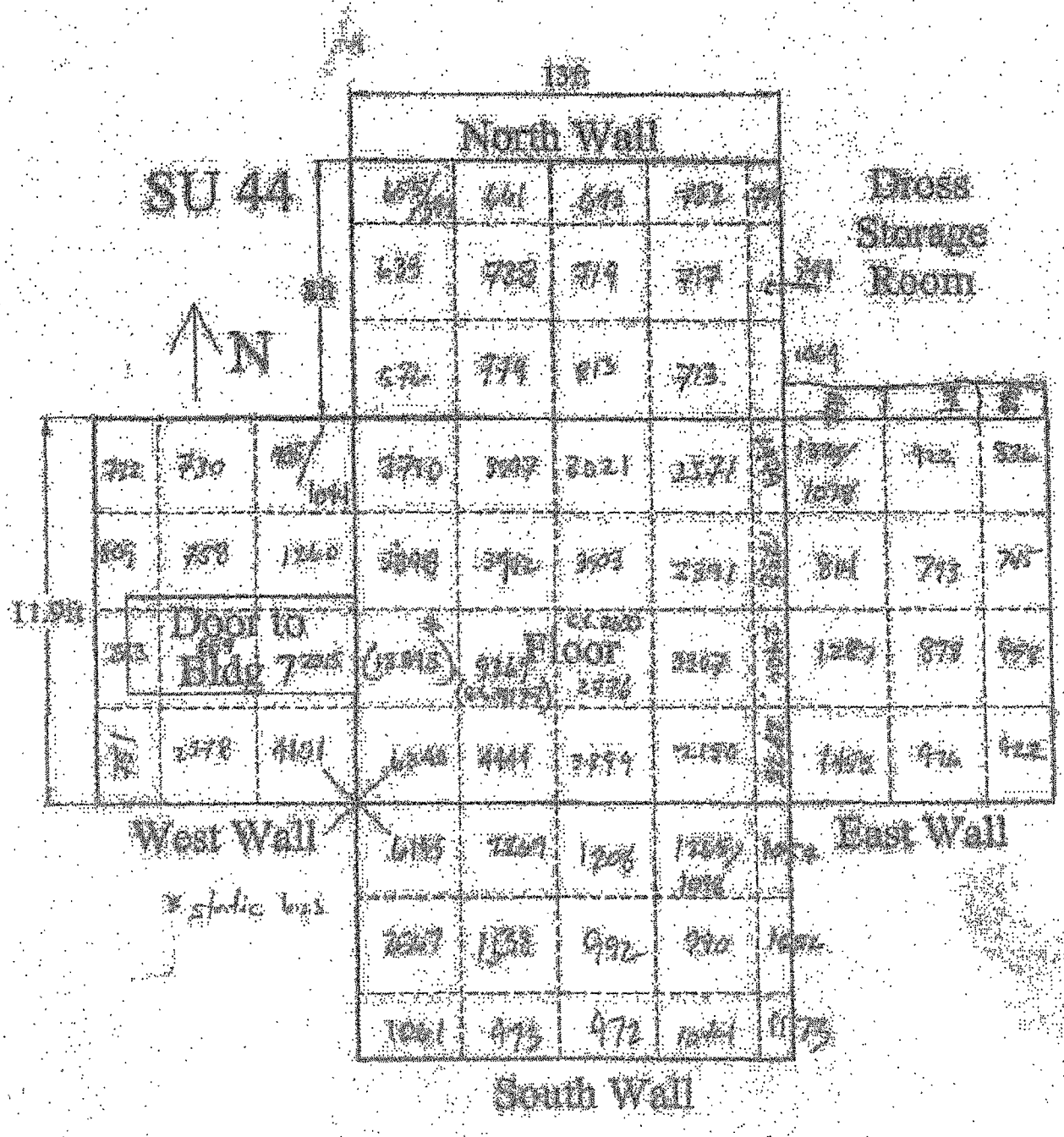
N
63
62
61
60
KK
LL
MM
OO
PP

5243


3'-0"
3'-0"
3'-0"
3'-0"
1'-6"
N
Ceiling
NDT Room
3' x 3' Grid
North Wall
West Wall
East Wall
South Wall
13'-6"
8'-0"


SU 44
North Wall
Dross Storage Room
N
Door to Bldg 7
Floor
West Wall
East Wall
South Wall

Appendix D

Results of Mg-Th Product Sampling

SEVERN TRENT STL

STL St. Louis
13715 Rider Trail North
Earth City, MO 63045

Tel: 314 298 8566 Fax: 314 298 8757
www.stl-inc.com

ANALYTICAL REPORT

SCI, Madison IL

Lot #: F4B200269

Dan Hoffman

Pangea Group, Inc.
743 Spirit 40 Park Drive
Suite 232
Chesterfield, MO 63005

SEVERN TRENT LABORATORIES, INC.

Billy Tierney
Project Manager

March 8, 2004

Case Narrative
LOT NUMBER: **F4B200269**

This report contains the analytical results for the two samples received under chain of custody by STL St. Louis on February 19, 2004. These samples are associated with your SCI, Madison IL project.

All applicable quality control procedures met method-specified acceptance criteria except as noted on the following page.

This report is incomplete without the case narrative. All chemical analysis results are based upon sample as received, wet weight, unless noted otherwise. All radiochemistry results are based upon sample as dried and ground with the exception of tritium, unless requested wet weight by the client.

Observations/Nonconformances

Reference the chain of custody and condition upon receipt report for any variations on receipt conditions and temperature of samples on receipt.

Isotopic Thorium

The sample was analyzed at a dilution due to high concentrations of target analytes. The reporting limit has been adjusted for the dilution since no analysis at a lesser dilution was performed.
Affected Samples:
F4B200269 (1): SCI METAL COMPONET SHAVINGS

Isotopic Uranium

The sample was analyzed at a dilution due to high concentrations of target analytes. The reporting limit has been adjusted for the dilution since no analysis at a lesser dilution was performed.
Affected Samples:
F4B200269 (1): SCI METAL COMPONET SHAVINGS

METHODS SUMMARY

F4B200269

PARAMETER	ANALYTICAL METHOD	PREPARATION METHOD
Gamma Spectroscopy - Cesium-137 & Hits	DOE GA-01-R MOD	
Isotopic Thorium by Alpha Spectroscopy	DOE A-01-R MOD	
Isotopic Uranium by Alpha Spectroscopy	DOE A-01-R MOD	

References:

DOE "DOE METHODS FOR EVALUATING ENVIRONMENTAL AND WASTE MANAGEMENT SAMPLES" OCTOBER 1994 US DEPARTMENT OF ENERGY

SAMPLE SUMMARY

F4B200269

WO #	SAMPLE#	CLIENT SAMPLE ID	SAMPLED DATE	SAMP TIME
F9XPD	001	SCI METAL COMPONET SHAVINGS	02/18/04	14:30
F9XPJ	002	SCI FIREBRICK-NEW	02/18/04	15:00

NOTE(S):

- The analytical results of the samples listed above are presented on the following pages.
- All calculations are performed before rounding to avoid round-off errors in calculated results.
- Results noted as "ND" were not detected at or above the stated limit.
- This report must not be reproduced, except in full, without the written approval of the laboratory.
- Results for the following parameters are never reported on a dry weight basis: color, corrosivity, density, flashpoint, ignitability, layers, odor, paint filter test, pH, porosity pressure, reactivity, redox potential, specific gravity, spot tests, solids, solubility, temperature, viscosity, and weight.

PANGEA GROUP, INC.

Client Sample ID: SCI METAL COMPONET SHAVINGS

Severn Trent Laboratories - Radiochemistry

Lab Sample ID: F4B200269-001
Work Order: F9XPD
Matrix: SOLID

Date Collected: 02/18/04 1430
Date Received: 02/19/04 1230

Parameter	Result	Qual	Total Uncert. (2 σ+/-)	MDC	Prep Date	Analysis Date	Batch #	Yld %
Iso URANIUM (SHORT CT) DOE A-01-R MOD				pCi/g	A-01-R MOD			
Uranium 234	1.3	U	3.8	6.5	03/01/04	03/03/04	4061413	100
Uranium 235	0.0	U	0.0	5.7	03/01/04	03/03/04	4061413	100
Uranium 238	0.8	U	3.2	5.9	03/01/04	03/03/04	4061413	100
Iso THORIUM (SHORT CT) DOE A-01-R MOD				pCi/g	A-01-R MOD			
Thorium 228	17		13	15	03/01/04	03/04/04	4061412	77
Thorium 230	152		30	9	03/01/04	03/04/04	4061412	77
Thorium 232	15.2		8.5	3.2	03/01/04	03/04/04	4061412	77
Gamma Cs-137 & Hits by DOE GA-01-R MOD.				pCi/g	GA-01-R MOD			
Cesium 137	-11	U	32	57	02/24/03	02/25/04	4055187	
--- Other Detected Radionuclides ---								
Actinium 228	2030		610	210	02/24/03	02/25/04	4055187	
Lead 212	1570		210	130	02/24/03	02/25/04	4055187	
Radium 228	1330		330	330	02/24/03	02/25/04	4055187	
Thallium 208	530		110	70	02/24/03	02/25/04	4055187	
Thorium 232	1490		300	200	02/24/03	02/25/04	4055187	

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re incomplete without the case narrative.

determined by instrument performance only.
esults are greater than the MDC

Result is less than the sample detection limit.

PANGEA GROUP, INC.

Client Sample ID: SCI METAL COMPONET SHAVINGS DUP

Severn Trent Laboratories - Radiochemistry

Lab Sample ID: F4B200269-001X
Work Order: F9XPD
Matrix: SOLID

Date Collected: 02/18/04 1430
Date Received: 02/19/04 1230

Parameter	Result	Qual	Total Uncert. (2 σ+/-)	MDC	Prep Date	Analysis Date	Batch #	Yld %
Gamma Cs-137 & Hits by DOE GA-01-R MOD.			pCi/g		GA-01-R MOD			
Cesium 137	5	U	36	71	02/24/03	02/25/04	4055187	
--- Other Detected Radionuclides ---								
Actinium 228	1480		480	220	02/24/03	02/25/04	4055187	
Lead 212	1710		210	70	02/24/03	02/25/04	4055187	
Radium 228	1600		370	310	02/24/03	02/25/04	4055187	
Thallium 208	600		110	60	02/24/03	02/25/04	4055187	
Thorium 232	1660		280	160	02/24/03	02/25/04	4055187	

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:e incomplete without the case narrative.

determined by instrument performance only.
esults are greater than the MDC

esult is less than the sample detection limit.

PANGEA GROUP, INC.

Client Sample ID: SCI FIREBRICK-NEW

Severn Trent Laboratories - Radiochemistry

Lab Sample ID: F4B200269-002
Work Order: F9XPJ
Matrix: SOLID

Date Collected: 02/18/04 1500
Date Received: 02/19/04 1230

Parameter	Result	Qual	Total Uncert. (2 σ+/-)	MDC	Prep Date	Analysis Date	Batch #	Yld %
Iso URANIUM (SHORT CT) DOE A-01-R MOD			pCi/g		A-01-R MOD			
Uranium 234	2.19		0.45	0.13	03/01/04	03/03/04	4061413	54
Uranium 235	0.081	U	0.097	0.12	03/01/04	03/03/04	4061413	54
Uranium 238	2.53		0.49	0.11	03/01/04	03/03/04	4061413	54
Iso THORIUM (SHORT CT) DOE A-01-R MOD			pCi/g		A-01-R MOD			
Thorium 228	2.72		0.66	0.35	03/01/04	03/04/04	4061412	49
Thorium 230	3.00		0.67	0.20	03/01/04	03/04/04	4061412	49
Thorium 232	2.91		0.65	0.14	03/01/04	03/04/04	4061412	49
Gamma Cs-137 & Hits by DOE GA-01-R MOD.			pCi/g		GA-01-R MOD			
Cesium 137	-0.01	U	0.89	1.8	02/24/03	02/25/04	4055187	
--- Other Detected Radionuclides ---								
Lead 212	3.5		1.6	1.4	02/24/03	02/25/04	4055187	
Lead 214	2.3		1.9	2.1	02/24/03	02/25/04	4055187	

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letermined by instrument performance only.
ults are greater than the MDC

sult is less than the sample detection limit.

PANGEA GROUP, INC.

Client Sample ID: SCI FIREBRICK-NEW DUP

Severn Trent Laboratories - Radiochemistry

Lab Sample ID: F4B200269-002X
Work Order: F9XPJ
Matrix: SOLID

Date Collected: 02/18/04 1500
Date Received: 02/19/04 1230

Parameter	Result	Qual	Total Uncert. (2 σ+/-)	MDC	Prep Date	Analysis Date	Batch #	Yld %
Iso THORIUM (SHORT CT) DOE A-01-R MOD			pCi/g		A-01-R MOD			
Thorium 228	1.73		0.53	0.34	03/01/04	03/04/04	4061412	43
Thorium 230	2.54		0.63	0.14	03/01/04	03/04/04	4061412	43
Thorium 232	1.98		0.53	0.14	03/01/04	03/04/04	4061412	43
Iso URANIUM (SHORT CT) DOE A-01-R MOD			pCi/g		A-01-R MOD			
Uranium 234	1.90		0.44	0.13	03/01/04	03/03/04	4061413	46
Uranium 235	0.020	U	0.056	0.11	03/01/04	03/03/04	4061413	46
Uranium 238	2.24		0.48	0.11	03/01/04	03/03/04	4061413	46

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axe incomplete without the case narrative.

s determined by instrument performance only.
results are greater than the MDC

Result is less than the sample detection limit.

METHOD BLANK REPORT

Severn Trent Laboratories - Radiochemistry

Client Lot ID: F4B200269
Matrix: SOLID

Parameter	Result	Qual	Total Uncert. (2 σ+/-)	MDC	Prep Date	Analysis Date	Lab Sample ID Batch #	Yld %
Gamma Cs-137 & Hits by DOE GA-01-R MOD.			pCi/g	GA-01-R MOD			F4B240000-187B	
Cesium 137	0.9	U	4.4	9.9	02/24/03	02/25/04	4055187	
Iso THORIUM (SHORT CT) DOE A-01-R MOD			pCi/g	A-01-R MOD			F4C010000-412B	
Thorium 228	0.0	U	0.0	0.2	03/01/04	03/04/04	4061412	66
Thorium 230	0.25	J	0.13	0.08	03/01/04	03/04/04	4061412	66
Thorium 232	0.008	U	0.035	0.075	03/01/04	03/04/04	4061412	66
Iso URANIUM (SHORT CT) DOE A-01-R MOD			pCi/g	A-01-R MOD			F4C010000-413B	
Uranium 234	0.027	U	0.042	0.061	03/01/04	03/03/04	4061413	100
Uranium 235	0.023	U	0.033	0.031	03/01/04	03/03/04	4061413	100
Uranium 238	0.026	U	0.034	0.041	03/01/04	03/03/04	4061413	100

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:e incomplete without the case narrative.

determined using instrument performance only
esults are greater than the MDC

tesult is greater than sample detection limit but less than stated reporting limit.
esult is less than the sample detection limit.

Laboratory Control Sample Report

Severn Trent Laboratories - Radiochemistry

lient Lot ID: F4B200269
atrix: SOLID

Parameter	Spike Amount	Result	Total Uncert. (2 σ+/-)	MDC	% Yld	% Rec	Lab Sample ID QC Control Limits
Gamma Cs-137 & Hits by DOE GA-01-R MOD;		pCi/g		GA-01-R MOD			F4B240000-187C
Americium 241	51000	52500	6100	100		103	(84 - 114)
Cesium 137	21600	22500	2300	100		104	(86 - 114)
Cobalt 60	33200	34100	3100	90		102	(83 - 111)
	Batch #:	4055187		Analysis Date:	02/25/04		
Iso THORIUM (SHORT CT) DOE A-01-R MOD		pCi/g		A-01-R MOD			F4C010000-412C
Thorium 230	58.5	65.1	8.2	0.7	71	111	(70 - 130)
	Batch #:	4061412		Analysis Date:	03/04/04		
Iso URANIUM (SHORT CT) DOE A-01-R MOD		pCi/g		A-01-R MOD			F4C010000-413C
ranium 234	19.6	16.7	2.5	0.4	97	85	(70 - 120)
ranium 238	19.6	16.4	2.4	0.2	97	84	(70 - 125)
	Batch #:	4061413		Analysis Date:	03/03/04		

(S)

s determined by instrument performance only
lations are performed before rounding to avoid round-off error in calcul

DUPLICATE EVALUATION REPORT

Severn Trent Laboratories - Radiochemistry

Client Lot ID: F4B200269 Date Sampled: 02/18/04
Matrix: SOLID Date Received: 02/19/04

Parameter	SAMPLE Result		Total Uncert. (2σ +/-)	% Yld	DUPLICATE Result		Total Uncert. (2 σ +/-)	% Yld	QC Sample ID Precision	
Gamma Cs-137 & Hits by DOE GA-01-R MOD.	**pCi/g**		**GA-01-R MOD**						**F4B200269-001**	
Cesium 137	-11	U	32		5	U	36		-553	%RPD
---Other Dedected Radionuclides---										
Actinium 228	2030		610		1480		480		32	%RPD
Lead 212	1570		210		1710		210		8	%RPD
Radium 228	1330		330		1600		370		19	%RPD
Thallium 208	530		110		600		110		11	%RPD
Thorium 232	1490		300		1660		280		11	%RPD
Batch #:	4055187 (Sample)				4055187 (Duplicate)					
Iso THORIUM (SHORT CT) DOE A-01-R MOD	**pCi/g**		**A-01-R MOD**						**F4B200269-002**	
Thorium 228	2.72		0.66	49	1.73		0.53	43	45	%RPD
Thorium 230	3.00		0.67	49	2.54		0.63	43	16	%RPD
Thorium 232	2.91		0.65	49	1.98		0.53	43	38	%RPD
Batch #:	4061412 (Sample)				4061412 (Duplicate)					
Iso URANIUM (SHORT CT) DOE A-01-R MOD	**pCi/g**		**A-01-R MOD**						**F4B200269-002**	
Uranium 234	2.19		0.45	54	1.90		0.44	46	14	%RPD
Uranium 235	0.081	U	0.097	54	0.020	U	0.056	46	122	%RPD
Uranium 238	2.53		0.49	54	2.24		0.48	46	12	%RPD
Batch #:	4061413 (Sample)				4061413 (Duplicate)					

E(S)

are incomplete without the case narrative.
ulations are performed before rounding to avoid round-off error in calculated results

Result is less than the sample detection limit.

Appendix E

Example Calibration Paperwork and Daily Background Calculation Records

EXHIBIT F
CHI-SQUARED DETERMINATION RECORD

Probe	43-10-1	Serial No.	PR179184
Meter	2929	Serial No.	190612

Meter Cal Due 2/3/2005 Detector Cal Due 2/3/2005 Sensitivity Alpha

Source ID	Isotope	Initial Activity (dpm)	Initial Activity Date	Half Life (y)	Date of Check	Decay Corrected Activity
84TH702287	Th-230	39400	6/17/2002	7.54E+04	9/17/2004	39400

Count	Bkgd (cpm)	Gross Source Counts, cpm (C_s)	Net CPM (C_i) ($C_s - C_b = C_i$)	(C_i - C)	(C_i - C)²
1	3	11561	11556.8	-143.5	20592
2	4	11700	11695.8	-4.5	20
3	3	11551	11546.8	-153.5	23562
4	2	11878	11874.8	174.5	30450
5	3	11800	11795.8	95.5	9130
6	3	11659	11655.8	-44.5	1979
7	3	11727	11722.8	22.5	508
8	3	11625	11620.8	-79.5	6312
9	3	11550	11545.8	-154.5	23869
10	3	11643	11658.8	-41.5	1729
11		11655	11650.8	-49.5	2449
12		11625	11620.8	[illegible]	[illegible]
13		11687	11682.8	-17.5	304
14		11861	11856.8	156.5	24498
15		11782	11777.8	77.5	6012
16		11893	11888.8	188.5	35534
17		11732	11727.8	27.5	758
18		11682	11677.8	-22.5	504
19		11757	11752.8	52.5	2762
20		11726	11721.8	21.5	465

Sum of Squares $\Sigma(C_i - C)^2$: 195309

	Background (C_b)	Source (C_s)	Net Counts (C)
Average	3.2	11704	11700.3

Check-list	avg Bkgd +/- 3σ	avg source +/- 3σ	+/- 3σ	+/- 20 %	Chi-Squared Value $\Sigma(C_i - C)^2 / C$
High	8	12006	11997	14045	16.7
Low	1	11401	11402	9364	

Source Standard Deviation (s) 101 Efficiency 30.0%

Background Standard Deviation 0.2 Correction Factor (dpm/100cm²) 2.88

[signature] 9/17/04
Performed By Date

N/A N/A
Reviewed By Date

NOTE: BACKGROUND COUNTS FOR 10 MINUTES ~~[illegible]~~ EACH

EXHIBIT F

CHI-SQUARED DETERMINATION RECORD

Probe	43-10-1	Serial No.	PR179154
Meter	2929	Serial No.	190613

Meter Cal Date 2/6/2025 Detector Cal Date 2/6/2025 Sensitivity ____ Bkg ____

Source ID	Isotope	Initial Activity (dpm)	Initial Activity Date	Half Life (y)	Date of Check	Decay Corrected Activity
SRSR-0702865	Sr-90	3360	10/7/1994	28.4	5/17/2024	2024

Count	Background (C_b)	Source (C_s)	Net Count (C)	Net CPM (C_1) ($C_1 - C_b = C_1$)	$(C_1 - C)$	$(C_1 - C)^2$
1	468	11823		10980.0	421.1	445
2	378	11694		11164.0	-247.0	61009
3	472	12034		11644.0	233.0	54289
4	308	11769		11277.0	124.1	15401
5	321	11923		11430.0	23.0	529
6	439	11916		11494.0	87.0	7569
7	452	11966		11532.0	125.1	841
8	391	11916		11454.0	47.0	2209
9	468	11976		11444.0	37.0	1369
10	605	11944		11352.0	-55.0	3025
11		11913		11238.0	-179.1	32112
12		11908		11416.0	-55.1	1324
13		11952		11425.0	31.9	1019
14		11980		11460.0	86.9	7569
15		11798		11306.0	-69.1	30744
16		11742		11250.0	-381.1	92081
17		11963		11491.0	93.9	2304
18		11761		11289.0	-387.0	21717
19		11932		11460.0	86.9	7569
20		11967		11379.0	-58.1	3381

	Background (C_b)	Source (C_s)	Net Counts (C)	Sum of Squares $\sum(C_1 - C)^2$	356994
Averages	397.00	11893	11491.1		

Checking	avg/bkgd +/- 3σ	avg source +/- 3σ	+/- 3σ	+/- 2σ %	Chi-Squared Value $(\sum(C_1 - C)^2)/C$
High	668	12273	30.968	6.272	26.9
Low	268	11514	11849	3.914	

Source Standard Deviation (σ) 134

Efficiency 32.3%

Background Standard Deviation 21.9

Correction Factor (dpm/100cpm) 3.20

Performed By

5/17/2024
Date

N/A
Reviewed By

N/A
Date

NOTE: TAKE 20 COUNTS FOR 1 MINUTES

Designer and Manufacturer of Scientific and Industrial Instruments

CERTIFICATE OF CALIBRATION
RECORD COPY

LUDLUM MEASUREMENTS, INC.
POST OFFICE BOX 810 PH. [illegible]
501 OAK STREET FAX NO. [illegible]
SWEETWATER, TEXAS 79556, U.S.A.

CUSTOMER: [illegible] GROUP ORDER NO. [illegible]

Mfg. Ludlum Measurements, Inc. Model [illegible] Serial No. 190012

Mfg. Ludlum Measurements, Inc. Model 43-[illegible] Serial No. PR 178164

Cal. Date [illegible] Cal Due Date [illegible] Cal. Interval 1 Year Meterface [illegible]

Check mark ☑ applies to applicable instr. and/or detector IAW mfg. spec. T. [illegible] °F RH [illegible] % Alt [illegible] mm Hg

☐ New Instrument Instrument Received ☑ Within Toler. +-10% ☐ 10-20% ☐ Out of Tol. ☐ Requiring Repair ☐ Other-See comments

☑ Mechanical ck. ☐ Window Operation

☑ Audio ck.

☑ Meter Zeroed Alpha Sensitivity [illegible] mV Beta Sensitivity [illegible] mV Beta Window [illegible] mV

☐ Calibrated in accordance with LMI SOP [illegible] ☐ Calibrated in accordance with LMI SOP [illegible]

Instrument Volt Set [illegible] V Input Sens. [illegible] mV High Voltage [illegible] High Voltage set with detector connected.

☑ HV Readout (2 points) Ref./Inst. [illegible] / 502 V Ref./Inst. 2000 / 2021 V

COMMENTS:

[illegible]

[illegible]

Alpha Channel Digital Readout	REFERENCE CAL POINT	INSTRUMENT RECEIVED	INSTRUMENT METER READING*
	400K cpm	40199	40199
	40K cpm	4019	4019
	4K cpm	402	402
	400 cpm	40	40
	40 cpm	4	4

Beta/Gamma Channel Digital Readout	REFERENCE CAL POINT	INSTRUMENT RECEIVED	INSTRUMENT METER READING*
	400K cpm	40007	40007
	40K cpm	4014	4014
	4K cpm	401	401
	400 cpm	40	40
	40 cpm	4	4

*Uncertainty within ±10% [illegible]

[illegible]

Reference Instruments and/or Sources:

Cs-137 Gamma S/N ☐ [illegible] ☐ [illegible] ☐ [illegible] ☐ [illegible] ☐ [illegible] ☐ [illegible] ☐ [illegible] ☐ [illegible] ☐ [illegible] ☐ [illegible] ☐ [illegible] ☐ [illegible]

☑ Alpha S/N [illegible] ☑ Beta S/N [illegible] ☐ Other [illegible]

☑ m 500 S/N [illegible] ☐ Oscilloscope S/N [illegible] ☑ Multimeter S/N [illegible]

Calibrated By: [signature] Date 8 Feb [illegible]

Reviewed By: [signature] Date 12 [illegible]

This certificate shall not be reproduced except in full, without the written approval of Ludlum Measurements, Inc. [illegible]

AC Inst. Only ☐ Passed Dielectric (Hi-Pot) and Continuity Test ☐ Failed: [illegible]

Designers and Manufacturers of Scientific and Industrial Instruments

RECORD COPY

LUDLUM MEASUREMENTS, INC.
POST OFFICE BOX 810 PH. 325-235-5494
501 OAK STREET FAX NO. 325-235-4672
SWEETWATER, TEXAS 79556, U.S.A.

Bench Test Data For Detector

Detector: 43-93 Serial No.: PR 179154

Order #: 219589/279007

Customer: PANGEA GROUP

Alpha Input Sensitivity: 175 mV

Counter: 2221 Serial No.: 190612

Beta Input Sensitivity: 4 mV

Count Time: 1 Minute

Beta Window: 50 mV

Other:

Distance Source to Detector: Tray

High Voltage	Background Alpha	Background Beta	Isotope Pu239, Size 12.6 Kcpm: Alpha	Isotope Pu239: Beta	Isotope Tc99, Size 15.6 Kdpm: Alpha	Isotope Tc99: Beta	Isotope Cl36, Size 56.7 K dpm: Alpha	Isotope Cl36: Beta
800	0	48	9864	293	2	7273	0	27948
* 875	0	53	10114	319	4	7827	0	27983
850	1	58	10179	256	4	8257	0	28554

☐ Gas Proportional detector count rate decreased ≤ 10% after 15 hour static test using 30' cable.

☐ Gas proportional detector count rate decreased ≤ 10% after 8 hour static test using 30' cable and alpha/beta counter.

Signature: [illegible] Date: [illegible]

Previous Signature

Daily Background Establishment Worksheet

Meter Model: 2221 | Meter Serial No.: 84717 | Date of Background: 9/14/04

Detector Model: 43-37 | Detector Serial No.: 177480 | Type of Surface: Concrete

Measurement Location 1

Alpha Channel	Beta Channel	Gamma Channel
N/A	[illegible]	N/A

Measurement Location 2

Alpha Channel	Beta Channel	Gamma Channel
	[illegible]	

Measurement Location 3

Alpha Channel	Beta Channel	Gamma Channel
	[illegible]	

Measurement Location 4

Alpha Channel	Beta Channel	Gamma Channel
	[illegible]	

Measurement Location 5

Alpha Channel	Beta Channel	Gamma Channel
	[illegible]	

Measurement Location 6

Alpha Channel	Beta Channel	Gamma Channel
	[illegible]	

Average Background(s)

Alpha Channel	Beta Channel	Gamma Channel
N/A	[illegible]	N/A

Note: (all measurements 1 minute counts, only mark channels that apply)

[signature]
Technician's Signature

9.14.04
Date

Appendix F

Rafter Sampling Data Summary

Building Number	Sample Number	Result	Unit	Uncertainty	MDA	Analysis	Sample Weight (g)	Total Activity (pCi)	Activity Conc. (pCi/100 cm²)
B7 Casting	R-01	43.5	pCi/g	9.8	7.0	Gross α	482.8	21002	13000
B7 Casting	R-02	9.9	pCi/g	6.9	10	Gross α	567.4	5617	3500
B7 Casting	R-03	21.8	pCi/g	7.2	6.9	Gross α	392	8546	5300
B7 Casting	R-04	17.4	pCi/g	7.3	8.2	Gross α	383.4	6671	4100
B7 Casting	R-05	24.9	pCi/g	9.3	9.2	Gross α	272.6	6788	4200
B7 Casting	R-06	40	pCi/g	11	9	Gross α	493	19720	12200
B4	R-07	76	pCi/g	15	8	Gross α	215.4	16370	10200
B4	R-08	49	pCi/g	11	8	Gross α	212.9	10432	6500
B4	R-09	79	pCi/g	14	8	Gross α	261.2	20635	12800
B4	R-10	18.9	pCi/g	8.8	11	Gross α	2.4	45	0
B4	R-11	59	pCi/g	12	7	Gross α	35.8	2112	1300
B4	R-12	64	pCi/g	12	6	Gross α	193.1	12358	7700
B6	R-13	38	pCi/g	9	5.9	Gross α	27.2	1034	600
B6	R-14	18.6	pCi/g	6.3	5.8	Gross α	199.3	3707	2300
B6	R-15	28.8	pCi/g	8.1	7.3	Gross α	33.5	965	600
B6	R-16	18.9	pCi/g	7.6	8.8	Gross α	172.1	3253	2000
B6	R-17	16.3	pCi/g	6.2	6.6	Gross α	220.8	3599	2200
B6	R-18	10.3	pCi/g	6	8.2	Gross α	199.3	2053	1300
B7	R-19	32.9	pCi/g	8.5	6.4	Gross α	249	8192	5100
B7	R-20	36.9	pCi/g	9.2	6.4	Gross α	221.7	8181	5100
B7	R-21	35	pCi/g	12	12	Gross α	225.2	7882	4900
B7	R-22	57	pCi/g	16	13	Gross α	211.3	12044	7500
B7	R-23	16.4	pCi/g	8.6	10	Gross α	269	4412	2700
B7	R-24	25	pCi/g	10	12	Gross α	255.7	6393	4000
B8	R-25	7.5	pCi/g	7.1	11	Gross α	306.6	2300	1400
B8	R-26	15.1	pCi/g	7.5	8.9	Gross α	435.9	6582	4100
B8	R-27	0.8	pCi/g	4.3	8.1	Gross α	444.3	355	200
B8	R-28	22.9	pCi/g	9.5	11	Gross α	391.7	8970	5600
B8	R-29	17.7	pCi/g	7.9	9.3	Gross α	162	2867	1800
B8	R-30	33	pCi/g	13	15	Gross α	103.6	3419	2100
B5	R-31	24.7	pCi/g	9.6	10	Gross α	61.6	1522	900
B5	R-32	14.2	pCi/g	6.9	8.2	Gross α	177.1	2515	1600
B5	R-33	259	pCi/g	33	8	Gross α	16.77	4343	2700
B5	R-34	69	pCi/g	13	8	Gross α	44.69	3084	1900
B5	R-35	78	pCi/g	13	6	Gross α	58.7	4579	2800
B5	R-36	360	pCi/g	45	9	Gross α	9.45	3402	2100
B7 Casting	R-01	43.1	pCi/g	7.9	8.4	Gross β	482.8	20809	12900
B7 Casting	R-02	19.0	pCi/g	7.9	12	Gross β	567.4	10781	6700
B7 Casting	R-03	24.0	pCi/g	7.8	11	Gross β	392	9408	5800
B7 Casting	R-04	33.3	pCi/g	8.1	10	Gross β	383.4	12767	7900
B7 Casting	R-05	34	pCi/g	10	13	Gross β	272.6	9268	5800
B7 Casting	R-06	45.3	pCi/g	8.8	9.5	Gross β	493	22333	13900
B4	R-07	49.8	pCi/g	9.6	10	Gross β	215.4	10727	6700
B4	R-08	26.6	pCi/g	8.3	11	Gross β	212.9	5663	3500
B4	R-09	24.1	pCi/g	8.7	13	Gross β	261.2	6295	3900
B4	R-10	21	pCi/g	10	15	Gross β	2.4	50	0
B4	R-11	45.9	pCi/g	9.5	11	Gross β	35.8	1643	1000
B4	R-12	32.1	pCi/g	9.9	14	Gross β	193.1	6199	3900
B6	R-13	32.1	pCi/g	7.6	9.5	Gross β	27.2	873	500

Building Number	Sample Number	Result	Unit	Uncertainty	MDA	Analysis	Sample Weight (g)	Total Activity (pCi)	Activity Conc. (pCi/100 cm²)
B6	R-14	20	pCi/g	6.4	9	Gross β	199.3	3986	2500
B6	R-15	28	pCi/g	6.9	8.8	Gross β	33.5	938	600
B6	R-16	31.7	pCi/g	9	12	Gross β	172.1	5456	3400
B6	R-17	20.3	pCi/g	7.1	10	Gross β	220.8	4482	2800
B6	R-18	13.2	pCi/g	6.3	9.5	Gross β	199.3	2631	1600
B7	R-19	23.1	pCi/g	7.3	10	Gross β	249	5752	3600
B7	R-20	34.1	pCi/g	8.4	11	Gross β	221.7	7560	4700
B7	R-21	32	pCi/g	12	16	Gross β	225.2	7206	4500
B7	R-22	51	pCi/g	16	22	Gross β	211.3	10776	6700
B7	R-23	22	pCi/g	11	17	Gross β	269	5918	3700
B7	R-24	28	pCi/g	11	16	Gross β	255.7	7160	4400
B8	R-25	39	pCi/g	12	16	Gross β	306.6	11957	7400
B8	R-26	28	pCi/g	12	18	Gross β	435.9	12205	7600
B8	R-27	-2.5	pCi/g	9.3	16	Gross β	444.3	0	0
B8	R-28	35	pCi/g	12	17	Gross β	391.7	13710	8500
B8	R-29	24	pCi/g	12	17	Gross β	162	3888	2400
B8	R-30	32	pCi/g	16	24	Gross β	103.6	3315	2100
B5	R-31	23	pCi/g	13	19	Gross β	61.6	1417	900
B5	R-32	19.5	pCi/g	9.9	15	Gross β	177.1	3453	2100
B5	R-33	95	pCi/g	12	7	Gross β	16.77	1593	1000
B5	R-34	39.3	pCi/g	7.7	8.5	Gross β	44.69	1756	1100
B5	R-35	33.8	pCi/g	5.7	5.7	Gross β	58.7	1984	1200
B5	R-36	138	pCi/g	19	13	Gross β	9.45	1304	800

Maximum Weight	567
Minimum Weight	2.4

Exhibit A
Radiological Survey Report Form

Description: Characterization of Overhead Beams

Date: 09/30/2004 | Time: 1430 | Survey No: CH-093004-01 | RWP No: N/A

Purpose of Survey (For Release Surveys Include Recipient): To quantify surface activity of overhead beams after removal of accumulated detritus.

Instrument Data — Instrument Manufacturer(s): Bicron ☐ Eberline ☐ Ludlum ☒ _____ ☐ _____ ☐

Detector Type	Detector SN	Detector Cal Due	Meter Type	Meter SN	Meter Cal Due	Sensitivities	Bkgd. (cpm)	Correction Factor	MDA (dpm)
43-10-1	PR179154	02/08/05	2929	190612	08/08/04	α	0.42	2.9	9.1
						β/γ	49.2	2.3	56.3
43-93	PR200132	02/12/05	2224	190220	02/12/05	α	14	5.4	74.8
						β/γ	139	3.0	129
44-9	PR203335	03/15/05	3	171254	03/15/05	β/γ (GM)	47	30	713
N/A	N/A	N/A	Model 19	8578	02/09/05	Exposure	N/A	N/A	N/A

Survey Results		Smearable Results				Direct Readings				
Sample Number	Description/Results	Gross α Removable CPM	Net α Removable dpm/ 100 cm²	Gross β/γ Removable CPM	Net β/γ Removable dpm/ 100 cm²	Gross α CPM	Net α dpm/ 100 cm²	Gross β/γ CPM	Net β/γ dpm/ 100 cm²	Exposure Rate uR
1	Building 7 Casting Area					12	-11	281	426	N/A
2						15	5	236	291	
3						17	16	270	393	
4						8	-32	367	684	
5						17	16	187	144	
6						15	5	246	321	
7	Building 4		N/A			14	0	269	390	
8						17	16	228	267	
9						21	38	201	186	
10						12	-11	146	21	
11						24	54	261	366	
12						16	11	220	243	
13	Building 6					17	16	229	270	
14						13	-5	217	234	
15						10	-22	193	162	

Remarks: Field Backgrounds for 43-93 generated on 9/30/04 and 10/1/04. Readings taken on 9/30/04 and 10/1/04, except for readings 33-36 Readings 33-36 taken 12/10/04. 12/10/04 Bkgds: α - 18cpm, β - 199

"NCD" = No Contamination Detected, i.e. < MDA

Technician(s) Signature / Date: Matthew Cushman / 12/10/04 N/A /

angea Review: N/A / Client Review: N/A /

Exhibit B
Radiological Survey Report Form

Description: Characterization of Overhead Beams

Date: 09/30/2004 | Time: 1430 | Survey No: CH-093004-01 | RWP No: N/A

Survey Results		Smearable Results				Direct Readings				
Sample Number	Description/Results	Gross α Removable CPM	Net α Removable dpm/ 100 cm²	Gross β/γ Removable CPM	Net β/γ Removable dpm/ 100 cm²	Gross α CPM	Net α dpm/ 100 cm²	Gross β/γ CPM	Net β/γ dpm/ 100 cm²	Exposure Rate uR
16	Building 6					12	-11	188	147	
17						6	-43	146	21	
18						11	-16	166	81	
19	Building 7					16	11	185	138	
20						13	-5	188	147	
21						12	-11	156	51	
22						9	-27	210	213	
23						14	0	170	93	
24						12	-11	196	171	
25	Building 8					13	-5	276	411	
26						12	-11	190	153	
27			N/A			11	-16	309	510	N/A
28						10	-22	187	144	
29						8	-32	166	81	
30						27	70	144	15	
31	Building 5					22	43	156	51	
32						21	38	167	84	
33						48	162	334	405	
34						24	32	268	207	
35						36	97	312	339	
36						24	32	277	234	
37										
38	N/A						N/A			
39										

Remarks: Field Backgrounds for 43-93 generated on 9/30/04 and 10/1/04. Readings taken on 9/30/04 and 10/1/04, except for readings 33-36

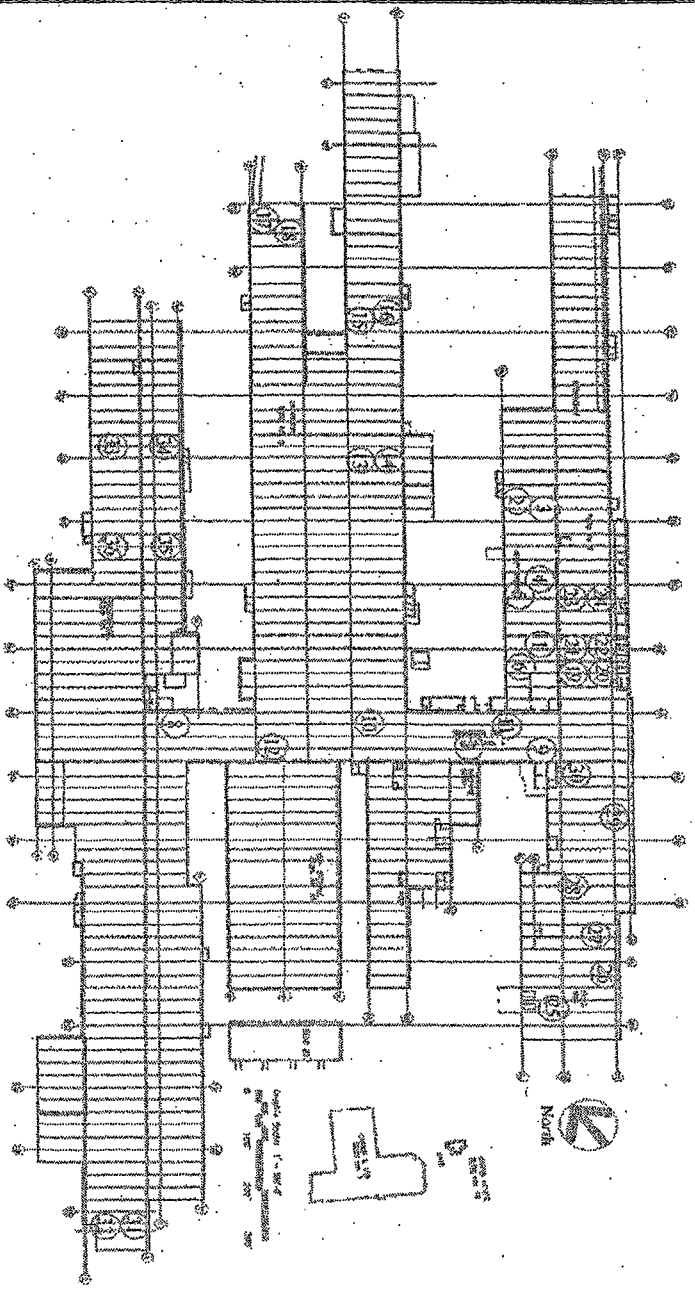
Technician(s) Signature / Date: Matthew Cushman / 12/10/04 N/A /

Engea Review: N/A / Client Review: N/A /

Exhibit C
Radiological Survey Report Form

Description: Characterization of Overhead Beams			
Date: 09/30/2004	Time: 1430	Survey No: CH-093004-01	RWP No: N/A

Survey Diagram



Legend: (#) Fixed/Removable Locations _# Exposure Rates (μR/hr) Posted Area Boundary

Remarks: The Origin of Survey Unit (0 ft E, 0 ft N) is marked by X in the SW corner of the SU.

Technician(s) Signature / Date: Matthew Cushman / 12/10/04 N/A /

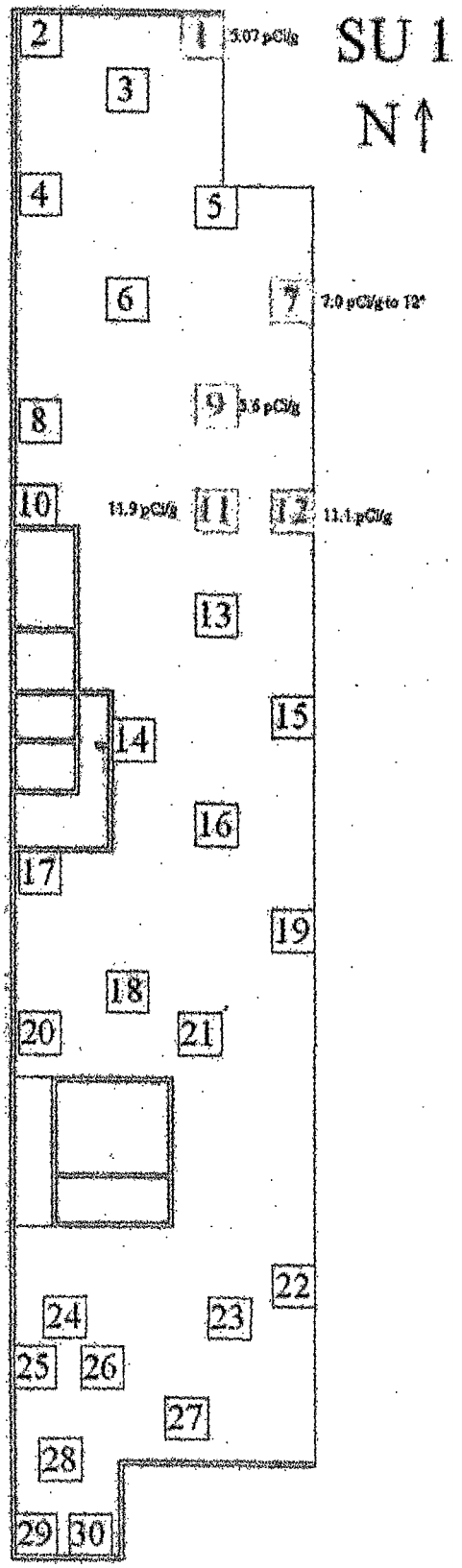
Pangea Review: N/A / Client Review: N/A /

Appendix G

Soil Sampling Data Summary

Appendix G

Soil Sampling Data Summary



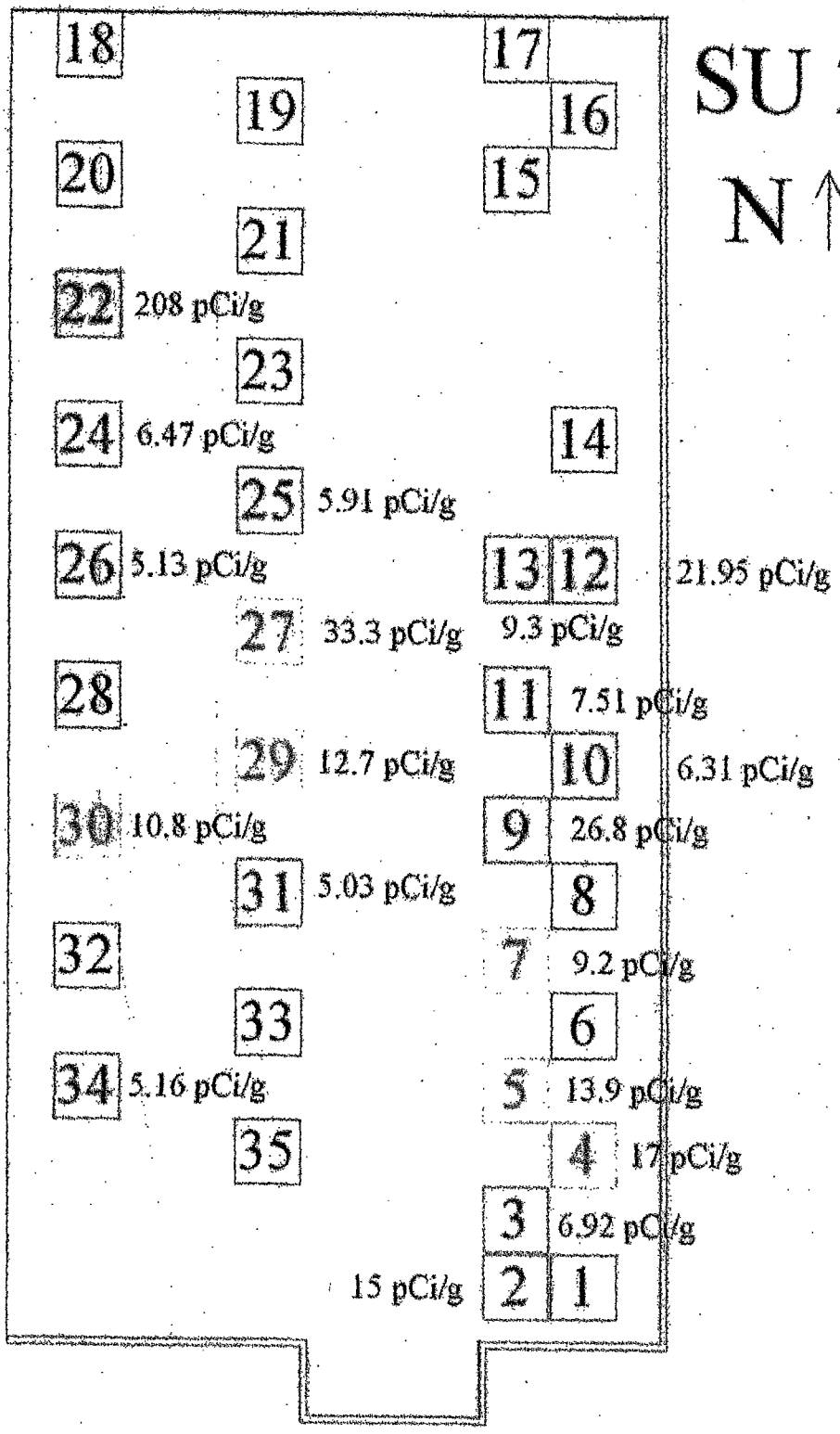
Survey Unit 1 Soil Sampling Locations

SCI Soil Characterization Data

Sample Number	Ac 228	Bi 212	Bi 214	Cs 137	Pb 210	Pb 212	Pb 214	K 40	Ra 226	Ra 224	Ra 228	Tl 208	Th 228	Th 230	Th 232	Th 234	U 238
SCI1SU0101			0.33			0.24		9			0.21	0.144	0.39	0.87	0.25		
SCI1SU0102	0.6		0.28		1.38	0.76	0.37	10.3			0.6	0.292	1.54	1.07	0.895		
SCI1SU0103	1.98	1.24	1.48			1.65	1.52	9.7			1.98	0.51	2.61	2.1	2.47	2.34	2.34
SCI1SU0103 DUP													3.22	3.5	3.41		
SCI1SU0104	1.06		1.98		1.74	0.96	2	10.4			1.06	0.35	0.79	1.38	1.06	2.49	2.49
SCI1SU0104 DUP													0.83	1.47	0.87		
SCI1SU0105			0.36			0.273	0.27	13.9			0.35	0.113	0.31	0.35	0.38		
SCI1SU0201			0.26			0.34		4.6			0.4	0.18	0.66	1.93	0.6		
SCI1SU0202						0.25	0.3				0.26	0.143	0.33	1.12	0.25		
SCI1SU0301			1.01			0.41	0.67				0.53	0.144	0.68	1.97	0.67		
SCI1SU0302	0.63		1.07			0.66	0.7	13.5			0.63	0.237	0.88	2.07	0.875		
SCI1SU0401			0.81			0.51	0.81	9.1			0.55		0.86	1.45	0.71		
SCI1SU0402			0.37			0.38	0.26	3.9			0.43	0.172	1.04	2.39	0.88		
SCI1SU0501			0.68			0.13	0.74				0.17		0.49	1.88	0.41		
SCI1SU0502	2.36		3.02		1.9	1.79	3.49	7.2			2.36	0.64	2.28	3.51	2.235		
SCI1SU0502 DUP	1.8		2.89			1.64	2.8	8.6			1.79	0.58	2.14	3.8	1.66		
SCI1SU0503 (Split)	2.9	1.4	2.51			2.64	2.47	10.2			2.93	0.69	2.82	4.81	2.92		
SCI1SU0601			0.83			0.321	0.73	5.9			0.52		0.61	3.2	0.89		
SCI1SU0601 DUP													0.8	3.1	0.61		
SCI1SU0602			1.04				1.12				0.31		0.2	3	0		
SCI1SU0602 DUP													0.12	3.5	0.44		
SCI1SU0701			0.87		1.4	0.26	0.64				0.17		0.4	3.9	0.02		
SCI1SU0702	1.25	1.91	1.62			1.28	1.89	4.4			1.25	0.45	2.4	7	1.925	2.3	2.3
SCI1SU0703			0.86			0.54	0.76	9.3			0.66	0.204	0.6	1.3	0.59		
SCI1SU0801			0.64				0.66				0.3		0.8	3.4	0.27		
SCI1SU0802			1.06				1.07	3.8			-0.04		0.12	3.4	0.09		
SCI1SU0901			0.8			0.22	0.8				0.15		0.34	2.7	0.47		
SCI1SU0902	0.93		1.81		1.3	1	2.11	3.7			0.93	0.38	1.94	3.6	1.525		
SCI1SU0903			0.88			0.57	1.09	9			0.34	0.24	0.63	1.1	0.81		
SCI1SU1001			0.49			0.22					0.21		0.4	3.7	0.24		
SCI1SU1002			0.68			0.55	0.81	6.7			0.74	0.27	0.9	4.4	0.64		
SCI1SU1101			0.87			0.38	0.71				0.33		2.2	4	0.26		
SCI1SU1102	0.95		0.77			1.22	0.96	7.5			0.95	0.49	2.2	11.3	0.575		
SCI1SU1103	1.73		1.6			1.21	2.1	10.7			1.73	0.32	1.25	2.22	1.44		
SCI1SU1104	1.43		2.76		1.8	1.5	3.14	12.6			1.43	0.58	1.23	3.82	1.33	3	3
SCI1SU1201			0.47			0.18	0.92				0.3		0.21	3.7	0.75		
SCI1SU1202	2.45		1.7		2.1	1.61	2.16	7.8			2.45	0.62	2.86	6.6	3.015		
SCI1SU1203 (Split)	3		2.3			2.46	1.72	8.9			3.01	0.7	2.2	11	3.655		
SCI1SU1204	1.06		0.9			0.88	1.14	13			1.06	0.38	0.85	1.31	1.06		
SCI1SU1205			0.84			0.88	0.85	15.3			1.05		0.8	1.18	0.97		
SCI1SU1301	1.12		1.13			0.87	0.75	5.5			1.12	0.29	1.73	3.4	1.67		
SCI1SU1302			1.92			1.1	2.11	6.9			0.99	0.27	0.47	2.03	0.91		
SCI1SU1401			0.65			0.76	0.61	9.9			0.6	0.31	0.93	2.02	1.32		

SCI Soil Characterization Data

Sample Number	Ac 228	Bi 212	Bi 214	Cs 137	Pb 210	Pb 212	Pb 214	K 40	Ra 226	Ra 224	Ra 228	Tl 208	Th 228	Th 230	Th 232	Th 234	U 238
SCI1SU1402			0.61			0.69	0.57	9.6			0.41		0.63	2.03	0.73		
SCI1SU1501	1.01		0.75			1.34	0.62	11.3			1.01	0.39	1.69	2.37	1.28		
SCI1SU1502			1.07			0.98	0.98	12			0.68	0.23	1.19	1.69	0.87		
SCI1SU1503 (Split)			0.51			0.4	0.6	8.4			0.39	0.15	1.2	1.81	0.98		
SCI1SU1503 DUP													1.03	1.77	1		
SCI1SU1601			0.85			0.67	0.74	11.3			0.83	0.19	1.01	1.42	0.91		
SCI1SU1602			0.69			0.53	0.7	10.1			0.71	0.2	0.85	1.29	0.72		
SCI1SU1701			0.48			0.88	0.71	11.1			0.91	0.37	1.1	1.91	1.05		
SCI1SU1702			0.84			0.68	1.04	11.8			1.1	0.26	0.89	1.52	1.24		
SCI1SU1801	1.12		0.84			1	0.57	9.6			1.12	0.44	1.33	2.84	1.235		
SCI1SU1802			0.77			0.59	0.51	11.7			0.56	0.21	0.83	1.56	0.72		
SCI1SU1901			0.76			0.44	0.77				0.53	0.24	0.45	1.86	0.63		
SCI1SU1902		1.04	0.4			0.55	0.54	10.7			0.79	0.24	0.76	1.09	0.75		
SCI1SU2001			0.87			0.57		9.9			0.61	0.16	0.45	1.19	0.57		
SCI1SU2002			0.4			0.41	0.39	9.2			0.52		0.55	1.6	0.5		
SCI1SU2101			0.82			0.77	0.77	10.6			0.6	0.271	0.74	1.17	0.77		
SCI1SU2101 DUP			0.82			0.74	0.88	12.1			0.7	0.128	0.76	1.12	0.65		
SCI1SU2102			0.67			0.73	0.88	10.6			0.73	0.22	0.77	1.18	0.78		
SCI1SU2103 (Split)			0.73			0.56	0.68	10.2			0.51	0.21	0.73	1.09	0.99		
SCI1SU2201			0.48			0.69	0.56	8.5			0.83	0.227	0.83	1.75	0.93		
SCI1SU2202			0.62			0.53	0.63	9.8			0.55		0.28	0.85	0.37		
SCI1SU2301	0.87		0.55			0.9	0.84	12.3			0.87	0.276	1.6	3.25	1.255		
SCI1SU2302	0.46		0.44			0.63	0.64	9.1			0.46	0.2	0.63	2.23	0.54		
SCI1SU2401	0.87		0.82			0.52	0.7	12.6			0.87		0.52	1.21	0.665		
SCI1SU2402	0.66		0.64			0.38	0.65	9			0.66		0.52	0.99	0.57		
SCI1SU2501			0.59			0.128	0.58				0.07		0.29	1.11	0.4		
SCI1SU2502			0.51			0.39	0.53	8.8			0.61	0.108	0.55	1.08	0.61		
SCI1SU2601	0.47		0.48			0.487	0.52	7.9			0.47	0.151	0.64	1.16	0.58		
SCI1SU2602			0.6			0.45	0.73	8.6			0.56	0.177	0.66	0.97	0.5		
SCI1SU2603 (Split)	0.36		0.51			0.37	0.47	8.9			0.36	0.136	0.48	0.89	0.44		
SCI1SU2701			0.53			0.32	0.46	8.1			0.18	0.146	0.78	1.19	0.37		
SCI1SU2702						0.57	0.63	8.7			0.47	0.224	0.59	0.87	0.42		
SCI1SU2801			0.62			0.57	0.75	9.1			0.51		0.57	1.2	0.41		
SCI1SU2802			0.41			0.37	0.57				0.16		0.29	0.98	0.26		
SCI1SU2901						0.19	0.42				0.4	0.103	0.28	1	0.34		
SCI1SU2902			0.4			0.31		4.7			0.51		0.31	0.7	0.35		
SCI1SU3001	1.07	1.26	0.85		2.2	1.36	0.61	9.2			1.07	0.52	1.98	4.53	1.635		
SCI1SU3001 DUP	1.44		0.63			1.54	0.72	9.5			1.44	0.4	2.18	5.12	1.785		
SCI1SU3002 (Split)			0.46			0.37	0.61	4.7			0.36		0.94	1.34	0.83		
SCI1SU3003	1.09		1.18			1.1	1.1	9.11			1.09	0.37	0.95	1.7	1.11		



Survey Unit 2 Soil Sampling Locations

SCI Soil Characterization Data

Sample Number	Ac 228	Bi 212	Bi 214	Cs 137	Pb 210	Pb 212	Pb 214	K 40	Ra 226	Ra 224	Ra 228	Tl 208	Th 228	Th 230	Th 232	Th 234	U 238
SCI2SU0101					2.7	0.31					0.31		0.4	1.32	0.56		
SCI2SU0101 DUP			0.6		2.11	0.24	0.52				0.32		0.39	1.37	0.47		
SCI2SU0102			0.37		0.95	0.334	0.44				0.41		1.71	3.24	1.57		
SCI2SU0103	1.03		0.36			0.93	0.56	[illegible]			1.03	0.36	1.16	1.55	0.87		
SCI2SU0104	1.02		0.55			0.54	0.55	[illegible]			1.02	0.29	0.86	1.18	0.81		
SCI2SU0105	0.71		0.69			0.63	0.7	[illegible]			0.71	0.23	0.69	0.71	0.7		
SCI2SU0106			0.53			0.58	0.53	[illegible]			0.82	0.31	0.59	0.97	0.74		
SCI2SU0107			0.4			0.56	0.5	[illegible]	0.59		0.39	0.18	0.62	0.73	0.65		
SCI2SU0201	5		0.98			4.36	0.91	[illegible]			5	1.71	[illegible]	[illegible]	[illegible]		
SCI2SU0202			0.73		1.01	0.86	0.81	[illegible]	0.43	2.6	0.45	0.35	1.15	1.51	0.685		
SCI2SU0203			1.64		1.7	0.69	1.92	[illegible]	1.74		0.87	0.13	1.06	2.03	1.01	1.6	1.34
SCI2SU0204	1.36		2.46		1.9	0.95	2.29	[illegible]	2.38		1.36	0.34	1.23	3.77	1.155	2.1	2.54
SCI2SU0301	3		0.89			3.59	0.83	[illegible]		4.3	2.99	1.2	4.73	[illegible]	3.61		
SCI2SU0302	0.84		1.33			0.83	1.23	[illegible]			0.84	0.26	0.9	2.08	0.93		
SCI2SU0302 DUP	0.99		1.06			0.8	1.21	[illegible]			0.99	0.31			0.99		
SCI2SU0303 (Split)			1.37			0.71	1.64	[illegible]			0.82	0.3	1.03	1.66	0.84		
SCI2SU0304						0.81	2.06	[illegible]			0.85	0.36	0.88	2.32	1.02	3	1.9
SCI2SU0401	4.7	2.6	0.45			3.88	0.66	[illegible]			4.71	1.23	[illegible]	[illegible]	4.87		
SCI2SU0402	[illegible]	3.4	0.8			[illegible]	0.77	[illegible]			[illegible]	1.95	[illegible]	[illegible]	[illegible]		
SCI2SU0403			0.83			0.89	1.01	[illegible]			1.02		0.82	1.99	1.09		
SCI2SU0501	4.5	3.3	0.67			4.25	0.88	5			4.53	1.36	[illegible]	[illegible]	[illegible]		
SCI2SU0502	3.6		0.75			3.51	1.01	[illegible]			3.65	1.23	4.57	[illegible]	4.285		
SCI2SU0503			0.89			0.65	0.74	[illegible]			0.96		0.88	1.1	0.9		
SCI2SU0601	1.48		0.51			1.5	0.63	[illegible]			1.48	0.47	2.86	3.58	2.46		
SCI2SU0602	1.12					0.77	0.59	[illegible]			1.12	0.35	1.18	1.72	1.06		
SCI2SU0602 DUP													1.19	1.7	0.94		
SCI2SU0701	3.6	3.1	0.82			3.57	0.84	3.2			3.6	1.06	[illegible]	[illegible]	[illegible]		
SCI2SU0702	[illegible]	3.3	0.7			4.32	0.8	[illegible]			[illegible]	1.27	[illegible]	3.76	[illegible]		
SCI2SU0703	1.05		0.66		1.13	0.98	0.83	[illegible]			1.05	0.36	1.18	1.47	1.095		
SCI2SU0801	2.25		0.73			1.83	0.76	[illegible]			2.25	0.62	5	2.48	3.42		
SCI2SU0801 DUP	1.99					1.73	0.81	4.8			1.99	0.65	4.94	2.3	3.345		
SCI2SU0802			0.97			0.69	1.02	[illegible]			0.41		1.02	1.28	0.93		
SCI2SU0901	[illegible]	[illegible]	1.44			[illegible]	1.78	4.7			[illegible]	3.96	[illegible]	[illegible]	[illegible]		
SCI2SU0902			0.53				0.6				0.15		3.67	2.81	3.87		
SCI2SU0903	0.79		0.92		1.3	0.74	0.75	[illegible]			0.79	0.44	1.37	1.28	0.9		
SCI2SU0904			0.7			0.78	0.75	[illegible]			0.79	0.21	1.02	1.08	0.96		
SCI2SU1001	1.73		0.53			1.63	0.54	1.7			1.73	0.52	3.77	[illegible]	2.905		
SCI2SU1002	1.67		0.72			1.6	1.03	[illegible]			1.67	0.55	1.95	3.1	1.875	1.22	1.38
SCI2SU1003 (Split)						1.21	0.79	[illegible]			1.33	0.37	1.95	2.51	1.78		
SCI2SU1101	4.6	2.4	1.36			3.97	1.13				4.62	1.18	[illegible]	[illegible]	[illegible]		
SCI2SU1102	1.28		0.64			1.25	0.63	[illegible]			1.28	0.37	1.36	1.39	1.44		
SCI2SU1103 (Split)	1.06		0.62			0.83	0.85	[illegible]			1.06	0.281	0.88	1.05	1.06		
SCI2SU1201	[illegible]	[illegible]	1.46			[illegible]	1.56	3			[illegible]	4.33	[illegible]	[illegible]	[illegible]		

SCI Soil Characterization Data

Sample Number	Ac 228	Bi 212	Bi 214	Cs 137	Pb 210	Pb 212	Pb 214	K 40	Ra 226	Ra 224	Ra 228	Tl 208	Th 228	Th 230	Th 232	Th 234	U 238
SCI2SU1202	1.3					1.45	0.65	7.7			1.3	0.37	3.18	2.66	1.805		
SCI2SU1301	3.8	2.14				3.58	0.78	1.6			3.75	1.21	8.5	4.99	3.775		
SCI2SU1302						0.19	0.79	16.6			0.31		0.76	0.91	0.59		
SCI2SU1303						0.53	0.96	16.4			0.4	0.28	0.72	0.81	0.74		
SCI2SU1304						0.64	0.99	14.5			0.95	0.23	0.9	1.09	0.79		
SCI2SU1401	1.68		1.34			1.86	1.46	5			1.68	0.66	3.34	3.3	2.625		
SCI2SU1401 DUP	1.86		1.26			2.15	1.56	6			1.86	0.73	3.47	2.9	2.505		
SCI2SU1402	1.27		1.27			0.95	1	16.6			1.27	0.28	1.03	1.5	1.33		
SCI2SU1501	0.87		0.64			0.79	0.84	14			0.87	0.3	0.72	1.32	0.86		
SCI2SU1502			0.99			0.8	0.84	16.7			0.54	0.37	0.72	1.18	0.77		
SCI2SU1503 (Split)			0.69		1.5	0.72	0.51	16.4			0.42		0.99	1.05	0.81		
SCI2SU1601			0.67			0.76	0.74	16.7			0.86		0.87	1.71	0.96		
SCI2SU1602			0.74			0.75	0.79	12.9			0.6	0.33	1	1.23	0.7		
SCI2SU1701	1.88		0.77			1.17	0.73	16.7			1.88	0.53	1.32	1.45	1.815		
SCI2SU1702	1.46		1.04			0.88	0.96	16.3			1.46	0.34	0.98	1.2	1.205		
SCI2SU1801			0.38			0.212	0.47	3.1			0.39		0.33	1.12	0.44		
SCI2SU1802			0.48			0.69	0.82	16.4			0.58	0.136	0.68	1.3	0.57		
SCI2SU1901			0.95			1.03	0.69				0.46	0.21	0.95	1.55	1		
SCI2SU1902			0.68			0.68	0.92	3.3			0.77	0.23	0.7	1.12	0.94		
SCI2SU1903 (SPLIT)			0.77			0.57	0.78	16.6			0.81		0.84	1.33	1.03	0.78	0.78
SCI2SU2001			0.6			0.66	0.88				0.85	0.25	1.06	2.31	0.99		
SCI2SU2002			0.39			0.132	0.42				0.006		0.31	0.83	0.29		
SCI2SU2101	1.32		0.67			0.73	0.7	14.7			1.31	0.37	1.06	2.05	1.295		
SCI2SU2102	0.68		0.65			0.64	0.8	13.7			0.68	0.26	0.83	1.22	0.765		
SCI2SU2103 (SPLIT)			0.7			0.75	0.8	16			0.79	0.37	0.75	0.58	0.75		
SCI2SU2201	0.97		0.78			0.64	0.77	13.4			0.97	0.183	1.16	1.78	1.12		
SCI2SU2201 DUP			0.63			0.6	0.8	2.7			0.39	0.226	1.05	2	0.98		
SCI2SU2202	22.2	15.2	3.63			22.1	3.08				22.2	7.5	10.5	20.6	15.45		
SCI2SU2203			0.36			0.35	0.58	2.45			0.26		1.3	5.97	0.83		
SCI2SU2204 (Split)			0.43			0.33	0.38	2.53			0.34	0.131	0.83	5.41	0.87		
SCI2SU2205			0.46				0.38	3.3			0.2		0.33	0.67	0.34		
SCI2SU2301	1.5		1.26			1.78	1.38	6.6			1.5	0.57	2.75	4.19	2.21		
SCI2SU2302	0.96		0.89			0.84	0.85	15.5			0.96	0.34	1.21	1.4	1.08		
SCI2SU2401	1.92		0.86			1.71	0.99				1.92	0.58	3.49	6.47	2.785		
SCI2SU2402			1			0.74	1.17	5.9			0.76	0.26	0.76	1.42	0.8		
SCI2SU2501	1.13		0.81			1.18	0.56	3.1			1.13	0.5	4.21	5.31	2.61		
SCI2SU2502	0.94	0.71	2.03		1.4	0.9	1.94	1.7			0.94	0.3	3	4.11	1.735	1.04	1.04
SCI2SU2503 (Split)	1.11		1.55			0.98	1.87				1.11	0.31	2.94	3.8	2.04	1.78	1.78
SCI2SU2601	1.37	0.99	0.59			1.4		7.1			1.37	0.39	2.59	5.03	2.11		
SCI2SU2602			0.88			0.35	0.61	4.4			0.15	0.202	0.61	1.43	0.64		
SCI2SU2701	2.39	0.89	0.54			2.28	0.62	4.8			2.39	0.82	5.01	7.51	3.53		
SCI2SU2702	6	3.8	1.94			5.2	2.01	3.5			6	1.87	11.5	10.3	5.95		
SCI2SU2703			0.43			0.53	1.05	15.3			0.38	0.24	0.62	0.96	0.68		

SCI Soil Characterization Data

Sample Number	Ac 228	Bi 212	Bi 214	Cs 137	Pb 210	Pb 212	Pb 214	K 40	Ra 226	Ra 224	Ra 228	Tl 208	Th 228	Th 230	Th 232	Th 234	U 238
SCI2SU2801	2.65	1.3				2.24		[illegible]			2.65	0.88	3.38	4.59	3.135		
SCI2SU2801 DUP	2.05		0.5			2.24	0.34	4.8			2.05	0.77			2.05		
SCI2SU2802	1.02		0.76			1.08	0.82	[illegible]			1.02	0.37	1.54	2.42	1.29		
SCI2SU2901	2.77		0.75			2.36					2.77	0.92	4.17	[illegible]	3.28		
SCI2SU2902	2.38		1.38			2.89	1.38	[illegible]			2.38	0.99	[illegible]	[illegible]	4.335		
SCI2SU2903			0.51				0.42	3.1			0.51	0.154	0.56	0.85	0.59		
SCI2SU3001	1.33		0.72			1.03	0.69				1.33	0.51	2.39	[illegible]	1.995		
SCI2SU3001 DUP													2.39	[illegible]	2.66		
SCI2SU3002	1.45		0.65			1.73	0.84	[illegible]			1.45	0.6	4.77	[illegible]	2.915		
SCI2SU3003 (Split)	1.19		0.55			1.26	0.69	[illegible]			1.19	0.4	3.54	[illegible]	2.66		
SCI2SU3004			0.5					4.1			0.13		0.25	0.78	0.29		
SCI2SU3005			0.91			0.51	0.73	[illegible]			0.64	0.111	0.59	0.78	0.43		
SCI2SU3101	2.07	1.9	0.77			2.32	0.67	5			2.07	0.82	4.39	[illegible]	3.2		
SCI2SU3102	0.74		1.65			1.29	1.59	[illegible]			0.74	0.38	1.36	1.99	1.11		
SCI2SU3301	0.81		0.79			0.55	0.54	[illegible]			0.81	0.31	1.94	4.29	1.46		
SCI2SU3302	0.81		0.59			0.72	0.83	[illegible]			0.81	0.14	0.71	1.84	0.775		
SCI2SU3401	1.31		0.6			1.43		[illegible]			1.31	0.52	2.88	[illegible]	2		
SCI2SU3402						0.73	0.73	[illegible]			0.57	0.19	0.89	1.68	0.97		
SCI2SU3501	1.02		0.54			1.14	0.72	[illegible]	0.54		1.02	0.36	2.36	3.77	1.7		
SCI2SU3502			0.62			0.25	0.8	[illegible]			0.52		0.3	1.28	0.54		

SCI Soil Characterization Data

Sample Number	Ac 228	Bi 212	Bi 214	Cs 137	Pb 210	Pb 212	Pb 214	K 40	Ra 226	Ra 224	Ra 228	Tl 208	Th 228	Th 230	Th 232	Th 234	U 238
SCI3SU0101	0.8		0.63			0.79	0.68	[illegible]			0.8		1.08	1.95	0.97		
SCI3SU0101 DUP			0.59			0.73		[illegible]			0.53	0.21	1.06	1.53	0.87		
SCI3SU0102			0.69			0.7	0.74	[illegible]			0.81	0.34	1.37	1.18	0.99		
SCI3SU0201			0.75			0.68	0.58	[illegible]			0.82	0.27	0.97	1.64	0.98		
SCI3SU0202			0.59			0.85	0.65	[illegible]			0.66	0.24	0.76	1.17	0.96		
SCI3SU0301	0.67		0.72		1.09	0.62	0.71	[illegible]			0.67	0.29	1.16	1.76	0.795		
SCI3SU0302			0.67			0.36	0.58	3.9			0.47	0.192	0.98	1.55	0.72		
SCI3SU0401			0.81			0.76	0.81	[illegible]			0.85	0.28	0.94	1.15	0.72		
SCI3SU0402			0.3			0.183	0.4				0.17		0.29	1.44	0.47		
SCI3SU0501			0.46				0.41				0.25		0.33	1.28	0.3		
SCI3SU0502			0.34			0.14	0.39				0.28		0.001	0.78	0.138		
SCI3SU0503 (Split)			0.34			0.135	0.46				0.04		0.2	0.77	0.088		
SCI3SU0601	4.1	2.3	1.18			4.14	1.38	[illegible]			4.1	1.44	[illegible]	[illegible]	[illegible]		
SCI3SU0602	[illegible]	2.4	1.71			4.54	1.6	[illegible]			[illegible]	1.41	[illegible]	[illegible]	[illegible]		
SCI3SU0603	1.12		0.84			1	0.97	[illegible]			1.12	0.31	1.05	1.43	1.17		
SCI3SU0604			0.53			0.61		[illegible]			0.89		1	1.09	0.85		
SCI3SU0701	1.92	1.56	0.93			1.75	0.9	[illegible]			1.92	0.62	4.49	[illegible]	3.175		
SCI3SU0702	0.8		0.91			0.9	0.7	[illegible]			0.8		1.62	2.21	0.97		
SCI3SU0801			1.76			0.22	1.6	1.8			0.39		1.12	3.51	1.11		
SCI3SU0802			0.62			0.65	0.76	[illegible]			0.67		0.74	1.12	0.67		
SCI3SU0901	2.09	1.42	0.73				0.84	[illegible]			2.09	0.6	3.46	4.25	2.89		
SCI3SU0902			0.45			0.71	0.85	[illegible]			1.28	0.216	0.67	1.16	0.76		
SCI3SU1001	2.92	2.7	0.97			2.8	0.95	[illegible]			2.92	1.12	[illegible]	[illegible]	4.395		
SCI3SU1002	0.73		0.83			0.86	0.94	[illegible]			0.73	0.31	0.88	1.14	0.76		
SCI3SU1002 DUP	0.7		0.71			0.79	0.62	[illegible]			0.7	0.23	0.65	1.19	0.695		
SCI3SU1101	[illegible]	4.8	1.08			[illegible]	1.47	[illegible]			[illegible]	2.74	[illegible]	[illegible]	[illegible]		
SCI3SU1102	[illegible]	[illegible]	4.04			[illegible]	4.34	[illegible]			[illegible]	[illegible]	[illegible]	[illegible]	[illegible]		
SCI3SU1103 (Split)	[illegible]	[illegible]	3.2			[illegible]	4.16				[illegible]	[illegible]	[illegible]	[illegible]	[illegible]		
SCI3SU1104	1.06		1.37			1.03	0.62	[illegible]			1.06	0.31	1.03	3.25	0.965		
SCI3SU1201	2.32	1.74	0.94			2.63	1.04	[illegible]			2.32	0.78	3.32	[illegible]	2.715		
SCI3SU1202			0.81			0.87	0.88	[illegible]			0.91	0.3	0.85	1.51	0.98		
SCI3SU1301	0.59		0.56		2	1.04	0.72	[illegible]			0.59	0.26	1.11	1.68	0.965		
SCI3SU1302	3.1		1.03			3.35	1.11	[illegible]			3.1	1.19	4.28	4.68	3.75		
SCI3SU1303	[illegible]	[illegible]	1.05			[illegible]	1.69	[illegible]			[illegible]	2.45	[illegible]	4.02	[illegible]		
SCI3SU1304	1.42		1.06			1.31	1.05	[illegible]			1.42	0.5	1.54	2.59	1.6		
SCI3SU1401	1.12		0.82			1.18	0.9	[illegible]	0.82		1.12	0.39	1.38	2.68	1.205		
SCI3SU1402	2.28	2	0.84			2.04	0.77	[illegible]			2.28	0.78	3.26	[illegible]	2.83		
SCI3SU1403			0.7			1.06	0.64	[illegible]			0.86	0.42	1.74	2.88	1.95		
SCI3SU1601	2.16	1.5	0.53			1.59	0.62	[illegible]			2.16	0.51	2.73	[illegible]	2.795		
SCI3SU1602 (Split)	2.08	1.36	0.71			1.69	0.67	[illegible]			2.08	0.52	2.11	[illegible]	2.35	1.28	1.28
SCI3SU1603	0.76		0.67			0.74	0.73	3.2			0.76	0.26	1.82	4.99	1.32		
SCI3SU1701			1.36			0.53	1.39	2.9			0.5		0.78	1.76	0.76		
SCI3SU1701 DUP			1.23			0.43	1.32				0.44	0.176	0.79	2.4	0.96		

SCI Soil Characterization Data

Sample Number	Ac 228	Bi 212	Bi 214	Cs 137	Pb 210	Pb 212	Pb 214	K 40	Ra 226	Ra 224	Ra 228	Tl 208	Th 228	Th 230	Th 232	Th 234	U 238
SCI3SU1702			0.95			0.72	0.77	12.2			0.66	0.243	0.95	2.25	0.92		
SCI3SU1801	1.29		0.36			1.08	0.58	5.7			1.29	0.44	1.78	3.45	1.48		
SCI3SU1802	8	5.2	0.89			9	0.97	10.0			8.1	2.97	12.1	20.3	9.3		
SCI3SU1803			1.14			0.93	1.26	12.9			0.9	0.28	1.04	1.5	1.03		
SCI3SU1803 DUP			0.99			0.74	1.28	8.7			0.85	0.3					
SCI3SU1804	0.79		2.39			1.18	2.5	9.9			0.79	0.33	1.45	3.27	1.035	2.74	2.74
SCI3SU1901			1.01			0.37	1.23	8.3			0.57	0.24	1.05	2.04	1.19		
SCI3SU1902			0.69			0.68	1.07	11.8			1.2		1.03	1.34	0.86		
SCI3SU2001	1.33		0.67			1.27	0.85	7.3			1.33	0.33	2.5	4.64	1.845		
SCI3SU2002			0.84			0.85	0.69	7.7			1.07	0.35	0.74	1.11	0.92		
SCI3SU2003 (Split)			0.63			0.68		15.2			0.6		0.77	1.47	0.8		
SCI3SU2101			0.35			0.26					0.27	0.192	0.58	2.42	0.6		
SCI3SU2102			0.4			0.08	0.4	3			0.22		0.2	0.75	0.24		
SCI3SU2201	4.1		0.87			4.29	0.51	10.2		5.2	4.11	1.39	7.5	10.8	5.375		
SCI3SU2202			0.7			0.86	0.85	11.7			1.16	0.41	1.04	1.36	1.07		
SCI3SU2301			0.45			0.084	0.41	1.34			0.16		0.48	1.85	0.51		
SCI3SU2302			0.77			0.164	0.8	2.2			0.16		0.61	1.24	0.61		
SCI3SU2401	1.82		0.97			1.66	0.91	10.2			1.82	0.6	2.65	5.45	2.215		
SCI3SU2402			0.99			0.95	0.7	9.1			1.55	0.54	1.96	3.29	1.84		
SCI3SU2501			1.08			1.03	0.89	15.5			1.05	0.47	2.13	4.31	1.73		
SCI3SU2502 (Split)			1.03			0.64	1.19				1.05	0.34	1.73	4.65	1.52		
SCI3SU2503			0.59			0.166	0.57				0.05		0.26	1.43	0.38		
SCI3SU2701	1.65		0.65			1.16	0.86	2.7			1.65	0.56	3.08	5.6	2.325		
SCI3SU2702			0.72			0.43	0.74				0.71	0.17	2.33	3.8	1.91		
SCI3SU2703	1.26		0.59			0.98	0.83	14.9			1.26	0.37	0.108	0.62	1.26		
SCI3SU2704			0.63				0.34				-0.08		0.62	0.92	0.35		
SCI3SU2801	7.2	4.6	1.52			7.58	1.63				7.2	2.7	17	46.3	11.7		
SCI3SU2801 DUP	7.9	5.5	1.78			8.58	1.97	9.5			7.9	2.27	18.1	49.2	13		
SCI3SU2802			0.79			0.55	0.76	12			0.66		1.11	1.19	0.9		
SCI3SU2901			0.74			0.53	0.74				0.69	0.2	1.72	4.64	1.68		
SCI3SU2902			0.53								0.39		0.34	1.37	0.33		
SCI3SU3001			1.09			0.46	0.99	7.2			0.7		0.92	2.71	0.77		
SCI3SU3002	1.26		0.83		1.7	0.87	0.94	10.3			1.26	0.27	1	1.57	1.185		
SCI3SU3003 (Split)			0.43			0.47	0.91	9.7			0.75		1.1	1.39	0.98		
SCI3SU3101			0.64			0.48	0.64	3.3			0.69	0.206	1.51	3.46	1.35		
SCI3SU3102			0.31			0.123	0.36				0.17		0.17	1.39	0.22		
SCI3SU3201	1.54		0.87			1.31	0.85	6			1.54	0.5	3	3.91	2.285		
SCI3SU3202			0.69			0.78	0.71	14.4			0.86	0.31	0.84	1.37	0.87		
SCI3SU3301			0.57			0.21	0.54				0.33		1.07	2.49	0.99		
SCI3SU3302							0.3				0.14		0.12	0.98	0.19		
SCI3SU3401			0.41			0.57	0.52	7			0.45	0.159	1.18	1.94	1.15		
SCI3SU3402			0.9			1.01	0.92	13.2			1.2	0.34	1.13	1.73	1.1		

SU 3

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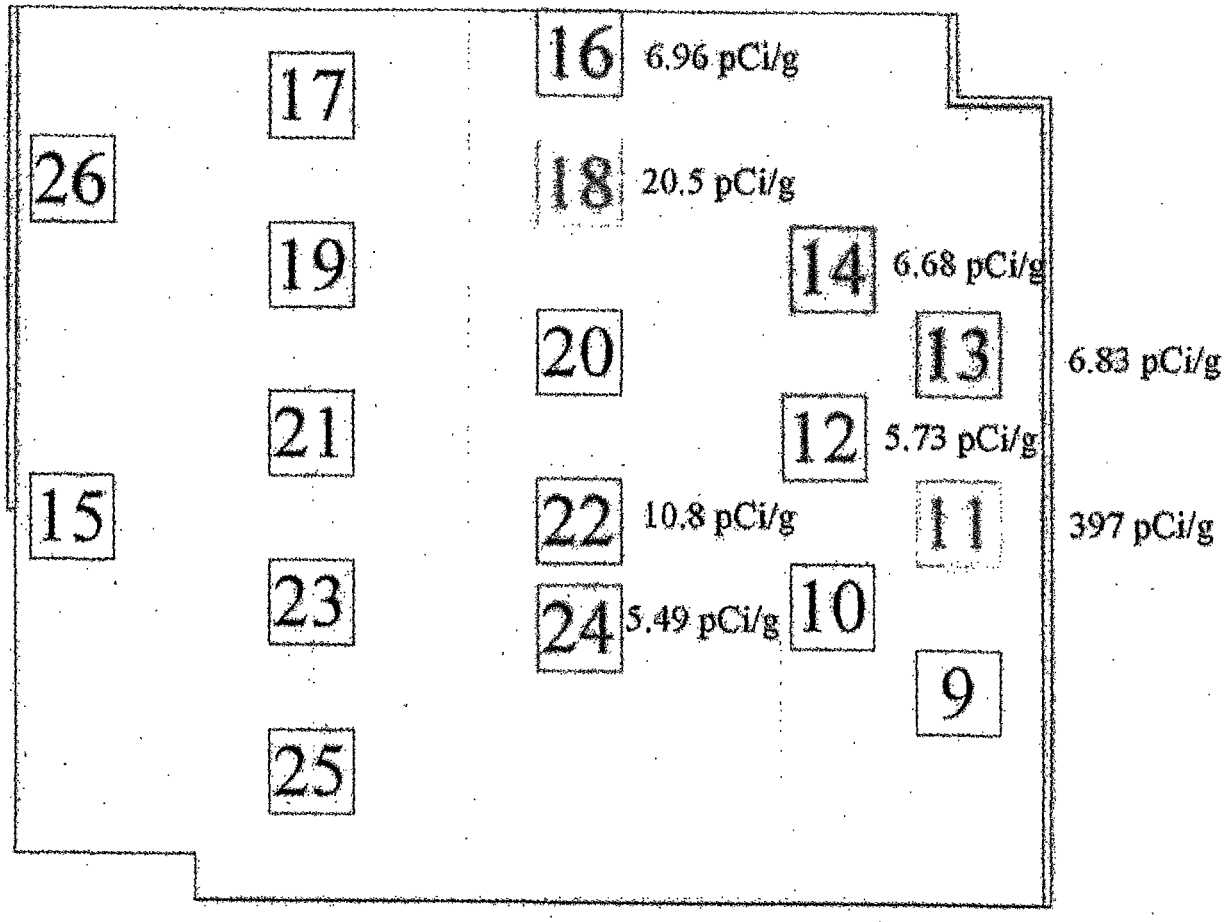


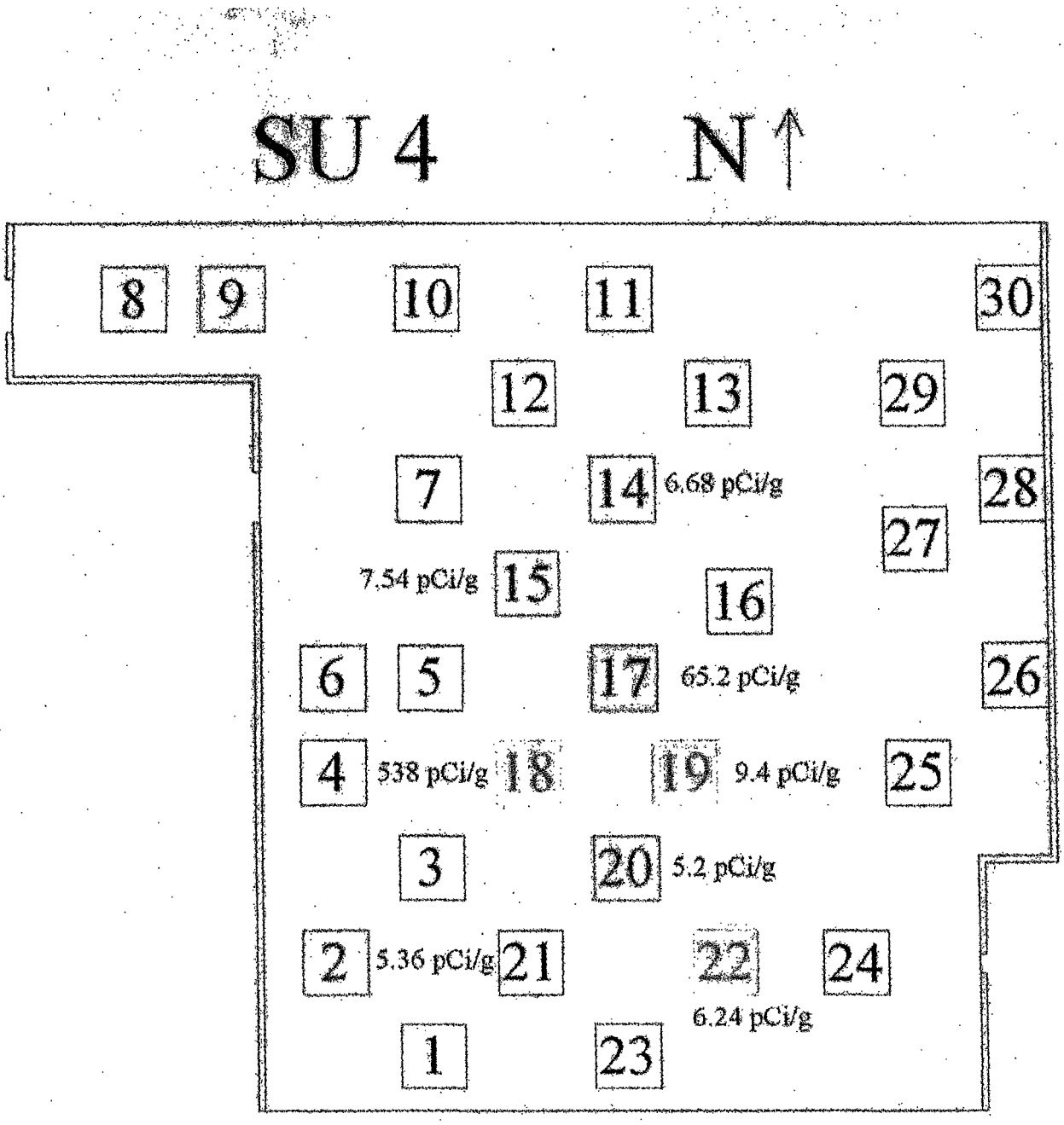
Survey Unit 3 Soil Sampling Locations

SCI Soil Characterization Data

Sample Number	Ac 228	Bi 212	Bi 214	Cs 137	Pb 210	Pb 212	Pb 214	K 40	Ra 226	Ra 224	Ra 228	Tl 208	Th 228	Th 230	Th 232	Th 234	U 238
SCI4SU0101			0.79		1.62	0.37	0.82	[illegible]			0.55	0.14	1	1.51	0.88		
SCI4SU0102	0.93		0.79			1.06		[illegible]			0.93	0.25	0.74	1.64	0.825		
SCI4SU0103			0.73			0.65	0.82	[illegible]			0.35	0.24	1.1	1.74	0.86	1.31	1.31
SCI4SU0201	0.95		1.46			0.79	1.85	4.6			0.95	0.25	1.47	[illegible]	1.105		
SCI4SU0202	1.34		2.27			0.99	2.94	[illegible]			1.34	0.35	1.14	2.9	1.24		
SCI4SU0301			0.75			0.43	0.84	5			0.56	0.16	0.79	3.32	0.92		
SCI4SU0302	0.45		0.71			0.71	0.88	[illegible]			0.45	0.24	1	1.79	0.62		
SCI4SU0401	0.42		0.74			0.51	0.69				0.42	0.17	1.23	3.91	0.735		
SCI4SU0402	1.43		0.7			0.96	0.6	[illegible]			1.43	0.34	1.34	2.29	1.295		
SCI4SU0501			0.47			0.21	0.57	[illegible]			0.33		0.56	1.38	0.54		
SCI4SU0502	1.32		0.97			0.99	1.28	[illegible]			1.32	0.38	0.89	1.12	1.195		
SCI4SU0601			0.7			0.22		3.2			0.13		0.49	1.31	0.47		
SCI4SU0602			0.92			0.56	1.1	[illegible]			0.45	0.24	0.89	1.35	0.62		
SCI4SU0701			0.54			0.81	0.85				1	0.201	1.37	2.85	1.7		
SCI4SU0702			0.74			0.34	0.68	[illegible]			0.24	0.186	0.49	1.48	0.53		
SCI4SU0801			0.94			0.82	0.79	[illegible]			0.59	0.16	0.93	1.31	0.87		
SCI4SU0802			0.79			0.66	0.89	[illegible]			0.69	0.3	0.84	2.19	0.87		
SCI4SU0901			0.86			0.98	0.87	[illegible]			0.73	0.28	1.05	1.93	0.95		
SCI4SU0901 DUP	0.5		1.07			0.83	1.2	[illegible]			0.5	0.31	0.83	1.89	0.5767		
SCI4SU0902	1.09		1.1			1.02	0.94	[illegible]			1.09	0.35	1.29	1.66	0.93		
SCI4SU1001	1.64		0.78			1.54	0.7	[illegible]			1.64	0.41	1.63	4.4	1.755		
SCI4SU1002			0.94			0.93	1.46	[illegible]			0.67	0.4	0.83	1.67	0.94		
SCI4SU1003 (Split)			1.1			1	1.35	[illegible]			1.54	0.28	0.91	1.69	0.91		
SCI4SU1101			0.62			0.67	0.79	[illegible]			0.74	0.14	1	2.62	1.06		
SCI4SU1102			0.75			0.73	0.63	[illegible]			0.81	0.25	0.82	1.73	0.77		
SCI4SU1201			0.83			0.44	0.83	3.5			0.4	0.15	1.02	1.76	0.87		
SCI4SU1202			0.82			0.19	0.66	5			0.11	0.142	0.67	1.38	0.64		
SCI4SU1301			0.76			0.84	0.8	[illegible]			1.01	0.26	0.8	1.32	0.64		
SCI4SU1302			0.5			0.91	0.71	[illegible]			0.89	0.25	1	1.85	0.95		
SCI4SU1401	0.69		0.83			0.73	0.86	2.4			0.69	0.23	2.27	[illegible]	1.41		
SCI4SU1402			1.14			0.84	1.04	[illegible]			0.79	0.38	1.5	3.69	1.4		
SCI4SU1501	1.15		0.73			0.76	0.69	3			1.14	0.27	2.29	[illegible]	1.64		
SCI4SU1501 DUP			0.62			0.61	0.63				0.68	0.306	2.03	[illegible]	2.16		
SCI4SU1502			0.52			0.28	0.68				0.48		0.62	1.29	0.55		
SCI4SU1601			0.5			0.63	0.77	[illegible]			0.53	0.24	0.92	2.01	0.83		
SCI4SU1602	0.7		0.5			0.25		[illegible]			0.7		0.52	1.17	0.62		
SCI4SU1701	[illegible]	[illegible]	1.04			[illegible]	0.86	4.9			[illegible]	3.39	[illegible]	[illegible]	[illegible]		
SCI4SU1702 (Split)	[illegible]	[illegible]	1.11			[illegible]	1.26	[illegible]			[illegible]	4.2	[illegible]	[illegible]	[illegible]		
SCI4SU1703	1.96		0.74			1.69	0.89	[illegible]			1.96	0.7	2.84	[illegible]	2.385		
SCI4SU1704	0.96		1.71			1.09	1.81	[illegible]			0.96	0.43	1.33	2.25	1.07	1.45	1.45
SCI4SU1705			1.36			1.04	1.43	[illegible]			0.85	0.3	1.02	2	0.79		
SCI4SU1801	[illegible]	[illegible]	3.38			[illegible]	3.4				[illegible]	[illegible]	[illegible]	[illegible]	[illegible]		
SCI4SU1801 DUP													[illegible]	[illegible]	[illegible]		

SCI Soil Characterization Data

Sample Number	Ac 228	Bi 212	Bi 214	Cs 137	Pb 210	Pb 212	Pb 214	K 40	Ra 226	Ra 224	Ra 228	Tl 208	Th 228	Th 230	Th 232	Th 234	U 238
SCI4SU1802	4.1	3	1.12			4.25	0.73				4.12	1.49	[illegible]	[illegible]	[illegible]		
SCI4SU1803			0.61			0.377	0.8	3			0.46	0.118	0.56	4	1.1		
SCI4SU1901	1.96	1.26	1		2.3	2.13	1.24	4			1.96	0.54	4.07	[illegible]	3.25		
SCI4SU1902	3.9		1.28			3.56	1.16	[illegible]			3.88	1.17	4.86	[illegible]	4.045		
SCI4SU1903			2.03			0.99	2.14	[illegible]			1.2	0.49	1.14	2.5	0.97		
SCI4SU1904			0.8			0.88		[illegible]			0.91	0.35	0.72	1.31	0.86		
SCI4SU2001	1.19		0.66			1.49	0.69	4.3			1.19	0.53	3.29	[illegible]	2.205		
SCI4SU2002	0.89		1.01			0.67	1.17	[illegible]			0.89	0.29	0.92	2.51	0.945		
SCI4SU2101			0.6			0.252	0.57	2.7			0.3	0.137	0.54	2.23	0.54		
SCI4SU2102			0.86			0.3	0.79	[illegible]			0.6		0.51	1.83	0.43		
SCI4SU2201	1.46		0.53			1.16	0.76	4.9			1.46	0.41	2.46	[illegible]	1.835		
SCI4SU2202	1.82		0.93		1.3	1.8	1.13	[illegible]			1.82	0.59	2.64	[illegible]	2.235		
SCI4SU2203 (Split)	2.36	2.37	1.18			2.01	1.42	[illegible]			2.36	0.56	3.64	[illegible]	2.79		
SCI4SU2204			0.79			0.75	0.69	[illegible]			1.08	0.29	0.78	1.87	0.69		
SCI4SU2205			0.46			0.69	0.54	[illegible]			0.34	0.25	0.71	0.7	0.66		
SCI4SU2301	1.34		0.63		1.4	1.09	0.8	4.3			1.34	0.37	2.48	4.92	1.71		
SCI4SU2302	0.99		0.83			1.07	1.07	[illegible]			0.99	0.44	1.41	2.28	1.355		
SCI4SU2302 DUP	1.2		0.88			1.43	1.34	[illegible]			1.2	0.43	1.93	2.64	1.395		
SCI4SU2401			0.69			0.61	0.64	[illegible]			0.71	0.27	1.08	1.49	0.93		
SCI4SU2402			0.78		2.5	0.83	0.94	[illegible]			1.14		1.19	1.38	1.05		
SCI4SU2501			0.89			0.75	0.76	[illegible]			0.87	0.18	1.1	1.92	0.99		
SCI4SU2502			0.79			0.96	0.78	[illegible]			0.93	0.33	0.88	1.63	0.81		
SCI4SU2601			0.19			0.147	0.38	4.1			0.26	0.08	0.54	1.61	0.38		
SCI4SU2602			0.32			0.208	0.48				0.32		0.25	0.62	0.34		
SCI4SU2701			0.64			0.35	0.43				0.54	0.212	0.59	1.42	0.44		
SCI4SU2702			0.59			0.53	0.67	[illegible]			0.32	0.201	0.69	1.41	0.49		
SCI4SU2703 (Split)			0.62			0.37	0.66	[illegible]			0.29	0.254	0.71	1.26	0.63	0.8	0.8
SCI4SU2801			0.71			0.44		[illegible]			0.34		0.57	1.25	0.53		
SCI4SU2802			0.79			0.49	0.81	[illegible]			0.47		1.35	2.07	1.15		
SCI4SU2901			0.59			0.7	0.61	[illegible]			0.85		0.8	1.64	0.73		
SCI4SU2902			0.25			0.212		[illegible]			0.26	0.107	0.31	0.94	0.39		
SCI4SU3001			0.44			0.4		[illegible]			0.54	0.167	0.54	0.79	0.33		
SCI4SU3002	0.5		0.61			0.47	0.4	[illegible]			0.5	0.126	0.59	0.82	0.55	0.45	0.45
SCI4SU3003 (Split)			0.54			0.76	0.62	[illegible]			1.03		0.68	2.13	0.72		
SCI4SU3003 DUP													0.51	1.72	0.73		



Survey Unit 4 Soil Sampling Locations

SCI Soil Characterization Data

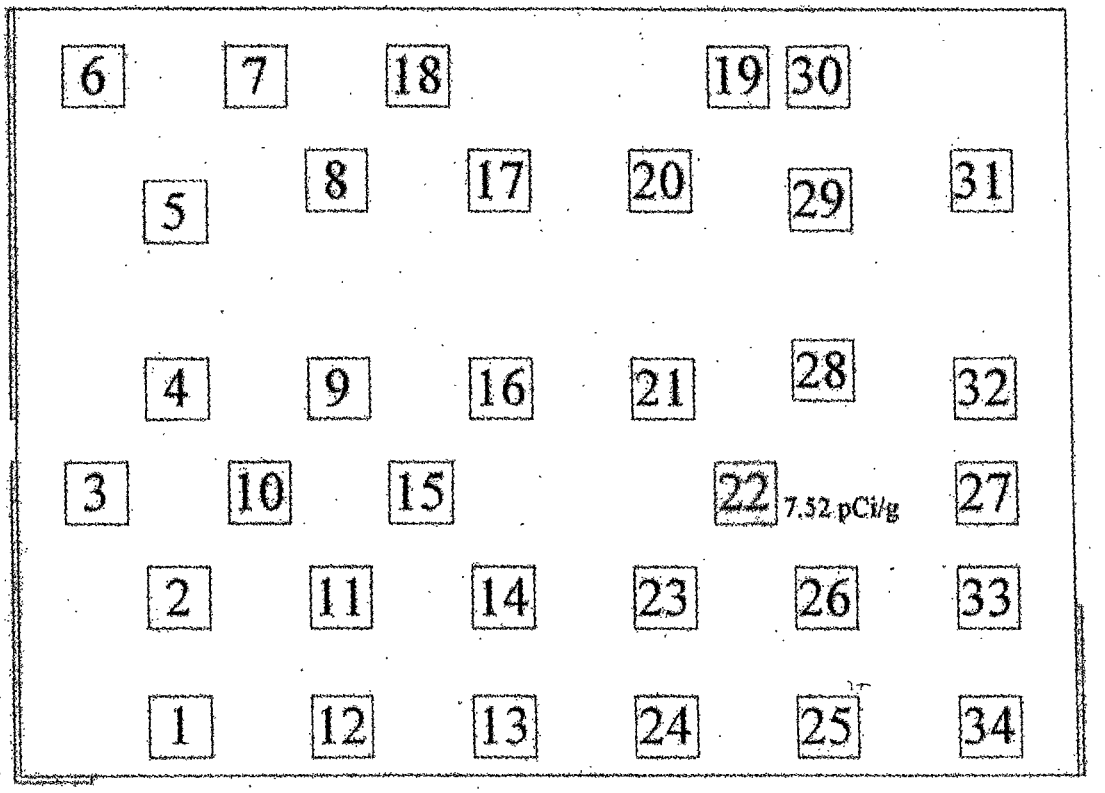
Sample Number	Ac 225	Bi 212	Bi 214	Cs 137	Pb 210	Pb 212	Pb 214	K 40	Ra 226	Ra 224	Ra 228	Tl 208	Th 228	Th 230	Th 232	Th 234	U 238
SCI5SU0101			0.28			0.38	0.58	3.9			0.3	0.21	0.79	1.31	0.55		
SCI5SU0102			0.63			0.43	0.54	16.3			0.55	0.254	0.55	1.28	0.46		
SCI5SU0201			0.44			0.47	0.51	4.4			0.39		0.7	1.77	0.56		
SCI5SU0202			0.59			0.52	0.58	9.1			0.85	0.18	0.6	1.05	0.56		
SCI5SU0301			1.02			0.4	0.93	8.3			0.53	0.13		1.47	0.65		
SCI5SU0302			0.74			0.58	0.61	12.3			0.52	0.223	0.71	1.59	0.58		
SCI5SU0401			0.6			0.8	0.6	13.8			0.9		0.74	1.32	0.87		
SCI5SU0402			0.54			0.71	0.66	16.5			0.3	0.27	1.02	1.43	0.87		
SCI5SU0501			0.5			0.55	0.68	7.8			0.29	0.202	0.48	1.04	0.44		
SCI5SU0502			0.3			0.27	0.31				0.2		0.22	0.42	0.37		
SCI5SU0601	0.94		0.73		2.4	0.53	0.74	10.7			0.94	0.29	0.72	1.14	0.79		
SCI5SU0602			0.8			0.54	0.91	15.2			0.85	0.42	0.81	1.75	0.78		
SCI5SU0701			0.56			0.93	0.85	15			0.64		0.87	1.58	1.07		
SCI5SU0702			1.18			0.87	0.77	17.3			0.55	0.46	0.99	1.38	0.99		
SCI5SU0801	1		0.68			1.13	0.62	9.3			1	0.46	0.98	3.41	1.005		
SCI5SU0802			0.86			0.64	0.94	12.5			0.46		1.02	1.31	0.89		
SCI5SU0803 (Split)			0.41			0.63	0.72	14.3			0.29	0.24	0.69	1.15	0.97	0.82	0.82
SCI5SU0901			1.07			1.37	1				1.15	0.3	1.07	1.11	0.92		
SCI5SU0902	1.17					0.93	1.22	15.2			1.17	0.36	1.05	1.66	0.935		
SCI5SU1001			0.53			0.62	0.88	7.7			0.45	0.201	0.73	1.28	0.67		
SCI5SU1001 DUP			0.72			0.66	0.77	15.7			0.59	0.17	0.73	1.27	0.77		
SCI5SU1002			0.87			0.5	0.85	8.8			0.58		0.86	1.13	0.81		
SCI5SU1101			1.07			0.5	0.75	7.9			0.76	0.17	0.7	1.22	0.67		
SCI5SU1102			0.66			0.71	0.72	10.3			0.65	0.22	0.7	1.16	0.59		
SCI5SU1201			0.68			0.74	0.61	10.8			0.84	0.26	0.74	1.17	0.67		
SCI5SU1202	1.21					1.02	1.13	15.2			1.21	0.3	1.16	1.26	1.14		
SCI5SU1301			0.63			0.42	0.56	5.9			0.53	0.111	1.13	2.52	0.93		
SCI5SU1302			0.76			0.77	0.79	15.7			0.92		0.83	1.64	0.76		
SCI5SU1303 (Split)			0.63			0.52	0.68	11.5			0.9	0.22	0.88	1.74	0.94		
SCI5SU1401			0.7			0.62	0.92	11.8			0.54	0.253	0.85	2.12	0.68		
SCI5SU1402			0.97			0.65		9.6			0.48		0.84	1.97	0.72		
SCI5SU1501			0.5			0.178	0.71				0.06		0.32	1.34	0.32		
SCI5SU1502			0.84			0.13	0.89				-0.07		0.25	0.97	0.29		
SCI5SU1601	1.12		0.78			0.98	0.71	2.7			1.12	0.49	1.87	4.33	1.415		
SCI5SU1602			0.85			0.81	0.81				1.2		0.93	1.68	0.95		
SCI5SU1609 (Split)			1.2			1.12	0.98				1.35		0.85	1.84	0.84		
SCI5SU1701	0.87		0.78			1.31	0.69	5			0.87		1.7	4.79	1.13		
SCI5SU1702			0.81			0.81	0.86	12.9			0.99	0.19	0.94	1.74	1.07		
SCI5SU1703 (Split)			0.57			0.89	0.55	14.3			0.77	0.37	0.87	1.68	0.68		
SCI5SU1801			0.94		2.4	0.72	0.9	15.7			0.57	0.2	0.94	1.62	0.87		
SCI5SU1802			0.59			0.92	1.04	17.9			0.63	0.36	0.98	1.18	0.94		
SCI5SU1802 DUP													1.06	1.87	1.3		
SCI5SU1901	0.82		0.71			0.76	0.74	14.2			0.82	0.34	0.86	1.02	0.82		

SCI Soil Characterization Data

Sample Number	Ac 228	Bi 212	Bi 214	Cs 137	Pb 210	Pb 212	Pb 214	K 40	Ra 226	Ra 224	Ra 228	Tl 208	Th 228	Th 230	Th 232	Th 234	U 238
SCI5SU1902			0.74			0.81		11.5			0.63	0.35	1.18	1.5	0.89		
SCI5SU2001			0.54			0.141	0.68	3.6			0.32		0.4	1.72	0.4		
SCI5SU2002			0.82			0.19					0.17		0.34	2.08	0.41		
SCI5SU2101			0.54			0.143	0.51				0.23		0.22	1.5	0.43		
SCI5SU2102			0.83				0.65				0.3	0.19	0.59	1.78	0.39		
SCI5SU2103 (Split)			0.65			0.33	0.83	8.3			0.36	0.128	0.58	1.91	0.66		
SCI5SU2201	1.23		0.88			1.2	0.71	4.1			1.23	0.65	3.15	4.42	1.23		
SCI5SU2202			0.67			0.42	0.6	9			0.51	0.155	0.95	1.66	0.8		
SCI5SU2202 DUP	0.46		0.85			0.47	0.76	9.5			0.46	0.2	0.94	1.61	0.69		
SCI5SU2301			0.55			0.14	0.52				0.26		0.49	1.74	0.37		
SCI5SU2302			0.74			0.4	0.57				0.21		0.61	1.77	0.49		
SCI5SU2401			1.71		1.8	0.42	1.9	3.4			0.58	0.184	0.6	2.46	0.68		
SCI5SU2402			0.48				0.66	4.4			0.15		0.36	1.26	0.4		
SCI5SU2402 DUP			0.78			0.252	0.47	4.6			0.32	0.12	0.36	1.37	0.44		
SCI5SU2501			0.68			0.77	0.63	13.4			0.57	0.27	1	1.66	0.93		
SCI5SU2502			1.34			1.34	1.52	17.8			1.26	0.52	1.08	1.57	0.94		
SCI5SU2503			0.72			0.62	0.94	10.6			0.38	0.2	1.19	1.6	0.84		
SCI5SU2601			0.42			0.39	0.34	11.9			0.37	0.192	0.51	0.92	0.59		
SCI5SU2602			0.52			0.42		8.1			0.38		0.42	0.84	0.4		
SCI5SU2701			0.58			0.52		13.5			0.66	0.23	0.77	1.35	0.91		
SCI5SU2702			0.86			0.78	0.92	8.6			0.54		0.96	2.39	0.89		
SCI5SU2801	1.22		0.62			0.78	0.63	12.1			1.22	0.33	1.37	1.64	1.22		
SCI5SU2802			0.46			0.54	0.76	5.9			0.84		0.88	1.61	1.22		
SCI5SU2803			0.84			0.58	0.46	7.2			0.72	0.19	0.97	1.74	0.84		
SCI5SU2901	0.92		0.48			0.67	0.65	12.9			0.92	0.3	0.7	1.42	0.92		
SCI5SU2902			0.19			0.24		11.2			0.25		0.44	0.88	0.45		
SCI5SU3001						0.81	0.84	10.5			0.69	0.36	1.01	1.29	0.96		
SCI5SU3002			0.35			0.3		10.7			0.33	0.084	0.46	0.74	0.42		

SCI Soil Characterization Data

Sample Number	Ac 228	Bi 212	Bi 214	Cs 137	Pb 210	Pb 212	Pb 214	K 40	Ra 226	Ra 224	Ra 228	Tl 208	Th 228	Th 230	Th 232	Th 234	U 238
SCI5SU3101			0.69			0.91	0.51	13			1.01	0.35	0.94	1.55	0.79		
SCI5SU3102			0.42			0.24		12.3			0.46		0.3	0.84	0.33		
SCI5SU3201			0.68			0.61	0.6	15.1			0.79		0.83	1.09	0.76		
SCI5SU3202			0.6			0.45	0.57	8.7			0.52	0.213	0.69	1.69	0.79		
SCI5SU3301			0.8			0.84		17.3			1.02	0.29	0.93	0.95	1.01		
SCI5SU3301 DUP			0.83			0.8		13			0.88	0.29	1.09	1.06	0.99		
SCI5SU3302			0.29			0.46		10.3			0.5	0.138	0.44	0.75	0.69		
SCI5SU3303 (Split)			0.34			0.34	0.34	10.5			0.4		0.39	0.57	0.47		
SCI5SU3401	1.41	1.03	1.65			1.54	1.35	11.5			1.41	0.49	1.39	1.47	1.375		
SCI5SU3402	1.64		1.6			1.87	1.91	6.1			1.64	0.68	2.1	2.6	1.75		
SCI5SU3408			0.8			0.94	1.07	16.2			1.14	0.25	1.18	1.11	1.14		



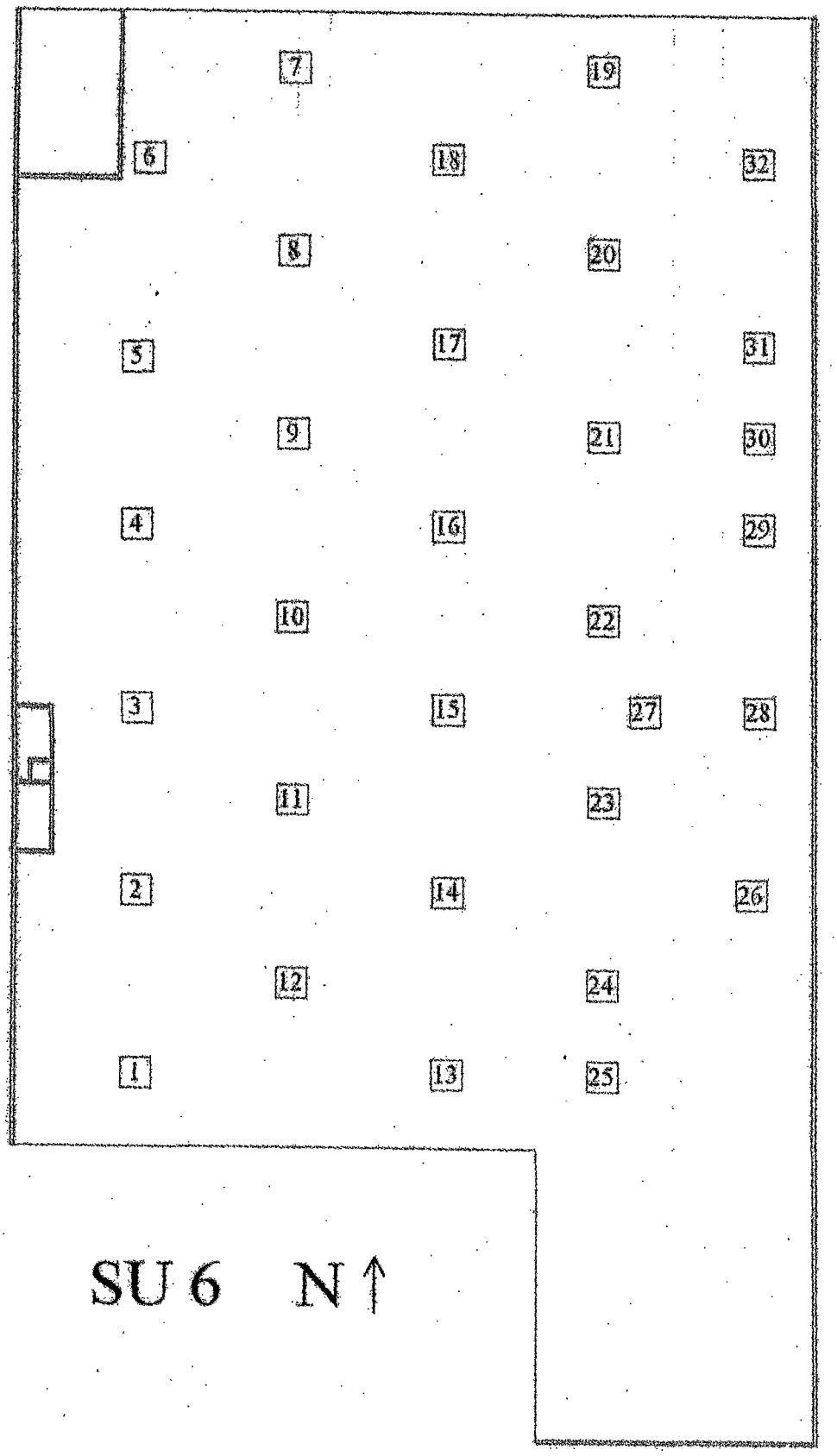
Survey Unit 5 Soil Sampling Locations

SCI Soil Characterization Data

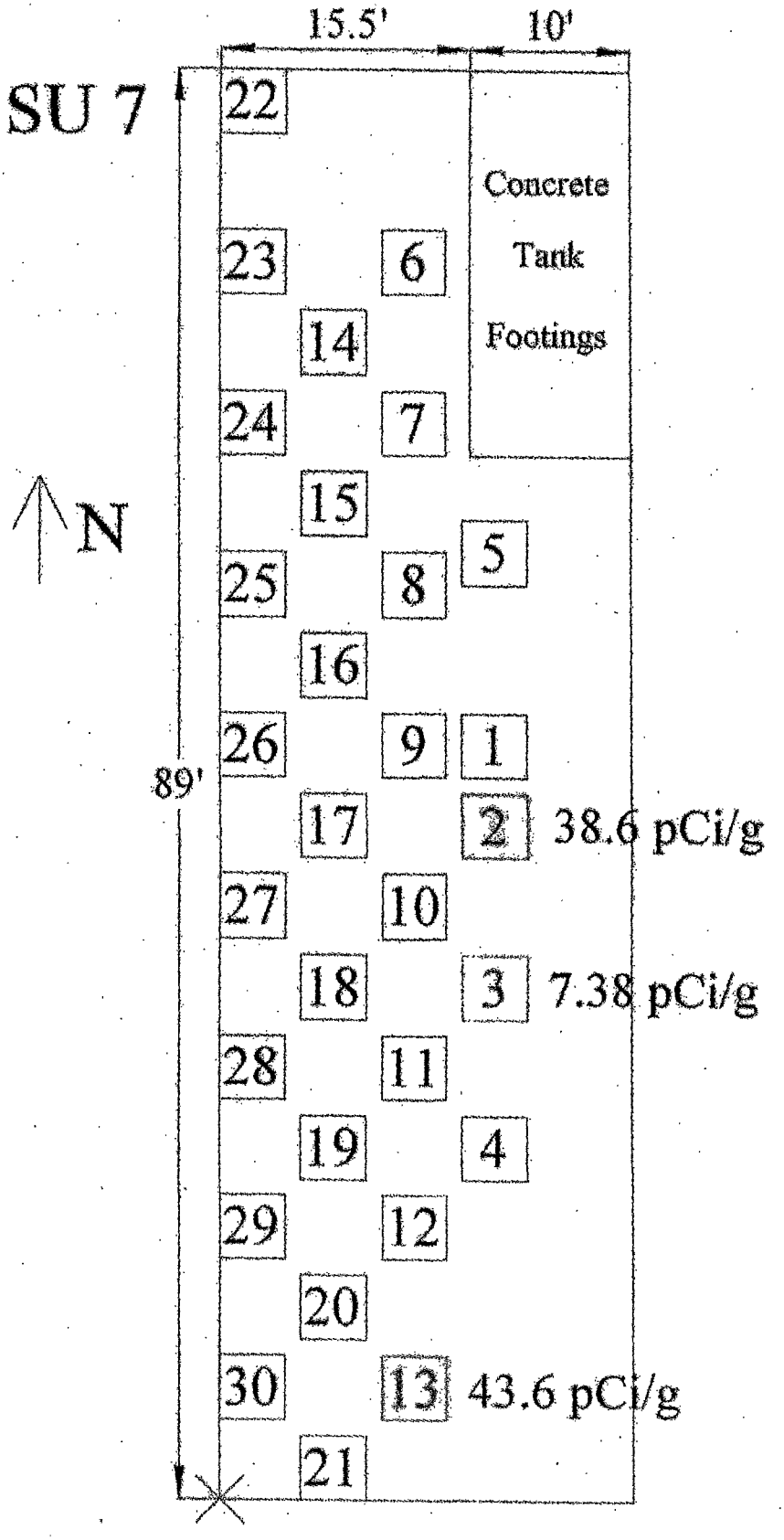
Sample Number	Ac 228	Bi 212	Bi 214	Cs 137	Pb 210	Pb 212	Pb 214	K 40	Ra 226	Ra 224	Ra 228	Tl 208	Th 228	Th 230	Th 232	Th 234	U 238
SCI6SU0101	1.09		0.74			0.82	0.85	[illegible]			1.09	0.33	1.25	2.28	1.46		
SCI6SU0102			0.93			0.77	0.77	[illegible]			0.56	0.25	1.21	1.29	1.04		
SCI6SU0201			1.11			1.24	0.85	[illegible]			1.36	0.4	1.3	1.99	1.3		
SCI6SU0202			0.71			0.68	0.66	[illegible]			0.71	0.33	1.15	1.32	0.96		
SCI6SU0301	0.63		0.76			0.71	0.8	[illegible]			0.63	0.35	0.9	1.31	0.875		
SCI6SU0302	0.89		0.77			0.96	0.77	[illegible]			0.89	0.35	1	1.26	1.12		
SCI6SU0401	0.75		0.65			0.82	0.98	[illegible]			0.75	0.27	1.06	1.39	1.06		
SCI6SU0402 (Split)			0.84		1.3	0.66	0.89	[illegible]			0.64	0.16	0.89	0.89	0.76		
SCI6SU0403			1			0.74	0.74	[illegible]			0.59	0.17	0.83	1.26	0.62		
SCI6SU0409 (Split)	0.96		1.13			0.98	1.04	[illegible]			0.96	0.34	0.88	1.1	0.92		
SCI6SU0501			1.6			0.7	1.91	[illegible]			0.67	0.23	0.96	1.55	1.34		
SCI6SU0502			1.45			0.82	1.19	[illegible]			0.7	0.27	0.85	1.63	0.92		
SCI6SU0601			1.01			0.6	1.24	[illegible]			0.7		0.75	1.75	0.89		
SCI6SU0602			1.15			0.69	1.25				0.26		0.92	1.67	0.9		
SCI6SU0701			0.79			0.32	0.87	2.9			0.51	0.187	0.71	1.78	0.73		
SCI6SU0701 DUP			0.74			0.44	0.85	3.4			0.41	0.118	1.01	2.42	0.59		
SCI6SU0702			2.61			0.79	2.72	4.4			0.81	0.29	0.96	2.27	1.06	2.24	2.24
SCI6SU0801	1.12		1.09			0.82	1.24	[illegible]			1.12	0.36	1.51	1.88	1.265		
SCI6SU0802	0.83		1.15			0.58	1.14	[illegible]			0.83	0.26	1.15	1.72	0.87		
SCI6SU0901	0.66		0.53		1.5	0.84	0.8	[illegible]			0.66	0.31	1.35	2.21	0.92		
SCI6SU0902			0.68			0.78	0.57	[illegible]			0.57	0.29	1.25	1.91	1.31		
SCI6SU1001	1.2		0.79			0.88	0.89	[illegible]			1.2		0.81	0.95	1.11		
SCI6SU1002			0.64			0.74	0.63	[illegible]			1.05	0.23	1.35	1.39	1.03		
SCI6SU1101			0.46			0.56	0.72	[illegible]			0.65	0.28	0.71	0.84	0.83		
SCI6SU1102			0.76			0.85	0.73	[illegible]			0.96	0.33	0.87	1.14	0.94		
SCI6SU1201	1.26		0.74			0.95	0.8	[illegible]			1.26	0.21	0.82	0.81	1.105		
SCI6SU1202						0.308	0.29	[illegible]			0.38		0.36	0.4	0.31		
SCI6SU1301			0.8			0.67	0.5	[illegible]			0.73	0.3	0.99	0.92	0.86		
SCI6SU1302						0.24		[illegible]			0.22		0.41	0.36	0.27		
SCI6SU1401			0.69			0.61	0.53	[illegible]			0.73	0.188	0.91	1.12	0.97		
SCI6SU1402						0.17		[illegible]			0.29		0.26	0.33	0.29		
SCI6SU1501			0.24			0.24	0.3	[illegible]			0.28	0.067	0.3	0.58	0.47		
SCI6SU1502						0.27		[illegible]			0.3		0.3	0.36	0.17		
SCI6SU1601			0.61			0.57	0.99	[illegible]			0.8		1.03	1.6	0.74		
SCI6SU1602			0.73			0.29	0.53	3.6			0.61		0.36	0.73	0.3		
SCI6SU1701			0.81			0.43	0.5	[illegible]			0.62	0.201	0.53	1.09	0.67		
SCI6SU1702			0.47			0.15	0.44	3			0.17	0.102	0.45	0.57	0.36		
SCI6SU1801			1.17			0.65	1.11				0.54	0.221	0.92	2	0.95		
SCI6SU1802	0.57		1.13			0.7	0.92	[illegible]			0.57	0.243	0.68	1.26	0.55		
SCI6SU1803 (Split)			0.82			0.45	0.73	[illegible]			0.3		0.68	1.13	0.92		
SCI6SU1901	0.43		0.95			0.87	1.07	[illegible]			0.43	0.26	0.81	1.85	0.63		
SCI6SU1902			0.74		1.78	0.39	0.98	[illegible]			0.35		0.69	1.28	0.69	0.95	0.95
SCI6SU1903 (Split)	0.49		0.98		1.06	0.6	0.83	[illegible]			0.49	0.22	0.73	1.4	0.665		

SCI Soil Characterization Data

Sample Number	Ac 228	Bi 212	Bi 214	Cs 137	Pb 210	Pb 212	Pb 214	K 40	Ra 226	Ra 224	Ra 228	Tl 208	Th 228	Th 230	Th 232	Th 234	U 238
SCI6SU2001			0.9			0.87	0.83	[illegible]			1.05	0.27	0.91	1.17	0.97		
SCI6SU2002			0.65			0.52	0.74	[illegible]			0.59	0.12	0.6	0.72	0.36		
SCI6SU2003 (Split)			0.56			0.45	0.61	[illegible]			0.66		0.52	0.89	0.66		
SCI6SU2101	1.02		0.63			0.9	0.56	[illegible]			1.02	0.29	1.06	1.69	1.12		
SCI6SU2102			0.21			0.248	0.28	1.9			0.3		0.37	0.42	0.35		
SCI6SU2102 DUP			0.35			0.23					0.32	0.147	0.3	0.46	0.4		
SCI6SU2201	0.93		0.52			0.91	0.68	[illegible]			0.93		0.81	1.09	0.84		
SCI6SU2202						0.25		[illegible]			0.007		0.37	0.4	0.29		
SCI6SU2301			0.29			0.23		[illegible]			0.19		0.42	0.55	0.37		
SCI6SU2302			0.69		1.33	0.58	0.58	[illegible]			0.33	0.28	0.83	1.06	0.82		
SCI6SU2401			0.93			1.2		[illegible]			1.06	0.31	0.93	1.34	0.87		
SCI6SU2402						0.25		[illegible]			0.33	0.108	0.54	0.35	0.48		
SCI6SU2501			0.79		2.2	0.8	0.82	[illegible]			0.8	0.21	0.75	0.89	0.82		
SCI6SU2502	0.38		0.54			0.37	0.44	[illegible]			0.38		0.34	0.56	0.42		
SCI6SU2601			0.44				0.45				-0.04		0.17	0.97	0.106		
SCI6SU2602	0.95		1.28			0.65	1.42	[illegible]			0.95	0.19	0.85	1.84	0.885	0.99	0.99
SCI6SU2603	0.5		1.57		1.2	0.79	2.06				0.5	0.31	0.97	1.95	0.64	1.78	1.78
SCI6SU2701			0.69			0.135	0.53				0.12		0.1	1.07	0.146		
SCI6SU2702			0.68			0.32	0.76	3.2			0.33	0.164	0.9	1.66	0.7		
SCI6SU2801			0.82				0.76				0.06		0.11	1.02	0.081		
SCI6SU2802			0.72			0.36	0.66	4.6			0.22		0.79	1.31	0.61		
SCI6SU2901	1.18		1.02			1.21	0.61	[illegible]			1.18	0.43	1.98	2.35	1.55		
SCI6SU2902			0.8				0.71				0.45		0.44	1.18	0.47		
SCI6SU3001			0.54			0.54	0.78	[illegible]			0.35	0.228	0.83	1.11	0.67	3.4	3.4
SCI6SU3002			0.41			0.39	0.48	[illegible]			0.54	0.137	0.51	0.9	0.53		
SCI6SU3003 (Split)			0.68			0.34	0.38	[illegible]			0.6	0.25	0.75	1.07	0.64		
SCI6SU3003 DUP													0.57	0.72	0.53		
SCI6SU3101			0.4				0.55				0.1		0.1	0.99	0.074		
SCI6SU3102			0.61			0.33	0.73				0.7		0.77	1.25	0.74		
SCI6SU3105			2.41			1.32	2.97	[illegible]			1.22	0.38	1.57	2.83	1.22	2.86	2.86
SCI6SU3201			0.48								0.1		0.2	1.23	0.119		
SCI6SU3202			0.54	0.165		0.153	0.67				0.25		0.28	1.02	0.33		
SCI6SU3301			0.59				0.54				0.16		0.068	1.13	0.075		
SCI6SU3302			0.66	0.26		0.44	0.74	[illegible]			0.31	0.203	0.7	1.32	0.6		



Survey Unit 6 Soil Sampling Locations



Survey Unit 7 Soil Sampling Locations

SCI Soil Characterization Data

Sample Number	Ac 228	Bi 212	Bi 214	Cs 137	Pb 210	Pb 212	Pb 214	K 40	Ra 226	Ra 224	Ra 228	Tl 208	Th 228	Th 230	Th 232	Th 234	U 238
SCI7SU0101	1.31	1.31	1.24			1.62	1.26				1.31	0.56	3.35	4.56	2.335		
SCI7SU0101 DUP	2.07	1.52	1.25			1.53	1.13	9.6			2.07	0.52	3.05	4.57	2.645		
SCI7SU0102	1.32		0.75			1.18	0.79	10.9			1.32	0.47	3.31	4.66	2.205		
SCI7SU0201			0.49			0.57	0.69	13			0.72	0.16	0.74	1.05	1.04		
SCI7SU0202	6.1	2.8	0.72			4.53	0.53	12.2			6.1	1.54	6.1	6.55	5.75		
SCI7SU0209 (Split)	4.8	3.3	0.46			4.16	0.76	10.3			4.85	1.38	5.37	6.35	5.69		
SCI7SU0203	11.7	6.9	0.74			11.4	0.72	4.6			11.7	3.72	9.86	14.1	9.2		
SCI7SU0204	1.17		0.67			1.09		10.8			1.17	0.37	1.31	1.56	1.235		
SCI7SU0301	2.19		0.82			2.04	0.82	12.6			2.19	0.61	2.92	2.39	2.385		
SCI7SU0302			0.53			0.59	0.67	11.3			0.53	0.14	0.74	0.78	0.73		
SCI7SU0401			0.63			0.85	0.79	10.9			0.74	0.28	1.5	1.8	1.08		
SCI7SU0402	1.46	0.97	1.65			1.43	1.82	11.6			1.45	0.46	1.14	1.8	1.33	2.74	2.74
SCI7SU0501			0.58			0.49	0.74	10.2			0.78	0.21	0.84	0.84	0.76	1.08	1.08
SCI7SU0502			0.77			0.58		8.6			0.34		1.01	1.02	0.99		
SCI7SU0601			0.82			0.77	0.9	11.5			0.87		0.94	0.91	0.95		
SCI7SU0602			0.49			0.42	0.53	13			0.52	0.235	0.64	0.76	0.82		
SCI7SU0701			0.66			0.37		8.2			0.55		0.71	0.92	0.79		
SCI7SU0702			0.77				0.75	4.4			0.4		0.59	1.23	0.51		
SCI7SU0801	1.04		0.66			0.82	0.57	13.9			1.04	0.28	0.88	1.11	0.92		
SCI7SU0802			0.78			0.78	0.98	15.6			0.84	0.18	1.02	1.28	0.93		
SCI7SU0901	2.24	1.29	1.12			1.41	1.06	12.6			2.24	0.36	2.07	4.07	2.08		
SCI7SU0902	1.37		0.93			1.04	0.86	12.3			1.37	0.33	1.23	1.09	1.205		
SCI7SU1001	0.51	0.33	0.52		1.17	0.73	0.37	9.1			0.51	0.24	1.38	1.21	0.925		
SCI7SU1001 DUP	1.02		0.47			0.7	0.73	10.7			1.02	0.175			1.02		
SCI7SU1002	2.35					2.16	0.72	9			2.35	0.83	4.79	2.3	3.72		
SCI7SU1101			0.64			0.69	0.6	10.1			1.08	0.3	1.19	1.27	1.03		
SCI7SU1101 DUP													0.89	1	1.09		
SCI7SU1102	0.65		0.72			0.34	0.84	7			0.65	0.185	0.9	0.96	0.755		
SCI7SU1201			0.47			0.5		11.9			1.17	0.142	0.95	1.34	0.98		
SCI7SU1202	0.94		0.76		1.3	0.74	0.95	16.9			0.94	0.25	0.91	1.05	0.94		
SCI7SU1209 (Split)			0.67			0.65	0.65	11			1.06	0.3	0.83	1	1		
SCI7SU1301			0.48		0.955	0.7		14.5			0.71	0.19	1.02	1.09	1.03		
SCI7SU1302			0.53			0.77	0.79	15.8			0.85	0.21	0.77	0.92	0.95		
SCI7SU1303			0.69			0.36	0.64	7.8			0.57	0.173	1.59	2.25	1.75		
SCI7SU1304	7.7	3.1	0.46			7.29	0.81	6.9			7.7	2.25	13.7	13.5	11.05		
SCI7SU1305						0.49	0.35	13.2			0.53	0.113	0.79	0.84	1.08		
SCI7SU1401	0.69		0.42			0.59	0.74	15.6			0.69	0.27	0.91	0.99	0.65		
SCI7SU1402	0.75		0.6			0.64	0.68	12.6			0.75	0.3	0.69	0.96	0.775		
SCI7SU1501	1.05		1.18			0.86	1.18	14.9			1.05	0.26	0.98	1.24	1.125		
SCI7SU1502	1.78		2.4		2.7	2.02	2.55	10.4			1.78	0.59	1.62	2.55	1.725	2.47	2.47
SCI7SU1601			0.72			0.58	0.7	11.3			0.87	0.184	1.04	1.02	1.02		
SCI7SU1602			0.57			0.61	0.7	15.2			0.87	0.24	0.83	1.12	0.68		
SCI7SU1701			0.58			0.52	0.51	12.3			0.53		0.68	0.64	0.75		

SCI Soil Characterization Data

Sample Number	Ac 228	Bi 212	Bi 214	Cs-137	Pb 210	Pb 212	Pb 214	K 40	Ra 226	Ra 224	Ra 228	Tl 208	Th 226	Th 230	Th 232	Th 234	U 238
SCI7SU1702			0.33			0.55	0.61	11.7			0.49	0.21	0.72	0.74	0.59		
SCI7SU1702 DUP	0.96		0.5			0.71	0.55	10.3			0.96		0.7	0.7	0.79		
SCI7SU1801	0.7		0.55			0.5	0.58	8			0.7	0.22	0.98	0.64	0.755		
SCI7SU1802	0.59		0.62			0.58	0.54	14.3			0.59		0.65	0.88	0.59		
SCI7SU1901			0.47		1.32	0.54	0.56	11.3			0.53	0.31	0.74	0.99	0.77		
SCI7SU1902	1.52		0.43			1.28	0.72	13.7			1.52	0.44	1.01	1.15	1.52		
SCI7SU1909 (Split)	1.07		0.53			0.8	0.63	13.5			1.07	0.2	1.01	1.06	0.995		
SCI7SU2001	0.7		1.04			1.08	0.71	14.3			0.7	0.43	1.07	1.43	0.93		
SCI7SU2002			0.51			0.83	0.84	13.1			0.91	0.16	1	1.03	0.94		
SCI7SU2002 DUP			0.67		1.5	0.83	0.78	14.1			0.94	0.33	0.89	1.01	1.17		
SCI7SU2101			0.82			0.61		11.5			0.75		1	1.4	0.97		
SCI7SU2102	0.96		0.84			0.92	0.76	17			0.96	0.32	1.1	0.78	0.94		
SCI7SU2201			0.61			0.68	0.95	14.8			1.16	0.22	0.72	0.98	0.95		
SCI7SU2202			0.93		1.6		0.75	7.7			0.38		0.64	1.04	0.54		
SCI7SU2301	0.77		0.7		1.4	0.57	0.79	11.4			0.77		0.88	0.79	0.775		
SCI7SU2302	0.73		0.79			0.72	0.61	13.1			0.73	0.28	1.03	1.09	0.815		
SCI7SU2401			0.63			0.61	0.72	12.3			0.58	0.248	0.47	0.66	0.83		
SCI7SU2409 (Split)			0.71		1.12	0.44	0.52	10.3			0.83	0.19	0.78	0.78	0.93		
SCI7SU2402						0.76		14.3			0.54		1.1	1.03	0.9		
SCI7SU2501			0.93			0.45		13.2			0.44	0.24	0.71	0.91	0.72		
SCI7SU2502			0.36			0.57	0.54	11.1			0.3	0.13	0.97	0.89	0.7		
SCI7SU2601			0.98			0.85	0.84	17.3			0.83	0.36	0.99	1.15	0.88		
SCI7SU2602			0.84			0.8	1.13	16.6			0.75	0.35	0.82	1.13	1.09		
SCI7SU2609 (Split)			0.91			0.63	0.98	20.3			0.67	0.36	0.93	1.09	0.96		
SCI7SU2701			0.65			0.79	0.74	14			0.64	0.21	0.6	0.74	0.83		
SCI7SU2702	1.08		0.85			1.02	0.83	16.5			1.08	0.42	0.95	0.94	1.055		
SCI7SU2801			0.66			0.76		13			0.52		0.83	1.04	0.64		
SCI7SU2802			0.52			0.83	0.64	12.1			0.88	0.31	1.09	1.07	0.99		
SCI7SU2809 (Split)			0.91			0.79	0.59	11.7			0.83	0.25	0.92	0.86	0.88		
SCI7SU2901			0.57			0.93	0.67	11.9			0.81	0.2	0.94	0.95	0.78		
SCI7SU2902			0.61			0.54	0.48	12			0.48	0.18	0.62	0.96	0.74		
SCI7SU2909 (Split)	1		0.54			0.41	0.52	12.3			1	0.22	0.71	1.01	0.885		
SCI7SU3001			0.72			0.69	0.58	12			0.66	0.231	1.06	1.18	1.14		
SCI7SU3001 DUP			0.65			0.8	0.76	14.5			0.7	0.26					
SCI7SU3002	1.24		1.01			1.06	0.74	17.6			1.24	0.36	1.07	1.29	1.2		
SCI7SU3003						0.77		10			0.9		0.72	1.07	0.6		