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Formerly Utilized Sites Remedial Action Program (FUSRAP)
Contract No. DE-AC05-81OR20722

RADIOLOGICAL CHARACTERIZATION REPORT FOR THE FUTURA COATINGS SITE

Hazelwood, Missouri

July 1987



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Telex: 3785873



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U.S. Department of Energy
Oak Ridge Operations
Post Office Box E
Oak Ridge, Tennessee 37831

Attention: S. W. Ahrends, Director
Technical Services Division

Subject: Bechtel Job No. 14501, FUSRAP Project
DOE Contract No. DE-AC05-81OR20722
Publication of the Radiological Characterization
Report for the Futura Coatings Site, Hazelwood,
Missouri
Code: 7310/WBS: 140

Dear Mr. Ahrends:

The following is the response to your letter dated July 17, number 87-457 (our CCN 046374).

Enclosed are 5 copies of the subject report. All DOE comments have been incorporated, and reflect the discussion between Steve Oldham and Rick Robertson on July 30.

Please call Alice Feldman at 576-5177 if you need additional copies.

Very truly yours,

SD Liedle

S. D. Liedle
Assistant Project Manager -
FUSRAP

AMP/amf

Enclosure: As Stated

cc: J. P. Wing (w/o)
S. H. McCracken (w/o)
B. A. Hughlett (w/o)
J. D. Berger - ORAU (w/e)
G. K. Hovey (w/o)

CONCURRENCE

<i>WT</i>	<i>LM</i>	<i>AM</i>	<i>BB</i>	<i>AB</i>
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RADIOLOGICAL CHARACTERIZATION REPORT
FOR THE FUTURA COATINGS SITE
HAZELWOOD, MISSOURI

JULY 1987

Prepared for

UNITED STATES DEPARTMENT OF ENERGY
OAK RIDGE OPERATIONS OFFICE

Under Contract No. DE-AC05-81OR20722

By

C.R. Hickey, K.C. Noey, and A.M. Feldman
Bechtel National, Inc.
Oak Ridge, Tennessee
Bechtel Job No. 14501

ABSTRACT

The radiological characterization of the Futura Coatings site was conducted in two phases. Phase I characterization, initiated in August 1986, was designed to determine radiological conditions on the interior and exterior surfaces of the Futura Coatings buildings and in the air inside the buildings. Phase II began in early November with surface characterization, which was followed by subsurface investigation. The radiological characterization was performed as part of the Formerly Utilized Sites Remedial Action Program (FUSRAP), a U.S. Department of Energy effort to identify, clean up, or otherwise control sites where residual radioactive contamination (exceeding current guideline levels) 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.

It was established that radioactive contamination was present at the site on the basis of a radiological survey conducted by Oak Ridge National Laboratory (ORNL) in 1977. The purpose of the 1986 survey was to define the locations and boundaries of the contamination identified in the ORNL survey. The survey was conducted by the FUSRAP Project Management Contractor, Bechtel National, Inc. (BNI) and its radiological subcontractor, Thermo Analytical/Eberline (TMA/E).

Based on the radon and gamma levels measured during one quarter, the Futura buildings are in compliance with DOE guidelines for radon and the DOE radiation protection standard.

Based on direct measurements and on the analysis of swipe samples, it was found that there is no direct or removable contamination on the interior or exterior surfaces of the buildings in excess of the maximum concentrations specified by DOE guidelines.

Characterization of the soil outside and beneath the buildings supported the finding of the 1977 ORNL survey that thorium-230 is the principal radioactive contaminant at the property. Analysis also revealed that elevated levels of radium-226, uranium-238, and thorium-232 are present. Although the ORNL survey also revealed elevated levels of protactinium and actinium, the concentrations of radium-226 and thorium-230 detected by the 1986 survey are much greater; therefore, remedial action for radium-226 and thorium-230 can also be expected to be effective for protactinium and actinium.

The depth of contamination at the Futura Coatings site was found to range from the surface to more than 15 ft below the surface.

Although chemical characterization was not within the scope of this effort, chemical sampling will be performed at the Futura Coatings site before remedial action begins.

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ABBREVIATIONS

cm	centimeter
cm ²	square centimeter
cpm	counts per minute
dpm	disintegrations per minute
dpm/100 cm ²	disintegrations per minute per hundred square centimeters
ft	foot
h	hour
in.	inch
m ²	square meter
m ³	cubic meter
mi	mile
mrad/h	millirad per hour
mrem	millirem
mrem/yr	millirem per year
µR/h	microroentgens per hour
pCi/g	picocuries per gram
pCi/l	picocuries per liter
pCi/m ³	picocuries per cubic meter
yr	year

1.0 INTRODUCTION AND SUMMARY

1.1 INTRODUCTION

This report describes the procedures used to conduct a radiological survey during September and November 1986 at the Futura Coatings site in Hazelwood, Missouri. The results of the survey are also discussed. The survey was conducted as part of the Formerly Utilized Sites Remedial Action Program (FUSRAP), 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

A radiological survey performed in 1977 by Oak Ridge National Laboratory established that contamination existed at the site (Ref. 1). Although the contamination in Hazelwood did not result directly from the atomic energy program, the Hazelwood properties were added to FUSRAP by Congress to expedite cleanup of the properties. The 1986 radiological survey was necessary to define the locations and boundaries of the radioactive contamination identified in the ORNL survey. Although sampling for chemical contaminants was not within the scope of this effort, chemical characterization of the site will be performed in FY 1988 prior to the start of remedial action.

1.3 SUMMARY

The radiological characterization of the Futura Coatings site was conducted in two phases. Phase I began in September 1986 and consisted of the establishment of four environmental monitoring stations inside the buildings. The following monitoring devices were installed at each monitoring station: a Terradex Type-F Track-Etch radon detector, a thermoluminescent detector (TLD), and an air particulate monitor. Based on the radon and gamma levels measured during one quarter, the Futura buildings are in compliance with the DOE guideline of 3 pCi/l for radon and the DOE radiation protection standard of 100 mrem/yr for long-term exposure of the public. Air particulate sampling indicated gross alpha concentrations ranging from less than 0.001 to 0.004 pCi/m³. These results can be compared to the DOE guideline of 0.08 pCi/m³ for maximum thorium-230 concentration in air in uncontrolled areas (Ref. 2). Characterization of the interior and exterior surfaces of the buildings indicated that there is no direct or removable contamination exceeding DOE guideline levels.

The Phase II characterization supported the finding of the 1977 ORNL survey that thorium-230 is the principal radioactive contaminant at the property now known as the Futura Coatings site, although analysis also revealed elevated levels of radium-226, uranium-238, and thorium-232. Analysis of soil samples showed the maximum concentrations of thorium-230, radium-226, uranium-238, and thorium-232 in the samples analyzed to be 2000, 2300, 2500, and 26 pCi/g, respectively.

Gamma logging data and subsurface soil sample analyses were used to determine the depths of contamination. Contamination was found at depths ranging from the surface to more than 15 ft below the surface.

Gamma radiation levels measured outside the building ranged from 8 to 27 uR/h. The normal background level for the St. Louis area is approximately 8 uR/h.

2.0 SITE DESCRIPTION AND HISTORY

2.1 LOCATION AND DESCRIPTION

The Futura Coatings site occupies the western half of the property located at 9200 Latty Avenue in northern St. Louis County within the city limits of Hazelwood, Missouri. It is approximately 2 mi northeast of the control tower of the Lambert-St. Louis International Airport (Figure 2-1). The property is owned by Jarboe Realty and Investment Company and leased to Futura Coatings, Inc. A chain link fence separates the Futura Coatings site from the eastern half of the property at 9200 Latty Avenue, which is known as the Hazelwood Interim Storage Site (HISS) (Figure 2-2).

2.2 SITE HISTORY AND PREVIOUS RADIOLOGICAL SURVEYS

In 1966, ore residues and uranium- and radium-bearing process wastes being stored at the St. Louis Airport Site (SLAPS) were purchased by the Continental Mining and Milling Company of Chicago, Illinois and placed in storage at 9200 Latty Avenue. These wastes were generated by a St. Louis plant between 1942 and the late 1950s under contracts with the Atomic Energy Commission (AEC) and its predecessor, the Manhattan Engineer District (MED). These residues included pitchblende raffinates, Colorado raffinates, uranium-bearing residues, and barium sulfate cake. The Commercial Discount Corporation of Chicago purchased the residues in January 1967; much of the material was then dried and shipped to the Cotter Corporation facilities in Canon City, Colorado. The material remaining at the Latty Avenue site was sold to the Cotter Corporation in December 1969. Between August and November of 1970, Cotter Corporation dried some of the residues remaining at the site and shipped them to its mill in Canon City. In December 1970, an estimated 10,000 tons of Colorado raffinate and 8,700 tons of leached barium sulfate remained at the Latty Avenue site.

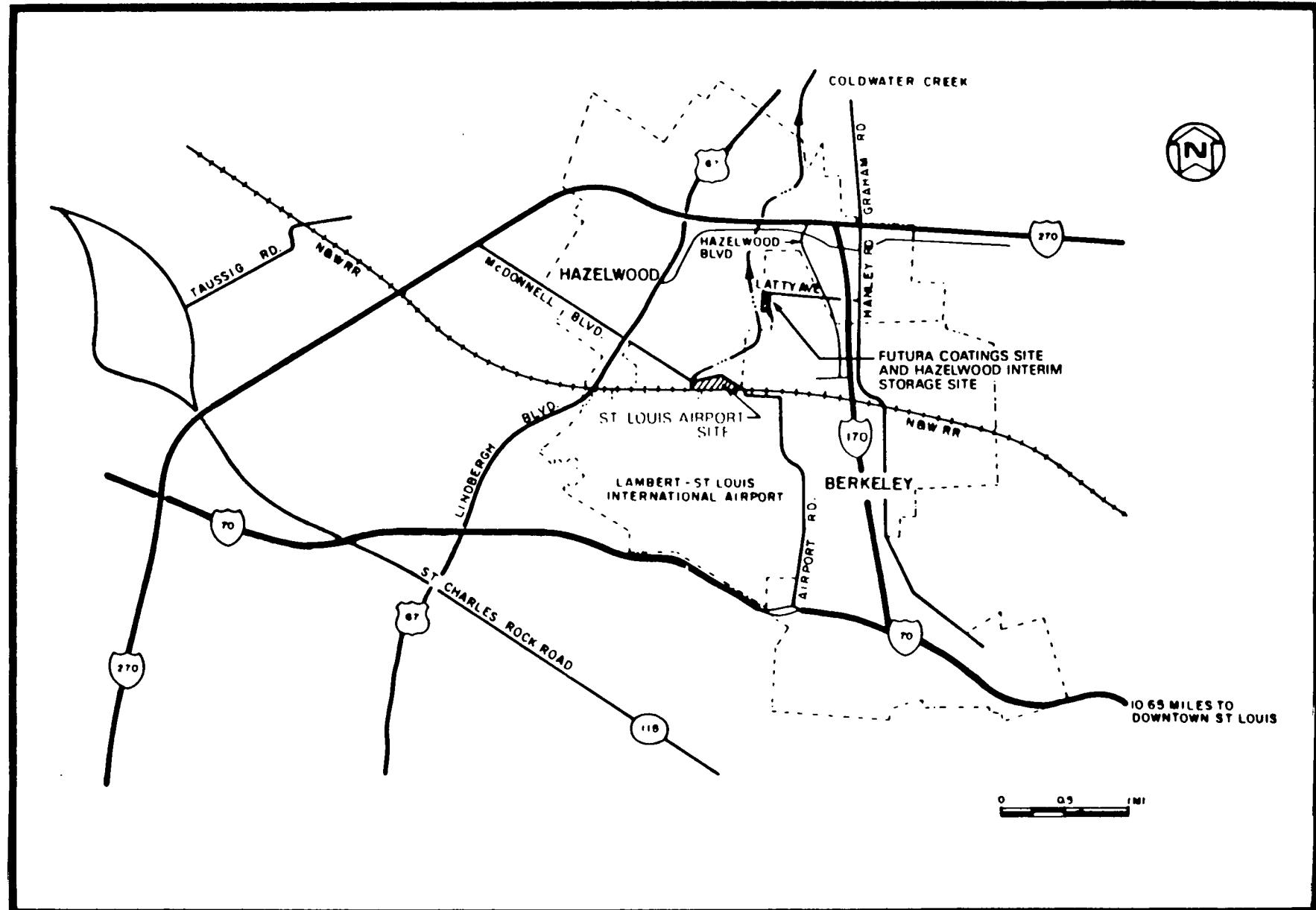


FIGURE 2-1 LOCATION OF THE FUTURA COATINGS SITE

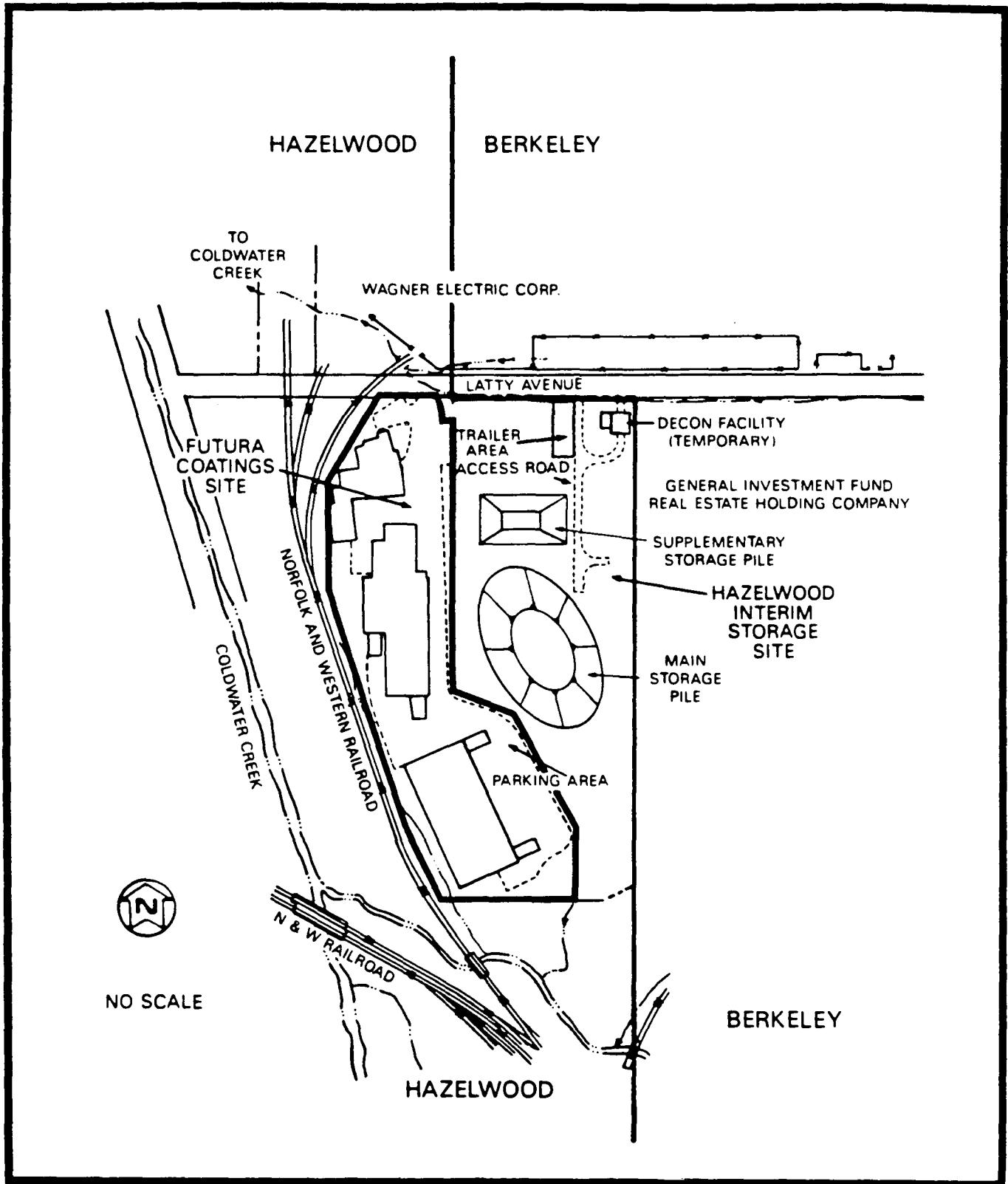


FIGURE 2-2 THE FUTURA COATINGS SITE AND ITS IMMEDIATE VICINITY

In April 1974, the newly established Nuclear Regulatory Commission (NRC) was informed by Cotter Corporation that the remaining Colorado raffinate had been shipped in mid-1973 to Canon City without having been dried and that barium sulfate residues had been diluted with soil from the site and transported to a landfill area in St. Louis County. Reportedly, a 12- to 18-in. layer of topsoil was removed with the residues.

A radiological characterization of the site was also performed by ORNL in the summer of 1977 prior to occupation of the site by the current owner (Ref. 1). Surface contamination exceeding DOE guidelines for thorium and radium was found in and around the buildings on the western half of the property. Subsurface soil contamination was found at depths as great as 18 in.

2.3 PRESENT SITE CONDITIONS

In preparing the western portion of the property for commercial use, the present owner demolished one of the buildings, excavated several areas, paved several areas, and erected a number of new buildings that incorporated three existing structures. The materials excavated during these activities (approximately 13,000 yd³) were piled on the eastern half of the property, presently referred to as the HISS. Figure 2-2 shows the current configuration of the Futura Coatings site.

3.0 HEALTH AND SAFETY PLAN

BNI is responsible for protecting the health and safety of personnel assigned to work at the site. As such, BNI and Eberline personnel must comply with the requirements of the applicable Project Instructions (PI) contained in the FUSRAP Radiological Protection Program Manual (Ref. 3) as directed by the on-site BNI representative.

3.1 SUBCONTRACTOR TRAINING

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

3.2 SAFETY REQUIREMENTS

Personnel were required to comply with the BNI safety requirements set forth in the applicable Project Instructions contained in Reference 3 and summarized below:

- o Bioassay (PI 21.18) -- Personnel shall submit 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.
- o Protective Clothing/Equipment (PI 21.12) -- Personnel must wear the protective clothing/equipment specified by the BNI representative.
- o Dosimetry (PI 21.05) -- Personnel are required to wear the dosimeters and monitors issued by BNI and return them to the BNI representative at the end of each day.
- o Controlled Area Access/Egress (PI 21.08, 21.10) -- Personnel and equipment entering areas where access and egress are controlled for the purpose of radiological safety will be radiologically surveyed by the BNI representative before leaving the area.

Health and safety surveillance of all activities related to the scope of work was conducted under the direct supervision of personnel representing BNI. The health protection requirements applicable to activities that involve radiation or the handling of radioactive materials are delineated in PI 20.01 (Ref. 3). Copies of the applicable Project Instructions were available on the site during the characterization.

4.0 SURVEY PROCEDURES

4.1 PHASE I CHARACTERIZATION

Phase I characterization activities were designed to determine radiological conditions on the interior and exterior surfaces of the Futura Coatings buildings and in the air inside the buildings. No formal grid was established during Phase I activities.

4.1.1 Measurements Taken and Methods Used

Four monitoring stations were established inside the Futura Coatings buildings to monitor radiological conditions. The three exposure pathways that could affect Futura Coating personnel were monitored by installing three types of measuring devices at each monitoring station: a thermoluminescent dosimeter (TLD) to monitor beta and gamma exposure rates, a Terradex Type-F Track-Etch detector to monitor radon concentrations, and an air particulate sampler to determine gross alpha concentrations. The locations of the monitoring stations are shown in Figure 4-1.

In addition, the building interiors were spot-checked for contamination. This was accomplished by taking direct surface measurements for alpha contamination. Direct alpha radiation measurements were made using a 50-cm² zinc sulfide (ZnS) scintillation detector with digital readout (EIC model AC-3/PRS-1). The detectors were in contact with the floor and wall surfaces for one-half minute counts.

4.1.2 Sample Collection and Analysis

To determine whether removable contamination was present, smear samples were collected from interior and exterior surfaces of the Futura buildings. This task was accomplished by wiping a

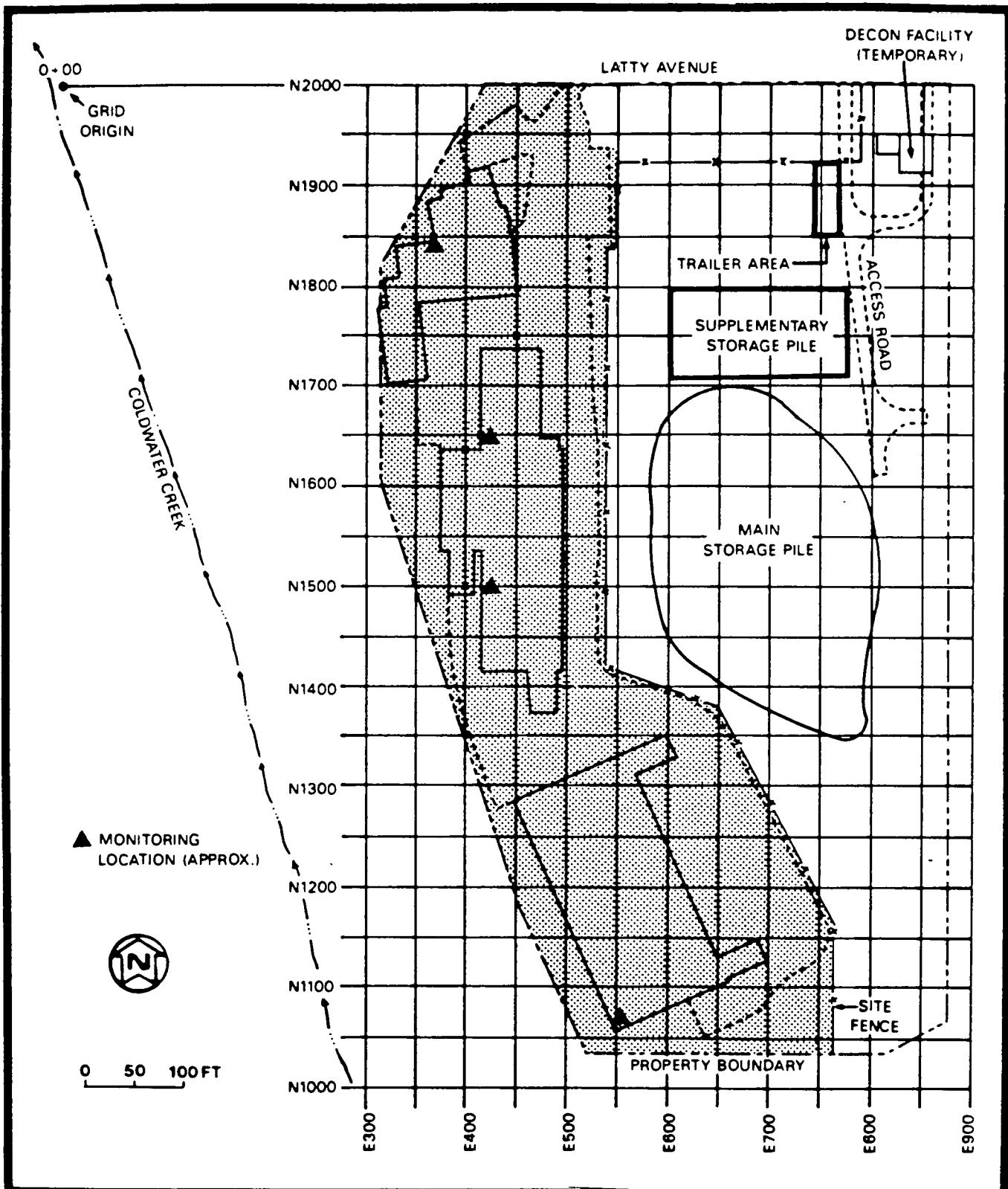


FIGURE 4-1 MONITORING LOCATIONS AT THE FUTURA COATINGS SITE

100-cm² area with standard grade smears. These smears were then counted for five minutes in an alpha scintillation counter (EIC model SAC-4).

4.2 PHASE II CHARACTERIZATION

During Phase II activities, a civil surveyor established a 50-ft grid pattern on the Futura Coatings site by staking the intersections of a series of perpendicular lines. The grid spanned the entire site. The grid origin used during the remedial action conducted in 1984 along the Latty Avenue right-of-way was reestablished (Figure 4-2). All characterization data correspond to coordinates on this grid. The types of radiological measurements taken and the methods used are described in the following subsections.

4.2.1 Measurements Taken and Methods Used

An initial walkover survey was performed within the grid blocks of the entire Futura Coatings site using an unshielded gamma scintillation detector. Areas in which readings exceeded twice normal background levels were marked on a site drawing.

Near-surface gamma measurements were made 12 in. above the ground surface at 12.5-ft intervals in areas identified as contaminated on the basis of the walkover survey. A 2- by 2-in. sodium-iodide (NaI) detector was used during this survey. This 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.

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 12 selected grid points on the site (Figure 4-3).

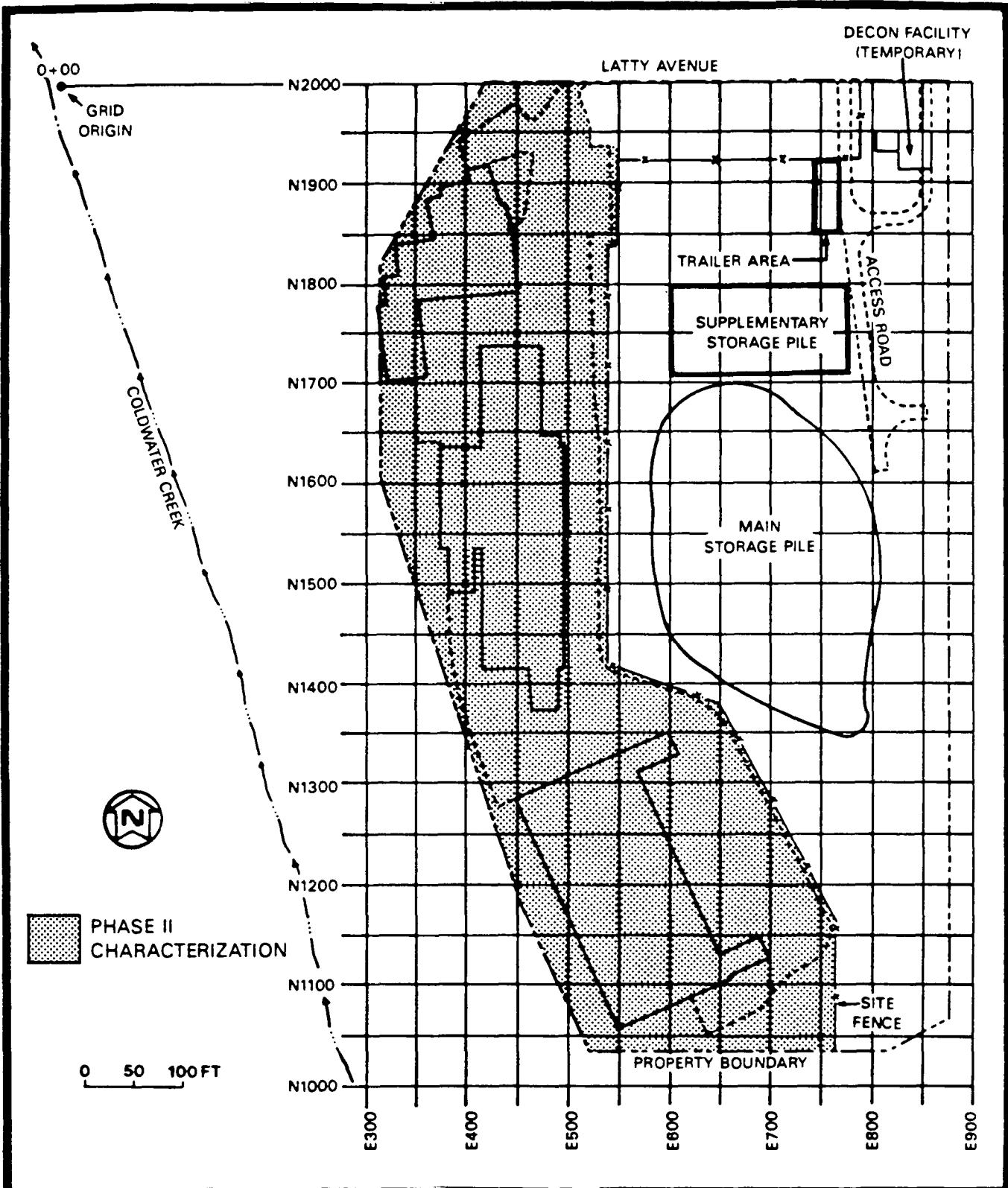


FIGURE 4-2 SURVEY GRID FOR THE FUTURA COATINGS SITE

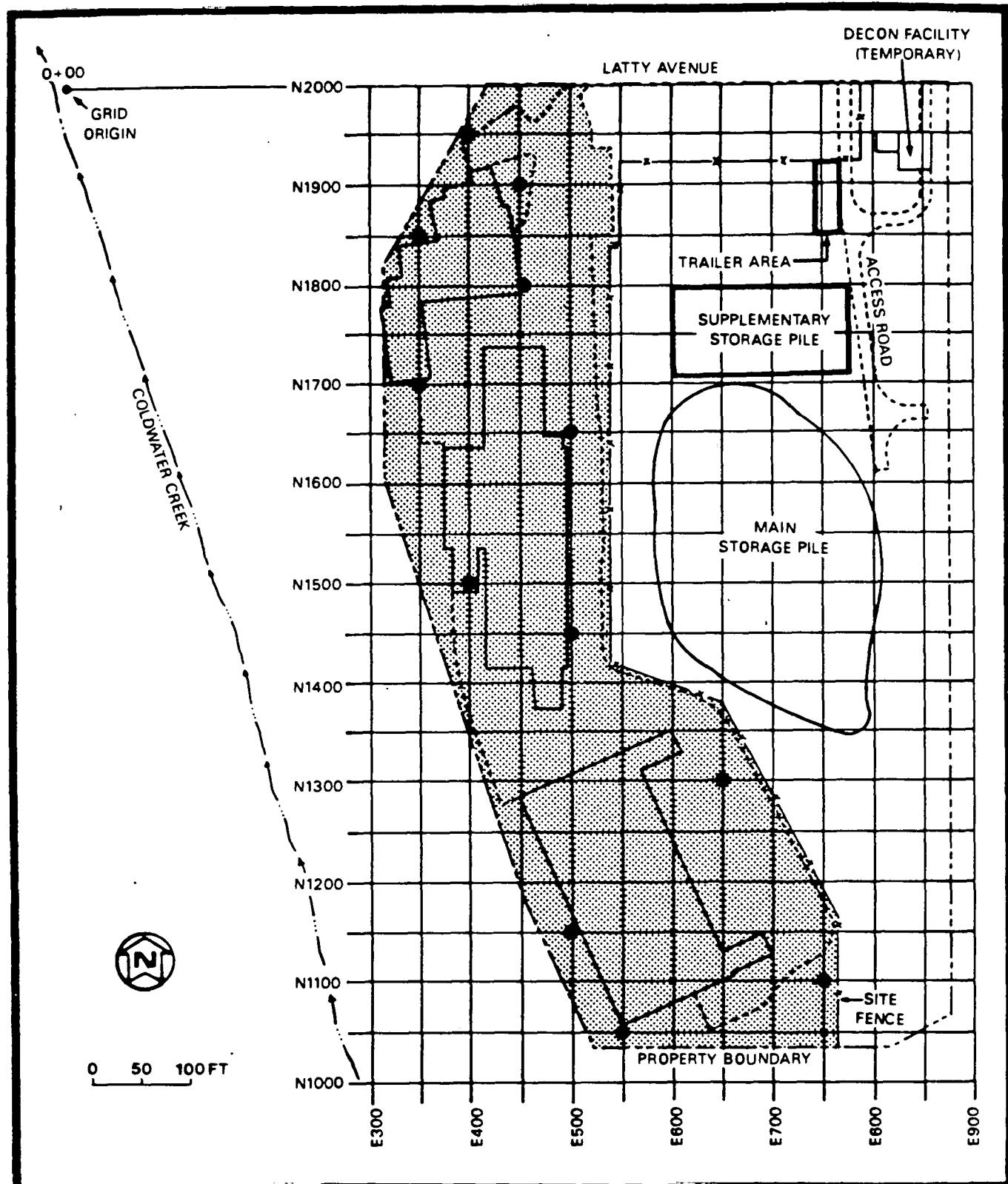


FIGURE 4-3 PIC MEASUREMENT LOCATIONS AT THE
FUTURA COATINGS SITE

The exterior subsurface investigation was conducted by drilling 48 boreholes that were advanced until the field geologist indicated that undisturbed soil had been reached, or until the drill reached refusal. The depth of the boreholes ranged from 5 ft to 20 ft; most of the holes were drilled to a depth of 10 ft. The spacing between boreholes was designed to maximize the amount of information to be obtained and ensure that the subsurface investigation would be conducted in a cost-effective manner. The number of boreholes in each area and the locations of the holes were based on near-surface gamma measurements made in the area. Figure 4-4 shows the soil sampling locations for the subsurface investigation conducted outside the buildings.

The interior subsurface investigation was conducted by coring 10 holes through the concrete floors and advancing the auger until undisturbed soil was reached. Coring locations were selected based on historical data; the number of locations cored was based on accessibility.

Although gamma logging is typically used to determine the depth of subsurface contamination, thorium-230 (the principal contaminant) cannot be detected in situ; therefore, continuous subsurface soil samples starting at the surface and ending at the bottom of the borehole were collected by rotating a Consolidated Mine Equipment (CME) sampler in advance of the auger. Each characterization hole was gamma logged to determine the depth of gamma-emitting contamination. Gamma logging was conducted by lowering a gamma scintillometer into the hole and taking radiation measurements at 6-in. vertical intervals in order to obtain a profile of the depth of gamma-emitting contamination.

After the subsurface investigation was completed, the boreholes were filled with grout or with granular bentonite, and the concrete floor slab and paved asphalt areas were repaired.

4.2.2 Sample Collection and Analysis

Subsurface soil samples were collected from the 48 borehole locations shown in Figure 4-4. Wherever possible, continuous sampling was performed from the surface to undisturbed soil as identified by the field geologist. Samples were typically collected in 1-ft increments. In some instances, poor recoveries from the split spoon or from underground obstructions prevented the collection of samples from all depths.

Following sample collection, the down-hole gamma logs were reviewed, and samples were selected to be analyzed for uranium-238, radium-226, and thorium-232 concentrations. 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.

Since the gamma spectroscopy analysis method is relatively inexpensive, a large number of samples were selected for this type of analysis. The selection process was designed to aid in the development of an estimate of the overall volume of waste on the site, to corroborate down-hole gamma logging results, and to more precisely define the regions in which thorium-230 analysis was required. All samples collected from beneath buildings were analyzed to provide complete information for use in performing a hazard assessment. A hazard assessment is a study that evaluates various radiation exposure pathways to the general public.

At the same time samples were selected for gamma spectroscopy analysis, samples were also identified for thorium-230 analysis. Since analysis for thorium-230 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 concentrations of uranium-238, radium-226, and thorium-232 do not exceed guidelines. This condition would increase the estimated volume of waste on the site.

Experience in the St. Louis area has shown that as long as the concentration of radium-226 is elevated, it is reasonable to assume that the thorium-230 concentration exceeds the DOE guideline of 15 pCi/g. Based on this rationale, on the borehole logs, and on the 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, multiple samples were selected from some of the boreholes during a single sampling phase in an attempt to establish the depth of contamination. Whenever time permitted, additional samples were selected for a second analysis phase to more precisely determine the depths of contamination. In three boreholes, the vertical boundary of thorium-230 contamination was not identified; however, due to the limited time available to develop a waste volume estimate, no additional samples from these areas were submitted for analysis. A review of the data indicates that this factor is not likely to have a significant impact on the volume or boundaries of contamination.

Other samples were also selected to resolve inconsistencies in the data or to provide additional information about certain regions. Again, all samples collected from beneath the buildings were analyzed for thorium-230 to aid in the development of a hazard assessment.

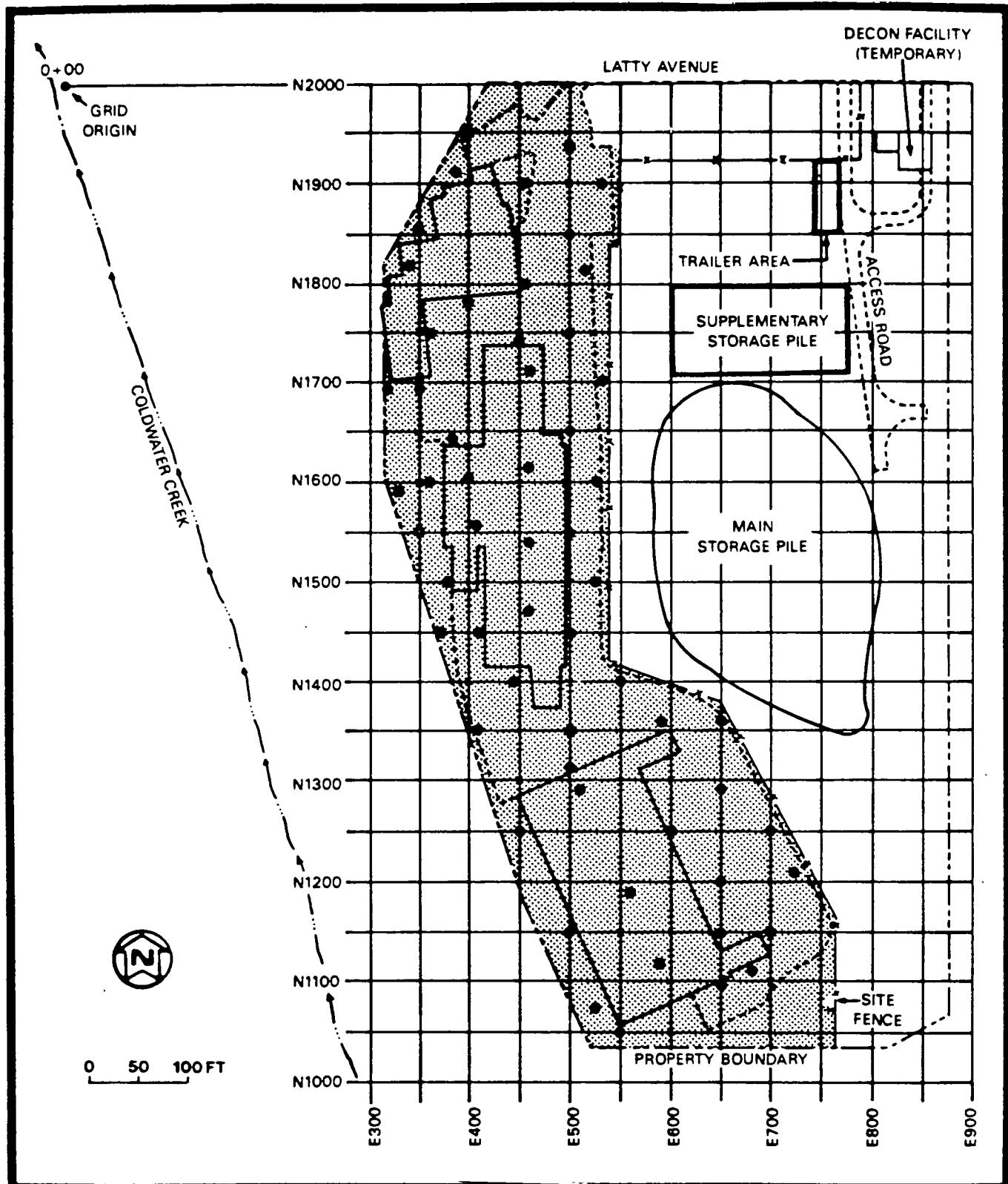


FIGURE 4-4 SOIL SAMPLING LOCATIONS AT THE FUTURA COATINGS SITE

5.0 CHARACTERIZATION RESULTS

The results of the characterization activities described in Section 4.0 are presented in this section. For the purpose of comparison, DOE remedial action guidelines for residual contamination are presented in Table 5-1 (Ref. 4).

All direct field measurements and laboratory results in this report represent gross readings unless otherwise stated; background measurements and concentrations have not been subtracted.

5.1 BACKGROUND MEASUREMENTS

Near-surface gamma levels, gamma exposure rates, and gamma radiation at 3 ft above the ground surface were measured at three background locations in the St. Louis area. 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 for the St. Louis area 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.

5.2 PHASE I CHARACTERIZATION

Four of the Track-Etch radon detectors and two of the TLDs that were installed inside the Futura Coatings buildings in September

1986 were recovered and analyzed during the exchange of detectors in January 1987. The results showed radon concentrations inside the buildings to range from 0.3 to 0.7 pCi/l, with an average value of 0.6 pCi/l. DOE guideline for radon-222 is 3 pCi/l. Radon levels comparable to those measured inside the Futura buildings are typically found in outdoor areas where natural radium is present; results therefore indicate minimal intrusion of radon gas into the plant buildings.

Calculated radiation doses inside the Futura Coatings buildings ranged from 2 to 22 mrem/yr above natural background. In calculating the radiation doses, continuous exposure for one year was assumed. The DOE radiation protection standard for external radiation is 100 mrem/yr above natural background.

Fifty air particulate filter samples were collected from September through November. Results indicated airborne gross alpha concentrations ranging from less than 0.001 to 0.004 pCi/m³. These values can be compared to the DOE guideline of 0.08 pCi/m³ for maximum thorium-230 concentration in air in uncontrolled areas (Ref. 2).

Thirty-eight bias locations on the interior surfaces of buildings were checked for direct and removable alpha contamination. The maximum direct alpha contamination measured was 149 dpm/100 cm²; the maximum removable alpha contamination was approximately 11 dpm/100 cm². The minimum concentrations of direct and removable alpha contamination were below the 31- to 38-dpm/100 cm² limit of sensitivity of the instrument used to measure this parameter. An extensive survey was not performed inside the buildings; measurements were obtained in highly suspect areas to determine whether further characterization was required. Twenty-two exterior locations were checked for removable contamination. Measurements ranged from less than 1 to approximately 9 dpm/100 cm². These values can be compared to the DOE guidelines for direct and removable contamination of 300 and 20 dpm/100 cm², respectively. Direct

and removable alpha measurements for interior and exterior building surfaces are given in Table 5-3.

Based on the radon and gamma levels measured during one quarter, the Futura buildings are in compliance with DOE guidelines for radon and with the DOE radiation protection standard.

Based on direct measurements and on the analysis of swipe samples, it was found that there is no direct or removable contamination on the interior or exterior surfaces of the buildings in excess of the maximum concentrations specified by DOE guidelines.

5.3 PHASE II CHARACTERIZATION

Near-surface gamma radiation at the Futura Coatings site ranged from approximately 1000 cpm to approximately 117,000 cpm. Most of the near-surface gamma measurements were taken above asphalt. Gamma radiation exposure rates ranged from approximately 8 to 27 uR/h. The average exposure rate for the site was approximately 12 uR/h. Gamma radiation exposure rates at the Futura Coatings site are presented in Table 5-4.

The field survey at the Futura Coatings site revealed elevated concentrations of radium-226 and thorium-230 in both surface and subsurface samples. Thorium-230 was identified as the major contaminant.

Down-hole gamma logging was performed to determine the general depth and concentration of gamma-emitting contamination. Detailed gamma logging results are reported in Table 5-5.

The subsurface investigation indicated no consistency in the depths of contamination based on systematic drilling. The depth of contamination was found to range from the surface to more

than 15 ft below the surface. The variable depth of the contamination can be attributed to the disturbance of soils caused by previous excavations and the subsequent placement of fill material, and to the natural variations in the topography of the site. The composition of the subsurface materials changes gradually in some areas as depth increases, and the point at which silty fill material contacts similar in-place material is difficult to distinguish. In cases where accurate determination of the depth to natural soil was difficult, boreholes were advanced several feet farther to ensure that natural soil was reached. In these instances, identification of natural ground was based on the presence of a grey-brown silty clay or clayey silt with yellow-brown mottling, and varying amounts of black organic clayey silt with yellow-brown mottling and black organic flecks of varying abundance.

Figure 5-1 is a computer-aided depiction of the areas and depths of contamination at the Futura Coatings site. This depiction is based on the DOE remedial action guideline for maximum thorium-230, thorium-232, and radium-226 concentrations in soil: 5 pCi/g when averaged over the uppermost 15-cm layer of soil, and 15 pCi/g when averaged over 15-cm thick layers of soil more than 15 cm below the surface (Table 5-1).

Analysis results for soil are provided in Table 5-6. 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

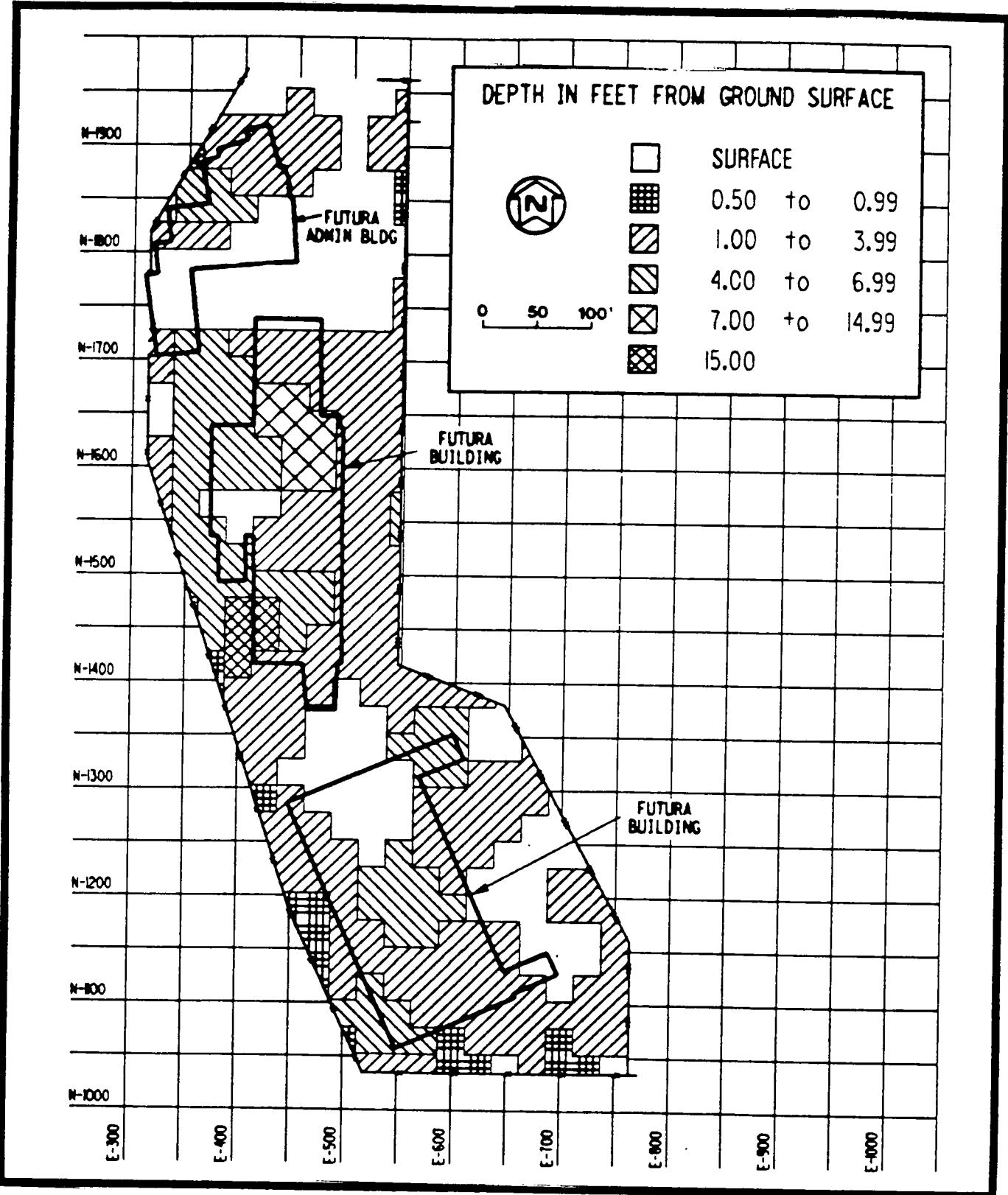


FIGURE 5-1 AREAS AND DEPTHS OF CONTAMINATION AT THE FUTURA COATINGS SITE

As such, each value that is equal to or greater than the MDA has an associated uncertainty term (\pm), which represents the maximum 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.

Thorium-232 concentrations ranged from background levels to 26.0 pCi/g. Radium-226 concentrations in excess of the DOE guideline were found in several samples, with concentrations as great as 2300 pCi/g. Uranium-238 concentrations ranged from background levels to 2500 pCi/g. Concentrations of thorium-230 ranged from less than 1.1 to 2000 pCi/g in the selected samples analyzed for thorium-230; however, it is possible that the maximum thorium-230 concentration on the property is much greater than was indicated by analysis results, since the samples analyzed for thorium-230 were primarily those with no associated gamma-emitting radionuclides present in above-guideline concentrations.

TABLE 5-1
SUMMARY OF RESIDUAL CONTAMINATION GUIDELINES
FOR THE FUTURA COATINGS SITE

Page 1 of 2

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)

<u>Radionuclide</u>	<u>Soil Concentration (pCi/g) above background^{a,b,c}</u>
Radium-226	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.
Radium-228	
Thorium-230	
Thorium-232	
Other radionuclides	Soil guidelines will be calculated on a site-specific basis using the DOE manual developed for this use.

STRUCTURE GUIDELINES (MAXIMUM LIMITS FOR UNRESTRICTED USE)

Airborne Radon Decay Products

Generic guidelines for concentrations of airborne radon decay products shall apply to existing occupied or habitable structures on private property that are intended for unrestricted use; structures that will be demolished or buried are excluded. The applicable generic guideline (40 CFR 192) is: In any occupied or habitable building, the objective of remedial action shall be, and reasonable effort shall be made to achieve, an annual average (or equivalent) radon decay product concentration (including background) not to exceed 0.02 WL.^d In any case, the radon decay product concentration (including background) shall not exceed 0.03 WL. Remedial actions are not required in order to comply with this guideline when there is reasonable assurance that residual radioactive materials are not the cause.

External Gamma Radiation

The average level of gamma radiation inside a building or habitable structure on a site to be released for unrestricted use shall not exceed the background level by more than 20 uR/h.

Indoor/Outdoor Structure Surface Contamination

<u>Radionuclide^f</u>	<u>Allowable Residual Surface Contamination^e (dpm/100 cm²)</u>		
	<u>Average^{g,h}</u>	<u>Maximum^{h,i}</u>	<u>Removable^{h,j}</u>
Transuramics, Ra-226, Ra-228, Th-230, Th-228 Pu-231, Ac-227, I-125, I-129	100	300	20
Th-Natural, Th-232, Sr-90, Ra-223, Ra-224 U-232, I-126, I-131, I-133	1,000	3,000	200

TABLE 5-1
(continued)

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Indoor/Outdoor Structure Surface Contamination (continued)

<u>Radionuclide^f</u>	Allowable Residual Surface Contamination ^e (dpm/100 cm ²)		
	<u>Average^{g,h}</u>	<u>Maximum^{h,i}</u>	<u>Removable^{h,j}</u>
U-Natural, U-235, U-238, and associated decay products	5,000 α	15,000 α	1,000 α
Beta-gamma emitters (radionuclides with decay modes other than alpha emission or spontaneous fission) except Sr-90 and others noted above	5,000 $\beta-\gamma$	15,000 $\beta-\gamma$	1,000 $\beta-\gamma$

^aThese 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.

^bThese guidelines represent unrestricted-use residual concentrations above background averaged across any 15-cm-thick layer to any depth and over any contiguous 100-m² surface area.

^cLocalized concentrations in excess of these limits are allowable provided that the average concentration over a 100-m² area does not exceed these limits.

^dA working level (WL) is any combination of short-lived radon decay products in 1 liter of air that will result in the ultimate emission of 1.3×10^5 MeV of potential alpha energy.

^eAs used in this table, dpm (disintegrations per minute) means the rate of emission by radioactive material as determined by correcting the counts per minute observed by an appropriate detector for background, efficiency, and geometric factors associated with the instrumentation.

^fWhere surface contamination by both alpha- and beta-gamma-emitting radionuclides exists, the limits established for alpha- and beta-gamma-emitting radionuclides should apply independently.

^gMeasurements of average contamination should not be averaged over more than 1 m². For objects of less surface area, the average shall be derived for each such object.

^hThe average and maximum radiation levels associated with surface contamination resulting from beta-gamma emitters should not exceed 0.2 mrad/h and 1.0 mrad/h, respectively, at 1 cm.

ⁱThe maximum contamination level applies to an area of not more than 100 cm².

^jThe amount of removable radioactive material per 100 cm² of surface area should be determined by wiping that area with dry filter or soft absorbent paper, applying moderate pressure, and measuring the amount of radioactive material on the wipe with an appropriate instrument of known efficiency. When removable contamination on objects of surface area less than 100 cm² is determined, the activity per unit area should be based on the actual area and the entire surface should be wiped. The numbers in this column are maximum amounts.

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 \pm 0.2	0.1	1.2 \pm 0.2	0.7 \pm 0.1	0.1 \pm 0.1	0.3 \pm 0.1	0.6 \pm 0.4
2	8	7000	4000	0.6 \pm 0.2	0.1	0.6 \pm 0.1	0.3 \pm 0.1	0.3 \pm 0.1	0.5 \pm 0.1	2.0 \pm 0.5
3	8	8000	5000	1.3 \pm 0.3	0.1 \pm 0.1	1.3 \pm 0.2	0.4 \pm 0.1	0.3 \pm 0.1	0.3 \pm 0.1	0.5 \pm 0.4
<hr/>										
Average	8	7000	4000	1.0 \pm 0.2	0.1	1.0 \pm 0.2	0.5 \pm 0.1	0.2 \pm 0.1	0.4 \pm 0.1	1.0 \pm 0.4

TABLE 5-3
ALPHA CONTAMINATION ON INTERIOR AND EXTERIOR SURFACES
OF BUILDINGS AT THE FUTURA COATINGS SITE

Page 1 of 2

Sampling Location	Surface Contamination (dpm/100 cm ²) ^{a, b}	
	Direct	Removable
1	22	< 1
2	< 20	2
3	< 20	< 1
4	22	5
5	< 20	< 1
6	< 20	< 1
7	< 20	< 1
8	< 20	2
9	71	8
10	120	5
11	22	2
12	110	2
13	149	11
14	41	5
15	71	2
16	139	11
17	51	2
18	51	< 1
19	22	2
20	< 20	2
21	< 20	< 1
22	< 20	< 1
23	< 20	< 1
24	< 20	< 1
25	< 20	2
26	< 20	2
27	< 20	< 1
28	< 20	< 1
29	< 20	2
30	< 20	< 1
31	< 20	< 1
32	< 20	< 1
33	< 20	< 1
34	< 20	< 1
35	< 20	2
36	< 20	< 1
37	< 20	< 1
38	< 20	< 1
39	--	2
40	--	< 1
41	--	< 1
42	--	8
43	--	5

TABLE 5-3
(continued)

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Sampling Location	<u>Surface Contamination (dpm/100 cm²)^{a, b}</u>	
	Direct	Removable
44	--	< 1
45	--	2
46	--	2
47	--	2
48	--	2
49	--	< 1
50	--	2
51	--	2
52	--	< 1
53	--	2
54	--	2
55	--	2
56	--	< 1
57	--	2
58	--	5
59	--	< 1
60	--	8

- ^a The notation (--) is used to indicate that no direct reading was taken at a particular sampling location on the exterior surface of the building.
- ^b The 'less than' (<) notation indicates that the contamination was not present in measurable concentrations. The value following the less than notation is due to the background count rate and the minimum detectable activity (MDA) associated with the counting statistics.

TABLE 5-4
GAMMA RADIATION EXPOSURE RATES
AT THE FUTURA COATINGS SITE

Coordinates ^a		
East	North	μR/h
350.0	1700.0	8
350.0	1850.0	10
400.0	1500.0	8
400.0	1950.0	10
450.0	1800.0	9
450.0	1900.0	17
500.0	1150.0	27
500.0	1450.0	8
500.0	1650.0	11
550.0	1050.0	14
650.0	1300.0	9
750.0	1100.0	12

^aFigure 4-3 shows the locations at which gamma radiation exposure rates were measured.

TABLE 5-5
 DOWN-HOLE GAMMA LOGGING RESULTS
 FOR THE FUTURA COATINGS SITE

Page 1 of 30

Coordinates		Depth	SPA-3 Count Rate
East	North	(ft)	(cpm)
318.0	1694.0	0.0	6000
318.0	1694.0	0.5	7000
318.0	1694.0	1.0	13000
318.0	1694.0	1.5	16000
318.0	1694.0	2.0	15000
318.0	1694.0	2.5	15000
318.0	1694.0	3.0	15000
318.0	1694.0	3.5	15000
318.0	1694.0	4.0	15000
318.0	1694.0	4.5	15000
318.0	1694.0	5.0	15000
318.0	1694.0	5.5	14000
318.0	1694.0	6.0	14000
318.0	1694.0	6.5	14000
318.0	1694.0	7.0	13000
318.0	1694.0	7.5	13000
318.0	1694.0	8.0	13000
318.0	1694.0	8.5	13000
318.0	1694.0	9.0	13000
318.0	1694.0	9.5	13000
318.0	1694.0	10.0	13000
324.0	1597.0	0.0	9000
324.0	1597.0	0.5	14000
324.0	1597.0	1.0	21000
324.0	1597.0	1.5	33000
324.0	1597.0	2.0	22000
324.0	1597.0	2.5	17000
324.0	1597.0	3.0	16000
324.0	1597.0	3.5	15000
324.0	1597.0	4.0	15000
324.0	1597.0	4.5	15000
324.0	1597.0	5.0	15000
324.0	1597.0	5.5	15000
324.0	1597.0	6.0	15000
324.0	1597.0	6.5	15000
324.0	1597.0	7.0	13000
324.0	1597.0	7.5	13000
324.0	1597.0	8.0	12000
324.0	1597.0	8.5	12000

TABLE 5-5

(continued)

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Coordinates		Depth	SPA-3 Count Rate
East	North	(ft)	(cpm)
324.0	1597.0	9.0	12000
324.0	1597.0	9.5	13000
324.0	1597.0	10.0	14000
332.9	1827.4	0.5	6000
332.9	1827.4	1.0	21000
332.9	1827.4	2.0	16000
332.9	1827.4	3.0	16000
332.9	1827.4	4.0	15000
332.9	1827.4	5.0	15000
332.9	1827.4	6.0	14000
332.9	1827.4	7.0	15000
332.9	1827.4	8.0	14000
348.0	1688.0	0.0	6000
348.0	1688.0	0.5	8000
348.0	1688.0	1.0	19000
348.0	1688.0	1.5	18000
348.0	1688.0	2.0	15000
348.0	1688.0	2.5	15000
348.0	1688.0	3.0	15000
348.0	1688.0	3.5	15000
348.0	1688.0	4.0	28000
348.0	1688.0	4.5	62000
348.0	1688.0	5.0	111000
348.0	1688.0	5.5	36000
348.0	1688.0	6.0	19000
348.0	1688.0	6.5	15000
348.0	1688.0	7.0	14000
348.0	1688.0	7.5	13000
348.0	1688.0	8.0	13000
348.0	1688.0	8.5	13000
348.0	1688.0	9.0	13000
348.0	1688.0	9.5	13000
348.0	1688.0	10.0	14000
350.0	1550.0	0.0	12000
350.0	1550.0	0.5	18000
350.0	1550.0	1.0	26000
350.0	1550.0	1.5	32000
350.0	1550.0	2.0	34000
350.0	1550.0	2.5	35000

TABLE 5-5

(continued)

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<u>Coordinates</u>		<u>Depth</u>	<u>SPA-3 Count Rate</u>
<u>East</u>	<u>North</u>	(ft)	(cpm)
350.0	1550.0	3.0	25000
350.0	1550.0	3.5	29000
350.0	1550.0	4.0	31000
350.0	1550.0	4.5	30000
350.0	1550.0	5.0	28000
350.0	1550.0	5.5	28000
350.0	1550.0	6.0	29000
350.0	1550.0	6.5	29000
350.0	1550.0	7.0	28000
350.0	1550.0	7.5	28000
350.0	1550.0	8.0	25000
350.0	1550.0	8.5	15000
350.0	1550.0	9.0	13000
350.0	1550.0	9.5	12000
350.0	1550.0	10.0	13000
350.0	1550.0	10.5	13000
350.0	1550.0	11.0	13000
350.0	1550.0	11.5	13000
350.0	1550.0	12.0	13000
350.0	1550.0	12.5	13000
350.0	1550.0	13.0	13000
350.0	1550.0	13.5	14000
350.0	1550.0	14.0	14000
350.0	1550.0	14.5	14000
350.0	1550.0	15.0	14000
350.0	1854.0	0.5	10000
350.0	1854.0	1.0	17000
350.0	1854.0	2.0	22000
350.0	1854.0	3.0	25000
350.0	1854.0	4.0	19000
350.0	1854.0	5.0	16000
350.0	1854.0	6.0	16000
350.0	1854.0	7.0	15000
350.0	1854.0	8.0	14000
355.0	1750.0	0.0	6000
355.0	1750.0	0.5	7000
355.0	1750.0	1.0	12000
355.0	1750.0	1.5	17000
355.0	1750.0	2.0	16000
355.0	1750.0	2.5	15000

TABLE 5-5
(continued)

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Coordinates		Depth	SPA-3 Count Rate
East	North	(ft)	(cpm)
449.0	1400.0	4.0	17000
449.0	1400.0	4.5	15000
449.0	1400.0	5.0	14000
449.0	1400.0	5.5	15000
449.0	1400.0	6.0	15000
449.0	1400.0	6.5	14000
449.0	1400.0	7.0	14000
449.0	1400.0	7.5	13000
449.0	1400.0	8.0	13000
449.0	1400.0	8.5	11000
449.0	1400.0	9.0	11000
449.0	1400.0	9.5	11000
449.0	1400.0	10.0	12000
449.0	1400.0	10.5	12000
449.0	1400.0	11.0	12000
449.0	1400.0	11.5	12000
449.0	1400.0	12.0	12000
449.0	1400.0	12.5	12000
449.0	1400.0	13.0	12000
449.0	1400.0	13.5	13000
449.0	1400.0	14.0	13000
449.0	1400.0	14.5	13000
449.0	1400.0	15.0	13000
450.0	1250.0	0.0	11000
450.0	1250.0	0.5	19000
450.0	1250.0	1.0	22000
450.0	1250.0	1.5	40000
450.0	1250.0	2.0	96000
450.0	1250.0	2.5	145000
450.0	1250.0	3.0	74000
450.0	1250.0	3.5	30000
450.0	1250.0	4.0	21000
450.0	1250.0	4.5	17000
450.0	1250.0	5.0	16000
450.0	1250.0	5.5	15000
450.0	1250.0	6.0	14000
450.0	1250.0	6.5	14000
450.0	1250.0	7.0	13000
450.0	1250.0	7.5	13000
450.0	1250.0	8.0	12000
450.0	1250.0	8.5	12000

TABLE 5-5
(continued)

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Coordinates		Depth	SPA-3 Count Rate
East	North	(ft)	(cpm)
450.0	1250.0	9.0	12000
450.0	1250.0	9.5	12000
450.0	1250.0	10.0	12000
450.0	1742.0	0.0	5000
450.0	1742.0	0.5	7000
450.0	1742.0	1.0	14000
450.0	1742.0	1.5	15000
450.0	1742.0	2.0	13000
450.0	1742.0	2.5	13000
450.0	1742.0	3.0	13000
450.0	1742.0	3.5	12000
450.0	1742.0	4.0	12000
450.0	1742.0	4.5	12000
450.0	1742.0	5.0	12000
450.0	1742.0	5.5	12000
450.0	1742.0	6.0	14000
450.0	1742.0	6.5	12000
450.0	1742.0	7.0	12000
450.0	1742.0	7.5	12000
450.0	1742.0	8.0	12000
450.0	1742.0	8.5	12000
450.0	1742.0	9.0	11000
450.0	1742.0	9.5	11000
450.0	1742.0	10.0	11000
450.0	1800.0	0.0	7000
450.0	1800.0	0.5	8000
450.0	1800.0	1.0	15000
450.0	1800.0	1.5	20000
450.0	1800.0	2.0	16000
450.0	1800.0	2.5	16000
450.0	1800.0	3.0	16000
450.0	1800.0	3.5	15000
450.0	1800.0	4.0	15000
450.0	1800.0	4.5	14000
450.0	1800.0	5.0	14000
450.0	1800.0	5.5	14000
450.0	1800.0	6.0	14000
450.0	1800.0	6.5	14000
450.0	1800.0	7.0	14000
450.0	1800.0	7.5	14000

TABLE 5-5

(continued)

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Coordinates		Depth	SPA-3 Count Rate
East	North	(ft)	(cpm)
450.0	1800.0	8.0	14000
450.0	1800.0	8.5	14000
450.0	1800.0	9.0	12000
450.0	1800.0	9.5	12000
450.0	1800.0	10.0	13000
453.1	1625.9	0.5	7000
453.1	1625.9	1.0	15000
453.1	1625.9	2.0	18000
453.1	1625.9	3.0	20000
453.1	1625.9	4.0	29000
453.1	1625.9	5.0	45000
453.1	1625.9	6.0	29000
453.1	1625.9	7.0	34000
454.6	1545.4	0.5	8000
454.6	1545.4	1.0	22000
454.6	1545.4	2.0	17000
454.6	1545.4	3.0	15000
454.6	1545.4	4.0	17000
454.6	1545.4	5.0	16000
454.6	1545.4	6.0	16000
454.6	1545.4	7.0	15000
454.6	1545.4	8.0	15000
454.6	1545.4	9.0	12000
454.6	1545.4	10.0	13000
455.6	1466.8	0.5	7000
455.6	1466.8	1.0	14000
455.6	1466.8	2.0	31000
455.6	1466.8	3.0	46000
455.6	1466.8	4.0	22000
455.6	1466.8	5.0	17000
455.6	1466.8	6.0	17000
455.6	1466.8	7.0	16000
455.6	1466.8	8.0	16000
455.7	1710.7	0.5	9000
455.7	1710.7	1.0	35000
455.7	1710.7	2.0	18000
455.7	1710.7	3.0	17000
455.7	1710.7	4.0	16000

TABLE 5-5
(continued)

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Coordinates		Depth	SPA-3 Count Rate
East	North	(ft)	(cpm)
455.7	1710.7	5.0	16000
455.7	1710.7	6.0	14000
459.0	1900.0	0.0	34000
459.0	1900.0	0.5	34000
459.0	1900.0	1.0	25000
459.0	1900.0	1.5	20000
459.0	1900.0	2.0	19000
459.0	1900.0	2.5	18000
459.0	1900.0	3.0	18000
459.0	1900.0	3.5	16000
459.0	1900.0	4.0	16000
459.0	1900.0	4.5	15000
459.0	1900.0	5.0	15000
459.0	1900.0	5.5	15000
459.0	1900.0	6.0	15000
459.0	1900.0	6.5	15000
459.0	1900.0	7.0	14000
459.0	1900.0	7.5	14000
459.0	1900.0	8.0	14000
459.0	1900.0	8.5	13000
459.0	1900.0	9.0	12000
459.0	1900.0	9.5	13000
459.0	1900.0	10.0	13000
500.0	1150.0	0.0	94000
500.0	1150.0	0.5	172000
500.0	1150.0	1.0	104000
500.0	1150.0	1.5	35000
500.0	1150.0	2.0	21000
500.0	1150.0	2.5	16000
500.0	1150.0	3.0	15000
500.0	1150.0	3.5	15000
500.0	1150.0	4.0	15000
500.0	1150.0	4.5	15000
500.0	1150.0	5.0	14000
500.0	1150.0	5.5	14000
500.0	1150.0	6.0	13000
500.0	1150.0	6.5	13000
500.0	1150.0	7.0	13000
500.0	1150.0	7.5	12000
500.0	1150.0	8.0	13000

TABLE 5-5
(continued)

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Coordinates		Depth	SPA-3 Count Rate
East	North	(ft)	(cpm)
500.0	1150.0	8.5	13000
500.0	1150.0	9.0	13000
500.0	1150.0	9.5	13000
500.0	1150.0	10.0	13000
500.0	1310.0	0.0	5000
500.0	1310.0	0.5	6000
500.0	1310.0	1.0	10000
500.0	1310.0	1.5	12000
500.0	1310.0	2.0	15000
500.0	1310.0	2.5	15000
500.0	1310.0	3.0	15000
500.0	1310.0	3.5	15000
500.0	1310.0	4.0	15000
500.0	1310.0	4.5	15000
500.0	1310.0	5.0	15000
500.0	1310.0	5.5	14000
500.0	1310.0	6.0	14000
500.0	1310.0	6.5	13000
500.0	1310.0	7.0	12000
500.0	1310.0	7.5	12000
500.0	1310.0	8.0	12000
500.0	1310.0	8.5	12000
500.0	1310.0	9.0	12000
500.0	1310.0	9.5	12000
500.0	1310.0	10.0	13000
500.0	1350.0	0.0	8000
500.0	1350.0	0.5	9000
500.0	1350.0	1.0	19000
500.0	1350.0	1.5	17000
500.0	1350.0	2.0	16000
500.0	1350.0	2.5	15000
500.0	1350.0	3.0	15000
500.0	1350.0	3.5	15000
500.0	1350.0	4.0	15000
500.0	1350.0	4.5	15000
500.0	1350.0	5.0	15000
500.0	1350.0	5.5	14000
500.0	1350.0	6.0	14000
500.0	1350.0	6.5	14000
500.0	1350.0	7.0	14000

TABLE 5-5

(continued)

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<u>Coordinates</u>		Depth	SPA-3 Count Rate
East	North	(ft)	(cpm)
500.0	1350.0	7.5	13000
500.0	1350.0	8.0	12000
500.0	1350.0	8.5	12000
500.0	1350.0	9.0	12000
500.0	1350.0	9.5	12000
500.0	1350.0	10.0	12000
500.0	1550.0	0.0	8000
500.0	1550.0	0.5	13000
500.0	1550.0	1.0	19000
500.0	1550.0	1.5	21000
500.0	1550.0	2.0	18000
500.0	1550.0	2.5	16000
500.0	1550.0	3.0	16000
500.0	1550.0	3.5	16000
500.0	1550.0	4.0	16000
500.0	1550.0	4.5	15000
500.0	1550.0	5.0	15000
500.0	1550.0	5.5	15000
500.0	1550.0	6.0	15000
500.0	1550.0	6.5	15000
500.0	1550.0	7.0	13000
500.0	1550.0	7.5	12000
500.0	1550.0	8.0	12000
500.0	1550.0	8.5	13000
500.0	1550.0	9.0	13000
500.0	1550.0	9.5	13000
500.0	1550.0	10.0	13000
500.0	1550.0	10.5	13000
500.0	1550.0	11.0	13000
500.0	1550.0	11.5	13000
500.0	1550.0	12.0	12000
500.0	1550.0	12.5	13000
500.0	1550.0	13.0	14000
500.0	1550.0	13.5	14000
500.0	1550.0	14.0	14000
500.0	1550.0	14.5	13000
500.0	1550.0	15.0	14000
500.0	1650.0	0.0	11000
500.0	1650.0	0.5	10000
500.0	1650.0	1.0	18000

TABLE 5-5

(continued)

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<u>Coordinates</u>		<u>Depth</u>	<u>SPA-3 Count Rate</u>
<u>East</u>	<u>North</u>	(ft)	(cpm)
500.0	1650.0	1.5	29000
500.0	1650.0	2.0	29000
500.0	1650.0	2.5	28000
500.0	1650.0	3.0	18000
500.0	1650.0	3.5	16000
500.0	1650.0	4.0	16000
500.0	1650.0	4.5	15000
500.0	1650.0	5.0	15000
500.0	1650.0	5.5	15000
500.0	1650.0	6.0	14000
500.0	1650.0	6.5	15000
500.0	1650.0	7.0	15000
500.0	1650.0	7.5	15000
500.0	1650.0	8.0	15000
500.0	1650.0	8.5	14000
500.0	1650.0	9.0	13000
500.0	1650.0	9.5	13000
500.0	1650.0	10.0	13000
500.0	1750.0	0.0	7000
500.0	1750.0	0.5	19000
500.0	1750.0	1.0	12000
500.0	1750.0	1.5	12000
500.0	1750.0	2.0	13000
500.0	1750.0	2.5	13000
500.0	1750.0	3.0	15000
500.0	1750.0	3.5	15000
500.0	1750.0	4.0	15000
500.0	1750.0	4.5	14000
500.0	1750.0	5.0	14000
500.0	1750.0	5.5	14000
500.0	1750.0	6.0	14000
500.0	1750.0	6.5	14000
500.0	1750.0	7.0	13000
500.0	1750.0	7.5	14000
500.0	1750.0	8.0	13000
500.0	1750.0	8.5	13000
500.0	1750.0	9.0	13000
500.0	1750.0	9.5	14000
500.0	1750.0	10.0	13000
500.0	1850.0	0.0	8000

TABLE 5-5

(continued)

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<u>Coordinates</u>		<u>Depth</u>	<u>SPA-3 Count Rate</u>
<u>East</u>	<u>North</u>	(ft)	(cpm)
355.0	1750.0	3.0	15000
355.0	1750.0	3.5	16000
355.0	1750.0	4.0	20000
355.0	1750.0	4.5	35000
355.0	1750.0	5.0	37000
355.0	1750.0	5.5	20000
355.0	1750.0	6.0	16000
355.0	1750.0	6.5	14000
355.0	1750.0	7.0	14000
355.0	1750.0	7.5	14000
355.0	1750.0	8.0	13000
355.0	1750.0	8.5	13000
355.0	1750.0	9.0	13000
355.0	1750.0	9.5	12000
355.0	1750.0	10.0	12000
367.0	1600.0	0.0	6000
367.0	1600.0	0.5	7000
367.0	1600.0	1.0	10000
367.0	1600.0	1.5	17000
367.0	1600.0	2.0	27000
367.0	1600.0	2.5	25000
367.0	1600.0	3.0	20000
367.0	1600.0	3.5	19000
367.0	1600.0	4.0	23000
367.0	1600.0	4.5	41000
367.0	1600.0	5.0	26000
367.0	1600.0	5.5	17000
367.0	1600.0	6.0	15000
367.0	1600.0	6.5	15000
367.0	1600.0	7.0	15000
367.0	1600.0	7.5	14000
367.0	1600.0	8.0	15000
367.0	1600.0	8.5	14000
367.0	1600.0	9.0	14000
367.0	1600.0	9.5	12000
367.0	1600.0	10.0	13000
372.0	1450.0	0.0	11000
372.0	1450.0	0.5	17000
372.0	1450.0	1.0	19000
372.0	1450.0	1.5	17000

TABLE 5-5

(continued)

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<u>Coordinates</u>		<u>Depth</u>	<u>SPA-3 Count Rate</u>
<u>East</u>	<u>North</u>	(ft)	(cpm)
372.0	1450.0	2.0	16000
372.0	1450.0	2.5	17000
372.0	1450.0	3.0	88000
372.0	1450.0	3.5	54000
372.0	1450.0	4.0	25000
372.0	1450.0	4.5	17000
372.0	1450.0	5.0	15000
372.0	1450.0	5.5	15000
372.0	1450.0	6.0	14000
372.0	1450.0	6.5	13000
372.0	1450.0	7.0	13000
372.0	1450.0	7.5	13000
372.0	1450.0	8.0	13000
372.0	1450.0	8.5	13000
372.0	1450.0	9.0	13000
372.0	1450.0	9.5	13000
372.0	1450.0	10.0	13000
375.0	1646.0	0.0	8000
375.0	1646.0	0.5	10000
375.0	1646.0	1.0	23000
375.0	1646.0	1.5	28000
375.0	1646.0	2.0	25000
375.0	1646.0	2.5	34000
375.0	1646.0	3.0	37000
375.0	1646.0	3.5	30000
375.0	1646.0	4.0	38000
375.0	1646.0	4.5	56000
375.0	1646.0	5.0	30000
375.0	1646.0	5.5	19000
375.0	1646.0	6.0	15000
375.0	1646.0	6.5	15000
375.0	1646.0	7.0	14000
375.0	1646.0	7.5	13000
375.0	1646.0	8.0	13000
375.0	1646.0	8.5	13000
375.0	1646.0	9.0	13000
375.0	1646.0	9.5	12000
375.0	1646.0	10.0	12000
380.0	1500.0	0.0	9000
380.0	1500.0	0.5	11000

TABLE 5-5
(continued)

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Coordinates		Depth	SPA-3 Count Rate
East	North	(ft)	(cpm)
380.0	1500.0	1.0	19000
380.0	1500.0	1.5	27000
380.0	1500.0	2.0	36000
380.0	1500.0	2.5	81000
380.0	1500.0	3.0	72000
380.0	1500.0	3.5	27000
380.0	1500.0	4.0	17000
380.0	1500.0	4.5	16000
380.0	1500.0	5.0	15000
380.0	1500.0	5.5	14000
380.0	1500.0	6.0	13000
380.0	1500.0	6.5	14000
380.0	1500.0	7.0	13000
380.0	1500.0	7.5	13000
380.0	1500.0	8.0	13000
380.0	1500.0	8.5	13000
380.0	1500.0	9.0	13000
380.0	1500.0	9.5	12000
380.0	1500.0	10.0	12000
380.0	1500.0	10.5	12000
380.0	1500.0	11.0	12000
380.0	1500.0	11.5	13000
380.0	1500.0	12.0	13000
380.0	1500.0	12.5	13000
380.0	1500.0	13.0	13000
380.0	1500.0	13.5	13000
380.0	1500.0	14.0	13000
380.0	1500.0	14.5	13000
380.0	1500.0	15.0	13000
387.0	1914.0	0.5	16000
387.0	1914.0	1.0	24000
387.0	1914.0	2.0	15000
387.0	1914.0	3.0	13000
387.0	1914.0	4.0	15000
387.0	1914.0	5.0	17000
387.0	1914.0	6.0	17000
387.0	1914.0	7.0	16000
387.0	1914.0	8.0	15000
395.5	1947.0	0.0	8000
395.5	1947.0	0.5	9000

TABLE 5-5
(continued)

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Coordinates		Depth	SPA-3 Count Rate
East	North	(ft)	(cpm)
395.5	1947.0	1.0	7000
395.5	1947.0	1.5	15000
395.5	1947.0	2.0	16000
395.5	1947.0	2.5	16000
395.5	1947.0	3.0	15000
395.5	1947.0	3.5	16000
395.5	1947.0	4.0	16000
395.5	1947.0	4.5	16000
395.5	1947.0	5.0	16000
395.5	1947.0	5.5	16000
395.5	1947.0	6.0	16000
395.5	1947.0	6.5	16000
395.5	1947.0	7.0	16000
395.5	1947.0	7.5	16000
395.5	1947.0	8.0	15000
395.5	1947.0	8.5	15000
395.5	1947.0	9.0	14000
395.5	1947.0	9.5	14000
395.5	1947.0	10.0	14000
400.0	1777.0	0.0	12000
400.0	1777.0	0.5	7000
400.0	1777.0	1.0	13000
400.0	1777.0	1.5	15000
400.0	1777.0	2.0	15000
400.0	1777.0	2.5	15000
400.0	1777.0	3.0	15000
400.0	1777.0	3.5	15000
400.0	1777.0	4.0	15000
400.0	1777.0	4.5	15000
400.0	1777.0	5.0	14000
400.0	1777.0	5.5	15000
400.0	1777.0	6.0	14000
400.0	1777.0	6.5	14000
400.0	1777.0	7.0	14000
400.0	1777.0	7.5	14000
400.0	1777.0	8.0	13000
400.0	1777.0	8.5	13000
400.0	1777.0	9.0	13000
400.0	1777.0	9.5	13000
400.0	1777.0	10.0	12000
400.5	1605.7	0.5	7000

TABLE 5-5
(continued)

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Coordinates		Depth	SPA-3 Count Rate
East	North	(ft)	(cpm)
400.5	1605.7	1.0	17000
400.5	1605.7	2.0	19000
400.5	1605.7	3.0	32000
400.5	1605.7	4.0	31000
400.5	1605.7	5.0	18000
400.5	1605.7	6.0	16000
400.5	1605.7	7.0	16000
400.5	1605.7	8.0	17000
402.5	1566.7	0.5	6000
402.5	1566.7	1.0	15000
402.5	1566.7	2.0	16000
402.5	1566.7	3.0	20000
402.5	1566.7	4.0	16000
402.5	1566.7	5.0	17000
402.5	1566.7	6.0	16000
402.5	1566.7	7.0	16000
402.5	1566.7	8.0	16000
402.5	1566.7	9.0	14000
402.5	1566.7	10.0	12000
405.0	1350.0	0.0	8000
405.0	1350.0	0.5	14000
405.0	1350.0	1.0	17000
405.0	1350.0	1.5	20000
405.0	1350.0	2.0	31000
405.0	1350.0	2.5	21000
405.0	1350.0	3.0	17000
405.0	1350.0	3.5	18000
405.0	1350.0	4.0	15000
405.0	1350.0	4.5	15000
405.0	1350.0	5.0	15000
405.0	1350.0	5.5	14000
405.0	1350.0	6.0	13000
405.0	1350.0	6.5	13000
405.0	1350.0	7.0	12000
405.0	1350.0	7.5	12000
405.0	1350.0	8.0	12000
405.0	1350.0	8.5	13000
405.0	1350.0	9.0	13000
405.0	1350.0	9.5	13000

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(continued)

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Coordinates		Depth	SPA-3 Count Rate
East	North	(ft)	(cpm)
405.0	1350.0	10.0	13000
412.0	1450.0	0.0	235000
412.0	1450.0	0.5	145000
412.0	1450.0	1.0	150000
412.0	1450.0	1.5	268000
412.0	1450.0	2.0	672000
412.0	1450.0	2.5	743000
412.0	1450.0	3.0	738000
412.0	1450.0	3.5	734000
412.0	1450.0	4.0	734000
412.0	1450.0	4.5	831000
412.0	1450.0	5.0	936000
412.0	1450.0	5.5	952000
412.0	1450.0	6.0	999000
412.0	1450.0	6.5	1030000
412.0	1450.0	7.0	1007000
412.0	1450.0	7.5	808000
412.0	1450.0	8.0	780000
412.0	1450.0	8.5	767000
412.0	1450.0	9.0	745000
412.0	1450.0	9.5	804000
412.0	1450.0	10.0	790000
412.0	1450.0	10.5	636000
412.0	1450.0	11.0	560000
412.0	1450.0	11.5	276000
412.0	1450.0	12.0	111000
412.0	1450.0	12.5	35000
412.0	1450.0	13.0	30000
412.0	1450.0	13.5	38000
412.0	1450.0	14.0	49000
412.0	1450.0	14.5	61000
412.0	1450.0	15.0 ^a	63000
449.0	1400.0	0.0	7000
449.0	1400.0	0.5	8000
449.0	1400.0	1.0	10000
449.0	1400.0	1.5	27000
449.0	1400.0	2.0	78000
449.0	1400.0	2.5	91000
449.0	1400.0	3.0	34000
449.0	1400.0	3.5	19000

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(continued)

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Coordinates		Depth (ft)	SPA-3 Count Rate (cpm)
East	North		
500.0	1850.0	0.5	8000
500.0	1850.0	1.0	15000
500.0	1850.0	1.5	16000
500.0	1850.0	2.0	16000
500.0	1850.0	2.5	15000
500.0	1850.0	3.0	15000
500.0	1850.0	3.5	15000
500.0	1850.0	4.0	15000
500.0	1850.0	4.5	15000
500.0	1850.0	5.0	14000
500.0	1850.0	5.5	14000
500.0	1850.0	6.0	14000
500.0	1850.0	6.5	13000
500.0	1850.0	7.0	13000
500.0	1850.0	7.5	14000
500.0	1850.0	8.0	14000
500.0	1850.0	8.5	13000
500.0	1850.0	9.0	13000
500.0	1850.0	9.5	12000
500.0	1850.0	10.0	12000
500.0	1940.0	0.0	7000
500.0	1940.0	0.5	11000
500.0	1940.0	1.0	14000
500.0	1940.0	1.5	15000
500.0	1940.0	2.0	15000
500.0	1940.0	2.5	15000
500.0	1940.0	3.0	15000
500.0	1940.0	3.5	14000
500.0	1940.0	4.0	15000
500.0	1940.0	4.5	15000
500.0	1940.0	5.0	15000
500.0	1940.0	5.5	15000
500.0	1940.0	6.0	14000
500.0	1940.0	6.5	14000
500.0	1940.0	7.0	14000
500.0	1940.0	7.5	13000
500.0	1940.0	8.0	14000
500.0	1940.0	8.5	15000
500.0	1940.0	9.0	15000
500.0	1940.0	9.5	14000
500.0	1940.0	10.5	14000

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(continued)

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<u>Coordinates</u>		Depth	SPA-3 Count Rate
East	North	(ft)	(cpm)
503.0	1450.0	0.0	6000
503.0	1450.0	0.5	6000
503.0	1450.0	1.0	8000
503.0	1450.0	1.5	16000
503.0	1450.0	2.0	20000
503.0	1450.0	2.5	20000
503.0	1450.0	3.0	26000
503.0	1450.0	3.5	18000
503.0	1450.0	4.0	16000
503.0	1450.0	4.5	16000
503.0	1450.0	5.0	15000
503.0	1450.0	5.5	15000
503.0	1450.0	6.0	15000
503.0	1450.0	6.5	14000
503.0	1450.0	7.0	13000
503.0	1450.0	7.5	13000
503.0	1450.0	8.0	12000
503.0	1450.0	8.5	12000
503.0	1450.0	9.0	12000
503.0	1450.0	9.5	12000
503.0	1450.0	10.0	13000
514.8	1290.9	0.5	5000
514.8	1290.9	1.0	10000
514.8	1290.9	2.0	15000
514.8	1290.9	3.0	16000
514.8	1290.9	4.0	16000
514.8	1290.9	5.0	15000
514.8	1290.9	6.0	14000
514.8	1290.9	7.0	13000
520.0	1803.0	0.0	11000
520.0	1803.0	0.5	13000
520.0	1803.0	1.0	15000
520.0	1803.0	1.5	15000
520.0	1803.0	2.0	15000
520.0	1803.0	2.5	15000
520.0	1803.0	3.0	15000
520.0	1803.0	3.5	15000
520.0	1803.0	4.0	14000
520.0	1803.0	4.5	14000

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(continued)

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Coordinates		Depth	SPA-3 Count Rate
East	North	(ft)	(cpm)
520.0	1803.0	5.0	14000
520.0	1803.0	5.5	14000
520.0	1803.0	6.0	14000
520.0	1803.0	6.5	14000
520.0	1803.0	7.0	14000
520.0	1803.0	7.5	14000
520.0	1803.0	8.0	14000
520.0	1803.0	8.5	13000
520.0	1803.0	9.0	12000
520.0	1803.0	9.5	13000
520.0	1803.0	10.0	12000
526.0	1500.0	0.0	11000
526.0	1500.0	0.5	11000
526.0	1500.0	1.0	19000
526.0	1500.0	1.5	33000
526.0	1500.0	2.0	94000
526.0	1500.0	2.5	281000
526.0	1500.0	3.0	239000
526.0	1500.0	3.5	70000
526.0	1500.0	4.0	28000
526.0	1500.0	4.5	20000
526.0	1500.0	5.0	18000
526.0	1500.0	5.5	18000
526.0	1500.0	6.0	18000
526.0	1500.0	6.5	19000
526.0	1500.0	7.0	19000
526.0	1500.0	7.5	17000
526.0	1500.0	8.0	16000
526.0	1500.0	8.5	15000
526.0	1500.0	9.0	14000
526.0	1500.0	9.5	14000
526.0	1500.0	10.0	14000
526.0	1600.0	0.0	12000
526.0	1600.0	0.5	10000
526.0	1600.0	1.0	17000
526.0	1600.0	1.5	19000
526.0	1600.0	2.0	25000
526.0	1600.0	2.5	41000
526.0	1600.0	3.0	48000
526.0	1600.0	3.5	22000

TABLE 5-5
(continued)

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Coordinates		Depth	SPA-3 Count	Rate
East	North	(ft)	(cpm)	
526.0	1600.0	4.0	16000	
526.0	1600.0	4.5	15000	
526.0	1600.0	5.0	14000	
526.0	1600.0	5.5	14000	
526.0	1600.0	6.0	14000	
526.0	1600.0	6.5	14000	
526.0	1600.0	7.0	13000	
526.0	1600.0	7.5	13000	
526.0	1600.0	8.0	13000	
526.0	1600.0	8.5	13000	
526.0	1600.0	9.0	13000	
526.0	1600.0	9.5	13000	
526.0	1600.0	10.0	13000	
526.0	1700.0	0.0	12000	
526.0	1700.0	0.5	11000	
526.0	1700.0	1.0	21000	
526.0	1700.0	1.5	18000	
526.0	1700.0	2.0	23000	
526.0	1700.0	2.5	46000	
526.0	1700.0	3.0	65000	
526.0	1700.0	3.5	32000	
526.0	1700.0	4.0	19000	
526.0	1700.0	4.5	15000	
526.0	1700.0	5.0	15000	
526.0	1700.0	5.5	14000	
526.0	1700.0	6.0	14000	
526.0	1700.0	6.5	14000	
526.0	1700.0	7.0	14000	
526.0	1700.0	7.5	14000	
526.0	1700.0	8.0	13000	
526.0	1700.0	8.5	13000	
526.0	1700.0	9.0	13000	
526.0	1700.0	9.5	13000	
526.0	1700.0	10.0	13000	
527.0	1075.0	0.0	23000	
527.0	1075.0	0.5	25000	
527.0	1075.0	1.0	69000	
527.0	1075.0	1.5	241000	
527.0	1075.0	2.0	441000	
527.0	1075.0	2.5	441000	

TABLE 5-5

(continued)

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<u>Coordinates</u>		<u>Depth</u>	<u>SPA-3 Count Rate</u>
<u>East</u>	<u>North</u>	(ft)	(cpm)
527.0	1075.0	3.0	305000
527.0	1075.0	3.5	278000
527.0	1075.0	4.0	79000
527.0	1075.0	4.5	37000
527.0	1075.0	5.0	36000
527.0	1075.0	5.5	18000
527.0	1075.0	6.0	16000
527.0	1075.0	6.5	15000
527.0	1075.0	7.0	15000
527.0	1075.0	7.5	15000
527.0	1075.0	8.0	13000
527.0	1075.0	8.5	13000
527.0	1075.0	9.0	13000
527.0	1075.0	9.5	13000
527.0	1075.0	10.0	12000
527.0	1075.0	10.5	12000
527.0	1075.0	11.0	12000
527.0	1075.0	11.5	12000
527.0	1075.0	12.0	12000
527.0	1075.0	12.5	12000
527.0	1075.0	13.0	13000
527.0	1075.0	13.5	13000
527.0	1075.0	14.0	13000
527.0	1075.0	14.5	13000
527.0	1075.0	15.0	13000
540.0	1900.0	0.0	12000
540.0	1900.0	0.5	11000
540.0	1900.0	1.0	24000
540.0	1900.0	1.5	54000
540.0	1900.0	2.0	46000
540.0	1900.0	2.5	22000
540.0	1900.0	3.0	17000
540.0	1900.0	3.5	16000
540.0	1900.0	4.0	16000
540.0	1900.0	4.5	15000
540.0	1900.0	5.0	15000
540.0	1900.0	5.5	15000
540.0	1900.0	6.0	15000
540.0	1900.0	6.5	15000
540.0	1900.0	7.0	14000
540.0	1900.0	7.5	14000

TABLE 5-5

(continued)

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Coordinates		Depth (ft)	SPA-3 Count Rate (cpm)
East	North		
540.0	1900.0	8.0	14000
540.0	1900.0	8.5	14000
540.0	1900.0	9.0	10000
540.0	1900.0	9.5	10000
540.0	1900.0	10.0	16000
550.0	1050.0	0.0	24000
550.0	1050.0	0.5	33000
550.0	1050.0	1.0	45000
550.0	1050.0	1.5	68000
550.0	1050.0	2.0	98000
550.0	1050.0	2.5	210000
550.0	1050.0	3.0	410000
550.0	1050.0	3.5	348000
550.0	1050.0	4.0	108000
550.0	1050.0	4.5	38000
550.0	1050.0	5.0	20000
550.0	1050.0	5.5	17000
550.0	1050.0	6.0	16000
550.0	1050.0	6.5	15000
550.0	1050.0	7.0	14000
550.0	1050.0	7.5	14000
550.0	1050.0	8.0	13000
550.0	1050.0	8.5	12000
550.0	1050.0	9.0	12000
550.0	1050.0	9.5	12000
550.0	1050.0	10.0	13000
550.0	1050.0	10.5	13000
550.0	1050.0	11.0	12000
550.0	1050.0	11.5	12000
550.0	1050.0	12.0	12000
550.0	1050.0	12.5	13000
550.0	1050.0	13.0	13000
550.0	1050.0	13.5	13000
550.0	1050.0	14.0	13000
550.0	1050.0	14.5	13000
550.0	1050.0	15.0	13000
550.0	1400.0	0.0	12000
550.0	1400.0	0.5	15000
550.0	1400.0	1.0	27000
550.0	1400.0	1.5	60000

TABLE 5-5

(continued)

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<u>Coordinates</u>		Depth	SPA-3 Count Rate
East	North	(ft)	(cpm)
550.0	1400.0	2.0	107000
550.0	1400.0	2.5	60000
550.0	1400.0	3.0	85000
550.0	1400.0	3.5	18000
550.0	1400.0	4.0	16000
550.0	1400.0	4.5	15000
550.0	1400.0	5.0	15000
550.0	1400.0	5.5	14000
550.0	1400.0	6.0	14000
550.0	1400.0	6.5	14000
550.0	1400.0	7.0	13000
550.0	1400.0	7.5	12000
550.0	1400.0	8.0	12000
550.0	1400.0	8.5	12000
550.0	1400.0	9.0	12000
550.0	1400.0	9.5	13000
550.0	1400.0	10.0	13000
557.8	1191.2	0.5	7000
557.8	1191.2	1.0	34000
557.8	1191.2	2.0	145000
557.8	1191.2	3.0	97000
557.8	1191.2	4.0	29000
557.8	1191.2	5.0	16000
557.8	1191.2	6.0	17000
557.8	1191.2	7.0	12000
557.8	1191.2	8.0	13000
557.8	1191.2	9.0	13000
557.8	1191.2	10.0	12000
589.1	1120.4	0.5	8000
589.1	1120.4	1.0	29000
589.1	1120.4	2.0	86000
589.1	1120.4	3.0	23000
589.1	1120.4	4.0	17000
589.1	1120.4	5.0	16000
589.1	1120.4	6.0	14000
589.1	1120.4	7.0	13000
590.0	1350.0	0.0	43000
590.0	1350.0	0.5	108000
590.0	1350.0	1.0	83000

TABLE 5-5

(continued)

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Coordinates		Depth (ft)	SPA-3 Count	Rate (cpm)
East	North			
590.0	1350.0	1.5	31000	
590.0	1350.0	2.0	19000	
590.0	1350.0	2.5	17000	
590.0	1350.0	3.0	16000	
590.0	1350.0	3.5	15000	
590.0	1350.0	4.0	15000	
590.0	1350.0	4.5	14000	
590.0	1350.0	5.0	14000	
590.0	1350.0	5.5	14000	
590.0	1350.0	6.0	13000	
590.0	1350.0	6.5	11000	
590.0	1350.0	7.0	12000	
590.0	1350.0	7.5	12000	
590.0	1350.0	8.0	12000	
590.0	1350.0	8.5	13000	
590.0	1350.0	9.0	14000	
590.0	1350.0	9.5	14000	
590.0	1350.0	10.0	14000	
600.0	1250.0	0.0	11000	
600.0	1250.0	0.5	29000	
600.0	1250.0	1.0	39000	
600.0	1250.0	1.5	90000	
600.0	1250.0	2.0	95000	
600.0	1250.0	2.5	32000	
600.0	1250.0	3.0	19000	
600.0	1250.0	3.5	17000	
600.0	1250.0	4.0	15000	
600.0	1250.0	4.5	15000	
600.0	1250.0	5.0	15000	
600.0	1250.0	5.5	14000	
600.0	1250.0	6.0	14000	
600.0	1250.0	6.5	13000	
600.0	1250.0	7.0	12000	
600.0	1250.0	7.5	12000	
600.0	1250.0	8.0	12000	
600.0	1250.0	8.5	12000	
600.0	1250.0	9.0	12000	
600.0	1250.0	9.5	12000	
600.0	1250.0	10.0	12000	
600.0	1250.0	10.5	13000	
600.0	1250.0	11.0	13000	

TABLE 5-5

(continued)

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Coordinates		Depth (ft)	SPA-3 Count Rate (cpm)
East	North		
600.0	1250.0	11.5	13000
600.0	1250.0	12.0	13000
600.0	1250.0	12.5	13000
600.0	1250.0	13.0	13000
600.0	1250.0	13.5	13000
600.0	1250.0	14.0	13000
600.0	1250.0	14.5	14000
600.0	1250.0	15.0	14000
641.0	1150.0	0.0	10000
641.0	1150.0	0.5	16000
641.0	1150.0	1.0	34000
641.0	1150.0	1.5	43000
641.0	1150.0	2.0	21000
641.0	1150.0	2.5	17000
641.0	1150.0	3.0	16000
641.0	1150.0	3.5	16000
641.0	1150.0	4.0	15000
641.0	1150.0	4.5	15000
641.0	1150.0	5.0	14000
641.0	1150.0	5.5	14000
641.0	1150.0	6.0	14000
641.0	1150.0	6.5	14000
641.0	1150.0	7.0	14000
641.0	1150.0	7.5	14000
641.0	1150.0	8.0	13000
641.0	1150.0	8.5	12000
641.0	1150.0	9.0	12000
641.0	1150.0	9.5	12000
641.0	1150.0	10.0	13000
650.0	1100.0	0.0	11000
650.0	1100.0	0.5	29000
650.0	1100.0	1.0	25000
650.0	1100.0	1.5	22000
650.0	1100.0	2.0	19000
650.0	1100.0	2.5	20000
650.0	1100.0	3.0	17000
650.0	1100.0	3.5	16000
650.0	1100.0	4.0	15000
650.0	1100.0	4.5	15000
650.0	1100.0	5.0	13000

TABLE 5-5

(continued)

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Coordinates		Depth	SPA-3 Count Rate
East	North	(ft)	(cpm)
650.0	1100.0	5.5	13000
650.0	1100.0	6.0	12000
650.0	1100.0	6.5	13000
650.0	1100.0	7.0	13000
650.0	1100.0	7.5	14000
650.0	1100.0	8.0	13000
650.0	1100.0	8.5	12000
650.0	1100.0	9.0	12000
650.0	1100.0	9.5	12000
650.0	1100.0	10.0	12000
650.0	1100.0	10.5	13000
650.0	1100.0	11.0	13000
650.0	1100.0	11.5	13000
650.0	1100.0	12.0	12000
650.0	1100.0	12.5	13000
650.0	1100.0	13.0	13000
650.0	1100.0	13.5	13000
650.0	1100.0	14.0	13000
650.0	1100.0	14.5	13000
650.0	1100.0	15.0	13000
650.0	1200.0	0.0	7000
650.0	1200.0	0.5	9000
650.0	1200.0	1.0	11000
650.0	1200.0	1.5	17000
650.0	1200.0	2.0	16000
650.0	1200.0	2.5	16000
650.0	1200.0	3.0	15000
650.0	1200.0	3.5	15000
650.0	1200.0	4.0	15000
650.0	1200.0	4.5	14000
650.0	1200.0	5.0	13000
650.0	1200.0	5.5	14000
650.0	1200.0	6.0	14000
650.0	1200.0	6.5	14000
650.0	1200.0	7.0	13000
650.0	1200.0	7.5	13000
650.0	1200.0	8.0	13000
650.0	1200.0	8.5	12000
650.0	1200.0	9.0	12000
650.0	1200.0	9.5	13000
650.0	1200.0	10.0	13000

TABLE 5-5

(continued)

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<u>Coordinates</u>		Depth	SPA-3 Count Rate
East	North	(ft)	(cpm)
650.0	1291.0	0.0	10000
650.0	1291.0	0.5	12000
650.0	1291.0	1.0	17000
650.0	1291.0	1.5	16000
650.0	1291.0	2.0	16000
650.0	1291.0	2.5	15000
650.0	1291.0	3.0	15000
650.0	1291.0	3.5	15000
650.0	1291.0	4.0	14000
650.0	1291.0	4.5	14000
650.0	1291.0	5.0	14000
650.0	1291.0	5.5	13000
650.0	1291.0	6.0	13000
650.0	1291.0	6.5	12000
650.0	1291.0	7.0	12000
650.0	1291.0	7.5	12000
650.0	1291.0	8.0	12000
650.0	1291.0	8.5	13000
650.0	1291.0	9.0	13000
650.0	1291.0	9.5	13000
650.0	1291.0	10.0	13000
650.0	1365.0	0.0	14000
650.0	1365.0	0.5	26000
650.0	1365.0	1.0	28000
650.0	1365.0	1.5	17000
650.0	1365.0	2.0	15000
650.0	1365.0	2.5	15000
650.0	1365.0	3.0	15000
650.0	1365.0	3.5	14000
650.0	1365.0	4.0	14000
650.0	1365.0	4.5	14000
650.0	1365.0	5.0	14000
650.0	1365.0	5.5	13000
650.0	1365.0	6.0	13000
650.0	1365.0	6.5	13000
650.0	1365.0	7.0	12000
650.0	1365.0	7.5	12000
650.0	1365.0	8.0	12000
650.0	1365.0	8.5	12000
650.0	1365.0	9.0	13000

TABLE 5-5
(continued)

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Coordinates		Depth	SPA-3 Count	Rate
East	North	(ft)	(cpm)	
650.0	1365.0	9.5	13000	
650.0	1365.0	10.0	13000	
661.0	1058.5	0.0	18000	
661.0	1058.5	0.5	14000	
661.0	1058.5	1.0	16000	
661.0	1058.5	1.5	24000	
661.0	1058.5	2.0	27000	
661.0	1058.5	2.5	19000	
661.0	1058.5	3.0	14000	
661.0	1058.5	3.5	13000	
661.0	1058.5	4.0	12000	
661.0	1058.5	4.5	11000	
661.0	1058.5	5.0	11000	
661.0	1058.5	5.5	12000	
661.0	1058.5	6.0	12000	
661.0	1058.5	6.5	12000	
661.0	1058.5	7.0	12000	
661.0	1058.5	7.5	13000	
661.0	1058.5	8.0	13000	
661.0	1058.5	8.5	12000	
661.0	1058.5	9.0	12000	
661.0	1058.5	9.5	13000	
661.0	1058.5	10.5	13000	
700.0	1150.0	0.0	7000	
700.0	1150.0	0.5	9000	
700.0	1150.0	1.0	18000	
700.0	1150.0	1.5	18000	
700.0	1150.0	2.0	19000	
700.0	1150.0	2.5	20000	
700.0	1150.0	3.0	18000	
700.0	1150.0	3.5	16000	
700.0	1150.0	4.0	15000	
700.0	1150.0	4.5	14000	
700.0	1150.0	5.0	14000	
700.0	1150.0	5.5	14000	
700.0	1150.0	6.0	14000	
700.0	1150.0	6.5	13000	
700.0	1150.0	7.0	13000	
700.0	1150.0	7.5	13000	
700.0	1150.0	8.0	13000	

TABLE 5-5

(continued)

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<u>Coordinates</u>		<u>Depth</u>	<u>SPA-3 Count Rate</u>
<u>East</u>	<u>North</u>	(ft)	(cpm)
700.0	1150.0	8.5	13000
700.0	1150.0	9.0	13000
700.0	1150.0	9.5	14000
700.0	1150.0	10.0	14000
700.0	1250.0	0.0	8000
700.0	1250.0	0.5	9000
700.0	1250.0	1.0	16000
700.0	1250.0	1.5	15000
700.0	1250.0	2.0	14000
700.0	1250.0	2.5	14000
700.0	1250.0	3.0	13000
700.0	1250.0	3.5	14000
700.0	1250.0	4.0	14000
700.0	1250.0	4.5	14000
700.0	1250.0	5.0	14000
700.0	1250.0	5.5	13000
700.0	1250.0	6.0	12000
700.0	1250.0	6.5	12000
700.0	1250.0	7.0	13000
700.0	1250.0	7.5	13000
700.0	1250.0	8.0	13000
700.0	1250.0	8.5	13000
700.0	1250.0	9.0	13000
700.0	1250.0	9.5	13000
700.0	1250.0	10.0	13000
723.0	1204.0	0.0	7000
723.0	1204.0	0.5	6000
723.0	1204.0	1.0	10000
723.0	1204.0	1.5	13000
723.0	1204.0	2.0	12000
723.0	1204.0	2.5	12000
723.0	1204.0	3.0	12000
723.0	1204.0	3.5	12000
723.0	1204.0	4.0	12000
723.0	1204.0	4.5	12000
723.0	1204.0	5.0	12000
723.0	1204.0	5.5	12000
723.0	1204.0	6.0	12000
723.0	1204.0	6.5	12000
723.0	1204.0	7.0	13000

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(continued)

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Coordinates		Depth	SPA-3 Count Rate
East	North	(ft)	(cpm)
723.0	1204.0	7.5	13000
723.0	1204.0	8.0	13000
723.0	1204.0	8.5	12000
723.0	1204.0	9.0	12000
723.0	1204.0	9.5	12000
723.0	1204.0	10.5	12000

^aDrilling was suspended at this location when possible chemical contamination was encountered. This borehole will be advanced to a greater depth during chemical characterization of the area.

TABLE 5-6
RADIONUCLIDE CONCENTRATIONS IN SOIL AT THE FUTURA COATINGS SITE

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Coordinates		Depth (ft)	Concentration (pCi/g +/- 2 sigma)					
East	North		Uranium-238	Radium-226	Thorium-232	Thorium-230		
318.0	1694.0	1- 2	< 8.0	1.1 +/- 0.7	1.6 +/- 0.9	27.0 +/- 3.0		
318.0	1694.0	2- 3	< 9.0	1.3 +/- 0.5	3.0 +/- 1.0	-a-		
318.0	1694.0	3- 4	<11.0	1.4 +/- 0.5	2.0 +/- 1.0	-a-		
318.0	1694.0	4- 5	< 7.0	1.6 +/- 0.6	1.2 +/- 0.9	1.8 +/- 0.4		
318.0	1694.0	5- 6	<10.0	1.1 +/- 0.6	3.0 +/- 1.0	1.4 +/- 0.3		
318.0	1694.0	6- 7	< 5.0	1.1 +/- 0.4	1.5 +/- 0.7	-a-		
318.0	1694.0	7- 8	< 9.0	1.9 +/- 0.6	2.0 +/- 0.9	-a-		
318.0	1694.0	8- 9	< 5.0	4.0 +/- 1.0	3.0 +/- 1.0	-a-		
324.0	1597.0	1- 2	9.0 +/- 6.0	7.0 +/- 1.0	1.3 +/- 1.0	290.0 +/- 10.0		
324.0	1597.0	2- 3	<10.0	1.8 +/- 0.6	2.4 +/- 0.9	-a-		
324.0	1597.0	3- 4	< 5.0	1.1 +/- 0.6	2.0 +/- 0.8	-a-		
324.0	1597.0	4- 5	< 6.0	1.5 +/- 0.7	2.0 +/- 1.0	1.7 +/- 0.5		
324.0	1597.0	5- 6	<11.0	0.7 +/- 0.6	2.0 +/- 1.0	-a-		
324.0	1597.0	6- 7	< 6.0	0.9 +/- 0.6	1.5 +/- 0.8	1.4 +/- 0.6		
324.0	1597.0	7- 8	<10.0	1.6 +/- 0.6	3.0 +/- 1.0	-a-		
324.0	1597.0	8- 9	< 5.0	1.2 +/- 0.5	2.1 +/- 0.8	-a-		
324.0	1597.0	9-10	<12.0	1.5 +/- 0.6	2.0 +/- 0.9	-a-		
332.9	1827.4	0- 1	< 6.0	3.2 +/- 0.8	1.1 +/- 0.7	200.0 +/- 10.0		
332.9	1827.4	1- 2	<10.0	1.5 +/- 0.6	1.6 +/- 0.8	48.0 +/- 3.0		
332.9	1827.4	2- 3	< 6.0	1.0 +/- 0.6	1.5 +/- 0.9	2.5 +/- 0.6		
332.9	1827.4	3- 4	< 5.0	1.2 +/- 0.5	1.1 +/- 0.8	1.9 +/- 0.3		
332.9	1827.4	4- 5	<10.0	1.4 +/- 0.5	2.1 +/- 0.9	1.7 +/- 1.0		
332.9	1827.4	5- 6	< 4.0	0.6 +/- 0.4	1.6 +/- 0.7	1.3 +/- 0.2		

TABLE 5-6

(continued)

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<u>Coordinates</u>		<u>Depth</u> (ft)	Concentration (pCi/g +/- 2 sigma)					
East	North		Uranium-238	Radium-226	Thorium-232	Thorium-230		
332.9	1827.4	6- 7	< 8.0	0.8 +/- 0.5	2.1 +/- 0.9	1.1 +/- 0.1		
332.9	1827.4	7- 8	< 4.0	1.0 +/- 0.5	1.7 +/- 0.6	1.2 +/- 0.5		
348.0	1688.0	1- 2	<11.0	2.6 +/- 0.7	1.7 +/- 0.9	33.0 +/- 3.0		
348.0	1688.0	2- 3	< 6.0	1.4 +/- 0.5	0.7 +/- 0.7	-a-		
348.0	1688.0	3- 4	< 9.0	1.9 +/- 0.5	1.1 +/- 0.6	9.0 +/- 2.0		
348.0	1688.0	4- 5	<10.0	4.0 +/- 1.0	2.2 +/- 0.9	330.0 +/- 10.0		
348.0	1688.0	5- 6	< 7.0	0.8 +/- 0.5	1.5 +/- 0.7	-a-		
348.0	1688.0	6- 7	< 8.0	1.5 +/- 0.5	3.0 +/- 0.1	-a-		
348.0	1688.0	7- 8	< 6.0	1.0 +/- 0.5	1.6 +/- 0.7	-a-		
348.0	1688.0	8- 9	<11.0	1.8 +/- 0.6	1.7 +/- 0.8	-a-		
6	350.0	1550.0	1- 2	8.0 +/- 6.0	3.5 +/- 0.8	1.3 +/- 0.8	-a-	
	350.0	1550.0	2- 3	10.0 +/- 7.0	4.7 +/- 0.8	2.0 +/- 0.8	270.0 +/- 10.0	
	350.0	1550.0	3- 4	18.0 +/- 10.0	4.5 +/- 0.9	2.4 +/- 0.9	160.0 +/- 10.0	
	350.0	1550.0	4- 5	14.0 +/- 6.0	4.6 +/- 0.9	1.7 +/- 0.9	180.0 +/- 10.0	
	350.0	1550.0	5- 6	9.0 +/- 4.0	2.7 +/- 0.8	1.0 +/- 0.8	-a-	
	350.0	1550.0	10-11	<10.0	3.2 +/- 0.8	1.5 +/- 0.7	-a-	
	350.0	1550.0	11-12	< 6.0	1.6 +/- 0.6	1.4 +/- 0.8	-a-	
350.0	1854.0	0- 1	< 6.0	1.3 +/- 0.6	< 1.0	-a-		
350.0	1854.0	1- 2	< 8.0	2.4 +/- 0.6	2.7 +/- 0.9	40.0 +/- 4.0		
350.0	1854.0	2- 3	< 5.0	1.3 +/- 0.5	1.7 +/- 0.7	-a-		
350.0	1854.0	3- 4	< 8.0	1.8 +/- 0.7	2.3 +/- 0.8	-a-		
350.0	1854.0	4- 5	< 6.0	1.4 +/- 0.5	1.5 +/- 0.7	15.0 +/- 2.0		
350.0	1854.0	5- 6	< 4.0	1.6 +/- 0.5	2.1 +/- 0.8	5.1 +/- 1.8		

TABLE 5-6

(continued)

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Coordinates		Depth (ft)	Concentration (pCi/g +/- 2 sigma)				Thorium-230
East	North		Uranium-238	Radium-226	Thorium-232		
350.0	1854.0	6- 7	< 8.0	1.5 +/- 0.5	2.4 +/- 0.9	-a-	
350.0	1854.0	7- 8	< 4.0	1.6 +/- 0.5	1.8 +/- 0.8	-a-	
355.0	1750.0	1- 2	< 8.0	1.4 +/- 0.6	1.2 +/- 0.9	-a-	
355.0	1750.0	2- 3	<10.0	1.9 +/- 0.6	2.0 +/- 0.9	-a-	
355.0	1750.0	3- 4	< 8.0	1.6 +/- 0.5	1.5 +/- 0.7	-a-	
355.0	1750.0	4- 5	< 9.0	1.7 +/- 0.7	1.4 +/- 1.0	-a-	
355.0	1750.0	5- 6	< 6.0	1.3 +/- 0.5	1.4 +/- 0.7	1.9 +/- 0.8	
355.0	1750.0	6- 7	< 8.0	0.7 +/- 0.4	2.2 +/- 0.8	2.3 +/- 0.7	
355.0	1750.0	7- 8	< 6.0	0.9 +/- 0.5	2.2 +/- 0.7	-a-	
355.0	1750.0	8- 9	< 8.0	1.2 +/- 0.4	1.6 +/- 0.7	-a-	
355.0	1750.0	9-10	<22.0	2.0 +/- 2.0	5.0 +/- 3.0	-a-	
367.0	1600.0	1- 2	<13.0	4.0 +/- 1.0	2.0 +/- 1.0	-a-	
367.0	1600.0	2- 3	<10.0	2.7 +/- 0.8	3.0 +/- 1.0	-a-	
367.0	1600.0	3- 4	< 7.0	3.6 +/- 0.8	1.0 +/- 0.7	-a-	
367.0	1600.0	4- 5	< 7.0	1.6 +/- 0.6	1.1 +/- 0.9	15.0 +/- 2.0	
367.0	1600.0	5- 6	<13.0	1.8 +/- 0.7	5.0 +/- 1.0	5.0 +/- 1.2	
367.0	1600.0	6- 7	< 5.0	1.0 +/- 0.5	1.3 +/- 0.8	2.4 +/- 0.5	
367.0	1600.0	7- 8	< 6.0	1.6 +/- 0.5	2.0 +/- 0.7	-a-	
367.0	1600.0	8- 9	< 8.0	1.8 +/- 0.5	2.4 +/- 0.8	-a-	
372.0	1450.0	0- 1	<14.0	3.0 +/- 1.0	3.0 +/- 1.0	-a-	
372.0	1450.0	1- 2	<10.0	2.5 +/- 0.7	2.0 +/- 1.0	-a-	
372.0	1450.0	2- 3	< 6.0	1.6 +/- 0.6	1.6 +/- 0.8	-a-	
372.0	1450.0	3- 4	< 8.0	1.8 +/- 0.6	1.3 +/- 0.8	290.0 +/- 10.0	

TABLE 5-6

(continued)

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Coordinates		Depth (ft)	Concentration (pCi/g +/- 2 sigma)							
East	North		Uranium-238	Radium-226	Thorium-232		Thorium-230			
372.0	1450.0	4- 5	< 6.0	1.6 +/- 0.6	1.3 +/- 0.7	3.0 +/- 0.5				
372.0	1450.0	5- 6	<11.0	1.4 +/- 0.5	2.0 +/- 1.0	4.2 +/- 0.8				
372.0	1450.0	6- 7	< 6.0	0.9 +/- 0.5	1.9 +/- 0.9	-a-				
372.0	1450.0	7- 8	<29.0	4.0 +/- 1.0	4.0 +/- 2.0	-a-				
375.0	1646.0	0- 1	<14.0	4.0 +/- 1.0	5.0 +/- 2.0	-a-				
375.0	1646.0	1- 2	<14.0	6.0 +/- 1.0	3.0 +/- 1.0	-a-				
375.0	1646.0	2- 3	7.0 +/- 4.0	4.0 +/- 1.0	2.0 +/- 1.0	-a-				
375.0	1646.0	3- 4	< 6.0	1.8 +/- 0.6	0.9 +/- 0.8	30.0 +/- 4.0				
375.0	1646.0	4- 5	19.0 +/- 7.0	11.0 +/- 1.0	6.0 +/- 1.0	190.0 +/- 10.0				
375.0	1646.0	5- 6	< 7.0	2.1 +/- 0.6	2.5 +/- 0.9	2.5 +/- 0.5				
375.0	1646.0	6- 7	<11.0	1.6 +/- 0.5	1.9 +/- 0.9	-a-				
375.0	1646.0	7- 8	< 5.0	0.9 +/- 0.4	1.3 +/- 0.7	-a-				
375.0	1646.0	8- 9	<22.0	3.0 +/- 1.0	< 2.0	-a-				
380.0	1500.0	0- 1	15.0 +/- 11.0	9.0 +/- 3.0	3.0 +/- 2.0	-a-				
380.0	1500.0	1- 2	14.0 +/- 4.0	4.0 +/- 1.0	1.8 +/- 0.8	-a-				
380.0	1500.0	2- 3	28.0 +/- 19.0	35.0 +/- 3.0	3.0 +/- 2.0	-a-				
380.0	1500.0	3- 4	8.0 +/- 3.0	1.7 +/- 0.6	3.0 +/- 1.0	15.0 +/- 2.0				
380.0	1500.0	4- 5	< 8.0	2.1 +/- 0.6	1.0 +/- 1.0	62.0 +/- 3.0				
380.0	1500.0	5- 6	<13.0	2.3 +/- 0.8	4.0 +/- 1.0	100.0 +/- 10.0				
380.0	1500.0	6- 7	< 8.0	1.8 +/- 0.6	1.5 +/- 0.8	-a-				
380.0	1500.0	7- 8	< 7.0	1.2 +/- 0.5	1.2 +/- 0.8	-a-				
380.0	1500.0	8- 9	<11.0	2.0 +/- 0.9	2.6 +/- 0.9	-a-				
380.0	1500.0	10-11	< 5.0	1.3 +/- 0.5	< 1.0	-a-				
380.0	1500.0	11-12	< 8.0	2.1 +/- 0.6	2.1 +/- 0.9	-a-				

TABLE 5-6

(continued)

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<u>Coordinates</u>		<u>Depth</u> (ft)	Concentration (pCi/g +/- 2 sigma)					
East	North		Uranium-238	Radium-226	Thorium-232		Thorium-230	
380.0	1500.0	12-13	< 5.0	1.2 +/- 0.6	2.0 +/- 0.8		-a-	
380.0	1500.0	13-14	< 6.0	1.2 +/- 0.5	1.1 +/- 0.7		-a-	
380.0	1500.0	14-15	<11.0	2.2 +/- 0.7	3.0 +/- 1.0		-a-	
387.0	1914.0	0- 1	<10.0	5.0 +/- 1.0	1.7 +/- 0.9		-a-	
387.0	1914.0	1- 2	<11.0	1.6 +/- 0.6	3.0 +/- 1.0	37.0 +/- 3.0		
387.0	1914.0	2- 3	< 5.0	1.7 +/- 0.6	1.3 +/- 0.7		-a-	
387.0	1914.0	3- 4	<10.0	1.9 +/- 0.6	4.0 +/- 1.0		-a-	
387.0	1914.0	4- 5	< 6.0	1.0 +/- 0.5	0.8 +/- 0.8		-a-	
387.0	1914.0	5- 6	<11.0	1.4 +/- 0.5	3.0 +/- 1.0	1.4 +/- 0.6		
387.0	1914.0	6- 7	< 5.0	0.8 +/- 0.5	1.9 +/- 0.7		-a-	
387.0	1914.0	7- 8	< 9.0	1.5 +/- 0.5	3.0 +/- 1.0		-a-	
395.5	1947.0	0- 1	< 6.0	1.5 +/- 0.6	2.0 +/- 1.0	1.8 +/- 0.8		
395.5	1947.0	1- 2	< 5.0	1.3 +/- 0.6	1.9 +/- 0.9		-a-	
395.5	1947.0	2- 3	< 5.0	0.9 +/- 0.6	1.6 +/- 0.8		-a-	
395.5	1947.0	3- 4	< 9.0	1.4 +/- 0.5	2.1 +/- 0.9	0.9 +/- 0.3		
395.5	1947.0	4- 5	< 4.0	1.0 +/- 0.5	1.4 +/- 0.8		-a-	
395.5	1947.0	5- 6	<18.0	2.4 +/- 0.9	3.0 +/- 1.0		-a-	
395.5	1947.0	6- 7	< 5.0	1.3 +/- 0.5	1.6 +/- 0.8		-a-	
395.5	1947.0	7- 8	< 4.0	1.1 +/- 0.4	1.2 +/- 0.6	1.3 +/- 0.7		
395.5	1947.0	8- 9	< 7.0	1.1 +/- 0.5	4.0 +/- 1.0		-a-	
400.0	1777.0	0- 1	< 4.0	4.0 +/- 1.0	4.0 +/- 2.0		-a-	
400.0	1777.0	1- 2	< 7.0	1.8 +/- 0.7	2.0 +/- 0.8	1.4 +/- 0.6		
400.0	1777.0	2- 3	<10.0	1.6 +/- 0.6	2.1 +/- 0.9		-a-	

TABLE 5-6

(continued)

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<u>Coordinates</u>		<u>Depth</u>	<u>Concentration (pCi/g +/- 2 sigma)</u>				
<u>East</u>	<u>North</u>	(ft)	<u>Uranium-238</u>	<u>Radium-226</u>	<u>Thorium-232</u>	<u>Thorium-230</u>	
400.0	1777.0	3- 4	<10.0	2.1 +/- 0.6	3.0 +/- 1.0		-a-
400.0	1777.0	4- 5	< 6.0	1.1 +/- 0.5	1.4 +/- 0.7	2.0 +/- 1.2	
400.0	1777.0	5- 6	<10.0	2.2 +/- 0.6	2.1 +/- 0.8		-a-
400.0	1777.0	6- 7	< 9.0	3.3 +/- 0.7	3.0 +/- 1.0	1.6 +/- 0.8	
400.0	1777.0	7- 8	< 8.0	1.3 +/- 0.6	1.7 +/- 0.9		-a-
400.0	1777.0	8- 9	< 9.0	0.9 +/- 0.5	2.2 +/- 0.9		-a-
400.0	1777.0	9-10	< 8.0	2.0 +/- 0.6	1.3 +/- 0.9		-a-
55	400.5	1605.7	0- 1	< 9.0	1.2 +/- 0.5	< 1.0	5.2 +/- 0.4
	400.5	1605.7	1- 2	< 5.0	1.0 +/- 0.5	1.4 +/- 0.8	15.0 +/- 2.0
	400.5	1605.7	2- 3	< 5.0	0.9 +/- 0.4	1.4 +/- 0.8	15.0 +/- 1.0
	400.5	1605.7	3- 4	< 9.0	1.5 +/- 0.5	0.8 +/- 0.5	2.7 +/- 0.6
	400.5	1605.7	4- 5	12.0 +/- 6.0	14.0 +/- 2.0	3.0 +/- 1.0	990.0 +/- 10.0
	400.5	1605.7	5- 6	< 6.0	1.5 +/- 0.6	1.6 +/- 0.7	43.0 +/- 4.0
	400.5	1605.7	6- 7	< 8.0	1.4 +/- 0.5	2.6 +/- 0.8	4.2 +/- 0.7
	400.5	1605.7	7- 8	< 5.0	1.7 +/- 0.5	1.7 +/- 0.7	2.8 +/- 0.4
	402.5	1566.7	0- 1	<10.0	2.3 +/- 0.7	2.5 +/- 0.9	21.0 +/- 1.0
	402.5	1566.7	1- 2	< 6.0	1.2 +/- 0.5	1.0 +/- 0.7	8.7 +/- 2.5
	402.5	1566.7	2- 3	< 6.0	1.4 +/- 0.6	2.0 +/- 0.8	58.0 +/- 1.0
	402.5	1566.7	3- 4	<10.0	1.2 +/- 0.5	3.0 +/- 1.0	2.8 +/- 0.2
	402.5	1566.7	4- 5	< 6.0	1.7 +/- 0.3	1.9 +/- 0.9	1.6 +/- 0.7
	402.5	1566.7	5- 6	< 5.0	1.4 +/- 0.5	< 1.0	5.3 +/- 2.0
	402.5	1566.7	6- 7	<11.0	1.6 +/- 0.7	2.6 +/- 0.9	2.0 +/- 0.3
	402.5	1566.7	7- 8	< 5.0	1.2 +/- 0.6	1.5 +/- 0.8	1.5 +/- 0.1
	402.5	1566.7	8- 9	< 5.0	1.3 +/- 0.5	< 1.0	3.2 +/- 0.5

TABLE 5-6

(continued)

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Coordinates		Depth (ft)	Concentration (pCi/g +/- 2 sigma)						Thorium-230
East	North		Uranium-238	Radium-226	Thorium-232				
402.5	1566.7	9-10	< 8.0	1.7 +/- 0.5	1.7 +/- 0.7	3.1 +/- 0.3			
405.0	1350.0	0- 1	<37.0	8.0 +/- 2.0	< 3.0	-a-			
405.0	1350.0	1- 2	9.0 +/- 8.0	5.0 +/- 1.0	< 1.0	400.0 +/- 20.0			
405.0	1350.0	2- 3	<10.0	1.5 +/- 0.6	4.0 +/- 1.0	-a-			
405.0	1350.0	3- 4	< 4.0	0.8 +/- 0.5	< 1.0	1.7 +/- 0.5			
405.0	1350.0	4- 5	< 9.0	1.1 +/- 0.5	2.6 +/- 0.9	-a-			
405.0	1350.0	5- 6	< 7.0	1.3 +/- 0.6	1.8 +/- 0.8	6.2 +/- 1.8			
405.0	1350.0	6- 7	< 4.0	1.2 +/- 0.5	1.0 +/- 0.6	-a-			
405.0	1350.0	7- 8	< 9.0	1.4 +/- 0.5	1.8 +/- 0.8	-a-			
405.0	1350.0	8- 9	< 6.0	1.6 +/- 0.5	1.7 +/- 0.8	-a-			
405.0	1350.0	9-10	< 5.0	1.2 +/- 0.5	1.9 +/- 0.8	-a-			
412.0	1450.0	1- 2	<13.0	7.0 +/- 1.0	2.0 +/- 1.0	-a-			
412.0	1450.0	2- 3	730.0 +/- 80.0	770.0 +/- 10.0	9.0 +/- 7.0	-a-			
412.0	1450.0	3- 4	630.0 +/- 70.0	570.0 +/- 10.0	< 4.0	-a-			
412.0	1450.0	4- 5	1400.0 +/-100.0	1000.0 +/-100.0	6.0 +/- 4.0	-a-			
412.0	1450.0	5- 6	1300.0 +/-200.0	1200.0 +/-100.0	< 6.0	-a-			
412.0	1450.0	6- 7	900.0 +/- 70.0	1200.0 +/-100.0	26.0 +/- 9.0	-a-			
412.0	1450.0	7- 8	920.0 +/- 70.0	1200.0 +/-100.0	17.0 +/- 8.0	-a-			
412.0	1450.0	8- 9	1400.0 +/-100.0	1200.0 +/-100.0	10.0 +/- 7.0	-a-			
412.0	1450.0	9-10	2500.0 +/-200.0	2300.0 +/-200.0	13.0 +/- 11.0	-a-			
412.0	1450.0	10-11	250.0 +/- 20.0	250.0 +/- 10.0	6.0 +/- 4.0	-a-			
412.0	1450.0	11-12	41.0 +/- 4.0	24.0 +/- 2.0	3.0 +/- 1.0	1900.0 +/-100.0			
412.0	1450.0	12-13	21.0 +/- 5.0	9.0 +/- 1.0	< 1.0	510.0 +/- 10.0			
412.0	1450.0	13-14	< 9.0	3.3 +/- 0.8	< 1.0	-a-			

TABLE 5-6

(continued)

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Coordinates		Depth (ft)	Concentration (pCi/g +/- 2 sigma)				Thorium-232	Thorium-230
East	North		Uranium-238	Radium-226	Thorium-232	Thorium-230		
412.0	1450.0	14-15	22.0 +/- 7.0	28.0 +/- 2.0	2.0 +/- 1.0	1.0	1600.0 +/- 100.0	
449.0	1400.0	0- 1	<29.0	3.0 +/- 1.0	< 2.0			-a-
449.0	1400.0	1- 2	13.0 +/- 8.0	13.0 +/- 2.0	1.0 +/- 1.0			-a-
449.0	1400.0	2- 3	13.0 +/- 4.0	1.9 +/- 0.7	1.9 +/- 0.9			-a-
449.0	1400.0	3- 4	< 4.0	1.2 +/- 0.6	2.4 +/- 0.9	1.9 +/- 0.9		
449.0	1400.0	4- 5	< 8.0	2.0 +/- 0.9	< 1.0		2.8 +/- 1.9	
449.0	1400.0	5- 6	< 4.0	1.0 +/- 0.5	1.7 +/- 0.8	3.2 +/- 0.8		
449.0	1400.0	6- 7	< 9.0	2.2 +/- 0.7	2.6 +/- 0.9			-a-
449.0	1400.0	10-11	< 3.0	1.4 +/- 0.5	1.4 +/- 0.7			-a-
449.0	1400.0	11-12	< 9.0	1.0 +/- 0.6	< 1.0			-a-
449.0	1400.0	12-13	< 4.0	0.7 +/- 0.4	1.7 +/- 0.8			-a-
449.0	1400.0	13-14	< 4.0	1.4 +/- 0.5	1.3 +/- 0.7			-a-
449.0	1400.0	14-15	< 9.0	1.5 +/- 0.5	2.6 +/- 0.8			-a-
450.0	1250.0	1- 2	14.0 +/- 11.0	11.0 +/- 2.0	3.0 +/- 1.0			-a-
450.0	1250.0	2- 3	64.0 +/- 15.0	39.0 +/- 3.0	2.0 +/- 1.0			-a-
450.0	1250.0	3- 4	< 6.0	1.2 +/- 0.5	1.4 +/- 0.7	3.8 +/- 2.1		
450.0	1250.0	4- 5	< 9.0	1.5 +/- 0.5	1.5 +/- 0.7	2.4 +/- 0.4		
450.0	1250.0	5- 6	< 3.0	0.6 +/- 0.5	0.8 +/- 0.7	3.9 +/- 0.7		
450.0	1250.0	6- 7	< 9.0	1.1 +/- 0.4	1.7 +/- 0.7			-a-
450.0	1250.0	7- 8	< 4.0	0.7 +/- 0.5	1.3 +/- 0.7			-a-
450.0	1742.0	1- 2	< 7.0	1.2 +/- 0.7	2.0 +/- 1.0	2.5 +/- 1.9		
450.0	1742.0	2- 3	<13.0	1.8 +/- 0.5	4.0 +/- 1.0			-a-
450.0	1742.0	3- 4	< 8.0	1.4 +/- 0.7	1.0 +/- 0.9			-a-

TABLE 5-6

(continued)

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Coordinates		Depth (ft)	Concentration (pCi/g +/- 2 sigma)					
East	North		Uranium-238	Radium-226	Thorium-232	Thorium-230		
450.0	1742.0	4- 5	<11.0	1.8 +/- 0.7	2.0 +/- 1.0	1.5 +/- 1.1		
450.0	1742.0	5- 6	<10.0	1.8 +/- 0.6	2.0 +/- 1.0	-a-		
450.0	1742.0	6- 7	< 7.0	2.1 +/- 0.6	1.7 +/- 0.9	0.9 +/- 0.9		
450.0	1742.0	7- 8	< 9.0	1.5 +/- 0.6	1.7 +/- 0.8	-a-		
450.0	1742.0	8- 9	< 6.0	1.3 +/- 0.6	2.0 +/- 0.8	-a-		
450.0	1742.0	9-10	< 9.0	2.0 +/- 0.5	1.7 +/- 0.8	-a-		
450.0	1800.0	0- 1	<26.0	3.0 +/- 1.0	3.0 +/- 2.0	-a-		
450.0	1800.0	1- 2	<11.0	2.0 +/- 0.6	1.8 +/- 0.8	2.9 +/- 0.6		
450.0	1800.0	2- 3	< 7.0	0.9 +/- 0.7	2.0 +/- 1.0	-a-		
450.0	1800.0	3- 4	<11.0	12.0 +/- 0.5	3.0 +/- 1.0	< 1.2		
450.0	1800.0	4- 5	< 9.0	2.0 +/- 0.7	< 1.0	-a-		
450.0	1800.0	5- 6	<10.0	2.4 +/- 0.8	1.7 +/- 0.9	1.9 +/- 0.9		
450.0	1800.0	6- 7	< 8.0	1.7 +/- 0.5	2.0 +/- 0.8	-a-		
450.0	1800.0	7- 8	< 6.0	2.1 +/- 0.6	3.0 +/- 1.0	-a-		
450.0	1800.0	8- 9	< 9.0	1.3 +/- 0.5	1.3 +/- 0.8	-a-		
450.0	1800.0	9-10	< 5.0	1.4 +/- 0.6	1.7 +/- 0.8	-a-		
453.1	1625.9	0- 1	<10.0	2.5 +/- 0.7	1.3 +/- 0.9	20.0 +/- 1.0		
453.1	1625.9	1- 2	< 5.0	1.9 +/- 0.6	1.4 +/- 0.7	22.0 +/- 1.0		
453.1	1625.9	2- 3	< 4.0	1.3 +/- 0.5	0.9 +/- 0.7	17.0 +/- 1.0		
453.1	1625.9	3- 4	< 9.0	2.0 +/- 0.6	2.6 +/- 0.9	18.0 +/- 1.0		
453.1	1625.9	4- 5	< 6.0	1.4 +/- 0.7	1.6 +/- 0.8	51.0 +/- 1.0		
453.1	1625.9	5- 6	18.0 +/- 8.0	10.0 +/- 1.0	1.5 +/- 0.9	2000.0 +/- 100.0		
453.1	1625.9	6- 7	< 9.0	2.6 +/- 0.6	2.0 +/- 0.8	73.0 +/- 3.0		
454.6	1545.4	0- 1	10.0 +/- 7.0	3.3 +/- 0.8	1.6 +/- 0.8	110.0 +/- 10.0		

TABLE 5-6

(continued)

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Coordinates		Depth (ft)	Concentration (pCi/g +/- 2 sigma)					
East	North		Uranium-238	Radium-226	Thorium-232	Thorium-230		
454.6	1545.4	1- 2	<10.0	2.3 +/- 0.7	1.9 +/- 0.8	41.0 +/- 2.0		
454.6	1545.4	2- 3	< 5.0	0.8 +/- 0.5	1.3 +/- 0.8	7.1 +/- 0.3		
454.6	1545.4	3- 4	< 4.0	1.7 +/- 0.6	2.1 +/- 0.8	12.0 +/- 1.0		
454.6	1545.4	4- 5	<10.0	1.3 +/- 0.5	2.2 +/- 0.9	2.9 +/- 0.8		
454.6	1545.4	5- 6	< 5.0	1.0 +/- 0.5	1.5 +/- 0.9	3.8 +/- 0.5		
454.6	1545.4	6- 7	<10.0	1.0 +/- 0.6	1.7 +/- 0.7	1.3 +/- 0.2		
454.6	1545.4	7- 8	< 4.0	0.8 +/- 0.5	1.3 +/- 0.7	2.0 +/- 0.2		
454.6	1545.4	8- 9	< 4.0	1.5 +/- 0.5	1.2 +/- 0.7	1.6 +/- 0.3		
454.6	1545.4	9-10	< 8.0	1.6 +/- 0.5	1.7 +/- 0.6	2.9 +/- 0.2		
454.6	1545.4	10-11	< 4.0	1.5 +/- 0.5	< 1.0	1.9 +/- 0.3		
69	455.6	1466.8	0- 1	< 9.0	2.3 +/- 0.6	< 1.0	12.0 +/- 1.0	
	455.6	1466.8	1- 2	< 7.0	2.8 +/- 0.7	< 1.0	80.0 +/- 2.0	
	455.6	1466.8	2- 3	< 7.0	1.3 +/- 0.6	1.4 +/- 0.8	18.0 +/- 2.0	
	455.6	1466.8	3- 4	15.0 +/- 8.0	17.0 +/- 2.0	3.0 +/- 1.0	550.0 +/- 20.0	
	455.6	1466.8	4- 5	< 6.0	1.8 +/- 0.6	2.0 +/- 1.0	11.0 +/- 1.0	
	455.6	1466.8	5- 6	< 9.0	1.3 +/- 0.5	< 1.0	3.9 +/- 0.4	
	455.6	1466.8	6- 7	< 5.0	1.2 +/- 0.5	1.7 +/- 0.8	1.9 +/- 0.3	
	455.6	1466.8	7- 8	<10.0	1.5 +/- 0.5	3.0 +/- 1.0	1.4 +/- 0.2	
	455.7	1710.7	0- 1	9.0 +/- 6.0	5.0 +/- 1.0	< 1.0	250.0 +/- 10.0	
	455.7	1710.7	1- 2	<12.0	2.1 +/- 0.7	3.0 +/- 1.0	26.0 +/- 2.0	
	455.7	1710.7	2- 3	< 4.0	0.9 +/- 0.5	1.9 +/- 0.9	2.6 +/- 0.2	
	455.7	1710.7	3- 4	< 5.0	0.9 +/- 0.6	1.6 +/- 0.9	1.6 +/- 0.2	
	455.7	1710.7	4- 5	< 9.0	< 1.0	2.4 +/- 1.0	6.4 +/- 0.9	
	455.7	1710.7	5- 6	< 4.0	1.0 +/- 0.5	1.0 +/- 0.8	1.6 +/- 0.2	

TABLE 5-6

(continued)

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Coordinates		Depth (ft)	Concentration (pCi/g +/- 2 sigma)					Thorium-230
East	North		Uranium-238	Radium-226	Thorium-232			
459.0	1900.0	0- 1	<10.0	4.0 +/- 1.0	3.0 +/- 1.0	1.0	-a-	
459.0	1900.0	1- 2	< 7.0	1.5 +/- 0.6	1.5 +/- 0.8	0.8	98.0 +/- 5.0	
459.0	1900.0	2- 3	< 4.0	1.0 +/- 0.5	1.8 +/- 0.8	0.8	-a-	
459.0	1900.0	3- 4	< 9.0	1.3 +/- 0.5	4.0 +/- 1.0	1.0	2.2 +/- 0.5	
459.0	1900.0	4- 5	< 6.0	1.0 +/- 0.5	1.8 +/- 0.8	0.8	-a-	
459.0	1900.0	5- 6	< 5.0	1.0 +/- 0.5	1.3 +/- 0.8	0.8	2.1 +/- 0.7	
459.0	1900.0	6- 7	< 8.0	2.6 +/- 0.7	1.7 +/- 1.0	1.0	-a-	
459.0	1900.0	7- 8	< 5.0	1.2 +/- 0.5	1.6 +/- 0.9	0.9	-a-	
500.0	1150.0	0- 1	95.0 +/- 27.0	82.0 +/- 4.0	2.0 +/- 2.0	2.0	-a-	
500.0	1150.0	1- 2	10.0 +/- 4.0	1.4 +/- 0.6	3.0 +/- 1.0	1.0	-a-	
500.0	1150.0	2- 3	< 6.0	1.2 +/- 0.6	< 1.0	3.4 +/- 1.2		
500.0	1150.0	3- 4	< 5.0	1.6 +/- 0.5	1.2 +/- 0.7	0.7	5.3 +/- 1.5	
500.0	1150.0	4- 5	< 9.0	1.3 +/- 0.4	2.4 +/- 0.9	0.9	6.3 +/- 2.0	
500.0	1150.0	5- 6	< 5.0	2.0 +/- 0.6	1.2 +/- 0.9	0.9	-a-	
500.0	1150.0	6- 7	< 5.0	1.0 +/- 0.5	1.3 +/- 0.6	0.6	-a-	
500.0	1150.0	7- 8	< 7.0	1.7 +/- 0.5	1.2 +/- 0.6	0.6	-a-	
500.0	1150.0	8- 9	< 4.0	1.9 +/- 0.5	1.1 +/- 0.8	0.8	-a-	
500.0	1310.0	0- 1	<20.0	3.0 +/- 1.0	3.0 +/- 1.0	1.0	-a-	
500.0	1310.0	1- 2	<12.0	2.7 +/- 0.8	2.0 +/- 1.0	1.0	-a-	
500.0	1310.0	2- 3	<11.0	1.1 +/- 0.5	2.3 +/- 0.9	0.9	5.2 +/- 0.8	
500.0	1310.0	3- 4	<11.0	1.6 +/- 0.6	3.0 +/- 1.0	1.0	-a-	
500.0	1310.0	4- 5	<10.0	1.3 +/- 0.7	2.2 +/- 0.8	0.8	8.8 +/- 2.0	
500.0	1310.0	5- 6	<10.0	0.9 +/- 0.5	3.0 +/- 1.0	1.0	-a-	

TABLE 5-6

(continued)

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Coordinates		Depth (ft)	Concentration (pCi/g +/- 2 sigma)					
East	North		Uranium-238	Radium-226	Thorium-232	Thorium-230		
500.0	1310.0	6- 7	< 9.0	1.4 +/- 0.5	2.0 +/- 0.8	7.6 +/- 2.4		
500.0	1310.0	7- 8	< 6.0	1.0 +/- 0.6	1.2 +/- 0.7	-a-		
500.0	1350.0	0- 1	<10.0	6.0 +/- 2.0	4.0 +/- 2.0	-a-		
500.0	1350.0	1- 2	< 5.0	1.2 +/- 0.6	1.2 +/- 0.8	2.8 +/- 1.1		
500.0	1350.0	2- 3	< 5.0	1.8 +/- 0.6	1.8 +/- 0.9	-a-		
500.0	1350.0	3- 4	< 5.0	0.8 +/- 0.6	1.7 +/- 0.8	-a-		
500.0	1350.0	4- 5	< 6.0	0.9 +/- 0.6	4.0 +/- 1.0	1.5 +/- 0.4		
500.0	1350.0	5- 6	< 5.0	1.1 +/- 0.7	1.2 +/- 0.9	-a-		
500.0	1350.0	6- 7	<10.0	1.6 +/- 0.5	2.2 +/- 0.9	2.3 +/- 0.8		
500.0	1350.0	7- 8	< 4.0	1.2 +/- 0.6	1.3 +/- 0.8	-a-		
500.0	1350.0	8- 9	< 3.0	1.0 +/- 0.4	0.8 +/- 0.7	-a-		
500.0	1350.0	9-10	< 4.0	1.1 +/- 0.5	1.3 +/- 0.7	-a-		
500.0	1550.0	0- 1	<18.0	4.0 +/- 1.0	4.0 +/- 2.0	-a-		
500.0	1550.0	1- 2	<13.0	3.0 +/- 1.0	< 1.0	23.0 +/- 1.0		
500.0	1550.0	2- 3	<10.0	1.7 +/- 0.7	1.7 +/- 0.9	-a-		
500.0	1550.0	3- 4	<15.0	2.4 +/- 0.8	2.0 +/- 1.0	1.4 +/- 0.3		
500.0	1550.0	4- 5	< 7.0	1.7 +/- 0.6	1.9 +/- 0.9	-a-		
500.0	1550.0	5- 6	<18.0	2.6 +/- 0.9	4.0 +/- 2.0	12.0 +/- 0.3		
500.0	1550.0	6- 7	<10.0	1.9 +/- 0.6	3.0 +/- 1.0	-a-		
500.0	1550.0	7- 8	< 8.0	1.3 +/- 0.5	1.3 +/- 0.8	-a-		
500.0	1550.0	8- 9	< 5.0	1.1 +/- 0.5	1.5 +/- 0.7	-a-		
500.0	1550.0	9-10	< 7.0	1.4 +/- 0.5	1.9 +/- 0.7	-a-		
500.0	1550.0	10-11	< 7.0	1.6 +/- 0.7	1.9 +/- 0.8	-a-		
500.0	1550.0	11-12	< 6.0	1.6 +/- 0.6	2.0 +/- 0.8	-a-		

TABLE 5-6

(continued)

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Coordinates		Depth (ft)	Concentration (pCi/g +/- 2 sigma)				Thorium-230
East	North		Uranium-238	Radium-226	Thorium-232		
500.0	1550.0	12-13	<10.0	2.2 +/- 0.7	1.3 +/- 1.0	1.0	-a-
500.0	1550.0	13-14	< 9.0	1.3 +/- 0.6	1.8 +/- 0.8	0.8	-a-
500.0	1550.0	14-15	< 9.0	1.6 +/- 0.6	1.4 +/- 0.7	0.7	-a-
500.0	1650.0	0- 1	<20.0	5.0 +/- 1.0	4.0 +/- 2.0	2.0	-a-
500.0	1650.0	1- 2	< 8.0	1.9 +/- 0.7	< 1.0	76.0 +/- 4.0	4.0
500.0	1650.0	2- 3	<11.0	1.6 +/- 0.6	3.0 +/- 1.0	1.0	-a-
500.0	1650.0	3- 4	< 8.0	1.4 +/- 0.6	1.1 +/- 0.7	0.7	-a-
500.0	1650.0	4- 5	< 7.0	< 1.0	1.4 +/- 0.8	1.0 +/- 0.4	
500.0	1650.0	5- 6	<11.0	4.0 +/- 2.0	5.0 +/- 3.0	3.0	-a-
500.0	1650.0	6- 7	<15.0	1.4 +/- 0.6	1.7 +/- 0.8	0.8	0.7 +/- 0.5
500.0	1650.0	7- 8	< 9.0	2.1 +/- 0.7	2.0 +/- 1.0	1.0	-a-
500.0	1650.0	8- 9	<10.0	1.8 +/- 0.5	2.0 +/- 1.0	1.0	-a-
500.0	1650.0	9-10	< 7.0	1.2 +/- 0.5	1.4 +/- 0.6	0.6	-a-
500.0	1750.0	0- 1	<17.0	2.2 +/- 0.9	3.0 +/- 1.0	1.0	-a-
500.0	1750.0	1- 2	< 6.0	1.3 +/- 0.6	2.4 +/- 0.8	0.8	1.9 +/- 0.4
500.0	1750.0	2- 3	< 6.0	1.1 +/- 0.6	2.0 +/- 1.0	1.0	-a-
500.0	1750.0	3- 4	< 6.0	1.0 +/- 0.6	0.9 +/- 0.9	0.9	2.1 +/- 0.8
500.0	1750.0	4- 5	<10.0	1.7 +/- 0.5	3.0 +/- 1.0	1.0	-a-
500.0	1750.0	5- 6	< 6.0	1.2 +/- 0.6	1.7 +/- 0.8	0.8	1.8 +/- 0.5
500.0	1750.0	6- 7	< 5.0	1.3 +/- 0.6	1.1 +/- 0.7	0.7	-a-
500.0	1750.0	7- 8	<12.0	2.5 +/- 0.8	2.0 +/- 1.0	1.0	-a-
500.0	1750.0	8- 9	< 6.0	1.9 +/- 0.7	1.7 +/- 0.9	0.9	-a-
500.0	1750.0	9-10	<10.0	1.5 +/- 0.6	1.2 +/- 0.7	0.7	-a-
500.0	1850.0	0- 1	<55.0	4.0 +/- 3.0	< 4.0		-a-

TABLE 5-6

(continued)

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Coordinates		Depth (ft)	Concentration (pCi/g +/- 2 sigma)					
East	North		Uranium-238	Radium-226	Thorium-232	Thorium-230		
500.0	1850.0	1- 2	< 5.0	0.8 +/- 0.6	1.0 +/- 0.8	7.1 +/- 1.2		
500.0	1850.0	2- 3	<11.0	1.8 +/- 0.6	1.9 +/- 0.8	-a-		
500.0	1850.0	3- 4	< 6.0	1.0 +/- 0.6	1.0 +/- 0.8	2.3 +/- 0.8		
500.0	1850.0	4- 5	< 4.0	1.3 +/- 0.5	1.1 +/- 0.7	-a-		
500.0	1850.0	5- 6	<10.0	2.2 +/- 0.7	2.6 +/- 0.9	1.1 +/- 0.7		
500.0	1850.0	6- 7	< 6.0	1.9 +/- 0.7	1.8 +/- 0.9	-a-		
500.0	1850.0	7- 8	< 5.0	1.6 +/- 0.6	1.5 +/- 0.8	-a-		
500.0	1850.0	8- 9	< 5.0	1.2 +/- 0.5	1.1 +/- 0.6	-a-		
500.0	1850.0	9-10	<11.0	1.5 +/- 0.5	1.5 +/- 0.9	-a-		
73	500.0	1940.0	0- 1	<11.0	3.0 +/- 1.0	3.0 +/- 2.0	-a-	
	500.0	1940.0	1- 2	<11.0	2.2 +/- 0.7	3.0 +/- 1.0	1.2 +/- 0.5	
	500.0	1940.0	2- 3	< 6.0	0.9 +/- 0.5	1.9 +/- 0.8	-a-	
	500.0	1940.0	3- 4	< 6.0	1.2 +/- 0.6	1.7 +/- 0.9	-a-	
	500.0	1940.0	4- 5	<11.0	1.5 +/- 0.5	2.0 +/- 1.0	-a-	
	500.0	1940.0	5- 6	< 6.0	1.9 +/- 0.7	1.0 +/- 0.9	2.4 +/- 1.0	
	500.0	1940.0	6- 7	<10.0	1.2 +/- 0.5	2.7 +/- 0.9	-a-	
	500.0	1940.0	7- 8	< 4.0	1.5 +/- 0.5	1.9 +/- 0.7	-a-	
	500.0	1940.0	8- 9	<10.0	1.6 +/- 0.6	1.6 +/- 0.8	1.1 +/- 0.5	
	500.0	1940.0	9-10	< 5.0	1.4 +/- 0.5	1.0 +/- 0.8	-a-	
503.0	1450.0	1- 2	<11.0	2.7 +/- 0.7	< 1.0	16.0 +/- 1.0		
503.0	1450.0	2- 3	6.0 +/- 5.0	5.0 +/- 1.0	1.3 +/- 0.8	-a-		
503.0	1450.0	3- 4	< 6.0	1.7 +/- 0.6	1.1 +/- 1.0	1.6 +/- 0.5		
503.0	1450.0	4- 5	<12.0	2.4 +/- 0.6	2.2 +/- 0.8	-a-		
503.0	1450.0	5- 6	< 7.0	2.0 +/- 0.7	1.2 +/- 1.0	8.0 +/- 1.0		

TABLE 5-6

(continued)

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Coordinates		Depth (ft)	Concentration (pCi/g +/- 2 sigma)				
East	North		Uranium-238	Radium-226	Thorium-232	Thorium-230	
503.0	1450.0	6- 7	<10.0	1.5 +/- 0.6	2.2 +/- 0.9	-a-	
503.0	1450.0	7- 8	< 6.0	1.2 +/- 0.6	1.2 +/- 0.7	-a-	
503.0	1450.0	8- 9	< 8.0	1.8 +/- 0.5	2.0 +/- 0.8	-a-	
503.0	1450.0	9-10	<16.0	2.1 +/- 0.9	2.0 +/- 1.0	-a-	
514.8	1290.9	0- 1	< 9.0	1.9 +/- 0.6	1.2 +/- 0.6	32.0 +/- 1.0	
514.8	1290.9	1- 2	< 5.0	1.6 +/- 0.5	1.0 +/- 0.8	7.0 +/- 1.0	
514.8	1290.9	2- 3	< 5.0	1.1 +/- 0.6	1.9 +/- 0.8	1.7 +/- 0.2	
514.8	1290.9	3- 4	<10.0	1.5 +/- 0.5	2.5 +/- 0.9	1.7 +/- 0.2	
514.8	1290.9	4- 5	< 4.0	1.5 +/- 0.5	1.6 +/- 0.8	2.3 +/- 0.9	
514.8	1290.9	5- 6	< 9.0	1.4 +/- 0.5	2.8 +/- 0.8	1.5 +/- 0.3	
514.8	1290.9	6- 7	< 4.0	1.3 +/- 0.5	1.0 +/- 0.7	1.5 +/- 0.2	
520.0	1803.0	1- 2	< 6.0	1.3 +/- 0.6	2.3 +/- 0.9	3.4 +/- 1.0	
520.0	1803.0	2- 3	< 6.0	1.7 +/- 0.7	2.3 +/- 0.7	-a-	
520.0	1803.0	3- 4	< 5.0	1.4 +/- 0.5	2.0 +/- 0.8	1.2 +/- 0.6	
520.0	1803.0	4- 5	< 5.0	0.5 +/- 0.5	1.4 +/- 0.8	-a-	
520.0	1803.0	5- 6	<10.0	1.9 +/- 0.7	3.0 +/- 1.0	1.5 +/- 0.4	
520.0	1803.0	6- 7	< 6.0	1.2 +/- 0.6	1.8 +/- 0.9	-a-	
520.0	1803.0	7- 8	< 6.0	1.4 +/- 0.6	1.1 +/- 0.8	-a-	
520.0	1803.0	8- 9	< 6.0	1.3 +/- 0.6	1.1 +/- 0.7	-a-	
520.0	1803.0	9-10	< 8.0	1.4 +/- 0.8	2.0 +/- 1.0	-a-	
526.0	1500.0	0- 1	< 9.0	2.5 +/- 0.9	1.0 +/- 1.0	-a-	
526.0	1500.0	1- 2	< 7.0	1.2 +/- 0.7	1.4 +/- 1.0	-a-	
526.0	1500.0	2- 3	61.0 +/- 18.0	77.0 +/- 4.0	2.0 +/- 2.0	-a-	

TABLE 5-6

(continued)

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<u>Coordinates</u>		<u>Depth</u>	Concentration (pCi/g +/- 2 sigma)					
East	North	(ft)	Uranium-238	Radium-226	Thorium-232	Thorium-230		
526.0	1500.0	3- 4	< 7.0	1.5 +/- 0.7	1.9 +/- 0.9	3.9 +/- 0.9		
526.0	1500.0	4- 5	<10.0	1.8 +/- 0.7	3.0 +/- 1.0	2.2 +/- 0.4		
526.0	1500.0	5- 6	< 6.0	1.8 +/- 0.6	1.5 +/- 0.8	3.6 +/- 1.4		
526.0	1500.0	6- 7	< 6.0	1.9 +/- 0.6	1.2 +/- 0.7		-a-	
526.0	1500.0	7- 8	< 8.0	1.6 +/- 0.5	1.7 +/- 0.8		-a-	
526.0	1500.0	8- 9	< 8.0	1.3 +/- 0.4	1.4 +/- 0.7		-a-	
526.0	1500.0	9-10	< 6.0	2.5 +/- 0.7	1.4 +/- 0.8		-a-	
75	526.0	1600.0	0- 1	<12.0	3.0 +/- 1.0	2.0 +/- 1.0		-a-
	526.0	1600.0	1- 2	< 9.0	1.3 +/- 0.7	1.3 +/- 0.7		-a-
	526.0	1600.0	2- 3	< 9.0	3.0 +/- 1.0	1.5 +/- 0.8		-a-
	526.0	1600.0	3- 4	< 7.0	0.8 +/- 0.6	< 1.0	2.1 +/- 1.2	
	526.0	1600.0	4- 5	< 8.0	1.4 +/- 0.5	< 1.0	1.5 +/- 0.8	
	526.0	1600.0	5- 6	< 9.0	2.2 +/- 0.7	2.0 +/- 1.0	< 1.1	
	526.0	1600.0	6- 7	< 8.0	1.4 +/- 0.5	< 1.0		-a-
	526.0	1600.0	7- 8	< 6.0	1.2 +/- 0.5	1.6 +/- 0.7		-a-
75	526.0	1700.0	0- 1	<12.0	5.0 +/- 1.0	1.5 +/- 1.1		-a-
	526.0	1700.0	1- 2	< 7.0	1.2 +/- 0.5	1.4 +/- 0.8		-a-
	526.0	1700.0	2- 3	< 9.0	4.0 +/- 1.0	2.0 +/- 1.0		-a-
	526.0	1700.0	3- 4	< 7.0	1.2 +/- 0.5	1.4 +/- 0.7	3.2 +/- 0.5	
	526.0	1700.0	4- 5	< 6.0	0.8 +/- 0.5	1.1 +/- 0.7	1.5 +/- 0.4	
	526.0	1700.0	5- 6	< 7.0	1.1 +/- 0.5	1.9 +/- 0.7	1.3 +/- 0.3	
	526.0	1700.0	6- 7	< 5.0	1.5 +/- 0.5	2.6 +/- 0.9		-a-
	526.0	1700.0	7- 8	< 6.0	1.4 +/- 0.4	1.6 +/- 0.6		-a-
	526.0	1700.0	8- 9	< 9.0	2.0 +/- 0.6	2.8 +/- 0.8		-a-

TABLE 5-6

(continued)

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<u>Coordinates</u>		<u>Depth</u> <u>(ft)</u>	Concentration (pCi/g +/- 2 sigma)				
<u>East</u>	<u>North</u>		Uranium-238	Radium-226	Thorium-232	Thorium-230	
526.0	1700.0	9-10	<10.0	1.7 +/- 1.2	2.0 +/- 1.0		-a-
527.0	1075.0	0- 1	< 6.0	3.3 +/- 0.8	1.0 +/- 0.9		-a-
527.0	1075.0	1- 2	53.0 +/- 13.0	38.0 +/- 3.0	3.0 +/- 2.0		-a-
527.0	1075.0	2- 3	40.0 +/- 7.0	39.0 +/- 3.0	5.0 +/- 2.0		-a-
527.0	1075.0	3- 4	46.0 +/- 11.0	33.0 +/- 3.0	3.0 +/- 2.0		-a-
527.0	1075.0	4- 5	9.0 +/- 4.0	1.4 +/- 0.6	1.8 +/- 0.8	4.0 +/- 0.5	
527.0	1075.0	5- 6	5.0 +/- 4.0	1.8 +/- 0.7	2.0 +/- 1.0	57.0 +/- 4.0	
527.0	1075.0	6- 7	< 7.0	1.9 +/- 0.6	1.7 +/- 0.9	2.5 +/- 1.0	
527.0	1075.0	7- 8	< 9.0	1.3 +/- 0.5	2.0 +/- 0.8		-a-
527.0	1075.0	8- 9	< 4.0	0.4 +/- 0.4	0.7 +/- 0.6		-a-
527.0	1075.0	9-10	< 6.0	1.2 +/- 0.5	1.1 +/- 0.7		-a-
527.0	1075.0	10-11	< 8.0	1.3 +/- 0.5	1.4 +/- 0.7		-a-
527.0	1075.0	11-12	< 6.0	1.0 +/- 0.5	1.3 +/- 0.7		-a-
527.0	1075.0	12-13	< 6.0	0.9 +/- 0.5	1.5 +/- 0.7		-a-
540.0	1900.0	1- 2	< 7.0	1.2 +/- 0.7	1.7 +/- 0.9		-a-
540.0	1900.0	2- 3	< 6.0	1.9 +/- 0.6	4.0 +/- 1.0	< 0.9	
540.0	1900.0	3- 4	< 5.0	0.9 +/- 0.6	1.5 +/- 0.8	1.5 +/- 0.4	
540.0	1900.0	4- 5	<11.0	1.3 +/- 0.5	1.8 +/- 0.9	1.9 +/- 1.0	
540.0	1900.0	5- 6	< 5.0	1.8 +/- 0.6	2.3 +/- 0.9		-a-
540.0	1900.0	6- 7	< 8.0	1.3 +/- 0.5	2.4 +/- 0.8		-a-
540.0	1900.0	7- 8	< 4.0	1.0 +/- 0.5	1.4 +/- 0.8		-a-
540.0	1900.0	8- 9	< 5.0	1.3 +/- 0.5	< 1.0		-a-
540.0	1900.0	9-10	<15.0	2.6 +/- 0.8	3.0 +/- 1.0		-a-
550.0	1050.0	0- 1	<22.0	16.0 +/- 3.0	6.0 +/- 2.0		-a-

TABLE 5-6

(continued)

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Coordinates		Depth (ft)	Concentration (pCi/g +/- 2 sigma)					Thorium-230
East	North		Uranium-238	Radium-226	Thorium-232			
550.0	1050.0	1- 2	5.0 +/- 5.0	10.0 +/- 1.0	4.0 +/-	2.0		-a-
550.0	1050.0	2- 3	<15.0	17.0 +/- 2.0	< 1.0			-a-
550.0	1050.0	3- 4	150.0 +/- 30.0	170.0 +/- 10.0	5.0 +/-	3.0		-a-
550.0	1050.0	4- 5	<11.0	1.6 +/- 0.6	1.8 +/-	0.7	3.3 +/-	0.7
550.0	1050.0	5- 6	< 6.0	1.4 +/- 0.6	1.3 +/-	1.0	3.1 +/-	0.9
550.0	1050.0	6- 7	<11.0	2.0 +/- 0.6	3.0 +/-	1.0	1.7 +/-	1.3
550.0	1050.0	7- 8	< 4.0	0.9 +/- 0.5	1.0 +/-	0.7		-a-
550.0	1050.0	8- 9	< 5.0	1.3 +/- 0.5	1.4 +/-	0.8		-a-
550.0	1050.0	9-10	< 9.0	1.8 +/- 0.5	2.4 +/-	0.8		-a-
550.0	1050.0	10-11	< 5.0	1.3 +/- 0.5	2.5 +/-	0.8		-a-
550.0	1050.0	11-12	< 8.0	1.2 +/- 0.5	0.8 +/-	0.5		-a-
550.0	1050.0	12-13	< 4.0	1.4 +/- 0.5	1.2 +/-	0.7		-a-
550.0	1050.0	13-14	< 4.0	1.1 +/- 0.4	1.9 +/-	0.7		-a-
550.0	1050.0	14-15	< 8.0	2.0 +/- 0.5	2.0 +/-	0.8		-a-
550.0	1400.0	0- 1	< 6.0	5.0 +/- 2.0	< 2.0			-a-
550.0	1400.0	1- 2	37.0 +/- 9.0	20.0 +/- 2.0	3.0 +/-	1.0		-a-
550.0	1400.0	2- 3	<10.0	2.5 +/- 0.7	2.3 +/-	0.9		-a-
550.0	1400.0	3- 4	< 6.0	1.4 +/- 0.6	2.0 +/-	0.8	6.0 +/-	2.0
550.0	1400.0	4- 5	< 9.0	2.1 +/- 0.6	1.2 +/-	0.7	1.7 +/-	0.4
550.0	1400.0	5- 6	< 5.0	1.5 +/- 0.6	1.4 +/-	0.7	1.9 +/-	0.5
550.0	1400.0	6- 7	< 8.0	2.4 +/- 0.6	2.0 +/-	0.9		-a-
550.0	1400.0	7- 8	< 6.0	0.9 +/- 0.6	2.2 +/-	0.8		-a-
557.8	1191.2	0- 1	< 6.0	2.8 +/- 0.7	1.1 +/-	0.6	74.0 +/-	1.0
557.8	1191.2	1- 2	11.0 +/- 8.0	14.0 +/- 2.0	1.3 +/-	0.9	390.0 +/-	10.0

TABLE 5-6

(continued)

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Coordinates		Depth (ft)	Concentration (pCi/g +/- 2 sigma)					
East	North		Uranium-238	Radium-226	Thorium-232	Thorium-230		
557.8	1191.2	2- 3	18.0 +/- 5.0	18.0 +/- 2.0	2.0 +/- 1.0	830.0 +/- 10.0		
557.8	1191.2	3- 4	5.0 +/- 4.0	7.0 +/- 1.0	1.8 +/- 0.8	230.0 +/- 10.0		
557.8	1191.2	4- 5	< 7.0	1.4 +/- 0.6	2.0 +/- 1.0	5.5 +/- 1.9		
557.8	1191.2	5- 6	< 9.0	1.8 +/- 0.6	1.9 +/- 0.8	3.5 +/- 0.7		
557.8	1191.2	6- 7	< 5.0	0.6 +/- 0.4	1.6 +/- 0.7	3.0 +/- 0.3		
557.8	1191.2	7- 8	< 8.0	1.2 +/- 0.5	2.3 +/- 0.8	1.7 +/- 0.4		
557.8	1191.2	8- 9	< 5.0	1.5 +/- 0.5	2.3 +/- 0.7	5.7 +/- 0.6		
557.8	1191.2	9-10	< 9.0	1.7 +/- 0.5	2.0 +/- 1.0	3.3 +/- 0.4		
589.1	1120.4	0- 1	8.0 +/- 4.0	5.0 +/- 1.0	2.0 +/- 0.8	18.0 +/- 1.0		
589.1	1120.4	1- 2	41.0 +/- 9.0	10.0 +/- 2.0	3.0 +/- 1.0	580.0 +/- 10.0		
589.1	1120.4	2- 3	8.0 +/- 6.0	5.0 +/- 1.0	2.0 +/- 1.0	130.0 +/- 10.0		
589.1	1120.4	3- 4	<10.0	1.8 +/- 0.6	3.0 +/- 1.0	3.0 +/- 2.0		
589.1	1120.4	4- 5	< 8.0	2.4 +/- 0.8	1.3 +/- 1.1	2.3 +/- 0.4		
589.1	1120.4	5- 6	<11.0	1.7 +/- 0.6	3.0 +/- 1.0	1.4 +/- 1.1		
589.1	1120.4	6- 7	< 5.0	1.2 +/- 0.5	0.9 +/- 0.7	1.3 +/- 0.6		
590.0	1350.0	0- 1	100.0 +/- 40.0	100.0 +/- 10.0	< 3.0	-a-		
590.0	1350.0	1- 2	10.0 +/- 7.0	2.9 +/- 0.7	1.4 +/- 1.0	18.0 +/- 2.0		
590.0	1350.0	2- 3	< 9.0	2.9 +/- 0.7	3.0 +/- 1.0	-a-		
590.0	1350.0	3- 4	< 6.0	0.9 +/- 0.5	2.4 +/- 0.9	18.0 +/- 2.0		
590.0	1350.0	4- 5	< 9.0	1.3 +/- 0.5	1.3 +/- 0.9	3.9 +/- 0.7		
590.0	1350.0	5- 6	< 5.0	1.6 +/- 0.5	1.3 +/- 0.7	-a-		
590.0	1350.0	6- 7	< 9.0	1.4 +/- 0.5	1.4 +/- 0.7	-a-		
590.0	1350.0	7- 8	< 5.0	1.3 +/- 0.5	1.0 +/- 0.6	-a-		
590.0	1350.0	8- 9	< 8.0	0.9 +/- 0.4	2.2 +/- 0.8	-a-		

TABLE 5-6

(continued)

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Coordinates		Depth (ft)	Concentration (pCi/g +/- 2 sigma)					Thorium-230
East	North		Uranium-238	Radium-226	Thorium-232	Thorium-232	Thorium-232	
590.0	1350.0	9-10	<10.0	2.1 +/- 0.9	2.0 +/- 1.0	1.0	-a-	
600.0	1250.0	1- 2	64.0 +/- 21.0	42.0 +/- 3.0	3.0 +/- 1.0	1.0	-a-	
600.0	1250.0	2- 3	<10.0	1.3 +/- 0.5	1.8 +/- 0.7	0.7	1.4 +/- 0.6	
600.0	1250.0	3- 4	< 8.0	1.2 +/- 0.5	< 1.0		2.3 +/- 1.1	
600.0	1250.0	4- 5	<10.0	1.8 +/- 0.5	2.0 +/- 0.7	0.7	-a-	
600.0	1250.0	5- 6	< 6.0	1.9 +/- 0.6	2.0 +/- 0.9	0.9	-a-	
600.0	1250.0	6- 7	< 7.0	1.4 +/- 0.5	0.9 +/- 0.6	0.6	-a-	
600.0	1250.0	7- 8	< 8.0	1.3 +/- 0.5	1.8 +/- 0.8	0.8	-a-	
600.0	1250.0	10-11	< 6.0	1.3 +/- 0.5	2.3 +/- 0.7	0.7	-a-	
600.0	1250.0	11-12	< 9.0	1.6 +/- 0.5	2.6 +/- 0.9	0.9	-a-	
79	641.0	1150.0	0- 1	32.0 +/- 15.0	20.0 +/- 4.0	3.0 +/- 3.0	-a-	
	641.0	1150.0	1- 2	< 7.0	1.1 +/- 0.5	2.0 +/- 1.0	-a-	
	641.0	1150.0	2- 3	<11.0	1.5 +/- 0.5	1.1 +/- 0.9	1.5 +/- 0.6	
	641.0	1150.0	3- 4	< 7.0	1.4 +/- 0.6	1.2 +/- 0.8	1.0 +/- 0.4	
	641.0	1150.0	4- 5	< 9.0	1.6 +/- 0.5	2.0 +/- 1.0	3.0 +/- 0.7	
	641.0	1150.0	5- 6	< 9.0	0.9 +/- 0.8	2.0 +/- 1.0	-a-	
	641.0	1150.0	6- 7	< 7.0	1.5 +/- 0.5	1.1 +/- 0.7	-a-	
	641.0	1150.0	7- 8	< 8.0	1.3 +/- 0.4	2.1 +/- 0.8	-a-	
	641.0	1150.0	8- 9	< 5.0	0.9 +/- 0.4	1.3 +/- 0.7	-a-	
	641.0	1150.0	9-10	< 7.0	0.7 +/- 0.5	0.9 +/- 0.6	-a-	
650.0	1100.0	1- 2	19.0 +/- 9.0	10.0 +/- 2.0	< 1.0		500.0 +/- 10.0	
650.0	1100.0	2- 3	<10.0	3.2 +/- 0.8	3.0 +/- 1.0	1.0	-a-	
650.0	1100.0	3- 4	<10.0	2.6 +/- 0.7	2.0 +/- 1.0	1.0	-a-	

TABLE 5-6

(continued)

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Coordinates		Depth (ft)	Concentration (pCi/g +/- 2 sigma)				
East	North		Uranium-238	Radium-226	Thorium-232	Thorium-230	
650.0	1100.0	4- 5	< 7.0	1.2 +/- 0.6	1.0 +/- 1.0	1.0	-a-
650.0	1100.0	5- 6	< 8.0	1.6 +/- 0.5	2.6 +/- 0.8	0.9 +/- 0.7	
650.0	1100.0	6- 7	< 4.0	0.6 +/- 0.3	< 1.0		-a-
650.0	1100.0	7- 8	< 5.0	1.6 +/- 0.5	< 1.0		-a-
650.0	1100.0	8- 9	<10.0	2.1 +/- 0.6	2.0 +/- 1.0		-a-
650.0	1100.0	11-12	< 5.0	0.8 +/- 0.5	1.1 +/- 0.7	2.2 +/- 1.4	
650.0	1100.0	12-13	< 4.0	1.8 +/- 0.5	1.7 +/- 0.7		-a-
650.0	1100.0	13-14	< 8.0	1.4 +/- 0.5	< 1.0		-a-
650.0	1100.0	14-15	< 6.0	1.3 +/- 0.5	1.6 +/- 0.7		-a-
08	650.0	1200.0	1- 2	<19.0	2.3 +/- 0.9	5.0 +/- 2.0	9.0 +/- 2.0
	650.0	1200.0	2- 3	< 7.0	1.6 +/- 0.6	2.0 +/- 1.0	-a-
	650.0	1200.0	3- 4	< 9.0	0.6 +/- 0.6	1.2 +/- 0.8	-a-
	650.0	1200.0	4- 5	<10.0	2.3 +/- 0.7	3.0 +/- 1.0	0.8 +/- 0.6
	650.0	1200.0	5- 6	<20.0	3.0 +/- 1.0	3.0 +/- 2.0	-a-
	650.0	1200.0	6- 7	<12.0	0.8 +/- 0.7	2.0 +/- 1.0	0.9 +/- 0.6
	650.0	1200.0	7- 8	< 7.0	1.5 +/- 0.6	1.9 +/- 0.8	-a-
	650.0	1200.0	8- 9	< 6.0	1.8 +/- 0.6	1.9 +/- 0.8	-a-
	650.0	1200.0	9-10	< 8.0	1.1 +/- 0.5	3.0 +/- 1.0	-a-
	650.0	1291.0	0- 1	<26.0	3.0 +/- 2.0	2.0 +/- 2.0	37.0 +/- 3.0
	650.0	1291.0	1- 2	<11.0	1.6 +/- 0.6	3.0 +/- 1.0	1.6 +/- 0.6
	650.0	1291.0	2- 3	< 6.0	1.3 +/- 0.5	1.0 +/- 0.7	-a-
	650.0	1291.0	3- 4	< 9.0	2.2 +/- 0.7	2.0 +/- 0.9	-a-
	650.0	1291.0	4- 5	< 8.0	1.1 +/- 0.5	1.6 +/- 0.8	-a-
	650.0	1291.0	5- 6	< 6.0	0.9 +/- 0.5	1.3 +/- 0.7	-a-

TABLE 5-6

(continued)

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Coordinates		Depth (ft)	Concentration (pCi/g +/- 2 sigma)				Thorium-230
East	North		Uranium-238	Radium-226	Thorium-232		
650.0	1291.0	6- 7	< 8.0	1.0 +/- 0.4	2.1 +/- 0.8	-a-	
650.0	1291.0	7- 8	< 7.0	1.0 +/- 0.4	1.0 +/- 0.6	-a-	
650.0	1291.0	8- 9	< 6.0	0.8 +/- 0.5	1.3 +/- 0.7	-a-	
650.0	1291.0	9-10	<11.0	2.0 +/- 0.8	3.0 +/- 1.0	-a-	
650.0	1365.0	0- 1	16.0 +/- 10.0	8.0 +/- 2.0	< 1.0	-a-	
650.0	1365.0	1- 2	< 8.0	1.5 +/- 0.6	1.8 +/- 0.9	6.5 +/- 1.1	
650.0	1365.0	2- 3	<11.0	1.4 +/- 0.6	1.7 +/- 0.8	1.3 +/- 0.4	
650.0	1365.0	3- 4	< 6.0	1.0 +/- 0.5	1.0 +/- 0.7	-a-	
650.0	1365.0	4- 5	< 8.0	1.7 +/- 0.5	2.0 +/- 0.7	-a-	
650.0	1365.0	5- 6	< 9.0	1.1 +/- 0.6	1.0 +/- 0.9	-a-	
650.0	1365.0	6- 7	< 5.0	0.9 +/- 0.5	1.1 +/- 0.6	-a-	
650.0	1365.0	7- 8	< 9.0	1.2 +/- 0.5	3.0 +/- 1.0	-a-	
650.0	1365.0	8- 9	< 7.0	0.8 +/- 0.5	< 1.0	-a-	
650.0	1365.0	9-10	<12.0	1.8 +/- 0.6	0.8 +/- 0.7	-a-	
661.0	1058.5	0- 1	< 6.0	1.7 +/- 0.7	1.3 +/- 0.8	-a-	
661.0	1058.5	1- 2	<10.0	2.9 +/- 0.8	4.0 +/- 1.0	47.0 +/- 5.0	
661.0	1058.5	2- 3	< 6.0	0.7 +/- 0.5	1.3 +/- 0.8	-a-	
661.0	1058.5	3- 4	<10.0	0.8 +/- 0.5	0.8 +/- 0.8	-a-	
661.0	1058.5	4- 5	<11.0	1.4 +/- 0.5	1.6 +/- 0.8	2.2 +/- 0.5	
661.0	1058.5	5- 6	< 5.0	1.5 +/- 0.5	0.8 +/- 0.8	1.8 +/- 0.7	
661.0	1058.5	6- 7	< 8.0	2.0 +/- 0.5	1.6 +/- 0.7	-a-	
661.0	1058.5	7- 8	< 5.0	1.1 +/- 0.6	1.3 +/- 0.8	-a-	
661.0	1058.5	8- 9	< 9.0	1.8 +/- 0.6	2.5 +/- 0.9	-a-	
661.0	1058.5	9-10	<24.0	3.0 +/- 2.0	5.0 +/- 3.0	-a-	

TABLE 5-6

(continued)

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Coordinates		Depth (ft)	Concentration (pCi/g +/- 2 sigma)					Thorium-230
East	North		Uranium-238	Radium-226	Thorium-232			
700.0	1150.0	0- 1	<35.0	4.0 +/- 2.0	2.0 +/- 2.0	2.0 +/- 2.0		-a-
700.0	1150.0	1- 2	< 5.0	1.0 +/- 0.5	2.1 +/- 0.8	0.8	6.8 +/- 0.9	
700.0	1150.0	2- 3	<10.0	1.8 +/- 0.6	3.0 +/- 1.0			-a-
700.0	1150.0	3- 4	< 7.0	2.3 +/- 0.7	1.1 +/- 0.8			-a-
700.0	1150.0	4- 5	< 4.0	1.5 +/- 0.6	2.0 +/- 0.8		3.5 +/- 0.6	
700.0	1150.0	5- 6	<10.0	2.7 +/- 0.8	3.0 +/- 1.0			-a-
700.0	1150.0	6- 7	< 6.0	1.8 +/- 0.6	1.9 +/- 0.8		1.3 +/- 1.1	
700.0	1150.0	7- 8	< 8.0	1.2 +/- 0.6	1.7 +/- 0.8			-a-
700.0	1150.0	8- 9	< 8.0	1.9 +/- 0.6	2.1 +/- 0.8			-a-
82	700.0	1250.0	1- 2	< 7.0	1.3 +/- 0.6	3.0 +/- 1.0	2.1 +/- 0.9	
	700.0	1250.0	2- 3	< 6.0	1.9 +/- 0.7	1.8 +/- 0.9		-a-
	700.0	1250.0	3- 4	<12.0	1.8 +/- 0.9	2.0 +/- 1.0		-a-
	700.0	1250.0	4- 5	< 6.0	1.1 +/- 0.5	1.5 +/- 0.8	1.1 +/- 0.4	
	700.0	1250.0	5- 6	<15.0	2.6 +/- 0.9	3.0 +/- 1.0		-a-
	700.0	1250.0	6- 7	< 4.0	1.1 +/- 0.5	1.1 +/- 0.7	1.1 +/- 0.6	
	700.0	1250.0	7- 8	< 6.0	2.0 +/- 0.6	2.0 +/- 0.7		-a-
	700.0	1250.0	8- 9	< 9.0	1.6 +/- 0.6	1.4 +/- 0.8		-a-
	700.0	1250.0	9-10	< 4.0	1.2 +/- 0.5	< 1.0		-a-
723.0	1204.0	1- 2	< 7.0	2.0 +/- 0.6	1.1 +/- 0.7	17.0 +/- 1.0		
723.0	1204.0	2- 3	< 9.0	1.4 +/- 0.5	1.2 +/- 0.6		-a-	
723.0	1204.0	3- 4	< 5.0	1.7 +/- 0.6	1.5 +/- 0.8		-a-	
723.0	1204.0	4- 5	< 9.0	1.2 +/- 0.5	2.4 +/- 0.9		1.4 +/- 0.5	
723.0	1204.0	5- 6	< 9.0	1.7 +/- 0.5	3.4 +/- 0.9		1.7 +/- 0.6	

TABLE 5-6

(continued)

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Coordinates		Depth (ft)	Concentration (pCi/g +/- 2 sigma)				Thorium-230
East	North		Uranium-238	Radium-226	Thorium-232		
723.0	1204.0	6- 7	< 5.0	1.1 +/- 0.6	2.0 +/- 0.9	-a-	
723.0	1204.0	7- 8	< 5.0	1.1 +/- 0.5	1.3 +/- 0.7	-a-	
723.0	1204.0	8- 9	< 9.0	2.1 +/- 0.6	< 1.0	-a-	
723.0	1204.0	9-10	< 7.0	1.2 +/- 0.7	1.2 +/- 1.0	-a-	

-a- Analysis not requested

REFERENCES

1. Oak Ridge National Laboratory. Radiological Survey of the Property at 9200 Latty Avenue, Hazelwood, Missouri, Oak Ridge, TN, September 1977.
2. U.S. Department of Energy. "Environmental Protection, Safety, and Health Protection Program for DOE Operations," DOE Order 5480.1A, Chapter 11, Washington, D.C., August 1981.
3. Bechtel National, Inc. Radiological Protection Program Manual, Vol. I, Oak Ridge, TN, 1982.
4. U.S. Department of Energy. "U.S. Department of Energy Guidelines for Residual Radioactivity at Formerly Utilized Sites Remedial Action Program and Remote Surplus Facilities Management Program Sites," Rev. 1, July 1985.
5. Oak Ridge National Laboratory. Results of State Background Radiation Levels: Measurements Taken During 1975-1979, ORNL/TM-7343, Oak Ridge, TN, November 1981.

APPENDIX A

**GEOLOGIC DRILL LOGS FOR THE
FUTURA COATINGS SITE**



GEOLOGIC DRILL LOG					PROJECT	FUSRAP			JOB NO.	SHEET NO.	FILE NO.	
SITE HISS - DEVELOPED FUTURA PROPERTY					COORDINATES	N1947 E395.5			14501-140	1 OF 1	HISS-1	
DRILLER 12/15/86	COMPLETED 12/15/86	DRILLER JOHN MATHEWS AND ASSOCIATES	BELL NAME AND NUMBER CME-550			HOLE SIZE 8"	OVERBURDEN FT. 10.0'	ROCK FT. 0.0'	ANGLE FROM HORIZONTAL 90°	BEARING N/A	TOTAL DEPTH 10.0'	
CORE RECOVERY %/D 7.8' / 70%	CORE BOXES N/A	SAMPLES 2	EL. TOP OF CASING N/A	GROUNDS EL. (1)	DEPTH/EL. GROUND WATER 8.3' / (1)				DEPTH/EL. TOP OF ROCK N/A			
SAMPLE NUMBER WEIGHT/FALL N/A			CASING LEFT IN HOLE: CASING LENGTH NONE			LOGGED BY: J.W.SINS						
SAMPLE TIME AND DURATION OF SPANNED SECTION	SAMPLE LENGTH CORE RECOVERY %	SAMPLE TYPE CORE RECOVERY %	FORCED CORE RECOVERY	WATER PRESSURE TESTS				ELEVATION	DEPTH FT. 0	SAMPLE NO.	DESCRIPTION AND CLASSIFICATION	
				LOSS IN IN FT. 100	LOSS IN IN FT. 100	LOSS IN IN FT. 100	LOSS IN IN FT. 100					
CME CONTINUOUS SAMPLER - 10"	60"	60"	100					0	0.6	1	0.0-0.6' TOPSOIL/CLAYEY SILT; GRAY, PEBBLES TO 1/2" ROOTS.	
											0.6-7.3' SILT: MEDIUM BROWN-GRAY, CLAYEY, TRACE ORGANICS, YELLOW-BROWN MOTTLING THROUGHOUT. 0.6-0.9" PEBBLES TO 1/2" dia. 1.4-3" GREATER THAN 50% GRAY CLAYEY SILT, CLEAN. 4" TRACE OF ROOTS. 4.2" GRAY MOTTLING BELOW THIS ELEVATION.	
	60"	34"	57					5	7.3	2	6.0-6.8' SILT: LOOSE SOIL, GRAY MOTTLED, CLAYEY.	
											7.3-10.0' SILTY CLAY/CLAYEY SILT; GRAY WITH ABUNDANT YELLOW BROWN MOTTLING/STREAKS, BLACK ORGANIC SPECKS THROUGHOUT.	
								10			BOTTOM OF HOLE AT 10.0 FT. BACKFILLED WITH GRANULAR BENTONITE, 12/17/86.	
© ELEVATION UNKNOWN												
SAMPLER AND RADIOLABORATORY LOGGED BY EBERLINE ANALYTICAL CORPORATION 12/17/86.												
35-SPLIT SPOON STERILE TUBE PRODUCTION PITCHER BROTHER					BTZ	HISS - DEVELOPED FUTURA PROPERTY					FILE NO.	HISS-1



GEOLOGIC DRILL LOG					PROJECT	FUSRAP			JOB NO.	SHEET NO.	HOLE NO.		
SITE HISS - DEVELOPED FUTURA PROPERTY					COORDINATES			N1940 E500		FROM HORIZ.	1 OF 1	MISS-2	
DATE	COMPLETED	DRILLER	DRILL NAME AND MODEL					ANGLE FROM HORIZ.		BEARING			
12/3/86	12/9/86	JOHN MATHEWS AND ASSOCIATES	CME-550					90°		N/A			
CORE RECOVERY % / ID		CORE BOXES	SAMPLES	EL. TOP OF CASING	GROUND EL.	DEPTH EL. GROUND WATER			SEPT. EL. TOP OF ROCK				
9.2' / 100%		N/A	2	N/A	(1)	6.0' / (1)			N/A				
SAMPLE BARRELS RECENT / ALL N/A			CASING LEFT IN HOLE / DIA. LENGTH NONE			LOADED BY:			J.W.SIMS				
SAMPLE TYPE AND DIAMETER	SAMPLE DIA. INCHES	SAMPLE LENGTH IN FEET	SAMPLE TYPE SPLIT OR CONTINUOUS	SAMPLE TYPE SPLIT OR CONTINUOUS	WATER PRESSURE TESTS			ELEVATION	Z FT	GRANULOMETRIC LOG	SAMPLE	DESCRIPTION AND CLASSIFICATION	NOTES ON WATER LEVELS, WATER RETURN, CHARACTER OF DRILLER, ETC.
					LONG. IN FT.	WIDE IN FT.	DEPT. IN FEET						
ONE CONTINUOUS SAMPLER - 3.5"	50'	50'	100						0.3	0.3	1	0.3-0.8' ASPHALT. 0.8-1.8' GRAVEL/FILL; GRAY, P-2 ⁺ LINESTONE PEBBLES, SAND AND FINES.	12/15/86.
									3.8	3.8	5	0.8-3.8' SILT; CLAYEY, DARK GRAY-BROWN, ROOTS, ORGANIC MOTTLING, TRACE YELLOW-BROWN MOTTLING.	
	60'	60'	100						6.8	6.8	2	3.8-6.8' SILT; CLAYEY, MEDIUM BROWN, YELLOW-BROWN MOTTLING, SOME ORGANIC SPECKS/MOTTLING. 6.8-10.0' CLAY; SILTY, GRAY OCCASIONAL YELLOW BROWN MOTTLING, FEW ORGANIC SPECKS.	
								10	10		BOTTOM OF HOLE AT 10.0 FT. BACKFILLED WITH GRANULAR BENTONITE, 12/15/86.	ELEVATION UNKNOWN.	
								15	15				
								20	20				
								25	25				
								30	30				
								35	35				
BS-SPLIT SPOON ST-SHELDY TUBE, DODDSON PIPETECH, CANTER					SITE	MISS - DEVELOPED FUTURA PROPERTY					HOLE NO.	MISS-2	



GEOLOGIC DRILL LOG					PROJECT		FUSRAP			JOB NO.		SHEET NO.	HOLE NO.		
SITE HISS - DEVELOPED FUTURA PROPERTY					COORDINATES N1914 E387							14501-140		1 OF 1	HISS-3
DATE 12/15/86	COMPLETED 12/15/86	DRILLED JOHN MATHEWS AND ASSOCIATES			DRILL NAME AND MODEL HAND AUGER		HOLE SIZE 6"	OVERTOTAL FT. 8.0'	ROCK FT. 0.0'	ANGLE FROM NORTH 90°		BEARING N/A			
CORE RECOVERY %/ID		CORE BOXES N/A		SAMPLES -	EL. TOP OF CASING N/A	GROUND EL. (1)	DEPTH/EL. GROUND WATER 7.6' / (1)			DEPTH/EL. TOP OF ROCK N/A					
SAMPLE NUMBER HEIGHT/TALL N/A				CASING LEFT IN HOLE: CASING LENGTH NONE				LOGGED BY: H.S. BENSINGER							
SAMPLE TYPE AND DIAMETER 6"	SAMPLE SPAN 100 FT.	TEST TIME 100 FT. 100 FT.	TEST TIME 100 FT. 100 FT.	TEST TIME 100 FT. 100 FT.	WATER PRESSURE TESTS		ELEVATION	EL. 0	SAMPLE 0	DESCRIPTION AND CLASSIFICATION				NOTES ON WATER LEVELS, WATER RETURN, CHARACTER OF DRILLING, ETC.	
					LBS 100 FT.	PSI 100 FT.				PSI 100 FT.	PSI 100 FT.	0.0-2.5' SILT: BROWN CLAYEY, ROOT ZONE TO 6".			
HAND AUGER 6"							2.5			2.5-6.0' CLAY: MEDIUM BROWN WITH SOME GRAY BROWN, SOME YELLOW BROWN MOTTLING AND GRAY ORGANICS.				NATURAL GROUND AT APPROXIMATELY 6.8 FT. 12/16/86.	
										3.0-5.0' ISOLATED PEBBLES OF RED TILE OR CERAMICS TO 2" DIA, SUBROUNDED. MORE GRAY BROWN AND CLAYEY AT 6.0 FT.					
							6.0			6.0-8.0' CLAY: GRAY BROWN, SILTY, SOME YELLOW BROWN AND BLACK ORGANIC MOTTLING.				@ ELEVATION UNKNOWN	
										BOTTOM OF HOLE AT 8.0 FT. BACKFILLED WITH GRANULAR BENTONITE. 12/17/86.					
										SAMPLING AND RADIOLoGICALLY LOGGED BY ENERLINE ANALYTICAL CORPORATION. 12/15/86.					
										DESCRIPTION AND CLASSIFICATION BY VISUAL EXAMINATION OF CUTTINGS.					
SPLIT SPOON ST-ENGLY TUBE DISCLOSURE PIPES OTHER					SITE		HISS - DEVELOPED FUTURA PROPERTY					HOLE NO.		HISS-3	



GEOLOGIC DRILL LOG					PROJECT	FUSRAP			JOB NO.	SHOT NO.	HOLE NO.	
SITE HISS - DEVELOPED FUTURA PROPERTY					COORDINATES N1900 E459			14501-140	1 OF 1	HSS-4		
RECORD	COMPLETED	DRILLER			DRILL MAKE AND MODEL			ANGLE FROM HORIZONTAL	BARING			
12/8/86	12/8/86	JOHN MATHEWS AND ASSOCIATES			CME-550			90°	N/A			
CORE RECOVERY % SD		CORE BOXES	SAMPLES	EL. TOP OF CASING	GROUND EL.	DEPTH EL. GROUND WATER		ROCK FT.J	TOTAL DEPTH			
7.4' / 74%		N/A	2	N/A	(1)	6.6' / (1)		0.0'	10.0'			
SAMPLE NUMBER HEIGHT / FALL			CASING LEFT IN HOLE: DIA / LENGTH			LOGGED BY:						
N/A			NONE			H.S. BENSINGER						
SAMPLE TYPE AND DIAMETER	SAMPLE NUMBER	LOG NO.	LOG DATE	LOG TIME	WATER PRESSURE TESTS			ELEVATION	DE PT. FT.J	DE PT. M	DE PT. M	NOTES ON WATER LEVELS, WATER RETURN, CHARACTER OF DRILLING, ETC.
					LOSS OF HEAD	PROBE FT.J	PROBE M					
CME CONTINUOUS SAMPLER - 3.5"	60°	60°	100					0.3	0	0	0	0.0-0.3' ROOT ZONE - TOPSOIL.
												0.3-2.7' SILT: MEDIUM BROWN, CLAYEY, MINOR ORGANIC MOTTLING.
CME CONTINUOUS SAMPLER - 3.5"	60°	29°	48					2.7	1	1	1	2.7-5.0' SILT: MEDIUM BROWN, CLAYEY, WITH YELLOW BROWN AND GRAY MOTTLING, BLACK ORGANIC SPECKS.
												5.0-6.8' CLAY: GRAY BROWN, SILTY, WITH YELLOW BROWN MOTTLING, MINOR ORGANIC SPECKS.
								6.8	2	2	2	BOTTOM OF HOLE AT 10.0 FT. BACKFILLED WITH GRANULAR BENTONITE. 12/7/86.
								10				Ø ELEVATION UNKNOWN.
SPLIT SPOON ST-CHENEY TUBE DIMENSIONS PIPES CHEN, OTHER					SITE			HISS - DEVELOPED FUTURA PROPERTY			HOLE NO.	
											HSS-4	



GEOLOGIC DRILL LOG					PROJECT			FUSRAP			JOB NO.	SHEET NO.	HOLE NO.
SITE HISS - DEVELOPED FUTURA PROPERTY				COORDINATES				N1900 E540			14501-140	1 OF 1	HISS-5
BEGIN 12/8/86	COMPLETED 12/8/86	DRILLER JOHN MATHEWS AND ASSOCIATES	DRILL NAME AND MODEL CME-550			HOLE SIZE 6"	OVERBURDEN FT. 10.0'	ROCK FT. 0.0'	TOTAL DEPTH 10.0'	ANGLE FROM HORIZ. 90°	BEARING N/A		
CORE RECOVERY FT./ID 8.2' / 93%		CORE BOXES N/A	SAMPLES 2	EL. TOP OF CASING N/A	GROUND EL. (1)	DEPTH/EL. GROUND WATER 6.2' / (1)		DEPTH/EL. TOP OF ROCK N/A					
SAMPLE NUMBER HEIGHT/FALL N/A			CASING LEFT IN HOLE/EL./LENGTH NONE			LOGGED BY: H.S. BENSINGER							
SAMPLE TYPE AND DIAMETER	SAMPLE ADVANCE IN FEET	SAMPLE LENGTH IN FEET	SAMPLE COAT- ING	SAMPLE NO.	PERCENT CORE RECOVERED	WATER PRESSURE TESTS			ELEVATION	DEPT. FT.	LOS- ING SAND	DESCRIPTION AND CLASSIFICATION	NOTES ON WATER LEVELS, WATER RETURN, CHARACTER OF DRILLING, ETC.
						LOSS IN MIN.	PROBE FT.	TIME IN MINUTES					
ONE CONTINUOUS SAMPLER - 3.5"	48°	48°	100			0.2			0			0.0-0.2" ASPHALT.	REPAIRED ASPHALT SURFACE, 12/18/86.
						1.0			1		0.2-1.0" FILL: GRAVEL TO PIA, SAND AND FINES.		
	60°	52°	87			2.3			1			1.0-2.3" SILT: MEDIUM GRAY BROWN, CLAYEY, WITH MINOR ORGANICS.	2/16/86.
						5			2		2.3-7.8" CLAY: MEDIUM BROWN SILTY, WITH SOME YELLOW BROWN MOTTLING. 7.3-7.8" HIGHER CONCENTRATION OF BLACK ORGANICS.		
						7.8			2			7.8-10.0" CLAY: GRAY BROWN, SILTY, YELLOW BROWN AND GRAY MOTTLING, MINOR ORGANICS.	NATURAL GROUND AT APPROXIMATELY 7.8 FT.
						10						BOTTOM OF HOLE AT 10.0 FT. BACKFILLED WITH GRANULAR BENTONITE. 12/16/86.	
												① ELEVATION UNKNOWN.	
												DESCRIPTION AND CLASSIFICATION BY VISUAL EXAMINATION OF SAMPLES.	
												SAMPLED AND RADIOLOGICALLY LOGGED BY EBERLINE ANALYTICAL CORPORATION, 12/18/86.	
SPLIT SPOON ST-SNELEY TUBE DIA 3.5000000000000003" OTHER					SITE	HISS - DEVELOPED FUTURA PROPERTY						HOLE NO.	HISS-5



GEOLOGIC DRILL LOG					PROJECT	FUSRAP	JOB NO.	14501-140	SHOOT NO.	1 OF 1	HOLE NO.	HSS-6		
SITE HSS - DEVELOPED FUTURA PROPERTY					COORDINATES N1854 E350				ANGLE FROM NORTH 90°		BEARING N/A			
BEGUN 12/11/86	COMPLETED 12/11/86	DRILLER JOHN MATHEWS AND ASSOCIATES			DRILL NAME AND MODEL HAND AUGER		HOLE SIZE 6"	OVERTURENFT. 8.0'	ROCK FT.D 0.0'	TOTAL DEPTH 8.0'				
CORE RECOVERY% / TD		CORE BOXES N/A		SAMPLES -	EL. TOP OF CASING N/A	GROUNDS.L. (1)	DEPTHVEL. GROUND WATER 6.2'/(1)		DEPTHVEL. TOP OF ROCK N/A					
SAMPLE NUMBER HEIGHT/TAIL N/A				CASING LEFT IN HOLE EL./DEPTH NONE				LOGGED BY H.S.BENSINGER						
SAMPLE TYPE AND DIAMETER SAMPLED LENGTH CORE IN FEET SAMPLE NUMBER SAMPLE TIME RECENT CORE RECOVERY	SAMPLED LENGTH CORE IN FEET SAMPLE NUMBER SAMPLE TIME RECENT CORE RECOVERY	WATER PRESSURE TESTS				ELEVATION	FE	DEPTH IN FT.	LOG NO.	SAMPLE	DESCRIPTION AND CLASSIFICATION			NOTES ON WATER LEVELS, WATER RETURN, CHARACTER OF DRILLING, ETC.
		LOSS IN FT. FT. MINUTES	LOSS IN CM CM MINUTES	LOSS IN FT. FT. MINUTES	LOSS IN CM CM MINUTES						0.2 1.0 3.5 5 6.0 8.0			
6" - HAND AUGER (DAH)												0.0-0.2' ROOT ZONE, TOPSOIL. 0.2-1.0' SILT: MEDIUM BROWN, CLAYEY, WITH GRAVEL PEBBLES. 1.0-3.5' SILT: VAREGATED MEDIUM BROWN/GRAY BROWN, CLAYEY, MINOR YELLOW BROWN MOTTLING. 3.5-5' CLAY: MEDIUM GRAY TO MEDIUM BROWN, SILTY, SOME YELLOW BROWN MOTTLING. 5-6.0' SILT: MEDIUM BROWN/GRAY BROWN, CLAYEY, SOME YELLOW BROWN MOTTLING, MINOR ORGANICS. MORE SILTY CLAY AT 7.5 FT. BOTTOM OF HOLE AT 8.0 FT. BACKILLED WITH GRANULAR BENTONITE. 12/17/86.	NO GROUND WATER DURING AUGERING. 2/15/86.	
① ELEVATION UNKNOWN												SAMPLLED AND RADIOLGICALLY LOGGED BY EBERLINE ANALYTICAL CORPORATION 12/17/86.		
SS/SPLIT SPOON ST-SHANKY TUBE DODGESON PART CHECKS SHOTTER					SITE		HSS - DEVELOPED FUTURA PROPERTY					HOLE NO. HSS-6		



GEOLOGIC DRILL LOG

PROJECT

FUSRAP

JOB NO.
14501-140SHEET NO.
1 OF 1HOLE NO.
HISST-7

SITE HISST - DEVELOPED FUTURA PROPERTY				COORDINATES N1850 E500				ANGLE FROM NORTH 90°				BEARING N/A		
DRILLER 12/8/86	COMPLETED 12/8/86	DRILLER JOHN MATHEWS AND ASSOCIATES				DRILL NAME AND NUMBER CORE-550				HOLE SIZE 8"	OVERBURDEN FT.D 10.0'	ROCK FT.D 0.0'	TOTAL DEPTH 10.0'	
CORE RECOVERY FT./D 8.6' /94%				CORE BOXES N/A	SAMPLES 2	EL. TOP OF CASES N/A		ENCLOSURE EL. (1)	DEPTH TO GROUND WATER 5.9' / (1)		SOFT/STYL. TOP OF ROCK N/A			
SAMPLE NUMBER HEIGHT/FALL N/A				CASES LEFT IN HOLE & REL. LENGTH NONE				LOGGED BY: H.S.BENSINGER						
SAMPLE TYPE AND DIAMETER	SAMPLE NUMBER	AVERAGE CORE LENGTH IN FEET	PERCENT RECOVERY	SAMPLE TYPE 2	PERCENT CORE RECOVERED	WATER PRESSURE TESTS				ELEVATION	FEET 0	METERS 0	DESCRIPTION AND CLASSIFICATION	NOTES ON WATER LEVELS, WATER RETURN, CHARACTER OF DRILLING, ETC.
						LOGS FT. C.	CPA FT. C.	WATER PRESS. FT. C.	WT. % FT. C.					
ONE CONTINUOUS SAMPLER - 10"	49'	49'	100						0.3	0.3	0.3	0.0-0.5' ASPHALT.	REPAIRED ASPHALT SURFACE, 12/15/86.	
	60'	54'	90						0.9	0.9	0.9	0.3-0.5' FILL: GRAVEL TO P.DIA., SANDS AND FINES.	NO GROUND WATER DURING DRILLING.	
									5	5	5	0.9-6.0' SILT: MEDIUM BROWN, CLAYEY, WITH YELLOW BROWN MOTTLING, MINOR MEDIUM GRAY MOTTLING.	12/15/86.	
									6.8	6.8	6.8	6.8-10.0' CLAY: GRAY BROWN, SILTY, YELLOW BROWN MOTTLING, MINOR BLACK ORGANICS.	NATURAL GROUND AT APPROXIMATELY 6.8 FT.	
									10	10	10	6.8-6.9' YELLOW BROWN BAND OF SILTY CLAY.		
												BOTTOM OF HOLE AT 10.0 FT. BACKFILLED WITH GRANULAR BENTONITE, 12/15/86.	EMMET RECORDED TOXICS IN HOLE AT 5.0 FT; VENTED AWAY.	
												① ELEVATION UNKNOWN		
												SAMPLED AND RADIOLOGICALLY LOGGED BY EXERLINE ANALYTICAL CORPORATION, 12/15/86.		
SEA-SPLIT SPACED ST-MARSH TUBING INCHES/DECIMETERS CONVERSION				SITE HISST - DEVELOPED FUTURA PROPERTY				HOLE NO. HISST-7						



GEOLOGIC DRILL LOG					PROJECT	FUSRAP	JOB NO.	14501-140	SHEET NO.	1 OF 1	HOLE NO.	HISST-8			
SITE HISST - DEVELOPED FUTURA PROPERTY - INSIDE BLDGS (LABORATORY)				COORDINATES				N1827.4 E332.9		ANGLE FROM HORIZ.	90°	BEARING	N/A		
DRILLER	COMPLETED	DRILLER	NAME AND MODEL	HOLE SIZE	OVERBURDEN FT	ROCK FT	TOTAL DEPTH								
12/9/86	12/9/86	JOHN MATHEWS AND ASSOCIATES	HAND AUGER	6"	8.5'	0.0'	8.5'								
CORE RECOVERY %/ID		CORE BOXES	SAMPLES	EL. TOP OF CASING	GROUND EL.	DEPTH EL. GROUND WATER	DEPTH EL. TOP OF ROCK								
		N/A	-	N/A	(1)	8.0'/(1)	N/A								
SAMPLE NUMBER WEIGHT/TAIL				CASING LEFT IN HOLE/DIA/LENGTH				LOGGED BY:							
N/A				NONE				H.S. BENNINGER							
SAMPLE TYPE AND DIAMETER	SAMPLE IN ADVANCE LENGTH CORE	SAMPLE IN RECOVERY	PERCENT CORE RECOVERY	WATER PRESSURE TESTS		ELEVATION	DEPTH	GRAN. LOG	SAMPLE	DESCRIPTION AND CLASSIFICATION				NOTES ON WATER LEVELS, WATER RETURN, CHARACTER OF DRILLING ETC.	
				LOSS	%					LOSS	%	LOSS	%		LOSS
HAND AUGER - 6"						0.5	0	-	-	0.0-0.5' CONCRETE FLOOR SLAB				REPAIRED CONCRETE FLOOR SLAB, 12/8/86.	
				FT. %	FT. %					FT. %	FT. %	FT. %	FT. %		FT. %
						5	-	-	-	0.5-6.0' CLAYEY SILT: DARK TO MEDIUM BROWN, FEW PEBBLES BELOW CONCRETE, MINOR GRAY BROWN/YELLOW BROWN MOTTLING, SOME BLACK ORGANIC SPECKS.				12/9/86.	
				FT. %	FT. %					FT. %	FT. %	FT. %	FT. %		FT. %
						6.0	-	-	-	6.0-8.5' SILTY CLAY: MEDIUM BROWN/GRAY BROWN, SOME YELLOW BROWN MOTTLING, GRAY AND BLACK ORGANICS.				NATURAL GROUND AT APPROXIMATELY 7.5 FT.	
				FT. %	FT. %					FT. %	FT. %	FT. %	FT. %		FT. %
						8.5	-	-	-	BOTTOM OF HOLE AT 8.5 FT. BACKFILLED WITH GRANULAR BENTONITE, 12/9/86.				① ELEVATION UNKNOWN	
				FT. %	FT. %					FT. %	FT. %	FT. %	FT. %		FT. %
SS-SPLIT SPOON ST-SHELBY TUBE DODDSON PHTCHER, OTHER				SITE				HISST - DEVELOPED FUTURA PROPERTY - INSIDE BLDGS (LABORATORY)				HOLE NO.		HISST-8	



GEOLIC DRILL LOG					PROJECT FUSRAP			JOB NO. 14501-140		UNIT NO. 1 OF 1	HOLE NO. HISS-9																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																													
SITE HISS - DEVELOPED FUTURA PROPERTY				COORDINATES N1800 E450				ANGLE FROM HORIZ. 90°		BEARING N/A																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																														
DATE 12/8/86	COMPLETED 12/8/86	DRILLER JOHN MATHEWS AND ASSOCIATES	DRILL MAKE AND MODEL CME 550			HOLE SIZE 8"	OVERBURDEN FT.D 10.0'	PIPE FT.D 0.0'	TOTAL DEPTH 10.0'																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																															
CORE RECOVERY% 8.5' / 97%		CORE BOXES -	SAMPLES 2	EL. TOP OF CASING N/A	GROUND EL. (1)	DEPTH REL. GROUND WATER 5.5'	DEPTH REL. TOP OF ROCK N/A																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																	
SAMPLE NUMBER RECORDED ALL N/A			CASING LEFT IN HOLE: DIA. LENGTH NONE			LOGGED BY: H.S. BENSINGER																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																		
SAMPLE TYPE AND DIAMETER	DIAMETER	SAMPLE LENGTH	SAMPLE NUMBER	RECORDED TIME	PENETRATION	TESTS	ELEVATION	FT. 0	GROSS LENGTH	SAMPLES	DESCRIPTION AND CLASSIFICATION		NOTES ON WATER LEVELS, WATER RETURN, CHARACTER OF DRILLING, ETC.																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																											
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CME CONTINUOUS SAMPLER - 3.0"	50"	50"	100					0.3	0.3	1	0.0-0.3" ASPHALT,		REPAVED ASPHALT SURFACE, 12/10/86.																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																											
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SPLIT SPOON ST-SHELBY TUBE, DOWDLESS PIPES CHECKED ANOTHER												SITE HISS - DEVELOPED FUTURA PROPERTY												HOLE NO. HISS-9																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																



GEOLOGIC DRILL LOG						PROJECT	FUSRAP			JOB NO.	SHEET NO.	HOLE NO.	
SITE HISS - DEVELOPED FUTURA PROPERTY						COORDINATES	N1803 E520			14501-140	1 OF 1	HISS-10	
BEGUN 12/8/86	COMPLETED 12/8/86	DRILLER JOHN MATHEWS AND ASSOCIATES	DRILL NAME AND NUMBER CME-550				ANGLE FROM HORIZ. 90°		BEARING N/A				
CORE RECOVERY %/SD 8.1% / 90%	CORE BOXES -	SAMPLES 2	EL. TOP OF CASING N/A	GROUND EL. (1)	DEPTH/EL. GROUND WATER 5.8' / (1)		DEPTH/EL. TOP OF ROCK N/A						
SAMPLE NUMBER HEIGHT/FALL N/A			CASING LEFT IN HOLE: DIA/LENGTH NONE			LOGGED BY:	H.S. BENSINGER						
SAMPLE TYPE AND DIAMETER AND LENGTH OF CORE RUN	SAMPLE ADVANCE AND LENGTH OF CORE RUN	SAMPLE NUMBER OR NAME	PERCENT CORE RECOVERY	WATER PRESSURE TESTS		ELEVATION	DEPTH	SAMPLE NO.	SAMPLE	DESCRIPTION AND CLASSIFICATION			NOTES ON WATER LEVELS, WATER RETURN, CHARACTER OF DRILLING, ETC.
				LOSS IN FT.	LOSS IN MM					DEPT. IN FT.	DEPT. IN MM	LOSS IN FT.	
ONE CONTINUOUS SAMPLER - 3.0"	48°	48°	100							0.3	0.0-0.5' ASPHALT	REPAVED ASPHALT SURFACE, 12/18/86	
									0.3	0.0-0.5' ELL. GRAVEL TO 1/2" DIA. SANDS AND FINES.			
	60°	49°	82							1	0.5-6.5' CLAYEY SILTY/SILTY CLAY: MEDIUM BROWN, YELLOW BROWN AND MINOR DARK GRAY MOTTLING, SOME BLACK ORGANICS.		
									2	6.5-10.0' CLAY: GRAY BROWN, SILTY, YELLOW BROWN MOTTLING WITH SOME GRAY BROWN SPOTS. MINOR BLACK ORGANICS.	2/15/86 NATURAL GROUND AT APPROXIMATELY 6.5 FT.		
									10	BOTTOM OF HOLE AT 10.0 FT. BACKFILLED WITH GRANULAR BENTONITE, 12/16/86.			
									15		① ELEVATION UNKNOWN.		
									20				
									25				
									30				
									35				
55-SPLIT SPOON STAINLESS TUBE DISCUSSION PITCHER CANTER						SITE	HISS - DEVELOPED FUTURA PROPERTY				HOLE NO.		HISS-10



GEOLOGIC DRILL LOG							PROJECT			JOB NO.			SHEET NO.		HOLE NO.				
SITE HISS - DEVELOPED FUTURA PROPERTY							COORDINATES			FUSRAP			14501-140		1 OF 1	HISS-11			
DRILLER	JOHN MATHEWS AND ASSOCIATES		DRILL NAME AND MODEL			N1777 E400			ANGLE FROM HORIZ.			90°		BEARING		N/A			
DRILL	COMPLETED	12/5/86	DRILLER	JOHN MATHEWS AND ASSOCIATES		CME-550			HOLE SIZE	8"	OVERTOTAL FT.	10.0'	ROCK FT.	0.0'	TOTAL DEPTH		10.0'		
CORE RECOVERY %/ID 8.7'/95%			CORE BOXES	SAMPLES	EL. TOP OF CASING	GROUND EL.	DEPTH/EL. GROUND WATER			DEPT/EL. TOP OF ROCK									
			N/A	2	N/A	(1)	5.0'/(1)			N/A									
SAMPLE NUMBER RECORDED/FALL				CASING LEFT IN HOLE/DALENGTH				LOGGED BY:				H.S. BENSINGER							
N/A				NONE															
SAMPLE TYPE AND DIAMETER	ADVANCE MM	REVERSE MM	ADVANCE MM	REVERSE MM	PERCENT CORE RECOVERY	WATER PRESSURE TESTS			ELEVATION	DEPTH	GRAVITY LOG	LS	DESCRIPTION AND CLASSIFICATION				NOTES ON WATER LEVELS, WATER RETURN, CHARACTER OF DRILLING, ETC.		
						LOSS %	LOSS %	LOSS %					LOSS %	LOSS %	LOSS %	LOSS %		LOSS %	
CME CONTINUOUS SAMPLER - 3.0"	49°	49°	100							0	0.1	0.9	1	0.0-0.1' ASPHALT. 0.1-0.9' FILL: GRAVEL TO P.DIA., SAND AND FINES.				ASPHALT REPAIRED, 12/10/86.	
	60°	55°	92							5	0.9	6.2	2	0.9-6.2' CLAYEY SILT/SILTY CLAY: MEDIUM BROWN, MOTTLED YELLOW BROWN/DARK GRAY AND BLACK ORGANICS, MOIST.				12/10/86.	
									10	10.0	10.0	10.0	10.0	6.2-10.0' CLAY: GRAY BROWN, SILTY, MOTTLED YELLOWISH BROWN AND DARK GRAY, BLACK ORGANIC SPECKS, WET AT BOTTOM.				NATURAL GROUND AT APPROXIMATELY 6.2 FT.	
									10	10.0	10.0	10.0	10.0	BOTTOM OF HOLE AT 10.0' FT. BACKILLED WITH GRANULAR BENTONITE, 12/10/86.				ELEVATION UNKNOWN.	
SS=SPLIT SPOON ST-SHELBY TUBE, DODDISON PITCHER & OTHER							SITE			HISS - DEVELOPED FUTURA PROPERTY							HOLE NO.		HISS-11



GEOLOGIC DRILL LOG					PROJECT	FUSRAP			JOB NO.	SHET NO.	HOLE NO.		
SITE MISS - DEVELOPED FUTURA PROPERTY				COORDINATES N1750 E355				14501-140 1 OF 1		MISS-12			
DRILLER 12/5/86	COMPLETED 12/5/86	DRILLER JOHN MATHEWS AND ASSOCIATES			DRILL NAME AND MODEL CME-550		HOLE SIZE 8"	OVERBURDEN FT.D 10.0'	BACK FT.D 0.0'	TOTAL DEPTH 10.0'			
CORE RECOVERY FT.-% 8.5'/92%		CORE RATES N/A	SAMPLES 2	EL. TOP OF CASING N/A		GROUND EL. (1)	DEPTH EL. GROUND WATER 3.7'(1)	SOFTWEL TOP OF ROCK N/A					
SAMPLE NUMBER RECORDED/FULL N/A			CASING LEFT IN HOLE DRILLED/TESTED NONE			LOGGED BY: H.S. BENSINGER							
SAMPLE TYPE AND DIAMETER	SAMPLE LENGTH IN FEET	SAMPLE TYPE	SAMPLE TIME	SAMPLE REPORT NUMBER	WATER PRESSURE TESTS			ELEVATION IN FT.	DEPTH IN FT.	LOG NUMBER	SAMPLE	DESCRIPTION AND CLASSIFICATION	NOTES ON WATER LEVELS, WATER RETURN CHARACTER OF DRILLING, ETC.
					Z IN FT.	A IN FT.	Y IN FT.						
CME CONTINUOUS SAMPLER - 3.0"	48"	48"	100					0.05	5.7'			0.05-0.05' ASPHALT CAP 1/2 THICK. 0.05-1.0' FILL: GRAVEL TO 1/2", SAND, SOME FINES. 1.0-1.2' SAND: GRAVEL FROBLES.	ASPHALT REPAIRED, 12/10/86.
								1.2	4.1	5	5.7	1	
	60"	5"	85					10				BOTTOM OF HOLE AT 10 FT. BACKFILLED WITH GRANULAR BENTONITE, 12/10/86.	NATURAL GROUND AT APPROXIMATELY 5.7 FT.
												EINMET RECORDED VAPOR IN HOLE. MORE TOXIC THAN COMBUSTIBLE. VENTED.	ELEVATION UNKNOWN.
												SAMPLED AND RADIOLOGICALLY LOGGED BY EXCELRATE ANALYTICAL CORPORATION. 12/5/86.	
												DESCRIPTION AND CLASSIFICATION BY VISUAL EXAMINATION OF SAMPLES.	
SPLIT SPOON ST-SEGMENT TUBE PRODUCTION PARTNER OTHER					NOTE			MISS - DEVELOPED FUTURA PROPERTY				HOLE NO. MISS-12	



GEOLOGIC DRILL LOG							PROJECT			FUSRAP			JOB NO.		SHEET NO.	HOLE NO.	
SITE HISS - DEVELOPED FUTURA PROPERTY							COORDINATES			N1750 E500			14501-140		1 OF 1	HOLE NO.	
																HISS-13	
BEGIN	COMPLETED	DRILLER JOHN MATTHES AND ASSOCIATES					DRILL NAME AND MODEL		HOLE SIZE		OVERTHREAD FT.D	ROCK FT.D	ANGLE FROM HORIZONTAL		BEARING		
12/8/86	12/8/86						CME-550		8"		10.0'	0.0'	90°		N/A		
CORE RECOVERY %			CORE BOXES		SAMPLES	BL. TOP OF CASING		GROUND EL.	DEPTH VS. BURDEN WATER		SOFTWALL TOP OF ROCK						
8.8% / 95%			-		2	N/A		(1)	5.1' / (1)		N/A						
SAMPLE NUMBER HEIGHT/TALL N/A							CASING LEFT IN HOLE DIA LENGTH NONE					LOGGED BY		H.S. BENSINGER			
SAMPLE TIME AND DURATION OF DRILLING	SAMPLE TYPE AND DESCRIPTION OF SAMPLE	SAMPLE NUMBER AND DESCRIPTION OF SAMPLE	WATER PRESSURE TESTS					ELEVATION	DEPTH	Gauge Log	SAMPLE	DESCRIPTION AND CLASSIFICATION					NOTES ON WATER LEVELS, IN THE BOREHOLE, CHARACTER OF DRILLING, ETC.
			LOG IN FT. 100	LOG IN FT. 50	LOG IN FT. 30	LOG IN FT. 20	LOG IN FT. 10										
ONE CONTINUOUS SAMPLER - 3.0"	5P 5P 100	60' 55' 92'							0.3 0.8 5 7.4 10	Hatched	1 2	0.3-0.8' ASPHALT 0.8-5' FILL: GRAVEL TO 1/2" DIA, SANDS AND FINES. 5-7.4' CLAY: MEDIUM BROWN, SILTY, WITH SOME DARK GRAY MOTTLING, MINOR BLACK ORGANICS.					ASPHALT REPAIRED, 12/10/86. 12/10/86.
											7.4-10.0' CLAY: GRAY BROWN, SILTY, YELLOW BROWN MOTTLING WITH SOME DARK GRAY AND BLACK ORGANIC SPECKS.						
											BOTTOM OF HOLE AT 10.0 FT. BACKFILLED WITH GRANULAR BENTONITE, 12/10/86.					NATURAL GROUND AT APPROXIMATELY 7.4 FT.	
																Ø ELEVATION UNKNOWN.	
																SAMPLED AND RADIOLoGICALLY LOGGED BY EBERLINE ANALYTICAL CORPORATION, 12/10/86.	
																DESCRIPTION AND CLASSIFICATION BY VISUAL EXAMINATION OF SAMPLES.	
SPLIT SPOON ST-SHELLY TUBE DISCONTINUOUS PITT CHECK C-OTHER							SITE			HISS - DEVELOPED FUTURA PROPERTY					HOLE NO.		HISS-13



GEOLOGIC DRILL LOG					PROJECT	FUSRAP	JOB NO.	14501-140	SHET NO.	1 OF 1	HOLE NO.	HISS-14						
SITE HISS - DEVELOPED FUTURA PROPERTY				COORDINATES				ANGLE FROM HORIZ. 90°				BEARING N/A						
DRILLER	COMPLETED	DRILLER	CORES			DRILL WIRE AND MODEL	HOLESIZE	OVERBURDEN FT.D	ROCK FT.D	TOTAL DEPTH								
12/8/86	12/8/86	JOHN MATHEWS AND ASSOCIATES				CDE-550	8"	10.0'	0.0'	10.0'								
CORE RECOVERY FT./SD		CORE BOXES		SAMPLES	DL. TOP OF CORES	GROSS EL.	DEPTHVEL. GROUND WATER		DEPTHVEL. TOP OF ROCK									
9.1' / 100%		N/A		2	N/A	(1)	5.2' / (1)		N/A									
SAMPLE NUMBER RECENT/FULL N/A				CABINS LEFT IN HOLE: DIA/LENGTH NONE				LOGGED BY: H.S.BENSINGER										
SAMPLE TYPE AND DIAMETER	SAMPLE APPROX. LOGGING LENGTH	SAMPLE TYPE	SAMPLE LOG NO.	PERCENT CORE RECOVERY	WATER PRESSURE TESTS			ELEVATION	DEP. FT.	DEP. IN.	DEP. CM.	DEP. M.	DESCRIPTION AND CLASSIFICATION				NOTES ON WATER LEVELS, WATER RETURN, CONTRACTOR OF DRILLING, ETC.	
					LOG 12 X 1/2 IN.	LOG 12 X 1/2 IN.	LOG 12 X 1/2 IN.											
CDE CONTINUOUS SAMPLER - 3.0"	49"	49"	100						0.3					0.0-0.3' ASPHALT.				REPAIRED ASPHALT SURFACE, 12/10/86.
									0.5				0.3-0.5' FILL GRAVEL TO 1/2" DIA, SAND AND FINES.					
	60"	60"	100						5.5					LO-5.5' CLAYEY SILT/SILTY CLAY: LIGHT BROWN, WITH LIGHT TO DARK BROWNISH GRAY MOTTLING AND SOME MEDIUM BROWN.				12/10/86.
									8.8				5.5-8.8' CLAY: MEDIUM BROWN, SOME YELLOW BROWN MOTTLING AND BLACK ORGANICS.					
								10					8.8-10' CLAY: GRAY BROWN, SILTY, YELLOW BROWN MOTTLING WITH BLACK ORGANIC SPECKS.				NATURAL GROUND AT APPROXIMATELY 8.8 FT.	
												BOTTOM OF HOLE AT 10.0 FT. BACKFILLED WITH GRANULAR BENTONITE, 12/10/86.						
												@ ELEVATION UNKNOWN.						
												SAMPLER AND RADIOLOGICALLY LOGGED BY EXTELINE ANALYTICAL CORPORATION 12/10/86.						
												DESCRIPTION AND CLASSIFICATION BY VISUAL EXAMINATION OF SAMPLES.						
DI-SPLIT SPOON ST-MOLINE TUBE MANUFACTURED BY PITT CONCRETE PRODUCTS					SITE				MISS - DEVELOPED FUTURA PROPERTY				HOLE NO.		HISS-14			



GEOLOGIC DRILL LOG					PROJECT				14501-140			SHOT NO.	HOLE NO.								
SITE HISS - DEVELOPED FUTURA PROPERTY					COORDINATES				N1694 E318			1 OF 1	HISS-15								
BEGUN 12/5/86	COMPLETED 12/5/86	DRILLER JOHN MATHEWS AND ASSOCIATES	DRILL MAKE AND MODEL CME-550			HOLE SIZE 8"	OVERBURDEN FT.D 10.0'	ROCK FT.D 0.0'	ANGLE FROM HORIZ. 90°			BEARING N/A									
CORE RECOVERY FT./SD 7.5'/83%		CORE BOXES N/A	SAMPLES 2	EL. TOP OF CASING N/A	GROUND EL. (1)	DEPTHVEL GROUND WATER 2.6'/(1)	DEPTHVEL. TOP OF ROCK N/A														
SAMPLE NUMBER EIGHT/FALL N/A			CASING LEFT IN HOLE/DIA/LENGTH NONE			LOGGED BY: H.S. BENSINGER															
SAMPLE TYPE AND DIA/MT	SAMPLE ADVANCE DEPTH IN FT.	SAMPLE RECOVERY %	SAMPLE NO.	PERCENT CORE RECOVERY	WATER PRESSURE TESTS			ELEVATION	DEPTH 0	LOG DIA	SAMPLE NO.	DESCRIPTION AND CLASSIFICATION			NOTES ON WATER LEVELS, WATER RETURN, CHARACTER OF DRILLING, ETC.						
					LOSS OF P. FT. IN 10 MINUTE	P. PSI 10 MINUTE	TIME IN 10 MINUTE														
CME CONTINUOUS SAMPLER - 3.0	48°	48°	100									0.0	0.0-5.0': FILL: GRAVEL TO T, SAND AND FINES	12/10/86.							
												5.0	LO-5.0' CLAYEY SILT/ SILTY CLAY; MEDIUM BROWN, SOME GRAY AND BLACK ORGANICS.								
	60°	42°	70																		5.0-8.0': MEDIUM BROWN, SILTY, YELLOW BROWN AND BLACK MOTTLING.
																					8.0
																					BOTTOM OF HOLE AT 10.0 FT. BACKFILLED WITH GRANULAR BENTONITE, 12/10/86.
											① ELEVATION UNKNOWN.										
											SAMPLER AND RADIOLOGICALLY LOGGED BY EBERLINE ANALYTICAL CORPORATION, 12/5/86.										
											DESCRIPTION AND CLASSIFICATION BY VISUAL EXAMINATION OF SAMPLES.										
SS-SPLIT SPOON ST-SHELBY TUBE BODDIE/PATTERSON OTHER					SITE			HISS - DEVELOPED FUTURA PROPERTY			HOLE NO. HISS-15										



GEologic DRILL LOG					PROJECT FUSRAP				JOB NO. 14501-140		SHEET NO. 1 OF 1	HOLE NO. HISS-16				
SITE HISS - DEVELOPED FUTURA PROPERTY				COORDINATES N1688 E348					ANGLE FROM HORIZ. 90°		BEARING N/A					
BEGUN 12/5/86	COMPLETED 12/5/86	DRILLER JOHN MATTHES AND ASSOCIATES	DRILL NAME AND MODEL CME-550			HOLE SIZE 8"	OVERTHREAD FT.D 10.0'	ROCK FT.D 0.0'	TOTAL DEPTH 10.0'							
CORE RECOVERY% 7.4' / 82%		CORE BOXES N/A	SAMPLES 2	EL. TOP OF CASING N/A	GROUND EL. (1)	DEPTH/EL. GROUND WATER 3.3' / (1)		DEPTH/EL. TOP OF ROCK N/A								
SAMPLE NUMBER RECORDED/TOTAL N/A			CASING LEFT IN HOLE/BAL LENGTH NONE			LOGGED BY H.S.BENSINGER										
SAMPLE TYPE AND DIAMETER	SAMPLE SPACING	SAMPLE LENGTH	SAMPLE IN CORE	PERCENT CORE RECOVERY	WATER PRESSURE TESTS			ELEVATION	DEPTH	SAMPLE LOS	SAMPLE	DESCRIPTION AND CLASSIFICATION	NOTES ON WATER LEVELS, WATER RETURN, CHARACTER OF DRILLING, ETC.			
					LOSS %	PRESSURE FT.	TIME IN MINUTES									
CME CONTINUOUS SAMPLER - 10"	48"	48"	100						10	0	1	<p>0.0-0.2' ASPHALT.</p> <p>0.2-1.0' FILL; GRAVEL TO P.DIA, SAND AND FINES.</p> <p>1.0-1.5' SAND/SANDY SILT; TILE DEBRIS (MAY BE SEPTIC TANK LEACH FIELD).</p> <p>1.5-4.5' CLAYEY SILT/SILTY CLAY; DARK GRAY, BLACK ORGANIC FLECKS.</p> <p>4.5-6.3' SILT; MEDIUM BROWN CLAYEY, VAREGATED GRAY/YELLOW BROWN MOTTLING.</p> <p>6.3-10.0' CLAY; GRAY BROWN, SILTY, YELLOW BROWN AND GRAY MOTTLING, MINOR BLACK ORGANIC FLECKS.</p>	ASPHALT REPAIRED, 12/10/86.			
	60"	48"	68						10	0	2		12/10/86.			
BOTTOM OF HOLE AT 10.0 FT. BACKFILLED WITH GRANULAR BENTONITE, 12/10/86.										NO GROUNDWATER NOTED DURING DRILLING.						
										EMMET RECORDED TOXIC AND COMBUSTIBLES IN SAMPLER; VENTED AWAY; FIFTEEN (15) MINUTE STANDBY TIME.						
										① ELEVATION UNKNOWN.						
										SAMPLER AND RADIODILOGICALLY LOGGED BY EVERLINE ANALYTICAL CORPORATION, 12/5/86.						
										DESCRIPTION AND CLASSIFICATION BY VISUAL EXAMINATION OF SAMPLES.						
SS-SPLIT SPOON ST-SHELLY TUBE, DODDSONS PITCHER SPOTTER					SITE		HISS - DEVELOPED FUTURA PROPERTY					HOLE NO. HISS-16				



GEologic Drill Log					Project			Job No.			Sheet No.	Hole No.	
Site HISS - DEVELOPED FUTURA PROPERTY - INSIDE BUILDINGS					Coordinates N1710.7 E455.7			14501-140			1 OF 1	HISS-17	
BEGIN 12/10/86	COMPLETED 12/10/86	DRILLER JOHN MATTHES AND ASSOCIATES	DRILL NAME AND MODEL HAND AUGER			HOLE SIZE 6"	OVERTUREND FT. 6.0'	ROCK FT. N/A	ANGLE FROM NORTH 90° BEARING N/A				
CORE RECOVERY FT./IN		CORE BOXES N/A	SAMPLES -	BL. TOP OF CASING N/A	GROUND EL. (1)	DEPTH REL. GROUND WATER 5.8'/(1)			DEPTH REL. TOP OF ROCK N/A				
SAMPLE BAROMETER READING FT./IN N/A			CASING LEFT IN HOLE: DIA/LENGTH NONE			LOGGED BY: H.S. BENINGER							
SAMPLE TYPE AND DIAMETER IN INCHES	SAMPLE LENGTH IN INCHES	SAMPLE RECOVERY PERCENT	SAMPLE TYPE AND DESCRIPTION OF SAMPLE	WATER PRESSURE TESTS			ELEVATION FT. IN	DEPTH IN INCHES	SAMPLE NO.	DESCRIPTION AND CLASSIFICATION			NOTES ON WATER LEVELS, WATER RETURN, CHARACTER OF DRILLING, ETC.
				LOSS IN INCHES	LOSS IN INCHES	LOSS IN INCHES				LOSS IN INCHES	LOSS IN INCHES		
HOLE AUGER - 6"							0.3	0.3	0	0.0-0.3' CONCRETE FLOOR SLAB.			REPAIRED CONCRETE FLOOR SLAB, 12/10/86.
							1.0	1.0	1	1.0-4.0' CLAYEY SILT: MEDIUM BROWN WITH A FEW PEBBLES.			NATURAL GROUND AT APPROXIMATELY 5.0 FT.
							6.0	6.0	2	BOTTOM OF HOLE AT 6.0 FT. BACKILLED WITH GRANULAR BENTONITE, 12/10/86.			D ELEVATION UNKNOWN
SC-SPLIT SPOON ST-SHELLY TUBE DODDISON PARTITIONED SPONGE					SITE			MISS - DEVELOPED FUTURA PROPERTY - INSIDE BUILDINGS			HOLE NO.		HISS-17



GEOLOGIC DRILL LOG						PROJECT	FUSRAP			JOB NO.	14501-140	SPOT NO.	1 OF 1	HOLE NO.	MISS-18				
SITE MISS - DEVELOPED FUTURA PROPERTY						COORDINATES			N1700 E526			ANGLE FROM NORTH:		90°		BEARING		N/A	
BEGIN	COMPLETED	DRILLER				DRILL NAME AND MODEL			HOLE SIZE	OVERBURDEN FT.	ROCK FT.	TOTAL DEPTH							
11/26/86	11/26/86	JOHN MATHEWS AND ASSOCIATES				CHE-550			8"	10.0'	0.0'	10.0'							
CORE RECOVERY %/ID 8.6'/92%			CORE BOXES	SAMPLES	EL. TOP OF CASING	GROUND EL.		DEPTH TO GROUND WATER		DEPTH TO TOP OF ROCK		DEPTHLV. TOP OF ROCK			N/A				
SAMPLE NUMBER HEIGHT/FALL N/A			CASING LEFT IN HOLE: DIA/LENGTH NONE			LOGGED BY:		H.S. BENINGER											
SAMPLE TYPE AND DIAMETER OR SAMPLE ADVANCE DEPTH CORE FLS	SAMPLE NUMBER CODE	SAMPLE TIME HR	PERCENT CORE RECOVERY	WATER PRESSURE TESTS				ELEVATION	DEPTH IN FT.	LOG GRADE	SAMPLE	DESCRIPTION AND CLASSIFICATION						NOTES ON WATER LEVELS, WATER RETURN CHARACTER OF DRILLING, ETC.	
				LOSS IN SEC	LOSS IN MIN	LOSS IN SEC	LOSS IN MIN												
CHE CONTINUOUS SAMPLER - 1.0"	52.0"	52.0"	100						0.7				0.0-0.7' ASPHALT. 0.2-0.7' FILL; TAN/GRAY GRAVEL TO 3/4", SAND AND FINES. 0.7-1.7' SILT: GRAY, CLAYEY, FILL. 1.3-2.5' CLAY: GRAY TO BROWN, SILTY, MINOR GRAVEL PEBBLES TO 3/4", FILL. 2.5-6.2' CLAYEY SILT/SILTY CLAY: BROWN TO GRAY BROWN, YELLOWISH BROWN AND BLACK ORGANIC MOTTLING. 6.2-10.0' CLAY: GRAY BROWN, SILTY, YELLOW BROWN MOTTLING.						NO GROUNDWATER DURING DRILLING. ASPHALT REPAIRED, 12/18/86.
	50.0"	50.0"	85						10				BOTTOM OF HOLE AT 10.0 FT. BACKFILLED WITH GRANULAR BENTONITE, 11/26/86; CAPPED, 12/4/86.						▽ 11/26/86; AFTER ELAPSED TIME OF 6 HRS.
													NATURAL GROUND AT APPROXIMATELY 6.0 FT.						
													Ø ELEVATION UNKNOWN.						
													SAMPLER AND RADIOLGICALLY LOGGED BY EBERLINE ANALYTICAL CORPORATION, 11/26/86.						
													DESCRIPTION AND CLASSIFICATION BY VISUAL EXAMINATION OF SAMPLES.						
BS-SPLIT SPOON ST-SAMPLE TUBE: DODGESON PARTCHER C-60100						SITE			MISS - DEVELOPED FUTURA PROPERTY						HOLE NO.			MISS-18	



GEOLOGIC DRILL LOG						PROJECT FUSRAP			JOB NO. 14501-140	SHET NO. 1 OF 1	HOLE NO. HISS-19		
SITE	HISS - DEVELOPED FUTURA PROPERTY			COORDINATES N1646 E375			ANGLE FROM HORIZ. 90°			BEARING N/A			
DRILLER	COMPLETED 12/5/86		DRILLER JOHN MATHEWS AND ASSOCIATES	DRILL NAME AND MODEL CME-550			MOLE SIZE 8"	OVERTUREND FT. 10.0'	ROCK FT. 0.0'	TOTAL DEPTH 10.0'			
DRILLER	COMPLETED 12/5/86		DRILLER JOHN MATHEWS AND ASSOCIATES	DRILL NAME AND MODEL CME-550			MOLE SIZE 8"	OVERTUREND FT. 10.0'	ROCK FT. 0.0'	TOTAL DEPTH 10.0'			
CORE RECOVERY %/SD	7.7'/84%		CORE BOXES N/A	SAMPLES 2	EL. TOP OF CASING N/A	GROUNDS EL. (1)	DEPTH/EL. GROUND WATER 3.8'/(1)	DEPTH/EL. TOP OF ROCK N/A					
SAMPLE NUMBER COUNT/TOTAL N/A				CASING LEFT IN HOLE BULLETPROOF			LOGGED BY H.S.BENSINGER						
SAMPLE TYPE AND DIAMETER	ADVANCE CORE RECOVERED	SAMPLE TYPE AND DIAMETER	SAMPLE TIME IN HRS.	POTENTIAL CORE RECOVERY	WATER PERMEABILITY TESTS			ELEVATION	DEPT. FT.	SL.	SPL.	DESCRIPTION AND CLASSIFICATION	NOTES ON WATER LEVELS, WATER RETURN, CHARACTER OF DRILLING, ETC.
					LOSS % 67.4 67.4	PRESSURE PSI 2000 2000	TIME IN SECS. 300 300						
CME CONTINUOUS SAMPLER - 30"	50°	50°	100					0.2				0.0-0.2' ASPHALT.	ASPHALT REPAIRED, 12/18/86.
								0.3			0.2-0.8' FILLS GRAVEL TO P, SAND AND FINES.		
	60°	42°	70					1.5				0.8-1.5' SILTY: DARK GRAY, CLAYEY, FILL.	2/10/86.
								4.4			1.5-4.4' CLAYEY SILT/SILTY CLAY: MEDIUM BROWN/BROWNISH GRAY, CLAYEY, ISOLATED PEBBLES TO 3/4".		
								7.8				4.4-7.8' CLAYEY SILT/SILTY CLAY: MEDIUM BROWN, YELLOW BROWN AND BLACK ORGANIC MOTTLING.	NATURAL GROUND AT APPROXIMATELY 7.8 FT.
								10			7.8-7.3' 2' YELLOW BROWN ZONE.		
												7.8-10.0' CLAY: GRAY BROWN, SILTY, YELLOW BROWN/DARK GRAY MOTTLING, MINOR BLACK SPECKS.	@ ELEVATION UNKNOWN.
S3-SPLIT SPOON ST-SHELLY TUBE DODDERSON PARTITION GROUTER								SITE HISS - DEVELOPED FUTURA PROPERTY			HOLE NO. HISS-19		



GEOLOGIC DRILL LOG						PROJECT			FUSRAP			JOB NO.		SHEET NO.		HOLE NO.			
SITE HISS - DEVELOPED FUTURA PROPERTY						COORDINATES			N1650 E500			DEPTH FROM SURFACE		1 OF 1		HISS-20			
BEGUN 11/21/86		COMPLETED 11/21/86		DRILLER JOHN MATHEWS AND ASSOCIATES		DRILL MAKE AND MODEL CME-550			HOLE SIZE 8"		OVERBURDEN FT. 10.0'		ROCK FT. 0.0'		TOTAL DEPTH 10.0'				
CORE RECOVERY FT./SD 9.0' / 100%				CORE BOXES N/A		SAMPLES 2		EL. TOP OF CASING N/A		GROUND EL. (1)		DEPTH EL. GROUND WATER 4.9' / (1)		DEPTH EL. TOP OF ROCK N/A					
SAMPLE NUMBER DEPTH / FALL N/A						CASING LEFT IN HOLE DEPTH / LENGTH NONE			LOGGED BY: H.S.BENSINGER										
SAMPLE TYPE AND DIA. (in.)	SAMPLE LENGTH (ft.)	SAMPLE TYPE	SAMPLE NUMBER	P. TEST RESULTS	P. TEST RESULTS	WATER PRESSURE TESTS			ELEVATION	DEPTH FT.	LOG NO.	SAMPLE	DESCRIPTION AND CLASSIFICATION						NOTES ON WATER LEVELS, WATER RETURN, CHARACTER OF DRILLER, ETC.
						100% CAP.	IN P. 200 ft.	IN P. 300 ft.					MIN TIME 10 MINUTES	MAX TIME 10 MINUTES	100% CAP.	IN P. 200 ft.	IN P. 300 ft.	MIN TIME 10 MINUTES	
ONE CONTINUOUS SAMPLER - 3.0	48°	48°	100						0.3	0	1	1	0.0-0.3' ASPHALT PAYNS.						ASPHALT REPAIRED, 12/18/86.
													0.3-1.0' FILL: GRAY GRAVEL, P TO 3' LIMESTONE PEBBLES, SAND, GRAVEL, AND FINES.						
	60°	60°	100						5	1	2	1.0-7.5' CLAYEY SILT/SILTY CLAY; BROWN, DARK BROWN/BLACK MOTTLING.						1/24/86.	
												7.5-10.0' CLAY: GRAY BROWN, YELLOWISH BROWN MOTTLING, MINOR BLACK INCLUSIONS (ORGANIC).							
									10			BOTTOM OF HOLE AT 10.0 FT. BACKFILLED WITH GRANULAR BENTONITE, 1/24/86; CAPPED, 1/26/86.							
																	ELEVATION UNKNOWN.		
																	SAMPLED AND RADIOLOGICALLY LOGGED BY EBERLINE ANALYTICAL CORPORATION 1/26/86.		
																	DESCRIPTION AND CLASSIFICATION BY VISUAL EXAMINATION OF SAMPLES.		
SC-SPLIT SPOON ST-SHELBY TUBE; DIA-ODDMM PT-PATCH CROWN GROOVED						SITE			HISS - DEVELOPED FUTURA PROPERTY						HOLE NO.		HISS-20		



GEOLOGIC DRILL LOG					PROJECT			JOB NO.			SHEET NO.	HOLE NO.	
					FUSRAP			14501-140			1 OF 1	HISS-21	
SITE HISS - DEVELOPED FUTURA PROPERTY - INSIDE BLDGS				COORDINATES N1625.9 E453.1				ANGLE FROM HORIZ. 90°		BEARING N/A			
BEGAN 12/10/86	COMPLETED 12/10/86	DRILLED JOHN MATHEWS AND ASSOCIATES	DRILL NAME AND MODEL HAND AUGER			MILE SIZE 6'	OVERBURDEN FT. 7.5'	ROCK FT.D 0.0'	TOTAL DEPTH 7.5'				
CORE RECOVERY FT./SD		CORE BOXES N/A	SAMPLES -	EL. TOP OF CASING N/A	GROUND EL. (1)	DEPTH/EL. GROUND WATER 7.0'/(1)		DEPTH/EL. TOP OF ROCK N/A					
SAMPLE NUMBER REASON/TALL N/A				CASING LEFT IN HOLE/DIA/LENGTH NONE			LOGGED BY: H.S.BENSTINGER						
SAMPLE TYPE AND DIAMETER HAD AUGER - 6"	SAMPLE SPAN LENGHT CORE TAKEN	SAMPLE LENGTH TAKEN	SAMPLE TYPE REASON	FORCED CORE RECOVERY	WATER PRESSURE TESTS			ELEVATION	DEPTH ft.	LOG CODE	SAMPLE	DESCRIPTION AND CLASSIFICATION	NOTES ON WATER LEVELS, WATER RETURN CHARACTER OF DRILLING, ETC.
					LOSS %	%	PRESSURE P.S.I.						
									0.3			0.0-0.3' CONCRETE FLOOR SLAB. 0.3-2.0' ELL: MEDIUM BROWN CLAYEY SALT, ISOLATED COBBLES TO 3', DRY.	REPAIRED CONCRETE FLOOR SLAB, 12/10/86.
									2.0			2.0-3.75' CLAYEY SILT: MEDIUM BROWN/MEDIUM GRAY, YELLOW BROWN MOTTLING, MINOR ORGANICS.	HIGH RADIATION AT 6.0'.
									3.75			3.75-5.5' CLAYEY SALT: DARK BROWN, WITH OCCASIONAL SUBANGULAR PEBBLES.	
									5.5			5.5-7.5' SILTY CLAY: GRADATIONAL CHANGE (FROM 5.5 TO 6.25) TO GRAY BROWN SILTY CLAY WITH YELLOW BROWN AND GRAY/BLACK ORGANIC MOTTLING.	
									7.5			BOTTOM OF HOLE AT 7.5 FT. BACKFILLED WITH ANGULAR BENTONITE, 12/10/86.	
												④ ELEVATION UNKNOWN.	
												SAMPLED AND RADIOLOGICALLY LOGGED BY EBERLINE ANALYTICAL CORPORATION, 12/10/86.	
												DESCRIPTION AND CLASSIFICATION BY VISUAL EXAMINATION OF CUTTINGS.	
50-SPLIT SPOON ST-SHELBY TUBE, DEDUCED FROM OTHER					SITE	HISS - DEVELOPED FUTURA PROPERTY - INSIDE BLDGS						HOLE NO. HISS-21	



GEOLOGIC DRILL LOG						PROJECT	FUSAP			JOB NO.	SHEET NO.	HOLE NO.		
SITE HISS - DEVELOPED FUTURA PROPERTY				COORDINATES N1597 E324				ANGLE FROM HORIZ. 90°			1 OF 1	HISS-22		
BEGIN 12/5/86	COMPLETED 12/5/86	DRILLER JOHN MATHEWS AND ASSOCIATES	DRILL NAME AND MODEL CME-550			HOLE SIZE 8"	OVERTHREAD FT. 10.0'	ROCK FT. 0.0'	TOTAL DEPTH 10.0'					
CORE RECOVERY % 8.6' / 95%		CORE BOXES N/A	SAMPLES 2	EL. TOP OF CASING N/A	GROUND EL. (1)	DEPTH EL. GROUND WATER 3.2' / (1)			DEPTH EL. TOP OF ROCK N/A					
SAMPLE NUMBER MISSING AT ALL N/A			CASING LEFT IN HOLE: DIA./LENGTH NONE			LOGGED BY: H.S. BENSINGER								
SAMPLE TYPE AND NUMBER	SAMPLE LENGTH FEET	SAMPLE LENGTH METERS	SAMPLE NUMBER	WATER PRESSURE TESTS			ELEVATION	IN FT	IN METERS	SAMPLE	DESCRIPTION AND CLASSIFICATION			NOTES ON WATER LEVELS, WATER RETURN CHARACTER OF DRILLING, ETC.
				LOSS IN FT	LOSS IN M	LOSS IN SECONDS					LOSS IN SECONDS	LOSS IN SECONDS	LOSS IN SECONDS	
CME CONTINUOUS SAMPLER - 30°	48°	48°	100					10				LO-LO' FILL: GRAVEL TO T, SOME SAND.	ELEVATION UNKNOWN 2/10/86.	
	60°	55°	92									LO-6.8' CLAYEY SILT/SILTY CLAY; MEDIUM BROWN, GRAY BROWN AND SOME YELLOW BROWN MOTTLING, MOIST.		
												6.8-10.0' CLAY: GRAY BROWN, SILTY, YELLOW BROWN MOTTLING AND BLACK SPECKS.	NATURAL GROUND AT APPROXIMATELY 6.8 FT.	
												BOTTOM OF HOLE AT 10.0 FT. BACKFILLED WITH GRANULAR BENTONITE, 12/10/86.		
												SAMPLED AND RADIOLOGICALLY LOGGED BY EBERLINE ANALYTICAL CORPORATION, 12/5/86.		
												DESCRIPTION AND CLASSIFICATION BY VISUAL EXAMINATION OF SAMPLES.		
SI-SPLIT SPOON STERILITY TUBE, DISPOSABLE PTFE COATED OTHER				SITE			HISS - DEVELOPED FUTURA PROPERTY					MOLE NO.	HISS-22	



GEOLOGIC DRILL LOG					PROJECT			JOB NO.			SHEET NO.	HOLE NO.					
SITE HISS - DEVELOPED FUTURA PROPERTY					COORDINATES			FUSRAP			14501-140	1 OF 1	HISS-23				
											ANGLE FROM HORIZ.	90°	BEARING	N/A			
DRILLER 12/3/86	COMPLETED 12/3/86	DRILLED JOHN MATHEWS AND ASSOCIATES	BULL NOME AND NUMBER CME-550			HOLE SIZE	8"	OVERBURDEN FT.D	1.0'	ROCK FT.D	0.0'	TOTAL DEPTH	10.0'				
CORE RECOVERY %/D 7.7'/88%		CORE BOXES N/A	SAMPLES 2	EL. TOP OF CASING N/A	GROUND EL. (1)	DEPTH/EL GROUND WATER 4.7'/(1)	DEPTH/EL. TOP OF ROCK N/A										
SAMPLE NUMBER HEIGHT/FALL N/A			CASING LEFT IN HOLE DIA./LENGTH NONE			LOGGED BY: H.S.BENSINGER											
SAMPLE TYPE AND DIAMETER	SAMPLE LENGTH IN FEET	SAMPLE NUMBER	SAMPLE TYPE	PERCENT CORE RECOVERY	WATER PRESSURE TESTS			ELEVATION	DEPTH FT.	LOG NO.	SAMPLE NO.	DESCRIPTION AND CLASSIFICATION				NOTES OR WATER LEVELS, WATER RETURN, CHARACTER OF DRILLING, ETC.	
					LOSS OF P. FT. F.	W. P. F.	TIME IN MINUTES F.										
CME CONTINUOUS SAMPLER - 10"	44"	44"	100	100					0			0.0-1.5' FILL: GRAVEL AND SAND WITH COBBLES TO 3".				12/4/86.	
									1.5			1.5-2.5' CLAY: MEDIUM BROWN, SILTY.					
									2.5			2.5-4.1' CLAY: GRAY/GRAY BROWN, SILTY, ISOLATED PEBBLES TO 1-3/4".					
									4.1			4.1-5.8' CLAY: MEDIUM BROWN, SILTY, YELLOW BROWN AND DARK GRAY ORGANIC MOTTLING.					
		60"	48"	80	80					5.8			5.8-10.0' CLAY: GRAY BROWN, SILTY, YELLOW BROWN AND DARK GRAY MOTTLING.				NATURAL GROUND AT APPROXIMATELY 5.8 FT.
									10			BOTTOM OF HOLE AT 10.0 FT. BACKFILLED WITH GRANULAR BENTONITE, 12/4/86; CAPPED, 12/10/86.					
SPLIT SPOON ST-SHELBY TUBE, DISKERS, PIPED CHIPS, OTHER					SITE			MISS - DEVELOPED FUTURA PROPERTY					SAMPLER AND RADIOLOGICALLY LOGGED BY EERLINE ANALYTICAL CORPORATION 12/3/86.				
													DESCRIPTION AND CLASSIFICATION BY VISUAL EXAMINATION OF SAMPLES.				
													HOLE NO. HISS-23				



GEOLOGIC DRILL LOG				PROJECT				FLUSRAP			JOB NO.		SHEET NO.		HOLE NO.	
SITE HISS - DEVELOPED FUTURA PROPERTY - INSIDE BLDGS (LABORATORY)				COORDINATES				N1605.7 E400.5			ANGLE FROM HORIZ. 90°		1 OF 1		HISS-24	
BEGUN	COMPLETED	DRILLER	DRILL NAME AND MODEL					HOLE SIZE	OVERBURDEN FT.D	BUCK FT.D	TOTAL DEPTH					
12/15/86	12/15/86	JOHN MATHEWS AND ASSOCIATES	HAND AUGER					6"	7.5'	0.0'	7.5'					
CORE RECOVERY %/SD		N/A	CORE BOXES	SAMPLES	EL. TOP OF CASING	GROUND EL.	DEPTH/EL. GROUND WATER	DEPTH/EL. TOP OF BED								
		N/A	N/A	-	N/A	(1)	NONE OBSERVED	N/A								
SAMPLE BAROMETER READING/FULL				CASING LEFT IN HOLE; DIA/LENGTH				LOGGED BY:				H.S.BENSINGER				
N/A				NONE												
TIME IN HRS	DRILL TYPE	NO. OF ROTATION	NO. OF TURNS	NO. OF PIERCING	NO. OF RECOVERY	WATER PRESSURE TESTS		ELEVATION	DEPTH	SPLIT SPOON TESTS	TESTS	DESCRIPTION AND CLASSIFICATION				NOTES ON WATER LEVELS, WATER RETURN, CHARACTER OF DRILLING, ETC.
						LOSS IN PSI	PSI					LOSS IN PSI	PSI	LOSS IN PSI	PSI	
6	HAND AUGER	1	1	1	1	0	0.3	0.3	0.0-0.5' CONCRETE FLOOR SLAB.				REPAIRED CONCRETE FLOOR SLAB, 12/15/86.			
									2.8	2.8	4.0	4.0		0.3-2.8' SILTY GRAY BROWN CLAYEY, MINOR GRAVEL PEBBLES NEAR SURFACE, ISOLATED FRAGMENTS OF BRICK BELOW 10 FT.		
6	HAND AUGER	1	1	1	1	7.5	4.0	4.0	2.8-4.0' CLAY: TERRACOTTA, SILTY WITH COARSE SAND PARTICLES AND MINOR GRAVEL.				NO GROUND WATER DURING DRILLING.			
									4.8	4.8	7.5	7.5		4.0-4.8' SILTY CLAY: SOME GRAVEL AND ISOLATED PEBBLES TO 2' DIA.		
6	HAND AUGER	1	1	1	1	7.5	4.8	4.8	4.8-7.5' SILTY CLAY: MEDIUM BROWN/GRAY BROWN, SOME YELLOW BROWN AND BLACK ORGANIC MOTTLING, MORE CLAYEY AND GRAY BROWN WITH DEPTH, MOIST.				NATURAL GROUND AT APPROXIMATELY 5.8'.			
									7.5	7.5	7.5	7.5		BOTTOM OF HOLE AT 7.5 FT. BACKFILLED WITH GRANULAR BENTONITE, 12/15/86.		
												Ø ELEVATION UNKNOWN.				
												SAMPLER AND RADIOLOGICALLY LOGGED BY EBCLINE ANALYTICAL CORPORATION, 12/15/86.				
												DESCRIPTION AND CLASSIFICATION BY VISUAL EXAMINATION OF CUTTINGS.				
SPLIT SPOON ST-SKELBY TUBE DOWDSON PITCHER OTHER						HOLE NO.						HOLE NO.				
HSS-24						HSS-24						HSS-24				
HSS - DEVELOPED FUTURA PROPERTY - INSIDE BLDGS (LABORATORY)																



GEOLOGIC DRILL LOG						PROJECT	FUSRAP			JOB NO.	SHEET NO.	HOLE NO.			
SITE HISS - DEVELOPED FUTURA PROPERTY				COORDINATES N1600 E526				14501-140			1 OF 1	MISS-25			
BEGUN 11/25/86	COMPLETED 11/25/86	DRILLER JOHN MATHEWS AND ASSOCIATES	DRILL NAME AND MODEL CME-550			HOLE SIZE 8"	OVERBURDEN FT. 10.0'	ROCK FT. 0.0'	ANGLE FROM NORTH 90°		BEARING N/A				
CORE RECOVERY FT./ID 7.3' / 78%		CORE BOXES N/A	SAMPLES 2	EL. TOP OF CASING N/A	GROUND EL. (1)	DEPTHVEL GROUND WATER 4.0' / (1)			DEPTHVEL TOP OF ROCK N/A						
SAMPLE NUMBER BEIGENT/FALL N/A				CASING LEFT IN HOLE: DIA/LENGTH NONE				LOGGED BY: H.S. BENSTINGER							
SAMPLE TYPE AND DIAMETER	SAMPLE ADVANCE AND CORE LENGTH	SAMPLE RECOVERY PERCENT	SAMPLE IN CUPS AND	PENETRATION RECORDED	WATER PRESSURE TESTS			ELEVATION	ELE. FT.	LOG NO.	SAMPLE NO.	DESCRIPTION AND CLASSIFICATION			NOTES ON WATER LEVELS, WATER RETURN, CHARACTER OF DRILLING, ETC.
					LOSS OF 100 PSI IN 10 MIN	LOSS OF 50 PSI IN 10 MIN	LOSS OF 20 PSI IN 10 MIN								
CME CONTINUOUS SAMPLER - 3.5"	5"	5"	100					0.2 0.8 L9 2.6 5	1	0.0-0.2' ASPHALT. 0.2-0.8' FILL: TAN/GRAY GRAVEL TO 3/4", SAND AND FINES. 0.8-L9' SILT: DARK GRAY, CLAYEY. L9-2.6' SILT: BROWN GRAY, CLAYEY. 2.6-5.0' CLAYEY SILT/SILTY CLAY; MEDIUM BROWN, BLACK ORGANIC MOTTLING.			ASPHALT REPAIRED, 2/18/86.		
										60°	36°	60			
							10		BOTTOM OF HOLE AT 10.0 FT. BACKFILLED WITH GRANULAR BENTONITE, 1/26/86, CAPPED, 2/4/86.			ELEVATION UNKNOWN.			
SPLIT SPOON ST-SHELLY TUBE DIMENSIONS PFT/CHIN CH/CHIN								SAMPLER AND RADIOLOGICALLY LOGGED BY EBERLINE ANALYTICAL CORPORATION 1/25/86				DESCRIPTION AND CLASSIFICATION BY VISUAL EXAMINATION OF SAMPLES.			
SITE HISS - DEVELOPED FUTURA PROPERTY								HOLE NO. MISS-25							



GEOLOGIC DRILL LOG						PROJECT			FLUSRAP			JOB NO.		SHEET NO.		HOLE NO.		
SITE HISS - DEVELOPED FUTURA PROPERTY						COORDINATES			N1550 E350			ANGLE FROM HORIZ. 90°		1 OF 1		MISS-26		
BEGAN	COMPLETED	BILLED			DRILL NAME AND MODEL			HOLE SIZE		OVERBURDEN FT		ROCK FT	TOTAL DEPTH					
12/3/86	12/3/86	JOHN MATHEWS AND ASSOCIATES			CME-550			8"		15.0'		0.0'	15.0'					
CORE RECOVERY %/D		CORE BOXES	SAMPLES	EL. TOP OF CASING	GROUND EL.		DEPTH/EL. GROUND WATER				DEPTH/EL. TOP OF ROCK		BEARING					
5.9' / 42%		N/A	2	N/A	(1)	2.3' / (1)				N/A		N/A		N/A				
SAMPLE NUMBER RECORDED/ALL				CASING LEFT IN HOLE/DEAULT LENGTH				LOGGED BY:				H.S.BENSINGER						
N/A		NONE																
SAMPLE TYPE AND DIA. AND LENGTH	SAMPLE NO.	SAMPLE NO.	SAMPLE NO.	WATER PRESSURE TESTS			ELEVATION	DEPTH	CORE LOSS	SAMPLE	DESCRIPTION AND CLASSIFICATION						NOTES ON WATER LEVELS, WATER RETURN CHARACTER OF DRILLING, ETC.	
				LOSS % FT. FT.	LOSS % FT. FT.	LOSS % FT. FT.												
CME CONTINUOUS SAMPLER - 3.0"	48"	48"	100								0.0-0.9' FILL; GRAVEL TO 2' AND SAND.						WATER ON SURFACE. ▼ 12/4/86.	
											0.9-3.8' SILT; DARK GRAY BROWN, CLAYEY, WITH WOOD PARTICLES.							
	60"	5'	8									3.8-5.5' CLAY; DARK BROWN, SILTY, ISOLATED PEBBLES TO 1 1/2".						
											5.5-10.0' DESCRIPTION UNAVAILABLE.							
60"	18"	30									10.0-15' CLAY; GRAY BROWN, SILTY, YELLOW BROWN MOTTLING.						LOST CORE FROM 5' TO 10' BECAUSE OF WATER SATURATION (CORE SLIPPED OUT; PULLED AUGER AND RESET. NATURAL GROUND BETWEEN 5.5' AND 10.0'.	
										15-15.0' DESCRIPTION UNAVAILABLE.								
											BOTTOM OF HOLE AT 15.0 FT. BACKFILLED WITH GRANULAR BENTONITE, 12/4/86, CAPPED, 12/10/86.						ELEVATION UNKNOWN.	
DISP/SPLIT SPOON ST-SHELLBY TUBE DODDSON PARTS CHECKED/OTHER								HOLE NO.										
SITE HISS - DEVELOPED FUTURA PROPERTY								MISS-26										



GEOLOGIC DRILL LOG						PROJECT	FUSRAP			JOB NO.	SPOT NO.	HOLE NO.		
SITE HISS - DEVELOPED FUTURA PROPERTY - INSIDE BUILDINGS						COORDINATES			N1586.7 E402.5			14501-140	1 OF 1	HISS-27
DRILLER	COMPLETED	DRILLER	NAME AND MODEL			HOLE SIZE	CHOKEDOWN FT.D	ROCK FT.D	ANGLE FROM NORTH			BEARING		
12/10/86	12/10/86	JOHN MATTHES AND ASSOCIATES	HAND AUGER			6"	9.5'	0.0'	90°			N/A		
CORE RECOVERY %/SD		CORE BOXES	SAMPLES	EL. TOP OF CASING	N/A	GROUNDS EL.	SEPT/VEL. GROUND WATER	SEPT/VEL. TOP OF ROCK	TOTAL DEPTH					
		N/A	-	(1)	6.0' / (1)	N/A		N/A	9.5'					
SAMPLE NUMBER RECENT/FALL N/A						CASING LEFT IN HOLE/DIA/LENGTH NONE			LOGGED BY:			H.S. BENINGER		
SAMPLE TYPE AND DIAMETER OR SAMPLE ADVANCE LENGHT IN FEET	SAMPLE ADVANCE LENGHT IN FEET	SAMPLE TYPE RECOVERY %	SAMPLE TYPE RECOVERY %	WATER PRESSURE TESTS			ELEVATION	DEPTH FT. 0	LOG NO.	SAMPLE	DESCRIPTION AND CLASSIFICATION			NOTES ON WATER LEVELS, WATER RETURN, CHARACTER OF DRILLING, ETC.
				100	2	4					8	100	2	
6" - HAND AUGER	6"	%	%					0.3 2.0 3.8 5 7.3 8.0 9.5	0	0	0.0-0.3 CONCRETE FLOOR SLAB.			REPAIRED CONCRETE FLOOR SLAB, 12/10/86.
											0.3-2.0 SILT; MEDIUM/DARK BROWN, SANDY, MINOR GRAVEL, CONCRETE COBBLE AT 2.0 FT.			
											2.0-3.8 SILT; MOTTLED TERRACOTTA AND MEDIUM GRAY, CLAYEY.			
											3.8-7.3 SILT; MEDIUM BROWN, CLAYEY, YELLOW BROWN MOTTLING, SOME BLACK ORGANICS. AT 6.8 MORE GRAY BROWN SILTY CLAY.			
											7.3-8.0 CLAY; GREENISH GRAY, SILTY, YELLOW BROWN MOTTLING, SOME BLACK ORGANICS, SOME DIESEL ODOUR.			
											8.0-9.5' CLAY; GRAY BROWN/MEDIUM BROWN, SILTY, YELLOW BROWN MOTTLING, SOME GREENISH BROWN MOTTLING TO 8.8 FT.			
											BOTTOM OF HOLE AT 9.5 FT. BACKFILLED WITH GRANULAR BENTONITE, 12/10/86.			
SAMPLING AND RADIOLOGICAL LOGGED BY EBERLINE ANALYTICAL CORPORATION, 12/10/86.														
DESCRIPTION AND CLASSIFICATION BY VISUAL EXAMINATION OF CUTTINGS.														
SS-SPLIT SPOON ST-SHIELLY TUBE, DODDISON PINTCHER CANTHONER						SITE			HISS - DEVELOPED FUTURA PROPERTY - INSIDE BUILDINGS			HOLE NO.		HISS-27



GEOLOGIC DRILL LOG					PROJECT			FUSRAP			JOB NO.		SHEET NO.		HOLE NO.											
SITE HISS - DEVELOPED FUTURA PROPERTY - INSIDE BUILDINGS					COORDINATES			N1545.4 E454.6			ANGLE FROM NORTH		1 OF 1		HISS-28											
BEGUN 12/10/86		COMPLETED 12/10/86		DRILLER JOHN MATHEWS AND ASSOCIATES			DRILL NAME AND MODEL HAND AUGER		HOLE SIZE 6"		OVERBURDEN FT. 11.0'		ROCK FT. 0.0'		TOTAL DEPTH 11.0'											
CORE RECOVERY FT./LB		CORE DENSITY N/A		SAMPLES -		EL. TOP OF CASING N/A		GROUND EL. (1)		DEPTH EL. GRAINED WATER 8.5'/(1)		DEPTH EL. TOP OF ROCK N/A		DEPTH EL. TOP OF BED N/A												
SAMPLE NUMBER RECENT/FALL N/A					CASES LEFT IN HOLE: Casing Length NONE					LOGGED BY: H.S. BENSINGER																
SAMPLE TYPE AND DIAMETER	SAMPLE ID	SAMPLE DATE	SAMPLE TYPE	SAMPLE DESCRIPTION	WATER PRESSURE TESTS		ELEVATION	OPEN	LOG	SAMPLE	DESCRIPTION AND CLASSIFICATION					NOTES ON WATER LEVELS, WATER RETENTION CHARACTER OF DRILLING, ETC.										
					LOSS OF PRESS. FT. MIN. FT. MAX.	LOSS OF PRESS. FT. MIN. FT. MAX.					10' 20' 30' 40' 50' 60' 70' 80' 90' 100' 110' 120' 130' 140' 150' 160' 170' 180' 190' 200' 210' 220' 230' 240' 250' 260' 270' 280' 290' 300' 310' 320' 330' 340' 350' 360' 370' 380' 390' 400' 410' 420' 430' 440' 450' 460' 470' 480' 490' 500' 510' 520' 530' 540' 550' 560' 570' 580' 590' 600' 610' 620' 630' 640' 650' 660' 670' 680' 690' 700' 710' 720' 730' 740' 750' 760' 770' 780' 790' 800' 810' 820' 830' 840' 850' 860' 870' 880' 890' 900' 910' 920' 930' 940' 950' 960' 970' 980' 990' 1000' 1010' 1020' 1030' 1040' 1050' 1060' 1070' 1080' 1090' 1100' 1110' 1120' 1130' 1140' 1150' 1160' 1170' 1180' 1190' 1200' 1210' 1220' 1230' 1240' 1250' 1260' 1270' 1280' 1290' 1300' 1310' 1320' 1330' 1340' 1350' 1360' 1370' 1380' 1390' 1400' 1410' 1420' 1430' 1440' 1450' 1460' 1470' 1480' 1490' 1500' 1510' 1520' 1530' 1540' 1550' 1560' 1570' 1580' 1590' 1600' 1610' 1620' 1630' 1640' 1650' 1660' 1670' 1680' 1690' 1700' 1710' 1720' 1730' 1740' 1750' 1760' 1770' 1780' 1790' 1800' 1810' 1820' 1830' 1840' 1850' 1860' 1870' 1880' 1890' 1900' 1910' 1920' 1930' 1940' 1950' 1960' 1970' 1980' 1990' 2000'															
H.S. - HAND AUGER															REPAIRED CONCRETE FLOOR SLAB, 2/1/86.											
					0.0-0.5' CONCRETE FLOOR SLAB					2.3-3.5' CLAY; TERRACOTTA, SILTY, MOVED GRAVEL PEBBLES, MOTTLED GRAY BROWN.						3.5-6.3' CLAYEY SILT/SILTY CLAY; VAREGATED MEDIUM BROWN DARK GRAY BROWN, SOME GRAY/BLACK ORGANICS.					6.3-8.0' CLAY; GREENISH GRAY, SILTY, YELLOW BROWN AND BLACK ORGANIC MOTTLING, ODOUR (DIESEL?), MOIST.					8.0-10.0' SILTY CLAY/CLAY; GRAY BROWN/GRAY, YELLOW BROWN MOTTLING (GREENISH BROWN TO 9.5), MINOR BLACK ORGANICS WITH GRTTY/FINE COARSE SANDY TEXTURE.
																				BOTTOM OF HOLE AT 10.0 FT. BACKFILLED WITH GRANULAR BENTONITE, 2/10/86.					@ ELEVATION UNKNOWN.	
																									SAMPLER AND RADIODILOGICALLY LOGGED BY EBERLINE ANALYTICAL CORPORATION, 2/10/86.	
																									DESCRIPTION AND CLASSIFICATION BY VISUAL EXAMINATION OF CUTTINGS.	
DESCRIPTION: SHALLOW TUBE IMPERVIOUS PART CHECKS OTHER					SITE					MISS - DEVELOPED FUTURA PROPERTY - INSIDE BUILDINGS					HOLE NO.					MISS-28						



GEOLOGIC DRILL LOG						PROJECT			FUSRAP			JOB NO.	SHEET NO.	HOLE NO.
SITE HISS - DEVELOPED FUTURA PROPERTY						COORDINATES			N1550 E500			14501-140	1 OF 1	HISS-29
RECDATE 11/21/86	COMPLETED 11/21/86	DRILLER JOHN MATHEWS AND ASSOCIATES				DRILL NAME AND MODEL CME-550	HOLE SIZE 8"	CHOKEDDOWN FT. 15.0'	ROCK FT. 0.0'	TOTAL DEPTH 15.0'	ANGLE FROM HORIZ. 90°	BEARING N/A		
CORE RECOVERY %/D 14.6' / 100%		CORE BOXES N/A	SAMPLES 3	EL. TOP OF CASING N/A	GROUNDS EL. (1)	DEPTH/EL. GROUNDS WATER 5.1' / (1)	DEPTH/EL. TOP OF ROCK N/A							
SAMPLE NUMBER HEIGHT/FALL N/A			CASING LEFT IN HOLE: DIA/LENGTH NONE			LOGGED BY: H.S. BENSINGER								
SAMPLE TYPE AND DIAMETER ONE CONTINUOUS SAMPLER - 3"	SAMPLE ADVANCE IN FEET 55'	SAMPLE RETRIEVAL IN FEET 55'	SAMPLE LENGTH IN FEET 100	WATER PRESSURE TESTS			ELEVATION	DEPTH FT. 0	LS SAMPLING 0	LS SAMPLING 1	DESCRIPTION AND CLASSIFICATION			NOTES ON WATER LEVELS, WATER RETENTION CHARACTER OF DRILLING, ETC.
				100% G.P.	50% P.F.	100% G.P.					TIME IN MINUTES 100	TIME IN MINUTES 100	TIME IN MINUTES 100	
								0.2			0.0-0.2' ASPHALT PAVING		ASPHALT REPAVED, 12/18/86.	
								0.6			0.2-0.6' FILL: 3" LIMESTONE PEBBLES, GRAVEL, SAND AND FINES.			
								1.4			0.6-1.4' CLAY: MEDIUM DARK GRAY, SALTY.			
								5			1.4-7.5' CLAYEY SILTY CLAY: BROWN, MOTTLED DARK BROWN/BLACK.			
								7.5			7.5-15.0' SILTY CLAY/CLAY: BROWN TO GRAY BROWN, SILTY, MOTTLED YELLOWISH BROWN/BLACK.		NATURAL GROUND AT APPROXIMATELY 7.5 FT.	
								10						
								15			BOTTOM OF HOLE AT 15.0 FT. BACKFILLED WITH GRANULAR BENTONITE, 1/24/86, CAPPED, 1/26/86.			
													① ELEVATION UNKNOWN.	
													SAMPLED AND RADIOLGICALLY LOGGED BY EBERLINE ANALYTICAL CORPORATION 1/26/86.	
													DESCRIPTION AND CLASSIFICATION BY VISUAL EXAMINATION OF SAMPLES.	
32-SPLIT SPOON ST-SHELDY TUBE MANUFACTURED BY FISHER BROTHERS				SITE			HISS - DEVELOPED FUTURA PROPERTY			HOLE NO.			HISS-29	



GEOLIC DRILL LOG						PROJECT			JOB NO. 14501-140			SHEET NO. 1 OF 1		HOLE NO. HSS-30	
SITE				COORDINATES		FUSRAP									
HSS - DEVELOPED FUTURA PROPERTY				N1500 E380					ANGLE FROM HORIZ. 90°			BEARING N/A			
BEGIN	COMPLETED	DRILLER	DRILL MAKE AND MODEL						HOLE SIZE	OVERTUREND FT.	ROCK FT.	TOTAL DEPTH			
12/3/86	12/3/86	JOHN MATTHES AND ASSOCIATES	CME-550						8"	15.0'	0.0'	15.0'			
CORE RECOVERY FT./SD		CORE BOXES	SAMPLES	EL. TOP OF CASING	GROUND EL.	DEPTH TO GROUND WATER				DEPTH TO TOP OF ROCK					
12.6' / 85%		N/A	2	N/A	(1)	2.7' / (1)				N/A					
SAMPLE NUMBER HEIGHT/FALL				CASING LEFT IN HOLE/DEA/LENGTH			LOGGED BY:			H.S. BENSINGER					
N/A				NONE											
SAMPLE TYPE AND ADVANCE IN FEET	ADVANCE IN FEET	FEET DOWN HOLE	FEET DOWN TO SAMPLE	PERCENT CORE RECOVERY	WATER PRESSURE TESTS			ELEVATION	IN DEPTH	SPLIT SAMPLES	SAMPLES	DESCRIPTION AND CLASSIFICATION			NOTES ON WATER LEVELS, WATER RETURN, CHARACTER OF DRILLING, ETC.
					LOSS IN PSI	LOSS IN PSI	LOSS IN PSI								
ONE CONTINUOUS SAMPLER - 10"	50'	50'	100	100					0	1	2	0.0-0.8' FILL: GRAVEL TO 2", SAND, FEW COBBLES TO 4".			12/4/86.
												0.8-2.8' SILT; MEDIUM BROWN TO MEDIUM GRAY BROWN, DAMP, MINOR YELLOW BROWN MOTTLING, OCCASIONAL PEBBLES TO 1/2".			
												2.8-4.0' SILT: GRAY BROWN, CLAYEY.			
												4.0-7.0' SILT: MEDIUM BROWN, CLAYEY, YELLOW BROWN AND DARK GRAY MOTTLING, BLACK ORGANIC FLECKS.			
ONE CONTINUOUS SAMPLER - 10"	60'	4"	68	68					7.0	3	7.0-8.0' CLAY: GRAY BROWN, SILTY, YELLOW BROWN AND DARK GRAY MOTTLING.			NATURAL GROUND AT APPROXIMATELY 7.0 FT.	
											10-15' CLAY: GRAY BROWN, SILTY, YELLOW BROWN AND DARK GRAY MOTTLING.				
											15'				
											BOTTOM OF HOLE AT 15.0 FT. BACKFILLED WITH GRANULAR BENTONITE, 12/4/86, CAPPED, 12/10/86.				
© ELEVATION UNKNOWN.															
SAMPLER AND RADIOLGICALLY LOGGED BY EBC ANALYTICAL CORPORATION 12/3/86.															
DESCRIPTION AND CLASSIFICATION BY VISUAL EXAMINATION OF SAMPLES.															
55-SPLIT SPOON ST-SCHELBY TUBE, PROGRESSIVE PITCHED BOTTOM				SITE		HSS - DEVELOPED FUTURA PROPERTY						HOLE NO.		HSS-30	



GEOLOGIC DRILL LOG						PROJECT	FUSRAP				JOB NO.	SHEET NO.	HOLE NO.	
SITE HISST - DEVELOPED FUTURA PROPERTY				COORDINATES N1500 E526								14501-140	1 OF 1	HISST-31
RECEIVED 11/25/86	COMPLETED 11/25/86	BORRER JOHN MATHEWS AND ASSOCIATES			DRILL NAME AND MODEL CME-550		HOLE SIZE 8"	OVERTOTAL FT. 10.0'	ANGLE FROM HORIZ. 90°	BEARING N/A				
CORE RECOVERY % L/D 9.2' / 100'		CORE BOXES N/A		SAMPLES 2	EL. TOP OF CASING N/A	GROUND EL. (1)	DEPTH EL. GROUND WATER 3.9' / (1)	DEPTH EL. TOP OF ROCK N/A						
SAMPLE BAROMETER READING/FALL N/A				CASING LEFT IN HOLE: DIA/LENGTH NONE				LOGGED BY: H.S. BENSINGER						
SAMPLE TYPE AND DIA IN INCHES	SAMPLE LENGTH IN FEET	SAMPLE TYPE AND DIA IN INCHES	SAMPLE LENGTH IN FEET	PENETRATION DEPTH IN FEET	WATER PRESSURE TESTS			ELEVATION	ELE. FT. 0	SAMPLE NO.	DESCRIPTION AND CLASSIFICATION			NOTES ON WATER LEVELS, WATER FLOW, CHARACTER OF DRILLING, ETC.
					100 FT. L	200 FT. L	300 FT. L							
CME- CONTINUOUS SAMPLES	50'	50'	100						0.2	1	0.0-0.2' ASPHALT.		ASPHALTY REPAIRED, 12/18/86.	
											0.8			1.0
	60'	60'	100						1.5	1	0.8-1.5' SILT; DARK GRAY, SANDY.		1/26/86.	
											2.5			3.0
								5.5	2	2.5-5.5' SILT; BROWN, CLAYEY, WITH BLACK ORGANICS AND YELLOW BROWN MOTTLING.		NATURAL GROUND AT APPROXIMATELY 5.5 FT.		
										10			12	14
										BOTTOM OF HOLE AT 10.0 FT. BACKFILLED WITH GRANULAR BENTONITE. 1/26/86; CAPPED, 12/4/86.		④ ELEVATION UNKNOWN.		
DI-SPLIT SPOON ST-SINGLE TUBE DOWDING PITCHER SYSTEM								SITE HISST - DEVELOPED FUTURA PROPERTY				SHEET NO. HISST-31		



GEOLOGIC DRILL LOG						PROJECT	FUSRAP			JOB NO.	SHOOT NO.	HOLE NO.	
SITE HISS - DEVELOPED FUTURA PROPERTY - INSIDE BUILDINGS				COORDINATES				N1466.8 E455.6			14501-140	1 OF 1	HISS-32
BEGIN 12/15/86	COMPLETED 12/15/86	DRILLER JOHN MATTHES AND ASSOCIATES	DRILL NAME AND MODEL HAND AUGER			HOLE SIZE 6"	OVERTHREAD FT.D 8.0'	ROCK FT.D 0.0'	ANGLE FROM HORIZ. 90°	BEARING N/A	TOTAL DEPTH 8.0'		
CORE RECOVERY FT.D/SD		CORE BOXES N/A	SAMPLES -	SL. TOP OF CASING N/A	GROUND EL. (11)	DEPTH SL. GROUND BATTER 8.0'/(11)	DEPTH SL. TOP OF ROCK N/A						
SAMPLE NUMBER RECENT/FALL N/A				CASING LEFT IN HOLE: DIA/LENGTH NONE			LOGGED BY: H.S.BENSINGER						
SAMPLE TYPE OR PREPARATION	DEPT. OF HOLE FT.	TYPE OF TEST	TEST NO.	TEST DATE	TEST REMARKS	WATER PRESSURE TESTS		ELEVATION	DEPT. OF HOLE FT.	GROSS SL.	NET SL.	DESCRIPTION AND CLASSIFICATION	NOTES ON WATER LEVELS, WATER RETURN, CHARACTER OF DRILLING, ETC.
						SL. 0' FT.	SL. 3' FT.						
C - HOLE HAND AUGER	8.0	ELEVATED EMMET READINGS AT 3.5'. NATURAL GROUND AT APPROXIMATELY 5.0 FT. D ELEVATION UNKNOWN.	REPAIRED CONCRETE FLOOR SLAB, 12/15/86. ELEVATED EMMET READINGS AT 3.5'. NATURAL GROUND AT APPROXIMATELY 5.0 FT. D ELEVATION UNKNOWN.	0.0-0.5' CONCRETE FLOOR SLAB									
				0.5-3.0' FILL: DARK BROWN SILTY SAND WITH GRAVEL AND PEBBLES TO 3' DIA. DRY.									
				AT 2.5', GRAY BROWN SANDY GRAVEL WITH SILT.									
				3.0-4.5' SILT: MEDIUM BROWN/GRAY BROWN, CLAYEY, SOME YELLOW BROWN MOTTLING.									
				4.5-6.0' CLAY: MEDIUM BROWN TO GRAY BROWN, SILTY, YELLOW BROWN AND DARK GRAY/BLACK MOTTLING, MORE CLAYEY AND LIGHTER GRAY BROWN FROM 7.5 FT.									
				7.5-8.0' BOTTOM OF HOLE AT 8.0 FT.									
				BACKFILLED WITH GRANULAR BENTONITE, 12/15/86.									
				SAMPLING AND RADIOLOGICALLY LOGGED BY EDBERNE ANALYTICAL CORPORATION, 12/15/86.									
				DESCRIPTION AND CLASSIFICATION BY VISUAL EXAMINATION OF CUTTINGS.									
				SPLIT SPOON ST-SHELLY TUBE; DIAMETER 1.575 INCHES OTHER									
SITE HISS - DEVELOPED FUTURA PROPERTY - INSIDE BUILDINGS						HOLE NO. HISS-32							



GEOLOGIC DRILL LOG						PROJECT	FUSRAP			JOB NO.	SHEET NO.	HOLE NO.							
SITE HISST - DEVELOPED FUTURA PROPERTY						COORDINATES	N1450 E372			14501-140	1 OF 1	HISST-33							
DRILLER 12/3/86	COMPLETED 12/3/86	DRILLER JOHN MATHEWS AND ASSOCIATES	BELL NAME AND MODEL CME-550				MOTOR SIZE 8"	OVERBURDEN FT. 10.0'	ROCK FT. 0.0'	ANGLE FROM HORIZ. 90°	BEARING N/A	TOTAL DEPTH 10.0'							
CORE RECOVERY FT./SD 6.9' / 72%		CORE BOXES N/A	SAMPLES 2	EL. TOP OF CASES N/A	GROUND EL. (1)	DEPTH/EL. GROUND WATER 2.2' / (1)	DEPTH/EL. TOP OF ROCK N/A												
SAMPLE NUMBER HEIGHT/FALL N/A			CASES LEFT IN HOLE: BULK LENGTH NONE			LOGGED BY:	H.S. BENSINGER												
SAMPLE TYPE AND DIAMETER	SAMPLED ADVANCE LENGHT	ADVANCE RATE	ADV. RATE IN FEET MINUTE	ADV. RATE IN FEET MINUTE	PICK TYPE	PICK ROTATION	WATER PRESSURE TESTS		ELEVATION	E	S	S	SAMPLE	DESCRIPTION AND CLASSIFICATION					NOTES ON WATER LEVELS, WATER RETURN CHARACTER OF DRILLING, ETC.
							10 FT. IN FEET MINUTE	20 FT. IN FEET MINUTE						30 FT. IN FEET MINUTE	40 FT. IN FEET MINUTE	50 FT. IN FEET MINUTE	60 FT. IN FEET MINUTE	70 FT. IN FEET MINUTE	
CME CONTINUOUS SAMPLER - 3.5"	55'	55'	100						0.4	0	S	S	S	0.0-0.4' FILL: GRAVEL AND SAND. 0.4-5.8' CLAY: BROWN, SILTY, YELLOW BROWN MOTTLING. 4.2' MORE YELLOW BROWN THAN ABOVE. 5.0-5.3' SECTION WITH GREENISH SILTY CLAY.					2/4/86.
														60'	28'	100			
									10					BOTTOM OF HOLE AT 10.0 FT. BACKFILLED WITH GRANULAR BENTONITE. 12/4/86; CAPPED, 12/10/86.					
														① ELEVATION UNKNOWN					
														SAMPLER AND RADIODILOGICALLY LOGGED BY EBERLINE ANALYTICAL CORPORATION 12/3/86.					
														DESCRIPTION AND CLASSIFICATION BY VISUAL EXAMINATION OF SAMPLES.					
35-SPLIT SPOON ST-SHELBY TUBE DODGESON PIPETECHN DODSON						SITE	HISST - DEVELOPED FUTURA PROPERTY									HOLE NO.		HISST-33	



GEOLOGIC DRILL LOG					PROJECT			JOB NO.			SHEET NO.	MOLE NO.		
					FUSRAP			14501-140			1 OF 1	HISS-34		
SITE HISS - DEVELOPED FUTURA PROPERTY					COORDINATES N1450 E412			ANGLE FROM NORTH 90°			BEARING N/A			
DRILLER 12/3/86	COMPLETED 12/3/86	DRILLER JOHN MATHEWS AND ASSOCIATES	DRILL NAME AND NUMBER CME-550			MOLE SIZE 8"	OVERBURDEN FT. 15.0'	ROCK FT. 0.0'	TOTAL DEPTH 15.0'					
CORE RECOVERY %/SD 11.9% / 85%	CORE DRAINS N/A	SAMPLES 3	EL. TOP OF CASING N/A	GROUND EL. (1)	DEPTH TO GROUND WATER 9.8' / (1)	DEPTH TO TOP OF ROCK N/A								
SAMPLE NUMBER RECORDED / ALL N/A			CASES LEFT IN WELL / DRAULIC LENGTH NONE			LOGGED BY: H.S.BENSINGER								
SAMPLE TYPE AND DIAMETER OR CORE RECOVERY PERCENT RECOVERY	SAMPLE NUMBER OR DEPTH FT.	PERCENT RADON ACTIVITY	WATER PERMEABILITY TESTS			ELEVATION	0 10 20 30 40 5 10.2 15	0 1 2 3	DESCRIPTION AND CLASSIFICATION					NOTES ON WATER LEVELS, WATER RETENTION, CHARACTER OF DRILLING ETC.
			100% WATER PERMEABLE	50% WATER PERMEABLE	NO WATER PERMEABLE									
CORE CONTINUOUS SAMPLER - 30"	45° 36'	75							0.2-0.5' ASPHALT.	ASPHALT REPAVED, 2/18/86.				
									0.2-0.5' FILL: GRAVEL TO P AND SAND. LOFSY SILT: MEDIUM BROWN SANDY, SCATTERED PEBBLES OF P TO 2" dia.	MODERATELY RADIOACTIVE AT 2.0 FT.				
		60° 52'	87						3.7-4.0' ROCK: GRAY TO PURPLE, WHITE PORPHYRATIC FLECKS (SLAG OR SOLIDIFIED WASTE), HIGHLY RADIOACTIVE.	HOLE CLOSED WITH SLUDGE AT 3.3', 2/4/86.				
	60° 55'	92						4.0-10.2' SILT: CHOCOLATE BROWN, LOOKS OILY IN SPOTS, ODOR OF SOLVENTS (?) (SLUDGE), RADIOACTIVE.	HIGHEST RADIOACTIVITY AT 6.5 FT.					
								10.2-15.0' CLAY: GRAY BROWN, SILTY, YELLOW BROWN MOTTLING.	NATURAL GROUND AT APPROXIMATELY 10.2 FT.					
								BOTTOM OF HOLE AT 15.0 FT. BACKFILLED WITH GRANULAR BENTONITE, 2/4/86, CAPPED, 2/10/86.	ELEVATION UNKNOWN.					
										SAMPLER AND RADIODILOGICALLY LOGGED BY EBERLINE ANALYTICAL CORPORATION, 2/3/86.				
30-SPLIT SPOON ST-MICHEL TUBE DIA 30MM, PHTD 25MM, GROUTED					SITE HISS - DEVELOPED FUTURA PROPERTY								MOLE NO. HISS-34	



GEOLOGIC DRILL LOG					PROJECT FUSRAP				JOB NO. 14501-140		SHOT NO. 1 OF 1	HOLE NO. HISS-35			
SITE HISS - DEVELOPED FUTURA PROPERTY				COORDINATES N1450 E583				ANGLE FROM NORTH 90°		BEARING N/A					
DATE 11/25/86	COMPLETED 11/25/86	DRILLER JOHN MATHEWS AND ASSOCIATES	DRILL NAME AND MODEL CME-550			HOLE SIZE 8"	OVERBURDEN FT.D 10.0'	ROCK FT.D 0.0'	TOTAL DEPTH 10.0'						
CORE RECOVERY % 8.4% / 94%		CORE BOXES N/A	SAMPLES 2	EL. TOP OF CASING N/A	GROUNDS EL. (1)	DEPTH/EL. GROUND WATER 4.4' / (1)	DEPTH/EL. TOP OF ROCK N/A								
SAMPLE NUMBER RECORDED/ALL N/A				CASING LEFT IN HOLE/DRILL LENGTH NONE			LOGGED BY: H.S. BENSINGER								
SAMPLE TYPE OR SAMPLER - 3C ONE CONTINUOUS SAMPLER - 3C	LOG DIAMETER IN MM 45° 45° 100	LOG DIAMETER IN MM 60° 55° 88	LOG DIAMETER IN MM 8 8 8	WATER PRESSURE TESTS			ELEVATION	DEPTH FT. M	LOG DIAMETER IN MM 8 8 8	LOG DIAMETER IN MM 8 8 8	LOG DIAMETER IN MM 8 8 8	DESCRIPTION AND CLASSIFICATION			NOTES ON WATER LEVELS, WATER RETURN, CHARACTER OF DRILLING, ETC.
				LOG DIAMETER IN MM 8 8 8	LOG DIAMETER IN MM 8 8 8	LOG DIAMETER IN MM 8 8 8						0	0.2	0.2-0.5' ASPHALT	
					LS	0.2-1.0' FILL; GRAVEL, SAND AND FINES.									
					LS	1.0-1.5' SILT: DARK GRAY, SANDY, FILL.									
					2.3	1.5-2.3' SILT: DARK BROWN, CLAYEY.									
					2.3	2.3-7.0' CLAYEY SILT/SILTY CLAY; BROWN, PELTON BROWN/BLACK ORGANIC MOTTLING.									
					5	7.0-10.0' CLAY: GRAY BROWN, SILTY, YELLOWISH BROWN MOTTLING.	NATURAL GROUND AT APPROXIMATELY 7.0 FT.								
					7.0	BOTTOM OF HOLE AT 10.0 FT. BACKFILLED WITH GRANULAR BENTONITE, 11/26/86; CAPPED, 12/4/86.									
					10	Ø ELEVATION UNKNOWN.									
							SAMPLED AND RADIOLOGICALLY LOGGED BY EMERLINE ANALYTICAL CORPORATION, 11/25/86.								
							DESCRIPTION AND CLASSIFICATION BY VISUAL EXAMINATION OF SAMPLES.								
COMPLIT SPANN ST-SHIELLY TUBE DISCONTINUOUS PIPING/NO CHAMFER				SITE HISS - DEVELOPED FUTURA PROPERTY				HOLE NO. 14501-140		HOLE NO. HISS-35					



GEOLOGIC DRILL LOG						PROJECT			FUSRAP			JOB NO.		SHEET NO.	HOLE NO.		
SITE HISS - DEVELOPED FUTURA PROPERTY						COORDINATES			N1400 E449			14501-140		1 OF 1	HISS-36		
BEGUN 12/2/86	COMPLETED 12/2/86	DRILLER JOHN MATTHES AND ASSOCIATES			DRILL NAME AND MODEL CME-550			HOLE SIZE		OVERBURDEN FT. 8'	ROCK FT. 15.0'	ANGLE FROM HORIZ. 90°		BEARING N/A			
CORE RECOVERY FT./SLD 10.6' / TSX		CORE BOXES N/A		SAMPLES 3	SL. TOP OF CASING N/A		GROUND CL. (1)	DEPTHVEL. GROUND WATER 3.0' / (1)		DEPTHVEL. TOP OF ROCK N/A							
SAMPLE NUMBER WEIGHT/FT. N/A				CASING LEFT IN HOLE: SLA/LENGTH NONE				LOGGED BY H.S.BENSINGER									
SAMPLE TYPE AND DIAMETER CME-300	SAMPLED ADVANCE LENGHT CORE IN FEET	SAMPLE RECOVERY PERCENT	SAMPLE WEIGHT IN OZ.	WATER PRESSURE TESTS			ELEVATION	DEPTH 0	SL GRANITE 0'	SAMPLE	DESCRIPTION AND CLASSIFICATION				NOTES ON WATER LEVELS, WATER RETENTION CHARACTER OF DRILLING, ETC.		
				LONG IN FT.	MID IN FT.	END IN FT.					TIME IN MINUTES	TIME IN MINUTES	TIME IN MINUTES	TIME IN MINUTES			
CONTINUOUS SAMPLER - 3.0"	45' 45' 100	60' 18' 30	60' 60' 100								0.0-0.2" ASPHALT. 0.2-0.9" FILL GRAVEL TO 3/4" DIA AND SAND.	ASPHALT REPAIRED, 2/18/86.					
											0.9-2.3" CLAY/SILT: DARK GRAY SILTY CLAY, CLAYEY SILT WITH LIGHT BROWN AREAS.	RADIOACTIVITY AT 2.0 FT.					
											2.3-4.8" CLAY: MEDIUM BROWN SILTY, MOTTLED GRAY BROWN AND YELLOW BROWN, WITH BLACK ORGANIC FLECKS.	▽ 2/4/86.					
							4.8-15.0" CLAY: GRAY BROWN SILTY, WITH YELLOW BROWN MOTTLING AND BLACK FLECKS.	NATURAL GROUND AT APPROXIMATELY 4.8 FT.									
							10										
							15										
											BOTTOM OF HOLE AT 15.0 FT. BACKFILLED WITH GRANULAR BENTONITE, 2/4/86, CAPPED 2/10/86.	④ ELEVATION UNKNOWN.					
SPLIT SPOON STERLING TUBE, BROOKFIELD PIPER CHERYL SPOTTER								SAMPLE HISS - DEVELOPED FUTURA PROPERTY								HOLE NO. HISS-36	



GEOLOGIC DRILL LOG						PROJECT FUSRAP				JOB NO. 14501-140		SHEET NO. 1 OF 1		HOLE NO. HISS-37			
SITE HISS - DEVELOPED FUTURA PROPERTY				COORDINATES N1400 E550								ANGLE FROM NORTH 90°		BEARING N/A			
DRILLER 11/25/86	COMPLETED 11/25/86	BULLER JOHN MATHEWS AND ASSOCIATES			DRILL NAME AND MODEL CME-550			HOLE SIZE 8"		OVERBURDEN FT.D 10.0'		ROCK FT.D 0.0'		TOTAL DEPTH 10.0'			
CORE RECOVERY% / ID 9.3' / 82%		CORE BOXES N/A		SAMPLES 2	EL. TOP OF CASING N/A		GROUNDS EL. (11)	DEPTH TO GROUND WATER 2.2' / (11)		DEPTH TO TOP OF ROCK N/A							
SAMPLE NUMBER RECORDED/FILL N/A				CASING LEFT IN HOLE/DIA/LENGTH NONE				LOGGED BY H.S. BENSINGER									
SAMPLE TYPE AND DIAMETER	SAMPLE NUMBER	LOG NUMBER	LOG TYPE	WATER PRESSURE TESTS			ELEVATION	OPEN IN FT.	OPEN GROUT LOG IN FT.	SAMPLE NUMBER	DESCRIPTION AND CLASSIFICATION						NOTES ON WATER LEVELS, WATER RETENTION CHARACTER OF DRILLING, ETC.
				LOSS IN PSI	LOSS IN PSI	LOSS IN PSI											
ONE CONTINUOUS SAMPLER - 3.0"	5"	5"	100								0.0-1.0' CLAY: LIMESTONE COBBLES WITH DIRTY SAND AND GRAVEL.						11/26/86.
											1.0-1.5' CLAY: DARK BROWN, GRAVEL.						
											1.5-2.0' CLAY: DARK BROWN, SILTY.						
	60"	2"	35								2.0-5.0' CLAY: BROWN, BLACK MOTTLING, MINOR YELLOW BROWN, MOIST.						
										5.0-10.0' CLAY: GRAY BROWN, SILTY, YELLOWISH BROWN, MOTTLING, MOIST.						NATURAL GROUND AT APPROXIMATELY 5.0 FT.	
											10' BOTTOM OF HOLE AT 10.0 FT. BACKFILLED WITH GRANULAR BENTONITE, 11/26/86; CAPPED, 12/4/86.						ELEVATION UNKNOWN.
												SAMPLER AND RADIOLOGICALLY LOGGED BY EBERLINE ANALYTICAL CORPORATION, 11/25/86.					
												DESCRIPTION AND CLASSIFICATION BY VISUAL EXAMINATION OF SAMPLES.					
SS-SPLIT SPOON ST-MEDLEY TUBE, DOWDERED PITT CHERN & OTHER						SITE HISS - DEVELOPED FUTURA PROPERTY						HOLE NO. HISS-37					



GEOLOGIC DRILL LOG						PROJECT FUSRAP				JOB NO. 14501-140	SHEET NO. 1 OF 1	HOLE NO. HSS-38
SITE HISS - DEVELOPED FUTURA PROPERTY				COORDINATES N1365 E650				ANGLE FROM HORIZ. 90°		BEARING N/A		
DRILLER 11/24/86	COMPLETED 11/24/86	DRILLER JOHN MATHEWS AND ASSOCIATES		DRILL MAKE AND MODEL CME-550			MOLE SIZE 8"	OVERTUREND FT.D 10.0'	ROCK FT.D 0.0'	TOTAL DEPTH 10.0'		
CORE RECOVERY% / % 9.1% / 97%		CORE DRAINS N/A		SAMPLES 2	EL. TOP OF CASING N/A	GROUND EL. (1)	DEPTH/EL. GROUND WATER 3.7' / (1)	DEPTH/EL. TOP OF ROCK N/A				
SAMPLE NUMBER RECORDED/ALL N/A				CASING LEFT IN HOLE/DRILL LENGTH NONE				LOGGED BY: H.S.BENSINGER				
SAMPLE TYPE AND DIAMETER ADVANCE CORE LITERATURE SAMPLER CODE	SAMPLE TYPE ADVANCE CORE LITERATURE SAMPLER CODE	SAMPLE TYPE ADVANCE CORE LITERATURE SAMPLER CODE	SAMPLE TYPE ADVANCE CORE LITERATURE SAMPLER CODE	WATER PRESSURE TESTS			ELEVATION	DEPTH 0	SUS CLAY SAND SILT	DESCRIPTION AND CLASSIFICATION	NOTES ON WATER LEVELS, WATER RETURN, CHARACTER OF DRILLING, ETC.	
				LOG 100 87.5 75 62.5 50 37.5 25 12.5 0	FT. 300 250 200 150 100 50 0	IN 100 87.5 75 62.5 50 37.5 25 12.5 0						
CONTINUOUS SAMPLER - 35° CME	52°	52°	100					0.7	LS	0.0-0.7' FILL: 3' LIMESTONE COBBLES, GRAVEL AND SAND, PLASTIC DEBRIS.	NATURAL GROUND AT APPROXIMATELY 2.5 FT. 	
	60°	57°	95					2.5	LS	0.7-1.5' CLAY: DARK GRAY, WITH GRAVEL, SLIGHTLY MOIST, PLASTIC, FILL.		
							5	LS	1.5-2.5' CLAYEY SILT/SILTY CLAY: BROWN, YELLOWISH BROWN AND BLACK ORGANIC MOTTLING, MODERATELY MOIST.			
							10	LS	2.5-10.0' CLAY: GRAY BROWN, SILTY, YELLOWISH BROWN MOTTLING, BLACK ORGANICS.			
									BOTTOM OF HOLE AT 10.0 FT. BACKFILLED WITH GRANULAR BENTONITE, 1/26/86, CAPPED, 2/4/86.			
										④ ELEVATION UNKNOWN.		
										SAMPLED AND RADIOLOGICALLY LOGGED BY EBERLINE ANALYTICAL CORPORATION, 1/24/86.		
										DESCRIPTION AND CLASSIFICATION BY VISUAL EXAMINATION OF SAMPLES.		
SS-SPLIT SPOON ST-BIGELEY TUBES, DREDGE, PARTITION & OTHER				SITE				HISS - DEVELOPED FUTURA PROPERTY			HOLE NO. HISS-38	



GEOLOGIC DRILL LOG					PROJECT				JOB NO.			DRAFTER NO.	MOLE NO.		
SITE HISS - DEVELOPED FUTURA PROPERTY					COORDINATES				14501-140			1 OF 1	HSS-39		
RECDAY 11/26/86	COMPLETED 11/26/86	BILLED JOHN MATHEWS AND ASSOCIATES			DRILL NAME AND MODEL CME-550			MOLE SIZE 8"	OVERTUREN FT.D 10.0'	ROCK FT.D 0.0'	ANGLE FROM HORIZ. 90°	BEARING N/A			
CORE RECOVERY FT./%		CORE BOXES N/A		SAMPLES 2	EL. TOP OF CASING N/A	GROUND EL. (1)	DEPTH TO GROUND WATER 3.3'/(1)	DEPTH TO TIP OF RECK N/A							
SAMPLE NUMBER RECK/TIP ALL N/A			CASES LEFT IN HOLE: DIA/LENGTH NONE			LOGGED BY: H.S.BENSINGER									
SAMPLE TYPE AND DIAMETER	SAMPLE ADVANCE IN FEET	SAMPLE LENGTH IN FEET	SAMPLE LOSS %	PENETR. CORE RECOVERY %	WATER PRESSURE TESTS			ELEVATION	DEPTH FT.	SAMPLE LOSS %	SAMPLE	DESCRIPTION AND CLASSIFICATION			NOTES ON WATER LEVELS, WATER RETURN, COMPACTOR OF DRILLING, ETC.
					LOSS IN FT.	LOSS IN CM.	TIME IN SECS.					LOSS IN FT.	LOSS IN CM.	TIME IN SECS.	
CME CONTINUOUS SAMPLER - 1.0"	50°	50°	100						0.2	0	1	0.0-0.2" ASPHALT. 0.2-6.7' FILL: TAN/GRAY GRAVEL TO 3/4", SAND AND FINES.			ASPHALT REPAIRED, 12/10/86.
									6.7			6.7-2.8' SILT: GRAY BROWN, CLAYEY, GRAY-GREEN WITH YELLOW BROWN MOTTLING, MINOR BLACK ORGANICS.			
	60°	57°	95						2.8	1	2	2.8-5.7' CLAYEY SILT/SILTY CLAY; BROWN, YELLOW BROWN AND BLACK ORGANICS MOTTLING.			1/26/86.
									5.7			5.7-10.0' CLAY: GRAY BROWN, SILTY, YELLOW BROWN MOTTLING, MINOR BLACK ORGANICS.			
								10				BOTTOM OF HOLE AT 10.0 FT. BACKFILLED WITH GRANULAR BENTONITE, 11/26/86; CAPPED, 12/4/86.			
												① ELEVATION UNKNOWN.			
												SAMPLER AND RADIOLOGICALLY LOGGED BY EBERLINE ANALYTICAL CORPORATION, 11/26/86.			
												DESCRIPTION AND CLASSIFICATION BY VISUAL EXAMINATION OF SAMPLES.			
SS-SPLIT SPOON ST-STEEL TUBE; DIAMONDRILL PAPERCOAT C-ROTTER					SITE				HISS - DEVELOPED FUTURA PROPERTY				MOLE NO.		HISS-39



GEOLOGIC DRILL LOG						PROJECT			FUSRAP			JOB NO.	SHOT NO.	HOLE NO.	
SITE HISS - DEVELOPED FUTURA PROPERTY						COORDINATES			N1350 E500			14501-140	1 OF 1	HISS-40	
REBURN	COMPLETED	DRILLER				DRILL NAME AND NUMBER			ANGLE FROM NORTH		BEARING				
12/5/86	12/5/86	JOHN MATHEWS AND ASSOCIATES				CME-550			90°		N/A				
CORE RECOVERY %/ID		CORE BOXES	SAMPLES	EL. TOP OF CASING		GROUND EL.	DEPTH TO GROUND WATER		ROCK FT.D	DEPTHL. TOP OF ROCK	TOTAL DEPTH				
9.1' / 100%		N/A	2	N/A		(1)	3.8' / (1)		0.0'	N/A	10.0'				
SAMPLE NUMBER REBURN/FALL				CASING LEFT IN HOLE; DIA/LENGTH				LOGGED BY:							
N/A				NONE				H.S. BENSINGER							
SAMPLE TYPE AND DIAMETER	SAMPLE NUMBER AND DATE	TEST NUMBER	TEST TYPE	TEST RESULTS	WATER PRESSURE TESTS			ELEVATION	ELE. FT.	DEP. FT.	LOG NO.	DESCRIPTION AND CLASSIFICATION			NOTES ON WATER LEVELS, WATER RETENTION CHARACTER OF DRILLING, ETC.
					LOSS OF HEAD IN IN MIN	LOSS OF HEAD IN IN MIN	LOSS OF HEAD IN IN MIN								
ONE CONTINUOUS SAMPLER - 3.0"	45° 45° 100							0	0.2	0.9	1	0.0-0.2' ASPHALT. 0.2-0.5' FILL GRAVEL TO 3/4" AND SAND.			ASPHALT REPAVED, 2/10/86.
									2.8	4.8		0.5-2.0' SILTY: DARK GRAY BROWN 2.0-4.0' CLAY: MEDIUM BROWN, SILTY, YELLOW BROWN AND BLACK ORGANIC MOTTLING.			
									10	4.8		4.0-10.0' CLAY: GRAY BROWN, SILTY, YELLOW BROWN MOTTLING, MINOR BLACK ORGANIC SPECIES.			
												BOTTOM OF HOLE AT 10.0 FT. BACKFILLED WITH GRANULAR BENTONITE, 2/10/86.			
												ELEVATION UNKNOWN.			
												SAMPLER AND RADIOLoGICALLY LOGGED BY EERLINE ANALYTICAL CORPORATION, 2/5/86.			
												DESCRIPTION AND CLASSIFICATION BY VISUAL EXAMINATION OF SAMPLES.			
32-SPLIT SPOON ST-SHELLY TUBE; DISCONTINUED PRACTICALLY OVER						SITE			HISS - DEVELOPED FUTURA PROPERTY						HOLE NO.
															HISS-40



GEOLOGIC DRILL LOG						PROJECT FUSRAP				JOB NO. 14501-140		SHEET NO. 1 OF 1		HOLE NO. HISS-41			
SITE HISS - DEVELOPED FUTURA PROPERTY				COORDINATES N1350 E590								ANGLE FROM HORIZ. 90°		BEARING N/A			
DEPTH 11/25/86	COMPLETED 11/25/86	DRILLER JOHN MATHEWS AND ASSOCIATES	BELL WING AND WING CME-550			HOLE SIZE 8"		DOWNSCREEN FT. 10.0'		ROCK FT. 0.0'		TOTAL DEPTH 10.0'					
CORE RECOVERY FT./SD 9.1'/100'		CORE BOXES N/A	SAMPLES 2	EL. TOP OF CASING N/A	GROUND SL. (1)	DEPTH/EL. GROUND WATER 3.6'/(1)			DEPTHEL. TOP OF ROCK N/A								
SAMPLE NUMBER HEIGHT/FALL N/A			CASING LEFT IN HOLE DIA/LENGTH NONE				LOGGED BY: H.S.BENSINGER										
SAMPLE TYPE AND DIAMETER CME CONTINUOUS SAMPLER - 3.0"	ADVANCE RATE 45°	REVERSE RATE 45°	SAMPLE RATE 100	WATER PRESSURE TESTS			ELEVATION	DEPTH 0	CHARGE LOG	SAMPLE	DESCRIPTION AND CLASSIFICATION						NOTES ON WATER LEVELS, WATER RETURN, CHARACTER OF DRILLING, ETC.
				1000 ft	1000 ft	1000 ft					0.0-0.5' FILL: 3" TO 6" LIMESTONE COBBLES WITH DIRTY SAND AND GRAVEL.						
				1000 ft	1000 ft	1000 ft					0.5-1.2' CLAYEY SILT/SILTY CLAY; BROWN, YELLOWISH BROWN AND BLACK ORGANIC MOTTLING, MOIST.						
				1000 ft	1000 ft	1000 ft					1.2-10.0' CLAY: GRAY BROWN, SILTY, YELLOWISH BROWN/BLACK ORGANIC MOTTLING, WET.						
10.0' BOTTOM OF HOLE AT 10.0 FT. BACKFILLED WITH GRANULAR BENTONITE, 11/26/86; CAPPED, 12/1/86.														NATURAL GROUND AT APPROXIMATELY 4.2 FT.			
														@ ELEVATION UNKNOWN.			
														SAMPLER AND RADIOLOGICALLY LOGGED BY EXERLINE ANALYTICAL CORPORATION, 11/25/86.			
														DESCRIPTION AND CLASSIFICATION BY VISUAL EXAMINATION OF SAMPLES.			
SPLIT SPOON ST-SHELLY TUBE, INCLINOMETER, PIPES, OTHER						SITE		HISS - DEVELOPED FUTURA PROPERTY						HOLE NO. HISS-41			



GEOLOGIC DRILL LOG					PROJECT	FUSRAP			JOB NO.	SHEET NO.	MOLE NO.
SITE	HISS - DEVELOPED FUTURA PROPERTY			COORDINATES	N1310 E500			ANGLE FROM HORIZ. 90°		BEARING N/A	
DRILLER	COMPLETED	DRILLER	JOHN MATHEWS AND ASSOCIATES		DRILL NAME AND MODEL	HOLE SIZE		OVERTURE FT.	ROCK FT.	TOTAL DEPTH	
12/3/86	12/3/86		CME-550			8"	10.0'	0.0'	10.0'		
CORE RECOVERY %/D 6.8% / 77%		CORE DENSITY	N/A	SAMPLES	EL. TOP OF CASING	GROUND EL.	DEPTH/EL. GROUND WATER	DEPTH/EL. TOP OF ROCK			
SAMPLE NUMBER: 00001/1 ALL N/A			NONE		(1)	4.4'/(1)		N/A			
SAMPLE TYPE AND NUMBER	OPEN TEST DEPTH FT.	OPEN TEST DEPTH FT.	OPEN TEST DEPTH FT.	OPEN TEST DEPTH FT.	WATER PRESSURE TESTS	ELEVATION	DEPTH FT.	SPACIAL LOG SAMPLE	DESCRIPTION AND CLASSIFICATION		
CONTINUOUS SAMPLER - 30'	45'	45'	100	60'	100' 20' 30' 40' 50' 60' 70' 80' 90' 100'		0				
							0.2		0.0-0.2' ASPHALT.		
							1.3		0.2-1.3' FILL: GRAVEL, SAND AND PEBBLES TO P. SOME FINES.		
							2.8		1.3-2.8' CLAY: DARK GRAY/MEDIUM BROWN MOTTLED.		
							4.2		2.8-4.2' CLAY: MEDIUM BROWN SILTY, DARK GRAY MOTTLING.		
							5		4.2-10.0' CLAY: GRAY BROWN, SILTY, YELLOW BROWN MOTTLING, MINOR DARK GRAY MOTTLING.		
							10		BOTTOM OF HOLE AT 10.0 FT. BACKFILLED WITH GRANULAR BENTONITE, 12/4/86; CAPPED, 12/10/86.		
									0 ELEVATION UNKNOWN		
									SAMPLER AND RADIOLOGICALLY LOGGED BY EBERLINE ANALYTICAL CORPORATION 12/3/86.		
									DESCRIPTION AND CLASSIFICATION BY VISUAL EXAMINATION OF SAMPLES.		
SE-SPLIT SPOON ST-MICKEY TUBE, DISCHARGE PORTION BROKEN					SITE	HISS - DEVELOPED FUTURA PROPERTY			MOLE NO. HISS-42		



GEOLOGIC DRILL LOG						PROJECT			FUSRAP			JOB NO.	SHEET NO.	HOLE NO.
SITE HISS - DEVELOPED FUTURA PROPERTY				COORDINATES			N1291 E650			ANGLE FROM HORIZ. 90°		14501-140	1 OF 1	MISS-43
BEGUN 11/24/86	COMPLETED 11/24/86	DRILLER JOHN MATTHES AND ASSOCIATES			DRILL MAKE AND MODEL CME-550		PIPE SIZE 8"	OVERBURDEN FT.D 10.0'	ROCK FT.D 0.0'	TOTAL DEPTH 10.0'				
CORE RECOVERY FT./SD 8.7' / 95%		CORE BOXES N/A	SAMPLES 2	D.L. TOP OF CASES N/A	GROUND EL. (1)	DEPTH/EL. GROUND WATER 4.2' / (1)		DEPTH/EL. TOP OF ROCK N/A						
SAMPLE NUMBER WEIGHT/FT.LL N/A				CASING LEFT IN HOLE: DIA/LENGTH NONE			LOGGED BY: H.S.BENSINGER							
SAMPLE TYPE AND DIAMETER IN INCHES	LOG IN FEET	LOG IN FEET	LOG IN FEET	WATER PRESSURE TESTS			ELEVATION	DEPTH IN FEET	LOG IN FEET	SAMPLE NUMBER	DESCRIPTION AND CLASSIFICATION			NOTES ON WATER LEVELS, WATER RETURN, COMPACTOR OF DRILLING, ETC.
				LOSS OF PRESS. IN SECONDS	LOSS OF PRESS. IN SECONDS	LOSS OF PRESS. IN SECONDS								
CME CONTINUOUS SAMPLER - 3.0"	49°	49°	100								0.0-0.9' SILT: 3 TO 6' LIMESTONE COBBLES, GRAVEL AND SAND, DIRTY.			NATURAL GROUND AT APPROXIMATELY 2.8 FT. △ 1/26/86
				0.9	2.8	5							0.9-2.8' SILT: BROWN, CLAYEY, LIGHT BROWN MOTTLING, BLACK ORGANICS, SLIGHTLY MOIST.	
	60°	55°	92					7.0		2		2.8-7.0' SILT: GRAY BROWN, CLAYEY, YELLOWISH BROWN MOTTLING, MODERATELY MOIST.		
							10				7.0-10.0' CLAY: GRAY BROWN, SILTY, YELLOW BROWN MOTTLING.			
											BOTTOM OF HOLE AT 10.0 FT. BACKFILLED WITH GRANULAR BENTONITE, 1/26/86, CAPPED, 2/4/86.			ELEVATION UNKNOWN
												SAMPLER AND RADIOLOGICALLY LOGGED BY EBERLINE ANALYTICAL CORPORATION 1/24/86.		
												DESCRIPTION AND CLASSIFICATION BY VISUAL EXAMINATION OF SAMPLES.		
SC-SPLIT SPOON ST-SHELLY TUBE DINCHERSON P-PICTURE C-OTHER						SITE			HISS - DEVELOPED FUTURA PROPERTY			HOLE NO.		MISS-43



GEOLOGIC DRILL LOG					PROJECT FUSRAP				JOB NO. 14501-140		SHEET NO. 1 OF 1	HOLE NO. HISS-44	
SITE HISS - DEVELOPED FUTURA PROPERTY - INSIDE BUILDINGS				COORDINATES N1290.9 E514.8					ANGLE FROM HORIZ. 90°		BEDROCK N/A		
DRILLER 12/9/86	COMPLETED 12/9/86	JOHN MATHEWS AND ASSOCIATES			DRILL NAME AND MODEL HAND AUGER		MOLE SIZE 6"	OVERBURDEN FT. 7.0'	ROCK STD. 0.0'	TOTAL DEPTH 7.0'			
CORE RECOVERY %/SD N/A		CORE BOXES N/A		SAMPLES -	EL. TOP OF CASING N/A	GROUND EL. (1)	DEPTH/EL. GROUND WATER 6.8'/(1)	DEPTH/EL. TOP OF BED N/A					
SAMPLE NUMBER EIGHT/FALL N/A			CASING LEFT IN HOLE; DIA/LENGTH NONE			LOGGED BY H.S. BENSINGER							
SAMPLE TYPE AND DIAMETER AND ADVANCE RATE AND LENGTH CORE RECOVERED	SAMPLE NUMBER AND LENGTH CORE RECOVERED	SAMPLE IN BOX NO.	DEPTH CORE RECORDED	WATER PRESSURE TESTS			ELEVATION	DEPTH 0	10 IN CM	20 IN CM	30 IN CM	DESCRIPTION AND CLASSIFICATION	NOTES ON WATER LEVELS, WATER RETURN, CHARACTER OF DRILLING, ETC.
				LOSS % EL. FT. %	LOSS % EL. FT. %	LOSS % EL. FT. %							
HAND AUGER - 6"								0.5				0.0-0.5' CONCRETE FLOOR SLAB.	REPAIRED CONCRETE FLOOR SLAB, 12/1/86.
								2.0				0.5-2.0' ELL; GRAYISH TAN SAND/BROWN AND GRAY CLAYEY SAND/CLAYEY SILT, SOME GRAVEL PEBBLES.	
								5.5			2.0-5.5' SILT; MEDIUM BROWN, CLAYEY, YELLOW BROWN TO GRAY BROWN MOTTLING, SOME BLACK ORGANIC FLECKS.	NATURAL GROUND AT APPROXIMATELY 6.0 FT. ▽	
								7.0			5.5-7.0' CLAY; GRAY BROWN, SALTY, YELLOW BROWN AND DARK GRAY MOTTLING.		
											BOTTOM OF HOLE AT 7.0 FT. BACKFILLED WITH GRANULAR BENTONITE, 12/9/86.	12/9/86 -	
											⑥ ELEVATION UNKNOWN		
											SAMPLED AND RADIODILOGICALLY LOGGED BY EBERLINE ANALYTICAL CORPORATION, 12/9/86.		
											DESCRIPTION AND CLASSIFICATION BY VISUAL EXAMINATION OF CUTTINGS.		
SH=SPLIT SPOON, ST=STAINLESS TUBE, D=DIMINISHES, P=PICKUP, O=OTHER					SPT				HISS - DEVELOPED FUTURA PROPERTY - INSIDE BUILDINGS				MOLE NO. HISS-44



GEOLOGIC DRILL LOG						PROJECT				FUSRAP			SHEET NO.		HOLE NO.				
SITE HISS - DEVELOPED FUTURA PROPERTY						COORDINATES				N1250 E450			ANGLE FROM HORIZ.		1 OF 1	HISS-45			
BEGUN 12/2/86		COMPLETED 12/2/86		BILLED JOHN MATHEWS AND ASSOCIATES		MILL NAME AND MODEL CME-550			HOLE SIZE 8"		OVERBURDEN FT. 10.0'		ROCK FT. 0.0'		BEARING N/A				
CORE RECOVERY FT./% 6.8' / 75%		CORE BOXES N/A		SAMPLES 2		SL. TOP OF CASING N/A			GROUND EL. (1)		SOFTWALL BREATHED WATER 3.1'/(1)		SOFTWALL TOP OF ROCK N/A						
SAMPLE NUMBER HEIGHT/FALL N/A						CASING LEFT IN WELL CASING LENGTH NONE				LOGGED BY H.S. BENSINGER									
SAMPLE TYPE AND DIAMETER ONE CONTINUOUS SAMPLER - 10"	SAMPLED SPLIT CORE TYPE	SAMPLE HEIGHT IN FEET	SAMPLE NUMBER	SAMPLE TYPE	SAMPLE DIAMETER	WATER PRESSURE TESTS			ELEVATION	ELE.	GRAN. LOG	SAMPLE	DESCRIPTION AND CLASSIFICATION				NOTES ON WATER LEVELS, WATER RETURN CHARACTER OF DRILLING, ETC.		
						100' X 30' 1 FT. C.	100' X 30' 1 FT. C.	100' X 30' 1 FT. C.											
ONE CONTINUOUS SAMPLER - 10"	45°	45°	100						10	0	GRAN. LOG	SAMPLE	DESCRIPTION AND CLASSIFICATION				NOTES ON WATER LEVELS, WATER RETURN CHARACTER OF DRILLING, ETC.		
ONE CONTINUOUS SAMPLER - 10"	60°	35°	55						10	10	GRAN. LOG	SAMPLE	DESCRIPTION AND CLASSIFICATION				NOTES ON WATER LEVELS, WATER RETURN CHARACTER OF DRILLING, ETC.		
10										BOTTOM OF HOLE AT 10.0 FT. BACKFILLED WITH GRANULAR BENTONITE, 12/4/86; CAPPED 12/10/86.								ELEVATION UNKNOWN.	
																		SAMPLER AND RADIOLOGICALLY LOGGED BY EXERLINE ANALYTICAL CORPORATION, 12/2/86.	
																		DESCRIPTION AND CLASSIFICATION BY VISUAL EXAMINATION OF SAMPLES.	
SPLIT SPOON STERLING TUBE PRODUCTION PIPE CHECK MASTERS						SITE				HISS - DEVELOPED FUTURA PROPERTY				HOLE NO.		HISS-45			



GEOLIC DRILL LOG					PROJECT	FUSRAP			JOB NO.	SHEET NO.	HOLE NO.			
SITE HISS - DEVELOPED FUTURA PROPERTY			COORDINATES			N1250 E600			14501-140	1 OF 1	HISS-46			
RECDUE	COMPLETED	DRILLED	DRILL NAME AND MODEL			ANGLE FROM HORIZ.					BEARING			
11/24/86	11/24/86	JOHN MATHEWS AND ASSOCIATES	CME-550			90°					N/A			
CORE RECOVERY FT./SD		CORE BOXES	SAMPLES	EL. TOP OF CASING	GROUND SL.	DEPTHVEL. GROUND WATER			ROCK FT.D		TOTAL DEPTH			
9.0'/64%		N/A	3	N/A	(1)	4.9'/(1)			0.0'		15.0'			
SAMPLE NUMBER RECDUE/STALL			CASING LEFT IN HOLE: BUL/LENGTH			LOGGED BY:								
N/A			NONE			H.S.BENSINGER								
SAMPLE TYPE AND DIAMETER	DIAMETER OF SPLINTER CORE	SAMPLE RECOVERY PERCENT	SAMPLE TYPE	PERCENT WATER CONTENT	WATER PRESSURE TESTS			ELEVATION	DEPTH IN FT.	GRAINS/100 GRAMS	SAMPLE	DESCRIPTION AND CLASSIFICATION	NOTES ON WATER LEVELS, WATER RETURN, CHARACTER OF DRILLING, ETC.	
					LOSS OF WATER IN IN. FT.	WATER PRESSURE IN PSI AND IN. FT.	TIME IN SECONDS							
CME CONTINUOUS SAMPLER 10' - RE-SAMPLERS	48"	48"	100						10		1	0.0-10' FILL: 3" TO 6" LIMESTONE COBBLES, GRAVEL AND SAND, DIRTY. 10-7.0' CLAYEY SILT/SILTY CLAY: BROWN, BLACK (ORGANIC) MOTTLING, MOIST.	△ 11/25/86. NATURAL GROUND AT APPROXIMATELY 7.0 FT.	
	60"	36"	60						5		2	7.0-15.0' CLAY: GRAY BROWN, SILTY, YELLOWISH BROWN MOTTLING WITH BLACK ORGANICS, WET.		
	60"	24"	40						10		3	15.0' BOTTOM OF HOLE AT 15.0 FT. BACKFILLED WITH GRANULAR BENTONITE, 11/26/86; CAPPED, 12/4/86.		
												④ ELEVATION UNKNOWN	SAMPLLED AND RADIOLGICALLY LOGGED BY EXERLINE ANALYTICAL CORPORATION, 11/24/86.	
												DESCRIPTION AND CLASSIFICATION BY VISUAL EXAMINATION OF SAMPLES.		
BS=SPLIT, SP=SPLIT, ST=STANLEY TUBE, D=DODGE, P=PITCHER, O=OTHER					SITE			HISS - DEVELOPED FUTURA PROPERTY					JOB NO.	HISS-46





GEOLOGIC DRILL LOG					PROJECT			JOB NO.		SHEET NO.		HOLE NO.		
SITE HISS - DEVELOPED FUTURA PROPERTY - INSIDE BUILDINGS					COORDINATES			14501-140		1 OF 1		HISS-48		
					N1191.2 E557.8			ANGLE FROM HORIZ. 90°		BEARING		N/A		
DRILLER 12/9/86	COMPLETED 12/9/86	DRILLER JOHN MATHEWS AND ASSOCIATES			DRILL NAME AND MODEL HAND AUGER	HOLE SIZE 6"		OVERTOTAL FT.D 10.0'	ROCK FT.D 0.0'	TOTAL DEPTH		10.0'		
CORE RECOVERY% / D N/A		CORE BOXES N/A		SAMPLES -	EL. TOP OF CASING N/A	GROUND EL. (1)	DEPTH/EL. GROUND WATER 9.0'/(1)	DEPTH/EL. TOP OF ROCK N/A						
SAMPLE NUMBER 0001/TALL N/A			CASING LEFT IN HOLE: DIA/LENGTH NONE			LOGGED BY: H.S.BENSINGER								
SAMPLE TYPE AND DIAMETER	SAMPLE ID	ADVANCE LENGTH CORE IN.	ADVANCE RATE FT/HOUR	LOSS IN %	PERCENT COKE	WATER PRESSURE TESTS	ELEVATION	E FT 0	S M IN CH	S A M P L E	DESCRIPTION AND CLASSIFICATION			NOTES ON WATER LEVELS, WATER RETURN, CHARACTER OF DRILLING, ETC.
											LOSS IN %	WATER PRESSURE TESTS	WATER PRESSURE TESTS	
HAND AUGER - 6"								0.5	0	0	0.0-0.5' CONCRETE FLOOR SLAB.			REPAIRED CONCRETE FLOOR SLAB, 12/1/86.
											0.5-3.6' SILT; MEDIUM BROWN, CLAYEY, SOME GRAY BROWN MOTTLING, WOOD AND ORGANIC PARTICLES, WET.			
											3.6-6.6' CLAY; MEDIUM BROWN, SILTY, MOTTLED GRAY BROWN, SOME YELLOW BROWN MOTTLING AND GRAY ORGANICS, MOIST			
											6.6-7.8' CLAY; GRAY, SILTY, YELLOW BROWN AND SOME GRAY MOTTLING, SOME ORGANIC FLECKS.			
											7.8-10.0' CLAY; GRAY BROWN/MEDIUM BROWN, SILTY, YELLOW BROWN AND SOME GRAY MOTTLING, MINOR ORGANIC FLECKS.			
											10' BOTTOM OF HOLE AT 10.0 FT. BACKFILLED WITH GRANULAR BENTONITE, 12/9/86.			
											12/9/86.			
											EINMET RECORDED TOXICS AT 3.0 FT. LOW EINMET TOXIC READING AT 7.0 FT.			
											Ø ELEVATION UNKNOWN			
											SAMPLED AND RADIOLOGICALLY LOGGED BY EBERLINE ANALYTICAL CORPORATION, 12/9/86.			
											DESCRIPTION AND CLASSIFICATION BY VISUAL EXAMINATION OF CUTTINGS.			
SPLIT SPOON ST-SHELBY TUBE, PENNSYLVANIA PAPER OVER COTTON					SITE	HISS - DEVELOPED FUTURA PROPERTY - INSIDE BUILDINGS					HOLE NO.		HISS-48	



GEOLOGIC DRILL LOG					PROJECT FUSRAP				JOB NO. 14501-140	SHET NO. 1 OF 1	HOLE NO. HISS-49	
SITE HISS - DEVELOPED FUTURA PROPERTY				COORDINATES N1200 E650				ANGLE FROM HORIZ. 90°		BEARING N/A		
BEGUN 11/21/86	COMPLETED 11/21/86	DRILLER JOHN MATHEWS AND ASSOCIATES			DRILL MAKE AND MODEL CME-550		HOLE SIZE 8"	OVERTUREND FT.D 10.0'	ROCK FT.D 0.0'	TOTAL DEPTH 10.0'		
CORE RECOVERY FT./D 8.0' /92%		CORE BOXES N/A		SAMPLES 2	EL. TOP OF CASING N/A	GROUND EL. (1)	DEPTH/EL. GROUND WATER 4.9'/(1)	DEPTH/EL. TOP OF ROCK N/A				
SAMPLE NUMBER HEIGHT/FALL N/A			CASING LEFT IN HOLE DIA. INCHES NONE			LOGGED BY H.S. BENSINGER						
SAMPLE TYPE AND DIAMETER SAMPLE ADVANCE DEPTH CORE SAMPLE RECOVERED IN FEET PERCENT RECOVERY	SAMPLE TYPE CODE	SAMPLE TIME IN MINUTES	WATER PRESSURE TESTS			ELEVATION	Z FT.	GROUT LOG SAMPLE	DESCRIPTION AND CLASSIFICATION			NOTES ON WATER LEVELS, WATER RETURN CHARACTER OF DRILLING, ETC.
			LOSS IN SEC.	LOSS IN MIN.	LOSS IN SEC.				LOSS IN MIN.			
CME CONTINUOUS SAMPLER - 3.0"	44°	42°	95						0.0'-3.0' FILL: 3' TO 6' LIMESTONE COBBLES WITH GRAVEL, SAND AND FINES.			L/24/86
									3.0'-7.5' CLAYEY SILT/SILTY CLAY: BROWN, MOTTLED DARK BROWN AND BLACK, MOIST.			
	60°	54°	90						7.5'-10.0' CLAY: BROWN AND GRAY BROWN, SILTY, WITH YELLOWISH BROWN/BLACK MOTTLING.			NATURAL GROUND AT APPROXIMATELY 7.5 FT.
									10.0' BOTTOM OF HOLE AT 10.0 FT. BACKFILLED WITH GRANULAR BENTONITE. 11/24/86; CAPPED, 11/26/86.			
① ELEVATION UNKNOWN.												
BL-SPLIT SPONGE STAINLESS TUBE DODGESON PITCHER, OTHER					TITLE HISS - DEVELOPED FUTURA PROPERTY				HOLE NO. HISS-49			



GEOLOGIC DRILL LOG					PROJECT	FUSRAP			JOB NO.	SHOOT NO.	HOLE NO.	
SITE HISS - DEVELOPED FUTURA PROPERTY					COORDINATES			14501-140		1 OF 1	HISS-50	
DRILLER 12/3/86	COMPLETED 12/3/86	DRILLER JOHN MATHEWS AND ASSOCIATES	DRILL NAME AND MODEL CME-550			HOLE SIZE 8"	OVERBURDEN FT.D 10.0'	ROCK FT.D 0.0'	ANGLE FROM HORIZ. 90°	BEARING N/A		
CORE RECOVERY FT.D 8.0' / % RECD 8.0' / 98%	CORE BOXES N/A	SAMPLES 2	EL. TOP OF CASING N/A	GROUNDS EL. (1)	DEPTH TO GROUND WATER 0.4' / (1)	DEPTH TO TOP OF ROCK N/A						
SAMPLE NUMBER HOLE# / TALL N/A			CASING LEFT IN HOLE DIA / LENGTH NONE			LOGGED BY: J.W.SIMS						
SAMPLE TYPE AND DIAMETER	SAMPLE DEPTH FROM HOLE	SAMPLE RECOVERY %	SAMPLE TIME IN HRS	PERCENT CORE RECOVERED	WATER PRESSURE TESTS		ELEVATION	BED NO.	LOG NUMBER	SAMPLE NO.	DESCRIPTION AND CLASSIFICATION	NOTES ON WATER LEVELS, WATER RETURN, CHARACTER OF DRILLING, ETC.
					LOSS IN PSI	LOSS IN PSI						
CME CONTINUOUS SAMPLER 10	38"	38"	100				10	1	1	1	0'-5': OLO-LIP GRAVEL/FILL; WATER TO SURFACE, UP TO 6' DIA BOULDERS.	12/15/86. ✓
					38"	38"					100	
	60"	58"	97				10	2	2	10'-10' CLAY; SILTY, CLAYEY SILT, GRAY WITH TRACE OF YELLOW BROWN MOTTLING, ORGANIC STREAKS AND SPECKS.	NATURAL GROUND AT APPROXIMATELY 3.0 FT.	
					60"	58"						97
											ELEVATION UNKNOWN.	
											SAMPLED AND RADIODILOGICALLY LOGGED BY EBERLINE ANALYTICAL CORPORATION, 12/18/86.	
SS-ASPLIT SPACER ST-SHIELBY TUBE DOWDLESS PITCHER GROUTER					SITE			HISS - DEVELOPED FUTURA PROPERTY			HOLE NO.	
											HISS-50	



GEOLOGIC DRILL LOG

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14501-1

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100

H155-5

SITE	HSS - DEVELOPED FUTURA PROPERTY		COORDINATES		N1150 E500		ANGLE FROM HORIZONTAL		BEARING
DEPTH	COMPLETED	DRILLER			DRILL MAKE AND MODEL			90°	N/A
12/2/86	12/2/86	JOHN MATHEWS AND ASSOCIATES			CME-550		HOLE SIZE		
							8"	10.0'	8.0'
CORE RECOVERY FT/SD		CORE BOXES	SAMPLES	EL. TOP OF CASING	GROUND EL.	DEPTH/EL. GROUND BATER		DEPTH/EL. TOP OF ROCK	
8.7' / 87%		N/A	2	N/A	(1)	3.4' / (1)		N/A	
SAMPLES REMOVED, RECENTLY		CASING LEFT IN HOLE, DIA. 4.500"		LOGGED BY:					

N/A			NONE			H.S. BENSINGER						
SAMPLE TYPE AND DIAMETER	SAMPLE ID NUMBER	DEPTH CORE RECORDED	SAMPLE IN DRILL HOLE	WATER PRESSURE TESTS			ELEVATION	DEPTH IN FEET	GRAPHIC LOG	SAMPLE	DESCRIPTION AND CLASSIFICATION	NOTES ON WATER LEVELS, WATER RETURN, CHARACTER OF DRILLING, ETC.
				LOSS OF HEAD IN INCHES	LOSS OF HEAD IN CENTIMETERS	TIME IN SECONDS						
DUE CONTINUOUS SAMPLER - 3.0"												
	65°	60°	100					0				
	65°	44°	73					0.8			1	0.0-0.8' CLAY; DARK GRAY BROWN TO MEDIUM BROWN, SILTY. 0.8-3.2' SILTY CLAY/CLAYEY SILT; DARK GRAY BROWN, MOIST.
								3.2				
								5			2	3.2-10.0' CLAY; MEDIUM BROWN TO GRAY BROWN, SILTY, YELLOW BROWN MOTTLING, MINOR BLACK ORGANICS.
								10				BOTTOM OF HOLE AT 10.0 FT. BACKFILLED WITH GRANULAR BENTONITE, 12/1/86; CAPPED, 12/10/86.
												• ELEVATION UNKNOWN
												SAMPLED AND RADIOLABICALLY LOGGED BY EERLINE ANALYTICAL CORPORATION. 12/2/86.
												DESCRIPTION AND CLASSIFICATION BY VISUAL EXAMINATION OF SAMPLES.
SO-SPLIT SPOON ST-SHELDY TUBE, INCHES/DECIMAL FEET/DECIMAL FEET				STL			HIS - DEVELOPED FUTURA PROPERTY			HOLE NO. HIS-51		



GEOLOGIC DRILL LOG					PROJECT			JOB NO.			SHOT NO.	HOLE NO.				
SITE HISS - DEVELOPED FUTURA PROPERTY - INSIDE BUILDINGS					COORDINATES			14501-140			1 OF 1	HISST-52				
BEGUN	COMPLETED	DRILLER			WELL NAME AND MODEL			HOLE SIZE	DEBURDEN FT.D	ROCK FT.D	TOTAL DEPTH					
-	-										-					
CORE RECOVERY FT./SD		CORE BOXES		SAMPLES	EL. TOP OF CASING	ENDL. EL.	DEPTH/VEL. GROUND WATER		DEPTH/VEL. TOP OF ROCK							
SAMPLE NUMBER HEIGHT/FT. ALL			CASING LEFT IN HOLE DIA/LENGTH			LOGGED BY:										
SAMPLE TYPE AND DIAMETER	SAMPLE ADVANCE	SAMPLE LENGTH CORE IN	SAMPLE LENGTH COKE IN	SAMPLE IN CHIPS %	PRODUCTIVE CORE INCHES	WATER PRESSURE TESTS			ELEVATION	DEPTH	GRADING LOG	SAMPLE	DESCRIPTION AND CLASSIFICATION			NOTES ON WATER LEVELS, WATER RETURN, CHARACTER OF DRILLING, ETC.
						LOSS %	LOSS %	LOSS %								
									0							
									5							
									10							
									15							
									20							
									25							
									30							
									35							
SI-SPLIT SPOON ST-SHELLY TURB. PREDOMINANT PITCHED SHOTTER						BITZ			MISS - DEVELOPED FUTURA PROPERTY - INSIDE BUILDINGS						HOLE NO. HISS-52	



GEOLOGIC DRILL LOG						PROJECT FUSRAP				JOB NO. 14501-140		SHEET NO. 1 OF 1		HOLE NO. HISS-53		
SITE HISS - DEVELOPED FUTURA PROPERTY				COORDINATES N1150 E641						ANGLE FROM HORIZ. 90°		BEARING N/A				
BEGUN 11/21/86	COMPLETED 11/21/86	DRILLER JOHN MATHEWS AND ASSOCIATES		DRILL NAME AND MODEL CME-550		HOLE SIZE 8"		OVERBURDEN FT. 10.0'		ROCK FT. 0.0'		TOTAL DEPTH 10.0'				
CORE RECOVERY FT./SD 8.8' / 95%		CORE BOXES N/A		SAMPLES 2		EL. TOP OF CASING N/A		GROUND EL. (1)		DEPTH/EL. GROUND WATER 5.9' / (1)		DEPTH/EL. TOP OF ROCK N/A				
SAMPLE NUMBER RECORDED/FALL N/A				CASING LEFT IN HOLE: CASING LENGTH NONE				LOGGED BY: H.S. BENSINGER								
SAMPLE TYPE AND DIAMETER CONE SAMPLER - 3.0"	SAMPLE ADVANCE LENGHT IN FEET 50.0'	SAMPLE RECORDED IN FEET 49.0'	SAMPLE TIME IN MINUTES 96	WATER PRESSURE TESTS				ELEVATION FT. 0	OPEN 0	GRANULAR LOSS %	SAMPLE NUMBER 1	DESCRIPTION AND CLASSIFICATION				NOTES ON WATER LEVELS, WATER RETURN CHARACTER OF DRILLING, ETC.
				LOSS IN FEET AT P. 0.8	LOSS IN FEET AT P. 5	LOSS IN FEET AT P. 6.5	LOSS IN FEET AT P. 10					0.0-0.8' FILL: GRAVEL TO 6' LIMESTONE Cobble, sand and fines. 0.8-6.5' CLAYEY SILT/SILTY CLAY; BROWN, DARK BROWN/BLACK MOTTLING, MOIST.				
CONE CONTINUOUS SAMPLER - 3.0"	SAMPLE ADVANCE LENGHT IN FEET 50.0'	SAMPLE RECORDED IN FEET 56.0'	SAMPLE TIME IN MINUTES 93					ELEVATION FT. 6.5	OPEN 1	GRANULAR LOSS %	SAMPLE NUMBER 2	6.5-10.0' CLAY: GRAY BROWN, SILTY, MOTTLED YELLOWISH BROWN WITH SOME DARK BROWN/BLACK.				NATURAL GROUND AT APPROXIMATELY 6.5 FT.
												10.0' BOTTOM OF HOLE AT 10.0 FT. BACKFILLED WITH GRANULAR BENTONITE. 11/24/86; CAPPED, 11/26/86.				
												① ELEVATION UNKNOWN.				
												SAMPLER AND RADIOLOGICALLY LOGGED BY EBERLINE ANALYTICAL CORPORATION 11/26/86.				
												DESCRIPTION AND CLASSIFICATION BY VISUAL EXAMINATION OF SAMPLES.				
SPLIT SPOON SHORTESTY TUBE DODDISON PARTITION B-1000				SITE HISS - DEVELOPED FUTURA PROPERTY								HOLE NO. HISS-53				



GEOLOGIC DRILL LOG					PROJECT FUSRAP				JOB NO. 14501-140		SHEET NO. 1 OF 1	HOLE NO. HISS-54	
SITE HISS - DEVELOPED FUTURA PROPERTY					COORDINATES N1150 E700				ANGLE FROM HORIZ. 90°		BEARING N/A		
BEGUN 11/21/86	COMPLETED 11/21/86	DRILLED JOHN MATHEWS AND ASSOCIATES	BELL MINE AND MINES CME-550			HOLE SIZE 8"	OVERTOTAL FT.D 10.0'	ROCK FT.D 0.0'	TOTAL DEPTH 10.0'				
CORE RECOVERY FT./ID 7.8' / 90%		CORE DRAWS N/A	SAMPLES 2	SL. TOP OF CASING N/A	GROUND EL. (1)	DEPTH/EL. GROUND WATER 5.0' / (1)		DEPTH/EL. TOP OF ROCK N/A					
SAMPLE NUMBER HEIGHT/FALL N/A			CABINS LEFT IN HOLE DEPTH NONE			LOGGED BY: H.S. BENSINGER							
SAMPLE TYPE AND DIAMETER ONE CONTINUOUS SAMPLER - 3.0"	SAMPLED ADVANCE LENGHT FEET	SAMPLE TYPE CORE OR SOIL	SAMPLE NUMBER X	PENETRATED CORE HEIGHT FEET	WATER PRESSURE TESTS			ELEVATION FT. 0	ELE ^{FT} 0	DEPT ^{FT} 10.0	SAMPLE NO.	DESCRIPTION AND CLASSIFICATION	NOTES ON WATER LEVELS, WATER RETURN, CHARACTER OF DRILLING, ETC.
					LOSS OF PRESSURE FT. 0.0	LOSS OF PRESSURE FT. 0.5	LOSS OF PRESSURE FT. 1.0						
ONE CONTINUOUS SAMPLER - 3.0"	45'	45'	100					13				L0-LY FILL: 3" TO 6" LIMESTONE COBBLES WITH DIRTY SAND/GRAVEL. L3-L5 CLAYEY SILT/SILTY CLAY: BROWN, MOTTLED DARK BROWN, MOIST.	△ 11/24/86 NATURAL GROUND AT APPROXIMATELY 5.5 FT.
	60'	45'	82					5.5				5.5-HOLLOW CLAY: GRAY BROWN, SILTY, MOTTLED YELLOWISH BROWN WITH MINOR BLACK.	
							10				BOTTOM OF HOLE AT 10.0 FT. BACKFILLED WITH GRANULAR BENTONITE. 11/24/86 CAPPED, 11/26/86.	① ELEVATION UNKNOWN SAMPLER AND RADIODILOGICALLY LOGGED BY EBERLINE ANALYTICAL CORPORATION 11/26/86	
											DESCRIPTION AND CLASSIFICATION BY VISUAL EXAMINATION OF SAMPLES.		
SPLIT SPONGE STRECHING TUBE PROBES FOR PARTITION CATION					SITE HISS - DEVELOPED FUTURA PROPERTY				HOLE NO. HISS-54				



GEOLOGIC DRILL LOG					PROJECT FUSRAP				JOB NO. 14501-140		SHEET NO. 1 OF 1	NOLE NO. HISS-55	
SITE HISS - DEVELOPED FUTURA PROPERTY - INSIDE BUILDINGS				CONTRACTOR N1120.4 E509.1				ANGLE FROM HORIZ. 90°		BEARING N/A			
BEGUN 12/8/86	COMPLETED 12/8/86	DRILLER JOHN MATHEWS AND ASSOCIATES	BELL NAME AND MODEL HAND AUGER				HOLE SIZE 6"	OVERTUREN FT. 7.0'	ROCK FT. 0.0'	TOTAL DEPTH 7.0'			
CORE RECOVERY % N/A		CORE DRAINS N/A	SAMPLES -	EL. TOP OF CASING N/A	CAINED EL. (1)	DEPTHVEL GROUND WATER 5.8'/(1)		DEPTHVEL. TOP OF ROCK N/A					
SAMPLE NUMBER HEIGHT/TALL N/A			CASING LEFT IN HOLE DEPTH/LENGTH NONE				LOGGED BY H.S. BENSINGER						
SAMPLE TYPE AND DIAMETER E -	SAMPLE ADVANCE FT.	SAMPLE LENGTH FT.	SAMPLE WEIGHT LBS	SAMPLE WEIGHT KG	WATER PRESSURE TESTS			ELEVATION	DEPTH FT. 0	DEPTH IN 0	SAMPLE	DESCRIPTION AND CLASSIFICATION	NOTES ON WATER LEVELS, WATER RETENTION, CHARACTER OF DRILLING, ETC.
					LOSS FT. 0.5	LOSS FT. 0.5	LOSS FT. 0.5						
HAND AUGER	E -								0.5			0.0-0.5' CONCRETE FLOOR SLAB.	REPAIRED CONCRETE FLOOR SLAB, 12/8/86. ▽ 12/9/86.
									1.0			0.5-0.7' SILT; DARK BROWN, SANDY.	
									2.5			0.7-1.0' SILT; GRAY BROWN, SANDY.	
									4.0			1.0-2.5' CLAYEY SILT/SILTY CLAY; GRAY TO MEDIUM BROWN.	
									5			2.5-4.0' SILT; MEDIUM BROWN, CLAYEY, GRAY BROWN MOTTLING, SOME BLACK ORGANICS.	
									7			4.0-5.0' CLAY; MEDIUM BROWN, CLAYEY, YELLOW BROWN AND SOME DARK GRAY TO BLACK ORGANICS.	
									15			5.0-7.0' CLAY; GRAY BROWN, SILTY, YELLOW BROWN MOTTLING, SOME BLACK ORGANICS.	
									20			BOTTOM OF HOLE AT 7.0 FT. BACKFILLED WITH GRANULAR BENTONITE. 12/9/86.	
									25				
									30				
35													
SI-SPLIT SPOON ST-CHIELEY TUBE, DOWNSIZED PIPERSON CHIELEY								SITE HISS - DEVELOPED FUTURA PROPERTY - INSIDE BUILDINGS				NOLE NO. HISS-55	



GEOLOGIC DRILL LOG					PROJECT				SHEET NO.			HOLE NO.				
SITE HISS - DEVELOPED FUTURA PROPERTY - INSIDE BUILDINGS					COORDINATES				14501-140 1 OF 1			HSS-56				
BEGUN	COMPLETED	DRILLER			DRILL MAKE AND MODEL			HOLE SIZE	OPENED/SEEN FT.D	ROCK FT.D	TOTAL DEPTH					
-	-							-	-	-	-					
CORE RECOVERY FT./% %		CORE BOXES	SAMPLES	EL. TOP OF CASING	CASING EL.	DEPTH/EL. GROUND WATER		DEPTH/EL. TOP OF ROCK								
SAMPLE NUMBER READING/ft.			CASING LEFT IN HOLE/ft.LENGTH			LOGGED BY:										
SAMPLE TYPE AND DIAMETER	SAMPLE LENGTH ft.	SAMPLE RECOVERY %	SAMPLE TYPE	SAMPLE RECOVERY %	WATER PRESSURE TESTS			ELEVATION	DEPTH ft.	Casing Log	SAMPLE	DESCRIPTION AND CLASSIFICATION				NOTES ON WATER LEVELS, WATER RETURN CHARACTER OF DRILLING, ETC.
					100% ft. f.p.m.	IN PRES. psi	TIME 2 MIN									
									0							
									5							
									10							
									15							
									20							
									25							
									30							
									35							
BS=SPUD, SS=SHELBY TUBE, D=DIAMETER, P=PITCHER, O=OTHER					SITE HISS - DEVELOPED FUTURA PROPERTY - INSIDE BUILDINGS								HOLE NO. HISS-56			



GEOLOGIC DRILL LOG						PROJECT FUSRAP				JOB NO. 14501-140	BIN NO. 1 OF 1	HOLE NO. HISS-57
SITE HISS - DEVELOPED FUTURA PROPERTY				COORDINATES N1100 E650					ANGLE FROM HORIZ. 90°		BEARING N/A	
DRILLER 11/20/86	COMPLETED 11/20/86	BELLER JOHN MATHEWS AND ASSOCIATES			DRILL NAME AND MODEL CME-550		HOLE SIZE 8"	OVERTOTAL FT.D 15.0'	ROCK FT.D 0.0'	TOTAL DEPTH 15.0'		
CORE RECOVERY %/D 11.3' / 75%		CORE BOXES N/A	SAMPLES 3	EL. TOP OF CASING N/A	GROUND EL. (1)	DEPTHVEL GROUND WATER 6.1' / (1)		DEPTHVEL. TOP OF ROCK N/A				
SAMPLE NUMBER: SEGMENT/TOTAL N/A			CASING LEFT IN HOLE: DIA/LENGTH NONE			LOGGED BY H.S. BENSINGER						
SAMPLE TYPE AND DIAMETER	SAMPLE ADVANCE LENGTH CORE IN.	SAMPLE RECOVERED	SAMPLE LENGTH	PERCENT CORE RECOVERY	WATER PRESSURE TESTS			ELEVATION	DEPTH ft.	DEPTHL ft.	SAMPLE	NOTES ON WATER LEVEL, WATER RETENTION, CHARACTER OF DRILLING, ETC.
					LOSS IN ft.	LOSS IN in.	LOSS IN MINUTES					
CME CONTINUOUS SAMPLER - 3.5"	50'	48'	96						0	10.0	1	0.0-1.5' FILL; 3' TO 6' LIMESTONE COBBLES, SAND AND GRAVEL, DIRTY.
	60'	47'	68						1.5	1.5	1	0.0-1.5' DESCRIPTION UNAVAILABLE, NO SAMPLE.
	60'	46'	77						2.3	2.3	1	1.5-2.3' SILT: BROWN, SANDY.
								5	5	2	2.3-10.0' CLAYEY SILT/SILTY CLAY; BROWN, MOTTLED DARK BROWN TO BLACK.	
								10	10	3	10.0-15.0' CLAY: GRAY BROWN, SILTY, MOTTLED YELLOW BROWN WITH MINOR BLACK (ORGANICS).	
								15	15		BOTTOM OF HOLE AT 15.0 FT. BACKFILLED WITH GRANULAR BENTONITE. 11/24/86; CAPPED 11/26/86.	
												SAMPLED AND RADIOLABICALLY LOGGED BY EBERLINE ANALYTICAL CORPORATION. 11/20/86.
												DESCRIPTION AND CLASSIFICATION BY VISUAL EXAMINATION OF SAMPLES.
SPLIT SPOON STANLEY TUBE PROBES/SCM PART CROWN OTHER						SITE HISS - DEVELOPED FUTURA PROPERTY				HOLE NO. HISS-57		



GEOLOGIC DRILL LOG					PROJECT FUSRAP				JOB NO. 14501-140	SHEET NO. 1 OF 1	HOLE NO. HSS-58	
SITE HSS - DEVELOPED FUTURA PROPERTY				COORDINATES N1075 E527				ANGLE FROM HORIZ. 90°		BEARING N/A		
BEGUN 12/2/86	COMPLETED 12/2/86	DRILLER JOHN MATHEWS AND ASSOCIATES	DRILL WIRE AND MODEL CME-550			HOLE SIZE 8"	OVERBURDEN FT. 15.0'	ROCK FT. 0.0'	TOTAL DEPTH 15.0'			
CORE RECOVERY FT./ID 13.1' /87%		CORE INDEXES N/A	SAMPLES 3	EL. TOP OF CASING N/A	GROUND EL. (1)	DEPTHVEL GROUND WATER 9.0'/(1)	DEPTHVEL TOP OF ROCK N/A					
SAMPLE NUMBER WEIGHT/FILL N/A			CASING LEFT IN HOLE: DIA/LENGTH NONE			LOGGED BY: H.S.BENSINGER						
SAMPLE TYPE AND DIAMETER	SAMPLE LENGTH IN FEET	SAMPLE NUMBER	SAMPLE TYPE	PERCENT CORE RECOVERY	WATER PRESSURE TESTS			ELEVATION	DEPTH 0	SAMPLE NO.	DESCRIPTION AND CLASSIFICATION	NOTES ON WATER LEVELS, WATER RETURN CHARACTER OF DRILLING, ETC.
					LOSS OF WATER LEVEL FT.	WATER PRESS. PSI	TIME TO SET MINUTES					
CME CONTINUOUS SAMPLER - 3.0"	60'	60'	100							1	0-1.5' SATURATED SURFACE, 1-3' LIMESTONE PEBBLES AND GRAVEL FILL. 1.5-1.9' SILTY: DARK GRAY, CLAYEY. 1.9-2.6' CLAY: MEDIUM BROWN, SILTY, WITH TAN FLECKS, MOTTLED WITH DARKER BROWN.	SOME RADACTIVITY FROM 1 TO 3'. NATURAL GROUND AT APPROXIMATELY 8.2 FT. 12/4/86.
	60'	37'	62							2	2.6-4.0' CLAY: GRADES FROM MEDIUM BROWN TO DARK GRAY, SILTY, WITH MINOR TAN FLECKS. 4.0-6.8' CLAY: DARK GRAY, SILTY. 6.8-7.8' CLAY: GREEN TO GRAY GREEN, SILTY, WITH YELLOW BROWN AND BLACK MOTTLING.	
	60'	60'	100							3	7.8-8.2' CLAY: RUST/YELLOW BROWN AND BLACK ORGANICS, MOTTLING. 8.2-15.0' CLAY: LIGHT GRAYISH BROWN, SILTY, YELLOW BROWN AND DARK GRAY BROWN MOTTLING.	
								15		BOTTOM OF HOLE AT 15.0 FT. BACKFILLED WITH GRANULAR BENTONITE, 12/4/86, CAPPED, 12/10/86.	@ ELEVATION UNKNOWN. SAMPLER AND RADIODIALLY LOGGED BY EBERLINE ANALYTICAL CORPORATION 12/2/86.	
SC-SPLIT SPOON ST-BASLEY TUBE INCORPORATING PARTITION CHAMFER					SITE HSS - DEVELOPED FUTURA PROPERTY					HOLE NO. HSS-58		



GEOLOGIC DRILL LOG						PROJECT	FUSRAP			JOB NO.	SHET NO.	HOLE NO.
SITE HISS - DEVELOPED FUTURA PROPERTY						COORDINATES N1050 E550			14501-140		1 OF 1	MISS-59
DRILLER 12/2/86	COMPLETED 12/2/86	DRILLER JOHN MATHEWS AND ASSOCIATES							ANGLE FROM HORIZ. 90°		REASON N/A	
CORE RECOVERY FT./ID 14.2' / 100%		CORE BOXES N/A	SAMPLES 3	EL. TOP OF CASING N/A	DRAIL EL. (1)	DEPTH TO GROUND WATER 8.1' / (1)	HOLE SIZE 8"	OVERTURELLA FT.D 15.0'	ROCK FT.D 0.0'	TOTAL DEPTH 15.0'		
SAMPLE NUMBER HEIGHT/FALL N/A			CASES LEFT IN HOLE: BOX/LENGTH NONE			LOGGED BY: H.S. BENSINGER						
SAMPLE TYPE AND DIAMETER	CHIPS ADVANCE IN CORE FT.	CHIPS IN SAMPLE BOXES	SAMPLE BOXES	PERCENT CORE RECOVERED	WATER PRESSURE TESTS			ELEVATION	DEPTH FT. 0	DEPT. 8' 15'	DESCRIPTION AND CLASSIFICATION	NOTES OR WATER LEVELS, WATER RETURN, CHARACTER OF DRILLING, ETC.
					LGR X 2' 15 FT.	W PRESS. 15 FT.	TM X 2' 30 FT.					
CDE CONTINUOUS SAMPLER - 3.5"	50° 50° 60° 60°	100 100							0.0	1.0	0.0-1.0' GLO-OUP FILL: GRAVEL, COBBLES, BROKEN ASPHALT.	HIGHEST RADIOACTIVITY AT 3.0 FT. ▼ 2/4/86.
											0.0-2.5' CLAYEY SILT/SALTY CLAY; YELLOW BROWN TO MEDIUM BROWN.	
											2.5-7.0' CLAY: DARK GRAY, SILTY, SOME ORGANICS, (POSSIBLE DECOMPOSED FILL MATERIAL).	
											7.0-8.0' CLAY: GRADES FROM GRAY TO MEDIUM BROWN, SILTY, MOIST.	
10.0	10.0	100 100						5	1.0	8.0-10' CLAY: GRAY BROWN, SILTY, WITH YELLOW BROWN, DARK BROWN, AND BLACK ORGANIC MOTTLING.	NATURAL GROUND AT APPROXIMATELY 8.8 FT.	
										10.0-10.3' MINOR RUST/ORANGE MOTTLING.		
										10.0-15.0' CLAY: GRAY/GREENISH GRAY TO GRAYISH BROWN, SILTY, YELLOW BROWN AND BLACK MOTTLING, WET.		
										BOTTOM OF HOLE AT 15.0 FT. BACKFILLED WITH GRANULAR BENTONITE, 2/4/86, CAPPED, 2/10/86.		
① ELEVATION UNKNOWN.												
SAMPLER SPANNED STANDING TUBE PROVIDED BY PARTITION PARTNER												
SITE HISS - DEVELOPED FUTURA PROPERTY												
HOLE NO. HISS-59												



GEOLOGIC DRILL LOG						PROJECT				JOB NO.		SHEET NO.		HOLE NO.			
SITE HISS - DEVELOPED FUTURA PROPERTY						COORDINATES N1058.5 E661.0				14501-140		1 OF 1		HOLE NO. HISS-60			
DEBLIN 12/9/86	COMPLETED 12/9/86	DRILLER JOHN MATHEWS AND ASSOCIATES				DRILL NAME AND MODEL CME-550			ANGLE FROM HORIZ 90°	BEARING N/A							
CORE RECOVERY FT./SD 9.2' /92%		CORE BOXES N/A	SAMPLES 2	EL. TOP OF CASING N/A			GROUND EL. (1)	DEPTH TO GROUND WATER 3.9' / (1)	MOLE SIZE 8"	OVERTHREAD FT.D 10.0'	ROCK FT.D 0.0'	TOTAL DEPTH 10.0'					
SAMPLE NUMBER RECENT/FALL N/A						CASING LEFT IN HOLE DIA/LENGTH NONE			LOGGED BY J.W.SIMS								
SAMPLE TYPE AND DIAMETER	ADVANCE IN FEET	ADVANCE IN METERS	SAMPLE TYPE	SAMPLE NUMBER	PENETRATED FORMATION	WATER PRESSURE TESTS			ELEVATION	DEPTH FT.	DEPTH METERS	LOG NO.	SAMPLE NO.	DESCRIPTION AND CLASSIFICATION			NOTES ON WATER LEVELS, WATER RETENTION CHARACTER OF DRILLING, ETC.
						LOSS OF HEAD IN INCHES	LOSS OF HEAD IN CENTIMETERS	LOSS OF HEAD IN FEET						LOSS OF HEAD IN METERS	LOSS OF HEAD IN SECONDS	LOSS OF HEAD IN MINUTES	
ONE CONTINUOUS SAMPLER - 3.0"	60'	60'	100						0.7	50	5	1		0.0-0.7' SILT; CLAYEY, MEDIUM TO DARK BROWN, LIMESTONE PEBBLES TO F.D.A. (APPROX 20% OF CORE), ORGANICS.			2/15/86
	60'	50'	83						6.4	10.0	10	2		1.0-6.4' SILT; CLAYEY, DARK BROWN, HOMOGENEOUS, SOME ROOTS EVIDENT.			NATURAL GROUND AT APPROXIMATELY 6.4 FT.
													6.4-6.5' YELLOW BROWN STREAKS.				
													BOTOM OF HOLE AT 10.0 FT. BACKFILLED WITH GRANULAR BENTONITE. 2/16/86.				
															⑥ ELEVATION UNKNOWN.		
															SAMPLED AND RADIODIALLY LOGGED BY EBERLINE ANALYTICAL CORPORATION 2/9/86.		
															DESCRIPTION AND CLASSIFICATION BY VISUAL EXAMINATION OF SAMPLES.		
RE-SPLIT SPONGE STERILE TUBES PROGRESSIVE PARTICLE SIZER						SITE		MISS - DEVELOPED FUTURA PROPERTY						HOLE NO. HISS-60			