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RADIOLOGICAL AND LIMITED CHEMICAL CHARACTERIZATION REPORT FOR THE ST. LOUIS AIRPORT SITE ST. LOUIS, MISSOURI

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ABSTRACT

From May through July 1986, a radiological and limited chemical characterization was conducted at the St. Louis Airport Site (SLAPS) in St. Louis, Missouri. The survey was performed as part of the Formerly Utilized Sites Remedial Action Program (FUSRAP), a U.S. Department of Energy (DOE) effort to identify, clean up, or otherwise control sites where residual radioactive contamination (exceeding current guidelines) remains from the early years of the nation's atomic energy program or from commercial operations causing conditions that Congress has mandated DOE to remedy.

The 1985 Energy and Water Development Appropriations Act (Public Law 98-360) authorized DOE to acquire the SLAPS from the City of St. Louis for use as a permanent disposal site for the waste already on the site, the contaminated soil in the ditches surrounding the site, and the waste from the Hazelwood Interim Storage Site (HISS), which is located approximately 1 mi to the north of the SLAPS. The 1986 survey was conducted to identify the radionuclides present at the site in above-guideline concentrations and to determine the depths and areal limits of any such radioactive contamination; to gain preliminary information about the hydrogeological properties of the site, and to determine whether any potentially hazardous chemical substances were present. This information was required in order to plan for development of the property as a permanent disposal site for residual radioactive waste. The survey was conducted by the FUSRAP Project Management Contractor, Bechtel National, Inc. (BNI) and its radiological subcontractor, Thermo Analytical/Eberline (TMA/E).

Results of the 1986 survey indicate that radioactive contamination is present on the SLAPS in concentrations exceeding current DOE guidelines. Above-guideline contamination was found at depths as great as 18 ft. The major contaminants were determined to be radium-226, uranium-238, and thorium-230.

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Limited chemical characterization of the SLAPS was performed concurrently with the 1986 radiological survey. Two of the samples analyzed for chemical parameters were found to contain metals in concentrations exceeding normal background ranges. Three of the samples were found to contain more than 1 percent total organic carbon (TOC), which indicates the possible presence of hazardous organic waste. Analysis for total organic halogens (TOX) was also performed; no elevated TOX levels were detected.

Preliminary findings about the hydrogeological properties of the site are documented in a separate report. Complete geological and hydrogeological characterization of the site is scheduled to be conducted during the fourth quarter of calendar year 1987.

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ABBREVIATIONS

cm	centimeter
cpm	counts per minute
ft	foot
h	hour
in.	inch
m^2	square meter
mi	mile
mrem	millirem
uR/h	microroentgens per hour
pCi/g	picocuries per gram
pCi/l	picocuries per liter
ppm	parts per million
yr	year

1.0 INTRODUCTION AND SUMMARY

1.1 INTRODUCTION

This report describes the procedures used to conduct the 1986 radiological and limited chemical characterization of the St. Louis Airport Site (SLAPS) in St. Louis, Missouri. Characterization results are also discussed. The characterization was conducted as part of the Formerly Utilized Sites Remedial Action Program (FUSRAP). FUSRAP is a U.S. Department of Energy (DOE) program to identify, clean up, or otherwise control sites where residual radioactive contamination exceeding current guidelines remains from the early years of the nation's atomic energy program or from commercial operations causing conditions that Congress has mandated DOE to remedy. Under contract to DOE, Bechtel National, Inc. (BNI) acts as the Project Management Contractor (PMC) for FUSRAP. The 1986 survey was conducted by BNI and its radiological subcontractor, Thermo Analytical/Eberline (TMA/E).

1.2 PURPOSE AND OBJECTIVES

On the basis of a radiological investigation of the SLAPS performed from 1976 through 1978 by Oak Ridge National Laboratory (ORNL), it was determined that radioactive materials were present in the drainage ditches to the north and south of McDonnell Boulevard (Ref. 1). In 1981, the drainage ditches were designated for remedial action under FUSRAP.

The 1985 Energy and Water Development Appropriations Act (Public Law 98-360) authorized DOE to acquire the SLAPS property from the City of St. Louis for use as a permanent disposal site for the waste already on the site, the contaminated soil in the ditches surrounding the site, and the waste from the Hazelwood Interim Storage Site (HISS), which is located approximately 1 mi to the north of the SLAPS (Ref. 2). The 1986 survey was conducted to identify the radionuclides present at the site in above-guideline concentrations and to determine the depths and areal limits of any

such radioactive contamination; to gain preliminary information about the hydrogeological properties of the site, and to determine whether any potentially hazardous chemical substances were present. This information was needed to plan for development of the property as a permanent disposal site for residual radioactive waste.

1.3 SUMMARY

This characterization indicated radioactive contamination present on the SLAPS extending to depths as great as 18 ft. Soil sample analyses identified elevated levels of radium-226, thorium-230, thorium-232, and uranium-238.

External gamma radiation levels ranged from 9 to 261 uR/h. The normal background for the St. Louis area is 8 uR/h.

Two of the composite soil samples collected for chemical analysis were found to contain metals in concentrations exceeding those found in typical background soil. Three of the soil samples had more than 1 percent total organic carbon (TOC), which indicates the possible presence of hazardous organic waste. None of the soil samples submitted for chemical analysis were found to contain elevated total organic halogen (TOX) concentrations. Additional chemical characterization will be performed in FY 1988.

Additional geological and hydrogeological characterization of the site is scheduled to be performed during the fourth quarter of calendar year 1987. Findings of that characterization will be documented in a separate report.

2.0 SITE DESCRIPTION AND HISTORY

2.1 LOCATION AND DESCRIPTION

The SLAPS is a 21.7-acre tract located in St. Louis County, Missouri, approximately 15 mi from downtown St. Louis and immediately north of the Lambert-St. Louis International Airport. The SLAPS is bounded by the Norfolk and Western Railroad and Banshee Road on the south, Coldwater Creek on the west, and McDonnell Boulevard and adjacent recreational fields on the north and east. Figure 2-1 shows the location of the SLAPS, and Figure 2-2 is an aerial photograph of the site.

2.2 SITE HISTORY AND PREVIOUS RADIOLOGICAL SURVEYS

The SLAPS was acquired by the U.S. Atomic Energy Commission (AEC) in 1947; from then until approximately 1966, the site was used to store waste materials from a uranium feed materials plant in St. Louis. These materials included pitchblende raffinate residues, radium-bearing residues, barium sulfate cake, Colorado raffinate residues, and contaminated scrap.

In the mid 1960s, most of the residues were sold and removed from the site. The structures were demolished, buried on-site, and covered with 1 to 3 ft of clean fill material. It is believed that the rubble was buried primarily in the western portion of the site; therefore, buried deposits of uranium-238, radium-226, and thorium-230 remain on the site (Ref. 3).

In 1973, ownership of the 21.7-acre tract was transferred by quitclaim deed from the AEC to the City of St. Louis. The 1985 Energy and Water Development Appropriations Act (Public Law 98-360) authorized DOE to reacquire the property from the city for use as a permanent disposal site for the waste already on the site, the

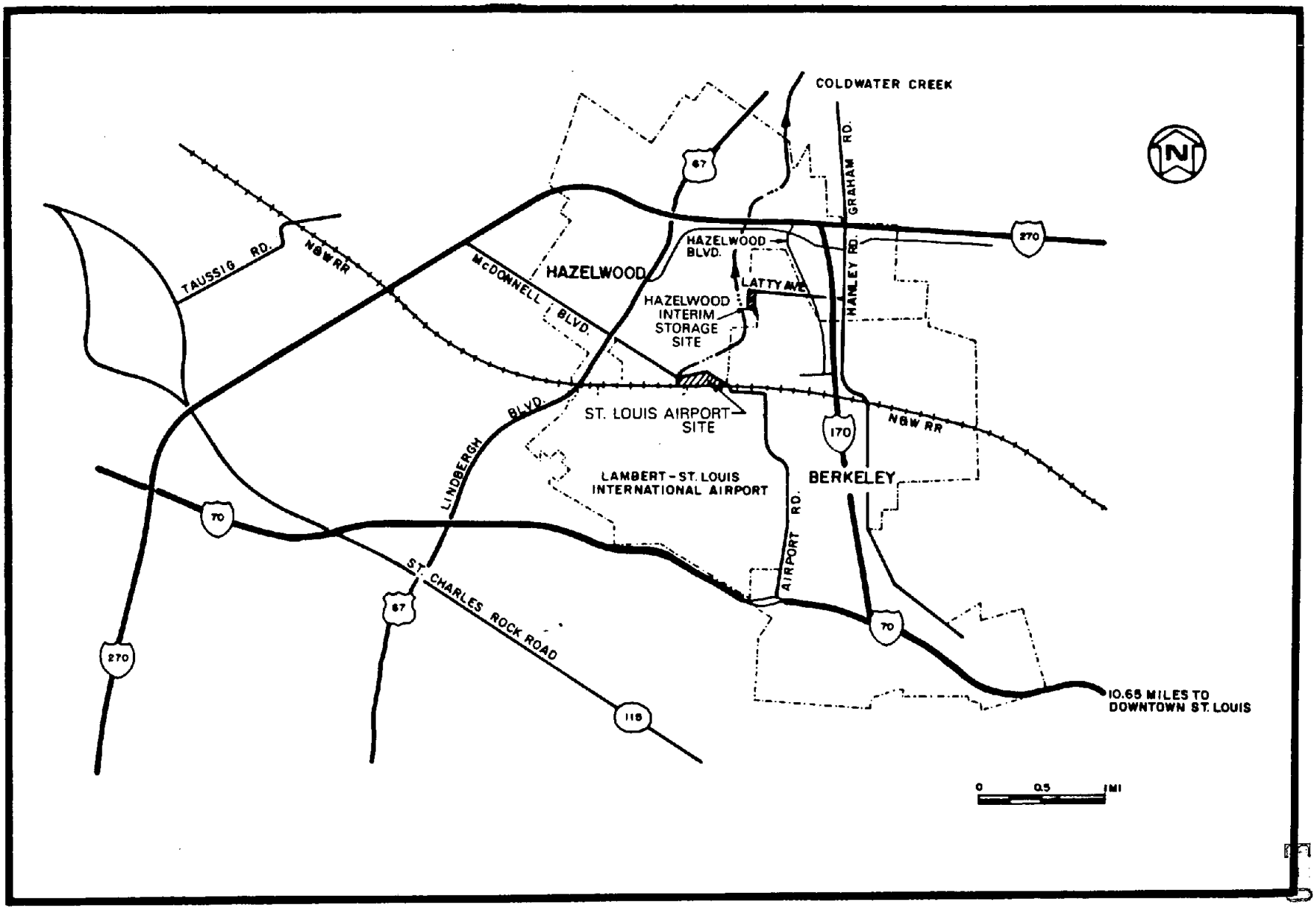

FIGURE 2-1 LOCATION OF THE SLAPS

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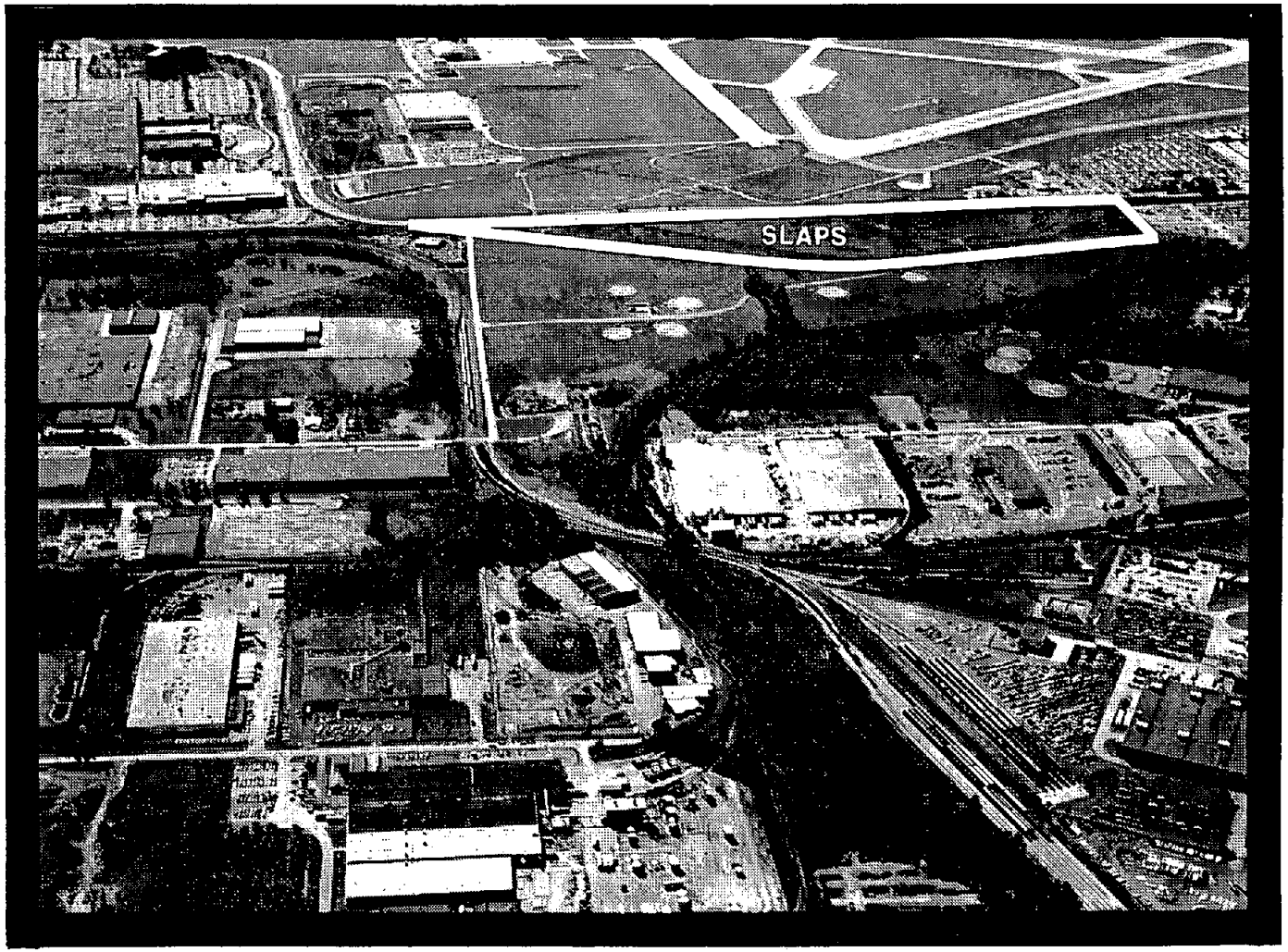

FIGURE 2-2 AERIAL VIEW OF THE SLAPS AND ITS VICINITY

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material in the storage pile at the HISS, material excavated during cleanup of the HISS vicinity properties, and contaminated material to be removed from along McDonnell Boulevard immediately to the north and east of the SLAPS. Actions to transfer ownership of the property to DOE have been initiated.

From 1976 through 1978, the Oak Ridge National Laboratory (ORNL) conducted a radiological investigation of the SLAPS (Ref. 1). This survey indicated the presence of elevated concentrations of uranium-238 and radium-226 in drainage ditches to the north and south of McDonnell Boulevard. In 1981, the drainage ditches were designated for remedial action under FUSRAP. In 1982, BNI performed a radiological survey of the drainage ditches (Ref. 4) because insufficient data on the extent of the contamination were available from the earlier surveys. This survey established the vertical and horizontal limits of the uranium-238 and radium-226 contamination.

2.3 PRESENT SITE CONDITIONS

Land uses adjacent to the site are varied. More than two-thirds of the land within a half mile of the site is used for transportation-related purposes because of its proximity to Lambert-St. Louis International Airport. The remaining land in the immediate vicinity of the site is used primarily for commercial and recreational functions. The SLAPS is surrounded by security fencing.

In 1985, channel wall erosion occurring on the west side of the SLAPS along Coldwater Creek necessitated that corrective actions be taken. These included construction of an access road across the site and along the west end of the site, construction of a vehicle washdown facility near the entrance to the site, excavation of the slope on the west end of the site, construction of a storage pile for this excavated material, and construction of a gabion retainer wall along Coldwater Creek.

3.0 HEALTH AND SAFETY PLAN

BNI is responsible for protecting the health of personnel assigned to work at the site. As such, all subcontractors and their personnel were required to comply with the provisions of the applicable project instructions cited in this section or as directed by the on-site BNI representative.

3.1 SUBCONTRACTOR TRAINING

Before the start of work, all subcontractor personnel attended an orientation session presented by the BNI representative to explain the nature of the material to be encountered in the work and the required personnel monitoring and safety measures.

3.2 SAFETY REQUIREMENTS

Subcontractor personnel complied with the following BNI requirements.

- Bioassay - Subcontractor personnel submitted bioassay samples before or at the beginning of on-site activity, upon completion of the activity, and periodically during site activities as requested by BNI.
- Protective Clothing/Equipment - Subcontractor personnel wore the protective clothing/equipment specified in the subcontract or as directed by the BNI representative.
- Dosimetry - Subcontractor personnel were required to wear, and return daily, the dosimeters and monitors issued by BNI.
- Controlled Area Access/Egress - Subcontractor personnel and equipment entering areas wherein access and egress are controlled for radiation and/or chemical safety purposes were surveyed by the BNI representative for contamination before leaving those areas.
- Medical Surveillance - Upon written direction from BNI, subcontractor personnel who worked in areas where hazardous chemicals might exist were given a baseline and periodic health assessment as defined in BNI's Medical Surveillance Program.

Radiation and/or chemical safety surveillance of all activities related to the scope of work was under the direct supervision of personnel representing BNI.

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The health physics requirements for all activities involving radiation or radioactive material are defined in the project radiological protection manual (Project Instruction No. 20.01) and implementing procedures (Ref. 5). The industrial hygiene requirements for activities involving chemicals or chemically contaminated materials are defined in the project environmental hygiene manual (Project Instruction No. 26.00) and implementing procedures (Ref. 6).

Copies of these project instructions and manuals were located on the site for use by subcontractors.

For this characterization effort, environmental hygiene monitoring was conducted continuously during drilling operations with an ENMET CGS-100. The monitoring was conducted to ensure early identification of a need to upgrade the level of personnel protection (e.g., by requiring the use of respirators) and to assess potential chemical exposure hazards to site personnel. Air sampling protocols were also used to determine the exposure of site personnel to hazardous chemicals during drilling operations.

4.0 SURVEY PROCEDURES

4.1 FIELD RADIOLOGICAL CHARACTERIZATION

A civil surveyor reestablished the 50-ft grid used in previous site surveys over the entire SLAPS by staking the intersections of a series of perpendicular lines. The grid was tied to the Missouri state grid system. All characterization data correspond to coordinates on this grid (Figure 4-1).

The types of radiological measurements taken and the methods used are described in detail in the following subsections. Basically, the survey consisted of two major components: surface surveys and a subsurface investigation. Surface surveys were performed first to provide information about the patterns of contamination and to identify areas in which subsurface investigation would definitely be required. The subsurface investigation was performed subsequently to establish the depths of contamination in areas that the surface survey identified as being contaminated. An additional purpose of the subsurface investigation was to locate any subsurface contamination with no surface manifestation.

4.1.1 Measurements Taken and Methods Used

An initial walkover survey was performed within the grid blocks of the entire SLAPS using an unshielded gamma scintillation detector. Areas in which readings exceeded twice background levels were marked on a site drawing. This type of survey covers virtually all of the ground surface and has the advantage that it can be conducted quickly; however, the boundaries of the areas identified as being contaminated may not be precisely correct because of the effect of nearby contamination on detector readings.

Near-surface gamma measurements were made 12 in. above the ground surface at 12.5-ft intervals in the areas identified as contaminated on the basis of the walkover survey. This survey was performed to more clearly define the boundaries of contamination identified by the earlier walkover survey. A 2- by 2-in. sodium-iodide (NaI)

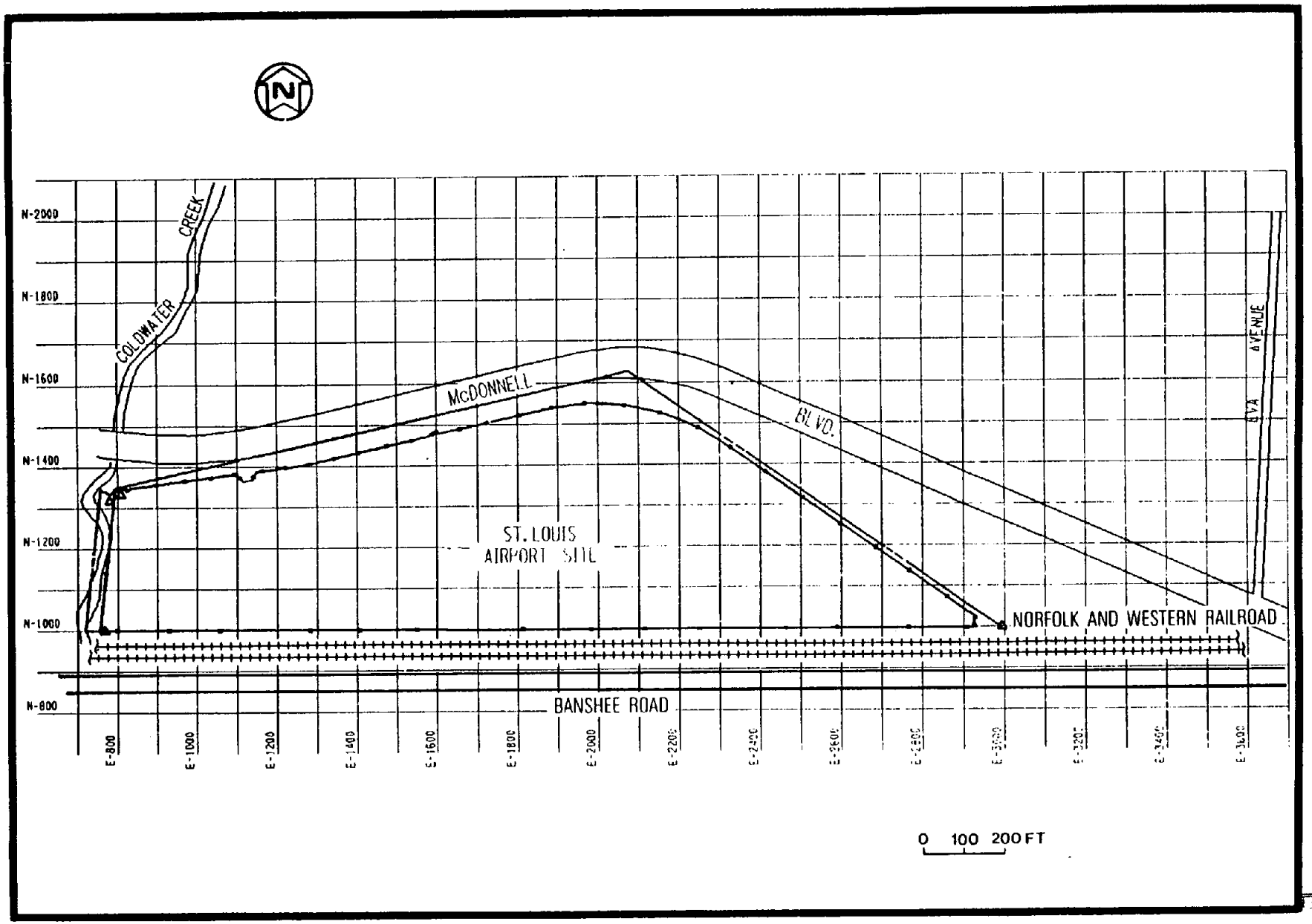

FIGURE 4-1 SURVEY GRID FOR THE SLAPS

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detector was used during this survey. The detector (EIC model SPA-3) was mounted in a probe assembly surrounded with a conical lead shield to reduce the gamma intensity through the sides, thus producing a downward directional response. This detector was calibrated at the Technical Measurements Center (TMC) in Grand Junction, Colorado to provide a correlation of counts per minute (cpm) to picocuries per gram (pCi/g). This calibration demonstrated that 11,000 cpm corresponds to the DOE guideline for surface contamination of 5 pCi/g for radium-226 and thorium-232 (Ref. 7). This correlation has been corroborated in previous characterization work.

Gamma exposure rates at 3 ft above the ground were measured using a pressurized ionization chamber (PIC) with a response to gamma radiation that is proportional to exposure in roentgens. Readings were made at 22 selected grid points on the site (Figure 4-2). These locations were selected to provide information concerning exposure rates along the site perimeter. This information will be valuable for use in remedial action planning, environmental monitoring, and National Environmental Policy Act (NEPA) activities.

The subsurface investigation was conducted by drilling boreholes at most 100-ft grid intersections; a total of 102 boreholes were drilled. The 100-ft interval was designed to maximize the amount of information to be obtained in the most cost-effective manner possible. The depth to which each borehole was drilled was based on guidance from the geologist on-site and the radiological support representative.

Although gamma logging is typically used to determine the depth of subsurface contamination, thorium-230 (a major contaminant at the SLAPS) cannot be detected in situ; therefore, continuous soil samples were collected from the surface to the bottom of the hole by driving a split-spoon sampler in advance of the auger. Each characterization hole, including those drilled for chemical sampling or hydrogeological investigation, was gamma logged to determine the depth of gamma-emitting contamination. Gamma logging was conducted

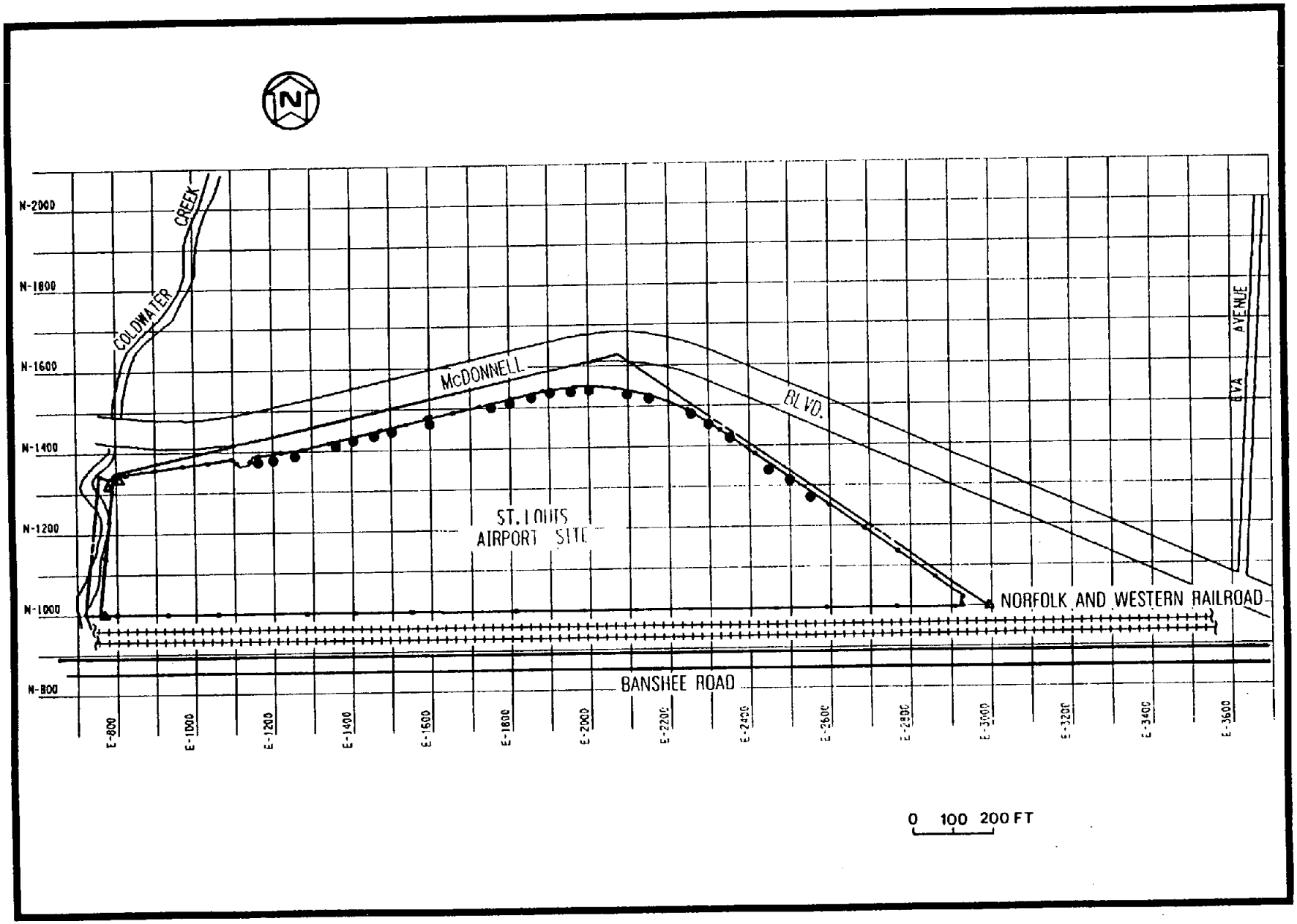

FIGURE 4-2 PIC MEASUREMENT LOCATIONS AT THE SLAPS

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by lowering a gamma scintillometer into the hole and taking radiation measurements at 1-ft vertical intervals in order to obtain a profile of the depth of gamma-emitting contamination. In some instances, radiation measurements were taken at 6-in. vertical intervals in order to more accurately determine the boundary of gamma-emitting contamination. The detector was calibrated at TMC, where it was determined that a count rate of approximately 40,000 cpm corresponds to the 15-pCi/g subsurface contamination guideline (Ref. 7). This relationship has also been corroborated in results from previous characterizations.

4.1.2 Sample Collection and Analysis

Surface soil samples were collected at 21 locations to help quantify conditions at the site perimeter and in the drainage ditches (Figure 4-3). Since the reason for collecting these samples was to help assess radiological exposure rate data for the environmental monitoring program, they were analyzed for gamma-emitting nuclides only. Each sample was counted for 10 minutes using an intrinsic germanium detector housed in a lead counting cave lined with cadmium and copper. The pulse height distribution was sorted using a computer-based, multi-channel analyzer. Radionuclide concentrations were determined by comparing the gamma spectrum of each sample with the spectrum of a certified counting standard for the radionuclide of interest.

Subsurface soil samples were collected from the 102 borehole locations (Figure 4-4). Wherever possible, continuous sampling was performed from the surface to natural soil as identified by the field geologist. In many instances, poor recoveries from the split spoon or underground rubble or scrap prevented the collection of samples from all depths. Samples were typically counted in 1-ft increments; however, samples from chemical characterization boreholes were composited into three samples per hole. Following sample collection, the down-hole gamma logs were reviewed, and samples were selected for analysis for uranium-238, radium-226, and thorium-232 concentrations. These analyses are performed using the

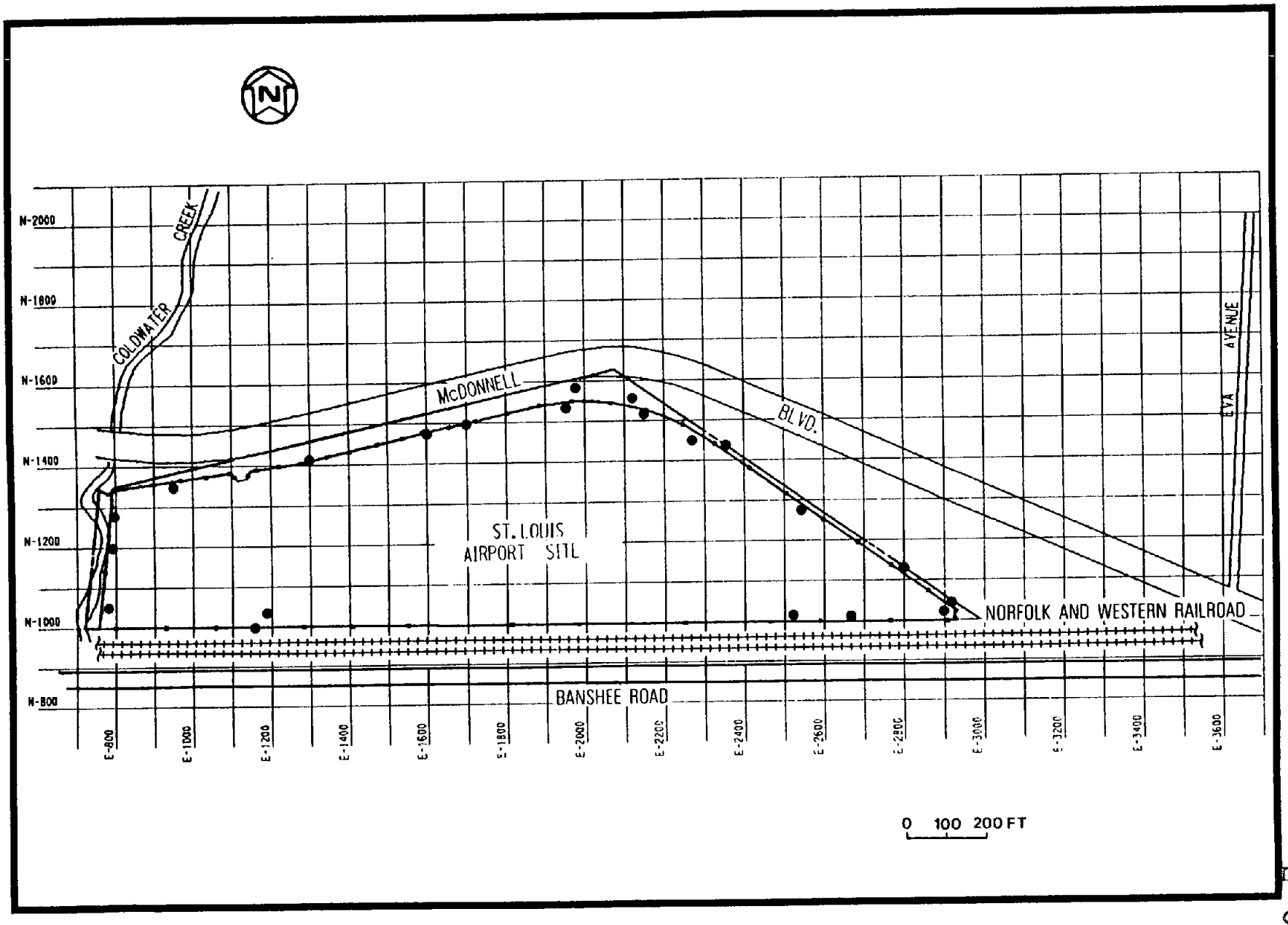

FIGURE 4-3 SURFACE SOIL SAMPLING LOCATIONS FOR RADIOLOGICAL CHARACTERIZATION OF THE SLAPS

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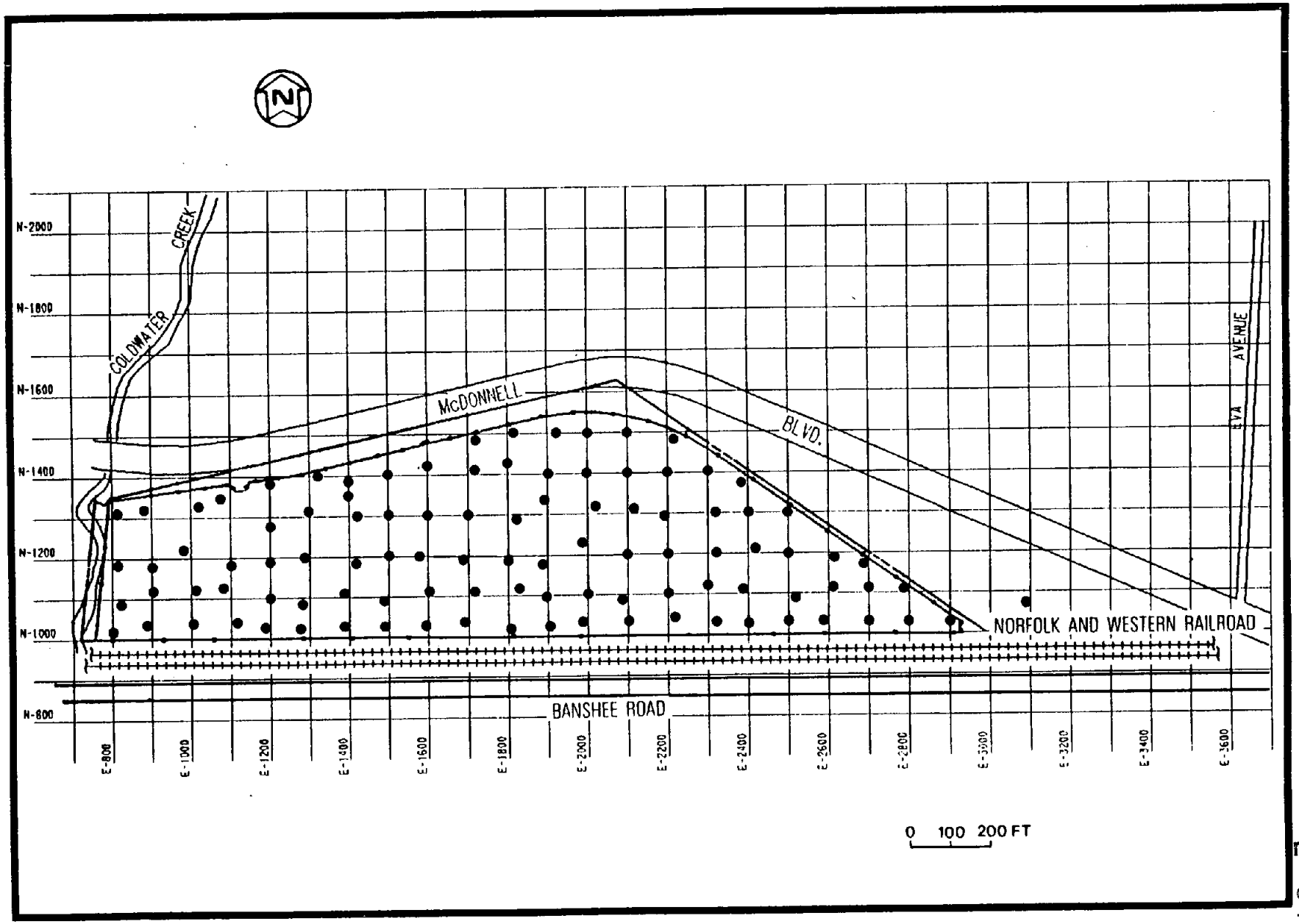

FIGURE 4-4 BOREHOLE LOCATIONS FOR RADIOLOGICAL CHARACTERIZATION OF THE SLAPS

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gamma spectroscopy system described in Subsection 4.1.2. Since this is a relatively inexpensive analysis method, a large number of samples were selected. Samples were selected in a manner designed to help determine the overall volume of waste on the site, corroborate down-hole logging results, support pathways analyses, and more precisely identify the areas in which thorium-230 analysis was required.

At the same time samples were selected for the analysis program described above, samples were also identified for thorium-230 analysis. Since this analysis procedure is expensive (roughly five times the cost of the gamma spectroscopy method), the number of samples selected for thorium-230 analysis was minimized. The primary goal of the thorium-230 analysis program was to determine whether above-guideline concentrations of thorium-230 exist in areas where neither uranium-238, radium-226, or thorium-232 is present in concentrations exceeding guidelines, thereby affecting the estimated volume of waste on the site.

Experience in the St. Louis area has shown that as long as the radium-226 concentration is elevated, it is reasonable to assume that the concentration of thorium-230 exceeds the DOE guideline of 15 pCi/g. Based on this rationale, as well as on the down-hole gamma logs and available gamma spectroscopy results, samples were selected for thorium-230 analysis. Typically, this meant that samples were selected from regions of the borehole where gamma logging results showed a decrease in the count rate, indicating a drop in the radium-226 concentration. To expedite the sampling and analysis process and permit early calculation of a volume estimate, multiple samples were selected from each borehole at a single collection time whenever possible. Selection of these samples was based on an evaluation of gamma logs in an effort to establish the boundaries of contamination in a single analysis phase. Where time permitted, additional samples were selected, and a second phase of analysis was performed to more precisely define the depths of contamination. Other samples were also selected to resolve inconsistencies or to provide additional information on selected regions.

4.2 CHEMICAL CHARACTERIZATION

Limited chemical characterization was performed to provide information regarding the nature and potential presence of hazardous wastes on the site. Analyses were performed for only indicator-type parameters. Based on the information gained as the result of this effort, a more defined approach can be implemented for future chemical characterization.

4.2.1 Sample Collection and Analysis

In order to investigate the possible presence of hazardous waste on the site, ten on-site sampling locations were randomly selected. In addition, one off-site location was sampled (Figure 4-5). Boreholes were drilled using the procedure described in Subsection 4.1.1. The soil samples from drill holes designated for both chemical and radioactive characterization were split to permit analysis for both radiological and nonradiological parameters. Continuous soil samples were collected from each borehole in the same manner as from the radiological boreholes. The soil was then composited into three samples per hole.

The composite samples were screened for certain indicator-type parameters. An Inductively Coupled Plasma (ICP) scan was performed to determine the concentrations of the following priority pollutant metals in the samples: aluminum, antimony, arsenic, barium, beryllium, boron, cadmium, calcium, chromium, cobalt, copper, iron, lead, lithium, magnesium, manganese, mercury, molybdenum, nickel, potassium, selenium, silver, sodium, strontium, thallium, tin, vanadium, and zinc. Total organic carbon (TOC) analyses were performed to determine whether organic wastes were present in the soil. Total organic halogen (TOX) analyses were also performed.

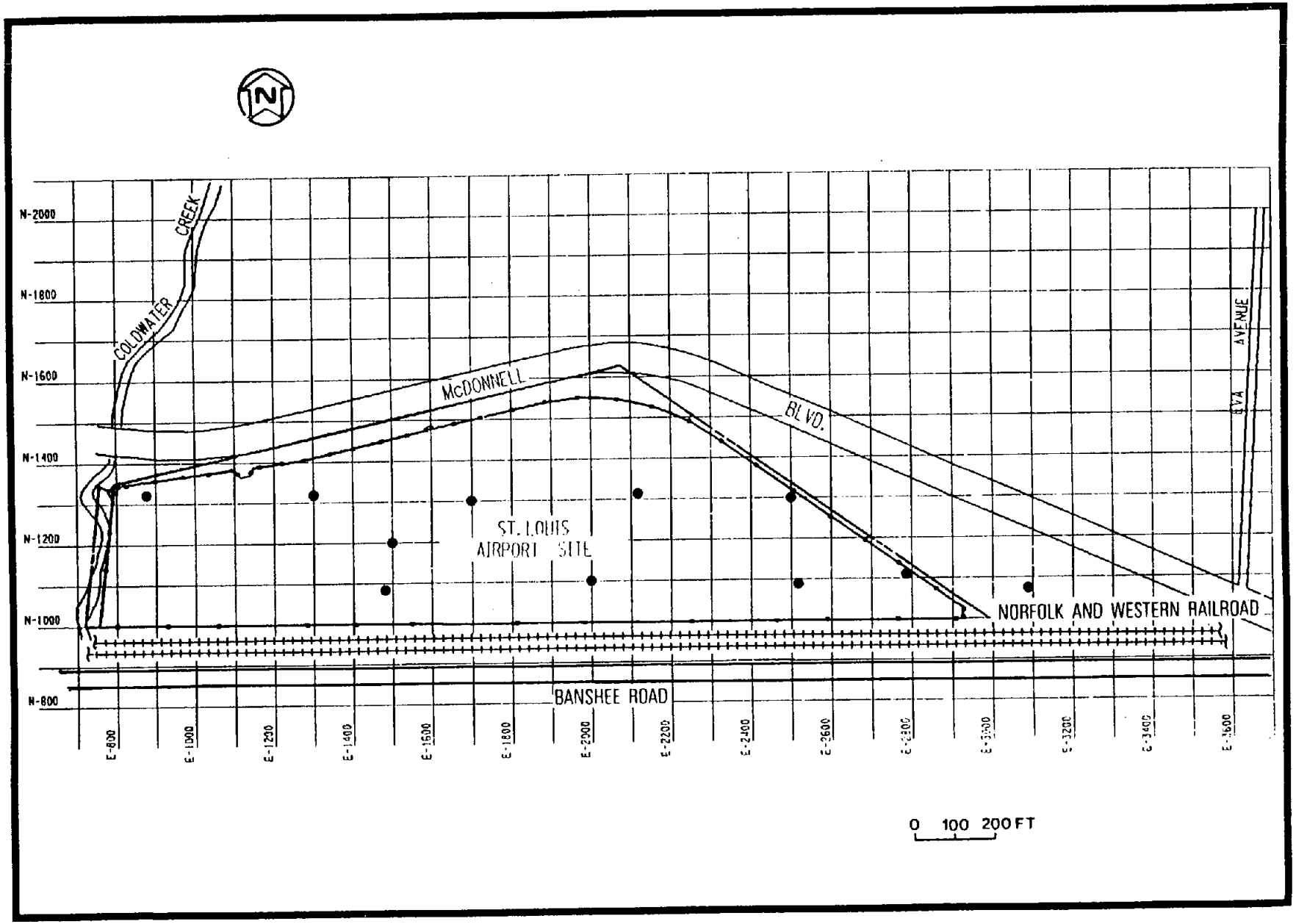

FIGURE 4-5 SOIL SAMPLING LOCATIONS FOR LIMITED CHEMICAL CHARACTERIZATION OF THE SLAPS

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5.0 CHARACTERIZATION RESULTS

5.1 FIELD RADIOLOGICAL CHARACTERIZATION

The results of the measurements and sample analyses described in Section 4.0 are presented in this section. To permit comparison of the results to current DOE guidelines for radionuclides in soil, these guidelines are presented in Table 5-1 (Ref. 8). A guideline for uranium in soil at the SLAPS has not yet been established.

All laboratory results in this report represent gross readings. Background measurements and concentrations have not been subtracted from field measurements or laboratory results.

5.1.1 Background Measurements

Near-surface gamma levels, gamma exposure rates, and gamma radiation levels at 3 ft above the ground surface were measured at three background locations in the St. Louis area to establish naturally occurring radiation levels. It is essential to establish these levels, since the DOE guidelines are stated as "above-background" contributions from the site. The average near-surface gamma level was approximately 4,000 cpm, and gamma radiation levels 3 ft above the ground surface averaged approximately 7,000 cpm. The average background gamma exposure rate was 8 uR/h. Individual background measurements are listed in Table 5-2.

Average background concentrations of uranium-234, -235, and -238 measured in surface soils at the three background locations were 1.0, less than 0.1, and 1.0 pCi/g, respectively. The average background concentration of radium-226 was 0.5 pCi/g. Average background concentrations of thorium-230 and thorium-232 were 0.2 and 0.4 pCi/g, respectively. The average background concentration of lead-210 was 1.0 pCi/g. Analysis results for each background location are listed in Table 5-2.

5.1.2 Surface and Subsurface Measurements

Near-surface gamma radiation levels at the SLAPS ranged from approximately background to approximately 862,000 cpm. A measurement of 11,000 cpm is approximately equal to the 5-pCi/g DOE guideline. Based on this correlation, essentially all of the ground surface at the SLAPS could be contaminated in excess of DOE guidelines.

Gamma radiation exposure rates ranged from 9 to 261 uR/h. The average exposure rate for the site was 84 uR/h. Gamma radiation exposure rates at the SLAPS are presented in Table 5-3. For comparison, the DOE basic dose limit of 100 mrem/yr above background is equivalent to an exposure rate of approximately 11 uR/h above background assuming exposure for a full year (8760 h).

Down-hole gamma logging was performed to indicate the general depth of gamma-emitting contamination. A measurement of 40,000 cpm is approximately equal to the DOE guideline for subsurface contamination of 15 pCi/g. Based on this correlation, gamma-emitting contamination was found at depths as great as 18 ft; however, the depths of contamination vary greatly between holes (Figure 5-1). Detailed gamma logging results are reported in Table 5-4.

Analysis results for soil are provided in Table 5-5. Use of the "less than" (<) notation indicates that the radionuclide was not present in measurable concentrations. The value following the less than notation is the minimum detectable amount (MDA). The MDA is based on various factors, including the volume, size, and weight of the sample; the type of detector used; the counting time, and the background count rate. In addition, since radioactive decay is a random process, a correlation between the rate of disintegration and a given radionuclide concentration cannot be precisely established. For this reason, the exact concentration of the radionuclide cannot be determined. As such, each value that is equal to or greater than

the MDA has an associated uncertainty term (±), which represents the amount by which the actual value can be expected to differ from the value given in the table. The uncertainty term has an associated confidence level of 95 percent.

Analysis results for soil revealed areas with elevated concentrations of radium-226, uranium-238, thorium-232, and thorium-230 in surface and subsurface samples. Radium-226, uranium-238, and thorium-230 were identified as the major contaminants. Thorium-232 concentrations ranged from background levels to 63 pCi/g. Radium-226 concentrations ranged from background levels to 5620 pCi/g. Uranium-238 concentrations ranged from less than 3 to 1600 pCi/g. Concentrations of thorium-230 ranged from 0.6 to 2600 pCi/g in the selected samples analyzed for thorium-230. Determination of the depth of contamination at the SLAPS was based on both the gamma logs and the soil sampling results. Contamination depths are shown in Figure 5-1.

5.2 CHEMICAL CHARACTERIZATION

An additional purpose of the 1986 survey was to investigate the potential presence of hazardous chemicals on the site. Results of the ICP scan indicated the presence of metals in concentrations exceeding those measured in background soil (Table 5-6). The presence of these priority pollutant metals does not necessarily indicate that the wastes are hazardous in nature. Additional information such as mobility in the environment is needed to make such a determination.

Of the samples submitted for TOC analysis, three samples (coordinates E2500, N1100; E2500, N1300; and E2100, N1300) were found to contain TOC concentrations of greater than 1 percent, which indicates the possible presence of hazardous organic waste at these locations.

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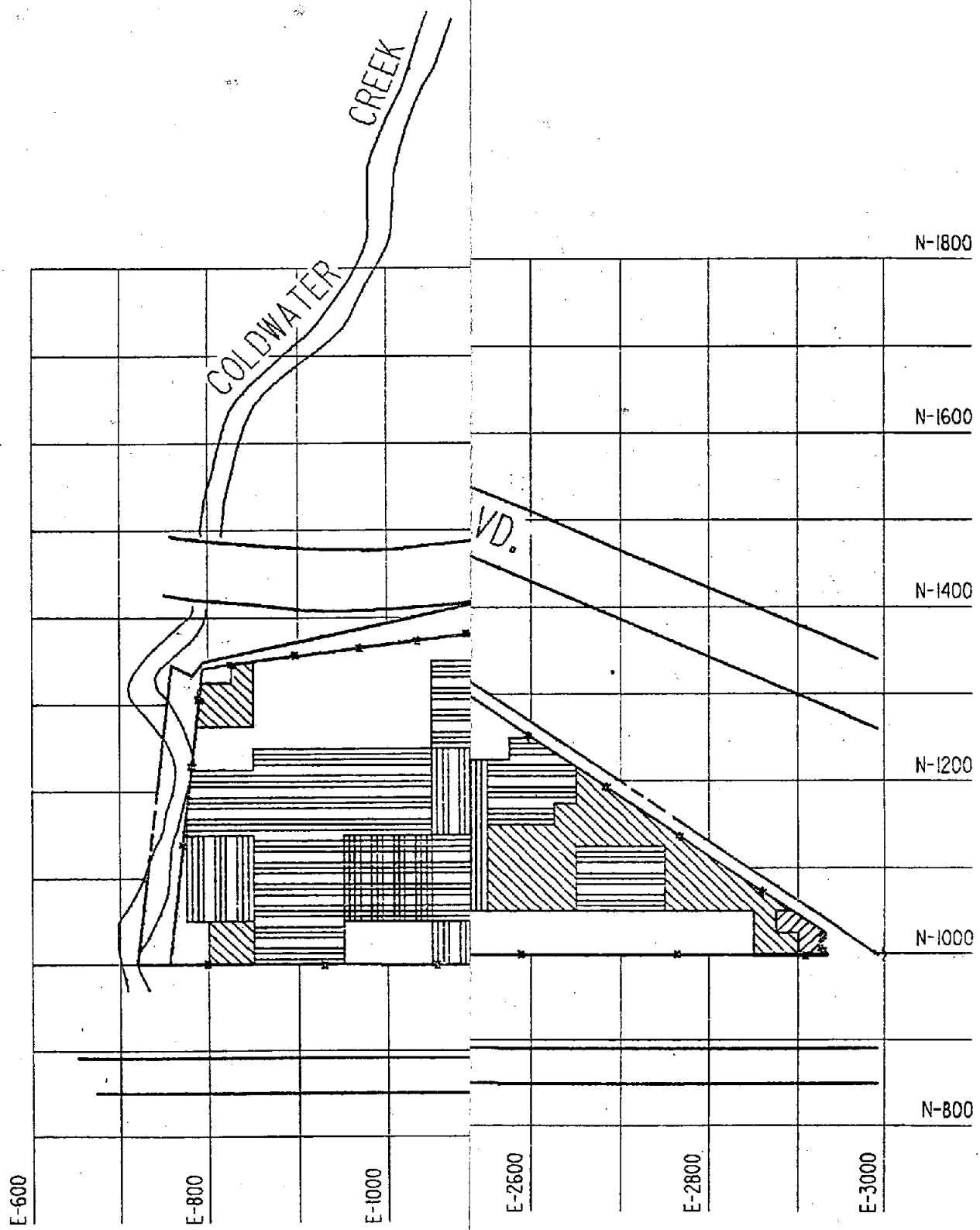
COLDWATER
CREEK
VD.
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N-1600
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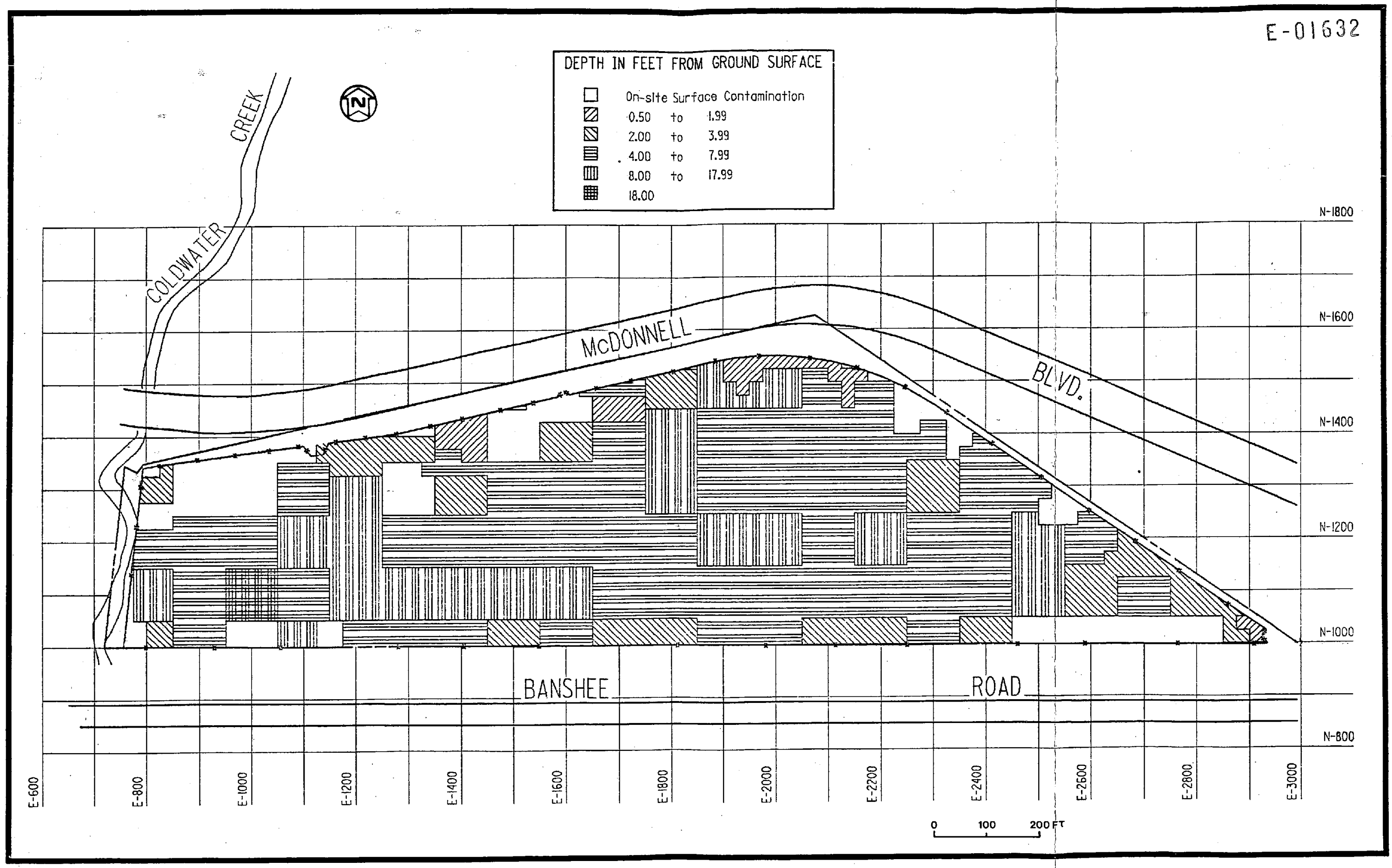

FIGURE 5-1 AREAS AND DEPTHS OF RADIOACTIVE CONTAMINATION AT THE SLAPS

No elevated TOX results were obtained; therefore, it is unlikely that either polychlorinated biphenyls (PCBs), chlorinated solvents, or chlorinated pesticides are present on the site in hazardous concentrations.

Detailed chemical characterization data are on file (Refs. 9, 10). Based on the results of this preliminary chemical characterization sampling, it is apparent that additional chemical characterization of the SLAPS is required. Since priority pollutant metals are present in the soil, the potential for the metals to enter the groundwater must be assessed. The detection of elevated TOC levels dictates that more specific analyses be performed to ascertain whether hazardous organic wastes are present. Planning is under way for Phase II chemical characterization of the SLAPS.

5.3 HYDROGEOLOGICAL INVESTIGATION

An additional objective of the 1986 survey included gaining preliminary information about the hydrogeological properties of the site, since these factors will affect actions taken to develop the site as a permanent disposal site. Results of the preliminary hydrogeological investigation are the subject of a separate report (Ref. 11). Further geological and hydrogeological characterization of the SLAPS is planned for the fourth quarter of 1987. The geological and observation well logs from both the preliminary and supplemental characterizations will be included in the report documenting the findings of that characterization.

TABLE 5-1

SUMMARY OF RESIDUAL CONTAMINATION GUIDELINES FOR THE SLAPS

BASIC DOSE LIMITS

The basic limit for the annual radiation dose received by an individual member of the general public is 100 mrem/yr.

SOIL (LAND) GUIDELINES (MAXIMUM LIMITS FOR UNRESTRICTED USE)

Radionuclide	Soil Concentration (pCi/g) above background[a,b,c]
Radium-226 Radium-228 Thorium-230 Thorium-232	5 pCi/g, averaged over the first 15 cm of soil below the surface; 15 pCi/g when averaged over any 15-cm-thick soil layer below the surface layer.
Other radionuclides	Soil guidelines will be calculated on a site-specific basis using the DOE manual developed for this use.

[a]These guidelines take into account ingrowth of radium-226 from thorium-230 and of radium-228 from thorium-232, and assume secular equilibrium. If either thorium-230 and radium-226 or thorium-232 and radium-228 are both present, not in secular equilibrium, the guidelines apply to the higher concentration. If other mixtures of radionuclides occur, the concentrations of individual radionuclides shall be reduced so that the dose for the mixtures will not exceed the basic dose limit.

[b]These guidelines represent unrestricted-use residual concentrations above background averaged across any 15-cm-thick layer to any depth and over any contiguous 100-m^2 surface area.

[c]Localized concentrations in excess of these limits are allowable provided that the average concentration over a 100-m^2 area does not exceed these limits.

TABLE 5-2

BACKGROUND RADIONUCLIDE CONCENTRATIONS AND RADIATION LEVELS IN SOIL IN THE ST. LOUIS AREA

Measurement Location	Gamma Exposure Rate at 3 ft (uR/h)	Gamma Radiation at 3 ft (cpm)	Near-Surface Gamma Radiation (cpm)	Radionuclide Concentration (pCi/g)						
				Uranium-234	Uranium-235	Uranium-238	Radium-226	Thorium-230	Thorium-232	Lead-210
1	8	7000	4000	1.2 ± 0.2	0.1	1.2 ± 0.2	0.7 ± 0.1	0.1 ± 0.1	0.3 ± 0.1	0.6 ± 0.4
2	8	7000	4000	0.6 ± 0.2	0.1	0.6 ± 0.1	0.3 ± 0.1	0.3 ± 0.1	0.5 ± 0.1	2.0 ± 0.5
3	8	8000	5000	1.3 ± 0.3	0.1 ± 0.1	1.3 ± 0.2	0.4 ± 0.1	0.3 ± 0.1	0.3 ± 0.1	0.5 ± 0.4
Average	8	7000	4000	1.0 ± 0.2	0.1	1.0 ± 0.2	0.5 ± 0.1	0.2 ± 0.1	0.4 ± 0.1	1.0 ± 0.4

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TABLE 5-3

GAMMA RADIATION EXPOSURE RATES

AT THE SLAPS

Coordinates		
East	North	uR/h
1150.0	1389.0	21
1200.0	1389.0	12
1250.0	1398.0	12
1350.0	1419.0	9
1400.0	1429.0	12
1450.0	1440.0	14
1500.0	1450.0	14
1600.0	1455.0	35
1750.0	1500.0	19
1800.0	1510.0	58
1850.0	1524.0	240
1900.0	1530.0	177
1950.0	1530.0	198
2000.0	1532.0	131
2100.0	1520.0	229
2150.0	1505.0	261
2250.0	1470.0	58
2300.0	1447.0	78
2350.0	1418.0	165
2450.0	1353.0	51
2500.0	1318.0	37
2550.0	1287.0	20

TABLE 5-4

DOWN-HOLE GAMMA LOGGING RESULTS

FOR THE SLAPS SITE

Coordinates East	Coordinates North	Depth (ft)	SPA-3 Count Rate (cpm)
800.0	1010.5	0.0	25000
800.0	1010.5	0.5	25000
800.0	1010.5	1.0	38000
800.0	1010.5	1.5	26000
800.0	1010.5	2.0	24000
800.0	1010.5	2.5	24000
800.0	1010.5	3.0	21000
800.0	1010.5	3.5	21000
800.0	1010.5	4.0	20000
800.0	1010.5	5.0	19000
800.0	1010.5	6.0	17000
800.0	1010.5	7.0	20000
800.0	1010.5	8.0	19000
800.0	1010.5	9.0	24000
808.0	1197.0	0.0	14000
808.0	1197.0	0.5	14000
808.0	1197.0	1.0	24000
808.0	1197.0	1.5	25000
808.0	1197.0	2.0	27000
808.0	1197.0	2.5	31000
808.0	1197.0	3.0	33000
808.0	1197.0	3.5	31000
808.0	1197.0	4.0	29000
808.0	1197.0	4.5	28000
808.0	1197.0	5.0	26000
808.0	1197.0	5.5	22000
808.0	1197.0	6.0	19000
808.0	1197.0	7.0	19000
808.0	1197.0	8.0	19000
808.0	1197.0	9.0	19000
808.0	1197.0	10.0	18000
808.0	1197.0	11.0	17000
808.0	1303.0	0.0	28000
808.0	1303.0	0.5	43000
808.0	1303.0	1.0	65000
808.0	1303.0	1.5	82000
808.0	1303.0	2.0	154000
808.0	1303.0	2.5	144000

TABLE 5-4

(continued)

Coordinates East	Coordinates North	Depth (ft)	SPA-3 Count Rate (cpm)
808.0	1303.0	3.0	72000
808.0	1303.0	3.5	39000
808.0	1303.0	4.0	27000
808.0	1303.0	4.5	25000
808.0	1303.0	5.0	23000
808.0	1303.0	6.0	21000
808.0	1303.0	7.0	19000
808.0	1303.0	8.0	18000
808.0	1303.0	9.0	17000
808.0	1303.0	10.0	17000
808.0	1303.0	10.5	16000
813.0	1099.0	0.0	41000
813.0	1099.0	0.5	78000
813.0	1099.0	1.0	101000
813.0	1099.0	1.5	233000
813.0	1099.0	2.0	659000
813.0	1099.0	2.5	857000
813.0	1099.0	3.0	1071000
813.0	1099.0	3.5	1364000
813.0	1099.0	4.0	1579000
813.0	1099.0	4.5	1538000
813.0	1099.0	5.0	1395000
813.0	1099.0	5.5	1176000
813.0	1099.0	6.0	822000
813.0	1099.0	6.5	732000
813.0	1099.0	7.0	690000
813.0	1099.0	7.5	645000
813.0	1099.0	8.0	619000
813.0	1099.0	8.5	611000
813.0	1099.0	9.0	571000
813.0	1099.0	9.5	583000
813.0	1099.0	10.0	353000
813.0	1099.0	10.5	147000
813.0	1099.0	11.0	75000
813.0	1099.0	11.5	52000
813.0	1099.0	12.0	62000
813.0	1099.0	12.5	64000
813.0	1099.0	13.0	36000
813.0	1099.0	13.5	24000
813.0	1099.0	14.0	23000
813.0	1099.0	14.5	34000

TABLE 5-4

(continued)

Coordinates East	Coordinates North	Depth (ft)	SPA-3 Count Rate (cpm)
813.0	1099.0	15.0	30000
813.0	1099.0	15.5	22000
813.0	1099.0	16.0	20000
895.5	1306.0	0.0	11000
895.5	1306.0	0.5	18000
895.5	1306.0	1.0	36000
895.5	1306.0	1.5	28000
895.5	1306.0	2.0	26000
895.5	1306.0	2.5	27000
895.5	1306.0	3.0	34000
895.5	1306.0	3.5	35000
895.5	1306.0	4.0	23000
895.5	1306.0	4.5	18000
895.5	1306.0	5.0	16000
895.5	1306.0	6.0	14000
895.5	1306.0	7.0	15000
895.5	1306.0	8.0	15000
895.5	1306.0	9.0	15000
895.5	1306.0	10.0	15000
895.5	1306.0	11.0	14000
895.5	1306.0	12.0	15000
899.0	1015.0	0.0	10000
899.0	1015.0	1.0	13000
899.0	1015.0	2.0	19000
899.0	1015.0	2.5	23000
899.0	1015.0	3.0	34000
899.0	1015.0	3.5	44000
899.0	1015.0	4.0	51000
899.0	1015.0	4.5	64000
899.0	1015.0	5.0	58000
899.0	1015.0	5.5	38000
899.0	1015.0	6.0	33000
899.0	1015.0	6.5	25000
899.0	1015.0	7.0	24000
899.0	1015.0	7.5	25000
899.0	1015.0	8.0	24000
899.0	1015.0	9.0	24000
899.0	1015.0	10.0	22000
899.0	1015.0	10.5	24000
900.0	1101.5	0.0	25000

TABLE 5-4

(continued)

Coordinates East	Coordinates North	Depth (ft)	SPA-3 Count Rate (cpm)
900.0	1101.5	0.5	24000
900.0	1101.5	1.0	19000
900.0	1101.5	1.5	20000
900.0	1101.5	2.0	39000
900.0	1101.5	2.5	65000
900.0	1101.5	3.0	161000
900.0	1101.5	3.5	369000
900.0	1101.5	4.0	329000
900.0	1101.5	4.5	101000
900.0	1101.5	5.0	45000
900.0	1101.5	6.0	30000
900.0	1101.5	7.0	24000
900.0	1101.5	8.0	16000
900.0	1101.5	9.0	15000
900.0	1101.5	10.0	14000
900.0	1101.5	11.0	14000
900.0	1101.5	12.0	15000
900.0	1101.5	13.0	13000
900.0	1101.5	13.5	18000
900.0	1199.0	0.0	15000
900.0	1199.0	0.5	15000
900.0	1199.0	1.0	17000
900.0	1199.0	1.5	18000
900.0	1199.0	2.0	23000
900.0	1199.0	2.5	31000
900.0	1199.0	3.0	46000
900.0	1199.0	3.5	69000
900.0	1199.0	4.0	155000
900.0	1199.0	4.5	106000
900.0	1199.0	5.0	51000
900.0	1199.0	6.0	27000
900.0	1199.0	7.0	24000
900.0	1199.0	8.0	20000
900.0	1199.0	9.0	18000
900.0	1199.0	10.0	19000
900.0	1199.0	11.0	19000
900.0	1199.0	12.0	19000
900.0	1199.0	12.5	20000
997.0	1210.0	0.0	26000
997.0	1210.0	0.5	35000

TABLE 5-4

(continued)

Coordinates East	Coordinates North	Depth (ft)	SPA-3 Count Rate (cpm)
997.0	1210.0	1.0	50000
997.0	1210.0	1.5	67000
997.0	1210.0	2.0	123000
997.0	1210.0	2.5	218000
997.0	1210.0	3.0	873000
997.0	1210.0	3.5	244000
997.0	1210.0	4.0	110000
997.0	1210.0	4.5	74000
997.0	1210.0	5.0	45000
997.0	1210.0	5.5	37000
997.0	1210.0	6.0	34000
997.0	1210.0	7.0	29000
997.0	1210.0	8.0	27000
997.0	1210.0	9.0	24000
997.0	1210.0	10.0	20000
997.0	1210.0	11.0	19000
997.0	1210.0	12.0	18000
997.0	1210.0	13.0	21000
1000.0	1015.5	0.0	13000
1000.0	1015.5	1.0	19000
1000.0	1015.5	1.5	31000
1000.0	1015.5	2.0	38000
1000.0	1015.5	2.5	39000
1000.0	1015.5	3.0	34000
1000.0	1015.5	3.5	25000
1000.0	1015.5	4.0	28000
1000.0	1015.5	4.5	19000
1000.0	1015.5	5.0	21000
1000.0	1015.5	5.5	21000
1000.0	1015.5	6.0	21000
1000.0	1015.5	6.5	20000
1000.0	1015.5	7.0	20000
1000.0	1015.5	7.5	20000
1000.0	1015.5	8.0	21000
1000.0	1015.5	8.5	20000
1000.0	1015.5	9.0	22000
1000.0	1015.5	9.5	21000
1000.0	1015.5	10.0	21000
1000.0	1015.5	10.5	19000
1000.0	1015.5	11.0	20000
1000.0	1015.5	11.5	19000

TABLE 5-4

(continued)

Coordinates East	Coordinates North	Depth (ft)	SPA-3 Count Rate (cpm)
1000.0	1015.5	12.0	18000
1000.0	1015.5	13.0	17000
1000.0	1015.5	14.0	15000
1000.0	1015.5	15.0	15000
1000.0	1015.5	16.0	16000
1000.0	1015.5	17.0	16000
1000.0	1015.5	18.0	14000
1000.0	1015.5	19.0	15000
1000.0	1015.5	20.0	15000
1000.0	1015.5	21.0	16000
1000.0	1015.5	22.0	16000
1000.0	1015.5	23.0	16000
1000.0	1015.5	24.0	16000
1000.0	1015.5	25.0	16000
1000.0	1015.5	26.0	16000
1000.0	1015.5	27.0	16000
1000.0	1015.5	28.0	16000
1000.0	1015.5	29.0	16000
1000.0	1015.5	30.0	16000
1002.0	1309.5	0.0	33000
1002.0	1309.5	0.5	30000
1002.0	1309.5	1.0	31000
1002.0	1309.5	1.5	29000
1002.0	1309.5	2.0	27000
1002.0	1309.5	2.5	27000
1002.0	1309.5	3.0	28000
1002.0	1309.5	3.5	34000
1002.0	1309.5	4.0	36000
1002.0	1309.5	4.5	28000
1002.0	1309.5	5.0	23000
1002.0	1309.5	5.5	23000
1002.0	1309.5	6.0	20000
1002.0	1309.5	7.0	17000
1002.0	1309.5	8.0	19000
1002.0	1309.5	9.0	19000
1002.0	1309.5	10.0	19000
1002.0	1309.5	11.0	18000
1002.0	1309.5	12.0	18000
1002.0	1309.5	13.0	17000
1002.0	1309.5	14.0	16000
1002.0	1309.5	15.0	17000

TABLE 5-4

(continued)

Coordinates East	Coordinates North	Depth (ft)	SPA-3 Count Rate (cpm)
1002.0	1309.5	16.0	15000
1002.0	1309.5	17.0	15000
1002.0	1309.5	18.0	15000
1002.0	1309.5	19.0	15000
1002.0	1309.5	20.0	15000
1002.0	1309.5	21.0	15000
1002.0	1309.5	22.0	16000
1002.0	1309.5	23.0	17000
1002.0	1309.5	24.0	15000
1002.0	1309.5	25.0	16000
1002.0	1309.5	26.0	14000
1002.0	1309.5	27.0	16000
1005.0	1101.0	0.0	62000
1005.0	1101.0	0.5	120000
1005.0	1101.0	1.0	175000
1005.0	1101.0	1.5	208000
1005.0	1101.0	2.0	243000
1005.0	1101.0	2.5	385000
1005.0	1101.0	3.0	545000
1005.0	1101.0	3.5	779000
1005.0	1101.0	4.0	800000
1005.0	1101.0	4.5	583000
1005.0	1101.0	5.0	455000
1005.0	1101.0	5.5	476000
1005.0	1101.0	6.0	536000
1005.0	1101.0	6.5	723000
1005.0	1101.0	7.0	984000
1005.0	1101.0	7.5	984000
1005.0	1101.0	8.0	923000
1005.0	1101.0	8.5	472000
1005.0	1101.0	9.0	306000
1005.0	1101.0	9.5	159000
1005.0	1101.0	10.0	103000
1005.0	1101.0	10.5	90000
1005.0	1101.0	11.0	80000
1005.0	1101.0	11.5	72000
1005.0	1101.0	12.0	76000
1005.0	1101.0	12.5	73000
1005.0	1101.0	13.0	67000
1005.0	1101.0	13.5	67000
1005.0	1101.0	14.0	66000

TABLE 5-4

(continued)

Coordinates East	Coordinates North	Depth (ft)	SPA-3 Count Rate (cpm)
1005.0	1101.0	14.5	61000
1005.0	1101.0	15.0	67000
1005.0	1101.0	15.5	66000
1005.0	1101.0	16.0	69000
1005.0	1101.0	16.5	86000
1005.0	1101.0	17.0	86000
1005.0	1101.0	17.5	73000
1074.0	1330.0	0.0	40000
1074.0	1330.0	0.5	37000
1074.0	1330.0	1.0	34000
1074.0	1330.0	1.5	41000
1074.0	1330.0	2.0	71000
1074.0	1330.0	2.5	105000
1074.0	1330.0	3.0	147000
1074.0	1330.0	3.5	197000
1074.0	1330.0	4.0	109000
1074.0	1330.0	4.5	38000
1074.0	1330.0	5.0	22000
1074.0	1330.0	6.0	17000
1074.0	1330.0	7.0	16000
1074.0	1330.0	8.0	15000
1074.0	1330.0	9.0	17000
1074.0	1330.0	10.0	19000
1074.0	1330.0	11.0	22000
1085.0	1102.0	0.0	57000
1085.0	1102.0	0.5	71000
1085.0	1102.0	1.0	47000
1085.0	1102.0	1.5	42000
1085.0	1102.0	2.0	36000
1085.0	1102.0	2.5	30000
1085.0	1102.0	3.0	31000
1085.0	1102.0	3.5	48000
1085.0	1102.0	4.0	50000
1085.0	1102.0	4.5	59000
1085.0	1102.0	5.0	104000
1085.0	1102.0	5.5	255000
1085.0	1102.0	6.0	420000
1085.0	1102.0	6.5	279000
1085.0	1102.0	7.0	265000

TABLE 5-4

(continued)

Coordinates East	Coordinates North	Depth (ft)	SPA-3 Count Rate (cpm)
1085.0	1102.0	7.5	55000
1085.0	1102.0	8.0	30000
1085.0	1102.0	8.5	18000
1085.0	1102.0	9.0	16000
1085.0	1102.0	10.0	16000
1085.0	1102.0	11.0	16000
1085.0	1102.0	12.0	17000
1085.0	1102.0	13.0	17000
1085.0	1102.0	14.0	18000
1085.0	1102.0	15.0	18000
1085.0	1102.0	16.0	19000
1100.0	1198.0	0.0	10000
1100.0	1198.0	0.5	11000
1100.0	1198.0	1.0	15000
1100.0	1198.0	1.5	16000
1100.0	1198.0	2.0	19000
1100.0	1198.0	2.5	21000
1100.0	1198.0	3.0	22000
1100.0	1198.0	3.5	30000
1100.0	1198.0	4.0	26000
1100.0	1198.0	4.5	21000
1100.0	1198.0	5.0	18000
1100.0	1198.0	5.5	20000
1100.0	1198.0	6.0	30000
1100.0	1198.0	7.0	62000
1100.0	1198.0	7.5	83000
1100.0	1198.0	8.0	50000
1100.0	1198.0	8.5	28000
1100.0	1198.0	9.0	19000
1100.0	1198.0	9.5	19000
1100.0	1198.0	10.0	17000
1100.0	1198.0	11.0	18000
1100.0	1198.0	12.0	19000
1100.0	1198.0	13.0	20000
1100.0	1198.0	14.0	22000
1100.0	1198.0	15.0	22000
1101.5	1015.5	0.0	87000
1101.5	1015.5	0.5	205000
1101.5	1015.5	1.0	377000
1101.5	1015.5	1.5	397000

TABLE 5-4

(continued)

Coordinates East	Coordinates North	Depth (ft)	SPA-3 Count Rate (cpm)
1101.5	1015.5	2.0	192000
1101.5	1015.5	2.5	59000
1101.5	1015.5	3.0	27000
1101.5	1015.5	3.5	20000
1101.5	1015.5	4.0	19000
1101.5	1015.5	5.0	17000
1101.5	1015.5	6.0	18000
1101.5	1015.5	7.0	18000
1101.5	1015.5	8.0	19000
1101.5	1015.5	9.0	19000
1198.0	1010.5	0.0	22000
1198.0	1010.5	0.5	23000
1198.0	1010.5	1.0	30000
1198.0	1010.5	1.5	48000
1198.0	1010.5	2.0	86000
1198.0	1010.5	2.5	195000
1198.0	1010.5	3.0	152000
1198.0	1010.5	3.5	140000
1198.0	1010.5	4.0	55000
1198.0	1010.5	4.5	48000
1198.0	1010.5	5.0	25000
1198.0	1010.5	5.5	25000
1198.0	1010.5	6.0	23000
1198.0	1010.5	6.5	22000
1198.0	1010.5	7.0	25000
1198.0	1010.5	7.5	27000
1198.0	1010.5	8.0	28000
1198.0	1010.5	8.5	28000
1198.0	1010.5	9.0	23000
1198.0	1010.5	9.5	22000
1198.0	1010.5	10.0	19000
1198.0	1010.5	10.5	18000
1198.0	1010.5	11.0	17000
1198.0	1010.5	12.0	18000
1198.0	1010.5	13.0	19000
1198.0	1010.5	14.0	19000
1198.0	1010.5	15.0	17000
1198.0	1010.5	16.0	19000
1198.0	1010.5	17.0	19000
1198.0	1010.5	18.0	17000
1198.0	1010.5	19.0	18000

TABLE 5-4

(continued)

Coordinates East	Coordinates North	Depth (ft)	SPA-3 Count Rate (cpm)
1198.0	1010.5	20.0	18000
1198.0	1010.5	21.0	17000
1198.0	1010.5	22.0	16000
1198.0	1010.5	23.0	16000
1198.0	1010.5	24.0	17000
1198.0	1010.5	25.0	17000
1200.0	1100.0	0.0	12000
1200.0	1100.0	0.5	12000
1200.0	1100.0	1.0	11000
1200.0	1100.0	1.5	11000
1200.0	1100.0	2.0	13000
1200.0	1100.0	2.5	15000
1200.0	1100.0	3.0	16000
1200.0	1100.0	3.5	22000
1200.0	1100.0	4.0	27000
1200.0	1100.0	4.5	39000
1200.0	1100.0	5.0	36000
1200.0	1100.0	6.0	103000
1200.0	1100.0	7.0	261000
1200.0	1100.0	8.0	46000
1200.0	1100.0	9.0	22000
1200.0	1100.0	10.0	18000
1200.0	1100.0	11.0	18000
1200.0	1100.0	12.0	18000
1200.0	1100.0	13.0	17000
1200.0	1100.0	14.0	18000
1200.0	1100.0	15.0	18000
1200.0	1199.0	0.0	48000
1200.0	1199.0	0.1	42000
1200.0	1199.0	0.5	44000
1200.0	1199.0	1.5	45000
1200.0	1199.0	2.0	54000
1200.0	1199.0	2.5	53000
1200.0	1199.0	3.0	63000
1200.0	1199.0	3.5	70000
1200.0	1199.0	4.0	92000
1200.0	1199.0	4.5	101000
1200.0	1199.0	5.0	112000
1200.0	1199.0	5.5	153000
1200.0	1199.0	6.0	321000

TABLE 5-4

(continued)

Coordinates East	Coordinates North	Depth (ft)	SPA-3 Count Rate (cpm)
1200.0	1199.0	6.5	521000
1200.0	1199.0	7.0	607000
1200.0	1199.0	7.5	750000
1200.0	1199.0	8.0	857000
1200.0	1199.0	8.5	882000
1200.0	1199.0	9.0	556000
1200.0	1199.0	9.5	347000
1200.0	1199.0	10.0	158000
1200.0	1199.0	10.5	79000
1200.0	1199.0	11.0	58000
1200.0	1199.0	11.5	60000
1200.0	1199.0	12.0	66000
1200.0	1199.0	12.5	59000
1200.0	1199.0	13.0	52000
1200.0	1199.0	13.5	54000
1200.0	1199.0	14.0	52000
1200.0	1199.0	14.5	53000
1200.0	1199.0	15.0	45000
1200.0	1199.0	15.5	47000
1200.0	1199.0	16.0	44000
1200.0	1199.0	16.5	42000
1200.0	1199.0	17.0	41000
1200.0	1199.0	17.5	40000
1200.0	1199.0	18.0	38000
1200.0	1199.0	18.5	35000
1200.0	1199.0	19.0	32000
1200.0	1199.0	19.5	31000
1200.0	1199.0	20.0	27000
1200.0	1199.0	20.5	25000
1200.0	1199.0	21.0	23000
1200.0	1199.0	21.5	23000
1200.0	1199.0	22.0	21000
1200.0	1199.0	22.5	20000
1200.0	1199.0	23.0	19000
1200.0	1199.0	23.5	20000
1200.0	1199.0	24.0	19000
1200.0	1295.0	0.0	49000
1200.0	1295.0	0.5	92000
1200.0	1295.0	1.0	150000
1200.0	1295.0	1.5	235000
1200.0	1295.0	2.0	392000

TABLE 5-4

(continued)

Coordinates East	Coordinates North	Depth (ft)	SPA-3 Count Rate (cpm)
1200.0	1295.0	2.5	395000
1200.0	1295.0	3.0	469000
1200.0	1295.0	3.5	541000
1200.0	1295.0	4.0	984000
1200.0	1295.0	4.5	1132000
1200.0	1295.0	5.0	769000
1200.0	1295.0	6.0	218000
1200.0	1295.0	7.0	53000
1200.0	1295.0	8.0	33000
1200.0	1295.0	9.0	27000
1200.0	1295.0	10.0	24000
1200.0	1295.0	11.0	21000
1200.0	1295.0	12.0	22000
1200.0	1295.0	13.0	21000
1200.0	1295.0	14.0	19000
1200.0	1295.0	15.0	20000
1200.0	1295.0	16.0	21000
1200.0	1295.0	16.5	21000
1200.0	1392.0	0.0	21000
1200.0	1392.0	0.5	47000
1200.0	1392.0	1.0	82000
1200.0	1392.0	1.5	93000
1200.0	1392.0	2.0	77000
1200.0	1392.0	2.5	59000
1200.0	1392.0	3.0	35000
1200.0	1392.0	3.5	28000
1200.0	1392.0	4.0	20000
1200.0	1392.0	5.0	20000
1200.0	1392.0	6.0	17000
1200.0	1392.0	7.0	16000
1200.0	1392.0	8.0	16000
1200.0	1392.0	9.0	15000
1200.0	1392.0	10.0	15000
1200.0	1392.0	11.0	15000
1200.0	1392.0	12.0	16000
1200.0	1392.0	13.0	16000
1200.0	1392.0	14.0	15000
1200.0	1392.0	15.0	16000
1200.0	1392.0	16.0	15000
1200.0	1392.0	17.0	16000
1200.0	1392.0	18.0	15000

TABLE 5-4

(continued)

Coordinates East	Coordinates North	Depth (ft)	SPA-3 Count Rate (cpm)
1200.0	1392.0	19.0	15000
1200.0	1392.0	20.0	15000
1200.0	1392.0	21.0	15000
1200.0	1392.0	22.0	16000
1200.0	1392.0	23.0	16000
1200.0	1392.0	24.0	15000
1200.0	1392.0	25.0	16000
1297.5	1007.5	0.0	19000
1297.5	1007.5	1.0	18000
1297.5	1007.5	2.0	23000
1297.5	1007.5	3.0	36000
1297.5	1007.5	3.5	71000
1297.5	1007.5	4.0	161000
1297.5	1007.5	4.5	417000
1297.5	1007.5	5.0	465000
1297.5	1007.5	5.5	227000
1297.5	1007.5	6.0	78000
1297.5	1007.5	6.5	38000
1297.5	1007.5	7.0	24000
1297.5	1007.5	7.5	18000
1297.5	1007.5	8.0	17000
1297.5	1007.5	9.0	15000
1297.5	1007.5	10.0	16000
1297.5	1007.5	11.0	15000
1297.5	1007.5	12.0	16000
1297.5	1098.0	0.0	22000
1297.5	1098.0	0.5	29000
1297.5	1098.0	1.0	31000
1297.5	1098.0	1.5	22000
1297.5	1098.0	2.0	20000
1297.5	1098.0	2.5	20000
1297.5	1098.0	3.0	25000
1297.5	1098.0	3.5	31000
1297.5	1098.0	4.0	57000
1297.5	1098.0	4.5	128000
1297.5	1098.0	5.0	282000
1297.5	1098.0	6.0	213000
1297.5	1098.0	7.0	571000
1297.5	1098.0	8.0	504000
1297.5	1098.0	9.0	112000

TABLE 5-4

(continued)

Coordinates East	Coordinates North	Depth (ft)	SPA-3 Count Rate (cpm)
1297.5	1098.0	10.0	218000
1297.5	1098.0	11.0	594000
1297.5	1098.0	12.0	414000
1297.5	1098.0	13.0	99000
1297.5	1098.0	13.5	28000
1299.0	1200.0	0.0	33000
1299.0	1200.0	0.5	34000
1299.0	1200.0	1.0	44000
1299.0	1200.0	1.5	51000
1299.0	1200.0	2.0	79000
1299.0	1200.0	2.5	109000
1299.0	1200.0	3.0	192000
1299.0	1200.0	3.5	392000
1299.0	1200.0	4.0	561000
1299.0	1200.0	4.5	508000
1299.0	1200.0	5.0	180000
1299.0	1200.0	5.5	83000
1299.0	1200.0	6.0	41000
1299.0	1200.0	7.0	24000
1299.0	1200.0	8.0	22000
1299.0	1200.0	9.0	22000
1299.0	1200.0	10.0	22000
1299.0	1200.0	10.5	27000
1300.0	1302.0	0.0	14000
1300.0	1302.0	1.0	14000
1300.0	1302.0	2.0	19000
1300.0	1302.0	2.5	26000
1300.0	1302.0	3.0	38000
1300.0	1302.0	3.5	31000
1300.0	1302.0	4.0	23000
1300.0	1302.0	4.5	20000
1300.0	1302.0	5.0	20000
1300.0	1302.0	5.5	19000
1300.0	1302.0	6.0	20000
1300.0	1302.0	6.5	19000
1300.0	1302.0	7.0	18000
1300.0	1302.0	7.5	17000
1300.0	1302.0	8.0	18000
1300.0	1302.0	9.0	17000

TABLE 5-4

(continued)

Coordinates East	Coordinates North	Depth (ft)	SPA-3 Count Rate (cpm)
1300.0	1302.0	10.0	16000
1300.0	1302.0	11.0	15000
1300.0	1302.0	12.0	17000
1304.5	1400.5	0.0	20000
1304.5	1400.5	0.5	25000
1304.5	1400.5	1.0	38000
1304.5	1400.5	1.5	73000
1304.5	1400.5	2.0	94000
1304.5	1400.5	2.5	89000
1304.5	1400.5	3.0	54000
1304.5	1400.5	3.5	32000
1304.5	1400.5	4.0	28000
1304.5	1400.5	4.5	26000
1304.5	1400.5	5.0	24000
1304.5	1400.5	6.0	21000
1304.5	1400.5	7.0	19000
1304.5	1400.5	8.0	19000
1304.5	1400.5	9.0	19000
1304.5	1400.5	10.0	18000
1304.5	1400.5	11.0	15000
1397.5	1102.0	0.0	127000
1397.5	1102.0	0.5	45000
1397.5	1102.0	1.0	41000
1397.5	1102.0	1.5	43000
1397.5	1102.0	2.0	36000
1397.5	1102.0	2.5	37000
1397.5	1102.0	3.0	43000
1397.5	1102.0	3.5	59000
1397.5	1102.0	4.0	111000
1397.5	1102.0	4.5	303000
1397.5	1102.0	5.0	454000
1397.5	1102.0	5.5	789000
1397.5	1102.0	6.0	304000
1397.5	1102.0	6.5	579000
1397.5	1102.0	7.0	345000
1397.5	1102.0	7.5	984000
1397.5	1102.0	8.0	968000

TABLE 5-4

(continued)

Coordinates East	Coordinates North	Depth (ft)	SPA-3 Count Rate (cpm)
1397.5	1102.0	8.5	115000
1397.5	1102.0	9.0	99000
1397.5	1102.0	9.5	42000
1397.5	1102.0	10.0	34000
1397.5	1102.0	10.5	32000
1397.5	1102.0	11.0	31000
1397.5	1102.0	11.5	32000
1397.5	1102.0	12.0	32000
1397.5	1102.0	12.5	35000
1397.5	1102.0	13.0	57000
1397.5	1102.0	13.5	124000
1397.5	1102.0	14.0	123000
1398.0	1011.0	0.0	37000
1398.0	1011.0	0.5	51000
1398.0	1011.0	1.0	44000
1398.0	1011.0	1.5	35000
1398.0	1011.0	2.0	32000
1398.0	1011.0	2.5	31000
1398.0	1011.0	3.0	41000
1398.0	1011.0	3.5	64000
1398.0	1011.0	4.0	143000
1398.0	1011.0	4.5	341000
1398.0	1011.0	5.0	526000
1398.0	1011.0	5.5	435000
1398.0	1011.0	6.0	155000
1398.0	1011.0	6.5	73000
1398.0	1011.0	7.0	33000
1398.0	1011.0	7.5	23000
1398.0	1011.0	8.0	18000
1398.0	1011.0	9.0	16000
1398.0	1011.0	10.0	22000
1400.0	1351.0	0.0	24000
1400.0	1351.0	0.5	29000
1400.0	1351.0	1.0	31000
1400.0	1351.0	1.5	50000
1400.0	1351.0	2.0	84000
1400.0	1351.0	2.5	86000
1400.0	1351.0	3.0	77000
1400.0	1351.0	3.5	45000
1400.0	1351.0	4.0	35000

TABLE 5-4

(continued)

Coordinates East	Coordinates North	Depth (ft)	SPA-3 Count Rate (cpm)
1400.0	1397.0	0.0	59000
1400.0	1397.0	0.5	85000
1400.0	1397.0	1.0	45000
1400.0	1397.0	1.5	27000
1400.0	1397.0	2.0	22000
1400.0	1397.0	2.5	21000
1400.0	1397.0	3.0	20000
1400.0	1397.0	3.5	19000
1400.0	1397.0	4.0	19000
1400.0	1397.0	4.5	19000
1400.0	1397.0	5.0	18000
1400.0	1397.0	5.5	19000
1400.0	1397.0	6.0	19000
1400.0	1397.0	7.0	17000
1400.0	1397.0	8.0	18000
1400.0	1397.0	9.0	17000
1402.0	1196.0	0.0	14000
1402.0	1196.0	1.0	16000
1402.0	1196.0	2.0	17000
1402.0	1196.0	2.5	24000
1402.0	1196.0	3.0	32000
1402.0	1196.0	3.5	45000
1402.0	1196.0	4.0	60000
1402.0	1196.0	4.5	41000
1402.0	1196.0	5.0	26000
1402.0	1196.0	5.5	21000
1402.0	1196.0	6.0	20000
1402.0	1196.0	6.5	19000
1402.0	1196.0	7.0	19000
1402.0	1196.0	8.0	20000
1402.0	1196.0	9.0	17000
1402.0	1196.0	10.0	17000
1402.0	1196.0	11.0	17000
1402.0	1196.0	12.0	18000
1402.0	1196.0	12.5	19000
1402.0	1300.0	0.0	25000
1402.0	1300.0	0.5	36000
1402.0	1300.0	1.0	50000
1402.0	1300.0	1.5	132000

TABLE 5-4

(continued)

Coordinates East	Coordinates North	Depth (ft)	SPA-3 Count Rate (cpm)
1402.0	1300.0	2.0	206000
1402.0	1300.0	2.5	102000
1402.0	1300.0	3.0	50000
1402.0	1300.0	3.5	34000
1402.0	1300.0	4.0	25000
1402.0	1300.0	4.5	22000
1402.0	1300.0	5.0	21000
1402.0	1300.0	6.0	18000
1402.0	1300.0	7.0	19000
1402.0	1300.0	8.0	16000
1402.0	1300.0	9.0	16000
1402.0	1300.0	10.0	17000
1402.0	1300.0	11.0	17000
1497.0	1094.0	0.0	77000
1497.0	1094.0	0.5	86000
1497.0	1094.0	1.0	55000
1497.0	1094.0	1.5	43000
1497.0	1094.0	2.0	40000
1497.0	1094.0	2.5	43000
1497.0	1094.0	3.0	49000
1497.0	1094.0	3.5	64000
1497.0	1094.0	4.0	80000
1497.0	1094.0	4.5	132000
1497.0	1094.0	5.0	215000
1497.0	1094.0	5.5	405000
1497.0	1094.0	6.0	645000
1497.0	1094.0	6.5	682000
1497.0	1094.0	7.0	659000
1497.0	1094.0	7.5	619000
1497.0	1094.0	8.0	566000
1497.0	1094.0	8.5	397000
1497.0	1094.0	9.0	279000
1497.0	1094.0	9.5	176000
1497.0	1094.0	10.0	132000
1497.0	1094.0	10.5	142000
1497.0	1094.0	11.0	124000
1497.0	1094.0	11.5	126000
1497.0	1094.0	12.0	130000
1497.0	1094.0	12.5	179000
1497.0	1094.0	13.0	255000
1497.0	1094.0	13.5	267000

TABLE 5-4

(continued)

Coordinates East	Coordinates North	Depth (ft)	SPA-3 Count Rate (cpm)
1497.0	1094.0	14.0	242000
1497.0	1094.0	14.5	217000
1497.0	1094.0	15.0	163000
1497.0	1094.0	15.5	114000
1497.0	1094.0	16.0	66000
1498.0	1008.0	0.0	34000
1498.0	1008.0	0.5	62000
1498.0	1008.0	1.0	135000
1498.0	1008.0	1.5	277000
1498.0	1008.0	2.0	286000
1498.0	1008.0	2.5	110000
1498.0	1008.0	3.0	61000
1498.0	1008.0	3.5	33000
1498.0	1008.0	4.0	24000
1498.0	1008.0	5.0	20000
1498.0	1008.0	6.0	18000
1498.0	1008.0	7.0	19000
1498.0	1008.0	8.0	18000
1498.0	1008.0	9.0	16000
1498.0	1008.0	10.0	16000
1500.0	1200.0	0.0	22000
1500.0	1200.0	0.5	30000
1500.0	1200.0	1.0	24000
1500.0	1200.0	1.5	18000
1500.0	1200.0	2.0	17000
1500.0	1200.0	2.5	18000
1500.0	1200.0	3.0	21000
1500.0	1200.0	3.5	38000
1500.0	1200.0	4.0	65000
1500.0	1200.0	4.5	123000
1500.0	1200.0	5.0	216000
1500.0	1200.0	5.5	435000
1500.0	1200.0	6.0	448000
1500.0	1200.0	6.5	239000
1500.0	1200.0	7.0	70000
1500.0	1200.0	7.5	35000
1500.0	1200.0	8.0	26000
1500.0	1200.0	9.0	23000
1500.0	1200.0	10.0	22000
1500.0	1200.0	11.0	18000

TABLE 5-4

(continued)

Coordinates East	Coordinates North	Depth (ft)	SPA-3 Count Rate (cpm)
1500.0	1200.0	12.0	19000
1500.0	1200.0	13.0	20000
1500.0	1200.0	14.0	19000
1500.0	1200.0	15.0	31000
1500.0	1200.0	16.0	25000
1500.0	1300.0	0.0	22000
1500.0	1300.0	0.5	22000
1500.0	1300.0	1.0	22000
1500.0	1300.0	1.5	26000
1500.0	1300.0	2.0	43000
1500.0	1300.0	2.5	81000
1500.0	1300.0	3.0	122000
1500.0	1300.0	3.5	124000
1500.0	1300.0	4.0	146000
1500.0	1300.0	4.5	99000
1500.0	1300.0	5.0	47000
1500.0	1300.0	5.5	29000
1500.0	1300.0	6.0	24000
1500.0	1300.0	6.5	20000
1500.0	1300.0	7.0	20000
1500.0	1300.0	8.0	19000
1500.0	1300.0	9.0	17000
1500.0	1300.0	10.0	17000
1500.0	1300.0	11.0	19000
1500.0	1300.0	12.0	18000
1500.0	1400.0	0.0	20000
1500.0	1400.0	0.5	20000
1500.0	1400.0	1.0	21000
1500.0	1400.0	1.5	20000
1500.0	1400.0	2.0	19000
1500.0	1400.0	2.5	19000
1500.0	1400.0	3.0	20000
1500.0	1400.0	3.5	20000
1500.0	1400.0	4.0	19000
1500.0	1400.0	4.5	19000
1500.0	1400.0	5.0	19000
1500.0	1400.0	6.0	19000
1500.0	1400.0	7.0	18000
1500.0	1400.0	8.0	18000

TABLE 5-4

(continued)

Coordinates East	Coordinates North	Depth (ft)	SPA-3 Count Rate (cpm)
1500.0	1400.0	9.0	16000
1500.0	1400.0	10.0	17000
1500.0	1400.0	11.0	17000
1595.0	1200.0	0.0	74000
1595.0	1200.0	1.0	119000
1595.0	1200.0	2.0	420000
1595.0	1200.0	3.0	230000
1595.0	1200.0	4.0	108000
1595.0	1200.0	5.0	28000
1595.0	1200.0	6.0	20000
1595.0	1200.0	7.0	18000
1595.0	1200.0	8.0	17000
1595.0	1200.0	9.0	17000
1595.0	1200.0	10.0	17000
1595.0	1200.0	11.0	17000
1595.0	1200.0	12.0	17000
1595.0	1200.0	13.0	17000
1595.0	1200.0	14.0	17000
1595.0	1200.0	15.0	16000
1595.0	1200.0	16.0	16000
1595.0	1200.0	17.0	17000
1595.0	1200.0	18.0	16000
1595.0	1200.0	19.0	17000
1595.0	1200.0	20.0	16000
1595.0	1200.0	21.0	15000
1595.0	1200.0	22.0	17000
1595.0	1200.0	23.0	17000
1595.0	1200.0	24.0	17000
1595.0	1200.0	25.0	16000
1595.0	1200.0	26.0	17000
1595.0	1200.0	27.0	16000
1595.0	1200.0	28.0	16000
1595.0	1200.0	29.0	16000
1599.0	1008.5	0.0	17000
1599.0	1008.5	0.5	26000
1599.0	1008.5	1.0	55000
1599.0	1008.5	1.5	132000
1599.0	1008.5	2.0	200000

TABLE 5-4

(continued)

Coordinates East	Coordinates North	Depth (ft)	SPA-3 Count Rate (cpm)
1599.0	1008.5	2.5	204000
1599.0	1008.5	3.0	78000
1599.0	1008.5	3.5	46000
1599.0	1008.5	4.0	26000
1599.0	1008.5	4.5	23000
1599.0	1008.5	5.0	19000
1599.0	1008.5	6.0	18000
1599.0	1008.5	7.0	18000
1599.0	1008.5	8.0	17000
1599.0	1008.5	9.0	17000
1599.0	1008.5	10.0	16000
1599.0	1008.5	11.0	18000
1600.0	1102.0	0.0	45000
1600.0	1102.0	1.0	74000
1600.0	1102.0	2.0	272000
1600.0	1102.0	3.0	682000
1600.0	1102.0	4.0	211000
1600.0	1102.0	5.0	34000
1600.0	1102.0	6.0	21000
1600.0	1102.0	7.0	18000
1600.0	1102.0	8.0	16000
1600.0	1102.0	9.0	17000
1600.0	1102.0	10.0	16000
1600.0	1102.0	11.0	15000
1600.0	1102.0	12.0	18000
1600.0	1102.0	13.0	16000
1600.0	1300.0	0.0	143000
1600.0	1300.0	1.0	417000
1600.0	1300.0	2.0	245000
1600.0	1300.0	3.0	39000
1600.0	1300.0	4.0	21000
1600.0	1300.0	5.0	19000
1600.0	1300.0	6.0	20000
1600.0	1300.0	7.0	19000
1600.0	1300.0	8.0	18000
1600.0	1300.0	9.0	17000
1600.0	1300.0	10.0	17000
1600.0	1300.0	11.0	16000

TABLE 5-4

(continued)

Coordinates East	Coordinates North	Depth (ft)	SPA-3 Count Rate (cpm)
1600.0	1300.0	11.5	18000
1600.0	1403.0	0.0	147000
1600.0	1403.0	1.0	98000
1600.0	1403.0	2.0	29000
1600.0	1403.0	3.0	22000
1600.0	1403.0	4.0	20000
1600.0	1403.0	5.0	20000
1600.0	1403.0	6.0	19000
1600.0	1403.0	7.0	20000
1600.0	1403.0	8.0	23000
1600.0	1403.0	9.0	23000
1600.0	1403.0	10.0	40000
1697.0	1012.0	0.0	49000
1697.0	1012.0	0.5	140000
1697.0	1012.0	1.0	185000
1697.0	1012.0	1.5	142000
1697.0	1012.0	2.0	83000
1697.0	1012.0	2.5	49000
1697.0	1012.0	3.0	34000
1697.0	1012.0	3.5	29000
1697.0	1012.0	4.0	25000
1697.0	1012.0	4.5	24000
1697.0	1012.0	5.0	22000
1697.0	1012.0	6.0	19000
1697.0	1012.0	7.0	18000
1697.0	1012.0	8.0	18000
1699.0	1197.0	0.0	32000
1699.0	1197.0	1.0	96000
1699.0	1197.0	2.0	480000
1699.0	1197.0	3.0	233000
1699.0	1197.0	4.0	42000
1699.0	1197.0	5.0	23000
1699.0	1197.0	6.0	20000
1699.0	1197.0	7.0	19000
1699.0	1197.0	8.0	17000
1699.0	1197.0	9.0	17000
1699.0	1197.0	10.0	17000
1699.0	1197.0	11.0	16000
1699.0	1197.0	12.0	15000

TABLE 5-4

(continued)

Coordinates East	Coordinates North	Depth (ft)	SPA-3 Count Rate (cpm)
1699.0	1197.0	13.0	14000
1699.0	1197.0	13.5	15000
1700.0	1300.0	0.0	34000
1700.0	1300.0	0.5	33000
1700.0	1300.0	1.0	42000
1700.0	1300.0	1.5	46000
1700.0	1300.0	2.0	64000
1700.0	1300.0	2.5	123000
1700.0	1300.0	3.0	198000
1700.0	1300.0	3.5	390000
1700.0	1300.0	4.0	500000
1700.0	1300.0	4.5	341000
1700.0	1300.0	5.0	125000
1700.0	1300.0	5.5	70000
1700.0	1300.0	6.0	39000
1700.0	1300.0	6.5	29000
1700.0	1300.0	7.0	25000
1700.0	1300.0	8.0	20000
1700.0	1300.0	9.0	18000
1700.0	1300.0	10.0	17000
1700.0	1300.0	11.0	18000
1700.0	1300.0	12.0	21000
1702.0	1401.0	0.0	120000
1702.0	1401.0	1.0	78000
1702.0	1401.0	2.0	302000
1702.0	1401.0	3.0	484000
1702.0	1401.0	4.0	723000
1702.0	1401.0	5.0	390000
1702.0	1401.0	6.0	60000
1702.0	1401.0	7.0	24000
1702.0	1401.0	8.0	21000
1702.0	1401.0	9.0	19000
1702.0	1401.0	10.0	18000
1702.0	1401.0	11.0	19000
1702.0	1401.0	12.0	18000
1702.0	1401.0	13.0	21000
1702.0	1401.0	14.0	22000
1702.0	1401.0	15.0	22000

TABLE 5-4

(continued)

Coordinates East	Coordinates North	Depth (ft)	SPA-3 Count Rate (cpm)
1702.0	1401.0	16.0	23000
1702.0	1401.0	17.0	22000
1702.0	1401.0	18.0	21000
1702.0	1401.0	19.0	21000
1702.0	1401.0	20.0	21000
1702.0	1401.0	21.0	19000
1702.0	1401.0	22.0	17000
1702.0	1401.0	23.0	16000
1702.0	1401.0	24.0	16000
1702.0	1401.0	25.0	16000
1702.0	1401.0	26.0	16000
1702.0	1401.0	27.0	15000
1702.0	1401.0	28.0	15000
1702.0	1401.0	29.0	15000
1702.0	1401.0	30.0	15000
1704.0	1487.0	0.0	24000
1704.0	1487.0	0.1	17000
1704.0	1487.0	0.5	26000
1704.0	1487.0	1.0	43000
1704.0	1487.0	1.1	16000
1704.0	1487.0	1.5	64000
1704.0	1487.0	2.0	34000
1704.0	1487.0	2.1	17000
1704.0	1487.0	2.5	26000
1704.0	1487.0	3.0	23000
1704.0	1487.0	3.5	20000
1704.0	1487.0	4.5	20000
1704.0	1487.0	4.0	18000
1704.0	1487.0	5.0	19000
1704.0	1487.0	6.0	18000
1704.0	1487.0	7.0	17000
1704.0	1487.0	8.0	19000
1704.0	1487.0	9.0	17000
1705.0	1101.0	0.0	24000
1705.0	1101.0	1.0	35000
1705.0	1101.0	2.0	43000
1705.0	1101.0	3.0	185000
1705.0	1101.0	4.0	239000
1705.0	1101.0	5.0	39000
1705.0	1101.0	6.0	19000

TABLE 5-4

(continued)

Coordinates East	Coordinates North	Depth (ft)	SPA-3 Count Rate (cpm)
1705.0	1101.0	7.0	18000
1705.0	1101.0	8.0	17000
1705.0	1101.0	9.0	16000
1705.0	1101.0	10.0	20000
1800.0	1007.0	0.0	29000
1800.0	1007.0	0.5	52000
1800.0	1007.0	1.0	121000
1800.0	1007.0	1.5	208000
1800.0	1007.0	2.0	225000
1800.0	1007.0	2.5	109000
1800.0	1007.0	3.0	56000
1800.0	1007.0	3.5	41000
1800.0	1007.0	4.0	31000
1800.0	1007.0	4.5	32000
1800.0	1007.0	5.0	30000
1800.0	1007.0	6.0	24000
1800.0	1007.0	7.0	19000
1800.0	1007.0	8.0	18000
1800.0	1007.0	9.0	17000
1800.0	1007.0	10.0	17000
1800.0	1196.0	1.0	65000
1800.0	1196.0	2.0	339000
1800.0	1196.0	3.0	160000
1800.0	1196.0	4.0	73000
1800.0	1196.0	5.0	43000
1800.0	1196.0	6.0	26000
1800.0	1196.0	7.0	25000
1800.0	1196.0	8.0	20000
1800.0	1196.0	9.0	19000
1800.0	1196.0	10.0	18000
1800.0	1196.0	11.0	18000
1800.0	1196.0	12.0	17000
1800.0	1405.0	0.0	160000
1800.0	1405.0	1.0	400000
1800.0	1405.0	2.0	71000
1800.0	1405.0	3.0	606000
1800.0	1405.0	4.0	127000

TABLE 5-4

(continued)

Coordinates East	Coordinates North	Depth (ft)	SPA-3 Count Rate (cpm)
1800.0	1405.0	5.0	43000
1800.0	1405.0	6.0	22000
1800.0	1405.0	7.0	23000
1800.0	1405.0	8.0	23000
1800.0	1405.0	9.0	24000
1800.0	1405.0	10.0	51000
1800.0	1405.0	11.0	56000
1801.0	1500.0	0.0	70000
1801.0	1500.0	1.0	492000
1801.0	1500.0	2.0	150000
1801.0	1500.0	3.0	37000
1801.0	1500.0	4.0	24000
1801.0	1500.0	5.0	22000
1801.0	1500.0	6.0	20000
1801.0	1500.0	7.0	20000
1801.0	1500.0	8.0	19000
1801.0	1500.0	9.0	18000
1801.0	1500.0	10.0	19000
1803.0	1294.0	0.0	32000
1803.0	1294.0	0.5	92000
1803.0	1294.0	1.0	288000
1803.0	1294.0	1.5	328000
1803.0	1294.0	2.0	109000
1803.0	1294.0	2.5	36000
1803.0	1294.0	3.0	38000
1803.0	1294.0	3.5	22000
1803.0	1294.0	4.0	21000
1803.0	1294.0	4.5	19000
1803.0	1294.0	5.0	18000
1803.0	1294.0	5.5	17000
1803.0	1294.0	6.0	16000
1803.0	1294.0	7.0	15000
1803.0	1294.0	8.0	16000
1803.0	1294.0	9.0	16000
1803.0	1294.0	10.0	17000
1808.0	1102.0	0.0	19000
1808.0	1102.0	1.0	26000
1808.0	1102.0	2.0	49000
1808.0	1102.0	3.0	206000

TABLE 5-4

(continued)

Coordinates East	Coordinates North	Depth (ft)	SPA-3 Count Rate (cpm)
1808.0	1102.0	4.0	80000
1808.0	1102.0	5.0	27000
1808.0	1102.0	6.0	23000
1808.0	1102.0	7.0	19000
1808.0	1102.0	8.0	19000
1808.0	1102.0	9.0	19000
1897.0	1194.0	0.0	38000
1897.0	1194.0	0.5	42000
1897.0	1194.0	1.0	46000
1897.0	1194.0	1.5	78000
1897.0	1194.0	2.0	142000
1897.0	1194.0	2.5	323000
1897.0	1194.0	3.0	526000
1897.0	1194.0	3.5	508000
1897.0	1194.0	4.0	441000
1897.0	1194.0	4.5	411000
1897.0	1194.0	5.0	370000
1897.0	1194.0	5.5	294000
1897.0	1194.0	6.0	219000
1897.0	1194.0	6.5	166000
1897.0	1194.0	7.0	155000
1897.0	1194.0	7.5	158000
1897.0	1194.0	8.0	157000
1897.0	1194.0	8.5	164000
1897.0	1194.0	9.0	156000
1897.0	1194.0	9.5	132000
1897.0	1194.0	10.0	109000
1897.0	1194.0	10.5	86000
1897.0	1194.0	11.0	76000
1897.0	1194.0	11.5	63000
1897.0	1194.0	12.0	50000
1899.0	1309.0	0.0	25000
1899.0	1309.0	1.0	65000
1899.0	1309.0	2.0	97000
1899.0	1309.0	3.0	29000
1899.0	1309.0	4.0	28000
1899.0	1309.0	5.0	27000
1899.0	1309.0	6.0	19000
1899.0	1309.0	7.0	15000
1899.0	1309.0	8.0	15000

TABLE 5-4

(continued)

Coordinates East	Coordinates North	Depth (ft)	SPA-3 Count Rate (cpm)
1899.0	1309.0	9.0	15000
1899.0	1309.0	10.0	16000
1899.5	1098.5	0.0	41000
1899.5	1098.5	1.0	120000
1899.5	1098.5	2.0	577000
1899.5	1098.5	3.0	387000
1899.5	1098.5	4.0	111000
1899.5	1098.5	5.0	59000
1899.5	1098.5	6.0	26000
1899.5	1098.5	7.0	20000
1899.5	1098.5	8.0	19000
1899.5	1098.5	9.0	18000
1899.5	1098.5	10.0	17000
1899.5	1098.5	11.0	22000
1900.0	1008.0	0.0	30000
1900.0	1008.0	1.0	74000
1900.0	1008.0	2.0	272000
1900.0	1008.0	3.0	297000
1900.0	1008.0	4.0	51000
1900.0	1008.0	5.0	39000
1900.0	1008.0	6.0	28000
1900.0	1008.0	7.0	25000
1900.0	1008.0	8.0	19000
1900.0	1008.0	9.0	15000
1900.0	1008.0	10.0	14000
1900.0	1008.0	11.0	17000
1900.0	1400.0	0.0	39000
1900.0	1400.0	1.0	71000
1900.0	1400.0	2.0	309000
1900.0	1400.0	3.0	405000
1900.0	1400.0	4.0	108000
1900.0	1400.0	5.0	36000
1900.0	1400.0	6.0	22000
1900.0	1400.0	7.0	18000
1900.0	1400.0	8.0	18000
1900.0	1400.0	9.0	17000
1900.0	1400.0	10.0	16000
1900.0	1400.0	11.0	19000
1900.0	1400.0	11.5	21000

TABLE 5-4

(continued)

Coordinates East	Coordinates North	Depth (ft)	SPA-3 Count Rate (cpm)
1915.0	1500.0	0.0	280000
1915.0	1500.0	1.0	619000
1915.0	1500.0	2.0	341000
1915.0	1500.0	3.0	79000
1915.0	1500.0	4.0	36000
1915.0	1500.0	5.0	30000
1915.0	1500.0	6.0	30000
1915.0	1500.0	7.0	38000
1915.0	1500.0	8.0	56000
1915.0	1500.0	9.0	45000
1915.0	1500.0	10.0	43000
1915.0	1500.0	11.0	43000
1915.0	1500.0	12.0	41000
1915.0	1500.0	13.0	30000
1915.0	1500.0	14.0	32000
1915.0	1500.0	15.0	52000
1996.0	1011.0	0.0	25000
1996.0	1011.0	0.5	43000
1996.0	1011.0	1.0	85000
1996.0	1011.0	1.5	175000
1996.0	1011.0	2.0	195000
1996.0	1011.0	2.5	153000
1996.0	1011.0	3.0	291000
1996.0	1011.0	3.5	55000
1996.0	1011.0	4.0	36000
1996.0	1011.0	4.5	30000
1996.0	1011.0	5.0	26000
1996.0	1011.0	6.0	21000
1996.0	1011.0	7.0	18000
1996.0	1011.0	8.0	18000
1996.0	1011.0	9.0	17000
1996.0	1011.0	10.0	17000
1996.0	1011.0	10.5	16000
1997.0	1207.0	0.0	28000
1997.0	1207.0	1.0	63000
1997.0	1207.0	2.0	141000
1997.0	1207.0	3.0	56000
1997.0	1207.0	4.0	49000
1997.0	1207.0	5.0	44000

TABLE 5-4

(continued)

Coordinates East	Coordinates North	Depth (ft)	SPA-3 Count Rate (cpm)
1997.0	1207.0	6.0	37000
1997.0	1207.0	7.0	38000
1997.0	1207.0	8.0	41000
1997.0	1207.0	9.0	37000
1997.0	1207.0	10.0	26000
1997.0	1207.0	11.0	23000
1997.0	1207.0	12.0	22000
1997.0	1207.0	13.0	21000
1997.0	1207.0	14.0	20000
1997.0	1207.0	15.0	18000
1997.0	1207.0	16.0	17000
1997.0	1207.0	17.0	16000
1997.0	1207.0	18.0	17000
1997.0	1207.0	19.0	17000
1997.0	1207.0	20.0	15000
1997.0	1207.0	21.0	14000
1997.0	1207.0	22.0	15000
1997.0	1207.0	23.0	15000
1997.0	1207.0	24.0	14000
1997.0	1207.0	25.0	15000
1997.0	1207.0	26.0	15000
1997.0	1207.0	27.0	16000
1997.0	1207.0	28.0	15000
1997.0	1207.0	29.0	17000
1997.0	1207.0	30.0	17000
2000.0	1100.0	0.0	18000
2000.0	1100.0	0.5	23000
2000.0	1100.0	1.0	30000
2000.0	1100.0	1.5	35000
2000.0	1100.0	2.0	67000
2000.0	1100.0	2.5	145000
2000.0	1100.0	3.0	251000
2000.0	1100.0	3.5	134000
2000.0	1100.0	4.0	60000
2000.0	1100.0	4.5	41000
2000.0	1100.0	5.0	34000
2000.0	1100.0	5.5	26000
2000.0	1100.0	6.0	23000
2000.0	1100.0	6.5	18000
2000.0	1100.0	7.0	18000
2000.0	1100.0	8.0	17000

TABLE 5-4

(continued)

Coordinates East	Coordinates North	Depth (ft)	SPA-3 Count Rate (cpm)
2000.0	1100.0	9.0	16000
2000.0	1100.0	10.0	17000
2000.0	1100.0	11.0	16000
2000.0	1100.0	12.0	19000
2000.0	1400.0	0.0	62000
2000.0	1400.0	1.0	302000
2000.0	1400.0	2.0	88000
2000.0	1400.0	3.0	28000
2000.0	1400.0	4.0	23000
2000.0	1400.0	5.0	26000
2000.0	1400.0	6.0	28000
2000.0	1400.0	7.0	23000
2000.0	1400.0	8.0	20000
2000.0	1400.0	9.0	17000
2000.0	1400.0	10.0	17000
2000.0	1500.0	0.0	527000
2000.0	1500.0	1.0	250000
2000.0	1500.0	2.0	304000
2000.0	1500.0	3.0	714000
2000.0	1500.0	4.0	243000
2000.0	1500.0	5.0	80000
2000.0	1500.0	6.0	35000
2000.0	1500.0	7.0	26000
2000.0	1500.0	8.0	21000
2000.0	1500.0	9.0	22000
2000.0	1500.0	10.0	29000
2000.0	1500.0	11.0	97000
2000.0	1500.0	12.0	73000
2002.5	1303.0	0.0	23000
2002.5	1303.0	1.0	38000
2002.5	1303.0	2.0	115000
2002.5	1303.0	3.0	395000
2002.5	1303.0	4.0	69000
2002.5	1303.0	5.0	49000
2002.5	1303.0	6.0	59000
2002.5	1303.0	7.0	56000
2002.5	1303.0	8.0	36000
2002.5	1303.0	9.0	23000

TABLE 5-4

(continued)

Coordinates East	Coordinates North	Depth (ft)	SPA-3 Count Rate (cpm)
2002.5	1303.0	10.0	18000
2002.5	1303.0	11.0	18000
2002.5	1303.0	12.0	19000
2095.5	1098.0	0.0	187000
2095.5	1098.0	0.5	380000
2095.5	1098.0	1.0	625000
2095.5	1098.0	1.5	952000
2095.5	1098.0	2.0	1111000
2095.5	1098.0	2.5	723000
2095.5	1098.0	3.0	341000
2095.5	1098.0	3.5	189000
2095.5	1098.0	4.0	108000
2095.5	1098.0	4.5	67000
2095.5	1098.0	5.0	54000
2095.5	1098.0	5.0	35000
2095.5	1098.0	6.0	27000
2095.5	1098.0	6.5	24000
2095.5	1098.0	7.0	283000
2100.0	1012.0	0.0	21000
2100.0	1012.0	0.5	36000
2100.0	1012.0	1.0	70000
2100.0	1012.0	1.5	121000
2100.0	1012.0	2.0	76000
2100.0	1012.0	2.5	36000
2100.0	1012.0	3.0	26000
2100.0	1012.0	3.5	23000
2100.0	1012.0	4.0	22000
2100.0	1012.0	4.5	22000
2100.0	1012.0	5.0	21000
2100.0	1012.0	6.0	19000
2100.0	1012.0	7.0	19000
2100.0	1012.0	8.0	18000
2100.0	1012.0	9.0	16000
2100.0	1012.0	10.0	16000
2100.0	1012.0	11.0	17000
2100.0	1012.0	12.0	15000
2100.0	1012.0	13.0	17000
2100.0	1012.0	14.0	17000
2100.0	1012.0	15.0	16000

TABLE 5-4

(continued)

Coordinates East	Coordinates North	Depth (ft)	SPA-3 Count Rate (cpm)
2100.0	1012.0	16.0	15000
2100.0	1012.0	17.0	16000
2100.0	1012.0	18.0	16000
2100.0	1012.0	19.0	15000
2100.0	1012.0	20.0	14000
2100.0	1012.0	21.0	14000
2100.0	1012.0	22.0	15000
2100.0	1012.0	23.0	16000
2100.0	1012.0	24.0	17000
2100.0	1012.0	25.0	16000
2100.0	1012.0	26.0	17000
2100.0	1012.0	27.0	17000
2100.0	1012.0	28.0	16000
2100.0	1200.0	0.0	54000
2100.0	1200.0	1.0	195000
2100.0	1200.0	2.0	606000
2100.0	1200.0	3.0	201000
2100.0	1200.0	4.0	93000
2100.0	1200.0	5.0	68000
2100.0	1200.0	6.0	58000
2100.0	1200.0	7.0	29000
2100.0	1200.0	8.0	22000
2100.0	1200.0	9.0	17000
2100.0	1200.0	10.0	19000
2100.0	1200.0	11.0	18000
2100.0	1200.0	11.5	18000
2100.0	1400.0	0.0	157000
2100.0	1400.0	1.0	451000
2100.0	1400.0	2.0	488000
2100.0	1400.0	3.0	105000
2100.0	1400.0	4.0	46000
2100.0	1400.0	5.0	25000
2100.0	1400.0	6.0	19000
2100.0	1400.0	7.0	15000
2100.0	1400.0	8.0	15000
2100.0	1400.0	9.0	14000
2100.0	1400.0	10.0	18000
2100.0	1400.0	11.0	20000
2100.0	1400.0	11.5	28000
2100.0	1500.0	0.0	245000

TABLE 5-4

(continued)

Coordinates East	Coordinates North	Depth (ft)	SPA-3 Count Rate (cpm)
2100.0	1500.0	1.0	594000
2100.0	1500.0	2.0	561000
2100.0	1500.0	3.0	176000
2100.0	1500.0	4.0	54000
2100.0	1500.0	5.0	33000
2100.0	1500.0	6.0	24000
2100.0	1500.0	7.0	19000
2100.0	1500.0	8.0	19000
2100.0	1500.0	9.0	17000
2100.0	1500.0	10.0	18000
2100.0	1500.0	11.0	19000
2100.0	1500.0	12.0	23000
2104.0	1301.0	0.0	24000
2104.0	1301.0	0.5	26000
2104.0	1301.0	1.0	32000
2104.0	1301.0	1.5	68000
2104.0	1301.0	2.0	94000
2104.0	1301.0	2.5	39000
2104.0	1301.0	3.0	41000
2104.0	1301.0	3.5	62000
2104.0	1301.0	4.0	48000
2104.0	1301.0	4.5	26000
2104.0	1301.0	5.0	22000
2104.0	1301.0	6.0	20000
2104.0	1301.0	7.0	18000
2104.0	1301.0	8.0	16000
2104.0	1301.0	9.0	14000
2104.0	1301.0	10.0	14000
2104.0	1301.0	11.0	14000
2104.0	1301.0	12.0	15000
2199.0	1299.0	0.0	139000
2199.0	1299.0	1.0	365000
2199.0	1299.0	2.0	65000
2199.0	1299.0	3.0	30000
2199.0	1299.0	4.0	27000
2199.0	1299.0	5.0	24000
2199.0	1299.0	6.0	21000
2199.0	1299.0	7.0	16000
2199.0	1299.0	8.0	16000
2199.0	1299.0	9.0	14000

TABLE 5-4

(continued)

Coordinates East	Coordinates North	Depth (ft)	SPA-3 Count Rate (cpm)
2199.0	1299.0	10.0	15000
2199.0	1299.0	11.0	15000
2199.0	1299.0	12.0	14000
2199.0	1299.0	13.0	21000
2200.0	1100.0	0.0	25000
2200.0	1100.0	1.0	69000
2200.0	1100.0	2.0	335000
2200.0	1100.0	3.0	632000
2200.0	1100.0	4.0	536000
2200.0	1100.0	5.0	82000
2200.0	1100.0	6.0	24000
2200.0	1100.0	7.0	15000
2200.0	1100.0	8.0	13000
2200.0	1100.0	9.0	13000
2200.0	1100.0	10.0	13000
2200.0	1100.0	11.0	14000
2200.0	1100.0	12.0	17000
2200.0	1200.0	0.0	91000
2200.0	1200.0	1.0	488000
2200.0	1200.0	2.0	423000
2200.0	1200.0	3.0	100000
2200.0	1200.0	4.0	82000
2200.0	1200.0	5.0	108000
2200.0	1200.0	6.0	90000
2200.0	1200.0	7.0	86000
2200.0	1200.0	8.0	55000
2200.0	1200.0	9.0	32000
2200.0	1200.0	10.0	24000
2200.0	1200.0	11.0	23000
2200.0	1200.0	12.0	19000
2200.0	1400.0	0.0	48000
2200.0	1400.0	1.0	480000
2200.0	1400.0	2.0	373000
2200.0	1400.0	3.0	82000
2200.0	1400.0	4.0	28000
2200.0	1400.0	5.0	22000
2200.0	1400.0	6.0	19000
2200.0	1400.0	7.0	17000

TABLE 5-4

(continued)

Coordinates East	Coordinates North	Depth (ft)	SPA-3 Count Rate (cpm)
2200.0	1400.0	8.0	15000
2200.0	1400.0	9.0	15000
2200.0	1400.0	10.0	19000
2202.0	1485.0	0.0	201000
2202.0	1485.0	1.0	583000
2202.0	1485.0	2.0	175000
2202.0	1485.0	3.0	789000
2202.0	1485.0	4.0	226000
2202.0	1485.0	5.0	58000
2202.0	1485.0	6.0	38000
2202.0	1485.0	7.0	22000
2202.0	1485.0	8.0	19000
2202.0	1485.0	9.0	13000
2202.0	1485.0	10.0	13000
2202.0	1485.0	10.5	20000
2205.0	1021.0	0.0	22000
2205.0	1021.0	0.5	46000
2205.0	1021.0	1.0	92000
2205.0	1021.0	1.5	45000
2205.0	1021.0	2.0	27000
2205.0	1021.0	2.5	18000
2205.0	1021.0	3.0	18000
2205.0	1021.0	3.5	19000
2205.0	1021.0	4.0	18000
2205.0	1021.0	4.5	19000
2205.0	1021.0	5.0	18000
2205.0	1021.0	6.0	21000
2205.0	1021.0	7.0	19000
2205.0	1021.0	8.0	16000
2205.0	1021.0	9.0	16000
2205.0	1021.0	10.0	16000
2205.0	1021.0	11.0	15000
2300.0	1101.0	0.0	20000
2300.0	1101.0	1.0	33000
2300.0	1101.0	2.0	99000
2300.0	1101.0	3.0	127000
2300.0	1101.0	4.0	31000
2300.0	1101.0	5.0	24000
2300.0	1101.0	6.0	23000

TABLE 5-4

(continued)

Coordinates East	Coordinates North	Depth (ft)	SPA-3 Count Rate (cpm)
2300.0	1101.0	7.0	19000
2300.0	1101.0	8.0	16000
2300.0	1101.0	9.0	15000
2300.0	1101.0	10.0	15000
2300.0	1101.0	11.0	17000
2300.0	1101.0	12.0	16000
2300.0	1400.0	0.0	34000
2300.0	1400.0	1.0	76000
2300.0	1400.0	2.0	337000
2300.0	1400.0	3.0	172000
2300.0	1400.0	4.0	40000
2300.0	1400.0	5.0	26000
2300.0	1400.0	6.0	20000
2300.0	1400.0	7.0	17000
2300.0	1400.0	8.0	16000
2300.0	1400.0	9.0	16000
2300.0	1400.0	10.0	14000
2300.0	1400.0	11.0	16000
2300.0	1400.0	12.0	22000
2300.0	1400.0	12.5	22000
2302.0	1300.0	0.0	20000
2302.0	1300.0	1.0	36000
2302.0	1300.0	2.0	27000
2302.0	1300.0	3.0	21000
2302.0	1300.0	4.0	21000
2302.0	1300.0	5.0	19000
2302.0	1300.0	6.0	18000
2302.0	1300.0	7.0	17000
2302.0	1300.0	8.0	15000
2302.0	1300.0	9.0	15000
2302.0	1300.0	10.0	14000
2304.5	1200.0	0.0	39000
2304.5	1200.0	1.0	103000
2304.5	1200.0	2.0	101000
2304.5	1200.0	3.0	45000
2304.5	1200.0	4.0	24000
2304.5	1200.0	5.0	22000
2304.5	1200.0	6.0	22000
2304.5	1200.0	7.0	22000

TABLE 5-4

(continued)

Coordinates East	Coordinates North	Depth (ft)	SPA-3 Count Rate (cpm)
2304.5	1200.0	8.0	20000
2304.5	1200.0	9.0	19000
2304.5	1200.0	10.0	18000
2304.5	1200.0	11.0	17000
2304.5	1200.0	12.0	16000
2304.5	1200.0	13.0	17000
2304.5	1200.0	14.0	16000
2304.5	1200.0	15.0	16000
2304.5	1200.0	16.0	16000
2304.5	1200.0	17.0	15000
2304.5	1200.0	18.0	13000
2304.5	1200.0	19.0	13000
2304.5	1200.0	20.0	14000
2304.5	1200.0	21.0	16000
2304.5	1200.0	22.0	16000
2304.5	1200.0	23.0	17000
2304.5	1200.0	24.0	16000
2304.5	1200.0	25.0	16000
2304.5	1200.0	26.0	16000
2304.5	1200.0	27.0	16000
2304.5	1200.0	28.0	16000
2304.5	1200.0	29.0	15000
2304.5	1200.0	30.0	15000
2304.5	1200.0	31.0	16000
2313.0	1010.0	0.0	26000
2313.0	1010.0	0.5	27000
2313.0	1010.0	1.0	60000
2313.0	1010.0	1.5	159000
2313.0	1010.0	2.0	164000
2313.0	1010.0	2.5	289000
2313.0	1010.0	3.0	263000
2313.0	1010.0	3.5	143000
2313.0	1010.0	4.0	62000
2313.0	1010.0	4.5	31000
2313.0	1010.0	5.0	28000
2313.0	1010.0	5.5	30000
2313.0	1010.0	6.0	25000
2313.0	1010.0	6.5	24000
2313.0	1010.0	7.0	24000
2313.0	1010.0	7.5	23000
2313.0	1010.0	8.0	21000

TABLE 5-4

(continued)

Coordinates East	Coordinates North	Depth (ft)	SPA-3 Count Rate (cpm)
2313.0	1010.0	8.0	21000
2313.0	1010.0	9.0	20000
2313.0	1010.0	10.0	19000
2313.0	1010.0	11.0	21000
2398.0	1101.0	0.0	22000
2398.0	1101.0	0.5	23000
2398.0	1101.0	1.0	22000
2398.0	1101.0	1.5	24000
2398.0	1101.0	2.0	32000
2398.0	1101.0	2.5	50000
2398.0	1101.0	3.0	78000
2398.0	1101.0	3.5	159000
2398.0	1101.0	4.0	364000
2398.0	1101.0	4.5	423000
2398.0	1101.0	5.0	212000
2398.0	1101.0	5.5	238000
2398.0	1101.0	6.0	126000
2398.0	1101.0	6.5	36000
2398.0	1101.0	7.0	25000
2398.0	1101.0	7.5	24000
2398.0	1101.0	8.0	22000
2398.0	1101.0	8.5	24000
2398.0	1101.0	9.0	23000
2398.0	1101.0	9.5	24000
2398.0	1101.0	10.0	24000
2398.0	1101.0	10.5	25000
2398.0	1101.0	11.0	27000
2399.0	1382.0	0.0	197000
2399.0	1382.0	1.0	455000
2399.0	1382.0	2.0	82000
2399.0	1382.0	3.0	31000
2399.0	1382.0	4.0	23000
2399.0	1382.0	5.0	22000
2399.0	1382.0	6.0	17000
2399.0	1382.0	7.0	16000
2399.0	1382.0	8.0	15000
2399.0	1382.0	9.0	15000
2399.0	1382.0	10.0	14000
2399.0	1382.0	11.0	14000
2399.0	1382.0	12.0	15000

TABLE 5-4

(continued)

Coordinates East	Coordinates North	Depth (ft)	SPA-3 Count Rate (cpm)
2399.0	1382.0	13.0	15000
2399.0	1382.0	14.0	13000
2399.0	1382.0	15.0	14000
2399.0	1382.0	16.0	13000
2399.0	1382.0	17.0	14000
2399.0	1382.0	18.0	14000
2399.0	1382.0	19.0	15000
2399.0	1382.0	20.0	15000
2399.0	1382.0	21.0	14000
2399.0	1382.0	22.0	15000
2399.0	1382.0	23.0	16000
2399.0	1382.0	24.0	15000
2399.0	1382.0	25.0	15000
2399.0	1382.0	26.0	16000
2399.0	1382.0	27.0	15000
2399.0	1382.0	28.0	15000
2399.0	1382.0	29.0	16000
2399.0	1382.0	30.0	16000
2399.0	1382.0	31.0	16000
2399.0	1382.0	32.0	16000
2399.0	1382.0	33.0	17000
2400.0	1010.0	0.0	23000
2400.0	1010.0	0.5	24000
2400.0	1010.0	1.0	25000
2400.0	1010.0	1.5	69000
2400.0	1010.0	2.0	164000
2400.0	1010.0	2.5	258000
2400.0	1010.0	3.0	127000
2400.0	1010.0	3.5	50000
2400.0	1010.0	4.0	26000
2400.0	1010.0	4.5	25000
2400.0	1010.0	5.0	21000
2400.0	1010.0	5.5	23000
2400.0	1010.0	6.0	22000
2400.0	1010.0	6.5	24000
2400.0	1010.0	7.0	22000
2400.0	1010.0	8.0	21000
2400.0	1010.0	9.0	20000
2400.0	1010.0	10.0	18000
2400.0	1010.0	11.0	19000
2400.0	1010.0	12.0	21000

TABLE 5-4

(continued)

Coordinates East	Coordinates North	Depth (ft)	SPA-3 Count Rate (cpm)
2400.0	1300.0	0.0	23000
2400.0	1300.0	1.0	52000
2400.0	1300.0	2.0	108000
2400.0	1300.0	3.0	29000
2400.0	1300.0	4.0	22000
2400.0	1300.0	5.0	21000
2400.0	1300.0	6.0	20000
2400.0	1300.0	7.0	20000
2400.0	1300.0	8.0	18000
2400.0	1300.0	9.0	16000
2400.0	1300.0	10.0	16000
2401.0	1202.0	0.0	43000
2401.0	1202.0	1.0	80000
2401.0	1202.0	2.0	256000
2401.0	1202.0	3.0	184000
2401.0	1202.0	4.0	130000
2401.0	1202.0	5.0	77000
2401.0	1202.0	6.0	48000
2401.0	1202.0	7.0	33000
2401.0	1202.0	8.0	26000
2401.0	1202.0	9.0	19000
2401.0	1202.0	10.0	19000
2500.0	1009.0	0.0	14000
2500.0	1009.0	0.5	21000
2500.0	1009.0	1.0	29000
2500.0	1009.0	1.5	39000
2500.0	1009.0	2.0	32000
2500.0	1009.0	2.5	27000
2500.0	1009.0	3.0	24000
2500.0	1009.0	3.5	21000
2500.0	1009.0	4.0	19000
2500.0	1009.0	4.5	21000
2500.0	1009.0	5.0	21000
2500.0	1009.0	6.0	21000
2500.0	1009.0	7.0	20000
2500.0	1200.0	0.0	26000
2500.0	1200.0	1.0	42000
2500.0	1200.0	2.0	80000

TABLE 5-4

(continued)

Coordinates East	Coordinates North	Depth (ft)	SPA-3 Count Rate (cpm)
2500.0	1200.0	3.0	297000
2500.0	1200.0	4.0	254000
2500.0	1200.0	5.0	92000
2500.0	1200.0	6.0	69000
2500.0	1200.0	7.0	49000
2500.0	1200.0	8.0	47000
2500.0	1200.0	9.0	23000
2500.0	1200.0	10.0	19000
2500.0	1200.0	11.0	18000
2500.0	1200.0	12.0	17000
2500.0	1200.0	13.0	18000
2500.0	1300.0	0.0	55000
2500.0	1300.0	0.5	59000
2500.0	1300.0	1.0	47000
2500.0	1300.0	1.5	451000
2500.0	1300.0	2.0	714000
2500.0	1300.0	2.5	594000
2500.0	1300.0	3.0	261000
2500.0	1300.0	3.5	107000
2500.0	1300.0	4.0	62000
2500.0	1300.0	4.5	46000
2500.0	1300.0	5.0	36000
2500.0	1300.0	6.0	29000
2500.0	1300.0	7.0	21000
2500.0	1300.0	8.0	18000
2500.0	1300.0	9.0	17000
2500.0	1300.0	10.0	18000
2500.0	1300.0	11.0	18000
2500.0	1300.0	12.0	20000
2501.0	1096.0	0.0	22000
2501.0	1096.0	0.5	24000
2501.0	1096.0	1.0	26000
2501.0	1096.0	1.5	27000
2501.0	1096.0	2.0	37000
2501.0	1096.0	2.5	58000
2501.0	1096.0	3.0	77000
2501.0	1096.0	3.5	134000
2501.0	1096.0	4.0	216000
2501.0	1096.0	4.5	181000
2501.0	1096.0	5.0	267000

TABLE 5-4

(continued)

Coordinates East	Coordinates North	Depth (ft)	SPA-3 Count Rate (cpm)
2501.0	1096.0	5.5	229000
2501.0	1096.0	6.0	89000
2501.0	1096.0	6.5	39000
2501.0	1096.0	7.0	30000
2501.0	1096.0	7.5	27000
2501.0	1096.0	8.0	25000
2501.0	1096.0	8.5	25000
2501.0	1096.0	9.0	25000
2501.0	1096.0	9.5	24000
2501.0	1096.0	10.0	24000
2501.0	1096.0	11.0	21000
2501.0	1096.0	12.0	20000
2501.0	1096.0	13.0	22000
2596.0	1008.0	0.0	15000
2596.0	1008.0	0.5	18000
2596.0	1008.0	1.0	22000
2596.0	1008.0	1.5	29000
2596.0	1008.0	2.0	36000
2596.0	1008.0	2.5	26000
2596.0	1008.0	3.0	23000
2596.0	1008.0	3.5	22000
2596.0	1008.0	4.0	20000
2596.0	1008.0	4.5	19000
2596.0	1008.0	5.0	10000
2596.0	1008.0	6.0	18000
2596.0	1008.0	7.0	19000
2596.0	1008.0	8.0	17000
2596.0	1008.0	9.0	17000
2596.0	1008.0	10.0	16000
2601.0	1104.0	0.0	20000
2601.0	1104.0	0.5	21000
2601.0	1104.0	1.0	21000
2601.0	1104.0	1.5	31000
2601.0	1104.0	2.0	58000
2601.0	1104.0	2.5	97000
2601.0	1104.0	3.0	162000
2601.0	1104.0	3.5	77000
2601.0	1104.0	4.0	39000
2601.0	1104.0	4.5	30000
2601.0	1104.0	5.0	28000

TABLE 5-4

(continued)

Coordinates East	Coordinates North	Depth (ft)	SPA-3 Count Rate (cpm)
2601.0	1104.0	6.0	25000
2601.0	1104.0	7.0	25000
2601.0	1104.0	8.0	21000
2601.0	1104.0	9.0	19000
2602.0	1196.0	0.0	13000
2602.0	1196.0	0.5	16000
2602.0	1196.0	1.0	23000
2602.0	1196.0	1.5	25000
2602.0	1196.0	2.0	29000
2602.0	1196.0	2.5	46000
2602.0	1196.0	3.0	74000
2602.0	1196.0	3.5	180000
2602.0	1196.0	4.0	175000
2602.0	1196.0	4.5	59000
2602.0	1196.0	5.0	42000
2602.0	1196.0	6.0	32000
2602.0	1196.0	7.0	25000
2602.0	1196.0	8.0	23000
2602.0	1196.0	9.0	22000
2602.0	1196.0	10.0	20000
2602.0	1196.0	11.0	19000
2602.0	1196.0	12.0	17000
2602.0	1196.0	13.0	17000
2602.0	1196.0	14.0	16000
2602.0	1196.0	15.0	16000
2695.0	1176.0	0.0	16000
2695.0	1176.0	1.0	21000
2695.0	1176.0	1.5	25000
2695.0	1176.0	2.0	31000
2695.0	1176.0	2.5	49000
2695.0	1176.0	3.0	85000
2695.0	1176.0	3.5	57000
2695.0	1176.0	4.0	35000
2695.0	1176.0	4.5	28000
2695.0	1176.0	5.0	27000
2695.0	1176.0	5.5	28000
2695.0	1176.0	6.0	29000
2695.0	1176.0	6.5	27000
2695.0	1176.0	7.0	25000
2695.0	1176.0	7.5	23000

TABLE 5-4

(continued)

Coordinates East	Coordinates North	Depth (ft)	SPA-3 Count Rate (cpm)
2695.0	1176.0	8.0	23000
2695.0	1176.0	8.5	22000
2695.0	1176.0	9.0	22000
2700.0	1008.0	0.0	18000
2700.0	1008.0	0.5	21000
2700.0	1008.0	1.0	19000
2700.0	1008.0	1.5	20000
2700.0	1008.0	2.0	19000
2700.0	1008.0	2.5	20000
2700.0	1008.0	3.0	24000
2700.0	1008.0	3.5	22000
2700.0	1008.0	4.0	22000
2700.0	1008.0	4.5	21000
2700.0	1008.0	5.0	21000
2700.0	1008.0	6.0	22000
2700.0	1008.0	7.0	19000
2700.0	1008.0	8.0	19000
2700.0	1008.0	9.0	18000
2700.0	1008.0	10.0	18000
2700.0	1008.0	11.0	19000
2700.0	1101.0	0.0	17000
2700.0	1101.0	0.5	20000
2700.0	1101.0	1.0	27000
2700.0	1101.0	1.5	40000
2700.0	1101.0	2.0	82000
2700.0	1101.0	2.5	56000
2700.0	1101.0	3.0	48000
2700.0	1101.0	3.5	38000
2700.0	1101.0	4.0	37000
2700.0	1101.0	4.5	41000
2700.0	1101.0	5.0	53000
2700.0	1101.0	5.5	52000
2700.0	1101.0	6.0	41000
2700.0	1101.0	6.5	26000
2700.0	1101.0	7.0	20000
2700.0	1101.0	8.0	18000
2700.0	1101.0	9.0	18000
2700.0	1101.0	10.0	18000
2700.0	1101.0	11.0	16000
2700.0	1101.0	12.0	16000

TABLE 5-4

(continued)

Coordinates East	Coordinates North	Depth (ft)	SPA-3 Count Rate (cpm)
2700.0	1101.0	13.0	17000
2700.0	1101.0	14.0	16000
2700.0	1101.0	15.0	17000
2798.0	1102.0	0.0	15000
2798.0	1102.0	0.5	25000
2798.0	1102.0	1.0	40000
2798.0	1102.0	1.5	95000
2798.0	1102.0	2.0	80000
2798.0	1102.0	2.5	35000
2798.0	1102.0	3.0	28000
2798.0	1102.0	3.5	26000
2798.0	1102.0	4.0	28000
2798.0	1102.0	4.5	27000
2798.0	1102.0	5.0	24000
2798.0	1102.0	6.0	23000
2798.0	1102.0	7.0	20000
2798.0	1102.0	8.0	20000
2798.0	1102.0	9.0	18000
2798.0	1102.0	10.0	18000
2798.0	1102.0	11.0	17000
2798.0	1102.0	12.0	17000
2800.0	1008.0	0.0	18000
2800.0	1008.0	0.5	30000
2800.0	1008.0	1.0	26000
2800.0	1008.0	1.5	23000
2800.0	1008.0	2.0	22000
2800.0	1008.0	2.5	24000
2800.0	1008.0	3.0	22000
2800.0	1008.0	3.5	25000
2800.0	1008.0	4.0	22000
2800.0	1008.0	4.5	22000
2800.0	1008.0	5.0	22000
2800.0	1008.0	6.0	19000
2800.0	1008.0	7.0	19000
2800.0	1008.0	8.0	17000
2800.0	1008.0	9.0	18000
2800.0	1008.0	10.0	18000
2800.0	1008.0	11.0	19000
2800.0	1008.0	12.0	19000
2900.0	1012.0	0.0	61000

TABLE 5-4

(continued)

Coordinates East	Coordinates North	Depth (ft)	SPA-3 Count Rate (cpm)
2900.0	1012.0	0.5	92000
2900.0	1012.0	1.0	64000
2900.0	1012.0	1.5	32000
2900.0	1012.0	2.0	27000
2900.0	1012.0	2.5	24000
2900.0	1012.0	3.0	21000
2900.0	1012.0	4.0	23000
2900.0	1012.0	5.0	19000
2900.0	1012.0	6.0	19000
2900.0	1012.0	7.0	19000
2900.0	1012.0	8.0	18000
2900.0	1012.0	9.0	18000
2900.0	1012.0	10.0	19000
2900.0	1012.0	11.0	19000
2900.0	1012.0	12.0	18000
2900.0	1012.0	13.0	18000
2900.0	1012.0	14.0	16000
2900.0	1012.0	15.0	16000
2900.0	1012.0	16.0	16000
2900.0	1012.0	17.0	15000
2900.0	1012.0	18.0	16000
2900.0	1012.0	19.0	15000
2900.0	1012.0	20.0	16000
2900.0	1012.0	21.0	15000
2900.0	1012.0	22.0	15000
2900.0	1012.0	23.0	15000
2900.0	1012.0	24.0	16000
2900.0	1012.0	25.0	16000
3098.0	1073.0	0.0	12000
3098.0	1073.0	0.5	14000
3098.0	1073.0	1.0	16000
3098.0	1073.0	1.5	16000
3098.0	1073.0	2.0	18000
3098.0	1073.0	2.5	17000
3098.0	1073.0	3.0	17000
3098.0	1073.0	4.0	18000
3098.0	1073.0	5.0	18000
3098.0	1073.0	6.0	17000
3098.0	1073.0	7.0	18000
3098.0	1073.0	8.0	17000
3098.0	1073.0	9.0	17000

TABLE 5-4

(continued)

Coordinates East	Coordinates North	Depth (ft)	SPA-3 Count Rate (cpm)
3098.0	1073.0	10.0	17000
3098.0	1073.0	11.0	17000
3098.0	1073.0	12.0	17000

TABLE 5-5

RADIONUCLIDE CONCENTRATIONS IN SOIL AT THE SLAPS

Coordinates East	Coordinates North	Depth (ft)	Concentration (pCi/g +/- 2 sigma) Uranium-238	Radium-226	Thorium-232	Thorium-230
775.0	1025.0	0.0- 0.5	< 78.4	< 3.8	< 3.8	-a-
780.0	1200.0	0.0- 0.5	< 37.0	< 2.0	< 2.6	-a-
800.0	1010.5	0.0- 1.0	< 78.4	< 3.9	< 4.3	-a-
800.0	1010.5	1.0- 2.0	< 37.4	< 1.7	< 3.4	20.0+/- 2.0
800.0	1010.5	2.0- 3.0	< 28.8	< 1.6	< 3.0	1.8+/- 0.7
800.0	1297.0	0.0- 0.5	< 33.0	< 1.8	< 2.8	-a-
808.0	1197.0	0.0- 2.0	< 39.6	< 2.9	< 2.9	-a-
808.0	1197.0	2.0- 3.0	< 7.0	4.0+/- 1.0	1.3+/- 0.7	110.0+/- 10.0
808.0	1197.0	4.0- 6.0	< 47.2	< 3.3	< 3.0	120.0+/- 10.0
808.0	1197.0	6.0- 8.0	< 4.0	1.0+/- 0.3	1.3+/- 0.5	-a-
808.0	1197.0	8.0-10.0	< 11.0	1.0+/- 1.0	< 2.0	0.6+/- 0.2
808.0	1197.0	10.0-11.5	< 4.0	1.3+/- 0.3	1.3+/- 0.5	-a-
808.0	1303.0	0.0- 0.6	< 57.0	< 3.0	< 4.2	-a-
808.0	1303.0	4.0- 6.0	< 36.6	< 1.8	< 3.5	3.0+/- 0.4
808.0	1303.0	6.0- 8.0	< 34.8	< 1.8	< 3.3	6.0+/- 0.8
813.0	1099.0	0.0- 1.0	40.0+/- 9.0	20.0+/- 5.0	3.0+/- 1.0	-a-
813.0	1099.0	2.0- 3.0	84.0+/- 22.0	69.0+/- 3.0	< 1.0	-a-
813.0	1099.0	4.0- 5.0	1200.0+/-100.0	2700.0+/-100.0	63.0+/- 12.0	-a-
813.0	1099.0	7.0- 8.5	53.0+/- 11.0	31.0+/- 2.0	1.8+/- 1.2	-a-
813.0	1099.0	9.5-10.5	9.0+/- 4.0	1.4+/- 0.4	< 1.0	-a-

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TABLE 5-5

(continued)

Coordinates East	Coordinates North	Depth (ft)	Concentration (pCi/g +/- 2 sigma) Uranium-238	Radium-226	Thorium-232	Thorium-230
813.0	1099.0	10.5-11.5	13.0+/- 5.0	0.8+/- 0.6	< 1.0	7.0+/- 1.0
813.0	1099.0	11.5-12.5	< 35.2	< 2.4	< 2.7	1.3+/- 0.7
813.0	1099.0	13.5-14.5	9.0+/- 4.0	1.2+/- 0.4	2.1+/- 0.6	-a-
813.0	1099.0	15.5-16.5	< 5.0	2.4+/- 0.4	0.9+/- 0.5	-a-
895.5	1306.0[c]	0.0- 5.0	< 46.6	< 3.0	< 3.1	-a-
895.5	1306.0	5.0- 8.0	< 29.6	< 2.3	< 2.8	-a-
895.5	1306.0	8.0-12.0	< 30.8	< 2.6	< 2.8	-a-
899.0	1015.0	0.0- 2.0	< 26.2	< 1.5	< 2.7	-a-
899.0	1015.0	2.0- 4.0	< 31.0	< 1.6	< 3.0	31.0+/- 3.0
899.0	1015.0	5.0- 7.0	< 34.0	< 2.2	< 3.1	1.4+/- 0.3
900.0	1101.5	0.0- 2.0	< 36.4	< 2.6	< 3.1	-a-
900.0	1101.5	2.4- 4.3	< 7.0	1.6+/- 0.4	1.5+/- 0.6	-a-
900.0	1101.5	4.3- 6.3	<260.0	220.0+/- 3.9	< 7.6	-a-
900.0	1101.5	6.3- 8.3	< 6.0	1.4+/- 0.4	< 0.6	16.0+/- 3.0
900.0	1101.5	8.3- 9.8	< 30.6	< 2.0	< 2.7	7.0+/- 1.0
900.0	1101.5	9.8-11.6	< 5.0	< 0.3	< 0.4	-a-
900.0	1101.5	13.0-14.5	< 10.0	1.3+/- 0.4	3.0+/- 1.0	-a-
900.0	1199.0	0.0- 1.5	< 5.0	1.3+/- 0.4	1.3+/- 0.6	-a-
900.0	1199.0	1.5- 3.0	< 30.4	< 1.9	< 3.0	-a-
900.0	1199.0	3.0- 4.5	170.0+/- 20.0	45.0+/- 2.0	1.7+/- 1.5	-a-
900.0	1199.0	4.5- 6.0	< 39.0	< 1.8	< 3.1	-a-
900.0	1199.0	6.0- 7.5	19.0+/- 6.0	1.6+/- 0.5	1.5+/- 0.7	-a-

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TABLE 5-5

(continued)

Coordinates East	Coordinates North	Depth (ft)	Concentration (pCi/g +/- 2 sigma) Uranium-238	Radium-226	Thorium-232	Thorium-230
900.0	1199.0	8.5- 9.5	< 11.0	2.6+/- 0.7	3.0+/- 1.0	-a-
900.0	1199.0	10.5-12.0	< 4.0	1.0+/- 0.3	1.6+/- 0.5	-a-
950.0	1350.0	0.0- 0.5	< 36.8	< 2.0	< 3.2	-a-
997.0	1210.0	0.0- 2.0	< 8.0	1.7+/- 0.4	1.5+/- 0.6	-a-
997.0	1210.0	4.5- 6.5	61.0+/- 8.0	6.0+/- 1.0	< 0.5	36.0+/- 2.0
997.0	1210.0	6.5- 8.5	< 33.0	< 2.5	< 2.8	8.6+/- 0.7
997.0	1210.0	8.5- 9.5	< 4.0	1.4+/- 0.4	1.1+/- 0.5	-a-
997.0	1210.0	10.5-11.5	< 9.0	1.9+/- 0.5	3.0+/- 1.0	-a-
997.0	1210.0	12.5-13.5	< 6.0	1.1+/- 0.5	1.2+/- 0.7	-a-
1000.0	1015.5	0.0- 1.5	< 26.2	< 1.8	< 2.7	-a-
1000.0	1015.5	3.0- 5.0	< 30.2	< 1.8	< 3.1	1.8+/- 0.6
1000.0	1015.5	5.0- 7.0	< 30.2	< 1.8	< 3.2	-a-
1002.0	1309.5	2.0- 3.5	< 73.6	< 2.8	< 3.6	-a-
1002.0	1309.5	3.5- 5.5	< 42.4	< 1.7	< 3.3	5.4+/- 0.8
1002.0	1309.5	5.5- 7.0	< 39.2	< 1.8	< 3.6	9.0+/- 3.0
1005.0	1101.0	0.0- 1.0	< 9.0	1.2+/- 0.5	1.1+/- 0.6	-a-
1005.0	1101.0	1.0- 2.0	< 31.4	< 2.4	< 2.5	-a-
1005.0	1101.0	2.0- 3.0	9.0+/- 6.0	7.0+/- 1.0	1.4+/- 0.7	-a-
1005.0	1101.0	4.0- 5.0	47.0+/- 7.0	12.0+/- 1.0	1.3+/- 1.2	-a-
1005.0	1101.0	10.0-11.5	190.0+/- 20.0	15.0+/- 1.0	3.0+/- 2.0	-a-
1005.0	1101.0	13.0-14.5	< 6.0	2.2+/- 0.5	1.5+/- 0.6	-a-

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TABLE 5-5

(continued)

Coordinates East	Coordinates North	Depth (ft)	Concentration (pCi/g +/- 2 sigma) Uranium-238	Radium-226	Thorium-232	Thorium-230
1005.0	1101.0	14.5-16.0	< 6.0	1.1+/- 0.9	2.0+/- 2.0	3.0+/- 1.0
1005.0	1101.0	16.0-17.5	< 48.4	< 3.9	< 3.0	29.0+/- 2.0
1074.0	1330.0	0.0- 2.0	< 85.6	< 4.7	< 3.4	-a-
1074.0	1330.0	4.0- 6.0	< 61.2	< 4.5	< 3.3	140.0+/- 10.0
1074.0	1330.0	6.0- 8.0	< 36.2	< 2.1	< 3.4	5.1+/- 0.6
1085.0	1102.0	0.0- 1.8	< 4.0	1.3+/- 0.4	0.8+/- 0.5	-a-
1085.0	1102.0	3.5- 5.5	< 6.0	1.4+/- 0.4	2.7+/- 0.7	-a-
1085.0	1102.0	7.5- 9.5	700.0+/-100.0	5.0+/- 1.0	1.5+/- 0.7	-a-
1085.0	1102.0	11.5-13.0	< 4.0	1.1+/- 0.4	1.1+/- 0.5	-a-
1085.0	1102.0	14.5-16.0	< 7.0	1.3+/- 0.4	1.4+/- 0.5	-a-
1100.0	1198.0	0.0- 1.0	< 27.4	< 2.1	< 2.8	-a-
1100.0	1198.0	1.0- 2.0	< 6.0	1.5+/- 0.7	1.3+/- 1.0	-a-
1100.0	1198.0	3.0- 4.5	< 10.0	4.0+/- 1.0	2.0+/- 1.0	-a-
1100.0	1198.0	4.5- 6.0	< 28.2	< 2.1	< 2.4	-a-
1100.0	1198.0	6.0- 7.5	< 5.0	1.9+/- 0.5	1.1+/- 0.6	-a-
1100.0	1198.0	7.5- 9.0	< 80.4	53.2+/- 1.9	< 4.3	-a-
1100.0	1198.0	9.0-10.5	< 4.0	0.9+/- 0.4	0.9+/- 0.6	1.2+/- 0.3
1100.0	1198.0	10.5-12.0	< 26.6	< 2.1	< 2.8	3.8+/- 0.6
1100.0	1198.0	12.0-13.0	< 5.0	1.3+/- 0.5	0.8+/- 0.6	-a-
1100.0	1198.0	14.0-15.0	< 8.0	0.8+/- 0.4	2.6+/- 0.7	-a-
1101.5	1015.5	0.0- 1.0	<173.4	122.0+/- 2.7	< 7.5	-a-
1101.5	1015.5	2.0- 3.0	<115.2	51.4+/- 1.7	< 5.4	-a-

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TABLE 5-5

(continued)

Coordinates East	Coordinates North	Depth (ft)	Concentration (pCi/g +/- 2 sigma) Uranium-238	Radium-226	Thorium-232	Thorium-230
1101.5	1015.5	3.0- 4.0	< 30.8	< 1.5	< 2.8	3.6+/- 1.6
1101.5	1015.5	4.0- 5.0	< 49.0	< 3.2	< 3.6	120.0+/- 10.0
1101.5	1015.5	6.0- 7.0	< 11.0	4.0+/- 2.0	3.0+/- 3.0	32.0+/- 2.0
1101.5	1015.5	7.0- 8.0	< 10.0	3.0+/- 2.0	3.0+/- 2.0	1.7+/- 0.4
1101.5	1015.5	9.0-10.0	< 12.0	4.0+/- 2.0	3.0+/- 2.0	16.0+/- 1.0
1155.0	1000.0	0.0- 0.5	< 29.0	< 2.1	< 2.9	-a-
1198.0	1010.5	0.0- 0.5	< 90.8	37.0+/- 1.2	< 3.9	-a-
1198.0	1010.5	0.5- 1.5	< 33.0	< 2.0	< 3.4	-a-
1198.0	1010.5	4.0- 5.5	< 34.4	< 1.7	< 3.4	17.0+/- 1.0
1198.0	1010.5	5.5- 6.5	< 34.2	< 1.8	< 3.3	1.6+/- 0.2
1200.0	1100.0	0.0- 1.0	< 9.0	1.5+/- 0.4	2.0+/- 0.7	-a-
1200.0	1100.0	3.0- 5.0	< 6.0	1.8+/- 0.5	1.7+/- 0.7	-a-
1200.0	1100.0	6.0- 7.0	< 4.0	1.6+/- 0.4	1.3+/- 0.6	-a-
1200.0	1100.0	7.0- 8.0	<115.2	102.2+/- 2.6	< 5.5	-a-
1200.0	1100.0	8.0- 9.0	< 14.0	36.0+/- 3.0	< 2.0	-a-
1200.0	1100.0	9.0-10.0	9.0+/- 4.0	1.2+/- 0.4	0.7+/- 0.4	5.0+/- 1.0
1200.0	1100.0	10.0-11.0	< 32.8	< 2.1	< 2.6	7.0+/- 2.0
1200.0	1100.0	12.0-13.5	< 7.0	1.3+/- 0.4	1.7+/- 0.6	-a-
1200.0	1100.0	15.0-16.5	< 7.0	1.3+/- 0.5	1.7+/- 0.7	-a-
1200.0	1199.0	0.0- 2.5	< 5.0	1.2+/- 0.5	1.0+/- 0.7	-a-
1200.0	1199.0	4.5- 6.0	< 7.0	1.7+/- 0.4	2.1+/- 0.7	-a-
1200.0	1199.0	7.5- 9.0	78.0+/- 19.0	86.0+/- 3.0	2.0+/- 2.0	-a-

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TABLE 5-5

(continued)

Coordinates East	Coordinates North	Depth (ft)	Concentration (pCi/g +/- 2 sigma) Uranium-238	Radium-226	Thorium-232	Thorium-230
1200.0	1199.0	9.0-10.5	15.0+/- 7.0	12.0+/- 2.0	< 0.5	1000.0+/-100.0
1200.0	1199.0	10.5-12.5	< 34.8	< 1.6	< 3.0	2.0+/- 0.5
1200.0	1295.0	0.0- 5.0	706.0+/- 38.0	131.8+/- 2.9	< 6.2	-a-
1200.0	1295.0	5.0- 6.5	<125.4	116.4+/- 2.7	< 5.9	-a-
1200.0	1295.0	6.5- 8.0	<117.2	118.6+/- 2.7	< 6.1	-a-
1200.0	1295.0	8.0-10.0	<129.2	116.0+/- 2.7	< 6.0	-a-
1200.0	1295.0	10.0-11.0	< 42.0	< 2.4	< 3.0	1.5+/- 0.7
1200.0	1295.0	11.0-12.0	< 38.2	< 2.1	< 2.9	2.0+/- 1.0
1200.0	1392.0	0.0- 1.0	< 48.0	< 1.9	< 3.6	6.0+/- 0.8
1200.0	1392.0	3.0- 4.0	<101.0	< 2.0	< 3.4	0.6+/- 0.3
1200.0	1392.0	4.0- 5.0	< 45.6	< 2.0	< 3.5	0.6+/- 0.2
1297.5	1007.5	0.0- 2.0	< 29.2	< 1.7	< 3.0	-a-
1297.5	1007.5	5.0- 6.0	< 33.2	< 2.0	< 3.3	34.0+/- 2.0
1297.5	1007.5	6.0- 7.0	< 30.8	< 1.7	< 3.1	2.4+/- 0.6
1297.5	1098.0	0.0- 1.0	< 28.2	< 2.5	< 2.6	-a-
1297.5	1098.0	1.0- 2.0	< 5.0	1.9+/- 0.7	< 0.5	-a-
1297.5	1098.0	2.5- 3.5	< 4.0	1.6+/- 0.4	1.3+/- 0.6	2.0+/- 2.0
1297.5	1098.0	3.5- 4.5	< 30.6	< 2.5	< 3.0	7.0+/- 2.0
1297.5	1098.0	6.5- 7.5	190.0+/- 20.0	230.0+/- 20.0	< 0.5	-a-
1297.5	1098.0	8.5-10.0	40.0+/- 9.0	42.0+/- 2.0	3.0+/- 1.0	-a-
1297.5	1098.0	10.0-11.5	< 56.0	< 4.1	< 3.0	-a-
1297.5	1098.0	11.5-13.0	12.0+/- 7.0	5.0+/- 1.0	1.5+/- 0.7	-a-

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TABLE 5-5

(continued)

Coordinates East	Coordinates North	Depth (ft)	Concentration (pCi/g +/- 2 sigma) Uranium-238	Radium-226	Thorium-232	Thorium-230
1299.0	1200.0	0.0- 2.0	< 7.0	2.2+/- 0.5	1.8+/- 0.7	-a-
1299.0	1200.0	3.0- 3.8	270.0+/- 20.0	77.0+/- 3.0	5.0+/- 2.0	-a-
1299.0	1200.0	5.0- 6.0	< 3.0	1.0+/- 0.4	2.7+/- 0.7	7.0+/- 2.0
1299.0	1200.0	6.0- 7.0	< 0.0	3.0+/- 1.0	4.0+/- 14.0	1.7+/- 1.2
1299.0	1200.0	7.0- 8.0	< 7.0	1.7+/- 0.5	1.9+/- 0.8	-a-
1299.0	1200.0	9.0-10.5	< 5.0	1.3+/- 0.4	1.2+/- 0.6	-a-
1300.0	1302.0[c]	0.0- 5.0	< 35.4	< 2.4	< 2.8	-a-
1300.0	1302.0	5.0- 9.0	< 31.2	< 2.4	< 3.1	-a-
1300.0	1302.0	9.0-13.0	< 28.2	< 2.1	< 3.1	-a-
1300.0	1408.0	0.0- 0.5	< 30.6	< 1.9	< 3.3	-a-
1304.5	1400.5	0.0- 1.5	< 39.2	< 2.8	< 3.3	-a-
1304.5	1400.5	1.5- 3.0	< 56.2	< 2.6	< 2.8	29.0+/- 2.0
1304.5	1400.5	3.0- 4.0	< 49.6	< 2.4	< 2.8	5.0+/- 1.0
1397.5	1102.0	2.0- 4.0	< 12.0	3.4+/- 0.7	3.0+/- 1.0	-a-
1397.5	1102.0	4.0- 6.0	< 29.2	< 1.8	< 3.5	-a-
1397.5	1102.0	6.0- 7.0	100.0+/- 20.0	48.0+/- 3.0	2.0+/- 1.0	-a-
1397.5	1102.0	7.0- 8.0	1170.0+/-109.0	5620.0+/- 56.0	<50.4	-a-
1397.5	1102.0	8.0- 9.0	1600.0+/-100.0	1700.0+/-100.0	< 5.0	-a-
1397.5	1102.0	9.0-10.0	800.0+/-100.0	1.0+/- 0.5	1.5+/- 0.8	6.0+/- 1.0
1397.5	1102.0	10.0-12.0	< 53.0	< 2.1	< 3.9	8.0+/- 1.0
1397.5	1102.0	12.0-13.5	< 43.2	< 2.0	< 4.0	-a-

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TABLE 5-5

(continued)

Coordinates East	Coordinates North	Depth (ft)	Concentration (pCi/g +/- 2 sigma) Uranium-238	Radium-226	Thorium-232	Thorium-230
1397.5	1102.0	13.5-15.0	13.0+/- 4.0	2.1+/- 0.4	1.0+/- 0.5	-a-
1398.0	1011.0	0.0- 2.0	< 42.6	< 2.4	< 3.3	-a-
1398.0	1011.0	5.0- 6.0	< 31.2	< 1.9	< 3.3	0.6+/- 0.4
1398.0	1011.0	6.0- 7.0	< 32.4	< 1.7	< 4.0	5.1+/- 0.9
1400.0	1351.0	1.0- 2.0	< 12.0	6.0+/- 2.0	< 3.0	140.0+/- 10.0
1400.0	1351.0	4.0- 5.3	24.0+/- 10.0	4.0+/- 2.0	< 3.0	46.0+/- 1.0
1400.0	1397.0	0.0- 1.0	< 41.2	< 2.6	< 3.5	-a-
1400.0	1397.0	2.0- 4.0	< 32.8	< 1.8	< 3.5	4.1+/- 0.8
1400.0	1397.0	4.0- 6.0	< 25.2	< 1.4	< 3.2	1.0+/- 0.3
1402.0	1196.0	0.0- 1.0	< 45.6	< 2.9	< 3.4	-a-
1402.0	1196.0	1.0- 2.0	< 6.0	1.9+/- 0.5	2.4+/- 0.7	-a-
1402.0	1196.0	2.5- 3.8	< 10.0	1.4+/- 0.5	1.3+/- 0.5	26.0+/- 1.0
1402.0	1196.0	3.0- 4.0	620.0+/- 70.0	590.0+/- 60.0	< 3.0	-a-
1402.0	1196.0	4.5- 5.5	< 31.4	< 2.0	< 3.3	19.0+/- 2.0
1402.0	1196.0	5.0- 6.0	< 5.0	1.6+/- 0.4	1.6+/- 0.5	-a-
1402.0	1196.0	6.5- 8.5	< 8.0	1.6+/- 0.4	2.1+/- 0.8	-a-
1402.0	1196.0	10.5-12.5	< 3.0	0.5+/- 0.3	1.3+/- 0.5	-a-
1402.0	1300.0	0.0- 2.0	< 34.2	< 2.2	< 3.5	-a-
1402.0	1300.0	3.5- 5.5	< 31.4	< 1.6	< 3.1	0.8+/- 0.1
1402.0	1300.0	5.5- 7.5	< 26.6	< 1.6	< 2.9	1.2+/- 0.2
1497.0	1094.0[c]	0.0- 5.0	< 5.0	2.8+/- 0.5	1.0+/- 0.6	-a-

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TABLE 5-5

(continued)

Coordinates East	Coordinates North	Depth (ft)	Concentration (pCi/g +/- 2 sigma) Uranium-238	Radium-226	Thorium-232	Thorium-230
1497.0	1094.0	5.0- 9.0	<212.0	262.0+/- 4.3	< 8.5	-a-
1497.0	1094.0	9.0-13.0	27.0+/- 10.0	7.0+/- 1.0	1.3+/- 1.0	-a-
1498.0	1008.0	0.0- 1.0	< 29.6	< 1.8	< 3.5	-a-
1498.0	1008.0	3.0- 4.0	< 72.6	< 1.7	< 3.8	1.0+/- 0.3
1498.0	1008.0	4.0- 5.0	< 54.8	< 1.9	< 3.7	12.0+/- 1.0
1500.0	1200.0[c]	0.0- 8.0	60.0+/- 20.0	59.0+/- 3.0	< 1.0	-a-
1500.0	1200.0	8.0-12.0	< 25.4	< 1.9	< 2.5	-a-
1500.0	1200.0	12.0-16.0	< 9.0	2.1+/- 0.8	3.0+/- 1.0	-a-
1500.0	1300.0	0.0- 1.0	< 43.6	< 2.2	< 4.1	-a-
1500.0	1300.0	4.0- 5.0	< 53.2	< 1.5	< 3.0	5.2+/- 1.5
1500.0	1300.0	5.0- 6.0	< 42.2	< 1.6	< 2.9	1.4+/- 0.3
1500.0	1400.0	1.0- 2.5	< 12.0	2.0+/- 2.0	4.0+/- 3.0	1.1+/- 0.9
1500.0	1400.0	2.5- 4.0	< 14.0	2.0+/- 2.0	< 3.0	1.0+/- 0.9
1595.0	1200.0	0.0- 1.5	< 30.0	22.0+/- 2.0	1.5+/- 1.0	-a-
1595.0	1200.0	3.0- 4.5	37.0+/- 6.0	23.0+/- 5.0	0.9+/- 0.7	-a-
1595.0	1200.0	4.5- 5.5	< 9.0	5.0+/- 2.0	< 1.0	130.0+/- 10.0
1595.0	1200.0	5.5- 6.5	< 39.6	< 2.7	< 2.9	130.0+/- 10.0
1595.0	1200.0	8.0- 9.0	< 11.0	< 3.0	< 3.0	2.5+/- 0.4
1595.0	1200.0	11.0-12.5	< 4.0	1.1+/- 0.3	1.4+/- 0.5	-a-
1599.0	1008.5	0.0- 2.0	< 63.8	< 4.7	< 3.3	-a-

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TABLE 5-5

(continued)

Coordinates East	Coordinates North	Depth (ft)	Concentration (pCi/g +/- 2 sigma) Uranium-238	Radium-226	Thorium-232	Thorium-230
1599.0	1008.5	2.0- 4.0	< 50.8	< 4.4	< 2.3	130.0+/- 10.0
1599.0	1008.5	4.0- 6.0	< 32.4	< 2.4	< 2.8	71.0+/- 2.0
1599.0	1008.5	8.0- 9.5	< 14.0	3.0+/- 2.0	2.0+/- 2.0	4.3+/- 0.7
1600.0	1102.0	0.0- 2.0	< 31.6	< 2.6	< 3.1	-a-
1600.0	1102.0	3.2- 4.5	1000.0+/-100.0	900.0+/-100.0	< 4.0	-a-
1600.0	1102.0	4.5- 5.5	<238.0	252.0+/- 4.1	< 7.9	-a-
1600.0	1102.0	5.5- 6.5	< 9.0	6.0+/- 2.0	< 2.0	180.0+/- 10.0
1600.0	1102.0	6.5- 7.5	< 35.0	< 2.7	< 2.5	370.0+/- 10.0
1600.0	1102.0	7.5- 8.5	< 6.0	2.0+/- 0.4	1.4+/- 0.7	-a-
1600.0	1102.0	8.5- 9.5	-b-	-b-	-b-	22.0+/- 1.0
1600.0	1102.0	9.5-10.5	< 6.0	1.7+/- 0.6	1.3+/- 0.8	-a-
1600.0	1102.0	11.5-13.0	< 5.0	1.2+/- 0.3	1.4+/- 0.5	-a-
1600.0	1300.0	0.0- 0.6	< 93.6	41.0+/- 1.6	< 3.6	-a-
1600.0	1300.0	2.0- 3.5	< 56.0	< 5.0	< 3.0	420.0+/- 10.0
1600.0	1300.0	3.5- 5.0	< 34.0	< 2.9	< 3.6	48.0+/- 2.0
1600.0	1300.0	5.0- 6.0	< 15.0	8.0+/- 2.0	< 4.0	46.0+/- 5.0
1600.0	1403.0	1.0- 2.0	15.0+/- 6.0	4.0+/- 1.0	< 2.0	78.0+/- 2.0
1600.0	1403.0	2.0- 3.0	< 8.0	3.0+/- 2.0	< 2.0	78.0+/- 8.0
1600.0	1403.0	4.0- 5.0	< 8.0	1.0+/- 1.0	< 2.0	4.9+/- 0.6
1600.0	1472.0	0.0- 0.5	<304.0	480.0+/- 6.6	<13.4	-a-
1697.0	1012.0	2.0- 4.0	26.0+/- 13.0	< 1.0	4.0+/- 2.0	10.0+/- 1.0

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TABLE 5-5

(continued)

Coordinates East	Coordinates North	Depth (ft)	Concentration (pCi/g +/- 2 sigma) Uranium-238	Radium-226	Thorium-232	Thorium-230
1697.0	1012.0	4.0- 5.0	< 13.0	2.0+/- 1.0	3.0+/- 2.0	13.0+/- 2.0
1699.0	1197.0	6.0- 7.0	< 3.0	1.5+/- 0.4	1.0+/- 0.5	2.6+/- 0.6
1699.0	1197.0	7.0- 8.0	< 13.0	< 3.0	< 3.0	10.0+/- 1.0
1699.0	1197.0	9.0-10.0	< 5.0	2.0+/- 0.6	1.5+/- 0.7	-a-
1699.0	1197.0	12.0-13.5	< 5.0	1.0+/- 0.3	0.6+/- 0.5	-a-
1700.0	1300.0[c]	0.0- 2.5	< 48.6	< 3.3	< 3.1	-a-
1700.0	1300.0	4.0- 8.0	< 60.4	< 3.9	< 3.0	-a-
1700.0	1300.0	8.0-12.0	< 33.8	< 2.3	< 2.9	-a-
1700.0	1493.0	0.0- 0.5	<105.0	59.2+/- 1.8	< 4.9	-a-
1702.0	1401.0	5.0- 6.0	100.0+/- 30.0	3.0+/- 2.0	5.0+/- 3.0	15.0+/- 1.0
1702.0	1401.0	6.0- 7.0	< 20.0	27.0+/- 6.0	7.0+/- 3.0	560.0+/- 10.0
1702.0	1401.0	8.0- 9.0	< 13.0	4.0+/- 2.0	3.0+/- 3.0	4.9+/- 0.6
1704.0	1487.0	0.0- 2.0	< 51.0	< 3.3	< 3.6	-a-
1704.0	1487.0	2.0- 4.0	< 34.0	< 1.7	< 3.0	25.0+/- 2.0
1704.0	1487.0	4.0- 6.0	< 28.0	< 1.7	< 3.4	3.5+/- 0.8
1705.0	1101.0	1.0- 3.0	< 5.0	0.6+/- 0.4	1.1+/- 0.5	-a-
1705.0	1101.0	5.0- 6.5	< 9.0	2.0+/- 1.0	< 1.0	11.0+/- 1.0
1705.0	1101.0	6.5- 7.5	< 13.0	< 3.0	< 3.0	1.7+/- 0.3
1705.0	1101.0	7.5- 8.5	< 5.0	2.0+/- 0.4	0.9+/- 0.6	-a-
1705.0	1101.0	9.5-11.0	< 6.0	1.5+/- 0.4	1.7+/- 0.6	-a-

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TABLE 5-5

(continued)

Coordinates East	Coordinates North	Depth (ft)	Concentration (pCi/g +/- 2 sigma) Uranium-238	Radium-226	Thorium-232	Thorium-230
1800.0	1007.0	2.0- 2.7	< 16.0	15.0+/- 4.0	< 3.0	1100.0+/-100.0
1800.0	1007.0	4.0- 5.0	25.0+/- 11.0	3.0+/- 2.0	4.0+/- 2.0	19.0+/- 4.0
1800.0	1007.0	5.0- 6.0	< 14.0	6.0+/- 2.0	< 3.0	10.0+/- 1.0
1800.0	1196.0	3.0- 4.0	< 35.8	< 3.1	< 3.5	1.8+/- 0.2
1800.0	1196.0	4.0- 5.0	< 8.0	2.0+/- 2.0	3.0+/- 2.0	7.8+/- 0.7
1800.0	1405.0	0.0- 1.0	< 41.2	< 3.1	< 3.3	-a-
1800.0	1405.0	4.0- 5.5	<352.0	1740.0+/- 14.3	<18.9	-a-
1800.0	1405.0	5.5- 6.5	< 44.4	< 3.4	< 3.1	450.0+/- 10.0
1800.0	1405.0	6.5- 7.5	< 42.0	< 3.1	< 3.2	120.0+/- 10.0
1800.0	1405.0	8.5- 9.5	-b-	-b-	-b-	79.0+/- 2.0
1800.0	1405.0	10.5-11.5	< 14.0	5.0+/- 3.0	3.0+/- 2.0	250.0+/- 10.0
1801.0	1500.0	0.0- 1.0	< 67.4	76.8+/- 1.3	< 3.6	2160.0+/- 82.8
1801.0	1500.0	1.0- 2.0	< 18.4	818.0+/- 7.1	<10.0	2440.0+/-570.0
1801.0	1500.0	2.0- 3.0	< 17.9	< 1.2	< 2.0	2.7+/- 0.4
1801.0	1500.0	3.0- 4.0	< 16.8	< 1.2	< 2.2	1.1+/- 0.3
1801.0	1500.0	4.0- 5.0	< 18.1	< 1.3	3.8+/- 0.5	-a-
1801.0	1500.0	5.0- 6.0	< 17.1	< 1.2	< 2.2	-a-
1801.0	1500.0	6.0- 7.0	< 17.9	< 1.2	< 2.0	-a-
1801.0	1500.0	7.0- 8.0	< 47.5	< 2.9	< 6.0	-a-
1801.0	1500.0	8.0- 9.0	< 45.4	< 3.0	< 5.6	-a-
1801.0	1500.0	9.0-10.0	< 40.8	< 2.5	< 4.1	-a-
1801.0	1500.0	10.0-11.0	< 38.6	< 2.5	< 5.6	-a-

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TABLE 5-5

(continued)

Coordinates East	Coordinates North	Depth (ft)	Concentration (pCi/g +/- 2 sigma) Uranium-238	Radium-226	Thorium-232	Thorium-230
1801.0	1500.0	11.0-12.0	< 41.0	< 3.0	< 4.3	-a-
1803.0	1294.0	0.0- 1.6	<158.6	149.6+/- 2.7	< 7.2	-a-
1803.0	1294.0	2.0- 4.0	< 26.6	< 1.5	< 1.5	3.7+/- 0.7
1803.0	1294.0	4.0- 6.0	< 33.6	< 1.7	< 3.4	3.7+/- 1.7
1803.0	1294.0	10.0-12.0	39.0+/- 17.0	27.0+/- 5.0	< 4.0	860.0+/- 10.0
1808.0	1102.0	4.0- 5.0	< 13.0	4.0+/- 2.0	< 3.0	4.0+/- 0.7
1808.0	1102.0	5.0- 6.0	< 11.0	2.0+/- 1.0	4.0+/- 3.0	12.0+/- 1.0
1897.0	1194.0	0.0- 2.0	< 24.8	< 1.6	< 3.2	-a-
1897.0	1194.0	6.0- 8.0	< 75.6	59.6+/- 1.8	< 5.4	-a-
1897.0	1194.0	8.0-10.0	< 45.2	< 3.9	< 3.7	1.0+/- 0.3
1897.0	1194.0	10.0-12.0	< 92.6	73.2+/- 2.0	< 6.1	-a-
1899.0	1309.0	0.0- 1.0	< 28.4	< 2.4	< 3.2	-a-
1899.0	1309.0	2.0- 3.0	< 73.6	< 4.8	< 3.9	1500.0+/-100.0
1899.0	1309.0	3.0- 4.0	< 35.2	< 2.8	< 2.9	18.0+/- 1.0
1899.0	1309.0	4.0- 6.0	-b-	-b-	-b-	23.0+/- 1.0
1899.0	1309.0	7.0- 8.0	< 11.0	2.0+/- 1.0	4.0+/- 3.0	36.0+/- 2.0
1899.0	1309.0	9.0-10.5	< 10.0	5.0+/- 2.0	< 2.0	10.0+/- 1.0
1899.5	1098.5	4.0- 5.0	< 10.0	3.0+/- 1.0	< 3.0	2.3+/- 0.4
1899.5	1098.5	5.0- 6.0	< 8.0	3.0+/- 1.0	< 2.0	0.8+/- 0.5
1900.0	1008.0	3.0- 4.0	18.0+/- 9.0	5.0+/- 2.0	3.0+/- 2.0	5.4+/- 0.6

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TABLE 5-5

(continued)

Coordinates East	Coordinates North	Depth (ft)	Concentration (pCi/g +/- 2 sigma) Uranium-238	Radium-226	Thorium-232	Thorium-230
1900.0	1008.0	4.0- 5.0	< 16.0	5.0+/- 2.0	3.0+/- 3.0	120.0+/- 10.0
1900.0	1008.0	6.0- 7.0	< 13.0	2.0+/- 2.0	5.0+/- 3.0	7.1+/- 1.8
1900.0	1400.0	0.0- 1.0	< 38.4	< 2.9	< 3.2	-a-
1900.0	1400.0	1.0- 2.0	< 29.4	< 2.5	< 2.8	-a-
1900.0	1400.0	2.0- 3.0	< 36.0	< 2.6	< 2.9	-a-
1900.0	1400.0	3.0- 4.0	<316.0	898.0+/- 9.0	<13.6	-a-
1900.0	1400.0	4.0- 5.0	< 46.0	< 2.3	< 3.2	-a-
1900.0	1400.0	6.0- 7.0	< 13.0	< 3.0	5.0+/- 3.0	3.0+/- 1.0
1900.0	1400.0	7.0- 8.0	< 12.0	< 3.0	< 3.0	5.0+/- 1.0
1915.0	1500.0	0.0- 1.0	< 31.0	< 2.5	< 3.3	-a-
1915.0	1500.0	3.0- 4.0	< 46.2	< 2.4	< 2.5	-a-
1915.0	1500.0	4.0- 5.0	< 43.6	< 4.0	< 3.0	-a-
1915.0	1500.0	8.0- 9.0	<182.2	318.0+/- 4.8	< 8.8	-a-
1915.0	1500.0	9.0-10.0	< 70.4	33.8+/- 1.4	< 3.8	-a-
1915.0	1500.0	10.0-11.0	< 39.6	< 3.2	< 2.2	69.0+/- 9.0
1915.0	1500.0	12.0-13.0	-b-	-b-	-b-	32.0+/- 1.0
1915.0	1500.0	13.0-14.0	< 14.0	3.0+/- 2.0	< 2.0	26.0+/- 2.0
1915.0	1500.0	14.0-15.0	< 12.0	2.0+/- 2.0	2.0+/- 2.0	45.0+/- 3.0
1950.0	1533.0	0.0- 0.5	<406.0	1184.0+/- 13.5	<20.4	-a-
1975.0	1570.0	0.0- 0.5	<160.2	93.8+/- 2.3	< 6.8	-a-
1996.0	1011.0	0.0- 1.6	< 28.0	< 1.7	< 3.4	-a-

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TABLE 5-5

(continued)

Coordinates East	Coordinates North	Depth (ft)	Concentration (pCi/g +/- 2 sigma) Uranium-238	Radium-226	Thorium-232	Thorium-230
1996.0	1011.0	3.0- 5.0	< 38.8	< 1.7	< 3.3	58.0+/- 2.0
1996.0	1011.0	5.0- 7.0	< 66.2	< 3.3	< 3.4	800.0+/- 10.0
1996.0	1011.0	9.0-11.0	< 7.0	3.0+/- 1.0	3.0+/- 2.0	2.1+/- 1.1
1997.0	1207.0	0.0- 2.0	< 38.6	< 2.3	< 2.8	-a-
1997.0	1207.0	4.0- 5.0	< 48.4	< 4.8	< 3.7	85.0+/- 3.0
1997.0	1207.0	5.0- 6.0	< 35.4		< 3.3	4.0+/- 1.0
2000.0	1100.0[c]	0.0- 4.0	< 52.8	< 4.0	< 3.5	-a-
2000.0	1100.0	4.0- 8.0	< 43.8	< 3.0	< 2.7	-a-
2000.0	1100.0	8.0-12.0	< 28.2	< 1.8	< 3.2	-a-
2000.0	1400.0	2.5- 4.5	< 9.0	2.0+/- 1.0	4.0+/- 2.0	9.0+/- 1.0
2000.0	1400.0	4.5- 5.5	< 10.0	9.0+/- 2.0	< 3.0	140.0+/- 10.0
2000.0	1400.0	6.5- 7.5	< 13.0	2.0+/- 2.0	3.0+/- 3.0	27.0+/- 1.0
2000.0	1500.0	10.0-11.0	-b-	-b-	-b-	110.0+/- 10.0
2000.0	1500.0	11.0-12.0	< 14.0	< 2.0	< 2.0	55.0+/- 4.0
2002.5	1303.0	4.0- 5.0	< 13.0	3.0+/- 2.0	6.0+/- 3.0	80.0+/- 10.0
2002.5	1303.0	5.0- 6.0	< 11.0	4.0+/- 2.0	3.0+/- 2.0	120.0+/- 10.0
2002.5	1303.0	7.0- 8.0	< 16.0	3.0+/- 2.0	5.0+/- 3.0	58.0+/- 2.0
2095.5	1098.0	0.0- 1.0	<120.0	33.4+/- 1.4	< 4.6	-a-
2095.5	1098.0	4.0- 5.0	< 38.6	< 2.4	< 3.3	71.0+/- 5.0
2095.5	1098.0	5.0- 6.0	< 46.2	< 2.8	< 4.0	120.0+/- 10.0

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TABLE 5-5

(continued)

Coordinates East	Coordinates North	Depth (ft)	Concentration (pCi/g +/- 2 sigma) Uranium-238	Radium-226	Thorium-232	Thorium-230
2095.5	1098.0	7.0- 8.0	< 9.0	4.0+/- 2.0	< 2.0	10.0+/- 1.0
2100.0	1012.0	0.0- 2.0	< 50.6	< 3.1	< 3.4	-a-
2100.0	1012.0	2.0- 4.0	< 31.8	< 2.0	< 2.6	4.6+/- 1.2
2100.0	1012.0	4.0- 5.0	< 33.8	< 2.0	< 3.2	7.0+/- 1.0
2100.0	1200.0	0.0- 1.0	< 29.0	< 2.3	< 3.3	-a-
2100.0	1200.0	5.5- 7.0	< 40.0	< 3.9	< 3.3	3.4+/- 0.3
2100.0	1200.0	7.0- 8.0	< 39.2	< 4.6	< 2.8	4.5+/- 0.3
2100.0	1400.0	0.0- 1.5	<288.0	838.0+/- 8.6	<13.1	-a-
2100.0	1400.0	1.5- 2.5	<226.0	530.0+/- 6.4	<10.6	-a-
2100.0	1400.0	2.5- 3.5	<123.2	90.6+/- 2.4	< 5.2	-a-
2100.0	1400.0	3.5- 4.5	< 62.0	< 3.2	< 3.2	-a-
2100.0	1400.0	4.5- 5.5	< 41.4	< 2.5	< 2.7	13.0+/- 1.0
2100.0	1400.0	5.5- 7.0	< 10.0	5.0+/- 2.0	3.0+/- 2.0	84.0+/- 3.0
2100.0	1400.0	8.0- 9.0	< 14.0	4.0+/- 2.0	< 4.0	15.0+/- 1.0
2100.0	1500.0	0.0- 1.0	< 41.2	< 3.3	< 3.5	-a-
2100.0	1500.0	1.0- 2.0	<346.0	1518.0+/- 12.9	<18.2	-a-
2100.0	1500.0	2.0- 3.0	< 22.6	316.0+/- 4.7	< 8.4	-a-
2100.0	1500.0	3.0- 4.0	< 43.6	< 2.2	< 3.1	-a-
2100.0	1500.0	4.0- 5.0	<133.4	67.8+/- 2.1	< 4.9	-a-
2100.0	1500.0	5.0- 6.0	< 38.6	< 2.5	< 3.1	1.7+/- 0.4
2100.0	1500.0	6.0- 7.0	< 33.4	< 2.2	< 2.9	27.0+/- 1.0
2100.0	1500.0	7.0- 8.0	< 35.2	< 2.5	< 2.9	11.0+/- 1.0

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TABLE 5-5

(continued)

Coordinates East	Coordinates North	Depth (ft)	Concentration (pCi/g +/- 2 sigma) Uranium-238	Radium-226	Thorium-232	Thorium-230
2100.0	1500.0	8.0- 9.0	< 31.4	< 2.0	< 3.2	-a-
2104.0	1301.0[c]	0.0- 4.0	<137.2	46.2+/- 1.7	< 4.6	-a-
2104.0	1301.0	4.0- 8.0	< 31.4	< 2.6	< 3.5	-a-
2104.0	1301.0	8.0-12.0	< 26.8	< 2.1	< 2.1	-a-
2125.0	1555.0	0.0- 0.5	<144.4	58.2+/- 1.8	< 6.3	-a-
2150.0	1510.0	0.0- 0.5	<462.0	1818.0+/- 19.6	<25.2	-a-
2199.0	1299.0	0.0- 1.0	< 28.4	< 2.3	< 3.0	-a-
2199.0	1299.0	1.0- 2.0	<128.8	48.8+/- 1.8	< 4.1	-a-
2199.0	1299.0	2.0- 2.5	<169.8	94.4+/- 2.4	< 5.0	-a-
2199.0	1299.0	2.5- 4.0	< 26.0	< 2.0	< 2.8	7.2+/- 0.6
2199.0	1299.0	4.0- 5.0	< 49.4	< 3.3	< 3.0	560.0+/- 10.0
2199.0	1299.0	6.0- 7.0	< 27.4	< 1.9	< 2.7	3.9+/- 0.4
2200.0	1100.0	0.0- 1.0	< 27.8	< 2.1	< 3.2	-a-
2200.0	1100.0	4.0- 5.0	<122.4	57.6+/- 1.9	< 4.6	-a-
2200.0	1100.0	5.0- 6.0	< 44.8	< 3.0	< 3.6	130.0+/- 10.0
2200.0	1100.0	6.0- 7.0	< 28.8	< 2.4	< 2.8	31.0+/- 2.0
2200.0	1100.0	7.0- 8.0	-b-	-b-	-b-	32.0+/- 2.0
2200.0	1100.0	9.0-10.0	< 10.0	< 2.0	< 3.0	15.0+/- 1.0
2200.0	1100.0	11.0-12.0	< 8.0	< 2.0	3.0+/- 2.0	1.4+/- 0.5
2200.0	1200.0	0.0- 1.0	< 40.8	< 2.8	< 3.2	-a-

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TABLE 5-5

(continued)

Coordinates East	Coordinates North	Depth (ft)	Concentration (pCi/g +/- 2 sigma) Uranium-238	Radium-226	Thorium-232	Thorium-230
2200.0	1200.0	7.0- 8.0	< 61.0	35.4+/- 1.5	< 3.8	-a-
2200.0	1200.0	8.0- 9.0	< 38.6	< 4.0	< 3.2	1.9+/- 0.5
2200.0	1200.0	9.0-10.0	< 44.6	< 5.3	< 3.6	6.0+/- 1.0
2200.0	1400.0	0.0- 1.0	< 31.8	< 2.1	< 2.6	-a-
2200.0	1400.0	2.0- 3.0	<132.0	82.8+/- 2.3	< 5.0	-a-
2200.0	1400.0	3.0- 4.0	<182.4	228.0+/- 4.0	< 7.9	-a-
2200.0	1400.0	4.0- 5.0	< 50.6	< 4.0	< 3.4	150.0+/- 10.0
2200.0	1400.0	5.0- 6.0	< 31.6	< 2.3	< 2.7	4.6+/- 0.6
2202.0	1485.0	0.0- 1.0	< 53.0	< 4.4	< 3.8	-a-
2202.0	1485.0	4.0- 5.0	< 48.2	< 2.5	< 3.3	13.0+/- 1.0
2202.0	1485.0	5.0- 6.0	< 35.8	< 2.2	< 2.5	9.0+/- 1.0
2205.0	1021.0	0.0- 1.2	< 29.8	< 1.8	< 3.0	-a-
2205.0	1021.0	1.2- 3.0	< 77.6	< 4.6	< 4.0	1100.0+/-100.0
2205.0	1021.0	3.0- 5.0	< 29.0	< 1.4	< 2.9	1.1+/- 0.5
2288.0	1450.0	0.0- 0.5	< 57.6	< 2.8	< 3.4	-a-
2300.0	1101.0	0.0- 1.0	< 29.4	< 2.1	< 3.1	-a-
2300.0	1101.0	3.0- 4.0	< 37.2	< 4.1	< 2.7	2600.0+/-100.0
2300.0	1101.0	4.0- 5.0	< 49.0	< 3.2	< 3.0	71.0+/- 2.0
2300.0	1101.0	6.0- 7.0	-b-	-b-	-b-	30.0+/- 1.0
2300.0	1101.0	8.0- 9.0	< 9.0	1.0+/- 1.0	3.0+/- 2.0	1.8+/- 0.4
2300.0	1101.0	11.0-12.0	< 10.0	1.0+/- 1.0	< 2.0	1.9+/- 0.8

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TABLE 5-5

(continued)

Coordinates East	Coordinates North	Depth (ft)	Concentration (pCi/g +/- 2 sigma) Uranium-238	Radium-226	Thorium-232	Thorium-230
2300.0	1400.0	0.0- 1.0	< 33.6	< 4.2	< 3.0	3.9+/- 0.4
2300.0	1400.0	2.0- 3.5	<158.0	74.2+/- 2.2	< 4.8	-a-
2300.0	1400.0	3.5- 5.0	< 53.2	< 3.3	< 3.2	100.0+/- 10.0
2300.0	1400.0	5.0- 6.0	< 31.2	< 2.1	< 2.8	11.0+/- 1.0
2302.0	1300.0	0.0- 1.0	< 30.2	< 3.8	< 3.0	-a-
2302.0	1300.0	1.0- 2.0	< 44.6	< 3.1	< 3.1	1900.0+/-100.0
2302.0	1300.0	2.0- 3.0	< 31.6	< 2.3	< 3.1	5.0+/- 0.7
2304.5	1200.0	0.0- 1.0	< 57.2	< 3.5	< 3.8	-a-
2304.5	1200.0	2.0- 3.5	< 50.4	< 4.0	< 3.0	1700.0+/-100.0
2304.5	1200.0	3.5- 5.0	< 51.4	4.7+/- 2.0	< 3.1	1200.0+/-100.0
2304.5	1200.0	9.0-10.0	< 11.0	2.0+/- 2.0	4.0+/- 3.0	15.0+/- 2.0
2304.5	1200.0	11.0-12.0	< 17.0	3.0+/- 2.0	< 4.0	10.0+/- 1.0
2313.0	1010.0	5.0- 6.0	37.0+/- 15.0	2.0+/- 2.0	3.0+/- 3.0	-a-
2313.0	1010.0	6.0- 8.0	14.0+/- 4.0	2.7+/- 0.8	3.0+/- 1.0	-a-
2313.0	1010.0	8.0-10.0	< 6.0	1.5+/- 0.5	1.0+/- 0.7	-a-
2313.0	1010.0	10.0-12.0	< 7.0	1.3+/- 0.4	1.6+/- 0.8	-a-
2363.0	1420.0	0.0- 0.5	<114.2	< 5.0	< 4.4	-a-
2398.0	1101.0	6.0- 7.0	< 9.0	3.0+/- 1.0	< 2.0	21.0+/- 2.0
2398.0	1101.0	7.0- 8.0	< 9.0	3.0+/- 1.0	< 2.0	4.0+/- 0.7
2399.0	1382.0	0.0- 1.0	<244.0	158.2+/- 3.2	< 6.4	-a-

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TABLE 5-5

(continued)

Coordinates East	Coordinates North	Depth (ft)	Concentration (pCi/g +/- 2 sigma) Uranium-238	Radium-226	Thorium-232	Thorium-230
2399.0	1382.0	1.0- 2.0	<208.0	161.2+/- 3.3	< 7.0	-a-
2399.0	1382.0	2.0- 3.5	< 29.2	< 1.9	< 2.1	13.0+/- 3.0
2399.0	1382.0	3.5- 4.5	< 32.2	< 2.3	< 3.1	910.0+/- 10.0
2399.0	1382.0	6.5- 7.5	-b-	-b-	-b-	2.0+/- 0.3
2400.0	1010.0	5.0- 6.0	13.0+/- 5.0	1.3+/- 0.7	2.0+/- 1.0	-a-
2400.0	1010.0	6.0- 7.0	8.0+/- 5.0	1.2+/- 0.5	1.6+/- 0.9	-a-
2400.0	1010.0	7.0- 8.0	11.0+/- 4.0	1.4+/- 0.5	1.3+/- 0.7	-a-
2400.0	1010.0	8.0-10.0	12.0+/- 4.0	1.9+/- 0.5	3.0+/- 1.0	-a-
2400.0	1010.0	10.0-12.0	< 5.0	1.1+/- 0.5	1.3+/- 0.6	-a-
2400.0	1300.0	0.0- 1.0	< 29.6	< 2.2	< 2.9	-a-
2400.0	1300.0	1.0- 2.0	< 93.8	< 4.7	< 2.9	750.0+/- 10.0
2400.0	1300.0	2.0- 3.0	< 63.0	< 4.1	< 2.8	-a-
2400.0	1300.0	3.0- 4.0	-b-	-b-	-b-	320.0+/- 10.0
2400.0	1300.0	5.5- 6.0	-b-	-b-	-b-	19.0+/- 2.0
2400.0	1300.0	7.0- 8.0	< 12.0	3.0+/- 1.0	< 3.0	15.0+/- 2.0
2400.0	1300.0	11.0-11.5	< 11.0	< 2.0	3.0+/- 2.0	1.6+/- 0.7
2401.0	1202.0	0.0- 1.0	< 46.6	< 3.1	< 2.6	-a-
2401.0	1202.0	4.0- 5.5	< 36.4	< 3.4	< 2.7	38.0+/- 0.2
2401.0	1202.0	5.5- 7.0	< 32.0	< 3.0	< 3.1	5.5+/- 0.5
2401.0	1202.0	8.0- 9.0	< 12.0	5.0+/- 2.0	< 3.0	3.1+/- 0.4
2401.0	1202.0	9.0-10.0	< 9.0	2.0+/- 1.0	2.0+/- 2.0	1.9+/- 0.2
2500.0	1009.0	0.0- 2.0	< 26.2	< 1.6	< 3.1	-a-

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TABLE 5-5

(continued)

Coordinates East	Coordinates North	Depth (ft)	Concentration (pCi/g +/- 2 sigma) Uranium-238	Radium-226	Thorium-232	Thorium-230
2500.0	1009.0	2.0- 4.0	< 35.4	< 1.4	< 3.1	2.7+/- 0.7
2500.0	1009.0	4.0- 6.0	< 30.2	< 1.7	< 3.2	1.8+/- 0.4
2500.0	1200.0	0.0- 1.0	< 29.4	< 2.1	< 3.4	-a-
2500.0	1200.0	1.0- 2.0	< 36.0	< 2.0	< 2.9	-a-
2500.0	1200.0	2.0- 4.0	<256.0	193.8+/- 3.8	< 7.5	-a-
2500.0	1200.0	4.0- 5.5	< 74.8	73.0+/- 2.2	< 5.1	-a-
2500.0	1200.0	5.5- 7.0	< 29.8	< 3.0	< 2.5	16.0+/- 2.0
2500.0	1200.0	7.0- 8.0	< 44.6	< 4.8	< 3.6	1.8+/- 0.4
2500.0	1300.0[c]	0.0- 4.0	<174.4	85.6+/- 2.3	< 5.1	-a-
2500.0	1300.0	4.0- 8.0	< 36.0	< 2.2	< 2.6	-a-
2500.0	1300.0	8.0-12.0	< 27.4	< 2.0	< 2.6	-a-
2501.0	1096.0[c]	0.0- 4.0	< 49.6	< 1.9	< 3.7	-a-
2501.0	1096.0	5.0- 9.0	<199.6	404.0+/- 5.8	<12.0	-a-
2501.0	1096.0	9.0-13.0	< 37.2	< 1.5	< 3.0	-a-
2525.0	1002.0	0.0- 0.5	< 27.2	< 1.6	< 3.3	-a-
2550.0	1289.0	0.0- 0.5	< 37.8	< 2.0	< 3.9	-a-
2596.0	1008.0	2.5- 3.5	< 12.0	1.0+/- 1.0	4.0+/- 2.0	1.7+/- 0.4
2596.0	1008.0	3.5- 4.5	< 7.0	3.0+/- 1.0	2.0+/- 1.0	1.6+/- 0.5
2601.0	1104.0	0.0- 1.0	< 11.0	3.0+/- 1.0	< 3.0	1.5+/- 1.0

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TABLE 5-5

(continued)

Coordinates East	Coordinates North	Depth (ft)	Concentration (pCi/g +/- 2 sigma) Uranium-238	Radium-226	Thorium-232	Thorium-230
2601.0	1104.0	2.0- 3.5	27.0+/- 13.0	9.0+/- 3.0	< 3.0	140.0+/- 10.0
2601.0	1104.0	4.0- 5.0	14.0+/- 10.0	< 2.0	< 2.0	1.5+/- 0.3
2602.0	1196.0	0.0- 1.0	< 27.0	< 1.7	< 2.9	-a-
2602.0	1196.0	4.0- 5.0	< 50.0	< 1.7	< 3.1	1.1+/- 0.3
2602.0	1196.0	5.0- 6.0	< 45.4	< 1.4	< 3.2	2.8+/- 0.5
2675.0	1002.0	0.0- 0.5	< 32.8	< 1.6	< 3.0	-a-
2695.0	1176.0	3.0- 4.0	32.0+/- 26.0	36.0+/- 5.0	7.0+/- 3.0	2100.0+/-100.0
2695.0	1176.0	4.0- 5.0	17.0+/- 8.0	2.0+/- 1.0	3.0+/- 2.0	7.0+/- 1.0
2700.0	1008.0	2.0- 3.8	< 23.0	< 2.0	< 2.0	3.0+/- 1.0
2700.0	1008.0	4.0- 6.0	< 11.0	4.0+/- 2.0	< 3.0	2.0+/- 0.7
2700.0	1101.0	0.0- 1.0	< 33.2	< 1.8	< 3.3	-a-
2700.0	1101.0	4.0- 6.0	< 94.2	< 2.7	< 3.6	200.0+/- 10.0
2700.0	1101.0	6.0- 8.0	< 50.8	< 1.9	< 3.2	63.0+/- 6.0
2700.0	1101.0	10.0-12.0	< 12.0	3.0+/- 2.0	< 3.0	0.6+/- 0.2
2798.0	1102.0[c]	0.0- 4.0	< 88.8	< 2.6	< 3.5	-a-
2798.0	1102.0	4.0- 8.0	< 55.0	< 1.7	< 3.4	-a-
2798.0	1102.0	8.0-12.0	< 30.8	< 1.6	< 3.7	-a-
2800.0	1008.0	0.0- 1.0	< 45.6	< 1.7	< 3.0	-a-
2800.0	1008.0	2.0- 3.0	< 39.8	< 1.6	< 3.2	2.3+/- 0.8

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TABLE 5-5

(continued)

Coordinates East	Coordinates North	Depth (ft)	Concentration (pCi/g +/- 2 sigma) Uranium-238	Radium-226	Thorium-232	Thorium-230
2800.0	1008.0	3.0- 4.0	< 43.8	< 1.7	< 2.9	1.4+/- 0.3
2800.0	1121.0	0.0- 0.5	< 42.8	< 1.9	< 3.7	-a-
2900.0	1012.0	0.0- 0.5	< 32.8	< 1.7	< 3.4	-a-
2900.0	1012.0	2.0- 3.5	< 45.0	< 1.7	< 3.1	32.0+/- 2.0
2900.0	1012.0	3.5- 5.5	< 29.6	< 1.7	< 4.0	1.4+/- 0.6
2938.0	1020.0	0.0- 0.5	<127.4	39.4+/- 1.4	< 4.9	-a-
3098.0	1073.0[c]	0.0- 4.0	< 25.8	< 1.5	< 3.3	-a-
3098.0	1073.0	4.0- 8.0	< 27.0	< 1.6	< 3.3	-a-
3098.0	1073.0	8.0-12.0	< 31.2	< 1.8	< 3.5	-a-

-a- Analysis not requested
-b- Analysis not performed due to low sample volume
-c- Chemical characterization borehole

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TABLE 5-6

CONCENTRATIONS OF METALS IN SOIL AT THE SLAPS

Constituent	Range of Sample Concentrations (ppm)	Mean (Range) of Background Concentrations (ppm)*
Aluminum	2,900 - 23,000	71,000 (10,000 - 300,000)
Antimony	1 - 2,300	(2 - 10)
Arsenic	1.4 - 36	2 (1 - 50)
Barium	58 - 800	500 (100 - 3,000)
Berylium	0.1 - 190	6 (0.1 - 40)
Boron	29 - 100	10 (2.0 - 100)
Cadmium	0.4 - 3.5	0.06 (0.01 - 0.7)
Calcium	2,100 - 180,000	137,000 (7,000 - 500,000)
Chromium	6.9 - 23	100 (5 - 3,000)
Cobalt	3.8 - 4,600	8 (1 - 40)
Copper	7.7 - 2,300	20 (2 - 100)
Iron	8,100 - 34,000	38,000 (7,000 - 550,000)
Lead	1 - 580	10 (2 - 200)
Lithium	20 - 50	30 (7 - 200)
Magnesium	1,600 - 19,000	5,000 (600 - 6,000)
Manganese	130 - 3,300	850 (100 - 4,000)
Mercury	0.01 - 0.047	0.03 (0.01 - 0.3)
Molybdenum	0.5 - 150	2 (0.2 - 5)
Nickel	10 - 5,800	40 (10 - 1,000)
Potassium	20 - 630	14,000 (400 - 30,000)
Selenium	0.3 - 93	0.2 (0.01 - 2)
Silver	0.2 - 0.6	0.1 (0.01 - 5)
Sodium	100 - 500	6,300 (750 - 7,500)
Strontium	13 - 380	300 (50 - 1,000)
Thallium	1 - 33	0.1
Tin	0.6 - 4,400	10 (2 - 200)
Vanadium	11 - 410	100 (20 - 500)
Zinc	29 - 110	50 (10 - 300)

*See Reference 12

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