

**CERTIFICATION DESIGN LETTER FOR THE  
AREA 2, PHASE I FORMER INACTIVE FLYASH  
PILE, SOUTH FIELD, CAROLINA AREA,  
EAST-WEST CONSTRUCTION ROAD AND  
EQUIPMENT WHEEL WASH FACILITY**

**FERNALD ENVIRONMENTAL MANAGEMENT PROJECT  
FERNALD, OHIO**



**NOVEMBER 2001**

**U.S. DEPARTMENT OF ENERGY  
FERNALD AREA OFFICE**

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LIST OF ACRONYMS AND ABBREVIATIONS

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A2PI	Area 2, Phase I
A2PII	Area 2, Phase II
AFP	Active Flyash Pile
ASCOC	area-specific constituent of concern
ASL	analytical support level
BTV	benchmark toxicity value
CDL	Certification Design Letter
CERCLA	Comprehensive Environmental Response, Compensation, and Liability Act
COC	constituent of concern
CRDL	Contract Required Detection Limit
CU	certification unit
DOE	U.S. Department of Energy
EWWF	Equipment Wheel Wash Facility
EPA	U.S. Environmental Protection Agency
FEMP	Fernald Environmental Management Project
FRL	final remediation level
GMA	Great Miami Aquifer
HPGe	high-purity germanium (detector)
IFP	Inactive Flyash Pile
IRDP	Integrated Remedial Design Package (includes the Implementation Plan)
µg/kg	micrograms per kilogram
mg/kg	milligram per kilogram
MSL	mean sea level
NWU	Non-Waste Unit
OEPA	Ohio Environmental Protection Agency
OSDF	On-Site Disposal Facility
OU	Operable Unit
pCi/g	picoCuries per gram
ppm	parts per million
PSP	Project Specific Plan
RI/FS	Remedial Investigation/Feasibility Study
ROD	Record of Decision
RSS	Radiation Scanning System
RTRAK	Radiation Tracking System
SCQ	Sitewide CERCLA Quality Assurance Project Plan
SED	Sitewide Environmental Database
SEP	Sitewide Excavation Plan
SF	South Field
SSOD	Storm Sewer Outfall Ditch
SWU	Southern Waste Units
UCL	Upper Confidence Limit
WAC	waste acceptance criteria

## EXECUTIVE SUMMARY

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This Certification Design Letter (CDL) describes the certification approach for the Area 2, Phase I (A2PI) former Inactive Flyash Pile (IFP), South Field (SF), Carolina Area, East-West Construction Road, and the Equipment Wheel Wash Facility (EWWF). These areas are located in the southeast corner of the Fernald Environmental Management Project (FEMP). The CDL includes the following information:

- A definition of the boundaries of the area to be certified under this CDL
- A discussion of the area-specific constituent of concern (ASCOC) selection process and a list of ASCOCs
- A presentation of the certification unit (CU) boundaries and proposed sampling strategy
- The analytical requirements and the statistical methodology that will be employed
- The proposed schedule for certification activities.

The scope of this CDL is limited to certification of the former IFP, SF, Carolina Area, East-West Construction Road, and the EWWF. Remediation of these areas will be completed in 2001 and 2002, thus initiating the certification process described in this CDL.

The certification design presented in this CDL follows the general approach outlined in Section 3.4 of the Sitewide Excavation Plan (SEP, DOE 1998a). The subject areas are well characterized through previous sampling investigations and final remediation level (FRL) scanning with real-time equipment. The selection process for the ASCOCs is accomplished by using constituent of concern (COC) lists in the Operable Units (OU) 2 and 5 Records of Decision (ROD, DOE 1995a and 1996), previous investigation data, and process knowledge. A total of 24 CUs have been defined for this CDL. Total uranium, thorium-228, thorium-232, radium-226, and radium-228 (the sitewide primary radiological COCs) are considered ASCOCs in each CU. Additional secondary COCs are identified for specific CUs within the certification area. In addition, the following ecological COCs will also be analyzed in specific area CUs designated in the SEP: lead and molybdenum.

A2PI certification is being performed in three phases with the first phase consisting of the AFP area east of the south construction access road, which is already certified. The second and third phase of certification is the IFP/SF area, which is the scope of this CDL. The second phase consists of 20 CUs

sampled in 2001 and the third phase consists of the remaining four CUs, which will be sampled after the 2002 excavation season. Field sampling of phase two is scheduled to begin immediately following excavation and precertification, in October 2001, and the Certification Report will be issued within 90 days after sampling is completed.

## 1.0 INTRODUCTION

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This Certification Design Letter (CDL) describes the certification approach in the footprint of the former Area 2, Phase I (A2PI) Inactive Flyash Pile (IFP), South Field (SF), Carolina Area, East-West Construction Road, and the Equipment Wheel Wash Facility (EWWF); (herein referred to as the IFP/SF area). The format of this CDL follows guidelines presented in the Sitewide Excavation Plan (SEP, DOE 1998a).

The major remedial actions completed in these areas include the excavation of the SF and IFP, the debris excavation in the Carolina Area, and the stabilization and excavation of the Firing Range. Certification sampling will be conducted as area excavations are completed. The majority of the certification units (CUs) will be sampled and certified beginning in October 2001. The remaining CUs will be sampled and certified after the 2002 excavation season. These CUs are clearly defined in this CDL. The major features within this area excluding the IFP and SF are the:

- Footprint of the Carolina Non-Waste Units (NWU)
- Footprint of the former Basin 1
- Former vehicle turnaround/running track area and Firing Range
- Footprint of the Equipment Wheel Wash Facility (EWWF)
- Footprint of the East-West Construction Road running from the North-South Access Road west to EWWF.

A2PI consists of the Southern Waste Units [IFP, SF and Active Flyash Pile (AFP)], and the adjacent NWU area as shown in Figure 1-1. A2PI certification is being performed in three phases with the first phase consisting of the AFP area east of the South Construction Access Road, which is already certified. The second and third phase of certification is the IFP/SF area, which is the scope of this CDL. The second phase consists of 20 CUs sampled in 2001 and the third phase consists of the remaining four CUs, which will be sampled after the 2002 excavation season.

The A2PI IFP/SF certification area is bounded to the north by an east-west ditch that runs just north of the East-West Construction Road, to the east by the South Access Construction Road, south by Paddys Run and the Storm Sewer Outfall Ditch (SSOD), and the west by Paddys Run and Area 2, Phase II

(A2PII). The current topography as of July 2000 is depicted in Figure 1-2. The A2PI IFP/SF certification area is approximately 26 acres.

Within the certification area there will be several remediated footprints: the SF and IFP, several storm water and erosion control ditches (Ditches 1 through 8), three retention basins (Basin 1, 2, and 4), Non-Impacted Stockpile 1/Turnaround, Carolina debris area, the EWWF, and the East-West Haul Road.

### 1.1 OBJECTIVES

The primary objectives of this CDL are as follows:

- Define the boundaries of the area to be certified under this CDL
- Present maps for newly acquired real-time data
- Discuss the area-specific constituent of concern (ASCOC) selection process and present a list of ASCOCs
- Present the CU boundaries and proposed sampling strategy
- Summarize the analytical requirements and the statistical methodology that will be employed
- Present the proposed schedule for the certification activities.

### 1.2 SCOPE

The scope of this CDL is the certification of the IFP/SF area that consists of 24 Group 1 CUs:

- Eight in the till areas within the former SF and IFP (contains the former Firing Range)
- Four in the Carolina debris excavation and adjacent area
- Three in the Great Miami Aquifer (GMA)/sand areas within the former SF and IFP
- Two for former Basin 1
- One for the EWWF and Basin 4 footprint
- The East-West Construction Road
- Two for the former Non-Impacted Stockpile 1/Turnaround area footprint
- One for the footprint of Basin 2
- One for the Ditch 8 which leads to Basin 2
- One for the Grassy Knoll areas south of Basin 4.

The CU design is shown in Figure 4-1, and a description of each CU is provided in Section 4.1.

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This CDL does not cover the certification sampling associated with the following:

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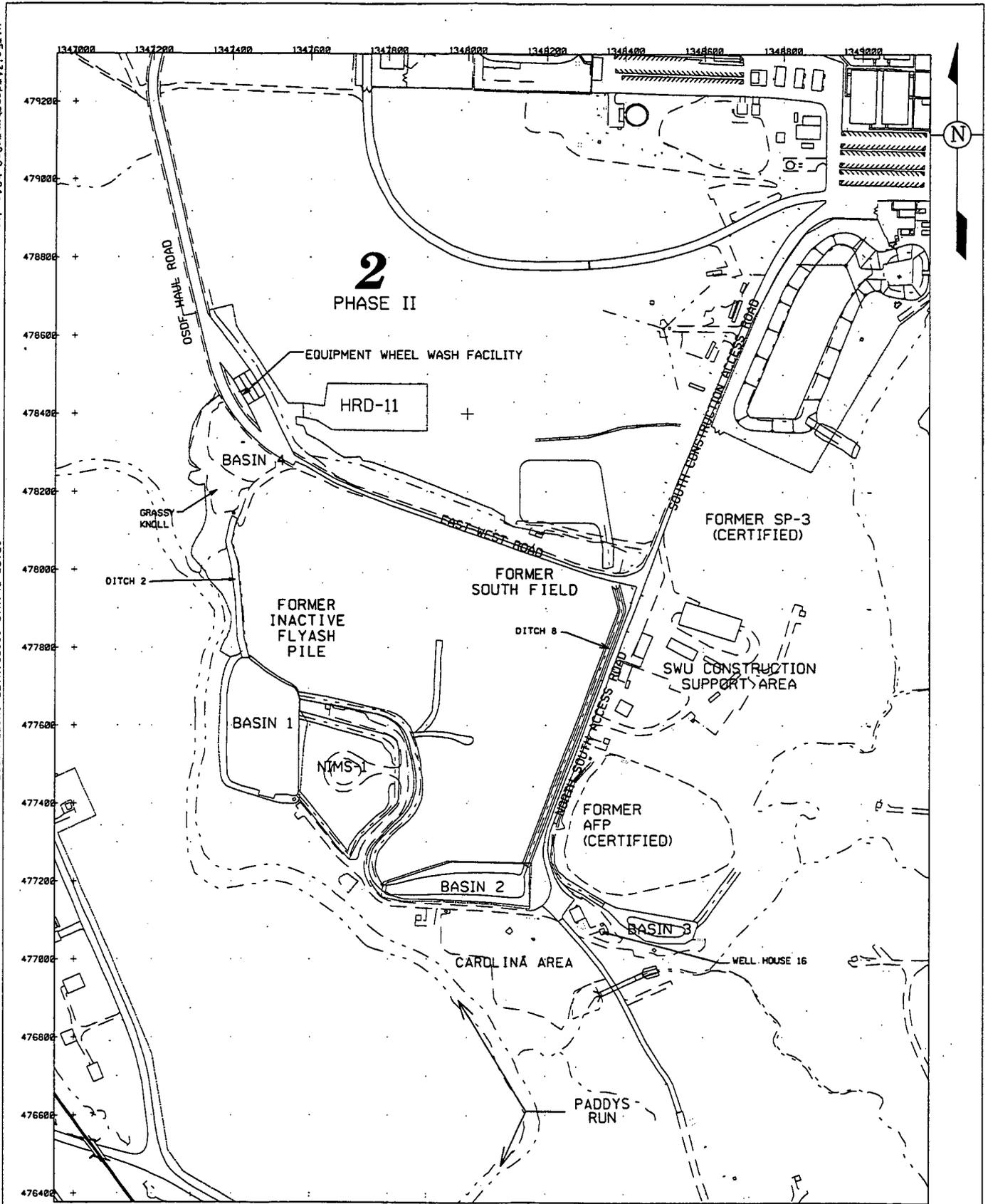
- Utility corridor/North-South Access Road that splits the AFP and SF
- Soil beneath the basin transfer lines as well as the soil immediately adjacent to the Well House 16 and the injection/extraction well house (just west of former Basin 3).

The certification of these soils, depicted in Figure 1-3, will be conducted as part of Area 10 certification.

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LEGEND:

— REMAINING A2PI CERTIFICATION BOUNDARY SCALE

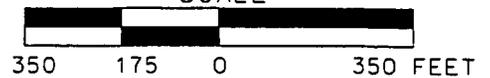


FIGURE 1-1. A2PI CERTIFICATION AREA

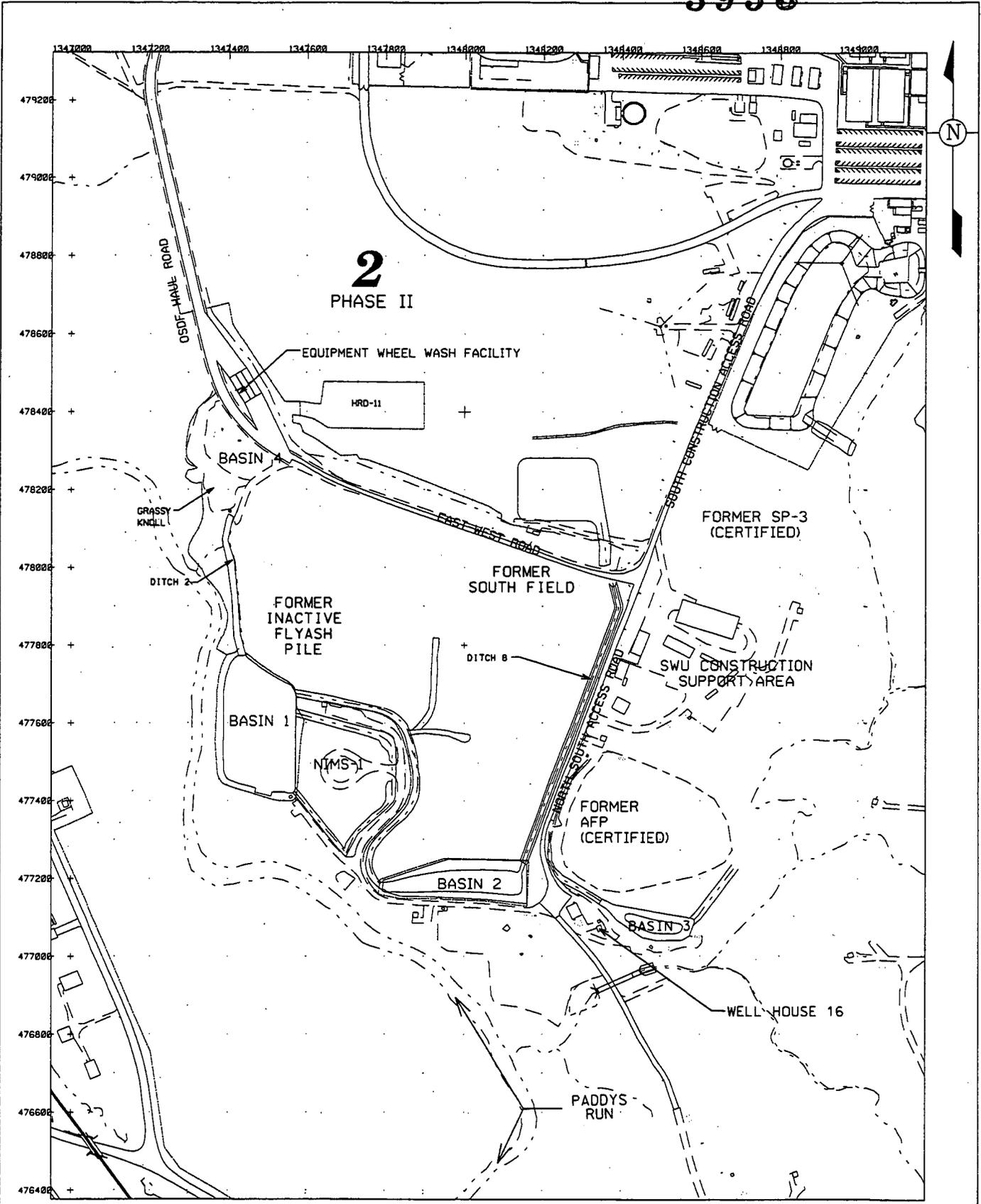
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LEGEND:

-  A2P1 BOUNDARY
-  AREA EXCLUDED FROM CERTIFICATION

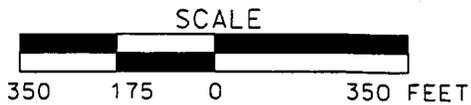


FIGURE 1-3. AREA EXCLUDED FROM CERTIFICATION

## 2.0 HISTORICAL SOIL CONTAMINATION DATA

In accordance with the SEP, all soil demonstrating contamination above the associated final remediation levels (FRLs) or other applicable action levels must be evaluated for remedial actions prior to conducting precertification and certification activities.

In addition to the Southern Waste Unit (SWU) site preparation investigation data, the Remedial Investigation Reports (RI, DOE 1995b and 1995c) and Feasibility Study Reports (FS, DOE 1995d and 1995e) for Operable Units (OU) 2 and 5 were used for remedial design of the IFP/SF area. Also, final grade excavation monitoring/sampling and NWU real-time scanning/sampling data have been collected pursuant to the RI/FS and remedial activities.

Before initiating certification, all historical soil data, within the IFP/SF certification area, were pulled from the Sitewide Environmental Database (SED). The data is summarized in the following sections.

### 2.1 HISTORICAL AND PREDESIGN DATA SUMMARY

All historical data in this area is presented in the A2PI SWUs Implementation Plan for OU2 (IRDP, DOE 1998b) and the Implementation Plan for A2PI NWUs Perimeter Area (DOE 2001). Table 2-1 summarizes the data, including the rationale for retaining certain secondary ASCOCs originally assigned to Remediation Area 2 (Table 2-7 from the SEP) for certification sampling.

In addition to the assigned constituents of concern (COCs) for Remediation Area 2, other COCs with above-FRL, non-detect concentrations include 1,2-Dichloroethane, 3,3-Dichlorobenzidine, N-nitroso-di-n-propylamine and vinyl chloride. Similar to the organic non-detects summarized in Table 2-1, the contract required detection limit (CRDL) is greater than the FRL and these COCs will not be retained for certification of this area.

Real-time measurements and physical soil samples were collected prior to installation of the storm water runoff ditches and retention basins around the IFP/SF. The real-time measurements were collected to assess On-Site Disposal Facility (OSDF) waste acceptance criteria (WAC) and FRL attainment.

Readiness and characterization for reuse soil sampling in the footprint of Basin 1 resulted in above-FRL (impacted) excavation to 1.5 feet in depth in the basin. Below-FRL, non-impacted excavation continued

beyond 1.5 feet until design depths for Basin 1 were attained. The results of these scanning and characterization for reuse data are summarized in Appendix D of the A2PI SWUs Implementation Plan.

Predesign data for the NWUs was collected in accordance with the guidelines established in Section 3.1.2 of the SEP, per the Project Specific Plan (PSP) for Predesign Sampling of A2PI NWU and A2PII Part One (DOE 1999). Preliminary predesign data collected in the adjacent area immediately surrounding the former IFP/SF have identified impacted materials requiring remediation. All data is presented in the Implementation Plan for A2PI NWUs Perimeter Area.

All the predesign real-time scan data for total uranium, radium-226 and thorium-232 were below two times the FRL. In addition, all analytical data were below the FRL for the primary radionuclides. Six NWU predesign boring locations were identified as containing impacted material (flyash). One location, A2P1-NWU-24, was already remediated in the Carolina Area debris removal. The other five locations will be remediated during the 2001 excavation season and precertification scanning will be conducted in the disturbed portions of the area. Prior to certification sampling approval, the scanning data will be forwarded for review, as an appendix to this CDL, to the U.S. Environmental Protection Agencies (EPA) and Ohio Environmental Protection Agency (OEPA).

## 2.2 FINAL GRADE EXCAVATION DATA

Two additional investigations have been conducted in A2PI IFP/SF area pursuant to the RI/FS and site preparation phases:

- Final grade excavation scanning and sampling in the IFP/SF
- Final grade excavation scanning and sampling in the Carolina Area.

The Radiation Tracking System (RTRAK) was used to collect information about surface soil radiological contamination patterns. Supplemental Radiation Scanning System (RSS) and high-purity germanium (HPGe) detector measurements were collected using the no overlap option (per the User Guidelines, Measurement Strategies, and Operational Factors for Deployment of In-Situ Gamma Spectrometry at the Fernald Site, hereafter referred to as the User's Manual, DOE 1998c) to ensure that any areas of elevated contamination were not missed. Physical samples were collected with Geoprobe® and hand-auger equipment per the PSP for Predesign Sampling in the A2PI NWU and A2PII Part One. Details on the use and capabilities of the RTRAK, the RSS, and the HPGe are provided in the PSP as well as in the

User's Manual and the Sitewide Comprehensive Environmental Response, Compensation, and Liability Act (CERCLA) Quality Assurance Project Plan (SCQ) Addendum (DOE 1998d).

### 2.2.1 Final Grade Excavation Scanning and Sampling IFP/SF

The IFP/SF excavation limits were designed based on historical RI/FS data. The IFP was excavated to final grade and beyond in the 1998 excavation season. An iteration of final excavation boundary measurements (both real-time and physical soil samples) within the IFP began in November 1998.

At end of November 1998, an RTRAK lift scan (Lift 12 - most of area at average elevation 544 feet) was completed at the approximate final grade based on design drawings. Using these lift scan data, elevated total uranium locations were identified and soil cores were collected to determine the final excavation boundary. These soil core intervals were scanned for radioactivity with an HPGe core counter, and some of the intervals were submitted for total uranium analysis.

In December 1998, the results from physical soil samples and core counting indicated above-FRL contamination north and south of the east-west leg of Interceptor Ditch 2 to a depth of 3 to 4 feet. In addition, results indicated an above-WAC location to a depth of 2 feet on the southern edge of the formerly designated above-WAC excavation area (around the IFP-CC-3 sample location eventually named IFP-13-3). The excavation contractor was directed to conduct a 2-foot deep, above-WAC excavation around sample location IFP-CC-3 [beginning elevation at 544 feet mean sea level (MSL)]. After this above-WAC excavation, HPGe measurements verified that the excavation footprint was below WAC. The excavation contractor was also directed to excavate to a depth of 4 feet south of the east-west leg of Interceptor Ditch 2 and then transition to a 3-foot excavation south of the former above-WAC area. The excavation contractor completed the above-WAC and above-FRL excavation, including an exploratory trench in the southern end of the IFP, on December 2, 1998.

In early February 1999, additional core samples were collected at the IFP-CC-3 location (now identified as IFP-13-3) to determine depth of additional above-FRL excavation (current elevation after December 1998 excavation is 540 feet MSL). In addition, this sampling determined that the lateral extent of above-FRL contamination was present to a 4-foot depth in a 100-foot by 100-foot area around IFP-13-3. Based on this contamination grid size (100 feet by 100 feet), the remainder of the IFP footprint was sectioned into eight grids, and one HPGe measurement was taken in the center of each grid.

This exercise resulted in an additional 1-foot excavation over southern end of the IFP, based on one HPGe measurement within each 100-foot by 100-foot contamination grid.

Beginning in March 1999, the subcontractor excavated to a 4-foot depth the 100-foot by 100-foot area around IFP-13-3. In addition, a 1-foot deep excavation of the southern tip of the IFP was also completed. After the 4-foot deep, 100-foot by 100-foot excavation around IFP-13-3 (top of elevation now 536 feet MSL), additional core samples and HPGe measurements (IFP-14) were collected. Based on these data, another 5 feet was excavated to reach the 10-parts per million (ppm) FRL for total uranium. In the field, Fluor Fernald Construction instructed the excavation subcontractor to take another 2 feet immediately around IFP-13-3. After this March excavation, the depth at the IFP-13-3 location is 529 feet MSL.

In May 1999, another complete lift scan was conducted over the IFP footprint (IFP-14 RTRAK and HPGe measurements) south of the east-west leg of Interceptor Ditch 2. The data were evaluated for highest total uranium and gross activity. The lift scan indicated that most of the footprint was close to the 10-ppm total uranium FRL. An HPGe measurement next to the IFP-13-3 location (IFP-15-14) was 26 ppm. Per the OEPA, a sample was taken at this location to determine above-FRL depth. Results of the sample analysis indicated total uranium concentrations close to FRL attainment at a 2-foot depth.

In late July 1999, the subcontractor excavated 3+/-1 foot from the area north of the east-west leg of Interceptor Ditch 2. Also, an additional 2 feet was excavated in a 20-foot radius around the IFP-15-14 HPGe location. During this excavation, above-WAC material was encountered just north of Interceptor Ditch 2 and two special material measurements (IFP-SM-96 and 97) were collected. After excavation on August 2, 1999, real-time measurements (one RTRAK scan) were collected, and the results indicated total uranium concentrations less than two times the FRL. The final grade scan data is presented in Appendix A. Excavation in the IFP was concluded at this time pending additional precertification and certification.

Beginning in the late July 2000, after remedial activities were completed to the design limits in the majority of the SF, final grade HPGe scans were performed to determine if total uranium concentrations were reasonably close to the FRLs. The HPGe measurements are depicted in Appendix A along with the associated total uranium concentration. In addition, 14 soil borings were collected along the interface of

the SF and the IFP to assess FRL attainment at final grade. Some of the boring locations (SF-FG-1 through SF-FG-6) were placed to assess potential contamination migration from the former IFP above-WAC area and the asbestos/debris area in the northwest corner of the SF. Sample intervals ranging from the surface to 24 feet at depth were analyzed for total uranium, with a few samples analyzed for total arsenic. The data for these samples are depicted and summarized in Appendix A. Based on these data, two additional excavations were conducted in April 2001, a deep excavation at sample location SF-FG-2 and a shallow excavation at SF-FG-7 as specified in the Implementation Plan for the A2PI NWUs Perimeter Area.

### 2.2.2 Final Grade Excavation Scanning and Sampling

Beginning in October 2000, debris excavation commenced in the Carolina Area located just south of Basin 2. In conjunction with the debris excavation, FRL scanning and sampling were conducted within the bottom footprint of six excavation locations prior to interim grading. All the real-time and analytical data collected were below FRL for the primary radionuclides, arsenic and beryllium. The data collected are presented in Appendix A.

### 2.3 PRECERTIFICATION DATA

According to guidelines established in Section 3.3.3 of the SEP, precertification activities will be conducted to evaluate residual radiological contamination patterns, as specified in the A2PI Precertification Real-Time Scan PSP (DOE 2000). During precertification, a surface radiation survey will be conducted over the accessible areas which are excavated or not scanned during predesign. The precertification data will be presented as Appendix B in this CDL after excavation is completed. Prior to certification sampling, the scanning data will be forwarded for EPA and OEPA review and approval as Appendix B to this CDL.

The total population of the data used to support the conclusion that the area is ready for certification will consist of predesign data for areas that required no remedial action and precertification data from the remediated footprints and precertification data for the areas where excavation occurred.

#### 2.4 CERTIFICATION OF THE DEEP EXCAVATION AREA IN THE SF

Certification samples were collected after excavation of the deep area in the SF before interim grading and natural sloughing of surrounding material would begin to fill the deep excavation. One Group 1 CU was drawn around this deep excavation area and the adjacent area to the west. This Group 1 CU encompassed an area approximately 60,098 square feet. This CU was sub-divided into 16 sub-CUs of approximately equal size. One sample location was randomly generated inside each of the sub-CUs using guidance from Section 3 of the SEP. These locations are depicted in Figure 2-1. Twelve soil samples plus one duplicate sample were collected from 0 to 6 inches and analyzed to ASL D for both primary radionuclides and secondary COCs listed in Table 2-2. The CU identifier was SWU-C-DP.

The certification sample results for total uranium at sample locations SWU-C-DP-8-R and SWU-C-DP-8-R-D were 26 and 30 ppm, respectively, which is greater than two times the FRL. As required in the SEP, any single certification sample location greater than two times the FRL will be remediated. A 2-foot scrape over the sub-CU was conducted. Two certification samples and one duplicate were then collected in the sub-CU that was excavated. These locations are depicted in Figure 2-2 and the associated data is listed in Table 2-3. After this excavation, all results for this CU are below FRL.

**TABLE 2-1  
AREA 2 SECONDARY ASCOC LIST**

Area 2 Secondary ASCOC	Number of Above-FRL Hits	Number of Samples	Retained as ASCOC	Justification
Aroclor-1254 and 1260	7	291	Yes	All above-FRL hits are located within the IFP CUs and the SF CUs. This will be retained as a secondary COC for the IFP and SF CUs.
Arsenic	22	232	Yes	N/A
Benzo(a)pyrene	2	174	Yes	All above-FRL hits are located within the IFP CUs and the SF CUs. This will be retained as a secondary COC for the IFP and SF CUs.
Beryllium	24	150	Yes	N/A
Bromodichloromethane	0	144	Yes	All above-FRL hits are within the IFP CUs and the SF CUs. This will be retained as a secondary COC in the till/clay area but will not be retained in the GMA/sand because compound is expected to have volatilized completely during excavation and in sand.
Cesium-137	3	463	Yes	The above-FRL locations are within CU NWU-12. Will be retained as a secondary COC in this CU.
Dibenzo(a,h)anthracene	1	174	Yes	All above-FRL hits are located within the IFP CUs and the SF CUs. This will be retained as a secondary COC for the IFP and SF CUs.
1,1-Dichloroethene	0	180	Yes	N/A
Dieldrin	1	169	No	The one above-FRL location was within the excavation footprint. Therefore, this will not be retained as a COC.
Lead	42	553	Yes	All above-FRL hits are located within CU SF-05 where the firing range was located. Lead will be retained as a secondary COC in this CU.
Neptunium-237	0	289	No	No hits at or greater than FRL
Technetium-99	1	327	No	The one above-FRL location was within the excavation footprint. Therefore, this will not be retained as a COC.
Thorium-230	2	297	Yes	The above-FRL locations are within CU NWU-12. Will be retained as a secondary COC in this CU.

\* Number of hits does not include non-detects with MDCs greater than FRL.

TABLE 2-2  
CU SWU-C-DP SAMPLE RESULTS

Boring ID	Sample ID	Parameter	Result	Qualifier	Units
SWU-C-DP-1	SWU-C-DP-1-PS	Aroclor-1254	38.0	U	ug/kg
SWU-C-DP-1	SWU-C-DP-1-PS	Aroclor-1260	38.0	U	ug/kg
SWU-C-DP-1	SWU-C-DP-1-RM	Arsenic	6.4	-	mg/kg
SWU-C-DP-1	SWU-C-DP-1-PS	Benzo(a)pyrene	380.0	U	ug/kg
SWU-C-DP-1	SWU-C-DP-1-RM	Beryllium	0.3	-	mg/kg
SWU-C-DP-1	SWU-C-DP-1-RM	Cesium-137	0.0	UJ	pCi/g
SWU-C-DP-1	SWU-C-DP-1-PS	Dibenzo(a,h)anthracene	22.6	U	ug/kg
SWU-C-DP-1	SWU-C-DP-1-PS	Dieldrin	3.8	U	ug/kg
SWU-C-DP-1	SWU-C-DP-1-RM	Neptunium-237	0.0	UJ	pCi/g
SWU-C-DP-1	SWU-C-DP-1-RM	Radium-226	0.7	J	pCi/g
SWU-C-DP-1	SWU-C-DP-1-RM	Radium-228	0.5	J	pCi/g
SWU-C-DP-1	SWU-C-DP-1-RM	Technetium-99	1.4	UJ	pCi/g
SWU-C-DP-1	SWU-C-DP-1-RM	Thorium-228	0.5	J	pCi/g
SWU-C-DP-1	SWU-C-DP-1-RM	Thorium-230	1.3	J	pCi/g
SWU-C-DP-1	SWU-C-DP-1-RM	Thorium-232	0.5	J	pCi/g
SWU-C-DP-1	SWU-C-DP-1-RM	Uranium, Total	2.0	J	mg/kg
SWU-C-DP-3	SWU-C-DP-3-PS	Aroclor-1254	34.0	U	ug/kg
SWU-C-DP-3	SWU-C-DP-3-PS	Aroclor-1260	34.0	U	ug/kg
SWU-C-DP-3	SWU-C-DP-3-RM	Arsenic	2.9	-	mg/kg
SWU-C-DP-3	SWU-C-DP-3-PS	Benzo(a)pyrene	340.0	U	ug/kg
SWU-C-DP-3	SWU-C-DP-3-RM	Beryllium	0.0	U	mg/kg
SWU-C-DP-3	SWU-C-DP-3-RM	Cesium-137	0.0	UJ	pCi/g
SWU-C-DP-3	SWU-C-DP-3-PS	Dibenzo(a,h)anthracene	20.5	U	ug/kg
SWU-C-DP-3	SWU-C-DP-3-PS	Dieldrin	3.4	U	ug/kg
SWU-C-DP-3	SWU-C-DP-3-RM	Neptunium-237	0.0	UJ	pCi/g
SWU-C-DP-3	SWU-C-DP-3-RM	Radium-226	0.6	J	pCi/g
SWU-C-DP-3	SWU-C-DP-3-RM	Radium-228	0.3	J	pCi/g
SWU-C-DP-3	SWU-C-DP-3-RM	Technetium-99	1.6	UJ	pCi/g
SWU-C-DP-3	SWU-C-DP-3-RM	Thorium-228	0.3	J	pCi/g
SWU-C-DP-3	SWU-C-DP-3-RM	Thorium-230	1.0	J	pCi/g
SWU-C-DP-3	SWU-C-DP-3-RM	Thorium-232	0.3	J	pCi/g
SWU-C-DP-3	SWU-C-DP-3-RM	Uranium, Total	2.1	J	mg/kg
SWU-C-DP-4	SWU-C-DP-4-PS	Aroclor-1254	34.0	U	ug/kg
SWU-C-DP-4	SWU-C-DP-4-PS	Aroclor-1260	34.0	U	ug/kg
SWU-C-DP-4	SWU-C-DP-4-RM	Arsenic	4.2	-	mg/kg
SWU-C-DP-4	SWU-C-DP-4-PS	Benzo(a)pyrene	340.0	U	ug/kg
SWU-C-DP-4	SWU-C-DP-4-RM	Beryllium	0.0	U	mg/kg
SWU-C-DP-4	SWU-C-DP-4-RM	Cesium-137	0.0	UJ	pCi/g
SWU-C-DP-4	SWU-C-DP-4-PS	Dibenzo(a,h)anthracene	20.3	U	ug/kg
SWU-C-DP-4	SWU-C-DP-4-PS	Dieldrin	3.4	U	ug/kg
SWU-C-DP-4	SWU-C-DP-4-RM	Neptunium-237	0.0	UJ	pCi/g
SWU-C-DP-4	SWU-C-DP-4-RM	Radium-226	0.5	J	pCi/g
SWU-C-DP-4	SWU-C-DP-4-RM	Radium-228	0.3	J	pCi/g
SWU-C-DP-4	SWU-C-DP-4-RM	Technetium-99	1.6	UJ	pCi/g
SWU-C-DP-4	SWU-C-DP-4-RM	Thorium-228	0.3	J	pCi/g

TABLE 2-2  
 CU SWU-C-DP SAMPLE RESULTS

Boring ID	Sample ID	Parameter	Result	Qualifier	Units
SWU-C-DP-4	SWU-C-DP-4-RM	Thorium-230	2.1	-	pCi/g
SWU-C-DP-4	SWU-C-DP-4-RM	Thorium-232	0.3	J	pCi/g
SWU-C-DP-4	SWU-C-DP-4-RM	Uranium, Total	2.5	J	mg/kg
SWU-C-DP-6	SWU-C-DP-6-PS	Aroclor-1254	35.0	U	ug/kg
SWU-C-DP-6	SWU-C-DP-6-PS	Aroclor-1260	35.0	U	ug/kg
SWU-C-DP-6	SWU-C-DP-6-RM	Arsenic	4.6	-	mg/kg
SWU-C-DP-6	SWU-C-DP-6-PS	Benzo(a)pyrene	350.0	U	ug/kg
SWU-C-DP-6	SWU-C-DP-6-RM	Beryllium	0.0	U	mg/kg
SWU-C-DP-6	SWU-C-DP-6-RM	Cesium-137	0.0	UJ	pCi/g
SWU-C-DP-6	SWU-C-DP-6-PS	Dibenzo(a,h)anthracene	21.2	U	ug/kg
SWU-C-DP-6	SWU-C-DP-6-PS	Dieldrin	3.5	U	ug/kg
SWU-C-DP-6	SWU-C-DP-6-RM	Neptunium-237	0.0	UJ	pCi/g
SWU-C-DP-6	SWU-C-DP-6-RM	Radium-226	0.6	J	pCi/g
SWU-C-DP-6	SWU-C-DP-6-RM	Radium-228	0.3	J	pCi/g
SWU-C-DP-6	SWU-C-DP-6-RM	Technetium-99	1.7	UJ	pCi/g
SWU-C-DP-6	SWU-C-DP-6-RM	Thorium-228	0.3	J	pCi/g
SWU-C-DP-6	SWU-C-DP-6-RM	Thorium-230	0.8	J	pCi/g
SWU-C-DP-6	SWU-C-DP-6-RM	Thorium-232	0.3	J	pCi/g
SWU-C-DP-6	SWU-C-DP-6-RM	Uranium, Total	3.0	J	mg/kg
SWU-C-DP-7	SWU-C-DP-7-PS	Aroclor-1254	40.0	U	ug/kg
SWU-C-DP-7	SWU-C-DP-7-PS	Aroclor-1260	40.0	U	ug/kg
SWU-C-DP-7	SWU-C-DP-7-RM	Arsenic	3.7	-	mg/kg
SWU-C-DP-7	SWU-C-DP-7-PS	Benzo(a)pyrene	400.0	U	ug/kg
SWU-C-DP-7	SWU-C-DP-7-RM	Beryllium	0.2	-	mg/kg
SWU-C-DP-7	SWU-C-DP-7-RM	Cesium-137	0.0	UJ	pCi/g
SWU-C-DP-7	SWU-C-DP-7-PS	Dibenzo(a,h)anthracene	23.6	U	ug/kg
SWU-C-DP-7	SWU-C-DP-7-PS	Dieldrin	4.0	U	ug/kg
SWU-C-DP-7	SWU-C-DP-7-RM	Neptunium-237	0.0	UJ	pCi/g
SWU-C-DP-7	SWU-C-DP-7-RM	Radium-226	0.7	J	pCi/g
SWU-C-DP-7	SWU-C-DP-7-RM	Radium-228	0.5	J	pCi/g
SWU-C-DP-7	SWU-C-DP-7-RM	Technetium-99	1.6	UJ	pCi/g
SWU-C-DP-7	SWU-C-DP-7-RM	Thorium-228	0.5	J	pCi/g
SWU-C-DP-7	SWU-C-DP-7-RM	Thorium-230	0.9	J	pCi/g
SWU-C-DP-7	SWU-C-DP-7-RM	Thorium-232	0.5	J	pCi/g
SWU-C-DP-7	SWU-C-DP-7-RM	Uranium, Total	3.3	J	mg/kg
SWU-C-DP-8	SWU-C-DP-8-PS	Aroclor-1254	36.0	U	ug/kg
SWU-C-DP-8	SWU-C-DP-8-PS-D	Aroclor-1254	36.0	UJ	ug/kg
SWU-C-DP-8	SWU-C-DP-8-PS	Aroclor-1260	36.0	U	ug/kg
SWU-C-DP-8	SWU-C-DP-8-PS-D	Aroclor-1260	36.0	UJ	ug/kg
SWU-C-DP-8	SWU-C-DP-8-RM	Arsenic	4.1	-	mg/kg
SWU-C-DP-8	SWU-C-DP-8-RM-D	Arsenic	5.1	-	mg/kg
SWU-C-DP-8	SWU-C-DP-8-PS	Benzo(a)pyrene	360.0	U	ug/kg
SWU-C-DP-8	SWU-C-DP-8-PS-D	Benzo(a)pyrene	360.0	U	ug/kg
SWU-C-DP-8	SWU-C-DP-8-RM	Beryllium	0.0	-	mg/kg
SWU-C-DP-8	SWU-C-DP-8-RM-D	Beryllium	0.0	-	mg/kg

TABLE 2-2  
CU SWU-C-DP SAMPLE RESULTS

Boring ID	Sample ID	Parameter	Result	Qualifier	Units
SWU-C-DP-8	SWU-C-DP-8-RM	Cesium-137	0.0	UJ	pCi/g
SWU-C-DP-8	SWU-C-DP-8-RM-D	Cesium-137	0.0	UJ	pCi/g
SWU-C-DP-8	SWU-C-DP-8-PS	Dibenzo(a,h)anthracene	21.2	U	ug/kg
SWU-C-DP-8	SWU-C-DP-8-PS-D	Dibenzo(a,h)anthracene	21.1	U	ug/kg
SWU-C-DP-8	SWU-C-DP-8-PS	Dieldrin	3.6	U	ug/kg
SWU-C-DP-8	SWU-C-DP-8-PS-D	Dieldrin	3.6	UJ	ug/kg
SWU-C-DP-8	SWU-C-DP-8-RM	Neptunium-237	0.0	UJ	pCi/g
SWU-C-DP-8	SWU-C-DP-8-RM-D	Neptunium-237	0.0	UJ	pCi/g
SWU-C-DP-8	SWU-C-DP-8-RM	Radium-226	0.7	J	pCi/g
SWU-C-DP-8	SWU-C-DP-8-RM-D	Radium-226	0.6	J	pCi/g
SWU-C-DP-8	SWU-C-DP-8-RM	Radium-228	0.4	J	pCi/g
SWU-C-DP-8	SWU-C-DP-8-RM-D	Radium-228	0.4	J	pCi/g
SWU-C-DP-8	SWU-C-DP-8-RM	Technetium-99	1.6	UJ	pCi/g
SWU-C-DP-8	SWU-C-DP-8-RM-D	Technetium-99	1.5	UJ	pCi/g
SWU-C-DP-8	SWU-C-DP-8-RM	Thorium-228	0.4	J	pCi/g
SWU-C-DP-8	SWU-C-DP-8-RM-D	Thorium-228	0.4	J	pCi/g
SWU-C-DP-8	SWU-C-DP-8-RM	Thorium-230	1.5	-	pCi/g
SWU-C-DP-8	SWU-C-DP-8-RM-D	Thorium-230	1.6	-	pCi/g
SWU-C-DP-8	SWU-C-DP-8-RM	Thorium-232	0.4	J	pCi/g
SWU-C-DP-8	SWU-C-DP-8-RM-D	Thorium-232	0.4	J	pCi/g
SWU-C-DP-8	SWU-C-DP-8-RM	Uranium, Total	25.6	J	mg/kg
SWU-C-DP-8	SWU-C-DP-8-RM-D	Uranium, Total	30.2	J	mg/kg
SWU-C-DP-9	SWU-C-DP-9-PS	Aroclor-1254	35.0	U	ug/kg
SWU-C-DP-9	SWU-C-DP-9-PS	Aroclor-1260	35.0	U	ug/kg
SWU-C-DP-9	SWU-C-DP-9-RM	Arsenic	2.7	-	mg/kg
SWU-C-DP-9	SWU-C-DP-9-PS	Benzo(a)pyrene	350.0	U	ug/kg
SWU-C-DP-9	SWU-C-DP-9-RM	Beryllium	0.0	U	mg/kg
SWU-C-DP-9	SWU-C-DP-9-RM	Cesium-137	0.0	UJ	pCi/g
SWU-C-DP-9	SWU-C-DP-9-PS	Dibenzo(a,h)anthracene	20.8	U	ug/kg
SWU-C-DP-9	SWU-C-DP-9-PS	Dieldrin	3.5	U	ug/kg
SWU-C-DP-9	SWU-C-DP-9-RM	Neptunium-237	0.0	UJ	pCi/g
SWU-C-DP-9	SWU-C-DP-9-RM	Radium-226	0.5	J	pCi/g
SWU-C-DP-9	SWU-C-DP-9-RM	Radium-228	0.3	J	pCi/g
SWU-C-DP-9	SWU-C-DP-9-RM	Technetium-99	1.7	UJ	pCi/g
SWU-C-DP-9	SWU-C-DP-9-RM	Thorium-228	0.3	J	pCi/g
SWU-C-DP-9	SWU-C-DP-9-RM	Thorium-230	2.3	-	pCi/g
SWU-C-DP-9	SWU-C-DP-9-RM	Thorium-232	0.3	J	pCi/g
SWU-C-DP-9	SWU-C-DP-9-RM	Uranium, Total	1.6	J	mg/kg
SWU-C-DP-11	SWU-C-DP-11-PS	Aroclor-1254	35.0	U	ug/kg
SWU-C-DP-11	SWU-C-DP-11-PS	Aroclor-1260	35.0	U	ug/kg
SWU-C-DP-11	SWU-C-DP-11-RM	Arsenic	4.2	-	mg/kg
SWU-C-DP-11	SWU-C-DP-11-PS	Benzo(a)pyrene	350.0	U	ug/kg
SWU-C-DP-11	SWU-C-DP-11-RM	Beryllium	0.1	-	mg/kg
SWU-C-DP-11	SWU-C-DP-11-RM	Cesium-137	0.0	UJ	pCi/g
SWU-C-DP-11	SWU-C-DP-11-PS	Dibenzo(a,h)anthracene	20.8	U	ug/kg

**TABLE 2-2**  
**CU SWU-C-DP SAMPLE RESULTS**

Boring ID	Sample ID	Parameter	Result	Qualifier	Units
SWU-C-DP-11	SWU-C-DP-11-PS	Dieldrin	3.5	U	ug/kg
SWU-C-DP-11	SWU-C-DP-11-RM	Neptunium-237	0.0	UJ	pCi/g
SWU-C-DP-11	SWU-C-DP-11-RM	Radium-226	0.6	J	pCi/g
SWU-C-DP-11	SWU-C-DP-11-RM	Radium-228	0.4	J	pCi/g
SWU-C-DP-11	SWU-C-DP-11-RM	Technetium-99	1.7	UJ	pCi/g
SWU-C-DP-11	SWU-C-DP-11-RM	Thorium-228	0.4	J	pCi/g
SWU-C-DP-11	SWU-C-DP-11-RM	Thorium-230	1.1	J	pCi/g
SWU-C-DP-11	SWU-C-DP-11-RM	Thorium-232	0.4	J	pCi/g
SWU-C-DP-11	SWU-C-DP-11-RM	Uranium, Total	5.8	J	mg/kg
SWU-C-DP-13	SWU-C-DP-13-PS	Aroclor-1254	35.0	U	ug/kg
SWU-C-DP-13	SWU-C-DP-13-PS	Aroclor-1260	35.0	U	ug/kg
SWU-C-DP-13	SWU-C-DP-13-RM	Arsenic	2.6	-	mg/kg
SWU-C-DP-13	SWU-C-DP-13-PS	Benzo(a)pyrene	350.0	U	ug/kg
SWU-C-DP-13	SWU-C-DP-13-RM	Beryllium	0.0	U	mg/kg
SWU-C-DP-13	SWU-C-DP-13-RM	Cesium-137	0.0	UJ	pCi/g
SWU-C-DP-13	SWU-C-DP-13-PS	Dibenzo(a,h)anthracene	20.8	U	ug/kg
SWU-C-DP-13	SWU-C-DP-13-PS	Dieldrin	3.5	U	ug/kg
SWU-C-DP-13	SWU-C-DP-13-RM	Neptunium-237	0.0	UJ	pCi/g
SWU-C-DP-13	SWU-C-DP-13-RM	Radium-226	0.6	J	pCi/g
SWU-C-DP-13	SWU-C-DP-13-RM	Radium-228	0.2	J	pCi/g
SWU-C-DP-13	SWU-C-DP-13-RM	Technetium-99	1.7	UJ	pCi/g
SWU-C-DP-13	SWU-C-DP-13-RM	Thorium-228	0.2	J	pCi/g
SWU-C-DP-13	SWU-C-DP-13-RM	Thorium-230	0.9	J	pCi/g
SWU-C-DP-13	SWU-C-DP-13-RM	Thorium-232	0.2	J	pCi/g
SWU-C-DP-13	SWU-C-DP-13-RM	Uranium, Total	3.7	J	mg/kg
SWU-C-DP-14	SWU-C-DP-14-PS	Aroclor-1254	34.0	U	ug/kg
SWU-C-DP-14	SWU-C-DP-14-PS	Aroclor-1260	34.0	U	ug/kg
SWU-C-DP-14	SWU-C-DP-14-RM	Arsenic	5.0	-	mg/kg
SWU-C-DP-14	SWU-C-DP-14-PS	Benzo(a)pyrene	340.0	U	ug/kg
SWU-C-DP-14	SWU-C-DP-14-RM	Beryllium	0.0	U	mg/kg
SWU-C-DP-14	SWU-C-DP-14-RM	Cesium-137	0.0	UJ	pCi/g
SWU-C-DP-14	SWU-C-DP-14-PS	Dibenzo(a,h)anthracene	20.4	U	ug/kg
SWU-C-DP-14	SWU-C-DP-14-PS	Dieldrin	3.4	U	ug/kg
SWU-C-DP-14	SWU-C-DP-14-RM	Neptunium-237	0.0	UJ	pCi/g
SWU-C-DP-14	SWU-C-DP-14-RM	Radium-226	0.5	J	pCi/g
SWU-C-DP-14	SWU-C-DP-14-RM	Radium-228	0.2	J	pCi/g
SWU-C-DP-14	SWU-C-DP-14-RM	Technetium-99	1.6	UJ	pCi/g
SWU-C-DP-14	SWU-C-DP-14-RM	Thorium-228	0.2	J	pCi/g
SWU-C-DP-14	SWU-C-DP-14-RM	Thorium-230	1.7	-	pCi/g
SWU-C-DP-14	SWU-C-DP-14-RM	Thorium-232	0.2	J	pCi/g
SWU-C-DP-14	SWU-C-DP-14-RM	Uranium, Total	7.2	J	mg/kg
SWU-C-DP-15	SWU-C-DP-15-PS	Aroclor-1254	36.0	U	ug/kg
SWU-C-DP-15	SWU-C-DP-15-PS	Aroclor-1260	36.0	U	ug/kg
SWU-C-DP-15	SWU-C-DP-15-RM	Arsenic	5.3	-	mg/kg
SWU-C-DP-15	SWU-C-DP-15-PS	Benzo(a)pyrene	360.0	U	ug/kg

TABLE 2-2  
CU SWU-C-DP SAMPLE RESULTS

Boring ID	Sample ID	Parameter	Result	Qualifier	Units
SWU-C-DP-15	SWU-C-DP-15-RM	Beryllium	0.0	-	mg/kg
SWU-C-DP-15	SWU-C-DP-15-RM	Cesium-137	0.0	UJ	pCi/g
SWU-C-DP-15	SWU-C-DP-15-PS	Dibenzo(a,h)anthracene	21.4	U	ug/kg
SWU-C-DP-15	SWU-C-DP-15-PS	Dieldrin	3.6	U	ug/kg
SWU-C-DP-15	SWU-C-DP-15-RM	Neptunium-237	0.0	UJ	pCi/g
SWU-C-DP-15	SWU-C-DP-15-RM	Radium-226	0.8	J	pCi/g
SWU-C-DP-15	SWU-C-DP-15-RM	Radium-228	0.4	J	pCi/g
SWU-C-DP-15	SWU-C-DP-15-RM	Technetium-99	1.6	UJ	pCi/g
SWU-C-DP-15	SWU-C-DP-15-RM	Thorium-228	0.4	J	pCi/g
SWU-C-DP-15	SWU-C-DP-15-RM	Thorium-230	1.8	-	pCi/g
SWU-C-DP-15	SWU-C-DP-15-RM	Thorium-232	0.4	J	pCi/g
SWU-C-DP-15	SWU-C-DP-15-RM	Uranium, Total	6.5	J	mg/kg
SWU-C-DP-16	SWU-C-DP-16-PS	Aroclor-1254	34.0	U	ug/kg
SWU-C-DP-16	SWU-C-DP-16-PS	Aroclor-1260	34.0	U	ug/kg
SWU-C-DP-16	SWU-C-DP-16-RM	Arsenic	3.5	-	mg/kg
SWU-C-DP-16	SWU-C-DP-16-PS	Benzo(a)pyrene	340.0	U	ug/kg
SWU-C-DP-16	SWU-C-DP-16-RM	Beryllium	0.0	U	mg/kg
SWU-C-DP-16	SWU-C-DP-16-RM	Cesium-137	0.0	UJ	pCi/g
SWU-C-DP-16	SWU-C-DP-16-PS	Dibenzo(a,h)anthracene	20.2	U	ug/kg
SWU-C-DP-16	SWU-C-DP-16-PS	Dieldrin	3.4	U	ug/kg
SWU-C-DP-16	SWU-C-DP-16-RM	Neptunium-237	0.0	UJ	pCi/g
SWU-C-DP-16	SWU-C-DP-16-RM	Radium-226	0.5	J	pCi/g
SWU-C-DP-16	SWU-C-DP-16-RM	Radium-228	0.2	J	pCi/g
SWU-C-DP-16	SWU-C-DP-16-RM	Technetium-99	1.7	UJ	pCi/g
SWU-C-DP-16	SWU-C-DP-16-RM	Thorium-228	0.2	J	pCi/g
SWU-C-DP-16	SWU-C-DP-16-RM	Thorium-230	1.0	J	pCi/g
SWU-C-DP-16	SWU-C-DP-16-RM	Thorium-232	0.2	J	pCi/g
SWU-C-DP-16	SWU-C-DP-16-RM	Uranium, Total	1.7	J	mg/kg

**TABLE 2-3**  
**CU SWU-C-DP POST EXCAVATION SAMPLE RESULTS**

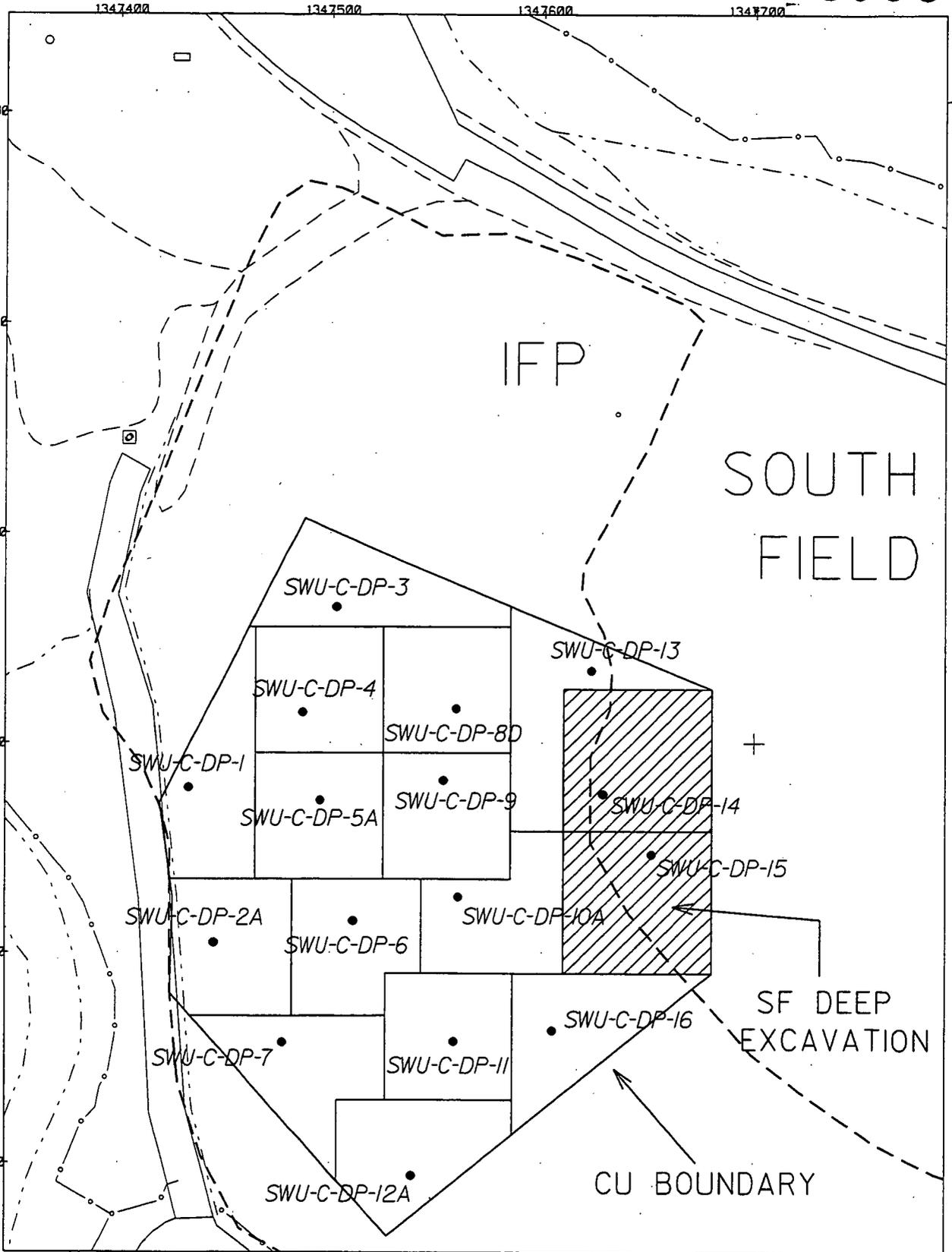
<b>Boring ID</b>	<b>Sample ID</b>	<b>Parameter</b>	<b>Result</b>	<b>Qualifier</b>	<b>Units</b>
SWU-C-DP-17	SWU-C-DP-17-R	Total Uranium	8.2	*	mg/kg
SWU-C-DP-17	SWU-C-DP-17-R-D	Total Uranium	13.0	*	mg/kg
SWU-C-DP-18	SWU-C-DP-18-R	Total Uranium	3.9	*	mg/kg

\*Validation in process

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STATE PLANNAR COORDINATE SYSTEM 1983

05-NOV-2001



LEGEND:

--- IFP BOUNDARY

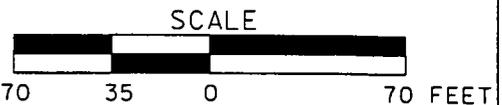
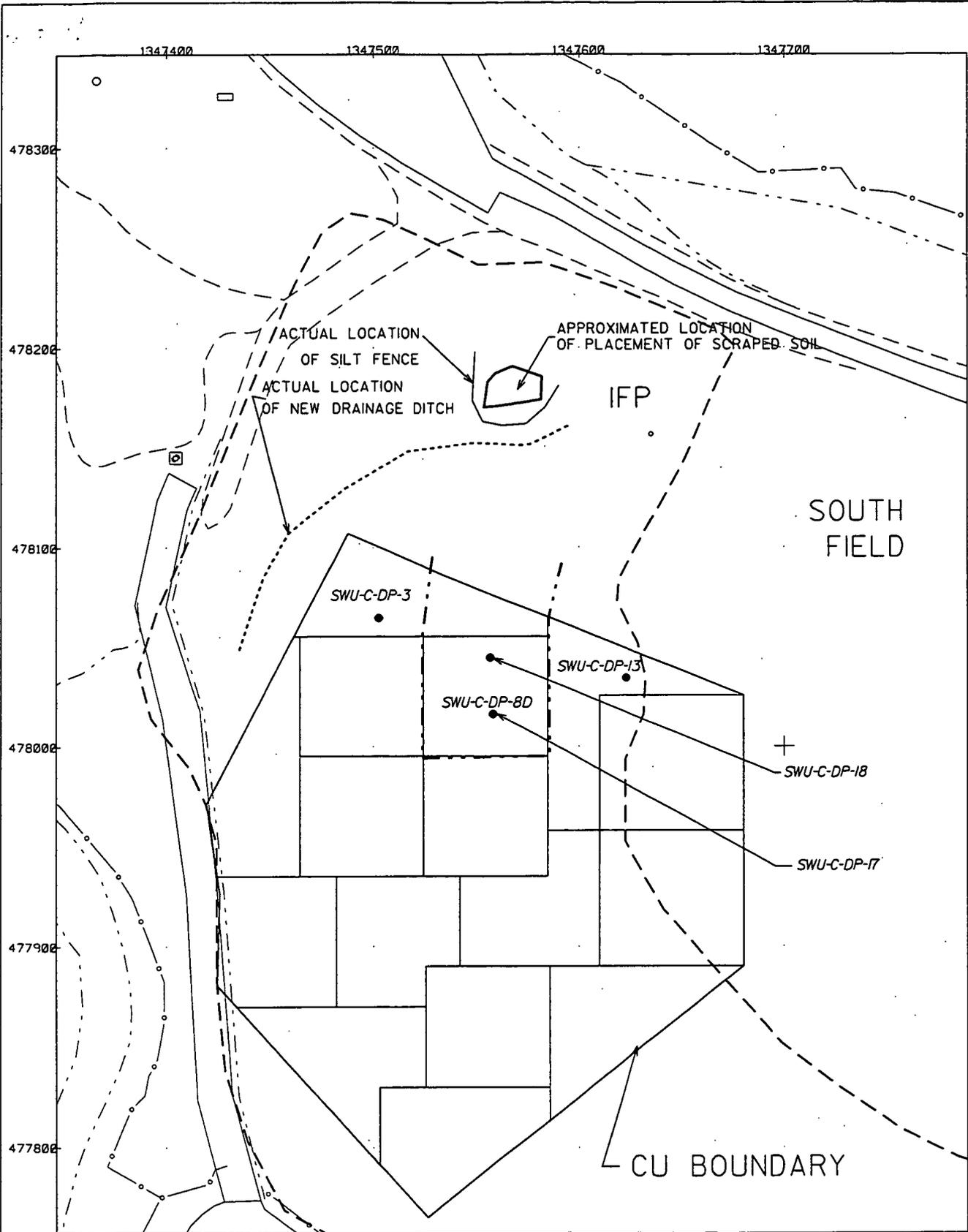


FIGURE 2-1. CU SWU-C-DP SAMPLE LOCATIONS

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STATE PLANNER COORDINATE SYSTEM 1983

05-NOV-2001



LEGEND:

- ..... 2' SCRAPE BOUNDARY
- IFP BOUNDARY

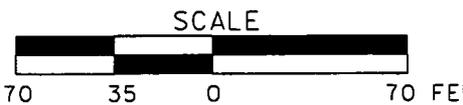


FIGURE 2-2. ADDITIONAL SAMPLE LOCATIONS IN CU SWU-000027 AFTER EXCAVATION OF FAILED SUB-CU

### 3.0 AREA-SPECIFIC CONSTITUENTS OF CONCERN

In the OU5 Record of Decision (ROD, DOE 1996), there are 80 soil COCs with established FRLs which were retained for further investigation based on a screening process that considered the presence of the constituent in site soil and the potential risk to a receptor exposed to soil containing this contaminant. In spite of the conservative nature of this COC retention process, many of the COCs with established FRLs have a limited distribution in site soil or the presence of the COC is based on high CRDLs. When the FRLs were established for these COCs in the OU5 ROD, they were initially screened against site data presented on spatial maps to establish a picture of potential remediation areas.

By reviewing existing RI/FS data presented on spatial distribution maps, the sitewide list of soil COCs was reduced from the 80 to 30. This reduction was possible because the majority of the COCs with FRLs listed in the OU5 ROD have no detections on site above their corresponding FRL, thus eliminating them from further consideration. The 30 remaining sitewide COCs account for over 99 percent of the combined risk to a site receptor model, and they comprise the list from which all of the remediation ASCOCs are drawn. When planning certification for a remediation area, additional selection criteria are used to derive an area specific subset of these 30 COCs.

#### 3.1 SELECTION CRITERIA

The selection process for retaining ASCOCs for a remediation area is driven by applying a set of decision criteria. A soil contaminant will be retained as an ASCOC if:

- It is listed as a soil COC in the OU5 ROD and,
- It can be traced to site use, either through process knowledge or known release of the constituent to the environment and,
- Analytical results indicate the contaminant is present above its FRL, and the above-FRL concentrations are not attributable to false positives or elevated CRDLs and,
- Physical characteristics of the contaminant, such as degradation rate and volatility, indicate it is likely to persist in the soil between time of release and remediation or,
- The contaminant is one of the sitewide primary COCs (total uranium, radium-226, radium-228, thorium-232, and thorium-228).

Using this process and the data presented in Table 2-1, the complete list of primary and secondary COCs presented in Table 2-7 of the SEP for remediation Area 2 will apply for the SF till/clay CUs (IFP-1 and SF-1 through SF-7). Due to the faster migration of contamination in the GMA sands, total volatiles will not be required for the GMA sand CUs (IFP-2 through IFP-4). Finally, no organic analyses will be required for the rest of the CUs based on the absence of above-FRL data points in these perimeter areas. The ASCOCs are identified and listed in Tables 3-1, 3-2 and 3-3 along with the ecological COCs required for the IFP/SF area (per Appendix C of the SEP). The ecological COCs are added to the list of analytes but certification is not contingent on benchmark toxicity value (BTV) exceedences.

**TABLE 3-1**  
**ASCOC LIST FOR IFP/SF CUs IFP-1 AND SF-1 THROUGH SF-7 (TILL CLAY AREA)**

ASCOC	FRL	Reason Retained
Total Uranium	10 mg/kg	Retained as a primary ASCOC
Radium-226	1.7 pCi/g	Retained as a primary ASCOC
Radium-228	1.8 pCi/g	Retained as a primary ASCOC
Thorium-228	1.7 pCi/g	Retained as a primary ASCOC
Thorium-232	1.5 pCi/g	Retained as a primary ASCOC
Arsenic	12 mg/kg	Retained as a secondary ASCOC
Beryllium	1.5 mg/kg	Retained as a secondary ASCOC
Lead	400 mg/kg	Retained as a secondary/ecological ASCOC*
Aroclor-1254	.13 mg/kg	Retained as a secondary ASCOC
Aroclor-1260	.13 mg/kg	Retained as a secondary ASCOC
Benzo(a)pyrene	2.0 mg/kg	Retained as a secondary ASCOC
Bromodichloromethane	4.0 mg/kg	Retained as a secondary ASCOC
1,1-dichloroethene	0.41 mg/kg	Retained as a secondary ASCOC
Dibenzo(a,h)anthracene	2.0 mg/kg	Retained as a secondary ASCOC
Indeno(1,2,3-cd)pyrene	20.0 mg/kg	Retained as a secondary ASCOC
Thorium-230	6.97 pCi/g	Retained as a secondary ASCOC
Molybdenum	10 mg/kg	Retained as an ecological ASCOC**
Thorium-230	6.97 pCi/g	Retained as a secondary ASCOC

\* Retained as a secondary COC for CU SF-5 where the Firing Range was located and as an ecological COC for CUs SF-2 through SF-4, and SF-6 only

\*\* Retained as an ecological COC for CUs SF-2 through SF-6 only.

**TABLE 3-2**  
**ASCOC LIST FOR IFP/SF CUs IFP-2 THROUGH IFP-4 (IFP GMA/SAND AREA)**

ASCOC	FRL	Reason Retained
Total Uranium	10 mg/kg	Retained as a primary ASCOC
Radium-226	1.7 pCi/g	Retained as a primary ASCOC
Radium-228	1.8 pCi/g	Retained as a primary ASCOC
Thorium-228	1.7 pCi/g	Retained as a primary ASCOC
Thorium-232	1.5 pCi/g	Retained as a primary ASCOC
Arsenic	12 mg/kg	Retained as a secondary ASCOC
Beryllium	1.5 mg/kg	Retained as a secondary ASCOC
Aroclor-1254	.13 mg/kg	Retained as a secondary ASCOC
Aroclor-1260	.13 mg/kg	Retained as a secondary ASCOC
Benzo(a)pyrene	2.0 mg/kg	Retained as a secondary ASCOC
Dibenzo(a,h)anthracene	2.0 mg/kg	Retained as a secondary ASCOC
Indeno(1,2,3-cd)pyrene	20.0 mg/kg	Retained as a secondary ASCOC
Thorium-230	6.97 pCi/g	Retained as a secondary ASCOC

**TABLE 3-3**  
**ASCOC LIST FOR IFP/SF CUs NWU-1 THROUGH NWU-13**

<b>ASCOC</b>	<b>FRL</b>	<b>Reason Retained</b>
Total Uranium	82 mg/kg	Retained as a primary ASCOC
Radium-226	1.7 pCi/g	Retained as a primary ASCOC
Radium-228	1.8 pCi/g	Retained as a primary ASCOC
Thorium-228	1.7 pCi/g	Retained as a primary ASCOC
Thorium-232	1.5 pCi/g	Retained as a primary ASCOC
Arsenic	12 mg/kg	Retained as a secondary ASCOC
Beryllium	1.5 mg/kg	Retained as a secondary ASCOC

## 4.0 CERTIFICATION APPROACH

### 4.1 CERTIFICATION DESIGN

The certification design for the IFP/SF area follows the general approach outlined in Section 3.4 of the SEP. The CU design is depicted in Figure 4-1 and the sample locations are depicted in Figure 4-2. As discussed in Section 3.0 of this document, total uranium, thorium-228, thorium-232, radium-226, and radium-228 (the primary ASCOCs), arsenic and beryllium (secondary ASCOCs) will be retained in all CUs. Additional secondary and ecological COCs are identified for specific CUs within the certification area.

#### 4.1.1 Certification Unit Design

The IFP/SF certification area consists of the following:

- Eleven Group 1 CUs with the OU2 total uranium FRL:
  - IFP-C-1 through -4 – the footprint of the former IFP area
  - SF-C-1 through -7 – the footprint of the former SF area.
  
- Thirteen Group 1 CUs with the OU5 total uranium FRL (the NWU area):
  - NWU-1 and -2 – footprint of the Non-Impacted Material Stockpile 1 and the turnaround area
  - NWU-3 and -4 – footprint of Basin 1
  - NWU-5 – Grassy Knoll area south of Basin 4
  - NWU-6 through -9 – Footprint and surrounding areas of Carolina and Perimeter Area excavations
  - NWU-10 – Footprint of Basin 4
  - NWU-11 – Footprint of EWWF and the East-West Construction Haul Road
  - NWU-12 and -13 – Footprint of Ditch 1 and Basin 2.

The CUs bounded by the SSOD and the unnamed tributaries extend only partially down the side banks to allow for potential backup during extreme rain events and flooding. The SSOD streambeds and lower

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side banks are excluded from this certification event and will be certified at a later date with the stream corridors.

If the excavation footprint is modified, either from the design and/or due to elevated precertification scanning results, the CU designs will be re-evaluated. Any CU changes deemed necessary based on this evaluation will be presented in the final revision of this CDL.

#### 4.2 ANALYTICAL METHODOLOGY AND STATISTICAL ANALYSIS

Laboratory analyses of certification samples will be conducted using an approved analytical method, as discussed in Appendix H of the SEP. Analyses will be conducted to either Analytical Support Level (ASL) D or E. All requirements for ASL E are the same as ASL D except that the minimum detection level for the selected analytical method must be at least 10 percent of FRL. All results will be validated to ASL B, and a minimum of 10 percent (three of the 24 CUs) of the results will be validated to ASL D. The CUs to be validated to ASL D (A2P1-SF-C-3, A2P1-SF-C-8 and A2P1-NWU-C-11) were randomly selected. Samples rejected during validation will be re-analyzed, or an alternate sample may be collected and substituted if there is insufficient material available from the initial sample. If any sample fails validation, all data from the laboratory with the rejected result will then be validated to ASL D to determine the integrity of all data from that laboratory. Once data are validated, results will be entered into the SED, and a statistical analysis will be performed to evaluate the pass/fail criteria for the each CU. The statistical approach is discussed in Section 3.4.3 and Appendix G of the SEP.

Two criteria must be met for the CU to pass certification. If the data distribution is normal or lognormal, the first criterion compares the 95 percent Upper Confidence Limit (UCL) on the mean of each primary ASCOC to its FRL. On an individual CU basis, any ASCOC with the 95 percent UCL above the FRL results in that CU failing certification. If the data distribution is not normal or lognormal, the appropriate nonparametric approach discussed in Appendix G of the SEP will be used to evaluate the second criterion. The second criterion is related to individual samples. An individual sample cannot be greater than two times the FRL or three times the FRL, based on its size (see Figure 3-11 of the SEP for further details). When the given UCL on the mean for each ASCOC is less than its FRL, and the two-times FRL hot spot criterion is met, the CU has met both criteria and will be considered certified.

There are three conditions that could result in a CU failing certification: 1) high variability in the data set, 2) localized contamination, and 3) widespread contamination. Details on the evaluation and responses to these possible outcomes are provided in Section 3.4.5 of the SEP. When all CUs within the scope of this CDL have passed certification, a certification report will be issued. The certification reports will be submitted to EPA and OEPA to receive acknowledgment that the pertinent operable unit remedial actions were completed and the individual CUs are certified to be released for interim or final land use. Section 7.4 of the SEP provides additional details and describes the required content of the certification reports.

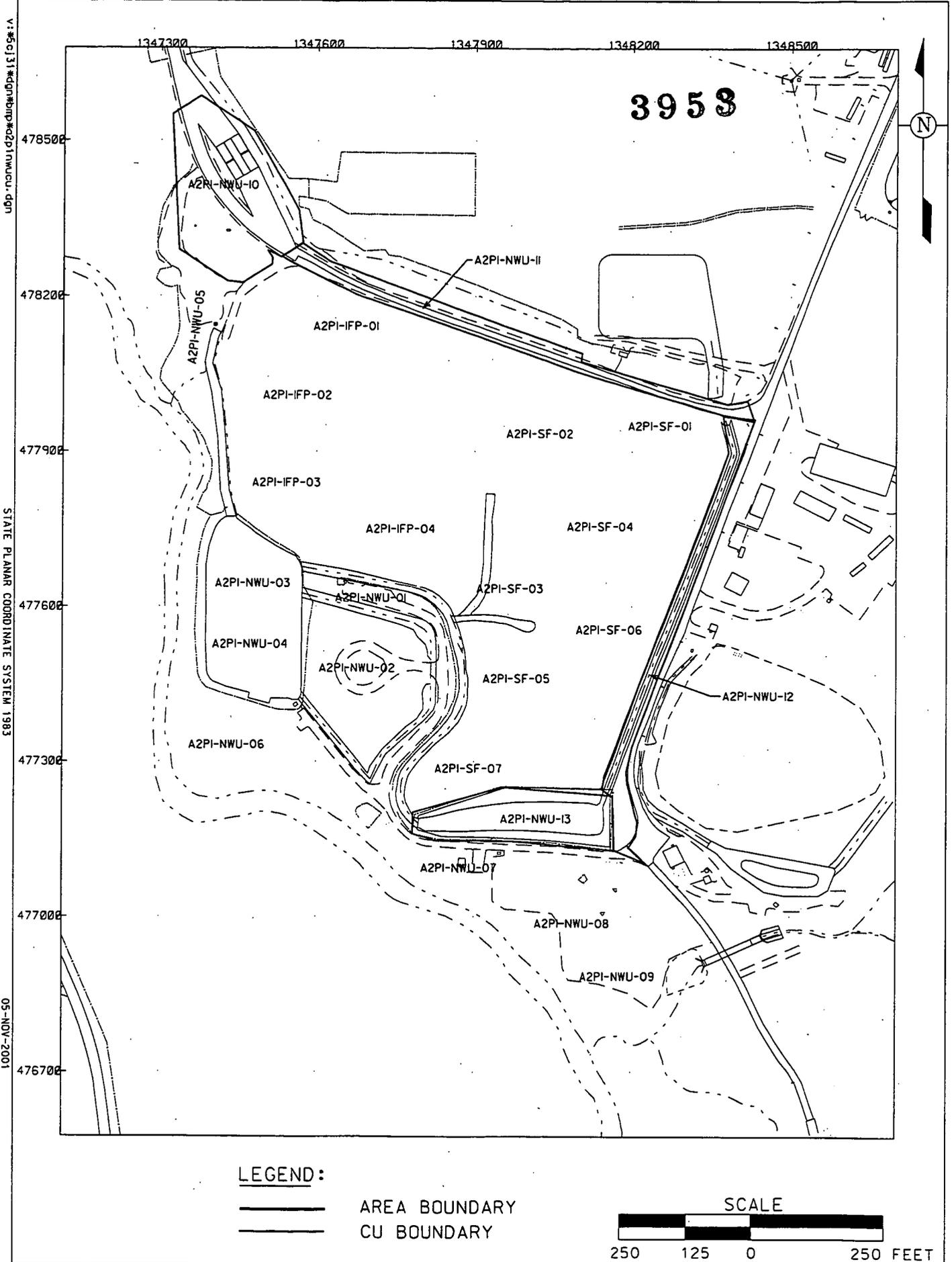
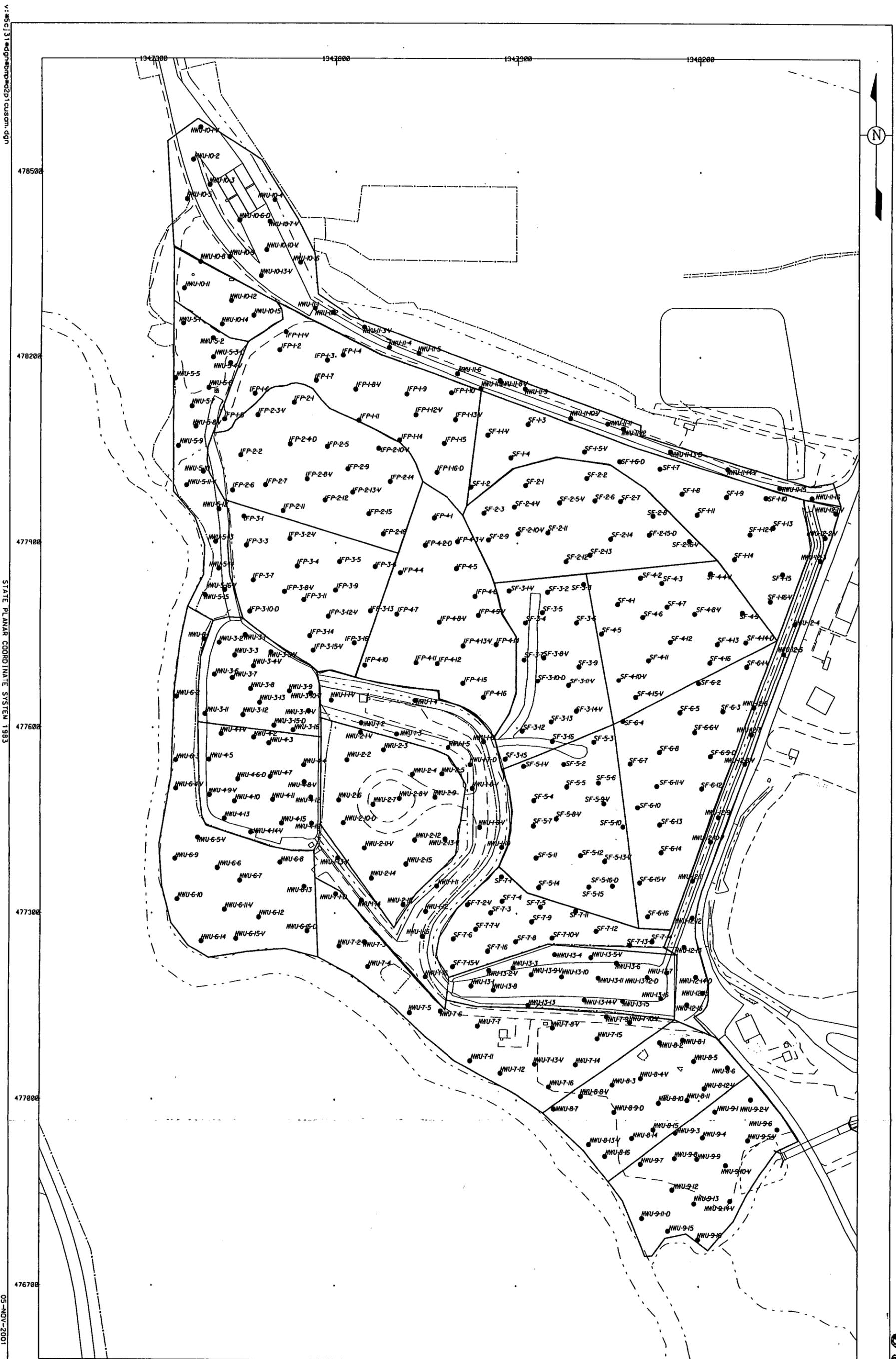


FIGURE 4-1. AREA 2, PHASE I CU DESIGN

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**LEGEND:**

- AREA BOUNDARY
- - - CU BOUNDARY
- SAMPLE LOCATION

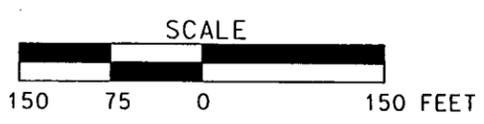


FIGURE 4-2. AREA 2, PHASE I CU SAMPLE LOCATIONS

STATE PLANNING COORDINATE SYSTEM 1983

3953

**5.0 SCHEDULE**

The following draft schedule shows key activities for the completion of the work within the scope of this CDL.

<u>ACTIVITY</u>	<u>TARGET DATE</u>
Submittal of Certification Design Letter	August 28, 2001*
Start of Certification Sampling	October 1, 2001
Complete Certification Sampling	November 15, 2001
Complete Analytical Work	January 15, 2001
Complete Data Validation/Statistical Analysis	March 21, 2002
Submit Certification Report (Phase II)	April 1, 2002*

\* These are the submittal dates that will be incorporated in the A2PI NWU Perimeter Area IRDP.

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- U.S. Department of Energy, 1995b, "Operable Unit 5 Remedial Investigation Report," Final, Fernald Environmental Management Project, DOE, Fernald Area Office, Cincinnati, Ohio.
- U.S. Department of Energy, 1995c, "Operable Unit 2 Remedial Investigation Report," Final, Fernald Environmental Management Project, DOE, Fernald Area Office, Cincinnati, Ohio.
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- U.S. Department of Energy, 1998b, "Integrated Remedial Design Package for Area 2, Phase I," Draft Final, Fernald Environmental Management Project, DOE, Fernald Area Office, Cincinnati, Ohio.
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- U.S. Department of Energy, 1998d, "Addendum to the Sitewide CERCLA Quality Assurance Project Plan," Draft, Fernald Environmental Management Project, DOE, Fernald Area Office, Cincinnati, Ohio.
- U.S. Department of Energy, 1999, "Project Specific Plan for Predesign Sampling of Area 2, Phase I Non-Waste Units and Area 2, Phase II Part One," Revision 0, Fernald Environmental Management Project, DOE, Fernald Area Office, Cincinnati, Ohio.
- U.S. Department of Energy, 2000, "Project Specific Plan for Area 2, Phase I Precertification Real-Time Scan," Revision 0, Fernald Environmental Management Project, DOE, Fernald Area Office, Cincinnati, Ohio.
- U.S. Department of Energy, 2001, "Integrated Remedial Design Plan for Area 2, Phase I Non-Waste Units Perimeter Area," Draft, Fernald Environmental Management Project, DOE, Fernald Area Office, Cincinnati, Ohio.

**APPENDIX A**

**FINAL GRADE EXCAVATION DATA**

# A2P1 SOUTH FIELD Final Grade

Moisture Corrected Total Uranium

HPGe #40743, 31265, 31204, 30904, 30687

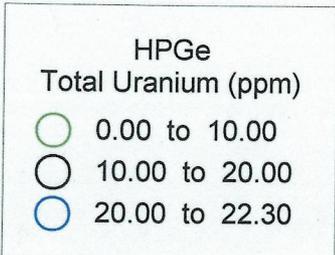
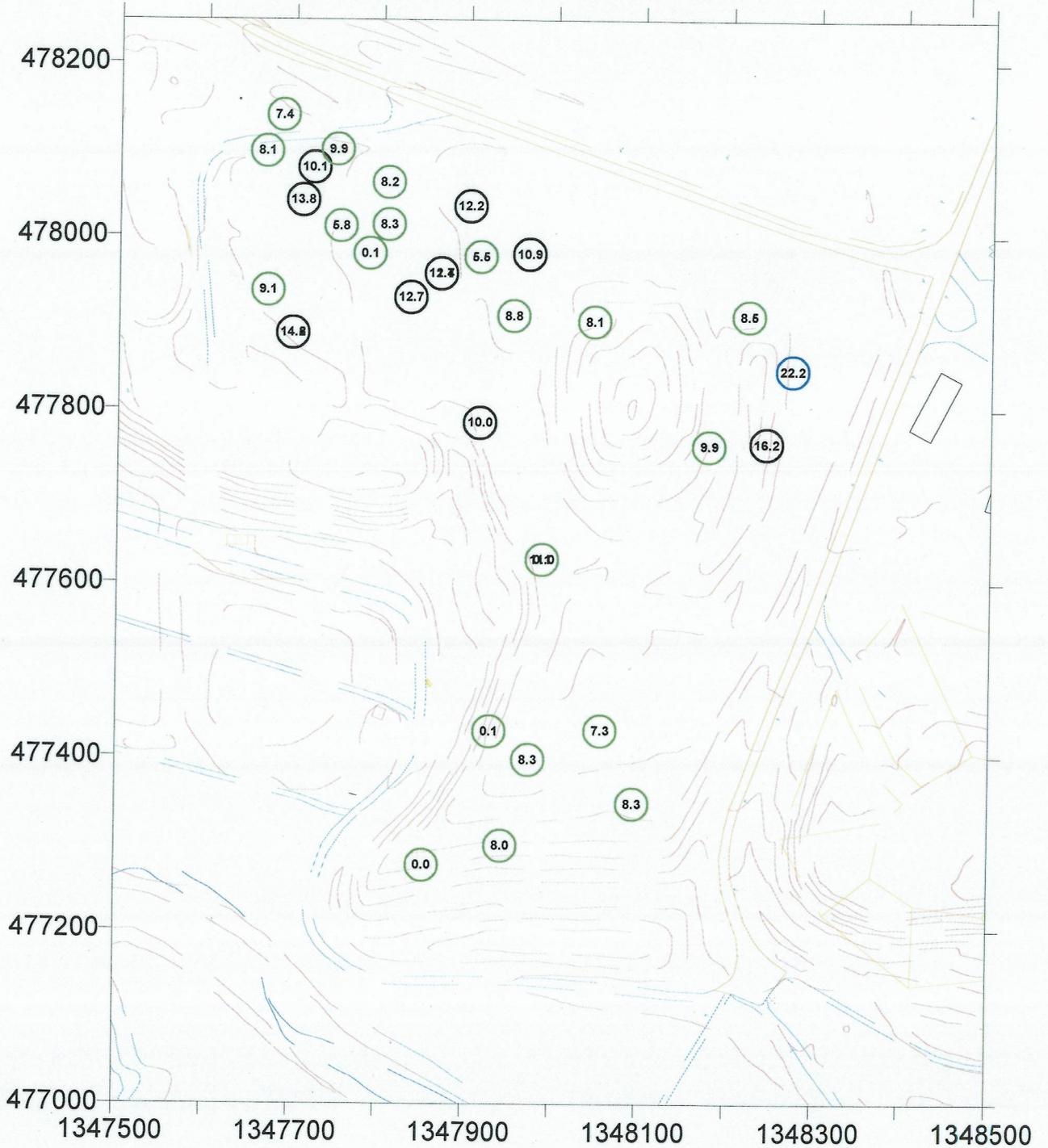
Single Spectra in ppm

Coverage Plot (Field of View to scale)

Measurement Dates: 07/20/00-09/15/00

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3953



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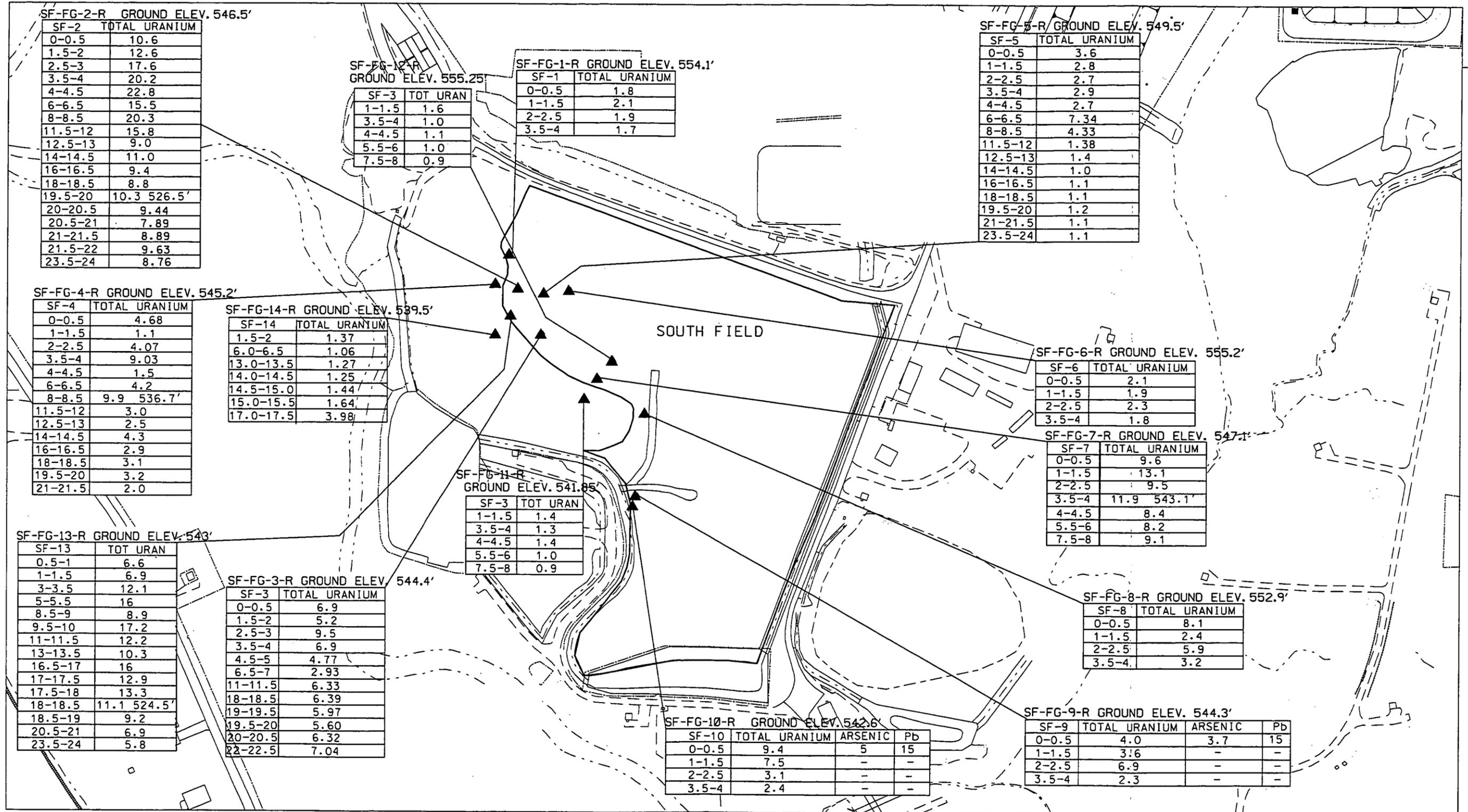
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Prepared By: Brian McDaniel

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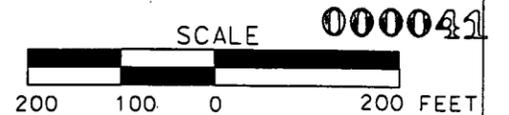
Date Prepared: 09/19/00

40½



LEGEND:

- EXCAVATION BOUNDARY
- ▲ SOUTHFIELD FRL SOIL BORINGS



# A2P1 NWU CAROLINA AREA

3953

## Moisture Corrected Total Uranium

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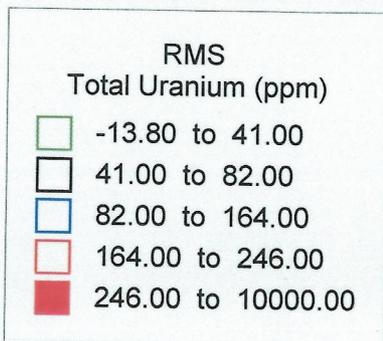
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Measurement Date: 10/12/00

Two Spectra Average

Coverage Plot (Field of View to scale)

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Prepared By: Brian McDaniel  
File: A2P1\_NWU\_CAR\_4\_533\_TU\_2PT\_MC.srf  
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000042

# A2P1 NWU CAROLINA AREA

## Rad0n & Moisture Corrected Radium-226

3953

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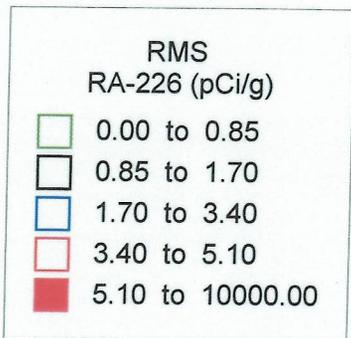
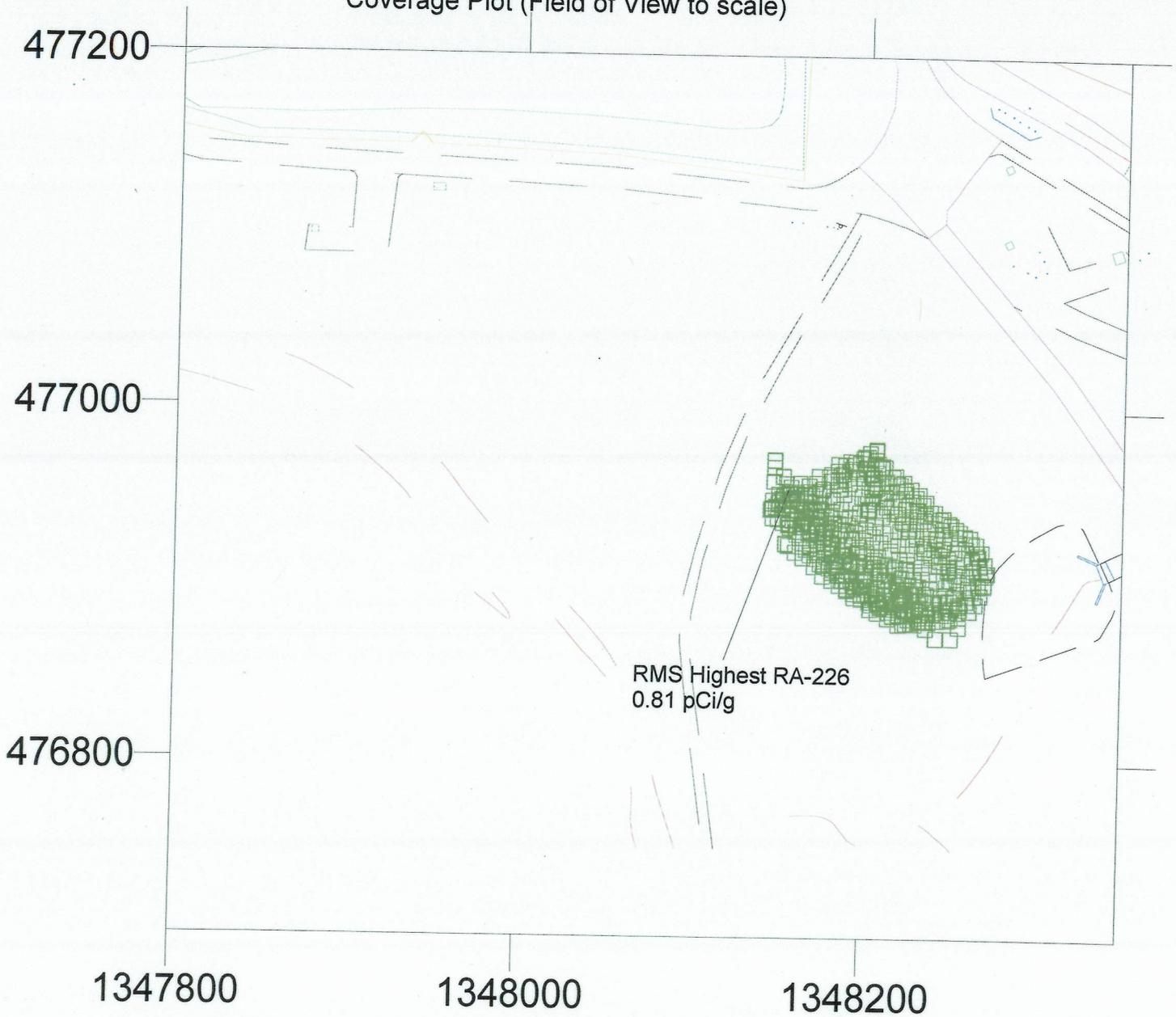
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Measurement Date: 10/12/00

Two Spectra Average

Coverage Plot (Field of View to scale)

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Project Name: A2P1 NWU & A2P2 PT1 PreDesign Sampling  
Prepared By: Brian McDaniel  
File: A2P1\_NWU\_CAR\_4\_533\_RA\_2PT\_MC.srf  
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000043

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## Moisture Corrected Thorium-232

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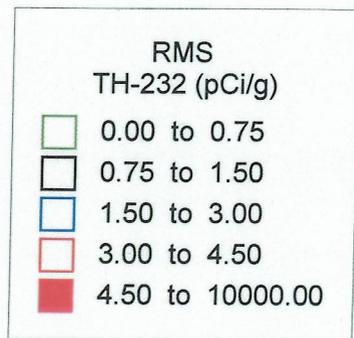
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Two Spectra Average

Coverage Plot (Field of View to scale)

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Prepared By: Brian McDaniel  
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# A2P1 NWU CAROLINA AREA

3953

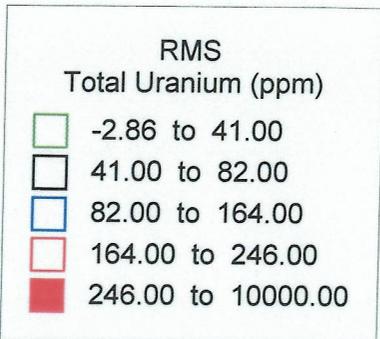
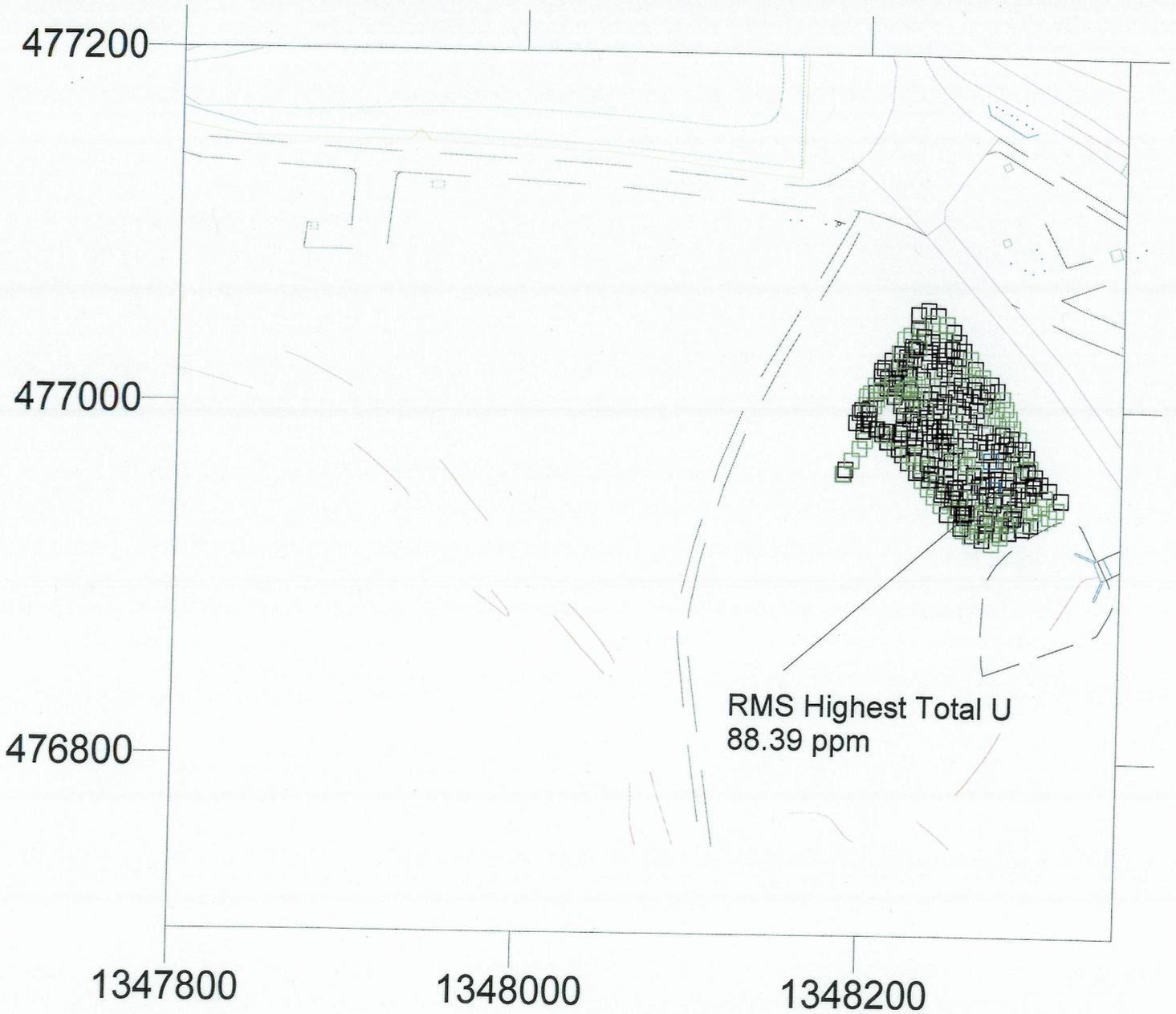
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RTRK batch#: 841

Measurement Date: 09/19/00

Coverage Plot (Field of View 2.4m radius)

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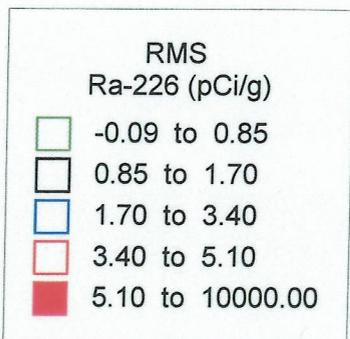
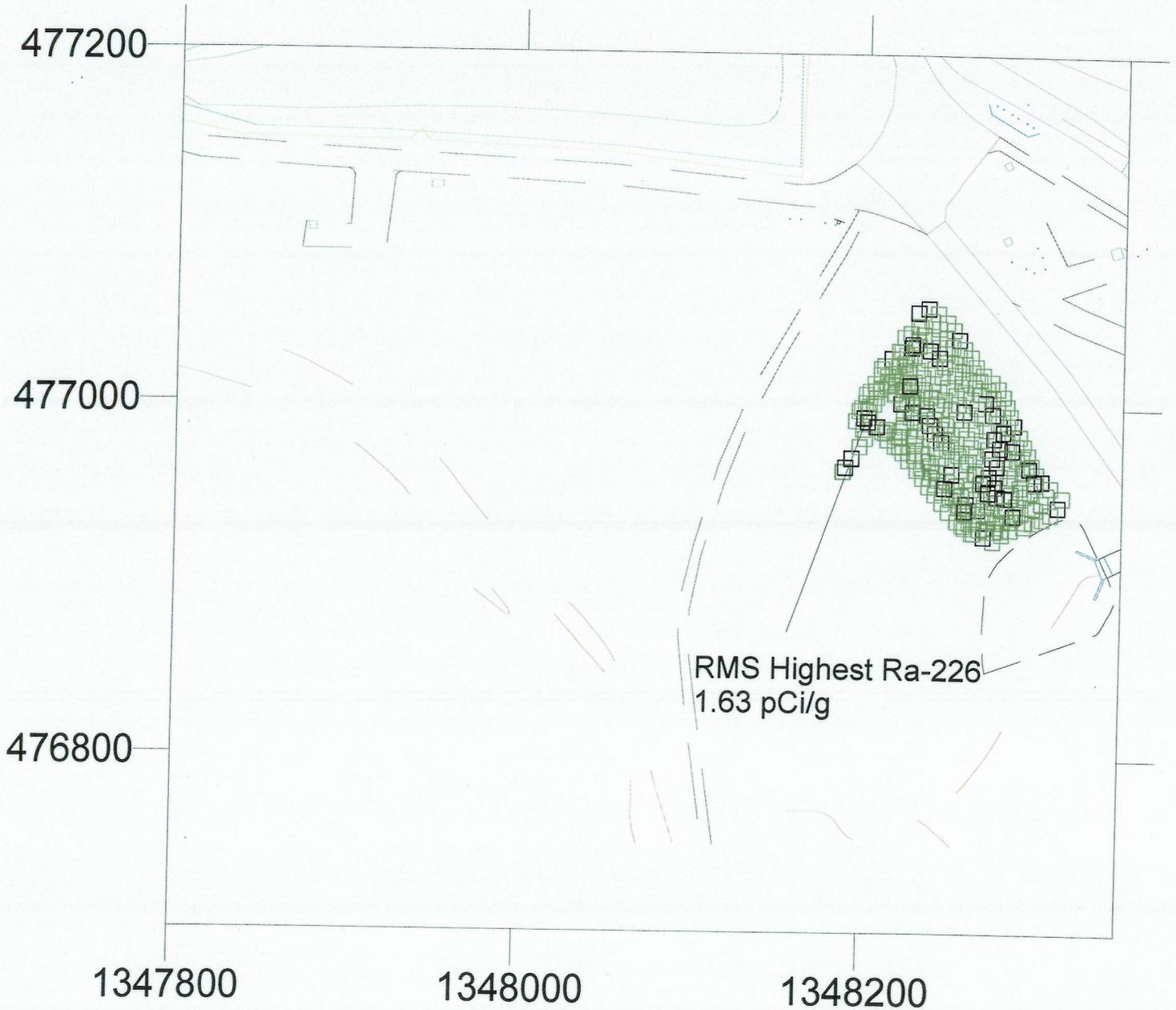
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3953

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Measurement Date: 09/19/00  
Coverage Plot (Field of View 2.4m radius)

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Prepared By: Brian McDaniel  
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000046

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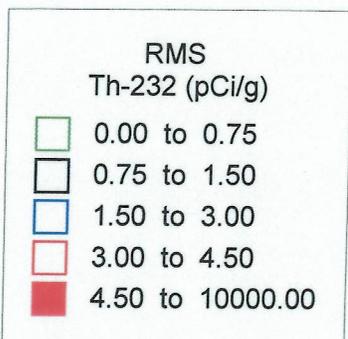
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Prepared By: Brian McDaniel  
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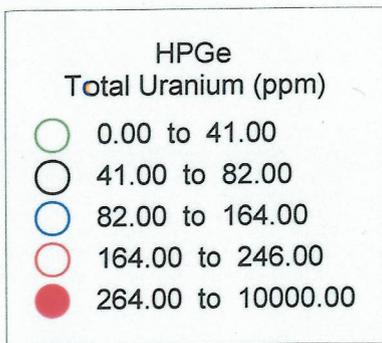
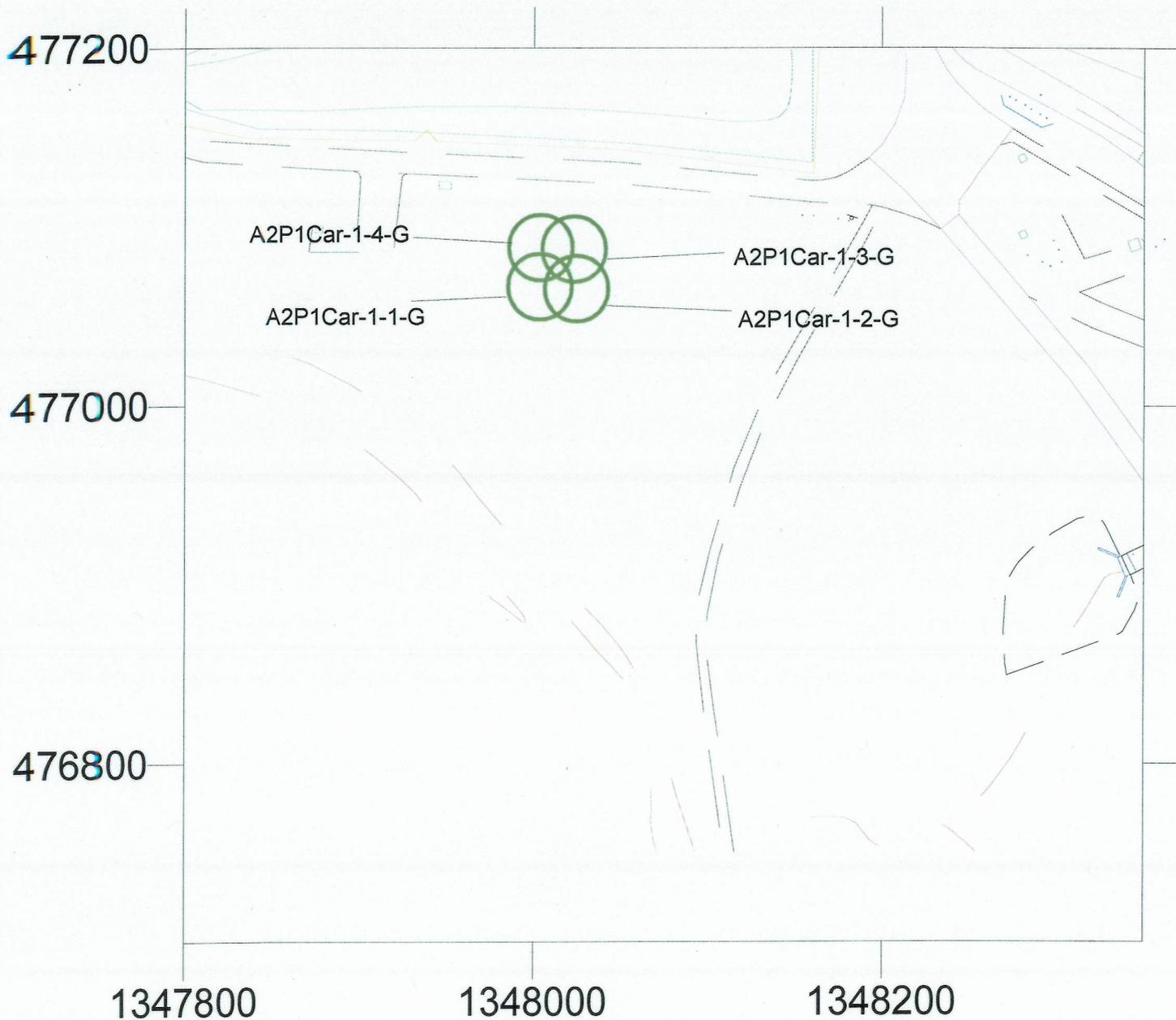
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HPGe Det #: 31265

Measurement Date: 10/04/00

Coverage Plot (Field of View 6m radius)

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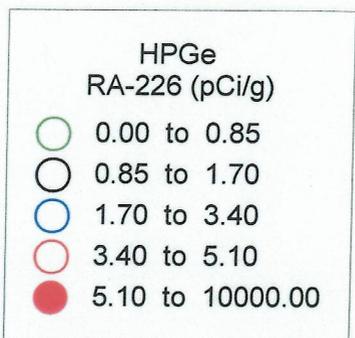
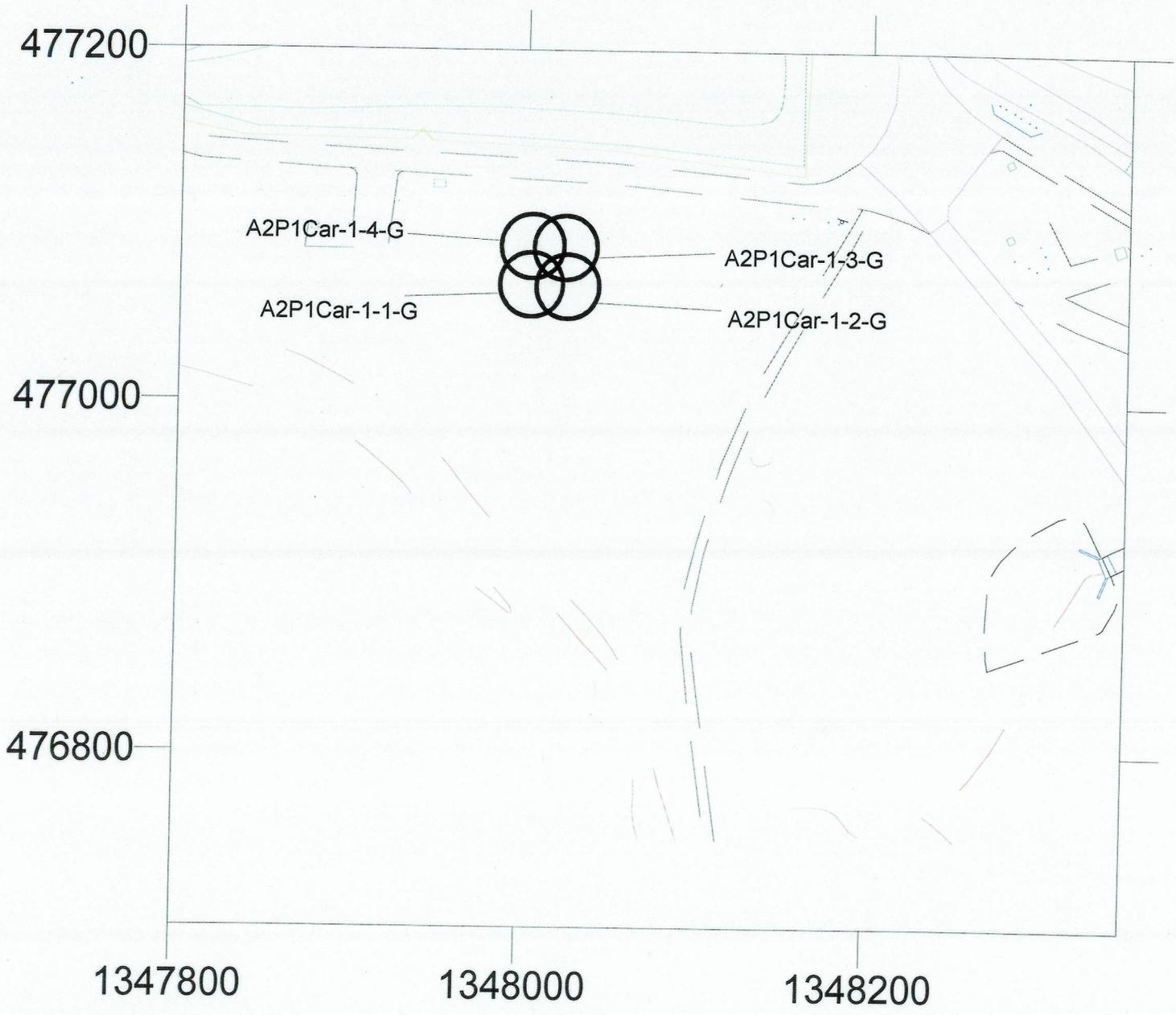
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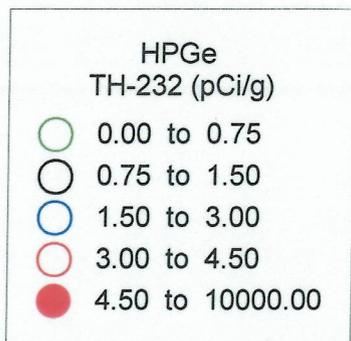
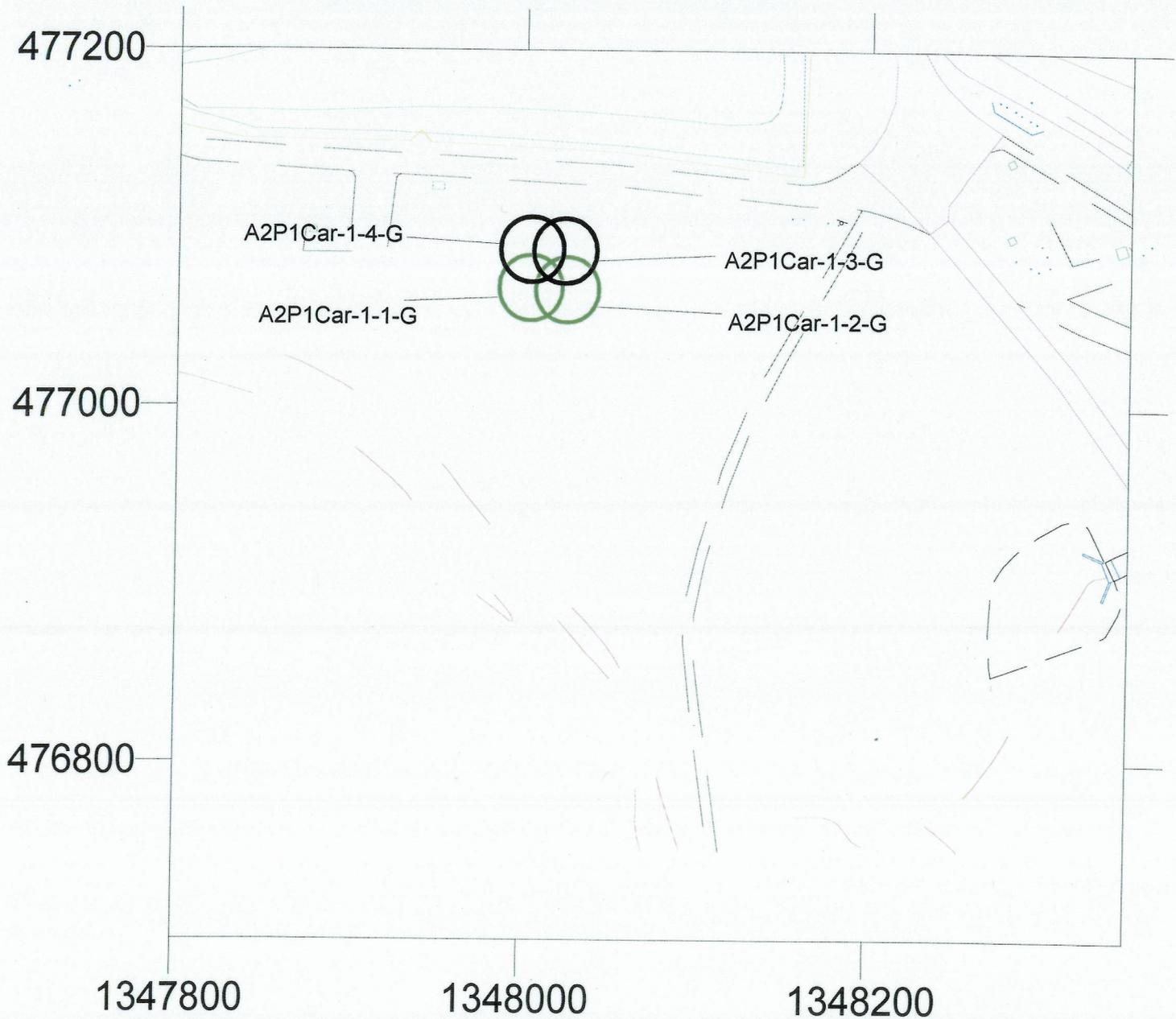
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Measurement Date: 10/04/00

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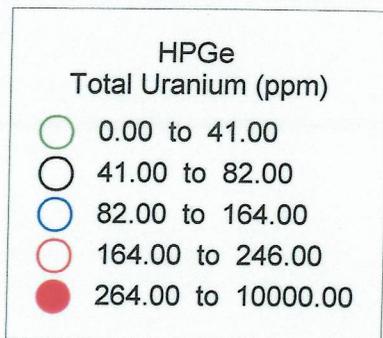
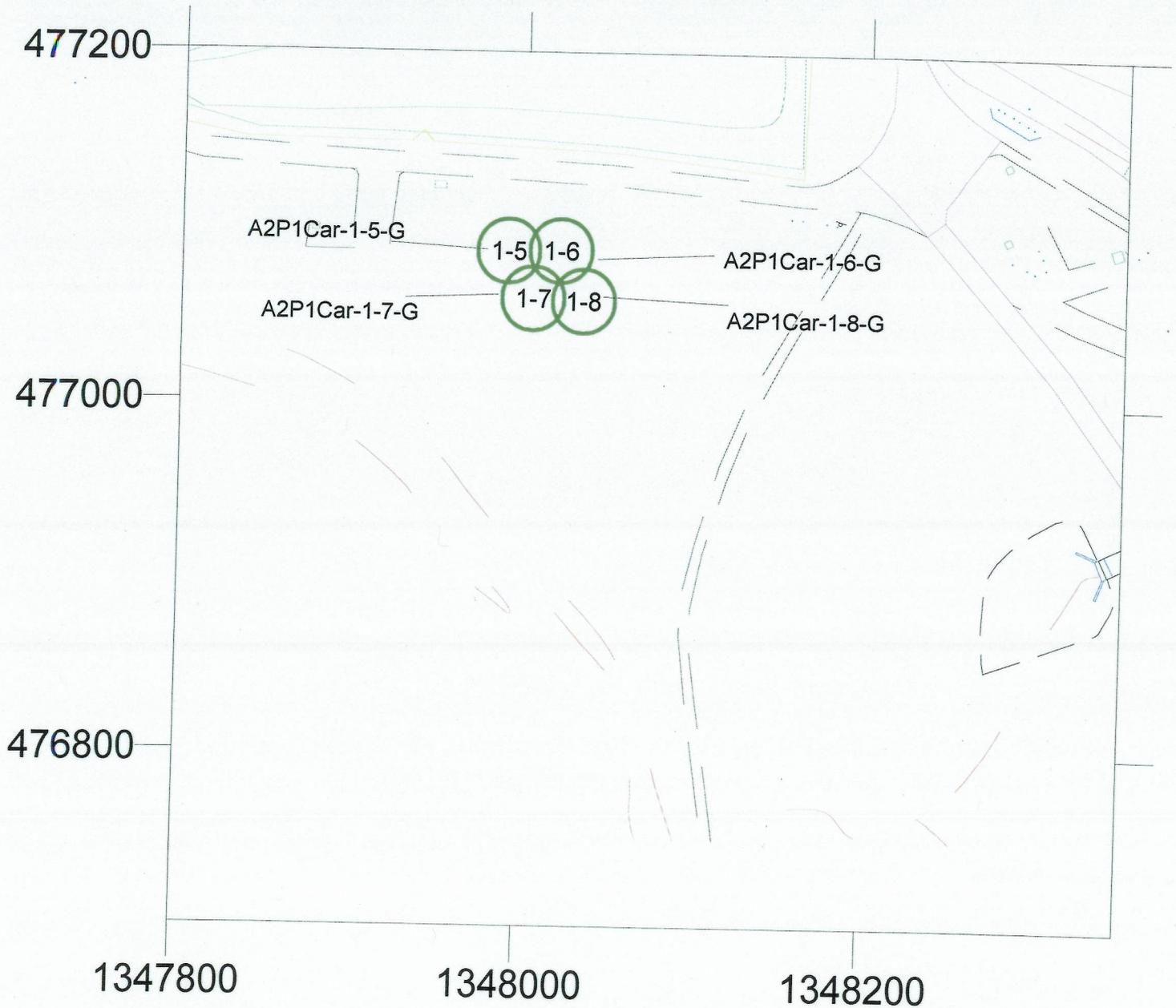
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000051

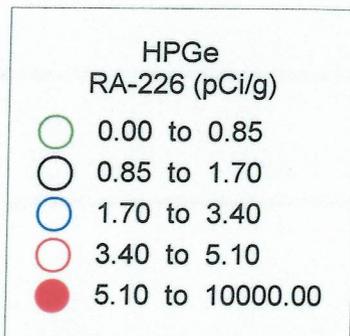
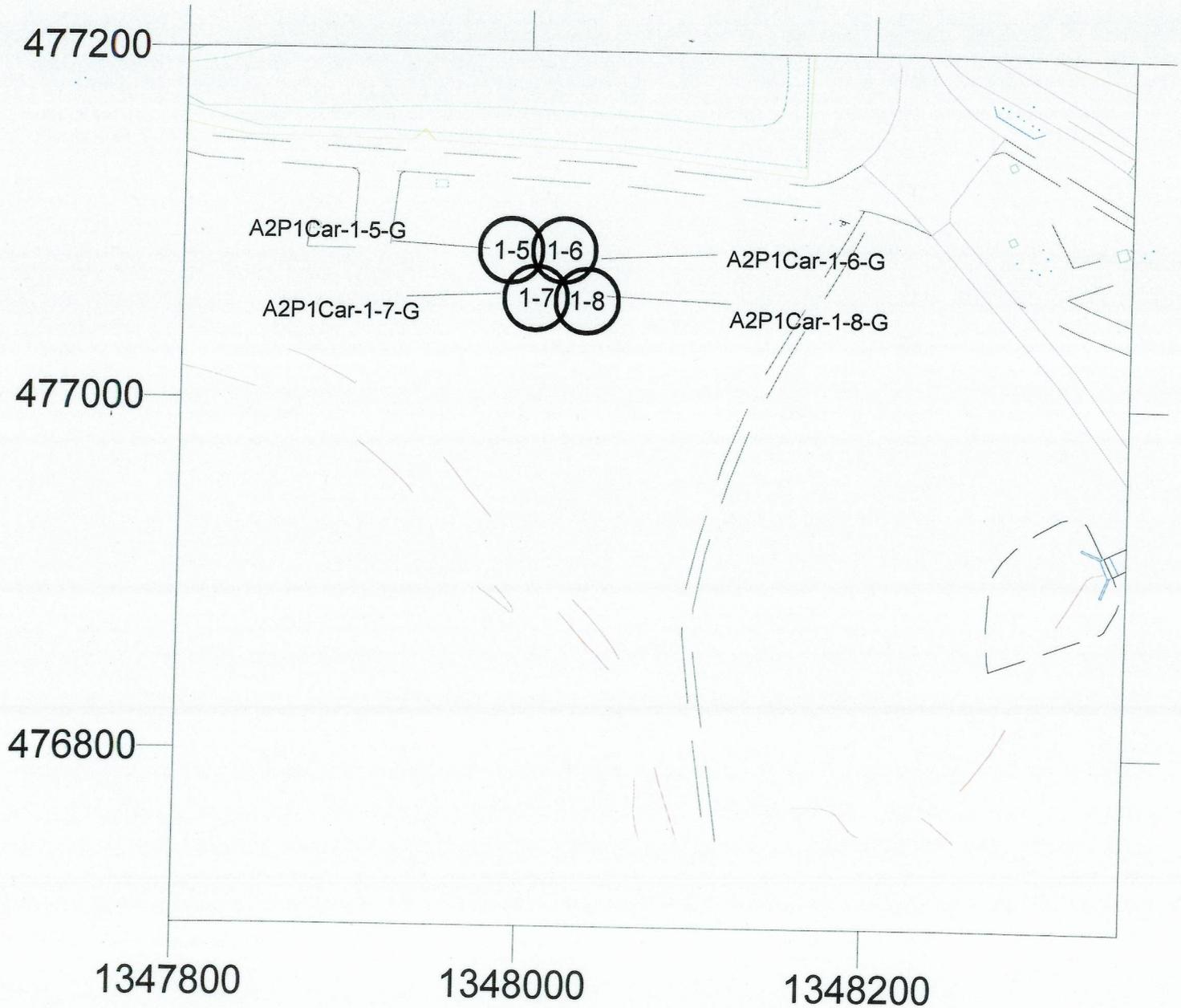
# A2P1 NWU CAROLINA AREA

## Radon & Moisture Corrected Radium-226

3953

HPGe Det #: 31265  
Measurement Date: 10/11/00  
Coverage Plot (Field of View 6m radius)

N



RTIMP DWG Title: A2P1-NWU-CAR-1-Lift-2-RA-1PT-MC.srf  
Project #: 20400-PSP-0002  
Project Name: A2P1 NWU & A2P2 PT1 PreDesign Sampling  
Prepared By: Brian McDaniel  
File: A2P1\_NWU\_CAR\_1\_Lift\_2\_RA\_1PT\_MC.srf  
Date Prepared: 10/12/00

000052

# A2P1 NWU CAROLINA AREA

3953

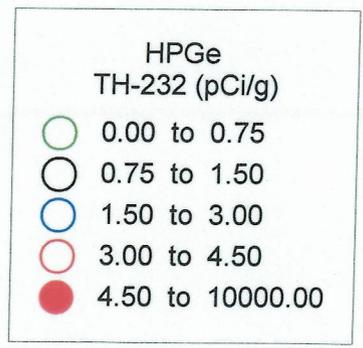
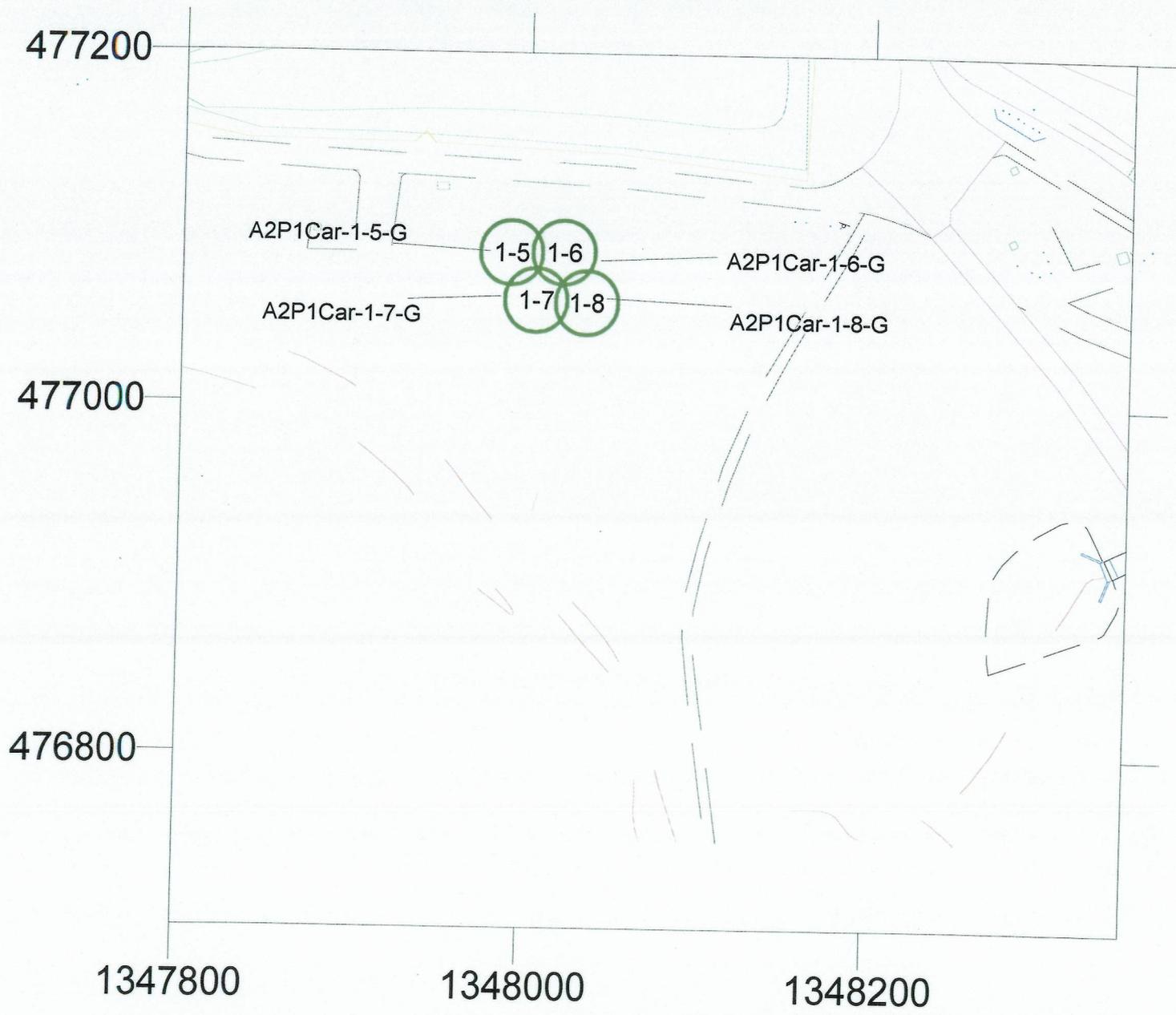
## Moisture Corrected Thorium-232

HPGe Det #: 31265

Measurement Date: 10/11/00

Coverage Plot (Field of View 6m radius)

N



RTIMP DWG Title: A2P1-NWU-CAR-1-Lift-2-TH-1PT-MC.srf  
Project #: 20400-PSP-0002  
Project Name: A2P1 NWU & A2P2 PT1 PreDesign Sampling  
Prepared By: Brian McDaniel  
File: A2P1\_NWU\_CAR\_1\_Lift\_2\_TH\_1PT\_MC.srf  
Date Prepared: 10/12/00

000053

# A2P1 NWU CAROLINA AREA

3953

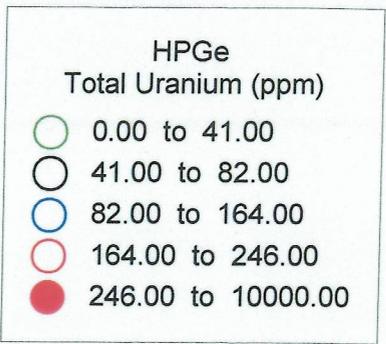
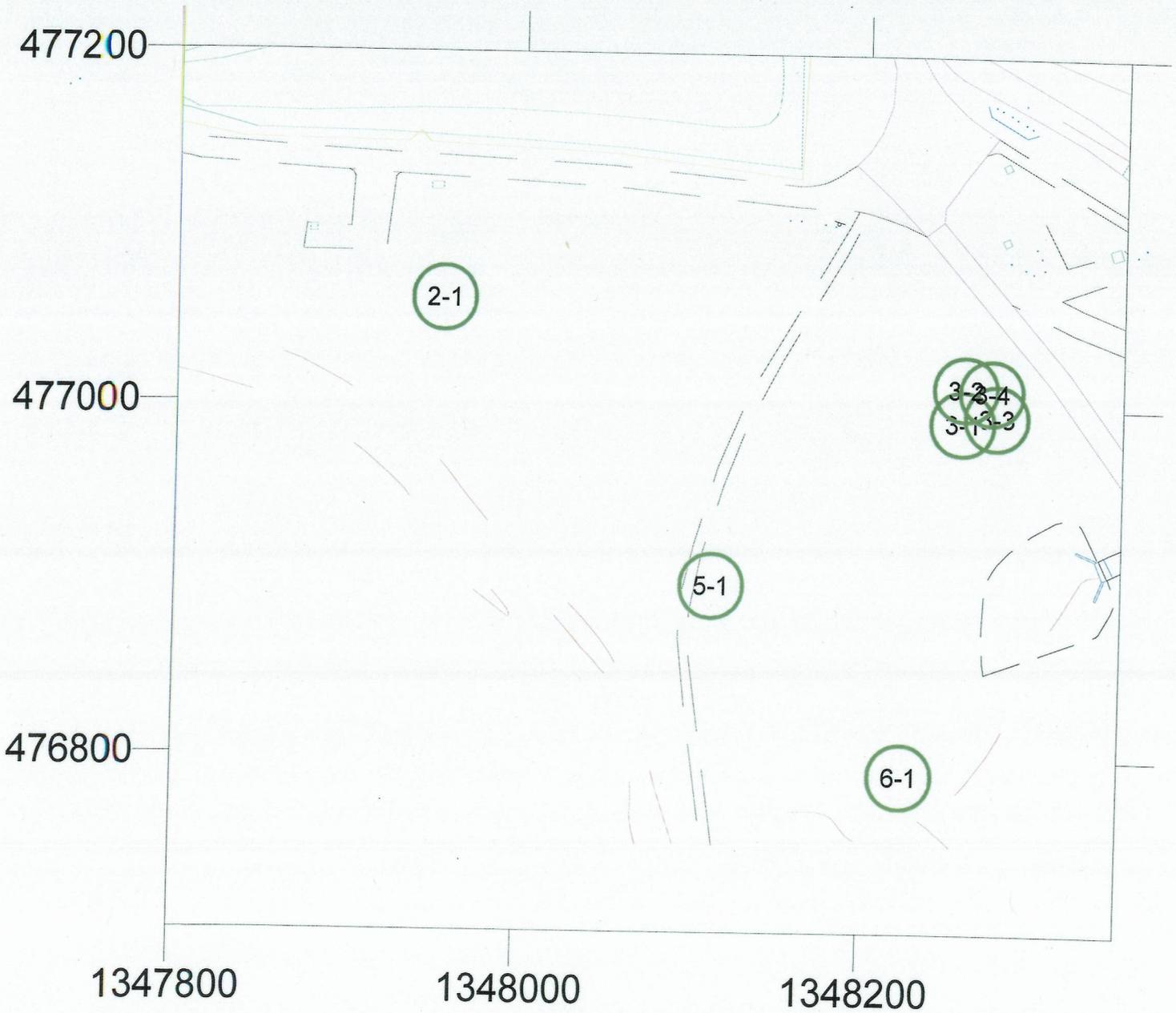
## Moisture Corrected Total Uranium

HPGe Det #: 30716,31204

Measurement Date: 09/20/00

Coverage Plot (Field of View 12m radius)

N



RTIMP DWG Title: A2P1-NWU-CAR-2-3-5-6-TU-1PT-MC.srf  
Project #: 20400-PSP-0002  
Project Name: A2P1 NWU & A2P2 PT1 PreDesign Sampling  
Prepared By: Brian McDaniel  
File: A2P1\_NWU\_CAR\_2\_3\_5\_6\_TU\_1PT\_MC.srf  
Date Prepared: 9/20/00

000054

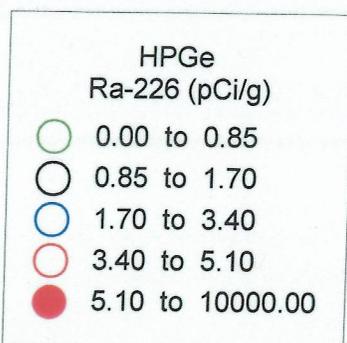
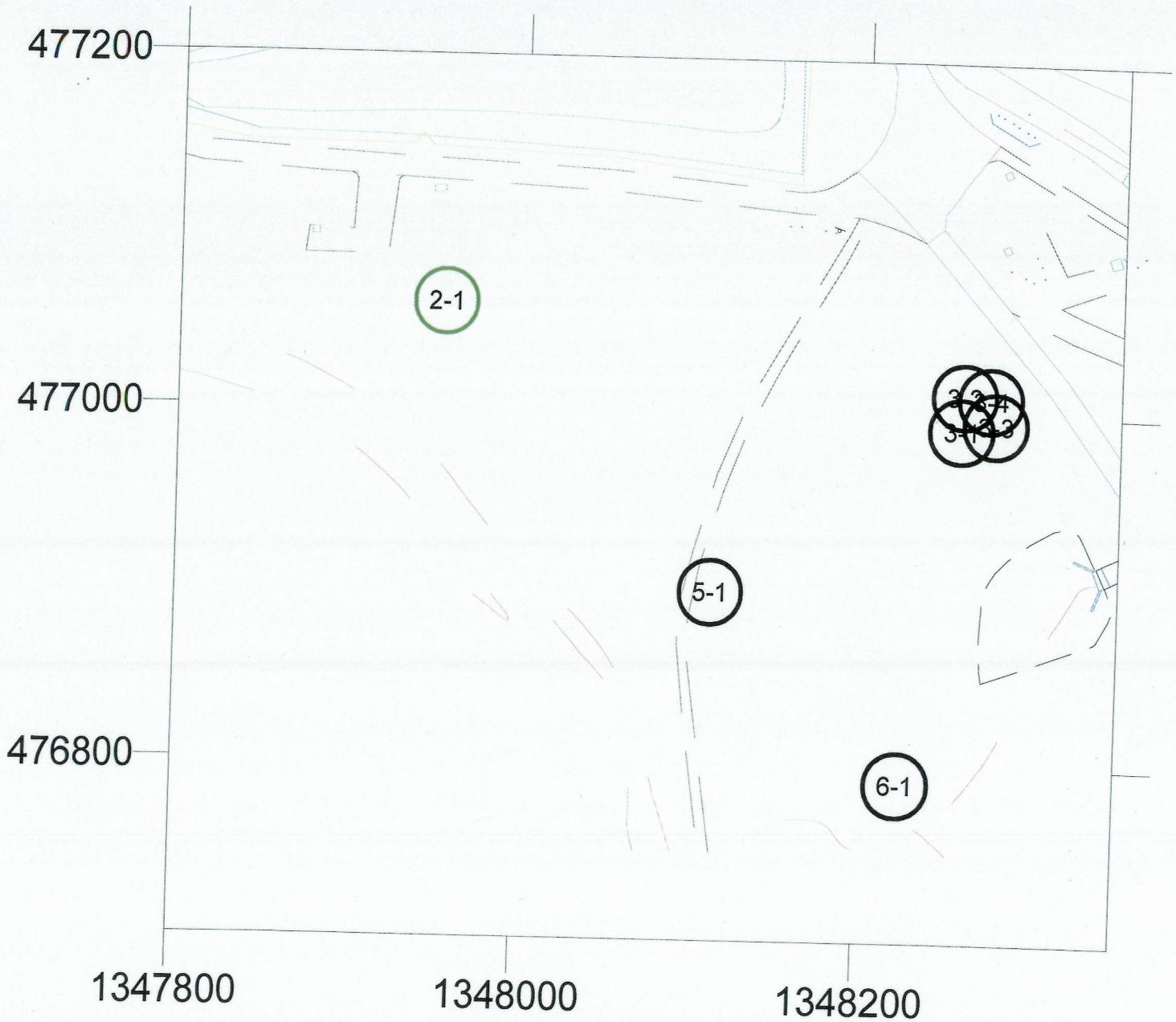
# A2P1 NWU CAROLINA AREA

## Radon & Moisture Corrected Radium-226

3953

HPGe Det #: 30716,31204  
Measurement Date: 09/20/00  
Coverage Plot (Field of View 12m radius)

N



RTIMP DWG Title: A2P1-NWU-CAR-2-3-5-6-RA-1PT-MC.srf  
Project #: 20400-PSP-0002  
Project Name: A2P1 NWU & A2P2 PT1 PreDesign Sampling  
Prepared By: Brian McDaniel  
File: A2P1\_NWU\_CAR\_2\_3\_5\_6\_RA\_1PT\_MC.srf  
Date Prepared: 9/21/00

000055

# A2P1 NWU CAROLINA AREA

3953

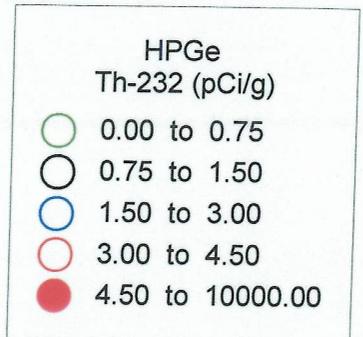
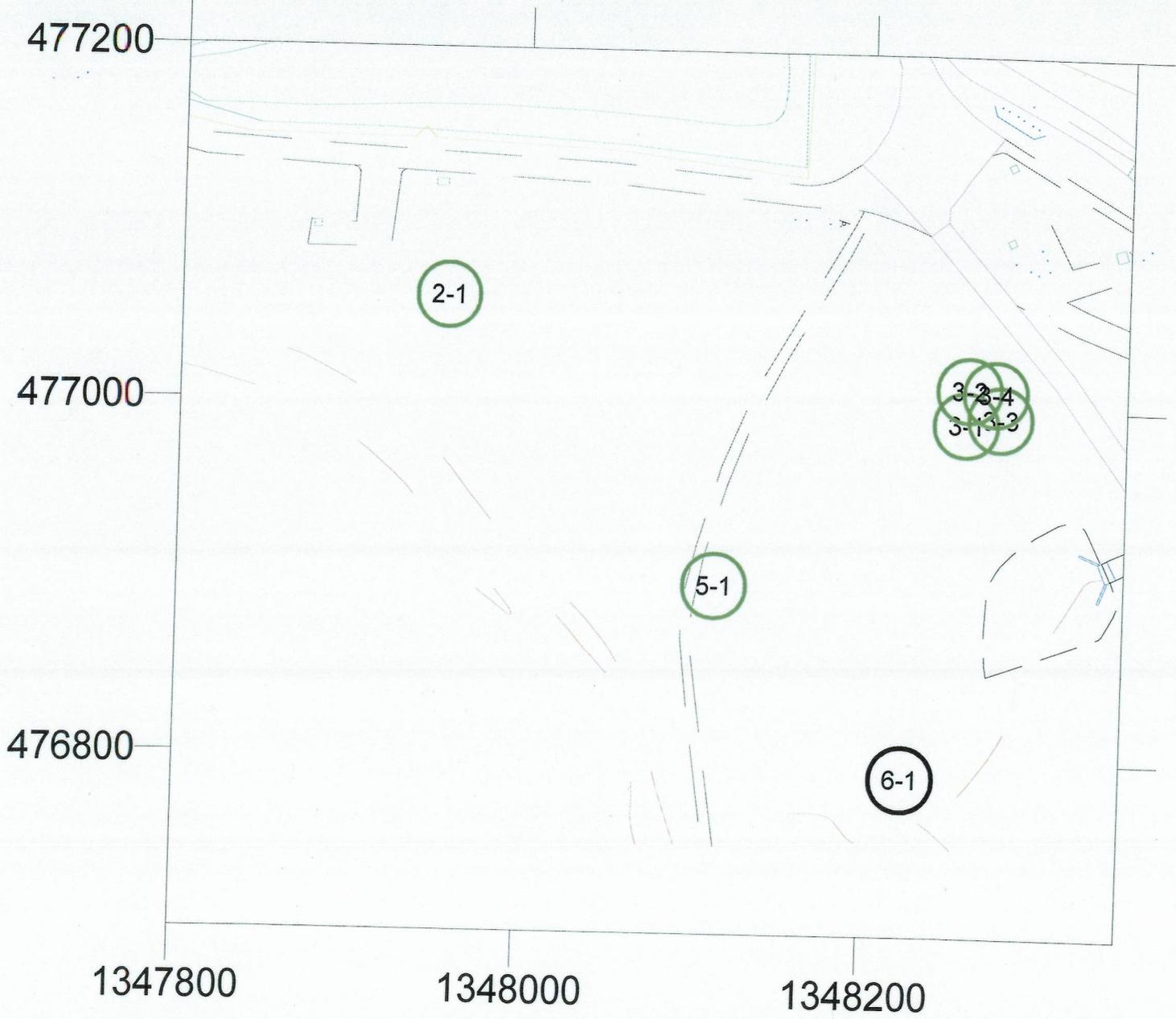
## Moisture Corrected Thorium-232

HPGe Det #: 30716,31204

Measurement Date: 09/20/00

Coverage Plot (Field of View 12m radius)

N



RTIMP DWG Title: A2P1-NWU-CAR-2-3-5-6-TH-1PT-MC.srf  
Project #: 20400-PSP-0002  
Project Name: A2P1 NWU & A2P2 PT1 PreDesign Sampling  
Prepared By: Brian McDaniel  
File: A2P1\_NWU\_CAR\_2\_3\_5\_6\_TH\_1PT\_MC.srf  
Date Prepared: 9/21/00

000056

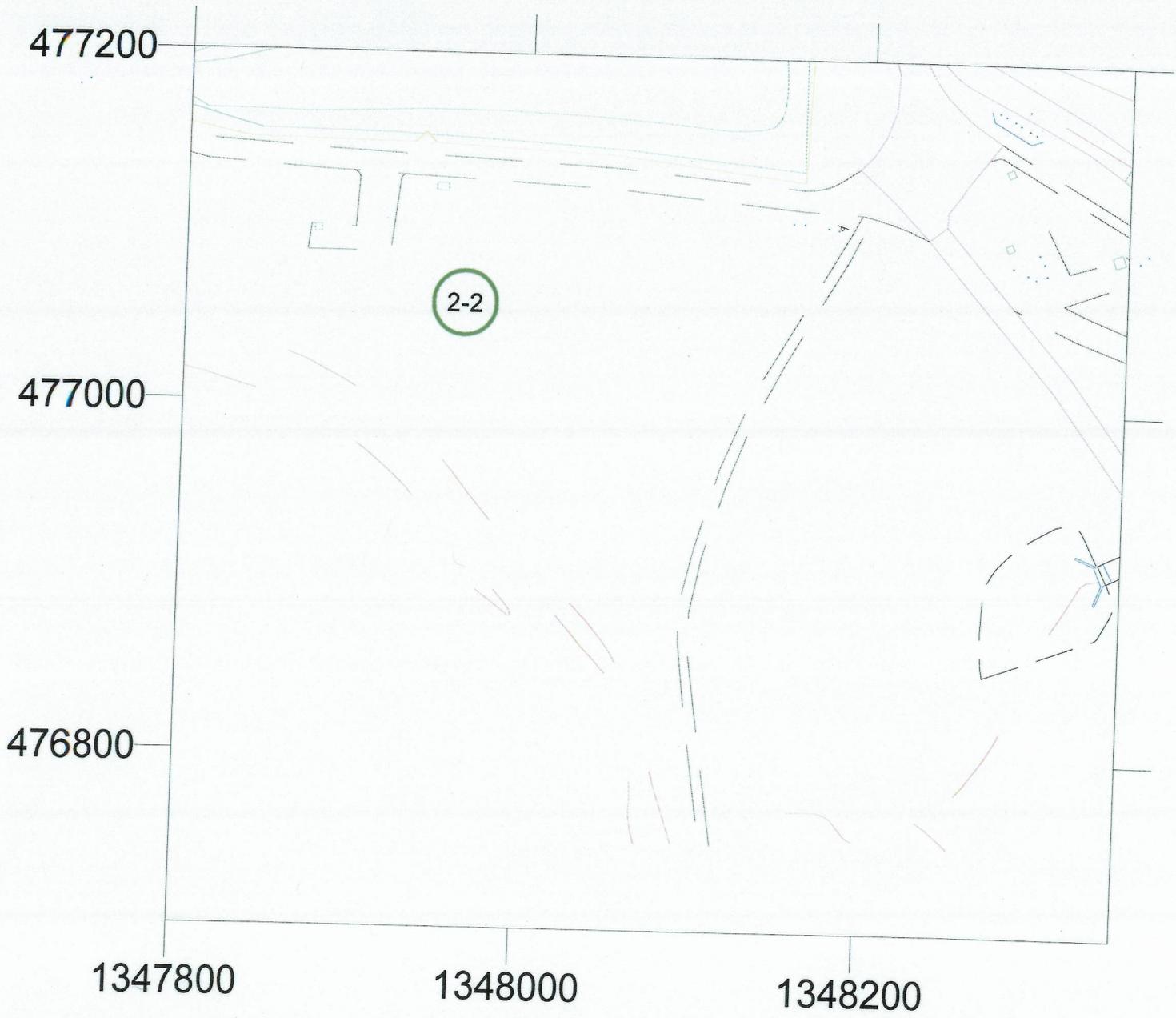
# A2P1 NWU CAROLINA AREA

3953

## Moisture Corrected Total Uranium

HPGe Det #: 31204  
Measurement Date: 09/20/00  
Coverage Plot (Field of View 12m radius)

N



HPGe Total Uranium (ppm)	
○ (Green)	0.00 to 41.00
○ (White)	41.00 to 82.00
○ (Blue)	82.00 to 164.00
○ (Red)	164.00 to 246.00
● (Red)	264.00 to 10000.00

RTIMP DWG Title: A2P1-NWU-CAR-2-Lift-2-TU-1PT-MC.srf  
Project #: 20400-PSP-0002  
Project Name: A2P1 NWU & A2P2 PT1 PreDesign Sampling  
Prepared By: Brian McDaniel  
File: A2P1\_NWU\_CAR\_2\_Lift\_2\_TU\_1PT\_MC.srf  
Date Prepared: 9/21/00

000052

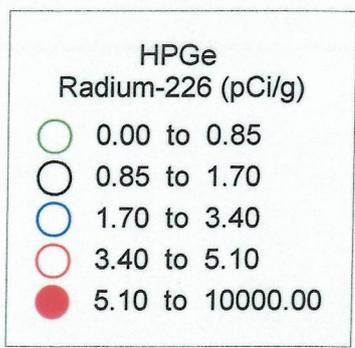
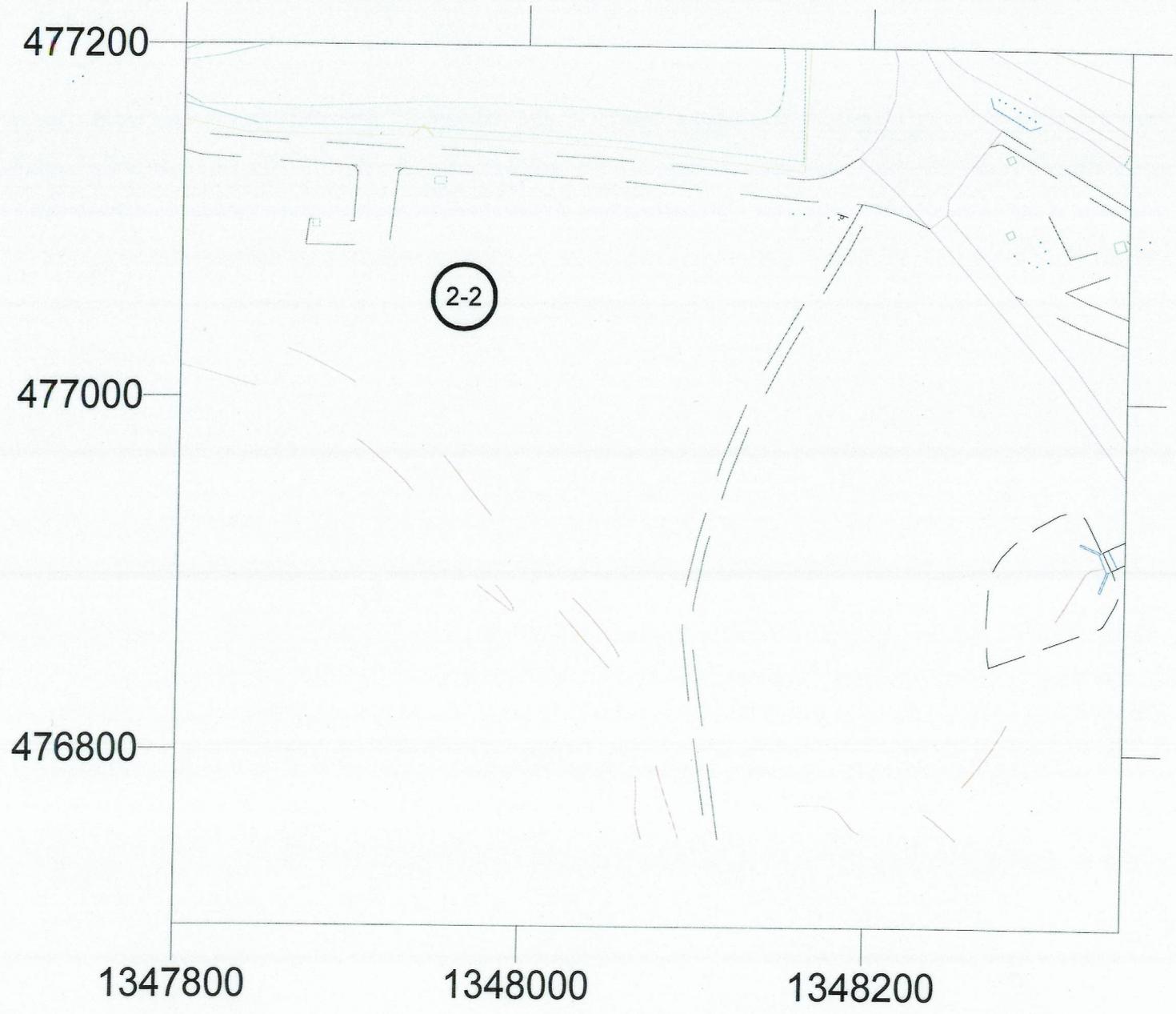
# A2P1 NWU CAROLINA AREA

## Radon & Moisture Corrected Radium-226

3953

HPGe Det #: 31204  
Measurement Date: 09/20/00  
Coverage Plot (Field of View 12m radius)

N



RTIMP DWG Title: A2P1-NWU-CAR-2-Lift-2-RA-1PT-MC.srf  
Project #: 20400-PSP-0002  
Project Name: A2P1 NWU & A2P2 PT1 PreDesign Sampling  
Prepared By: Brian McDaniel  
File: A2P1\_NWU\_CAR\_2\_Lift\_2\_RA\_1PT\_MC.srf  
Date Prepared: 9/21/00

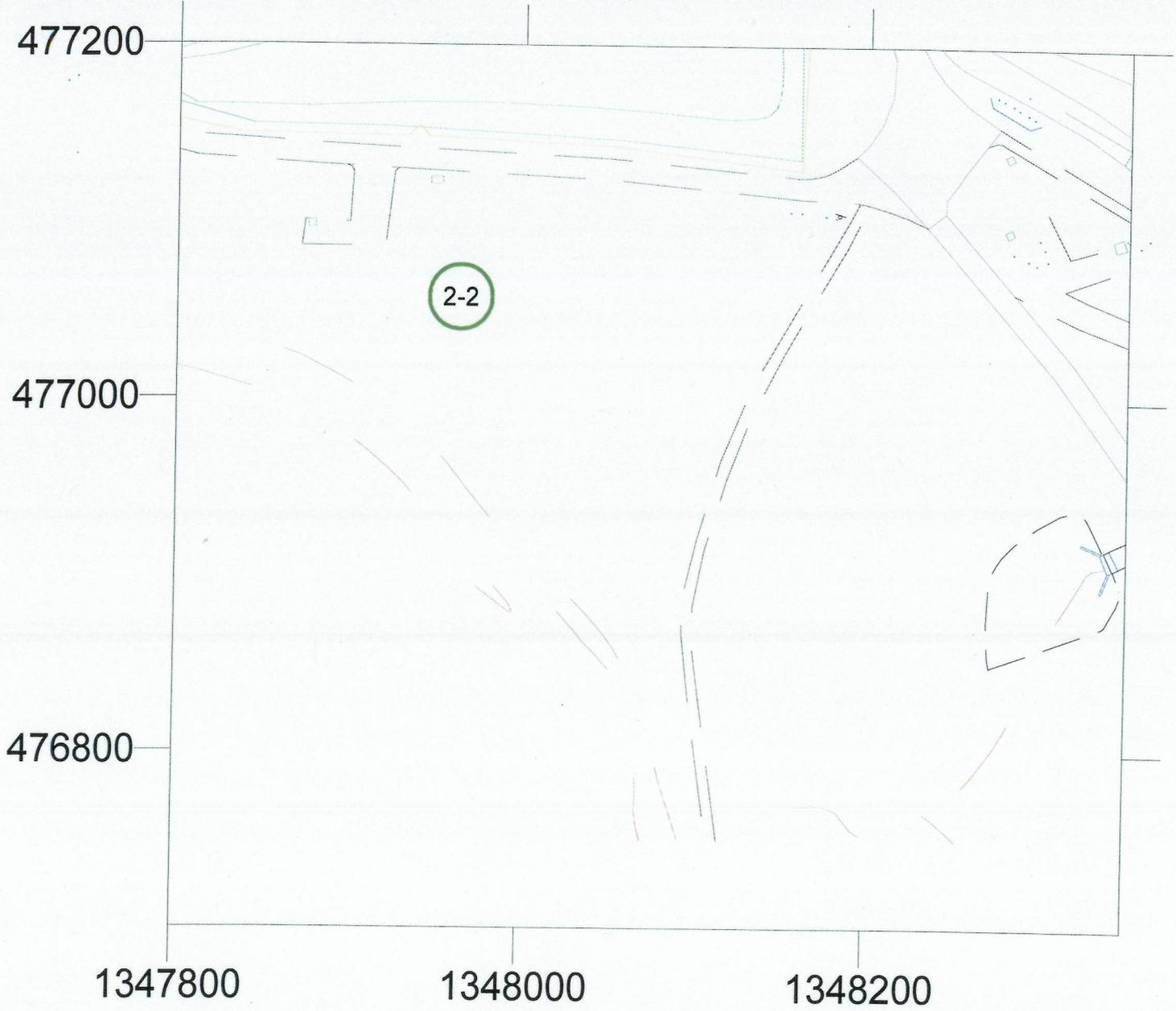
000058

# A2P1 NWU CAROLINA AREA

## Moisture Corrected Thorium-232

HPGe Det #: 31204  
Measurement Date: 09/20/00  
Coverage Plot (Field of View 12m radius)

N



- HPGe  
Thorium-232 (pCi/g)
- 0.00 to 0.75
  - 0.75 to 1.50
  - 1.50 to 3.00
  - 3.00 to 4.50
  - 4.50 to 10000.00

RTIMP DWG Title: A2P1-NWU-CAR-2-Lift-2-TH-1PT-MC.srf  
Project #: 20400-PSP-0002  
Project Name: A2P1 NWU & A2P2 PT1 PreDesign Sampling  
Prepared By: Brian McDaniel  
File: A2P1\_NWU\_CAR\_2\_Lift\_2\_TH\_1PT\_MC.srf  
Date Prepared: 9/21/00

000059

# A2P1 NWU CAROLINA AREA

## Moisture Corrected Total Uranium

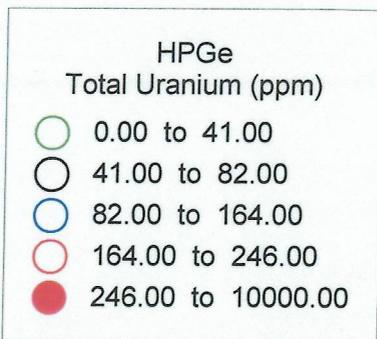
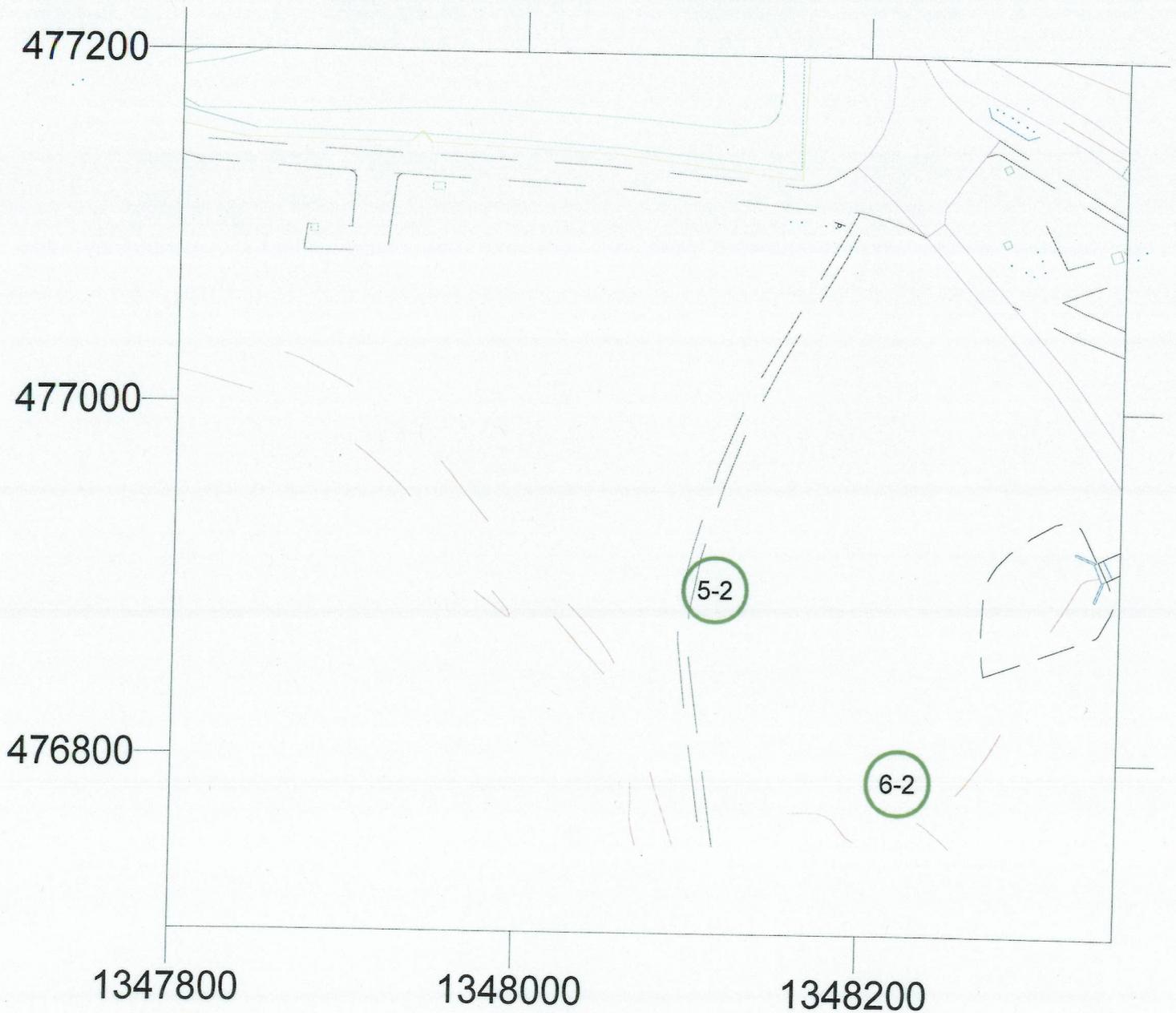
HPGe Det #: 30716

Measurement Date: 09/21/00

Coverage Plot (Field of View 12m radius)

3953

N



RTIMP DWG Title: A2P1-NWU-CAR-5-6-Lift-2-TU-1PT-MC.srf  
Project #: 20400-PSP-0002  
Project Name: A2P1 NWU & A2P2 PT1 PreDesign Sampling  
Prepared By: Brian McDaniel  
File: A2P1\_NWU\_CAR\_5\_6\_Lift\_2\_TU\_1PT\_MC.srf  
Date Prepared: 9/21/00

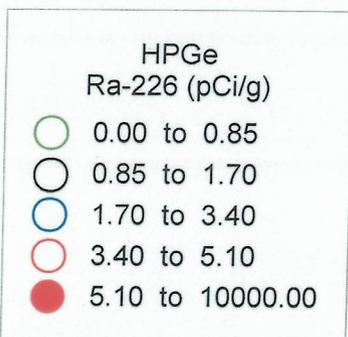
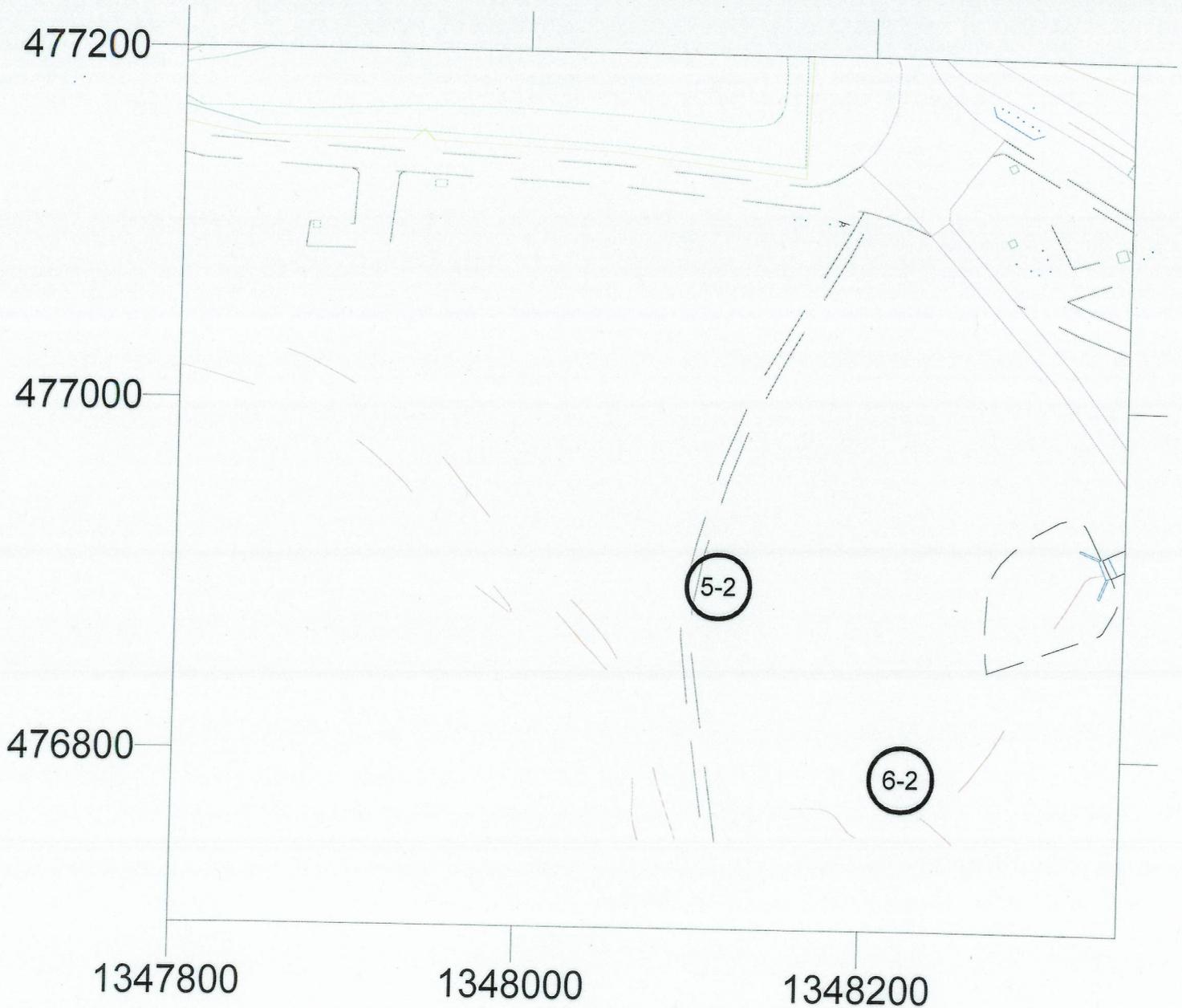
000060

# A2P1 NWU CAROLINA AREA-8953

## Radon & Moisture Corrected Radium-226

HPGe Det #: 30716  
Measurement Date: 09/21/00  
Coverage Plot (Field of View 12m radius)

N



RTIMP DWG Title: A2P1-NWU-CAR-5-6-Lift-2-RA-1PT-MC.srf  
Project #: 20400-PSP-0002  
Project Name: A2P1 NWU & A2P2 PT1 PreDesign Sampling  
Prepared By: Brian McDaniel  
File: A2P1\_NWU\_CAR\_5\_6\_Lift\_2\_RA\_1PT\_MC.srf  
Date Prepared: 9/22/00

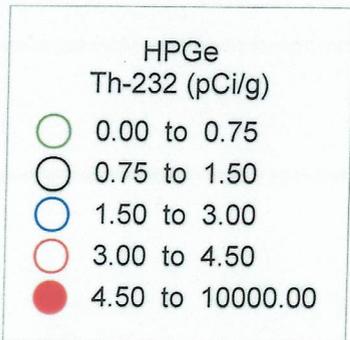
000061

# A2P1 NWU CAROLINA AREA

## Moisture Corrected Thorium-232

HPGe Det #: 30716  
Measurement Date: 09/21/00  
Coverage Plot (Field of View 12m radius)

3953  
N



RTIMP DWG Title: A2P1-NWU-CAR-5-6-Lift-2-TH-1PT-MC.srf  
Project #: 20400-PSP-0002  
Project Name: A2P1 NWU & A2P2 PT1 PreDesign Sampling  
Prepared By: Brian McDaniel  
File: A2P1\_NWU\_CAR\_5\_6\_Lift\_2\_TH\_1PT\_MC.srf  
Date Prepared: 9/22/00

000062

# A2P1 NWU CAROLINA AREA

## Moisture Corrected Total Uranium

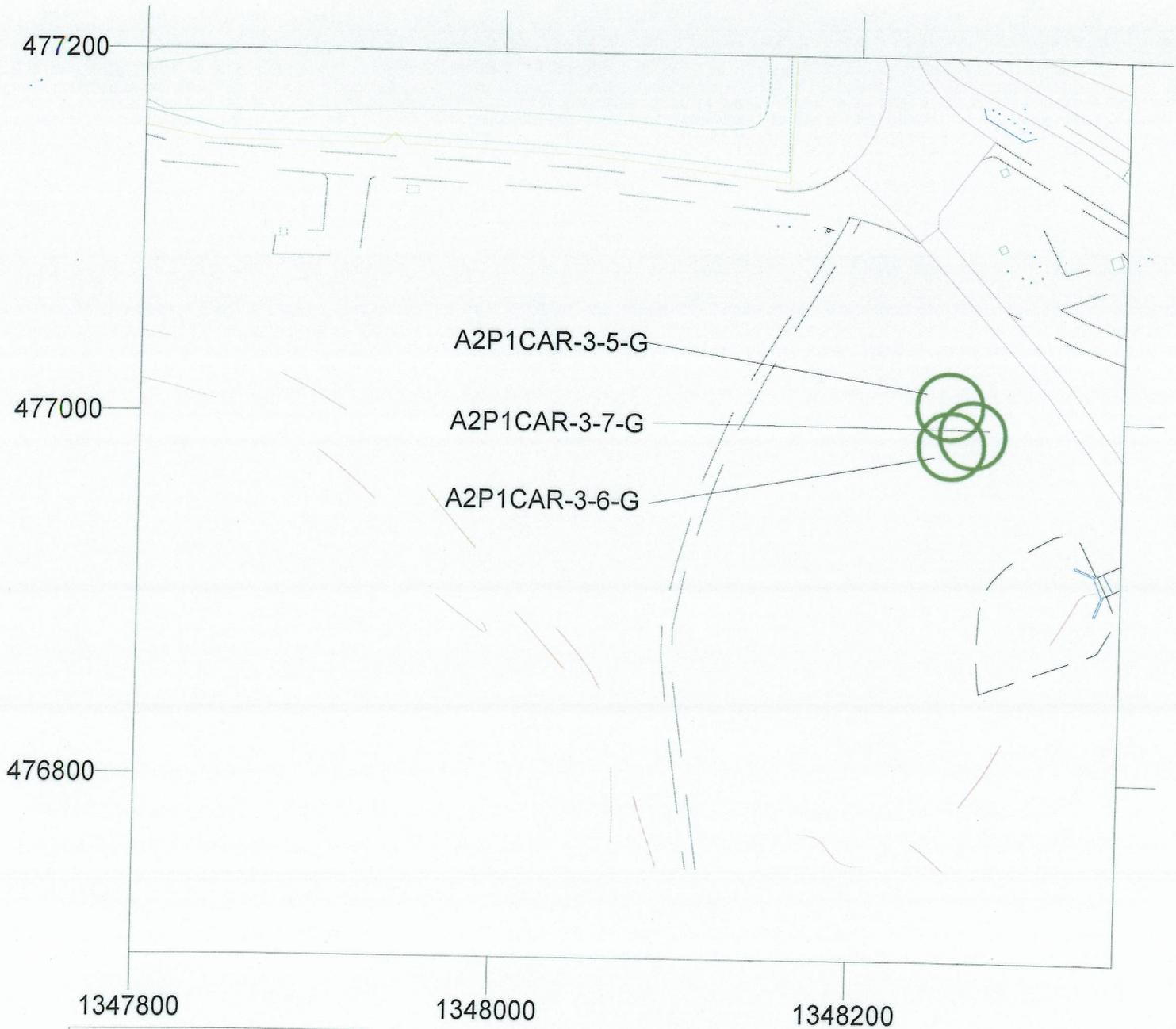
HPGe Det #: 30904

Measurement Date: 10/3/00

Coverage Plot (Field of View 6m radius)

3953

N



HPGe Total Uranium (ppm)	
○ (Green)	0.00 to 41.00
○ (White)	41.00 to 82.00
○ (Blue)	82.00 to 164.00
○ (Red)	164.00 to 246.00
○ (Dark Red)	246.00 to 10000.00

RTIMP DWG Title: A2P1-NWU-CAR-3-Lift-2-TU-1PT-MC.srf  
Project #: 20400-PSP-0002  
Project Name: A2P1 NWU & A2P2 PT1 PreDesign Sampling  
Prepared By: David Allen  
File: A2P1\_NWU\_CAR\_3\_Lift\_2\_TU\_1PT\_MC.srf  
Date Prepared: 10/3/00

000063

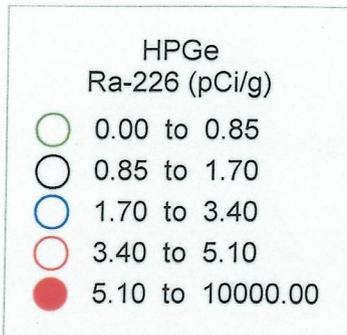
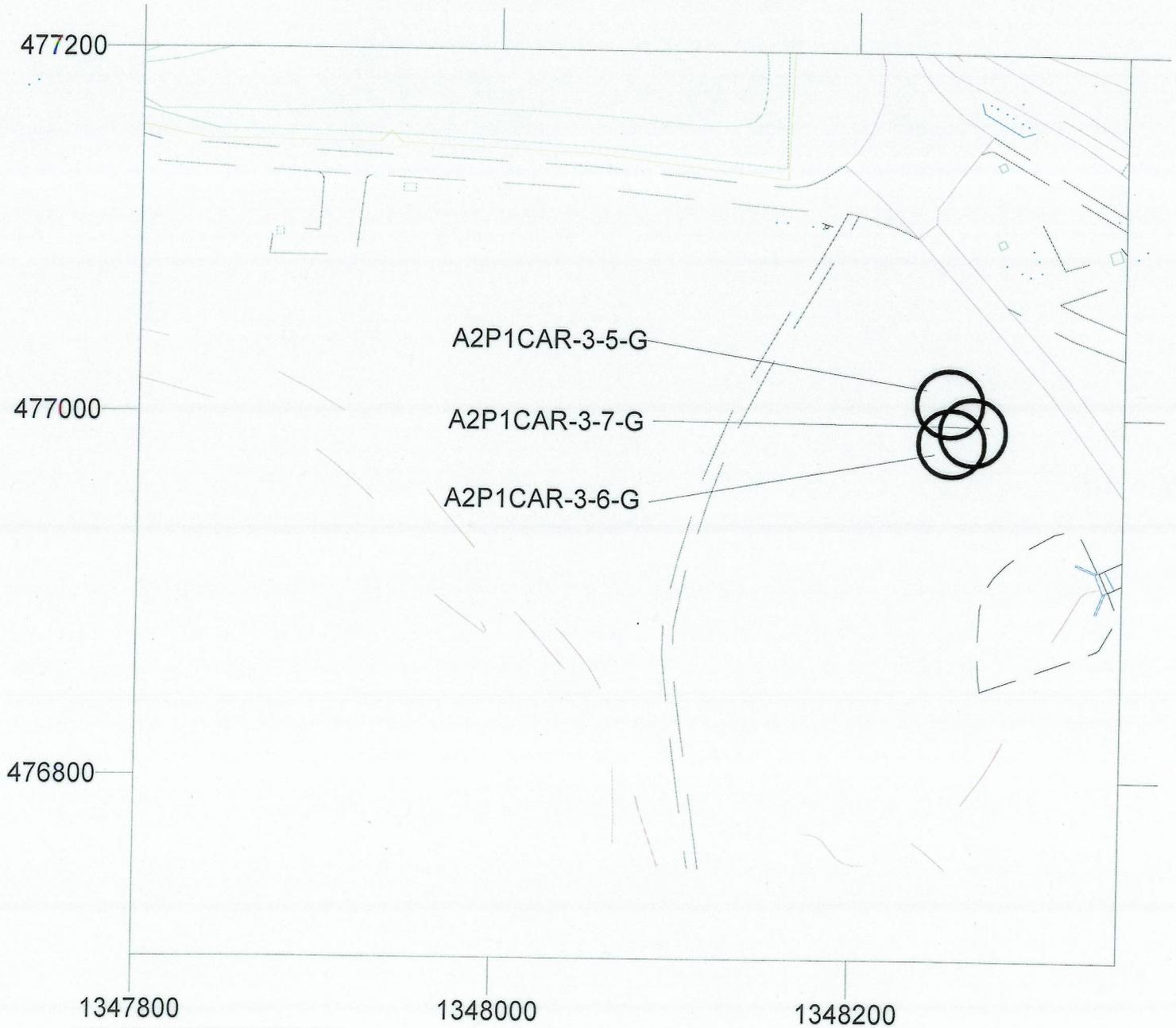
# A2P1 NWU CAROLINA AREA

## Moisture & Radon Corrected Radium-226

3953

HPGe Det #: 30904  
Measurement Date: 10/3/00  
Coverage Plot (Field of View 6m radius)

N



RTIMP DWG Title: A2P1-NWU-CAR-3-Lift-2-RA-1PT-MC.srf  
Project #: 20400-PSP-0002  
Project Name: A2P1 NWU & A2P2 PT1 PreDesign Sampling  
Prepared By: David Allen  
File: A2P1\_NWU\_CAR\_3\_Lift\_2\_RA\_1PT\_MC.srf  
Date Prepared: 10/3/00

000064

# A2P1 NWU CAROLINA AREA

3953

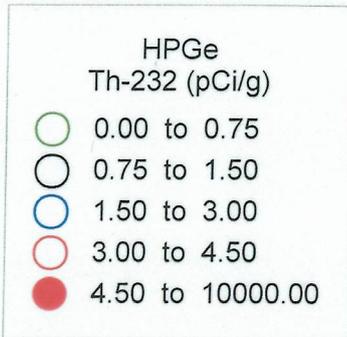
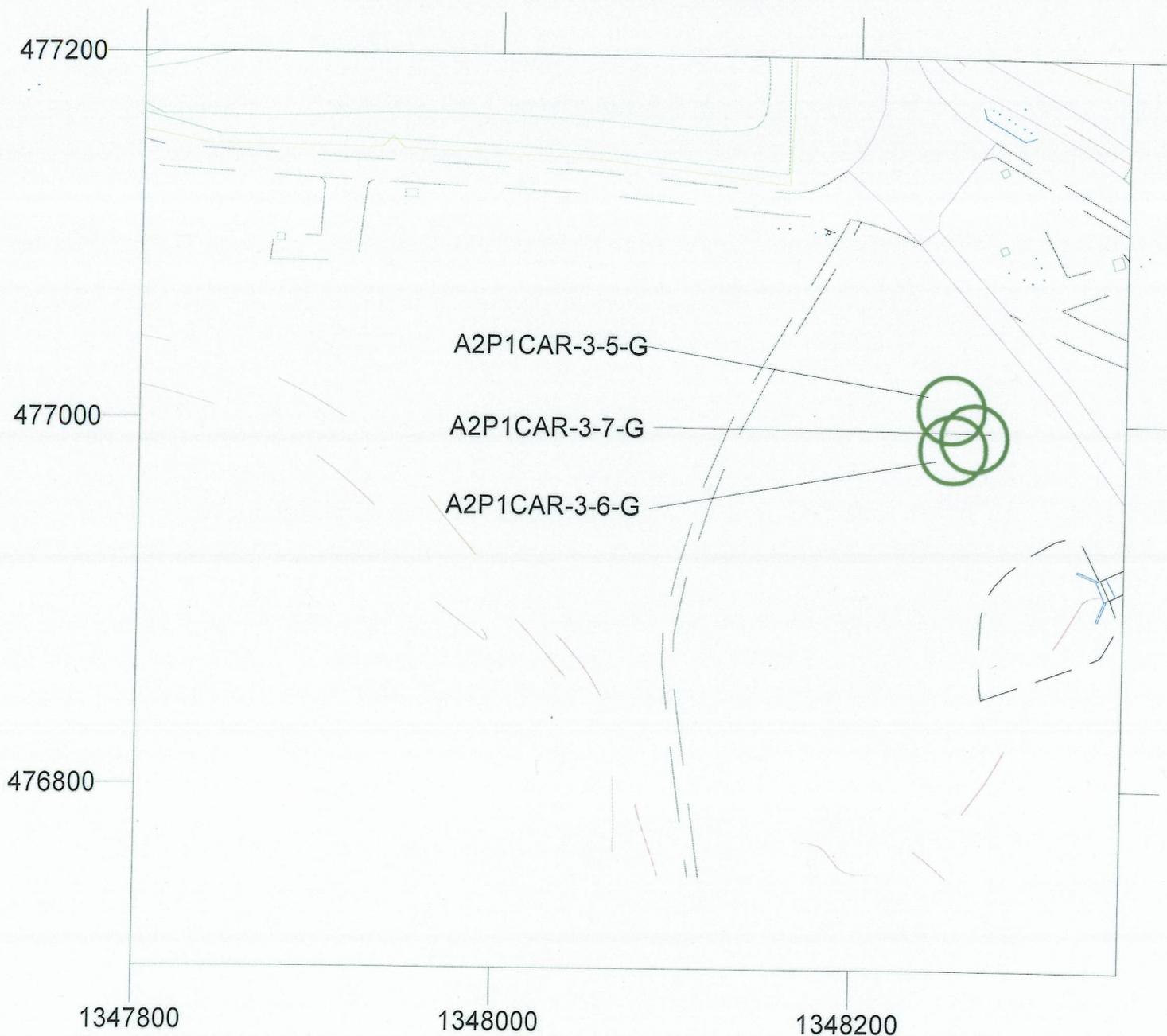
## Moisture Corrected Thorium-232

HPGe Det #: 30904

Measurement Date: 10/3/00

Coverage Plot (Field of View 6m radius)

N



RTIMP DWG Title: A2P1-NWU-CAR-3-Lift-2-TH-1PT-MC.srf  
Project #: 20400-PSP-0002  
Project Name: A2P1 NWU & A2P2 PT1 PreDesign Sampling  
Prepared By: David Allen  
File: A2P1\_NWU\_CAR\_3\_Lift\_2\_TH\_1PT\_MC.srf  
Date Prepared: 10/3/00

000065

# A2P1 NWU CAROLINA AREA

3953

## Moisture Corrected Total Uranium

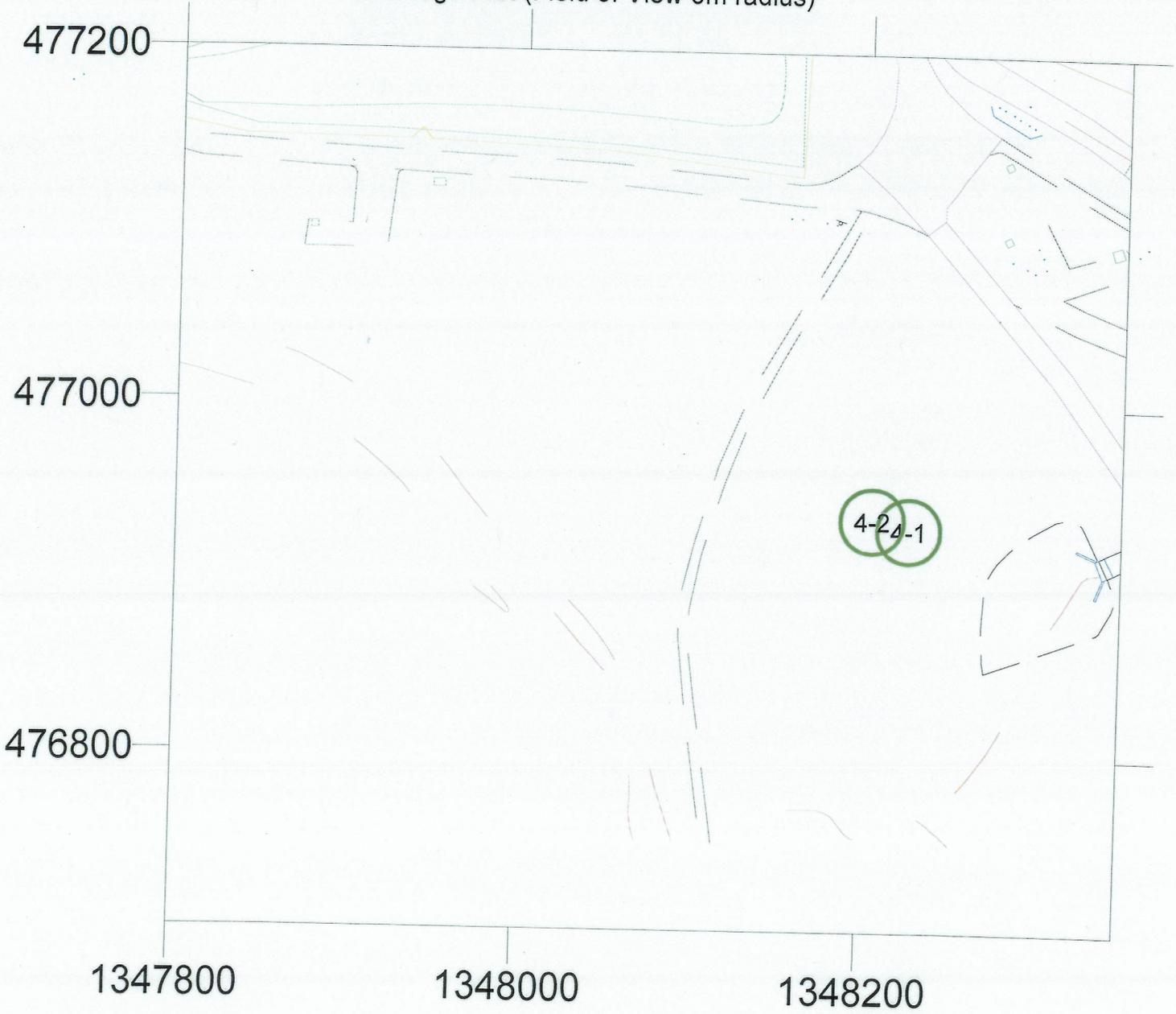
Exc. Area 4 Final Grade

HPGe Det #: 30687

Measurement Date: 10/16/00

Coverage Plot (Field of View 6m radius)

N



HPGe Total Uranium (ppm)	
○ (Green)	0.00 to 41.00
○ (White)	41.00 to 82.00
○ (Blue)	82.00 to 164.00
○ (Red)	164.00 to 246.00
● (Red)	264.00 to 10000.00

RTIMP DWG Title: A2P1-NWU-CAR-4-FG-TU-1PT-MC.srf  
Project #: 20400-PSP-0002  
Project Name: A2P1 NWU & A2P2 PT1 PreDesign Sampling  
Prepared By: Brian McDaniel  
File: A2P1\_NWU\_CAR\_4\_FG\_TU\_1PT\_MC.srf  
Date Prepared: 10/17/00

000066

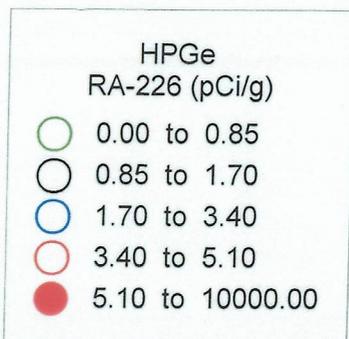
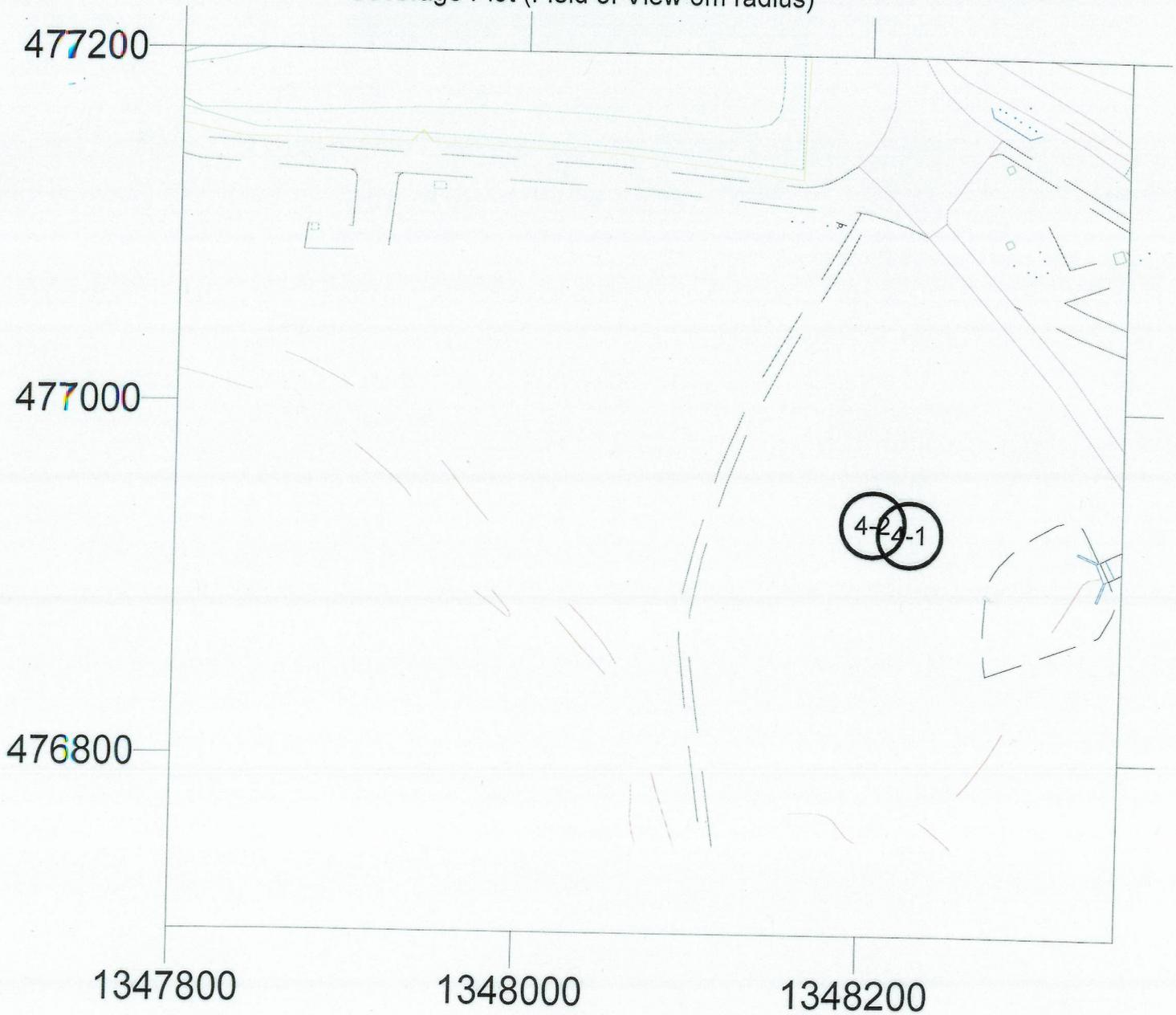
3953

# A2P1 NWU CAROLINA AREA

## Radon & Moisture Corrected Radium-226

Exc. Area 4 Final Grade  
HPGe Det #: 30687  
Measurement Date: 10/16/00  
Coverage Plot (Field of View 6m radius)

N



RTIMP DWG Title: A2P1-NWU-CAR-4-FG-RA-1PT-MC.srf  
Project #: 20400-PSP-0002  
Project Name: A2P1 NWU & A2P2 PT1 PreDesign Sampling  
Prepared By: Brian McDaniel  
File: A2P1\_NWU\_CAR\_4\_FG\_RA\_1PT\_MC.srf  
Date Prepared: 10/17/00

000067

# A2P1 NWU CAROLINA AREA

## Moisture Corrected Thorium-232

Exc. Area 4 Final Grade

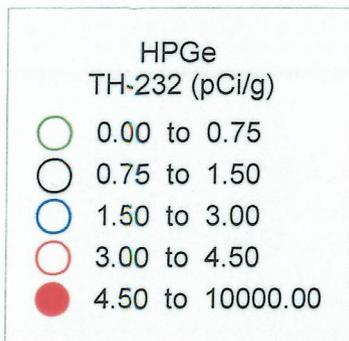
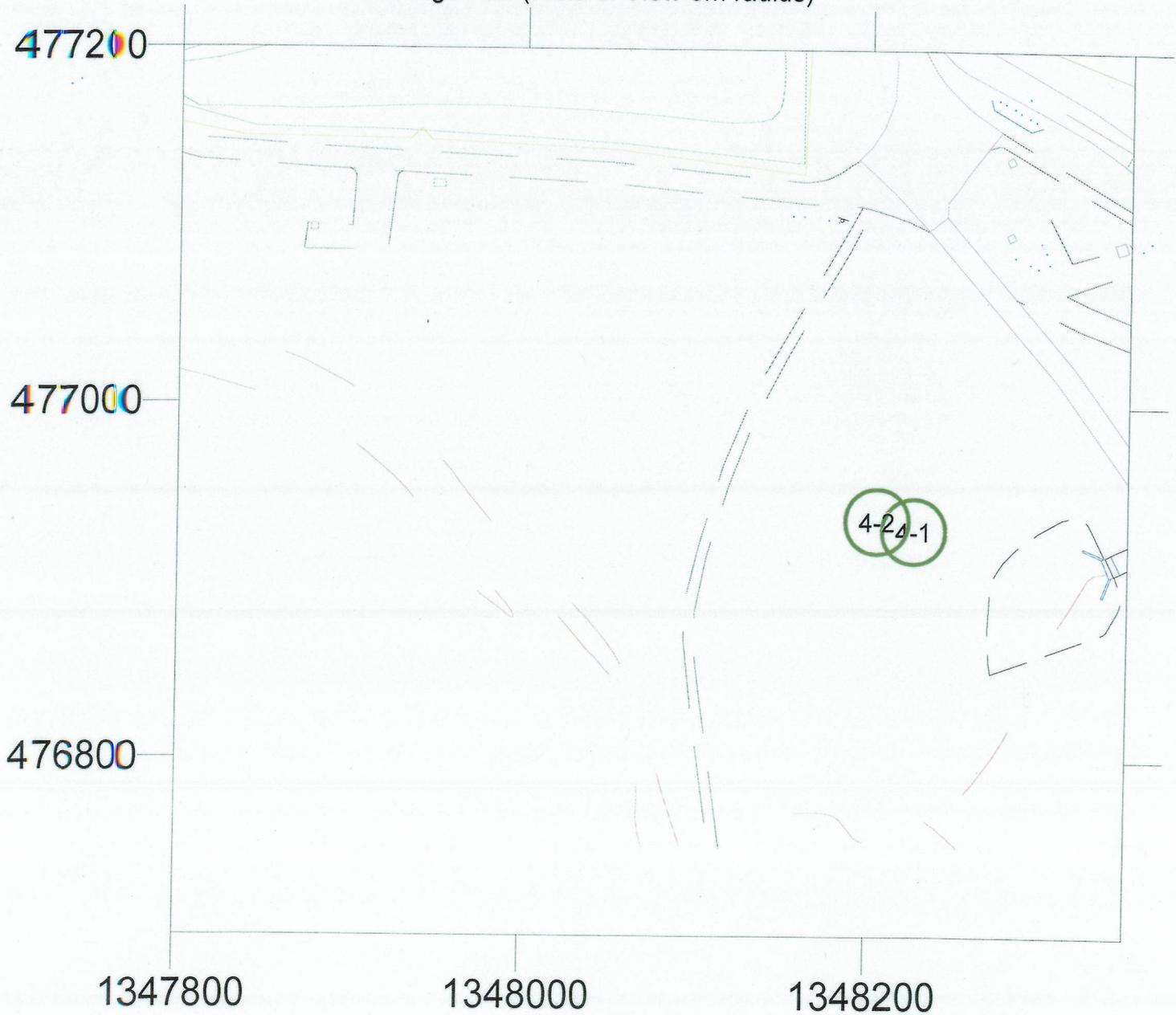
HPGe Det #: 30687

Measurement Date: 10/16/00

Coverage Plot (Field of View 6m radius)

3953

N



RTIMP DWG Title: A2P1-NWU-CAR-4-FG-TH-1PT-MC.srf  
Project #: 20400-PSP-0002  
Project Name: A2P1 NWU & A2P2 PT1 PreDesign Sampling  
Prepared By: Brian McDaniel  
File: A2P1\_NWU\_CAR\_4\_FG\_TH\_1PT\_MC.srf  
Date Prepared: 10/17/00

000068

**APPENDIX B**

**PRECERTIFICATION DATA**  
**(Will be Included after Remediation)**