REPORT OF
ADDITIONAL GEOTECHNICAL EXPLORATION

PROPOSED GYPSUM DISPOSAL AREA
KINGSTON FOSSIL PLANT
KINGSTON, TENNESSEE

Prepared For:

TENNESSEE VALLEY AUTHORITY

Chattanooga, Tennessee

Prepared By:

MACTEC ENGINEERING AND CONSULTING, INC.

Knoxville, Tennessee

MACTEC Project 3043051064.01

February 24, 2006

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February 24, 2006

Mr. Ron Purkey
Tennessee Valley Authority
1101 Market Street, LP-2G
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Subject: **Report of Additional Geotechnical Exploration**
Proposed Gypsum Disposal Area
TVA Kingston Fossil Plant
Kingston, Tennessee
MACTEC Project 3043051064.01

Dear Mr. Purkey:

We at MACTEC Engineering and Consulting, Inc., (MACTEC) are pleased to submit this Report of Additional Geotechnical Exploration for your project. Our services, as authorized through TAO No. MAC-0738-00096 were provided in general accordance with our proposal number Prop05Knox/329, Revision 1 dated October 25, 2005.

This report reviews the information provided to us, discusses the site and subsurface conditions, and presents the results of our field and laboratory testing for the materials at the proposed gypsum disposal area. The Appendices contain a brief description of the Field Exploratory Procedures, a Key Sheet and Test Boring Records, Monitoring Well Installation Logs, the Laboratory Test Procedures, and the Laboratory Test Results.

We anticipate further dialog and interaction with the designers as the design proceeds and will be happy to provide any additional information or interpretation of the data presented here in which may be necessary.

We will be pleased to discuss our data with you and would welcome the opportunity to provide the engineering and material testing services needed to successfully complete your project.

Sincerely,
MACTEC ENGINEERING AND CONSULTING, INC.

C. Todd Justice, P.E.
Project Engineer

Samuel D. Stone, P.E.
Senior Principal Engineer

Samuel Stone by STJ with permission

CLINTON TODD JUSTICE
REGISTERED ENGINEER
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EXECUTIVE SUMMARY

MACTEC was selected by the Tennessee Valley Authority (TVA) to perform an additional geotechnical exploration for the proposed Gypsum Disposal Area at the Kingston Fossil Plant in Kingston, Tennessee. The objectives of our additional exploration were to determine the general subsurface conditions, to obtain data to evaluate the engineering characteristics of the on-site soils, and to install monitoring wells.

The exploration consisted of drilling 26 soil test borings, 9 offset geotechnical borings for undisturbed sampling, and installing 3 monitoring wells. Bedrock was cored in one of the monitoring well locations. The major findings of our geotechnical exploration are as follows:

- The test borings drilled in the proposed Gypsum Disposal Area typically encountered residual soils and very minor amounts of alluvium and fill. The bedrock encountered in the test borings typically was composed of light gray to medium gray dolomite.
- Ground- water measurements were performed in all test borings at the time of drilling. Ground-water measurements were also conducted in the test borings at least 24 hours after completion of drilling. Long-term measurements for the presence or absence of ground water were not obtained during this exploration. Table 3 presents the ground-water data obtained during the exploration.
- Three monitoring wells were installed to total depths ranging from about 25.5 feet (MW-N) to 60.5 feet (MW-P). Monitoring well MW-P was installed in bedrock (i.e., bedrock well) and monitoring wells MW-M and MW-N were installed within the overburden soils (i.e., overburden wells). Each well consisted of a 2-inch diameter, schedule 40 PVC pipe with double-density, 0.010-inch, slotted screen. A summary of the monitoring well installation is given in Section 7.0. The Monitoring Well Installation Logs are presented in Appendix C.
- Laboratory tests were performed on selected bulk, undisturbed, and standard penetration test (SPT) samples. A summary of the tests performed and the test results is presented in Section 8.0. The test results are presented in Appendix D.

This summary is only an overview and should not be used as a separate document or in place of reading the entire report, including the appendices.

1.0 INTRODUCTION

This report presents the findings of our additional geotechnical exploration and laboratory testing recently performed for the Proposed Gypsum Disposal Area at the TVA Kingston Fossil Plant. Our services were authorized by Mr. Ron Purkey of TVA.

2.0 OBJECTIVES OF EXPLORATION

The objectives of our exploration were to determine general subsurface conditions, to obtain data to evaluate the engineering characteristics of the on-site soils, and to install monitoring wells. An assessment of site environmental conditions, or an assessment for the presence or absence of pollutants in the soil, bedrock, surface water, or ground water of the site was beyond the proposed objectives of our exploration.

3.0 SCOPE OF EXPLORATION

The scope of our exploration was based on our proposal number Prop05Knox/329 dated October 25, 2005, and the geotechnical scope of work outlined in the project's scope of work prepared by Parsons E&C. It includes the following:

- Reconnaissance of the immediate site.
- Drilling 26 soil test borings which ranged in depth from about 11.0 feet (K-15) to 60.5 feet (MW-P).
- Drilling 9 offset geotechnical borings to obtain additional undisturbed samples
- Installing 3 ground water monitoring wells to total depths ranging from about 25.5 feet (MW-N) to 60.5 feet (MW-P).
- Conducting laboratory testing on SPT, bulk, and undisturbed samples from the on-site soils.
- Preparing a geotechnical report summarizing the field and laboratory test results

The drilling and sampling were performed in general accordance with ASTM procedures included in Appendix A. The drilling was performed during the period from November 9, 2005 to January 17, 2006. The equipment used consisted of a CME Model 550 ATV (all-terrain-vehicle) mounted drill rig equipped with a manual hammer, a CME Model 55 ATV mounted drill rig equipped with a manual hammer, and a CME Model 75 truck-mounted drill rig equipped with an automatic hammer.

Standard penetration tests (SPTs) were performed in all of the test borings and within the borings performed during the monitoring well installation. In addition to the SPT samples, bulk and relatively undisturbed Shelby tube samples were obtained from selected test borings for laboratory testing.

Ground-water levels were measured during drilling in each boring. Ground-water measurements were also made in the borings at approximately 24 hours or later after the completion of the borings. Ground water monitoring wells were installed at locations MW-M, MW-N, and MW-P (see Figure 2, Boring Location Plan). The monitoring well installation program was completed on January 17, 2006. The well development field work was completed on January 27, 2006.

Upon completion of drilling, the test borings were plugged and abandoned by backfilling the full depth with cement grout.

All samples were transported to our laboratories in Knoxville, Tennessee and Charlotte, North Carolina. The testing program for this project consisted of the following:

- 35 Plasticity Index (Atterberg Limits) Tests
- 26 Grain Size Distribution Tests
- 21 Natural Moisture Content Tests
- 7 Standard Proctor Compaction Tests
- 26 Specific Gravity Tests
- 8 Unit Weight and Natural Moisture Content Tests for Undisturbed Samples
- 18 Consolidated Undrained Triaxial Compression (CU) Tests
- 9 Unconsolidated Undrained Triaxial Compression (UU) Tests
- 18 Permeability Tests

Subsurface conditions encountered in the borings are presented on the Test Boring Records in Appendix B. The Monitoring Well Installation Logs are presented in Appendix C. The laboratory testing results are presented in Appendix D.

4.0 PROJECT INFORMATION AND SITE CONDITIONS

Project information was provided to us by Mr. Daniel Smith with Parsons E&C in the form of a Geotechnical Investigation Scope of Work and a proposed boring location plan. The site of the proposed gypsum disposal area is located east of the Kingston Fossil Plant site. The ground surface elevations varied by as much as about 115 feet (NB-77B to NB-K) in the areas explored. The northern portion of the site is located within a wooded hillside. The remainder of the site is covered with grass and some tree lines.

5.0 AREA AND SITE GEOLOGY

Kingston, Tennessee, is located in the Appalachian Valley and Ridge Physiographic Province. This province extends as a continuous belt from central Alabama, through Georgia and Tennessee, northward into Pennsylvania. The formations that underlie this province consist primarily of limestone, dolostone, shale, and sandstone, which have been folded and faulted in the geologic past. These formations range in age from Cambrian to Pennsylvanian and have been subject to at least one extensive period of erosion since their structural deformation. The erosion has produced a series of subparallel, alternating ridges and valleys. The valleys are formed over more soluble bedrock (interbedded limestone and limestone), whereas bedrock more resistant to solution weathering forms ridges (sandstone, shale, and cherty dolostone).

In particular, the site is geologically mapped to be underlain by the Knox Group. The Knox Group is mainly composed of light gray to dark gray and olive-gray, siliceous dolomite with a few limestone layers in the upper part. The rock usually weathers to reddish orange residuum containing chert fragments.

Dolostone and limestone, such as the strata underlying this site, are of great geologic age and have been subject to solution weathering for many years. Rainwater falling onto the surface and percolating downward through the soil and into cracks and fissures gradually dissolves the rock, producing insoluble impurities such as chert and clay. Since limestone and dolostone vary greatly in their resistance to weathering, the soil/bedrock contact may be extremely irregular. More soluble bedrock develops a thicker soil cover and a more irregular bedrock surface, with pinnacles and slots and less soluble bedrock usually develops a thinner soil cover and a less irregular soil-bedrock surface. Because of the geologic history of the area and the difference in weathering, it is not uncommon to encounter rock at depths varying by as much as 50 feet in borings as close as 10 feet apart in some areas.

These large variations in bedrock depth are greatly enhanced by the presence of fractures, bedding planes, and faults, which provide an increased opportunity for a greater influx of percolating water. The weaknesses may form clay-filled cavities or enlarge into caves and may be connected by a network of passageways. If a cave forms close to the bedrock surface, its roof may collapse and the overlying soils may erode into the cave. Once the weight of the overlying soil exceeds the soil's arching strength, the soil collapses and an open hole or depression may appear at the ground surface. Such a feature is termed a sinkhole.

6.0 SUBSURFACE CONDITIONS

Subsurface conditions at the site of the proposed gypsum disposal area were explored with 26 soil test borings (including the monitoring well locations) and 9 offset geotechnical borings. The offset geotechnical borings were drilled in order to obtain additional undisturbed Shelby tube samples for laboratory testing purposes. The locations for all the borings and monitoring wells were proposed by Parsons E&C and TVA. The locations were established in the field by TVA. The boring locations were surveyed and we were provided with the surveyed coordinate locations. Because of access restrictions, some of the borings were offset from the originally proposed location. Offset distances with bearing information were recorded in the field and noted on the field logs.

Subsurface conditions encountered at each boring location are shown on the Soil Test Boring Records in Appendix B. The Test Boring Records represent our interpretation of the subsurface conditions, based on the field logs and visual examination of the samples by one of our geotechnical engineers. The lines designating the interfaces between various strata on the Test Boring Records represent the approximate interface locations. Ground surface elevations were not provided with the survey information, therefore the elevations listed on the Soil Test Boring Records should be considered approximate.

The test borings performed at this site typically encountered residual soils and minor amounts of fill and alluvial materials. Residual soils are soils that have developed from the in-place weathering of the underlying parent bedrock. Fill soils are soils which have been transported to their current location by man. Alluvial soils are soils that have been transported to their present location by running water. Bedrock was cored in one of the test boring / monitoring well locations (MW-P). A summary of the soil test boring depths is presented in Table 1.

Table 1
Soil Test Boring Summary

Boring Number	Ground Elevation msl (Feet)	Auger Refusal Depth (Feet)	Refusal Elevation msl (Feet)	Boring Termination Depth (Feet)	Boring Termination Elevation msl (Feet)
NB-21B*	757.0$^{(1)}$	NE	-	38.5	718.5
NB-47B*	762.8$^{(1)}$	NE	-	26.0	736.8
NB-47BA*	762.8$^{(1)}$	NE	-	28.5	734.3
NB-73WB*	749.7$^{(1)}$	NE	-	45.4	704.3
NB-73WBA*	749.7$^{(1)}$	NE	-	42.0	707.7
NB-73WBB*	749.7$^{(1)}$	NE	-	28.0	721.7
NB-77B*	749.3$^{(1)}$	NE	-	17.7	731.6
NB-77BA*	749.3$^{(1)}$	NE	-	15.0	734.3
NB-85B*	761.1$^{(1)}$	NE	-	33.5	727.6
NB-90	752.0$^{(2)}$	34.1	717.9	34.1	717.9
NB-91	759.5$^{(2)}$	38.9	720.6	38.9	720.6
NB-92	760.0$^{(2)}$	24.0	736.0	24.0	736.0
NB-K	864.0$^{(2)}$	40.1	823.9	40.1	823.9
MW-M	762.0$^{(2)}$	NE	-	35.5	726.5
MW-N	755.0$^{(2)}$	NE	-	25.5	729.5
MW-P	792.0$^{(2)}$	35.0	757.0	60.5	731.5
K-1	756.0$^{(2)}$	NE	-	15.5	740.5
K-2	755.0$^{(2)}$	NE	-	15.5	739.5
K-3	792.0$^{(2)}$	NE	-	15.5	776.5
K-4	750.0$^{(2)}$	NE	-	15.5	734.5
K-5	752.0$^{(2)}$	NE	-	15.5	736.5
K-6	766.0$^{(2)}$	NE	-	15.5	750.5
K-7	767.0$^{(2)}$	NE	-	15.5	751.5
K-8	764.0$^{(2)}$	NE	-	15.5	748.5
K-9	756.0$^{(2)}$	NE	-	15.5	740.5
K-10	756.0$^{(2)}$	NE	-	15.5	740.5
K-11	749.5$^{(2)}$	NE	-	15.5	734.0
K-12	762.0$^{(2)}$	NE	-	15.5	746.5

Table 1
Soil Test Boring Summary

Boring Number	Ground Elevation msl (Feet)	Auger Refusal Depth (Feet)	Refusal Elevation msl (Feet)	Boring Termination Depth (Feet)	Boring Termination Elevation msl (Feet)
K-13	778.0(2)	NE	-	15.5	762.5
K-14	757.0(2)	NE	-	15.5	741.5
K-15	775.0(2)	11.0	764.0	11.0	764.0
K-15A	775.0(2)	13.0	762.0	13.0	762.0
K-16	781.0(2)	NE	-	15.5	765.5
K-17	787.0(2)	NE	-	15.5	771.5
K-18	785.0(2)	NE	-	17.0	768.0

NE - Not Encountered
* offset geotechnical boring drilled to obtain additional undisturbed Shelby tube samples
(1) - Elevation determined from data provided from previous exploration survey
(2) – Elevation estimated from the contours of a topographic map of the site

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6.1 FILL

Fill soils were encountered underlying a thin veneer of topsoil in test borings NB-90 and K10, and at the ground surface in test borings K-1 and K-18. The fill extended to depths of about 2.5 to 3.5 feet. The fill soils consisted primarily of brown, red brown, and reddish orange, silty clay with gravel and a few chert fragments. The SPT resistance value in the fill interval varied from 8 to 32 blows per foot (bpf), indicating firm to hard consistency.

6.2 ALLUVIUM

Possible alluvial soils were encountered in test borings NB-92 and K-11. The possible alluvial soils were encountered at ground surface or underlying topsoil near the ground surface and extended to depths ranging from about 6.0 (NB-92) to 2.5 feet (K-11). The soils consisted primarily of dark brown silty clay with sand and silt with chert fragments and roots. The SPT resistance values in the alluvium ranged from 5 (K-11) to 12 (NB-92) bpf, indicating firm to stiff consistencies.

6.3 RESIDUUM

Residual materials were encountered in all of the test borings. The residual soils were encountered below the fill, alluvium, or topsoil and extended to refusal. The residuum encountered in the borings consisted of red-brown, reddish-orange, orange-brown, brown and tan, clay, silt, and sand with varying amounts of chert fragments. The SPT resistance values in the residuum ranged from 0 to 33 bpf, indicating very soft to hard consistencies.

6.4 BEDROCK

Bedrock was cored approximately 25.5 feet in test boring / monitoring well location MW-P. The bedrock encountered in the test boring typically was composed of light gray to medium gray dolomite. The recovered bedrock was observed to be hard to very hard. The core recovery ratio for the various core runs ranged from about 80 to 100 percent. The rock quality designation (RQD) values for the various rock core runs ranged from 8 to 100 percent The core recovery ratios and RQD values for each individual core run are shown on the Test Boring Records in Appendix B. Detailed descriptions including structural and mineralogical features for the recovered rock core are also presented on the Test Boring Records in Appendix B.

7.0 MONITORING WELL INSTALLATION

Three monitoring wells were installed at the site as part of our field exploration. One of the monitoring wells was installed into bedrock, (i.e., bedrock well) (MW-P). The remaining monitoring wells were installed within the overburden soils, (i.e., overburden wells) (MW-M and MW-N). Each monitoring well consisted of a 2-inch I.D., schedule 40 PVC pipe with double-density, 0.010-inch slotted 4.3-foot screens. A summary of the well installation is presented in Table 2. The Monitoring Well Installation Logs are included in Appendix C.

Table 2
Monitoring Well Summary

Well Number	Ground Surface Elevation* (feet msl)	Total Depth (feet)	Screen Depth		Screen Elevation	
			Top (feet)	Bottom (feet)	Top(feet msl)	Bottom (feet msl)
MW-N	755.0	25.5	20.6	24.9	734.4	730.1
MW-P	792.0	60.5	55.6	59.9	736.4	732.1
MW-M	762.0	35.0	30.1	34.4	731.9	727.6

* - Elevations estimated from the contours of a topographic map of the site

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8.0 LABORATORY TESTING AND DISCUSSION OF TEST RESULTS

This section describes the geotechnical laboratory testing program and summarizes the test results. The laboratory testing procedures and laboratory test results are included in Appendix D. The laboratory tests were performed on split-soon, undisturbed, and bulk soil samples obtained during drilling and sampling. The following paragraphs provide a short discussion of the general types of testing conducted and the test results.

8.1 INDEX PROPERTIES, SPECIFIC GRAVITY AND UNIT WEIGHTS

Natural moisture contents, liquid limit, plastic limit, and plasticity index tests (collectively referred to herein as Atterberg limits); specific gravity tests; and grain size distributions with hydrometer analyses were performed on selected undisturbed, bulk, and SPT samples. These tests were used to confirm our visual-manual classifications.

Liquid limits for the soil samples tested ranged from 26 to 81; plastic limits ranged from 16 to 42; and plasticity indices ranged from 7 to 47. The tested soils were classified as MH, CL, CH, ML, SM, SC, SC-SM, and GM soils in accordance with the Unified Soil Classification System (USCS).

The natural moisture content of the soils ranged from 14.6 percent (boring NB-92) to 46.8 percent (boring NB-47BA).

Specific gravities of the soils tested ranged from 2.62 to 2.78.

8.2 MOISTURE-DENSITY RELATIONSHIP

Standard Proctor compaction tests were performed on seven soil samples obtained from auger cuttings at boring locations K-3, K-6, K-7, K-8, K-16, K-17, and K-18. The results of the compaction tests performed indicated that the maximum dry densities ranged from 91.1 to 109.6 pcf, and the optimum moisture contents ranged from 29.5 to 16.0 percent, respectively. Table D-1 (located in Appendix D) lists the standard Proctor compaction test results. The standard Proctor test data sheets are in Appendix D.

8.3 STRENGTH

8.3.1 Consolidated Undrained (CU) Triaxial

Undisturbed

A total of nineteen consolidated undrained (CU) triaxial compression tests were performed on undisturbed and bulk soil samples obtained from the site.

Sixteen CU triaxial compression tests were performed on specimens obtained from undisturbed soil samples. Two CU tests were performed on samples obtained from each of borings NB-21A, NB-47A, NB-77, NB-85A/B, NB-85B; one CU test was performed on samples obtained from each of borings NB-18, NB-21B, NB-44, NB-47B / NB-47BA, NB-73 WB / NB-73WBA, and NB-77B.

Results from ten of the sixteen CU triaxial compression tests performed on the undisturbed samples were considered questionable. The Mohr's circles generated from these (ten) tests did not produce recognizable failure envelopes which made it impossible to accurately determine strength parameters. As a result, the strength parameters for these ten triaxial tests were not determined.

The results of the CU tests performed on the undisturbed sample specimens indicated that the tested samples had a total friction angle ranging from 5.9 to 19.9 degrees and a total cohesion intercept from 760 to 2,347 pounds per square foot (psf). The tests also indicated that the effective friction angle ranged from 31.0 to 38.5 degrees and the effective cohesion intercept ranged from 0 to 455 psf.

Remolded

Three CU triaxial compression tests were performed on remolded bulk soil samples. Testing was performed on representative CL, CH, and ML soils obtained from borings NB-22, NB-25, and NB-76, respectively.

The results of the CU tests performed on the remolded sample specimens indicated that the tested samples had a total friction angle ranging from 11.6 to 14.8 degrees and a total cohesion intercept from 707 to 1,081 pounds per square foot (psf). The tests also indicated that the effective friction angle ranged from 24.6 to 33.6 degrees and the effective cohesion intercept ranged from 123 to 530 psf.

A summary of the test results obtained from the CU triaxial testing is found in Table D-2 (located in Appendix D). The CU triaxial test reports are also found in Appendix D.

8.3.2 Unconsolidated Undrained (UU) Triaxial

Nine unconsolidated undrained (UU) triaxial compression tests were performed on undisturbed soil samples. Two UU tests were performed on samples obtained from each of borings NB-47A, NB-77, and NB-85 A/B; one UU test was performed on samples obtained from each of borings NB-18, NB-21A, and NB-44.

Results from seven of the nine CU triaxial compression tests performed on the undisturbed samples were considered questionable. The Mohr's circles generated from these (seven) tests did not produce recognizable failure envelopes which made it impossible to accurately determine strength parameters. As a result, the strength parameters for these seven triaxial tests were not determined.

The results of the UU tests performed indicated that the tested samples had a friction angle ranging from 2.9 to 4.6 degrees and a cohesion intercept ranging from 1,500 to 2,200 psf.

A summary of the test results obtained from the UU triaxial testing is found in Table D-2 (located in Appendix D). The UU triaxial test reports are found in Appendix D.

8.4 PERMEABILITY

Eleven constant head permeability tests were performed in the laboratory on undisturbed soil samples obtained from the borings. The results of the permeability testing performed on the undisturbed specimens indicated that the permeabilities ranged from 1.7×10^{-8} cm/sec to 1.8×10^{-5} cm/sec for the soil samples tested.

Seven constant head permeability tests were performed on bulk samples obtained from the borings. The bulk samples were remolded to about 95 percent of the soils respective standard Proctor maximum dry density and at moisture contetns2 percent greater than its optimum moisture content.

The results of the permeability testing performed on the remolded bulk specimens indicated that the permeabilities ranged from 1.3 x 10^{-8} cm/sec to 2.7 x 10^{-6} cm/sec for the soil samples tested.

All of the permeability tests were performed on soil samples that had been consolidated at effective confining pressures of about 12.5 to 13 pounds per square inch (psi).

9.0 GROUND-WATER CONDITIONS

Ground-water levels were measured in all test borings at the time of drilling. Further, ground-water measurements were performed approximately 24 hours or later after the completion of drilling in the test borings. The recorded ground-water levels are presented in Table 3. For safety reasons, the borings were backfilled promptly; consequently, long-term measurements for the presence or absence of ground water were not obtained.

Fluctuations in the ground-water level occur because of variation in rainfall, evaporation, construction activity, surface run-off, and other site-specific factors such as fluctuation of water levels in the adjacent Watts Bar Lake.

Table 3
Ground-Water Data

Boring Number	Ground Surface Elevation (Feet msl)	Depth to Ground Water at Time of Drilling (Feet)	Ground-Water Elevation at Time of Drilling (Feet msl)	Depth to Ground Water 24 Hours After Drilling (Feet)	Ground-Water Elevation 24 Hours After Drilling (Feet msl)
NB-21B	757.0(1)	NE	-	NE	-
NB-47B	762.8(1)	23.9	738.9	NM*	-
NB-47BA	762.8(1)	NE	-	NE	-
NB-73WB	749.7(1)	23.3	726.4	NM*	-
NB-73WBA	749.7(1)	NE	-	NE	-
NB-73WBB	749.7(1)	NE	-	NE	-
NB-77B	749.3(1)	NE	-	10.7	738.6
NB-77BA	749.3(1)	NE	-	NE	-
NB-85B	761.1(1)	NE	-	20.8	740.3
NB-90	752.0	23.2	728.8	NM*	-
NB-91	759.5	25.0	734.5	24.5	735.0

Table 3

Ground-Water Data

Boring Number	Ground Surface Elevation (Feet msl)	Depth to Ground Water at Time of Drilling (Feet)	Ground-Water Elevation at Time of Drilling (Feet msl)	Depth to Ground Water 24 Hours After Drilling (Feet)	Ground-Water Elevation 24 Hours After Drilling (Feet msl)
NB-92	760.0	17.0	743.0	NM*	-
NB-K	864.0	NE		NM	-
MW-M	762.0	24.9	737.1	NM	-
MW-N	755.0	18.8	736.2	NM	-
MW-P	792.0	NM	-	NM	-
K-1	756.0	NE	-	NE	-
K-2	755.0	NE	-	NE	-
K-3	792.0	NE	-	NE	-
K-4	750.0	15.0	735.0	NM*	-
K-5	752.0	NE	-	NE	-
K-6	766.0	NE	-	NE	-
K-7	767.0	NE	-	NE	-
K-8	764.0	NE	-	NE	-
K-9	756.0	NE	-	NE	-
K-10	756.0	NE	-	NE	-
K-11	749.5	NE	-	NE	-
K-12	762.0	NE	-	NE	-
K-13	778.0	NE	-	NE	-
K-14	757.0	NE	-	NE	-
K-15	775.0	NE	-	NE	-
K-15A	775.0	NE	-	NE	-
K-16	781.0	NE	-	NE	-
K-17	787.0	NE	-	NE	-
K-18	785.0	NE	-	NE	-

NE – Not Encountered
NM – Not Measured
* - Borehole Collapsed

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10.0 BASIS OF RESULTS

The results provided herein are based on the encountered subsurface conditions related to the specific project and site discussed in this report.

Regardless of the thoroughness of a field exploration, there is always a possibility that conditions between test locations will differ from those at specific test locations, and that conditions may not be anticipated. In addition, interpretation of the data is critical to the intended design and/or analysis. Therefore, experienced geotechnical engineers should interpret the field data and review any site-specific analysis or design that incorporates the field data. We recommend that TVA retain MACTEC to provide this service, based upon our familiarity with the subsurface conditions, the field and laboratory data, and our geotechnical experience.

Our exploration services include storing the collected samples and making them available for inspection for a period of 30 days. The samples are then discarded unless you request otherwise.