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DPST-88-627

SRP BASELINE HYDROGEOLOGIC INVESTIGATION — PHASE III



E. I. du Pont de Nemours & Co.
Savannah River Laboratory
Aiken, SC 29808

PREPARED FOR THE U.S. DEPARTMENT OF ENERGY UNDER CONTRACT DE-AC09-76SF00001

KEY WORDS: Core Drilling
Observation Well Clusters
Hydrogeology
Stratigraphy
Lithology
Water Levels
Geophysical Logs

DPST-88-027

7-8-88 Lifetime

SRP BASELINE HYDROGEOLOGIC INVESTIGATION — PHASE III

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Publication Date: August 1988

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EXECUTIVE SUMMARY

The SRP Baseline Hydrogeologic Investigation was implemented for the purpose of updating and improving the knowledge and understanding of the hydrogeologic systems underlying the SRP site. This 3 phase program has included the coring of more than 16,000 ft of unconsolidated geologic sediments on the plant site and the installation of 129 observation wells completed in the different aquifer units at 18 widely spaced cluster sites (P-13 through P-30). Each well cluster nominally consists of 8 observation wells screened at the water table and within each major water-bearing unit down to the lower "Tuscaloosa" aquifer (Middendorf Formation). The vertical distribution of the wells at each cluster not only provides information on the hydraulic head within each monitored unit but also the vertical gradients between the different formations. Profiles are provided for each cluster showing the vertical head distribution.

Phase III, which is discussed in this report, includes the drilling of 7 deep coreholes (sites P-24 through P-30) and the installation of 53 observation wells ranging in depth from approximately 50 ft to more than 970 ft below the ground surface. In addition to the collection of geologic cores for lithologic and stratigraphic study, samples were also collected for the determination of physical characteristics of the sediments and for the identification of microorganisms as

part of the Microbiology of the Deep Subsurface Program. Samples for microbiological study were collected at 3 of the cluster sites (P-24, P-28, and P-29). The stratigraphic terminology within the region has been undergoing changes for several years. Therefore, where appropriate, an attempt has been made to introduce new stratigraphic terminology, based on current usage, into this program.

Data generated from this program will be incorporated with the results of the South Carolina Water Resources Commission's regional drilling program which surrounds the plant site. Together the data will provide a more complete definition of the regional hydrogeology. The Baseline Investigation observation wells will also be used for detailed geochemical and physical characterization of the different aquifers and confining units including: chemical analysis of both groundwater and sediments, radiometric age dating, and pumping test.

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SRP BASELINE HYDROGEOLOGIC INVESTIGATION - PHASE III

INTRODUCTION

As discussed in the program plan for the SRP Baseline Hydrogeologic Investigation (Bledsoe, 1984a), this program has been implemented for the purpose of updating and improving the current state of knowledge and understanding of the hydrogeologic systems underlying the Savannah River Plant (SRP). The objective of the program is to install a series of observation well clusters (wells installed in each major water bearing formation at the same site) at key locations across the plant site in order to : 1) provide detailed information on the lithology, stratigraphy, and groundwater hydrology, and 2) provide observation wells to monitor the groundwater quality, head relationships, gradients, and flow paths.

The program has been divided into 3 phases in order to allow the results of one phase to be evaluated before proceeding to the next phase. Using a phased approach permits changes to be made, if necessary, to ensure that the optimum amount, and the highest quality data are being collected. In Phase I of the program (Bledsoe, 1984b), which was completed in 1984, a total of 20 wells were installed at 3 cluster sites (P-13, P-14, and P-15). The general locations of the Phase I clusters are shown on Figure 1. In the Phase II program (Bledsoe, 1987), which was completed

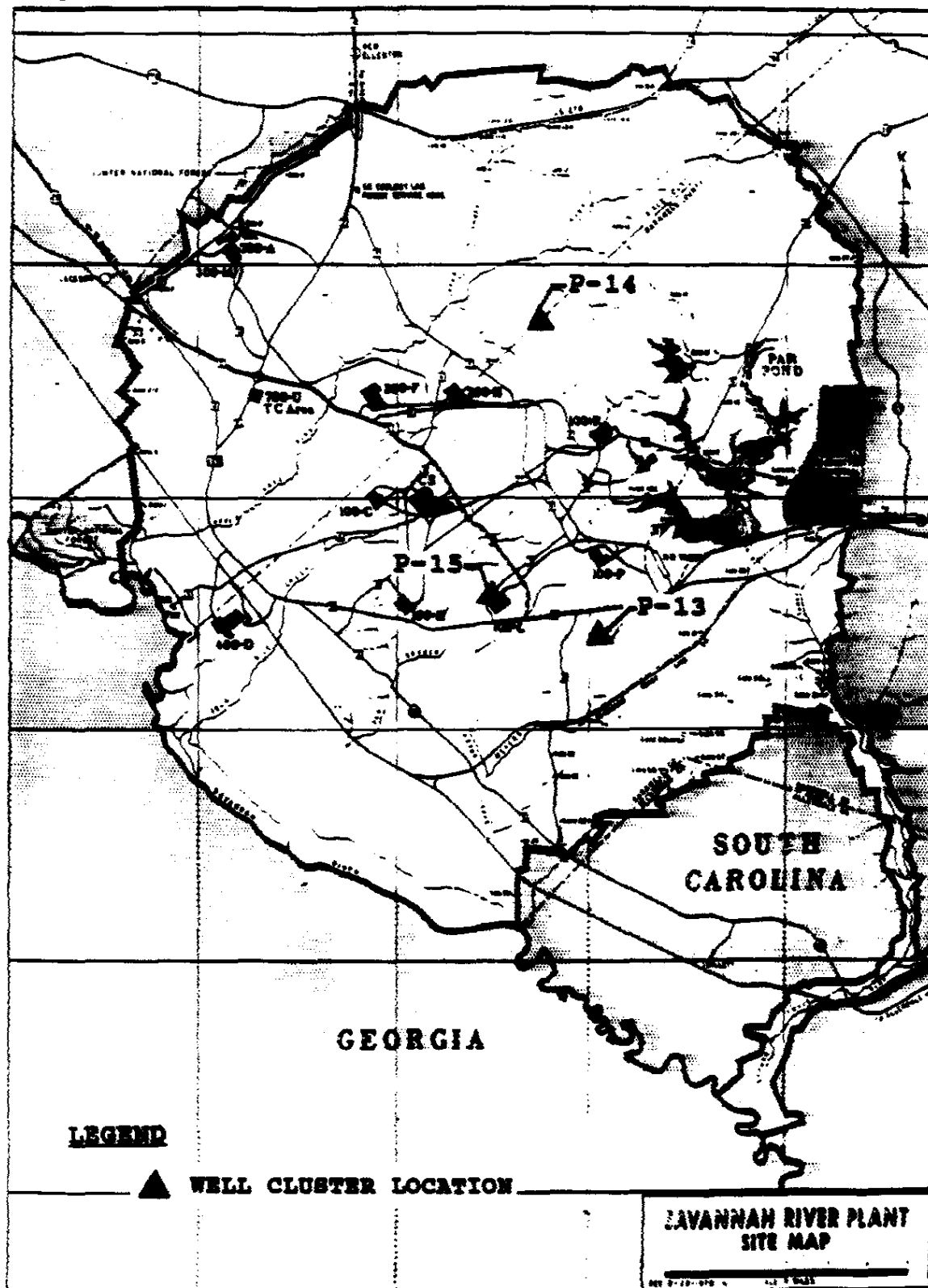


FIGURE 1. Location of Phase I Well Clusters

in 1986, a total of 56 wells were installed at 8 cluster sites (P-16, P-17, P-18, P-19, P-20, P-21, P-22, and P-23). The general locations of the Phase II clusters are shown on Figure 2. The final phase of the program, Phase III, which is discussed in this report, included the drilling of 7 deep coreholes and the installation of 53 observation wells. The locations of the Phase III well clusters are shown on Figure 3.

A summary of all wells installed or included in the SRP Baseline Hydrogeologic Investigation is provided on Table 1. This table includes a list of all 140 observation wells located at the different cluster sites (129 wells were installed as part of the Baseline Investigation), the SRP coordinates for each well, and the elevation data for each well.

While Phase I and Phase II of the program concentrated on the collection of data from areas of the plant where little or no data existed, Phase III, the final phase of the program, was designed mainly to fill-in existing data gaps.

The most complete investigation and discussion of the regional and site geology and groundwater hydrology was published by G. E. Siple in 1967 . This study has served as the data base for other more site specific investigations at SRP. The terminology for the hydrostratigraphic units as modified from Siple has been found to describe the hydrogeologic systems beneath the plant successfully in nu-

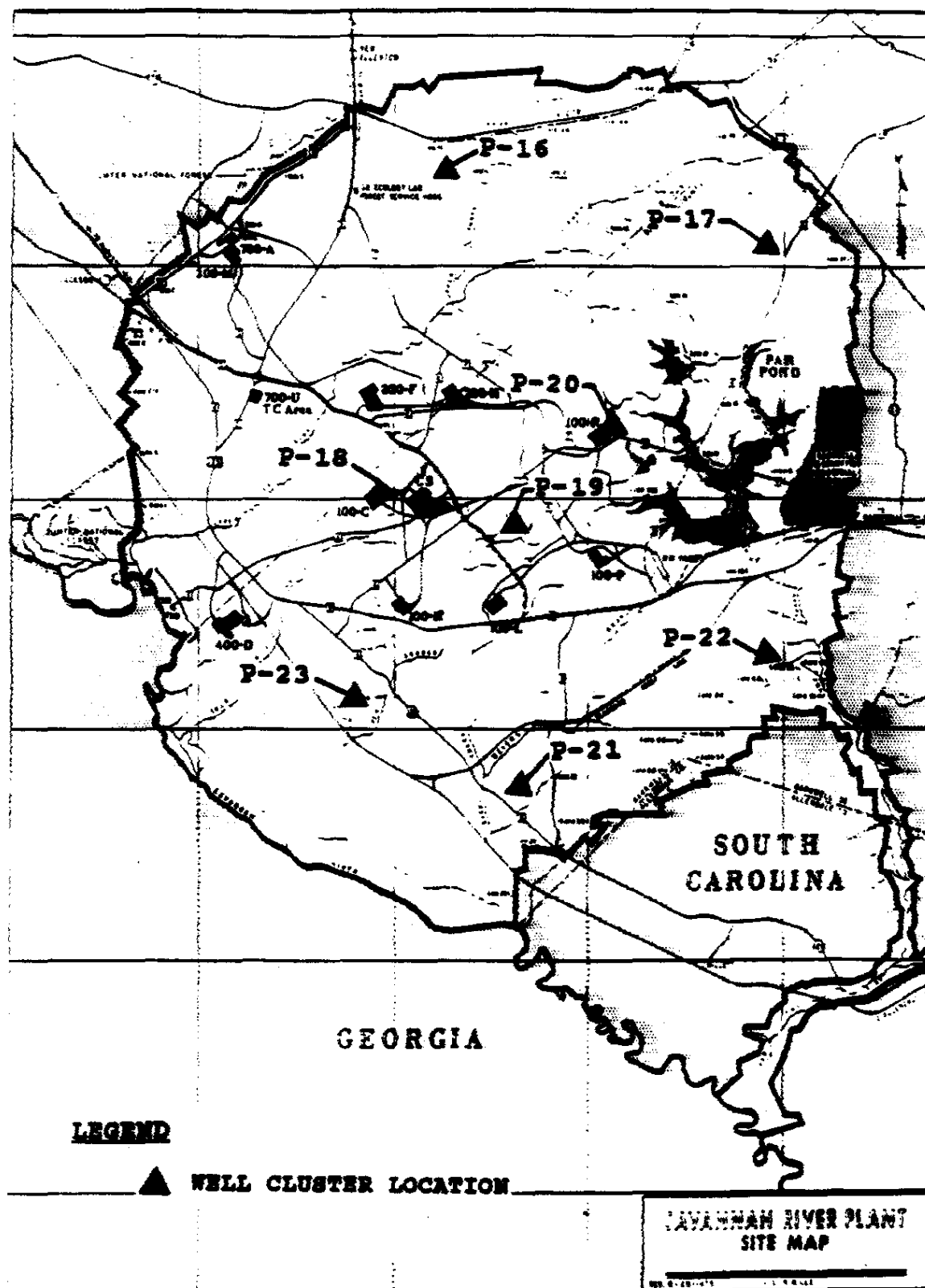


FIGURE 2. Location of Phase II Well Clusters

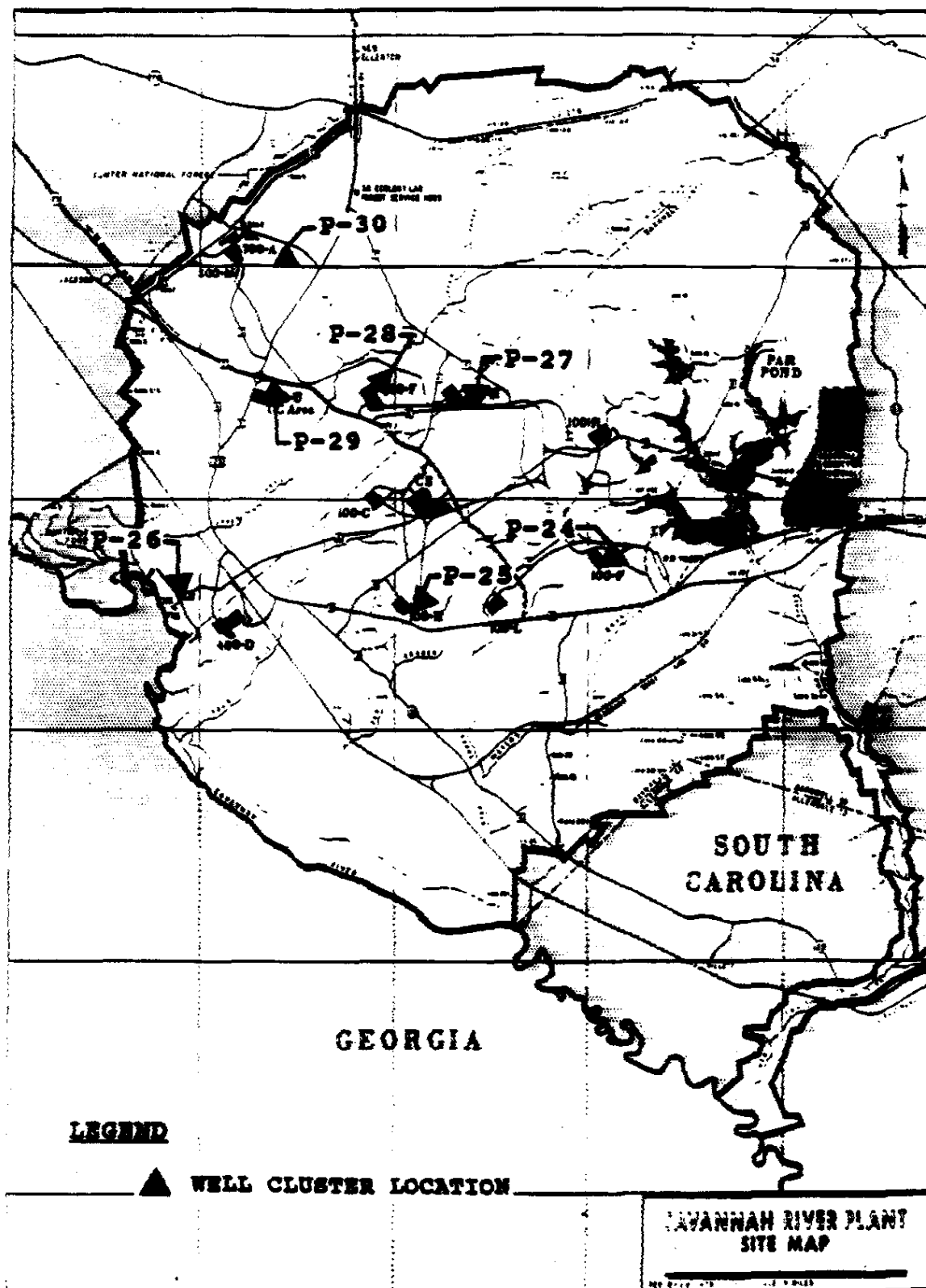


FIGURE 3. Location of Phase III Well Clusters

TABLE 1

SRP Baseline Hydrogeologic Investigation Observation
Well Network

Well No.	SRP Coordinates		Elevation Top of Casing	Elevation Top of Pad	Elevation Ground Surface
	North	East			
P-13D	35600.0	60000.0	255.87	253.53	-----
P-13C	35600.0	60000.0	255.46	253.28	-----
P-13B	35600.0	60000.0	255.23	253.03	-----
P-13A	35600.0	60000.0	255.04	252.87	-----
P-13TD	35600.0	60000.0	256.09	253.57	-----
P-13TC	35600.0	60000.0	255.43	253.33	-----
P-13TB	35600.0	60000.0	255.16	252.96	-----
P-13TA	35600.0	60000.0	255.10	252.59	-----
IDB-1C #	72388.4	76400.9	297.18	-----	293.9
P-14C	72420.0	76424.0	295.03	293.78	-----
IDB-1B #	72396.1	76407.1	297.30	-----	293.8
IDB-1A #	72402.7	76412.7	296.78	-----	293.9
P-14TC	72432.5	76432.1	295.91	293.49	-----
P-14TB	72453.9	76425.7	295.81	293.56	-----
P-14TA	72444.9	76439.6	295.73	293.44	-----
P-15D	47350.2	51130.3	255.05	253.19	-----
P-15C	47293.6	51408.4	255.48	253.17	-----
P-15B	47023.2	51532.1	255.54	253.09	-----
P-15A	46755.3	51376.3	255.48	253.07	-----
P-15TD	46737.8	51053.5	255.30	253.07	-----
P-15TC	47381.9	51271.0	255.34	253.01	-----
P-15TB	47304.9	50975.5	255.29	253.02	-----
P-15TA	47007.9	50863.7	255.41	253.07	-----
P-16D	98235.9	82312.1	263.84	261.87	261.2
P-16B	98230.2	82297.5	263.31	261.39	261.0
P-16A	98219.4	82271.0	261.77	260.11	259.6
P-16TD	98205.3	82275.9	262.25	260.25	259.8
P-16TC	98210.6	82290.0	262.67	260.76	260.4
P-16TB	98216.2	82303.8	263.09	261.25	260.7
P-16TA	98222.0	82318.1	263.58	261.77	261.3
P-17D	63184.8	109794.5	334.54	332.57	332.2
P-17C	63190.8	109810.0	334.46	332.33	332.0
P-17B	63196.0	109823.6	334.31	332.37	332.0
P-17A	63201.3	109837.3	334.04	331.99	331.6
P-17TD	63215.3	109833.1	334.35	332.41	332.0
P-17TC	63210.0	109818.7	334.61	332.79	332.2
P-17TB	63204.7	109805.0	334.85	332.79	332.3
P-17TA	63199.1	109791.0	335.04	333.10	332.6

Existing Well

TABLE 1, Contd

Well No.	SRP Coordinates		Elevation Top of Casing	Elevation Top of Pad	Elevation Ground Surface
	North	East			
P-18D	67552.8	47666.6	298.73	296.78	296.3
P-18B	67578.9	47680.9	298.18	296.33	295.9
P-18A	67592.8	47688.1	298.37	296.32	295.9
P-18TD	67618.1	47678.0	297.87	296.04	295.6
P-18TC	67605.8	47669.6	298.70	296.78	296.3
P-18TB	67592.7	47660.6	298.68	296.74	296.2
P-18TA	67578.5	47652.8	298.67	296.70	296.3
P-19D	55301.9	60048.7	299.71	297.79	297.3
P-19C	55321.5	60056.1	300.29	298.16	297.7
P-19B	55336.4	60050.7	300.09	298.14	297.7
P-19A	55347.1	60031.3	299.84	297.81	297.4
P-19TD	55342.1	60016.8	299.33	297.46	296.8
P-19TC	55328.2	60022.2	299.59	297.79	297.1
P-19TB	55309.8	60029.4	299.53	297.48	297.0
P-19TA	55295.9	60034.6	299.35	297.45	296.8
P-10A #	55280.0	60049.0	299.74	-----	296.7
P-20D	56075.2	76784.5	289.59	287.53	287.1
P-20C	56067.7	76814.0	289.27	287.60	287.3
P-20B	56081.7	76816.7	289.45	288.05	287.6
P-20TD	56094.1	76768.1	289.83	287.92	287.4
P-21D	24660.9	40735.5	209.16	207.06	206.6
P-21B	24641.8	40757.6	209.82	207.78	207.5
P-21A	24649.7	40779.6	209.72	207.61	207.3
P-21TD	24667.4	40769.3	209.06	207.05	206.7
P-21TC	24670.9	40754.2	208.96	206.95	206.6
P-21TB/TA	24674.6	40739.2	208.95	206.92	206.5
P-5A #	24649.0	40617.0	208.64	-----	206.4
P-22D	20607.8	73559.3	217.25	215.31	215.0
P-22C	20610.3	73544.5	217.55	215.56	215.2
P-22B	20611.6	73529.8	217.92	216.04	215.6
P-22A	20614.9	73515.1	218.17	216.24	215.7
P-22TD	20600.8	73510.9	217.99	216.02	215.7
P-22TC	20597.9	73525.5	217.75	215.96	215.6
P-22TB	20595.4	73540.6	217.35	215.59	215.2
P-22TA	20593.4	73555.3	217.23	215.38	215.0

Existing Well

TABLE 1, Contd

Well No.	<u>SRP Coordinates</u>		<u>Elevation</u>	<u>Elevation</u>	<u>Elevation</u>
	<u>North</u>	<u>East</u>	<u>Top of Casing</u>	<u>Top of Pad</u>	<u>Ground Surface</u>
P-23D	48073.9	30942.6	186.78	184.93	184.5
P-23B	48101.2	30925.3	186.25	184.24	183.9
P-23A	48114.9	30914.5	186.13	184.00	183.5
P-23TE	48117.2	30894.7	185.24	183.17	182.8
P-23TD	48104.5	30903.2	185.20	183.25	182.8
P-23TC	48085.6	30900.0	185.10	183.23	182.8
P-23TB	48075.7	30923.3	185.94	184.03	183.6
P-23TA	48063.3	30931.3	186.22	184.30	183.8
P-24D	43098.5	66579.5	315.60	313.56	313.1
P-24C	43112.8	66576.3	315.85	313.70	313.2
P-24B	43127.8	66573.0	315.69	313.61	313.3
P-24A	43142.2	66569.7	315.48	313.40	313.1
P-24TD	43139.3	66554.9	315.66	313.50	313.2
P-24TC	43125.3	66558.2	315.98	313.71	313.3
P-24TB	43110.4	66561.7	316.01	313.73	313.4
P-24TA	43096.2	66565.2	315.79	313.53	313.1
P-25D	52491.9	42246.1	266.72	265.14	264.7
P-25C	52506.1	42244.1	266.71	265.12	264.9
P-25B	52521.4	42241.9	267.17	265.64	265.2
P-25A	52535.8	42240.0	267.27	265.92	265.5
P-25TE	52552.7	42253.5	267.21	265.68	265.4
P-25TD	52538.2	42254.9	267.35	265.82	265.3
P-25TC	52523.3	42257.1	267.14	265.70	265.2
P-25TB	52508.3	42259.1	267.02	265.45	265.1
P-25TA	52493.6	42261.0	266.75	265.18	264.7
P-26D	71969.3	18041.6	154.02	151.56	151.2
P-26B	71996.2	18050.9	154.03	151.60	151.4
P-26A	72010.4	18055.9	153.98	151.55	151.2
P-26TD	72001.7	18067.5	153.82	151.46	151.0
P-26TC	71987.7	18062.5	153.82	151.52	151.2
P-26TB	71973.4	18057.0	154.27	151.63	151.3
P-26TA	71958.6	18051.5	154.38	151.86	151.5
P-27D	70376.9	64008.9	276.05	274.44	274.0
P-27C	70391.7	64004.9	276.18	274.42	273.8
P-27B	70405.9	64000.3	276.16	274.24	273.8
P-27TE	70439.7	64006.0	275.88	274.10	273.6
P-27TD	70425.4	64010.2	275.26	274.11	273.6
P-27TC	70410.8	64014.5	276.10	274.03	273.6
P-27TB	70396.7	64018.5	275.72	274.07	273.5
P-27TA	70382.0	64022.9	275.82	274.06	273.6

TABLE 1, Contd

Well No.	<u>SRP Coordinates</u>		<u>Elevation</u>	<u>Elevation</u>	<u>Elevation</u>
	<u>North</u>	<u>East</u>	<u>Top of Casing</u>	<u>Top of Pad</u>	<u>Ground Surface</u>
FC-2F #	79283.4	55423.0	288.09	-----	286.3
FC-2E #	79275.6	55423.7	288.82	-----	286.9
FC-2D #	79267.2	55423.0	289.01	-----	287.2
FC-2C #	79259.7	55423.7	289.31	-----	287.5
FC-2B #	79251.4	55424.0	290.05	-----	287.8
FC-2A #	79243.6	55423.8	290.05	-----	288.1
P-28A	79275.2	55487.9	285.32	282.84	282.6
P-28TE	79296.4	55514.8	282.95	280.54	280.2
P-28TD	79293.5	55500.2	283.74	281.29	281.2
P-28TC	79291.1	55485.6	284.16	281.72	281.6
P-28TB	79288.9	55471.4	284.94	282.52	282.2
P-28TA	79284.3	55441.1	287.71	285.22	284.9
P-29D	86494.6	42787.2	268.81	266.26	265.8
P-29C	86485.1	42775.4	269.08	266.60	266.2
P-29B	86476.1	42763.7	268.90	266.40	266.0
P-29A	86466.5	42751.6	268.94	266.38	266.0
P-29TD	86455.7	42761.5	268.19	265.96	265.6
P-29TC	86464.2	42773.0	268.94	266.33	265.7
P-29TA	86482.6	42796.2	268.48	265.96	265.6
P-30D	98954.2	57094.6	356.77	354.60	354.1
P-30C	98969.2	57099.6	356.66	354.42	354.0
P-30B	98983.3	57103.8	356.59	354.44	354.0
P-30A	98997.7	57108.5	356.66	354.38	354.0
P-30TD	98991.2	57121.6	356.84	354.33	354.0
P-30TC	98976.3	57117.5	356.98	354.52	354.1
P-30TB	98962.1	57113.2	357.14	354.61	354.2
P-30TA	98933.3	57104.5	357.39	354.88	354.4

Existing Well

merous groundwater studies at SRP. However, most of the stratigraphic names are declining in usage by other geologists and geologic agencies as more geologic dates are determined for the strata and more mapping data are made available. There is, however, no current consensus as to the correct stratigraphic nomenclature at SRP. Where appropriate, an attempt has been made to introduce new stratigraphic terminology, based on current usage, into this report. The stratigraphic terminology is discussed in more detail in the section on Hydrostratigraphy.

SCOPE OF WORK

The Phase III program consisted of continuous geologic sampling (coring), geophysical logging, collecting undisturbed samples, physical testing of selected sediment samples, and construction of 53 observation wells at 7 widely spaced cluster sites (P-24 through P-30), Figure 3. The program was supervised and managed by Professional Service Industries, Inc. (PSI) under contract to the Savannah River Laboratory (SRL). Field activities began in February 1985 and were completed in January 1986. Details of the program are contained in a four volume report prepared by PSI (PSI, 1988). The results of the investigation are summarized in this report.

One of the key objectives of the program was to in-

stall observation wells in each of the major water-bearing units on the basis of the modified Siple terminology. The target horizons for completion of wells at each cluster location included from deepest to shallowest : 1) bottom of the "lower Tuscaloosa aquifer", 2) top of the "lower Tuscaloosa aquifer", 3) bottom of the "upper Tuscaloosa aquifer", 4) top of the "upper Tuscaloosa aquifer", 5) bottom of the "Congaree aquifer", 6) top of the "Congaree aquifer", 7) bottom of the McBean Formation, and 8) the water table. A generalized cluster profile showing the relative depths and the well numbering scheme for the different wells is shown on Figure 4. The actual completion depths of the wells vary from cluster to cluster depending on the ground surface elevation and the specific geologic conditions encountered at each cluster location. Also the formation or hydrostratigraphic unit in which the wells are completed does not necessarily follow the idealized cluster profile and designation due to the complexity of the subsurface conditions. However, wells with the suffix TA, TB, TC, TD, and TE are screened generally within the Cretaceous age formations, while wells with the suffix A, B, C, and D are generally screened within the Tertiary age formations.

Geologic samples were collected at each cluster site by continuously coring the deepest boring (TA) from the

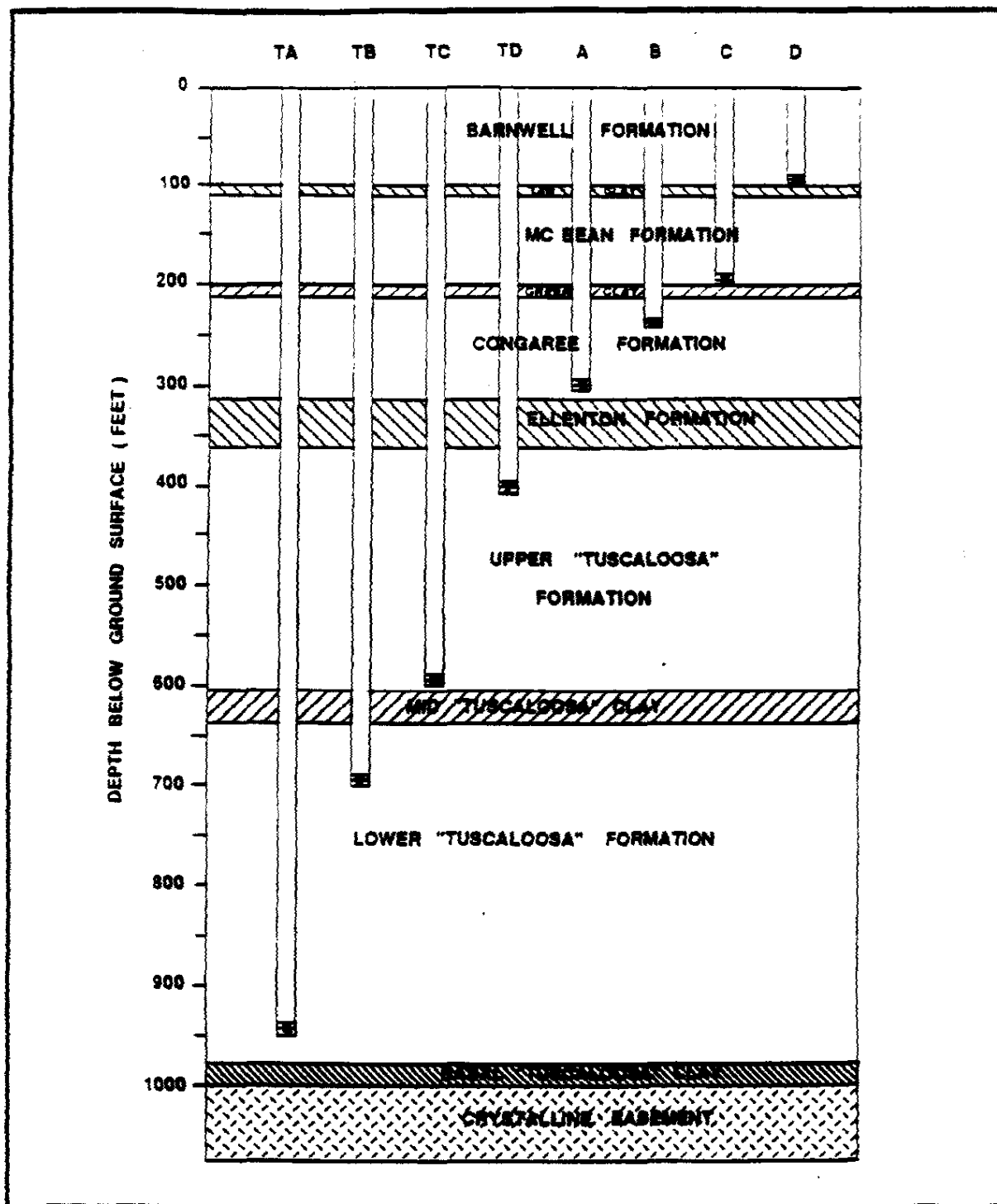


FIGURE 4. Typical Well Cluster Designation

ground surface to the total depth utilizing an HQ (2 1/2 inch diameter core) wireline core barrel. The coreholes ranged in depth from approximately 685 ft to 1070 ft. In all, a total of approximately 6175 ft of coring was attempted with an overall recovery rate of about 84 percent.

Following coring operations at each cluster, the corehole was stabilized and a suite of geophysical logs run by Century Geophysical Corporation working under contract to PSI. Geophysical logs run included gamma, single point resistivity, long and short normal resistivity, spontaneous potential, and caliper.

The actual zones screened at each cluster were chosen from examination of the core, lithologic logs, and geophysical logs. Where the interval to be screened was significantly above the bottom of the corehole, the open hole between the designed bottom of the well and the bottom of the boring was backgrouted after geophysical logs were run and before the hole was reamed for well installation.

After identifying the major clay or clayey zones from examination of the core and lithologic logs, undisturbed samples for laboratory testing were collected at each cluster. These samples were collected usually during the drilling of the TB and TC wells in each cluster by utilizing a Pitcher barrel or Shelby tube sampler. In all, a total of 39 samples were collected for laboratory testing.

Laboratory testing was performed by PSI and included grain-size distribution, total porosity, and both vertical and horizontal hydraulic conductivity.

MICROBIOLOGICAL SAMPLING

The drilling of the second boring (generally the TC well) at three locations (P-24, P-28, and P-29) was dedicated to the collection of geologic samples for the identification of microorganisms as part of the Microbiology of the Deep Subsurface Program of the U. S. Department of Energy Office of Health and Environmental Research (OHER). Approximately 30 samples from each drill site were collected by use of a "phosphate" core barrel. The samples were collected under as sterile a condition as possible in order to minimize or prevent the potential for contamination resulting from the drilling operation and sample handling.

P-24 CLUSTER

The P-24 cluster is located east of P Area, outside the P Area perimeter fence, approximately 100 ft west of SRP Road F. A detail location sketch showing the layout of the individual wells in the cluster is shown on Figure 5. Ground surface elevation at the site is approximately 313 ft above mean sea level.

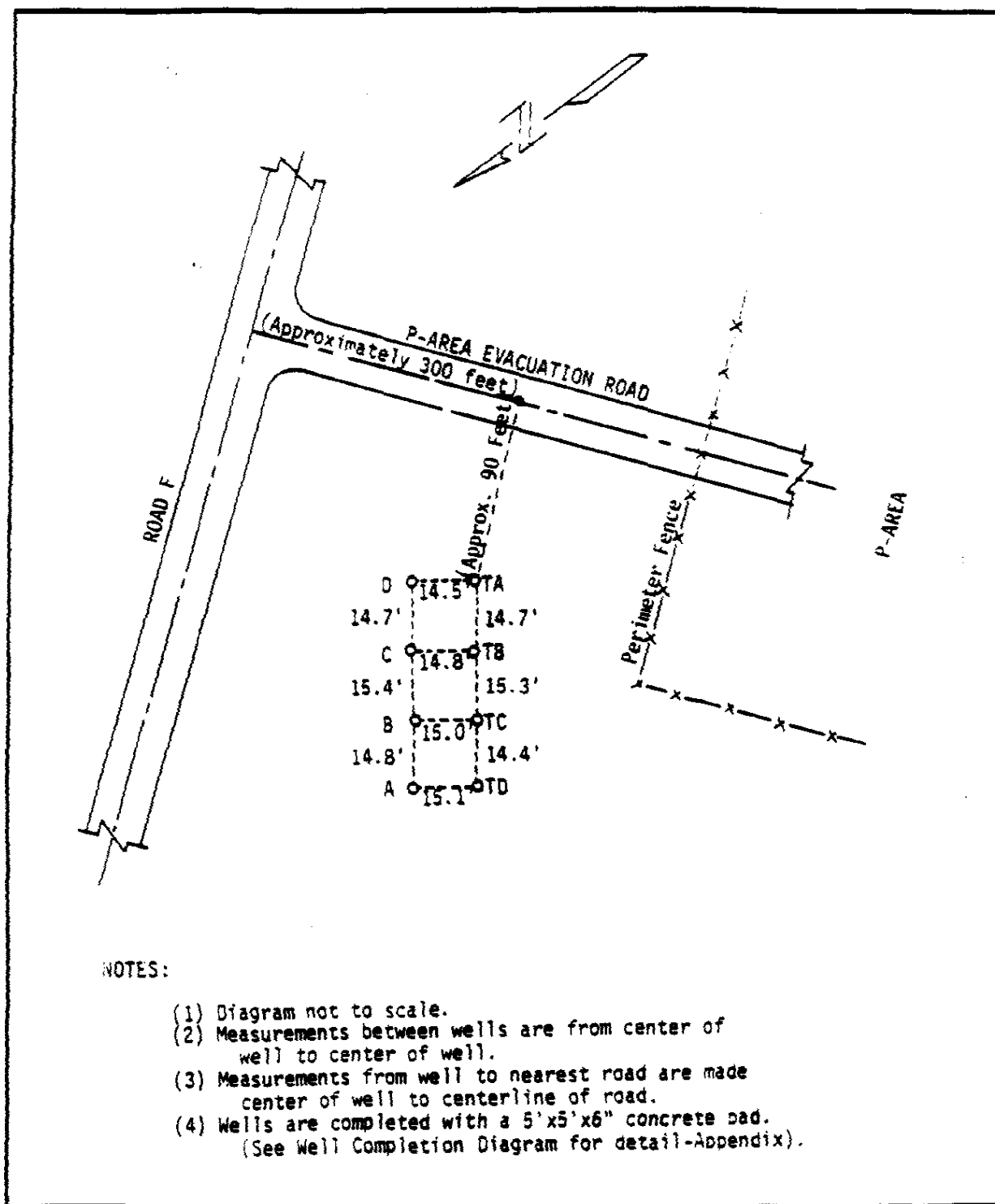


FIGURE 5. Location and Layout Map for Well Cluster P-24

The exploratory boring, P-24TA, was cored to a total depth of 1070 ft below ground surface (approximate elevation -757 ft). A graphic log showing gross lithology and inferred stratigraphy along with the reduced geophysical logs is presented on Figure 6. The detailed lithologic log for P-24TA is presented in Appendix A.

Based on the data collected from the P-24TA corehole, the screen zones for all of the wells to be installed at this cluster were chosen. In all, a total of 8 wells were installed at this cluster. The bottom of the screen settings ranged in depth from about 65 ft for the water table well (P-24D) to approximately 972 ft below ground surface for the deepest well (P-24TA).

A profile of the cluster with the depth relationships of the wells and the location and thickness of the major clay and clayey units is shown on Figure 7. The completion summary for the cluster is presented on Table 2. A summary of the screen zones and the inferred formation in which the screen is located is provided on Table 3.

Also shown on Figure 7 are the piezometric heads measured in each of the wells. These data were collected in July 1987. The water table is found at an elevation of about 273 ft, approximately 40 ft below the ground surface. There was no indication of perched water during augering operations for identification of the static water table.

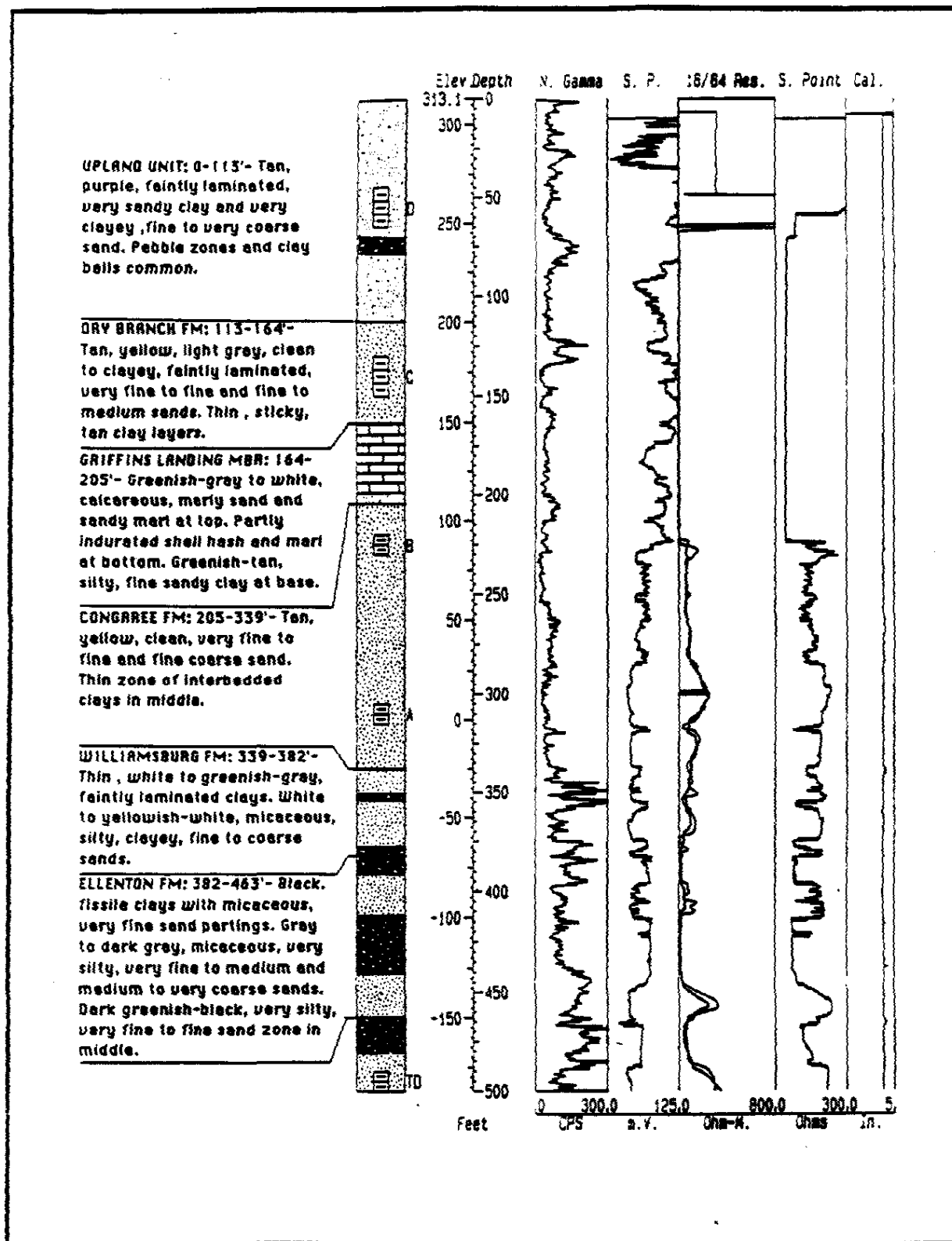


FIGURE 6. Graphic and Geophysical Logs for P-24TA

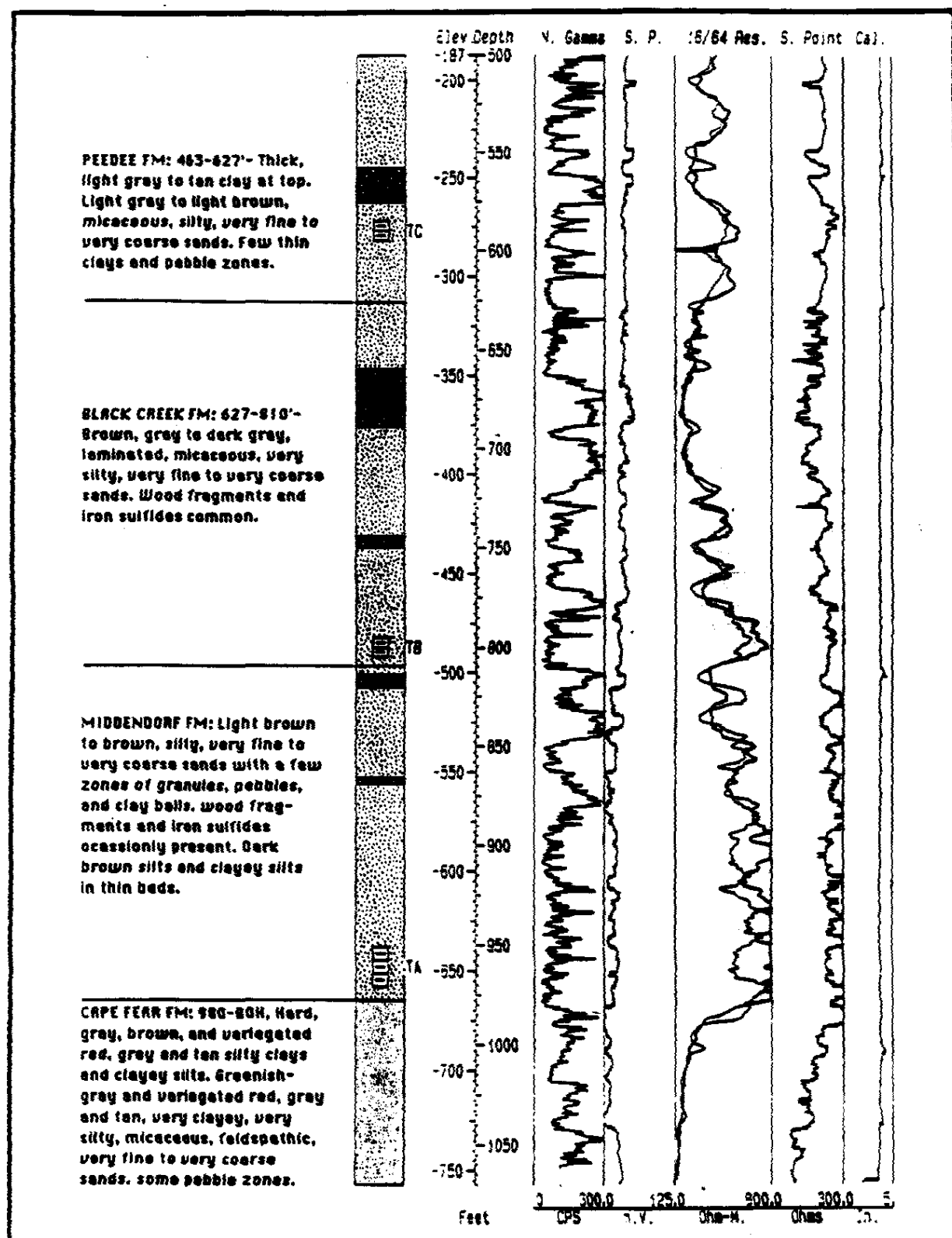


FIGURE 6, Contd

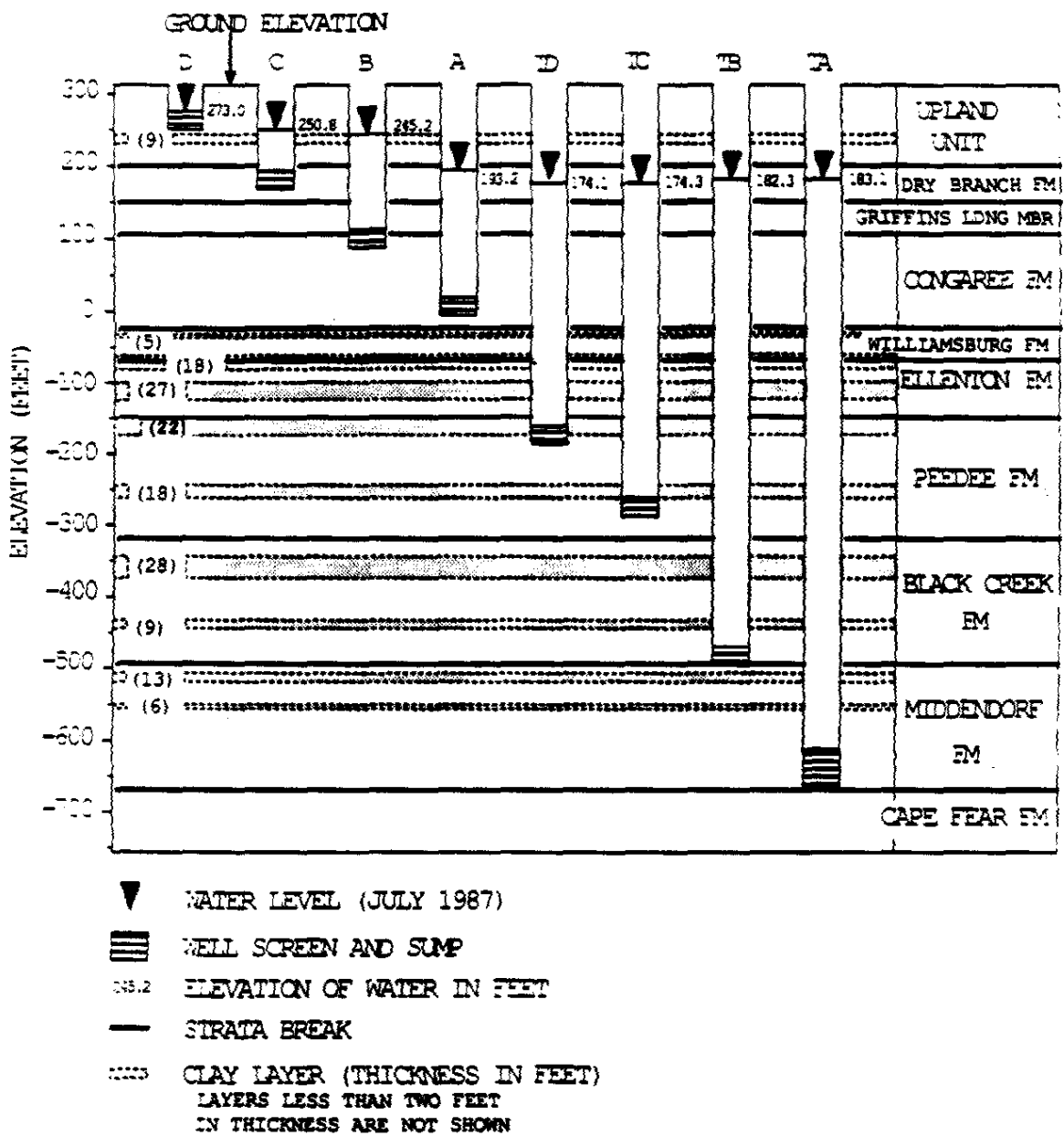


FIGURE 7. Profile of P-24 Well Cluster

TABLE 2

Cluster P-24 Well Completion Summary

<u>Number</u>	<u>Total Depth (ft)</u>	<u>Screened Interval (ft)</u>	<u>Casing Type</u>	<u>Screen Type</u>	<u>Top of Gravel Pack(ft)</u>	<u>Top of Sand Pack(ft)</u>	<u>Base of Sumo(ft)</u>	<u>Top of Ground Elevation</u>	<u>Top of Casing Elevation</u>	<u>Savannah River Plant Grid Coord.</u>
TA	980	951 972	4"Carbon Steel	#18 Slot Stainless	930	922	975	313.1	315.79	N43096.2 E66565.2
TB	815	795 805	4"Carbon Steel	#18 Slot Stainless	789	779	810	313.4	316.01	N43110.4 E66561.7
TC	606	584 595	4"Carbon Steel	#18 Slot Stainless	577	568	600	313.3	315.98	N43125.3 E66558.2
TD	510	489 500	4"Carbon Steel	#18 Slot Stainless	485	474	505	313.2	315.66	N43139.3 E66554.9
A	325	304 315	4"Carbon Steel	#18 Slot Stainless	300	289	320	313.1	315.48	N43142.2 E66569.7
B	240	220 230	4" Sch 40 PVC	#18 Slot PVC	215	206	235	313.3	313.69	N43127.8 E66573.0
C	155	130 150	4" Sch 40 PVC	#18 Slot PVC	125	114	155	313.2	315.85	N43112.8 E66576.3
D	71	45 65	4" Sch 40 PVC	#18 Slot PVC	40	30	70	313.1	315.6	N43098.5 E66579.5

TABLE 3**Screened Intervals for Cluster P-24**

<u>Well</u>	<u>Ground Elevation</u>	<u>Approximate Depth of Screen Interval</u>	<u>Approximate Elevation of Screen Interval</u>	<u>Stratigraphic Interval</u>
P-24D	313.1	45-65	268 to 248	Tobacco Road
P-24C	313.2	130-150	183 to 153	Dry Branch
P-24B	313.3	220-230	94 to 84	Griffins Landing
P-24A	313.1	304-315	9 to -2	Congaree
P-24TD	313.2	489-500	-176 to -187	Upper Peedee
P-24TC	313.3	584-595	-271 to -282	Lower Peedee
P-24TB	313.4	795-805	-482 to -492	Black Creek
P-24TA	313.1	951-972	-638 to -659	Middendorf

Note: All measurements are in feet.

Below the water table surface, there is a decrease in the hydraulic head with increasing depth to the lowest Tertiary well, P-24A. Across the Williamsburg/Ellenton confining unit, between P-24A and the uppermost Cretaceous well P-24TD there is a continued decrease in head of about 19 ft from approximately 193 ft to approximately 174 ft. There is a head reversal (increase in head) in the Cretaceous formations across the Black Creek Formation from approximately 174 ft in the lower Peedee well (P-24TC) and the upper Middendorf well (P-24TB) of about 182 ft.

P-25 CLUSTER

The P-25 cluster is located approximately 200 ft outside the K Area perimeter fence as shown Figure 8. Ground surface elevation at the site is about 265 ft above mean sea level. A graphic log along with the geophysical logs for the P-25TA corehole is shown on Figure 9. Detail lithologic descriptions of the core is provided in Appendix B.

Based on the data collected from the P-25TA boring, the screen depth for the deep observation well, P-25TA, was selected at approximately 1070 ft below ground surface. Prior to installing the well, approximately 190 ft of open hole below the bottom of the well and the bottom of the borehole was backgrouted. The locations of the screen

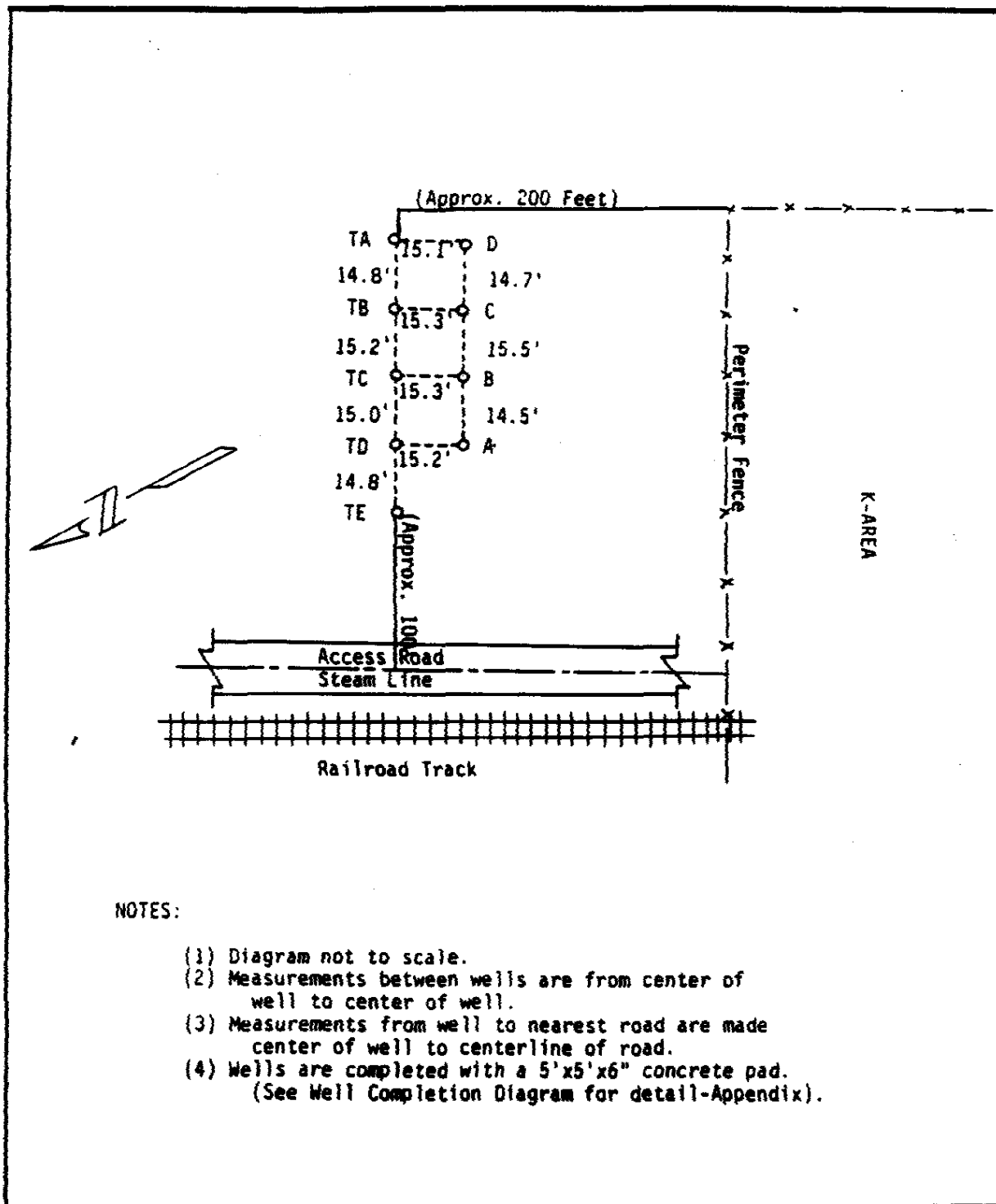


FIGURE 8. Location and Layout Map for Well Cluster P-25

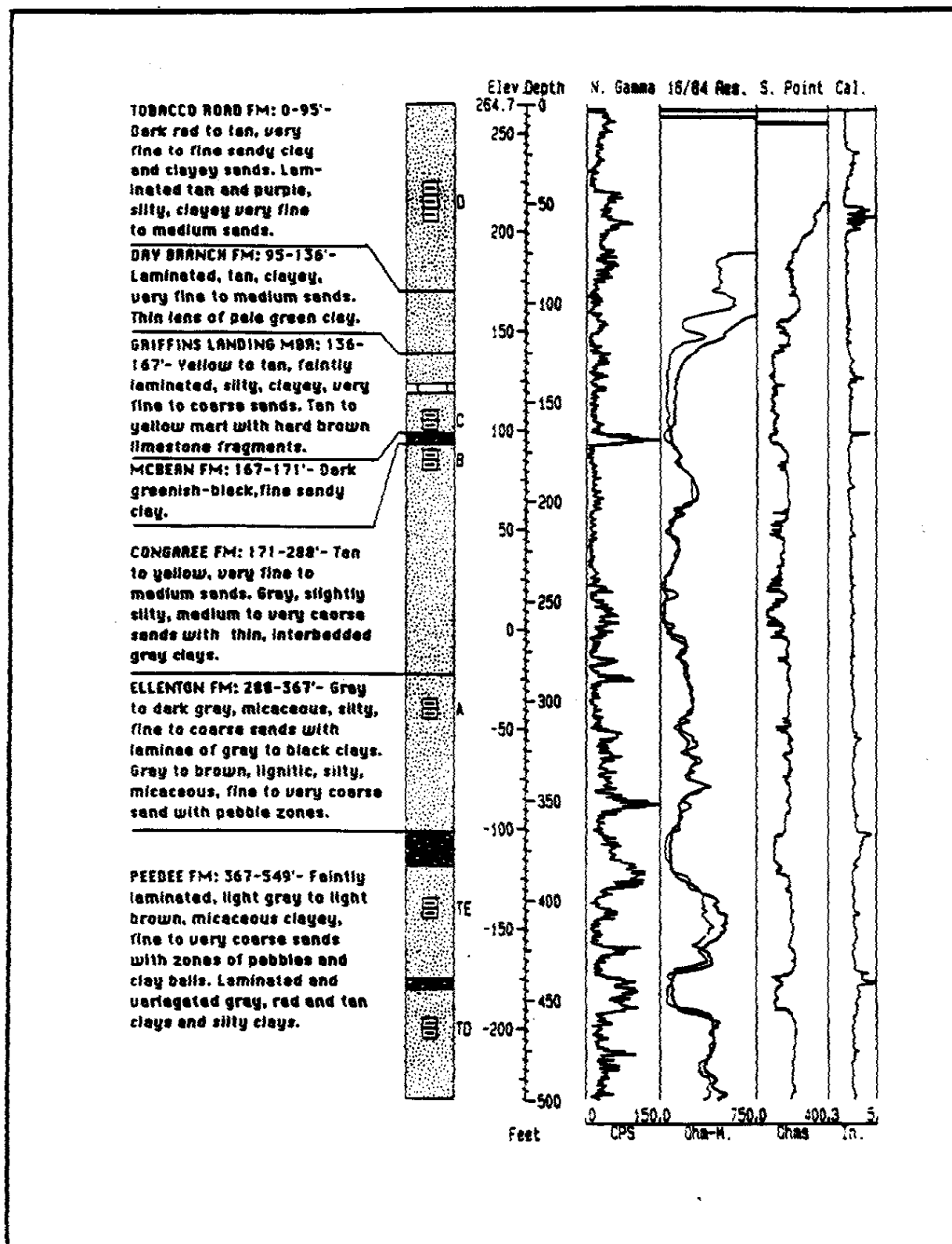


FIGURE 9. Graphic and Geophysical Logs for P-25TA

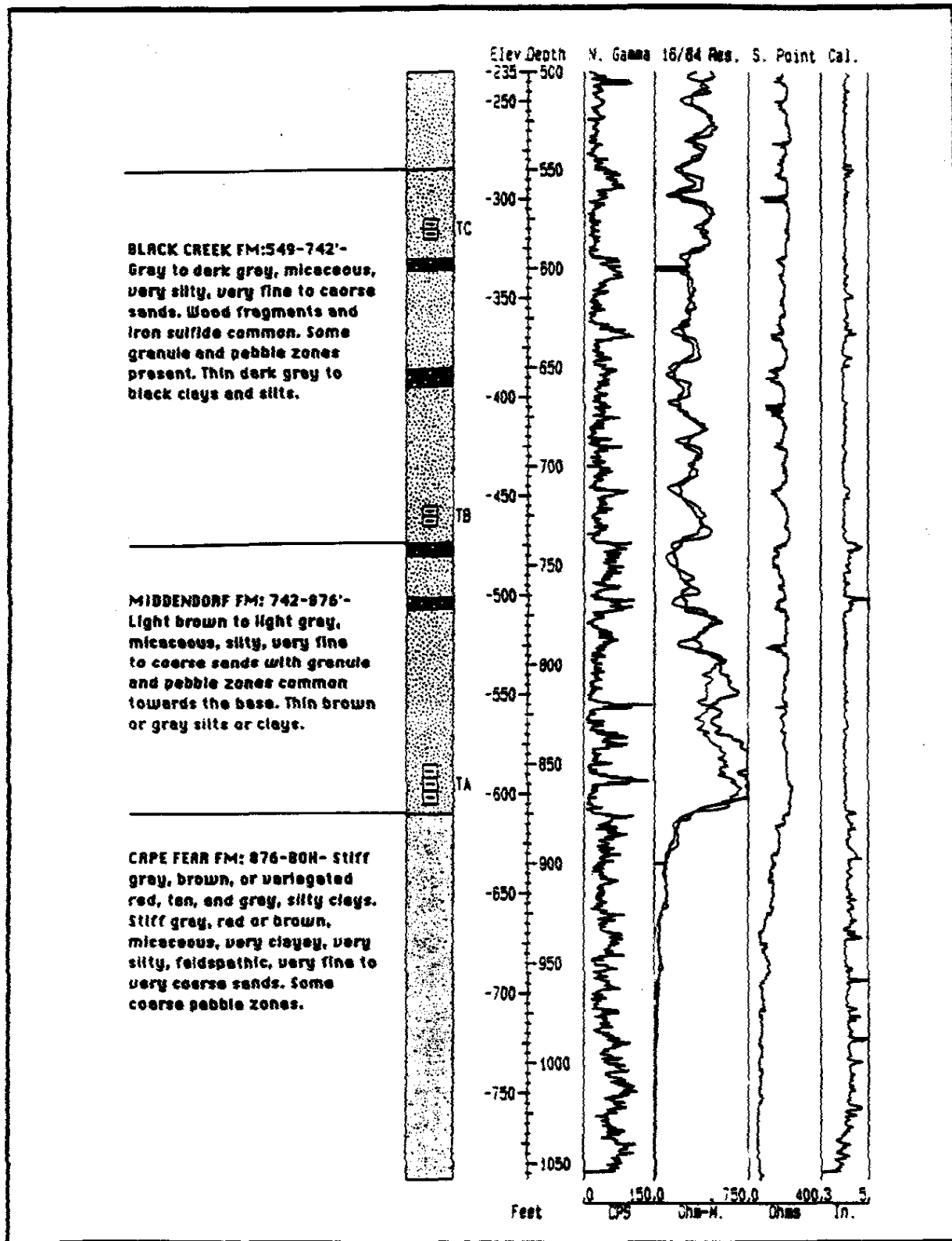


FIGURE 9, Contd,

zones for the remaining 8 wells installed at the site were selected based on data collected from the P-25TA boring. The 9 wells installed ranged in depth from about 60 ft for the water table well (P-25D) to 1070 ft for the deepest well (P-25TA).

A profile of the cluster showing the relative depths of the different wells is presented on Figure 10. A summary of the wells is given on Table 4. Table 5 summarizes the location of the wells by geologic formation.

The water level elevations for each well in the cluster are also shown on Figure 10. The water table is found at approximate elevation 212 ft, or at a depth of about 53 ft below the ground surface. In the Tertiary formations below the water table, the hydraulic heads decrease with increasing depth from approximate elevation 199 ft in well P-25C, which is screened in the McBean Formation, to approximate elevation 172 ft for well P-25A, which is screened just above the confining unit of the Ellenton Formation. There is a head drop of about 10 ft across the Green Clay unit separating well P-25C above from well P-25B below. Across the Ellenton, there is an additional head drop of approximately 6 ft between well P-25A and P-25TE which is screened in the Peedee Formation. Below the Ellenton Formation, within the Cretaceous, there is a head reversal (increase in head) of about 6 ft between the heads

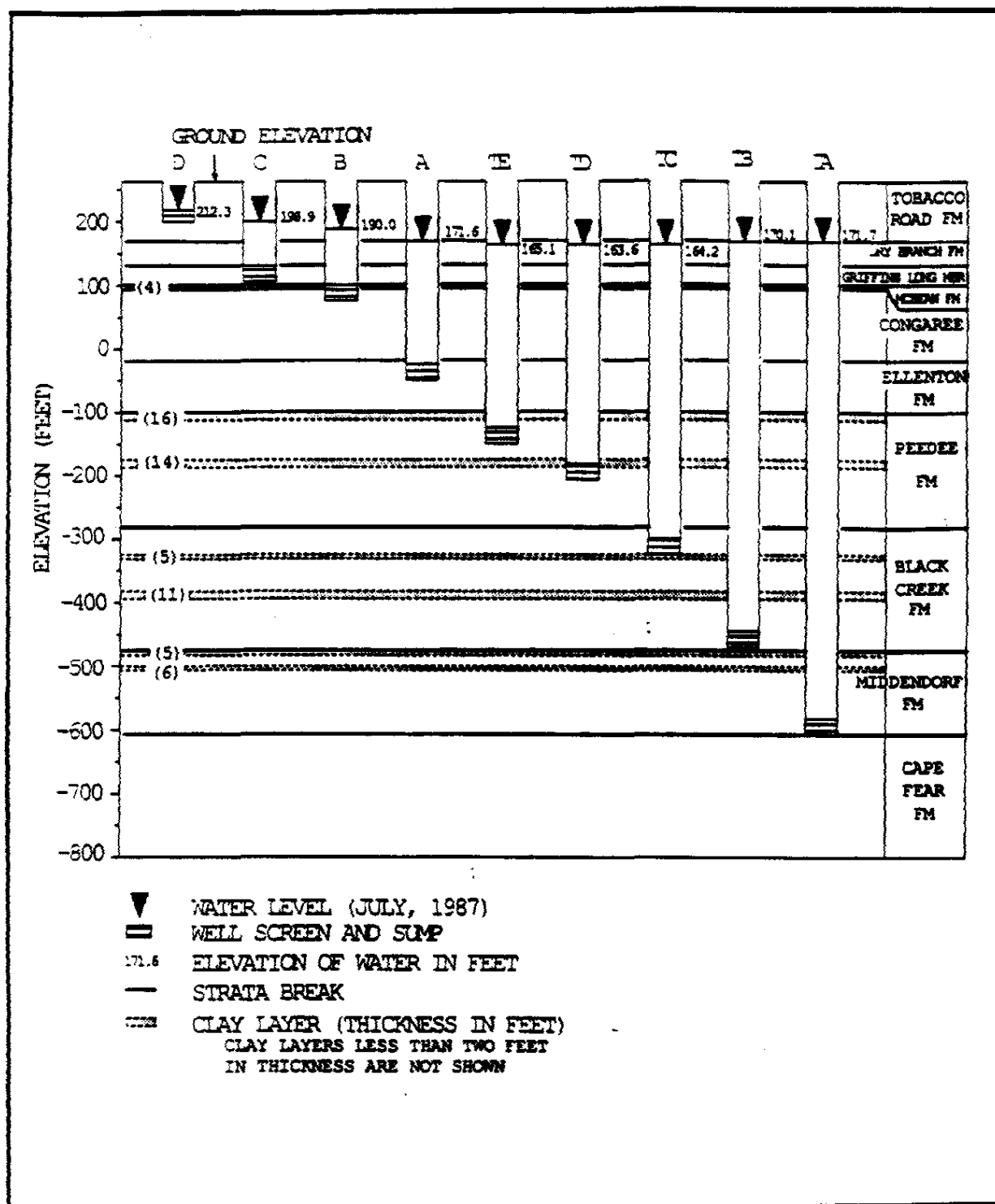


FIGURE 10. Profile of P-25 Well Cluster

TABLE 4

Cluster P-25 Well Completion Summary

<u>Number</u>	<u>Total Depth (ft)</u>	<u>Screened Interval (ft)</u>	<u>Casing Type</u>	<u>Screen Type</u>	<u>Top of Gravel Pack(ft)</u>	<u>Top of Sand Pack(ft)</u>	<u>Base of Sand(ft)</u>	<u>Top of Ground Elevation</u>	<u>Top of Casing Elevation</u>	<u>Savannah River Plant Grid Coord.</u>
TA	880	847 870	4"Carbon Steel	#18 Slot Stainless	839	833	875	264.7	266.75	N52493.6 E42261.0
TB	744	719 730	4"Carbon Steel	#18 Slot Stainless	715	704	735	265.1	267.02	N52508.3 E42259.1
TC	604	574 585	4"Carbon Steel	#18 Slot Stainless	570	559	590	265.2	267.14	N52523.3 E42257.1
TD	475	459 470	4"Carbon Steel	#18 Slot Stainless	455	443	475	265.3	267.35	N52538.2 E42254.9
TE	420	399 410	4"Carbon Steel	#18 Slot Stainless	395	384	415	265.4	267.21	N52552.7 E42253.5
A	320	299 310	4"Carbon Steel	#18 Slot Stainless	296	288	315	265.5	267.27	N52535.8 E42240.0
B	192	175 185	4" Sch 40 PVC	#18 Slot PVC	170	158	190	265.2	267.17	N52521.4 E42241.9
C	167	155 165	4" Sch 40 PVC	#18 Slot PVC	150	139	167	264.9	266.71	N52506.1 E42244.1
D	66	40 60	4" Sch 40 PVC	#18 Slot PVC	37	31	66	264.7	266.72	N52491.9 E42246.1

TABLE 5**Screened Intervals for Cluster P-25**

<u>Well</u>	<u>Ground Elevation</u>	<u>Approximate Depth of Screen Interval</u>	<u>Approximate Elevation of Screen Interval</u>	<u>Stratigraphic Interval</u>
P-25D	264.7	40-60	225 to 205	Tobacco Road
P-25C	264.9	155-165	110 to 100	Griffins Landing
P-25B	265.2	175-185	90 to 80	Congaree
P-25A	265.5	299-310	-34 to -44	Ellenton
P-25TE	265.4	399-410	-134 to -145	Upper Peedee
P-25TD	265.3	459-470	-194 to -205	Lower Peedee
P-25TC	265.2	574-585	-309 to -320	Upper Black Creek
P-25TB	265.1	719-730	-454 to -465	Lower Black Creek
P-25TA	264.7	847-870	-583 to -605	Middendorf

Note: All measurements are in feet.

in the upper Black Creek (P-25TC) and those in the upper Middendorf Formation (P-25TB).

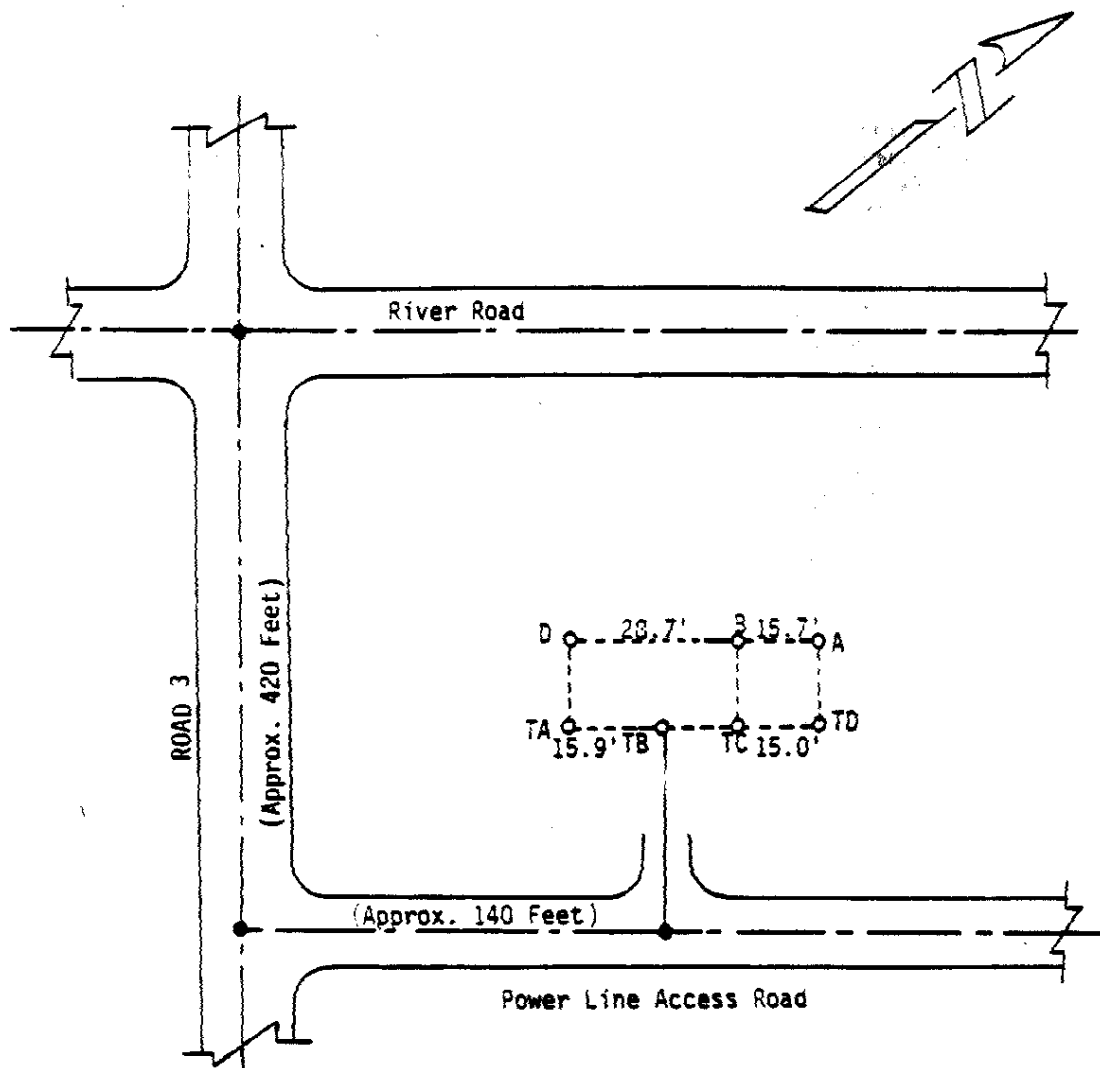
P-26 CLUSTER

The P-26 cluster is located near the TNX facility at the northeast intersection of SRP Roads 3 and 3-1, approximately 150 ft off Road 3. The location and layout of the individual wells in the cluster are shown on Figure 11. The ground surface elevation at the site is approximately 151 ft above mean sea level.

The deep exploratory boring, P-26TA, was continuously cored from the ground surface to a total depth of approximately 685 ft below the ground surface (approximate elevation -534 ft). However, due to hole stability problems, it was not possible to complete the coring to the planned completion depth. The boring was rotary washed from the termination of coring (685 ft) to the completion depth (760 ft) and grab samples collected for lithologic description. The graphic log and the geophysical logs for the corehole are presented on Figure 12. Lithologic descriptions for the core are contained in Appendix C.

Based on the data collected from the corehole, a total of 7 wells were selected for this cluster site. These wells range from approximately 50 ft below the ground surface for the water table well (P-26D) to approximately 690 ft for

TNX



NOTES:

- (1) Diagram not to scale.
- (2) Measurements between wells are from center of well to center of well.
- (3) Measurements from well to nearest road are made center of well to centerline of road.
- (4) Wells are completed with a 5'x5'x6" concrete pad.
(See Well Completion Diagram for detail-Appendix).

FIGURE 11. Location and Layout Map for Well Cluster P-26

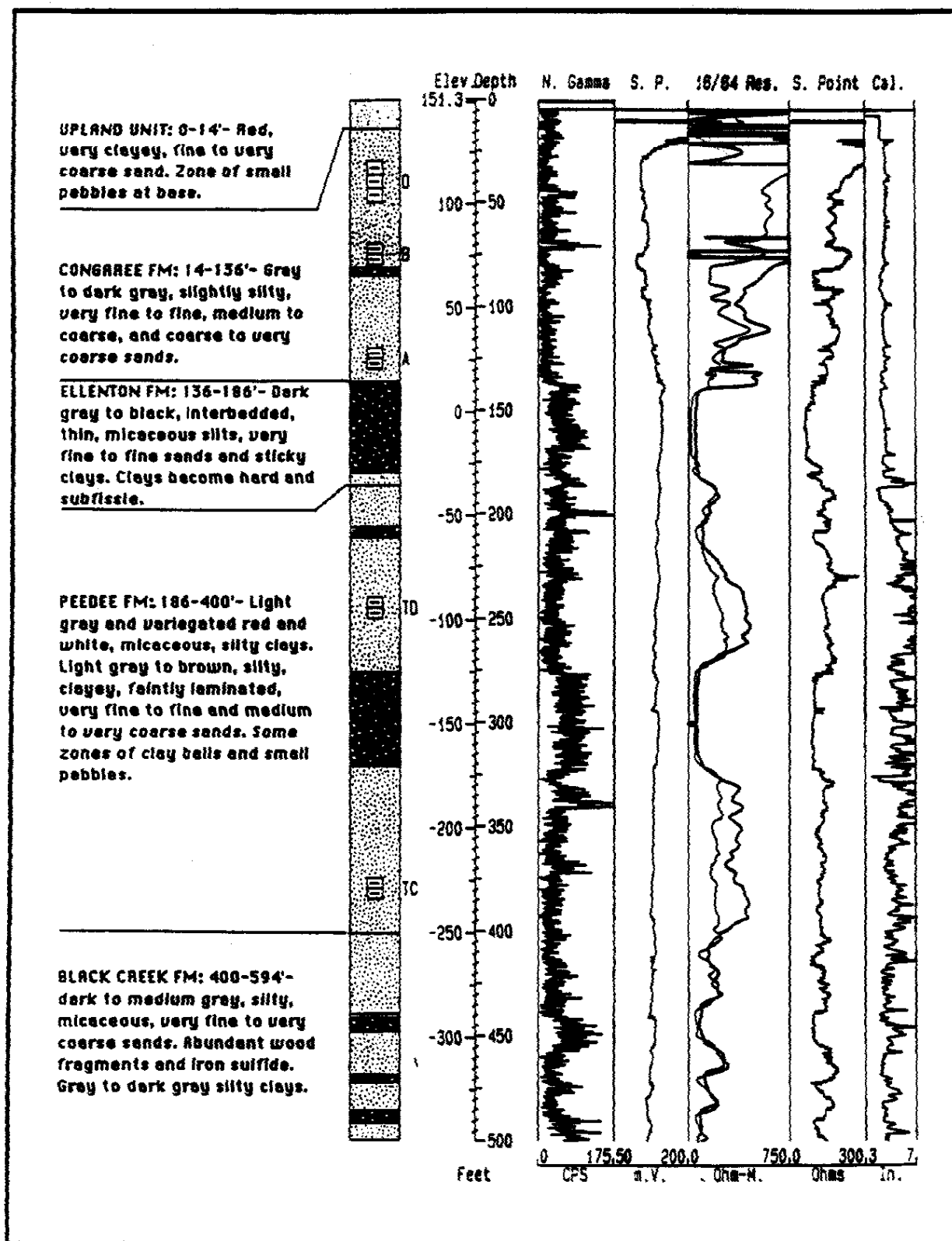


FIGURE 12. Graphic and Geophysical Logs for P-26TA

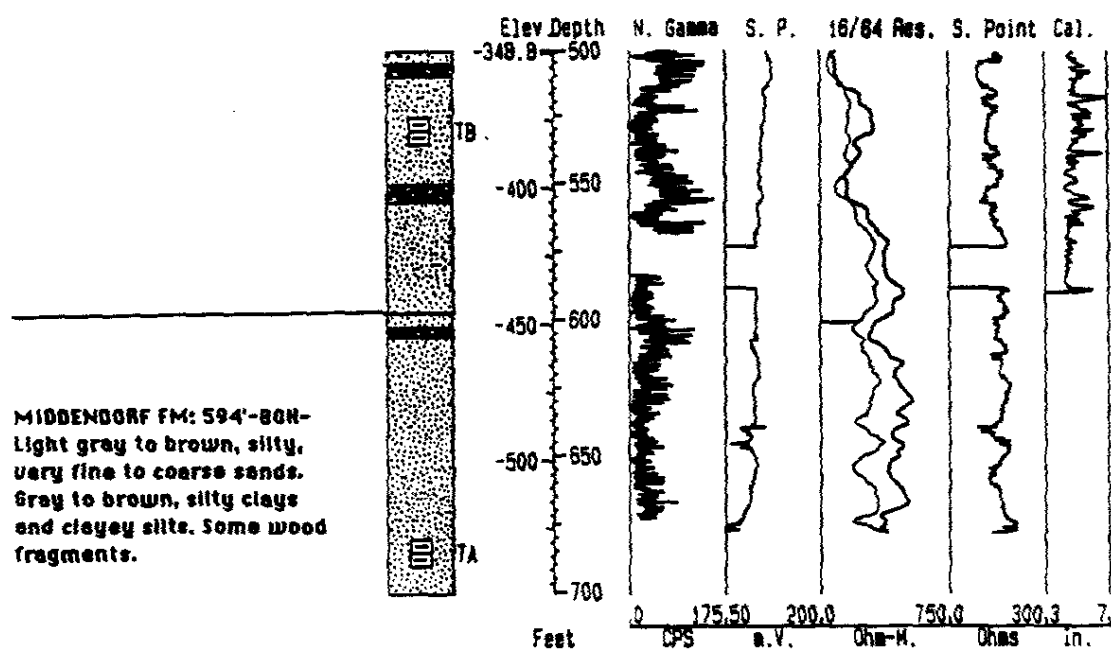
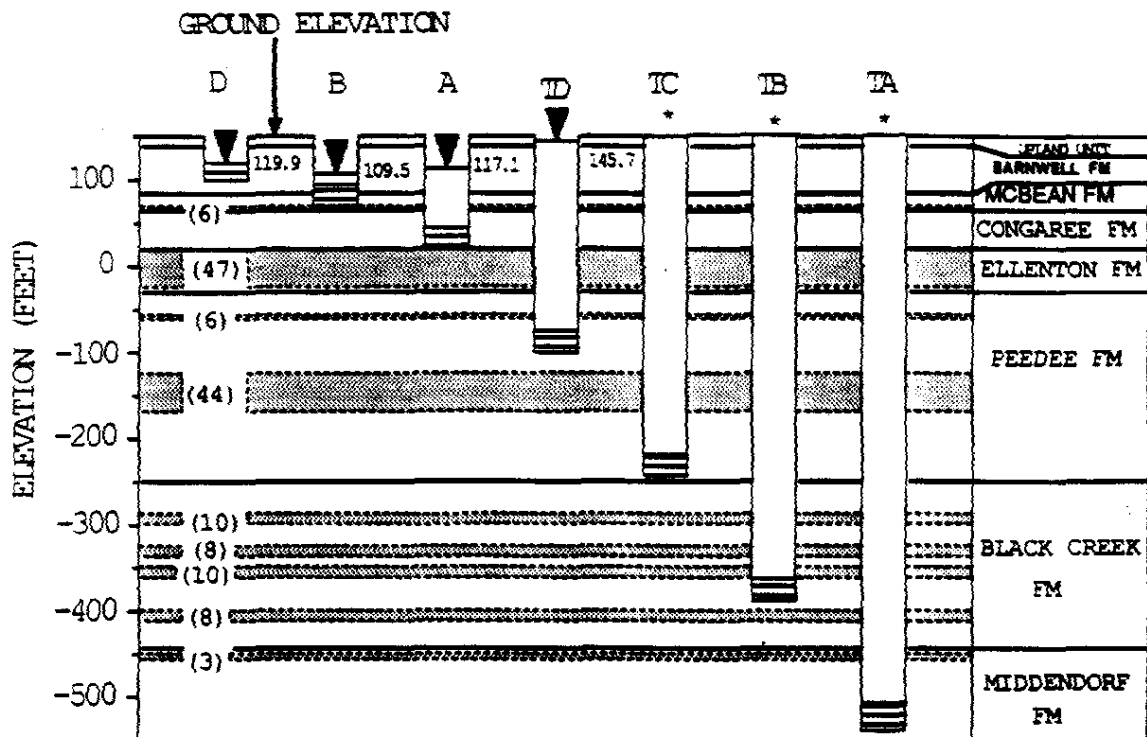


FIGURE 12, Contd

the deepest well in the cluster (P-26TA). Prior to installing P-26TA, the open hole below the bottom of the well and the bottom of the boring was backgrouted. A profile for the cluster is presented on Figure 13. The completion summaries for the wells are shown on Table 6. A summary of the formations and depths the wells are completed at are shown on Table 7.

The water table, as shown on Figure 13, is found at an approximate elevation 120 ft (a depth of about 30 ft below the ground surface) within the Congaree Formation. Below the water table, the hydraulic head decreases to about elevation 109 ft in well P-26B which is also screened within the Congaree Formation. However, there is a head reversal (increase in head) of approximately 8 ft between well P-26B and P-26A which is screened in the lower Congaree Formation. Across the Ellenton confining unit there is another increase in head of about 30 ft between the lower Congaree well (P-26B) and the uppermost Cretaceous well (P-26TD) which is screened in the Peedee Formation. Below P-26TD the heads continue to increase and the three deeper wells (P-26TC, P-26TB, and P-26TA) are artesian, flowing freely at the ground surface when uncapped.



▼ WATER LEVEL (JULY, 1987)

≡ WELL SCREEN AND SUMP

117.1 ELEVATION OF WATER IN FEET

— STRATA BREAK

----- CLAY LAYER (THICKNESS IN FEET)

CLAY LAYERS LESS THAN TWO FEET
IN THICKNESS ARE NOT SHOWN

* ARTESIAN WELL- FLOWS FREELY ABOVE GROUND SURFACE WHEN UNCAPPED

FIGURE 13. Profile of P-26 Well Cluster

TABLE 6

Cluster P-26 Well Completion Summary

<u>Number</u>	<u>Total Depth (ft)</u>	<u>Screened Interval (ft)</u>	<u>Casing Type</u>	<u>Screen Type</u>	<u>Top of Gravel Pack(ft)</u>	<u>Top of Sand Pack(ft)</u>	<u>Base of Sump(ft)</u>	<u>Top of Ground Elevation</u>	<u>Top of Casing Elevation</u>	<u>Savannah River Plant Grid Coord.</u>
TA	700	679 690	4"Carbon Steel	#18 Slot Stainless	670	654	695	151.5	154.38	N71958.6 E18051.5
TB	545	524 535	4"Carbon Steel	#18 Slot Stainless	519	506	540	151.3	154.27	N71973.4 E18057.0
TC	395	374 385	4"Carbon Steel	#18 Slot Stainless	368	359	390	151.2	153.82	N71987.7 E18062.5
TD	260	240 250	4" Sch 40 PVC	#18 Slot PVC	235	225	255	151.0	153.82	N72001.7 E18067.5
A	137	120 130	4" Sch 40 PVC	#18 Slot PVC	114	108	135	151.2	153.98	N72010.4 E18055.9
B	82	70 80	4" Sch 40 PVC	#18 Slot PCV	65	62	80	151.4	154.03	N71996.2 E18050.9
D	60	30 50	4" Sch 40 PVC	#18 Slot PVC	25	20	55	151.2	154.02	N71969.3 E18041.6

TABLE 7

Screened Intervals for Cluster P-26

<u>Well</u>	<u>Ground Elevation</u>	<u>Approximate Depth of Screen Interval</u>	<u>Approximate Elevation of Screen Interval</u>	<u>Stratigraphic Interval</u>
P-26D	151.2	30-50	121 to 101	McBean
P-26B	151.4	70-80	82 to 71	McBean
P-26A	151.2	120-130	31 to 21	Congaree
P-26TD	151.0	240-250	-89 to -99	Upper Peedee
P-26TC	151.2	374-385	-223 to -234	Lower Peedee
P-26TB	151.3	524-535	-373 to -384	Black Creek
P-26TA	151.5	679-690	-528 to -538	Middendorf

Note: All measurements are in feet.

P-27 CLUSTER

Cluster P-27 is located east of the H Area perimeter fence approximately 400 ft north of SRP Road E. The location of the cluster and the layout of the individual wells in the cluster are shown on Figure 14. Ground surface elevation at the site is about 274 ft above mean sea level.

Boring P-27TA was continuously cored from the ground surface to a total depth of approximately 900 ft (approximate elevation -626 ft). A graphic log showing the lithology compared to the geophysical logs is shown on Figure 15. A detailed geologic log of the core is presented in Appendix D.

Based on the data collected from the corehole (P-27TA), a total of 8 zones were selected for installation of observation wells. These wells range in depth from about 75 ft for the water table well (P-27D) to about 820 ft for the deepest well (P-27TA). A profile of the cluster showing the depth relationships of the different screen zones is shown on Figure 16. Also shown on Figure 15 are the locations of the major clays and clayey zones. A completion summary for the cluster is given on Table 8. Table 9 summarizes the location of the wells with respect to geologic formation.

A total of 8 wells were completed in the cluster at this site. Three of the wells are completed in the Tertiary

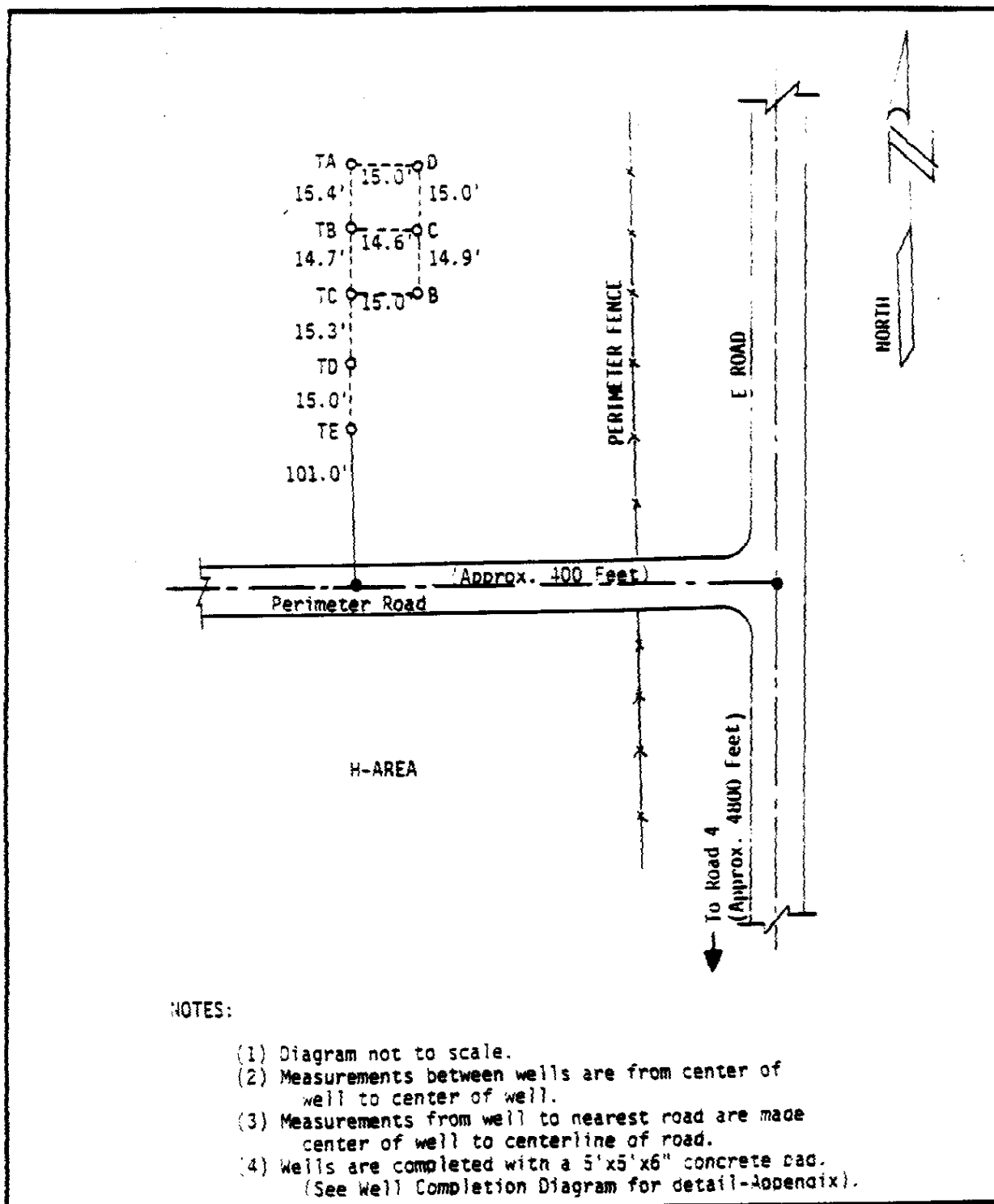


FIGURE 14. Location and Layout Map for Well Cluster P-27

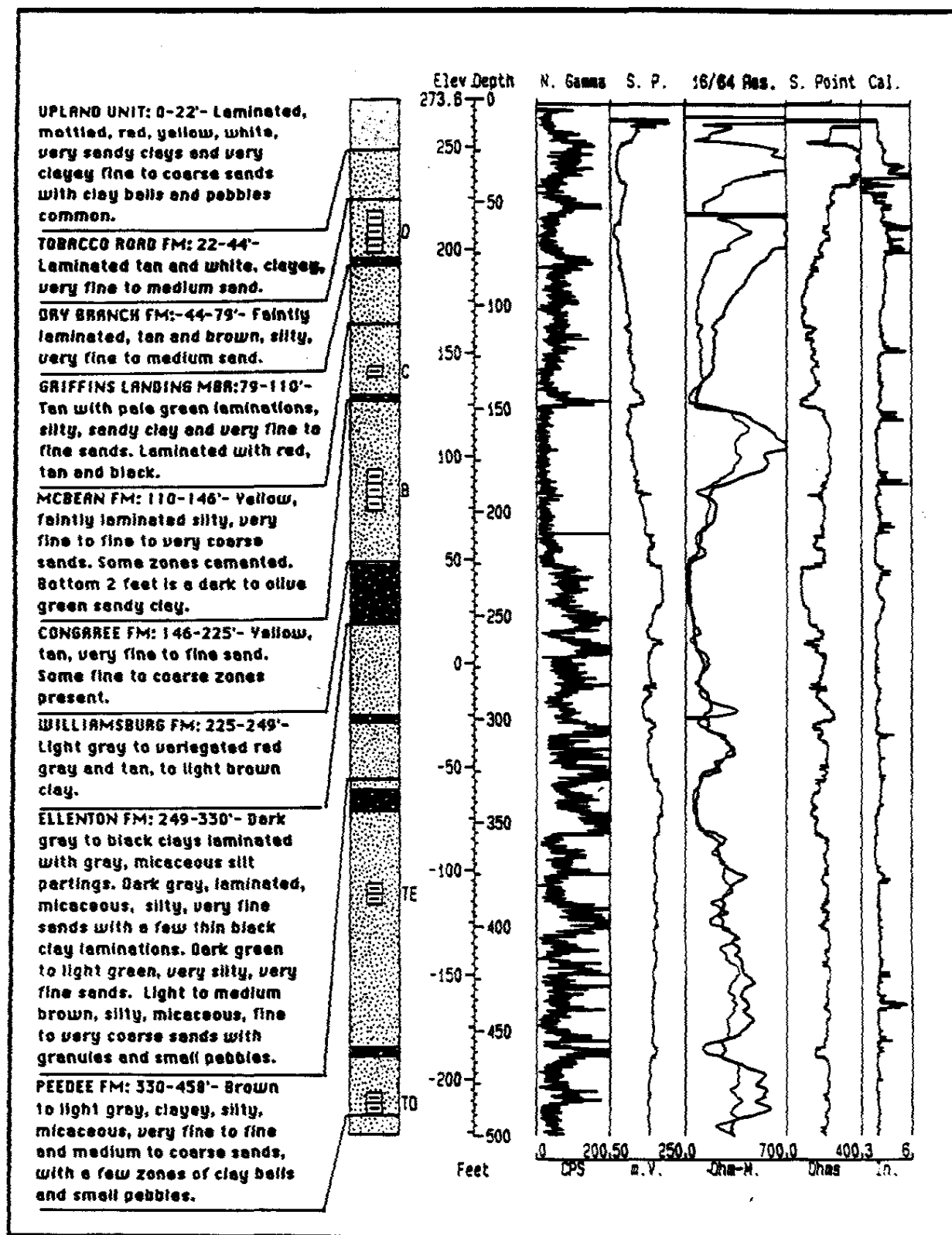


FIGURE 15. Graphic and Geophysical Logs for P-27TA

BLACK CREEK FM: 458-604'-
Gray to brown, silty, clayey,
micaceous, very fine to
coarse sands. Some pebble
rich zones near base. Wood
fragments are common. Iron
sulfides are present but rare.

MIDDLEBURY FM: 604-827'-
Thick, variegated brown,
gray, red, tan clay. Gray to
brown, silty, fine to very
coarse sands with zones
of granules and pebbles.

CAPE FEAR FM: 827'-804'- stiff,
brown greenish-gray to gray,
very fine to very coarse,
feldspathic sands with
pebbles and iron nodules
common. Hard variegated
gray, red, and tan, silty,
micaceous clays.

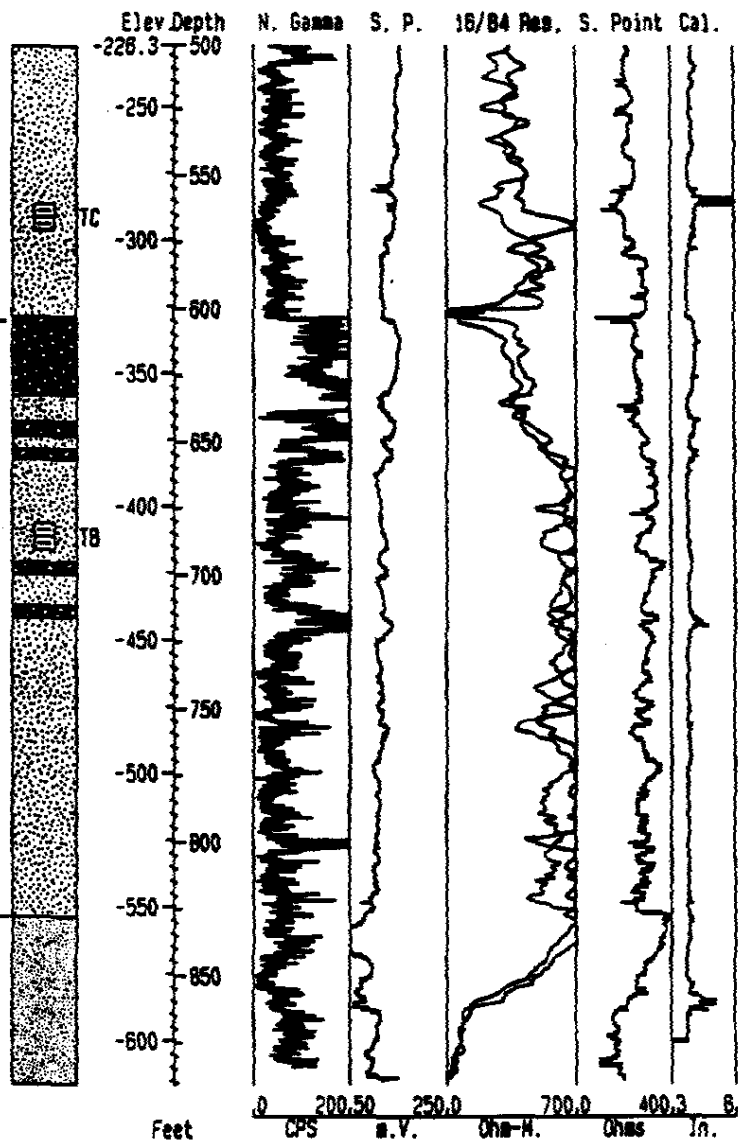


FIGURE 15, Contd

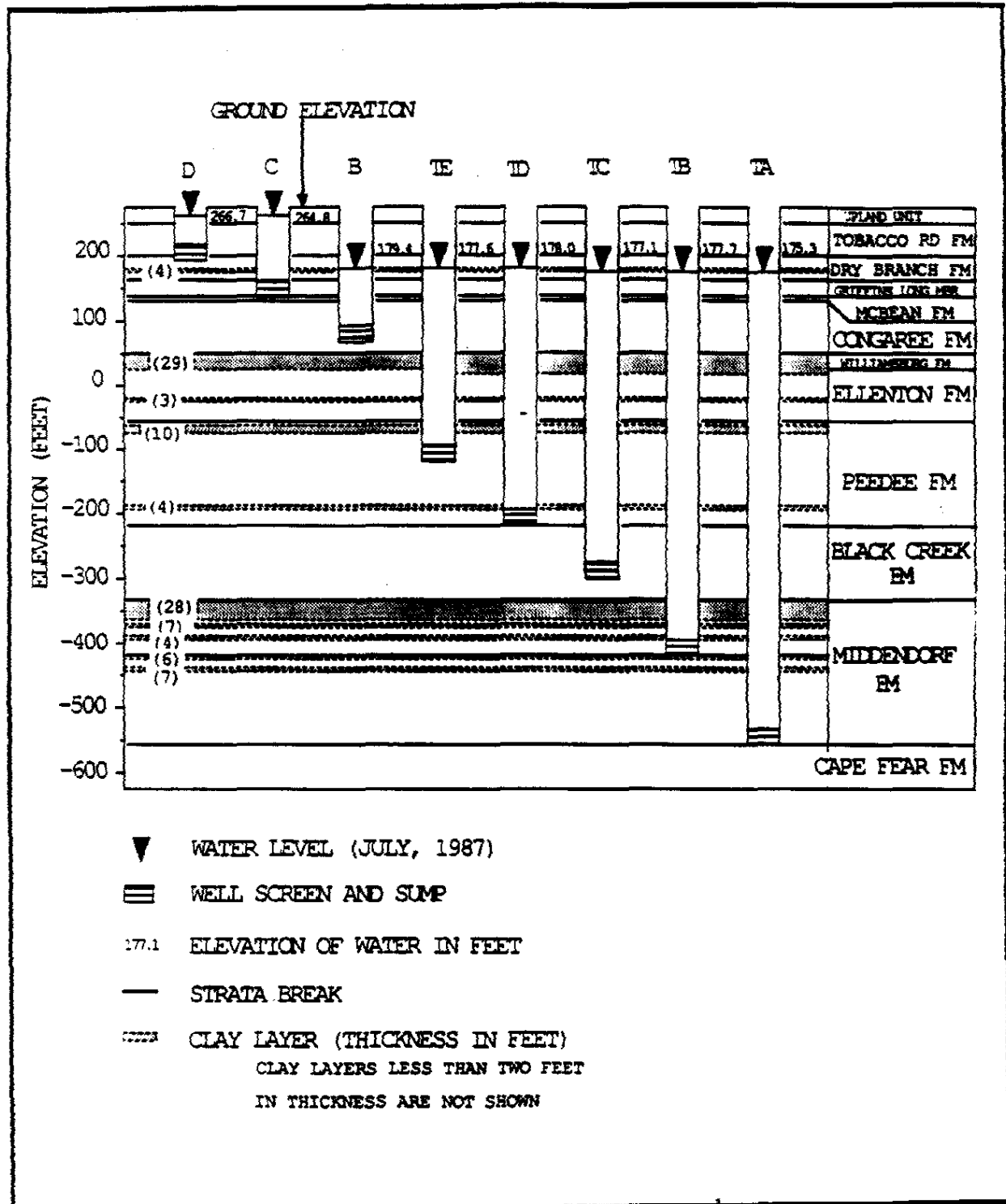


FIGURE 16. Profile of P-27 Well Cluster

TABLE 8

Cluster P-27 Well Completion Summary

<u>Number</u>	<u>Total Depth (ft)</u>	<u>Screened Interval (ft)</u>	<u>Casing Type</u>	<u>Screen Type</u>	<u>Top of Gravel Pack(ft)</u>	<u>Top of Sand Pack(ft)</u>	<u>Base of Slump(ft)</u>	<u>Top of Ground Elevation</u>	<u>Top of Casing Elevation</u>	<u>Savannah River Plant Grid Coord.</u>
TA	835	814 ^{**} 825	4"Carbon Steel	#18 Slot Stainless	800	790	819	273.6	275.82	N70382.0 E64022.9
TB	700	679 690	4"Carbon Steel	#18 Slot Stainless	667	660	695	273.5	275.72	N70396.7 E64018.5
TC	579	559 570	4"Carbon Steel	#18 Slot Stainless	545	536	575	273.6	276.10	N70410.8 E64014.5
TD	506	479 490	4"Carbon Steel	#18 Slot Stainless	475	465	495	273.6	275.26	N70425.4 E64010.2
TE	400	379 390	4"Carbon Steel	#18 Slot Stainless	375	359	395	273.6	275.88	N70439.7 E64006.0
B	210	179 199	4" Sch 40 PVC	#18 Slot PVC	173	162	205	273.8	276.16	N70405.9 E64000.3
C	140	130 135	4" Sch 40 PVC	#18 Slot PVC	125	119	140	273.8	276.18	N70391.7 E64004.9
D	85	56 75	4" Sch 40 PVC	#18 Slot PVC	52	46	80	274.0	276.05	N70376.9 E64008.9

** 3" screen set inside damaged 4" screen between 805.6 ft and 819.0 ft.

TABLE 9**Screened Intervals for Cluster P-27**

<u>Well</u>	<u>Ground Elevation</u>	<u>Approximate Depth of Screen Interval</u>	<u>Approximate Elevation of Screen Interval</u>	<u>Stratigraphic Interval</u>
P-27D	274.0	55-75	219 to 199	Dry Branch
P-27C	273.8	130-135	144 to 139	Griffins Landing
P-27B	273.8	180-200	94 to 74	Congaree
P-27TE	273.6	379-389	-106 to -116	Upper Peedee
P-27TD	273.6	479-490	-206 to -216	Lower Peedee
P-27TC	273.6	559-570	-286 to -296	Upper Black Creek
P-27TB*	273.5	679-689	-406 to -416	Lower Black Creek
P-27TA	273.6	807-817	-533 to -543	Middendorf

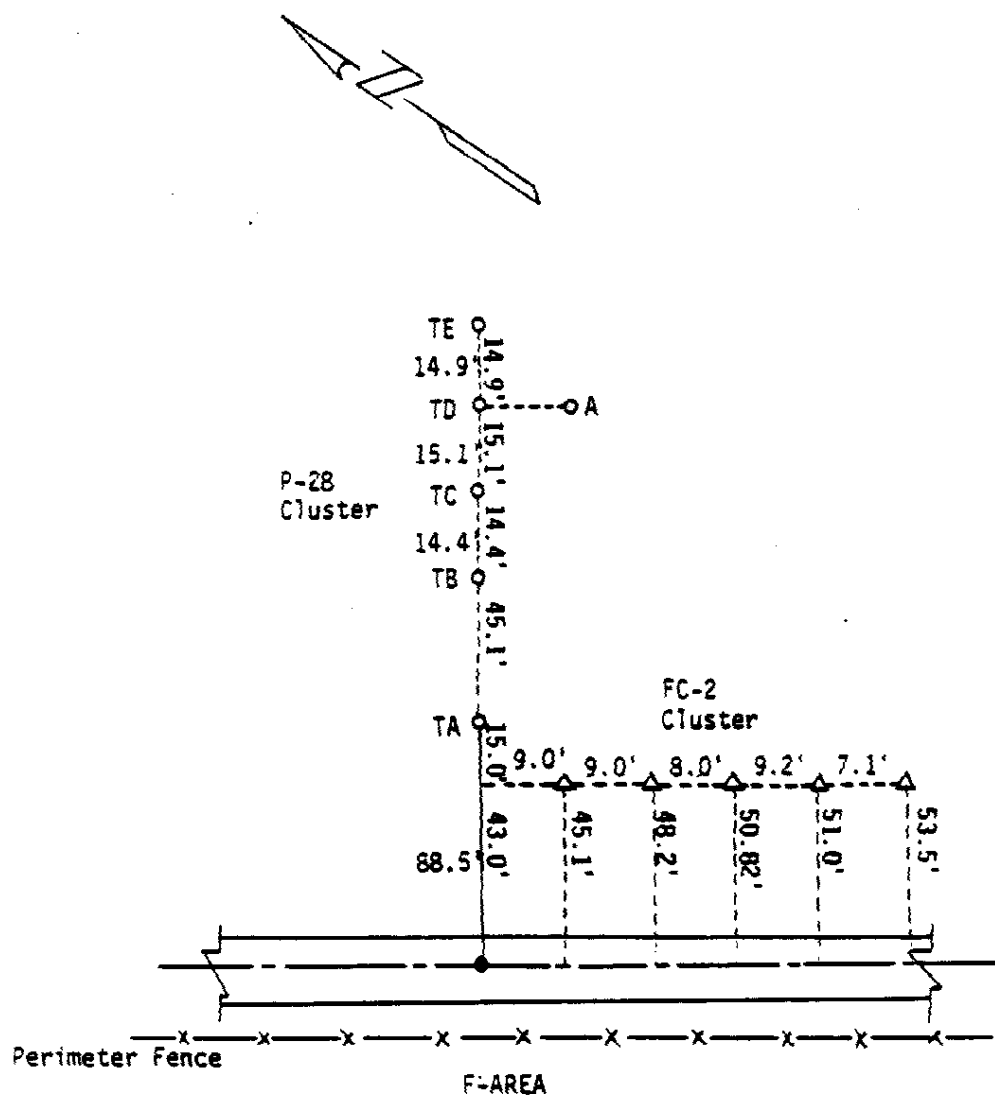
Note: All measurements are in feet.

* 3-inch screen set from 807 ft to 817 ft above
collapsed 4-inch screen from 814 ft to 825 ft.

formations and 4 are completed in the Cretaceous age formations. The measured piezometric heads in each of these wells are presented on Figure 16. The water table at the site is found at a depth of about 7 ft below the ground surface, approximate elevation 267 ft in well P-27D. Between the water table and the McBean Formation (P-27C) the hydraulic head decreases about 2 ft from elevation 267 ft to approximate elevation 265 ft. Between the McBean Formation (P-27C) and the Congaree Formation (P-27B), there is a decrease in the piezometric head of about 85 ft from elevation 265 ft to elevation 179 ft. Across the Williamsburg/Ellenton confining unit the piezometric head decreases from approximate elevation 179 ft in well P-27B (lower Congaree Formation) to approximate elevation 177 ft in well P-27TE which is screened in the Cretaceous age Peedee Formation. Heads in the 4 deeper wells completed in the Cretaceous section (P-27TD, P-27TC, P-27TB, and P-27TA) are also at approximate elevation 177 ft.

P-28 CLUSTER

The P-28 cluster is located outside the F Area perimeter fence at the location of existing well cluster FC-2 which was installed as part of a previous investigation in the mid 1970's. Figure 17 shows the detail location and individual well layout for both clusters. In all, a total of



NOTES:

- (1) Diagram not to scale.
- (2) Measurements between wells are from center of well to center of well.
- (3) Measurements from well to nearest road are made center of well to centerline of road.
- (4) Wells are completed with a 5'x5'x6" concrete pad.
(See Well Completion Diagram for detail-Appendix).
- (5) Δ - Wells installed prior to Phase III.

FIGURE 17. Location and Layout Map for Well Clusters P-28 and FC-2

12 wells are found at this location. Ground surface elevations range from approximately 280 ft to 286 ft.

The deep exploratory boring (P-28TA) was continuously cored from the ground surface to a total depth of about 840 ft below ground surface (approximate elevation -555 ft). The results of the coring and geophysical logging are presented on the graphic log on Figure 18. A detailed geologic log is provided in Appendix E. Profiles for the FC-2 and P-28 clusters are presented on Figure 19 and Figure 20, respectively, along with the approximate locations of the major clay and clayey zones. Table 10 and Table 11 are well completion summaries for the 2 clusters. A summary of the screen locations with respect to geologic formation is provided on Table 12.

All wells within the FC-2 cluster are completed in the Tertiary age formations above the Ellenton confining unit. These wells range in depth from approximately 80 ft for the water table well (FC-2F) to approximately 235 ft for the lower Congaree well (FC-2A). The 6 wells installed in the P-28 cluster are all completed in the Cretaceous age formations below the Ellenton Formation. These wells range in depth from approximately 340 ft for the uppermost well screened in the first permeable sand unit below the Ellenton and upper Cretaceous clays (P-28A) to approximately 780 ft for the deepest well at the site, P-28TA

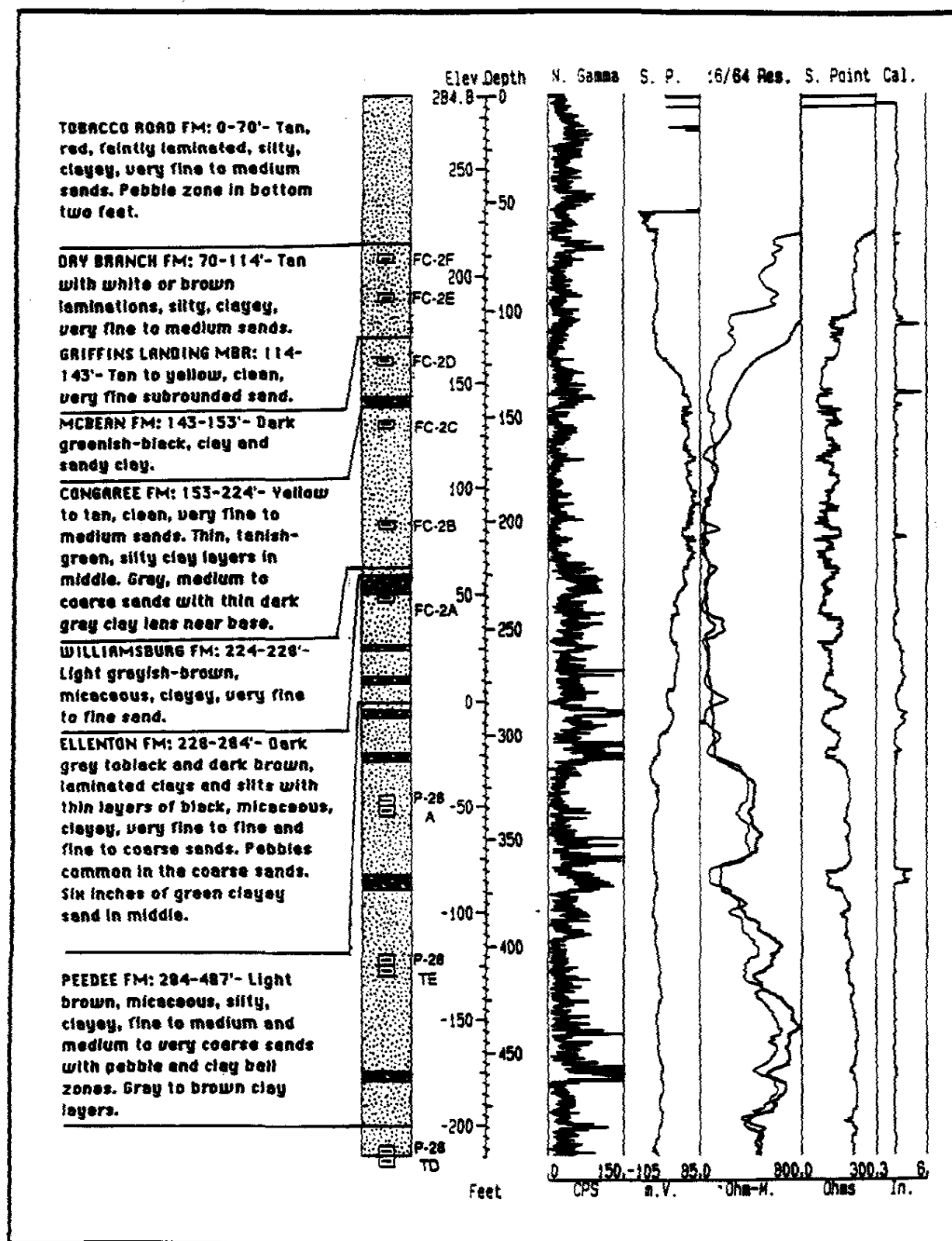


FIGURE 18. Graphic and Geophysical Logs for P-28TA

BLACK CREEK FM: 487-654'-
Gray to brown, micaceous,
silty, clayey, fine to coarse
sand. Organic fragments
are common.

MIDDLEBORO FM: 654-779'-
Brown, clayey, silty, fine to
coarse and medium to very
coarse sands with clay balls,
iron sulfide nodules, and
pebbles common. Thin, brown
and variegated, silty clay
present at top of unit.

CAPE FEAR FM: 779'-808'- stiff,
brown, gray, silty, micaceous
clays and partially indurated,
gray, brown feldspathic, very
clayey, fine to very coarse
sands.

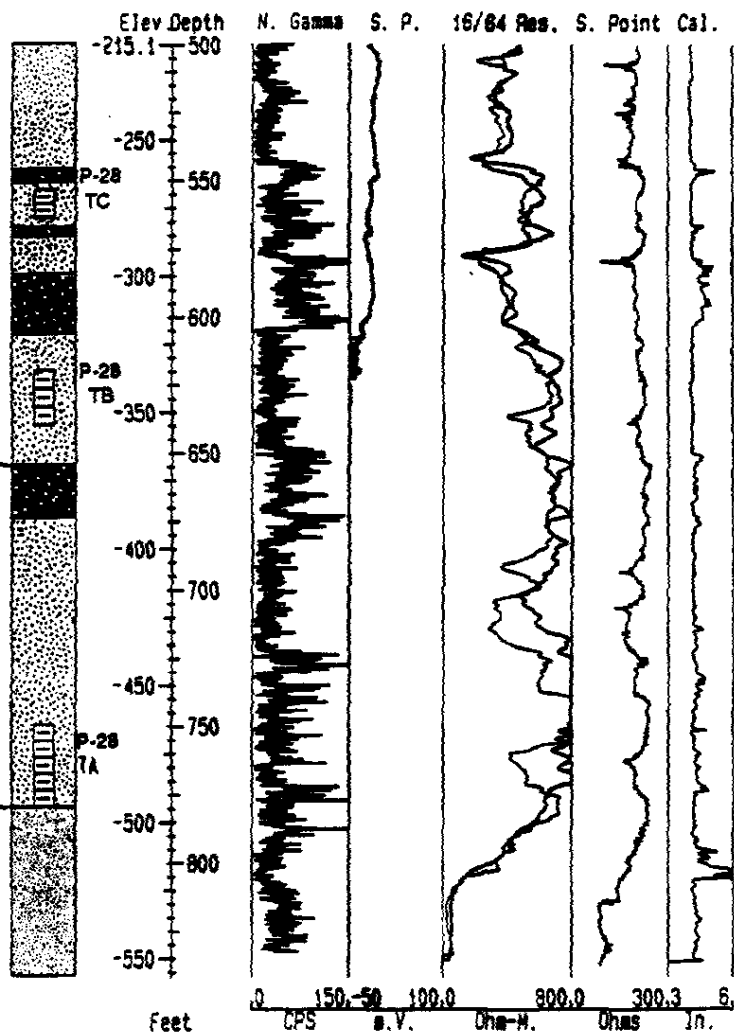


FIGURE 18, Contd

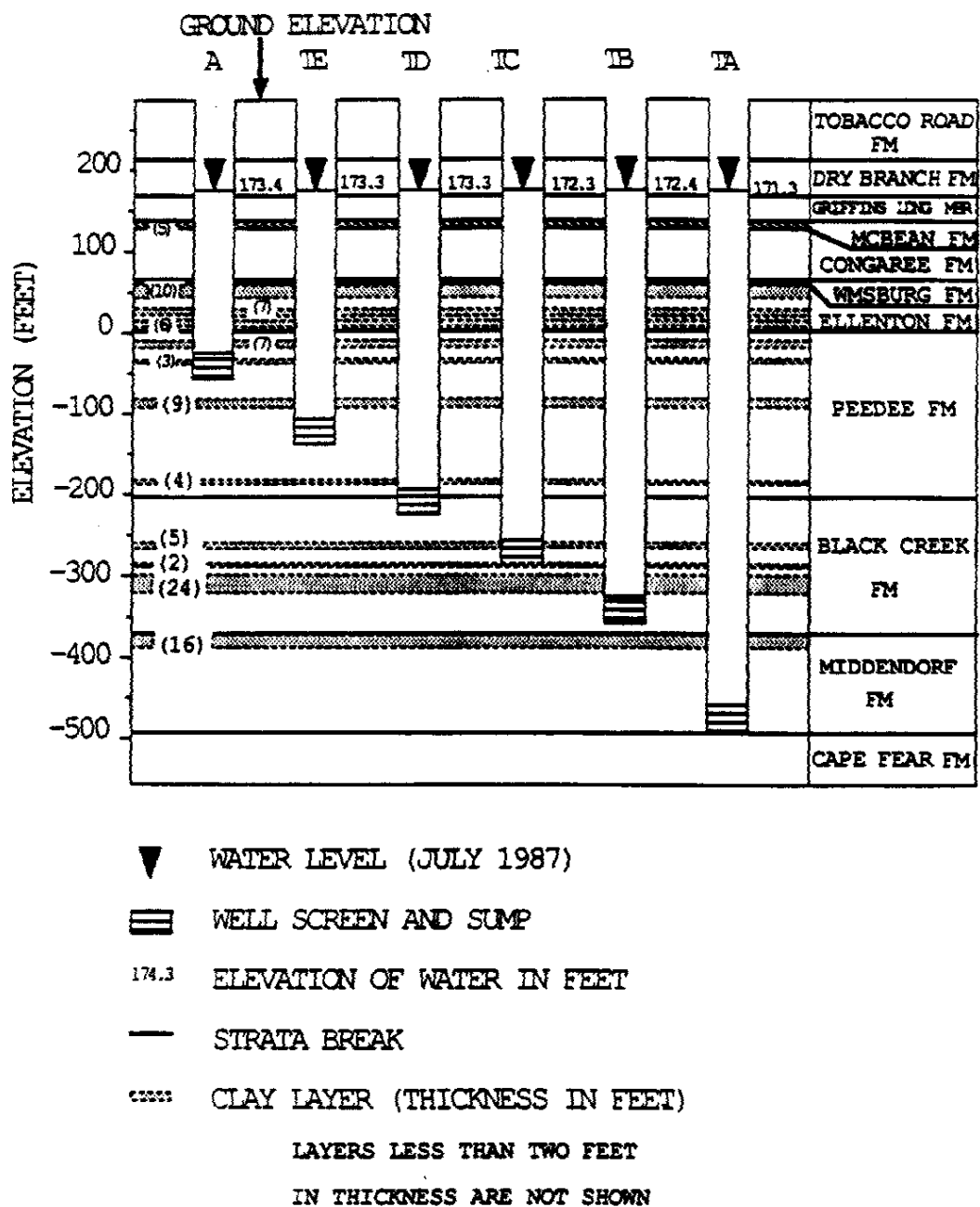
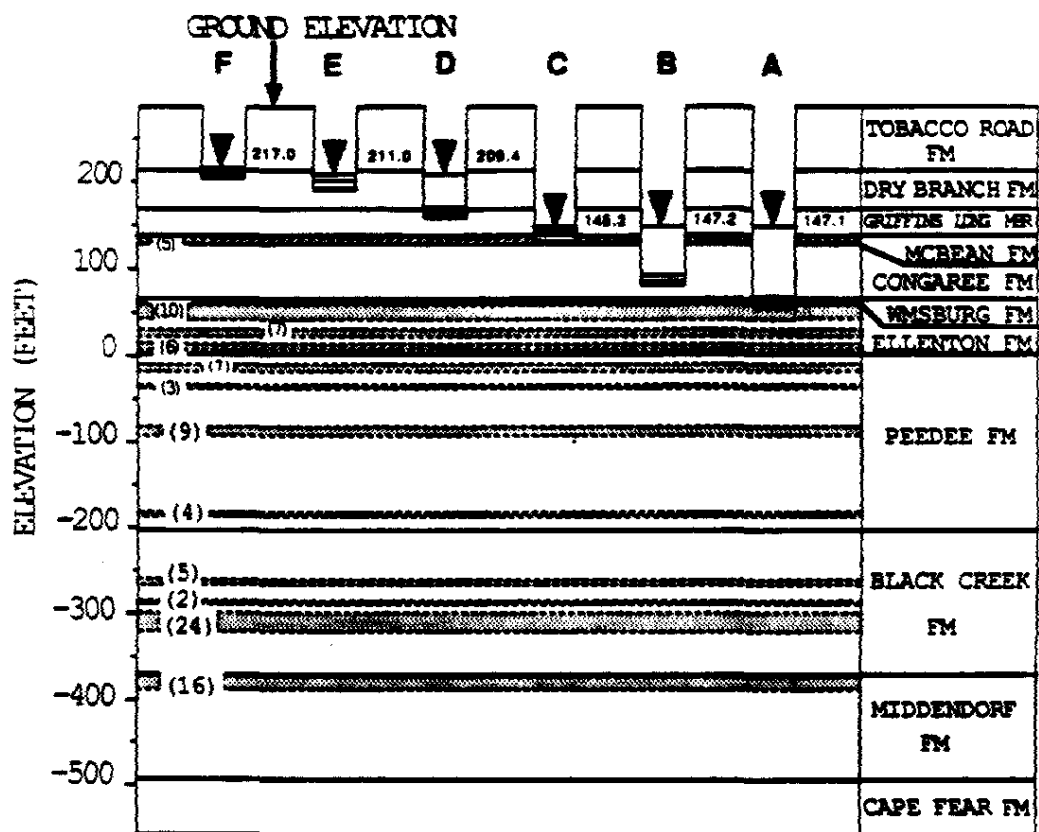


FIGURE 19. Profile of P-28 Well Cluster



- ▼ WATER LEVEL (JULY 1987)
- ≡ WELL SCREEN AND SUMP
- 147.3 ELEVATION OF WATER IN FEET
- STRATA BREAK
- CLAY LAYER (THICKNESS IN FEET)
- LAYERS LESS THAN TWO FEET
IN THICKNESS ARE NOT SHOWN

FIGURE 20. Profile of FC-2 Well Cluster

TABLE 10

Cluster P-28 Well Completion Summary

<u>Number</u>	<u>Total Depth (ft)</u>	<u>Screened Interval (ft)</u>	<u>Casing Type</u>	<u>Screen Type</u>	<u>Top of Gravel Pack(ft)</u>	<u>Top of Sand Pack(ft)</u>	<u>Base of Sump(ft)</u>	<u>Top of Ground Elevation</u>	<u>Top of Casing Elevation</u>	<u>Savannah River Plant Grid Coord.</u>
TA	790	747 780	4"Carbon Steel	#18 Slot Stainless	733	710	785	284.9	287.71	N79284.3 E55441.1
TB	650	618 640	4"Carbon Steel	#18 Slot Stainless	612	600	645	282.2	284.94	N79288.9 E55471.4
TC	572	553 564	4"Carbon Steel	#18 Slot Stainless	549	541	570	281.6	284.16	N79291.1 E55485.6
TD	515	494 505	4"Carbon Steel	#18 Slot Stainless	483	474	510	281.2	283.74	N79293.5 E55500.2
TE	425	404 415	4"Carbon Steel	#18 Slot Stainless	399	390	420	280.2	282.95	N79296.4 E55514.8
A	350	330 341	4"Carbon Steel	#18 Slot Stainless	321	315	346	282.6	285.32	N79275.2 E55487.9

TABLE 11

Cluster FC-2 Well Completion Summary

<u>Number</u>	<u>Total Depth (ft)</u>	<u>Screened Interval (ft)</u>	<u>Casing Type</u>	<u>Screen Type</u>	<u>Top of Gravel Pack(ft)</u>	<u>Top of Sand Pack(ft)</u>	<u>Base of Slump(ft)</u>	<u>Top of Ground Elevation</u>	<u>Top of Casing Elevation</u>	<u>Savannah River Plant Grid Coord.</u>
A	235	231 235	4"Carbon Steel	N/A	228	227	-----	288.1	290.05	N79243.6 E55423.8
B	214	204 209	4"Carbon Steel	N/A	199	196	-----	287.8	290.05	N79251.4 E55426.0
C	160	153 158	4"Carbon Steel	N/A	150	149	-----	287.5	289.31	N79259.7 E55423.7
D	128	123 128	4"Carbon Steel	N/A	121	119	-----	287.2	289.01	N79267.2 E55423.0
E	100	93 98	4"Carbon Steel	N/A	94	93	-----	286.9	288.82	N79275.6 E55423.7
F	83	74 79	4"Carbon Steel	N/A	68	66	-----	286.3	288.09	N79283.4 E55423.0

Note: FC-2 Cluster installed in 1977. There is no data on the type screens installed.

TABLE 12**Screened Intervals for Clusters P-28 and FC-2**

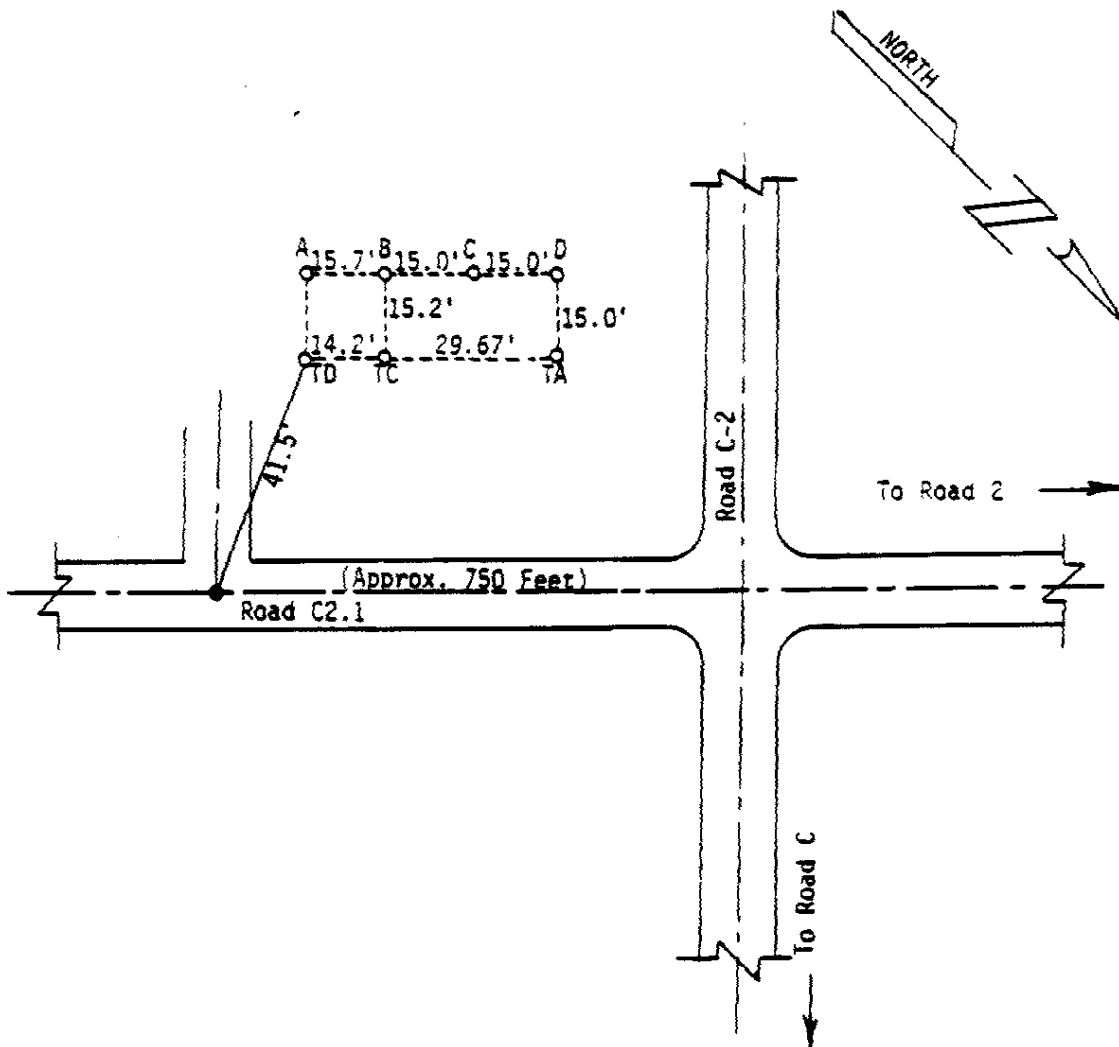
<u>Well</u>	<u>Ground Elevation</u>	<u>Approximate Depth of Screen Interval</u>	<u>Approximate Elevation of Screen Interval</u>	<u>Stratigraphic Interval</u>
FC-2F	286.3	74-79	212 to 207	Dry Branch
FC-2E	286.9	93-98	194 to 189	Dry Branch
FC-2D	287.2	123-128	164 to 159	McBean
FC-2C	287.5	153-158	135 to 130	Congaree
FC-2B	287.8	204-209	84 to 79	Congaree
FC-2A	288.1	231-235	57 to 53	Williamsburg
P-28A	282.6	330-341	-47 to -58	Upper Peedee
P-28TE	280.2	404-415	-123 to -135	Lower Peedee
P-28TD	282.1	493-505	-213 to -223	Upper Black Creek
P-28TC	281.6	553-564	-272 to -283	Black Creek
P-28TB	282.2	618-640	-336 to -358	Lower Black Creek
P-28TA	284.9	747-780	-462 to -495	Middendorf

Note: All measurements are in feet.

which is screened in the lower Middendorf Formation. The depth to the water table is found at a depth of about 70 ft below the ground surface (approximate elevation 217 ft) in well FC-2F. Below the water table, the water levels decrease from elevation 217 ft to approximately 209 ft in well FC-2D which is screened in the McBean Formation above the Green Clay unit. Across the Green Clay there is a drop in head of approximately 65 ft between well FC-2D (elevation 209 ft) and well FC-2C (elevation 145 ft) which is completed in the upper Congaree Formation. There is a head reversal (increase in head) of about 2 ft between the upper Congaree and the lower Congaree and Ellenton sands (wells FC-2B and FC-2A, respectively). There is also a substantial head reversal of about 26 ft across the Ellenton and upper Cretaceous clays where the piezometric surface in the Peedee Formation (P-28A) is at approximate elevation 173 ft. Below the Peedee the head decrease slightly with increasing depth down to the lower Middendorf Formation (well P-28TA) where the piezometric surface is found at an elevation of about 171 ft.

P-29 CLUSTER

Cluster P-29 is located in the vicinity of B Area (TC-1) approximately 800 ft southeast of SRP Road C-2 adjacent to Road C-2.1. The detail location and individual well layout for the cluster is shown on Figure 21. Ground sur-



NOTES:

- (1) Diagram not to scale.
- (2) Measurements between wells are from center of well to center of well.
- (3) Measurements from well to nearest road are made center of well to centerline of road.
- (4) Wells are completed with 5'x5'x6" concrete pad.
(See Well Completion Diagram for detail-Appendix).

FIGURE 21. Location and Layout Map for Well Cluster P-29

face elevation at the site is about 265 ft above mean sea level.

Exploratory boring P-29TA was cored from the ground surface to a total depth of about 805 ft (elevation -540 ft), terminating in the Cape Fear Formation. A graphic log of the P-29TA corehole along with the reduced geophysical logs are presented on Figure 22. Detail lithologic descriptions of the sediments encountered are found in Appendix F.

After evaluating the data collected from the corehole (P-29TA), 7 zones for placement of observation wells were chosen. These 7 wells range in depth from about 92 ft for the water table well (P-29D) to 690 ft for the deepest well in the cluster (P-29TA). A profile of the well cluster showing the relative screen locations for all the P-29 wells along with the major clay units encountered while drilling P-29TA is presented on Figure 23. A summary of the completion data for the cluster is shown on Table 13. Table 14 presents the location of the screen zones with respect to the geologic formations.

Of the 7 wells at this site, 3 are completed in the Tertiary age formations and 4 in the Cretaceous formations. The depth to the water table is about 95 ft. Water levels decrease from approximate elevation 171 ft at the water table (P-29D) to about elevation 166 ft in the lower Congaree (P-29B). However, across the Ellenton confining

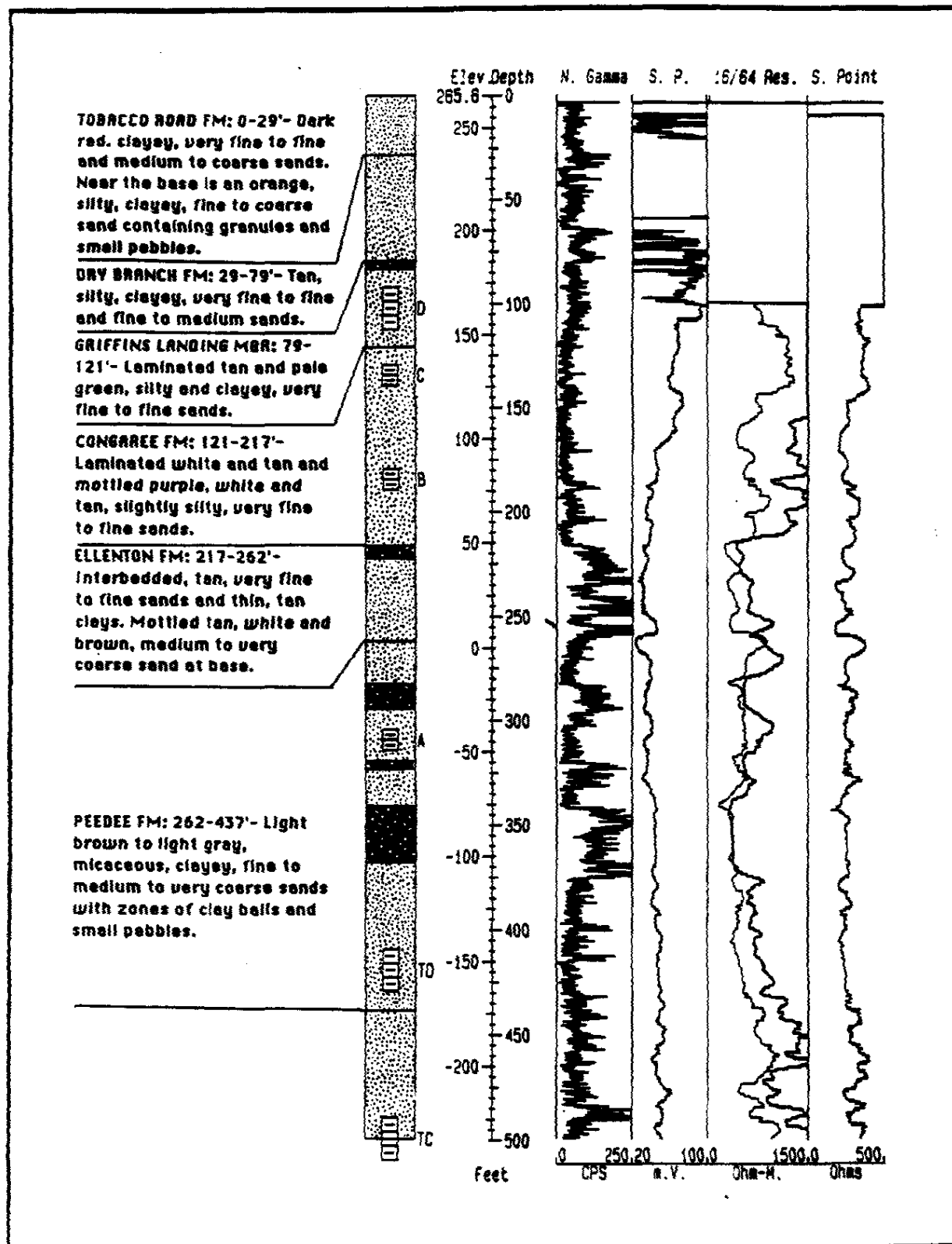


FIGURE 22. Graphic and Geophysical Logs for P-29TA

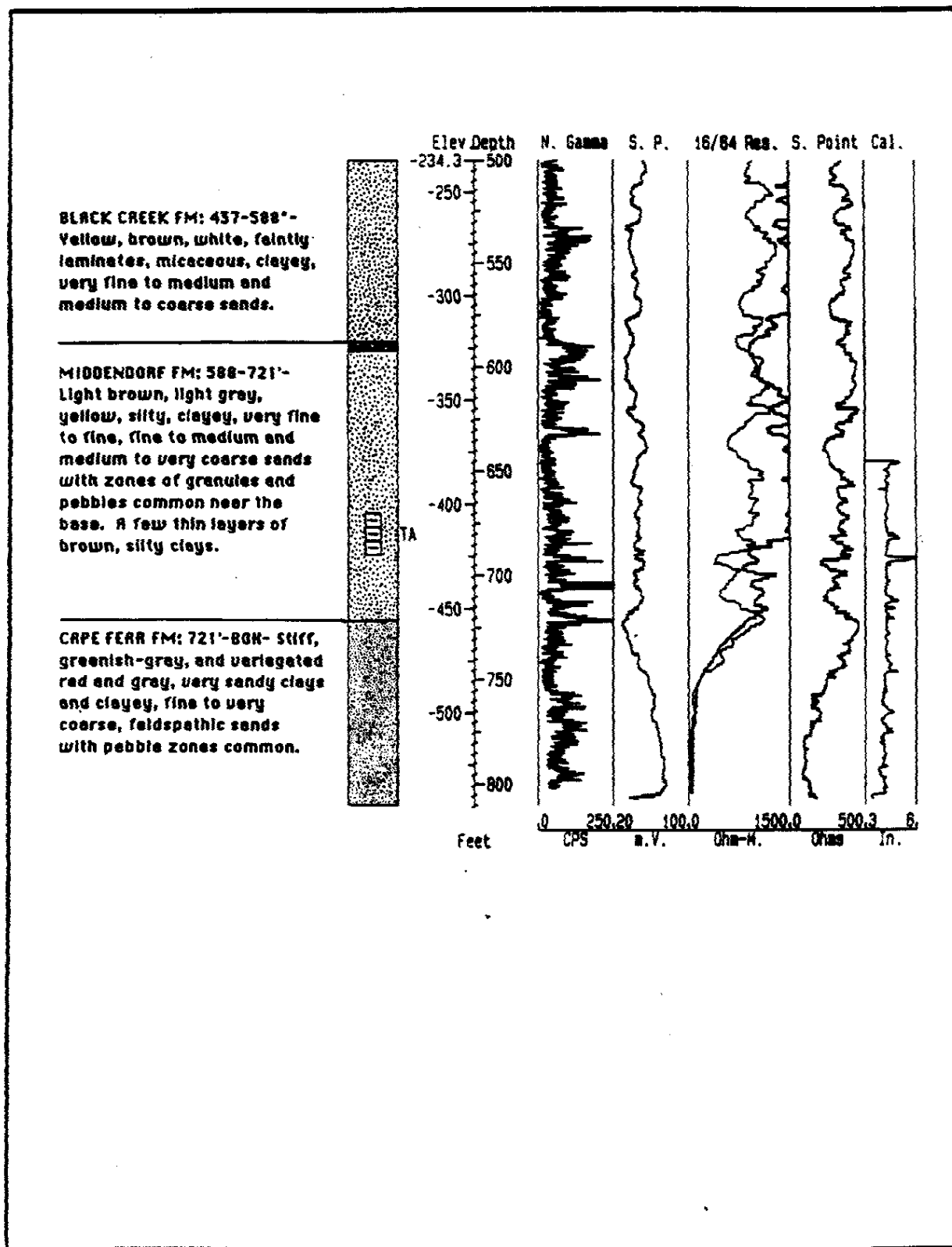
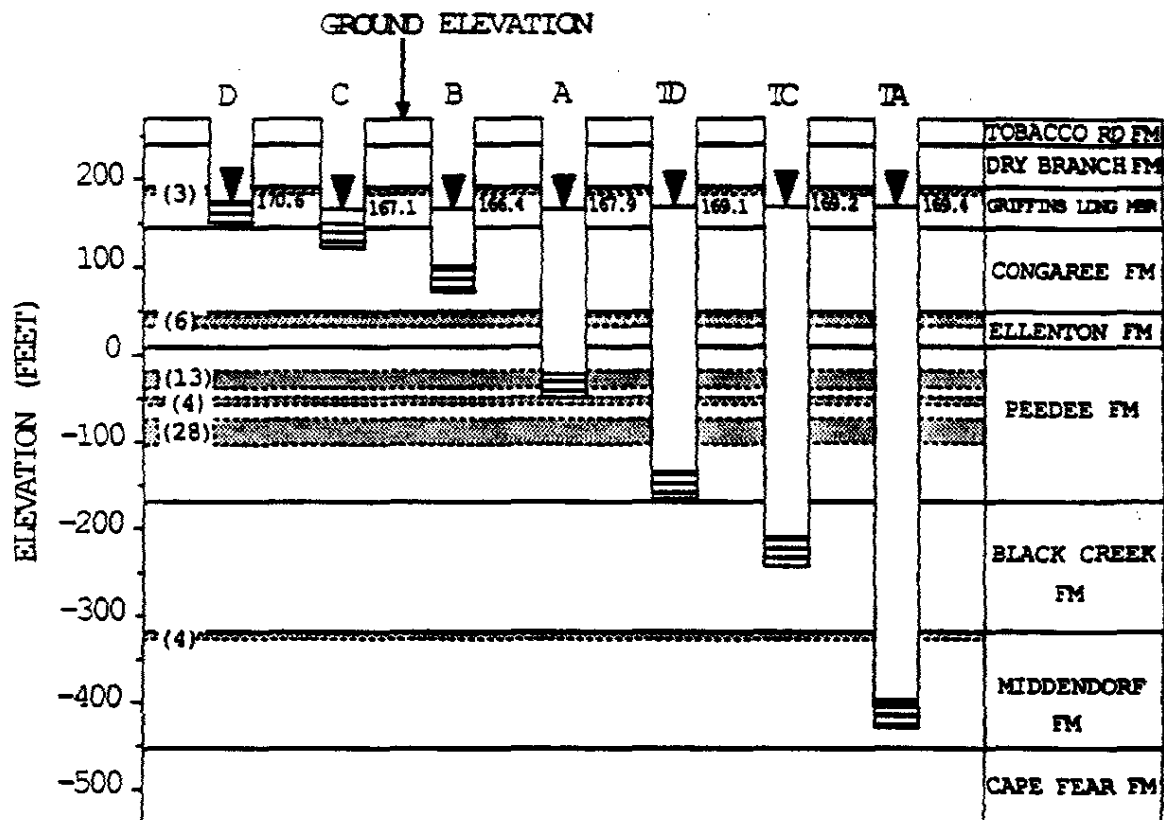


FIGURE 22, Contd



- ▼ WATER LEVEL (JULY 1987)
- ≡ WELL SCREEN AND SUMP
- 167.1 ELEVATION OF WATER IN FEET
- STRATA BREAK
- ~~~~~ CLAY LAYER (THICKNESS IN FEET)
- CLAY LAYERS LESS THAN TWO FEET
- IN THICKNESS ARE NOT SHOWN

FIGURE 23. Profile of P-29 Well Cluster

TABLE 13

Cluster P-29 Well Completion Summary

<u>Number</u>	<u>Total Depth (ft)</u>	<u>Screened Interval (ft)</u>	<u>Casing Type</u>	<u>Screen Type</u>	<u>Top of Gravel Pack(ft)</u>	<u>Top of Sand Pack(ft)</u>	<u>Base of Sump(ft)</u>	<u>Top of Ground Elevation</u>	<u>Top of Casing Elevation</u>	<u>Savannah River Plant Grid Coord.</u>
TA	700	669 690	4"Carbon Steel	#18 Slot Stainless	660	641	695	265.6	268.48	N86482.6 E42796.2
TC	520	488 510	4"Carbon Steel	#18 Slot Stainless	483	474	515	265.7	268.94	N86464.2 E42773.0
TD	440	408 430	4"Carbon Steel	#18 Slot Stainless	390	380	435	265.6	268.19	N86455.7 E42761.5
A	325	304 315	4"Carbon Steel	#18 Slot Stainless	299	290	320	266.0	268.94	N86466.5 E42751.6
B	200	180	4" Sch 40 PVC	#18 Slot PVC	175	167	195	266.0	268.90	N86476.1 E42763.7
C	150	130 140	4" Sch 40 PVC	#18 Slot PVC	129	125	145	266.2	269.08	N86485.1 E42775.4
D	120	93 113	4" Sch 40 PVC	#18 Slot PVC	89	81	118	265.8	268.81	N86494.6 E42787.2

TABLE 14**Screened Intervals for Cluster P-29**

<u>Well</u>	<u>Ground Elevation</u>	<u>Approximate Depth of Screen Interval</u>	<u>Approximate Elevation of Screen Interval</u>	<u>Stratigraphic Interval</u>
P-29D	265.8	93-113	173 to 153	Griffins Landing
P-29C	266.2	130-140	136 to 126	Congaree
P-29B	266.0	180-190	87 to 77	Congaree
P-29A	266.0	304-315	-38 to -49	Upper Peedee
P-29TD	265.6	408-430	-142 to -164	Lower Peedee
P-29TC	265.7	448-510	-223 to -244	Black Creek
P-29TA	265.6	668-690	-403 to -424	Middendorf

Note: All measurements are in feet.

unit, there is a slight head reversal of approximately 2 ft between the lower Congaree (elevation 166 ft) and the upper Peedee Formation where the piezometric head in well P-29A is approximately 168 ft. In the Cretaceous section, there is a slight increase in head with increasing depth from about elevation 168 ft in the Peedee Formation (P-29A) to about elevation 169 ft in the Middendorf Formation (P-29TA).

P-30 CLUSTER

The P-30 cluster is located approximately 1.7 miles southeast of A Area, about 1000 ft south of the new A Area well field, and 1000 ft west of SRP Road D-1. Figure 24 shows the detail location of the cluster along with the layout of the individual wells. The elevation of the ground surface at the site is about 357 ft above mean sea level.

The exploratory corehole (P-30TA) was cored from the ground surface to a total depth of 800 ft (approximate elevation -443). The corehole penetrated the entire thickness of the coastal plain sediments and terminated in the crystalline basement. The graphic log for the boring along with the reduced geophysical logs is shown on Figure 25. A detailed geologic log of the corehole is presented in Appendix G.

Based on the results of the coring and geophysical logs, a total of 8 wells were installed at the P-30 cluster

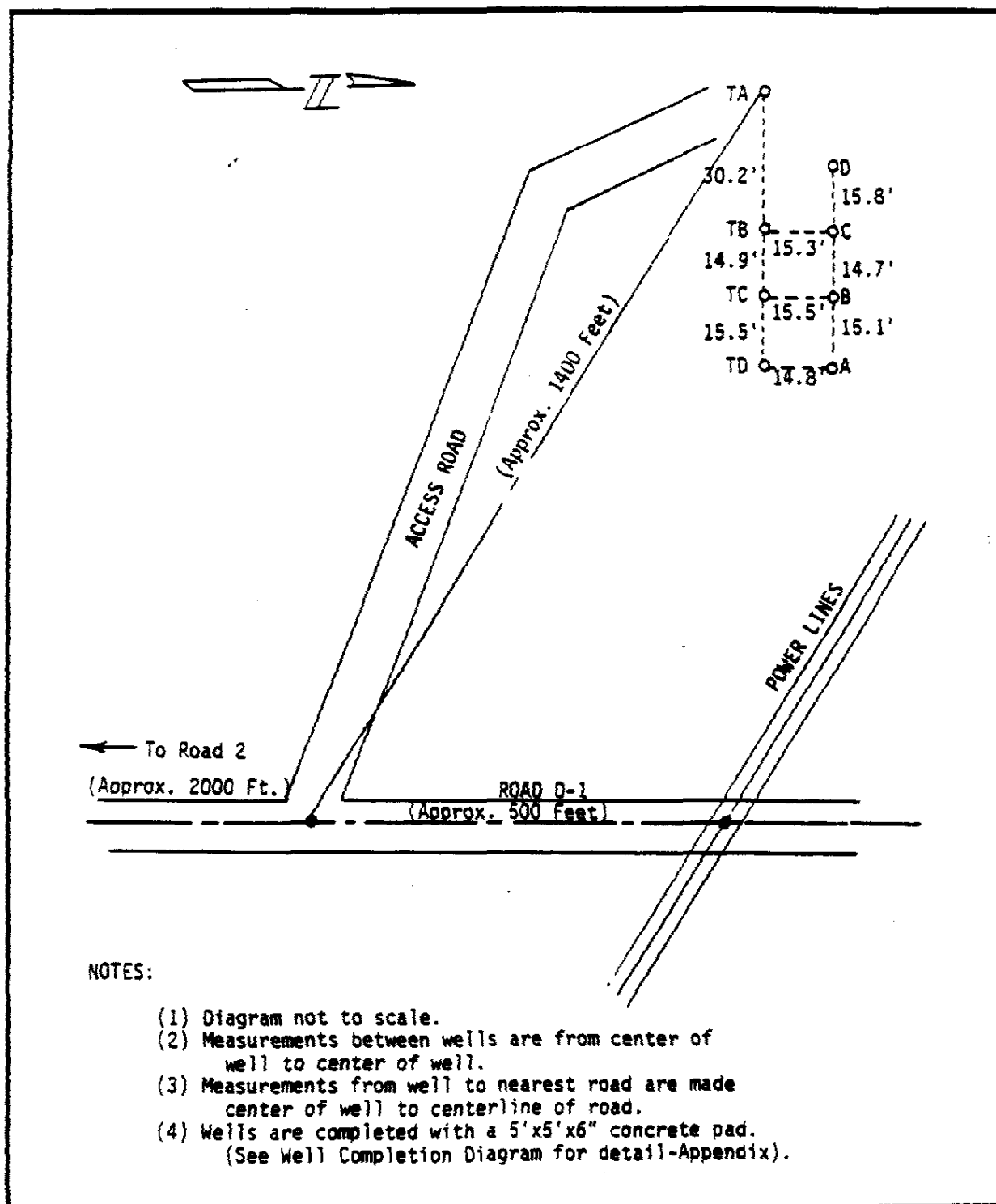


FIGURE 24. Location and Layout Map for Well Cluster P-30

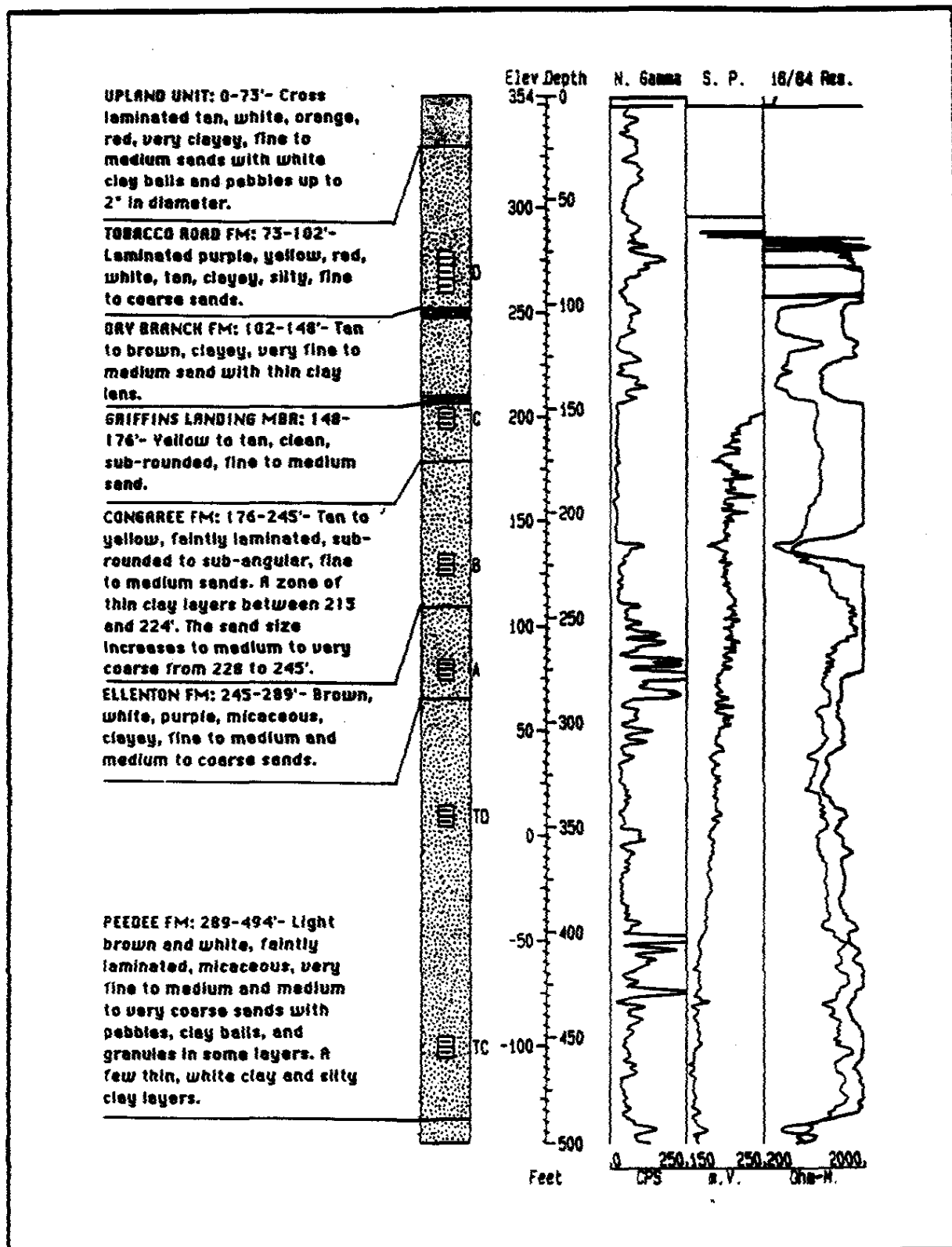


FIGURE 25. Graphic and Geophysical Logs for P-30TA

BLACK CREEK FM: 494-592'-
Thick gray and mottled gray,
purple and tan clay and silty
clays. White and tan,
laminated, silty, clayey,
very fine to medium and
medium to coarse sands with
clay balls and small pebbles
at base.

MIDDENDORF FM: 592-729'-
Hard, greenish-gray and
purple mottled, clayey silt.
Faintly laminated white and
purple, silty, very fine to fine
and fine to very coarse sands.
Milky quartz grains are
common. A few pebble and
clay ball zones near base.

CAPE FEAR FM: 729-750'- Hard,
crumbly, gray and purple
mottled, very fine sandy silts
and coarse angular pebbles
zones with a stiff, gray,
clayey, feldspathic, fine to
very coarse matrix.

CRYSTALLINE BASEMENT: 750'-
80H- Highly weathered, light
colored gneiss.

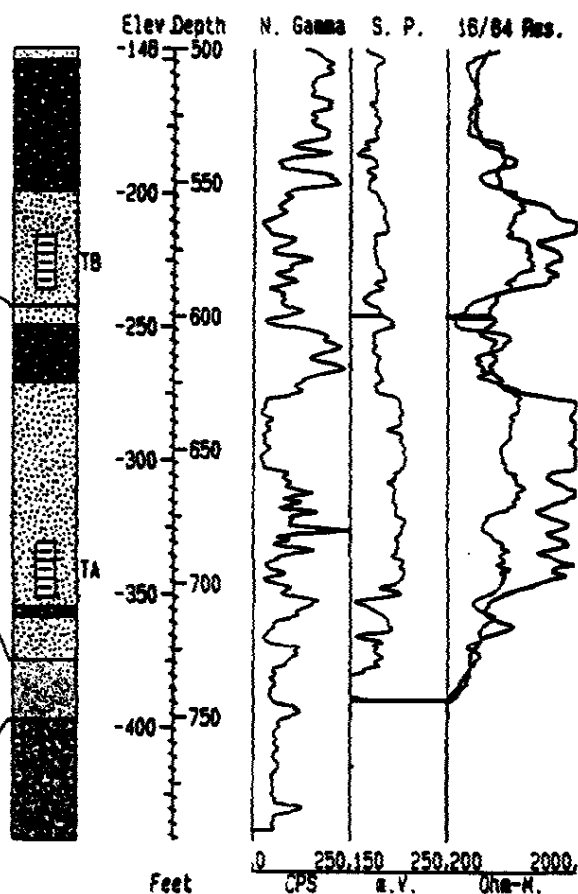


FIGURE 25, Contd

site. Before installing the deepest well (P-30TA), the open hole between the bottom of the corehole and the planned bottom of the well was backgrouted. The depths of the 8 wells range from about 95 ft for the water table well (P-30D) to about 705 ft for the deepest well in the cluster (P-30TA). Figure 26 is a profile of the cluster showing the depth relationships of the different wells along with the significant clays. Table 15 is a completion summary for the cluster. A summary of the geologic formations in which the wells are screened is given in Table 16.

The completed cluster consists of 4 wells screened within the Tertiary sequence (P-30D, P-30C, P-30B, and P-30A) and 4 wells screened within the Cretaceous sequence (P-30TD, P-30TC, P-30TB, and P-30TA). The water table is found at a depth of about 100 ft, approximate elevation 255 ft. There is a 45 ft drop in head between the water table well (P-30D) and well P-30C, which is completed in the Dry Branch Formation/ Griffins Landing Member. Below well P-30C (elevation 210 ft) there is a gradual decrease in head with increasing depth down to the lower Peedee Formation where the piezometric surface in well P-30TC is at elevation 205 ft. Across a thick (about 50 ft) clay in the upper Black Creek, the piezometric head decreases about 7 ft between the lower Peedee and the lower Black Creek from approximate elevation 205 ft in well P-30TC to 198 ft in well P-30TB.

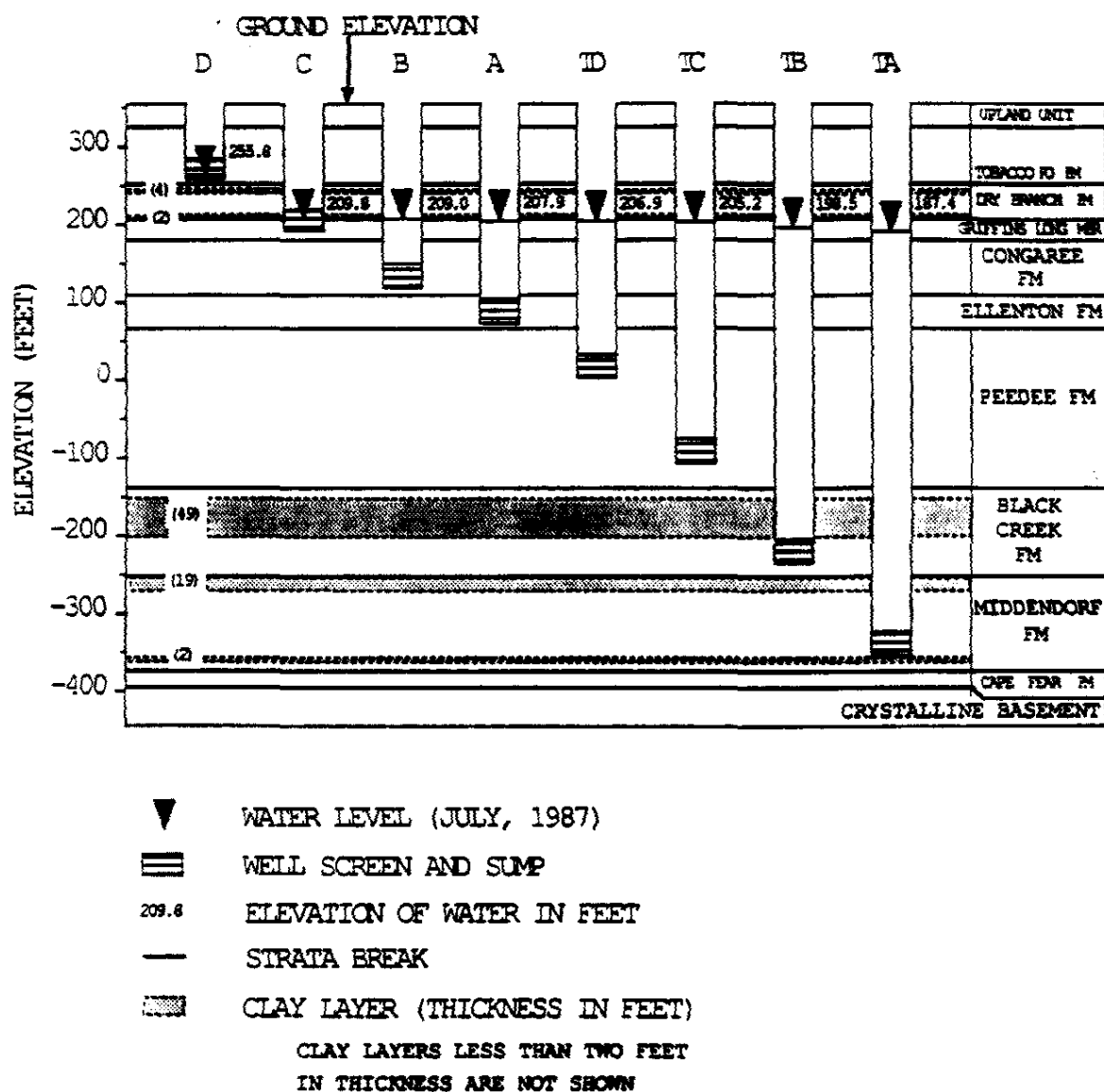


FIGURE 26. Profile of P-30 Well Cluster

TABLE 15

Cluster P-30 Well Completion Summary

<u>Number</u>	<u>Total Depth (ft)</u>	<u>Screened Interval (ft)</u>	<u>Casing Type</u>	<u>Screen Type</u>	<u>Top of Gravel Pack(ft)</u>	<u>Top of Sand Pack(ft)</u>	<u>Base of Sump(ft)</u>	<u>Top of Ground Elevation</u>	<u>Top of Casing Elevation</u>	<u>Savannah River Plant Grid Coord.</u>
TA	715	683 705	4"Carbon Steel	#18 Slot Stainless	651	641	710	354.4	357.39	N98933.3 E57104.5
TB	600	568 590	4"Carbon Steel	#18 Slot Stainless	566	554	595	354.2	357.14	N98962.1 E57113.2
TC	470	449 460	4"Carbon Steel	#18 Slot Stainless	455	434	465	354.1	356.98	N98976.3 E57117.5
TD	360	339 350	4"Carbon Steel	#18 Slot Stainless	333	321	355	354.0	356.84	N98991.2 E57121.6
A	290	270 280	4" Sch 40 PVC	#18 Slot PVC	263	254	285	354.0	356.66	N98997.7 E57108.5
B	240	220 230	4" Sch 40 PVC	#18 Slot PVC	210	205	235	354.0	356.59	N98983.3 E57103.8
C	170	149 159	4" Sch 40 PVC	#18 Slot PVC	143	139	165	354.0	356.66	N98969.2 E57099.6
D	105	75 95	4" Sch 40 PVC	#18 Slot PVC	70	67	100	354.1	356.77	N98954.2 E57094.6

TABLE 16**Screened Intervals for Cluster P-30**

<u>Well</u>	<u>Ground Elevation</u>	<u>Approximate Depth of Screen Interval</u>	<u>Approximate Elevation of Screen Interval</u>	<u>Stratigraphic Interval</u>
P-30D	354.1	75-95	279 to 259	Tobacco Road
P-30C	354.0	149-159	205 to 195	Griffins Landing
P-30B	354.0	220-230	135 to 125	Congaree
P-30A	354.0	270-280	85 to 75	Ellenton
P-30TD	354.0	339-350	15 to 4	Upper Peedee
P-30TC	354.1	449-460	-95 to -106	Lower Peedee
P-30TB	354.2	568-590	-214 to -236	Black Creek
P-30TA	354.0	683-705	-329 to -351	Middendorf

Note: All measurements are in feet.

There is also a head drop of about 11 ft between the lower Black Creek and the Middendorf, from an approximate elevation of 198 ft in P-30TB to 187 ft in P-30TA.

As can be seen on Figures 25 and 26, the lithologic character of the sediments at this location compared with the other sites is significantly different, especially in the number, thickness, and distribution of clay and clay lenses throughout the entire depth of the corehole. A fact that is immediately apparent is that the Ellenton Formation at this location is mainly a sand with little or no confining characteristics. Also clay layers associated with the Peedee Formation are absent. This would indicate that the Congaree, Ellenton, and Peedee Formations are potentially hydraulically interconnected in this location.

WELL CONSTRUCTION AND COMPLETION

After completion of the exploratory boring at each of the cluster sites, all available data for the site were reviewed and the locations of the zones to be screened were selected. The aim of the program, as discussed earlier, was to complete an observation well in each of the major hydrogeologic units as defined by the modified terminology of Siple, and shown on the Typical Well Cluster Designation (Figure 3). The locations of the wells in the stratigraphic column are shown on the profiles of the completed clusters.

Some of the stratigraphic names used differ from Siple, reflecting some of the current interpretations and usage.

All of the wells installed as part of the Phase III program were gravel pack designed, meaning that the boreholes were drilled to a large enough diameter (nominally 12-inches) to allow the placement of a selected graded sand/gravel uniformly around the well screen. The selection of the filter material was based on the results of sieve analyses performed on composite samples from the zone to be screened in each well. The grain size distribution curves for the filter material used and the composite samples from the screen zones can be found in PSI (1988) report.

Prior to the drilling and installation of each well, all tools, equipment, casings, and screens were steam cleaned to prevent the possible introduction of contaminants into the well. Vertical alignment of the wells was checked by means of an E-C Inclinator, an instrument that is used to record the inclination of a borehole. (Specification called for the completed wells to be within a maximum deviation of 2 degrees of vertical at the bottom.)

Wells generally less than 300 ft in total depth were constructed of 4-inch diameter threaded flush joint Schedule 40 PVC casing and screens. Wells greater than about 300

ft were constructed with 4-inch threaded and coupled carbon steel (ASTM A-53) casing and wire-wound stainless steel screens. Number 18 slot screens were used in all wells. Either a 3 or 5 ft sump was installed below the screen in each well. Stainless steel centralizers were placed at the bottom and the top of the screen, and approximately every 100 ft thereafter to center the well in the borehole.

After placement of the casing and screen in the borehole, the sand/gravel pack material, selected on the basis of the aquifer sieve analysis, was placed around and to a minimum of 3 ft above the screen by means of a tremie. A minimum of 3 ft of fine to medium sand was placed above the sand/gravel pack, followed by a 3 ft (minimum) fine sand or bentonite seal. The remaining annulus was filled with a grout mixture consisting of Class A Portland cement and 10 percent by volume bentonite. The grout was placed by pumping through a tremie from the top of the sand/bentonite seal to the ground surface.

Each well was allowed to set at least 24-hours before beginning any development work. Initial development was accomplished by an alternating sequence of surging above the screen and then blowing the well with compressed air until the discharge water at the ground surface was free of suspended sediments. After initial development, submersible pumps were temporarily installed in each well, and the well

pumped for several hours. The total number of hours spent on development and the total amount of water pumped from each well are summarized on Table 17.

Following development, each well was completed by installing a 6-inch steel protective surface casing with lockable cap over the well casing. A five (5) ft by five (5) ft by six (6) inch thick concrete surface pad with four, four (4) inch by five (5) ft long, steel post set at each corner and filled with concrete completed each well. A typical well completion diagram is shown on Figure 27. Detail completion diagrams for each well are contained in the PSI (1988) report along with casing tally sheets.

HYDROSTRATIGRAPHY

Stratigraphy

Stratigraphy of the coastal plain deposits underlying and surrounding the SRP site is a subject of continuing debate. The most commonly used and cited stratigraphic terminology at the SRP site is one modified from Siple (1967). These formational names developed for the site by Siple do not agree with more recent work by others. However, these terms have and continue to be useful in describing the groundwater systems beneath the site. A tentative correlation of stratigraphic nomenclature is presented on Figure 28.

TABLE 17

Summary of Well Development

<u>Well</u>	<u>Ground Elevation</u>	<u>Water* Depth</u>	<u>Water Elevation</u>	<u>Development Time (hr)</u>	<u>Pumping Time (hr)</u>	<u>Gallons Pumped</u>
P-24D	313.1	42.6	273.1	17.2	10.0	7,034
P-24C	313.2	65.0	250.8	4.0	10.0	1,166
P-24B	313.3	70.5	245.2	14.0	10.0	8,687
P-24A	313.1	122.3	193.2	6.0	10.0	1,380
P-24TD	313.2	141.6	174.1	26.1	9.5	1,853
P-24TC	313.3	141.7	174.3	12.3	10.0	11,170
P-24TB	313.4	133.7	182.3	8.8	10.0	5,001
P-24TA	313.1	132.7	183.1	23.3	10.0	20,000
P-25D	264.7	54.4	212.3	6.0	10.0	510
P-25C	264.9	67.8	198.9	9.5	10.0	1,971
P-25B	265.2	77.2	190.0	8.5	10.0	1,475
P-25A	265.5	95.6	171.6	5.5	10.0	1,569
P-25TE	265.4	102.1	165.1	8.4	10.0	7,374
P-25TD	265.3	103.7	163.6	14.2	10.0	4,816
P-25TC	265.2	102.9	164.2	3.4	10.0	4,760
P-25TB	265.1	96.9	170.1	15.1	10.0	6,992
P-25TA	264.7	95.0	171.7	40.0	17.3	34,500
P-26D	151.2	34.1	119.9	17.5	10.0	6,781
P-26B	151.4	44.5	109.5	16.0	10.0	6,615
P-26A	151.2	36.9	117.1	16.0	10.0	8,066
P-26TD	151.0	8.1	145.7	17.2	10.0	6,103
P-26TC	151.2	#	#	14.2	10.0	11,833
P-26TB	151.3	#	#	14.8	#	#
P-26TA	151.5	#	#	19.0	#	#
P-27D	274.0	9.3	266.7	15.2	10.0	4,857
P-27C	273.8	11.4	264.8	21.5	10.0	3,998
P-27B	273.8	96.8	179.4	24.0	10.0	8,830
P-27TE	273.6	98.3	177.6	29.2	10.0	1,602
P-27TD	273.6	97.2	178.1	24.5	10.0	1,010
P-27TC	273.6	99.0	177.1	40.0	18.0	8,846
P-27TB	273.5	98.5	177.2	47.0	25.0	20,542
P-27TA	273.6	100.6	175.3	16.2	10.0	20,000

Note: All measurements are in feet

* All water depth measurements from top of casing

Artesian well

TABLE 17, Contd

<u>Well</u>	<u>Ground Elevation</u>	<u>Water* Depth</u>	<u>Water Elevation</u>	<u>Development Time (hr)</u>	<u>Pumping Time (hr)</u>	<u>Gallons Pumped</u>
P-28A	282.6	111.9	173.4	20.0	10.0	1,610
P-28TE	280.2	109.7	173.3	40.0	16.5	3,580
P-28TD	281.2	110.5	173.3	18.2	11.5	**
P-28TC	281.6	111.8	172.3	19.8	10.	1,369
P-28TB	282.2	112.5	172.4	40.5	20	14,008
P-28TA	284.9	116.4	171.3	13.5	10.0	20,000
P-29D	265.8	98.0	170.6	16.3	10.0	**
P-29C	266.2	102.0	167.1	13.3	10.0	5,888
P-29B	266.0	102.5	166.4	19.0	10.0	9,545
P-29A	266.0	101.0	167.9	19.8	10.0	4,043
P-29TD	265.6	99.1	169.1	19.3	18.0	5,658
P-29TC	265.7	99.7	169.2	18.8	10.0	8,227
P-29TA	265.6	99.1	169.4	12.5	10.0	20,000
P-30D	354.1	101.0	255.8	22.4	2.7	**
P-30C	354.0	146.9	209.8	20.3	10.0	2,531
P-30B	354.0	147.6	209.0	18.6	10.0	6,813
P-30A	354.0	148.8	207.9	16.2	10.0	7,627
P-30TD	354.0	149.9	206.9	12.0	10.0	**
P-30TC	354.1	151.8	205.2	36.0	10.0	2,663
P-30TB	354.0	158.6	198.5	14.8	10.0	1,130
P-30TA	354.4	170.0	187.4	14.5	10.0	20,000

Note: All measurements are in feet

* All water depth measurements from top of casing

** Flowmeter malfunction

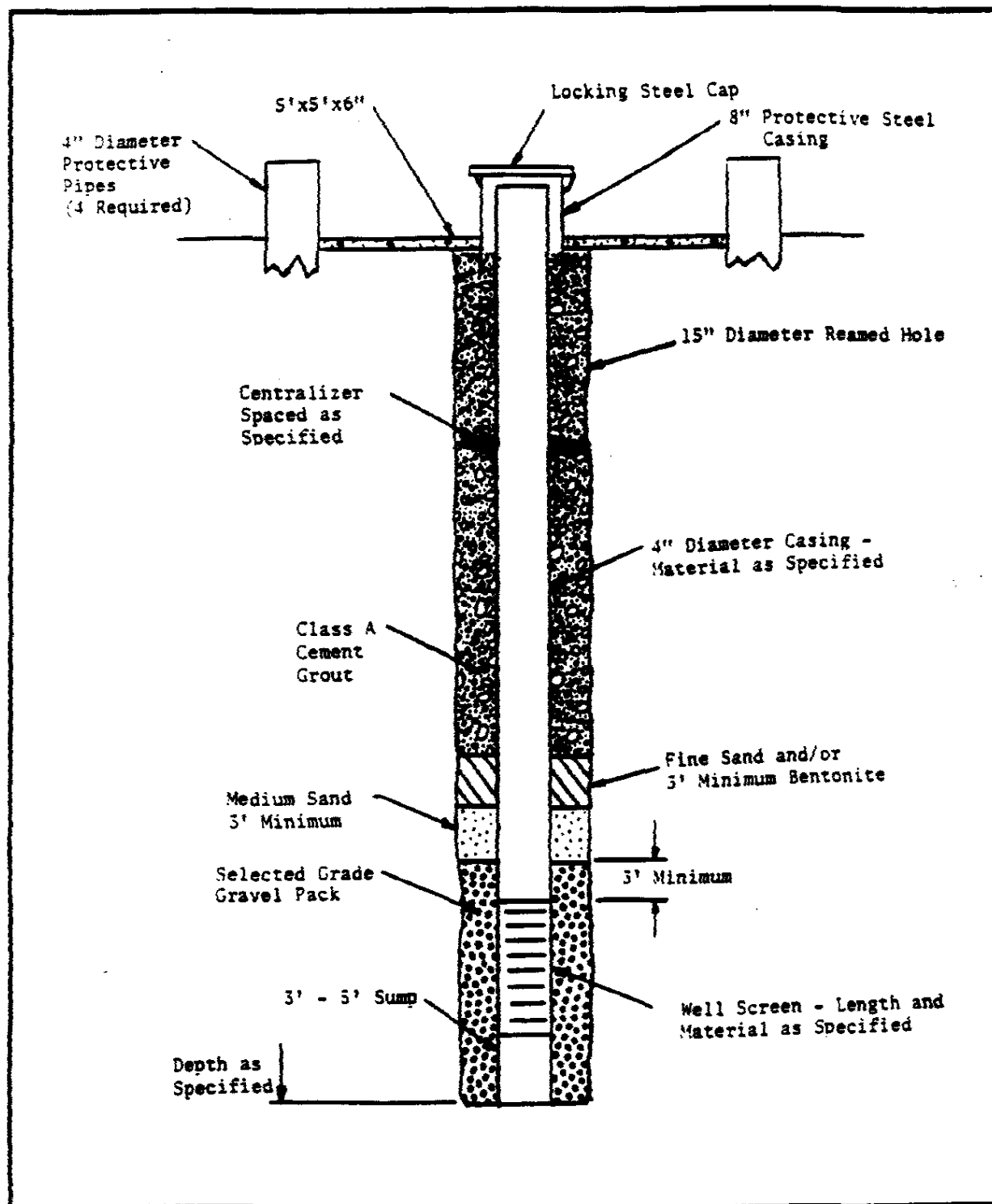


FIGURE 27. Typical Well Completion Diagram

SERIES	TERMINOLOGY THIS REPORT	MODIFIED SIPLE * TERMINOLOGY	COLQUHOUN **
MIOCENE	UPLAND UNIT	HAWTHORN	HAWTHORN
OLIGOCENE			COOPER GROUP
UPPER EOCENE	TOBACCO ROAD DRY BRANCH Griffins Landing Mbr Tan Clay	BARNWELL Tan Clay	BARNWELL OCALA
MIDDLE EOCENE	Mc BEAN Green Clay CONGAREE	Mc BEAN Green Clay CONGAREE	ORANGEBURG GROUP AIKEN Mc BEAN WARLEY HILL CONGAREE
PALEOCENE	WILLIAMSBURG ELLENTON	ELLENTON	BLACK MINGO GROUP WILLIAMSBURG ELLENTON
UPPER CRETACEOUS	PEEDEE BLACK CREEK MIDDENDORF CAPE FEAR	UPPER TUSCALOOSA LOWER TUSCALOOSA	LUMBEE GROUP PEEDEE BLACK CREEK MIDDENDORF

* SIPLE (1967)

** COLQUHOUN (1983)

FIGURE 28. Correlation of Stratigraphic Nomenclature

The formational boundaries as shown on the graphic logs in this report (Figures 5, 8, 11, 14, 17, 20, 23, and 26) were defined through a detailed lithologic examination of the core samples, comparison with the geophysical logs, and review of the current literature. Some formational boundaries are difficult to discern and will probably change as additional information and more detailed studies improve the overall understanding of the subsurface stratigraphy of both the site and the region.

The stratigraphic nomenclature used in this report differs from that of Siple as follows. The uppermost Tertiary age unit of Siple, the Hawthorn Formation, is herein referred to as the Upland Unit. The Upland Unit is underlain by the Tobacco Road and Dry Branch Formations which generally correlate with the Barnwell Formation of Siple. Calcareous sediments lying stratigraphically above the Green Clay unit have previously been assigned to the McBean Formation; however, there is some evidence that the higher elevation calcareous beds should be assigned to the Griffins Landing Member of the Dry Branch Formation. Also, some non-calcareous "sugar sands" found at the same elevation as the Griffins Landing Member may represent sands leached of their calcareous matrix. Paleontological studies will be required to determine if these interpretations are correct. Sediments previously assigned to the lower

Congaree Formation and in some cases to the uppermost Ellenton Formation are assigned to the Williamsburg Formation. These sediments are distinguished from the Congaree sands by the presence of mica, and a high silt or clay content and from the Ellenton by the light gray, brown to white color. The Cretaceous age section, Siple's Tuscaloosa Formation, is divided into the Peedee Formation at the top, the Black Creek Formation, the Middendorf Formation, and the Cape Fear Formation at the bottom.

The sediments assigned to the Peedee Formation were identified at all sites and are distinguished by the light color of the sands as compared to the Black Creek Formation and by the medium gray to brown to variegated color of the clays. The unit previously known as the "Middle Tuscaloosa Clay" is now included in the Black Creek Formation. The Black Creek consists of silty, lignitic, medium to dark brown or gray sands and gray to black clayey silts and silty clays. The top of the Middendorf appears to be a discontinuous thinner clay and/or silt unit separating the darker sands of the lower Black Creek from the more distinctive lighter sands of the Middendorf. The Cape Fear Formation underlies the Middendorf.

The Tertiary System at the site consists of the Ellenton Formation of Paleocene age, the Williamsburg Formation of Paleocene-Eocene age, the Congaree, McBean,

Dry Branch and Tobacco Road Formations of Eocene age, and the Upland Unit of Oligocene-Miocene(?) age.

Considerable variation exists within the formations between the different sites; both in the dip and strike directions. The most obvious variation is the increase in the number and thickness of clay and carbonate units in the downdip direction. Color changes also occur in all formations in both the dip and strike directions.

Lithology

Lithologically the Cape Fear Formation consists of stiff to indurated, greenish-gray to brown, very poorly sorted, micaceous, very silty, very clayey, fine to very coarse to pebbly, feldspathic sands, and gray to variegated, silty fine sandy clays with very low porosity. The formation is characterized by very low resistivity on the geophysical logs. The Cape Fear was encountered at all sites with the exception of P-26 where the corehole terminated in the Middendorf due to hole stability problems.

The Middendorf Formation which overlies the Cape Fear consists of gray to brown, silty, fine to very coarse sands with scattered pebble zones grading upwards into thin to thick silts or silty clays. Wood fragments and iron sulfide nodules are occasionally found. At the P-29 and P-30 cluster sites the Middendorf sediments are predominantly light colored sands with a few thin clay layers..

Overlying the Middendorf is the Black Creek Formation which consists of darker brown to gray, micaceous, very silty, very fine to very coarse sands commonly containing wood fragments and iron sulfide nodules, and dark gray to black clayey silts and silty clays. At the P-29 and P-30 sites, the sediment sediments are predominantly lighter colored sands.

The Peedee Formation which overlies the Black Creek Formation is a light gray, micaceous, clayey, very fine to very coarse sand with zones of pebbles and clay balls, and thin to thick light gray to light brown and variegated red and gray clays and silty clays.

The Ellenton Formation consists of dark gray to black, laminated to layered, micaceous clays and silty clays and dark gray, micaceous very silty, very fine to coarse sands. Wood fragments and iron sulfide nodules are found in the sand units. In the middle of the section at sites P-27 and P-28, dark greenish-black, glauconitic(?), sandy clay or clayey sand layers occur. A pebble zone is usually found at the bottom of the sand unit. At sites P-29 and P-30, the sediments at the same stratigraphic position as the Ellenton are not typical of the Ellenton Formation. At the P-29 site these sediments consist of interbedded tan, very fine to fine sands and thin clays. At the P-30 site the sediments are laminated brown, white, and purple,

micaceous, clayey fine to coarse sands. It is possible that these sediments represent another stratigraphic unit such as the Williamsburg and the Ellenton is not present at these two locations

The Williamsburg Formation was identified only at sites P-24, P-27, and P-28 of the Phase III program. At the P-27 site, the formation was represented by 24 ft of light gray to variegated red, gray, and tan clay. At the P-28 site the sediments consists of 4 ft of light grayish-brown, micaceous, clayey, very fine to fine sand. At the P-24 site, the formation consists of white, micaceous, silty, clayey fine to coarse sands with thin white to greenish-gray, faintly laminated clays.

The Congaree Formation consists of gray, yellow and tan, moderately well-sorted, clean to silty, sub-angular to sub-rounded, fine to very coarse sands. Thin gray to green clay layers are usually found at the base and middle of the formation. At P-29, the sands are very fine to fine laminated white and tan or mottled purple, white and tan to slightly silty.

The McBean Formation consists of tan to yellow, well sorted, sub-rounded to sub-angular, clean to silty, very fine to medium sands. At the P-25 cluster site, the top 6 ft consists of a tan and yellow marl with crumbly white limestone fragments. At sites P-24 and P-27, there are thin

layers of cemented sandstone. A dark greenish-black clay or sandy clay is found at the base of the unit at sites P-25, P-26, P-27, and P-28.

The Griffins Landing Member of the Dry Branch Formation was identified only at sites P-24, P-25, and P-27. At the P-24 site, the unit consists of a greenish-gray marly sand at the top and a greenish-white shell hash at the bottom. At sites P-25 and P-27, it consists of pale green to yellow to tan, sub-rounded, well sorted, very fine to medium sands. Where no calcareous material is found in the section, the carbonates were probably removed through leaching by groundwater.

The Dry Branch Formation consists of laminated tan, clayey fine to medium sands with thin pale green to tan clay layers commonly found at the base.

The Tobacco Road Formation consists of laminated, tan, orange, purple, and white clayey to silty poorly sorted fine to very coarse sands with pebble zones occasionally found near the base.

The Upland Unit, the youngest of the Tertiary age formations identified at the site consists of laminated or mottled, red, tan, purple, and white very clayey sands to very sandy clays. The sands are very poorly sorted and pebble zones and clay balls approximately 1/4 to 1/2 inch in diameter common.

Hydrogeology

The hydrogeologic nomenclature used in this report divides the units developed by Siple (1967) into different geologic formations but the hydraulic characteristics of the units remain basically the same. The water table is mainly found in the Upland Unit, the Tobacco Road Formation, and the Dry Branch Formation and in areas the Grifins Landing Member of the Dry Branch Formation. In the central portion of the plant, the Tobacco Road and Dry Branch formations (the Barnwell Formation of Siple) are underlain, and somewhat isolated from the McBean Formation, by a discontinuous clay unit locally known as the Tan Clay. The McBean Formation and the associated water bearing sands is separated from the relatively clean sand of the Congaree Formation by a laterally continuous (at least over most of the plant site) confining unit locally known as the Green Clay. Separating the Congaree Aquifer from the Upper Cretaceous age "Tuscaloosa" Aquifer of Siple now are the clays of the Williamsburg Formation and the Ellenton Formation. Although both these formations contain thin sandy units with the potential for transmitting significant amounts of water, these sand units are discontinuous and are not significant enough to be considered an aquifer. These two formations as a whole act as a very effective confining unit over most of the plant site and over the central part

of the plant site these units support a significant head reversal of up to 30 feet.

The Cretaceous age "Tuscaloosa" Aquifer of Siple is now divided into four distinct units; the Cape Fear, the Middendorf, the Black Creek, and Peedee Formations. The lower most of the formations, the Cape Fear corresponds to the Basal "Tuscaloosa" of Siple and acts as a confining unit separating the water bearing sands of the Middendorf Formation from the crystalline basement. The Middendorf Formation corresponds to the lower "Tuscaloosa" of Siple and contains a major aquifer at the site. The Black Creek Formation overlying the Middendorf corresponds roughly to the mid "Tuscaloosa" clay unit of Siple, hydraulically separating the upper and lower aquifers. The Peedee Formation corresponds to the upper "Tuscaloosa" of Siple and acts as a major water producing zone. At most drill sites, the upper part of the Peedee consists of clay, which along with the clays of the Ellenton and Williamsburg formations act as an effective confining unit to separate the waters from the overlying Tertiary formations from the Cretaceous.

Within the stratigraphic sequence, there are numerous clay or clayey and silty lenses which act as local confining units at least over short distances. However, few of these are continuous over the entire plant site. The most laterally continuous of the confining units are the clays

associated with the Ellenton and Williamsburg Formations. The sands of the Congaree and "Tuscaloosa" are the major aquifers on the plant site. Figures 7, 10, 13, 16, 19, 20, 23, and 26 are profiles of each of the well clusters (P-24 through P-30) showing the depth relationships between the different wells in the cluster and the location of all clay units generally greater than two feet in thickness separating the more sandy sections of the sequence. Also shown on these profiles are the water level elevations for each well in the cluster. The screen zone elevations and the interpreted stratigraphic unit in which the wells are installed are summarized on Tables 3, 5, 7, 9, 12, 14, and 16.

In general, the piezometric heads within the different formations decrease with increasing depth below the water table down to the base of the Congaree Formation. At four of the cluster sites (P-24, P-25, P-27, and P-30), there is a continued decrease of the piezometric head across the Williamsburg/Ellenton confining unit down to the base of the Middendorf Formation. At the other sites (P-26, P-28, and P-29), there is a head reversal; i.e., and increase in head across the Williamsburg/Ellenton confining unit. Three sites (P-24, P-25, and P-26) show a slight increase in head from the upper to the lower "Tuscaloosa" aquifer. Cluster P-26 is the only site drilled as part of this investigation with wells installed under artesian conditions. The 3 deep-

est wells (TA, TB, and TC) flow at the ground surface when uncapped.

LABORATORY TESTING

Relatively undisturbed samples from the clay and clayey units of significant thickness were collected at each cluster site utilizing a Pitcher barrel sampling tool for the purpose of obtaining data on the physical characteristics of the lower permeability sediments. In all, a total of 39 samples were collected for testing. Laboratory testing was conducted by PSI, Florida Testing Division. Physical characteristics measured included dry unit weight, moisture content, specific gravity, total porosity, grain size distribution, and vertical and horizontal permeability. All laboratory tests were conducted in accordance with applicable ASTM specifications. The results of these tests are summarized on Table 18 with the exception of the grain size analyses which are provided in Appendix H.

The horizontal and vertical permeability were determined by the falling head method utilizing samples oriented in both the horizontal and vertical direction. The coefficient of permeability, k , is defined as the rate of discharge of water at a temperature of 68° F under conditions of laminar flow through a unit cross sectional area of sediment under a hydraulic gradient. In the falling head

TABLE 18

Summary of Laboratory Test Results

Sample	Visual Description	Dry Unit Weight (PCF)	Moisture Content	Passing No. 200 (%)	Specific Gravity	Permeability (CM/Sec.)	Total Porosity
P-24 TB 370.0'-373.0'	Cream colored silty fine sand with mica	99.2	23.4	13.8	2.65	3.40 x 10 ⁻⁵ (V) ** (H)	0.400
P-24 TB 373.09'-376.0'	Reddish-brown brittle silty clay	89.4	31.3	84.6	2.63	6.11 x 10 ⁻⁶ (V) ** (H)	0.456
P-24 TB 473.0'-475.0'	Silty gray clay with ferrous staining	107.6	21.1	89.5	2.65	2.14 x 10 ⁻⁸ (V) 3.61 x 10 ⁻⁸ (H)	0.350
P-24 TB 546.0'-549.0'	Silty gray clay	109.6	20.4	77.6	2.66	3.38 x 10 ⁻⁸ (V) 3.98 x 10 ⁻⁸ (H)	0.340
P-24 TB 546.0'-549.0'	Coarse slightly silty, clayey sand	88.2	31.3	14.1	2.63	3.66 x 10 ⁻⁶ (V) ** (H)	0.463
P-24 TB 779.0'-781.0'	Mottled gray and tan sandy clay	81.3	53.0	36.5	2.65	5.52 x 10 ⁻⁸ (V) ** (H)	0.509
P-25 TB 110.0'-113.0'	Tan and orange clayey sand with seams of coarse sand	90.1	33.1	23.1	2.66	4.19 x 10 ⁻⁵ (V)* 8.74 x 10 ⁻⁴ (H)*	0.457
P-25 TB 166.0'-169.0'	Orange and gray sandy clay	102.7	22.7	19.2	2.66	7.91 x 10 ⁻⁸ (V) 1.11 x 10 ⁻⁷ (H)	0.382
P-25 TB 254.0'-257.0'	Layered gray clay and fine sand	89.9	33.3	95.5	2.71	1.82 x 10 ⁻⁸ (V) 1.14 x 10 ⁻⁴ (H)	0.469

(V) Vertical

(H) Horizontal

* Sample remolded due to condition of sample received.

** Horizontal permeability not possible due to sample condition.

TABLE 18, Contd

Sample	Visual Description	Dry Unit Weight (PCF)	Moisture Content	Passing No. 200 (%)	Specific Gravity	Permeability (CM/Sec.)	Total Porosity
P-25 TB 281.0'-284.0'	Silty gray sand	95.0	24.2	12.8	2.67	4.14 x 10 ⁻⁵ (V) 3.77 x 10 ⁻⁵ (H)	0.430
P-25 TB 440.0'-443.0'	Light gray silty clay	107.1	21.3	88.2	2.64	3.95 x 10 ⁻⁸ (V) 4.51 x 10 ⁻⁸ (H)	0.350
P-25 TB 650.0'-653.0'	Silty reddish-brown, soft clay	52.1	98.4	76.4	2.65	1.56 x 10 ⁻⁶ (V) 1.45 x 10 ⁻⁶ (H)	0.685
P-26 TB 152.0'-155.0'	Green and black silty clay with mica	77.8	40.2	87.5	2.57	2.77 x 10 ⁻⁶ (V) * (H)	0.515
P-26 TB 282.0'-285.0'	Mottled gray and reddish-brown silty clay	101.6	20.4	82.9	2.63	2.48 x 10 ⁻⁸ (V) 2.63 x 10 ⁻⁸ (H)	0.381
P-26 TB 442.0'-444.0'	Gray silty clay	104.0	21.8	97.2	2.63	2.63 x 10 ⁻⁸ (V) 3.12 x 10 ⁻⁸ (H)	0.366
P-26 TB 504.0'-506.0'	Medium gray silty clay	106.7	19.7	96.7	2.61	1.65 x 10 ⁻⁷ (V)** * (H)	0.345
P-26 TB 554.0'-556.0'	Medium gray silty clay	105.0	21.0	97.0	2.63	3.62 x 10 ⁻⁸ (V) 5.85 x 10 ⁻⁸ (H)	0.360

(V) Vertical

(H) Horizontal

* Sample too brittle to run horizontal permeability.

** Sample remolded to run vertical permeability.

TABLE 18, Contd

Sample	Visual Description	Dry Unit Weight (PCF)	Moisture Content	Passing No. 200 (%)	Specific Gravity	Permeability (CM/Sec.)	Total Porosity
P-27 TB 95.0'-98.0'	Mottled tan and orange silty clay	61.0	68.1	72.2	2.62	4.68 x 10 ⁻⁷ (V) 5.16 x 10 ⁻⁷ (H)	0.627
P-27 TB 230.0'-233.0'	Medium gray clay with apparent pyrite seams	114.7	23.7	91.0	2.74	6.30 x 10 ⁻⁸ (V)** * (H)	0.329
P-27 TB 340.0'-343.0'	Light gray to gray orange clay	106.6	20.4	88.1	2.66	3.44 x 10 ⁻⁸ (V) 3.93 x 10 ⁻⁸ (H)	0.358
P-27 TB 458.0'-461.0'	Light gray silty clay	99.8	22.8	95.4	2.60	4.37 x 10 ⁻⁸ (V) 4.84 x 10 ⁻⁸ (H)	0.385
P-27 TB 607.0'-610.0'	Mottled gray-brown and red silty clay	102.1	22.7	93.8	2.70	3.45 x 10 ⁻⁸ (V) 5.46 x 10 ⁻⁸ (H)	0.394
P-28 TB 132.0'-134.0'	Light tan slightly silty, clayey sand	78.9	36.7	32.8	2.58	2.01 x 10 ⁻⁷ (V) 1.85 x 10 ⁻⁷ (H)	0.510
P-28 TB 293.0'-299.0'	Silty gray clayey sand with mica	119.2	15.9	34.5	2.64	1.01 x 10 ⁻⁷ (V) 1.39 x 10 ⁻⁷ (H)	0.277
P-28 TB 370.0'-377.0'	Gray silty clay	95.8	27.8	95.6	2.59	2.99 x 10 ⁻⁸ (V) 3.92 x 10 ⁻⁸ (H)	0.407

(V) Vertical

(H) Horizontal

* Sample too brittle to run horizontal permeability.

** Sample remolded to run vertical permeability.

TABLE 18, Contd

Sample	Visual Description	Dry Unit Weight (PCF)	Moisture Content	Passing No. 200 (%)	Specific Gravity	Permeability (CM/Sec.)	Total Porosity
P-28 TB 370.0'-373.0'	Silty hard gray and tan clay	114.5	17.5	69.3	2.68	2.70 x 10 ⁻⁸ (V) 3.61 x 10 ⁻⁸ (H)	0.316
P-28 TB 464.0'-465.0'	Gray-green silty, clayey sand with mica	108.6	18.0	37.4	2.69	3.83 x 10 ⁻⁷ (V) ** (H)	0.353
P-28 TB 465.0'-467.0'	Gray-green silty clay	97.8	24.9	97.1	2.62	2.69 x 10 ⁻⁷ (V) 2.98 x 10 ⁻⁷ (H)	0.402
P-28 TB 600.0'-602.0'	Cemented gray and tan clay	87.1	15.9	94.0	2.71	7.37 x 10 ⁻⁶ (V) ** (H)	0.485
P-29 TB 191.0'-194.0'	Light tan silty clay with sand seams	83.4	37.1	52.1	2.71	3.38 x 10 ⁻⁷ (V) 3.07 x 10 ⁻⁷ (H)	0.507
P-29 TB 229.0'-232.0'	Gray silty clay, slightly silty with mica	107.7	17.2	51.5	2.64	6.02 x 10 ⁻⁸ (V) 6.16 x 10 ⁻⁸ (H)	0.347
P-29 TB 365.0'-368.0'	Layered gray and reddish-brown silty clay	94.3	25.5	100.0	2.65	2.92 x 10 ⁻⁸ (V) 3.49 x 10 ⁻⁸ (H)	0.430
P-29 TB 591.0'-593.0'	Gray clay, slightly cemented	125.5	11.6	74.6	2.64	2.76 x 10 ⁻⁸ (V) 1.89 x 10 ⁻⁸ (H)	0.239
P-29 TB 631.0'-634.0'	Mottled gray and tan clayey sand	92.1	31.8	24.6	2.67	3.11 x 10 ⁻⁷ (V)* ** (H)	0.447

(V) Vertical

(H) Horizontal

* Sample remolded due to condition of sample.

** Sample permeability not possible due to sample condition.

TABLE 18, Contd

<u>Sample</u>	<u>Visual Description</u>	<u>Dry Unit Weight (PCF)</u>	<u>Moisture Content</u>	<u>Passing No. 200 (%)</u>	<u>Specific Gravity</u>	<u>Permeability (CM/Sec.)</u>	<u>Total Porosity</u>
P-30 TB 105.0'-108.0'	Reddish-brown clayey sand	80.5	36.7	27.4	2.74	8.08×10^{-7} (V) 6.78×10^{-7} (H)	0.529
P-30 TB 139.0'-141.0'	Light gray clay with pockets of ferrous granules and fine sand	72.6	44.5	65.6	2.68	7.91×10^{-8} (V) 9.54×10^{-8} (H)	0.566
P-30 TB 215.0'-217.0'	Light gray silty clay with layers of ferrous stained flakes	84.0	34.7	90.3	2.69	4.64×10^{-8} (V) 1.43×10^{-7} (H)	0.500
P-30 TB 506.0'-509.0'	Brittle layered gray silty clay	111.8	17.5	88.8	2.68	4.51×10^{-8} (V)* ** (H)	0.332
P-30 TB 615.0'-617.0'	Gray silty clay, slightly cemented	119.9	12.4	80.3	2.65	1.01×10^{-7} (V) 1.23×10^{-7} (H)	0.276

(V) Vertical

(H) Horizontal

* Sample remolded due to condition of sample.

** Horizontal permeability not possible due to sample condition.

test, a stand-pipe of water is connected to the sample and allowed to flow for a period of time. Time and quantity of water flowing through the sample are then used to calculate permeability.

Total porosity calculations are based on the relationship:

$$n = \frac{V_v}{V_t}$$

where: n = Porosity

V_v = Volume of pore space

V_t = Total volume of sample

In addition, unit weight and volume, and moisture content measurements are required in order to complete the calculation of total porosity. The moisture content is defined as the ratio of the weight of the water in the sample to the weight of the dry solids in the sample expressed as a percent. The moisture content test is conducted by weighting a sediment sample before and after drying in an oven at a temperature of 230° F.

Since there is no accepted test procedure for the determination of effective porosity, values for this parameter have not been presented. This recommendation was made by PSI after reviewing the procedure used in the past and researching the literature. Values of effective porosity submitted in the past by PSI were based on a computational procedure utilizing effective grain size, D diameter, per-

meability of the sample, and a constant, C, that was assumed to be a measure of void continuity for spherical grains. PSI believes that this relationship may have some degree of validity for clean, well-rounded sands with less than 2 to 3 percent fines, but not for the clays and clayey fractions.

Grain size distribution was determined according to the methods specified in ASTM D422. The distribution of particle sizes larger than 75 microns (retained on the No.200 sieve) was determined by sieving, while the distribution of particle sizes smaller than 75 microns was determined by hydrometer analysis.

Specific gravity measurements, which are required to calculate particle size distribution using the hydrometer method, were determined as specified in ASTM D854.

CONCLUSIONS

Phase III of the SRP Baseline Hydrogeologic Investigation included the collection of approximately 5185 ft of geologic core from the greater than 6100 ft attempted and the installation of 53 observation wells, at 7 different cluster sites, screened in the different water-bearing units. The clusters are located in the general vicinity of B, F, H, K, P, and TNX Areas and the new well field east of A Area.

In all, the three phase SRP Baseline Hydrogeologic Investigation has included more than 16,000 ft of core drilling and the installation of 129 observation wells located at 18 different cluster sites. The general locations of the 18 cluster sites are shown on Figure 29.

Utilizing the results of Phase I, Phase II, and Phase III, preliminary geologic and hydrogeologic cross sections are being developed for the SRP site. Although formation names may change and contacts move as a results of continuing geologic investigations an attempt has been made to introduce and apply some of the current stratigraphic terminology to the description of the geologic framework developed for the site. The results of this investigation will also be used and incorporated with the results of the South Carolina Water Resources Commission's drilling and well installation program off plant site for a more complete definition of the regional hydrogeology.

The next step in the hydrogeologic investigation of the SRP site will be the use of the data collected from this program and the monitoring points (wells) created for the detailed geochemical and physical characterization of the different aquifers and confining units. This will include the collection of water samples for chemical analysis and radiometric age dating, conducting pumping test, and the chemical, physical and mineralogical analysis of the sediments through which the groundwater flows.

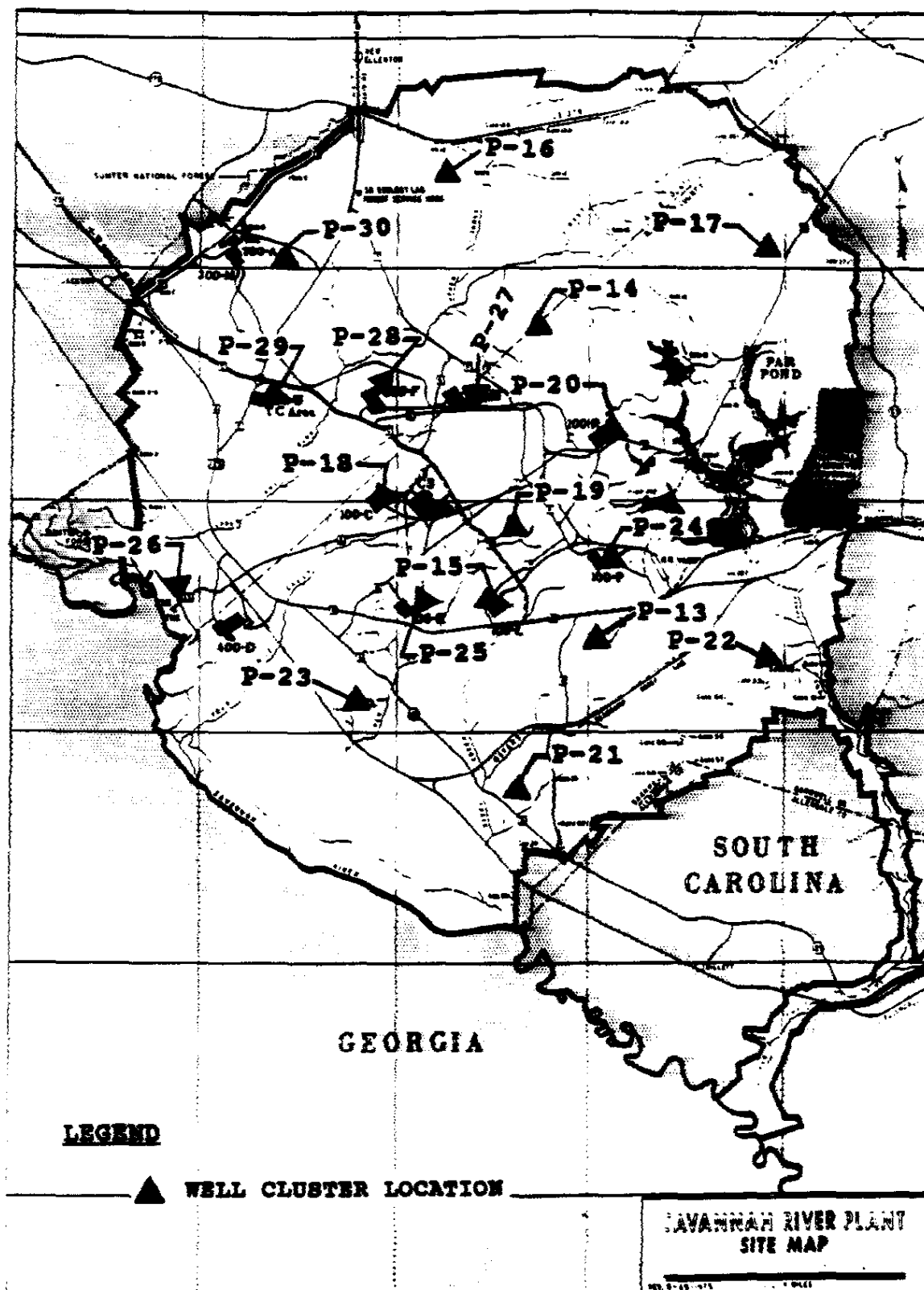


FIGURE 29. Location of SRP Baseline Hydrogeologic Observation Well Network

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APPENDIX A

LITHOLOGIC LOG FOR P-24TA

LEGEND

F - fluorescence
B - blue
Y - yellow
O - orange
R - red
G - green
() - interval that displays fluorescence, in feet

NOTE: The number of grains which fluoresced in a 3" by 3" tray were counted and catagorized as follows:

- 1) less than three grains
- 2) three to ten grains
- 3) more than ten grains

EXAMPLE: F-0-3 (32-37)
fluorescence; orange; greater than ten grains;
from thirty two to thirty seven feet.

LITHOLOGIC LOG, P-24 (TA)

Depth (ft)	Thickness (ft)	Description
0 - 3	3	Sand, medium, silty; poorly sorted; heavy minerals, lignite, muscovite; tannish brown to dark brownish black; F-O-1(1)
3 - 5	2	No recovery
5 - 6	1	Sand, medium; very poorly sorted; heavy minerals; reddish brown; F-G-1
6 - 7	1	Sand, coarse, clayey; moderately sorted; feldspar; brownish yellow; F-B-1
7 - 10	3	No recovery
10 - 18	8	Sand, medium, clayey; moderately sorted; feldspar; brownish orange to tannish pink
18 - 19	1	Clay, sandy; very poorly sorted; clay balls; feldspar; orangish yellow; F-B-1
19 - 23	4	Sand, medium, clayey; very poorly sorted; feldspar, lignite; orangish yellow to light pinkish orange; F-B-1(19)
23 - 24	1	No recovery
24 - 27	3	Clay; well sorted; muscovite, feldspar; purple
27 - 29	2	Clay, sandy; well sorted; muscovite, feldspar; orange reddish yellow
29 - 31	2	Sand, medium, clayey; poorly sorted; muscovite, feldspar; pinkish orange to white yellowish purple
31 - 32	1	Sand, medium, clayey, silty; moderately sorted; muscovite, lignite; light yellowish purple
32 - 33	1	Clay, sandy; well sorted; muscovite, lignite; purple
33 - 35	2	Clay; well sorted; muscovite; brownish purple
35 - 36	1	Clay, sandy; very poorly sorted; muscovite, feldspar, lignite orange
36 - 63	27	Sand, medium, clayey; poorly sorted; muscovite, feldspar, lignite; medium yellow to purplish pink; F-Y-1(45) F-O-1(46) F-O-1(58 - 59)
63 - 64	1	No recovery
64 - 65	1	Sand, medium, clayey; poorly sorted; feldspar, lignite; medium yellow
65 - 68	3	Clay, sandy; well sorted; muscovite, feldspar; whitish red to light orange

LITHOLOGIC LOG, P-24 (TA)

<u>Depth</u> <u>(ft)</u>	<u>Thickness</u> <u>(ft)</u>	<u>Description</u>
68 - 78	10	Clay; well sorted; muscovite; light green; F-B-1(69) F-O-1(70) F-B-1(73) F-B-1(75)
78 - 79	1	Clay, sandy; well sorted; light greenish brown; F-O-1
79 - 80	1	Clay, silty; well sorted; interbedded clay; muscovite, feldspar lignite; light greenish brown; F-O-1
80 - 81	1	Clay, sandy; poorly sorted; muscovite, feldspar, lignite; medium brown
81 - 87	6	Sand, coarse, clayey; poor to well sorted; muscovite, feldspar, lignite; pinkish brown to orangish yellow; F-O-1(81)
87 - 88	1	Sand, coarse; moderately sorted; muscovite, feldspar; purple; F-O-1
88 - 89	1	Sand, coarse, clayey; moderately sorted; muscovite, feldspar, lignite; purple; F-O-1
89 - 90	1	Clay, sandy; well sorted; interbedded clay; feldspar; whitish purple; F-Y-1
90 - 93	3	Sand, coarse, clayey; muscovite, feldspar; purple to whitish purple F-B-1(92)
93 - 94	1	No recovery
94 - 96	2	Sand, medium, clayey; very poorly sorted; muscovite, feldspar, lignite; whitish purple to purple
96 - 99	3	Sand, medium, silty; very poorly sorted to moderately sorted; muscovite, feldspar; clay balls; purple to purplish red
99 - 100	1	Sand, coarse; well sorted; feldspar, lignite; light purple
100 - 102	2	Sand, coarse, clayey; moderately sorted; clay balls; muscovite feldspar; purple
102 - 106	4	Sand, coarse, silty; well sorted; interbedded clay, clay balls muscovite, feldspar, lignite; light purple to pinkish white; F-O-1(102 - 103, 105)
106 - 107	1	Sand, coarse, clayey; well sorted; feldspar, lignite; light pinkish white
107 - 110	3	Sand, medium; very poorly sorted; feldspar, lignite; light pink
110 - 113	3	Sand, medium, clayey; very poorly sorted; feldspar, lignite; pinkish white; F-Y-1(110)
113 - 119	6	Sand, medium, silty; well sorted; muscovite, feldspar, lignite; tannish purple to purple; F-O-1(113 - 115) F-O-1(117)

LITHOLOGIC LOG, P-24 (TA)

<u>Depth (ft)</u>	<u>Thickness (ft)</u>	<u>Description</u>
119 - 120	1	Clay; well sorted; feldspar; dark purple
120 - 133	3	Clay, silty; well sorted; interbedded clay; heavy minerals, muscovite; brownish tan
122 - 123	1	Sand, medium, silty; well sorted; interbedded clay; brownish orange
123 - 124	1	Sand, medium, clayey; well sorted; interbedded clay; feldspar; yellowish brown
124 - 129	5	Silt, clayey; well sorted; interbedded clay; muscovite, feldspar; medium brown; F-O-1(124) F-O-1(127 -128)
129 - 130	1	Sand, medium, clayey; very poorly sorted; interbedded clay; heavy minerals; brown
130 - 134	4	Sand, medium, silty; well to moderately sorted; feldspar, lignite; yellowish brown to orangish yellow; F-O-1(130 - 131)
134 - 142	8	Sand, medium; well sorted; tan to tannish red; F-O-1(135, 139, 141)
142 - 143	1	Sand, medium, clayey; well sorted; heavy minerals; medium tannish brown
143 - 144	1	Clay, sandy; well sorted; heavy minerals; light brown; F-G-1
144 - 148	3	Sand, medium, clayey; well sorted; heavy minerals, calcareous sand, lignite; yellowish tan; F-O-2(144 - 145) F-O-1(147)
148 - 154	6	Sand, medium; well sorted; heavy minerals, calcareous, lignite; light tan; F-Y-1(148) F-O-1(149) F-Y-1(150 - 151) F-O-1(152 - 153)
154 - 160	6	Clay, silty; well sorted; calcareous clay; whitish tan to tannish yellow; F-Y-1 (154 - 157) F-Y-2(158 - 159)
160 - 164	3	No recovery
164 - 175	11	Limestone, sandy; moderately sorted; heavy minerals; tannish white to white; F-Y-3
175 - 178	3	Sand, medium, silty; poorly sorted; calcareous sand, lignite; light yellowish white
178 - 179	1	No recovery
179 - 184	5	Limestone, sandy; poorly sorted; fossils; white; F-Y-3
184 - 186	2	Limestone; well sorted; heavy minerals, fossils(bivalves); light green to light greenish brown; F-Y-3
189 - 190	1	Limestone, sandy; poorly sorted; fossils, lignite; whitish light green; F-Y-3

LITHOLOGIC LOG, P-24 (TA)

<u>Depth</u> <u>(ft)</u>	<u>Thickness</u> <u>(ft)</u>	<u>Description</u>
190 - 192	2	Limestone, clayey; well sorted; fossils (crinoteres); whitish light green
192 - 193	1	Limestone, sandy; moderately sorted; shell hash; whitish green F-Y-3
193 - 194	1	No recovery
194 - 195	1	Limestone; well sorted; fossils; whitish green; F-Y-3
195 - 197	2	Limestone, silty; well sorted; fossils (shell hash), chert; whitish green; F-Y-3
197 - 198	1	Limestone, clayey; well sorted; fossils, chert; whitish green F-Y-3
198 - 199	1	Limestone, sandy, clayey; poorly sorted; fossils; light green F-Y-3
199 - 200	1	Silt, sandy; well sorted; light green; F-Y-3
200 - 202	2	Sand, medium, silty; moderately sorted; feldspar, lignite; light green; F-Y-3
202 - 203	1	Clay, silty, sandy; moderately sorted; interbedded clay; calcareous sand and clay; light green; F-Y-3
203 - 204	1	Clay, silty; well sorted; interbedded silt; calcareous clay and sand; light greenish brown; F-Y-3
204 - 205	1	Clay; well sorted; fossils, calcareous clay with limestone; tan F-Y-3
205 - 206	1	Sand, medium; moderately sorted; feldspar, sandstone; light gray; F-Y-2
206 - 232	26	No recovery
232 - 234	2	Sand, fine; well sorted; light tannish yellow
234 - 240	6	Sand, fine, silty; well sorted; medium tannish yellow; F-Y-1 (234 - 237) F-O-1(238) F-Y-1(239)
240 - 241	1	Sand, fine; well sorted; heavy minerals; medium tannish yellow; F-O-1
241 - 242	1	No recovery
242 - 245	3	Sand, medium; well sorted; heavy minerals; medium tannish yellow F-Y-1(242 - 243) F-O-1(244)
245 - 249	4	Sand, medium, silty; well sorted; heavy minerals, lignite; medium tannish yellow; F-O-1(245) F-Y-1(247) F-O-1(248)

LITHOLOGIC LOG, P-24 (TA)

<u>Depth (ft)</u>	<u>Thickness (ft)</u>	<u>Description</u>
249 - 254	5	Sand, fine; well sorted; heavy minerals; medium tannish orange; F-Y-1(251, 253) F-O-2(252)
254 - 257	3	Sand, medium, silty; moderately sorted; interbedded clay; lignite, heavy minerals, glauconite; medium tannish brown; F-Y-3(254 - 255) F-B-1(256)
257 - 258	1	Sand, medium; moderately sorted; medium tan brownish orange; F-Y-3
258 - 281	23	Sand, fine, silty; moderate to well sorted; interbedded clay; heavy minerals; medium brownish orange to yellow orangish red; F-Y-3(258 - 260) F-O-Y-2(260 - 263) F-Y-3(264 - 265) F-O-1(274, 280) F-Y-1(275)
281 - 306	25	Sand, medium; moderately sorted; heavy minerals; orangish yellow to light tannish yellow; F-Y-2(281) F-O-1(282, 284 - 285, 287, 289, 291 - 292, 297 - 299, 301, 304)
306 - 307	1	Sand, medium, silty; moderately sorted; interbedded clay; light tannish yellow; F-Y-2
307 - 308	1	Sand, medium, silty; moderately sorted; clay balls; heavy minerals; tan; F-O-1
308 - 310	2	Sand, medium, silty; well sorted; heavy minerals, lignite; tannish yellow; F-O-2
310 - 313	3	Sand, medium, well sorted; heavy minerals; tannish yellow; F-O-1
313 - 314	1	No recovery
314 - 316	2	Sand, medium; well sorted; interbedded clay, fissile, mottled sand; tannish yellow; F-O-1(315)
316 - 317	1	Sand, medium, clayey; well sorted; interbedded clay; heavy minerals; dark tan; F-O-1
317 - 320	3	Sand, medium; moderately sorted; heavy minerals, muscovite; tannish yellow; F-O-2(317)
320 - 330	10	Sand, medium, silty; well sorted; heavy minerals, muscovite; tannish yellow to tannish orange; F-O-1(322 - 323, 325 - 327)
330 - 333	3	Sand, fine; well sorted; heavy minerals; tannish yellow
333 - 336	3	Sand, coarse, clayey; moderately sorted; chert, muscovite; white to tannish orange; F-Y-1(333 - 334)
336 - 337	1	Sand, medium, silty, clayey; very poorly sorted; mottled sand; muscovite, limy sand; white; F-Y-1

LITHOLOGIC LOG, P-24 (TA)

<u>Depth</u> <u>(ft)</u>	<u>Thickness</u> <u>(ft)</u>	<u>Description</u>
337 - 339	2	Sand, fine, silty; moderately to poorly sorted; interbedded clay; muscovite; tannish orange
339 - 340	1	Sand, fine, clayey; well sorted; clay balls; muscovite; whitish orange; F-Y-1
340 - 343	3	Sand, coarse, silty; well sorted; muscovite; orangish tan to tannish orange; F-B-1(341)
343 - 344	1	Sand, medium, clayey; well sorted; muscovite; orangish tan
344 - 345	1	Sand, fine, silty; well sorted; muscovite limey sand; whitish orange; F-Y-1
345 - 349	4	No recovery
349 - 350	1	Sand, very coarse, clayey; well sorted; heavy minerals, muscovite, limey sand; whitish orange; F-Y-2
350 - 353	3	Sand, medium, silty; poorly sorted; mottled brown, interbedded clay; heavy minerals, muscovite, limonite; brownish orange to brownish white; F-O-2(352)
353 - 355	2	Clay; well sorted; muscovite, limey; orangish white to white
355 - 357	2	Clay; sandy; moderately sorted; muscovite, calcareous clay; white
357 - 360	3	Sand, medium, clayey; moderately sorted; muscovite; white
360 - 373	13	Sand, medium, silty; well sorted; heavy minerals, muscovite, iron stain; white; F-B-1(360 - 361) F-O-2(364 - 367, 370) F-O-1(371)
373 - 378	5	Clay; well sorted; muscovite; light greenish white; F-B-1 (375 - 376)
378 - 379	1	Clay, silty; well sorted; muscovite; white
379 - 381	2	Sand, medium, silty; well sorted; gypsum, heavy minerals, muscovite, kaolin, lignite, iron stain; whitish tan; F-B-2 (379)
381 - 382	1	Clay, silty, sandy; moderately sorted; interbedded clay, fissile; gypsum, muscovite, feldspar, iron stain; medium brownish black
382 - 383	1	Clay; silty; well sorted; fissile; gypsum, muscovite, interbedded shale; black
384 - 388	4	Clay; well sorted; fissile; muscovite, interbedded shale, lignite; black

LITHOLOGIC LOG, P-24 (TA)

<u>Depth</u> <u>(ft)</u>	<u>Thickness</u> <u>(ft)</u>	<u>Description</u>
388 - 392	4	Clay, silty; well sorted; interbedded silt, fissile; glauconite, gypsum, muscovite, lignite, interbedded shale; grayish black to black; F-B-1(391)
392 - 393	1	Clay; well sorted; interbedded silt, fissile; gypsum muscovite; black
393 - 394	1	No recovery
394 - 395	1	Sand, medium, silty; moderately sorted; interbedded clay, fissile; glauconite, blackish gray
395 - 399	4	No recovery
399 - 401	2	Silt; well sorted; interbedded clay; gypsum, muscovite, lignite; blackish gray to grayish black; F-B-1(400)
401 - 402	1	Clay, silty; well sorted; interbedded clay; gypsum, muscovite, lignite; medium grayish black; F-B-1(401)
402 - 403	1	Silt; well sorted; interbedded clay; muscovite, lignite; medium grayish black
403 - 404	1	Silt, clayey, sandy; well sorted; interbedded clay; gypsum, muscovite, lignite; medium gray; F-O-1
404 - 407	3	Sand, fine, silty; well sorted; gypsum, muscovite, feldspar; medium gray
407 - 410	3	Silt, sandy; well sorted; interbedded clay; gypsum, muscovite, feldspar, lignite; medium gray
410 - 412	2	Sand, fine, silty; well to moderately sorted; interbedded clay; gypsum, muscovite; medium gray; F-O-1
412 - 414	2	Clay, silty; well sorted; fissile; gypsum, muscovite; black
414 - 419	5	Clay; well sorted; fissile; gypsum, muscovite; black
419 - 420	1	Sand, medium, silty; moderately sorted; muscovite; medium gray; F-O-1
420 - 421	1	Clay, silty; well sorted; interbedded clay; gypsum, muscovite; black
421 - 437	16	Clay; well sorted; fissile; gypsum, muscovite; black to greenish black; F-B-1(433) F-O-1(436)
437 - 440	3	Clay, silty; well sorted; fissile; gypsum, glauconite; blackish dark green to dark green
440 - 446	6	Clay, sandy; well sorted; gypsum, glauconite, muscovite; dark green to dark greenish black; F-O-1(443)

LITHOLOGIC LOG, P-24 (TA)

<u>Depth (ft)</u>	<u>Thickness (ft)</u>	<u>Description</u>
446 - 448	2	Sand, medium, silty, clayey; moderately sorted; gypsum, muscovite; dark greenish gray; F-O-1(446 - 447)
448 - 451	3	Sand, medium, silty; poorly sorted; gypsum, glauconite, muscovite; grayish green; F-B-1(450)
451 - 454	3	No recovery
454 - 455	1	Sand, medium; poorly sorted; heavy minerals, sulfides, muscovite; gray; F-O-1
455 - 456	1	No recovery
456 - 460	4	Sand, medium; poor to very poorly sorted; sulfides, gypsum, muscovite, rose quartz; light gray; F-O-1(457, 459)
460 - 462	2	Sand, medium, clayey; very poorly sorted, sulfides, gypsum, muscovite, lignite; medium gray; F-G-1(461)
462 - 464	2	Sand, medium, silty; moderate to well sorted; interbedded clay; sulfides, muscovite, lignite; grayish black
464 - 465	1	Clay, sandy; poorly sorted; muscovite, lignite; light gray
465 - 487	22	Clay; well sorted; muscovite; yellowish orange, light gray, to light grayish brown; F-B-1(474)
487 - 496	9	Sand, coarse, silty, clayey; well sorted; muscovite, kaolin; light gray; F-B-1(498 - 489, 492) F-O-1(491, 493)
496 - 498	2	Sand, coarse, silty; well sorted; heavy minerals, muscovite, kaolin; light gray; F-O-2
498 - 500	2	Silt, sandy; well sorted; heavy minerals, muscovite; light gray; F-O-2
500 - 501	1	Sand, fine, silty; well sorted; heavy minerals, muscovite; light gray; F-B-1
501 - 503	2	Sand, medium, silty, clayey; well sorted; light gray; F-O-1(501)
503 - 504	1	No recovery
504 - 505	1	Sand, coarse, silty; well sorted; gypsum, heavy minerals, muscovite, feldspar; light gray; F-O-3
505 - 506	1	Clay; well sorted; muscovite, kaolin; light grayish white
506 - 508	2	Sand, coarse, silty; well to moderately sorted; heavy minerals, kaolin, muscovite, feldspar; light gray
508 - 509	1	Sand, medium, silty, clayey; well sorted; heavy minerals, muscovite, kaolin, feldspar; light gray; F-O-1

LITHOLOGIC LOG, P-24 (TA)

<u>Depth</u> <u>(ft)</u>	<u>Thickness</u> <u>(ft)</u>	<u>Description</u>
509 - 510	1	Clay, sandy; poorly sorted; muscovite, kaolin; light gray
510 - 511	1	Clay, silty; well sorted; heavy minerals, muscovite, kaolin, feldspar; light gray
511 - 512	1	Silt, clayey; well sorted; muscovite, kaolin, feldspar; light gray
512 - 514	2	No recovery
514 - 516	2	Silt, clayey; well sorted; muscovite, kaolin; light gray; F-B-1(515)
516 - 518	2	Clay, silty; well sorted; muscovite, kaolin, feldspar; light gray
518 - 519	1	No recovery
519 - 520	1	Silt, sandy; well sorted; muscovite, kaolin, feldspar
520 - 526	6	Sand, medium, silty; well sorted; sulfides, heavy minerals, muscovite, kaolin, feldspar; light gray; F-B-1(521) F-O-2 (524 - 525)
526 - 528	2	Sand, coarse; moderately sorted; heavy minerals, muscovite, kaolin; light gray; F-O-1
528 - 530	2	Sand, medium, silty; poorly sorted; heavy minerals, kaolin, rutillated; light gray; F-O-2
530 - 534	4	Sand, coarse, clayey; poor to well sorted; muscovite, kaolin; light gray
534 - 535	1	Sand, medium, silty; moderately sorted; muscovite, kaolin, feldspar; light gray
535 - 538	3	Sand, medium; poorly sorted; muscovite, kaolin; light gray
538 - 539	1	Sand, medium, silty; poorly sorted; interbedded clay, clay balls; muscovite, heavy minerals; dark grayish brown; F-O-1
539 - 540	1	Sand, coarse; moderately sorted; interbedded clay; muscovite, smoky quartz granules; dark gray
540 - 541	1	Clay, silty; well sorted; muscovite; dark gray
541 - 542	1	Clay; well sorted; muscovite; dark gray
542 - 544	2	No recovery
544 - 545	1	Sand, medium; poorly sorted; sulfides, heavy minerals, muscovite; dark gray

LITHOLOGIC LOG, P-24 (TA)

<u>Depth (ft)</u>	<u>Thickness (ft)</u>	<u>Description</u>
545 - 546	1	Clay, sandy; moderately sorted; muscovite, smoky quartz pebbles; dark gray
546 - 552	6	Clay; well sorted; muscovite; light gray; F-O-1(551)
552 - 554	2	No recovery
554 - 559	5	Sand, medium, silty; moderate to very poorly sorted; muscovite, kaolin, feldspar, lignite; light gray
560 - 565	5	Clay; well sorted; muscovite; medium gray
566 - 566	1	Clay, silty; well sorted; muscovite; light gray
566 - 574	8	Silt; well sorted; heavy minerals, muscovite, feldspar; whitish gray; F-O-2(568)F-O-1(569,573)
574 - 578	4	Sand, medium, silty; moderately sorted; heavy minerals, muscovite, feldspar; light grayish tan; F-O-1(575)
578 - 581	3	Sand, medium, silty; moderately sorted; heavy minerals, muscovite, feldspar; light grayish tan to light gray; F-O-2(578 - 579)
581 - 582	1	Sand, medium, silty; poorly sorted; muscovite, kaolin, feldspar; light gray
582 - 584	2	Sand, medium, clayey; very poorly sorted; clay balls; heavy minerals, muscovite, kaolin, feldspar; light gray
584 - 586	2	Sand, medium, silty; moderately sorted; heavy minerals, muscovite, feldspar; light gray F-B-1
586 - 692	6	Sand, coarse; moderately sorted; heavy minerals, muscovite, feldspar; light gray to whitish tan
592 - 593	1	Sand, medium, silty; moderately sorted; sulfides, muscovite; white; F-Y-1
593 - 594	1	No recovery
594 - 599	5	Sand, coarse; well sorted; sulfides, muscovite, feldspar; light tan to light gray; F-O-1(596 - 597)
599 - 600	1	Clay; well sorted; heavy minerals, muscovite, feldspar; light brown; F-O-1
600 - 601	1	Clay, sandy; well sorted; interbedded sand, clay balls; heavy minerals, muscovite, kaolin; light brown
601 - 603	2	Sand, coarse; moderately sorted; interbedded clay; muscovite, kaolin, lignite; light tan

LITHOLOGIC LOG, P-24 (TA)

<u>Depth</u> <u>(ft)</u>	<u>Thickness</u> <u>(ft)</u>	<u>Description</u>
603 - 604	1	Sand, coarse, clayey; moderately sorted; sulfides, muscovite, kaolin, lignite; light tan
604 - 606	2	Sand, coarse; moderate to poorly sorted; heavy minerals, muscovite, kaolin; light gray; F-O-1
606 - 608	2	Sand, medium, silty; poorly sorted; sulfides, muscovite, kaolin, feldspar; light gray; F-B-1(607)
608 - 610	2	Sand, coarse; moderate to poorly sorted; heavy minerals, muscovite, kaolin; light gray
610 - 614	4	Sand, medium, silty; well sorted; muscovite, kaolin; light gray
614 - 622	8	Sand, very coarse; well sorted; muscovite, kaolin, smoky quartz; light gray; F-Y-1(615) F-O-1(617, 619)
622 - 623	1	Sand, very coarse, clayey; well sorted; interbedded clay; muscovite, kaolin; light gray
623 - 624	1	No recovery
624 - 626	2	Sand, very coarse; well sorted; clay balls; muscovite; light gray; F-O-1(625)
626 - 627	1	Sand, very coarse, clayey, silty; well sorted; interbedded clay; muscovite; dark gray
627 - 629	2	No recovery
629 - 630	1	Clay; well sorted; interbedded sand; muscovite, lignite; black; F-O-1
630 - 632	2	Silt; well sorted; muscovite, lignite; medium gray; F-O-1 (631)
632 - 635	1	No recovery
635 - 636	1	Clay, sandy; poorly sorted; interbedded sand; sulfides, muscovite, lignite; medium gray; F-O-1
636 - 639	3	Sand, medium, silty; well sorted; heavy minerals, muscovite, feldspar, lignite; medium gray to black
639 - 640	1	Clay, sandy; well sorted; interbedded silt; heavy minerals, muscovite, lignite; black
640 - 641	1	Silt, sandy; well sorted; heavy minerals, muscovite, lignite; medium gray
641 - 642	1	Sand, medium, silty; moderately sorted; interbedded clay; heavy minerals, muscovite, lignite; medium gray

LITHOLOGIC LOG, P-24 (TA)

<u>Depth</u> <u>(ft)</u>	<u>Thickness</u> <u>(ft)</u>	<u>Description</u>
642 - 643	1	Silt; well sorted; muscovite, kaolin; medium gray; F-O-1
643 - 644	1	Sand, medium, silty; moderately sorted; muscovite, kaolin; medium gray
644 - 646	2	Sand, coarse; well sorted; muscovite, kaolin, feldspar, lignite; grayish tan to medium gray; F-O-1(645)
646 - 654	8	Sand, medium, silty; poorly sorted; muscovite, lignite; medium gray; F-O-1(648, 650)
654 - 656	2	Sand, medium; poorly sorted; muscovite, lignite; light tan to light gray;
656 - 658	2	Sand, medium, silty; moderately sorted; muscovite, lignite; medium gray
658 - 659	1	Sand, medium; poorly sorted; heavy minerals, muscovite, smoky quartz; medium gray
659 - 660	1	Sand, medium, clayey; poorly sorted; muscovite, smoky quartz; medium gray
660 - 661	1	Sand, medium, silty; moderately sorted; muscovite, feldspar; medium gray; F-B-1
661 - 664	3	Clay, silty; well sorted; muscovite, lignite; black to grayish black; F-O-1(661) F-G-3(662 - 663)
664 - 666	2	Silt, clayey; well sorted; muscovite, lignite; dark gray
666 - 682	16	Clay, silty; well sorted; muscovite, lignite; dark gray; F-G-1(676, 679)
682 - 686	4	Clay; well sorted; muscovite, lignite; dark gray
686 - 688	2	Sand, medium, silty, clayey; poorly sorted; muscovite; dark gray
688 - 689	1	Sand, coarse, silty; moderately sorted; muscovite, feldspar; dark gray
689 - 692	3	Sand, coarse; well sorted; muscovite, feldspar, lignite; dark gray; F-O-1(691)
692 - 693	1	Silt, sandy; moderately sorted; interbedded sand; muscovite, lignite; dark gray
693 - 697	4	Silt, well sorted; muscovite, lignite; medium gray to grayish black
697 - 698	1	Clay, silty; well sorted; crossbedded muscovite, lignite; medium grayish black

LITHOLOGIC LOG, P-24 (TA)

<u>Depth</u> <u>(ft)</u>	<u>Thickness</u> <u>(ft)</u>	<u>Description</u>
698 - 699	1	Silt; well sorted; muscovite, lignite; medium grayish black
699 - 708	9	Clay, silty; well sorted; muscovite; medium gray
708 - 709	1	Silt; well sorted; muscovite; medium gray
709 - 719	10	Clay, silty; well sorted; muscovite; medium gray
719 - 720	1	Clay, silty, sandy; poorly sorted; muscovite; medium gray
720 - 721	1	Sand, medium, clayey; poorly sorted; muscovite; dark gray
721 - 723	2	Sand, coarse; well sorted; heavy minerals, muscovite; medium gray
723 - 724	1	No recovery
724 - 726	2	Sand, coarse; well sorted; heavy minerals, muscovite; medium gray
726 - 727	1	Sand, medium, clayey; poorly sorted; interbedded clay; sulfides, muscovite; dark gray
727 - 731	4	Silt; well sorted; muscovite; medium gray
731 - 732	1	Sand, medium, silty; poorly sorted; muscovite; medium gray; F-B-1
732 - 733	1	Silt; well sorted; heavy minerals, muscovite; medium gray
733 - 734	1	Sand, medium, silty; moderately sorted; muscovite; medium gray
734 - 737	3	Silt; well sorted; muscovite, lignite; medium gray
737 - 741	4	Sand, medium, silty; well sorted; heavy minerals, muscovite; medium gray
741 - 743	2	Silt, sandy; well sorted; muscovite, lignite; medium gray; F-G-1(741)
743 - 744	1	Sand, medium, silty; well sorted; muscovite, lignite; medium gray; F-B-1
744 - 748	4	Sand, medium; well to very poorly sorted; muscovite, lignite, feldspar; medium gray; F-B-1(747)
748 - 749	1	Sand, coarse, silty; poorly sorted; clay balls, sulfides, muscovite, lignite; light tannish gray
749 - 750	1	Clay, silty; well sorted; muscovite, lignite; light gray
750 - 752	2	Clay; well sorted; muscovite, lignite; light gray

LITHOLOGIC LOG, P-24 (TA)

<u>Depth</u> <u>(ft.)</u>	<u>Thickness</u> <u>(ft.)</u>	<u>Description</u>
752 - 754	2	Clay, silty; well sorted; muscovite; light gray
754 - 755	1	Clay, sandy; moderately sorted; sulfides, muscovite, kaolin; light gray
755 - 757	2	Sand, coarse, clayey; moderately to well sorted; muscovite, kaolin; light gray
757 - 758	1	Sand, coarse; well sorted; muscovite, kaolin; light gray
758 - 762	4	Sand, medium, silty; well sorted; heavy minerals, muscovite, kaolin; light gray
762 - 769	7	Sand, very coarse; well to poorly sorted; heavy minerals, muscovite, kaolin; light gray to light grayish white
769 - 770	1	Sand, medium, clayey; poorly sorted; heavy minerals, muscovite, smoky quartz; light gray
770 - 777	7	Clay; well sorted; muscovite; light brownish gray to light grayish brown; F-B-1(772,774)
777 - 779	2	No recovery
779 - 781	2	Clay; well sorted; muscovite; light brownish gray to light gray
781 - 784	3	No recovery
784 - 786	2	Sand, medium; muscovite, kaolin; light tan
786 - 789	3	No recovery
789 - 790	1	Sand, medium; well sorted; heavy minerals, muscovite, lignite; light brown; F-O-1
790 - 792	2	Sand, medium to coarse, clayey; moderate to poorly sorted; muscovite; light tan to light brown
792 - 794	1	Sand, medium, silty; well sorted; muscovite, lignite; light brown
794 - 795	1	Sand, medium; poor to very poorly sorted; muscovite, lignite; light tan
799 - 800	1	Sand, medium, silty; poorly sorted; muscovite, lignite; light gray
800 - 803	3	Sand, medium; well to poorly sorted; clay balls; sulfides, muscovite, lignite; light gray
803 - 804	1	Sand, coarse, clayey; well sorted; interbedded clay; lignite; light brown

LITHOLOGIC LOG, P-24 (TA)

<u>Depth</u> <u>(ft)</u>	<u>Thickness</u> <u>(ft)</u>	<u>Description</u>
804 - 808	4	Sand, medium to coarse; well sorted; sulfides, muscovite; medium gray
808 - 809	1	Sand, medium, clayey; poorly sorted; interbedded clay; sulfides; medium gray
809 - 810	1	Sand, medium, silty; poorly sorted; interbedded clay; muscovite; dark brown
810 - 812	2	Clay, wilty; well sorted; muscovite; light brown; F-0-1
812 - 813	1	Clay; well sorted; light brownish gray
813 - 814	1	No recovery
814 - 816	2	Clay; well sorted; gray to light blueish gray; F-0-1(815)
816 - 819	3	No recovery
819 - 822	3	Clay, sand; well sorted; muscovite; light gray to light brownish gray
822 - 824	2	No recovery
824 - 829	5	Sand, medium, silty; well to moderately sorted; heavy minerals, muscovite, lignite; light brownish gray to light tan; F-0-2(828)
829 - 830	1	Sand, well sorted; heavy minerals, muscovite, lignite; light tan; F-0-2
830 - 831	1	Sand, medium, silty; moderately sorted; lignite; light gray
831 - 832	1	Clay, silty, sandy; well sorted; muscovite, smoky quartz, lignite; tan; F-B-1
832 - 838	6	Clay; well sorted; muscovite; light gray; F-B-1(835)
838 - 839	1	NO recovery
839 - 841	2	Clay; well sorted; light brownish gray
841 - 844	3	No recovery
844 - 846	2	Clay; well sorted; muscovite; grayish brown
846 - 849	3	No recovery
849 - 853	4	Sand, coarse; well to poorly sorted; interbedded clay; muscovite; medium gray
853 - 858	5	Sand, medium, silty; well sorted; heavy minerals, muscovite; medium gray to light tan
858 - 860	2	Sand, medium; well sorted; heavy minerals, muscovite; light tan

LITHOLOGIC LOG, P-24 (TA)

<u>Depth</u> <u>(ft)</u>	<u>Thickness</u> <u>(ft)</u>	<u>Description</u>
860 - 861	1	Clay, silty; well sorted; muscovite; dark brownish black
861 - 864	3	No recovery
864 - 866	2	Clay, silty; well sorted; interbedded clay; heavy minerals, muscovite, lignite; brown
866 - 867	1	Clay, silty; well sorted; mottled brown; heavy minerals, muscovite, lignite; dark brown; F-C-2
867 - 879	2	No recovery
869 - 870	1	Sand, medium, silty; well sorted; interbedded clay, clay ball heavy minerals, muscovite; medium gray
870 - 971	1	Clay, sandy; well sorted; muscovite; medium gray
871 - 872	1	Sand, medium, silty; well sorted; muscovite, lignite; dark gray
872 - 878	6	Clay; well sorted; muscovite; medium gray
878 - 879	1	No recovery
879 - 880	1	Clay, sandy; poorly sorted; muscovite, lignite; medium gray
880 - 881	1	Silt, clayey, sandy; moderately sorted; muscovite, lignite; grayish white
881 - 882	1	Sand, medium, clayey, silty; moderately sorted; muscovite; medium gray
882 - 884	2	No recovery
884 - 888	4	Sand, medium, silty; poorly sorted; very consolidated; muscovite, lignite, heavy minerals, medium gray; F-O-1(885)
888 - 889	1	Sand, medium, silty, clayey; poorly sorted; clay balls; very consolidated; lignite; dark gray
889 - 894	5	Sand, medium, silty; poor to moderately sorted; very consolidated; muscovite; light gray; F-O-1(891) F-Y-1(893)
894 - 895	1	Sand, medium; poorly sorted; muscovite; light gray
895 - 897	2	Sand, medium, silty; poorly sorted; heavy minerals, muscovite, lignite; dark gray to light gray; F-O-1
897 - 909	12	No recovery
909 - 910	1	Sand, fine, silty; moderately sorted; clay balls; sulfides, heavy minerals, muscovite; orangish gray; F-O-1
910 - 912	2	Sand, coarse; moderate to well sorted; heavy minerals, muscovite; orangish gray to brownish gray; F-B-1

LITHOLOGIC LOG, P-24 (TA)

<u>Depth (ft)</u>	<u>Thickness (ft)</u>	<u>Description</u>
912 - 914	2	Sand, fine, silty; poorly sorted; muscovite; medium gray
914 - 916	2	Silt, clayey; well sorted; muscovite, lignite; medium gray to tannish gray
916 - 917	1	Silt; well sorted; muscovite, lignite; tannish gray
917 - 918	1	Silt, sandy; well sorted; sulfides, muscovite, lignite; tannish gray
918 - 919	1	Clay, silty; well sorted; muscovite; light gray
919 - 920	1	Clay, sandy, silty; well sorted; muscovite; medium gray
920 - 921	1	Silt, sandy, clayey; poorly sorted; heavy minerals, muscovite; medium gray
921 - 923	2	Sand, very coarse; moderately sorted; muscovite, smoky quartz granules, lignite; medium gray; F-O-1(922)
923 - 924	1	No recovery
924 - 927	3	Sand, coarse; poorly sorted; interbedded clay; heavy minerals; muscovite; medium gray
927 - 928	1	Sand, medium, silty, clayey; very poorly sorted; interbedded clay; heavy minerals, muscovite; medium gray
928 - 929	1	Sand, fine, silty; well sorted; muscovite, feldspar; medium gray
929 - 930	1	Sand, fine, silty, clayey; well sorted; heavy minerals, muscovite, feldspar; whitish gray
930 - 932	2	Sand, coarse; well sorted; muscovite, feldspar, kaolin; whitish gray; F-Y-1(931)
932 - 936	4	Sand, medium, silty; poorly sorted; heavy minerals, muscovite, kaolin, lignite; whitish gray to light tannish gray (933)
936 - 944	8	Sand, coarse to medium; well to poorly sorted; muscovite, heavy minerals, smoky quartz, kaolin; light gray to tannish gray
944 - 947	3	Sand, medium, silty, clayey; very poorly sorted; clay balls, interbedded clay; kaolin, smoky quartz pebbles; light gray
947 - 950	3	Sand, medium, silty; moderately sorted; muscovite, feldspar, kaolin; light gray; F-B-1(948 - 949)
950 - 957	7	Sand, medium to coarse; moderately sorted; heavy minerals, muscovite, kaolins; light gray to tannish gray; F-O-1(956)

LITHOLOGIC LOG, P-24 (TA)

<u>Depth</u> <u>(ft)</u>	<u>Thickness</u> <u>(ft)</u>	<u>Description</u>
957 - 959	2	No recovery
959 - 962	3	Sand, coarse; well sorted; heavy minerals, muscovite; tannish gray
962 - 963	1	No recovery
963 - 964	1	Sand, medium, clayey; well sorted; interbedded clay; muscovite; light gray
964 - 968	4	Sand, coarse to medium; well to poorly sorted; heavy minerals, sulfides, muscovite, kaolin; light gray; F-O-3 (964 - 965)
968 - 970	2	Sand, fine, silty; well sorted; heavy minerals, muscovite, kaolin; light tan
970 - 978	8	Sand, medium; poorly sorted; heavy minerals, muscovite, kaolin, light tan
978 - 979	1	No recovery
979 - 980	1	Sand, coarse; moderately sorted; smoky quartz pebbles; tannish gray
980 - 990	10	Clay, sandy; poorly sorted; very consolidated; muscovite; tannish gray to light gray; F-B-1(985, 987)
990 - 992	2	Clay; well sorted; very consolidated; muscovite; medium gray; F-B-1(991)
992 - 994	2	No recovery
994 - 995	1	Clay, sandy; poorly sorted; very consolidated; muscovite; light blueish gray
995 - 996	1	Clay; well sorted; very consolidated; muscovite; light gray
996 - 999	3	No recovery
999 - 1003	4	Clay, sandy; well sorted; very consolidated; muscovite; light gray; F-B-1(999, 1001)
1003 - 1004	1	No recovery
1004 - 1005	1	Clay, sandy; poorly sorted; very consolidated; muscovite; light blueish gray
1005 - 1009	4	No recovery
1009 - 1014	5	Clay; well sorted; very consolidated; muscovite; red yellowish gray to medium gray
1014 - 1016	2	Clay, sandy; poorly sorted; very consolidated; muscovite; light blueish gray to medium reddish gray

LITHOLOGIC LOG, P-24 (TA)

<u>Depth</u> <u>(ft)</u>	<u>Thickness</u> <u>(ft)</u>	<u>Description</u>
1016 - 1018	2	Sand, medium, clayey; poorly sorted; very consolidated; yellowish red
1018 - 1021	3	Clay; well sorted; very consolidated; feldspar smoky quartz pebbles; reddish gray
1021 - 1038	17	Sand, medium, clayey; poorly sorted; very consolidated; muscovite; light blueish gray to dark reddish brown; F-O-1(1028 - 1029)
1038 - 1039	1	No recovery
1039 - 1042	3	Sand, medium, clayey; well sorted; very consolidated; muscovite; tan to brown
1042 - 1050	8	Clay; well sorted; very consolidated; muscovite; gray F-B-1(1050)
1050 - 1059	9	Sand, medium, clayey; poorly sorted; very consolidated; muscovite; gray; F-B-1(1050)
1059 - 1064	5	No recovery
1064 - 1068	4	Clay, silty, sandy; poorly sorted; very consolidated; muscovite, feldspar; grayish green
1068 - 1071	2	Clay, silty, sandy; moderately sorted; very consolidated; muscovite, feldspar; gray greenish brown to gray reddish brown

APPENDIX B

LITHOLOGIC LOG FOR P-25TA

LEGEND

F - fluorescence

B - blue

Y - yellow

O - orange

R - red

G - green

() - interval that displays fluorescence, in feet

NOTE: The number of grains which fluoresced in a 3" by 3" tray were counted and catagorized as follows:

- 1) less than three grains
- 2) three to ten grains
- 3) more than ten grains

EXAMPLE: F-0-3 (32-37)
fluorescence; orange; greater than ten grains;
from thirty two to thirty seven feet.

LITHOLOGIC LOG, P-25 (TA)

DEPTH (ft)	THICKNESS (ft)	DESCRIPTION
1 - 17	17	Clay, sandy; reddish brown to yellowish orange; Feldspar trace; Heavy minerals; F-B-2(0-2) F-B-1(4-7) F-B-1(10-11) F-B-1(12-13)
17 - 19	2	Sand, clayey; orangish yellow; Feldspar trace F-G-1(18-19)
19 - 20	1	No recovery
20 - 25	5	Sand, medium; moderately sorted; orangish yellow to reddish yellow; muscovite, kaolin, feldspar; F-O-1(20-21) F-G-1(23-24) F-O-1(24-25)
25 - 27	2	Sand, silty; poorly sorted; heavy minerals, feldspars; orangish brown to yellowish brown
27 - 29	2	Sand, medium; moderate to poorly sorted; heavy minerals; purple; F-O-1(27-28)
29 - 30	1	No recovery
30 - 32	2	Sand, clayey; interbedded clay; feldspar; yellowish purple F-G-1(30-31)
32 - 35	3	Sand, silty; moderately sorted; feldspar; yellowish purple to purplish brown; F-B-1(34-35)
35 - 39	4	Sand, medium; poorly sorted; clay balls; feldspar; purple F-G-1(35-37) F-B-1(37-38) F-O-1(39-40)
39 - 40	1	No recovery
40 - 44	4	Sand, medium; moderately sorted; heavy minerals, feldspar; purple F-G-1(40-41) F-Y-1(41-42) F-B-1(43-44)
44 - 45	1	Clay; muscovite; brown
45 - 59	14	Sand, medium; silty; well to moderately sorted; muscovite, zircons; yellowish tan to tannish brown; F-O-2(45-49) F-B-2(49-51) F-O-2(51-59)
59 - 60	1	Clay, sandy; muscovite; tannish brown
60 - 63	3	Sand, medium; moderately sorted; heavy minerals, muscovite; tannish brown; F-O-1(60 - 61)
63 - 65	2	Sand, clayey; lignite, kaolin, muscovite, heavy minerals; F-O-1(63-64)
65 - 69	4	Sand, medium, silty; well sorted; interbedded clay; kaolin lenses; yellowish tannish brown to yellow whitish brown; F-O, B-1(66,69)

LITHOLOGIC LOG, P-25 (TA)

DEPTH (ft)	THICKNESS (ft)	DESCRIPTION
69 - 70	1	No recovery
70 - 73	3	Sand, medium, silty; well sorted; interbedded clay; heavy minerals, feldspar, gypsum, muscovite; yellow whitish brown F-O-1(70-73)
73 - 74	1	Sand, clayey; muscovite, heavy minerals; yellow whitish brown F-O-1(73-74)
74 - 75	1	Clay, silty; yellow whitish orange; F-B-3(74-75)
75 - 81	6	Sand, medium, silty; well to moderately sorted; heavy minerals, lignite, gypsum, muscovite; tannish orange to tannish brown F-O-2(75-77) F-O-1(79-80) F-B-2(80-81)
81 - 82	1	Sand, clayey, silty; lignite, gypsum, muscovite; tannish brown;
82 - 93	11	Sand, clayey; moderately sorted; interbedded clay; lignite; tannish brown to yellowish tan F-O-2(82-86) F-O-2(88-89) F-B-1(90-91) F-O-3(92-93)
93 - 95	2	Sand, medium to coarse; moderately sorted; lignite; tannish brown; F-O-1(94-95)
95 - 99	4	Sand, clayey; lignite, foraminifera; mottled brown; interbedded clay; tannish brown; F-B-3(95-96) F-O-2(99)
99 - 105	6	Sand, medium to coarse; well to poorly sorted; mottled brown; interbedded clay; lignite; tannish brown; F-O-2(99-102) F-O-1 F-O-1(103-105)
105 - 110	5	No recovery
110 - 113	3	Clay; well sorted; mottled brown; kaolin, lignite, zircons; tannish brown to tan brownish yellow F-O-3(110) F-Y-2(111)
113 - 114	1	Sand, clayey; poorly sorted; banded yellow; interbedded clay; tannish yellow; F-O-2(113)
114 - 119	5	Sand, medium to coarse; well to moderately sorted; heavy minerals, lignite; light brownish tan to light brown; F-O-2(114) F-O-1
119 - 120	1	No recovery
120 - 121	1	Sand, coarse; moderately sorted; mottled brown; light brown F-B-2
121-125	4	Sand, fine to medium, clayey; moderate to poorly sorted; mottled brown; interbedded clay; muscovite; yellowish brown to tannish brown; F-B-1(121)F-G-1(122) F-O-2(124)
125 - 127	2	Clay, sandy, medium, silty; moderately to poorly sorted; mottled brown; mottled sand; lignite; yellowish tan to

LITHOLOGIC LOG, P-25 (TA)

DEPTH (ft)	THICKNESS (ft)	DESCRIPTION
		tannish whitish; F-G-2(125) F-Y-3(126)
127 - 130	3	Clay, sandy, medium; poorly sorted; mottled brown; lignite kaolin, heavy minerals, calcite, fluorite; brownish tan to dark tannish brown; F-Y-3(128-129)
130 - 131	1	Sand, medium, clayey; moderately sorted; mottled brown; lignite, calcite; tannish brown; F-Y-3
131 - 136	5	Sand, medium; moderately sorted; banded yellow; calcite, lignite; light tan; F-Y-3(131-133) F-O-1(134)
136 - 138	2	Clay, limey; well sorted; chert, calcareous clay, limestone; tannish brown; F-Y-3
138 - 140	2	Limestone; well sorted; chert; tannish brown; F-Y-3
140 - 142	2	Limestone; well sorted; chert; tannish brown; F-Y-3
142 - 145	3	No recovery
145 - 146	1	Limestone, clayey; well sorted; mottled sand; brownish tan; F-Y-3
146 - 150	4	No recovery
150 - 152	2	Sand, medium, silty; well sorted; gypsum; interbedded clay; brownish red; F-G-2
152 - 156	4	Sand, medium; well sorted; interbedded clay; brown to dark tannish brown; F-O-1(152) F-G-1(153) F-G-1(154) F-G-2(155)
156 - 165	9	Sand, medium, silty; well sorted; interbedded clay; heavy minerals, feldspar; orangish brown; F-O-1(157-158) F-B-2(160) F-O-1(161)
165 - 166	1	Sand, medium, silty, clayey; well sorted; interbedded clay; muscovite; orangish brown; F-O-1
166 - 170	4	Clay, sandy, medium; moderately sorted; muscovite, glauconite; orange brownish gray to dark gray; F-G-3(166) F-O-2(167) F-G-2(168) F-O-2(169)
170 - 171	1	Sand, medium, silty, clayey; poorly sorted; clay balls; orangish brown; F-B-1
171 - 172	1	Sand, coarse, silty; well sorted; orangish brown
172 - 175	3	Sand, coarse; well sorted; light tan to orangish tan

LITHOLOGIC LOG, P-25 (TA)

DEPTH (ft)	THICKNESS (ft)	DESCRIPTION
175 - 185	10	Sand, medium, silty; moderately sorted; muscovite, heavy minerals, feldspar; orangish tan to brown cannish orange; F-G-1(175) F-O-1(177) F-O-2(179) F-G-3(180) F-Y-2(181) F-O-2(182) F-G-3(184)
185 - 186	1	Sand, fine,; well sorted; heavy minerals, muscovite; tan; F-B-1
186 - 203	17	Sand, fine, silty; well sorted; heavy minerals, muscovite; dark tan, yellow tan, to orangish tan; F-O-3
203 - 204	1	Sand, medium; well sorted; heavy minerals, muscovite; mottled brown; gray orangish tan; F-O-3
204 - 207	3	Sand, medium, silty; moderate to very poorly sorted; glauconite, sulfides, lignite, muscovite; orangish brown to gray; F-O-2(204) F-Y-1(205 - 206)
207 - 209	2	Sand, medium; moderately sorted; heavy minerals, sulfide; light gray to gray
209 - 210	1	No recovery
210 - 211	1	Sand, coarse; moderately sorted; heavy minerals, sulfides; light gray
211 - 212	1	Sand, coarse, silty; poorly sorted; sulfides, heavy minerals, gray quartz; dark gray; F-Y-1
212 - 215	3	No recovery
215 - 218	3	Sand, coarse, silty; moderate to very poorly sorted; pyrite, rose quartz, heavy minerals; gray; F-Y-2(216 - 217)
218 - 219	1	Sand, coarse; moderately sorted; heavy minerals, sulfides, rose quartz; gray; F-Y-1
219 - 220	1	No recovery
220 - 222	2	Sand, coarse, moderately sorted; rose quartz, heavy minerals, sulfides; gray; F-G-2
222 - 223	1	Sand, medium, silty; poorly sorted; heavy minerals, sulfides, rose quartz; gray; F-Y-1
223 - 224	1	Sand, coarse; well sorted; gray
224 - 226	2	Sand, medium, silty; moderately sorted; sulfides, heavy minerals; gray

LITHOLOGIC LOG, P-25 (TA)

DEPTH (ft)	THICKNESS (ft)	DESCRIPTION
226 - 230	4	No recovery
230 - 231	1	Sand, medium, silty; well sorted; sulfides; dark gray
231 - 232	1	Sand, medium; moderately sorted; muscovite; light gray
232 - 235	3	Sand, fine, silty; well sorted; muscovite, gypsum, sulfides; light gray to gray; F-Y-2(234)
235 - 237	2	Sand, fine; well sorted; gypsum, muscovite, sulfides; gray; F-Y-1(235 - 236)
237 - 238	1	Sand, fine, silty; well sorted; interbedded clay; gypsum, muscovite; gray; F-Y-1
238 - 240	2	No recovery
240 - 241	1	Sand, fine, clayey; moderately sorted; interbedded clay, mottled sand, muscovite; dark gray; F-Y-1
241 - 243	2	Clay, sandy; moderately to poorly sorted; fissile, mottled sand; heavy minerals, gypsum; dark gray
243 - 244	1	Sand, medium, silty; very poorly sorted; muscovite; gray; F-G-1
244 - 245	1	No recovery
245 - 248	3	Sand, medium, silty; moderately sorted; clay balls; heavy minerals, gypsum, gray quartz; gray; F-Y-1(246)
248 - 250	2	No recovery
250 - 251	1	Sand, fine; well sorted; heavy minerals, sulfides; light gray
25251 - 253	2	No recovery
253 - 254	1	Clay, sandy; moderately sorted; muscovite, sulfides; fissile; light greenish gray; F-B-1
254 - 256	2	Clay; well sorted; fissile; gypsum, sulfides, muscovite; greenish gray; F-G-3
256 - 260	4	No recovery
260 - 262	2	Clay; well sorted; fissile; sulfides, gypsum, muscovite; gray to light greenish gray; F-B-2
262 - 264	2	Sand; coarse; moderately sorted; interbedded clay, fissile, clay balls; sulfides, gypsum, muscovite; gray; F-O-1(262)

LITHOLOGIC LOG, P-25 (TA)

DEPTH (ft)	THICKNESS (ft)	DESCRIPTION
264 - 265	1	Sand, medium, clayey; moderately sorted; laminated, fissile; sulfides, muscovite; gray
265 - 266	1	Sand, medium, silty; poorly sorted; sulfides, gypsum, heavy minerals; greenish gray; F-Y-2
266 - 267	1	Clay, sandy; poorly sorted; fissile; sulfides, gypsum, muscovite, heavy minerals; dark gray; F-B-2
267 - 272	5	Sand, medium, silty; poorly sorted; heavy minerals, muscovite, gypsum, sulfides; gray; F-G-2(268) F-B-1(269) F-G-1(271)
272 - 273	1	Silt, sandy; poorly sorted; sulfides, muscovite; greenish gray; F-O-2
273 - 275	2	Sand, medium, silty; moderately sorted; sulfides, muscovite, heavy minerals, gypsum, lignite; gray to light tannish gray; F-O-1(274)
275 - 276	1	No recovery
276 - 277	1	Sand, coarse; moderately sorted sulfides, muscovite; gray
277 - 278	1	Sand, medium, clayey; poorly sorted; sulfides, muscovite; dark gray
278 - 280	2	Sand, medium, silty; very poorly sorted; crossbedded; gypsum, muscovite; gray; F-B-1(278) F-O-1(279)
280 - 281	1	Silt, sandy; well sorted; gypsum, muscovite; gray; F-O-1
281 - 284	3	Silt; well sorted; sulfides, muscovite gypsum; gray
284 - 286	2	Silt, sandy; well sorted; gypsum, muscovite; gray
286 - 291	5	Silt; well sorted; gypsum, muscovite, sulfides; light gray to gray
291 - 300	9	Silt, sandy; well sorted; sulfides, gypsum, heavy minerals, muscovite; light gray
300 - 308	8	Sand, medium, silty; well sorted; sulfides, muscovite; gray; F-G-1(300) F-G-3(301)
308 - 310	2	Silt, sandy; well sorted; crossbedded; sulfides, gypsum, muscovite; gray F-Y-1(309)
310 - 314	4	Sand, medium, silty; well sorted; sulfides, muscovite, heavy minerals; gray

LITHOLOGIC LOG, P-25 (TA)

DEPTH (ft)	THICKNESS (ft)	DESCRIPTION
314 - 315	1	Sand, medium, silty, clayey; well sorted; sulfides, gypsum, muscovite, lignite; blackish gray
315 - 316	1	Silt, sandy, clayey; well sorted crossbedded; sulfides, muscovite; gray
316 - 319	3	Silt, sandy; well sorted; heavy minerals, gypsum, muscovite; gray; F-0-1(318)
319 - 320	1	No recovery
320 - 324	4	Sand, medium, silty; moderately sorted; muscovite; dark gray; F-G-1(320) F-G-2(322-323)
324 - 325	1	No recovery
325 - 327	2	Sand, medium, silty; moderately sorted; crossbedded; gypsum, muscovite; gray
327 - 328	1	Silt, sandy; moderately sorted; interbedded clay; gypsum, muscovite; gray
328 - 329	1	Sand, fine, silty, clayey; moderately sorted; interbedded clay; glauconite, gypsum, muscovite; gray; F-0-1
329 - 330	1	No recovery
330 - 331	1	Sand, medium; well sorted; sulfides, feldspar, muscovite; light gray
331 - 332	1	Sand, medium, silty; well sorted; sulfides, muscovite; light gray
331 - 332	1	Sand, medium, silty; well sorted; sulfides, muscovite; light gray
332 - 334	2	Sand, medium, silty; clayey; moderately sorted; interbedded clay, mottled sand; gypsum, sulfides, muscovite; dark gray; F-G-1(332 - 333)
334 - 337	3	Sand, medium, silty; poorly sorted; mottled sand; gypsum, sulfides, lignite, feldspar, muscovite; dark gray to light tannish gray; F-0-1(334) F-Y-2(336)
337 - 338	1	No recovery
338 - 344	6	Sand, medium, silty; moderately sorted; crossbedded; gypsum, glauconite, sulfides, feldspar, muscovite, lignite, heavy minerals, chert; gray; F-G-1(340) F-G-2(341) F-G-1(343)
344 - 345	1	No recovery

LITHOLOGIC LOG, P-25 (TA)

DEPTH (ft)	THICKNESS (ft)	DESCRIPTION
345 - 357	12	Sand, fine, silty; well to poorly sorted; gypsum, sulfides, muscovite, lignite; gray to light grayish tan; F-G-1(345-347) F-O-1(351) F-G-2(353)
357 - 365	8	Clay, sandy; poorly sorted; gypsum, sulfides, muscovite, weathered feldspar, kaolin; light grayish white; F-B-1(358) F-B-1(361)
365 - 367	2	Sand, coarse, clayey; poorly to very poorly sorted; sulfides, muscovite, heavy minerals; light grayish white
367 - 369	2	Clay; well sorted; muscovite, heavy minerals; medium gray; F-G-3(367)
369 - 370	1	No recovery
370 - 382	12	Clay; well sorted; muscovite, weathered feldspar; greenish gray to light blueish gray;
382 - 384	2	Clay, silty; well sorted; muscovite, heavy minerals, weathered feldspar; light blueish gray
384 - 385	1	Clay, sandy, silty; well sorted; heavy minerals, muscovite, weathered feldspar; light gray; F-O-3
385 - 386	1	Clay, silty; well sorted; heavy minerals, muscovite, weathered feldspar; gray; F-O-3
386 - 387	1	Clay; well sorted; heavy minerals, muscovite, weathered feldspar; brownish gray
387 - 388	1	Clay, silty; well sorted; heavy minerals, muscovite; weathered feldspar; light gray
388 - 390	2	Silt, sandy; well sorted; heavy minerals, muscovite; light gray; F-O-1(388)
390 - 392	2	Silt, clayey; well sorted; muscovite, weathered feldspar; light blackish gray to light gray; F-B-1(391)
392 - 393	1	Sand, medium, clayey, silty; very poorly sorted; muscovite, kaolin, smoky quartz; light gray
393 - 394	1	Sand, medium, clayey; very poorly sorted; interbedded clay; muscovite, weathered feldspar, kaolin; tannish gray
394 - 395	1	NO recovery
395 - 396	1	Clay, sandy; very poorly sorted; clay balls; sulfides, kaolin, muscovite; light gray

LITHOLOGIC LOG, P-25 (TA)

DEPTH (ft)	THICKNESS (ft)	DESCRIPTION
396 - 404	8	Sand, coarse to medium; moderately to poorly sorted; sulfides, muscovite, weathered feldspar, heavy minerals; tannish gray; F-0-1(396) F-0-1(398) F-B-1(400) F-G-1(402-403)
404 - 405	1	No recovery
405 - 407	2	Sand, coarse; well sorted to very poorly sorted; muscovite, weathered feldspar, sulfides, smoky quartz pebbles, heavy minerals; light gray to tannish gray; F-G-1(405) F-0-1(406)
407 - 408	1	Sand, coarse, clayey; very poorly sorted; clay balls; heavy minerals, sulfides, smoky quartz granules, kaolinitic; whitish gray; F-0-1
408 - 409	1	Conglomerate; coarse; very poorly sorted; clay balls; heavy minerals, sulfides, smoky quartz pebbles, kaolinitic; whitish gray
409 - 410	1	No recovery
410 - 420	10	Sand, medium; well to moderately sorted; heavy minerals, sulfides gypsum, muscovite, weathered feldspar; light gray to tannish gray
420 - 421	1	Sand, coarse clayey; very poorly sorted; clay balls; interbedded clay; heavy minerals, sulfides, muscovite, kaolin, smoky quartz granules; blackish gray
421 - 422	1	Sand, medium, clayey, silty; moderately sorted; clay balls, interbedded clay; heavy minerals, sulfides, muscovite, kaolin; dark gray
422 - 423	1	Sand, medium, silty; moderately sorted; clay balls; sulfides; dark gray; F-B-1
423 - 425	2	No recovery
425 - 426	1	Clay; well sorted; mottled sand; heavy minerals, kaolinitic, muscovite; grayish black; F-B-1
426 - 430	4	No recovery
430 - 433	3	Sand, medium; poorly sorted; sulfides, muscovite; tannish gray; F-Y-1(430) F-Y-1(432)
433 - 436	3	No recovery
436 - 437	1	Sand, coarse; poorly sorted; heavy minerals, sulfides, muscovite, kaolinitic; tannish gray

LITHOLOGIC LOG, P-25 (TA)

DEPTH (ft)	THICKNESS (ft)	DESCRIPTION
437 - 440	3	Sand, coarse, clayey; poorly sorted; interbedded clay; muscovite, kaolinitic, smoky quartz granules; gray
440 - 455	15	Clay; well sorted; mottled clay; sulfides, kaolinitic, muscovite; light gray to light grayish red; F-B-1(440-441) F-G-1(444) F-B-1(445)
455 - 460	4	No recovery
460 - 463	3	Sand, medium, silty; moderately sorted; gypsum, sulfides, feldspar, muscovite, kaolinitic; light gray to whitish; F-Y-1(460) F-B-1(461) F-O-1(462)
463 - 465	2	Sand, medium; well to poorly sorted; heavy minerals, muscovite; tan to whitish gray; F-O-1(463) F-B-1(464)
465 - 466	1	Sand, medium, clayey; poorly sorted; muscovite, kaolinitic, whitish gray F-G-1
466 - 469	3	Silt, sandy; moderately sorted; muscovite, feldspar, kaolin, heavy minerals; light gray; F-Y-1(467)
469 - 470	2	No recovery
470 - 472	2	Sand, medium, clayey, silty; well to moderately sorted; muscovite, feldspar, kaolin; light gray to tannish gray
472 - 473	1	Sand, medium, silty; well sorted; heavy minerals, muscovite; light tannish gray
473 - 474	1	Silt, sandy; well sorted; muscovite, feldspar, kaolin; light gray to grayish tan; F-O-2(474)
474 - 479	5	Sand, medium, silty; well sorted; muscovite, feldspar, kaolin; light gray to grayish tan; F-O-2(474) F-O-1(475,477-478)
479 - 480	1	No recovery
480 - 482	2	Sand, fine, silty; well sorted; heavy minerals, muscovite, kaolin, feldspar; light gray; F-B-2
482 - 485	3	Silt, sandy; well sorted; heavy minerals, sulfides, muscovite, feldspar, kaolin; light gray to dark gray; F-O-3(482) F-B, O-2(483)
485 - 486	1	No recovery
486 - 488	2	Silt, sandy; well sorted; heavy minerals, sulfides, feldspar, muscovite; light gray; F-O-1(487)
488 - 489	1	Sand, medium, silty; well sorted; sulfides, feldspar, muscovite, kaolin; light grayish tan

LITHOLOGIC LOG, P-25 (TA)

DEPTH (ft)	THICKNESS (ft)	DESCRIPTION
489 - 490	1	No recovery
490 - 496	6	Sand, medium, silty; well sorted; feldspar, muscovite, kaolin; tannish light gray; F-G-1(491) F-O-1(492-493)
496 - 499	3	Sand, coarse; poorly sorted; muscovite, smoky quartz granules; light tannish gray
499 - 500	1	No recovery
500 - 502	2	Sand, coarse; poor to very poorly sorted; clay balls; lignite, muscovite; light gray; F-G-1(500)
502 - 505	3	No recovery
505 - 506	1	Sand, medium, clayey; poorly sorted; muscovite, kaolin, heavy minerals; light gray
506 - 514	8	Sand, medium, silty; well to poorly sorted; clay balls, heavy minerals, gypsum, kaolin, muscovite, feldspar, smoky quartz; tannish gray to light grayish black; F-O-1(506)
514 - 517	3	No recovery
517 - 518	1	Clay, silty, sandy; moderately sorted; interbedded clay; muscovite, lignite, feldspar; light grayish black
518 - 520	2	No recovery
520 - 521	1	Sand, fine, silty, clayey; well sorted; heavy minerals, muscovite, kaolin; light gray; F-O-1
521 - 525	4	No recovery
525 - 530	5	Sand, medium, silty; well to moderately sorted; heavy minerals, feldspar, muscovite, lignite, kaolin; gray F-O-1(529)
530 - 531	1	Sand, coarse, clayey; poorly sorted; muscovite, kaolin, lignite; medium gray
531 - 533	2	Sand, medium, silty; poorly to well sorted; feldspar, muscovite, kaolin, lignite; medium gray
533 - 534	1	Sand, medium, clayey, silty; well sorted; gypsum, feldspar, muscovite, lignite; dark gray; F-O-1
536 - 538	2	Sand, medium; poorly sorted; sulfides, feldspar, muscovite, lignite; medium to light gray; F-O-1(536)

LITHOLOGIC LOG, P-25 (TA)

DEPTH (ft)	THICKNESS (ft)	DESCRIPTION
538 - 539	1	Sand, medium, silty; well sorted; muscovite; light gray
539 - 540	1	Sand, medium, silty, clayey; well sorted; muscovite, lignite; light gray
540 - 542	2	Sand, medium, silty; moderately sorted; feldspar, muscovite, lignite; light gray; F-B-1(540)
542 - 545	3	Sand, coarse; poor to very poorly sorted; clay balls; sulfides, muscovite, lignite; light to dark gray
545 - 546	1	Sand, medium, silty, clayey; very poorly sorted; clay balls; sulfides, muscovite, lignite; light gray; F-O-1
546 - 547	1	Sand, medium, silty; poorly sorted; sulfides, muscovite, lignite; tannish gray
547 - 549	2	Sand, coarse; poorly sorted; sulfides, muscovite, lignite; tannish gray; F-G-1(548)
549 - 550	1	Sand, medium, clayey; poorly sorted; interbedded clay; muscovite, feldspar; grayish black
550 - 552	2	Clay; well sorted; muscovite; grayish black
552 - 553	1	Silt, clayey; well sorted; muscovite; grayish black
553 - 555	2	No recovery
555 - 563	8	Sand, medium, silty; moderately sorted; muscovite, lignite; dark gray F-O-1(555) F-G-1(561) F-Y-1(562)
563 - 564	1	Lignite; sulfides; dark brown
564 - 565	1	Sand, medium, silty; moderately sorted; sulfides, lignite; dark gray
565 - 568	3	Sand, medium, clayey; moderately sorted; sulfides, muscovite; dark gray to medium gray
568 - 576	8	Sand, medium, silty; moderately to poorly sorted; sulfides, gypsum, muscovite, lignite; medium gray
576 - 578	2	Sand, medium, silty; moderately sorted; sulfides, muscovite, kaolin, lignite; light gray
578 - 584	6	Sand, medium; well sorted; heavy minerals, muscovite; tannish gray; F-O-2(580) F-O-3(581)
584 - 585	1	Silt, clayey; well sorted; interbedded clay; muscovite, lignite; medium gray F-Y-1

LITHOLOGIC LOG, P-25 (TA)

DEPTH (ft)	THICKNESS (ft)	DESCRIPTION
585 - 591	6	Sand, medium, silty; moderately sorted; muscovite, lignite, kaolin; medium gray; F-B-1(589)
591 - 594	3	Sand, coarse; poorly sorted; heavy minerals, muscovite, lignite; medium gray
594 - 595	1	Sand, medium, silty; well sorted; heavy minerals, muscovite, lignite; medium gray
595 - 597	3	Clay; well sorted; muscovite; grayish black
597 - 598	1	Clay, silty; well sorted; muscovite; grayish black
598 - 600	2	Silt, clayey, sandy; well sorted; muscovite; medium gray
600 - 602	2	Silt, sandy; well sorted; heavy minerals, muscovite; dark gray to blackish gray
602 - 604	2	Clay, silty; well sorted; muscovite, gypsum; black
604 - 605	1	Silt; well sorted; muscovite; black; F-B-1
605 - 606	1	Clay, silty; well sorted; muscovite; black; F-B-1
606 - 610	4	Silt, sandy; well sorted; muscovite; medium gray; F-O-1(609)
610 - 612	2	Sand, medium, silty; well sorted; muscovite, lignite; medium gray to tannish light gray; F-O-1(611)
612 - 614	2	Sand, medium; poorly sorted; muscovite, lignite; medium gray
614 - 615	1	No recovery
615 - 616	1	Sand, medium; poorly sorted; muscovite, lignite; medium gray
616 - 617	1	No recovery
617 - 122	5	Sand, medium, silty; well sorted; muscovite; dark gray F-O-1(617) F-B-1(620 - 621)
622 - 623	1	No recovery
623 - 625	2	No recovery
625 - 626	1	Sand, medium; poorly sorted; heavy minerals, muscovite; dark gray

LITHOLOGIC LOG, P-25 (TA)

DEPTH (ft)	THICKNESS (ft)	DESCRIPTION
626 - 628	2	Clay, silty, sandy; well sorted; interbedded clay; clay balls; muscovite, lignite; medium gray
628 - 630	2	No recovery
630 - 632	2	Sand, coarse, silty; poorly sorted; medium to dark gray
632 - 633	1	Clay; well sorted; fillile; light brownish gray
634 - 635	1	No recovery
635 - 638	3	Sand, medium, clayey; poorly sorted; muscovite, kaolin, weathered feldspar, lignite; light gray to tannish light gray; F-0-1(636)
638 - 639	1	Silt, sandy; moderately sorted; muscovite, laolin, weathered feldspar; tannish light gray
639 - 640	1	No recovery
640 - 641	1	Sand, fine, silty, clayey; well sorted; muscovite, kaolin; light gray; F-B-1
641 - 642	1	Clay, sandy, silty; well sorted; sulfides, muscovite, kaolin; tannish gray
642 - 645	3	No recovery
645 - 646	1	Sand, medium, clayey; poorly sorted; muscovite, kaolin; tannish light gray; F-B-1
646 - 650	4	No recovery
650 - 651	1	Clay, silty, sandy; well sorted; sulfides, muscovite, feldspar, lignite; dark grayish green
652 - 655	3	Clay, silty; well sorted; sulfides, muscovite; tannish gray to dark grayish black; F-0-1(654)
655 - 656	1	Silt, clayey; well sorted; muscovite, lignite; light greenish gray
656 - 657	1	Silt; well sorted; mucovite, lignite; light greenish gray
657 - 658	1	Silt, clayey; well sorted; mucovite, lignite; light greenish gray
658 - 661	3	Silt, sandy; well sorted; clay balls; muscovite, lignite; light greenish gray; F-B-1(659)

LITHOLOGIC LOG, P-25 (TA)

DEPTH (ft)	THICKNESS (ft)	DESCRIPTION
661 - 665	4	No recovery
665 - 669	4	Silt, sandy ; well sorted; muscovite, lignite; light tan; F-0-1(665)
669 - 671	2	Sand, fine to medium, silty; moderately ; sulfides, muscovite, lignite; dark greenish gray to light gray
671 - 672	1	Sand, medium, clayey; interbedded clay; well sorted; muscovite, lignite; dark gray
672 - 675	3	No recovery
675 - 679	4	Sand, medium, silty; poorly sorted; muscovite, lignite, kaolin; medium gray
679 - 684	5	No recovery
684 - 685	1	Sand, medium, silty; well sorted; sulfides, lignite; tannish gray; F-3-1
685 - 690	5	No recovery
690 - 692	2	Clay, sandy, silty; heavy minerals, muscovite; well sorted; light gray to greenish gray
692 - 695	3	No recovery
695 - 696	1	Sand, medium, silty, clayey; moderately sorted; sulfides, muscovite; gray; F-0-1
696 - 700	4	No recovery
700 - 708	8	Sand, fine, silty; well sorted; muscovite, lignite, feldspar; light gray; F-B-1(702-703)
708 - 710	2	Sand, medium; moderately sorted; sulfides, muscovite, lignite; light gray
710 - 711	1	Clay, sandy; moderately sorted; sulfides, muscovite, lignite; light gray
711 - 713	2	No recovery
713 - 714	1	Clay, silty; well sorted; kaolin, muscovite; light gray; F-G-2
714 - 716	2	Clay; well sorted; kaolin, muscovite; light gray

LITHOLOGIC LOG, P-25 (TA)

DEPTH (ft)	THICKNESS (ft)	DESCRIPTION
716 - 718	2	Clay, sandy; moderately sorted; heavy minerals, muscovite, kaolin; light gray
718 - 722	4	Sand, fine to medium, silty; well to poorly sorted; heavy minerals, muscovite, kaolin; light gray
722 - 723	1	No recovery
723 - 725	2	Sand, medium; well to moderately sorted; muscovite, feldspar, kaolin, lignite; tannish gray to whitish gray
725 - 729	4	Sand, medium, silty; well to moderately sorted; heavy minerals, muscovite, kaolin, feldspar; whitish gray
729 - 731	2	Sand, coarse; very poorly sorted; clay balls; heavy minerals, muscovite, kaolin; whitish gray; F-Y-1(729)
731 - 732	1	Sand, medium, clayey; poorly sorted; clay balls; muscovite, kaolin; whitish gray
732 - 734	2	Sand, medium, silty; moderately sorted; clay balls; muscovite, kaolin; whitish gray
734 - 735	1	Sand, coarse; poorly sorted; muscovite, kaolin; whitish gray
735 - 738	1	Sand, coarse; poorly sorted; muscovite, kaolin; whitish gray
738 - 740	2	Sand, medium, clayey; poorly sorted; heavy minerals, sulfides, muscovite, kaolin; whitish gray to light gray
740 - 744	4	Clay; well sorted; sulfides, muscovite, weathered feldspar; medium gray
744 - 745	1	Sand, coarse, clayey; poorly sorted; heavy minerals, kaolin; light gray
745 - 748	3	Clay; well sorted; muscovite, weathered feldspar; reddish brown
748 - 750	2	No recovery
750 - 751	1	Clay; well sorted; muscovite; medium purple
751 - 755	4	No recovery
755 - 760	5	Sand, medium, silty; moderately sorted; heavy minerals, muscovite, kaolinitic; light gray F-G-1(755)
760 - 761	1	Clay; well sorted; muscovite, kaolinitic; medium gray; F-B-3
761 - 762	1	Sand, medium, silty; well sorted; sulfides, kaolinitic, muscovite; light gray

LITHOLOGIC LOG, P-25 (TA)

DEPTH (ft)	THICKNESS (ft)	DESCRIPTION
762 - 766	4	Sand, medium; moderate to poorly sorted; kaolinitic, muscovite; light gray; F-0-1(762) F-0-1(763)
766 - 769	3	Clay; well sorted; kaolinitic; medium gray
769 - 770	1	No recovery
770 - 773	3	Clay, well sorted; heavy minerals, weathered feldspar, muscovite; medium gray
773 - 775	2	No recovery
775 - 777	2	Sand, medium, silty; well sorted; very consolidated; weathered feldspar, muscovite; light gray
777 - 780	3	No recovery
780 - 782	2	Sand, medium, moderately sorted; clay balls, muscovite, lignite; medium gray
782 - 785	3	No recovery
785 - 786	1	Sand, medium; moderately sorted; lignite, weathered feldspar, muscovite; medium gray
786 - 787	1	Sand, medium silty; moderately sorted; lignite, muscovite; medium gray
787 - 788	1	Clay, silty; moderately sorted; lignite, muscovite; medium gray; F-Y-2
788 - 789	1	Silt, sandy, clayey; moderately sorted; lignite, muscovite; medium gray; F-Y-2
789 - 790	1	No recovery
790 - 791	1	Sand, medium, clayey; poorly sorted; muscovite, lignite; medium grayish black
791 - 793	2	No recovery
793 - 800	7	Sand, medium; well to very poorly sorted; heavy minerals, smoky quartz, muscovite, kaolinitic; medium gray; F-0-1(793) F-0-1(795-797) F-0-2(798-799)
800 - 801	1	Sand, medium, clayey, silty; moderately sorted; heavy minerals, lignite, muscovite; medium gray
801 - 805	4	No recovery

LITHOLOGIC LOG, P-25 (TA)

DEPTH (ft)	THICKNESS (ft)	DESCRIPTION
805 - 806	1	Clay, sandy; poorly sorted; kaolin, muscovite; medium gray
806 - 810	4	No recovery
810 - 811	1	Sand, medium; poorly sorted; muscovite, lignite, smoky quartz, kaolinitic; medium gray; F-G-3
811 - 813	2	Sand, medium, silty; poorly sorted; sulfides, heavy minerals, muscovite, lignite, kaolinitic; medium gray; F-G-3(811) F-O-1 (812)
813 - 815	2	Silt, sandy; well sorted; sulfides, heavy minerals, muscovite; medium gray; F-O-1
815 - 820	5	No recovery
820 - 822	2	Silt, sandy; moderately to very poorly sorted; heavy minerals, sulfides, lignite, feldspar; medium gray; F-O-1(820) F-Y-1(821)
822 - 824	2	Sand, medium, silty; poorly sorted; kaolinitic, muscovite, lignite; medium gray
824 - 825	1	Sand, medium; very poorly sorted; heavy minerals, sulfides, feldspar, lignite, muscovite; medium gray
825 - 826	1	Sand, medium, silty; very poorly sorted; heavy minerals, feldspar, lignite, muscovite; medium gray
826 - 827	1	Sand, medium, silty, clayey; very poorly sorted; clay balls; heavy minerals, sulfides, cemented sand, lignite, muscovite; medium gray
827 - 830	3	No recovery
830 - 831	1	Sand, medium, clayey; very poorly sorted; interbedded clay; heavy minerals, muscovite; dark gray; F-G-2
831 - 833	2	No recovery
833 - 834	1	Sand, coarse; poorly sorted; interbedded clay; sulfides, kaolinitic, muscovite, lignite; medium gray
834 - 835	1	Sand, coarse, silty; poorly sorted; heavy minerals, kaolinitic, muscovite, lignite, feldspar; medium gray
835 - 836	1	Sand, medium; poorly sorted; heavy minerals, sulfides, kaolinitic, muscovite, lignite; medium gray
836 - 840	4	No recovery

LITHOLOGIC LOG, P-25 (TA)

DEPTH (ft)	THICKNESS (ft)	DESCRIPTION
840 - 841	1	Sand, fine, clayey; well sorted; heavy minerals, feldspar, kaolinitic, muscovite, lignite; light gray; F-B-3
841 - 843	2	No recovery
843 - 844	1	Sand, medium, silty; poorly sorted; clay balls; muscovite, feldspar, kaolinitic, heavy minerals; tannish gray
844 - 847	3	Sand, coarse; poorly sorted; clay balls; sulfides, muscovite, feldspars, kaolinitic, lignite; light gray F-O-1(845) F-B-1(846)
847 - 850	3	No recovery
850 - 851	1	Sand, medium; well sorted; gypsum; muscovite, kaolinitic, lignite; light grayish tan; F-B-3
852 - 856	4	Sand, medium, silty; poorly sorted; heavy minerals, muscovite, lignite, kaolinitic; light gray; F-B-2(852) F-B-3(853) F-O-2(855)
856 - 857	1	Sand, coarse; poorly sorted; heavy minerals, muscovite; light gray; F-O-3
857 - 858	1	Sand, coarse, silty, clayey; poorly sorted; heavy minerals, muscovite; medium gray; F-O-3
858 - 859	1	Sand, coarse, silty; very poorly sorted; interbedded clay; heavy minerals, sulfides, muscovite; medium gray; F-O-3
859 - 860	1	Sand, coarse, silty, clayey; very poorly sorted; interbedded clay; heavy minerals, sulfides, muscovite; light gray; F-O-3
860 - 865	5	Sand, coarse; poorly sorted; heavy minerals, muscovite, kaolinitic; light gray to tannish gray; F-B-2(861 - 863)
865 - 866	1	No recovery
866 - 872	6	Sand, coarse; poorly sorted; heavy minerals, muscovite, kaolinitic, sulfides; whitish gray to light gray; F-B-3(870 - 871)
872 - 873	1	No recovery
873 - 874	1	Sand, fine, clayey; interbedded clay; muscovite, kaolinitic; medium gray
874 - 876	2	Sand, medium; well sorted; muscovite; medium gray; F-O-1(874)
876 - 878	2	Sand, medium, silty, clayey; moderately sorted; muscovite, kaolinitic; medium gray
878 - 881	2	Clay, sandy; moderately sorted; muscovite, kaolinitic; large subrounded pebbles, smoky quartz; medium gray to light gray

LITHOLOGIC LOG, P-25 (TA)

DEPTH (ft)	THICKNESS (ft)	DESCRIPTION
881 - 883	2	Clay; well sorted; muscovite, kaolin; medium gray
883 - 884	1	Clay, sandy; muscovite, kaolin; medium gray
884 - 885	1	Sand, medium, clayey; muscovite, kaolin; medium gray; F-B-1
885 - 886	1	Clay, sandy; moderately sorted; muscovite, kaolin; light gray; F-B-1
886 - 887	1	Sand, medium, clayey; moderately sorted; muscovite, kaolin; light gray
887 - 890	3	NO recovery
890 - 892	2	Clay, sandy; very poorly sorted; very consolidated; muscovite, smoky quartz pebbles; light blue gray; F-G-1
892 - 896	4	Sand, coarse, clayey; poorly sorted; very consolidated; muscovite, gypsum; light blue gray to yellowish tan
896 - 897	1	Clay, sandy; moderately sorted; weathered feldspar, muscovite; medium gray
897 - 899	2	Clay; well sorted; very consolidated; medium gray
899 - 902	3	Clay, sandy; poorly sorted; very consolidated, muscovite; greenish gray to medium gray
902 - 903	1	Clay; well sorted; very consolidated; muscovite; medium gray
903 - 905	2	NO recovery
905 - 906	1	Clay; well sorted; very consolidated; medium gray
906 - 910	4	No recovery
910 - 912	2	Sand, medium, clayey; light blue gray; very consolidated
912 - 914	2	Clay; well sorted; very consolidated; muscovite; reddish gray to medium gray; F-G-1
914 - 921	7	Sand, medium clay; moderately sorted; muscovite, gypsum, weathered feldspar, very consolidated; brownish red, dark purplish brown, to medium gray; F-G-3(915) F-G-1(920)
921 - 922	1	Silt, clayey; moderately sorted; interbedded clay; gypsum, weathered feldspar; very consolidated; purplish brown
922 - 923	1	Sand, medium, clayey; poorly sorted; gypsum, weathered feldspar, very consolidated; purplish brown; F-G-1

LITHOLOGIC LOG, P-25 (TA)

DEPTH (ft)	THICKNESS (ft)	DESCRIPTION
923 - 925	2	Sand, medium silty, clayey; moderately sorted; gypsum, weathered feldspar, very consolidated; purplish brown; F-G-1
925 - 927	2	Sand, coarse; poorly sorted; gypsum, very consolidated; light blue gray
927 - 930	3	No recovery
930 - 932		Clay, well sorted; muscovite, very consolidated; dark gray
932 - 934	2	Sand, medium, clayey; well sorted; gypsum, weathered feldspar, very consolidated, muscovite; grayish red to gray
934 - 936	2	Clay; well sorted; gypsum, weathered feldspar, very consolidated, muscovite; light gray to dark reddish brown
936 - 940	4	No recovery
940 - 945	5	Clay, sandy; well sorted; muscovite, very consolidated; dark reddish brown to green brownish gray; F-B-1(942)
945 - 952	7	Clay; well sorted; dense clay, muscovite, very consolidated; yellow brownish gray to light gray
952 - 953	1	Sand, medium, clayey; moderately sorted; sandstone, very consolidated; medium gray
953 - 955	2	Sand, coarse; poorly sorted; glauconite, sandstone, very consolidated, medium gray
955 - 962	7	Sand, coarse, silty; poorly sorted; glauconite, sandstone, very consolidated, gypsum; light grayish green
962 - 965	3	No recovery
965 - 966	1	Sand, coarse, clayey; very poorly sorted; smoky quartz pebbles, very consolidated, weathered feldspar; medium gray
966 - 970	4	Sand, coarse, silty; very poorly sorted; lignite, muscovite, very consolidated; medium gray; F-Y-1(966) F-G-2(968-969)
970 - 971	1	Silt, sandy; well sorted; gypsum, weathered feldspar, muscovite, very consolidated; greenish gray; F-B-3, F-O-1
971 - 972	1	Silt, clayey; well sorted; gypsum, weathered feldspar, muscovite, very consolidated; dark gray; F-B-2
972 - 974	4	Clay; moderately sorted; dark gray; F-B-1(973)

LITHOLOGIC LOG, P-25 (TA)

DEPTH (ft)	THICKNESS (ft)	DESCRIPTION
974 - 980	6	Sand, medium, silty; very poorly sorted; gypsum, glauconite, heavy minerals, weathered feldspar, muscovite, interbedded pebbles, very consolidated; dark gray to greenish gray; F-O,G-3(9780979)
980 - 984	4	Sand, coarse; very poorly sorted; interbedded pebbles; gypsum, glauconite, weathered feldspar, muscovite, very consolidated; dark grayish green; F-G-1(981-983)
984 - 985	1	No recovery
985 - 987	2	Clay; well sorted; mottled; heavy minerals, muscovite, very consolidated; light tannish brown; F-G-1(986)
987 - 988	1	Clay, silty; well sorted; mottled; muscovite, very consolidated; light grayish brown; F-B-2
988 - 989	1	Sand, silty; well sorted; sandstone; very consolidated; muscovite; greenish gray; F-B-1
989 - 991	2	Silt, sandy; well sorted; muscovite, glauconite, sandstone, very consolidated; medium gray
991 - 994	3	Sand, medium, silty; poorly sorted; heavy minerals, glauconite, muscovite, very consolidated; grayish green
994 - 995	1	Silt, sandy; well sorted; muscovite, very consolidated; grayish green
995 - 998	3	Sand, medium, silty; moderately sorted; muscovite, very consolidated; light green
998 - 999	1	Silt, clayey; well sorted; sandstone; very consolidated, muscovite; medium gray
999 - 1000	1	No recovery
1000 - 1002	2	Clay; well sorted; heavy minerals, gypsum, muscovite, very consolidated; medium gray to grayish brown
1002 - 1003	1	Silt, sandy; well sorted; sandstone, muscovite, very consolidated; greenish gray
1003 - 1004	1	Sand, fine, silty; well sorted; heavy minerals, muscovite, sandstone, very consolidated; greenish gray
1004 - 1005	1	Silt, sandy; moderately sorted; muscovite, sandstone, very consolidated; greenish gray; F-B-1

LITHOLOGIC LOG, P-25 (TA)

DEPTH (ft)	THICKNESS (ft)	DESCRIPTION
1005 - 1006	1	Sand, fine, silty; well sorted; muscovite, sandstone, very consolidated; brown greenish gray; F-G-1
1006 - 1008	2	Silt, sandy; well sorted; heavy minerals, glauconite, muscovite, sandstone, very consolidated; greenish gray; F-G-1
1008 - 1011	3	Sand, medium, silty; moderately sorted; gypsum, muscovite, sandstone, very consolidated; greenish brown; F-B-1(1009)
1011 - 1012	1	Silt; well sorted; muscovite, clay sandstone, very consolidated; dark green; F-G-1
1012 - 1016	4	Silt, sandy; moderately sorted; clay sandstone, muscovite, weathered feldspar; greenish gray; F-G-2(1014) F-B-1(1015)
1016 - 1018	2	Sand, medium, silty; moderately sorted; heavy minerals, gypsum, weathered feldspar; clay sandstone, very consolidated; greenish gray
1018 - 1019	1	Silt, well sorted; weathered feldspar, muscovite, clay sandstone, very consolidated; greenish gray
1019 - 1020	1	Silt, clayey; moderately sorted; weathered feldspar, muscovite, clay sandstone, very consolidated; greenish gray F-G-1
1020 - 1021	1	Silt, sandy; well sorted; heavy minerals, gypsum, weathered feldspar, very consolidated; greenish gray
1021 - 1024	3	Silt; well sorted; weathered feldspar, muscovite very consolidated; greenish gray
1024 - 1027	3	Clay, silty; well sorted; heavy minerals, gypsum, weathered feldspar, muscovite, very consolidated; greenish gray
1027 - 1028	1	Silt, clayey, sandy; well sorted; gypsum, weathered feldspar, muscovite, very consolidated; dark greenish gray
1029 - 1030	1	Clay, silty; well sorted; weathered feldspar, muscovite, very consolidated; dark greenish gray
1030 - 1065	35	Clay; well sorted; weathered feldspar, muscovite, very consolidated, glauconite, gypsum, heavy minerals, saprolite; dark greenish gray to dark reddish brown; F-B-1(1030-1031) F-B-1(1033) F-B-2 (1035-1036)
1065 - 1066	1	Clay, sandy; well sorted; glauconite, muscovite, saprolite; dark brown
1066 - 1067	1	Conglomerate, clayey; poorly sorted; glauconite, muscovite, saprolite; green

LITHOLOGIC LOG, P-25 (TA)

DEPTH (ft)	THICKNESS (ft)	DESCRIPTION
1067 - 1069	2	Clay, conglomeritic; very poorly sorted; glauconite, muscovite; dark brown
1069 - 1070	1	No recovery

APPENDIX C

LITHOLOGIC LOG FOR P-26TA

LEGEND

F - fluorescence
B - blue
Y - yellow
O - orange
R - red
G - green
() - interval that displays fluorescence, in feet

NOTE: The number of grains which fluoresced in a 3" by 3" tray were counted and catagorized as follows:

- 1) less than three grains
- 2) three to ten grains
- 3) more than ten grains

EXAMPLE: F-O-3 (32-37)
fluorescence; orange; greater than ten grains;
from thirty two to thirty seven feet.

LITHOLOGIC LOG, P26(TA)

Depth (ft.)	Thickness (ft.)	Description
0 - 1	1	Clay, sandy; poorly sorted; feldspar; dark reddish brown
1 - 3	2	Sand, medium, clayey; poor to very poorly sorted; feldspar; orangish red to tan reddish brown
3 - 5	2	Clay; sandy; poorly sorted; reddish brown
5 - 11	6	Sand, medium, clayey; very poorly sorted; feldspar, heavy minerals; reddish brown
11 - 12	1	Sand, medium, silty; poorly sorted; heavy minerals, muscovite; orangish tan
12 - 13	1	Sand, medium, clayey; very poorly sorted; feldspar; red tannish brown
13 - 14	1	Sand, medium, silty; very poorly sorted; heavy minerals; yellowish tan
14 - 22	8	No recovery
22 - 24	2	Sand, medium, silty; moderately sorted; heavy minerals, muscovite; orange reddish yellow
24 - 25	1	No recovery
25 - 32	7	Sand, medium, silty; moderately sorted; heavy minerals, feldspar; tan orangish red, yellow orangish red to orangish brown; F-O-1 (25, 27)
32 - 33	1	No recovery
33 - 34	1	Sand, medium, silty; moderately sorted; interbedded clay; heavy minerals, garnet; tan orangish brown; F-O-1
34 - 35	1	Sand, medium; well sorted; interbedded clay; heavy minerals, muscovite, feldspar; orange brownish yellow; F-O-1
35 - 39	4	Sand, medium, silty; moderately sorted; heavy minerals, muscovite, feldspar, lignite; orange reddish tan to orange tannish brown; F-O-1 (35, F-G-1 (37)
39 - 41	2	Sand, medium, clayey; moderately sorted; interbedded clay; heavy minerals, feldspar, lignite; tan orangish brown; F-B-1 (140)

LITHOLOGIC LOG, P26(TA)

<u>Depth</u> (ft.)	<u>Thickness</u> (ft.)	<u>Description</u>
41 - 43	2	Sand, medium, silty; moderately sorted; inter-bedded clay, heavy minerals; feldspar, lignite; tan orangish brown to orangish tan; F-Y-1(41)
43 - 44	1	Sand, medium, silty, clayey; moderately sorted; clay balls; heavy minerals, lignite; orange tannish brown
44 - 45	1	Sand, medium, silty; moderately sorted; inter-bedded clay; heavy minerals, feldspar, lignite; orangish brown
45 - 46	1	Clay, sandy; moderately sorted; heavy minerals, muscovite, feldspar, lignite; orangish brown; F-G-1
46 - 48	2	Sand, medium, silty, clayey; well sorted; inter-bedded clay; heavy minerals, muscovite, feldspar; orangish yellow; F-O-3
48 - 51	3	Sand, fine, silty; well sorted; heavy minerals, feldspar; orange brownish red to tannish red; F-O-1(48), F-Y-3 (49 - 50)
51 - 52	1	Clay, sandy; well sorted; heavy minerals, muscovite, feldspar, lignite; orangish brown
52 - 53	1	No recovery
53 - 56	3	Sand, medium, silty; well sorted; heavy minerals, feldspar, lignite; red orangish brown; F-Y-1 (53), F-O-3 (54), F-O-2 (55)
56 - 59	3	Sand, medium, well sorted; heavy minerals, lignite; medium tannish yellow; F-O-1 (56), F-Y-2(57)
59 - 60	1	Sand, fine, clayey; well sorted; heavy minerals, muscovite, feldspar, lignite; brownish orange; F-O-1
60 - 61	1	No recovery
61 - 64	3	Sand, fine, clayey; well sorted; mottled clay; lignite; brownish orange; F-Y-1 (62)
64 - 66	2	No recovery
66 - 67	1	Sand, fine, silty; well sorted; feldspar, lignite; medium orange; F-O-1

LITHOLOGIC LOG, P26(TA)

Depth (ft.)	Thickness (Ft.)	Description
67 - 71	4	Sand, fine, clayey; well sorted; mottled sand, heavy minerals, glauconite, lignite; medium orange to medium greenish orange; F-O-1(67), F-Y-3(69)
71 - 81	10	Sand, medium; well sorted; feldspar, lignite; medium orange reddish brown to orangish tan; F-O-1(72, 75)
81 - 85	4	Clay; well sorted; mottled sand, fissile; muscovite; dark greenish gray; F-B-3(84)
85 - 86	1	No recovery
86 - 87	1	Clay; well sorted; fissile; muscovite; dark greenish gray; F-B-2
87 - 88	1	Sand, medium; well sorted; cemented sand, lignite; light greenish gray; F-B-1
88 - 91	3	No recovery
91 - 92	1	Sand, medium; well sorted; cemented sand; light greenish gray; F-B-1
92 - 96	4	No recovery
96 - 100	4	Sand, medium; well to moderately sorted; heavy minerals; medium greenish gray; F-B-2(96-97)
100 - 101	1	No recovery
101 - 102	1	Sand, medium; moderately sorted; heavy minerals, glauconite; dark greenish gray; F-O-2
102 - 105	3	Sand, medium, clayey; poorly sorted; clay balls; glauconite, muscovite; dark greenish gray
105 - 113	8	Sand, fine to medium, silty; moderately sorted; glauconite, gypsum, muscovite; grayish green; F-O-1(107, 109, 111), F-Y-1(108)
113 - 125	12	Sand, medium, moderately sorted, heavy minerals, glauconite, gypsum; greenish gray; F-G-1(115) F-O-1(119), F-Y-1(121, 124)
125 - 126	1	No recovery
126 - 128	2	Sand, medium; moderately sorted; heavy minerals, lignite; medium gray

LITHOLOGIC LOG, P-26 (TA)

<u>Depth</u> <u>(ft)</u>	<u>Thickness</u> <u>(ft)</u>	<u>Description</u>
128 - 129	1	Sand, medium, clayey; poorly sorted; interbedded clay; heavy minerals; medium gray; F-Y-1
129 - 135	6	Sand, medium; moderately sorted; heavy minerals; medium gray; F-Y-1 (129,132-133), F-Q-1(131)
135 - 136	1	Sand, coarse, silty; poorly sorted; gypsum, sulfides, muscovite; medium gray; F-Y-1
136 - 139	3	Clay, silty; well sorted; gypsum, muscovite, weathered feldspar; blackish gray
139 - 140	1	Silt, clayey; well sorted; gypsum, feldspar, muscovite; blackish gray
140 - 141	1	Silt, sandy; moderately sorted; gypsum, muscovite; blackish gray
141 - 144	3	Sand, medium, clayey, silty; moderately sorted; gypsum, muscovite; blackish gray; F-G-1(141)
144 - 146	2	Silt, sandy, moderately sorted; gypsum, muscovite, feldspar, lignite; grayish black
146 - 147	1	Clay, silty; well sorted; heavy minerals, gypsum, muscovite, lignite; medium gray
147 - 148	1	Clay; well sorted; fissile; gypsum, muscovite, lignite; blackish green
148 - 149	1	Clay, silty; well sorted; gypsum, muscovite; blackish green
149 - 150	1	Clay, silty; well sorted; gypsum, muscovite; blackish green
150 - 151	1	Silty, clayey; well sorted; fissile; gypsum, muscovite; blackish green
151 - 156	5	Clay; well sorted; fissile; gypsum, muscovite, lignite; blackish green; F-Y-1 (151)
156 - 158	2	Clay, silty; well sorted; fissile; gypsum, muscovite, lignite; blackish green

LITHOLOGIC LOG, P-26(TA)

<u>Depth</u> (ft)	<u>Thickness</u> (ft)	<u>Description</u>
158 - 159	1	Silt, clayey; well sorted; fissile; gypsum, muscovite, feldspar, lignite; blackish green
159 - 160	1	Clay, silty; well sorted; fissile; gypsum, muscovite, lignite; blackish green
160 - 161	1	No recovery
161 - 164	3	Clay, silty; well sorted; gypsum, muscovite; dark greenish black
164 - 166	2	No recovery
166 - 169	3	Clay, silty; muscovite, gypsum; dark greenish black
169 - 174	5	Clay; fissile; gypsum, sulfides, muscovite; greenish gray
174 - 176	2	Clay, silty; glauconite, gypsum, sulfides, muscovite, feldspar; greenish black; F-0-1(174)
176 - 178	2	Sand, medium, silty, clayey; gypsum, muscovite, feldspar; grayish green
178 - 179	1	Sand, fine, silty; well sorted, gypsum, muscovite, feldspar; dark gray
179 - 180	1	Clay; fissile; gypsum, muscovite, feldspar; F-0-1
180 - 181	1	Clay, silty; fissile; gypsum, muscovite; dark gray
181 - 184	3	Silt, clayey; gypsum, kaolin, muscovite; light blue grayish white; F-0-1(183)
184 - 186	2	Silt; heavy minerals, gypsum, muscovite; light grayish white
186 - 191	5	Silt, sandy; well sorted; gypsum, muscovite, feldspar; grayish white; F-3-0(186,187)
191 - 192	1	Silt; gypsum, muscovite, feldspar; light grayish white
192 - 193	1	Silt, clayey; muscovite, kaolin, feldspar; light grayish white

LITHOLOGIC LOG, P26(TA)

<u>Depth</u> <u>(Ft)</u>	<u>Thickness</u> <u>(Ft)</u>	<u>Description</u>
193 - 196	3	No recovery
196 - 199	3	Silt, clayey; gypsum, muscovite, lignite; grayish white; F-0-1(198)
199 - 202	3	Clay, sandy; muscovite, kaolin; bluish grayish white
202 - 207	5	Sand, medium, silty; poorly sorted; sulfides, gypsum, muscovite, kaolin; grayish white
207 - 214	7	Clay; gypsum, muscovite; grayish white to tannish grayish brown
214 - 218	4	Clay, sandy; gypsum, muscovite, kaolin; medium grayish white
218 - 221	3	Sand, medium, clayey; moderately sorted; muscovite, kaolin; light grayish white
221 - 234	13	Sand, medium, silty; poorly sorted; gypsum, muscovite, kaolin; light gray; F-0-2 (223,226,227)
234 - 236	2	No recovery
236 - 239	3	Sand, medium, silty; moderately sorted; gypsum, heavy minerals, muscovite, kaolin; light gray
239 - 243	4	Sand, coarse; muscovite, kaolin, gypsum; light grayish white; F-0-1 (241)
243 - 245	2	Sand, coarse, clayey; moderately sorted; sulfides, muscovite, kaolin; light gray

LITHOLOGIC LOG, P-26(TA)

Depth (ft.)	Thickness (ft.)	Description
245 - 246	1	No recovery
246 - 250	4	Sand, coarse; moderately sorted; gypsum, muscovite, kaolin; light gray
250 - 251	1	Sand, medium, clayey; poorly sorted; gypsum, muscovite, feldspar, kaolin; whitish gray; F-0-1
251 - 252	1	Sand, medium; poorly sorted; gypsum, muscovite, feldspar, kaolin; whitish gray; F-0-1
252 - 254	2	Sand, medium, clayey; poorly sorted; gypsum, muscovite, feldspar, kaolin, whitish gray; F-0-1(253)
254 - 256	2	No recovery
256 - 257	1	Sand, coarse; well sorted; gypsum, heavy minerals, muscovite, feldspar, kaolin; whitish gray
257 - 260	3	Sand, medium, clayey; moderately sorted; gypsum, heavy minerals, muscovite, feldspar, kaolin; whitish gray
260 - 262	2	Sand, medium; poorly sorted; gypsum, heavy minerals, muscovite, feldspar, smoky quartz pebbles, kaolin; whitish gray; F-Y-3
262 - 263	1	Sand, medium, silty, clayey; gypsum, muscovite, feldspar, kaolin; whitish gray
263 - 267	4	No recovery
267 - 268	1	Sand, medium, clayey; poorly sorted; heavy minerals, sulfides, muscovite, feldspar, kaolin; whitish gray
268 - 269	1	No recovery
269 - 270	1	Sand, coarse; very poorly sorted; interbedded pebbles; sulfides, heavy minerals, muscovite, kaolin, smoky quartz pebbles; whitish gray
270 - 271	1	No recovery
271 - 272	1	Sand, coarse; very poorly sorted; heavy minerals, muscovite, kaolin, smoky quartz pebbles, whitish gray

LITHOLOGIC LOG, P26(TA)

<u>Depth</u> <u>(ft.)</u>	<u>Thickness</u> <u>(ft.)</u>	<u>Description</u>
272 - 276	4	Sand, medium, silty; well sorted; gypsum, muscovite, feldspar, kaolin; whitish gray; F-0-1(273-274,275)
276 - 277	1	Silt, clayey; well sorted; interbedded clay; gypsum, muscovite, kaolin; medium gray; F-0-1
277 - 278	1	Clay; well sorted; interbedded clay; muscovite; medium gray
278 - 279	1	Clay, silty; well sorted; muscovite; medium gray; F-B-1
279 - 280	1	Clay; well sorted; muscovite; medium grayish red; F-B-1
280 - 281	1	No recovery
281 - 300	19	Clay; well sorted; muscovite; purplish red to light gray; F-G-1(282,287,292-293,295) F-B-1(284-285, 294, 297-298)
300 - 301	1	No recovery
301 - 304	3	Clay; well sorted; muscovite; pinkish purple; F-B-1(302-303)
304 - 306	2	No recovery
306 - 322	16	Clay; well sorted; muscovite; pinkish purple to brownish red; F-G-1(308,319), F-B-1(312,315-316)
322 - 323	1	Sand, medium, clayey; moderately sorted; muscovite, kaolin; light gray
323 - 324	1	Sand, medium, clayey, silty; moderately sorted, muscovite, kaolin; light gray
324 - 325	1	Sand, medium; poorly sorted; gypsum, sulfides, muscovite, feldspar, kaolin; whitish gray; F-G-1
325 - 326	1	No recovery
326 - 330	4	Sand, medium silty; poorly sorted; heavy minerals, glauconite, muscovite, feldspar, kaolin; whitish gray
330 - 331	1	Sand, medium, silty, clayey; very poorly sorted; heavy minerals, gypsum, glauconite, muscovite, feldspar, kaolin; whitish gray; F-Y-1

LITHOLOGIC LOG, P26(TA)

Depth (ft.)	Thickness (ft.)	Description
331 - 332	1	Sand, medium, silty; poorly sorted; muscovite, feldspar, kaolin; pinkish white; F-0-1
332 - 333	1	Sand, medium, clayey; poorly sorted; clay balls; heavy minerals, muscovite, kaolin; light gray
333 - 334	1	Sand, medium, silty; poorly sorted; sulfides, heavy minerals, feldspar, kaolin; white grayish pink; F-0-1
334 - 336	2	Sand, medium; moderate to well sorted; clay balls; sulfides, muscovite, feldspar, kaolin; white grayish pink
336 - 337	1	Sand, medium, silty; poorly sorted; clay balls; heavy minerals, sulfides, muscovite, feldspar, kaolin; whitish gray
337 - 338	1	Sand, medium; poorly sorted; heavy minerals, muscovite, feldspar, kaolin; whitish gray
338 - 340	2	Sand, medium, silty; very poor to poorly sorted; clay balls, interbedded clay; heavy minerals, sulfides, muscovite, smoky quartz grains, kaolin; whitish gray to light gray; F-0-1
340 - 341	1	Conglomerate, silty; very poorly sorted; heavy minerals, muscovite, smoky quartz pebbles, kaolin; light grayish pink; F-Y-1
341 - 350	9	Sand, medium, silty; poorly sorted; heavy minerals, muscovite, kaolin; light grayish pink; F-0-3(341)
350 - 351	1	Sand, coarse, clayey, silty; poorly sorted; interbedded clay; sulfides, heavy minerals, muscovite, kaolin; light gray
351 - 355	4	Sand, medium; poorly sorted; muscovite, feldspar, kaolin; pinkish gray
355 - 356	1	Sand, coarse, silty; moderately sorted; muscovite feldspar; pinkish gray
356 - 357	1	Sand, coarse; well sorted; heavy minerals muscovite; pinkish tan
357 - 359	2	Sand, coarse to medium, silty; well to moderately sorted; heavy minerals, muscovite; pinkish gray to white; F-0-1 (357)

LITHOLOGIC LOG, P26(TA)

Depth (ft.)	Thickness (ft.)	Description
359 - 361	2	Sand, coarse; well sorted; gypsum, heavy minerals, muscovite, feldspar, kaolin; whitish pink to pinkish gray; F-Y-1(360)
361 - 362	1	Sand, medium, silty; moderately sorted; heavy minerals, muscovite, kaolin, pinkish tan
362 - 366	4	Sand, medium; poorly sorted; sulfides, muscovite, kaolin; pinkish tan to whitish gray; F-Y-1(365)
366 - 369	3	Sand, fine, silty; poorly sorted; heavy minerals, muscovite, feldspar, kaolin; whitish gray
369 - 370	1	Sand, medium, silty, clayey; moderately sorted; gypsum, heavy minerals, muscovite, feldspar, kaolin; whitish gray
370 - 372	2	Clay, silty; well sorted; muscovite, feldspar, kaolin; light gray to whitish gray; F-B-1(371)
372 - 373	1	No recovery
373 - 374	1	Sand, medium, silty; moderately sorted; interbedded clay; heavy minerals, muscovite, feldspar, kaolin; whitish gray
374 - 377	3	No recovery
377 - 390	13	Sand, medium to coarse; poorly sorted; heavy minerals, muscovite; tannish white to tannish gray; F-O-2 (377-378, 384-387)
390 - 391	1	No recovery
391 - 392	1	Sand, very coarse; well sorted; heavy minerals, muscovite; tannish gray; F-O-1
392 - 394	2	No recovery
394 - 401	7	Sand, medium; poorly sorted; sulfides, heavy minerals, muscovite, kaolin; light gray; F-B-1(400)
401 - 402	1	Clay, silty; well sorted; interbedded clay; heavy minerals, muscovite, feldspar, lignite; medium gray
402 - 410	8	Sand, medium, silty; poorly sorted; sulfides, muscovite, lignite; grayish green to dark gray; F-O-1(405)

LITHOLOGIC LOG, P26(TA)

<u>Depth</u> <u>(ft.)</u>	<u>Thickness</u> <u>(ft.)</u>	<u>Description</u>
410 - 416	6	Sand, medium; moderate to poorly sorted; heavy minerals, muscovite, lignite; tannish gray to medium gray; F-0-1 (412)
416 - 418	2	Sand, medium, silty; poorly sorted; clay balls; heavy minerals, muscovite, lignite; medium gray; F-0-1
418 - 420	2	Sand, fine, silty; clayey; moderately sorted; interbedded clay; muscovite, feldspar; dark gray
420 - 422	2	Sand, medium; very poorly sorted; muscovite, smoky quartz pebbles, lignite; grayish brown
422 - 426	4	No recovery
426 - 428	2	Sand, medium, silty; poorly sorted; interbedded clay; muscovite, feldspar, lignite; medium gray
428 - 431	3	Silt, sandy; well sorted; muscovite, lignite; blackish gray to medium gray; F-Y-1(430)
431 - 434	3	Sand, medium, silty; well sorted; muscovite, lignite; dark gray
434 - 436	2	No recovery
436 - 440	4	Sand, medium, silty; poor to moderately sorted; clay balls; heavy minerals, muscovite, lignite; medium gray
440 - 441	1	Sand, medium; moderately sorted; sulfides, muscovite, lignite; medium gray
441 - 445	4	Clay; well sorted; muscovite; medium gray to medium brownish gray
445 - 446	1	No recovery
446 - 449	3	Clay; well sorted; muscovite, lignite; medium brown
449 - 451	2	No recovery
451 - 452	1	Clay; well sorted; muscovite, lignite; medium brown
452 - 456	4	No recovery

LITHOLOGIC LOG, P26(TA)

Depth (ft.)	Thickness (ft.)	Description
456 - 458	2	Silt; well sorted; heavy minerals, muscovite, kaolin; grayish tan
458 - 461	3	No recovery
461 - 463	2	Silt; well sorted; heavy minerals, muscovite, kaolin; grayish tan
463 - 465	2	Sand, medium, clayey; poorly sorted; muscovite, kaolin; grayish tan; F-G-1(463)
465 - 466	1	No recovery
466 - 468	2	Sand, medium, silty; moderately sorted; muscovite, feldspar, kaolin; light tan; F-G-1(466)
468 - 470	2	Sand, medium; poorly sorted; sulfides, muscovite, kaolin; light tan
470 - 472	2	Sand, fine, silty; poorly sorted; muscovite; light gray; F-G-1(471)
472 - 473	1	Sand, medium, silty; poorly sorted; sulfides, muscovite, kaolin; light gray
473 - 475	2	Clay; well sorted; sulfides, muscovite, kaolin; light gray
475 - 476	1	No recovery
476 - 477	1	Clay; well sorted; sulfides, muscovite, kaolin; light gray; F-G-1
477 - 486	9	Sand, medium, clayey; poorly sorted; muscovite, kaolin, sulfides; light gray to tannish gray; F-B-1 (478-479)
486 - 490	4	Sand, medium, silty; poor to well sorted; sulfides, muscovite, feldspar, kaolin; light tan to medium gray
490 - 493	3	Clay; well sorted; muscovite; medium gray to medium brownish gray
493 - 496	3	No recovery
496 - 498	2	Clay; well sorted; muscovite; gray greenish yellow to light blue grayish yellow
498 - 499	1	Sand, medium, silty; poorly sorted; heavy minerals, muscovite, feldspar; tannish gray

LITHOLOGIC LOG, P26(TA)

<u>Depth (ft.)</u>	<u>Thickness (ft.)</u>	<u>Description</u>
499 - 501	2	No recovery
501 - 502	1	Sand, medium, clayey; very poorly sorted; muscovite, kaolin; tannish gray
502 - 503	1	Sand, medium; poorly sorted; muscovite, kaolin; tannish gray
503 - 510	7	Clay; well sorted; muscovite; medium gray to brown grayish red
510 - 511	1	No recovery
511 - 512	1	Clay; well sorted; muscovite; green grayish yellow
512 - 514	2	Clay, silty; well sorted; muscovite, kaolin; medium gray to light blueish gray
514 - 516	2	No recovery
516 - 517	1	Sand, medium, silty; moderately sorted; light gray
517 - 518	1	Sand, medium, silty, clayey; moderately sorted; interbedded clay; muscovite, kaolin; light gray
518 - 519	1	Clay, sandy; moderately sorted; muscovite, kaolin; light gray
519 - 521	2	No recovery
521 - 522	1	Sand, medium, silty; poorly sorted; muscovite, kaolin; light grayish tan
522 - 524	2	Sand, medium; poorly sorted; muscovite, kaolin; light grayish tan
524 - 525	1	Sand, medium, silty; very poorly sorted; muscovite, kaolin; light grayish tan
525 - 528	3	Sand, medium; poorly sorted; heavy minerals, sulfides, muscovite, kaolin, light gray
528 - 529	1	Sand, medium, silty; moderately sorted; heavy minerals, muscovite, kaolin; light gray

LITHOLOGIC LOG, P26(TA)

Depth (ft.)	Thickness (ft.)	Description
529 - 536	7	Sand, medium; poorly sorted; heavy minerals, muscovite; light gray to white grayish tan; F-B-2(533)
536 - 537	1	Sand, fine, silty, clayey; moderately sorted; interbedded clay; sulfides, muscovite, kaolin; medium gray
537 - 538	1	Silt, sandy; heavy minerals, sulfides, muscovite, kaolin; medium gray; F-B-1
538 - 542	4	Sand, medium, silty; moderately sorted; muscovite lignite; medium gray
542 - 544	2	Clay, sandy; moderately sorted; interbedded clay; heavy minerals, muscovite, kaolin; light gray; F-B-1(543)
544 - 545	1	No recovery
545 - 546	1	Silt, clayey; well sorted; muscovite, kaolin; light grayish white
546 - 547	1	Silt; well sorted; heavy minerals, muscovite; light gray
547 - 548	1	Silt, clayey; well sorted; muscovite, kaolin; light gray
548 - 550	2	Clay, silty; well sorted; muscovite; light gray; F-G-1(549)
550 - 555	5	Clay; well sorted; muscovite; medium gray; F-G-1(553), F-B-2(554)
555 - 556	1	No recovery
556 - 558	2	Clay; well sorted; medium gray; F-B-1
558 - 561	3	No recovery
561 - 564	3	Sand, medium; poorly sorted; heavy minerals muscovite; medium grayish tan; F-B-1(561), F-O-1(562-563)
564 - 566	2	No recovery
566 - 568	2	Clay, silty; well sorted; muscovite; light gray; F-B-1(567)
568 - 569	1	Sand, medium, silty; poorly sorted; heavy minerals, muscovite, feldspar, kaolin; light gray
569 - 571	2	No recovery

LITHOLOGIC LOG, P26(TA)

Depth (ft.)	Thickness (ft.)	Description
571 - 572	1	Sand, medium, silty; moderately sorted; heavy minerals, feldspar, kaolin; light gray; F-B-1
572 - 575	3	Sand, medium, silty, clayey; poor to very poorly sorted; heavy minerals, kaolin; light gray; F-B-1 (574)
575 - 576	1	No recovery
576 - 578	2	Sand, medium, silty; very poorly sorted; heavy minerals, muscovite, smoky quartz pebbles, kaolin; light gray; F-0-1(577)
578 - 581	3	Sand, coarse, silty, clayey; moderate to poorly sorted; heavy minerals; muscovite, kaolin; light gray
581 - 584	3	Sand, medium, clayey; well sorted; heavy minerals, muscovite, kaolin; light gray
584 - 589	5	Sand, medium, silty; moderately sorted; heavy minerals, muscovite, kaolin; light gray; F-0-1(584-585, 588)
589 - 591	2	No recovery
591 - 593	2	Sand, medium, silty; moderately sorted; heavy minerals, gypsum, muscovite, kaolin; light gray
593 - 596	3	No recovery
596 - 598	2	Sand, medium, silty; well sorted; heavy minerals, muscovite; light grayish white; F-0-2
598 - 600	2	Sand, medium; moderately sorted; heavy minerals, muscovite; light gray; F-B-2(599)
600 - 601	1	No recovery
601 - 602	1	Sand, medium, silty; well sorted; heavy minerals, muscovite, kaolin; light gray; F-B-2
602 - 603	1	Sand, medium, silty, clayey; moderately sorted; interbedded clay; heavy minerals, muscovite, kaolin; light gray; F-B-1
603 - 607	4	Clay; well sorted; heavy minerals, muscovite, kaolin; medium gray; F-B-1(606)

LITHOLOGIC LOG, P26(TA)

Depth (ft.)	Thickness (ft.)	Description
607 - 609	2	No recovery
609 - 610	1	Sand, medium, clayey; moderately sorted; muscovite, kaolin; light bluish gray; F-B-1
610 - 614	4	Sand, fine to medium, silty; poor to well sorted; heavy minerals, muscovite, kaolin; light bluish gray to light tannish gray; F-O-1(612-613)
614 - 622	8	Sand, medium; poorly sorted; heavy minerals, sulfides, muscovite, kaolin; light gray to tan; F-O-3(614), F-O-2(615), F-O-1(617-619)
622 - 624	2	Sand, fine, silty; poorly sorted; heavy minerals, muscovite, kaolin; light gray; F-O-1
624 - 625	1	No recovery
625 - 626	1	Sand, coarse; moderately sorted; clay balls; muscovite, smoky quartz pebbles; tannish gray; F-B-1
626 - 628	2	Sand, medium, silty; moderately sorted; interbedded clay; heavy minerals, muscovite; light gray
628 - 630	2	No recovery
630 - 631	1	Sand, medium; poorly sorted; interbedded clay; muscovite; light gray
631 - 632	1	Sand, medium, silty; very poorly sorted; interbedded clay; heavy minerals, muscovite, lignite; tannish gray; F-O-1
632 - 640	8	No recovery
640 - 641	1	Sand, medium; moderately sorted; muscovite, lignite; light gray
641 - 645	4	No recovery
645 - 646	1	Sand, medium; poorly sorted; muscovite, smoky quartz, lignite; grayish tan; F-O-1
646 - 647	1	Sand, medium, silty; poorly sorted; heavy minerals, muscovite, kaolin, lignite; grayish tan; F-O-1
647 - 648	1	No recovery
648 - 649	1	Sand, medium, silty; poorly sorted; sulfides, heavy minerals, muscovite, rutilated; medium gray; F-O-3

LITHOLOGIC LOG, P26(TA)

<u>Depth</u> <u>(ft.)</u>	<u>Thickness</u> <u>(ft.)</u>	<u>Description</u>
649 - 650	1	Pyrite
650 - 654	4	No recovery
654 - 657	3	Sand, fine; moderate to very poorly sorted; heavy minerals, sulfides, muscovite, kaolin; light tan
657 - 659	2	Sand, medium, silty; very poorly sorted; heavy minerals, sulfides, muscovite, lignite; light gray; F-0-1(657)
659 - 660	1	Sand, medium; very poorly sorted; heavy minerals, muscovite, lignite; light gray
660 - 661	1	Sand, medium, silty; moderately sorted; sulfides, muscovite, lignite; light gray
661 - 662	1	Clay, sandy; moderately sorted; sulfides, muscovite, lignite; light grayish black; F-0-1
662 - 666	4	No recovery
666 - 670	4	Sand, medium to fine, silty; well sorted; heavy minerals, muscovite, feldspar, kaolin, lignite; light gray
670 - 671	1	No recovery
671 - 676	5	Sand, medium, silty; moderately sorted; feldspar, kaolin, lignite; light gray
676 - 681	4	No recovery
681 - 685	4	Sand, medium, silty; well sorted; heavy minerals, sulfides, muscovite, feldspar, kaolin; light gray; F-0-1

APPENDIX D

LITHOLOGIC LOG FOR P-27TA

LEGEND

F - fluorescence

B - blue

Y - yellow

O - orange

R - red

G - green

() - interval that displays fluorescence, in feet

NOTE: The number of grains which fluoresced in a 3" by 3" tray were counted and catagorized as follows:

- 1) less than three grains
- 2) three to ten grains
- 3) more than ten grains

EXAMPLE: F-0-3 (32-37)
fluorescence; orange; greater than ten grains;
from thirty two to thirty seven feet.

LITHOLOGIC LOG, P27(TA)

<u>Depth</u> <u>(ft)</u>	<u>Thickness</u> <u>(ft)</u>	<u>Description</u>
0 - 1	1	No recovery
1 - 2	1	Clay, sandy; very poorly sorted; muscovite, heavy minerals; light brown reddish tan
2 - 4	2	Clay; well sorted; muscovite; dark yellow reddish tan
4 - 10	6	Clay, sandy, coarse; muscovite; very poorly sorted; light grayish brown
10 - 14	4	Sand, coarse, clayey; poorly sorted; muscovite; dark orange reddish white; F-B-1 (13)
14 - 16	2	Clay; well sorted; muscovite, biotite, heavy minerals; yellow purplish brown
16 - 18	2	Clay, sandy, medium; very poorly sorted; muscovite, feldspar, yellowish orangish red to brownish whitish yellow.
18 - 21	3	No recovery
21 - 22	1	Clay; yellowish orangish white
22 - 26	4	No recovery
26 - 27	1	Clay; laminated; dark yellow orangish white
27 - 29	2	Clay, silty; well sorted; laminated; dark yellow orangish white; F-B-1 (27)
29 - 30	1	Clay, sandy, medium; moderately sorted; muscovite, heavy minerals; dark yellow orangish white
30 - 32	2	Sand, medium, silty, clayey; poorly sorted; muscovite; dark orange whitish red
32 - 34	2	Sand, medium, silty; well sorted; muscovite; orangish tannish red
34 - 37	3	Sand, medium, silty, clayey; moderately sorted; muscovite; orangish yellowish brown
37 - 41	4	No recovery
41 - 42	1	Sand, medium, silty; well sorted; trace fossils, reddish tan

LITHOLOGIC LOG, P27(TA)

Depth (ft)	Thickness (ft)	Description
42 - 46	4	No recovery
46 - 48	2	Sand, medium; well sorted; interbedded clay; heavy minerals; dark brownish tan
48 - 50	2	Sand, medium, silty, clayey; poorly sorted; laminated; dark brownish tan to dark red brownish tan
50 - 51	1	Clay, silty, sandy, medium; lignite; heavy minerals; dark red tannish brown
51 - 52	1	Sand, medium; moderately sorted; lignite; dark orangish brown
52 - 56	4	Sand, medium, silty, clayey; well sorted; lignite; light grayish tan to light grayish black; F-Y-1(52)
56 - 66	10	Sand, medium silty; poorly sorted; heavy minerals; lignite; light grayish tan to dark orangish brown; F-Y-1 (56,57)
66 - 73	7	Sand, coarse; well sorted; interbedded clay; dark orangish white; F-O-1 (68,69)
73 - 76	3	No recovery
76 - 80	4	Clay, sandy; poorly sorted; heavy minerals; tannish orange; F-Y-3
80 - 81	1	Sand, medium silty; moderately sorted; trace fossils; heavy minerals; light orangish tan
81 - 82	1	Sand, medium, clayey; moderately sorted; orangish tan.
82 - 84	2	Clay, sandy; yellowish tan
84 - 85	1	Sand, fine, silty; well sorted; interbedded clay; yellowish tan
85 - 86	1	No recovery
86 - 90	4	Sand, fine, silty, clayey; well sorted; interbedded clay; heavy minerals; muscovite; light tannish yellow
90 - 91	1	Clay, sandy; well sorted; light orangish tan
91 - 92	1	Clay, silty; mottled sand; light orangish tan

LITHOLOGIC LOG, P27(TA)

<u>Depth</u> (ft)	<u>Thickness</u> (ft)	<u>Description</u>
92 - 94	2	Sand, fine, silty, clayey; light orangish tan
94 - 99	5	Clay; mottled sand; grayish green to green
99 - 100	1	Clay, silty, sandy; lignite; greenish orangish brown
100 - 101	1	Sand, medium, silty; well sorted; heavy minerals; light gray
101 - 103	2	Clay, silty, sandy; light greenish gray
103 - 104	1	Clay; light green
104 - 106	2	Clay, silty; light green; F-0-2
106 - 108	2	Sand, clayey; heavy minerals; light greenish gray
108 - 109	1	Clay, sandy; light grayish green
109 - 112	3	Sand, fine, silty; well sorted; lignite; orangish brown
112 - 113	1	Sand, fine, silty, clayey; poorly sorted; lignite; orangish brown
113 - 115	2	Clay, silty; kaolin; lignite; orange to orangish brown F-B-1 (114)
115 - 116	1	Sand, medium, silty, clayey; well sorted; kaolin; muscovite; grayish orange
116 - 121	5	No recovery
121 - 125	4	Sand, very fine, silty; well sorted; heavy minerals; light orange grayish yellow; F-0-1 (124)
125 - 126	1	No recovery
126 - 127	1	Sand, very fine, silty; well sorted; lignite; light orange grayish yellow
127 - 134	7	No recovery
134 - 135	1	Sand, medium; well sorted; orangish brown
135 - 136	1	Sand, medium, silty; well sorted; lignite orangish yellow
136 - 138	2	Sand, medium; well sorted; lignite; orangish yellow

LITHOLOGIC LOG, P27(TA)

<u>Depth (ft.)</u>	<u>Thickness (ft.)</u>	<u>Description</u>
138 - 141	3	No recovery
141 - 143	2	Sand, medium, silty; moderately sorted; heavy minerals; light grayish tan
143 - 144	1	Clay, silty, sandy; brownish gray
144 - 146	2	Clay, silty; dark gray; F-G-1 (145)
146 - 147	1	Clay, silty, sandy; mottled sand, muscovite; heavy minerals; orangish grayish green
147 - 150	3	Sand, fine, silty; well sorted; heavy minerals; light orange grayish yellow
150 - 153	3	No recovery
153 - 156	3	Sand, fine, silty; well sorted; muscovite; light orange grayish yellow
156 - 158	2	No recovery
158 - 159	1	Sand, fine, silty; well sorted; muscovite; heavy minerals; light orange grayish yellow
159 - 163	4	No recovery
163 - 168	5	Sand, fine; well sorted; heavy minerals; muscovite; light orange grayish yellow
168 - 171	3	No recovery
171 - 173	2	Sand, fine; well sorted; orangish yellow
173 - 174	1	No recovery
174 - 176	2	Sand, fine; well sorted; heavy minerals; dark orangish yellow
176 - 177	1	No recovery
177 - 190	13	Sand, medium; well sorted; rutilated (182 - 186); heavy minerals; dark tannish yellow to dark orange, F-O-3 (182 - 187)
190 - 191	1	Sand, medium, silty; poorly sorted; interbedded clay; dark orangish brown
191 - 192	1	No recovery
192 - 193	1	Sand, medium; poorly sorted; light brown; F-O-2

LITHOLOGIC LOG, P27 (TA)

Depth (ft.)	Thickness (ft.)	Description
193 - 194	1	No recovery
194 - 197	3	Sand, coarse; moderately sorted; heavy minerals; light orange to light brownish tan
197 - 201	4	No recovery
201 - 202	1	Sand, coarse; well sorted; dark orangish tan
202 - 206	4	No recovery
206 - 210	4	Sand, medium; moderately sorted; heavy minerals; light orangish tan to light orangish brown
210 - 218	8	Sand, fine, silty; well sorted; interbedded clay; heavy minerals; muscovite; dark grayish green to dark orange grayish yellow
218 - 225	7	Sand, coarse; poorly sorted; muscovite; medium orange yellowish tan to dark gray
225 - 226	1	Clay; medium gray
226 - 227	1	No recovery
227 - 246	19	Clay; heavy minerals; light gray
246 - 248	2	Clay, silty; fissile; muscovite; light gray
248 - 250	2	Clay; fissile; muscovite; dark gray
250 - 251	1	Clay, silty, sandy; fissile; pyrite; muscovite; dark gray
251 - 255	4	Clay, silty; fissile; muscovite; dark gray
255 - 260	5	Sand, fine, silty; well sorted; interbedded clay; heavy minerals; sulfides; muscovite; feldspar; dark gray
260 - 261	1	Silt, clayey; fissile; muscovite; pyrite; dark grayish brown
261 - 265	4	No recovery
265 - 268	3	Silt, clayey; muscovite; heavy minerals; dark gray
268 - 270	2	Clay, silty, sandy; well sorted; muscovite; heavy minerals; dark gray
270 - 274	4	Silt, clayey; muscovite; lignite; gypsum; medium gray; F-O-1 (270)

LITHOLOGIC LOG, P27 (TA)

Depth (ft.)	Thickness (ft.)	Description
274 - 276	2	Silt, sandy; well sorted; muscovite; lignite; gypsum; heavy minerals; medium gray
276 - 280	4	Silt, clayey; fissile; muscovite; lignite; heavy minerals; medium to dark gray; F-O-1 (277 - 279)
280 - 284	4	Clay, silty; muscovite; lignite; medium to dark gray
284 - 285	1	Sand, medium, silty; poorly sorted; dark gray
285 - 292	7	Sand, medium, clayey; glauconite; dark grayish green
292 - 300	8	Sand, medium, silty; poorly sorted; muscovite; grayish green to medium gray; F-B-1 (96, 98)
300 - 301	1	Clay, sandy; muscovite; gypsum; medium gray
301 - 304	3	Clay; muscovite; medium to dark gray
304 - 305	1	Clay, silty; muscovite; heavy minerals; light gray
305 - 307	2	Silt, clayey; sulfides; heavy minerals; muscovite; light gray
307 - 308	1	Sand, coarse, silty; poorly sorted; heavy minerals; gypsum; muscovite; kaolin; light gray
308 - 315	7	Sand, coarse; poorly sorted; heavy minerals; gypsum; muscovite; smoky quartz; kaolin; light gray
315 - 316	1	No recovery
316 - 317	1	Sand, coarse, clayey; very poorly sorted; muscovite; kaolin; light gray
317 - 319	2	Sand, coarse; poorly sorted; interbedded clay; muscovite; kaolin; light gray
319 - 321	2	No recovery
321 - 322	1	Sand, coarse; interbedded clay; muscovite; light gray
322 - 323	1	Sand, coarse, silty; muscovite; light gray
323 - 324	1	Clay, sandy; heavy minerals; sulfides; muscovite; light gray
324 - 325	1	Sand, coarse, clayey; poorly sorted; heavy minerals; muscovite; light gray

LITHOLOGIC LOG, P27 (TA)

Depth (ft.)	Thickness (ft.)	Description
325 - 329	4	Sand, coarse; poorly sorted; muscovite; heavy minerals; light gray
329 - 330	1	No recovery
330 - 336	6	Clay, sandy; muscovite; kaolin; light gray; F-G-1 (335)
336 - 345	9	Clay; muscovite; light gray to light gray orangish brown
345 - 346	1	No recovery
346 - 349	3	Clay; muscovite; light gray
349 - 351	2	No recovery
351 - 355	4	Clay; muscovite; light gray
355 - 358	3	Sand, medium, silty; poorly sorted; muscovite; heavy minerals; light gray
358 - 360	2	Sand, medium; moderately sorted; muscovite; heavy minerals; light gray
360 - 363	3	Sand, medium, silty; poorly sorted; muscovite; kaolin; heavy minerals; light gray
363 - 366	3	Silt, sandy; moderately sorted; muscovite; kaolin; heavy minerals; light gray
366 - 368	2	Silt, clayey; muscovite; kaolin; light gray; F-O-1
368 - 369	1	Sand, fine; moderately sorted; muscovite; kaolin; light gray
369 - 370	1	Silt, clayey; muscovite; kaolin; light gray
370 - 372	2	Silt, clayey, sandy; muscovite; kaolin; light gray
372 - 379	7	Sand, coarse; poorly sorted; muscovite; kaolin; light gray; F-G-1 (377)
379 - 381	2	Sand, clayey; poorly sorted; muscovite; kaolin; light gray
381 - 382	1	No recovery
382 - 383	1	Sand, coarse; sulfides; muscovite; kaolin; light gray
383 - 385	2	Sand, medium, silty; poorly sorted; muscovite; kaolin; light gray

LITHOLOGIC LOG, P27 (TA)

Depth (ft.)	Thickness (ft.)	Description
385 - 387	2	No recovery
387 - 389	2	Sand, coarse; poorly sorted; muscovite; kaolin; light gray
389 - 390	1	Clay, sandy; very poorly sorted; muscovite; kaolin; light gray
390 - 391	1	Clay, silty; muscovite; kaolin; smoky quartz; light gray
391 - 394	3	Sand, coarse; poorly sorted; heavy minerals; muscovite; kaolin; light gray
394 - 396	2	Sand, medium, silty; moderately sorted; muscovite; kaolin; light gray F-B-1 (395)
396 - 397	1	Clay, sandy; muscovite; kaolin; light gray
397 - 398	1	Sand, medium, clayey; very poorly sorted; muscovite; feldspar; smoky quartz; gray; F-B-1
398 - 399	1	Clay; muscovite; kaolin; gray
399 - 400	1	Clay, silty; muscovite; kaolin; light brownish gray; F-O-1
400 - 401	1	Sand, medium, silty; heavy minerals muscovite; kaolin; light gray
401 - 402	1	No recovery
402 - 403	1	Sand, medium, clayey; well sorted; sulfides; muscovite; light gray
403 - 407	4	No recovery
407 - 408	1	Sand, medium; poorly sorted; sulfides; heavy minerals; muscovite; kaolin; light gray
408 - 412	4	No recovery
412 - 413	1	Sand, coarse, clayey; very poorly sorted; muscovite; kaolin; heavy minerals; light gray
413 - 414	1	Sand, medium, silty; very poorly sorted; muscovite; kaolin; light gray
414 - 415	1	No recovery
415 - 416	1	Sand, medium, clayey; very poorly sorted; muscovite; kaolin; gray

LITHOLOGIC LOG, P27 (TA)

Depth (ft.)	Thickness (ft.)	Description
416 - 419	3	Sand, medium, silty; poorly sorted; heavy minerals; muscovite; kaolin; gray
419 - 420	1	Silt, sandy; poorly sorted; muscovite; kaolin; light gray
420 - 421	1	Sand, medium, silty, clayey; moderately sorted; muscovite; kaolin; light gray
421 - 422	1	No recovery
422 - 429	7	Sand, medium; moderately to poorly sorted; heavy minerals; muscovite; kaolin; F-B-1 (423); F-O-1 (425, 428)
429 - 432	3	No recovery
432 - 437	5	Sand, medium, silty; moderately sorted; muscovite; kaolin; heavy minerals; light gray
437 - 440	3	Sand, medium, silty; clayey; moderately sorted; heavy minerals; muscovite; kaolin; medium gray; F-O-2 (436 - 439)
440 - 441	1	Sand, coarse; gypsum; muscovite; kaolin; light gray
441 - 442	1	Clay, sandy; muscovite; heavy minerals; kaolin; light gray; F-B-1
442 - 444	2	Sand, coarse; moderately sorted; interbedded clay; muscovite; kaolin; light gray; F-B-1 (442)
444 - 445	1	No recovery
445 - 448	3	Sand, coarse; moderately sorted; muscovite; kaolin; light gray; F-G-1 (447)
448 - 449	1	No recovery
449 - 450	1	Sand, medium, silty, clayey; very poorly sorted; sulfides; muscovite; kaolin; light gray; F-B-2
450 - 451	1	Sand, coarse; well sorted; muscovite; kaolin; light gray
451 - 452	1	Sand, medium, silty; poorly sorted; muscovite; kaolin; feldspar; light gray; F-G-1
452 - 457	5	No recovery
457 - 458	1	Sand, medium; poorly sorted; muscovite; smoky quartz; heavy minerals; sulfides light gray

LITHOLOGIC LOG, P27 (TA)

Depth (ft.)	Thickness (ft.)	Description
458 - 459	1	Clay, sandy; moderately sorted; muscovite; light gray; F-G-1
459 - 462	3	Clay; muscovite; light gray; F-G-1 (459)
462 - 470	8	Sand, medium to coarse, silty; moderately sorted; muscovite; kaolin; light to medium gray
470 - 473	3	Sand, medium; moderately sorted; muscovite; kaolin; medium gray
473 - 477	4	No recovery
477 - 478	1	Sand, medium; poorly sorted; clay balls; heavy minerals; muscovite; kaolin; medium gray
478 - 479	1	Sand, medium, silty; clayey; poorly sorted; muscovite; kaolin; medium gray
479 - 481	2	No recovery
481 - 482	1	Sand, fine, silty; well sorted; muscovite; kaolin; medium gray
482 - 486	4	Sand, coarse to medium; poorly sorted; muscovite; kaolin; medium to light gray; F-G-1 (483)
486 - 487	1	Sand, coarse, silty; poorly sorted; muscovite; kaolin; light gray
487 - 488	1	No recovery
488 - 490	2	Sand, coarse; moderately sorted; heavy minerals; light gray
490 - 492	2	Sand, medium, silty; moderately sorted; sulfides; muscovite; kaolin; medium gray; F-G-1 (490)
492 - 495	3	Sand, medium; moderately sorted; muscovite; kaolin; medium gray
495 - 498	3	Sand, medium, silty; moderately sorted; heavy minerals; muscovite; kaolin; medium gray
498 - 500	2	Sand, coarse; moderately sorted; muscovite; kaolin; smoky quartz; lignite; medium gray; F-G-1 (499)
500 - 502	2	No recovery
502 - 503	1	Silt, sandy; moderately sorted; sulfides; gypsum; muscovite; kaolin; medium gray

LITHOLOGIC LOG, P27 (TA)

Depth (ft.)	Thickness (ft.)	Description
503 - 504	1	Sand, medium, silty; moderately sorted; gypsum; muscovite; kaolin; dark gray
504 - 506	2	Sand, medium, silty; clayey; poorly sorted; muscovite; lignite; medium gray
506 - 509	3	Sand, medium; moderately sorted; muscovite; kaolin; light gray
506 - 512	3	No recovery
512 - 518	6	Sand, coarse to medium; moderately sorted; muscovite; interbedded clay; lignite; dark gray
518 - 524	6	Sand, medium, silty; moderately sorted; heavy minerals; muscovite; lignite; kaolin; dark gray; F-D-1 (522)
524 - 525	1	Sand, coarse, clayey; poorly sorted; muscovite; kaolin; dark gray; F-B-1
525 - 527	2	No recovery
527 - 528	1	Sand, medium, silty; moderately sorted; interbedded clay; muscovite; kaolin; dark gray
528 - 529	1	Sand, medium, silty, clayey; very poorly sorted; muscovite; smoky quartz; dark gray
529 - 532	3	Sand, medium; well sorted; muscovite; heavy minerals; dark gray
532 - 533	1	Sand, fine, silty; well sorted; heavy minerals; muscovite; dark gray
533 - 535	2	Sand, medium, silty, clayey; moderately sorted; muscovite; dark gray
535 - 536	1	Sand, medium; poorly sorted; muscovite; dark gray
536 - 538	2	Sand, fine, silty, clayey; poorly sorted; heavy minerals; muscovite; dark grayish black to dark gray; F-G-1(537)
538 - 542	4	Sand, medium; poorly sorted; muscovite; kaolin; heavy minerals; dark gray
542 - 544	2	Sand, medium, silty; poorly sorted; muscovite; lignite; kaolin; medium gray
544 - 548	4	Silt, sandy; well sorted; muscovite; lignite; medium gray

LITHOLOGIC LOG, P27 (TA)

Depth (ft.)	Thickness (ft.)	Description
548 - 550	2	Sand, fine, silty, clayey; moderately sorted; muscovite; kaolin; medium gray
550 - 559	9	Sand, fine to medium, silty; muscovite; lignite; sulfides; medium gray
559 - 562	3	No recovery
562 - 563	1	Sand, coarse; well sorted; clay balls; medium gray
563 - 566	3	No recovery
566 - 568	2	Sand, very coarse; well sorted; sulfides; gray
568 - 569	1	No recovery
569 - 571	2	Sand, coarse; well sorted; interbedded clay; sulfides; heavy minerals; muscovite; gray
571 - 572	1	No recovery
572 - 573	1	Sand, coarse; poorly sorted; interbedded clay; heavy minerals; sulfides; muscovite; lignite; gray
573 - 576	3	Sand, coarse, silty; poorly sorted; muscovite; gray; F-Y-1 (574)
576 - 578	2	Sand, coarse; poorly sorted; muscovite; lignite; gray
578 - 579	1	Sand, medium, silty, clayey; very poorly sorted; muscovite; lignite gray
579 - 580	1	Clay, silty; muscovite; lignite; gray
580 - 581	1	Silt, clayey; heavy minerals; sulfides; muscovite; gray
581 - 582	1	No recovery
582 - 583	1	Clay, silty, sandy; heavy minerals; muscovite; gray
583 - 588	5	Sand, medium, silty, clayey; moderately sorted; heavy minerals; muscovite; lignite; gray
588 - 589	1	No recovery
589 - 590	1	Sand, medium, silty; well sorted; muscovite; gray
590 - 592	2	Sand, medium, silty, clayey; moderately sorted; muscovite; lignite; gray
592 - 604	12	Sand, fine to medium, silty; moderately sorted; muscovite; gray

LITHOLOGIC LOG, P27 (TA)

<u>Depth (ft.)</u>	<u>Thickness (ft.)</u>	<u>Description</u>
604 - 629	25	Clay; grayish brownish red to grayish yellowish tan
629 - 631	2	No recovery
631 - 632	1	Clay; muscovite; light to dark gray
632 - 633	1	Clay, silty; muscovite; lignite; light to dark gray
633 - 636	3	No recovery
636 - 638	2	Silt, clay; muscovite; lignite; gray
638 - 639	1	Sand, medium, silty; well sorted; muscovite; lignite; gray
639 - 641	2	Sand, coarse; poorly sorted; heavy minerals; muscovite; gray
641 - 642	1	Sand, coarse, silty; very poorly sorted; muscovite; kaolin; heavy minerals; gray
642 - 646	4	Clay; muscovite; gray
646 - 649	3	Clay, sandy; muscovite; heavy minerals; light to medium gray; F-B-1 (646, 647)
649 - 651	2	No recovery
651 - 652	1	Sand, coarse, clayey; moderately sorted; muscovite; kaolin; heavy minerals; sulfides; gray
652 - 653	1	Sand, coarse, silty; well sorted; muscovite; kaolin; gray
653 - 655	2	Clay; muscovite; gray
655 - 656	1	No recovery
656 - 657	1	Clay; muscovite; kaolin; gray
657 - 661	4	Sand, medium, silty; well sorted; muscovite; kaolin; gray
661 - 662	1	Clay, sandy; muscovite; kaolin; milky quartz pebbles; light gray
662 - 664	2	Sand, medium, silty, clayey; moderately sorted; muscovite; kaolin; light gray
664 - 665	1	Sand, medium, silty; moderately sorted; muscovite; light gray

LITHOLOGIC LOG, P27 (TA)

Depth (ft.)	Thickness (ft.)	Description
665 - 666	1	Sand, medium, silty, clayey; moderately sorted; muscovite; light gray
666 - 667	1	Silt, sandy; moderately sorted; interbedded clay; kaolin; muscovite; smoky quartz; light gray
667 - 668	1	Silt; muscovite; kaolin; smoky quartz; light gray
668 - 671	3	Sand, medium, silty; poorly sorted; heavy minerals; muscovite; kaolin; light gray
671 - 672	1	Sand, medium; poorly sorted; muscovite; kaolin; light gray
672 - 674	2	Sand, medium, silty; poorly sorted; heavy minerals; kaolin; smoky quartz; light gray
674 - 676	2	Sand, coarse; poorly sorted; muscovite; kaolin; light gray
676 - 678	2	Sand, coarse, silty, clayey; poorly sorted; heavy minerals; sulfides; muscovite; kaolin; light gray
678 - 679	1	Clay, sandy; heavy minerals; muscovite; kaolin; light gray
679 - 680	1	Sand, coarse, silty; poorly sorted; muscovite; kaolin; heavy minerals; light gray
680 - 691	11	Sand, coarse; moderately sorted; muscovite; kaolin; heavy minerals; light grayish tan; F-O-1 (686, 687)
691 - 694	3	Sand, medium, silty; moderately sorted; muscovite; kaolin; lignite; medium gray
694 - 695	1	Clay, sandy; muscovite; kaolin; medium gray
695 - 699	4	Clay; muscovite; medium gray; F-B-1 (696); F-G-1 (697)
699 - 700	1	Clay, silty; muscovite; medium gray; F-G-1
700 - 701	1	No recovery
701 - 702	1	Clay, silty; muscovite; kaolin; light gray
702 - 703	1	Clay, sandy; muscovite; kaolin; light gray
703 - 704	1	Silt; heavy minerals; muscovite; kaolin; light gray
704 - 712	8	Sand, coarse, silty; poorly sorted; muscovite; kaolin; medium gray

LITHOLOGIC LOG, P27 (TA)

Depth (ft.)	Thickness (ft.)	Description
712 - 714	2	Sand, coarse; poorly sorted; muscovite; kaolin; heavy minerals; light gray
714 - 715	1	Sand, coarse, silty, clayey; poorly sorted; muscovite; kaolin; medium gray
715 - 722	7	Clay; muscovite; medium gray
722 - 726	4	No recovery
726 - 727	1	Sand, coarse; well sorted; heavy minerals; muscovite; kaolin; grayish tan
727 - 731	4	Sand, medium, silty, clayey; poorly sorted; muscovite; kaolin; light gray; F-B-1 (728)
731 - 732	1	Silt, sandy; well sorted; kaolin; muscovite; light gray
732 - 734	2	Sand, medium, silty; moderately sorted; kaolin; muscovite; light gray
734 - 735	1	Silt, sandy; heavy minerals; muscovite; kaolin; light gray; F-B-1
735 - 740	5	Sand, coarse, silty; moderately sorted; muscovite; kaolin; light gray
740 - 741	1	No recovery
741 - 747	6	Sand, medium; poorly sorted; muscovite; kaolin; light gray
747 - 748	1	Sand, coarse, silty, clayey; poorly sorted; sulfides; heavy minerals; muscovite; light gray; F-B-1
748 - 750	2	Silt, sandy; interbedded clay; heavy minerals; muscovite; light gray; F-B-1 (748)
750 - 751	1	No recovery
751 - 752	1	Sand, medium, silty; muscovite; kaolin; light gray
752 - 753	1	Sand, medium; muscovite; light gray
753 - 754	1	No recovery
754 - 756	2	Sand, medium, silty; poorly sorted; muscovite; kaolin; light gray

LITHOLOGIC LOG, P27 (TA)

Depth (ft.)	Thickness (ft.)	Description
756 - 762	6	Sand, coarse; poorly sorted; heavy minerals; muscovite; kaolin; light gray
762 - 763	1	Sand, medium, silty; well sorted; muscovite; light gray
763 - 766	3	No recovery
766 - 769	3	Sand, coarse; lignite; heavy minerals; sulfides; light tan
769 - 770	1	No recovery
770 - 772	2	Sand, coarse; interbedded clay; poorly sorted; sulfides; muscovite; kaolin; light tannish gray
772 - 776	4	Sand, medium, silty; moderately sorted; muscovite; kaolin; light tannish gray
776 - 778	2	Sand, coarse; moderately sorted; interbedded clay; muscovite; kaolin; light tannish gray
778 - 783	5	Sand, coarse, silty; poorly sorted; interbedded clay; muscovite; kaolin; light tannish gray
783 - 790	7	Sand, coarse; poorly sorted; muscovite; kaolin; light tannish gray
790 - 791	1	Sand, medium, silty, clayey; poorly sorted; interbedded clay; sulfides; muscovite; light tannish gray
791 - 792	1	Sand, coarse; moderately sorted; muscovite; light tannish gray
792 - 793	1	No recovery
793 - 800	7	Sand, coarse; poorly sorted; interbedded clay; sulfides; muscovite; kaolin; light tannish gray; F-O-2 (796, 797)
800 - 802	2	Sand, medium, silty; poorly sorted; heavy minerals; muscovite; light gray
802 - 803	1	Sand, coarse; very poorly sorted; interbedded clay; muscovite; gray
803 - 806	3	No recovery
806 - 821	15	Sand, coarse; well to moderately sorted; interbedded clay; heavy minerals; muscovite; kaolin; light tannish gray; F-Y-2 (806, 807); F-G-1 (808)

LITHOLOGIC LOG, P27 (TA)

Depth (ft.)	Thickness (ft.)	Description
821 - 822	1	No recovery
822 - 827	5	Sand, coarse; poorly sorted; heavy minerals; muscovite; kaolin; F-O-3 (822, 823); F-Y-1 (824)
827 - 828	1	Clay; light tannish gray
828 - 830	2	Clay, silty; light tannish gray; F-G-1 (829)
830 - 832	2	Clay, silty, sandy; muscovite; kaolin; very consolidated; light tannish gray
832 - 833	1	Clay, silty; muscovite; kaolin; very consolidated; light tannish gray
833 - 834	1	Silt, clayey, sandy; very consolidated; muscovite; kaolin; light gray
834 - 840	6	Clay, silty; very consolidated; kaolin; muscovite; light gray
840 - 842	2	Clay, silty; sandy; heavy minerals; muscovite; kaolin; very consolidated; light gray; F-B-1 (841)
842 - 846	4	Silt, clayey, sandy; muscovite; kaolin; very consolidated; light gray to light grayish tan; F-B-1 (844)
846 - 848	2	Sand, medium, clayey; poorly sorted; heavy minerals; muscovite; kaolin; light grayish tan
848 - 852	4	Sand, medium, silty; poorly sorted; muscovite; kaolin; light gray
852 - 858	5	Sand, coarse; well sorted; heavy minerals; light grayish tan
857 - 860	3	Clay, sandy; very consolidated; light grayish tan
860 - 862	2	No recovery
862 - 863	1	Clay, sandy; very consolidated; medium gray
863 - 867	4	No recovery
867 - 868	1	Clay, conglomeritic; very consolidated; muscovite; light gray
868 - 870	2	Clay, sandy; heavy minerals; very consolidated; muscovite; light gray; F-O-1 (869)

LITHOLOGIC LOG, P27 (TA)

<u>Depth (ft.)</u>	<u>Thickness (ft.)</u>	<u>Description</u>
870 - 872	2	No recovery
872 - 874	2	Clay, sandy; very consolidated; dark gray
874 - 875	1	Clay; very consolidated; medium grayish brown; F-B-1
875 - 877	2	Clay, silt; very consolidated; medium gray; F-B-1 (875)
877 - 880	3	Clay, sandy; very consolidated; medium gray
880 - 882	2	No recovery
882 - 885	3	Clay; very consolidated; medium gray reddish yellow
885 - 887	2	Clay, sandy; very consolidated; medium gray to grayish yellow
887 - 891	4	Clay; very consolidated; grayish yellowish red
891 - 896	5	Clay, sandy; very consolidated; grayish yellow
896 - 900	4	Clay, silty; very consolidated; gray

APPENDIX E

LITHOLOGIC LOG FOR P-28TA

LEGEND

F - fluorescence

B - blue

Y - yellow

O - orange

R - red

G - green

() - interval that displays fluorescence, in feet

NOTE: The number of grains which fluoresced in a 3" by 3" tray were counted and catagorized as follows:

- 1) less than three grains
- 2) three to ten grains
- 3) more than ten grains

EXAMPLE: F-0-3 (32-37)
fluorescence; orange; greater than ten grains;
from thirty two to thirty seven feet.

LITHOLOGIC LOG, P28(TA)

Depth (ft.)	Thickness (ft.)	Description
0 - 1	1	No recovery
1 - 2	1	Sand, fine; well sorted; heavy minerals; brown; F-B-2
2 - 8	6	Sand, fine, silty; well sorted; heavy minerals, lignite; brown to tan; F-Y-2(2 - 5)
8 - 11	3	No recovery
11 - 16	5	Sand, fine, clayey; poorly sorted; heavy minerals; dark red to dark reddish yellow; F-B-1(11)
16 - 19	3	Clay; well sorted; muscovite; red brownish yellow to tan reddish brown
19 - 26	7	Clay, silty; well sorted; heavy minerals; muscovite; dark tan pinkish white to light brownish red
26 - 30	4	Sand, fine, clayey; poor to moderately sorted; musco- vite; light brown reddish white
30 - 32	2	Sand, fine, silty, clayey; moderately sorted; mus- covite; dark brown reddish white
32 - 38	6	Sand, fine, silty; moderate to well sorted; musco- vite; light brownish white to light brownish yellow; F-D-1(37)
38 - 40	2	Sand, fine, silty clayey; well sorted; heavy minerals; muscovite; feldspar; light brown reddish yellow
40 - 46	6	Sand, fine to coarse, silty; moderately sorted; dark yellowish brown to dark reddish brown
46 - 49	3	Sand, coarse; well sorted; dark reddish brown
49 - 50	1	Sand, coarse, silty, clayey; moderately sorted; mottled; muscovite; dark red brownish tan
50 - 51	1	Sand, medium, clayey; moderately sorted; mottled; muscovite; dark red brownish tan
51 - 52	1	Sand, fine, silty, clayey; poorly sorted; mottled; muscovite; dark red brownish tan
52 - 53	1	Sand, fine, clayey; poorly sorted; heavy minerals; brown tannish white
53 - 55	2	Sand, fine, silty; poorly sorted; brownish tan to tan- nish orange

LITHOLOGIC LOG, P28(TA)

Depth (ft.)	Thickness (ft.)	Description
55 - 56	1	No recovery
56 - 62	6	Sand, fine, silty; very poorly sorted; heavy minerals; light brownish tan; F-O-1(60 - 61)
62 - 66	4	Sand, fine, silty, clayey; well to moderately sorted; heavy minerals; light brownish tan to light brown orangish yellow
66 - 70	4	Sand, fine to medium; poorly sorted; heavy minerals, muscovite; orangish yellow to brown orangish yellow; F-O-1(67)
70 - 71	1	Sand, medium, clayey; moderately sorted; heavy minerals, muscovite, lignite; brown orangish tan
71 - 72	1	Clay; moderately sorted; heavy minerals; muscovite; lignite; light brownish tan
72 - 73	1	Clay, sandy; moderately sorted; lignite; light brown; F-Y-1
73 - 75	2	Clay; well sorted; heavy minerals; muscovite; lignite; light brownish tan
75 - 78	3	Clay, sandy; moderately sorted; interbedded clay; mottled; lignite; light brown
78 - 80	2	Sand, medium, silty, clayey; well sorted; lignite; light brown; F-O-1
80 - 94	14	Sand, medium; silty; well sorted; muscovite, lignite; light brownish tan to light brownish orange; F-B-1(83), F-O-1 (87)
94 - 96	2	Sand, medium, silty, clayey; well sorted; muscovite; lignite; light brownish orange; F-O-1
96 - 98	2	Sand, medium, silty; well sorted; muscovite; lignite; light brownish tan; F-B-1(97)
98 - 102	4	Sand, coarse; well sorted; muscovite; lignite; light grayish tan; F-O-1(99, 103)
102 - 105	3	Sand, medium, silty; well sorted; lignite; light grayish tan; F-O-1(102 - 103)
105 - 107	2	Sand, medium, silty; clayey; well sorted; heavy minerals; muscovite; lignite; light grayish tan
107 - 108	1	Sand, medium, clayey; well sorted; heavy minerals; muscovite; lignite; light brown

LITHOLOGIC LOG, P28(TA)

Depth (ft.)	Thickness (ft.)	Description
108 - 109	1	Clay, sandy; well sorted; muscovite; lignite; light brown; F-0-1
109 - 110	1	No recovery
110 - 111	1	Clay, silty; well sorted; heavy minerals; muscovite; lignite; light grayish brown; F-0-1
111 - 112	1	Sand, medium, silty, clayey; very poorly sorted; lignite; orangish brown; F-B-1
112 - 113	1	Sand, fine, silty; moderately sorted; heavy minerals; muscovite; lignite; brownish light gray; F-0-1
113 - 114	1	Clay; well sorted; mottled; muscovite; lignite; tannish orange; F-0-2
114 - 115	1	Sand, fine, silty; well sorted; heavy minerals; rut- ilated; lignite; tan orangish red; F-0-3
115 - 116	1	Sand, fine, silty, clayey; well sorted; interbedded clay; heavy minerals; muscovite; rutilated; lignite; light gray tannish orange; F-0-3
116 - 126	10	Sand, very fine, silty; well sorted; muscovite; heavy minerals; lignite; light grayish orange to yellowish tan; F-0-1 (116-119), F-0-2(120-121,123) F-Y-1 (122)
126 - 130	4	Sand, very fine, silty, clayey; well sorted; heavy min- erals; orange grayish light green
130 - 143	13	Clay, sandy; well sorted; heavy minerals; muscovite; limy sand; lignite; chert; orange grayish light green to brownish light green; F-0-1(131, 133-136), F-B-1(137)
143 - 144	1	Sandstone; well sorted; muscovite; light brownish tan
144 - 145	1	No recovery
145 - 146	1	Clay; well sorted; heavy minerals; dark greenish black; F-0-1
146 - 151	5	No recovery
151 - 152	1	Sand, medium, silty; well sorted; heavy minerals; dark grayish black; F-0-1
152 - 153	1	Clay; well sorted; fissile; muscovite; dark gray
153 - 154	1	Clay, sandy; well sorted; mottled; heavy minerals; mus- covite; light brownish orange; F-0-1
154 - 157	3	Sand, medium, silty; well sorted; heavy minerals; mus- covite; dark gray; F-0-1(155), F-0-3(156)

LITHOLOGIC LOG, P28(TA)

<u>Depth (ft.)</u>	<u>Thickness (ft.)</u>	<u>Description</u>
157 - 164	7	Silt, sandy; well sorted; heavy minerals; muscovite; yellowish orange; F-O-2(157 - 158, 160 - 163), F-B-1(159)
164 - 168	4	Sand, fine to medium, silty; moderate to well sorted; heavy minerals; yellowish tan; F-O-1(164 - 165), F-B-1(167)
168 - 170	2	Sand, medium; well sorted; interbedded clay; iron nodules; yellowish orange; F-O-1(169)
170 - 173	3	Sand, medium, silty; well sorted; heavy minerals; yellowish orange to yellowish tan; F-B-1(170), F-O-1(171)
173 - 174	1	Clay, sandy; well sorted; fissile; heavy minerals; orangish tan; F-O-1
174 - 188	14	Sand, medium, silty; well sorted; heavy minerals; yellowish orange; F-B-1(174), F-O-2(175 - 176, 180 - 181), F-O-1(177 - 179, 183, 186)
188 - 191	3	Sand, coarse; well sorted; smoky quartz; yellowish tan; F-O-1(189 - 190)
191 - 192	1	Sand, medium, silty; well sorted; heavy minerals; smoky quartz; orange; F-O-3
192 - 200	8	Sand, coarse; well sorted; interbedded clay; heavy minerals; yellowish tan to orangish tan
200 - 202	2	Sand, medium, silty; well sorted; interbedded clay; heavy minerals; iron nodules; F-Y-2(200 - 201)
202 - 203	1	Sand, medium, silty, clayey; well sorted; interbedded clay; heavy minerals; dark brownish orange
203 - 205	2	Clay; well sorted; fissile; mottled; dark orange; F-O-1
205 - 206	1	Sand, coarse, clayey; well sorted; fissile, mottled; dark gray
206 - 207	1	Sand, coarse; well sorted; heavy minerals; dark gray
207 - 208	1	No recovery
208 - 212	4	Sand, medium to coarse; well sorted; medium gray
212 - 213	1	Clay; well sorted; fissile; dark gray; F-B-1

LITHOLOGIC LOG, P 28(TA)

Depth (ft.)	Thickness (ft.)	Description
213 - 214	1	Sand, medium; well sorted; dark gray; F-B-1
214 - 215	1	Sand, medium, clayey; well sorted; dark gray; F-B-1
215 - 216	1	Sand, medium; well sorted; interbedded clay; medium gray
216 - 217	1	Sand, medium, silty; very poorly sorted; interbedded clay, fissile; medium gray; F-Y-1
217 - 218	1	Sand, medium, silty, clayey; very poorly sorted; interbedded clay; fissile; medium gray
218 - 222	4	Sand, fine, silty; well sorted; interbedded clay, heavy minerals; muscovite; medium gray
222 - 223	1	Sand, fine, silty, clayey; very poorly sorted; heavy minerals; muscovite; dark gray; F-O-1
223 - 224	1	Clay, silty, sandy; very poorly sorted; heavy minerals; muscovite; feldspar; kaolin; light grayish white; F-O-1
224 - 225		Sand, fine, silty; well sorted; heavy minerals; muscovite; feldspar; kaolin; light grayish white; F-O-1
225 - 227	2	Sand, fine, silty, clayey; well to moderately sorted; heavy minerals; muscovite; feldspar; kaolin; light gray
227 - 228	1	Silt, sandy; moderately sorted; heavy minerals; sulfides; muscovite; kaolin; light gray
228 - 231	3	Silt, clayey; well sorted; muscovite, feldspar; blackish gray
231 - 237	6	Clay, silty; well sorted; interbedded clay; muscovite; dark gray
237 - 242	5	Clay; well sorted; muscovite; dark gray
242 - 248	6	No recovery
248 - 250	2	Sand, medium to fine, clayey, silty; poorly sorted; muscovite; feldspar; dark grayish black
250 - 251	1	Clay, silty; well sorted; gypsum; heavy minerals; muscovite; feldspar; dark gray; F-O-1

LITHOLOGIC LOG, P28(TA)

<u>Depth</u> <u>(ft.)</u>	<u>Thickness</u> <u>(ft.)</u>	<u>Description</u>
251 - 253	2	No recovery
253 - 256	3	Silt, clayey; well sorted; gypsum; heavy minerals; muscovite; medium gray; F-B-1(253), F-O-1(254), F-Y-1(255)
256 - 258	2	No recovery
258 - 260	2	Sand, medium, silty, clayey; poorly sorted; heavy minerals; sulfides; muscovite; feldspar; lignite; medium gray; F-O-1
260 - 261	1	Sand, coarse; moderately sorted; sulfides; muscovite; medium gray
261 - 262	1	Clay; well sorted; muscovite; light gray; F-B-1
262 - 263	1	No recovery
263 - 268	5	Clay; well sorted; heavy minerals; muscovite; kaolin; light bluish gray to light gray; F-B-1(265)
268 - 272	4	Clay, sandy; poorly sorted; marcasite; muscovite, kaolin; light gray; F-O-1(268)
272 - 276	4	Clay; well sorted; muscovite; kaolin; light gray; F-B-1(275)
276 - 277	1	Clay, sandy; poorly sorted; heavy minerals; muscovite; kaolin; light gray; F-B-1
277 - 284	7	Clay; well sorted; muscovite; kaolin; light gray
284 - 292	8	Sand, fine, silty; poorly sorted; muscovite; kaolin; tannish light gray; F-B-1(288, 290-291), F-O-1(289)
292 - 293	1	Sand, fine, silty, clayey; poorly sorted; muscovite; kaolin; light gray
293 - 300	7	Clay; well sorted; muscovite; kaolin; medium gray
300 - 302	2	Clay, sandy; well sorted; heavy minerals; muscovite; kaolin; light gray
302 - 304	2	Clay, sandy, silty; well sorted; heavy minerals; muscovite; feldspar; kaolin; light gray

LITHOLOGIC LOG, P28(TA)

Depth (ft.)	Thickness (ft.)	Description
304 - 310	6	Sand, fine, silty, clayey; well sorted; heavy minerals; muscovite; kaolin; light gray
310 - 312	2	Sand, medium, silty; well sorted; heavy minerals; muscovite; kaolin; F-0-1
312 - 313	1	No recovery
313 - 317	4	Clay; well sorted; muscovite; kaolin; lignite; medium gray to tan
317 - 318	1	Clay, sandy; poorly sorted; muscovite; kaolin; tan
318 - 323	5	Sand, medium, silty; moderately sorted; heavy minerals; muscovite; feldspar; kaolin; medium gray; F-B-1(319), F-0-1(322)
323 - 326	3	Silt, sandy; well sorted; heavy minerals; muscovite; feldspar, kaolin; medium gray; F-0-1(323-324)
326 - 328	2	No recovery
328 - 332	4	Sand, medium, silty; well to moderately sorted; heavy minerals; sulfides; muscovite; feldspar, kaolin; light gray; F-B-1(328,330-331)
332 - 333	1	Sand, coarse; moderately sorted; heavy minerals; muscovite; kaolin; light gray
333 - 338	5	Sand, medium to coarse, silty; well sorted; heavy minerals; muscovite; feldspar; kaolin; medium gray
338 - 340	2	Sand, coarse; well sorted; heavy minerals; muscovite; feldspar; kaolin; light gray
340 - 342	2	Sand, medium, clayey; very poorly sorted; heavy minerals; muscovite; feldspar; kaolin; light gray; F-0-2
342 - 343	1	Sand, medium, silty, clayey; poorly sorted; sulfides; muscovite; kaolin; light gray; F-0-1
343 - 344	1	Silt, sandy; well sorted; gypsum; heavy minerals; sulfides; muscovite; feldspar; kaolin; light gray; F-0-1
344 - 346	2	Sand, medium, silty; clayey; well sorted; muscovite; feldspar; kaolin; medium gray

LITHOLOGIC LOG, P28 (TA)

Depth (ft.)	Thickness (ft.)	Description
346 - 350	4	Sand, medium, silty; moderate to well sorted; heavy minerals; sulfides; feldspar; kaolin; medium gray
350 - 351	1	Sand, medium; well sorted; heavy minerals; muscovite; feldspar; kaolin; medium gray
351 - 353	2	No recovery
353 - 354	1	Sand, medium; well sorted; gypsum, heavy minerals; muscovite; kaolin; light gray; F-0-3
354 - 356	2	Sand, medium, silty; well sorted; heavy minerals; muscovite; feldspar; kaolin; light gray
356 - 358	2	Sand, coarse; moderately sorted; clay balls; heavy minerals; muscovite; feldspar; kaolin; light gray; F-0-1(357)
358 - 366	8	Sand, medium, silty; well sorted; heavy minerals; muscovite; feldspar; kaolin; medium gray; F-0-1(359), F-0-2 (362-363)
366 - 369	3	Sand, coarse; well sorted; heavy minerals; muscovite; feldspar; kaolin; light gray
369 - 370	1	Clay, sandy; moderately sorted; heavy minerals; muscovite; feldspar; kaolin; dark grayish tan
370 - 378	8	Clay; well sorted; muscovite; gray; F-B-1(372,375)
378 - 379	1	No recovery
379 - 384	5	Silt; well sorted; heavy minerals; muscovite; feldspar; kaolin; light gray
384 - 387	3	Silt, sandy; well sorted; heavy minerals; muscovite; feldspar, kaolin; light gray
387 - 389	2	Sand, medium, silty; poorly sorted; heavy minerals; muscovite; feldspar; kaolin; light gray
389 - 393	4	Silt, sandy; well sorted; muscovite; feldspar; kaolin; light gray
393 - 394	1	No recovery

LITHOLOGIC LOG, P28(TA)

Depth (ft.)	Thickness (ft.)	Description
394 - 398	4	Sand, medium to coarse; poorly sorted; clay balls; heavy minerals; muscovite; kaolin; light gray
398 - 399	1	No recovery
399 - 401	2	Sand, medium, clayey; poorly sorted; clay balls; muscovite, feldspar, kaolin; light gray
401 - 406	5	Sand, coarse; poor to well sorted; clay balls; muscovite; kaolin; light gray F-8-1(402)
406 - 407	1	Sand, coarse, silty; well sorted; heavy minerals; muscovite; feldspar; kaolin; light gray
407 - 419	12	Sand, coarse; moderate to well sorted; heavy minerals; muscovite; kaolin; light gray
419 - 420	1	Sand, medium, silty; well sorted; heavy minerals; muscovite; kaolin; light gray
420 - 423	3	Silty, clayey; well sorted; muscovite; kaolin; light gray
423 - 424	1	Silt, clayey, sandy; poorly sorted; mottled; muscovite; kaolin; light gray
424 - 426	2	Sand, fine; poorly sorted; muscovite, feldspar; kaolin; light gray
426 - 427	1	Silt, clayey; well sorted; heavy minerals; muscovite; kaolin; light gray
427 - 428	1	Sand, fine; poorly sorted; heavy minerals; muscovite; feldspar; kaolin; light gray
428 - 430	2	Silt; well sorted; muscovite; feldspar; kaolin; light gray
430 - 431	1	Sand, medium; well sorted; clay balls; muscovite; kaolin; medium gray
431 - 432	1	Sand, medium, clayey; clay balls; interbedded clay; muscovite; feldspar; kaolin; dark gray
432 - 436	4	Sand, fine, silty; poorly sorted; heavy minerals; muscovite; feldspar; kaolin; medium gray; F-0-2(433,435)

LITHOLOGIC LOG, F28(TA)

<u>Depth</u> <u>(ft.)</u>	<u>Thickness</u> <u>(ft.)</u>	<u>Description</u>
436 - 439	3	Sand, coarse; well sorted; heavy minerals; muscovite; feldspar; kaolin; medium gray
439 - 440	1	Sand, medium, silty; very poorly sorted; heavy minerals; muscovite; feldspar; kaolin; medium gray
440 - 442	2	Sand, medium; very poorly sorted; heavy minerals; smoky quartz granules; kaolin; medium gray
442 - 444	2	Sand, medium, silty; poorly sorted; muscovite; feldspar; kaolin; medium gray
444 - 445	1	Sand, medium; poorly sorted; muscovite; dark gray; F-G-1
445 - 446	1	Sand, medium, silty; poorly sorted; heavy minerals; feldspar; kaolin; dark gray; F-G-1
446 - 448	2	Sand, medium; poorly sorted; muscovite; kaolin; medium gray
448 - 451	3	Sand, fine, silty; moderately sorted; muscovite; feldspar; kaolin; light gray; F-O-1
451 - 452	1	Clay, sandy; moderately sorted; interbedded clay; heavy minerals; kaolin; light gray; F-O-2
452 - 454	2	Sand, fine, silty, clayey; well sorted; interbedded clay; muscovite; feldspar; kaolin; light gray; F-O-1 (453)
454 - 458	4	Sand, fine, silty; moderately sorted; muscovite, feldspar, kaolin; medium gray
458 - 459	1	Sand, medium; poorly sorted; heavy minerals, muscovite; kaolin; medium gray
459 - 462	3	Sand, medium, silty; poorly sorted; heavy minerals; muscovite; kaolin; medium gray; F-O-1(461)
462 - 464	2	Sand, medium, clayey; poorly sorted; heavy minerals; feldspar; kaolin; medium gray
464 - 468	4	Clay; well sorted; muscovite; dark gray; F-B-1(465)
468 - 469	1	Sand, medium, silty, clayey; poorly sorted; muscovite; kaolin; light gray

LITHOLOGIC LOG, P28(TA)

Depth (ft.)	Thickness (ft.)	Description
469 - 471	2	Sand, medium, silty; poorly sorted; muscovite; kaolin; light gray; F-B-1(470)
471 - 474	3	Sand, medium, silty, clayey; poorly sorted; muscovite; feldspar; kaolin; light gray; F-B-2(471)
474 - 475	1	Sand, very coarse; well sorted; heavy minerals; muscovite; kaolin; light gray
475 - 476	1	Sand, fine, silty; poorly sorted; heavy minerals; muscovite; feldspar; kaolin; light gray
476 - 478	2	Silt, sandy; moderately sorted; heavy minerals; feldspar; kaolin; light gray
478 - 480	2	Silt; well sorted; heavy minerals; muscovite; feldspar; kaolin; light gray
480 - 482	2	Silt, sandy; well sorted; muscovite; feldspar; kaolin; light grayish tan
482 - 483	1	Sand, fine, silty; poorly sorted; heavy minerals; muscovite; feldspar; kaolin; light grayish tan
483 - 484	1	Sand, medium; moderately sorted; heavy minerals; muscovite; feldspar; kaolin; light grayish tan
484 - 485	1	Sand, medium, silty; poorly sorted; clay balls; heavy minerals; muscovite; lignite; dark gray
485 - 487	2	Sand, medium; poorly sorted; clay balls; heavy minerals; muscovite; lignite; light gray to light grayish tan
487 - 494	7	Sand, fine, silty; poorly sorted; muscovite; lignite; dark gray; F-B-1(493)
494 - 498	4	Sand, medium to coarse; poorly sorted; muscovite; dark gray
498 - 499	1	Sand, medium, silty; poorly sorted; heavy minerals; muscovite; medium gray
499 - 502	3	Sand, medium; poorly sorted; heavy minerals; muscovite; medium gray; F-O-3(500-501)
502 - 514	12	Sand, medium, silty; poorly sorted; muscovite, feldspar, lignite; dark gray; F-G-1(570-511), F-B-1(513)

LITHOLOGIC LOG, P28(TA)

Depth (ft.)	Thickness (ft.)	Description
514 - 516	2	Sand, medium; poorly sorted; clay balls; muscovite; dark gray
516 - 517	1	Sand, fine, silty; well sorted; muscovite; feldspar; lignite; dark gray; F-G-1
517 - 518	1	Silt, sandy; well sorted; muscovite; lignite; dark gray
518 - 519	1	No recovery
519 - 523	4	Silt; well sorted; muscovite; feldspar; lignite; dark gray; F-O-1(519)
523 - 526	3	Silt, sandy; well sorted; muscovite, feldspar; lignite; dark gray
526 - 530	4	Sand, fine to medium, silty; well to poorly sorted; muscovite, lignite; dark gray
530 - 533	3	Sand, medium; well sorted; heavy minerals, muscovite; lignite; dark gray; F-B-1(531)
533 - 534	1	No recovery
534 - 536	2	Sand, medium; well sorted; sulfides, muscovite; feldspar; lignite; medium gray
536 - 538	2	Sand, medium, silty; well sorted; sulfides; muscovite; feldspar; lignite; medium gray; F-B-1(537)
538 - 539	1	No recovery
539 - 540	1	Sand, medium, silty; well sorted; heavy minerals; muscovite; feldspar; lignite; medium gray; F-O-1
540 - 543	3	Sand, medium; poorly sorted; muscovite; feldspar; lignite; medium gray; F-O-1(541)
543 - 544	1	No recovery
544 - 547	3	Sand, medium; moderately sorted; sulfides, muscovite; lignite; dark gray
547 - 548	1	Clay, silty; well sorted; sulfides; muscovite; feldspar; lignite; dark gray
548 - 554	6	Clay; well sorted; muscovite; medium gray; F-B-1(550)

LITHOLOGIC LOG, P28(TA)

<u>Depth</u> (ft.)	<u>Thickness</u> (ft.)	<u>Description</u>
554 - 556	2	Silt, clayey; well sorted; heavy minerals; muscovite; medium gray
556 - 558	2	Sand, medium, silty; well sorted; heavy minerals; muscovite; medium gray
558 - 559	1	No recovery
559 - 569	10	Sand, fine, silty; well sorted; muscovite; heavy minerals; medium gray; F-O-1(561,564,565)
569 - 571	2	Sand, fine, silty, clayey; well sorted; muscovite; dark gray
571 - 574	3	Clay; heavy minerals; muscovite; medium gray
574 - 575	1	Sand, coarse, clayey; well sorted; muscovite; medium gray
575 - 578	3	Sand, coarse, silty, clayey; well sorted; muscovite; medium gray
578 - 583	5	Sand, medium, silty; very poorly sorted; muscovite; medium gray
583 - 595	12	Clay; trace muscovite; medium gray to reddish yellowish gray
595 - 599	4	No recovery
599 - 608	9	Clay; muscovite; dark grayish red to dark gray
608 - 609	1	No recovery
609 - 612	3	Sand, medium, silty; poorly sorted; clay balls; muscovite; dark gray; F-B-1(609,611)
612 - 615	3	Sand, fine, silty, clayey; poorly sorted; muscovite; light to medium gray
615 - 624	9	Sand, medium, silty; poorly sorted; heavy minerals; muscovite; medium gray to medium tannish white
624 - 626	2	Sand, medium; poorly sorted; sulfides; muscovite; lignite; marcasite; medium tan to grayish tan
626 - 629	3	No recovery
629 - 630	1	Silt, clayey; heavy minerals; muscovite, lignite; medium gray

LITHOLOGIC LOG, P28(TA)

<u>Depth (ft.)</u>	<u>Thickness (ft.)</u>	<u>Description</u>
630 - 634	4	Silt, sandy; poorly sorted; heavy minerals; muscovite; kaolin
634 - 640	6	Sand, medium, silty; poorly sorted; muscovite; kaolin; smoky quartz; light tan
640 - 642	2	Sand, medium; poorly sorted; muscovite, lignite; medium tan
642 - 644	2	No recovery
644 - 648	4	Sand, coarse, silty; well sorted; muscovite, lignite; light grayish tan
648 - 650	2	Sand, medium; well sorted; muscovite; medium gray; F-B-1(649)
650 - 654	4	No recovery
654 - 655	1	Clay, sandy; muscovite; light grayish tan; F-B-1
655 - 660	5	Clay; muscovite; light gray
660 - 664	4	No recovery
664 - 665	1	Clay, sandy; poorly sorted; muscovite; medium gray
665 - 669	4	No recovery
669 - 673	4	Clay; trace muscovite; medium gray
673 - 674	1	No recovery
674 - 675	1	Sand, medium, clayey; well sorted; muscovite; kaolin; medium gray
675 - 676	1	Clay, sandy; muscovite; kaolin; light gray; F-B-1
676 - 679	3	No recovery
679 - 680	1	Clay; muscovite; medium gray
680 - 689	9	No recovery
689 - 690	1	Clay, silty; medium gray

LITHOLOGIC LOG, P28(TA)

<u>Depth (ft.)</u>	<u>Thickness (ft.)</u>	<u>Description</u>
690 - 697	7	Sand, medium, silty; poorly sorted; muscovite; lignite; medium gray to tannish gray; F-B-1(690); F-O-1(691)
697 - 698	1	Sand, medium, silty, clayey; well sorted; muscovite; tannish gray; F-B-1
698 - 699	1	Sand, medium, silty; well sorted; muscovite; lignite; tannish gray
699 - 700	1	Clay, silty; muscovite; lignite, tannish gray
700 - 701	1	Sand, medium, clayey; very poorly sorted; muscovite; lignite; smoky quartz; medium gray
701 - 706	5	Sand, medium, silty; very poorly sorted; heavy minerals; muscovite; lignite; smoky quartz; tannish gray; F-O-1(704,705)
706 - 708	2	Sand, coarse; well sorted; heavy minerals; muscovite; lignite; tannish gray; F-O-1
708 - 709	1	No recovery
709 - 710	1	Sand, medium; moderately sorted; tan
710 - 722	12	Sand, coarse; well sorted; muscovite; tan to yellowish brown; F-O-1 (710,714,717)
722 - 723	1	No recovery
723 - 725	2	Sand, medium; well sorted; sulfides; muscovite; gray; F-3-0(723)
725 - 726	1	Silt, clayey; heavy minerals; muscovite; lignite; dark gray
726 - 730	4	No recovery
730 - 735	5	Sand, clayey; very poorly sorted; sulfides; heavy minerals; tannish gray; F-O-2(730,731)
735 - 737	2	No recovery
737 - 738	1	Sand, coarse; moderately sorted; muscovite; hematite; rutilated; tannish brownish gray; F-O-2
738 - 739	1	Sand, coarse, silty, clayey; moderately sorted; hematite; muscovite; brownish white; F-O-2

LITHOLOGIC LOG, P28(TA)

Depth (ft.)	Thickness (ft.)	Description
739 - 741	2	Sand, coarse; moderately sorted; hematite; muscovite; brownish white; F-O-2
741 - 743	2	No recovery
743 - 744	1	Clay; light tannish white
744 - 747	3	Sand, medium; moderately sorted; muscovite; milky quartz; interbedded clay; medium tan; F-Y-1(746)
747 - 748	1	Sand, coarse, clayey; moderately sorted; muscovite; iron oxide; interbedded clay; medium brownish tan; F-Y-1
748 - 749	1	Clay, sandy; iron oxide; muscovite; milky quartz; brownish yellowish tan
749 - 750	1	Sand, coarse; moderately sorted; iron oxide; tannish yellowish white
750 - 756	6	Sand, medium silty; well sorted; muscovite; iron oxide; tannish brownish white to tannish white; F-O-1(751)
756 - 760	4	Sand, fine, silty, clayey; well sorted; muscovite; heavy minerals; light tannish white
760 - 761	1	Sand, medium; well sorted; clay balls; heavy minerals; muscovite; medium tan
761 - 762	1	Sand, medium, silty, clayey; well sorted; heavy minerals; muscovite
762 - 763	1	Clay, sandy; light pink tannish yellow
763 - 766	3	Sand, fine, silty, clayey; poorly sorted; muscovite; medium gray to grayish pinkish yellow
766 - 768	2	No recovery
768 - 771	3	Sand, coarse; moderately sorted; heavy minerals; muscovite; iron oxide; milky quartz; light tannish yellow
771 - 773	2	No recovery
773 - 776	3	Sand, medium; very poorly sorted; muscovite; heavy minerals; tannish gray to light gray yellowish red; F-O-1(773); F-Y-1(774,775)
776 - 778	2	No recovery

LITHOLOGIC LOG, P28(TA)

Depth (ft.)	Thickness (ft.)	Description
778 - 787	9	Sand, medium, clayey; poorly sorted; lignite; muscovite; light gray; F-G-1(778)
787 - 794	7	Sand, medium, silty, clayey; poorly sorted; muscovite; lignite; heavy minerals; light gray
794 - 796	2	Sand, fine; poorly sorted; heavy minerals; muscovite; lignite; light gray; F-Y-1
796 - 798	2	No recovery
798 - 800	2	Sand, fine, silty; well sorted; muscovite; very consolidated; medium gray
800 - 803	3	No recovery
803 - 804	1	Sand, medium, silty; well sorted; interbedded clay; muscovite; very consolidated; gray; F-B-1
804 - 808	4	No recovery
808 - 812	4	Clay, sandy; muscovite; very consolidated; medium gray; F-B-1 (809)
812 - 814	2	No recovery
814 - 819	5	Clay, sandy; muscovite; very consolidated; medium gray
819 - 830	11	Clay; medium reddish yellow to medium gray
830 - 834	4	Clay, silt; muscovite; very consolidated; grayish reddish yellow
834 - 835	1	Clay, sandy; medium gray
835 - 836	1	Clay, silty; medium gray
836 - 838	2	Sand, medium, silty; poorly sorted; muscovite; very consolidated; medium gray
838 - 840	2	Clay, sandy; very consolidated; feldspars; medium gray
840 - 842	2	Sand, medium, clayey; poorly sorted; feldspars; medium gray

APPENDIX F

LITHOLOGIC LOG FOR P-29TA

1. MATERIAL

2. TYPE

3. LOCATION

4. DATE

5. TIME

6. NAME

7. GRADE

LEGEND

F - fluorescence

B - blue

Y - yellow

O - orange

R - red

G - green

() - interval that displays fluorescence, in feet

NOTE: The number of grains which fluoresced in a 3" by 3" tray were counted and catagorized as follows:

- 1) less than three grains
- 2) three to ten grains
- 3) more than ten grains

EXAMPLE: F-0-3 (32-37)
fluorescence; orange; greater than ten grains;
from thirty two to thirty seven feet.

LITHOLOGIC LOG, P-29 TA

<u>Depth (ft.)</u>	<u>Thickness (ft.)</u>	<u>Description</u>
0 - 1	1	Sand, medium, silty; poorly sorted; dark reddish brown; F-B-2
1 - 2	1	Sand, medium, clayey; dark red; F-B-2
2 - 12	10	Clay, sandy; dark red
12 - 15	3	Sand, medium, clayey; poorly sorted; dark red
15 - 16	1	No recovery
16 - 18	2	Sand, medium, clayey
18 - 20	2	Sand, medium, clayey; very poorly sorted; heavy minerals; orangish red
20 - 21	1	No recovery
21 - 24	3	Sand, medium, clayey; poorly sorted; feldspar; kaolin; orangish red to orangish tan; F-G-1(22)
24 - 26	2	Sand, medium; poorly sorted; heavy minerals; orange to orangish red; F-G-1(25)
26 - 30	4	Sand, medium, silty, clayey; poorly sorted; heavy minerals; kaolin; feldspar; yellow orangish gray to tannish yellow
30 - 38	8	Sand, medium, silty; moderate to well sorted; heavy minerals; muscovite; yellowish brown; F-Y-1(33)
38 - 40	2	Sand, medium; well sorted; dark tan yellowish brown; F-O-1(38)
40 - 41	1	No recovery
41 - 50	9	Sand, medium, silty; well sorted; muscovite; heavy minerals; yellowish tan; F-O-1(45)
50 - 51	1	Sand, medium, silty, clayey; moderately sorted; heavy minerals; kaolin
51 - 52	1	Sand, medium, clayey; moderately sorted; heavy minerals; kaolin; lignite; yellow tannish brown; F-Y-2
52 - 55	3	Sand, medium, silty; poorly sorted; lignite; yellowish tan; F-Y-2(52-53)
55 - 56	1	No recovery

LITHOLOGIC LOG, P-29(TA)

Depth (ft.)	Thickness (ft.)	Description
56 - 58	2	Sand, medium, silty; moderately sorted; interbedded clay; muscovite; lignite; yellowish tan; F-0-1
58 - 60	2	Sand, medium; moderately sorted; muscovite; yellowish tan; F-0-2
60 - 61	1	Sand, medium, silty; moderately sorted; interbedded clay; yellowish tannish orange
61 - 63	4	Sand, coarse; well sorted; lignite; yellow tannish orange; F-0-1(61,63); F-0-2(64)
63 - 66	1	Sand, coarse, silty; well sorted; lignite; yellowish orange; F-0-2
66 - 68	2	Sand, medium, silty, clayey; well sorted; lignite; yellow orangish brown
68 - 74	6	Silt, sandy; muscovite; yellowish orange to gray yellowish tan; F-C-1(69); F-0-1(71,73)
74 - 76	2	No recovery
76 - 78	2	Clay, silty; heavy minerals; muscovite; yellow brownish red; F-0-2(76); F-Y-3(77)
78 - 79	1	Sand, medium, silty, clayey; poorly sorted; muscovite; orange reddish brown; F-B-1
79 - 81	2	Sand, medium, silty; moderately sorted; heavy minerals; orange grayish yellow; F-Y-1(79)
81 - 82	1	Silt, clayey; well sorted; heavy minerals; yellowish orange
82 - 86	4	Sand, fine, silty; well sorted; heavy minerals; muscovite; yellowish orange; F-0-1(83); F-B-1(85)
86 - 89	3	Sand, fine, silty, clayey; well sorted; interbedded clay; heavy minerals; muscovite; gray yellowish brown
89 - 91	2	No recovery
91 - 100	9	Sand, fine, silty; well sorted; heavy minerals; iron nodules; grayish brown; F-Y-3(91,94-95); F-Y-2(92-93)
100 - 102	2	Silt, clayey; muscovite; limonite nodules; grayish tan

LITHOLOGIC LOG, P29(TA)

Depth (ft.)	Thickness (ft.)	Description
102 - 103	1	Silt, clayey; muscovite; limonite nodules; grayish tan
103 - 104	1	Silt; interbedded clay; limonite nodules; yellowish gray
104 - 105	1	Silt, sandy, clayey; grayish yellow; F-Y-2
105 - 106	1	No recovery
106 - 107	1	Sand, medium, silty; well sorted; heavy minerals; limonite nodules; grayish tan
107 - 110	3	Sand, fine, silty, clayey; well sorted; muscovite; grayish tan; F-Y-3(109)
110 - 112	2	Silt, sandy; interbedded clay; heavy minerals; muscovite; limonite nodules; yellowish tan
112 - 121	9	Sand, medium, silty; well sorted; heavy minerals; limonite nodules; grayish brown to dark orange; F-Y-2(112); F-Y-1 (113, 116-119); F-O-2(116-117); F-O-3(120)
121 - 123	2	Sand, medium; well sorted; heavy minerals; rutillated; limonite; grayish tan; F-O-3
123 - 151	18	Sand, fine, silty; well sorted; heavy minerals; limonite; muscovite; iron oxide; grayish tan to tannish orange; F-O-3 (123-124, 136-137); F-O-2(125); F-O-1(128-131, 133, 135, 139, 141-143); F-Y-2(144-145)
151 - 154	3	Sand, medium; well sorted; iron oxide; tannish brown; F-O-3(151)
154 - 156	2	No recovery
156 - 159	3	Sand, medium; well sorted; gray quartz; heavy minerals; pinkish tan; F-O-1(157)
159 - 160	1	Sand, medium, silty; well sorted; heavy minerals; iron oxide; pinkish tan
160 - 164	4	Sand, medium; well sorted; heavy minerals; hematite; red orangish yellow to pink tannish brown; F-O-1(162-163)
164 - 165	1	Sand, very fine, silty; well sorted; muscovite; limonite; grayish tan

LITHOLOGIC LOG, P29(TA)

<u>Depth</u> <u>(ft.)</u>	<u>Thickness</u> <u>(ft.)</u>	<u>Description</u>
165 - 166	1	No recovery
166 - 168	2	Sand, medium; well sorted; tannish gray; F-0-1
168 - 171	3	No recovery
171 - 172	1	Sand, medium; well sorted; grayish tan
172 - 174	2	Sand, medium, silty; well sorted; tan to yellowish tan
174 - 175	1	Sand, medium; well sorted; iron oxide; tannish orange; F-0-1
175 - 178	3	No recovery
178 - 180	2	Sand, medium, silty; well sorted; limonite; tannish brown; F-0-1
180 - 181	1	No recovery
181 - 182	1	Sand, medium, silty; well sorted; interbedded clay; heavy minerals; gray quartz; grayish tan; F-0-1
182 - 183	1	Sand, medium; well sorted; heavy minerals; gray quartz; grayish tan; F-0-1
183 - 185	2	No recovery
185 - 187	2	Sand, medium; moderately sorted; heavy minerals; iron oxide; tan brownish purple
187 - 188	1	No recovery
188 - 190	2	Sand, medium, silty, clayey; poorly sorted; tan whitish orange
190 - 191	1	No recovery
191 - 192	1	Clay; mottled sand; heavy minerals; iron oxide; tannish brown
192 - 194	2	Clay, sandy; interbedded clay; heavy minerals; hematite; tannish brown
194 - 195	1	Sand, medium, clayey; poorly sorted; muscovite; limonite; brown grayish tan; F-0-2
195 - 196	1	Silt, sandy, clayey; interbedded clay; muscovite; limonite; purplish tan; F-0-2

LITHOLOGIC LOG, P-29(TA)

Depth (ft.)	Thickness (ft.)	Description
196 - 198	2	Silt; interbedded clay; muscovite; iron oxide; purple tannish gray to brownish tan; F-G-1(197)
198 - 200	2	Silt, sandy; interbedded clay; heavy minerals; muscovite; iron oxide; F-0-1
200 - 201	1	Sand, medium, clayey; poorly sorted; interbedded clay; heavy minerals; iron oxide; tan; F-0-1
201 - 202	1	Silt, clayey; interbedded clay; heavy minerals; muscovite; iron oxide; tan grayish brown; F-0-1
202 - 203	1	Sand, medium, silty; poorly sorted; interbedded clay; heavy minerals; muscovite; purple grayish tan; F-Y-1
203 - 206	3	Sand, medium; poorly sorted; tan; F-Y-1(203)
206 - 207	1	No recovery
207 - 208	1	Sand, fine; very poorly sorted; iron nodules; tan; F-0-2
208 - 209	1	Sand, fine, silty; very poorly sorted; tan; F-0-2
209 - 210	1	Clay, silty, sandy; interbedded clay; muscovite; purple grayish tan; F-0-2
210 - 214	4	Sand, medium; poorly sorted; heavy minerals; muscovite; smoky quartz; limonite; purplish gray to brown orangish tan; F-0-1 (210-211); F-G-1(213)
214 - 215	1	No recovery
215 - 216	1	Sand, medium, clayey; poorly sorted; interbedded clay; muscovite; iron oxide; tannish gray
216 - 217	1	No recovery
217 - 218	1	Clay, sandy; interbedded clay; mottled sand; muscovite; light gray
218 - 219	1	Clay; interbedded clay; muscovite; dark gray
219 - 221	2	No recovery
221 - 222	1	Clay, sandy; muscovite; tannish gray
222 - 227	5	Clay; muscovite; light gray; F-G-1(222-223)

LITHOLOGIC LOG, P29(TA)

<u>Depth</u> <u>(ft.)</u>	<u>Thickness</u> <u>(ft.)</u>	<u>Description</u>
227 - 232	5	Clay, silty; heavy minerals; gypsum; muscovite; kaolin; light gray
232 - 236	4	Silt, clayey; gypsum; muscovite; kaolin; light gray; F-B-1 (235)
236 - 240	4	Sand, medium to coarse; moderately sorted; muscovite; heavy minerals; feldspar; kaolin; iron oxide; light grayish tan; F-Y-1(236-237,239)
240 - 241	1	No recovery
241 - 242	1	Silt, sandy; heavy minerals; muscovite; light gray; F-O-2
242 - 245	3	Sand, medium, silty; poorly sorted; heavy minerals; gypsum; muscovite; kaolin; iron oxide; light tan; F-O-2(242-243); F-Y-2(244)
245 - 246	1	Silt, clayey, sandy; heavy minerals; muscovite; feldspar; iron oxide; light tan; F-O-1
246 - 249	3	Sand, coarse; silty, clayey; poorly sorted; interbedded clay; heavy minerals; muscovite; iron oxide; tannish gray; F-O-1 (246); F-Y-3(247-248)
249 - 251	2	No recovery
251 - 252	1	Sand, fine, silty, clayey; well sorted; heavy minerals; gypsum; muscovite; feldspar; iron oxide; tannish white
252 - 254	2	Sand, medium; moderately sorted; muscovite; kaolin; iron oxide; tannish white; F-O-1
254 - 262	8	Sand, medium, silty; well sorted; heavy minerals; muscovite; feldspar; iron oxide; tannish brown; F-Y-2(255-256, 259-260)
262 - 264	2	Silt, sandy, clayey; limonite; light brownish white
264 - 266	2	Clay, sandy; heavy minerals; muscovite; iron oxide; light grayish brown
266 - 267	1	Sand, medium, clayey; well sorted; heavy minerals; muscovite; iron oxide; light grayish brown
267 - 269	2	Sand, medium, silty, clayey; moderately sorted; heavy minerals; muscovite; iron oxide; light grayish brown

LITHOLOGIC LOG, P29(TA)

Depth (ft.)	Thickness (ft.)	Description
269 - 270	1	Silty, sandy; heavy minerals; muscovite; iron oxide; light grayish brown
270 - 271	1	Sand, medium, silty; poorly sorted; heavy minerals; muscovite; kaolin; iron oxide; light grayish brown
271 - 278	7	Sand, medium; moderately sorted; heavy minerals; muscovite; iron oxide; light grayish tan; F-O-1(271, 277); F-Y-1(275)
278 - 279	1	Sand, medium, silty; moderately sorted; heavy minerals; muscovite; iron oxide
279 - 281	2	No recovery
281 - 284	3	Sand, coarse; moderately sorted; heavy minerals; muscovite; limonite; dark brown
284 - 287	3	Sand, medium, silty; poor to well sorted; heavy minerals; muscovite; iron oxide; brownish gray
287 - 290	3	Clay; muscovite; medium gray; F-B-1(287-288)
290 - 291	1	No recovery
291 - 293	2	Clay; muscovite; medium gray; F-B-1(291)
293 - 296	3	No recovery
296 - 297	1	Clay; muscovite; medium gray; F-B-1
297 - 298	1	Clay, silty; muscovite; medium gray
298 - 299	1	No recovery
299 - 300	1	Silt, clayey; heavy minerals; muscovite; gray brownish purple; F-B-1
300 - 304	4	Sand, medium to fine, silty; moderately sorted; heavy minerals; muscovite; feldspar; limonite; grayish tan
304 - 306	2	No recovery
306 - 308	2	Sand, medium; poorly sorted; interbedded clay; muscovite; iron oxide; tannish orange to light grayish brown
308 - 309	1	Sand, medium, silty; poorly sorted; muscovite; feldspar; iron oxide; tannish orange

LITHOLOGIC LOG, P29(TA)

Depth (ft.)	Thickness (ft.)	Description
309 - 312	3	Sand, medium to coarse; moderately sorted; muscovite; kaolin; limonite; tan to brownish gray; F-0-1(309)
312 - 315	3	Sand, very coarse, clayey; well sorted; interbedded clay; clay balls; sulfides; heavy minerals; kaolin; limonite; tannish gray; F-B-1(312,314); F-0-2 (313)
315 - 316	1	No recovery
316 - 317	1	Sand, very coarse, clayey; moderately sorted; interbedded clay; muscovite; kaolin; iron oxide; tannish gray; F-0-1
317 - 320	3	Sand, fine, silty, clayey; poorly sorted; interbedded clay; heavy minerals; muscovite; kaolin; iron oxide; grayish tan; F-B-1(317)
320 - 322	2	Sand, medium, silty; poorly sorted; heavy minerals; muscovite; kaolin; feldspar; iron oxide; tannish brown
322 - 323	1	Clay, sandy; muscovite; kaolin; feldspar; iron oxide; tannish gray
323 - 324	1	No recovery
324 - 325	1	Clay; muscovite; medium gray
325 - 326	1	No recovery
326 - 328	2	Clay; muscovite; light gray; F-B-1(326)
328 - 329	1	No recovery
329 - 330	1	Clay; muscovite; medium gray; F-B-1
330 - 332	2	No recovery
332 - 333	1	Sand, coarse, silty, clayey; poorly sorted; heavy minerals; muscovite; kaolin; limonite; white tannish brown; F-0-2
333 - 334	1	Sand, coarse; poorly sorted; heavy minerals; muscovite; kaolin; feldspar; limonite; whitish tan; F-0-3
334 - 335	1	Sand, medium, silty, clayey; poorly sorted; heavy minerals; muscovite; kaolin; smoky quartz; iron oxide; whitish tan
335 - 337	2	Sand, medium, silty; poorly sorted; heavy minerals; muscovite; kaolin; smoky quartz; limonite; grayish tan; F-0-1(335)

LITHOLOGIC LOG, P29(TA)

Depth (ft.)	Thickness (ft.)	Description
337 - 338	1	Sand, medium, silty, clayey; poorly sorted; gypsum; sulfides; muscovite; feldspar; kaolin; tan grayish purple
338 - 339	1	Sand, medium, silty; poorly sorted; gypsum; sulfides; muscovite; feldspar; kaolin; iron oxide; light gray pinkish brown; F-Y-1
339 - 341	2	No recovery
341 - 344	3	Sand, coarse; moderately sorted; heavy minerals; sulfides; muscovite; feldspar; light grayish purple; F-Y-1(342)
344 - 345	1	Sand, coarse, silty; clayey; moderately sorted; clay balls; gypsum; sulfides; heavy minerals; muscovite; kaolin; limonite; gray
345 - 346	1	Sand, medium, silty; poorly sorted; sulfides; muscovite; kaolin; light gray
346 - 347	1	No recovery
347 - 356	9	Clay; muscovite; light gray to reddish gray; F-B-1(347, 353)
356 - 357	1	No recovery
357 - 370	13	Clay; muscovite; grayish pink; F-B-1(358, 361, 364)
370 - 371	1	No recovery
371 - 373	2	Clay; muscovite; light gray
373 - 376	3	Clay; silty; heavy minerals; sulfides; gypsum; muscovite; light grayish tan
376 - 377	1	Silt; gypsum; heavy minerals; muscovite; kaolin; light gray
377 - 378	1	Silt, sandy; gypsum; heavy minerals; muscovite; kaolin; light grayish blue
378 - 379	1	Sand, medium, silty, clayey; poorly sorted; muscovite; kaolin; iron oxide; light gray
379 - 386	7	Sand, coarse, silty; poorly sorted; heavy minerals; muscovite; kaolin; light gray to light grayish tan; F-G-1(382)
386 - 389	3	Sand, coarse; moderately sorted; heavy minerals; muscovite; kaolin; F-Y-1(387)

LITHOLOGIC LOG, P29(TA)

Depth (ft.)	Thickness (ft.)	Description
389 - 390	1	Sand, coarse; moderately sorted; heavy minerals: muscovite; kaolin; F-Y-1(387)
390 - 391	1	No recovery
391 - 397	6	Sand, fine, silty; moderately sorted; gypsum; heavy minerals; muscovite; kaolin; light grayish tan to light gray; F-B-1(393, 395)
397 - 399	2	Sand, fine, silty, clayey; moderately sorted; sulfides; muscovite; kaolin; light gray
399 - 400	1	No recovery
400 - 405	5	Sand, coarse, silty; poorly sorted; heavy minerals; gypsum; muscovite; kaolin; light grayish tan; F-G-1(401)
405 - 406	1	Sand, coarse; moderately sorted; heavy minerals; muscovite; kaolin; feldspar; light grayish tan
406 - 409	3	Sand, medium, silty; poorly sorted; heavy minerals; gypsum; muscovite; kaolin; feldspar; light gray; F-B-1(408)
409 - 410	1	Sand, coarse; moderately sorted; heavy minerals; muscovite; kaolin; feldspar; medium grayish tan
410 - 411	1	Sand, coarse, clayey; moderately sorted; clay balls; interbedded clay; heavy minerals; muscovite; kaolin; medium gray
411 - 414	3	Sand, coarse; well sorted; interbedded clay; heavy minerals; muscovite; kaolin; light tan; F-B-1(411)
414 - 416	2	No recovery
416 - 417	1	Sand, medium, silty; well sorted; heavy minerals; muscovite; limonite; light tannish brown; F-O-2
417 - 419	2	Sand, coarse; poorly sorted; clay balls; heavy minerals; muscovite; iron oxide; light tan; F-O-1(418)
419 - 420	1	Sand, coarse, silty; moderately sorted; light tannish brown
420 - 422	2	No recovery
422 - 426	4	Sand, coarse; well sorted; interbedded clay; heavy minerals; muscovite; kaolin; light tan

LITHOLOGIC LOG, P29(TA)

<u>Depth</u> <u>(ft.)</u>	<u>Thickness</u> <u>(ft.)</u>	<u>Description</u>
426 - 427	1	No recovery
427 - 431	4	Sand, coarse; moderately sorted; heavy minerals; muscovite; kaolin; tannish purple; F-Y-2(427); F-G-1(429)
431 - 432	1	No recovery
432 - 433	1	Sand, coarse; well sorted; heavy minerals; muscovite; lignite; light tan; F-Y-1
433 - 434	1	Sand, medium, clayey; poorly sorted; heavy minerals; muscovite; lignite; light tan blackish orange
434 - 435	1	Sand, fine, silty; very poorly sorted; heavy minerals; muscovite; iron oxide; lignite; brown orangish pink
435 - 437	2	No recovery
437 - 438	1	Sand, fine, silty, clayey; very poorly sorted; heavy minerals; muscovite; iron oxide; brownish tan
438 - 442	4	Sand, coarse; moderately sorted; heavy minerals; muscovite; medium tan; F-Y-1(439)
442 - 443	1	No recovery
443 - 444	1	Sand, coarse, clayey; poorly sorted; heavy minerals; muscovite; iron oxide; light brownish tan
444 - 445	1	Sand, coarse; poorly sorted; muscovite; iron oxide; light brown
445 - 449	4	Sand, medium, silty; poorly sorted; heavy minerals; muscovite; iron oxide; light brown yellowish tan; F-O-1(448)
449 - 450	1	Sand, coarse; moderately sorted; muscovite; kaolin; hematite; light brown; F-O-1
450 - 458	8	No recovery
458 - 460	2	Sand, medium, silty; moderately sorted; muscovite; iron oxide; purple yellowish brown to orangish purple
460 - 461	1	Sand, coarse, silty, clayey; poorly sorted; interbedded clay; muscovite; hematite; light orange tannish brown
461 - 464	3	Sand, coarse; moderately sorted; sulfides; muscovite; hematite; heavy minerals; light tan orangish brown; F-O-1(461)

LITHOLOGIC LOG, F29(TA)

Depth (ft.)	Thickness (ft.)	Description
464 - 466	2	Sand, medium, silty; poorly sorted; sulfides; heavy minerals; muscovite; hematite; medium tannish orange
466 - 468	2	Sand, coarse, silty, clayey; poorly sorted; heavy minerals; muscovite; iron oxide; tannish yellow
468 - 472	4	Sand, coarse; moderately sorted; muscovite; heavy minerals; iron oxide; F-B-1(469)
472 - 473	1	Clay, sandy; muscovite; iron oxide; dark tannish brown
473 - 479	6	Sand, medium, silty; moderately sorted; muscovite; iron oxide; light tannish orange; F-G-1(475)
479 - 482	3	Sand, coarse; poorly sorted; interbedded clay; muscovite; iron oxide; medium brown
482 - 483	1	No recovery
483 - 486	3	Sand, medium; well sorted; muscovite; feldspar; iron oxide; dark orangish brown; F-O-1(483-484)
486 - 488	2	No recovery
488 - 490	2	Sand, fine, silty; well sorted; interbedded clay; heavy minerals; muscovite; light brown tannish yellow; F-O-1
490 - 491	1	Sand, fine; well sorted; heavy minerals; muscovite; hematite; light brownish tan
491 - 493	2	Sand, fine, silty; poorly sorted; heavy minerals; muscovite; iron oxide; dark orangish tan
493 - 494	1	Silt, sandy; heavy minerals; muscovite; iron oxide; yellowish gray
494 - 495	1	Sand, coarse; poorly sorted; interbedded clay; muscovite; tannish gray
495 - 496	1	Sand, coarse, silty; clayey; poorly sorted; interbedded clay; heavy minerals; muscovite; limonite; brownish gray
496 - 511	15	Sand, medium, silty; poorly sorted; heavy minerals; muscovite; feldspar; kaolin; iron oxide; tannish gray to yellowish tan; F-O-1(497); F-G-1(501); F-B-1(505,507); F-Y-1(510)
511 - 513	2	No recovery

LITHOLOGIC LOG, P29(TA)

Depth (ft.)	Thickness (ft.)	Description
513 - 517	4	Sand, coarse, silty; very poorly sorted; heavy minerals; kaolin; iron oxide; purple tannish gray
517 - 518	1	Silt, sandy; muscovite; kaolin; iron oxide; tannish gray; F-0-1
518 - 522	4	Sand, coarse, silty; poorly sorted; heavy minerals; muscovite; kaolin; iron oxide; light gray tannish pink; F-B-1(518-519)
522 - 523	1	Sand, coarse; poorly sorted; heavy minerals; muscovite; kaolin; iron oxide; light gray
523 - 524	1	Sand, coarse, clayey; poorly sorted; heavy minerals; muscovite; kaolin; smoky quartz; iron oxide; tannish gray; F-B-1
524 - 529	5	Sand, coarse, silty; poorly sorted; heavy minerals; muscovite; kaolin; iron oxide; light grayish tan; F-B-1(524-525)
529 - 532	3	Sand, coarse; poorly sorted; muscovite; kaolin; grayish tan
532 - 535	3	Sand, coarse, clayey; poorly sorted; muscovite; kaolin; light gray
535 - 536	1	Clay, sandy; poorly sorted; light gray whitish brown
536 - 538	2	No recovery
538 - 540	2	Sand, coarse, silty, clayey; poorly sorted; heavy minerals; muscovite; kaolin; iron oxide; purple grayish brown; F-B-1(539)
540 - 542	2	Sand, fine, silty; moderately sorted; heavy minerals; muscovite; kaolin; iron oxide; tannish gray; F-B-1(541)
542 - 543	1	Silt, sandy; gypsum; muscovite; kaolin; iron oxide
543 - 544	1	Silt, sandy, clayey; well sorted; muscovite; kaolin; iron oxide; tannish gray
544 - 545	1	Sand, very coarse, clayey; poorly sorted; muscovite; kaolin; iron oxide; tannish gray; F-B-1
545 - 546	1	Silt; muscovite; kaolin; iron oxide; light gray
546 - 556	10	Sand, medium; silty; heavy minerals; muscovite; kaolin; iron oxide; light gray
556 - 558	2	Sand, coarse; poorly sorted; muscovite; kaolin; iron oxide; purple grayish brown

LITHOLOGIC LOG, P29(TA)

Depth (ft.)	Thickness (ft.)	Description
558 - 560	2	Sand, fine, silty; muscovite; kaolin; iron oxide; purple grayish brown
560 - 561	1	Silt, sandy; heavy minerals; muscovite; kaolin; iron oxide; white
561 - 562	1	Clay; muscovite; kaolin; iron oxide; white
562 - 563	1	No recovery
563 - 564	1	Sand, coarse, silty; moderately sorted; heavy minerals; muscovite; kaolin; iron oxide; whitish pink
564 - 565	1	Sand, coarse, silty, clayey; moderately sorted; interbedded clay; heavy minerals; muscovite; kaolin; iron oxide; white F-G-1
565 - 566	1	Sand, coarse; poorly sorted; heavy minerals; muscovite; kaolin; brownish white
566 - 568	2	Sand, coarse, silty, clayey; poorly sorted; interbedded clay; heavy minerals; muscovite; kaolin; iron oxide; light gray; F-O-1
568 - 573	5	No recovery
573 - 575	2	Sand, coarse; moderately sorted; muscovite; kaolin; iron oxide; medium tan pinkish orange
575 - 576	1	Sand, coarse, silty, clayey; moderately sorted; interbedded clay; heavy minerals; muscovite; kaolin; light gray purplish pink
576 - 577	1	Silt; heavy minerals; muscovite; kaolin; whitish pink
577 - 584	7	Sand, medium, silty; poorly sorted; heavy minerals; muscovite; kaolin; light gray to light grayish pink; F-B-1(578)
584 - 586	2	Sand, coarse; poorly sorted; heavy minerals; muscovite; kaolin; light gray purplish pink
586 - 588	2	No recovery
588 - 592	4	Clay; muscovite; dark gray
592 - 595	3	Clay, silty; muscovite; medium gray
595 - 596	1	Clay; muscovite; medium gray

LITHOLOGIC Log, P29(TA)

<u>Depth</u> <u>(ft.)</u>	<u>Thickness</u> <u>(ft.)</u>	<u>Description</u>
596 - 600	4	Clay, sandy; muscovite; medium gray
600 - 602	2	Sand, coarse, clayey; poorly sorted; muscovite; kaolin; grayish pink; F-B-1
602 - 603	1	Clay, silty, sandy; muscovite; kaolin; light gray
603 - 604	1	Clay, sandy; muscovite; kaolin; blue
604 - 605	1	Clay; heavy minerals; muscovite; light brown
605 - 616	11	Sand, medium, silt; poorly sorted; muscovite; kaolin; hematite; tan orangish red
616 - 617	1	Sand, coarse; well sorted; interbedded clay; heavy minerals; muscovite; hematite; tan yellowish red
617 - 618	1	No recovery
618 - 622	4	Sand, coarse, clayey; poorly sorted; muscovite; kaolin; hematite; light grayish pink
622 - 626	4	Sand, medium, silty; poorly sorted; muscovite; kaolin; hematite; light grayish pink to purplish white; F-G-1(622)
626 - 628	2	Sand, medium; poorly sorted; muscovite; kaolin; pinkish gray
628 - 630	2	Sand, medium, silty; very poorly sorted; muscovite; limonite; red yellowish gray; F-O-2(628)
630 - 632	2	Sand, medium, clayey; poorly sorted; interbedded clay; muscovite; limonite; tannish white
632 - 633	1	No recovery
633 - 634	1	Sand, coarse; poorly sorted; muscovite; tannish gray
634 - 636	2	No recovery
636 - 637	1	Sand, medium, silty; poorly sorted; muscovite; tan grayish brown; F-B-1
637 - 638	1	No recovery
638 - 639	1	Sand, coarse, clayey; poorly sorted; clay balls; interbedded clay; muscovite; tannish yellow
639 - 643	4	No recovery

LITHOLOGIC LOG, P29(TA)

Depth (ft.)	Thickness (ft.)	Description
643 - 646	3	Sand, coarse; poorly sorted; muscovite; limonite; tan
646 - 648	2	No recovery
648 - 652	4	Sand, medium; poorly sorted; heavy minerals; muscovite; Fe oxide; yellow gray to tannish gray
652 - 656	4	Sand, medium, silty; medium to poorly sorted; heavy minerals; interbedded clay; clay balls; muscovite; smoky quartz; hematite; tannish gray to yellowish tan to gray purplish tan
656 - 660	4	Sand, coarse; poorly to very poorly sorted; heavy minerals; muscovite, milky quartz, hematite, limonite; pinkish purplish red to purplish pinkish red to yellowish grayish pink to pinkish yellowish brown
660 - 667	7	Sand, medium to coarse, silty; very poorly to poorly to well sorted to medium sorting; interbedded clay; heavy minerals; muscovite; milky quartz; limonite
667 - 668	1	No recovery
668 - 669	1	Sand, coarse, silty; poorly sorted; heavy minerals; muscovite, milky quartz, Fe oxide, tan
669 - 670	1	Sand, coarse, silty, clayey; poorly sorted; muscovite; brownish tannish orange
670 - 671	1	Sand, coarse, silty; medium sorting; interbedded clay; heavy minerals; muscovite; grayish purple
671 - 672	1	Sand, coarse, clayey; poorly sorted; interbedded clay; clay balls; muscovite; purplish gray
672 - 676	4	Sand, coarse; medium to poorly sorted; interbedded clay, clay balls; heavy minerals; muscovite; milky quartz; kaolin; hematite; purplish gray to tan to grayish purplish red.
676 - 677	1	Sand, coarse, silty; poorly sorted; interbedded clay; muscovite; kaolin; hematite; grayish tan
677 - 679	2	No recovery
679 - 680	1	Sand, coarse; poorly sorted; heavy minerals; muscovite; milky quartz; tannish yellow

LITHOLOGIC LOG, P29(TA)

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Depth (ft.)	Thickness (ft.)	Description
680 - 682	2	Sand, coarse to very coarse; medium sorting; heavy minerals; muscovite; kaolin; milky quartz; limonite; Fe oxide; tan to grayish tan
682 - 683	1	No recovery
683 - 684	1	Sand, granules; well sorted; heavy minerals; muscovite; kaolin; smoky quartz; limonite; whitish gray
684 - 688	4	No recovery
688 - 690	2	Sand, medium; poorly sorted; clay balls; muscovite; kaolin; milky quartz; hematite; grayish purple to grayish whitish pink
690 - 692	2	Clay, silty; well sorted; brownish tannish orange to tannish orange pink
692 - 693	1	No recovery
693 - 695	2	Sand, coarse; poorly sorted; interbedded clay; clay balls; milky quartz; hematite; whitish gray and gray
695 - 696	1	Sand, coarse; clay balls; heavy minerals; gray
696 - 697	1	Sand, medium, silty, clayey; poorly sorted; muscovite; Fe oxide; grayish brown
697 - 698	1	No recovery
698 - 700	2	Sand, coarse, silty; poorly sorted; interbedded clay, heavy minerals; muscovite; smoky quartz; Fe oxide
700 - 701	1	No recovery
701 - 702	1	Sand, coarse; poorly sorted; muscovite; milky quartz; grayish brown
702 - 704	2	Sand, coarse; medium to poorly sorted; heavy minerals; muscovite; gray to brownish gray
704 - 705	1	Sand, coarse; very poorly sorted; heavy minerals; muscovite; milky quartz; hematite; brownish gray
705 - 706	1	Sand, coarse, silty; very poorly sorted; heavy minerals; muscovite; milky quartz; whitish gray

LITHOLOGIC LOG, P29(TA)

<u>Depth</u> <u>(ft.)</u>	<u>Thickness</u> <u>(ft.)</u>	<u>Description</u>
706 - 708	2	Sand, medium; medium sorted; heavy minerals; muscovite; Fe oxide; grayish white to white
708 - 710	2	No recovery
710 - 712	2	Sand, coarse; very poorly sorted; heavy minerals; muscovite; milky quartz; gray to purplish gray
712 - 713	1	No recovery
713 - 716	3	Sand, coarse; poorly sorted; heavy minerals; muscovite; milky quartz; limonite nodules; Fe oxides; gray to pinkish gray to whitish gray
716 - 717	1	Sand, coarse, silty, clayey; poorly sorted; muscovite; milky quartz; Fe oxide; purplish gray
717 - 718	1	Sand, coarse, clayey; poorly sorted; muscovite; milky quartz; Fe oxide; white
718 - 720	2	Sand, coarse; poorly to very poorly sorted; heavy minerals; muscovite; milky quartz; limonite; grayish brown to grayish purple
720 - 721	1	Sand, coarse, silty, clayey; poorly sorted; interbedded clay; heavy minerals; muscovite; smoky quartz; hematite; tannish pinkish purple
721 - 723	2	Sand, coarse, clayey; poorly sorted; muscovite; smoky quartz; hematite; tannish pinkish purple
723 - 724	1	Sand, medium, silty, clayey; poorly sorted; muscovite; limonite nodules; tannish yellowish brown
724 - 728	4	Sand, medium to very coarse, clayey; poorly to medium sorted; heavy minerals; muscovite; tannish pinkish purple to grayish green
728 - 730	2	Sand, coarse, silty, clayey; poorly sorted; heavy minerals; muscovite; grayish green
730 - 732	2	Sand, coarse, clayey; poorly sorted; muscovite; gray
732 - 733	1	Clay, silty; muscovite; gray
733 - 734	1	Clay, sandy, medium; poorly sorted; heavy minerals; muscovite; gray

LITHOLOGIC LOG, P29(TA)

Depth (ft.)	Thickness (ft.)	Description
734 - 735	1	Clay, silty; muscovite; gray
735 - 736	1	Clay, sandy, medium; very poorly sorted; muscovite; gray
736 - 737	1	Clay, silty; heavy minerals; muscovite; gray
737 - 738	1	Silt, clayey; well sorted; muscovite; gray
738 - 742	4	Clay, sandy, coarse; medium to poorly sorted; heavy minerals; muscovite; gray
742 - 746	4	Sand, coarse, clayey; poorly to very poorly sorted; muscovite; gray
746 - 747	1	Clay, sandy, medium; poorly sorted; muscovite; gray
747 - 748	1	No recovery
748 - 749	1	Clay; muscovite; gray
749 - 757	8	Clay, sandy, coarse; medium to poorly sorted; muscovite; gray to grayish yellow brown to yellowish brownish gray to grayish yellow
757 - 762	5	Clay; muscovite; brown to grayish red to grayish yellow to brownish yellow to reddish gray
762 - 764	2	Clay, sandy, very coarse; well sorted; muscovite; grayish yellow red
764 - 768	4	No recovery
768 - 769	1	Sand, medium, silty; moderately sorted; heavy minerals; muscovite; light gray
769 - 772	3	Clay; muscovite; light gray reddish blue
772 - 774	2	Clay, sandy; muscovite; light grayish yellow
774 - 777	3	Sand, coarse, clayey; very poorly sorted; muscovite; heavy minerals; gypsum; grayish yellow
777 - 778	1	No recovery
778 - 783	5	Clay; muscovite; gray orangish red
783 - 784	1	Sand, coarse, clayey; well sorted; glauconite; muscovite; feldspar; very consolidated; dark green

LITHOLOGIC LOG, P29(TA)

<u>Depth</u> <u>(ft.)</u>	<u>Thickness</u> <u>(ft.)</u>	<u>Description</u>
784 - 788	4	Sand, coarse, silty; well sorted; glauconite; muscovite; feldspar; very consolidated; dark green
788 - 790	2	Sand, coarse, silty; moderately sorted; glauconite; muscovite; feldspar; very consolidated; medium green
790 - 792	2	Sand, coarse, silty; moderately sorted; medium green
792 - 798	6	Clay; interbedded sand; glauconite; heavy minerals; dark to medium green
798 - 802	4	Sand, medium to coarse, silty; well to poorly sorted; heavy minerals, glauconite; muscovite, milky quartz; medium to light green
802 - 803	1	No recovery
803 - 807	4	Sand, coarse, silty; poorly to very poorly sorted; glauconite; muscovite, milky quartz; light to medium green

APPENDIX G

LITHOLOGIC LOG FOR P-30TA

LEGEND

F - fluorescence
B - blue
Y - yellow
O - orange
R - red
G - green
() - interval that displays fluorescence, in feet

NOTE: The number of grains which fluoresced in a 3" by 3" tray were counted and catagorized as follows:

- 1) less than three grains
- 2) three to ten grains
- 3) more than ten grains

EXAMPLE: F-0-3 (32-37)
fluorescence; orange; greater than ten grains;
from thirty two to thirty seven feet.

LITHOLOGIC LOG, P-30(TA)

Depth (ft.)	Thickness (ft.)	Description
0 - 1	1	Sand, fine, silty; poorly sorted; light brown; F-B-3
1 - 4	3	Clay, sandy; poorly sorted; heavy minerals; reddish brown
4 - 5	1	Clay, silt; well sorted; muscovite; feldspar; reddish brown
5 - 8	3	Clay, silty, sandy; poorly sorted; muscovite, kaolin; orangish brown to reddish brown; F-B-1(6)
8 - 9	1	Clay, sandy; very poorly sorted; interbedded clay; heavy minerals, muscovite, kaolin; reddish brown
9 - 10	1	Clay, silty, sandy; very poorly sorted; interbedded clay; heavy minerals, muscovite, kaolin; reddish brown
10 - 12	2	Clay, sandy; very poorly sorted; muscovite, kaolin; orangish brown; F-B-2(11)
12 - 13	1	Clay, silty; well sorted; muscovite; grayish purple
13 - 14	1	Clay, sandy; moderately sorted; heavy minerals, muscovite, feldspar, kaolin; grayish purple
14 - 15	1	Clay, silty, sandy; poorly sorted; heavy minerals, muscovite, kaolin; orangish red
15 - 18	3	Clay, sandy; poorly sorted; heavy minerals, muscovite, kaolin; light orange grayish yellow to light orange reddish purple
18 - 21	3	Clay, silty, sandy; very poorly sorted; heavy minerals, kaolin; light orangish brown to light orangish white

LITHOLOGIC LOG, P30(TA).

<u>Depth</u> <u>(ft)</u>	<u>Thickness</u> <u>(ft)</u>	<u>Description</u>
21 - 22	1	Silt, sandy, clayey; very poorly sorted; heavy minerals, muscovite, kaolin; light orangish brown
22 - 26	4	Clay, silty; well sorted; muscovite; brown purplish white to purple; F-0-1(22)
26 - 27	1	No recovery
27 - 30	3	Sand, fine, silty; well sorted; heavy minerals, muscovite; purplish brown
30 - 32	2	Silt, sandy; well sorted; heavy minerals, muscovite; light purplish brown
32 - 33	1	Sand, fine, silty; well sorted; muscovite; light gray brownish purple
33 - 34	1	Silt, sandy; well sorted; muscovite; light yellow reddish gray
34 - 36	2	Silt; well sorted; muscovite; light yellowish purple to light purplish gray
36 - 37	1	No recovery
37 - 39	2	Silt, sandy, silty; poorly sorted; muscovite; light gray orangish brown
39 - 40	1	Silt, clayey; well sorted; heavy minerals, muscovite, kaolin; dark yellow whitish red; F-0-1(38)
40 - 42	2	Clay, silty, sandy; well sorted; muscovite; dark yellow whitish tan
42 - 44	2	Clay, sandy, silty; moderately sorted; heavy minerals; dark yellow whitish pink

LITHOLOGIC LOG, P30(TA).

Depth (ft)	Thickness (ft)	Description
44 - 60	16	Sand, medium, silty; moderate to well sorted; heavy minerals; dark yellow whitish orange
60 - 62	2	Sand, medium, silty, clayey; well sorted; heavy minerals, kaolin; dark yellowish brown
62 - 63	1	Sand, fine, silty; well sorted; muscovite; dark yellowish brown
63 - 65	2	Sand, coarse, silty, clayey; well sorted; dark yellow whitish brown to dark yellowish purple
65 - 69	4	Sand, medium, silty; poor to very poorly sorted; heavy minerals; dark yellow brownish orange to dark yellowish brown
69 - 70	1	Sand, medium, silty, clayey; poorly sorted; heavy minerals; dark yellowish brown
70 - 79	9	Sand, medium to fine, silty; well sorted; heavy minerals, muscovite; dark yellowish brown to brownish orange; F-0-1(78)
79 - 81	2	Sand, medium, silty, clayey; moderately sorted; interbedded clay; heavy minerals, muscovite, kaolin, lignite; brownish orange to brown
81 - 84	3	Sand, medium, silty; well to poorly sorted; muscovite; brownish orange
84 - 85	1	Clay, sandy; poorly sorted; light yellowish white
85 - 86	1	Sand, medium, silty, clayey; moderately sorted; interbedded clay; light yellow orangish brown
86 - 102	16	Sand, medium, silty; moderately to well sorted; heavy minerals, muscovite, lignite; medium orangish brown to medium orange; F-0-1(91,95,99) F-0-2(96,101)

LITHOLOGIC LOG, P30(TA)

<u>Depth</u> (ft)	<u>Thickness</u> (ft)	<u>Description</u>
102 - 103	1	Sand, medium, silty, clayey; poorly sorted; heavy minerals, muscovite; brown; F-0-1
103 - 112	9	Clay, silty; well sorted; glauconite, heavy minerals, lignite; light greenish brown, yellowish brown to light brownish orange; F-0-2(103) F-0-1 (108)
112 - 114	2	Clay; well sorted; light gray
114 - 116	2	Sand, medium, silty, clayey; poor to moderately sorted; heavy minerals; orangish brown; F-0-1(114-115)
116 - 123	7	Sand, medium, silty; moderately to well sorted; heavy minerals; orangish brown; F-Y-1(116,119).F-Y-3 (118)
123 - 124	1	Sand, coarse, silty, clayey; well sorted; heavy minerals; orangish gray
124 - 125	1	Silt; well sorted; heavy minerals, muscovite; orangish gray; F-0-1
125 - 126	1	Clay, silty; well sorted; heavy minerals, muscovite; tannish orange; F-0-1
126 - 128	2	Silt, clayey; well sorted; heavy minerals; orangish gray
128 - 129	1	Sand, medium, silty, clayey; moderately sorted; orangish gray; F-Y-3
129 - 130	1	Sand, medium, silty; moderately sorted; brownish gray; F-Y-3
130 - 131	1	Sand, medium; moderately sorted; interbedded clay; iron nodules, heavy minerals; orangish gray; F-Y-3

LITHOLOGIC LOG, P30(TA)

Depth (ft)	Thickness (ft)	Description
131 - 132	1	Sand, medium, silty; moderately sorted; interbedded clay; heavy minerals, iron nodules; brownish gray; F-Y-3
132 - 135	3	Sand, coarse; well sorted; mottled sand; heavy minerals; light brownish white to light grayish brown
135 - 137	2	Clay, silty; well sorted; interbedded clay; light greenish brown to dark purple grayish brown; F-O-1(136)
137 - 138	1	Clay, sandy; well sorted; muscovite, iron nodules; grayish brown
138 - 140	2	Clay, silty; well sorted; muscovite; purple grayish brown to purplish gray
140 - 141	1	Clay; well sorted; heavy minerals, iron nodules; light gray
141 - 142	1	Clay, sandy; well sorted; heavy minerals; brownish gray; F-Y-2
142 - 144	2	Sand, fine, silty; well sorted; heavy minerals; light gray whitish orange to gray brownish orange; F-Y-2(142) F-Y-3 (143)
144 - 145	1	Sand, fine, silty, clayey; well sorted; heavy minerals, muscovite; light purplish brown
145 - 146	1	Sand, fine, silty; moderately sorted; heavy minerals, muscovite; yellowish brown; F-Y-1 (145)
146 - 147	1	No recovery
147 - 148	1	Sand, medium, silty; moderately sorted; yellow brownish orange
148 - 156	8	Sand, coarse; well to moderately sorted; heavy minerals; orangish brown to light orange; F-O-1(150-151)
156 - 157	1	No recovery
157 - 168	11	Sand, coarse; well sorted; heavy minerals; light orange to light reddish brown

LITHOLOGIC LOG, P30(TA).

Depth (ft)	Thickness (ft)	Description
168 - 170	2	Sand, very fine, silty; well sorted; yellow tannish red to orangish tannish red; F-0-1
170 - 171	1	Sand, medium; poorly sorted; light orangish brown; F-0-1
171 - 176	5	Sand, fine, silty; well sorted; interbedded clay; heavy minerals, muscovite; tannish brown to tannish orange; F-0-2 (171, 174-175) F-0-3 (172-173)
176 - 182	6	Sand, coarse; well sorted; heavy minerals; purplish tan to orangish tan; F-0-1 (176-177, 179) F-0-2 (180-181)
182 - 194	12	Sand, medium, silty; well sorted; heavy minerals; lignite; yellowish tan to purple orangish brown; F-0-2 (182-185) F-0-3 (186-187, 192-193) F-0-1 (188-191)
194 - 196	2	Sand, medium; well sorted; heavy minerals; purplish tan to yellow orangish tan; F-0-1
196 - 213	17	Sand, medium, silty; well sorted; heavy minerals; yellow orangish tan to light orangish tan; F-0-1 (196-197, 212) F-0-2 (198, 201-202) F-0-3 (199-200, 203-206, 208-211)
213 - 215	2	Sand, medium; well sorted; heavy minerals; purple orangish tan; F-0-1
215 - 217	2	Clay; well sorted; mottled silt; heavy minerals, muscovite; gray brownish purple to brownish purple; F-0-1 (216)
217 - 219	2	Clay, sandy, silty; moderately sorted; interbedded clay; heavy minerals, muscovite; purple brownish tan; F-0-1
219 - 220	1	Sand, coarse, clayey; moderately sorted; interbedded clay; heavy minerals; purple brownish tan; F-0-1
220 - 225	5	Sand, coarse; moderately sorted; interbedded clay; heavy minerals; purple brownish tan to purplish brown; F-0-1 (220-221, 223)

LITHOLOGIC LOG, F30 (TA).

Depth (ft)	Thickness (ft)	Description
225 - 226	1	Sand, medium, silty; well sorted; interbedded clay; heavy minerals, muscovite, feldspar; purplish brown
226 - 230	4	Sand, coarse; well to moderately sorted; heavy minerals, muscovite, feldspar; purplish brown to purple yellowish tan; F-0-1 (226-227, 229)
230 - 231	1	Sand, coarse, silty; moderately sorted; interbedded clay; heavy minerals; purple yellowish tan; F-0-2
231 - 234	3	Sand, coarse; moderately sorted; heavy minerals, muscovite; light orangish brown; F-0-2
234 - 236	2	Sand, medium, silty; poorly sorted; clay balls; gypsum, heavy minerals, muscovite, iron nodules; light orangish tan; F-0-3
236 - 241	5	Sand, coarse to medium; well sorted; heavy minerals, muscovite, feldspar; light orangish gray to light brown; F-0-1 (236-237, 239)
241 - 242	1	No recovery
242 - 245	3	Sand, medium; poorly sorted; heavy minerals, gypsum, muscovite, iron nodules, feldspar; light brown; F-0-1 (244)
245 - 260	15	Sand, coarse to medium, silty; moderately sorted; heavy minerals, gypsum, muscovite, feldspar, kaolin; brownish orange, brown grayish purple, to brownish gray; F-0-2 (245, 259) F-0-1 (249, 258)
260 - 261	1	Sand, coarse; well sorted; heavy minerals gypsum, muscovite, feldspar, kaolin, brownish purple; F-0-2
261 - 265	4	Sand, medium, silty; well sorted; heavy minerals, gypsum, muscovite, feldspar, kaolin; brownish gray; F-0-2 (261) F-0-3 (264)

LITHOLOGIC LOG, P30(TA).

Depth (ft)	Thickness (ft)	Description
265 - 266	1	Sand, medium; well sorted; gypsum, heavy minerals, muscovite; iron nodules, feldspar, rutilated; light gray; F-0-3
266 - 267	1	Sand, medium, silty; well sorted; gypsum, heavy minerals, muscovite, kaolin, feldspar, rutilated; light gray; F-0-3
267 - 273	6	Sand, medium; poor to very poorly sorted; gypsum, heavy minerals, muscovite, feldspar, kaolin; light gray to light brownish gray; F-0-3 (267,270-271) F-0-1 (272)
273 - 274	1	Sand, medium, silty; well sorted; heavy minerals, gypsum, muscovite, feldspar; light brownish gray; F-0-1
274 - 280	6	Sand, medium; well to very poorly sorted; heavy minerals, gypsum, muscovite, feldspar, kaolin; light purplish gray; F-0-3 (274-275,278-279)
280 - 282	2	Sand, coarse, silty, clayey; well sorted; heavy minerals, muscovite, kaolin; purplish white
282 - 283	1	Sand, medium, clayey; well sorted; heavy minerals, gypsum, muscovite, kaolin; purplish white; F-0-2
283 - 284	1	Sand, medium, silty, clayey; poorly sorted; heavy minerals, gypsum, muscovite, feldspar, kaolin, smoky quartz pebbles; white; F-0-1
284 - 286	2	Silt, clayey; well sorted; heavy minerals, gypsum, muscovite, feldspar, kaolin; light yellow to whitish purple
286 - 305	19	Sand, medium, silty; well to moderately sorted; gypsum, heavy minerals, muscovite, feldspar, kaolin; white to light gray; F-0-1 (286-287,293,297,301,303)
305 - 306	1	Sand, medium, silty, clayey; poorly sorted; gypsum, heavy minerals, muscovite, kaolin; white brownish gray

LITHOLOGIC LOG, P30(TA).

<u>Depth</u> <u>(ft)</u>	<u>Thickness</u> <u>(ft)</u>	<u>Description</u>
306 - 311	5	Sand, medium to coarse, silty; poor to moderately sorted; interbedded clay, clay balls; gypsum, heavy minerals, muscovite, feldspar, kaolin; whitish gray; F-0-1 (308-309)
311 - 312	1	Sand, very coarse, silty, clayey; well sorted; gypsum, heavy minerals, muscovite, feldspar, kaolin, smoky quartz; light gray
312 - 313	1	Sand, coarse; well sorted; heavy minerals, muscovite, feldspar, kaolin; whitish purple
313 - 314	1	Sand, coarse, clayey; well sorted; gypsum, muscovite, feldspar, kaolin; whitish gray
314 - 316	2	Sand, medium, silty; well sorted; gypsum, muscovite, feldspar, kaolin; brownish white to light gray; F-0-1 (315)
316 - 317	1	Sand, coarse, silty, clayey; well sorted; interbedded clay; gypsum, muscovite, feldspar, kaolin; yellow brownish gray
317 - 320	3	Silt, sandy; well sorted; gypsum, muscovite, feldspar, kaolin
320 - 324	4	Sand, medium, silty; well sorted; heavy minerals, gypsum, muscovite, feldspar, kaolin; light gray; F-0-1 (322-323)
324 - 335	11	Silt, sandy; well sorted; gypsum, heavy minerals, muscovite, feldspar, kaolin; whitish gray to white; F-0-1 (324-325, 333)
335 - 351	16	Sand, medium, silty; poor to well sorted; heavy minerals, gypsum, feldspar, kaolin; light gray, light purplish gray, to light grayish white; F-0-1 (336-337)

LITHOLOGIC LOG, P30(TA).

Depth (ft)	Thickness (ft)	Description
351 - 355	4	No recovery
355 - 359	4	Sand, medium; poor to moderately sorted; gypsum, heavy minerals, muscovite, feldspar; brownish white to white
359 - 360	1	Sand, medium, silty; moderately sorted; gypsum, muscovite, feldspar, kaolin; white
360 - 361	1	Silt, sandy; well sorted; gypsum, heavy minerals, muscovite, feldspar, kaolin; white
361 - 364	3	Sand, coarse; moderately sorted; clay balls; gypsum, muscovite, feldspar, kaolin; light purplish gray; F-0-1 (361)
364 - 365	1	Sand, medium, silty; very poorly sorted; heavy minerals, muscovite, smoky quartz, kaolin
365 - 367	1	Sand, medium, silty; poorly sorted, gypsum, muscovite, kaolin; light brownish white; F-0-1
367 - 368	1	Sand, medium, silty, clayey; poorly sorted; clay balls; gypsum, heavy minerals, feldspar, kaolin; light grayish tan; F-0-1
368 - 369	1	Sand, medium, silty; poorly sorted; gypsum, heavy minerals, muscovite, kaolin; light grayish white
369 - 370	1	No recovery
370 - 376	6	Sand, medium, silty; well sorted; gypsum, muscovite, feldspar, kaolin; white to tannish light gray; F-0-2 (375)
376 - 380	4	No recovery
380 - 404	24	Sand, medium, silty; well sorted; heavy minerals, gypsum, muscovite, feldspar, kaolin; white, white yellowish brown, to white purplish brown; F-0-1(387) F-Y-3 (400-401)

LITHOLOGIC LOG, P30 (TA).

Depth (ft)	Thickness (ft)	Description
404 - 405	1	Silt; well sorted; gypsum, heavy minerals, muscovite, feldspar, kaolin; dark white purplish brown; F-0-3
405 - 407	2	Sand, fine silty; well sorted; gypsum, sulfides, heavy minerals, muscovite, feldspar, kaolin; dark whitish brown to dark white; F-0-1 (405)
407 - 409	2	Sand; coarse; well sorted; clay balls; heavy minerals, gypsum, muscovite, feldspar, kaolin; dark white
409 - 410	1	Sand, medium, clayey; well sorted; gypsum, muscovite, feldspar, smoky quartz, kaolin; dark whitish brown
410 - 416	6	Sand, medium, silty; well sorted; gypsum, muscovite, feldspar, kaolin; white tannish orange; F-0-1 (410-411, 415)
416 - 420	4	Sand, coarse; well sorted; heavy minerals, muscovite, feldspar, kaolin; white orangish tan to whitish tan; F-0-1 (417)
420 - 425	5	Sand, medium, silty; well sorted; gypsum, heavy minerals, muscovite, feldspar, kaolin; whitish tan; F-0-1 (424)
425 - 428	3	Sand, coarse; well to moderately sorted; gypsum, heavy minerals, muscovite, feldspar, kaolin; whitish tan to white tannish orange; F-0-1 (462)
428 - 429	1	Silt, clayey; well sorted; gypsum, heavy minerals, muscovite, feldspar, kaolin; tannish orange
429 - 430	1	Sand, medium, clayey; poorly sorted; heavy minerals, muscovite, feldspar, iron nodules, kaolin; tannish orange
430 - 431	1	Sand, medium, silty, clayey; very poorly sorted; heavy minerals, muscovite, feldspar, iron nodules, kaolin; tan orangish brown
431 - 432	1	Sand, medium, clayey; poorly sorted; gypsum, heavy minerals, muscovite, feldspar, kaolin; tan orangish brown; F-0-1

LITHOLOGIC LOG, P30(TA).

Depth (ft)	Thickness (ft)	Description
432 - 434	2	Sand, coarse to medium; well to moderately sorted; gypsum, heavy minerals, muscovite, feldspar, kaolin; whitish tan; F-0-1 (432) F-0-2 (433)
434 - 435	1	Sand, medium, silty; well sorted; heavy minerals, muscovite, kaolin; white orangish brown
435 - 436	1	Clay, sandy; moderately sorted; interbedded clay; gypsum, heavy minerals, muscovite, feldspar, kaolin; whitish tan; F-0-1
436 - 437	1	Silt, clayey; well sorted; gypsum, heavy minerals, muscovite, feldspar, kaolin; tannish brown
437 - 449	12	Sand, fine to medium, silty; well sorted; heavy minerals, muscovite, feldspar, kaolin; tan orangish brown to whitish tan; F-0-1 (437-438, 447-448) F-0-2 (442)
449 - 450	1	Silt; well sorted; heavy minerals, muscovite, feldspar, kaolin; white
450 - 451	1	Sand, fine, silty; well sorted; gypsum, heavy minerals, muscovite, feldspar, kaolin; whitish yellow
451 - 456	5	Sand, coarse; well sorted; heavy minerals, muscovite, feldspar, kaolin; tan brownish orange to white tannish orange
456 - 458	2	Sand, medium, silty; moderately sorted; heavy minerals, muscovite, kaolin; tannish yellow to white orangish brown
458 - 460	2	Sand, medium, clayey; poorly sorted; clay balls; gypsum, heavy minerals, muscovite, feldspar, smoky quartz granules, kaolin; white organish brown to light yellowish white; F-0-2(458)
460 - 462	2	Sand, medium, silty, clayey; well sorted; gypsum, heavy minerals, muscovite, kaolin; whitish red to light yellowish orange; F-0-1 (461)
462 - 463	1	Sand, medium; well sorted; gypsum, heavy minerals, muscovite, feldspar, kaolin; tan

LITHOLOGIC LOG, P30 (TA).

<u>Depth</u> <u>(ft)</u>	<u>Thickness</u> <u>(ft)</u>	<u>Description</u>
463 - 465	2	Sand, fine, silty, clayey; well sorted; interbedded clay; gypsum, heavy minerals, muscovite, feldspar, iron nodules, kaolin; tan yellowish brown; F-0-2
465 - 472	7	Sand, fine to medium, silty; well sorted; heavy minerals, gypsum, muscovite, feldspar, kaolin; whitish tan; F-0-1 (471)
472 - 473	1	Sand, coarse; well sorted; heavy minerals, muscovite, feldspar, iron nodules, kaolin; light yellowish white
473 - 474	1	Sand, medium, silty; moderately sorted; sulfides, muscovite, feldspar, iron nodules, kaolin; light yellowish white
474 - 475	1	Sand, coarse, silty, clayey; well sorted; clay balls; gypsum, muscovite, feldspar, kaolin; light yellowish white
475 - 482	7	Sand, medium, silty; well to poorly sorted; gypsum, heavy minerals, feldspar, kaolin; whitish orange; F-0-1 (476-478)
482 - 484	2	Sand, medium; poorly sorted; heavy minerals, muscovite, kaolin; white to white orangish brown
484 - 485	1	Clay; well sorted; muscovite, kaolin; tan
485 - 488	3	Sand, coarse to medium; well sorted; interbedded clay; gypsum, muscovite, kaolin; purple orangish tan to whitish tan; F-0-1 (486-487)
488 - 490	2	Sand, medium, silty, clayey; well sorted; interbedded clay; heavy minerals, muscovite, feldspar, kaolin; white tannish red to tan
490 - 491	1	Sand medium, silty; well sorted; gypsum, muscovite, iron nodules; tan orangish red

LITHOLOGIG LOG. P30 (TA).

Depth (ft)	Thickness (ft)	Description
491 - 492	1	Sand, medium, silty, clayey; well sorted; heavy minerals, muscovite, feldspar, iron nodules, kaolin; tannish orange
492 - 496	4	Sand, medium, silty; well to moderately sorted; gypsum, heavy minerals, muscovite, feldspar, kaolin; tannish white to tan orangish brown
496 - 501	5	Sand, medium to coarse, silty, clayey, moderately sorted; gypsum, heavy minerals, muscovite, iron oxide, kaolin; purplish tan
501 - 502	1	Silt, sandy, clayey; poorly sorted; heavy minerals, muscovite, feldspar, iron oxide, kaolin; yellow tannish purple
502 - 503	1	Silt; well sorted; muscovite, iron oxide, kaolin; yellow tannish purple
503 - 504	1	Clay, silty; well sorted; clay balls, interbedded clay; muscovite, iron oxide, kaolin; yellow tannish purple
504 - 518	14	Clay; well sorted; muscovite; dark pinkish purple, medium gray, to dark reddish gray
518 - 520	2	No recovery
520 - 529	9	Clay; well sorted; muscovite; gray to dark purplish gray
529 - 530	1	No recovery
530 - 536	6	Clay; well sorted; muscovite; medium gray to light grayish red
536 - 540	4	No recovery
540 - 542	2	Clay, silty; well sorted; muscovite; light gray sand, medium, silty; well sorted; heavy minerals, muscovite, kaolin; light grayish tan

LITHOLOGIC LOG. P30 (TA).

Depth (ft)	Thickness (ft)	Descriptions
542 - 543	1	Sand, medium, silty; well sorted; heavy minerals, muscovite, kaolin; light grayish tan
543 - 545	2	No recovery
545 - 546	1	Sand, medium, silty, clayey; well sorted; muscovite, kaolin; light gray
546 - 550	4	Clay; well sorted; muscovite, kaolin; dark purplish gray to medium grayish green
550 - 552	2	Clay, silty; well sorted; muscovite; medium green to brownish gray
552 - 555	3	No recovery
555 - 556	1	Sand, fine, silty; well sorted; muscovite, feldspar, kaolin; purple yellowish gray; F-B-1
556 - 560	4	Silt, sandy; well sorted; muscovite, kaolin; yellowish gray, red brownish gray, to purplish gray; F-B-1 (557)
560 - 562	2	Sand, medium, silty; poorly sorted; muscovite; light tannish gray to yellowish gray
562 - 565	3	No recovery
565 - 566	1	Sand, medium, well sorted; tannish gray
566 - 568	2	Sand, medium, silty; moderately to well sorted; muscovite, iron oxide; tannish gray
568 - 570	2	No recovery
570 - 571	1	Sand, fine, silty, clayey; moderately sorted; interbedded clay; muscovite, smoky quartz granules, feldspar, kaolin; light gray
571 - 572	1	Sand, fine, silty; well sorted; gypsum, muscovite, feldspar, kaolin; white.

LITHOLOGIC LOG, P30 (TA).

Depth (ft)	Thickness (ft)	Descriptions
572 - 576	4	Silt, sandy; moderately to well sorted; heavy minerals, muscovite, feldspar, kaolin; white
576 - 577	1	Sand, medium, silty; well sorted; gypsum, muscovite, feldspar, kaolin; light gray
577 - 579	2	Sand, medium; well sorted; heavy minerals, muscovite, feldspar, kaolin; light grayish tan
579 - 580	1	No recovery
580 - 581	1	Sand, clayey; moderately sorted; heavy minerals, muscovite, feldspar, kaolin; light grayish yellow
581 - 582	1	Sand, medium, silty; moderately sorted; heavy minerals, muscovite, feldspar, kaolin, light gray; F-B-1
582 - 583	1	Sand, medium, silty, clayey; moderately sorted; heavy minerals; muscovite, iron nodules, kaolin; light grayish white; F-O-3
583 - 585	2	No recovery
585 - 588	3	Sand, coarse, silty; moderately sorted; heavy minerals, muscovite; iron nodules, kaolin; light grayish white to dark reddish gray
588 - 589	1	Clay; well sorted; muscovite, kaolin; medium grayish purple; F-B-1
589 - 591	2	No recovery
591 - 592	1	Sand; coarse; well sorted; muscovite; purplish white.
592 - 593	1	Sand, coarse; clayey; well sorted; heavy minerals, muscovite, feldspar; light purplish gray
593 - 596	3	Clay, sandy; moderately to well sorted; heavy minerals, muscovite, feldspar, kaolin; light purplish gray to light pink

LITHOLOGIC LOG, P30(TA).

<u>Depth</u> <u>(ft)</u>	<u>Thickness</u> <u>(ft)</u>	<u>Description</u>
596 - 602	7	No recovery
602 - 604	2	Clay, sandy; moderately sorted; gypsum, heavy minerals, muscovite, feldspar; light purplish white
604 - 605	1	Sand, medium, silty, clayey; well sorted; heavy minerals, muscovite, feldspar; light purplish white
605 - 606	1	Sand, medium, silty; poorly sorted; heavy minerals, muscovite, feldspar; yellowish gray; F-0-1
606 - 607	1	Sand, coarse, clayey; well sorted; heavy minerals, muscovite; pink
607 - 609	2	Clay; well sorted; muscovite; dark purple to light grayish purple
609 - 610	1	Clay, silty; well sorted; muscovite; light grayish purple
610 - 626	16	Clay; well sorted; muscovite; light gray; F-B-1 (614, 616, 624)
626 - 627	1	Clay, sandy; poorly sorted; muscovite; dark purple tan-nish gray
627 - 629	2	Clay, silty; well sorted; heavy minerals, muscovite; dark purplish gray
629 - 630	1	No recovery
630 - 631	1	Silt, sandy; well sorted; heavy minerals, muscovite; light gray reddish yellow; F-0-3
631 - 632	1	Sand, medium; well sorted; heavy minerals, muscovite; dark purple brownish tan; F-0-2

LITHOLOGIC LOG, P30 (TA).

Depth (ft)	Thickness (ft)	Description
632 - 635	3	Sand, medium, silty; poorly to well sorted; heavy minerals, muscovite, kaolin; light gray F-Y-1(634)
635 - 638	3	Sand, medium; very poorly sorted; heavy minerals; light purplish gray to light pinkish gray; F-O-2(635)
638 - 639	1	Sand, medium, silty; poorly sorted; heavy minerals; light grayish white; F-O-1
639 - 641	2	Sand, medium; poorly sorted; heavy minerals; purple brownish orange to whitish gray; F-B-1 (640)
641 - 650	9	Sand, fine, silty, well sorted; muscovite; can yellow red to light gray; F-B-1 (641,649)
650 - 657	7	Sand, medium; poor to well sorted; muscovite; light grayish yellow to light tannish brown; F-B-1(657)
657 - 658	1	Sand, medium, silty; well sorted; interbedded clay; muscovite; light tannish brown
658 - 659	1	Sand, medium, clayey; very poorly sorted; interbedded; clay, muscovite; purplish tan
659 - 660	1	Sand, medium; very poorly sorted; muscovite; yellowish tan
660 - 662	2	Sand, medium, clayey; well sorted; interbedded clay; heavy minerals, feldspar; light pinkish red to light gray; F-O-1
662 - 663	1	No recovery
663 - 668	5	Sand, medium, silty; moderately to well sorted; muscovite, kaolin; light purplish gray to light yellowish tan
668 - 669	1	Sand, medium, clayey; moderately sorted; interbedded clay; heavy minerals, muscovite, kaolin; dark red orangish

LITHOLOGIC LOG, P30(TA).

Depth (ft)	Thickness (ft)	Description
669 - 670	1	Sand, moderately sorted; heavy minerals, muscovite, kaolin; light gray
670 - 672	2	Sand, medium, silty, clayey; moderately sorted; muscovite, feldspar, kaolin; light pinkish gray; F-0-1 (671)
672 - 674	2	Sand, medium, silty; well sorted; muscovite, kaolin; light gray to light pinkish gray; F-B-1 (672)
674 - 675	1	Sand, medium; well sorted; muscovite, iron nodules; Tannish brown
675 - 679	4	Sand, medium to fine, silty; well sorted; heavy minerals, muscovite; tan to gray; F-0-1 (677-678)
679 - 680	1	No recovery
680 - 683	3	Sand, medium; moderately to poorly sorted; heavy minerals; muscovite; light gray; F-0-1 (682)
683 - 684	1	No recovery
684 - 685	1	Sand, fine, silty; well sorted; heavy minerals, muscovite; light gray reddish brown; F-0-1
685 - 688	3	Sand, medium; well sorted; heavy minerals, muscovite; light gray
688 - 690	2	Sand, veryfine, silty; well sorted; heavy minerals, muscovite; light gray
690 - 691	1	Clay, conglomeritic; very poorly sorted; heavy minerals, muscovite, smoke quartz pebbles, feldspar; tan F-0-2
691 - 692	1	Sand, very fine, silty; well sorted; heavy minerals, muscovite; tan
692 - 695	3	No recovery

LITHOLOGIC LOG, P30(TA).

Depth (ft)	Thickness (ft)	Description
695 - 702	7	Sand, very coarse to medium; moderately to very poorly sorted; heavy minerals muscovite; light grayish tan to purplish tan; F-B-1 (696) F-O-1 (697)
702 - 704	2	Clay, sandy; very poorly sorted; interbedded clay; kaolin; light grayish tan to tan reddish brown
704 - 705	1	Sand, coarse; very poorly sorted; heavy minerals; gray brownish red; F-O-1
705 - 706	1	Clay, silty; well sorted; heavy minerals, iron oxide; tan
706 - 709	3	No recovery
709 - 710	1	Clay; well sorted; muscovite; light brown
710 - 711	1	Silt; well sorted; muscovite; tan pinkish orange
711 - 713	2	Clay, silty; well sorted; muscovite; tan reddish brown
713 - 714	1	Sand, medium; very poorly sorted; heavy minerals; light purplish gray; F-O-2
714 - 720	6	Sand, medium, silty; well to moderately sorted; interbedded clay, clay balls; heavy minerals, muscovite; light purplish pink
720 - 721	1	Sand, medium; very poorly sorted; whitish yellow
721 - 722	1	Sand, medium, clayey; very poorly sorted; light red pinkish purple

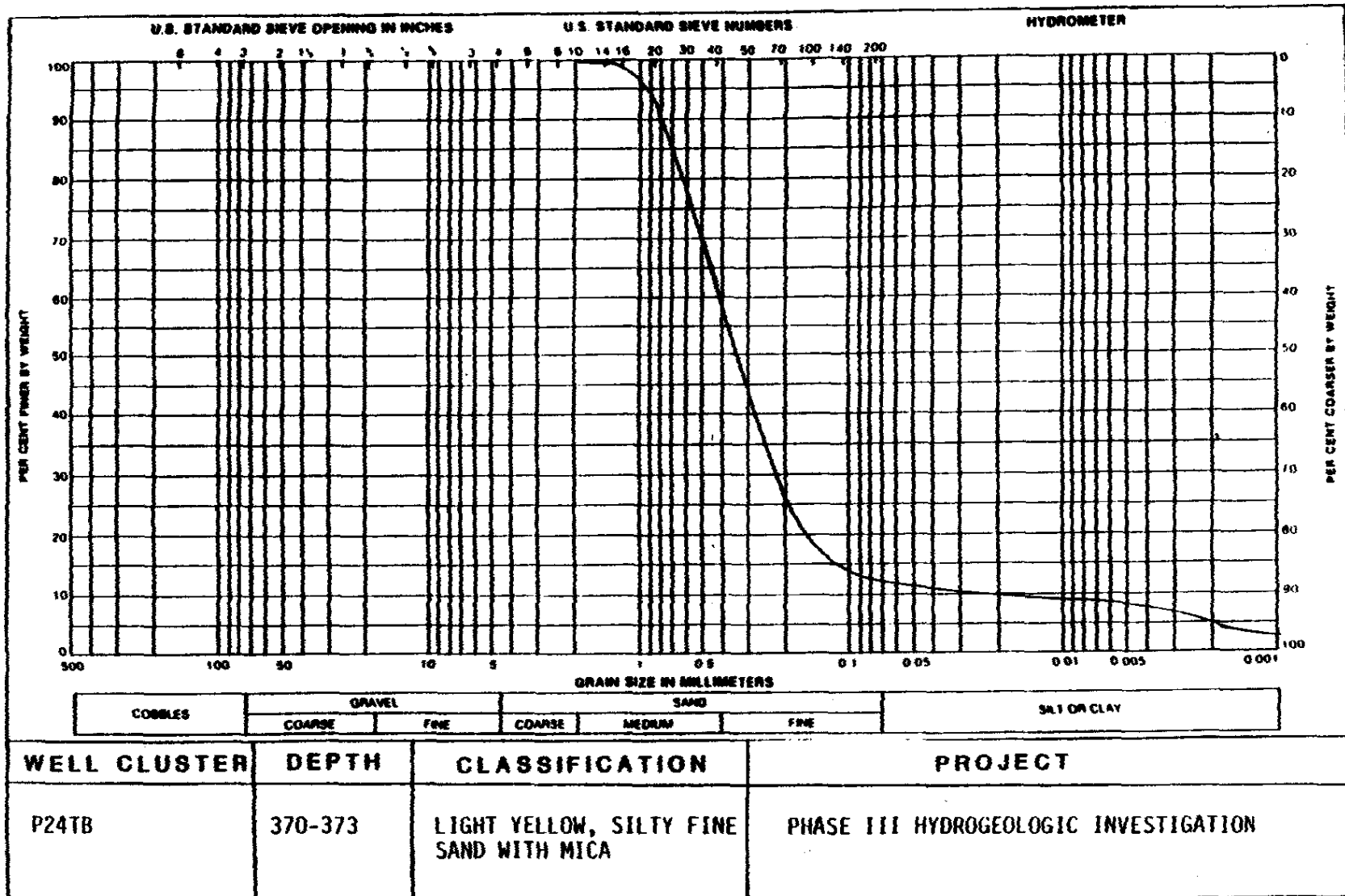
LITHOLOGIC LOG, P-30(TA)

Depth (ft.)	Thickness (ft.)	Description
722 - 723	1	Sand, coarse; very poorly sorted; heavy minerals; light red pinkish purple
723 - 724	1	Sand, medium, clayey; very poorly sorted; heavy minerals, muscovite; tan reddish purplish
724 - 728	4	Clay; well sorted; muscovite; very consolidated; dark tannish red to whitish pink
728 - 730	2	Sand, medium; very poorly sorted; muscovite, sandstone; whitish pink
730 - 733	3	Silt; well sorted; muscovite, siltstone; light purplish gray
733 - 735	2	No recovery
735 - 738	3	Sand, medium, silty; moderate to poorly sorted; heavy minerals, very consolidated; tannish gray to medium gray
738 - 740	2	No recovery
740 - 743	3	Sand, coarse, clayey; very poorly sorted; medium gray
743 - 745	2	No recovery
745 - 746	1	Sand, coarse; very poorly sorted; heavy minerals; medium gray
746 - 747	1	Sand, medium, clayey; very poorly sorted; very consolidated; medium gray
747 - 748	1	Clay, sandy; very poorly sorted; very consolidated; medium gray
748 - 750	2	Sand, medium, clayey; very poor to well sorted; very consolidated; medium gray to medium grayish green
750 - 755	5	Silt, well sorted; siltstone; heavy minerals, glauconite, muscovite; grayish green
755 - 768	13	Silt, clayey; well sorted; clayey; siltstone; heavy minerals, glauconite; light green to dark green
768 - 772	4	Silt; well sorted; siltstone; glauconite, heavy minerals; dark greenish gray
772 - 793	21	Chlorite hornblende schist; glauconite, heavy minerals; dark greenish gray
793 - 800	7	Chlorite hornblende schist; heavy minerals; dark gray

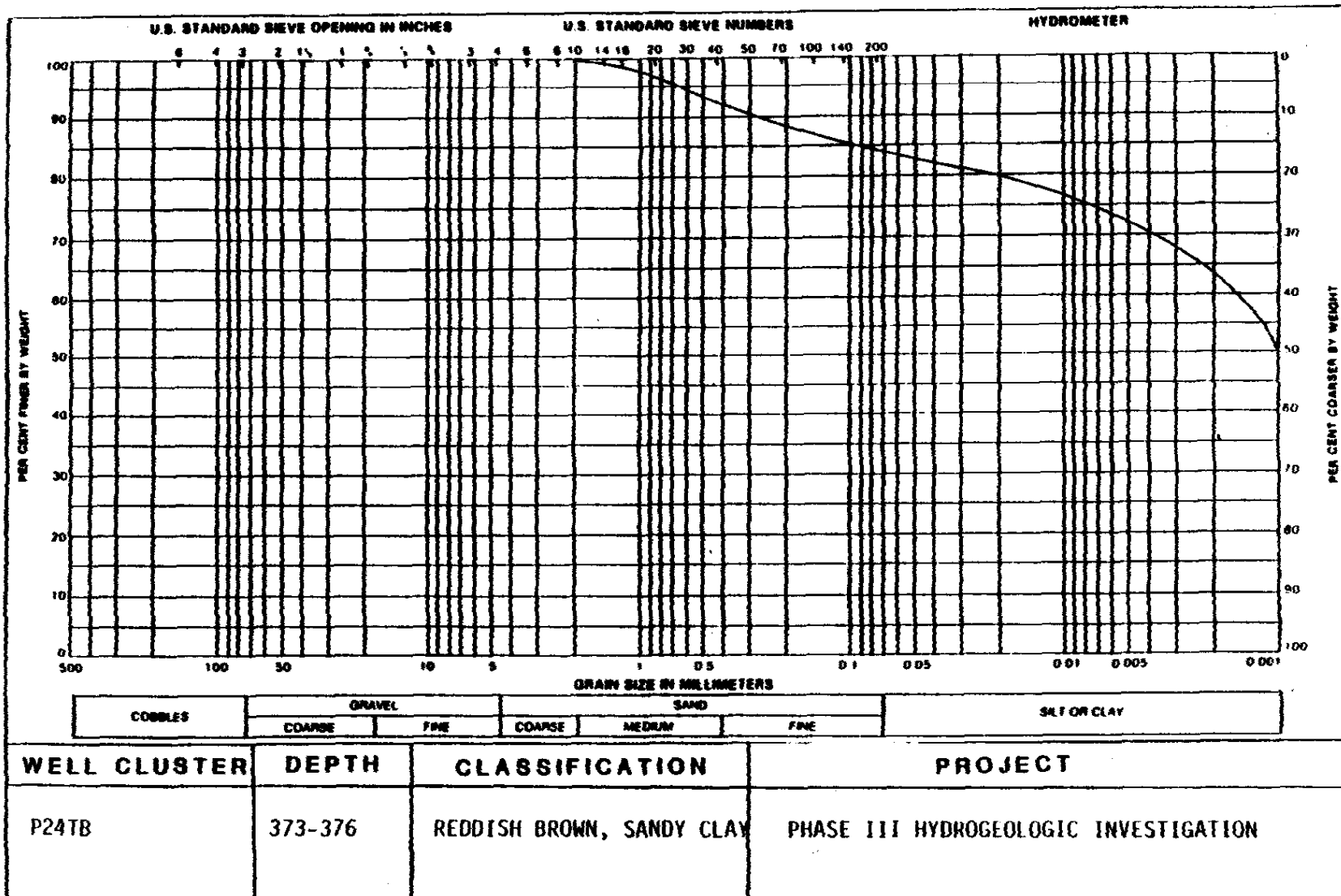
APPENDIX H

GRAIN SIZE ANALYSES

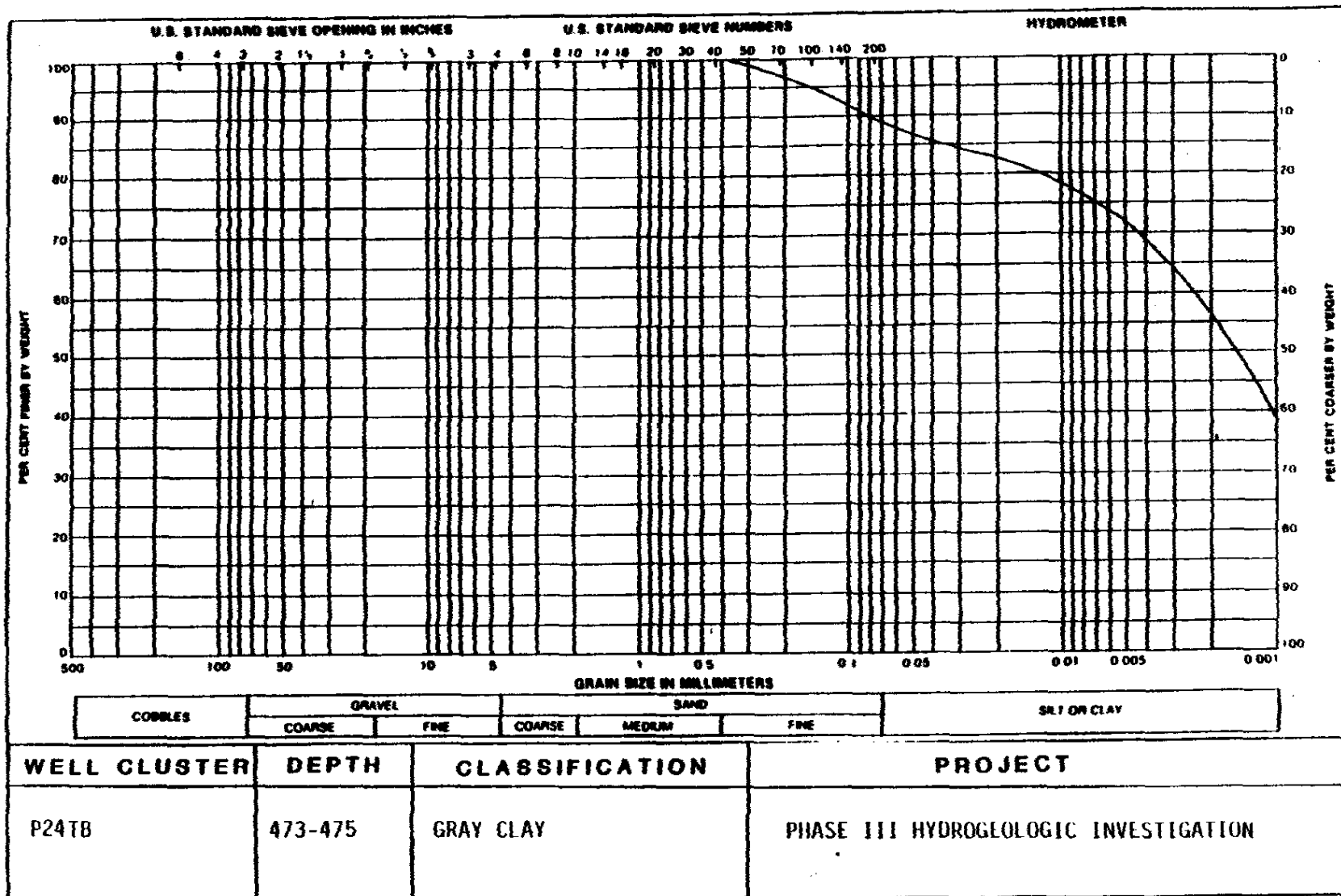
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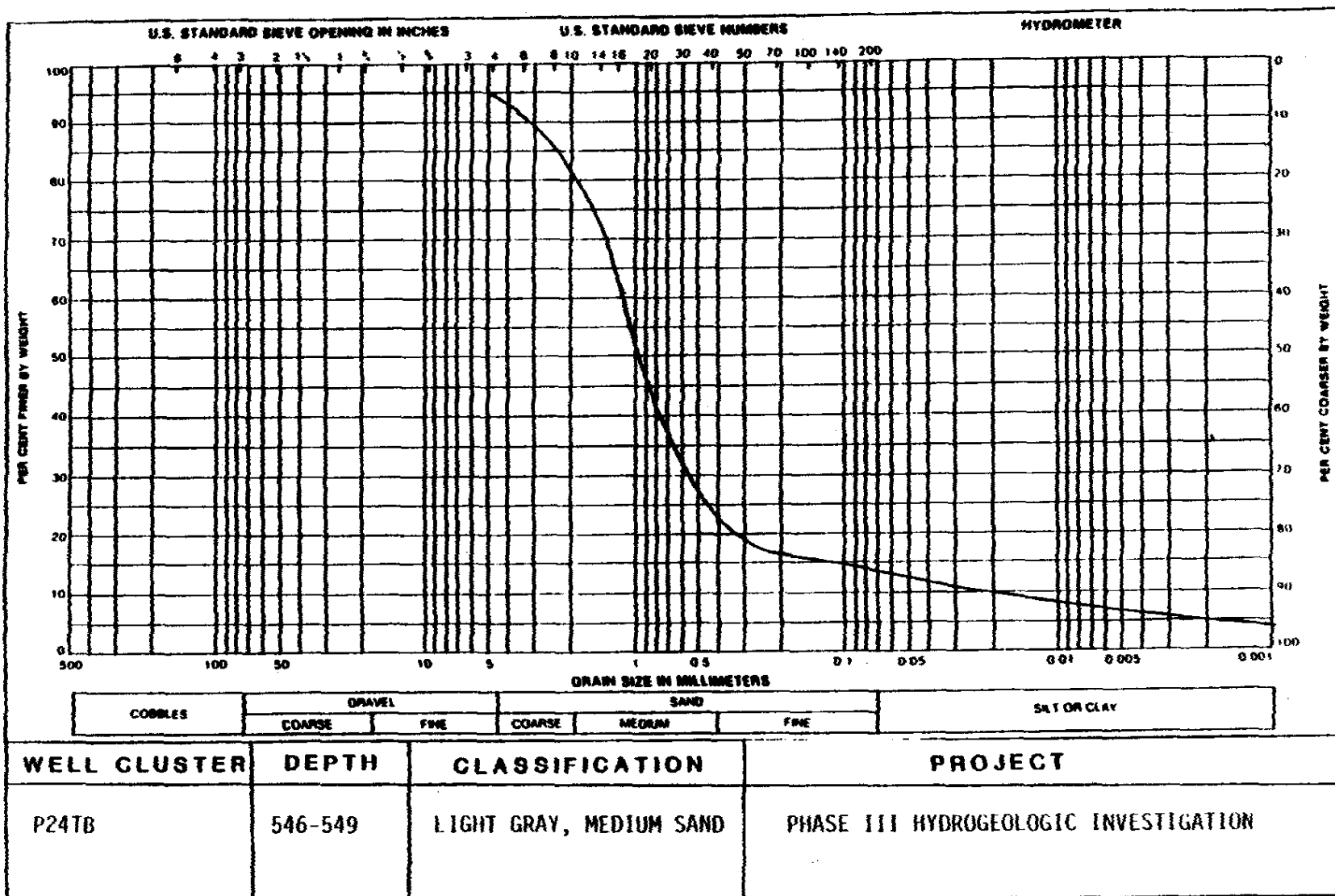
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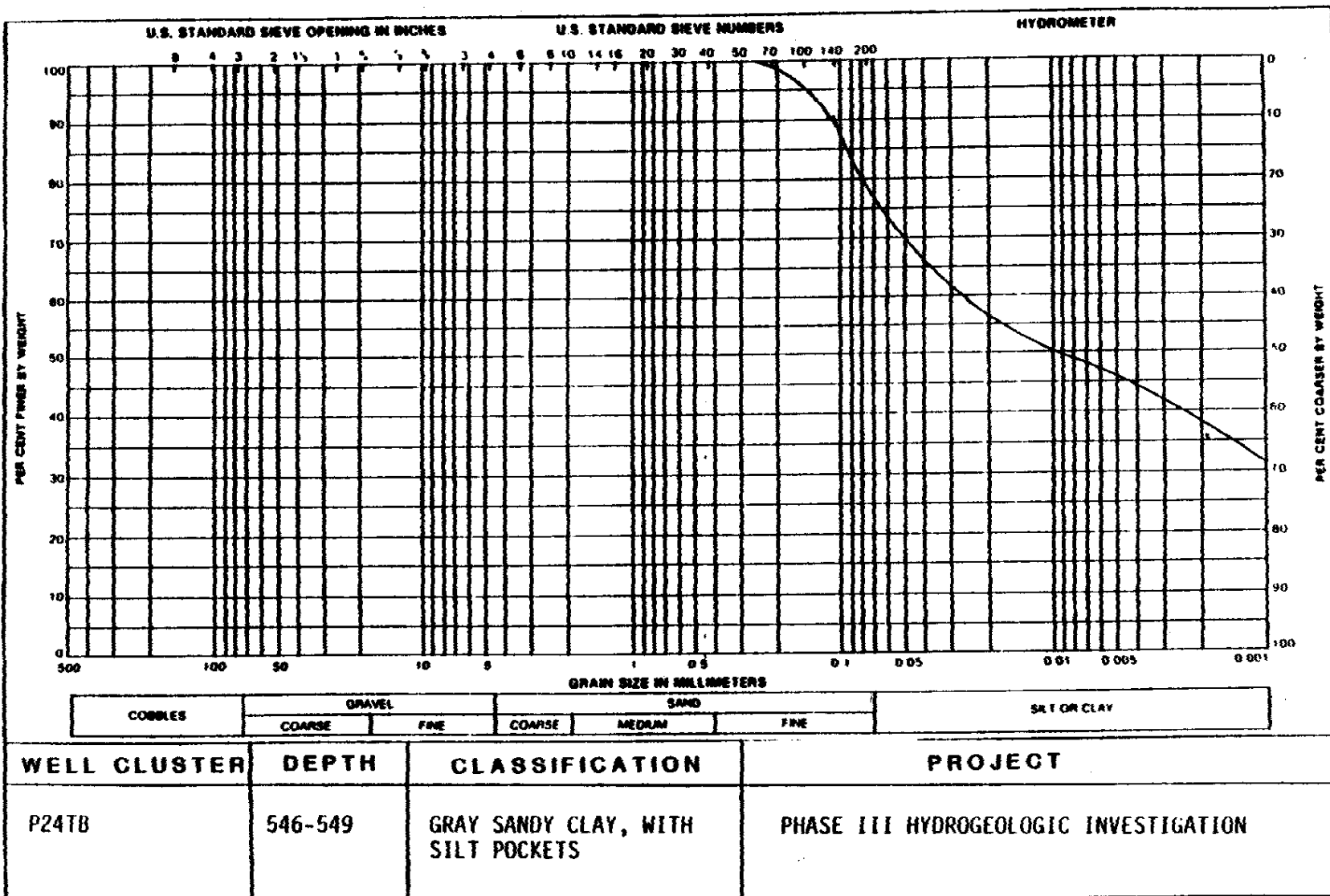
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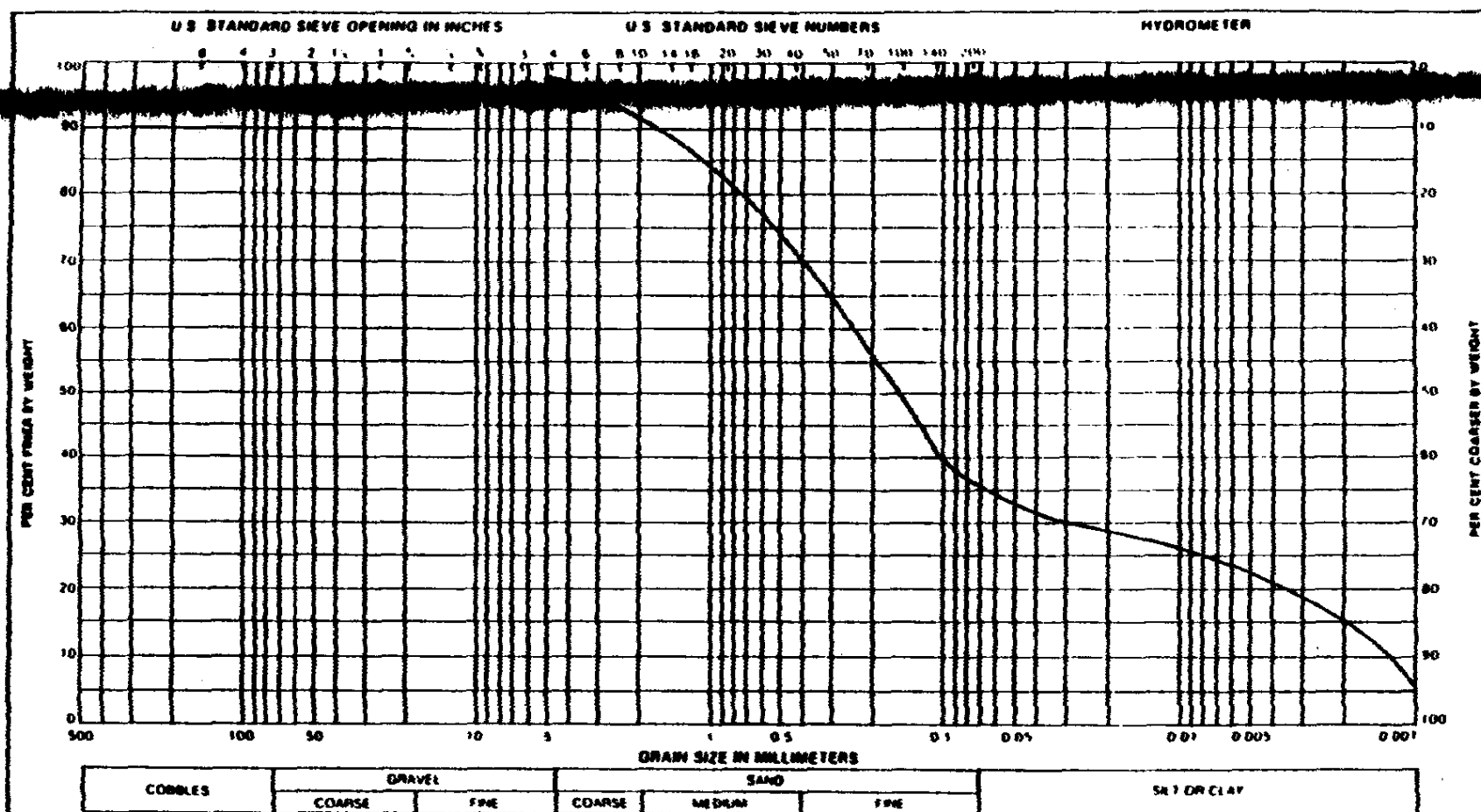
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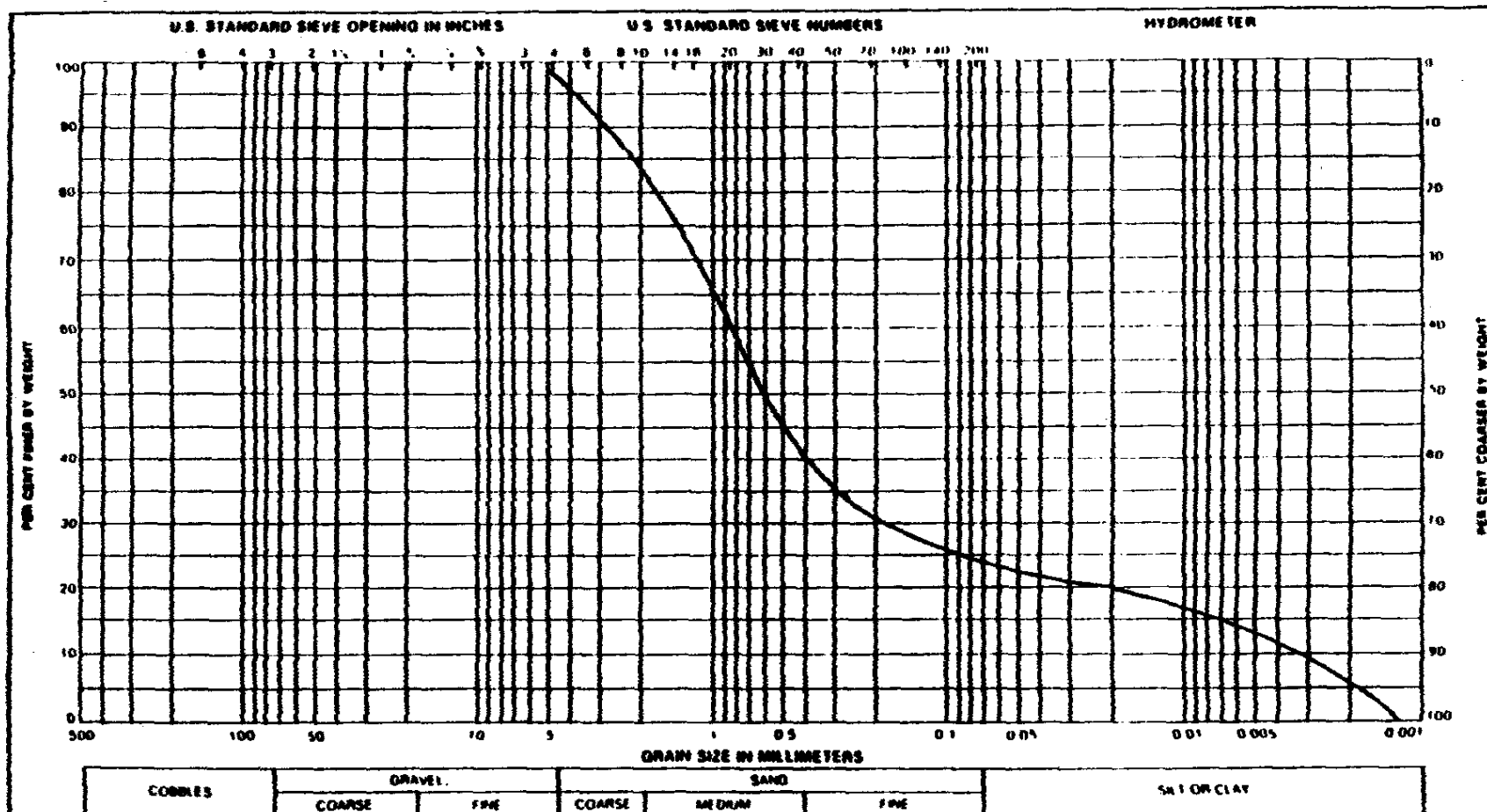
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WELL CLUSTER	DEPTH	CLASSIFICATION	PROJECT
P-24 TB	779'-781'	Mottled gray and tan, clayey, fine, sand	Phase III Hydrogeologic Investigation

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- H-8 -



WELL CLUSTER		DEPTH	CLASSIFICATION	PROJECT
P-25 TB		110'-113'	Orange and tan clayey, medium sand	Phase III Hydrogeologic Investigation

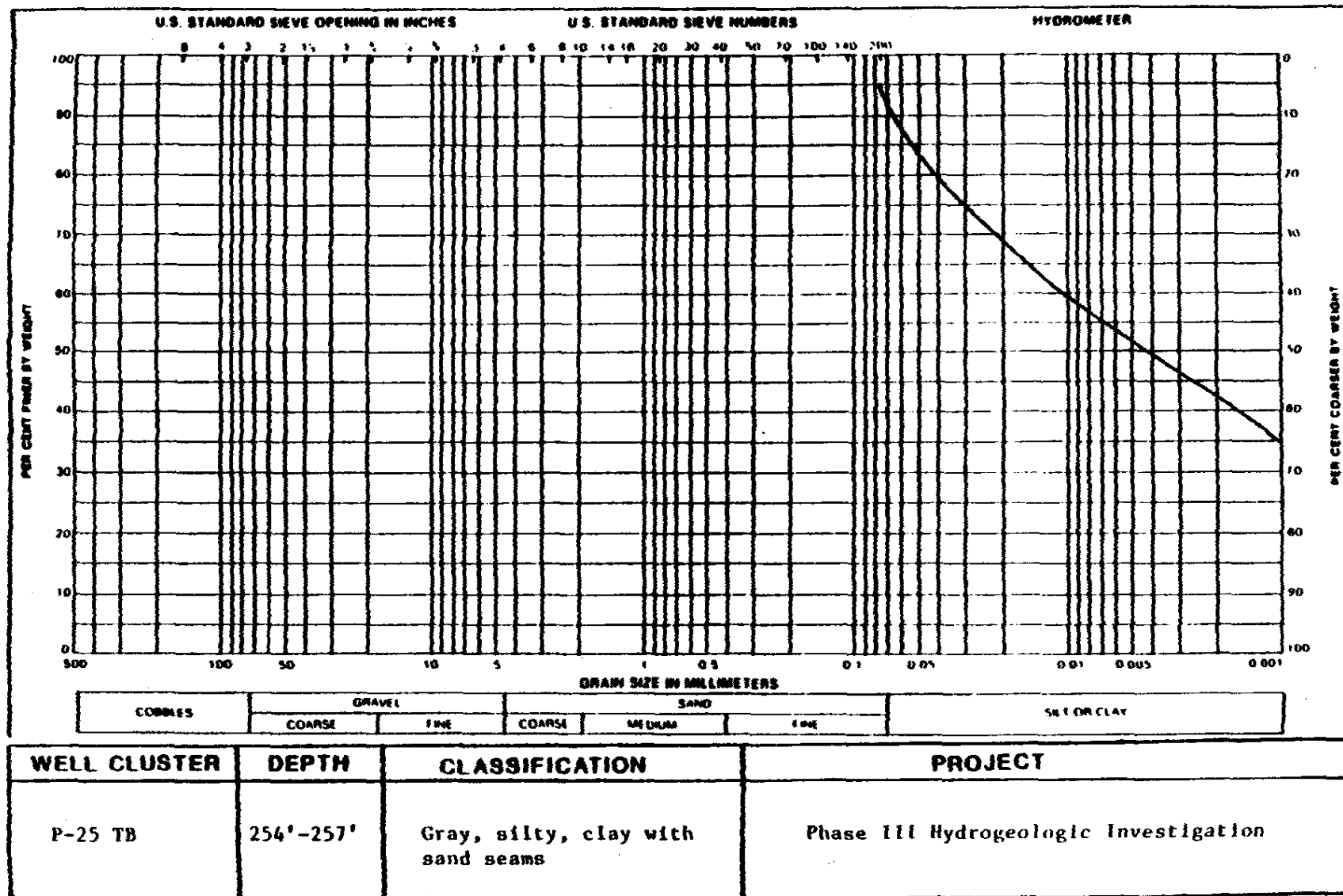
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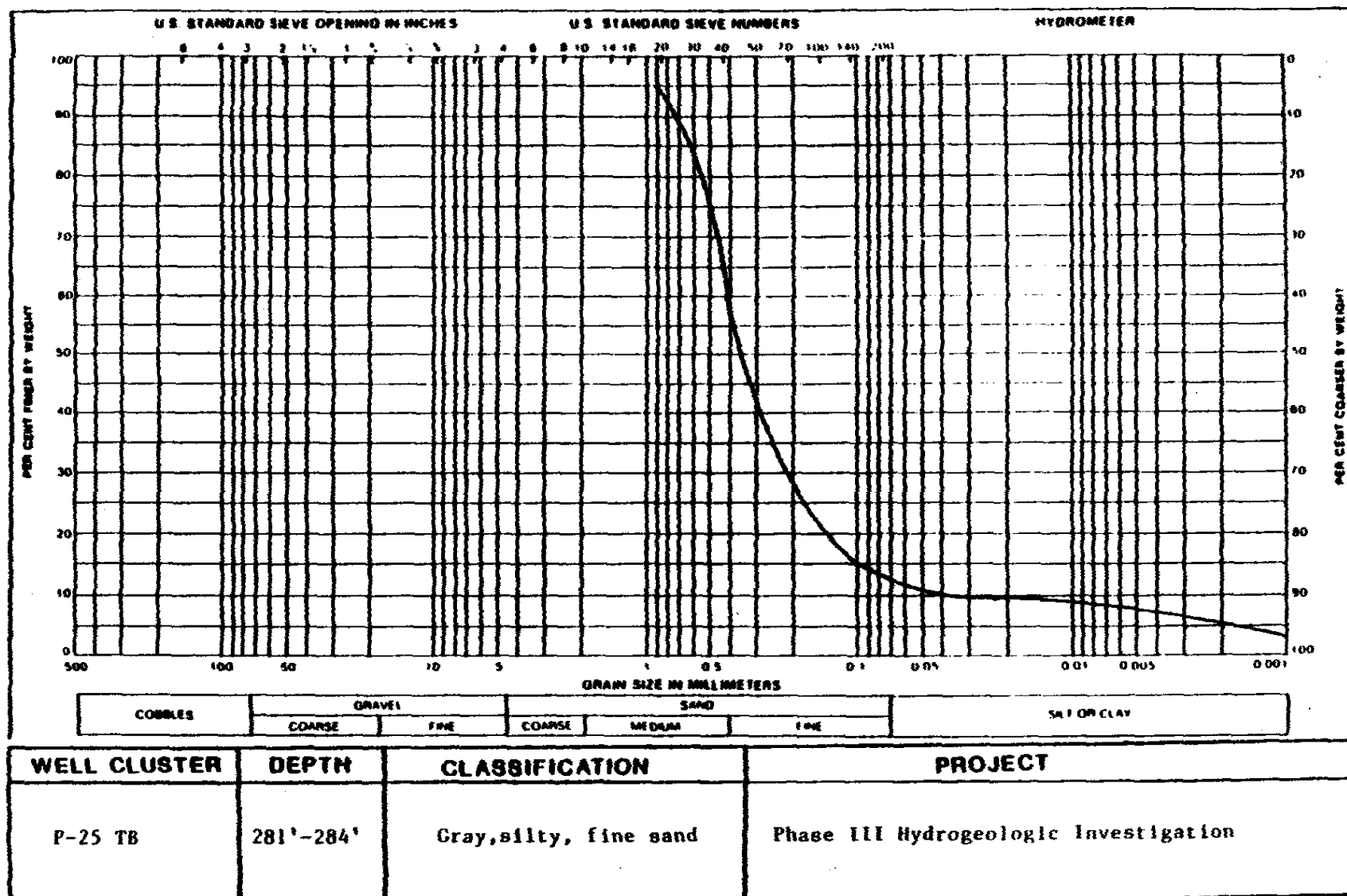
WELL CLUSTER	DEPTH	CLASSIFICATION	PROJECT
P-25 TB	166'-169'	Orange and gray clayey fine sand	Phase III Hydrogeologic Investigation

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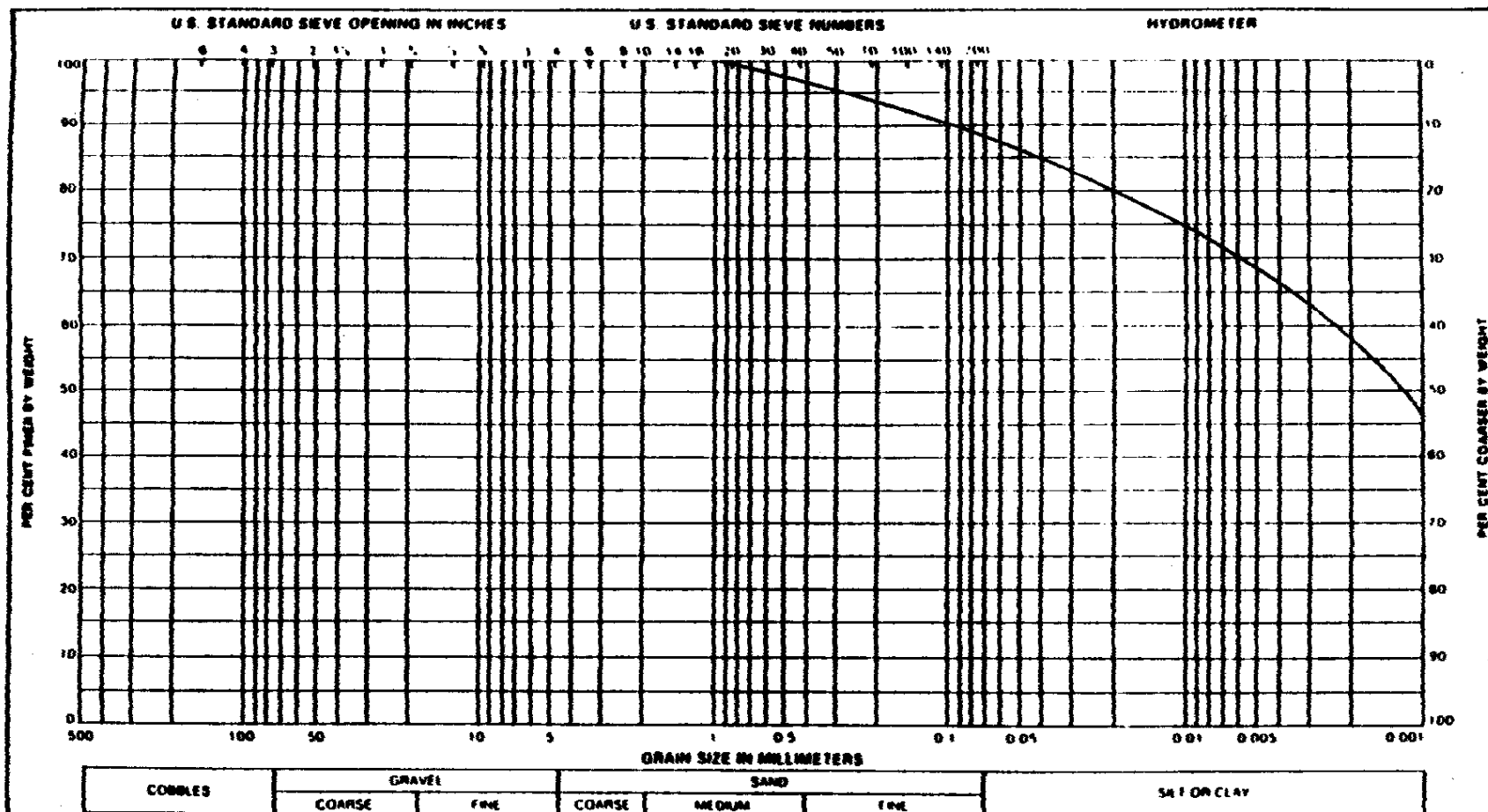
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H-11

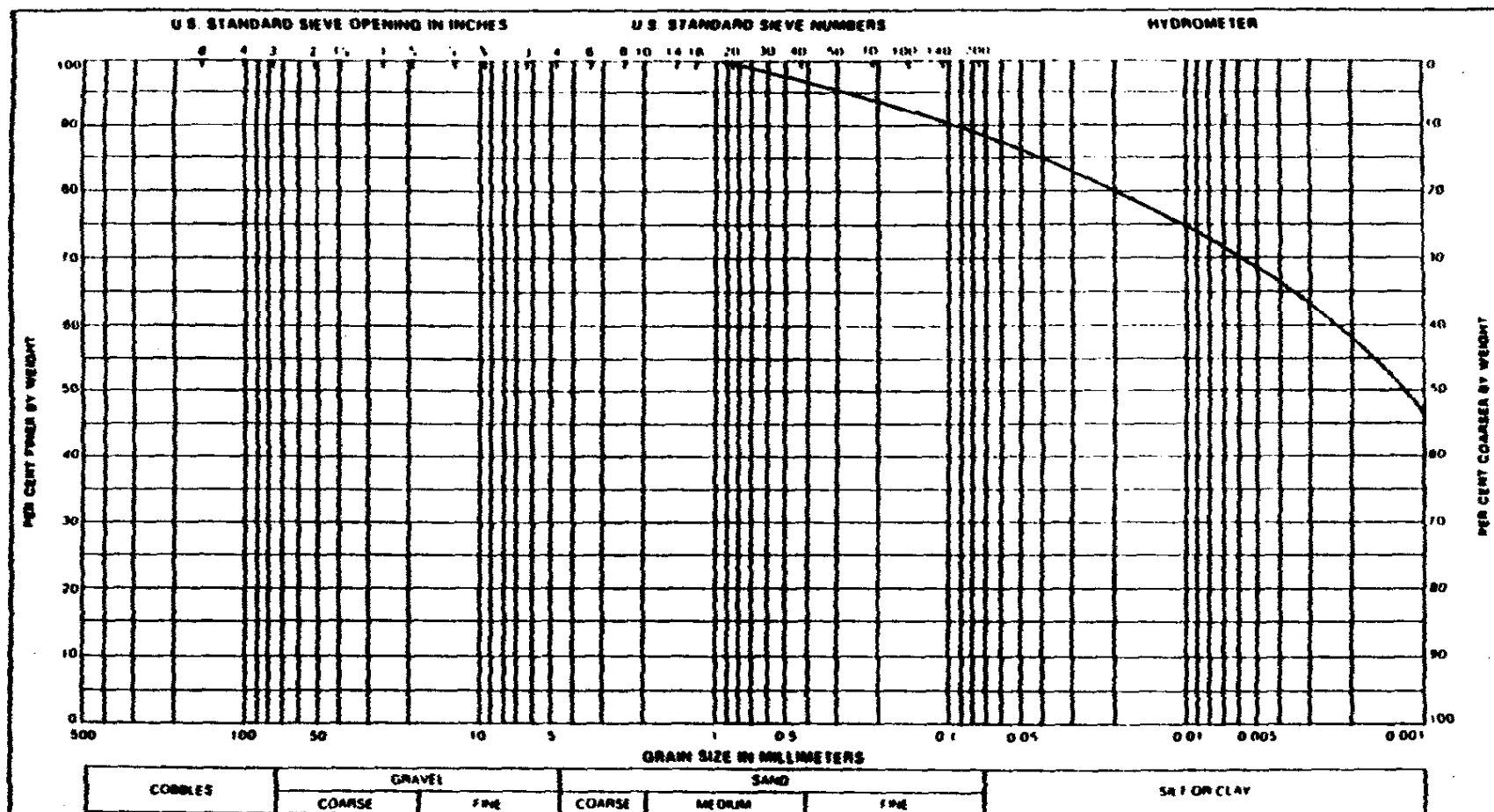


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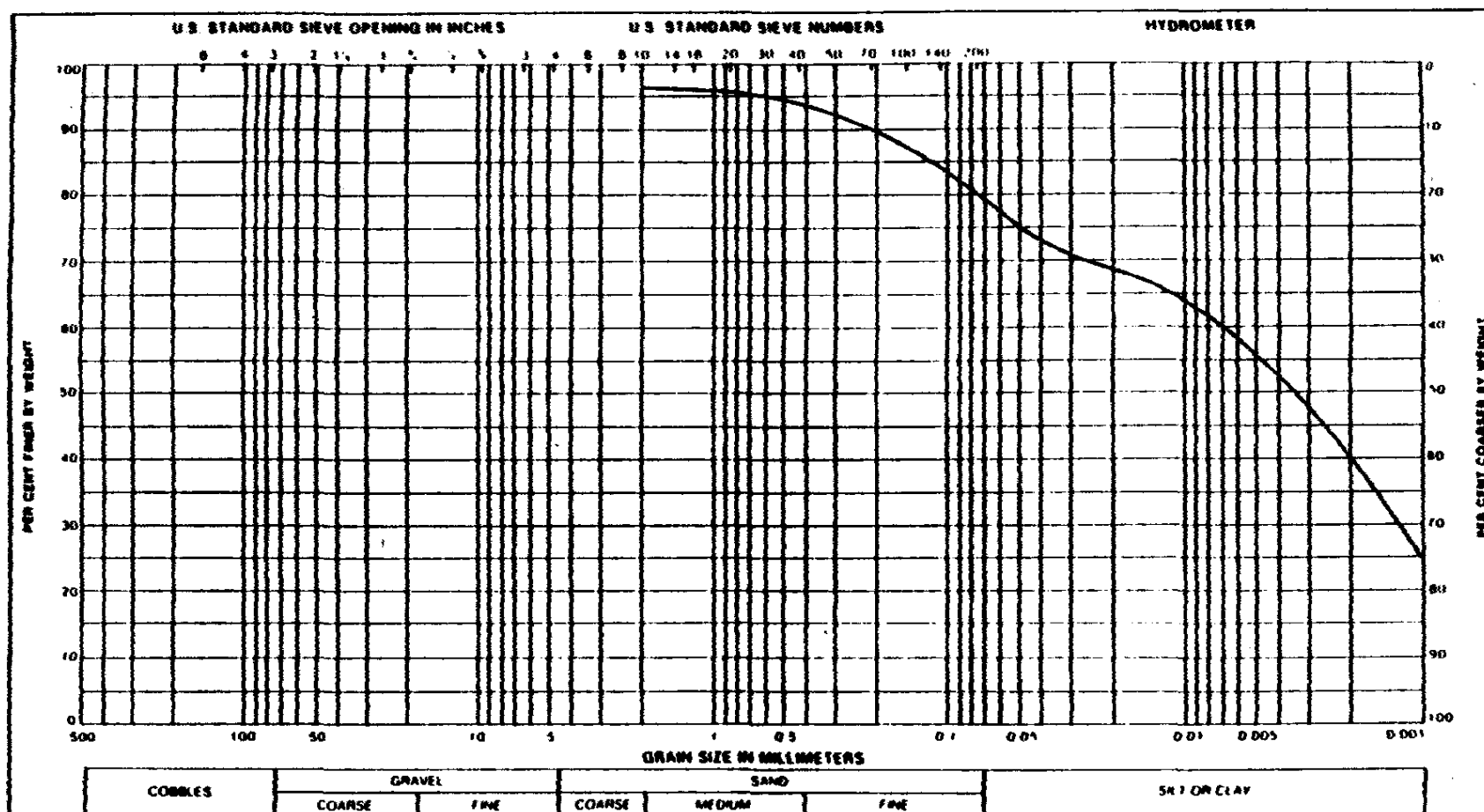
WELL CLUSTER	DEPTH	CLASSIFICATION	PROJECT
P-25 TB	440'-443'	Light gray, silty clay	Phase III Hydrogeologic Investigation

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WELL CLUSTER	DEPTH	CLASSIFICATION	PROJECT
P-25 TB	440'-443'	Light gray, silty clay	Phase III Hydrogeologic Investigation

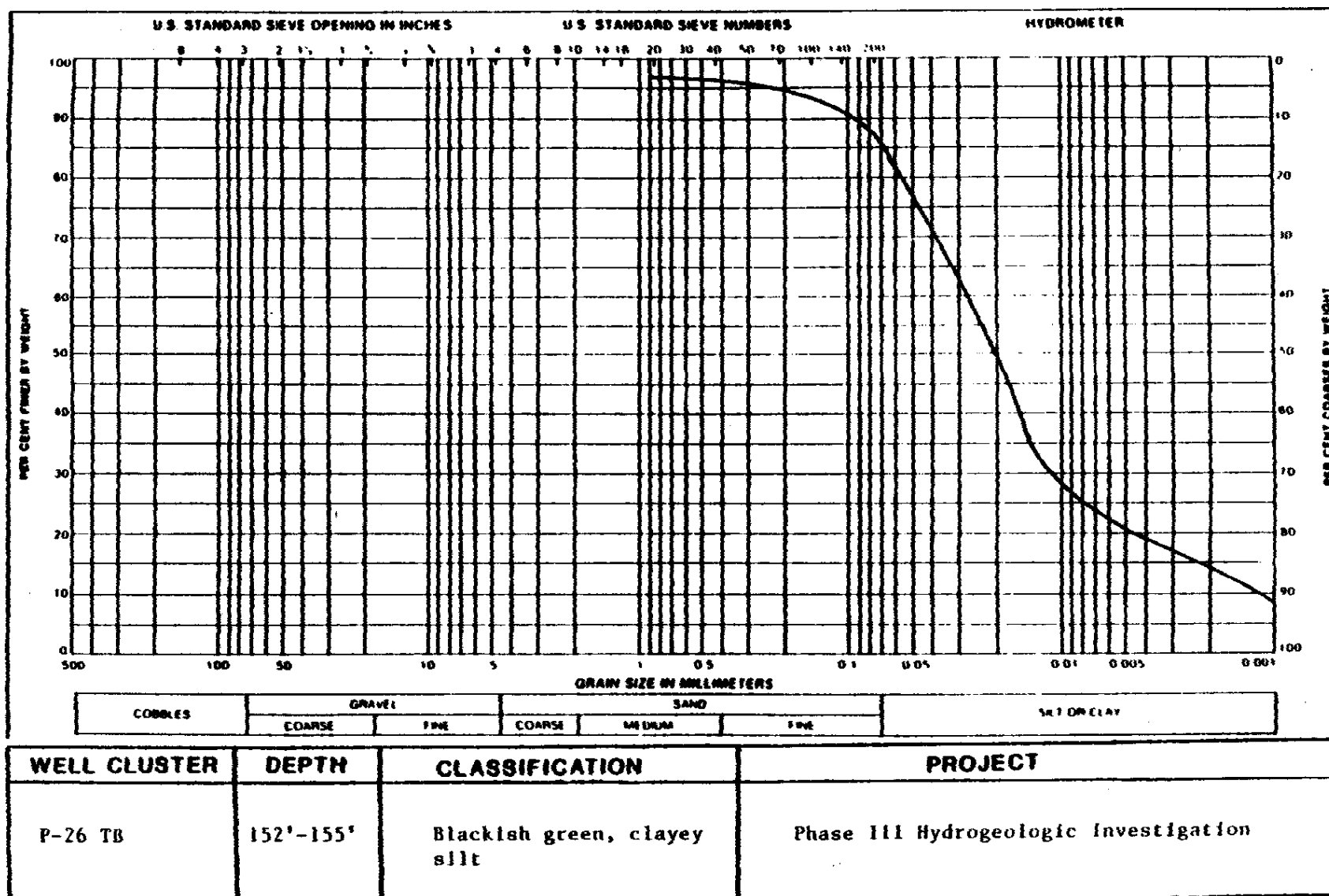
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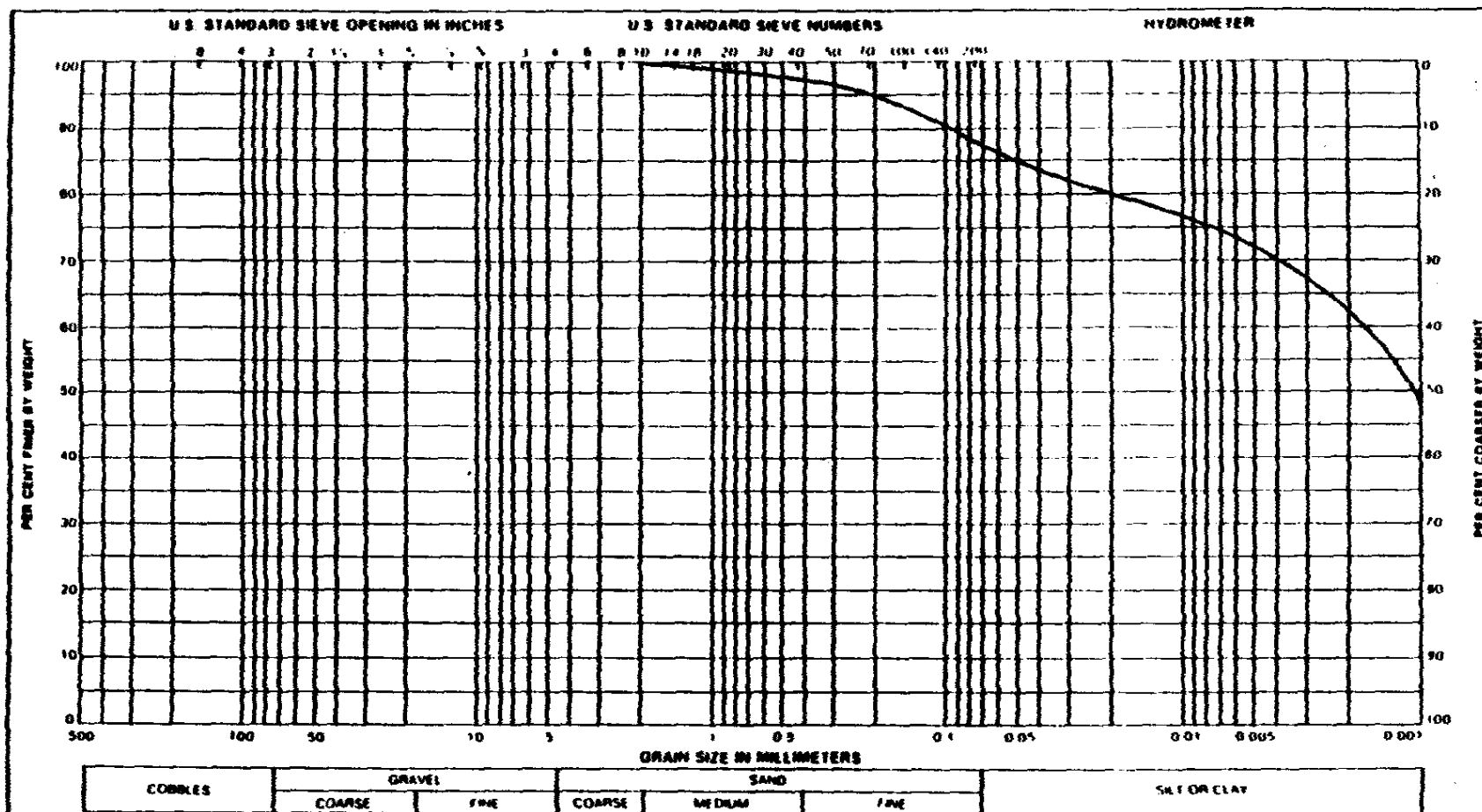
WELL CLUSTER	DEPTH	CLASSIFICATION	PROJECT
P-25 TB	650'-653'	Reddish brown, sandy clay	Phase III Hydrogeologic Investigation

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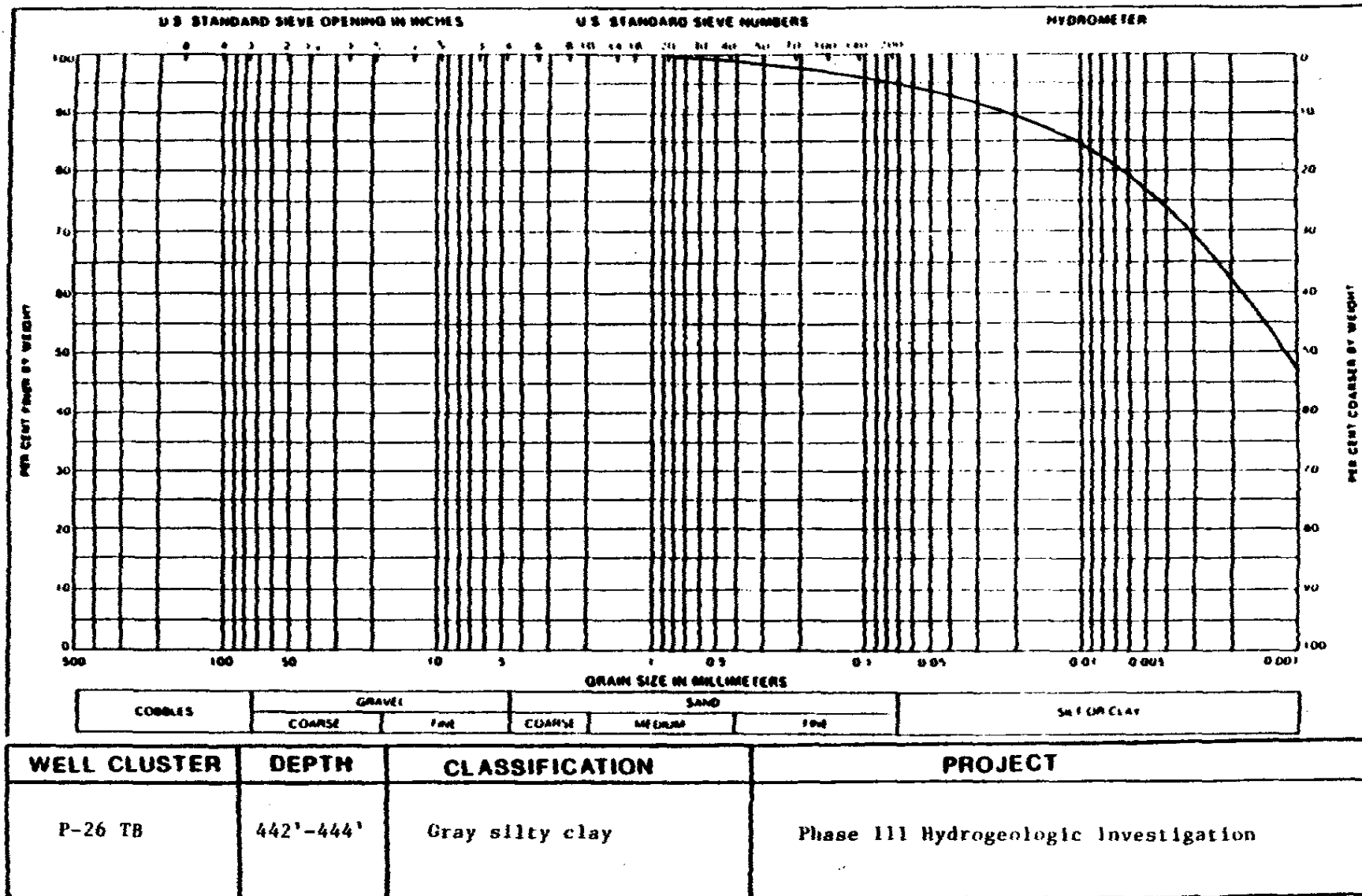


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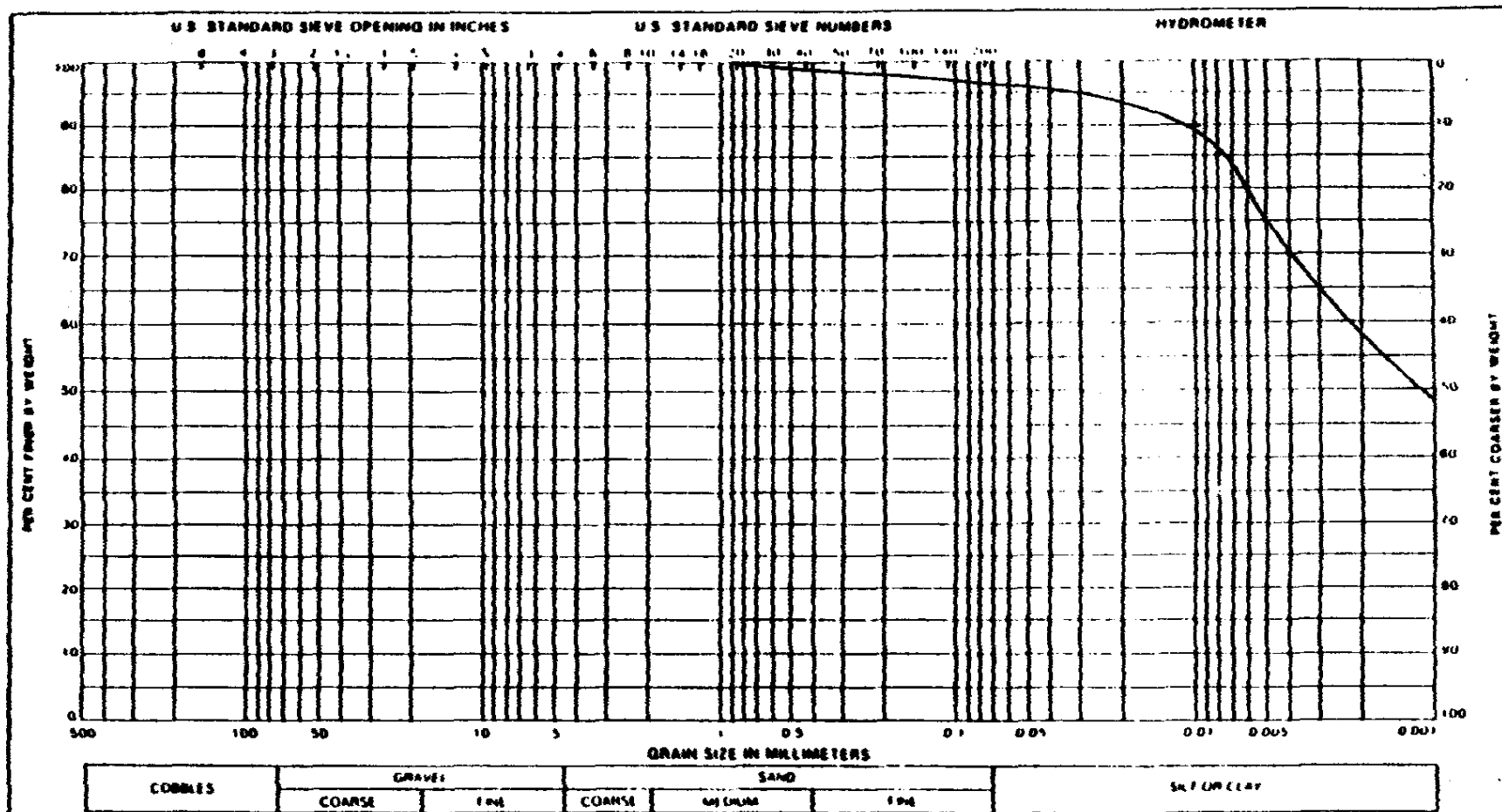


WELL CLUSTER		DEPTH	CLASSIFICATION	PROJECT
P-26 TB		282'-285'	Purplish red clay	Phase III Hydrogeologic Investigation

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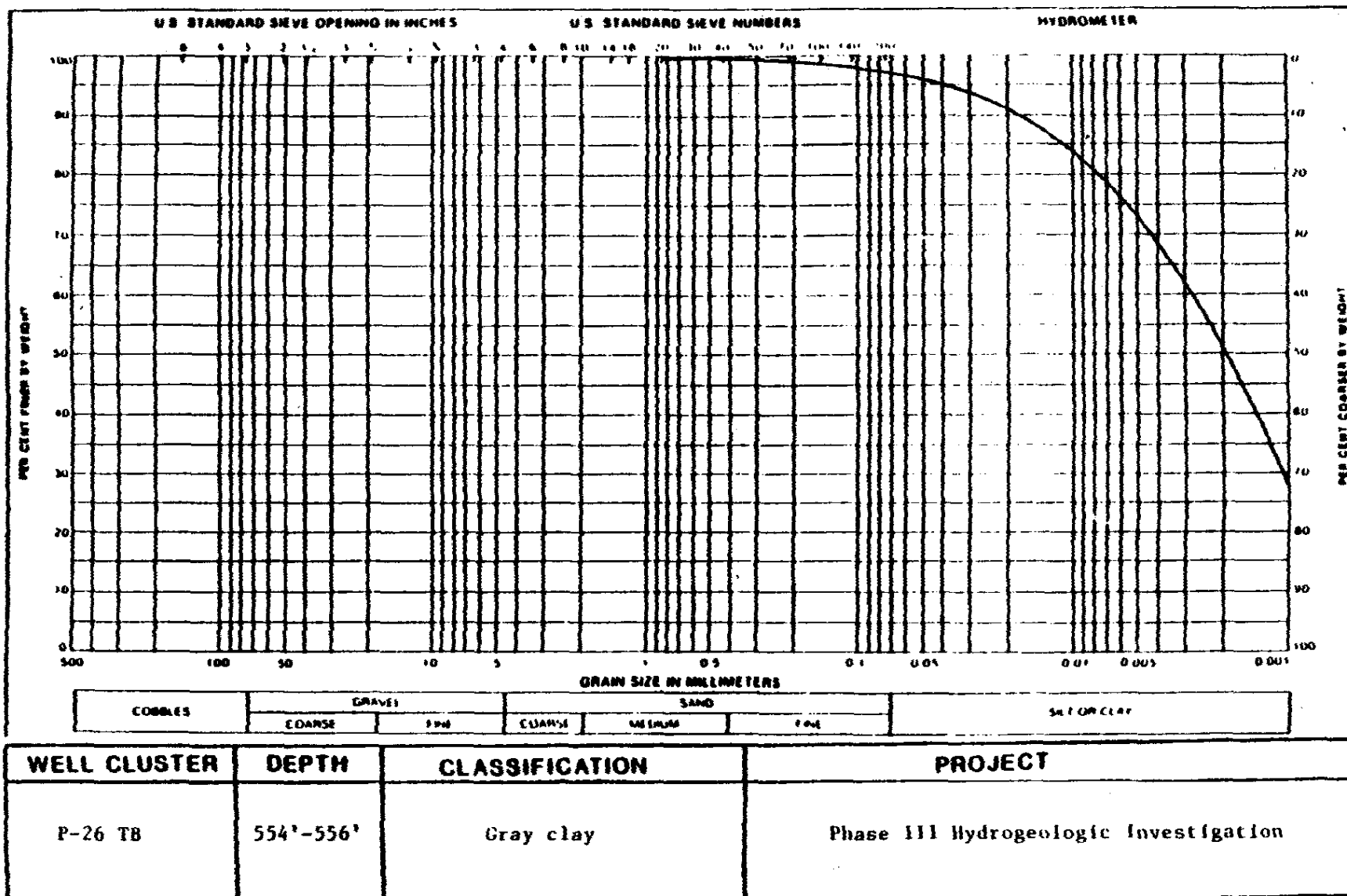


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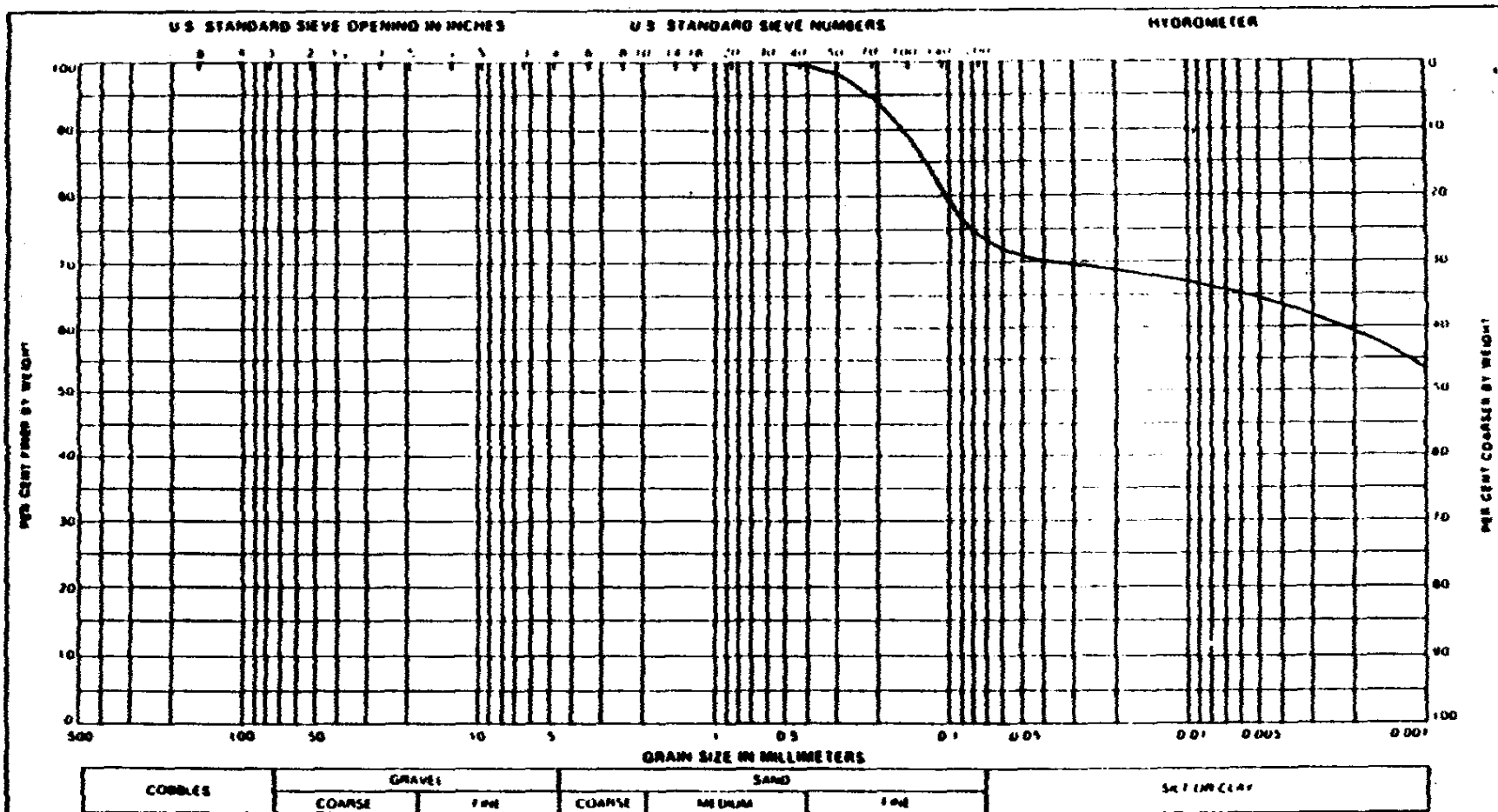


WELL CLUSTER	DEPTH	CLASSIFICATION	PROJECT
P-26 TB	504'-506'	Gray clay	Phase III Hydrogeologic Investigation

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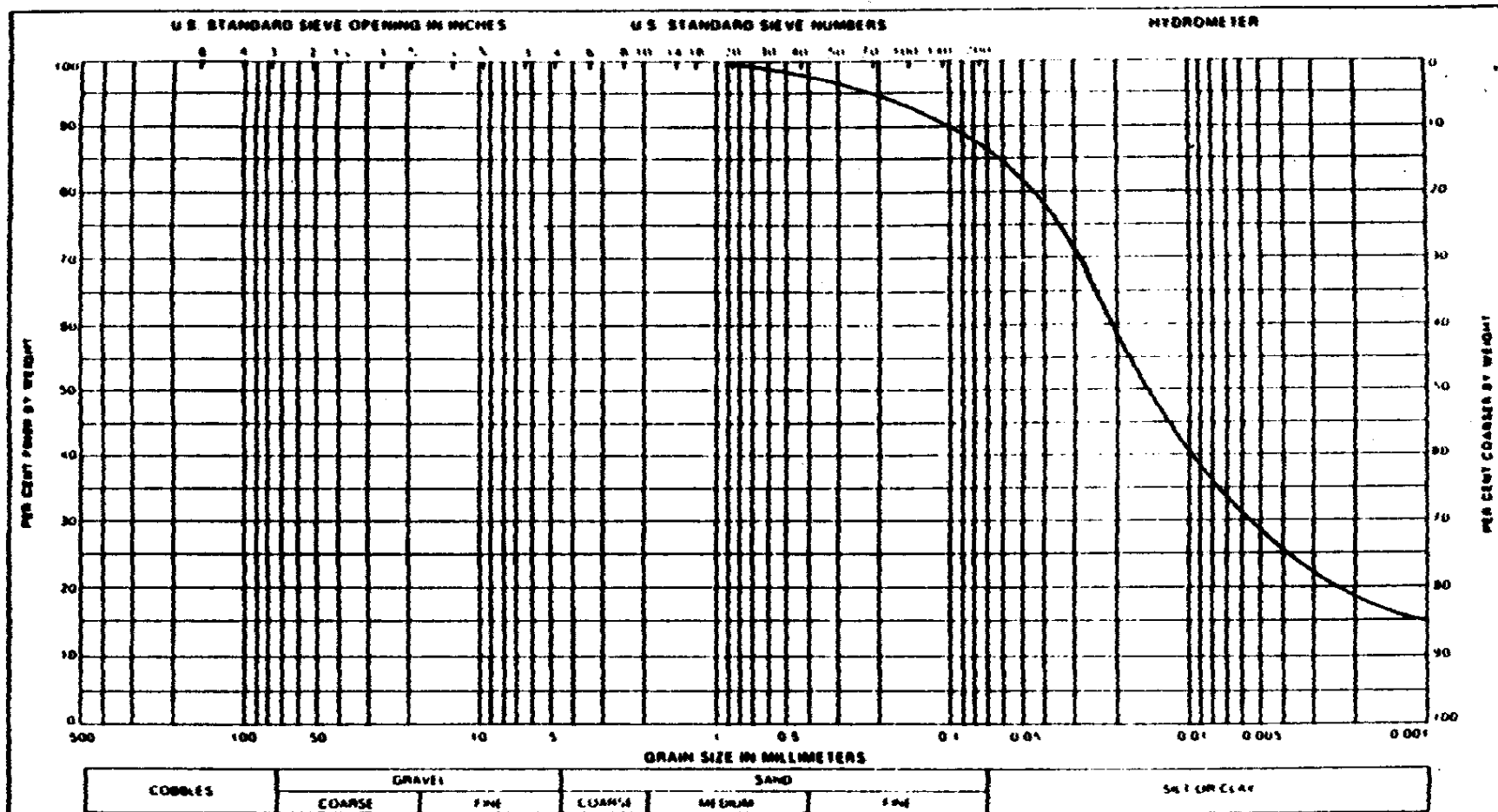


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WELL CLUSTER		DEPTH	CLASSIFICATION	PROJECT
P-27 TB		95'-98'	Grayish green sandy clay	Phase III Hydrogeologic Investigation

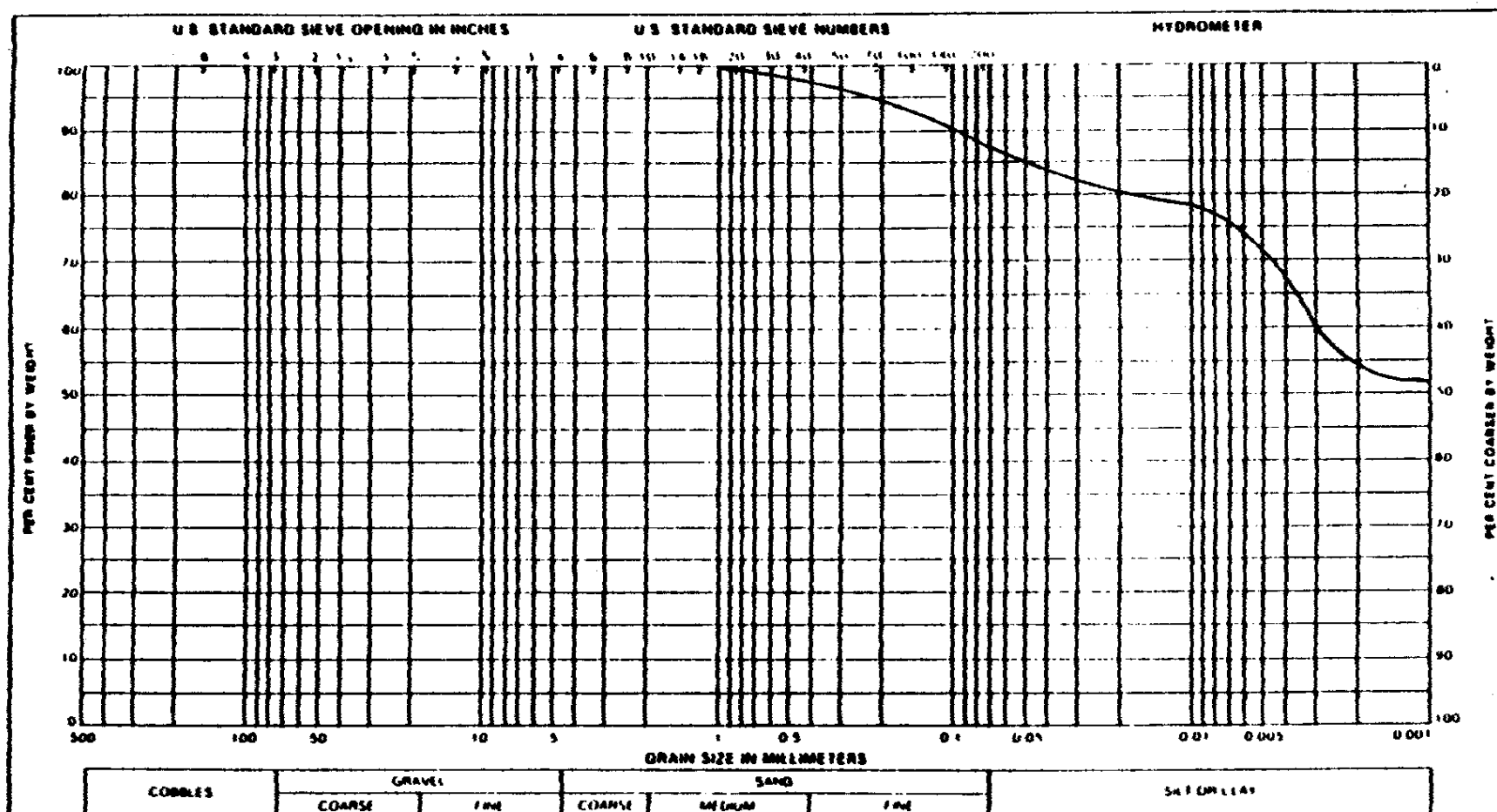
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WELL CLUSTER		DEPTH	CLASSIFICATION	PROJECT
P-27 TB		230'-233'	Light gray, clayey silt	Phase III Hydrogeologic Investigation

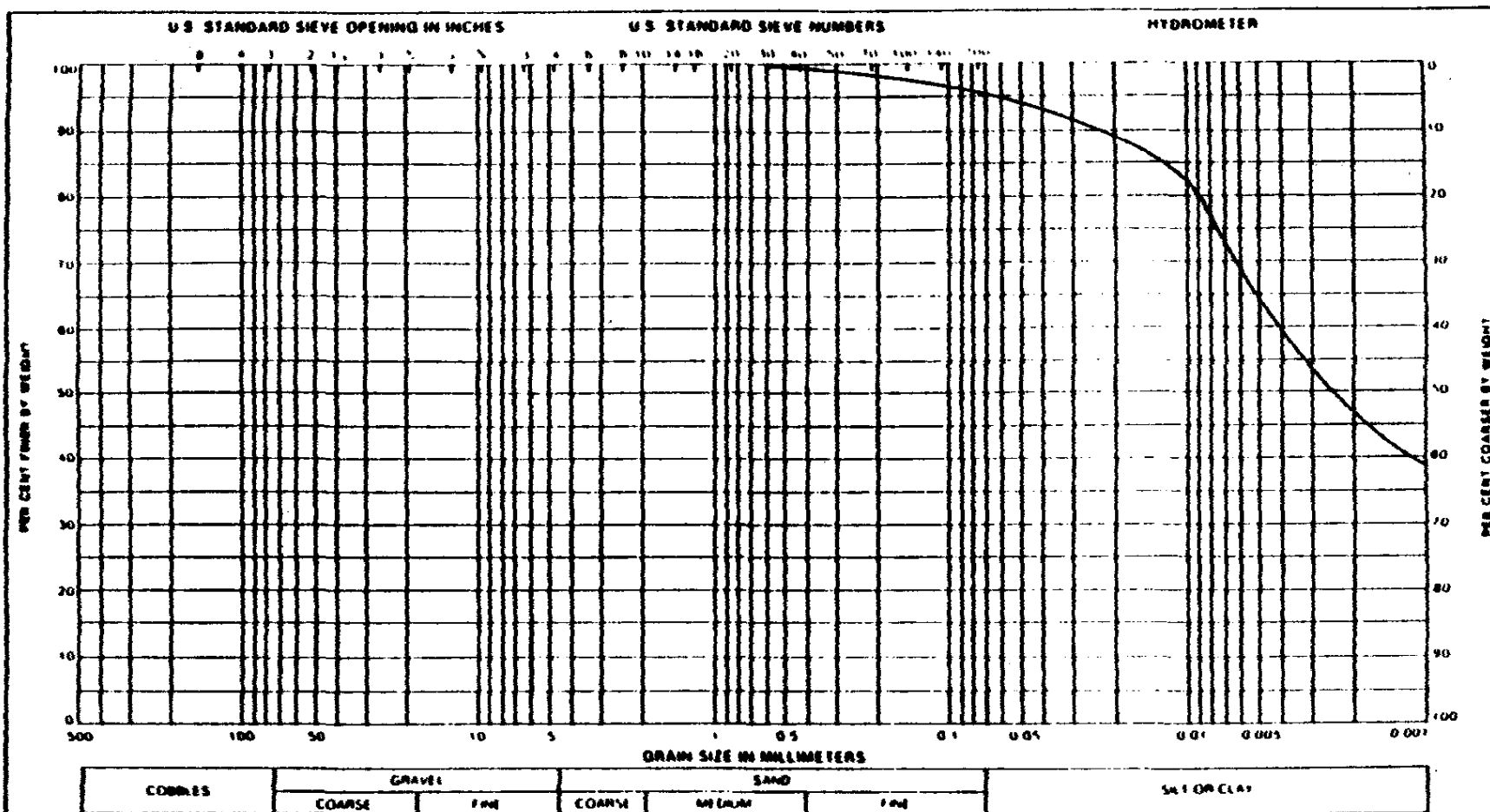
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- H-21 -



WELL CLUSTER	DEPTH	CLASSIFICATION	PROJECT
P-27 TB	340'-343'	Light gray clay	Phase III Hydrogeologic Investigation

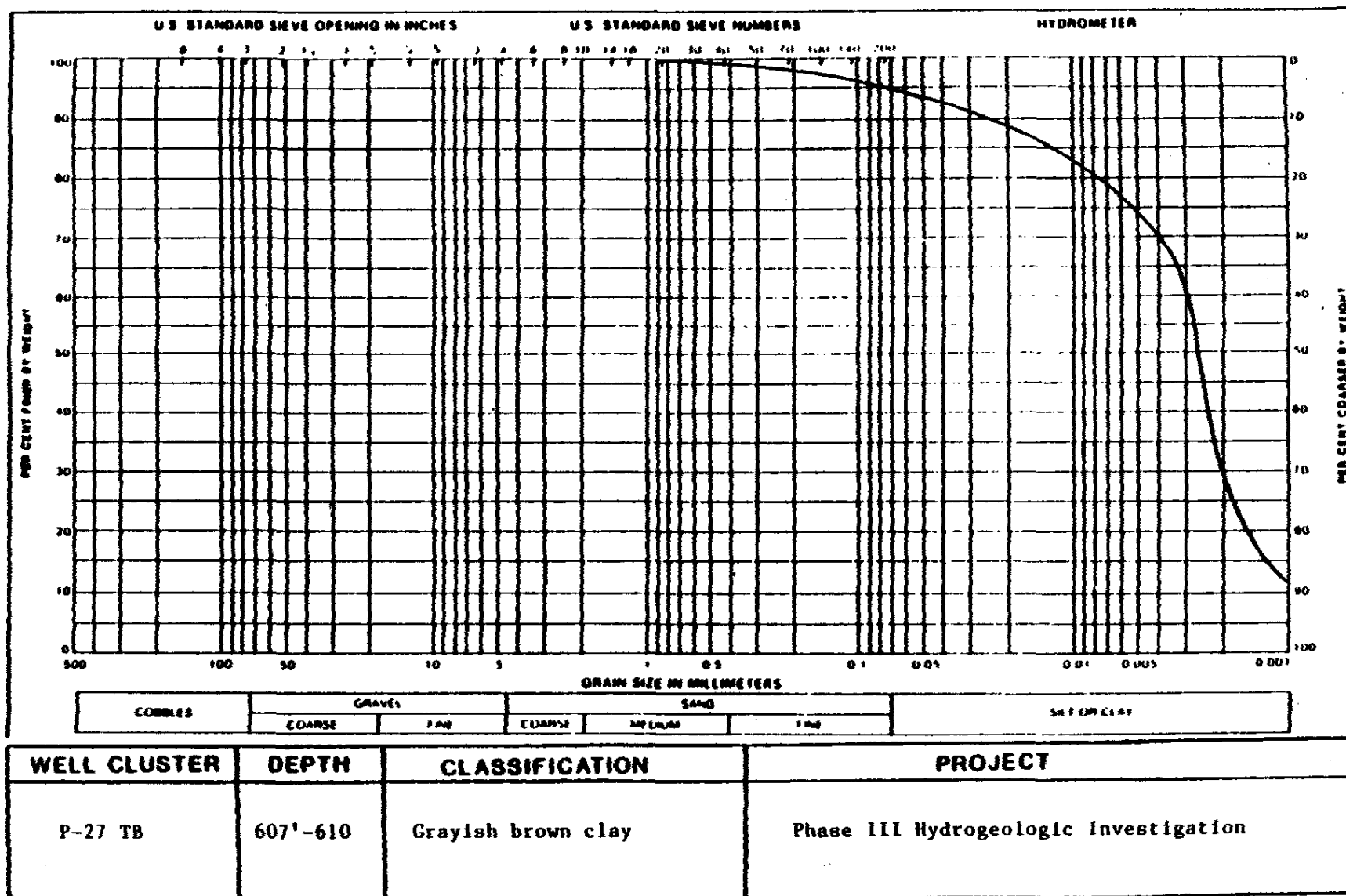
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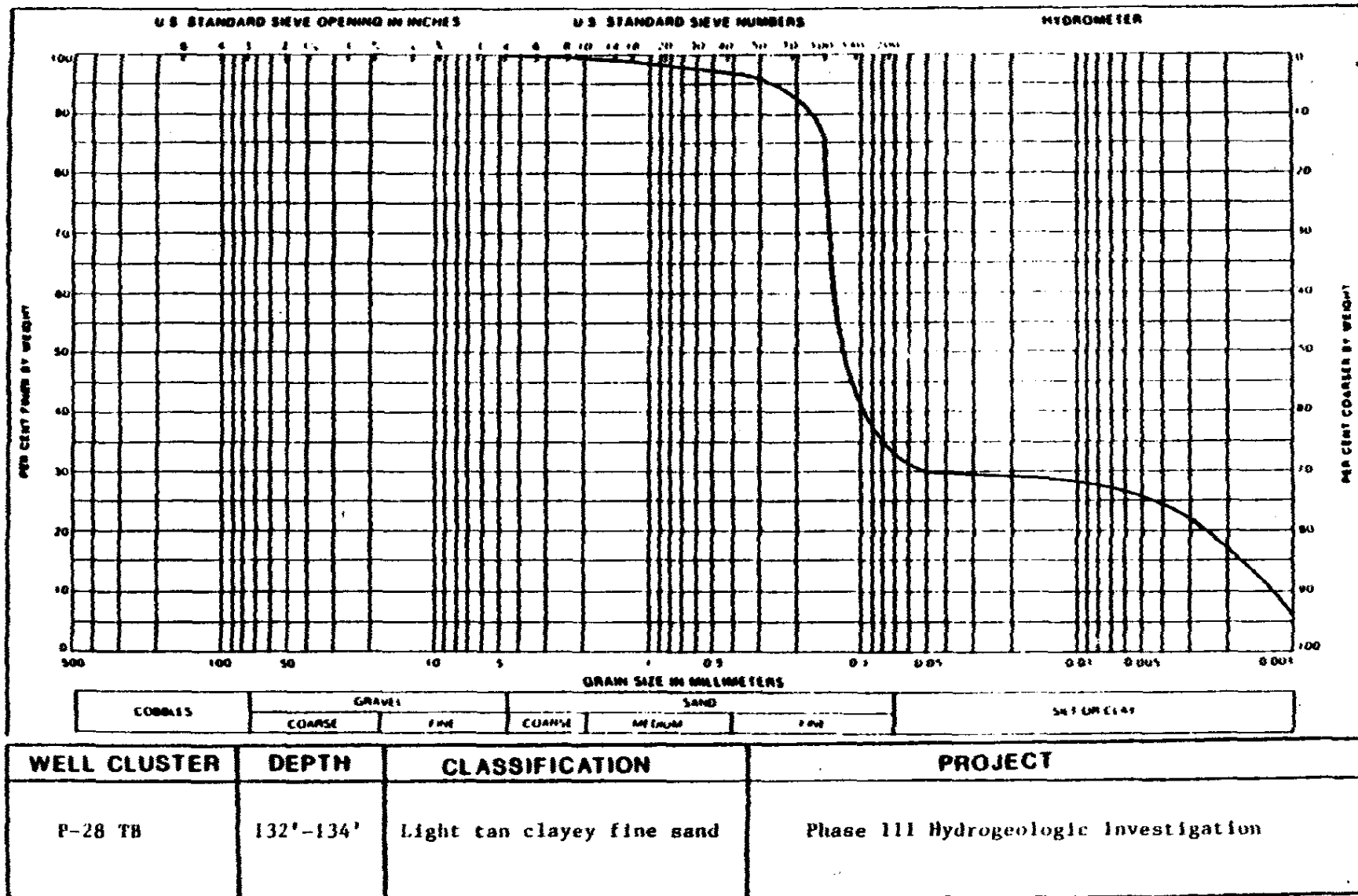
WELL CLUSTER		DEPTH	CLASSIFICATION	PROJECT
P-27 TB		458'-461'	Light gray clay	Phase III Hydrogeologic Investigation

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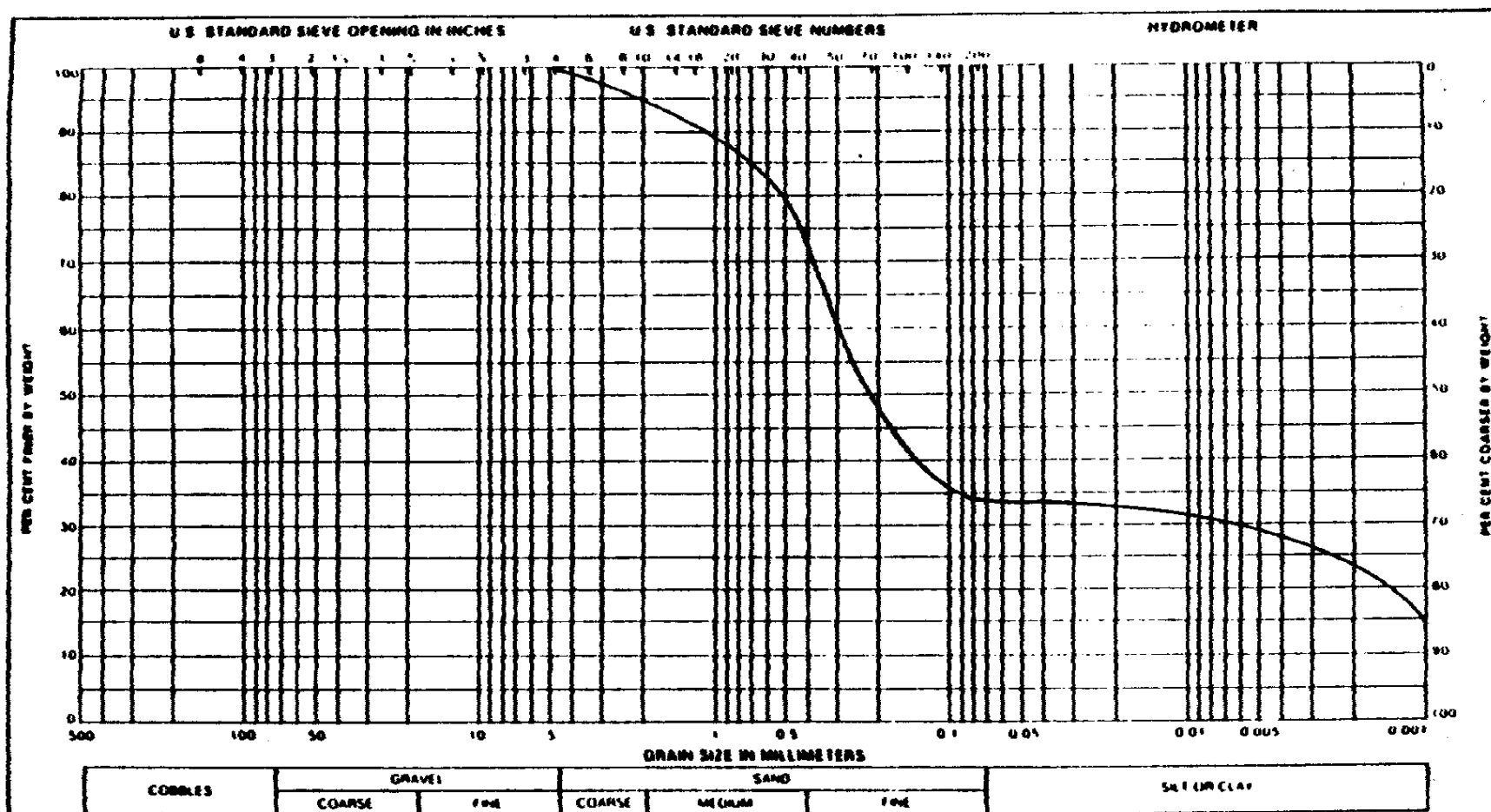
- R-23 -



H-24

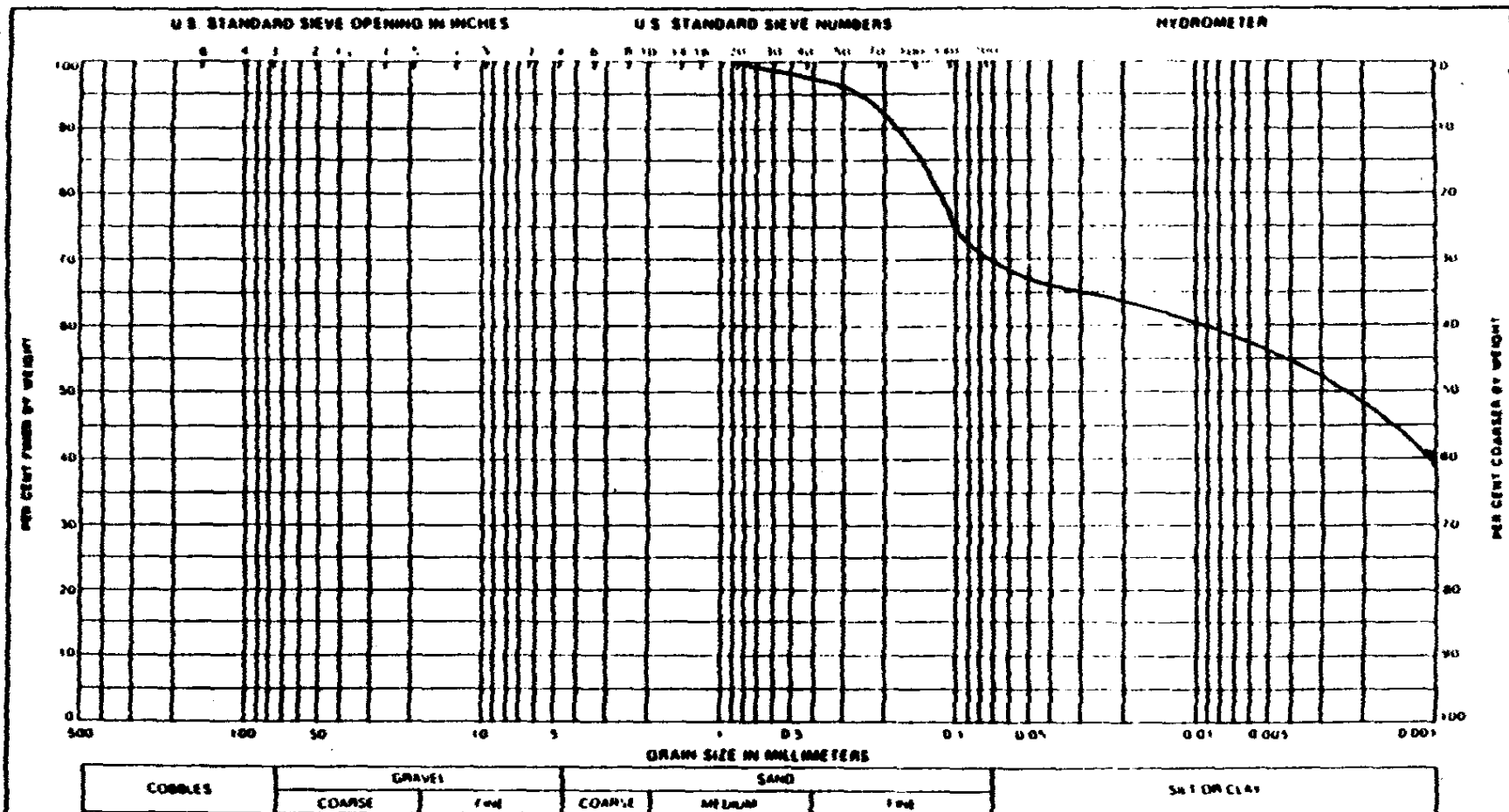


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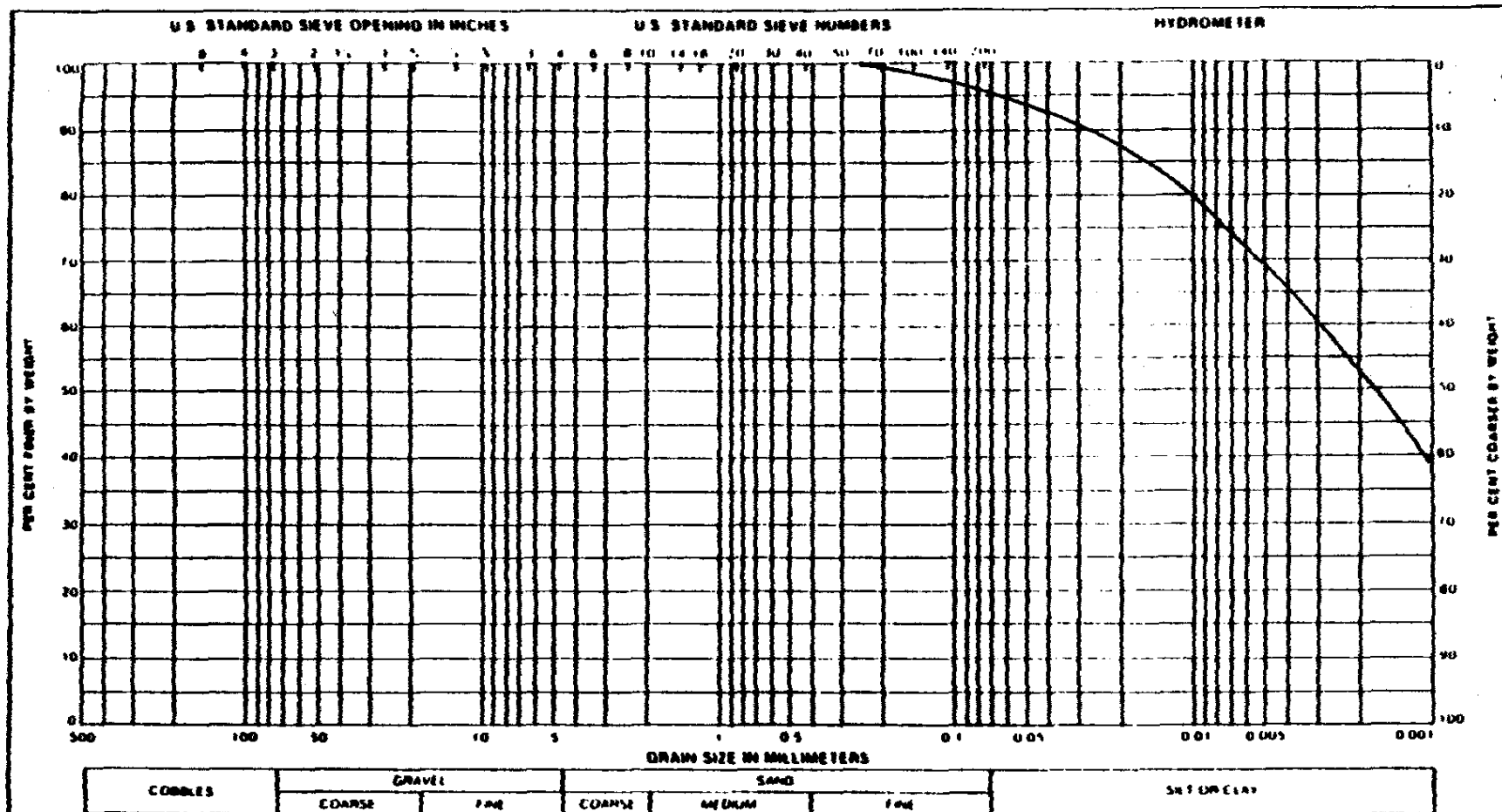
WELL CLUSTER	DEPTH	CLASSIFICATION	PROJECT
P-28 TB	293'-299	Gray, clayey, fine sand with mica	Phase III Hydrogeologic Investigation

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WELL CLUSTER	DEPTH	CLASSIFICATION	PROJECT
P-28 TB	370'-373'	Gray and tan sandy clay	Phase III Hydrogeologic Investigation

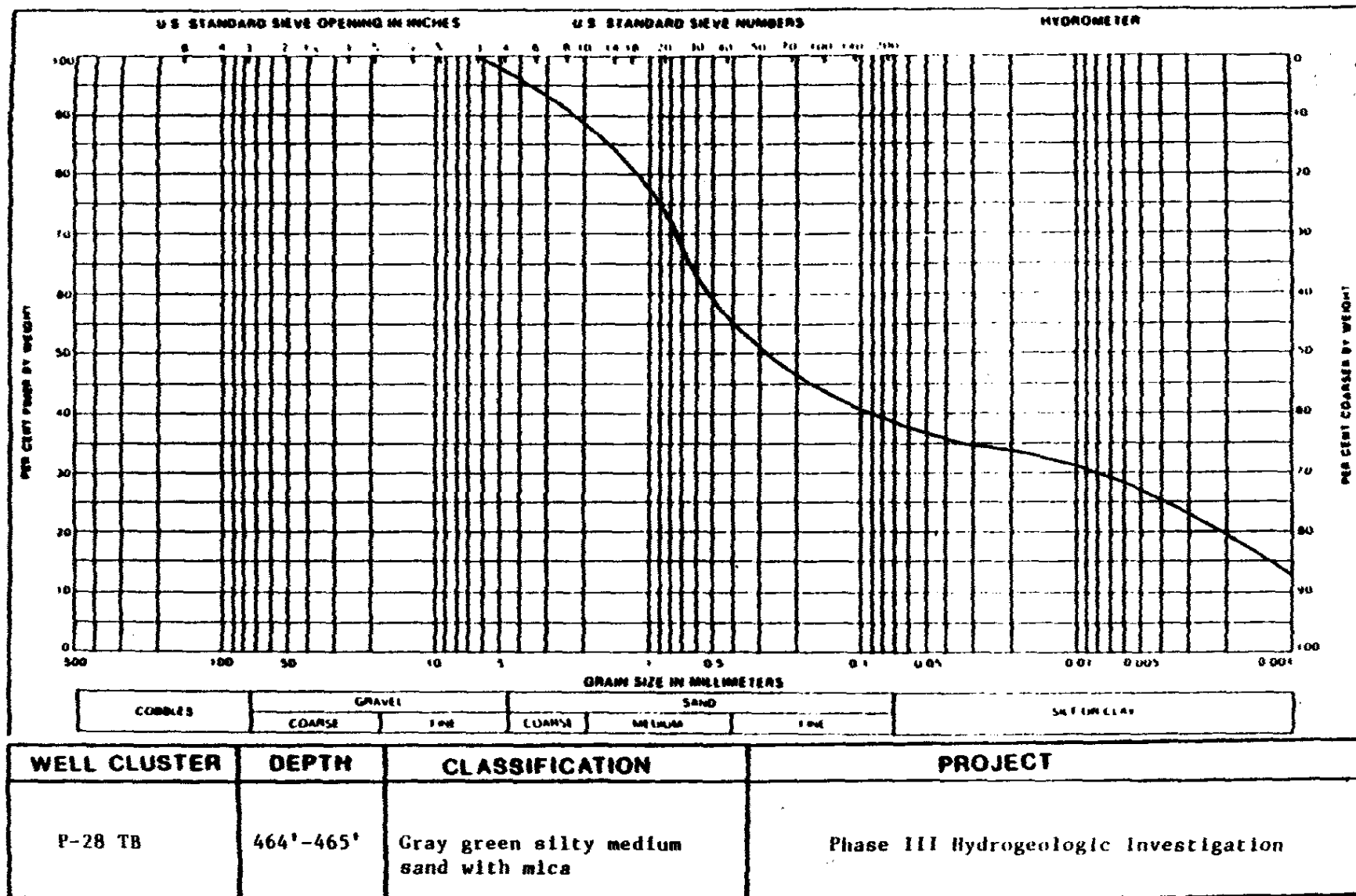
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WELL CLUSTER	DEPTH	CLASSIFICATION	PROJECT
P 28 TB	370'-377'	Gray silty clay	Phase III Hydrogeologic Investigation

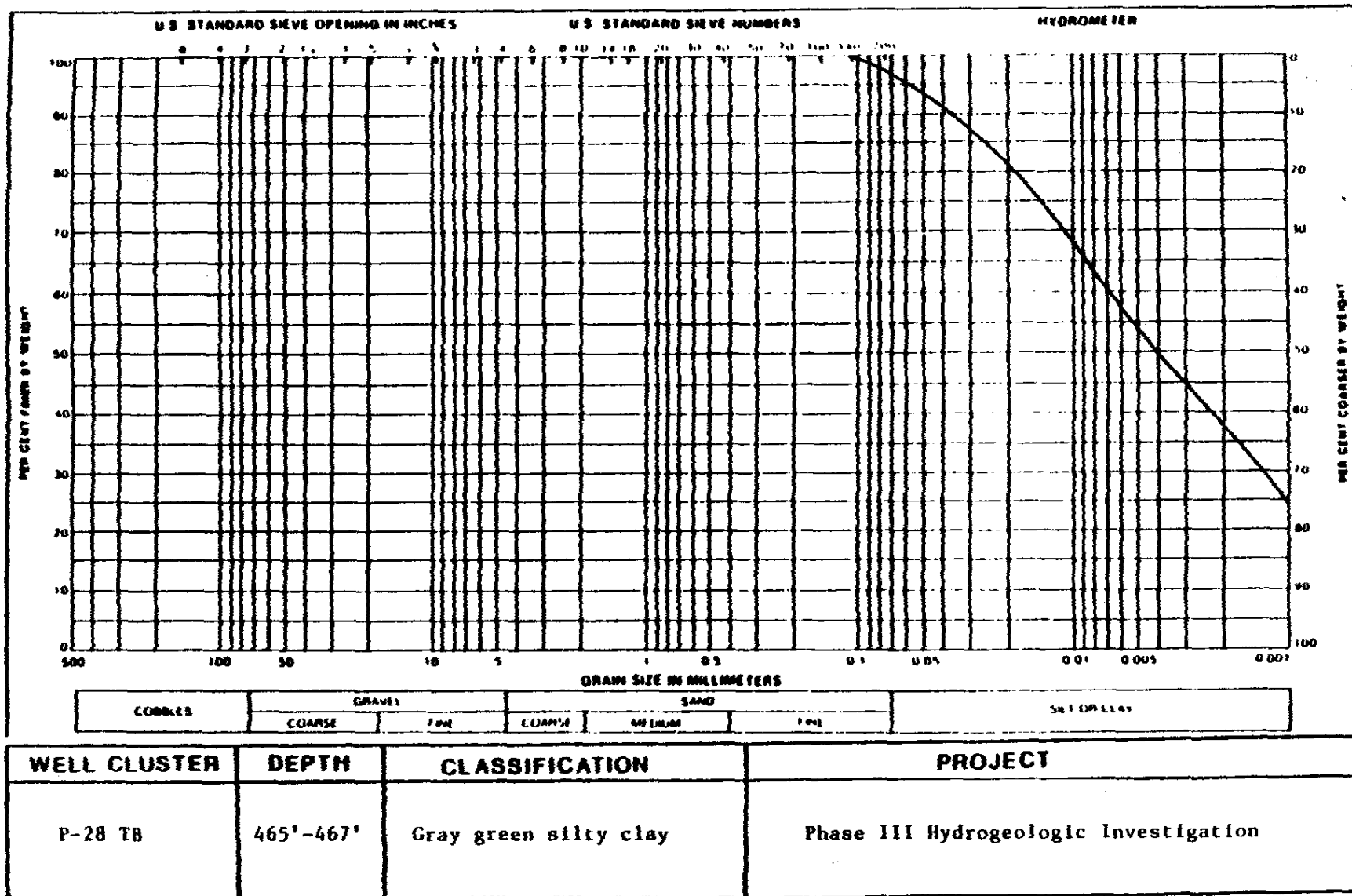
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- H-28 -

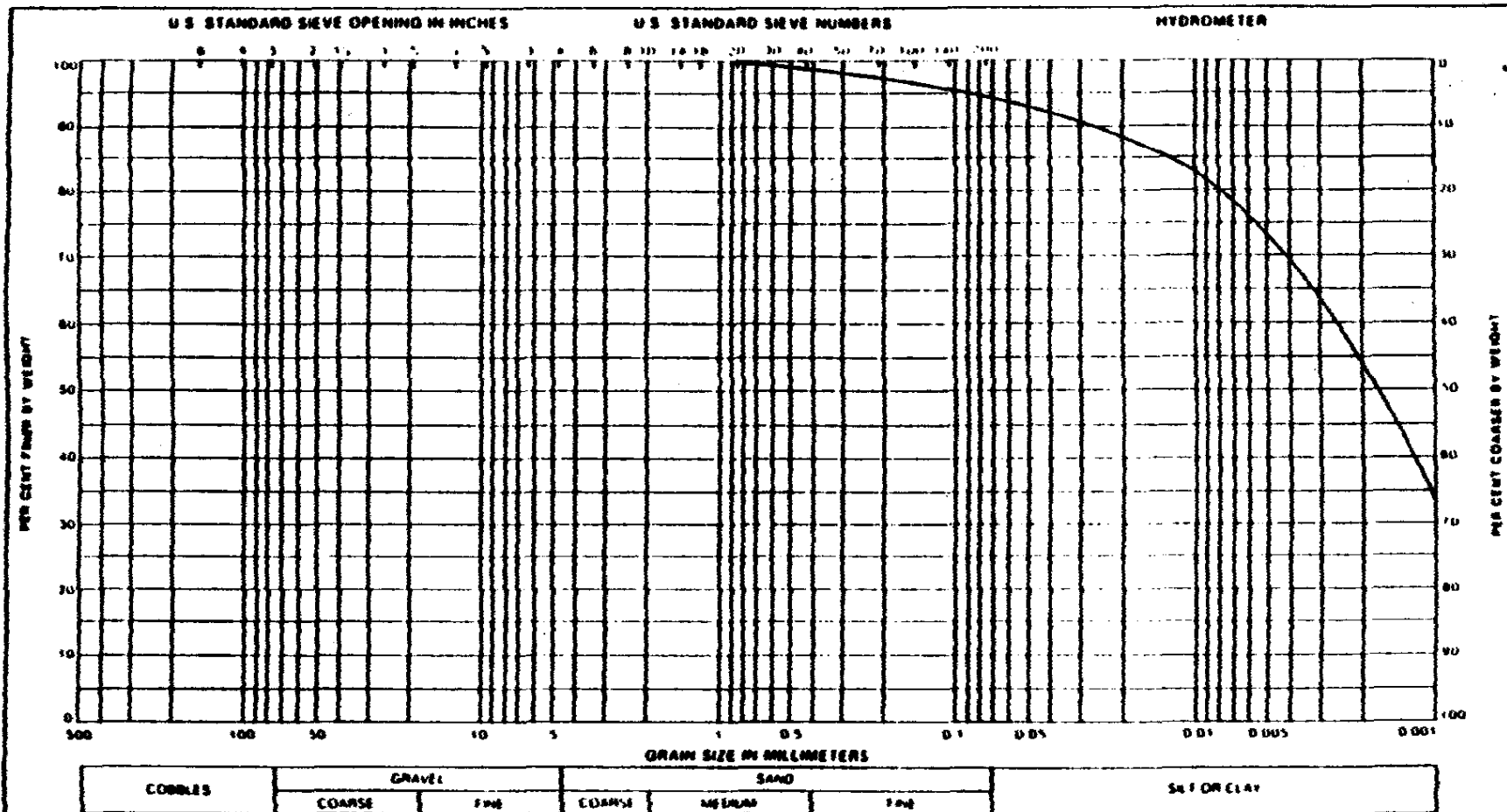


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- H-29 -



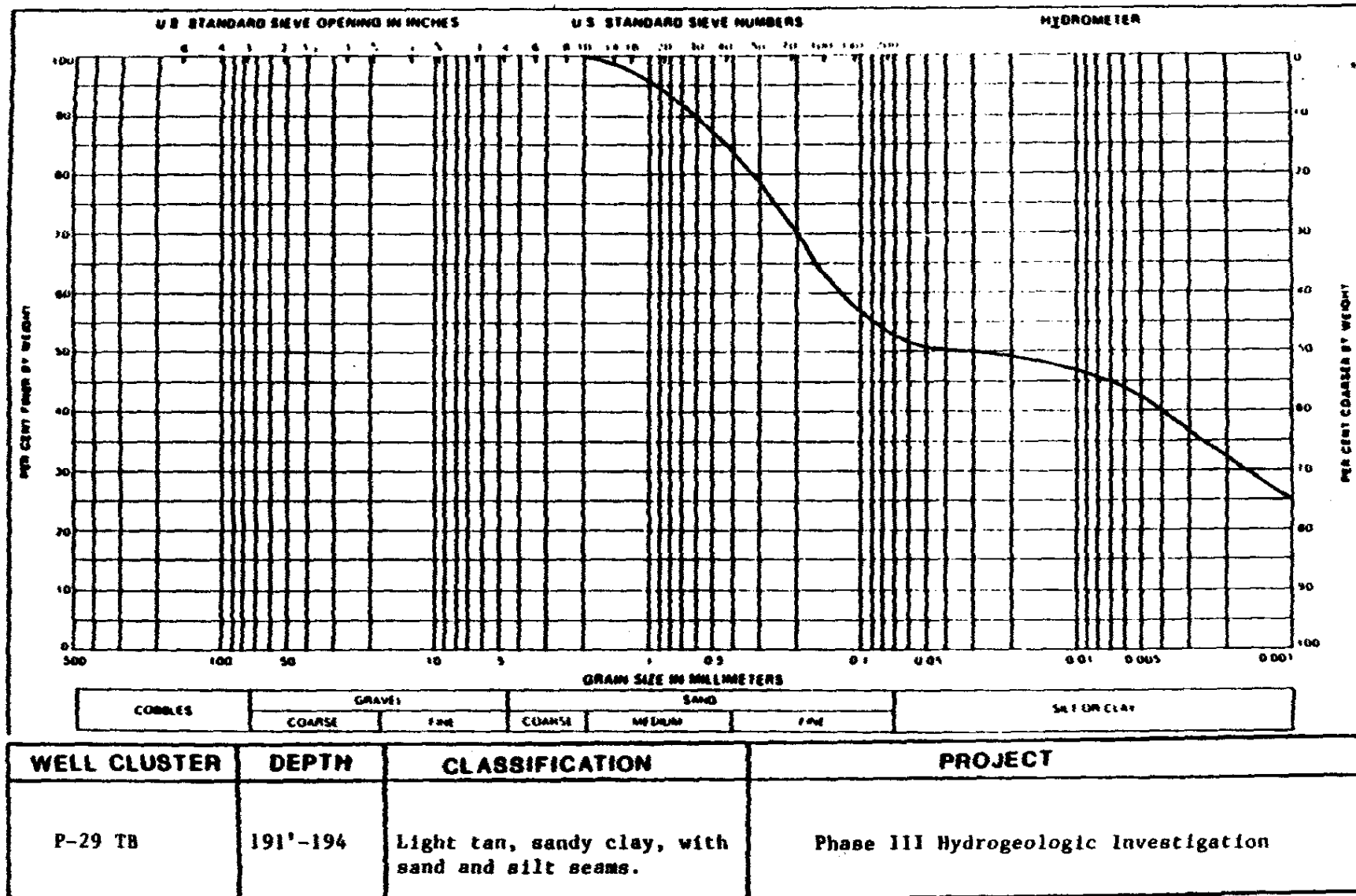
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WELL CLUSTER	DEPTH	CLASSIFICATION	PROJECT
P-28 TB	600'-602'	Cemented gray and tan clay	Phase III Hydrogeologic Investigation

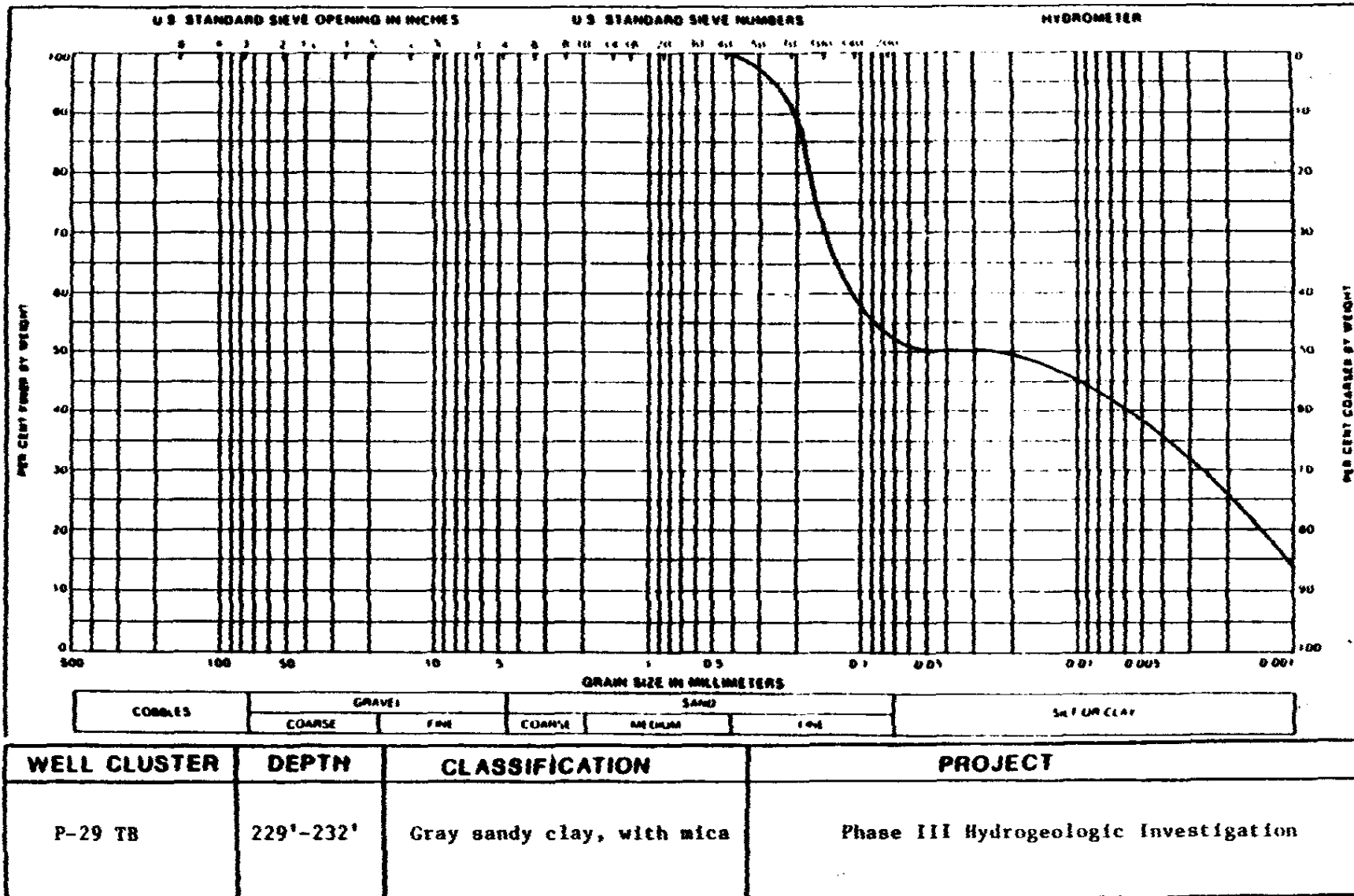
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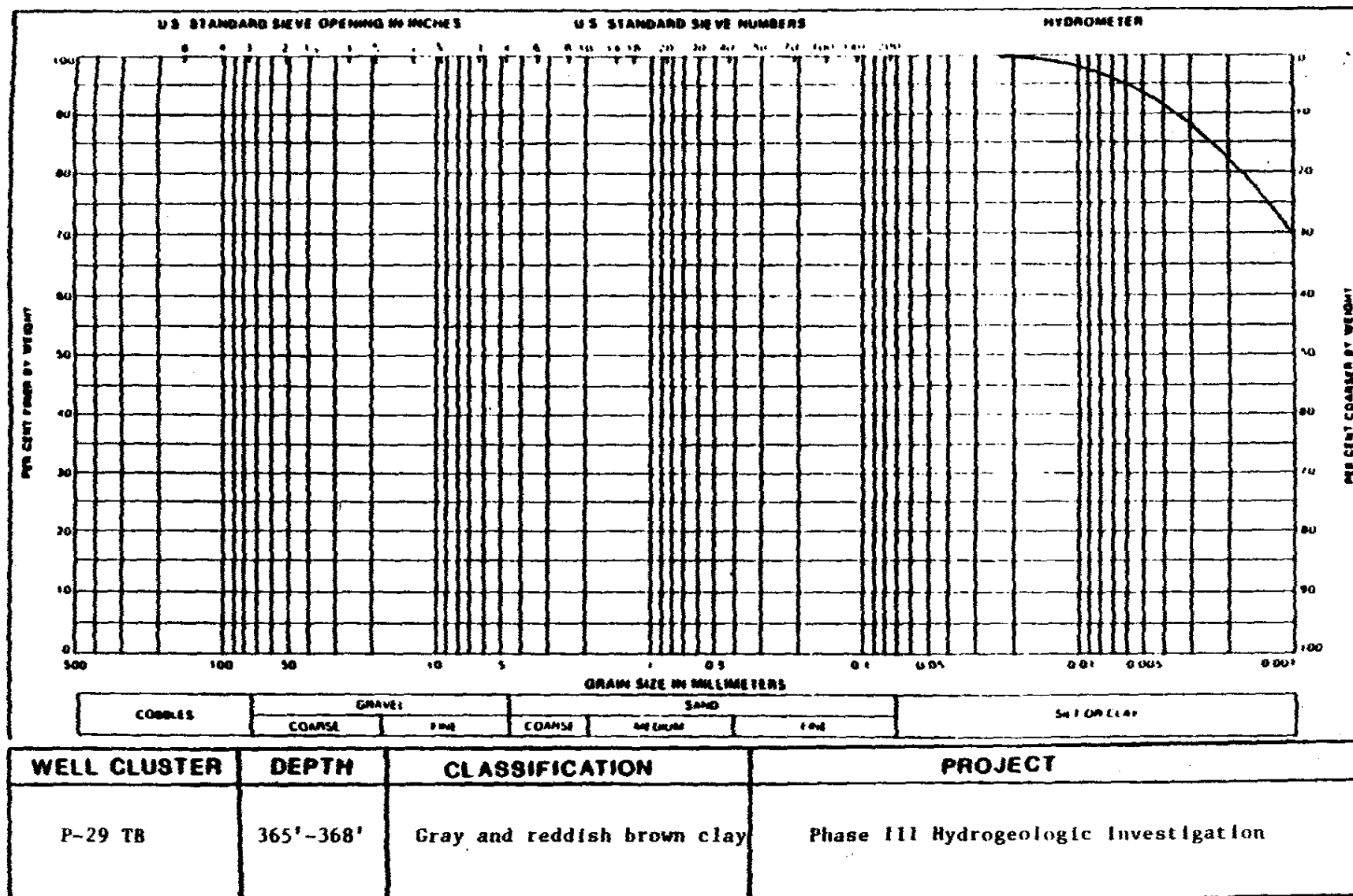
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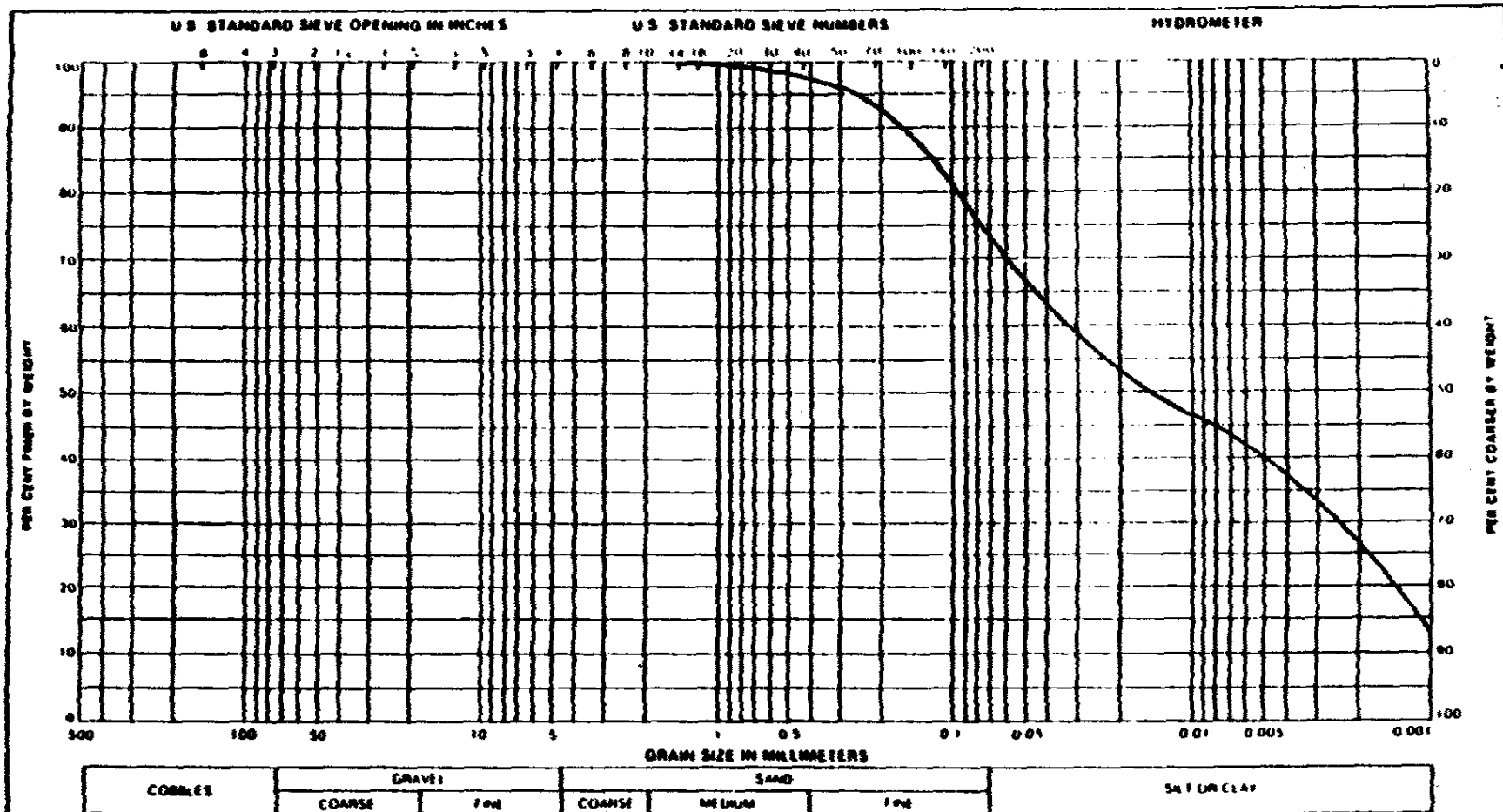


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- H-33 -



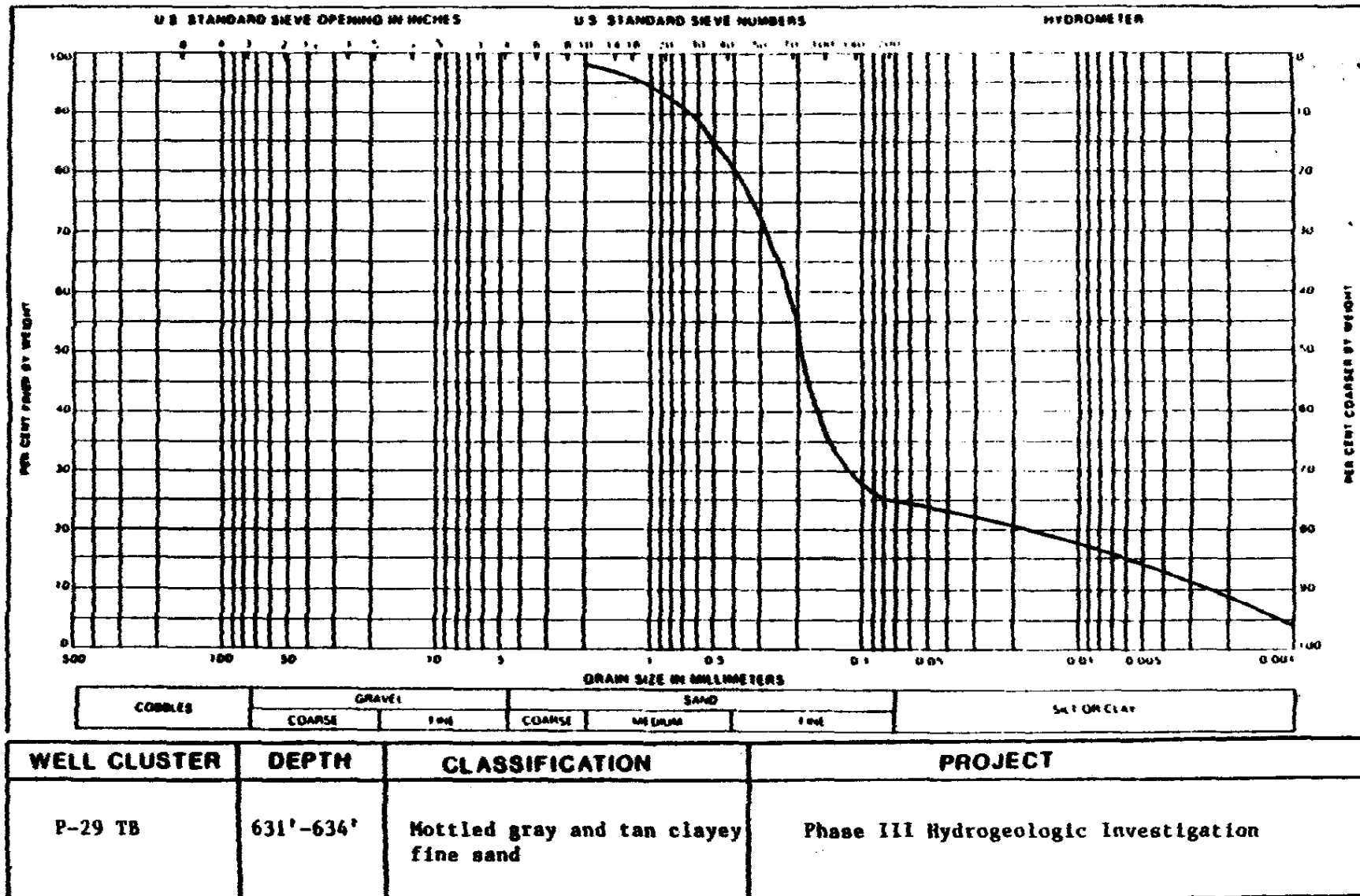
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WELL CLUSTER	DEPTH	CLASSIFICATION	PROJECT
P-29 TB	591'-593	Gray sandy clay	Phase III Hydrogeologic Investigation

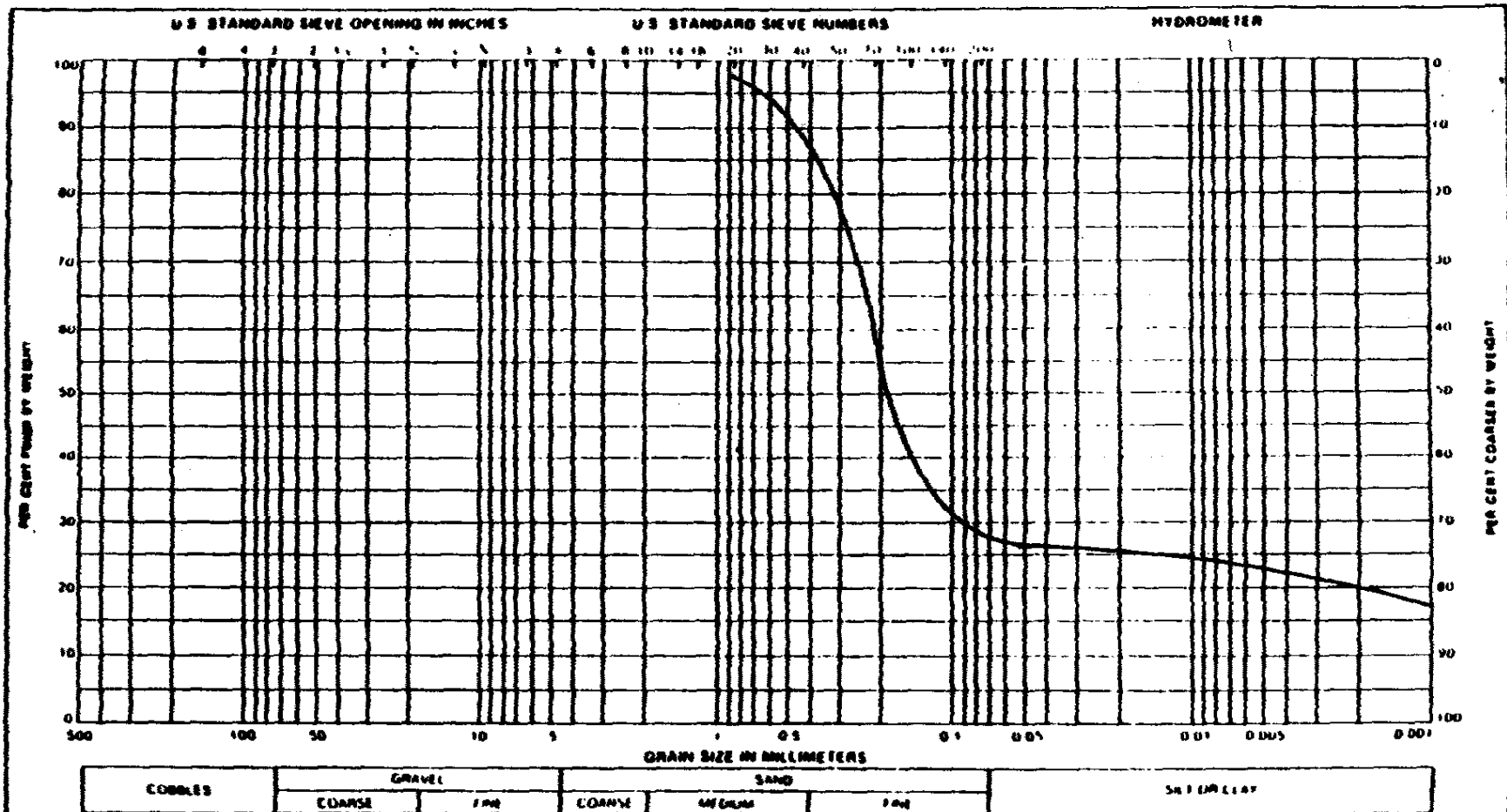
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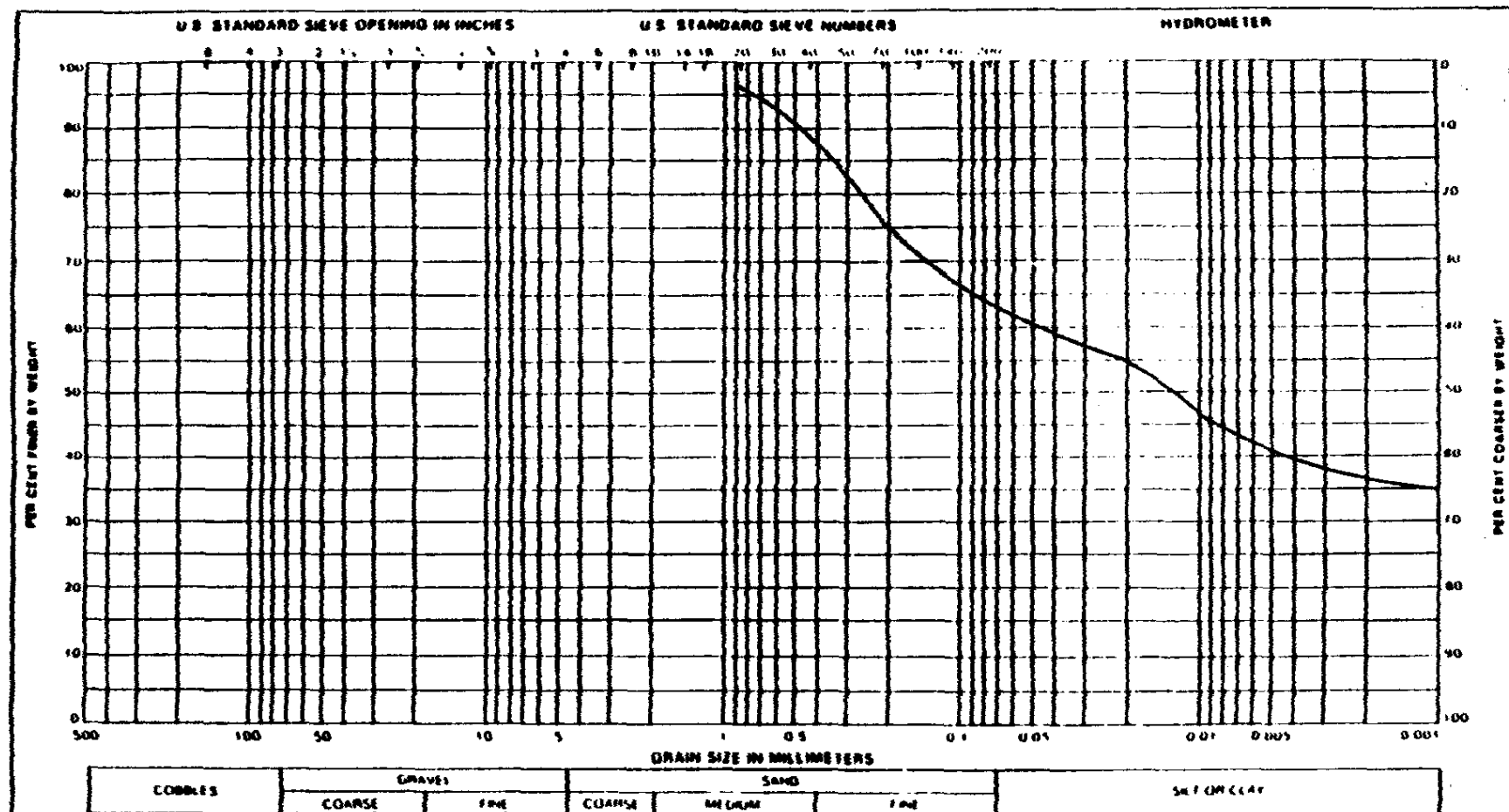
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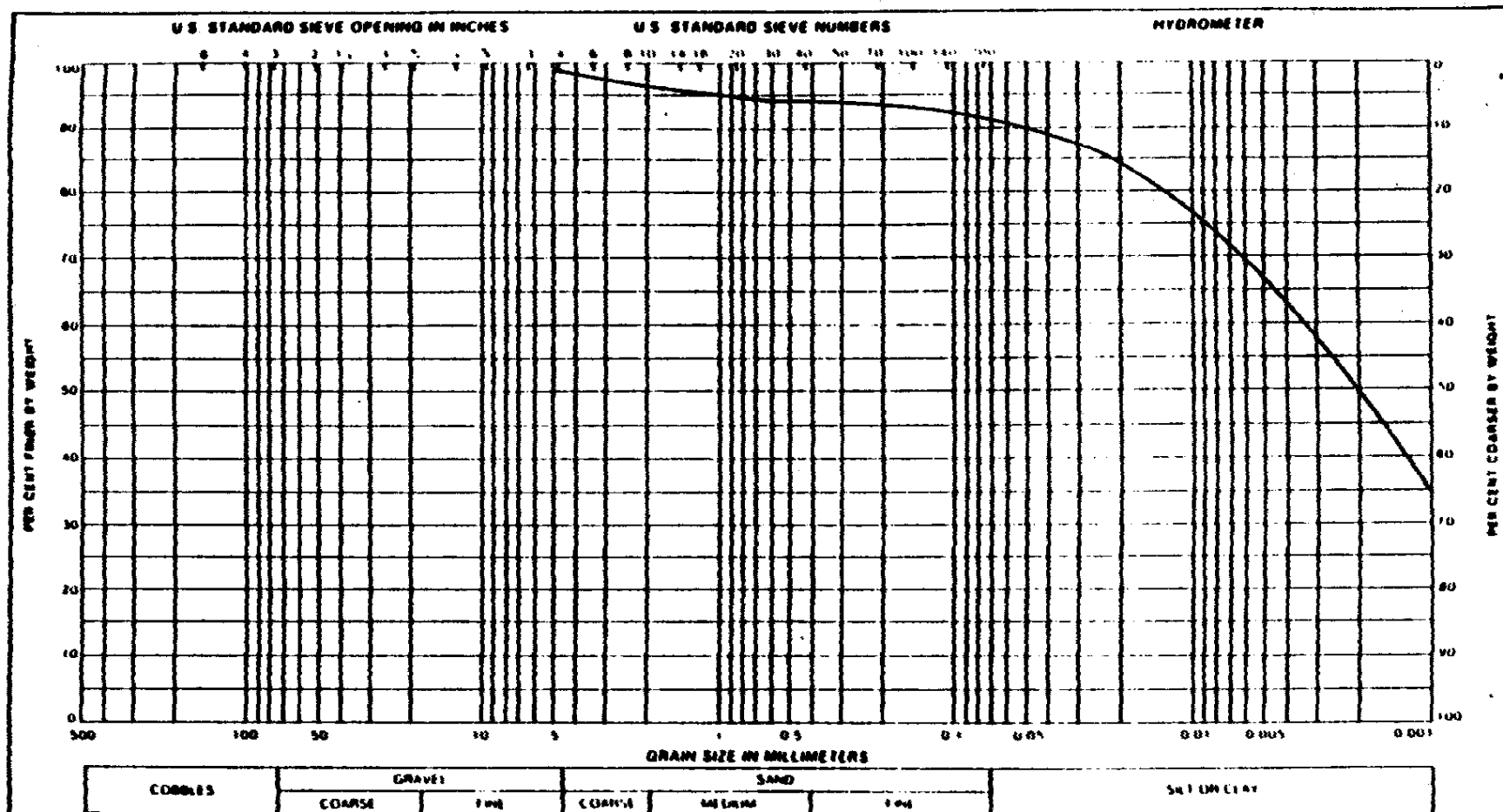
WELL CLUSTER	DEPTH	CLASSIFICATION	PROJECT
P-30 TB	105'-108'	Reddish brown, clayey, fine sand.	Phase III Hydrogeologic Investigation

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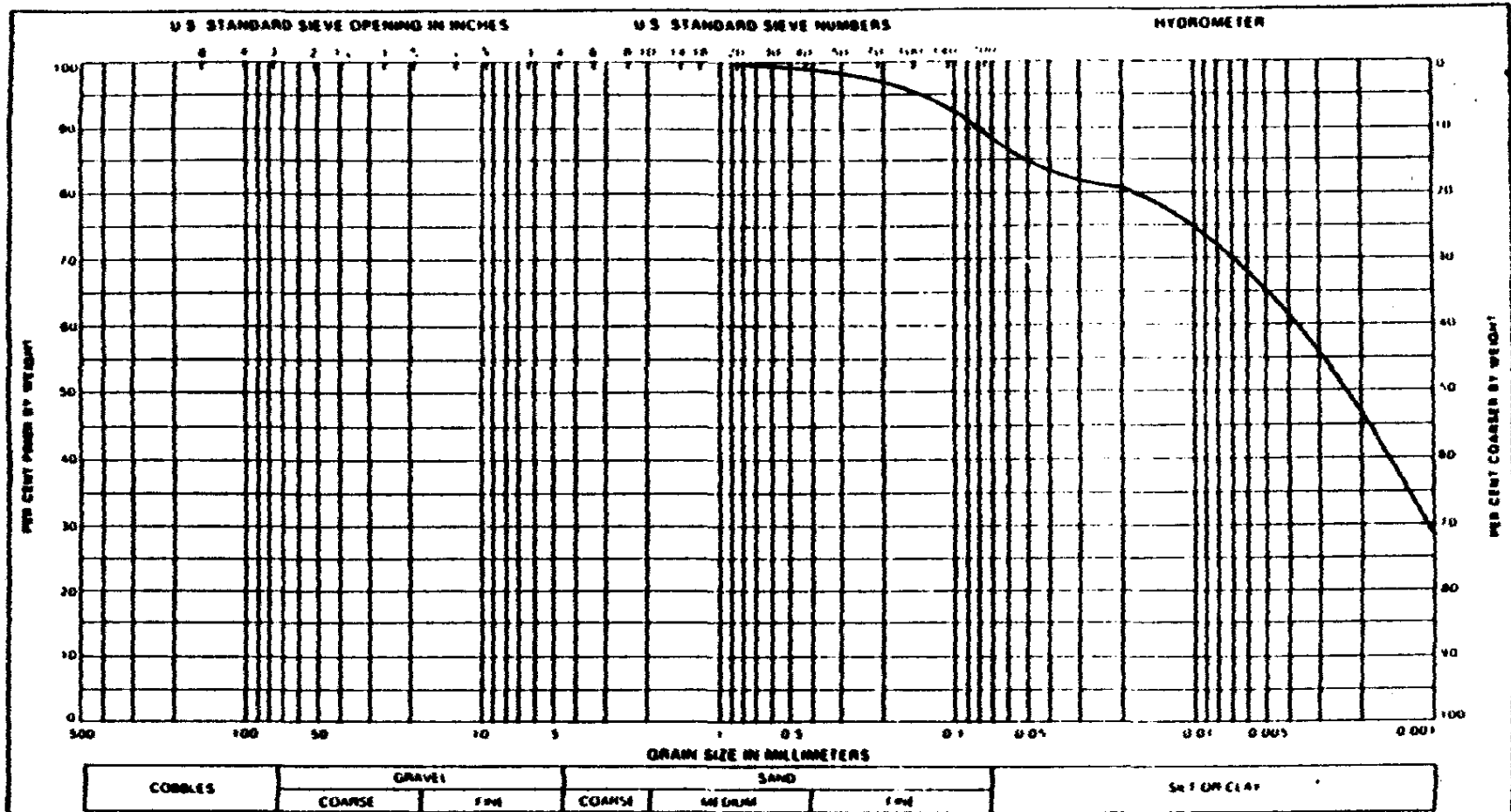
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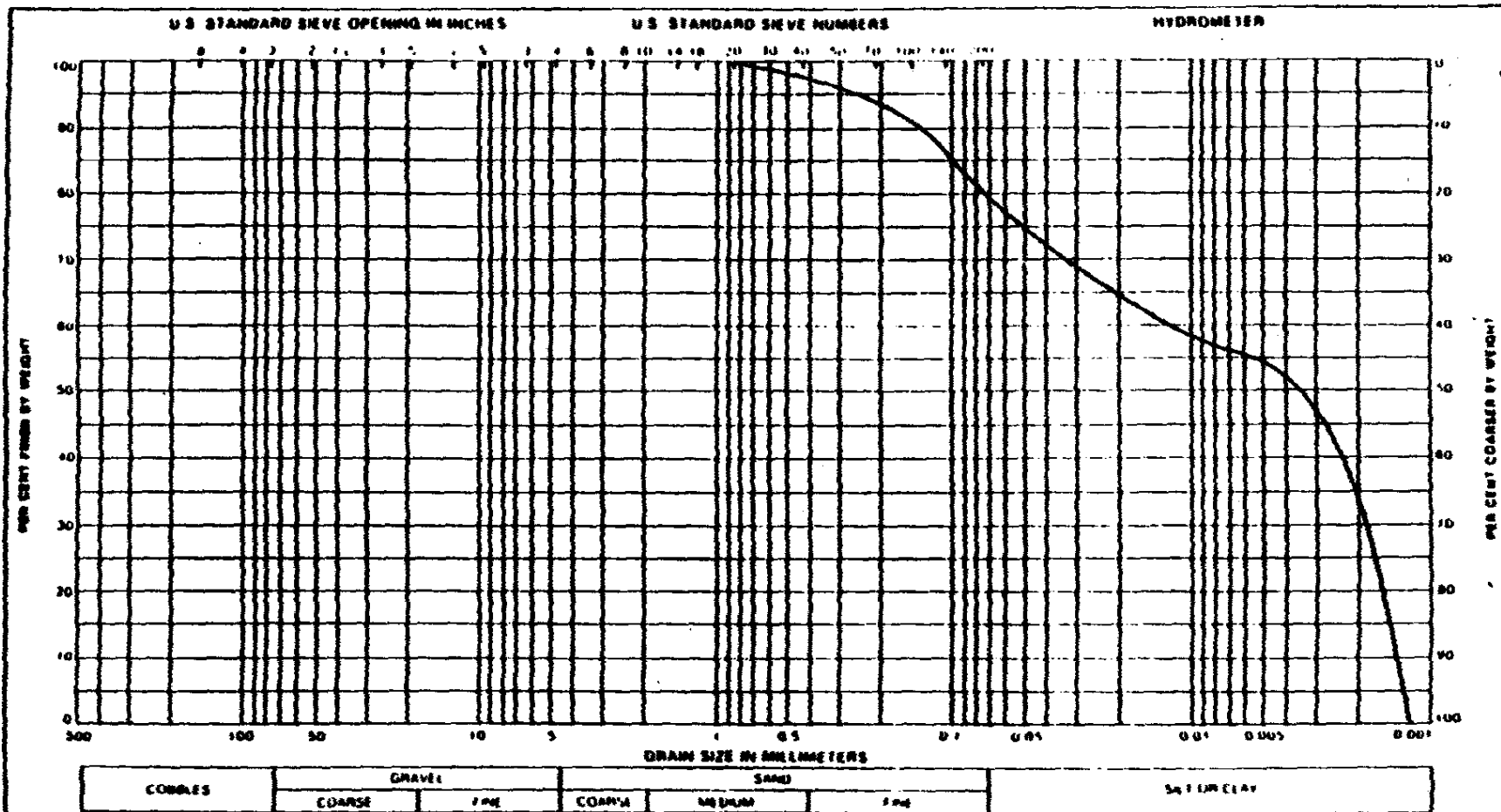
WELL CLUSTER	DEPTH	CLASSIFICATION	PROJECT
P-30 TB	215'-217'	Light gray, silty clay.	Phase III Hydrogeologic Investigation

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WELL CLUSTER	DEPTH	CLASSIFICATION	PROJECT
P-30 TB	506'-509'	Gray, silty clay	Phase III Hydrogeologic Investigation

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WELL CLUSTER	DEPTH	CLASSIFICATION	PROJECT
P-30 TB	615'-617'	Gray, sandy clay.	Phase III Hydrogeologic Investigation

Distribution, SRP Baseline Hydrogeologic Investigation - Phase 1.1
SRP-88-627, August 1988.

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