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Post-Test Evaluation of the Geology, Geochemistry, Microbiology, and Hydrology of the *In Situ* Air Stripping Demonstration Site at the Savannah River Site(U)

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Savannah River Site
Aiken, SC 19808

MASTER

Prepared for the U.S. Department of Energy under contract no. DE-AC09-89SR18035

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Prepared by Savannah River Technology Center—Environmental Sciences Section

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Abstract

A full-scale demonstration of the use of horizontal wells for *in situ* air stripping for environment restoration was completed as part of the Savannah River Integrated Demonstration Program. The demonstration of *in situ* air stripping was the first in a series of demonstrations of innovative remediation technologies for the cleanup of sites contaminated with volatile organic contaminants. The *in situ* air stripping system consisted of two directionally drilled wells that delivered gases to and extract contamination from the subsurface. The demonstration was designed to remediate soils and sediments in the unsaturated and saturated zones as well as groundwater contaminated with volatile organic compounds. The demonstration successfully removed significant quantities of solvent from the subsurface. The field site and horizontal wells were subsequently used for an *in situ* bioremediation demonstration during which methane was added to the injected air. The field conditions documented herein represent the baseline status of the site for evaluating the *in situ* bioremediation as well as the post-test conditions for the *in situ* air stripping demonstration. Characterization activities focused on documenting the nature and distribution of contamination in the subsurface. The post-test characterization activities discussed herein include results from the analysis of sediment samples, three-dimensional images of the pretest and post-test data, contaminant inventories estimated from pretest and post-test models, a detailed lithologic cross sections of the site, results of aquifer testing, and measurements of geotechnical parameters of undisturbed core sediments.

The information in this report was developed during the course of work under Contract No. DE-AC09-89SR18035 with the U. S. Department of Energy.

Introduction and Background

The Integrated Demonstration Project at the Savannah River Site is designed to evaluate innovative remediation technologies for the restoration of sites contaminated with volatile organic compounds (VOCs). Phase I of the Integrated Demonstration Project focused on the application and development of *in situ* air stripping technologies to remediate soils and sediments above and below the water table as well as groundwater contaminated with VOCs. The objective of this report is to document post *in situ* air stripping conditions at the Integrated Demonstration Site to assess the effectiveness of the *in situ* air stripping demonstration.

Two horizontal remediation wells were installed at the field demonstration site as the nucleus of the soil and groundwater clean up systems to be tested. One of the wells, installed below the water table, provided access for air injection to sparge volatile organic compounds (VOCs) from the groundwater. The second well, installed above the water table, was used for vacuum extraction of the sparged contaminants, as well as removal of residual VOCs that had not yet reached the groundwater.

Extensive networks of pretest and post-test characterization boreholes were installed during characterization activities at the Integrated Demonstration Site. These boreholes were used to

- Characterize the lithology, stratigraphy, microbiology and hydrology of the site.
- Determine the change in distribution and concentration of contaminants prior and subsequent to the field test.
- Provide geologic and hydrologic parameters for input into numerical models.

Several of the boreholes were completed as wells or as access pipes and used to

- Monitor the pressures and concentrations of dissolved constituents in the groundwater
- Monitor the pressure and concentration of gases in the vadose zone.
- Facilitate geophysical measurements.

The pretest report included a general site description, stratigraphy, hydrology, type and location of pretest borings, sampling and analytical techniques for groundwater and sediments, distribution of contaminants, and structural and functional characterization of the subsurface microbiological community (Eddy et al. 1991). This report focuses on the delineating change in the distribution and concentration of contamination, detailed discussion and evaluations of the lithostratigraphic framework (detailed cross sections, aquifer testing, etc.), and changes in the subsurface microbial communities.

The field site and horizontal wells were subsequently used for an *in situ* bioremediation demonstration during which methane was added to the injected air. The conditions documented herein represent the baseline status of the site for evaluating the in situ bioremediation.

General Site Description

Wells and Borings

Pretest characterization activities at the Integrated Demonstration Site are described in Eddy et al. (1991). The nature and extent of solvent contamination was determined by collecting sediment samples from 10 borings continuously cored to a depth of 200 feet (MHT well clusters). Two of the MHT well clusters were located northwest of the injection well (MHT1, MHT2), four were located between the injection and the extraction wells (MHT4, MHT6, MHT8, MHT10), and four were located to the southeast of the extraction well (MHT3, MHT5, MHT7, MHT9) (Figure 1). The MHT clusters were completed as 4-inch monitoring wells and consisted of a well screened in the water table (designated with the suffix D) and a well screened with 5-foot screens in the underlying semi-confined aquifer at elevations ranging from 204 to 214 feet (suffix C).

In addition, samples were collected during pretest characterization from five borings (designated by the prefix MHV) that were cored to install piezometer clusters in the vadose zone. MHV4 is located west of the injection and extraction wells; MHV1, MHV3, and MHV5 are located between the vapor extraction and injection wells; and MHV2 is located east the injection and extraction wells (Figure 1). These borings were drilled with a 6.25-inch hollow stem auger and sampled with a split-spoon sampler to at least 120 feet. Continuous sediment cores were collected and analyzed for VOCs.

For the post-test characterization effort, cores were collected, where possible, adjacent to each of the MHT and MHV borings. Figure 1 shows the location of pretest and post-test borings. During the post-test drilling in the interior portions of the site, it was not possible to drill to a total depth of 200 feet adjacent to each of the original locations because of the loss of drilling mud circulation. As a result, samples from the interior portions of the site were collected only to depths within the saturated zone where the hole remained open. In this central portion of the site, five continuous cores were split spooned to at least the water table within 10 feet of the existing wells at MHT1 (MHB-1T), MHT2 (MHB-2T), MHT4 (MHB-4T), MHT6 (MHB-6T), and MHV1 (MHB-1V).

An additional 10 cores were collected to a depth of approximately 200 feet. The holes were continuously split spooned to just below the water table, and then wireline punchcored to total depth. These cores were taken within 10 feet of the existing well clusters MHT3 (MHB-3T), MHT5 (MHB-5T), MHT7 (MHB-7T), MHT8 (MHB-8T), MHT9 (MHT-9B), MHT10 (MHT-10B), MHV3 (MHB-3V), MHV4 (MHT-11C), MHV5 (MHB-5V) as well as a new cluster at MHT12. Four of the 10 continuously cored holes (the holes near existing well clusters MHT9, MHT10, and MHV4, and in addition, the new location MHT12) were completed as standard SRS monitoring wells meeting SRS specifications (3Q5). The wells are identified as follows: MHT-9B, MHT-10B, MHT-11C (near MHV4), and MHT-12C (northeast of the MHT9 cluster). Well locations are shown in Figure 1, well construction details in Table 1, and well construction diagrams for the new installations are provided in Appendix I.

Geophysical logging, specifically gamma ray and resitivity (16 and 64 inches), was conducted on the post-test boreholes that were completed as monitoring wells (MHT-9B, MHT-10B, MHT-11C and MHT-12C). Because the original borehole cluster locations (MHT-10) were logged during pretest activities, the post-test boreholes were not logged. Geologic logs of the post-test cores were prepared in the field: samples were collected at 5-foot intervals and at major lithology changes for VOC analyses, and samples for microbiological analyses were collected at 10-foot intervals.

The MHT cores were microscopically examined in the SRL core-logging laboratory. Sand (grains 0.0625–2 mm), gravel (grains >2 mm), clay (grains <0.0625 mm), and carbonate percentages were determined, as were the muscovite, lignite, glauconite, and sulfide content of the cores (ESSOP-2-15: Microscopic Examination of Sediment Cores).

An additional two vadose zone borings (MHV8 and 9) requested by the Monitoring Technical Support Group were drilled with a hollow stem auger. These wells have multiple screen zones and were used to evaluate innovative monitoring characterization technologies (Table 2). The screened zones were gravel packed and the intervening zones were sealed with bentonite.

During the *in situ* air stripping demonstration, water samples from the MHT wells were collected every two weeks and analyzed for VOCs, pH, temperature, conductivity, dissolved oxygen, Eh, and microbial populations. VOC analyses of groundwater are provided in Looney et al. (1991).

Table 1. Monitoring Well Completion Details. All pretest borings were completed as monitoring wells. (Locations of monitoring wells shown in Figure 1.)

Well ID	SRS East (ft)	SRS North (ft)	Ground Elev (ft)	TOC Elev (ft)	Riser Elev (ft)	Pad (ft)	Top of Screen (ft)	Bot. of Screen (ft)	Top of Filter (ft)	Bottom Pack (ft)
					PRETEST					
MHT-1C	48765.60	102706.80	362.3	364.99	365.17	362.8	209.3	204.3	211.2	200.3
MHT-1D	48760.21	102697.34	362.0	364.47	NS	362.5	237.5	217.5	241.0	216.0
MHT-2C	48780.28	102747.08	363.7	366.28	366.46	364.2	211.7	206.7	215.1	203.7
MHT-2D	48784.24	102756.60	363.9	367.28	367.46	364.4	240.1	219.5	242.7	218.6
MHT-3C	48861.11	102704.33	362.2	364.92	365.09	362.7	209.2	204.2	212.5	200.2
MHT-3D	48856.75	102694.60	361.7	364.36	364.70	362.2	236.7	216.7	240.1	215.3
MHT-4C	48863.53	102778.90	367.2	369.62	369.79	367.5	213.2	208.2	216.3	203.2
MHT-4D	48857.11	102772.12	366.6	368.94	NS	366.9	241.6	221.6	244.9	219.6
MHT-5C	48905.88	102725.11	363.6	366.28	366.45	364.2	209.6	204.6	214.9	201.1
MHT-5D	48893.54	102721.66	363.5	366.05	366.36	364.0	240.0	219.9	218.6	218.5
MHT-6C	48900.03	102810.82	369.3	371.79	371.97	369.6	212.3	207.3	215.3	201.3
MHT-6D	48891.01	102808.16	369.1	371.36	NS	369.5	244.1	224.1	247.0	222.1
MHT-7C	48977.48	102788.85	367.5	370.10	370.30	368.0	211.5	206.5	216.4	200.5
MHT-7D	48967.28	102786.76	367.4	370.09	NS	367.9	239.4	219.4	246.0	219.4
MHT-8C	48970.24	102880.69	368.8	371.64	371.80	369.3	211.8	206.8	214.5	201.8
MHT-8D	48960.71	102875.76	369.1	371.77	NS	369.6	240.1	220.1	243.5	219.1
MHT-9C	49015.58	102814.40	367.3	369.71	369.88	367.8	214.3	209.3	215.7	205.8
MHT-9D	49018.07	102805.14	367.2	369.85	370.02	367.7	242.2	222.2	246.6	220.8
MHT-10C	49011.57	102892.30	368.4	370.82	371.11	368.9	211.4	206.4	213.4	203.4
MHT-10D	49001.21	102890.12	368.5	371.04	NS	369.0	239.5	219.5	242.9	217.5

NS Not surveyed.
Geophysical logging was conducted on all pretest boreholes.

Table 1. contd

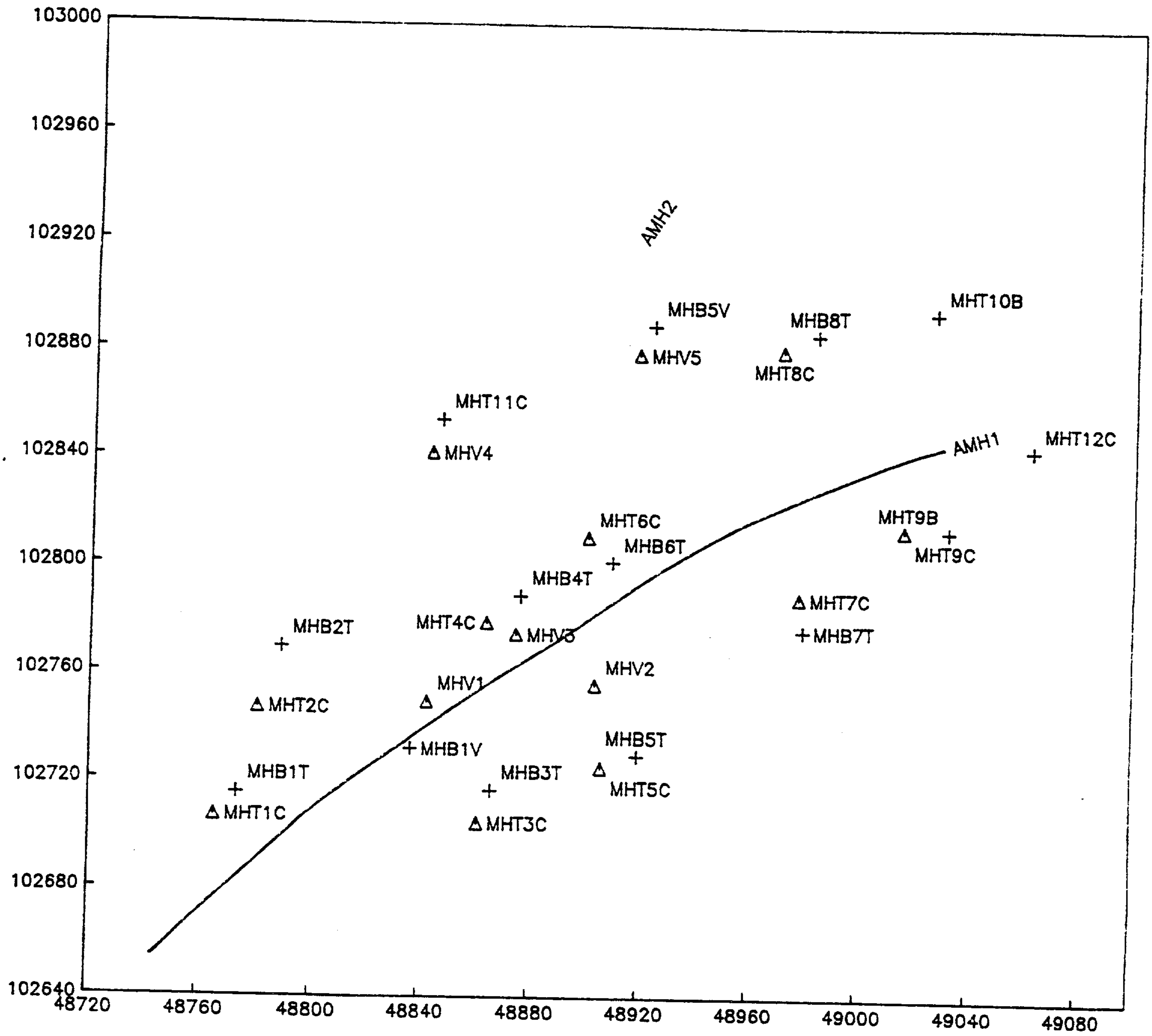
Well ID East (ft)	SRS North (ft)	SRS Elev (ft)	Ground Elev (ft)	TOC Elev (ft)	Riser Elev (ft)	Pad (ft)	Top of Screen (ft)	Bot. of Screen (ft)	Top of Filter (ft)	Bottom Pack (ft)
				POST-TEST						
MHB-1T	48773.42	102715.32	362.8	NA	NA	NA	NA	NA	NA	NA
MHB-2T	48788.36	102769.62	365.0	NA	NA	NA	NA	NA	NA	NA
MHB-3T	48865.85	102716.60	363.4	NA	NA	NA	NA	NA	NA	NA
MHB-4T	48875.56	102788.86	368.2	NA	NA	NA	NA	NA	NA	NA
MHB-5T	48918.98	102729.72	364.8	NA	NA	NA	NA	NA	NA	NA
MHB-6T	48908.99	102801.67	369.0	NA	NA	NA	NA	NA	NA	NA
MHB-7T	48979.16	102776.73	366.8	NA	NA	NA	NA	NA	NA	NA
MHB-8T	48983.02	102886.60	368.7	NA	NA	NA	NA	NA	NA	NA
MHT-9B	49031.83	102814.27	366.9	NS	NS	NS	171.5	176.5	166.25	199
MHT-10B	49026.04	102894.87	368.3	NS	NS	NS	171.0	176.0	166.90	182
MHB-1V	48836.29	102731.88	362.5	NA	NA	NA	NA	NA	NA	NA
MHB-3V	ND	ND	ND	NA	NA	NA	NA	NA	NA	NA
MHT-11C*	48846.07	102854.00	365.8	368.25	368.43	366.2				
MHT-12C	49061.70	102844.83	367.5	370.18	370.36	367.9				
MHB-5V	48922.65	102889.52	369.0	NA	NA	NA	NA	NA	NA	NA

NA Not applicable; borehole was not completed as a well.
NS Not surveyed.
ND Borehole was not completed as a well; grouted hole could not be located for survey. Coordinates within 10 feet of MHV3.
* This hole corresponds to the pretest boring MHV4.
Well IDs shown in bold indicate boring completed as monitoring well.

Table 2. Screen Elevations for MHV8 and MHV9

Well ID	Top of Screen		Bottom of Screen		Screen Length
	Depth (ft)	Elevation (ft)	Depth (ft)	Elevation (ft)	(ft)
MHV8	34.25	322.95	36.55	320.65	2.30
48846.34, 102610.28	53.90	303.30	56.17	301.03	2.27
Ground Elevation 357.2	61.18	296.02	63.47	293.73	2.29
	72.48	284.72	74.75	282.45	2.27
	88.77	268.43	91.04	266.16	2.27
	103.00	254.20	105.26	251.94	2.26
	114.23	242.97	116.53	240.67	2.30
MHV9	24.23	343.07	26.5	340.80	2.27
49046.69, 102830.07	48.89	318.41	51.16	316.14	2.27
Elevation not surveyed	64.2	303.10	66.48	300.82	2.28
	75.46	291.84	77.73	289.57	2.27
	86.71	280.57	88.98	278.32	2.27
	99.03	268.27	101.31	265.99	2.28
	112.38	254.92	114.66	252.64	2.28
	119.72	247.58	122	245.30	2.28

Figure 1. Location of Pretest ( ) and Post-Test ( ) Borings



103000
102960
102920
102880
102840
102800
102760
102720
102680
102640
48720
48760
48800
48840
48880
48920
48960
49000
49040
49080
AMH2
AMH1
MHB5V
MHV5
MHB8T
MHT8C
MHT10B
MHT11C
MHV4
MHT12C
MHT6C
MHB6T
MHT9B
MHT9C
MHB4T
MHT4C
MHV3
MHT7C
MHB7T
MHB2T
MHV2
MHV1
MHT2C
MHB1V
MHB5T
MHB1T
MHB3T
MHT5C
MHT1C
MHT3C

Stratigraphy

The regional stratigraphy of shallow sediments and a generalized hydrostratigraphic section of the Integrated Demonstration Site are presented in Eddy et al. (1991). As part of the continuing characterization activities, a detailed lithostratigraphic cross section that transects the Integrated Demonstration Site along an east-west trend was prepared (Plate 1).

Detailed laboratory descriptions of core samples were used to make the stratigraphic correlations. Well locations, elevation, and total drill-core depth for the wells used in the cross section are summarized in Table 3. The location of the cross section relative to the MHT well clusters and AMH horizontal wells is shown in Figure 2. Laboratory core descriptions of the MHT wells are provided in Appendix II. Continuous core and split-spoon samples were available for all of the wells except MSB-11.

Methods

All core descriptions were done using the standard WSRC core logging procedure (ESSOP-2-15: Microscopic Examination of Sediment Cores). Descriptions made using this procedure reflect a "whole-rock" lithologic classification of the sediment as samples are homogenized over a given 1-foot interval for examination. Variations at a scale of less than a foot are not reflected in the descriptions. Hence, these descriptions do not necessarily account for lithologic interpretation based on depositional geometry. For example, an interval containing 40% sand-sized material and 60% mud-sized material in discrete interbeds would be classified as a sandy clay. An interval containing the same percentage distributions but with the mud fraction dispersed throughout the interval as matrix would also be classified as a sandy clay. It should be noted that two such intervals will appear identical on a geologic cross section despite significant differences in depositional environment and hydrologic properties. As discussed below, descriptive codes and text relating to color, banding, and other features of the core are entered into the database. While they are not explicitly shown on the cross section, these data were used in some cases in developing the picks for the various layers.

Lithologic data were plotted on hydrogeologic cross sections along with geophysical logs for each well. Correlation of lithology follows standard practices of geophysical log correlation with extensive use of the detailed core description for identifying correlative sediment layers. When possible, actual core samples were compared to determine correlative layers and lateral extent of individual lithologic units. It should be noted that correlations shown on the cross sections link intervals of similar "whole rock" lithology and did not necessarily represent continuous layers of clay, clayey sand, etc. This applies especially to the clay layers shown in the upper parts of the cross sections.

Hydrostratigraphic picks for the confining zones were made using geophysical and lithologic data. Low resistivity values and low estimated porosity values (per ESSOP-2-15) were used to determine the vertical extent of the confining zones. In general, porosity values estimated as moderate or poor corresponded to low resistivity values and were considered to be "confining". Tops and bottoms of confining zones were defined at transitions from low porosity to better porosity in adjacent sand. Confining zones were delineated to encompass all sediments that showed low overall porosity and resistivity values. Confining zones may include sand layers where the layers were bounded by substantial clayey layers or where the sand contained moderate amounts of interstitial mud. Boundaries of confining zones were set at clay-sand or clayey sand-sand transitions where estimated porosity and resistivity increased, and the lithology remained relatively clean of appreciable mud for several feet.

Lithostratigraphy

The Savannah River Site (SRS) is located on the Atlantic Coastal Plain, which consists of a wedge of unconsolidated and semi-consolidated sediments that increases in thickness from zero at the contact with Paleozoic and pre-Cambrian basement rocks to the west of SRS to 4000 feet at the South Carolina coastline. The Coastal Plain sediments are approximately 1000 feet thick at SRS, range in age from Late Cretaceous to Recent, and consist of stratified clay, sand, gravel, and variable amounts of limestone. In general, these sediments dip gently to the southeast.

The sediments within 200 feet of the surface are of interest to this study. They consist of sands, sandy clays, clayey sands, and clays deposited from the Middle to Upper Eocene in shallow marine, lagoonal, or fluvial environments. As a result, the sequence lacks the lateral continuity typically found in sediments formed in deep marine environments.

Lithostratigraphic units identified during the core-logging process include (starting at ground surface) the Upland Unit, the Tobacco Road Sand, and the Congaree, Warley Hill, Santee, and Dry Branch Formations. Underlying these zones are sediments of Tertiary to Cretaceous age and regional bedrock that are not affected by field demonstration operations. A brief lithologic description of each of the shallow formations and its members is provided below. The elevation picks and criteria for each zone are illustrated using the logs for well MHT-1C (Plate 1).

Congaree/Fishburne Formations

(192.3 feet–TD)

The Congaree/Fishburne Formations (undifferentiated) consist primarily of yellowish to grayish orange, well-sorted, medium-grained sand. These formations contain minor amounts of interbedded light gray clay and wisps of light gray clay. The contact with the underlying Williamsburg/Ellenton Formations is unconformable in this vicinity. The Williamsburg and Ellenton Formations contain substantial quantities of clay and act as an aquitard in this vicinity, essentially limiting the vertical extent of flow to the overlying zones.

Warley Hill Formation

(222.3–192.3 feet)

The Warley Hill Formation includes yellowish orange, fine- to coarse-grained, moderately sorted sand with interbedded sandy clay and clayey sand. Small, discontinuous layers of shelly sand with shell fragments up to 4 mm in diameter are present in some of the cores in this vicinity. The lower part of the Warley Hill contains a prominent layer of tan to grayish brown, soft, sandy clay with brownish purple mottling. This basal clay is informally referred to as the "green clay" at SRS. The contact with the underlying Congaree Formation appears to be conformable in this vicinity.

Santee Formation

(262.3–222.3 feet)

The Santee Formation consists of brown to tan to yellowish orange, fine- to coarse-grained sand with abundant interbeds of clayey sand, sandy clay, and clay. Layers of gravely sand are common. The contact of the Santee with the underlying Warley Hill Formation appears to be conformable in this area.

Dry Branch Formation

(298.3–262.3 feet)

The Dry Branch Formation is typically a light brown to tan, medium- to coarse-grained, moderately sorted sand with interbedded clayey sand, sandy clay, and clay. The contact with the underlying Santee Formation is unconformable (Aadland et al.1992). The clay-rich tan clay layers near the base of this unit are informally referred to as the "tan clay" at SRS.

Tobacco Road Sand

(306.3–298.3 feet)

The Tobacco Road Sand consists of light grayish purple to moderate reddish purple, medium- to fine-grained sand with approximately 15% interstitial mud. Wisps of clay are common. The Tobacco Road is very thin in this well because of an erosional unconformity at the base of the Upland Unit. The basal parts of the unit tend to contain more clay (up to 25%) and gravel (up to 10%). The contact with the underlying Dry Branch Formation appears to be conformable in this vicinity and is marked on the geophysical log by a prominent gamma ray spike at approximately 300 feet elevation.

Upland Unit

(362.3–306.3 feet)

The Upland Unit is reddish orange to brown to purple with a highly variable lithology. The sediments range from poorly sorted, gravely sand to clay containing virtually no sand. Gravel-sized clay balls are common. The Upland Unit has a distinctive speckled appearance in sandier layers. The contact with the underlying Tobacco Road Sand is unconformable.

Hydrostratigraphy

The interbedded sand clay and silt provide the framework that governs the flow of fluids (gases and liquids) in the subsurface. The water table is at an elevation of approximately 230 feet above mean sea level (msl) (a depth of approximately 130 to 140 feet below surface) at the demonstration site. The sitewide and local hydrostratigraphy, subsurface hydrologic properties, initial hydrologic conditions, and vadose zone properties were addressed in the pretest characterization report (WSRC-RD-91-21). Recharge to the groundwater in this area is due primarily to infiltration of rainwater. Depending on rainfall intensity and vegetation, yearly infiltration of 6–20 inches is expected (Hubbard 1986). After reaching the water table, the groundwater flows downward and laterally, depending on the proximity to downgradient hydrologic boundaries/drains (nearby streams and Upper Three Runs Creek). The vertical and horizontal flow rates and directions vary in the different water-bearing zones beneath the site

The contaminants at the field demonstration site and zone of influence of the *in situ* air stripping system are located in the vadose zone and the upper water-bearing zones at SRS. This system consists of three water-bearing zones separated by less permeable aquitards. The water table is located at an elevation of approximately 230 feet above msl in relatively fine-grained and highly variable sediments. The water table is separated from a semi-confined zone by a thin and somewhat discontinuous aquitard that occurs at an elevation of approximately 225 feet. The semi-confined zone is separated from a confined zone by the "green clay" at an elevation of approximately 200 feet. The bottom of the confined zone is defined by clays of the Ellenton Formation at an elevation of approximately 150 feet above msl. The horizontal injection well is completed in the semi-confined zone near the wellhead and dips into the confined zone near the distal end of the horizontal perforated section.

All of the water-bearing zones influenced by the remediation, characterization, and monitoring tests at the Integrated Demonstration Site are in the Tertiary sediments above the Williamsburg/Ellenton Formations. These upper zones have been designated as the Steed Pond aquifer unit (Aadland et al. 1992). In A/M Area, this unit is informally divided into the basal "Lost Lake" aquifer zone and the upper "M-Area" aquifer zone by the "green clay" confining zone.

Eddy et al. (1991) delineated four semi-confining/confining zones in this vicinity, naming them for the approximate elevations at which they were found (Figure 3). The upper three zones are semi-confining, clay-rich or interbedded zones all above or within the "M-Area" aquifer zone. These are, from the top down, the "325-foot clay", "300-foot clay", and "270-foot clay" ("tan clay") zones. The "325-foot clay" and the "300-foot clay" are in the vadose zone, impacting the flow of gases above the water table and recharge of air and water from the ground surface. The "270-foot clay" is an interbedded zone that extends below the water table; the lower portion of this zone separates the water table from a semi-confined zone. The fourth (lowermost) zone is named the "200-foot clay" confining zone. This zone corresponds to the "green clay" confining zone of the Steed Pond aquifer, separating the "M-Area" aquifer zone from the "Lost Lake" aquifer zone.

Hydrostratigraphic picks for these zones were determined from the cross section and are summarized in Tables 4–7. The cross section illustrates that the upper three confining zones are within the vadose zone beneath the Integrated Demonstration Site (Plate 1).

Vadose Zone

The "325-foot clay" varies in thickness across the Integrated Demonstration Site from 1 to 21 feet. The confining zone consists of sediments assigned to the Upland Unit. The "325-foot clay" comprises layers of clayey sand, sandy clay, and clay, with subordinate sand layers. Very few individual clay layers exceed 1 foot in thickness. The majority of the clay and sandy clay consist of interbedded sand and clay. There is textural evidence indicating that many of the 1-foot intervals logged as clay and sandy clay, especially near the base of the zone, are cobble to boulder-sized clasts of clay ("clay balls") eroded from the underlying sediments or small lenticular clay lenses. The estimated porosity ranges from poor in the clay and sandy clay to good in interbedded sand (ESSOP-2-15).

The "300-foot clay" confining zone consists of clayey sand and subordinate, interbedded sand that is very discontinuous beneath the Integrated Demonstration Site. This zone was identified in only five of the MHT wells, where it varies in thickness from less than a foot to 10 feet and consists of clayey sand with subordinate interbedded sand. The estimated porosity is primarily moderate (ESSOP-2-15).

The "tan clay" zone ("270-foot clay" of Eddy et al. 1991) comprises three intervals of clay and clayey sand, two of which are from the upper parts of the Santee Formation and the third from the lower Dry Branch Formation. The "270-foot clay" varies in thickness from 12 to greater than 34 feet at the Integrated Demonstration Site. Distribution of the clay and sandy clay is somewhat sporadic across the area, especially in the uppermost clayey interval. The "270-foot clay" consists of clay and sandy clay interbedded with sand that contains moderate to minor amounts of interstitial mud. The estimated porosity ranges from poor in the clay and sandy clay to moderate to excellent in interbedded sand layers (ESSOP-2-15).

Water Table and Semi-confined Zones

The water table and semi-confined zones are within the "M-Area" aquifer zone (Aadland 1992), the upper zone of the Steed Pond Aquifer. This zone consists of relatively clean sand and minor interbedded clayey sand and gravely sand of the Santee Formation. These layers consists of interbedded sand and shelly sand with shell fragments up to 4 mm in diameter. Small, discontinuous layers of calcareous material are present within the "M-Area" aquifer zone in cores MHT-4C, MHT-6C, and MHT-10C (Plate 1). The estimated porosity of this zone varies with mud content and ranges from moderate to excellent (ESSOP-2-15). A thin and somewhat discontinuous aquitard, which may correspond to the calcareous layer, is present within this zone at approximately 215-foot elevation, separating the water table and semi-confined zones. Flow in these zones is relatively slow for both downward (predominant) and lateral components.

Confined Zone

The "green clay" confining zone ("200-foot clay") is laterally continuous beneath the Integrated Demonstration Site. The zone ranges in thickness from 1 to 7 feet.

The "green clay" confining zone consists of the sandy clay and clayey sand of the lower Warley Hill Formation. Sediments show an overall decrease in mud content and porosity toward the northeast. The "green clay" consists of up to three lobes of clayey material. In the vicinity of the Integrated Demonstration Site, the "green clay" consists of a single layer of soft, dense clay and clayey sand that is tan in color with brownish-purple mottling.

The confined zone beneath the site is within the "Lost Lake" aquifer zone. This zone includes sand and clayey sand of the Congaree Formation and the lowermost part of the Warley Hill Formation below the "green clay" confining zone. Estimated porosity ranges from moderate to excellent (ESSOP-2-15). Flow in this zone is both lateral (predominant, toward Upper Three Runs Creek) and downward.

Summary

The hydrostratigraphy beneath the Integrated Demonstration Site is illustrated graphically on the hydrogeologic cross section and includes at least four confining zones, three of which are above the water table in this vicinity (Plate 1). The cross section illustrates the intercalated geology of the confining zones and demonstrates the overall discontinuity of the individual clayey layers within each zone. Lithologic data and correlations indicate that overall lateral continuity within the confining zones increases downward. The "green clay" confining zone has the greatest lateral continuity of the four, but is the thinnest. The "green clay" is the only individual clayey layer that can be traced across the area. The clay layers within the "270-foot clay" are somewhat better organized, but individual beds cannot be correlated across the area with any degree of confidence. Clay layers of the "325-foot clay" confining zone are different from one another in adjacent wells and probably represent localized, lenticular clay bodies or zones rich in cobble and boulder-sized clay clasts.

Table 3. Location, Total Depth, and Elevation of Wells Used in Cross Sections

Well ID	SRS Easting	SRS Northing	Ground Elevation (ft msl)	Core Total Depth (ft)
MHT-1C	48765.60	102706.80	362.3[a]	198
MHT-4C	48863.53	102778.90	367.2[a]	191
MHT-6C	48900.03	102810.82	369.3[a]	190
MHT-8C	48970.24	102880.69	368.8[a]	198
MHT-10C	49011.57	102892.30	368.4[a]	197
MSB11	48577.60	102638.90	363.0[b]	240[c]

a Ground elevation from Eddy et al. 1991
b Ground elevation for MSB11A; taken from SRS Well Inventory, October 1991
c Total depth of exploration; core is not available for this well.

Table 4. Picks for the "325-foot Clay" Zone

Well ID	Ground Elevation (ft msl)	Depth Top (ft)	Depth Bottom (ft)	Elevation Top (ft msl)	Elevation Bottom (ft msl)	Unit Thickness (ft)
MHT-1C	362.3	36.0	43.0	326.3	319.3	7.0
MHT-4C	367.2	36.0	52.0	331.2	315.2	16.0
MHT-6C	369.3	44.0	57.0	325.3	312.3	13.0
MHT-8C	368.8	35.0	44.0	333.8	324.8	9.0
MHT-10C	368.4	34.0	55.0	334.4	313.4	21.0
MSB11*	363.0	absent	absent	absent	absent	absent

* Picks from MSB11 are based on geophysical data only; core is not available for this well.

Table 5. Picks for the "300-foot Clay" Zone

Well ID	Ground Elevation (ft msl)	Depth Top (ft)	Depth Bottom (ft)	Elevation Top (ft msl)	Elevation Bottom (ft msl)	Unit Thickness (ft)
MHT-1C	362.3	absent	absent	absent	absent	absent
MHT-4C	367.2	58.0	61.0	309.2	306.2	3.0
MHT-6C	369.3	absent	absent	absent	absent	absent
MHT-8C	368.8	absent	absent	absent	absent	absent
MHT-10C	368.4	absent	absent	absent	absent	absent
MSB11*	363.0	absent	absent	absent	absent	absent

* Picks from MSB11 are based on geophysical data only; core is not available for this well.

Table 6. Picks for the "270-foot Clay" ("tan clay") Zone

Well ID	Ground Elevation (ft msl)	Depth Top (ft)	Depth Bottom (ft)	Elevation Top (ft msl)	Elevation Bottom (ft msl)	Unit Thickness (ft)
MHT-1C	362.3	87.0	102.0	275.3	260.3	15.0
MHT-4C	367.2	95.0	120.0	272.2	247.2	25.0
MHT-6C	369.3	110.8	133.0	258.5	236.3	22.2
MHT-8C	368.8	97.0	129.0	271.8	239.8	32.0
MHT-10C	368.4	95.0	129.0	273.4	239.4	34.0
MSB11*	363.0	94.0	111.0	269.0	252.0	17.0

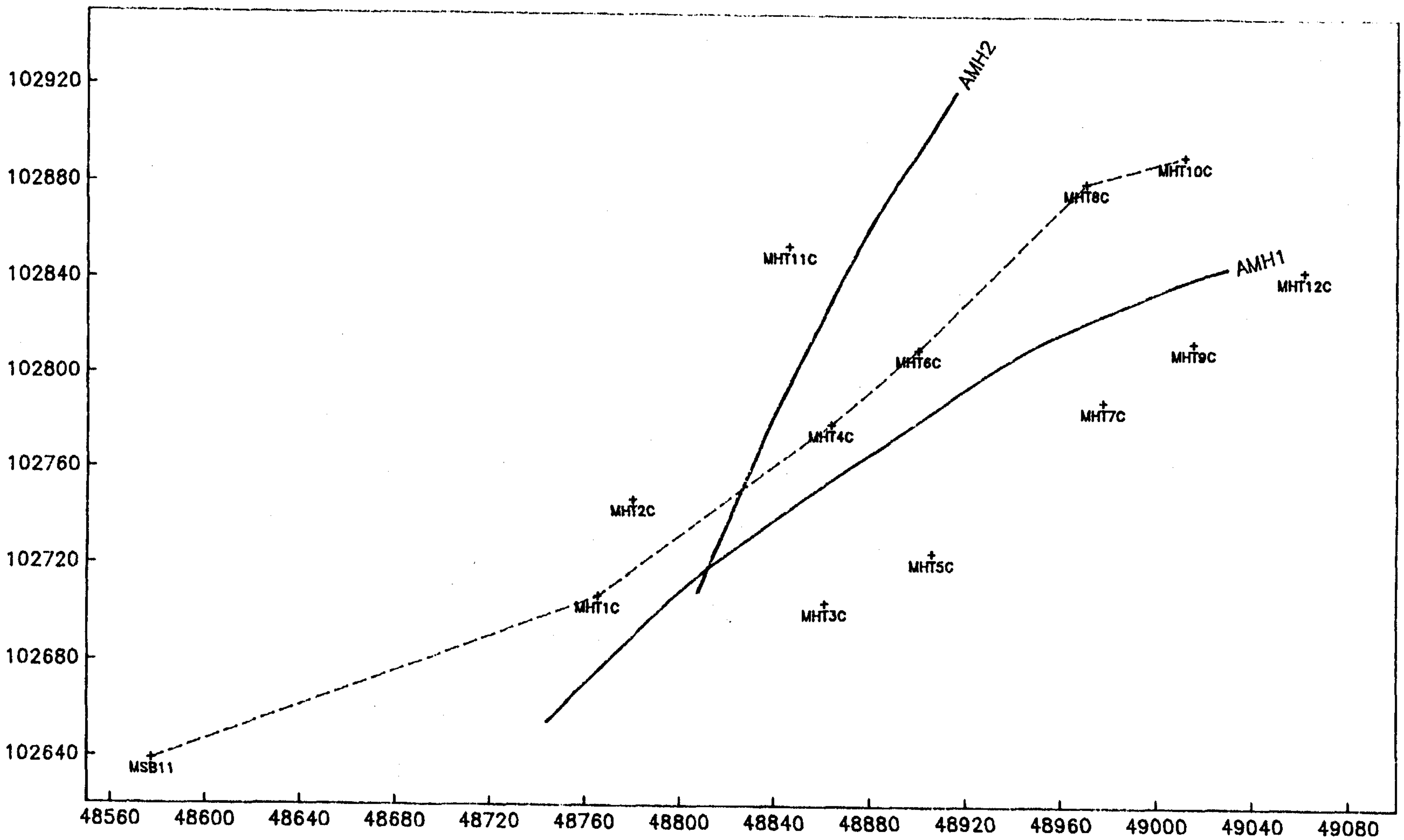
* Picks from MSB11 are based on geophysical data only; core is not available for this well.

Table 7. Picks for the "200-Foot ("green clay") Zone

Well ID	Ground Elevation (ft msl)	Depth Top (ft)	Depth Bottom (ft)	Elevation Top (ft msl)	Elevation Bottom (ft msl)	Unit Thickness (ft)
MHT-1C	362.3	161.0	163.0	201.3	199.3	2.0
MHT-4C	367.2	163.0	166.0	204.2	201.2	3.0
MHT-6C	369.3	168.0	170.0	201.3	199.3	2.0
MHT-8C	368.8	167.0	168.0	201.8	200.8	1.0
MHT-10C	368.4	166.0	168.0	202.4	200.4	2.0
MSB11*	363.0	163.0	167.0	200.0	196.0	4.0

* Picks from MSB11 are based on geophysical data only; core is not available for this well.

Figure 2. Location of Cross Section Relative to MHT Well Clusters



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102840
102800
102760
102720
102680
102640
48560
48600
48640
48680
48720
48760
48800
48840
48880
48920
48960
49000
49040
49080
AMH2
AMH1
MHT10C
MHT8C
MHT11C
MHT12C
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MHT2C
MHT5C
MHT1C
MHT3C
MSB11

2

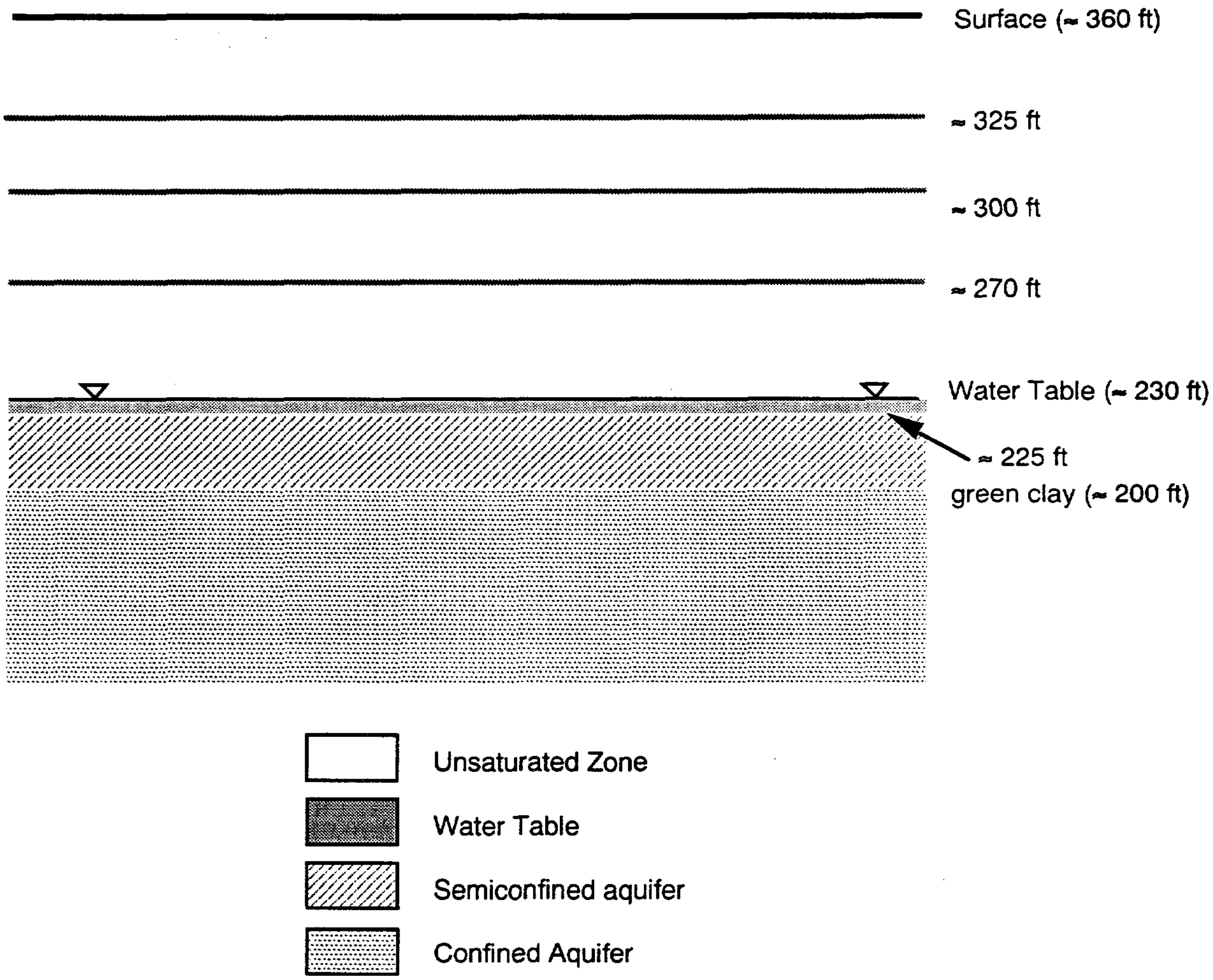


Figure 3. Schematic Diagram Showing Relationship Between Clay Layers and Hydrologic Features (from Eddy et al. 1991)

Geotechnical Characteristics of Undisturbed Samples

Methods

Undisturbed samples for geotechnical laboratory testing were collected with thin-walled samplers (Shelby tubes) during post-test characterization. Eighteen samples were collected from six borings. Sampling intervals were chosen so that samples would represent the full range of lithologic variation at the Integrated Demonstration Site (Table 8). Specific parameters determined include the following:

- vertical and horizontal permeability
- specific gravity
- mechanical grain size
- hydrometric grain size for fine grained samples
- Atterberg liquid and plastic limits
- water retention characteristics, including both drainage and wetting curves
- unconfined compressive strength
- porosity
- dry unit weight and moisture content
- total organic carbon, cation exchange capacity, and exchangeable acidity

Results from these studies are included in Tables 9 to 19 and a description of methods used are tabulated in Table 20. Composite samples were used for the sieve and hydrometer analyses, Atterberg limits, specific gravity, and analytical testing to provide representative and uniform samples. Individual portions of each Shelby tube were used for vertical and horizontal permeability, water retention, drainage and wetting, unconfined compressive strength, dry unit weight, moisture content, and unit weight.

Results

Vertical and Horizontal Permeability

Vertical and horizontal permeability tests were performed on a majority of the samples and the data are summarized in Table 9. All of the 18 samples were tested to determine vertical permeability; only samples with a vertical permeability less than 5 x 10^{-4} cm/sec were subsequently tested to determine horizontal permeability (12 of 18). The horizontal permeability specimens determined from samples MHT-1T (31–33-foot depth), MHB-4T (40–42 feet), and MHT-11C (165–167.75 feet) were trimmed from the vertical specimens because of the lack of suitable materials. The permeability measured in sample MHT-1T (31–33 feet) was not representative of the core material because the wax used to seal the sample tubes in the field had penetrated the measured material. The actual permeability of this sample was estimated to be no higher than approximately one-half to one order of magnitude greater.

Vertical permeability ranged from 6.2 x 10^{-9} to 1.5 x 10^{-3} cm/sec, and horizontal permeability from 1.2 x 10^{-8} to 1.2 x 10^{-4} cm/sec. The measured values of horizontal and vertical permeability agreed within an order of magnitude for all samples where both parameters were measured. This indicated that the permeability distribution over a 6-inch core was relatively homogeneous. It is anticipated that at larger scale, the variation in permeability in the vertical relative to the horizontal should increase because of the layered structure of the sediments.

Specific Gravity

The specific gravities of the samples ranged from 2.53 to 2.72. This is a typical range for soil and sediments. The data are presented in Table 10.

Mechanical Grain Size

The majority of the 18 samples tested for mechanical grain size were classified as sand or silt and clay. The results are presented in Table 11.

Hydrometer Analysis

The hydrometer analysis was performed on only seven fine-grained samples (i.e., those samples that had more than 25% of the sample passing the #200 sieve, as determined during the mechanical grain-size testing). The results of these data are presented in Table 12.

Atterberg Liquid and Plastic Limits

Eleven samples were tested for Atterberg liquid and plastic limits. Samples judged to be non-plastic based on visual and grain-size characterization were not tested for Atterberg limits. The range of liquid limits for the soil samples tested were between 28% and 95%. Plastic limits varied between 18% and 31%. The results of these analysis are presented in Table 13. Coefficients of uniformity and curvature are presented for samples that had low liquid and plastic limits or were non-plastic.

Water Retention—Drainage and Wetting

Drainage and wetting water retention tests were performed on the soil samples. The results of these tests are presented in Tables 14 and 15.

Unconfined Comprehensive Strength

Seventeen samples were tested for unconfined compressive strength. One sample was not tested because of deterioration prior to testing. Results of the unconfined compressive strength tests ranged from 0.47 to 31.39 psi. The data are presented in Table 16.

Porosity

The porosity of samples tested for horizontal and vertical permeability was measured for each tested sample. Porosity ranged from 34.7% to 66.7% for the vertical samples and from 34.8% to 74.2% for the horizontal samples. As expected, the porosity was higher in the clay-rich samples. Differences in porosity within a given sample tested for horizontal and vertical permeability was due to the fact that different portions of the same Shelby tube sample were analyzed. The results are presented in Table 17.

Dry Unit Weight, Moisture Content, and Unit Weight

Dry unit weight and moisture content were measured for each geotechnical specimen tested for hydraulic conductivity and unconsolidated compressive strength. The differences measured within a sample can be attributed to using different portions of the same Shelby tube for determination of horizontal and vertical conductivity. These data are presented in Table 18. Moisture contents were measured from composite samples and were not considered representative of field measurements.

Total Organic Carbon, Cation Exchange Capacity, and Exchangeable Acidity

Total organic carbon levels ranged from nondetectable to 4000 mg/kg and exchangeable acidity from nondetectable to 4200 mg/kg. The measured values for cation exchange capacity were between 2.3 and 21 meq/100 g. These data are presented in Table 19.

Table 8. Stratigraphic Unit and Soil Classification for Samples Selected for Analysis

Sample No. (depth in ft)	Stratigraphic Unit	Soil Classification
MHB-1T (31–33)	Upland Unit	clayey sand
MHB-1T (40–42)	Upland Unit	sandy fat clay
MHB-1T (56–58)	Tobacco Road Sand	silty sand
MHB-1T (80–82)	Dry Branch Formation	poorly graded sand w/ silt
MHB-1T (100–102)	Santee Formation	poorly graded sand w/ silt
MHB-1T (110–112)	Santee Formation	sandy fat clay
MHB-1T (130–131.3)	Santee Formation	poorly graded sand w/ silt
MHB-4T (40–42)	Upland Unit	sandy fat clay
MHB-4T (60–62)	Tobacco Road Sand	clayey sand
MHB-4T (70–72)	Dry Branch Formation	clayey sand
MHB-4T (80–82)	Dry Branch Formation	poorly graded sand w/ silt
MHB-4T (110–112)	Santee Formation	sandy fat clay
MHB-8T (155–157)	Warley Hill Formation	silty sand
MHB-8T (170–171)	Warley Hill Formation	clayey sand
MHT-10B (201–201.7)	Congaree Formation	poorly graded sand w/ silt
MHT-11C (165–167.75)	Warley Hill Formation	clayey sand
MHT-11C (200–202.4)	Congaree Formation	poorly graded sand w/ silt
MHT-12C (200–202.2)	Congaree Formation	poorly graded sand

Table 9. Vertical and Horizontal Permeability

Sample No. (depth in ft)	Soil Classification	Vertical Permeability (cm/sec)	Horizontal Permeability (cm/sec)
MHB-1T (31–33)*	clayey sand	1.8×10^{-8}	4.5×10^{-8}
MHB-1T (40–42)	sandy fat clay	3.5×10^{-8}	4.2×10^{-8}
MHB-1T (56–58)	silty sand	3.3×10^{-4}	7.8×10^{-5}
MHB-1T (80–82)	poorly graded sand w/ silt	1.5×10^{-3}	NT
MHB-1T (100–102)	poorly graded sand w/ silt	5.5×10^{-4}	NT
MHB-1T (110–112)	sandy fat clay	4.0×10^{-4}	NT
MHB-1T (130–131.3)	poorly graded sand w/ silt	1.1×10^{-3}	NT
MHB-4T (40–42)	sandy fat clay	4.0×10^{-7}	3.7×10^{-7}
MHB-4T (60–62)	clayey sand	5.6×10^{-4}	NT
MHB-4T (70–72)	clayey sand	4.0×10^{-5}	1.9×10^{-5}
MHB-4T (80–82)	poorly graded sand w/ silt	1.4×10^{-3}	NT
MHB-4T (110–112)	sandy fat clay	6.2×10^{-9}	1.2×10^{-8}
MHB-8T (155–157)	silty sand	3.4×10^{-7}	3.4×10^{-7}
MHB-8T (170–171)	clayey sand	4.0×10^{-7}	5.5×10^{-7}
MHT-10B (201–201.7)	poorly graded sand w/ silt	4.3×10^{-5}	4.5×10^{-5}
MHT-11C (165–167.75)	clayey sand	1.9×10^{-7}	5.6×10^{-6}
MHT-11C (200–202.4)	poorly graded sand w/ silt	2.5×10^{-4}	8.5×10^{-5}
MHT-12C (200–202.2)	poorly graded sand	3.8×10^{-4}	1.2×10^{-4}

Only samples exhibiting a permeability less than 5×10^{-4} cm/sec were tested for horizontal permeability.

NT Sample was not tested.

* This sample was found to have a wax intrusion. Actual permeabilities may be approximately one-half to one order of magnitude higher.

Table 10. Specific Gravity

Sample No. (depth in ft)	Soil Classification	Specific Gravity
MHB-1T (31–33)	clayey sand	2.59
MHB-1T (40–42)	sandy fat clay	2.62
MHB-1T (56–58)	silty sand	2.62
MHB-1T (80–82)	poorly graded sand w/ silt	2.59
MHB-1T (100–102)	poorly graded sand w/ silt	2.60
MHB-1T (110–112)	sandy fat clay	2.72
MHB-1T (130–131.3)	poorly graded sand w/ silt	2.61
MHB-4T (40–42)	sandy fat clay	2.62
MHB-4T (60–62)	clayey sand	2.67
MHB-4T (70–72)	clayey sand	2.67
MHB-4T (80–82)	poorly graded sand w/ silt	2.53
MHB-4T (110–112)	sandy fat clay	2.66
MHB-8T (155–157)	silty sand	2.65
MHB-8T (170–171)	clayey sand	2.65
MHT-10B (201–201.7)	poorly graded sand w/ silt	2.62
MHT-11C (165–167.75)	clayey sand	2.71
MHT-11C (200–202.4)	poorly graded sand w/ silt	2.63
MHT-12C (200–202.2)	poorly graded sand	2.62

Table 11. Mechanical Grain Size (Percent Passing by Weight)

Sample No. (depth in ft)	Soil Classification	Gravel (%)	Sand (%)			Silt & Clay (%)
		Fine	Coarse	Medium	Fine	
MHB-1T (31–33)	clayey sand	6.4	13.5	45.9	15.2	19.0
MHB-1T (40–42)	sandy fat clay	-	1.1	12.8	22.4	63.7
MHB-1T (56–58)	silty sand	-	-	3.4	74.9	21.7
MHB-1T (80–82)	poorly graded sand w/ silt	-	0.2	43.8	47.4	8.6
MHB-1T (100–102)	poorly graded sand w/ silt	-	1.1	37.2	52.1	9.6
MHB-1T (110–112)	sandy fat clay	-	0.2	12.4	17.5	69.9
MHB-1T (130–131.3)	poorly graded sand w/ silt	-	0.7	56.7	36.4	6.2
MHB-4T (40–42)	sandy fat clay	-	-	0.6	43.4	56.0
MHB-4T (60–62)	clayey sand	4.6	7.7	54.2	18.4	15.1
MHB-4T (70–72)	clayey sand	-	0.2	7.9	64.5	27.4
MHB-4T (80–82)	poorly graded sand w/ silt	0.4	0.1	42.3	49.8	7.4
MHB-4T (110–112)	sandy fat clay	-	0.2	7.4	40.5	51.9
MHB-8T (155–157)	silty sand	-	3.2	27.2	50.4	19.2
MHB-8T (170–171)	clayey sand	-	1.6	21.0	45.6	31.8
MHT-10B (201–201.7)	poorly graded sand w/ silt	-	0.2	26.3	66.8	6.7
MHT-11C (165–167.75)	clayey sand	0.3	4.9	13.0	32.9	48.9
MHT-11C (200–202.4)	poorly graded sand w/ silt	-	0.4	9.3	83.4	6.9
MHT-12C (200–202.2)	poorly graded sand	-	0.7	33.9	61.0	4.4

Table 12. Hydrometer Analysis (Percent Passing)

Sample No. (Depth)	Soil Classification	<0.05 (mm)	0.05 (mm)	0.02 (mm)	0.005 (mm)	0.002 (mm)
MHB-1T (31–33)	clayey sand	5.5	8.6	5.8	6.5	37.3
MHB-1T (40–42)	sandy fat clay	NT	NT	NT	NT	NT
MHB-1T (56–58)	silty sand	NT	NT	NT	NT	NT
MHB-1T (80–82)	poorly graded sand w/ silt	NT	NT	NT	NT	NT
MHB-1T (100–102)	poorly graded sand w/ silt	NT	NT	NT	NT	NT
MHB-1T (110–112)	sandy fat clay	8.2	12.7	5.5	6.0	37.5
MHB-1T (130–131.3)	poorly graded sand w/ silt	NT	NT	NT	NT	NT
MHB-4T (40–42)	sandy fat clay	7.6	10.1	5.0	5.0	28.3
MHB-4T (60–62)	clayey sand	NT	NT	NT	NT	NT
MHB-4T (70–72)	clayey sand	3.4	4.0	2.5	7.3	10.2
MHB-4T (80–82)	poorly graded sand w/ silt	NT	NT	NT	NT	NT
MHB-4T (110–112)	sandy fat clay	3.7	4.0	8.4	9.2	26.6
MHB-8T (155–157)	silty sand	NT	NT	NT	NT	NT
MHB-8T (170–171)	clayey sand	7.3	8.9	3.1	1.8	10.7
MHT-10B (201–201.7)	poorly graded sand w/ silt	NT	NT	NT	NT	NT
MHT-11C (165–167.75)	clayey sand	9.7	12.1	6.3	4.2	16.6
MHT-11C (200–202.4)	poorly graded sand w/ silt	NT	NT	NT	NT	NT
MHT-12C (200–202.2)	poorly graded sand	NT	NT	NT	NT	NT

Only sample with greater than 25% percent passing the #200 sieve during the mechanical grain size analysis were tested for hydrometric grain size.
NT Sample was not tested.

Table 13. Atterberg Liquid and Plastic Limits (Percent Water)

Sample No. (depth in ft)	Soil Classification	Liquid Limit	Plastic Limit	Placticity Index	Coefficient of Uniformity	Coefficientof Curvature
MHB-1T (31–33)	clayey sand	73.0	28.0	45.0	NT	NT
MHB-1T (40–42)	sandy fat clay	65.0	28.0	37.0	NT	NT
MHB-1T (56–58)	silty sand	39.0	26.0	13.0	NT	NT
MHB-1T (80–82)	poorly graded sand w/ silt	NT	NT	NT	4.35	1.57
MHB-1T (100–102)	poorly graded sand w/ silt	28.0	24.0	4.0	5.16	1.33
MHB-1T (110–112)	sandy fat clay	80.0	31.0	49.0	NT	NT
MHB-1T (130–131.3)	poorly graded sand w/ silt	NT	NT	NT	3.75	1.28
MHB-4T (40–42)	sandy fat clay	54.0	26.0	28.0	NT	NT
MHB-4T (60–62)	clayey sand	46.0	26.0	20.0	NT	NT
MHB-4T (70–72)	clayey sand	47.0	26.0	21.0	NT	NT
MHB-4T (80–82)	poorly graded sand w/ silt	NT	NT	NT	3.03	1.34
MHB-4T (110–112)	sandy fat clay	95.0	31.0	64.0	NT	NT
MHB-8T (155–157)	silty sand	37.0	25.0	12.0	NT	NT
MHB-8T (170–171)	clayey sand	31.0	20.0	11.0	NT	NT
MHT-10B (201–201.7)	poorly graded sand w/ silt	NT	NT	NT	3.6	1.17
MHT-11C (165–167.75)	clayey sand	36.0	18.0	NT	NT	NT
MHT-11C (200–202.4)	poorly graded sand w/ silt	NT	NT	NT	2.53	1.38
MHT-12C (200–202.2)	poorly graded sand	NT	NT	NT	3.25	1.16

Samples identified as non-plastic by visual and grain-size characterizations were not tested for Atterberg liquid and plastic limits. Coefficients of uniformity and curvature are presented for these samples along with the sample exhibiting the lowest plasticity.
NT Sample was not tested.

Table 14. Water Retention—Drainage

		Applied Pressure / Suction (Bars)						
Sample No. (depth in ft)	Soil Classification	0 (sat)	0.05	0.1	0.3	0.5	1	5
		Retained Water (% By Volume)						
MHB-1T (31–33)	clayey sand	43.5	29.8	29.9	17.7	16.1	14.4	11.5
MHB-1T (40–42)	sandy fat clay	42.8	42.1	41.9	41.3	41.3	41.0	38.6
MHB-1T (56–58)	silty sand	42.4	29.6	25.6	21.0	19.5	17.5	10.7
MHB-1T (80–82)	poorly graded sand w/ silt	39.6	27.9	24.6	20.5	19.0	17.1	10.5
MHB-1T (100–102)	poorly graded sand w/ silt	42.1	21.4	20.0	17.9	17.3	15.4	9.7
MHB-1T (110–112)	sandy fat clay	44.0	5.4	4.8	4.4	4.4	4.2	3.6
MHB-1T (130–131.3)	poorly graded sand w/ silt	46.2	18.1	16.9	15.6	15.3	14.3	12.5
MHB-4T (40–42)	sandy fat clay	43.0	36.9	36.2	33.9	32.9	29.8	22.8
MHB-4T (60–62)	clayey sand	42.8	16.5	15.4	13.8	13.3	12.2	8.3
MHB-4T (70–72)	clayey sand	46.2	34.7	31.8	28.0	27.0	25.3	19.4
MHB-4T (80–82)	poorly graded sand w/ silt	41.3	24.9	24.1	22.8	22.3	21.2	12.8
MHB-4T (110–112)	sandy fat clay	71.5	65.2	64.3	63.1	62.8	62.1	57.2
MHB-8T (155–157)	silty sand	39.9	35.2	34.7	33.3	28.6	23.8	12.1
MHB-8T (170–171)	clayey sand	38.0	33.4	32.3	28.3	26.0	22.7	10.5
MHT-10B (201–201.7)	poorly graded sand w/ silt	42.6	39.8	38.0	31.7	28.3	25.7	15.0
MHT-11C (165–167.75)	clayey sand	34.8	30.6	29.3	27.3	26.6	24.8	16.4
MHT-11C (200–202.4)	poorly graded sand w/ silt	40.8	31.9	26.7	20.2	18.4	16.8	11.6
MHT-12C (200–202.2)	poorly graded sand	39.6	24.8	15.0	8.7	7.2	6.1	0.4

Table 15. Water Retention—Wetting

Sample No. (depth in ft)	Soil Classification	Applied Pressure / Suction (Bars) 0(Sat)	0.05	0.1	0.3	0.5	1	5
		Retained Water (% By Volume)						
MHB-1T (31–33)	clayey sand	36.9	23.3	19.1	14.5	13.1	12.0	11.5
MHB-1T (40–42)	sandy fat clay	42.6	41.2	40.8	40.2	40.2	39.7	38.6
MHB-1T (56–58)	silty sand	32.7	21.0	18.0	15.3	14.7	13.9	10.7
MHB-1T (80–82)	poorly graded sand w/ silt	29.6	15.8	14.5	12.9	11.1	11.0	10.5
MHB-1T (100–102)	poorly graded sand w/ silt	35.4	13.5	12.4	11.2	11.2	10.5	9.7
MHB-1T (110–112)	sandy fat clay	33.0	4.5	4.0	3.9	3.8	3.7	3.6
MHB-1T (130–131.3)	poorly graded sand w/ silt	39.8	15.7	14.6	14.0	13.3	13.2	12.5
MHB-4T (40–42)	sandy fat clay	36.9	32.8	31.2	27.9	26.8	25.1	22.8
MHB-4T (60–62)	clayey sand	29.7	13.2	12.5	11.1	10.7	9.7	8.3
MHB-4T (70–72)	clayey sand	34.6	27.1	24.9	22.7	22.1	21.2	19.4
MHB-4T (80–82)	poorly graded sand w/ silt	29.4	19.3	17.9	16.7	16.4	15.7	12.8
MHB-4T (110–112)	sandy fat clay	67.5	63.6	62.1	60.5	60.0	59.2	57.2
MHB-8T (155–157)	silty sand	29.2	23.5	17.3	14.6	13.5	12.2	12.1
MHB-8T (170–171)	clayey sand	29.2	25.0	21.1	16.9	16.0	14.9	10.5
MHT-10B (201–201.7)	poorly graded sand w/ silt	33.7	21.0	18.7	17.8	17.5	17.1	15.0
MHT-11C (165–167.75)	clayey sand	30.1	25.3	23.4	21.0	20.6	19.6	16.4
MHT-11C (200–202.4)	poorly graded sand w/ silt	32.2	17.7	14.4	13.5	13.0	12.9	11.6
MHT-12C (200–202.2)	poorly graded sand	28.1	4.6	3.0	2.6	2.6	2.4	0.4

Table 16. Unconfined Compressive Strength

Sample No. (Depth)	Soil Classification	Unconfined Strength (psi)
MHB-1T (31–33)	clayey sand	1.10
MHB-1T (40–42)	sandy fat clay	15.34
MHB-1T (56–58)	silty sand	3.83
MHB-1T (80–82)	poorly graded sand w/ silt	0.78
MHB-1T (100–102)	poorly graded sand w/ silt	1.24
MHB-1T (110–112)	sandy fat clay	0.78
MHB-1T (130–131.3)	poorly graded sand w/ silt	NT
MHB-4T (40–42)	sandy fat clay	31.39
MHB-4T (60–62)	clayey sand	1.08
MHB-4T (70–72)	clayey sand	4.18
MHB-4T (80–82)	poorly graded sand w/ silt	0.47
MHB-4T (110–112)	sandy fat clay	6.48
MHB-8T (155–157)	silty sand	11.00
MHB-8T (170–171)	clayey sand	6.43
MHT-10B (201–201.7)	poorly graded sand w/ silt	1.86
MHT-11C (165–167.75)	clayey sand	18.83
MHT-11C (200–202.4)	poorly graded sand w/ silt	2.34
MHT-12C (200–202.2)	poorly graded sand	1.56

NT Sample was not tested because of sample deterioration prior to testing.

Table 17. Vertical and Horizontal Porosity

Sample No. (depth in ft)	Soil Classification	Vertical Porosity (%)	Horizontal Porosity (%)
MHB-1T (31–33)	clayey sand	39.6	42.9
MHB-1T (40–42)	sandy fat clay	42.2	43.1
MHB-1T (56–58)	silty sand	44.8	38.2
MHB-1T (80–82)	poorly graded sand w/ silt	36.6	NT
MHB-1T (100–102)	poorly graded sand w/ silt	41.5	NT
MHB-1T (110–112)	sandy fat clay	43.1	NT
MHB-1T (130–131.3)	poorly graded sand w/ silt	39.5	NT
MHB-4T (40–42)	sandy fat clay	40.0	38.0
MHB-4T (60–62)	clayey sand	38.9	NT
MHB-4T (70–72)	clayey sand	43.3	40.1
MHB-4T (80–82)	poorly graded sand w/ silt	39.0	NT
MHB-4T (110–112)	sandy fat clay	66.7	74.2
MHB-8T (155–157)	silty sand	35.8	35.5
MHB-8T (170–171)	clayey sand	34.7	34.8
MHT-10B (201–201.7)	poorly graded sand w/ silt	40.2	36.9
MHT-11C (165–167.75)	clayey sand	38.1	36.0
MHT-11C (200–202.4)	poorly graded sand w/ silt	41.5	36.9
MHT-12C (200–202.2)	poorly graded sand	39.4	35.4

NT Sample was not tested.

Table 18. Dry Unit Weight, Moisture Content, and Unit Weight

Sample No. (depth in ft)	Soil Classification	Dry Unit Weight (pcf)	Horizontal Moisture Content (%)**	Unit Weight (pcf)	Hydraulic Conductivity Test Dry Unit Weight (pcf)	Vertical Moisture Content (%)	Unit Weight (pcf)
MHB-1T (31–33)	clayey sand	92.3	14.9	106.1	97.7	12.8	110.2
MHB-1T (40–42)	sandy fat clay	93.1	27.3	118.5	94.6	27.3	120.4
MHB-1T (56-58)	silty sand	101.1	16.3	117.6	90.2	16.3	104.9
MHB-1T (80–82)	poorly graded sand w/ silt	NT	NT	*	102.5	8.8	111.5
MHB-1T (100–102)	poorly graded sand w/ silt	NT	NT	*	95.0	13.7	108.0
MHB-1T (110–112)	sandy fat clay	NT	NT	*	97.7	3.4	101.0
MHB-1T (130–131.3)	poorly graded sand w/ silt	NT	NT	*	98.6	11.9	110.3
MHB-4T (40–42)	sandy fat clay	101.3	22.7	124.3	101.1	22.3	123.6
MHB-4T (60–62)	clayey sand	NT	NT	*	101.9	8.9	111.0
MHB-4T (70–72)	clayey sand	99.8	23.6	123.4	94.5	20.7	114.1
MHB-4T (80–82)	poorly graded sand w/ silt	NT	NT	*	96.8	15.0	111.3
MHB-4T (110–112)	sandy fat clay	42.9	72.4	74.0	55.3	69.0	93.5
MHB-8T (155–157)	silty sand	106.6	20.8	128.8	106.2	21.6	129.1
MHB-8T (170–171)	clayey sand	107.9	19.7	129.2	108.0	19.9	129.5
MHT-10B (201–201.7)	poorly graded sand w/ silt	103.2	22.0	125.9	97.9	23.6	121.0
MHT-11C (165–167.75)	clayey sand	108.3	20.3	130.3	104.7	19.8	125.4
MHT-11C (200–202.4)	poorly graded sand w/ silt	98.9	23.1	121.7	96.1	23.1	118.3
MHT-12C (200–202.2)	poorly graded sand	105.6	21.0	127.9	99.1	22.0	120.9

Total unit weight calculated from moisture content and dry unit weight for each test. Differences between tests likely due to use of different portions of the same samples.

NT Sample was not tested.

* Value was not calculated.

** Values do not represent field conditions.

Table 18 Dry Unit Weight, Moisture Content, and Unit Weight (contd)

Sample No. (depth in ft)	Soil Classification	Unconsolidated Compressive Test		
		Dry Unit Weight (pcf)	Moisture Content* (%)	Unit Weight (pcf)
MHB-1T (31–33)	clayey sand	99.5	8.9	108.4
MHB-1T (40–42)	sandy fat clay	97.5	25.3	122.2
MHB-1T (56–58)	silty sand	93.5	16.8	109.2
MHB-1T (80–82)	poorly graded sand w/ silt	102.9	6.9	110.0
MHB-1T (100–102)	poorly graded sand w/ silt	102.1	14.6	117.0
MHB-1T (110–112)	sandy fat clay	98.5	6.1	104.5
MHB-1T (130–131.3)	poorly graded sand w/ silt	NT†	4.2	**
MHB-4T (40–42)	sandy fat clay	105.3	21.8	128.3
MHB-4T (60–62)	clayey sand	101.0	7.4	108.5
MHB-4T (70–72)	clayey sand	96.1	18.9	114.3
MHB-4T (80–82)	poorly graded sand w/ silt	95.7	6.5	101.9
MHB-4T (110–112)	sandy fat clay	58.0	70.3	98.8
MHB-8T (155–157)	silty sand	111.7	19.1	133.0
MHB-8T (170–171)	clayey sand	110.0	18.0	129.8
MHT-10B (201–201.7)	poorly graded sand w/ silt	105.0	22.1	128.2
MHT-11C (165–167.75)	clayey sand	106.1	19.2	126.5
MHT-11C (200–202.4)	poorly graded sand w/ silt	99.3	21.9	121.0
MHT-12C (200–202.2)	poorly graded sand	105.8	21.7	128.8

Total unit weight calculated from moisture content and dry unit weight for each test. Differences between tests likely due to use of different portions of the same samples.

NT Sample was not tested.

* Measured from composite samples not representative of field conditions.

** Value was not calculated.

† Sample deteriorated prior to testing.

Table 19. Total Organic Carbon, Cation Exchange Capacity, and Exchangeable Acidity

Sample No. (depth in ft)	Soil Classification	Total Organic Carbon (mg/kg)	Cation Exchange Capacity (meq/100g)	Exchangeable Acidity (meq/100g)
MHB-1T (31–33)	clayey sand	4000	4.6	890
MHB-1T (40–42)	sandy fat clay	410	8.6	4200
MHB-1T (56–58)	silty sand	150	4.5	1200
MHB-1T (80–82)	poorly graded sand w/ silt	230	2.3	620
MHB-1T (100–102)	poorly graded sand w/ silt	820	3.3	950
MHB-1T (110–112)	sandy fat clay	550	13.0	3100
MHB-1T (130–131.3)	poorly graded sand w/ silt	72	3.5	170
MHB-4T (40–42)	sandy fat clay	170	8.0	310
MHB-4T (60–62)	clayey sand	100	3.8	59
MHB-4T (70–72)	clayey sand	91	6.4	140
MHB-4T (80–82)	poorly graded sand w/ silt	790	3.2	ND
MHB-4T (110–112)	sandy fat clay	270	21.0	3800
MHB-8T (155–157)	silty sand	230	7.3	200
MHB-8T (170–171)	clayey sand	450	5.4	270
MHT-10B (201–201.7)	poorly graded sand w/ silt	160	3.6	210
MHT-11C (165–167.75)	clayey sand	410	7.2	700
MHT-11C (200–202.4)	poorly graded sand w/ silt	160	3.3	ND
MHT-12C (200–202.2)	poorly graded sand	100	3.6	ND

Table 20. Test Methods

Test	Method
Vertical Permeability	Corps of Engineers EM1110-2-1906
Horizontal Permeability	Corps of Engineers EM1110-2-1906
Specific Gravity	ASTM D854
Mechanical Grain Size	ASTM D422
Atterberg Liquid and Plastic Limits	ASTM D422
Water Retention, Drainage Curves	ASTM D2325
Water Retention, Wetting Curves	Material of Soil Analysis Chapter 26
Unconfined Compressive Strength	ASTM D2166
Porosity	Corps of Engineers EM1110-2-1906
Moisture Content	ASTM D2216
Unit Weight	ASTM D2937
Cation Exchange Capacity	Methods of Soil Analysis 57-2.1
Total Organic Carbon	EPA 9060
Exchangeable Acidity	EPA 305.1

Inorganic Geochemistry

Methods

Physical/Chemical Analysis

The physical and chemical nature of the environment is critical to understanding biological phenomena (eg., degradation rates). In addition, some of these parameters have implications on nutrient requirements (phosphorus, nitrogen, iron, and sulfur), effects that the biomass may have on the environment [eg., pH, conductivity, total organic carbon (TOC)]. These measurements are critical to a thorough understanding of the *in situ* bioremediation process and the potential for controlling degradation rates, destruction efficiency, and adverse phenomena. The following data were gathered to better monitor and evaluate the *in situ* bioremediation. All methods were EPA approved and/or in Standard Methods (APHA, 1989). The assays were performed by a subcontractor in an EPA-certified laboratory.

- Iron was determined by inductively coupled plasma-atomic emission spectroscopy with pre-acid digestion (EPA SW-846).
- TOC was determined by the ultraviolet oxidation method (EPA 415.1). Samples will acidified and stored at 4°C prior to analysis.
- Total phosphorus as orthophosphate was determined by the persulfate digestion and ascorbic acid colorimetric determination (EPA 365.2).
- Total Kjeldahl nitrogen, which includes free-ammonia plus organic nitrogen, was determined by the colorimetric method, following digestion, distillation, and the Nesslerization method (EPA 351.3).
- Ammonia as distilled ammonia nitrogen was determined by the colorimetric method, following distillation and the Nesslerization method (EPA 350.2).
- Chloride, nitrate, nitrite, and sulfate was determined by the ion chromatography method (EPA 300.0).

Results

Selected inorganic and organic parameters were measured in samples from a representative number of borings. Samples were collected from MHT-3C, MHT-5C, and MHT-8C during pretest characterization (Table 21) and from the post-test borings MHB-3V, MHB-5T, and MHB-8T (Table 22).

Iron

Iron was detected in all of the samples analyzed. The values ranged from 1270 to 105,000 μg/g with a median value of approximately 8000 ppm for both the pre- and post-test characterization samples. These values are within the range expected for sediments at SRS.

Cation Exchange Capacity

Cation exchange capacities ranged from 10 to 55 meq/100g with a median value of 35 for pretest samples and 38 for post-test samples. These values are consistent with past studies at SRS and with values measured from samples collected for geotechnical analysis (Table 19).

Nitrogen

Concentrations of nitrite and nitrate in the soil were below detectable limits (<1 ppm) for all samples (Figure ??). Total nitrogen was also very low, usually <20 ppm (Figure ??). Samples taken closest to the surface had the highest total nitrogen; higher concentrations in the subsurface were usually associated with clayey sediments. The nitrogen concentrations observed are quite low and suggest that, biologically, the sediment is a nitrogen-limited environment. The decreases in total nitrogen with depth further suggest nitrogen limitations resulting from microbial denitrification. The median value of post-test nitrogen was not significantly different from the pretest value. The higher concentrations of total nitrogen observed in strata with lower porosity suggests that these environments are less optimal for microbial growth (see supporting data in Microbiology section) and thus allow total nitrogen persistence (i.e., less denitrification).

pH

Measured values for pH ranged from 4–6 in most of the samples. Higher values were observed in samples collected by mud rotary drilling because of the infiltration of the drilling mud.

Total Phosphorus as Orthophosphate

Phosphate was detected in most all of the samples analyzed and ranged from 20 to 1740 ppm with a median value of 160 for pretest samples and 132 for post-test samples. These values are higher than anticipated and probably reflect the presence of mineral phases such as apatite derived from igneous sources. This phosphate cannot be effectively used as a nutrient source by microorgansms, and in spite of relatively high concentrations, phosphate may be a limiting nutrient.

Sulfate

Sulfate was detected in all samples and measured values ranged from 15 to 543 μg/g.

Total Organic Carbon

TOC was detected in all samples, ranging from 29 to 6790 μg/g in pretest samples and from 9 to 954 μg/g in post-test samples. High values were found in shallow sediments and tended to decrease with depth. The median value of 115 μg/g for pretest samples decreased to 9 μg/g in post-test samples and may reflect microbial utilization of carbon.

Table 21. Pretest Results from Selected Organic and Inorganic Parameters Measured in Samples from Borings

Well	Depth (ft)	Iron (ppm)	CEC (meq/ 100g)	Total N2 (ppm)	NO2 (ppm)	NO3 (ppm)	pH	PO4 (ppm)	SO4 (ppm)	TOC (ppm)
MHT-3C	3	1730	3.3	37.6	<1	<1	5.77	98.0	30.2	390
MHT-3C	7	22800	3.3	54.4	<1	<1	5.04	181.0	18.8	530
MHT-3C	15	22900	3.3	18.2	<1	<1	4.88	99.0	163.0	270
MHT-3C	25	20200	8.2	14.8	<1	<1	4.93	92.0	243.0	230
MHT-3C	35	1550	8.2	10.0	<1	<1	4.91	20.4	173.0	51
MHT-3C	47	3610	4.1	10.0	<1	<1	5.03	34.8	15.0	16
MHT-3C	57	8050	3.5	10.0	<1	<1	4.98	64.0	79.4	29
MHT-3C	65	11300	8.2	10.0	<1	<1	4.96	1640.0	138.0	37
MHT-3C	73	6220	3.9	10.0	<1	<1	5.06	188.0	139.0	9
MHT-3C	85	4650	3.3	10.0	<1	<1	5.33	208.0	83.8	30
MHT-3C	115	29800	8.2	54.0	<1	<1	5.25	480.0	108.0	381
MHT-5C	5	16800	4.6	94.0	<1	4.8	5.09	108.0	146.0	640
MHT-5C	15	23200	4.6	27.4	<1	<1	5.22	78.0	36.8	710
MHT-5C	25	22200	8.2	10.0	<1	<1	5.34	38.0	57.4	110
MHT-5C	45	21300	8.2	13.4	<1	<1	5.35	36.0	62.6	140
MHT-5C	55	5590	2.7	10.0	<1	<1	5.33	30.8	15.6	39
MHT-5C	65	9870	3.7	10.0	<1	<1	5.34	34.4	15.4	28
MHT-5C	75	3460	1.6	10.0	<1	<1	5.35	156.0	19.6	24
MHT-5C	85	5460	1.6	10.0	<1	<1	5.35	192.0	64.8	56
MHT-5C	93	10200	1.6	16.0	<1	<1	5.24	180.0	80.4	42
MHT-5C	101	3660	1.6	10.0	<1	<1	4.25	340.0	45.4	39
MHT-5C	117	7670	2.2	18.0	<1	<1	4.99	228.0	71.4	56
MHT-5C-MR	126	ND	1.6	86.0	<1	<1	5.28	536.0	48.2	111
MHT-5C-MR	138	5440	N.D.	10.0	<1	<1	6.50	308.0	25.8	44
MHT-5C-MR	162	24200	6.1	143.0	<1	<1	5.19	12.0	78.0	250
MHT-5C-MR	187	7750	3.3	110.0	<1	<1	5.74	192.0	17.6	540
MHT-8C	5	4380	1.7	44.8	<1	<1	5.09	112.0	26.0	340
MHT-8C	15	15700	5.3	34.2	<1	<1	5.12	96.0	15.0	368
MHT-8C	25	24200	8.2	25.8	<1	<1	5.29	132.0	16.6	230
MHT-8C	35	24600	8.2	16.8	<1	<1	5.28	108.0	48.8	224
MHT-8C	65	6720	3.5	10.0	<1	<1	5.40	66.4	15.0	29
MHT-8C	75	9480	4.7	12.2	<1	<1	5.71	332.0	17.8	42
MHT-8C	85	6360	1.6	10.0	<1	<1	5.63	264.0	15.0	50
MHT-8C	95	2670	3.3	10.0	<1	<1	5.60	120.0	15.0	26
MHT-8C	105	6580	3.3	11.6	<1	<1	5.35	224.0	15.0	218
MHT-8C	113	16400	26.3	110.0	<1	<1	5.21	248.0	15.0	250
MHT-8C	125	14800	3.3	12.2	<1	<1	5.90	1100.0	37.6	75
MHT-8C-MR	134	3950	3.3	10.0	<1	<1	7.98	92.0	31.4	42
MHT-8C-MR	144	18900	3.3	10.0	<1	<1	5.66	412.0	19.6	67
MHT-8C-MR	154	1270	3.3	10.0	<1	<1	7.35	108.0	30.0	38
MHT-8C-MR	164	24200	4.7	100.0	<1	<1	4.59	240.0	15.8	330
MHT-8C-MR	174	4580	3.3	22.6	<1	<1	5.89	160.0	35.6	194
MHT-8C-MR	184	7930	5.1	12.2	<1	<1	5.52	272.0	32.6	954
Maximum		29800	26.3	143.0	<1	4.8	7.98	92.0	243.0	954
Minimum		1270	1.6	10.0	<1	<1	4.25	20.4	15.0	9
Median		7990	3.5	12.2	--	--	5.29	160.0	35.6	67

Table 22. Post-test Results from Selected Organic and Inorganic Parameters Measured in Samples from Borings

Well	Depth (ft)	Iron (ppm)	CEC (meq/ 100g)	Total N2 (ppm)	NO2 (ppm)	NO3 (ppm)	pH	PO4 (ppm)	SO4 (ppm)	TOC (ppm)
MHB-3V	3	4120	8.20	10.2	<1	2.8	8.15	124.0	15.0	6790
MHB-3V	15	18700	8.20	58.0	<1	<1	5.12	236.0	15.0	510
MHB-3V	27	12800	8.20	15.8	<1	<1	5.02	111.0	23.0	189
MHB-3V	39	3650	4.10	10.0	<1	<1	5.05	92.8	27.2	70
MHB-3V	51	8930	8.20	10.0	<1	<1	5.41	63.6	28.4	121
MHB-3V	63	5320	2.79	10.6	<1	<1	4.99	48.8	15.0	44
MHB-3V	75	10400	10.20	ND	<1	<1	5.35	ND	33.0	2910
MHB-3V	87	4170	1.64	10.0	<1	<1	5.28	20.4	45.0	65
MHB-3V	99	17300	4.10	36.8	<1	<1	4.83	432.0	92.0	145
MHB-3V	111	5550	55.10	111.0	<1	<1	4.86	336.0	15.0	310
MHB-3V	123	105000	3.28	10.0	<1	<1	5.19	324.0	43.6	65
MHB-5T	3	3140	3.28	162.0	<1	<1	6.03	96.0	15.0	2480
MHB-5T	15	19300	6.32	34.6	<1	<1	5.1	100.0	26.2	534
MHB-5T	27	5740	3.72	10.0	<1	<1	5	39.6	15.0	64
MHB-5T	39	9610	3.98	10.0	<1	<1	5.13	38.8	15.0	83
MHB-5T	51	10700	6.44	10.0	<1	<1	5.32	54.0	15.4	168
MHB-5T	63	4790	4.84	10.0	<1	<1	5.24	41.6	15.0	70
MHB-5T	75	2410	13.40	10.0	<1	<1	5.43	176.0	15.0	34
MHB-5T	87	3570	3.28	10.0	<1	<1	5.5	176.0	15.0	29
MHB-5T	99	1680	3.28	14.2	<1	<1	5.15	176.0	15.0	40
NHB-5T-MR	111	6840	8.20	50.8	<1	<1	5.45	256.0	38.8	170
MHB-5T-MR	123	63600	8.20	48.0	<1	<1	5.15	1740	44.0	118
MHB-5T-MR	135	8550	2.75	10.0	<1	<1	6.68	540.0	28.8	126
MHB-5T-MR	147	10200	19.80	13.0	<1	<1	5.67	276.0	15.0	320
MHB-5T-MR	159	16300	8.20	54.4	<1	<1	5.13	680.0	15.0	250
MHB-5T-MR	171	4360	1.64	14.6	<1	<1	7.49	140.0	15.0	122
MHB-5T-MR	183	6030	1.69	16.2	<1	<1	7.25	132.0	19.8	112
MHB-5T-MR	195	4570	1.64	35.4	<1	<1	5.9	148.0	15.8	182
MHB-8T	25	22700	16.40	29.0	<1	<1	5.19	180	19.2	267
MHB-8T	37	6130	16.40	11.4	<1	<1	5.09	100	26.2	88
MHB-8T	49	4500	1.81	10.0	<1	<1	5.16	58	15.0	45
MHB-8T	61	4920	1.89	10.0	<1	<1	5.23	55	15.0	43
MHB-8T	73	10400	2.13	10.0	<1	<1	5.05	86	19.0	47
MHB-8T	85	8140	2.44	10.0	<1	<1	5.15	54	16.4	68
MHB-8T	97	3710	2.34	10.0	<1	<1	5.23	116	21.6	44
MHB-8T	109	4580	1.72	10.0	<1	<1	5.16	104	15.0	49
MHB-8T	121	8630	3.28	24.8	<1	<1	5.07	592	19.4	122
MHB-8T	133	6670	1.98	10.0	<1	<1	5.13	224	15.0	40
MHB-8T	145	9970	1.64	10.0	<1	<1	5.11	92	15.0	40
MHB-8T-MR	157	11700	2.51	10.0	<1	<1	6.02	508	30.2	94
MHB-8T-MR	169	33300	8.20	40.4	<1	<1	5.09	640	25.8	332
MHB-8T-MR	181	7960	8.20	32.4	<1	<1	7.14	88	38.0	325
MHB-8T-MR	193	11000	8.20	36.0	<1	<1	5.37	180	22.4	676
Maximum		105000	55.10	162.0	0	2.8	8.15	1740	92.0	6790
Minimum		1680	1.64	10.0	0	0	4.83	20.4	15.0	29
Median		8050	3.85	10.6	0	2.8	5.19	132.0	19.1	115

Aquifer Test

Methods

An aquifer test was performed to measure the hydraulic conductivity of the semi-confined aquifer at the Integrated Demonstration Site. This aquifer is bounded by the bottom of the water table aquifer and the top of the "green clay" confining zone. This zone is characterized by relatively clean sand with minor interbedded clay-rich sand and gravelly sand. Monitoring wells installed in this zone are designated by the suffix "C" (e.g., MHT-6C) and are constructed of 4-inch inner-diameter polyvinyl chloride casing with 5-foot-long screens. The aquifer is approximately 10 feet thick and is located at an elevation of approximately 200–220 feet.

A constant discharge pumping test with multiple observation wells was performed to measure the hydraulic conductivity of the semi-confined aquifer and overlying confining unit. Monitoring well MHT-5C was used as the pumping well and wells MHT-3C, MHT-4C, MHT-9C and MHT-12C were used to observe the change in water level due to pumping (Figure 4). A data logger and pressure transducers were used to measure water levels in the observation wells.

Pumping began on January 30, 1992, at 10:15 a.m. and continued until 12:15 p.m. on January 31, 1992. The average pumping rate during the 26-hour test was 7 gallons per minute. Pumping was stopped when the water level at the pumping well (MHT-5C) was pulled below the screened interval in the well. Groundwater samples were collected from the pumping well during the test and were analyzed for VOCs using a gas chromatograph/mass spectrometer. All groundwater recovered during the test was collected and discharged at a wastewater treatment facility.

Results

A decrease in water level (drawdown) was observed during the aquifer test in only two of the four monitoring wells. Figures 3 and 4 are time-drawdown curves for observation wells MHT-3C and MHT-4C. A decrease in water level was not measured in MHT-9C or MHT-12C.

The drawdown data for MHT-3C was analyzed using both Theis and Hantush methods (Figure 4). The Theis method is a curve-matching method based on a model that assumes the aquifer is completely confined and it does not receive recharge. If an aquifer is not completely confined, the measured drawndown values will deviate from the Theis model at large elapsed times and the predicted drawdown will exceed the observed drawdown. The time drawdown curve for MHT-3C noticeably deviates from the Theis model (Figure 4) indicating that the aquifer is not confined and is being recharged from above or below. The data used for the Theis model are listed in Table 23.

To account for the semi-confined nature of the aquifer, the Hantush method was used to evaluate the drawdown data. The Hantush method is based on the assumptions that the aquifer is recharged from either above or below and that the semi-confining unit separating the aquifer from the recharge zone does not have storage. At the Integrated Demonstration Site, the vertical hydraulic gradient is downward indicating the recharge to the semi-confined aquifer is coming from above (Eddy et al. 1991). The Hantush model is consistent with the observed drawdown data even at large elapsed times (Figure 4). The good fit observed between the Hantush model and the field data indicates that the aquifer is relatively homogeneous between MHT-3C and the pumping well (MHT-5C). The data used in the Hantush model are also listed in Table 21. The properties listed are in the range of values indicative of a thin sandy aquifer overlain by a silty semi-confining unit.

The time drawdown curve (Figure 5) for MHT-4C does not resemble the typical response of a confined or semi-confined aquifer to pumping. A decrease in water level was observed in MHT-4C (74 feet from MHT-5C) before MHT-3C (55 feet from MHT-5C) even though it is 19 feet further away from the pumping well. In addition, the observed drawdown in MHT-4C was in excess of 0.2 feet after only one minute of pumping while MHT3C did not experience comparable drawdown until 2.5 minutes. The early appearance of drawdown in MHT-4C suggests that a high hydraulic zone may be acting as a conduit between MHT-4C and the pumping well. Since MHT-3C responded to pumping as predicted by the model for a homogenous semi-confined aquifer, a high conductivity hydraulic zone probably connects MHT-3C and the pumping well. The hydraulic conductivity between MHT-4C and MHT-5C calculated from the transmissivity ($K = T/B$) is 0.2 feet/min.

Forty-five groundwater samples were collected and analyzed during the aquifer test. Eight VOCs were detected at least once during the test. Table 24 lists the compounds detected and a summary of the results. Since the measured concentrations represent an average value across the screened interval of the monitoring well, it is probable that discrete intervals within the screened interval may have higher concentrations of VOCs. Trichloroethylene (TCE) and tetrachloroethylene (PCE) were detected most often and at higher concentrations. Concentrations of TCE and PCE increased during the first 10 hours of the test, were constant until around 20 hours, and then began to decline. Cis 1,2 -dichloroethylene (DCE), a good indicator of biodegradation, exhibited the same trend as TCE and PCE. The periodic deviations in TCE, PCE, and DCE concentration may be attributed to the arrival of water from a zone within the aquifer that had differences in contaminant concentrations sufficient to impact the integrated sample from the well. Figure 6 is a plot of concentrations of TCE, PCE, and DCE from MHT-5C.

Table 23. Ralph's aquifer properties table

Table 24. VOCs detected and summary of results

Figure 4. Time-Drawdown Curve for Observation Well MHT-3C

Figure 5. Time-Drawdown Curve for Observation Well MHT-4C

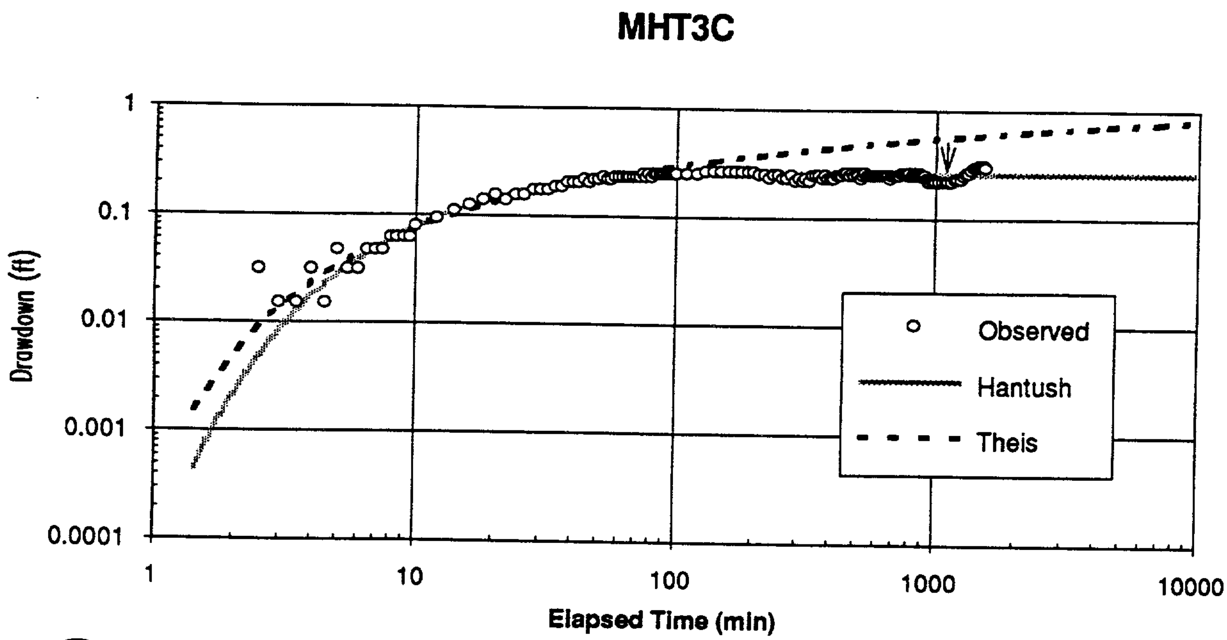


Figure 4. Time-drawdown curve for MHT3C.

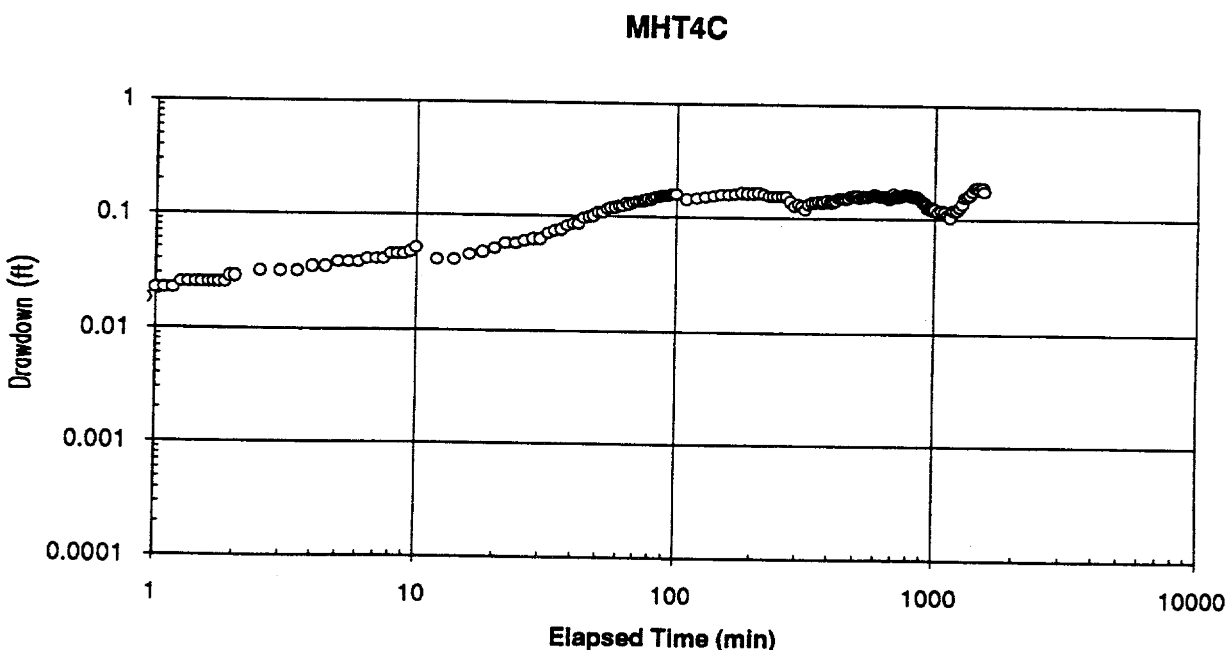


Figure 5. Time-drawdown curve for MHT4C.

Figure 6. Concentrations of TCE, PCE, and DCE from MHT-5C

Sampling and Analysis of Sediment Samples

Sediment samples were collected during post-test characterization activities using the same protocols as the pretest characterization described in Eddy et al. [(1991, Looney et al. (1993), and Looney et al. (in review)]. As before, samples for analysis were collected at 5-foot intervals and, in addition, at all significant lithologic changes in the core. The only change in sampling protocol was that a measured volume of distilled water was added in the field to the sample bottle instead of an ionic solution of sodium sulfate and phosphoric acid. This change was made as a result of a study done during the pretest characterization that showed the analytical results obtained with the different solutions were not statistically different.

VOC analyses were performed on a Hewlett-Packard 5890 Gas Chromatograph with an electron capture detector, an HP 19395A Headspace Sampler, an HP 3392A Networking Integrator, and a 60-m × 0.75-mm inner-diameter Supelco VOCOL wide bore capillary column coated with a 1.5-mm film. The instrument was calibrated using samples spiked with standard solution. Analytical techniques used are presented in detail in Eddy et al. (1991) and Looney, Eddy, and Sims (in review). The only difference in sediment analysis protocol was that the samples were not sonicated prior to analysis. This change was made as a result of a study done during the pretest characterization that showed sonication of sediment samples did not statistically affect analytical results.

Core specimens for microbial analyses were obtained directly from the split spoon or barrel. Cores were sectioned into 3-inch lengths with sterile spatulas and the outermost layer (about 1/4 the diameter of the core) was scraped off using sterile techniques. The sample was then placed in a sterile Whirl-Pak® bag (Ft. Wilkinson, WI) for immediate transport to the laboratory for analysis. All samples shipped offsite for analysis were under a chain of custody.

Microbiology

Methods

Acridine Orange Direct Counts

Acridine orange direct counts (AODC) provide a direct estimate of the total number of bacteria in the environment, regardless of ability to grow on any media that might be used. Samples were preserved in phosphate buffered formalin. Samples (1–3 grams) were extracted three times with a non-ionic homogenizing detergent to remove bacteria from the sediment particles. Homogenates were cleared by low-speed centrifugation and the supernatants pooled. Ten microliters of supernatant was spotted onto each well of a toxoplasmosis microscope slide, stained with 0.01% acridine orange, then rinsed with distilled water. The number of cells stained with acridine orange were counted by epifluorescence microscopy. The number of cells per sample was normalized for soil moisture by dividing by the dry weight of the sediment. Counts were reported as cells per gram dry weight (cells/gdw) (Sinclair and Ghiorse 1989).

Aerobic Heterotrophic Plate Count

The aerobic heterotrophic plate count method provides an estimate of the total number of viable aerobic and facultatively anaerobic bacteria in the sample. Low- and high-nutrient concentrations of a medium were used to indicate differences in bacteria adapted to oligotrophic and eutrophic conditions. Samples (1–3 grams) were weighed directly into 15 mL conical centrifuge tubes containing 9 mL of pyrophosphate buffer. Subsequent serial dilutions were made in phosphate buffered saline. One-tenth milliliter of each appropriate dilution was inoculated onto a corresponding petri plate containing the medium. For this study, 1% and full strength formulation of peptone-trypticase-yeast extract-glucose (PTYG) were used (Balkwill 1989). A glass rake and turntable were used to spread the inoculum evenly over the entire surface of the agar. Plates were incubated at room temperature for at least two weeks prior to counting. Bacterial colonies were counted with the aid of low power magnification. Counts were normalized to sediment dry weights and reported as colony forming units (CFU) per gram.

Methane Enrichment Most Probable Number Enumeration

The methane enrichment most probable number (MPN) enumeration method provides an estimate of the total number of viable aerobic and facultatively anaerobic bacteria capable of living in an enriched methane sediment. Successful bioremediation of trichloroethylene (TCE) and tetrachloroethylene (PCE) can also be measured in terms of increased microbial activity and increased biomass. Biomass can be measured in terms of components that contain TCE-degrading machinery and biomass capable of consuming methane as evidence of stimulation by treatments. MPN enumeration techniques were used to enumerate methanotrophic microorganisms in sediments. Minimal salts media (Fogel et al. 1986) were used with a 10% methane 90% air headspace in Balch tubes sealed with black butyl rubber stoppers. A three-tube, five-dilution MPN was done on sediment samples. For sediments, approximately 5–10 grams were used in the first tube of the dilution. Tubes were incubated for 4–6 weeks depending upon initial results from control tubes. A set of 4–5 control tubes were set up at the same time as the MPNs. The headspace methane concentrations in the control tubes were averaged, and the standard deviation represented the lower limit of methane removal needed to count as a positive tube in the MPNs.

Enzyme Analysis

Enzymes are the principal biologically active compounds responsible for nearly all biodegradation and cell metabolic and catabolic activities. The concentration of enzymes found in a sample are indicative of the biological activity of a particular soil or water sample.

Phosphatases are important adaptive, extracellular enzymes produced by a wide variety of organisms in response to phosphorous limitation. The enzyme analysis method measures the hydrolysis of a surrogate substrate, disodium p-nitrophenyl phosphate (PNPP), under either acidic or alkaline conditions. Generally, samples are added to a substrate in an appropriate buffer solution and allowed to incubate. Hydrolysis of the colorless substrate liberates free p-nitrophenol, a yellow colored substance that can be measured photometrically (Dougherty and Lanza 1989; Lanza and Dougherty 1991). Specifically, 6 mL of PNPP (in 0.2 M TRIS buffer, pH 8.5 for alkaline phosphatase; in 0.1 M citrate buffer, pH 4.8 for acid phosphatase) were added to approximately 2 grams of a pre-weighed sample in a sterile culture tube. After mixing, the samples were incubated at room temperature for 24 hours. The samples were centrifuged to remove the soil particles. The supernatant was carefully removed, and the pH was adjusted to 8.5 (for acid phosphatase only). The absorbance of the solution is then read from a Spectronic 20 at 420 nm. The amount of p-nitrophenol liberated was determined from a standard curve and normalized to the weight of dry soil.

The dehydrogenase assay provides a broad spectrum measure of general microbial activity since these enzymes are responsible for the transfer of electrons from substrates to acceptors. They are exclusively intracellular. Dehydrogenase activity is assayed by measuring the reduction of an organic electron acceptor using the procedure originally described by Lenhard as modified by Ryssov-Nielsen (Dougherty and Lanza 1989; Lanza and Dougherty 1991). In this procedure, the colorless substrate, 3-[4,5-Dimethylthiazol-2-yl]-2,5-diphenyltetrazolium bromide (MTT) was reduced to the colored product MTT-Formazan, which is measured photometrically. Specifically, 6 mL of MTT (in 0.06 M phosphate buffer, pH 7.2) were added to approximately 2 grams of a pre-weighed sample in a sterile culture tube. After mixing, the samples were incubated at room temperature for seven days. After incubation, the samples were centrifuged to remove soil particles. The supernatants were carefully decanted and 6 mL of methanol were added. The samples were vigorously mixed and re-centrifuged. The methanol was carefully removed, and its absorbance was measured on a Spectronic 20 at 570 nm. The amount of MTT-Formazan liberated was determined from a standard curve and normalized to the dry soil weight.

Community Diversity/Functionality

Changes in relative community structure may be important in determining the following:

- the overall stability of the biological community
- the potential for producing unwanted effects
- the relative changes in the functional capability of the community related to nutrient input and contaminant degradation

Community diversity was determined via colony morphology and biochemical/physiological characterization. Every bacterial colony type was noted, counted, and catalogued for calculation of diversity indices and measurement of structural diversity. Representatives of these isolates were grown in pure culture and frozen for future biochemical studies and measurement of functional diversity. Biochemical/physiological traits were catalogued by inoculating pure cultures of bacteria into a 96-well microtiter screening plate (MT and GN type Biolog Inc.) Similarity and cluster analyses were used to compare groups of random isolates over time and by location.

Fluorescent Antibody Direct Counts

Flourescent antibody direct counts provide a specific, direct autecological measurement of select bacteria, thereby reducing limitations of activation techniques. Since nitrogen is believed to be limiting *in situ*, autecological probes were used to directly estimate whether certain types of nitrogen transformers are changing. It has been found that these bacteria are critical to activity in the soil (Dommergues et al. 1978). It also provides direct measurements of a TCE degrader isolated from the site. Samples are prepared as for AODC (see above). Samples were fixed on slides, blocked for nonspecific staining, and stained by incubation with fluorescein isothiocyanate labeled antibodies [specific for a particular bacteria (e.g., TCE-degrading bacteria isolated from M area sediment)] for 20 minutes. Excess stain was washed away with buffer, and background was enhanced with 5% sodium pyrophosphate. The stained slides were then examined by eppifluorescent microscopy, and the yellow/green fluorescing cells were enumerated as with AODC. Fluorescent antibodies for several nitrogen-transforming organisms were tested, including the following: *Nitrosomonas europaea*, *Nitrobacter agilis* and *N. winogradskyi* combined, *Nitrosolobus* sp. (AV), *Azotobacter chroococum*, and *Beijerinckia japonicum*; an SRL-TCE degrader, *Thiobacillus ferrooxidans*, and *Legionella pneumophila*, and a methanotroph. All antibodies to nitrogen-transforming bacteria were prepared by E. L. Schmidt, University of Minnesota. For details on preparation of antibodies and staining technique, see Fliermans et al. (1974) and Bohlool and Schmidt (1980).

Phospholipid Fatty Acid Analysis and Other Physiological Measurements

Culturing techniques inadequately measure the overall community structure, microbial biomass, and nutritional status, since these techniques rely upon nutritional and incubational conditions that are unlike anything that the microbial community may have been exposed to before. Signature biomarker compounds overcome many of these limitations by allowing direct determination of sub-femptomolar quantities of compounds used for energy storage, metabolic intermediaries, and enzymes (White et al. 1990). One such group of compounds is the phospholipid fatty acids (PLFA). Ester-linked PLFAs were extracted from filtered samples via inverse serial extraction, fractionated, and methylated by microtechniques. Identifications were made by comparison of retention times to standards after extracting specific ions from a total ion chromatogram obtained with electron impact gas chromatography/mass spectrometry.

Sediment samples (10 mL) were incubated with 14C-acetate for 24 hours at *in situ* temperatures. The samples were then fixed with chloroform-methanol and filtered through 0.2-µm pore size filters. The acetate incubated samples were extracted with chloroform-methanol, dried, resuspended in 2.0 mL chloroform and aliquots counted by liquid scintillation counting to determine the amount of radioactivity incorporated into microbial lipids.

Nucleic Acid Analysis

Recent techniques for probing environmental samples with nucleic acid probes have allowed for the first time truly synecological studies (Hazen and Jiménez 1989). The section of genomic structure that codes for enzymes involved in biodegradation, regardless of species, can finally be assayed. These probes allow a nearly direct estimate of the functional capability of the environment being tested. Direct extraction of DNA from filtered water allows direct determination of the presence and amount of certain conserved nucleic acid sequences that code for the enzymes involved in contaminate degradation. These probes should allow direct assessment of the amount of organisms (regardless of species) capable of degrading TCE/PCE and/or providing essential conditions (eg., nitrogen, pH for optimal in situ bioremediation).

DNA was extracted from sediment samples by direct lysis, alkaline extraction procedure, and bead homogenization with a bead beater (***Reference?***). Cell lysis was achieved by incubation in a solution of 1% sodium dodecyl sulfate (SDS) in 0.12 M sodium phosphate buffer (pH 8.0) for 1 hour at 70°C. Lysis was further increased by homogenization in the bead beater for 5 minutes. Sediments were washed three times with 0.12 M sodium phosphate buffer, and supernatants were pooled and transferred to another container where 0.5 volumes of polyethylene glycol (50%) were added to precipitate the DNA overnight. After centrifugation, the pellets were suspended in Tris EDTA (TE) buffer (pH 7.0), and DNA were purified by two phenol and one chloroform isoamyl alcohol extractions to separate sediment particles, protein, and carbohydrates from the DNA. Final precipitation was done by adding two volumes of ethanol and one-tenth volume of sodium acetate. Concentration and purity of DNA were determined by absorbance at 260 and 280 nm and by ethidium bromide quantification (Maniatis et al. 1987). The resultant purified DNA were fixed on nylon filters and hybridized under stringent conditions with specific DNA probes. RNA were extracted in a similar fashion (Sayler et al. 1989).

The following probes were chosen as being important and readily available (Hazen 1991):

- a TCE-degrading type I methanotroph (68-1) probe (This probe is DNA fragment that encodes a putative gamma subunit of methane monooxygenase and 16S rRNA.) (ORNL, UT, UM)
- a type II B gene methanotroph 16S rRNA probe (UM)
- a potentially TCE-degrading Tod(C2C1BA) toluene diooxygenase complex, *Pseudomonas putida* F1 (ORNL, UT)
- a potentially TCE-degrading nahA Naphthalene dioxygenase, *Pseudomonas putida* NAH7 (ORNL, UT)
- a potentially TCE-degrading TOL upper pathway xylene oxidase, *Pseudomonas putida* mt2, pWWO (ORNL, UT)
- a TCE-degrading toluene diooxygenase (Tod C2C1BA) from *Pseudomonas putida* (This probe is also being used by UT, thus data from UT and PNL/WSU can be compared.) (PNL, WSU)
- a cytochrome P450cam (camC) from *Pseudomonas putida* that dechlorinates alkanes oxidatively and reductively (P450s are a family of enzymes known to be involved in xenobiotic degradation.) (PNL, WSU)
- a TCE-degrading toluene monooxygenase (tmoABCDE) from *Pseudomonas mendocina* KR1 (PNL, WSU)
- a haloalkaline dehalogenase (dhlA) from *Xanthobacter autotrophicus* (This probe has a broad substrate specificity and it hydrolytically dechlorinates alkanes; it may have activity against PCE/TCE metabolites.) (PNL, WSU)
- a haloakanoate dehalogenase (dhlB) from *Xanthobacter autotrophicus* (Broad substrate specificity may have activity against PCE/TCE metabolites.) (PNL, WSU)

Protozoan Analysis

Recent work has indicated that small numbers of protozoa commonly inhabit subsurface soils at pristine sites at various geographical locations. The ubiquitous distribution of protozoa in the subsurface have important implications in bioremediation operations. When nutrients are added to increase bacteria biomass, concomitant increases in protozoan populations occur. These protozoa may be important in removing bacterial biomass and cycling contaminants that were only adsorbed to biomass and not degraded. Protozoa also could be important in maintaining hydraulic conductivity and ensuring proper flow of nutrients into contaminated zones. Protozoa also may be important in maintaining balanced growth, thus facilitating greater metabolic efficiency.

Samples were diluted and plated inside plastic rings imbedded in a non-nutrient agar base. One milliliter of water was added to each ring and replenished as needed. Non-growing cells of *Enterobacter aerogenes* were supplied as a food source. Cultures were checked between three days and two months by making a wet mount and examining the slides with phase microscopy. Protozoan counts were expressed as counts per gram dry weight, and representative protozoa were identified.

Fungal and Actinomycete Analysis

Large increases in biomass during remediation projects may cause increases in fungal biomass. Some yeast have been implicated in TCE degradation (Wackett et al. 1989). The importance of fungi in contaminated environments has largely gone unstudied. Fungi and actinomycetes in sediment samples were enumerated with acidified mycological agar and acidified actinomycetes isolation agar. Colonies isolated on these median were screened for their ability to degrade TCE/PCE in vials in the presence of air supplemented with methane and propane.

Results

Microbiological analyses from the post-test sampling must be interpreted with caution because sediment sampling was delayed nearly six weeks after the test had ended. Since microorganisms have the inherent ability to multiply or die exponentially, significant microbiological changes may have occurred after the test was completed. However, subsequent sediment sampling done during the *in situ* bioremediation demonstration at the site failed to reveal marked changes in sediment microbial parameters over short periods of time (i.e., three months).

Acridine Orange Direct Counts

Densities of bacteria in the sediments as measured by AODC (10^6–10^8) were similar to densities seen at other pristine sites at SRS and other places (Hazen et al. 1991). The post-test characterization AODC densities were highest at the surface, decreased through the vadose zone, and increased again in the tan clay zone area above the water table (Figures 7 and 8). The highest microbial densities in the vadose zone were closely associated with areas containing the highest proportions of sandy/gravelly sediments above a clay layer. The overall pattern seen for AODC in the post-test characterization sediment was very similar to the pretest characterization samples. One major difference in the pre- vs. post- AODC densities is that in nearly all areas the post-test densities were an order of magnitude lower (i.e., post-test densities were 10^6–10^7 whereas pre-test densities were 10^7–10^8 cells/gdw. (See Appendix III for depth discrete comparison by borehole.) These observations suggest that the overall biomass in the sediment decreased; however, other analyses presented below show that certain functional groups in the microbial community increased and the physiological activity (turnover rate) of the community increased because of injection/extraction of air to the subsurface. These findings are not incongruous with nutrient stimulation of oligotrophic soil and aquatic environments. In areas that are under nutrient limitations, the environment has more generalists and higher biomass that are relatively inactive. As nutrient limitations are ameliorated, the biomass decreases even as the total productivity of the community increases and becomes dominated by specialists.

Aerobic Heterotrophic Plate Count

Densities of viable bacteria for both high- and low-nutrient media (10^1–10^4 cells/gdw) were in the range observed for SRS sediments and other sites (Hazen et al. 1991). Viable bacteria densities were 2–3 orders of magnitude lower than direct count densities as measured by AODC (i.e., 10^6–10^7). The number of viable bacteria that grew on a low-nutrient medium (1% PTYG) was highest in the surface soil, in areas immediately above both horizontal wells, in the tan clay zone zone, and in sediments below the water table (Figure 9). Pretest characterization densities were higher in some areas and lower in others (Figure 10). In general, densities of viable bacteria in the vadose zone sediments showed a significant increase after *in situ* air stripping in areas above the extraction well and in the "tan clay" zone between the extraction and injection wells (Figure 11). High-nutrient medium (full-strength PTYG) showed nearly identical patterns as the 1% PTYG; however, densities of bacteria on PTYG were always lower (with two exceptions) than 1% PTYG (Appendix VI). This result suggests that viable bacteria in the sediment were stimulated by the *in situ* air stripping process and that these organisms adapted to growth under low-nutrient conditions since fewer would grow on high-nutrient media. It is important to note that the changes observed for viable counts were quite different when compared to the AODCs, which significantly decreased. This suggests that the sediment originally had a large number of bacteria that could not grow on the low-nutrient medium and that the *in situ* air stripping process increased the number that would grow and eliminated those that would not. Thus, standing biomass as measured by direct counts decreased, while turnover rate and community activity increased. The community as a whole was stimulated physiologically and became much more active. Other measurements reported below further substantiate these findings.

Densities of bacteria on 1% PTYG were significantly correlated with the percentage of water in the sediment sample for all boreholes (Appendix V); the correlation improved with increasing depth. The only exception to this observation was the surface soil samples which had very high densities even though the water content was quite low. This is to be expected since the surface soil has greater nutrient input and water content changes. A positive correlation was also seen between percent gravel and bacteria density; thus, sediments with increased permeability may be able to support a more luxuriant microbial community. Nutrient content of the sediment is important in determining the density of viable bacteria in the sediment samples. Positive correlations were observed between 1% PTYG densities and total organic carbon (TOC), total nitrogen, and total phosphorus (Table 25). A positive correlation between biomass and these nutrients could result from the biomass itself increasing concentrations of these compounds in the sediment or due to the stimulatory effect these growth-limiting compounds have on biomass. Since the bacteria densities were relatively low, the contribution from the biomass was insignificant relative to the concentrations observed in the sediments. Thus, the TOC, TKN, and TP distribution in the subsurface sediment had a significant overall effect on the distribution of biomass in the subsurface. Given these findings, it is possible that increases in activity and densities of viable bacteria observed in the post-test sediment could have been due to changes in water/air flow in the subsurface that caused changes in the flow of these essential nutrients in the subsurface. Thus, areas depleted in C/N/P were infused with new sources because of flow changes caused by the *in situ* air stripping test.

In contrast, sulfate content was inversely correlated the 1% PTYG densities (Table 25). In sediment samples with high concentrations of total sulfate, bacterial densities were significantly lower. In addition, sediment samples with low pH also had lower concentration of bacteria. These findings are expected since microbial community biomass and diversity is less under acid conditions. Higher sulfate concentrations could have contributed to the higher acidity of these sediments and, therefore, the observations taken from the data.

Methane Enrichment Most Probable Number Enumeration

Densities of methane-oxidizing bacteria (methanotrophs), as measured by the methane-enrichment MPN technique (though detectable), were extremely low (i.e., <10^1 MPN/gdw) (Table 26). This is typical of environments where the bulk material is aerobic and low in nutrients. This would also indicate maximum potential for methane stimulation, since methanotrophs were present but in very low densities.

Enzyme Analysis

Concentrations of alkaline and acid phosphatase followed a subsurface distribution pattern in the sediment that was very similar to that seen for viable bacterial densities (Appendix V). Concentrations were highest just below the surface, declined rapidly in the vadose zone, and increased again in the tan clay zone and below the water table. Alkaline phosphatase concentrations were usually higher than acid phosphatase in all areas except the tan clay zone and below the water table. A positive correlation was observed between densities of viable bacteria and phosphatase concentrations, both acid and alkaline. It is interesting to note that steep declines or increases in concentrations of either parameter were associated with declines or increases in bacterial density. Since these areas were also the areas where increases were observed (because of the in situ air stripping test), it can be further suggested that physiological activity in these areas greatly increases because of increased movement of nutrients. Dehydrogenase concentrations were much less variable than either acid or alkaline phosphatase, though the same patterns were also observed for this enzyme (Appendix V). Indeed, all of the enzyme assays suggested that microbial activity was greater in those areas most affected by the injection process or those areas where the numbers of viable bacteria had increased (or both). Due to extreme variability of the enzyme concentrations, correlations between enzyme concentrations and any of the other parameters were extremely poor. A significant correlation was observed between 1% PTYG and acid phosphatase ($r=0.51$, $P < 0.05$). Since the environment is generally acidic, this is also as expected.

Community Diversity/Functionality

Carbon source utilization patterns were determined for bacteria isolated from sediments in boreholes 3T, 5V, and 10B (Appendix VI). Of the 611 strains that were characterized, 403 were heterotrophs and 208 oligotrophs. This further suggests that the bacteria at this site are generally adapted to low-nutrient conditions. Of the three boreholes examined, 5V was the least diverse and had the fewest number to oligotrophs. Since cluster 5 is also the area found to be the most stimulated in terms of viable biomass, physiological activity, and densities of nitrogen-transforming bacteria, it is logical that it would also support the fewer generalist and more specialists. In general, it appears that the diversity may have decreased after the *in situ* air stripping test, though it is difficult to compare since the colony morphology alone was used to estimate diversity in the pretest characterization. From this and some of the other parameters, it does appear that the stimulation of the subsurface community by the *in situ* air stripping process did decrease diversity as it increased nutrient availability and physiological activity.

Bacterial Fluorescent Antibody Direct Counts

Direct enumeration of select bacterial species using fluorescent antibody staining was extremely variable (Figures 12–16, Appendix VII). Densities ranged from $<10^0$ cells/gdw to $>10^7$ cells/gdw in the same profile. *Azotobacter chroococum* was sporadically found before the in situ air stripping test, with the highest densities occurring near the soil surface and below the water table (Figure 12). After the test, bacterial densities in the sediments had increased significantly, especially at cluster 5 (Appendix VII). This was not surprising since *Azotobacter* is a nitrogen fixer. The other nitrogen-transforming bacteria showed a similar pattern of being found more frequently and in higher densities after the *in situ* air stripping test. Since the air injected during the test was >70% nitrogen, this undoubtedly stimulated the nitrogen fixers, encouraging the rest the nitrogen cycle. Indeed, the stimulation in the nitrogen-transformers could have been the major cause of viable biomass increase and the increase in physiological activity measured by the other parameters. However, nitrogen fixation would require a good and abundant source of carbon for energy, and this did not appear to be readily available. More than 90% of the carbon in this environment is TCE and PCE, neither of which can be used as an energy source. Thus, the source of energy for these transformations remains unknown. It is also important to note that one the bacteria analyzed, *Nitrosomonas europaea*, is an ammonium-oxidizer. This bacteria also produces a monooxygenase that is capable of degrading TCE. Thus, stimulation of nitrogen transformation may have resulted in increasing (directly) the ability to degrade TCE in the environment (Figure 13).

Iron bacteria did not significantly change as a result of the injection/extraction. *Thiobacillus ferrooxidans* densities were slightly higher at cluster 3 and 7 before the test and slightly higher after the test at cluster 5; overall, there was no significant difference (Appendix VII). These results and the *L. pneumophila* data are important because they verify the findings for the nitrogen-transforming bacteria (i.e., because the results for this bacteria are quite different than the nitrogen-transformers, it is unlikely that the fluorescent antibody staining technique alone caused the observed results). These results also indicate that not all bacteria populations were stimulated by the injection/extraction process; some like *Thiobacillus ferrooxidans* were relatively unaffected.

A TCE-degrading bacteria isolated from M-Area sediments (SRL-MIIF) was found only slightly more frequently in sediments after the in situ air stripping test (Figure 14). However, densities at most depths at cluster 5 were higher after the test. Thus, air injection may have also stimulated a specific organism capable of degrading TCE.

Densities of the ubiquitous human pathogen, *L. pneumophila* serogroup 1, were generally low and either remained the same or decreased slightly after the *in situ* air stripping test (figures 15 and 16). Thus, stimulating the subsurface biomass did not concomitantly increase the densities of frank pathogens. Indeed, *L. pneumophila* seem to be relatively unaffected by the *in situ* air stripping process.

Phospholipid Fatty Acid Analysis and Other Physiological Measurements

The PLFA analyses are presented in Figures 17–24 and in Appendix VIII. Well MHB-3T contained four samples (54, 17, 29, and 41 feet) that exhibited a high level of hydrocarbon contamination. The hydrocarbons co-eluted with a number of the PLFA influencing the biomass estimates for these four samples. The profile for 65 feet contained PLFAs characteristic of actinomycetes (10me16:0 and 10me18:0) as well as a very high level of i15:0. The cyclopropyl PLFA were also prominent and the trans/cis ratio for 16:1w7t/c was high suggesting the community was under some form of environmental stress. (Note that these samples were collected six weeks after injection had stopped).

Well MHB7T contained a number of sample depths with biomass estimates above that of the blanks. The profile at 3 feet, again, showed a high level of i15:0 as well actinomycete PLFA. Figure 15 shows a biomass increase between the depths of 75 and 167 feet with the highest level at 119 feet. The zone of influence of the injection/extraction is in this same region. The fungal PLFA (18:2w6) appeared at the depths of 75 and 111 feet. The

119- and 131-foot depths showed increased percentages of 16:1w7c and 18:1w7c (gram negative bacteria). The 131-foot depth also showed the presence of long-chain saturates which may either come from protozoans or contamination. Short-chain PLFA (14:0 and 15:0) also appeared in the sample taken between 75 and 167 feet.

Only two samples (from borehole MHT-9B) were above background levels. PLFA synthesized fractions for fungi and gram-negative microorganisms were detected.

Six samples (from borehole MHT-10B) had biomass estimates above those of the blanks. The 95- and 111-foot depths showed the highest percentages of 18:2w6; the 87-foot depth showed an increased trans/cis ratio for 16:1w7t/c; the 75-foot depth showed substantial cyclo propyl synthesis; and the 135-foot depth showed long-chain monoenoics (again, possibly eukaryotic input). Only one depth, 51 feet, showed PLFA indicative of gram-positive microorganisms and, again, the PLFA was i15:0.

Borehole MHB-1V contained a sample at 3 feet that exhibited a PLFA profile similar to 3-foot depths in the other wells. A similar profile was again detected at 15 feet with a decrease in the terminally branched and an increase in the monoenoic PLFA as compared to the 3-foot sample. Of the remaining depths, only the 27- and 99-foot depths contained PLFA above background. Both of these samples contained a mono-unsaturated 20 carbon PLFA.

Borehole MHB-5V contained samples with little PLFA throughout the depths retrieved. Although the procedural blanks were quite low, only the sample at 191 feet showed a biomass estimate above background levels determined from the other wells. Trans PLFA were detected in samples 15, 87 and 167 feet, indicating these microbial communities were undergoing some form of stress.

Borehole MHT-11C at 171 feet showed hydrocarbon contamination. Again, the 3-foot depth showed an actinomycete input as well as substantial levels of terminally branched PLFA. At this depth, the biomass estimate was the highest of all wells analyzed. Very little was detected below the 3-foot depth. Depths of 87, 99, and 123 feet showed 18:2w6 (fungal).

Overall, the PLFA analyses of the sediment indicated a diverse community with high biomass of actinomycetes and fungi at some depths. Biomass estimates by PLFA corresponded nicely to estimates by heterotrophic plate counts (i.e., fairly low biomass but with zones of higher concentrations). As with the other parameters, the PLFA indicated highest biomass near the surface, the tan clay zone, and just below the water table. PLFA analyses also indicated the microbial community was under some stress; this may be due to the fact that sampling of the sediment was delayed until six weeks after the in situ air stripping had stopped. Thus, the microbial community was probably already in decline.

Nucleic Acid Analysis

The nucleic acid analyses revealed that certain functional groups were more likely to be found than others. Brockman et al. (*19XX*) showed in two boreholes that toluene dioxygenase (TOD) and haloalkane dehalogenase were fairly common while methane monooxygenase (MMO), methanol dehydrogenase, and toluene monooxygenase were present but fairly rare (Table 27). This assay alone illustrates that bacteria with the functional capability to degrade TCE were present in the sediments tested and thus presumably could be stimulated or optimized to carry out those reactions. Sayler et al. (1989) showed that (Figure 25) 70% of the sediment in some boreholes tested positive for MMO and TOD. In general, there was an increase in the frequency of MMO in the sediments after the *in situ* air stripping test. The TOD gene also increased in frequency in some of the clusters; however, it could not be detected in two of the boreholes. Other laboratory studies have shown that isolates from these sediments are capable of degrading TCE at a very high rate (Sayler et al. 1993). Thus, the gene probe analyses have demonstrated that functional groups capable of degrading the contaminants in the sediments are present and that their incidence increased after the in situ air stripping test.

Protozoan Analysis

Sinclair found some protozoa in sediment samples at various depths. However, densities were very low and could only rarely be observed. It does not appear that in its current oligotrophic state that this environment supports a significant protozoan community.

Fungal and Actinomycete Analysis

Brockman et al. found similar concentrations of viable bacteria on 10% PTYG as reported above for 1% PTYG (Table 28). He also found densities of actinomycetes on enrichment medium that were generally very low (10^0–10^2). This result agrees with the PLFA analyses that indicated actinomycetes were present but low and that biomass of all microbes was low. Fungi were also present but probably not significant relative to the bacterial biomass. Analyses of enrichments for TCE removal demonstrated that 50% of the sediments enriched for methane oxidizers showed TCE removal while none of the enrichments for propane-oxidizers, ammonia-oxidizers, Fe(III)-reducers, or sulfate-reducers showed any removal of TCE (Table 29). These findings indicate that, even though low in density, methanotrophs can be enriched and this enrichment will allow them to remove TCE from the sediment.

These findings and the findings reported above for the other microbial parameters have demonstrated that the subsurface microbial community is oligotrophic, under stress, and can be stimulated by injection of air alone. Given the presence of methanotrophs and their ability to degrade TCE, it would also seem highly likely that a combination of methane/air injection would stimulate the community to degrade TCE in the sediment and groundwater at a much faster rate.

Table 25. Correlation Matrix of 1% PTYG Against Nutrients for Post-test Characterization Sediment Samples

	Depth	Iron	CEC	Total N2	pH	PO4	SO4	TOC	1% PTYG
Depth	1.0000								
Iron	0.1300	1.0000							
CEC	-0.0333	0.0347	1.0000						
Total N2	0.1956	0.3981	0.5376	1.0000					
pH	0.2958	-0.1984	-0.1217	-0.1170	1.0000				
PO4	0.4739	0.4324	0.1913	0.5628	0.0414	1.0000			
SO4	0.1722	0.4518	-0.0876	0.2319	-0.0295	0.2017	1.0000		
TOC	-0.1452	0.2787	0.3430	0.3914	0.3979	0.0292	0.1532	1.0000	
1% PTYG	0.3999	0.3086	0.0601	0.3703	0.4957	0.4385	0.0092	0.4229	1.0000

* All $r>0.304$, $P<0.05$

Table 26. Methanotroph Densities in Sediment Samples from MHB3T

Depth (ft)	MPN/gdw	Standard Error
5	1.9E+00	0.3
17	<4.2E+00	
29	<1.9E+00	
41	<2.1E+00	
53	<1.2E+00	
65	<1.4E+00	
77	<1.3E+00	
89	9.5E-01	0.4
101	<1.4E+00	
113	<1.2E+00	
125	<4.0E+00	

Table 27. Hybridization Probe Analysis of DNA Extracted from the Savannah River Sediments

Borehole	Depth (ft)	Soluble methane monooxygenase	Methanol dehydrogenase	Toluene monooxygenase	Toluene dioxygenase	Haloalkane dehalogenase
MHB5T	*99	no hybridization	0.2–1.0	no hybridization	no hybridization	0.2–1.0
	*111	no hybridization	no hybridization	no hybridization	no hybridization	0.2–1.0
	*123	no hybridization	0.2–1.0	0.2–1.0	0.2–1.0	no hybridization
	135	no hybridization	no hybridization	no hybridization	0.2–1.0	0.2–1.0
MHT12C	*97	0.2–1.0	no hybridization	0.2–1.0	0.2–1.0	0.2–1.0
	109	no hybridization	no hybridization	no hybridization	0.2–1.0	0.2–1.0
	120	no hybridization	no hybridization	no hybridization	0.2–1.0	0.2–1.0
	*129	no hybridization	no hybridization	no hybridization	0.2–1.0	0.2–1.0

* Samples in which DNA was not visualized by gel electrophoresis.
Results reflect amount (picograms)of probe per gram sediment hybridizing to sediment DNA.

Table 28. Concentrations of Viable Bacteria on 10% PTYG

	Plating (2 mo)			MPNs (3 mo)		
MHT-12C (depth in ft)	**PTYG**	**AIA**	**LOA**	**Meth-ox**	**Prop-ox**	**Amm-ox**
73	3.99	3.63	<2.00	<0.60	<0.60	<0.60
85	6.43	3.60	2.98	<0.60	<0.60	1.82
97	4.62	2.54	<2.00	<0.60	<0.60	0.95
109	3.92	3.36	<2.00	>3.51	<0.60	<0.60
120	1.99	<2.00	2.18	<0.60	<0.60	1.82
MHT-5B						
3	6.97	5.51	3.92	>3.51	<0.60	>3.51
15	5.60	3.41	2.38	>3.51	<0.60	1.66
27	2.48	<2.00	<2.00	ND	ND	ND
39	2.36	2.85	2.08	>3.51	<0.60	<0.60
51	4.74	2.94	<2.00	ND	ND	ND
63	2.34	<2.00	<2.00	<0.60	<0.60	<0.60
75	3.23	<2.00	2.49	ND	ND	ND
87	<2.00	<2.00	<2.00	<0.60	<0.60	<0.60
99	<2.00	2.04	<2.00	<0.60	<0.60	<0.60

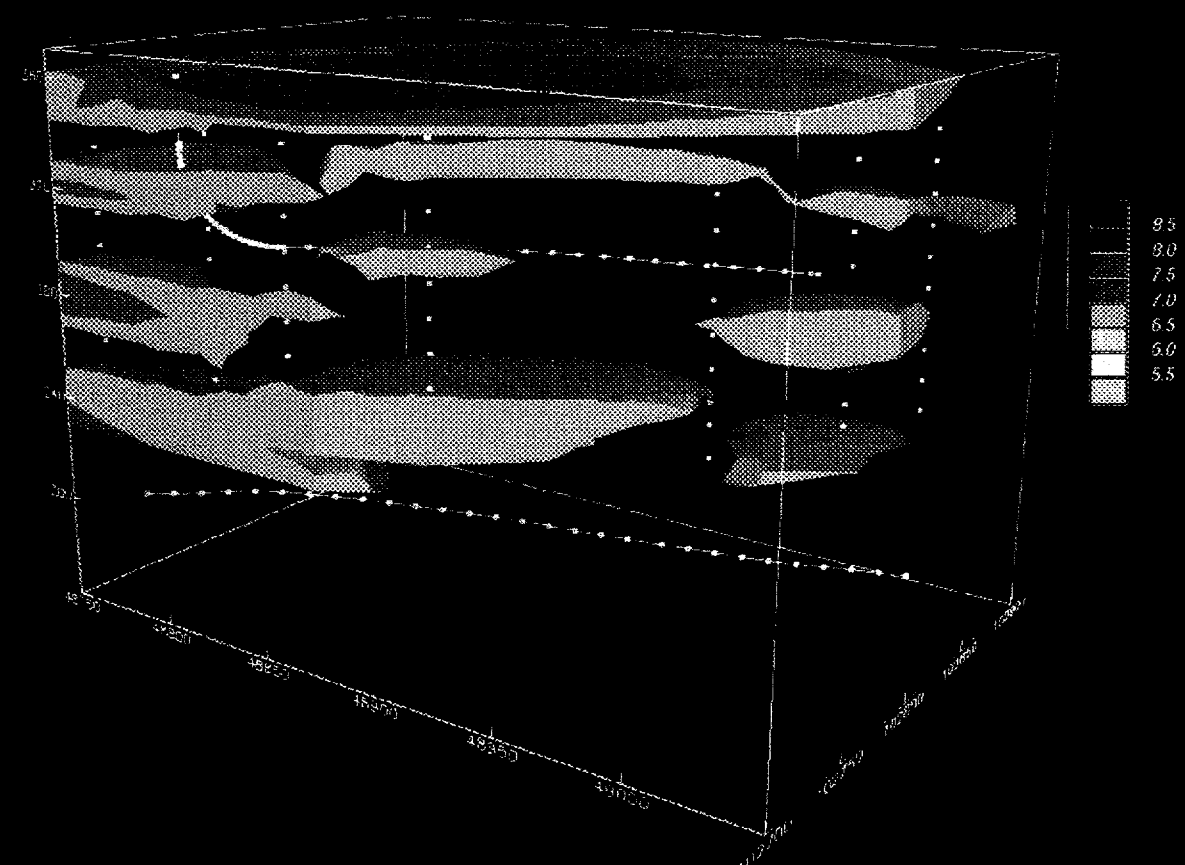
Table 29. Cultural Characteristics of Savannah River Sediments at the End of the Air Injection Campaign

	log Colony Forming Units on:		log MPN	Percent of Sediments Showing TCE Removal in Enrichments for:					
Campaign, Sediment Type, and Number	**10% PTYG (a)**	**10% AIA (a)**	**dinitrogen fixers (b)**	**methane oxidizers**	**propane oxidizers**	**ammonia oxidizers**	**Fe(III) reducers**	**sulfate reducers**	**methanogens**
air, weakly affected, n=4	1,1,1,1,0,0	1,2,1,0,0,0	ND (c)	50	0	0	0	0	ND

a expressed by class: <2.0, 2.0–2.9, 3.0–3.9, 4.0–4.9, 5.0–5.9, and 6.0–6.9, respectively
b expressed by class: <2.5, 2.5–3.4, 3.5–4.4, and >4.4, respectively
c not determined

Figure 7. Post-Test Acridine Orange Direct Count

Post Characterization AODC Values



8

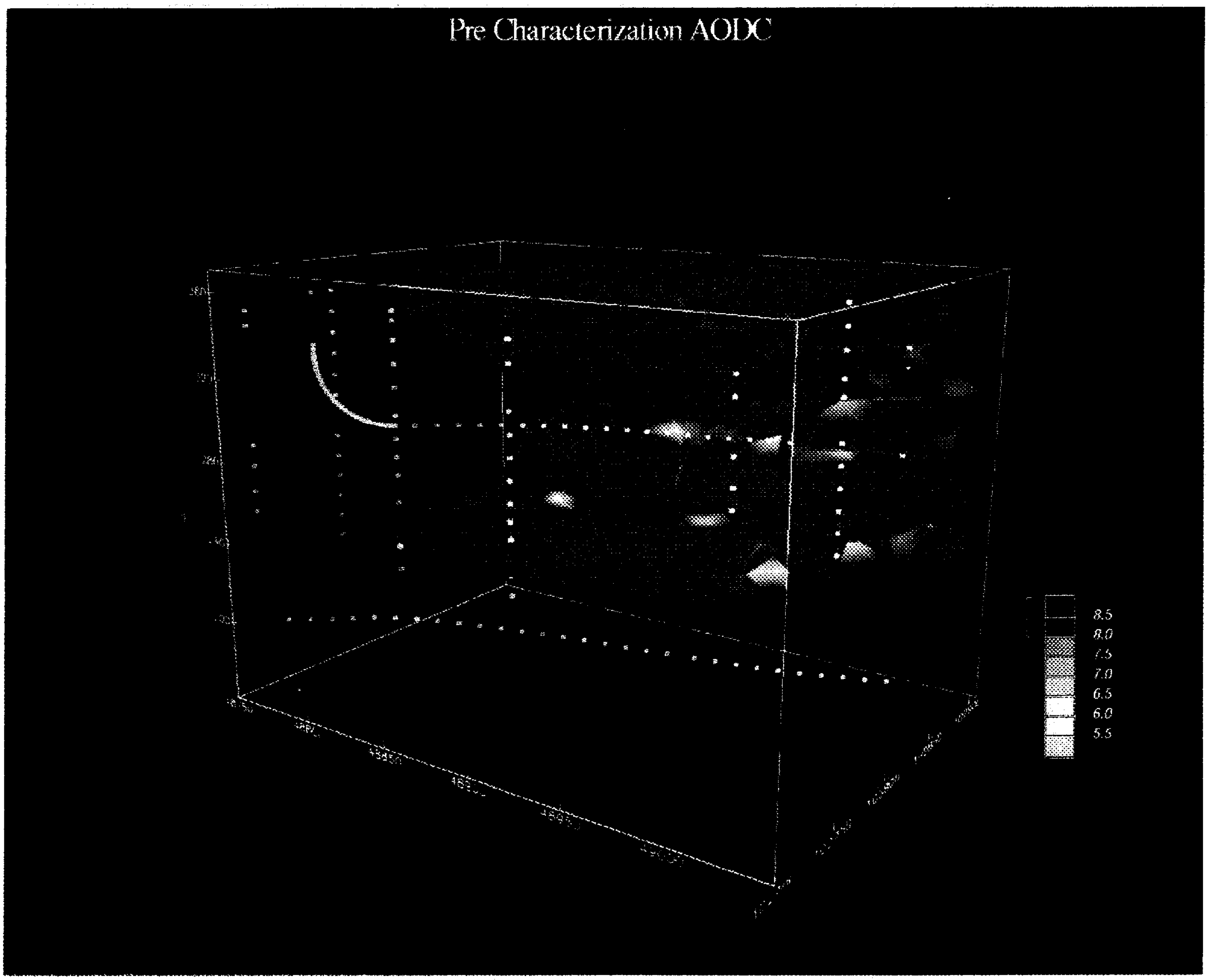


Figure 8. Pre vs. Post Acridine Orange Direct Count

Figure 9. Count vs. Sediment Gravel Content in PreCharacterization Subsutface Sediments

Fig 9

(9)

COUNT VS SEDIMENT GRAVEL CONTENT
PRE-CHARACTERIZATION SUBSURFACE SEDIMENTS
MHT 1C

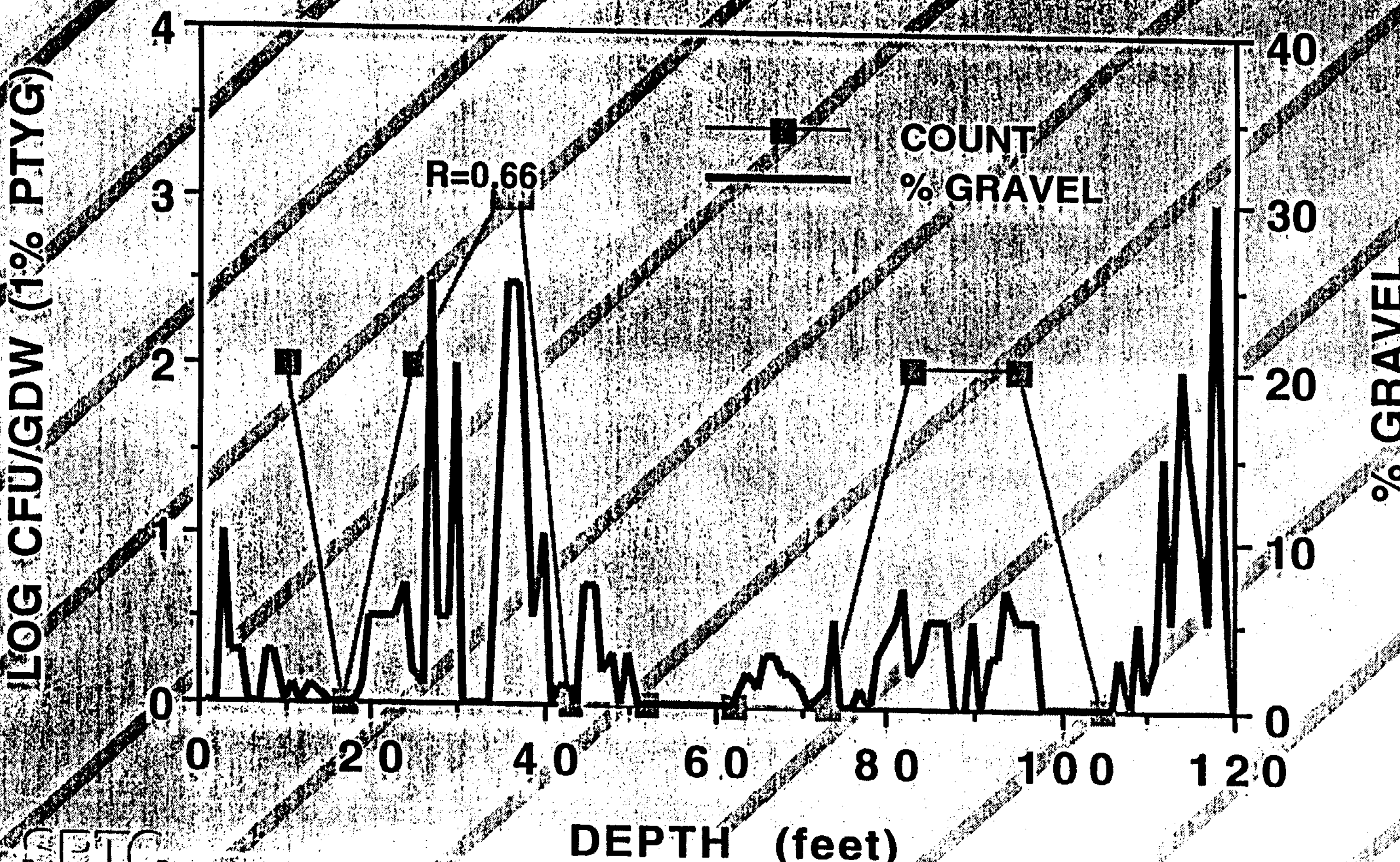


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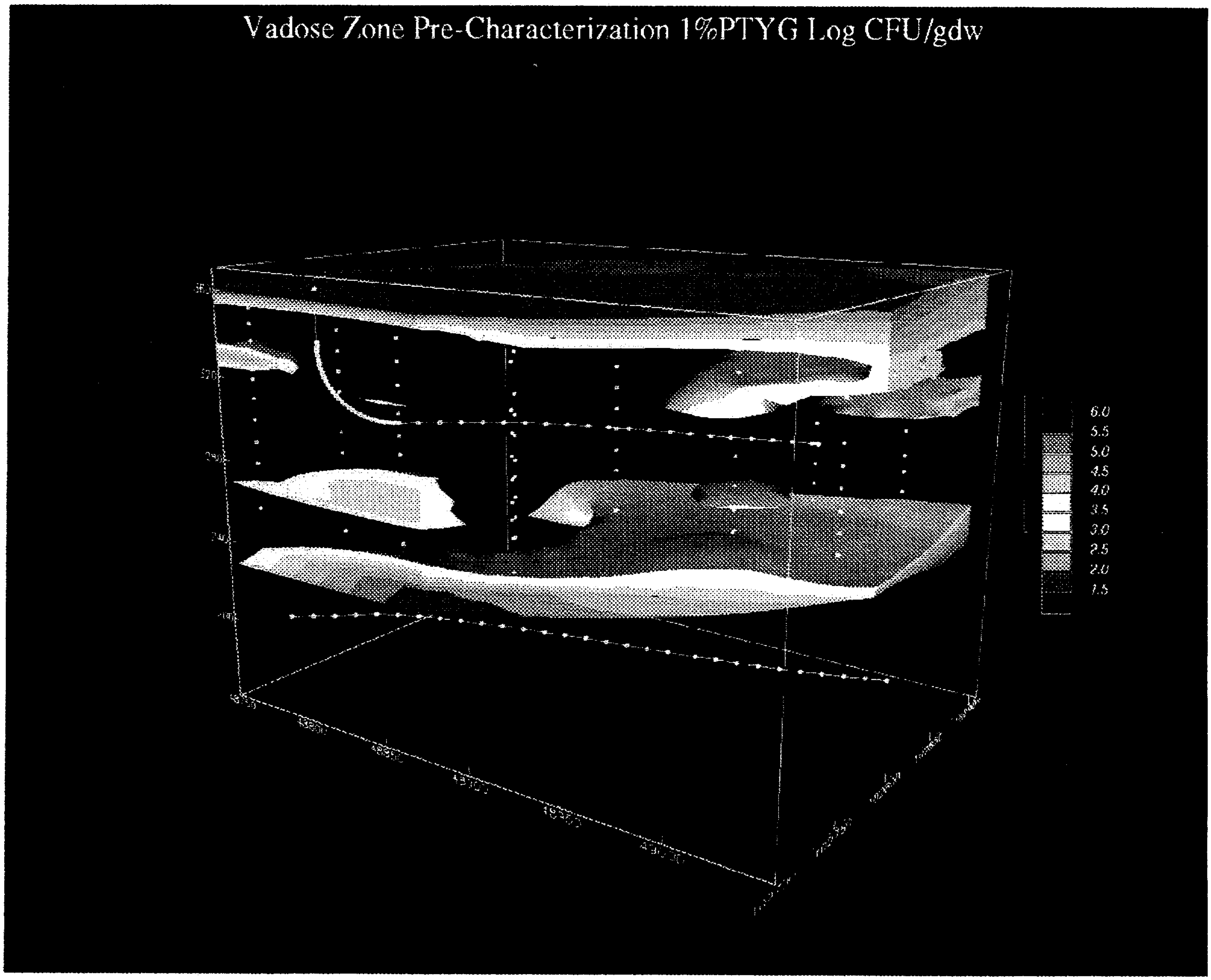
Figure 10. Pretest 1% PTYG

108


Vadose Zone Pre-Characterization 1%PTYG Log CFU/gdw
6.0
5.5
5.0
4.5
4.0
3.5
3.0
2.5
2.0
1.5

Difference Grid Post-Pre Characterization

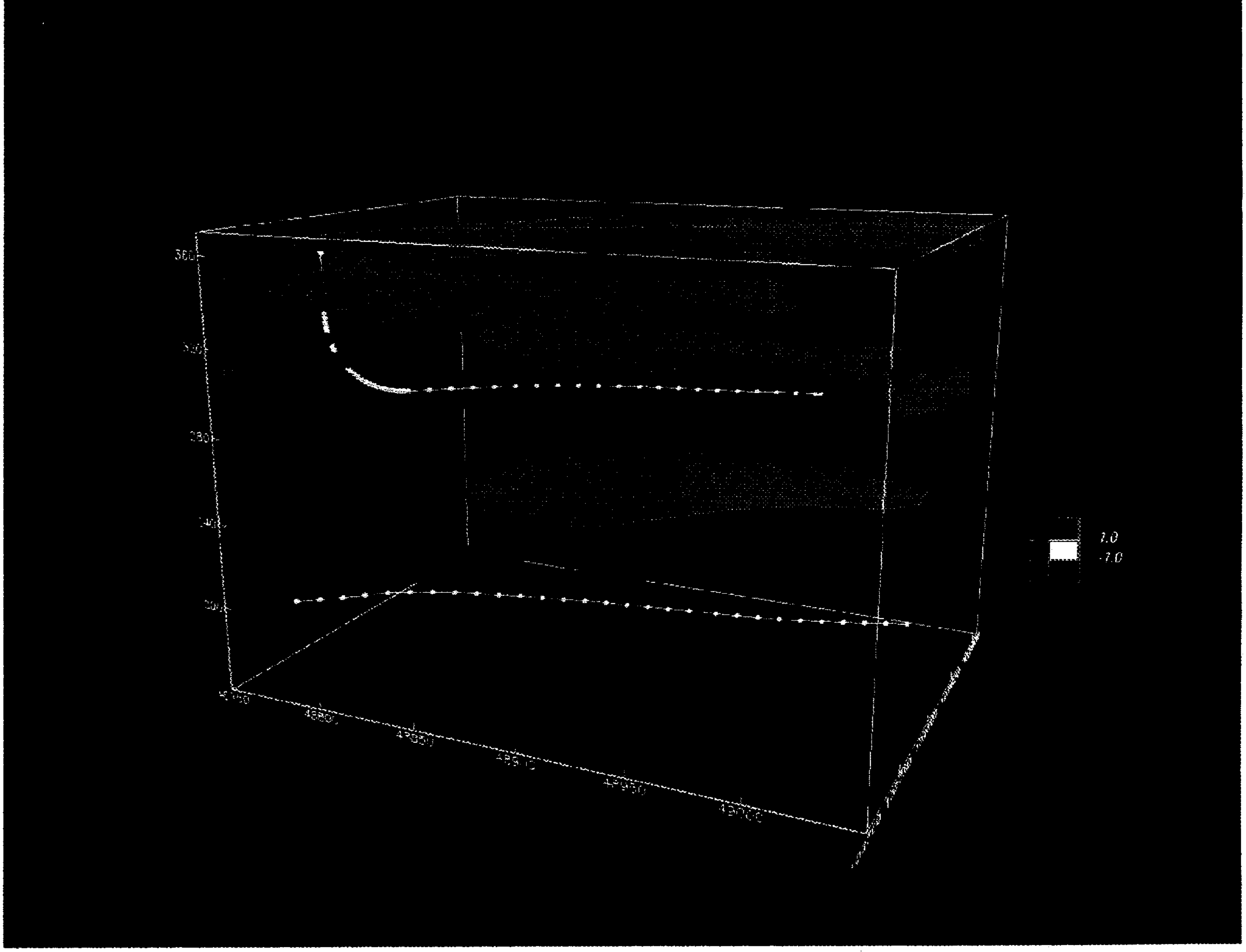
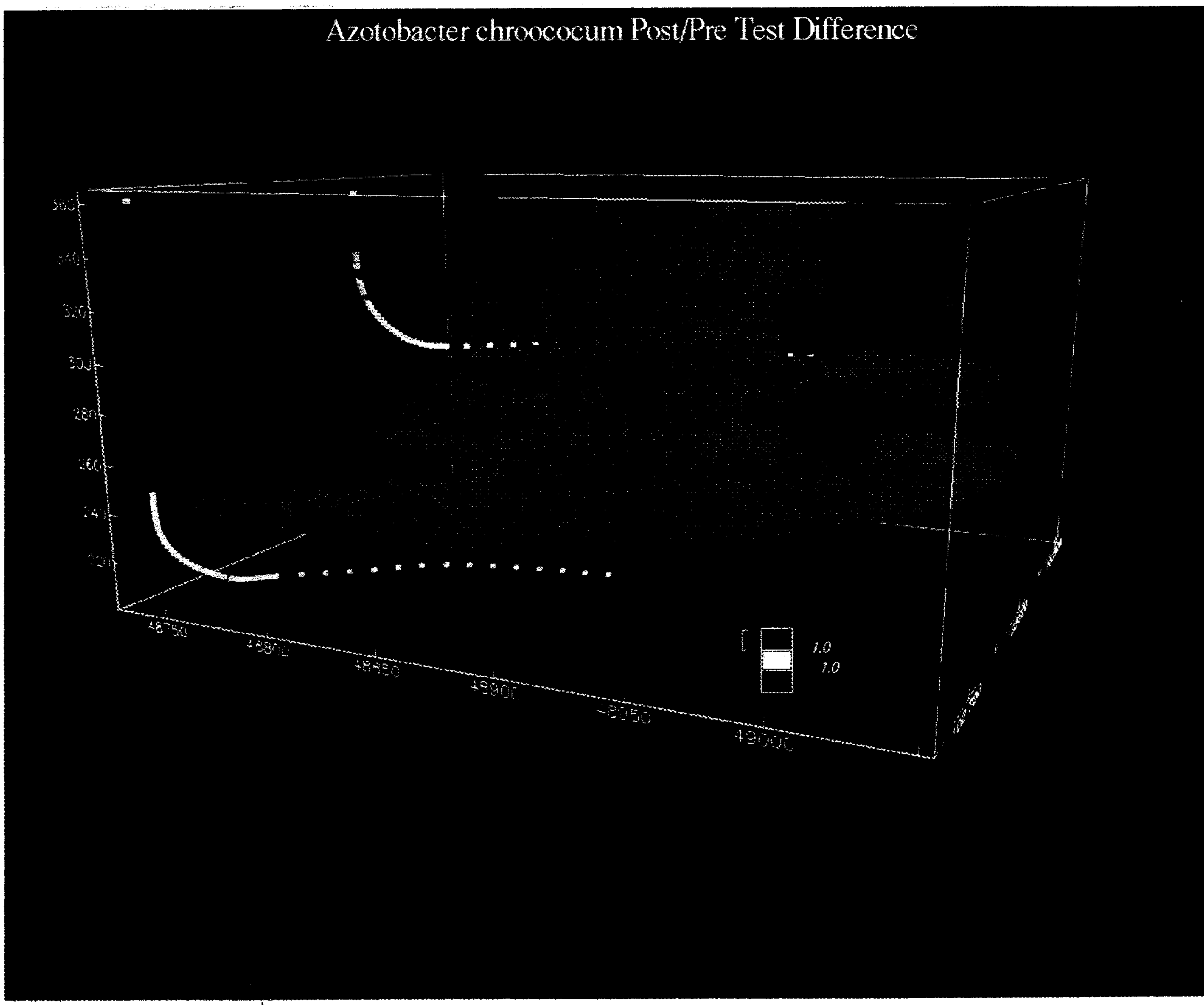


Figure 11. Pre vs. Post 1% PTYG

Figure 12. Pre vs. Post *Azotobacter chroococum*

12



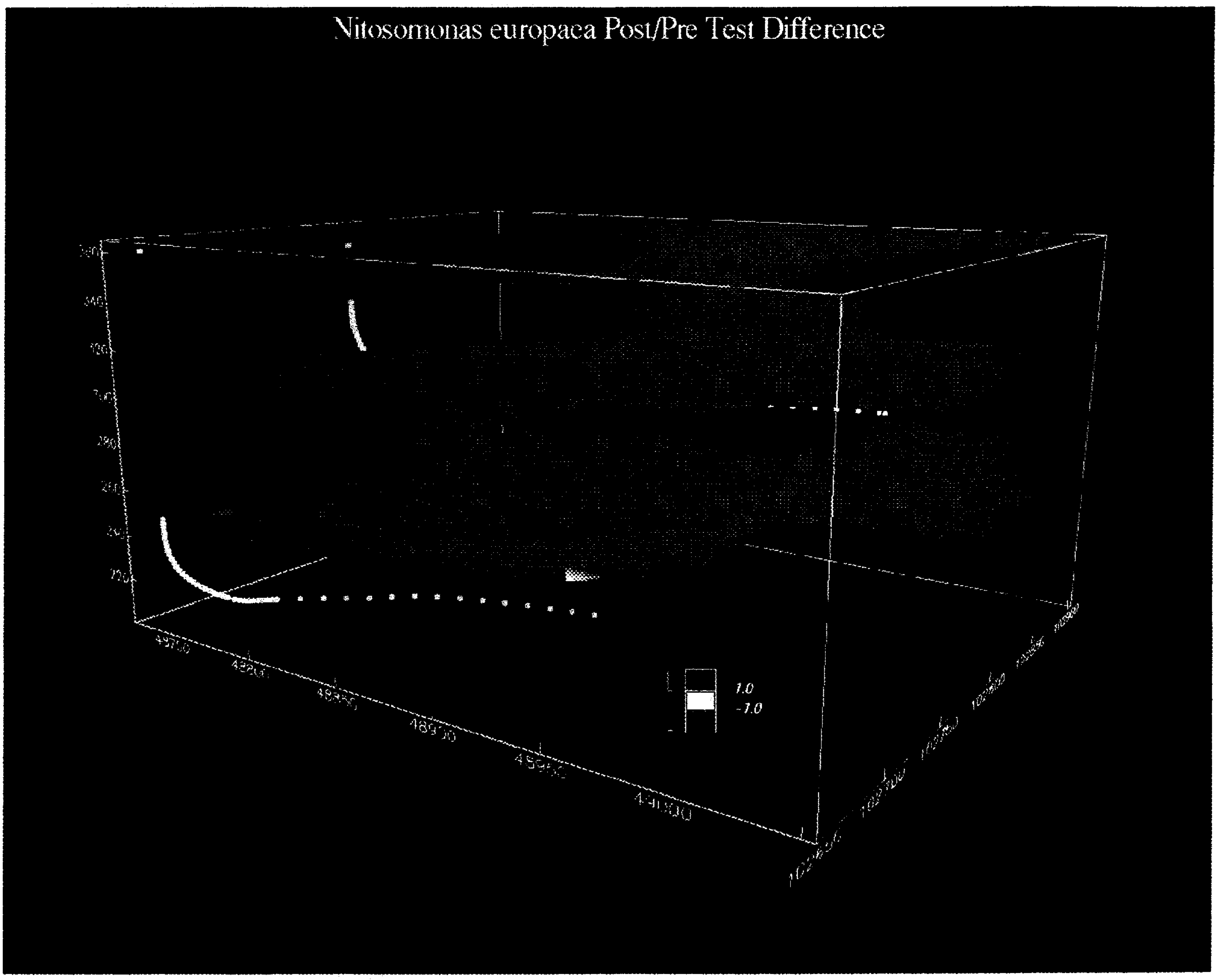
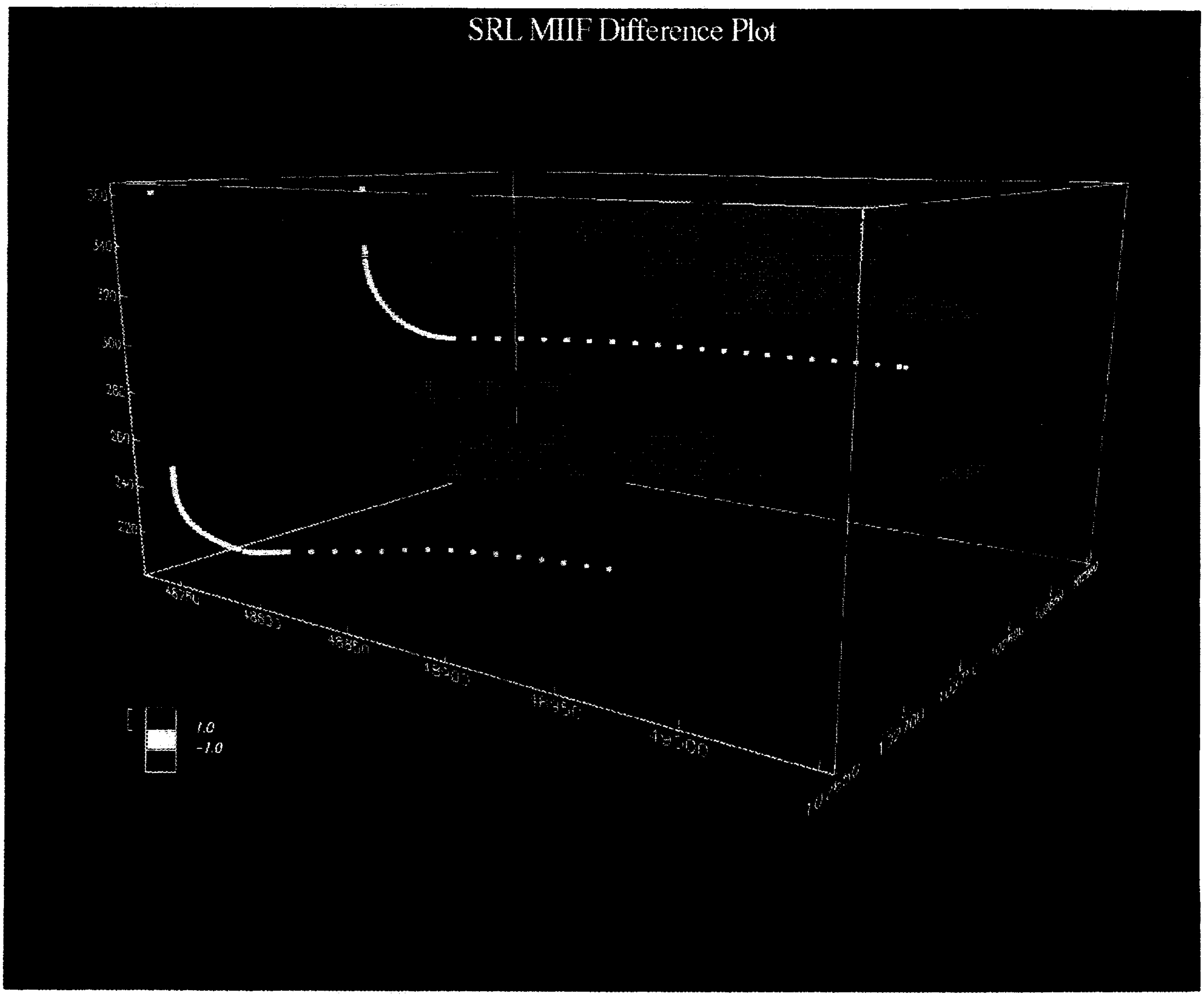

Nitosomonas europaca Post/Pre Test Difference
1.0
-1.0

Figure 13. Pre vs. Post *Nitrosomonas europaea*

Figure 14. Pre vs. Post SRL MHF


SRL MIIF Difference Plot
1.0
-1.0

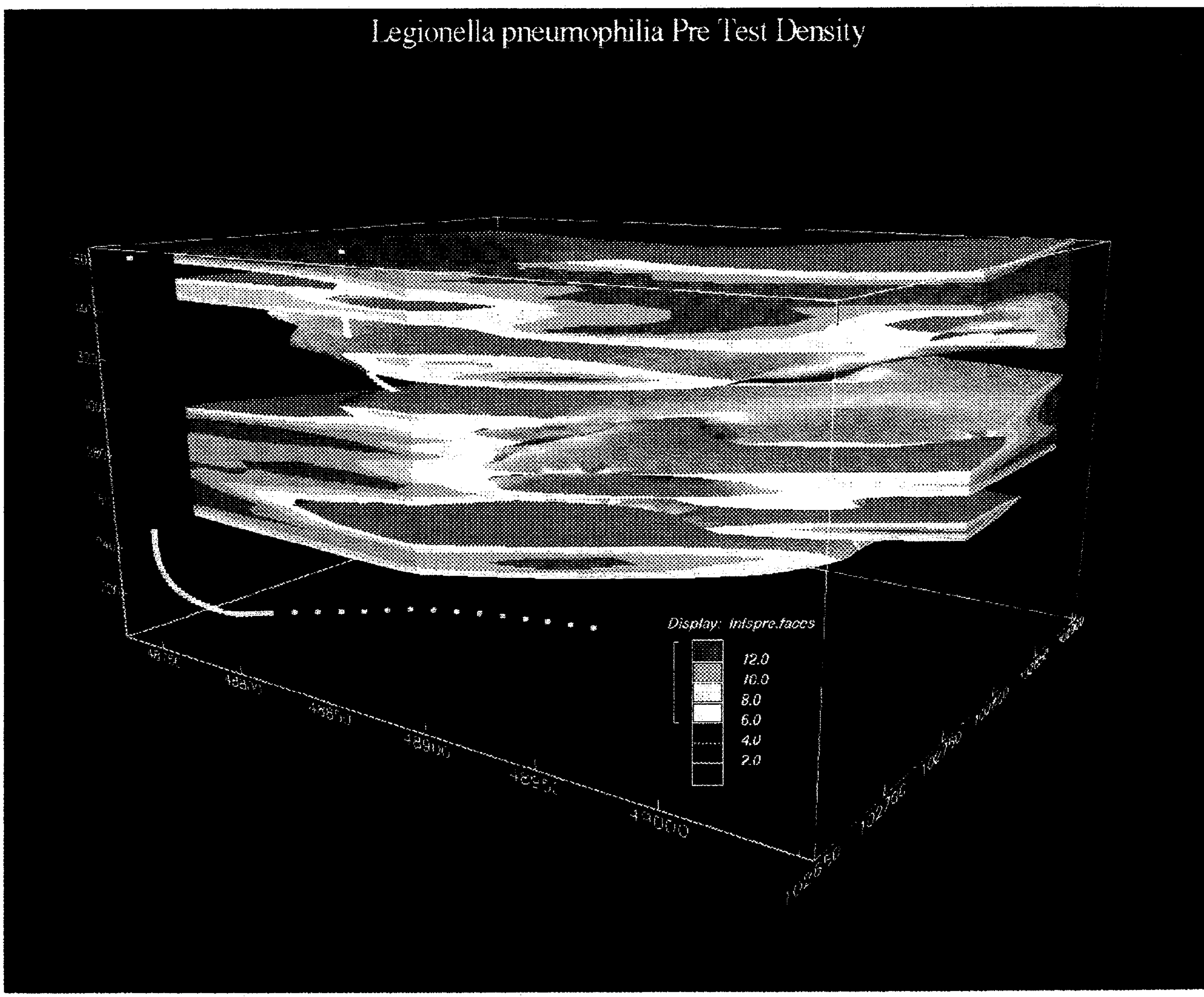

Legionella pneumophilia Pre Test Density
Display: infspre.faccs
12.0
10.0
8.0
6.0
4.0
2.0
48900
49000

Figure 15. Pretest *Legionella pneumophila*

Figure 16. Post-Test *Legionella pneumophila*

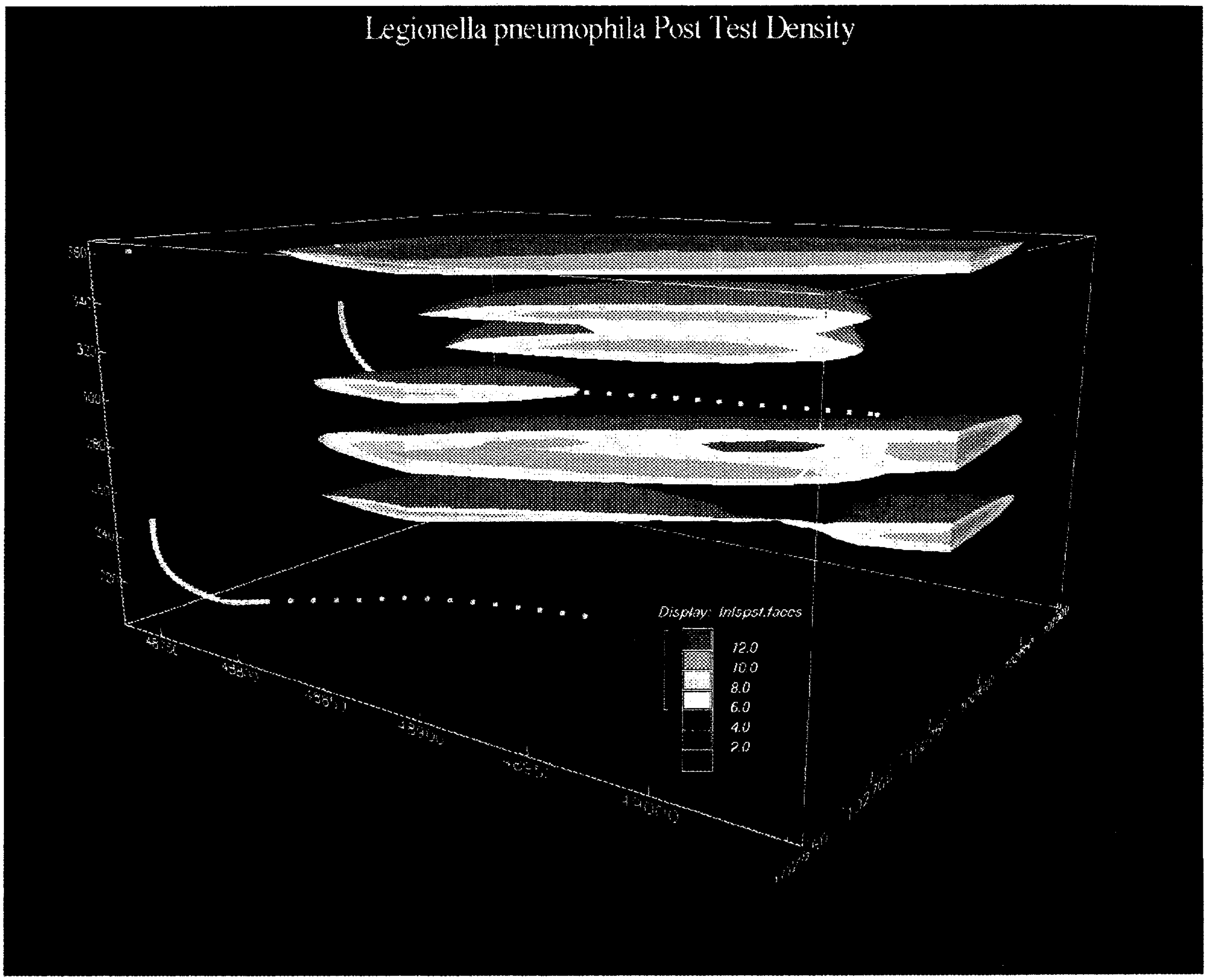
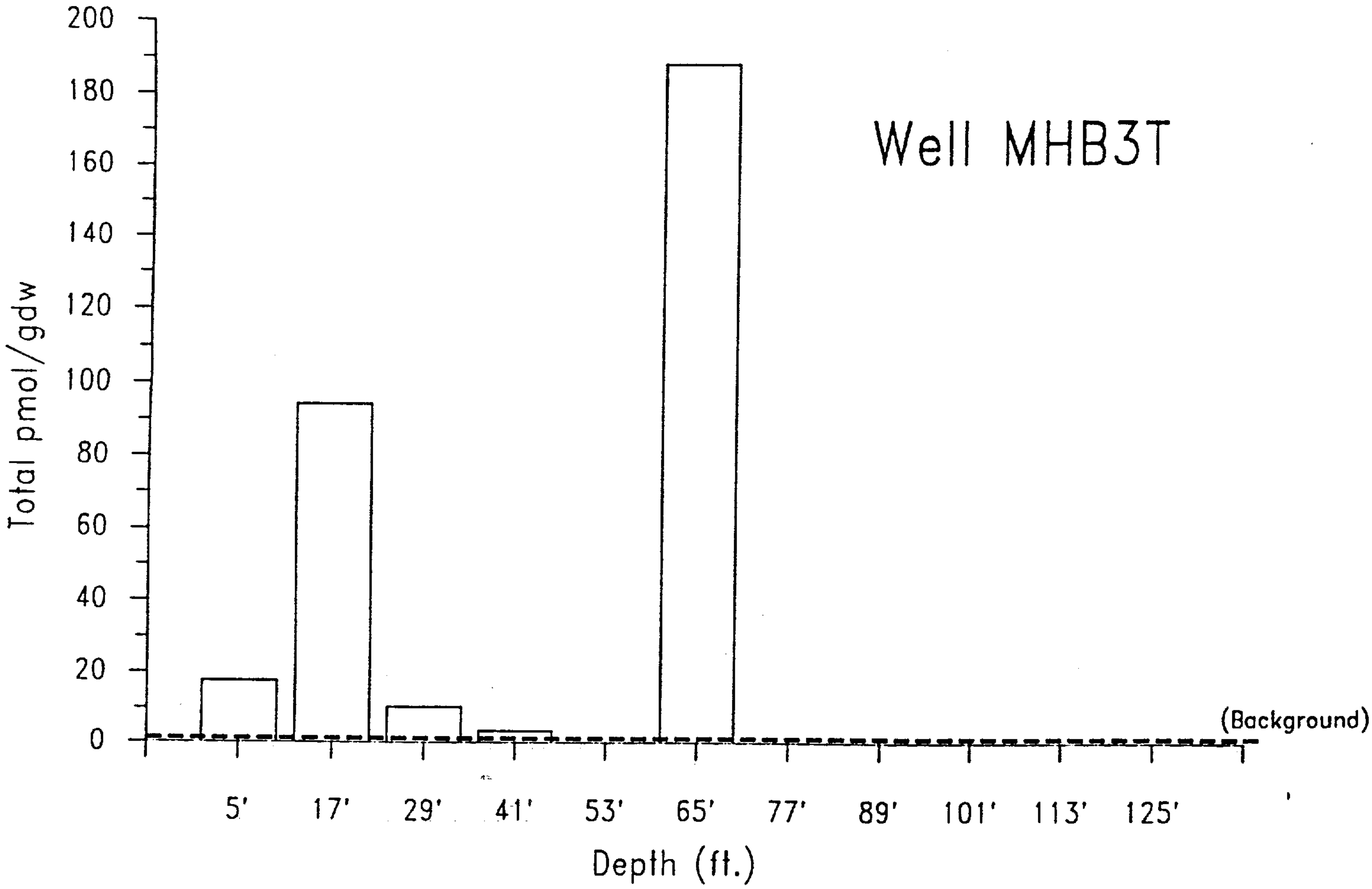

Legionella pneumophila Post Test Density
Display: infspst.faces
12.0
10.0
8.0
6.0
4.0
2.0

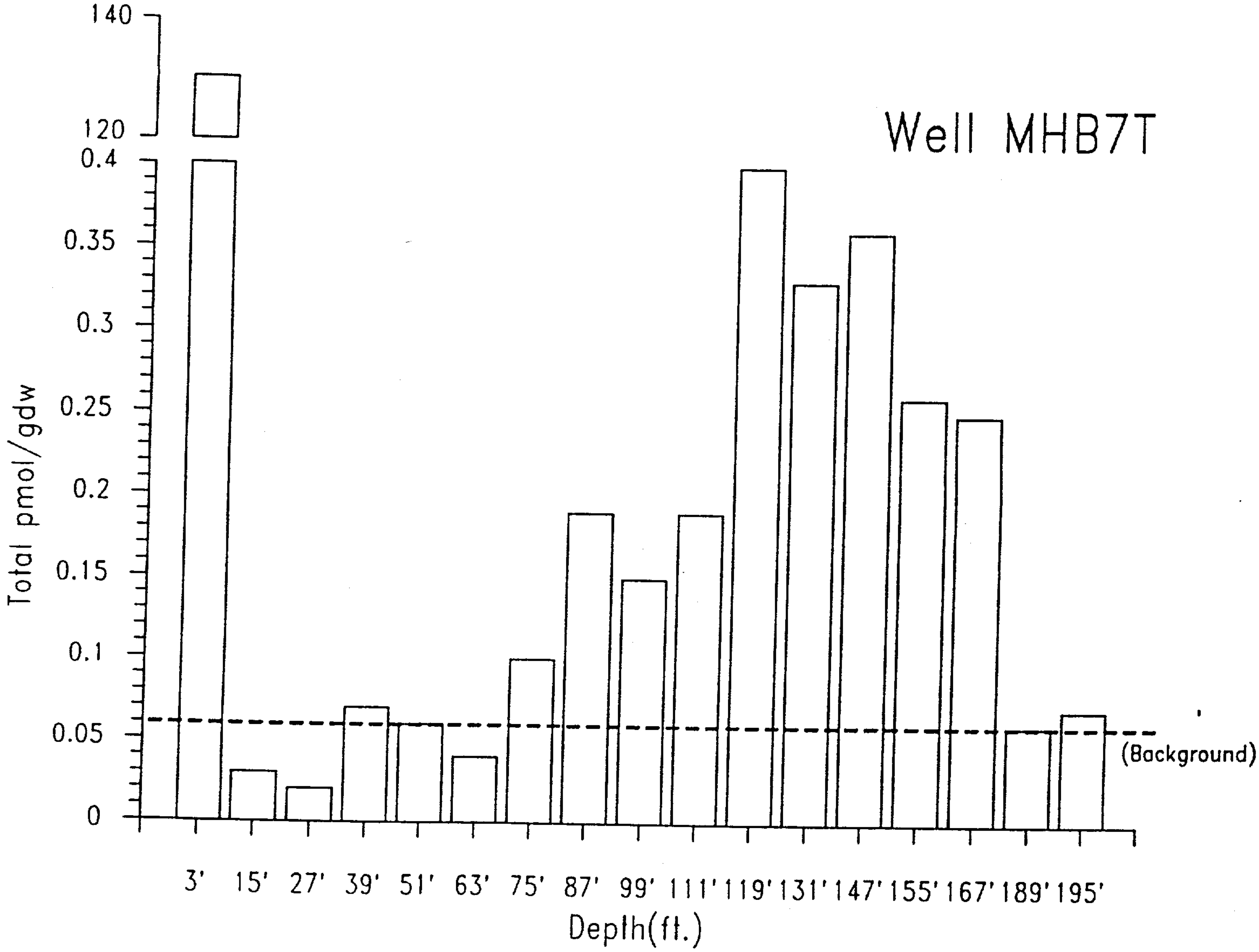
Figure 17. Phospholipid Fatty Acid Analysis for MHB-3T

Figure 18. Phospholipid Fatty Acid Analysis for MHB-7T


Well MHB3T
Total pmol/gdw
200
180
160
140
120
100
80
60
40
20
0
(Background)
5'
17'
29'
41'
53'
65'
77'
89'
101'
113'
125'
Depth (ft.)

17

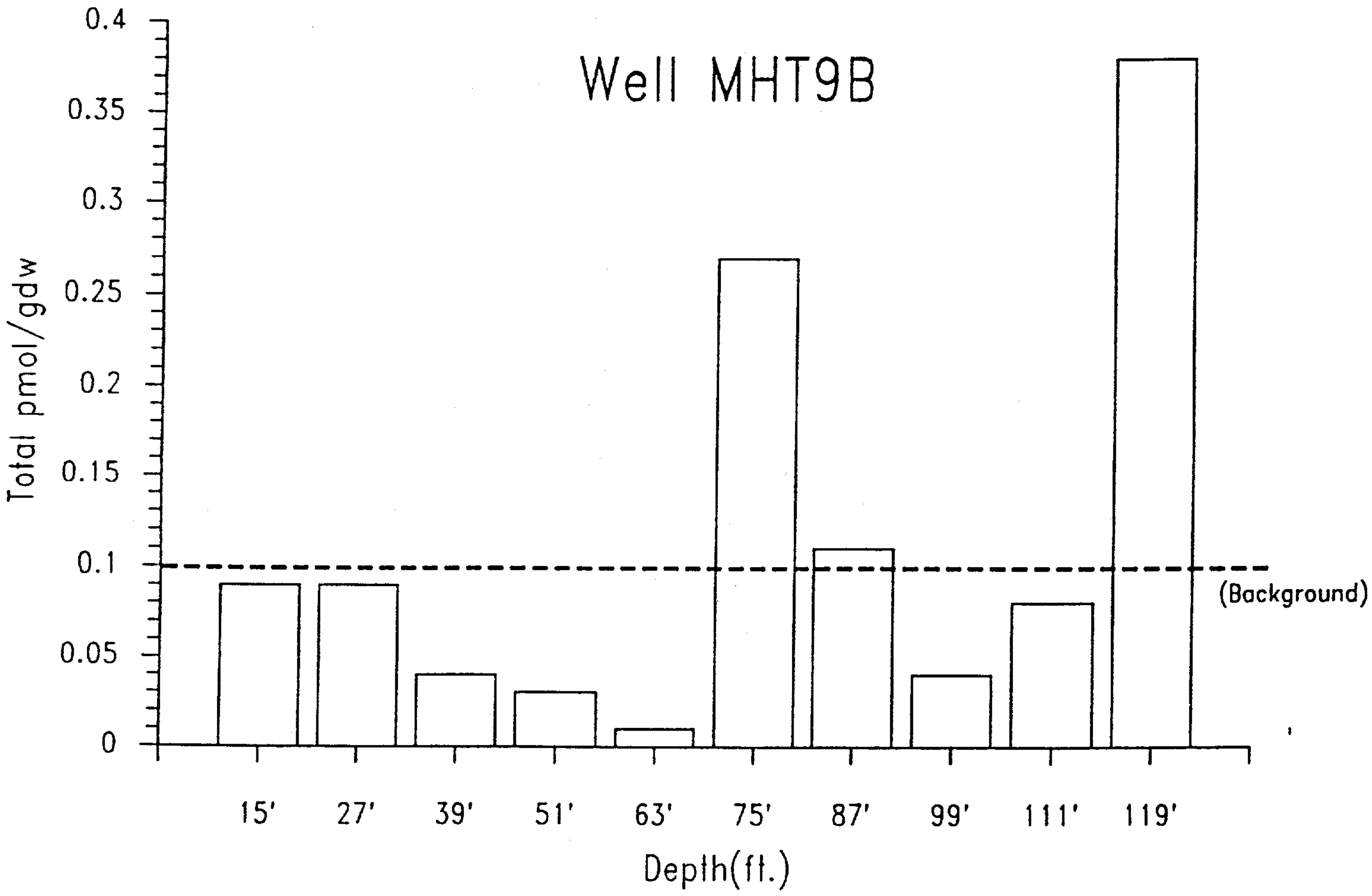
Figs 17-24


Well MHB7T
Total pmol/gdw
140
120
0.4
0.35
0.3
0.25
0.2
0.15
0.1
0.05
0
(Background)
3' 15' 27' 39' 51' 63' 75' 87' 99' 111' 119' 131' 147' 155' 167' 189' 195'
Depth(ft.)

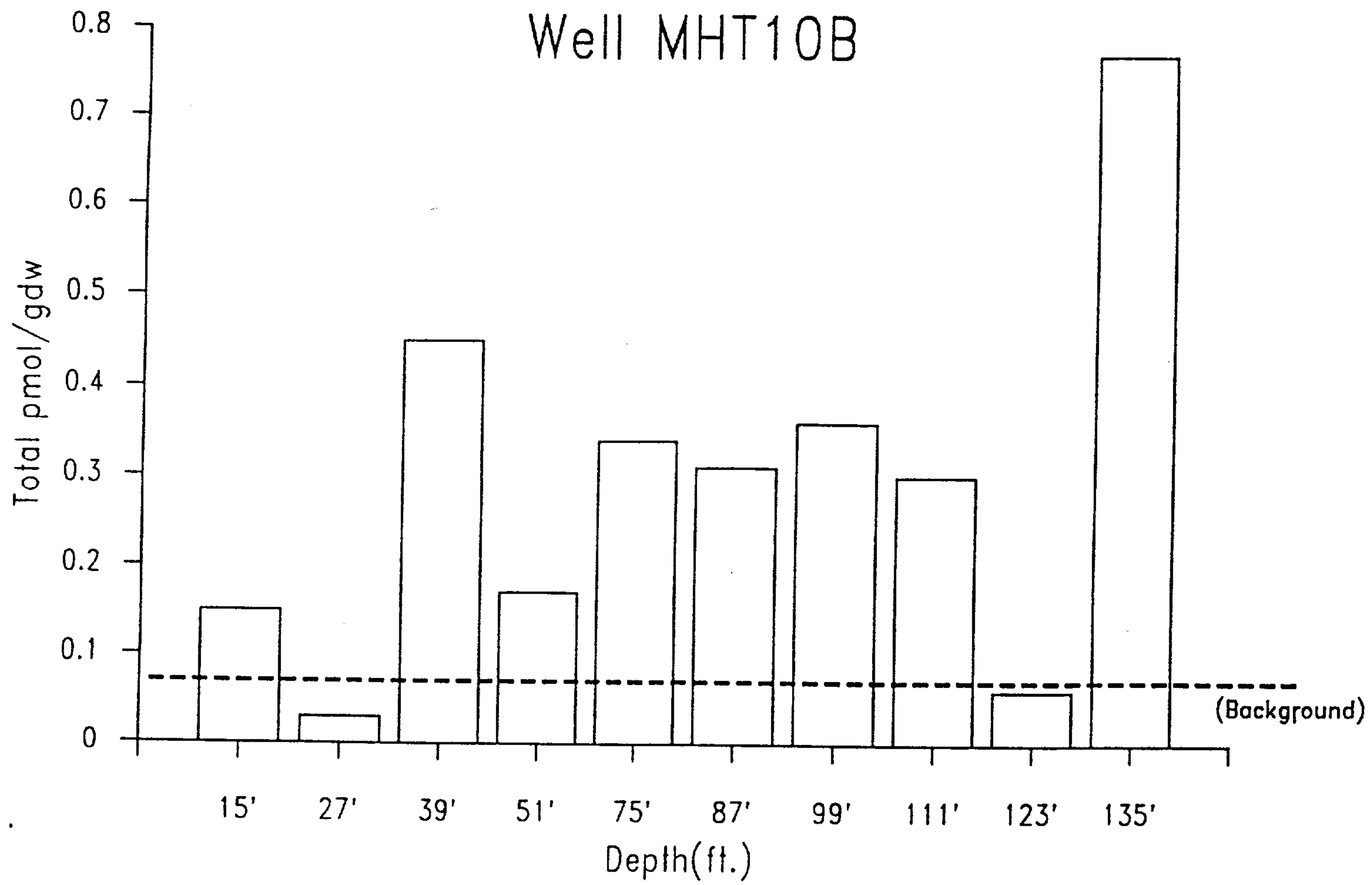
18

Figure 19. Phospholipid Fatty Acid Analysis for MHB-9B

Figure 20. Phospholipid Fatty Acid Analysis for MHB-10B


Well MHT9B
Total pmol/gdw
0.4
0.35
0.3
0.25
0.2
0.15
0.1
0.05
0
(Background)
15'
27'
39'
51'
63'
75'
87'
99'
111'
119'
Depth(ft.)

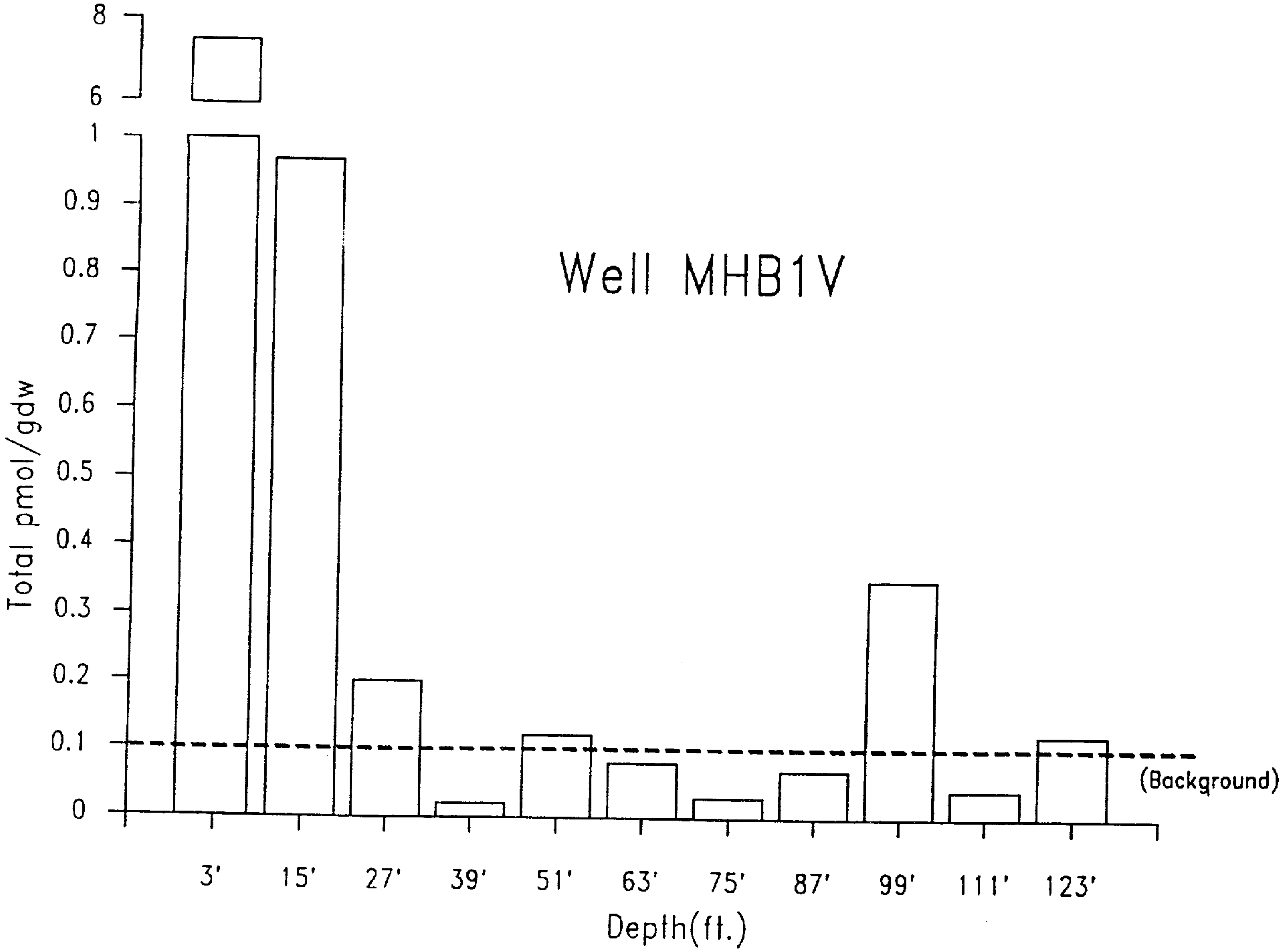
19


Well MHT10B
Total pmol/gdw
0.8
0.7
0.6
0.5
0.4
0.3
0.2
0.1
0
(Background)
15'
27'
39'
51'
75'
87'
99'
111'
123'
135'
Depth(ft.)

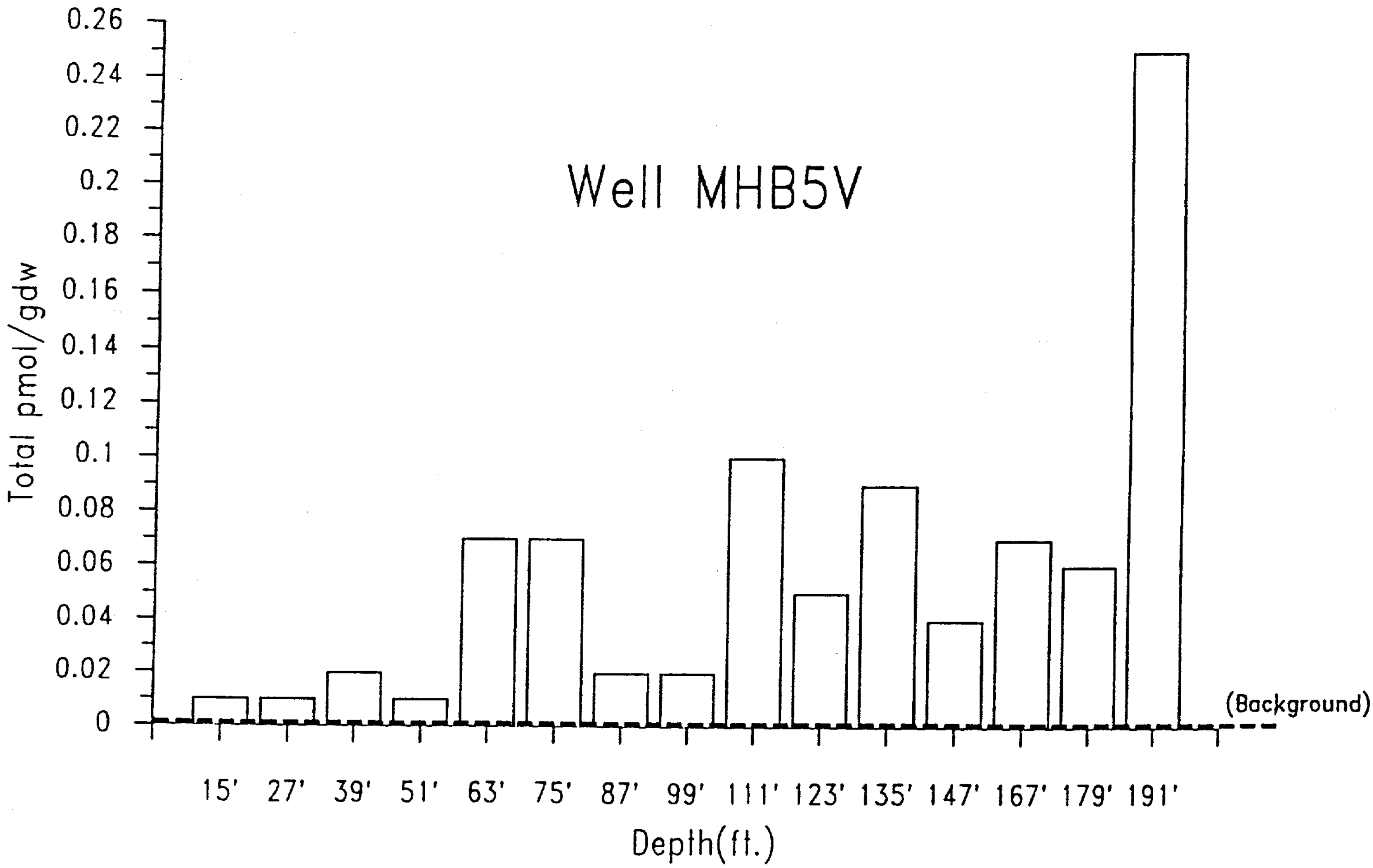
20

Figure 21. Phospholipid Fatty Acid Analysis for MHB-1V

Figure 22. Phospholipid Fatty Acid Analysis for MHB-5V


Well MHB1V
Total pmol/gdw
8
6
1
0.9
0.8
0.7
0.6
0.5
0.4
0.3
0.2
0.1
0
(Background)
3'
15'
27'
39'
51'
63'
75'
87'
99'
111'
123'
Depth(ft.)

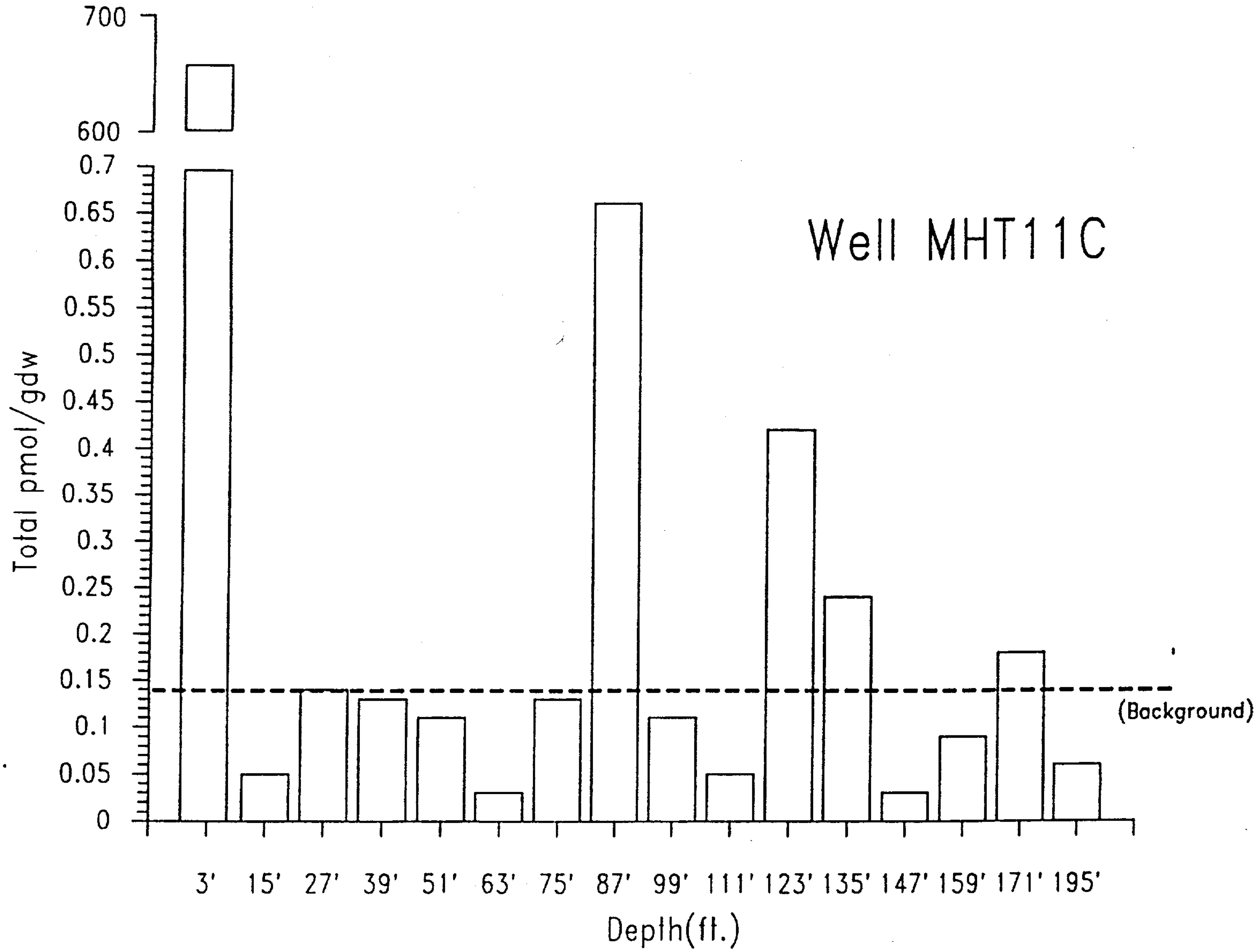
21


Well MHB5V
Total pmol/gdw
0.26
0.24
0.22
0.2
0.18
0.16
0.14
0.12
0.1
0.08
0.06
0.04
0.02
0
(Background)
15' 27' 39' 51' 63' 75' 87' 99' 111' 123' 135' 147' 167' 179' 191'
Depth(ft.)

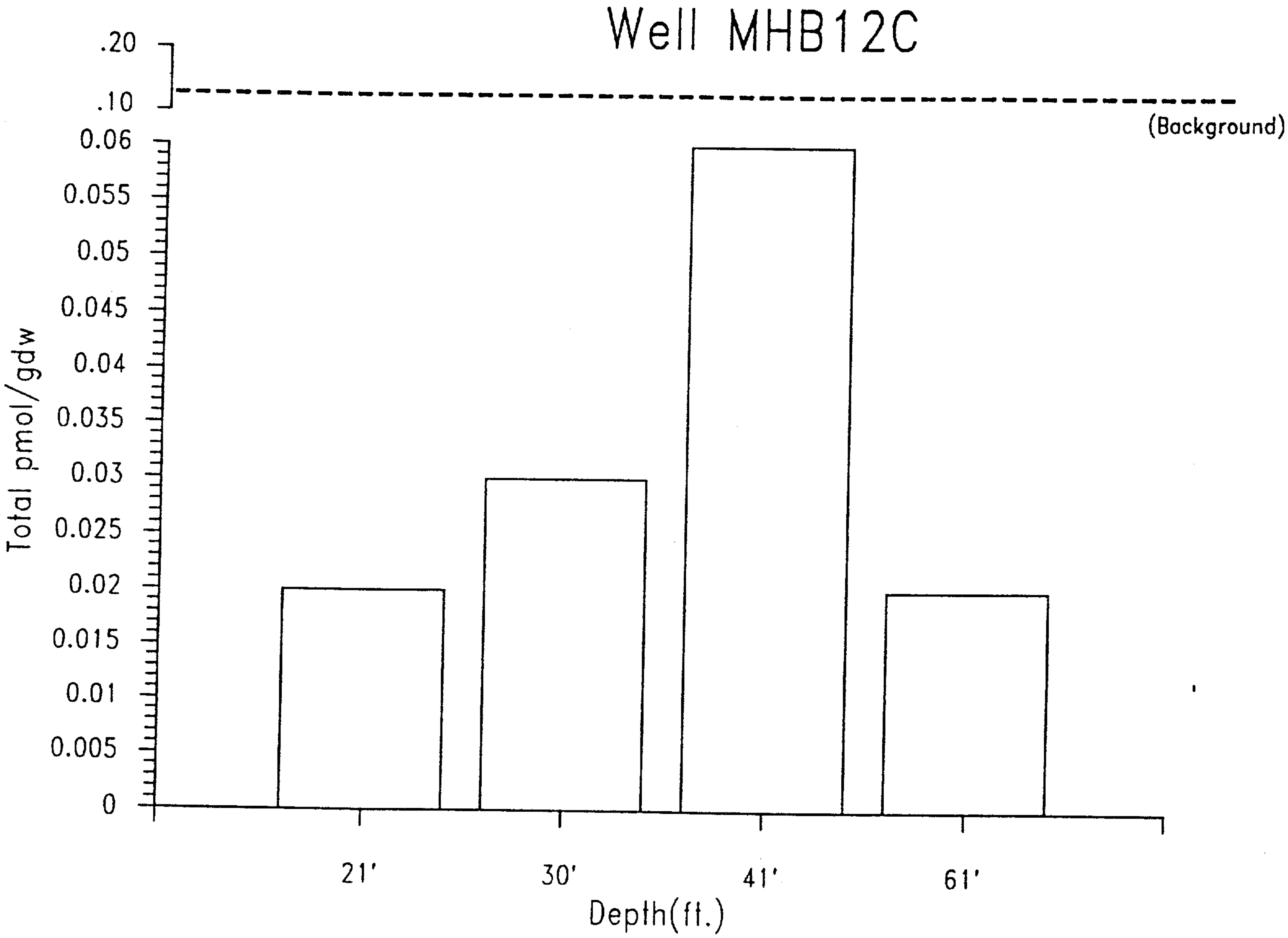
22

Figure 23. Phospholipid Fatty Acid Analysis for MHB-11C

Figure 24. Phospholipid Fatty Acid Analysis for MHB-12C


Well MHT11C
Total pmol/gdw
700
600
0.7
0.65
0.6
0.55
0.5
0.45
0.4
0.35
0.3
0.25
0.2
0.15
0.1
0.05
0
(Background)
3'
15'
27'
39'
51'
63'
75'
87'
99'
111'
123'
135'
147'
159'
171'
195'
Depth(ft.)

23

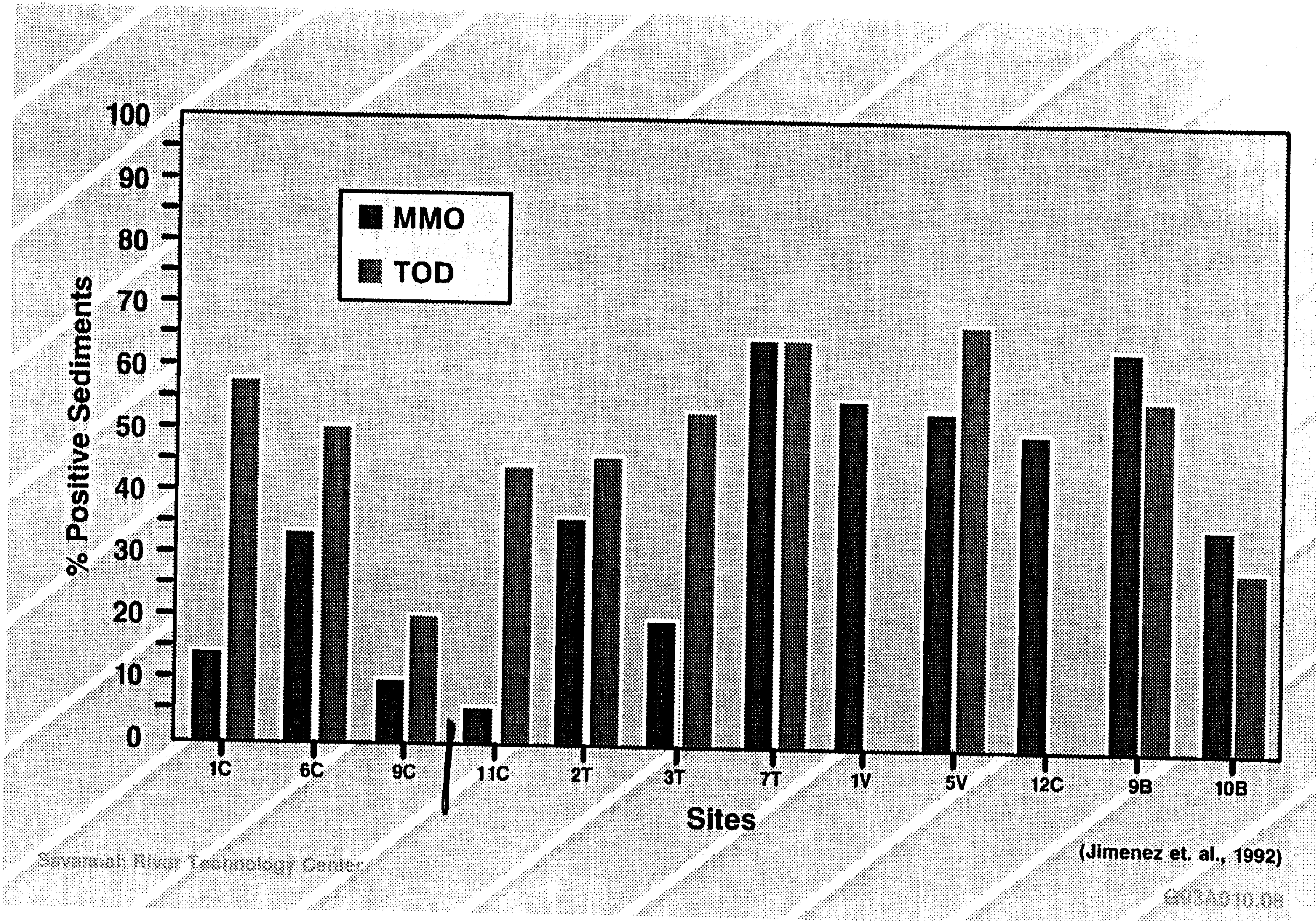


Well MHB12C
.20
.10
(Background)
0.06
0.055
0.05
0.045
0.04
0.035
0.03
0.025
0.02
0.015
0.01
0.005
0
Total pmol/gdw
21'
30'
41'
61'
Depth(ft.)

24

Figure 25. Post-Test MMO and TOD in Sediments

(25)



MMO
TOD
% Positive Sediments
100
90
80
70
60
50
40
30
20
10
0
1C
6C
9C
11C
2T
3T
7T
1V
5V
12C
9B
10B
Sites
Savannah River Technology Center
(Jimenez et. al., 1992)
G93A010.08

15

Contamination Distribution

Sediments sampled from the post-test borings were analyzed for both TCE and PCE content. There was a significant decrease in the amount and extent of contamination, especially for PCE, as a result of the *in situ* air stripping demonstration. Analytical results for all the post-test borings are reported in Appendix IX and are plotted against depth in Appendix X. Three-dimensional imaging techniques were used to prepare pretest and post-test images of TCE and PCE distribution (Figures 26–29) and to estimate pretest and post-test contaminant inventories to evaluate the effectiveness of the remediation.

Methods

The pretest and post-test values from chemical analysis were entered into a database and three-dimensional representations of the post-test data were prepared using a Silicon Graphics Workstation with Dynamic Graphics Software. The data from the pretest and post-test were modeled using the same parameters. The approach to modeling the data to produce the optimal representation of the data is summarized below and is presented in detail in Eddy and Looney (1993).

Two- and three-dimensional surfaces are used to bound the models to prevent large extrapolation errors in areas where no data control points are present. Second, the effects of important variable parameters (e.g., grid size, grid spacing, and weighting factors) were evaluated (Eddy and Looney 1993). A significant effort was made to use appropriate parameters to calculate the grids for the construction of the three-dimensional models. The grid cell spacing of approximately 14 × 14 × 3 feet was chosen to approximate the spacing between sediment borings. A very low z-influence factor (0.001) was used to enhance the lateral continuity of between-sample zones. Logarithmic transformations, used prior to gridding, are used to preserve the steep gradients found at the edges of the contaminant plumes. A semi-logarithmic scale was chosen for the contour intervals as it provided the best representation given the distribution of data values.

Models for the distribution of pretest and post-test TCE and PCE were constructed using three distinct zones reflecting the hydrostratigraphy at the site. The zones consist of the vadose zone, the water table aquifer grouped with the semi-confined aquifer, and the underlying confined aquifer (Figure 30). In this approach, only data within a zone was used for calculation of concentration values within that zone, and points that were outside the zone did not influence calculated values. The vadose zone is bounded at the top by the topographic surface and at the bottom by the water table. The top surface of the water table/semi-confined zone is bounded by the water table and the bottom by the "green clay". The top surface of the confined zone is bounded by the "green clay" and the bottom by the 160-foot elevation. All models are bounded laterally by the same polygon.

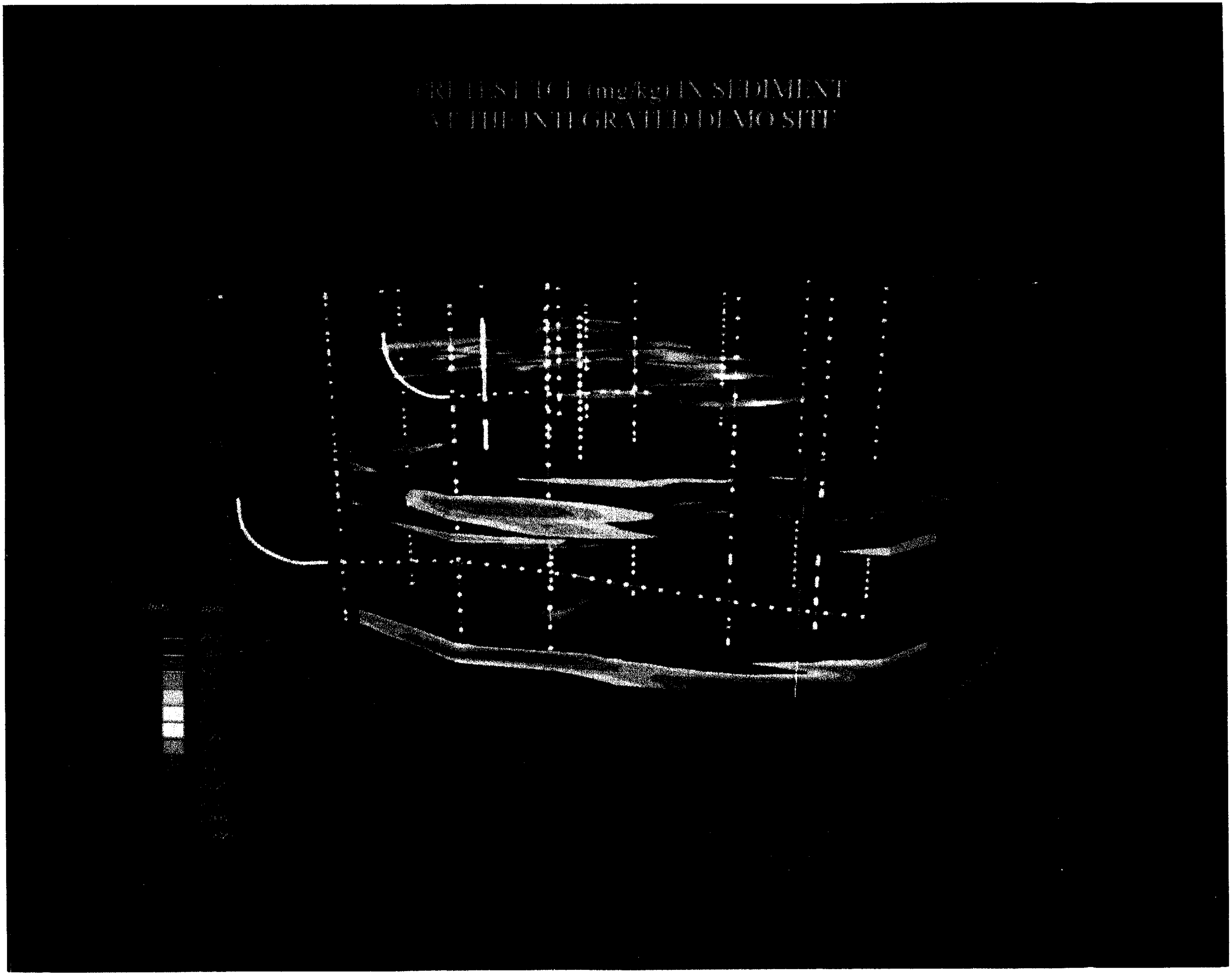
Results

The pretest and post-test distribution of solvent in the study area was strongly heterogeneous, governed by the location of the contaminant release and migration gradients, and by the interbedded coastal plain sediments (Eddy et al. 1991). Figures 26 and 27 show the pretest distribution of TCE and PCE at concentration of greater than 1 ppm for TCE and 0.25 ppm for PCE. In general, the highest concentrations of TCE and PCE in the vadose zone are found in the clay-rich sediments. In both cases, the highly stratified sediments contribute to the anisotropic distribution in the study area. Statistical analysis showed that the data were positively skewed and are well characterized by a lognormal distribution. Careful sampling in the field supports these observations. For example, during pretest characterization, a sample collected in clay at 95 feet in boring MHT-4C contained 11 ppm TCE and a sample collected at 96 feet in sand contained 0.9 ppm. These values nearly span the range of concentrations (0–16 ppm) over a distance of 1 foot.

The post-test models (Figures 28 and 29) also showed a strong heterogenous distribution of contamination and a significant decrease in the extent of contamination, especially for PCE. In the vadose zone, the bulk of the contamination is still confined to the clay-rich zones, especially in the basal clays of the Dry Branch Formation ("tan clay" located at approximately 270 feet). In general, the highest concentrations of solvent during both the pretest and post-test investigations were found in this unit. The highest post-test values measured for TCE and PCE were 6.3 ppm (MHB-6T at 258-foot elevation) and 1.6 ppm (MHB-1T at 270-foot elevation), respectively. In contrast, the highest values measured for TCE and PCE in a pretest boring were 16.3 ppm (in MHT-6C at 266-foot elevation) and 8.75 ppm (in MHV4 at 322.7-foot elevation), respectively.

In the saturated zone, the concentrations of solvents measured in the sediments in the semi-confined aquifer were significantly reduced during remedial activities (i.e., essentially no material with concentrations of TCE >1 ppm and PCE >0.25 ppm remain after the remediation demonstration). High concentrations of solvents in the saturated zone were found during both pretest and post-test characterization below the "green clay" confining unit. Prior to the demonstration, it was not anticipated that the *in situ* air stripping system would significantly affect the contamination in this aquifer. The characterization data suggest thc this is not the case, especially in the region where thc horizontal well plunges below the "green clay" into thc confined aquifer (shown by the blue data point on the grecn clay surface in Figure 3). The air injection significantly lowered the concentrations in the confined aquifer in this region.

Figure 26. Pretest Distribution of TCE


PRETEST TCE (mg/kg) IN SEDIMENT
AT THE INTEGRATED DEMO SITE

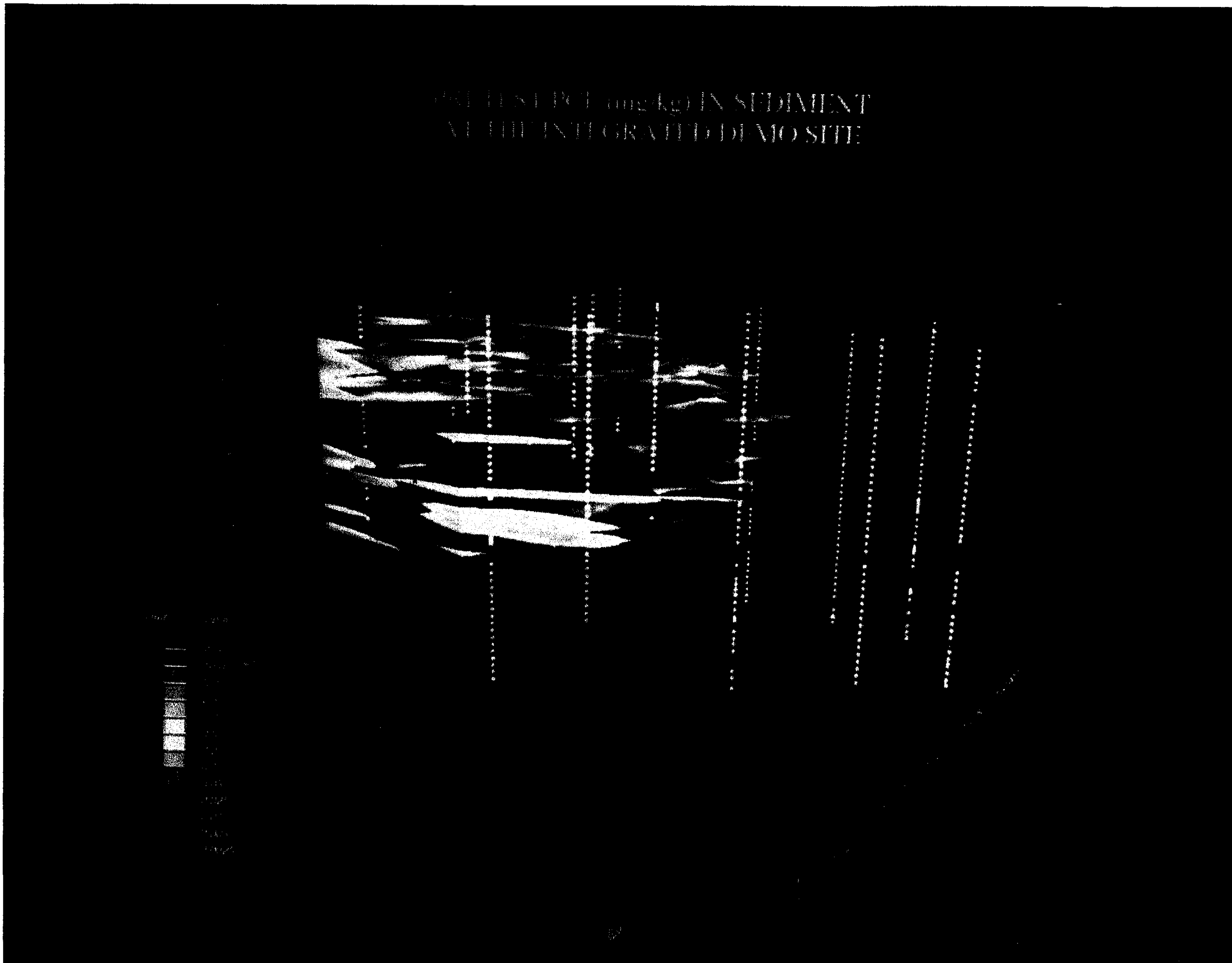
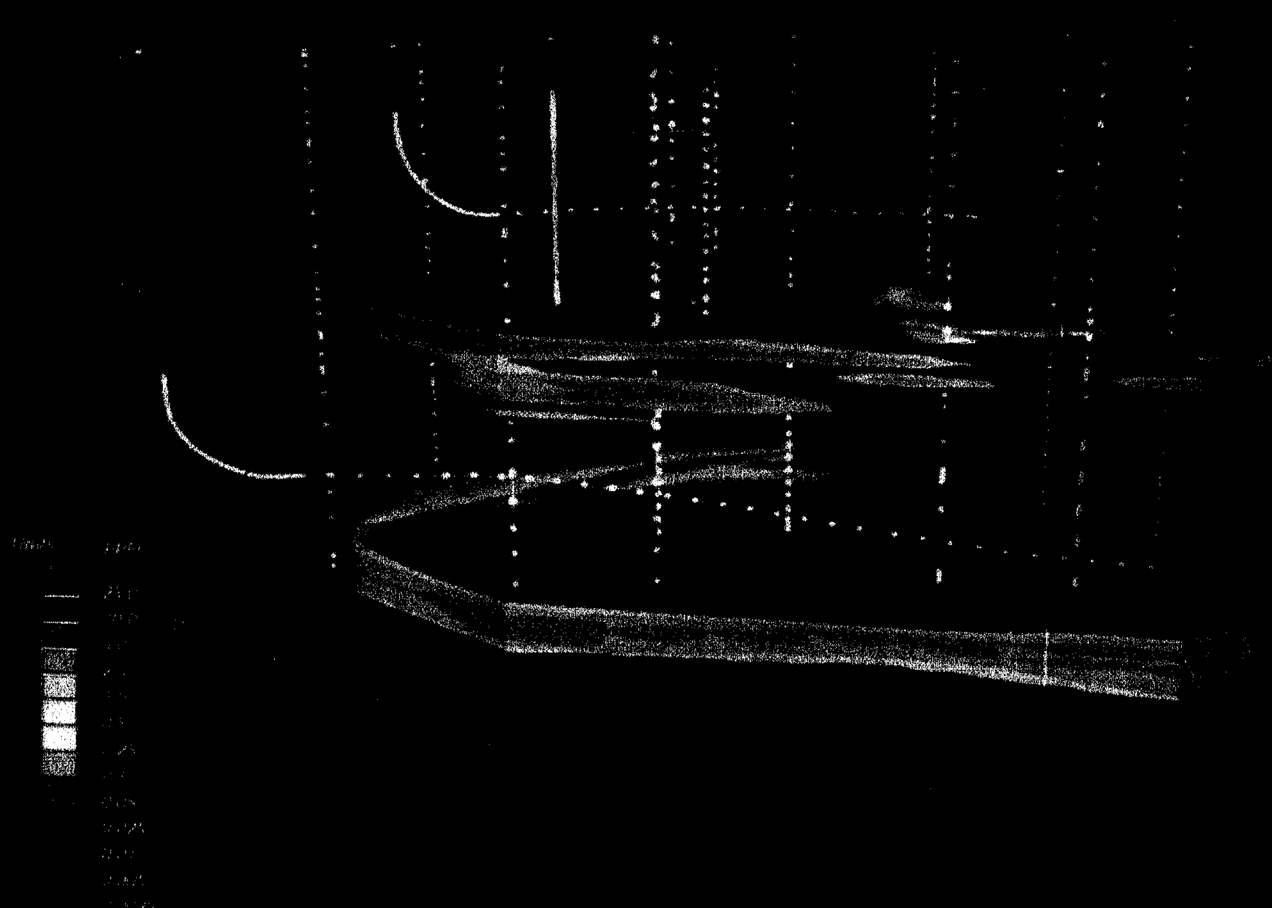

(mg/kg) IN SEDIMENT
AT THE INTEGRATED DEMO SITE

Figure 27. Pretest Distribution of PCE

Figure 28. Post-test Distribution of TCE

... 1 mg/Kg IN SEDIMENT
AT THE INTEGRATED DEMO SITE



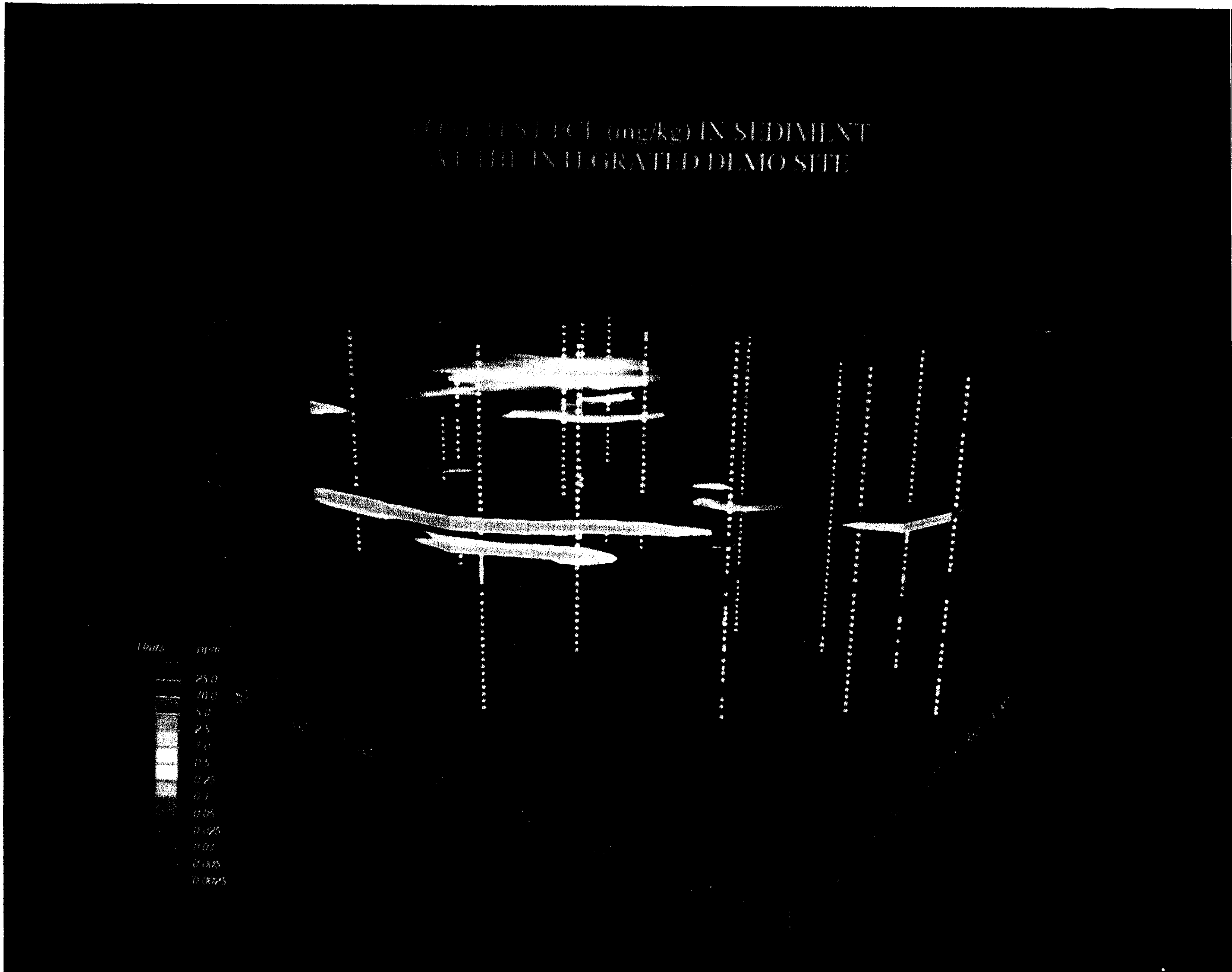

PCE (mg/kg) IN SEDIMENT
AT THE INTEGRATED DEMO SITE
Units ppm
25.0
10.0
5.0
2.5
1.0
0.5
0.25
0.1
0.05
0.025
0.01
0.005
0.0025

Figure 29. Post-test Distribution of PCE

Figure 30. Zones Used in Modeling at the Integrated Demonstration Site

Zones Used in Modeling at the
Integrated Demonstration Site

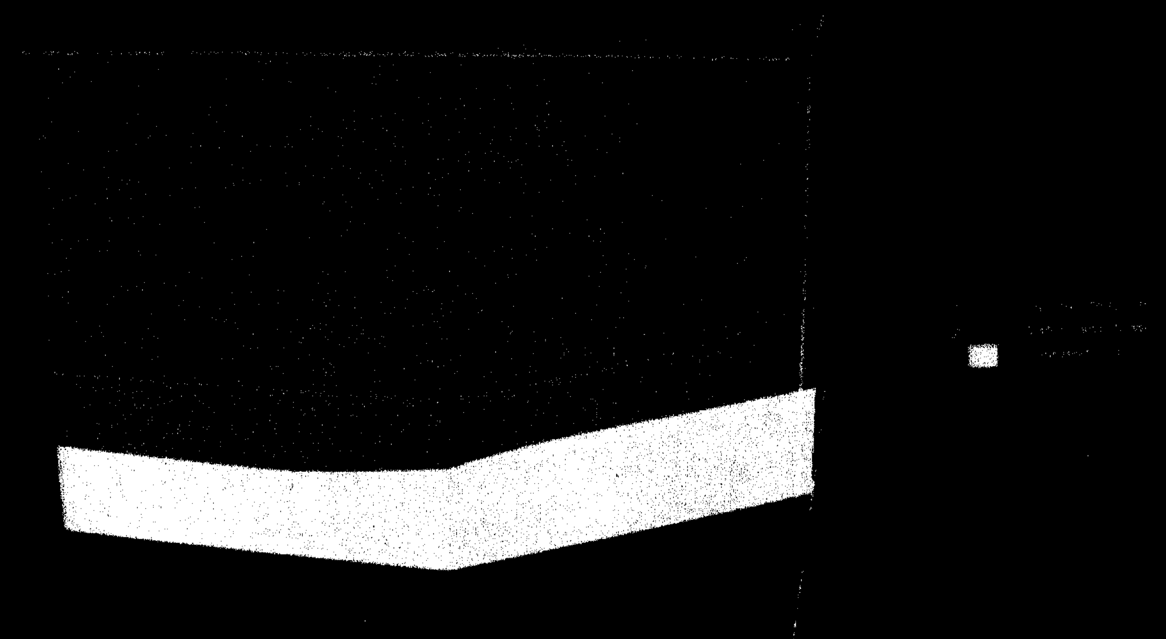


Fig. 31
need big arrow showing point

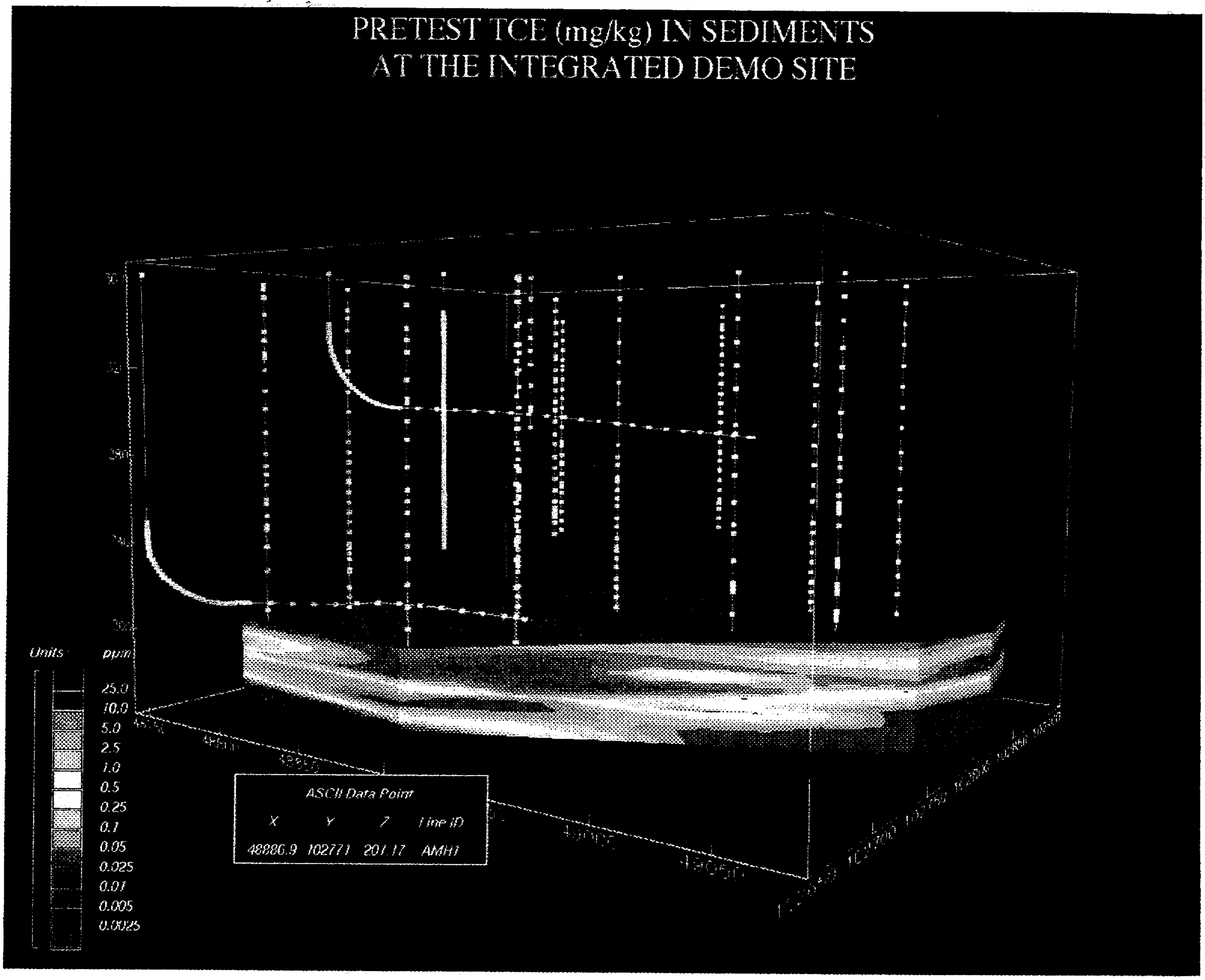


Figure 31. Pretest TCE in Sediments at the Integrated Demonstration Site

Volumetric Calculations

Methods

Pretest and post-test inventories of TCE and PCE at the Integrated Demonstration Site were estimated using the three-dimensional models as described above. Inventory estimates are based on the calculation of volumes between isoconcentration surfaces and assignment of a mass to that volume. The results of the volumetric calculations in the three-dimensional imaging software are in units of cubic feet of contaminated sediments. Volume estimates were calculated for each contour interval (Appendix V). Volume calculations were converted to contaminant inventories using a series of assumptions. A bulk density of 1.6 was used for sediments in the vadose zone, and 1.9 for the sediments in the saturated zone. The value for the porosity of 40% was estimated from measurements made on samples collected in geotechnical testing. The concentration used for each interval was the average of the values of the two bounding isoconcentration surfaces (e.g., 17.5 was used for the volume between the 10- and 25-ppm surfaces). All volume and inventory calculation are for a control polygon roughly 300 feet long and 250 feet wide centered over the horizontal remediation well pair. This spacing allowed detailed evaluation in the vicinity of the well pair. Additionally, selection of this control volume optimized the accuracy of the inventory calculation by limiting the extrapolation errors inherent in the preparation of the three-dimensional grids. As discussed below, the contaminant inventories and measurements indicate that the zone of influence of the in situ air stripping extended well beyond the control polygon.

Pre- and Post-test Inventory Calculations

The calculations suggest that approximately 1200 lb of chlorinated compounds (TCE and PCE in Zones 1, 2, and 3) were present within the control zone at the site prior to the *in situ* air stripping remediation demonstration; after the demonstration, there were only 500 lb present (Appendix XI). As discussed above, this contaminant mass is estimated for the volume bounded by a polygon that extends laterally 10–20 feet beyond the outermost boring locations, the ground surface, and the 160-foot elevation. Based on the monitoring data, the modeled volume is smaller than the volume affected by the air stripping system; over 16,000 lb were measured in the offgas during the remediation (Looney et al. 1991). This amount does not include the contamination removed as a result of biodegradation.

The results suggest that in the control zone prior to remediation, more than 50% of the VOCs were in the vadose zone. The bulk of the material in the saturated zone was found below the "green clay" zone. Note that the volumetric calculations may overestimate the material in this deeper zone. Trends in a few samples showed an increase in contamination below the confining clay, resulting in the extrapolation of a highly contaminated zone at the bottom of the model where no data are available for control.

Comparison of the pretest and post-test results suggest that 57% of the solvents were removed from the modeled volume during the demonstration. The results indicate that the remediation was more effective for PCE than for TCE (i.e., 55% of the TCE and 62% of the PCE was removed). In addition, the process was more effective in the unsaturated zone than in the saturated zone. Over 70% of the TCE and 76% of PCE from the vadose zone was removed from the modeled volume.

These results can be used to estimate the approximate time required for cleanup of the solvents. Using a conservative estimate of 50% removal from the vadose zone and neglecting the beneficial effects of bioremediation, the estimated time to clean up 99% of the contamination in the control zone is approximately 2.5 years. Ninety-nine percent was selected because current groundwater levels are on the order of 500 ppb and the drinking water standard is 5 ppb. This approach is based on the assumption that a reduction of the contaminant source in the vadose zone by 99% would lead to an approximately commensurate reduction in underlying groundwater concentration.

$$C/Co = 50/100 = 0.5 = e^{-kt} \text{ (t in years)}$$

$$= e^{-k(139/365)} = e^{-0.381k}$$

$$k = 1.8$$

and for cleanup of 99% of contamination,

$$C/Co = 1/100 = .01 = e^{-kt} = e^{-1.8t}$$

$$t = 2.5 \text{ years}$$

At nearby facilities groundwater levels greater than 100,000 ppb have been measured. Using the approach developed above, the clean up fraction required is 99.99995, and the clean up time is approximately six years. This suggests relatively rapid clean up at facilities similar to the Integrated Demonstration Site, sites with relatively high levels of VOC but without nonaqueous phases (pure solvents) below the water table. The presence of nonaqueous phases beneath the water table will require application of concurrent technology targeted at this portion of the plume.

Based on the data from the post-test sediment samples, the cross hole tomography measurements, and the pressure and concentration measurements above and below the water table during the *in situ* air stripping test (Looney 1991), the zone of influence in the vadose zone was larger than the control volume. Below the water table, the injection well influenced monitoring wells ranging from 20 to 40 feet away from the injection well line.

As expected, the calculated pretest inventory of chlorinated solvents from the sediment data are lower than estimates of total VOC releases to the M-Area Settling Basin for several reasons. In part, this results from the limited calculational boundaries of the control polygon. Second, the demonstration was initiated along the leaking process sewer line rather than the principal disposal unit (the basin). Third, the site as used in 1987 for a vertical vacuum extraction test. (Sediment concentrations prior to the 1987 test were approximately 5–10 times the pretest levels described herein.) Finally, any bias in sampling and analysis could tend to result in loss of VOC (or underestimates of contaminant). The potential for underestimating the quantity of VOC present in the control volume due to sampling and analysis losses was minimized by using a headspace method optimized for rapid sealing of the core material into the final vial in the field (Eddy et al. 1991).

Based on process records (solvent usage, etc.), operating procedures, and interviews with employees, Marine and Bledsoe (1984) estimated that a total of 2,136,000 lb of solvents were released to the M-Area Settling Basin. Early site characterization data (Pickett 1985) were used to select the location of the integrated demonstration field site location at one of the most significant release locations along the process sewer. Comparison of the solvent mass in the vadose zone and saturated zone above the "green clay" (the zone contaminated by leaks from the process sewer line), the pretest core data suggest that the integrated demonstration field site control volume received less than 1% of the releases to the basin. While there is significant uncertainty in both the original release estimates (Marine and Bledsoe 1984) and the results of the volume models, the overall magnitude and relative values are reasonable.

The relatively low percentage of the VOCs identified in the control volume (<1%) suggest that most of the VOC released to the subsurface appears to have entered the basin. Initiation of source control technologies, based on those developed at the integrated demonstration field site, are currently being initiated beneath the basin as part of the full scale permitted A/M-Area groundwater corrective action.

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App. I

OSR 30-5
(Rev 12-89)

MONITORING WELL CONSTRUCTION DIAGRAM

G0017

DRILLING SUBCONTRACTOR Graves

WELL NUMBER MHT-1C

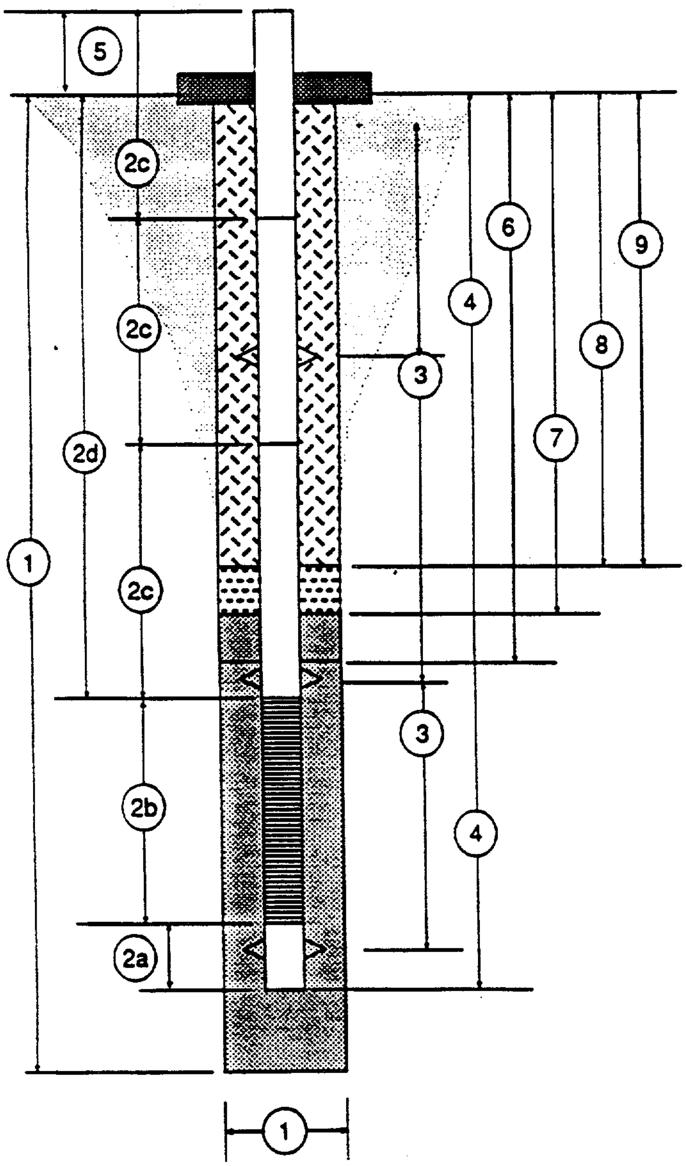
DRILLER S. Rogers

SRS COORDINATES ______

DATE OF WELL INSTALLATION 6/6/90

SANITARY SEAL ELEVATION ______

TECH. O.S./CO. NAME M. Dangerfield/SEC



NOTE: ALL MEASUREMENTS ARE FROM GROUND SURFACE AT START OF BORING – MEASUREMENTS TO NEAREST 0.1 FOOT.

1) Total Drilled Depth/Hole Diameter 162'/11 7/8"

2) Casing/Screen Tally (Measured to Nearest 0.01 Foot)

(a) Sump & Plug Length 2.89'

(b) Screen Length 5.02'

(c) Casing Joint Lengths (Measured in Up-hole Sequence From Top of Screen) 9.99, 9.99, 10.02, 10.02, 10.06, 9.99, 10.02, 10.01, 10.02, 10.00, 10.03, 10.02, 10.02, 9.99, 10.03, 10.03'

(d) Depth to Top of Screen 153.00'

3) Depths to Centralizers ~~[illegible]~~ AND 11.9', 31.9', 71.9, 111.9', 157.9, 158.9

4) Total Depth of Installed Well 160.91

5) Casing Stick Up (Standard 2.5' A.G.S.) 2.5'

6) Depth to Top of Filter Pack 151.1'

7) Depth to Top of Fine Sand Seal 148.3'

8) Depth to Top of Bentonite Seal 144.7'

9) Thickness of Grout 144.7'

G0077

OSR 30-5
(Rev 12-89)

MONITORING WELL CONSTRUCTION DIAGRAM

DRILLING SUBCONTRACTOR Graves

DRILLER S. Rogers / # 311

DATE OF WELL INSTALLATION 6/8/90

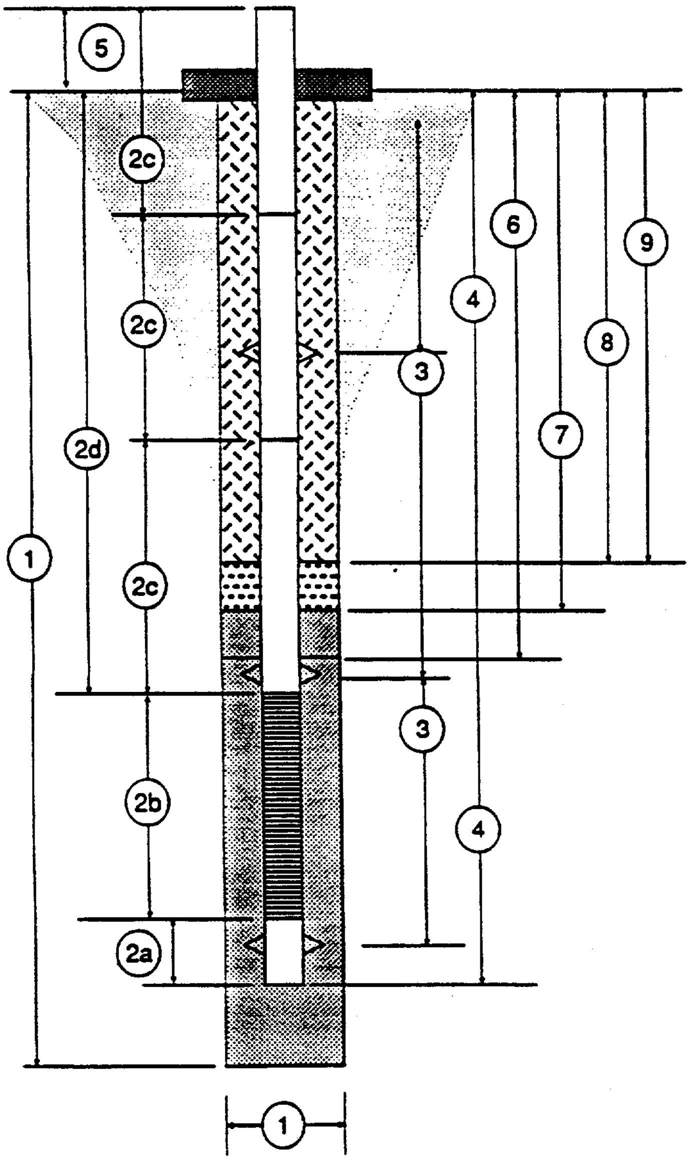
TECH. O.S./CO. NAME M. Dangerfield/SEC

WELL NUMBER AHT-1D

SRS COORDINATES

SANITARY SEAL ELEVATION

NOTE: ALL MEASUREMENTS ARE FROM GROUND SURFACE AT START OF BORING – MEASUREMENTS TO NEAREST 0.1 FOOT.



1) Total Drilled Depth/Hole Diameter 146.0'/11 7/8"

2) Casing/Screen Tally (Measured to Nearest 0.01 Foot)

(a) Sump & Plug Length 1.37

(b) Screen Length 20.05

(c) Casing Joint Lengths (Measured in Up-hole Sequence From Top of Screen) 10.03, 10.02, 10.0[illegible] 10.05, 10.04, 10.04, 10.01, 10.01, 10.01, 10.01, 10.01, 10.02, 10.0[illegible]

(d) Depth to Top of Screen 124.50

3) Depths to Centralizers 22.3', 44.0', 84.0', 124.0' 146.0'

4) Total Depth of Installed Well 146.42'

5) Casing Stick Up (Standard 2.5' A.G.S.) 2.5

6) Depth to Top of Filter Pack 121.0'

7) Depth to Top of Fine Sand Seal 118.0'

8) Depth to Top of Bentonite Seal 113.7'

9) Thickness of Grout 113.7'

DSR 30-5
(Rev 12-89)

MONITORING WELL CONSTRUCTION DIAGRAM

DRILLING SUBCONTRACTOR GRAVES

DRILLER I. PICKNEY

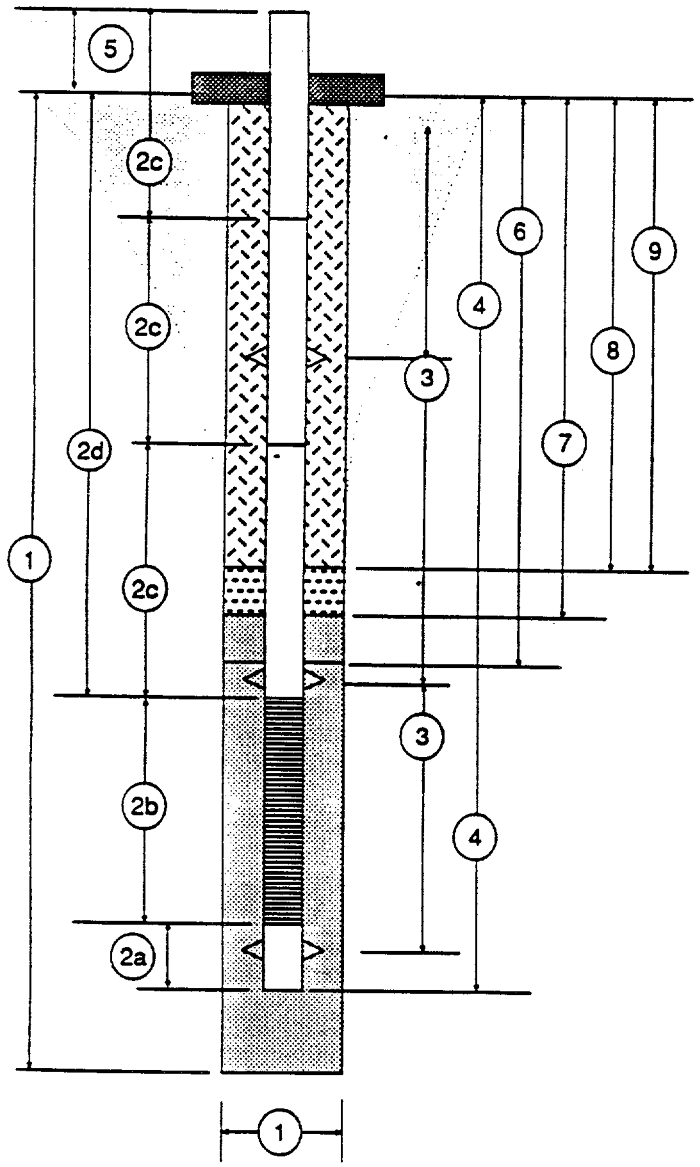
DATE OF WELL INSTALLATION 4/2/90

TECH. O.S./CO. NAME T. McKinsey / Sirrine

WELL NUMBER MKT-2C

SRS COORDINATES

SANITARY SEAL ELEVATION



NOTE: ALL MEASUREMENTS ARE FROM GROUND SURFACE AT START OF BORING – MEASUREMENTS TO NEAREST 0.1 FOOT.

1) Total Drilled Depth/Hole Diameter 160/ 9 7/8

2) Casing/Screen Tally (Measured to Nearest 0.01 Foot)

(a) Sump & Plug Length 2.9

(b) Screen Length 5.0

(c) Casing Joint Lengths (Measured in Up-hole Sequence From Top of Screen) 10.01, 10.02, 10.02, 10.02, 10.02, 10.01, 10.02, 10.01, 10.02, 10.02, 10.02, 10.02, 10.03, 10.02, 10.02, 1.70

(d) Depth to Top of Screen 152.0

3) Depths to Centralizers 158, 151, 118, 79, 39, 5

4) Total Depth of Installed Well 159.9

5) Casing Stick Up (Standard 2.5' A.G.S.) 2.5

6) Depth to Top of Filter Pack 148.6

7) Depth to Top of Fine Sand Seal 146.4

8) Depth to Top of Bentonite Seal 134.6

9) Thickness of Grout 134.6

DSR 30-5
Rev 12-89)

MONITORING WELL CONSTRUCTION DIAGRAM

DRILLING SUBCONTRACTOR GRAVES

WELL NUMBER MHT-2D

DRILLER S. RODGERS

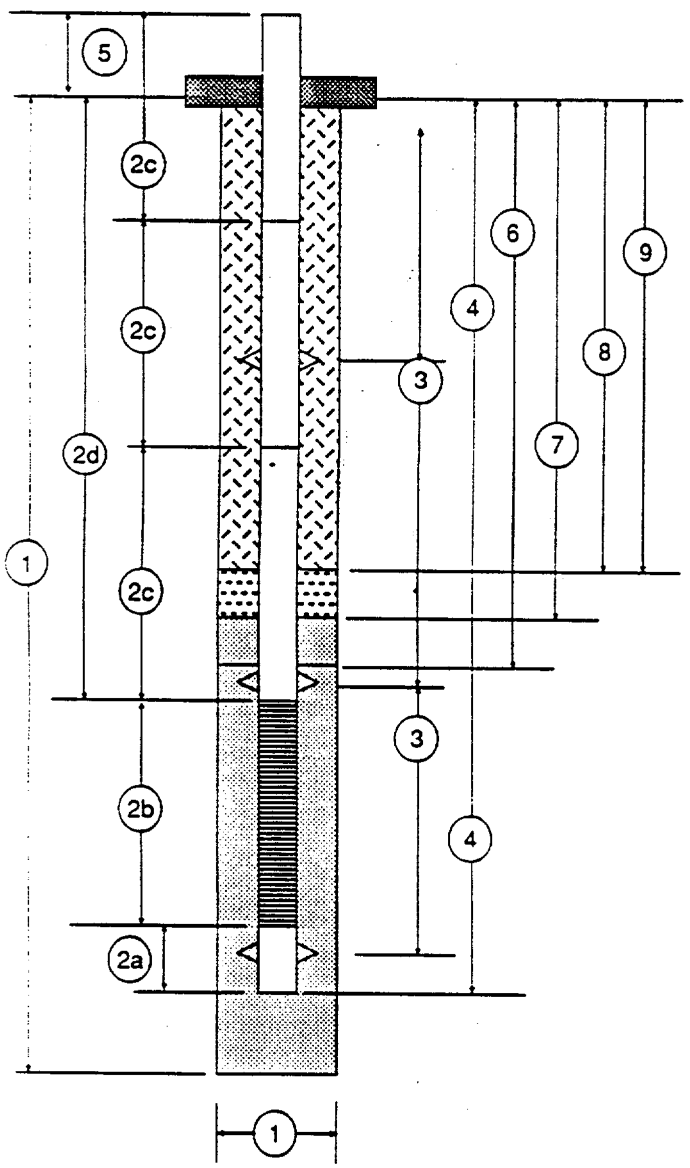
SRS COORDINATES

DATE OF WELL INSTALLATION 4/5/90

SANITARY SEAL ELEVATION

TECH. O.S./CO. NAME McKinsey / Sirrine

NOTE: ALL MEASUREMENTS ARE FROM GROUND SURFACE AT START OF BORING – MEASUREMENTS TO NEAREST 0.1 FOOT.



1) Total Drilled Depth/Hole Diameter 145.3 / 11 7/8

2) Casing/Screen Tally (Measured to Nearest 0.01 Foot)

(a) Sump & Plug Length 1.4

(b) Screen Length 20.6

(c) Casing Joint Lengths (Measured in Up-hole Sequence From Top of Screen) 10.03, 10.01, 10.03, 10.00, 10.04, 10.02, 10.03, 10.02, 10.03, 10.01, 10.03, 10.01,

(d) Depth to Top of Screen 123.8

3) Depths to Centralizers 145.0, 122.0, 79.0, 38.5, 5.0.

4) Total Depth of Installed Well 145.3

5) Casing Stick Up (Standard 2.5' A.G.S.) 2.5

6) Depth to Top of Filter Pack 121.2

7) Depth to Top of Fine Sand Seal 120.0

8) Depth to Top of Bentonite Seal 117.0

9) Thickness of Grout 117.0

OSR 30-5
(Rev 12-89)

MONITORING WELL CONSTRUCTION DIAGRAM

DRILLING SUBCONTRACTOR GRAVES

WELL NUMBER MHT-3C

DRILLER S. RODGERS

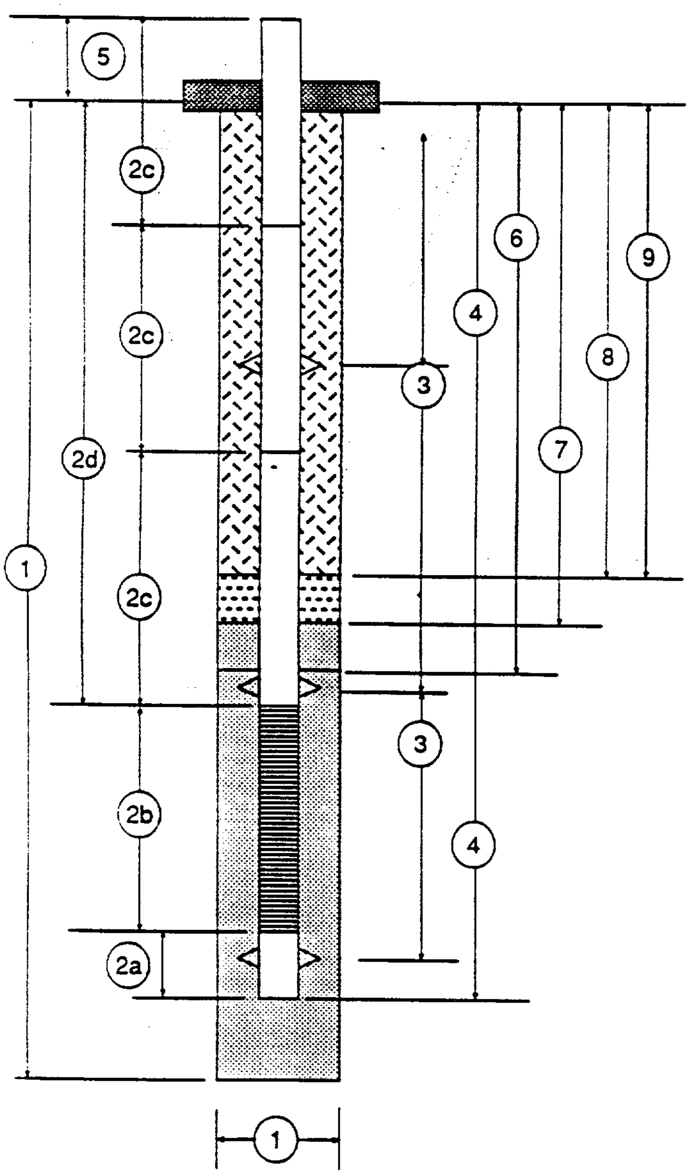
SRS COORDINATES ____

DATE OF WELL INSTALLATION 4/11/90

SANITARY SEAL ELEVATION ____

TECH. O.S./CO. NAME T. McKinsey / Sirrine

NOTE: ALL MEASUREMENTS ARE FROM GROUND SURFACE AT START OF BORING – MEASUREMENTS TO NEAREST 0.1 FOOT.



1) Total Drilled Depth/Hole Diameter 162 / 11 7/8

2) Casing/Screen Tally (Measured to Nearest 0.01 Foot)

(a) Sump & Plug Length 2.88

(b) Screen Length 5.03

(c) Casing Joint Lengths (Measured in Up-hole Sequence From Top of Screen) 10.00, 10.02, 10.01, 10.01, 10.00, 10.01, 10.01, 10.02, 10.01, 10.01, 10.01, 10.01, 10.01, 10.01, 10.01, 10.01.

(d) Depth to Top of Screen 153.0

3) Depths to Centralizers 159.2, 151.7, 119.5, 79.0, 38.5, 5.0

4) Total Depth of Installed Well 160.9

5) Casing Stick Up (Standard 2.5' A.G.S.) 2.5

6) Depth to Top of Filter Pack 149.7

7) Depth to Top of Fine Sand Seal 148.7

8) Depth to Top of Bentonite Seal 144.3

9) Thickness of Grout 144.3

DSR 30-5
(Rev 12-89)

MONITORING WELL CONSTRUCTION DIAGRAM

DRILLING SUBCONTRACTOR GRAVES

WELL NUMBER MHT-3D

DRILLER S. RODGERS

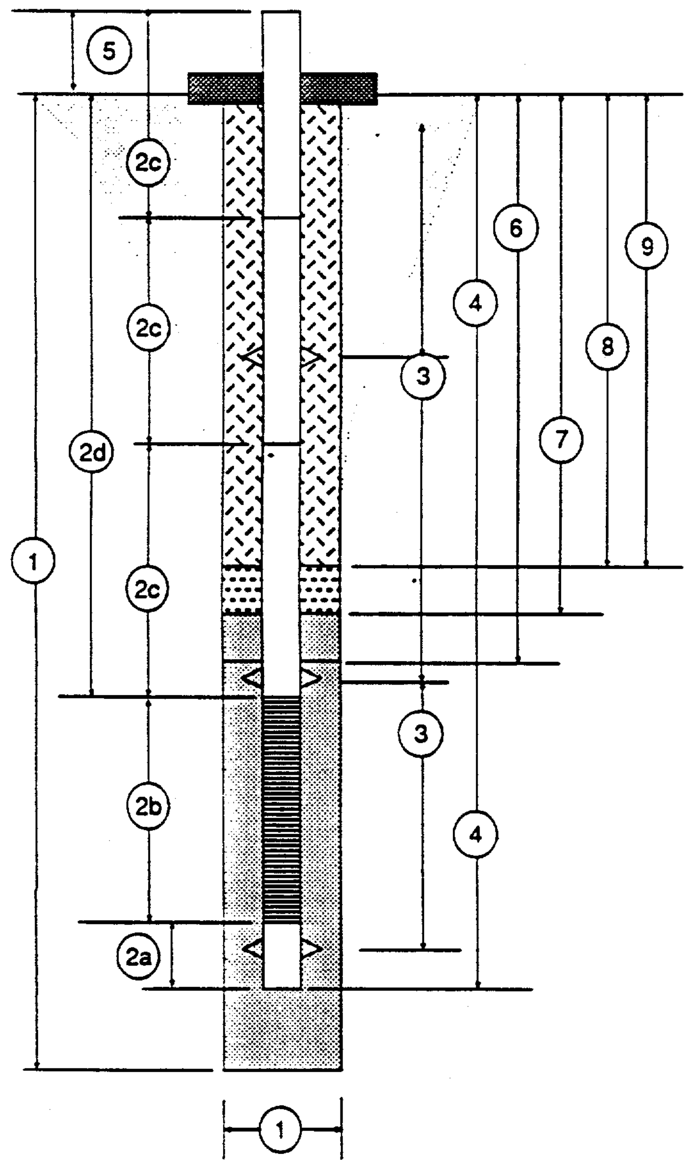
SRS COORDINATES ______

DATE OF WELL INSTALLATION 4/13/90

SANITARY SEAL ELEVATION ______

TECH. O.S./CO. NAME McKinsey / Sirrine

NOTE: ALL MEASUREMENTS ARE FROM GROUND SURFACE AT START OF BORING – MEASUREMENTS TO NEAREST 0.1 FOOT.



1) Total Drilled Depth/Hole Diameter 146.4 / 11 7/8

2) Casing/Screen Tally (Measured to Nearest 0.01 Foot)

(a) Sump & Plug Length 1.36

(b) Screen Length 20.02

(c) Casing Joint Lengths (Measured in Up-hole Sequence From Top of Screen) 10.01, 10.02, 9.99, 10.01, 10.00, 10.00, 10.01, 9.99, 10.02, 10.01, 10.02, 10.00,

(d) Depth to Top of Screen 125.0

3) Depths to Centralizers 145.5, 123.5, 79.0, 38.5, 5.0

4) Total Depth of Installed Well 146.4

5) Casing Stick Up (Standard 2.5' A.G.S.) 2.5

6) Depth to Top of Filter Pack 121.6

7) Depth to Top of Fine Sand Seal 120.7

8) Depth to Top of Bentonite Seal 117.4

9) Thickness of Grout 117.4

OSR 30-5
(Rev 12-89)

MONITORING WELL CONSTRUCTION DIAGRAM

DRILLING SUBCONTRACTOR Graves

WELL NUMBER MHT-4C

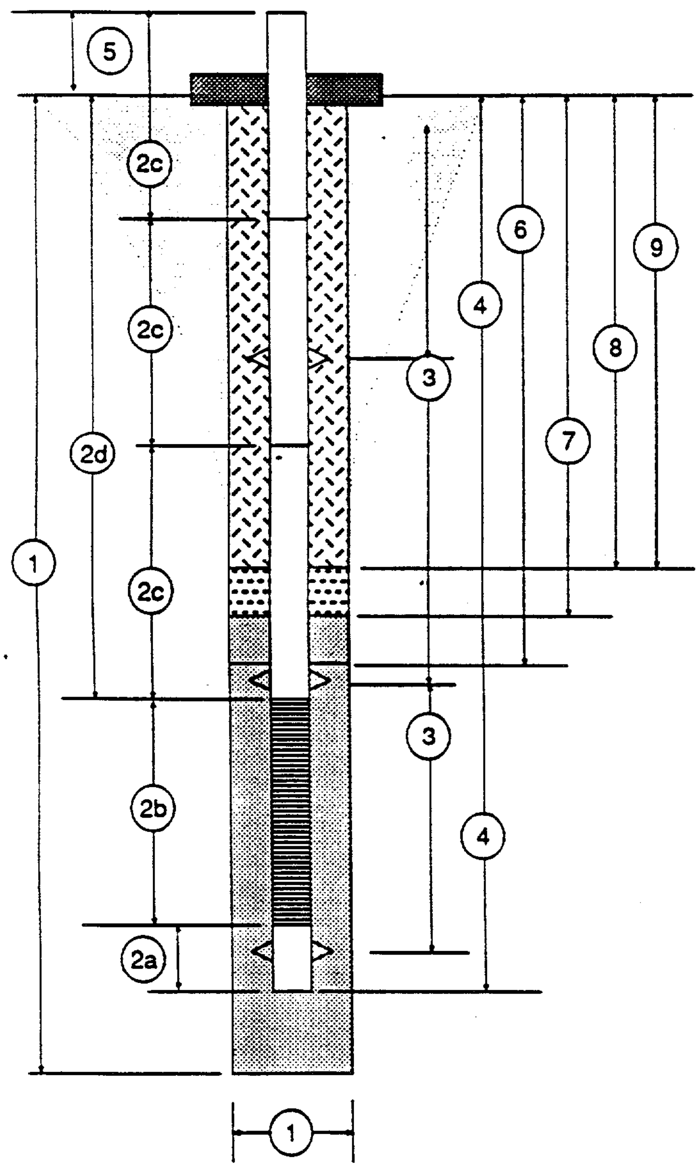
DRILLER I. C. Pinkney

SRS COORDINATES ________

DATE OF WELL INSTALLATION 4-05-90

SANITARY SEAL ELEVATION ________

TECH. O.S./CO. NAME William Joyce / Sirrine Environmental



NOTE: ALL MEASUREMENTS ARE FROM GROUND SURFACE AT START OF BORING – MEASUREMENTS TO NEAREST 0.1 FOOT.

1) Total Drilled Depth/Hole Diameter 164.0' / 9 7/8"

2) Casing/Screen Tally (Measured to Nearest 0.01 Foot)

(a) Sump & Plug Length 2.89'

(b) Screen Length 5.02'

(c) Casing Joint Lengths (Measured in Up-hole Sequence From Top of Screen) 10.02', 10.02', 10.02', 10.03', 10.02', 10.02', 10.02', 10.03', 10.01', 10.03', 10.02', 10.03', 10.03', 10.02', 10.02', 3.66'

(d) Depth to Top of Screen 154.00'

3) Depths to Centralizers 160.0', 153.0', 113.0', 73.0', 33.0', 10.0'

4) Total Depth of Installed Well 161.91'

5) Casing Stick Up (Standard 2.5' A.G.S.) 2.5'

6) Depth to Top of Filter Pack 150.9'

7) Depth to Top of Fine Sand Seal 149.6'

8) Depth to Top of Bentonite Seal 144.5'

9) Thickness of Grout 144.5'

OSR 30-5
(Rev 12-89)

MONITORING WELL CONSTRUCTION DIAGRAM

DRILLING SUBCONTRACTOR Graves

WELL NUMBER MHT-4D

DRILLER Kent Buckner

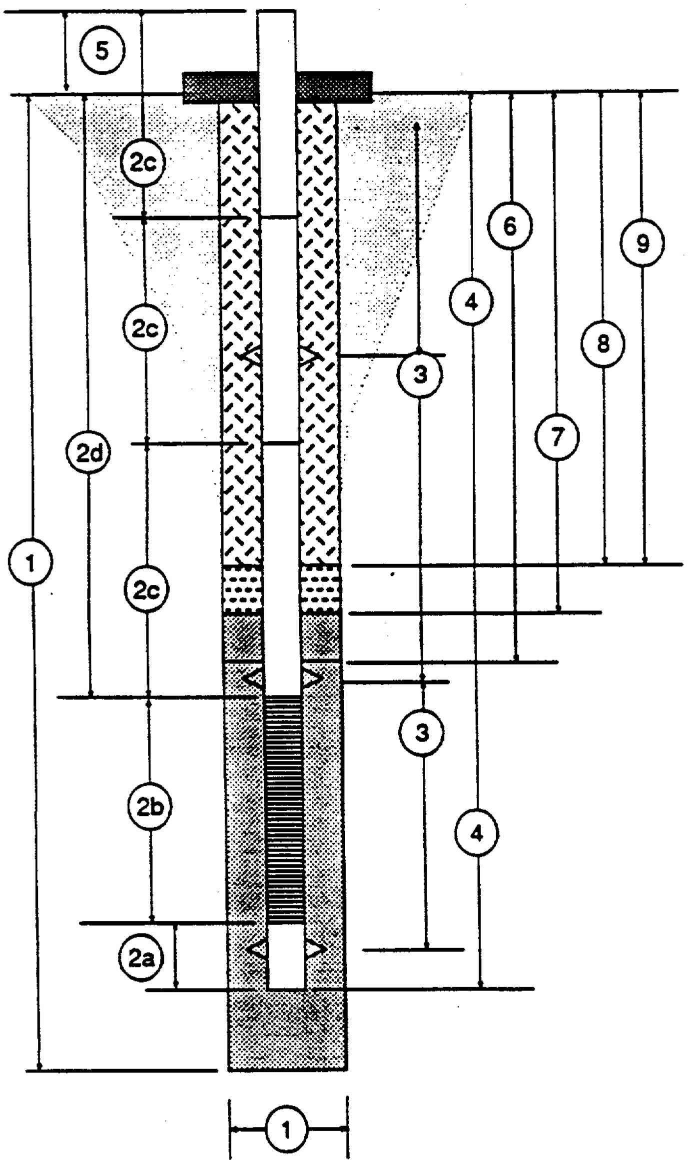
SRS COORDINATES ______

DATE OF WELL INSTALLATION 5/17/90

SANITARY SEAL ELEVATION ______

TECH. O.S./CO. NAME M. Dangerfield / SEC

NOTE: ALL MEASUREMENTS ARE FROM GROUND SURFACE AT START OF BORING – MEASUREMENTS TO NEAREST 0.1 FOOT.



1) Total Drilled Depth/Hole Diameter 147 ft / 11 7/8" dia

2) Casing/Screen Tally (Measured to Nearest 0.01 Foot)

(a) Sump & Plug Length 1.37 ft.

(b) Screen Length 20.04 ft.

(c) Casing Joint Lengths (Measured in Up-hole Sequence From Top of Screen) 10.01, 10.01, 10.03, 10.04, 10.02, 10.03, 10.02, 10.07, 10.03, 10.03, 10.03, 10.04, 10.03

(d) Depth to Top of Screen 125 ft.

3) Depths to Centralizers 6', 44', 84', 124', 146

4) Total Depth of Installed Well 146.41 ft.

5) Casing Stick Up (Standard 2.5' A.G.S.) 2.5 ft.

6) Depth to Top of Filter Pack 121.7 ft.

7) Depth to Top of Fine Sand Seal 120.5 ft.

8) Depth to Top of Bentonite Seal 115.3 ft.

9) Thickness of Grout 115 ft.

OSR 30-5
(Rev 12-89)

MONITORING WELL CONSTRUCTION DIAGRAM

DRILLING SUBCONTRACTOR Graves

DRILLER Steve Rogers / #311

DATE OF WELL INSTALLATION 5/23/90

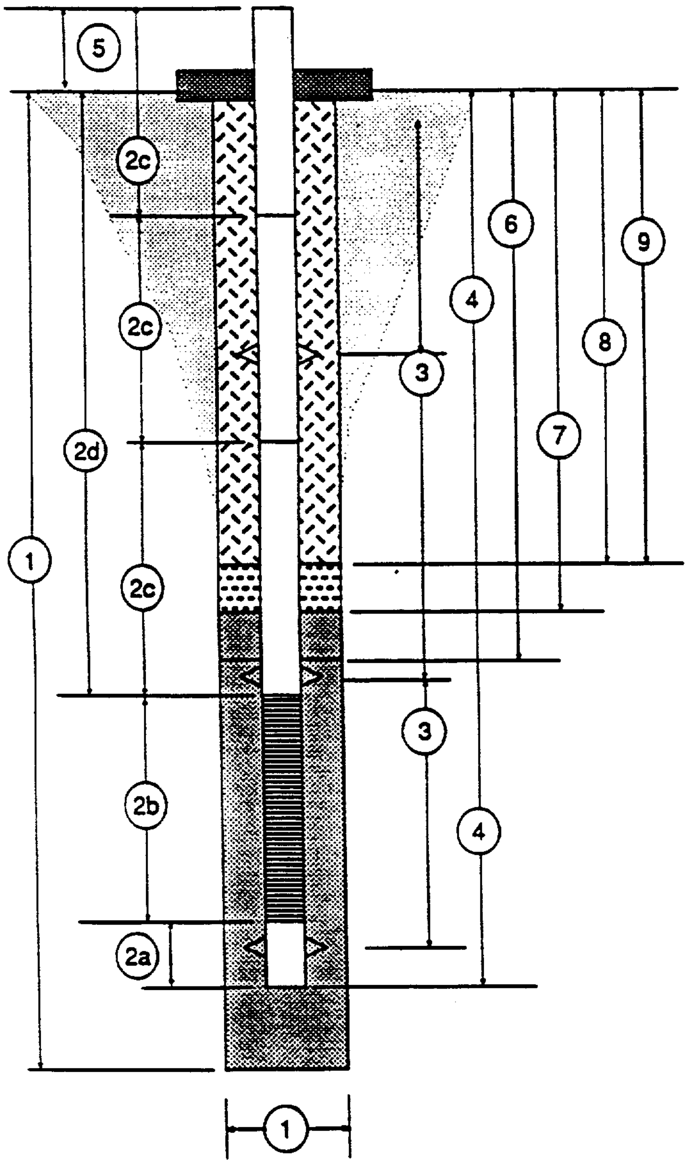
TECH. O.S./CO. NAME M. Dangerfield / SEC

WELL NUMBER MHT-5C

SRS COORDINATES

SANITARY SEAL ELEVATION

NOTE: ALL MEASUREMENTS ARE FROM GROUND SURFACE AT START OF BORING – MEASUREMENTS TO NEAREST 0.1 FOOT.



1) Total Drilled Depth/Hole Diameter 162.5 / 11 7/8"

2) Casing/Screen Tally (Measured to Nearest 0.01 Foot)

(a) Sump & Plug Length 2.89

(b) Screen Length 4.97

(c) Casing Joint Lengths (Measured in Up-hole Sequence From Top of Screen) 10.08, 10.00, 10.00, 10.02, 10.02, 10.01, 10.00, 10.02, 10.00, 10.01, 10.00, 10.02, 10.01, 10.02, 10.01, 10.01

(d) Depth to Top of Screen 154.00

3) Depths to Centralizers 8.0', 34.0', 74.0', 114.0', 154.0', 161.0'

4) Total Depth of Installed Well 161.86

5) Casing Stick Up (Standard 2.5' A.G.S.) 2.5'

6) Depth to Top of Filter Pack 148.7

7) Depth to Top of Fine Sand Seal 146.6

8) Depth to Top of Bentonite Seal 135.9

9) Thickness of Grout 135.9

OSR 30-5
(Rev 12-89)

MONITORING WELL CONSTRUCTION DIAGRAM

DRILLING SUBCONTRACTOR Graves

WELL NUMBER AHT-5D

DRILLER S. Rogers / #311

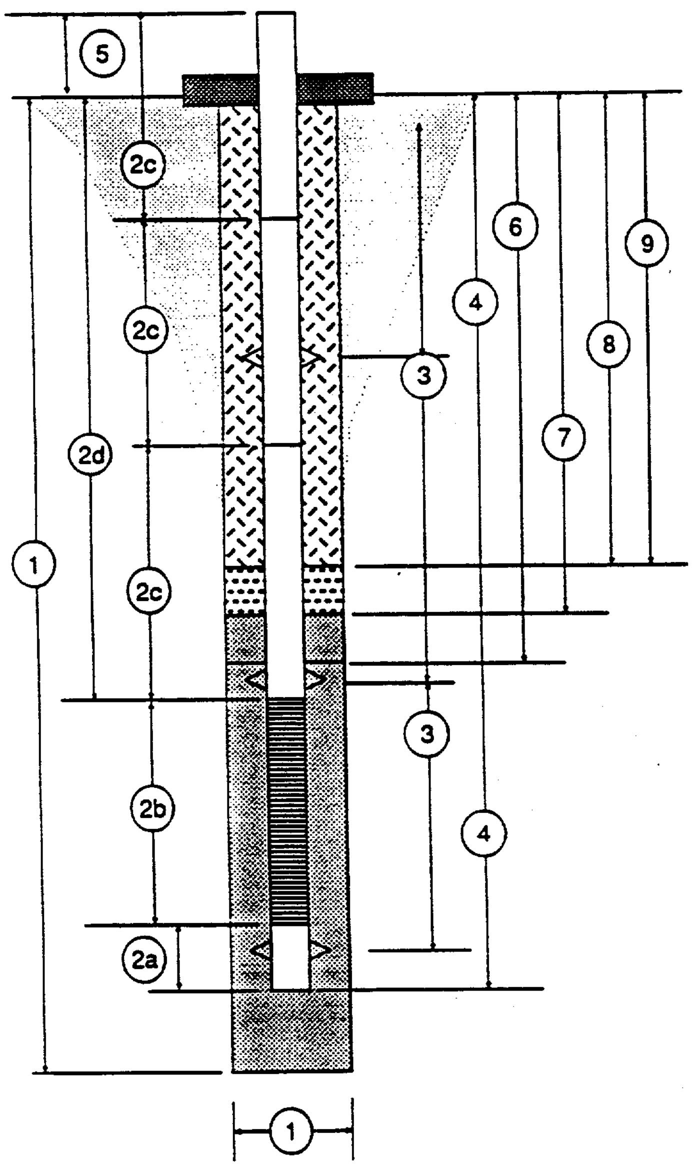
SRS COORDINATES

DATE OF WELL INSTALLATION 5/25/90

SANITARY SEAL ELEVATION

TECH. O.S./CO. NAME M. Dangerfield / Sirrine

NOTE: ALL MEASUREMENTS ARE FROM GROUND SURFACE AT START OF BORING – MEASUREMENTS TO NEAREST 0.1 FOOT.



1) Total Drilled Depth/Hole Diameter 145.0' / 11 7/8"

2) Casing/Screen Tally (Measured to Nearest 0.01 Foot)

(a) Sump & Plug Length 1.34'

(b) Screen Length 20.07'

(c) Casing Joint Lengths (Measured in Up-hole Sequence From Top of Screen) 10.01, 10.03, 10.03, 10.02, 10.02, 10.02, 10.02, 10.01, 10.02, 10.00, 10.02, 10.02, 10.02

(d) Depth to Top of Screen 123.5'

3) Depths to Centralizers 16.5', 42.5', 82.5', 122.5', 144.[illegible]

4) Total Depth of Installed Well 144.93'

5) Casing Stick Up (Standard 2.5' A.G.S.) 2.5'

6) Depth to Top of Filter Pack 119.5'

7) Depth to Top of Fine Sand Seal 117.0'

8) Depth to Top of Bentonite Seal 111.0'

9) Thickness of Grout 111.0 ft.

DSR 30-5
Rev 12-89)

MONITORING WELL CONSTRUCTION DIAGRAM

DRILLING SUBCONTRACTOR Graves

WELL NUMBER MHT-6C

DRILLER I. C. Pinkney

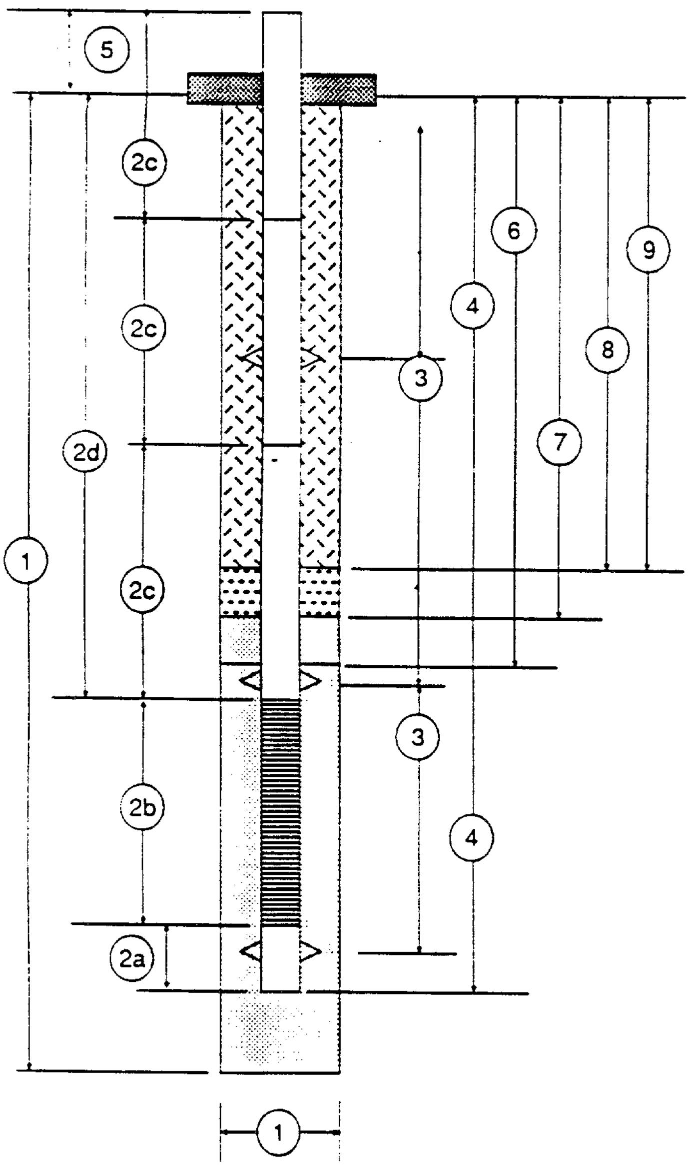
SRS COORDINATES ____

DATE OF WELL INSTALLATION 4-20-90

SANITARY SEAL ELEVATION ____

TECH. O.S./CO. NAME William Joyce / Sirrine Environmental

NOTE: ALL MEASUREMENTS ARE FROM GROUND SURFACE AT START OF BORING – MEASUREMENTS TO NEAREST 0.1 FOOT.



1) Total Drilled Depth/Hole Diameter 168.0' / 11 7/8"

2) Casing/Screen Tally (Measured to Nearest 0.01 Foot)

(a) Sump & Plug Length 2.89'

(b) Screen Length 5.02'

(c) Casing Joint Lengths (Measured in Up-hole Sequence From Top of Screen) 10.02', 10.01', 10.02', 10.01', 10.03', 10.02', 10.02', 10.01', 10.03', 10.02', 10.02', 10.03', 10.03', 10.02', 10.01', 6.70'

(d) Depth to Top of Screen 157.00'

3) Depths to Centralizers 163.0', 156.0', 116.0', 76.0', 36.0', 6.0'

4) Total Depth of Installed Well 164.91'

5) Casing Stick Up (Standard 2.5' A.G.S.) 2.5'

6) Depth to Top of Filter Pack 154.0'

7) Depth to Top of Fine Sand Seal 152.8'

8) Depth to Top of Bentonite Seal 147.6'

9) Thickness of Grout 147.6'

SR 30-5
Rev 12-89)

MONITORING WELL CONSTRUCTION DIAGRAM

DRILLING SUBCONTRACTOR GRAVES

DRILLER S. RODGERS

DATE OF WELL INSTALLATION 5/15/90

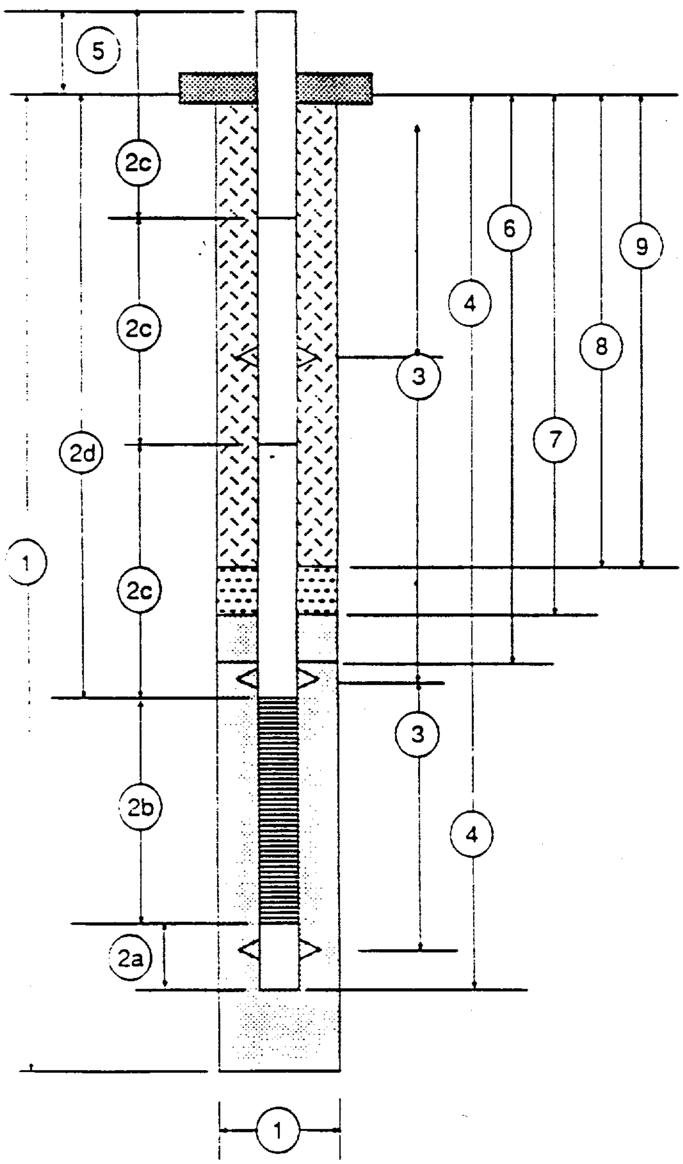
TECH. O.S./CO. NAME McKilsey / SEC

WELL NUMBER MWT-6D

SRS COORDINATES

SANITARY SEAL ELEVATION

NOTE: ALL MEASUREMENTS ARE FROM GROUND SURFACE AT START OF BORING – MEASUREMENTS TO NEAREST 0.1 FOOT.



1) Total Drilled Depth/Hole Diameter 147/11 7/8

2) Casing/Screen Tally (Measured to Nearest 0.01 Foot)

(a) Sump & Plug Length 1.37

(b) Screen Length 20.03

(c) Casing Joint Lengths (Measured in Up-hole Sequence From Top of Screen) 10.02, 10.03, 10.03, 10.02, 10.03, 10.02, 10.03, 10.02, 10.02, 10.03, 10.02, 10.02, 10.03

(d) Depth to Top of Screen 125'

3) Depths to Centralizers 6, 44, 84, 124, 146

4) Total Depth of Installed Well 146.40

5) Casing Stick Up (Standard 2.5' A.G.S.) 2.5

6) Depth to Top of Filter Pack 122.1

7) Depth to Top of Fine Sand Seal 120.4

8) Depth to Top of Bentonite Seal 116.7

9) Thickness of Grout 116.7

OSR 30-5
(Rev 12-89)

MONITORING WELL CONSTRUCTION DIAGRAM

DRILLING SUBCONTRACTOR Graves

WELL NUMBER MHT-7C

DRILLER James Smith

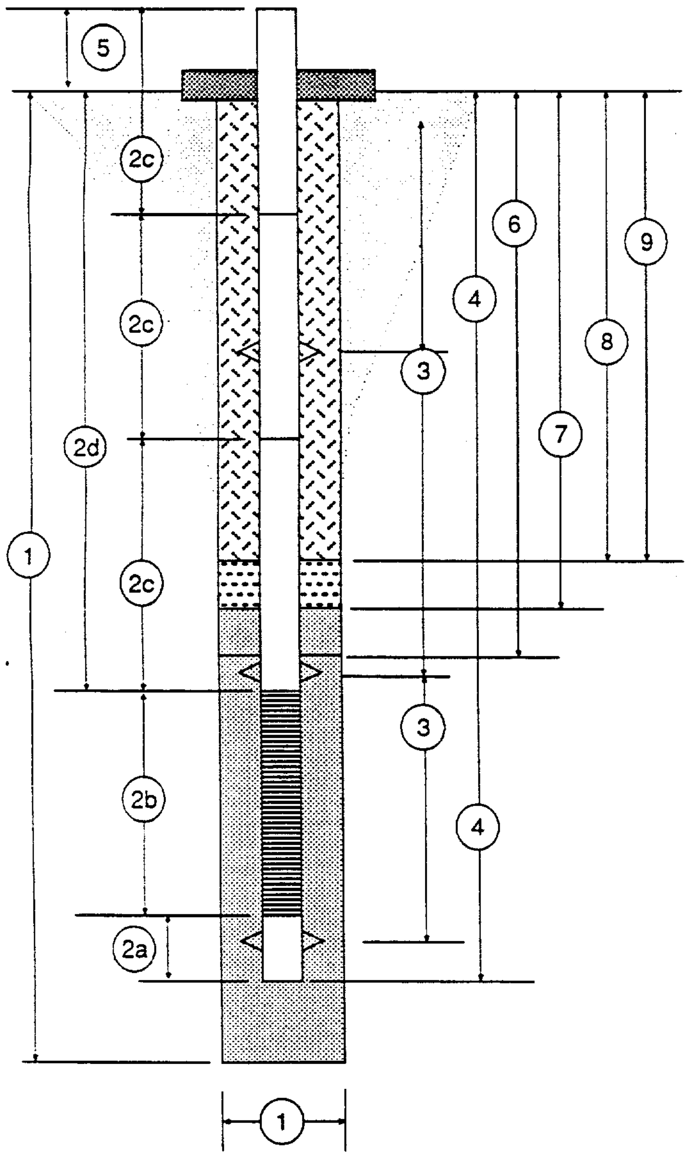
SRS COORDINATES

DATE OF WELL INSTALLATION 6-20-90

SANITARY SEAL ELEVATION

TECH. O.S./CO. NAME William Joyce / Sirrine Environmental

NOTE: ALL MEASUREMENTS ARE FROM GROUND SURFACE AT START OF BORING – MEASUREMENTS TO NEAREST 0.1 FOOT.



1) Total Drilled Depth/Hole Diameter 167.0' / 11 7/8"

2) Casing/Screen Tally (Measured to Nearest 0.01 Foot)

(a) Sump & Plug Length 2.89'

(b) Screen Length 5.02'

(c) Casing Joint Lengths (Measured in Up-hole Sequence From Top of Screen) 10.03', 10.03', 10.03', 10.03', 10.03', 10.02', 10.03', 10.03', 10.03', 10.04', 10.03', 10.02', 10.04', 10.03', 10.01', 5.57'

(d) Depth to Top of Screen 156.00'

3) Depths to Centralizers 10.0', 35.0', 75.0', 115.0', 155.0', 162.0'

4) Total Depth of Installed Well 163.91'

5) Casing Stick Up (Standard 2.5' A.G.S.) 2.5'

6) Depth to Top of Filter Pack 151.1'

7) Depth to Top of Fine Sand Seal 150.4'

8) Depth to Top of Bentonite Seal 145.3'

9) Thickness of Grout 145.3'

GSR 30-5
Rev 12-89)

MONITORING WELL CONSTRUCTION DIAGRAM

DRILLING SUBCONTRACTOR Graves

WELL NUMBER MWT-7D

DRILLER Kent Buckner

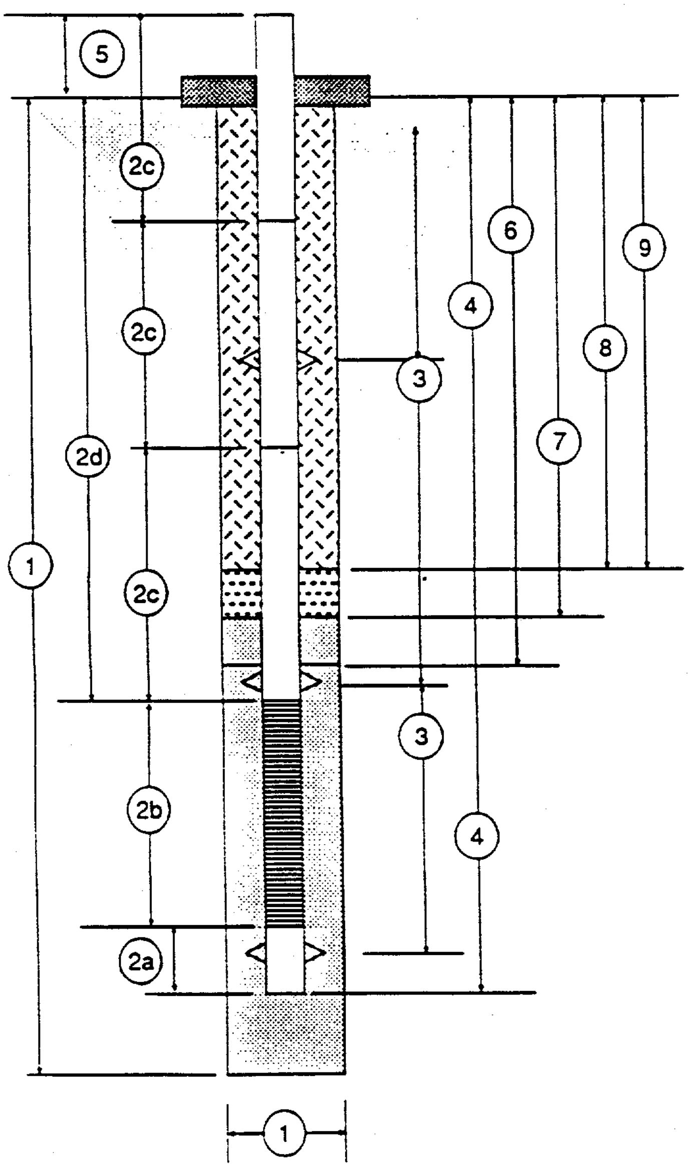
SRS COORDINATES ______

DATE OF WELL INSTALLATION 6/25/90

SANITARY SEAL ELEVATION ______

TECH. O.S./CO. NAME Melanie Dangerfield/St C-

NOTE: ALL MEASUREMENTS ARE FROM GROUND SURFACE AT START OF BORING – MEASUREMENTS TO NEAREST 0.1 FOOT.



1) Total Drilled Depth/Hole Diameter 148.0 / 11 7/8" dia

2) Casing/Screen Tally (Measured to Nearest 0.01 Foot)

(a) Sump & Plug Length 1.36

(b) Screen Length 20.04

(c) Casing Joint Lengths (Measured in Up-hole Sequence From Top of Screen) 10.01, 10.02, 10.03, 10.04, 10.02, 10.02, 10.00, 10.02, 10.00, 10.01, 10.00, 10.02, 10.00

(d) Depth to Top of Screen 128.00

3) Depths to Centralizers 7.0, 47.0, 87.0, 127.0, 148.0

4) Total Depth of Installed Well 149.4

5) Casing Stick Up (Standard 2.5' A.G.S.) 2.5'

6) Depth to Top of Filter Pack 121.4

7) Depth to Top of Fine Sand Seal 119.4

8) Depth to Top of Bentonite Seal 114.0

9) Thickness of Grout 114.0

OSR 30-5
(Rev 12-89)

MONITORING WELL CONSTRUCTION DIAGRAM

DRILLING SUBCONTRACTOR Graves

DRILLER S. Rogers / #311

DATE OF WELL INSTALLATION 5/31/90

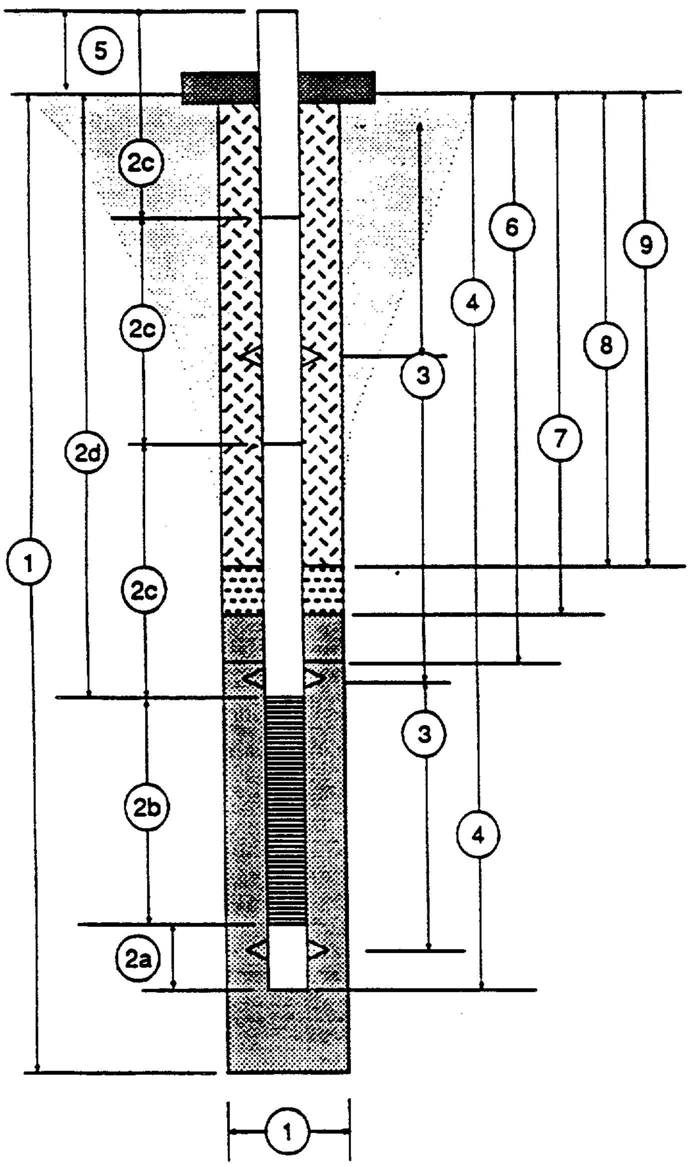
TECH. O.S./CO. NAME M. Dangerfield / SEC

WELL NUMBER MNT-8C

SRS COORDINATES ______

SANITARY SEAL ELEVATION ______

NOTE: ALL MEASUREMENTS ARE FROM GROUND SURFACE AT START OF BORING – MEASUREMENTS TO NEAREST 0.1 FOOT.



1) Total Drilled Depth/Hole Diameter 167.0/11 7/8

2) Casing/Screen Tally (Measured to Nearest 0.01 Foot)

(a) Sump & Plug Length 2.88

(b) Screen Length 5.0 ft.

(c) Casing Joint Lengths (Measured in Up-hole Sequence From Top of Screen) 10.01, 10.01, 10.00, 10.01, 10.01, 10.02, 10.01, 10.03, 10.00, 9.99, 10.01, 10.01, 10.00, 10.00, 9.99, 10.01

(d) Depth to Top of Screen 157.0'

3) Depths to Centralizers 10', 36.?, 76.0', 116', 156.0, 164.0'

4) Total Depth of Installed Well 164.89

5) Casing Stick Up (Standard 2.5' A.G.S.) 2.5'

6) Depth to Top of Filter Pack 154.3'

7) Depth to Top of Fine Sand Seal 152.7'

8) Depth to Top of Bentonite Seal 149.6'

9) Thickness of Grout 149.0'

OSR 30-5
(Rev 12-89)

G0017

MONITORING WELL CONSTRUCTION DIAGRAM

DRILLING SUBCONTRACTOR Graves

WELL NUMBER MHT-8D

DRILLER S. Rogers

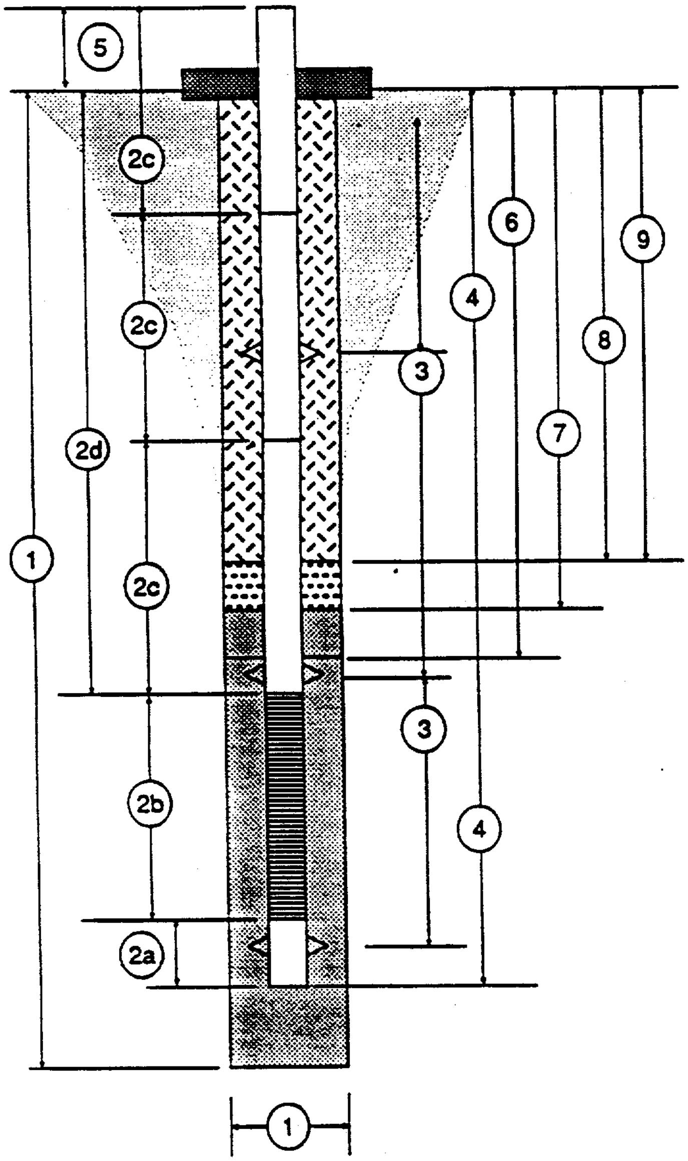
SRS COORDINATES

DATE OF WELL INSTALLATION 6/14/90

SANITARY SEAL ELEVATION

TECH. O.S./CO. NAME M. Dangerfield /SEC

NOTE: ALL MEASUREMENTS ARE FROM GROUND SURFACE AT START OF BORING – MEASUREMENTS TO NEAREST 0.1 FOOT.



1) Total Drilled Depth/Hole Diameter 150' / 11 7/8"

2) Casing/Screen Tally (Measured to Nearest 0.01 Foot)

(a) Sump & Plug Length 1.371

(b) Screen Length 20.02'

(c) Casing Joint Lengths (Measured in Up-hole Sequence From Top of Screen) 10.02, 10.02, 10.07, 10.03, 10.00, 10.02, 10.00, 10.07, 10.01, 10.01, 10.01, 10.02, 10.02

(d) Depth to Top of Screen 129'

3) Depths to Centralizers 8, 48, 88, 128, 158

4) Total Depth of Installed Well 150.39'

5) Casing Stick Up (Standard 2.5' A.G.S.) 2.5'

6) Depth to Top of Filter Pack 125.6

7) Depth to Top of Fine Sand Seal 123.2

8) Depth to Top of Bentonite Seal 119.1

9) Thickness of Grout 119.1'

OSR 3-5
(Rev 12-89)

MONITORING WELL CONSTRUCTION DIAGRAM

DRILLING SUBCONTRACTOR EMTC

DRILLER Terry Hornsby

DATE OF WELL INSTALLATION 6/24/91

TECH. O.S./CO. NAME D.T. Bussey/O'Brien & Gere

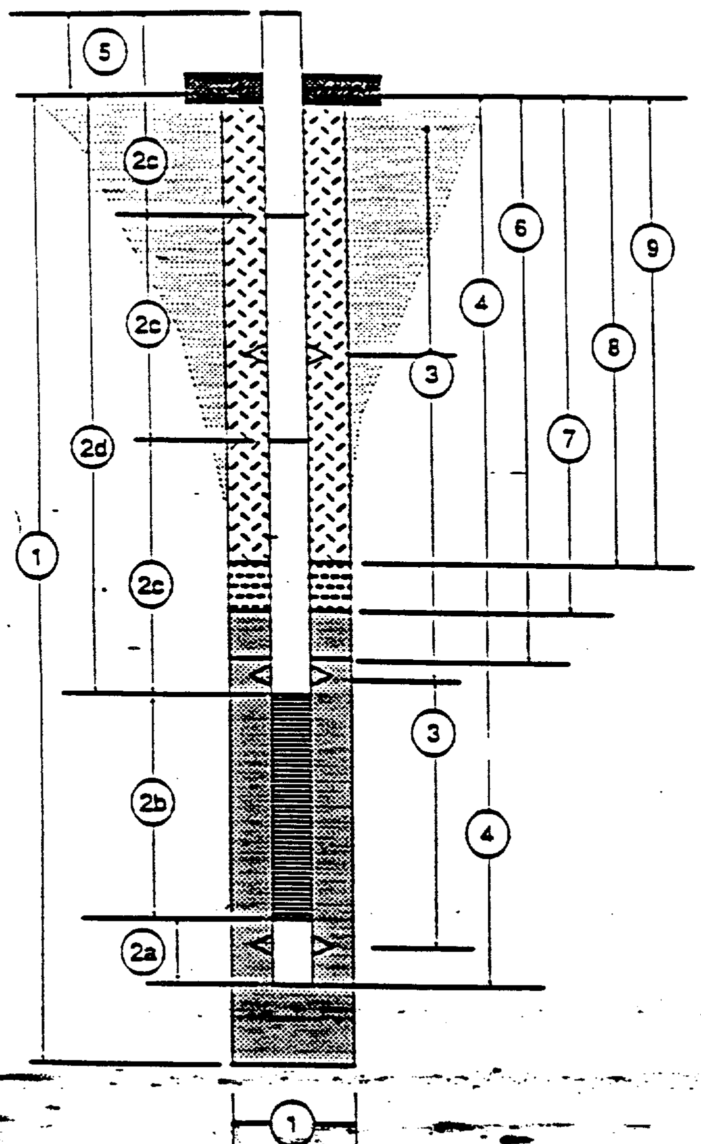
WELL NUMBER MHT-9B

SRS COORDINATES ____________

SANITARY SEAL ELEVATION ____________

LIQUID LEVEL PIPE ____________

NOTE: ALL MEASUREMENTS ARE FROM GROUND SURFACE AT START OF BORING – MEASUREMENTS TO NEAREST 0.1 FOOT.



1) Total Drilled Depth/Hole Diameter 0-182' / 9 7/8"
182-199' / "

2) Casing/Screen Tally (Measured to Nearest 0.01 Foot)

(a) Sump & Plug Length 2.83'

(b) Screen Length 5'

(c) Casing Joint Lengths (Measured in Up-hole Sequence From Top of Screen) (1) 10.00 (2) 10.00 (3) 10.00 (4) 10.00 (5) 10.00 (6) 10.00 (7) 10.00 (8) 10.00 (9) 10.00 (10) 10.00 (11) 10.00 (12) 10.00 (13) 10.00 (14) 10.00 (15) 10.00 (16) 10.00 (17) 10.00 (18) 4.50

(d) Depth to Top of Screen 171.5'

3) Depths to Centralizers 10.5', 50.5', 90.5', 130.5', 170.6', 177.9'

4) Total Depth of Installed Well 179.33'

5) Casing Stick Up (Standard 2.5' A.G.S.) 3.0'

6) Depth to Top of Filter Pack 166.25

7) Depth to Top of Fine Sand Seal 164.25'

8) Depth to Top of Bentonite Seal 160.33'

9) Thickness of Grout varies

OSR 30-5
(Rev 12-89)

MONITORING WELL CONSTRUCTION DIAGRAM

DRILLING SUBCONTRACTOR Graves

WELL NUMBER MHT-9C

DRILLER S. Rogers.

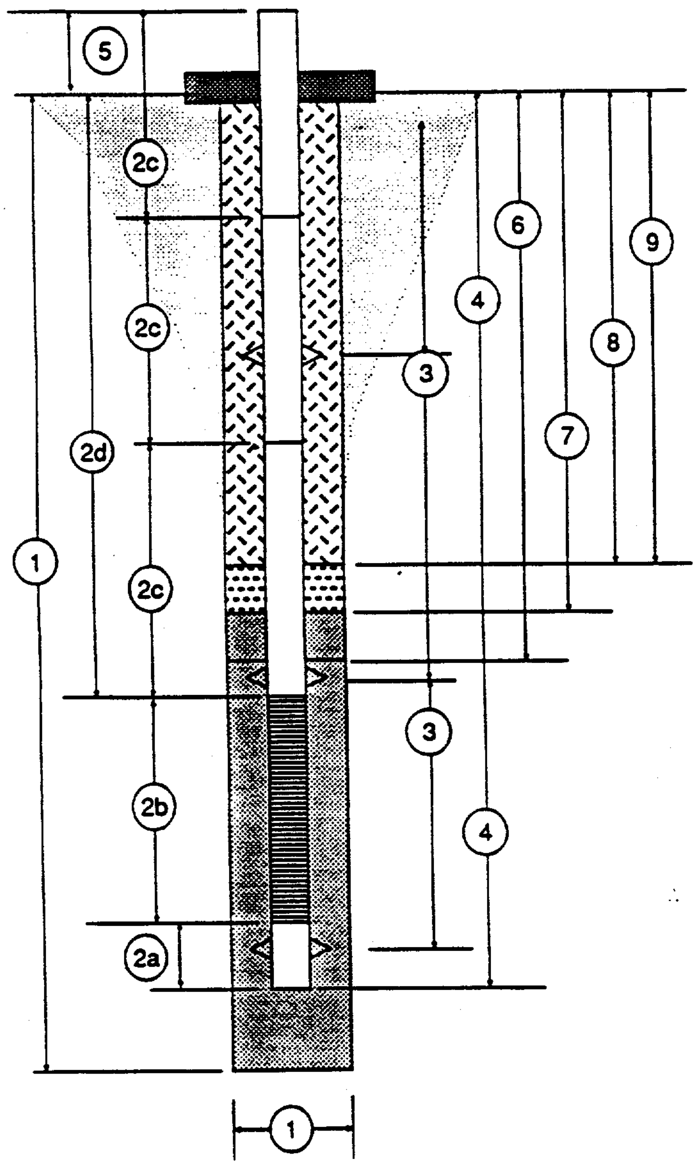
SRS COORDINATES ______

DATE OF WELL INSTALLATION 6/12/90

SANITARY SEAL ELEVATION ______

TECH. O.S./CO. NAME M. Dangerfield/SEC

NOTE: ALL MEASUREMENTS ARE FROM GROUND SURFACE AT START OF BORING – MEASUREMENTS TO NEAREST 0.1 FOOT.



1) Total Drilled Depth/Hole Diameter 161.5'/11 7/8

2) Casing/Screen Tally (Measured to Nearest 0.01 Foot)

(a) Sump & Plug Length 2.88ft.

(b) Screen Length 5.02ft.

(c) Casing Joint Lengths (Measured in Up-hole Sequence From Top of Screen) 10.03, 10.01, 10.02, 10.02, 10.01, 10.01, 10.02, 10.03, 10.02, 10.01, 10.00, 10.02, 10.00, 10.01, 10.01, 10.01 ft.

(d) Depth to Top of Screen 153.00ft.

3) Depths to Centralizers 5.0, 32.0, 72.0, 112.0, 152.0, 159.5

4) Total Depth of Installed Well 160.90

5) Casing Stick Up (Standard 2.5' A.G.S.) 2.5

6) Depth to Top of Filter Pack 157.6

7) Depth to Top of Fine Sand Seal 150.0

8) Depth to Top of Bentonite Seal 147.0

9) Thickness of Grout 147

OSR 30-5
(Rev 1-88)

SRP MONITORING WELL CONSTRUCTION DETAILS

DRILLING SUBCONTRACTOR GRAVES

DRILLER I. PICKNEY

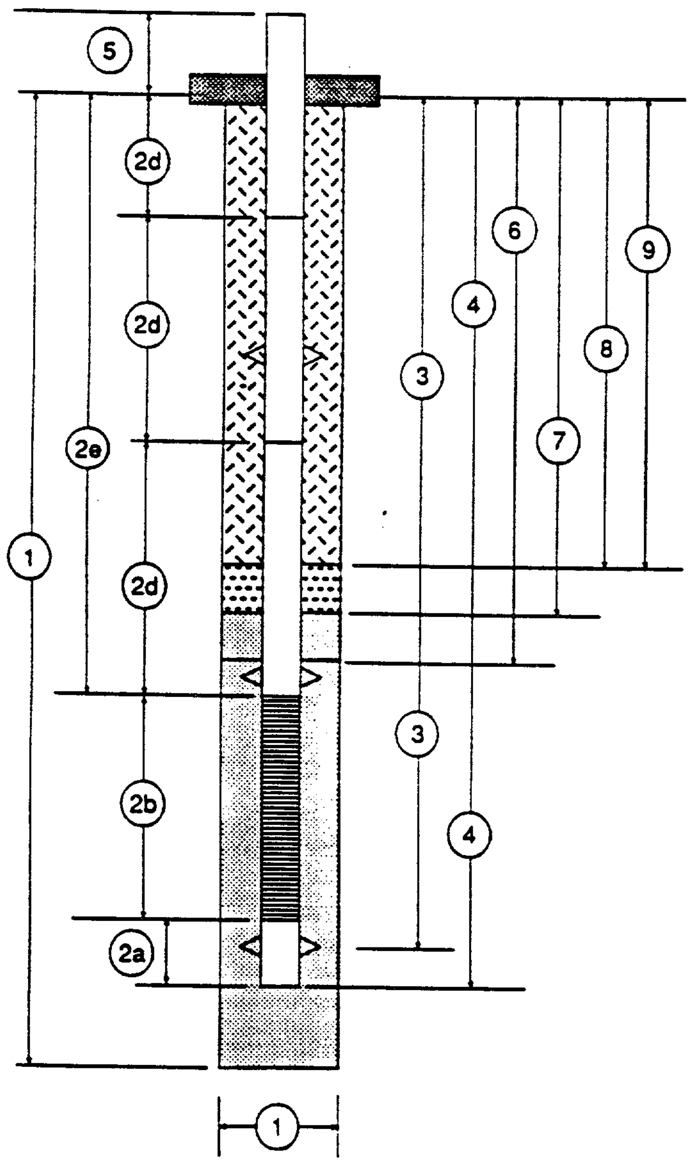
DATE OF INSTALLATION 3/28/90

TECH. O.S./CO. NAME SIRRINE ENVIRONMENTAL

WELL NUMBER MWT-9D

SRP COORDINATES

SANITARY SEAL ELEVATION



NOTE: ALL MEASUREMENTS ARE FROM GROUND SURFACE AT START OF BORING – MEASUREMENTS TO NEAREST 0.1 FOOT.

1) Total drilled depth/hole diameter 146.4/11 7/8"

2) Casing/Screen Tally (Measured to Nearest 0.01 Foot)

(a) Sump & Plug 1.38

(b) Screen Length 20.02

(c) Screen Type/Slot Size PVC SLOTTED / 0.010

(d) Casing Joint Lengths (Measured in up-hole Sequence From Top of Screen) 10.02, 10.01, 10.00, 10.02, 10.01, 10.01, 10.01, 10.01, 10.03, 10.02, 10.02, 10.02, ~~6.32~~ 4.82 to ground surface

(e) Total Length of Casing 125.00

(f) Type of Casing PVC 4-in Sch. 40

3) Depths to Centralizers ~~4, 8~~ 41.0, 81.0, 124.0, 146.0.

4) Total Depth of Installed Well 146.4

5) Casing Stick Up (Standard 2.5' A.G.S.) 2.5

6) Depth to Top of Filter Pack 120.6

Quantity (Bags) 11 Size

Brand/Trade Name Foster Dixiana FX50

7) Depth to Top of Fine Sand Seal 119.0

Quantity (Sacks) 1

8) Depth to Top of Bentonite Seal 112.6

Quantity (Buckets) 2

9) Thickness of Grout 112.6

Total Grout Quantity (Bags) 56

MONITORING WELL CONSTRUCTION DIAGRAM

DRILLING SUBCONTRACTOR [illegible]

WELL NUMBER [illegible]

DRILLER Terry [illegible]

SRS COORDINATES

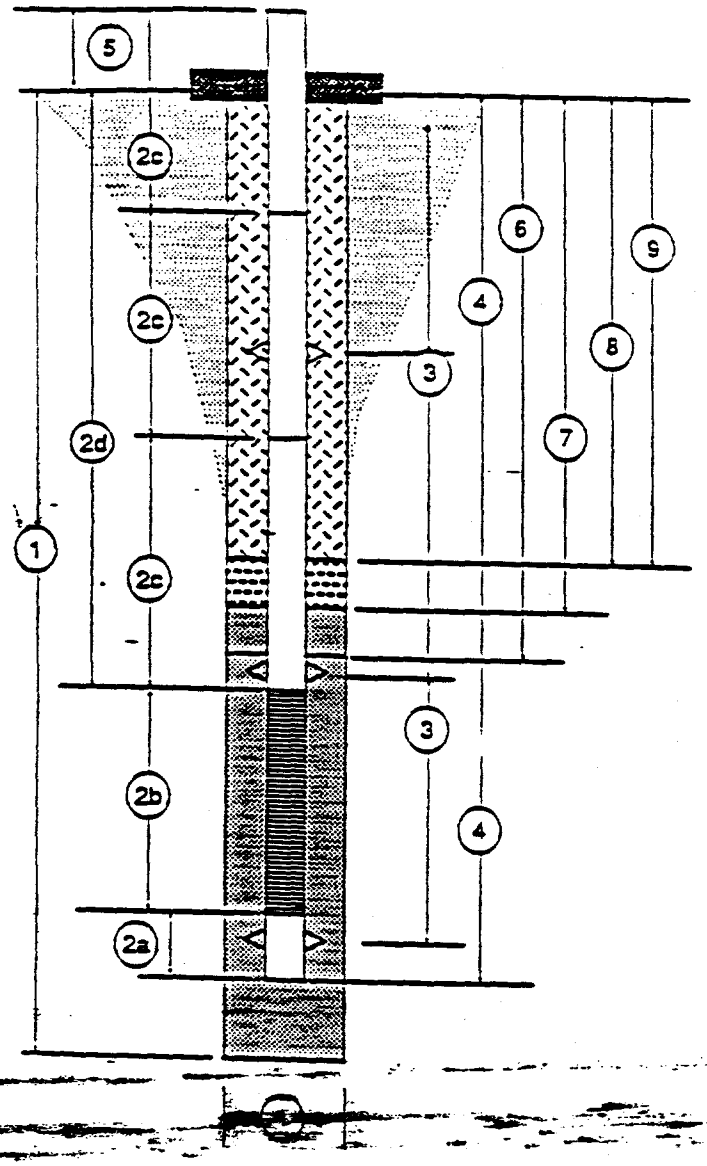
DATE OF WELL INSTALLATION 6-13-91

SANITARY SEAL ELEVATION

TECH. O.S./CO. NAME Tom B[illegible] - O'Brien - Gere

LIQUID LEVEL PIPE

NOTE: ALL MEASUREMENTS ARE FROM GROUND SURFACE AT START OF BORING – MEASUREMENTS TO NEAREST 0.1 FOOT.



1) Total Drilled Depth/Hole Diameter 180.0 / 9 7/8"Ø

2) Casing/Screen Tally (Measured to Nearest 0.01 Foot)

(a) Sump & Plug Length 2.79'

(b) Screen Length 5.00'

(c) Casing Joint Lengths (Measured in Up-hole Sequence From Top of Screen) (1) 10.00 (2) 10.00 (3) 10.00 (4) 10.00 (5) 10.00 (6) 10.00 (7) 10.00 (8) 10.00 (9) 10.00 (10) 10.00 (11) 10.00 (12) 10.00 (13) 10.00 (14) 10.00 (15) 10.00 (16) 10.00 (17) 10.00 (18) 3.50'

(d) Depth to Top of Screen 171.0'

3) Depths to Centralizers 10', 50', 90', 130', 170', 177'

4) Total Depth of Installed Well 178.79

5) Casing Stickup (Standard 2.5' A.G.S.) 2.5'

6) Depth to Top of Filter Pack 166.9'

7) Depth to Top of Fine Sand Seal 164.8'

8) Depth to Top of Bentonite Seal 160.0'

9) Thickness of Grout 160.0'

OSR 30-5
(Rev 12-89)

MONITORING WELL CONSTRUCTION DIAGRAM

DRILLING SUBCONTRACTOR Graves

WELL NUMBER MHT-10C

DRILLER K. Buckner

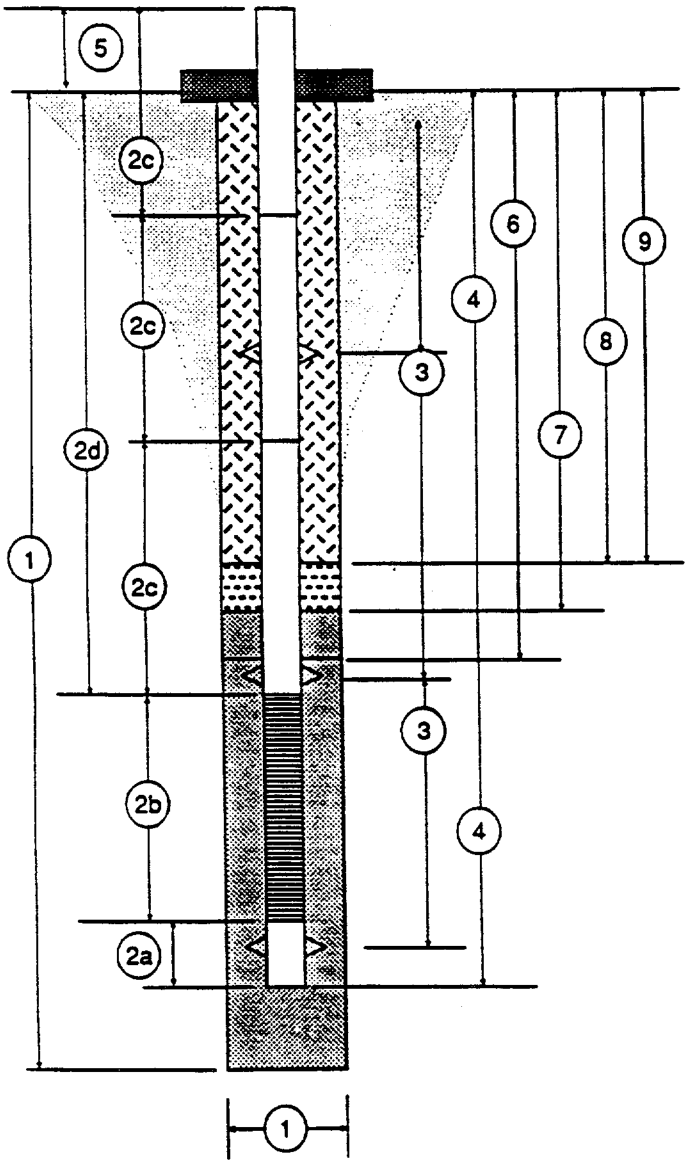
SRS COORDINATES

DATE OF WELL INSTALLATION 6/14/90

SANITARY SEAL ELEVATION

TECH. O.S./CO. NAME M. Dangerfield/SEC

NOTE: ALL MEASUREMENTS ARE FROM GROUND SURFACE AT START OF BORING – MEASUREMENTS TO NEAREST 0.1 FOOT.



1) Total Drilled Depth/Hole Diameter 165.0 / 11 7/8"ø

2) Casing/Screen Tally (Measured to Nearest 0.01 Foot)

(a) Sump & Plug Length 2.89'

(b) Screen Length 5.01'

(c) Casing Joint Lengths (Measured in Up-hole Sequence From Top of Screen) 10.0[illegible], 10.02, 10.02, 10.02, 10.03, 10.03, 10.03, 11.03, 10.02, 10.03, 10.01, 10.03, 10.02, 10.03, 10.02, 10.03

(d) Depth to Top of Screen 157.00

3) Depths to Centralizers 11.3, 36.0, 76.0, 116.0, 156.0, 164.0

4) Total Depth of Installed Well 164.90'

5) Casing Stick Up (Standard 2.5' A.G.S.) 2.5'

6) Depth to Top of Filter Pack 155.0'

7) Depth to Top of Fine Sand Seal 153.8'

8) Depth to Top of Bentonite Seal 151.3'

9) Thickness of Grout 151.3'

OSR 30-5
(Rev 12-89)

MONITORING WELL CONSTRUCTION DIAGRAM

DRILLING SUBCONTRACTOR Graves

DRILLER K. Buckner

DATE OF WELL INSTALLATION 6/19/90

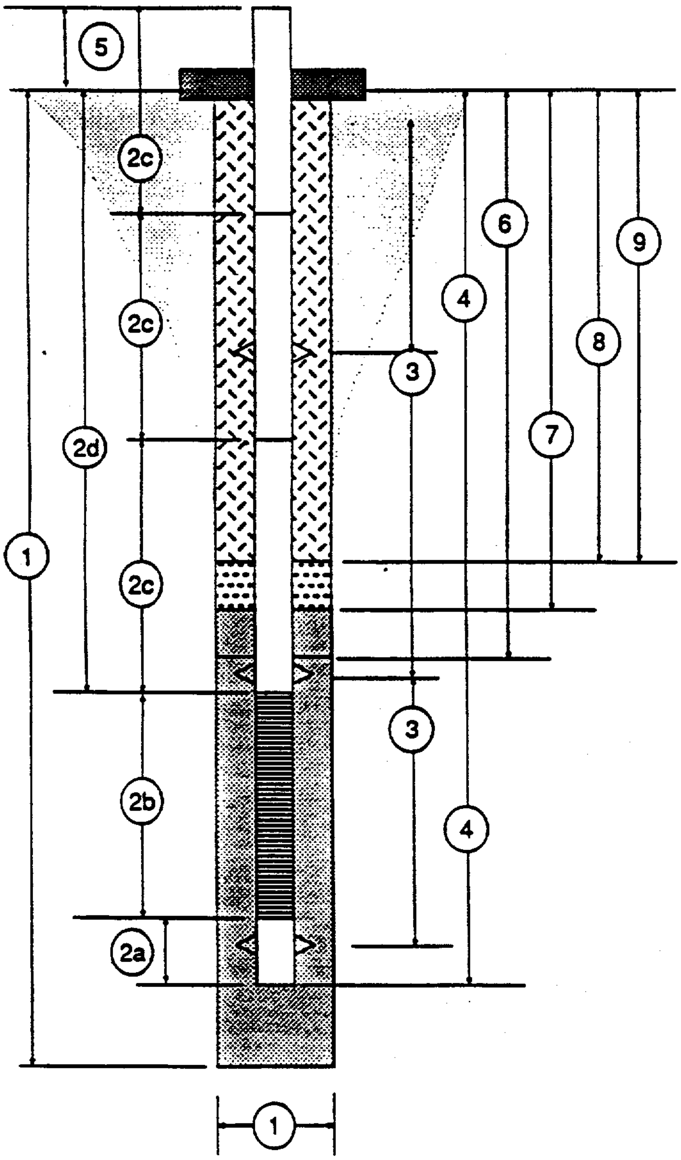
TECH. O.S./CO. NAME M. Dangerfield /SEC

WELL NUMBER MHT-10D

SRS COORDINATES

SANITARY SEAL ELEVATION

NOTE: ALL MEASUREMENTS ARE FROM GROUND SURFACE AT START OF BORING – MEASUREMENTS TO NEAREST 0.1 FOOT.



1) Total Drilled Depth/Hole Diameter 151.0' / 11 7/8"

2) Casing/Screen Tally (Measured to Nearest 0.01 Foot)

(a) Sump & Plug Length 1.37

(b) Screen Length 20.05

(c) Casing Joint Lengths (Measured in Up-hole Sequence From Top of Screen) 10.03, 10.00, 10.[illegible] 10.01, 10.04, 10.03, 10.02, 10.04, 10.03, 10.02, 10.00, 10.03, 10.02

(d) Depth to Top of Screen 129.00

3) Depths to Centralizers 9.5, 48.0, 88.0, 128.0, 149.5

4) Total Depth of Installed Well 150.42

5) Casing Stick Up (Standard 2.5' A.G.S.) 2.5'

6) Depth to Top of Filter Pack 126.6

7) Depth to Top of Fine Sand Seal 124.2

8) Depth to Top of Bentonite Seal 121.5

9) Thickness of Grout 121.5

OSR 30-5
(Rev 12-88)

MONITORING WELL CONSTRUCTION DIAGRAM

DRILLING SUBCONTRACTOR EMTC

DRILLER Terry Hornsby

DATE OF WELL INSTALLATION 5-30-91

TECH. O.S./CO. NAME Tom Bond - O'Brien + Gere

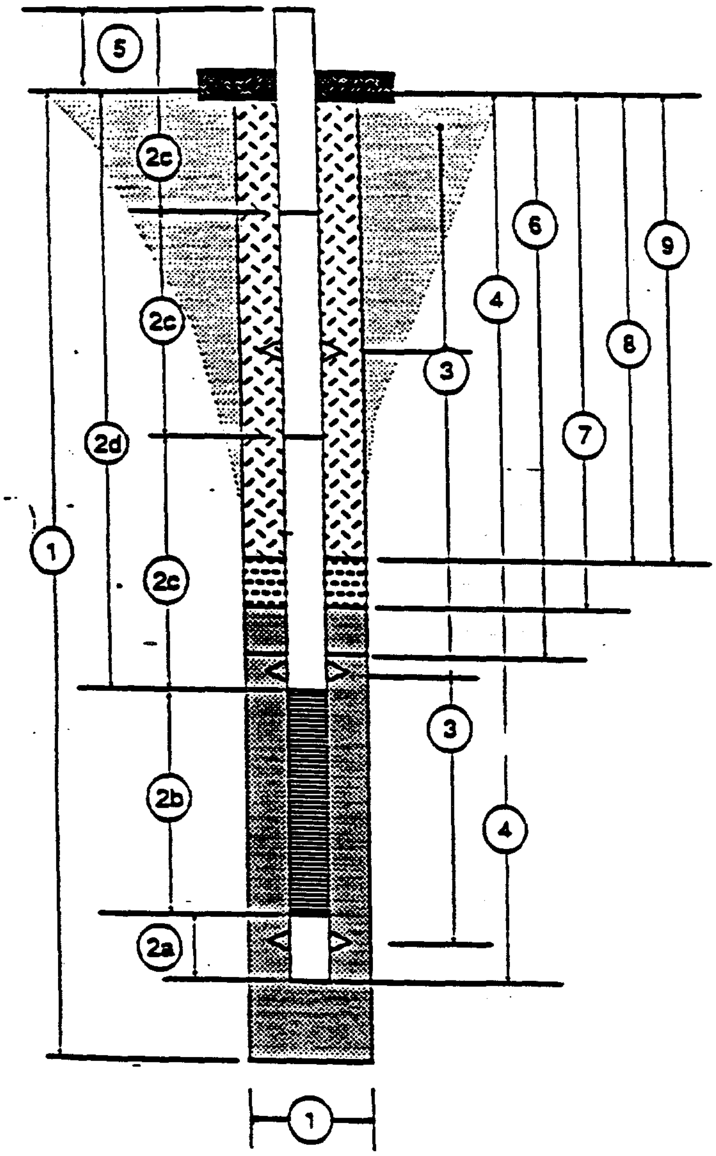
WELL NUMBER MHT-11C

SRS COORDINATES 102,854.00N, 48,846.07E

SANITARY SEAL ELEVATION 368.25

LIQUID LEVEL PIPE 368.43

NOTE: ALL MEASUREMENTS ARE FROM GROUND SURFACE AT START OF BORING – MEASUREMENTS TO NEAREST 0.1 FOOT.



1) Total Drilled Depth/Hole Diameter 166.0 AT 9 7/8" ⌀

2) Casing/Screen Tally (Measured to Nearest 0.01 Foot)

(a) Sump & Plug Length 3.00'

(b) Screen Length 5.00'

(c) Casing Joint Lengths (Measured in Up-hole Sequence From Top of Screen) (1) .3' (2) 10.00' (3) 10.00' (4) 10.00' (5) 10.00' (6) 10.00', (7) 10.00' (8) 10.00' (9) 10.00' (10) 10.00' (11) 10.00' (12) 10.00' (13) 10.00' (14) 10.00' (15) 10.00' (16) 10.00' (17) 4.20'

(d) Depth to Top of Screen 152.0'

3) Depths to Centralizers 4.3', 31', 71.0', 111.0', 151.0', 158.0'

4) Total Depth of Installed Well 160.0'

5) Casing Stick Up (Standard 2.5' A.G.S.) 2.5'

6) Depth to Top of Filter Pack 146.6'

7) Depth to Top of Fine Sand Seal 143.9'

8) Depth to Top of Bentonite Seal 139.0'

9) Thickness of Grout 139.0'

OSR 30-5
(Rev 12-89)

MONITORING WELL CONSTRUCTION DIAGRAM

DRILLING SUBCONTRACTOR EMTC

WELL NUMBER MHT-12C

DRILLER Terry Hornsby

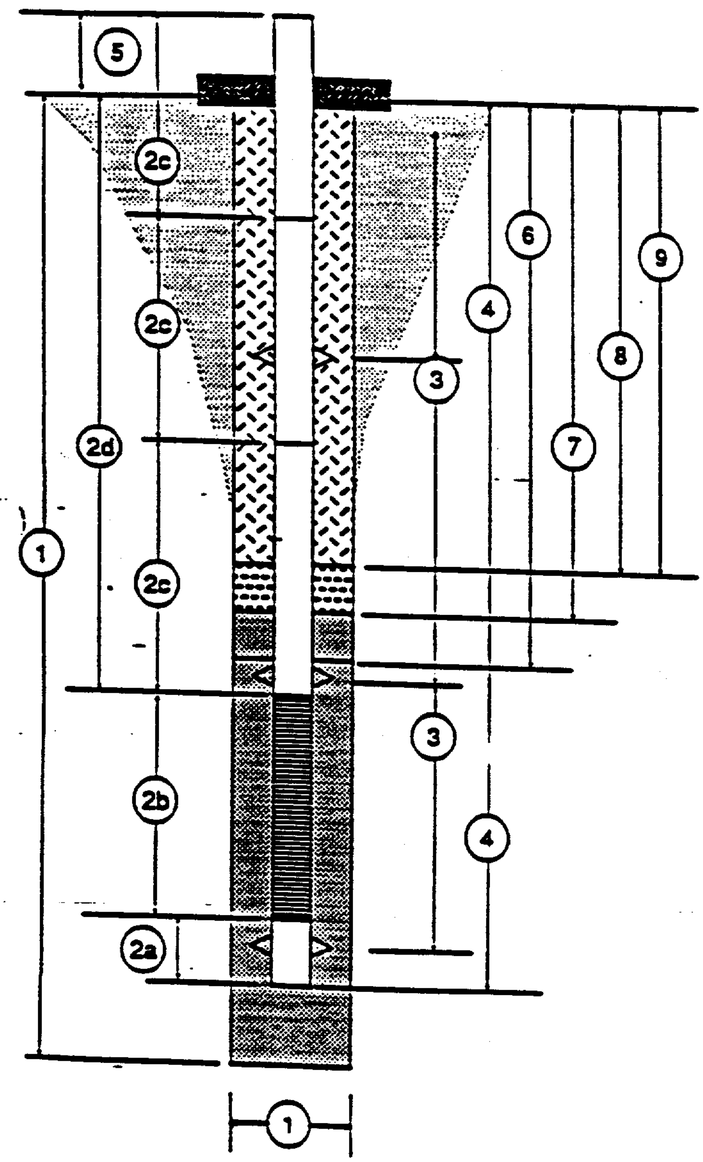
SRS COORDINATES 102,844.83N, 49,061.70E

DATE OF WELL INSTALLATION 6-6-91

SANITARY SEAL ELEVATION 370.18

TECH. O.S./CO. NAME Tom Bold O'Brien & Gere Engineers

LIQUID LEVEL PIPE 370.36



NOTE: ALL MEASUREMENTS ARE FROM GROUND SURFACE AT START OF BORING – MEASUREMENTS TO NEAREST 0.1 FOOT.

1) Total Drilled Depth/Hole Diameter 165.0 at 9 7/8"Ø

2) Casing/Screen Tally (Measured to Nearest 0.01 Foot)

(a) Sump & Plug Length 2.81'

(b) Screen Length 5.0'

(c) Casing Joint Lengths (Measured in Up-hole Sequence From Top of Screen) (1) 10.00, (2) 10.00 (3) 10.00, (4) 10.00, (5) 10.00, (6) 10.00, (7) 10.00, (8) 10.00, (9) 10.00, (10) 10.00 (11) 10.00, (12) 10.00, (13) 10.00, (14) 10.00, (15) 10.00 (16) 6.00

(d) Depth to Top of Screen 153.5'

3) Depths to Centralizers 4.5', 32.5', 72.5', 112.5', 152.5', 159.5'

4) Total Depth of Installed Well 161.3'

5) Casing Stick Up (Standard 2.5' A.G.S.) 2.5'

6) Depth to Top of Filter Pack 149.5'

7) Depth to Top of Fine Sand Seal 147.1'

8) Depth to Top of Bentonite Seal 141.7'

9) Thickness of Grout 141.7'

OSR 30-5
(Rev 12-89)

MONITORING WELL CONSTRUCTION DIAGRAM

DRILLING SUBCONTRACTOR EMTC

DRILLER Terry Hornsby

DATE OF WELL INSTALLATION 6/27/91

TECH. O.S./CO. NAME D.T. Bossey/O'Brien & Gere

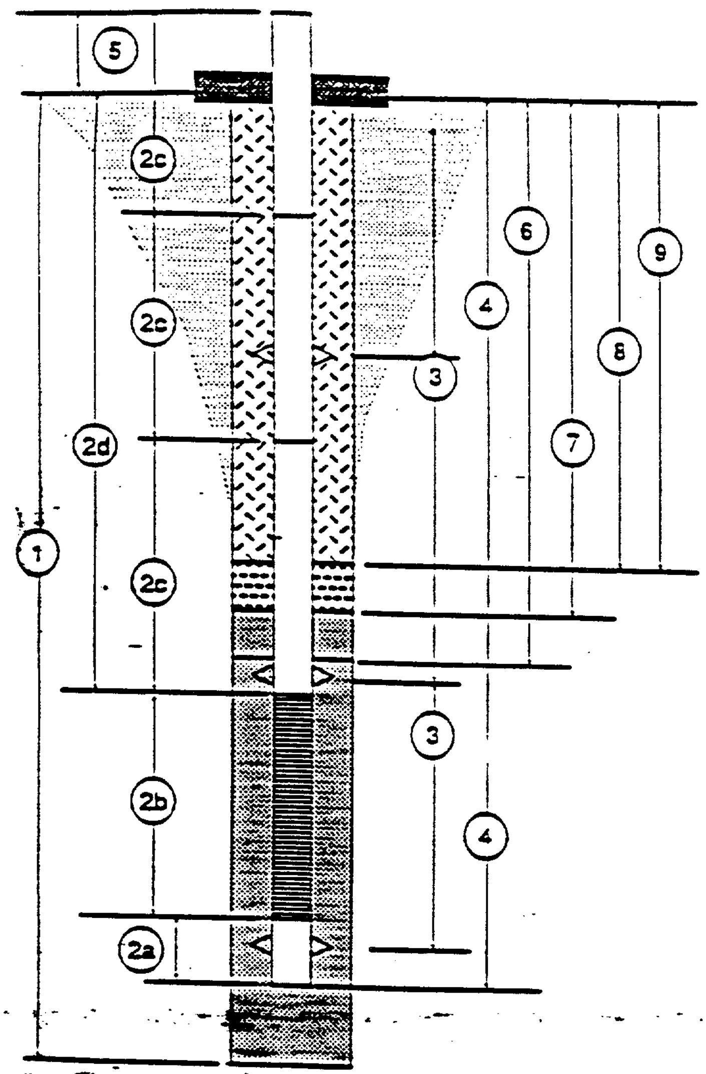
WELL NUMBER MHT-13D

SRS COORDINATES

SANITARY SEAL ELEVATION

LIQUID LEVEL PIPE

NOTE: ALL MEASUREMENTS ARE FROM GROUND SURFACE AT START OF BORING – MEASUREMENTS TO NEAREST 0.1 FOOT.



1) Total Drilled Depth/Hole Diameter 162' / 9 7/8"

2) Casing/Screen Tally (Measured to Nearest 0.01 Foot)

(a) Sump & Plug Length 2.47'

(b) Screen Length 20'

(c) Casing Joint Lengths (Measured in Up-hole Sequence From Top of Screen) (1) 0.29 (2) 10.00 (3) 10.00 (4) 10.00 (5) 10.00 (6) 10.00 (7) 10.00 (8) 10.00 (9) 10.00 (10) 10.00 (11) 10.00 (12) 10.00 (13) 10.00 (14) 10.00 (15) 10.00

(d) Depth to Top of Screen 136.8'

3) Depths to Centralizers 15.3', 55.3', 95.3', 135.3', 157.9'

4) Total Depth of Installed Well 159.27'

5) Casing Stick Up (Standard 2.5' A.G.S.) 3.44'

6) Depth to Top of Filter Pack 132.7'

7) Depth to Top of Fine Sand Seal 130.75'

8) Depth to Top of Bentonite Seal 126.0'

9) Thickness of Grout Varies

OSR 30-5
(Rev 12-89)

MONITORING WELL CONSTRUCTION DIAGRAM

DRILLING SUBCONTRACTOR EMTC

DRILLER Terry Hornsby

DATE OF WELL INSTALLATION 7/2/91

TECH. O.S./CO. NAME Tom Bean / O'Brien & Gere

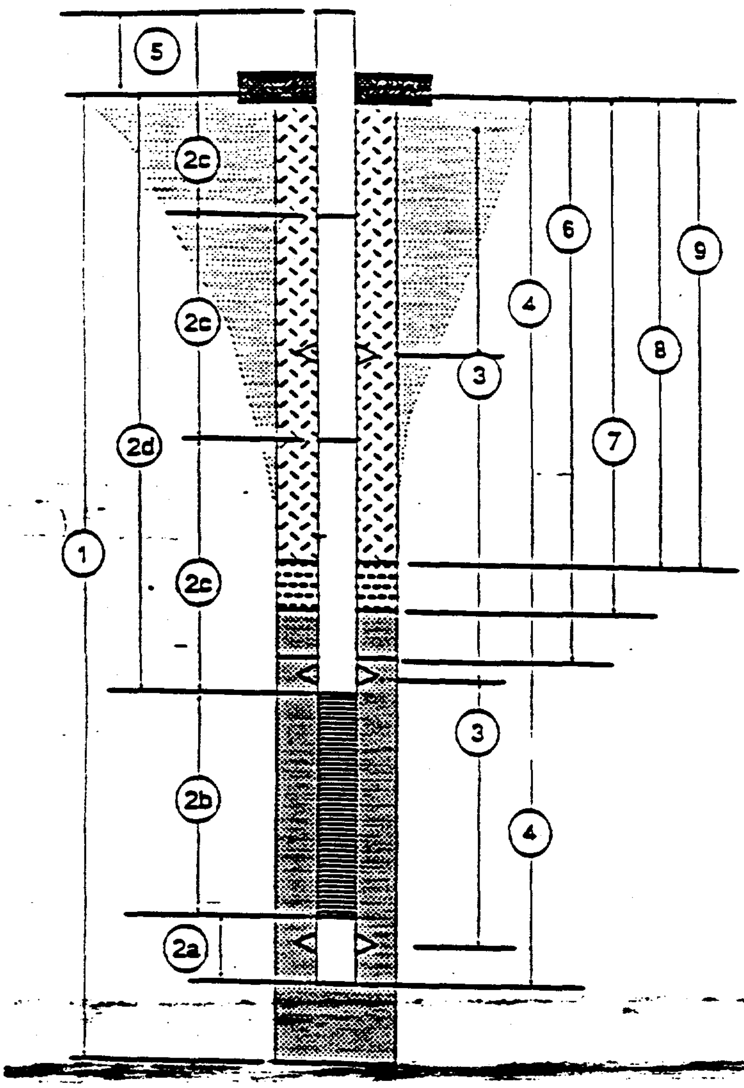
WELL NUMBER MHT-14D

SRS COORDINATES

SANITARY SEAL ELEVATION

LIQUID LEVEL PIPE

NOTE: ALL MEASUREMENTS ARE FROM GROUND SURFACE AT START OF BORING – MEASUREMENTS TO NEAREST 0.1 FOOT.



1) Total Drilled Depth/Hole Diameter 162.0' AT 9 7/8" Ø

2) Casing/Screen Tally (Measured to Nearest 0.01 Foot)

(a) Sump & Plug Length 2.97'

(b) Screen Length 20.04'

(c) Casing Joint Lengths (Measured in Up-hole Sequence From Top of Screen) (1) 7.29 (2) 10.01 (3) 10.00 (4) 10.00 (5) 10.00 (6) 10.01 (7) 10.01 (8) 10.00 (9) 10.01 (10) 9.99 (11) 10.01 (12) 10.00 (13) 10.01 (14) 10.01 (15) 10.00

(d) Depth to Top of Screen 137.0

3) Depths to Centralizers 158.0', 136.0, 96.0', 56.0' 16.0'

4) Total Depth of Installed Well 160.01

5) Casing Stick Up (Standard 2.5' A.G.S.) 2.5

6) Depth to Top of Filter Pack 132.5'

7) Depth to Top of Fine Sand Seal 130.2'

8) Depth to Top of Bentonite Seal 126.0'

9) Thickness of Grout 126.0'

OSR 30-5
(Rev 12-88)

MONITORING WELL CONSTRUCTION DIAGRAM

DRILLING SUBCONTRACTOR Graves

DRILLER G. Wilson

DATE OF WELL INSTALLATION 04/27/92

TECH. O.S./CO. NAME S. Asquith / SEC Donohue

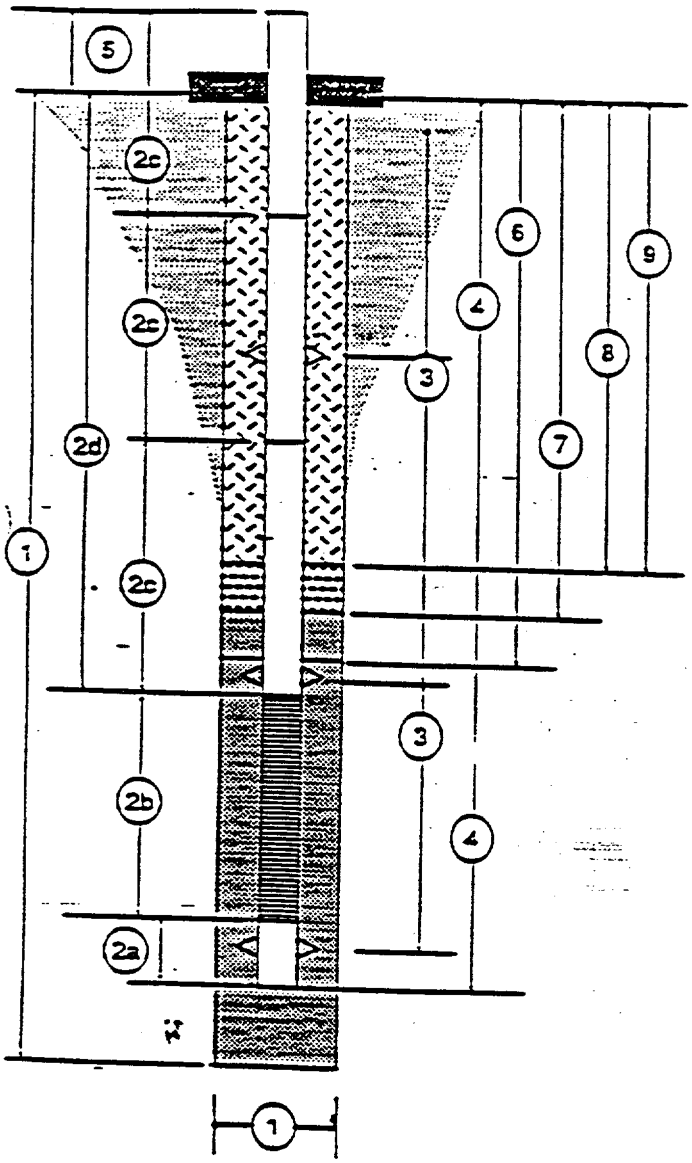
WELL NUMBER MHT-15C

SRS COORDINATES 102,520.65N 48,741.87E

SANITARY SEAL ELEVATION

LIQUID LEVEL PPE

NOTE: ALL MEASUREMENTS ARE FROM GROUND SURFACE AT START OF BORING—MEASUREMENTS TO NEAREST 0.1 FOOT.



1) Total Drilled Depth/Hole Diameter 205.0 ft / 11 7/8"

2) Casing/Screen Tally (Measured to Nearest 0.01 Foot)

(a) Sump & Plug Length 43.24 ft (plug: 0.46')

(b) Screen Length 4.84 ft

(c) Casing Joint Lengths (Measured in Up-hole Sequence From Top of Screen) Below Screen: 2.28, 20.25, 20.25. Above screen: 4.87, 10.01, 20.25, 19.75, 19.75, 19.75, 19.75, 19.75, 10.01, 10.02, 1.75.

(d) Depth to Top of Screen 153.16 ft.

3) Depths to Centralizers 151.8, 159.3, 198.3

4) Total Depth of Installed Well 201.2 ft.

5) Casing Stick Up (Standard 2.5' A.G.S.) 2.5 ft

6) Depth to Top of Filter Pack 149.9 ft

7) Depth to Top of Fine Sand Seal No fine sand.

8) Depth to Top of Bentonite Seal 146.1 ft

9) Thickness of Grout 146.1 ft

Below Screen

Filter pack : 149.9 to 159.2

Bentonite seal : 159.2 to 163.1

Fx-50 sand : 163.1 to 205.0

Tomography Probes

Installed on outside of well casing at 13.3' intervals starting at 200', ending at 0.5' below ground surface.

OSR 30-5
(Rev 12-88)

MONITORING WELL CONSTRUCTION DIAGRAM

DRILLING SUBCONTRACTOR Graves

DRILLER B. Cunningham

DATE OF WELL INSTALLATION 05/13/92

TECH. O.S./CO. NAME S. Asquith / SEC Donohue

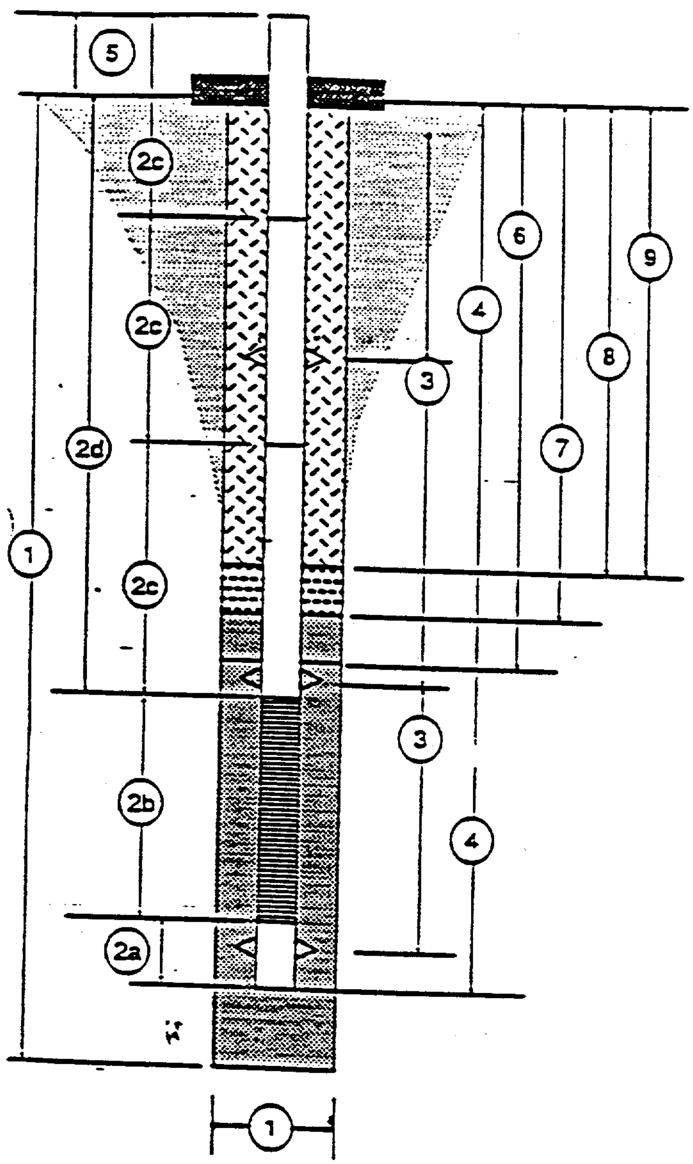
WELL NUMBER MHT-16C

SRS COORDINATES 102,430.85N, 48,672.81E

SANITARY SEAL ELEVATION

LIQUID LEVEL PPE

NOTE: ALL MEASUREMENTS ARE FROM GROUND SURFACE AT START OF BORING – MEASUREMENTS TO NEAREST 0.1 FOOT.



1) Total Drilled Depth/Hole Diameter 210.0' / 12"

2) Casing/Screen Tally (Measured to Nearest 0.01 Foot)

(a) Sump & Plug Length 4.87' (Between 1st 2 secti[ons] below screen (plug))

(b) Screen Length 4.83'

(c) Casing Joint Lengths (Measured in Up-hole Sequence From Top of Screen) Below screen: 0.46' (plug), 19.77', 19.77', 4.87'. Above screen: 10.03', 19.74', 19.75', 20.24', 19.75', 19.74', 20.24', 20.24', 6.77'.

(d) Depth to Top of Screen 154.0'

3) Depths to Centralizers 82.7', 152.5', 160.3', 202.2'

4) Total Depth of Installed Well 203.7'

5) Casing Stick Up (Standard 2.5' A.G.S.) 2.5'

6) Depth to Top of Filter Pack 149.2'

7) Depth to Top of Fine Sand Seal 147.5'

8) Depth to Top of Bentonite Seal 137.4'

9) Thickness of Grout 137.0'

Below Screen

Filter Pack: 149.2 to 162.8

Bentonite Seal: 162.8 to 167.7

Fx 50 Sand: 167.7 to 210.0

Depths to Top of Tomography Probes:

(Depths in parenthasies ~~are~~ were measured when installed on casing. All other depths are calculated from measured intervals between cable splices) (200.0), 186.7, 173.4, 160.1/(159.8), 146.8, 133.5, 120.2, 106.9, 93.6, 80.3, 67.0, 53.7, 40.4, 27.1, 13.8, 0.4 (0.4)

OSR 30-5
(Rev 12-88)

MONITORING WELL CONSTRUCTION DIAGRAM

DRILLING SUBCONTRACTOR Graves

DRILLER Bave Cunningham

DATE OF WELL INSTALLATION 6/3/92

TECH. O.S./CO. NAME Sean Asquith/SEC Donohue

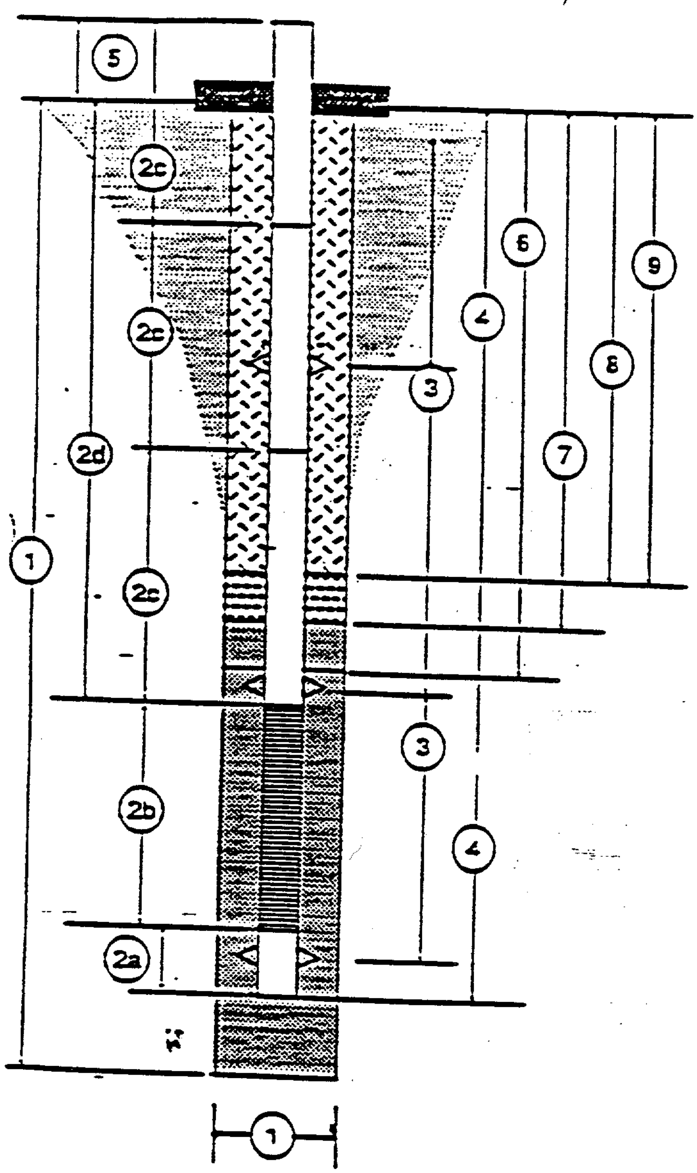
WELL NUMBER MHT-17C

SRS COORDINATES 102,394.63 N 48,706.94

SANITARY SEAL ELEVATION ______

LIQUID LEVEL PPE ______

NOTE: ALL MEASUREMENTS ARE FROM GROUND SURFACE AT START OF BORING – MEASUREMENTS TO NEAREST 0.1 FOOT.



1) Total Drilled Depth/Hole Diameter 210.0' / 12"

2) Casing/Screen Tally (Measured to Nearest 0.01 Foot)

(a) Sump & Plug Length 4.87' (plug installed between 1st 2 sections below screen

(b) Screen Length 4.85'

(c) Casing Joint Lengths (Measured in Up-hole Sequence From Top of Screen) Below screen: 0.47' (plug), 19.76', 19.75', 4.87' Above screen: 9.77', 20.27', 20.26', 20.26', 20.25', 20.26', 20.27', 20.26', 2.90'

(d) Depth to Top of Screen 152.0'

3) Depths to Centralizers 200.2', 157.8', 151.0' 121.0', 80.4', 19.7'

4) Total Depth of Installed Well 201.7'

5) Casing Stick Up (Standard 2.5' A.G.S.) 2.5'

6) Depth to Top of Filter Pack 148.1'

7) Depth to Top of Fine Sand Seal No fine sand.

8) Depth to Top of Bentonite Seal 143.5'

9) Thickness of Grout 143.0'

Below Screen
Filter Pack: 148.1' to 158.3'
Bentonite seal: 158.3' to 163.3'
Grout: 163.3' to 210.0'

Depths to Tomography Probes:
(Depths in parenthesies were measured on casing when installed, others were calculated from 200.0 and measured probe spacings) (200.0'), 186.7', 173.4', 160.1' (160.3'), 146.7', 133.4', 120.1', 106.8', ~~93.4~~ 93.5', ~~80.0~~ 80.2', 66.9', ~~53.3~~ 53.[illegible]', ~~40.0~~ 40.[illegible]', ~~26.6~~' 13.[illegible]' [illegible]

OSR 30-5
(Rev 12-88)

MONITORING WELL CONSTRUCTION DIAGRAM

DRILLING SUBCONTRACTOR Graves

DRILLER Bave Cunningham

DATE OF WELL INSTALLATION 5/22/92

TECH. O.S./CO. NAME Sean Asquith / S.E.C Donohue

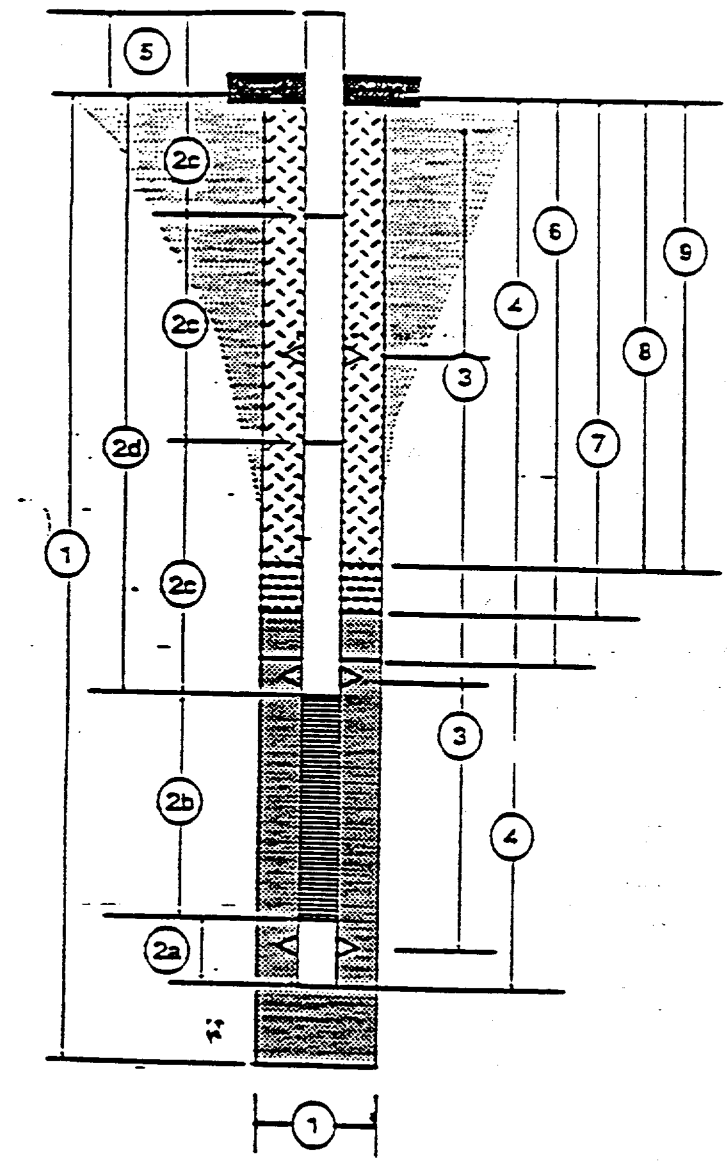
WELL NUMBER MHT-18C

SRS COORDINATES 102,486.11, 48,650.85

SANITARY SEAL ELEVATION

LIQUID LEVEL PPE

NOTE: ALL MEASUREMENTS ARE FROM GROUND SURFACE AT START OF BORING – MEASUREMENTS TO NEAREST 0.1 FOOT.



1) Total Drilled Depth/Hole Diameter 209.0' / 12".

2) Casing/Screen Tally (Measured to Nearest 0.01 Foot)

(a) Sump & Plug Length 4.88 (Plug between 1st two sections below Screen)

(b) Screen Length 4.83'

(c) Casing Joint Lengths (Measured in Up-hole Sequence From Top of Screen) Below Screen: 0.47 (Plug), 2.27, 4.88, 9.79, 19.77, 4.88, Above Screen: 19.77 20.27, 20.26, 20.26, 19.81, 19.77, 19.76, 17.60

(d) Depth to Top of Screen 155.0'

3) Depths to Centralizers 198.2, 160.8, 154.0, 114.0, ~~71.4~~ 73.4, ~~31.4~~ 33.9

4) Total Depth of Installed Well ~~201.89~~ 201.9

5) Casing Stick Up (Standard 2.5' A.G.S.) 2.5

6) Depth to Top of Filter Pack 151.2

7) Depth to Top of Fine Sand Seal 149.7

8) Depth to Top of Bentonite Seal 143.1

9) Thickness of Grout 142.1

Below Screen

Filter Pack: 151.2 to 164.0

Bentonite seal: 164.0 to 169.7

Fx-50 Sand 169.7 to 209.0

Depths to top of Tomography Probes: (Depths in parenthasies were measured when installed on casing. All other depths were calculated from meaured intervals between cable splices) (200.0), 186.6, 173.3, 159.9 (160.2), 146.6, 133.3, 120.0, 106.7, 93.4, 80.1, [illegible]

OSR 30-5
(Rev 12-88)

MONITORING WELL CONSTRUCTION DIAGRAM

DRILLING SUBCONTRACTOR Graves

DRILLER Greg Wilson

DATE OF WELL INSTALLATION 5/5/92

TECH. O.S./CO. NAME S. Asquith/SEC Donohue

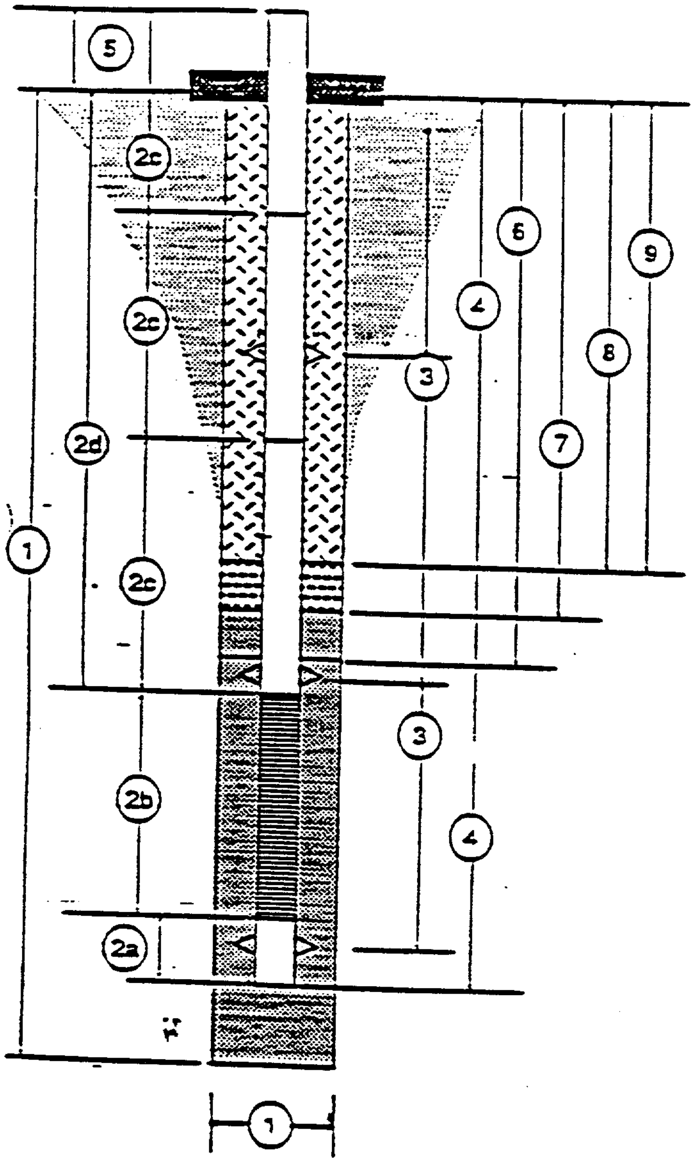
WELL NUMBER MHT-19C

SRS COORDINATES 102,502.74, 48,699.07

SANITARY SEAL ELEVATION

LIQUID LEVEL PPE

NOTE: ALL MEASUREMENTS ARE FROM GROUND SURFACE AT START OF BORING—MEASUREMENTS TO NEAREST 0.1 FOOT.



1) Total Drilled Depth/Hole Diameter 205.0' / 9 7/8"

2) Casing/Screen Tally (Measured to Nearest 0.01 Foot)

(a) Sump & Plug Length 43.25' (plug 0.47')

(b) Screen Length 4.83'

(c) Casing Joint Lengths (Measured in Up-hole Sequence From Top of Screen) Below Screen: 2.27', 20.26', 20.25'. Above Screen: 19.76', 19.80', 19.75', 19.76', 19.75', 20.25', 19.76', 15.67'.

(d) Depth to Top of Screen ~~152.00~~ SWA 153.00'

3) Depths to Centralizers ~~150.8~~ SWA 151.8', ~~158.2~~ SWA 159.2', ~~197.3'~~ SWA 198.3'

4) Total Depth of Installed Well ~~200.1~~ SWA 201.1'

5) Casing Stick Up (Standard 2.5' A.G.S.) 2.5'

6) Depth to Top of Filter Pack 148.3'

7) Depth to Top of Fine Sand Seal 147.3'

8) Depth to Top of Bentonite Seal 135.1'

9) Thickness of Grout 135.1'.

Below Screen

Filter Pack: 148.3' to 161.2'

Bentonite Seal: 161.2' to 167.5'

Fx-50 Sand: 167.5' to 205.0'

Tomography Probes

Installed on outside of well casing at 13.3' intervals starting at 199.8' (top of probe), ending at 0.5' below GS.

OSR 30-5
(Rev 12-88)

MONITORING WELL CONSTRUCTION DIAGRAM

DRILLING SUBCONTRACTOR Graves

DRILLER Dave Cunningham

DATE OF WELL INSTALLATION 6/15/92

TECH. O.S./CO. NAME Sean Asquith / SEC Donohue

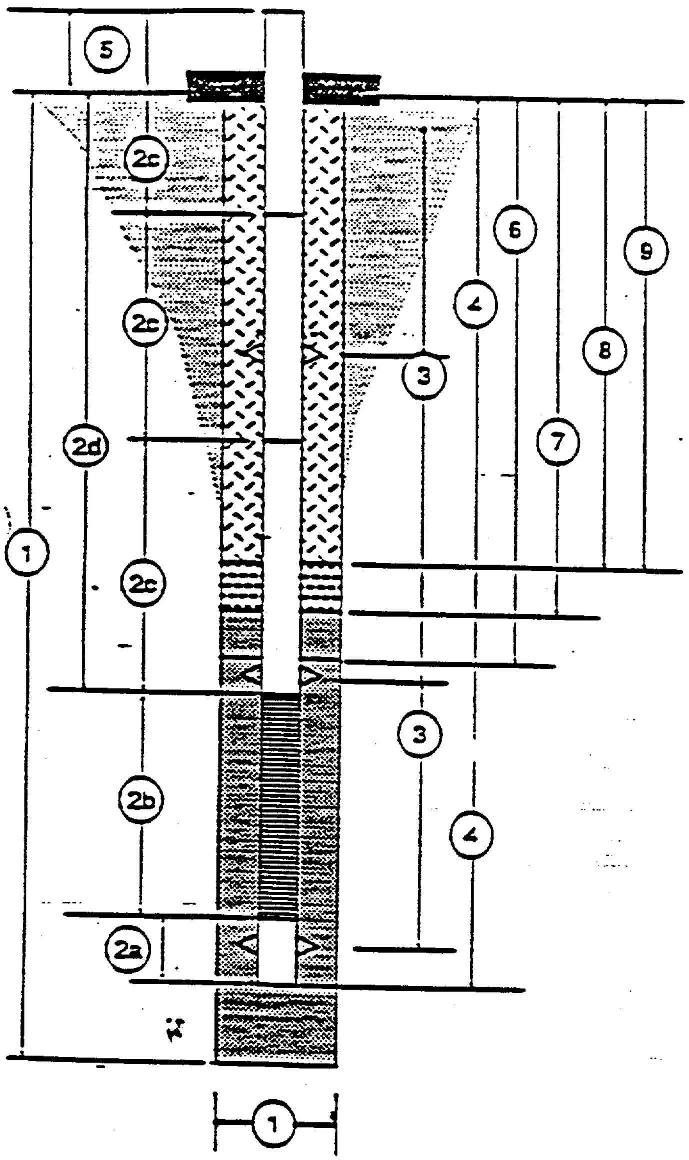
WELL NUMBER MHT-20C

SRS COORDINATES 102,589.30N / 48,710.76E

SANITARY SEAL ELEVATION

LIQUID LEVEL PIPE

NOTE: ALL MEASUREMENTS ARE FROM GROUND SURFACE AT START OF BORING – MEASUREMENTS TO NEAREST 0.1 FOOT.



1) Total Drilled Depth/Hole Diameter 210.0' / 12"

2) Casing/Screen Tally (Measured to Nearest 0.01 Foot)

(a) Sump & Plug Length 4.98' (Plug between 1st 2 sections below screen)

(b) Screen Length 4.88'

(c) Casing Joint Lengths (Measured in Up-hole Sequence From Top of Screen) Below screen: 0.47' (Plug), 1.99', 4.98', 10.01', 20.04', 4.98'. Above screen: 10.01', 20.01', 20.03', 20.02', 20.03', 20.02', 20.03', 20.02', ~~6.23~~' 6.13

(d) Depth to Top of Screen 153.8'

3) Depths to Centralizers 197.7', 159.7', 152.8', 122.8', 82.7', 42.7'

4) Total Depth of Installed Well 201.15'

5) Casing Stick Up (Standard 2.5' A.G.S.) 2.5'

6) Depth to Top of Filter Pack 152.4'

7) Depth to Top of Fine Sand Seal 152.0'

8) Depth to Top of Bentonite Seal 143.1'

9) Thickness of Grout 143.0'

Below Screen
Filter Pack: 152.4' to 158.9'
Bentonite Seal: 158.9' to 180.0'
Grout: 180.0' to 210.0'

Depths to Tomography Probes
(Depths in parenthesises were measured on casing when installed, others were calculated from 199.8' and measured probe spacings before installed)
(199.8'), 186.5, 173.2, 159.9 (159.9), 146.6, 133.3, 120.0, 106.7, 93.4

OSR 30-5
(Rev 12-89)

MONITORING WELL CONSTRUCTION DIAGRAM

DRILLING SUBCONTRACTOR Graves

WELL NUMBER MHV - 2

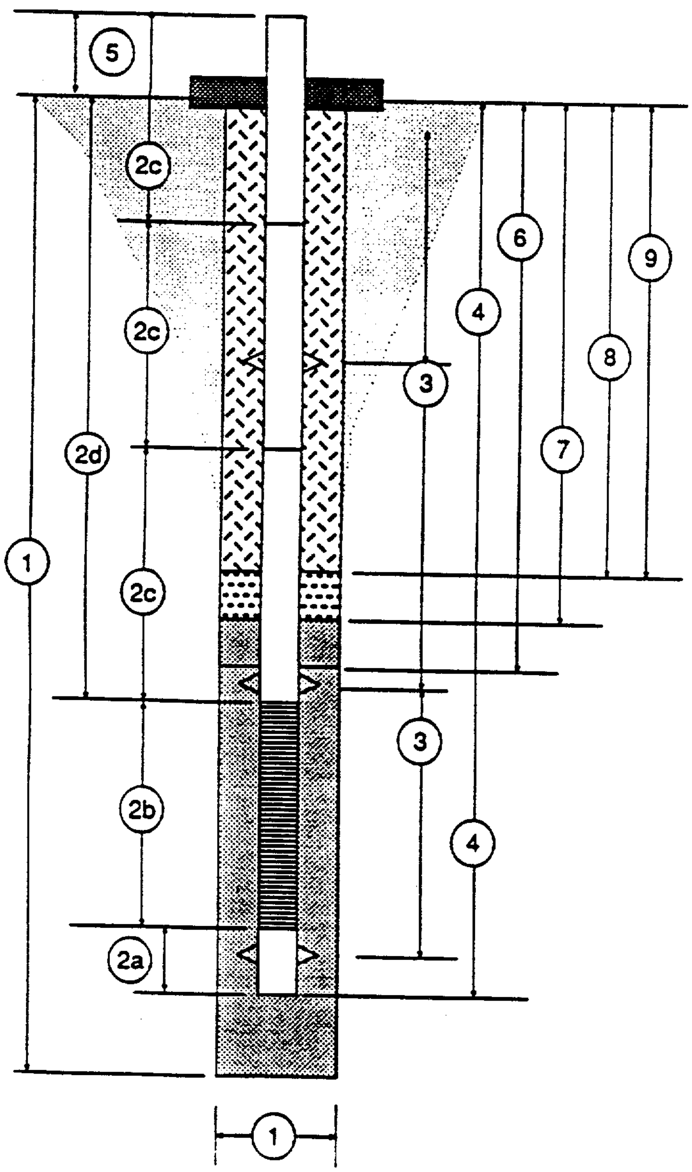
DRILLER I. C. Pinkney

SRS COORDINATES

DATE OF WELL INSTALLATION A: 5-29-90 B: 5-30-90 C: 5-31-90

SANITARY SEAL ELEVATION

TECH. O.S./CO. NAME William Joyce / Sirrine Environmental



NOTE: ALL MEASUREMENTS ARE FROM GROUND SURFACE AT START OF BORING – MEASUREMENTS TO NEAREST 0.1 FOOT.

1) Total Drilled Depth/Hole Diameter 103.9' / 6 1/4"

2) Casing/Screen Tally (Measured to Nearest 0.01 Foot)

(a) ~~Sump &~~ Plug Length A: 0.19' B: 0.19' C: 0.19'

(b) Screen Length A: 5.02' B: 5.02' C: 5.02'

(c) Casing Joint Lengths (Measured in Up-hole Sequence From Top of Screen) A: 10.02', 10.02', 10.02', 10.02', 10.02', 10.02', 10.02', 10.02', 10.02', 4.82'
B: 10.02', 10.02', 10.02', 10.02', 10.02', 10.02', 9.88'
C: 10.02', 10.02', 10.02', 10.02', 3.92'

(d) Depth to Top of Screen A: 95.00' B: 70.00' C: 44.00'

3) Depths to Centralizers N/A

4) Total Depth of Installed Well A: 100.2' B: 75.2' C: 49.2'

5) Casing Stick Up (Standard 2.5' A.G.S.) A: 2.5' B: 2.5' C: 2.5'

6) Depth to Top of Filter Pack A: 92.6' B: 68.1' C: 41.7'

7) Depth to Top of Fine Sand Seal N/A

8) Depth to Top of Bentonite Seal A: 82.9' B: 65.3' C: 38.4'

9) Thickness of Grout A: 0.05' washed away B: 14.6' C: 38.4'

Bentonite plug A: 5.3'

OSR 30-5
(Rev 12-89)

MONITORING WELL CONSTRUCTION DIAGRAM

DRILLING SUBCONTRACTOR Graves

WELL NUMBER MHV-3

DRILLER I. C. Pinkney

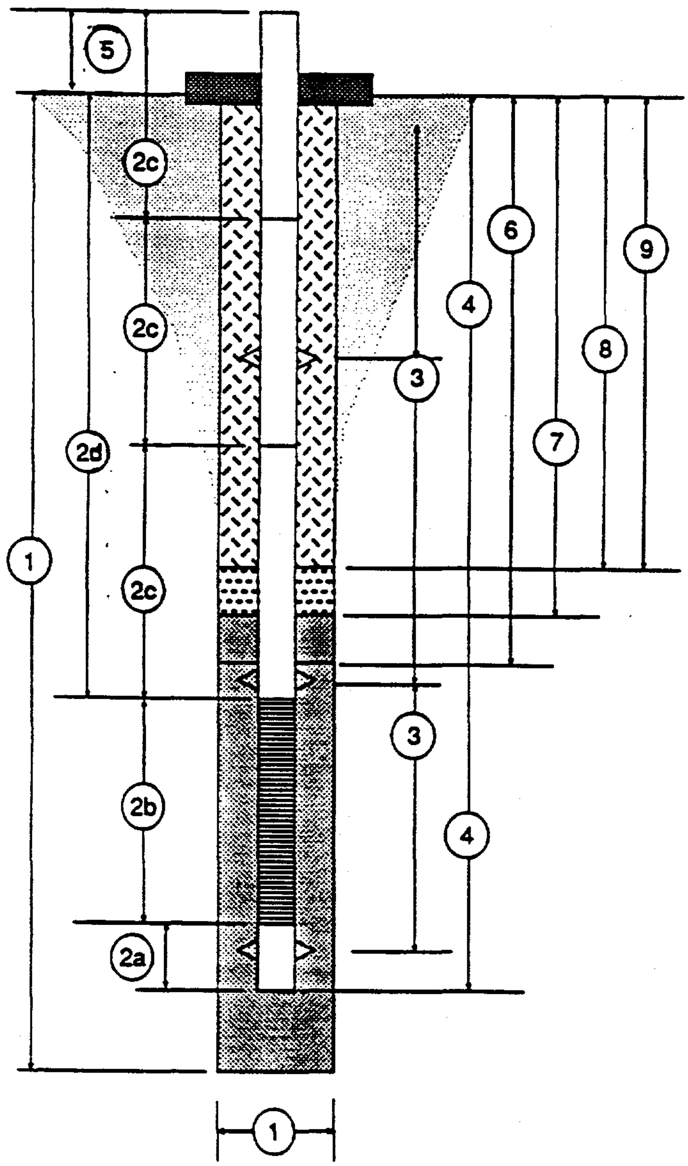
SRS COORDINATES

DATE OF WELL INSTALLATION A: 5-14-90 B: 5-15-90 C: 5-16-90

SANITARY SEAL ELEVATION

TECH. OS./CO. NAME William Joyce / Sirrine Environmental

NOTE: ALL MEASUREMENTS ARE FROM GROUND SURFACE AT START OF BORING – MEASUREMENTS TO NEAREST 0.1 FOOT.



1) Total Drilled Depth/Hole Diameter 105.3' / 6 1/4"

2) Casing/Screen Tally (Measured to Nearest 0.01 Foot)

(a) ~~Sump &~~ Plug Length A: 0.19' B: 0.19' C: 0.19'

(b) Screen Length A: 5.02' B: 5.02' C: 5.02'

(c) Casing Joint Lengths (Measured in Up-hole Sequence From Top of Screen) A: 10.02', 10.02', 10.02', 10.02', 10.02', 10.02', 10.02', 10.02', 10.02', 4.82'
B: 10.02', 10.02', 10.02', 10.02', 10.02', 10.02', 9.23'
C: 10.02', 10.02', 10.02', 10.02', 4.92'

(d) Depth to Top of Screen A: 95.00' B: 69.35' C: 45.00'

3) Depths to Centralizers N/A

4) Total Depth of Installed Well A: 100.2' B: 74.6' C: 50.2'

5) Casing Stick Up (Standard 2.5' A.G.S.) A: 2.5' B: 2.5' C: 2.5'

6) Depth to Top of Filter Pack A: 92.9' B: 64.3' C: 43.0'

7) Depth to Top of Fine Sand Seal N/A

8) Depth to Top of Bentonite Seal A: 82.9' B: 60.1' C: 40.6'

9) Thickness of Grout A: 7.6' B: 8.9' C: 40.6'

OSR 30-5
(Rev 12-89)

MONITORING WELL CONSTRUCTION DIAGRAM

DRILLING SUBCONTRACTOR Graves

WELL NUMBER MHV-4

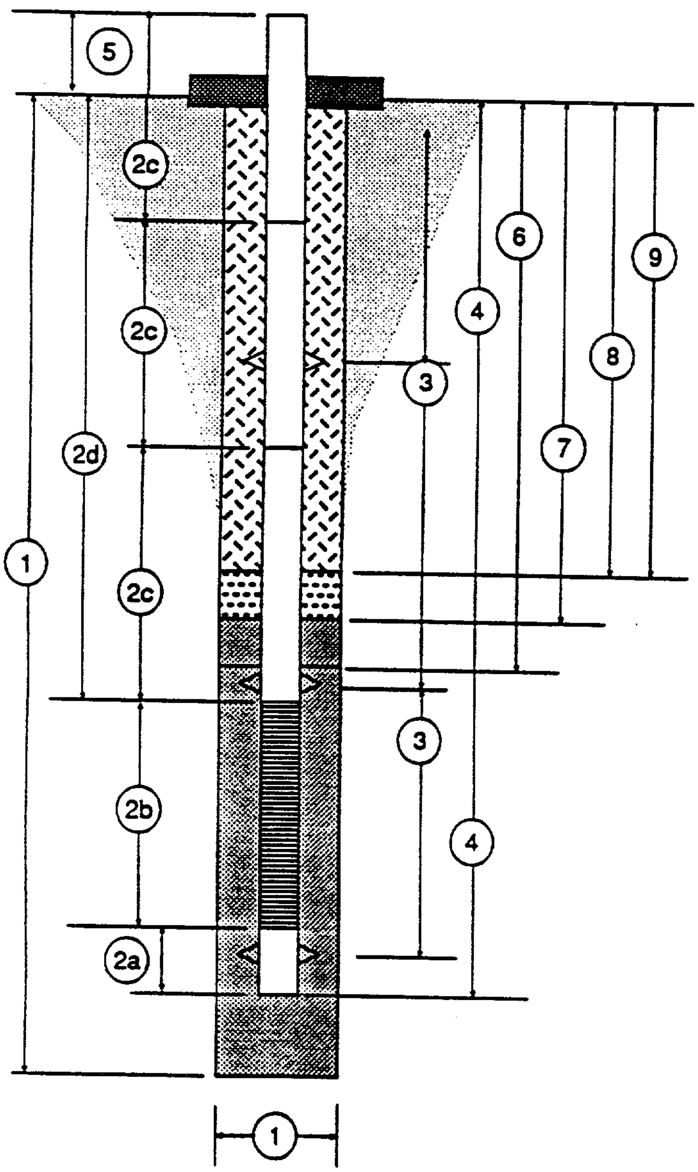
DRILLER I. C. Pinkney

SRS COORDINATES

DATE OF WELL INSTALLATION A: 6-13-90 B: 6-15-90 C: 6-18-90

SANITARY SEAL ELEVATION

TECH. O.S./CO. NAME William Joyce / Sirrine Environmental



NOTE: ALL MEASUREMENTS ARE FROM GROUND SURFACE AT START OF BORING – MEASUREMENTS TO NEAREST 0.1 FOOT.

1) Total Drilled Depth/Hole Diameter 100.4' / 6 1/4"

2) Casing/Screen Tally (Measured to Nearest 0.01 Foot)

(a) ~~Sump &~~ Plug Length A: 0.19' B: 0.19' C: 0.19'

(b) Screen Length A: 5.02' B: 5.02' C: 5.02'

(c) Casing Joint Lengths (Measured in Up-hole Sequence From Top of Screen) A: 10.03', 10.03', 10.02', 10.03', 10.03', 10.03', 10.03', 10.03', 10.03', 3.73'
B: 10.02', 10.02', 10.02', 10.03', 10.02', 10.02', 9.87'
C: 10.02', 10.02', 10.02', 10.02', 2.72'

(d) Depth to Top of Screen A: 94.00' B: 70.00' C: 42.50'

3) Depths to Centralizers N/A

4) Total Depth of Installed Well A: 99.2' B: 75.2' C: 47.7'

5) Casing Stick Up (Standard 2.5' A.G.S.) A: 2.5' B: 2.5' C: 2.5'

6) Depth to Top of Filter Pack A: 91.3' B: 67.8' C: 40.0'

7) Depth to Top of Fine Sand Seal N/A

8) Depth to Top of Bentonite Seal A: 88.1' B: 65.9' C: 34.8'

9) Thickness of Grout A: 11.7' B: 17.4' C: 34.8'

OSR 30-5
(Rev 12-89)

MONITORING WELL CONSTRUCTION DIAGRAM

DRILLING SUBCONTRACTOR Graves

WELL NUMBER MHV - 5

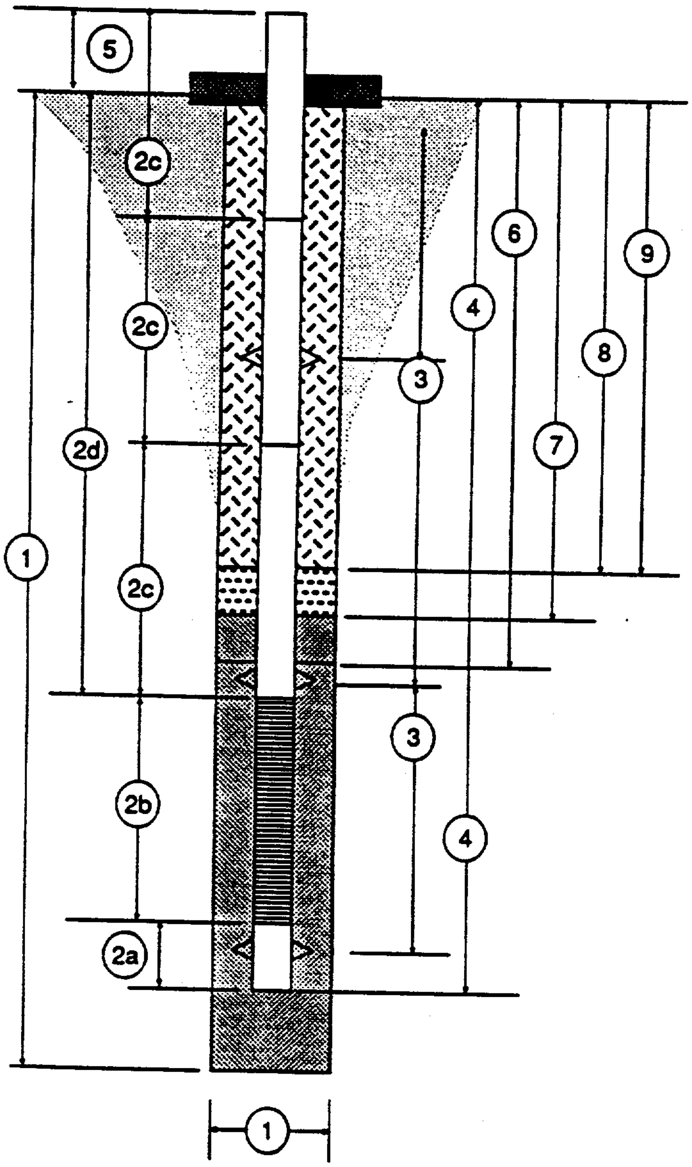
DRILLER I. C. Pinkney

SRS COORDINATES

DATE OF WELL INSTALLATION A: 6-6-90 B: 6-7-90 C: 6-8-90

SANITARY SEAL ELEVATION

TECH. O.S./CO. NAME William Joyce / Sirrine Environmental



NOTE: ALL MEASUREMENTS ARE FROM GROUND SURFACE AT START OF BORING – MEASUREMENTS TO NEAREST 0.1 FOOT.

1) Total Drilled Depth/Hole Diameter 93.1' / 6 1/4"

2) Casing/Screen Tally (Measured to Nearest 0.01 Foot)

(a) ~~Sump &~~ Plug Length A: 0.19' B: 0.19' C: 0.19'

(b) Screen Length A: 5.02' B: 5.02' C: 5.02'

(c) Casing Joint Lengths (Measured in Up-hole Sequence From Top of Screen) A: 10.02', 10.02', 10.02', 10.02', 10.02', 10.02', 10.02', 10.02', 4.84'
B: 10.02', 10.02', 10.02', 10.02', 10.02, 10.02', 7.88'
C: 10.02', 10.02', 10.02', 10.02', 4.92'

(d) Depth to Top of Screen A: 85.00' B: 68.00' C: 45.00

3) Depths to Centralizers N/A

4) Total Depth of Installed Well A: 90.2' B: 73.2' C: 50.2'

5) Casing Stick Up (Standard 2.5' A.G.S.) A: 2.5' B: 2.5' C: 2.5'

6) Depth to Top of Filter Pack A: 83.0' B: 64.2' C: 42.4'

7) Depth to Top of Fine Sand Seal N/A

8) Depth to Top of Bentonite Seal A: 81.5' B: 60.6' C: 38.6'

9) Thickness of Grout A: 8.1' B: 7.9' C: 38.6'

OSR 30-5
(Rev 12-89)

MONITORING WELL CONSTRUCTION DIAGRAM

DRILLING SUBCONTRACTOR GRAVES

DRILLER James Smith

DATE OF WELL INSTALLATION 6/24-25/91

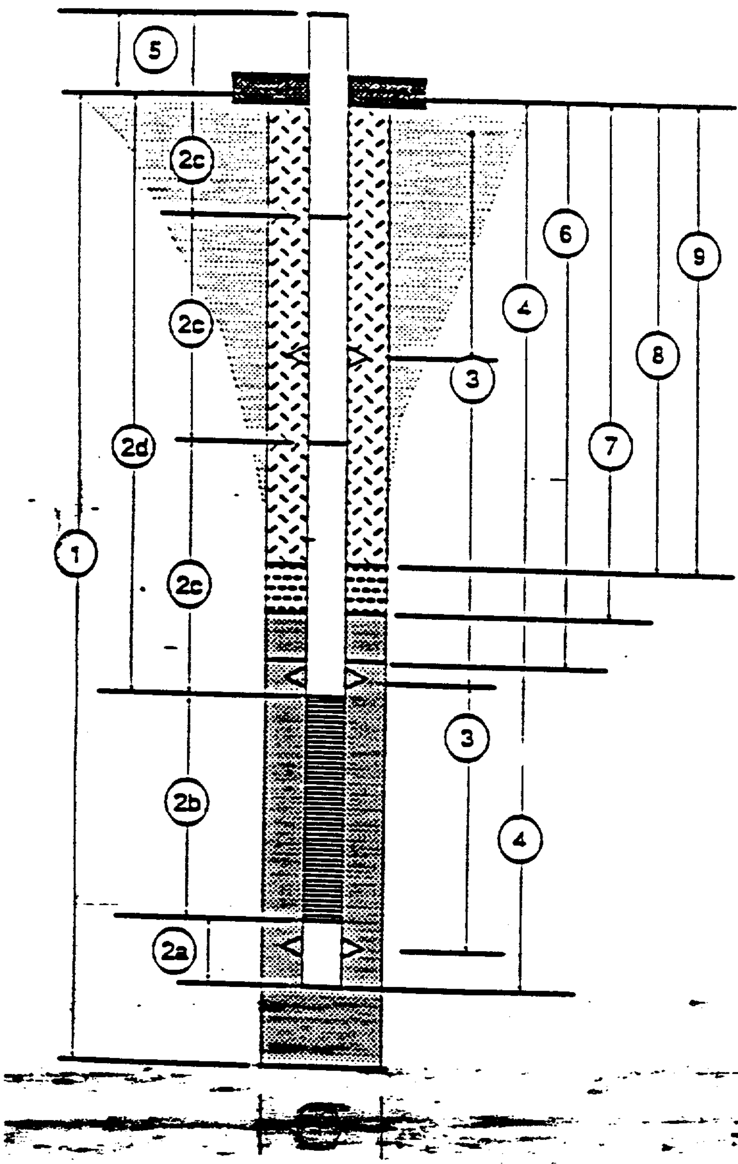
TECH. O.S./CO. NAME D.T. Bussey/O'Brien & Gere

WELL NUMBER MHV-6

SRS COORDINATES

SANITARY SEAL ELEVATION

LIQUID LEVEL PIPE



NOTE: ALL MEASUREMENTS ARE FROM GROUND SURFACE AT START OF BORING – MEASUREMENTS TO NEAREST 0.1 FOOT.

1) Total Drilled Depth/Hole Diameter 140' / 6"

2) Casing/Screen Tally (Measured to Nearest 0.01 Foot)

(a) Sump & Plug Length .33'

(b) Screen Length 105'

(c) Casing Joint Lengths (Measured in Up-hole Sequence From Top of Screen) (1) 10.00

(d) Depth to Top of Screen 9.25'

3) Depths to Centralizers N/A

4) Total Depth of Installed Well 114.58

5) Casing Stick Up (Standard 2.5' A.G.S.) .75'

6) Depth to Top of Filter Pack 6'

7) Depth to Top of Fine Sand Seal N/A

8) Depth to Top of Bentonite Seal 2'

9) Thickness of Grout N/A

OSR 30-5
(Rev 12-89)

MONITORING WELL CONSTRUCTION DIAGRAM

DRILLING SUBCONTRACTOR GRAVES

WELL NUMBER MHV-7

DRILLER James Smith

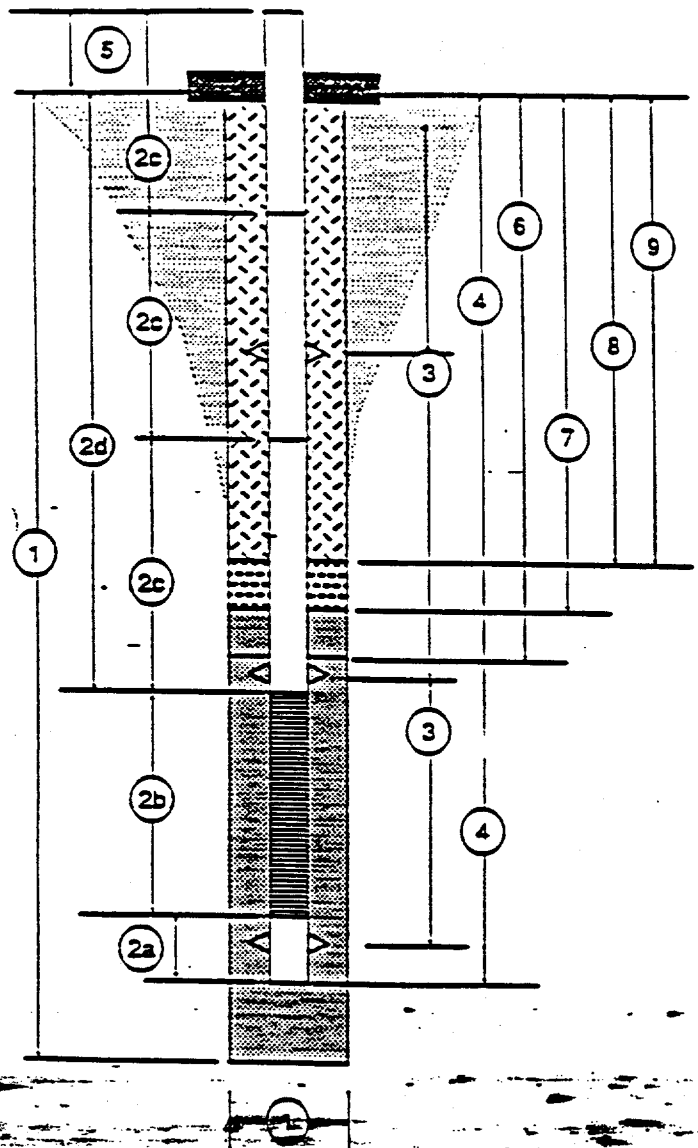
SRS COORDINATES

DATE OF WELL INSTALLATION 6/21/91

SANITARY SEAL ELEVATION

TECH. O.S./CO. NAME D.T. Bussey/O'Brien & Gere

LIQUID LEVEL PIPE



NOTE: ALL MEASUREMENTS ARE FROM GROUND SURFACE AT START OF BORING – MEASUREMENTS TO NEAREST 0.1 FOOT.

1) Total Drilled Depth/Hole Diameter 140' / 6"

2) Casing/Screen Tally (Measured to Nearest 0.01 Foot)

(a) Sump & Plug Length .33'

(b) Screen Length 105'

(c) Casing Joint Lengths (Measured in Up-hole Sequence From Top of Screen) (1) 10.00, (2) 2.5

(d) Depth to Top of Screen 10'

3) Depths to Centralizers N/A

4) Total Depth of Installed Well 115.33'

5) Casing Stick Up (Standard 2.5' A.G.S.) 2.5'

6) Depth to Top of Filter Pack 7'

7) Depth to Top of Fine Sand Seal N/A

8) Depth to Top of Bentonite Seal 2'

9) Thickness of Grout N/A

OSR 30-5
(Rev 12-89)

MONITORING WELL CONSTRUCTION DIAGRAM

Note: See details pages 2 and 3

DRILLING SUBCONTRACTOR Graves

DRILLER Greg Wilson

DATE OF WELL INSTALLATION 4/10/92

TECH. O.S./CO. NAME S. Asquith / SEC Donohue

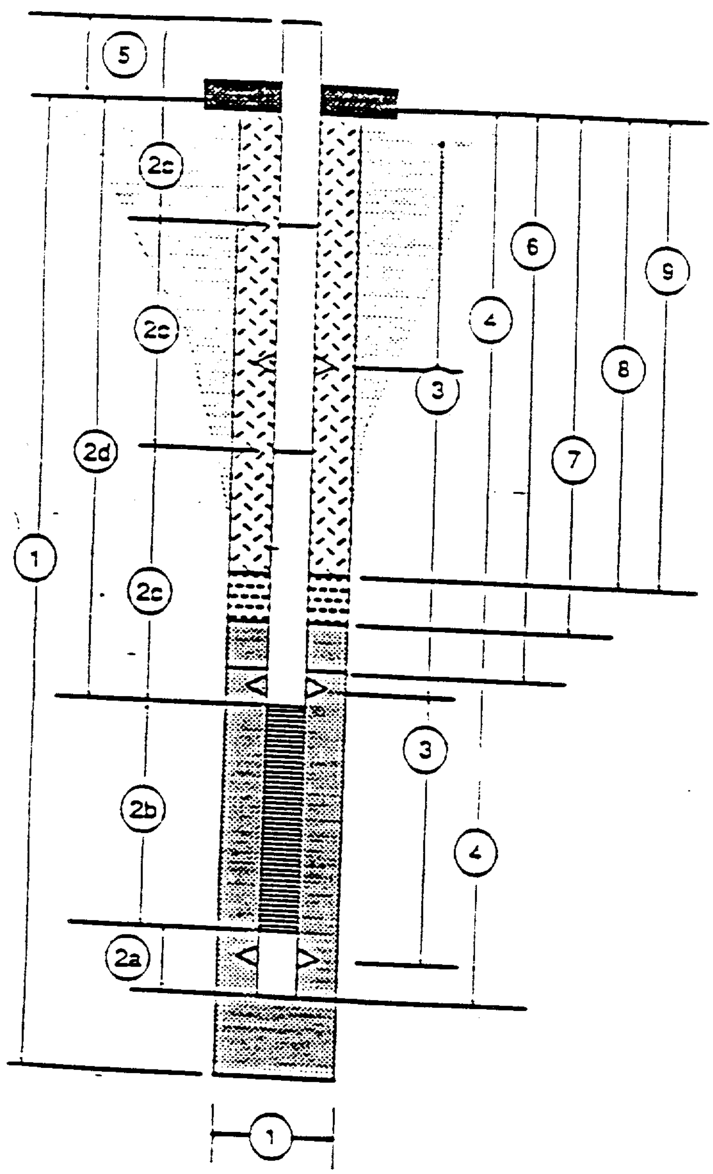
WELL NUMBER MHV-8

SRS COORDINATES

SANITARY SEAL ELEVATION

LIQUID LEVEL PIPE

NOTE: ALL MEASUREMENTS ARE FROM GROUND SURFACE AT START OF BORING – MEASUREMENTS TO NEAREST 0.1 FOOT.



1) Total Drilled Depth/Hole Diameter 145.0' / 6.5"

2) Casing/Screen Tally (Measured to Nearest 0.01 Foot)

(a) Sump & Plug Length plug length 0.47'

(b) Screen Length See page 3

(c) Casing Joint Lengths (Measured in Up-hole Sequence From Top of Screen) 10.05', 10.06', 9.98' (also see page 3)

(d) Depth to Top of Screen See page 2

3) Depths to Centralizers 4.5', ~~40.0~~ sux, 40.3, 52.2, 112.8

4) Total Depth of Installed Well 117.0

5) Casing Stick Up (Standard 2.5' A.G.S.) 2.5'

6) Depth to Top of Filter Pack See page 2

7) Depth to Top of Fine Sand Seal See page 2

8) Depth to Top of Bentonite Seal See page 2

9) Thickness of Grout 0.0 to 27.3

MONITORING WELL CONSTRUCTION DIAGRAM (Continued)

SIRRINE ENVIRONMENTAL CONSULTANTS

CALCULATION SHEET

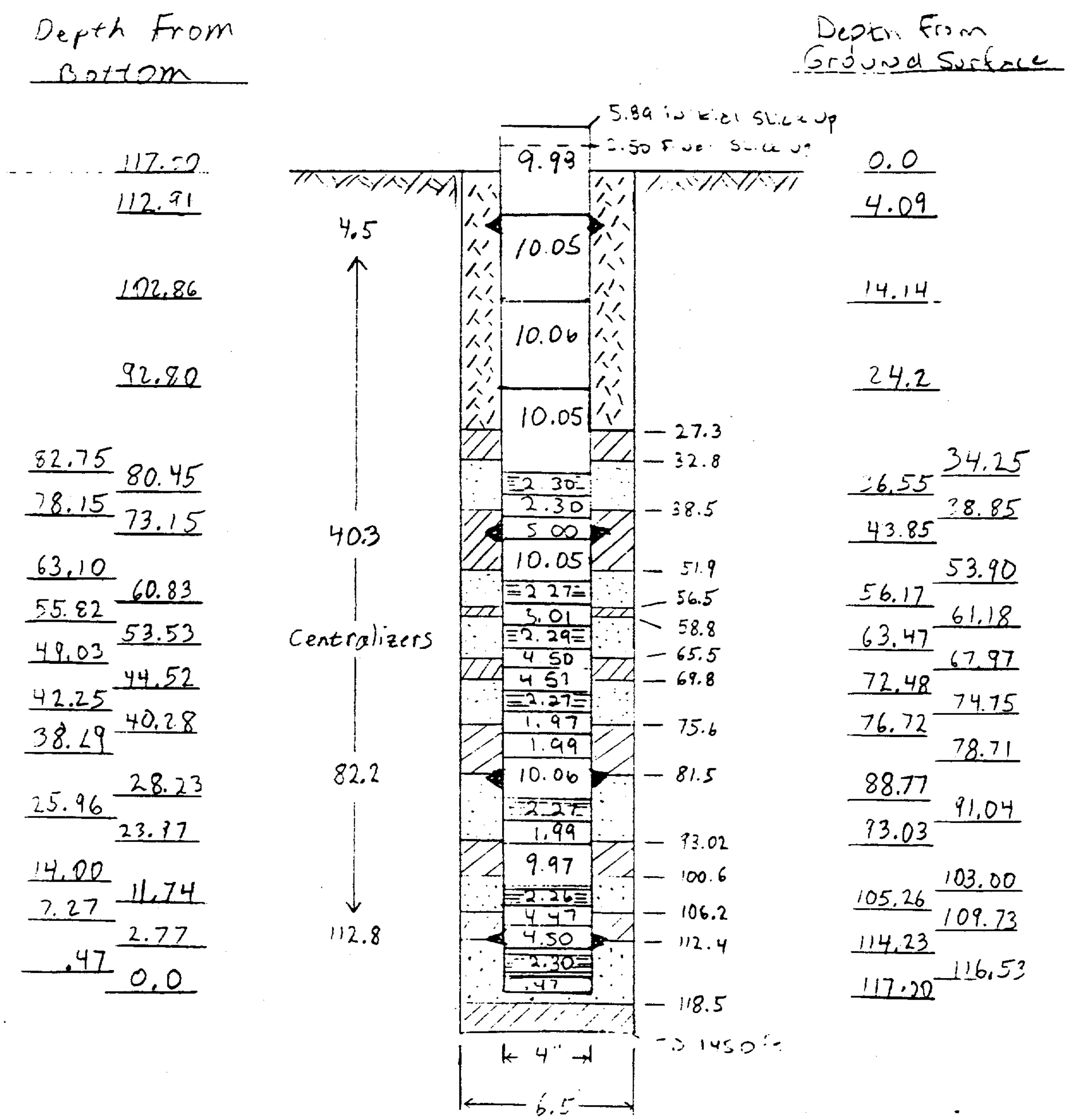
CLIENT WSRC LOCATION Horizontal Well Site JOB NO. G-2392

SUBJECT Well Construction Diagram (MHV-8)

BY S. Asquith DATE 4/14/92 CHECKED BY ______ DATE ______

Total Volumes

	Theoretical	Actual
Sand (fx-50)	5.5 bags	6.5 bags
Bentonite Pellets	11.4 buckets	15 buckets



MONITORING WELL CONSTRUCTION DIAGRAM (continued)

SIRRINE ENVIRONMENTAL CONSULTANTS

CALCULATION SHEET

CLIENT WSRC LOCATION Horizontal Well Site JOB NO. G2392

SUBJECT Casing and Screen Details

BY S. Asquith DATE 4/17/92 CHECKED BY ______ DATE ______

Casing Tally

Bottom 0.47	Sump/Plug
2.30	screen
4.50	blank
4.47	blank
2.26	screen
9.97	blank
1.99	blank
2.27	screen
10.06	blank
1.99	blank
1.97	blank
2.27	screen
4.51	blank
4.50	blank
2.29	screen
5.01	blank
2.27	screen
10.05	blank
5.00	blank
2.30	blank
2.30	screen
10.05	casing
10.06	casing
10.05	casing
TOP 9.98	casing

122.39
−117.00
5.39 vertical stick up

Materials List

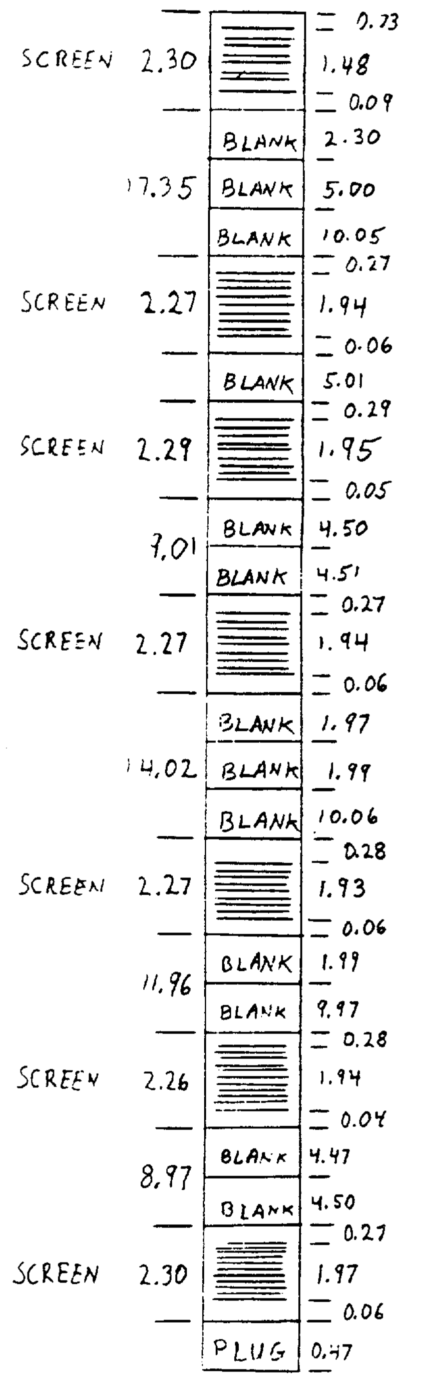
Screen
PVC Schedule 40
Slotted
4 in diam.
Flush threads

Casing
PVC Schedule 40
4 in. diam.
Flush threads (ASTM)

Plug
PVC Schedule 40
Flush threads

Note:
All dimentions in feet.

Screen & Plug Tally



AREA	NO	SCR	DEPTH	REC	IND	COLOR	STRUCTURE	%GR	%SD	%MD	MX	MD	R	%CG	%CS	%CM	%CMT	%CAR	NAME	SO	%POR	TYPE	%MUS	%GLA	%LIG	%SUL	H	FOSSILS
MHT	001	C	1		2	MREBR	BDGYBLBR	.1	80	20	GR	M	4					0	SD	M	G	BP	0	0	0	0	C	
MHT	001	C	2	4	1	LGNBR		0	90	10	VC	M	4					0	SD	M	G	BP	0	0	.1	0	C	
MHT	001	C	3		2	LGYBR		0	90	10	VC	M	4					0	SD	M	G	BP	0	0	0	0	C	
MHT	001	C	4	9	3	LGNBR	WSPDOR	0	85	15	VC	M	4					0	SD	M	G	BP	0	0	0	0	C	
MHT	001	C	5		3	LBRYE	ISD	1	74	25	GR	M	3					0	CLSD	P	M	BP	0	0	0	0	C	
MHT	001	C	6	7	3	LORBR	VARREOR	1	64	35	GR	M	3					0	CLSD	P	M	BP	0	0	0	0	C	
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MHT	001	C	12		3	MREOR	VARLGY	.1	40	60	GR	CL	3					0	SDCL	P	P	MI	0	0	0	0	R	
MHT	001	C	13		3	MREBR	VARLGY	0	60	40	VC	M	3					0	CLSD	P	P	BP	0	0	0	0	R	
MHT	001	C	14	0																								
MHT	001	C	15		3	MREBR	VARDYE	0	45	55	VC	CL	3					0	SDCL	V	P	MI	0	0	0	0	R	
MHT	001	C	16	0																								
MHT	001	C	17		2	MREOR	WSPWHCL	4	71	25	GR	C	3					0	CLSD	P	M	BP	0	0	0	0	C	
MHT	001	C	18		2	MREOR	WSPWHCL	4	76	20	LP	C	3					0	SD	M	M	BP	0	0	0	0	C	
MHT	001	C	19		2	MREOR	WSPWHCL	3	77	20	GR	C	3					0	SD	M	M	BP	0	0	0	0	C	
MHT	001	C	20	7	2	LPIRE	WSPWHCL	4	71	25	LP	C	3					0	CLSD	P	M	BP	0	0	0	0	C	
MHT	001	C	21		2	MREOR	WHCLB	7	68	25	UP	M	3					0	CLSD	P	M	BP	.1	0	0	0	C	
MHT	001	C	22	8	2	MREOR	WSPWHCL	5	75	20	LP	M	3					0	SD	M	M	BP	0	0	0	0	C	
MHT	001	C	23		2	MREOR	WSPWHCL	5	75	20	GR	C	3					0	SD	P	M	BP	0	0	0	0	R	
MHT	001	C	24	8	2	MREOR	WSPWHCL	2	83	15	GR	C	3					0	SD	M	G	BP	0	0	0	0	R	
MHT	001	C	25		2	LPIRE	WSPWHCL	2	78	20	GR	C	3					0	SD	P	M	BP	0	0	0	0	C	
MHT	001	C	26	9	2	LPIRE	WSPWHCL	10	65	25	LP	C	3					0	CLSD	P	M	BP	0	0	0	0	R	
MHT	001	C	27		2	DYEOR	BLREBWH	10	60	30	LP	C	3					0	CLSD	P	M	BP	0	0	0	0	R	
MHT	001	C	28		2	LRE	WSPWHCL	7	73	20	LP	C	3					0	SD	P	M	BP	0	0	0	0	R	
MHT	001	C	29		2	LRE	WSPWHBYE	2	73	25	GR	C	3					0	CLSD	P	M	BP	0	0	0	0	R	
MHT	001	C	30	7	2	LRE	WSPWHCL	15	55	30	LP	C	3					0	CLSD	P	M	BP	0	0	0	0	R	
MHT	001	C	31		2	LRE	BLYE	2	73	25	LP	C	3					0	CLSD	P	M	BP	0	0	0	0	R	
MHT	001	C	32	9	2	LREGY	WSPCL	15	65	20	LP	C	3					0	SD	P	M	BP	.1	0	0	0	R	
MHT	001	C	33		2	REWH		10	65	25	LP	C	3					0	CLSD	P	M	BP	.1	0	0	0	R	
MHT	001	C	34		2	REWH	PUCLB	15	60	25	UP	C	3					0	CLSD	P	M	BP	.1	0	0	0	R	
MHT	001	C	35		2	LYEOR	PUCLB	20	60	20	UP	C	3					0	SD	V	P	MI	.1	0	0	0	R	
MHT	001	C	36	5	2	LYEOR	PUCLB	25	55	20	UP	VC	3					0	PBSD	V	P	MI	.1	0	0	0	R	
MHT	001	C	37		3	LPU	IBYESD	0	40	60	C	CL	4					0	SDCL	P	P	MI	1	0	0	0	C	
MHT	001	C	38		3	LPU	IBYESD	0	45	55	C	CL	4					0	SDCL	P	P	MI	1	0	0	0	C	

App. II

AREA	NO	SCR	DEPTH	REC	IND	COLOR	STRUCTURE	%GR	%SD	%MD	MX	MD	R	%CG	%CS	%CM	%CMT	%CAR	NAME	SO	%POR	TYPE	%MUS	%GLA	%LIG	%SUL	H	FOSSILS
MHT	001	C	39		3	LPU		0	40	60	C	CL	4					0	SDCL	P	P	MI	1	0	0	0	C	
MHT	001	C	40		3	LPU	ISD	0	25	75	C	CL	4					0	SDCL	P	P	MI	1	0	0	0	C	
MHT	001	C	41		3	LPU	ITASD	.1	15	85	GR	CL	4					0	CL	P	P	MI	1	0	0	0	C	
MHT	001	C	42		3	LPU	MTDYE	0	20	80	C	CL	4					0	CL	P	P	MI	1	0	0	0	C	
MHT	001	C	43		2	LREOR	IPUCL	.1	60	40	GR	M	4					0	CLSD	P	M	BP	1	0	0	0	C	
MHT	001	C	44		2	LGYYE		1	92	7	UP	M	4					0	SD	M	G	BP	1	0	0	0	C	
MHT	001	C	45		2	LGYPU	CLBBYEOR	10	70	20	UP	C	4					0	SD	V	M	BP	1	0	0	0	C	
MHT	001	C	46		2	LGYPU	CLBBYEOR	25	55	20	UP	C	4					0	PBSD	V	M	BP	.1	0	0	0	C	
MHT	001	C	47		2	MYEOR	BLGYPU	3	90	7	GR	M	4					0	SD	M	G	BP	0	0	0	0	C	
MHT	001	C	48	7	2	MYEOR	BWH	0	94	6	C	M	4					0	SD	W	E	BP	0	0	0	0	A	
MHT	001	C	49		2	MYEOR	BLGY	0	95	5	VC	M	4					0	SD	W	E	BP	0	0	0	0	A	
MHT	001	C	50	8	1	MGYPU	BMYEOR	0	95	5	C	M	4					0	SD	W	E	BP	.1	0	0	0	C	
MHT	001	C	51		2	MYEOR	BMGYPU	0	90	10	VC	M	4					0	SD	M	G	BP	.1	0	0	0	A	
MHT	001	C	52		2	MPUGY	BWHBMPU	0	92	8	VC	M	3					0	SD	M	G	BP	.1	0	0	0	C	
MHT	001	C	53		2	LGYGN	BMPU	0	92	8	VC	M	4					0	SD	M	G	BP	.1	0	0	0	A	
MHT	001	C	54		2	MYEOR	WSPCL	.1	90	10	GR	M	4					0	SD	M	G	BP	.1	0	0	0	A	
MHT	001	C	55		2	MGYGN	BYEBPU	1	89	10	GR	M	4					0	SD	M	G	BP	0	0	0	0	A	
MHT	001	C	56		2	LREPU	BMREPU	0	93	7	C	M	4					0	SD	M	G	BP	.1	0	0	0	C	
MHT	001	C	57		2	MREPU	WSPDYEOR	.1	92	8	GR	M	4					0	SD	M	G	BP	1	0	0	0	C	
MHT	001	C	58		2	LREPU	WSPCL	.1	95	5	GR	M	4					0	SD	M	G	BP	.1	0	0	0	C	
MHT	001	C	59		2	MREPU	BYEBWH	.1	90	10	GR	M	4					0	SD	M	G	BP	0	0	0	0	C	
MHT	001	C	60		2	MREPU	WSPCL	.1	85	15	LP	M	3					0	SD	M	G	BP	.1	0	0	0	C	
MHT	001	C	61		2	MPUGY		0	90	10	VC	M	3					0	SD	M	G	BP	.1	0	0	0	C	
MHT	001	C	62		2	DYEOR	BMGY	5	75	20	LP	M	3					0	SD	P	M	BP	1	0	0	0	C	
MHT	001	C	63		2	DYEOR		.1	92	8	GR	M	4					0	SD	M	G	BP	0	0	0	0	A	
MHT	001	C	64		1	DYEOR		1	89	10	LP	M	4					0	SD	M	G	BP	0	0	0	0	C	
MHT	001	C	65		2	LBRGY	IMYEORSD	1	89	10	GR	M	4					0	SD	M	G	BP	0	0	0	0	C	
MHT	001	C	66	6	1	MYEOR	BWH	1	95	4	GR	M	3					0	SD	M	G	BP	0	0	0	0	C	
MHT	001	C	67		1	MYEOR		1	94	5	GR	M	3					0	SD	M	G	BP	0	0	0	0	C	
MHT	001	C	68	6	1	MYEOR		0	95	5	VC	M	3					0	SD	M	G	BP	0	0	0	0	C	
MHT	001	C	69		1	MYEOR		.1	96	4	GR	C	3					0	SD	W	E	BP	0	0	0	0	R	
MHT	001	C	70	4	1	MYEOR		.1	96	4	LP	C	3					0	SD	W	E	BP	0	0	0	0	C	
MHT	001	C	71	6	1	LGYOR		1	93	6	LP	C	3					0	SD	M	G	BP	0	0	0	0	R	
MHT	001	C	72	0																								
MHT	001	C	73		1	LGYOR		1	91	8	GR	C	3					0	SD	M	G	BP	0	0	0	0	R	
MHT	001	C	74		1	LGYOR	WSPCL	1	93	6	GR	C	3					0	SD	M	G	BP	0	0	0	0	C	
MHT	001	C	75		1	LYEOR		1	92	7	GR	C	3					0	SD	M	G	BP	0	0	0	0	C	
MHT	001	C	76	0																								

AREA	NO	SCR	DEPTH	REC	IND	COLOR	STRUCTURE	%GR	%SD	%MD	MX	MD	R	%CG	%CS	%CM	%CMT	%CAR	NAME	SO	%POR	TYPE	%MUS	%GLA	%LIG	%SUL	H	FOSSILS
MHT	001	C	77		1	LYEOR		1	93	6	GR	C	4					0	SD	M	G	BP	0	0	0	0	C	
MHT	001	C	78	0																								
MHT	001	C	79	6	1	DYEOR		1	92	7	GR	C	4					0	SD	M	G	BP	0	0	0	0	C	
MHT	001	C	80	0																								
MHT	001	C	81		1	LYEOR		2	92	6	GR	C	3					0	SD	M	G	BP	0	0	0	0	R	
MHT	001	C	82	6	1	LYEOR		5	90	5	GR	C	3					0	SD	M	G	BP	0	0	0	0	R	
MHT	001	C	83		1	LYEOR		1	93	6	GR	C	3					0	SD	M	G	BP	0	0	0	0	C	
MHT	001	C	84	0																								
MHT	001	C	85		1	MYEOR		3	92	5	GR	M	3					0	SD	M	G	BP	0	0	0	0	C	
MHT	001	C	86	0																								
MHT	001	C	87		2	LRE	BWHBYE	1	89	10	GR	M	4					0	SD	M	G	BP	0	0	0	0	C	
MHT	001	C	88		2	LRE	IDYEORSD	0	35	65	VC	CL	3					0	SDCL	P	P	MI	1	0	0	0	C	
MHT	001	C	89		2	DYEOR	IMBRSD	0	25	75	C	CL	3					0	SDCL	V	P	MI	0	0	0	0	C	
MHT	001	C	90		2	MTA		4	66	30	LP	M	3					0	CLSD	V	M	BP	0	0	0	0	C	
MHT	001	C	91		2	MRE	IDYEORCL	1	54	45	GR	M	4					0	CLSD	P	M	BP	0	0	0	0	C	
MHT	001	C	92		2	MRE	BYEORICL	1	64	35	LP	M	4					0	CLSD	P	M	BP	0	0	0	0	C	
MHT	001	C	93		1	MTA		2	92	6	GR	M	4					0	SD	M	G	BP	0	0	0	0	C	
MHT	001	C	94		1	MTA		3	92	5	GR	C	4					0	SD	M	G	BP	0	0	0	0	C	
MHT	001	C	95		1	MTA	BLRE	1	91	8	GR	M	4					0	SD	M	G	BP	0	0	0	0	C	
MHT	001	C	96		1	MTA	ICL	.1	80	20	GR	C	3					0	SD	P	G	BP	0	0	0	0	R	
MHT	001	C	97		1	MTA		1	89	10	GR	C	3					0	SD	M	G	BP	.1	0	0	0	R	
MHT	001	C	98		2	DYEOR	IMTASD	.1	45	55	GR	CL	3					0	SDCL	V	P	MI	0	0	0	0	C	
MHT	001	C	99		2	DYEOR	ISD	.1	45	55	GR	CL	3					0	SDCL	V	P	MI	.1	0	0	0	C	
MHT	001	C	100		2	DYEOR	ICL	1	59	40	GR	C	3					0	CLSD	P	M	BP	.1	0	0	0	R	
MHT	001	C	101		2	LREBR	IDYEORSD	1	45	54	GR	CL	4					0	SDCL	P	P	MI	0	0	0	0	C	
MHT	001	C	102		2	DYEOR	ISD	0	25	75	VC	CL	4					0	SDCL	P	P	MI	0	0	0	0	C	
MHT	001	C	103		1	LYEOR	WSPLRECL	1	94	5	GR	C	3					0	SD	M	G	BP	0	0	0	0	R	
MHT	001	C	104	6	1	MYEOR		1	92	7	GR	C	3					0	SD	M	G	BP	0	0	0	0	R	
MHT	001	C	105	6	1	LYEOR		.1	95	5	GR	C	3					0	SD	M	G	BP	0	0	0	0	R	
MHT	001	C	106	0																								
MHT	001	C	107		1	LYEOR	WSPWHCL	1	95	4	GR	C	3					0	SD	M	G	BP	0	0	0	0	R	
MHT	001	C	108	4	1	LYEOR	WSPWHCL	2	94	4	GR	C	3					0	SD	M	G	BP	0	0	0	0	R	
MHT	001	C	109		1	DYEOR	BLBRICL	2	83	15	GR	C	3					0	SD	M	G	BP	0	0	0	0	R	
MHT	001	C	110	6	1	DYEOR	WSPCL	4	91	5	LP	C	3					0	SD	P	G	BP	0	0	0	0	R	
MHT	001	C	111		1	DYEOR	IWHCL	1	84	25	GR	C	4					0	CLSD	P	M	BP	0	0	0	0	C	
MHT	001	C	112	5	1	DYEOR	IWHCL	5	75	20	LP	M	4					0	SD	P	G	BP	0	0	0	0	C	
MHT	001	C	113		1	DYEOR	WSPWHCL	5	87	8	GR	C	4					0	SD	M	G	BP	0	0	0	0	C	
MHT	001	C	114	6	1	MGYOR		7	89	4	LP	C	4					0	SD	P	G	BP	0	0	0	0	C	

AREA	NO	SCR	DEPTH	REC	IND	COLOR	STRUCTURE	%GR	%SD	%MD	MX	MD	R	%CG	%CS	%CM	%CMT	%CAR	NAME	SO	%POR	TYPE	%MUS	%GLA	%LIG	%SUL	H	FOSSILS
MHT	001	C	115		1	MGYOR		15	79	6	LP	C	4					0	SD	P	G	BP	0	0	0	0	C	
MHT	001	C	116	6	1	MGYOR		15	77	8	LP	C	4					0	SD	P	G	BP	0	0	0	0	C	
MHT	001	C	117		1	DYEOR		15	75	10	LP	C	4					0	SD	P	G	BP	.1	0	0	0	C	
MHT	001	C	118	6	1	DYEOR	WSPWHCL	10	70	20	LP	C	4					0	SD	P	G	BP	0	0	0	0	C	
MHT	001	C	119		1	MGYOR	WSPWHCL	4	86	10	LP	C	4					0	SD	M	G	BP	0	0	0	0	C	
MHT	001	C	120	6	1	MYEOR	IWHCL	3	90	7	GR	C	4					0	SD	M	G	BP	0	0	0	0	C	
MHT	001	C	121	0																								
MHT	001	C	122	0																								
MHT	001	C	123	0																								
MHT	001	C	124	5	1	MBROR	MBROR	0	94	6	C	M	4					0	SD	W	E	BP	.1	0	0	0	C	
MHT	001	C	125		1	MBROR	BYEGYICL	2	88	10	GR	M	4					0	SD	M	G	BP	1	0	0	0	A	
MHT	001	C	126		1	DYEOR	ICL	0	80	20	C	M	4					0	SD	M	G	BP	.1	0	0	0	A	
MHT	001	C	127		1	MBROR		3	89	8	GR	C	4					0	SD	M	G	BP	.1	0	0	0	C	
MHT	001	C	128	0																								
MHT	001	C	129		1	MBROR		1	95	4	GR	C	4					0	SD	W	E	BP	0	0	0	0	C	
MHT	001	C	130		1	MBROR		.1	96	4	GR	C	4					0	SD	W	E	BP	0	0	0	0	C	
MHT	001	C	131		1	MBROR	WSPWHCL	1	91	8	LP	C	4					0	SD	M	G	BP	0	0	0	0	C	
MHT	001	C	132	6	1	MBROR		1	93	6	GR	C	4					0	SD	M	G	BP	0	0	0	0	C	
MHT	001	C	133	0																								
MHT	001	C	134		2	MOR	WSPWHCL	.1	94	6	GR	M	4					0	SD	M	G	BP	1	0	0	0	C	
MHT	001	C	135		2	MBROR	IWHCL	.1	93	7	GR	M	4					0	SD	M	G	BP	1	0	0	0	C	
MHT	001	C	136	0																								
MHT	001	C	137	0																								
MHT	001	C	138	0																								
MHT	001	C	139		2	MBROR	BOR	5	80	15	GR	M	4					0	SD	M	G	BP	1	0	0	0	C	
MHT	001	C	140		2	MORBR	WSPWHCL	1	89	10	GR	C	4					0	SD	M	G	BP	1	0	0	0	C	
MHT	001	C	141		2	MGYOR	WSPWHCL	1	93	6	GR	C	4					0	SD	M	G	BP	.1	0	0	0	C	
MHT	001	C	142		2	DYEOR	BMYEGY	1	94	5	GR	C	4					0	SD	M	G	BP	.1	0	0	0	C	
MHT	001	C	143		2	MYEGY	MTMBR	0	95	5	C	F	4					0	SD	M	G	BP	1	0	0	0	C	
MHT	001	C	144		2	DYEOR	BMYEGY	.1	95	5	GR	F	4					0	SD	M	G	BP	1	0	0	0	A	
MHT	001	C	145		2	DYEOR	MTMREPU	2	92	6	GR	F	4					0	SD	M	G	BP	1	0	0	0	A	
MHT	001	C	146		2	DYEOR		1	93	6	GR	F	4					0	SD	M	G	BP	1	0	0	0	A	
MHT	001	C	147		2	MGYOR	BMYEGY	2	90	8	GR	M	3					0	SD	M	G	BP	1	0	0	0	A	
MHT	001	C	148		2	MGYOR	BGYISPSD	0	95	5	C	M	3					0	SD	W	E	BP	1	0	0	0	A	SPCTFO
MHT	001	C	149		2	DYEOR	BMYEGY	4	81	15	LP	M	3					0	SD	M	G	BP	1	0	0	0	C	
MHT	001	C	150		2	DYEOR	BMYEGY	3	82	15	LP	C	3					0	SD	M	G	BP	1	0	0	0	C	
MHT	001	C	151		1	DYEOR	BBRWSPCL	2	92	6	LP	C	4					0	SD	M	G	BP	1	0	0	0	C	
MHT	001	C	152	6	1	DYEOR	BLYEOR	1	95	4	GR	C	4					0	SD	M	G	BP	1	0	0	0	C	

AREA	NO	SCR	DEPTH	REC	IND	COLOR	STRUCTURE	%GR	%SD	%MD	MX	MD	R	%CG	%CS	%CM	%CMT	%CAR	NAME	SO	%POR	TYPE	%MUS	%GLA	%LIG	%SUL	H	FOSSILS
MHT	001	C	153		1	MGYOR	WSPLGYCL	1	95	4	GR	C	4					0	SD	M	G	BP	1	0	0	0	C	
MHT	001	C	154		1	LGYOR	BLYEBR	0	94	6	VC	M	3					0	SD	M	G	BP	1	0	0	0	C	
MHT	001	C	155		1	LGYOR	WSPLGY	0	97	3	C	F	4					0	SD	W	E	BP	1	0	0	0	A	
MHT	001	C	156	3	1	LGYOR	WSPLGY	0	96	4	C	F	4					0	SD	W	E	BP	1	0	0	0	A	
MHT	001	C	157	0																								
MHT	001	C	158		1	LGYOR	IGYCLBGY	0	97	3	VC	F	4					0	SD	W	E	BP	.1	0	0	0	A	
MHT	001	C	159		1	DYEOR	BWH	0	98	2	VC	C	4					0	SD	W	E	BP	.1	0	0	0	C	
MHT	001	C	160		1	DYEOR	BGYWSPCL	.1	96	4	GR	F	4					0	SD	W	E	BP	.1	0	0	0	C	
MHT	001	C	161		1	DYEOR	BGYWSPCL	.1	95	5	GR	M	4					0	SD	W	E	BP	.1	0	0	0	C	
MHT	001	C	162		2	MGYOR	BLGYMTPU	.1	30	70	GR	CL	3				.1	0	SDCL	V	P	MI	1	0	0	0	C	
MHT	001	C	163		2	MGYOR	ILGYCL	1	69	30	LP	VF	3				.1	0	CLSD	P	M	BP	1	0	0	0	C	SP
MHT	001	C	164		2	DYEOR	ILGYCL	1	79	20	LP	M	4					0	SD	M	G	BP	1	0	0	0	C	
MHT	001	C	165		2	DYEOR	IGYCLBGY	0	92	8	VC	M	4					0	SD	M	G	BP	.1	0	0	0	C	
MHT	001	C	166		2	DYEOR	BLGY	1	89	10	GR	M	4					0	SD	M	G	BP	0	0	0	0	C	
MHT	001	C	167	0																								
MHT	001	C	168	0																								
MHT	001	C	169	0																								
MHT	001	C	170		1	MYEOR	ILGYCL	.1	75	25	GR	M	3					0	CLSD	P	M	BP	.1	0	0	0	C	
MHT	001	C	171		1	MYEOR	ILGYCLFE	0	85	15	C	M	3				.1	0	SD	M	G	BP	.1	0	0	0	C	
MHT	001	C	172		1	MYEOR	ILGYYECL	0	85	15	C	M	3					0	SD	M	G	BP	.1	0	0	0	C	
MHT	001	C	173		1	MYEOR	WSPCLBGY	0	93	7	C	M	3					0	SD	W	E	BP	.1	0	0	0	C	
MHT	001	C	174	6	1	MYEOR	IGYCLBGY	0	95	5	C	M	3					0	SD	W	E	BP	.1	0	0	0	C	
MHT	001	C	175		1	MYEOR	ILGYYECL	0	75	25	VC	M	3					0	CLSD	P	M	BP	.1	0	0	0	C	
MHT	001	C	176		1	MTA	BLBR	0	96	4	VC	M	4					0	SD	W	E	BP	1	0	0	0	C	
MHT	001	C	177		1	LGYYE	ICLBYEOR	0	92	8	VC	M	4					0	SD	M	G	BP	1	0	0	0	C	
MHT	001	C	178		1	MYEOR	WSPLGYCL	0	95	5	C	F	3					0	SD	W	E	BP	1	0	0	0	C	
MHT	001	C	179	7	1	MYEOR	ILGYYECL	0	85	15	C	F	3					0	SD	M	G	BP	1	0	0	0	C	
MHT	001	C	180		1	LGYYE	ICLBYEOR	0	90	10	C	M	4					0	SD	M	G	BP	1	0	0	0	A	
MHT	001	C	181		1	LGYYE	BYEOR	0	97	3	C	M	3					0	SD	W	E	BP	1	0	0	0	C	
MHT	001	C	182		1	LYEOR	IMYEGYCL	0	85	15	VC	M	3					0	SD	M	G	BP	1	0	0	0	C	
MHT	001	C	183		1	LYEOR	IGYCLBWH	0	85	15	VC	M	4					0	SD	M	G	BP	1	0	0	0	C	
MHT	001	C	184	0																								
MHT	001	C	185		1	LYEOR	IMYEGYCL	0	75	25	VC	M	4					0	CLSD	P	G	BP	1	0	0	0	C	
MHT	001	C	186	0																								
MHT	001	C	187	0																								
MHT	001	C	188	0																								
MHT	001	C	189		1	MYEOR	ILGYCL	0	90	10	C	M	4					0	SD	M	G	BP	1	0	0	0	C	
MHT	001	C	190		1	LYEGY	WSPLGYCL	0	95	5	C	M	4					0	SD	W	E	BP	1	0	0	0	C	

AREA	NO	SCR	DEPTH	REC	IND	COLOR	STRUCTURE	%GR	%SD	%MD	MX	MD	R	%CG	%CS	%CM	%CMT	%CAR	NAME	SO	%POR	TYPE	%MUS	%GLA	%LIG	%SUL	H	FOSSILS
MHT	001	C	191		1	MYEOR	MTLGY	0	94	6	C	M	4					0	SD	W	E	BP	1	0	0	0	C	
MHT	001	C	192		1	MYEOR	WSPLGYCL	0	94	6	C	M	4				.1	0	SD	W	E	BP	1	0	0	0	C	
MHT	001	C	193	7	1	LTA	WSPMYEOR	0	96	4	C	M	4					0	SD	W	E	BP	1	0	0	0	C	
MHT	001	C	194		1	MYEOR	WSPGYBBR	0	96	4	C	M	4					0	SD	W	E	BP	1	0	0	0	C	
MHT	001	C	195		1	DYEOR	WSPLGYCL	0	94	6	C	M	4				.1	0	SD	W	E	BP	1	0	0	0	C	
MHT	001	C	196		1	DYEOR	ILGYCL	0	93	7	C	M	4					0	SD	W	E	BP	1	0	0	0	C	
MHT	001	C	197		1	DYEOR	WSPLGYCL	0	92	8	C	M	4					0	SD	W	E	BP	1	0	0	0	C	
MHT	001	C	198		1	DYEOR	WSPLGYCL	0	94	6	C	M	4					0	SD	W	E	BP	1	0	0	0	C	

SPC, SAIC
20-Oct-92

whp
29-Oct-92

AREA	NO	SCR	DEPTH	REC	IND	COLOR	STRUCTURE	%GR	%SD	%MD	MX	MD	R	%CG	%CS	%CM	%CMT	%CAR	NAME	SO	%POR	TYPE	%MUS	%GLA	%LIG	%SUL	H	FOSSILS
MHT	002	C	1		2	MBR		.1	92	8	GR	M	3					0	SD	M	G	BP	.1	0	0	0	R	
MHT	002	C	2		1	LBR		.1	96	4	GR	M	3					0	SD	M	G	BP	.1	0	0	0	C	
MHT	002	C	3		1	LBR		.1	96	4	GR	M	3					0	SD	M	G	BP	.1	0	0	0	C	
MHT	002	C	4		1	LBR		.1	96	4	GR	M	3					0	SD	M	G	BP	.1	0	0	0	C	
MHT	002	C	5		1	MBR		.1	92	8	GR	M	3					0	SD	M	G	BP	.1	0	0	0	R	
MHT	002	C	6		2	MRE	VARLBRGY	0	40	60	VC	CL	3					0	SDCL	V	P	MI	.1	0	0	0	C	
MHT	002	C	7		2	MRE	VARLBRGY	0	40	60	VC	CL	3					0	SDCL	V	P	MI	.1	0	0	0	C	
MHT	002	C	8		2	MRE	VARLBRGY	0	40	60	VC	CL	3					0	SDCL	V	P	MI	.1	0	0	0	C	
MHT	002	C	9		2	MRE	VARLGY	0	40	60	VC	CL	3					0	SDCL	V	P	MI	.1	0	0	0	C	
MHT	002	C	10		2	MRE	VARLGY	0	40	60	VC	CL	3					0	SDCL	V	P	MI	.1	0	0	0	C	
MHT	002	C	11		2	MRE	VARLGY	0	40	60	VC	CL	3					0	SDCL	V	P	MI	.1	0	0	0	C	
MHT	002	C	12		2	MRE	VARLGY	0	35	65	VC	CL	3					0	SDCL	V	P	MI	.1	0	0	0	C	
MHT	002	C	13		2	MRE	VARLGY	0	35	65	VC	CL	3					0	SDCL	V	P	MI	.1	0	0	0	C	
MHT	002	C	14		2	MRE	VARLGY	0	25	75	VC	CL	3					0	SDCL	V	P	MI	.1	0	0	0	C	
MHT	002	C	15		2	MRE	MTPUMTWH	0	25	75	VC	CL	3					0	SDCL	V	P	MI	.1	0	0	0	C	
MHT	002	C	16		2	LGY	MTREMTPU	0	20	80	VC	CL	3					0	CL	V	P	MI	.1	0	0	0	C	
MHT	002	C	17		2	LREGY		0	20	80	VC	CL	3					0	CL	V	P	MI	.1	0	0	0	C	
MHT	002	C	18		2	LREBR	ICLSD	1	49	50	GR	CL	3					0	SDCL	V	P	MI	.1	0	0	0	C	
MHT	002	C	19		2	LGYPU	ICLSD	0	45	55	VC	CL	3					0	SDCL	V	P	MI	.1	0	0	0	C	
MHT	002	C	20		2	LGYPU	ICLSD	0	45	55	VC	CL	3					0	SDCL	V	P	MI	.1	0	0	0	C	
MHT	002	C	21		2	MGYPU	ICLSD	0	15	85	VC	CL	3					0	CL	V	P	MI	.1	0	0	0	C	
MHT	002	C	22		2	MGYPU	ICLSD	0	20	80	VC	CL	3					0	CL	V	P	MI	.1	0	0	0	C	
MHT	002	C	23		2	LREBR		1	79	20	LP	C	3					0	SD	P	M	BP	.1	0	0	0	C	
MHT	002	C	24		2	LREBR		1	79	20	GR	C	3					0	SD	P	M	BP	.1	0	0	0	C	
MHT	002	C	25		1	LREBR	BLGYPU	2	78	20	GR	C	3					0	SD	P	M	BP	.1	0	0	0	C	
MHT	002	C	26	0																								
MHT	002	C	27		1	LGYPU		5	80	15	LP	C	3					0	SD	P	M	BP	.1	0	0	0	C	
MHT	002	C	28		1	LGYPU		5	80	15	LP	C	3					0	SD	P	M	BP	.1	0	0	0	C	
MHT	002	C	29		1	LYEOR	VARLGYPU	4	76	20	GR	C	3					0	SD	P	M	BP	.1	0	0	0	C	
MHT	002	C	30		1	LYEOR	VARLGYPU	3	77	20	GR	C	3					0	SD	P	M	BP	.1	0	0	0	C	
MHT	002	C	31		1	LBRRE		3	82	15	GR	C	3					0	SD	P	M	BP	.1	0	0	0	C	
MHT	002	C	32		1	LBRRE		2	78	20	GR	C	3					0	SD	P	M	BP	.1	0	0	0	C	
MHT	002	C	33		1	LREBR		2	78	20	GR	C	3					0	SD	P	M	BP	.1	0	0	0	C	
MHT	002	C	34		1	LBR		3	77	20	LP	VC	3					0	SD	P	M	BP	.1	0	0	0	C	
MHT	002	C	35	6	2	DGYPU		0	25	75	M	CL	3					0	SDCL	V	P	MI	2	0	0	0	C	
MHT	002	C	36		2	DGYPU	MTLGY	0	40	60	VC	CL	3					0	SDCL	V	P	MI	2	0	0	0	C	
MHT	002	C	37		2	DGYPU		0	30	70	VC	CL	3					0	SDCL	V	P	MI	2	0	0	0	C	
MHT	002	C	38		2	DGYPU		0	30	70	VC	CL	3					0	SDCL	V	P	MI	2	0	0	0	C	

AREA	NO	SCR	DEPTH	REC	IND	COLOR	STRUCTURE	%GR	%SD	%MD	MX	MD	R	%CG	%CS	%CM	%CMT	%CAR	NAME	SO	%POR	TYPE	%MUS	%GLA	%LIG	%SUL	H	FOSSILS
MHT	002	C	39		2	DGYPU	ICLSD	0	30	70	VC	CL	3					0	SDCL	V	P	MI	1	0	0	0	C	
MHT	002	C	40		2	DGYPU		0	30	70	VC	CL	3					0	SDCL	V	P	MI	1	0	0	0	C	
MHT	002	C	41		1	LYEOR	MTLGY	2	78	20	LP	C	3					0	SD	P	M	BP	.1	0	0	0	C	
MHT	002	C	42	6	1	LYEOR		3	82	15	LP	C	2					0	SD	P	M	BP	.1	0	0	0	C	
MHT	002	C	43		2	MREBR		5	80	15	GR	VC	3					0	SD	P	M	BP	.1	0	0	0	C	
MHT	002	C	44		1	DYEOR		5	80	15	GR	VC	2					0	SD	P	M	BP	.1	0	0	0	C	
MHT	002	C	45	2	1	LBR		5	80	15	GR	C	2					0	SD	P	M	BP	.1	0	0	0	C	
MHT	002	C	46		1	LYEOR		0	90	10	GR	C	3					0	SD	P	M	BP	.1	0	0	0	C	
MHT	002	C	47		1	LBR	BLGYPU	0	80	20	VC	F	3					0	SD	M	M	BP	.1	0	0	0	A	
MHT	002	C	48		1	LBR	BLGYPU	0	80	20	VC	F	3					0	SD	M	M	BP	.1	0	0	0	A	
MHT	002	C	49		1	LGYPU	BLBR	0	80	20	C	F	3					0	SD	M	M	BP	.1	0	0	0	C	
MHT	002	C	50		1	LGYPU		0	80	20	C	F	3					0	SD	M	M	BP	.1	0	0	0	C	
MHT	002	C	51		2	LGYPU	BLYEOR	0	80	20	VC	F	3					0	SD	M	M	BP	.1	0	0	0	C	
MHT	002	C	52		2	LGYPU	BLYEOR	0	80	20	VC	F	3					0	SD	M	M	BP	.1	0	0	0	C	
MHT	002	C	53		2	LGYPU	BLYEOR	0	80	20	VC	F	3					0	SD	M	M	BP	.1	0	0	0	C	
MHT	002	C	54		2	LGYPU		0	80	20	VC	F	3					0	SD	M	M	BP	.1	0	0	0	C	
MHT	002	C	55	6	2	LGYPU		0	80	20	VC	F	3					0	SD	M	M	BP	.1	0	0	0	C	
MHT	002	C	56		2	LGYPU		0	80	20	VC	F	3					0	SD	M	M	BP	.1	0	0	0	C	
MHT	002	C	57		2	LGYPU		0	80	20	VC	F	3					0	SD	M	M	BP	.1	0	0	0	C	
MHT	002	C	58		2	LGYPU		0	80	20	VC	F	3					0	SD	M	M	BP	.1	0	0	0	C	
MHT	002	C	59		2	LGYPU		0	80	20	VC	F	3					0	SD	M	M	BP	.1	0	0	0	C	
MHT	002	C	60		2	LGYPU		0	80	20	VC	F	3					0	SD	M	M	BP	.1	0	0	0	C	
MHT	002	C	61		2	LGYPU	BLYEOR	0	80	20	VC	F	3					0	SD	M	M	BP	.1	0	0	0	C	
MHT	002	C	62		2	LGYPU	BLYEOR	0	85	15	VC	F	3					0	SD	M	M	BP	.1	0	0	0	C	
MHT	002	C	63		1	LGYPU		0	85	15	VC	F	3					0	SD	M	M	BP	.1	0	0	0	C	
MHT	002	C	64		1	LYEOR		.1	85	15	GR	M	3					0	SD	M	M	BP	.1	0	0	0	C	
MHT	002	C	65		1	LYEOR		.1	90	10	GR	M	3					0	SD	M	M	BP	.1	0	0	0	C	
MHT	002	C	66		1	LYEOR		.1	90	10	GR	M	3					0	SD	M	G	BP	.1	0	0	0	C	
MHT	002	C	67		1	LGYPU		.1	85	15	GR	M	3					0	SD	M	G	BP	.1	0	0	0	C	
MHT	002	C	68		1	LYEOR		.1	90	10	GR	M	3					0	SD	M	G	BP	.1	0	0	0	C	
MHT	002	C	69		1	LYEOR		.1	90	10	GR	M	3					0	SD	M	G	BP	.1	0	0	0	C	
MHT	002	C	70		1	LYEOR		.1	90	10	GR	M	3					0	SD	M	G	BP	.1	0	0	0	C	
MHT	002	C	71		1	LYEOR		.1	90	10	GR	M	3					0	SD	M	G	BP	.1	0	0	0	C	
MHT	002	C	72		1	LYEOR		.1	90	10	GR	M	3					0	SD	M	G	BP	.1	0	0	0	C	
MHT	002	C	73		1	LYEOR		.1	90	10	GR	M	3					0	SD	M	G	BP	.1	0	0	0	C	
MHT	002	C	74		1	LBR		.1	90	10	GR	M	3					0	SD	M	G	BP	.1	0	0	0	C	
MHT	002	C	75		1	LYEOR		.1	90	10	GR	M	3					0	SD	M	G	BP	.1	0	0	0	C	
MHT	002	C	76	6	1	LYEOR		.1	95	5	GR	M	3					0	SD	M	G	BP	.1	0	0	0	C	

AREA	NO	SCR	DEPTH	REC	IND	COLOR	STRUCTURE	%GR	%SD	%MD	MX	MD	R	%CG	%CS	%CM	%CMT	%CAR	NAME	SO	%POR	TYPE	%MUS	%GLA	%LIG	%SUL	H	FOSSILS
MHT	002	C	77		1	LYEOR		.1	95	5	GR	M	3					0	SD	M	G	BP	.1	0	0	0	C	
MHT	002	C	78		1	LYEOR		.1	95	5	GR	M	3					0	SD	M	G	BP	.1	0	0	0	C	
MHT	002	C	79		1	LYEOR		.1	95	5	GR	M	3					0	SD	M	G	BP	.1	0	0	0	C	
MHT	002	C	80		1	LYEOR		.1	95	5	GR	M	3					0	SD	M	G	BP	.1	0	0	0	C	
MHT	002	C	81		1	LYEOR		.1	95	5	GR	M	3					0	SD	M	G	BP	.1	0	0	0	C	
MHT	002	C	82		1	LYEOR		.1	95	5	GR	M	3					0	SD	M	G	BP	.1	0	0	0	C	
MHT	002	C	83		1	LYEOR		.1	95	5	GR	M	3					0	SD	M	G	BP	.1	0	0	0	C	
MHT	002	C	84	7	1	LYEOR		.1	85	15	GR	M	3					0	SD	M	G	BP	.1	0	0	0	C	
MHT	002	C	85		1	LYEOR		.1	90	10	GR	M	3					0	SD	M	G	BP	.1	0	0	0	C	
MHT	002	C	86	3	1	LYEOR		4	86	10	LP	M	3					0	SD	M	G	BP	.1	0	0	0	C	
MHT	002	C	87		1	LYEOR		2	93	5	LP	M	3					0	SD	M	G	BP	.1	0	0	0	C	
MHT	002	C	88	7	1	LREBR		.1	85	15	GR	M	3					0	SD	M	M	BP	.1	0	0	0	C	
MHT	002	C	89		1	DYEOR	ILGYCL	2	73	25	LP	M	3					0	CLSD	P	P	BP	.1	0	0	0	C	
MHT	002	C	90		1	LYEOR		0	85	15	VC	F	4					0	SD	M	M	BP	.1	0	0	0	C	
MHT	002	C	91		1	LYEOR		.1	92	8	GR	M	3					0	SD	M	G	BP	.1	0	0	0	C	
MHT	002	C	92		1	LYEOR		.1	95	5	GR	M	3					0	SD	M	G	BP	.1	0	0	0	C	
MHT	002	C	93		1	LYEOR	ICL	.1	97	3	GR	M	3					0	SD	M	G	BP	.1	0	0	0	C	
MHT	002	C	94		1	LREBR		.1	94	6	GR	M	3					0	SD	M	G	BP	.1	0	0	0	C	
MHT	002	C	95		1	LBR		.1	92	8	LP	M	3					0	SD	M	G	BP	.1	0	0	0	C	
MHT	002	C	96		1	LYEOR		.1	90	10	GR	M	3					0	SD	M	M	BP	.1	0	0	0	C	
MHT	002	C	97		1	LYEOR		.1	90	10	GR	M	3					0	SD	M	M	BP	.1	0	0	0	C	
MHT	002	C	98		1	LYEOR	ICL	.1	80	20	GR	M	3					0	SD	P	M	BP	.1	0	0	0	C	
MHT	002	C	99		2	LGNGY	IMBRSD	0	10	90	C	CL	2					0	CL	V	P	MI	.1	0	0	0	R	
MHT	002	C	100		2	LGNGY	IMBRSD	0	10	90	C	CL	2					0	CL	V	P	MI	.1	0	0	0	R	
MHT	002	C	101		2	LBR	ISD	.1	35	65	GR	CL	2					0	SDCL	V	P	MI	.1	0	0	0	R	
MHT	002	C	102		2	LBR		0	5	95	M	CL	2					0	CL	V	P	MI	.1	0	0	0	R	
MHT	002	C	103		2	LBR	ISD	.1	20	80	GR	CL	2					0	CL	V	P	MI	.1	0	0	0	R	
MHT	002	C	104		1	LBR	ICL	.1	70	30	GR	F	3					0	CLSD	P	P	BP	.1	0	0	0	C	
MHT	002	C	105		1	LBR		2	83	15	LP	M	3					0	SD	P	M	BP	.1	0	0	0	C	
MHT	002	C	106	4	1	LYEOR	ICL	.1	70	30	GR	F	3					0	CLSD	P	M	BP	.1	0	0	0	C	
MHT	002	C	107		1	LYEOR	ICL	.1	80	20	GR	F	3					0	SD	P	M	BP	.1	0	0	0	C	
MHT	002	C	108	9	1	LYEOR		.1	90	10	GR	M	3					0	SD	M	G	BP	.1	0	0	0	C	
MHT	002	C	109		1	LYEOR		.1	92	8	GR	M	3					0	SD	M	G	BP	.1	0	0	0	C	
MHT	002	C	110	6	1	LYEOR		.1	92	8	GR	C	3					0	SD	M	G	BP	.1	0	0	0	C	
MHT	002	C	111		1	LYEOR	ILGYCL	0	70	30	VC	F	3					0	CLSD	P	P	BP	.1	0	0	0	C	
MHT	002	C	112		1	LYEOR	ILGYCL	.1	65	35	GR	F	3					0	CLSD	P	P	BP	.1	0	0	0	C	
MHT	002	C	113		1	LYEOR		2	90	8	GR	M	3					0	SD	M	G	BP	.1	0	0	0	C	
MHT	002	C	114	5	1	LYEOR		3	92	5	GR	C	3					0	SD	P	G	BP	.1	0	0	0	R	

AREA	NO	SCR	DEPTH	REC	IND	COLOR	STRUCTURE	%GR	%SD	%MD	MX	MD	R	%CG	%CS	%CM	%CMT	%CAR	NAME	SO	%POR	TYPE	%MUS	%GLA	%LIG	%SUL	H	FOSSILS
MHT	002	C	115	6	1	MYEOR		.1	90	10	GR	M	3					0	SD	P	G	BP	.1	0	0	0	R	
MHT	002	C	116	0																								
MHT	002	C	117	8	1	MYEBR		1	89	10	GR	M	3					0	SD	M	G	BP	.1	0	0	0	R	
MHT	002	C	118	0																								
MHT	002	C	119		1	MYEBR		2	93	5	GR	C	3					0	SD	M	G	BP	.1	0	0	0	R	
MHT	002	C	120	3	1	MYEBR		2	93	5	GR	C	3					0	SD	M	G	BP	.1	0	0	0	R	
MHT	002	C	121		1	LGYOR		5	87	8	GR	C	2					0	SD	P	G	BP	.1	0	0	0	R	
MHT	002	C	122	5	1	LGYOR		5	87	8	GR	C	2					0	SD	P	G	BP	.1	0	0	0	R	
MHT	002	C	123		1	MYEBR		10	80	10	LP	C	2					0	SD	P	G	BP	.1	0	0	0	R	
MHT	002	C	124		1	MYEBR		5	85	10	LP	C	3					0	SD	P	G	BP	.1	0	0	0	R	
MHT	002	C	125		1	DYEOR		5	85	10	LP	C	3					0	SD	P	G	BP	.1	0	0	0	R	
MHT	002	C	126	0																								
MHT	002	C	127		1	MYEBR		4	81	15	LP	C	4					0	SD	P	G	BP	.1	0	0	0	R	
MHT	002	C	128	6	1	MYEBR		3	87	10	LP	C	4					0	SD	P	G	BP	.1	0	0	0	R	
MHT	002	C	129		1	MYEBR		3	82	15	LP	C	4					0	SD	P	G	BP	.1	0	0	0	R	
MHT	002	C	130	9	1	MYEBR		2	83	15	LP	C	3					0	SD	P	G	BP	.1	0	0	0	R	
MHT	002	C	131	6	1	MYEBR		1	92	7	LP	C	3					0	SD	P	G	BP	.1	0	0	0	R	
MHT	002	C	132	0																								
MHT	002	C	133		1	LYEBR		1	93	6	GR	M	3					0	SD	P	G	BP	.1	0	0	0	R	
MHT	002	C	134		1	DYEOR		1	89	10	GR	M	3					0	SD	P	G	BP	.1	0	0	0	C	
MHT	002	C	135	0																								
MHT	002	C	136	0																								
MHT	002	C	137		1	DYEOR		.1	95	5	GR	M	4					0	SD	M	G	BP	.1	0	0	0	R	
MHT	002	C	138		1	LBR		.1	97	3	GR	M	4					0	SD	M	G	BP	.1	0	0	0	C	
MHT	002	C	139		1	DYEOR		1	94	5	GR	M	4					0	SD	M	G	BP	.1	0	0	0	R	
MHT	002	C	140		1	DYEOR		1	94	5	GR	M	4					0	SD	M	G	BP	.1	0	0	0	R	
MHT	002	C	141		1	DYEOR		3	90	7	LP	M	4					0	SD	M	G	BP	.1	0	0	0	C	
MHT	002	C	142		1	DYEOR		3	91	6	LP	M	4					0	SD	M	G	BP	.1	0	0	0	C	
MHT	002	C	143	0																								
MHT	002	C	144	0																								
MHT	002	C	145		1	LYEOR		2	90	8	GR	M	3					0	SD	M	G	BP	.1	0	0	0	C	
MHT	002	C	146	6	1	LYEOR		2	88	10	GR	M	3					0	SD	M	G	BP	.1	0	0	0	C	
MHT	002	C	147	0																								
MHT	002	C	148	0																								
MHT	002	C	149	0																								
MHT	002	C	150		1	DYEOR		5	85	10	GR	M	3					0	SD	M	G	BP	.1	0	0	0	C	
MHT	002	C	151		1	DYEOR		1	89	10	GR	M	3					0	SD	M	G	BP	.1	0	0	0	A	
MHT	002	C	152		1	DYEOR		2	88	10	GR	M	3					0	SD	M	G	BP	.1	0	0	0	A	

AREA	NO	SCR	DEPTH	REC	IND	COLOR	STRUCTURE	%GR	%SD	%MD	MX	MD	R	%CG	%CS	%CM	%CMT	%CAR	NAME	SO	%POR	TYPE	%MUS	%GLA	%LIG	%SUL	H	FOSSILS
MHT	002	C	153		1	DYEOR		2	88	10	GR	M	3					0	SD	M	G	BP	.1	0	0	0	A	
MHT	002	C	154		1	DYEOR		1	89	10	GR	M	3					0	SD	M	G	BP	.1	0	0	0	A	
MHT	002	C	155		1	DYEOR		0	90	10	VC	F	2					0	SD	M	G	BP	.1	0	0	0	A	
MHT	002	C	156		1	DYEOR		0	90	10	VC	F	3					0	SD	M	G	BP	.1	0	0	0	A	
MHT	002	C	157		1	DYEOR		0	90	10	VC	F	2					0	SD	M	G	BP	.1	0	0	0	A	
MHT	002	C	158		1	DYEOR		0	90	10	VC	F	2					0	SD	W	G	BP	1	0	0	0	A	
MHT	002	C	159		1	DYEOR		0	90	10	VC	F	2					0	SD	M	G	BP	1	0	0	0	A	
MHT	002	C	160		1	DYEOR		.1	92	8	GR	F	3					0	SD	M	G	BP	.1	0	0	0	A	
MHT	002	C	161		1	DYEOR	BLGYOR	.1	96	4	GR	M	3					0	SD	W	E	BP	.1	0	0	0	C	
MHT	002	C	162		1	DYEOR	BLGYOR	.1	96	4	GR	M	3					0	SD	W	E	BP	.1	0	0	0	C	
MHT	002	C	163		1	MYEBR		.1	93	7	GR	M	3					0	SD	W	E	BP	.1	0	0	0	C	
MHT	002	C	164		2	DYEOR	BMREPUFE	.1	60	40	GR	VF	3				.1	0	CLSD	V	P	BP	.1	0	0	0	C	
MHT	002	C	165		2	DYEOR	BMREPUFE	.1	50	45	GR	VF	3				.1	0	CLSD	V	P	BP	.1	0	0	0	C	
MHT	002	C	166		1	DYEOR	FE	0	80	20	VC	M	3				.1	0	SD	M	G	BP	.1	0	0	0	C	
MHT	002	C	167		1	DYEOR		0	90	10	VC	M	3					0	SD	M	G	BP	.1	0	0	0	C	
MHT	002	C	168		1	DYEOR		0	90	10	VC	M	3					0	SD	M	G	BP	.1	0	0	0	C	
MHT	002	C	169		1	DYEOR	ILGYCL	0	90	10	VC	M	3					0	SD	M	G	BP	.1	0	0	0	C	
MHT	002	C	170		1	DYEOR	ILGYCL	0	85	15	VC	M	3					0	SD	M	G	BP	.1	0	0	0	C	
MHT	002	C	171	0																								
MHT	002	C	172	0																								
MHT	002	C	173	0																								
MHT	002	C	174	0																								
MHT	002	C	175		1	LGYOR		0	96	4	VC	M	3					0	SD	W	E	BP	.1	0	0	0	C	
MHT	002	C	176		1	LGYOR		0	96	4	VC	M	3					0	SD	W	E	BP	.1	0	0	0	C	
MHT	002	C	177		1	LGYOR		0	98	2	C	F	3					0	SD	W	E	BP	.1	0	0	0	C	
MHT	002	C	178		1	LGYOR	WSPLGYCL	0	98	2	C	F	3					0	SD	W	E	BP	.1	0	0	0	C	
MHT	002	C	179	6	1	LGYOR		0	98	2	C	F	3					0	SD	W	E	BP	.1	0	0	0	C	
MHT	002	C	180		1	LGYOR	ILGYCL	0	85	15	VC	F	3					0	SD	M	G	BP	.1	0	0	0	C	
MHT	002	C	181		1	LGYOR	WSPLGYCL	0	96	4	C	F	3					0	SD	W	E	BP	.1	0	0	0	C	
MHT	002	C	182		1	LGYOR	WSPLGYCL	0	95	5	C	F	3					0	SD	W	E	BP	.1	0	0	0	C	
MHT	002	C	183		1	LGYOR	ILGYCL	0	80	20	C	F	3					0	SD	M	G	BP	.1	0	0	0	C	
MHT	002	C	184	0																								
MHT	002	C	185		1	LGYOR	ILGYCL	0	80	20	C	F	3					0	SD	M	G	BP	.1	0	0	0	C	
MHT	002	C	186		1	LGYOR	ILGYCL	0	85	15	C	F	3					0	SD	M	G	BP	.1	0	0	0	C	
MHT	002	C	187		1	LGYOR	WSPLGYCL	0	92	8	C	M	3					0	SD	W	E	BP	.1	0	0	0	C	
MHT	002	C	188		1	LGYOR	WSPLGYCL	0	92	8	C	M	3					0	SD	W	E	BP	.1	0	0	0	C	
MHT	002	C	189		1	LGYOR	WSPLGYCL	0	92	8	C	M	3					0	SD	W	E	BP	.1	0	0	0	C	
MHT	002	C	190		1	LGYOR	WSPLGYCL	0	92	8	C	M	3					0	SD	W	E	BP	.1	0	0	0	C	

AREA	NO	SCR	DEPTH	REC	IND	COLOR	STRUCTURE	%GR	%SD	%MD	MX	MD	R	%CG	%CS	%CM	%CMT	%CAR	NAME	SO	%POR	TYPE	%MUS	%GLA	%LIG	%SUL	H	FOSSILS
MHT	002	C	191		1	LGYOR	BDYEOR	0	92	8	C	M	3					0	SD	W	E	BP	.1	0	0	0	C	
MHT	002	C	192	6	1	LGYOR	BDYEOR	0	94	6	C	M	3					0	SD	W	E	BP	.1	0	0	0	C	

SAIC, WHP
26-Oct-92
whp
28-Oct-92

AREA	NO	SCR	DEPTH	REC	IND	COLOR	STRUCTURE	%GR	%SD	%MD	MX	MD	R	%CG	%CS	%CM	%CMT	%CAR	NAME	SO	%POR	TYPE	%MUS	%GLA	%LIG	%SUL	H	FOSSILS
MHT	3	C	1		2	DGNBR		2	91	7	GR	M	3					0	SD	M	G	BP	1	0	0	0	R	
MHT	3	C	2		2	BTA		0	95	5	VC	F	3					0	SD	M	M	BP	1	0	0	0	C	
MHT	3	C	3	7	2	MTA		3	92	5	GR	F	2					0	SD	M	G	BP	1	0	0	0	R	
MHT	3	C	4	7	2	MTA		0	95	5	VC	F	3					0	SD	M	G	BP	1	0	0	0	R	
MHT	3	C	5		2	LTA	BDBR	0	93	7	VC	M	2					0	SD	M	G	BP	1	0	0	0	C	
MHT	3	C	6	0																								
MHT	3	C	7		3	MRE		3	82	15	GR	M	3					0	SD	M	M	BP	1	0	0	0	R	
MHT	3	C	8		3	MREBR		0	65	35	VC	M	2					0	CLSD	P	M	BP	.1	0	0	0	R	
MHT	3	C	9		3	MREBR		1	69	30	GR	M	2					0	CLSD	P	M	BP	0	0	0	0	R	
MHT	3	C	10		3	MRE		0	55	45	VC	CL	3					0	CLSD	P	P	BP	.5	0	0	0	R	
MHT	3	C	11		3	MRE	MTMYE	0	35	65	VC	CL						0	SDCL		P	BP	1	0	0	0	R	
MHT	3	C	12		3	MRE	MTMYE	0	30	70	VC	CL						0	SDCL		P	MI	1	0	0	0	R	
MHT	3	C	13		3	MRE	MTMYE	1	29	70	GR	CL						0	SDCL		P	MI	.2	0	0	0	R	
MHT	3	C	14		4	MRE	MTMYE	0	20	80	C	CL						0	CL		P	MI	0	0	0	0	R	
MHT	3	C	15	6	4	MRE	MTMYE	1	24	75	GR	CL						0	CL		P	MI	1	0	0	0	R	
MHT	3	C	16		4	MRE	MTLYE	0	35	65	VC	CL						0	SDCL		P	BP	0	0	0	0	R	
MHT	3	C	17		4	MRE	MTLYE	0	35	65	VC	CL						0	SDCL		P	BP	.5	0	0	0	R	
MHT	3	C	18	6	4	MRE	MTLYE	0	20	80	VC	CL						0	CL		P	MI	1	0	0	0	R	
MHT	3	C	19		4	MRE	MTLYE	0	20	80	VC	CL						0	CL		P	MI	1	0	0	0	R	
MHT	3	C	20		4	MRE	MTWH	0	35	65	VC	CL						0	CL		P	MI	2	0	0	0	R	
MHT	3	C	21		4	MRE	MTLYE	2	48	50	GR	CL						0	SDCL	P	P	BP	1	0	0	0	R	
MHT	3	C	22		4	MRE	MTMPU	0	35	65	VC	CL						0	SDCL		P	BP	2	0	0	0	R	
MHT	3	C	23		4	MRE	MTWH	0	15	85	VC	CL						0	CL		P	MI	1	0	0	0	R	
MHT	3	C	24		4	MRE	MTWH	2	38	60	GR	CL						0	SDCL		P	MI	2	0	0	0	R	
MHT	3	C	25		4	MRE	MTWH	0	40	60	VC	CL						0	SDCL		P	BP	1	0	0	0	R	
MHT	3	C	26	6	4	MRE	MTWH	0	50	50	C	CL						0	CLSD	P	P	BP	1	0	0	0	R	
MHT	3	C	27		3	MRE	MTWH	2	58	40	GR	CL						0	CLSD	P	P	BP	0	0	0	0	R	
MHT	3	C	28		3	VARPU		1	79	20	GR	M						0	SD	M	M	BP	2	0	0	0	C	
MHT	3	C	29		3	VARPU	BMRE	1	44	55	GR	CL						0	SDCL		P	BP	1	0	0	0	R	
MHT	3	C	30		3	VARPU	BMYE	0	50	50	VC	CL						0	CLSD	P	P	BP	1	0	0	0	C	
MHT	3	C	31		3	VARRE	BMYE	0	85	15	VC	M	3					0	SD	P	P	BP	.5	0	0	0	R	
MHT	3	C	32		3	VARRE		10	80	10	LP	C	3					0	SD	M	G	BP	1	0	0	0	R	
MHT	3	C	33		3	VARRE	BWH	15	60	25	LP	CL						0	CLSD	P	P	BP	0	0	0	0	R	
MHT	3	C	34		3	VARRE	BWH	7	43	50	GR	CL						0	SDCL		P	BP	2	0	0	0	R	
MHT	3	C	35	6	3	VARRE		5	65	30	GR	CL						0	CLSD	P	P	BP	1	0	0	0	R	
MHT	3	C	36	6	3	VARPI	MTWH	3	87	10	GR	C	3					0	SD	M	G	BP	.5	0	0	0	R	
MHT	3	C	37		3	VARYE	MTMRE	3	82	15	GR	C	3					0	SD	M	G	BP	.1	0	0	0	R	
MHT	3	C	38		3	VARYE	MTMRE	5	80	15	LP	C	3					0	SD	M	G	BP	1	0	0	0	R	

AREA	NO	SCR	DEPTH	REC	IND	COLOR	STRUCTURE	%GR	%SD	%MD	MX	MD	R	%CG	%CS	%CM	%CMT	%CAR	NAME	SO	%POR	TYPE	%MUS	%GLA	%LIG	%SUL	H	FOSSILS
MHT	3	C	39		3	MPITA	BLYE	7	86	7	GR	C	3					0	SD	M	G	BP	1	0	0	0	R	
MHT	3	C	40		3	VARYE	MTMRE	7	86	7	GR	C	3					0	SD	M	M	BP	1	0	0	0	R	
MHT	3	C	41		2	MOR	BMPU	2	88	10	GR	C	3					0	SD	M	G	BP	1	0	0	0	R	
MHT	3	C	42		3	MPUTA	BMOR	0	15	85	M	CL						0	CL		P	MI	1	0	0	0	R	
MHT	3	C	43		3	MPU		0	5	95	CL							0	CL		P	MI	2	0	1	0	R	
MHT	3	C	44		3	MPUTA		0	45	55	C	CL						0	SDCL		P	BP	2	0	0	0	R	
MHT	3	C	45		3	MYETA		0	50	50	LP	CL						0	CLSD	P	P	MI	1	0	0	0	R	
MHT	3	C	46	0																								
MHT	3	C	47	5	3	MTA	BMYE	1	50	49	GR	CL						0	CLSD	P	P	BP	0	0	0	0	R	
MHT	3	C	48		2	LPITA	BMYE	7	63	30	LP	CL						0	CLSD	P	P	BP	2	0	0	0	R	
MHT	3	C	49		2	MYE	BMTA	7	73	20	LP	M	3					0	SD	M	M	BP	2	0	0	0	R	
MHT	3	C	50		2	MYETA	BLPI	7	83	10	GR	M	2					0	SD	M	G	BP	2	0	0	0	R	
MHT	3	C	51		2	LPITA	BMYE	3	87	10	GR	C	3					0	SD	M	M	BP	1	0	0	0	R	
MHT	3	C	52		2	LPITA	BMYE	2	88	10	GR	C	3					0	SD	M	G	BP	1	0	0	0	R	
MHT	3	C	53		2	LTA	BMYE	7	73	20	GR	M	3					0	SD	P	M	BP	0	0	0	0	R	
MHT	3	C	54		2	LPUTA	BMYETA	1	84	15	GR	C	3					0	SD	M	G	BP	1	0	0	0	R	
MHT	3	C	55		2	LTABR		1	84	15	GR	C	3					0	SD	M	G	BP	1	0	0	0	R	
MHT	3	C	56	5	2	LPUTA		7	78	15	GR	M	3					0	SD	P	M	BP	1	0	0	0	R	
MHT	3	C	57	7	2	LBRTA		7	83	10	GR	M	3					0	SD	M	M	BP	1	0	0	0	R	
MHT	3	C	58		2	DPU		0	75	25	VC	F	2					0	SD	P	P	BP	1	0	0	0	R	
MHT	3	C	59		2	VAROR		5	83	12	GR	M	2					0	SD	M	M	BP	1	0	0	0	R	
MHT	3	C	60		2	VARGN		0	90	10	VC	M	2					0	SD	M	G	BP	1	0	0	0	R	
MHT	3	C	61		2	VARYE	BMPU	0	93	7	VC	M	2					0	SD	M	G	BP	2	0	0	0	R	
MHT	3	C	62		2	VARPU	BMGN	0	90	10	VC	F	2					0	SD	M	G	BP	2	0	0	0	C	
MHT	3	C	63		2	MBR	BMPU	0	45	55	VC	CL						0	SDCL		P	BP	1	0	0	0	R	
MHT	3	C	64		2	MPU		0	50	50	VC	CL						0	CLSD	P	P	BP	1	0	0	0	C	
MHT	3	C	65		2	MBR		2	73	25	GR	CL						0	CLSD	P	P	BP	1	0	0	0	C	
MHT	3	C	66		2	MPU		2	88	10	GR	M	2					0	SD	M	G	BP	1	0	0	0	C	
MHT	3	C	67		2	MOR	BMBR	0	60	40	VC	CL						0	CLSD	P	P	BP	1	0	0	0	R	
MHT	3	C	68		2	MGN	BMPU	0	40	60	C	CL						0	SDCL		P	BP	2	0	0	0	R	
MHT	3	C	69		2	MPU	BMOR	0	60	40	GR	CL						0	CLSD	P	P	BP	2	0	0	0	C	
MHT	3	C	70		2	MOR	BLYE	3	90	7	GR	M	3					0	SD	M	G	BP	1	0	0	0	R	
MHT	3	C	71		2	DBR	BLOR	1	84	15	GR	M	2					0	SD	M	G	BP	1	0	0	0	R	
MHT	3	C	72		2	LYETA	BLOR	0	93	7	VC	C	3					0	SD	M	G	BP	.5	0	0	0	R	
MHT	3	C	73	8	2	MBRTA		2	88	10	GR	M	3					0	SD	M	G	BP	1	0	0	0	R	
MHT	3	C	74	8	2	MYETA		5	88	7	GR	C	3					0	SD	M	G	BP	.5	0	0	0	R	
MHT	3	C	75		2	MPITA		5	80	15	GR	C	2					0	SD	M	G	BP	.1	0	0	0	R	
MHT	3	C	76		2	MYETA		3	87	10	GR	C	2					0	SD	M	G	BP	1	0	0	0	R	

AREA	NO	SCR	DEPTH	REC	IND	COLOR	STRUCTURE	%GR	%SD	%MD	MX	MD	R	%CG	%CS	%CM	%CMT	%CAR	NAME	SO	%POR	TYPE	%MUS	%GLA	%LIG	%SUL	H	FOSSILS
MHT	3	C	77		2	MYETA	BMPITA	3	77	20	GR	C	2					0	SD	M	G	BP	1	0	0	0	R	
MHT	3	C	78		2	MYETA		7	78	15	GR	C	3					0	SD	M	G	BP	1	0	0	0	R	
MHT	3	C	79		2	MYETA	BMPITA	5	83	12	GR	M	3					0	SD	M	G	BP	1	0	0	0	R	
MHT	3	C	80		2	MYETA	BLYE	7	83	10	GR	C	3					0	SD	M	M	BP	1	0	0	0	C	
MHT	3	C	81		2	MTA		1	84	15	GR	M	3					0	SD	M	M	BP	1	0	0	0	R	
MHT	3	C	82		2	MYETA		10	80	10	GR	M	2					0	SD	M	M	BP	1	0	0	0	R	
MHT	3	C	83		2	MTA		10	80	10	GR	C	3					0	SD	M	M	BP	.5	0	0	0	C	
MHT	3	C	84		2	LYETA		7	83	10	GR	M	3					0	SD	M	M	BP	1	0	0	0	R	
MHT	3	C	85	7	2	MTA		3	82	15	GR	M	3					0	SD	M	M	BP	1	0	0	0	R	
MHT	3	C	86		2	MYETA		5	85	10	GR	M	3					0	SD	M	G	BP	1	0	0	0	C	
MHT	3	C	87		2	LTA		15	70	15	GR	C	3					0	SD	M	M	BP	1	0	0	0	C	
MHT	3	C	88		2	LTAYE		10	80	10	GR	C	3					0	SD	M	M	BP	1	0	0	0	C	
MHT	3	C	89		2	LTAYE	BLPITA	10	70	20	LP	C	3					0	SD	M	M	BP	1	0	0	0	C	
MHT	3	C	90		3	LPITA		0	45	55	VC	C	2					0	SDCL	P	P	BP	1	0	0	0	C	
MHT	3	C	91		3	MYETA	BLPITA	0	20	80	VC	CL						0	CL		P	MI	0	0	0	0	C	
MHT	3	C	92		3	LPITA		5	75	20	LP	CL						0	SD	P	G	BP	0	0	0	0	C	
MHT	3	C	93		2	LPITA		5	65	30	LP	M	3					0	CLSD	P	G	BP	0	0	0	0	C	
MHT	3	C	94		2	MYETA		3	82	15	GR	F	2					0	SD	M	G	BP	.1	0	0	0	C	
MHT	3	C	95		2	MPITA		10	70	20	LP	M	2					0	SD	M	G	BP	1	0	0	0	C	
MHT	3	C	96		2	MPITA		1	92	7	GR	F	2					0	SD	M	G	BP	1	0	0	0	C	
MHT	3	C	97		2	MYETA		7	68	25	GR	M	3					0	CLSD	P	M	BP	1	0	0	0	C	
MHT	3	C	98		2	VARRE		15	65	20	GR	M	2					0	SD	P	M	BP	2	0	0	0	A	
MHT	3	C	99		2	BYETA	BMPITA	0	45	55	VC	CL						0	SDCL		P	BP	.1	0	0	0	C	
MHT	3	C	100		2	VARRE		2	95	3	GR	M	2					0	SD	W	E	BP	.5	0	0	0	R	
MHT	3	C	101		2	LPITA		3	82	15	GR	M	3					0	SD	M	G	BP	2	0	0	0	A	
MHT	3	C	102		3	MYETA	BBK	1	45	54	GR	CL						0	SDCL		P	BP	3	0	0	0	C	
MHT	3	C	103		3	MYETA		0	35	65	VC	CL						0	SDCL		P	BP	2	0	0	0	R	
MHT	3	C	104		3	MYETA		0	40	60	VC	CL						0	SDCL		P	BP	1	0	0	0	R	
MHT	3	C	105		3	DPITA		1	44	55	VC	CL						0	SDCL		M	BP	3	0	0	0	C	
MHT	3	C	106		3	DYETA		0	10	90	C	CL						0	CL		P	MI	1	0	0	0	R	
MHT	3	C	107		3	LPITA		0	40	60	VC	CL						0	SDCL		P	MI	1	0	0	0	R	
MHT	3	C	108		3	LPITA	BDYETA	5	25	70	LP	CL						0	SDCL		P	MI	1	0	0	0	C	
MHT	3	C	109		3	LYETA	ICL	5	20	75	GR	CL						0	CL		P	MI	.1	0	0	0	R	
MHT	3	C	110		2	MYETA		0	20	80	C	CL						0	CL		P	MI	3	0	0	0	R	
MHT	3	C	111		3	MYETA	BLPITA	0	15	85	C	CL						0	CL		P	MI	1	0	0	0	R	
MHT	3	C	112		2	MYETA		0	10	90	C	CL						0	CL		P	MI	.5	0	0	0	R	
MHT	3	C	113		3	LYETA	BLPITA	0	40	60	VC	CL						0	CL		P	MI	1	0	0	0	A	
MHT	3	8	114	8	2	LYETA		0	80	20	VC	M						0	SD	M	E	BP	1	0	0	0	A	

AREA	NO	SCR	DEPTH	REC	IND	COLOR	STRUCTURE	%GR	%SD	%MD	MX	MD	R	%CG	%CS	%CM	%CMT	%CAR	NAME	SO	%POR	TYPE	%MUS	%GLA	%LIG	%SUL	H	FOSSILS
MHT	3	C	115	8	2	MPITA		1	79	20	GR	VF						0	SD	P	M	BP	.1	0	0	0	C	
MHT	3	C	116		3	DORTA	MTBK	0	40	60	C	CL						0	SDCL		P	BP	2	0	0	0	A	
MHT	3	C	117		3	MYETA	BWHIPB	3	47	50	GR	CL						0	SDCL		P	BP	1	0	0	0	R	
MHT	3	C	118		3	DORTA		5	15	80	GR	CL						0	CL		P	MI	.5	0	0	0	A	
MHT	3	C	119		3	DORTA	BLYETA	10	40	50	GR	CL						0	SDCL		P	BP	0	0	0	0	R	
MHT	3	C	120		2	DORTA		15	65	20	LP	VC	3					0	SD	P	P	BP	0	0	0	0	A	
MHT	3	C	121		2	DORTA	IPB	20	60	20	GR	VC	3					0	SD	M	M	BP	0	0	0	0	R	
MHT	3	C	122		2	DORTA	IPB	25	55	20	LP	VC	3					0	PBSD	P	M	BP	.5	0	0	0	C	
MHT	3	C	123		2	DORTA	IPB	7	86	7	GR	C	3					0	SD	M	G	BP	1	0	0	0	R	
MHT	3	C	124	5	2	DORTA		10	80	10	GR	C	3					0	SD	M	G	BP	1	0	0	0	C	
MHT	3	C	125	0																								
MHT	3	C	126		3	DORTA	ICL	0	10	90	VC	CL						0	CL		P	MI	1	0	0	0	C	
MHT	3	C	127		2	DORTA		7	68	25	LP	VF	2					0	CLSD	P	P	BP	2	0	0	0	C	
MHT	3	C	128	0																								
MHT	3	C	129	0																								
MHT	3	C	130	0																								
MHT	3	C	131		3	DORTA	ICL	15	15	70	LP	CL						0	CL		P	MI	2	0	0	0	R	
MHT	3	C	132		3	LPITA	ICL	0	35	65	C	CL						0	SDCL		P	BP	1	0	0	0	C	
MHT	3	C	133	0																								
MHT	3	C	134	0																								
MHT	3	C	135	0																								
MHT	3	C	136		2	VARTA		7	83	10	GR	C	3					0	SD	P	M	BP	2	0	0	0	A	
MHT	3	C	137		2	VARTA		0	90	10	VC	M	3					0	SD	M	G	BP	2	0	0	0	A	
MHT	3	C	138		2	DPITA	ICL	5	80	15	GR	M	2					0	SD	M	G	BP	2	0	0	0	A	
MHT	3	C	139		2	DYETA	ICL	7	73	20	LP	C	2					0	SD	M	G	BP	1	0	0	0	A	
MHT	3	C	140		2	VARYE		5	80	15	GR	M	2					0	SD	P	M	BP	.1	0	0	0	A	
MHT	3	C	141		2	VARYE	IPB	2	28	70	GR	CL						0	SDCL		P	BP	.1	0	0	0	A	
MHT	3	C	142		2	MTA		7	78	15	GR	M	2					0	SD	M	M	BP	.1	0	.1	0	A	
MHT	3	C	143		2	MTA		3	77	20	GR	F	2					0	SD	M	G	BP	2	0	0	0	A	
MHT	3	C	144		2	DYETA	MTWH	5	80	15	LP	M	2					0	SD	P	P	BP	1	0	0	0	A	
MHT	3	C	145		2	DYETA	BDRE	7	78	15	GR	VF	2				\	0	SD	P	M	BP	2	0	0	0	A	
MHT	3	C	146		2	DYETA	BDRE	7	88	10	GR	VF	2					0	SD	P	M	BP	2	0	0	0	A	
MHT	3	C	147		2	MTA		2	88	10	GR	VF	2					0	SD	P	M	BP	3	0	0	0	A	
MHT	3	C	148		2	VARTA		1	84	15	GR	VF	2					0	SD	P	M	BP	3	0	0	0	A	
MHT	3	C	149		2	VARTA		7	78	15	LP	VF	2					0	SD	P	M	BP	4	0	0	0	A	
MHT	3	C	150		2	VARYE		7	86	7	GR	F	2					0	SD	P	M	BP	2	0	0	0	C	
MHT	3	C	151		2	LYA		7	90	3	GR	M	2					0	SD	M	G	BP	1	0	0	0	A	
MHT	3	C	152		2	LPITA		0	97	3	C	VF	2					0	SD	W	E	BP	3	0	0	0	A	

AREA	NO	SCR	DEPTH	REC	IND	COLOR	STRUCTURE	%GR	%SD	%MD	MX	MD	R	%CG	%CS	%CM	%CMT	%CAR	NAME	SO	%POR	TYPE	%MUS	%GLA	%LIG	%SUL	H	FOSSILS
MHT	3	C	153		2	LPITA	BLYETA	5	88	7	LP	M	2					0	SD	M	G	BP	2	0	0	0	A	
MHT	3	C	154		2	VARTA	ICL	2	88	10	GR	C	2					0	SD	M	G	BP	2	0	0	0	A	
MHT	3	C	155	8	2	VARTA	ICL	7	78	15	GR	C	3					0	SD	M	G	BP	1	0	0	0	A	
MHT	3	C	156		2	MYETA	MTDRE	7	81	12	GR	M	3					0	SD	M	G	BP	2	0	0	0	A	
MHT	3	C	157		2	MYETA	WSP	5	85	10	GR	M	3					0	SD	M	G	BP	.1	0	0	0	C	
MHT	3	C	158		2	MYETA	WSP	15	78	7	LP	M	3					0	SD	M	G	BP	1	0	0	0	R	
MHT	3	C	159		2	MYETA	WSP	0	20	80	M	CL						0	CL		P	MI	1	0	0	0	C	
MHT	3	C	160		2	MYETA	MTDRE	5	45	50	LP	CL						0	SDCL		P	BP	2	0	0	0	A	
MHT	3	C	161		2	MYETA	MTDRE	1	44	55	GR	CL						0	SDCL		P	BP	.1	0	0	0	C	
MHT	3	C	162	0																								
MHT	3	C	163	0																								
MHT	3	C	164	0																								
MHT	3	C	165	0																								
MHT	3	C	166		2	LYETA		0	45	55	VC	CL						0	SDCL		P	BP	0	0	0	0	C	
MHT	3	C	167		2	LORTA	BDRE	0	85	15	VC	C	3					0	SD	M	G	BP	1	0	0	0	R	
MHT	3	C	168		2	LYETA	ICL	0	93	7	VC	M	3					0	SD	M	G	BP	1	0	0	0	R	
MHT	3	C	169		2	LYETA	ICL	0	93	7	VC	VF	2					0	SD	M	G	BP	1	0	0	0	R	
MHT	3	C	170		2	LTA		0	95	5	VC	F	2					0	SD	W	E	BP	3	0	0	0	A	
MHT	3	C	171		2	LYETA		0	85	15	VC	M	2					0	SD	M	G	BP	1	0	0	0	C	
MHT	3	C	172		2	LYETA		0	85	15	VC	M	2					0	SD	M	G	BP	3	0	0	0	C	
MHT	3	C	173		2	LTA	BDOR	0	95	5	VC	M	2					0	SD	W	E	BP	2	0	0	0	R	
MHT	3	C	174	6	2	LTA	ICL	0	97	3	C	F	2					0	SD	W	E	BP	1	0	0	0	R	
MHT	3	C	175		2	LTA	ICL	0	98	2	C	F	2					0	SD	W	E	BP	1	0	0	0	R	
MHT	3	C	176		3	VARYE	ICL	0	5	95	M	CL						0	CL		P	MI	2	0	0	0	R	
MHT	3	C	177		2	LTA		0	95	5	C	F	2					0	SD	W	E	BP	3	0	0	0	R	
MHT	3	C	178	4	3	LPIGY		0	10	90	M	CL						0	CL		P	MI	1	0	0	0	R	
MHT	3	C	179		2	VARYE		0	95	5	VC	M	3					0	SD	W	E	BP	2	0	0	0	A	
MHT	3	C	180	5	2	VARYE		1	92	7	GR	M	3					0	SD	W	E	BP	1	0	0	0	C	
MHT	3	C	181	0																								
MHT	3	C	182	0																								
MHT	3	C	183	0																								
MHT	3	C	184	0																								
MHT	3	C	185		2	MYETA		0	93	7	C	F	2					0	SD	W	E	BP	2	0	0	0	C	
MHT	3	C	186		2	VARYE	WSP	0	45	55	C	CL						0	SDCL		P	BP	1	0	0	0	R	
MHT	3	C	187		2	VARYE	WSP	0	93	7	C	F	2					0	SD	W	E	BP	1	0	0	0	R	
MHT	3	C	188		2	LYETA	ICL	0	90	10	M	F	2					0	SD	W	E	BP	1	0	0	0	R	
MHT	3	C	189		2	LYETA	ICL	0	90	10	C	F	2					0	SD	W	E	BP	1	0	0	0	R	
MHT	3	C	190			T.D.	190																					

AREA	NO	SCR	DEPTH	REC	IND	COLOR	STRUCTURE	%GR	%SD	%MD	MX	MD	R	%CG	%CS	%CM	%CMT	%CAR	NAME	SO	%POR	TYPE	%MUS	%GLA	%LIG	%SUL	H	FOSSILS
MHT	004	C	1		1	LBR		.1	95	5	GR	M	4					0	SD	M	G	BP	.1	0	.1	0	C	
MHT	004	C	2		1	LBR		.1	95	5	GR	M	4					0	SD	M	G	BP	.1	0	.1	0	C	
MHT	004	C	3		2	MREBR		.1	92	8	GR	M	4					0	SD	M	G	BP	.1	0	0	0	R	
MHT	004	C	4		2	MREBR		0	92	8	VC	M	3					0	SD	M	G	BP	.1	0	0	0	R	
MHT	004	C	5		2	MREBR		0	92	8	VC	M	3					0	SD	M	G	BP	0	0	0	0	R	
MHT	004	C	6	3	2	MRE		.1	90	10	GR	M	3					0	SD	M	G	BP	0	0	0	0	R	
MHT	004	C	7	8	2	MREBR		0	94	6	VC	M	3					0	SD	M	G	BP	.1	0	0	0	C	
MHT	004	C	8	0																								
MHT	004	C	9		2	MRE		.1	80	20	GR	M	3					0	SD	P	M	BP	0	0	0	0	R	
MHT	004	C	10		2	MRE		.1	75	25	GR	M	3					0	CLSD	V	P	BP	0	0	0	0	R	
MHT	004	C	11		2	MRE		1	69	30	GR	M	3					0	CLSD	V	P	BP	0	0	0	0	R	
MHT	004	C	12		2	MRE		1	69	30	GR	M	3					0	CLSD	V	P	BP	0	0	0	0	R	
MHT	004	C	13		2	MRE		1	69	30	GR	M	3					0	CLSD	V	P	BP	0	0	0	0	R	
MHT	004	C	14		2	MRE		2	58	40	GR	F	3					0	CLSD	V	P	BP	0	0	0	0	R	
MHT	004	C	15		2	MRE		1	59	40	GR	F	3					0	CLSD	V	P	BP	0	0	0	0	R	
MHT	004	C	16	6	2	MRE		1	59	40	GR	F	3					0	CLSD	V	P	BP	0	0	0	0	R	
MHT	004	C	17		2	MRE		1	59	40	GR	F	3					0	CLSD	V	P	BP	0	0	0	0	R	
MHT	004	C	18		2	MRE		1	59	40	GR	F	3					0	CLSD	V	P	BP	0	0	0	0	R	
MHT	004	C	19		2	MRE		1	64	35	GR	F	3					0	CLSD	V	P	BP	0	0	0	0	R	
MHT	004	C	20		2	MRE		1	64	35	GR	F	3					0	CLSD	V	P	BP	0	0	0	0	R	
MHT	004	C	21		2	MRE		1	59	40	GR	F	3					0	CLSD	V	P	BP	0	0	0	0	R	
MHT	004	C	22		2	MRE		1	59	40	GR	F	3					0	CLSD	V	P	BP	0	0	0	0	R	
MHT	004	C	23		2	MRE		.1	60	40	GR	F	3					0	CLSD	V	P	BP	0	0	0	0	R	
MHT	004	C	24		2	MREBR	MTLYEOR	.1	65	35	GR	M	3					0	CLSD	V	P	BP	.1	0	0	0	R	
MHT	004	C	25		2	MREBR	MTLYEOR	.1	70	30	GR	M	3					0	CLSD	P	P	BP	.1	0	0	0	R	
MHT	004	C	26	6	2	MREBR	MTLYEOR	.1	70	30	GR	F	3					0	CLSD	P	P	BP	.1	0	0	0	R	
MHT	004	C	27		2	MREBR	MTLYEOR	.1	70	30	GR	F	3					0	CLSD	P	P	BP	.1	0	0	0	C	
MHT	004	C	28		2	MREBR	MTLYEOR	.1	75	25	GR	M	3					0	CLSD	P	P	BP	.1	0	0	0	C	
MHT	004	C	29		2	DREBR	MTLYEOR	.1	80	20	GR	M	3					0	SD	P	M	BP	.1	0	0	0	C	
MHT	004	C	30		2	LPEGY		.1	75	25	GR	M	3					0	CLSD	P	P	BP	.1	0	0	0	C	
MHT	004	C	31		2	LPIBR		2	78	20	GR	M	3					0	SD	P	M	BP	.1	0	0	0	C	
MHT	004	C	32		2	LPIBR		1	79	20	GR	M	3					0	SD	P	M	BP	.1	0	0	0	C	
MHT	004	C	33		2	LYEOR		1	79	20	GR	M	3					0	SD	P	M	BP	.1	0	0	0	C	
MHT	004	C	34		2	LYEOR		1	79	20	GR	M	3					0	SD	P	M	BP	.1	0	0	0	C	
MHT	004	C	35		2	LYEOR		2	78	20	GR	M	3					0	SD	P	M	BP	.1	0	0	0	C	
MHT	004	C	36	6	2	LREBR		1	79	20	GR	M	3					0	SD	P	M	BP	.1	0	0	0	C	
MHT	004	C	37		2	LREBR		2	73	25	GR	M	3					0	CLSD	P	P	BP	.1	0	0	0	C	
MHT	004	C	38		2	LREBR		1	74	25	GR	M	3					0	CLSD	P	P	BP	.1	0	0	0	C	

AREA	NO	SCR	DEPTH	REC	IND	COLOR	STRUCTURE	%GR	%SD	%MD	MX	MD	R	%CG	%CS	%CM	%CMT	%CAR	NAME	SO	%POR	TYPE	%MUS	%GLA	%LIG	%SUL	H	FOSSILS
MHT	004	C	39		2	MGYPU		0	5	95	VF	CL	2					0	CL	V	P	MI	.1	0	0	0	R	
MHT	004	C	40		2	MGYPU		0	30	70	VF	CL	2					0	SDCL	V	P	MI	.1	0	0	0	R	
MHT	004	C	41		2	DREPU	VARLGY	0	30	70	M	CL	2					0	SDCL	V	P	MI	.1	0	0	0	C	
MHT	004	C	42		2	DREPU	VARLGY	0	30	70	M	CL	2					0	SDCL	V	P	MI	.1	0	0	0	C	
MHT	004	C	43		2	DGYPU	VARLGY	0	30	70	M	CL	2					0	SDCL	V	P	MI	.1	0	0	0	C	
MHT	004	C	44		2	DGYPU		0	30	70	M	CL	2					0	SDCL	V	P	MI	.1	0	0	0	C	
MHT	004	C	45		2	DREPU		0	20	80	M	CL	2					0	CL	V	P	MI	.1	0	0	0	C	
MHT	004	C	46		2	LGY	VARMREBR	0	20	80	M	CL	3					0	CL	V	P	MI	.1	0	0	0	C	
MHT	004	C	47		2	DGYPU	VARLGYRT	0	20	80	M	CL	3					0	CL	V	P	MI	.1	0	0	0	C	
MHT	004	C	48		2	DGYPU	IRESDRT	.1	35	65	GR	M	3					0	SDCL	V	P	MI	.1	0	0	0	C	
MHT	004	C	49		2	LYEOR		.1	70	30	GR	M	3					0	CLSD	M	G	BP	.1	0	0	0	C	
MHT	004	C	50		1	LREBR		3	87	10	GR	M	3					0	SD	M	G	BP	.1	0	0	0	C	
MHT	004	C	51		1	LREBR	ILBRSDCL	1	54	45	GR	M	3					0	CLSD	P	P	BP	.1	0	0	0	C	
MHT	004	C	52		1	LREBR		1	69	30	GR	M	3					0	CLSD	P	P	BP	.1	0	0	0	C	
MHT	004	C	53		1	LYEOR	VARWH	3	87	10	GR	C	3					0	SD	M	M	BP	.1	0	0	0	C	
MHT	004	C	54		1	LYEOR	VARWH	3	87	10	GR	C	3					0	SD	M	M	BP	.1	0	0	0	C	
MHT	004	C	55		1	LYEOR	VARWH	3	82	15	GR	M	3					0	SD	M	M	BP	.1	0	0	0	C	
MHT	004	C	56		1	LYEOR	VARWH	1	89	10	GR	M	3					0	SD	M	M	BP	.1	0	0	0	C	
MHT	004	C	57		1	LYEOR		2	88	10	UP	M	3					0	SD	M	M	BP	.1	0	0	0	C	
MHT	004	C	58	9	1	LYEOR		2	88	10	LP	M	3					0	SD	M	M	BP	.1	0	0	0	C	
MHT	004	C	59		2	LYEOR	VARLGY	2	68	30	UP	F	3					0	CLSD	P	M	BP	.1	0	0	0	C	
MHT	004	C	60	5	1	LYEOR	VARLGY	2	68	30	UP	F	3					0	CLSD	P	M	BP	.1	0	0	0	C	
MHT	004	C	61		2	LYEOR	VARLGYPU	1	74	25	VC	F	3					0	CLSD	P	M	BP	.1	0	0	0	C	
MHT	004	C	62		2	LGYPU	VAELYEOR	1	79	20	LP	F	3					0	SD	P	M	BP	.1	0	0	0	C	
MHT	004	C	63		2	LGYPU		0	80	20	VC	F	3					0	SD	P	M	BP	.1	0	0	0	C	
MHT	004	C	64		2	LGYPU		0	80	20	VC	F	3					0	SD	P	M	BP	.1	0	0	0	C	
MHT	004	C	65		2	LGYPU	VARMREBR	0	80	20	VC	F	3					0	SD	P	M	BP	.1	0	0	0	C	
MHT	004	C	66	6	2	LGYPU	VARMREBR	0	80	20	VC	F	3					0	SD	P	M	BP	.1	0	0	0	C	
MHT	004	C	67		2	MREBR		0	80	20	VC	F	3					0	SD	P	M	BP	.1	0	0	0	C	
MHT	004	C	68		2	MGYPU		0	85	15	VC	F	3					0	SD	M	M	BP	.1	0	0	0	C	
MHT	004	C	69		2	LGYPU	BLREBR	0	75	25	VC	F	3					0	CLSD	P	M	BP	.1	0	0	0	C	
MHT	004	C	70		2	LGYPU		0	80	20	VC	F	3					0	SD	P	M	BP	.1	0	0	0	C	
MHT	004	C	71		2	LGYPU		.1	85	15	GR	F	2					0	SD	M	G	BP	.1	0	0	0	C	
MHT	004	C	72		2	LGYPU	BLREBR	.1	85	15	GR	F	2					0	SD	M	G	BP	.1	0	0	0	C	
MHT	004	C	73		2	MREBR		.1	85	15	GR	F	2					0	SD	M	G	BP	.1	0	0	0	C	
MHT	004	C	74		2	MBR		.1	75	25	GR	M	3					0	CLSD	P	M	BP	.1	0	0	0	C	
MHT	004	C	75		1	LBR		.1	80	20	GR	M	3					0	SD	P	M	BP	.1	0	0	0	C	
MHT	004	C	76	6	1	LBRRE		.1	96	4	LP	M	3					0	SD	W	E	BP	.1	0	0	0	C	

AREA	NO	SCR	DEPTH	REC	IND	COLOR	STRUCTURE	%GR	%SD	%MD	MX	MD	R	%CG	%CS	%CM	%CMT	%CAR	NAME	SO	%POR	TYPE	%MUS	%GLA	%LIG	%SUL	H	FOSSILS
MHT	004	C	77		1	LYEOR	VARLREBR	.1	96	4	GR	M	3					0	SD	W	E	BP	.1	0	0	0	C	
MHT	004	C	78	8	1	LYEOR	VARLREBR	.1	97	3	GR	M	4					0	SD	W	E	BP	.1	0	0	0	C	
MHT	004	C	79		1	LREBR		.1	95	5	GR	M	4					0	SD	W	E	BP	.1	0	0	0	C	
MHT	004	C	80	9	1	LBR		1	94	5	GR	M	4					0	SD	W	E	BP	.1	0	0	0	C	
MHT	004	C	81		1	LBR		.1	94	6	GR	M	3					0	SD	W	E	BP	.1	0	0	0	C	
MHT	004	C	82	9	1	LYEOR		.1	97	3	GR	M	3					0	SD	W	E	BP	.1	0	0	0	C	
MHT	004	C	83		1	LYEOR		1	96	3	GR	M	3					0	SD	W	E	BP	.1	0	0	0	C	
MHT	004	C	84		1	LYEOR		1	96	3	GR	M	4					0	SD	W	E	BP	.1	0	0	0	C	
MHT	004	C	85	0																								
MHT	004	C	86	0																								
MHT	004	C	87	6	1	LYEOR		.1	98	2	GR	M	4					0	SD	W	E	BP	.1	0	0	0	C	
MHT	004	C	88		1	LYEOR		2	96	2	GR	C	4					0	SD	M	E	BP	.1	0	0	0	C	
MHT	004	C	89		1	LYEOR		3	95	2	GR	C	4					0	SD	M	E	BP	.1	0	0	0	C	
MHT	004	C	90		1	LYEOR		2	95	3	GR	C	4					0	SD	M	E	BP	.1	0	0	0	C	
MHT	004	C	91	0																								
MHT	004	C	92	0																								
MHT	004	C	93		1	LYEOR		2	96	2	GR	C	4					0	SD	M	E	BP	.1	0	0	0	C	
MHT	004	C	94	6	1	LYEOR		2	96	2	GR	C	4					0	SD	M	E	BP	.1	0	0	0	C	
MHT	004	C	95		2	DYEOR		3	82	15	LP	M	4					0	SD	M	G	BP	.1	0	0	0	C	
MHT	004	C	96	6	2	LYEOR		0	5	95	C	CL	2					0	CL	V	P	MI	.1	0	0	0	R	
MHT	004	C	97	0																								
MHT	004	C	98	0																								
MHT	004	C	99		2	LYEOR		.1	95	5	GR	M	4					0	SD	M	G	BP	.1	0	0	0	C	
MHT	004	C	100		1	LYEOR		.1	97	3	GR	M	4					0	SD	M	G	BP	.1	0	0	0	C	
MHT	004	C	101		1	LBR		1	94	5	GR	M	3					0	SD	M	G	BP	.1	0	0	0	C	
MHT	004	C	102		1	LBR		1	94	5	GR	M	3					0	SD	M	G	BP	.1	0	0	0	C	
MHT	004	C	103		1	LREBR		.1	95	5	GR	M	3					0	SD	M	G	BP	.1	0	0	0	C	
MHT	004	C	104	5	1	LREBR		.1	95	5	GR	M	3					0	SD	M	G	BP	.1	0	0	0	C	
MHT	004	C	105		1	LREBR		.1	95	5	GR	M	3					0	SD	M	G	BP	.1	0	0	0	C	
MHT	004	C	106		1	LBR		0	85	15	VC	M	3					0	SD	M	G	BP	.1	0	0	0	C	
MHT	004	C	107		2	LREBR		0	15	85	VC	CL	3					0	CL	V	P	BP	.1	0	0	0	A	
MHT	004	C	108		1	DREBR	ILGNGYCL	0	45	55	VC	VF	2					0	SDCL	V	P	MI	.1	0	0	0	R	
MHT	004	C	109		1	LBR		0	60	40	VC	VF	2					0	CLSD	V	P	BP	.1	0	0	0	R	
MHT	004	C	110	0																								
MHT	004	C	111		2	LGNGY	ISD	0	25	75	VC	CL	2					0	SDCL	V	P	MI	.1	0	0	0	C	
MHT	004	C	112		2	LGNGY		0	2	98	M	CL	2					0	CL	V	P	MI	0	0	0	0	R	
MHT	004	C	113		2	LGNGY		0	2	98	M	CL	2					0	CL	V	P	MI	0	0	0	0	R	
MHT	004	C	114		2	LGNGY	ISD	0	30	70	VC	CL	2					0	SDCL	V	P	MI	.1	0	0	0	A	

AREA	NO	SCR	DEPTH	REC	IND	COLOR	STRUCTURE	%GR	%SD	%MD	MX	MD	R	%CG	%CS	%CM	%CMT	%CAR	NAME	SO	%POR	TYPE	%MUS	%GLA	%LIG	%SUL	H	FOSSILS
MHT	004	C	115		2	LPIBR		.1	80	20	GR	M	3					0	SD	P	M	BP	.1	0	0	0	R	
MHT	004	C	116		2	DYEOR	WSPLGNCL	0	80	20	VC	M	3					0	SD	P	M	BP	.1	0	0	0	C	
MHT	004	C	117	0																								
MHT	004	C	118	0																								
MHT	004	C	119		2	LYEOR	ITACL	.1	70	30	GR	F	3					0	CLSD	P	P	BP	.1	0	0	0	C	
MHT	004	C	120		2	LGY	IDYEORSD	0	25	75	VC	CL	2					0	SDCL	V	P	MI	.1	0	0	0	C	
MHT	004	C	121		2	DYEOR		1	89	10	GR	M	3					0	SD	W	G	BP	.1	0	0	0	C	
MHT	004	C	122	0																								
MHT	004	C	123		1	DYEOR		2	93	5	LP	C	3					0	SD	M	E	BP	.1	0	0	0	C	
MHT	004	C	124		1	DYEOR		2	93	5	LP	C	3					0	SD	M	E	BP	.1	0	0	0	R	
MHT	004	C	125		1	DYEOR		3	92	5	LP	C	3					0	SD	M	E	BP	.1	0	0	0	C	
MHT	004	C	126	6	1	DYEOR		4	91	5	LP	C	3					0	SD	M	E	BP	.1	0	0	0	C	
MHT	004	C	127	0																								
MHT	004	C	128	0																								
MHT	004	C	129		2	LBR		2	88	10	GR	M	3					0	SD	M	G	BP	.1	0	0	0	C	
MHT	004	C	130		2	LBR		2	88	10	GR	M	3					0	SD	M	G	BP	.1	0	0	0	C	
MHT	004	C	131		1	LORBR		2	88	10	GR	M	3					0	SD	M	G	BP	.1	0	0	0	C	
MHT	004	C	132	6	1	LBR		2	88	10	GR	M	3	0	0	99	0	.1	SD	M	G	BP	.1	0	0	0	C	
MHT	004	C	133		1	LPIBR		1	89	10	GR	M	3	0	0	99	0	.1	SD	M	G	BP	.1	0	0	0	C	
MHT	004	C	134	0																								
MHT	004	C	135	0																								
MHT	004	C	136	0																								
MHT	004	C	137		1	DYEOR		1	89	10	GR	M	3	99	0	0	0	.1	SD	M	G	BP	.1	0	0	0	C	YE
MHT	004	C	138	0																								
MHT	004	C	139	0																								
MHT	004	C	140	0																								
MHT	004	C	141	6	1	MBROR		1	89	10	GR	M	3					0	SD	M	G	BP	.1	0	0	0	C	
MHT	004	C	142	0																								
MHT	004	C	143		1	MBROR		1	89	10	GR	M	3					0	SD	M	G	BP	.1	0	0	0	C	
MHT	004	C	144		1	MBROR		.1	90	10	GR	M	3					0	SD	M	G	BP	.1	0	0	0	C	
MHT	004	C	145		1	MBROR		.1	90	10	GR	M	3					0	SD	M	G	BP	.1	0	0	0	C	
MHT	004	C	146	4	1	MBROR		.1	90	10	GR	M	3					0	SD	M	G	BP	.1	0	0	0	C	
MHT	004	C	147	0																								
MHT	004	C	148	0																								
MHT	004	C	149		1	DYEOR	ISPSD	0	75	25	C	F	2	50	50	0	0	.1	CLSD	P	M	BP	.1	0	0	0	C	SP
MHT	004	C	150		1	DYEOR	ISLSD	0	75	25	C	F	3	50	50	0	0	.1	CLSD	P	M	BP	.1	0	0	0	C	GAPLSPCTFO
MHT	004	C	151		1	DYEOR	BLBR	1	84	15	GR	M	4	0	99	0	0	.1	SD	M	G	BP	.1	0	0	0	C	PL
MHT	004	C	152		1	DYEOR	ISLSD	2	83	15	LP	M	4	70	30	0	0	2	CASLSD	M	G	BP	.1	0	0	0	C	PLYESP

AREA	NO	SCR	DEPTH	REC	IND	COLOR	STRUCTURE	%GR	%SD	%MD	MX	MD	R	%CG	%CS	%CM	%CMT	%CAR	NAME	SO	%POR	TYPE	%MUS	%GLA	%LIG	%SUL	H	FOSSILS
MHT	004	C	153		1	LGY	BLBR	10	75	15	LP	M	3					0	SD	M	G	BP	.1	0	0	0	C	
MHT	004	C	154		1	LGY	BLBR	0	92	8	VC	F	3					0	SD	W	E	BP	.1	0	0	0	A	
MHT	004	C	155		1	DYEOR	BLGY	0	92	8	VC	F	3					0	SD	W	E	BP	.1	0	0	0	A	
MHT	004	C	156		1	DYEOR	BLGYBLBR	0	92	8	VC	F	3					0	SD	W	E	BP	.1	0	0	0	A	
MHT	004	C	157		1	DYEOR		0	92	8	VC	F	2					0	SD	W	E	BP	.1	0	0	0	A	
MHT	004	C	158		1	DYEOR		0	92	8	VC	F	2					0	SD	W	E	BP	.1	0	0	0	A	
MHT	004	C	159		1	DYEOR	WSPLGYCL	1	94	5	GR	M	3					0	SD	M	G	BP	.1	0	0	0	C	
MHT	004	C	160		1	DYEOR	WSPLGYCL	.1	95	5	GR	M	3					0	SD	M	G	BP	.1	0	0	0	C	
MHT	004	C	161		1	DYEOR		.1	95	5	GR	M	3					0	SD	W	E	BP	.1	0	0	0	A	
MHT	004	C	162		1	DYEOR		1	91	8	GR	M	3					0	SD	M	G	BP	.1	0	0	0	A	
MHT	004	C	163		1	DYEOR		1	89	10	GR	M	3					0	SD	M	G	BP	.1	0	0	0	C	
MHT	004	C	164		2	LYEOR	BDREBLGY	2	43	55	GR	CL	3				.1	0	SDCL	V	P	MI	.1	0	0	0	R	
MHT	004	C	165		2	LYEOR	BDREBLGY	2	43	55	LP	CL	3				.1	0	SDCL	V	P	MI	.1	0	0	0	R	
MHT	004	C	166		1	DYEOR	BDREBLGY	1	64	35	GR	F	3					0	CLSD	V	P	BP	.1	0	0	0	C	
MHT	004	C	167		1	DYEOR	WSPLGYCL	2	78	20	GR	M	3					0	SD	P	P	BP	.1	0	0	0	C	
MHT	004	C	168		1	DYEOR	WSPLGYCL	2	83	15	GR	M	3					0	SD	P	M	BP	.1	0	0	0	C	
MHT	004	C	169		1	DYEOR	WSPLGYCL	1	84	15	GR	M	3					0	SD	P	M	BP	.1	0	0	0	C	
MHT	004	C	170		1	DYEOR	WSPLGYCL	2	83	15	GR	M	3					0	SD	P	M	BP	.1	0	0	0	C	
MHT	004	C	171		1	DYEOR	WSPLGYCL	0	90	10	VC	M	3					0	SD	M	G	BP	.1	0	0	0	C	
MHT	004	C	172		1	DYEOR	WSPLGYCL	0	90	10	VC	M	3					0	SD	M	G	BP	.1	0	0	0	C	
MHT	004	C	173		1	DYEOR	BLGY	0	95	5	VC	F	3					0	SD	M	G	BP	.1	0	0	0	C	
MHT	004	C	174		1	DYEOR	ILGYCL	0	80	20	VC	F	3					0	SD	P	P	BP	.1	0	0	0	C	
MHT	004	C	175		1	DYEOR	ILGYCL	0	90	10	VC	M	3					0	SD	M	M	BP	.1	0	0	0	C	
MHT	004	C	176	8	1	LYEOR	WSPLGYCL	0	95	5	VC	M	3					0	SD	W	E	BP	.1	0	0	0	C	
MHT	004	C	177	6																								
MHT	004	C	178		1	LYEOR	WSPLGYCL	0	95	5	VC	F	3					0	SD	W	G	BP	.1	0	0	0	C	
MHT	004	C	179		1	LYEOR	ILGYCL	0	85	15	VC	F	3					0	SD	M	M	BP	.1	0	0	0	C	
MHT	004	C	180		1	LYEOR	ILGYCL	0	95	5	VC	F	3					0	SD	W	G	BP	.1	0	0	0	C	
MHT	004	C	181		1	LYEOR	ILGYCL	0	80	20	VC	F	3					0	SD	P	M	BP	.1	0	0	0	C	
MHT	004	C	182	5	1	LYEOR		0	90	10	VC	F	4					0	SD	W	E	BP	.1	0	0	0	C	
MHT	004	C	183		1	LYEOR	BLGYICL	0	80	20	VC	F	3					0	SD	P	M	BP	.1	0	0	0	C	
MHT	004	C	184		1	LYEOR	BLGYICL	0	65	35	VC	VF	3					0	CLSD	V	P	BP	.1	0	0	0	C	
MHT	004	C	185		1	DYEOR	WSPCLBGY	0	85	15	VC	F	3					0	SD	M	G	BP	.1	0	0	0	C	
MHT	004	C	186	6	1	LYEOR		0	85	15	VC	F	3					0	SD	M	G	BP	.1	0	0	0	C	
MHT	004	C	187	0																								
MHT	004	C	188		1	LYEOR	WSPLGYCL	0	85	15	C	F	3					0	SD	M	G	BP	.1	0	0	0	C	
MHT	004	C	189		1	LYEOR	WSPLGYCL	0	85	15	C	F	3					0	SD	M	G	BP	.1	0	0	0	C	
MHT	004	C	190		1	LYEOR	WSPLGYCL	0	85	15	C	F	3					0	SD	M	G	BP	.1	0	0	0	A	

AREA	NO	SCR	DEPTH	REC	IND	COLOR	STRUCTURE	%GR	%SD	%MD	MX	MD	R	%CG	%CS	%CM	%CMT	%CAR	NAME	SO	%POR	TYPE	%MUS	%GLA	%LIG	%SUL	H	FOSSILS
MHT	004	C	191		1	LYEOR	WSPLGYCL	0	85	15	C	F	3					0	SD	M	G	BP	.1	0	0	0	C	

WHP, SAIC
19-Oct-92
ads
27-Oct-92

AREA	NO	SCR	DEPTH	REC	IND	COLOR	STRUCTURE	%GR	%SD	%MD	MX	MD	R	%CG	%CS	%CM	%CMT	%CAR	NAME	SO	%POR	TYPE	%MUS	%GLA	%LIG	%SUL	H	FOSSILS
MHT	5	C	1		2	LBR		0	93	7	VC	M	3					0	SD	M	E	BP	.1	0	0	0	C	
MHT	5	C	2		2	LPITA		2	88	10	GR	F	2					0	SD	M	G	BP	1	0	0	0	C	
MHT	5	C	3		2	LRE		3	77	20	GR	F	2					0	SD	M	G	BP	1	0	0	0	C	
MHT	5	C	4		2	LRE		5	75	20	GR	F	2					0	SD	M	G	BP	1	0	0	0	C	
MHT	5	C	5		2	MRE		3	77	20	GR	F	2					0	SD	M	G	BP	.5	0	0	0	R	
MHT	5	C	6		2	DRE		0	75	25	VC	CL						0	CLSD	P	P	BP	.1	0	0	0	R	
MHT	5	C	7		2	DRE	BLPITA	1	79	20	GR	M	2					0	SD	M	G	BP	.1	0	0	0	C	
MHT	5	C	8		2	DRE		0	45	55	VC	CL						0	SDCL		P	BP	2	0	0	0	R	
MHT	5	C	9		2	DRE		0	55	45	VC	CL						0	CLSD	P	P	BP	1	0	0	0	C	
MHT	5	C	10		2	DRE		0	50	50	C	CL						0	CLSD	P	P	BP	.5	0	0	0	R	
MHT	5	C	11		2	DRE		0	35	65	VC	CL						0	SDCL		P	MI	.5	0	0	0	R	
MHT	5	C	12		2	DRE		0	40	60	VC	CL						0	SDCL		P	MI	1	0	0	0	R	
MHT	5	C	13		2	DRE	MTLYE	1	49	50	GR	CL						0	SDCL		P	BP	1	0	0	0	R	
MHT	5	C	14		2	DRE	MTLYE	0	50	50	VC	CL						0	SDCL		P	BP	1	0	0	0	R	
MHT	5	C	15	4	2	DRE		1	39	60	LP	CL						0	SDCL		P	BP	1	0	0	0	R	
MHT	5	C	16		2	DRE		0	30	70	VC	CL						0	SDCL		P	MI	1	0	0	0	R	
MHT	5	C	17		2	DRE	MTLYE	0	45	55	VC	CL						0	SDCL		P	BP	.1	0	0	0	R	
MHT	5	C	18	9	2	DRE	MTWHYE	2	45	53	GR	CL						0	SDCL		P	BP	.5	0	0	0	R	
MHT	5	C	19		2	DRE	MTWHYE	0	25	75	VC	CL						0	SDCL		P	MI	0	0	0	0	R	
MHT	5	C	20	7	2	DRE	MTLYE	0	35	65	C	CL						0	SDCL		P	MI	.1	0	0	0	R	
MHT	5	C	21		2	DRE	MTWH	1	59	40	GR	CL						0	CLSD	P	P	BP	.1	0	0	0	R	
MHT	5	C	22		2	DRE	MTWH	2	43	55	GR	CL						0	SDCL		P	BP	.2	0	0	0	R	
MHT	5	C	23		2	DRE	MTWH	0	40	60	VC	CL						0	CLSD		P	BP	.5	0	0	0	C	
MHT	5	C	24		2	DRE	MTMPU	5	45	50	LP	CL						0	SDCL		P	BP	1	0	0	0	C	
MHT	5	C	25	8	2	DRE	MTMPU	2	43	55	GR	CL						0	SDCL		P	BP	1	0	0	0	R	
MHT	5	C	26		2	DRE	MTWH	5	55	40	GR	CL	2					0	CLSD	P	P	BP	1	0	0	0	R	
MHT	5	C	27		2	DRE	MTMPU	2	50	48	GR	CL						0	CLSD	P	P	BP	1	0	0	0	R	
MHT	5	C	28		2	DRE	MTDYE	3	42	55	GR	CL						0	SDCL		P	BP	3	0	0	0	R	
MHT	5	C	29		2	DRE	MTWH	0	55	45	VC	CL						0	CLSD	P	P	BP	2	0	0	0	R	
MHT	5	C	30		2	DRE	BWHYE	7	68	25	GR	CL						0	CLSD	P	M	BP	1	0	0	0	R	
MHT	5	C	31		2	DRE	MTDPU	1	34	65	GR	CL						0	SDCL		P	MI	.1	0	0	0	R	
MHT	5	C	32		2	DRE	WSPMTMYE	0	40	60	VC	CL						0	SDCL		P	BP	.1	0	0	0	R	
MHT	5	C	33		3	DRE	BDPU	0	10	90	C	CL						0	CL		P	MI	.5	0	0	0	R	
MHT	5	C	34		2	DYEOR	MTDRE	0	50	50	VC	CL						0	SDCL		P	BP	2	0	0	0	R	
MHT	5	C	35	8	2	DRE	BLORBR	3	60	37	GR	CL						0	CLSD	P	P	BP	.5	0	0	0	R	
MHT	5	C	36	0																								
MHT	5	C	37		3	DPU	MTWHBDRE	0	5	95	F	CL						0	CL		P	MI	1	0	0	0	R	
MHT	5	C	38		3	DPU		0	25	75	VC	CL						0	SDCL		P	MI	2	0	0	0	R	

AREA	NO	SCR	DEPTH	REC	IND	COLOR	STRUCTURE	%GR	%SD	%MD	MX	MD	R	%CG	%CS	%CM	%CMT	%CAR	NAME	SO	%POR	TYPE	%MUS	%GLA	%LIG	%SUL	H	FOSSILS
MHT	5	C	39		3	DPU	MTWH	0	20	80	VC	CL						0	CL		P	MI	3	0	0	0	R	
MHT	5	C	40		3	DPU	BMORRE	0	25	75	C	CL						0	SDCL		P	MI	2	0	0	0	R	
MHT	5	C	41		3	MPU		0	60	40	C	CL						0	CLSD	P	P	BP	2	0	0	0	R	
MHT	5	C	42		3	MPU		0	40	60	C	CL						0	SDCL		P	BP	3	0	0	0	R	
MHT	5	C	43		3	MPU		0	55	45	VC	CL						0	CLSD	P	P	BP	2	0	0	0	R	
MHT	5	C	44		3	MPU	MTWH	0	45	55	VC	CL						0	SDCL		P	BP	3	0	0	0	R	
MHT	5	C	45		2	MPUGY	MTMYE	0	50	50	VC	CL						0	CLSD	P	P	BP	1	0	0	0	R	
MHT	5	C	46		3	MPUTA	BMORTA	0	45	55	VC	CL						0	SDCL		P	BP	1	0	0	0	R	
MHT	5	C	47		3	VAROR	BMPUTA	0	30	70	C	CL						0	SDCL		P	BP	1	0	0	0	C	
MHT	5	C	48		3	VARPU	BLPUGY	0	70	30	VC	CL						0	CLSD	P	M	BP	2	0	0	0	C	
MHT	5	C	49		3	DPU	BMORTA	0	40	60	VC	CL						0	SDCL		P	BP	1	0	0	0	R	
MHT	5	C	50		3	DPU	BMORTA	0	25	75	VC	CL						0	SDCL		P	MI	2	0	0	0	R	
MHT	5	C	51		3	DTA	BMYE	5	45	50	LP	CL						0	SDCL		P	BP	2	0	0	0	C	
MHT	5	C	52		3	DPU	BMORTA	0	65	35	VC	CL						0	CLSD	P	P	BP	3	0	0	0	C	
MHT	5	C	53		3	DTA	IPBBLPU	3	70	27	LP	CL						0	CLSD	P	P	BP	1	0	0	0	A	
MHT	5	C	54		3	LPU	IPBBDPU	3	40	57	LP	CL						0	SDCL		P	BP	3	0	0	0	A	
MHT	5	C	55	6	3	LTA		0	20	80	VC	CL						0	CL		P	MI	3	0	0	0	A	
MHT	5	C	56		3	LYE		10	40	50	GR	CL						0	SDCL		P	BP	2	0	0	0	R	
MHT	5	C	57		3	LPU		7	43	60	LP	CL						0	SDCL		P	BP	1	0	0	0	R	
MHT	5	C	58		3	LPU	MTDPI	0	80	20	VC	F	2					0	SD	M	G	BP	2	0	0	0	C	
MHT	5	C	59		2	LPIPU		0	30	70	VC	CL						0	SDCL		P	MI	.1	0	0	0	R	
MHT	5	C	60		2	VARPU	MTDRE	0	90	10	C	M	2					0	SD	M	G	BP	2	0	0	0	C	
MHT	5	C	61		2	LPU	MTDTA	3	72	25	LP	F	2					0	CLSD	P	M	BP	3	0	0	0	C	
MHT	5	C	62		2	LPU	WSP	0	60	40	VC	CL						0	CLSD	P	M	BP	2	0	0	0	C	
MHT	5	C	63		2	LPU	WSP	0	60	40	VC	CL						0	CLSD	P	M	BP	2	0	0	0	C	
MHT	5	C	64		2	LPU	WSP	0	25	75	VC	CL						0	SDCL		P	MI	3	0	0	0	R	
MHT	5	C	65	8	2	LPU	BDTA	3	62	35	GR	CL						0	CLSD	P	P	BP	2	0	0	0	R	
MHT	5	C	66		2	VARPU	MTDRE	0	60	40	VC	CL						0	CLSD	P	M	BP	3	0	0	0	R	
MHT	5	C	67		2	MPU	BDPI	5	60	35	LP	CL						0	CLSD	P	M	BP	2	0	0	0	C	
MHT	5	C	68		2	MPU	BMTA	0	25	75	VC	CL						0	SDCL		P	MI	3	0	0	0	C	
MHT	5	C	69		2	LPU	BDPI	1	55	44	LP	CL						0	CLSD	P	P	BP	1	0	0	0	R	
MHT	5	C	70		2	LPU	MTDRE	1	74	25	GR	M	3					0	CLSD	P	P	BP	2	0	0	0	A	
MHT	5	C	71		2	VARYE	BDPITA	0	80	20	VC	M	2					0	SD	M	M	BP	3	0	0	0	A	
MHT	5	C	72		2	VARYE	BLYETA	0	55	45	VC	CL						0	CLSD	P	M	BP	2	0	0	0	C	
MHT	5	C	73		2	VARYE	BDTA	0	60	40	VC	CL						0	CLSD	P	M	BP	1	0	0	0	C	
MHT	5	C	74		2	VARPI	MTDRE	0	75	25	VC	M	2					0	CLSD	P	M	BP	1	0	0	0	R	
MHT	5	C	75	9	2	VARPI	MTDRE	3	72	25	LP	M	2					0	CLSD	P	M	BP	1	0	0	0	R	
MHT	5	C	76	9	2	MYEOR		7	83	10	GR	M	2					0	SD	M	G	BP	2	0	0	0	R	

AREA	NO	SCR	DEPTH	REC	IND	COLOR	STRUCTURE	%GR	%SD	%MD	MX	MD	R	%CG	%CS	%CM	%CMT	%CAR	NAME	SO	%POR	TYPE	%MUS	%GLA	%LIG	%SUL	H	FOSSILS
MHT	5	C	77		2	MORTA	BDTA	0	93	7	VC	M	3					0	SD	M	G	BP	1	0	0	0	R	
MHT	5	C	78		2	MORTA	WSP	7	83	10	GR	C	2					0	SD	M	G	BP	1	0	0	0	C	
MHT	5	C	79		2	MPITA	BDORTA	0	90	10	VC	C	2					0	SD	M	G	BP	0	0	0	0	R	
MHT	5	C	80		2	DORTA		5	88	7	GR	C	2					0	SD	M	G	BP	.5	0	0	0	R	
MHT	5	C	81		2	DORTA	BDPITA	0	40	60	VC	F	2					0	SDCL		P	BP	1	0	0	0	C	
MHT	5	C	82		2	MORTA	BDORTA	15	65	20	GR	C	2					0	SD	M	M	BP	1	0	0	0	C	
MHT	5	C	83		2	DORTA	BDPITA	0	85	15	VC	C	3					0	SD	M	G	BP	.5	0	0	0	R	
MHT	5	C	84		2	DORTA		7	78	15	GR	C	3					0	SD	M	G	BP	.5	0	0	0	R	
MHT	5	C	85	9	2	DORTA		7	83	10	GR	M	3					0	SD	M	G	BP	1	0	0	0	C	
MHT	5	C	86		2	DYETA		7	86	7	GR	C	2					0	SD	M	G	BP	1	0	0	0	R	
MHT	5	C	87		2	DYETA	BMPITA	7	86	7	GR	C	3					0	SD	M	G	BP	1	0	0	0	C	
MHT	5	C	88		2	MYEOR		10	80	10	GR	C	3					0	SD	M	G	BP	.1	0	0	0	C	
MHT	5	C	89		2	MYEOR	BMYE	5	88	7	GR	M	3					0	SD	M	G	BP	.1	0	0	0	R	
MHT	5	C	90		2	MYE	MTMOR	3	90	7	GR	C	3					0	SD	M	G	BP	0	0	0	0	R	
MHT	5	C	91		2	MOR	BMYETA	7	83	10	LP	C	2					0	SD	M	G	BP	0	0	0	0	C	YE
MHT	5	C	92		3	MOR	BDPITA	5	70	25	GR	CL						0	CLSD	P	P	BP	0	0	.1	.1	C	
MHT	5	C	93		2	DREPI		5	75	20	GR	CL						0	SD	M	M	BP	.1	0	0	0	A	
MHT	5	C	94		2	DREPU		0	10	90	M	CL						0	CL		P	MI	1	0	0	0	R	
MHT	5	C	95		2	DRE		0	45	55	VC	CL						0	SDCL		P	BP	1	0	0	0	C	
MHT	5	C	96		2	DRE	MTDYE	0	60	40	VC	CL						0	CLSD	P	P	BP	.1	0	0	0	C	
MHT	5	C	97		2	DYE	BDREWSP	0	80	20	VC	M	2					0	SD	M	G	BP	1	0	0	0	C	
MHT	5	C	98		2	DRE	MTDYE	3	82	15	GR	M	3					0	SD	M	G	BP	1	0	0	0	C	
MHT	5	C	99		2	DPITA	WSP	0	50	50	VC	CL						0	CLSD	P	P	BP	.1	0	0	0	R	
MHT	5	C	100		2	DYETA	MDRE	1	84	15	GR	M	2					0	SD	M	G	BP	1	0	0	0	C	
MHT	5	C	101		2	MYETA	BMPITA	3	87	10	GR	M	2					0	SD	M	G	BP	2	0	.1	.1	C	
MHT	5	C	102		2	MYETA		4	86	10	GR	M	2					0	SD	M	G	BP	1	0	0	0	C	
MHT	5	C	103		2	MYETA	BMPITA	2	83	15	GR	M	3					0	SD	M	G	BP	1	0	0	0	R	
MHT	5	C	104		2	MYETA		3	82	15	GR	M	3					0	SD	M	G	BP	.1	0	0	0	C	
MHT	5	C	105		2	MPITA	WSPBMYE	5	80	15	GR	M	2					0	SD	M	G	BP	2	0	1	.1	C	
MHT	5	C	106		2	MPITA		5	75	20	LP	M	3					0	SD	M	M	BP	2	0	.1	0	A	
MHT	5	C	107		2	MPITA	BMYETA	7	78	15	LP	M	3					0	SD	M	M	BP	1	0	0	0	C	
MHT	5	C	108		3	MPITA		0	20	80	VC	CL						0	CL		P	MI	1	0	0	0	R	
MHT	5	C	109		2	MPITA		5	25	70	LP	CL						0	SDCL		P	MI	.5	0	0	0	C	
MHT	5	C	110		3	MPITA		1	14	85	GR	CL						0	CL		P	MI	.5	0	0	0	C	
MHT	5	C	111		3	MPITA	25	5	70	25	LP	CL						0	CLSD	P	M	BP	1	0	0	0	C	
MHT	5	C	112		3	MPITA	BLGN	3	37	60	GR	CL						0	SDCL		P	BP	1	0	0	0	C	
MHT	5	C	113	8	2	MPITA		3	57	40	GR	CL						0	CLSD	P	P	BP	1	0	0	0	C	
MHT	5	C	114	0																								

AREA	NO	SCR	DEPTH	REC	IND	COLOR	STRUCTURE	%GR	%SD	%MD	MX	MD	R	%CG	%CS	%CM	%CMT	%CAR	NAME	SO	%POR	TYPE	%MUS	%GLA	%LIG	%SUL	H	FOSSILS
MHT	5	C	115		2	MPITA		0	50	50	VC	CL						0	CLSD	P	P	BP	.1	0	0	0	C	
MHT	5	C	116		2	MPITA	BMYEICL	0	65	35	VC	CL						0	CLSD	P	P	BP	.5	0	.5	.1	C	
MHT	5	C	117	6	3	MPITA	MTGYGN	0	45	55	VC	CL						0	SDCL		P	BP	1	0	1	.1	C	
MHT	5	C	118		2	MPITA	BDYE	0	65	35	VC	CL						0	CLSD	P	P	BP	.5	0	.5	0	R	
MHT	5	C	119		2	MPITA	BDYEICL	0	55	45	VC	CL						0	CLSD	P	P	BP	1	0	.5	.1	C	
MHT	5	C	120		2	MYE	BLGY	0	5	95	M	CL						0	CL		P	MI	1	0	0	0	C	
MHT	5	C	121		3	MYETA	ICL	1	64	35	GR	CL						0	CLSD	P	P	BP	1	0	0	0	C	
MHT	5	C	122		2	MYETA		3	72	25	GR	CL						0	CLSD	P	P	BP	1	0	0	0	R	
MHT	5	C	123		2	LYETA		7	78	15	GR	VC	2					0	SD	M	G	BP	0	0	0	0	C	
MHT	5	C	124		2	MYETA		12	28	60	GR	CL						0	SDCL		P	MI	2	0	0	0	C	
MHT	5	C	125	9	3	LTA		2	15	83	GR	CL						0	CL		P	MI	2	0	0	0	R	
MHT	5	C	126	6	3	MTA	ICL	2	28	70	GR	CL						0	SDCL		P	MI	1	0	0	0	C	
MHT	5	C	127	6	3	LBR	WSPMTBK	0	50	50	VC	CL						0	CLSD	P	P	BP	1	0	0	0	C	
MHT	5	C	128		2	LBR	ICL	1	74	25	GR	M	3					0	CLSD	P	M	BP	2	0	0	0	C	
MHT	5	C	129	0																								
MHT	5	C	130	0																								
MHT	5	C	131	0																								
MHT	5	C	132	0																								
MHT	5	C	133		2	LYETA		7	73	20	LP	C	3					0	SD	P	M	BP	1	0	0	0	R	
MHT	5	C	134		2	MYETA	WSP	3	72	25	GR	M	3					0	CLSD	P	M	BP	2	0	0	0	R	
MHT	5	C	135		2	MYETA	ICLMTLGY	0	35	65	VC	CL						0	SDCL		P	BP	1	0	0	0	R	
MHT	5	C	136		2	DYETA	MTWH	7	68	25	GR	C	2					0	CLSD	P	P	BP	1	0	0	0	C	
MHT	5	C	137	8	2	LREBR		5	70	25	LP	M	2					0	CLSD	P	P	BP	1	0	0	0	R	
MHT	5	C	138	8	2	LYA		0	85	15	C	F	2					0	SD	M	G	BP	1	0	0	0	R	
MHT	5	C	139	0																								
MHT	5	C	140		2	LREBR		10	75	15	GR	F	2					0	SD	P	M	BP	1	0	0	0	R	
MHT	5	C	141		2	LYETA		7	83	10	LP	C	2					0	SD	M	G	BP	.1	0	0	0	R	
MHT	5	C	142		2	MYETA		7	83	10	LP	C	2					0	SD	M	G	BP	.2	0	0	0	R	
MHT	5	C	143	6	2	MYETA		5	80	15	GR	VF	2					0	SD	P	M	BP	1	0	0	0	C	
MHT	5	C	144	0																								
MHT	5	C	145		2	MYETA		7	86	7	GR	M	2					0	SD	M	G	BP	1	0	0	0	C	
MHT	5	C	146		2	LYETA	MTLGY	0	45	55	VC	CL						0	SDCL		P	BP	2	0	0	0	C	
MHT	5	C	147		2	LYETA	MTLGY	0	75	25	VC	VF	2					0	CLSD	P	M	BP	1	0	0	0	A	
MHT	5	C	148		2	LYETA	WSP	2	58	40	GR	VF	2					0	CLSD	P	M	BP	2	0	0	0	A	
MHT	5	C	149		2	MYETA	MTDRE	10	75	15	LP	F	2					0	SD	P	M	BP	2	0	0	0	A	
MHT	5	C	150		2	LTA	BDBRMTWH	15	65	20	LP	M	2					0	SD	P	M	BP	1	0	0	0	A	
MHT	5	C	151	4	2	MTA		5	85	10	GR	M	3					0	SD	M	G	BP	1	0	0	0	C	
MHT	5	C	152		2	MTA	BWHTA	2	95	3	GR	C	2					0	SD	W	E	BP	1	0	0	0	A	

AREA	NO	SCR	DEPTH	REC	IND	COLOR	STRUCTURE	%GR	%SD	%MD	MX	MD	R	%CG	%CS	%CM	%CMT	%CAR	NAME	SO	%POR	TYPE	%MUS	%GLA	%LIG	%SUL	H	FOSSILS
MHT	5	C	153		2	LTA	ICLWSP	0	93	7	VC	F	3					0	SD	M	E	BP	5	0	0	0	A	
MHT	5	C	154		2	LTA	MTLBR	0	90	5	C	F	3					0	SD	W	E	BP	3	0	0	0	A	
MHT	5	C	155		2	LYETA	MTDBR	5	50	45	GR	CL						0	CLSD	P	M	BP	2	0	0	0	A	
MHT	5	C	156	4	2	LYETA	MTLYE	7	78	15	LP	F	2					0	SD	M	M	BP	1	0	0	0	A	
MHT	5	C	157		2	LTA	MTDBR	7	88	5	GR	C	2					0	SD	M	G	BP	.5	0	0	0	C	
MHT	5	C	158		2	LTA	MTMYETA	0	90	10	VC	F	2					0	SD	M	G	BP	3	0	0	0	C	
MHT	5	C	159		2	LYE		5	88	7	GR	C	3					0	SD	M	G	BP	1	0	0	0	C	
MHT	5	C	160		2	DYETA	MTDBR	7	86	7	GR	C	3					0	SD	M	G	BP	0	0	0	0	A	
MHT	5	C	161		2	LTA		5	90	5	GR	F	2					0	SD	W	E	BP	1	0	0	0	C	
MHT	5	C	162	4	2	LYETA	WSPMTBR	3	62	35	GR	CL						0	CLSD	P	P	BP	3	0	0	0	A	
MHT	5	C	163		3	LTA	MTDRE	0	45	55	VC	CL						0	SDCL		P	BP	1	0	0	0	C	
MHT	5	C	164		2	LTA	BDYEBRPB	0	50	50	VC	CL						0	SDCL		P	BP	1	0	0	0	C	
MHT	5	C	165		2	LYETA	WSPMTDRE	0	40	60	VC	CL						0	SDCL		P	BP	1	0	0	0	C	
MHT	5	C	166		2	LYETA	WSPMTWH	2	43	55	GR	CL						0	SDCL		P	BP	1	0	0	0	C	
MHT	5	C	167		2	LYE	WSPMTWH	0	50	50	VC	CL						0	SDCL		P	BP	1	0	0	0	R	
MHT	5	C	168		2	LYE	WSPMTWH	10	35	55	GR	CL						0	SDCL		P	BP	2	0	0	0	C	
MHT	5	C	169		2	LYETA	BDREWSP	10	55	35	LP	CL						0	CLSD	P	P	BP	2	0	0	0	A	
MHT	5	C	170		2	LYETA	MTWHWSP	7	73	20	LP	M	3					0	SD	M	G	BP	1	0	0	0	C	
MHT	5	C	171		2	LGYOR	WSPICL	2	83	15	GR	C	2					0	SD	M	G	BP	1	0	0	0	R	
MHT	5	C	172		2	LGYOR	WSPICL	1	92	7	GR	C	2					0	SD	M	G	BP	1	0	0	0	R	
MHT	5	C	173		2	LGYTA	BDBR	1	74	25	GR	M	3					0	CLSD	P	M	BP	1	0	0	0	R	
MHT	5	C	174	6	2	LGYYE	BMOR	0	50	50	C	CL						0	SDCL		P	BP	1	0	0	0	C	
MHT	5	C	175	0																								
MHT	5	C	176		2	LGY	BMOR	0	95	5	C	F	3					0	SD	W	E	BP	1	0	0	0	R	
MHT	5	C	177		2	LGY	BMORICL	0	93	7	C	F	3					0	SD	M	G	BP	3	0	0	0	C	
MHT	5	C	178		2	LGYTA	BMORICL	1	44	55	GR	CL						0	SDCL		P	BP	.5	0	0	0	R	
MHT	5	C	179		2	LGY	BMORICL	0	95	5	VC	M	2					0	SD	W	E	BP	1	0	0	0	R	
MHT	5	C	180		2	LGY	BMOUICL	0	93	7	VC	M	2					0	SD	M	G	BP	3	0	0	0	C	
MHT	5	C	181		2	LORTA	BLGY	0	95	5	C	F	2					0	SD	W	E	BP	3	0	0	0	C	
MHT	5	C	182		2	LORTA	BLGY	0	45	55	M	CL						0	SDCL		P	BP	2	0	0	0	C	
MHT	5	C	183		2	LGY	WSPICL	0	85	15	C	VF	2					0	SD	W	E	BP	1	0	0	0	C	
MHT	5	C	184		2	LGY	WSPICL	3	94	3	GR	F	2					0	SD	W	E	BP	2	0	0	0	R	
MHT	5	C	185	0																								
MHT	5	C	186		3	LGYTA	MTMBR	3	82	15	GR	F	3					0	SD	M	G	BP	1	0	0	0	C	
MHT	5	C	187		2	MORTA		0	90	10	VC	M	2					0	SD	M	G	BP	1	0	0	0	C	
MHT	5	C	188		2	LORTA	WSP	0	85	15	VC	M	2					0	SD	M	G	BP	1	0	0	0	R	
MHT	5	C	189		2	LORTA	WSP	0	60	40	VC	CL						0	CLSD	P	M	BP	1	0	0	0	C	
MHT	5	C	190		2	LORTA	WSP	0	65	35	VC	CL						0	CLSD	P	M	BP	2	0	0	0	C	

AREA	NO	SCR	DEPTH	REC	IND	COLOR	STRUCTURE	%GR	%SD	%MD	MX	MD	R	%CG	%CS	%CM	%CMT	%CAR	NAME	SO	%POR	TYPE	%MUS	%GLA	%LIG	%SUL	H	FOSSILS
T.D.																												

AREA	NO	SCR	DEPTH	REC	IND	COLOR	STRUCTURE	%GR	%SD	%MD	MX	MD	R	%CG	%CS	%CM	%CMT	%CAR	NAME	SO	%POR	TYPE	%MUS	%GLA	%LIG	%SUL	H	FOSSILS
MHT	006	C	1		1	MREBR		0	95	5	VC	M	4					0	SD	M	G	BP	0	0	.1	0	R	
MHT	006	C	2	7	1	LBR		0	95	5	VC	M	4					0	SD	M	G	BP	0	0	.1	0	R	
MHT	006	C	3	8	1	MREBR		0	95	5	VC	M	4					0	SD	M	G	BP	0	0	.1	0	R	
MHT	006	C	4		1	MREBR		0	95	5	VC	M	4					0	SD	M	G	BP	0	0	0	0	R	
MHT	006	C	5		1	MREBR		0	90	10	VC	M	4					0	SD	M	G	BP	0	0	0	0	C	
MHT	006	C	6		2	MRE		0	90	10	VC	M	4					0	SD	M	G	BP	0	0	0	0	C	
MHT	006	C	7		2	MRE		0	90	10	VC	M	4					0	SD	M	G	BP	0	0	0	0	C	
MHT	006	C	8		2	MRE		0	90	10	VC	M	4					0	SD	M	G	BP	0	0	0	0	R	
MHT	006	C	9		2	MRE		0	85	15	VC	M	3					0	SD	P	M	BP	0	0	0	0	C	
MHT	006	C	10		2	MRE		0	85	15	VC	M	3					0	SD	P	M	BP	0	0	0	0	R	
MHT	006	C	11		2	MRE		0	85	15	VC	M	3					0	SD	P	M	BP	0	0	0	0	R	
MHT	006	C	12		2	MRE	MTLBR	0	85	15	VC	M	3					0	SD	P	M	BP	0	0	0	0	R	
MHT	006	C	13		2	MRE		0	80	20	VC	M	3					0	SD	P	M	BP	0	0	0	0	R	
MHT	006	C	14		2	MRE		0	80	20	VC	M	3					0	SD	P	M	BP	0	0	0	0	R	
MHT	006	C	15		2	MRE		0	80	20	VC	M	3					0	SD	P	M	BP	0	0	0	0	R	
MHT	006	C	16		2	MREBR	MTLBR	0	75	25	VC	F	3					0	CLSD	P	M	BP	0	0	0	0	R	
MHT	006	C	17		2	MRE		0	70	30	VC	F	3					0	CLSD	P	P	BP	0	0	0	0	R	
MHT	006	C	18	8	2	MRE		0	70	30	VC	F	3					0	CLSD	P	P	BP	0	0	0	0	R	
MHT	006	C	19		2	MRE		0	60	40	VC	F	3					0	CLSD	P	P	BP	0	0	0	0	R	
MHT	006	C	20		2	MRE		.1	60	40	GR	F	3					0	CLSD	P	P	BP	0	0	0	0	R	
MHT	006	C	21		2	MRE		.1	45	65	GR	CL	3					0	SDCL	V	P	MI	.1	0	0	0	R	
MHT	006	C	22		2	MRE		.1	40	60	GR	CL	3					0	SDCL	V	P	MI	.1	0	0	0	R	
MHT	006	C	23		2	MREBR		.1	45	55	GR	CL	3					0	SDCL	V	P	MI	.1	0	0	0	R	
MHT	006	C	24		2	MREBR		.1	40	60	GR	CL	3					0	SDCL	V	P	MI	.1	0	0	0	R	
MHT	006	C	25		2	MREBR		.1	40	60	GR	CL	3					0	SDCL	V	P	MI	.1	0	0	0	R	
MHT	006	C	26	5	2	MREBR		5	40	55	LP	CL	3					0	SDCL	V	P	MI	.1	0	0	0	R	
MHT	006	C	27		2	LREBR		5	60	35	LP	M	3					0	CLSD	V	P	BP	.1	0	0	0	C	
MHT	006	C	28	6	2	LREBR		.1	75	25	GR	M	3					0	CLSD	P	M	BP	.1	0	0	0	C	
MHT	006	C	29		2	DYEOR	MTMRE	.1	75	35	GR	M	3					0	CLSD	P	M	BP	.1	0	0	0	C	
MHT	006	C	30	6	2	DYEOR	MTMRE	.1	70	30	GR	M	3					0	CLSD	P	M	BP	.1	0	0	0	R	
MHT	006	C	31	8	2	MRE	MTDYEOR	.1	65	35	GR	M	3					0	CLSD	P	M	BP	.1	0	0	0	R	
MHT	006	C	32	0																								
MHT	006	C	33		2	MREBR		1	84	15	GR	C	3					0	SD	P	M	BP	.1	0	0	0	R	
MHT	006	C	34		2	MYEOR		1	79	20	GR	C	3					0	SD	P	M	BP	.1	0	0	0	R	
MHT	006	C	35	3	2	MYEOR		1	74	25	GR	M	3					0	CLSD	P	M	BP	.1	0	0	0	R	
MHT	006	C	36	5	2	LGYPU	MTLGY	0	25	75	VC	CL	3					0	SDCL	V	P	MI	.1	0	0	0	R	
MHT	006	C	37		2	LGYPU		.1	80	20	GR	C	3					0	SD	P	M	BP	.1	0	0	0	R	
MHT	006	C	38		2	LGYPU		.1	85	15	GR	C	3					0	SD	P	M	BP	.1	0	0	0	R	

AREA	NO	SCR	DEPTH	REC	IND	COLOR	STRUCTURE	%GR	%SD	%MD	MX	MD	R	%CG	%CS	%CM	%CMT	%CAR	NAME	SO	%POR	TYPE	%MUS	%GLA	%LIG	%SUL	H	FOSSILS
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MHT	006	C	39		2	LREBR		.1	85	15	GR	C	3					0	SD	P	M	BP	.1	0	0	0	R	
MHT	006	C	40		2	LYEOR		1	79	20	GR	C	3					0	SD	P	M	BP	.1	0	0	0	R	
MHT	006	C	41		2	LREBR		5	80	15	LP	VC	3					0	SD	P	M	BP	.1	0	0	0	R	
MHT	006	C	42		2	LREBR		10	75	15	LP	VC	3					0	SD	P	M	BP	.1	0	0	0	R	
MHT	006	C	43		2	LREBR		2	78	20	LP	VC	3					0	SD	P	M	BP	.1	0	0	0	R	
MHT	006	C	44		2	LREBR		3	87	10	LP	VC	3					0	SD	P	M	BP	.1	0	0	0	R	
MHT	006	C	45		2	LRE	MTLGY	0	45	55	M	CL	2					0	SDCL	V	P	MI	.1	0	0	0	C	
MHT	006	C	46		2	LGY	MTLRE	0	70	30	VC	M	3					0	CLSD	P	P	BP	.1	0	0	0	C	
MHT	006	C	47		2	LRE	MTLGY	0	60	40	VC	F	3					0	CLSD	V	P	BP	.1	0	0	0	C	
MHT	006	C	48		2	LRE	MTLGY	0	55	45	VC	F	3					0	CLSD	V	P	BP	.1	0	0	0	C	
MHT	006	C	49		2	MREBR		0	10	90	M	CL	2					0	CL	V	P	MI	.1	0	0	0	C	
MHT	006	C	50		2	LGYPU		0	5	95	M	CL	2					0	CL	V	P	MI	.1	0	0	0	A	
MHT	006	C	51		2	DGYPU	MTLGY	0	5	95	M	CL	2					0	CL	V	P	MI	.1	0	0	0	C	
MHT	006	C	52		2	DGYPU		0	35	65	C	CL	2					0	SDCL	V	P	MI	.1	0	0	0	C	
MHT	006	C	53		2	DGYPU	MTLGY	0	10	90	M	CL	2					0	CL	V	P	MI	.1	0	0	0	C	
MHT	006	C	54		2	DGYPU	MTLGY	0	25	75	M	CL	2					0	SDCL	V	P	MI	.1	0	0	0	C	
MHT	006	C	55	8	2	DGYPU		0	30	70	M	CL	2					0	SDCL	V	P	MI	.1	0	0	0	C	
MHT	006	C	56		2	DGYPU		0	75	25	VC	F	3					0	CLSD	P	P	BP	.1	0	0	0	R	
MHT	006	C	57		2	DGYPU		0	75	25	VC	F	3					0	CLSD	P	P	BP	.1	0	0	0	R	
MHT	006	C	58		2	DYEOR		5	80	15	GR	C	4					0	SD	G	P	BP	.1	0	0	0	C	
MHT	006	C	59		2	LRE	VARWH	5	85	10	LP	C	4					0	SD	G	P	BP	.1	0	0	0	R	
MHT	006	C	60		2	LRE	VARWH	10	80	10	UP	C	4					0	SD	G	P	BP	.1	0	0	0	C	
MHT	006	C	61		1	LGY		25	65	10	UP	VC	4					0	PBSD	G	P	BP	.1	0	0	0	R	
MHT	006	C	62	0																								
MHT	006	C	63		2	LGYPU	VARMYEBR	.1	85	15	GR	F	3					0	SD	G	M	BP	.1	0	0	0	C	
MHT	006	C	64		2	LGYPU		0	85	15	VC	F	3					0	SD	G	M	BP	.1	0	0	0	C	
MHT	006	C	65	6	2	LGYPU		0	85	15	VC	F	3					0	SD	G	M	BP	.1	0	0	0	C	
MHT	006	C	66		2	LGYPU		0	85	15	VC	F	3					0	SD	G	M	BP	.1	0	0	0	C	
MHT	006	C	67		2	LGYPU		0	85	15	VC	F	3					0	SD	G	M	BP	.1	0	0	0	C	
MHT	006	C	68		2	LGYPU		0	85	15	VC	F	3					0	SD	G	M	BP	.1	0	0	0	C	
MHT	006	C	69		2	DYEOR		0	85	15	VC	F	3					0	SD	G	M	BP	.1	0	0	0	C	
MHT	006	C	70		2	MGYPU	MTDYEOR	0	80	20	VC	F	3					0	SD	M	M	BP	.1	0	0	0	C	
MHT	006	C	71		2	LGYPU		0	80	20	VC	F	3					0	SD	M	M	BP	.1	0	0	0	C	
MHT	006	C	72		2	LYEOR	BWHBLPU	0	80	20	VC	F	3					0	SD	M	M	BP	.1	0	0	0	C	
MHT	006	C	73		2	DGYPU	BMYEBR	0	80	20	VC	F	3					0	SD	M	M	BP	.1	0	0	0	C	
MHT	006	C	74		2	DGYPU		0	80	20	VC	F	3					0	SD	M	M	BP	.1	0	0	0	C	
MHT	006	C	75	6	2	LGYPU		0	80	20	VC	F	3					0	SD	M	M	BP	.1	0	0	0	C	
MHT	006	C	76		1	LBR	BREBYE	0	80	20	VC	F	3					0	SD	M	M	BP	.1	0	0	0	C	

AREA	NO	SCR	DEPTH	REC	IND	COLOR	STRUCTURE	%GR	%SD	%MD	MX	MD	R	%CG	%CS	%CM	%CMT	%CAR	NAME	SO	%POR	TYPE	%MUS	%GLA	%LIG	%SUL	H	FOSSILS
MHT	006	C	77		1	MREPU		0	80	20	VC	F	3					0	SD	M	M	BP	.1	0	0	0	C	
MHT	006	C	78		1	MGYPU		0	85	15	VC	F	3					0	SD	M	M	BP	.1	0	0	0	C	
MHT	006	C	79		1	MGYPU	BLBR	0	85	15	VC	F	3					0	SD	M	G	BP	.1	0	0	0	R	
MHT	006	C	80		1	MGYPU	BLBR	0	90	10	VC	M	3					0	SD	M	G	BP	.1	0	0	0	C	
MHT	006	C	81		2	MGYPU		.1	94	6	GR	M	3					0	SD	M	G	BP	.1	0	0	0	C	
MHT	006	C	82		1	LYEOR		.1	94	6	GR	M	3					0	SD	M	G	BP	.1	0	0	0	C	
MHT	006	C	83		1	LYEOR		.1	94	6	GR	M	3					0	SD	M	G	BP	.1	0	0	0	C	
MHT	006	C	84		1	LYEOR		.1	94	6	GR	M	3					0	SD	M	G	BP	.1	0	0	0	R	
MHT	006	C	85		1	LYEOR		.1	94	6	GR	M	3					0	SD	M	G	BP	.1	0	0	0	R	
MHT	006	C	86		1	LYEOR		.1	94	6	GR	M	3					0	SD	M	G	BP	.1	0	0	0	R	
MHT	006	C	87		1	LYEOR		.1	95	5	GR	M	3					0	SD	M	G	BP	.1	0	0	0	R	
MHT	006	C	88		1	LYEOR		.1	95	5	GR	M	3					0	SD	M	G	BP	.1	0	0	0	R	
MHT	006	C	89		1	LYEOR		.1	95	5	GR	M	3					0	SD	M	G	BP	.1	0	0	0	C	
MHT	006	C	90		1	LYEOR		1	94	6	GR	M	3					0	SD	M	G	BP	.1	0	0	0	C	
MHT	006	C	91		1	LYEOR		1	92	6	GR	M	3					0	SD	M	G	BP	.1	0	0	0	R	
MHT	006	C	92		1	LYEOR		2	92	7	GR	M	3					0	SD	M	G	BP	.1	0	0	0	R	
MHT	006	C	93		1	LYEOR		1	92	6	GR	M	3					0	SD	M	G	BP	.1	0	0	0	R	
MHT	006	C	94		1	LYEOR		1	93	6	GR	M	3					0	SD	M	G	BP	.1	0	0	0	R	
MHT	006	C	95		1	LYEOR		1	93	5	GR	M	3					0	SD	M	G	BP	.1	0	0	0	R	
MHT	006	C	96		1	LYEOR		1	94	5	GR	M	3					0	SD	M	G	BP	.1	0	0	0	R	
MHT	006	C	97		1	LYEOR		1	94	5	GR	M	3					0	SD	M	G	BP	.1	0	0	0	R	
MHT	006	C	98		1	LYEOR		1	96	3	GR	M	3					0	SD	M	G	BP	.1	0	0	0	R	
MHT	006	C	99		1	LYEOR		1	94	5	GR	M	3					0	SD	M	G	BP	.1	0	0	0	R	
MHT	006	C	100		1	LYEOR		1	96	3	GR	M	3					0	SD	M	G	BP	.1	0	0	0	R	
MHT	006	C	101		1	DREOR		.1	90	10	LP	M	3					0	SD	M	G	BP	.1	0	0	0	C	
MHT	006	C	102		1	DREOR	ILYETACL	.1	65	35	GR	M	3					0	CLSD	P	M	BP	.1	0	0	0	C	
MHT	006	C	103		1	MGNYE	ILPICL	.1	80	20	GR	M	3					0	SD	P	M	BP	.1	0	0	0	C	
MHT	006	C	104		1	LYETA	ILTACL	.1	75	25	GR	M	3					0	CLSD	P	M	BP	.1	0	0	0	A	
MHT	006	C	105		1	MREOR		.1	85	15	GR	M	3					0	SD	M	G	BP	.1	0	0	0	C	
MHT	006	C	106		1	MREOR		1	94	5	LP	C	4					0	SD	M	G	BP	1	0	0	0	C	
MHT	006	C	107		1	DREOR		.1	92	8	GR	C	3					0	SD	M	G	BP	1	0	0	0	C	
MHT	006	C	108		1	DREOR	IPITACL	.1	80	20	GR	M	3					0	SD	P	G	BP	1	0	0	0	C	
MHT	006	C	109		2	DREOR		.1	90	10	LP	M	3					0	SD	M	G	BP	.1	0	0	0	C	
MHT	006	C	110	8	2	DREOR		1	89	10	LP	M	3					0	SD	M	G	BP	.1	0	0	0	C	
MHT	006	C	111		1	DOR	IDTACL	.1	65	35	GR	M	3					0	CLSD	P	M	BP	1	0	0	0	C	
MHT	006	C	112		2	MORTA		0	45	55	C	CL	3					0	SDCL	V	P	BP	.1	0	0	0	C	
MHT	006	C	113		2	MORTA	ISD	.1	60	40	LP	CL	3					0	CLSD	P	P	BP	.1	0	0	0	C	
MHT	006	C	114		2	LYETA	ISD	0	35	65	M	CL	2					0	SDCL	V	P	MI	.1	0	0	0	R	

AREA	NO	SCR	DEPTH	REC	IND	COLOR	STRUCTURE	%GR	%SD	%MD	MX	MD	R	%CG	%CS	%CM	%CMT	%CAR	NAME	SO	%POR	TYPE	%MUS	%GLA	%LIG	%SUL	H	FOSSILS
MHT	006	C	115		2	LGY	ISD	0	20	80	F	CL	2					0	CL	V	P	MI	1	0	0	0	R	
MHT	006	C	116		2	LGY		0	50	50	C	CL	2					0	SDCL	V	P	MI	.1	0	0	0	C	
MHT	006	C	117		2	MORBR		.1	80	20	GR	M	3					0	SD	P	M	BP	1	0	0	0	C	
MHT	006	C	118		2	LTAGY	ISD	0	40	60	M	CL	2					0	SDCL	V	P	BP	.1	0	0	0	C	
MHT	006	C	119		2	LGY		.1	65	35	GR	M	3					0	CLSD	P	P	BP	1	0	0	0	C	
MHT	006	C	120		2	LTAGY	IBRTASD	0	30	70	F	CL	2					0	SDCL	V	P	BP	.1	0	0	0	R	
MHT	006	C	121		2	DYETA	IGYCLISD	0	60	40	C	M	3				.1	0	CLSD	V	P	BP	.1	0	0	0	C	
MHT	006	C	122		2	DYETA	MTLGYCL	.1	70	30	GR	F	3					0	CLSD	P	P	BP	.1	0	0	0	C	
MHT	006	C	123		2	MTA	MTLGYCL	.1	75	25	GR	F	3					0	CLSD	P	P	BP	1	0	0	0	C	
MHT	006	C	124		2	MOR	ILGYCL	.1	85	15	GR	M	3					0	SD	P	M	BP	.1	0	0	0	C	
MHT	006	C	125		2	MBROR	MTLGY	.1	90	10	GR	M	3					0	SD	M	M	BP	1	0	0	0	C	
MHT	006	C	126		1	DYEOR		3	87	10	LP	C	4					0	SD	M	G	BP	.1	0	0	0	C	
MHT	006	C	127		1	DBROR	ICLSD	2	83	15	LP	C	4					0	SD	P	M	BP	.1	0	0	0	C	
MHT	006	C	128	9	1	DYEOR	IPBSD	5	85	10	LP	C	3					0	SD	P	M	BP	.1	0	0	0	C	
MHT	006	C	129		2	DBR		8	77	15	LP	C	3					0	SD	P	M	BP	.1	0	0	0	C	
MHT	006	C	130	2	1	DYEOR		10	70	20	LP	C	3					0	SD	P	M	BP	.1	0	0	0	C	
MHT	006	C	131		2	DORBR	ICLSD	.1	45	55	GR	CL	3					0	SDCL	V	P	BP	1	0	0	0	C	
MHT	006	C	132		3	DORBR	BMBRGY	0	4	96	F	CL	2					0	CL	V	P	MI	.1	0	0	0	R	
MHT	006	C	133		3	DBR	BLGY	0	2	98	F	CL	2					0	CL	V	P	MI	.1	0	0	0	R	
MHT	006	C	134	6	2	DORBR		1	93	6	GR	M	3					0	SD	P	M	BP	.1	0	0	0	C	
MHT	006	C	135		3	DBROR		1	89	10	GR	M	3					0	SD	P	M	BP	.1	0	0	0	C	
MHT	006	C	136	0																								
MHT	006	C	137	5	1	MGYTA	MTDPU	.1	95	5	GR	F	3				.1	0	SD	P	M	BP	.1	0	0	0	C	
MHT	006	C	138	0																								
MHT	006	C	139		2	DORBR		2	90	8	GR	C	4					0	SD	P	M	BP	.1	0	0	0	C	
MHT	006	C	140		1	DYEOR		1	94	5	GR	M	3					0	SD	M	G	BP	.1	0	0	0	C	
MHT	006	C	141		2	MBROR	WSPLGYCL	2	88	10	LP	M	3					0	SD	P	M	BP	1	0	0	0	C	
MHT	006	C	142	9	1	DYEOR		1	96	3	GR	M	3					0	SD	P	G	BP	1	0	0	0	C	
MHT	006	C	143		1	DYEOR		2	95	3	GR	M	3					0	SD	P	G	BP	1	0	0	0	C	
MHT	006	C	144	4	1	DOR		1	95	4	GR	M	2					0	SD	P	G	BP	1	0	0	0	C	
MHT	006	C	145		1	DYEOR		.1	96	4	GR	M	3					0	SD	P	G	BP	.1	0	0	0	C	
MHT	006	C	146		1	DYEOR		1	96	3	GR	C	3					0	SD	P	G	BP	.1	0	0	0	C	
MHT	006	C	147		1	MOR		.1	98	2	GR	C	3					0	SD	M	E	BP	.1	0	0	0	A	
MHT	006	C	148		1	MOR		1	94	5	LP	M	3					0	SD	M	G	BP	.1	0	0	0	C	
MHT	006	C	149		1	MOR		1	91	8	GR	M	3					0	SD	M	G	BP	.1	0	0	0	C	
MHT	006	C	150		1	MOR		2	93	5	LP	C	3					0	SD	P	G	BP	.1	0	0	0	C	
MHT	006	C	151		2	MBROR		2	93	5	GR	M	3					0	SD	P	G	BP	.1	0	0	0	C	
MHT	006	C	152		2	DORBR		2	92	6	GR	M	3					0	SD	P	G	BP	.1	0	0	0	C	

AREA	NO	SCR	DEPTH	REC	IND	COLOR	STRUCTURE	%GR	%SD	%MD	MX	MD	R	%CG	%CS	%CM	%CMT	%CAR	NAME	SO	%POR	TYPE	%MUS	%GLA	%LIG	%SUL	H	FOSSILS
MHT	006	C	153		2	DORBR	ICASDBTA	1	94	5	LP	M	3	0	99	0	0	2	CASD	M	G	BP	1	0	0	0	C	YEPL
MHT	006	C	154		2	DYEOR	MTDBR	.1	94	6	LP	F	2					0	SD	P	M	BP	.1	0	0	0	A	
MHT	006	C	155		2	LGNOR	BDORBR	.1	95	5	GR	F	2					0	SD	P	M	BP	.1	0	0	0	C	
MHT	006	C	156		2	DYEOR	BWHMTOR	2	90	8	GR	M	3					0	SD	M	M	BP	1	0	0	0	C	
MHT	006	C	157		2	DYEOR	MTWHMTOR	1	93	6	LP	M	3					0	SD	M	M	BP	1	0	0	0	C	
MHT	006	C	158		2	LGYTA	BDBRBWH	0	99	1	M	VF	1					0	SD	W	G	BP	2	0	0	0	A	
MHT	006	C	159		2	LORTA	BDBROR	0	99	1	M	VF	2					0	SD	W	G	BP	2	0	0	0	A	
MHT	006	C	160		2	LORTA	BDBROR	0	99	1	M	VF	2					0	SD	W	G	BP	2	0	0	0	A	
MHT	006	C	161		2	LGYTA	BDBR	0	97	3	M	F	2					0	SD	M	M	BP	3	0	0	0	C	
MHT	006	C	162		2	MGYTA	BBRBYEGY	1	94	5	GR	F	3					0	SD	M	M	BP	2	0	0	0	C	
MHT	006	C	163		2	DORYE	BDOR	3	94	3	LP	C	4					0	SD	M	E	BP	1	0	0	0	R	
MHT	006	C	164		1	DYEOR	BDBROR	1	95	4	GR	M	3					0	SD	M	G	BP	1	0	0	0	C	
MHT	006	C	165		1	DYEOR		1	96	3	GR	M	3					0	SD	M	E	BP	1	0	0	0	C	
MHT	006	C	166		1	DTAOR	WSPTACL	1	89	10	GR	M	3					0	SD	M	M	BP	1	0	0	0	C	
MHT	006	C	167		1	DBROR	BDOR	1	94	5	GR	C	3					0	SD	M	E	BP	.1	0	0	0	C	
MHT	006	C	168		3	DREBR	IFESDBWH	1	79	20	LP	F	2				1	0	SD	P	M	BP	1	0	0	0	C	
MHT	006	C	169		2	MYETA	BWHMTMPU	2	73	25	LP	M	3				1	0	CLSD	P	P	BP	1	0	0	0	C	
MHT	006	C	170		2	MYETA	BWHMTMPU	1	74	25	LP	F	3				.1	0	CLSD	P	P	BP	1	0	0	0	C	
MHT	006	C	171	6	2	DYETA	WSPWHBWH	2	88	10	GR	F	2					0	SD	P	M	BP	.1	0	0	0	C	
MHT	006	C	172		2	DYETA	MTMPU	3	89	8	LP	F	3					0	SD	P	M	BP	1	0	0	0	C	
MHT	006	C	173		2	DYETA	WSPPUWH	2	90	8	LP	F	3					0	SD	M	G	BP	1	0	0	0	C	
MHT	006	C	174		2	DYETA		1	91	8	LP	F	2					0	SD	M	G	BP	1	0	0	0	C	
MHT	006	C	175		2	DYETA	WSPWHCL	1	89	10	LP	F	2					0	SD	M	G	BP	1	0	0	0	C	
MHT	006	C	176	6	1	LORTA	MTBR	.1	97	3	GR	M	3					0	SD	W	E	BP	.1	0	0	0	C	
MHT	006	C	177		2	MYEOR	BMOR	.1	96	4	GR	M	3					0	SD	W	E	BP	.1	0	0	0	C	
MHT	006	C	178		2	DBROR	IFESD	.1	95	5	GR	C	3				.1	0	SD	W	E	BP	.1	0	0	0	C	
MHT	006	C	179		2	MGYTA	BORWSPCL	.1	94	6	GR	F	2					0	SD	W	E	BP	1	0	0	0	C	
MHT	006	C	180		2	MGYTA	BORWSPCL	.1	97	3	GR	M	2					0	SD	W	E	BP	1	0	0	0	C	
MHT	006	C	181		2	MYEOR	ILGYCL	.1	90	10	GR	M	3					0	SD	M	G	BP	1	0	0	0	C	
MHT	006	C	182		2	MYEGY	ILGYCL	.1	90	10	GR	M	3					0	SD	M	G	BP	1	0	0	0	C	
MHT	006	C	183		2	LYEGY	WSPWHCL	0	95	5	C	M	3				.1	0	SD	W	E	BP	1	0	0	0	C	
MHT	006	C	184		2	MYEOR	BMORXB	0	99	1	C	M	2					0	SD	W	E	BP	1	0	0	0	C	
MHT	006	C	185		2	LYETA	WSPWH	0	99	1	C	F	2					0	SD	W	E	BP	2	0	0	0	C	
MHT	006	C	186		2	LTAGY	WSPLOR	0	98	2	C	F	2					0	SD	W	E	BP	1	0	0	0	C	
MHT	006	C	187		2	MYEOR	ILGYCL	0	85	15	C	F	2					0	SD	M	G	BP	1	0	0	0	A	
MHT	006	C	188		2	LTAGY	WSPLOR	0	98	2	C	F	2					0	SD	W	E	BP	2	0	0	0	C	
MHT	006	C	189		2	DYEOR	BGYBDOR	0	92	8	C	F	2					0	SD	W	E	BP	2	0	0	0	C	
MHT	006	C	190		2	MYETA	BMYEOR	0	94	6	C	F	2					0	SD	W	E	BP	3	0	0	0	C	

AREA	NO	SCR	DEPTH	REC	IND	COLOR	STRUCTURE	%GR	%SD	%MD	MX	MD	R	%CG	%CS	%CM	%CMT	%CAR	NAME	SO	%POR	TYPE	%MUS	%GLA	%LIG	%SUL	H	FOSSILS
																												WHP, SAIC 1-100' 28-OCT-92
																												ADS, SAIC 101-190' 26-OCT-92
																												whp 29-OCT-92

AREA	NO	SCR	DEPTH	REC	IND	COLOR	STRUCTURE	%GR	%SD	%MD	MX	MD	R	%CG	%CS	%CM	%CMT	%CAR	NAME	SO	%POR	TYPE	%MUS	%GLA	%LIG	%SUL	H	FOSSILS
MHT	007	C	1		2	MYEBR		1	89	10	GR	F	3					0	SD	M	G	BP	0	0	0	0	C	
MHT	007	C	2		2	DRETA		2	83	15	GR	M	3					0	SD	M	G	BP	.1	0	0	0	C	
MHT	007	C	3		2	DBR		0	85	15	VC	M	1					0	SD	M	G	BP	0	0	0	0	C	
MHT	007	C	4		2	MRE		1	89	10	GR	M	2					0	SD	M	G	BP	.1	0	0	0	C	
MHT	007	C	5	5	2	DBR	BMRE	0	90	10	VC	M	1					0	SD	M	G	BP	0	0	0	0	C	
MHT	007	C	6	6	3	DRE		0	60	40	VC	CL						0	CLSD	P	M	BP	0	0	0	0	C	
MHT	007	C	7		3	DRE		0	60	40	VC	CL						0	CLSD	P	M	BP	.5	0	0	0	R	
MHT	007	C	8	5	3	DRE		1	64	35	GR	CL						0	CLSD	P	M	BP	0	0	0	0	R	
MHT	007	C	9		2	DRE	MTMYEBR	2	68	30	GR	CL						0	CLSD	P	M	BP	.1	0	0	0	R	
MHT	007	C	10	7	2	DRE		1	74	25	GR	CL						0	CLSD	P	M	BP	.5	0	0	0	C	
MHT	007	C	11		3	DRE	MTMYEBR	0	75	25	VC	CL						0	CLSD	P	M	BP	.5	0	0	0	R	
MHT	007	C	12		3	DRE		0	60	40	VC	CL						0	CLSD	P	P	BP	1	0	0	0	R	
MHT	007	C	13		3	DRE		0	75	25	VC	CL						0	CLSD	P	M	BP	0	0	0	0	R	
MHT	007	C	14	8	3	DRE		0	70	30	VC	CL						0	CLSD	P	M	BP	.1	0	0	0	R	
MHT	007	C	15	5	3	DRE		0	60	40	VC	CL						0	CLSD	P	P	BP	0	0	0	0	R	
MHT	007	C	16	8	3	DRE		0	55	45	VC	CL						0	CLSD	P	P	BP	0	0	0	0	C	
MHT	007	C	17		3	DRE	MTDYE	2	43	55	GR	CL						0	SDCL		P	BP	0	0	0	0	C	
MHT	007	C	18		3	DRE	MTDYE	1	39	60	GR	CL						0	SDCL		P	MI	.1	0	0	0	R	
MHT	007	C	19		3	DRE		0	50	50	VC	CL						0	SDCL		P	BP	.1	0	0	0	R	
MHT	007	C	20		3	DRE		2	38	60	GR	CL						0	SDCL		P	BP	.1	0	0	0	R	
MHT	007	C	21		3	DRE		0	70	30	VC	CL						0	CLSD	P	M	BP	.1	0	0	0	C	
MHT	007	C	22		3	DRE		0	40	60	VC	CL						0	SDCL		P	BP	.1	0	0	0	R	
MHT	007	C	23		3	DRE		0	50	50	VC	CL						0	CLSD	P	M	BP	0	0	0	0	R	
MHT	007	C	24	5	3	DRE		2	23	75	GR	CL						0	CL		P	MI	.5	0	0	0	R	
MHT	007	C	25	6	3	DRE		1	39	60	GR	CL						0	SDCL		P	MI	.1	0	0	0	R	
MHT	007	C	26	8	3	DRE		2	50	48	GR	CL						0	CLSD	P	M	BP	.1	0	0	0	C	
MHT	007	C	27		3	DRE		0	35	65	VC	CL						0	SDCL		P	MI	.5	0	0	0	C	
MHT	007	C	28	8	3	DRETA	MTMYE	0	40	60	VC	CL						0	SDCL		P	BP	.1	0	0	0	C	
MHT	007	C	29		3	MRETA	MTMYE	0	30	70	VC	CL						0	SDCL		P	MI	0	0	0	0	R	
MHT	007	C	30		3	MRETA	MTMYE	5	35	60	GR	CL						0	SDCL		P	MI	0	0	0	0	C	
MHT	007	C	31		4	MRETA	MTMYE	0	50	50	C	CL						0	CLSD	P	P	BP	0	0	0	0	C	
MHT	007	C	32		4	MRETA	MTMYE	0	25	75	VC	CL						0	SDCL		P	MI	.5	0	0	0	C	
MHT	007	C	33		3	MRETA	BMYE	0	20	80	VC	CL						0	CL		P	MI	.1	0	0	0	C	
MHT	007	C	34		3	MRETA	BMYE	.1	15	85	GR	CL						0	CL		P	MI	.1	0	0	0	C	
MHT	007	C	35	6	3	MRETA	BLBRYE	.5	60	40	VC	CL						0	CLSD	P	P	BP	1	0	0	0	R	
MHT	007	C	36	9	2	LBRYE	MTMPITA	7	68	25	GR	CL						0	CLSD	P	P	BP	2	0	0	0	R	
MHT	007	C	37		4	MPITA	MTMYE	7	68	25	GR	CL						0	CLSD	P	P	BP	.5	0	0	0	R	
MHT	007	C	38		4	MPITA	MTDYE	20	45	35	LP	CL						0	CLSD	P	P	BP	3	0	0	0	C	

AREA	NO	SCR	DEPTH	REC	IND	COLOR	STRUCTURE	%GR	%SD	%MD	MX	MD	R	%CG	%CS	%CM	%CMT	%CAR	NAME	SO	%POR	TYPE	%MUS	%GLA	%LIG	%SUL	H	FOSSILS
MHT	007	C	39		4	MPITA	MTLYE	15	45	40	GR	CL						0	CLSD	P	P	BP	.5	0	0	0	R	
MHT	007	C	40		4	MPITA	MTLYEIPB	20	35	45	LP	CL						0	SDCL		P	MI	1	0	0	0	R	
MHT	007	C	41		4	MPITA	BDPU	10	20	70	GR	CL						0	CL		P	MI	.1	0	0	0	R	
MHT	007	C	42		4	MPITA	BDPUIPB	7	53	40	LP	CL						0	CLSD	P	P	BP	1	0	0	0	R	
MHT	007	C	43		3	MPITA	MTDYE	5	60	35	GR	CL						0	CLSD	P	P	BP	1	0	0	0	R	
MHT	007	C	44		3	MPITA	BMYETA	5	50	45	GR	CL						0	CLSD	P	P	BP	2	0	0	0	R	
MHT	007	C	45	6	2	MPITA	MBYETA	5	60	35	LP	CL						0	CLSD	P	P	BP	.5	0	0	0	R	
MHT	007	C	46	9	2	MPITA	BMYETA	10	65	25	GR	C	3					0	CLSD	P	P	BP	3	0	0	0	R	
MHT	007	C	47		2	MYETA	MBPUTA	7	68	25	GR	C	3					0	CLSD	P	P	BP	1	0	0	0	R	
MHT	007	C	48		2	MYETA	BDYETA	20	60	20	LP	C	3					0	SD	P	M	BP	3	0	0	0	C	
MHT	007	C	49		3	MPUTA	BMPITA	10	70	20	GR	VC	3					0	SD	P	M	BP	1	0	0	0	C	
MHT	007	C	50		2	VARYE	BMPUICL	7	73	20	GR	C	2					0	SD	P	P	BP	3	0	0	0	C	
MHT	007	C	51		3	MBRYE	MTDRE	15	60	25	LP	C	3					0	CLSD	P	P	BP	.1	0	0	0	C	
MHT	007	C	52		3	MPUTA	BDYE	7	58	35	GR	C	2					0	CLSD	P	P	BP	2	0	0	0	R	
MHT	007	C	53		3	DPITA	BDPURE	7	68	25	GR	C	3					0	CLSD	P	P	BP	.1	0	0	0	C	
MHT	007	C	54		3	VARYE	MTWHICL	5	75	20	GR	M	3					0	SD	M	G	BP	1	0	0	0	R	
MHT	007	C	55		3	DPITA	BWH	15	60	25	GR	C	3					0	CLSD	P	P	BP	.1	0	0	0	R	
MHT	007	C	56		3	VARYE	BDBR	10	70	20	GR	M	2					0	SD	M	G	BP	1	0	0	0	C	
MHT	007	C	57		3	VARRE	MTGN	2	13	85	GR	CL						0	CL		P	MI	1	0	0	0	C	
MHT	007	C	58		3	VARRE	MTYEBMTA	0	50	50	VC	CL						0	CLSD	P	P	BP	3	0	0	0	C	
MHT	007	C	59		2	VARRE	BMTAMTYE	0	50	50	VC	CL						0	CLSD	P	P	BP	3	0	0	0	C	
MHT	007	C	60		2	VARRE	BMYE	0	50	50	VC	CL						0	CLSD	P	P	BP	3	0	0	0	C	
MHT	007	C	61		3	MTA		7	20	73	GR	CL						0	CL		P	MI	0	0	0	0	C	
MHT	007	C	62		3	VARRE		0	30	70	VC	CL						0	SDCL		P	MI	2	0	0	0	C	
MHT	007	C	63		3	VARRE		0	40	60	VC	CL						0	SDCL		P	BP	1	0	0	0	C	
MHT	007	C	64		3	VARPU		0	85	15	VC	M	2					0	SD	M	G	BP	5	0	0	0	C	
MHT	007	C	65		3	VARPU	BMREORTA	0	85	15	C	F	2					0	SD	M	G	BP	2	0	0	0	R	
MHT	007	C	66		2	VARPU	MTDYETA	0	80	20	C							0	SD	M	G	BP	2	0	0	0	C	
MHT	007	C	67		2	VARPU	BDPITA	0	65	35	C	F	3					0	CLSD	P	M	BP	2	0	0	0	C	
MHT	007	C	68		2	VARPU	MTDREPU	2	68	30	GR	F	2					0	CLSD	P	P	BP	0	0	0	0	C	
MHT	007	C	69		2	VARPU	MTDREPU	0	65	35	VC	F	2					0	CLSD	P	P	BP	1	0	0	0	C	
MHT	007	C	70		2	VARRE	MTDOR	0	80	20	VC	M	3					0	SD	M	G	BP	.1	0	0	0	C	
MHT	007	C	71		2	DPU	BMTA	3	82	15	GR	M	3					0	SD	M	G	BP	.1	0	0	0	R	
MHT	007	C	72	6	2	MTA		2	88	10	GR	M	2					0	SD	M	G	BP	1	0	0	0	C	
MHT	007	C	73		2	MYEBR	MTDYE	2	58	40	GR	F	3					0	CLSD	P	M	BP	0	0	0	0	C	
MHT	007	C	74		2	MPITA	MTLYE	3	90	7	GR	M	3					0	SD	M	E	BP	1	0	0	0	C	
MHT	007	C	75		2	LPITA	BMPITA	3	87	10	GR	M	3					0	SD	M	G	BP	0	0	0	0	R	
MHT	007	C	76	8	2	LPITA	BMORTA	0	90	10	VC	M	3					0	SD	M	G	BP	.1	0	0	0	C	

AREA	NO	SCR	DEPTH	REC	IND	COLOR	STRUCTURE	%GR	%SD	%MD	MX	MD	R	%CG	%CS	%CM	%CMT	%CAR	NAME	SO	%POR	TYPE	%MUS	%GLA	%LIG	%SUL	H	FOSSILS
MHT	007	C	77		2	MORTA	BDPITA	3	87	10	GR	C	2					0	SD	M	G	BP	1	0	0	0	C	
MHT	007	C	78		2	MORTA	MTLYE	5	80	15	GR	C	3					0	SD	M	G	BP	1	0	0	0	C	
MHT	007	C	79	8	2	DPITA		2	91	7	GR	M	1					0	SD	M	E	BP	2	0	0	0	C	
MHT	007	C	80	0																								
MHT	007	C	81		2	MYETA	BDPITA	2	88	10	GR	M	2					0	SD	M	E	BP	.5	0	0	0	C	
MHT	007	C	82	6	2	MYETA	BLYETA	2	91	7	GR	C	2					0	SD	M	E	BP	1	0	0	0	C	
MHT	007	C	83		2	LYETA	BPITA	3	90	7	GR	M	2					0	SD	M	E	BP	0	0	0	0	C	
MHT	007	C	84		2	LYETA		15	75	10	GR	M	2					0	SD	M	G	BP	.1	0	0	0	R	
MHT	007	C	85	6	2	MTA		7	83	10	GR	M	2					0	SD	M	G	BP	0	0	0	0	C	
MHT	007	C	86	8	2	LYETA		7	83	10	GR	M	2					0	SD	M	G	BP	0	0	0	0	R	
MHT	007	C	87		2	MYETA		10	80	10	GR	C	1					0	SD	M	E	BP	0	0	0	0	R	
MHT	007	C	88		2	LYETA		5	88	7	GR	C	3					0	SD	M	G	BP	0	0	0	0	C	
MHT	007	C	89		2	MYETA	BMTA	7	88	5	GR	C	2					0	SD	W	E	BP	0	0	0	0	R	
MHT	007	C	90		2	MREOR	BVARYETA	3	87	10	GR	C	3					0	SD	M	E	BP	3	0	0	0	R	
MHT	007	C	91		2	MORTA	BBK	5	85	10	GR	C	3					0	SD	M	G	BP	0	0	0	0	C	
MHT	007	C	92		2	DYETA	IPB	2	83	15	GR	M	2					0	SD	M	G	BP	0	0	0	0	C	
MHT	007	C	93		3	LORTA	ICL	7	63	30	GR	CL						0	CLSD	P	M	BP	0	0	0	0	C	
MHT	007	C	94		3	LORTA		2	33	65	GR	CL						0	SDCL		P	MI	0	0	0	0	R	
MHT	007	C	95		2	MTA	ICLBLYE	5	45	50	GR	CL						0	SDCL		P	BP	2	0	0	0	C	
MHT	007	C	96		2	LYETA	ICL	3	72	25	GR	F	2					0	CLSD	P	M	BP	2	0	0	0	C	
MHT	007	C	97		2	MTA	ICL	5	10	85	GR	CL						0	CL		P	MI	.1	0	0	0	C	
MHT	007	C	98		2	LYETA	MTWH	2	93	5	GR	M	1					0	SD	W	E	BP	2	0	0	0	A	
MHT	007	C	99		2	MYETA	BMT	0	93	7	VC	F	1					0	SD	W	E	BP	2	0	0	0	A	
MHT	007	C	100		2	MYETA	MTWH	0	90	10	VC	M	1					0	SD	M	G	BP	5	0	0	0	A	
MHT	007	C	101		2	MTA		3	17	80	LP	CL						0	CL		P	MI	.1	0	0	0	C	
MHT	007	C	102		2	LYE		0	95	5	VC	M	2					0	SD	W	E	BP	1	0	0	0	C	
MHT	007	C	103		2	LYA	MTBK	3	90	7	GR	M	3					0	SD	W	E	BP	3	0	0	0	C	
MHT	007	C	104		3	MTA	MTBK	0	10	90	VC	CL						0	CL		P	MI	.1	0	0	0	R	
MHT	007	C	105		3	MTA	BLGN	3	30	67	GR	CL						0	SDCL		P	MI	0	0	0	0	C	
MHT	007	C	106		3	LGN		0	2	98	M	CL						0	CL		P	MI	.5	0	0	0	R	
MHT	007	C	107		3	LGN	BMTA	0	30	70	VC	CL						0	SDCL		P	MI	1	0	0	0	C	
MHT	007	C	108		3	LGY	BDOR	0	1	99	M	CL						0	CL		P	MI	3	0	0	0	R	
MHT	007	C	109		3	LGNGY	MTDOR	0	1	99	M	CL						0	CL		P	MI	2	0	0	0	R	
MHT	007	C	110		3	LGNGY	MTDOR	0	1	99	M	CL						0	CL		P	MI	1	0	0	0	R	
MHT	007	C	111		3	LGNGY	MTDOR	0	1	99	C	CL						0	CL		P	MI	1	0	0	0	R	
MHT	007	C	112		3	LGNGY	MTDOR	0	1	99	M	CL						0	CL		P	MI	1	0	0	0	R	
MHT	007	C	113		3	LGNGY	MTDOR	0	1	99	M	CL						0	CL		P	MI	1	0	0	0	R	
MHT	007	C	114		3	LGNGY	MTDOR	0	1	99	C	CL						0	CL		P	MI	1	0	0	0	R	

AREA	NO	SCR	DEPTH	REC	IND	COLOR	STRUCTURE	%GR	%SD	%MD	MX	MD	R	%CG	%CS	%CM	%CMT	%CAR	NAME	SO	%POR	TYPE	%MUS	%GLA	%LIG	%SUL	H	FOSSILS
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MHT	007	C	115		3	LGNGY	MTDOR	0	20	80	C	CL						0	CL		P	MI	2	0	0	0	R	
MHT	007	C	116		2	DOR	BLGNGY	0	20	80	VC	CL						0	CL		P	MI	3	0	0	0	R	
MHT	007	C	117		3	LGNGY	BDOR	5	60	35	LP	CL						0	CLSD	P	P	BP	1	0	0	0	R	
MHT	007	C	118		2	DOR		3	90	7	LP	VC	2					0	SD	M	G	BP	2	0	0	0	R	
MHT	007	C	119		2	DORBR		5	15	80	GR	CL						0	CL		P	MI	1	0	0	0	R	
MHT	007	C	120		2	LORTA		10	80	10	LP	C	3					0	SD	M	G	BP	2	0	0	0	R	
MHT	007	C	121		2	DORTA	BWH	20	55	25	GR	C	2					0	CLSD	P	M	BP	3	0	0	0	C	
MHT	007	C	122		2	DORTA	BWH	20	55	25	LP	VC	2					0	CLSD	P	M	BP	5	0	0	0	R	
MHT	007	C	123		2	DORTA		25	60	15	GR	GR	3					0	PBSD	M	G	BP	3	0	0	0	R	
MHT	007	C	124		2	DORTA	MTWH	20	60	20	GR	C	3					0	SD	M	G	BP	3	0	0	0	C	
MHT	007	C	125	0																								
MHT	007	C	126		3	DORTA	ICLBDBR	35	45	20	LP	VC	1					0	PBSD	P	M	BP	2	0	0	0	A	
MHT	007	C	127		3	DBR	BLGNGY	5	15	80	GR	CL						0	CL		P	MI	3	0	0	0	C	
MHT	007	C	128		3	LGNGY	BDBR	0	2	98	M	CL						0	CL		P	MI	2	0	0	0	R	
MHT	007	C	129		3	LGNGY	MTDBR	0	1	99	F	CL						0	CL		P	MI	2	0	0	0	R	
MHT	007	C	130	0																								
MHT	007	C	131	6	3	LGNGY	BDBR	2	8	90	GR	CL						0	CL		P	MI	1	0	0	0	R	
MHT	007	C	132	0																								
MHT	007	C	133		3	LGNGY	IPBMTMBR	0	25	75	F	CL						0	SDCL		P	MI	3	0	0	0	R	
MHT	007	C	134		4	MBRTA	BLGY	0	70	30	C	CL						0	CLSD	P	P	BP	.1	0	0	0	R	
MHT	007	C	135	0																								
MHT	007	C	136	0																								
MHT	007	C	137	0																								
MHT	007	C	138		2	MBRTA		15	65	20	GR	C	3					0	SD	M	M	BP	1	0	0	0	R	
MHT	007	C	139		2	MBRTA		15	70	15	LP	F	2					0	SD	M	G	BP	.1	0	0	0	C	
MHT	007	C	140		2	MBRTA		0	85	15	VC	M	1					0	SD	M	G	BP	2	0	0	0	C	
MHT	007	C	141		2	MBRTA		3	82	15	GR	F	3					0	SD	P	M	BP	2	0	0	0	C	
MHT	007	C	142	8	2	MBRTA	BLBR	1	89	10	GR	F	3					0	SD	M	G	BP	2	0	0	0	A	
MHT	007	C	143	6	2	MBRTA		20	35	45	GR	CL						0	SDCL		P	MI	.5	0	0	0	C	
MHT	007	C	144	6	2	LBRTA		10	80	10	LP	C	3					0	SD	M	G	BP	1	0	0	0	R	
MHT	007	C	145		2	MBRTA		7	63	30	GR	CL						0	CLSD	P	M	BP	3	0	0	0	C	
MHT	007	C	146		2	DBRTA		1	74	25	GR	VF	3					0	CLSD	P	M	BP	.1	0	0	0	C	
MHT	007	C	147		2	LYETA	MTMBRTA	0	80	20	VC	M	2					0	SD	P	M	BP	1	0	0	0	A	
MHT	007	C	148		2	LYETA	MTWH	20	65	15	GR	F	2					0	SD	P	M	BP	3	0	0	0	A	
MHT	007	C	149		2	LYETA	MTDYE	15	75	10	GR	VF	2					0	SD	P	P	BP	3	0	0	0	A	
MHT	007	C	150		2	LYETA	MTWH	5	75	20	LP	F	3					0	SD	P	P	BP	5	0	0	0	C	
MHT	007	C	151		2	LYETA	MTWH	7	78	15	LP	C	2					0	SD	P	M	BP	1	0	0	0	R	
MHT	007	C	152	8	2	LYETA	MTWH	10	70	20	GR	VF	3					0	SD	P	M	BP	2	0	0	0	C	

AREA	NO	SCR	DEPTH	REC	IND	COLOR	STRUCTURE	%GR	%SD	%MD	MX	MD	R	%CG	%CS	%CM	%CMT	%CAR	NAME	SO	%POR	TYPE	%MUS	%GLA	%LIG	%SUL	H	FOSSILS
MHT	007	C	153		2	LYETA	MTWH	5	88	7	GR	C	3					0	SD	M	G	BP	3	0	0	0	C	
MHT	007	C	154	9	2	LYA		2	83	15	VC	VF	2					0	SD	M	G	BP	5	0	0	0	C	
MHT	007	C	155	3	2	LTA	BLYE	0	85	15	C	VF	2					0	SD	M	G	BP	2	0	0	0	C	
MHT	007	C	0																									
MHT	007	C	157		2	LTA		15	75	10	GR	F	2					0	SD	P	M	BP	3	0	0	0	R	
MHT	007	C	158		2	LTA		5	80	15	GR	M	3					0	SD	M	G	BP	2	0	0	0	C	
MHT	007	C	159		2	LTA	MTDOR	7	73	20	GR	M	3					0	SD	M	G	BP	1	0	0	0	C	
MHT	007	C	160		2	LTA	MTDOR	2	88	10	GR	C	2					0	SD	M	E	BP	1	0	0	0	C	
MHT	007	C	161		2	LTA	MTDBR	20	70	10	LP	C	2					0	SD	M	G	BP	.1	0	0	0	C	
MHT	007	C	162		2	LTA	BDOR	0	85	15	VC	C	3					0	SD	M	G	BP	2	0	0	0	R	
MHT	007	C	163		2	LTA	MTDBRRE	0	45	55	C	CL						0	SDCL	P	M	BP	.1	0	0	0	C	
MHT	007	C	164		2	LTA	MTDBRRE	5	35	60	GR	CL						0	SDCL		P	MI	1	0	0	0	C	
MHT	007	C	165		2	LTA	MTDRE	3	47	50	GR	CL						0	SDCL		P	BP	1	0	0	0	A	
MHT	007	C	166		2	LTA	MTDRE	5	65	30	GR	CL						0	CLSD	P	P	BP	0	0	0	0	A	
MHT	007	C	167		2	LTA	MTDRE	5	70	25	GR	F	2					0	CLSD	P	P	BP	3	0	0	0	A	
MHT	007	C	168	7	2	LTA	MTDRE	5	70	25	GR	F	3					0	CLSD	P	P	BP	1	0	0	0	R	
MHT	007	C	169		3	MYETA	MTDRE	7	78	15	LP	M	3					0	SD	M	M	BP	3	0	0	0	C	
MHT	007	C	170		2	LYETA	BWHGY	7	86	7	GR	M	3					0	SD	M	G	BP	1	0	0	0	C	
MHT	007	C	171		2	LYETA	MTDBR	0	80	20	VC	M	3					0	SD	M	G	BP	1	0	0	0	C	
MHT	007	C	172		2	LYETA	MTWH	0	20	80	VC	CL						0	CL		P	MI	1	0	0	0	C	
MHT	007	C	173		2	LTA	MTLORICL	1	89	10	GR	M	2					0	SD	M	E	BP	2	0	0	0	C	
MHT	007	C	174		2	LTA	MTDORICL	0	75	25	VC	M	3					0	CLSD	P	M	BP	.5	0	0	0	C	
MHT	007	C	175		2	LGY	MTDORICL	0	75	25	VC	F	2					0	CLSD	P	M	BP	2	0	0	0	C	
MHT	007	C	176		2	LGY	MTDORICL	0	60	40	VC	M	3					0	CLSD	P	P	BP	2	0	0	0	R	
MHT	007	C	177		2	LTA	MTLGYICL	0	80	20	VC	M	3					0	SD	M	E	BP	0	0	0	0	R	
MHT	007	C	178	8	2	LTA	MTLGYICL	0	85	15	VC	F	2					0	SD	M	E	BP	0	0	0	0	C	
MHT	007	C	179	3	2	LTA	BWHICL	0	75	25	VC	F	2					0	CLSD	P	M	BP	2	0	0	0	A	
MHT	007	C	180	4	2	MTA	BWHICL	0	50	50	C	CL						0	CLSD	P	P	BP	1	0	0	0	C	
MHT	007	C	181		2	LTA	ICL	0	75	25	VC	F	2					0	CLSD	P	P	BP	2	0	0	0	C	
MHT	007	C	182		2	LTA	ICL	0	85	15	VC	F	2					0	SD	M	G	BP	1	0	0	0	C	
MHT	007	C	183		2	LYETA	MTDOR	0	85	15	VC	M	2					0	SD	M	G	BP	1	0	0	0	C	
MHT	007	C	184	7	2	LYETA	MTDOR	0	25	75	VC	CL						0	SDCL		P	MI	.5	0	0	0	R	
MHT	007	C	185	0																								
MHT	007	C	186		2	LYETA	MTDORWSP	1	79	20	GR	F	2					0	SD	M	G	BP	0	0	0	0	C	
MHT	007	C	187		2	LYETA	MTDORWSP	2	83	15	GR	F	3					0	SD	M	G	BP	1	0	0	0	R	
MHT	007	C	188		2	LYETA	MTDORWSP	0	50	50	C	CL						0	CLSD	P	M	BP	.5	0	0	0	R	
MHT	007	C	189		2	LYETA	ICLMTDBR	0	45	55	C	CL						0	SDCL		P	BP	1	0	0	0	C	
MHT	007	C	190		2	LYETA	ICLMTDOR	0	60	40	VC	CL						0	CLSD	P	P	BP	.1	0	0	0	C	

AREA	NO	SCR	DEPTH	REC	IND	COLOR	STRUCTURE	%GR	%SD	%MD	MX	MD	R	%CG	%CS	%CM	%CMT	%CAR	NAME	SO	%POR	TYPE	%MUS	%GLA	%LIG	%SUL	H	FOSSILS
MHT	008	C	1		1	MRE		.1	92	8	GR	M	3					0	SD	M	G	BP	0	0	.1	0	R	
MHT	008	C	2		1	LBR		.1	95	5	GR	M	3					0	SD	M	E	BP	0	0	.1	0	R	
MHT	008	C	3		1	LBR		.1	95	5	GR	M	3					0	SD	M	E	BP	0	0	.1	0	R	
MHT	008	C	4		1	MREBR		.1	95	5	GR	M	3					0	SD	M	E	BP	0	0	.1	0	R	
MHT	008	C	5		1	MREBR		.1	95	5	GR	M	3					0	SD	M	E	BP	0	0	0	0	R	
MHT	008	C	6	6	1	MRE		.1	90	10	GR	M	3					0	SD	M	G	BP	0	0	0	0	R	
MHT	008	C	7		1	MRE		.1	90	10	GR	M	3					0	SD	M	G	BP	0	0	0	0	R	
MHT	008	C	8		2	MRE		.1	85	15	GR	M	3					0	SD	M	G	BP	0	0	0	0	R	
MHT	008	C	9		2	MRE		.1	85	15	GR	M	3					0	SD	M	G	BP	0	0	0	0	R	
MHT	008	C	10		2	MRE		.1	85	15	GR	M	3					0	SD	M	G	BP	0	0	0	0	R	
MHT	008	C	11		2	MRE		.1	85	15	GR	M	3					0	SD	M	G	BP	0	0	0	0	R	
MHT	008	C	12		2	MRE		0	80	20	VC	M	3					0	SD	M	M	BP	0	0	0	0	R	
MHT	008	C	13		2	MRE		0	80	20	VC	M	3					0	SD	M	M	BP	0	0	0	0	R	
MHT	008	C	14		2	MRE		0	80	20	VC	M	3					0	SD	M	M	BP	0	0	0	0	R	
MHT	008	C	15	6	2	MRE		0	80	20	VC	M	3					0	SD	M	M	BP	0	0	0	0	R	
MHT	008	C	16		2	MRE		.1	75	25	GR	M	3					0	CLSD	V	M	BP	0	0	0	0	R	
MHT	008	C	17		2	MRE		.1	70	30	GR	M	3					0	CLSD	V	P	BP	0	0	0	0	R	
MHT	008	C	18		2	MRE		.1	65	35	GR	F	3					0	CLSD	V	P	BP	0	0	0	0	R	
MHT	008	C	19		2	MRE		.1	60	40	GR	F	3					0	CLSD	V	P	BP	0	0	0	0	R	
MHT	008	C	20		2	MRE		.1	55	45	GR	F	3					0	CLSD	V	P	BP	0	0	0	0	R	
MHT	008	C	21		2	MRE		.1	45	55	GR	CL	3					0	SDCL	V	P	BP	0	0	0	0	R	
MHT	008	C	22		2	MRE		.1	45	55	GR	CL	3					0	SDCL	V	P	BP	0	0	0	0	R	
MHT	008	C	23		2	MRE		1	50	49	GR	VF	3					0	CLSD	V	P	BP	0	0	0	0	R	
MHT	008	C	24		2	MRE		1	50	49	GR	VF	3					0	CLSD	V	P	BP	0	0	0	0	R	
MHT	008	C	25		2	MRE		1	44	55	GR	CL	3					0	SDCL	V	P	BP	0	0	0	0	R	
MHT	008	C	26	6	2	MRE		1	54	45	GR	VF	2					0	CLSD	V	P	BP	.1	0	0	0	C	
MHT	008	C	27		2	MREBR	MTLYEOR	1	59	40	GR	VF	2					0	CLSD	V	P	BP	.1	0	0	0	C	
MHT	008	C	28		2	MREBR	MTLYEOR	0	65	35	VC	F	2					0	CLSD	V	P	BP	.1	0	0	0	C	
MHT	008	C	29		2	LYEOR	MTLREBR	0	65	35	VC	F	3					0	CLSD	P	P	BP	.1	0	0	0	C	
MHT	008	C	30		2	LYEOR	MTLREBR	0	70	30	VC	F	3					0	CLSD	P	P	BP	.1	0	0	0	C	
MHT	008	C	31		2	LYEOR	MTLREBR	0	70	30	VC	F	3					0	CLSD	P	M	BP	.1	0	0	0	C	
MHT	008	C	32		2	LYEOR	MTLREBR	0	75	25	VC	F	3					0	CLSD	P	M	BP	.1	0	0	0	C	
MHT	008	C	33		2	LYEOR	MTLREBR	0	70	30	VC	F	3					0	CLSD	P	M	BP	.1	0	0	0	C	
MHT	008	C	34		2	LYEOR	MTLREBR	5	85	10	LP	C	3					0	SD	P	M	BP	.1	0	0	0	C	
MHT	008	C	35		2	MYEOR	VARWH	2	78	20	GR	M	3					0	SD	P	M	BP	.1	0	0	0	C	
MHT	008	C	36	0																								
MHT	008	C	37		2	LYEOR		0	70	30	VC	F	3					0	CLSD	P	M	BP	.1	0	0	0	C	
MHT	008	C	38		2	MREBR		0	70	30	VC	F	3					0	CLSD	P	M	BP	.1	0	0	0	C	

AREA	NO	SCR	DEPTH	REC	IND	COLOR	STRUCTURE	%GR	%SD	%MD	MX	MD	R	%CG	%CS	%CM	%CMT	%CAR	NAME	SO	%POR	TYPE	%MUS	%GLA	%LIG	%SUL	H	FOSSILS
MHT	008	C	39		2	LGY	VARLGY	0	75	25	VC	F	3					0	CLSD	P	M	BP	.1	0	0	0	C	
MHT	008	C	40		2	LGY	VARLGY	0	75	25	VC	F	3					0	CLSD	P	M	BP	.1	0	0	0	C	
MHT	008	C	41		2	MREBR	VARLGY	0	80	20	VC	M	3					0	SD	P	M	BP	.1	0	0	0	C	
MHT	008	C	42		2	MREBR	VARMREBR	0	75	25	VC	F	3					0	CLSD	P	M	BP	.1	0	0	0	C	
MHT	008	C	43		2	MREBR		0	70	30	VC	F	3					0	CLSD	P	M	BP	.1	0	0	0	C	
MHT	008	C	44		2	MYEBR		.1	65	35	GR	F	3					0	CLSD	P	P	BP	.1	0	0	0	C	
MHT	008	C	45		1	MREBR		2	88	10	GR	C	3					0	SD	M	G	BP	.1	0	0	0	R	
MHT	008	C	46		1	LYEOR		15	70	15	UP	VC	4					0	SD	P	M	BP	0	0	0	0	R	
MHT	008	C	47		1	LREBR		15	70	15	LP	VC	4					0	SD	P	M	BP	0	0	0	0	R	
MHT	008	C	48		1	LYEOR		10	80	10	LP	VC	4					0	SD	P	M	BP	0	0	0	0	R	
MHT	008	C	49		1	LYEOR		8	82	10	LP	C	3					0	SD	P	M	BP	.1	0	0	0	R	
MHT	008	C	50		1	LREPU		5	85	10	LP	C	3					0	SD	P	M	BP	.1	0	0	0	R	
MHT	008	C	51		1	LREBR		5	85	10	LP	C	3					0	SD	P	M	BP	.1	0	0	0	R	
MHT	008	C	52		1	LREBR		5	85	10	LP	C	3					0	SD	P	M	BP	.1	0	0	0	R	
MHT	008	C	53		1	LREBR		5	85	10	LP	C	3					0	SD	P	M	BP	.1	0	0	0	R	
MHT	008	C	54		1	LREBR		5	85	10	LP	C	3					0	SD	P	M	BP	.1	0	0	0	R	
MHT	008	C	55		1	LREBR	MTLGYPU	5	80	15	LP	C	3					0	SD	P	M	BP	.1	0	0	0	R	
MHT	008	C	56		1	LREBR		5	80	15	LP	C	3					0	SD	P	M	BP	.1	0	0	0	R	
MHT	008	C	57		1	LGYPU		10	75	15	LP	C	3					0	SD	P	M	BP	.1	0	0	0	R	
MHT	008	C	58		1	LGYPU		10	75	15	LP	C	3					0	SD	P	M	BP	.1	0	0	0	R	
MHT	008	C	59		1	LREBR	MTLGYPU	5	85	10	GR	C	3					0	SD	P	M	BP	.1	0	0	0	R	
MHT	008	C	60		1	LGYPU	BMREPU	2	83	15	GR	M	3					0	SD	M	M	BP	.1	0	0	0	R	
MHT	008	C	61		2	LGYPU	BMREPU	0	85	15	C	F	2					0	SD	M	M	BP	.1	0	0	0	C	
MHT	008	C	62	7	2	LGYPU	BMREPU	0	85	15	C	F	2					0	SD	M	M	BP	.1	0	0	0	C	
MHT	008	C	63		1	LGYPU	BMREPU	0	85	15	C	F	3					0	SD	M	M	BP	.1	0	0	0	C	
MHT	008	C	64		2	LGYPU	BMREPU	0	85	15	VC	F	3					0	SD	M	M	BP	.1	0	0	0	C	
MHT	008	C	65		2	MREPU	BLGYPU	0	85	15	C	F	3					0	SD	M	M	BP	.1	0	0	0	C	
MHT	008	C	66		2	LGYPU		0	85	15	VC	F	3					0	SD	M	M	BP	.1	0	0	0	C	
MHT	008	C	67		2	LGYPU		0	85	15	C	F	3					0	SD	M	M	BP	.1	0	0	0	C	
MHT	008	C	68		2	LGYPU		0	85	15	C	F	3					0	SD	M	M	BP	.1	0	0	0	C	
MHT	008	C	69		2	LGYPU		0	85	15	C	F	3					0	SD	M	M	BP	.1	0	0	0	C	
MHT	008	C	70		2	LGYPU		0	85	15	VC	F	3					0	SD	M	M	BP	.1	0	0	0	C	
MHT	008	C	71	6	2	MREPU		0	85	15	VC	F	3					0	SD	M	M	BP	.1	0	0	0	C	
MHT	008	C	72		2	LGYPU		0	80	20	VC	F	3					0	SD	M	M	BP	.1	0	0	0	C	
MHT	008	C	73		2	LGYPU	BDYEOR	0	80	20	VC	F	3					0	SD	M	M	BP	.1	0	0	0	C	
MHT	008	C	74		2	LGYPU	BDYEOR	0	80	20	VC	F	3					0	SD	M	M	BP	.1	0	0	0	C	
MHT	008	C	75		1	MGYPU	BMREPU	0	80	20	VC	F	3					0	SD	M	M	BP	.1	0	0	0	C	
MHT	008	C	76		2	MGYPU	BMREPU	.1	94	6	GR	M	3					0	SD	M	G	BP	.1	0	0	0	R	

AREA	NO	SCR	DEPTH	REC	IND	COLOR	STRUCTURE	%GR	%SD	%MD	MX	MD	R	%CG	%CS	%CM	%CMT	%CAR	NAME	SO	%POR	TYPE	%MUS	%GLA	%LIG	%SUL	H	FOSSILS
MHT	008	C	77		2	MREPU		.1	90	10	GR	M	3					0	SD	M	G	BP	.1	0	0	0	C	
MHT	008	C	78		1	LYEOR		.1	94	6	GR	M	3					0	SD	M	G	BP	.1	0	0	0	R	
MHT	008	C	79		1	LYEOR		.1	94	6	GR	M	3					0	SD	M	G	BP	.1	0	0	0	R	
MHT	008	C	80		1	LYEOR		.1	94	6	GR	M	3					0	SD	M	G	BP	.1	0	0	0	R	
MHT	008	C	81		1	LYEOR		.1	94	6	GR	M	3					0	SD	M	G	BP	.1	0	0	0	R	
MHT	008	C	82		1	LYEOR		.1	96	4	GR	M	3					0	SD	M	G	BP	.1	0	0	0	C	
MHT	008	C	83		1	LYEOR		1	94	5	GR	M	3					0	SD	M	G	BP	.1	0	0	0	R	
MHT	008	C	84		1	LYEOR		1	94	5	GR	M	3					0	SD	M	G	BP	.1	0	0	0	C	
MHT	008	C	85		1	LYEOR		1	94	5	GR	M	3					0	SD	M	G	BP	.1	0	0	0	R	
MHT	008	C	86	6	1	LYEOR		1	94	5	GR	M	3					0	SD	M	G	BP	.1	0	0	0	R	
MHT	008	C	87		1	LYEOR		1	94	5	GR	M	3					0	SD	M	G	BP	.1	0	0	0	R	
MHT	008	C	88		1	LYEOR		1	94	5	GR	M	3					0	SD	M	G	BP	.1	0	0	0	R	
MHT	008	C	89		1	LYEOR		1	94	5	GR	M	3					0	SD	M	G	BP	.1	0	0	0	R	
MHT	008	C	90		1	LYEOR		2	93	5	GR	M	3					0	SD	M	G	BP	.1	0	0	0	R	
MHT	008	C	91		1	LYEOR		2	93	5	GR	M	4					0	SD	M	G	BP	.1	0	0	0	R	
MHT	008	C	92		1	LYEOR		4	91	5	GR	M	4					0	SD	M	G	BP	.1	0	0	0	R	
MHT	008	C	93		1	LYEOR		4	91	5	LP	M	4					0	SD	M	G	BP	.1	0	0	0	R	
MHT	008	C	94		1	LYEOR		4	91	5	LP	M	4					0	SD	M	G	BP	.1	0	0	0	C	
MHT	008	C	95		1	LYEOR		3	92	5	GR	C	4					0	SD	M	G	BP	.1	0	0	0	C	
MHT	008	C	96	6	1	LYEOR		2	90	8	LP	C	4					0	SD	M	G	BP	.1	0	0	0	C	
MHT	008	C	97		1	MREBR		4	91	5	LP	C	4					0	SD	M	G	BP	.1	0	0	0	C	
MHT	008	C	98		2	MREBR	ICL	0	70	30	VC	F	3					0	CLSD	P	M	BP	.1	0	0	0	C	
MHT	008	C	99		2	MYEBR	ISD	0	10	90	C	CL	3					0	CL	V	P	MI	.1	0	0	0	R	
MHT	008	C	100		1	LBR		5	80	15	LP	C	3					0	SD	P	M	BP	.1	0	0	0	R	
MHT	008	C	101		2	LYEOR		4	86	10	LP	M	4					0	SD	P	G	BP	.1	0	0	0	R	
MHT	008	C	102		1	LYEOR		4	86	10	LP	M	4					0	SD	P	G	BP	.1	0	0	0	C	
MHT	008	C	103		1	LYEOR		0	93	7	VC	M	4					0	SD	W	E	BP	.1	0	0	0	A	
MHT	008	C	104		1	LYEOR		0	94	6	VC	M	4					0	SD	W	E	BP	.1	0	0	0	C	
MHT	008	C	105	2	1	LBR		0	95	5	VC	M	4					0	SD	W	E	BP	.1	0	0	0	C	
MHT	008	C	106	3	1	LBR		0	95	5	VC	M	4					0	SD	W	E	BP	.1	0	0	0	A	
MHT	008	C	107		1	LYEOR		0	95	5	VC	M	4					0	SD	W	E	BP	.1	0	0	0	A	
MHT	008	C	108		1	LYEOR		0	95	5	VC	F	4					0	SD	W	E	BP	.1	0	0	0	A	
MHT	008	C	109		1	LYEOR		0	95	5	VC	F	4					0	SD	W	E	BP	.1	0	0	0	A	
MHT	008	C	110		1	DYEOR	ILBRCL	0	80	20	VC	F	3					0	SD	M	M	BP	.1	0	0	0	C	
MHT	008	C	111		1	LBR	ILBRCL	0	75	25	VC	F	3					0	CLSD	P	M	BP	.1	0	0	0	C	
MHT	008	C	112		2	TA	WSPLBRSD	0	2	98	M	CL	3					0	CL	V	P	MI	.1	0	0	0	R	
MHT	008	C	113		2	TA		0	2	98	M	CL	3					0	CL	V	P	MI	.1	0	0	0	R	
MHT	008	C	114		2	LGY	IMBRSD	0	10	90	VC	CL	3					0	CL	V	P	MI	.1	0	0	0	R	

AREA	NO	SCR	DEPTH	REC	IND	COLOR	STRUCTURE	%GR	%SD	%MD	MX	MD	R	%CG	%CS	%CM	%CMT	%CAR	NAME	SO	%POR	TYPE	%MUS	%GLA	%LIG	%SUL	H	FOSSILS
MHT	008	C	115		2	LGY	IDYEORSD	0	25	75	VC	CL	3					0	SDCL	V	P	MI	.1	0	0	0	R	
MHT	008	C	116	6	2	LGY	IDYEORSD	0	25	75	VC	CL	3					0	SDCL	V	P	MI	.1	0	0	0	R	
MHT	008	C	117		1	LBR		.1	90	10	GR	M	3					0	SD	M	G	BP	.1	0	0	0	C	
MHT	008	C	118		1	MBR	ILGYCL	0	55	45	VC	VF	3					0	CLSD	V	P	BP	.1	0	0	0	C	
MHT	008	C	119		2	LGNGY	IMBRSD	0	20	80	VC	CL	3					0	CL	V	P	MI	.1	0	0	0	R	
MHT	008	C	120		2	LGNGY	IMBRSD	0	20	80	VC	CL	3					0	CL	V	P	MI	.1	0	0	0	R	
MHT	008	C	121		2	LGY	ISD	.1	35	65	GR	CL	3					0	SDCL	V	P	MI	.1	0	0	0	R	
MHT	008	C	122		1	DYEOR		0	92	8	VC	M	3					0	SD	M	G	BP	.1	0	0	0	C	
MHT	008	C	123		1	DYEOR	ILGYCL	0	65	35	VC	F	4					0	CLSD	V	P	BP	.1	0	0	0	C	
MHT	008	C	124		1	DYEOR	ILGYCL	0	75	25	VC	F	4					0	CLSD	P	M	BP	.1	0	0	0	C	
MHT	008	C	125	0																								
MHT	008	C	126		1	DYEOR		0	95	5	VC	M	3					0	SD	W	E	BP	.1	0	0	0	C	
MHT	008	C	127		1	DYEOR		0	95	5	VC	M	3					0	SD	W	E	BP	.1	0	0	0	C	
MHT	008	C	128		1	DYEOR		0	95	5	VC	M	3					0	SD	W	E	BP	.1	0	0	0	C	
MHT	008	C	129	6	1	DYEOR		0	95	5	VC	M	3					0	SD	W	E	BP	.1	0	0	0	C	
MHT	008	C	130	0																								
MHT	008	C	131		1	DYEOR	WSPLGYCL	.1	96	4	GR	M	3					0	SD	M	E	BP	.1	0	0	0	C	
MHT	008	C	132		1	DYEOR		0	96	4	VC	M	3					0	SD	M	E	BP	.1	0	0	0	C	
MHT	008	C	133		1	DYEOR		.1	96	4	GR	M	4					0	SD	M	E	BP	.1	0	0	0	C	
MHT	008	C	134		1	DYEOR		.1	95	5	GR	M	4					0	SD	M	E	BP	.1	0	0	0	C	
MHT	008	C	135		1	DYEOR		1	94	5	GR	M	4					0	SD	M	E	BP	.1	0	0	0	C	
MHT	008	C	136		1	DYEOR		1	94	5	GR	M	4					0	SD	M	E	BP	.1	0	0	0	C	
MHT	008	C	137		1	DYEOR	ILGYCL	2	83	5	GR	M	4					0	SD	M	E	BP	.1	0	0	0	C	
MHT	008	C	138		1	MBR		1	93	6	GR	M	4					0	SD	M	E	BP	.1	0	0	0	C	
MHT	008	C	139		1	DYEOR		1	91	8	GR	M	4					0	SD	M	E	BP	.1	0	0	0	C	
MHT	008	C	140		1	DYEOR		1	91	8	GR	M	3					0	SD	M	E	BP	.1	0	0	0	C	
MHT	008	C	141		1	DYEOR		1	89	10	GR	M	4					0	SD	P	G	BP	.1	0	0	0	C	
MHT	008	C	142		1	DYEOR		1	89	10	GR	M	4					0	SD	P	G	BP	.1	0	0	0	C	
MHT	008	C	143		1	DYEOR		2	88	10	GR	M	4					0	SD	P	G	BP	.1	0	0	0	C	
MHT	008	C	144		1	LGYOR	BLBR	1	84	15	GR	M	4					0	SD	P	M	BP	.1	0	0	0	C	
MHT	008	C	145	0																								
MHT	008	C	146		1	LGYOR	BLBR	1	84	15	GR	M	4					0	SD	P	M	BP	.1	0	0	0	C	
MHT	008	C	147		1	LGYOR	BLBR	2	83	15	GR	M	4					0	SD	P	M	BP	.1	0	0	0	C	
MHT	008	C	148		1	LGYOR	BLBR	2	83	15	GR	M	4					0	SD	P	M	BP	.1	0	0	0	C	
MHT	008	C	149		1	LGYOR	BLBR	1	84	15	GR	M	4					0	SD	P	M	BP	.1	0	0	0	C	
MHT	008	C	150		1	LGYOR	BLBR	2	83	15	GR	M	3					0	SD	P	M	BP	.1	0	0	0	C	
MHT	008	C	151		1	LGYOR	BLBR	5	80	15	LP	M	3					0	SD	P	M	BP	.1	0	0	0	C	
MHT	008	C	152		1	DYEOR		0	90	10	VC	F	3					0	SD	W	G	BP	.1	0	0	0	A	

AREA	NO	SCR	DEPTH	REC	IND	COLOR	STRUCTURE	%GR	%SD	%MD	MX	MD	R	%CG	%CS	%CM	%CMT	%CAR	NAME	SO	%POR	TYPE	%MUS	%GLA	%LIG	%SUL	H	FOSSILS
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MHT	008	C	153		1	DYEOR		0	90	10	VC	F	3					0	SD	W	G	BP	.1	0	0	0	A	
MHT	008	C	154		1	DYEOR		0	92	8	VC	F	3					0	SD	W	G	BP	.1	0	0	0	A	
MHT	008	C	155		1	DYEOR		0	93	7	VC	F	3					0	SD	W	G	BP	.1	0	0	0	A	
MHT	008	C	156		1	LYEOR	VARLBR	2	92	4	LP	M	3					0	SD	M	E	BP	.1	0	0	0	C	
MHT	008	C	157		1	LYEOR	VARLBR	1	95	4	GR	M	3					0	SD	M	E	BP	.1	0	0	0	C	
MHT	008	C	158		1	LYEOR	VARLBR	1	95	4	GR	M	3					0	SD	M	E	BP	.1	0	0	0	C	
MHT	008	C	159		1	LYEOR	VARLBR	1	95	4	GR	M	3					0	SD	M	E	BP	.1	0	0	0	C	
MHT	008	C	160		1	LYEOR	VARLBR	1	94	5	GR	M	3					0	SD	M	E	BP	.1	0	0	0	C	
MHT	008	C	161		1	LGYOR	VARLBR	.1	95	5	GR	M	4					0	SD	M	E	BP	.1	0	0	0	C	
MHT	008	C	162		1	DYEOR	FE	.1	80	20	GR	M	3				.1	0	SD	M	M	BP	.1	0	0	0	C	
MHT	008	C	163	6	1	DYEOR	FE	2	58	40	GR	VF	3				.1	0	CLSD	V	P	BP	.1	0	0	0	C	
MHT	008	C	164		1	DYEOR	FEBLGY	.1	80	20	GR	M	3				.1	0	SD	M	M	BP	.1	0	0	0	C	
MHT	008	C	165		1	DYEOR	BLGY	0	80	20	VC	F	3					0	SD	M	M	BP	.1	0	0	0	C	
MHT	008	C	166		1	DYEOR	BLGY	0	80	20	VC	F	3					0	SD	P	M	BP	.1	0	0	0	C	
MHT	008	C	167		1	DYEOR	BLGY	0	85	15	VC	M	3					0	SD	M	G	BP	.1	0	0	0	C	
MHT	008	C	168		1	DYEOR		0	85	15	VC	M	3					0	SD	M	G	BP	.1	0	0	0	C	
MHT	008	C	169		1	DYEOR	IFESD	0	85	15	VC	M	3				.1	0	SD	M	G	BP	.1	0	0	0	C	
MHT	008	C	170	6	1	DYEOR	ILGYCL	0	85	15	VC	M	3					0	SD	M	G	BP	.1	0	0	0	C	
MHT	008	C	171		1	LGYOR	WSPLGYCL	0	90	10	VC	F	3					0	SD	M	G	BP	.1	0	0	0	A	
MHT	008	C	172		1	LGYOR	WSPLGYCL	0	90	10	VC	F	3					0	SD	M	G	BP	.1	0	0	0	A	
MHT	008	C	173		1	LGYOR	WSPLGYCL	0	93	7	VC	M	3					0	SD	M	G	BP	.1	0	0	0	A	
MHT	008	C	174		1	LGYOR	WSPLGYCL	0	93	7	VC	M	3					0	SD	W	G	BP	.1	0	0	0	C	
MHT	008	C	175		1	LGYOR	WSPLGYCL	0	94	6	VC	M	3					0	SD	W	G	BP	.1	0	0	0	C	
MHT	008	C	176		1	LGYOR	WSPLGYCL	0	94	6	VC	M	3					0	SD	M	G	BP	.1	0	0	0	C	
MHT	008	C	177		1	LGYOR	WSPLGYCL	0	94	6	VC	M	3					0	SD	M	G	BP	.1	0	0	0	C	
MHT	008	C	178		1	LGYOR	WSPLGYCL	0	92	8	VC	F	3					0	SD	M	G	BP	.1	0	0	0	C	
MHT	008	C	179		1	LGYOR	WSPLGYCL	0	92	8	VC	F	3					0	SD	M	G	BP	.1	0	0	0	A	
MHT	008	C	180		1	LGYOR	WSPLGYCL	0	92	8	VC	F	3					0	SD	M	G	BP	.1	0	0	0	A	
MHT	008	C	181		1	LGYOR	ILGYCL	0	70	30	VC	VF	3					0	CLSD	P	M	BP	.1	0	0	0	C	
MHT	008	C	182		1	LGYOR	BDYEOR	0	90	10	VC	F	3					0	SD	M	G	BP	.1	0	0	0	C	
MHT	008	C	183		1	LGYOR	ILGYCL	0	90	10	VC	F	3					0	SD	M	G	BP	.1	0	0	0	C	
MHT	008	C	184		1	LGYOR	ILGYCL	0	60	40	VC	VF	3					0	CLSD	V	P	BP	.1	0	0	0	A	
MHT	008	C	185		1	LGYOR	ILGYCL	0	85	15	VC	M	3					0	SD	M	M	BP	.1	0	0	0	A	
MHT	008	C	186		1	LGYOR	BDYEOR	0	96	4	VC	M	3					0	SD	W	E	BP	.1	0	0	0	C	
MHT	008	C	187		1	LGYOR	BDYEOR	0	95	5	VC	M	3					0	SD	W	E	BP	.1	0	0	0	C	
MHT	008	C	188		1	LGYOR	WSPLGCL	0	95	5	VC	M	3					0	SD	W	E	BP	.1	0	0	0	C	
MHT	008	C	189		1	LGYOR	WSPLGYCL	0	95	5	VC	M	3					0	SD	W	E	BP	.1	0	0	0	A	
MHT	008	C	190		1	LGYOR	WSPLGYCL	0	92	8	VC	M	3					0	SD	W	E	BP	.1	0	0	0	A	

AREA	NO	SCR	DEPTH	REC	IND	COLOR	STRUCTURE	%GR	%SD	%MD	MX	MD	R	%CG	%CS	%CM	%CMT	%CAR	NAME	SO	%POR	TYPE	%MUS	%GLA	%LIG	%SUL	H	FOSSILS
																												SAIC, WHP
																												22-Oct-92
																												whp
																												27-Oct-92

AREA	NO	SCR	DEPTH	REC	IND	COLOR	STRUCTURE	%GR	%SD	%MD	MX	MD	R	%CG	%CS	%CM	%CMT	%CAR	NAME	SO	%POR	TYPE	%MUS	%GLA	%LIG	%SUL	H	FOSSILS
MHT	009	B	1		1	LTA	BDYEBR	0	92	8	VC	M	3				1	0	SD	M	G	BP	0	0	0	0	C	
MHT	009	B	2		1	LTA		0	94	6	VC	M	3					0	SD	W	E	BP	0	0	0	0	C	
MHT	009	B	3		1	MTWH	MTDYEBR	0	94	6	VC	M	3				1	0	SD	W	E	BP	0	0	0	0	C	
MHT	009	B	4	8	2	MOR		.1	94	6	GR	M	3					0	SD	W	E	BP	0	0	0	0	C	
MHT	009	B	5		2	MTMOR	MTLTA	.1	94	6	GR	M	3					0	SD	W	E	BP	0	0	0	0	C	
MHT	009	B	6		2	MREBR		.1	92	8	GR	M	3					0	SD	W	G	BP	0	0	0	0	C	
MHT	009	B	7		2	MREBR		0	90	10	VC	M	3					0	SD	M	G	BP	0	0	0	0	C	
MHT	009	B	8		2	MREBR		.1	90	10	GR	M	3					0	SD	M	G	BP	0	0	0	0	R	
MHT	009	B	9		2	MREBR		0	85	15	VC	M	3					0	SD	M	G	BP	0	0	0	0	C	
MHT	009	B	10		2	MREBR		0	90	10	VC	M	3					0	SD	M	G	BP	0	0	0	0	C	
MHT	009	B	11		2	MREBR		0	90	10	VC	M	3					0	SD	M	G	BP	0	0	0	0	C	
MHT	009	B	12		2	MREBR		0	92	8	VC	M	3					0	SD	M	G	BP	.1	0	0	0	C	
MHT	009	B	13		2	MREBR		0	92	8	VC	M	3					0	SD	M	G	BP	.1	0	0	0	C	
MHT	009	B	14		2	MREBR		0	90	10	VC	M	3					0	SD	M	G	BP	0	0	0	0	C	
MHT	009	B	15		2	MREBR		0	90	10	VC	M	3					0	SD	M	G	BP	0	0	0	0	C	
MHT	009	B	16	8	2	MREBR	ILREORSD	0	85	15	VC	M	3					0	SD	M	G	BP	.1	0	0	0	C	
MHT	009	B	17		2	MREBR	WSPDGYSD	0	90	10	C	M	3					0	SD	M	G	BP	.1	0	0	0	C	
MHT	009	B	18		2	MREBR	IWHSD	0	80	20	VC	M	3					0	SD	M	M	BP	.1	0	0	0	C	
MHT	009	B	19		3	MREBR	IMREBRSD	5	65	30	GR	M	3					0	CLSD	P	M	BP	.1	0	0	0	R	
MHT	009	B	20		3	MREBR		.1	40	60	GR	CL	3					0	SDCL	V	P	MI	.1	0	0	0	R	
MHT	009	B	21		3	MREBR		0	85	15	VC	M	3					0	SD	M	G	BP	.1	0	0	0	C	
MHT	009	B	22		3	MREBR	IMREBRSD	2	45	53	GR	CL	3					0	SDCL	V	P	MI	0	0	0	0	R	
MHT	009	B	23		3	MREBR	MTMGYSD	.1	40	60	GR	CL	3					0	SDCL	V	P	MI	0	0	0	0	R	
MHT	009	B	24		3	MREBR		.1	40	60	GR	CL	3					0	SDCL	V	P	MI	0	0	0	0	R	
MHT	009	B	25		3	MREBR		1	40	59	GR	CL	3					0	SDCL	V	P	MI	0	0	0	0	R	
MHT	009	B	26		3	MREBR		1	40	59	GR	CL	3					0	SDCL	V	P	MI	.1	0	0	0	C	
MHT	009	B	27		3	DREBR	MTMBRSD	10	45	45	GR	M	3					0	CLSD	V	M	BP	.1	0	0	0	C	
MHT	009	B	28	5	3	MREBR	MTBKSD	10	60	30	GR	C	3					0	CLSD	V	M	BP	1	0	0	0	R	
MHT	009	B	29		3	MREBR	MTDYEOR	10	55	35	LP	C	3					0	CLSD	V	M	BP	.1	0	0	0	C	
MHT	009	B	30		3	MREBR	MTDYEOR	15	45	40	UP	C	3					0	CLSD	V	M	BP	.1	0	0	0	R	
MHT	009	B	31		3	MREBR	MTDYEOR	3	67	30	GR	C	3					0	CLSD	P	M	BP	1	0	0	0	R	
MHT	009	B	32		3	MREBR	PUCLB	3	67	30	GR	C	3					0	CLSD	P	M	BP	1	0	0	0	R	
MHT	009	B	33		2	DYEOR	WHCLB	20	50	30	LP	C	3					0	CLSD	V	M	BP	.1	0	0	0	R	
MHT	009	B	34	3	2	DYEOR	WHCLB	15	60	25	LP	C	3					0	CLSD	P	M	BP	1	0	0	0	R	
MHT	009	B	35		2	DYEOR	WHCLB	8	62	30	LP	C	3					0	CLSD	P	M	BP	1	0	0	0	R	
MHT	009	B	36	6	2	DYEOR	WHCLB	8	72	20	LP	C	3					0	SD	P	M	BP	1	0	0	0	R	
MHT	009	B	37		2	DYEOR	WHCLB	8	72	20	LP	C	3					0	SD	P	M	BP	1	0	0	0	R	
MHT	009	B	38	7	3	MREOR	IDYEORSD	10	55	35	LP	C	3					0	CLSD	P	M	BP	2	0	0	0	R	

AREA	NO	SCR	DEPTH	REC	IND	COLOR	STRUCTURE	%GR	%SD	%MD	MX	MD	R	%CG	%CS	%CM	%CMT	%CAR	NAME	SO	%POR	TYPE	%MUS	%GLA	%LIG	%SUL	H	FOSSILS
MHT	009	B	39		2	MORPI	WHCLBBYE	15	65	20	LP	C	3					0	SD	P	M	BP	2	0	0	0	R	
MHT	009	B	40	0																								
MHT	009	B	41		2	DYEOR	YECLBBRE	3	82	25	GR	C	3					0	CLSD	P	M	BP	1	0	0	0	C	
MHT	009	B	42	3	2	DYEOR	YECLBBRE	1	84	15	GR	C	3					0	SD	M	G	BP	1	0	0	0	C	
MHT	009	B	43		2	DYEOR	BREIYECL	1	79	20	GR	C	3					0	SD	P	M	BP	2	0	0	0	C	
MHT	009	B	44	3	1	LYEOR		2	83	15	GR	F	3					0	SD	M	G	BP	2	0	0	0	A	
MHT	009	B	45		2	DYEOR	BREIGYCL	.1	80	20	GR	F	3					0	SD	P	M	BP	1	0	0	0	A	
MHT	009	B	46	4	2	DYEOR	BWH	3	82	25	LP	F	3					0	CLSD	P	M	BP	1	0	0	0	C	
MHT	009	B	47		2	MRE	BMYEBMGY	2	68	30	GR	F	3					0	CLSD	P	M	BP	.1	0	0	0	C	
MHT	009	B	48	4	2	MRE	BWHBYE	2	68	30	GR	F	3					0	CLSD	P	M	BP	.1	0	0	0	C	
MHT	009	B	49		2	MRE	BDYEOR	2	68	30	GR	F	3					0	CLSD	P	M	BP	1	0	0	0	C	
MHT	009	B	50	3	2	MREBR	IMYEGYCL	0	70	30	VC	M	3					0	CLSD	P	M	BP	1	0	0	0	C	
MHT	009	B	51		2	LRE	BWH	3	72	25	GR	M	3					0	CLSD	P	M	BP	1	0	0	0	A	
MHT	009	B	52	3	2	MGYPU	BMREBYE	0	85	15	VC	M	3					0	SD	M	G	BP	2	0	0	0	C	
MHT	009	B	53		2	MTMRE	MTWH	0	85	15	VC	M	3					0	SD	M	G	BP	1	0	0	0	C	
MHT	009	B	54	9	2	MPURE	BGYPUBWH	0	85	15	VC	M	3					0	SD	M	G	BP	1	0	0	0	C	
MHT	009	B	55		2	MGYPU	BWHBMRE	0	90	10	VC	M	3					0	SD	M	G	BP	1	0	0	0	C	
MHT	009	B	56	9	2	MGYPU	BWHBMRE	0	90	10	C	M	3					0	SD	M	G	BP	2	0	0	0	C	
MHT	009	B	57		2	MGYPU	BWHBMRE	0	85	15	VC	M	3					0	SD	M	G	BP	2	0	0	0	C	
MHT	009	B	58		2	MGYPU	BWHBMRE	0	80	20	VC	M	3					0	SD	P	M	BP	2	0	0	0	C	
MHT	009	B	59		2	MGYPU	BWHBYE	.1	85	15	GR	M	3					0	SD	M	G	BP	2	0	0	0	C	
MHT	009	B	60		2	MGYPU	BWHBYE	.1	85	15	GR	M	3					0	SD	M	G	BP	1	0	0	0	C	
MHT	009	B	61		2	DYEOR	BWHXBICL	0	85	15	VC	M	3					0	SD	M	G	BP	.1	0	0	0	A	
MHT	009	B	62		2	DYEOR	BWHXB	0	80	20	VC	M	3					0	SD	P	M	BP	.1	0	0	0	A	
MHT	009	B	63		2	DYEOR	BMREXB	0	80	20	VC	M	3					0	SD	P	M	BP	.1	0	0	0	A	
MHT	009	B	64		2	DYEOR	BWHBMRE	0	70	30	VC	M	3					0	CLSD	P	M	BP	.1	0	0	0	A	
MHT	009	B	65		2	DYEOR	IWHCLICL	0	75	25	VC	M	3					0	CLSD	P	M	BP	.1	0	0	0	C	
MHT	009	B	66		2	MBEGY	BMYEBMRE	.1	65	35	GR	M	3					0	CLSD	P	M	BP	.1	0	0	0	C	
MHT	009	B	67		2	DYEOR	IMBEGYSD	.1	70	30	GR	M	3					0	CLSD	P	M	BP	0	0	0	0	C	
MHT	009	B	68		2	DYEOR	BWH	2	73	25	GR	M	3					0	CLSD	P	M	BP	.1	0	0	0	C	
MHT	009	B	69		2	MYEBR	BWHICTCL	.1	75	25	GR	M	3				1	0	CLSD	P	M	BP	.1	0	0	0	A	
MHT	009	B	70	7	2	LYEOR	BWH	.1	80	20	GR	M	3					0	SD	P	M	BP	.1	0	0	0	A	
MHT	009	B	71		1	MGYOR	BWH	.1	90	10	GR	C	3					0	SD	M	G	BP	.1	0	0	0	C	
MHT	009	B	72	8	1	LYEOR	BDYEOR	.1	90	10	GR	C	3					0	SD	M	G	BP	.1	0	0	0	C	
MHT	009	B	73		1	LYEOR		4	86	10	GR	C	3					0	SD	P	G	BP	.1	0	0	0	R	
MHT	009	B	74	6	1	DYEOR	ILYEORCL	1	84	15	GR	C	3				.1	0	SD	M	G	BP	0	0	0	0	C	
MHT	009	B	75		1	DYEOR		2	88	10	GR	C	3					0	SD	M	G	BP	0	0	0	0	C	
MHT	009	B	76	3	1	MGYOR		1	89	10	GR	C	3					0	SD	M	G	BP	0	0	0	0	C	

AREA	NO	SCR	DEPTH	REC	IND	COLOR	STRUCTURE	%GR	%SD	%MD	MX	MD	R	%CG	%CS	%CM	%CMT	%CAR	NAME	SO	%POR	TYPE	%MUS	%GLA	%LIG	%SUL	H	FOSSILS
MHT	009	B	77		1	MGYOR	IWHCL	1	89	10	LP	C	3					0	SD	M	G	BP	0	0	0	0	C	
MHT	009	B	78	6	1	LYEOR		2	88	10	GR	C	3					0	SD	M	G	BP	.1	0	0	0	C	
MHT	009	B	79		1	LYEOR	IWHCL	2	88	10	GR	C	3					0	SD	M	G	BP	0	0	0	0	C	
MHT	009	B	80		1	LYEOR		3	87	10	GR	C	3					0	SD	M	G	BP	.1	0	0	0	C	
MHT	009	B	81		1	LGYOR		3	82	15	GR	C	3					0	SD	M	G	BP	.1	0	0	0	C	
MHT	009	B	82	6	1	LGYOR		5	80	15	GR	C	3					0	SD	M	G	BP	.1	0	0	0	C	
MHT	009	B	83		1	LYEOR		3	87	10	GR	C	3					0	SD	M	G	BP	.1	0	0	0	C	
MHT	009	B	84	5	1	LYEOR		3	82	15	GR	C	3					0	SD	M	G	BP	.1	0	0	0	R	
MHT	009	B	85		1	LGYOR		4	81	15	GR	C	3					0	SD	M	G	BP	0	0	0	0	R	
MHT	009	B	86	7	1	LYEOR		1	89	10	GR	C	3					0	SD	M	G	BP	0	0	0	0	R	
MHT	009	B	87		1	MYEOR		3	82	15	GR	C	3					0	SD	M	G	BP	.1	0	0	0	C	
MHT	009	B	88	6	2	LYEOR	IMYEORSD	0	10	90	C	CL	3					0	CL	P	P	MI	1	0	0	0	C	
MHT	009	B	89		2	LYEOR	IGYCLICL	2	63	35	GR	M	3					0	CLSD	P	M	BP	.1	0	0	0	C	
MHT	009	B	90	6	2	LYEOR	ILGYCL	5	75	20	GR	M	3					0	SD	P	M	BP	.1	0	0	0	C	
MHT	009	B	91		2	LYEOR	IMBORSD	25	45	30	GR	C	3					0	PBCLSD	V	M	BP	1	0	0	0	A	
MHT	009	B	92	4	2	MYEOR		25	50	25	GR	C	3					0	PBCLSD	V	M	BP	1	0	0	0	A	
MHT	009	B	93		2	DYEOR	IDYEORCL	.1	70	30	GR	M	3					0	CLSD	P	M	BP	2	0	0	0	A	
MHT	009	B	94	6	1	WH		0	93	7	VC	F	3					0	SD	M	G	BP	2	0	0	0	A	
MHT	009	B	95		1	WH	IMYEORCL	0	95	5	C	M	3					0	SD	W	G	BP	3	0	0	0	A	
MHT	009	B	96	0																								
MHT	009	B	97		1	MTA	IDYEORCL	0	85	15	C	M	3					0	SD	M	G	BP	3	0	0	0	A	
MHT	009	B	98	3	1	LTA	IDYEORCL	0	90	10	VC	M	3					0	SD	M	G	BP	2	0	0	0	A	
MHT	009	B	99		3	DGNOR	IDYEORSD	0	15	85	C	CL	3				1	0	CL	P	P	MI	2	0	0	0	C	
MHT	009	B	100		3	LGNBR	IWHSD	0	10	90	C	CL	3				.1	0	CL	P	P	MI	2	0	0	0	C	
MHT	009	B	101		3	LGNYE	IMBRORSD	0	15	85	C	CL	3					0	CL	P	P	MI	1	0	0	0	C	
MHT	009	B	102		3	LGNYE	IMBRORSD	0	15	85	C	CL	3					0	CL	P	P	MI	1	0	0	0	C	
MHT	009	B	103		3	LGNYE	IWHSD	0	10	90	C	CL	3					0	CL	P	P	MI	1	0	0	0	C	
MHT	009	B	104		3	LGNYE	IWHSD	0	10	90	C	CL	3					0	CL	P	P	MI	1	0	0	0	C	
MHT	009	B	105		3	LGNYE	IBRORSD	0	15	85	C	CL	3					0	CL	P	P	MI	1	0	0	0	C	
MHT	009	B	106		3	LGNYE	IBRORSD	0	15	85	VC	CL	3					0	CL	P	P	MI	2	0	0	0	C	
MHT	009	B	107		3	MBROR	IGNCLISD	1	44	55	GR	CL	3					0	SDCL	P	P	MI	2	0	0	0	C	
MHT	009	B	108	7	3	MBROR	ILGNYECL	0	60	40	VC	F	3					0	CLSD	P	P	BP	2	0	0	0	C	
MHT	009	B	109		1	MGYOR		25	85	15	LP	C	3					0	PBSD	P	M	BP	2	0	0	0	C	
MHT	009	B	110	6	1	MGYOR		15	75	10	LP	C	3					0	SD	P	G	BP	3	0	0	0	C	
MHT	009	B	111		1	LYEOR		10	80	10	LP	C	3					0	SD	P	G	BP	3	0	0	0	C	
MHT	009	B	112	3	1	LYEOR		20	70	10	LP	C	3					0	SD	P	G	BP	4	0	0	0	C	
MHT	009	B	113		1	LYEOR		20	70	10	LP	C	3					0	SD	P	G	BP	4	0	0	0	C	
MHT	009	B	114	0																								

AREA	NO	SCR	DEPTH	REC	IND	COLOR	STRUCTURE	%GR	%SD	%MD	MX	MD	R	%CG	%CS	%CM	%CMT	%CAR	NAME	SO	%POR	TYPE	%MUS	%GLA	%LIG	%SUL	H	FOSSILS
MHT	009	B	115		1	LYEOR		15	78	7	LP	C	3					0	SD	P	G	BP	2	0	0	0	C	
MHT	009	B	116	0																								
MHT	009	B	117		1	MGYOR	IWHCL	7	86	7	LP	C	3					0	SD	P	G	BP	1	0	0	0	C	
MHT	009	B	118	0																								
MHT	009	B	119		1	DYEOR	IWHCL	3	90	7	GR	M	3					0	SD	M	G	BP	1	0	0	0	C	
MHT	009	B	120		0																							
MHT	009	B	121	0																								
MHT	009	B	122		1	DYEOR		4	86	10	GR	C	3					0	SD	P	G	BP	4	0	0	0	C	
MHT	009	B	123	0																								
MHT	009	B	124	0																								
MHT	009	B	125	0																								
MHT	009	B	126	0																								
MHT	009	B	127	0																								
MHT	009	B	128	0																								
MHT	009	B	129	0																								
MHT	009	B	130		1	DYEOR		10	60	30	GR	C	3					0	CLSD	P	M	BP	3	0	0	0	C	
MHT	009	B	131		1	MBR	MTLGYGN	3	30	67	GR	CL	3					0	SDCL	P	P	MI	5	.1	0	0	C	
MHT	009	B	132		3	MBR	ILGYGNCL	0	60	40	VC	F	3	0	0	99	0	1	MCCLSD	P	P	BP	4	0	0	0	C	
MHT	009	B	133	3	3	MBR	BLGNBR	1	45	54	GR	CL	3					0	SDCL	V	P	MI	4	0	0	0	C	
MHT	009	B	134	0																								
MHT	009	B	135		1	MBROR	IBBRSDCL	8	67	25	GR	C	3					0	CLSD	P	M	BP	1	0	0	0	C	
MHT	009	B	136		1	LYEOR	BMYEOR	10	80	10	GR	C	3					0	SD	P	G	BP	2	0	0	0	C	
MHT	009	B	137		1	MGNOR	WSPLGYCL	10	83	7	GR	C	3					0	SD	P	G	BP	2	0	0	0	C	
MHT	009	B	138	3	1	MGNOR		7	86	7	GR	C	3					0	SD	P	G	BP	2	0	0	0	C	
MHT	009	B	139	0																								
MHT	009	B	140		1	DYEOR		.1	85	15	GR	M	3					0	SD	M	G	BP	2	0	0	0	C	
MHT	009	B	141		1	LBROR	IWHCLFE	2	91	7	GR	M	3				.1	0	SD	M	G	BP	1	0	0	0	C	
MHT	009	B	142		1	DYEOR	ILGNGYCL	1	84	15	GR	M	3					0	SD	M	G	BP	1	0	0	0	C	
MHT	009	B	143	0																								
MHT	009	B	144	0																								
MHT	009	B	145		1	DYEOR	ILGNGYCL	3	82	15	GR	M	3					0	SD	M	G	BP	1	0	0	0	C	
MHT	009	B	146		1	DYEOR	IBGYORSD	2	88	10	GR	F	3					0	SD	M	G	BP	4	0	0	0	A	
MHT	009	B	147	0																								
MHT	009	B	148	0																								
MHT	009	B	149	0																								
MHT	009	B	150	8	1	LYEOR	BMBRISD	10	75	15	GR	F	3					0	SD	P	G	BP	5	0	0	0	A	
MHT	009	B	151	0																								
MHT	009	B	152	0																								

AREA	NO	SCR	DEPTH	REC	IND	COLOR	STRUCTURE	%GR	%SD	%MD	MX	MD	R	%CG	%CS	%CM	%CMT	%CAR	NAME	SO	%POR	TYPE	%MUS	%GLA	%LIG	%SUL	H	FOSSILS
MHT	009	B	153	0																								
MHT	009	B	154	0																								
MHT	009	B	155		1	MGYOR	IMYEBRSD	15	70	15	LP	C	3					0	SD	M	G	BP	3	0	0	0	A	
MHT	009	B	156		1	MGYOR	ILGYCL	10	70	20	GR	C	3					0	SD	P	M	BP	3	0	0	0	C	
MHT	009	B	157		1	DYEOR	ILGYCL	2	88	10	GR	F	3					0	SD	M	G	BP	7	0	0	0	A	
MHT	009	B	158	0																								
MHT	009	B	159	0																								
MHT	009	B	160		1	MGYOR	IMUSDFE	.1	90	10	GR	F	3				.1	0	SD	M	G	BP	10	0	0	0	A	
MHT	009	B	161		1	MGYOR	IMUSDFE	0	92	8	C	F	3				.1	0	SD	W	E	BP	10	0	0	0	A	
MHT	009	B	162	7	1	MGYOR	IMUSDFE	0	94	6	C	F	3				.1	0	SD	W	E	BP	7	0	0	0	A	
MHT	009	B	163	0																								
MHT	009	B	164	0																								
MHT	009	B	165		1	MGYOR	ICLSDFE	7	83	10	GR	M	3				1	0	SD	P	G	BP	4	0	0	0	C	
MHT	009	B	166	0																								
MHT	009	B	167	0																								
MHT	009	B	168	0																								
MHT	009	B	169	0																								
MHT	009	B	170		1	DYEOR	ILGYCLFE	2	63	35	GR	M	3				2	0	CLSD	P	M	BP	2	0	0	0	C	
MHT	009	B	171		1	DYEOR	WSPLGYCL	2	68	30	GR	M	3					0	CLSD	P	M	BP	2	0	0	0	C	
MHT	009	B	172		1	DYEOR	ILGYCL	3	77	20	GR	M	3					0	SD	M	G	BP	3	0	0	0	C	
MHT	009	B	173		1	DYEOR	ILGYCL	2	78	30	GR	M	3					0	CLSD	V	M	BP	3	0	0	0	C	
MHT	009	B	174	0																								
MHT	009	B	175	9	1	DYEOR	ILGYCL	3	72	25	GR	M	3					0	CLSD	V	M	BP	2	0	0	0	C	
MHT	009	B	176	0																								
MHT	009	B	177	0																								
MHT	009	B	178	0																								
MHT	009	B	179	0																								
MHT	009	B	180		1	DYEOR	IWHCLFE	.1	90	10	GR	M	3				.1	0	SD	M	G	BP	2	0	0	0	A	
MHT	009	B	181		1	MGYOR	IWHCLFE	.1	93	7	GR	M	3				.1	0	SD	M	G	BP	2	0	0	0	A	
MHT	009	B	182		1	MGYOR	ILGYCLFE	.1	90	10	GR	M	3				.1	0	SD	M	G	BP	3	0	0	0	A	
MHT	009	B	183	0																								
MHT	009	B	184	0																								
MHT	009	B	185		1	MGYOR	ILGYCLFE	0	80	20	C	F	3				.1	0	SD	M	G	BP	3	0	0	0	A	
MHT	009	B	186		1	DYEOR	ILGYCLFE	0	90	10	C	F	3				1	0	SD	M	G	BP	3	0	0	0	C	
MHT	009	B	187	0																								
MHT	009	B	188	0																								
MHT	009	B	189	0																								
MHT	009	B	190		1	LYEOR	ILGYCLFE	.1	80	20	GR	M	3				.1	0	SD	M	G	BP	1	0	0	0	C	

AREA	NO	SCR	DEPTH	REC	IND	COLOR	STRUCTURE	%GR	%SD	%MD	MX	MD	R	%CG	%CS	%CM	%CMT	%CAR	NAME	SO	%POR	TYPE	%MUS	%GLA	%LIG	%SUL	H	FOSSILS
MHT	009	B	191		1	LYEOR	ILGYCL	.1	90	10	GR	M	3					0	SD	M	G	BP	1	0	0	0	C	
MHT	009	B	192		1	LYEOR	ILGYCL	0	90	10	VC	M	3					0	SD	M	G	BP	1	0	0	0	C	
MHT	009	B	193	0																								
MHT	009	B	194	0																								
MHT	009	B	195	1																								
MHT	009	B	196	0																								
MHT	009	B	197	0																								
MHT	009	B	198	0																								
MHT	009	B	199	0																								

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AREA	NO	SCR	DEPTH	REC	IND	COLOR	STRUCTURE	%GR	%SD	%MD	MX	MD	R	%CG	%CS	%CM	%CMT	%CAR	NAME	SO	%POR	TYPE	%MUS	%GLA	%LIG	%SUL	H	FOSSILS
MHT	9	C	1		2	LTA	BBK	1	96	3	GR	M	4					0	SD	M	G	BP	0	0	0	0	C	
MHT	9	C	2		2	LRETA		0	95	5	VC	F	2					0	SD	W	E	BP	0	0	0	0	C	
MHT	9	C	3		2	LPITA	BDGY	0	97	3	VC	F	3					0	SD	W	E	BP	0	0	0	0	C	
MHT	9	C	4		2	MRETA		0	95	5	VC	M	3					0	SD	W	E	BP	0	0	0	0	R	
MHT	9	C	5		2	MRETA	BDGY	0	93	7	VC	M	3					0	SD	M	G	BP	0	0	0	0	C	
MHT	9	C	6	4	3	MRE		0	90	10	VC	M	3					0	SD	M	G	BP	.1	0	0	0	R	
MHT	9	C	7		3	DRE		0	80	20	VC	M	3					0	SD	M	G	BP	0	0	0	0	R	
MHT	9	C	8		3	DRE		0	75	25	VC	M	3					0	CLSD	P	M	BP	0	0	0	0	R	
MHT	9	C	9		3	DRE		0	70	30	VC	M	3					0	CLSD	P	M	BP	0	0	0	0	R	
MHT	9	C	10		3	DRE		0	65	35	VC	CL						0	CLSD	P	M	BP	0	0	0	0	R	
MHT	9	C	11		4	DRE		0	60	40	VC	CL						0	CLSD	P	M	BP	0	0	0	0	R	
MHT	9	C	12		4	DRE		0	50	50	VC	CL						0	CLSD	P	M	BP	0	0	0	0	R	
MHT	9	C	13		4	DRE		0	50	50	VC	CL						0	CLSD	P	M	BP	0	0	0	0	R	
MHT	9	C	14		4	DRE		0	50	50	VC	CL						0	CLSD	P	M	BP	0	0	0	0	R	
MHT	9	C	15	7	4	DRE		0	50	50	VC	CL						0	CLSD	P	M	BP	0	0	0	0	R	
MHT	9	C	16		4	DRE	MTLYE	0	40	60	VC	CL						0	SDCL		P	BP	0	0	0	0	R	
MHT	9	C	17		4	DRE		0	40	60	VC	CL						0	SDCL		P	BP	0	0	0	0	R	
MHT	9	C	18		4	DRE		0	40	60	VC	CL						0	SDCL		P	BP	0	0	0	0	R	
MHT	9	C	19		3	DRE	MTLYE	2	18	80	GR	CL						0	CL		P	MI	0	0	0	0	R	
MHT	9	C	20		3	DRE		0	40	60	VC	CL						0	SDCL		P	BP	0	0	0	0	R	
MHT	9	C	21		4	DRE		0	35	65	VC	CL						0	SDCL		P	MI	0	0	0	0	R	
MHT	9	C	22		4	DRE		0	30	70	VC	CL						0	SDCL		P	MI	.1	0	0	0	R	
MHT	9	C	23		4	DRE	MTMYE	0	30	70	VC	CL						0	SDCL		P	MI	.1	0	0	0	R	
MHT	9	C	24	6	4	DRE		0	25	75	VC	CL						0	SDCL		P	MI	0	0	0	0	R	
MHT	9	C	25	4	4	DRE		5	15	80	GR	CL						0	CL		P	MI	0	0	0	0	R	
MHT	9	C	26		4	DRE		5	35	60	GR	CL						0	SDCL		P	MI	0	0	0	0	R	
MHT	9	C	27		4	DRE		3	37	60	GR	CL						0	SDCL		P	MI	0	0	0	0	R	
MHT	9	C	28		4	DRE		2	23	75	GR	CL						0	CL		P	MI	0	0	0	0	R	
MHT	9	C	29		4	MRE	MTMYE	0	25	75	VC	CL						0	SDCL		P	MI	3	0	0	0	R	
MHT	9	C	30		4	MRE	MTMYE	5	20	75	LP	CL						0	CL		P	MI	3	0	0	0	R	
MHT	9	C	31		4	DRE	MTLYEIPB	0	25	75	VC	CL						0	SDCL		P	MI	.1	0	0	0	R	
MHT	9	C	32		4	DRE	MTWHIPB	10	15	75	LP	CL						0	CL		P	MI	0	0	0	0	R	
MHT	9	C	33		4	DRE	MTLYE	25	25	50	LP	CL						0	PBSDCL		P	MI	0	0	0	0	R	
MHT	9	C	34	8	4	MPITA	BLYE	2	48	50	GR	CL						0	SDCL		P	BP	0	0	0	0	R	
MHT	9	C	35		4	DRE	BDTA	10	10	80	GR	CL						0	CL		P	MI	.1	0	0	0	R	
MHT	9	C	36	2	4	MYETA	MTDRE	5	35	60	GR	CL						0	SDCL		P	MI	3	0	0	0	R	
MHT	9	C	37	3	4	LYETA	MTWHMTPI	10	50	40	GR	CL						0	CLSD	P	M	BP	1	0	0	0	R	
MHT	9	C	38	0																								

AREA	NO	SCR	DEPTH	REC	IND	COLOR	STRUCTURE	%GR	%SD	%MD	MX	MD	R	%CG	%CS	%CM	%CMT	%CAR	NAME	SO	%POR	TYPE	%MUS	%GLA	%LIG	%SUL	H	FOSSILS
MHT	9	C	39	6	4	MRETA		10	10	80	GR	CL						0	CL		P	MI	0	0	0	0	R	
MHT	9	C	40	0																								
MHT	9	C	41		4	MYETA	MTDPU	20	30	50	GR	CL						0	SDCL		P	MI	0	0	0	0	C	
MHT	9	C	42		4	MPITA	MTMYE	5	40	55	GR	CL						0	SDCL		P	BP	0	0	0	0	C	
MHT	9	C	43		4	MPITA	MTMYE	7	38	55	GR	CL						0	SDCL		P	MI	2	0	0	0	R	
MHT	9	C	44	6	4	MYETA	MTLPI	7	58	35	GR	CL						0	CLSD	P	M	BP	3	0	0	0	C	
MHT	9	C	45	6	4	MPITA		10	40	50	GR	CL						0	SDCL		P	BP	0	0	0	0	R	
MHT	9	C	46	3	4	DPITA	MTWH	1	54	45	GR	CL						0	CLSD	P	M	BP	0	0	0	0	R	
MHT	9	C	47		4	DRE	MTLYE	3	42	55	GR	CL						0	SDCL		P	BP	3	0	0	0	C	
MHT	9	C	48		4	VARPU	MTLYE	7	43	50	GR	CL						0	SDCL		P	BP	1	0	0	0	C	
MHT	9	C	49		4	VARPU	MTLGY	15	35	50	GR	CL						0	SDCL		P	MI	2	0	0	0	C	
MHT	9	C	50		4	VARPU	MTMYE	10	30	60	GR	CL						0	SDCL		P	MI	1	0	0	0	C	
MHT	9	C	51		3	DRE	MTBK	5	40	55	GR	CL						0	SDCL		P	BP	1	0	0	0	R	
MHT	9	C	52		3	LTA	MTDRE	7	78	15	GR	VF						0	SD	M	G	BP	5	0	0	0	C	
MHT	9	C	53		3	VARRE	MTMYE	0	50	50	VC	CL						0	CLSD	P	M	BP	5	0	0	0	C	
MHT	9	C	54		3	MORTA	MTDRE	0	75	25.	VC	M	3					0	CLSD	P	M	BP	2	0	0	0	C	
MHT	9	C	55		3	VAROR	BDRE	7	43	50	GR	CL						0	SDCL		P	BP	0	0	0	0	R	
MHT	9	C	56		3	LPITA	MTMYE	3	52	45	GR	CL						0	CLSD	P	M	BP	2	0	0	0	C	
MHT	9	C	57		3	MYETA	MTDPU	0	40	60	VC	CL						0	SDCL		P	BP	5	0	0	0	C	
MHT	9	C	58		3	LPUTA	MTDPU	0	50	50	VC	CL						0	CLSD	P	M	BP	5	0	0	0	C	
MHT	9	C	59		3	MYETA	MTDRE	0	45	55	VC	CL						0	SDCL		P	BP	3	0	0	0	C	
MHT	9	C	60		3	LPUWH	MTDOR	0	50	50	VC	CL						0	CLSD	P	M	BP	5	0	0	0	R	
MHT	9	C	61		2	MPURE	MTLOR	0	75	25	VC	CL						0	CLSD	P	M	BP	5	0	0	0	C	
MHT	9	C	62		2	MPURE	MTLTA	0	70	30	VC	CL						0	CLSD	P	M	BP	3	0	0	0	C	
MHT	9	C	63		2	MORTA	BDRE	3	57	40	GR	CL						0	CLSD	P	M	BP	1	0	0	0	R	
MHT	9	C	64		2	LYETA	MTDYE	0	50	50	VC	CL						0	CLSD	P	M	BP	.1	0	0	0	C	
MHT	9	C	65		4	LPITA	BMYE	0	45	55	VC	CL						0	SDCL		P	BP	1	0	0	0	R	
MHT	9	C	66		3	MPU	MTDYE	0	60	40	VC	CL						0	CLSD	P	M	BP	0	0	0	0	C	
MHT	9	C	67		2	MYETA	MTDGN	0	35	65	VC	CL						0	SDCL		P	MI	0	0	0	0	C	
MHT	9	C	68		2	MORTA	IPB	5	35	60	LP	CL						0	SDCL		P	MI	2	0	0	0	R	
MHT	9	C	69		2	LORTA		3	37	60	GR	CL						0	SDCL		P	MI	.5	0	0	0	C	
MHT	9	C	70		2	LYETA	BLPI	3	37	60	GR	CL						0	SDCL		P	MI	1	0	0	0	C	
MHT	9	C	71		2	DBRYE	BLTA	5	35	60	GR	CL						0	SDCL		P	MI	1	0	0	0	R	
MHT	9	C	72		2	LTA	MTWH	3	72	25	GR	C	3					0	CLSD	P	M	BP	1	0	0	0	R	
MHT	9	C	73		2	DPITA	BMYETA	10	50	40	LP	CL						0	CLSD	P	M	BP	.1	0	0	0	R	
MHT	9	C	74		2	MYETA		3	77	20	GR	M	4					0	SD	M	G	BP	0	0	0	0	R	
MHT	9	C	75		2	MORTA		7	73	20	GR	C	3					0	SD	M	G	BP	.1	0	0	0	R	
MHT	9	C	76	6	2	LORTA		3	77	20	GR	M	2					0	SD	M	G	BP	0	0	0	0	R	

AREA	NO	SCR	DEPTH	REC	IND	COLOR	STRUCTURE	%GR	%SD	%MD	MX	MD	R	%CG	%CS	%CM	%CMT	%CAR	NAME	SO	%POR	TYPE	%MUS	%GLA	%LIG	%SUL	H	FOSSILS
MHT	9	C	77		2	LYETA	MTDYE	0	80	20	VC	M	3					0	SD	M	G	BP	.5	0	0	0	R	
MHT	9	C	78		2	LYETA		3	82	15	GR	C	2					0	SD	M	G	BP	0	0	0	0	R	
MHT	9	C	79		2	MORTA		7	68	25	GR	C	2					0	CLSD	P	M	BP	0	0	0	0	R	
MHT	9	C	80		2	LYETA	MTMYE	5	75	20	GR	M	2					0	SD	M	G	BP	0	0	0	0	C	
MHT	9	C	81		2	MYETA		7	83	10	LP	C	2					0	SD	M	G	BP	0	0	0	0	R	
MHT	9	C	82		2	LYETA		15	70	15	GR	C	2					0	SD	M	G	BP	0	0	0	0	R	
MHT	9	C	83		2	MYETA		10	75	15	GR	C	3					0	SD	M	G	BP	0	0	0	0	C	
MHT	9	C	84		2	LYETA		7	78	15	GR	M	3					0	SD	M	G	BP	0	0	0	0	C	
MHT	9	C	85	9	2	MORTA		7	78	15	GR	M	2					0	SD	M	G	BP	0	0	0	0	C	
MHT	9	C	86	9	2	LYETA	MTDYE	10	80	10	GR	M	3					0	SD	M	G	BP	0	0	0	0	C	
MHT	9	C	87		2	LYETA	BLTA	5	88	7	GR	M	3					0	SD	M	G	BP	0	0	0	0	C	
MHT	9	C	88		2	DBRTA	IPB	7	68	25	LP	M	2					0	CLSD	P	M	BP	0	0	0	0	A	
MHT	9	C	89		2	DPITA	ICLBLPI	5	45	50	GR	CL						0	SDCL		P	BP	0	0	0	0	R	
MHT	9	C	90		3	MYETA	ICLBLGY	7	58	35	GR	CL						0	CLSD	P	M	BP	.1	0	0	0	C	
MHT	9	C	91		3	DPITA		5	65	30	GR	CL						0	CLSD		P	BP	0	0	0	0	C	
MHT	9	C	92		3	MYETA	IPBMTDBR	7	58	35	LP	CL						0	CLSD	P	M	BP	3	0	0	0	R	
MHT	9	C	93		2	MYETA	BLTA	10	65	25	GR	CL						0	CLSD	P	M	BP	1	0	0	0	C	
MHT	9	C	94		2	LYETA		0	95	5	VC	M	3					0	SD	W	E	BP	7	0	0	0	C	
MHT	9	C	95	9	3	MYETA		7	83	10	GR	F	2					0	SD	M	G	BP	.1	0	0	0	R	
MHT	9	C	96	8	3	LWHYE	IPB	0	80	20	VC	F	3					0	SD	M	G	BP	5	0	0	0	R	
MHT	9	C	97		2	LORTA		0	90	10	VC	F	2					0	SD	M	G	BP	.1	0	0	0	C	
MHT	9	C	98		2	WHYE		0	65	35	C	CL						0	CLSD	P	M	BP	3	0	0	0	C	
MHT	9	C	99		2	MYETA		0	90	10	VC	F	2					0	SD	W	E	BP	1	0	0	0	A	
MHT	9	C	100		3	MYETA		0	5	95	C	CL						0	CL		P	MI	7	0	0	0	C	
MHT	9	C	101		3	LYETA	MTDOR	0	5	95	C	CL						0	CL		P	MI	2	0	0	0	C	
MHT	9	C	102		3	LGNTA	MTDOR	0	10	90	VC	CL						0	CL		P	MI	1	0	0	0	C	
MHT	9	C	103		3	MORTA	ICLMTLGY	5	5	90	GR	CL						0	CL		P	MI	1	0	0	0	R	
MHT	9	C	104		3	LGYGN	MTMOR	0	5	95	M	CL						0	CL		P	MI	2	0	0	0	A	
MHT	9	C	105		3	MORTA	MTLOR	0	20	80	VC	CL						0	CL		P	MI	3	0	0	0	A	
MHT	9	C	106	8	3	LGYTA	MTDOR	0	5	95	M	CL						0	CL		P	MI	1	0	0	0	C	
MHT	9	C	107		3	LGYTA	MTMOR	0	2	98	VC	CL						0	CL		P	MI	2	0	0	0	R	
MHT	9	C	108		3	LGNGY	MTDOR	0	10	90	C	CL						0	CL		P	MI	3	0	0	0	R	
MHT	9	C	109		2	DORTA	IPB	3	72	25	GR	CL						0	CLSD	P	M	BP	3	0	0	0	C	
MHT	9	C	110		3	LGYTA	MTDOR	0	20	80	C	CL						0	CL		P	MI	3	0	0	0	C	
MHT	9	C	111		3	DPITA		3	30	67	GR	CL						0	SDCL		P	MI	3	0	0	0	C	
MHT	9	C	112		3	DORTA	MTWHIPB	35	40	25	GR	GR						0	CLPBSD	P	M	BP	.5	0	0	0	C	
MHT	9	C	113		3	DORTA		20	40	40	LP	CL						0	CLSD	P	M	BP	0	0	0	0	R	
MHT	9	C	114		2	MORTA	IPB	25	45	30	GR	CL						0	PBCLSD	P	M	BP	0	0	0	0	R	

AREA	NO	SCR	DEPTH	REC	IND	COLOR	STRUCTURE	%GR	%SD	%MD	MX	MD	R	%CG	%CS	%CM	%CMT	%CAR	NAME	SO	%POR	TYPE	%MUS	%GLA	%LIG	%SUL	H	FOSSILS
MHT	9	C	115	7	2	DORTA		20	55	25	GR	CL						0	CLSD	P	M	BP	0	0	0	0	R	
MHT	9	C	116	9	3	DYETA	MTDBR	15	65	20	LP	M	2					0	SD	P	P	BP	7	0	0	0	A	
MHT	9	C	117		2	DORTA		10	70	20	LP	M	3					0	SD	P	P	BP	1	0	0	0	R	
MHT	9	C	118	4	3	WHTA	BDOR	30	20	50	LP	LP	3					0	PBCL	P	P	BP	2	0	0	0	R	
MHT	9	C	119		3	DRETA	MTWHTA	0	10	90	VC	CL						0	CL		P	MI	5	0	0	0	C	
MHT	9	C	120	6	2	LYETA		25	50	25	LP	GR	3					0	CLPBSD	P	M	BP	3	0	0	0	C	
MHT	9	C	121	8	2	MYETA		10	65	25	GR	C	3					0	CLSD	P	M	BP	0	0	0	0	R	
MHT	9	C	122		2	MYETA		10	70	20	GR	C	3					0	SD	M	G	BP	3	0	0	0	R	
MHT	9	C	123		2	MYETA	MTWH	10	70	20	LP	C	3					0	SD	M	G	BP	2	0	0	0	R	
MHT	9	C	124		2	MYETA	MTWHICL	5	70	25	GR	C	4					0	CLSD	P	M	BP	0	0	0	0	C	
MHT	9	C	125		2	MYETA		7	63	30	GR	CL						0	CLSD	P	M	BP	0	0	0	0	R	
MHT	9	C	126		2	DORTA	MYWHICL	20	45	35	GR	CL						0	CLSD	P	M	BP	0	0	0	0	R	
MHT	9	C	127		3	DBR		5	55	40	GR	CL						0	CLSD	P	M	BP	0	0	0	0	R	
MHT	9	C	128		3	MORTA	MTLGYTA	0	20	80	GR	CL						0	CL		P	MI	5	0	0	0	R	
MHT	9	C	129		3	LGYTA	WSPMTLOR	15	5	80	GR	CL						0	CL		P	MI	3	0	0	0	R	
MHT	9	C	130		3	MORBR	BMTORBR	0	30	70	VC	CL						0	SDCL		P	MI	7	0	0	0	C	
MHT	9	C	131	0																								
MHT	9	C	132	5	3	MORTA		0	85	15	VC	F	2					0	SD	M	G	BP	1	0	0	0	C	
MHT	9	C	133		2	MORTA	MTMYE	15	70	15	GR	M	3					0	SD	M	G	BP	7	0	0	0	C	
MHT	9	C	134		2	MORTA	MTDRE	20	55	25	LP	C	2					0	CLSD	P	M	BP	3	0	0	0	C	
MHT	9	C	135		2	MORTA	MTMBRIPB	7	43	50	GR	CL						0	SDCL		P	BP	3	0	0	0	R	
MHT	9	C	136		2	DORTA		0	75	25	VC	M	3					0	CLSD	P	M	BP	2	0	0	0	R	
MHT	9	C	137		2	LYETA	MTBK	20	60	20	GR	M	2					0	SD	M	G	BP	3	0	0	0	R	
MHT	9	C	138		2	LORTA	MTWH	10	65	25	GR	M	2					0	CLSD	P	M	BP	3	0	0	0	R	
MHT	9	C	139		2	LORTA	ICLMTWH	5	50	45	GR	CL						0	CLSD	P	M	BP	1	0	0	0	R	
MHT	9	C	140		2	MORTA		5	55	40	GR	CL						0	CLSD	P	M	BP	1	0	0	0	R	
MHT	9	C	141		2	MORTA		0	80	20	VC	M	3					0	SD	M	G	BP	3	0	0	0	C	
MHT	9	C	142		2	MORTA		7	68	25	GR	C	3					0	CLSD	P	M	BP	3	0	0	0	C	
MHT	9	C	143	0																								
MHT	9	C	144	0																								
MHT	9	C	145		2	MYETA	WSP	7	63	30	LP	CL						0	CLSD	P	M	BP	3	0	0	0	A	
MHT	9	C	146		2	MYETA	WSPMTDBR	3	62	35	GR	CL						0	CLSD	P	M	BP	.1	0	0	0	A	
MHT	9	C	147		2	MYETA	WSPMTDOR	0	60	40	VC	CL						0	CLSD	P	M	BP	3	0	0	0	A	
MHT	9	C	148		2	MYETA	WSPMTDOR	0	65	35	C	CL						0	CLSD	P	M	BP	5	0	0	0	A	
MHT	9	C	149		2	MYETA	WSPMTDRE	5	75	20	GR	M	2					0	SD	M	G	BP	3	0	0	0	A	
MHT	9	C	150		2	MYETA	ICL	15	60	25	GR	C	3					0	CLSD	P	M	BP	1	0	0	0	C	
MHT	9	C	151		2	LTA		0	95	5	C	VF	2					0	SD	W	E	BP	3	0	0	0	C	
MHT	9	C	152		2	LTA		0	95	5	C	VF	2					0	SD	W	E	BP	5	0	0	0	C	

AREA	NO	SCR	DEPTH	REC	IND	COLOR	STRUCTURE	%GR	%SD	%MD	MX	MD	R	%CG	%CS	%CM	%CMT	%CAR	NAME	SO	%POR	TYPE	%MUS	%GLA	%LIG	%SUL	H	FOSSILS
MHT	9	C	153		2	LTA		0	95	5	VC	VF	3					0	SD	W	E	BP	3	0	0	0	C	
MHT	9	C	154		2	LTA		0	95	5	C	VF	3					0	SD	W	E	BP	7	0	0	0	C	
MHT	9	C	155	0																								
MHT	9	C	156	0																								
MHT	9	C	157		2	MPITA	MTDOR	5	75	20	GR	M	3					0	SD	M	G	BP	2	0	0	0	C	
MHT	9	C	158		2	LPITA	MTDOR	7	78	15	GR	C	3					0	SD	M	G	BP	1	0	0	0	C	
MHT	9	C	159		2	LYETA	MTDOR	2	73	25	GR	M	3					0	CLSD	P	M	BP	0	0	0	0	C	
MHT	9	C	160	0																								
MHT	9	C	161	0																								
MHT	9	C	162	0	2	MYETA	MTDRE	3	22	75	GR	CL						0	CL		P	MI	1	0	0	0	A	
MHT	9	C	163		2	MYETA	MTDRE	0	40	60	VC	CL						0	SDCL		P	BP	3	0	0	0	A	
MHT	9	C	164		2	LYETA	MTMYE	0	25	75	VC	CL						0	SDCL		P	MI	.1	0	0	0	C	
MHT	9	C	165		2	LYETA	MTMYE	0	25	75	VC	CL						0	SDCL		P	MI	1	0	0	0	C	
MHT	9	C	166		2	LYETA	MTMYE	10	30	60	LP	CL						0	SDCL		P	MI	.1	0	0	0	R	
MHT	9	C	167	0																								
MHT	9	C	168	2	2	LWHYE	MTLTA	0	55	45	VC	CL						0	CLSD	P	M	BP	1	0	0	0	R	
MHT	9	C	169		2	LORTA	MTWHYE	0	70	30	VC	CL						0	CLSD	P	M	BP	1	0	0	0	R	
MHT	9	C	170		2	LYETA	MTMYE	0	90	10	C	VF	2					0	SD	W	E	BP	0	0	0	0	R	
MHT	9	C	171		2	LYETA		0	93	7	VC	F	3					0	SD	M	G	BP	.1	0	0	0	R	
MHT	9	C	172		2	LORTA		5	85	10	GR	F	2					0	SD	M	G	BP	1	0	0	0	R	
MHT	9	C	173	6	2	MORTA	ICL	0	75	25	VC	VF	3					0	CLSD	P	M	BP	3	0	0	0	C	
MHT	9	C	174		2	MORTA	ICL	5	75	20	GR	M	3					0	SD	M	G	BP	2	0	0	0	C	
MHT	9	C	175		2	MORTA	ICLMTWH	0	50	50	VC	CL						0	CLSD	P	M	BP	.1	0	0	0	C	
MHT	9	C	176		2	MORTA		0	50	50	VC	CL						0	CLSD	P	M	BP	.5	0	0	0	C	
MHT	9	C	177		2	LORTA		0	80	20	C	F	2					0	SD	M	G	BP	7	0	0	0	C	
MHT	9	C	178		2	LYETA		0	90	10	C	F	3					0	SD	W	E	BP	1	0	0	0	C	
MHT	9	C	179	5	2	LYETA		0	93	7	C	M	4					0	SD	W	E	BP	.1	0	0	0	R	
MHT	9	C	180	7	2	MORTA	MTDPITA	1	54	45	GR	CL						0	CLSD	P	M	BP	3	0	0	0	R	
MHT	9	C	181		2	DORTA	ICL	0	70	30	VC	CL						0	CLSD	P	M	BP	0	0	0	0	C	
MHT	9	C	182		3	MORTA	ICL	0	40	60	C	CL						0	SDCL		P	MI	3	0	0	0	C	
MHT	9	C	183		3	MGYTA	MTMOR	0	40	60	C	CL						0	SDCL		P	MI	3	0	0	0	R	
MHT	9	C	184		3	MGYTA	MTMOR	0	50	50	C	CL						0	SDCL		P	MI	3	0	0	0	R	
MHT	9	C	185		2	MORTA		0	75	25	VC	F	2					0	CLSD	P	M	BP	2	0	0	0	C	
MHT	9	C	186		2	MORTA	WSPICL	0	75	25	C	M	3					0	CLSD	P	M	BP	1	0	0	0	C	
MHT	9	C	187		2	MORTA	WSP	0	65	35	VC	CL						0	CLSD	P	M	BP	1	0	0	0	C	
MHT	9	C	188		2	MORTA		0	70	30	VC	CL						0	CLSD	P	M	BP	1	0	0	0	C	
MHT	9	C	189		2	MORTA	WSP	0	70	30	VC	CL						0	CLSD	P	M	BP	1	0	0	0	C	
MHT	9	C	190		2	MORTA	WSP	0	65	35	VC	CL						0	CLSD	P	M	BP	1	0	0	0	C	

AREA	NO	SCR	DEPTH	REC	IND	COLOR	STRUCTURE	%GR	%SD	%MD	MX	MD	R	%CG	%CS	%CM	%CMT	%CAR	NAME	SO	%POR	TYPE	%MUS	%GLA	%LIG	%SUL	H	FOSSILS
MHT	10	C	1		2	REBR		.1	70	30	GR	M	3					0	CLSD	P	M	BP	0	0	0	0	C	
MHT	10	C	2	9	1	MGY	BTARE	.1	90	10	GR	M	3					0	SD	M	G	BP	0	0	0	0	A	
MHT	10	C	3		1	TA	MTRE	.1	80	20	GR	M	3					0	SD	P	M	BP	0	0	0	0	C	
MHT	10	C	4		1	TA		.1	90	10	LP	M	3					0	SD	M	G	BP	0	0	0	0	C	
MHT	10	C	5		1	LBR		.1	90	10	GR	M	3					0	SD	M	G	BP	0	0	0	0	C	
MHT	10	C	6	9	1	LRE		1	89	10	GR	M	3					0	SD	M	G	BP	0	0	0	0	C	
MHT	10	C	7	9	1	LRE	BTA	1	89	10	LP	M	3					0	SD	M	G	BP	0	0	0	0	C	
MHT	10	C	8	9	1	REBR		1	84	15	GR	M	3					0	SD	M	G	BP	0	0	0	0	C	
MHT	10	C	9		1	REBR		1	89	10	GR	M	3					0	SD	M	G	BP	0	0	0	0	C	
MHT	10	C	10		1	REBR		1	84	15	LP	M	3					0	SD	M	G	BP	0	0	0	0	C	
MHT	10	C	11		1	REBR		.1	90	10	GR	M	3					0	SD	M	G	BP	0	0	0	0	C	
MHT	10	C	12		1	REBR		1	89	10	LP	M	3					0	SD	M	G	BP	0	0	0	0	C	
MHT	10	C	13		1	REBR		.1	85	15	GR	M	3					0	SD	M	G	BP	0	0	0	0	C	
MHT	10	C	14		1	REBR		.1	80	20	GR	M	3					0	SD	P	P	BP	0	0	0	0	R	
MHT	10	C	15	6	2	REBR		1	74	25	GR	F	3					0	CLSD	P	P	BP	1	0	0	0	R	
MHT	10	C	16	6	2	REBR	MTYE	1	69	30	GR	F	3					0	CLSD	P	P	BP	0	0	0	0	R	
MHT	10	C	17		2	REBR		1	69	30	GR	F	3					0	CLSD	P	P	BP	0	0	0	0	R	
MHT	10	C	18		2	REBR		1	69	30	GR	F	3					0	CLSD	P	P	BP	0	0	0	0	R	
MHT	10	C	19		2	REBR		1	69	30	GR	F	3					0	CLSD	P	P	BP	0	0	0	0	R	
MHT	10	C	20		2	REBR		1	49	50	GR	F	3					0	SDCL	P	P	MI	0	0	0	0	R	
MHT	10	C	21		2	REBR		1	24	75	LP	F	3					0	CL	P	P	MI	0	0	0	0	R	
MHT	10	C	22		2	REBR		1	49	50	LP	F	3					0	SDCL	P	P	MI	0	0	0	0	R	
MHT	10	C	23		2	REBR		1	49	50	LP	F	3					0	SDCL	P	P	MI	0	0	0	0	R	
MHT	10	C	24		2	REBR		1	49	50	LP	F	3					0	SDCL	P	P	MI	0	0	0	0	R	
MHT	10	C	25	9	2	REBR		1	49	50	LP	F	3					0	SDCL	P	P	MI	0	0	0	0	R	
MHT	10	C	26	9	2	REBR		1	49	50	LP	F	3					0	SDCL	P	P	MI	0	0	0	0	R	
MHT	10	C	27		2	REBR		1	49	50	LP	F	3					0	SDCL	P	P	MI	0	0	0	0	R	
MHT	10	C	28	9	3	REBR	MTYE	1	49	50	LP	CL	3					0	SDCL	P	P	MI	1	0	0	0	R	
MHT	10	C	29		3	REBR	MTYE	1	49	50	LP	CL	3					0	SDCL	P	P	MI	1	0	0	0	R	
MHT	10	C	30	9	3	REBR	MTYEFE	1	39	60	LP	CL	3					0	FESDCL	P	P	MI	1	0	0	0	R	
MHT	10	C	31	6	3	REBR	BYE	1	69	30	LP	M	3					0	CLSD	P	P	BP	1	0	0	0	R	
MHT	10	C	32	0																								
MHT	10	C	33		2	VARPI	BREBRYE	6	69	25	UP	C	3					0	CLSD	P	P	BP	1	0	0	0	R	
MHT	10	C	34		2	VARYE	VARPIBK	2	78	20	GR	C	3					0	SD	P	P	BP	1	0	0	0	R	
MHT	10	C	35	9	2	VARBR	MTPIYE	1	69	30	GR	C	3					0	CLSD	P	P	BP	2	0	0	0	R	
MHT	10	C	36	9	2	VARPI	MTYE	1	74	25	GR	M	3					0	CLSD	P	P	BP	1	0	0	0	R	
MHT	10	C	37		2	DYEOR	BREBR	3	72	25	LP	C	3					0	CLSD	P	P	BP	1	0	0	0	R	
MHT	10	C	38	6	2	GYOR		1	74	25	GR	C	3					0	CLSD	M	M	BP	2	0	0	0	R	

AREA	NO	SCR	DEPTH	REC	IND	COLOR	STRUCTURE	%GR	%SD	%MD	MX	MD	R	%CG	%CS	%CM	%CMT	%CAR	NAME	SO	%POR	TYPE	%MUS	%GLA	%LIG	%SUL	H	FOSSILS
MHT	10	C	39		1	DYEOR	BREBR	1	74	25	LP	C	3					0	CLSD	M	M	BP	1	0	0	0	R	
MHT	10	C	40	2	2	DYEOR		3	72	25	GR	C	3					0	CLSD	M	M	BP	1	0	0	0	R	
MHT	10	C	41		2	YEOR	BREBR	2	73	25	GR	C	3					0	CLSD	M	M	BP	.1	0	0	0	R	
MHT	10	C	42	9	2	LRE	MTGY	4	71	25	LP	C	4					0	CLSD	M	M	BP	.1	0	0	0	R	
MHT	10	C	43		2	REBR	BDGY	2	73	25	GR	M	3					0	CLSD	M	M	BP	1	0	0	0	R	
MHT	10	C	44		2	REBR	BMGY	7	68	25	LP	C	3					0	CLSD	P	P	BP	1	0	0	0	R	
MHT	10	C	45	6	2	LBR		2	73	25	LP	C	4					0	CLSD	P	M	BP	.1	0	0	0	R	
MHT	10	C	46	6	1	GYOR		4	86	10	LP	C	3					0	SD	P	G	BP	.1	0	0	0	R	
MHT	10	C	47		2	DYEOR	BREBR	4	66	30	LP	C	4					0	CLSD	P	P	BP	.1	0	0	0	R	
MHT	10	C	48	9	2	DYEOR		4	76	20	LP	M	3					0	SD	P	M	BP	.1	0	0	0	R	
MHT	10	C	49		2	MBR	BYE	2	68	30	LP	M	3					0	CLSD	P	P	BP	1	0	0	0	C	
MHT	10	C	50	9	2	VARGY	BPIYE	3	72	25	LP	F	3					0	CLSD	P	P	BP	2	0	0	0	C	
MHT	10	C	51		2	VARGY	BPIORLBR	2	68	30	LP	C	3					0	CLSD	P	P	BP	1	0	0	0	C	
MHT	10	C	52		2	VARYE	BPIGY	3	82	15	LP	M	3					0	SD	P	M	BP	3	0	0	0	A	
MHT	10	C	53		2	YEOR	BYEPI	2	68	30	LP	F	3					0	CLSD	P	P	BP	1	0	0	0	C	
MHT	10	C	54		2	VARYE	BBRGYPI	2	73	25	LP	F	3					0	CLSD	P	P	BP	1	0	0	0	C	
MHT	10	C	55	6	2	DYEOR	BGYOR	1	74	25	LP	M	3					0	CLSD	P	P	BP	1	0	0	0	C	
MHT	10	C	56		2	REBR	BYEDGY	3	82	15	LP	F	3					0	SD	P	M	BP	2	0	0	0	C	
MHT	10	C	57		2	ORRE	BYEBR	.1	90	10	LP	F	3					0	SD	M	G	BP	1	0	0	0	C	
MHT	10	C	58		2	REBR	BDGYYE	.1	90	10	GR	F	3					0	SD	M	G	BP	1	0	0	0	C	
MHT	10	C	59		2	REBR	BYE	1	84	15	GR	F	3					0	SD	M	G	BP	1	0	0	0	C	
MHT	10	C	60		1	REBR	BGY	0	95	5	VC	F	3					0	SD	W	E	BP	1	0	0	0	C	
MHT	10	C	61		1	REBR	BGYGN	.1	90	10	GR	F	3					0	SD	M	G	BP	1	0	0	0	C	
MHT	10	C	62		1	REBR	BGYTA	0	90	10	VC	F	3					0	SD	M	G	BP	1	0	0	0	A	
MHT	10	C	63		1	MREBR	BYEGY	.1	90	10	LP	F	3					0	SD	M	G	BP	1	0	0	0	C	
MHT	10	C	64		2	VARGY	BRETA	.1	90	10	GR	F	3					0	SD	W	G	BP	1	0	0	0	C	
MHT	10	C	65	9	1	GYRE		1	84	15	GR	M	3					0	SD	W	G	BP	1	0	0	0	C	
MHT	10	C	66	9	1	GYRE	BGYPUYE	0	85	15	C	M	3					0	SD	W	G	BP	2	0	0	0	C	
MHT	10	C	67		2	GYRE	BTAGYDGY	1	84	15	LP	F	3					0	SD	M	G	BP	3	0	0	0	C	
MHT	10	C	68		2	VAROR	BDGYREGY	.1	80	20	GR	F	4					0	SD	W	G	BP	4	0	0	0	R	
MHT	10	C	69		2	GYRE	BLBRGYTA	.1	85	15	GR	F	3					0	SD	M	M	BP	2	0	0	0	C	
MHT	10	C	70		1	MYEBR	BPURE	.1	94	6	GR	M	3					0	SD	W	E	BP	1	0	0	0	C	
MHT	10	C	71		2	REBR	BTAREPU	.1	85	15	LP	F	3					0	SD	M	G	BP	0	0	0	0	R	
MHT	10	C	72		1	LYEBR	BPUBR	1	94	5	GR	C	3					0	SD	W	E	BP	1	0	0	0	R	
MHT	10	C	73		1	DYEOR	BLBRIPB	15	75	10	LP	M	3					0	SD	M	G	BP	1	0	0	0	C	
MHT	10	C	74		1	DYEOR		1	95	4	GR	M	3					0	SD	W	E	BP	1	0	0	0	C	
MHT	10	C	75	9	1	DYEOR	BLBR	0	95	5	VC	M	3					0	SD	W	E	BP	.1	0	0	0	R	
MHT	10	C	76	9	1	LYEOR		1	97	2	LP	C	3					0	SD	W	E	BP	0	0	0	0	R	

AREA	NO	SCR	DEPTH	REC	IND	COLOR	STRUCTURE	%GR	%SD	%MD	MX	MD	R	%CG	%CS	%CM	%CMT	%CAR	NAME	SO	%POR	TYPE	%MUS	%GLA	%LIG	%SUL	H	FOSSILS
MHT	10	C	77		1	LBR	BDYEOR	.1	97	3	GR	C	3					0	SD	W	E	BP	0	0	0	0	R	
MHT	10	C	78	9	1	DYEOR		.1	97	3	GR	M	3					0	SD	W	E	BP	0	0	0	0	R	
MHT	10	C	79		1	DYEOR	BLBR	1	96	3	GR	C	3					0	SD	W	E	BP	0	0	0	0	R	
MHT	10	C	80	9	1	REPU		1	95	4	GR	C	3					0	SD	W	E	BP	0	0	0	0	R	
MHT	10	C	81		1	REPU	BLBR	2	94	4	LP	C	4					0	SD	W	E	BP	0	0	0	0	R	
MHT	10	C	82		1	REPU	BDYEOR	4	93	3	GR	C	4					0	SD	W	E	BP	0	0	0	0	R	
MHT	10	C	83		1	REPU	BDYEOR	4	92	4	GR	C	4					0	SD	W	E	BP	0	0	0	0	R	
MHT	10	C	84	9	1	DYEOR		1	97	2	LP	C	4					0	SD	W	E	BP	0	0	0	0	R	
MHT	10	C	85		1	DYEOR	BMBR	1	96	3	LP	C	4					0	SD	M	E	BP	0	0	0	0	R	
MHT	10	C	86		1	DYEOR		2	95	3	LP	C	4					0	SD	W	E	BP	0	0	0	0	R	
MHT	10	C	87	9	1	DYEOR	BLYEBR	1	96	3	LP	C	4					0	SD	W	E	BP	0	0	0	0	R	
MHT	10	C	88	9	1	DYEOR		4	93	3	LP	C	4					0	SD	W	E	BP	0	0	0	0	R	
MHT	10	C	89		1	DYEOR		6	91	3	GR	C	4					0	SD	W	E	BP	0	0	0	0	R	
MHT	10	C	90		1	DYEOR		5	92	3	GR	C	4					0	SD	W	E	BP	0	0	0	0	R	
MHT	10	C	91		1	DYEOR		3	94	3	LP	C	4					0	SD	W	E	BP	0	0	0	0	R	
MHT	10	C	92		1	LYEOR		2	95	3	LP	C	4					0	SD	W	E	BP	0	0	0	0	R	
MHT	10	C	93		1	DYEOR		3	94	3	LP	C	4					0	SD	W	E	BP	0	0	0	0	R	
MHT	10	C	94		1	LYEOR		2	96	2	LP	C	4					0	SD	W	E	BP	0	0	0	0	R	
MHT	10	C	95		1	DYEOR		1	96	3	LP	C	4					0	SD	W	E	BP	0	0	0	0	R	
MHT	10	C	96	8	2	YEOR	BBRISD	0	15	85	C	CL	3					0	CL	P	P	MI	2	0	0	0	C	
MHT	10	C	97		1	DYEOR		2	93	5	LP	C	3					0	SD	M	E	BP	.1	0	0	0	C	
MHT	10	C	98		1	MYEBR	MTTA	3	62	35	LP	CL	3					0	CLSD	P	P	BP	.1	0	0	0	R	
MHT	10	C	99		1	GYOR	BLBR	2	78	20	LP	M	3					0	SD	P	M	BP	1	0	0	0	C	
MHT	10	C	100		1	GYOR	BBK	2	53	45	LP	CL	3					0	CLSD	P	P	BP	1	0	0	0	C	
MHT	10	C	101		1	DYEOR	BLBRIPB	2	88	10	LP	C	3					0	SD	M	G	BP	.1	0	0	0	R	
MHT	10	C	102		1	VLOR		.1	98	2	GR	F	3					0	SD	W	E	BP	2	0	0	0	A	
MHT	10	C	103		1	DYEOR		1	94	5	LP	F	3					0	SD	W	E	BP	1	0	0	0	A	
MHT	10	C	104		1	LYEOR		0	97	3	VC	F	3					0	SD	W	E	BP	1	0	0	0	A	
MHT	10	C	105	3	1	LYEOR		0	98	2	VC	F	3					0	SD	W	E	BP	2	0	0	0	A	
MHT	10	C	106	0																								
MHT	10	C	107		1	DYEOR		1	84	15	LP	M	3					0	SD	M	G	BP	1	0	0	0	C	
MHT	10	C	108		1	DYEOR	BBK	2	95	3	GR	M	3					0	SD	W	E	BP	1	0	0	0	C	
MHT	10	C	109		2	GYOR	YEORISD	0	40	60	VC	CL	3					0	SDCL	P	P	MI	2	0	0	0	C	
MHT	10	C	110		2	GYOR	YEORISD	0	25	75	C	CL	3					0	SDCL	P	P	MI	2	0	0	0	C	
MHT	10	C	111		2	GYGN	YEORISD	1	39	60	GR	CL	3					0	SDCL	P	P	MI	2	0	0	0	C	
MHT	10	C	112		2	DYEBR	GYGNICL	1	54	45	GR	CL	3					0	CLSD	P	P	BP	1	0	0	0	C	
MHT	10	C	113		2	MYEBR	WSPGYICL	0	30	70	VC	CL	3					0	SDCL	P	P	MI	.1	0	0	0	C	
MHT	10	C	114		1	DYEOR		1	96	3	LP	M	3					0	SD	W	E	BP	1	0	0	0	C	

AREA	NO	SCR	DEPTH	REC	IND	COLOR	STRUCTURE	%GR	%SD	%MD	MX	MD	R	%CG	%CS	%CM	%CMT	%CAR	NAME	SO	%POR	TYPE	%MUS	%GLA	%LIG	%SUL	H	FOSSILS
MHT	10	C	115		1	DYEOR	WSPGYICL	1	95	4	GR	M	3					0	SD	W	E	BP	1	0	0	0	C	
MHT	10	C	116		1	DYEOR		12	82	6	LP	C	3					0	SD	M	G	BP	.1	0	0	0	R	
MHT	10	C	117		1	DYEOR		11	84	5	LP	M	3					0	SD	M	G	BP	.1	0	0	0	R	
MHT	10	C	118		1	DYEOR	MTBR	25	65	10	LP	C	3					0	PBSD	P	G	BP	.1	0	0	0	R	
MHT	10	C	119		1	DYEOR		5	50	45	GR	F	3					0	CLSD	P	P	BP	.1	0	0	0	R	
MHT	10	C	120		1	LBR	MTBR	10	87	3	LP	C	3					0	SD	M	E	BP	1	0	0	0	R	
MHT	10	C	121		1	DYEOR	BBNGYICL	30	50	20	LP	C	3					0	PBSD	P	P	BP	5	0	0	0	R	
MHT	10	C	122		1	DYEOR	WSPGYICL	2	89	9	LP	M	3					0	SD	M	G	BP	1	0	0	0	C	
MHT	10	C	123		1	DYEOR	WSPGYICL	4	86	10	GR	F	3					0	SD	M	G	BP	1	0	0	0	C	
MHT	10	C	124		2	DYEBR	BGYGN	0	65	35	VC	F	4					0	CLSD	P	P	BP	3	0	0	0	R	
MHT	10	C	125		1	DYEOR	BTA	0	93	7	C	F	3					0	SD	W	E	BP	1	0	0	0	A	
MHT	10	C	126		1	DYEOR	BTAGYICL	0	65	35	VC	F	3					0	CLSD	P	E	BP	1	0	0	0	A	
MHT	10	C	127		1	DYEOR	BLBR	0	94	6	C	F	4					0	SD	W	E	BP	2	0	0	0	A	
MHT	10	C	128		1	DYEOR	BLBR	3	87	10	GR	M	3					0	CTSLSD	P	G	BP	.1	0	0	0	C	
MHT	10	C	129	8	1	DYEOR		0	97	3	C	M	3					0	SD	W	E	BP	1	0	0	0	C	
MHT	10	C	130	0																								
MHT	10	C	131	0																								
MHT	10	C	132	0																								
MHT	10	C	133		1	DYEOR	LYEORICL	1	79	20	GR	M	3					0	SD	P	M	BP	1	0	0	0	C	
MHT	10	C	134		1	DYEOR		3	91	6	LP	C	3					0	SD	W	E	BP	.1	0	0	0	C	
MHT	10	C	135		1	DYEOR		1	94	5	GR	C	3					0	SD	W	E	BP	.1	0	0	0	C	
MHT	10	C	136		1	DYEOR		1	84	15	GR	M	3					0	SD	W	G	BP	.1	0	0	0	C	
MHT	10	C	137		1	DYEOR		1	89	10	GR	M	3					0	SD	W	G	BP	.1	0	0	0	C	
MHT	10	C	138		1	LBR	WSPGYCL	1	59	40	GR	M	3					0	CLSD	P	P	BP	.1	0	0	0	C	
MHT	10	C	139		1	LBR		3	87	10	LP	M	3					0	SD	M	G	BP	2	0	0	0	C	
MHT	10	C	140		1	LBR		4	81	15	LP	M	3					0	SD	M	G	BP	.1	0	0	0	C	
MHT	10	C	141		1	LBR		30	50	20	LP	F	3					0	PBSD	P	M	BP	1	0	0	0	R	
MHT	10	C	142		1	LBR		25	68	7	LP	C	3					0	PBSD	M	G	BP	1	0	0	0	C	
MHT	10	C	143	0																								
MHT	10	C	144	0																								
MHT	10	C	145		1	LBR		20	72	8	GR	C	3					0	SD	M	G	BP	1	0	0	0	C	
MHT	10	C	146		1	LBR		2	83	15	LP	F	3					0	SD	M	G	BP	.1	0	0	0	C	
MHT	10	C	147		1	LBR		3	82	15	GR	M	3					0	SD	M	G	BP	.1	0	0	0	C	
MHT	10	C	148		1	LBR		4	81	15	GR	C	3					0	SD	M	G	BP	.1	0	0	0	C	
MHT	10	C	149		1	DYEOR	VARGYGN	8	84	8	LP	M	3					0	SD	M	G	BP	.1	0	0	0	C	
MHT	10	C	150		1	DYEOR	BGYGN	15	75	10	LP	C	3					0	CTSLSD	P	M	BP	1	0	0	0	C	
MHT	10	C	151		1	DYEOR	BGYGN	2	93	5	LP	M	4					0	SD	M	G	BP	1	0	0	0	C	
MHT	10	C	152		1	DYEOR	BGYGN	5	91	4	GR	M	3					0	SD	P	G	BP	1	0	0	0	A	

AREA	NO	SCR	DEPTH	REC	IND	COLOR	STRUCTURE	%GR	%SD	%MD	MX	MD	R	%CG	%CS	%CM	%CMT	%CAR	NAME	SO	%POR	TYPE	%MUS	%GLA	%LIG	%SUL	H	FOSSILS
MHT	10	C	153		1	MGYBR	BGYGNIPB	25	72	3	LP	M	3					0	PBSD	P	G	BP	.1	0	0	0	C	
MHT	10	C	154		1	GYOR	FEBGY	0	98	2	C	F	3					0	SD	W	E	BP	5	0	0	0	A	
MHT	10	C	155		1	DYEOR	BTA	0	97	3	C	F	3					0	SD	W	E	BP	3	0	0	0	A	
MHT	10	C	156		1	DYEOR		0	96	4	M	F	3					0	SD	W	E	BP	7	0	0	0	C	
MHT	10	C	157		1	DYEOR		0	95	5	VC	F	3					0	SD	W	E	BP	5	0	0	0	C	
MHT	10	C	158		1	DYEOR		2	93	5	LP	F	3					0	SD	W	E	BP	5	0	0	0	C	
MHT	10	C	159		1	DYEOR	BLYEOR	1	89	10	GR	M	3					0	SD	M	G	BP	1	0	0	0	C	
MHT	10	C	160		1	GYOR	BDYEOR	1	91	8	LP	C	3					0	SD	M	G	BP	1	0	0	0	C	
MHT	10	C	161		1	MYEOR	MTDYEOR	1	95	4	LP	C	3					0	SD	W	E	BP	2	0	0	0	C	
MHT	10	C	162		1	GYOR	MTDYEOR	2	94	4	LP	C	3					0	SD	W	E	BP	1	0	0	0	C	
MHT	10	C	163		1	GYOR	MTBR	4	92	4	LP	C	3					0	SD	W	E	BP	3	0	0	0	C	
MHT	10	C	164		2	DYEOR	VARBRGY	7	53	40	LP	F	3					0	CLSD	P	P	BP	5	0	0	0	C	
MHT	10	C	165		2	DYEOR	VARBRGY	5	65	30	GR	F	3					0	CLSD	P	P	BP	7	0	0	0	A	
MHT	10	C	166		2	DYEOR	FEVARICL	0	85	15	VC	M	3					0	SD	M	M	BP	15	0	0	0	C	
MHT	10	C	167		2	DYEOR	WSPICL	1	89	10	GR	C	3					0	SD	M	M	BP	1	0	0	0	R	
MHT	10	C	168		2	DYEOR	WSPICL	5	80	15	LP	C	3					0	SD	M	M	BP	3	0	0	0	C	
MHT	10	C	169		2	DYEOR	VARBRICL	1	84	15	GR	C	3					0	SD	M	M	BP	1	0	0	0	R	
MHT	10	C	170		1	GYOR	WSPICL	3	94	3	GR	C	3					0	SD	W	E	BP	1	0	0	0	R	
MHT	10	C	171		1	GYOR	BGYICL	0	95	5	C	F	3					0	SD	W	E	BP	7	0	0	0	A	
MHT	10	C	172		1	MYEOR	BGYICL	0	96	4	VC	F	3					0	SD	W	E	BP	7	0	0	0	A	
MHT	10	C	173		1	MYEOR	BGYICL	0	97	3	VC	F	3					0	SD	W	E	BP	2	0	0	0	C	
MHT	10	C	174		1	MYEOR	BGYICL	0	97	3	VC	F	3					0	SD	W	E	BP	3	0	0	0	C	
MHT	10	C	175		1	MYEOR	BGYICL	0	96	4	VC	F	3					0	SD	W	E	BP	5	0	0	0	C	
MHT	10	C	176		1	DYEOR	GYICL	0	96	4	VC	C	2					0	SD	W	E	BP	5	0	0	0	C	
MHT	10	C	177		1	GYOR	BGYICL	0	98	2	VC	M	2					0	SD	W	E	BP	4	0	0	0	C	
MHT	10	C	178		2	GYOR	BGYCLISD	0	40	60	M	CL	2					0	SDCL	P	P	MI	10	0	0	0	C	
MHT	10	C	179	2	1	DYEOR		0	97	3	VC	M	4					0	SD	W	E	BP	8	0	0	0	C	
MHT	10	C	180	0																								
MHT	10	C	181	0																								
MHT	10	C	182		1	GYOR	XB	0	97	3	M	VF	4					0	SD	W	E	BP	5	0	0	0	C	
MHT	10	C	183		1	MYEOR	BGYICL	0	90	10	VC	M	4					0	SD	W	G	BP	4	0	0	0	C	
MHT	10	C	184		1	MYEOR	BGYICL	.1	93	7	GR	M	4					0	SD	W	E	BP	5	0	0	0	C	
MHT	10	C	185		1	MYEOR	BGYICL	.1	75	25	GR	C	4					0	CLSD	M	M	BP	1	0	0	0	C	
MHT	10	C	186		1	MYEOR	MTGY	0	94	6	C	M	3					0	SD	W	E	BP	1	0	0	0	C	
MHT	10	C	187		1	MYEOR	MTGY	0	95	5	C	M	3					0	SD	W	E	BP	.1	0	0	0	C	
MHT	10	C	188		1	MYEOR	MTGY	0	95	5	C	M	3					0	SD	W	E	BP	.1	0	0	0	C	
MHT	10	C	189		1	MYEOR	BBRICL	0	95	5	C	M	3					0	SD	W	E	BP	1	0	0	0	C	
MHT	10	C	190		1	MYEOR	BBRICL	0	94	6	C	M	3					0	SD	W	E	BP	1	0	0	0	C	

AREA	NO	SCR	DEPTH	REC	IND	COLOR	STRUCTURE	%GR	%SD	%MD	MX	MD	R	%CG	%CS	%CM	%CMT	%CAR	NAME	SO	%POR	TYPE	%MUS	%GLA	%LIG	%SUL	H	FOSSILS
MHT	10	C	191	0																								

AREA	NO	SCR	DEPTH	REC	IND	COLOR	STRUCTURE	%GR	%SD	%MD	MX	MD	R	%CG	%CS	%CM	%CMT	%CAR	NAME	SO	%POR	TYPE	%MUS	%GLA	%LIG	%SUL	H	FOSSILS
MHT	011	C	1		1	LBR		0	92	8	VC	M	3					0	SD	W	E	BP	0	0	1	0	C	
MHT	011	C	2		1	LBR	MTMGY	0	90	10	VC	M	3					0	SD	M	G	BP	0	0	1	0	C	
MHT	011	C	3		1	LBR	MTBK	0	93	7	VC	M	3					0	SD	W	E	BP	0	0	1	0	C	
MHT	011	C	4	0																								
MHT	011	C	5		2	LBR		0	94	6	VC	M	3					0	SD	W	E	BP	0	0	1	0	C	
MHT	011	C	6	0																								
MHT	011	C	7		2	LBR		0	93	7	VC	M	3					0	SD	W	E	BP	0	0	5	0	C	
MHT	011	C	8		2	LBR		1	93	6	GR	M	3					0	SD	M	E	BP	0	0	0	0	C	
MHT	011	C	9		2	LBR	BMBR	1	94	5	GR	M	3					0	SD	M	E	BP	0	0	0	0	C	
MHT	011	C	10		2	REBR	BLBR	2	88	10	GR	M	3					0	SD	M	G	BP	0	0	0	0	C	
MHT	011	C	11		2	REBR		1	59	40	VP	CL	3					0	CLSD	P	P	BP	0	0	0	0	C	
MHT	011	C	12		2	REBR		0	45	55	VC	CL	3					0	SDCL	P	P	MI	0	0	0	0	C	
MHT	011	C	13		2	REBR	BYEBR	2	53	45	GR	CL	3					0	CLSD	P	P	BP	0	0	0	0	C	
MHT	011	C	14		3	REBR		1	44	55	GR	CL	3					0	SDCL	P	P	MI	0	0	0	0	C	
MHT	011	C	15		3	REBR		1	44	55	GR	CL	3					0	SDCL	P	P	MI	0	0	0	0	C	
MHT	011	C	16	4	3	REBR	MTYE	0	45	55	VC	CL	3					0	SDCL	P	P	MI	1	0	0	0	C	
MHT	011	C	17		3	REBR	MTYE	1	44	55	GR	CL	3					0	SDCL	P	P	MI	1	0	0	0	C	
MHT	011	C	18		3	REBR	MTYE	2	43	55	GR	CL	3					0	SDCL	P	P	MI	1	0	0	0	C	
MHT	011	C	19		3	REBR	MTYE	2	43	55	GR	CL	3					0	SDCL	P	P	MI	1	0	0	0	C	
MHT	011	C	20		3	REBR	MTYE	0	40	60	VC	CL	3					0	SDCL	P	P	MI	2	0	0	0	C	
MHT	011	C	21		3	REBR	MTYEDBR	0	35	65	VC	CL	3					0	SDCL	P	P	MI	4	0	0	0	C	
MHT	011	C	22	0																								
MHT	011	C	23		3	REBR	MTYEDBR	0	45	55	VC	CL	3					0	SDCL	P	P	MI	3	0	0	0	C	
MHT	011	C	24		3	REBR	MTYEDBR	1	44	55	GR	CL	3					0	SDCL	P	P	MI	1	0	0	0	C	
MHT	011	C	25		2	REBR	MTYEGY	0	70	30	VC	M	3					0	CLSD	P	P	BP	1	0	0	0	C	
MHT	011	C	26	6	2	PUGY	MTREBR	7	58	35	LP	C	3					0	CLSD	P	P	BP	1	0	0	0	C	
MHT	011	C	27		2	REBR	MTPUGY	0	65	35	VC	M	3					0	CLSD	P	P	BP	1	0	0	0	C	
MHT	011	C	28	4	2	REBR		0	65	35	VC	M	3					0	CLSD	P	P	BP	1	0	0	0	C	
MHT	011	C	29		3	REBR	MTPUGY	0	60	40	VC	CL	3					0	CLSD	P	P	BP	2	0	0	0	C	
MHT	011	C	30		3	REBR	MTPUGY	0	65	35	VC	CL	3					0	CLSD	P	P	BP	2	0	0	0	C	
MHT	011	C	31		2	REBR	BGNBR	1	74	25	GR	M	3					0	CLSD	P	P	BP	2	0	0	0	C	
MHT	011	C	32	6	2	GNBR	BREBR	4	81	15	LP	C	3					0	SD	P	G	BP	5	0	0	0	C	
MHT	011	C	33		2	GNBR	LGYICL	5	75	20	GR	C	3					0	SD	P	M	BP	2	0	0	0	C	
MHT	011	C	34	5	2	LGY	REBRISD	2	43	55	GR	CL	3					0	SDCL	P	P	MI	2	0	0	0	C	
MHT	011	C	35		2	DYEOR	LGYYEICL	4	71	25	UP	C	3					0	CLSD	P	P	BP	1	0	0	0	C	
MHT	011	C	36	6	2	LREBR		5	80	15	UP	C	3					0	SD	P	G	BP	3	0	0	0	C	
MHT	011	C	37		2	MREBR	BDYEOR	2	83	15	LP	C	3					0	SD	M	G	BP	1	0	0	0	C	
MHT	011	C	38		2	MREBR	BGNBR	0	75	25	VC	C	3					0	CLSD	P	P	BP	2	0	0	0	C	

AREA	NO	SCR	DEPTH	REC	IND	COLOR	STRUCTURE	%GR	%SD	%MD	MX	MD	R	%CG	%CS	%CM	%CMT	%CAR	NAME	SO	%POR	TYPE	%MUS	%GLA	%LIG	%SUL	H	FOSSILS
MHT	011	C	39		2	DYEOR	BGNGYICL	1	54	45	GR	CL	3					0	CLSD	P	P	BP	5	0	0	0	C	
MHT	011	C	40	6	3	MPU	BREWH	0	15	85	M	CL	3					0	CL	P	P	MI	3	0	0	0	C	
MHT	011	C	41		3	MPU	MTREWH	0	10	90	M	CL	3					0	CL	P	P	MI	3	0	0	0	C	
MHT	011	C	42		3	MPU	MTREWH	0	30	70	C	CL	3					0	SDCL	P	P	MI	3	0	0	0	C	
MHT	011	C	43		3	BEGY	VARREYE	0	35	65	C	CL	3					0	SDCL	P	P	MI	2	0	0	0	C	
MHT	011	C	44		3	DYEOR	VARREMGY	0	45	55	C	CL	3					0	SDCL	P	P	MI	5	0	0	0	C	
MHT	011	C	45		3	GNGY	VARREYE	0	40	60	C	CL	3					0	SDCL	P	P	MI	3	0	0	0	C	
MHT	011	C	46		3	GNGY	BYEISD	0	40	60	VC	CL	3					0	SDCL	P	P	MI	1	0	0	0	C	
MHT	011	C	47		2	YEBR	CLB	5	70	25	LP	C	3					0	CLSD	P	P	BP	0	0	0	0	C	
MHT	011	C	48	3	2	REBR	MTLGYICL	5	70	25	LP	C	3					0	CLSD	P	P	BP	1	0	0	0	C	
MHT	011	C	49		2	REBR	BLGYICL	5	75	20	GR	C	3					0	SD	M	M	BP	1	0	0	0	C	
MHT	011	C	50	3	2	REBR	BLGYICL	7	48	45	LP	C	3					0	CLSD	P	P	BP	0	0	0	0	C	
MHT	011	C	51		2	DYEOR	BMGYICL	1	79	20	GR	C	3					0	SD	P	M	BP	2	0	0	0	C	
MHT	011	C	52	0																								
MHT	011	C	53		1	OR		3	87	10	GR	C	3					0	SD	M	G	BP	1	0	0	0	C	
MHT	011	C	54		1	GNBR		25	60	15	LP	C	4					0	PBSD	P	G	BP	0	0	0	0	C	
MHT	011	C	55		1	GNBR		25	60	15	LP	VC	4					0	PBSD	P	G	BP	1	0	0	0	C	
MHT	011	C	56		1	GNBR	BREBR	25	60	15	LP	VC	4					0	PBSD	P	G	BP	0	0	0	0	C	
MHT	011	C	57		1	GNBR	MTREBR	25	65	10	LP	VC	4					0	PBSD	P	G	BP	0	0	0	0	C	
MHT	011	C	58		1	GNBR	MTREBR	30	55	15	LP	GR	4					0	PBSD	P	G	BP	0	0	0	0	C	
MHT	011	C	59		1	GNBR		25	60	15	LP	VC	4					0	PBSD	P	G	BP	0	0	0	0	C	
MHT	011	C	60		2	GNBR		0	93	7	VC	M	3					0	SD	W	E	BP	1	0	0	0	C	
MHT	011	C	61		2	DYEOR	BPUBR	0	80	20	VC	M	3					0	SD	M	M	BP	1	0	0	0	C	
MHT	011	C	62	6	2	GYPU	BYEREBR	0	80	20	VC	M	3					0	SD	M	M	BP	2	0	0	0	C	
MHT	011	C	63		2	GYPU	BDYEOR	0	85	15	VC	M	3					0	SD	M	G	BP	1	0	0	0	C	
MHT	011	C	64	0																								
MHT	011	C	65		2	PUGY	BDYEOR	0	90	10	VC	M	3					0	SD	W	G	BP	2	0	0	0	C	
MHT	011	C	66		2	PUGY	BDYEOR	0	80	20	VC	M	3					0	SD	M	M	BP	3	0	0	0	C	
MHT	011	C	67		2	REPU	MTYE	1	84	15	GR	M	3					0	SD	M	G	BP	0	0	0	0	C	
MHT	011	C	68	7	2	REPU	MTYE	1	84	15	GR	M	3					0	SD	M	G	BP	0	0	0	0	C	
MHT	011	C	69		2	REBR	BYEPU	1	84	15	GR	M	3					0	SD	M	G	BP	0	0	0	0	C	
MHT	011	C	70		2	GNBR	BYEPURE	1	79	20	LP	M	3					0	SD	M	M	BP	0	0	0	0	C	
MHT	011	C	71		1	GNBR	BMRE	1	89	10	GR	M	3					0	SD	M	E	BP	0	0	0	0	C	
MHT	011	C	72	1	1	LRE	MTOR	1	93	6	GR	C	3					0	SD	M	E	BP	0	0	0	0	C	
MHT	011	C	73		1	LRE	MTYEBR	1	91	8	GR	C	3					0	SD	M	E	BP	0	0	0	0	C	
MHT	011	C	74	0																								
MHT	011	C	75		1	DYEOR	BRE	1	94	5	GR	C	4					0	SD	W	E	BP	0	0	0	0	C	
MHT	011	C	76	0																								

AREA	NO	SCR	DEPTH	REC	IND	COLOR	STRUCTURE	%GR	%SD	%MD	MX	MD	R	%CG	%CS	%CM	%CMT	%CAR	NAME	SO	%POR	TYPE	%MUS	%GLA	%LIG	%SUL	H	FOSSILS
MHT	011	C	77		1	DYEOR	MTORRE	1	94	5	GR	C	4					0	SD	M	E	BP	0	0	0	0	C	
MHT	011	C	78	1	1	DYEOR	MTPU	1	94	5	GR	C	4					0	SD	M	E	BP	0	0	0	0	C	
MHT	011	C	79		1	REBR	MTYEOR	1	93	6	GR	C	4					0	SD	M	E	BP	0	0	0	0	C	
MHT	011	C	80	3	1	DYEOR		2	88	10	GR	C	4					0	SD	M	G	BP	0	0	0	0	C	
MHT	011	C	81		1	DYEOR	BREBR	1	94	5	GR	C	3					0	SD	M	E	BP	0	0	0	0	C	
MHT	011	C	82	6	1	DYEOR		1	94	5	GR	C	3					0	SD	M	E	BP	0	0	0	0	C	
MHT	011	C	83		1	DYEOR		1	93	6	GR	C	3					0	SD	M	E	BP	0	0	0	0	C	
MHT	011	C	84		1	DYEOR		1	94	5	GR	C	3					0	SD	M	E	BP	0	0	0	0	C	
MHT	011	C	85		1	DYEOR		1	93	6	GR	C	3					0	SD	M	E	BP	1	0	0	0	C	
MHT	011	C	86	6	1	DYEOR		1	92	7	GR	C	3					0	SD	M	E	BP	0	0	0	0	C	
MHT	011	C	87		1	DYEOR		3	92	5	GR	C	3					0	SD	M	E	BP	0	0	0	0	C	
MHT	011	C	88	0																								
MHT	011	C	89		1	DYEOR		3	91	6	GR	C	3					0	SD	M	E	BP	0	0	0	0	C	
MHT	011	C	90	4	1	DYEOR		5	90	5	GR	C	3					0	SD	M	E	BP	0	0	0	0	C	
MHT	011	C	91		1	DYEOR	BDYEOR	2	94	4	GR	C	3					0	SD	W	E	BP	0	0	0	0	C	
MHT	011	C	92	0																								
MHT	011	C	93		1	DYEOR		1	94	5	GR	C	3					0	SD	W	E	BP	0	0	0	0	C	
MHT	011	C	94	3	1	MREBR		3	91	6	GR	C	3					0	SD	W	E	BP	0	0	0	0	C	
MHT	011	C	95		3	DYEOR	ISD	0	40	60	VC	CL	3					0	SDCL	P	P	MI	4	0	0	0	C	
MHT	011	C	96	6	3	DYEOR	ISD	0	20	80	VC	CL	3					0	CL	P	P	MI	2	0	0	0	C	
MHT	011	C	97		2	DYEOR		15	45	40	LP	CL	3					0	CLSD	P	P	BP	0	0	0	0	C	
MHT	011	C	98		2	DYEOR	ICL	0	55	45	VC	CL	3					0	CLSD	P	P	BP	1	0	0	0	A	
MHT	011	C	99		2	DYEOR		0	92	8	VC	M	3					0	SD	W	E	BP	1	0	0	0	A	
MHT	011	C	100	0																								
MHT	011	C	101		1	DYEOR		0	95	5	VC	M	3					0	SD	W	E	BP	1	0	0	0	A	
MHT	011	C	102	2	1	MYEOR		0	96	4	VC	M	3					0	SD	W	E	BP	1	0	0	0	A	
MHT	011	C	103		1	MYEOR		0	94	6	VC	M	3					0	SD	W	E	BP	2	0	0	0	A	
MHT	011	C	104	3	1	MYEOR		0	95	5	VC	M	3					0	SD	W	E	BP	2	0	0	0	A	
MHT	011	C	105		1	MYEOR	BBRICL	0	85	15	VC	M	3					0	SD	M	E	BP	2	0	0	0	A	
MHT	011	C	106	5	1	MYEOR		0	95	5	VC	M	3					0	SD	W	E	BP	2	0	0	0	A	
MHT	011	C	107		1	DYEOR		0	80	20	VC	M	3					0	SD	M	M	BP	2	0	0	0	C	
MHT	011	C	108	6	3	MORPI	GNISD	0	30	70	C	CL	3					0	SDCL	P	P	MI	2	0	0	0	C	
MHT	011	C	109		3	MORPI	GNISD	0	20	80	C	CL	3					0	CL	P	P	MI	1	0	0	0	C	
MHT	011	C	110		3	MORPI	TAISD	0	20	80	C	CL	3					0	CL	P	P	MI	1	0	0	0	C	
MHT	011	C	111		3	GNGY	MTLREBR	0	45	55	C	CL	3					0	SDCL	P	P	MI	5	0	0	0	C	
MHT	011	C	112	5	3	GNGY	BYEBRISD	0	15	85	C	CL	3					0	CL	P	P	MI	0	0	0	0	R	
MHT	011	C	113		3	DYEOR	MTLGY	0	45	55	C	CL	3					0	SDCL	P	P	MI	2	0	0	0	C	
MHT	011	C	114		3	LGY	MTDYEOR	0	45	55	C	CL	3					0	SDCL	P	P	MI	4	0	0	0	C	

AREA	NO	SCR	DEPTH	REC	IND	COLOR	STRUCTURE	%GR	%SD	%MD	MX	MD	R	%CG	%CS	%CM	%CMT	%CAR	NAME	SO	%POR	TYPE	%MUS	%GLA	%LIG	%SUL	H	FOSSILS
MHT	011	C	115		3	LGY	DYEORISD	0	40	60	VC	CL	3					0	SDCL	P	P	MI	10	0	0	0	C	
MHT	011	C	116		3	LGY	DYEORISD	0	20	80	VC	CL	3					0	CL	P	P	MI	3	0	0	0	C	
MHT	011	C	117		2	LGY	DYEORISD	0	30	70	VC	CL	3					0	SDCL	P	P	MI	1	0	0	0	C	
MHT	011	C	118	5	1	DYEOR		1	91	8	GR	F	3					0	SD	P	E	BP	1	0	0	0	C	
MHT	011	C	119		1	DYEOR	LGYICL	1	84	15	GR	F	3					0	SD	P	G	BP	0	0	0	0	C	
MHT	011	C	120		1	DYEOR	MTMBR	4	90	6	LP	C	4					0	SD	P	E	BP	0	0	0	0	C	
MHT	011	C	121		1	DYEOR	LTAICL	25	55	20	LP	C	4					0	PBSD	P	M	BP	0	0	0	0	C	
MHT	011	C	122	6	1	MYEBR	ICL	10	75	15	LP	C	4					0	SD	P	G	BP	0	0	0	0	C	
MHT	011	C	123		1	MYEBR		10	82	8	LP	C	4					0	SD	P	E	BP	0	0	0	0	C	
MHT	011	C	124	5	1	MYEBR		15	77	8	GR	C	4					0	SD	P	E	BP	0	0	0	0	C	
MHT	011	C	125		1	MYEBR	TAICL	5	80	15	GR	M	4					0	SD	P	G	BP	0	0	0	0	C	
MHT	011	C	126	6	1	DYEOR	MTWH	1	93	6	GR	C	3					0	SD	M	E	BP	0	0	0	0	C	
MHT	011	C	127		3	DYEOR	BTA	0	40	60	VC	CL	3					0	SDCL	P	P	MI	1	0	0	0	C	
MHT	011	C	128		3	DYEOR	BTA	0	20	80	VC	CL	3					0	CL	P	P	MI	1	0	0	0	C	
MHT	011	C	129		3	DYEOR	BTA	0	15	85	VC	CL	3					0	CL	P	P	MI	1	0	0	0	C	
MHT	011	C	130	6	3	DYEOR		3	82	15	GR	M	4					0	SD	M	G	BP	0	0	0	0	C	
MHT	011	C	131		2	DYEOR	ICL	3	62	35	GR	CL	3					0	CLSD	P	P	BP	0	0	0	0	C	
MHT	011	C	132		2	DYEOR		1	89	10	GR	M	3					0	SD	M	G	BP	0	0	0	0	C	
MHT	011	C	133		2	DYEOR		1	90	9	GR	C	3					0	SD	M	E	BP	0	0	0	0	C	
MHT	011	C	134		2	DYEOR		1	91	8	GR	C	3					0	SD	M	E	BP	0	0	0	0	C	
MHT	011	C	135	0																								
MHT	011	C	136		2	DYEOR		2	88	10	GR	C	3					0	SD	M	G	BP	0	0	0	0	C	
MHT	011	C	137		2	DYEOR	MTMBR	1	84	15	GR	M	3					0	SD	M	G	BP	0	0	0	0	C	
MHT	011	C	138		2	GYOR	MTMBR	2	88	10	LP	M	4					0	SD	M	G	BP	0	0	0	0	C	
MHT	011	C	139	0																								
MHT	011	C	140	0																								
MHT	011	C	141		2	DYEOR		10	75	15	LP	F	3					0	SD	M	G	BP	0	0	0	0	C	
MHT	011	C	142		2	DYEOR		15	70	15	LP	C	3					0	SD	P	G	BP	0	0	0	0	C	
MHT	011	C	143		2	DYEOR	LGYICL	5	70	25	LP	F	3					0	CLSD	P	P	BP	1	0	0	0	A	
MHT	011	C	144	2	1	DYEOR	LGYICL	5	55	40	GR	F	3					0	CLSD	P	P	BP	0	0	0	0	C	
MHT	011	C	145	0																								
MHT	011	C	146		2	GYOR	MTLGYTA	2	78	20	LP	F	3					0	SD	M	M	BP	2	0	0	0	C	SP
MHT	011	C	147		2	GYOR	MTTA	0	85	15	VC	F	3					0	SD	W	G	BP	1	0	0	0	C	SP
MHT	011	C	148	0																								
MHT	011	C	149		2	GYOR	MTTA	0	85	15	VC	F	3					0	SD	W	G	BP	1	0	0	0	A	
MHT	011	C	150		2	GYOR	MTTA	2	78	20	GR	F	3					0	SD	M	M	BP	1	0	0	0	A	
MHT	011	C	151		2	GYOR	MTLGY	0	90	10	C	F	3					0	SD	W	G	BP	0	0	0	0	C	
MHT	011	C	152	0																								

AREA	NO	SCR	DEPTH	REC	IND	COLOR	STRUCTURE	%GR	%SD	%MD	MX	MD	R	%CG	%CS	%CM	%CMT	%CAR	NAME	SO	%POR	TYPE	%MUS	%GLA	%LIG	%SUL	H	FOSSILS
MHT	011	C	153	0																								
MHT	011	C	154	0																								
MHT	011	C	155	0																								
MHT	011	C	156		2	DYEOR	BBK	0	94	6	C	F	3					0	SD	W	E	BP	5	0	0	0	C	
MHT	011	C	157		2	DYEOR		0	94	6	C	F	3					0	SD	W	E	BP	10	0	0	0	C	
MHT	011	C	158		2	DYEOR		1	91	8	GR	F	4					0	SD	W	E	BP	3	0	0	0	C	
MHT	011	C	159		2	DYEOR		1	92	7	GR	F	4					0	SD	W	E	BP	3	0	0	0	C	
MHT	011	C	160	0																								
MHT	011	C	161		2	DYEOR		1	91	8	GR	M	3					0	SD	M	E	BP	0	0	0	0	C	
MHT	011	C	162	0																								
MHT	011	C	163	0																								
MHT	011	C	164	0																								
MHT	011	C	165	0																								
MHT	011	C	166	0																								
MHT	011	C	167	0																								
MHT	011	C	168	0																								
MHT	011	C	169		2	DYEOR		3	87	10	GR	F	3					0	SD	M	G	BP	2	0	0	0	C	
MHT	011	C	170		2	DYEOR		4	86	10	GR	F	3					0	SD	M	G	BP	1	0	0	0	C	
MHT	011	C	171		2	DYEOR		3	82	15	GR	M	3					0	SD	M	G	BP	0	0	0	0	C	
MHT	011	C	172	5	2	DYEOR		1	89	10	GR	M	3					0	SD	M	G	BP	0	0	0	0	C	
MHT	011	C	173		2	DYEOR		2	90	8	GR	M	3					0	SD	M	E	BP	0	0	0	0	C	
MHT	011	C	174		2	DYEOR	LGYICL	3	89	8	GR	M	3					0	SD	M	E	BP	0	0	0	0	C	
MHT	011	C	175	3	2	GYOR	LGYICL	1	89	10	GR	F	3					0	SD	W	G	BP	3	0	0	0	C	
MHT	011	C	176	0																								
MHT	011	C	177	9	2	GYOR	LGYICL	2	83	15	GR	F	4					0	SD	M	G	BP	0	0	0	0	C	
MHT	011	C	178	0																								
MHT	011	C	179	0																								
MHT	011	C	180	0																								
MHT	011	C	181	0																								
MHT	011	C	182	0																								
MHT	011	C	183	0																								
MHT	011	C	184	0																								
MHT	011	C	185	6	1	DYEOR	GYICL	0	55	45	F	CL	3					0	CLSD	P	P	BP	0	0	0	0	A	
MHT	011	C	186	0																								
MHT	011	C	187	0																								
MHT	011	C	188	0																								
MHT	011	C	189		2	LBR	GYICL	2	83	15	GR	C	3					0	SD	M	G	BP	0	0	0	0	C	
MHT	011	C	190	0																								

AREA	NO	SCR	DEPTH	REC	IND	COLOR	STRUCTURE	%GR	%SD	%MD	MX	MD	R	%CG	%CS	%CM	%CMT	%CAR	NAME	SO	%POR	TYPE	%MUS	%GLA	%LIG	%SUL	H	FOSSILS
MHT	011	C	191	0																								
MHT	011	C	192	0																								
MHT	011	C	193	0																								
MHT	011	C	194		2	GYOR	LGYICL	0	85	15	VC	M	3					0	SD	M	G	BP	1	0	0	0	C	
MHT	011	C	195		2	GYOR	MTDYEOR	0	92	8	C	M	3					0	SD	W	E	BP	1	0	0	0	C	
MHT	011	C	196		2	GYOR	MTDYEOR	0	93	7	C	M	3					0	SD	W	E	BP	0	0	0	0	C	
MHT	011	C	197		2	GYOR	MTDYEOR	1	91	8	GR	M	3					0	SD	W	E	BP	0	0	0	0	C	
MHT	011	C	198	0																								
MHT	011	C	199		2	GYOR		0	95	5	C	M	3					0	SD	W	E	BP	0	0	0	0	C	
MHT	011	C	200		2	GYOR	LGYICL	0	90	10	C	M	3					0	SD	W	G	BP	1	0	0	0	C	
MHT	011	C	201	0																								
MHT	011	C	202	0																								
MHT	011	C	203	0																								
MHT	011	C	203			TD																						

AREA	NO	SCR	DEPTH	REC	IND	COLOR	STRUCTURE	%GR	%SD	%MD	MX	MD	R	%CG	%CS	%CM	%CMT	%CAR	NAME	SO	%POR	TYPE	%MUS	%GLA	%LIG	%SUL	H	FOSSILS
MHT	012	C	1		3	MYEBR	BREBR	0	80	20	VC	M	3					0	SD	M	M	BP	0	0	0	0	C	
MHT	012	C	2	7	3	REBR		1	54	45	GR	CL	3					0	CLSD	P	P	BP	0	0	0	0	C	
MHT	012	C	3		3	REBR	MTBKYE	0	55	45	VC	CL	3					0	CLSD	P	P	BP	0	0	0	0	C	
MHT	012	C	4	8	2	GYOR		0	95	5	VC	M	3					0	SD	W	E	BP	0	0	0	0	A	
MHT	012	C	5		2	MYEBR	BREBR	0	90	10	VC	M	3					0	SD	M	G	BP	0	0	0	0	C	
MHT	012	C	6	7	2	MYEBR		3	87	10	GR	M	3					0	SD	M	G	BP	0	0	0	0	C	
MHT	012	C	7		2	MYEBR		0	93	7	VC	M	3					0	SD	W	E	BP	0	0	0	0	C	
MHT	012	C	8	6	2	MYEBR		0	90	10	VC	M	3					0	SD	M	G	BP	0	0	0	0	C	
MHT	012	C	9		3	REBR		1	69	30	GR	M	3					0	CLSD	P	P	BP	0	0	0	0	C	
MHT	012	C	10	2	3	REBR		1	64	35	GR	M	3					0	CLSD	P	P	BP	0	0	0	0	C	
MHT	012	C	11		3	REBR		0	60	40	VC	CL	3					0	CLSD	P	P	BP	0	0	0	0	C	
MHT	012	C	12	6	3	REBR		0	60	40	VC	CL	3					0	CLSD	P	P	BP	0	0	0	0	C	
MHT	012	C	13		3	REBR		0	60	40	VC	CL	3					0	CLSD	P	P	BP	0	0	0	0	C	
MHT	012	C	14	6	3	REBR		0	60	40	VC	CL	3					0	CLSD	P	P	BP	0	0	0	0	C	
MHT	012	C	15		3	REBR		0	60	40	VC	CL	3					0	CLSD	P	P	BP	0	0	0	0	C	
MHT	012	C	16	8	3	REBR		1	59	40	GR	CL	3					0	CLSD	P	P	BP	1	0	0	0	C	
MHT	012	C	17		3	REBR		1	59	40	GR	CL	3					0	CLSD	P	P	BP	0	0	0	0	C	
MHT	012	C	18	9	3	REBR		0	60	40	VC	CL	3					0	CLSD	P	P	BP	0	0	0	0	C	
MHT	012	C	19		3	REBR		0	60	40	VC	CL	3					0	CLSD	P	P	BP	0	0	0	0	C	
MHT	012	C	20	8	3	REBR		1	54	45	GR	CL	3					0	CLSD	P	P	BP	0	0	0	0	C	
MHT	012	C	21		3	REBR		2	58	40	GR	CL	3					0	CLSD	P	P	BP	0	0	0	0	C	
MHT	012	C	22		3	REBR		2	58	40	GR	CL	3					0	CLSD	P	P	BP	0	0	0	0	C	
MHT	012	C	23		3	REBR		1	54	45	GR	CL	3					0	CLSD	P	P	BP	0	0	0	0	C	
MHT	012	C	24		3	REBR		1	44	55	GR	CL	3					0	SDCL	P	P	MI	0	0	0	0	C	
MHT	012	C	25		3	REBR		1	49	50	GR	CL	3					0	SDCL	P	P	MI	0	0	0	0	C	
MHT	012	C	26	7	3	REBR		1	49	50	GR	CL	3					0	SDCL	P	P	MI	0	0	0	0	C	
MHT	012	C	27		3	REBR		1	44	55	GR	CL	3					0	SDCL	P	P	MI	0	0	0	0	C	
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MHT	012	C	30	3	3	GYOR		2	53	45	GR	CL	3					0	CLSD	P	P	BP	1	0	0	0	C	
MHT	012	C	31	8	3	GYOR	MTREBR	2	53	45	GR	CL	3					0	CLSD	P	P	BP	1	0	0	0	C	
MHT	012	C	32	0																								
MHT	012	C	33		3	DYEOR	MTREBR	1	54	45	GR	CL	3					0	CLSD	P	P	BP	0	0	0	0	C	
MHT	012	C	34	7	3	REBR		1	54	45	GR	CL	3					0	CLSD	P	P	BP	2	0	0	0	C	
MHT	012	C	35		3	REBR	MTBROR	1	54	45	GR	CL	3					0	CLSD	P	P	BP	2	0	0	0	C	
MHT	012	C	36	6	3	BROR	MTREBR	3	57	40	GR	CL	3					0	CLSD	P	P	BP	2	0	0	0	C	
MHT	012	C	37		3	DYEOR	MTREBR	2	63	35	GR	C	3					0	CLSD	P	P	BP	3	0	0	0	C	
MHT	012	C	38	9	3	DYEOR		2	63	35	GR	C	3					0	CLSD	P	P	BP	3	0	0	0	C	

AREA	NO	SCR	DEPTH	REC	IND	COLOR	STRUCTURE	%GR	%SD	%MD	MX	MD	R	%CG	%CS	%CM	%CMT	%CAR	NAME	SO	%POR	TYPE	%MUS	%GLA	%LIG	%SUL	H	FOSSILS
MHT	012	C	39		3	DYEOR	MTREBR	1	59	40	GR	CL	3					0	CLSD	P	P	BP	2	0	0	0	C	
MHT	012	C	40	6	2	REBR		1	59	40	GR	CL	3					0	CLSD	P	P	BP	2	0	0	0	C	
MHT	012	C	41		2	REBR	MTDYEOR	3	57	40	GR	CL	3					0	CLSD	P	P	BP	2	0	0	0	C	
MHT	012	C	42	4	2	REBR	MTDYEOR	3	57	40	GR	CL	3					0	CLSD	P	P	BP	2	0	0	0	C	
MHT	012	C	43		2	DYEOR	MTREBR	5	65	30	GR	C	3					0	CLSD	P	P	BP	2	0	0	0	C	
MHT	012	C	44	4	2	DYEOR	MTREBR	0	60	40	VC	CL	3					0	CLSD	P	P	BP	3	0	0	0	C	
MHT	012	C	45		1	DYEOR		5	90	5	GR	M	3					0	SD	M	E	BP	2	0	0	0	C	
MHT	012	C	46	3	2	LGY		1	69	30	GR	C	3					0	CLSD	P	P	BP	1	0	0	0	C	
MHT	012	C	47		2	DYEBR	MTGYYERE	1	59	40	GR	CL	3					0	CLSD	P	P	BP	0	0	0	0	C	
MHT	012	C	48	6	2	DYEBR	MTGYYERE	3	62	35	GR	M	3					0	CLSD	P	P	BP	1	0	0	0	C	
MHT	012	C	49		2	DYEOR	MTLGYRE	10	65	25	GR	M	3					0	CLSD	P	P	BP	0	0	0	0	C	
MHT	012	C	50	6	2	DYEOR	MTLGYRE	8	77	15	GR	M	3					0	SD	M	G	BP	0	0	0	0	C	
MHT	012	C	51		2	DYEOR	GYICL	3	72	25	GR	M	3					0	CLSD	P	P	BP	0	0	0	0	C	
MHT	012	C	52	3	2	LGY	MTYERE	10	30	60	GR	CL	3					0	SDCL	P	P	MI	0	0	0	0	C	
MHT	012	C	53		2	MRE	MTYEGY	1	74	25	GR	M	3					0	CLSD	P	P	BP	2	0	0	0	C	
MHT	012	C	54	0																								
MHT	012	C	55		2	MREPU	MTYEGY	1	69	30	GR	M	3					0	CLSD	P	P	BP	1	0	0	0	C	
MHT	012	C	56	0																								
MHT	012	C	57		1	LREPU	MTDYEOR	1	84	15	GR	M	3					0	SD	M	G	BP	1	0	0	0	C	
MHT	012	C	58	0																								
MHT	012	C	59		2	MREBR	MTGYPU	1	69	30	GR	M	3					0	CLSD	P	P	BP	0	0	0	0	C	
MHT	012	C	60	2	2	DYEOR	BREBR	1	64	35	GR	M	3					0	CLSD	P	P	BP	0	0	0	0	C	
MHT	012	C	61		2	DYEOR	BREBR	0	80	20	C	M	3					0	SD	M	M	BP	0	0	0	0	C	
MHT	012	C	62	3	2	DYEOR		0	75	25	C	M	3					0	CLSD	P	P	BP	0	0	0	0	C	
MHT	012	C	63		2	LYE	MTDYEOR	0	95	5	C	M	3					0	SD	W	E	BP	0	0	0	0	C	
MHT	012	C	64	0																								
MHT	012	C	65		1	DYEOR	MTLTA	2	92	6	GR	C	3					0	SD	W	E	BP	0	0	0	0	C	
MHT	012	C	66	0																								
MHT	012	C	67	8	1	DYEOR	ICL	1	89	10	GR	C	3					0	SD	M	G	BP	0	0	0	0	C	
MHT	012	C	68	0																								
MHT	012	C	69		2	DYEOR		5	75	20	GR	M	3					0	SD	P	M	BP	0	0	0	0	C	
MHT	012	C	70	0																								
MHT	012	C	71	9	1	GYOR	MTREBR	5	80	15	GR	C	3					0	SD	M	M	BP	0	0	0	0	C	
MHT	012	C	72	0																								
MHT	012	C	72			TD																						

AREA	NO	SCR	DEPTH	REC	IND	COLOR	STRUCTURE	%GR	%SD	%MD	MX	MD	R	%CG	%CS	%CM	%CMT	%CAR	NAME	SO	%POR	TYPE	%MUS	%GLA	%LIG	%SUL	H	FOSSILS
MHT	012	C2	71		2	DYEOR	BMBR	1	84	15	GR	M	3					0	SD	M	G	BP	0	0	2	0	C	
MHT	012	C2	72	6	1	DYEOR		1	91	10	GR	C	3					0	SD	M	G	BP	0	0	0	0	C	
MHT	012	C2	73		1	DYEOR		1	79	20	GR	C	3					0	SD	M	M	BP	0	0	0	0	C	
MHT	012	C2	74	3	1	DYEOR		2	92	6	GR	C	3					0	SD	W	E	BP	0	0	0	0	C	
MHT	012	C2	75		1	DYEOR		2	91	7	GR	C	3					0	SD	W	E	BP	0	0	0	0	C	
MHT	012	C2	76	6	1	DYEOR		2	90	8	GR	C	3					0	SD	M	E	BP	0	0	0	0	C	
MHT	012	C2	77		1	DYEOR		3	90	7	GR	C	3					0	SD	M	E	BP	0	0	0	0	C	
MHT	012	C2	78	8	1	DYEOR		5	89	6	GR	C	3					0	SD	M	E	BP	0	0	0	0	C	
MHT	012	C2	79		1	DYEOR		1	91	8	GR	C	3					0	SD	W	E	BP	0	0	0	0	C	
MHT	012	C2	80	7	1	DYEOR		2	93	5	GR	C	3					0	SD	W	E	BP	0	0	0	0	C	
MHT	012	C2	81		1	DYEOR		8	86	6	GR	C	3					0	SD	M	E	BP	0	0	0	0	C	
MHT	012	C2	82	6	1	DYEOR		2	90	8	GR	C	3					0	SD	M	E	BP	0	0	0	0	C	
MHT	012	C2	83		1	DYEOR		2	91	7	GR	C	3					0	SD	W	E	BP	0	0	0	0	C	
MHT	012	C2	84	6	1	DYEOR		5	91	4	GR	C	3					0	SD	M	E	BP	0	0	0	0	C	
MHT	012	C2	85		1	DYEOR		1	95	4	GR	C	3					0	SD	W	E	BP	0	0	0	0	C	
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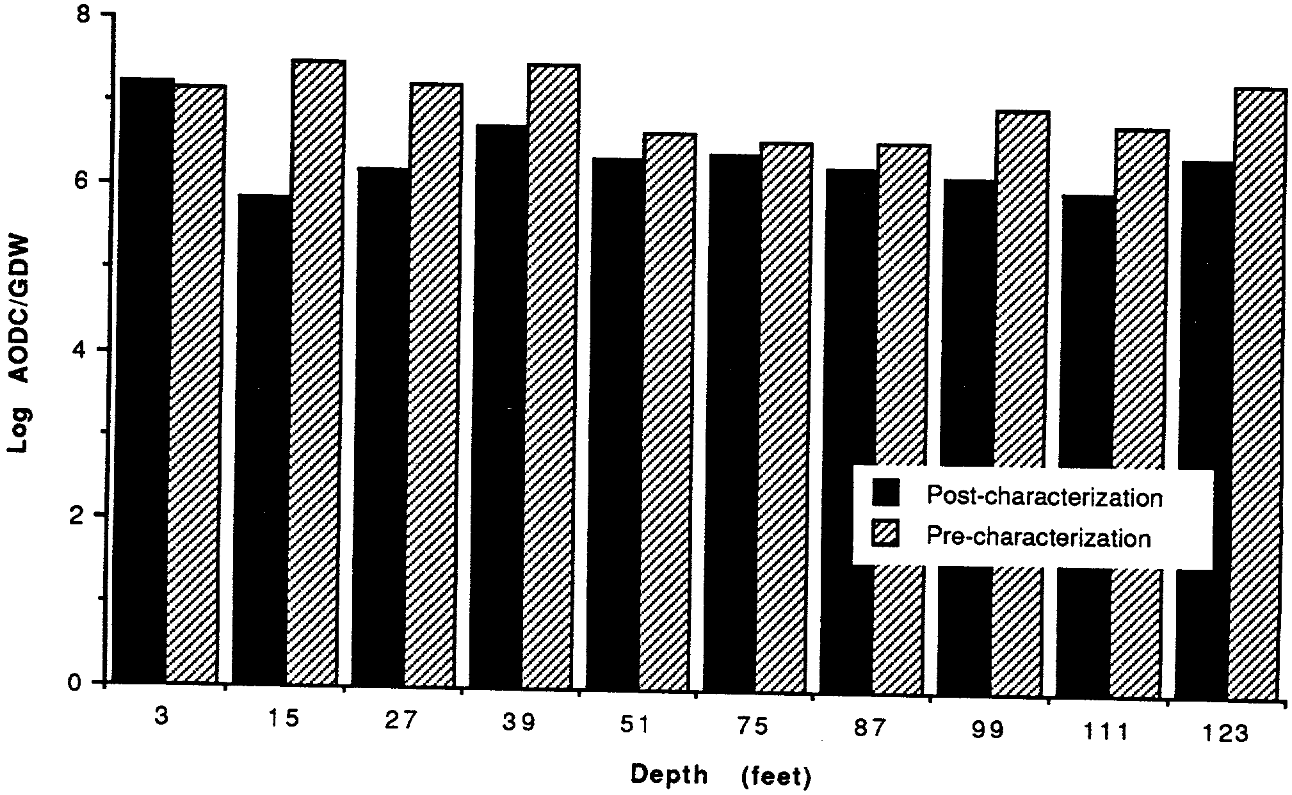
MHT	012	C2	87		1	DYEOR		1	94	5	GR	C	3					0	SD	W	E	BP	0	0	0	0	C	
MHT	012	C2	88	4	1	DYEOR		1	93	6	GR	C	3					0	SD	W	E	BP	0	0	0	0	C	
MHT	012	C2	89		1	DYEOR		1	94	5	GR	C	3					0	SD	W	E	BP	0	0	0	0	C	
MHT	012	C2	90		2	DYEOR	LTAICL	0	75	25	C	M	3					0	CLSD	P	P	BP	1	0	0	0	C	
MHT	012	C2	91		2	DYEOR	LTAICL	10	60	30	LP	C	3					0	CLSD	P	P	BP	0	0	0	0	C	
MHT	012	C2	92		2	DYEOR	LTAICL	3	62	35	LP	C	3					0	CLSD	P	P	BP	1	0	0	0	C	
MHT	012	C2	93		2	LTA		20	45	35	LP	C	3					0	CLSD	P	P	BP	0	0	0	0	C	
MHT	012	C2	94		1	LTA		10	75	15	LP	C	3					0	SD	P	G	BP	1	0	0	0	C	
MHT	012	C2	95		1	LTA	MTBK	3	72	25	LP	M	3					0	CLSD	P	P	BP	1	0	0	0	A	
MHT	012	C2	96	8	1	LTA		0	96	4	VC	M	3					0	SD	W	E	BP	1	0	0	0	A	
MHT	012	C2	97		1	LTA		1	93	6	LP	M	3					0	SD	W	E	BP	1	0	0	0	A	
MHT	012	C2	98	0																								
MHT	012	C2	99		1	LTA		0	92	8	VC	M	3					0	SD	W	E	BP	1	0	0	0	C	
MHT	012	C2	100		1	LTA	ICLMTBK	0	80	20	VC	M	3					0	SD	M	M	BP	1	0	0	0	A	
MHT	012	C2	101		3	LTA	BRISDFS	.1	25	75	GR	CL	3					0	SDCL	P	P	MI	2	0	0	0	C	
MHT	012	C2	102		3	LGY	BRISD	0	20	80	M	CL	3					0	CL	P	P	MI	1	0	0	0	C	
MHT	012	C2	103		3	LGY	BBRORISD	0	40	60	C	CL	3					0	SDCL	P	P	MI	1	0	0	0	C	
MHT	012	C2	104		3	LGY	BBRORISD	0	45	55	VC	CL	3					0	SDCL	P	P	MI	2	0	0	0	C	
MHT	012	C2	105		3	LGY	FSYEISD	0	25	75	M	CL	3					0	SDCL	P	P	MI	2	0	0	0	C	
MHT	012	C2	106	6	3	LGY	DYEORISD	0	40	60	M	CL	3					0	SDCL	P	P	MI	3	0	0	0	C	
MHT	012	C2	107		3	LGY	BBKYEISD	0	25	75	C	CL	3					0	SDCL	P	P	MI	3	0	0	0	A	
MHT	012	C2	108		3	LTA	DYEORISD	0	25	75	C	CL	3					0	SDCL	P	P	MI	1	0	0	0	C	

AREA	NO	SCR	DEPTH	REC	IND	COLOR	STRUCTURE	%GR	%SD	%MD	MX	MD	R	%CG	%CS	%CM	%CMT	%CAR	NAME	SO	%POR	TYPE	%MUS	%GLA	%LIG	%SUL	H	FOSSILS
MHT	012	C2	109		3	DYEOR	LGYICL	0	75	25	C	M	3					0	CLSD	P	P	BP	2	0	0	0	C	
MHT	012	C2	110		1	DYEOR		5	85	10	LP	C	3					0	SD	M	G	BP	1	0	0	0	C	
MHT	012	C2	111		1	GYOR		5	80	15	LP	C	3					0	SD	P	G	BP	2	0	0	0	C	
MHT	012	C2	112	8	1	GYOR		25	60	15	LP	C	3					0	PBSD	P	G	BP	1	0	0	0	C	
MHT	012	C2	113	8	1	GYOR		15	70	15	LP	C	3					0	SD	P	G	BP	2	0	0	0	C	
MHT	012	C2	114	0																								
MHT	012	C2	115	9	1	DYEOR		25	65	10	LP	C	3					0	PBSD	P	G	BP	2	0	0	0	C	
MHT	012	C2	116	0																								
MHT	012	C2	117		1	DYEOR		5	91	4	LP	C	3					0	SD	M	E	BP	0	0	0	0	C	
MHT	012	C2	118	3	1	DYEOR		15	75	10	LP	C	3					0	SD	P	G	BP	1	0	0	0	C	
MHT	012	C2	119		2	DYEOR	WSPLGY	10	70	20	LP	C	3					0	SD	P	M	BP	1	0	0	0	C	
MHT	012	C2	120		3	DYEOR	BLGY	0	25	75	C	CL	3					0	SDCL	P	P	MI	10	0	0	0	C	
MHT	012	C2				TD																						

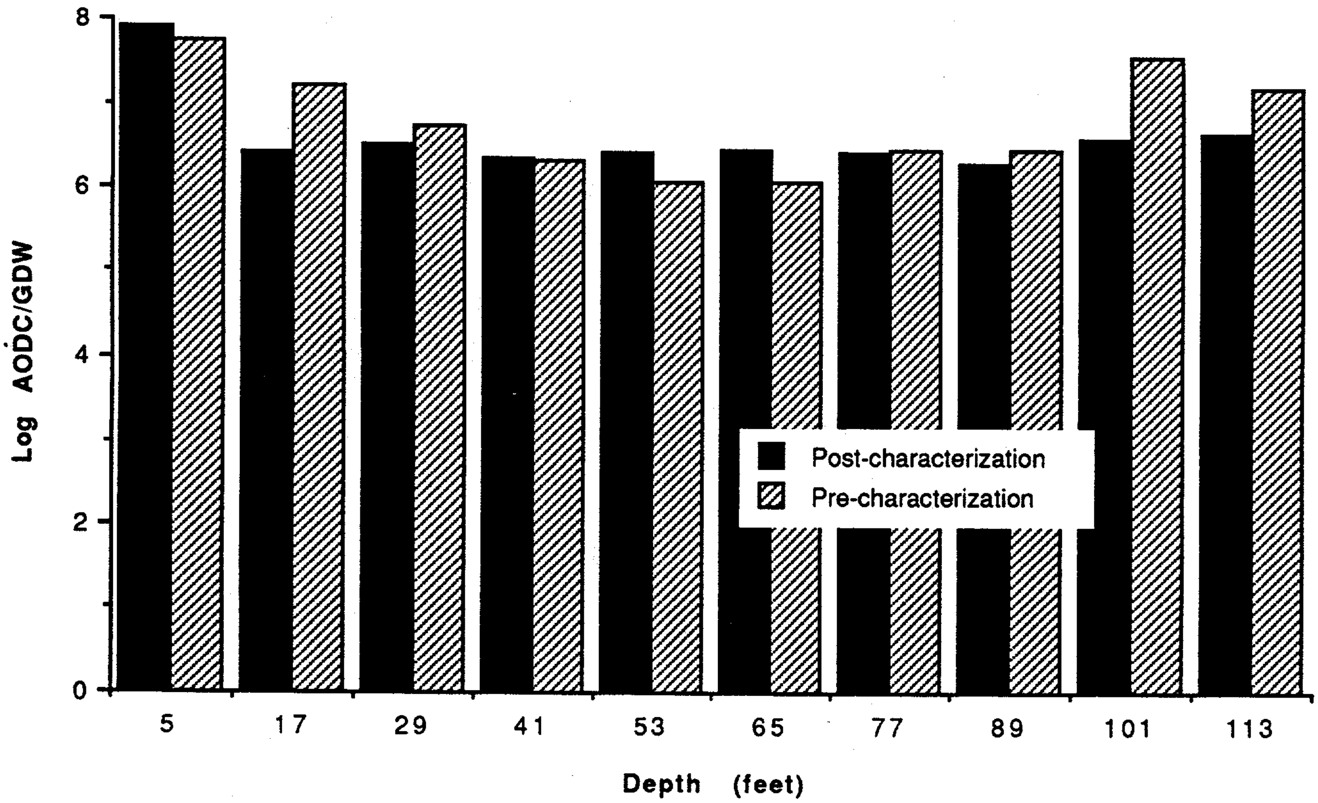
(App III)

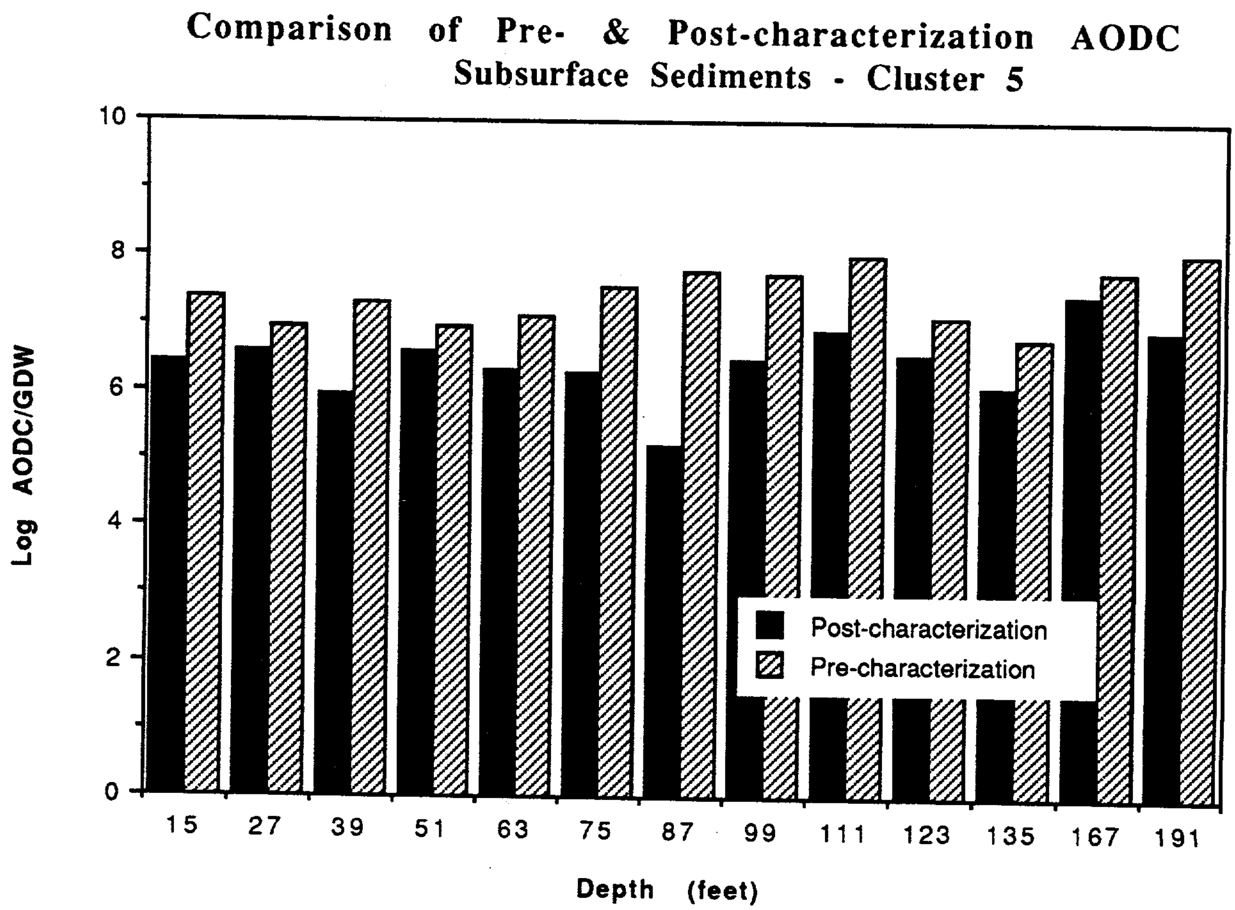
Comparison of Pre- & Post-characterization AODC
Subsurface Sediments - Cluster 2



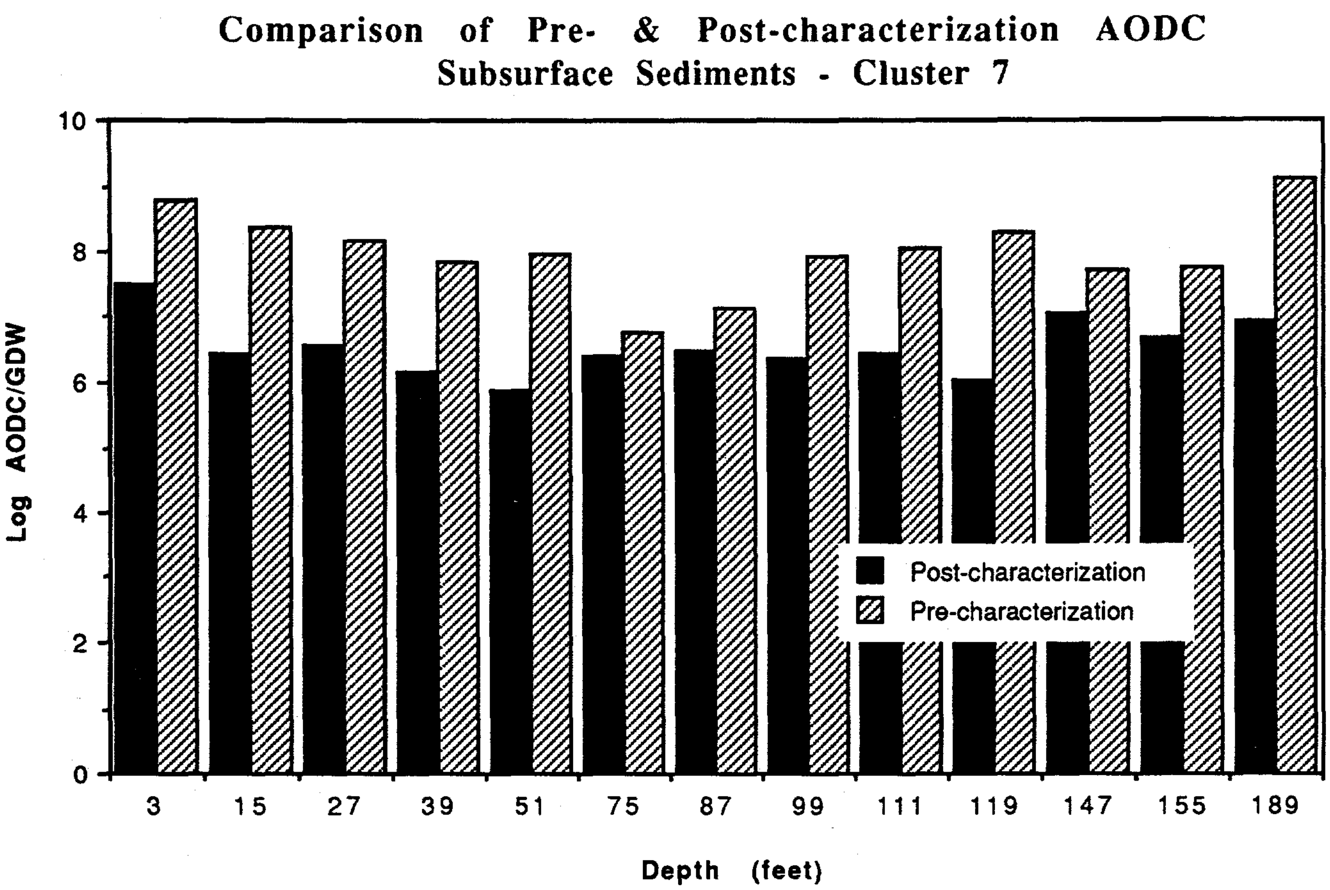
Appendix?

Comparison of Pre- & Post-characterization AODC
Subsurface Sediments - Cluster 3



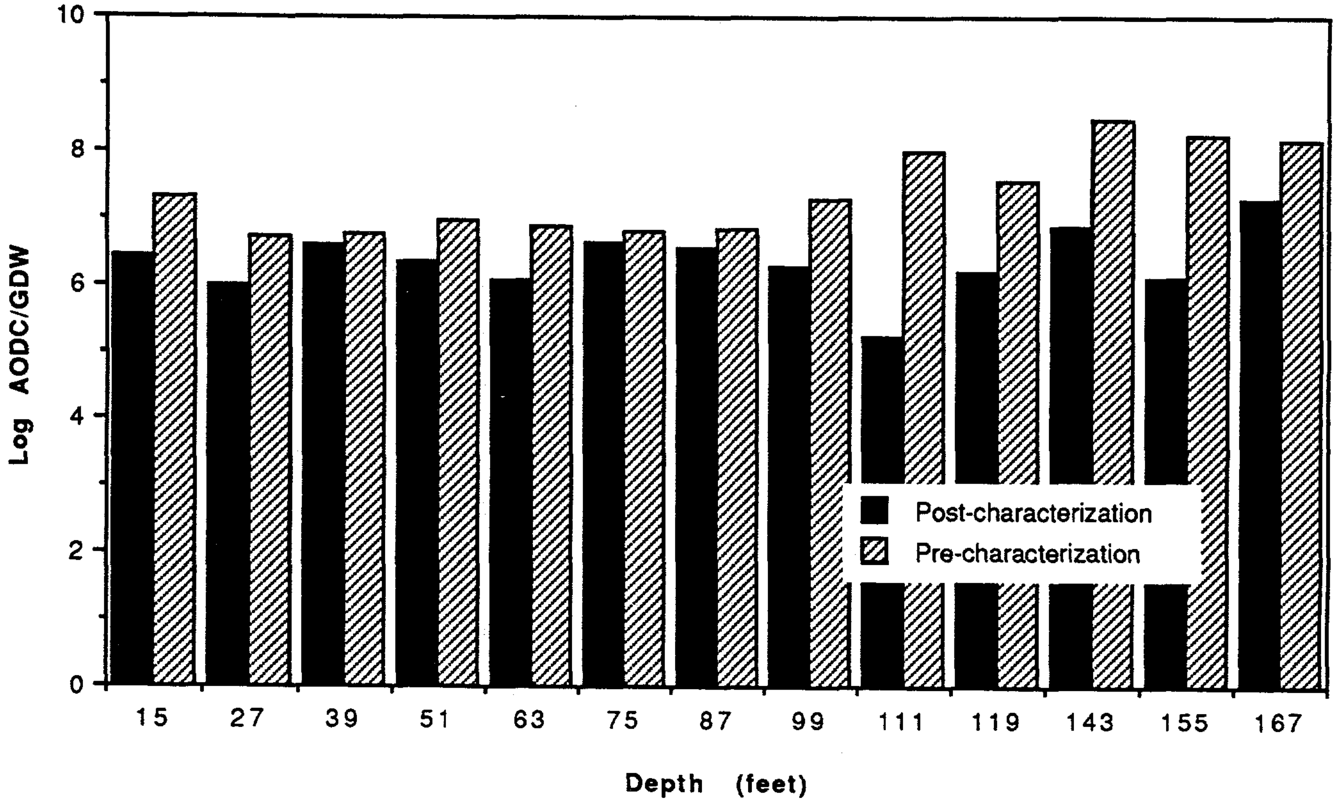


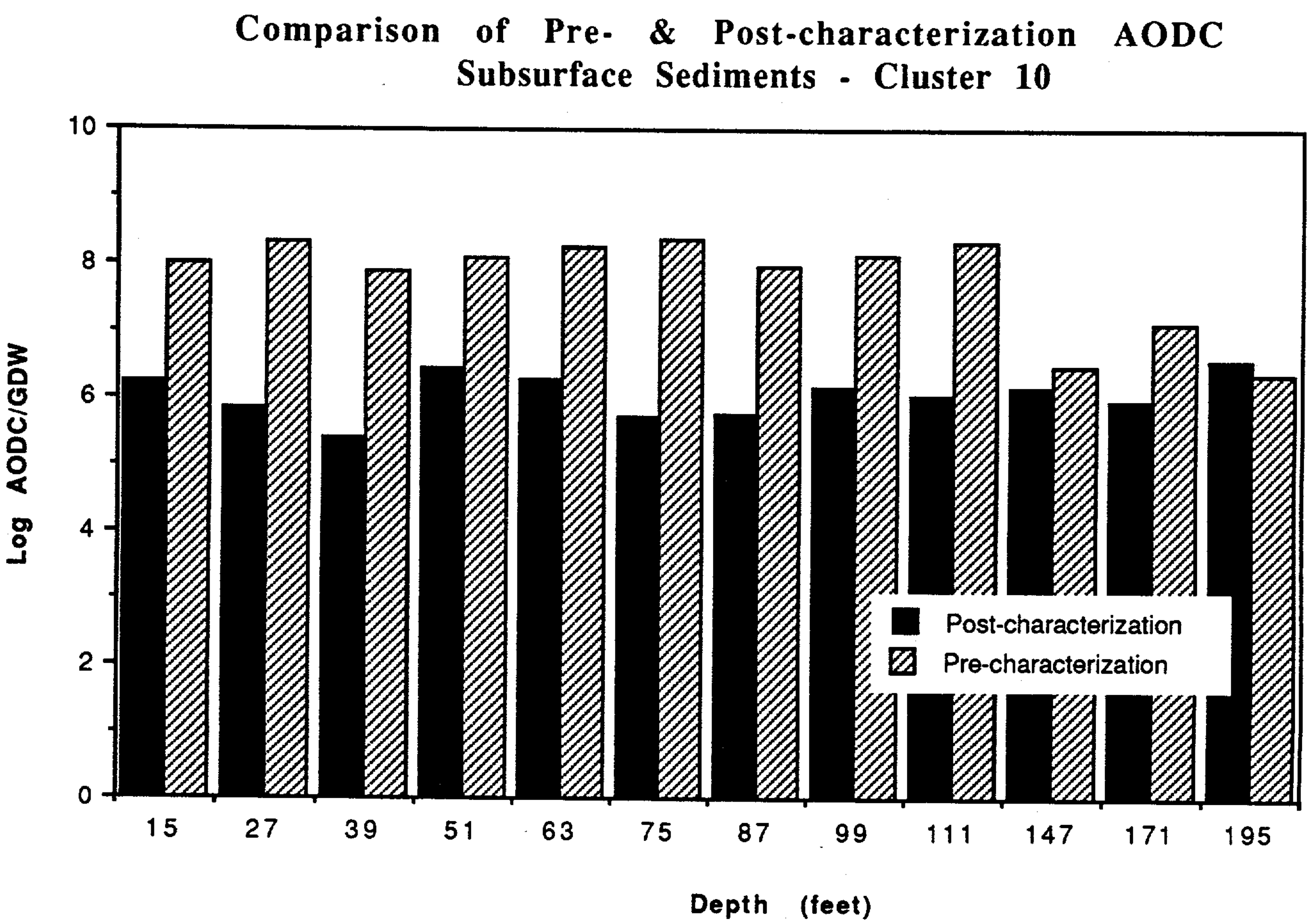
Comparison of Pre- & Post-characterization AODC
Subsurface Sediments - Cluster 5
Log AODC/GDW
0
2
4
6
8
10
15
27
39
51
63
75
87
99
111
123
135
167
191
Depth (feet)
Post-characterization
Pre-characterization



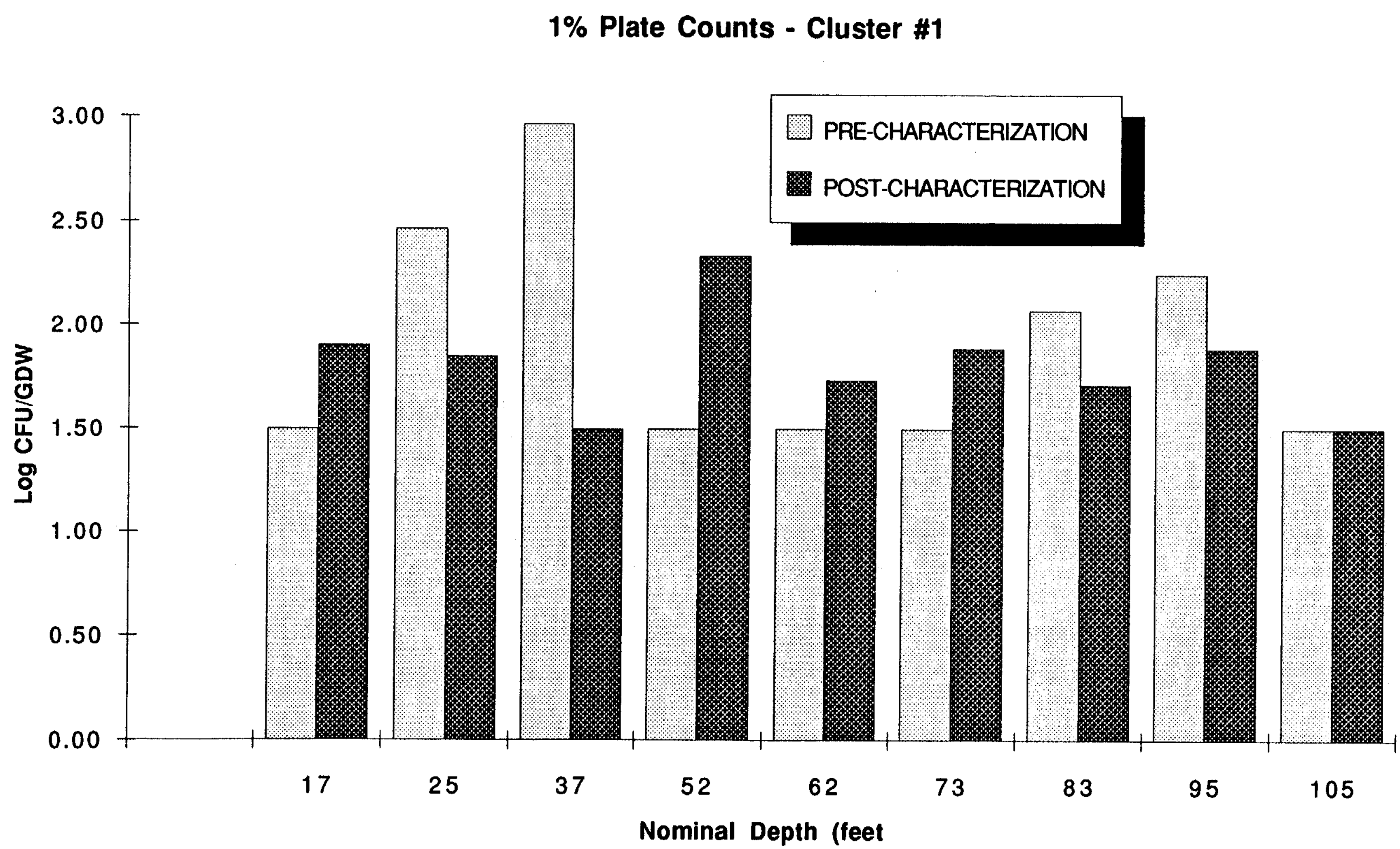
Comparison of Pre- & Post-characterization AODC
Subsurface Sediments - Cluster 7
10
8
6
4
2
0
Log AODC/GDW
3
15
27
39
51
75
87
99
111
119
147
155
189
Depth (feet)
Post-characterization
Pre-characterization

Comparison of Pre- & Post-characterization AODC
Subsurface Sediments - Cluster 9

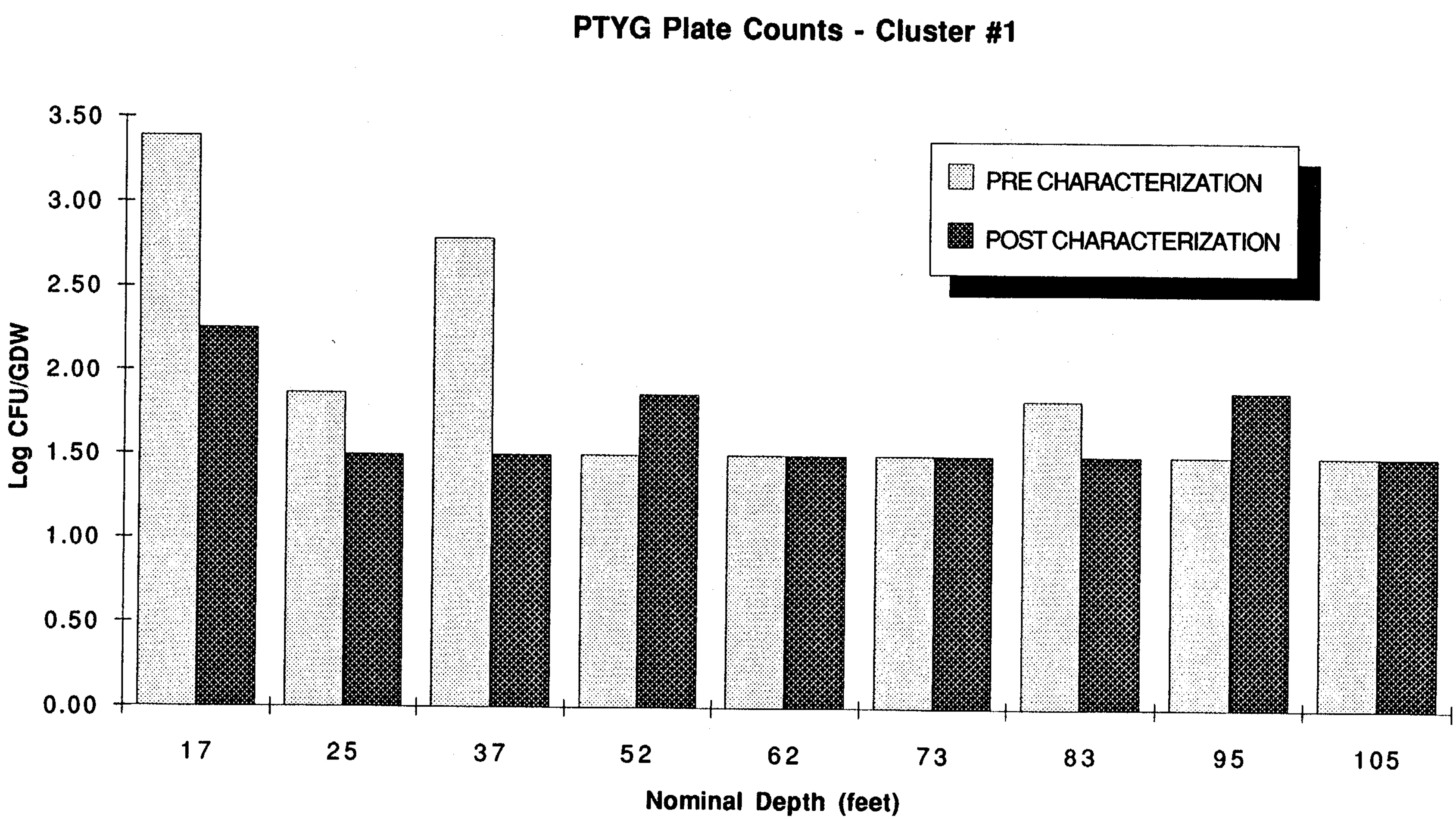


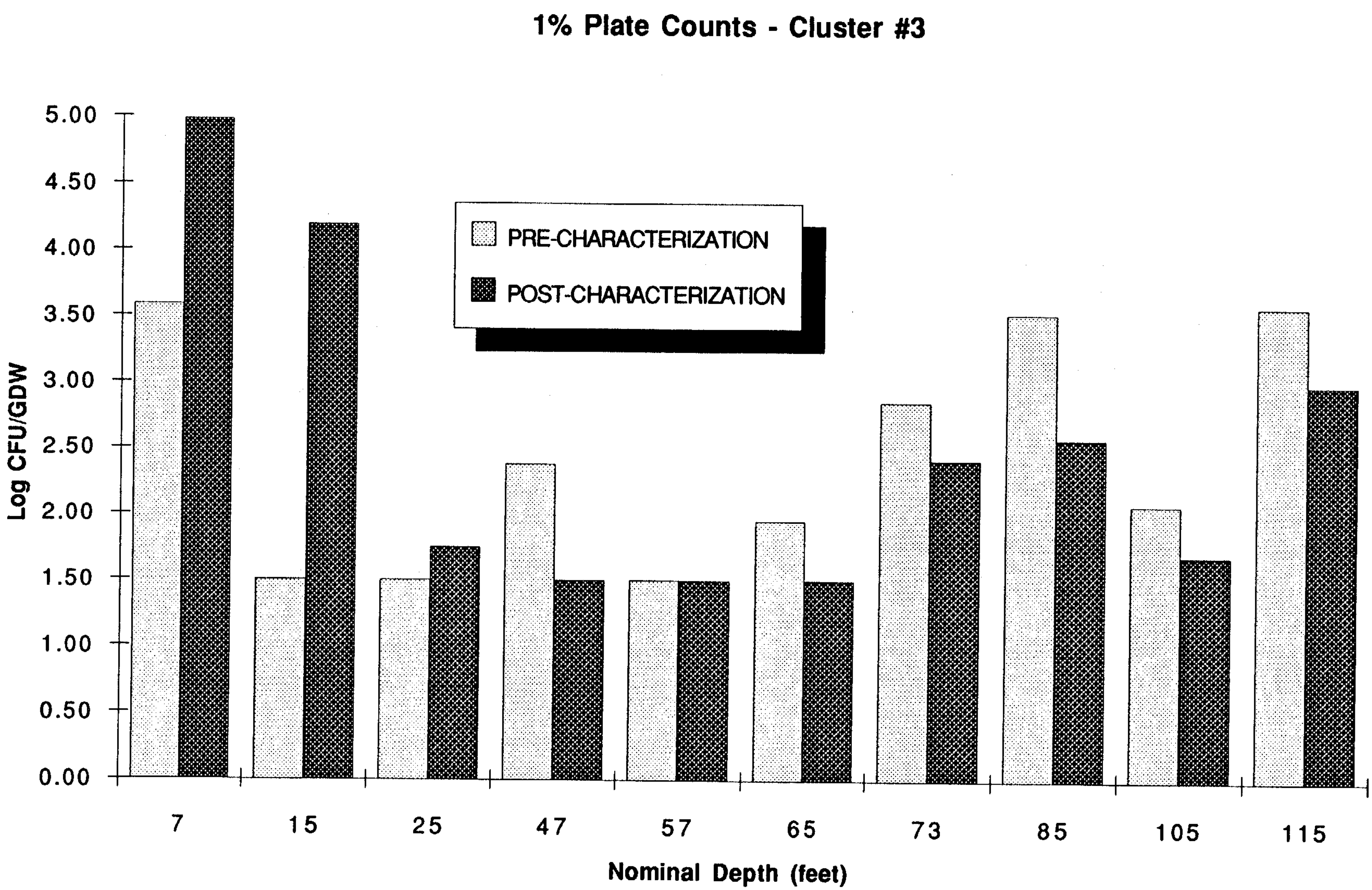

Comparison of Pre- & Post-characterization AODC
Subsurface Sediments - Cluster 10
Log AODC/GDW
10
8
6
4
2
0
Post-characterization
Pre-characterization
15
27
39
51
63
75
87
99
111
147
171
195
Depth (feet)

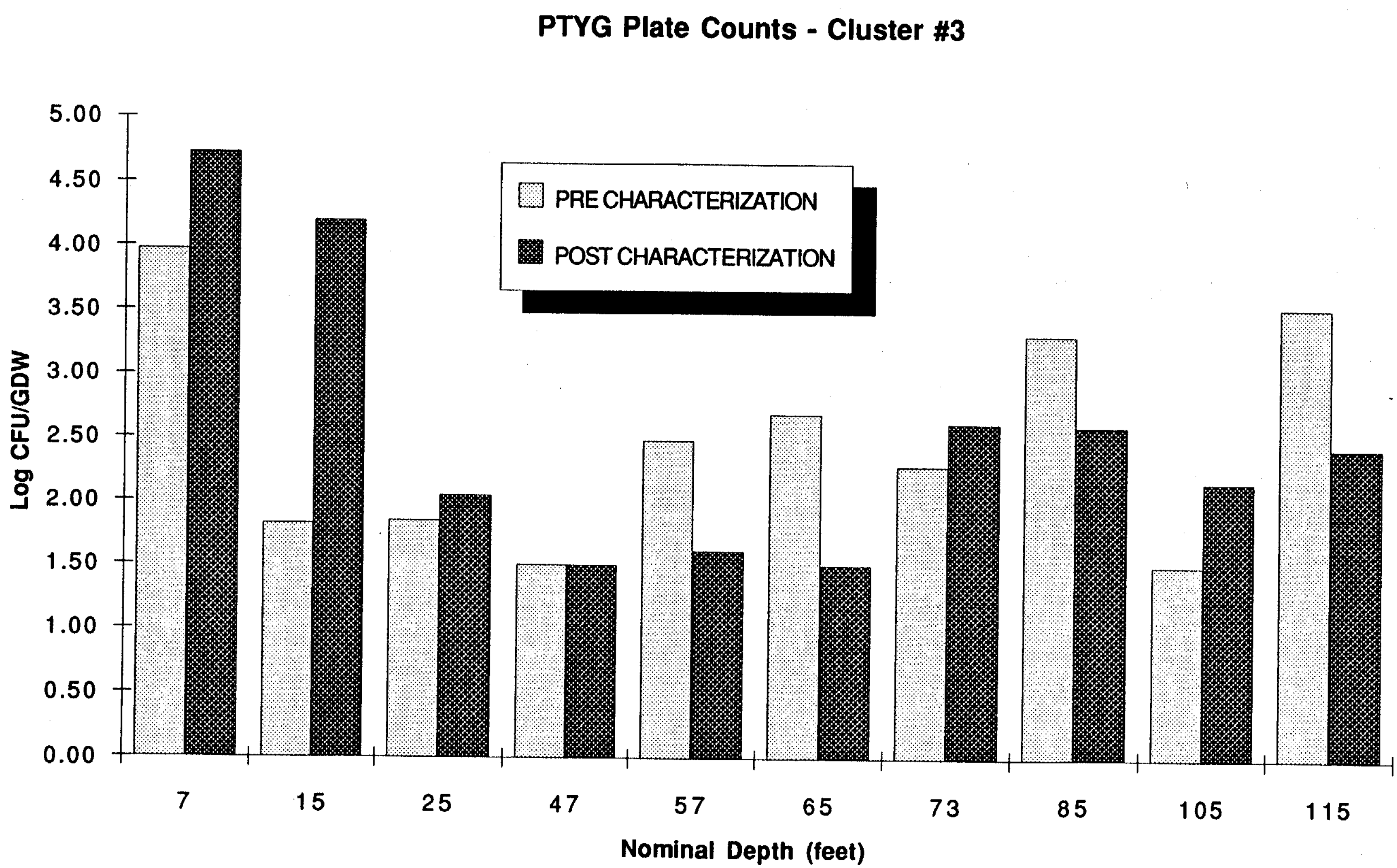
IV

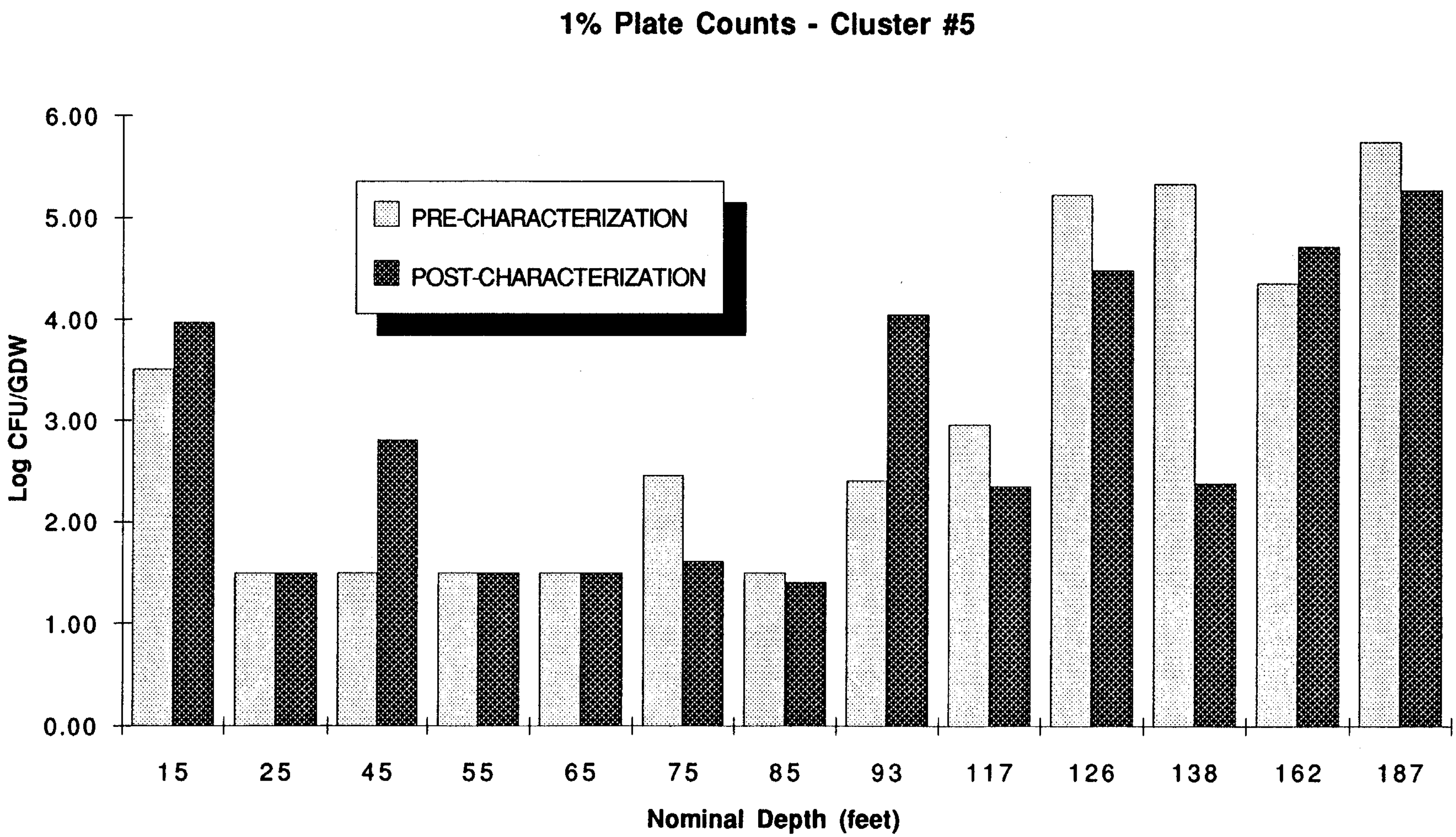


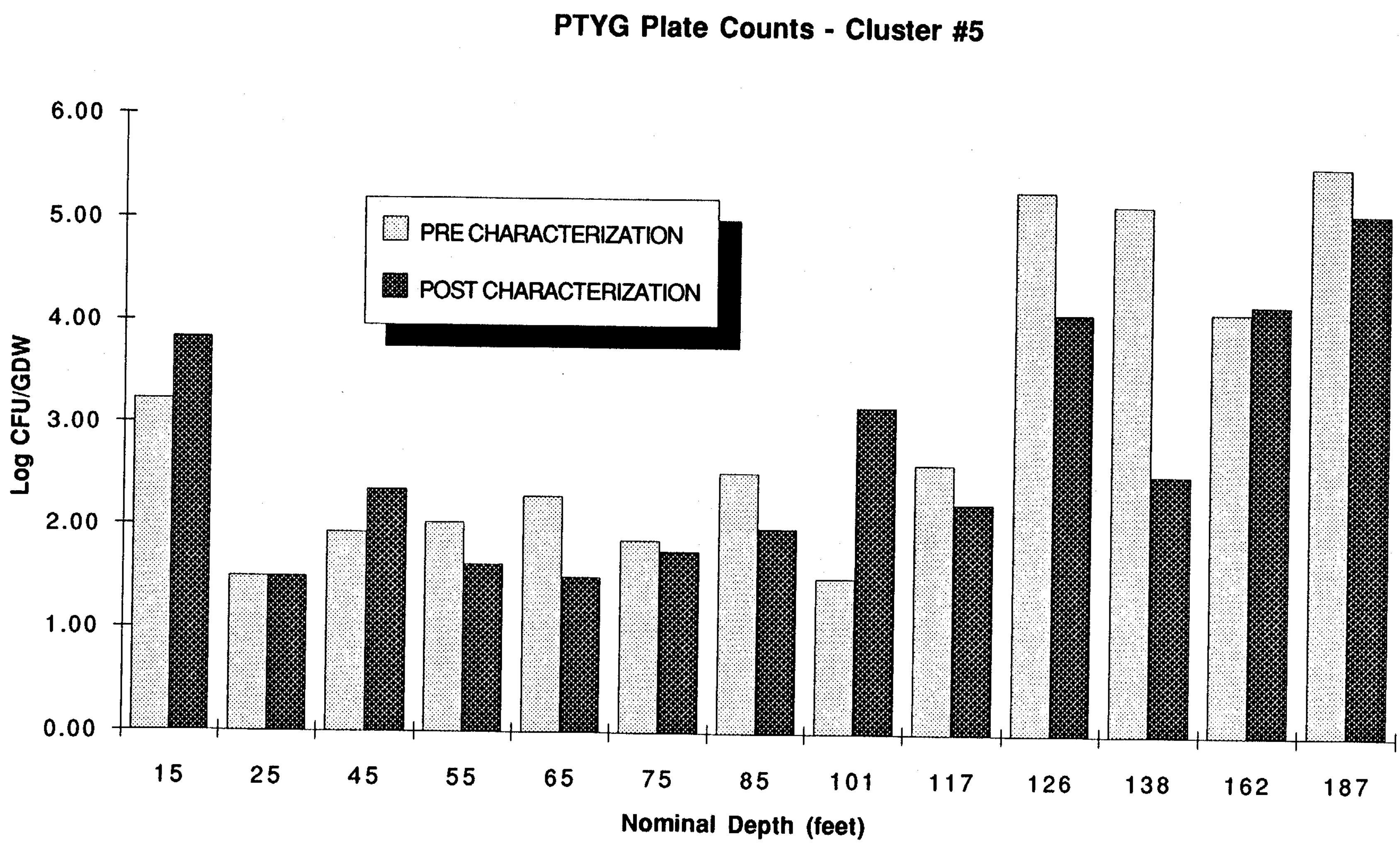
Appendix ~~~~ IV


PTYG Plate Counts - Cluster #1
PRE CHARACTERIZATION
POST CHARACTERIZATION
Log CFU/GDW
3.50
3.00
2.50
2.00
1.50
1.00
0.50
0.00
17
25
37
52
62
73
83
95
105
Nominal Depth (feet)

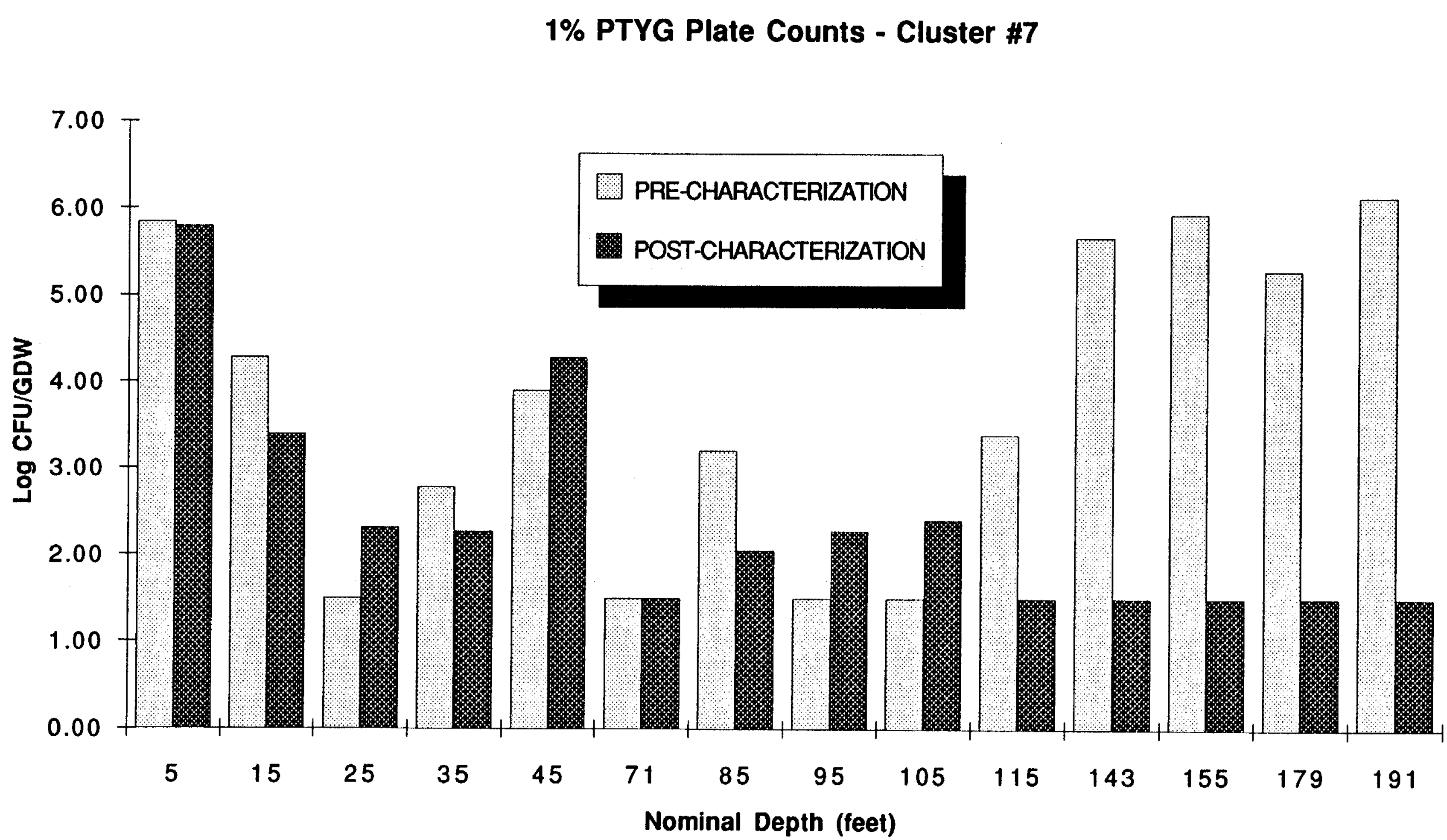

1% Plate Counts - Cluster #3
PRE-CHARACTERIZATION
POST-CHARACTERIZATION
Log CFU/GDW
5.00
4.50
4.00
3.50
3.00
2.50
2.00
1.50
1.00
0.50
0.00
7
15
25
47
57
65
73
85
105
115
Nominal Depth (feet)


PTYG Plate Counts - Cluster #3
PRE CHARACTERIZATION
POST CHARACTERIZATION
Log CFU/GDW
5.00
4.50
4.00
3.50
3.00
2.50
2.00
1.50
1.00
0.50
0.00
7
15
25
47
57
65
73
85
105
115
Nominal Depth (feet)

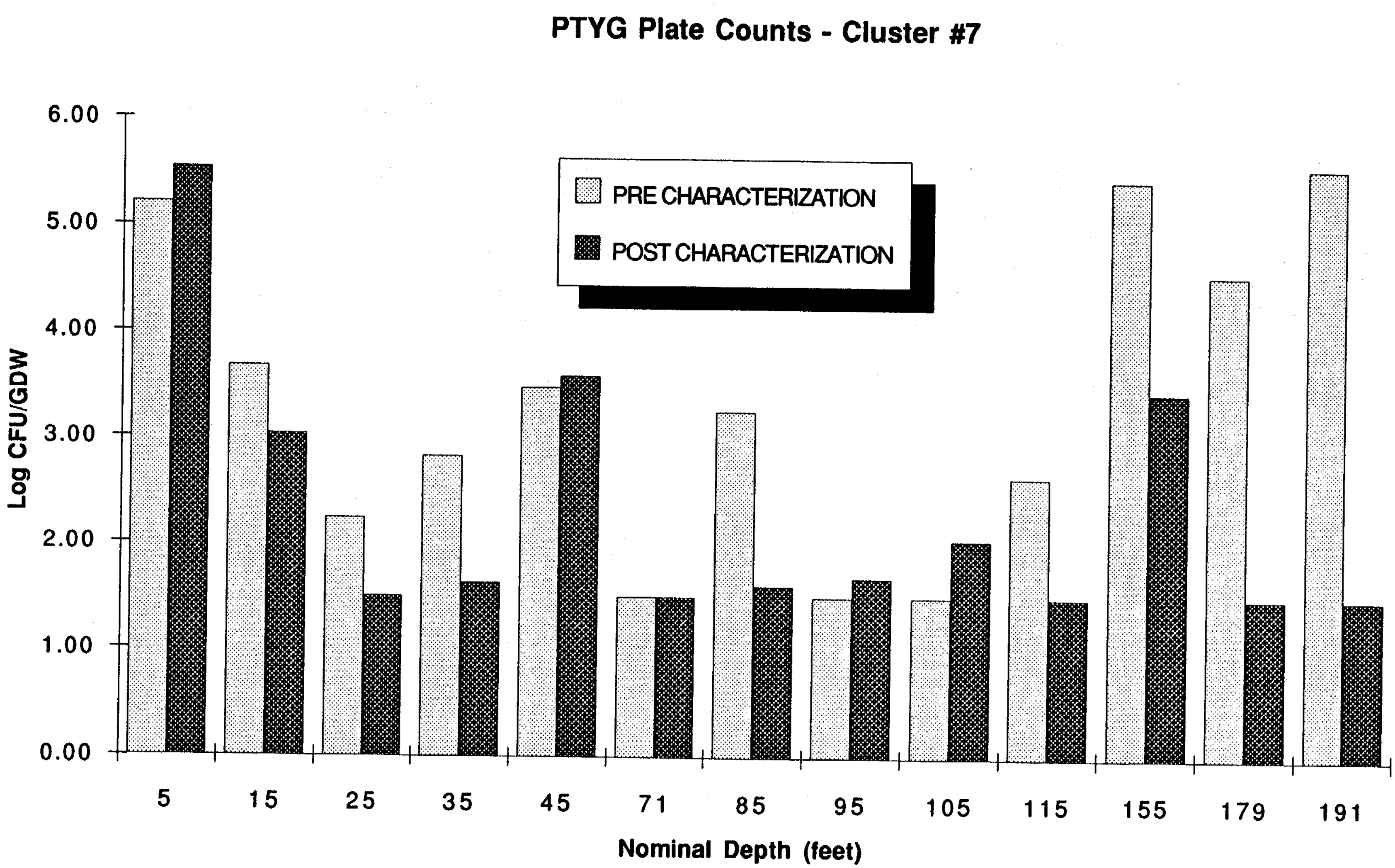

1% Plate Counts - Cluster #5
PRE-CHARACTERIZATION
POST-CHARACTERIZATION
Log CFU/GDW
6.00
5.00
4.00
3.00
2.00
1.00
0.00
15
25
45
55
65
75
85
93
117
126
138
162
187
Nominal Depth (feet)



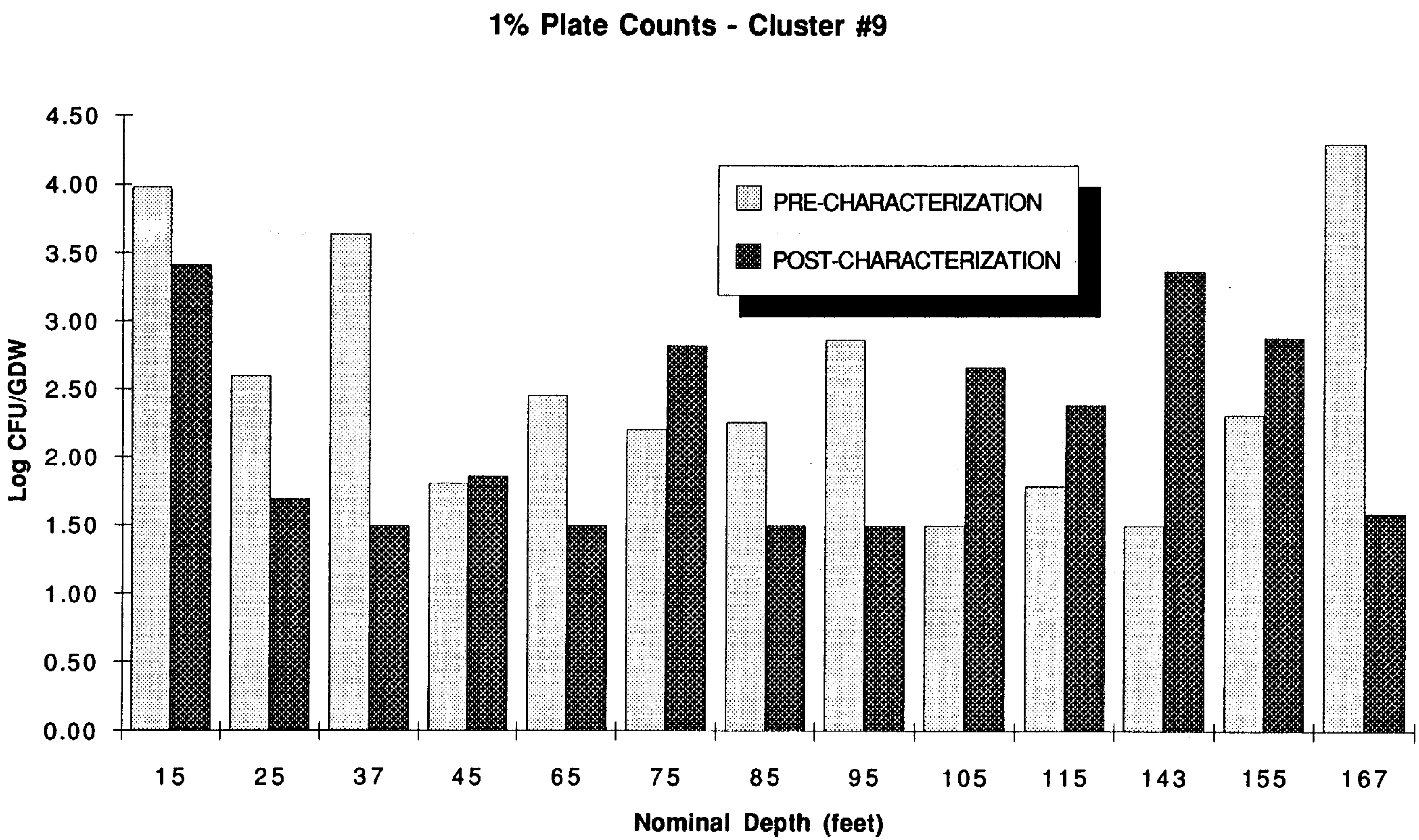
PTYG Plate Counts - Cluster #5
PRE CHARACTERIZATION
POST CHARACTERIZATION
Log CFU/GDW
6.00
5.00
4.00
3.00
2.00
1.00
0.00
15
25
45
55
65
75
85
101
117
126
138
162
187
Nominal Depth (feet)



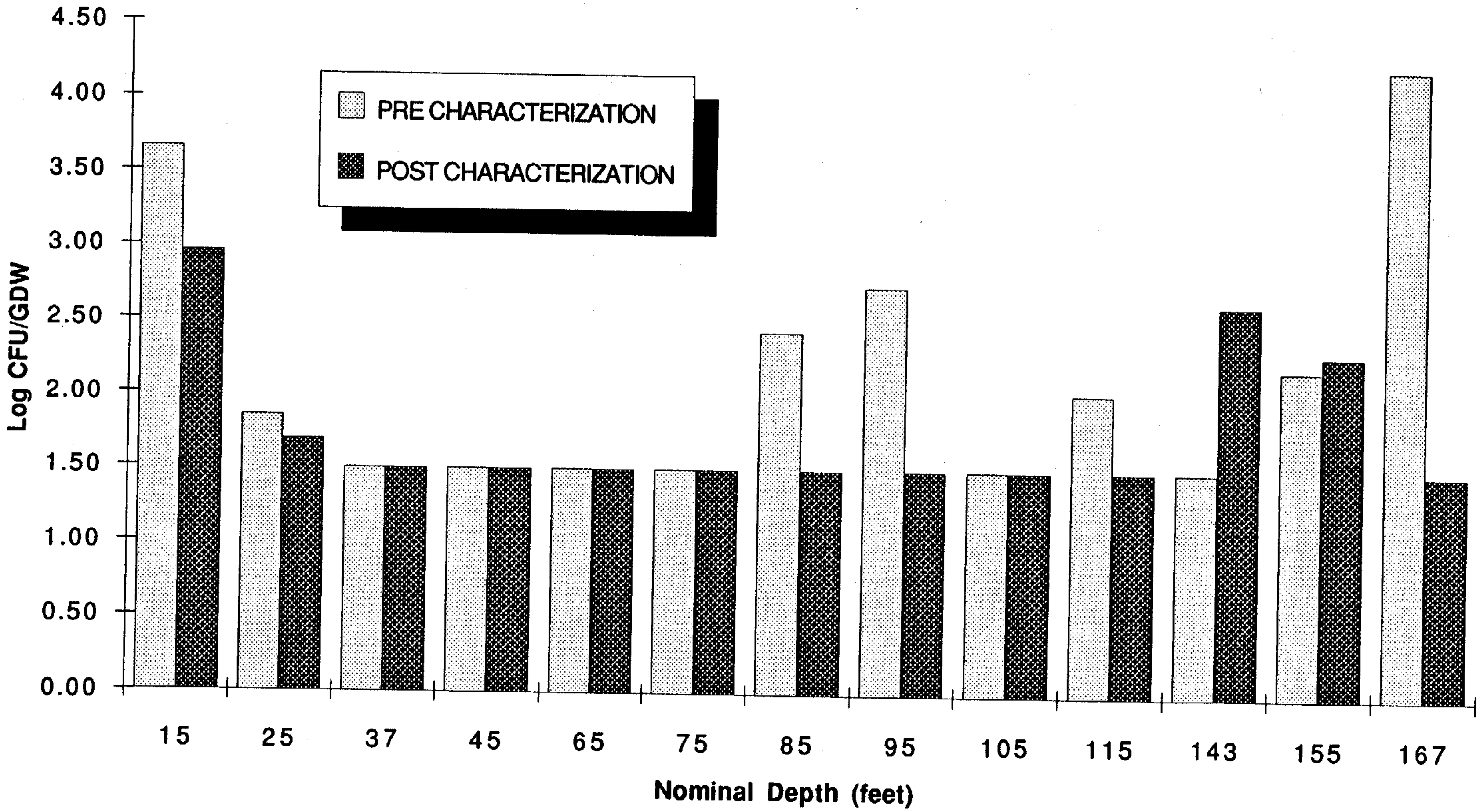
1% PTYG Plate Counts - Cluster #7
PRE-CHARACTERIZATION
POST-CHARACTERIZATION
Log CFU/GDW
7.00
6.00
5.00
4.00
3.00
2.00
1.00
0.00
5
15
25
35
45
71
85
95
105
115
143
155
179
191
Nominal Depth (feet)

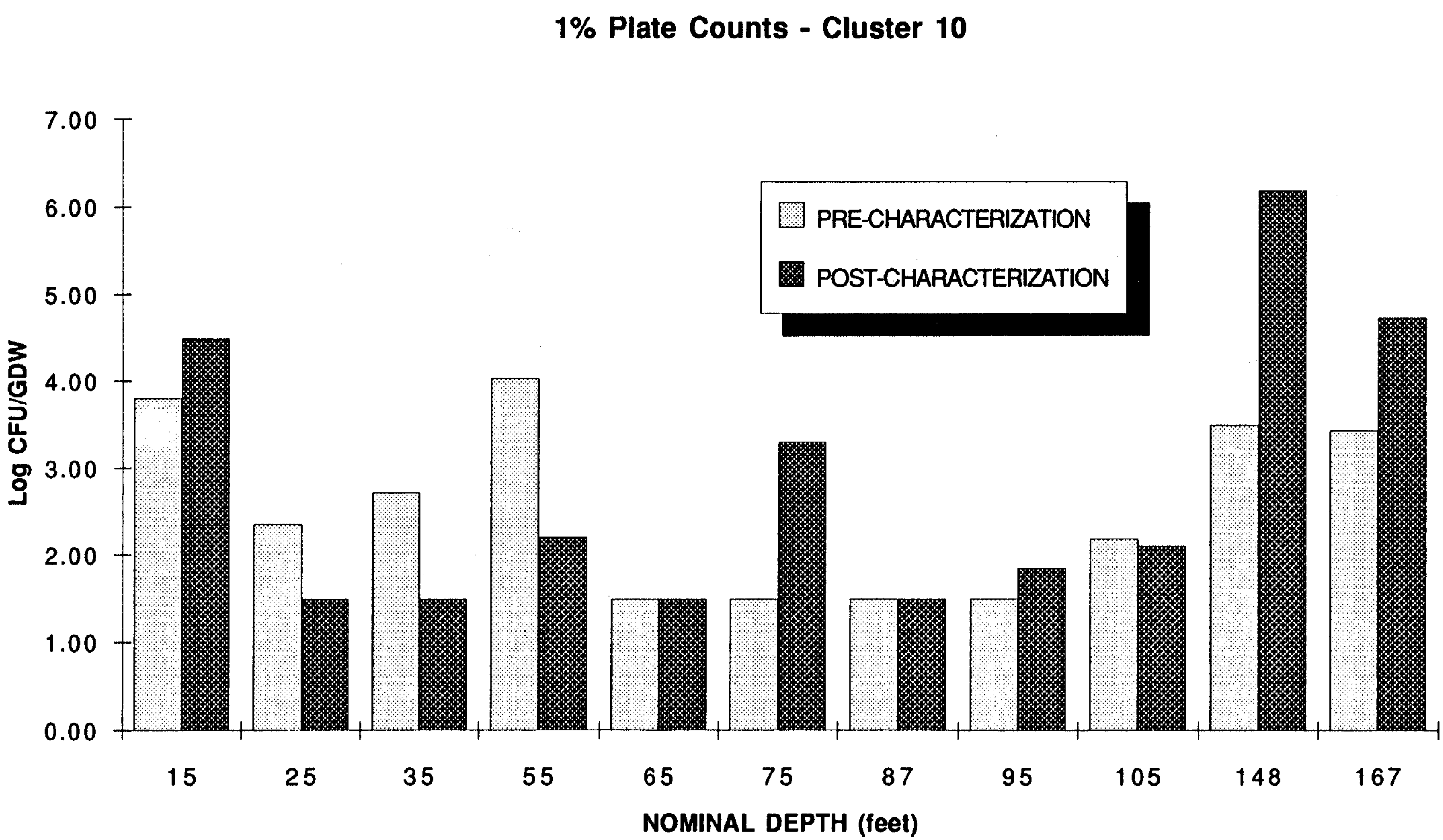


PTYG Plate Counts - Cluster #7
PRE CHARACTERIZATION
POST CHARACTERIZATION
Log CFU/GDW
6.00
5.00
4.00
3.00
2.00
1.00
0.00
5
15
25
35
45
71
85
95
105
115
155
179
191
Nominal Depth (feet)

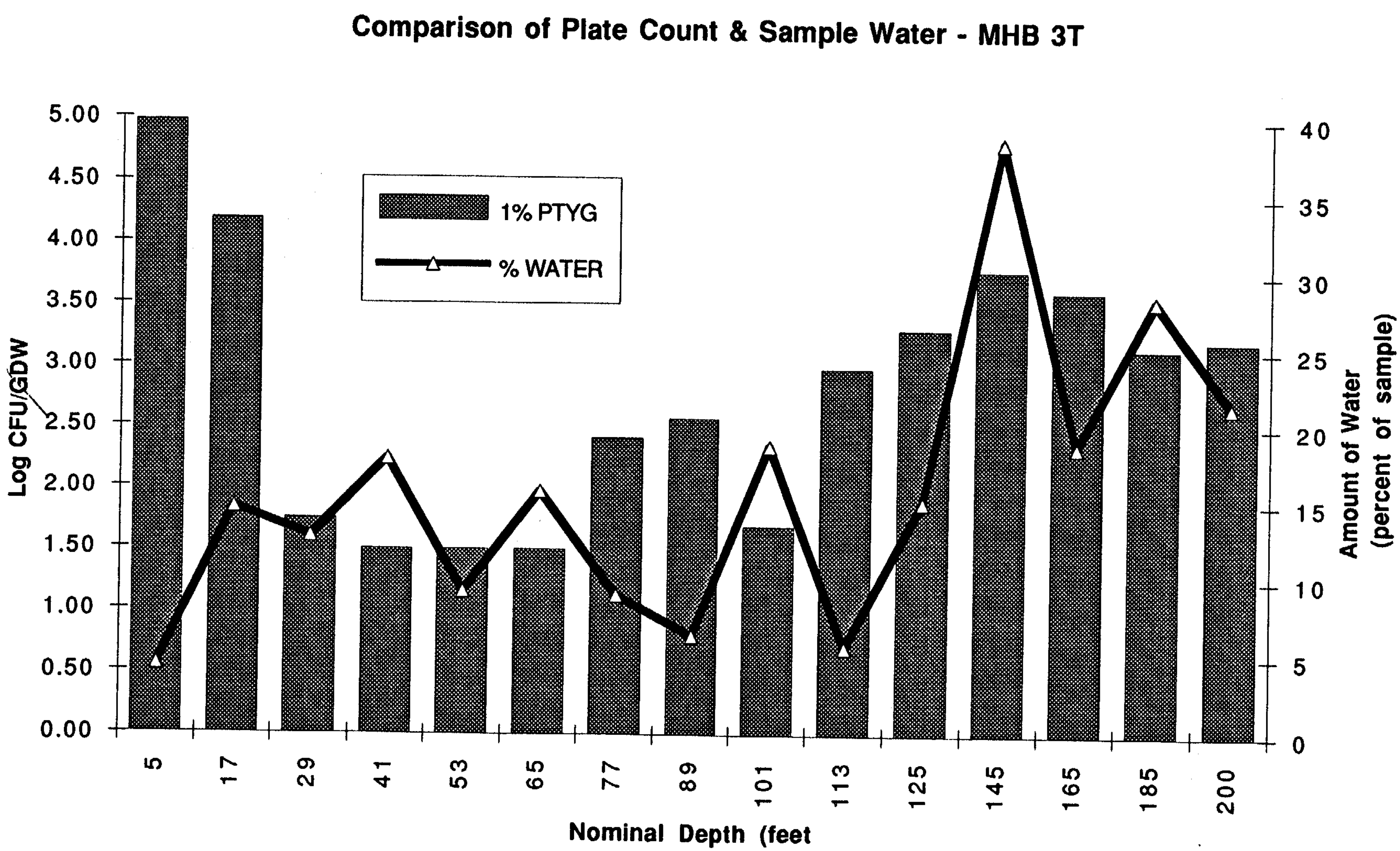

1% Plate Counts - Cluster #9
4.50
4.00
3.50
3.00
2.50
2.00
1.50
1.00
0.50
0.00
Log CFU/GDW
PRE-CHARACTERIZATION
POST-CHARACTERIZATION
15
25
37
45
65
75
85
95
105
115
143
155
167
Nominal Depth (feet)

PTYG Plate Counts - Cluster #9



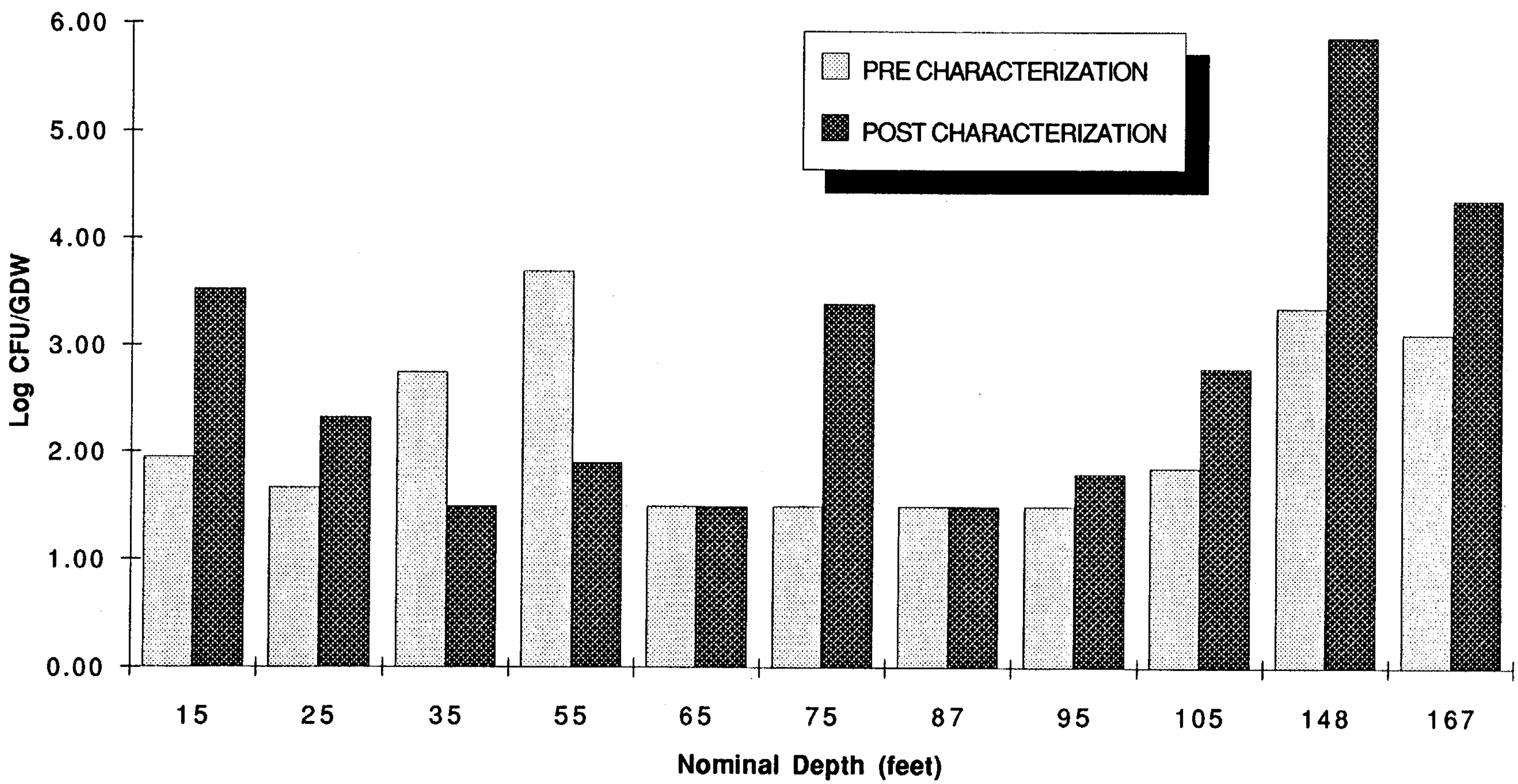

1% Plate Counts - Cluster 10
PRE-CHARACTERIZATION
POST-CHARACTERIZATION
Log CFU/GDW
7.00
6.00
5.00
4.00
3.00
2.00
1.00
0.00
15
25
35
55
65
75
87
95
105
148
167
NOMINAL DEPTH (feet)

App V p.4

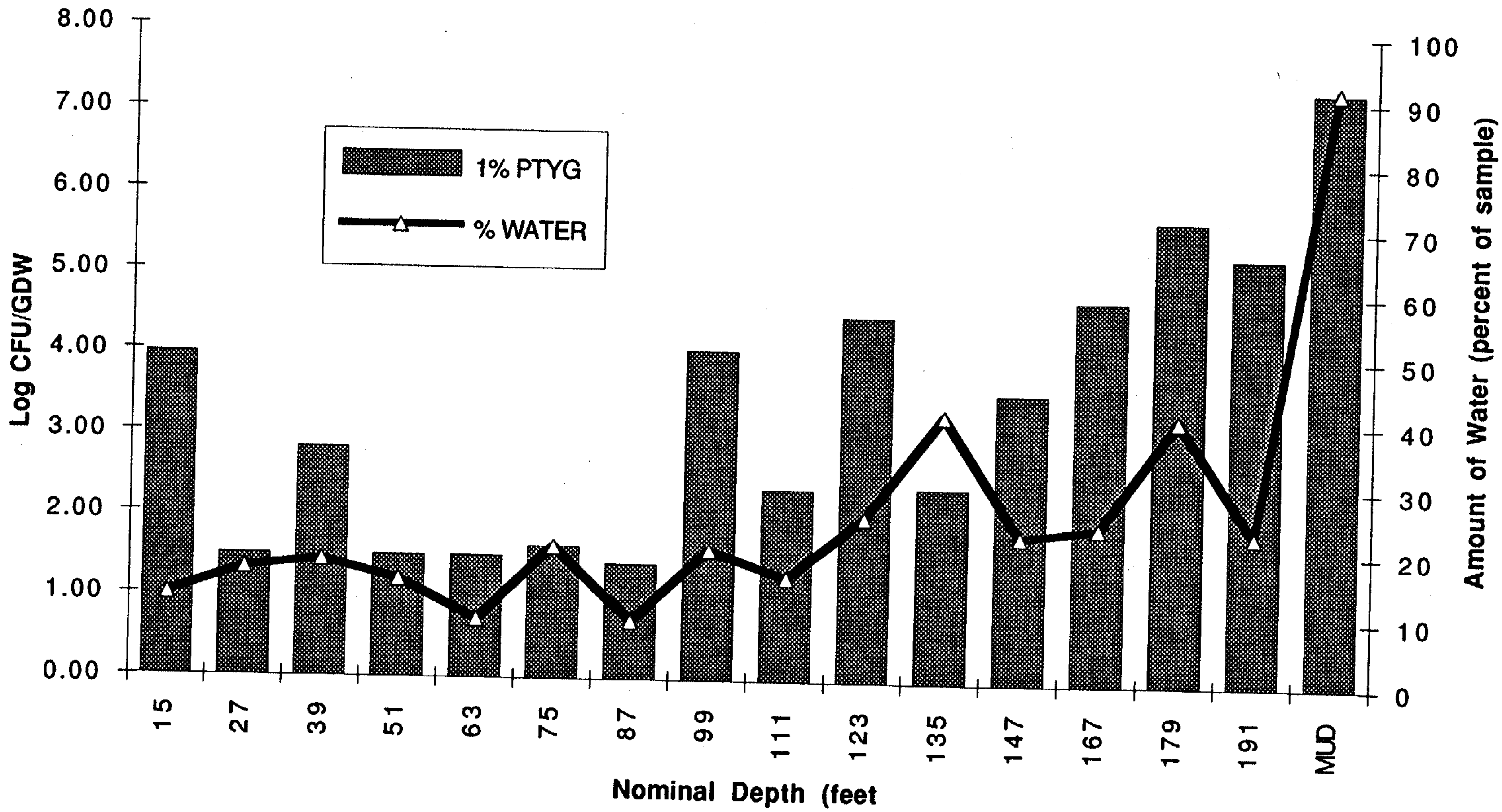


Comparison of Plate Count & Sample Water - MHB 3T
1% PTYG
% WATER
Log CFU/GDW
5.00
4.50
4.00
3.50
3.00
2.50
2.00
1.50
1.00
0.50
0.00
40
35
30
25
20
15
10
5
0
Amount of Water (percent of sample)
5
17
29
41
53
65
77
89
101
113
125
145
165
185
200
Nominal Depth (feet

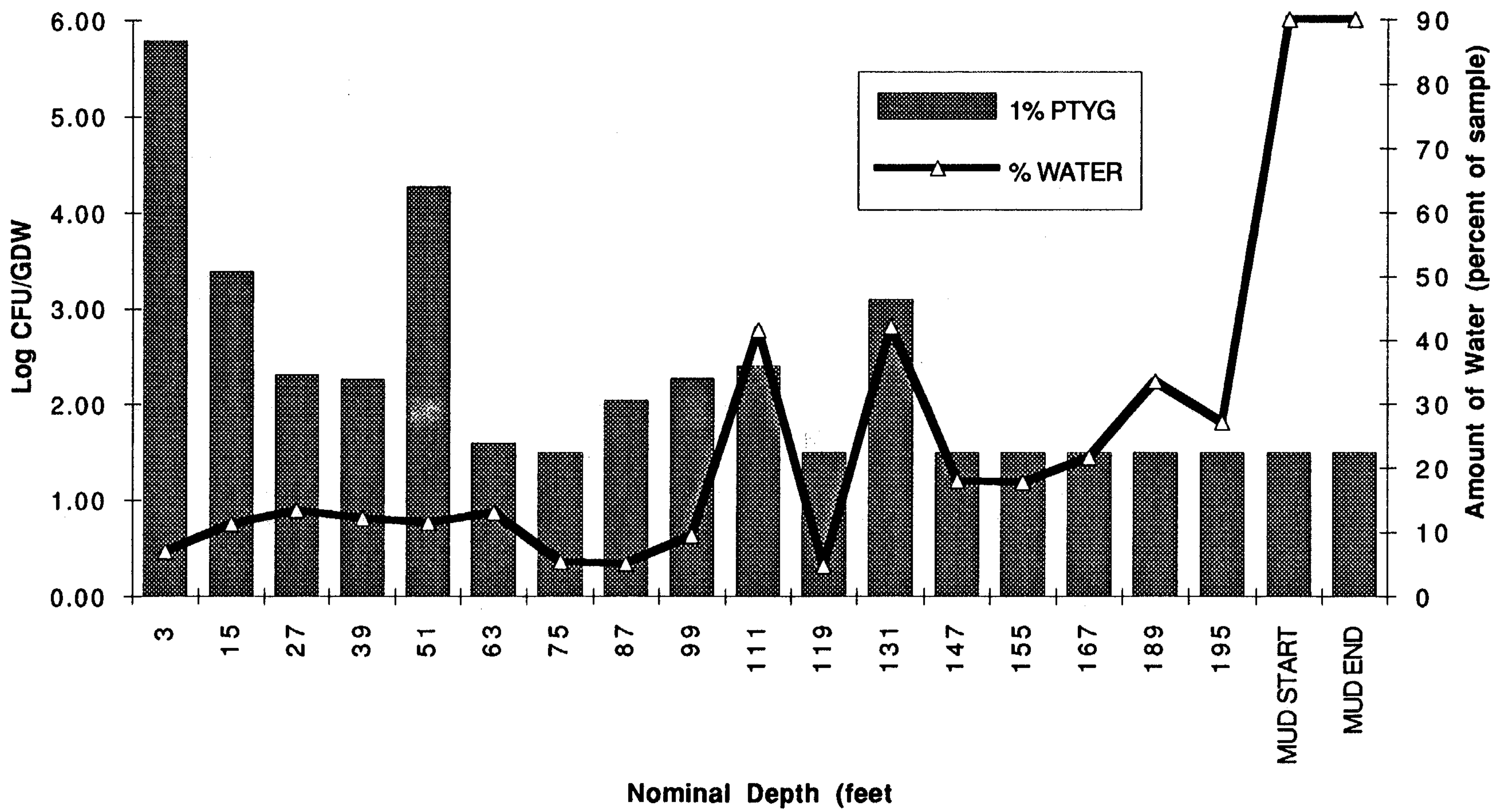
PTYG Plate Counts - Cluster #10



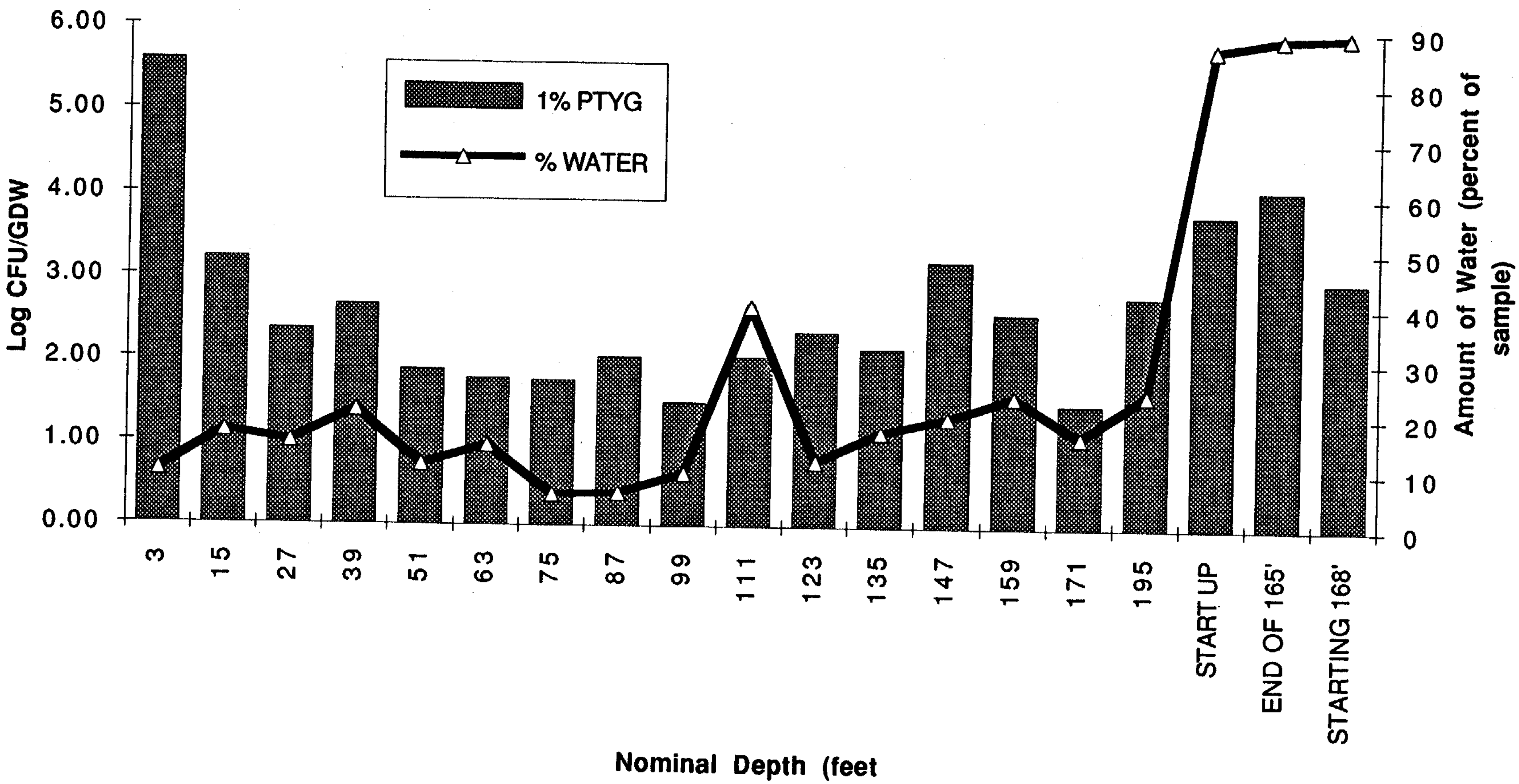
Comparison of Plate Count & Sample Water - MHB 5B



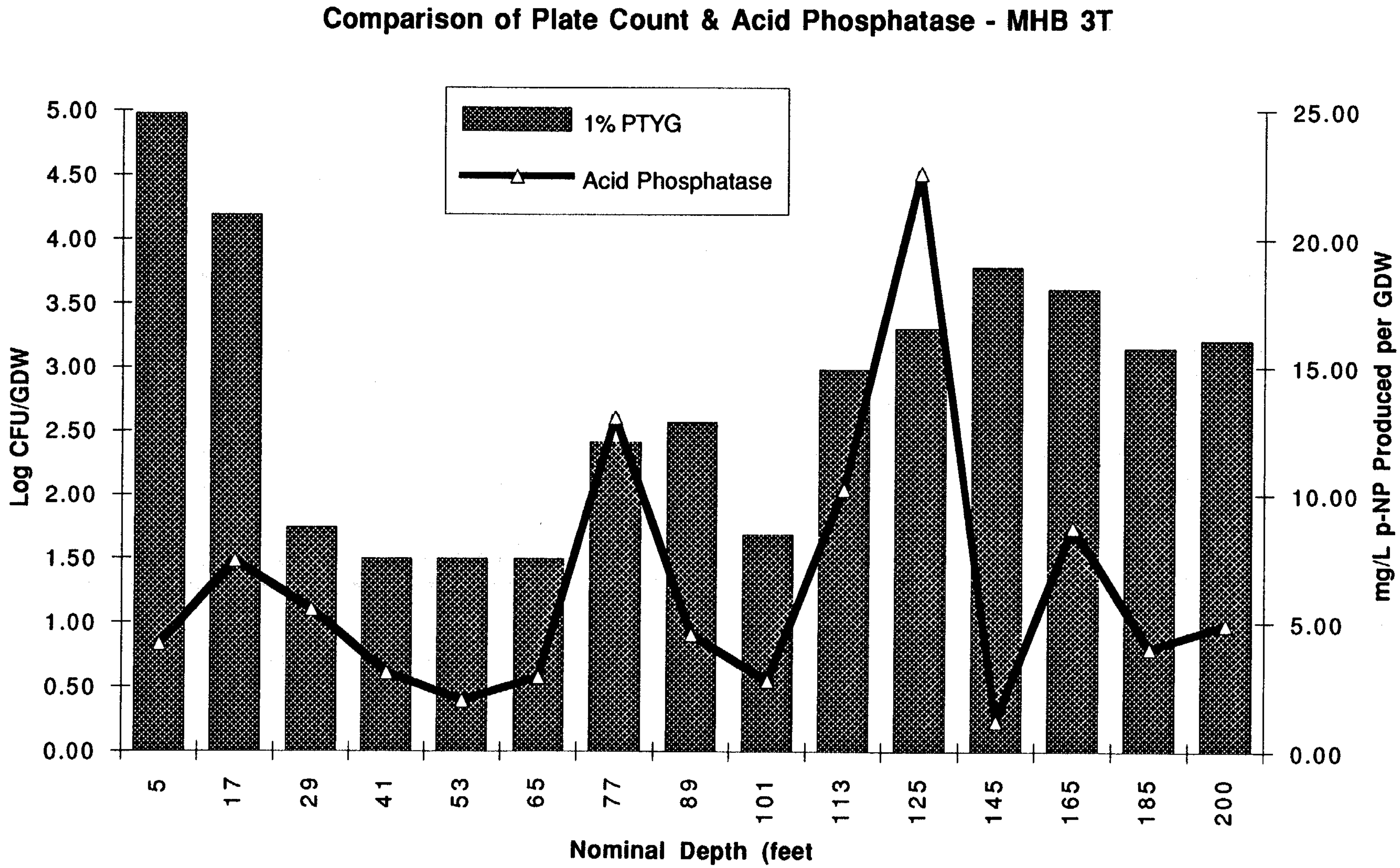
Comparison of Plate Count & Sample Water - MHB 7T



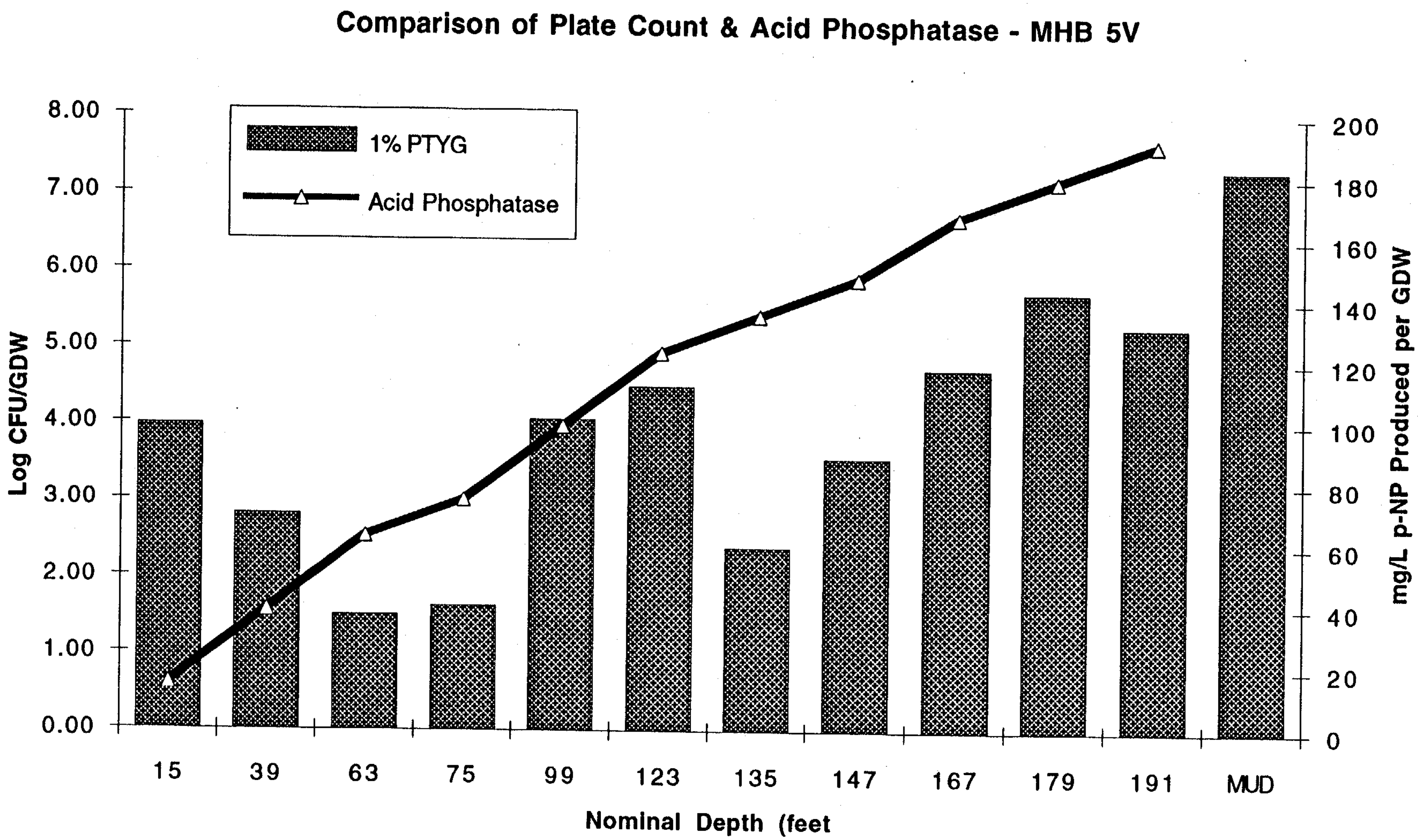
Comparison of Plate Count & Sample Water - MHT 11C



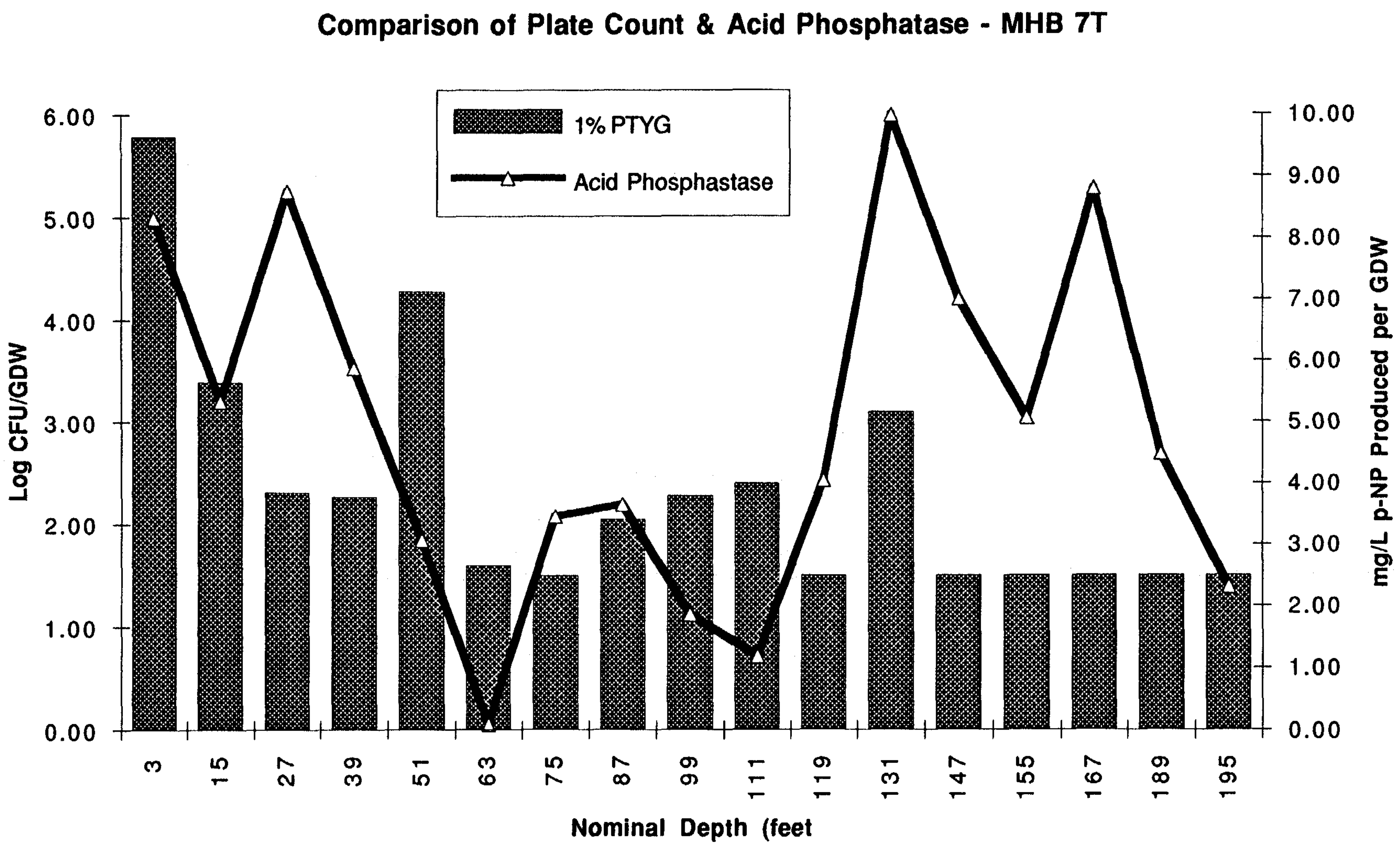
App V p.4



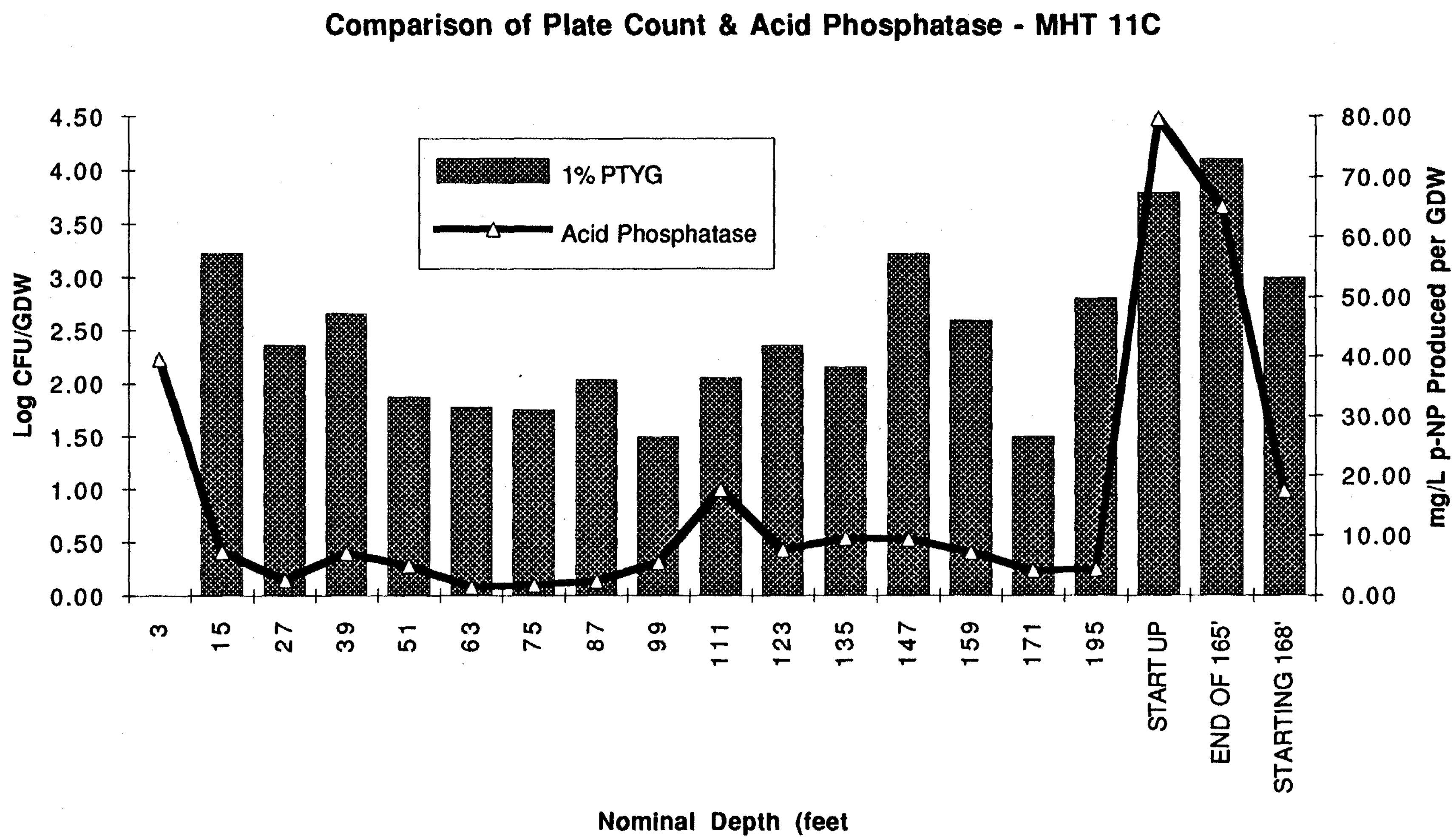
Comparison of Plate Count & Acid Phosphatase - MHB 3T
1% PTYG
Acid Phosphatase
Log CFU/GDW
mg/L p-NP Produced per GDW
5.00
4.50
4.00
3.50
3.00
2.50
2.00
1.50
1.00
0.50
0.00
25.00
20.00
15.00
10.00
5.00
0.00
5
17
29
41
53
65
77
89
101
113
125
145
165
185
200
Nominal Depth (feet



Comparison of Plate Count & Acid Phosphatase - MHB 5V
1% PTYG
Acid Phosphatase
Log CFU/GDW
mg/L p-NP Produced per GDW
8.00
7.00
6.00
5.00
4.00
3.00
2.00
1.00
0.00
200
180
160
140
120
100
80
60
40
20
0
15
39
63
75
99
123
135
147
167
179
191
MUD
Nominal Depth (feet

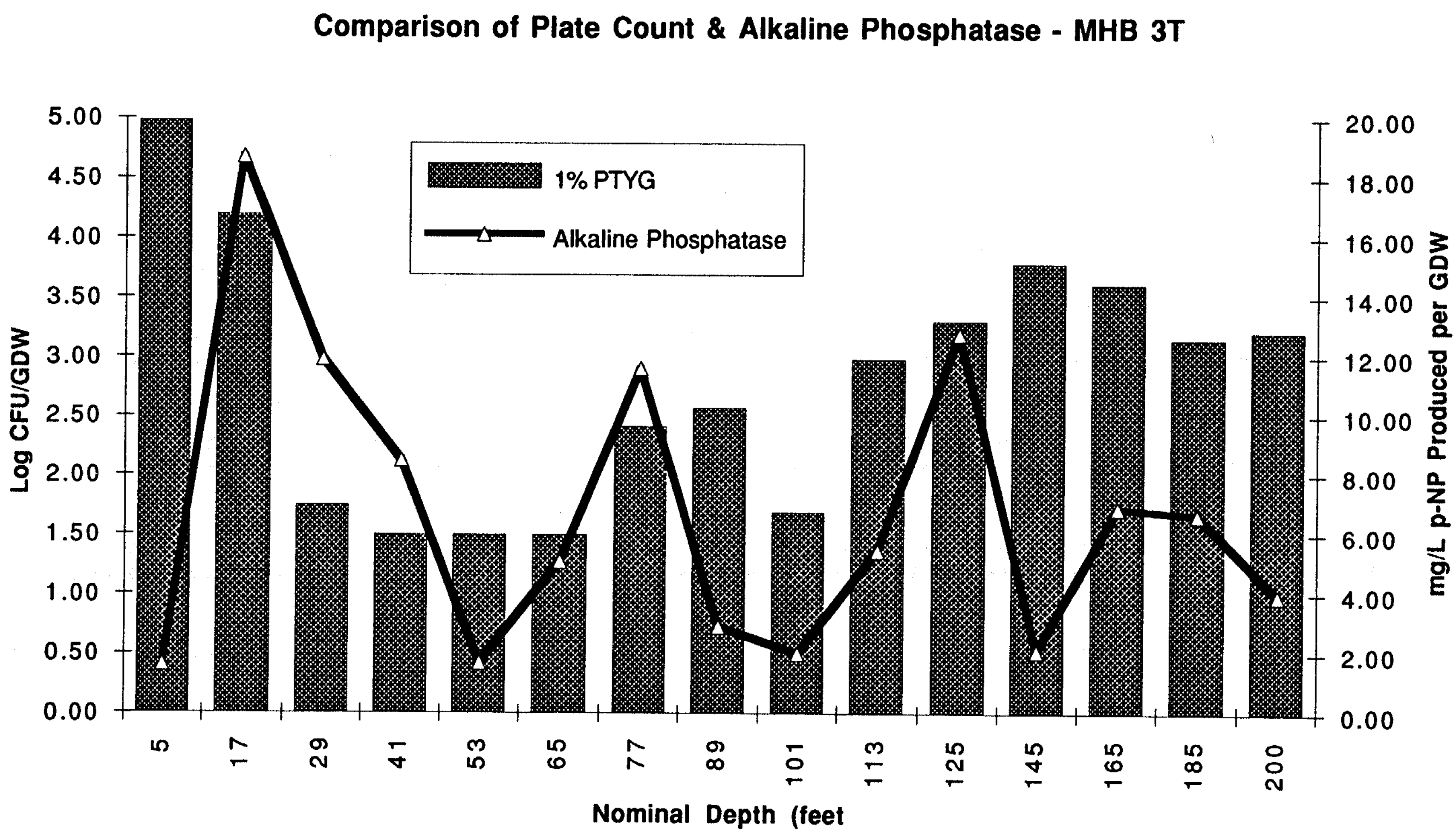


Comparison of Plate Count & Acid Phosphatase - MHB 7T
1% PTYG
Acid Phosphastase
Log CFU/GDW
0.00
1.00
2.00
3.00
4.00
5.00
6.00
mg/L p-NP Produced per GDW
0.00
1.00
2.00
3.00
4.00
5.00
6.00
7.00
8.00
9.00
10.00
3
15
27
39
51
63
75
87
99
111
119
131
147
155
167
189
195
Nominal Depth (feet



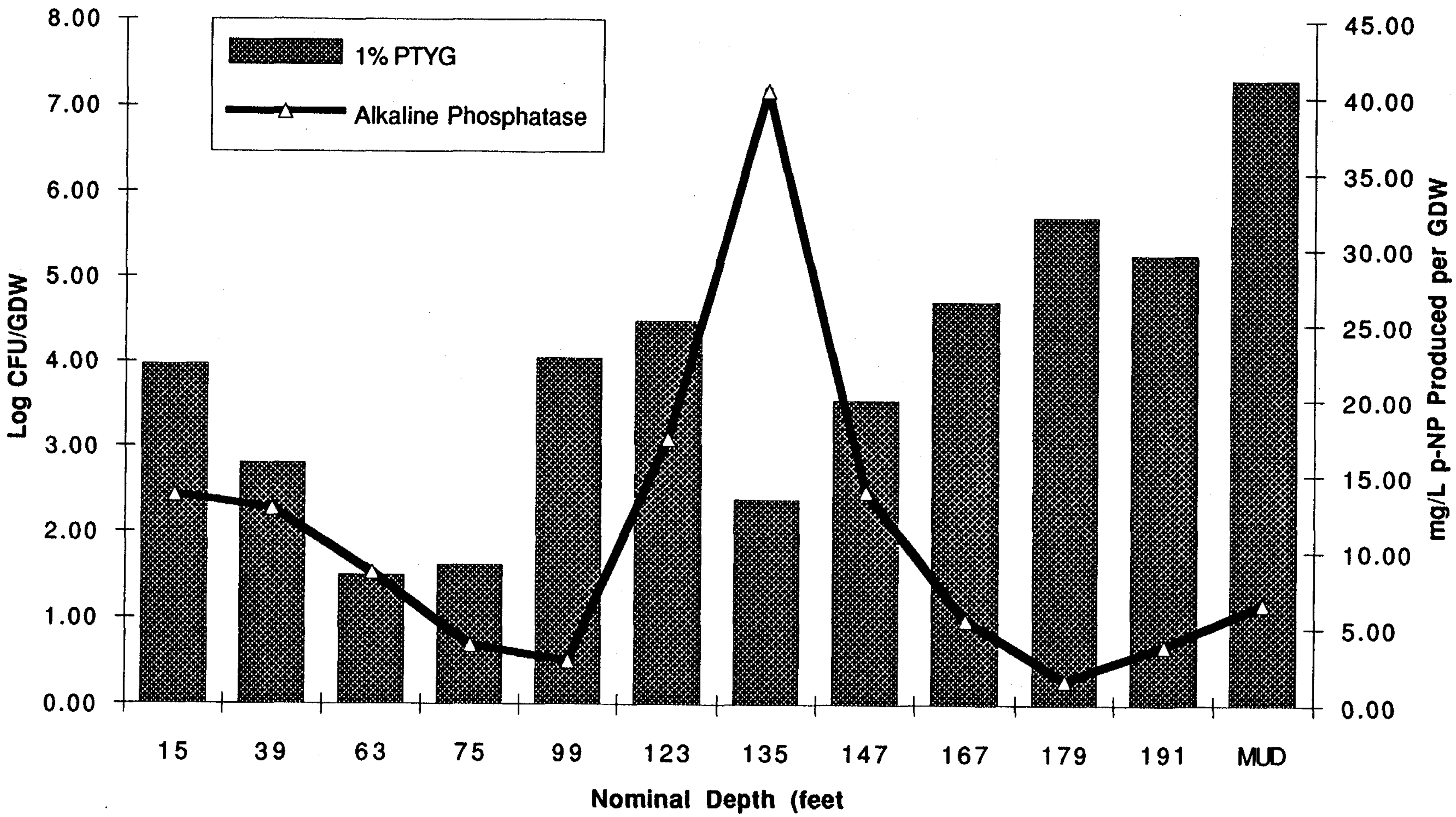
Comparison of Plate Count & Acid Phosphatase - MHT 11C
1% PTYG
Acid Phosphatase
Log CFU/GDW
mg/L p-NP Produced per GDW
4.50
4.00
3.50
3.00
2.50
2.00
1.50
1.00
0.50
0.00
80.00
70.00
60.00
50.00
40.00
30.00
20.00
10.00
0.00
3
15
27
39
51
63
75
87
99
111
123
135
147
159
171
195
START UP
END OF 165'
STARTING 168'
Nominal Depth (feet

App V

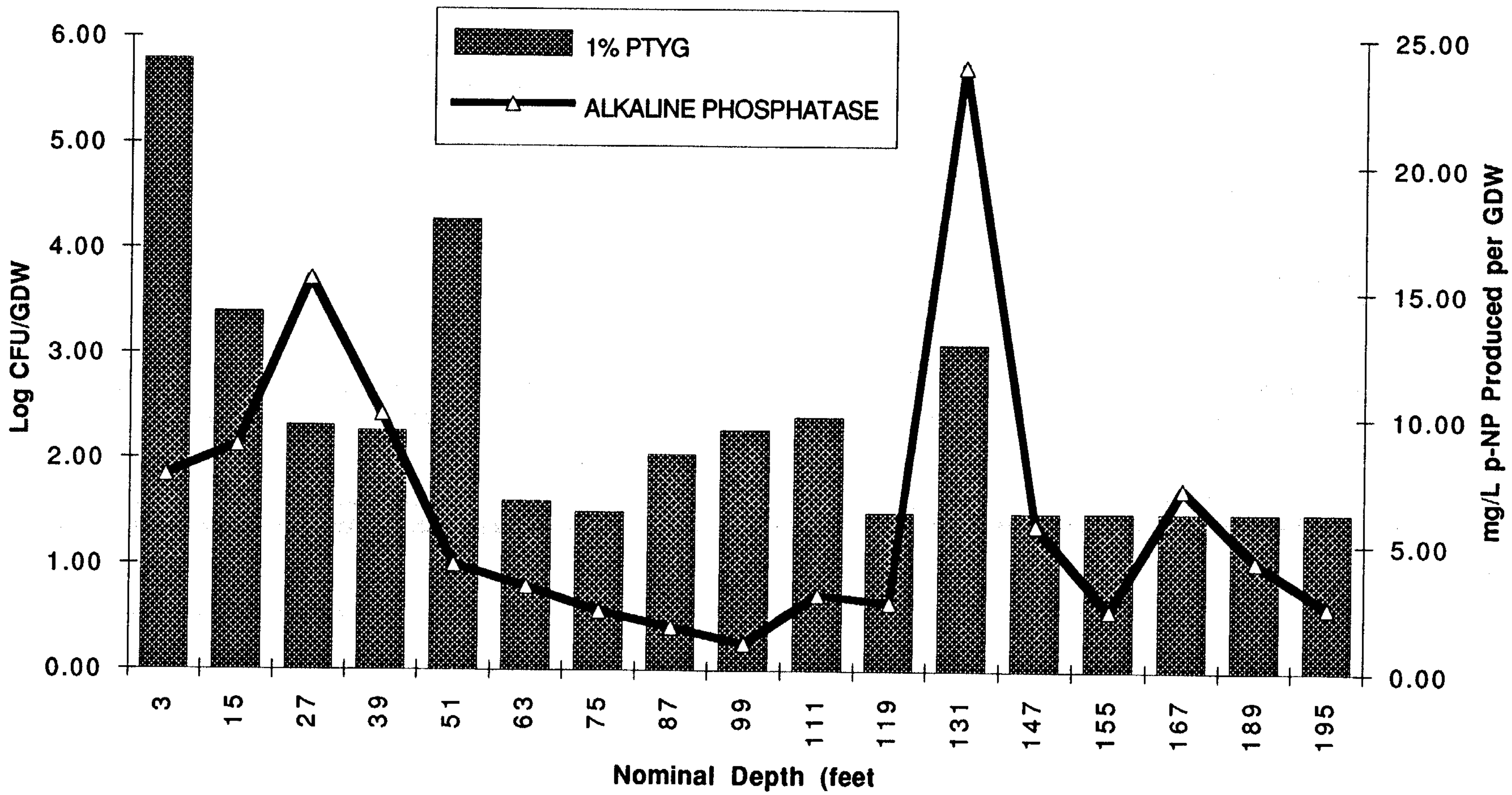


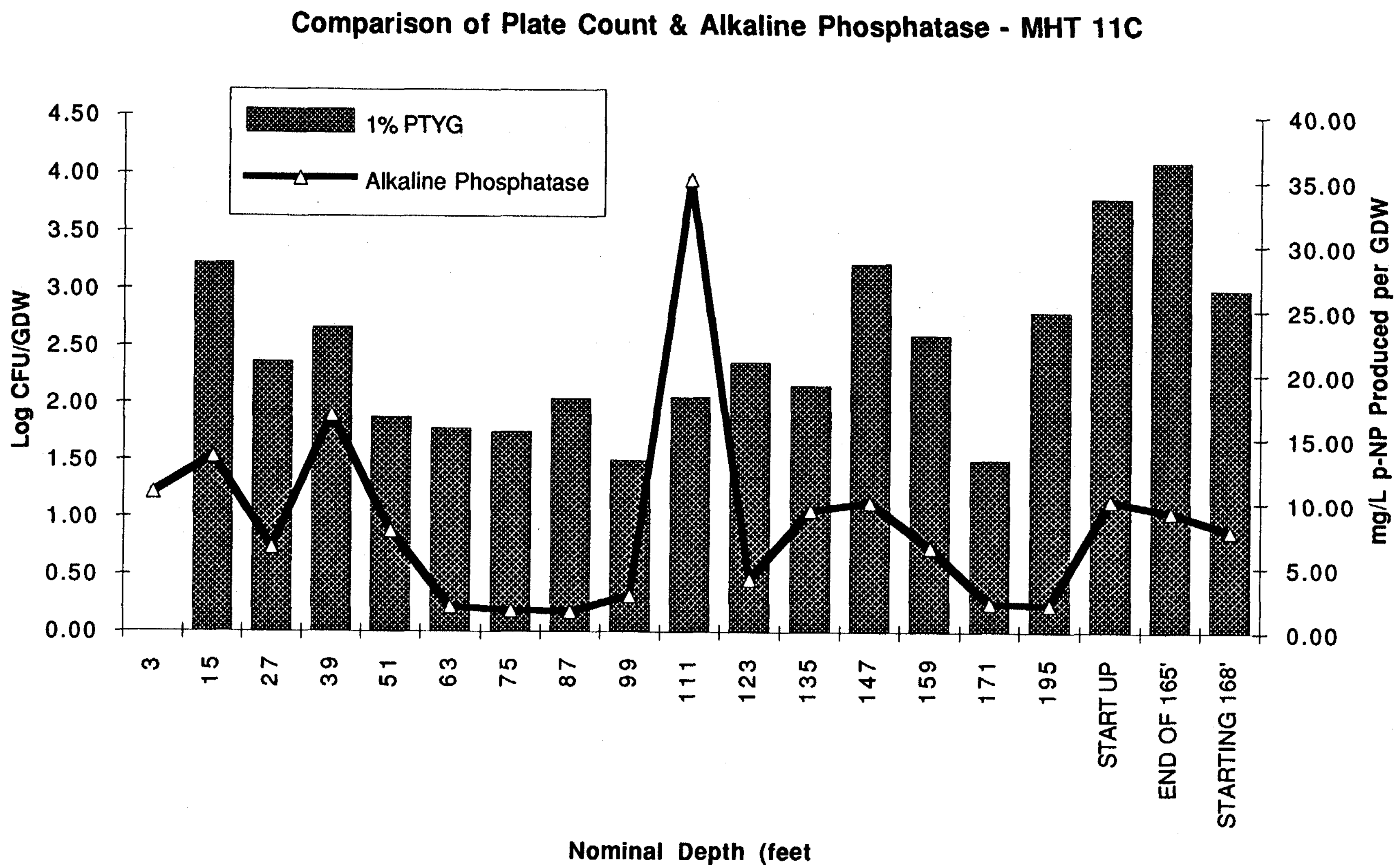
Comparison of Plate Count & Alkaline Phosphatase - MHB 3T
1% PTYG
Alkaline Phosphatase
Log CFU/GDW
mg/L p-NP Produced per GDW
Nominal Depth (feet
5.00
4.50
4.00
3.50
3.00
2.50
2.00
1.50
1.00
0.50
0.00
20.00
18.00
16.00
14.00
12.00
10.00
8.00
6.00
4.00
2.00
0.00
5
17
29
41
53
65
77
89
101
113
125
145
165
185
200

Comparison of Plate Count & Alkaline Phosphatase - MHB 5V

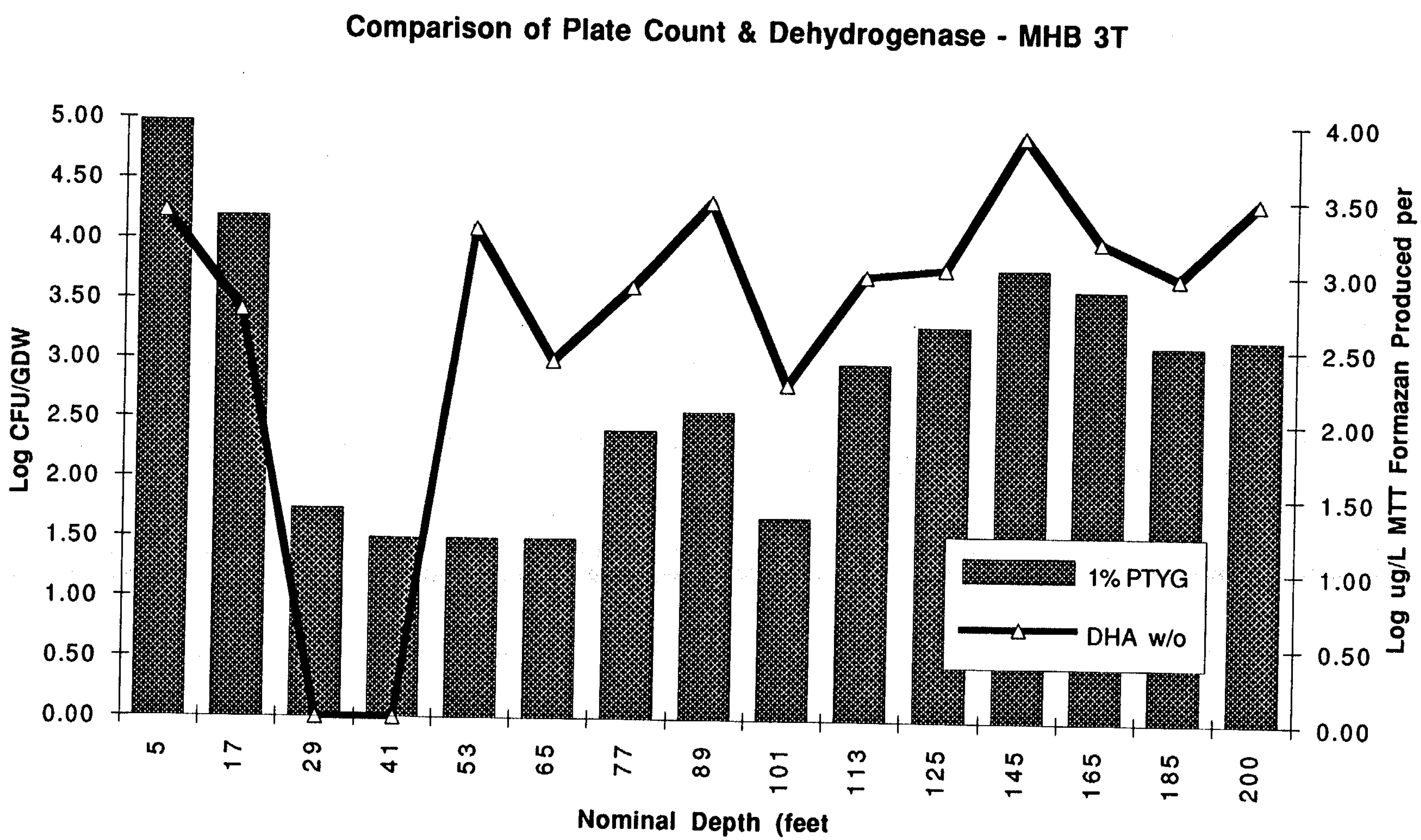


Comparison of Plate Count & Alkaline Phosphatase - MHB 7T

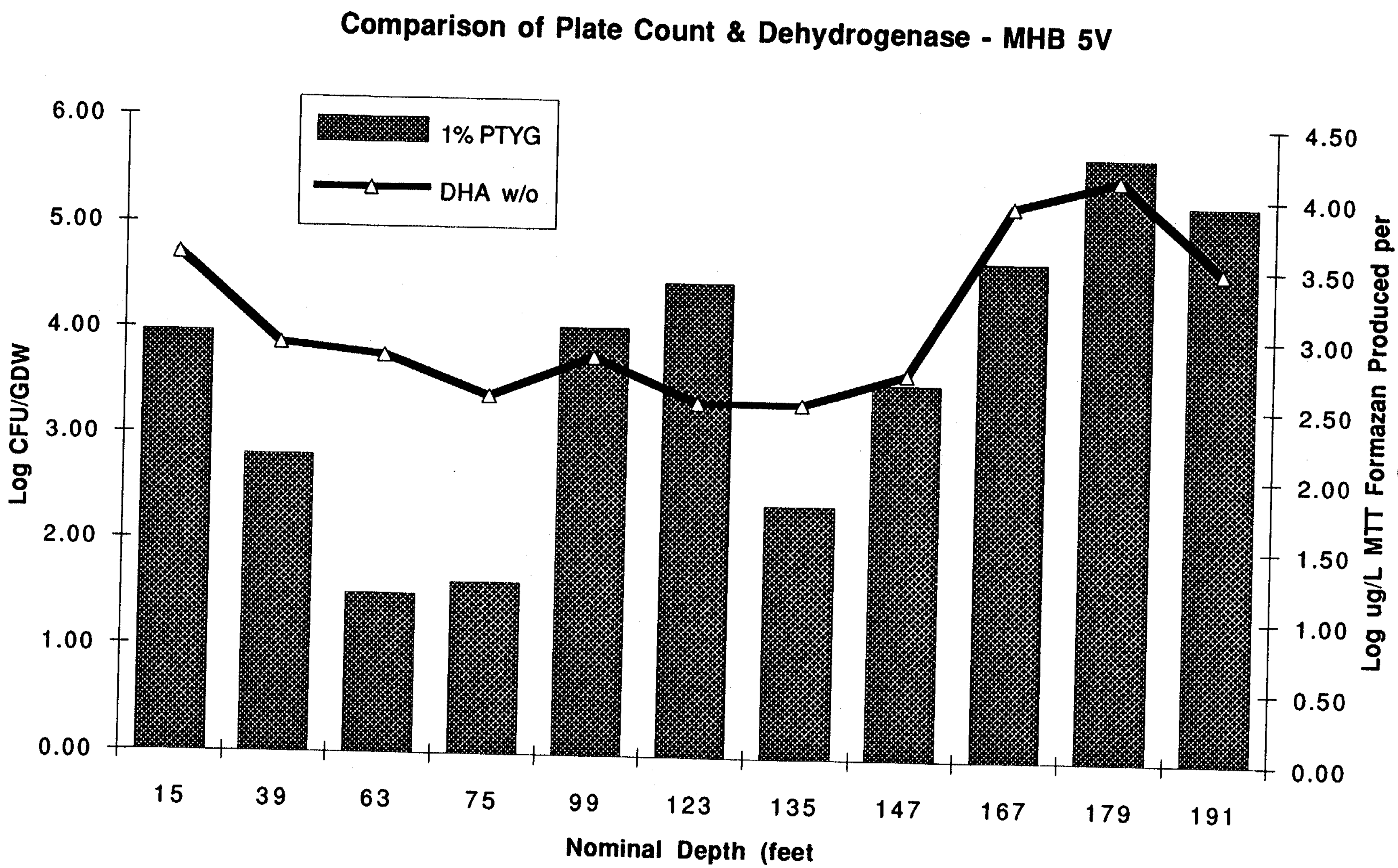



Comparison of Plate Count & Alkaline Phosphatase - MHT 11C
1% PTYG
Alkaline Phosphatase
Log CFU/GDW
mg/L p-NP Produced per GDW
4.50
4.00
3.50
3.00
2.50
2.00
1.50
1.00
0.50
0.00
40.00
35.00
30.00
25.00
20.00
15.00
10.00
5.00
0.00
3
15
27
39
51
63
75
87
99
111
123
135
147
159
171
195
START UP
END OF 165'
STARTING 168'
Nominal Depth (feet

App V 345

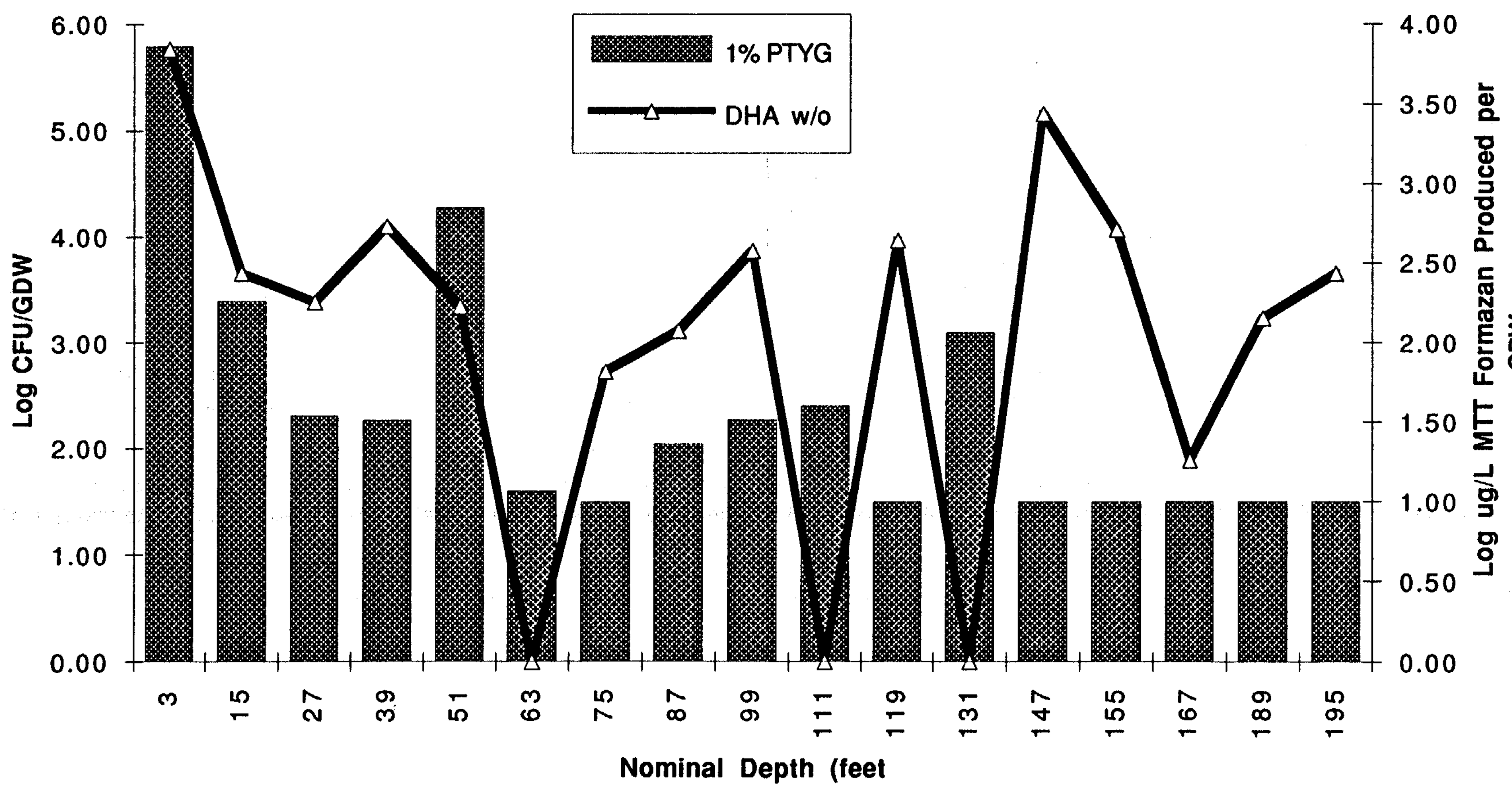


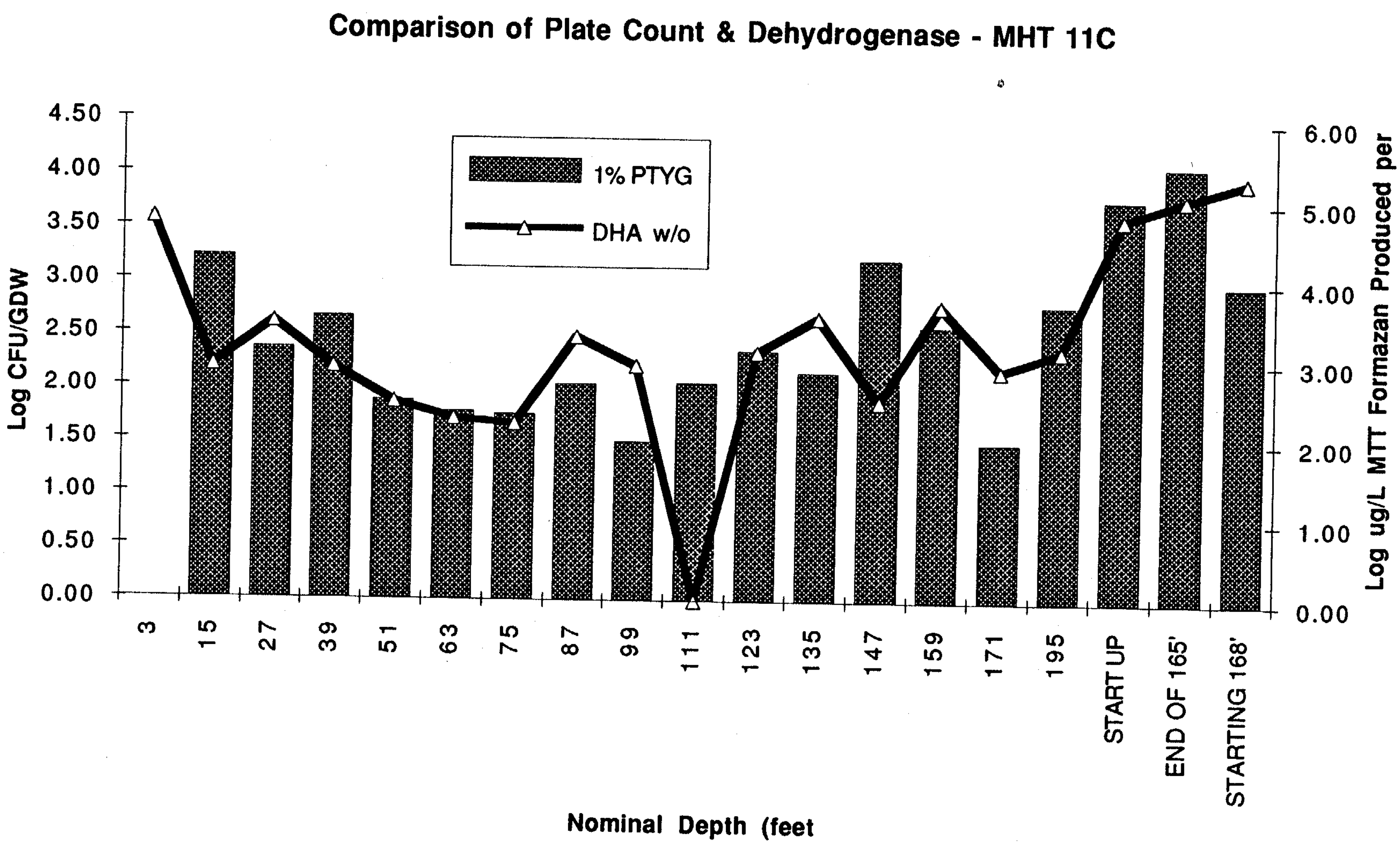
Comparison of Plate Count & Dehydrogenase - MHB 3T
Log CFU/GDW
5.00
4.50
4.00
3.50
3.00
2.50
2.00
1.50
1.00
0.50
0.00
Log ug/L MTT Formazan Produced per GDW
4.00
3.50
3.00
2.50
2.00
1.50
1.00
0.50
0.00
5
17
29
41
53
65
77
89
101
113
125
145
165
185
200
Nominal Depth (feet
1% PTYG
DHA w/o



Comparison of Plate Count & Dehydrogenase - MHB 5V
1% PTYG
DHA w/o
Log CFU/GDW
Log ug/L MTT Formazan Produced per GDW
6.00
5.00
4.00
3.00
2.00
1.00
0.00
4.50
4.00
3.50
3.00
2.50
2.00
1.50
1.00
0.50
0.00
15
39
63
75
99
123
135
147
167
179
191
Nominal Depth (feet

Comparison of Plate Count & Dehydrogenase - MHT 7T





Comparison of Plate Count & Dehydrogenase - MHT 11C
1% PTYG
DHA w/o
Log CFU/GDW
4.50
4.00
3.50
3.00
2.50
2.00
1.50
1.00
0.50
0.00
Log ug/L MTT Formazan Produced per GDW
6.00
5.00
4.00
3.00
2.00
1.00
0.00
3
15
27
39
51
63
75
87
99
111
123
135
147
159
171
195
START UP
END OF 165'
STARTING 168'
Nominal Depth (feet

App VI

Table A

Summary of Heterotroph Cluster Analysis

	3T	5V	10B
Total Number Tested	148	132	123
α Clusters[1]	24	12	18
Mean size	4.2 (SD=2.6)	7.8 (SD=14.9)	4.2 (SD=4.3)
Mean L.D.	0.086 (SD=0.018)	0.085 (SD=0.001)	0.072 (SD=0.017)
Largest	12	57	20
Smallest	2	2	2
Number with members from one depth	10	6	7
Number with members from more than two depths	5	5	3
β Clusters[2]	13	11	11
Mean size	9.9 (SD=13.8)	10.2 (SD=16.1)	9.5 (SD=8.4)
Mean L.D.	0.146 (SD=0.032)	0.16 (SD=0.025)	0.15 (SD=0.04)
Largest	55	59	24
Smallest	2	2	2

[1] α Clusters are defined as a group of isolates that are linked by a linkage distance (L.D.) = 0 < L.D. < 0.1.

[2] β Clusters are defined as a group of isolates that are linked by a L.D. = 0 < L.D. < 0.2.

Data from Yates & Smith, 1992

Table B

Description of Heterotrophic Isolates Tested

Depth (in ft.)	3T	5V	10B
5	41[1]		
15		12	14
17	37		
27			2
29	14		
39		10	
51			2
75		4	6
77	9		
89	6		
99		6	10
101	9		
111		27	7
113	18		
123		9	20
125	14		
135		5	
147		17	15
167		9	
171			32
175		17	
191		16	
195			15
Totals	**148**	**132**	**123**

[1] Indicates the number of isolates from a given depth for which the CSUPs were determined and used to create dendrograms for cluster analysis.

Table C

Description of Oligotrophic Isolates Tested

Depth (in feet)	3T	5V	10B
5	18		
15		10	43
17	23		
27			
29	3		
39		7	
51			
75			9
77	18		
89	14	2	
99		4	2
101	8		
111		2	5
113	15		
123			2
125	17		
135			
147			3
167			
171			
191			
195			3
Total	**116**	**25**	**67**

Table D

Summary of Oligotroph Cluster Analysis

	3T	5V	10B
Total Number Tested	116	25	67
Clusters[1]	11	3	8
Mean Size	7.9 (SD=11.7)	4.7 (SD=3.1)	5.8 (SD=7.0)
Largest	44	9	24
Smallest	2	2	2
Number with members from one depth	3	0	4
Number with members from more than two depths	6	2	2

[1] In this case a cluster is defined as a group of isolates with a L.D.=0 (i.e. the CSUPs were identical).

Table E

Comparison of Oligotrophs Present in All Communities[1]

Number of Clusters[2]	17
Largest	77
Smallest	2
Number With Members From 3T, 5V and 10B	5
Number With Members From 3T and 5V	2
Number With Members From 3T and 10B	5
Number With Members From 5V and 10B	0
Number With Members From Only One Well	5

[1] The CSUPs of all isolates were combined and compared using cluster analysis.

[2] In this case a cluster represents a group of isolates with identical CSUPs.

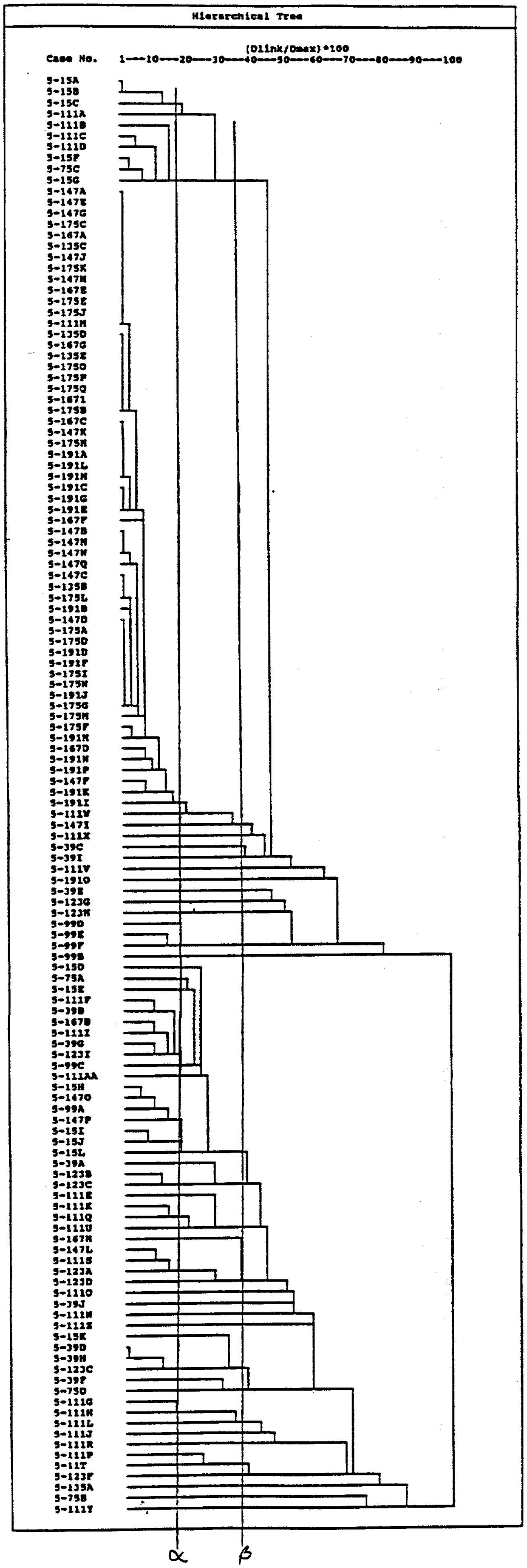
Table F

Dual Comparisons of Heterotrophic Communities

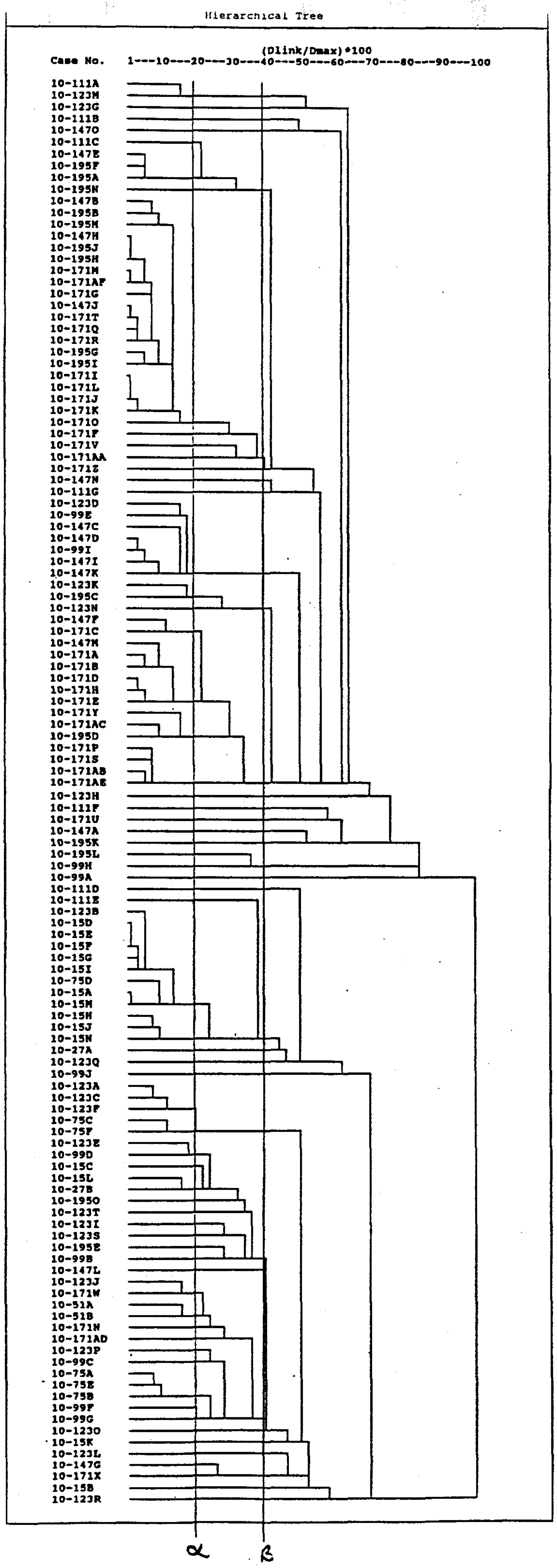
	α Clusters[1]			
Communities Compared	**Mixed**	**Only from 3T**	**Only from 5V**	**Only from 10B**
3T & 5V	11	14	9	----
Mean size[2]	(6.3 SD=3.4)			
5V & 10B	8	----	5	11
Mean size	(13 SD=21.2)			
10B & 3T	10	20	----	14
Mean size	(5.8 SD=2.3)			

[1] α clusters have L.D. ≤ 0.1.

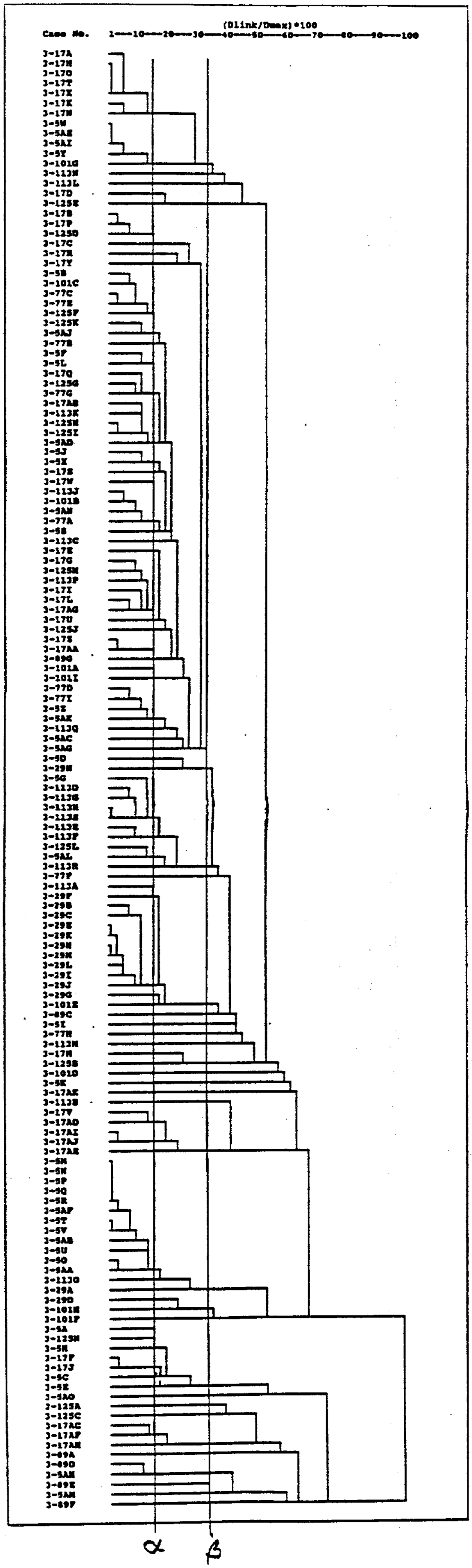
[2] The mean sizes given are for the number of members in mixed clusters



5V Heterotrophs

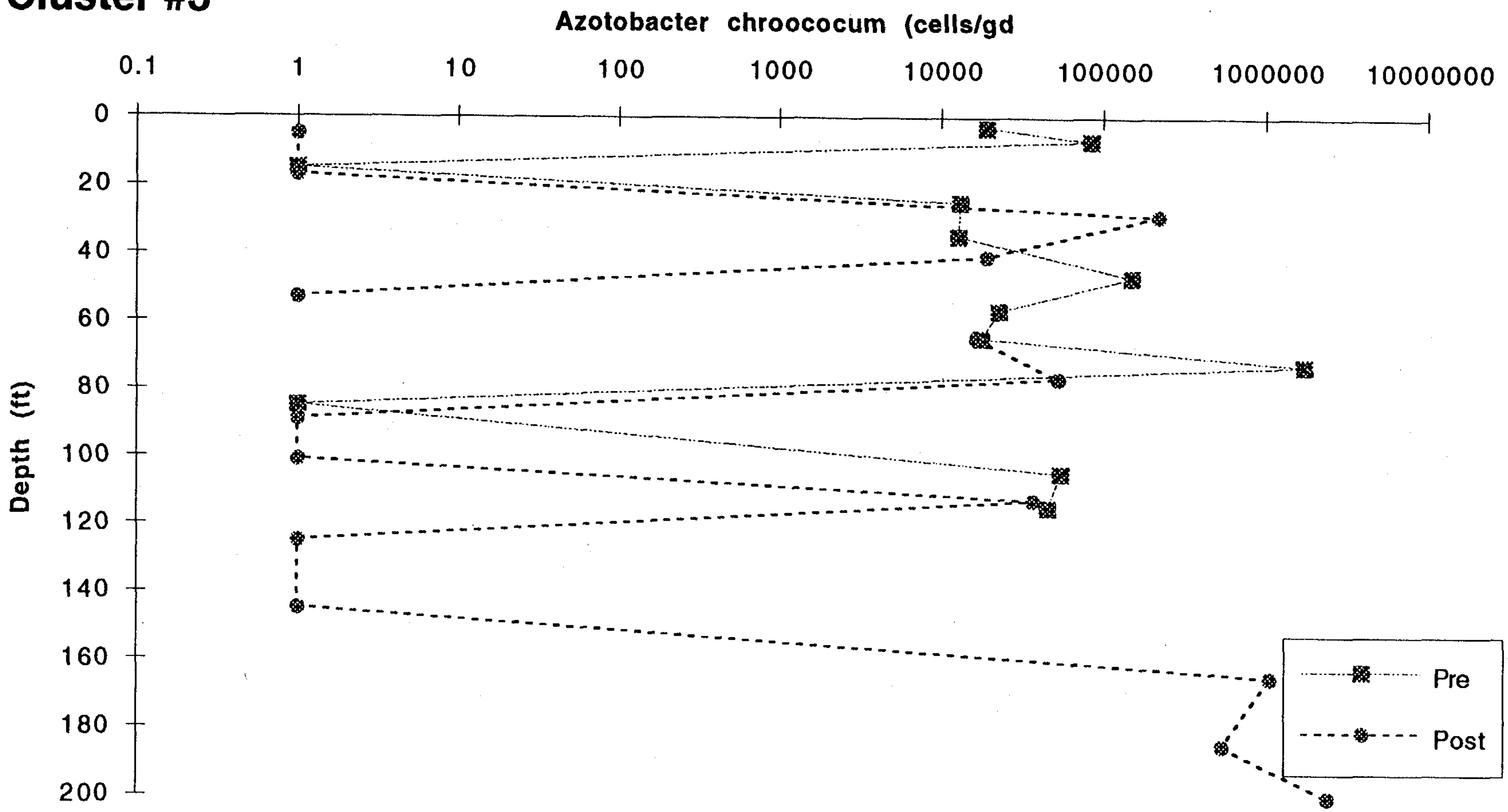


10B Heterotrophs



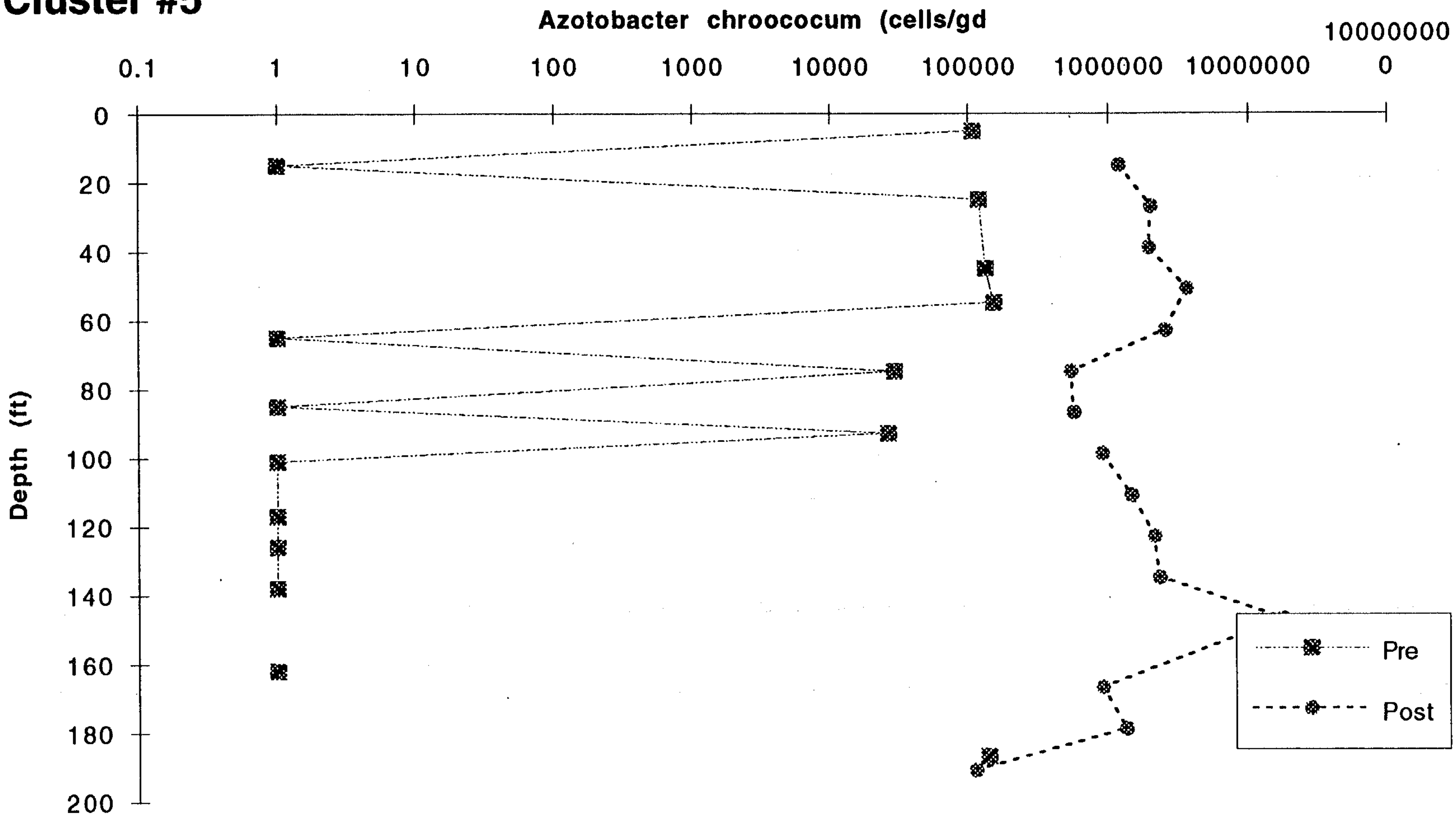
3T Heterotrophs

Cluster #3

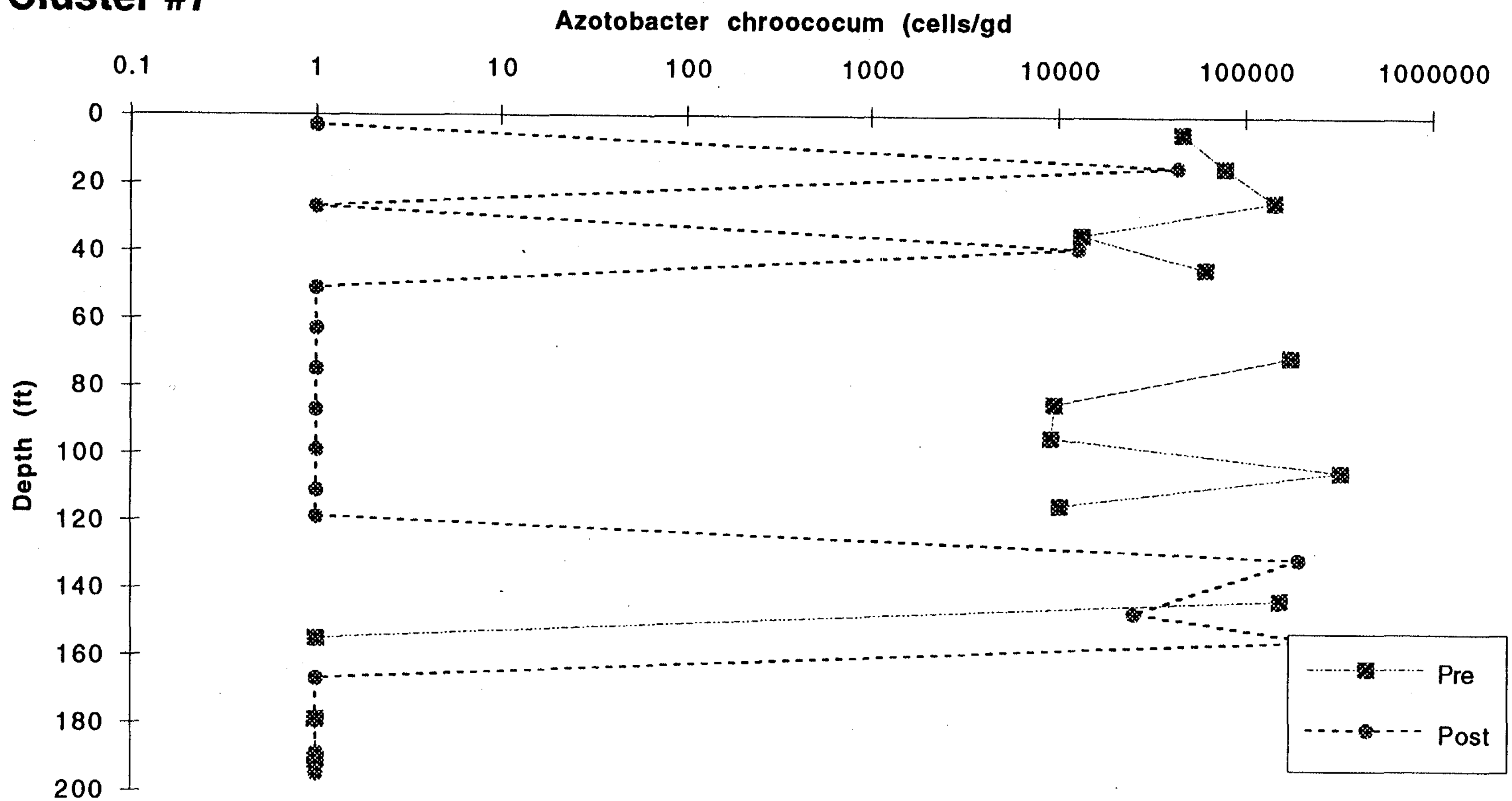


App VII 044

Cluster #5

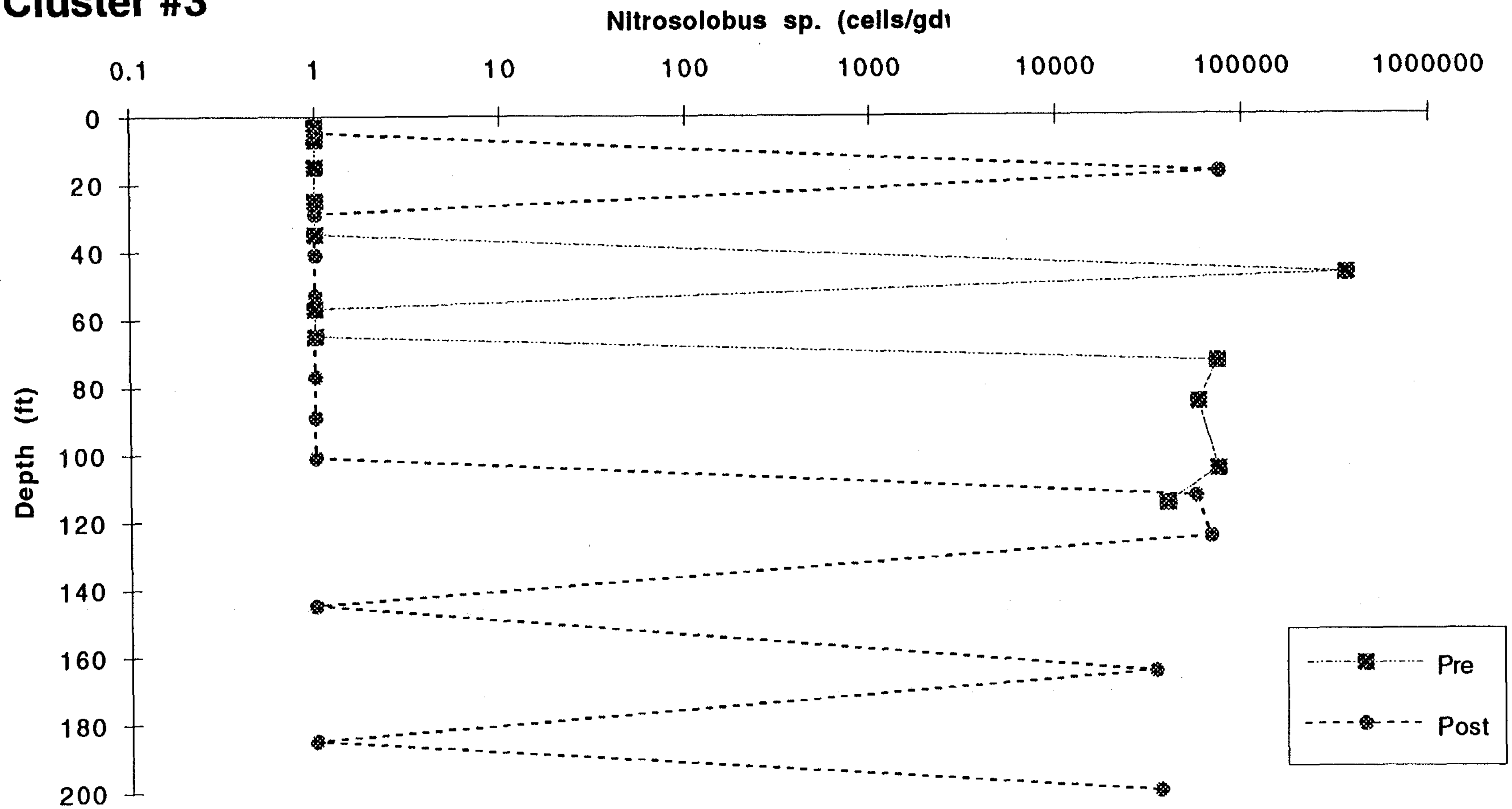

Azotobacter chroococum (cells/gd
0.1
1
10
100
1000
10000
100000
1000000
10000000
10000000
0
Depth (ft)
0
20
40
60
80
100
120
140
160
180
200
Pre
Post

Cluster #7

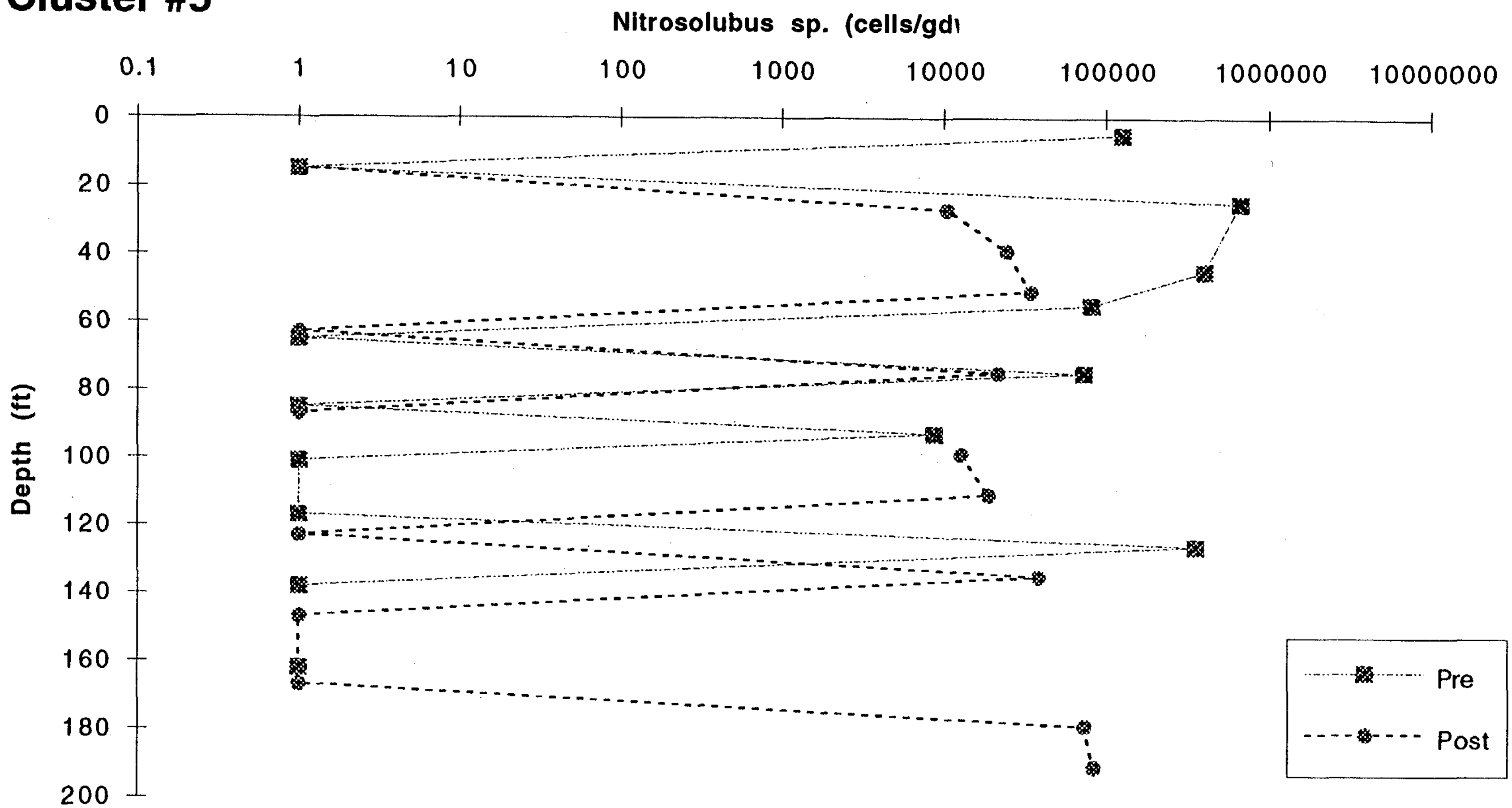


Azotobacter chroococum (cells/gd
0.1
1
10
100
1000
10000
100000
1000000
Depth (ft)
0
20
40
60
80
100
120
140
160
180
200
Pre
Post

Cluster #3

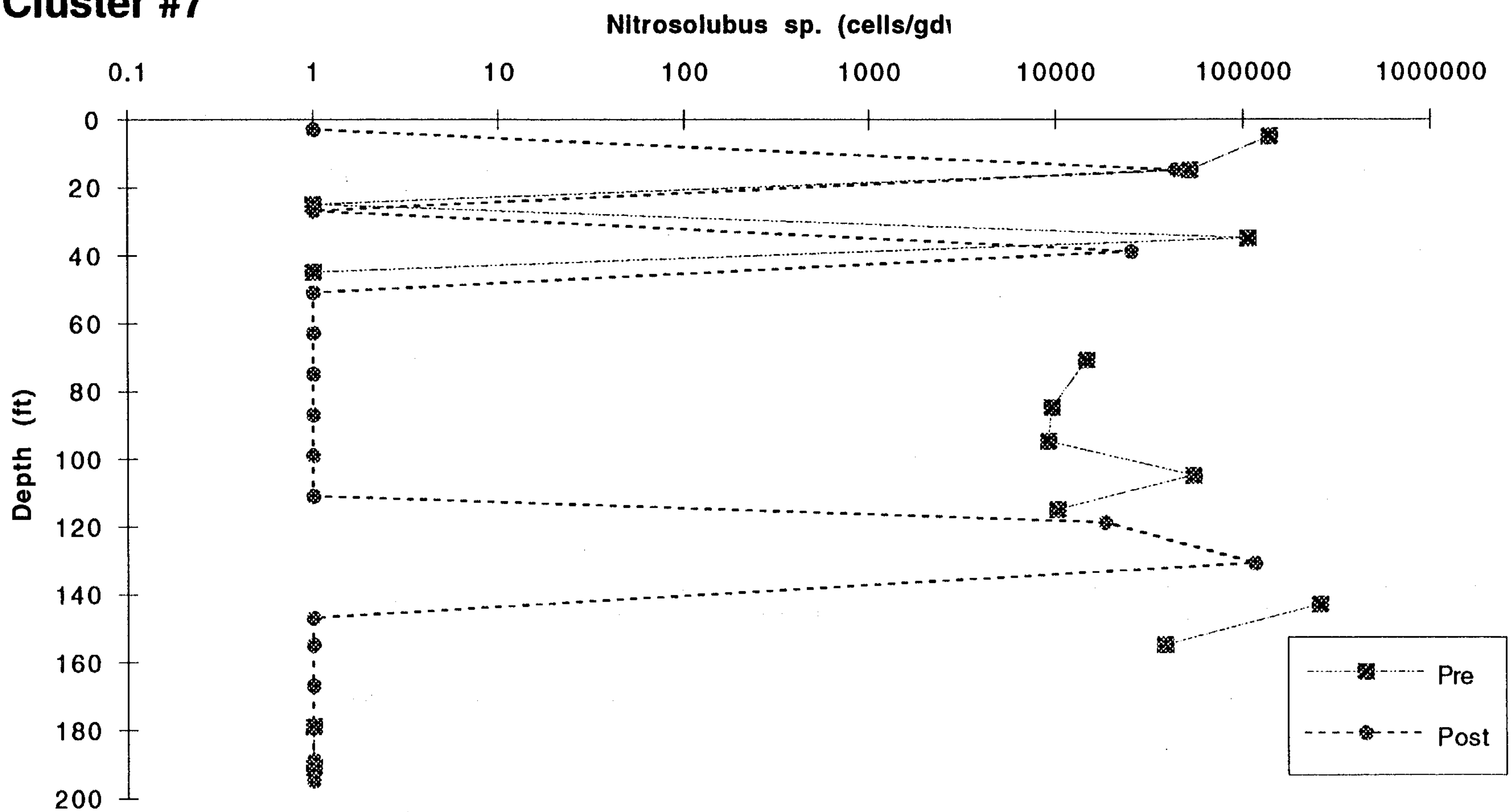

Nitrosolobus sp. (cells/gd
0.1
1
10
100
1000
10000
100000
1000000
Depth (ft)
0
20
40
60
80
100
120
140
160
180
200
Pre
Post

Cluster #5



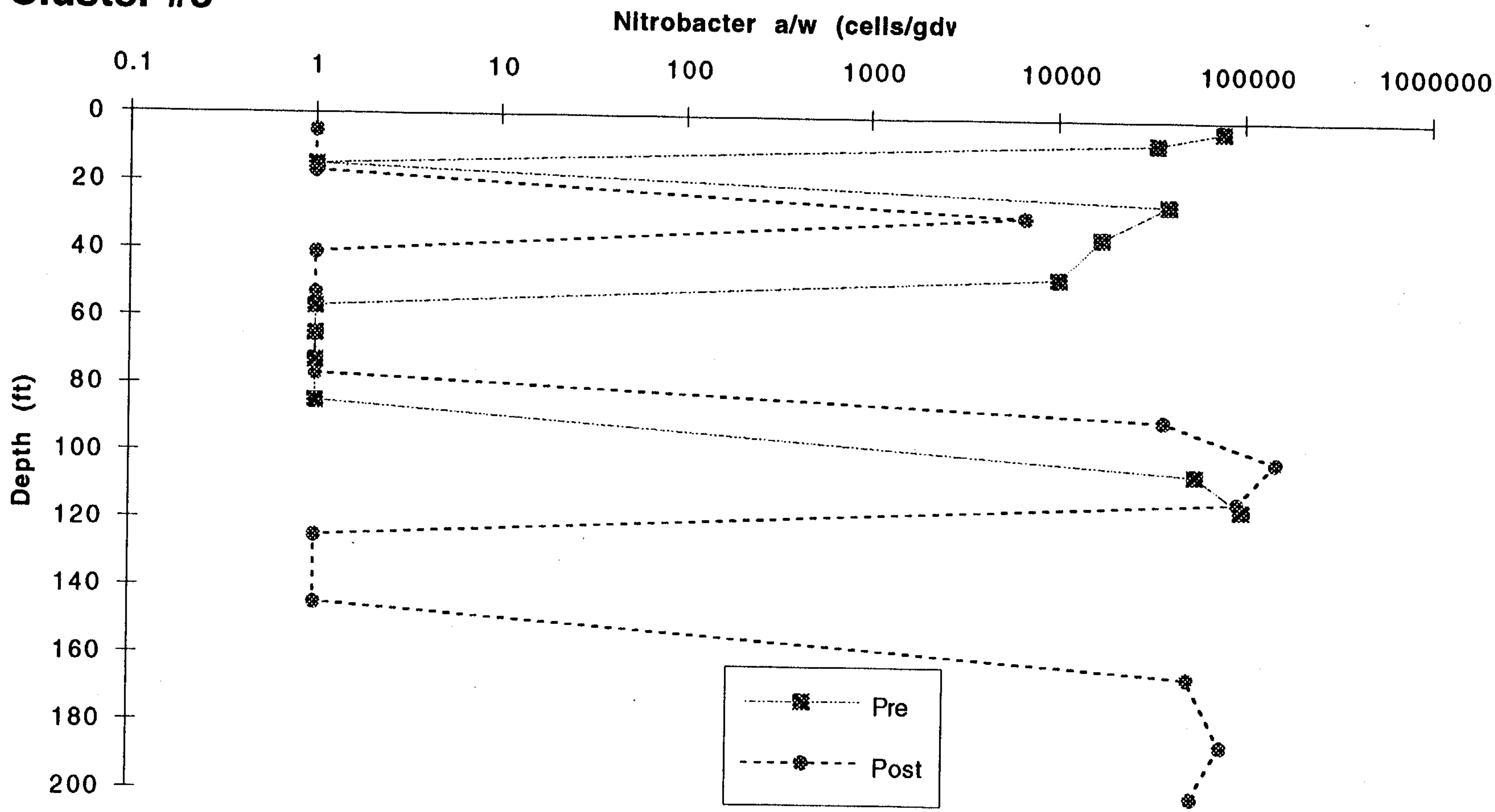
Nitrosolubus sp. (cells/gdw
0.1
1
10
100
1000
10000
100000
1000000
10000000
0
20
40
60
80
100
120
140
160
180
200
Depth (ft)
Pre
Post

Cluster #7



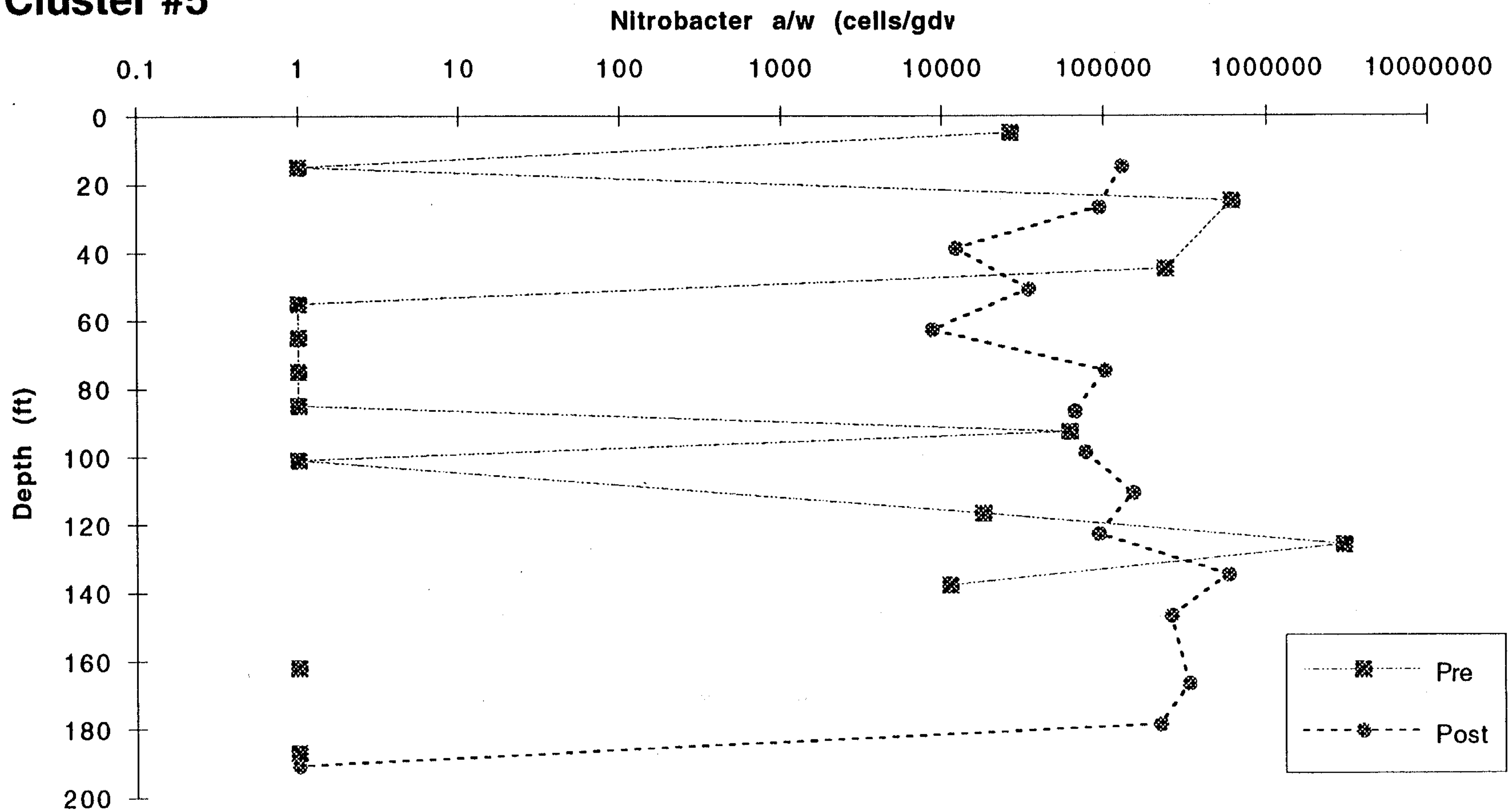
Nitrosolubus sp. (cells/gdw
0.1
1
10
100
1000
10000
100000
1000000
Depth (ft)
0
20
40
60
80
100
120
140
160
180
200
Pre
Post

Cluster #3

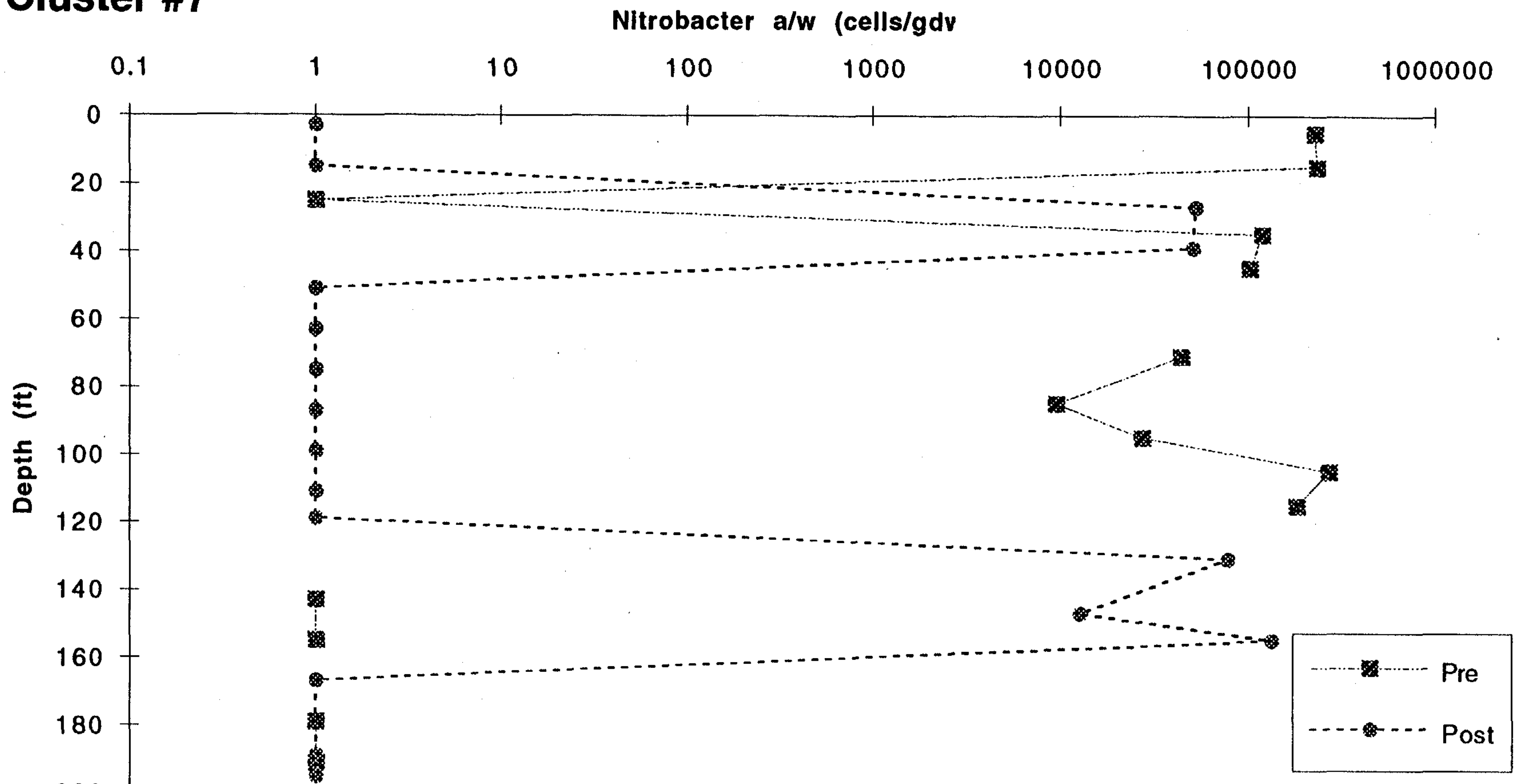


Nitrobacter a/w (cells/gdv
0.1
1
10
100
1000
10000
100000
1000000
0
20
40
60
80
100
120
140
160
180
200
Depth (ft)
Pre
Post

Cluster #5

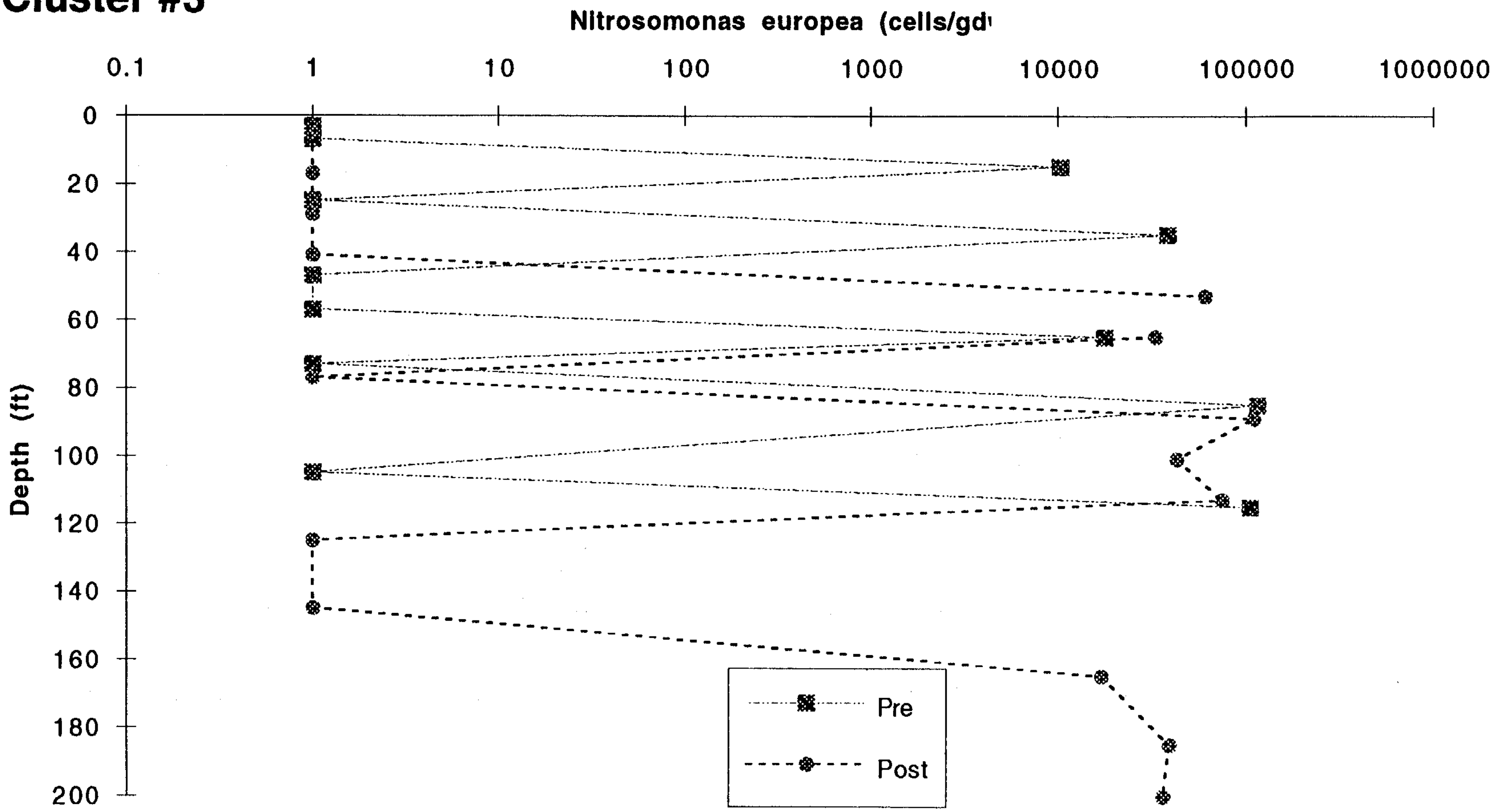

Nitrobacter a/w (cells/gdv
0.1
1
10
100
1000
10000
100000
1000000
10000000
Depth (ft)
0
20
40
60
80
100
120
140
160
180
200
Pre
Post

Cluster #7



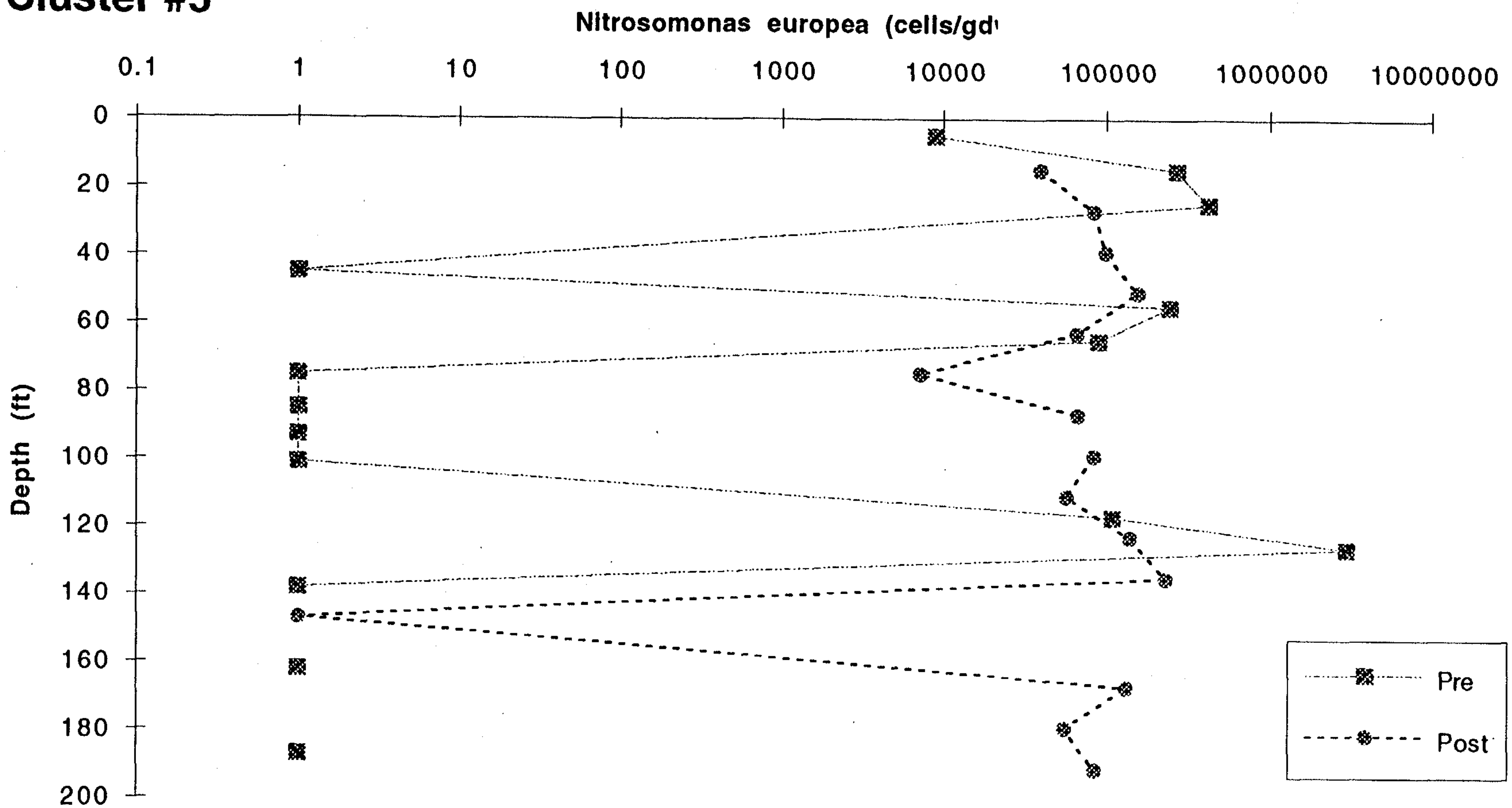
Nitrobacter a/w (cells/gdv
0.1
1
10
100
1000
10000
100000
1000000
Depth (ft)
0
20
40
60
80
100
120
140
160
180
200
Pre
Post

Cluster #3



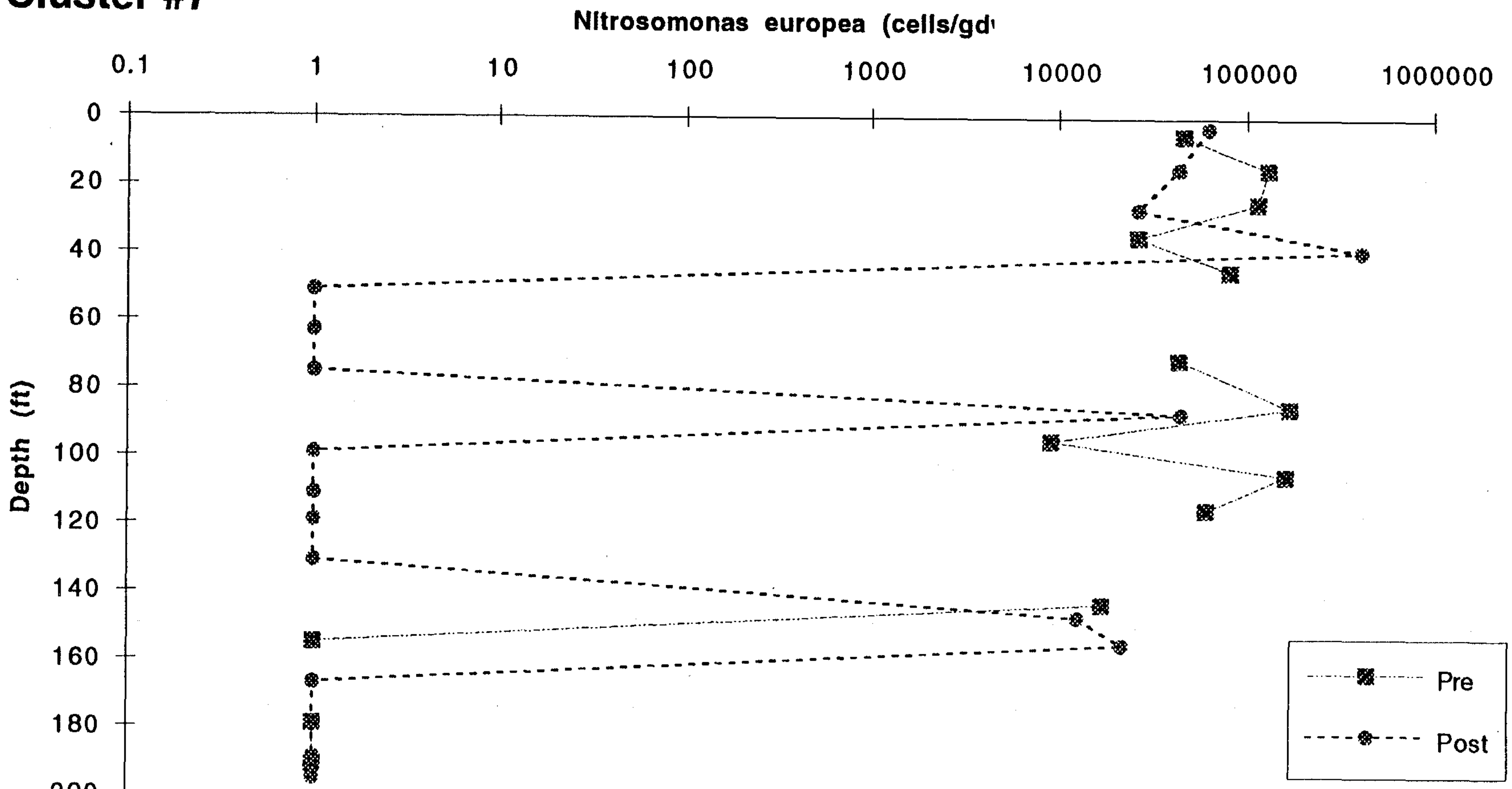
Nitrosomonas europea (cells/gd
0.1
1
10
100
1000
10000
100000
1000000
0
20
40
60
80
100
120
140
160
180
200
Depth (ft)
Pre
Post

Cluster #5



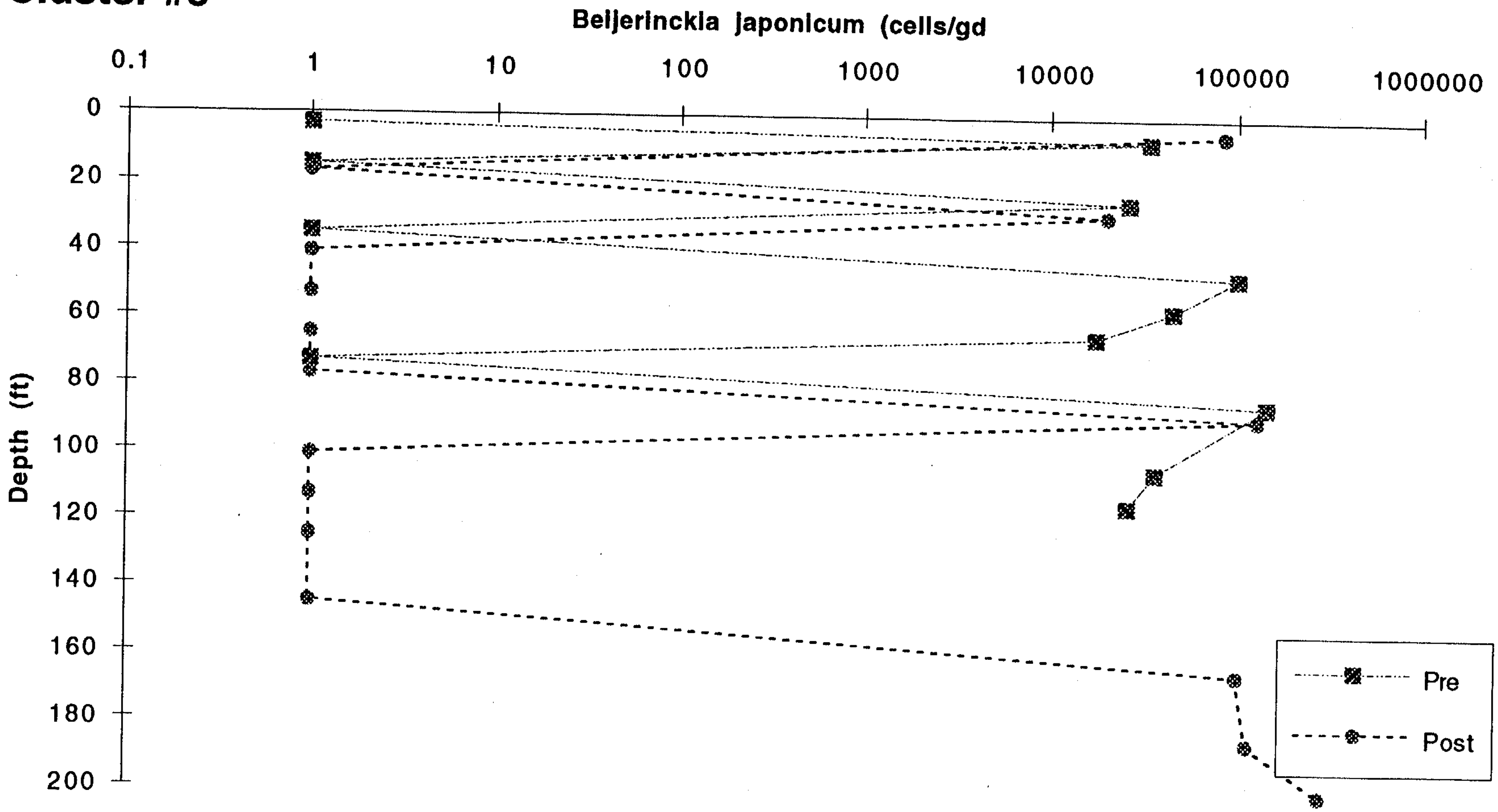
Nitrosomonas europea (cells/gd
0.1
1
10
100
1000
10000
100000
1000000
10000000
0
20
40
60
80
100
120
140
160
180
200
Depth (ft)
Pre
Post

Cluster #7

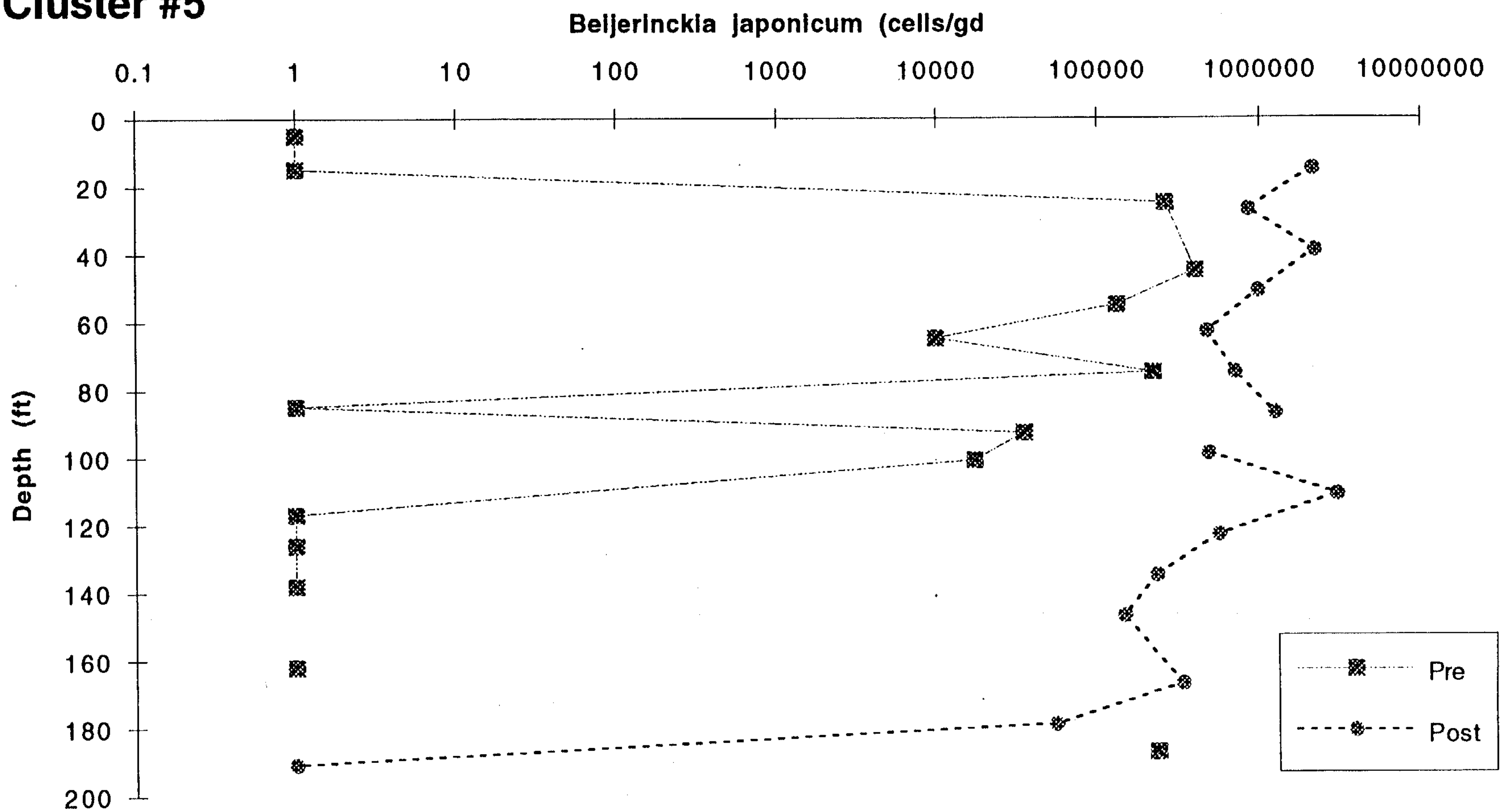


Nitrosomonas europea (cells/gd
0.1
1
10
100
1000
10000
100000
1000000
Depth (ft)
0
20
40
60
80
100
120
140
160
180
200
Pre
Post

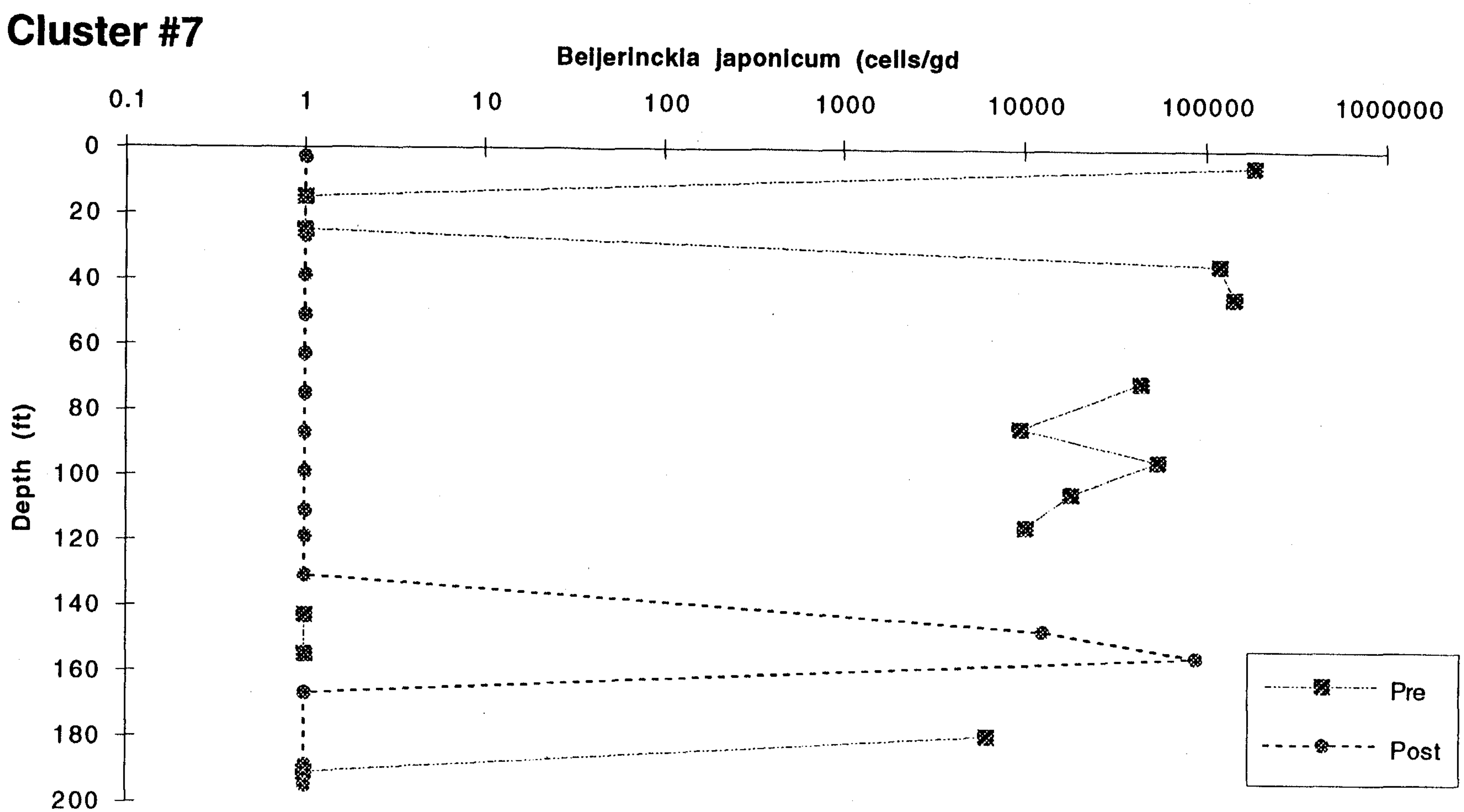
Cluster #3


Beijerinckia japonicum (cells/gd
0.1
1
10
100
1000
10000
100000
1000000
Depth (ft)
0
20
40
60
80
100
120
140
160
180
200
Pre
Post

Cluster #5

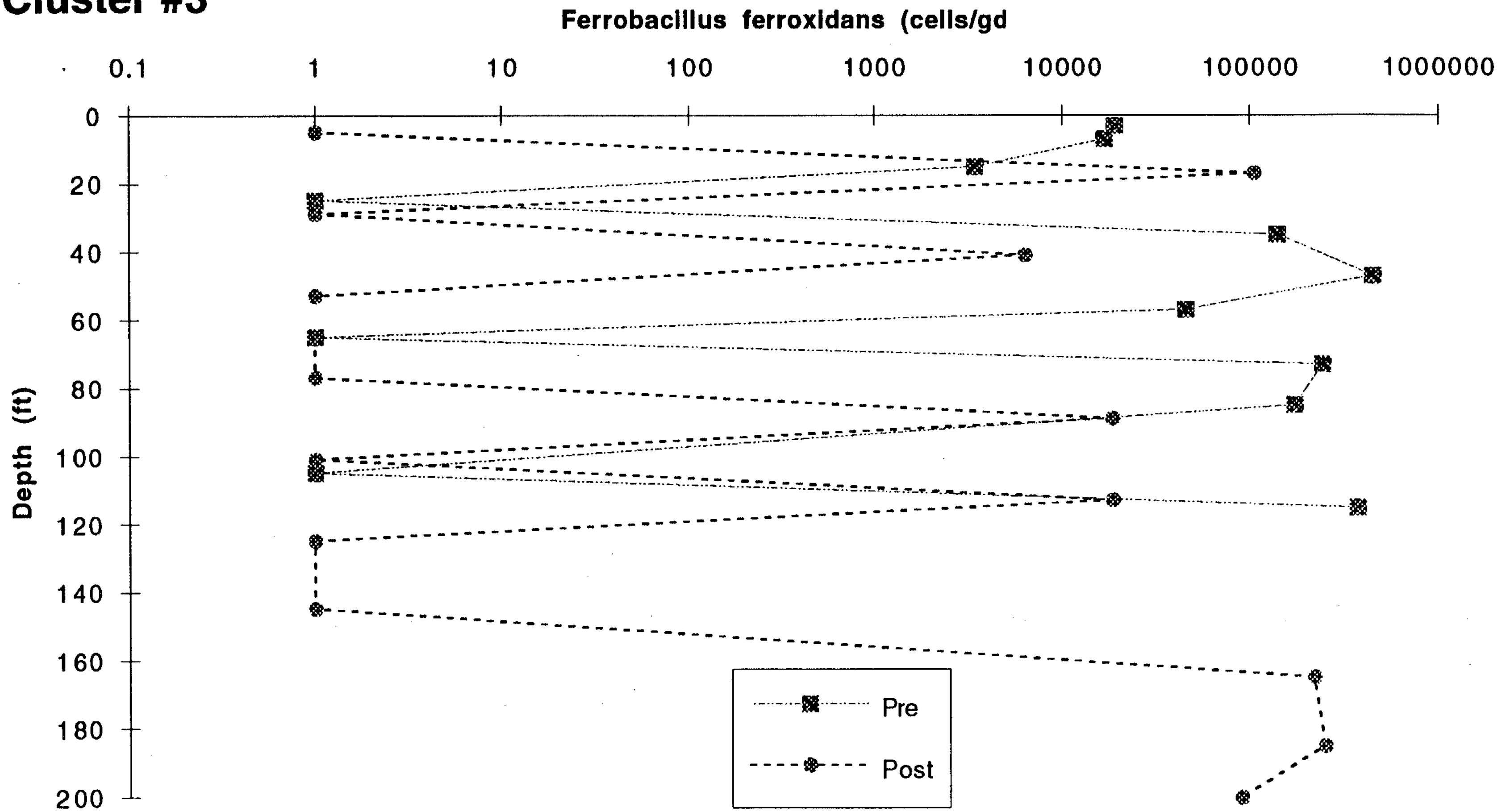


Beijerinckia japonicum (cells/gd
0.1
1
10
100
1000
10000
100000
1000000
10000000
Depth (ft)
0
20
40
60
80
100
120
140
160
180
200
Pre
Post

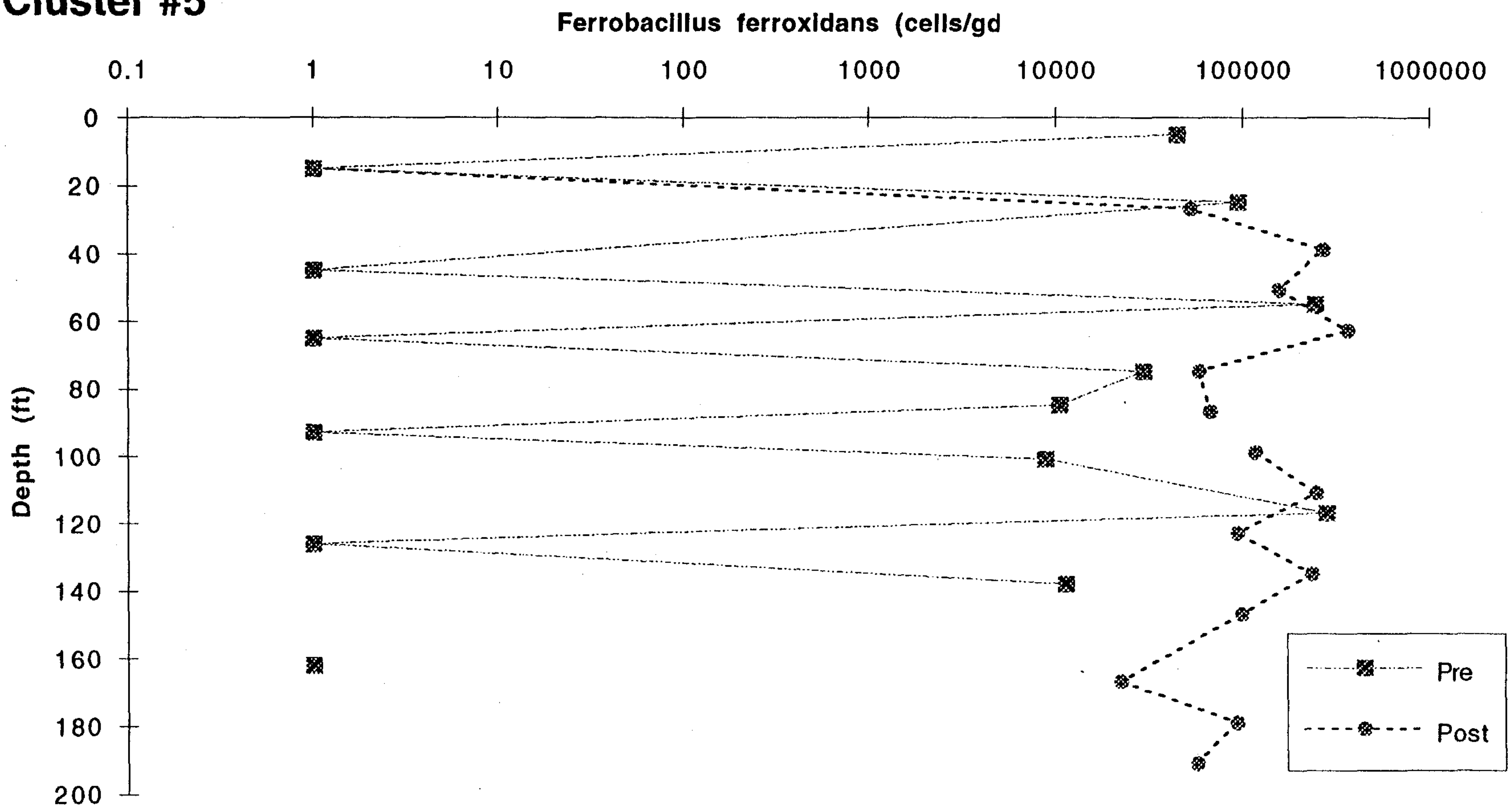


Cluster #7
Beijerinckia japonicum (cells/gd
0.1
1
10
100
1000
10000
100000
1000000
Depth (ft)
0
20
40
60
80
100
120
140
160
180
200
Pre
Post

Cluster #3

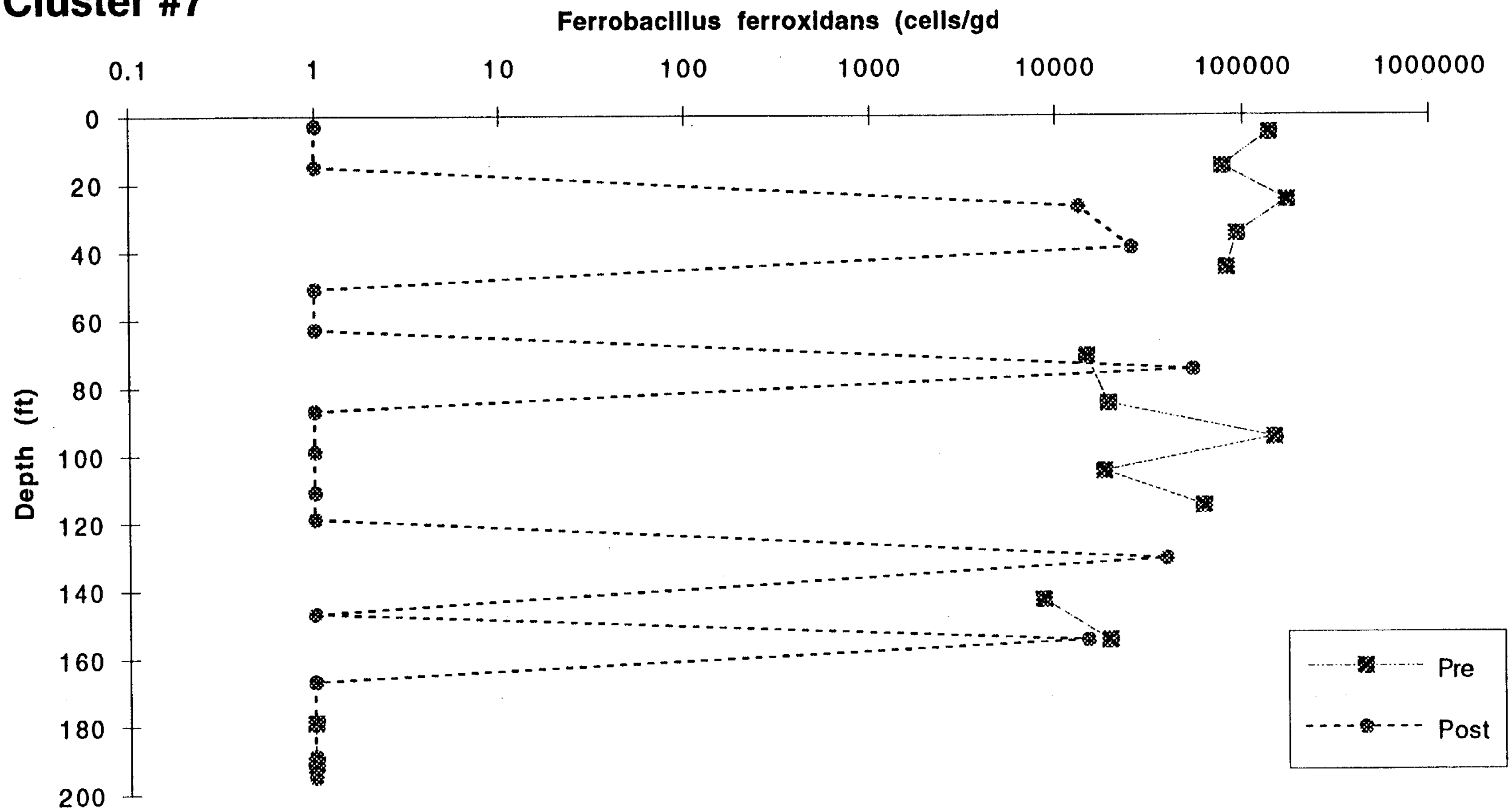

Ferrobacillus ferroxidans (cells/gd
0.1
1
10
100
1000
10000
100000
1000000
Depth (ft)
0
20
40
60
80
100
120
140
160
180
200
Pre
Post

Cluster #5

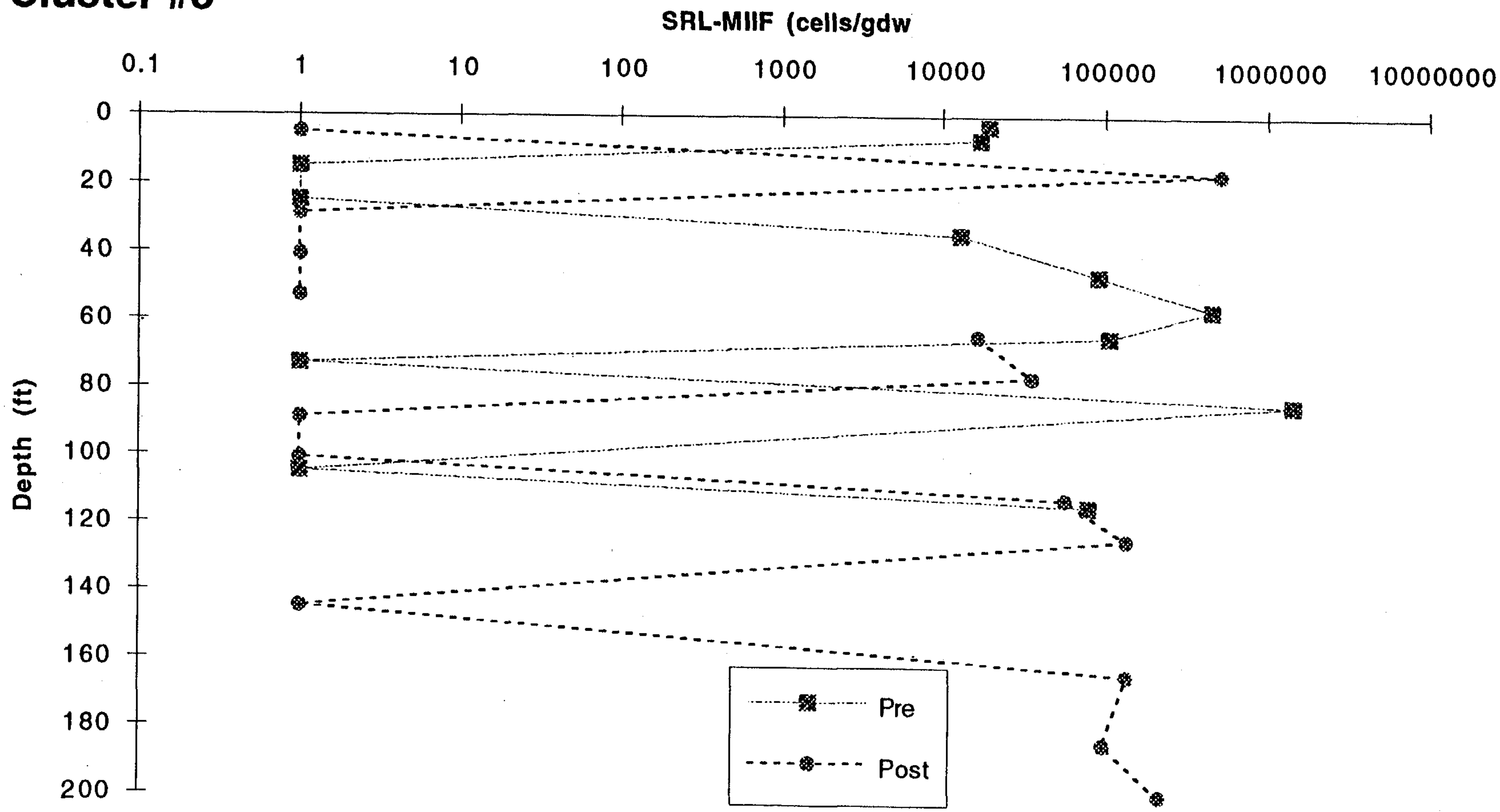


Ferrobacillus ferroxidans (cells/gd
0.1
1
10
100
1000
10000
100000
1000000
0
20
40
60
80
100
120
140
160
180
200
Depth (ft)
Pre
Post

Cluster #7

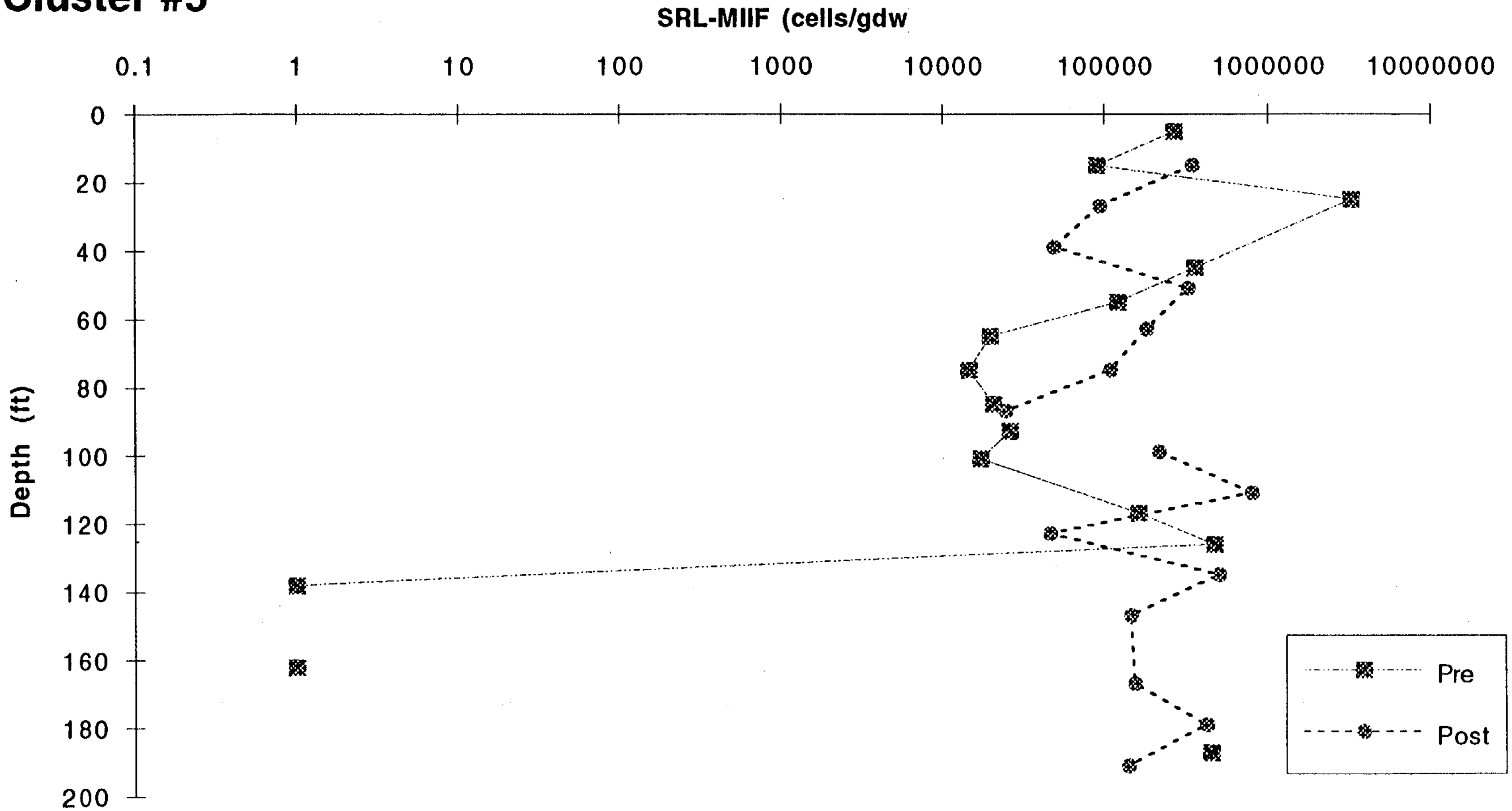

Ferrobacillus ferroxidans (cells/gd
0.1
1
10
100
1000
10000
100000
1000000
Depth (ft)
0
20
40
60
80
100
120
140
160
180
200
Pre
Post

Cluster #3

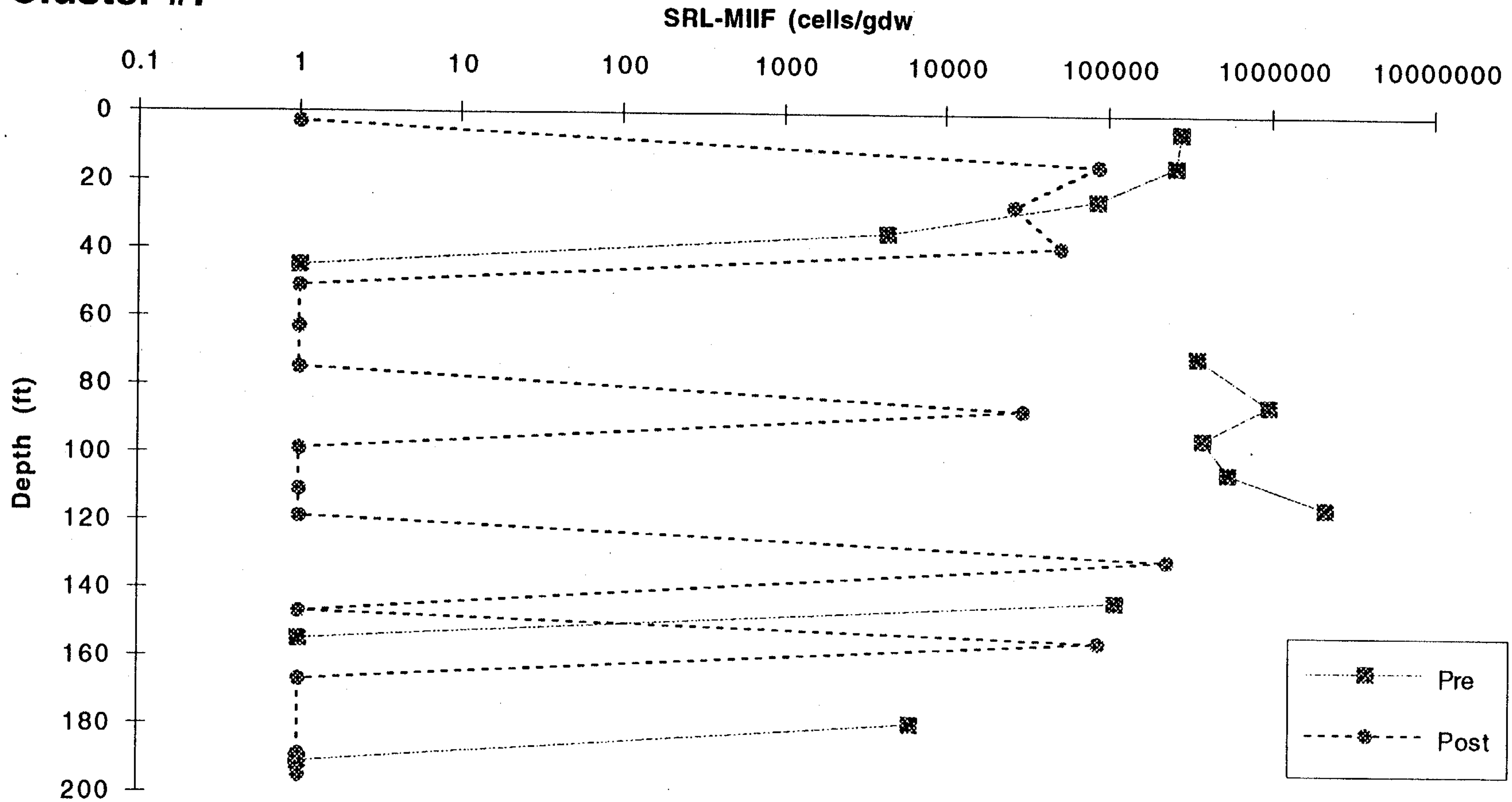


SRL-MIIF (cells/gdw
0.1
1
10
100
1000
10000
100000
1000000
10000000
0
20
40
60
80
100
120
140
160
180
200
Depth (ft)
Pre
Post

Cluster #5

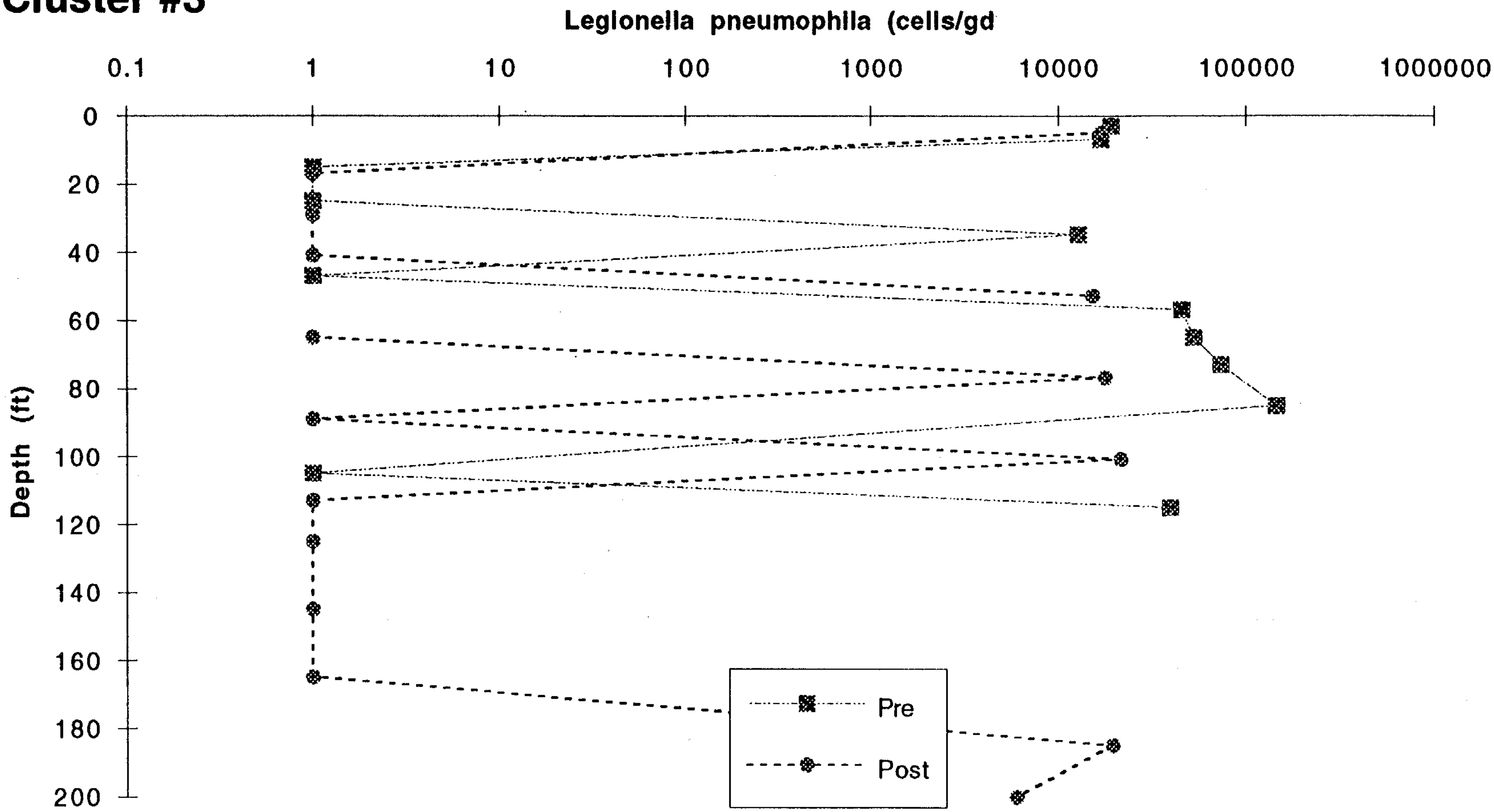

SRL-MIIF (cells/gdw
0.1
1
10
100
1000
10000
100000
1000000
10000000
Depth (ft)
0
20
40
60
80
100
120
140
160
180
200
Pre
Post

Cluster #7



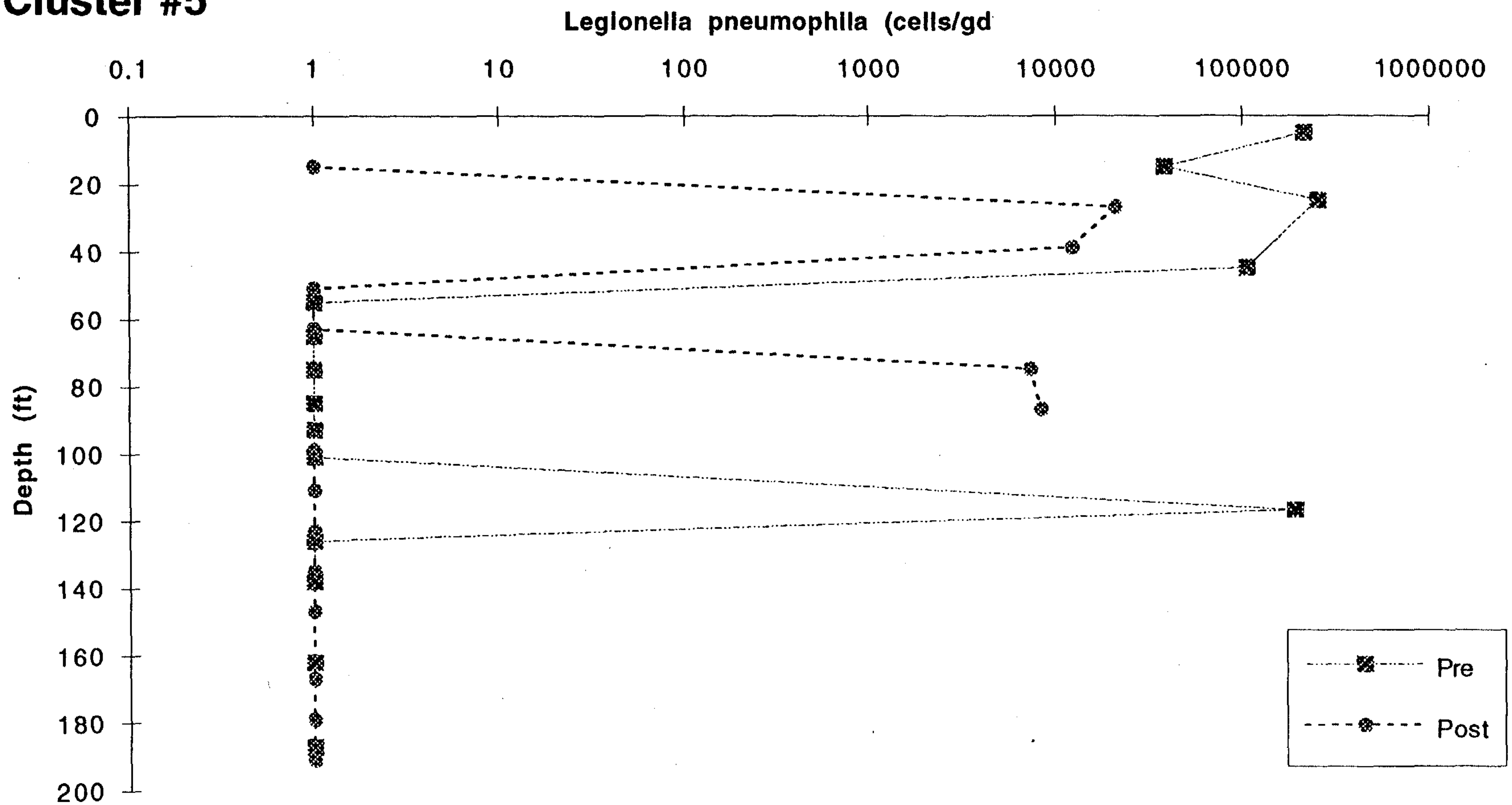
SRL-MIIF (cells/gdw
0.1
1
10
100
1000
10000
100000
1000000
10000000
Depth (ft)
0
20
40
60
80
100
120
140
160
180
200
Pre
Post

Cluster #3



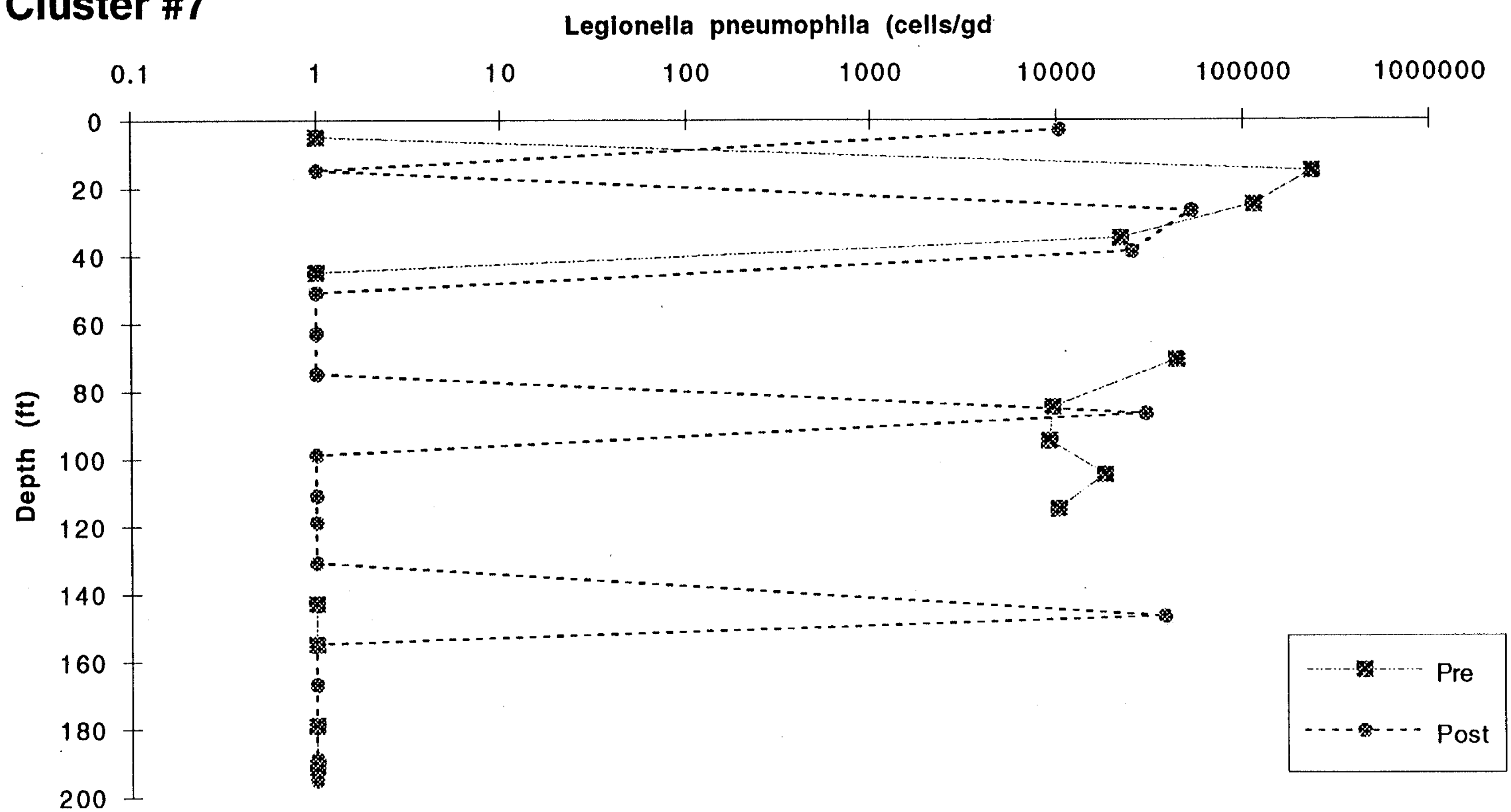
Legionella pneumophila (cells/gd
0.1
1
10
100
1000
10000
100000
1000000
0
20
40
60
80
100
120
140
160
180
200
Depth (ft)
Pre
Post

Cluster #5



Legionella pneumophila (cells/gd
0.1
1
10
100
1000
10000
100000
1000000
0
20
40
60
80
100
120
140
160
180
200
Depth (ft)
Pre
Post

Cluster #7



Legionella pneumophila (cells/gd
0.1
1
10
100
1000
10000
100000
1000000
Depth (ft)
0
20
40
60
80
100
120
140
160
180
200
Pre
Post

(12/30/91)

SSP Integratyed Demonstration Project
Well MHB3T

PLFA	INDEX	5'	17'	29'	41'	53'	65'	77'	89'	101'	113'	125'	Blk
							MOLE %						
12:0	137	0.59	0	0	0.31	0	0	0	0	0	0	0	0
i13:0	200	0	0	0	0	0	0.62	0	0	0	0	0	0
a13:0	208	0	0	0	0	0	0.17	0	0	0	0	0	0
13:0	241	0	0	0	0.03	0	0.01	0	0	0	0	0	0
i14:0	319	0	0	0	0.09	0	1.30	0	0	0	0	0	0
14:0	368	4.07	0	4.60	6.37	0	1.46	0	0	0	0	0	0
br14:1c	431	0	0	0	0	0	0.14	0	0	0	0	0	0
i15:0	462	0.12	0.82	0	0.22	0	22.24	0	0	0	0	0	0
a15:0	473	0	0.20	0	0.56	0	8.54	0	0	0	0	0	0
15:0	517	0	0	0	0	0	0.70	0	0	0	0	0	0
br15:0a	524	0	0	0	0	0	0.83	0	0	0	0	0	0
br15:1a	584	0	0	0	0	0	0.15	0	0	0	0	0	0
i16:0	620	0	1.38	0	0.11	0	7.23	0	0	0	0	0	0
a16:0	633	0	0	0	0	0	0.27	0	0	0	0	0	0
16:1w9c	637	1.17	0	1.24	4.48	0	0.33	0	0	0	0	0	0
16:1w7c	645	0.25	0.66	0.23	0	0	2.85	0	0	0	0	0	0
16:1w7t	652	0	0	0	0	0	0.29	0	0	0	0	0	0
16:1w5c	661	0.73	0.43	0	0	0	1.57	0	0	0	0	0	0
16:0	684	53.32	32.50	70.96	56.09	0	12.20	26.38	59.60	68.24	41.11	0	70.14
br16:0a	690	0	0	0	0	0	0.42	0	0	0	0	0	0
br16:1a	740	0	0	0	0	0	0.54	0	0	0	0	0	0
br16:1b	746	0	0	0	0	0	1.51	0	0	0	0	0	0
10me16:0	759	0	0	0	0	0	5.38	0	0	0	0	0	0
11me16:0	764	0	0	0	0	0	0.74	0	0	0	0	0	0
br16:0e	771	0	0	0	0	0	1.13	0	0	0	0	0	0
i17:0	793	0	0.89	0	0	0	6.73	0	0	0	0	0	0
a17:0	807	0	0	0	0.27	0	4.30	0	0	0	0	0	0
cy17:0	829	0	0	0	0	0	1.72	0	0	0	0	0	0
17:0	858	0.64	0	1.19	1.90	0	0.19	0	0	0	0	0	0
br17:0a	865	0	1.61	0	0	0	3.59	0	0	0	0	0	0
br17:0b	875	0	0	0	0	0	0.14	0	0	0	0	0	0
10me17:0	932	0	0	0	0	0	0.15	0	0	0	0	0	0
br17:1a	937	0	0	0	0	0	0.16	0	0	0	0	0	0
18:2w6	976	7.40	2.96	0	0	0	0.23	0	0	0	0	0	0
18:1w9c	989	15.69	28.12	7.12	9.07	0	3.62	25.77	24.50	4.71	10.00	0	13.54
18:1w7c	1000	0.43	1.45	0.27	0	0	2.26	3.68	0	0	0	0	0
18:1w7t	1010	0	0	0	0	0	0.11	0	0	0	0	0	0
18:1w5c	1018	0	0	0	0	0	0.04	0	0	0	0	0	0
18:0	1040	8.93	10.99	12.90	17.32	0	1.27	14.72	15.89	27.06	48.89	0	16.32
br19:1	1052	0	2.70	0	0	0	0.07	0	0	0	0	0	0
10me18:0	1113	0	0	0	0	0	0.91	0	0	0	0	0	0
11me18:0	1118	0	0	0	0	0	0.77	0	0	0	0	0	0
cy19:0	1194	0	0	0	0	0	2.99	0	0	0	0	0	0
204w6	1268	0	0	0	0	0	0.03	0	0	0	0	0	0
20:1w9c	1341	0	0	0	0	0	0	25.15	0	0	0	0	0
20:0	1402	1.55	0	0.23	0.24	0	0.07	0	0	0	0	0	0
22:1w9c	1704	0	0	0	0	0	0	4.29	0	0	0	0	0
22:0	1750	5.11	7.30	0.99	1.94	0	0.03	0	0	0	0	0	0
23:0	1915	0	1.55	0	0.17	0	0	0	0	0	0	0	0
24:0	2077	0	6.45	0.26	0.83	0	0	0	0	0	0	0	0
Total		100.00	100.00	100.00	100.00	0	100.00	100.00	100.00	100.00	100.00	0	100.00
pmol/gdw		17.73	94.47	10.40	3.63	0	188.34	0.03	0.02	0.01	0.01	0	0.04 (avg gdw of 88.56)

App ~~XIII~~

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(12/30/91)

SSP Integrated Demonstration Project
Well MHB7T

PLFA	INDEX	Total Area																			
		3'	15'	27'	39'	51'	63'	75'	87'	99'	111'	119'	131'	147'	155'	167'	189'	195'	Blk-1	Blk-2	Blk-3	Avg Blks
i14:0	318	0.23	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
14:0	368	0.35	0	0	0	0	0	0	0	0	0	0	4.77	2.00	1.26	5.68	0	5.45	0	0	0	0
i15:0	459	11.13	0	0	0	0	0	0	0	0	0	0	0	0	1.53	0	0	0	3.06	0	0	1.03
a15:0	470	4.60	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
15:0	516	0.17	0	0	0	0	0	0	0	0	0	0	3.54	1.97	2.03	3.49	0	0	0	0	0	0
br15:0a	523	0.95	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
br15:1a	563	0.31	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
br15:0b	591	0.11	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
i16:0	618	6.55	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
a16:0	631	0.29	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
16:1w9c	635	0.41	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
16:1w7c	643	3.72	0	0	0	0	0	0	0	0	0	0.40	0.97	0	1.26	0	0	0	3.67	0	0	1.22
16:1w5c	660	1.33	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
16:0	651	9.86	34.21	0	63.64	57.58	60.71	62.39	73.14	70.07	71.31	56.89	46.26	64.49	69.57	57.43	21.12	62.89	77.16	30.43	22.64	43.41
br16:0a	689	2.99	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
br16:0b	694	0.38	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
br16:0c	708	0.12	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
br16:1a	739	0.31	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
br16:1b	745	1.64	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
br16:0d	752	0.88	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
10me16:0	757	13.90	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
11me16:0	762	2.00	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
br16:0e	770	0.62	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
br16:1c	778	0.10	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
i17:0	791	4.43	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
a17:0	805	3.03	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
17:1w6c	811	0.26	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
cy17:0	827	1.88	0	0	0	13.13	0	0	0.31	0	0	0	1.03	0.23	1.31	0.55	0	1.47	1.89	0	0	0.63
17:1	840	0.06	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
17:0	857	0.16	0	0	0	0	0	0	0	0	0	0	2.82	0	0	0	0	0	0	0	0	0
br17:0a	863	8.69	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
br17:0b	873	1.17	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
10me17:0	930	0.33	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
br17:1b	940	0.26	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
18:2w6	974	0.40	0	0	0	0	0	1.10	3.22	1.34	0.33	5.65	2.21	1.48	0.71	2.94	0	0	0.12	0	0	0.04
18:1w9c	987	2.24	65.79	75.56	19.70	15.15	19.05	21.28	11.44	15.70	10.61	9.68	18.97	13.80	9.52	18.55	34.05	17.82	7.46	43.48	60.38	37.10
18:1w7c	998	4.23	0	0	4.55	4.04	4.37	0	1.00	2.01	4.48	17.08	1.69	0.13	0	0	31.03	0	0.47	0	0	0.16
18:1w7t	1008	0.03	0	0	0	0	0	0	0.31	0	0.50	0	0	0	0	0	0	0	0	0	0	0
18:1	1010	0.10	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
18:0	1038	1.52	0	24.44	12.12	6.73	15.87	15.23	10.59	10.87	12.77	10.29	7.54	15.90	12.81	11.36	13.79	12.37	8.15	26.09	16.98	16.41
br18:0a	1099	0.11	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
10me18:0	1111	1.26	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
11me18:0	1115	1.19	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
cy19:0	1192	5.68	0	0	0	3.37	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
20:4w6	1266	0.03	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
20:0	1399	0.03	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
21:0	1578	0	0	0	0	0	0	0	0	0	0	0	1.03	0	0	0	0	0	0	0	0	0
22:1w9c	1702	0	0	0	0	0	0	0	0	0	0	0	4.05	0	0	0	0	0	0	0	0	0
22:0	1750	0	0	0	0	0	0	0	0	0	0	0	2.92	0	0	0	0	0	0	0	0	0
23:0	1716	0	0	0	0	0	0	0	0	0	0	0	0.36	0	0	0	0	0	0	0	0	0
24:0	2078	0	0	0	0	0	0	0	0	0	0	0	1.85	0	0	0	0	0	0	0	0	0
Total		100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00
pmol/gdw		130.33	0.03	0.02	0.07	0.06	0.04	0.10	0.19	0.15	0.19	0.40	0.33	0.36	0.26	0.25	0.06	0.07		(avg gdw of 91.53)		0.06

(12/20/91)

SSP Integrated Demonstration Project
Well MHT9B -

		MOLE %												
PLFA	INDEX	15'	27'	39'	51'	63'	75'	87'	99'	111'	119'	Blk-1	Blk-2	Avg Blks
14:0	369	0	0	0	0	0	1.45	0	0	0	0.62	0	0	0
15:0	517	0	0	0	0	0	1.79	0	0	0	0	0	0	0
16:1w7c	644	0.76	0	0	0	0	0.98	0	0	0	3.35	0	0	0
16:0	683	33.67	32.04	57.47	29.79	33.93	75.21	73.28	40.93	84.91	84.29	96.94	100.00	98.47
a17:0	806	0	2.69	0	0	0	0	0	0	0	0	0	0	0
cy17:0	827	0	4.79	0	0	0	0	0	0	0	0	0	0	0
18:2w6	972	4.16	1.80	0	0	0	0	0	0	0.77	0.40	0	0	0
18:1w9c	986	22.45	27.54	17.53	28.37	33.93	4.97	6.04	13.08	7.42	3.91	0	0	0
18:1w7c	997	15.89	7.49	6.17	2.13	17.86	3.87	2.33	0	2.30	3.12	0	0	0
18:1w7t	1004	0	3.29	0	0	0	0	0	0	0	0	0	0	0
18:0	1038	23.08	20.36	18.83	22.70	14.29	7.53	9.01	9.28	4.60	4.31	3.06	0	1.53
20:1a	1336	0	0	0	17.02	0	1.83	6.15	3.38	0	0	0	0	0
20:1w9c	1348	0	0	0	0	0	0	0	33.33	0	0	0	0	0
22:1w9c	1701	0	0	0	0	0	2.38	3.18	0	0	0	0	0	0
Total		100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00
pmol/gdw		0.09	0.09	0.04	0.03	0.01	0.27	0.11	0.04	0.08	0.38	(avg gdw of 90.44)		0.10

(12/30/91)

SSP Integrated Demonstration Project
Well MHT10B

PLFA	INDEX	15'	27'	39'	51'	75'	87'	99'	111'	123'	135'	Blk
						MOLE %						
12:0	136	0	0	0.54	0	0	0	0	0	0	0	0
14:0	369	2.19	0	4.36	2.47	0.99	6.65	0.59	1.31	0	1.83	0
i15:0	458	0	0	0	1.00	0	0	0	0	0	0	0
15:0	517	0	0	0	0.39	0.35	0	0.24	0	0	0.81	0
16:1w7c	645	0.27	0	0.58	0	0.78	3.38	0.16	0.66	0	0.17	0
16:1w7t	652	0	0	0	0	0	0.24	0	0	0	0	0
16:0	682	42.21	52.63	78.35	76.04	75.02	84.95	67.58	69.42	62.20	66.08	74.30
17:0	859	0	0	0	0	0.61	0	0.71	0	0	0.63	0
cy17:0	828	0	0	0	0	1.04	0	0	0	0	0	0
18:2w6	978	0.82	2.39	0	0	0.17	0	0.20	0.55	0	1.10	0
18:1w9c	988	29.26	24.88	2.78	5.18	5.62	1.63	7.71	9.23	14.96	2.31	11.17
18:1w7c	1000	3.37	0	0	2.09	4.32	0.85	1.78	3.11	0.79	0.77	0
18:0	1040	5.83	20.10	10.60	8.96	8.17	2.30	16.13	15.73	22.05	9.17	14.53
cy19:0	1194	0	0	0	0	0.09	0	0	0	0	0	0
20:1a	1336	0	0	2.78	3.86	2.85	0	4.31	0	0	11.64	0
20:0	1399	4.19	0	0	0	0	0	0	0	0	0	0
21:0	1575	0.73	0	0	0	0	0	0	0	0	0	0
22:1w9c	1701	0	0	0	0	0	0	0.59	0	0	5.28	0
22:0	1750	11.12	0	0	0	0	0	0	0	0	0.19	0
Total		100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00
pmol/gdw		0.15	0.03	0.45	0.17	0.34	0.31	0.36	0.30	0.06	0.77	0.06 (avg gdw of 78.99)

(12/30/91)

SSP Integrated Demonstration Project
Well MHB1V

PLFA	INDEX	MOLE % 3'	15'	27'	39'	51'	63'	75'	87'	99'	111'	123'	Blk-1
i14:0	319	0.07	0	0	0	0	0	0	0	0	0	0	0
14:0	368	0.37	0.48	0	0	0.91	0	0	0	0.84	0	0	0
i15:0	460	10.84	1.63	0	0	0	0	0	0	0	0	0	0
a15:0	472	4.25	0.11	0	0	0	0	0	0	0	0	0	0
15:0	517	0.29	0.80	0	0	0	0	0	0	0	0	0	0
br15:0a	525	2.62	0	0	0	0	0	0	0	0	0	0	0
br15:1a	585	0.11	0.03	0	0	0	0	0	0	0	0	0	0
i16:0	620	5.32	0.79	0	0	0	0	0	0	0	0	0	0
a16:0	633	0.15	0.13	0	0	0.30	0	0	0	0	0	0	0
16:1w9c	636	0.35	0.04	0	0	0.20	0	0	0	0	0	0	0
16:1w7c	645	1.06	1.29	0.12	0	0.30	0	0	0	0	0	0	0
16:1w5c	661	0.29	0.04	0	0	0	0	0	0	0	0	0	0
16:0	683	16.45	68.37	77.63	97.66	89.44	98.78	96.14	88.71	80.58	75.78	1.49	100.00
br16:0a	690	1.90	0	0	0	0	0	0	0	0	0	0	0
br16:0b	695	0.74	0	0	0	0	0	0	0	0	0	0	0
br16:1b	746	0.67	0	0	0	0	0	0	0	0	0	0	0
br16:0d	753	0.68	0	0	0	0	0	0	0	0	0	0	0
10me16:0	758	8.71	0	0.06	0	0	0	0	0	0	0	0	0
11me16:0	763	3.65	0	0	0	0	0	0	0	0	0	0	0
br16:0e	771	2.01	0	0	0	0	0	0	0	0	0	0	0
i17:0	792	5.75	0.06	2.01	0	0	0	0	0	0	0	0	0
a17:0	807	3.76	0.38	0.23	0	0	0	0	0	0	0.39	0	0
17:1w8c	813	0.14	0	0	0	0	0	0	0	0	0	0	0
cy17:0	829	1.27	6.87	0.06	0	0	0	0	1.34	0.19	0	0	0
17:1	843	0.04	0	0	0	0	0	0	0	0	0	0	0
17:0	858	0.40	0.72	0.75	0.58	2.41	0	0	0	0	0	0	0
br17:0a	865	12.82	0.13	0	0	0	0	0	0	0	0	0	0
br17:0b	875	0.75	0	0	0	0	0	0	0	0	0	0	0
10me17:0	932	0.26	0	0	0	0.10	0	0	0	0	0	0	0
br17:1a	936	0.06	0	0	0	0	0	0	0	0	0	0	0
br17:1b	942	0.26	0.01	0	0	0	0	0	0	0	0	0	0
br17:0d	972	0.17	0.01	0	0	0	0	0	0	0	0	0	0
18:2w6	976	0.18	0.01	0	0	0	0	0	0	0	0	0	0
18:1w9c	988	2.17	0.72	2.01	0	2.21	0	0	0	0.51	0	83.58	0
18:1w7c	999	3.00	8.49	3.80	0	0.50	0	0	0	0.39	0	0	0
18:1w7t	1009	0.05	0.01	0	0	0	0	0	0	0	0	0	0
18:1w5c	1017	0.03	0	0	0	0	0	0	0	0	0	0	0
18:0	1040	3.64	4.58	8.17	1.75	3.62	0.91	3.86	9.41	12.67	23.83	14.93	0
10me18:0	1113	1.85	0	0	0	0	0	0	0	0	0	0	0
11me18:0	1117	1.53	0	0	0	0	0	0	0	0	0	0	0
cy19:0	1194	0.84	2.08	0	0	0	0	0	0	0	0	0	0
20:1a	1335	0.32	1.53	4.72	0	0	0.30	0	0.54	3.02	0	0	0
20:0	1402	0.06	0	0	0	0	0	0	0	1.80	0	0	0
21:0	1578	0.03	0.05	0.23	0	0	0	0	0	0	0	0	0
22:1w9c	1702	0.07	0.64	0.23	0	0	0	0	0	0	0	0	0
22:0	1750	0.05	0	0	0	0	0	0	0	0	0	0	0
24:0	2079	0.02	0	0	0	0	0	0	0	0	0	0	0
Total		100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00
pmol/gdw		7.43	0.97	0.20	0.02	0.12	0.08	0.03	0.07	0.35	0.04	0.12	0.01 (avg gdw of 90.28)

(12/30/91)

SP Integrated Demonstration Project
Well MHBSV

MOLE %

PLFA	INDEX	15'	27'	39'	51'	63'	75'	87'	99'	111'	123'	135'	147'	167'	179'	191'	Blk-1	Blk-2	Avg Blks
16:1w7c	643	0	0	0	0	0.91	0	0	0	0.43	0	0	0	0	3.09	0	0	0	0
16:0	682	17.16	29.58	36.87	50.00	82.25	72.64	23.35	54.44	68.20	66.67	83.79	78.38	24.57	70.51	75.74	0	0	0
cy17:0	828	0	0	0	0	0	0	0	0	0	0	0	1.50	0	0	6.89	0	0	0
18:2w6	977	0	0	0	0	0	1.01	0	2.37	1.87	0	0.41	0	0	0	0	0	0	0
18:1w9c	988	34.80	22.54	22.35	30.21	7.07	13.28	25.75	21.30	15.25	11.31	7.22	11.41	15.12	12.08	4.26	100.00	100.00	100.00
18:1w7c	1001	15.20	11.97	7.26	5.21	3.44	4.83	7.19	0.59	0.29	0.61	0.54	0.30	7.18	5.62	3.08	0	0	0
18:1w7t	1008	0.98	0	0	0	0	0	0.60	0	0	0	0	0	0.57	0	0	0	0	0
18:0	1041	31.86	35.92	33.52	14.58	6.34	8.25	43.11	21.30	13.96	21.41	8.04	8.41	50.66	8.71	10.03	0	0	0
cy19:0	1193	0	0	0	0	0	0	0	0	0	0	0	0	1.89	0	0	0	0	0
Total		100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00
pmol/gdw		0.01	0.01	0.02	0.01	0.07	0.07	0.02	0.02	0.10	0.05	0.09	0.04	0.07	0.06	0.25	(avg gdw of 91.08)		0.00

(12/19/91)

SSP Integrated Demonstration Project
Well MHT11C

PLFA	INDEX	3'	15'	27'	39'	51'	63'	75'	87'	99'	111'	123'	135'	147'	159'	171'	195'	Blk-1	Blk-2	Blk-3	Avg Blks
												MOLE %									
12:0	137	0.01	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
i13:0	200	0.02	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
a13:0	210	0.00	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
13:0	241	0.00	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
i14:0	319	0.85	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
14:0	368	0.86	0	3.11	0	0	0	1.03	0	0	0	0	0	0	0	0	0	0	0	0	0
br14:1a	421	0.07	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
br14:1b	427	0.02	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
br14:1c	432	0.02	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
br14:1d	442	0.02	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
i15:0	460	12.57	0	0	0	0	0	0	0	0	0	0	1.50	0	0	0	0	0	0	0	0
a15:0	472	7.24	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
15:0	516	0.59	0	1.19	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
br15:0a	525	0.10	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
br15:0b	529	0.07	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
br15:0c	592	0.05	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
br15:1b	610	0.03	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
i16:0	619	3.81	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
a16:0	633	0.18	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
16:1w9c	636	0.20	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
16:1w7c	644	3.26	0	0	0	0	0	0	0.11	0	0	0.12	0	0	0	0	0	0	0	0.95	0.32
16:1w5c	661	0.82	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
16:0	685	20.97	57.76	75.93	81.89	49.46	40.94	75.26	61.09	72.82	39.31	65.56	70.73	44.16	68.01	93.04	74.36	39.19	30.49	49.62	39.76
br16:0a	691	0.13	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
br16:1b	746	2.47	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
10me16:0	758	2.75	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
br16:0e	771	0.13	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
i17:0	792	1.71	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
a17:0	806	1.32	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
17:1w6c	813	0.22	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
cy17:0	829	1.37	6.25	1.92	2.80	0	4.09	1.79	0.76	2.86	33.59	0.79	1.72	0.87	3.87	1.23	4.40	3.38	9.76	7.78	6.97
17:0	858	0.52	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1.13	0.38
br17:0a	864	1.09	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
10me17:0	932	0.24	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
br17:1a	936	0.04	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
18:2w6	977	3.75	0	0.26	0	0	1.75	0	3.52	1.19	0	3.47	0	1.73	0	0.19	0	0	0	0	0
18:1w9c	990	8.77	14.66	8.93	6.56	33.75	23.39	9.59	20.36	8.94	15.27	16.26	5.29	27.71	7.46	1.81	10.07	33.78	34.76	1.02	23.19
18:1w7c	1001	8.29	1.29	0.40	1.87	0	4.09	2.63	2.31	1.79	0	2.67	2.71	0.43	1.29	0.32	0.73	2.03	14.63	20.75	12.47
18:1w7t	1009	0.04	0	0	0.31	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
18:1w5c	1018	0.07	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
18:0	1040	2.99	16.16	8.27	6.76	16.80	15.79	9.68	11.85	12.40	11.83	11.12	15.90	25.11	17.79	2.58	10.44	21.62	10.37	10.78	14.26
br19:1	1051	0.60	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
10me18:0	1111	0.40	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
11me18:0	1117	0.20	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
19:1	1168	0.03	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
cy19:0	1195	9.26	0.65	0	0	0	9.84	0	0	0	0	0	2.15	0	1.58	0.84	0	0	0	6.25	2.08
20:4w6	1269	0.88	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
20:5w3	1280	0.01	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
20:1b	1351	0.29	3.23	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1.72	0.57
20:0	1402	0.19	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
20:1w9c	1341	0.02	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
21:0	1578	0.03	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
22:0	1750	0.13	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
23:0	1917	0.03	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
24:0	2079	0.09	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Total		100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00
pmol/gdw		654.20	0.05	0.14	0.13	0.11	0.03	0.13	0.66	0.11	0.05	0.42	0.24	0.03	0.09	0.18	0.06		(avg. gdw of 101.21)		0.14

(12/30/91)

SSP Integrated Demonstration Project
Well MHB12C

PLFA	INDEX	MOLE % 21'	30'	41'	61'	Blk
16:0	681	70.67	55.17	77.95	46.25	64.33
cy17:0	828	0	4.14	3.59	6.25	1.67
18:2w6	974	0	0	1.03	0	0
18:1w9c	985	17.33	33.79	9.23	33.75	12.33
18:1w7c	998	8.00	2.76	1.54	1.25	14.33
18:0	1039	4.00	4.14	6.67	12.50	7.33
Total		100.00	100.00	100.00	100.00	100.00
pmol/gdw		0.02	0.03	0.06	0.02	0.11 (avg gdw of 81.36)

Appendix IX

Well ID	Well Elevation	Surface Elevation	Depth (ft)	TCE concentration (ug/g)	PCE concentration (ug/g)
MHB-1T	359.8	362.8	3	0.002	0.002
MHB-1T	355.8		7	0.002	0.002
MHB-1T	351.8		11	0.002	0.002
MHB-1T	347.8		15	0.002	0.002
MHB-1T	343.8		19	0.021	0.002
MHB-1T	339.8		23	0.004	0.002
MHB-1T	335.8		27	0.029	0.002
MHB-1T	327.8		35	0.002	0.002
MHB-1T	323.8		39	0.039	0.002
MHB-1T	317.8	362.8	45	0.544	0.729
MHB-1T	313.8		49	0.071	0.040
MHB-1T	309.8		53	0.091	0.050
MHB-1T	301.8		61	0.077	0.034
MHB-1T	297.8		65	0.064	0.019
MHB-1T	293.8		69	0.084	0.021
MHB-1T	289.8		73	0.010	0.002
MHB-1T	285.8		77	0.051	0.012
MHB-1T	277.8		85	0.010	0.002
MHB-1T	273.8		89	0.010	0.002
MHB-1T	269.8		93	6.170	1.548
MHB-1T	265.8		97	1.617	0.491
MHB-1T	257.8		105	0.002	0.002
MHB-1T	253.8		109	0.014	0.002
MHB-1T	247.8		115	0.021	0.002
MHB-1T	243.8		119	0.005	0.002
MHB-1T	239.8		123	0.167	0.002
MHB-1T	235.8		127	0.002	0.002
MHB-1V	339.5	362.5	23	0.002	0.002
MHB-1V	335.5		27	0.037	0.002
MHB-1V	331.5		31	0.120	0.010
MHB-1V	327.5		35	0.105	0.002
MHB-1V	323.5		39	0.519	0.383
MHB-1V	319.5		43	0.005	0.002
MHB-1V	315.5		47	0.002	0.002
MHB-1V	311.5		51	0.002	0.002
MHB-1V	307.5		55	0.003	0.002
MHB-1V	303.5		59	0.029	0.002
MHB-1V	299.5		63	0.075	0.002
MHB-1V	295.5		67	0.127	0.002
MHB-1V	243.5		119	0.669	0.002
MHB-1V	239.5		123	0.002	0.002
MHB-1V	235.5		127	0.002	0.002
MHB-2T	362	365	3	0.002	0.002
MHB-2T	310		55	0.131	0.002
MHB-2T	306		59	0.140	0.002

MHB-2T	302		63	0.002	0.002
MHB-2T	298		67	0.048	0.002
MHB-2T	294		71	0.022	0.002
MHB-2T	290		75	0.056	0.002
MHB-2T	286		79	0.051	0.002
MHB-2T	282		83	0.054	0.002
MHB-2T	278		87	0.745	0.336
MHB-2T	274		91	0.091	0.002
MHB-2T	270		95	0.035	0.002
MHB-2T	266		99	2.299	0.456
MHB-3T	358.4	363.4	5	0.002	0.002
MHB-3T	354.4		9	0.002	0.002
MHB-3T	350.4		13	0.002	0.002
MHB-3T	346.4		17	0.002	0.002
MHB-3T	342.4		21	0.002	0.002
MHB-3T	338.4		25	0.002	0.002
MHB-3T	334.4		29	0.002	0.002
MHB-3T	330.4		33	0.002	0.016
MHB-3T	326.4		37	0.002	0.004
MHB-3T	322.4		41	0.149	0.087
MHB-3T	318.4		45	0.407	0.129
MHB-3T	314.4		49	0.011	0.002
MHB-3T	310.4		53	0.010	0.004
MHB-3T	306.4		57	0.020	0.010
MHB-3T	302.4		61	0.053	0.016
MHB-3T	298.4		65	0.034	0.028
MHB-3T	294.4		69	0.142	0.029
MHB-3T	290.4		73	0.002	0.002
MHB-3T	286.4		77	0.022	0.007
MHB-3T	282.4		81	0.002	0.002
MHB-3T	278.4		85	0.002	0.002
MHB-3T	274.4		89	0.013	0.002
MHB-3T	270.4		93	3.119	1.119
MHB-3T	266.4		97	0.576	0.165
MHB-3T	264.4	363.4	99	0.183	0.002
MHB-3T	262.4		101	0.991	0.227
MHB-3T	260.4		103	0.415	0.045
MHB-3T	258.4		105	5.515	1.146
MHB-3T	256.4		107	1.952	0.668
MHB-3T	254.4		109	1.348	0.277
MHB-3T	252.4		111	1.438	0.002
MHB-3T	250.4		113	0.003	0.002
MHB-3T	248.4		115	0.106	0.002
MHB-3T	246.4		117	0.589	0.037
MHB-3T	244.4		119	1.834	0.113
MHB-3T	242.4		121	0.002	0.002
MHB-3T	240.4		123	0.029	0.002
MHB-3T	238.4		125	0.029	0.002
MHB-3T	236.4		127	0.026	0.002

MHB-3T	234.4		129	0.010	0.003
MHB-3T	228.4	363.4	135	0.002	0.002
MHB-3T	223.4		140	0.002	0.002
MHB-3T	219.4		144	0.002	0.002
MHB-3T	215.4		148	0.002	0.002
MHB-3T	211.4		152	0.019	0.002
MHB-3T	207.4		156	0.002	0.002
MHB-3T	203.4	363.4	160	0.009	0.002
MHB-3T	199.4		164	0.091	0.010
MHB-3T	195.4		168	0.056	0.007
MHB-3T	191.4		172	0.187	0.023
MHB-3T	187.4		176	0.033	0.002
MHB-3T	183.4		180	0.138	0.002
MHB-3T	179.4		184	0.798	0.002
MHB-3T	175.4		188	3.433	0.002
MHB-3T	171.4		192	3.963	0.002
MHB-3T	167.4		196	4.167	0.002
MHB-3T	163.4		200	0.810	0.002
MHB-3V			3	0.002	0.002
MHB-3V			7	0.002	0.002
MHB-3V			11	0.002	0.002
MHB-3V			15	0.002	0.002
MHB-3V			19	0.002	0.002
MHB-3V			23	0.002	0.002
MHB-3V			27	0.002	0.002
MHB-3V			31	0.002	0.002
MHB-3V			35	0.017	0.002
MHB-3V			39	0.003	0.002
MHB-3V			43	0.039	0.002
MHB-3V			47	0.002	0.002
MHB-3V			51	0.096	0.036
MHB-3V			55	0.002	0.027
MHB-3V			59	0.006	0.058
MHB-3V			63	0.003	0.040
MHB-3V			67	0.062	0.037
MHB-3V			71	0.136	0.093
MHB-3V			75	0.034	0.066
MHB-3V			79	0.267	0.155
MHB-3V			83	0.007	0.016
MHB-3V			87	0.008	0.015
MHB-3V			91	0.002	0.003
MHB-3V			95	0.015	0.014
MHB-4T	365.2	368.2	3	0.015	0.002
MHB-4T	365.2	368.2	3	0.002	0.002
MHB-4T	361.2		7	0.002	0.002
MHB-4T	361.2		7	0.002	0.002
MHB-4T	357.2		11	0.002	0.002
MHB-4T	357.2		11	0.002	0.002
MHB-4T	353.2		15	0.002	0.002

MHB-4T	353.2		15	0.002	0.002
MHB-4T	349.2		19	1.772	0.645
MHB-4T	349.2		19	0.002	0.002
MHB-4T	345.2		23	1.371	0.488
MHB-4T	345.2		23	0.002	0.002
MHB-4T	341.2		27	0.002	0.002
MHB-4T	341.2		27	0.002	0.002
MHB-4T	279.2		89	0.002	0.002
MHB-4T	275.2		93	0.002	0.002
MHB-4T	271.2		97	0.537	0.452
MHB-4T	267.2		101	0.410	0.066
MHB-4T	263.2		105	0.014	0.002
MHB-4T	259.2		109	1.094	0.019
MHB-4T	253.2		115	0.029	0.002
MHB-4T	249.2		119	0.002	0.002
MHB-4T	245.2		123	0.002	0.002
MHB-4T	241.2		127	0.257	0.002
MHB-4T	239.2		129	0.465	0.002
MHB-5T	361.8	364.8	3	0.002	0.002
MHB-5T	357.8		7	0.002	0.002
MHB-5T	353.8		11	0.002	0.002
MHB-5T	349.8		15	0.002	0.002
MHB-5T	345.8		19	0.002	0.002
MHB-5T	341.8		23	0.002	0.002
MHB-5T	337.8		27	0.002	0.002
MHB-5T	337.8		27		
MHB-5T	333.8		31	0.002	0.002
MHB-5T	329.8		35	0.013	0.002
MHB-5T	325.8		39	0.015	0.002
MHB-5T	321.8		43	0.029	0.003
MHB-5T	317.8		47	0.027	0.002
MHB-5T	313.8		51	0.042	0.013
MHB-5T	309.8		55	0.021	0.005
MHB-5T	305.8		59	0.048	0.013
MHB-5T	301.8		63	0.074	0.021
MHB-5T	297.8		67	0.191	0.056
MHB-5T	293.8		71	0.070	0.022
MHB-5T	289.8		75	0.031	0.008
MHB-5T	285.8		79	0.055	0.015
MHB-5T	281.8		83	0.018	0.003
MHB-5T	277.8		87	0.024	0.005
MHB-5T	273.8		91	2.109	0.714
MHB-5T	269.8		95	3.164	0.878
MHB-5T	265.8		99	0.245	0.065
MHB-5T	261.8		103	0.040	0.021
MHB-5T	257.8		107	5.568	0.860
MHB-5T	253.8	364.8	111	4.758	0.675
MHB-5T	249.8	364.8	115	0.529	0.002
MHB-5T	245.8		119	0.601	0.013

MHB-5T	241.8		123	0.184	0.002
MHB-5T	237.8		127	0.002	0.002
MHB-5T	233.8		131	0.002	0.002
MHB-5T	229.8		135	0.002	0.002
MHB-5T	225.8		139	0.002	0.002
MHB-5T	221.8		143	0.002	0.002
MHB-5T	217.8		147	0.002	0.002
MHB-5T	213.8		151	0.002	0.002
MHB-5T	209.8		155	0.002	0.002
MHB-5T	205.8		159	0.026	0.002
MHB-5V	354	369	15	0.002	0.002
MHB-5V	350		19	0.002	0.002
MHB-5V	346		23	0.002	0.002
MHB-5V	342		27	0.002	0.002
MHB-5V	338		31	0.002	0.002
MHB-5V	334		35	0.002	0.002
MHB-5V	330		39	0.002	0.002
MHB-5V	326		43	0.002	0.002
MHB-5V	322		47	0.002	0.002
MHB-5V	318		51	0.003	0.002
MHB-5V	314		55	0.002	0.002
MHB-5V	310		59	0.002	0.002
MHB-5V	306		63	0.002	0.002
MHB-5V	302		67	0.029	0.004
MHB-5V	298		71	0.006	0.002
MHB-5V	294		75	0.023	0.002
MHB-5V	290		79	0.120	0.003
MHB-5V	286		83	0.002	0.002
MHB-5V	282		87	0.002	0.002
MHB-5V	278		91	0.002	0.002
MHB-5V	274		95	0.002	0.002
MHB-5V	270		99	0.328	0.067
MHB-5V	266		103	2.591	0.164
MHB-5V	262		107	1.575	0.103
MHB-5V	258		111	3.509	0.166
MHB-5V	254		115	6.024	0.817
MHB-5V	250		119	4.091	0.075
MHB-5V	246.2	369.2	123	1.561	0.169
MHB-5V	242.2		127	1.147	0.004
MHB-5V	238.2		131	0.897	0.020
MHB-5V	234.2		135	1.295	0.002
MHB-5V	230.2		139	0.015	0.002
MHB-5V	226.2		143	0.010	0.002
MHB-5V	222.2		147	0.010	0.002
MHB-5V	218.2		151	0.002	0.002
MHB-5V	214.2		155	0.003	0.002
MHB-5V	202.2	369.2	167	0.045	0.002
MHB-5V	198.2		171	0.117	0.026
MHB-5V	194.2		175	0.390	0.029

MHB-5V	190.2		179	0.091	0.002
MHB-5V	186.2		183	2.095	0.019
MHB-5V	182.2		187	0.110	0.002
MHB-5V	178.2		191	2.891	0.002
MHB-5V	174.2		195	1.545	0.002
MHB-5V	170.2		199	0.079	0.002
MHB-6T	362	369	7	0.002	0.002
MHB-6T	360		9	0.002	0.002
MHB-6T	358		11	0.002	0.002
MHB-6T	354		15	0.002	0.002
MHB-6T	350.0	369.0	19	0.002	0.002
MHB-6T	346.0		23	0.002	0.002
MHB-6T	342.0		27	0.002	0.002
MHB-6T	338.0		31	0.002	0.002
MHB-6T	334.0		35	0.002	0.002
MHB-6T	330.0		39	0.002	0.002
MHB-6T	327.0		42	0.031	0.002
MHB-6T	326.0		43	0.015	0.002
MHB-6T	322.0		47	0.002	0.002
MHB-6T	318.0		51	0.002	0.002
MHB-6T	314.0		55	0.021	0.002
MHB-6T	310.0		59	0.002	0.002
MHB-6T	306	369	63	0.006	0.002
MHB-6T	302		67	0.022	0.002
MHB-6T	298		71	0.037	0.002
MHB-6T	294		75	0.024	0.002
MHB-6T	290		79	0.017	0.002
MHB-6T	286		83	0.002	0.002
MHB-6T	282		87	0.002	0.002
MHB-6T	278		91	0.002	0.002
MHB-6T	274		95	0.002	0.002
MHB-6T	270		99	1.657	0.596
MHB-6T	266		103	0.063	0.002
MHB-6T	262		107	1.377	0.555
MHB-6T	258.0		111	0.005	0.002
MHB-6T	258	369	111	6.294	0.823
MHB-6T	254.0		115	0.021	0.002
MHB-6T	254		115	0.053	0.002
MHB-6T	250.0		119	0.037	0.002
MHB-6T	250		119	2.819	0.040
MHB-6T	246.0		123	0.012	0.002
MHB-6T	246		123	0.433	0.015
MHB-6T	242.0		127	0.002	0.002
MHB-6T	242		127	0.049	0.002
MHB-7T	363.8	366.8	3	0.002	0.002
MHB-7T	359.8		7	0.002	0.002
MHB-7T	355.8		11	0.002	0.002
MHB-7T	351.8		15	0.002	0.002
MHB-7T	347.8		19	0.002	0.002

MHB-7T	343.8		23	0.002	0.002
MHB-7T	339.8		27	0.002	0.002
MHB-7T	335.8		31	0.002	0.002
MHB-7T	331.8		35	0.002	0.002
MHB-7T	327.8		39	0.002	0.002
MHB-7T	323.8		43	0.010	0.020
MHB-7T	319.8		47	0.007	0.015
MHB-7T	315.8		51	0.004	0.005
MHB-7T	311.8		55	0.011	0.024
MHB-7T	307.8		59	0.011	0.027
MHB-7T	303.8		63	0.007	0.016
MHB-7T	299.8		67	0.034	0.121
MHB-7T	295.8		71	0.060	0.235
MHB-7T	291.8		75	0.002	0.002
MHB-7T	287.8		79	0.024	0.032
MHB-7T	283.8		83	0.005	0.003
MHB-7T	279.8		87	0.002	0.002
MHB-7T	275.8		91	0.043	0.050
MHB-7T	271.8		95	0.884	0.101
MHB-7T	267.8		99	0.002	0.002
MHB-7T	263.8		103	3.407	0.186
MHB-7T	259.8		107	0.010	0.002
MHB-7T	255.8		111	0.069	0.002
MHB-7T	251.8		115	0.183	0.005
MHB-7T	247.8		119	0.002	0.002
MHB-7T	235.8	366.8	131	0.130	0.002
MHB-7T	228.8		138	0.041	0.002
MHB-7T	225.8		141	0.002	0.002
MHB-7T	222.8		144	0.002	0.002
MHB-7T	219.8		147	0.002	0.002
MHB-7T	215.8		151	0.004	0.002
MHB-7T	211.8		155	0.002	0.002
MHB-7T	207.8		159	0.002	0.002
MHB-7T	205.8		161	0.002	0.002
MHB-7T	199.8		167	0.002	0.002
MHB-7T	195.8		171	0.039	0.002
MHB-7T	192.8		174	0.002	0.002
MHB-7T	188.8	366.8	178	0.004	0.002
MHB-7T	177.8		189	4.560	0.002
MHB-7T	173.8		193	2.630	0.002
MHB-7T	167.8		199	0.487	0.002
MHB-8T	343.7	368.7	25	0.002	0.002
MHB-8T	339.7		29	0.002	0.002
MHB-8T	335.7		33	0.002	0.002
MHB-8T	331.7		37	0.002	0.002
MHB-8T	327.7		41	0.002	0.002
MHB-8T	323.7		45	0.002	0.002
MHB-8T	319.7		49	0.002	0.002
MHB-8T	315.7		53	0.002	0.002

MHB-8T	311.7		57	0.002	0.002
MHB-8T	307.7		61	0.002	0.002
MHB-8T	303.7		65	0.003	0.002
MHB-8T	299.7		69	0.002	0.002
MHB-8T	295.7		73	0.002	0.002
MHB-8T	291.7		77	0.002	0.002
MHB-8T	287.7		81	0.002	0.002
MHB-8T	283.7		85	0.002	0.002
MHB-8T	279.7		89	0.002	0.002
MHB-8T	275.7		93	0.002	0.002
MHB-8T	271.7		97	0.002	0.002
MHB-8T	268.7		100	0.005	0.002
MHB-8T	267.7		101	0.018	0.002
MHB-8T	263.7		105	0.055	0.002
MHB-8T	259.7		109	0.010	0.002
MHB-8T	255.7		113	2.233	0.044
MHB-8T	251.7		117	1.412	0.023
MHB-8T	247.7		121	0.127	0.003
MHB-8T	243.7		125	0.002	0.002
MHB-8T	239.7		129	0.015	0.002
MHB-8T	235.7		133	0.002	0.002
MHB-8T	231.7		137	0.002	0.002
MHB-8T	227.7		141	0.002	0.002
MHB-8T	223.7		145	0.012	0.002
MHB-8T	219.7		149	0.278	0.005
MHB-8T	215.7	368.7	153	0.023	0.002
MHB-8T	211.7		157	0.015	0.002
MHB-8T	207.7		161	0.014	0.002
MHB-8T	203.7		165	0.154	0.002
MHB-8T	199.7		169	0.066	0.028
MHB-8T	195.7		173	0.034	0.012
MHB-8T	191.7		177	0.009	0.002
MHB-8T	187.7		181	0.009	0.002
MHB-8T	179.7	368.7	189	0.041	0.002
MHB-8T	175.7		193	0.651	0.002
MHB-8T	171.7		197	0.024	0.002
MHT-10B	353.3	368.3	15	0.002	0.002
MHT-10B	349.3		19	0.002	0.002
MHT-10B	345.3		23	0.002	0.002
MHT-10B	341.3		27	0.002	0.002
MHT-10B	337.3		31	0.002	0.002
MHT-10B	333.3		35	0.002	0.002
MHT-10B	329.3		39	0.002	0.002
MHT-10B	325.3		43	0.003	0.002
MHT-10B	321.3		47	0.019	0.006
MHT-10B	317.3		51	0.002	0.002
MHT-10B	313.3		55	0.016	0.005
MHT-10B	309.3		59	0.002	0.002
MHT-10B	305.3		63	0.010	0.004

MHT-10B	301.3		67	0.030	0.021
MHT-10B	297.3		71	0.004	0.003
MHT-10B	293.3		75	0.006	0.004
MHT-10B	289.3		79	0.002	0.002
MHT-10B	285.3		83	0.002	0.002
MHT-10B	281.3		87	0.002	0.002
MHT-10B	277.3		91	0.003	0.002
MHT-10B	273.3		95	0.294	0.052
MHT-10B	269.3		99	0.207	0.017
MHT-10B	265.3		103	0.919	0.045
MHT-10B	261.3		107	2.394	0.056
MHT-10B	257.3		111	0.013	0.002
MHT-10B	253.3		115	0.002	0.002
MHT-10B	251.3		117	0.016	0.002
MHT-10B	249.3		119	0.021	0.002
MHT-10B	247.3		121	0.157	0.002
MHT-10B	245.3		123	0.778	0.012
MHT-10B	241.3		127	0.413	0.005
MHT-10B	237.3		131	0.008	0.002
MHT-10B	233.3		135	0.081	0.002
MHT-10B	229.3		139	0.296	0.005
MHT-10B	225.3		143	0.147	0.002
MHT-10B	223.3		145	0.103	0.035
MHT-10B	221.3	368.3	147	0.002	0.002
MHT-10B	221.3	368.3	147	0.002	0.002
MHT-10B	217.3		151	0.002	0.002
MHT-10B	217.3		151	0.002	0.002
MHT-10B	213.3		155	0.037	0.002
MHT-10B	213.3		155	0.126	0.003
MHT-10B	199.3		169	0.002	0.002
MHT-10B	199.3		169	0.006	0.002
MHT-10B	197.3		171	0.002	0.002
MHT-10B	197.3		171	0.002	0.002
MHT-10B	193.3		175	0.002	0.002
MHT-10B	193.3		175	0.025	0.002
MHT-10B	185.3		183	0.002	0.002
MHT-10B	185.3		183	0.021	0.002
MHT-10B	177.3		191	0.050	0.002
MHT-10B	177.3		191	0.157	0.002
MHT-10B	173.3		195	0.437	0.002
MHT-10B	173.3	368.3	195	0.437	0.002
MHT-10B	169.3		199	0.165	0.002
MHT-10B	169.3		199	0.165	0.002
MHT-11C	362.8	365.8	3	0.002	0.166
MHT-11C	358.8		7	0.002	0.228
MHT-11C	354.8		11	0.002	0.018
MHT-11C	350.8		15	0.002	0.025
MHT-11C	346.8		19	0.002	0.015
MHT-11C	342.8		23	0.004	0.064

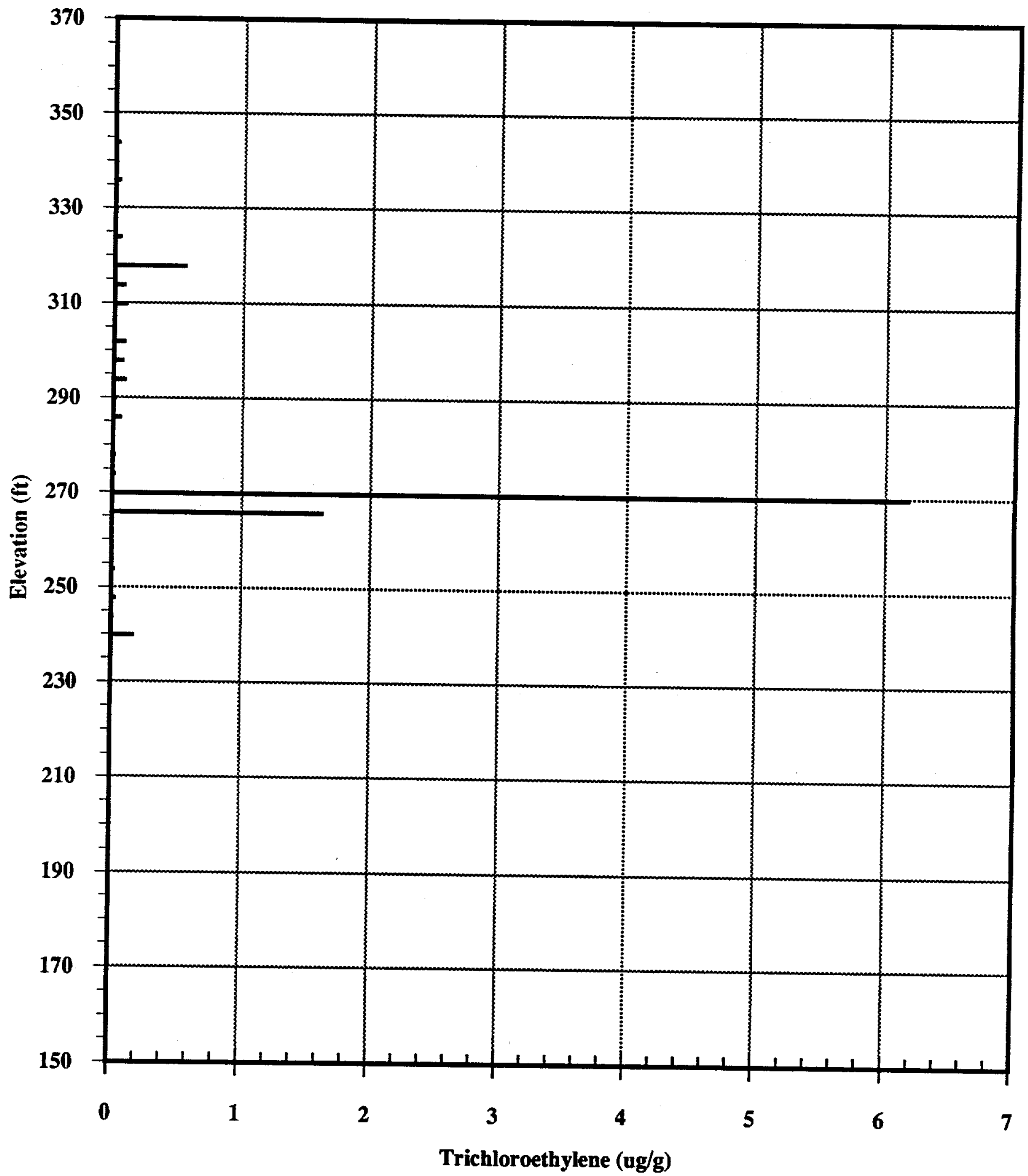
MHT-11C	338.8		27	0.006	0.280
MHT-11C	334.8		31	0.018	0.392
MHT-11C	330.8		35	0.665	0.543
MHT-11C	326.8		39	3.999	1.136
MHT-11C	322.8		43	4.179	1.273
MHT-11C	318.8		47	0.762	0.417
MHT-11C	314.8		51	0.267	0.138
MHT-11C	310.8		55	0.278	0.162
MHT-11C	306.8		59	0.127	0.051
MHT-11C	302.8		63	1.174	0.792
MHT-11C	298.8		67	0.699	0.302
MHT-11C	294.8		71	0.049	0.015
MHT-11C	290.8		75	0.042	0.017
MHT-11C	286.8		79	0.139	0.070
MHT-11C	282.8		83	0.224	0.127
MHT-11C	278.8		87	0.005	0.002
MHT-11C	274.8		91	0.003	0.003
MHT-11C	270.8		95	5.002	1.029
MHT-11C	270.8	365.8	95	6.173	1.149
MHT-11C	266.8		99	1.169	0.060
MHT-11C	262.8		103	0.036	0.002
MHT-11C	258.8	365.8	107	2.505	0.533
MHT-11C	254.8		111	1.966	0.105
MHT-11C	250.8		115	2.593	0.712
MHT-11C	246.8		119	0.101	0.002
MHT-11C	242.8		123	0.006	0.002
MHT-11C	238.8		127	2.044	0.087
MHT-11C	234.8		131	0.081	0.002
MHT-11C	230.8		135	0.035	0.002
MHT-11C	226.8		139	0.318	0.002
MHT-11C	222.8		143	0.022	0.002
MHT-11C	218.8		147	0.403	0.002
MHT-11C	214.8		151	0.748	0.002
MHT-12C	347	368	21	0.007	0.017
MHT-12C	343		25	0.008	0.018
MHT-12C	339		29	0.008	0.018
MHT-12C	335		33	0.008	0.018
MHT-12C	331		37	0.008	0.019
MHT-12C	327		41	0.005	0.011
MHT-12C	319		49	0.002	0.002
MHT-12C	315		53	0.004	0.002
MHT-12C	311		57	0.005	0.002
MHT-12C	307		61	0.009	0.003
MHT-12C	303		65	0.021	0.020
MHT-12C	299		69	0.045	0.073
MHT-12C	294.5	367.5	73	0.002	0.002
MHT-12C	290.5		77	0.006	0.008
MHT-12C	286.5		81	0.002	0.002
MHT-12C	282.5		85	0.002	0.002

MHT-12C	278.5		89	0.127	0.415
MHT-12C	274.5		93	0.673	0.034
MHT-12C	270.5		97	1.459	0.047
MHT-12C	266.5		101	1.336	0.029
MHT-12C	262.5		105	0.170	0.002
MHT-12C	258.5		109	0.027	0.002
MHT-12C	254.5		113	0.074	0.002
MHT-12C	250.5		117	0.005	0.002
MTH-12C	247.5		120	0.002	0.002
MHT-12C	230.5	367.5	137	0.063	0.002
MHT-12C	226.5		141	0.003	0.002
MHT-12C	222.5		145	0.002	0.002
MHT-12C	218.5		149	0.002	0.002
MHT-12C	214.5		153	0.004	0.002
MHT-12C	206.5		161	0.002	0.002
MHT-12C	202.5		165	0.093	0.149
MHT-12C	202.5	367.5	165	0.093	0.149
MHT-12C	198.5		169	0.002	0.002
MHT-12C	198.5		169	0.002	0.002
MHT-12C	194.5		173	0.002	0.002
MHT-12C	194.5		173	0.002	0.002
MHT-12C	186.5		181	0.021	0.002
MHT-12C	186.5		181	0.021	0.002
MHT-12C	182.5		185	0.137	0.002
MHT-12C	182.5		185	0.137	0.002
MHT-12C	179.5		188	0.580	0.002
MHT-12C	179.5		188	0.580	0.002
MHT-12C	178.5		189	1.163	0.002
MHT-12C	178.5	367.5	189	2.860	0.002
MHT-12C	174.5		193	0.414	0.002
MHT-12C	174.5		193	1.030	0.002
MHT-12C	170.5		197	0.919	0.002
MHT-12C	170.5		197	2.266	0.002
MHT-12C	167.5		200	0.663	0.002
MHT-12C	167.5		200	1.650	0.002
MHT-9B	352.2	367.2	15	0.002	0.002
MHT-9B	348.2		19	0.002	0.002
MHT-9B	344.2		23	0.002	0.002
MHT-9B	340.2		27	0.002	0.002
MHT-9B	335.9	366.9	31	0.002	0.002
MHT-9B	331.9		35	0.002	0.002
MHT-9B	327.9		39	0.002	0.002
MHT-9B	323.9		43	0.002	0.002
MHT-9B	319.9		47	0.004	0.004
MHT-9B	315.9		51	0.004	0.003
MHT-9B	311.9		55	0.005	0.005
MHT-9B	307.9		59	0.012	0.016
MHT-9B	303.9		63	0.037	0.089
MHT-9B	299.9		67	0.002	0.002

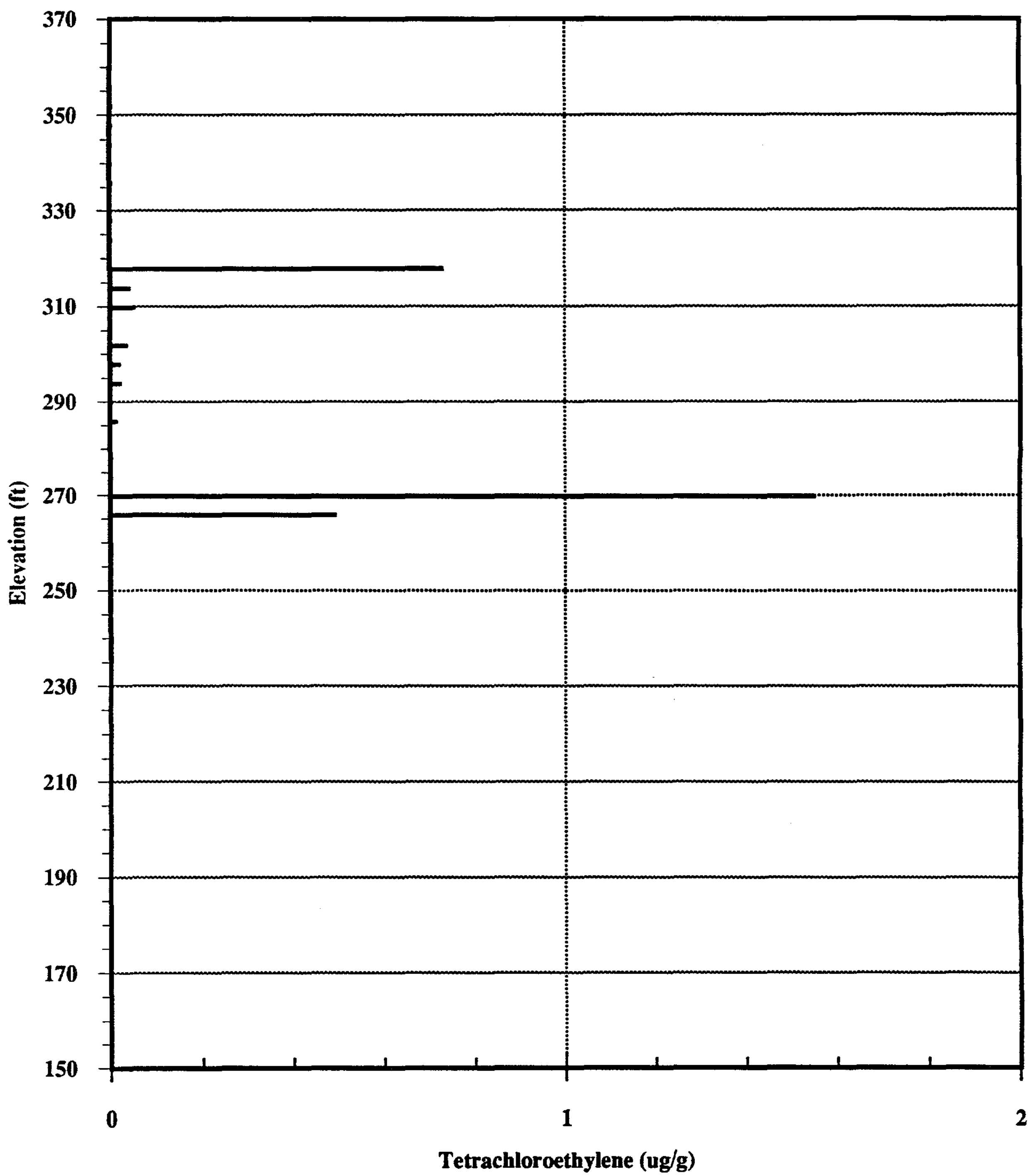
MHT-9B	295.9		71	0.002	0.002
MHT-9B	291.9		75	0.002	0.002
MHT-9B	287.9		79	0.002	0.002
MHT-9B	283.9		83	0.002	0.002
MHT-9B	279.9		87	0.179	0.281
MHT-9B	275.9		91	0.031	0.002
MHT-9B	271.9		95	0.008	0.002
MHT-9B	267.9		99	1.367	0.031
MHT-9B	263.9		103	0.003	0.002
MHT-9B	259.9		107	0.104	0.002
MHT-9B	255.9		111	0.002	0.002
MHT-9B	251.9		115	0.002	0.002
MHT-9B	247.9		119	0.002	0.002
MHT-9B	243.9	366.9	123	0.002	0.002
MHT-9B	243.9	366.9	123	0.002	0.002
MHT-9B	235.9		131	0.063	0.002
MHT-9B	235.9		131	0.063	0.002
MHT-9B	231.9		135	0.037	0.002
MHT-9B	231.9		135	0.037	0.002
MHT-9B	227.9		139	0.016	0.002
MHT-9B	227.9		139	0.016	0.002
MHT-9B	223.9		143	0.002	0.002
MHT-9B	223.9		143	0.002	0.002
MHT-9B	219.9		147	0.002	0.002
MHT-9B	219.9		147	0.002	0.002
MHT-9B	215.9		151	0.002	0.002
MHT-9B	215.9		151	0.002	0.002
MHT-9B	211.9		155	0.002	0.002
MHT-9B	211.9		155	0.002	0.002
MHT-9B	207.9		159	0.002	0.002
MHT-9B	207.9		159	0.002	0.002
MHT-9B	203.9		163	0.002	0.002
MHT-9B	203.9		163	0.002	0.002
MHT-9B	199.9		167	0.002	0.002
MHT-9B	199.9	366.9	167	0.003	0.002
MHT-9B	195.9		171	0.003	0.002
MHT-9B	195.9		171	0.048	0.041
MHT-9B	191.9		175	0.002	0.002
MHT-9B	191.9		175	0.006	0.002
MHT-9B	187.9		179	0.016	0.002
MHT-9B	187.9		179	0.055	0.002
MHT-9B	183.9		183	0.002	0.002
MHT-9B	183.9		183	0.064	0.002
MHT-9B	179.9		187	1.480	0.002
MHT-9B	179.9		187	3.633	0.002
MHT-9B	175.9		191	1.172	0.002
MHT-9B	175.9		191	2.883	0.002
MHT-9B	171.9		195	1.283	0.002
MHT-9B	171.9		195	3.154	0.002

Appendix [redacted] X

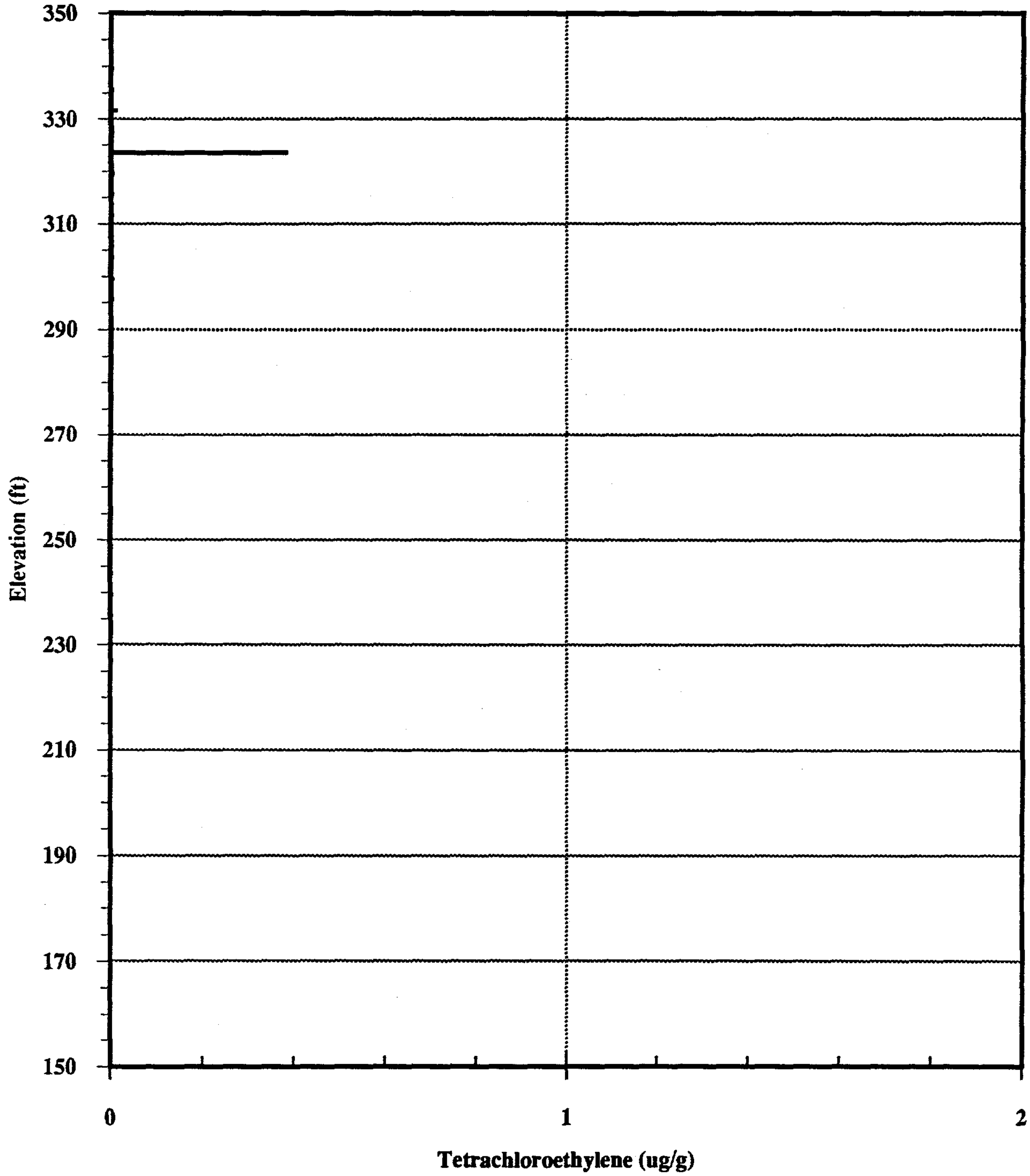
MHB-1T TCE CONCENTRATION



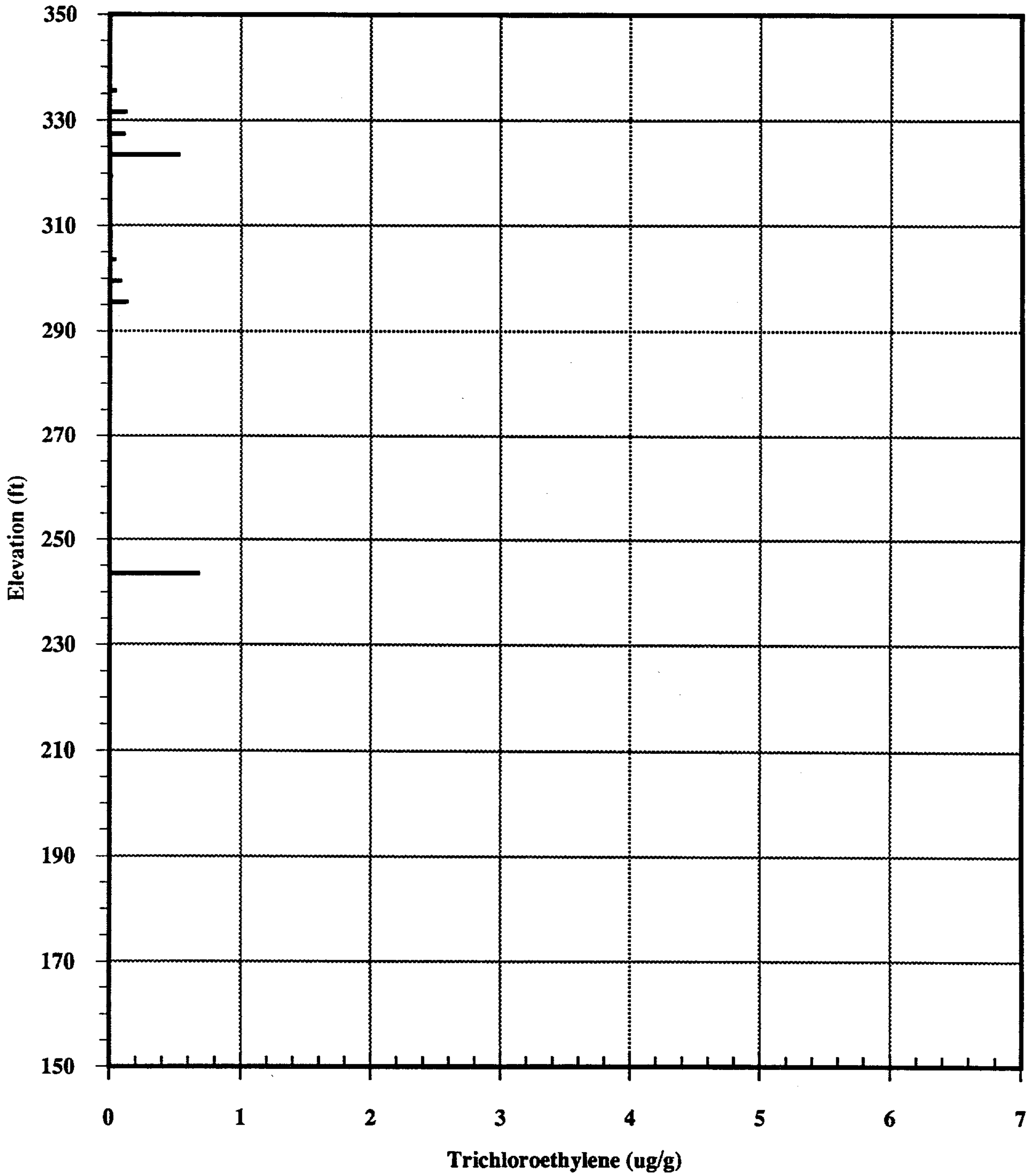
MHB-1T PCE CONCENTRATION



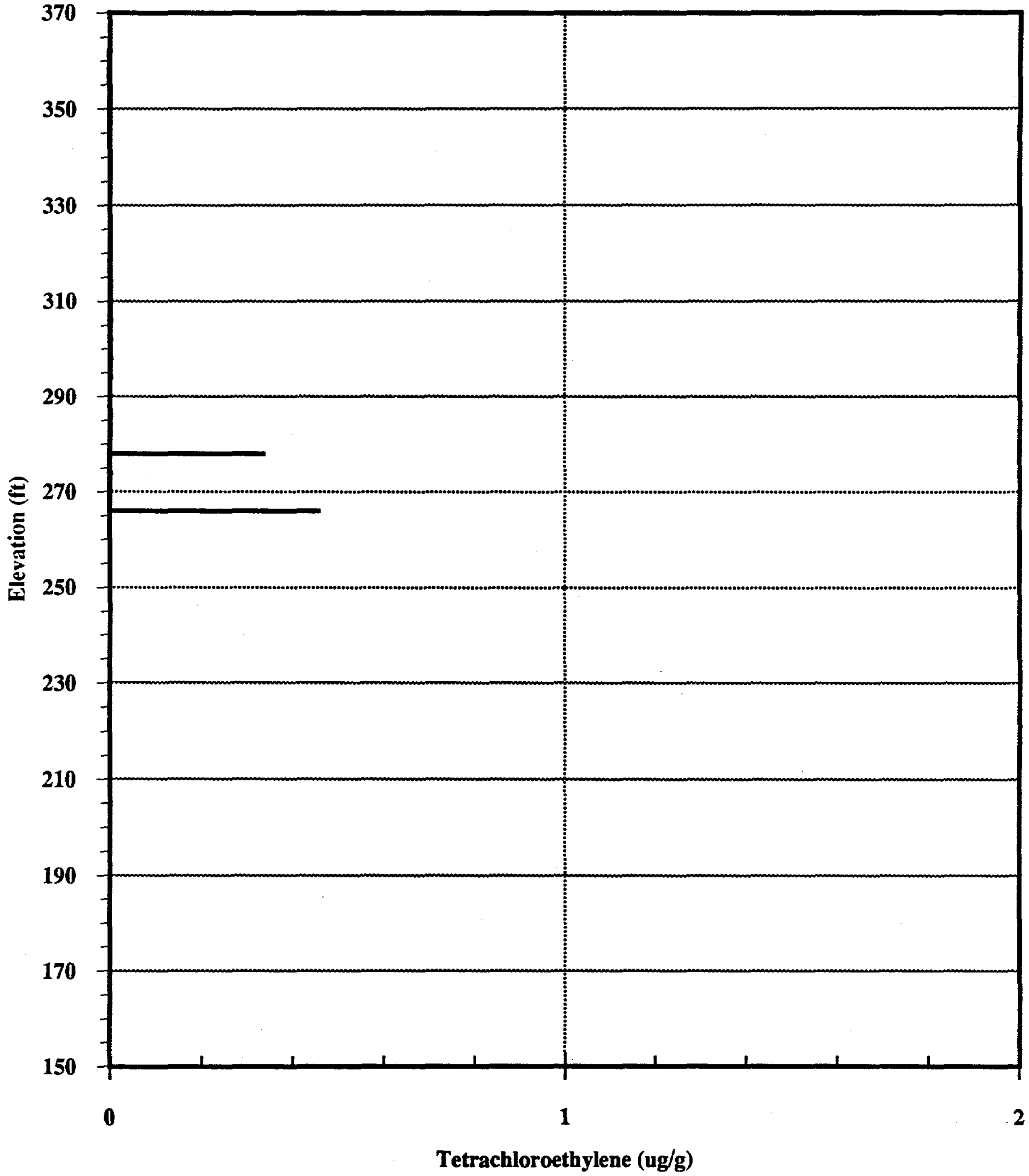
MHB-1V PCE CONCENTRATION

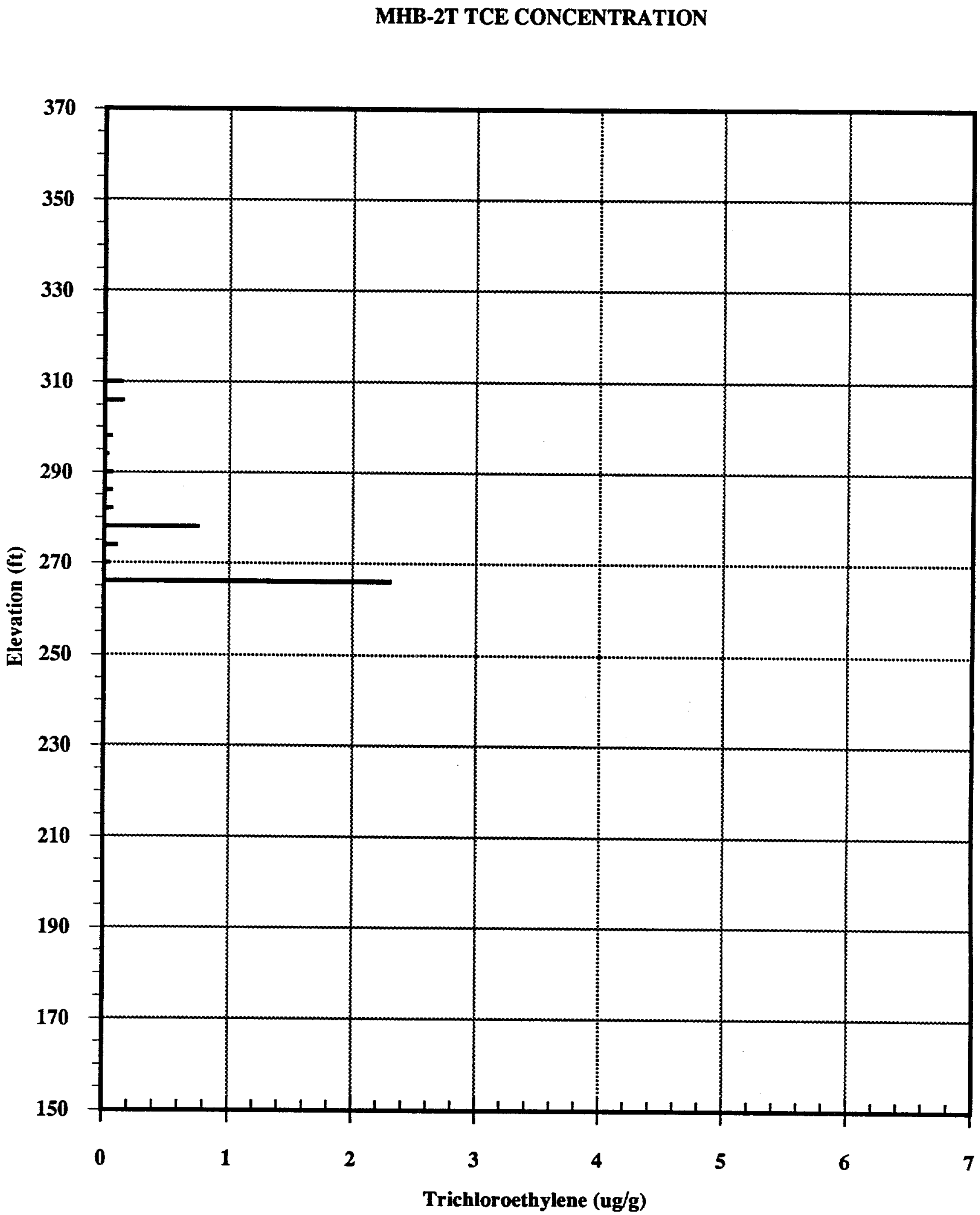


MHB-1V TCE CONCENTRATION

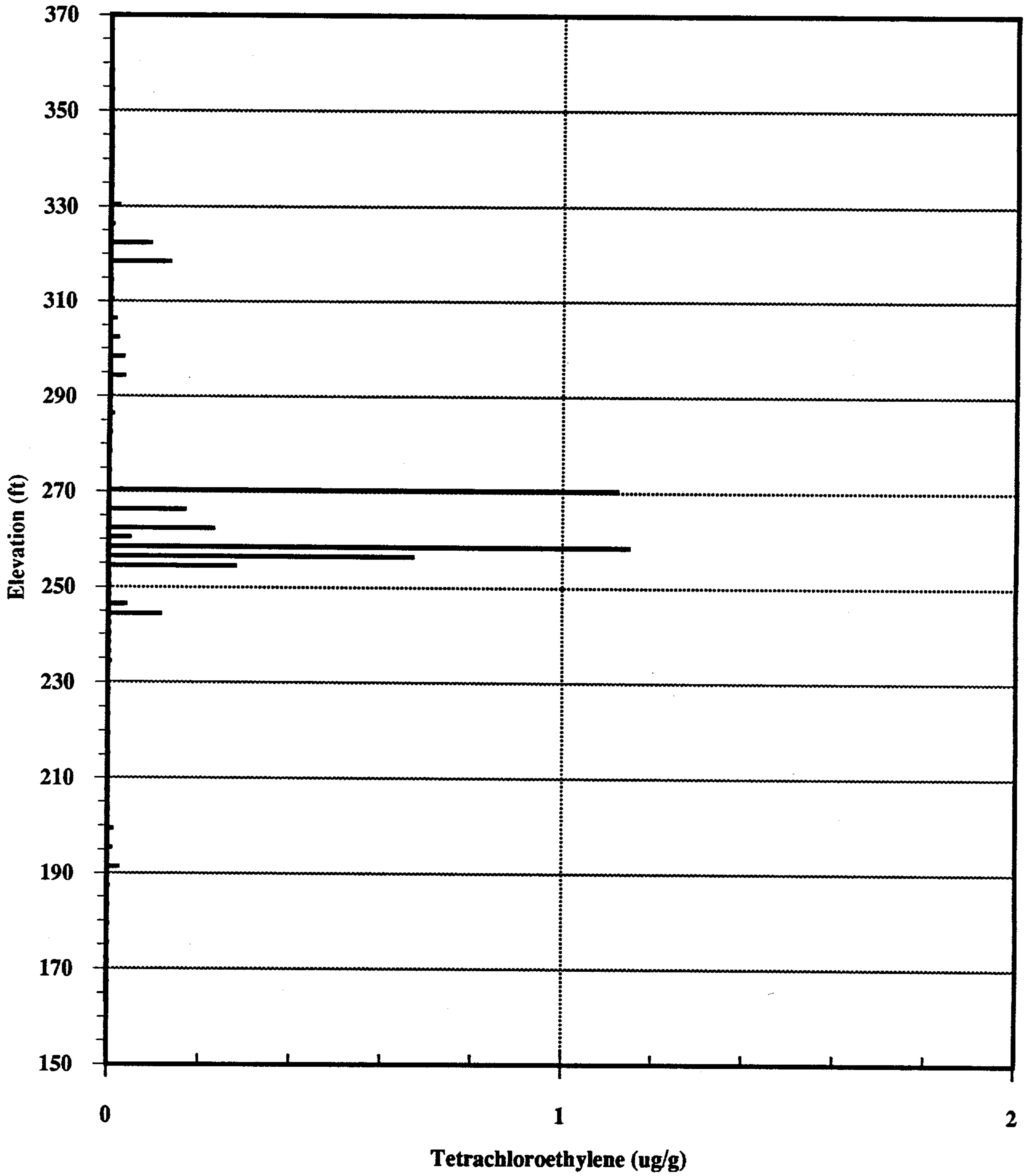


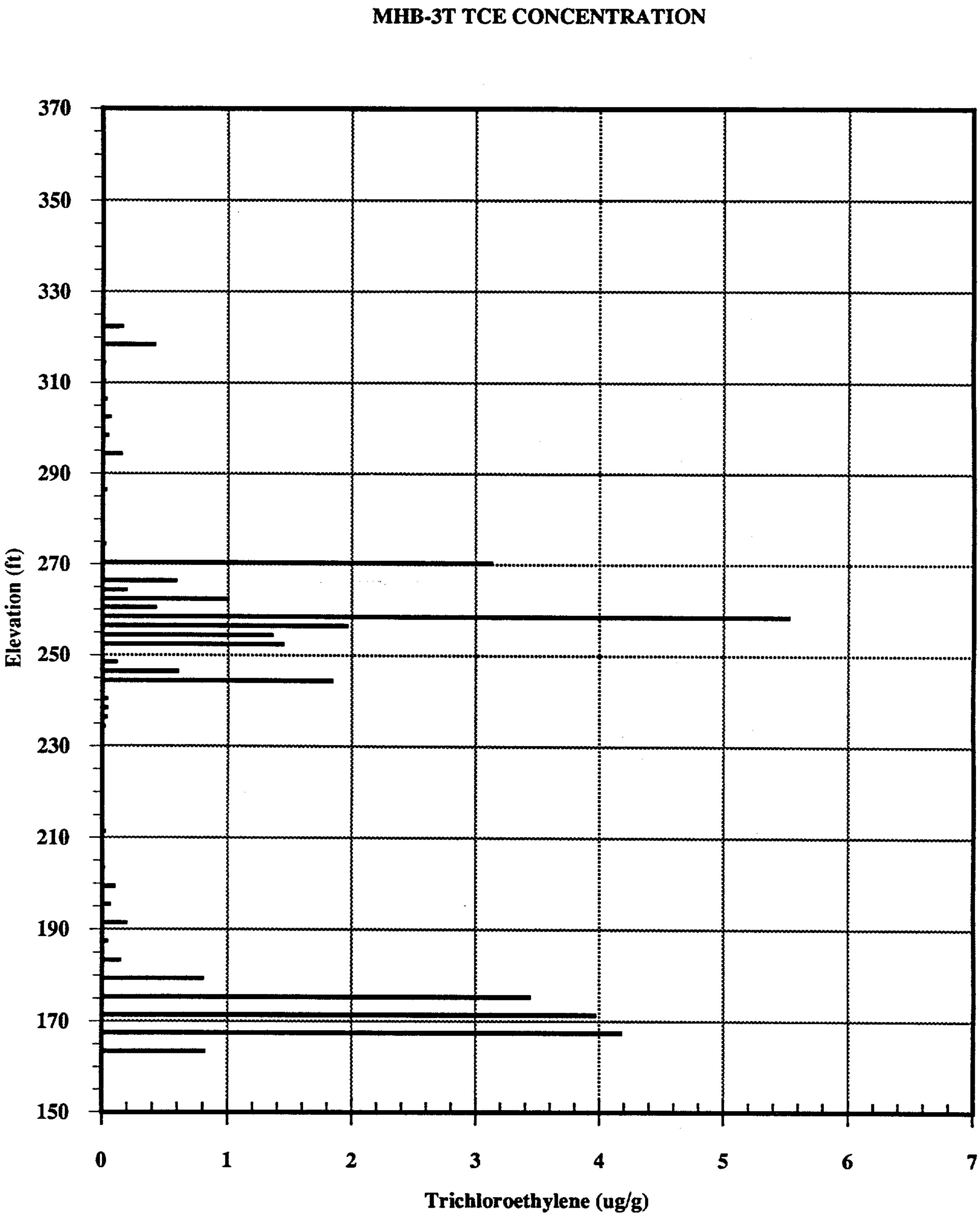
MHB-2T PCE CONCENTRATION

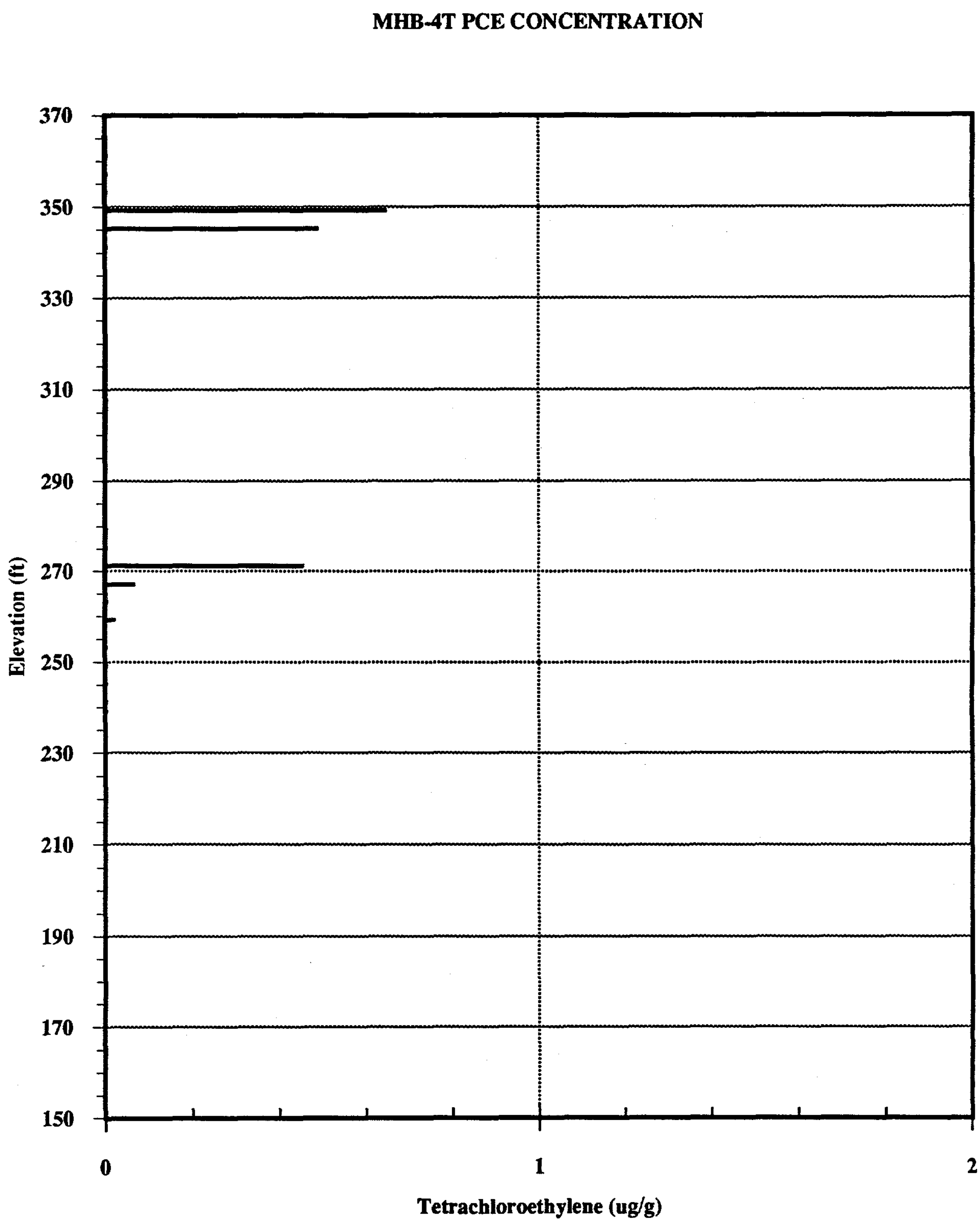


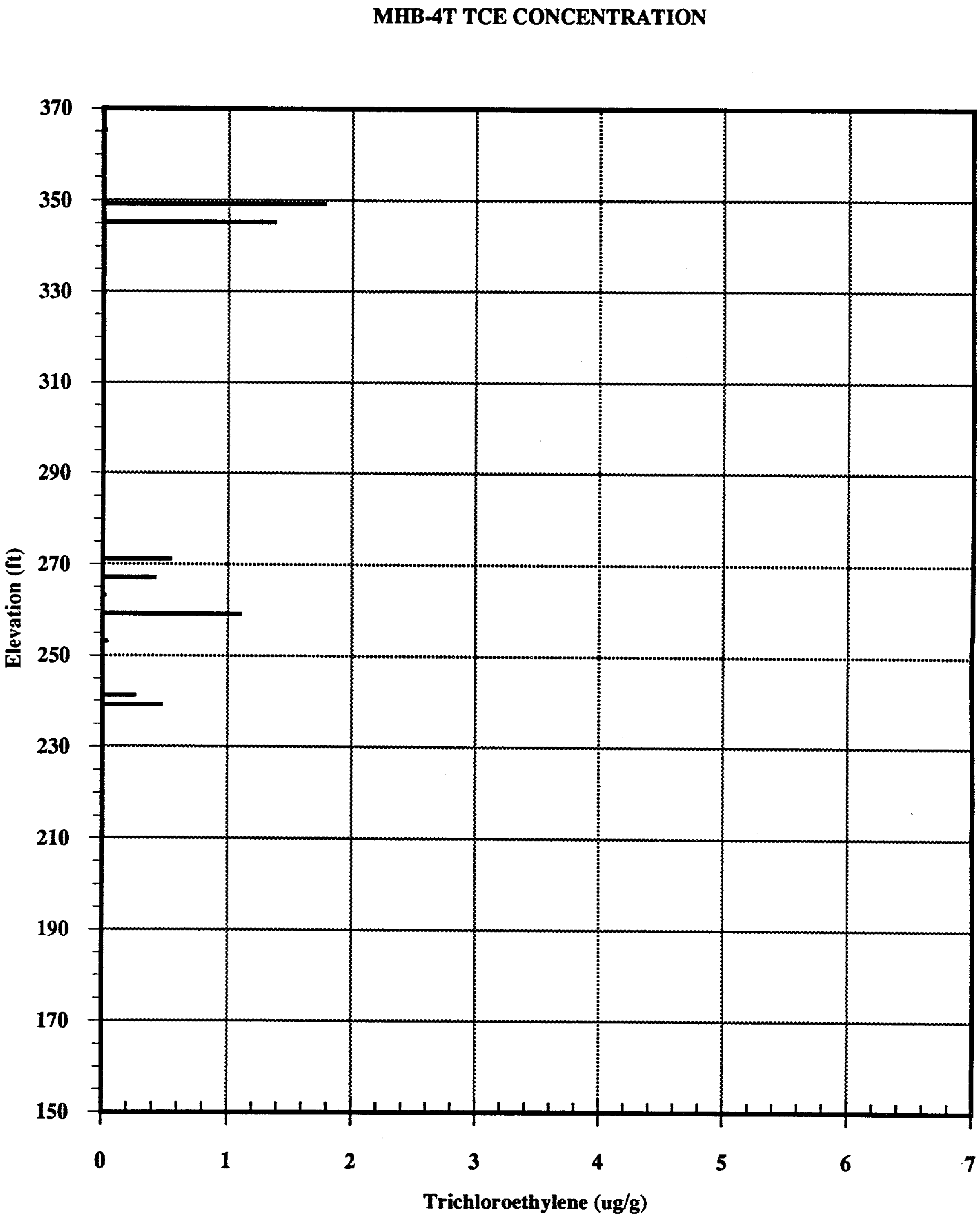

MHB-2T TCE CONCENTRATION
Elevation (ft)
370
350
330
310
290
270
250
230
210
190
170
150
0
1
2
3
4
5
6
7
Trichloroethylene (ug/g)

MHB-3T PCE CONCENTRATION

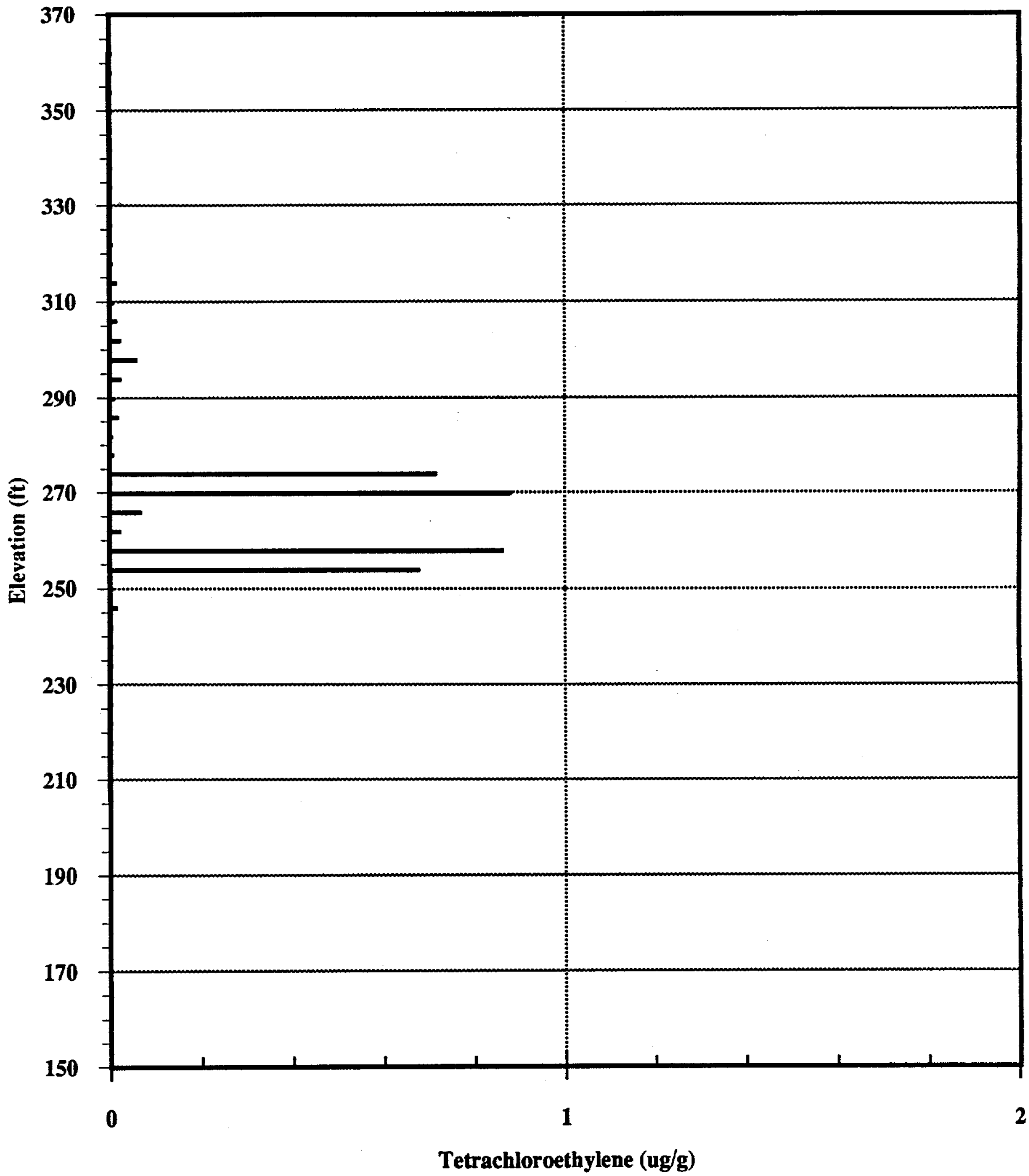



MHB-3T TCE CONCENTRATION
370
350
330
310
290
270
250
230
210
190
170
150
Elevation (ft)
0
1
2
3
4
5
6
7
Trichloroethylene (ug/g)

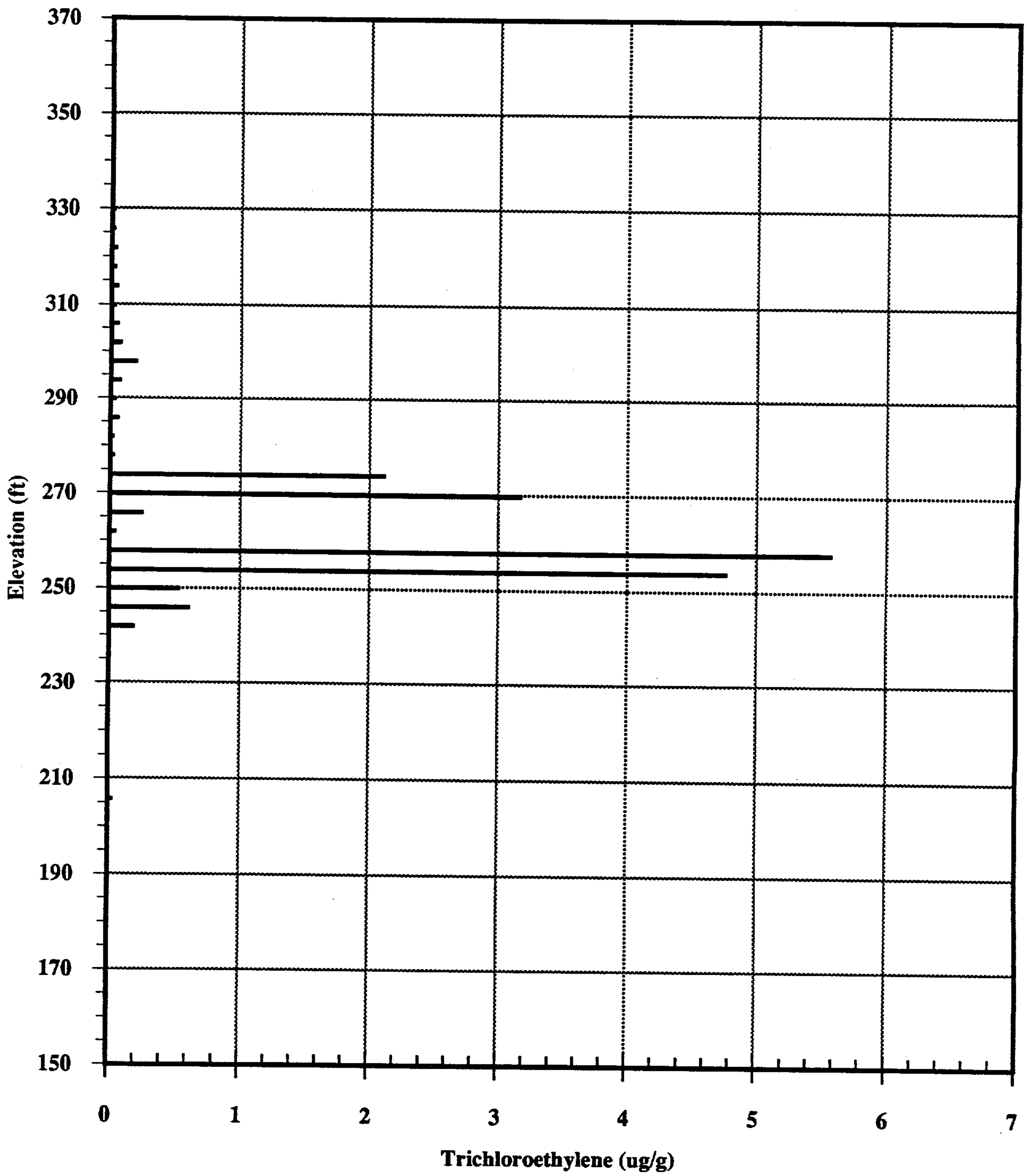

MHB-4T PCE CONCENTRATION
370
350
330
310
290
270
250
230
210
190
170
150
Elevation (ft)
0
1
2
Tetrachloroethylene (ug/g)


MHB-4T TCE CONCENTRATION
Elevation (ft)
370
350
330
310
290
270
250
230
210
190
170
150
0
1
2
3
4
5
6
7
Trichloroethylene (ug/g)

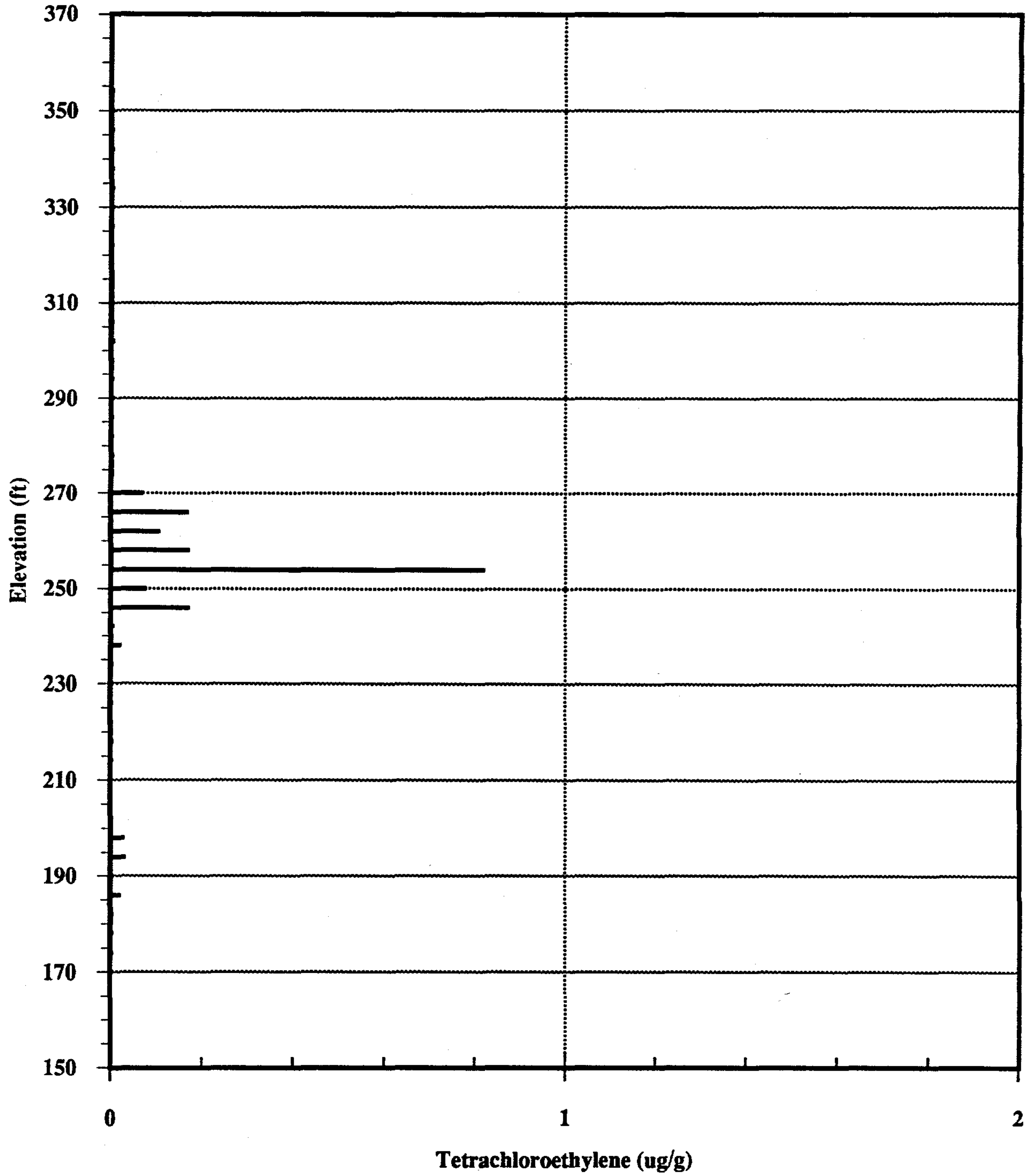
MHB-5T PCE CONCENTRATION

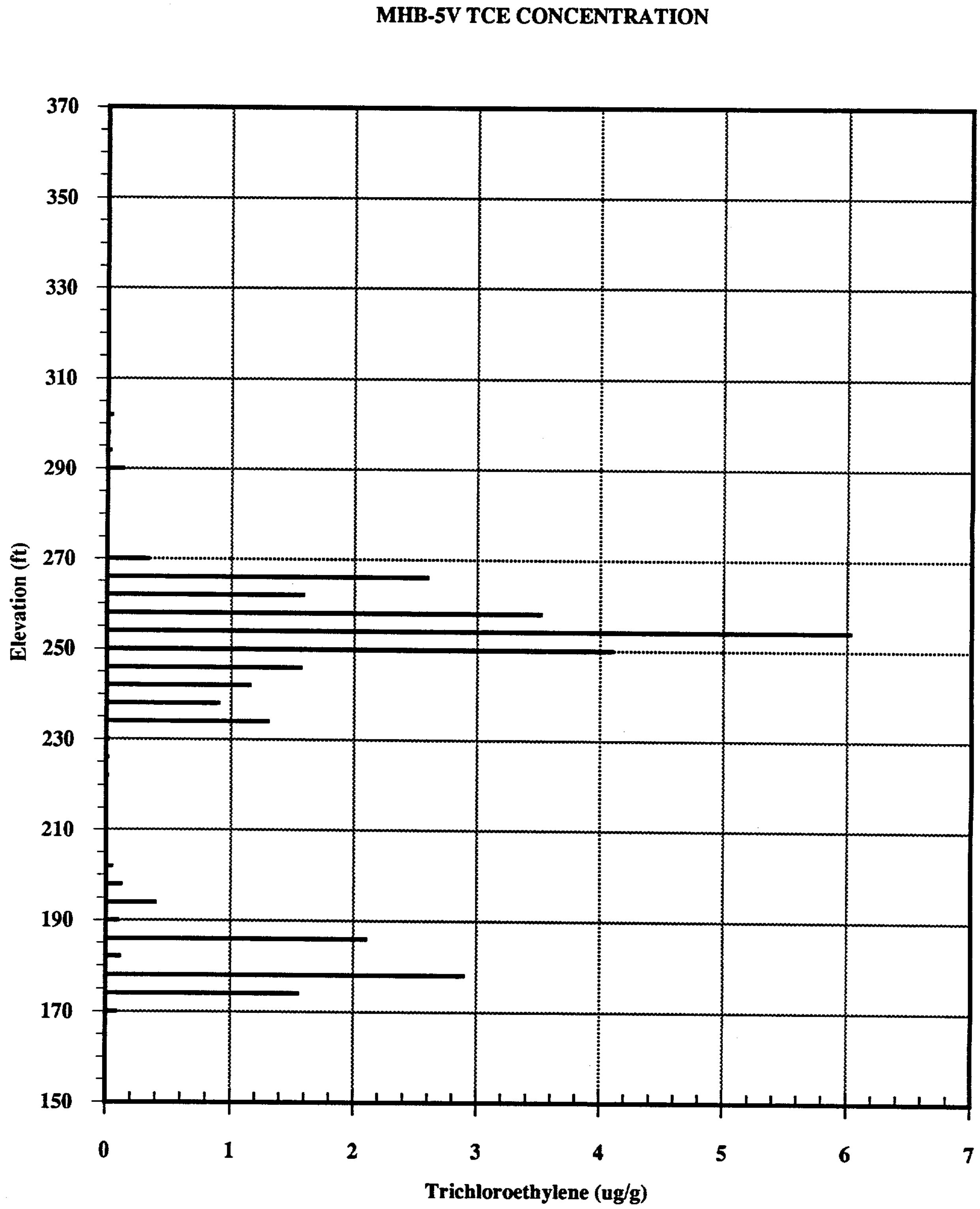


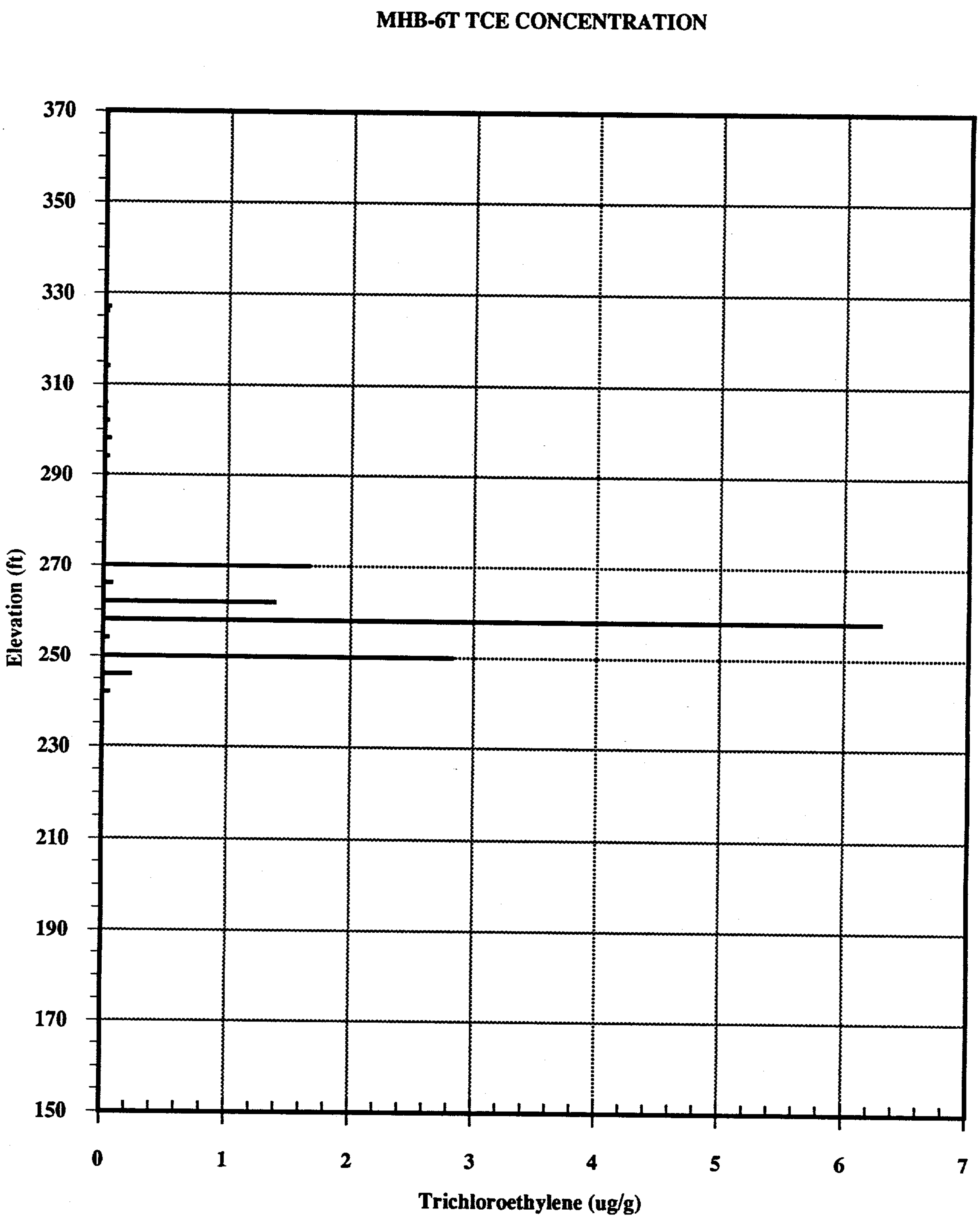
MHB-5T TCE CONCENTRATION

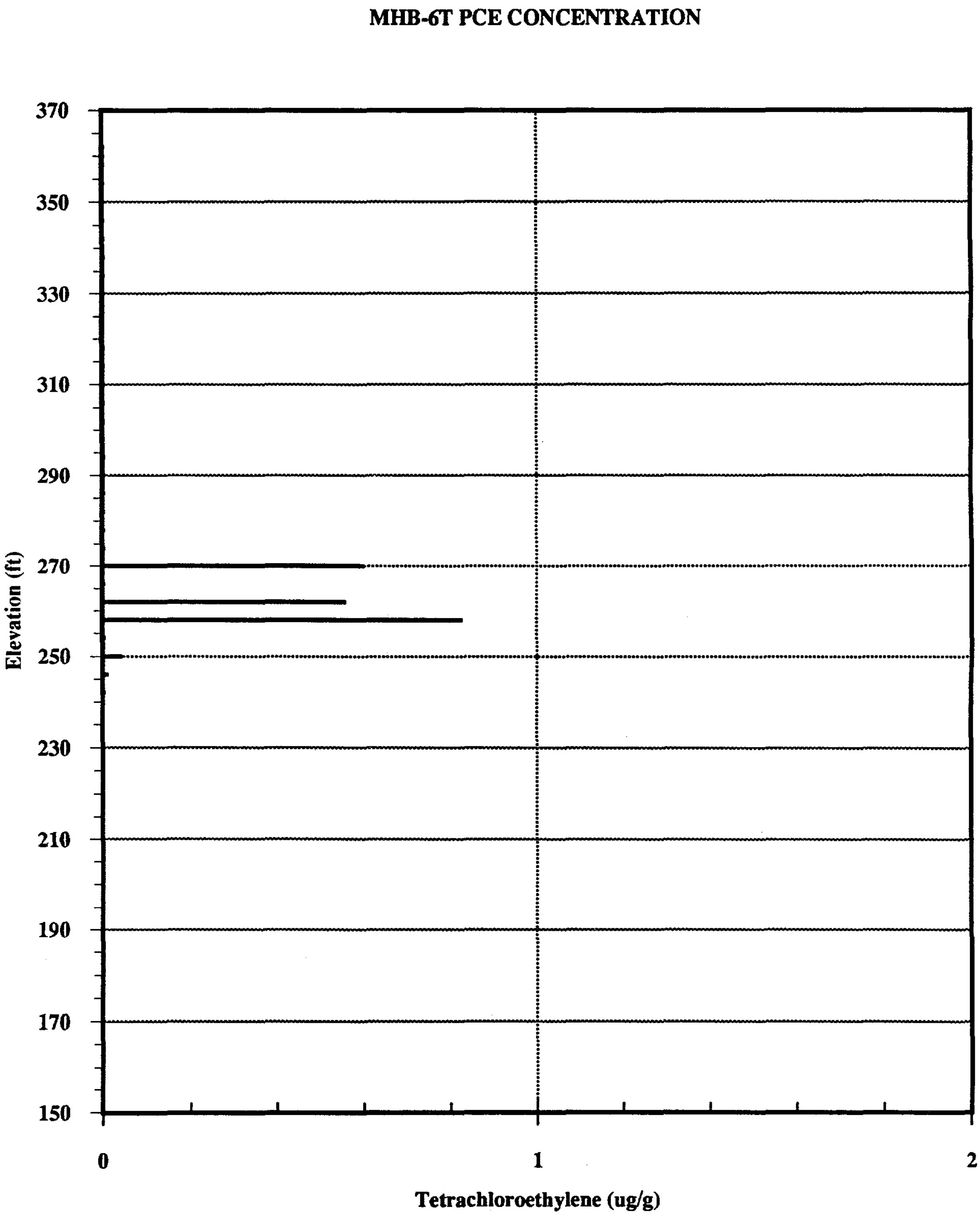


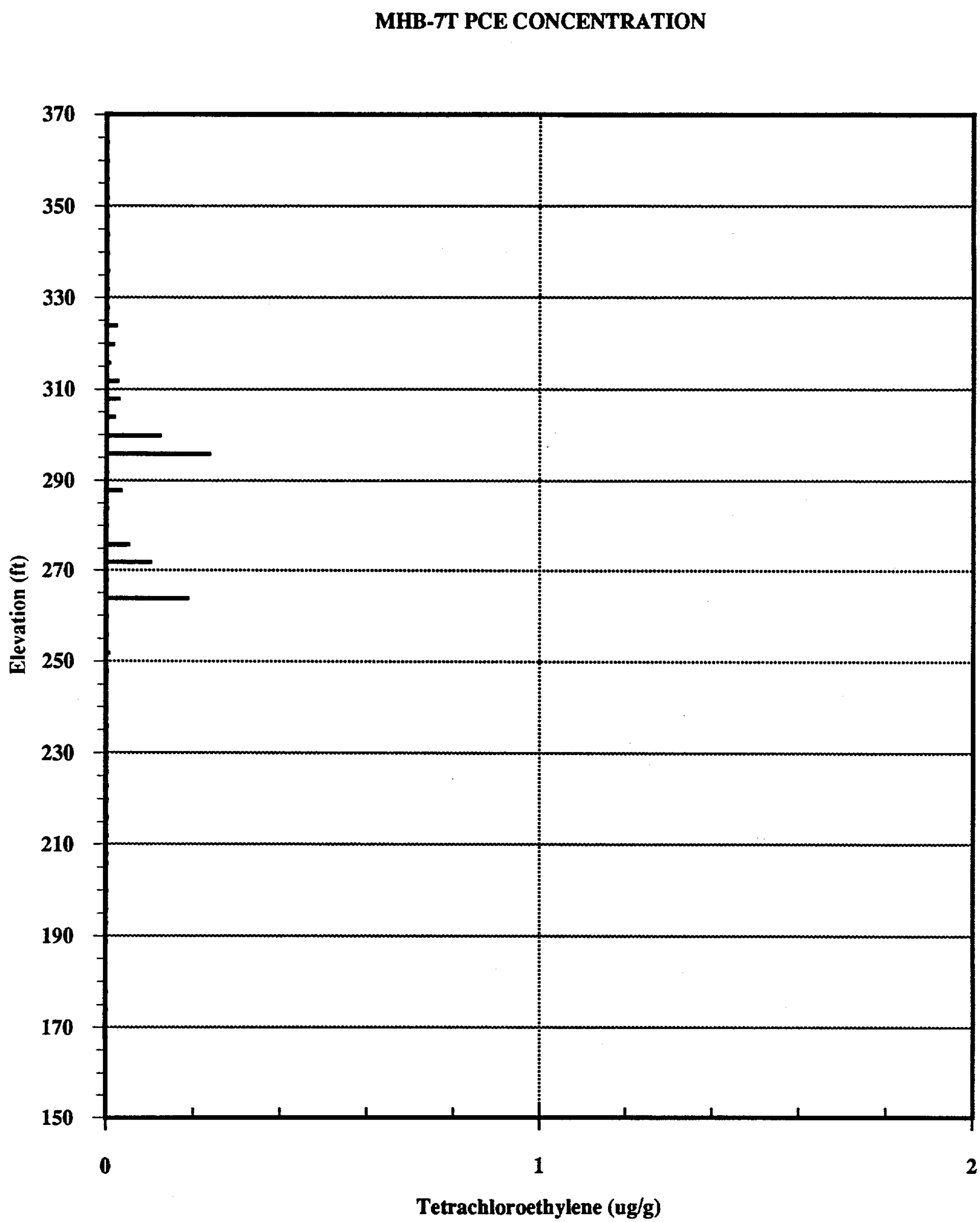
MHB-5V PCE CONCENTRATION



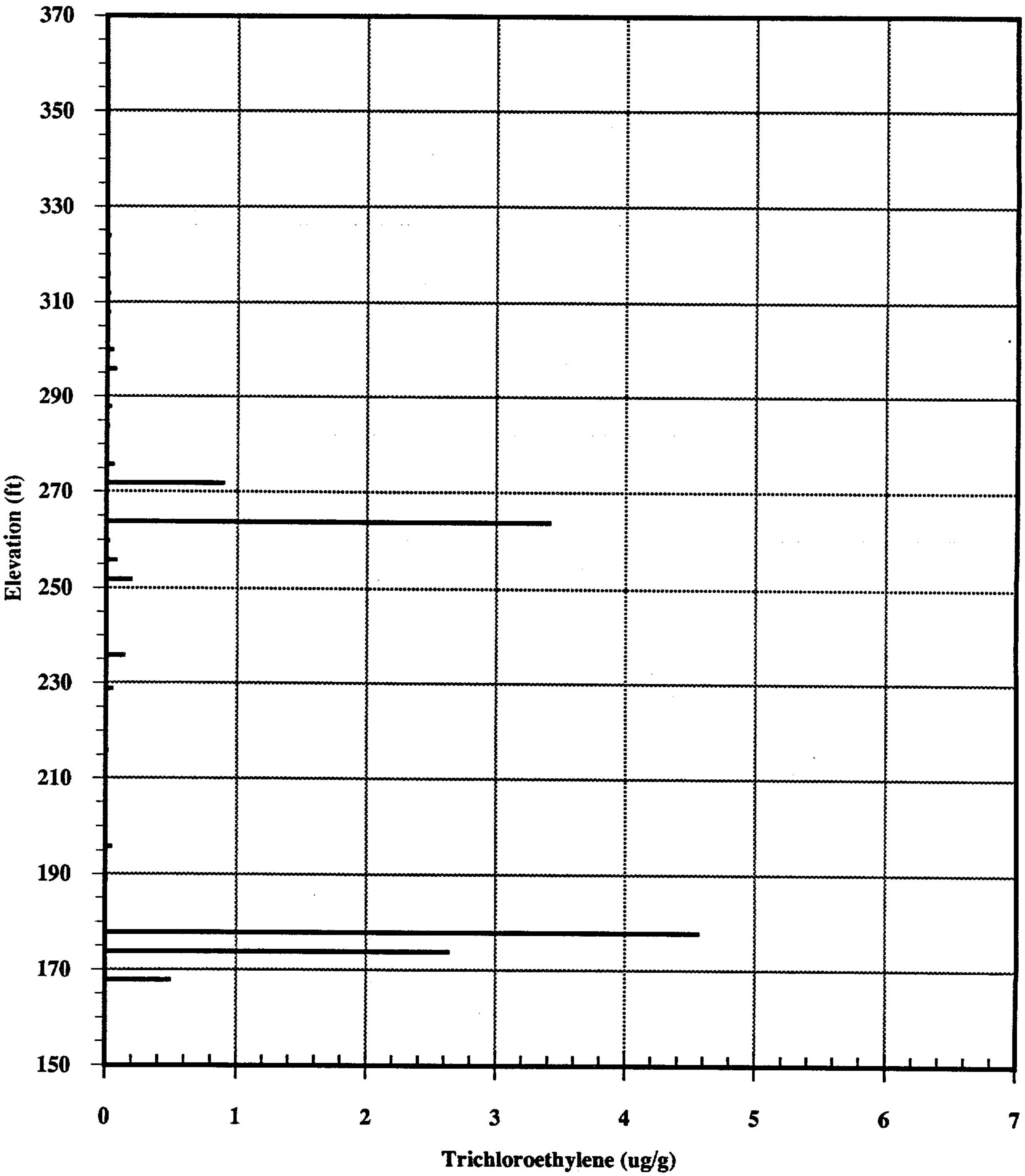

MHB-5V TCE CONCENTRATION
370
350
330
310
290
270
250
230
210
190
170
150
Elevation (ft)
0
1
2
3
4
5
6
7
Trichloroethylene (ug/g)


MHB-6T TCE CONCENTRATION
370
350
330
310
290
270
250
230
210
190
170
150
Elevation (ft)
0
1
2
3
4
5
6
7
Trichloroethylene (ug/g)

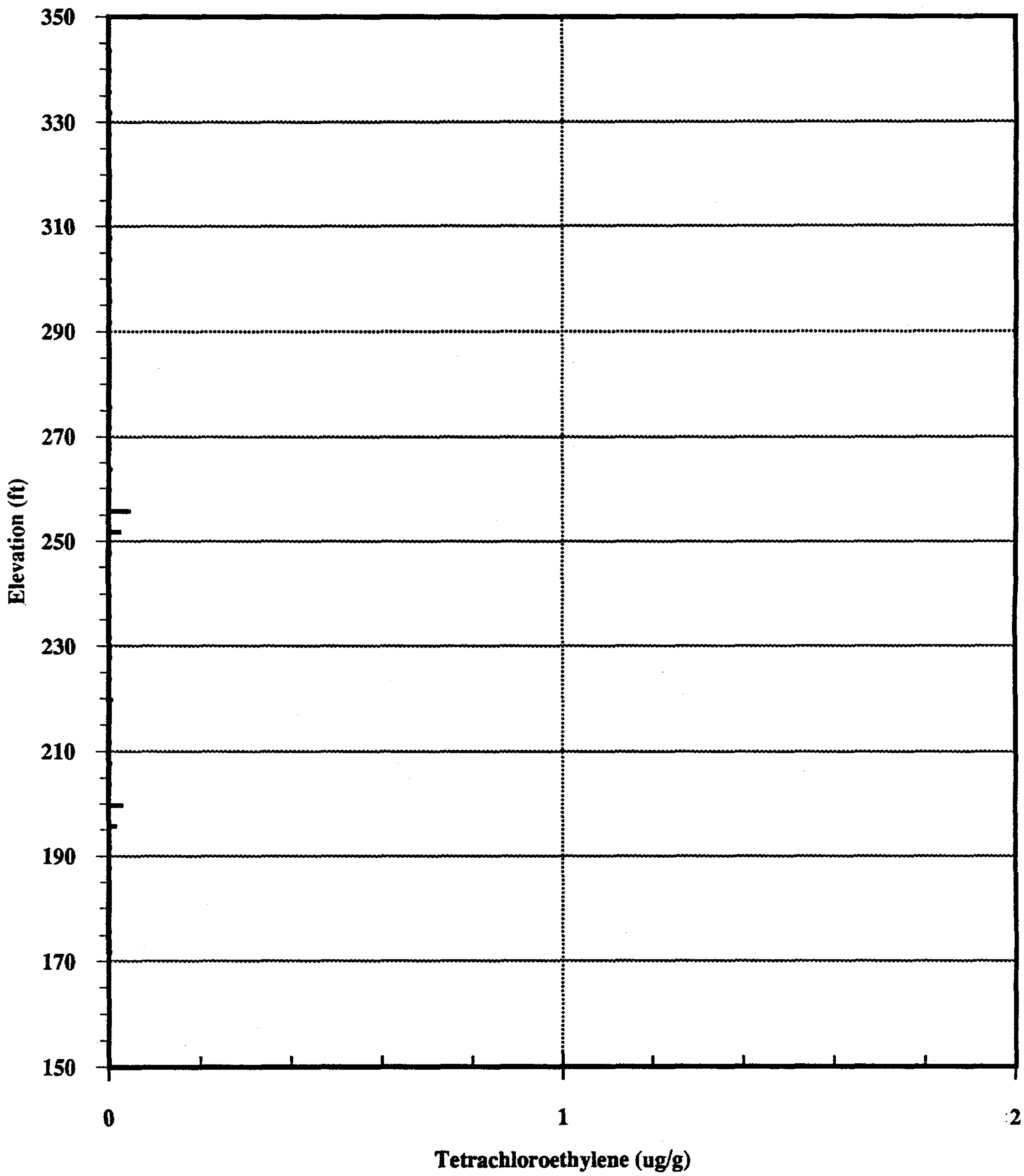

MHB-6T PCE CONCENTRATION
370
350
330
310
290
270
250
230
210
190
170
150
Elevation (ft)
0
1
2
Tetrachloroethylene (ug/g)


MHB-7T PCE CONCENTRATION
370
350
330
310
290
270
250
230
210
190
170
150
Elevation (ft)
0
1
2
Tetrachloroethylene (ug/g)

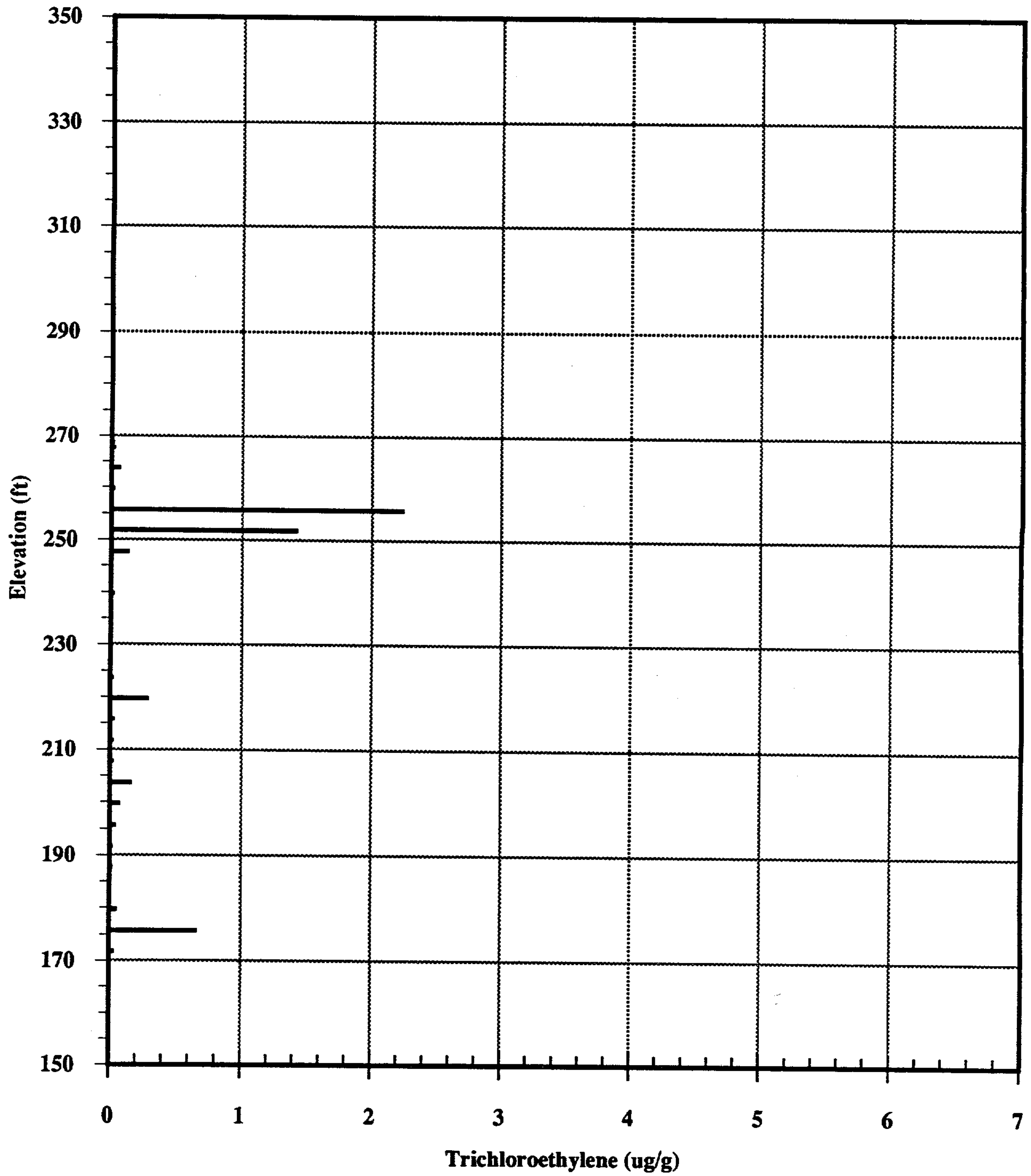
MHB-7T TCE CONCENTRATION



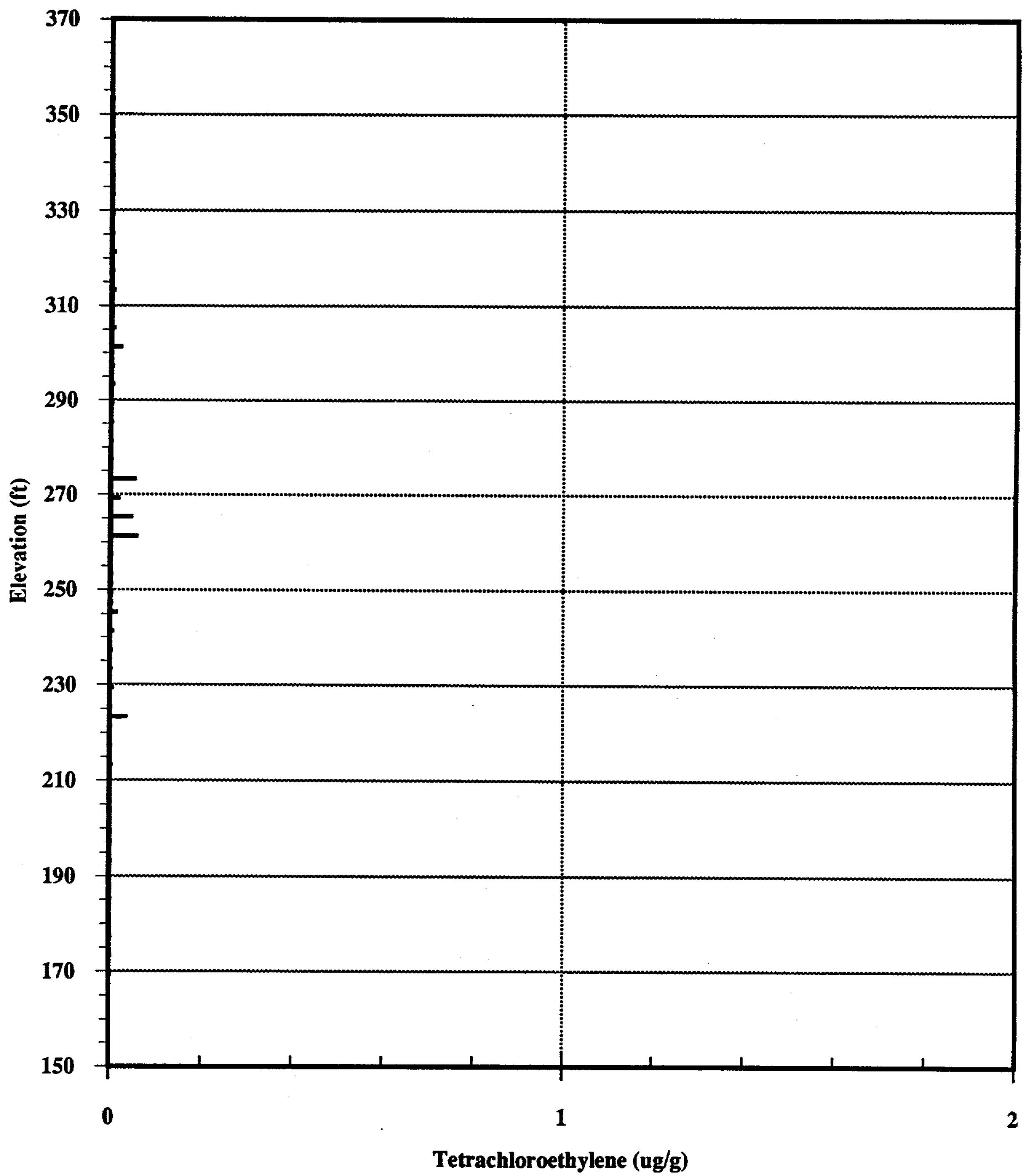
MHB-8T PCE CONCENTRATION



MHB-8T TCE CONCENTRATION



MHT-10B PCE CONCENTRATION



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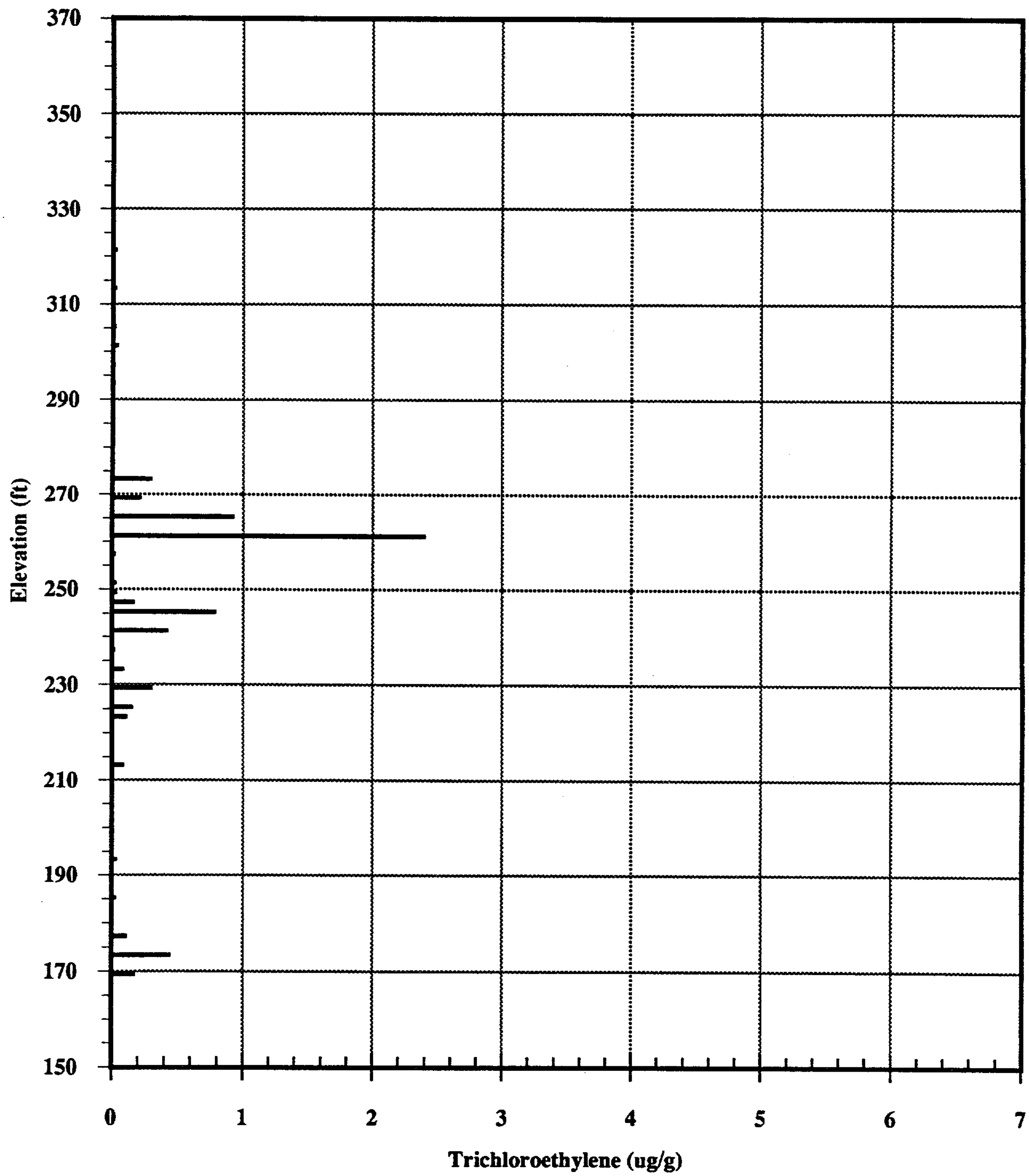
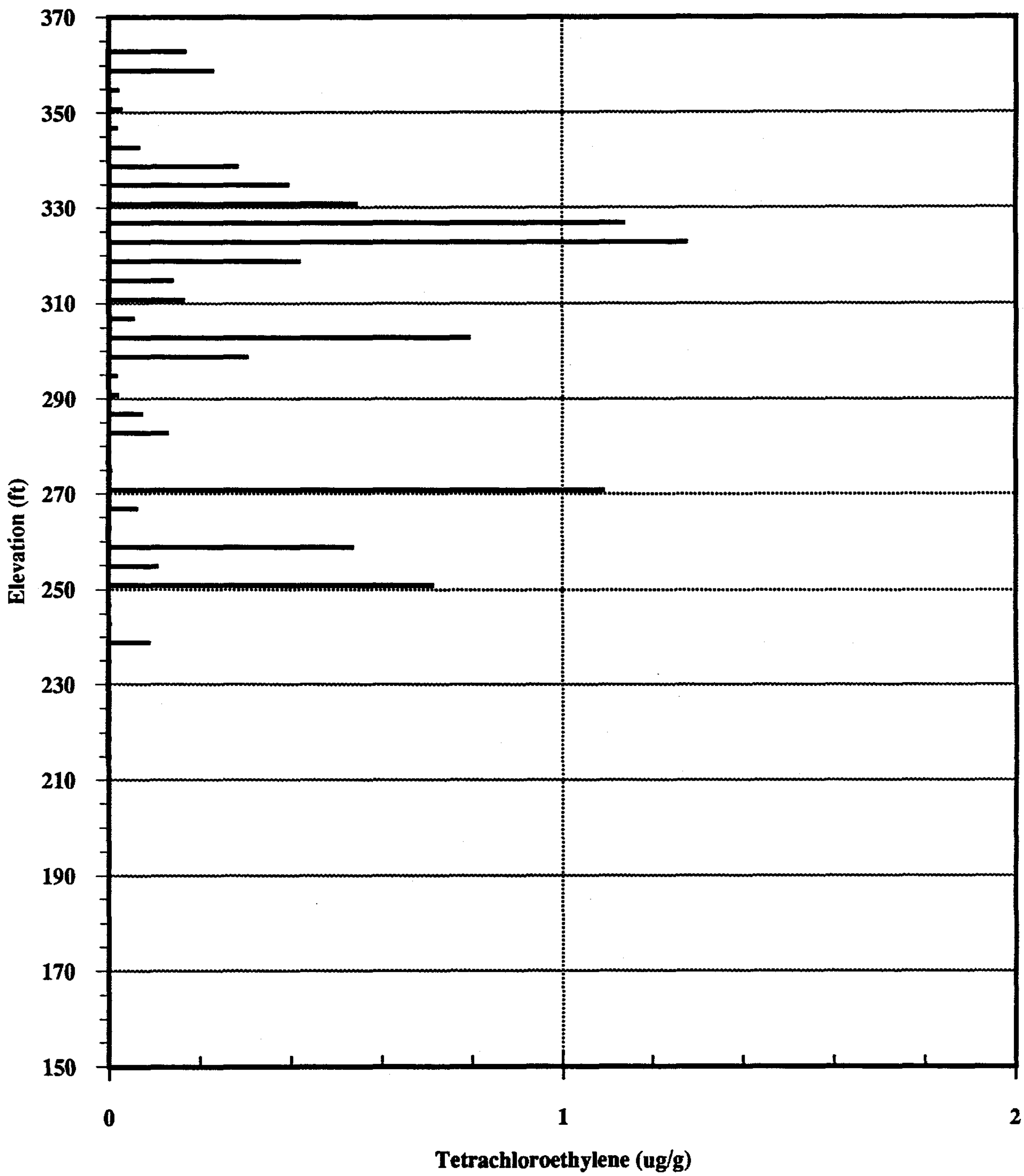
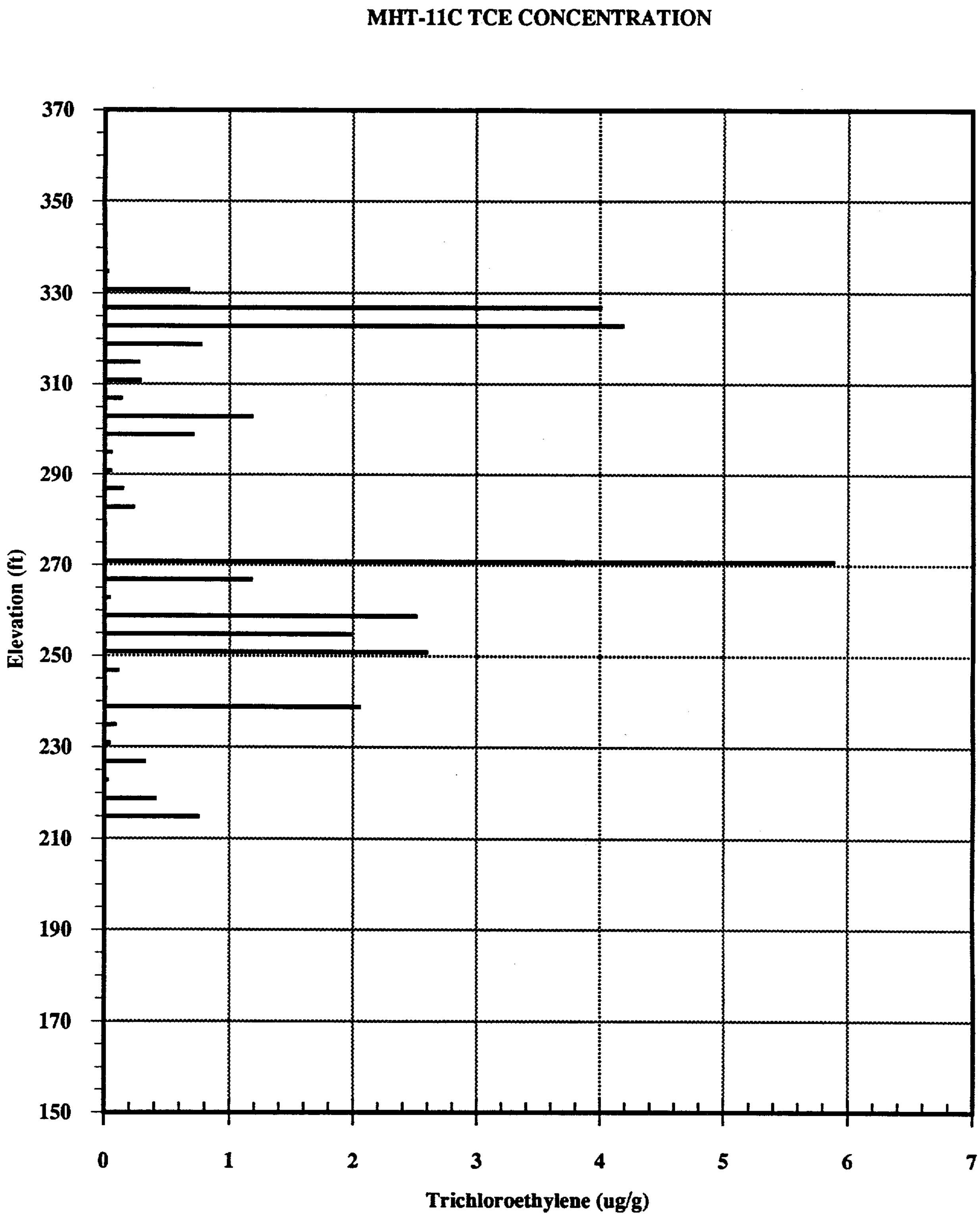
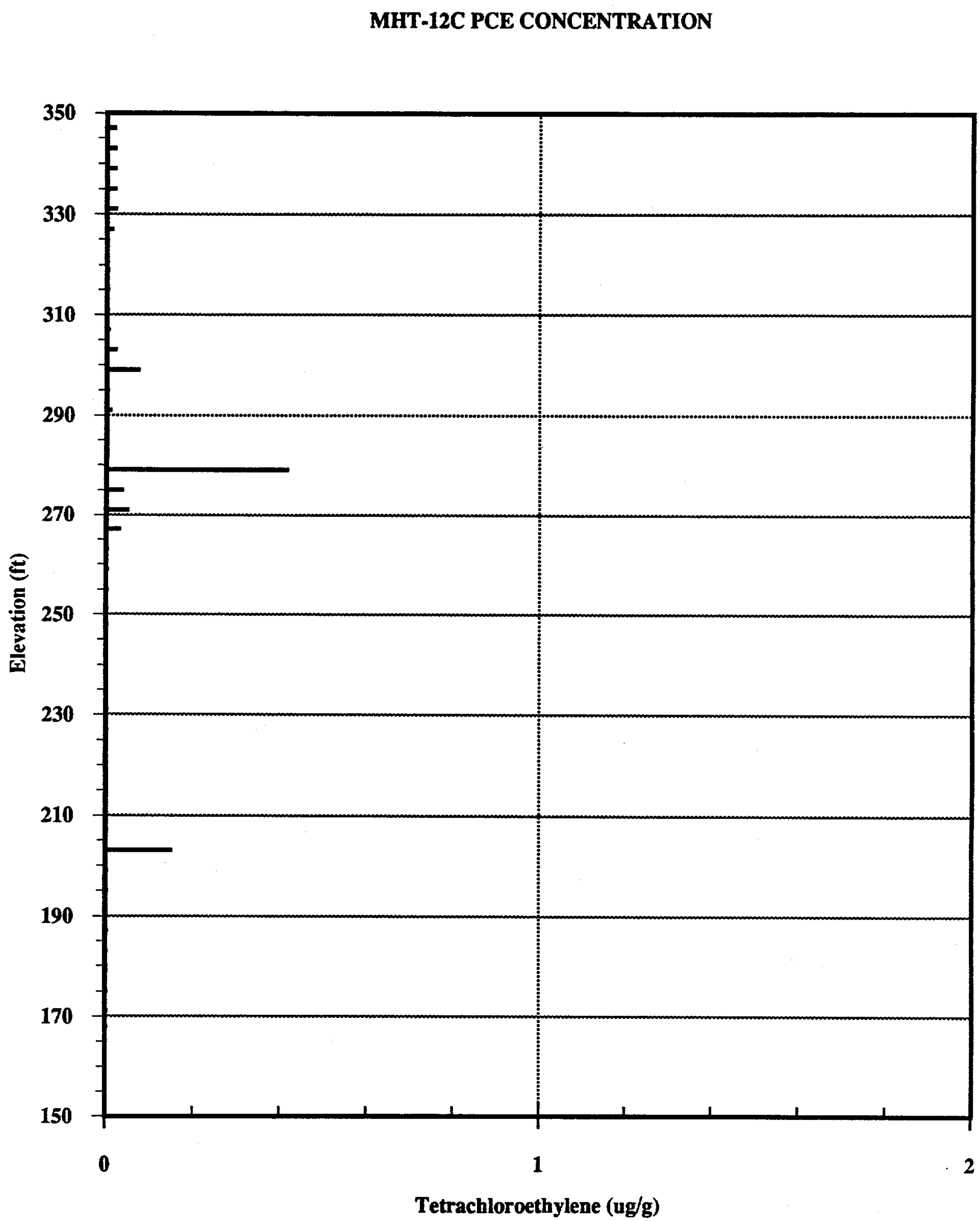


MHT-11C PCE CONCENTRATION

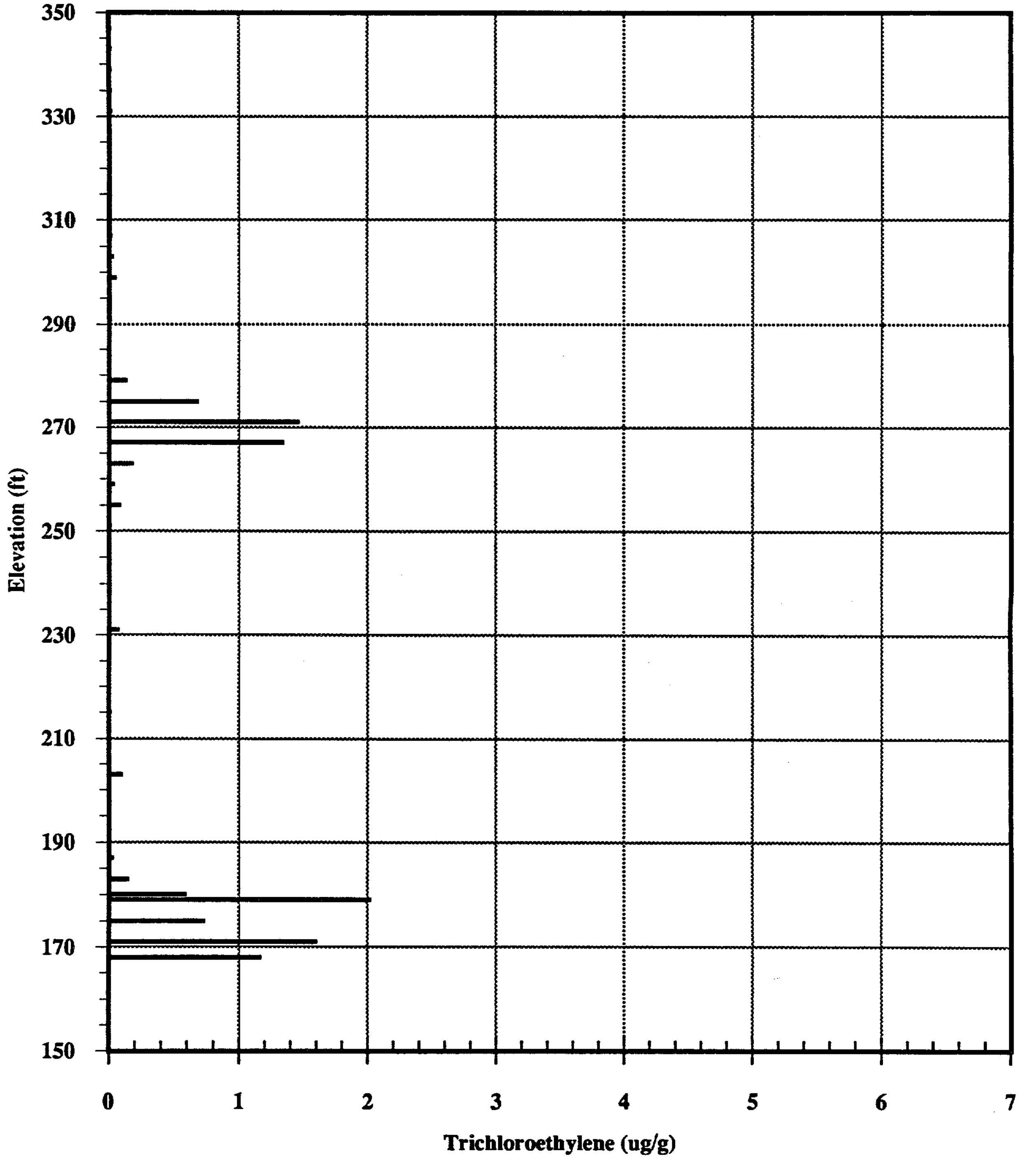




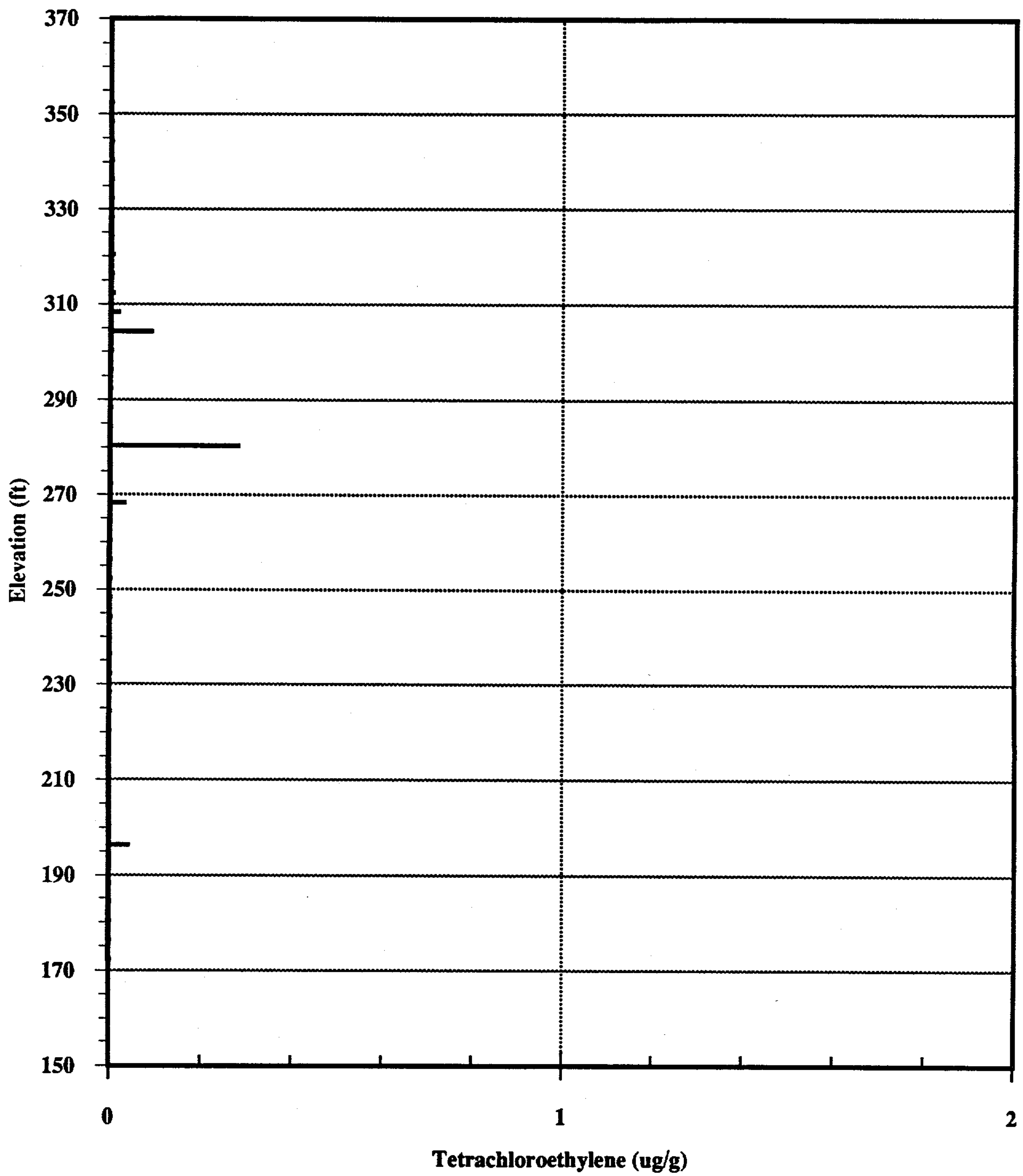
MHT-11C TCE CONCENTRATION
370
350
330
310
290
270
250
230
210
190
170
150
Elevation (ft)
0
1
2
3
4
5
6
7
Trichloroethylene (ug/g)


MHT-12C PCE CONCENTRATION
350
330
310
290
270
250
230
210
190
170
150
Elevation (ft)
0
1
2
Tetrachloroethylene (ug/g)

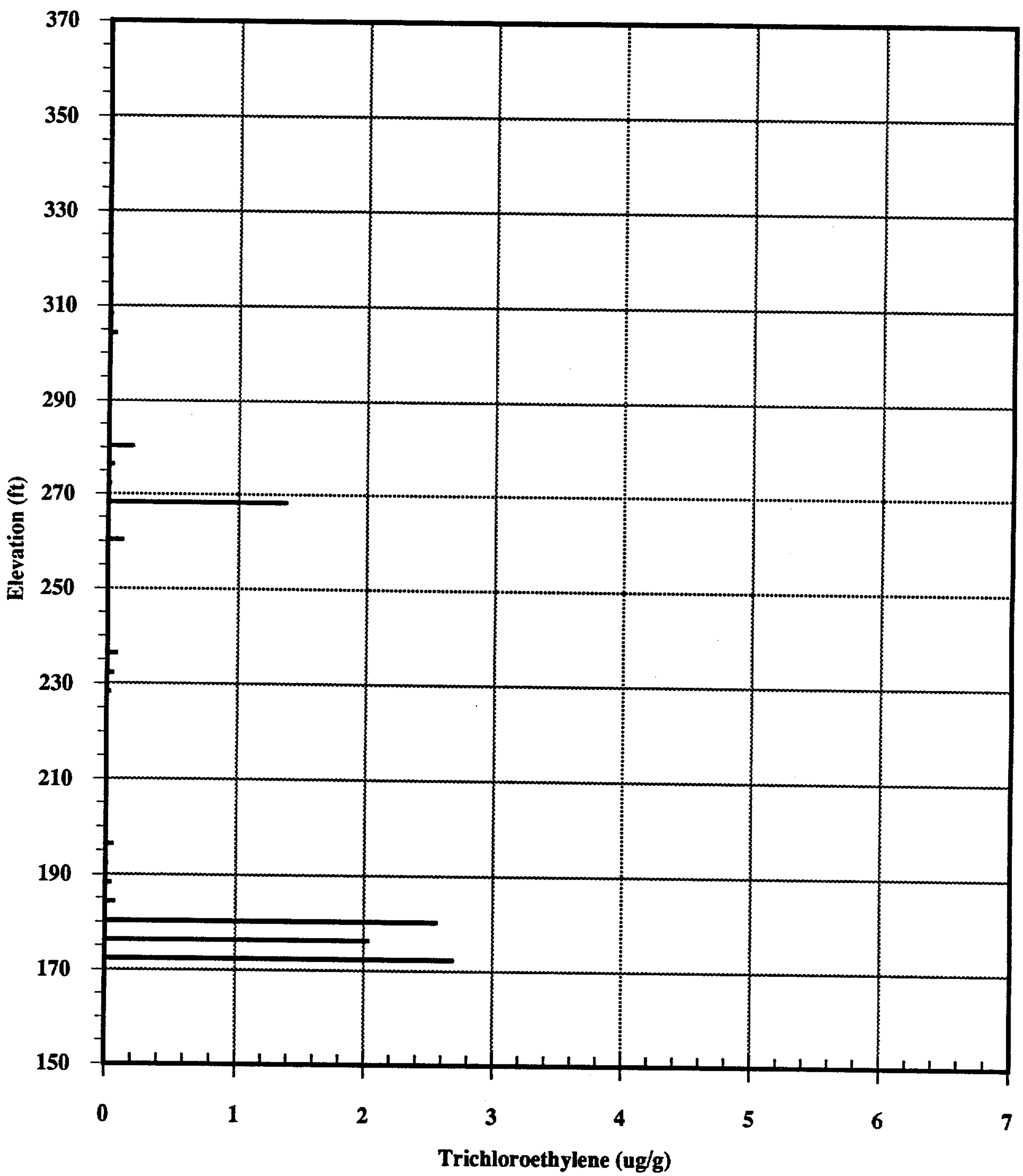
MHT-12C TCE CONCENTRATION



MHT-9B PCE CONCENTRATION



MHT-9B TCE CONCENTRATION



Appendix (XI)

Table 1. Pretest Volumes of Contaminated Material within Individual Isoconcentration Shells

Contour Interval	z1tce	z2tce	z3tce	z1pce	z2pce	z3pce
	Units = cubic feet					
(ppb) <0.0025	1,332,439	43,667	18,372	1,504,172	183,404	1,177,205
0.005	486,324	74,590	20,161	681,061	417,686	291,398
0.01	413,587	113,223	39,270	617,506	244,774	202,583
0.025	574,521	212,859	152,532	730,753	188,485	147,088
0.05	459,167	127,511	229,418	514,335	109,108	3,103
0.1	460,004	124,860	265,090	444,748	70,014	0
0.25	548,274	186,755	285,930	528,206	51,974	0
0.5	358,262	133,382	178,041	324,006	0	0
1	353,060	123,694	157,312	256,953	0	0
2.5	409,214	124,903	160,575	181,317	0	0
5	237,722	0	95,284	50,676	0	0
10	173,493	0	91,692	44,266	0	0
25	73,528	0	127,692	4,680	0	0
>25	651	0	0	0	0	0

Contour Interval	z1tce	z2tce	z3tce	z1pce	z2pce	z3pce
	Units = cubic meters					
(ppb) <0.0025	37,730	1,237	520	42,593	5,193	33,335
0.005	13,771	2,112	571	19,285	11,828	8,251
0.01	11,711	3,206	1,112	17,486	6,931	5,737
0.025	16,269	6,027	4,319	20,693	5,337	4,165
0.05	13,002	3,611	6,496	14,564	3,090	88
0.1	13,026	3,536	7,507	12,594	1,983	0
0.25	15,525	5,288	8,097	14,957	1,472	0
0.5	10,145	3,777	5,042	9,175	0	0
1	9,998	3,503	4,455	7,276	0	0
2.5	11,588	3,537	4,547	5,134	0	0
5	6,732	0	2,698	1,435	0	0
10	4,913	0	2,596	1,253	0	0
25	2,082	0	3,616	133	0	0
>25	18.43	0	0	0	0	0

Table 2. Pretest Estimated Mass of TCE and PCE (kg) by Isoconcentration Shell

Contour Interval	m (kg) = C * V * B z1tce	z2tce	z3tce	z1pce	z2pce	z3pce
<0.0025						
0.005	0	0	0	0	0	0
0.01	0	0	0	0	0	0
0.025	0	0	0	1	0	0
0.05	1	0	0	1	0	0
0.1	2	1	1	2	0	0
0.25	4	2	3	4	0	0
0.5	6	3	4	6	0	0
1	12	5	6	9	0	0
2.5	32	12	15	14	0	0
5	40	0	19	9	0	0
10	59	0	37	15	0	0
25	58	0	120	4	0	0
(ppb) >25	1	0	0	0	0	0
(kg) Totals	216	22	206	63	1	0

Table 3. (a) Pretest Model Parameters and Assumed Values Used in Mass Calculations and (b) Solvent Totals by Zone

(a)

Grid Size: 23 x 18 x 71
Grid Boundaries: 48725, 49050, 102650, 102900, 160, 365
z-influence factor: 0.001
Bounding surfaces
• Zone 1: topographic surface, water table
• Zone 2: water table, green clay
• Zone 3: green clay, 160-ft elevation
Lateral clipping: Posthw.ply
Bulk Density: 1.6 for vadose, 1.9 for saturated
Porosity: 40%

(b)

Totals		TCE (kg)	PCE (kg)	TCE (lb)	PCE (lb)
Unsaturated		216	63	477	140
Saturated	Above Gr. Clay	22	1	49	3
Saturated	Below Gr. Clay	206	0	454	1
Total Saturated		228	2	503	4
	Total	444	65	980	144

Total solvents in Zones 1,2 and 3 (lb)	1,123
Total solvent removed in *in situ* air stripping test (lb)	16,000

Table 1. Post-test Volume of Contaminated Material within Individual Isoconcentration Shells

Units = cubic feet

Contour Interval (ppb)	z1tce	z2tce	z3tce	z1pce	z2pce	z3pce
<0.0025	1,332,439	2,969,916	63,377	1,988,003	4,204,968	1,032,140
0.005	880,572	265,053	72,771	1,128,004	1,678,596	283,521
0.01	639,651	302,949	110,458	745,563	0	154,095
0.025	716,570	412,929	146,574	780,144	0	172,227
0.05	546,944	339,184	134,927	418,963	0	95,352
0.1	516,577	271,981	141,320	286,247	0	56,703
0.25	460,813	287,991	202,467	257,520	0	27,325
0.5	260,991	210,724	177,639	124,711	0	0
1	205,706	822,836	215,057	90,431	0	0
2.5	189,939	0	352,696	61,403	0	0
5	86,159	0	174,955	0	0	0
10	41,171	0	28,940	0	0	0
25	1,997	0	0	0	0	0
>25	0	0	0	0	0	0

Units = cubic meters

Contour Interval (ppb)	z1tce	z2tce	z3tce	z1pce	z2pce	z3pce
<0.0025	37,730	84,099	1,795	56,294	119,071	29,227
0.005	24,935	7,505	2,061	31,942	47,533	8,028
0.01	18,113	8,579	3,128	21,112	0	4,363
0.025	20,291	11,693	4,151	22,091	0	4,877
0.05	15,488	9,605	3,821	11,864	0	2,700
0.1	14,628	7,702	4,002	8,106	0	1,606
0.25	13,049	8,155	5,733	7,292	0	774
0.5	7,390	5,967	5,030	3,531	0	0
1	5,825	23,300	6,090	2,561	0	0
2.5	5,378	0	9,987	1,739	0	0
5	2,440	0	4,954	0	0	0
10	1,166	0	819	0	0	0
25	57	0	0	0	0	0
>25	0	0	0	0	0	0

Table 2. Post-test Estimated Mass of TCE and PCE (kg) by Isoconcentration Shell

$$m\ (kg) = C * V * B$$

Contour Interval	z1tce	z2tce	z3tce	z1pce	z2pce	z3pce
<0.0025						
0.005	0.15	0.05	0	0.19	0.34	0
0.01	0.22	0.12	0	0.25	0	0
0.025	0.57	0.39	0	0.62	0	0
0.05	0.93	0.68	0	0.71	0	0
0.1	1.76	1.1	1	0.97	0	0
0.25	3.65	2.71	2	2.04	0	0
0.5	4.43	4.25	4	2.12	0	0
1	6.99	33.2	9	3.07	0	0
2.5	15.06	0	33	4.87	0	0
5	14.64	0	35	0	0	0
10	13.99	0	12	0	0	0
25	1.58	0	0	0	0	0
(ppb) >25	0	0	0	0	0	0
(kg) Totals	63.97	43	95	15	0.34	1

Table 3: (a) Post-test Model Parameters and Assumed Values Used in Mass Calculations and (b) Solvent Totals by Zone

(a)

Grid Size: 23 x 18 x 71
Grid Boundaries: 48725, 49050, 102650, 102900, 160, 365
z-influence factor: 0.001
Bounding surfaces
- Zone 1: topographic surface, water table
- Zone 2: water table, green clay

Lateral clipping: posthw.ply
Bulk Density: 1.6 for vadose, 1.9 for saturated
Porosity: 40%

(b)

Totals		TCE (kg)	PCE (kg)	TCE (lb)	PCE (lb)
Unsaturated		64	15	141	33
Saturated	Above Gr. Clay	43	0	94	1
Saturated	Below Gr. Clay	95	1	210	2
	Total	202	16	445	36

Total solvents estimated from pretest sediments	1,123
Total solvent removed in offgas (lb)	16,000
Total solvents estimated from post-test sediments	481
Percent solvent (lb) removed from sediment during test	57