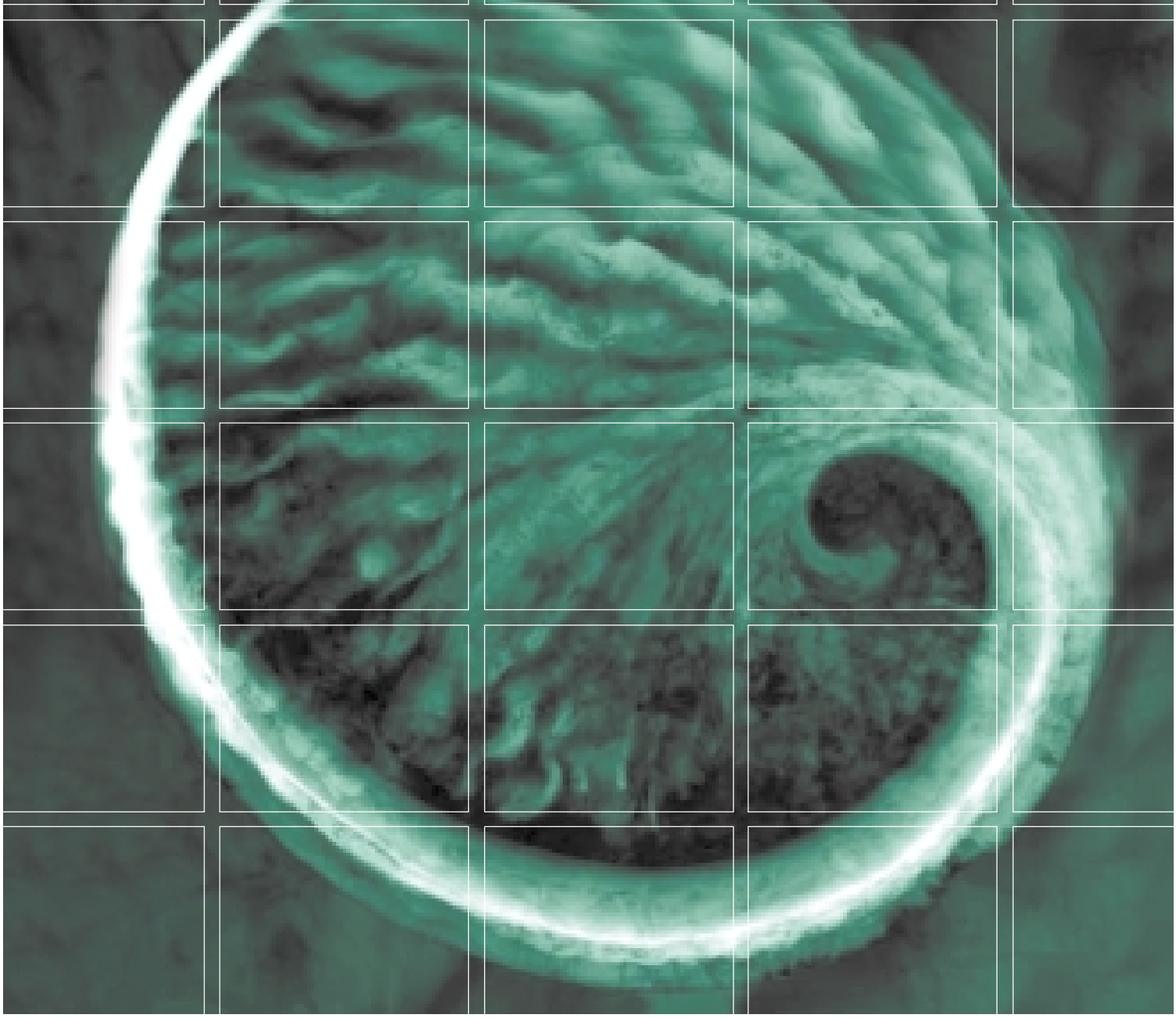

CCR Surface Impoundment Structural Stability Assessment

San Miguel Electric Cooperative, Inc.

Atascosa County, Texas

October 17, 2016

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San Miguel Electric Cooperative, Inc.

CCR Surface Impoundment Structural Stability Assessment

October 17, 2016

Project No. 0303548
Atascosa County, Texas

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1.0 INTRODUCTION

San Miguel Electric Cooperative, Inc. (San Miguel) owns and operates a 440-MW mine-mouth, lignite-fired power generating plant (the San Miguel Plant) and associated lignite-mining facilities. The San Miguel Plant is located in Atascosa County approximately 6 miles south of Christine, Texas.

The San Miguel Plant began electric power generation in January 1982. San Miguel has wholesale power contracts to furnish power and energy to the South Texas Electric Cooperative, Inc. through the year 2037.

The San Miguel Plant generates coal combustion residuals (CCR) that are regulated under Title 40, Code of Federal Regulations, §257 (40 CFR §257)(the CCR Rule). San Miguel operates two CCR surface impoundments at the San Miguel Plant:

(1) the Ash Water Transport Ponds (Ash Ponds); and

(2) the Equalization Pond (EP).

1.1 REPORT PURPOSE AND OBJECTIVES

Regulations in 40 CFR §257.73, Structural Integrity Criteria for Existing CCR Surface Impoundments, require that owners and operators of existing CCR Surface Impoundments conduct initial and periodic Structural Stability Assessments of each CCR surface impoundment and post a copy of the assessment on an internet site accessible by the public.

This report summarizes documentation of the Ash Ponds and EP CCR surface impoundments structural stability at the San Miguel Plant.

1.2 REPORT ORGANIZATION

This structural stability assessment is organized into the following sections:

- introduction;
- purpose and objectives;
- report organization;
- unit descriptions;
- structural stability assessment;
- notification, recordkeeping, and internet posting; and
- professional engineer's certification.

Documentation referenced in this report is included in Appendix A.

2.0 UNIT DESCRIPTION

The San Miguel Plant is a coal fired steam electric plant capable of generating approximately 440 MW. San Miguel began construction of the plant in 1977. The San Miguel Plant began generating electric power in 1982.

San Miguel currently operates two CCR surface impoundments at the Plant which are subject to requirements in 40 CFR §257:

- the Ash Water Transport Ponds (Ash Ponds); and
- the Equalization Pond (EP).

The Ash Ponds and the EP were designed by Tippett & Gee, Inc. San Miguel constructed the Ash Ponds and the EP between July 1977 and May 1978. San Miguel initiated operation of the Ash Ponds and the EP in 1981 (NFS 1984). The locations of the Ash Ponds and the EP are shown on Figure 1.

3.0 STRUCTURAL STABILITY ASSESSMENT

The CCR surface impoundment structural stability assessment must document whether a CCR surface impoundment was designed, constructed, operated, and maintained using generally accepted good engineering practices, including the following, to the extent feasible, in accordance with 40 CFR §257.73(d)(1):

(i) Stable foundations and abutments;

(ii) Adequate slope protection to protect against surface erosion, wave action, and adverse effects of sudden drawdown;

(iii) Dikes mechanically compacted to a density sufficient to withstand the range of loading conditions in the CCR unit;

(iv) Vegetated slopes of dikes and surrounding areas not to exceed a height of six inches above the slope of the dike, except for slopes which have an alternate form or forms of slope protection;

(v) A single spillway or a combination of spillways configured as specified in paragraph (d)(1)(v)(A) of [40 CFR §257.73];

(vi) Hydraulic structures underlying the base of the CCR unit or passing through the dike of the CCR unit that maintain structural integrity and are free of significant deterioration, deformation, distortion, bedding deficiencies, sedimentation, and debris which may negatively affect the operation of the hydraulic structure; and

(vii) For CCR units with downstream slopes which can be inundated by the pool of an adjacent water body, such as a river, stream or lake, downstream slopes that maintain structural stability during low pool of the adjacent water body or sudden drawdown of the adjacent water body.

San Miguel staff responsible for operation of the Ash Ponds and the EP reported that San Miguel inspects the Ash Ponds and the EP weekly for evidence of erosion and other structural weakness in accordance with 40 CFR §283(a). If San

Miguel observes evidence of actual or potential structural weakness or release during any weekly inspection, San Miguel will remedy the deficiency or release as soon as feasible and document the corrective measures taken in accordance with 40 CFR §283(b)(5).

Condition and documentation of consistency of components of the Ash Ponds and the EP with requirements in 40 CFR §257.73(d)(1) and 40 CFR §283(b)(5) are described in this section.

3.1 FOUNDATIONS AND ABUTMENTS

Periodic structural stability assessments are required to document whether each CCR surface impoundment was designed, constructed, operated, and maintained with "stable foundations and abutments" in accordance with 40 CFR §257.73(d)(1)(i).

San Miguel documentation describing structural stability of Ash Ponds and the EP foundations and abutments (dikes) is described in this section.

3.1.1 CY 1978 Geotechnical Engineering Report

San Miguel Plant documentation shows that the Ash Ponds and the EP CCR surface impoundments were designed in accordance with results of a geotechnical investigation and engineering recommendations prepared for San Miguel by NFS/National Soil Services, Inc. (NFS) in calendar year (CY) 1978, as referenced in related NFS correspondence (NFS 1979, NFS 1984).

NFS described the foundation and abutment soils of the Ash Ponds and EP as generally consisting of an upper clay stratum ranging from approximately 22 to 30 feet thick. This stratum was encountered at depths from 14 feet below the bottom of Ash Ponds and from 7 to 14 feet below the bottom of the EP. NFS described the upper clay as consisting of hard, moderately-to-highly plastic, relatively impermeable clays, sandy clays, and silty clays.

NFS described the soil underlying the upper clay stratum as a very dense silty fine sand stratum. The thickness of the underlying sand stratum in the area of the Ash Ponds and EP was not described in the NFS geotechnical engineering report.

3.1.2 Final Design Documents

San Miguel Plant documents include final design drawings for the Ash Ponds and EP (T&G 1977a, T&G 1977b, T&G 1977c, T&G 1980a, T&G 1980b, T&G 1980c, T&G 1980d, T&G 1981). Printed excerpts of technical specifications for the San Miguel plant construction, provided by San Miguel, were included in the *Assessment of Dam Safety of Coal Combustion Surface Impoundments, Final Report* prepared by CDM Smith (CDM Smith 2014). The excerpts include specifications for construction of the Ash Ponds but not for the EP.

Those drawings and technical specifications describe construction of the Ash Ponds and the EP. Construction was accomplished by stripping topsoil unsuitable for use as structural fill and select native soil excavation. Select excavated soil was used as bottom fill or dike fill as necessary. Areas that received fill were stripped of topsoil, where present, and scarified to a depth of one foot below the base of the fill. A five-foot deep inspection trench was excavated to observe the Ash Pond and the EP foundation soils (along the interior toe of dikes constructed by a combination of excavation and fill, or along the center of dikes constructed entirely of fill).

San Miguel documentation, including the final design of the Ash Ponds and the EP, describes design requirements that produced stable foundations and abutments consistent with requirements in 40 CFR §257.73(d)(1)(i).

3.1.3 CY 1987 Liner Repair

San Miguel Plant documents describe recommendations for and repair of the Ash Pond A liner in CY 1987 (NFS 1984, PSI 1985, PSI 1987a, PSI 1987b, PSI 1987c, PSI 1987d, PSI 1987e, PSI 1987f, PSI 1987g, PSI 1991). The repair was conducted in response to observation of seepage shortly after initial operation of the Ash Ponds in 1981. San Miguel Plant documents also describe compaction of the Ash Pond B liner in CY 1991. Details of the Ash Ponds liner reconstruction projects are described in the History of Construction Report, available on the San Miguel Plant publically-accessible internet site.

San Miguel documentation, including the CY 1987 liner repair, describes repair of the Ash Pond A liner that produced stable foundations and abutments consistent with requirements in 40 CFR §257.73(d)(1)(i).

3.1.4 CY 2012 Dike Stability Report

San Miguel Plant documentation includes report of a dike stability assessment prepared for San Miguel by Arias & Associates (Arias) in CY 2012 (Arias 2012) (the CY 2012 dike stability report). That report describes soil borings that were drilled and sampled by Arias through the Ash Pond and the EP dike crests and through soils near the Ash Pond and the EP dike exterior toe of slope.

The descriptions of dike foundation and abutment soils in the CY 2012 dike stability assessment report are generally consistent with the descriptions of the corresponding soils in the 1978 NFS geotechnical investigation report (see NFS 1979, NFS 1984, and Arias 2012).

San Miguel documentation including the CY 2012 dike stability report of the Ash Ponds and the EP describes stable foundations and abutments consistent with requirements in 40 CFR §257.73(d)(1)(i).

3.1.5 CY 2016 Inspection Report

San Miguel Plant documentation includes an inspection report for the Ash Ponds and the EP conducted during December 2015 (HDR 2016) (the CY 2016 inspection report). Two potential seep areas near the exterior toe of the Ash Ponds and the EP dikes were reported. The report recommended that San Miguel continue monitoring of each of those potential seeps during subsequent dry periods to determine whether the saturated soil in each of those areas was due to rains preceding the inspection or due to water migrating from the ponds. In the event of seepage from the impoundments, the report recommended additional investigation to determine the cause of the seepage and appropriate corrective action, if necessary, or continued monitoring of the seepage for signs of turbidity or slope distress.

San Miguel confirmed that the standing water identified during December 2015 in the area of the EP was due to a low area in the flood plain of nearby Caballos Creek (San Miguel 2016b). San Miguel confirmed that water in the low area dries out during periods of extended dry weather.

San Miguel placed additional soil material in the area of the potential Ash Pond seep identified during December 2015. San Miguel reported that some seepage was still occurring (San Miguel 2016a). San Miguel reported no slope distress associated with the seeps; hence the Ash Pond foundation and abutments are currently stable. San Miguel is currently monitoring the seepage as recommended in the 2016 inspection report (San Miguel 2016c).

San Miguel documentation, including the CY 2016 inspection report of the Ash Ponds and the EP and related monitoring, describes stable condition of foundations and abutments consistent with requirements in 40 CFR §257.73(d)(1)(i).

3.2 SLOPE PROTECTION

Each CCR surface impoundment is required to exhibit "adequate slope protection to protect against surface erosion, wave action, and adverse effects of sudden drawdown" in accordance with 40 CFR §257.73(d)(1)(ii).

San Miguel Plant documentation includes drawings and technical specifications that required that the Ash Ponds and the EP dikes to be completed with 2.5 horizontal to 1 vertical (2.5 H:1V) exterior side slopes, 3H:1Vinterior side slopes, and a 20-foot wide constant-elevation crest (CDM Smith 2014, T&G 1977a, T&G 1977b, T&G 1977c, T&G 1980a, T&G 1980b, T&G 1980c, T&G 1980d, T&G 1981). The dike crest and the exterior side slope were required to be covered with a 12–inch thick layer of topsoil and seeded with coastal bermuda grass cover vegetation to reduce the potential of dike soil erosion.

3.2.1 Surface Erosion Slope Protection

San Miguel Plant documentation shows that the Ash Pond and the EP dikes are covered by topsoil and are seeded with erosion-resistant cover vegetation (CDM Smith 2014, T&G 1977a, T&G 1977b, T&G 1977c, T&G 1980a, T&G 1980b, T&G 1980c, T&G 1980d, T&G 1981).

San Miguel Plant documentation includes report of inspection of the Ash Ponds and the EP during December 2015 (HDR 2016). The report documented observation of potential surface erosion problems associated with vehicle ruts, woody vegetation, and soil erosion that, left uncorrected, could produce inadequate surface erosion slope protection.

- Vehicle Ruts: The CY 2016 inspection report described observation of minor rutting on the Ash Ponds and the EP dike crests that was apparently caused by vehicle traffic. The report recommended that the ruts be filled and graded to drain. In addition, the report recommended that vehicle traffic be discouraged on the Ash Ponds and EP dike crests after rain events. The San Miguel staff responsible for operation of the Ash Ponds and the EP reported that San Miguel is currently pursuing repair of the ruts, and that San Miguel will implement the recommended limits on vehicle traffic after rain events to maintain stability of the dike surface erosion slope protection (San Miguel 2016b).
- Woody Vegetation: The CY 2016 inspection report described observation of brush and tree saplings growth at various locations on the exposed dike interior side slope and the dike exterior side slope of the Ash Ponds and the EP. The report recommended that San Miguel remove the brush and tree saplings and repair areas disturbed during removal of the brush and tree saplings. The San Miguel staff responsible for operation of the Ash Ponds and the EP reported that San Miguel completed removal of some of the brush and tree saplings and that San Miguel plans to complete removal of the remaining brush and tree saplings in the near future to maintain stability of the dike surface erosion slope protection (San Miguel 2016a).
- Dike Soil Erosion: The CY 2016 inspection report described observation of gully erosion on the interior and exterior Ash Ponds and EP dike side slopes. The report recommended repair of those areas followed by revegetation or placement of riprap for erosion protection. The San Miguel staff responsible for operation of the Ash Ponds and the EP reported that San Miguel completed repair of some gully erosion and that San Miguel plans to complete repair of other areas of erosion in the near future to maintain stability of the dike surface erosion slope protection (San Miguel 2016a, San Miguel 2016b).

Therefore, San Miguel documentation shows that the Ash Pond and the EP dikes provide surface erosion slope protection is consistent with requirements in 40 CFR §257.73(d)(1)(ii).

3.2.2 Wave Action Slope Protection

Wind and wave erosion at the apparent normal water level shore lines of the Ash Ponds and EP dike interior sides slopes observed during December 2015 was reported in the CY 2016 inspection report. The report recommended that San Miguel continue to monitor dike erosion and, if necessary, install protective cover over the current dike interior side slopes if the erosion persists. The San Miguel staff responsible for operation of the Ash Ponds and the EP reported that San Miguel is planning to complete repair of wind and wave erosion at the Ash Ponds and EP dike interior side slopes in the near future. In addition, San Miguel inspects the Ash Ponds and EP weekly for evidence of continued erosion and significant change or deterioration (San Miguel 2016b).

Therefore, San Miguel documentation shows that the Ash Pond and the EP dike interior side slope are protected from wave action consistent with requirements in 40 CFR §257.73(d)(1)(ii).

3.2.3 Sudden Drawdown

As the exterior of the Ash Pond and the EP dikes are not in contact with or affected by a permanent water body on the exterior side of the dikes, sudden drawdown of a permanent water body is not a credible design consideration.

A flood condition that might cause submergence of the dike exterior side slope or foundation soils would be of such short duration (a few days at the most) that the depth of saturation of the soils and potential for excess pore pressure on decline of the very infrequent flood would pose no significant adverse effect on the dike stability. Further, as the water surface in the interior of the Ash Ponds and the EP are maintained at a relatively constant level to optimize Plant operation, rapid drawdown due to a flood condition that might adversely affect the Ash Pond and EP dike interior side slopes is not a credible design consideration.

Therefore, San Miguel documentation shows that evaluation of sudden drawdown that might affect Ash Ponds and the EP slope protection is not needed to demonstrate consistency with requirements in 40 CFR §257.73(d)(1)(ii).

3.3 DIKE STABILITY

Owners and operators of CCR surface impoundments are required to document whether a CCR surface impoundment was constructed with "(d)ikes mechanically compacted to a density sufficient to withstand the range of loading conditions in the CCR unit" in accordance with 40 CFR §257.73(d)(1)(iii).

San Miguel Plant documentation includes description of mechanical compaction and dike stability analysis of the Ash Ponds and EP dikes.

3.3.1 Dike Mechanical Compaction

San Miguel Plant documentation includes drawings and technical specifications for construction of the Ash Ponds and the EP (CDM Smith 2014, T&G 1977a, T&G 1977b, T&G 1977c, T&G 1980a, T&G 1980b, T&G 1980c, T&G 1980d, T&G 1981). Those drawings and technical specifications specify construction of the Ash Ponds and the EP by stripping topsoil unsuitable for use as structural fill and by excavation of select native soil as dike fill, where dike fill was necessary.

The technical specifications state that the portions of the Ash Ponds and the EP perimeter dikes that consist of fill were compacted as follows:

- soil was placed in nine-inch thick loose lifts;
- the moisture content of placed soil was adjusted as necessary to one percent dry to four percent wet of the optimum moisture content; and
- loose lifts were compacted to at least 95% of the maximum dry density as determined by Texas Highway Department (now Texas Department of Transportation) Test Method Tex-113-E.

Therefore, San Miguel documentation shows that the Ash Ponds and the EP dikes were constructed using mechanical compaction consistent with requirements in 40 CFR §257.73(d)(1)(iii).

3.3.2 Dike Stability Analysis

San Miguel Plant documentation includes geotechnical analysis of the Ash Ponds and EP dikes in CY 2012 (the CY 2012 dike stability analysis)(Arias 2012). The purpose of the CY 2012 dike stability analysis was to determine the ability of the Ash Ponds and EP dikes to withstand long term and short term loading conditions as well as seismic stability and liquefaction potential.

The CY 2012 dike stability analysis reported that seventeen soil borings were drilled and sampled through the Ash Ponds and the EP dike crests and at locations near the Ash ponds and EP dike exterior toe of slope. Field tests and analysis of soil samples were used to assess the condition and material properties of the dike fill and foundation soils.

Field tests performed during the drilling included:

- Standard Penetration Tests (ASTM D 1586); and
- Pocket Penetrometer tests.

The CY 2012 dike stability analysis reported that disturbed and undisturbed soil samples were collected from the soil borings. Selected samples were reported tested in the materials testing laboratory for the following parameters:

- Moisture content (ASTM D 2216);

- Atterberg limits (ASTM D 4318);
- Particle size distribution (ASTM D 422);
- Particle size passing the No. 200 sieve (ASTM D 1140); and
- Consolidated-undrained triaxial compression test (ASTM D 4767).

The CY 2012 dike stability analysis reported that the Ash Ponds and EP dike stability analyses were prepared using a range of representative loads and soil properties based on the field and laboratory testing and field observations. The CY 2012 dike stability analysis report concluded that the Ash Ponds and the EP dikes and foundations had adequate strength to withstand long term and short term loading conditions as well as seismic stability and liquefaction potential.

Therefore, San Miguel documentation shows that the Ash Ponds and the EP exhibit dike stability consistent with requirements in 40 CFR §257.73(d)(1)(iii).

3.4 DIKE EROSION PROTECTION

The original rule required owners and operators of CCR surface impoundments document whether a CCR surface impoundment are operated and maintained with "(v)egetated slopes of dikes and surrounding areas not to exceed a height of six inches above the slope of the dike, except for slopes which have an alternate form or forms of slope protections" in accordance with 40 CFR §257.73(d)(1)(iv). That provision was remanded with vacatur by the D.C. Circuit, U.S. Court of Appeals in an order filed on June 14, 2016 (USCA 2016).

3.5 SPILLWAYS

Owners and operators of CCR surface impoundments are required to document whether a CCR surface impoundment was constructed with a "single spillway or a combination of spillways configured…" in accordance with 40 CFR §257.73(d)(1)(v)(A).

San Miguel Plant documentation shows that neither the Ash Ponds nor the EP was constructed with an outfall or emergency spillway (T&G 1977a, T&G 1977b, T&G 1977c, T&G 1980a, T&G 1980b, T&G 1980c, T&G 1980d, T&G 1981). As described by the San Miguel staff responsible for operation of the Ash Ponds and the EP, no outfall or emergency spillway is needed because San Miguel maintains the water level in the Ash Ponds and the EP in normal dry weather at levels that that allow the ponds to contain the inflow resulting from a 100-year flood in accordance with the Inflow Design Flood Control System Plan (IDFCSP) required by 40 CFR §257.82 and, consequently, preclude need for an outfall or emergency spillway (San Miguel 2016b). The initial IDFCSP, prepared by ERM and dated October, 2016 is available in the San Miguel Plant operating record and publically accessible internet site.

Therefore, San Miguel documentation shows that evaluation of outfall and emergency spillway stability at the Ash Ponds and the EP is not needed to demonstrate consistency with requirements in 40 CFR §257.73(d)(1)(v).

3.6 HYDRAULIC STRUCTURES

Owners and operators of CCR surface impoundments are required to document whether a CCR surface impoundment was constructed with "hydraulic structures underlying the base of the CCR unit or passing through the dike of the CCR unit that maintain structural integrity and are free of significant deterioration, deformation, distortion, bedding deficiencies, sedimentation, and debris which may negatively affect the operation of the hydraulic structure" in accordance with 40 CFR §257.73(d)(1)(vi).

San Miguel Plant documentation shows the EP was not constructed with any hydraulic structures passing through the perimeter dikes. (T&G 1977a, T&G 1980b, T&G 1980d). San Miguel Plant documentation shows the Ash Ponds interior dike was constructed with a drop inlet near the eastern end of the dike and a 30 inch diameter fiberglass reinforced pipe for ash water transfer that runs from the drop inlet west to an ash water pump station (T&G 1977b, T&G 1980c, T&G 1981). The San Miguel staff responsible for operation of the Ash Ponds reported that the ash water transfer pipe is still present in the dike dividing Ash Pond A from Ash Pond B, but is no longer in use due to a sediment or other blockage somewhere upstream of the outlet outside the exterior side slope of the Ash Pond dikes (San Miguel 2016b). Recent observation confirmed that the exposed pipe exterior appears to be in good condition and that saturated soil moisture adjoining the pipe exterior at the dike side slope was not flowing (ERM 2016).

San Miguel inspects the Ash Ponds drop inlet and pipe regularly for deterioration and other deficiencies that might adversely affect operation of the hydraulic structure or stability of the Ash Ponds dikes in accordance with requirements in 40 CFR §257.73(d)(1)(vi).

Therefore, San Miguel documentation shows that evaluation of hydraulic structures in the Ash Ponds and the EP is not needed to demonstrate consistency with requirements in 40 CFR §257.73(d)(1)(vi).

3.7 INUNDATION BY ADJACENT WATER BODIES

Owners and operators of CCR surface impoundments are required to document whether a CCR surface impoundment was constructed with "CCR units with downstream slopes which can be inundated by the pool of an adjacent water body, such as a river, stream or lake, downstream slopes that maintain structural stability during low pool of the adjacent water body or sudden drawdown of the adjacent water body" in accordance with 40 CFR §257.73(d)(1)(vii).

San Miguel Plant documentation shows that neither the Ash Ponds nor the EP were constructed with dike exterior sides slopes that are in contact with any adjacent to water body, such as a river, stream or lake, except during an ephemeral flood event (FEMA 2010, T&G 1977a, T&G 1977b, T&G 1977c, T&G 1980a, T&G 1980b, T&G 1980c, T&G 1980d, T&G 1981). Further, the San Miguel drawings show that:

- the Ash Pond dike crest elevation is Elevation (El.) 315 feet (ft.);
- that Ash Pond dike toe of slope elevation ranges from El. 284 to 300 ft.;
- the EP dike crest elevation is El. 295 ft.; and
- that the EP Ash Pond dike toe of slope elevation ranges from El. 273 to 275 ft.

While the San Miguel Plant drawings do not state the datum of the elevations shown on the drawings, the elevations shown on the drawings are consistent with the elevation contours shown on the current U.S. Geological Survey (USGS) topographic map of the "Caballos Creek" quadrangle (USGS 2013). The USGS quadrangle map states that elevations shown on the USGS map are expressed in North American Vertical Datum, 1988 (NAVD 88). Consequently, elevation datum displayed on the San Miguel Plant drawings can be considered consistent with NAVD 88 datum.

The Federal Emergency Management Administration (FEMA) Flood Rate Map (FIRM) Flood Insurance Rate Maps (FIRM) and USGS topographic map show the top of bank of Caballos Creek to range from approximately El. 297 ft. to 288 ft. in the vicinity of the Ash Ponds and the EP, respectively (FEMA 2010, USGS 2013). Therefore, the Ash Ponds and EP dike crests are approximately 18 feet and 7 feet above the 100-yr flood plain, respectively.

Consequently, the Ash Ponds dike crests are sufficiently above the 100-year floodplain to prevent inflow of flood waters from the adjacent Caballos Creek in accordance with 40 CFR §257.73(d)(1)(vii).

3.7.1 Inundation During Low Pool

Recent ERM observation of water in Caballos Creek, when flowing, is normally not in contact with any dike surrounding the Ash Ponds or the EP (ERM 2016). Consequently, water flowing in the creek, when present, is in contact with neither the Ash Ponds nor the EP dike exterior side slope.

Therefore, San Miguel documentation shows that the effect of a low pool on stability of the Ash Ponds and the EP is not needed to demonstrate consistency with requirements in 40 CFR §257.73(d)(1)(vii).

3.7.2 Sudden Drawdown During Low Pool

As stated above, water flowing in the creek, when present, is in contact with neither the Ash Ponds nor the EP dike exterior side slope.

Therefore, San Miguel documentation show that effect of sudden drawdown of water in the creek during low pool on stability of the Ash Ponds and the EP is not needed to demonstrate consistency with requirements in 40 CFR §257.73(d)(1)(vii).

3.7.3 Sudden Drawdown During the 100-Year Flood

The current Federal Emergency Management Agency (FEMA) Flood Insurance Rate Map (FIRM) No. 480014, Panel No. 0675C shows the extent of the base flood plain (the 100-year flood plain) adjacent to the Ash Ponds and the EP. As stated on the FIRM, no elevations were determined for the flood plain shown. The FIRM datum is stated to be NAVD 88.

Correlation of the 100-year flood plain boundary shown on the FIRM with elevation contours shown on the corresponding USGS topographic map show that the elevation of the 100-year flood plain adjoining the Ash Ponds ranges from approximately El. 289 ft. to 297 ft. Correlation of the 100-year flood plain boundary shown on the FIRM with elevation contours shown on the corresponding USGS topographic map show that the elevation of the 100-year flood plain adjoining the EP ranges from approximately El. 279 ft. to 288 ft.

The elevation of the Ash Ponds dike exterior toe of slope varies from approximately El. 290 ft. to 301 ft. in the area in the 100-year flood plain. The elevation of the EP dike exterior toe of slope varies from approximately El. 273 ft. to 285 ft. in the area in the 100-year flood plain.

Consequently, the base of the Ash Ponds dike exterior side slopes would be submerged for a short period during the 100-year flood event to a depth between 0 ft. and 7 ft. above the toe of slope. Similarly, the base of the EP dike exterior side slopes would be submerged for a short period during the 100-year flood event to a depth between 0 ft. and 15 ft. above the toe of slope. As such an infrequent flood event would be of short duration and limited depth, no significant adverse effect on dike stability due to rapid drawdown is expected.

Therefore, San Miguel documentation shows that the effect of sudden drawdown of water in the creek during the 100-year flood event on stability of the Ash Ponds and the EP is not needed to demonstrate consistency with requirements in 40 CFR §257.73(d)(1)(vii).

4.0 NOTIFICATION RECORD KEEPING AND INTERNET POSTING

San Miguel will issue notifications, implement recordkeeping, and post CCR surface impoundment structural stability assessment information to the San Miguel internet site accessible to the public in accordance with 40 CFR §257.105, 40 CFR §257.106, and 40 CFR §257.106.

4.1 NOTIFICATION

San Miguel will notify the Executive Director of the Texas Commission on Environmental Quality (TCEQ), the State Director as defined in 40 CFR §257.105(d), and in accordance with 40 CFR §257.106(f)(9), when the CCR surface impoundment structural stability assessment is available in the San Miguel operating record and on the San Miguel internet site accessible to the public.

In accordance with TCEQ instructions related to CCR units in Texas, San Miguel will send each notification to the TCEQ via internet electronic mail to:

CCRNotify@tceq.texas.gov

4.2 RECORDKEEPING

San Miguel will maintain a copy of this structural stability assessment and associated documentation in the San Miguel operating record starting no later than October 17, 2016 and for a period of five years after that date.

4.3 INTERNET POSTING

San Miguel will maintain a copy of this structural stability assessment and associated documentation and on the San Miguel internet site accessible to the public within 30 days of placement in the San Miguel operating record and for a period of five years after that date.

4.4 PERIODIC STRUCTURAL STABILITY ASSESSMENT

San Miguel will complete the next periodic CCR surface impoundment structural stability assessment of the Ash Ponds and the EP within five years of the date of this initial structural stability assessment report; i.e. on or before October 17, 2021.

5.0 PROFESSIONAL ENGINEER'S CERTIFICATION

40 CFR §257.73(d)(3) requires that this CCR Surface Impoundment Structural Stability Assessment be certified by a qualified professional engineer. That certification is provided below.

I hereby certify that I have reviewed the information documenting the initial Structural Stability Assessment for the Ash Ponds and the Equalization Pond CCR surface impoundments at the San Miguel Electric Cooperative, Inc. electric utility generation plant located in Atascosa County, Texas, and being familiar with the provisions of 40 CFR Part 257.73, attest that initial Structural Stability Assessment was prepared in accordance with the CCR Rule.

E. Doyon Main, P.E.
Printed Name of Licensed Professional Engineer

Signature of Licensed Professional Engineer

10/17/2016
Date

6.0 REFERENCES

Information used for this CCR surface impoundment structural stability assessment for the Ash Ponds and the EP are from San Miguel and public sources listed below. San Miguel source documents are included in Appendix A.

6.1 SAN MIGUEL REPORTS AND CORRESPONDENCE

Arias 2012 — *Ash Water Transport Pond and Equalization Pond Stability Analysis,* Job No. 2012-695, Arias & Associates, Inc., November 19, 2012.

ERM 2016 — San Miguel Electric Cooperative, Inc. plant site visit conducted by Charles Johnson, Environmental Resources Management, October 4, 2016.

NFS 1978 — *San Miguel Steam Electric Station Groundwater Protection*, San Miguel Electric Cooperative, Job No. 75285-13, NFS/National Soil Services, Inc., September 25, 1978.

NFS 1984 — *Study of Ash Pond Leakage*, *San Miguel Electric Station*, Report No. D-75285-13A, NFS Services, Inc., January 20, 1984.

PSI 1985 — Letter to San Miguel Electric Cooperative, Inc., Re: Inspection of Ash Ponds at the San Miguel Power Station, from Ralph F. Reuss, P.E., Professional Service Industries, Inc., September 4, 1985.

PSI 1987a — Letter to San Miguel Electric Cooperative, Inc. Re*: Liner Construction Unit #1 Ash Pond*, Koi Z. Woodson, from Ralph F. Reuss, P.E., Professional Service Industries, Inc., NSS Division, January 27, 1987.

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Figure

October 17, 2016
Project No. 0303548

Environmental Resources Management
206 East 9th Street, Suite 1700
Austin, Texas 78701
(512) 459-4700

Environmental Resources Management

DESIGN: PD/CJ	DRAWN: EFC	CHKD.: .
DATE: 9/8/2016	SCALE: AS SHOWN	REVISION: 0
W.O.NO.: K:\GIS\SMECI\Christine_TX\MXD\Fig1_SitePlan_CCR.mxd		

FIGURE 1
SITE PLAN
Draft CCR Surface Impoundment
Structural Stability Assessment
San Miguel Electric Cooperative, Inc. Facility
Atascosa County, Texas

ERM

Reference Documents

Appendix A

October 17, 2016
Project No. 0303548

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10/12/16 Draft
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SAN MIGUEL REPORTS AND CORRESPONDENCE

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Arias 2012 *Ash Water Transport Pond and Equalization Pond Stability Analysis, Job No. 2012-695, Arias & Associates, Inc., November 19, 2012.*

Environmental Resources Management
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Geotechnical Engineering Study

Ash Water Transport Pond
And
Equalization Pond Stability Analyses
San Miguel Electric Cooperative
Christine, Texas

Arias Job No. 2012-695

ARIAS & ASSOCIATES
Geotechnical • Environmental • Testing

Prepared For
San Miguel Electric Cooperative

November 19, 2012

ARIAS & ASSOCIATES
Geotechnical • Environmental • Testing

November 19, 2012

Arias Job No. 2012-695

Mr. Joseph Eutizi
San Miguel Electric Cooperative
P.O. Box 280
Jourdanton, TX 78026

RE: Geotechnical Engineering Study
Ash Water Transport Ponds and Equalization Pond
Stability Analyses
San Miguel Electric Cooperative
Christine, Texas

Dear Mr. Eutizi:

The results of a Geotechnical Engineering Study for the existing Ash Water Transport Ponds and Equalization Pond at the San Miguel Electric Cooperative near Christine, Texas are presented in this report. This project was authorized by you on September 18, 2012 indicating acceptance of Arias Proposal No. 2012-695, dated September 10, 2012 by San Miguel Electric Cooperative Purchase Order No. 164892-151106.

The purpose of this geotechnical engineering study was to investigate the subsurface soil and groundwater conditions present at the Ash Water Transport Ponds and Equalization Pond and to perform global stability calculations to assess short-term, long-term, rapid drawdown, and seismic stability of the embankments and to assess the liquefaction potential of the underlying foundation soils.

Thank you for the opportunity to be of service to you.

Sincerely,
Arias & Associates, Inc.
TBPE Registration No: F-32

Dexter Bacon, P.E.
Senior Vice President

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REPORT FORMAT INFORMATION

To improve clarity in the intent of our geotechnical recommendations for this project, the report is organized into two separate, but equally important sections.

Section I – *Synopsis* is a summary of our geotechnical findings specific to this project.

Section II - The *Main Report* contains more detailed information about the subsurface conditions and the results of the stability calculations.

A study of both of the above referenced sections is recommended. Arias & Associates, Inc. cautions that Section I is a consolidated quick reference overview of the more detailed geotechnical findings contained in Section II and should not be utilized exclusively from the remainder of the report.

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SECTION I: SYNOPSIS

This synopsis includes a brief description of the project, subsurface findings, and calculated Factors of Safety for the stability of the embankments associated with the Ash Water Transport Ponds and the Equalization Pond.

Table 1: Project Description

Project:	Ash Water Transport Ponds and Equalization Pond
Project Location:	San Miguel Electric Cooperative Christine, Texas
Development:	Two Ash Water Transport Ponds (2,475 ft by 265 ft each) One Equalization Pond (approx. 1,650 ft by 800 ft)
Dike Geometry:	**Ash Water Transport Ponds** 0 ft to 31 ft high 2.5H to 1V Side Slopes **Equalization Basin** 0 ft to 22 ft high 3.5H to 1V Side Slopes
Pond Fill Elevation:	**Ash Water Transport Ponds –** El. 311 ft **Equalization Pond –** El. 290 ft
Impoundment Material Used in Analysis:	**Ash Water Transport Ponds –** Water **Equalization Pond -** Water

Table 2: Existing Conditions at Time of Geotechnical Study

Ground Cover:	Grass with a few small trees and bushes
Predominant Soil Types:	Fill/Natural Fat CLAY (CH) Fill/Natural Lean CLAY (CL) Sandy Lean CLAY (CL) Silty Fine SAND (SM)
Average Plasticity Index (PI) of Upper Clays (Natural and Fills):	41 (Range 12 - 92)
Groundwater Depth Measured:	Minimum: 1.8 ft (Toe Area) Maximum: 37.5 ft (Crest)

Table 3: Computed Global Stability Factors of Safety

Stability Case	Ash Water Transport Ponds			Equalization Pond	
	Section A-A	Section B-B	Section C-C	Section D-D	Section E-E
Normal Operating Pool Steady State Seepage (long-term)	2.2	1.9	1.7	2.2	2.1
Maximum Surcharge Pool Undrained (short-term)	2.1	1.8	1.6	2.2	2.1
Normal Operating Pool Undrained (Seismic)	1.5	1.2	1.2	1.5	1.4

Notes

1. Factor of Safety greater than 1.5 for Steady State Seepage and Undrained conditions is considered to be adequate.

2. Factor of Safety greater than 1.0 for Seismic conditions is considered to be adequate.

3. Summary of stability runs presented in Appendix F

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SECTION II: MAIN REPORT

PROJECT AND SITE DESCRIPTION

The Ash Water Transport Ponds and Equalization Pond are located at the San Miguel Electric Cooperative near Christine, Texas. A Site Vicinity Map is provided in Appendix A. Representative site photographs that include each of the boring locations in this subsurface investigation are provided in Appendix B of this report.

Portions of the ponds were constructed by cutting into existing grades while other portions were constructed with filled slopes using the existing cut materials to maximum embankment heights ranging from 22 feet (Equalization Pond) to 31 feet (Ash Water Transport Ponds).

An EPA consultant recently visited the site and requested that slope stability analyses of the existing Ash Water Transport Ponds and Equalization Pond be performed to document estimated current factors of safety against slope stability failures. We were provided with the available original geotechnical information in the pond areas and other available documentation.

It is our understanding that the Ash Water Transport Ponds experienced some seepage issues in the 1980's and were subsequently reconstructed. Since that reconstruction, these ponds have been performing adequately with only a minor seepage issue apparent near the northeast corner of Ash Water Transport Pond A. This minor seepage area was modeled as Section A-A for stability.

GEOLOGY

The earth materials underling the project site have been regionally mapped as within the undivided Manning, Wellborn and Caddell Formations (Emwc) mapped to be within the Eocene Epoch of the Tertiary Period of the Geologic Time Scale.

Locally, the materials encountered in the test borings consist primarily of man-made fill soils, natural surface and alluvial soils and the much older Eocene deposits. The man-made fill soils were encountered in all of the embankment borings and two of the toe of slope borings and varied from approximately 4 to 28 ft thick. The fill soils are comprised of clays, sandy clays, gravelly clays with some lignite material and sand pockets and are in a stiff to hard condition. The fill also contained gypsum material and had a distinct multicolored mottling.

The upper native soils consisted of approximately 3 to 18 ft of clays, sandy clays and fine sands in a stiff to hard and medium dense condition. The underlying Eocene deposits are comprised of clays, sandy clays, clayey sands, siltstones and sandstones with occasional thin seams of lignite in a very stiff to very hard or very dense condition. Due to weathering

and lack of cementation within these materials, from a geotechnical perspective, they should be considered as having soil-like characteristics.

No faults are known to cross through the project area and, from a geologic perspective, future tectonic activity in this geographic area should pose minimal seismic risk to the disposal ponds and basin.

SOIL BORINGS AND LABORATORY TESTS

Seventeen (17) soil test borings were drilled at the approximate locations shown on the Boring Location Plan provided in Appendix C. The borings were drilled at the crest and toe of the dikes to depths of 20 to 64.3 feet. The subsurface investigation was conducted between September 19 and September 26, 2012. The boring depths were measured from below the existing ground surface elevation. Soil interpreted to be clay in the field was sampled by either pushing a thin-walled tube (ASTM D 1587) or with a split barrel sampler while performing the Standard Penetration Test (ASTM D 1586). Soil interpreted to be sand or gravel in the field was sampled with a split barrel sampler just described.

A truck-mounted drill rig using continuous flight augers together with the sampling tool noted was used to secure the subsurface soil samples. Soil classifications and borehole logging were conducted during the exploration by our Engineering Geologist under supervision of our Geotechnical Engineer. Final soil classifications, as seen on the attached boring logs (Appendix C), were determined in the laboratory based on laboratory and field test results and applicable ASTM procedures.

As a supplement to the field exploration, laboratory testing to determine soil water content, Atterberg Limits, unconfined compressive strength using a pocket penetrometer, and percent passing the US Standard No. 200 sieve, was conducted. In addition, selected samples of both the natural and compacted clays were tested for strength using a multistage triaxial compression test with isotropic consolidation and with effective consolidation pressures selected to mimic the approximate range in expected insitu stresses. The laboratory results are reported in the attached boring logs included in Appendix C. A key to the terms and symbols used on the logs is also included in Appendix D. The soil laboratory testing for this project was done in accordance applicable ASTM procedures with the specifications and definitions for these tests listed in the Appendix E.

Remaining soil samples recovered from this exploration will be routinely discarded following submittal of this report.

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SUBSURFACE CONDITIONS

Generalized stratigraphy and groundwater conditions are discussed in the following sections. The subsurface and groundwater conditions are based on conditions encountered at the boring locations to the depths explored.

Site Stratigraphy and Engineering Properties

The generalized subsurface stratigraphy encountered at this site is summarized in the table below.

Table 4: Generalized Soil Conditions

Stratum	Depth (ft)	Material Type	PI range	No. 200 Range	Pocket Pen. (tsf)	N range
I	0 to (3-28)	**FILL:** Brown to Dark Brown and Gray to Dark Gray, **Fat CLAY (CH)**, **Fat CLAY (CH) with Sand**, **Lean CLAY (CL)**, **Lean CLAY (CL) with Sand**, **Gravelly Fat CLAY (CH)**, stiff to hard	23 - 59	-	1.25 - 9.0	13 - 29
II	(0 - 28) to (12 – 52)	Brown to Dark Brown and Gray, **Clayey SAND (SC)**, **Fat CLAY (CH)**, **Sandy Fat CLAY (CH)**, **Sandy Lean CLAY (CL)**, **Lean CLAY (CL)**, **Lean CLAY (CL) with Sand**, stiff to hard and medium dense to very dense, some of these soils are Eocene Age deposits	12 - 92	13 to 52	0.75 – 5.75	9 – 100^{+}
III	Below (0-52)	Gray and Brown, **Silty SAND (SM)**, **Sandy SILT (ML)**, **Sandy Fat CLAY (CH)**, **Sandy Lean CLAY (CL)**, **Clayey SAND (SC)**, **Fat CLAY (CH)**, very stiff to hard and loose to very dense, some alluvial soils but mostly Eocene Age deposits	1 - 66	13 to 56	-	8 – 100^{+}

Where: Depth - Depth from existing ground surface at the time of geotechnical study, feet
PI - Plasticity Index, %
No. 200 - Percent passing #200 sieve, %
Pocket Pen - Pocket Penetrometer reading (tons/ft^2)
N - Standard Penetration Test (SPT) value, blows per foot

Groundwater

A dry soil sampling method was used to obtain the soil samples at the project site. Groundwater was observed within the soil borings during the soil sampling activities. Each

boring was then left open for a minimum of 24 hrs in order to obtain a delayed groundwater reading. The delayed groundwater levels were encountered as shallow as 1.8 ft below ground surface in the location of the toe of the embankments and as deep as 37.5 ft below ground surface in the location of the crest of the embankments. Groundwater levels should be expected to change over time in response to climatic conditions and to the amount of water impounded in the Ash Water Transport Ponds and Equalization Pond.

For the purpose of the stability calculations performed herein, the groundwater has been assumed to be at ground surface near the toe of the embankments. The normal operating pool elevations in the Ash Water Transport Ponds and Equalization Pond have been assumed to be 311 ft and 290 ft, respectively. The maximum surcharge pool elevations in the Ash Water Transport Ponds and Equalization Pond have been assumed to be 314.5 ft. and 293.5 ft. respectively. The phreatic surface in the embankment sections B-B, C-C, D-D, and E-E were estimated using SEEP/W version 7.17, by GeoSlope using the boundary conditions just described and estimated soil permeabilities based upon experience with similar soils. In each case, these estimated phreatic surface elevations were higher in elevation than those measured by the delayed water level readings in the borings. As such, the phreatic surfaces in these analyses are considered to represent worst case conditions for the Ash Water Transport Ponds and Equalization Pond. The phreatic surface in the embankment section A-A was taken directly from the observed groundwater levels in the corresponding borings and modified in accordance with the direct observation of seepage emerging at the toe of the upper slope.

After obtaining samples and final groundwater measurements, the bore holes were backfilled with a mixture of cement grout and bentonite pellets sealed with a cement cap at the surface.

IBC Site Classification and Seismic Design Coefficients

Section 1613 of the International Building Code (2009) requires that every structure be designed and constructed to resist the effects of earthquake motions, with the seismic design category to be determined in accordance with Section 1613 or ASCE 7. Site classification according to the International Building Code (2009) is based on the soil profile encountered to 100-foot depth. The stratigraphy at the site location was explored to a maximum 64.3-foot depth.

Clayey and Sandy soils and Eocene aged deposits having similar consistency were extrapolated to be present between 64.3 and 100-foot depths. On the basis of the site class definitions included in Table 1613.5.2 and 1613.5.5 of the 2009 Code and the encountered generalized stratigraphy, we characterize the site as Site Class C.

Seismic design coefficients were determined using the on-line software, Seismic Hazard Curves and Uniform Response Spectra, version 5.1.0, dated February 10, 2011 accessed at (http://earthquake.usgs.gov/hazards/designmaps/javacalc.php). Analyses were performed

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considering the 2009 International Building Code. Input included zip code 78012 and Site Class C. Seismic design parameters for the site are summarized in the following table.

Table 5: Seismic Design Parameters

Site Classification	F_a	F_v	S_s	S_1
C	1.2	1.7	0.130g	0.026g

Where: Fa = Site coefficient
Fv = Site coefficient
Ss = Mapped spectral response acceleration for short periods
S1 = Mapped spectral response acceleration for a 1-second period

SLOPE STABILITY CALCULATIONS

Slope stability calculations were performed considering the interpreted stratigraphy at the explored boring locations for each of the five cross sections analyzed. These cross sections are shown in the Boring Location Plan in the Appendix C. Cross sections A-A, B-B and C-C were cut through the southernmost Ash Water Transport Pond and cross sections D-D and E-E were cut through the Equalization Pond. Strength parameters for the compacted clay soils in Strata I and the natural clay soils in Strata II were selected as the average strength from the three multistage consolidated undrained triaxial compression tests previously described. The other soil strengths used in these analyses were determined from the results of the Standard Penetration Tests, pocket penetrometer results and experience with similar soils. In each case, these estimated strengths are considered to be conservative.

The embankment cross sections analyzed were provided by the San Miguel Electric Cooperative based upon ground surveys and bathymetric measurements performed specifically for this project. The surveys indicate that the current geometry is similar to the original design geometry. These slope stability analyses were performed by Mr. Glen Andersen, Sc.D., P.E., acting as a subcontract employee to ARIAS.

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Table 6: Properties and Strength Parameters for Global Stability Analyses

Stratum	Soil Profile Zone	Material	Unit Weight	Strength Function
I	All Fill Soils Above Natural Grade	Fat CLAY (CH), Lean CLAY (CL)	112 pcf	**Total Stress** c_u = 216 psf ϕ = 17.2° **Effective Stress** c' = 288 psf ϕ = 20.3°
II_a	Natural Soils Above Silty Sands	Fat CLAY (CH), Lean CLAY (CL)	112 pcf	**Total Stress** c_u = 216 psf ϕ = 17.2° **Effective Stress** c' = 288 psf ϕ = 20.3°
II_b	Natural Soils Above Silty Sands	Sandy Lean CLAY (CL), Clayey SAND (SC)	120 pcf	**Total Stress** c_u = 1000 psf, ϕ = 0° **Effective Stress** c' = 200 psf, ϕ = 24°
III	Silty Sands	Silty SAND (SM), Sandy SILT (ML)	120 pcf	**Model Only With Effective Stress** c' = 0 psf, ϕ = 30°

Note:

1. No soils below the Strata III Silty Sands were modeled in these seepage and stability analyses

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Table 7: Stability Analyses Results

Stability Criteria	Pool Elevation (ft)	Section Analyzed	Computed Factor of Safety	Minimum Factor of Safety	Comments
Normal Operating Pool Steady State Seepage Long-Term (Drained)	311	A-A	2.2	1.5	Both Circular and Noncircular Searches Optimized Using Built-In Slope/W Optimization Routine
		B-B	1.9		
		C-C	1.7		
	290	D-D	2.2		
		E-E	2.1		
Maximum Surcharge Pool Short-Term (Undrained)	314.5	A-A	2.1	1.5	Both Circular and Noncircular Searches Optimized Using Built-In Slope/W Optimization Routine
		B-B	1.8		
		C-C	1.6		
	293.5	D-D	2.2		
		E-E	2.1		
Normal Operating Pool Seismic (Undrained)	311	A-A	1.5	1.0	Both Circular and Noncircular Searches Optimized Using Built-In Slope/W Optimization Routine
		B-B	1.2		
		C-C	1.2		
	290	D-D	1.5		
		E-E	1.4		

All controlling Slope/W and Seep/W runs are summarized in the Appendix.

Rapid Drawdown Failure

The analysis for a rapid drawdown failure is necessary only in circumstances where there is the potential for a rapid lowering of the impoundment that would potentially destabilize the embankment and trigger a rapid and uncontrolled release of the impoundment. For embankments such as the ones associated with this project, such a rapid release could only be caused by human failure or mechanical failure of an outfall structure. However, for each of these ponds, there is no outfall structure. The only way for water to be released from them is through evaporation or physical pumping. Under such circumstances, it is not possible to trigger a rapid lowering of the reservoir except for the case of a global failure of the embankments. If the embankments experience a global failure, a failure associated with the

attending rapid drawdown would be considered a secondary failure and hence is not considered in these stability calculations.

Seismic Loading

According to EPA requirements published in the Federal Register Vol. 75, No. 118, pages 35200 and 35201, only structures located in a seismic impact zone require seismic considerations. The EPA identifies a seismic zone where the probability of an earthquake creating a peak ground acceleration of greater than 0.1g is greater than 10% over a 250 year period. Based upon earthquake probability maps computed from the United States Geological Survey Report OFT 08-1128, and a rough correspondence between a M = 5.0 earthquake and a peak ground acceleration of 0.09g, the probability of the peak ground acceleration equal to or greater than 0.1g at the project site is less than 6% over a 250 year period. Hence, the project site is not located in an EPA defined seismic impact zone.

However, seismic stability calculations were performed for each of these cross sections using a lateral earthquake coefficient of 0.13g corresponding to the short period mapped spectral response acceleration provided earlier in this report. Such an approach is considered to be conservative. These calculations indicate that the existing embankment slopes have a suitable Factor of Safety for seismic conditions.

Liquefaction Potential

Given that these impoundments are not located in an EPA defined seismic impact zone, no specific analyses are required for seismically induced liquefaction. However, a review of the boring logs developed for this project indicates that there is only one location (Boring B-4) at the toe of Cross Section B-B where loose sands or silts were encountered. In all other locations, the uncorrected SPT blow counts were 65 or greater in the sands and silts. In addition, these loose sands are encountered above the water table. Also, there is less than a 6% chance of a magnitude 5.0 or greater earthquake in 250 years. In order to have a liquefaction event, three conditions must be met. First, granular soils must be present at a sufficiently low density. Second, these low density granular soils must be encountered below the groundwater table. Third, seismic shaking must be sufficiently strong to induce a collapse of the soil skeleton at the insitu density.

Based upon the actual conditions at the project site, liquefaction is considered to be very unlikely according to the criteria established by Seed and Idriss (1971) in their paper “Simplified Procedure for Evaluating Soil Liquefaction Potential”. Hence, slope stability evaluations accounting for potential liquefaction are not necessary for this site.

GENERAL COMMENTS

The scope of this study is to conduct seepage and associated slope stability evaluations of the embankments of the Ash Water Transport Ponds and Equalization Pond. Environmental

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studies of any kind were not a part of our scope of work or services even though we are capable of providing such services.

This report was prepared for this project exclusively for the use of San Miguel Electric Cooperative. Arias and Associates is not responsible for the interpretations of our conclusions by a third party. If any of the assumptions presented herein change or if conditions observed during our site visits change, we should be informed and retained to ascertain the impact of these changes on our recommendations. We cannot be responsible for the potential impact of these changes if we are not informed.

The soils to be penetrated by the borings conducted for this subsurface investigation may vary significantly across the site. Our soil classifications and strength determinations are based solely on the materials encountered in widely spaced exploratory test borings and our review of previously conducted borings. Conditions may occur between these borings that are not representative of the subsurface conditions modeled in these analyses

This report has been prepared in accordance with ordinary degree of skill and care that would be used by other reasonably competent geotechnical engineers under similar circumstances, taking into consideration the contemporary state of the art and geographic idiosyncrasies.

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APPENDIX A: SITE VICINITY MAP AND GEOLOGIC MAP

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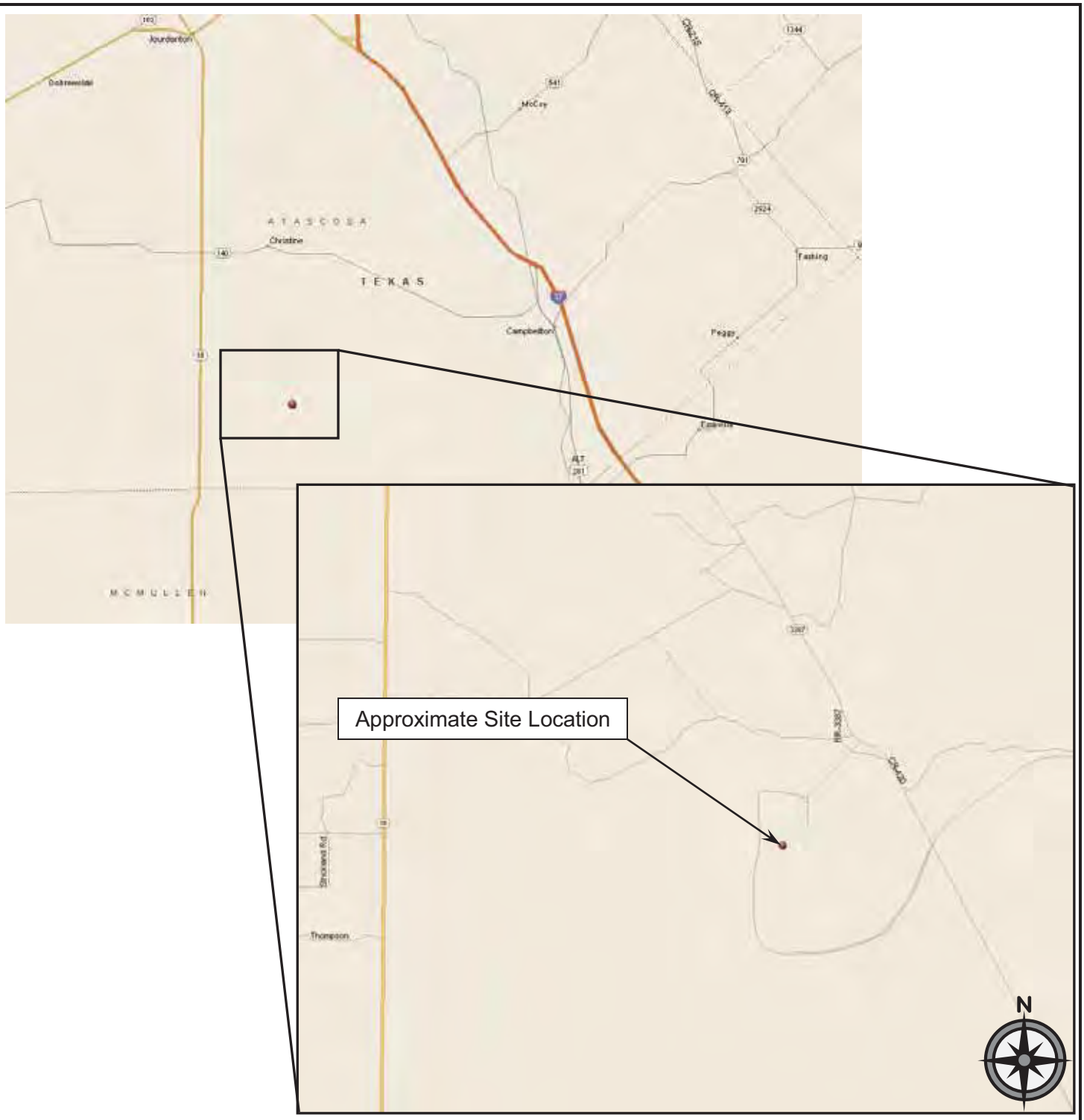

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VICINITY MAP

Ash Transport Water Pond and Equalization Pond
Stability Analyses at San Miguel Lignite Mine
Atascosa County, Texas

Date: October 22, 2012	Job No.: 2012-695
Drawn By: TAS	Checked By: GRA
Approved By: DB	Scale: N.T.S.

Appendix A

DISCLAIMER: This drawing is for illustration only and should not be used for design or construction purposes. All locations are approximate.

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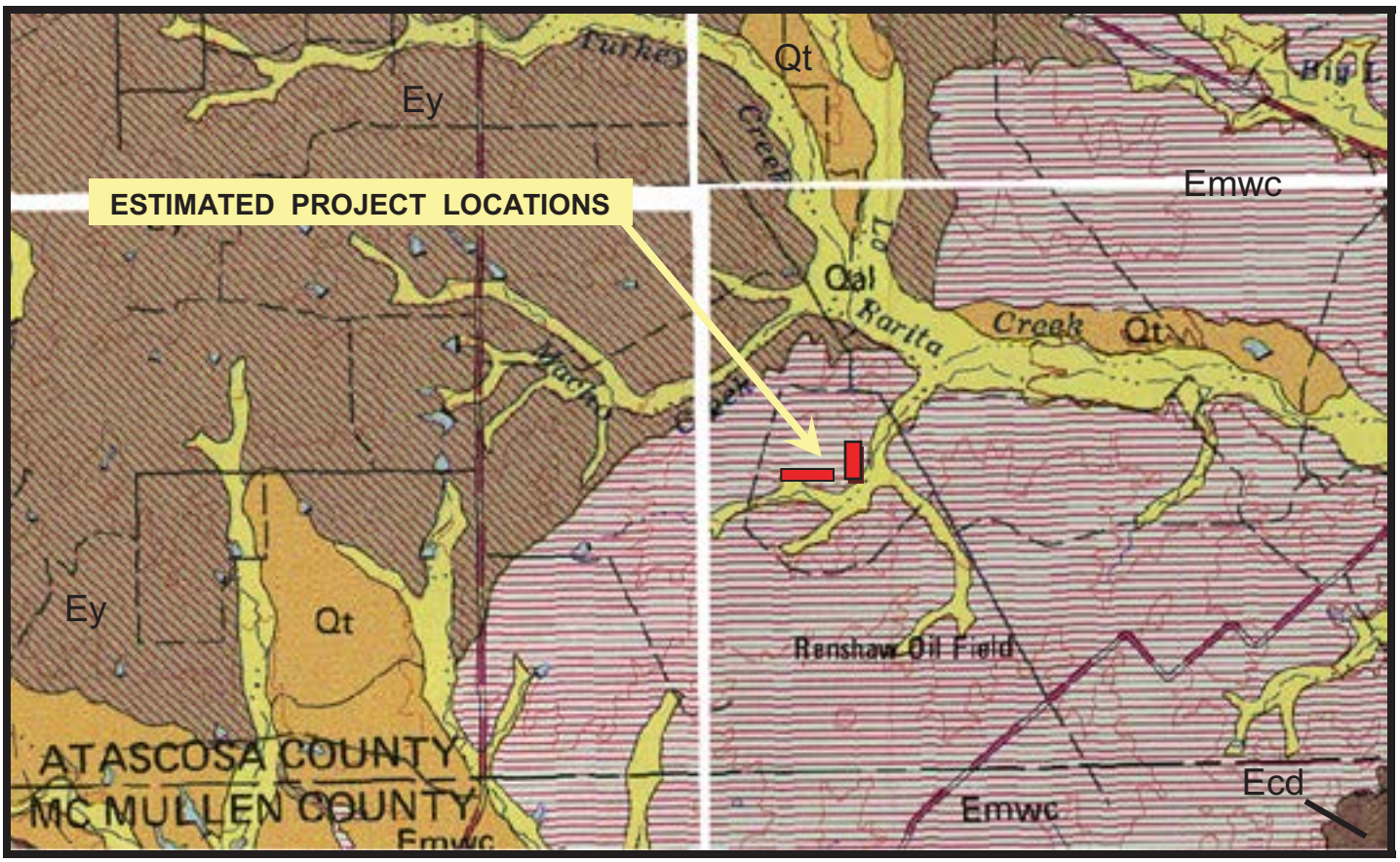

PORTION OF GEOLOGIC ATLAS OF TEXAS

N

LEGEND

Symbol	Name	Age
Qal	Active Alluvial Deposits	Quaternary Period / Holocene Epoch
Qt	Alluvial Terrace Deposits	Quaternary Period / Pleistocene Epoch
Ecd	Conquista Clay & Dilworth Sandstone members of the Whitsett Formation	Tertiary Period / Eocene Epoch
Emwc	Manning, Wellborn & Caddell Formations, undivided	Tertiary Period / Eocene Epoch
Ey	Yegua Formation	Tertiary Period / Eocene Epoch

U
D
Fault Segment with Indication of Relative Movement

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GEOLOGIC MAP

Ash Transport Water Pond and Equalization Pond
Stability Analyses at San Miguel Lignite Mine
Atascosa County, Texas

Date: October 4, 2012	Job No.: 2012-695
Drawn By: JLK	Checked By: GRA
Approved By: DB	Scale: N.T.S.

Appendix A

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APPENDIX B: SITE PHOTOGRAPHS

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DISCLAIMER: This drawing is for illustration only and should not be used for design or construction purposes. All locations are approximate.

Photo 1 – View looking west at Boring B-2 and the Yard Drainage Retention Pond.

Photo 2 – View looking west from Ash Disposal Pond at Boring B-1, with Boring B-2 in the distance.

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SITE PHOTOS

Ash Transport Water Pond and Equalization Pond
Stability Analyses at San Miguel Lignite Mine
Atascosa County, Texas

Date: October 22, 2012	Job No.: 2012-695
Drawn By: TAS	Checked By: GRA
Approved By: DB	Scale: N.T.S.

Appendix B

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DISCLAIMER: This drawing is for illustration only and should not be used for design or construction purposes. All locations are approximate.

Photo 3 – View looking north at Ash Disposal Pond from Boring B-5.

Photo 4 – View looking south from Boring B-6 towards Boring B-7 near the fence.

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SITE PHOTOS

Ash Transport Water Pond and Equalization Pond
Stability Analyses at San Miguel Lignite Mine
Atascosa County, Texas

Date: October 22, 2012	Job No.: 2012-695
Drawn By: TAS	Checked By: GRA
Approved By: DB	Scale: N.T.S.

Appendix B

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DISCLAIMER: This drawing is for illustration only and should not be used for design or construction purposes. All locations are approximate.

Photo 5 – View looking south from Sludge Disposal Basin at Boring B-8, with Boring B-9 in the distance.

Photo 6 – View looking to the northwest at Boring B-11, with Boring B-10 at top near the truck.

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SITE PHOTOS

Ash Transport Water Pond and Equalization Pond
Stability Analyses at San Miguel Lignite Mine
Atascosa County, Texas

Date: October 22, 2012	Job No.: 2012-695
Drawn By: TAS	Checked By: GRA
Approved By: DB	Scale: N.T.S.

Appendix B

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DISCLAIMER: This drawing is for illustration only and should not be used for design or construction purposes. All locations are approximate.

Photo 7 – View looking east from Sludge Disposal Basin at Boring B-13, with Boring B-14 in the distance.

Photo 8 – View looking north from Sludge Disposal Basin at Boring B-16, with Boring B-17 in the distance.

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SITE PHOTOS

Ash Transport Water Pond and Equalization Pond
Stability Analyses at San Miguel Lignite Mine
Atascosa County, Texas

Date: October 22, 2012	Job No.: 2012-695
Drawn By: TAS	Checked By: GRA
Approved By: DB	Scale: N.T.S.

Appendix B

US EPA ARCHIVE DOCUMENT

APPENDIX C: BORING LOCATION PLAN AND BORING LOGS

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BORING LOCATION PLAN

Ash Transport Water Pond and Equalization Pond
Stability Analyses at San Miguel Lignite Mine
Atascosa County, Texas

Date: October 22, 2012	Job No.: 2012-695
Drawn By: TAS	Checked By: GRA
Approved By: DB	Scale: N.T.S.

Appendix C

DISCLAIMER: This drawing is for illustration only and should not be used for design or construction purposes. All locations are approximate.

Boring Log No. B-1

Project: **Ash Water Transport Pond & Equalization Pond Stability Analyses at San Miguel Lignite Mine Christine, Texas**

Location: See Boring Location Plan

Sampling Date: 9/24/12
Elevation: 315 ft (Estimated)
Coordinates: N: 13438995.96 E: 2135464.98
Backfill: Cement-bentonite grout

Soil Description	Depth (ft)	SN	WC	PL	LL	PI	PP	N	-200
FILL: Silty GRAVEL (GM) with sand, dense, gray and brown		SS	29	24	47	23		28	
FILL: LEAN CLAY (CL) with sand, stiff to very stiff, gray and brown, trace of gypsum, mottled		SS	30					14	
	5	SS	33	28	67	39		23	
FAT CLAY (CH), very stiff to hard, gray to dark brown, with considerable gypsum seams		SS	33					25	
- light brown an dgray below 8 ft.		T	33	35	57	22	1.75		
	10								
- seepage along gypsum seam at 10 ft.		T	31	37	56	19	1.5		
	15	T							
	20	SS	38					32	
LEAN CLAY (CL), hard, gray and brown, with thin gypsum seams									
- considerable iron oxide material below 24 ft.	25	SS	20	20	42	22		82	
SILTY Fine SAND (SM), very dense, gray and brown		SS						**50/1"	
	30								
	35	SS	24					**50/6"	33
		SS	23					**50/6"	
Borehole terminated at 39 feet									

Groundwater Data:
First encountered during drilling: 9.5-ft depth
After 60 hours: 9.6-ft depth (26.3-ft open borehole depth)

Field Drilling Data:
Coordinates: Survey
Logged By: J. Kniffen
Driller: Eagle Drilling, Inc.
Equipment: Truck-mounted drill rig

Single flight auger: 0 - 39 ft

Nomenclature Used on Boring Log

Split Spoon (SS)
Thin-walled tube (T)
Water encountered during drilling
Delayed water reading

WC = Water Content (%)
PL = Plastic Limit
LL = Liquid Limit
PI = Plasticity Index
PP = Pocket Penetrometer (tsf)
N = SPT Blow Count
** = Blow Counts During Seating Penetration
-200 = % Passing #200 Sieve

2012-695.GPJ 10/22/12 (BORING LOG SA12-01,ARIASSA12-01.GDT,LIBRARY'2012.GLB)

Arias & Associates, Inc.

Job No.: 2012-695

Boring Log No. B-2

Project: **Ash Water Transport Pond & Equalization Pond Stability Analyses at San Miguel Lignite Mine Christine, Texas**

Location: See Boring Location Plan

Sampling Date: 9/25/12
Elevation: 303 ft (Estimated)
Coordinates: N: 13438985.27 E: 2135331.45
Backfill: Cement-bentonite grout

Soil Description	Depth (ft)	SN	WC	PL	LL	PI	PP	N	-200
FILL: Silty GRAVEL (GM) with sand, medium dense, light gray and brown		SS	26					74	
LIGNITE Material, hard, dark brown and black									
FILL: GRAVELLY FAT CLAY (CH) with sand, very stiff, gray and brown		SS	24	21	53	32		28	
FAT CLAY (CH), very stiff to hard, gray and brown, with gypsum and silt seams	5	SS	33					36	
		SS	31	25	63	38		21	
		T	25	21	54	33	2.25		
- sandy with oxide staining below 10 ft.	10	T	24				5.0		
SILTY Fine SAND (SM), very dense, gray and brown									
	15	SS	23					86/12"	32
	20	SS	26					72	32
		SS	24					50/5"	31

Borehole terminated at 24.4 feet

Groundwater Data:
First encountered during drilling: 17-ft depth
After 48 hours: 13.4-ft depth (17.8-ft open borehole depth)

Field Drilling Data:
Coordinates: Survey
Logged By: J. Kniffen
Driller: Eagle Drilling, Inc.
Equipment: Truck-mounted drill rig

Single flight auger: 0 - 24.4 ft

Nomenclature Used on Boring Log

Split Spoon (SS)
Thin-walled tube (T)
Water encountered during drilling
Delayed water reading

WC = Water Content (%)
PL = Plastic Limit
LL = Liquid Limit
PI = Plasticity Index
PP = Pocket Penetrometer (tsf)
N = SPT Blow Count
-200 = % Passing #200 Sieve

2012-695.GPJ 10/22/12 (BORING LOG SA12-01,ARIASSA12-01.GDT,LIBRARY'2012.GLB)

Arias & Associates, Inc.

Job No.: 2012-695

Boring Log No. B-3

Project: **Ash Water Transport Pond & Equalization Pond Stability Analyses at San Miguel Lignite Mine Christine, Texas**

Location: See Boring Location Plan

Sampling Date: 9/24/12
Elevation: 314 ft (Estimated)
Coordinates: N: 13438572.89 E: 2135716.20
Backfill: Cement-bentonite grout

Soil Description	Depth (ft)		SN	WC	PL	LL	PI	PP	N	-200
FILL: FAT CLAY (CH), very stiff, gray and brown, mottled, trace sand, trace gravel			SS	30					19	
			SS	34	26	64	38		16	
	5		SS	29					22	
FILL: LEAN CLAY (CL), very stiff to hard, gray and brown, mottled, trace fine sand			SS	25	22	49	27		21	
	10		SS	21					28	
			T	26	18	46	28	4.0		
	15		T	30				2.75		
FILL: FAT CLAY (CH), very stiff, dark gray and brown, mottled			T	28	21	62	41	2.75		
	20									
	25		T	28	23	66	43	3.0		
FAT CLAY (CH), very stiff, gray and brown, with gypsum										
	30		T	38				3.0		
SILTY Fine SAND (SM), very dense, gray and brown, with yellow stains			SS	23					**50/5"	24
	35									
	40		SS	27					**50/5"	
SANDY SILT (ML), very dense, gray and brown										
- iron oxide lenses below 43 ft.	45		SS	22					50/5"	51
	50		SS	27					50/4"	
SANDY FAT CLAY (CH), dense to very dense, dark gray, with gypsum seams	55		SS	25	19	50	32		75	
	60		SS	26	22	77	55		44	
Borehole terminated at 60 feet										

Groundwater Data:
First encountered during drilling: 33-ft depth
After 60 hours: 34.3-ft depth (47-ft open borehole depth)

Field Drilling Data:
Coordinates: Survey
Logged By: J. Kniffen
Driller: Eagle Drilling, Inc.
Equipment: Truck-mounted drill rig

Single flight auger: 0 - 60 ft

Nomenclature Used on Boring Log

Split Spoon (SS)
Thin-walled tube (T)
Water encountered during drilling
Delayed water reading

WC = Water Content (%)
PL = Plastic Limit
LL = Liquid Limit
PI = Plasticity Index
PP = Pocket Penetrometer (tsf)
N = SPT Blow Count
** = Blow Counts During Seating Penetration
-200 = % Passing #200 Sieve

Arias & Associates, Inc.

Job No.: 2012-695

Boring Log No. B-4

Project: **Ash Water Transport Pond & Equalization Pond Stability Analyses at San Miguel Lignite Mine Christine, Texas**

Location: See Boring Location Plan

Sampling Date: 9/25/12
Elevation: 289 ft (Estimated)
Coordinates: N: 13438471.89 E: 2135716.65
Backfill: Cement-bentonite grout

Soil Description	Depth (ft)		SN	WC	PL	LL	PI	N	-200
SANDY LEAN CLAY (CL), very stiff to hard, gray and dark brown			SS	9				32	
			SS	7	16	45	29	22	
SILTY SAND (SM), loose to medium dense, light gray and brown	5		SS	7				8	
			SS	14				15	20
- very dense below 9 ft.	10		SS	22	24	25	1	51	
		▼	SS	24				**50/6"	
	15		SS	31				**50/6"	17
	20		SS	33				81	
	25		SS	25				**50/6"	31
	30		SS	27				50/4"	
SANDY FAT CLAY (CH), hard, gray									
	35		SS	29	19	54	35	51	
Borehole terminated at 35 feet									

Groundwater Data:
First encountered during drilling: 12-ft depth
After 48 hours: 11.3-ft depth (18-ft open borehole depth)

Field Drilling Data:
Coordinates: Survey
Logged By: J. Kniffen
Driller: Eagle Drilling, Inc.
Equipment: Truck-mounted drill rig

Single flight auger: 0 - 35 ft

Nomenclature Used on Boring Log

Split Spoon (SS)

▽ Water encountered during drilling
▼ Delayed water reading

WC = Water Content (%)
PL = Plastic Limit
LL = Liquid Limit
PI = Plasticity Index
N = SPT Blow Count

** = Blow Counts During Seating Penetration
-200 = % Passing #200 Sieve

2012-695.GPJ 10/22/12 (BORING LOG SA12-01,ARIASSA12-01.GDT,LIBRARY'2012.GLB)

Arias & Associates, Inc.

Job No.: 2012-695

Boring Log No. B-5

Project: **Ash Water Transport Pond & Equalization Pond Stability Analyses at San Miguel Lignite Mine Christine, Texas**

Location: See Boring Location Plan

Sampling Date: 9/25/12
Elevation: 314 ft (Estimated)
Coordinates: N: 13438062.07 E: 2136671.33
Backfill: Cement-bentonite grout

Soil Description	Depth (ft)	SN	WC	PL	LL	PI	PP	N	-200
FILL: FAT CLAY (CH) with sand, stiff to hard, gray and brown, mottled, trace gypsum		SS	29	29	87	58		23	
		SS	32					26	
	5	T	36	28	72	44	2.5		
		T	21				4.0		
		T	27	28	60	32	4.0		
	10	T	28				5.5		
- trace of fine gravel from 12 ft. to 13 ft. - dark gray and brown below 13 ft.	15	T	32	29	61	32	1.25		
FAT CLAY (CH), gray and brown, with iron oxide staining adn gypsum	20	T	28				5.75		
- brown below 23 ft.									
SILTY SAND (SM), very dense, gray and brown, with yellow stains	25	SS	31					65	52
FAT CLAY (CH), hard, gray and brown, with gypsum seams	30	SS	37	36	102	66		43	
	35	SS	32					52	
SILTY Fine SAND (SM), very dense, gray and brown		SS	22					50/4"	29
Borehole terminated at 39.3 feet									

Groundwater Data:
First encountered during drilling: 37.5-ft depth (23.2-ft open borehole depth)
Field Drilling Data:
Coordinates: Survey
Logged By: J. Kniffen
Driller: Eagle Drilling, Inc.
Equipment: Truck-mounted drill rig

Single flight auger: 0 - 39.3 ft

Nomenclature Used on Boring Log

Split Spoon (SS) | Thin-walled tube (T) | Water encountered during drilling

WC = Water Content (%)
PL = Plastic Limit
LL = Liquid Limit
PI = Plasticity Index
PP = Pocket Penetrometer (tsf)

N = SPT Blow Count
-200 = % Passing #200 Sieve

2012-695.GPJ 10/22/12 (BORING LOG SA12-01,ARIASSA12-01.GDT,LIBRARY'2012.GLB)

Arias & Associates, Inc.

Job No.: 2012-695

Boring Log No. B-6

Project: **Ash Water Transport Pond & Equalization Pond Stability Analyses at San Miguel Lignite Mine Christine, Texas**

Location: See Boring Location Plan

Sampling Date: 9/24/12
Elevation: 315 ft (Estimated)
Coordinates: N: 13438561.88 E: 2137764.40
Backfill: Cement-bentonite grout

Soil Description	Depth (ft)	SN	WC	PL	LL	PI	PP	N	-200
FILL: FAT CLAY (CH), very stiff, gray and brown, with mottling, sand seams, some dark brown layers		SS	18					29	
		SS	24	29	83	54		21	
	5	SS	34					21	
		SS	29	28	81	53		21	
	10	SS	24					22	
		SS	30					19	
	15	T	29	28	84	56	2.75		
	20	T	32				2.75		
	25	T	27				2.25		
FAT CLAY (CH), hard, dark gray									
	30	T							
- gray and brown below 30 ft.									
- sand seams 33 ft. to 38 ft.	35	T	26	26	70	44	4.0		
- gypsum seams below 38 ft.	40	SS	41					33	
	45	SS		29	97	68		51	
- lignite seam at 49 ft.	50	SS						50/5"	
SILTY SAND (SM), very dense, gray to dark gray	55	SS						**50/2"	
	60	SS						**50/3"	17
SANDY SILT (ML), very dense, gray to dark gray		SS						50/3"	50
Borehole terminated at 64.3 feet									

Groundwater Data:
First encountered during drilling: 51.5-ft depth
After 60 hours: 32.8-ft depth (49.6-ft open borehole depth)

Field Drilling Data:
Coordinates: Survey
Logged By: J. Kniffen
Driller: Eagle Drilling, Inc.
Equipment: Truck-mounted drill rig

Single flight auger: 0 - 64.3 ft

Nomenclature Used on Boring Log

Split Spoon (SS)
Thin-walled tube (T)
Water encountered during drilling
Delayed water reading

WC = Water Content (%)
PL = Plastic Limit
LL = Liquid Limit
PI = Plasticity Index
PP = Pocket Penetrometer (tsf)
N = SPT Blow Count
** = Blow Counts During Seating Penetration
-200 = % Passing #200 Sieve

2012-695.GPJ 10/22/12 (BORING LOG SA12-01,ARIASSA12-01.GDT,LIBRARY2012.GLB)

Arias & Associates, Inc.

Job No.: 2012-695

Boring Log No. B-7

Project: **Ash Water Transport Pond & Equalization Pond Stability Analyses at San Miguel Lignite Mine Christine, Texas**

Location: See Boring Location Plan

Sampling Date: 9/25/12
Elevation: 289 ft (Estimated)
Coordinates: N: 13438470.98 E: 2137764.82
Backfill: Cement-bentonite grout

Soil Description	Depth (ft)	SN	WC	PL	LL	PI	PP	N	-200
FILL: FAT CLAY (CH) with sand, stiff to very stiff, dark gray and brown, with mottling and organics		SS	20					18	
		SS	17					14	
SANDY FAT CLAY (CH), hard, light gray and brown, with sand layers	5	SS	25	28	70	42		50	
- less sand below 7 ft.		SS	23					56	
	10	SS	32	19	90	71		57	
- with gypsum below 10 ft.		SS	33					58	
	15	SS	40	35	109	74		22	
FAT CLAY (CH), very stiff, gray, with gypsum seams		T							
	20								
CLAYEY SAND (SC), hard, gray and brown		T	20				5.0		
	25								
		SS						**50/3"	
SILTY SAND (SM), very dense, gray	30								
		SS	27					**50/3"	13
Borehole terminated at 33.8 feet									

Groundwater Data:
First encountered during drilling: 23-ft depth
After 48 hours: 13.3-ft depth (21.9-ft open borehole depth)

Field Drilling Data:
Coordinates: Survey
Logged By: J. Kniffen
Driller: Eagle Drilling, Inc.
Equipment: Truck-mounted drill rig

Single flight auger: 0 - 33.8 ft

Nomenclature Used on Boring Log

Split Spoon (SS)
Thin-walled tube (T)
Water encountered during drilling
Delayed water reading

WC = Water Content (%)
PL = Plastic Limit
LL = Liquid Limit
PI = Plasticity Index
PP = Pocket Penetrometer (tsf)
N = SPT Blow Count
** = Blow Counts During Seating Penetration
-200 = % Passing #200 Sieve

2012-695.GPJ 10/22/12 (BORING LOG SA12-01,ARIASSA12-01.GDT,LIBRARY'2012.GLB)

Arias & Associates, Inc.

Job No.: 2012-695

Boring Log No. B-8

Project: **Ash Water Transport Pond & Equalization Pond Stability Analyses at San Miguel Lignite Mine Christine, Texas**

Location: See Boring Location Plan

Sampling Date: 9/21/12
Elevation: 293 ft (Estimated)
Coordinates: N: 13438637.13 E: 2138770.33
Backfill: Cement-bentonite grout

Soil Description	Depth (ft)	SN	WC	PL	LL	PI	PP	N	-200
FILL: FAT CLAY (CH), stiff to very stiff, light gray to dark brown, some mottling		SS	21	28	65	37		26	
		SS	32					14	
	5	SS	27	25	69	44		18	
		SS	30					14	
	10	SS	30	25	74	49		13	
		SS	35					15	
	15	T	38	27	74	47	2.75		
▼		T	36				2.75		
	20								
FAT CLAY (CH), very stiff to hard, brown to dark brown		T	26	19	58	39	2.25		
	25								
- with sand from 28 ft. to 33 ft.		T	19				4.75		
▽	30								
- brown and gray below 33 ft.		T	34	23	65	42	2.5		
	35								
CLAYEY Fine SAND (SC), very dense, light gray to brown		T	22				5.0		
	40								
SILTY SAND (SM), very dense, dark gray		SS	27					**50/5"	15
Borehole terminated at 43.9 feet									

Groundwater Data:
First encountered during drilling: 32.5-ft depth
After 120 hours: 18.6-ft depth (26.3-ft open borehole depth)

Field Drilling Data:
Coordinates: Survey
Logged By: J. Kniffen
Driller: Eagle Drilling, Inc.
Equipment: Truck-mounted drill rig

Single flight auger: 0 - 43.9 ft

Nomenclature Used on Boring Log

Split Spoon (SS)
Thin-walled tube (T)
Water encountered during drilling
Delayed water reading

WC = Water Content (%)
PL = Plastic Limit
LL = Liquid Limit
PI = Plasticity Index
PP = Pocket Penetrometer (tsf)
N = SPT Blow Count
** = Blow Counts During Seating Penetration
-200 = % Passing #200 Sieve

2012-695.GPJ 10/22/12 (BORING LOG SA12-01,ARIASSA12-01.GDT,LIBRARY'2012.GLB)

Arias & Associates, Inc.

Job No.: 2012-695

Boring Log No. B-9

Project: **Ash Water Transport Pond & Equalization Pond Stability Analyses at San Miguel Lignite Mine Christine, Texas**

Location: See Boring Location Plan

Sampling Date: 9/25/12
Elevation: 276 ft (Estimated)
Coordinates: N: 13438445.24 E: 2138771.20
Backfill: Cement-bentonite grout

Soil Description	Depth (ft)		SN	WC	PL	LL	PI	PP	N	-200
CLAYEY SAND (SC), dense, dark brown, with white calcite			SS	13					17	
FAT CLAY (CH), stiff, black, trace organics			SS	27	21	65	44		14	
	5		SS	21					14	
SANDY LEAN CLAY (CL), very stiff, dark gray, trace organics			SS	24	13	39	26		16	
	10		SS	20					19	56
			SS	20					25	
FAT CLAY (CH), stiff to hard, light gray and brown, with gypsum	15		T	40	32	109	77	1.5		
- sandy below 19 ft.	20		T	27				4.25		

Borehole terminated at 20 feet

Groundwater Data:
During drilling: Not encountered
After 48 hours: 6.7-ft depth (8.3-ft open borehole depth)
Field Drilling Data:
Coordinates: Survey
Logged By: J. Kniffen
Driller: Eagle Drilling, Inc.
Equipment: Truck-mounted drill rig

Single flight auger: 0 - 20 ft

Nomenclature Used on Boring Log

Split Spoon (SS)
Thin-walled tube (T)
Delayed water reading

WC = Water Content (%)
PL = Plastic Limit
LL = Liquid Limit
PI = Plasticity Index
PP = Pocket Penetrometer (tsf)
N = SPT Blow Count
-200 = % Passing #200 Sieve

Boring Log No. B-10

Project: **Ash Water Transport Pond & Equalization Pond Stability Analyses at San Miguel Lignite Mine Christine, Texas**

Location: See Boring Location Plan

Sampling Date: 9/21/12
Elevation: 293 ft (Estimated)
Coordinates: N: 13438710.59 E: 2139375.54
Backfill: Cement-bentonite grout

Soil Description	Depth (ft)	SN	WC	PL	LL	PI	PP	N	-200
FILL: Poorly-graded GRAVEL with Sand (GP), dense, light gray and brown		SS	29					25	
FILL: FAT CLAY (CH), stiff to very stiff, light gray and brown, with mottling		SS	36	29	67	38		18	
- gray and brown from 4 ft. to 13 ft.	5	SS	33					23	
		SS	26					24	
	10	SS	30	32	86	54		17	
		SS	33					19	
- gray to dark brown below 13 ft.	15	T	36	25	84	59	1.75		
	20	T	33				1.5		
LEAN CLAY (CL), stiff, gray	25	T							
	30	T	25	18	49	31	1.5		
		T	20				1.75		
Fine SAND (SP), dense, gray to brown	35								
FAT CLAY (CH), hard, gray to brown, with gypsum	40	SS	25	24	72	48		43	
CLAYEY Fine SAND (SC), very dense, gray	45	SS	20					50/5"	
SILTY Fine SAND (SM), very dense, gray	50	SS	24					**50/4"	
		SS	28					**50/3"	14
Borehole terminated at 53.8 feet									

Groundwater Data:
First encountered during drilling: 18.4-ft depth
After 120 hours: 18.1-ft depth (25.2-ft open borehole depth)

Field Drilling Data:
Coordinates: Survey
Logged By: J. Kniffen
Driller: Eagle Drilling, Inc.
Equipment: Truck-mounted drill rig

Single flight auger: 0 - 53.8 ft

Nomenclature Used on Boring Log

Split Spoon (SS)
Thin-walled tube (T)
Water encountered during drilling
Delayed water reading

WC = Water Content (%)
PL = Plastic Limit
LL = Liquid Limit
PI = Plasticity Index
PP = Pocket Penetrometer (tsf)
N = SPT Blow Count
** = Blow Counts During Seating Penetration
-200 = % Passing #200 Sieve

2012-695.GPJ 10/22/12 (BORING LOG SA12-01,ARIASSA12-01.GDT,LIBRARY2012.GLB)

Arias & Associates, Inc.

Job No.: 2012-695

Boring Log No. B-11

Project: **Ash Water Transport Pond & Equalization Pond Stability Analyses at San Miguel Lignite Mine Christine, Texas**

Location: See Boring Location Plan

Sampling Date: 9/21/12
Elevation: 273 ft (Estimated)
Coordinates: N: 13438650.27 E: 2139438.15
Backfill: Cement-bentonite grout

Soil Description	Depth (ft)	SN	WC	PL	LL	PI	PP	N	-200
FAT CLAY (CH), stiff, dark brown - trace organics to 4 ft.		SS	25	21	65	44		9	
		SS	27					10	
- gray and brown below 5 ft.	5	T	33	22	57	35	1.75		
		T	32				1.75		
		T	30				1.75		
	10	T	25	21	56	35	1.75		
	15	T	25	32	77	45	1.5		
CLAYEY Fine SAND (SC), medium dense to very dense, light gray and brown									
	20	SS	22					32	
	25	SS	28	20	45	25		22	
SILTY SAND (SM), very dense, gray		SS	25					**50/6"	19
Borehole terminated at 29 feet									

Groundwater Data:
During drilling: Not encountered
After 120 hours: 1.8-ft depth (1.9-ft open borehole depth)
Field Drilling Data:
Coordinates: Survey
Logged By: J. Kniffen
Driller: Eagle Drilling, Inc.
Equipment: Truck-mounted drill rig

Single flight auger: 0 - 29 ft

Nomenclature Used on Boring Log

Split Spoon (SS)
Thin-walled tube (T)
Delayed water reading

WC = Water Content (%)
PL = Plastic Limit
LL = Liquid Limit
PI = Plasticity Index
PP = Pocket Penetrometer (tsf)
N = SPT Blow Count
** = Blow Counts During Seating Penetration
-200 = % Passing #200 Sieve

2012-695.GPJ 10/22/12 (BORING LOG SA12-01,ARIASSA12-01.GDT,LIBRARY'2012.GLB)

Arias & Associates, Inc.

Job No.: 2012-695

Boring Log No. B-12

Project: **Ash Water Transport Pond & Equalization Pond Stability Analyses at San Miguel Lignite Mine Christine, Texas**

Location: See Boring Location Plan

Sampling Date: 9/21/12
Elevation: 274 ft (Estimated)
Coordinates: N: 13439115.06 E: 2139480.55
Backfill: Cement-bentonite grout

Soil Description	Depth (ft)	SN	WC	PL	LL	PI	PP	N
FILL: FAT CLAY (CH), hard, dark brown, trace organics		SS	31					27
		T	18	17	50	33	9.0	
	5	T	17				7.75	
LEAN CLAY with Sand (CL), stiff to hard, dark brown		T	20	17	29	12	3.0	
		T	20				2.0	
	10	T	20				1.25	
	15	SS	19	19	39	20		29
- less sand, light gray and brown below 15 ft.								
	20	SS	21	17	42	25		36
- some gypsum seams below 23 ft.								
	25	SS	26					31
Borehole terminated at 25 feet								

Groundwater Data:
First encountered during drilling: 14-ft depth
After 120 hours: 6-ft depth (9.8-ft open borehole depth)

Field Drilling Data:
Coordinates: Survey
Logged By: J. Kniffen
Driller: Eagle Drilling, Inc.
Equipment: Truck-mounted drill rig

Single flight auger: 0 - 25 ft

Nomenclature Used on Boring Log

Split Spoon (SS)
Thin-walled tube (T)
Water encountered during drilling
Delayed water reading

WC = Water Content (%)
PL = Plastic Limit
LL = Liquid Limit
PI = Plasticity Index
PP = Pocket Penetrometer (tsf)
N = SPT Blow Count

Arias & Associates, Inc.

Job No.: 2012-695

2012-695.GPJ 10/22/12 (BORING LOG SA12-01,ARIASSA12-01.GDT,LIBRARY'2012.GLB)

Boring Log No. B-13

Project: **Ash Water Transport Pond & Equalization Pond Stability Analyses at San Miguel Lignite Mine Christine, Texas**

Location: See Boring Location Plan

Sampling Date: 9/19/12
Elevation: 294 ft (Estimated)
Coordinates: N: 13439498.52 E: 2139407.56
Backfill: Cement-bentonite grout

Soil Description	Depth (ft)	SN	WC	PL	LL	PI	PP	N	-200
FILL: Poorly-graded SAND (SP) with gravel, medium dense, light gray and brown		SS	23					20	
FILL: FAT CLAY (CH) with sand, very stiff, gray and brown, mottled		SS	34					24	
	5	SS	36	30	71	41		21	
- less sand, dark gray and brown below 6 ft.		SS	25					17	
	10	SS	32	24	66	42		17	
		SS	33					20	
	15	SS	37	25	81	56		24	
	20	T	32	21	68	47	1.5		
- very stiff to hard below 23 ft.		T	26				3.5		
	25								
FAT CLAY (CH), very stiff to hard, dark gray and brown	30	T	27	24	75	51	4.25		
		T	22				2.25		
	35								
- gray and brown below 35 ft.		T	28	20	57	37	4.0		
	40								
- considerable gypsum below 40 ft.									
Poorly-graded Fine SAND (SP), very dense, light gray and brown, with lignite seam and sandy silt seams		SS	26					50/4"	
	45								
SANDY LEAN CLAY (CL), hard, light gray and brown		SS	30					**50/4"	56
Borehole terminated at 48.8 feet									

Groundwater Data:
First encountered during drilling: 44-ft depth
After 144 hours: 23.7-ft depth (28.8-ft open borehole depth)

Field Drilling Data:
Coordinates: Survey
Logged By: J. Kniffen
Driller: Eagle Drilling, Inc.
Equipment: Truck-mounted drill rig

Single flight auger: 0 - 48.8 ft

Nomenclature Used on Boring Log

Split Spoon (SS)
Thin-walled tube (T)
Water encountered during drilling
Delayed water reading

WC = Water Content (%)
PL = Plastic Limit
LL = Liquid Limit
PI = Plasticity Index
PP = Pocket Penetrometer (tsf)
N = SPT Blow Count
** = Blow Counts During Seating Penetration
-200 = % Passing #200 Sieve

2012-695.GPJ 10/22/12 (BORING LOG SA12-01.ARIASSA12-01.GDT.LIBRARY2012.GLB)

Arias & Associates, Inc.

Job No.: 2012-695

Boring Log No. B-14

Project: **Ash Water Transport Pond & Equalization Pond Stability Analyses at San Miguel Lignite Mine Christine, Texas**

Location: See Boring Location Plan

Sampling Date: 9/26/12
Elevation: 273 ft (Estimated)
Coordinates: N: 13439499.09 E: 2139532.23
Backfill: Cement-bentonite grout

Soil Description	Depth (ft)	SN	WC	PL	LL	PI	PP	N	-200
FAT CLAY (CH), medium stiff to very stiff, dark brown - trace organics to 4 ft.		SS	18					16	
		SS	19					12	
	5	T	26	16	50	34	1.0		
- gray with some calcite below 6 ft.		T	27				2.25		
- brown below 8 ft.		T	16	19	62	43	1.75		
	10	T	28				1.25		
SANDY LEAN CLAY (CL), stiff, light gray and brown	15	T	25	16	35	19	1.5		
CLAYEY SAND (SC), medium dense, light gray and brown	20	SS	19					46	43
SANDY LEAN CLAY (CL), hard, dark gray and brown									
- thin lignite lense at 24 ft.	25	SS	21	15	45	30		64	

Borehole terminated at 25 feet

Groundwater Data:
First encountered during drilling: 6-ft depth
After 24 hours: 7-ft depth (11.2-ft open borehole depth)
Field Drilling Data:
Coordinates: Survey
Logged By: J. Kniffen
Driller: Eagle Drilling, Inc.
Equipment: Truck-mounted drill rig

Single flight auger: 0 - 25 ft

Nomenclature Used on Boring Log

Split Spoon (SS)
Thin-walled tube (T)
Water encountered during drilling
Delayed water reading

WC = Water Content (%)
PL = Plastic Limit
LL = Liquid Limit
PI = Plasticity Index
PP = Pocket Penetrometer (tsf)

N = SPT Blow Count
-200 = % Passing #200 Sieve

Boring Log No. B-15

Project: **Ash Water Transport Pond & Equalization Pond Stability Analyses at San Miguel Lignite Mine Christine, Texas**

Location: See Boring Location Plan

Sampling Date: 9/26/12
Elevation: 273 ft (Estimated)
Coordinates: N: 13439963.51 E: 2139494.49
Backfill: Cement-bentonite grout

Soil Description	Depth (ft)	SN	WC	PL	LL	PI	PP	N
FAT CLAY (CH), medium stiff to very stiff, dark brown - trace organics to 2 ft.		SS	16					24
		SS	29					13
	5	T	26	19	58	39	1.5	
- gray and brown below 6 ft.		T	29				1.25	
		T	29	19	61	42	2.0	
	10							
- sandy from 10 ft. to 12 ft.		T	31				1.0	
	15	T	31	19	54	35	1.0	
SANDY FAT CLAY (CH), very stiff, light gray and brown								
	20	SS	21					18
	25	SS	21	18	52	34		30
Borehole terminated at 25 feet								

Groundwater Data:
First encountered during drilling: 19-ft depth
After 24 hours: 4.8-ft depth (21.3-ft open borehole depth)

Field Drilling Data:
Coordinates: Survey
Logged By: J. Kniffen
Driller: Eagle Drilling, Inc.
Equipment: Truck-mounted drill rig

Single flight auger: 0 - 25 ft

Nomenclature Used on Boring Log

Split Spoon (SS)
Thin-walled tube (T)
Water encountered during drilling
Delayed water reading

WC = Water Content (%)
PL = Plastic Limit
LL = Liquid Limit
PI = Plasticity Index
PP = Pocket Penetrometer (tsf)
N = SPT Blow Count

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Arias & Associates, Inc.

Job No.: 2012-695

Boring Log No. B-16

Project: **Ash Water Transport Pond & Equalization Pond Stability Analyses at San Miguel Lignite Mine Christine, Texas**

Location: See Boring Location Plan

Sampling Date: 9/19/12
Elevation: 294 ft (Estimated)
Coordinates: N: 13440224.56 E: 2139154.93
Backfill: Cement-bentonite grout

Soil Description	Depth (ft)		SN	WC	PL	LL	PI	PP	N	-200
FILL: Poorly-graded Fine or Coarse SAND (SP) with gravel, medium dense, light gray and brown, some clay pockets			SS	30					19	
			SS	28					21	
FILL: FAT CLAY (CH), very stiff, dark gray, gray and brown mottling, with sandy clay pockets	5		SS	30					20	
			SS	29	23	69	46		23	
	10		SS	35					21	
			SS	37	27	76	49		21	
	15		SS	33					22	
	20		SS	27					21	
FAT CLAY (CH), medium stiff to very stiff, light gray and brown	25		T	37	24	69	45	1.0		
	30		T	36				3.0		
- gypsum seams below 33 ft.	35		T	34	26	118	92	3.25		
	40		T	35				3.5		
SILTY Fine SAND (SM), very dense, gray and brown	45		SS	32					**50/6"	19
	50		SS	30					**50/4"	
	55		SS	29					**50/6"	21
			SS	28					**50/6"	
Borehole terminated at 59 feet										

Groundwater Data:
First encountered during drilling: 42.5-ft depth
After 144 hours: 20.8-ft depth (24.8-ft open borehole depth)

Field Drilling Data:
Coordinates: Survey
Logged By: J. Kniffen
Driller: Eagle Drilling, Inc.
Equipment: Truck-mounted drill rig

Single flight auger: 0 - 59 ft

Nomenclature Used on Boring Log

Split Spoon (SS)
Thin-walled tube (T)
Water encountered during drilling
Delayed water reading

WC = Water Content (%)
PL = Plastic Limit
LL = Liquid Limit
PI = Plasticity Index
PP = Pocket Penetrometer (tsf)
N = SPT Blow Count
** = Blow Counts During Seating Penetration
-200 = % Passing #200 Sieve

2012-695.GPJ 10/22/12 (BORING LOG SA12-01,ARIASSA12-01.GDT,LIBRARY'2012.GLB)

Arias & Associates, Inc.

Job No.: 2012-695

Boring Log No. B-17

Project: **Ash Water Transport Pond & Equalization Pond Stability Analyses at San Miguel Lignite Mine Christine, Texas**

Location: See Boring Location Plan

Sampling Date: 9/26/12
Elevation: 273 ft (Estimated)
Coordinates: N: 13440386.15 E: 2139154.19
Backfill: Cement-bentonite grout

Soil Description	Depth (ft)	SN	WC	PL	LL	PI	PP	N	-200
FAT CLAY (CH), medium stiff to very stiff, gray and brown - trace organics to 4 ft.		SS	17					21	
		SS	19					16	
	5	SS	40	27	82	55		13	
		T	38				1.0		
		T	34				1.5		
	10	T	33	25	74	49	2.25		
- some gypsum below 13 ft.	15	T	31				3.25		
	20	T	22				2.75		
SANDY LEAN CLAY (CL), medium stiff, gray and brown	25	T	25	24	36	12	0.75		
SILTY SAND (SM), very dense, gray and brown		SS	26					**50/4"	19
Borehole terminated at 28.8 feet									

Groundwater Data:
First encountered during drilling: 24-ft depth
After 24 hours: 5.2-ft depth (23-ft open borehole depth)

Field Drilling Data:
Coordinates: Survey
Logged By: J. Kniffen
Driller: Eagle Drilling, Inc.
Equipment: Truck-mounted drill rig

Single flight auger: 0 - 28.8 ft

Nomenclature Used on Boring Log

Split Spoon (SS)
Thin-walled tube (T)
Water encountered during drilling
Delayed water reading

WC = Water Content (%)
PL = Plastic Limit
LL = Liquid Limit
PI = Plasticity Index
PP = Pocket Penetrometer (tsf)
N = SPT Blow Count
** = Blow Counts During Seating Penetration
-200 = % Passing #200 Sieve

2012-695.GPJ 10/22/12 (BORING LOG SA12-01,ARIASSA12-01.GDT,LIBRARY2012.GLB)

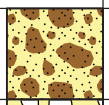
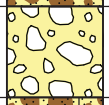
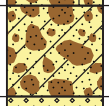
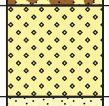
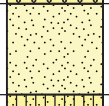
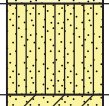
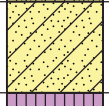
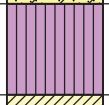
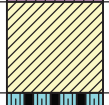
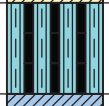
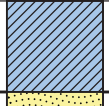
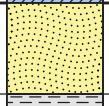
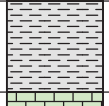
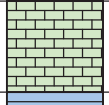
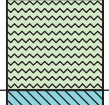
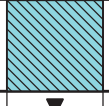
Arias & Associates, Inc.

Job No.: 2012-695

US EPA ARCHIVE DOCUMENT

APPENDIX D: KEY TO CLASSIFICATION SYMBOLS

KEY TO CLASSIFICATION SYMBOLS USED ON BORING LOGS

MAJOR DIVISIONS			GROUP SYMBOLS		DESCRIPTIONS
COARSE-GRAINED SOILS More Than Half of Material LARGER Than No. 200 Sieve size	GRAVELS More Than Half of Coarse Fraction is LARGER Than No. 4 Sieve Size	Clean Gravels (Little or no Fines)	GW		Well-Graded Gravels, Gravel-Sand Mixtures, Little or no Fines
			GP		Poorly-Graded Gravels, Gravel-Sand Mixtures, Little or no Fines
		Gravels With Fines (Appreciable Amount of Fines)	GM		Silty Gravels, Gravel-Sand-Silt Mixtures
			GC		Clayey Gravels, Gravel-Sand-Clay Mixtures
	SANDS More Than Half of Coarse Fraction is SMALLER Than No. 4 Sieve Size	Clean Sands (Little or no Fines)	SW		Well-Graded Sands, Gravelly Sands, Little or no Fines
			SP		Poorly-Graded Sands, Gravelly Sands, Little or no Fines
		Sands With Fines (Appreciable Amount of Fines)	SM		Silty Sands, Sand-Silt Mixtures
			SC		Clayey Sands, Sand-Clay Mixtures
FINE-GRAINED SOILS More Than Half of Material is SMALLER Than No. 200 Sieve Size	SILTS & CLAYS	Liquid Limit Less Than 50	ML		Inorganic Silts & Very Fine Sands, Rock Flour, Silty or Clayey Fine Sands or Clayey Silts with Slight Plasticity
			CL		Inorganic Clays of Low to Medium Plasticity, Gravelly Clays, Sandy Clays, Silty Clays, Lean Clays
	SILTS & CLAYS	Liquid Limit Greater Than 50	MH		Inorganic Silts, Micaceous or Diatomaceous Fine Sand or Silty Soils, Elastic Silts
			CH		Inorganic Clays of High Plasticity, Fat Clays
FORMATIONAL MATERIALS	SANDSTONE				Massive Sandstones, Sandstones with Gravel Clasts
	MARLSTONE				Indurated Argillaceous Limestones
	LIMESTONE				Massive or Weakly Bedded Limestones
	CLAYSTONE				Mudstone or Massive Claystones
	CHALK				Massive or Poorly Bedded Chalk Deposits
	MARINE CLAYS				Cretaceous Clay Deposits
	GROUNDWATER			▼ ▽	Indicates Final Observed Groundwater Level Indicates Initial Observed Groundwater Location

Arias & Associates, Inc.

US EPA ARCHIVE DOCUMENT

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APPENDIX E: LABORATORY AND FIELD TEST PROCEDURES

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FIELD AND LABORATORY EXPLORATION

The field exploration program included drilling at selected locations within the site and intermittently sampling the encountered materials. The boreholes were drilled using either single flight auger (ASTM D 1452) or hollow-stem auger (ASTM D 6151). Samples of encountered materials were obtained using a split-barrel sampler while performing the Standard Penetration Test (ASTM D 1586), using a thin-walled tube sampler (ASTM D 1587), or by taking material from the auger as it was advanced (ASTM D 1452). The sample depth interval and type of sampler used is included on the soil boring log. Arias' field representative visually logged each recovered sample and placed a portion of the recovered sampled into a plastic bag for transport to our laboratory.

SPT N values and blow counts for those intervals where the sampler could not be advanced for the required 18-inch penetration are shown on the soil boring log. If the test was terminated during the 6-inch seating interval or after 10 hammer blows were applied used and no advancement of the sampler was noted, the log denotes this condition as blow count during seating penetration. Penetrometer readings recorded for thin-walled tube samples that remained intact also are shown on the soil boring log.

Arias performed soil mechanics laboratory tests on selected samples to aid in soil classification and to determine engineering properties. Tests commonly used in geotechnical exploration, the method used to perform the test, and the column designation on the boring log where data are reported are summarized as follows:

Test Name	Test Method	Log Designation
Water (moisture) content of soil and rock by mass	ASTM D 2216	WC
Liquid limit, plastic limit, and plasticity index of soils	ASTM D 4318	PL, LL, PI
Amount of material in soils finer than the No. 200 sieve	ASTM D 1140	-200
Particle size analysis of soils (with or without fines fraction)	ASTM D 422	-200

The laboratory results are reported on the soil boring logs.

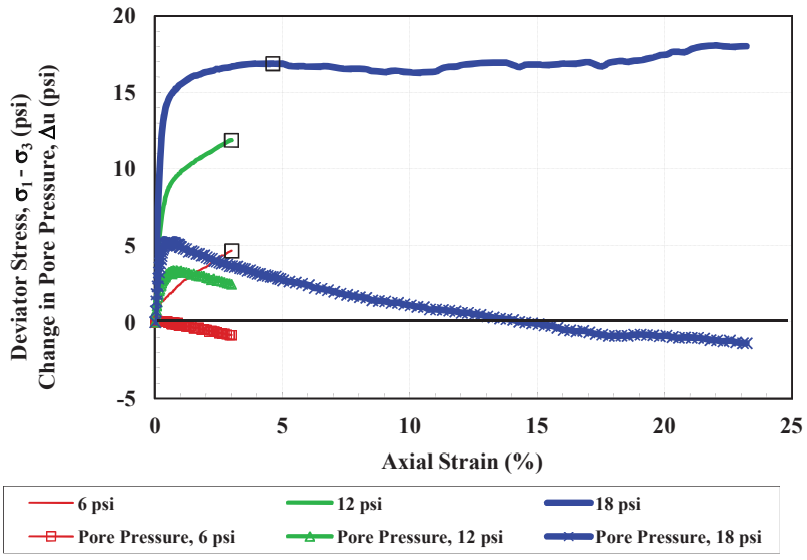
TRI/ENVIRONMENTAL, INC.

A Texas Research International Company

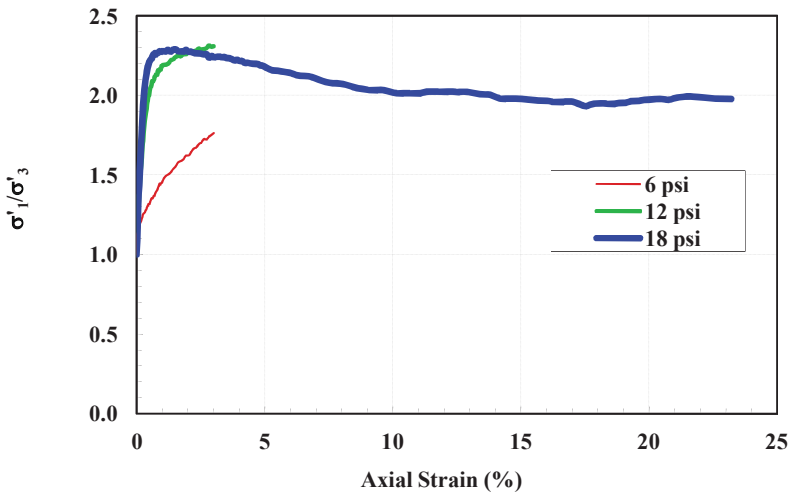
Consolidated-Undrained Triaxial Compression Test Report

Client: Arias & Associates
Sample No.: B-1 (14 - 16 ft)
Project: San Miguel Electric Cooperative
Type of Test: Multi-stage CU
TRI Log No.: E2365-91-06
Strain Rate (%/hr): 1 % / hr
Test Method: Modified ASTM D 4767
Test Date: 10/04/12
Type of Specimen: Undisturbed

Deviator Stress and Pore Pressure versus Axial Strain



Principal Stress Ratio vs. Axial Strain



Total Stresses	
Friction Angle, ϕ (°):	**19.3**
Cohesion, c (psi):	**0.0**
Effective Stresses	
Friction Angle, ϕ' (°):	**21.8**
Cohesion, c' (psi):	**0.0**

Initial Specimen Conditions				
Stage		#1	#2	#3
Eff. Consolidation Stress (psi)		6	12	18
Depth/Elev (ft):		14 - 16	14 - 16	14 - 16
Avg. Diameter (in)	D_o	2.84		
Avg. Height (in)	H_o	5.75		
Avg. Water Content (%)	w_o	35.4		
Bulk Density (pcf)	WD_o	109.3		
Dry Density (pcf)	DD_o	80.8		
Saturation (%)	S_o	87.8		
Void Ratio	e_o	1.09		
Specific Gravity (assumed)	G_s	2.70		
B-Coefficient	B	0.98		
Specimen Conditions after Consolidation				
Void Ratio	e_c	1.06	1.03	1.00
Area (in^2)	A_1	6.29	6.23	6.18
Saturation (%)	Sr			100.0
Avg. Water Content (%)	w_f			41.8

Stresses at Failure			
Deviator Stress (psi)	4.7	11.9	16.9
Total Stresses at Failure			
σ_1 (psi)	9.9	23.5	33.9
σ_3 (psi)	5.3	11.6	17.0
Effective Stresses at Failure			
σ'_1 (psi)	10.8	20.9	31.0
σ'_3 (psi)	6.1	9.1	14.1

Note 2: Specimens were mounted in the triaxial cells using the back-pressure saturation method. Failure stresses were determined at the greatest deviator stress or at 15% strain, whichever occurred first.

Note 1: Specimen was undisturbed

Trevor Yates, 10/15/12
Analysis & Quality Review/Date
Specimens prepared by: Jon Millsap

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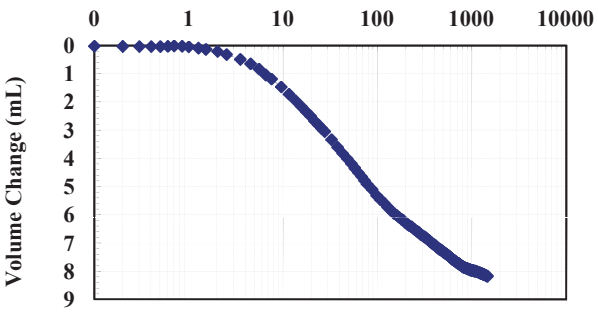
TRI/ENVIRONMENTAL, INC.
A Texas Research International Company

Triaxial Compression Test Appendix 1

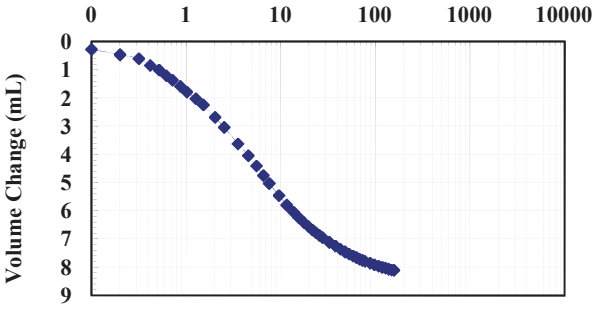
Client: Arias & Associates
Project: San Miguel Electric Cooperative
Specimen: B-1 (14 - 16 ft)

TRI Log No.: E2365-91-06
Test Method: ASTM D 4767
Test Date: 10/04/12

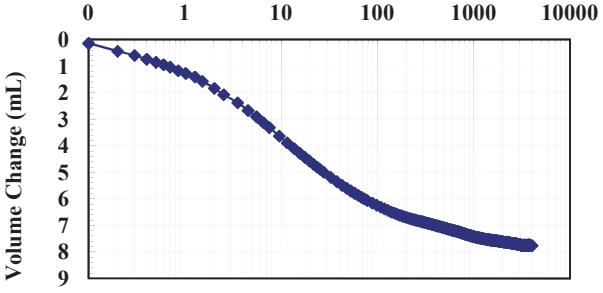
Stage 1 Isotropic Consolidation Test



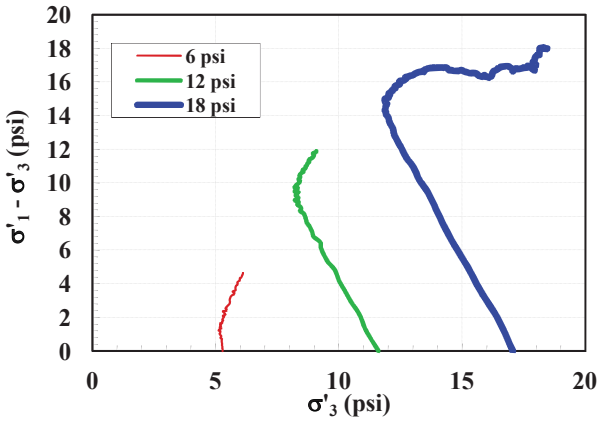
Stage 2 Isotropic Consolidation Test



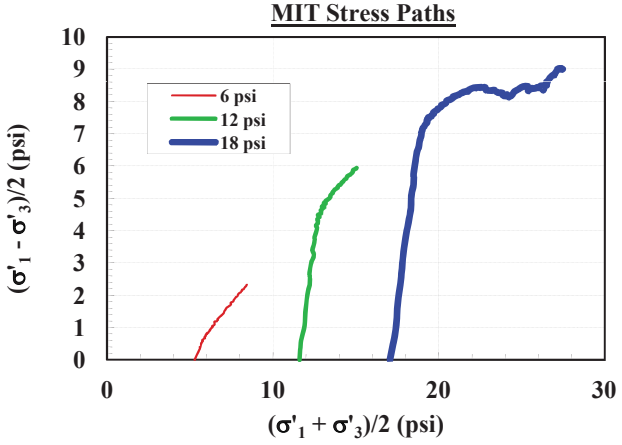
Stage 3 Isotropic Consolidation Test



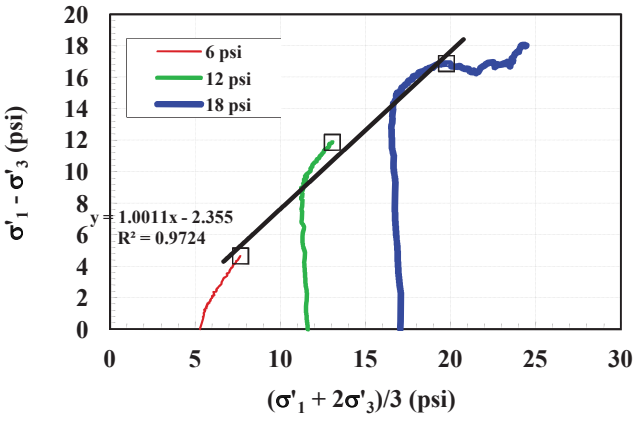
Modified Mohr-Coulomb Stress Paths



MIT Stress Paths



Cambridge Stress Paths (*p'-q*)



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TRI/ENVIRONMENTAL, INC.
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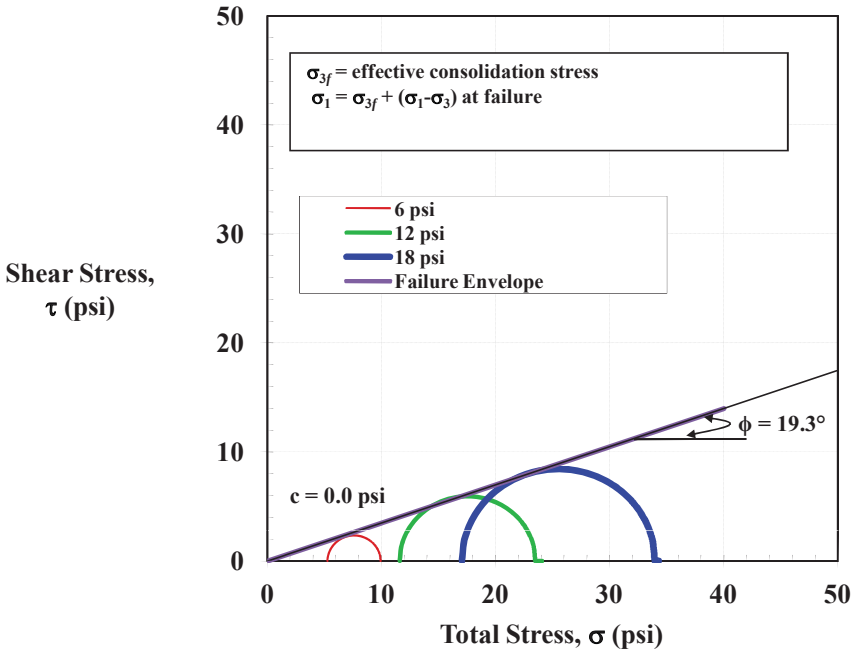
Triaxial Compression Test Appendix 2

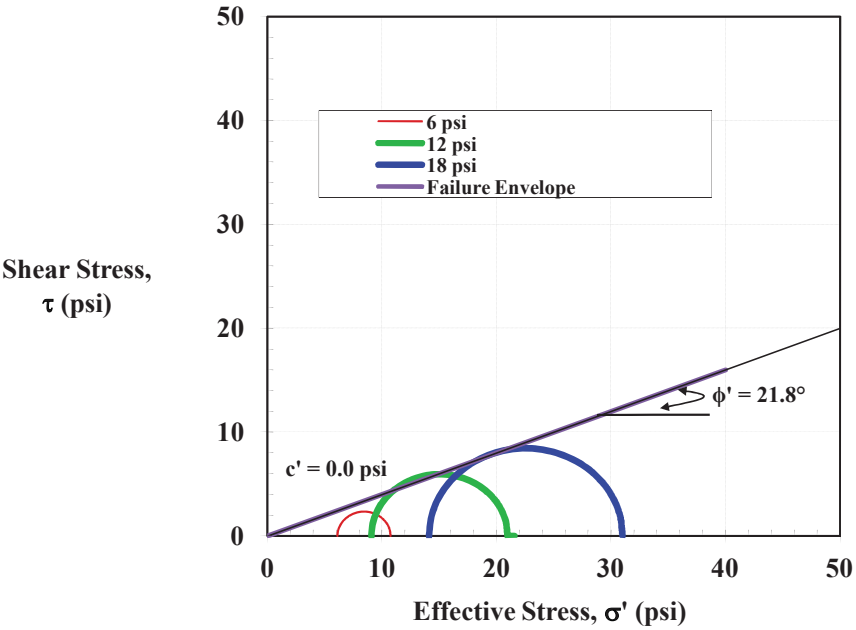
Client: Arias & Associates
Project: San Miguel Electric Cooperative
Specimen: B-1 (14 - 16 ft)

TRI Log No.: E2365-91-06
Test Method: ASTM D 4767
Test Date: 10/04/12

Mohr's Circles (Total Stress)



Mohr's Circles (Effective Stress)



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TRI/ENVIRONMENTAL, INC.
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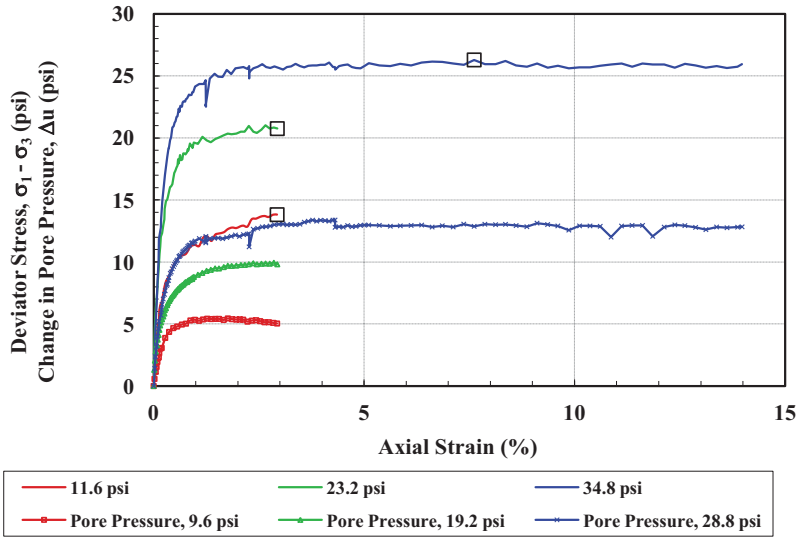
Consolidated-Undrained Triaxial Compression Test Report

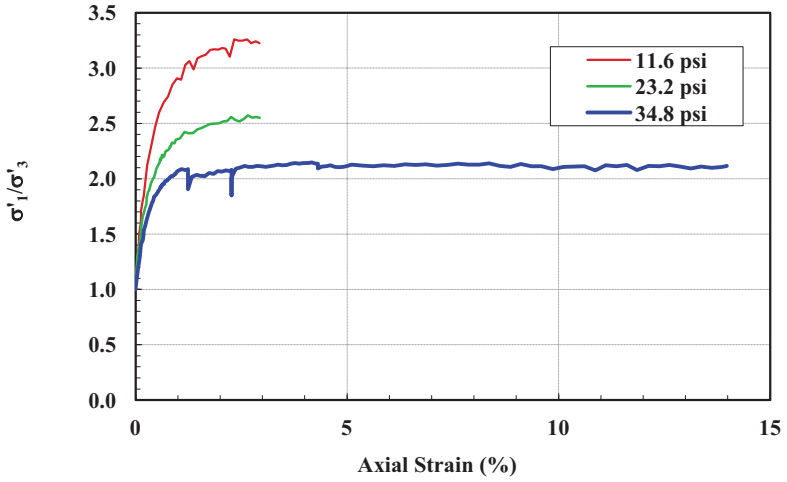
Client: Arias & Associates
Project: San Miguel Electric Cooperative
TRI Log No.: E2365-91-06
Test Method: Modified ASTM D 4767
Type of Specimen: Undisturbed

Sample No.: B-6 (28 - 30 ft)
Type of Test: Multi-stage CU
Strain Rate (%/hr): 0.19, 0.083, & 0.045
Test Date: 10/02/12

Deviator Stress and Pore Pressure versus Axial Strain



Principal Stress Ratio vs. Axial Strain



Total Stresses	
Friction Angle, ϕ (°):	**13.1**
Cohesion, c (psi):	**3.0**
Effective Stresses	
Friction Angle, ϕ' (°):	**15.2**
Cohesion, c' (psi):	**3.5**

Initial Specimen Conditions				
Stage		#1	#2	#3
Eff. Consolidation Stress (psi)		12	23	35
Depth/Elev (ft):		28 -30	28 -30	28 -30
Avg. Diameter (in)	D_o	2.81	-	-
Avg. Height (in)	H_o	5.64	-	-
Avg. Water Content (%)	w_o	28.1	-	-
Bulk Density (pcf)	WD_o	116.6	-	-
Dry Density (pcf)	DD_o	91.1	-	-
Saturation (%)	S_o	89.0	-	-
Void Ratio	e_o	0.85	-	-
Specific Gravity (assumed)	G_s	2.70	-	-
B-Coefficient	B	0.98	-	-
Specimen Conditions after Consolidation				
Void Ratio	e_c	0.83	0.68	0.62
Area (in^2)	A_1	6.16	5.81	5.65
Saturation (%)	Sr	-	-	100.0
Avg. Water Content (%)	w_f	-	-	31.3

Stresses at Failure			
Deviator Stress (psi)	13.8	20.7	26.3
Total Stresses at Failure			
σ_1 (psi)	25.0	44.0	60.6
σ_3 (psi)	11.2	23.2	34.3
Effective Stresses at Failure			
σ'_1 (psi)	20.0	34.0	45.0
σ'_3 (psi)	6.2	13.4	21.3

Note 2: Specimens were mounted in the triaxial cells using the back-pressure saturation method. Failure stresses for the first two stages were determined at 3 percent and 6 percent strain.

Note 1: Specimen was undisturbed

Jeffrey A. Kuhn, E.I.T., Ph.D., 11/13/12
Analysis & Quality Review/Date
Specimens prepared by: Jon Millsap

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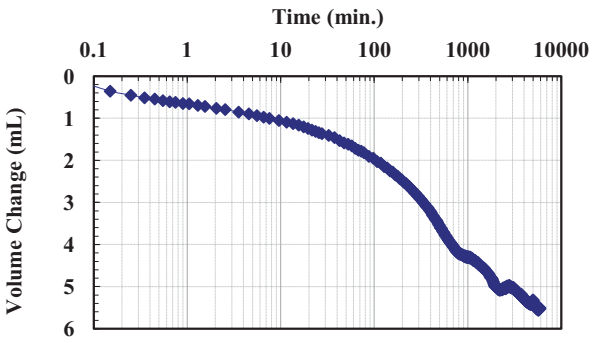
Triaxial Compression Test Appendix 1

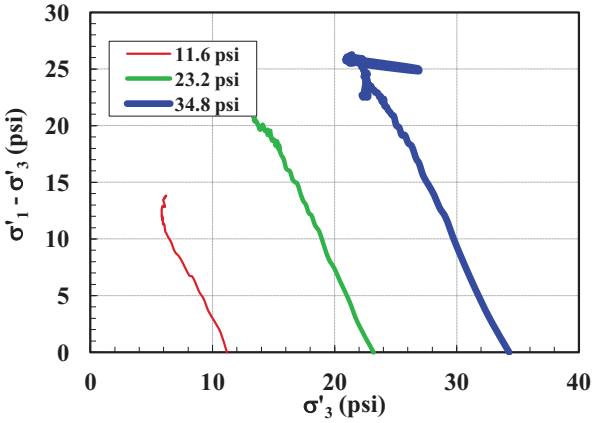
Client: Arias & Associates
Project: San Miguel Electric Cooperative
Specimen: B-6 (28 - 30 ft)

TRI Log No.: E2365-91-06
Test Method: ASTM D 4767
Test Date: 10/02/12

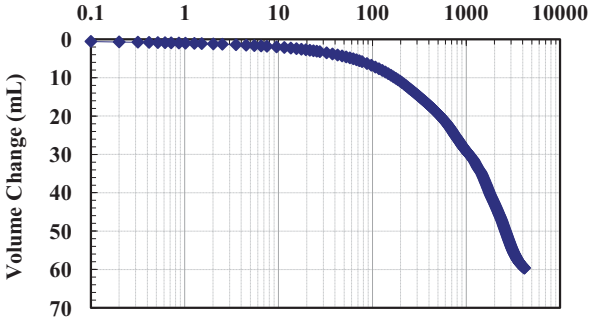
Stage 1 Isotropic Consolidation Test



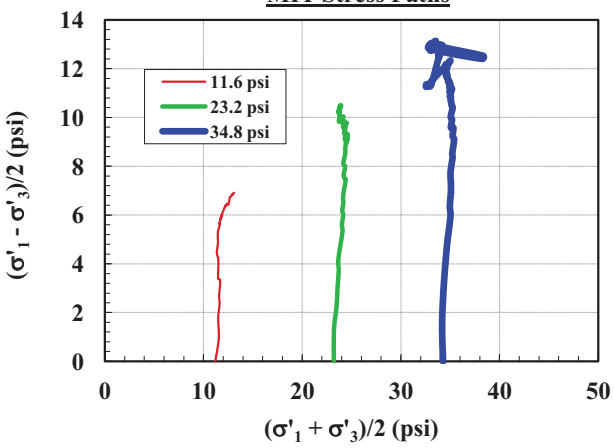
Modified Mohr-Coulomb Stress Paths



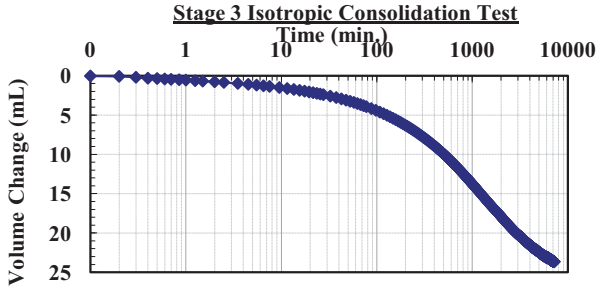
Stage 2 Isotropic Consolidation Test



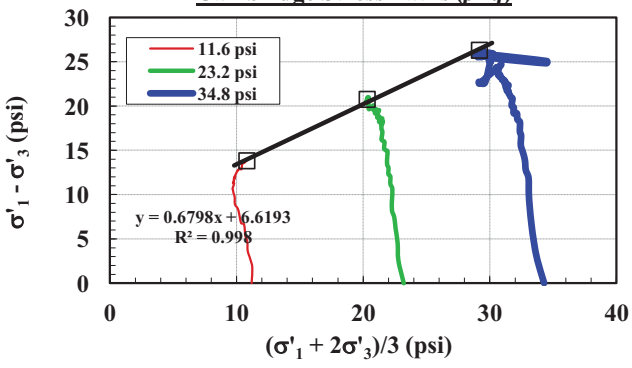
MIT Stress Paths



Stage 3 Isotropic Consolidation Test



Cambridge Stress Paths (*p'-q*)



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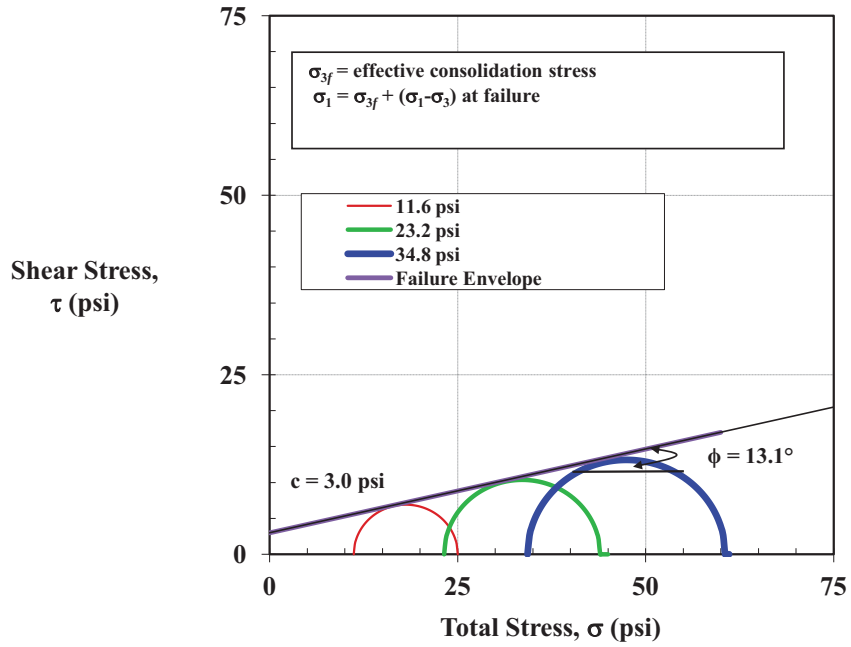
Triaxial Compression Test Appendix 2

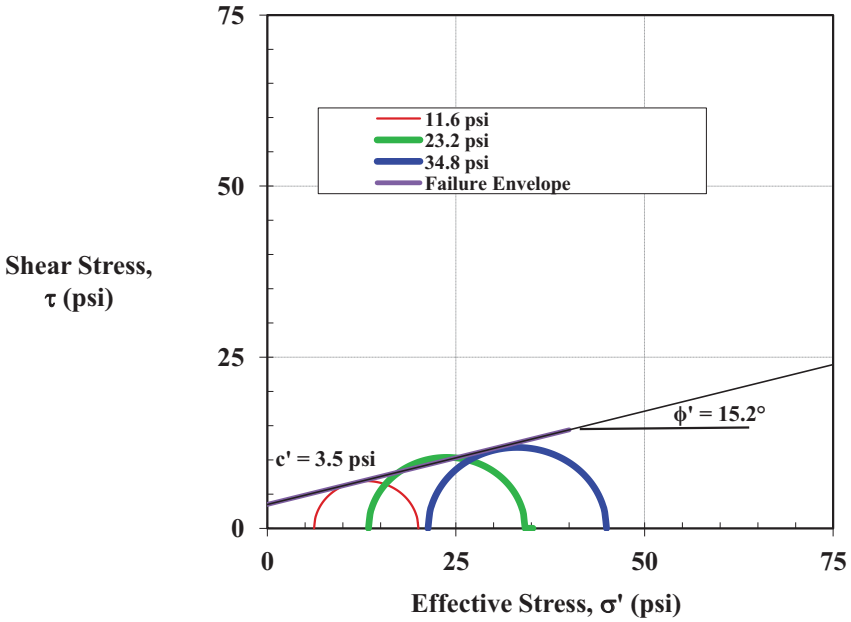
Client: Arias & Associates
Project: San Miguel Electric Cooperative
Specimen: B-6 (28 - 30 ft)

TRI Log No.: E2365-91-06
Test Method: ASTM D 4767
Test Date: 10/02/12

Mohr's Circles (Total Stress)



Mohr's Circles (Effective Stress)



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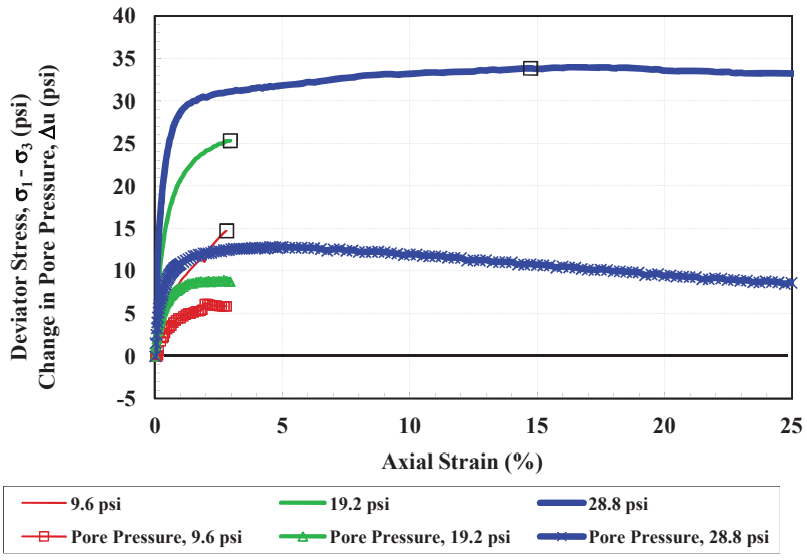
TRI/ENVIRONMENTAL, INC.

A Texas Research International Company

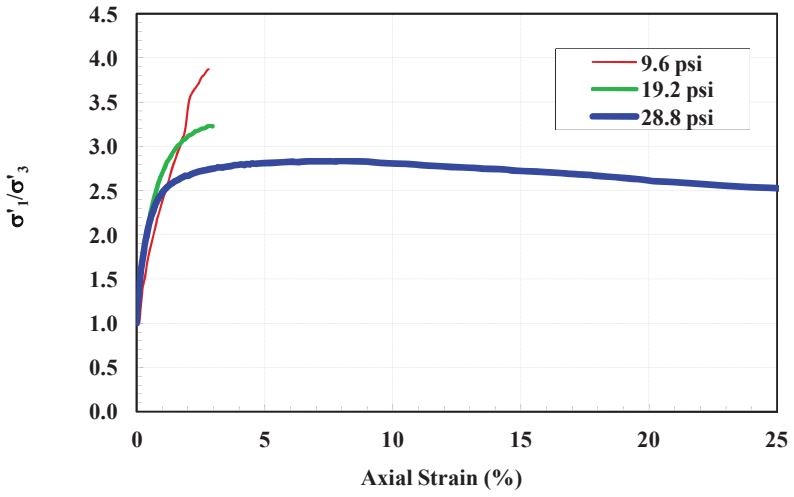
Consolidated-Undrained Triaxial Compression Test Report

Client: Arias & Associates
Sample No.: B-10 (23 - 25 ft)
Project: San Miguel Electric Cooperative
Type of Test: Multi-stage CU
TRI Log No.: E2365-91-06
Strain Rate (%/hr): 5 % / hr
Test Method: Modified ASTM D 4767
Test Date: 10/04/12
Type of Specimen: Undisturbed

Deviator Stress and Pore Pressure versus Axial Strain



Principal Stress Ratio vs. Axial Strain



Total Stresses	
Friction Angle, ϕ (°):	**19.0**
Cohesion, c (psi):	**1.5**
Effective Stresses	
Friction Angle, ϕ' (°):	**23.6**
Cohesion, c' (psi):	**2.5**

Initial Specimen Conditions				
Stage		#1	#2	#3
Eff. Consolidation Stress (psi)		10	19	29
Depth/Elev (ft):		23 - 25	23 - 25	23 - 25
Avg. Diameter (in)	D_o	2.83		
Avg. Height (in)	H_o	5.66		
Avg. Water Content (%)	w_o	26.5		
Bulk Density (pcf)	WD_o	111.9		
Dry Density (pcf)	DD_o	88.5		
Saturation (%)	S_o	79.0		
Void Ratio	e_o	0.91		
Specific Gravity (assumed)	G_s	2.70		
B-Coefficient	B	0.98		
Specimen Conditions after Consolidation				
Void Ratio	e_c	0.89	0.86	0.83
Area (in^2)	A_1	6.27	6.20	6.13
Saturation (%)	Sr			90.5
Avg. Water Content (%)	w_f			27.7

Stresses at Failure			
Deviator Stress (psi)	14.7	25.3	33.8
Total Stresses at Failure			
σ_1 (psi)	25.7	45.5	64.1
σ_3 (psi)	10.9	20.2	30.2
Effective Stresses at Failure			
σ'_1 (psi)	19.9	36.6	53.5
σ'_3 (psi)	5.1	11.4	19.6

Note 2: Specimens were mounted in the triaxial cells using the back-pressure saturation method. Failure stresses were determined at the greatest deviator stress or at 15% strain, whichever occurred first.

Note 1: Specimen was undisturbed

Trevor Yates, 10/15/12
Analysis & Quality Review/Date
Specimens prepared by: Jon Millsap

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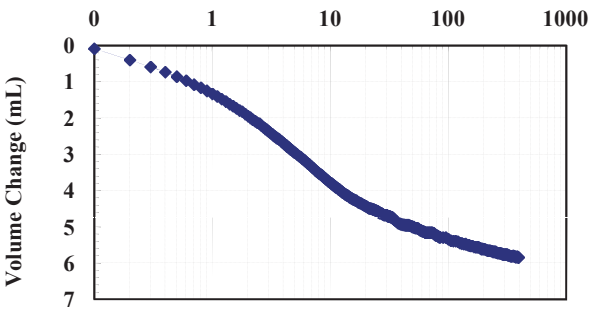
Triaxial Compression Test Appendix 1

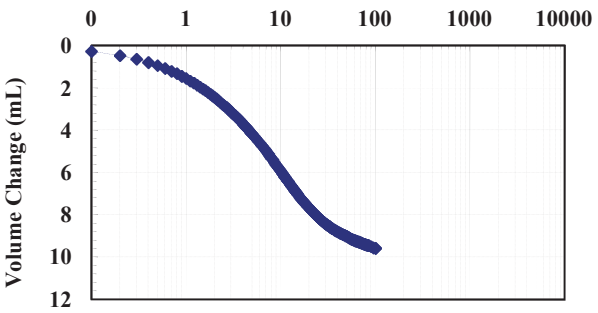
Client: Arias & Associates
Project: San Miguel Electric Cooperative
Specimen: B-10 (23 - 25 ft)

TRI Log No.: E2365-91-06
Test Method: ASTM D 4767
Test Date: 10/04/12

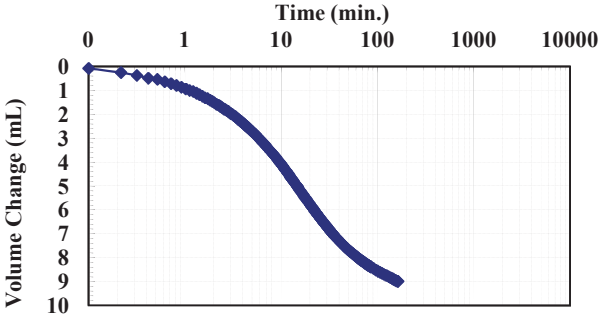
Stage 1 Isotropic Consolidation Test



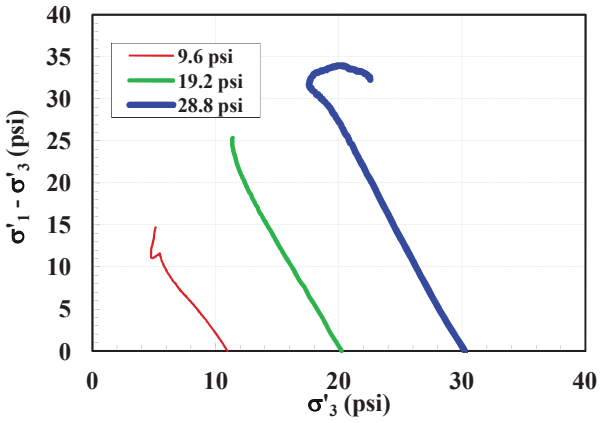
Stage 2 Isotropic Consolidation Test



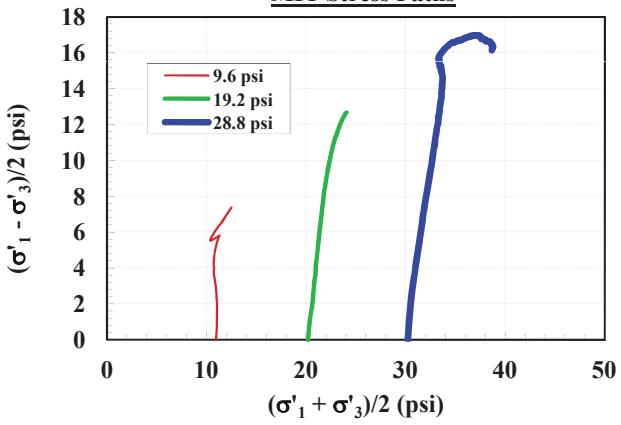
Stage 3 Isotropic Consolidation Test



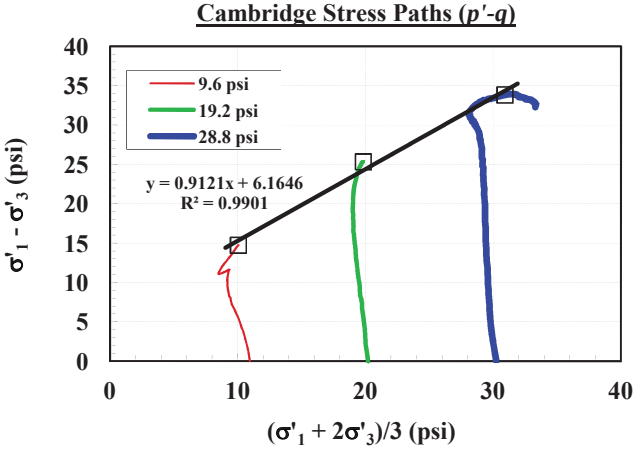
Modified Mohr-Coulomb Stress Paths



MIT Stress Paths



Cambridge Stress Paths (*p'-q*)



The testing herein is based upon accepted industry practice as well as the test method listed. Test results reported herein do not apply to samples other than those tested. TRI neither accepts responsibility for nor makes claim as to the final use and purpose of the material. TRI observes and maintains client confidentiality. TRI limits reproduction of this report, except in full, without prior approval of TRI.

US EPA ARCHIVE DOCUMENT

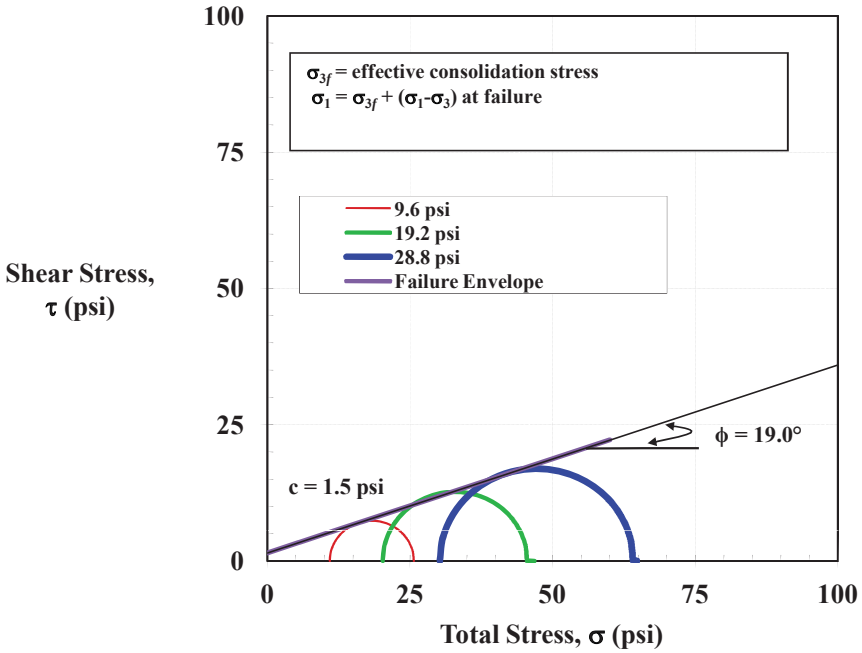
TRI/ENVIRONMENTAL, INC.
A Texas Research International Company

Triaxial Compression Test Appendix 2

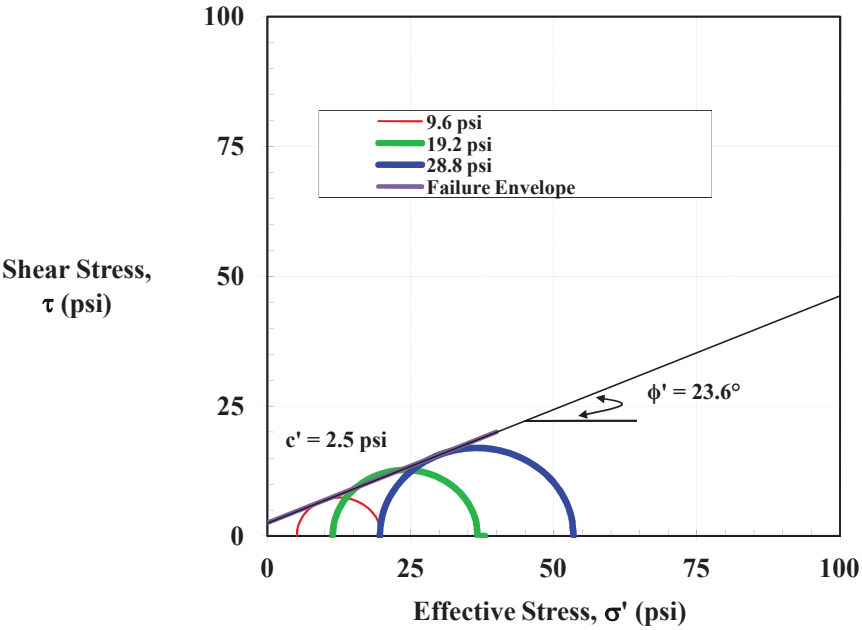
Client: Arias & Associates
Project: San Miguel Electric Cooperative
Specimen: B-10 (23 - 25 ft)

TRI Log No.: E2365-91-06
Test Method: ASTM D 4767
Test Date: 10/04/12

Mohr's Circles (Total Stress)



Mohr's Circles (Effective Stress)



The testing herein is based upon accepted industry practice as well as the test method listed. Test results reported herein do not apply to samples other than those tested. TRI neither accepts responsibility for nor makes claim as to the final use and purpose of the material. TRI observes and maintains client confidentiality. TRI limits reproduction of this report, except in full, without prior approval of TRI.

9063 Bee Caves Road □ Austin, TX 78733-6201 □ (512) 263-2101 □ (512) 263-2558 □ 1-800-880-TEST

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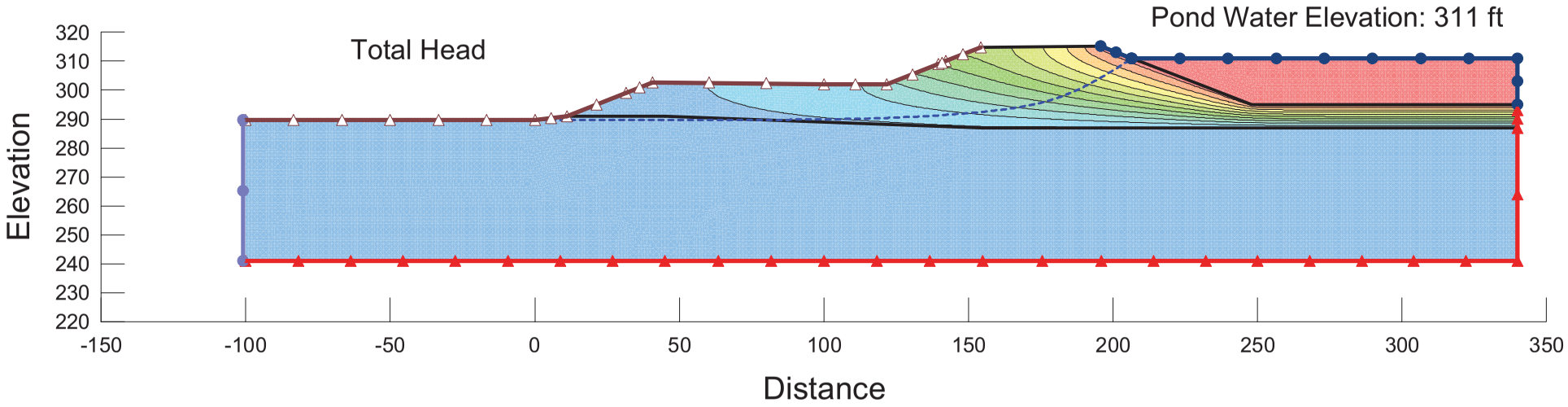
APPENDIX F: SEEPAGE AND SLOPE STABILITY RESULTS

US EPA ARCHIVE DOCUMENT

San Miguel Ash Pond Section A-A.gsz
SEEP/W Analysis - Normal Operating Pool
11/20/2012

Computed By: GRA

Name: (SM-ML) - U,S	Model: Saturated Only	K-Sat: 3.3e-005 ft/sec	Volumetric Water Content: 0 ft³/ft³	Mv: 0 /psf	K-Ratio: 0.4	K-Direction: 0 °
Name: Clay Nat/Fill - U	Model: Saturated Only	K-Sat: 3.3e-008 ft/sec	Volumetric Water Content: 0 ft³/ft³	Mv: 0 /psf	K-Ratio: 0.1	K-Direction: 0 °
Name: Ash Waste	Model: Saturated Only	K-Sat: 0.00033 ft/sec	Volumetric Water Content: 0 ft³/ft³	Mv: 0 /psf	K-Ratio: 1	K-Direction: 0 °

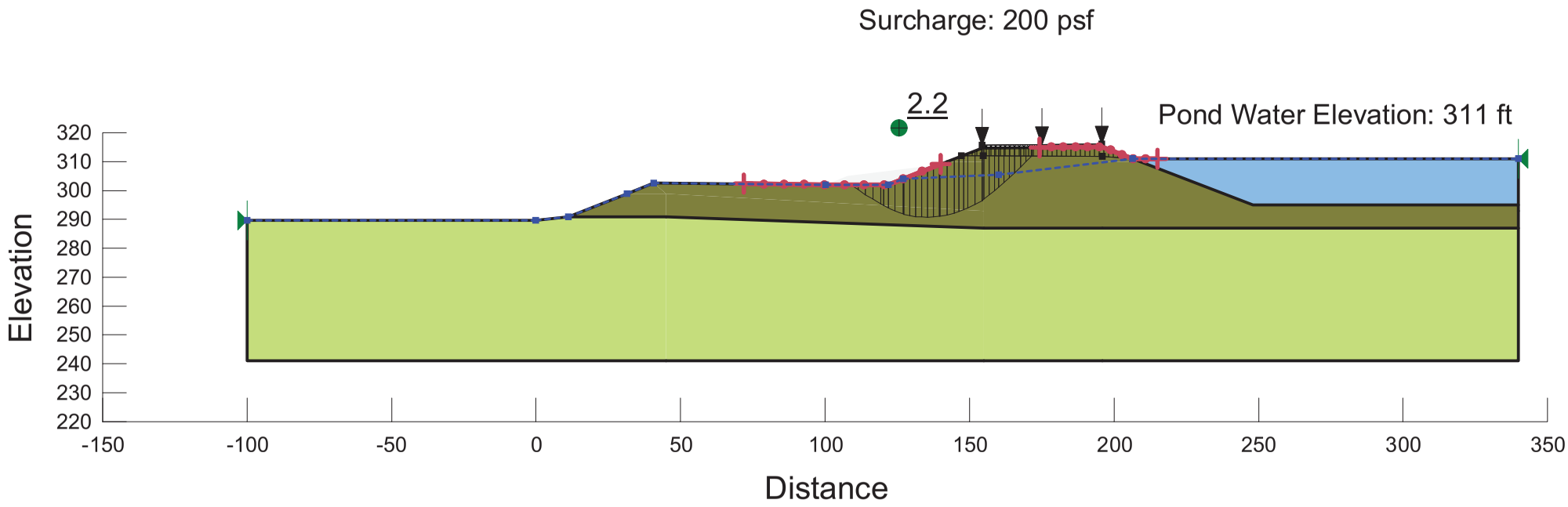


US EPA ARCHIVE DOCUMENT

San Miguel Ash Pond Section A-A.gsz
Steady State Seepage - Entry Exit A
11/20/2012

Computed By: GRA

Name: (SM-ML) - U,S	Model: Mohr-Coulomb	Unit Weight: 120 pcf	Cohesion: 0 psf	Phi: 30 °	Phi-B: 0 °
Name: Clay Nat/Fill - S	Model: Mohr-Coulomb	Unit Weight: 112 pcf	Cohesion: 288 psf	Phi: 20.3 °	Phi-B: 11 °
Name: Ash Waste	Model: Mohr-Coulomb	Unit Weight: 110 pcf	Cohesion: 0 psf	Phi: 25 °	Phi-B: 0 °

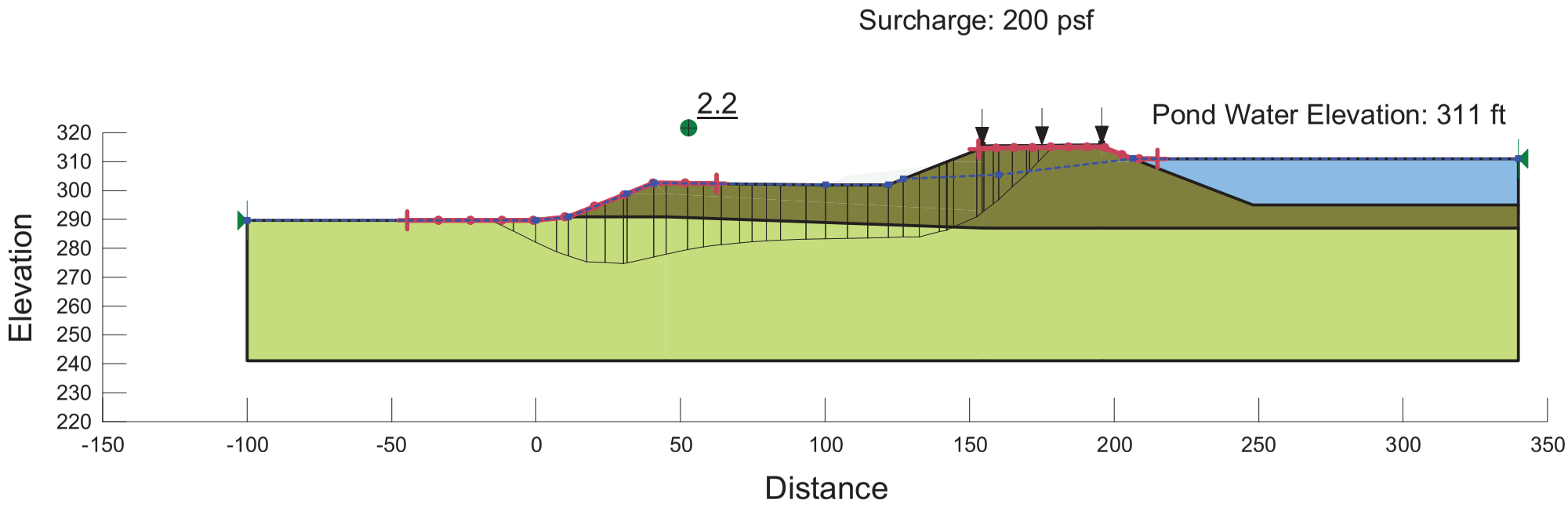


US EPA ARCHIVE DOCUMENT

San Miguel Ash Pond Section A-A.gsz
Steady State Seepage - Entry Exit A - Far
11/20/2012

Computed By: GRA

Name: (SM-ML) - U,S	Model: Mohr-Coulomb	Unit Weight: 120 pcf	Cohesion: 0 psf	Phi: 30 °	Phi-B: 0 °
Name: Clay Nat/Fill - S	Model: Mohr-Coulomb	Unit Weight: 112 pcf	Cohesion: 288 psf	Phi: 20.3 °	Phi-B: 11 °
Name: Ash Waste	Model: Mohr-Coulomb	Unit Weight: 110 pcf	Cohesion: 0 psf	Phi: 25 °	Phi-B: 0 °

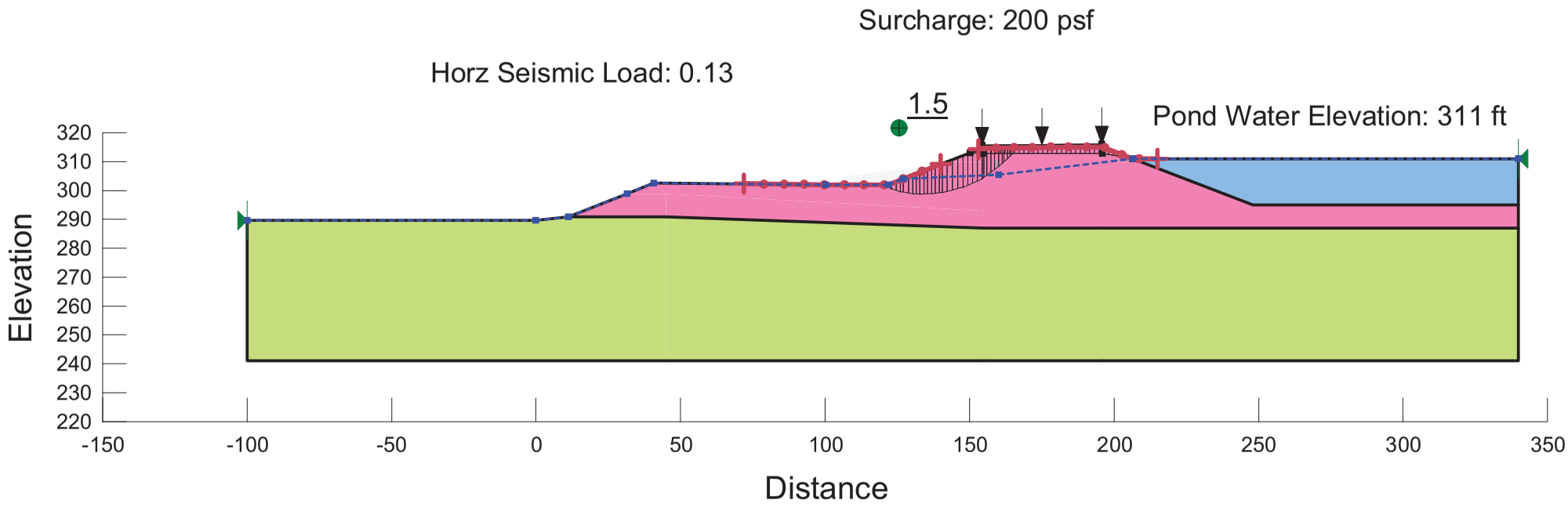


US EPA ARCHIVE DOCUMENT

San Miguel Ash Pond Section A-A.gsz
Seismic - Entry Exit A
11/20/2012

Computed By: GRA

Name: (SM-ML) - U,S	Model: Mohr-Coulomb	Unit Weight: 120 pcf	Cohesion: 0 psf	Phi: 30 °	Phi-B: 0 °
Name: Clay Nat/Fill - U	Model: Mohr-Coulomb	Unit Weight: 112 pcf	Cohesion: 216 psf	Phi: 17.2 °	Phi-B: 10 °
Name: Ash Waste	Model: Mohr-Coulomb	Unit Weight: 110 pcf	Cohesion: 0 psf	Phi: 25 °	Phi-B: 0 °

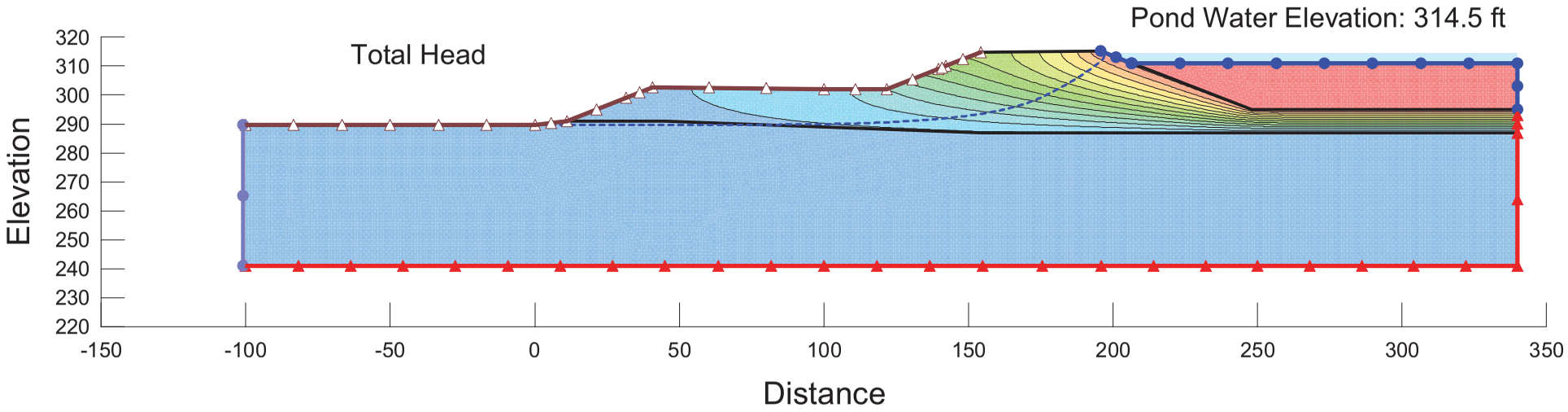


US EPA ARCHIVE DOCUMENT

San Miguel Ash Pond Section A-A.gsz
SEEP/W Analysis - Maximum Surcharge Pool
11/20/2012

Computed By: GRA

Name: (SM-ML) - U,S	Model: Saturated Only	K-Sat: 3.3e-005 ft/sec	Volumetric Water Content: 0 ft³/ft³	Mv: 0 /psf	K-Ratio: 0.4	K-Direction: 0 °
Name: Clay Nat/Fill - U	Model: Saturated Only	K-Sat: 3.3e-008 ft/sec	Volumetric Water Content: 0 ft³/ft³	Mv: 0 /psf	K-Ratio: 0.1	K-Direction: 0 °
Name: Ash Waste	Model: Saturated Only	K-Sat: 0.00033 ft/sec	Volumetric Water Content: 0 ft³/ft³	Mv: 0 /psf	K-Ratio: 1	K-Direction: 0 °

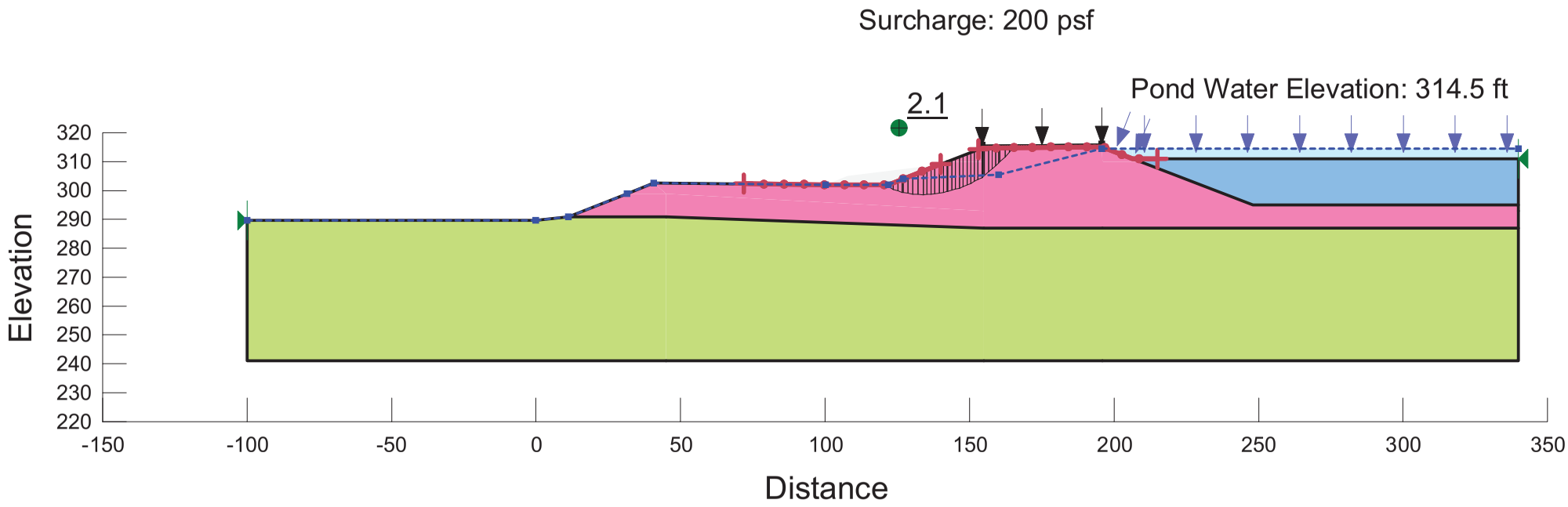


US EPA ARCHIVE DOCUMENT

San Miguel Ash Pond Section A-A.gsz
Maximum Surcharge Pool - Entry Exit A
11/20/2012

Computed By: GRA

Name: (SM-ML) - U,S	Model: Mohr-Coulomb	Unit Weight: 120 pcf	Cohesion: 0 psf	Phi: 30 °	Phi-B: 0 °
Name: Clay Nat/Fill - U	Model: Mohr-Coulomb	Unit Weight: 112 pcf	Cohesion: 216 psf	Phi: 17.2 °	Phi-B: 10 °
Name: Ash Waste	Model: Mohr-Coulomb	Unit Weight: 110 pcf	Cohesion: 0 psf	Phi: 25 °	Phi-B: 0 °

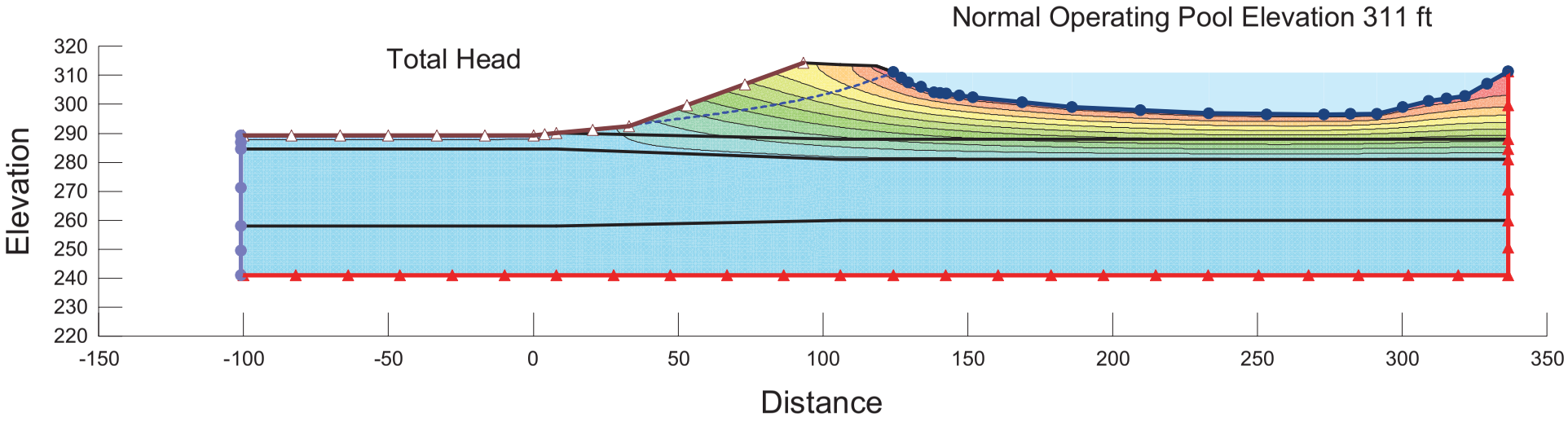


US EPA ARCHIVE DOCUMENT

San Miguel Ash Pond Section B-B.gsz
SEEP/W Analysis - Normal Operating Pool
11/20/2012

Computed By: GRA

Name: (SM-ML) - U,S	Model: Saturated Only	K-Sat: 3.3e-005 ft/sec	Volumetric Water Content: 0 ft³/ft³	Mv: 0 /psf	K-Ratio: 0.4	K-Direction: 0 °
Name: (CL-SC) - S	Model: Saturated Only	K-Sat: 3.3e-008 ft/sec	Volumetric Water Content: 0 ft³/ft³	Mv: 0 /psf	K-Ratio: 0.1	K-Direction: 0 °
Name: Clay Nat/Fill - U	Model: Saturated Only	K-Sat: 3.3e-008 ft/sec	Volumetric Water Content: 0 ft³/ft³	Mv: 0 /psf	K-Ratio: 0.1	K-Direction: 0 °
Name: Blanket	Model: Saturated Only	K-Sat: 0.00033 ft/sec	Volumetric Water Content: 0 ft³/ft³	Mv: 0 /psf	K-Ratio: 1	K-Direction: 0 °

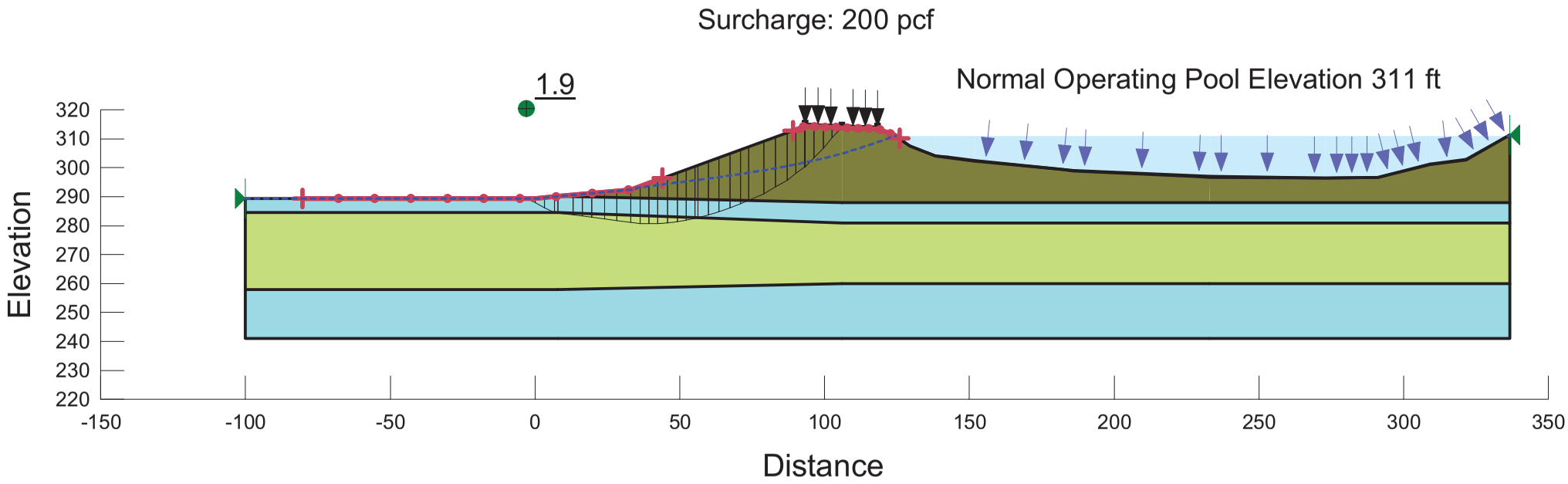


US EPA ARCHIVE DOCUMENT

San Miguel Ash Pond Section B-B.gsz
Steady State Seepage - Entry Exit A
11/20/2012

Computed By: GRA

Name: (SM-ML) - U,S	Model: Mohr-Coulomb	Unit Weight: 120 pcf	Cohesion: 0 psf	Phi: 30 °	Phi-B: 0 °
Name: (CL-SC) - S	Model: Mohr-Coulomb	Unit Weight: 120 pcf	Cohesion: 200 psf	Phi: 24 °	Phi-B: 0 °
Name: Clay Nat/Fill - S	Model: Mohr-Coulomb	Unit Weight: 112 pcf	Cohesion: 288 psf	Phi: 20.3 °	Phi-B: 0 °
Name: Blanket	Model: Undrained (Phi=0)	Unit Weight: 1 pcf	Cohesion: 1 psf		

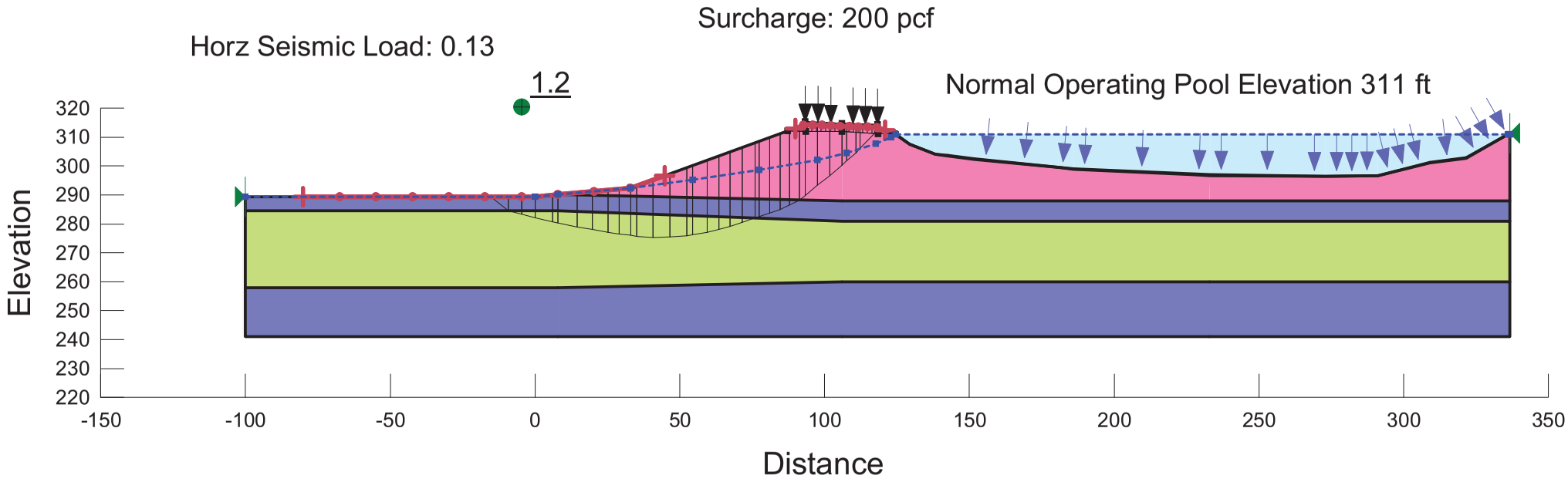


US EPA ARCHIVE DOCUMENT

San Miguel Ash Pond Section B-B.gsz
Seismic - Entry Exit A
11/20/2012

Computed By: GRA

Name: (SM-ML) - U,S	Model: Mohr-Coulomb	Unit Weight: 120 pcf	Cohesion: 0 psf	Phi: 30 °	Phi-B: 0 °	Piezometric Line: 1
Name: Clay Nat/Fill - U	Model: Mohr-Coulomb	Unit Weight: 112 pcf	Cohesion: 216 psf	Phi: 17.2 °	Phi-B: 0 °	
Name: (CL-SC) - U	Model: Mohr-Coulomb	Unit Weight: 120 pcf	Cohesion: 1000 psf	Phi: 0 °	Phi-B: 0 °	
Name: Blanket	Model: Undrained (Phi=0)	Unit Weight: 1 pcf	Cohesion: 1 psf	Piezometric Line: 1		

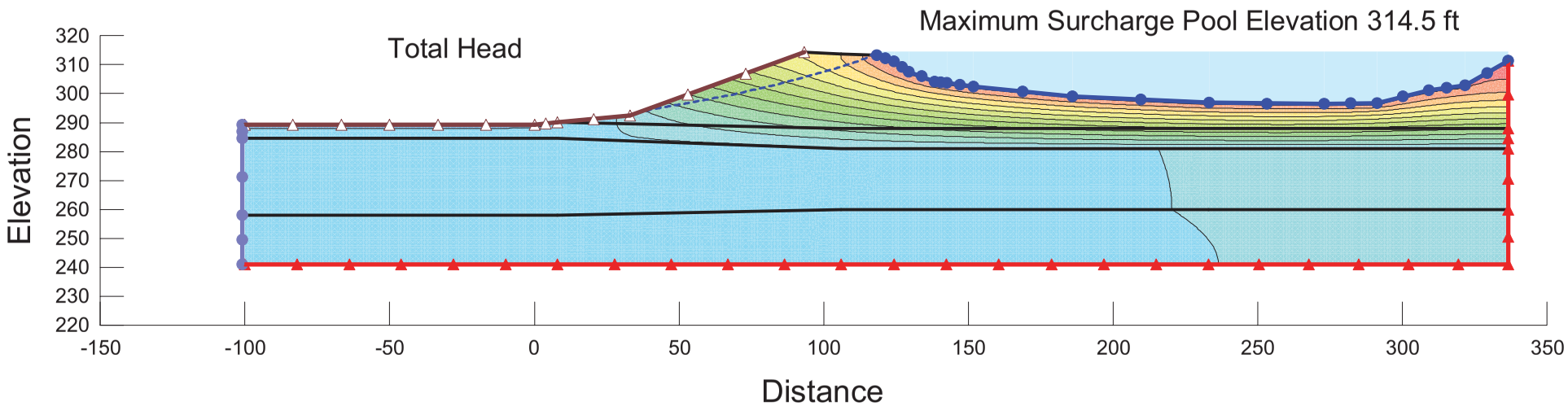


US EPA ARCHIVE DOCUMENT

San Miguel Ash Pond Section B-B.gsz
SEEP/W Analysis - Maximum Surcharge Pool
11/20/2012

Computed By: GRA

Name: (SM-ML) - U,S	Model: Saturated Only	K-Sat: 3.3e-005 ft/sec	Volumetric Water Content: 0 ft³/ft³	Mv: 0 /psf	K-Ratio: 0.4	K-Direction: 0 °
Name: (CL-SC) - S	Model: Saturated Only	K-Sat: 3.3e-008 ft/sec	Volumetric Water Content: 0 ft³/ft³	Mv: 0 /psf	K-Ratio: 0.1	K-Direction: 0 °
Name: Clay Nat/Fill - U	Model: Saturated Only	K-Sat: 3.3e-008 ft/sec	Volumetric Water Content: 0 ft³/ft³	Mv: 0 /psf	K-Ratio: 0.1	K-Direction: 0 °
Name: Blanket	Model: Saturated Only	K-Sat: 0.00033 ft/sec	Volumetric Water Content: 0 ft³/ft³	Mv: 0 /psf	K-Ratio: 1	K-Direction: 0 °

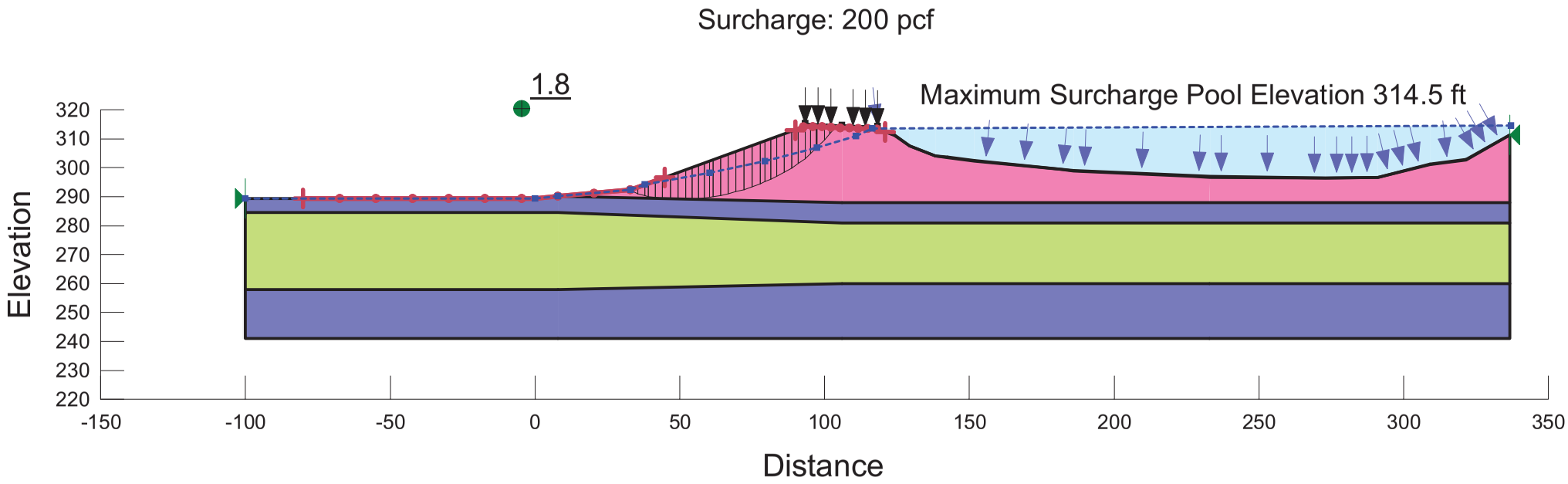


US EPA ARCHIVE DOCUMENT

San Miguel Ash Pond Section B-B.gsz
Maximum Surcharge Pool - Entry Exit A
11/20/2012

Computed By: GRA

Name: (SM-ML) - U,S	Model: Mohr-Coulomb	Unit Weight: 120 pcf	Cohesion: 0 psf	Phi: 30 °	Phi-B: 0 °	Piezometric Line: 1
Name: Clay Nat/Fill - U	Model: Mohr-Coulomb	Unit Weight: 112 pcf	Cohesion: 216 psf	Phi: 17.2 °	Phi-B: 0 °	
Name: (CL-SC) - U	Model: Mohr-Coulomb	Unit Weight: 120 pcf	Cohesion: 1000 psf	Phi: 0 °	Phi-B: 0 °	
Name: Blanket	Model: Undrained (Phi=0)	Unit Weight: 1 pcf	Cohesion: 1 psf	Piezometric Line: 1		

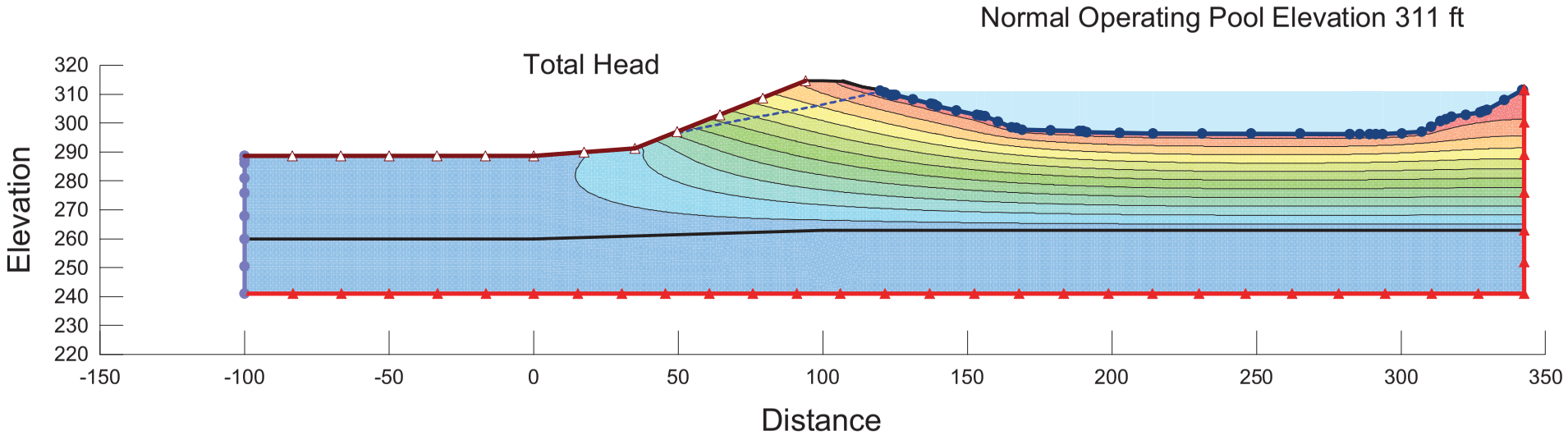


US EPA ARCHIVE DOCUMENT

San Miguel Ash Pond Section C-C.gsz
SEEP/W Analysis - Normal Operating Pool
11/20/2012

Computed By: GRA

Name: (SM-ML) - U,S	Model: Saturated Only	K-Sat: 3.3e-005 ft/sec	Volumetric Water Content: 0 ft³/ft³	Mv: 0 /psf	K-Ratio: 0.4	K-Direction: 0 °
Name: Clay Nat/Fill - U	Model: Saturated Only	K-Sat: 7e-009 ft/sec	Volumetric Water Content: 0 ft³/ft³	Mv: 0 /psf	K-Ratio: 0.1	K-Direction: 0 °
Name: Surficial	Model: Saturated Only	K-Sat: 0.00033 ft/sec	Volumetric Water Content: 0 ft³/ft³	Mv: 0 /psf	K-Ratio: 1	K-Direction: 0 °

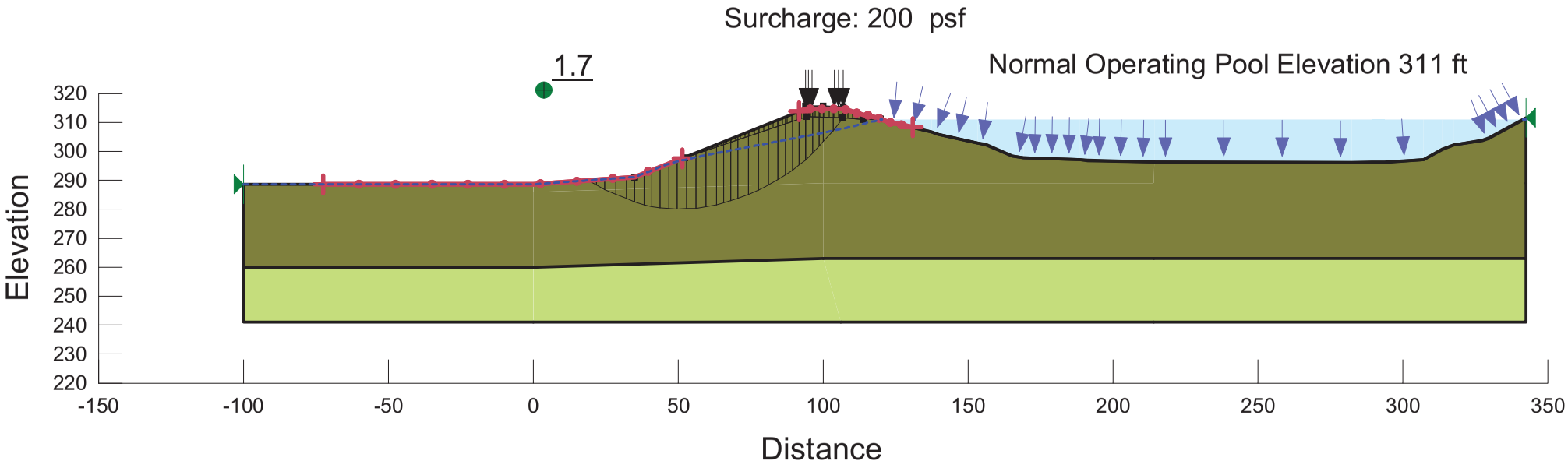


US EPA ARCHIVE DOCUMENT

San Miguel Ash Pond Section C-C.gsz
Steady State Seepage - Entry Exit A
11/20/2012

Computed By: GRA

Name: (SM-ML) - U,S	Model: Mohr-Coulomb	Unit Weight: 120 pcf	Cohesion: 0 psf	Phi: 30 °	Phi-B: 0 °
Name: Clay Nat/Fill - S	Model: Mohr-Coulomb	Unit Weight: 112 pcf	Cohesion: 288 psf	Phi: 20.3 °	Phi-B: 0 °
Name: Surficial	Model: Undrained (Phi=0)	Unit Weight: 1 pcf	Cohesion: 1 psf		

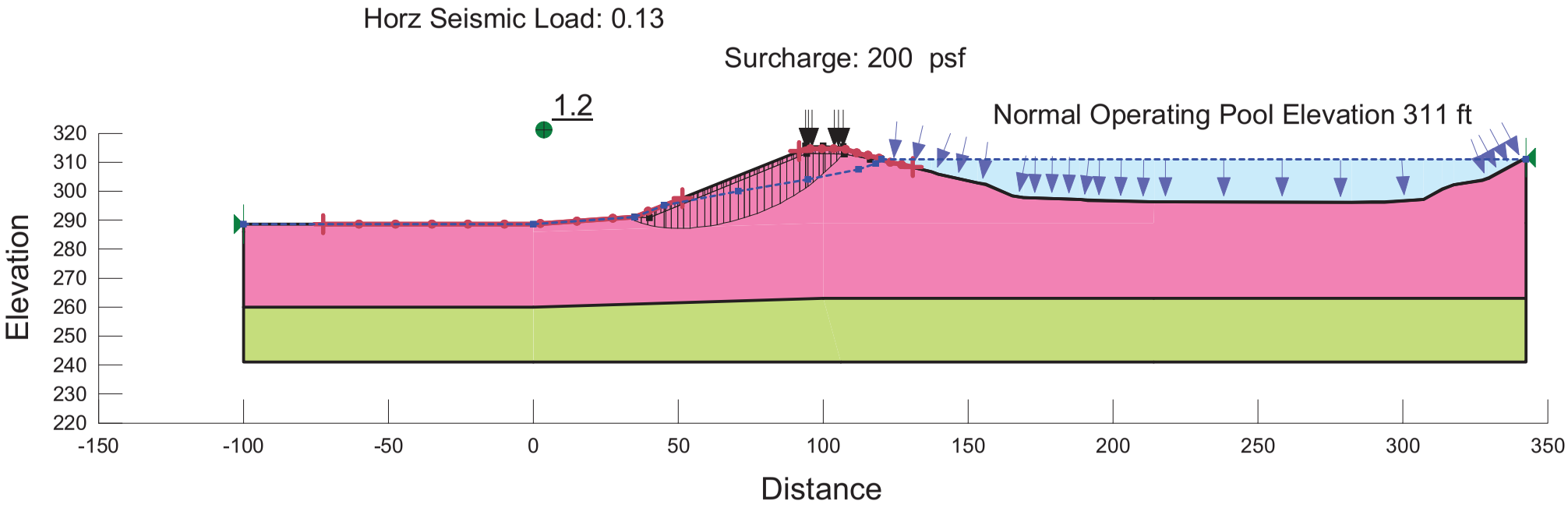


US EPA ARCHIVE DOCUMENT

San Miguel Ash Pond Section C-C.gsz
Seismic - Entry Exit A
11/20/2012

Computed By: GRA

Name: (SM-ML) - U,S	Model: Mohr-Coulomb	Unit Weight: 120 pcf	Cohesion: 0 psf	Phi: 30 °	Phi-B: 0 °	Piezometric Line: 1
Name: Clay Nat/Fill - U	Model: Mohr-Coulomb	Unit Weight: 112 pcf	Cohesion: 216 psf	Phi: 17.2 °	Phi-B: 0 °	
Name: Surficial	Model: Undrained (Phi=0)	Unit Weight: 1 pcf	Cohesion: 1 psf	Piezometric Line: 1		

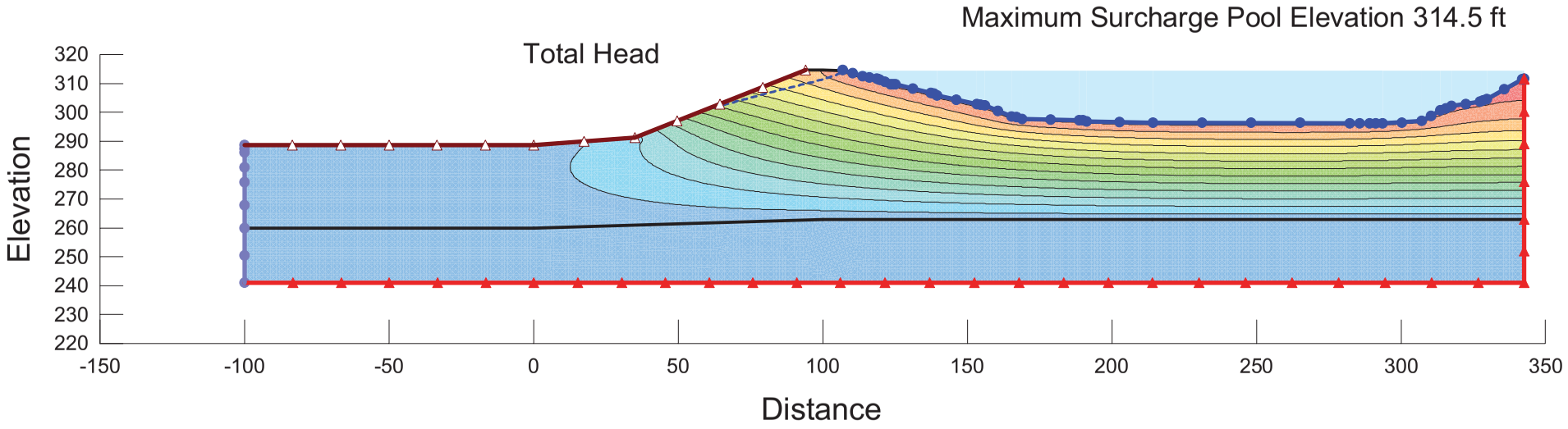


US EPA ARCHIVE DOCUMENT

San Miguel Ash Pond Section C-C.gsz
SEEP/W Analysis - Maximum Surcharge Pool
11/20/2012

Computed By: GRA

Name: (SM-ML) - U,S	Model: Saturated Only	K-Sat: 3.3e-005 ft/sec	Volumetric Water Content: 0 ft³/ft³	Mv: 0 /psf	K-Ratio: 0.4	K-Direction: 0 °
Name: Clay Nat/Fill - U	Model: Saturated Only	K-Sat: 7e-009 ft/sec	Volumetric Water Content: 0 ft³/ft³	Mv: 0 /psf	K-Ratio: 0.1	K-Direction: 0 °
Name: Surficial	Model: Saturated Only	K-Sat: 0.00033 ft/sec	Volumetric Water Content: 0 ft³/ft³	Mv: 0 /psf	K-Ratio: 1	K-Direction: 0 °

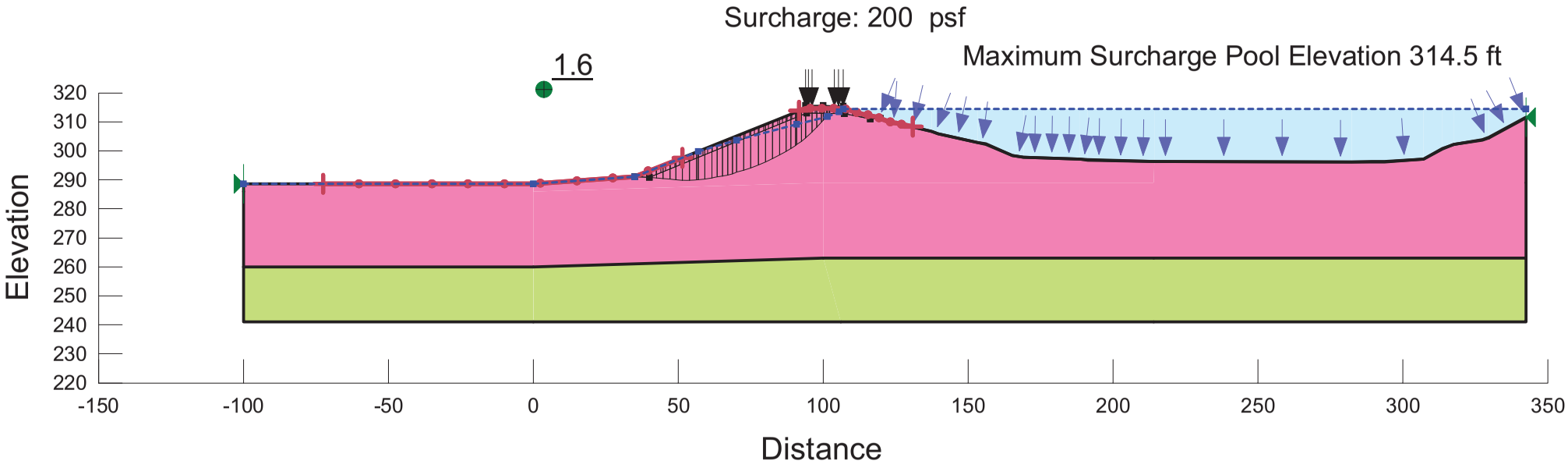


US EPA ARCHIVE DOCUMENT

San Miguel Ash Pond Section C-C.gsz
Maximum Surcharge Pool - Entry Exit A
11/20/2012

Computed By: GRA

Name: (SM-ML) - U,S	Model: Mohr-Coulomb	Unit Weight: 120 pcf	Cohesion: 0 psf	Phi: 30 °	Phi-B: 0 °	Piezometric Line: 1
Name: Clay Nat/Fill - U	Model: Mohr-Coulomb	Unit Weight: 112 pcf	Cohesion: 216 psf	Phi: 17.2 °	Phi-B: 0 °	
Name: Surficial	Model: Undrained (Phi=0)	Unit Weight: 1 pcf	Cohesion: 1 psf	Piezometric Line: 1		

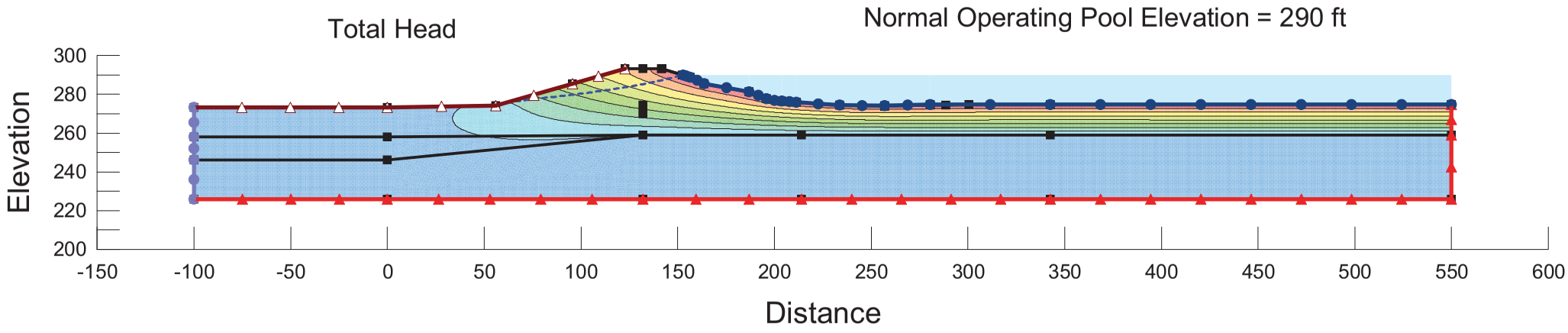


US EPA ARCHIVE DOCUMENT

San Miguel Sludge Pond Section D-D.gsz
SEEP/W Analysis - Normal Operating Pool
11/20/2012

Computed By: GRA

Name: (SM-ML) - U,S	Model: Saturated Only	K-Sat: 3.3e-005 ft/sec	Volumetric Water Content: 0 ft³/ft³	Mv: 0 /psf	K-Ratio: 0.4	K-Direction: 0 °
Name: (CL-SC) - U	Model: Saturated Only	K-Sat: 3.3e-008 ft/sec	Volumetric Water Content: 0 ft³/ft³	Mv: 0 /psf	K-Ratio: 0.1	K-Direction: 0 °
Name: Clay Nat/Fill - S	Model: Saturated Only	K-Sat: 3.3e-008 ft/sec	Volumetric Water Content: 0 ft³/ft³	Mv: 0 /psf	K-Ratio: 0.1	K-Direction: 0 °
Name: Surficial	Model: Saturated Only	K-Sat: 0.0033 ft/sec	Volumetric Water Content: 0 ft³/ft³	Mv: 0 /psf	K-Ratio: 1	K-Direction: 0 °

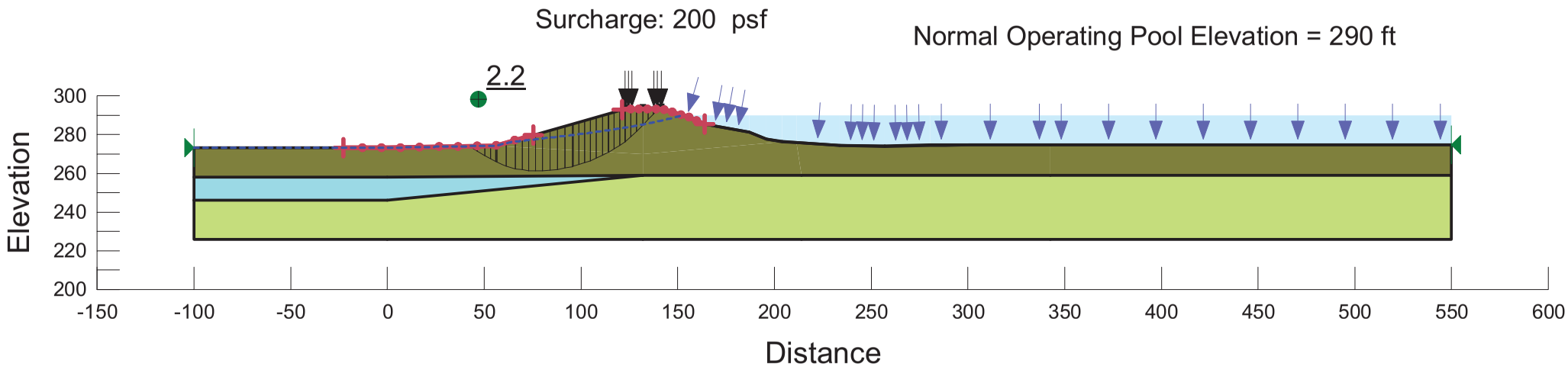


US EPA ARCHIVE DOCUMENT

San Miguel Sludge Pond Section D-D.gsz
Steady State Seepage - Entry Exit A
11/20/2012

Computed By: GRA

Name: (SM-ML) - U,S	Model: Mohr-Coulomb	Unit Weight: 120 pcf	Cohesion: 0 psf	Phi: 30 °	Phi-B: 0 °
Name: (CL-SC) - S	Model: Mohr-Coulomb	Unit Weight: 120 pcf	Cohesion: 200 psf	Phi: 24 °	Phi-B: 0 °
Name: Clay Nat/Fill - S	Model: Mohr-Coulomb	Unit Weight: 112 pcf	Cohesion: 288 psf	Phi: 20.3 °	Phi-B: 0 °
Name: Surficial	Model: Undrained (Phi=0)	Unit Weight: 1 pcf	Cohesion: 1 psf		

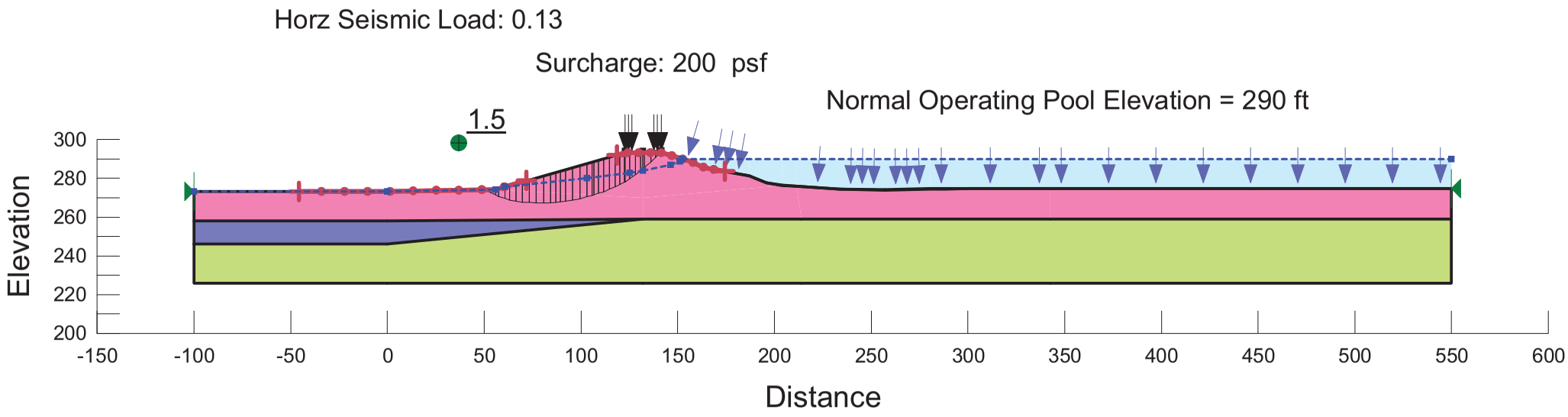


US EPA ARCHIVE DOCUMENT

San Miguel Sludge Pond Section D-D.gsz
Seismic - Entry Exit A
11/20/2012

Computed By: GRA

Name: (SM-ML) - U,S	Model: Mohr-Coulomb	Unit Weight: 120 pcf	Cohesion: 0 psf	Phi: 30 °	Phi-B: 0 °	Piezometric Line: 1
Name: Clay Nat/Fill - U	Model: Mohr-Coulomb	Unit Weight: 112 pcf	Cohesion: 216 psf	Phi: 17.2 °	Phi-B: 0 °	
Name: (CL-SC) - U	Model: Mohr-Coulomb	Unit Weight: 120 pcf	Cohesion: 1000 psf	Phi: 0 °	Phi-B: 0 °	
Name: Surficial	Model: Undrained (Phi=0)	Unit Weight: 1 pcf	Cohesion: 1 psf	Piezometric Line: 1		

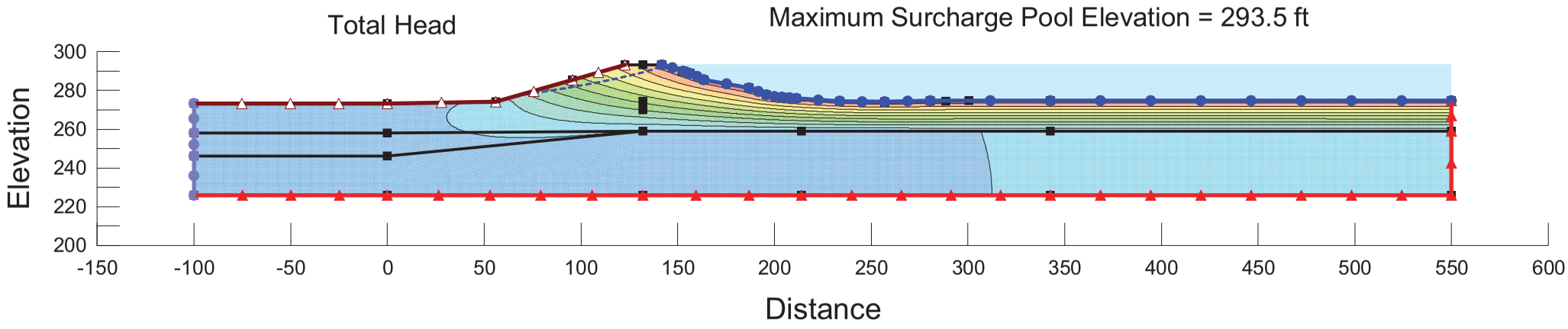


US EPA ARCHIVE DOCUMENT

San Miguel Sludge Pond Section D-D.gsz
SEEP/W Analysis - Maximum Surcharge Pool
11/20/2012

Computed By: GRA

Name: (SM-ML) - U,S	Model: Saturated Only	K-Sat: 3.3e-005 ft/sec	Volumetric Water Content: 0 ft³/ft³	Mv: 0 /psf	K-Ratio: 0.4	K-Direction: 0 °
Name: (CL-SC) - U	Model: Saturated Only	K-Sat: 3.3e-008 ft/sec	Volumetric Water Content: 0 ft³/ft³	Mv: 0 /psf	K-Ratio: 0.1	K-Direction: 0 °
Name: Clay Nat/Fill - S	Model: Saturated Only	K-Sat: 3.3e-008 ft/sec	Volumetric Water Content: 0 ft³/ft³	Mv: 0 /psf	K-Ratio: 0.1	K-Direction: 0 °
Name: Surficial	Model: Saturated Only	K-Sat: 0.0033 ft/sec	Volumetric Water Content: 0 ft³/ft³	Mv: 0 /psf	K-Ratio: 1	K-Direction: 0 °

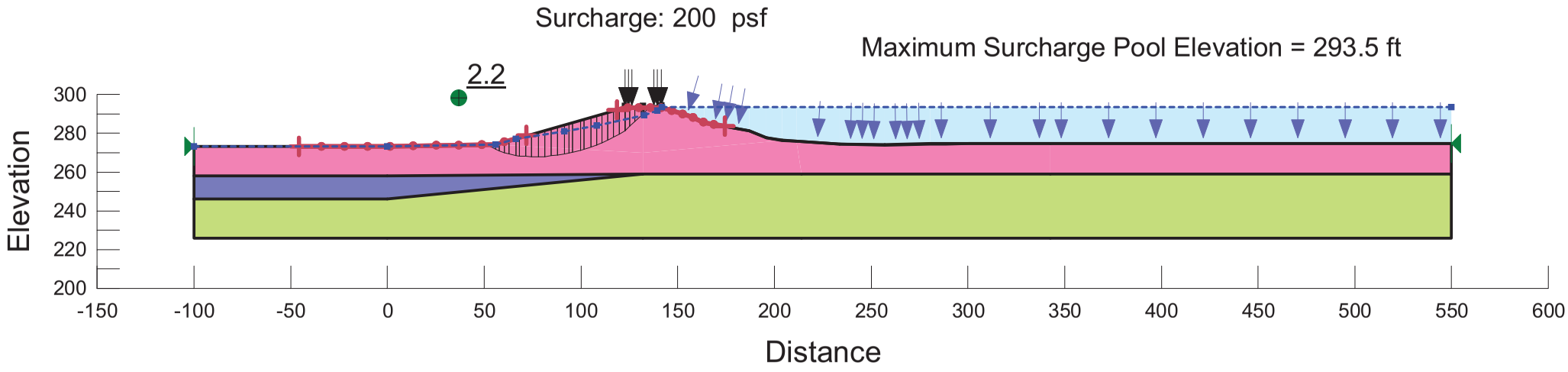


US EPA ARCHIVE DOCUMENT

San Miguel Sludge Pond Section D-D.gsz
Maximum Surcharge Pool - Entry Exit A
11/20/2012

Computed By: GRA

Name: (SM-ML) - U,S	Model: Mohr-Coulomb	Unit Weight: 120 pcf	Cohesion: 0 psf	Phi: 30 °	Phi-B: 0 °	Piezometric Line: 1
Name: Clay Nat/Fill - U	Model: Mohr-Coulomb	Unit Weight: 112 pcf	Cohesion: 216 psf	Phi: 17.2 °	Phi-B: 0 °	
Name: (CL-SC) - U	Model: Mohr-Coulomb	Unit Weight: 120 pcf	Cohesion: 1000 psf	Phi: 0 °	Phi-B: 0 °	
Name: Surficial	Model: Undrained (Phi=0)	Unit Weight: 1 pcf	Cohesion: 1 psf	Piezometric Line: 1		

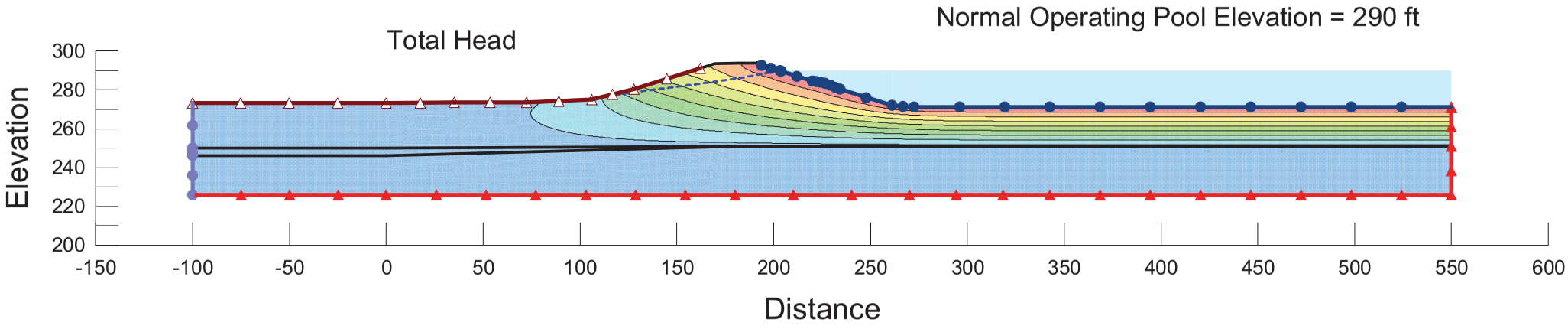


US EPA ARCHIVE DOCUMENT

San Miguel Sludge Pond Section E-E.gsz
SEEP/W Analysis - Normal Operating Pool
11/20/2012

Computed By: GRA

Name: (SM-ML) - U,S	Model: Saturated Only	K-Sat: 3.3e-005 ft/sec	Volumetric Water Content: 0 ft³/ft³	Mv: 0 /psf	K-Ratio: 0.4	K-Direction: 0 °
Name: Clay Nat/Fill - U	Model: Saturated Only	K-Sat: 7e-009 ft/sec	Volumetric Water Content: 0 ft³/ft³	Mv: 0 /psf	K-Ratio: 0.1	K-Direction: 0 °
Name: (CL-SC) - U	Model: Saturated Only	K-Sat: 3.3e-008 ft/sec	Volumetric Water Content: 0 ft³/ft³	Mv: 0 /psf	K-Ratio: 0.1	K-Direction: 0 °
Name: Surficial	Model: Saturated Only	K-Sat: 0.0033 ft/sec	Volumetric Water Content: 0 ft³/ft³	Mv: 0 /psf	K-Ratio: 1	K-Direction: 0 °

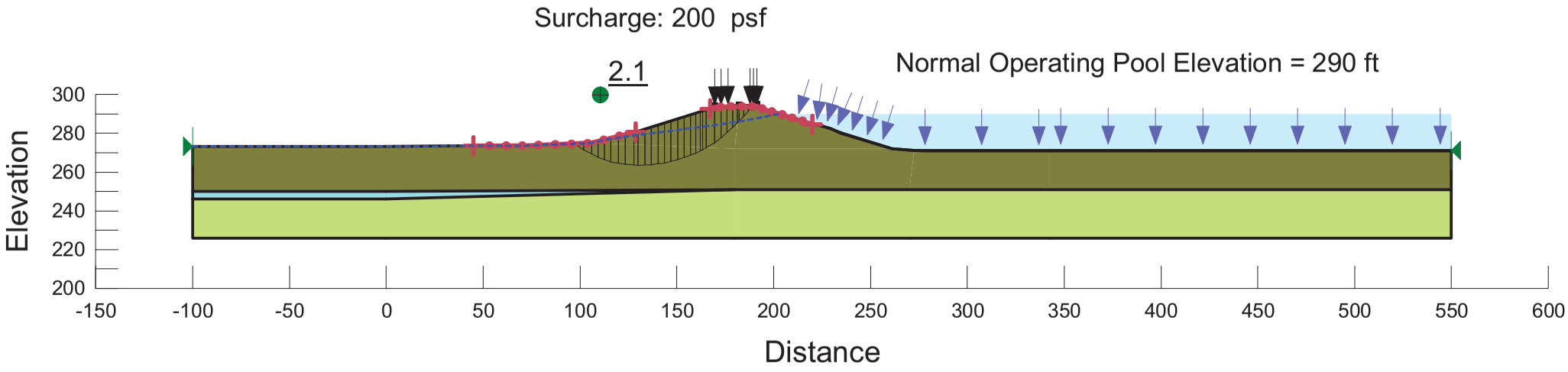


US EPA ARCHIVE DOCUMENT

San Miguel Sludge Pond Section E-E.gsz
Steady State Seepage - Entry Exit A
11/20/2012

Computed By: GRA

Name: (SM-ML) - U,S	Model: Mohr-Coulomb	Unit Weight: 120 pcf	Cohesion: 0 psf	Phi: 30 °	Phi-B: 0 °
Name: (CL-SC) - S	Model: Mohr-Coulomb	Unit Weight: 120 pcf	Cohesion: 200 psf	Phi: 24 °	Phi-B: 0 °
Name: Clay Nat/Fill - S	Model: Mohr-Coulomb	Unit Weight: 112 pcf	Cohesion: 288 psf	Phi: 20.3 °	Phi-B: 0 °
Name: Surficial	Model: Undrained (Phi=0)	Unit Weight: 1 pcf	Cohesion: 1 psf		



US EPA ARCHIVE DOCUMENT

San Miguel Sludge Pond Section E-E.gsz
Seismic - Entry Exit A
11/20/2012

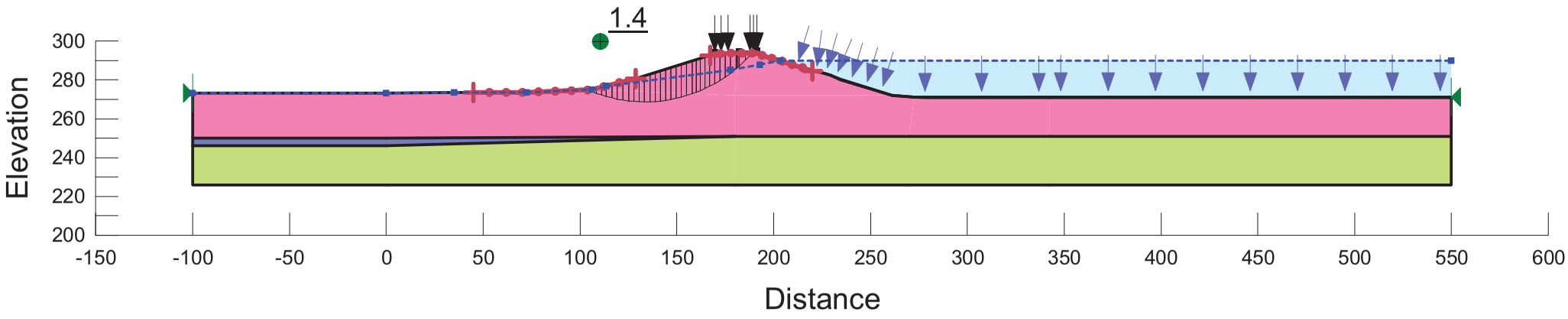
Computed By: GRA

Name: (SM-ML) - U,S	Model: Mohr-Coulomb	Unit Weight: 120 pcf	Cohesion: 0 psf	Phi: 30 °	Phi-B: 0 °	Piezometric Line: 1
Name: Clay Nat/Fill - U	Model: Mohr-Coulomb	Unit Weight: 112 pcf	Cohesion: 216 psf	Phi: 17.2 °	Phi-B: 0 °	
Name: (CL-SC) - U	Model: Mohr-Coulomb	Unit Weight: 120 pcf	Cohesion: 1000 psf	Phi: 0 °	Phi-B: 0 °	Piezometric Line: 1
Name: Surficial	Model: Undrained (Phi=0)	Unit Weight: 1 pcf	Cohesion: 1 psf	Piezometric Line: 1		

Horz Seismic Load: 0.13

Surcharge: 200 psf

Normal Operating Pool Elevation = 290 ft



US EPA ARCHIVE DOCUMENT

San Miguel Sludge Pond Section E-E.gsz
SEEP/W Analysis - Maximum Surcharge Pool
11/20/2012

Computed By: GRA

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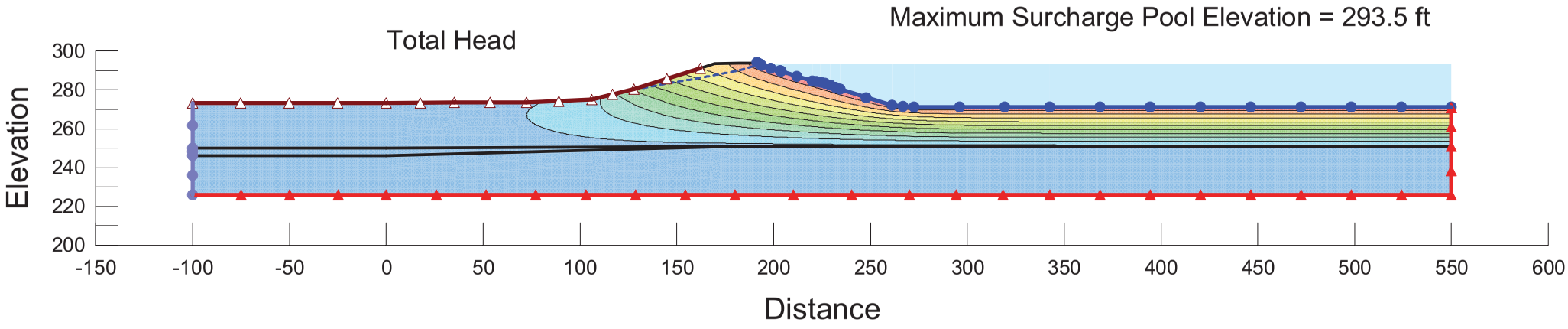
Name: Clay Nat/Fill - U	Model: Saturated Only	K-Sat: 7e-009 ft/sec	Volumetric Water Content: 0 ft³/ft³	Mv: 0 /psf	K-Ratio: 0.1	K-Direction: 0 °
Name: (CL-SC) - U	Model: Saturated Only	K-Sat: 3.3e-008 ft/sec	Volumetric Water Content: 0 ft³/ft³	Mv: 0 /psf	K-Ratio: 0.1	K-Direction: 0 °
Name: Surficial	Model: Saturated Only	K-Sat: 0.0033 ft/sec	Volumetric Water Content: 0 ft³/ft³	Mv: 0 /psf	K-Ratio: 1	K-Direction: 0 °

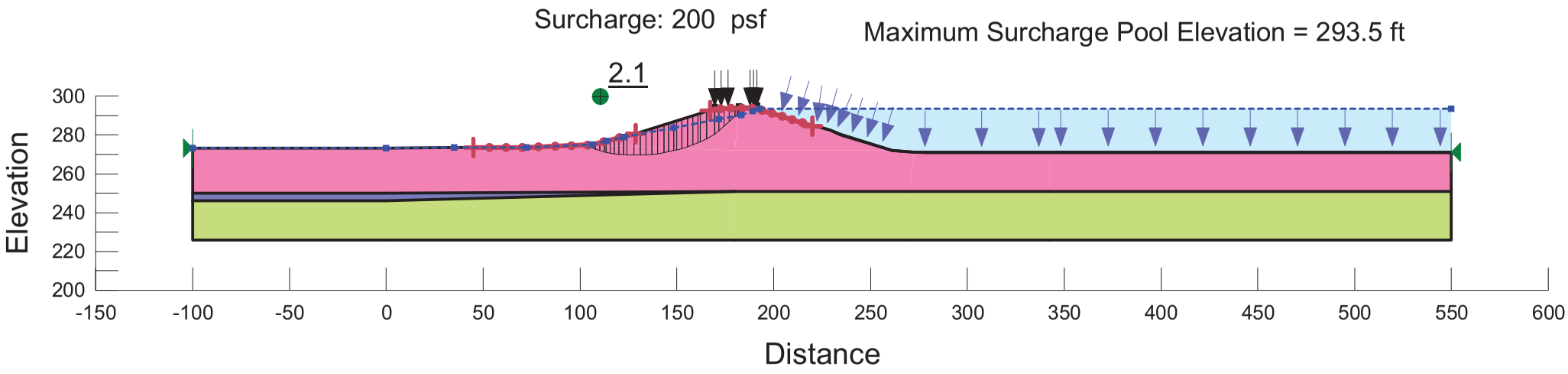


US EPA ARCHIVE DOCUMENT

San Miguel Sludge Pond Section E-E.gsz
Maximum Surchage Pool - Entry Exit A
11/20/2012

Computed By: GRA

Name: (SM-ML) - U,S	Model: Mohr-Coulomb	Unit Weight: 120 pcf	Cohesion: 0 psf	Phi: 30 °	Phi-B: 0 °	Piezometric Line: 1
Name: Clay Nat/Fill - U	Model: Mohr-Coulomb	Unit Weight: 112 pcf	Cohesion: 216 psf	Phi: 17.2 °	Phi-B: 0 °	
Name: (CL-SC) - U	Model: Mohr-Coulomb	Unit Weight: 120 pcf	Cohesion: 1000 psf	Phi: 0 °	Phi-B: 0 °	Piezometric Line: 1
Name: Surficial	Model: Undrained (Phi=0)	Unit Weight: 1 pcf	Cohesion: 1 psf	Piezometric Line: 1		



US EPA ARCHIVE DOCUMENT

APPENDIX G: ASFE INFORMATION – GEOTECHNICAL REPORT

Important Information about Your

Geotechnical Engineering Report

Subsurface problems are a principal cause of construction delays, cost overruns, claims, and disputes.

While you cannot eliminate all such risks, you can manage them. The following information is provided to help.

Geotechnical Services Are Performed for Specific Purposes, Persons, and Projects

Geotechnical engineers structure their services to meet the specific needs of their clients. A geotechnical engineering study conducted for a civil engineer may not fulfill the needs of a construction contractor or even another civil engineer. Because each geotechnical engineering study is unique, each geotechnical engineering report is unique, prepared *solely* for the client. No one except you should rely on your geotechnical engineering report without first conferring with the geotechnical engineer who prepared it. *And no one — not even you* — should apply the report for any purpose or project except the one originally contemplated.

Read the Full Report

Serious problems have occurred because those relying on a geotechnical engineering report did not read it all. Do not rely on an executive summary. Do not read selected elements only.

A Geotechnical Engineering Report Is Based on A Unique Set of Project-Specific Factors

Geotechnical engineers consider a number of unique, project-specific factors when establishing the scope of a study. Typical factors include: the client's goals, objectives, and risk management preferences; the general nature of the structure involved, its size, and configuration; the location of the structure on the site; and other planned or existing site improvements, such as access roads, parking lots, and underground utilities. Unless the geotechnical engineer who conducted the study specifically indicates otherwise, do not rely on a geotechnical engineering report that was:

- not prepared for you,
- not prepared for your project,
- not prepared for the specific site explored, or
- completed before important project changes were made.

Typical changes that can erode the reliability of an existing geotechnical engineering report include those that affect:

- the function of the proposed structure, as when it's changed from a parking garage to an office building, or from a light industrial plant to a refrigerated warehouse,
- elevation, configuration, location, orientation, or weight of the proposed structure,
- composition of the design team, or
- project ownership.

As a general rule, *always* inform your geotechnical engineer of project changes—even minor ones—and request an assessment of their impact. *Geotechnical engineers cannot accept responsibility or liability for problems that occur because their reports do not consider developments of which they were not informed.*

Subsurface Conditions Can Change

A geotechnical engineering report is based on conditions that existed at the time the study was performed. *Do not rely on a geotechnical engineering report* whose adequacy may have been affected by: the passage of time; by man-made events, such as construction on or adjacent to the site; or by natural events, such as floods, earthquakes, or groundwater fluctuations. *Always* contact the geotechnical engineer before applying the report to determine if it is still reliable. A minor amount of additional testing or analysis could prevent major problems.

Most Geotechnical Findings Are Professional Opinions

Site exploration identifies subsurface conditions only at those points where subsurface tests are conducted or samples are taken. Geotechnical engineers review field and laboratory data and then apply their professional judgment to render an opinion about subsurface conditions throughout the site. Actual subsurface conditions may differ—sometimes significantly—from those indicated in your report. Retaining the geotechnical engineer who developed your report to provide construction observation is the most effective method of managing the risks associated with unanticipated conditions.

A Report's Recommendations Are *Not* Final

Do not overrely on the construction recommendations included in your report. *Those recommendations are not final,* because geotechnical engineers develop them principally from judgment and opinion. Geotechnical engineers can finalize their recommendations only by observing actual

subsurface conditions revealed during construction. *The geotechnical engineer who developed your report cannot assume responsibility or liability for the report's recommendations if that engineer does not perform construction observation.*

A Geotechnical Engineering Report Is Subject to Misinterpretation

Other design team members' misinterpretation of geotechnical engineering reports has resulted in costly problems. Lower that risk by having your geotechnical engineer confer with appropriate members of the design team after submitting the report. Also retain your geotechnical engineer to review pertinent elements of the design team's plans and specifications. Contractors can also misinterpret a geotechnical engineering report. Reduce that risk by having your geotechnical engineer participate in prebid and preconstruction conferences, and by providing construction observation.

Do Not Redraw the Engineer's Logs

Geotechnical engineers prepare final boring and testing logs based upon their interpretation of field logs and laboratory data. To prevent errors or omissions, the logs included in a geotechnical engineering report should *never* be redrawn for inclusion in architectural or other design drawings. Only photographic or electronic reproduction is acceptable, *but recognize that separating logs from the report can elevate risk.*

Give Contractors a Complete Report and Guidance

Some owners and design professionals mistakenly believe they can make contractors liable for unanticipated subsurface conditions by limiting what they provide for bid preparation. To help prevent costly problems, give contractors the complete geotechnical engineering report, *but* preface it with a clearly written letter of transmittal. In that letter, advise contractors that the report was not prepared for purposes of bid development and that the report's accuracy is limited; encourage them to confer with the geotechnical engineer who prepared the report (a modest fee may be required) and/or to conduct additional study to obtain the specific types of information they need or prefer. A prebid conference can also be valuable. *Be sure contractors have sufficient time* to perform additional study. Only then might you be in a position to give contractors the best information available to you, while requiring them to at least share some of the financial responsibilities stemming from unanticipated conditions.

Read Responsibility Provisions Closely

Some clients, design professionals, and contractors do not recognize that geotechnical engineering is far less exact than other engineering disciplines. This lack of understanding has created unrealistic expectations that have led to disappointments, claims, and disputes. To help reduce the risk of such outcomes, geotechnical engineers commonly include a variety of explanatory provisions in their reports. Sometimes labeled "limitations" many of these provisions indicate where geotechnical engineers' responsibilities begin and end, to help others recognize their own responsibilities and risks. *Read these provisions closely.* Ask questions. Your geotechnical engineer should respond fully and frankly.

Geoenvironmental Concerns Are Not Covered

The equipment, techniques, and personnel used to perform a *geoenvironmental* study differ significantly from those used to perform a *geotechnical* study. For that reason, a geotechnical engineering report does not usually relate any geoenvironmental findings, conclusions, or recommendations; e.g., about the likelihood of encountering underground storage tanks or regulated contaminants. *Unanticipated environmental problems have led to numerous project failures.* If you have not yet obtained your own geoenvironmental information, ask your geotechnical consultant for risk management guidance. *Do not rely on an environmental report prepared for someone else.*

Obtain Professional Assistance To Deal with Mold

Diverse strategies can be applied during building design, construction, operation, and maintenance to prevent significant amounts of mold from growing on indoor surfaces. To be effective, all such strategies should be devised for the *express purpose* of mold prevention, integrated into a comprehensive plan, and executed with diligent oversight by a professional mold prevention consultant. Because just a small amount of water or moisture can lead to the development of severe mold infestations, a number of mold prevention strategies focus on keeping building surfaces dry. While groundwater, water infiltration, and similar issues may have been addressed as part of the geotechnical engineering study whose findings are conveyed in this report, the geotechnical engineer in charge of this project is not a mold prevention consultant; ***none of the services performed in connection with the geotechnical engineer's study were designed or conducted for the purpose of mold prevention. Proper implementation of the recommendations conveyed in this report will not of itself be sufficient to prevent mold from growing in or on the structure involved.***

Rely, on Your ASFE-Member Geotechncial Engineer for Additional Assistance

Membership in ASFE/The Best People on Earth exposes geotechnical engineers to a wide array of risk management techniques that can be of genuine benefit for everyone involved with a construction project. Confer with your ASFE-member geotechnical engineer for more information.

ASFE
The Best People on Earth
8811 Colesville Road/Suite G106, Silver Spring, MD 20910
Telephone: 301/565-2733 Facsimile: 301/589-2017
e-mail: info@asfe.org www.asfe.org

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NFS 1978 *San Miguel Steam Electric Station Groundwater Protection, San Miguel Electric Cooperative, Job No. 75285-13, NFS/National Soil Services, Inc., September 25, 1978.*

NES / NATIONAL SOIL SERVICES, INC. CONSULTING ENGINEERS
214 330-9211
P. O. BOX 24596
4087 SHILLING WAY
DALLAS, TEXAS 75224
September 25, 1978
Job No. 75285-13

San Miguel Electric Cooperative, Inc.
P. O. Box 280
Jourdanton, Texas 78026

Attention: Mr. Ernest I. Wohlschlegel
General Manager

SAN MIGUEL STEAM ELECTRIC STATION
GROUNDWATER PROTECTION

Gentlemen:

In accordance with our discussion of August 29, 1978, we are submitting a revised plan to obtain the necessary geotechnical data for certifying the ponds at the San Miguel Plant site.

HISTORY

The water well storage pond, the ash disposal ponds, and the yard drainage retention ponds were designed based on data obtained in our foundation investigation for the plant island. This information was contained in two volumes; Volume I, Foundation Design Analysis and Recommendations for the Plant Island, and Volume II, Field and Laboratory Data for the Plant Island, of our report No. 75285, dated May 14, 1978. A boring plan, together with the location of the facilities, is shown on Plate 1. From the boring data and results of laboratory testing, a set of generalized soils profiles was developed for these pond areas. The profiles are shown on Plates 2 through 5.

Based on the soils information, it was recommended that the water well pond incorporate a ten-foot inspection trench beneath the embankment and an impervious core within the embankment. For the ash ponds, a five-foot inspection trench was recommended, along with an impervious core in the ash pond embankments. Subsequent to the issuance of our report, it was also recommended that the yard drainage retention pond and sludge disposal ponds be constructed similarly. With the exception of the west end of the ash disposal ponds and the southeast end of the yard drainage retention pond, moderately to highly plastic, relatively impermeable clay soils were consistently encountered. Accordingly, additional borings were not planned in the pond areas prior to construction.

STATE CERTIFICATION

A post-construction investigation to verify the compliance of these ponds with State regulations was developed in November, 1977. Details were based on the Texas Department of Health Regulations for Solid Waste Management, dated April, 1977. Plans of the proposed certification borings are shown on Plates 6 through 9. These borings were to have been five feet below the existing pond bottom. Additional depth was not required due to the optimum soil conditions. Samples obtained from these borings were to be used for the determination of dry unit weight, grain size distribution, coefficient of permeability, and liquid and plastic limits for each of the soil types encountered. In addition, the information from this investigation was to be correlated with the previously developed soils data.

The yard drainage retention pond was the first water containment structure to be investigated. Bulk samples were obtained in eight locations, as shown on Plate 6, on April 19, 1978. Sufficient materials were taken at each test location to run a standard compaction test, a remolded falling head permeability, Atterberg limits (liquid and plastic limits), and percent passing the minus No. 200 sieve determinations. These laboratory tests are summarized on Table 1 and 2.

Test locations Nos. 53, 55, and 56 exceeded the specified permeability limit of 1×10^{-7} cm/sec. Test locations Nos. 52, 53, 55, and 56 could not meet the requirements of a liquid limit not less than 30 and a plasticity index not less than 15. It should be noted that these four test locations comprise the southeast quadrant of the yard drainage retention pond which had previously been identified as a problem area. As a result of these studies, it was decided to place a three-foot clay blanket over the southeast quadrant of the pond. Shortly thereafter, a three-foot blanket of dark gray clay was placed in the southeast quadrant. These clays were obtained from required site excavation. Before samples could be obtained to verify in-place density of this blanket, excessive rainfall resulted in approximately three feet of water over the blanket. However, observations made during the selection of the materials and the liquid and plasticity index would indicate that the material meets the permeability requirements. The liquid limit of this material varied from 55.5% to 59.0% and the plasticity index ranged from 23.3 to 44.0. Continued excessive amounts of rainfall throughout the summer not only have continued to keep the yard drainage retention pond filled, but have also resulted in significant water accumulations in the other ponds. These accumulated amounts are sufficient and continued rains have made water

removal next to impossible. In addition, if the water could be successfully removed, it is questionable whether the floor of the pond could be dried sufficiently for access without great difficulty to complete the pond floor borings.

Accordingly, we recommend that the State be contacted concerning an alternate procedure for verification of these ponds. This revised procedure is basically in accordance with the Texas Department of Water Resources Technical Guidelines dated March, 1978. The revised procedure would consist of drilling borings on the down dip side and partial perimeter of the various ponds as shown on Plate 1. These borings, together with the borings previously drilled in the area would basically agree in number with those recommended by the referenced technical guidelines. These new borings would be drilled to a depth of at least ten feet below the existing pond floor elevation. Representative samples of the various strata encountered in these new borings would be tested to determine permeability characteristics, percent passing the No. 200 sieve, and liquid and plastic limits. Information from these new borings would be integrated into the existing soils information for verification that additional remedial treatment or liner is not required. It is felt that the use of perimeter borings would be an acceptable alternate to the original pond floor borings. This conclusion is based on the fact that, with the exception of the yard drainage retention pond, profiles around and through the pond areas and additional borings in the plant site have indicated satisfactory soil conditions at the remaining ponds.

It is recommended that the State be contacted concerning this substitution. We would be more than willing to assist you in any manner in this contact with the State.

If you have any questions, please call us.

Very truly yours,

NFS/NATIONAL SOIL SERVICES, INC.

Pierce L. Chandler, Jr., P.E.
Senior Project Engineer

PLC/gt
Reviewed by: Tillman A. Riewe, P.E.

Copies submitted: 5
cc: Mr. Ron Magel
Mr. Dub Matthews

ILLUSTRATIONS

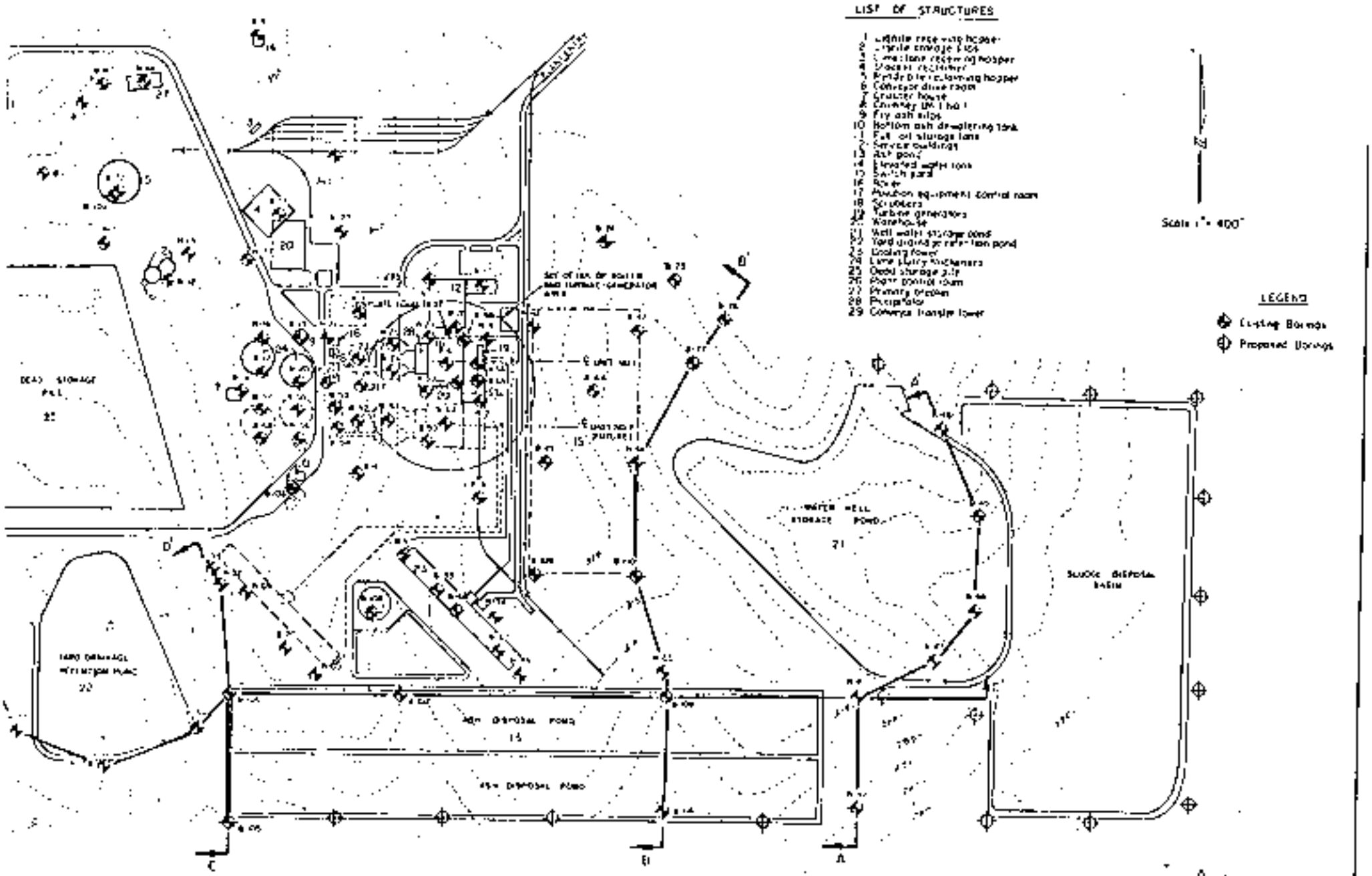
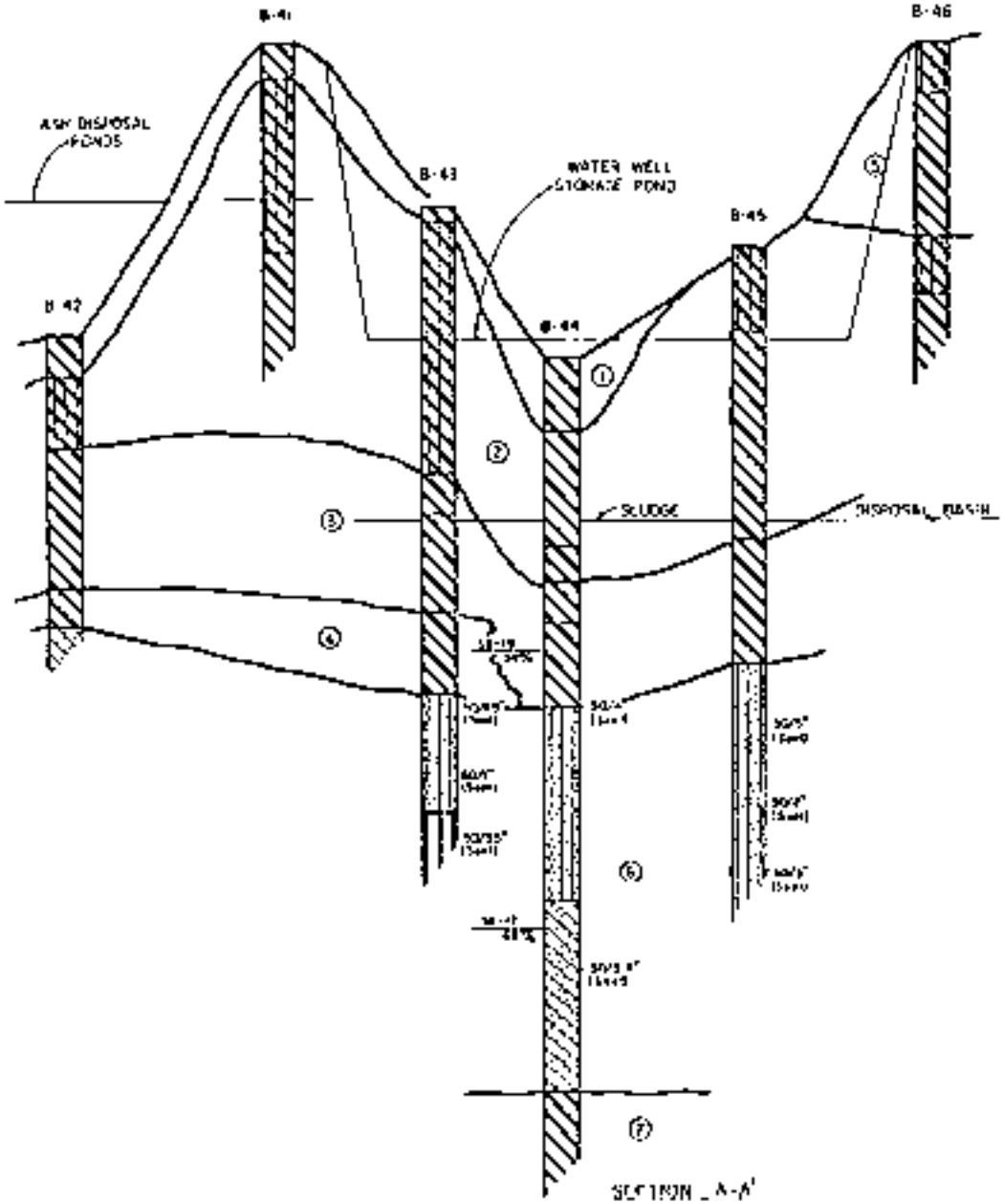
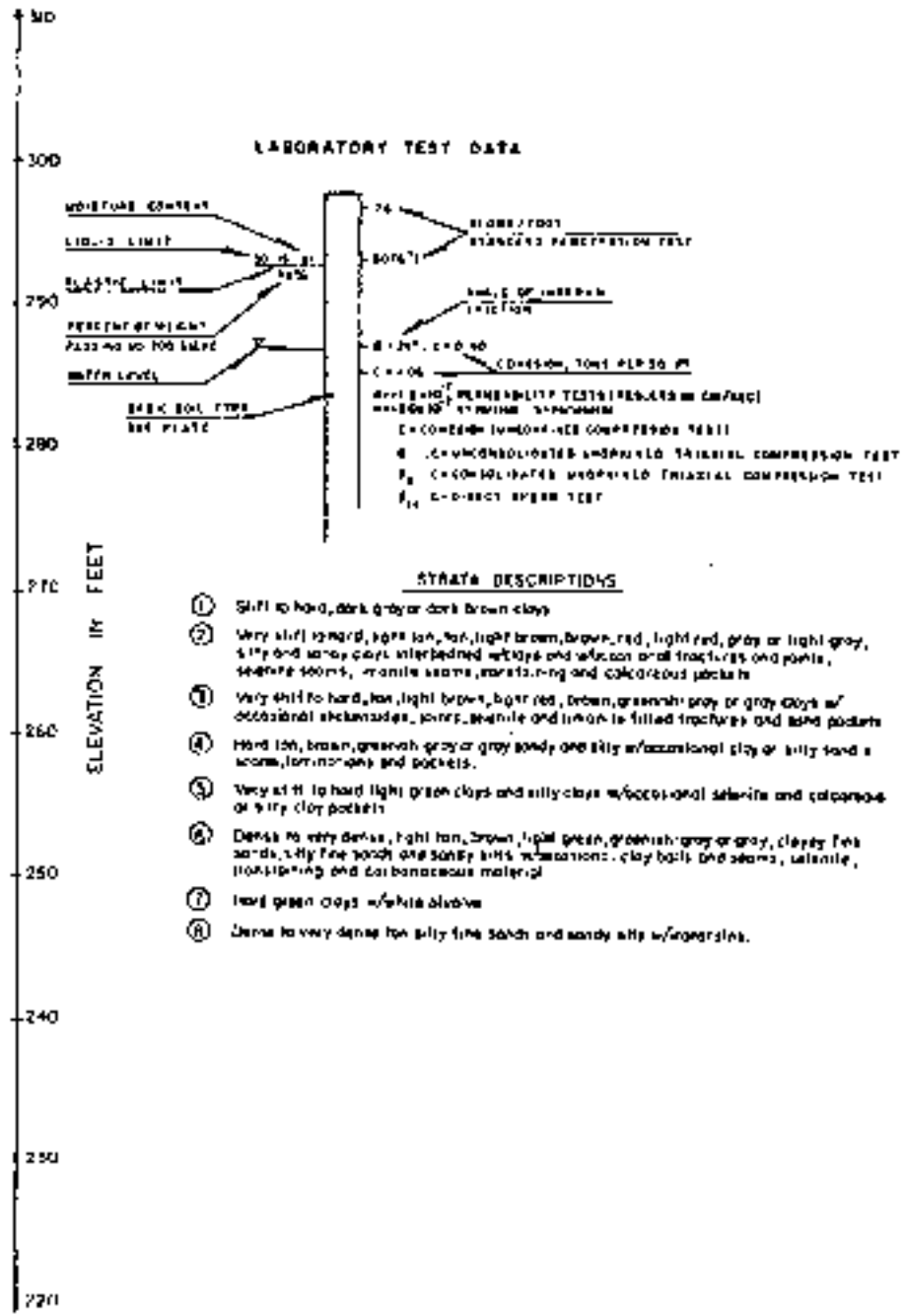

LIST OF STRUCTURES
1 Coal unloading hopper
2 Coal storage silos
3 Limestone receiving hopper
4 Vibrating screen
5 Portable limestone unloading hopper
6 Conveyor drive room
7 Crusher house
8 Chimney (Unit 1)
9 Fly ash silos
10 Bottom ash dewatering tank
11 Fuel oil storage tank
12 Service buildings
13 Ash pond
14 Elevated water tank
15 Switch yard
16 Boiler
17 Pollution equipment control room
18 Scrubbers
19 Turbine generators
20 Warehouse
21 Well water storage pond
22 Yard drainage retention pond
23 Cooling tower
24 Lime slurry thickeners
25 Oxidation storage silo
26 Water control room
27 Primary thickener
28 Precipitator
29 Conveyor transfer tower
Scale 1" = 400'
LEGEND
Existing Borings
Proposed Borings
WATER WELL STORAGE POND
21
SLUDGE DISPOSAL BASIN
ASH DISPOSAL POND
15
ASH DISPOSAL POND
YARD DRAINAGE RETENTION POND
22
DEAD STORAGE POND
25
UNIT NO. 1
UNIT NO. 2
A
A'
B
B'
C
C'
D
D'
E
E'

PLATE 1



HORIZONTAL SCALE IN FEET



LABORATORY TEST DATA

STRATA DESCRIPTIONS

① Stiff to hard, dark gray or dark brown clays

② Very stiff to hard, tan, tan, light brown, brown, red, light red, gray or light gray, silty and sandy clays interbedded w/clays and occasional small fractures and pockets, selenite seams, manganese seams, micaceous and calcareous pockets

③ Very stiff to hard, tan, light brown, buff red, brown, greenish gray or gray clays w/occasional slickensides, joints, selenite and iron oxide filled fractures and sand pockets

④ Hard tan, brown, greenish gray or gray sandy and silty w/occasional clay or silty sand seams, laminations and pockets.

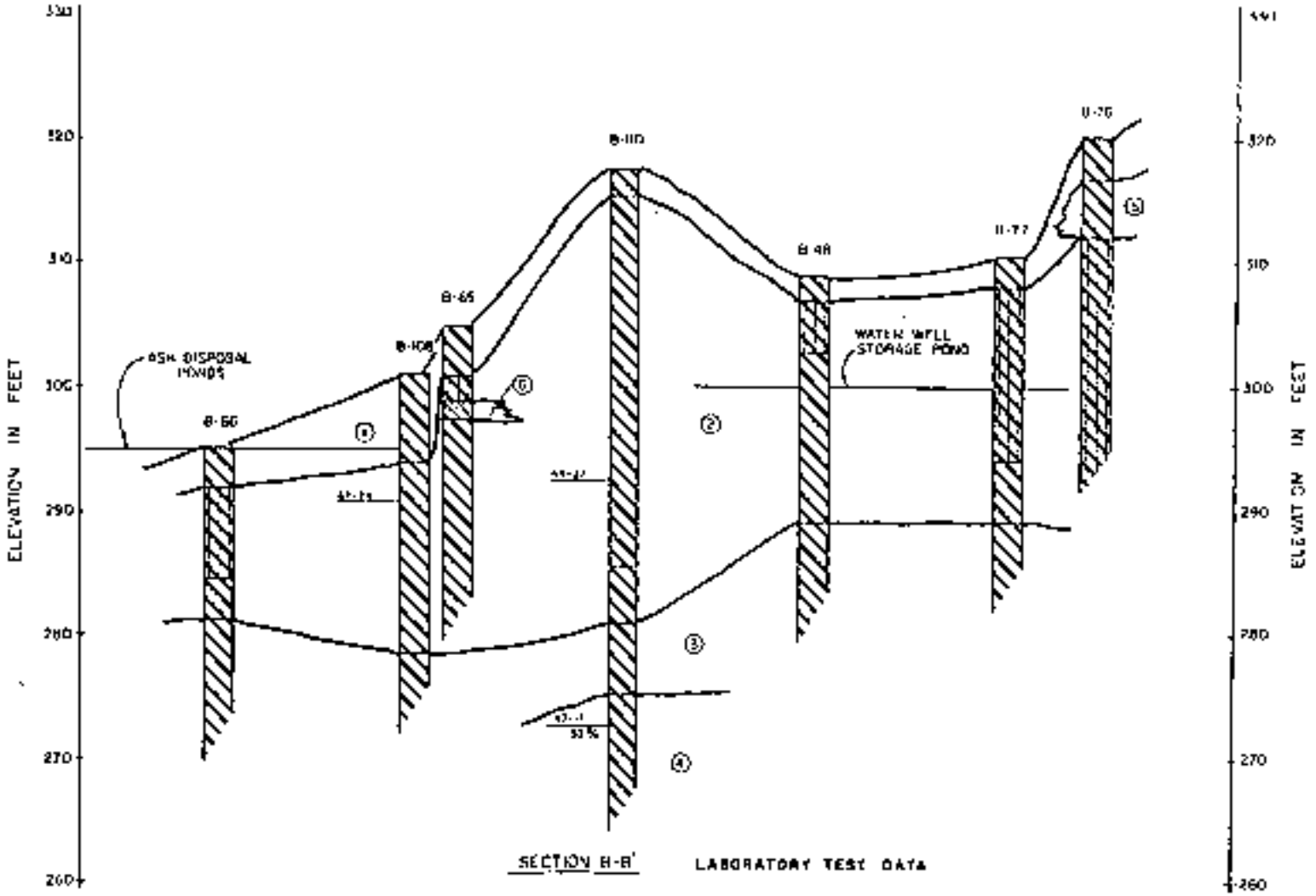
⑤ Very stiff to hard light green clays and silty clays w/occasional selenite and calcareous silty clay pockets

⑥ Dense to very dense, light tan, brown, light green, greenish gray or gray, clayey fine sands, silty fine sands and sandy silts w/occasional clay balls and seams, selenite, lamination and carbonaceous material

⑦ Hard green clays w/white silt

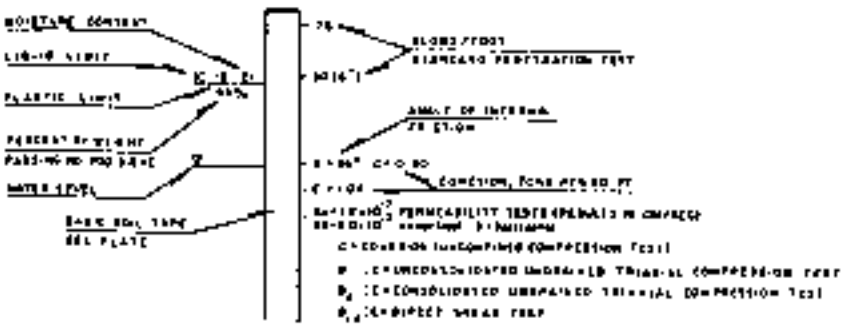
⑧ Dense to very dense fine silty fine sands and sandy silts w/laminations.

SECTION A-A'
CENTRALIZED SOILS PROJECT



SECTION B-B'

LABORATORY TEST DATA



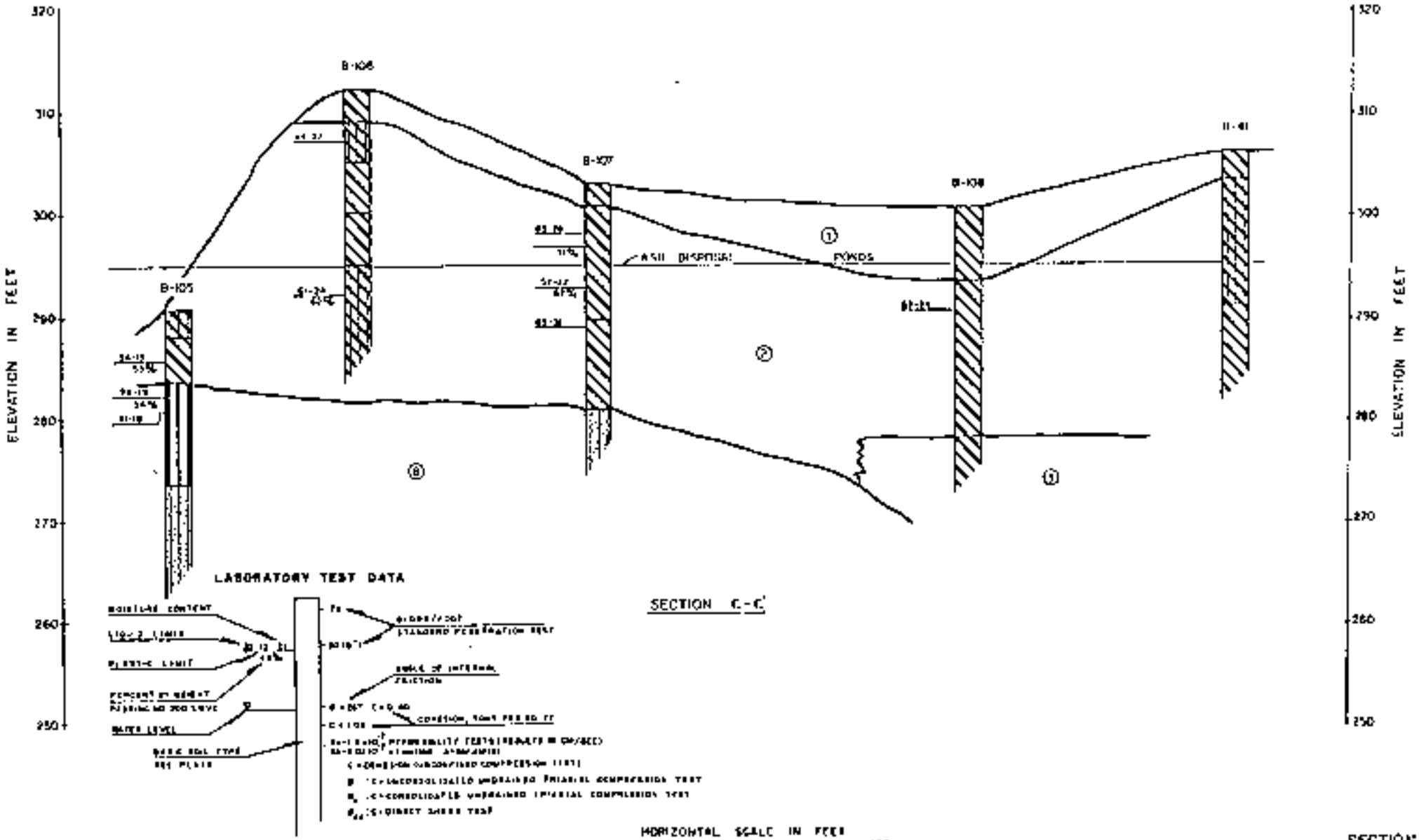
NOTE: For Strata Descriptions see Section A-A'

HORIZONTAL SCALE IN FEET

0 100 200 400

SECTION B-
GENERALIZED SOILS PROFIL

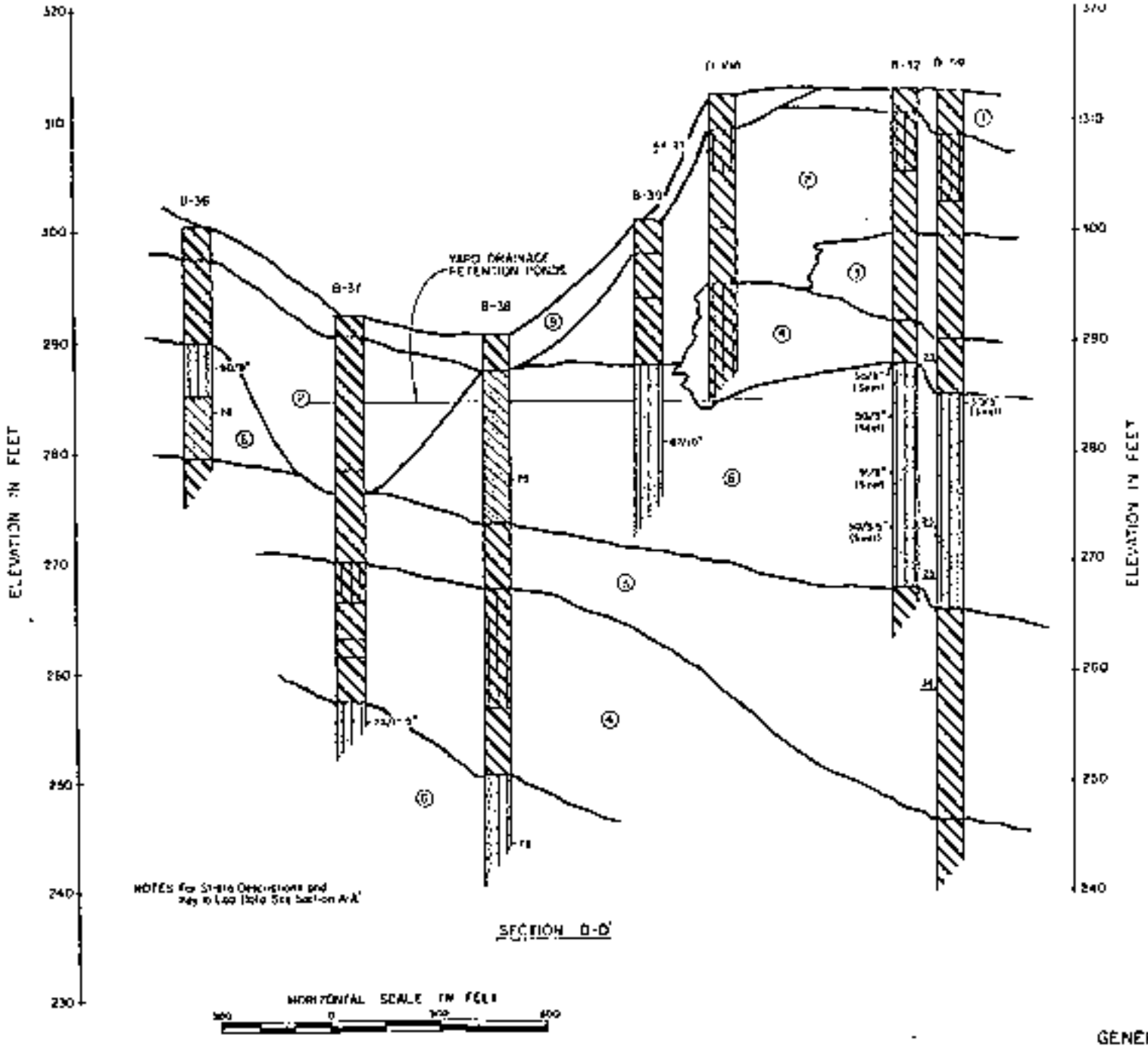
PLATE



NOTE: For Strata Descriptions see Section A-A'

SECTION
GENERALIZED SOILS PROF

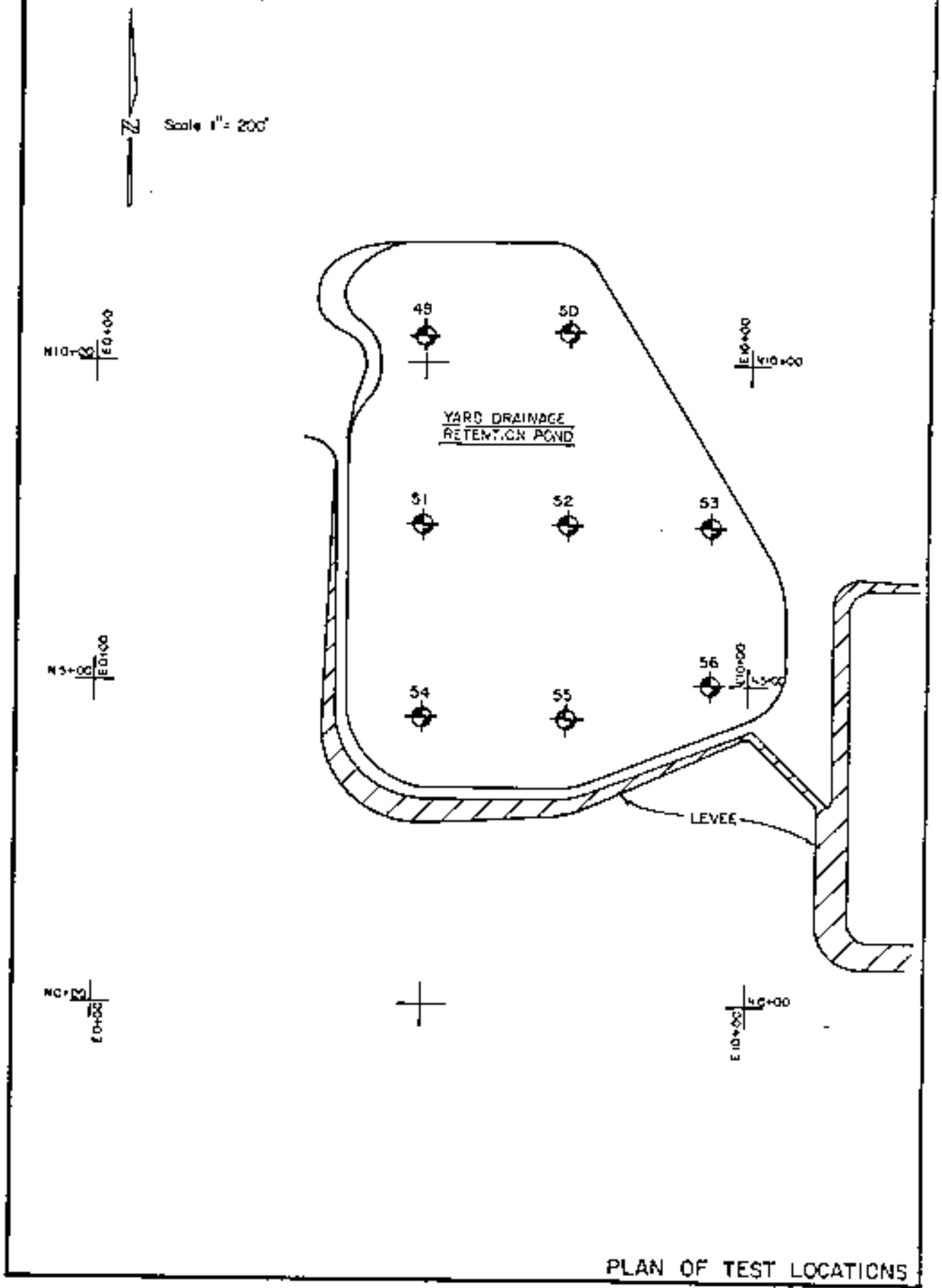
PLATE



SECTION D-D'

SECTION D-D'
GENERALIZED SOILS PROFILE

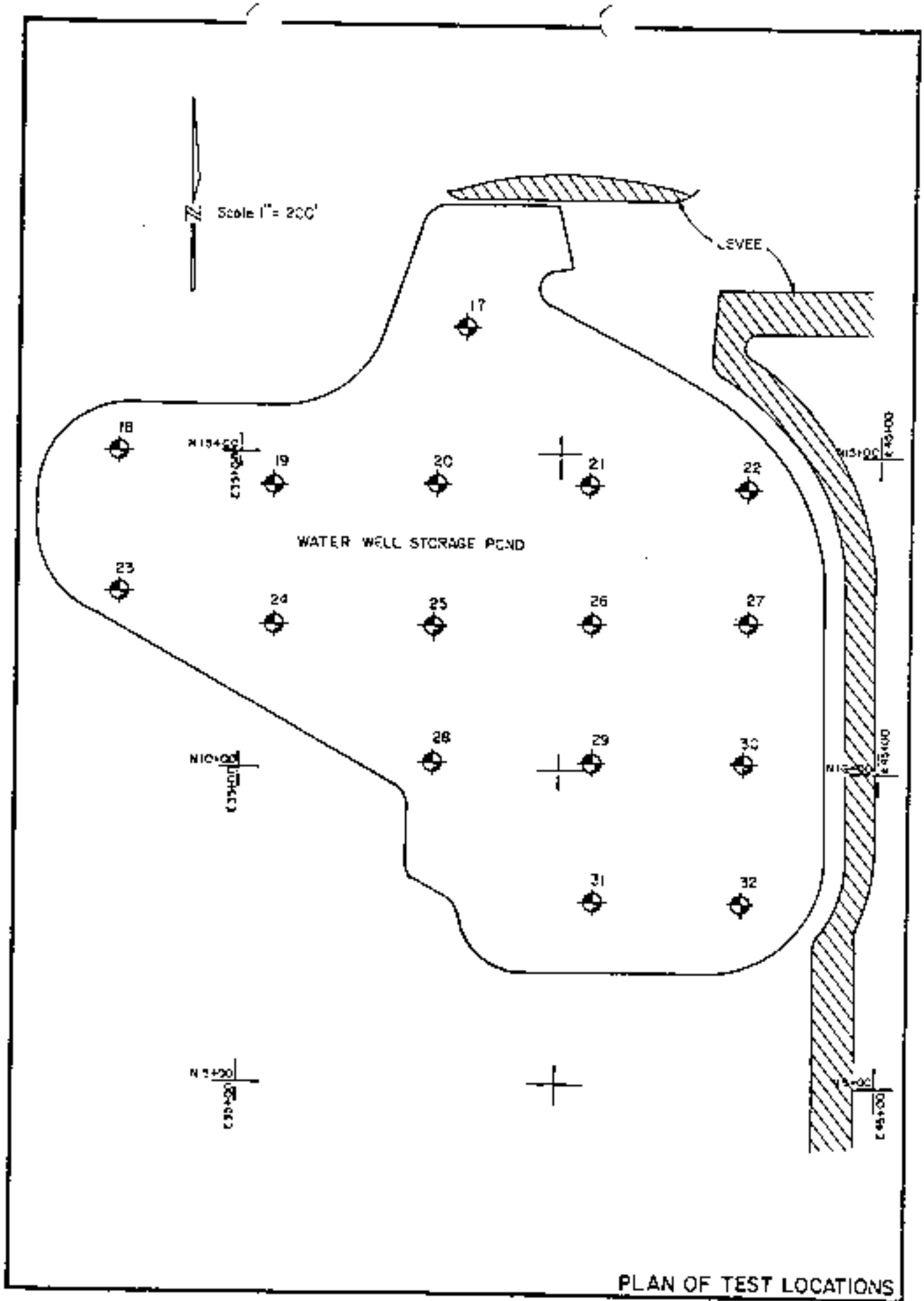
PLATE 5



PLAN OF TEST LOCATIONS

NATIONAL SOIL SERVICES, INC.
CONSULTING ENGINEERS

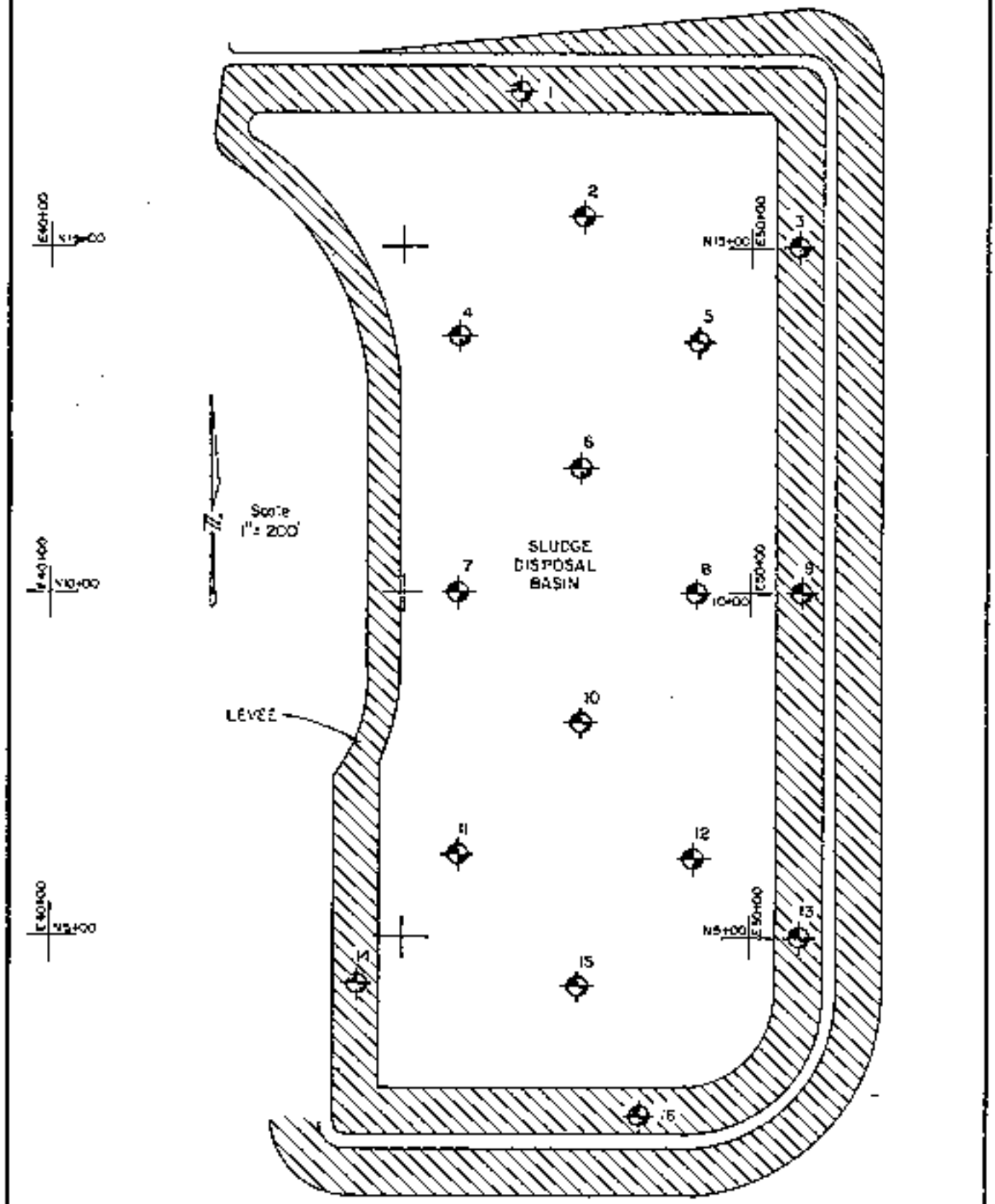
PLATE 6



PLAN OF TEST LOCATIONS

National Soil Services, Inc.
Consulting Engineers

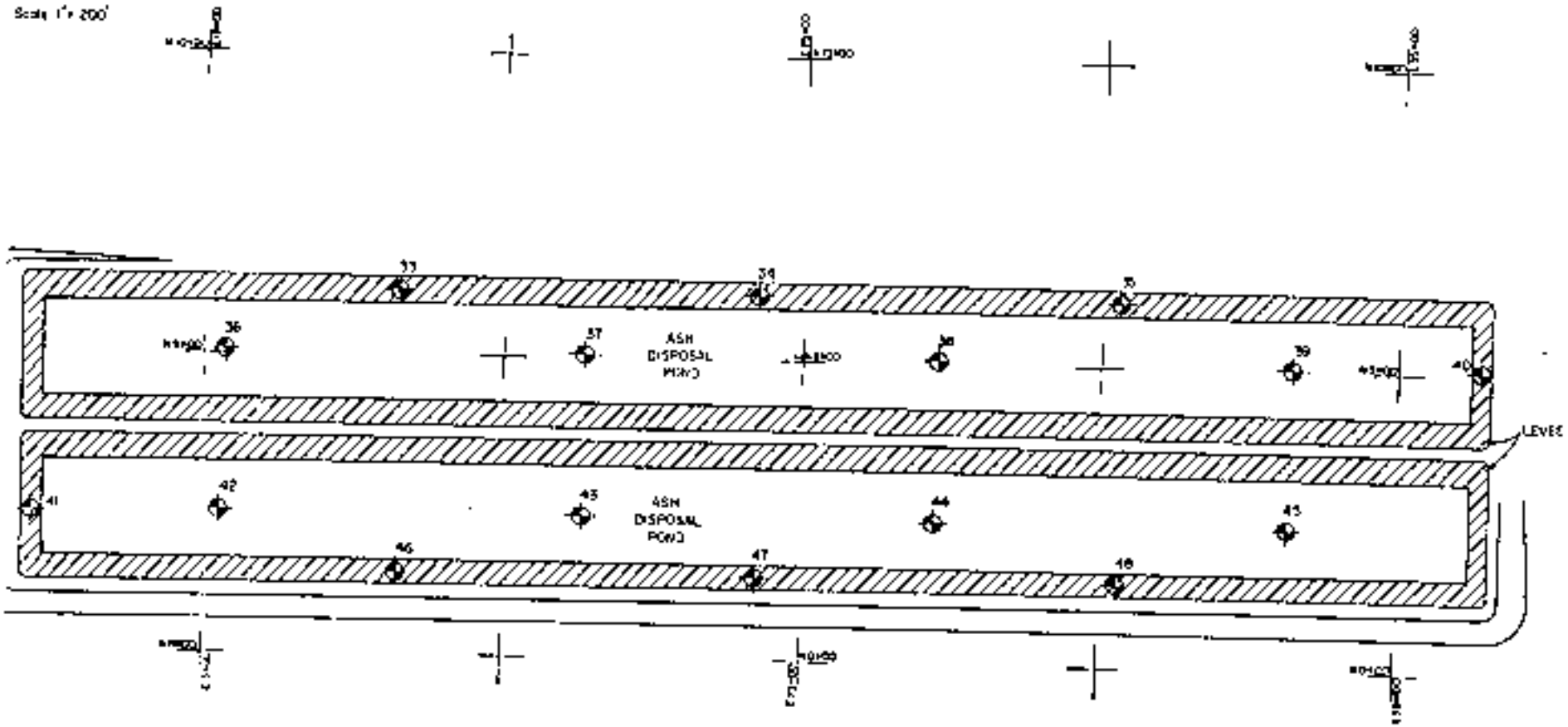
PLATE 7



PLAN OF TEST LOCATIONS

Soil Drilling Services, Inc.
Consulting Engineering

PLATE 8



PLAN OF TEST LOCATIONS

PLATE 9

Table 1

SUMMARY OF RESULTS
YARD DRAINAGE RETENTION POND

Test No.	Field Test No.	Sample Elevation	Description	Liquid Limit	Plastic Limit	Plasticity Index	Passing No. 200 Sieve
56	2	283.5 - 284.5	Gray silty sand, w/bentonite	-	-	Non-plastic	18.9
55	3	283.5 - 284.5	Tan clayey sand, w/calcareous crystals and bentonite	37.4	25.4	12.0	33.5
54	4	283.5 - 284.5	Brown and tan clayey sand, w/calcareous crystals and bentonite	37.6	18.2	19.4	39.7
53	1	284.0 - 285.0	Grayish-tan silty sand w/bentonite	28.4	27.6	0.8 (N.P.)	20.8
52	6	283.5 - 284.5	Grayish-tan clayey sand, w/bentonite	31.9	25.3	6.6	35.8
51	6	283.5 - 284.5	Brown and tan clayey sand, w/bentonite	40.6	15.2	25.4	33.8
50	7	286.5 - 287.5	Brown sandy clay, w/calcareous crystals and bentonite	49.4	22.1	27.3	55.3
49	8	286.5 - 287.5	Tan clayey sand, w/calcareous crystals and bentonite	53.6	18.4	35.2	43.2
Composite Sample (Nos. 3,4,5,6, and 8)			Tan clayey sand, w/calcareous crystals and bentonite	42.9	21.6	21.3	37.9

Table 2

SUMMARY OF RESULTS
YARD DRAINAGE RETENTION POND

Test No.	Field Test No.	Optimum Moisture	Molding Moisture	Reinold Permeability Maximum Dry Density pcf	Molded Density (%)	k Value cm/sec	k Value ft/day	k Value ft/yr	After Test Moisture	Swell (%)
56	2	21.5	20.1	101.6	94.3	1.72×10^{-7}	4.87×10^{-4}	1.78×10^{-1}	21.6	0.00
55	3	21.2	19.8	102.8	94.3	2.29×10^{-6}	6.98×10^{-3}	2.36	27.2	0.00
54	4	21.2	20.5	102.8	98.3	2.39×10^{-8}	6.79×10^{-5}	2.48×10^{-2}	22.9	0.
53	1	21.5	21.4	101.6	95.3	4.77×10^{-7}	1.35×10^{-3}	4.93×10^{-1}	22.8	0.00
52	6	21.2	20.0	102.8	97.6	3.63×10^{-8}	1.03×10^{-4}	3.76×10^{-2}	22.8	0.00
51	5	21.2	20.4	102.8	96.8	1.95×10^{-8}	5.54×10^{-5}	2.02×10^{-2}	23.5	0.00
50	7	24.1	23.7	95.5	96.2	9.00×10^{-9}	2.55×10^{-5}	9.31×10^{-3}	29.2	1.63
49	8	21.2	21.1	102.8	95.3	4.47×10^{-9}	1.27×10^{-5}	4.63×10^{-3}	27.2	2.72

NFS 1984 *Study of Ash Pond Leakage, San Miguel Electric Station, Report No. D-75285-13A, NFS Services, Inc., January 20, 1984.*

STUDY OF ASH POND LEAKAGE
SAN MIGUEL STEAM ELECTRIC STATION
JOURDANTON, TEXAS

Report to

TIPPETT & GEE, INC.
Consulting Engineers
Abilene, Texas

By

NFS SERVICES, INC.
Consulting Engineers
Dallas, Texas

January, 1984

JAN 25 1984

TIPPETT & GEE

NFS SERVICES, INC.
CONSULTING ENGINEERS

P.O. BOX 24398
DALLAS, TEXAS 75224

SOILS ENGINEERING REPORT

STUDY OF ASH POND LEAKAGE
SAN MIGUEL STEAM ELECTRIC STATION
JOURDANTON, TEXAS

January 20, 1984
Report No. D-75285-13A

Tippett & Gee, Inc.
Consulting Engineers
502 North Willis Street
Abilene, Texas 79603

Attention: Mr. M. L. Hughes, P. E.

Gentlemen:

Submitted here is our report of our study of the ash pond leakage at the above-referenced facility. This study was requested by your letter of October 21, 1983.

DISCUSSION OF LEAKAGE PROBLEM

The San Miguel Steam Electric Station has two ash disposal ponds, identified as ponds "A" and "B," which are located south of the plant power block as shown on the Plan of Borings, Plate 1, in the Illustrations section of the report. Both of these ash disposal ponds are rectangular impoundments, 2,475 feet long by 265 feet wide (measured along center line of embankment crest) with a common dike separating the north pond (pond "A") from the south pond (pond "B"). Construction of the ash disposal ponds started in July, 1977, and was completed in May, 1978.

In early June of 1978, extremely heavy rainfall associated with a tropical storm was experienced throughout South Texas. A substantial amount of water accumulated in both ash disposal ponds as a result of this storm, with the ponds remaining partially filled with

surface water for a long period thereafter. Pond "A" was placed into service in 1981 and has been full of liquid ash waste for approximately two years. Pond "B" has not had significant use to date and contains only a few feet of liquid ash waste.

In July, 1983, San Miguel Electric Cooperative, Inc., was notified by the Texas Department of Water Resources (TDWR) that, as a result of a routine industrial wastewater inspection made on May 26, 1983 by a TDWR representative, the west and east side outer banks of ash pond "A" were apparently leaking contents. TDWR requested that the reason for the pond leakage be identified and proposals made for correction of the problem. A copy of the TDWR correspondence, together with copies of all other correspondence related to the ash ponds, are included in the appendix to this report.

Subsequent inspections and tests made by San Miguel plant personnel revealed seven suspected leakage areas around the ash ponds. The areas are designated as areas "A" through "G" and are shown on Plate 2. Areas "A," "C," and "D" correspond to the locations of leakage cited by TDWR. Samples of surface water were analyzed for evidence of contamination with the following results:

Date	Sampling Point	pH	Specific Conductance (umhos/cm)	Sulfate (ppm)	Chloride (ppm)
10/15/83	A	7.45	4,700	1,964	749
	B	8.3	5,400	2,357	760
	C	7.5	8,600	5,108	737
	D	7.4	6,800	2,750	760
	E	7.4	4,700	2,200	647
	F	7.4	6,200	2,652	1,010
	G	7.95	4,500	2,122	318
	Ash Pond "A"	7.8	8,100	3,929	964
	Ash Pond "B"	8.3	7,900	4,518	783
10/30/83	A	7.2	4,300	2,161	629
	B	8.1	1,800	668	33
	C	8.4	7,000	12,573	1,953
	D	7.5	8,000	2,947	835
	E	8.0	7,000	2,357	391
	F	----------Not Tested----------			
	G	7.9	7,000	1,650	532
	Ash Pond "A"	7.2	7,000	4,479	1,020
	Ash Pond "B"	8.4	7,000	4,322	781

Comparison of the parameters defining the surface water quality with those characterizing the quality of the wastewater in the ponds indicates the probability of contamination of the surface water at the seven sampling points.

A site meeting was held on November 9, 1983 to permit assessment of the pond leakage by representatives of NFS Services, Inc. Those in attendance were:

NFS Services, Inc.	Mr. R. F. Reuss Mr. W. C. Worley Mr. G. G. LaFrance
San Miguel Electric Cooperative, Inc.	Mr. Robert Cmiel
Tippett & Gee, Inc.	Mr. E. G. Peveler

A second site inspection was made on January 9, 1984, to determine locations of proposed seepage collection lines and sumps. Messrs. Robert Cmiel and Wade Sebby of the San Miguel Station and G. G. LaFrance of NFS participated in this latter inspection.

PREVIOUS INVESTIGATIONS

Geotechnical parameters relating to design and construction of the ash disposal ponds are presented in Volume I, Foundation Design Analysis and Recommendations for the Plant Island, and Volume II, Field and Laboratory Data for the Plant Island, of NFS Report No. 75285, dated May 14, 1978. Records of field inspections and tests performed by NFS Services, Inc., during construction of the ash disposal ponds are summarized in NFS Inspection Report Nos. 194 (dated July 28, 1977) through 361 (dated June 8, 1978).

Additional geotechnical studies were performed by NFS Services, Inc., relative to certification of the ash disposal ponds, as well as the other plant site ponds. The initial certification plan for the ash disposal ponds was developed in November, 1977 and was based on drilling ten borings in the pond bottom (five in each pond) to a depth of five feet below the pond bottom. In addition, eight borings were to be drilled along the embankment crest of the dikes. Samples obtained from these borings were to be used for the determination of

dry unit weight, grain-size distribution, coefficient of permeability, and liquid and plastic limits for each of the soil types encountered. In addition, the information from this investigation was to be correlated with the previously developed soils data.

Due to the prolonged wet conditions in the ash disposal ponds, as well as the other plant site ponds, an alternate certification plan was proposed by NFS Services, Inc., based on drilling borings on the down dip side and partial perimeter of the various ponds shown on Plate 1 of the illustrations for this report. Both the initial certification plan and the revised certification plan are explained in detail in the NFS correspondence dated September 25, 1978, a copy of which is included in the appendix.

Subsequently, a field representative for TDWR recommended certification of the plant site ponds, including the ash disposal ponds, based on a field inspection performed by TDWR prior to January 30, 1979. Final certification of the ponds, including the ash disposal ponds, by TDWR was based in part on representations made by NFS as to the construction of the ponds as outlined in the NFS letter dated March 19, 1979 (refer to the appendix for a copy of this letter) in lieu of implementation of either the original or the revised certification programs.

SUBSURFACE CONDITIONS AND POND CONSTRUCTION

Preconstruction subsurface conditions in the vicinity of the ash disposal ponds are represented by the logs of borings B-35, B-39, B-41, B-42, B-60, B-65, B-66, B-105, B-106, B-107, and B-108. Locations of the borings are shown on Plate 1, with the logs of the referenced borings being presented on Plates 3 through 15. Logs of these borings are also illustrated in graphical form on Sections A-A', B-B', C-C', and D-D' of the Generalized Soils Profiles, Plates 16 through 19.

In general, the preconstruction subsurface soil formations consisted of an upper clay stratum underlain by a sand stratum. The upper clay stratum was comprised of hard, medium to high-plasticity clays, sandy clays, and silty clays having some evidence of jointing

and slickensides. Results of six falling-head permeability tests performed on undisturbed clay specimens situated within the uppermost 15 feet below the original ground surface showed coefficient of permeability values ranging from 6.30×10^{-7} cm/sec to 4.29×10^{-9} cm/sec. The lower sand stratum consists of very dense, green to light brown and light gray, silty fine sand. Based on the boring data, the upper clay stratum extends to at or below Elev 288, or at least seven feet below the bottom of the ash ponds. Piezometric data developed during the geotechnical investigation for the plant site indicated the existence of a very deep groundwater table at about Elev 268 or approximately 27 feet below the bottom of the ash ponds.

Original ground surface elevations in the vicinity of the ash disposal ponds varied from a high of about Elev 316 at the middle of the north dike of pond "A" to a low of about Elev 292 at the southwestern corner of pond "B." The top of dike elevation is 315, with the bottom of the ponds being at Elev 295. Except for previously noted areas of high and low original ground elevations, the dikes of ponds "A" and B" are comprised of a lower section of in-situ clay and an upper section of compacted clay. A five-foot-deep inspection trench was opened and backfilled with compacted clay along the toe of the interior slope except in areas where the dike is composed entirely of compacted clay embankment, in which case the inspection trench was positioned beneath the embankment crest. Interior and exterior slopes of the dikes are 2.5 H:1 V.

Field inspection records verify that no pervious soil strata were encountered in either the inspection trenches or the pond bottoms. Above-ground portions of the dikes consist of compacted medium to high-plasticity clays, sandy clays, and silty clays obtained from excavations made in the interior of the ash ponds. The clay fill was placed in maximum nine-inch loose lifts and compacted at a moisture content ranging from minus one to plus four percentage points above the optimum moisture content to at least 95 percent of the maximum dry density determined by THD Method TEX 113-E.

ANALYSES AND RECOMMENDATIONS

Areas of suspected pond leakage, identified as areas "A" through "G" and shown on Plate 2, were observed by NFS personnel during the November 9, 1983 site inspection. Based on the visual observations made at that time and also during the January 9, 1984 inspection, it is very probable that, with the exception of areas "B" and "G", the identified wet areas do result from pond leakage. In the case of suspected leakage area "B", the absence of seepage emerging from the outer dike slope at this location makes it less clear as to the probable source of the contaminated surface water sampled from the deep swale near the northwest corner of pond "A". With respect to suspected leakage area "G", this wet area appears to result from surface water being discharged from the nearby culvert. Both areas "B" and "G" should be assessed further during a dry period when the effects of surface water are absent.

The geotechnical parameters recommended by this firm for use in designing the ash ponds were based on the assumption the medium to high-plasticity clays comprising the dikes and bottom of the ponds would have a permeability of less than 1×10^{-7} cm/sec when wetted. For the most part, field performance of the ash ponds has verified the initial design assumption. At the locations of the suspected leakage areas, subsurface conditions are different than previously assumed due to localized variations in soil types or structure, such as the presence of continuous joints. Based on the observed pattern of lateral movement of fluid from the ponds at several locations of leakage, it is likely that jointing of the in-situ clays at certain locations has provided a continuous flow path instead of a discontinuous flow path. The presence of massive clay formations beneath the bottom of the ponds and decreased jointing with depth warrant the conclusion that downward migration is negligible. Consequently, the leakage problem essentially involves lateral movement of pond fluid through localized discontinuities.

Recommended remedial work to control the pond leakage and to eliminate the possibility of contaminating surface water consists of installing seepage collection pipes, channeling the seepage to sumps, and pumping the accumulated seepage back into the ponds. A suggested plan and details for the collection system are shown on Plate 20. This recommended collection system, however, will not alleviate the leakage, if any, at area "B" inasmuch as any seepage emerging from or at the toe of slope would immediately enter the culvert and be discharged to the area west of ash disposal pond "B". If further assessment of the "B" area during a dry period confirms the likelihood of pond leakage at this location, a pipe toe drain and sump, constituting a closed system in order to separate seepage from the surface water runoff in the swale, will be required at this location. If required, typical design details will be furnished at a later date.

We trust that the information presented in this report satisfies the recent inquiries made about the ash pond leakage and provides a reasonable solution for correcting the problem. Please call us if there are any questions or if we may be of additional assistance.

Very truly yours,

NFS SERVICES, INC.

Gary G. EdFrance, P. E.
Manager of Engineering

Ralph F. Reuss /gc
Ralph F. Reuss, P. E.
President

GGL/RFR/lcr

Copies submitted: 3

LIST OF STRUCTURES

1. Lignite receiving hopper.
2. Lignite storage silos.
3. Limestone receiving hopper
4. Stacker-reclaimer
5. Ready pile reclaiming hopper
6. Conveyor drive room.
7. Crusher house
8. Chimney Unit No 1
9. Fly ash silos
10. Bottom ash dewatering tank
11. Fuel oil storage tank
12. Service buildings.
13. Ash pond.
14. Elevated water tank
15. Switch yard.
16. Boiler.
17. Pollution equipment control room
18. Scrubbers
19. Turbine generators
20. Warehouse
21. Well water storage pond.
22. Yard drainage retention pond
23. Cooling tower
24. Lime slurry thickeners.
25. Dead storage pile
26. Plant control room.
27. Primary breaker
28. Precipitator.
29. Conveyor transfer tower.

Scale 1" = 400'

LEGEND

- Existing Borings
- Proposed Borings

DEAD STORAGE PILE 25

YARD DRAINAGE RETENTION POND 22

WATER WELL STORAGE POND 21

SLUDGE DISPOSAL BASIN

ASH DISPOSAL POND 13

ASH DISPOSAL POND

SITE DETAIL ON ANO TURBINATOR AREA

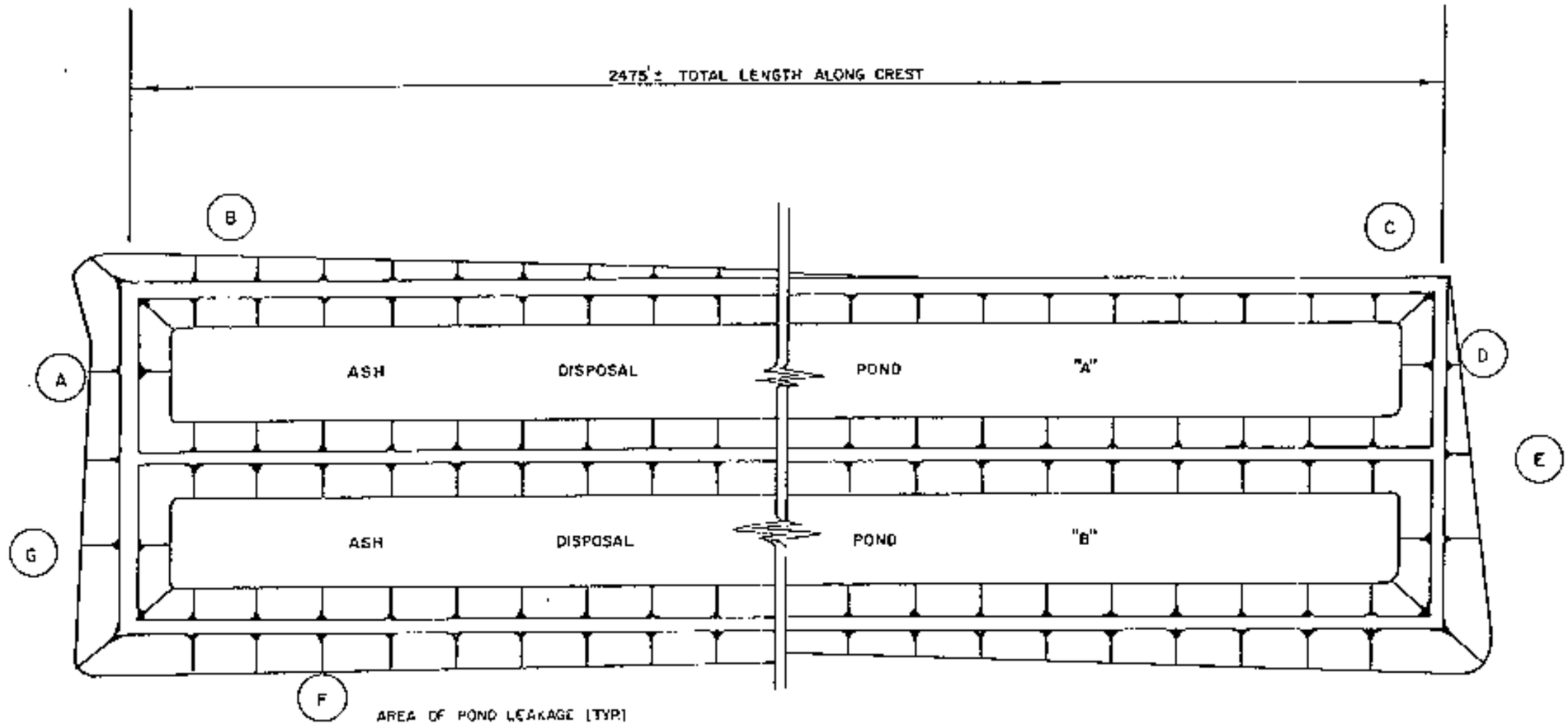
PLANT ENTRY

SITE LOAD TEST

A
B
C
D

N

Scale: 1" = 200'



LOCATION OF LEAKAGE AREAS

LOG OF BORING NO. B-SES-35
G&T COOPERATIVE PROJECT
PLEASANTON, TEXAS

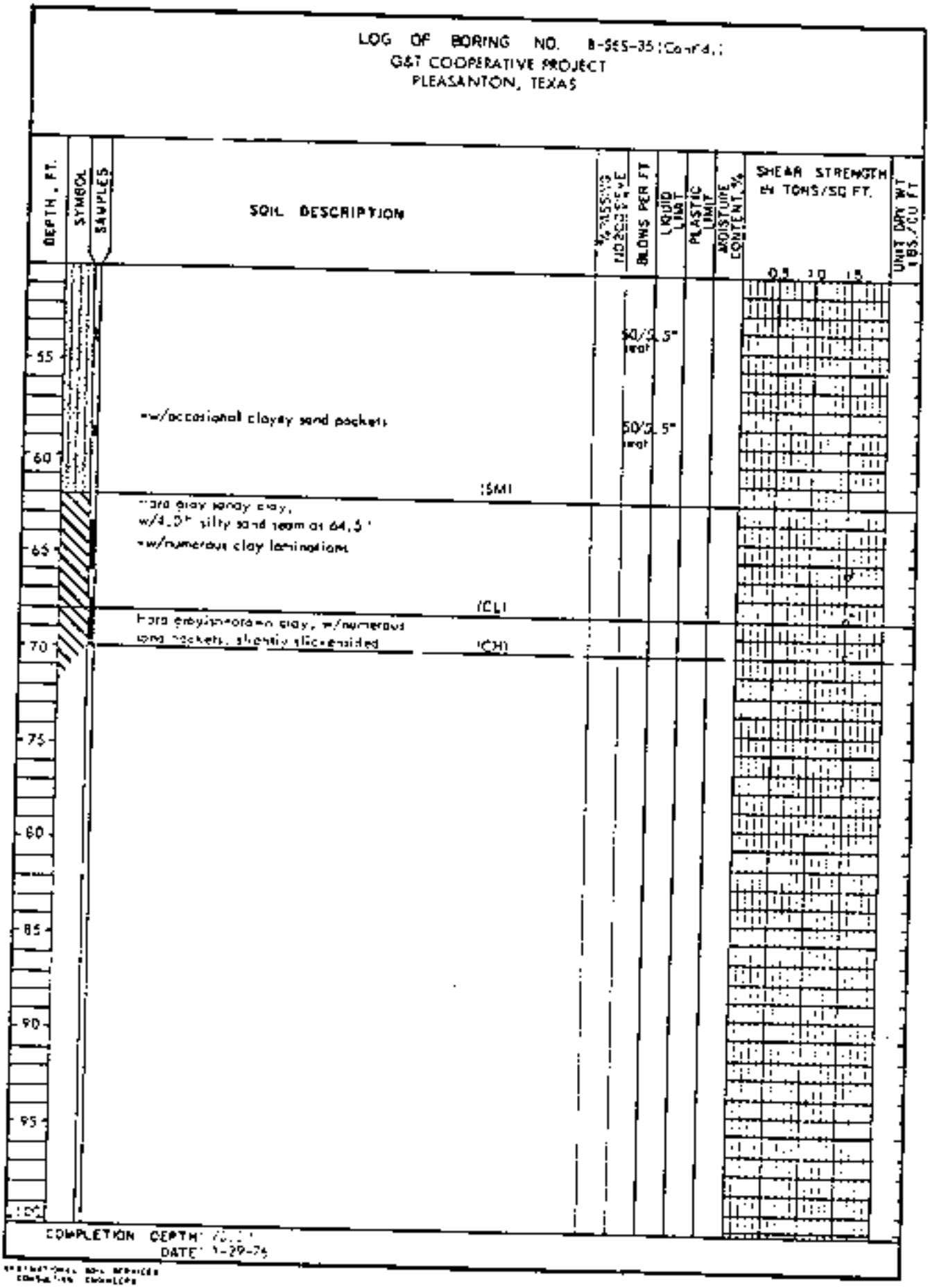
TYPE BORING: Undisturbed Sample LOCATION: See Plan of Borings

DEPTH, FT.	SYMBOL	SAMPLES	SOIL DESCRIPTION	% PASSING NO. 200 SIEVE	BLOWS PER FT.	LIQUID LIMIT	PLASTIC LIMIT	MOISTURE CONTENT, %	SHEAR STRENGTH IN TONS/SQ.FT. 0.5 1.0 1.5	UNIT DRY WT. LBS/CU FT
			ELEVATION: 316.0							
			Hard brown clay (CH)							
5			Hard light tan silty clay w/calcareous pockets w/occasional coarse sand (CL - CH)							
10			Hard light gray sandy clay w/iron stains			55	15			
15			(CL)							
20			Hard light reddish-brown clay w/occasional silty clay seams w/limonite laminations w/selenite pockets (CH)							
25			Hard light red and light gray silty clay w/iron laminations, selenite laminations w/some sand (CL)							
30			Hard light brownish-tan clay w/selenite seams w/jointed (CH)							
40			Hard tan sandy clay w/calcareous specks w/clay w/iron stains (CL)							
45			Very dense green to tan fine sand		50/2" 50/5"					
				27						

(Continued)

PLATE 3

LOG OF BORING NO. B-565-35 (Cont'd.)
G&T COOPERATIVE PROJECT
PLEASANTON, TEXAS



COMPLETION DEPTH: [illegible]
DATE: 1-29-74

PLATE 4

LOG OF BORING NO B-SES-39
G&T COOPERATIVE PROJECT
PLEASANTON, TEXAS

TYPE BORING: Undisturbed Sample LOCATION: See Plan of Boring

ELEVATION: 391.0

DEPTH, FT.	SYMBOL	SAMPLES	SOIL DESCRIPTION	% PASSING NO 200 SIEVE	BLOWS PER FT	LIQUID LIMIT	PLASTIC LIMIT	MOISTURE CONTENT %	SHEAR STRENGTH IN TONS/SQ FT (0.5 1.0 1.5)	UNIT DRY WT. LBS./CU FT
0			Hard dark brown sandy clay (CL)							
5			Hard light brownish-tan clay, jointed w/selenite seams and limonite pockets (CH)							
10			Hard reddish-brown sandy clay, w/occasional limonite pockets (CL)							
15			Very dense light gray and light brown silty fine sand, w/light brown clay seams, clayey fine sand seams and occasional selenite seams (SM)		87/6"					
20										
25										
30										
35										
40										
45										

COMPLETION DEPTH: 25.0'
DATE: [illegible]

[illegible] SOIL RESEARCH
CONSULTING ENGINEERS

PLATE 5

LOG OF BORING NO. B-SES-41
G&T COOPERATIVE PROJECT
PLEASANTON, TEXAS

TYPE BORING: Undisturbed Sample LOCATION: See Plan of Borings

DEPTH, FT.	SYMBOL	SAMPLES	SOIL DESCRIPTION	% PASSING NO. 200 SIEVE	LIQUID LIMIT	PLASTIC LIMIT	MOISTURE CONTENT, %	SHEAR STRENGTH IN TONS/SQ.FT. 0.5 1.0 1.5	UNIT DRY WT. LBS/CU.FT.
			ELEVATION: 306.2						
			Hard dark brown clay						
			(CH)						
5			Hard reddish-tan and light gray silty clay, w/ selenite seams and pockets						
10									
15			(CL)						
			Hard light reddish-brown clay, jointed w/iron laminations and selenite seams						
20			w/silty clay seams at 20.0' w/iron laminations						
			(CH)						
25									
30									
35									
40									
45									
50									

COMPLETION DEPTH: 41.3'
DATE: 1-31-74

PLATE 6

LOG OF BORING NO. B-SSS-42
G&T COOPERATIVE PROJECT
PLEASANTON, TEXAS

TYPE BORING: Undisturbed Sample LOCATION: See Plan of Borings

DEPTH, FT.	SYMBOL	SAMPLES	SOIL DESCRIPTION	% PASSING NO. 200 SIEVE	LIQUID LIMIT	PLASTIC LIMIT	MOISTURE CONTENT, %	SHEAR STRENGTH IN TONS/SQ FT (0.5, 1.0, 1.5)	UNIT DRY WT LBS./CU FT.
			ELEVATION: 285.6						
			Hard dark brown clay						
			(CH)						
5			Hard light reddish-tan and light gray silty clay, w/numerous clay laminations and seams						
			(CL)						
10			Hard light brownish-tan clay, w/selenite seams, jointed						
15			-turning slightly sandy at 15.0' -w/occasional iron stains						
			(CH)						
20			Hard brown sandy clay						
			(CL)						
			Very dense gray clayey fine sand, w/occasional dark gray clay balls						
			(SC)						
25									
30									
35									
40									
45									
50									

COMPLETION DEPTH: 41.5'
DATE: 1-15-76

PLATE 7

LOG OF BORING NO. A-SES-60
G&T COOPERATIVE PROJECT
PLEASANTON, TEXAS

TYPE BORING: Undisturbed Sample LOCATION: See Plan of Borings

ELEVATION: 319.2

DEPTH, FT.	SYMBOL	SAMPLES	SOIL DESCRIPTION	% PASSING #200 SIEVE	BLOWS PER FT	LIQUID LIMIT	PLASTIC LIMIT	MOISTURE CONTENT, %	SHEAR STRENGTH IN TONS/SQ FT (0.5 1.0 1.5)	UNIT DRY WT LBS/CU FT
0			Hard brown sandy clay							
			(CL)							
5			Hard light gray silty clay w/numerous selenite pockets							
			(CL)							
10			Hard light red clay w/selenite seams							
			-w/numerous iron laminations							
15			(CH)							
			Hard light gray silty clay w/occasional clayey pockets							
20			(CL)							
			Hard light brownish-tan clay w/iron stains, jointed							
25			-w/selenite pockets							
30			(CH)							
			Hard light brown sandy clay w/clay pockets and iron stains							
35			(CL)							
			Very dense light green silty fine sand, w/iron stains		50/5.5" Ref.					
40										
45			-w/occasional red clay seams							
			-w/occasional sandy silt laminations below 48'							
50										

PLATE 8

LOG OF BORING NO. B-565-60 (Cont'd.)
G&T COOPERATIVE PROJECT
PLEASANTON, TEXAS

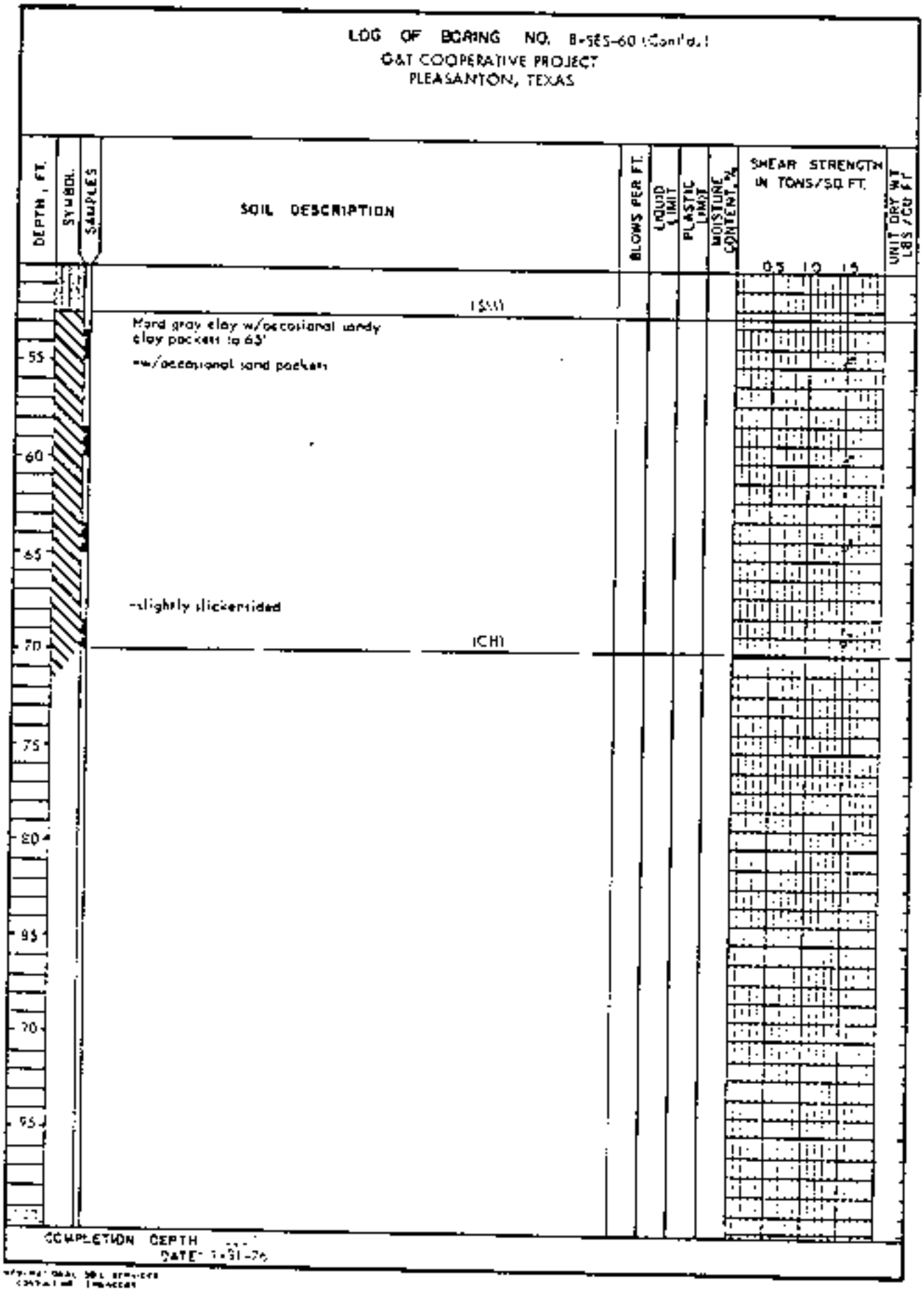


PLATE 9

LOG OF BORING NO. B-SES-65
G&T COOPERATIVE PROJECT
PLEASANTON, TEXAS

TYPE BORING: Undisturbed Sample LOCATION: See Plan of Borings

DEPTH, FT.	SYMBOL	SAMPLES	SOIL DESCRIPTION		% PASSING NO. 200 SIEVE	LIQUID LIMIT	PLASTIC LIMIT	MOISTURE CONTENT, %	SHEAR STRENGTH IN TONS/SQ. FT. 0.5 1.0 1.5	UNIT DRY WT LBS./CU. FT.
			ELEVATION: 304.9							
			Hard dark brown clay	(CH)						
5			Hard light red and light gray silty clay	(CL)						
			Very dense light gray clayey fine sand	(SC)						
10			Hard light reddish-brown clay -w/silty clay laminations and pockets -jointed -w/limonite stains							
15										
20			-selenite seams	(CH)						
25										
30										
35										
40										
45										
50										

COMPLETION DEPTH: 51.5'
DATE: [illegible] 73

PLATE 10

LOG OF BORING NO. B-SES-66
G&T COOPERATIVE PROJECT
PLEASANTON, TEXAS

TYPE BORING: Undisturbed Sample LOCATION: See Plan of Borings

ELEVATION: 295.0

DEPTH, FT.	SYMBOL	SAMPLES	SOIL DESCRIPTION	% PASSING NO. 200 SIEVE	LIQUID LIMIT	PLASTIC LIMIT	MOISTURE CONTENT, %	SHEAR STRENGTH IN TONS/SQ FT. (0.5 1.0 1.5)	UNIT DRY WT. LBS./CU FT.
			Hard dark brown clay (CH)						
5			Hard light reddish-brown silty clay, jointed, w/numerous clay laminations and iron stains (CL)						
10			Hard light reddish-tan clay, w/silty clay laminations (CH)						
15			Hard light brownish-tan clay, w/selenite seams, jointed =slightly slickensided						
20			=w/sandy clay laminations and pockets below 20.8' (CH)						
25									
30									
35									
40									
45									
50									

COMPLETION DEPTH: 47.0'
DATE: 1-18-66

PLATE 11

LOG OF BORING NO. B-105
G & T COOPERATIVE PROJECT
PLEASANTON, TEXAS

TYPE BORING: Undisturbed Sample

LOCATION: See Plan of Borings

ELEVATION: 290.8'

DEPTH, FT.	SYMBOL	SAMPLES	SOIL DESCRIPTION	% PASSING NO. 200 SIEVE	LIQUID LIMIT	PLASTIC LIMIT	MOISTURE CONTENT, %	SHEAR STRENGTH IN TONS/SQ FT. 0.5 1.0 1.5	UNIT DRY WT. LBS./CU FT.
			Stiff brown silty clay (CL)						
5			Tan clay, w/occasional crystal material (CL)	55	34	15			
10			Dense tan sandy silt (ML)	54	29	19			
			-iron stained		31	18			
15									
20			Dense tan silty fine sand, iron stained (SM)						
25									
30									
35									
40									
45									
50									

COMPLETION DEPTH: 25.0'

DATE: 2-20-74

LOG OF BORING NO. B-106
G & T COOPERATIVE PROJECT
PLEASANTON, TEXAS

TYPE BORING: Undisturbed Sample LOCATION: See Plan of Borings

ELEVATION: 332.2'

DEPTH, FT.	SYMBOL	SAMPLES	SOIL DESCRIPTION	% PASSING NO. 200 SIEVE	LIQUID LIMIT	PLASTIC LIMIT	MOISTURE CONTENT, %	SHEAR STRENGTH IN TONS/SQ FT. 0.5 1.0 1.5	UNIT DRY WT. LBS./CU FT.
0			Very stiff dark brown clay (CH)						
5			Hard tan lime silty clay -iron staine (CL)		44	27			
10			hard tan clay, w/occasional selenite (CH)						
15			Very stiff light brown clay, w/occasional selenite (CH)						
20			Hard tan silty clay, w/occasional calcareous material (CL)	62	61	24			
25									
30									
35									
40									
45									
50									

COMPLETION DEPTH: 25.0'
DATE: 7-20-76

LOG OF BORING NO. B-107
G & T COOPERATIVE PROJECT
PLEASANTON, TEXAS

TYPE BORING: Undisturbed Sample LOCATION: See Plan of Borings

DEPTH, FT.	SYMBOL	SAMPLES	SOIL DESCRIPTION	% PASSING NO 200 SIEVE	LIQUID LIMIT	PLASTIC LIMIT	MOISTURE CONTENT, %	SHEAR STRENGTH IN TONS/SQ FT. 0.5 1.0 1.5	UNIT DRY WT. LBS./CU. FT.
			ELEVATION: 302.9'						
			Stiff dark brown clay (CH)						
5			Hard light tan clay, w/iron stain	71	83	28			
10			-light brown -occasional very stiff selenite (CH)	67	52	22			
15			Hard tan clay -occasional crystal material (CH)		89	31			
20									
25			Very dense silty fine sand (SM)						
30									
35									
40									
45									
50									

COMPLETION DEPTH: 25.0'
DATE: 7-20-74

RPS/National Soil Services
Consulting Engineers

PLATE

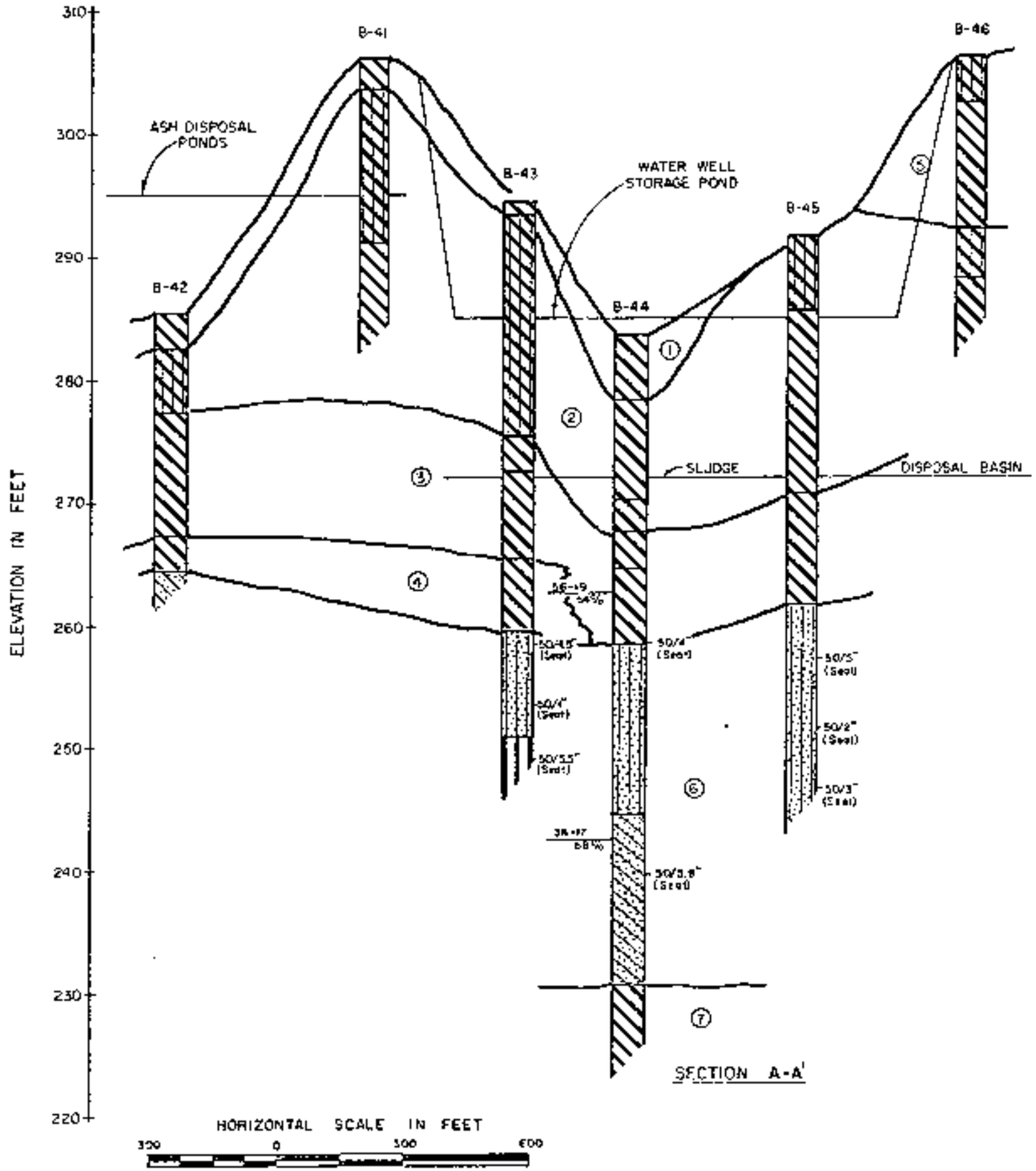
LOG OF BORING NO. B-109
G & T COOPERATIVE PROJECT
PLEASANTON, TEXAS

TYPE BORING: Undisturbed Sample LOCATION: See Plan of Borings

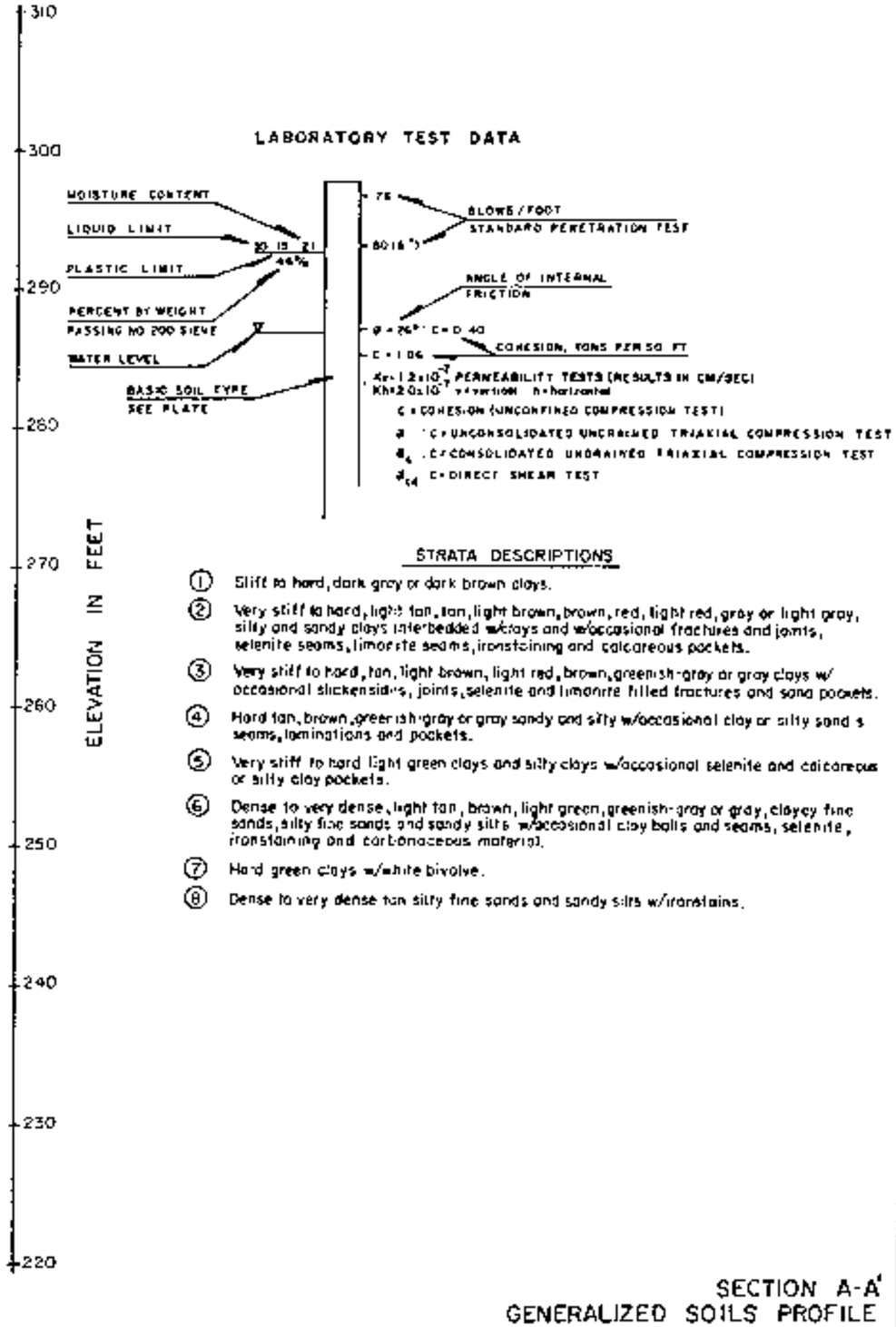
DEPTH, FT.	SYMBOL	SAMPLES	SOIL DESCRIPTION	% PASSING NO. 200 SIEVE	LIQUID LIMIT	PLASTIC LIMIT	MOISTURE CONTENT, %	SHEAR STRENGTH IN TONS/SQ FT. 0.5 1.0 1.5	UNIT DRY WT. LBS/CU FT
			ELEVATION: 300.9'						
5			Stiff dark brown clay -very stiff (CH)						
10			Very stiff brown clay, iron stained -tan		67	24			
15			(CH)						
20			Hard light brown clay, iron stained (CH)						
25									
30									
35									
40									
45									
50									

COMPLETION DEPTH: 25.0'
DATE: 2-7-76

ILLUSTRATIONS



SECTION A-A'



STRATA DESCRIPTIONS

① Stiff to hard, dark gray or dark brown clays.

② Very stiff to hard, light tan, tan, light brown, brown, red, light red, gray or light gray, silty and sandy clays interbedded w/clays and w/occasional fractures and joints, selenite seams, limonite seams, ironstaining and calcareous pockets.

③ Very stiff to hard, tan, light brown, light red, brown, greenish-gray or gray clays w/ occasional slickensides, joints, selenite and limonite filled fractures and sand pockets.

④ Hard tan, brown, greenish-gray or gray sandy and silty w/occasional clay or silty sand s seams, laminations and pockets.

⑤ Very stiff to hard light green clays and silty clays w/occasional selenite and calcareous or silty clay pockets.

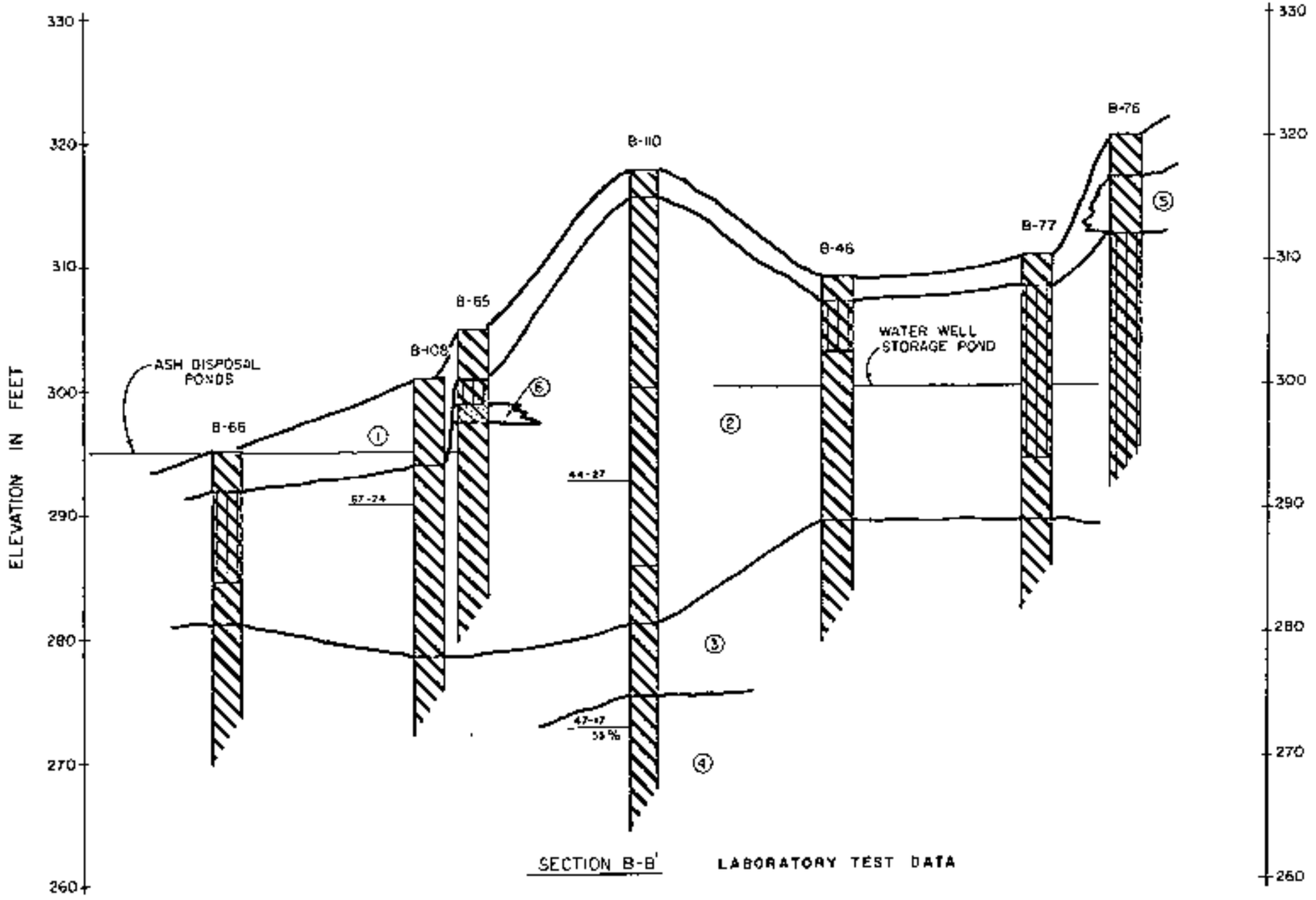
⑥ Dense to very dense, light tan, brown, light green, greenish-gray or gray, clayey fine sands, silty fine sands and sandy silts w/occasional clay balls and seams, selenite, ironstaining and carbonaceous material.

⑦ Hard green clays w/white bivolve.

⑧ Dense to very dense tan silty fine sands and sandy silts w/ironstains.

SECTION A-A'
GENERALIZED SOILS PROFILE

PLATE 1A



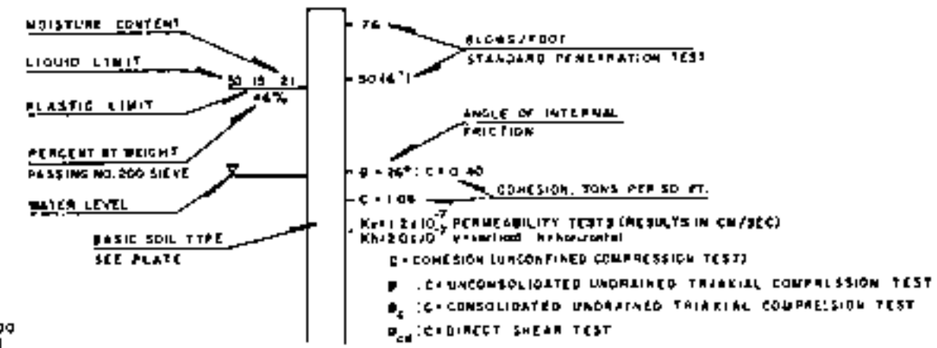
SECTION B-B'

NOTE: For Strata Descriptions see Section A-A'

HORIZONTAL SCALE IN FEET

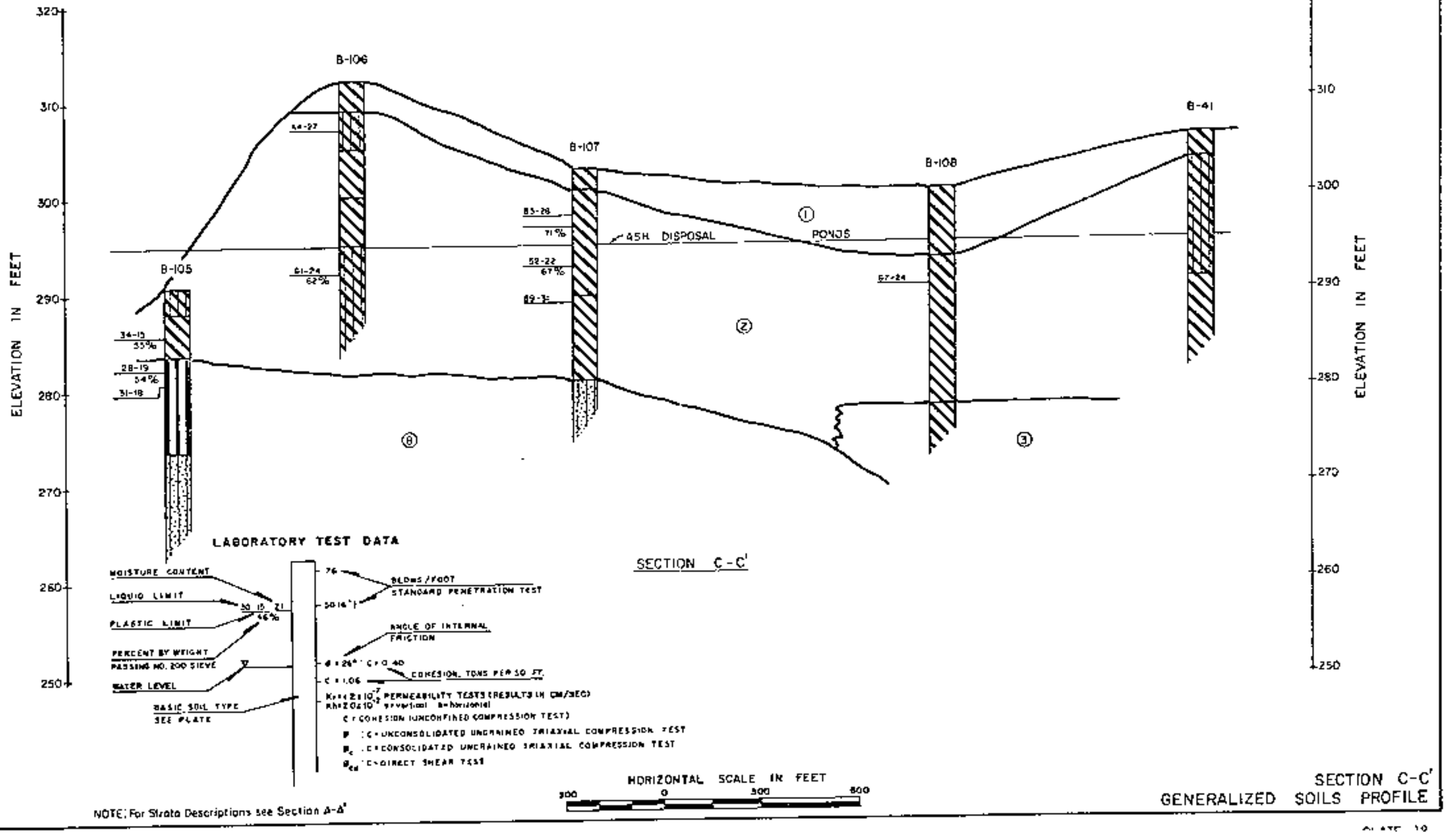
300 0 300 600

LABORATORY TEST DATA



SECTION B-B'
GENERALIZED SOILS PROFILE

PLATE 17

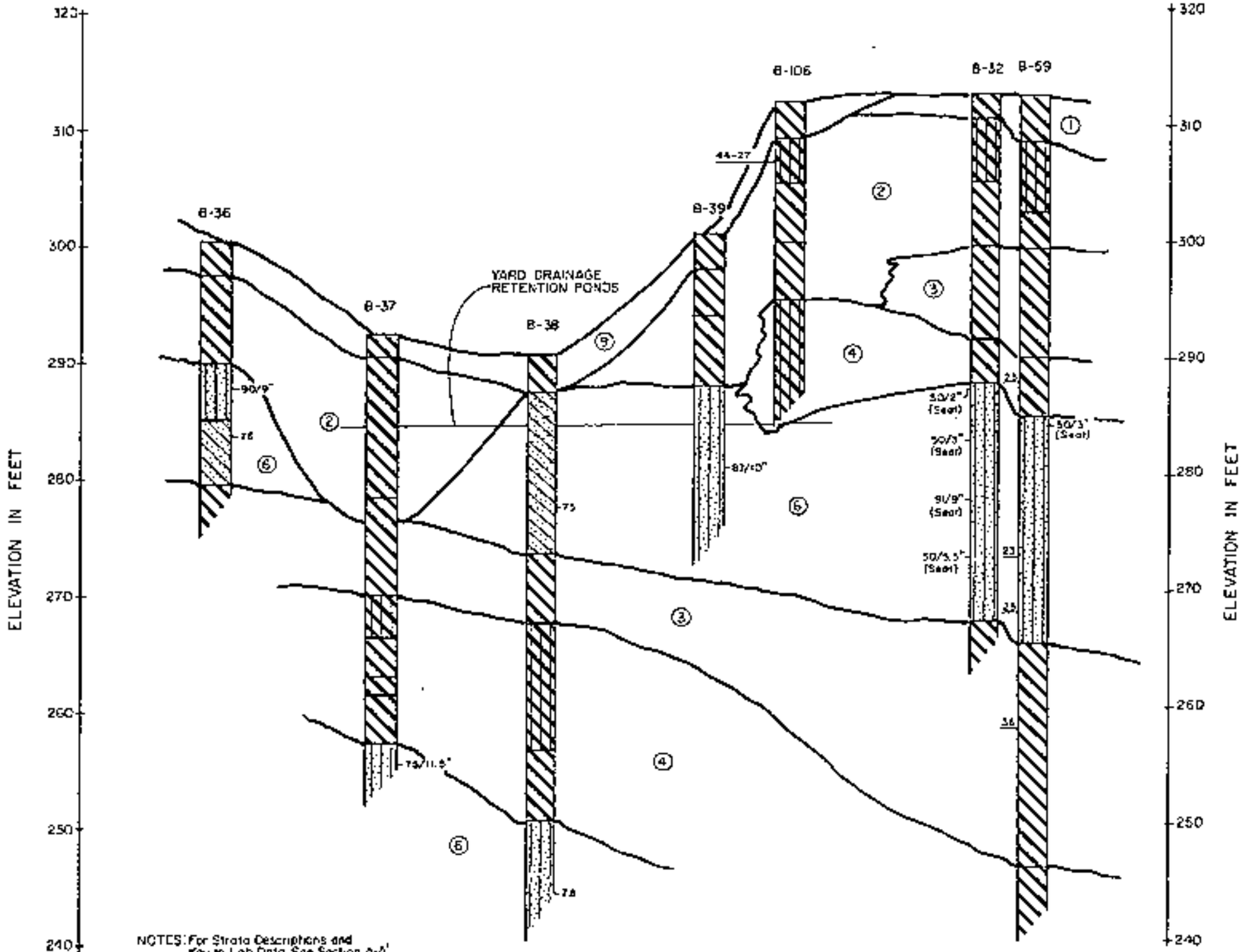


SECTION C-C'

NOTE: For Strata Descriptions see Section A-A'

SECTION C-C'
GENERALIZED SOILS PROFILE

PLATE 19



SECTION D-D'
GENERALIZED SOILS PROFILE

PLATE 19

N

Not to Scale

2475'± TOTAL LENGTH ALONG CREST

Wet Area "C"
Locate sump at edge of swale in line with the dike crest. Extend drain line to west 150'. Ground elevation difference between sump location and upper end of drain line is about one foot.

SUMP (TYP)

SEEPAGE COLLECTION PIPE (TYP)

Wet Area "A"
Position sump at toe of slope midway between wet area and pump foundation slab. Upper edge of wet area is about 8' higher than toe of slope. North drain line to sump (100'±) should extend through wet area. South drain line to sump (45'±) will collect runoff from pump area. Relocate existing compressed air lines at southern edge of wet area.

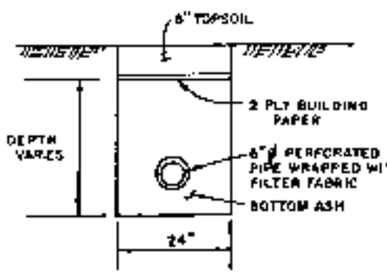
ASH DISPOSAL POND "D"

ASH DISPOSAL POND "B"

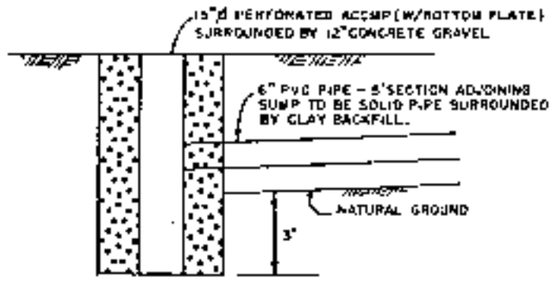
Wet Area "D"
Locate sump in level area beyond toe of slope about 40' north of common dike. Extend drain line 200'± northwest to beyond limits of wet area. Ground elevation difference between sump location and upper limit of wet area is about 8'.

EXISTING FENCE

Wet Area "F"
Wet area extends beyond fence. Locate sump on west side of wet area midway between fence and north edge of wet area. Extend drain to the east beyond limits of wet area (250'±). Ground elevation difference between sump location and upper end of drain line is about one foot.



SEEPAGE COLLECTION PIPE DETAIL
Not to Scale



SUMP DETAIL
Not to Scale

PLAN AND DETAILS OF SEEPAGE COLLECTION PIPE AND SUMPS

PSI 1985	Letter to San Miguel Electric Cooperative, Inc., Re: Inspection of Ash Ponds at the San Miguel Power Station, from Ralph F. Reuss, P.E., Professional Service Industries, Inc., September 4, 1985.

Copy - > Bob Lewis

Professional Service Industries, Inc.
National Soil Services Division

September 4, 1985

San Miguel Electric Cooperative Inc.
P. O. Box 280
Jourdonton, Texas 78026

Attention: Mr. Richard McCaskill
General Manager

Gentlemen:

This will summarize results of our August 29, 1985 inspection of the Ash ponds at the San Miguel Power Station. These ponds have exhibited localized areas of underseepage since first filling.

Our study of January 4, 1984 recommended installation of sand filled trenches for collection of underseepage. Several test excavations were made in connection with this program. Observations revealed that variable inflow rates and depths occurred in the excavations. Application of the trench system was therefore questionable and accordingly it was requested that additional studies be planned to consider alternate systems for control of underseepage or establish depth of the collector trenches.

SEEPAGE CONDITIONS

The pattern of exit seepage at the time of the previous inspection was difficult to define due to rainfall prior to the inspection. The recent inspection was made after a prolonged dry period. In addition, the north ash pond was essentially drained and the south pond was filled to within several feet of the top of the dikes. With reference to seepage areas observed in January 1984 as shown on Enclosure 1, the recent inspection revealed the following:

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S.M.E.C., Inc.
SEP 12 1985

Jourdanton, Texas 78026
4087 Shilling Way • Dallas, TX 75237 • Phone: 214/330-9211

1. No seepage was evident at locations "A" or "B" due to the lowered level in Pond "A".

2. Seepage in the areas of "D" and "E" was minor. Seepage exit areas were visible from joints in the clays and horizontal bedding planes exposed in the drainage ditch along the east dike.

3. Seepage exit areas were evident along the south dike, near the transmission towers and in area "F". No seepage was evident in area "G".

Current plans are to complete dewatering of Pond "A", remove the ash and then place the pond in service.

It was concluded, based on the previous inspection and review of available boring data, that underseepage was occuring through joints and fissures in the natural clays present in the bottom area and portions of the side slopes developed by excavation in natural soils. The recent inspection confirms this cause of underseepage. It thus appears that fissures and joints that are usually closed by swelling of the clays have remained opened and are sufficiently continuous to provide seepage pathways beneath the dikes.

UNDERSEEPAGE CONTROL

Control of underseepage can be effected by two methods, namely:

1. Sand filled collector trenches located along the toe of the dikes and extending through the fissured clays.

2. An impervious clay lining in the natural soils present in the bottom and side slopes of the ponds.

The second method was not considered previously since it was not anticipated that the ponds would be drained and the ash removed. However, development of a three foot compacted clay lining in the natural soils represents a positive method for control of underseepage and would minimize future operational costs for sump pumping from the trench collector system. However either method would effectively control underseepage relative effect on adjacent property.

COLLECTOR TRENCHES

The sand filled trenches would be located as recommended previously. However, trench depth should be increased to intercept the fissured clay stratum. Based on available data, specifically borings B-105, B-106, B-66, B-41 and B-42. A trench depth of 10 feet would intercept the fissured zone in the clays and have a bottom grade in the sandy clays and silts. In the event a trench collector system is selected then borings along the east, west and south dikes at 200 foot centers should be planned to establish final trench depth. The greater trench depth of 10 feet as compared to the previous depth of 2-5 feet can be excavated on vertical slopes with a Backhoe. Bottom grade can be sloped to drain to collector sumps.

COMPACTED LINING

The natural clays present in the bottom of the pond will be suitable for development of an impervious lining. Following removal of the ash, the upper two feet of the clay should be excavated and stockpiled. The upper 12 inches of the exposed clay should be scarified and compacted and the stockpiled clay then placed in nine inch lifts and compacted. The lining should be compacted to 95 percent of the maximum standard density at a moisture content 3-4 percent above the optimum value. Following completion of the lining the clay should be maintained in a moist condition and not allowed to dry and experience shrinkage cracking.

ADDITIONAL STUDIES

Borings along the toe of the dikes will be necessary in the event collector trenches are planned. No additional borings are recommended if a compacted lining is planned. However, construction inspection should be required to verify limits of the lining and density of the compacted clay.

Presently there are no piezometers located in the dikes for monitor purposes. In the event a compacted clay lining is planned, it is recommended that six monitor wells be installed to develop baseline data on water levels and quality and demonstrate effectiveness of the lining. Two monitor wells should be located in the north and south dikes and one in the east and west dikes.

Summarizing, the previous study and recent site inspection shows that underseepage is occurring in the natural deposits through fissures and joints in the clays and along horizontal bedding planes. Two methods for control of underseepage are recommended for consideration. Either method is acceptable and relative cost and operational requirements can be used to select the control system.

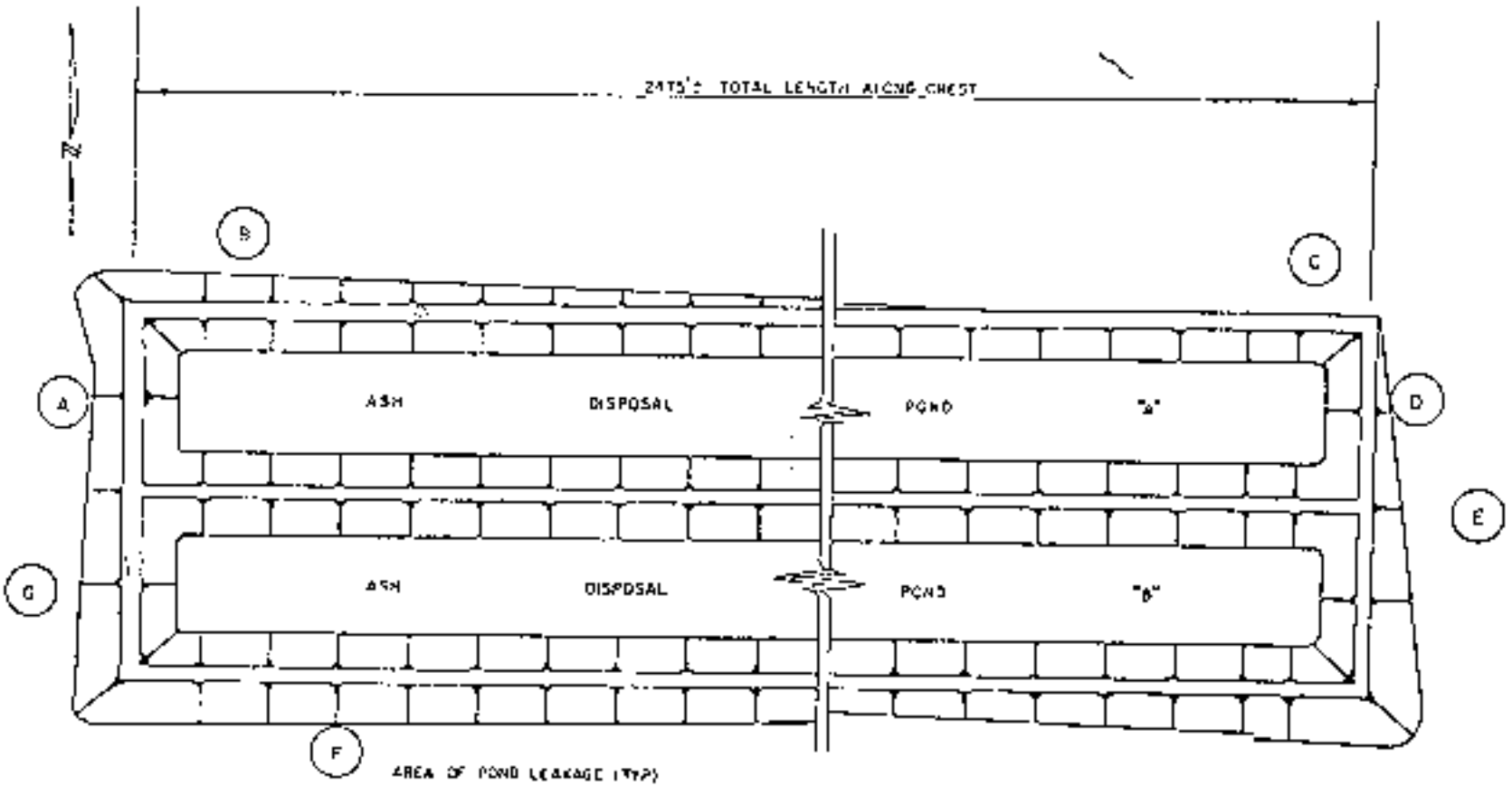
We appreciate the opportunity to perform this study. Please call us if we can be of further assistance.

Very truly yours,

PSI/NATIONAL SOIL SERVICES DIVISION

Ralph F. Reuss, P.E.
Vice President

cc: Mr. R. Magel
RFR/ds


2475'± TOTAL LENGTH ALONG CREST
N
B
C
A
D
E
G
F
ASH DISPOSAL POND "A"
ASH DISPOSAL POND "B"
AREA OF POND LEAKAGE (TYP.)

PSI 1987a — Letter to San Miguel Electric Cooperative, Inc. Re*: Liner Construction Unit #1 Ash Pond*, Koi Z. Woodson, from Ralph F. Reuss, P.E., Professional Service Industries, Inc., NSS Division, January 27, 1987.

Professional Service Industries, Inc.
National Soil Services Division

January 27, 1987

San Miguel Electric Cooperative, Inc.
P.O. Box 280
Jourdanton, Texas 78026

Attention: Mr. Clyde Price

Re: Liner Construction
Unit #1 Ash Pond

Dear Mr. Price:

As requested in your letter dated January 20, 1987, Professional Service Industries, Inc. has prepared a sequence of steps which should be performed to obtain a relatively impervious clay lining in the Unit #1 ash pond. In addition, we have enclosed a copy of a proposal, which was previously submitted, for providing testing and quality control services during the referenced construction.

1. Propcsed procedure for clay liner construction.

   (a) Remove ash and soils contaminated with ash from the bottom and sides of the pond until natural soils are encountered. It may be necessary to waste several inches of clay to assure that all ash and any softened clay is removed.

   (b) Excavate at least two feet of natural site clays which do not contain ash and stockpile. It is contemplated that half of the bottom of the pit can be used as a stockpile area.

   (c) The upper 12 inches of the exposed clays should then be scarified and moisture added to develop a moisture content three to four percent above optimum as determined by ASTM D 698 (Standard Proctor). Disc

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MAY 22 1987

4087 Shilling Way

EXHIBIT A

to a uniform moisture content and compact to a minimum of 95 percent of the maximum dry density as determined by ASTM D 698 (Standard Proctor).

(d) Place stockpiled fill in maximum nine inch thick loose lifts, add sufficient moisture to increase moisture content to three to four percent above optimum as determined by ASTM D 698 (Standard Proctor). Disc to decrease particle size and develop a uniform moisture content, and compact to a minimum of 95 percent of the maximum dry density as determine by ASTM D 698 (Standard Proctor).

(e) Continue fill placement to develop a minimum three foot thick low permeability clay liner.

General Notes:

1. Operations along slopes that were excavated in natural soils should be parallel to the slope as compared to working up and down the slope.
2. The low permeability clay lining should overlap and bond to previous embankment fill for a distance of three to five feet. An overlap distance of at least three feet should also be planned for each field segment, assuming bottom area and slopes are worked in segments. To achieve the overlap on slopes it may be necessary to overbuild in the overlap area and then grade to a uniform slope. A sketch is attached.
3. The contractor has taken exception to moisture control and in particular to placement of fill at moisture contents above optimum. We cannot agree to construction of a clay liner without moisture

control. It is essential that the fill be placed in a manner which will result in a uniform clay fill with minimum permeability. Bond between soil particles and lifts is more important than compaction to achieve a specified density. Our previous experience with high plasticity clays warrants the conclusion that the clays at this site can be processed to moisture contents three to four percent above optimum and compacted to the desired density (similar clays were compacted at numerous times under our control at moisture contents approaching six to eight percent above optimum). In the event the contractor will not agree to the recommended moisture control then it may be necessary to obtain a proposal from another contractor who is qualified to perform the work. The recommended moisture control should not cause increased cost of the fill.

4. No provision has been made to prevent shrinkage, cracking and drying of the clay lining after construction. It is considered essential that the high plasticity clay lining be maintained at or near placement moisture until the lining is again covered with ash and/or water. A temporary spray irrigation system should be installed along the slopes to maintain moisture conditions in the lining.

5. It is recommended that at least one density test be performed for each 10,000 square feet of surface area for each compacted lift. It is also recommended that tests be performed on samples of the clay liner to verify physical parameters such as liquid limit, plasticity index and permeability.

PSI appreciates the opportunity to be of service on this project. If you have any questions, please contact our office.

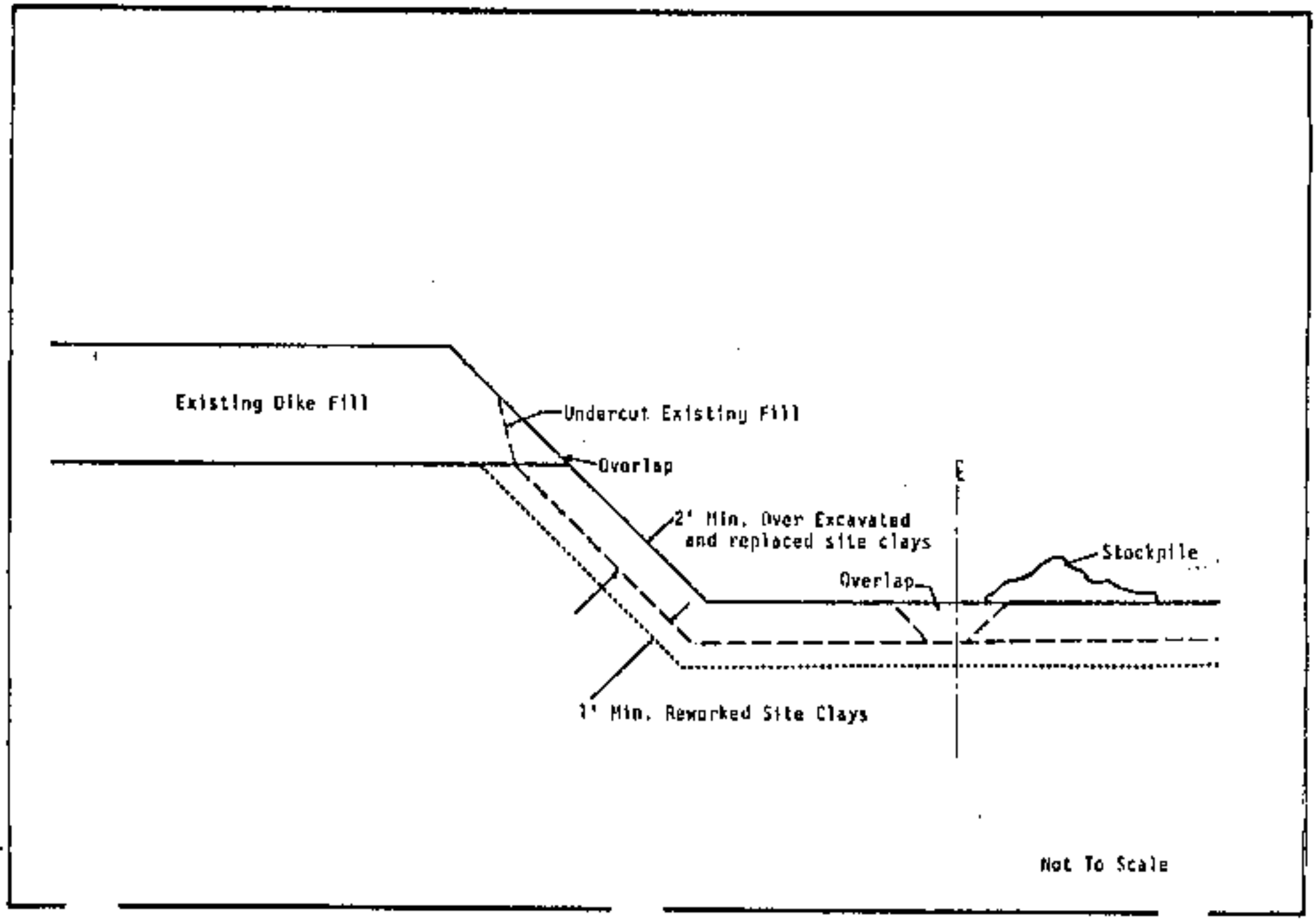
Very truly yours,

PSI/NATIONAL SOIL SERVICES DIVISION

Koi Z. Woodson
Branch Manager

Ralph F. Reuss, P.E.
Vice President

/rd


Existing Dike Fill
Undercut Existing Fill
Overlap
2' Min. Over Excavated and replaced site clays
Stockpile
Overlap
1' Min. Reworked Site Clays
Not To Scale

PLATE

PSI 1987b Letter to San Miguel Electric Cooperative, Inc. Re: *Pond Liner Sampling and Testing, Pond 1A Repair Project*, Report No. 311-70065-1, from Robert P. Arias, P.E., Professional Service Industries, Inc., May 7, 1987.

Professional Service Industries, Inc.
Shilstone Engineering Testing Laboratory Division

May 7, 1987

RECEIVED
S.M.E.C., Inc.
MAY 11 1987
Jourdanton, Texas 78026

San Miguel Electric Cooperative, Inc.
Post Office Box 280
Jourdanton, Texas 78026

Attention: Mr. Clyde Price

Re: Pond Liner Sampling and Testing
Pond 1A Repair Project
San Miguel Plant
Jourdanton, Texas
PSI Report No.: 311-70065-1

Gentlemen:

A site visit was conducted on March 16, 1987 for the purpose of samoling in-situ liner soils in place at the location of Pond 1A. Eighteen (18) soil samples were collected on this date by Mr. Robert P. Arias, P.E. with the aid of a backhoe and technical personnel provided by the plant operation. Soil samples were collected on the pond side slopes and bottom at random locations. The results of the laboratory classification and testing are presented in Table 1.

The test results indicate that the existing clay liner materials are satisfactory for re-use of the compacted clay liner. In addition, a sample was collected from the Southeast corner of the pond for performance of a proctor test. These test results were utilized to compact two permeabilitty samples for determination of soil permeability.

According to the falling head method, one permeability sample was remolded and tested with ash water as the permeant while the other sample was remolded and tested with distilled water as the permeant. The results of these tests are noted below.

Sample No.	LL	PL	PI	Permeant	Permeability
1	52	20	32	Ash Water	7.6×10^{-9} cm/sec
2	52	20	32	Distilled Water	1.3×10^{-8} cm/sec

EXHIBIT F

As noted above the permeability test results of the sample remolded and tested with ash water indicates that ash water would be suitable for use in recompacting the clay liner.

If you have any questions concerning these results, please contact us.

Very truly yours,

PROFESSIONAL SERVICE INDUSTRIES, INC.
(Shilstone Engineering Testing
Laboratory Division)

Robert P. Arias, P.E.
Vice President

RPA/tt

LL = LIQUID LIMIT
PL = PLASTIC LIMIT
PI = PLASTICITY INDEX
-200 = FINES PASSING #200 SIEVE
MC = MOISTURE CONTENT

TABLE 1

SUMMARY OF LABORATORY RESULTS
SAN MIGUEL 1A POND REPAIR PROJECT
Jourdanton, Texas

Sample No.	Location and Depth	Soil Classification	LL	PL	PI	-200	Mc%
1	* Southeast corner at 1'	Light tan silty clay	65	28	37	69	29
2	* 85' from Southeast weir at 2'	Dark gray silty clay with ferrous staining	60	22	38	52	24
3	* 224' from East end of pond at 1.5'	Light tan silty clay	46	15	31	66	25
4	* 617' from East end of pond at 1'	Tan silty clay with some sand and gravel	60	22	38	64	26
5	* 1117' from East end of pond at 1.5'	Light grayish tan clay with sand	64	29	35	38	26
6	Pond bottom 218' from East end of pond at 0'-2'	Brown silty clay with gravel traces	67	24	43	71	29
7	Pond bottom 581' from East end of pond at 0'-2'	Mottled silty clay	65	23	42	64	21
8	510' from East end of pond at 1.5'	Brown silty clay	67	28	39	66	27
9	595' from East end of pond at 2'	Greenish gray clay	72	24	48	92	28
10	595' from East end of pond at 0.5'	Dark gray silty clay	50	16	34	73	23
11	901' from East end of pond below 2'-3' ASH at 1'	Mottled silty clay with some coarse sand and gravel	70	38	32	54	29
12	1083' from East end of pond below 3' ASH at 2'	Dark gray silty clay	50	16	34	70	20
13	1477' from East end of pond below 3' ASH at 2'	Light gray silty clay with calcareous traces and sand	48	18	30	64	20
14	[illegible]38' from East end of pond low 1' ASH at 2'	Dark gray silty clay	53	21	32	59	24

TABLE 1 (Continued)

Sample No.	Location and Depth	Soil Classification	LL	PL	PI	-200	Mc%
15	1938' from East end at middle of pond bottom at 0'-2'	Tan fissured clay	86	26	60	99	30
16	Dewatering Bio area 0'-4'	Brown clay with interbedded fine ferrous stained silt	64	23	41	20	24
17	Borrow area 0'-4'	Light grayish tan sandy clay interbedded with fine silt	51	22	29	45	21
18	Run off pond borrow at 2.5'	Brown sandy clay	56	21	35	68	16

NOTES: * Samples taken from South side slopes of pond. Remainder of samples taken from North slope of pond or pond bottom as noted.

Professional Service Industries, Inc.
Shilstone Engineering Testing Laboratory Division

REPORT OF MOISTURE DENSITY RELATIONSHIP OF SOIL

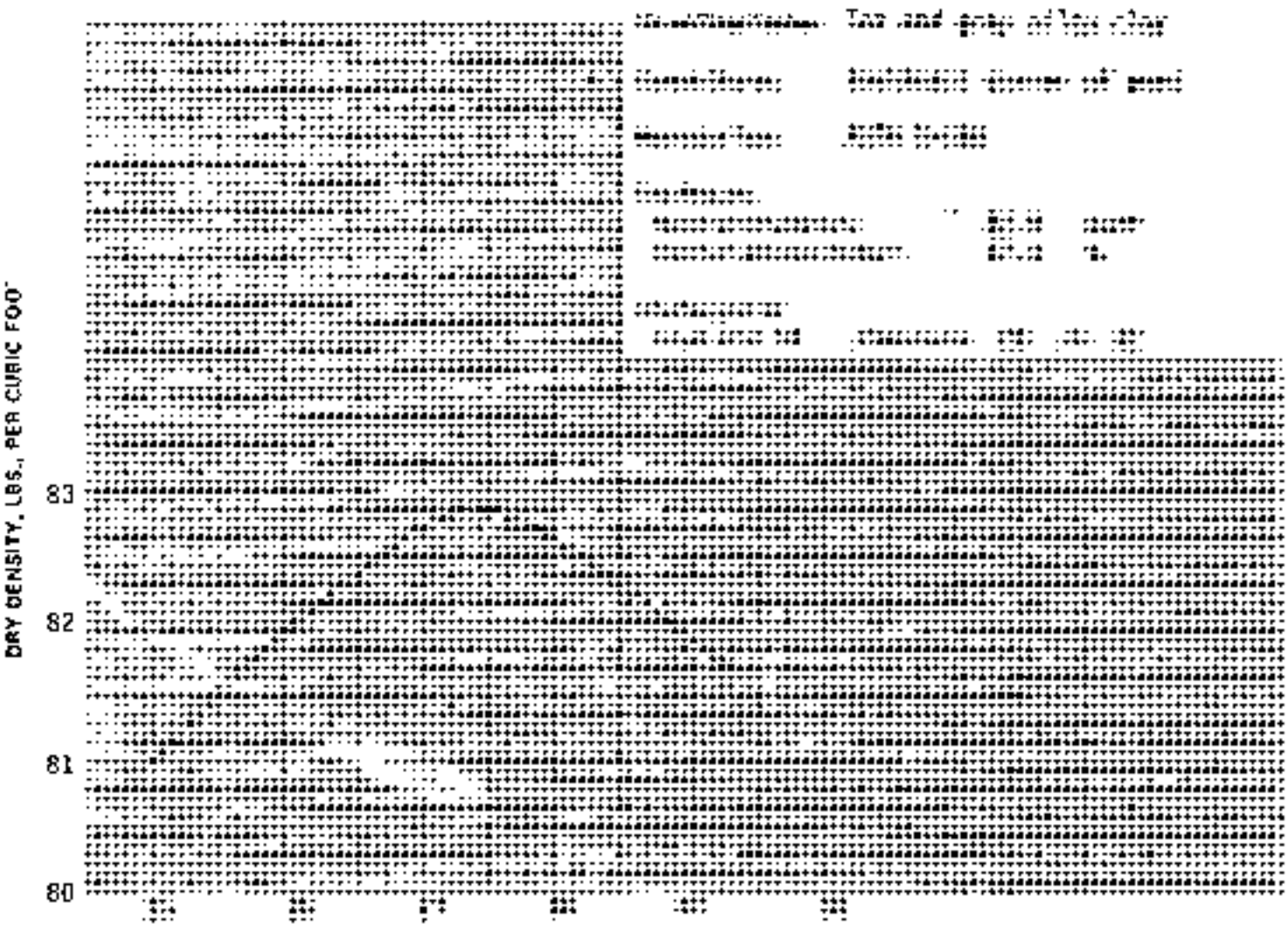
TESTED FOR: SAN MIGUEL ELECTRIC COOP., INC.
Post Office Box 280
Jourdanton, Texas 78026
Attention: Mr. Clyde Price

PROJECT: Pond 1A Repair Project
San Miguel Plant
Jourdanton, Texas

DATE: May 7, 1987

OUR REPORT NO. 311-70065-1

TEST DATA



Respectfully submitted,
Professional Service Industries, Inc.

PSI 1987c Daily Reports for San Miguel Electric Cooperative, Inc. Re: *1A Ash Pond Soil Testing*, Professional Services Industries, Inc., July 17 – September 23, 1987.

Professional Service Industries, Inc.
Shilstone Engineering Testing Laboratory Division

DAILY REPORT

RESPECTFULLY SUBMITTED FOR SAN MIGUEL ELECTRIC COOPERATIVE, INC. PROJECT
Post Office Box 280
Jourdanton, Texas 78026

ATTENTION: Mr. Clyde Price

1A Ash Pond Soil Testing
P.O. #26643-032108
Contractor: V.K. Knowlton

DATE July 17, 1987

OUR REPORT NO 311-70065-6

REMARKS:

Upon observation of 1A Pond, three (3) questionable areas of concern were found. The N.W. corner of 1A Pond has water seepage. The clay in the area appears to be in good condition. At approximately 700'-800' west of the S.E. corner of 1A Pond, V.K. Knowlton encountered two (2) joints of sandy clay that is unacceptable according the the project specifications. A sample was taken to verify the unacceptability of the material. Water seepage was also encountered in this area. In the S.E. corner of 1A Pond, water was encountered as well. The decision has been agreed upon that all vegetation, fly ash, or contamintaed clays of any kind will be removed before actual reconstruction of 1A Pond. A sample of clay was taken on the west side of the pond's N.W. corner for testing, to check acceptability of the material.

If there are any questions concerning this report, please do not hesitate to contact our office at your convenience.

Respectfully submitted,

PROFESSIONAL SERVICE INDUSTRIES, INC.
(Shilstone Engineering Testing
Laboratory Division)

cc: (2) Above
/dd

Professional Service Industries, Inc.
Shilstone Engineering Testing Laboratory Division

DAILY FIELD REPORT

TESTED FOR: SAN MIGUEL ELECTRIC COOPERATIVE, INC.
Post Office Box 280
Jourdanton, Texas 78026
ATTENTION: Mr. Clyde Price

PROJECT: 1A Ash Pond Soil Testing
P.O. #26643-032108

DATE: September 23, 1987

OUR REPORT NO: 311-70065-63

WEATHER: Partly Cloudy

TEMPERATURE RANGE: 70° TO 85°

INSPECTOR: R. Wehner

TYPE OF INSPECTION BEING PERFORMED

X SOILS	___ CONCRETE
___ FOUNDATIONS	___ BATCH PLANT
___ CONTROLLED FILL (COMPACTION)	___ PLACEMENT (JOB SITE)
X Fracture Repair	
___ ASPHALT	___ OTHER
___ BATCH PLANT	
___ PLACEMENT (JOB SITE)	

BRIEF RESUME OF WORK ACCOMPLISHED THIS DATE: As requested, a representative of PSI, Inc. reported to the above referenced project site to repair fractures in the pond liner with a pumped bentonite slurry. Repairs of the fractures and weep holes were completed on this date.

cc: (2) Above
dd

Respectfully submitted,
Professional Service Industries, Inc.

Professional Service Industries, Inc.
Shilstone Engineering Testing Laboratory Division

DAILY REPORT

TESTED FOR: SAN MIGUEL ELECTRIC COOPERATIVE, INC
Post Office Box 280
Jourdanton, Texas 78026
ATTENTION: Mr. Clyde Price

PROJECT: 1A Ash Pond Soil Testing
P.O. #26643-032108

DATE: September 23, 1987

OUR REPORT NO: 311-70065-64

REMARKS:

Weather: Sunny & Clear
Temperature Range: 80° to 85°
Inspector: G. Quintanilla
Type of Inspection: Fill Control

Brief resume' of work accomplished on this day:

Equipment Used:

1. Track Loader
2. CAT Spray King

Fractures were repaired today. A bentonite slurry was injected into fractured areas. Bentonite pellets were worked into the weep holes. The south slope is completed for all repairs.

If there are any questions concerning this report, please do not hesitate to contact our office at your convenience.

Respectfully submitted,
PROFESSIONAL SERVICE INDUSTRIES, INC.

cc: (2) Above
/dd

Professional Service Industries, Inc.
Shilstone Engineering Testing Laboratory Division

TESTED FOR SAN MIGUEL ELECTRIC COOPERATIVE, INC. PROJECT 1A Ash Pond Soil Testing
Post Office Box 280
Jourdanton, Texas 78026
P.O. #26643-032108
ATTENTION: Mr. Clyde Price

DATE September 24, 1987 OUR REPORT NO 311-70065-65

REMARKS:

Weather: Sunny & Clear
Temperature Range: 80° to 85°
Inspector: G. Quintanilla
Type of Inspection: Fill Control

Brief summary of work accomplished on this day:

Equipment Used:

1. Track Loader
2. CAT Spray King

Final ramp was cut out today and rip-rap is being placed. A final inspection of bentonite injected fractures will be done tomorrow. V.K. Knowlton will be pulling off jobsite today.

If there are any questions concerning this report, please do not hesitate to contact our office at your convenience.

Respectfully submitted,
PROFESSIONAL SERVICE INDUSTRIES, INC.

cc: (2) Above
/dd

PSI A 2001

Professional Service Industries, Inc.
Shilstone Engineering Testing Laboratory Division

DAILY FIELD REPORT

TESTED FOR: SAN MIGUEL ELECTRIC COOPERATIVE, INC.
Post Office Box 280
Jourdanton, Texas 78026
ATTENTION: Mr. Clyde Price

PROJECT: 1A Ash Pond Soil Testing
P.O. #26643-032108

DATE: September 22, 1987

OUR REPORT NO: 311-70065-61

WEATHER: Sunny & Clear

TEMPERATURE RANGE: 70° TO 85°

INSPECTOR: R. Wehner

TYPE OF INSPECTION BEING PERFORMED

X SOILS	CONCRETE
_____ FOUNDATIONS	_____ BATCH PLANT
_____ CONTROLLED FILL (COMPACTION)	_____ PLACEMENT (JOB SITE)
X Fracture Repair	_____
ASPHALT	_____ OTHER
_____ BATCH PLANT	_____
_____ PLACEMENT (JOB SITE)	_____
_____	_____

BRIEF RESUME OF WORK ACCOMPLISHED THIS DATE: As requested, a representative of PSI, Inc. reported to the above referenced project site to repair fractures in the pond liner with a pumped bentonite slurry. Mechanical failures prevented the completion of the repairs on this date.

cc: (2) Above
dd

Respectfully submitted,
Professional Service Industries, Inc.

Professional Service Industries, Inc.
Shilstone Engineering Testing Laboratory Division

DAILY REPORT

TESTED FOR SAN MIGUEL ELECTRIC COOPERATIVE, INC. PROJECT 1A Ash Pond Soil Testing
Post Office Box 280
Jourdanton, Texas 78026
P.O. #26643-032108
ATTENTION: Mr. Clyde Price

DATE September 22, 1987 OUR REPORT NO. 311-70065-62

REMARKS:

Weather: Sunny & Clear
Temperature Range: 80° to 85°
Inspector: G. Quintanilla
Type of Inspection: Fill Control

Brief resume' of work accomplished on this day:

Equipment Used:

1. (1) Liebherr Dozer
2. (1) Track Loader
3. (1) CAT Spray King
4. (1) 120G Motor Grader

The area southbetween Station 100' and 300' on the slope was completed today. V.K. Knowlton has began to move out most of their equipment today. Repair of the fractures will begin today. A betinite slurry will be used in fracture areas. A total of four (4) densities were taken today.

If there are any questions concerning this report, please do not hesitate to contact our office at your convenience.

Respectfully submitted,
PROFESSIONAL SERVICE INDUSTRIES, INC.

cc: (2) Above
/dd

PSI A 300

Professional Service Industries, Inc.
Shilstone Engineering Testing Laboratory Division

REPORT OF FIELD COMPACTION TESTS

TESTED FOR SAN MIGUEL ELECTRIC COOPERATIVE, INC.
Post Office Box 280
Jourdanton, Texas 78026
ATTENTION: Mr. Clyde Price

PROJECT 1A Ash Pond Soil Testing
P.O. #26643-032108

DATE September 22, 1987 DLH REPORT NO 311-70065-62

TEST DATA- Optimum moisture: (33, 23.7)

TEST NO	DATE	LIFT / DEPTH	SOIL ID NUMBER	MAXIMUM DRY DENSITY	WATER CONTENT	IN PLACE DRY DENSITY	PERCENT COMPACTION	COMMENTS*
1	09-22-87	2nd Lift	33	88.2	27.0	87.0	98.6	1 - A
2	09-22-87	2nd Lift	33	88.2	28.0	85.5	96.9	1 - A
3	09-22-87	Final	33	88.2	26.7	86.0	97.5	1 - A
4	09-22-87	Final	33	88.2	28.5	86.8	98.4	1 - A

TEST LOCATION:

1	30' West of Station 100' and 15' from Top of Slope.
2	60' West of Station 200' and 10' from Bottom of Slope.
3	20' West of Station 100' and 25' from Bottom of Slope.
4	90' West of Station 200' and 20' from Top of Slope.

NOTES DENSITIES SHOWN: Lbs. per cubic foot
WATER CONTENT: Per Cent of dry weight
PERCENT COMPACTION: Based on maximum dry density obtained on Sample indicated by soil ID number

* 1 FILL MATERIAL
2 BACKFILL
3 BASE COURSE
4 SURFACE
5 SOIL CEMENT
6 OTHER

A TEST RESULTS COMPLY WITH SPECIFICATIONS
R RECOMPACTION REQUIRED
C TEST IS AFTER RECOMPACTION

REMARKS:

Respectfully submitted,
Professional Service Industries, Inc.

2500
2000
1500
1000
500
1750'
600'
1550
1300
1050
800
600
500
150
250
2
LAKE SHELBYVILLE ROAD

Professional Service Industries, Inc.
Shilstone Engineering Testing Laboratory Division

DAILY FIELD REPORT

TESTED FOR SAN MIGUEL ELECTRIC COOPERATIVE, INC.
Post Office Box 280
Jourdanton, Texas 78026
ATTENTION: Mr. Clyde Price

PROJECT 1A Ash Pond Soil Testing
P.O. #26643-032108

DATE September 19, 1987

OUR REPORT NO 311-70065-59

WEATHER Sunny & Clear

TEMPERATURE RANGE 75° TO 80°

INSPECTOR G. Quintanilla

TYPE OF INSPECTION BEING PERFORMED

_X_ SOILS	_____ CONCRETE
_____ FOUNDATIONS	_____ BATCH PLANT
_____ CONTROLLED FILL (COMPACTION)	_____ PLACEMENT (JOB SITE)
_X_ In-Place Field Density Tests	_____
_____ ASPHALT	_____ OTHER
_____ BATCH PLANT	_____
_____ PLACEMENT (JOB SITE)	_____

BRIEF RESUME OF WORK ACCOMPLISHED THIS DATE Per request, a PSI Representative arrived on the job site to perform in-place field density tests. Upon arrival, the technician was notified that no density tests would be conducted due to rain and was told to return to the lab.

cc: (2) Above
/dd

Respectfully submitted,
Professional Service Industries, Inc.

Professional Service Industries, Inc.
Shilstone Engineering Testing Laboratory Division

DAILY REPORT

TESTED FOR: SAN MIGUEL ELECTRIC COOPERATIVE, INC.
Post Office Box 280
Jourdanton, Texas 78026
ATTENTION: Mr. Clyde Price

PROJECT: 1A Ash Pond Soil Testing
P.O. #26643-032108

DATE: September 21, 1987 OUR REPORT NO. 311-70065-60

REMARKS:

Weather: Sunny & Clear
Temperature Range: 80° to 85°
Inspector: G. Quintanilla
Type of Inspection: Fill Control

Brief resume' of work accomplished on this day:

Equipment Used:

1. (1) 120G Motor Grader
2. (1) Track Loader
3. (1) Liebherr Dozer
4. (1) Water Truck

Rip-rap was placed in some more areas today. The ramp was cut out and work was performed in the N.W. corner. The last 200' section on the south slope is being worked also. Some of the equipment is being removed from the job site today. Repairs of the fractures and weep holes is scheduled for 09-22-87.

If there are any questions concerning this report, please do not hesitate to contact our office at your convenience.

Respectfully submitted,
PROFESSIONAL SERVICE INDUSTRIES, INC.

cc: (2) Above
/dd

Professional Service Industries, Inc.
Shilstone Engineering Testing Laboratory Division

REPORT OF FIELD COMPACTION TESTS

TESTED FOR: SAN MIGUEL ELECTRIC COOPERATIVE, INC.
Post Office Box 280
Jourdanton, Texas 78026
ATTENTION: Mr. Clyde Price

PROJECT: 1A Ash Pond Soil Testing
P.O. #26643-032108

DATE: September 21, 1987 OUR REPORT NO: 311-70005-60

TEST DATA: Optimum moisture: (33, 23.7)

TEST NO.	DATE	TEST DEPTH / SOIL TYPE	PROCTOR NO.	MAXIMUM LABORATORY DENSITY	WATER CONTENT	% PLACE DRY DENSITY	PERCENT COMPACTION	COMMENTS *
1	09-21-87	Subgrade	33	88.2	27.1	88.5	100.3	1 - A
2	09-21-87	Subgrade	33	88.2	26.6	87.3	98.9	1 - A
3	09-21-87	1st Lift	33	88.2	26.3	86.3	97.8	1 - A
4	09-21-87	1st Lift	33	88.2	27.5	86.2	97.7	1 - A

TEST LOCATION.

1	40' West of Station 100' and 25' from Bottom of Slope.
2	70' West of Station 200' and 10' from Top of Slope.
3	20' West of Station 100' and 15' from Top of Slope.
4	50' West of Station 200' and 10' from Bottom of Slope.

NOTES: DENSITIES SHOWN ARE DRY POUNDS PER CUBIC FOOT
WATER CONTENT: Percentage by weight
PERCENT COMPACTION: Based on maximum dry density obtained by Proctor number

* 1 FILL MATERIAL
2 BACKFILL
3 BASE COURSE
4 SUBBASE
5 SOIL CEMENT
6 OTHER

A TEST RESULTS COMPLY WITH SPECIFICATIONS
B RECOMPACTION REQUIRED
C TEST IS AFTER RECOMPACTION

REMARKS:

Respectfully submitted,
Professional Service Industries, Inc

[redacted]

Professional Service Industries, Inc.
Shilstone Engineering Testing Laboratory Division

DAILY REPORT

TESTED FOR: SAN MIGUEL ELECTRIC COOPERATIVE, INC.
Post Office Box 280
Jourdanton, Texas 78026
ATTENTION: Mr. Clyde Price

PROJECT: 1A Ash Pond Soil Testing
P.O. #26643-032108

DATE: September 18, 1987 OUR REPORT NO: 311-70065-58

REMARKS:

Weather: Cloudy & Overcast
Temperature Range: 75° to 80°
Inspector: G. Quintanilla
Type of Inspection: Fill Control

Brief summary of work accomplished on this day:

Equipment Used:

1. (1) Liebherr Dozer
2. (1) 120G Motor Grader
3. (1) Water Truck
4. (1) CAT Spray King
5. (1) Track Loader

The damaged area in the bottom of the pond was repaired today. Most of the work concentrated on the pond floor today. Rip-rap was placed on the west slope on both sides of the concrete area. A 200' section is yet to be completed on the south slope. Fractures were inspected today and an alternative for repairing these fractures has been decided. V.K. Knowlton started at 7:00 a.m. and stopped at 3:30 p.m. due to rain. A total of two (2) densities were taken today.

If there are any questions concerning this report, please do not hesitate to contact our office at your convenience.

Respectfully submitted,
PROFESSIONAL SERVICE INDUSTRIES, INC.

cc: (2) Above
/dd

Professional Service Industries, Inc.
Shilstone Engineering Testing Laboratory Division

REPORT OF FIELD COMPACTION TESTS

TESTED FOR: SAN MIGUEL ELECTRIC COOPERATIVE, INC.
Post Office Box 280
Jourdanton, Texas 78026
ATTENTION: Mr. Clyde Price

PROJECT: 1A Ash Pond Soil Testing
P.O. #26643-032108

DATE: September 17, 1987

OUR REPORT NO: 311-70065-58

TEST DATA: Optimum moisture: (33, 23.7)

TEST NO.	DATE	TYPE (FINAL)	SOIL ID NUMBER	MAXIMUM DRY DENSITY (PCF)	WATER CONTENT	DRY DENSITY (PCF)	PERCENT COMPACTION	COMMENT*
1	09-17-87	Final	33	88.2	28.5	84.0	95.2	1 - A
2	09-17-87	Final	33	88.2	27.6	85.0	96.3	1 - A

TEST LOCATION: POND FLOOR

1	40' North of South Slope and 20' West of Station 700'.
2	50' North of South Slope and 85' West of Station 700'.

NOTES: DENSITIES SHOWN: Lbs. per cubic foot
WATER CONTENT: Per Cent of dry weight
PERCENT COMPACTION: Based on maximum dry density obtained on sample indicated by soil ID number

* 1 FILL MATERIAL
2 BACKFILL
3 BASE COURSE
4 SUBBASE
5 SOIL CEMENT
6 OTHER

A TEST RESULTS COMPLY WITH SPECIFICATIONS
R RECOMPACTION REQUIRED
C TEST IS AFTER RECOMPACTION

REMARKS:

Respectfully submitted,
Professional Service Industries, Inc.

Three Burwood Lane • San Antonio, TX 78216 • Phone: 512/342-9377

2500'
2400'
2300'
2200'
2100'
2000'
1900'
1800'
1700'
1600'
1500'
1400'
1300'
1200'
1100'
1000'
900'
800'
700'
600'
500'
400'
300'
200'
100'
0'
150'
250'

Professional Service Industries, Inc.
Shilstone Engineering Testing Laboratory Division

DAILY REPORT

TESTED FOR: SAN MIGUEL ELECTRIC COOPERATIVE, INC.
Post Office Box 280
Jourdanton, Texas 78026
ATTENTION: Mr. Clyde Price

PROJECT: 1A Ash Pond Soil Testing
P.O. #26643-032108

DATE: September 17, 1987

OUR REPORT NO: 311-70065-57

REMARKS:

Weather: Sunny & Clear
Temperature Range: 90° to 95°
Inspector: G. Quintanilla
Type of Inspection: Fill Control

Brief summary of work accomplished on this day:

Equipment Used:

1. (1) Liebherr Dozer
2. (1) 120G Motor Grader
3. (1) 637D Scraper
4. (1) Water Truck
5. (1) CAT Spray King

V.K. Knowlton's equipment problems were solved by approximately 10:00 a.m. An agreement has not yet been reached on the reconstructed areas with fractures. V.K. Knowlton is waiting for a front end loader to arrive on the job site for the placement of rip-rap on both ends of the pond. Productivity is almost at a half at this time due to the condition of the pond floor. V.K. Knowlton cannot do any work on the pond floor without damaging the floor. The pond floor is still being pumped of excess water. A 200' section still remains to be worked on the south slope. No compaction tests were taken today.

If there are any questions concerning this report, please do not hesitate to contact our office at your convenience.

Respectfully submitted,
PROFESSIONAL SERVICE INDUSTRIES, INC.

cc: (2) Above
/dd

6-16-87

Professional Service Industries, Inc.
Shilstone Engineering Testing Laboratory Division

TESTED FOR SAN MIGUEL ELECTRIC COOPERATIVE, INC.
Post Office Box 280
Jourdanton, Texas 78026

ATTENTION: Mr. Clyde Price

PROJECT 1A Ash Pond Soil Testing

P.O. #26643-032108

DATE September 16, 1987

OUR REPORT NO 311-70065-56

REMARKS:

Weather: Sunny & Clear
Temperature Range: 90° to 95°
Inspector: G. Quintanilla
Type of Inspection: Fill Control

Brief summary of work accomplished on this day:

Equipment Used:

1. (1) Liebherr Dozer
2. (1) D6 Dozer
3. (1) 120G Motor Grader
4. (1) 637D Scraper
5. (1) Water Truck
6. (1) CAT Spray King

The pond floor was completed today, except for cleaning and shaping of the floor. V.K. Knowlton worked one of the reconstructed areas that had a fracture problem. Water is still being pumped out of the pond floor. Due to equipment problems experienced by V.K. Knowlton, productivity was slowed today. A total of thirteen (13) density tests were taken today.

If there are any questions concerning this report, please do not hesitate to contact our office at your convenience.

Respectfully submitted,

PROFESSIONAL SERVICE INDUSTRIES, INC.

cc: (2) Above
/dd

Professional Service Industries, Inc.
Shilstone Engineering Testing Laboratory Division

REPORT OF FIELD COMPACTION TESTS

TESTED FOR: SAN MIGUEL ELECTRIC COOPERATIVE, INC
Post Office Box 280
Jourdanton, Texas 78026
ATTENTION: Mr. Clyde Price

PROJECT: 1A Ash Pond Soil Testing
P.O. #26643-032108

DATE: September 16, 1987 OUR REPORT NO: 311-70065-56

TEST DATA: Optimum moisture: (33, 23.7)

TEST NO	DATE	KEY: DEPTH	SOIL ID NUMBER	MAXIMUM LABORATORY DENSITY	WATER CONTENT	IN-PLACE DRY DENSITY	PERCENT COMPACTION	COMMENTS *
1	09-16-87	Final	33	88.2	26.3	86.3	97.8	1 - A
2	09-16-87	2nd Lift	33	88.2	26.5	88.5	100.3	1 - A
3	09-16-87	1st Lift	33	88.2	26.6	87.3	98.9	1 - A
4	09-16-87	Subgrade	33	88.2	27.9	86.8	98.4	1 - A
5	09-16-87	1st Lift	33	88.2	27.5	87.0	98.6	1 - A
6	09-16-87	1st Lift	33	88.2	27.0	87.8	99.5	1 - A

TEST LOCATION: POND FLOOR, STATION 2000'-2475'.

1	35' West of Station 2000' and 5' South of the North Slope.
2	10' West of station 2100' and 10' South of the North Slope.
3	90' West of Station 2200' and 15' South of the North Slope.
4	55' West of Station 2300' and 20' South of the North Slope.
5	70' West of Station 2400' and 25' South of the North Slope.
6	20' West of Station 2300' and 30' South of the North Slope.

NOTES: DENSITIES SHOWN: Lbs. per cubic foot
WATER CONTENT: Per Cent of dry weight
PERCENT COMPACTION: Based on maximum dry density obtained on sample indicated by soil ID number

* 1 FILL MATERIAL
2 BACKFILL
3 BASE COURSE
4 SUBBASE
5 SOIL CEMENT
6 OTHER

A TEST RESULTS COMPLY WITH SPECIFICATIONS
B RECOMPACTION REQUIRED
C TEST IS AFTER RECOMPACTION

REMARKS:

Respectfully submitted,
Professional Service Industries, Inc

Professional Service Industries, Inc.
Shilstone Engineering Testing Laboratory Division

REPORT OF FIELD COMPACTION TESTS

TESTED FOR: SAN MIGUEL ELECTRIC COOPERATIVE, INC.
Post Office Box 280
Jourdanton, Texas 78026
ATTENTION: Mr. Clyde Price

PROJECT: 1A Ash Pond Soil Testing
P.O. #26643-032108

DATE: September 16, 1987 OUR REPORT NO: 3ii-70065-56

TEST DATA: Optimum moisture: (33, 23.7)

TEST NO.	DATE	DEPTH / LIFT	MAX. D NUMBER	MAXIMUM DRY DENSITY	WATER CONTENT	IN-PLACE DRY DENSITY	PERCENT COMPACTION	COMMENTS*
7	09-16-87	Final	33	88.2	26.5	86.5	98.0	1 - A
8	09-16-87	2nd Lift	33	88.2	27.8	85.3	96.7	1 - A
9	09-16-87	2nd Lift	33	88.2	26.1	86.0	97.5	1 - A
10	09-16-87	2nd Lift	33	88.2	27.5	87.0	98.6	1 - A
11	09-16-87	Final	33	88.2	27.4	86.3	97.8	1 - A
12	09-16-87	Final	33	88.2	26.0	87.8	99.5	1 - A

TEST LOCATION: POND FLOOR, STATION 2000'-2475'.

7	30' West of Station 2100' and 35' South of the North Slope.
8	20' West of Station 2200' and 40' South of the North Slope.
9	80' West of Station 2300' and 25' South of the North Slope.
10	65' West of Station 2400' and 20' South of the North Slope.
11	60' West of Station 2200' and 15' South of the North Slope.
12	10' West of Station 2300' and 10' South of the North Slope.

NOTES: DENSITIES SHOWN [illegible]
WATER CONTENT: Per Cent of Dry Weight
PERCENT COMPACTION: Based on maximum dry density obtained on sample indicated by test D number.

* 1 FILL MATERIAL
2 BACKFILL
3 BASE COURSE
4 SUBBASE
5 SOIL CEMENT
6 OTHER

A TEST RESULTS COMPLY WITH SPECIFICATIONS
B RECOMPACTION REQUIRED
C TEST TAKEN AFTER RECOMPACTION

REMARKS:

Respectfully submitted,
Professional Service Industries, Inc.

PSI-A-1207

Professional Service Industries, Inc.
Shilstone Engineering Testing Laboratory Division

REPORT OF FIELD COMPACTION TESTS

TESTED FOR: SAN MIGUEL ELECTRIC COOPERATIVE, INC.
Post Office Box 280
Jourdanton, Texas 78026
ATTENTION: Mr. Clyde Price

PROJECT: 1A Ash Pond Soil Testing
P.O. #26643-032108

DATE: September 16, 1987 OUR REPORT NO: 311-70065-56

TEST DATA: Optimum moisture: (33, 23.7)

TEST NO.	DATE	TEST DEPTH	SOIL TYPE NO.	MAXIMUM DRY DENSITY	WATER CONTENT	AVERAGE DRY DENSITY	PERCENT COMPACTION	COMMENT *
13	09-16-87	Final	33	88.2	27.8	85.3	96.7	1 - A

TEST LOCATION:

13	45' West of Station 2400' and 45' South of the North Slope.

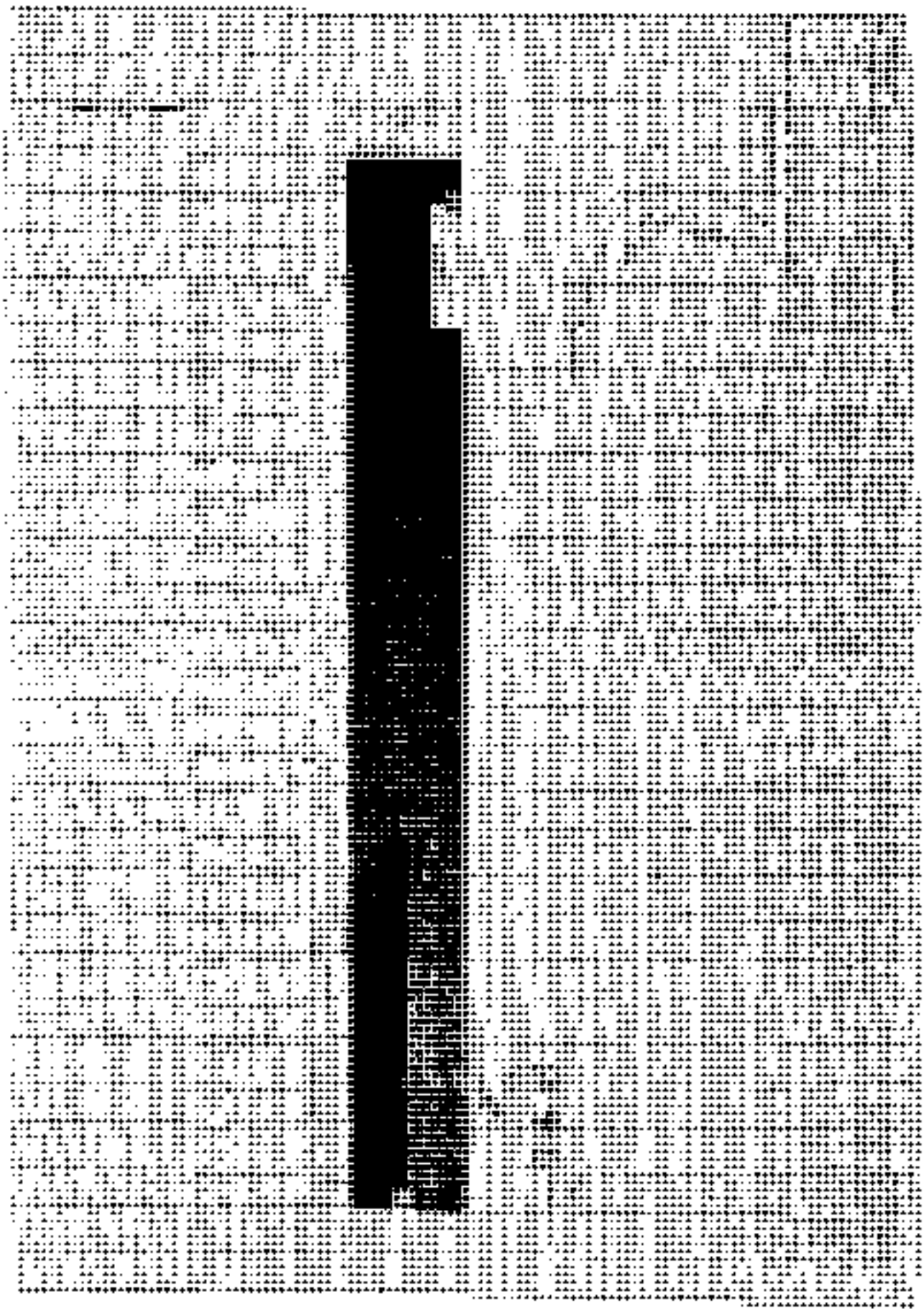
NOTES: DENSITIES SHOWN ARE pcf; WATER CONTENT Per Cent of dry weight
PERCENT COMPACTION Based on maximum dry density value and on sample indicated by soil ID number

* 1 SILT MATERIAL
2 BACKFILL
3 BASE COURSE
4 SUBBASE
5 SOIL CEMENT
6 OTHER

A TEST RESULTS COMPLY WITH SPECIFICATIONS
B RECOMPACTION REQUIRED
C TEST IS AFTER RECOMPACTION

REMARKS:

Respectfully submitted,
Professional Service Industries, Inc.



Professional Service Industries, Inc.
Shilstone Engineering Testing Laboratory Division

DAILY REPORT

TESTED FOR SAN MIGUEL ELECTRIC COOPERATIVE, INC.
Post Office Box 280
Jourdanton, Texas 78026
ATTENTION: Mr. Clyde Price

PROJECT 1A Ash Pond Soil Testing
P.O. #26643-032108

DATE September 15, 1987 OUR REPORT NO. 311-70065-55

REMARKS:

Weather: Sunny & Clear
Temperature Range: 90° to 95°
Inspector: G. Quintanilla
Type of Inspection: Fill Control

Brief summary of work accomplished on this day:

Equipment Used:

1. (1) 120G Motor Grader
2. (1) Liebherr Dozer
3. (1) D6 Dozer
4. (1) 637D Scraper
5. (1) Water Truck
6. (1) CAT Spray King
7. Discing Equipment

The area between Station 2400' and Station 2475' on the west slope was completed today. Approximately 90% of the 1A Pond is completed. The area between Station 1600' and Station 2300' on the pond floor and the area between Station 0' and 200' on the south slope are yet to be completed. A motor grader is being used to do the final touch-up work on the slopes and the pond floor. A total of 12 densities were taken today. Water is still being pumped from the pond floor. V.K. Knowlton started at 7:00 a.m. and finished at 6:00 p.m. today.

If there are any questions concerning this report, please do not hesitate to contact our office at your convenience.

Respectfully submitted,
PROFESSIONAL SERVICE INDUSTRIES, INC.

cc: (2) Above
/dd

Professional Service Industries, Inc.
Shilstone Engineering Testing Laboratory Division

REPORT OF FIELD COMPACTION TESTS

TESTED FOR SAN MIGUEL ELECTRIC COOPERATIVE, INC.
Post Office Box 280
Jourdanton, Texas 78026
ATTENTION: Mr. Clyde Price

PROJECT 1A Ash Pond Soil Testing
P.O. #26643-032108

DATE September 15, 1987 OUR REPORT NO 311-70065-55

TEST DATA: Optimum moisture: (33, 23.7)

TEST NO	DATE	TEST LOCATION	SOIL OR MIXTURE NO	MAXIMUM LABORATORY DENSITY	WATER CONTENT	IN PLACE DRY DENSITY	PERCENT COMPACTION	COMMENT *
1	09-15-87	2nd Lift	33	88.2	29.3	80.0	90.7	1 - B
2	09-15-87	2nd Lift	33	88.2	26.3	86.2	97.7	1 - A,C
3	09-15-87	Final	33	88.2	28.2	82.3	93.3	1 - B
	09-15-87	Final	33	88.2	26.1	88.5	100.3	1 - A,C
5	09-15-87	Final	33	88.2	29.2	77.0	87.3	1 - B
6	09-15-87	Final	33	88.2	26.3	83.5	94.6	1 - B

TEST LOCATION: WEST SLOPE, STATION 2400'-2475' (POND FLOOR, STATION 1600'-1800', NORTH SIDE)

1	40' South of N.W. Corner of West Slope and 15' from Top of Slope.
2	Retest of Test #1.
3	15' South of N.W. Corner of West Slope and 20' from Bottom of Slope.
4	Retest of test #2.
5	20' West of Station 1600' and 20' South of North Slope.
6	35' West of Station 1800' and 5' South of North Slope.

NOTES: DENSITIES SHOWN ARE IN POUNDS PER CUBIC FOOT
WATER CONTENT: Percent of dry weight
PERCENT COMPACTION: Based on maximum dry density obtained on samples tested by soils laboratory

* 1 FILL MATERIAL
2 BACKFILL
3 BASE COURSE
4 SUBBASE
5 SOIL CEMENT
6 OTHER

A TEST RESULTS COMPLY WITH SPECIFICATIONS
B RECOMPACTION REQUIRED
C TEST IS AFTER RECOMPACTION

REMARKS.

Respectfully submitted,
Professional Service Industries, Inc.

Professional Service Industries, Inc.
Shilstone Engineering Testing Laboratory Division

REPORT OF FIELD COMPACTION TESTS

TESTED FOR SAN MIGUEL ELECTRIC COOPERATIVE, INC.
Post Office Box 280
Jourdanton, Texas 78026
ATTENTION: Mr. Clyde Price

PROJECT 1A Ash Pond Soil Testing
P.O. #26643-032108

DATE September 15, 1987 OUR REPORT NO. 311-70065-SS

TEST DATA: Optimum moisture: (33, 23.7)

TEST NO.	DATE	TEST DEPTH / SOIL NUMBER	SOIL ID NUMBER	WET DENSITY (lbs/cu ft)	WATER CONTENT (%)	DRY DENSITY (lbs/cu ft)	PERCENT COMPACTION (%)	COMMENTS*
7	09-15-87	Final	33	88.2	26.7	86.8	98.4	1 - A,C
8	09-15-87	Final	33	88.2	27.6	85.0	96.3	1 - A
9	09-15-87	Final	33	88.2	26.2	87.5	99.2	1 - A,C
10	09-15-87	Final	33	88.2	27.7	85.8	97.2	1 - A
11	09-15-87	1st Lift	33	88.2	28.2	85.0	96.3	1 - A
12	09-15-87	1st Lift	33	88.2	28.8	85.7	97.1	1 - A

TEST LOCATION: POND FLOOR, STATION 1600'-2200'

7	Retest of Station 1600' from Test #5 of Page #2.
8	65' West of Station 1700' and 15' South of North Slope.
9	Retest of Station 1800' from Test #6 of Page #2.
10	20' West of Station 1900' and 30' South of North Slope.
11	90' West of Station 2000' and 25' South of North Slope.
12	15' West of Station 2100' and 10' South of North Slope.

NOTES: DENSITIES SHOWN ARE pcf
WATER CONTENT IS Dry Weight of Soil
PERCENT COMPACTION Based on Maximum Dry Density obtained from Standard Proctor Test ID number

* 1 FILL MATERIAL
2 BACKFILL
3 BASE COURSE
4 SUBBASE
5 SOIL CEMENT
6 OTHER

A TEST RESULTS COMPLY WITH SPECIFICATIONS
B RECOMPACTION REQUIRED
C TEST IS AFTER RECOMPACTION

REMARKS:

Respectfully submitted,
Professional Service Industries, Inc.

ASH POND LINER REHABILITATION

Professional Service Industries, Inc.
Shilstone Engineering Testing Laboratory Division

DAILY REPORT

TESTED FOR: SAN MIGUEL ELECTRIC COOPERATIVE, INC.
Post Office Box 280
Jourdanton, Texas 78026
ATTENTION: Mr. Clyde Price

PROJECT: 1A Ash Pond Soil Testing
P.O. #26643-032108

DATE: September 14, 1987 OUR REPORT NO: 311-70065-54

REMARKS:

Weather: Sunny & Clear
Temperature Range: 90° to 95°
Inspector: G. Quintanilla
Type of Inspection: Fill Control

Brief summary of work accomplished on this day:

Equipment Used:

1. (1) Liebherr Dozer
2. (1) D6 Dozer
3. (1) 1206 Motor Grader
4. (1) Water Truck
5. (1) Spray King
6. (1) 637D Scraper

V.K. Knowlton concentrated on the west slope in the N.W. corner and from Station 1500' to Station 2000' on the pond floor. A total of eight (8) densities were taken today. V.K. Knowlton began work at 7:00 a.m. and finished at 6:00 p.m.

If there are any questions concerning this report, please do not hesitate to contact our office at your convenience.

Respectfully submitted,
PROFESSIONAL SERVICE INDUSTRIES, INC.

cc: (2) Above
/dd

Professional Service Industries, Inc.
Shilstone Engineering Testing Laboratory Division

REPORT OF FIELD COMPACTION TESTS

TESTED FOR SAN MIGUEL ELECTRIC COOPERATIVE, INC. PROJECT 1A Ash Pond Soil Testing
Post Office Box 280
Jourdanton, Texas 78026
P.O. #26643-032108
ATTENTION: Mr. Clyde Price

DATE September 14, 1987 OUR REPORT NO. 311-70065-54

TEST DATA: Optimum moisture: (33, 23.7)

TEST NO.	DATE	TEST METHOD	SOIL TYPE NO.	MAXIMUM DRY DENSITY	WATER CONTENT	DRY DENSITY	PERCENT COMPACTION	COMMENTS*
1	09-14-87	Final	33	88.2	27.0	85.8	97.2	1 - A
2	09-14-87	2nd Lift	33	88.2	27.1	87.0	98.6	1 - A
3	09-14-87	2nd Lift	33	88.2	26.5	86.5	98.0	1 - A
4	09-14-87	2nd Lift	33	88.2	26.2	86.7	98.2	1 - A
5	09-14-87	2nd Lift	33	88.2	27.9	86.0	97.5	1 - A
6	09-14-87	2nd Lift	33	88.2	28.3	87.3	98.9	1 - A

TEST LOCATION: POND FLOOR - Station 1500' thru 2100'

1	20' West of station 1500' and 20' South of North Slope.
2	40' West of Staiton 1600' and 35' South of North Slope.
3	65' West of Station 1700' and 10' South of North Slope.
4	80' West of Station 1800' and 45' South of North Slope.
5	10' West of Station 1900' and 15' South of North Slope.
6	55' West of Station 2000' and 30' South of North Slope.

NOTES: UNLESS SHOWN, TESTS ARE FOR FILL
WATER CONTENT: Per Cent of Dry Weight
PERCENT COMPACTION: Based on Maximum Dry Density obtained from Proctor Test Designation

* - FILL MATERIAL
1 - BACKFILL
2 - BASE COURSE
3 - SUBBASE
4 - SOIL CEMENT
5 - OTHER

A - TEST RESULTS COMPLY WITH SPECIFICATIONS
B - RECOMPACTION REQUIRED
C - TEST IS AFTER RECOMPACTION

REMARKS:

Respectfully submitted,
Professional Service Industries, Inc.

Professional Service Industries, Inc.
Shilstone Engineering Testing Laboratory Division

REPORT OF F: .D COMPACTION TESTS

TESTED FOR: SAN MIGUEL ELECTRIC COOPERATIVE, INC.
Post Office Box 280
Jourdanton, Texas 78026
ATTENTION: Mr. Clyde Price

PROJECT: 1A Ash Pond Soil Testing
P.O. #26643-032108

DATE: September 14, 1987 OUR REPORT NO: 311-70065-54 Page 3 of 3

TEST DATA: Optimum moisture: (33, 23.7)

TEST NO.	DATE	FIELD	LAB. NO.	MAX. DRY DENSITY (PCF)	WATER CONTENT (%)	% OF MAX. DENSITY	PERCENT COMPACTION	REMARKS*
7	09-14-87	Subgrade	33	88.2	28.0	85.5	96.9	1 - A
8	09-14-87	1st Lift	33	88.2	26.7	86.0	97.5	1 - A

TEST LOCATION: WEST SLOPE IN N.W. CORNER - Station 2400-2475'.

7	20' south of the N.W. corner of Station 2400' thru 2475' of west slope and 5' from the bottom of slope.
8	35' South of the N.W. corner of Station 2400' thru 2475' of west slope and 20' from the bottom of slope.

NOTES: SAND TILL SHOWN (ASTM D 1557)
WATER CONTENT: Per ASTM D 2216
PERCENT COMPACTION: Based on maximum dry density obtained on sample delivered to the laboratory

* - FILL MATERIAL
2 - BACKFILL
3 - BASE COURSE
4 - SUBBASE
5 - SOIL CEMENT
6 - OTHER

A - TEST IS IN COMPLIANCE WITH SPECIFICATIONS
B - RECOMPACTION REQUIRED
C - TEST IS AFTER RECOMPACTION

REMARKS:

Respectfully submitted,
Professional Service Industries, Inc.

TA ASH POND LAKE ACCESS ROAD
9-14-88

Professional Service Industries, Inc.
Shilstone Engineering Testing Laboratory Division

DAILY REPORT

TESTED FOR SAN MIGUEL ELECTRIC COOPERATIVE, INC.
Post Office Box 280
Jourdanton, Texas 78026
ATTENTION: Mr. Clyde Price

PROJECT 1A Ash Pond Soil Testing
P.O. #26643-032108

DATE September 12, 1987 OUR REPORT NO 311-70065-53

REMARKS:

Weather: Sunny & Clear
Temperature Range: 90° to 95°
Inspector: G. Quintanilla
Type of Inspection: Fill Control

Brief summary of work accomplished on this day:

Equipment Used:

1. (1) 120G Motor Grader
2. (1) Water Truck
3. (1) Liebherr Dozer

V.K. Knowlton worked on shaping the north slope today. The area of the north slope at STation 2100' thru 2400' was completed for final testing. Slopes were also watered today. Three (3) density tests were taken.

If there are any questions concerning this report, please do not hesitate to contact our office at your convenience.

Respectfully submitted,
PROFESSIONAL SERVICE INDUSTRIES, INC.

cc: (2) Above
/dd

Professional Service Industries, Inc.
Shilstone Engineering Testing Laboratory Division

REPORT OF FIELD COMPACTION TESTS

TESTED FOR SAN MIGUEL ELECTRIC COOPERATIVE, INC.
Post Office Box 280
Jourdanton, Texas 78026
ATTENTION: Mr. Clyde Price

PROJECT 1A Ash Pond Soil Testing
P.O. #26643-032108

DATE September 12, 1987 PSI REPORT NO. 311-70065-53

TEST DATA: Optimum moisture: (33, 23.7)

TEST NO.	DATE	TEST TYPE	SOIL TYPE	WATER TO BE ADDED, GAL/SQ YD	WATER CONTENT, %	WET DENSITY, LBS/CU FT	PERCENT COMPACTION	COMMENT*
1	09-12-87	Final	33	88.2	26.7	86.8	98.4	1 - A
2	09-12-87	Final	33	88.2	28.9	84.5	95.8	1 - A
3	09-12-87	Final	33	88.2	27.3	86.7	98.2	1 - A

TEST LOCATION:

1	25' West of Station 2100' and 10' from top of slope.
2	40' West of Station 2200' and 20' from bottom of slope.
3	65' West of Staiton 2300' and 15' from bottom of slope.

NOTES: DENSITIES SHOWN ARE DRY WEIGHTS, PCF
WATER CONTENT AS DETERMINED BY ASTM D-2216
PERCENT COMPACTION BASED ON MAXIMUM DRY DENSITY AS DETERMINED BY ASTM D-698

* 1 FILL MATERIAL
2 BACKFILL
3 BASE COURSE
4 SUBBASE
5 SOIL CEMENT
6 OTHER

A TEST RESULTS COMPLY WITH SPECIFICATIONS
B RECOMPACTION REQUIRED
C TEST IS AFTER RECOMPACTION

REMARKS:

Respectfully submitted,
Professional Service Industries, Inc.

9-12-87
150'
250'

Professional Service Industries, Inc.
Shilstone Engineering Testing Laboratory Division

DAILY REPORT

TESTED FOR SAN MIGUEL ELECTRIC COOPERATIVE, INC.
Post Office Box 280
Jourdanton, Texas 78026
ATTENTION: Mr. Clyde Price

PROJECT 1A Ash Pond Soil Testing
P.O. #26643-032108

DATE September 11, 1987 OUR REPORT NO 311-70065-52

REMARKS:

Weather: Sunny & Clear
Temperature Range: 85° to 90°
Inspector: G. Quintanilla
Type of Inspection: Fill Control

Brief summary of work accomplished or this day:

Equipment Used:

1. (1) 637D Scraper
2. (1) Liebherr Dozer
3. (1) D6 Dozer
4. (1) Water Truck
5. (1) 120G Motor Grader

The area at Station 2000' on the north slope was completed today. V.K. Knowlton is still pumping water from the pond floor. This area should be ready for compaction on Monday (09-14-87). A total of six (6) tests were taken today.

If there are any questions concerning this report, please do not hesitate to contact our office at your convenience.

Respectfully submitted,
PROFESSIONAL SERVICE INDUSTRIES, INC.

cc: (2) Above
/dd

Professional Service Industries, Inc.
Shilstone Engineering Testing Laboratory Division

REPORT OF FIELD COMPACTION TESTS

TESTED FOR SAN MIGUEL ELECTRIC COOPERATIVE, INC.
Post Office Box 280
Jourdanton, Texas 78026
ATTENTION: Mr. Clyde Price

PROJECT 1A Ash Pond Soil Testing
P.O. #26643-032108

DATE September 11, 1987 OUR REPORT NO. 311-70065-52

TEST DATA: Optimum moisture: (33, 23.7)

TEST NO.	DATE	TYPE / LIFT	SOIL NUMBER	MAX. DRY DENSITY (PCF)	WATER CONTENT (%)	IN-PLACE DRY DENSITY (PCF)	PERCENT COMPACTION	COMMENTS*
1	09-11-87	1st Lift	33	88.2	26.1	87.3	98.9	1 - A
2	09-11-87	2nd Lift	33	88.2	26.2	87.5	99.2	1 - A
3	09-11-87	2nd Lift	33	88.2	26.5	85.8	97.2	1 - A
4	09-11-87	2nd Lift	33	88.2	26.8	88.3	100.1	1 - A
5	09-11-87	2nd Lift	33	88.2	27.6	88.5	100.3	1 - A
6	09-11-87	Final	33	88.2	26.7	86.8	98.4	1 - A

TEST LOCATION: NORTH SLOPE

1	40' West of Station 2300' and 20' from bottom of slope.
2	20' West of Station 2000' and 10' from top of slope.
3	15' West of Station 2100' and 5' from bottom of slope.
4	55' West of Station 2200' and 15' from bottom of slope.
5	75' West of Station 2300' and 10' from top of slope.
6	85' West of Station 2000' and 15' from top of slope.

NOTES: DENSITIES SHOWN ON REPORT ARE DRY
WATER CONTENT PERCENTAGES ARE BY
PERCENT COMPACTION BASED ON MAXIMUM DRY
DENSITY AS DETERMINED BY ASTM D-698

* 1 IN PLACE MATERIAL
2 BACKFILL
3 BASE COURSE
4 SUBBASE
5 SOIL CEMENT
6 OTHER

A TEST RESULTS COMPLY WITH SPECIFICATIONS
B RECOMPACTION REQUIRED
C RETEST AFTER RECOMPACTION

REMARKS:

Respectfully submitted
Professional Service Industries, Inc.

9-11-81
= Completed Area
= Area under Construction
= Completed Area
= Construction Area
= Work Completed
= Work Planned
VA HOSPITAL
SITE PLAN

Professional Service Industries, Inc.
Shilstone Engineering Testing Laboratory Division

DAILY REPORT

TESTED FOR: SAN MIGUEL ELECTRIC COOPERATIVE, INC.
Post Office Box 280
Jourdanton, Texas 78026
ATTENTION: Mr. Clyde Price

PROJECT: 1A Ash Pond Soil Testing
P.O. #26643-032108

DATE: September 10, 1987 OUR REPORT NO: 311-70065-51

REMARKS:

Weather: Sunny & Clear
Temperature Range: 90° to 95°
Inspector: G. Quintanilla
Type of Inspection: Fill Control

Brief summary of work accomplished on this day:

EQUIPMENT USED:

1. (1) Water Truck
2. (1) D6 Dozer
3. (1) Liebherr Dozer
4. (1) 637D Scraper
5. (1) 120G Motor Grader

The area between Station 1900' and 2300' was worked today. The area at Station 1900' was completed. V.K. Knowlton is still pumping water from the pond floor. The contractor began at 7:00 a.m. and finished at 6:00 p.m. A total of 6 densities were taken today.

If there are any questions concerning this report, please do not hesitate to contact our office at your convenience.

Respectfully submitted,
PROFESSIONAL SERVICE INDUSTRIES, INC.

cc: (2) Above
/dd

Professional Service Industries, Inc.
Shilstone Engineering Testing Laboratory Division

REPORT OF FIELD COMPACTION TESTS

TESTED FOR SAN MIGUEL ELECTRIC COOPERATIVE, INC.
Post Office Box 280
Jourdanton, Texas 78026
ATTENTION: Mr. Clyde Price

PROJECT 1A Ash Pond Soil Testing
P.O. #26643-032108

DATE September 10, 1987 OUR REPORT NO 311-70065-51

TEST DATA: Optimum moisture: (33, 23.7)

TEST NO	DATE	LIFT / DEPTH	SOIL ID NUMBER	MAXIMUM DRY DENSITY	WATER CONTENT	WET DENSITY	PERCENT COMPACTION	COMMENT*
1	09-10-87	Subgrade	33	88.2	26.5	85.8	97.2	1 - A
2	09-10-87	Subgrade	33	88.2	26.6	86.5	98.0	1 - A
3	09-10-87	Final	33	88.2	26.0	87.8	99.5	1 - A
4	09-10-87	1st Lift	33	88.2	26.8	87.5	99.2	1 - A
5	09-10-87	1st Lift	33	88.2	27.1	86.5	98.0	1 - A
6	09-10-87	1st Lift	33	88.2	26.7	86.0	97.5	1 - A

TEST LOCATION: NORTH SLOPE STATIONS 2200', 2300', 1900', 2000', and 2100'.

1	30' West of Station 2200' and 25' from bottom of slope.
2	65' West of station 2300' and 20' from top of slope.
3	45' West of Station 1900' and 5' from bottom of slope.
4	90' West of Station 2000' and 5' from top of slope.
5	15' west of Station 2100' and 15' from top of slope.
6	45' West of Station 2200' and 20' from bottom of slope.

NOTES: DENSITIES SHOWN ARE DRY SOIL WEIGHT
WATER CONTENT: DRY SOIL WEIGHT
PERCENT COMPACTION: BASED ON MAXIMUM DRY DENSITY OBTAINED BY ASTM D-698

* 1 FILL MATERIAL
2 BACKFILL
3 BASE COURSE
4 SUBBASE
5 SOIL CEMENT
6 OTHER

A TEST RESULTS COMPLY WITH SPECIFICATIONS
B RECOMPACTION REQUIRED
C TEST AFTER RECOMPACTION

REMARKS:

Respectfully submitted,
Professional Service Industries, Inc.

PROPOSED RESIDENCE
PROPOSED GARAGE
PROPOSED DRIVEWAY
PROPOSED SEPTIC SYSTEM
PROPOSED WELL
EXISTING RESIDENCE
EXISTING GARAGE
EXISTING DRIVEWAY
EXISTING SEPTIC SYSTEM
EXISTING WELL
EXISTING TREES
EXISTING CONTOURS
PROPOSED CONTOURS
PROPERTY LINE
SETBACK LINE
SCALE: 1" = 50'
NORTH

Professional Service Industries, Inc.
Shilstone Engineering Testing Laboratory Division

DAILY REPORT

TESTED FOR: SAN MIGUEL ELECTRIC COOPERATIVE, INC.
Post Office Box 280
Jourdanton, Texas 78026
ATTENTION: Mr. Clyde Price

PROJECT: 1A Ash Pond Soil Testing
P.O. #26643-032108

DATE: September 9, 1987 OUR REPORT NO: 311-70065-50

REMARKS:

Weather: Sunny & Clear
Temperature Range: 90° to 95°
Inspector: G. Quintanilla
Type of Inspection: Fill Control

Brief summary of work accomplished on this day:

Equipment Used:

1. (1) 637D Scraper
2. (1) Liebherr Dozer
3. (1) Water Truck
4. (1) 120G Motor Grader

The area between Stations 1900' and 2100' on the north slope was worked today. Water is still being pumped from the pond floor. Productivity was slow today due to water on the pond floor. A total of two (2) densities were taken today. Upon observation of the south slope of 1A pond, a letter was submitted to a SMC representative describing the areas to be reworked due to fractures, cave-ins, and weather conditions. A copy of this letter is enclosed for your review.

If there are any questions concerning this report, please do not hesitate to contact our office at your convenience.

Respectfully submitted,
PROFESSIONAL SERVICE INDUSTRIES, INC.

cc: (2) Above
/dd

Professional Service Industries, Inc.
Shilstone Engineering Testing Laboratory Division

REPORT OF FIELD COMPACTION TESTS

TESTED FOR: SAN MIGUEL ELECTRIC COOPERATIVE, INC.
Post Office Box 280
Jourdanton, Texas 78026
ATTENTION: Mr. Clyde Price

PROJECT: 1A Ash Pond Soil Testing
P.O. #26643-032108

DATE: September 9, 1987 OUR REPORT NO: 311-70065-50

TEST DATA: Optimum moisture: (33, 23.7)

TEST NO.	FILL	TEST ON	SOIL NUMBER	MAXIMUM LAB DRY DENSITY	WATER CONTENT	DRY DENSITY	PERCENT COMPACTION	COMMENTS*
1	09-09-87	1st Lift	33	88.2	27.6	88.5	100.3	1 - A
2	09-09-87	2nd Lift	33	88.2	27.2	88.0	99.7	1 - A

TEST LOCATION: NORTH SLOPE, STATION 1900'

1	40' West of Station 1900' and 10' from bottom of slope.
2	10' West of Station 1900' and 25' from bottom of slope.

NOTES: DENSITIES SHOWN: Lbs. per cubic foot
WATER CONTENT: Percent of dry weight
PERCENT COMPACTION: Based upon maximum dry density obtained on the project and by ASTM Designation

* 1 FILL MATERIAL
2 BACKFILL
3 BASE COURSE
4 SUBBASE
5 SOIL CEMENT
6 OTHER

A TEST RESULTS COMPLY WITH SPECIFICATIONS
B RECOMPACTION REQUIRED
C TEST IS AFTER RECOMPACTION

REMARKS:

Respectfully submitted,
Professional Service Industries, Inc.

Professional Service Industries, Inc.
Shilstone Engineering Testing Laboratory Division

TESTED FOR SAN MIGUEL ELECTRIC COOPERATIVE, INC.
Post Office Box 280
Jourdanton, Texas 78026
ATTENTION: Mr. Clyde Price

PROJECT 1A Ash Pond Soil Testing
P.O. #26643-032108

DATE: September 9, 1987 OUR REPORT NO 311-70065

REMARKS: As of 09-09-87, areas that need to be reworked due to fractures and weather conditions are as follows:

1. Station 300'-400', 80' x 30' area - cave-in, a 2' area should be reworked.
2. Station 1400'-1500', 50' x 30' area - fracture, a 9" lift should be reworked.
3. Station 2200'-2400', 175' x 30' area - fracture, a 9" lift should be reworked.

From my observations of the south slope in 1A pond, our (PSI) recommendations are that these areas listed above should be reworked. Immediately thereafter, weep holes should be placed to reduce or correct any further problems that may be encountered on the south slope. If there are any questions concerning the south slope, please feel free to contact our office. Thank you.

Respectfully submitted,
PROFESSIONAL SERVICE INDUSTRIES, INC.

6300'
2200'
2100'
1900'
1700'
1600'
1500'
1400'
1300'
1200'
100'
500'
600'
300'
200'
100'
1000'
2475'
2700'
2750'
50
25

Professional Service Industries, Inc.
Shilstone Engineering Testing Laboratory Division

DAILY REPORT

TESTED FOR: SAN MIGUEL ELECTRIC COOPERATIVE, INC.
Post Office Box 280
Jourdanton, Texas 78026
ATTENTION: Mr. Clyde Price

PROJECT: 1A Ash Pond Soil Testing
P.O. #26643-032108

DATE: September 8, 1987 OUR REPORT NO: 311-70065-49

REMARKS:

Weather: Sunny & Clear
Temperature Range: 90° to 95°
Inspector: G. Quintanilla
Type of Inspection: Fill Control

Brief summary of work accomplished on this day:

Equipment Used:

1. (1) 637D Scraper
2. (1) Liebherr Dozer
3. (1) Water Truck
4. (1) 120G Motor Grader

V.K. Knowlton completed the areas at Station 1800' on the north slope today. V.K. Knowlton has finished pumping the water on the east end of the pond and has positioned the pump in the approximate center of the pond where more standing water has been encountered. Productivity is still slow due to the water in the pond. A total of two (2) densities were taken today. V.K. Knowlton stopped at 6:00 p.m.

If there are any questions concerning this report, please do not hesitate to contact our office at your convenience.

Respectfully submitted,
PROFESSIONAL SERVICE INDUSTRIES, INC.

cc: (2) Above
/dd

Professional Service Industries, Inc.
Shilstone Engineering Testing Laboratory Division

REPORT OF FIELD COMPACTION TESTS

TESTED FOR: SAN MIGUEL ELECTRIC COOPERATIVE, INC.
Post Office Box 280
Jourdanton, Texas 78026
ATTENTION: Mr. Clyde Price

PROJECT: 1A Ash Pond Soil Testing
P.O. #26643-032108

DATE: September 8, 1987 OUR REPORT NO: 311-70065-49

TEST DATA: Optimum moisture: (33, 23.7)

TEST NO	DATE	LIFT / DEPTH	SOIL NUMBER	MAXIMUM LABORATORY DENSITY	WATER CONTENT	IN PLACE DRY DENSITY	PERCENT COMPACTION	COMMENT*
1	09-08-87	2nd Lift	33	88.2	28.1	84.3	95.5	1 - A
2	09-08-87	Final	33	88.2	27.1	86.5	98.0	1 - A

TEST LOCATION: NORTH SLOPE

1	20' west of Station 1800' and 20' from bottom of slope.
2	65' west of Station 1800' and 10' from top of slope.

NOTES: DENSITIES SHOWN: Lbs. per cubic foot
WATER CONTENT: Per Cent of dry weight
PERCENT COMPACTION: Based on maximum dry density obtained on sample as tested by soil number

* 1 F.I. MATERIAL
2 BACKFILL
3 BASE COURSE
4 SUBBASE
5 SOIL CEMENT
6 OTHER

A TEST RESULTS COMPLY WITH SPECIFICATIONS
B RECOMPACT AND RETEST
C TEST IS AFTER RECOMPACTION

REMARKS:

Respectfully submitted,
Professional Service Industries, Inc.

2500
2400
2300
2200
2100
2000
1900
1800
1700
1600
1500
1400
1300
1200
1100
1000
900
800
700
600
500
400
300
200
100
150
250

Professional Service Industries, Inc.
Shilstone Engineering Testing Laboratory Division

DAILY REPORT

TESTED FOR: SAN MIGUEL ELECTRIC COOPERATIVE, INC.
Post Office Box 280
Jourdanton, Texas 78026
ATTENTION: Mr. Clyde Price

PROJECT: 1A Ash Pond Soil Testing
P.O. #26643-03210B

DATE: September 4, 1987

OUR REPORT NO: 311-70065-48

REMARKS:

Weather: Sunny & Clear
Temperature Range: 85° to 90°
Inspector: G. Quintanilla
Type of Inspection: Fill Control

Brief summary of work accomplished on this day:

Equipment Used:

1. (1) Liebherr Dozer
2. (1) Water Truck

V.K. Knowlton arrived on the project site at 7:00 a.m. They worked on more clean up around the pond. V.K. Knowlton is still unable to work on the pond due to the wet condition of the site. Locations of the weep holes drilled on 09-03-87 and the weep holes still to be drilled for SMC were determined. No testing was performed today. Work will resume Tuesday morning, 09-08-87.

If there are any questions concerning this report, please do not hesitate to contact our office at your convenience.

Respectfully submitted,
PROFESSIONAL SERVICE INDUSTRIES, INC.

cc: (2)
/dd

FLY ASH POND LINER REDESIGN
150'
250'

Professional Service Industries, Inc.
Shilstone Engineering Testing Laboratory Division

DAILY FIELD REPORT

TESTED FOR: SAN MIGUEL ELECTRIC COOPERATIVE, INC.
Post Office Box 280
Jourdanton, Texas 78026
ATTENTION: Mr. Clyde Price

PROJECT: 1A Ash Pond Soil Testing
P.O. #26643-032108

DATE: September 3, 1987

OUR REPORT NO: 311-70065-47

WEATHER: Sunny & Clear

TEMPERATURE RANGE: 75° TO 85°

INSPECTOR: K. McWilliams & K. Bowen

TYPE OF INSPECTION BEING PERFORMED

X SOILS	____ CONCRETE
____ FOUNDATIONS	____ BATCH PLANT
____ CONTROLLED FILL (COMPACTION)	____ PLACEMENT (JOB SITE)
X Drill Weep Holes	____
____ ASPHALT	____ OTHER
____ BATCH PLANT	____
____ PLACEMENT (JOB SITE)	____
____	____

BRIEF RESUME OF WORK ACCOMPLISHED THIS DATE: As requested, two (2) PSI Representatives of PSI, Inc. reported to the above referenced project site to drill a number of weep holes. Seventeen (17) weep holes were drilled.

: (2) Above
ud

Respectfully submitted,
Professional Service Industries, Inc.

Professional Service Industries, Inc.
Shilstone Engineering Testing Laboratory Division

DAILY REPORT

TESTED FOR SAN MIGUEL ELECTRIC COOPERATIVE, INC.
Post Office Box 280
Jourdanton, Texas 78026
ATTENTION: Mr. Clyde Price

PROJECT 1A Ash Pond Soil Testing
P.O. #26643-032108

DATE September 3, 1987

OUR REPORT NO 311-70065-46

REMARKS:

Weather: Sunny & Clear
Temperature Range: 80° to 85°
Inspector: G. Quintanilla
Type of Inspection: Fill Control

Brief summary of work accomplished on this day:

Equipment Used:

1. (1) Liebherr Dozer
2. (1) D637 Scraper

V.K. Knowlton arrived at 7:00 a.m. Only two (2) representatives of V.K. Knowlton worked today. V.K. Knowlton began pumping water out of the pond and cleaning the muddy areas around the pond for better manuevering of heavy equipment. Representatives of PSI, Inc. arrived at approximately 8:30 a.m. to drill the weep holes that were previously staked. A total of 17 holes were drilled. The drilling operation was completed by 2:30 p.m. No density tests were taken today.

If there are any questions concerning this report, please do not hesitate to contact our office at your convenience.

Respectfully submitted,
PROFESSIONAL SERVICE INDUSTRIES, INC.

cc: (2) Above
/dd

1A-ASH POND LINER RECONSTRUCTION
2400'
2100'
2000'
1900'
1800'
1700'
1600'
1500'
1400'
1300'
1200'
1100'
1000'
900'
800'
700'
600'
500'
400'
300'
200'
100'
150'
250'

Professional Service Industries, Inc.
Shilstone Engineering Testing Laboratory Division

DAILY FIELD REPORT

TESTED FOR: SAN MIGUEL ELECTRIC COOPERATIVE, INC.
Post Office Box 280
Jourdanton, Texas 78026
ATTENTION: Mr. Clyde Price

PROJECT: 1A Ash Pond Soil Testing
P.O. #26643-032108

DATE: September 2, 1987

OUR REPORT NO: 311-70065-45

WEATHER: Sunny & Clear

TEMPERATURE RANGE: 75° TO 85°

INSPECTOR: G. Quintanilla

TYPE OF INSPECTION BEING PERFORMED

X SOILS	___ CONCRETE
___ FOUNDATIONS	___ BATCH PLANT
X CONTROLLED FILL (COMPACTION)	___ PLACEMENT (JOB SITE)
___	___
___ ASPHALT	___ OTHER
___ BATCH PLANT	___
___ PLACEMENT (JOB SITE)	___
___	

BRIEF RESUME OF WORK ACCOMPLISHED THIS DATE: V.K. Knowlton reported the the above referenced project site at 7:00 a.m. The condition of the site was still too wet to be worked. The location of the weep holes was staked today. These areas are scheduled to be drilled on 09-03-87.

: (2) Above

Respectfully submitted,
Professional Service Industries, Inc.

2500
2400
2300
2200
2100
2000
1900
1800
1700
1600
1500
1400
1300
1200
1100
1000
900
800
700
600
500
400
300
200
100
0
150
250

Professional Service Industries, Inc.
Shilstone Engineering Testing Laboratory Division

DAILY FIELD REPORT

TESTED FOR SAN MIGUEL ELECTRIC COOPERATIVE, INC.
Post Office Box 280
Jourdanton, Texas 78026
ATTENTION: Mr. Clyde Price

PROJECT 1A Ash Pond Soil Testing
P.O. #26543-032108

DATE September 1, 1987

OUR REPORT NO. 311-70065-44

WEATHER Sunny & Clear

TEMPERATURE RANGE 75° TO 80°

INSPECTOR G. Quintanilla

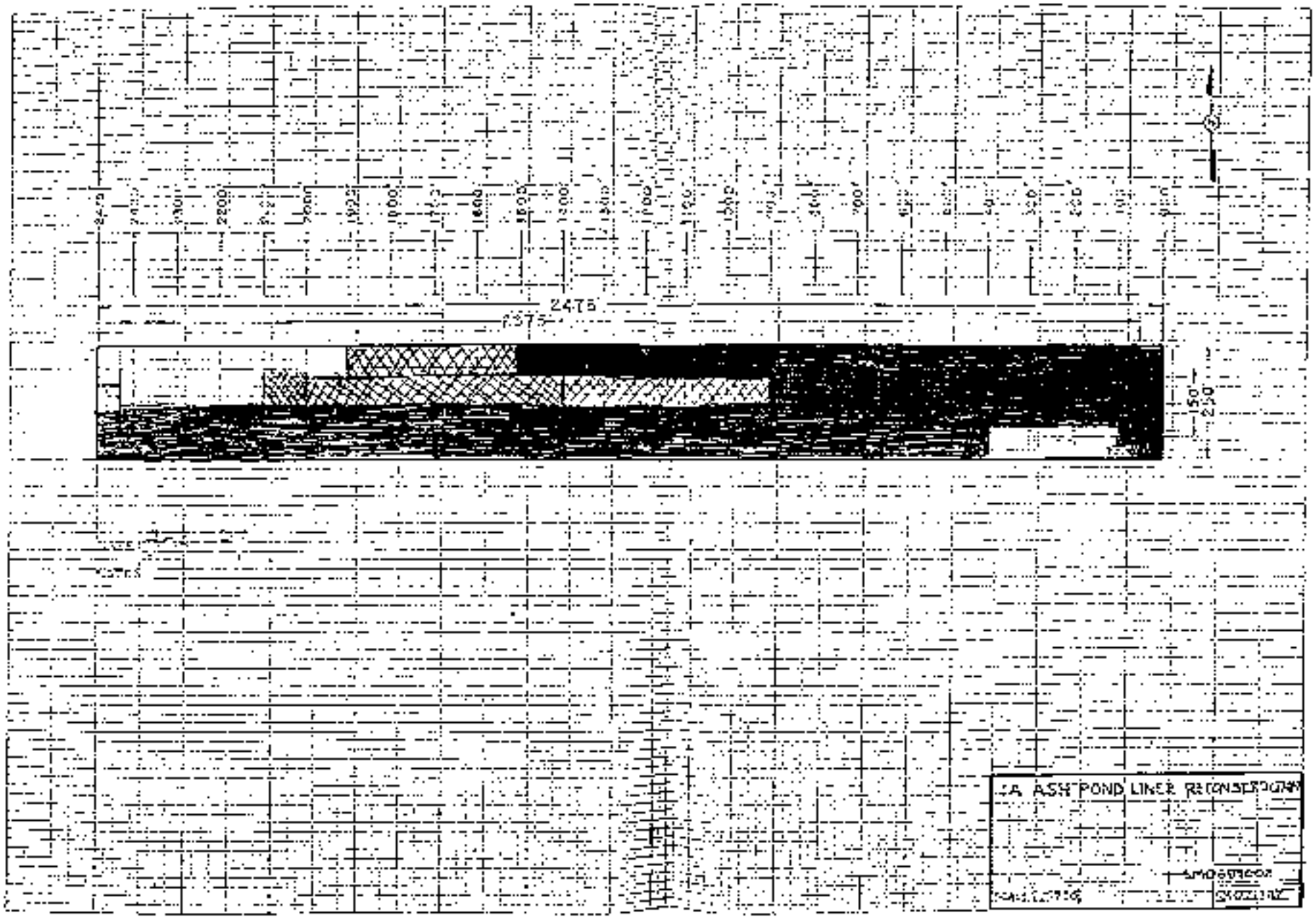
TYPE OF INSPECTION BEING PERFORMED

X SOILS	CONCRETE
FOUNDATIONS	BATCH PLANT
X CONTROLLED FILL (COMPACTION)	PLACEMENT (JOB SITE)
ASPHALT	OTHER
BATCH PLANT	
PLACEMENT (JOB SITE)	

BRIEF RESUME OF WORK ACCOMPLISHED THIS DATE: As requested, a representative of PSI, Inc. reported to the above referenced project site at 7:00 a.m. A representative of V.K. Knowlton arrived at the site to check the condition of the site. The condition of the site prevented any work from being accomplished today. Pumping water from the pond floor was discussed.

(2) Above

Respectfully submitted,
Professional Service Industries, Inc.


2475'
1375'
150'
250'
SA ASH POND LINER RECONSTRUCTION

Professional Service Industries, Inc.
Shilstone Engineering Testing Laboratory Division

DAILY FIELD REPORT

TESTED FOR: SAN MIGUEL ELECTRIC COOPERATIVE, INC.
Post Office Box 280
Jourdanton, Texas 78026
ATTENTION: Mr. Clyde Price

PROJECT: 1A Ash Pond Soil Testing
P.O. #26643-032108

DATE: August 31, 1987

OUR REPORT NO: 311-70054-42

WEATHER: Cloudy

TEMPERATURE RANGE: 65° TO 70°

INSPECTOR: G. Guintanilla

TYPE OF INSPECTION BEING PERFORMED

X SOILS	___ CONCRETE
___ FOUNDATIONS	___ BATCH PLANT
X CONTROLLED FILL (COMPACTION)	___ PLACEMENT (JOB SITE)
___ ASPHALT	___ OTHER
___ BATCH PLANT	
___ PLACEMENT (JOB SITE)	

BRIEF RESUME OF WORK ACCOMPLISHED THIS DATE: V.K. Knowlton began work at 7:00 a.m. The pond areas were too wet to be worked. Weep holes were scheduled to be drilled by representatives of PSI, Inc. Drilling of the weep holes was attempted, but unsuccessful due to the pond condition. The drilling of the weep holes was tentatively rescheduled for 09-03-87.

: (2) Above

Respectfully submitted,
Professional Service Industries, Inc.

ASH POND LINER RECONSTRUCTION
SHEET NO. 8
SCALE: 1" = 200'
DATE: 12/07/27
2475
2500
2525
150'
250'
N

Professional Service Industries, Inc.
Shilstone Engineering Testing Laboratory Division

DAILY FIELD REPORT

TESTED FOR: SAN MIGUEL ELECTRIC COOPERATIVE, INC
Post Office Box 280
Jourdanton, Texas 78026
ATTENTION: Mr. Clyde Price

PROJECT: 1A Ash Pond Soil Testing
P.O. #26643-032108

DATE: August 31, 1987

OUR REPORT NO: 311-70065-43

WEATHER: Cloudy

TEMPERATURE RANGE: 60° TO 70°

INSPECTOR: K. McWilliams & K. Bowen

TYPE OF INSPECTION BEING PERFORMED

X SOILS	CONCRETE
____ FOUNDATIONS	____ BATCH PLANT
____ CONTROLLED FILL (COMPACTION)	____ PLACEMENT (JOB SITE)
X Drill Weep Holes	
____ ASPHALT	____ OTHER
____ BATCH PLANT	
____ PLACEMENT (JOB SITE)	

BRIEF RESUME OF WORK ACCOMPLISHED THIS DATE: As requested, two (2) PSI Representatives reported to the above referenced project site to drill a number of weep holes. An attempt was made to drill the weep holes but the site conditions prevented any progress from being made. Our services were tentatively rescheduled for 09-03-87.

: (2) Above

/ dd

Respectfully submitted,
Professional Service Industries, Inc.

Professional Service Industries, Inc.
Shilstone Engineering Testing Laboratory Division

DAILY FIELD REPORT

TESTED FOR SAN MIGUEL ELECTRIC COOPERATIVE, INC.
Post Office Box 280
Jourdanton, Texas 78026
ATTENTION: Mr. Clyde Price

PROJECT 1A Ash Pond Soil Testing
P.O. #26643-032108

DATE August 29, 1987

OUR REPORT NO 311-70065-41

WEATHER Rainy

TEMPERATURE RANGE 70° TO 75°

INSPECTOR G. Quintanilla

TYPE OF INSPECTION BEING PERFORMED

X SOILS	____ CONCRETE
____ FOUNDATIONS	____ BATCH PLANT
X CONTROLLED FILL (COMPACTION)	PLACEMENT (JOB SITE)
____ ASPHALT	____ OTHER
____ BATCH PLANT	____
PLACEMENT (JOB SITE)	____

BRIEF RESUME OF WORK ACCOMPLISHED THIS DATE As requested, the assigned technician reported to the above referenced project site. Unop arrival, the technician was notified that no work would be performed today due to the rain.

: (2) Above
/dd

Respectfully submitted,
Professional Service Industries, Inc.

Professional Service Industries, Inc.
Shilstone Engineering Testing Laboratory Division

DAILY REPORT

TESTED FOR: SAN MIGUEL ELECTRIC COOPERATIVE, INC.
Post Office Box 280
Jourdanton, Texas 78026
ATTENTION: Mr. Clyde Price

PROJECT: 1A Ash Pond Soil Testing
P.O. #26643-032108

DATE: August 28, 1987 OUR REPORT NO: 311-70065-40

REMARKS:

Weather: Rainy
Temperature Range: 65° to 70°
Inspector: G. Quintanilla
Type of Inspection: Fill Control

Brief summary of work accomplished on this day:

Equipment Used:

1. (1) Liebherr Dozer
2. (1) D6 Dozer
3. (1) 120G Grader
4. (1) 637D Scraper

V.K. Knowlton completed the area between Stations 1600' and 1800' on the north slope. A total of 10 densities were taken today. Work on the project was stopped at approximately 4:30 this afternoon due to the rain.

If there are any questions concerning this report, please do not hesitate to contact our office at your convenience.

Respectfully submitted,
PROFESSIONAL SERVICE INDUSTRIES, INC.

cc: (2) Above
/dd

Professional Service Industries, Inc.
Shilstone Engineering Testing Laboratory Division

REPORT OF FIELD COMPACTION TESTS

TESTED FOR SAN MIGUEL ELECTRIC COOPERATIVE, INC.
Post Office Box 280
Jourdanton, Texas 78026
ATTENTION: Mr. Clyde Price

PROJECT 1A Ash Pond Soil Testing
P.O. #26643-032108

DATE August 28, 1987 OUR REPORT NO 311-70065-4D

TEST DATA: Optimum moisture: (33, 23.7)

TEST NO	DATE	MATL CHECK	SOIL ID NUMBER	MAXIMUM DRY DENSITY	WATER CONTENT	IN PLACE DRY DENSITY	PERCENT COMPACTION	COMMENTS*
1	08-28-87	Final	33	88.2	28.5	84.8	96.1	1 - A
2	08-28-87	2nd Lift	33	88.2	26.9	85.5	96.9	1 - A
3	08-28-87	2nd Lift	33	88.2	27.6	85.8	97.2	1 - A
4	08-28-87	Subgrade	33	88.2	27.0	85.0	96.3	1 - A
5	08-28-87	Final	33	88.2	28.9	84.5	95.8	1 - A
6	08-28-87	Final	33	88.2	29.4	85.0	96.3	1 - A

TEST LOCATION: NORTH SLOPE, STATION 1500'-1900'

1	45' West of Station 1500' and 5' from top of slope.
2	70' West of Station 1600' and 30' from bottom of slope.
3	25' West of Station 1700' and 35' from top of slope.
4	80' West of Station 1800' and 20' from bottom of slope.
5	30' West of Station 1600' and 25' from top of slope.
6	95' West of Station 1700' and 10' from bottom of slope.

NOTES: DENSITIES SHOWN: Lbs. per cubic foot
WATER CONTENT: Per Cent of dry weight
PERCENT COMPACTION: Based on maximum dry density obtained on sample designated by soil ID number

* 1 FILL MATERIAL
2 BACKFILL
3 BASE COURSE
4 SUBBASE
5 SOIL CEMENT
6 OTHER

A TEST RESULTS COMPLY WITH SPECIFICATIONS
B RECOMPACTION REQUIRED
C TEST IS AFTER RECOMPACTION

REMARKS:

Respectfully submitted,
Professional Service Industries, Inc.

Professional Service Industries, Inc.
Shilstone Engineering Testing Laboratory Division

REPORT OF FIELD COMPACTION TESTS

TESTED FOR SAN MIGUEL ELECTRIC COOPERATIVE, INC. PROJECT 1A Ash Pond Soil Testing
Post Office Box 280
Jourdanton, Texas 78026
P.O. #26643-032108
ATTENTION: Mr. Clyde Price

DATE August 28, 1987 OUR REPORT NO 311-70065-40

TEST DATA: Optimum moisture: (33, 23.7)

TEST NO	DATE	TEST DEPTH	MOLD NUMBER	MAX. M.D. LAB DRY DENSITY	WATER CONTENT	IN PLACE DRY DENSITY	PERCENT COMPACTION	COMMENTS*
7	08-28-87	1st Lift	33	88.2	29.1	83.3	95.0	1 - A
8	08-28-87	Subgrade	33	88.2	27.6	85.8	97.2	1 - A
9	08-28-87	Subgrade	33	88.2	28.8	85.7	97.1	1 - A
10	08-28-87	Subgrade	33	88.2	27.4	85.5	96.9	1 - A

TEST LOCATION: NORTH SLOPE, STATION 1800'-2200'

7	30' West of Station 1800' and 20' from top of slope.
8	25' West of Station 1900' and 10' from bottom of slope.
9	70' West of Station 2000' and 10' from top of slope.
10	60' West of Station 2100' and 15' from bottom of slope.

NOTES: DENSITIES SHOWN ARE DRY POUNDS PER CUBIC FOOT
WATER CONTENT: PERCENT OF DRY WEIGHT
PERCENT COMPACTION: BASED ON MAXIMUM DRY DENSITY OBTAINED ON SAMPLE IDENTIFIED BY SOIL NUMBER

* 1 FILL MATERIAL
2 BACKFILL
3 BASE COURSE
4 SUBBASE
5 SOIL CEMENT
6 OTHER

A TEST RESULTS COMPLY WITH SPECIFICATIONS
B RECOMPACTION REQUIRED
C TEST IS AFTER RECOMPACTION

REMARKS.

Respectfully submitted,
Professional Service Industries, Inc

A ASH POND LINER RUCKERSDORF

Professional Service Industries, Inc.
Shilstone Engineering Testing Laboratory Division

DAILY REPORT

TESTED FOR SAN MIGUEL ELECTRIC COOPERATIVE, INC. PROJECT
Post Office Box 280
Jourdanton, Texas 78026
ATTENTION: Mr. Clyde Price

JA Ash Pond Soil Testing
P.O. #26643-032108

DATE August 27, 1987 OUR REPORT NO 311-70065-39

REMARKS:

Weather: Sunny & Clear
Temperature Range: 80° to 90°
Inspector: G. Quintanilla
Type of Inspection: Fill Control

Brief summary of work accomplished on this day:

Equipment Used:

1. (2) 637D Scrapers
2. (1) D6 Dozer
3. (1) Liebherr Dozer
4. (1) Water Truck
5. (1) CAT. Spray King
6. (1) 120G Motor Grader
7. Discing Equipment

The area on the pond floor between Station 900' and 1400' was completed today. The area on the north slope between Stations 1500' and 1900' was worked but not completed. Four (4) density tests were taken with the moisture content below the project specifications on the north slope. These areas were reworked and retested with the moisture content within the project specifications. An area of concern on the south slope was discussed with SMC. Two (2) areas where fractures have occurred should be reworked. Weep holes should be placed in these areas before anymore fractures occur. A total of 24 densities were taken today.

If there are any questions concerning this report, please do not hesitate to contact our office at your convenience.

Respectfully submitted,
PROFESSIONAL SERVICE INDUSTRIES, INC.

cc: (2) Above
/dd

Professional Service Industries, Inc.
Shilstone Engineering Testing Laboratory Division

REPORT OF FIELD COMPACTION TESTS

TESTED FOR SAN MIGUEL ELECTRIC COOPERATIVE, INC. PROJECT 1A Ash Pond Soil Testing
Post Office Box 280
Jourdanton, Texas 78026
P.O. #26643-032108
ATTENTION: Mr. Clyde Price

DATE August 27, 1987 OUR REPORT NO 311-70065-39

TEST DATA:

TEST NO	DATE	TEST LOCATION / SOIL TYPE	SOIL ID NUMBER	MAXIMUM DRY DENSITY	WATER CONTENT	DRY DENSITY	PERCENT COMPACTION	COMMENTS
1	08-27-87	Subgrade	33	88.2	22.7	91.3	103.5	1 - E
2	08-27-87	Subgrade	33	88.2	12.2	89.5	101.4	1 - E
3	08-27-87	Subgrade	33	88.2	23.5	85.0	96.3	1 - E
4	08-27-87	Subgrade	33	88.2	24.3	83.2	94.3	1 - B,E
5	08-27-87	Subgrade	33	88.2	28.4	84.5	95.8	1 - A
6	08-27-87	Subgrade	33	88.2	32.3	83.5	95.0	1 - A

TEST LOCATION: NORTH SLOPE, STATION 1500'-1900' / POND FLOOR, STATION 1400'-2000'

1	35' West of Station 1500' and 10' from top of slope.
2	68' West of Station 1600' and 20' from top of slope.
3	75' West of Station 1700' and 15' from bottom of slope.
4	10' West of Station 1800' and 30' from bottom of slope.
5	25' West of Station 1400' and 30' South of North slope.
6	80' West of Station 1500' and 20' South of North slope.

NOTES: DENSITIES SHOWN ARE DRY UNIT WEIGHT
WATER CONTENT: Percent of dry weight
PERCENT COMPACTION: Based on maximum dry density obtained on sample indicated by soil ID number

* 1 FILL MATERIAL
2 BACKFILL
3 BASE COURSE
4 SUBBASE
5 SOIL CEMENT
6 OTHER

A TEST RESULTS COMPLY WITH SPECIFICATIONS
B RECOMPACTION REQUIRED
C TEST IS AFTER RECOMPACTION
D Moisture in excess of specs.
E Moisture below specs.

REMARKS:

Respectfully submitted
Professional Service Industries, Inc

Professional Service Industries, Inc.
Shilstone Engineering Testing Laboratory Division

REPORT OF FIELD COMPACTION TESTS

TESTED FOR: SAN MIGUEL ELECTRIC COOPERATIVE, INC. PROJECT: 1A Ash Pond Soil Testing
Post Office Box 280
Jourdanton, Texas 78026
ATTENTION: Mr. Clyde Price
P.O. #26643-032108

DATE: August 27, 1987 OUR REPORT NO: 311-70065-39

TEST DATA: Optimum moisture: (33, 23.7)

TEST NO	DATE	LIFT / LOCATION	SOIL TYPE NUMBER	MAXIMUM LABORATORY DENSITY	WATER CONTENT	AVERAGE FIELD DENSITY	PERCENT COMPACTION	COMMENTS *
7	08-27-87	Subgrade	33	88.2	33.7	84.5	95.8	1 - A
8	08-27-87	Subgrade	33	88.2	27.7	86.5	98.0	1 - A
9	08-27-87	Subgrade	33	88.2	27.9	86.8	98.4	1 - A
0	08-27-87	Subgrade	33	88.2	27.4	87.5	99.2	1 - A
11	08-27-87	Subgrade	33	88.2	28.0	85.5	96.9	1 - A,C
12	08-27-87	Subgrade	33	88.2	27.0	87.0	98.6	1 - A,C

TEST LOCATION: POND FLOOR, STATION 1600'-2000' / NORTH SLOPE, STATION 1500'-1900'

7	30' West of Station 1600' and 5' South of North slope.
8	65' West of Station 1700' and 10' South of North slope.
9	20' West of Station 1800' and 15' South of North slope.
10	80' West of Station 1900' and 25' South of North slope.
11	Retest of Test #1.
12	Retest of Test #2.

NOTES: DENSITIES: KNOWN: Lbs. per cubic foot
WATER CONTENT: Per Cent of dry weight
PERCENT COMPACTION: Based on Maximum Dry Density obtained on Sample identified by soil ID number

* 1 FILL MATERIAL
2 BACKFILL
3 BASE COURSE
4 SUBBASE
5 SOIL CEMENT
6 OTHER

A TEST RESULTS COMPLY WITH SPECIFICATIONS
B RECOMPACTION REQUIRED
C TEST IS AFTER RECOMPACTION

REMARKS:

Respectfully submitted,
Professional Service Industries, Inc.

Professional Service Industries, Inc.
Shilstone Engineering Testing Laboratory Division

REPORT OF FIELD COMPACTION TESTS

TESTED FOR: SAN MIGUEL ELECTRIC COOPERATIVE, INC.
Post Office Box 280
Jourdanton, Texas 78026
ATTENTION: Mr. Clyde Price

PROJECT: 1A Ash Pond Soil Testing
P.O. #26643-032108

DATE: August 27, 1987 PSI REPORT NO: 311-70065-39 Page 4 of 5

TEST DATA: Optimum moisture: (33, 23.7)

TEST NO	DATE	TEST LOCATION / DEPTH	SOIL ID NUMBER	MAXIMUM LABORATORY DENSITY	WATER CONTENT	IN-PLACE DRY DENSITY	PERCENT COMPACTION	COMMENTS
13	08-27-87	Subgrade	33	88.2	27.1	86.5	98.0	1 - A,C
14	08-27-87	Subgrade	33	88.2	26.7	86.8	97.5	1 - A
15	08-27-87	1st Lift	33	88.2	26.5	86.5	98.0	1 - A
16	08-27-87	2nd Lift	33	88.2	27.3	84.0	95.2	1 - A
17	08-27-87	1st Lift	33	88.2	29.1	83.3	95.0	1 - A
18	08-27-87	1st Lift	33	88.2	30.3	84.0	95.2	1 - A

TEST LOCATION: NORTH SLOPE, STATION 1500'-1900'.

13	Retest of #3
14	Retest of #4
15	10' West of Station 1500' and 10' from bottom of slope.
16	20' West of Station 1500' and 20' from top of slope.
17	30' West of Station 1600' and 15' from bottom of slope.
18	45' West of Station 1700' and 30' from top of slope.

NOTES: DENSITIES SHOWN: Lbs. per cubic foot
WATER CONTENT: Per Cent of dry weight
PERCENT COMPACTION: Based on maximum dry density obtained on sample prepared by soil ID number

* 1 FILL MATERIAL
2 BACKFILL
3 BASE COURSE
4 SUBBASE
5 SOIL CEMENT
6 OTHER

A TEST ON RECOMPACTED MATERIAL
B RECOMPACTION
C TEST IS AFTER RECOMPACTION

REMARKS:

Respectfully submitted,
Professional Service Industries, Inc.

Professional Service Industries, Inc.
Shilstone Engineering Testing Laboratory Division

REPORT OF FIELD COMPACTION TESTS

TESTED FOR: SAN MIGUEL ELECTRIC COOPERATIVE, INC.
Post Office Box 280
Jourdanton, Texas 78026
ATTENTION: Mr. Clyde Price

PROJECT: 1A Ash Pond Soil Testing
P.O. #26643-032108

DATE: August 27, 1987 OUR REPORT NO: 311-70065-39

TEST DATA: Optimum moisture: (33, 23.7)

TEST NO	DATE	LIFT / DEPTH	PROCTOR NUMBER	MAXIMUM LABORATORY DENSITY	WATER CONTENT	FIELD DRY DENSITY	PERCENT COMPACTION	COMMENTS*
19	08-27-87	1st Lift	33	88.2	27.4	85.5	96.9	1 - A
20	08-27-87	Final	33	88.2	27.3	86.8	98.4	1 - A
21	08-27-87	Final	33	88.2	27.6	85.0	96.3	1 - A
2	08-27-87	Final	33	88.2	29.4	85.0	96.3	1 - A
23	08-27-87	Final	33	88.2	27.3	86.7	98.2	1 - A
24	08-27-87	Final	33	88.2	27.7	85.8	97.2	1 - A

TEST LOCATION: NORTH SLOPE, STATION 1800' / POND FLOOR, STATION 900'-1400'.

19	90' West of Station 1800' and 20' from bottom of slope.
20	5' West of Station 900' and 30' South of North slope.
21	25' West of station 1000' and 45' South of North slope.
22	40' West of Station 1100' and 50' South of North slope.
23	65' West of Station 1200' and 35' South of North slope.
24	80' West of Station 1300' and 20' South of North slope.

NOTES: DENSITIES SHOWN ARE DRY DENSITIES
WATER CONTENT: Per Cent of dry weight
PERCENT COMPACTION: Based on maximum dry density obtained in laboratory compaction test ID number

* 1 FILL MATERIAL
2 BACKFILL
3 BASE COURSE
4 SUBBASE
5 SOIL CEMENT
6 OTHER

A TEST RESULTS COMPLY WITH SPECIFICATIONS
B RECOMPACTION REQUIRED
C TEST IS AFTER RECOMPACTION

REMARKS:

Respectfully submitted,
Professional Service Industries, Inc.

2600'
2400'
2300'
2200'
2100'
2000'
1900'
1800'
1700'
1600'
1500'
1400'
1300'
1200'
1100'
1000'
900'
800'
700'
600'
500'
400'
300'
200'
100'
150'
250'

Professional Service Industries, Inc.
Shilstone Engineering Testing Laboratory Division

DAILY REPORT

TESTED FOR SAN MIGUEL ELECTRIC COOPERATIVE, INC. PROJECT 1A Ash Pond Soil Testing
Post Office Box 280
Jourdanton, Texas 78026
P.O. #26643-032108
ATTENTION: Mr. Clyde Price

DATE August 26, 1987 OUR REPORT NO 311-70065-3B

REMARKS:

Weather: Sunny & Clear
Temperature Range: 90° to 95°
Inspector: G. Quintanilla
Type of Inspection: Fill Control

Brief summary of work accomplished on this day:

Equipment Used:

1. (2) 637D Scrapers
2. (1) D6 Dozer
3. (1) Liebherr Dozer
4. (1) Spray King
5. (1) Water Truck
6. (1) 120G Motor Grader
7. Discing Equipment

An area on the north slope, Station 1300'-1500' was completed. The area on the pond floor, Station 900'-2000' was worked but not completed. Four (4) density tests taken today did not meet the moisture specifications. These areas were reworked and retested. A total of 22 density tests were taken today.

At the request of SMC, measurements of an area where heavy saturation and standing water are still reoccuring were taken. This area appears to be from Station 0 + 00 to approximately Station 1000', and approximately 20' wide. This water should be left in the holes to maintain the pressure of the seep areas. A possible alternative would be the use of betinite in this area. V.K. Knowlton stopped working at 6:00 p.m.

If there are any questions concerning this report, please do not hesitate to contact our office at your convenience.

Respectfully submitted,
PROFESSIONAL SERVICE INDUSTRIES, INC.

cc: (2) Above

/dd

PS A 3001

Professional Service Industries, Inc.
Shilstone Engineering Testing Laboratory Division

REPORT OF FIELD COMPACTION TESTS

TESTED FOR: SAN MIGUEL ELECTRIC COOPERATIVE, INC.
Post Office Box 280
Jourdanton, Texas 78026
ATTENTION: Mr. Clyde Price

PROJECT: 1A Ash Pond Soil Testing
P.O. 426643-032108

DATE: August 26, 1987 OUR REPORT NO: 311-70065-38

TEST DATA: Optimum moisture: (33, 23.7)

TEST NO.	DATE	FILL / SUBGRADE	SOIL SYMBOL	MAXIMUM DRY DENSITY	WATER CONTENT	DRY DENSITY	PERCENT COMPACTION	COMMENTS*
1	08-26-87	Subgrade	33	88.2	19.6	92.8	105.2	1 - E
2	08-26-87	Subgrade	33	88.2	18.4	95.0	107.7	1 - E
3	08-26-87	Subgrade	33	88.2	19.5	89.5	101.4	1 - E
4	08-26-87	Subgrade	33	88.2	16.3	90.3	102.3	1 - E
5	08-26-87	Subgrage	33	88.2	26.7	87.0	98.6	1 - A
6	08-26-87	1st Lift	33	88.2	28.1	87.0	98.6	1 - A

TEST LOCATION: POND FLOOR, STATION 1500'-2000' / NORTH SLOPE, STATION 1400'

1	20' West of Station 1500' and 20' South of North slope.
2	65' West of Station 1600' and 5' South of North slope.
3	90' West of station 1700' and 15' South of North slope.
4	15' West of Station 1800' and 35' South of North slope.
5	40' West of Station 1900' and 30' South of North slope.
6	15' West of Station 1400' and 10' South of North slope.

NOTES: DENSITIES SHOWN ARE IN POUNDS PER CUBIC FOOT
WATER CONTENT: PERCENT OF DRY WEIGHT
PERCENT COMPACTION: BASED ON MAXIMUM DRY DENSITY OBTAINED ON SIMILAR MATERIAL BY SOIL SYMBOL NUMBER

* 1 FILL MATERIAL
2 BACKFILL
3 BASE COURSE
4 SUBBASE
5 SCALCEMENT
6 OTHER

A TEST RESULTS COMPLY WITH SPECIFICATIONS
B RECOMPACTION REQUIRED
C TEST IS AFTER RECOMPACTION
E. Moisture below specifications

REMARKS:

Respectfully submitted,
Professional Service Industries, Inc.

Professional Service Industries, Inc.
Shilstone Engineering Testing Laboratory Division

REPORT OF FIELD COMPACTION TESTS

TESTED FOR SAN MIGUEL ELECTRIC COOPERATIVE, INC. PROJECT 1A Ash Pond Soil Testing
Post Office Box 280
Jourdanton, Texas 78026
P.O. #26643-032108
ATTENTION: Mr. Clyde Price

DATE August 26, 1987 OUR REPORT NO 311-70065-38

TEST DATA: Optimum moisture: 33, 23.7)

TEST NO	DATE	FIELD LOCATION	SOIL SYMBOL	MAXIMUM DRY DENSITY	WATER CONTENT	FIELD DRY DENSITY	PERCENT COMPACTION	COMMENTS *
7	08-26-87	2nd Lift	33	88.2	26.8	90.0	102.0	1 - A
8	08-26-87	2nd Lift	33	88.2	27.4	87.5	99.2	1 - A
9	08-26-87	Subgrade	33	88.2	27.5	87.0	98.6	1 - A,C
0	08-26-87	Subgrade	33	88.2	27.2	88.0	99.7	1 - A,C
11	08-26-87	Subgrade	33	88.2	28.3	86.5	98.0	1 - A,C
12	08-26-87	Subgrade	33	88.2	29.2	85.8	97.2	1 - A,C

TEST LOCATION: NORTH SLOPE, STATION 1300'-1500' / POND FLOOR, STATION 1500'-1900'

7	35' West of Station 1300' and 20' from bottom of slope.
8	60' West of Station 1400' and 10' from top of slope.
9	Retest of Test #1.
10	Retest of Test #2.
11	Retest of Test #3.
12	Retest of Test #4.

NOTES: DENSITIES SHOWN (lbs. per cubic foot)
WATER CONTENT Per Cent of Dry Weight
PERCENT COMPACTION Based on maximum dry density obtained on sample indicated by test ID number

* 1 FILL MATERIAL
2 BACKFILL
3 BASE COURSE
4 SUBBASE
5 SOIL CEMENT
6 OTHER

A TEST [illegible]
B [illegible]
C TEST AFTER RECOMPACTION

REMARKS:

Respectfully submitted,
Professional Service Industries, Inc.

Professional Service Industries, Inc.
Shilstone Engineering Testing Laboratory Division

REPORT OF FIELD COMPACTION TESTS

TESTED FOR: SAN MIGUEL ELECTRIC COOPERATIVE, INC.
Post Office Box 280
Jourdanton, Texas 78026
ATTENTION: Mr. Clyde Price

PROJECT: MA Ash Pond Soil Testing
P.O. #26643-032108

DATE: August 26, 1987 OUR REPORT NO: 311-70065-39

TEST DATA: Optimum moisture: (33, 23.7)

TEST NO	DATE	FILL DEPTH	SOIL ID NUMBER	MAXIMUM LABORATORY DENSITY	WATER CONTENT	IN PLACE DRY DENSITY	PERCENT COMPACTION	COMMENTS *
13	08-26-87	Final	33	88.2	27.2	87.3	98.9	1 - A
14	08-26-87	Final	33	88.2	28.1	87.0	98.6	1 - A
15	08-26-87	Grade	33	88.2	26.2	84.3	95.5	1 - A
5	08-26-87	2nd Lift	33	88.2	29.2	85.5	96.9	1 - A
17	08-26-87	2nd Lift	33	88.2	27.1	86.5	98.0	1 - A
18	08-26-87	2nd Lift	33	88.2	28.5	84.8	96.1	1 - A

TEST LOCATION: NORTH SLOPE, STATION 1300'-1600' / POND FLOOR, STATION 800'-1500'

13	30' West of Station 1300' and 10' from bottom of slope.
14	25' West of Station 1400' and 30' from bottom of slope.
15	10' West of Station 1500' and 15' from bottom of slope.
16	50' West of Station 900' and 25' South of North slope.
17	75' West of Station 1000' and 45' South of North slope.
18	40' West of Station 1100' and 15' South of North slope.

NOTES: DENSITIES SHOWN: Lbs. per cubic foot
WATER CONTENT: Per Cent of dry weight
PERCENT COMPACTION: Based on maximum dry density obtained on sample indicated by soil ID number

* 1 FILL MATERIAL
2 BACKFILL
3 BASE COURSE
4 SUBBASE
5 SOIL CEMENT
6 OTHER

A TEST RESULTS COMPLY WITH SPECIFICATIONS
B RECOMPACTION REQUIRED
C TEST IS AFTER RECOMPACTION

REMARKS:

Respectfully submitted
Professional Service Industries, Inc.

Professional Service Industries, Inc.
Shilstone Engineering Testing Laboratory Division

REPORT OF FIELD COMPACTION TESTS

REPORT FOR: SAN MIGUEL ELECTRIC COOPERATIVE, INC.
Post Office Box 280
Jourdanton, Texas 78026
ATTENTION: Mr. Clyde Price

PROJECT: 1A Ash Pond Soil Testing
P.O. #26643-032108

DATE: August 26, 1987 OUR REPORT NO: 311-70065-39

TEST DATA: Optimum moisture: (33, 23.7)

TEST NO.	DATE	FILL LIFT NUMBER	SOIL TYPE NUMBER	MAXIMUM DRY DENSITY (pcf)	WATER CONTENT (%)	DRY DENSITY (pcf)	PERCENT COMPACTION	COMMENTS*
19	08-26-87	2nd Lift	33	88.2	26.1	86.5	98.0	1 - A
20	08-26-87	2nd Lift	33	88.2	28.0	84.8	96.1	1 - A
21	08-26-87	1st Lift	33	88.2	30.1	84.5	95.8	1 - A
2	08-26-87	2nd Lift	33	88.2	29.1	84.8	96.1	1 - A

TEST LOCATION: POND FLOOR, STATION 1200'-1600'.

19	65' West of Station 1200' and 25' South of North slope.
20	95' West of Station 1300' and 5' South of North slope.
21	10' West of Station 1400' and 45' South of North slope.
22	20' West of Station 1400' and 30' South of North slope.

NOTES: DENSITIES SHOWN (pcf) are oven dry
WATER CONTENT (%) Dry Basis (oven dry weight)
PERCENT COMPACTION: Based on maximum dry density obtained on Sample # Supplied by PSI ID number

* 1 FILL MATERIAL
2 BACKFILL
3 BASE COURSE
4 SUBBASE
5 SOIL CEMENT
6 OTHER

A TEST RESULTS COMPLY WITH SPECIFICATIONS
B RECOMPACTION REQUIRED
C TEST IS AFTER RECOMPACTION

REMARKS:

Respectfully submitted,
Professional Service Industries, Inc.

2475'
2375'
150'
250'
2400'
2300'
2200'
2100'
2000'
1900'
1800'
1700'
1600'
1500'
1400'
1300'
1200'
1100'
1000'
900'
800'
700'
600'
500'
400'
300'
200'
100'
000'

Professional Service Industries, Inc.
Shilstone Engineering Testing Laboratory Division

DAILY REPORT

TESTED FOR: SAN MIGUEL ELECTRIC COOPERATIVE, INC.
Post Office Box 280
Jourdanton, Texas 78026
ATTENTION: Mr. Clyde Price

PROJECT: 1A Ash Pond Soil Testing
P.O. #26643-032108

DATE: August 25, 1987

OUR REPORT NO: 311-70065-37

REMARKS:

Weather: Sunny & Clear
Temperature Range: 90° to 95°
Inspector: G. Quintanilla
Type of Inspection: Fill Control

Brief summary of work accomplished on this day:

Equipment Used:

1. (2) 637D Scrapers
2. (1) Liebherr Dozer
3. (1) D6 Dozer
4. (1) Spray King
5. (1) 120G Motor Grader
6. (1) Water Truck
7. Discing Equipment

Areas on the north slope, Station 1300'-1500', and the pond floor, Station 400'-1400' were worked today. Areas that did not meet the specifications previously have been reworked and retested. Most of the work today concentrated on the pond floor. V.K. Knowlton worked until 6:00 p.m. A total of 23 compaction tests were taken today.

Respectfully submitted,
PROFESSIONAL SERVICE INDUSTRIES, INC.

cc: (2) Above
/dd

Professional Service Industries, Inc.
Shilstone Engineering Testing Laboratory Division

REPORT OF FIELD COMPACTION TESTS

RESIED FOR SAN MIGUEL ELECTRIC COOPERATIVE, INC. PROJECT
Post Office Box 280
Jourdanton, Texas 78026
ATTENTION: Mr. Clyde Price

1A Ash Pond Soil Testing
P.O. #26643-032108

DATE August 25, 1987 OUR REPORT NO 311-70065-37

TEST DATA: Optimum moisture: (33, 23.7)

TEST NO	DATE	LIFT / DEPTH	SOILS NUMBER	MAXIMUM DRY DENSITY	WATER CONTENT	IN PLACE DRY DENSITY	PERCENT COMPACTION	COMMENTS*
1	08-25-87	Grade	33	88.2	28.7	87.8	99.5	1 - A,C
2	08-25-87	Grade	33	88.2	28.5	86.8	98.4	1 - A,C
3	08-25-87	2nd Lift	33	88.2	29.6	86.0	97.5	1 - A,C
4	08-25-87	2nd Lift	33	88.2	27.7	86.5	98.0	1 - A,C
5	08-25-87	2nd Lift	33	88.2	30.1	86.1	97.6	1 - A,C
6	08-25-87	Grade	33	88.2	30.8	86.0	97.5	1 - A,C

TEST LOCATION: NORTH SLOPE, STATION 1300'-1400' / POND FLOOR, STATION 600', 700', 800', 900', 1000', & 1100'.

1	Retest of Test #2, PSI Report #311-70065-36, dated 08-24-87.
2	Retest of Test #3, PSI Report #311-70065-36, dated 08-24-87.
3	Retest of Test #4, PSI Report #311-70065-36, dated 08-24-87.
4	Retest of Test #5, PSI Report #311-70065-36, dated 08-24-87.
5	Retest of Test #6, PSI Report #311-70065-36, dated 08-24-87.
6	Retest of Test #7, PSI Report #311-70065-36, dated 08-24-87.

NOTES: DENSITIES SHOWN: Lbs. per cubic foot
WATER CONTENT: Per Cent of dry weight
PERCENT COMPACTION: Based on maximum dry density obtained on sample indicated by soils number

* 1 FILL MATERIAL
2 BACKFILL
3 BASE COURSE
4 SUBBASE
5 SOIL CEMENT
6 OTHER

A TEST RESULTS COMPLY WITH SPECIFICATIONS
B RECOMPACTION REQUIRED
C TEST TAKEN AFTER RECOMPACTION

REMARKS:

Respectfully submitted,
Professional Service Industries, Inc.

FS-A 1002

Professional Service Industries, Inc.
Shilstone Engineering Testing Laboratory Division

REPORT OF FIELD COMPACTION TESTS

TESTED FOR: SAN MIGUEL ELECTRIC COOPERATIVE, INC.
Post Office Box 280
Jourdanton, Texas 78026
ATTENTION: Mr. Clyde Price

PROJECT: 1A Ash Pond Soil Testing
P.O. #26643-032108

DATE: August 25, 1987 OUR REPORT NO: 311-70065-37

TEST DATA: Optimum moisture: (33, 23.7)

TEST NO	DATE	SOIL TYPE / DEPTH	SOIL TYPE NUMBER	MAXIMUM LABORATORY DENSITY	WATER CONTENT %	IN PLACE DRY DENSITY	PERCENT COMPACTION	COMMENTS *
7	08-25-87	Grade	33	88.2	26.4	87.0	98.6	1 - A,C
8	08-25-87	Grade	33	88.2	28.0	86.3	97.8	1 - A,C
9	08-25-87	Grade	33	88.2	29.1	86.7	98.2	1 - A,C
10	08-25-87	Grade	33	88.2	30.0	86.5	98.0	1 - A,C
11	08-25-87	Grade	33	88.2	31.0	84.3	95.5	1 - A,C

TEST LOCATION:

7	Retest of Test #8, PSI Report #311-70065-36, dated 08-24-87.
8	Retest of Test #9, PSI Report #311-70065-36, dated 08-24-87.
9	Retest of Test #10, PSI Report #311-70065-36, dated 08-24-87.
10	Retest of Test #11, PSI Report #311-70065-36, dated 08-24-87.
11	Retest of Test #12, PSI Report #311-70065-36, dated 08-24-87.

NOTES: DENSITIES SHOWN ARE PCF
WATER CONTENT: Dry Soil Basis (%)
PERCENT COMPACTION: Based on Maximum Dry Density Obtained on Sample Tested by ASTM Procedure

* - SOIL MATERIAL
1 - BACKFILL
2 - BASE COURSE
3 - SUBBASE
5 - SOIL CEMENT
6 - OTHER

A - TEST RESULTS COMPLY WITH SPECIFICATIONS
B - RECOMPACTION REQUIRED
C - TEST IS AFTER RECOMPACTION

REMARKS:

Respectfully submitted,
Professional Service Industries, Inc.

PSI • 10-2

Professional Service Industries, Inc.
Shilstone Engineering Testing Laboratory Division

REPORT OF FIELD COMPACTION TESTS

TESTED FOR: SAN MIGUEL ELECTRIC COOPERATIVE, INC.
Post Office Box 280
Jourdanton, Texas 78026
ATTENTION: Mr. Clyde Price

PROJECT: 1A Ash Pond Soil Testing
P.O. #26643-032108

DATE: August 25, 1987 OUR REPORT NO: 311-70065-37

TEST DATA: Optimum moisture: (33, 23.7)

TEST NO	DATE	FIELD DENSITY	SOIL NUMBER	MAXIMUM LAB DRY DENSITY	WATER CONTENT	% PLACE DRY DENSITY	PERCENT COMPACTION	COMMENT*
1	08-25-87	Grade	33	88.2	29.2	85.8	96.9	1 - A
2	08-25-87	Final	33	88.2	28.0	87.5	99.2	1 - A
3	08-25-87	Final	33	88.2	29.8	85.4	96.8	1 - A
4	08-25-87	Final	33	88.2	26.7	88.8	100.6	1 - A
5	08-25-87	1st Lift	33	88.2	26.8	88.3	100.1	1 - A
6	08-25-87	1st Lift	33	88.2	26.7	88.7	100.5	1 - A

TEST LOCATION: POND FLOOR, STATIONS 2000', 600'-1000'.

1	20' West of Station 2000' and 30' South of North slope.
2	35' West of Station 600' and 20' South of North slope.
3	60' West of Station 700' and 35' South of North slope.
4	85' West of Station 800' and 40' South of North slope.
5	10' West of Station 900' and 10' South of North slope.
6	25' West of Station 1000' and 15' South of North slope.

NOTES: DENSITIES SHOWN are pounds per cubic foot
WATER CONTENT: Per Cent of dry weight
PERCENT COMPACTION: Based on maximum dry density obtained on sample identified by soil ID number

* 1 FILL MATERIAL
2 BACKFILL
3 BASE COURSE
4 SUBBASE
5 SOIL CEMENT
6 OTHER

A TEST RESULTS COMPLY WITH SPECIFICATIONS
B RECOMPACTION REQUIRED
C TEST IS AFTER RECOMPACTION

REMARKS:

Respectfully submitted,
Professional Service Industries, Inc.

Professional Service Industries, Inc.
Shilstone Engineering Testing Laboratory Division

REPORT OF FIELD COMPACTION TESTS

TESTED FOR: SAN MIGUEL ELECTRIC COOPERATIVE, INC.
Post Office Box 280
Jourdanton, Texas 78026
ATTENTION: Mr. Clyde Price

PROJECT: 1A Ash Pond Soil Testing
P.O. #26643-032108

DATE: August 25, 1987 OUR REPORT NO: 311-70065-37 Page 5 of 5

TEST DATA: Optimum moisture: (33, 23.7)

TEST NO	DATE	TYPE OF TEST	MOIST. RATIO (%)	MAXIMUM LABORATORY DENSITY	WATER CONTENT (%)	DRY DENSITY (pcf)	PERCENT COMPACTION	COMMENTS*
7	08-25-87	1st Lift	33	88.2	29.8	85.5	96.9	1 - A
8	08-25-87	1st Lift	33	88.2	27.9	86.7	98.2	1 - A
9	08-25-87	1st Lift	33	88.2	29.0	86.8	98.4	1 - A
0	08-25-87	Final	33	88.2	29.3	87.0	98.6	1 - A
11	08-25-87	Final	33	88.2	30.4	86.3	97.8	1 - A
12	08-25-87	1st Lift	33	88.2	30.8	86.0	97.5	1 - A

TEST LOCATION: POND FLOOR, STATION 400', 500', & 1100'-1400' / NORTH SLOPE, STATION 1300'.

7	45' West of Station 1100' and 25' South of North slope.
8	70' West of Station 1200' and 5' South of North slope.
9	60' West of Station 1300' and 35' South of North slope.
10	80' West of Station 400' and 15' South of North slope.
11	95' West of Station 500' and 45' South of North slope.
12	40' West of station 1300' and 10' from bottom of slope.

NOTES: DENSITIES SHOWN are pounds per cubic foot
WATER CONTENT: Per Cent of dry weight
PERCENT COMPACTION: Based on Maximum dry density obtained on sample designated by soil ID number

* 1 FILL MATERIAL
2 BACKFILL
3 BASE COURSE
4 SUBBASE
5 SOIL CEMENT
6 OTHER

A TEST RESULTS COMPLY WITH SPECIFICATIONS
B RECOMPACTION REQUIRED
C TEST IS AFTER RECOMPACTION

REMARKS:

Respectfully submitted,
Professional Service Industries, Inc.

JAPASH PONDLINER RECONSTRUCTION

Professional Service Industries, Inc.
Shilstone Engineering Testing Laboratory Division

DAILY REPORT

TESTED FOR: SAN MIGUEL ELECTRIC COOPERATIVE, INC.
Post Office Box 280
Jourdanton, Texas 78026
ATTENTION: Mr. Clyde Price

PROJECT: 1A Ash Pond Soil Testing
P.O. #26643-032108

DATE: August 24, 1987 OUR REPORT NO: 311-70065-36

REMARKS:

Weather: Sunny & Clear
Temperature Range: 93° to 98°
Inspector: K. McWilliams
Type of inspection: Fill Control

Brief summary of work accomplished today:

Equipment Used:

1. (1) 637 D Scraper
2. (1) Liebherr Bulldozer
3. (1) D6 CAT. Dozer with Rake
4. (1) CAT. Spray King
5. (1) Water Truck
6. (1) Discing Equipment

V.K. Knowlton worked on the north slope and pond floor. The areas tested did not meet the moisture specifications. These areas will be reworked and retested. A total of 15 density tests were taken today. V.K. Knowlton finished work at 6:00 p.m.

If there are any questions concerning this report, please do not hesitate to contact our office at your convenience.

Respectfully submitted,
PROFESSIONAL SERVICE INDUSTRIES, INC.

cc: (2) Above
/dd

Professional Service Industries, Inc.
Shilstone Engineering Testing Laboratory Division

REPORT OF FIELD COMPACTION TESTS

TESTED FOR: SAN MIGUEL ELECTRIC COOPERATIVE, INC.
Post Office Box 280
Jourdanton, Texas 78026
ATTENTION: Mr. Clyde Price

PROJECT: 1A Ash Pond Soil Testing
P.O. #26643-032108

DATE: August 24, 1987 OUR REPORT NO: 311-70065-36

TEST DATA: Optimum moisture: (33, 23.7)

TEST NO.	DATE	TEST LOCATION	SOIL NUMBER	MAXIMUM DRY DENSITY	WATER CONTENT	% PLACE DRY DENSITY	PERCENT COMPACTION	COMMENTS *
1	08-24-87	Grade	33	88.2	22.2	94.5	107.1	1 - E
2	08-24-87	Grade	33	88.2	20.7	84.5	95.8	1 - E
3	08-24-87	Grade	33	88.2	16.4	80.7	91.5	1 - B,E
4	08-24-87	Grade	33	88.2	28.6	85.5	96.9	1 - A,C
2A	08-24-87	Grade	33	88.2	23.4	81.0	91.8	1 - B,E,C
3A	08-24-87	Grade	33	88.2	23.2	76.2	86.4	1 - B,E,C

TEST LOCATION: NORTH SLOPE

1	Station 12 + 50, 25' from bottom of slope.
2	Station 13 + 55, 30' from bottom of slope.
3	Station 14 + 35, 20' from bottom of slope.
1A	RETEST OF TEST #1 ABOVE.
2A	RETEST OF TEST #2 ABOVE.
3A	RETEST OF TEST #3 ABOVE.

NOTES: DENSITIES SHOWN ARE DRY POUNDS PER
WATER CONTENT: Per Cent of dry weight
PERCENT COMPACTION: Based on maximum dry density obtained on sample designated by
soil ID number

* 1 FILL MATERIAL
2 BACKFILL
3 BASE COURSE
4 SUBBASE
5 SOIL CEMENT
6 OTHER

A TEST RESULTS COMPLY WITH SPECIFICATIONS
B RECOMPACTION REQUIRED
C TEST IS AFTER RECOMPACTION
D Moisture in excess of specs.
E Moisture below specs.

REMARKS:

Respectfully submitted,
Professional Service Industries, Inc.

Professional Service Industries, Inc.
Shilstone Engineering Testing Laboratory Division

REPORT OF FIELD COMPACTION TESTS

TESTED FOR: SAN MIGUEL ELECTRIC COOPERATIVE, INC.
Post Office Box 280
Jourdanton, Texas 78026
ATTENTION: Mr. Clyde Price

PROJECT: 1A Ash Pond Soil Testing
P.O. #26643-032108

DATE: August 24, 1987 OUR REPORT NO: 311-70065-36

TEST DATA: Optimum moisture: (33, 23.7)

TEST NO.	DATE	TEST LOCATION / DEPTH	LAB NO.	MAX. DRY LAB DEN.	WATER CONTENT	% PLACE DRY DENSITY	PERCENT COMPACTION	COMMENTS *
4	08-24-87	2nd Lift	33	88.2	20.2	85.2	96.6	1 - E
5	08-24-87	2nd Lift	33	88.2	19.8	91.7	104.0	1 - E
6	08-24-87	2nd Lift	33	88.2	21.7	87.5	99.2	1 - E
7	08-24-87	Grade	33	88.2	20.4	88.0	99.7	1 - E
8	08-24-87	Grade	33	88.2	17.6	86.2	97.7	1 - E
9	08-24-87	Grade	33	88.2	22.7	86.7	98.3	1 - E

TEST LOCATION: POND FLOOR

4	60' South of North slope, Station 6 + 00.
5	50' South of North slope, Station 7 + 25.
6	40' South of North slope, Station 8 + 15.
7	50' South of North slope, Station 9 + 10.
8	50' South of North slope, Station 10 + 20.
9	40' South of North slope, Station 11 + 15.

NOTES: DENSITIES SHOWN ARE DRY WEIGHT
WATER CONTENT: Percent of dry weight
PERCENT COMPACTION: Based on maximum dry density obtained on samples prepared in accordance with ASTM D-698

* 1 FILL MATERIAL
2 BACKFILL
3 BASE COURSE
4 SUBBASE
5 SOIL CEMENT
6 OTHER

A TEST RESULTS COMPLY WITH SPECIFICATIONS
B RECOMPACTION REQUIRED
C TEST IS AFTER RECOMPACTION
D Moisture in excess of specs.
E Moisture below specs.

REMARKS:

Respectfully submitted
Professional Service Industries, Inc.

PSI A rev 2

Professional Service Industries, Inc.
Shilstone Engineering Testing Laboratory Division

REPORT OF FIELD COMPACTION TESTS

TESTED FOR SAN MIGUEL ELECTRIC COOPERATIVE, INC. PROJECT
Post Office Box 280
Jourdanton, Texas 78026
ATTENTION: Mr. Clyde Price

1A Ash Pond Soil Testing
P.O. #26643-032108

DATE August 24, 1987 DLR REPORT NO 311-70065-36 Page 4 of 4

TEST DATA: Optimum moisture: (33, 23.7)

TEST NO.	DATE	TEST DEPTH	SOIL TYPE NUMBER	MAXIMUM LABORATORY DENSITY	WATER CONTENT	DRY DENSITY	PERCENT COMPACTION	COMMENTS *
10	08-24-87	Grade	33	88.2	24.0	91.5	103.7	1 - E
11	08-24-87	Grade	33	88.2	24.0	89.5	101.4	1 - E
12	08-24-87	Grade	33	88.2	30.8	81.7	92.6	1 - B

TEST LOCATION:

10	40' South of the North slope, Station 12 + 10.
11	40' South of the North slope, Station 13 + 00.
12	35' South of the North slope, Station 14 + 00.

NOTES: DENSITIES SHOWN ARE DRY UNIT WEIGHT
WATER CONTENT: Percent of dry weight
PERCENT COMPACTION: Based on maximum dry density obtained on sample identified by soil ID number

* 1 FILL MATERIAL
2 BACKFILL
3 BASE COURSE
4 SUBGRADE
5 SOIL CEMENT
6 OTHER

A TEST RESULTS COMPLY WITH SPECIFICATIONS
B RECOMPACTION REQUIRED
C TEST IS AFTER RECOMPACTION
D Moisture in excess of specs.
E Moisture below specs.

REMARKS:

Respectfully submitted,
Professional Service Industries, Inc.

2475'
2475'
2400'
2200'
2100'
2000'
1900'
1800'
1700'
1600'
1500'
1400'
1300'
1200'
1100'
1000'
900'
800'
700'
600'
500'
400'
300'
200'
100'
000'
150'
250'
IA ASH POND LINER RECONSTRUCTION

Professional Service Industries, Inc.
Shilstone Engineering Testing Laboratory Division

DAILY REPORT

TESTED FOR: SAN MIGUEL ELECTRIC COOPERATIVE, INC.
Post Office Box 280
Jourdanton, Texas 78026
ATTENTION: Mr. Clyde Price

PROJECT: 1A Ash Pond Soil Testing
P.O. #25543-032108

DATE: August 21, 1987 OUR REPORT NO: 311-70065-35

REMARKS:

Weather: Sunny & Clear
Temperature Range: 95° to 100°
Inspector: G. Quintanilla
Type of Inspection: Fill Control

Brief summary of work accomplished today:

Equipment Used:

1. (2) 637D Scrapers
2. (1) Liebherr Dozer
3. (1) D-6 Dozer
4. (1) Water Truck
5. (1) CAT Spray King
6. (1) 120 G Motor Grader
7. Discing Equipment

V.K. Knowlton worked and completed the area between Station 100'-300' on the pond floor and the area between 900'-1200' on the north slope. New proctor values were used today. A total of 30 density tests were taken today. V.K. Knowlton started at 7:00 a.m. and finished at 6:00 p.m.

If there are any questions concerning this report, please do not hesitate to contact our office at your convenience.

Respectfully submitted,
PROFESSIONAL SERVICE INDUSTRIES, INC.

cc: (2) Above
/dd

Professional Service Industries, Inc.
Shilstone Engineering Testing Laboratory Division

REPORT OF FIELD COMPACTION TESTS

TESTED FOR: SAN MIGUEL ELECTRIC COOPERATIVE, INC.
Post Office Box 280
Jourdanton, Texas 78026
ATTENTION: Mr. Clyde Price

PROJECT: 1A Ash Pond Soil Testing
P.O. #26643-032108

DATE: August 21, 1987 OUR REPORT NO: 311-70065-35

TEST DATA: Optimum moisture: (33, 23.7)

TEST NO	DATE	FOR DEPTH	SOIL TYPE NUMBER	MAXIMUM DRY DENSITY	WATER CONTENT	IN PLACE DRY DENSITY	PERCENT COMPACTION	COMMENTS *
1	08-21-87	Grade	33	88.2	30.9	85.5	96.9	1 - A
2	08-21-87	1st Lift	33	88.2	32.0	84.2	95.4	1 - A
3	08-21-87	Grade	33	88.2	30.2	87.5	99.2	1 - A
4	08-21-87	Grade	33	88.2	31.1	85.0	96.3	1 - A
5	08-21-87	Final	33	88.2	29.0	86.8	98.4	1 - A
6	08-21-87	Final	33	88.2	30.0	85.8	97.2	1 - A

TEST LOCATION: NORTH SLOPE, STATION 900'-1200' / POND FLOOR, STATION 100'-300'

1	20' West of Station 900' and 10' from the bottom of the slope.
2	30' West of Station 900' and 35' from the bottom of the slope.
3	10' West of Station 1000' and 10' from the top of the slope.
4	60' West of Station 1100' and 20' South of the North slope.
5	75' West of Station 100' and 35' South of the North slope.
6	50' West of Station 200' and 5' South of the North slope.

NOTES: DENSITIES SHOWN IN pounds per cubic foot
WATER CONTENT: Percent dry weight
PERCENT COMPACTION: Based on maximum dry density obtained on sample indicated by soil ID number

* 1 ALL MATERIAL
2 BACKFILL
3 BASE COURSE
4 SUBBASE
5 SOIL CEMENT
6 OTHER

A TEST RESULTS COMPLY WITH SPECIFICATIONS
R RECOMPACTION REQUIRED
C TEST IS AFTER RECOMPACTION

REMARKS:

Respectfully submitted,
Professional Service Industries, Inc.

Professional Service Industries, Inc.
Shilstone Engineering Testing Laboratory Division

REPORT OF FIELD COMPACTION TESTS

TESTED FOR: SAN MIGUEL ELECTRIC COOPERATIVE, INC.
Post Office Box 280
Jourdanton, Texas 78026
ATTENTION: Mr. Clyde Price

PROJECT: 1A Ash Pond Soil Testing
P.O. #26643-032108

DATE: August 21, 1987 OUR REPORT NO: 311-70065-35

TEST DATA: Optimum moisture: (33, 23.7)

TEST NO.	DATE	TEST DESIGNATION	SOIL TYPE NUMBER	MAXIMUM LAB DRY DENSITY	WATER CONTENT	FIELD DRY DENSITY	PERCENT COMPACTION	COMMENTS*
7	08-21-87	Grade	33	88.2	27.6	87.8	99.5	1 - A
8	08-21-87	Grade	33	88.2	28.9	87.3	98.9	1 - A
9	08-21-87	Grade	33	88.2	30.0	85.8	97.2	1 - A
10	08-21-87	Grade	33	88.2	28.3	87.2	98.8	1 - A
11	08-21-87	Grade	33	88.2	28.7	87.0	98.6	1 - A
12	08-21-87	Grade	33	88.2	30.4	85.5	96.9	1 - A

TEST LOCATION: POND FLOOR, STATION 300'-600', 600'-900'

7	30' West of Station 300' and 10' South of the North slope.
8	60' West of Station 400' and 40' South of the North slope.
9	85' West of station 500' and 25' South of the North slope.
10	25' West of Station 600' and 35' South of the North slope.
11	30' West of Station 700' and 5' South of the North slope.
12	15' West of Station 800' and 15' South of the North slope.

NOTES: DENSITIES SHOWN: Lbs. per cubic foot
WATER CONTENT: Per Cent of dry weight
PERCENT COMPACTION: Based on maximum dry density obtained on sample indicated by soil ID number

* 1 FILL MATERIAL
2 BACKFILL
3 BASE COURSE
4 SUBGRADE
5 SOIL CEMENT
6 OTHER

A TEST RESULTS COMPLY WITH SPECIFICATIONS
B RECOMPACTION REQUIRED
C TESTS AFTER RECOMPACTION

REMARKS:

Respectfully submitted,
Professional Service Industries, Inc.

Professional Service Industries, Inc.
Shilstone Engineering Testing Laboratory Division

REPORT OF FIELD COMPACTION TESTS

TESTED FOR SAN MIGUEL ELECTRIC COOPERATIVE, INC. PROJECT
Post Office Box 280
Jourdanton, Texas 78026
ATTENTION: Mr. Clyde Price

1A Ash Pond Soil Testing
P.O. #26643-032108

DATE August 21, 1987 OUR REPORT NO 311-70065-35

TEST DATA: Optimum moisture: (33, 23.7)

TEST NO	DATE	LIFT	SOILS NUMBER	MAXIMUM DRY DENSITY	WATER CONTENT	IN PLACE DRY DENSITY	PERCENT COMPACTION	COMMENTS*
13	08-21-87	2nd Lift	33	88.2	29.4	87.3	98.9	1 - A
14	08-21-87	1st Lift	33	88.2	28.2	87.7	99.4	1 - A
15	08-21-87	1st Lift	33	88.2	29.6	86.0	97.5	1 - A
6	08-21-87	Final	33	88.2	29.0	86.8	98.4	1 - A
17	08-21-87	2nd Lift	33	88.2	30.8	86.0	97.5	1 - A
18	08-21-87	2nd Lift	33	88.2	30.9	86.3	97.8	1 - A

TEST LOCATION: NORTH SLOPE, STATION 900'-1200'.

13	50' West of Station 900' and 20' South of the North slope.
14	65' West of Station 1000' and 10' South of the North slope.
15	75' West of Station 1100' and 35' South of the North slope.
16	85' West of Station 900' and 25' South of the North slope.
17	20' West of station 1000' and 15' South of the North slope.
18	10' West of Station 1100' and 5' South of the North slope.

NOTES DENSITIES SHOWN: lbs. per cubic foot
WATER CONTENT: Per Cent of dry weight
PERCENT COMPACTION: Based on maximum dry density obtained on sample identified by soils ID number

* 1 FILL MATERIAL
2 BACKFILL
3 BASE COURSE
4 SUBBASE
5 SOIL CEMENT
6 OTHER

A TEST RESULTS COMPLY WITH SPECIFICATIONS
B RECOMPACTION REQUIRED
C TEST IS AFTER RECOMPACTION

REMARKS:

Respectfully submitted,
Professional Service Industries, Inc.

Professional Service Industries, Inc.
Shilstone Engineering Testing Laboratory Division

REPORT OF FIELD COMPACTION TESTS

TESTED FOR: SAN MIGUEL ELECTRIC COOPERATIVE, INC.
Post Office Box 280
Jourdanton, Texas 78026
ATTENTION: Mr. Clyde Price

PROJECT: 1A Ash Pond Soil Testing
P.O. #26643-032108

DATE: August 21, 1987 OUR REPORT NO: 311-70065-35

TEST DATA: Optimum moisture: (33, 23.7)

TEST NO	DATE	LIFT / DEPTH	SOIL SYMBOL	MAXIMUM DRY DENSITY	WATER CONTENT	% PLACE DRY DENSITY	PERCENT COMPACTION	COMMENTS*
19	08-21-87	1st Lift	33	88.2	28.9	88.0	99.7	1 - A
20	08-21-87	1st Lift	33	88.2	27.5	87.0	98.6	1 - A
21	08-21-87	1st Lift	33	88.2	28.2	87.7	99.4	1 - A
2	08-21-87	2nd Lift	33	88.2	27.0	87.0	98.6	1 - A
23	08-21-87	2nd Lift	33	88.2	29.8	87.1	98.7	1 - A
24	08-21-87	2nd Lift	33	88.2	26.4	87.0	98.6	1 - A

TEST LOCATION: POND FLOOR, STATION 300'-600'.

19	30' West of Station 300' and 20' South of the North slope.
20	25' West of Station 400' and 35' South of the North slope.
21	10' West of Station 500' and 45' South of the North slope.
22	45' West of Station 300' and 30' South of the North slope.
23	60' West of Station 400' and 15' South of the North slope.
24	75' West of Station 500' and 5' South of the North slope.

NOTES: DENSITIES SHOWN ARE PER ASTM D1557
WATER CONTENT: Per ASTM D2216
PERCENT COMPACTION: Based on maximum dry density obtained on sample tested by soil ID number

* 1 FILL MATERIAL
2 BACKFILL
3 BASE COURSE
4 SUBBASE
5 SOIL CEMENT
6 OTHER

A TEST RESULTS COMPLY WITH SPECIFICATIONS
B RECOMPACTION REQUIRED
C TEST IS AFTER RECOMPACTION

REMARKS:

Respectfully submitted,
Professional Service Industries, Inc.

Professional Service Industries, Inc.
Shilstone Engineering Testing Laboratory Division

REPORT OF FIELD COMPACTION TESTS

TESTED FOR: SAN MIGUEL ELECTRIC COOPERATIVE, INC.
Post Office Box 280
Jourdanton, Texas 78026
ATTENTION: Mr. Clyde Price

PROJECT: 1A Ash Pond Soil Testing
P.O. #26643-032108

DATE: August 21, 1987 OUR REPORT NO: 311-70065-35

TEST DATA: Optimum moisture: (33, 23.7)

TEST NO	DATE	LIFT / DEPTH	PROCTOR NUMBER	MOISTURE-DENSITY RELATION	MOISTURE CONTENT	SPECIFIED DRY DENSITY	PERCENT COMPACTION	REMARKS *
25	08-21-87	Final	33	88.2	26.7	90.0	102.0	1 - A
26	08-21-87	Final	33	88.2	26.8	90.5	102.6	1 - A
27	08-21-87	1st Lift	33	88.2	29.6	86.8	98.4	1 - A
28	08-21-87	1st Lift	33	88.2	29.3	87.0	98.6	1 - A
29	08-21-87	1st Lift	33	88.2	28.7	87.0	98.6	1 - A
30	08-21-87	Final	33	88.2	26.7	90.8	102.9	1 - A

TEST LOCATION: NORTH SLOPE, STATION 1000'-1200' / POND FLOOR, STATION 600'-900'.

25	20' West of Station 1000' and 20' from top of North slope.
26	40' West of Station 1100' and 10' from bottom of North slope.
27	45' West of Station 600' and 10' South of North slope.
28	75' West of Station 800' and 25' South of North slope.
29	15' West of station 700' and 15' South of North slope.
30	25' West of station 300' and 30' South of North slope.

NOTES: DENSITIES SHOWN ARE DRY WEIGHT
WATER CONTENT: Per Cent of dry weight
PERCENT COMPACTION: Based on maximum dry density obtained on sample obtained by our ID number

* 1 FILL MATERIAL
2 BACKFILL
3 BASE COURSE
4 SUBBASE
5 SOIL CEMENT
6 OTHER

A TEST RESULTS COMPLY WITH SPECIFICATIONS
B RECOMPACTION REQUIRED
C TEST IS AFTER RECOMPACTION

REMARKS:

Respectfully submitted,
Professional Service Industries, Inc.

2475'
150'
250'

Professional Service Industries, Inc.
Shilstone Engineering Testing Laboratory Division

DAILY REPORT

TESTED FOR: SAN MIGUEL ELECTRIC COOPERATIVE, INC
Post Office Box 280
Jourdanton, Texas 78026
ATTENTION: Mr. Clyde Price

PROJECT: 1A Ash Pond Soil Testing
P.O. #26643-032108

DATE: August 20, 1987 OUR REPORT NO: 311-70065-34 Page 1 of 5

REMARKS:

Weather: Sunny & Clear
Temperature Range: 95° to 100°
Inspector: G. Quintanilla
Type of Inspection: Fill Control

Brief summary of work accomplished today:

Equipment Used:

1. (2) 637D Scrapers
2. (1) Liebherr Dozer
3. (1) D-8 Dozer
4. (1) D-6 Dozer with Rake
5. (1) Water Truck
6. (1) CAT Spray King
7. (1) 120G Motor Grader
8. Discing Equipment

V.K. Knowlton started at 7:00 a.m. A 600' section was worked today, along with a 300' section on the Pond Floor and a 300' section on the North Slope. The 300' Section on the North Slope was completed. A total of 24 densities were taken. V.K. Knowlton finished at 6:00 p.m.

If there are any questions concerning this report, please do not hesitate to contact our office at your convenience.

Respectfully submitted,

PROFESSIONAL SERVICE INDUSTRIES, INC.
(Shilstone Engineering Testing Laboratory Division)

cc: (2) Above
/dd

Professional Service Industries, Inc.
Shilstone Engineering Testing Laboratory Division

REPORT OF FIELD COMPACTION TESTS

TESTED FOR: SAN MIGUEL ELECTRIC COOPERATIVE, INC.
Post Office Box 280
Jourdanton, Texas 78026
ATTENTION: Mr. Clyde Price

PROJECT: 1A Ash Pond Soil Testing
P.O. #26643-032108

DATE: August 20, 1987 OUR REPORT NO: 311-70065-34

TEST DATA: Optimum moisture: (22, 33.0)

TEST NO.	DATE	FILL DEPTH	SOIL TYPE NUMBER	MAXIMUM DENSITY (pcf)	WATER CONTENT	REPLACE DRY DENSITY	PERCENT COMPACTION	COMMENTS*
1	08-20-87	Final	22	82.6	35.9	81.8	99.0	1 - A
2	08-20-87	1st Lift	22	82.6	36.8	81.5	98.6	1 - A
3	08-20-87	Grade	22	82.6	36.4	80.3	97.2	1 - A
4	08-20-87	Grade	22	82.6	36.5	79.5	96.2	1 - A
5	08-20-87	2nd Lift	22	82.6	36.6	82.0	99.2	1 - A
6	08-20-87	1st Lift	22	82.6	36.4	81.3	98.4	1 - A

TEST LOCATION: NORTH SLOPE (STATION 500'-900')

1	30' West of Station 500' and 10' from Bottom of Slope.
2	20' West of Station 600' and 20' from Bottom of Slope.
3	65' West of Station 700' and 15' from Top of Slope.
4	30' West of Station 800' and 30' from Top of Slope.
5	15' West of Station 600' and 5' from Bottom of Slope.
6	45' West of Station 700' and 25' from Bottom of Slope.

NOTES: DENSITIES SHOWN: Lbs. per cubic foot
WATER CONTENT: Per Cent of dry weight
PERCENT COMPACTION: Based on maximum dry density obtained on sample identified by soil ID number

* 1 FILL MATERIAL
2 BACKFILL
3 BASE COURSE
4 SUBBASE
5 SOIL CEMENT
6 OTHER

A TEST RESULTS COMPLY WITH SPECIFICATIONS
B RECOMPACTION REQUIRED
C TEST IS AFTER RECOMPACTION

REMARKS:

Respectfully submitted,
Professional Service Industries, Inc.

Professional Service Industries, Inc.
Shilstone Engineering Testing Laboratory Division

REPORT OF FIELD COMPACTION TESTS

TESTED FOR SAN MIGUEL ELECTRIC COOPERATIVE, INC. PROJECT 1A Ash Pond Soil Testing
Post Office Box 280
Jourdanton, Texas 78026
P.O. #26643-032108
ATTENTION: Mr. Clyde Price

DATE August 20, 1987 OUR REPORT NO 311-70065-34

TEST DATA: Optimum moisture: (22, 33.0)

TEST NO	DATE	LIFT / TYPE	NO. OF BLOWS	WET DENSITY (PCF)	WATER CONTENT	DRY DENSITY (PCF)	PLACEMENT COMPACTION	COMMENTS*
7	08-20-87	1st Lift	22	82.6	35.8	82.0	99.2	1 - A,C
8	08-20-87	Grade	22	82.6	35.7	82.3	99.6	1 - A,C
9	08-20-87	Grade	22	82.6	37.2	81.3	98.4	1 - A,C
10	08-20-87	Grade	22	82.6	37.8	80.5	97.4	1 - A,C
11	08-20-87	1st Lift	22	82.6	37.6	81.0	98.0	1 - A
12	08-20-87	2nd Lift	22	82.6	37.0	80.2	97.0	1 - A

TEST LOCATION: POND FLOOR (0-500')

7	Retest of Test #13, PSI Report #311-70065-31, Dated 08-18-87.
8	Retest of Test #14, PSI Report #311-70065-31, Dated 08-18-87.
9	Retest of Test #15, PSI Report #311-70065-31, Dated 08-18-87.
10	Retest of Test #16, PSI Report #311-70065-31, Dated 08-18-87.
11	25' West of Station 400' and 10' South of North Slope.
12	40' West of Station 500' and 20' South of North Slope.

NOTES: DENSITIES SHOWN (PCF) are corrected for
WATER CONTENT: Per Cent of dry weight
PLACEMENT COMPACTION: Based on field wet density obtained on sample as compared to
(1) ID number

* 1 FILL MATERIAL
2 BACKFILL
3 BASE COURSE
4 SUBBASE
5 SOIL CEMENT
6 OTHER

A TEST RESULTS COMPLY WITH SPECIFICATIONS
B RECOMPACTION REQUIRED
C TEST IS AFTER RECOMPACTION

REMARKS:

Respectfully submitted,
Professional Service Industries, Inc.

Professional Service Industries, Inc.
Shilstone Engineering Testing Laboratory Division

REPORT OF FIELD COMPACTION TESTS

TESTED FOR SAN MIGUEL ELECTRIC COOPERATIVE, INC. PROJECT
Post Office Box 280
Jourdanton, Texas 78026
ATTENTION: Mr. Clyde Price

1A Ash Pond Soil Testing
P.O. #26643-032108

DATE August 20, 1987 OUR REPORT NO 311-70065-34

TEST DATA: Optimum moisture: (22, 33.0)

TEST NO	DATE	TEST DEPTH	MOISTURE CONTENT %	MAXIMUM DRY DENSITY	WATER CONTENT %	DENSITY DRY DENSITY	PERCENT COMPACTION	COMMENTS*
13	08-20-87	1st Lift	22	82.6	37.6	81.0	98.0	1 - A
14	08-20-87	2nd Lift	22	82.6	36.5	82.0	99.2	1 - A
15	08-20-87	1st Lift	22	82.6	37.0	81.7	98.9	1 - A
6	08-20-87	1st Lift	22	82.6	36.3	81.8	99.0	1 - A
17	08-20-87	Final	22	82.6	37.1	81.0	98.0	1 - A
18	08-20-87	2nd Lift	22	82.6	36.8	80.0	96.8	1 - A

TEST LOCATION: NORTH SLOPE (STATION 600'-800'); POND FLOOR (STATION 0-300')

13	25' west of Station 800' and 30' from Bottom of Slope. (North Slope)
14	30' West of Station 0-100' and 20' South of North Slope. (Pond Floor)
15	50' West of Station 100' and 25' south of North Slope. (Pond Floor)
16	80' West of Station 200' and 35' South of North Slope. (Pond Floor)
17	20' West of Station 600' and 10' from Bottom of Slope.
18	45' West of Station 700' and 25' from Bottom of Slope.

NOTES: DENSITIES SHOWN ARE IN POUNDS PER CUBIC FOOT
WATER CONTENT IS DETERMINED BY WEIGHT
PERCENT COMPACTION BASED ON MAXIMUM DRY DENSITY OBTAINED ON SAMPLE ANALYZED BY THIS LABORATORY

* 1 FILL MATERIAL
2 BACKFILL
3 BASE COURSE
4 SUBBASE
5 SOIL CEMENT
6 OTHER

A TEST RESULTS COMPLY WITH SPECIFICATIONS
B RECOMPACTION REQUIRED
C TEST IS AFTER RECOMPACTION

REMARKS.

Respectfully submitted,
Professional Service Industries, Inc.

Professional Service Industries, Inc.
Shilstone Engineering Testing Laboratory Division

REPORT OF FIELD COMPACTION TESTS

TESTED FOR: SAN MIGUEL ELECTRIC COOPERATIVE, INC.
Post Office Box 280
Jourdanton, Texas 78026
ATTENTION: Mr. Clyde Price

PROJECT: 1A Ash Pond Soil Testing
P.O. #26632-032108

DATE: August 20, 1987 OUR REPORT NO: 311-70065-34 Page 5 of 5

TEST DATA: Optimum moisture: (22, 33.0)

TEST NO	DATE	FIELD DENSITY DEPTH	SOIL TYPE NUMBER	MAXIMUM DRY DENSITY (PCF)	WATER CONTENT (%)	PERCENT OF DRY DENSITY	PERCENT COMPACTION	COMMENTS*
19	08-20-87	2nd Lift	22	82.6	36.1	81.5	98.6	1 - A
20	08-20-87	Final	22	82.6	36.7	79.0	95.6	1 - A
21	08-20-87	Final	22	82.6	37.2	82.2	99.5	1 - A
22	08-20-87	Final	22	82.6	35.1	83.2	100.7	1 - E
23	08-20-87	2nd Lift	22	82.6	34.9	82.3	99.6	1 - E
24	08-20-87	2nd Lift	22	82.6	36.2	80.7	97.6	1 - A

TEST LOCATION: NORTH SLOPE (STATION 700'-900'); POND FLOOR (STATION 0-300')

19	30' West of Station 800' and 20' from Bottom of Slope.
20	60' West of Station 700' and 15' from Top of Slope.
21	45' West of Station 800' and 10' from Bottom of Slope.
22	20' West of Station 0-100' and 20' South of North Slope.
23	40' West of Station 100' and 25' South of North Slope.
24	10' West of station 200' and 5' South of North Slope.

NOTES: DENSITIES SHOWN ARE PCF
WATER CONTENT: PERCENT OF DRY WEIGHT
PERCENT COMPACTION: BASED ON MAXIMUM DRY DENSITY OBTAINED BY SOIL TYPE NUMBER

* 1 FILL MATERIAL
2 BACKFILL
3 BASE COURSE
4 SUBBASE
5 SC, CEMENT
6 OTHER

A TEST RESULTS COMPLY WITH SPECIFICATIONS
B RECOMPACTION REQUIRED
C TEST IS AFTER RECOMPACTION
D Moisture in excess of specs.
E Moisture below specs.

REMARKS:

Respectfully submitted,
Professional Service Industries, Inc.

MS A-1302

2475'
2400'
2300'
2200'
2100'
2000'
1900'
1800'
1700'
1600'
1500'
1400'
1300'
1200'
1100'
1000'
900'
800'
700'
600'
500'
400'
300'
200'
100'
000'
2475'
2575'
150'
250'
N
ASH POND LINER REDESIGN
SCALE: 1"=200'

Professional Service Industries, Inc.
Shilstone Engineering Testing Laboratory Division

DAILY REPORT

TESTED FOR: SAN MIGUEL ELECTRIC COOPERATIVE, INC.
Post Office Box 280
Jourdanton, Texas 78026
ATTENTION: Mr. Clyde Price

PROJECT: 1A Ash Pond Soil Testing
P.O. #26643-032108
Contractor: V.K. Knowlton

DATE: July 20, 1987

OUR REPORT NO: 311-70065-7

REMARKS:

EQUIPMENT USED

1. 3 - 6370 CAT. Scrapers
2. 1 - Liebherr 731 Bulldozer
3. 1 - D8H CAT. Bulldozer
4. 1 - 120G CAT. Grader
5. 1 - CAT. Spray King

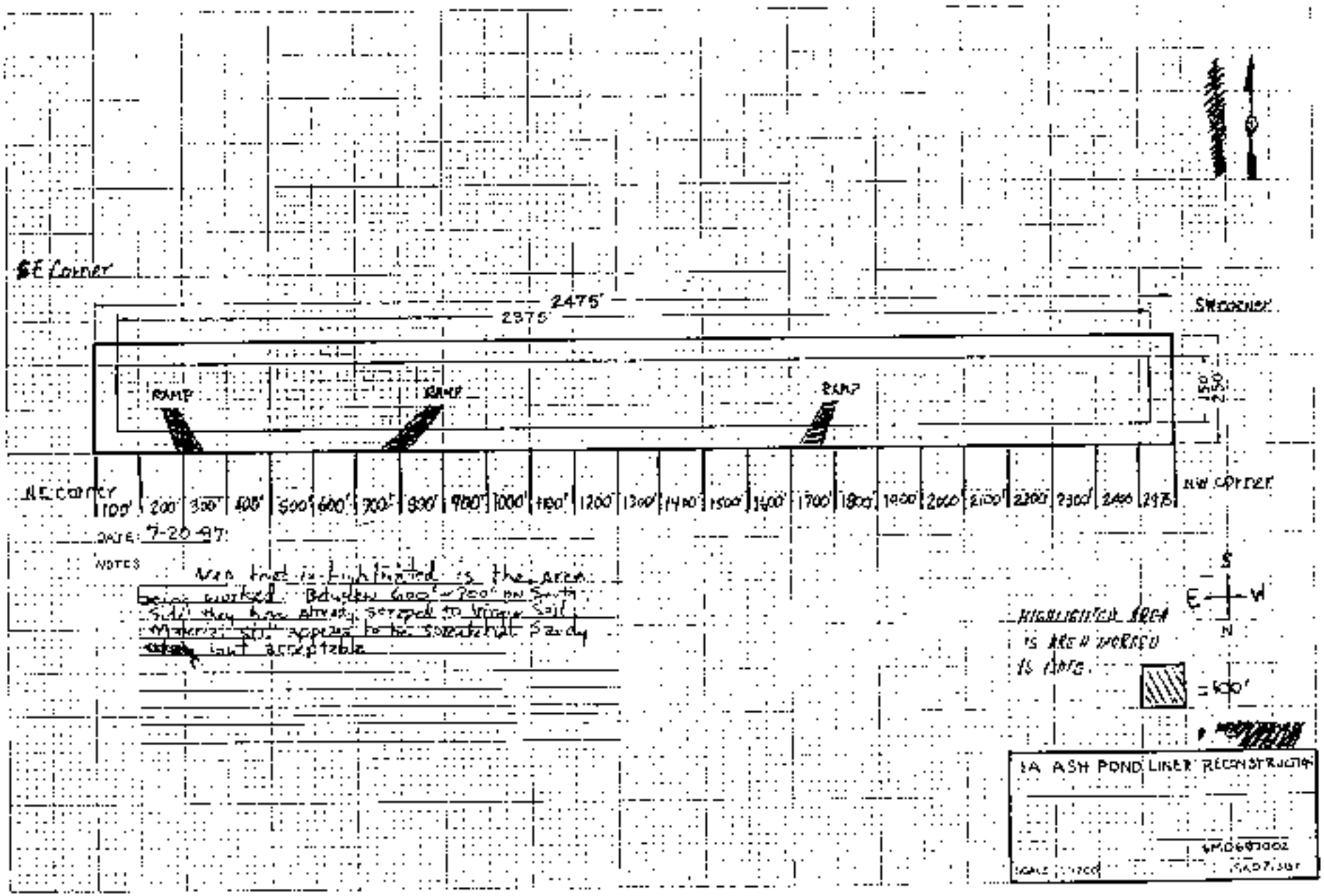
V.K. Knowlton is working the area on the bottom of 1A Pond, approximately 500'-800' west of the N.E. corner running the total width of the pond. V.K. Knowlton is still encountering sandy clay that is unacceptable in this area. In the area on the bottom of the pond, approximately 600'-800' west of the N.E. corner, water is still pretty heavy. This area may require coring to further continue construction. Approximately 60% of the pond has been cleaned of vegetation and contaminated soils. No actual reconstruction of the pond was performed on this date. No compaction tests were required on this day. Road on north side of 1A Pond was graded to smoother surface for better hauling. Pumps were put into the pond to remove water today.

If there are are questions concerning this report, please do not hesitate to contact our office at your convenience.

Respectfully submitted,

PROFESSIONAL SERVICE INDUSTRIES, INC.
(Shilstone Engineering Testing Laboratory Division)

cc: (2) Above
/dd


SE Corner
2475'
2375'
SW corner
RAMP
RAMP
RAMP
250'
NE corner
100' 200' 300' 400' 500' 600' 700' 800' 900' 1000' 1100' 1200' 1300' 1400' 1500' 1600' 1700' 1800' 1900' 2000' 2100' 2200' 2300' 2400' 2475'
NW corner
DATE: 7-20-97
NOTES
Area that is highlighted is the area being worked. Between 600' - 700' on South Side they have already scraped to bring soil. Material still appears to be somewhat sandy but acceptable
HIGHLIGHTED AREA IS AREA WORKED IS TODAY.
S
E
W
N
= 100'
1A ASH POND LINER RECONSTRUCTION

Professional Service Industries, Inc.
Shilstone Engineering Testing Laboratory Division

DAILY REPORT

TESTED FOR: SAN MIGUEL ELECTRIC COOPERATIVE, INC.
Post Office Box 280
Jourdanton, Texas 78026
ATTENTION: Mr. Clyde Price

PROJECT: 1A Ash Pond Soil Testing
P.O. #26643-032:08

DATE: August 19, 1987 OUR REPORT NO: 311-70065-32

REMARKS:

Weather: Sunny & Clear
Temperature Range: 95° to 100°
Inspector: G. Quintanilla
Type of Inspection: Fill Control

Brief summary of work accomplished today:

Equipment Used:

1. (1) 6370 Scraper
2. (1) Liebherr Dozer
3. (1) D-8 Dozer
4. (1) D-6 Dozer with Rake
5. (1) Water Truck
6. (1) CAT. Spray King
7. (1) 120G Motor Grader

V.K. Knowlton started work at 7:00 a.m. V.K. Knowlton was able to work a 300' section today. The North Slope, Station 400'-700' was worked, and 200' was completed. A total of 18 densities taken today. V.K. Knowlton finished work at 6:00 p.m. A copy of the tests performed on the material sampled on August 17, 1987 (PSI Report No. 311-70065-33) is enclosed for your review.

If there are any questions concerning this report, please do not hesitate to contact our office at your convenience.

Respectfully submitted,

PROFESSIONAL SERVICES INDUSTRIES, INC.
(Shilstone Engineering Testing Laboratory Division)

cc: (2) Above
/dd

Professional Service Industries, Inc.
Shilstone Engineering Testing Laboratory Division

REPORT OF FIELD COMPACTION TESTS

TESTED FOR: SAN MIGUEL ELECTRIC COOPERATIVE, INC.
Post Office Box 280
Jourdanton, Texas 78026
ATTENTION: Mr. Clyde Price

PROJECT: 1A Ash Pond Soil Testing
P.O. #26643-032108

DATE: August 19, 1987

OUR REPORT NO: 311-70065-32

TEST DATA: Optimum moisture: (22, 33.0)

TEST NO.	DATE	LIFT NO. / DEPTH	SOIL TYPE NUMBER	MAXIMUM DRY DENSITY (PCF)	WATER CONTENT (%)	IN PLACE DRY DENSITY (PCF)	PERCENT COMPACTION	COMMENTS*
1	08-19-87	1st Lift	22	82.6	37.2	80.5	97.4	1 - A
2	08-19-87	1st Lift	22	82.6	36.0	82.0	99.2	1 - A
3	08-19-87	Grade	22	82.6	36.9	81.8	99.0	1 - A
4	08-19-87	2nd Lift	22	82.6	36.2	80.0	96.8	1 - A
5	08-19-87	Final	22	82.6	36.4	80.3	97.2	1 - A
6	08-19-87	2nd Lift	22	82.6	35.9	82.0	99.2	1 - A

TEST LOCATION: NORTH SLOPE (STATION 400'-700')

1	35' West of station 400' and 10' from Bottom of Slope.
2	20' West of Station 500' and 20' from Bottom of Slope.
3	60' West of Station 600' and 10' from Top of Slope.
4	75' West of Station 400' and 15' from Top of Slope.
5	45' West of Station 400' and 10' from Bottom of Slope.
6	85' West of Station 500' and 20' from Bottom of Slope.

NOTES: DENSITIES SHOWN ARE IN POUNDS PER CUBIC FOOT
WATER CONTENT: PERCENT OF DRY WEIGHT
PERCENT COMPACTION: BASED ON MAXIMUM DRY DENSITY OBTAINED ON SAMPLE ANALYZED BY PSI LABORATORY

* 1 FILL MATERIAL
2 BACKFILL
3 BASE COURSE
4 SUBBASE
5 SOIL CEMENT
6 OTHER

A TEST RESULTS COMPLY WITH SPECIFICATIONS
B RECOMPACTION REQUIRED
C TEST IS AFTER RECOMPACTION

REMARKS:

Respectfully submitted,
Professional Service Industries, Inc.

Professional Service Industries, Inc.
Shilstone Engineering Testing Laboratory Division

REPORT OF FIELD COMPACTION TESTS

TESTED FOR: SAN MIGUEL ELECTRIC COOPERATIVE, INC.
Post Office Box 280
Jourdanton, Texas 78026
ATTENTION: Mr. Clyde Price

PROJECT: 1A Ash Pond Soil Testing
P.O. #26643-032108

DATE: August 19, 1987 OUR REPORT NO: 311-70065-32

TEST DATA: Optimum moisture: (22, 33.0)

TEST NO	DATE	TEST DESIGNATION	SOIL TYPE NUMBER	MAXIMUM DRY DENSITY	WATER CONTENT	DRY DENSITY	PERCENT COMPACTION	COMMENTS*
7	08-19-87	Final	22	82.6	36.4	79.5	96.2	1 - A
8	08-19-87	1st Lift	22	82.6	37.9	79.8	96.6	1 - A
9	08-19-87	2nd Lift	22	82.6	38.1	80.0	96.8	1 - A
10	08-19-87	Final	22	82.6	37.7	79.4	96.1	1 - A
11	08-19-87	Grade	22	82.6	37.4	80.8	97.8	1 - A
12	08-19-87	Grade	22	82.6	36.3	80.3	97.2	1 - A

TEST LOCATION: NORTH SLOPE (STATION 200'-600')

7	30' West of Station 200' and 10' from Bottom of Slope.
8	25' West of Station 300' and 20' from Bottom of Slope.
9	65' West of Station 300' and 15' from Top of Slope.
10	75' West of Station 300' and 25' from Top of Slope.
11	10' West of Station 400' and 30' from Bottom of Slope.
12	50' West of Station 500' and 5' from Bottom of Slope.

NOTES: DENSITIES SHOWN ARE DRY UNIT WEIGHTS
WATER CONTENT (PERCENT DRY WEIGHT)
PERCENT COMPACTION Based on maximum dry density obtained on sample identified by soil ID number

* 1 FILL MATERIAL
2 BACKFILL
3 BASE COURSE
4 SUBBASE
5 SOIL CEMENT
6 OTHER

A TEST RESULTS COMPLY WITH SPECIFICATIONS
B RECOMPACTION REQUIRED
C TEST TAKEN AFTER RECOMPACTION

REMARKS:

Respectfully submitted,
Professional Service Industries, Inc.

PSI A 1979

Professional Service Industries, Inc.
Shilstone Engineering Testing Laboratory Division

REPORT OF FIELD COMPACTION TESTS

TESTED FOR: SAN MIGUEL ELECTRIC COOPERATIVE, INC.
Post Office Box 280
Jourdanton, Texas 78026
ATTENTION: Mr. Clyde Price

PROJECT: 1A Ash Pond Soil Testing
P.O. #26643-032108

DATE: August 19, 1987 OUR REPORT NO: 311-70065-32

TEST DATA: Optimum moisture: (22, 33.0)

TEST NO.	DATE	FIELD DESIGNATION	SOIL TYPE NUMBER	MAXIMUM DRY DENSITY	WATER CONTENT	DRY DENSITY	PERCENT COMPACTION	COMMENTS*
13	08-19-87	Grade	22	82.6	38.3	78.8	95.3	1 - A
14	08-19-87	1st Lift	22	82.6	37.8	81.3	98.4	1 - A
15	08-19-87	2nd Lift	22	82.6	35.9	82.5	99.8	1 - A
16	08-19-87	Final	22	82.6	36.0	83.5	101.0	1 - A
17	08-19-87	1st Lift	22	82.6	38.1	80.0	96.8	1 - A
18	08-19-87	2nd Lift	22	82.6	37.0	80.3	97.2	1 - A

TEST LOCATION: NORTH SLOPE (STATION 100'-300')

13	20' West of Station 100' and 25' from Bottom of Slope.
14	35' West of Station 100' and 30' from Bottom of Slope.
15	60' West of Station 100' and 10' from Top of Slope.
16	75' West of Station 100' and 15' from Top of Slope.
17	10' West of Station 200' and 30' from Bottom of Slope.
18	25' West of Station 200' and 10' from Bottom of Slope.

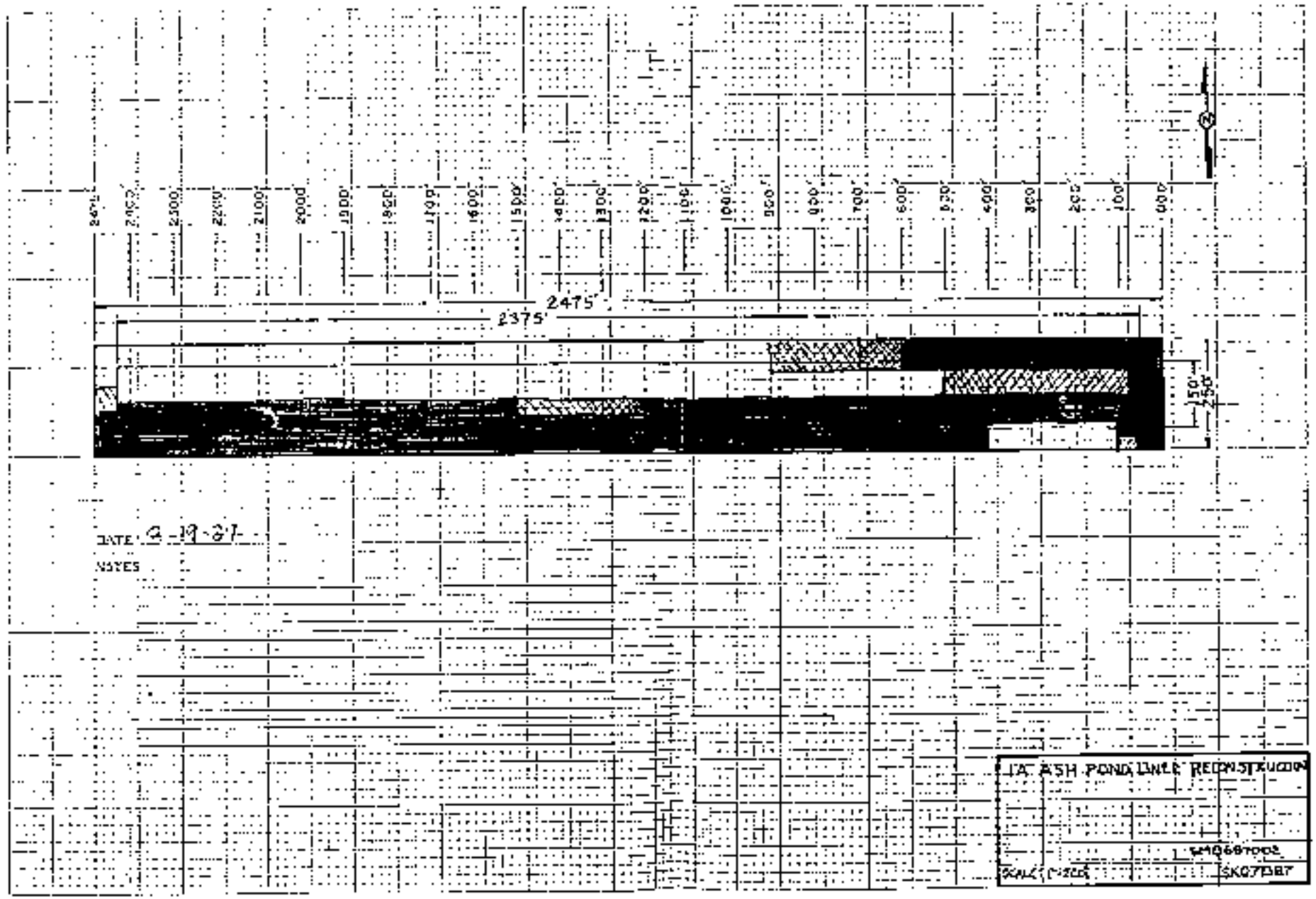
NOTES: DENSITIES SHOWN: Lbs. per cubic foot
WATER CONTENT: Dry Basis, % by weight
PERCENT COMPACTION: Based on Maximum Dry Density obtained on sample obtained by PSI/Houston

* 1 FILL MATERIAL
2 BACKFILL
3 BASE COURSE
4 SUBBASE
5 SOIL CEMENT
6 OTHER

A TEST RESULTS COMPLY WITH SPECIFICATIONS
B RECOMPACTION REQUIRED
C TEST AFTER RECOMPACTION

REMARKS:

Respectfully submitted,
Professional Service Industries, Inc.


2475'
2375'
150'
250'
DATE 6-19-97
NOTES
ASH POND LINER RECONSTRUCTION

Professional Service Industries, Inc.
Shilstone Engineering Testing Laboratory Division

REPORT OF MOISTURE DENSITY RELATIONSHIP OF SOIL

TESTED FOR SAN MIGUEL ELECTRIC COOPERATIVE, INC.
Post Office Box 280
Jourdanton, Texas 78026
ATTENTION: Mr. Clyde Price

PROJECT 1A Ash Pond Soil Testing
P.O. #26643-032108

DATE August 18, 1987

OUR REPORT NO 311-70065-33

TEST DATA

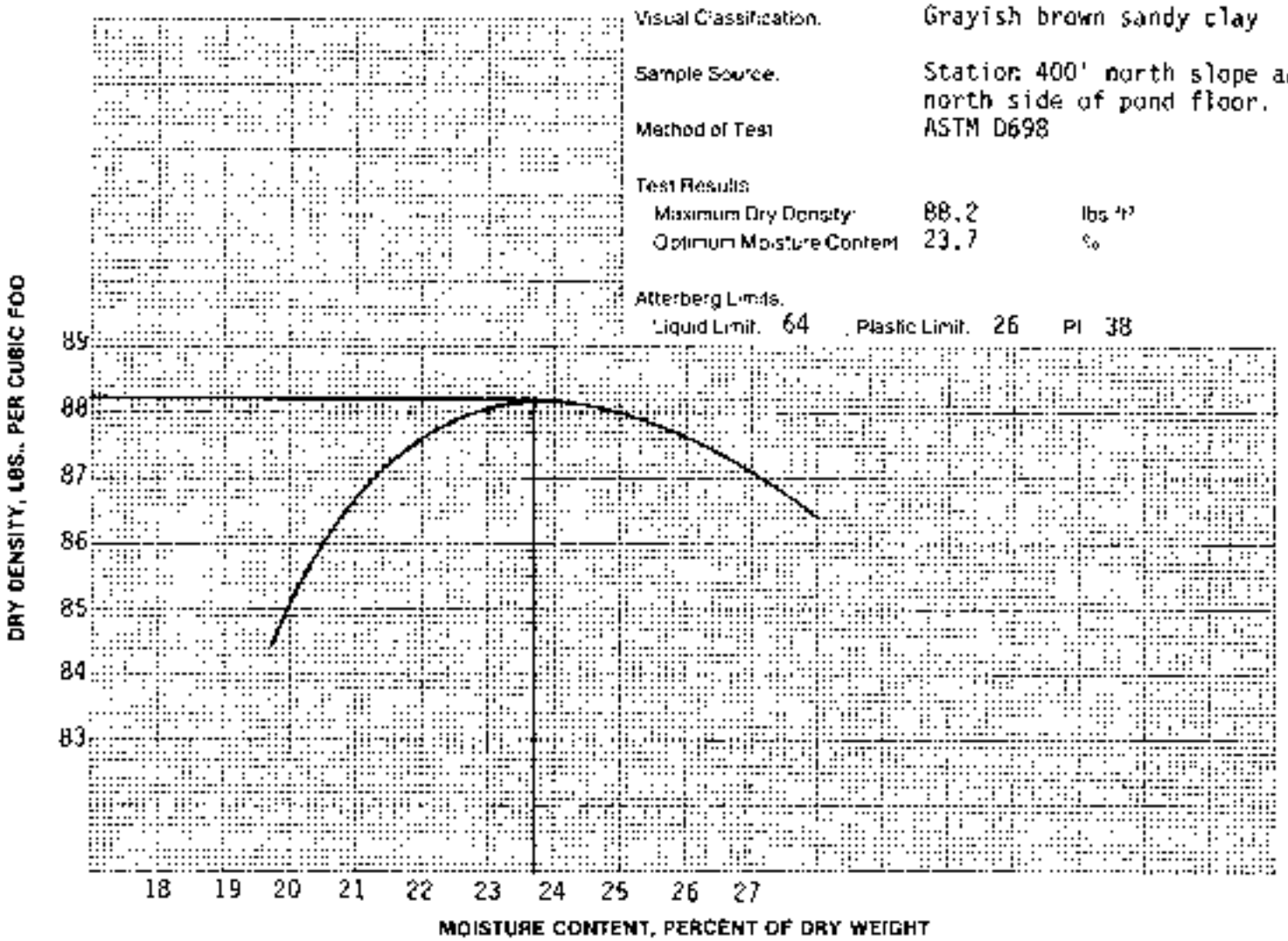
Visual Classification: Grayish brown sandy clay

Sample Source: Station 400' north slope and north side of pond floor.

Method of Test: ASTM D698

Test Results:
- Maximum Dry Density: 88.2 lbs/ft³
- Optimum Moisture Content: 23.7 %

Atterberg Limits: Liquid Limit 64, Plastic Limit 26, PI 38



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Respectfully submitted,
Professional Service Industries, Inc.

Professional Service Industries, Inc.
Shilstone Engineering Testing Laboratory Division

DAILY REPORT

TESTED FOR: SAN MIGUEL ELECTRIC COOPERATIVE, INC.
Post Office Box 280
Jourdanton, Texas 78026
ATTENTION: Mr. Clyde Price

PROJECT: 1A Ash Pond Soil Testing
P.O. #26643-032108

DATE: August 18, 1987 OUR REPORT NO: 311-70065-31

REMARKS:

Weather: Sunny & Clear
Temperature Range: 95° to 100°
Inspector: G. Quintanilla
Type of Inspection: Fill Control

Brief summary of work accomplished today:

Equipment Used:

1. (1) 637D Scraper
2. (1) Liebherr Dozer
3. (1) D-8 Dozer
4. (1) D-6 Dozer with Rake
5. (1) Water Truck
6. (1) CAT. Spray King
7. (1) 120G Motor Grader

V.K. Knowlton started at 7:00 a.m. The area worked today was on the North Slope at Station 100'-500'. A total of 18 densities were taken. Four (4) failures occured due to moisture content. This area is being watered and reworked again. V.K. Knowlton finished work at 6:00 p.m.

If there are any questions concerning this report, please do not hesitation to contact our office at your convenience.

Respectfully submitted,

PROFESSIONAL SERVICE INDUSTRIES, INC.
(Shilstone Engineering Testing Laboratory Division)

cc: (2) Above
/dd

Professional Service Industries, Inc.
Shilstone Engineering Testing Laboratory Division

REPORT OF FIELD COMPACTION TESTS

TESTED FOR: SAN MIGUEL ELECTRIC COOPERATIVE, INC.
Post Office Box 280
Jourdenton, Texas 78026
ATTENTION: Mr. Clyde Price

PROJECT: 1A Ash Pond Soil Testing
P.O. #26643-032108

DATE: August 18, 1987 OUR REPORT NO: 311-70065-31

TEST DATA: Optimum moisture: (22, 33.0)

TEST NO	DATE	LIFT / DEPTH	CURVE NUMBER	MAXIMUM DRY DENSITY	WATER CONTENT	IN PLACE DRY DENSITY	PERCENT COMPACTION	COMMENTS *
1	08-18-87	2nd Lift	22	82.6	36.0	81.5	98.6	1 - A
2	08-18-87	2nd Lift	22	82.6	36.6	80.5	97.4	1 - A
3	08-18-87	Final	22	82.6	36.5	82.0	99.2	1 - A
4	08-18-87	Final	22	82.6	36.7	82.3	99.6	1 - A
5	08-18-87	Grade	22	82.6	38.3	79.5	96.2	1 - A
6	08-18-87	1st Lift	22	82.6	39.0	78.8	95.3	1 - A

TEST LOCATION: EAST SLOPE (STATION 0-100') - NORTH SLOPE (STATION 0-100')

1	20' South of the N.E. Corner and 20' from Bottom of Slope.
2	30' North of the S.E. Corner and 30' from Top of Slope.
3	40' South of the N.E. Corner and 10' from Top of Slope.
4	10' North of the S.E. Corner and 15' from Top of Slope.
5	20' West of Station 0-100' and 20' from Bottom of Slope.
6	60' West of Station 0-100' and 30' from Top of Slope.

NOTES: DENSITIES SHOWN ARE IN POUNDS PER CUBIC FOOT
WATER CONTENT: Percentage by weight
PERCENT COMPACTION: Based on maximum dry density obtained on sample tested by this laboratory

* 1 FILL MATERIAL
2 BACKFILL
3 BASE COURSE
4 SUBBASE
5 SOIL CEMENT
6 OTHER

A TEST RESULTS COMPLY WITH SPECIFICATIONS
B RECOMPACTION REQUIRED
C TEST IS AFTER RECOMPACTION

REMARKS:

Respectfully submitted,
Professional Service Industries, Inc.

Professional Service Industries, Inc.
Shilstone Engineering Testing Laboratory Division

REPORT OF FIELD COMPACTION TESTS

TESTED FOR SAN MIGUEL ELECTRIC COOPERATIVE, INC.
Post Office Box 280
Jourdanton, Texas 78026
ATTENTION: Mr. Clyde Price

PROJECT 1A Ash Pond Soil Testing
P.O. #26643-032108

DATE August 18, 1987 PSI REPORT NO. 311-70065-31

TEST DATA: Optimum moisture: (22, 33.0)

TEST NO.	DATE	LIFT DEPTH	TEST NO. NUMBER	MAXIMUM DRY DENSITY	WATER CONTENT	DRY DENSITY	PERCENT COMPACTION	COMMENTS *
7	08-18-87	2nd Lift	22	82.6	36.8	80.7	97.6	1 - A
8	08-18-87	Final	22	82.6	36.3	82.5	99.8	1 - A
9	08-18-87	Grade	22	82.6	36.7	82.2	99.5	1 - A
0	08-18-87	Grade	22	82.6	36.2	80.0	96.8	1 - A
11	08-18-87	Grade	22	82.6	38.8	78.5	95.0	1 - A
12	08-18-87	Grade	22	82.6	39.4	78.6	95.1	1 - A

TEST LOCATION: NORTH SLOPE (STATION 0-100' & 200'-500'), POND FLOOR (STATION 0-600') NORTH SIDE.

7	20' West of Station 0-100' and 20' from Bottom of Slope.
8	40' West of Station 0-100' and 10' from Bottom of Slope.
9	50' West of Station 200' and 25' from Top of Slope.
10	70' West of Station 300' and 15' from Bottom of Slope.
11	15' West of station 400' and 20' from Top of Slope.
12	30' West of Station 0-100' and 20' South of North Slope.

NOTES: DENSITIES SHOWN ARE PER CUBIC FOOT.
WATER CONTENT: PERCENT OF DRY WEIGHT.
PERCENT COMPACTION: RELATIVE TO MAXIMUM DRY DENSITY OF TYPE OF SOIL OR SAMPLE INDICATED BY SOIL ID NUMBER.

* 1 FILL MATERIAL
2 BACKFILL
3 BASE COURSE
4 SUBBASE
5 SOIL CEMENT
6 OTHER

A TEST RESULTS COMPLY WITH SPECIFICATIONS
B RECOMPACTION REQUIRED
C TEST IS AFTER RECOMPACTION

REMARKS:

Respectfully submitted
Professional Service Industries, Inc.

Professional Service Industries, Inc.
Shilstone Engineering Testing Laboratory Division

REPORT OF FIELD COMPACTION TESTS

TESTED FOR: SAN MIGUEL ELECTRIC COOPERATIVE, INC.
Post Office Box 280
Jourdanton, Texas 78026
ATTENTION: Mr. Clyde Price

PROJECT: 1A Ash Pond Soil Testing
P.O. #26643-032108

DATE: August 18, 1987 OUR REPORT NO: 311-70065-31

TEST DATA: Optimum moisture: (22, 33.0)

TEST NO	DATE	FILL DEPTH	TEST ELEV.	MAX. DRY DENSITY	WATER CONTENT	RELATIVE DENSITY	PERCENT COMPACTION	COMMENTS*
13	08-18-87	1st Lift	22	82.6	33.3	83.2	100.7	1 - E
14	08-18-87	Grade	22	82.6	32.3	84.3	102.0	1 - E
15	08-18-87	Grade	22	82.6	33.1	83.7	101.3	1 - E
16	08-18-87	Grade	22	82.6	33.3	84.0	101.6	1 - E
17	08-18-87	Grade	22	82.6	37.5	80.0	96.8	1 - A
18	08-18-87	1st Lift	22	82.6	37.6	80.3	97.2	1 - A

TEST LOCATION: POND FLOOR (STATION 0-600') NORTH SIDE

13	30' West of Station 0-100' and 15' South of North Slope.
14	40' West of Station 100' and 30' South of North Slope.
15	65' West of Station 200' and 20' South of North Slope.
16	10' West of Station 300' and 40' South of North Slope.
17	75' West of Station 400' and 50' South of North Slope.
18	10' West of Station 500' and 10' South of North Slope.

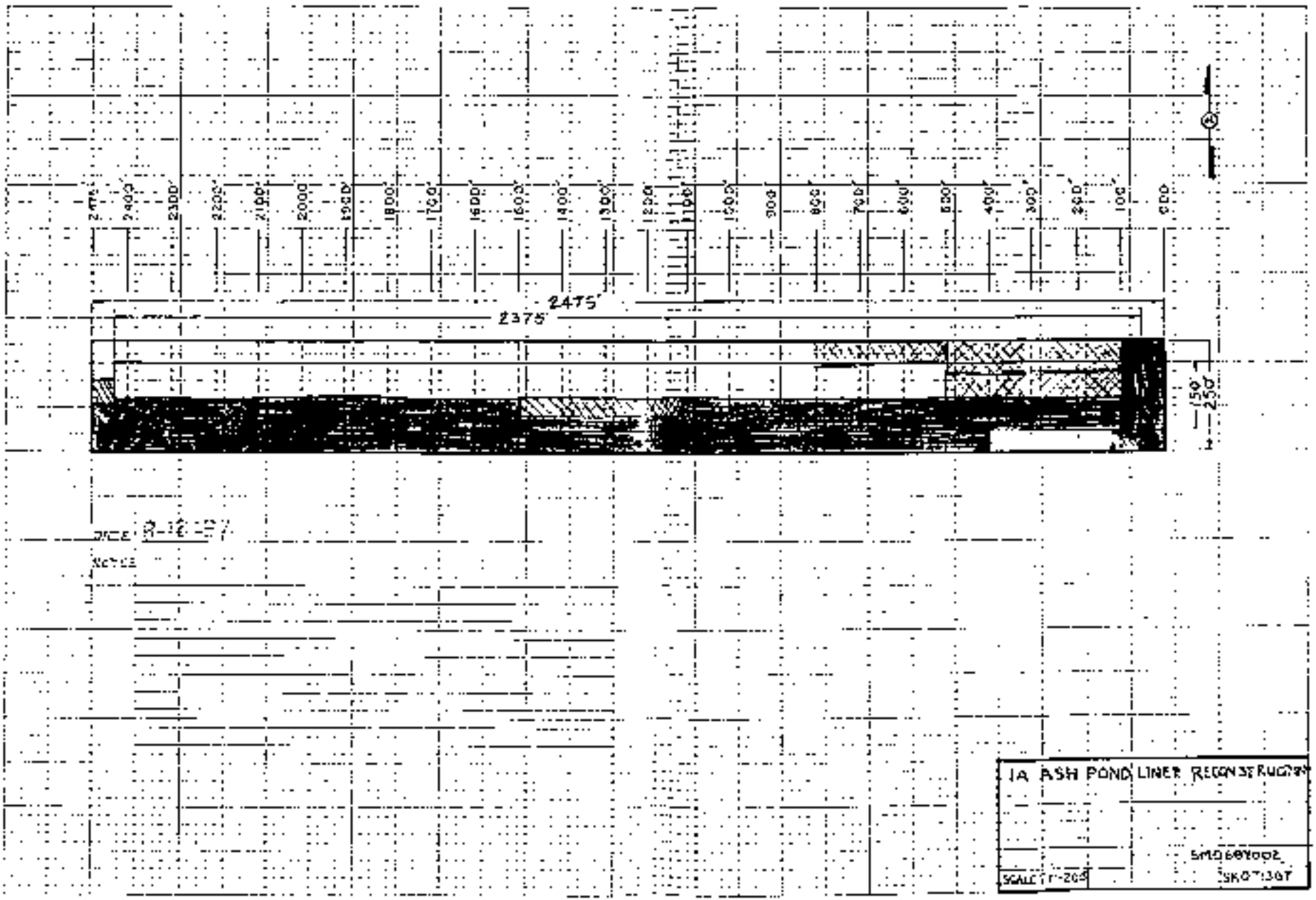
NOTES: DENSITIES SHOWN ARE PER CUBIC FOOT
WATER CONTENT: Per Cent of Dry Weight
PERCENT COMPACTION: Based on Maximum Dry Density of Laboratory Sample Obtained by ASTM D Number

* 1 FILL MATERIAL
2 BACKFILL
3 BASE COURSE
4 SUBGRADE
5 SOIL CEMENT
6 OTHER

A TEST RESULTS COMPLY WITH SPECIFICATIONS
B RECOMPACTION REQUIRED
C TEST IS AFTER RECOMPACTION

REMARKS:

Respectfully submitted,
Professional Service Industries, Inc


2475'
2375'
150'
250'
1A ASH POND LINER RECONSTRUCTION

Professional Service Industries, Inc.
Shilstone Engineering Testing Laboratory Division

DAILY REPORT

TESTED FOR: SAN MIGUEL ELECTRIC COOPERATIVE, INC.
Post Office Box 280
Jourdanton, Texas 78026
ATTENTION: Mr. Clyde Price

PROJECT: 1A Ash Pond Soil Testing
P.O. #26643-032108

DATE: August 17, 1987 OUR REPORT NO: 311-70065-30 Page 1 of 5

REMARKS:

Weather: Sunny & Clear
Temperature Range: 95° to 100°
Inspector: G. Quintanilla
Type of Inspection: Fill Control

Brief summary of work accomplished today:

Equipment Used:

1. (1) 637D Scraper
2. (1) Liebherr Dozer
3. (1) D8 Dozer
4. (1) D6 Dozer with Rake
5. (1) 120G CAT. Grader
6. (1) CAT. Spray King
7. (1) Water Truck
8. Discing Equipment

V.K. Knowlton started at 7:00 a.m. The areas worked today were on the Pond Floor at Station 1200'-1500', 700', 300'-700', 900', 0-300'. Seepage has reoccured again in the S.E. corner at Station 100'-600'. Another alternative will have to be used in this area. A change in material was encountered on the North Slope and the Pond Floor. A sample was taken for testing. A total of 24 densities were taken today. V.K. Knowlton finished work at 6:00 p.m.

If there are any questions concerning this report, please do not hesitate to contact our office at your convenience.

Respectfully submitted,

PROFESSIONAL SERVICE INDUSTRIES, INC.
(Shilstone Engineering Testing Laboratory Division)

cc: (2) Above
/dd

Professional Service Industries, Inc.
Shilstone Engineering Testing Laboratory Division

REPORT OF FIELD COMPACTION TESTS

TESTED FOR: SAN MIGUEL ELECTRIC COOPERATIVE, INC.
Post Office Box 280
Jourdanton, Texas 78026
ATTENTION: Mr. Clyde Price

PROJECT: 1A Ash Pond Soil Testing
P.O. #26643-032108

DATE: August 17, 1987 OUR REPORT NO: 311-70065-30

TEST DATA: Optimum moisture: (22, 33.0)

TEST NO.	DATE	LIFT	SOIL TYPE NUMBER	MAXIMUM DRY DENSITY	WATER CONTENT	IN PLACE DRY DENSITY	PERCENT COMPACTION	COMMENTS
1	08-17-87	1st Lift	22	82.6	36.2	80.8	97.8	1 - A
2	08-17-87	1st Lift	22	82.6	38.3	78.8	95.3	1 - A
3	08-17-87	1st Lift	22	82.6	37.5	80.0	96.8	1 - A
4	08-17-87	2nd Lift	22	82.6	38.5	79.8	96.6	1 - A
5	08-17-87	2nd Lift	22	82.6	36.7	79.7	96.4	1 - A
6	08-17-87	2nd Lift	22	82.6	37.2	80.5	97.4	1 - A

TEST LOCATION: POND FLOOR (STATION 1200'-1500')

1	20' West of Station 1200' and 10' North of South Slope.
2	60' West of Station 1300' and 15' North of South Slope.
3	30' West of Station 1400' and 35' North of South Slope.
4	70' West of Station 1200' and 45' North of South Slope.
5	10' West of Station 1300' and 5' North of South Slope.
6	85' West of Station 1400' and 15' North of South Slope.

NOTES: DENSITIES SHOWN ARE PER CUBIC FOOT
WATER CONTENT: Per Cent of dry weight
PERCENT COMPACTION: Based on maximum dry density obtained in accordance with ASTM D 698

* 1 FILL MATERIAL
2 BACKFILL
3 BASE COURSE
4 SUBBASE
5 SOIL CEMENT
6 OTHER

A TEST RESULTS COMPLY WITH SPECIFICATIONS
B RECOMPACTION REQUIRED
C TEST AFTER RECOMPACTION

REMARKS.

Respectfully submitted,
Professional Service Industries, Inc.

Professional Service Industries, Inc.
Shilstone Engineering Testing Laboratory Division

REPORT OF FIELD COMPACTION TESTS

TESTED FOR: SAN MIGUEL ELECTRIC COOPERATIVE, INC.
Post Office Box 280
Jourdanton, Texas 78026
ATTENTION: Mr. Clyde Price

PROJECT: 1A Ash Pond Soil Testing
P.O. #26643-032108

DATE: August 17, 1987 | OJA REPORT NO: 311-70065-30 |

TEST DATA: Optimum moisture: (22, 33.0)

TEST NO.	DATE	TYPE	LIFT NUMBER	MAXIMUM DRY DENSITY	WATER CONTENT	WET DENSITY	PERCENT COMPACTION	REMARKS *
7	08-17-87	Final	22	82.6	36.9	81.8	99.0	1 - A
8	08-17-87	Final	22	82.6	36.5	81.3	98.4	1 - A
9	08-17-87	Final	22	82.6	37.0	81.0	98.0	1 - A
10	08-17-87	Final	22	82.6	37.6	81.1	98.1	1 - A
11	08-17-87	Final	22	82.6	38.0	81.5	98.6	1 - A
12	08-17-87	Final	22	82.6	36.0	82.0	99.2	1 - A

TEST LOCATION:

7	10' West of Station 700' and 20' North of South Slope.
8	60' West of Station 300' and 10' North of South Slope.
9	25' West of Station 400' and 45' North of South Slope.
10	55' West of Station 500' and 25' North of South Slope.
11	65' West of station 600' and 5' North of South Slope.
12	15' West of Station 900' and 35' North of South Slope.

NOTES: DENSITIES SHOWN ARE PER ASTM D 698
WATER CONTENT PER ASTM D 2216
PERCENT COMPACTION BASED ON MAXIMUM DRY DENSITY
OBTAINED FROM SAMPLE FURNISHED BY
SAN MIGUEL

* 1 FILL MATERIAL
2 BACKFILL
3 BASE COURSE
4 SUBBASE
5 SOIL CEMENT
6 OTHER

A TEST RESULTS COMPLY WITH SPECIFICATIONS
B RECOMPACTION REQUIRED
C TEST IS AFTER RECOMPACTION

REMARKS

Respectfully submitted,
Professional Service Industries, Inc.

Professional Service Industries, Inc.
Shilstone Engineering Testing Laboratory Division

REPORT OF FIELD COMPACTION TESTS

TESTED FOR: SAN MIGJEL ELECTRIC COOPERATIVE, INC.
Post Office Box 280
Jourdanton, Texas 78026
ATTENTION: Mr. Clyde Price

PROJECT: 1A Ash Pond Soil Testing
P.O. #26643-032108

DATE: August 17, 1987 OUR REPORT NO: 311-70065-30

TEST DATA: Optimum moisture: (22, 33.0)

TEST NO	DATE	TEST LOCATION	SOIL TYPE NUMBER	MAXIMUM DRY DENSITY	WATER CONTENT	IN PLACE DRY DENSITY	PERCENT COMPACTION	COMMENTS*
13	08-17-87	Grade	22	82.6	37.4	80.7	97.6	1 - A
14	08-17-87	Grade	22	82.6	38.9	80.2	97.0	1 - A
15	08-17-87	Grade	22	82.6	37.0	80.3	97.2	1 - A
16	08-17-87	1st Lift	22	82.6	36.8	80.8	97.8	1 - A
17	08-17-87	1st Lift	22	82.6	39.4	78.5	95.0	1 - A
18	08-17-87	1st Lift	22	82.6	36.4	80.3	97.2	1 - A

TEST LOCATION: POND FLOOR (STATION 0-300')

13	20' West of Station 0-100' and 10' North of South Slope.
14	35' West of Station 100' and 20' North of South Slope.
15	45' West of Station 200' and 30' North of South Slope.
16	10' West of Station 0-100' and 45' North of South Slope.
17	40' West of Station 100' and 5' North of South Slope.
18	15' West of Station 200' and 15' North of South Slope.

NOTES: DENSITIES SHOWN ARE pcf
WATER CONTENT: Per Cent of dry weight
PERCENT COMPACTION: Based on maximum dry density obtained on sample designated by soil type number

* 1 FILL MATERIAL
2 BACKFILL
3 BASE COURSE
4 SUBBASE
5 SOIL CEMENT
6 OTHER

A TEST RESULTS COMPLY WITH SPECIFICATIONS
B RECOMPACTION REQUIRED
C TEST IS AFTER RECOMPACTION

REMARKS:

Respectfully submitted,
Professional Service Industries, Inc.

Professional Service Industries, Inc.
Shilstone Engineering Testing Laboratory Division

REPORT OF FIELD COMPACTION TESTS

TESTED FOR: SAN MIGUEL ELECTRIC COOPERATIVE, INC.
Post Office Box 280
Jourdanton, Texas 78026
ATTENTION: Mr. Clyde Price

PROJECT: 1A Ash Pond Soil Testing
P.O. #26643-032108

DATE: August 17, 1987 OUR REPORT NO: 311-70065-30

TEST DATA: Optimum moisture: (22, 33.0)

TEST NO.	DATE	FIELD	SOIL ID NUMBER	MAXIMUM DRY DENSITY	WATER CONTENT	% PROCT DENSITY	PERCENT COMPACTION	REMARKS*
19	08-17-87	2nd Lift	22	82.6	36.0	81.0	98.0	1 - A
20	08-17-87	2nd Lift	22	82.6	36.3	81.1	98.1	1 - A
21	08-17-87	2nd Lift	22	82.6	38.6	78.3	95.0	1 - A
22	08-17-87	Final	22	82.6	37.0	81.0	98.0	1 - A
23	08-17-87	Final	22	82.6	38.0	80.8	97.8	1 - A
24	08-17-87	Final	22	82.6	35.9	82.7	100.1	1 - A

TEST LOCATION. POND FLOOR (STATION 0-300')

19	50' West of station 0-100' and 10' North of South Slope.
20	75' West of station 100' and 25' North of South Slope.
21	85' West of Station 200' and 30' North of South Slope.
22	40' West of Station 0-100' and 40' North of South Slope.
23	15' West of Station 100' and 5' North of South Slope.
24	30' West of Station 200' and 45' North of South Slope.

NOTES: DENSITIES SHOWN: lbs. per cubic foot
WATER CONTENT: Per Cent of Dry Weight
PERCENT COMPACTION: Based on maximum dry density obtained on sample identified by soil ID number

* 1 FILL MATERIAL
2 BACKFILL
3 BASE COURSE
4 SUBBASE
5 SOIL CEMENT
6 OTHER

A TEST RESULTS COMPLY WITH SPECIFICATIONS
B RECOMPACTION REQUIRED
C TEST IS AFTER RECOMPACTION

REMARKS:

Respectfully submitted,
Professional Service Industries, Inc.

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2375
2475
50
250

Professional Service Industries, Inc.
Shilstone Engineering Testing Laboratory Division

DAILY REPORT

TESTED FOR SAN MIGUEL ELECTRIC COOPERATIVE, INC. PROJECT
Post Office Box 280
Jourdanton, Texas 78026
ATTENTION: Mr. Clyde Price

1A Ash Pond Soil Testing
P.O. #26643-032108

DATE August 14, 1987 OUR REPORT NO 311-70065-29 Page 1 of 3

REMARKS:

Weather: Sunny & Clear
Temperature Range: 95° to 100°
Inspector: G. Quintanilla
Type of Inspection: Fill Control

Brief summary of work accomplished today:

Equipment Used:

1. (2) 637D Scrapers
2. (1) Liebherr Bulldozer
3. (1) D8 CAT. Dozer
4. (1) D6 CAT. Dozer with Rake
5. (1) 120G CAT. Grader
6. (1) CAT. Spray King
7. (1) Water Truck
8. Discing Equipment

V.K. Knowlton started working at 7:00 a.m. V.K. Knowlton worked on the Pond Floor in the areas of Station 300'-700' and Station 800'-900'. Water has been removed from the Pond Floor on the north side between Station 300'-700'. This area will be sealed off today. Several tests were taken in areas where seepage had reoccurred. All of these tests passed in accordance with the project specifications, with the exception of one test on the south slope. This area will be reworked. A total of 12 densities were taken on this day. V.K. Knowlton finished at 6:00 p.m.

If there are any questions concerning this report, please do not hesitate to contact our office at your convenience.

Respectfully submitted,

PROFESSIONAL SERVICE INDUSTRIES, INC.
(Shilstone Engineering Testing Laboratory Division)

cc: (2) Above

/dd

Professional Service Industries, Inc.
Shilstone Engineering Testing Laboratory Division

REPORT OF FIELD COMPACTION TESTS

TESTED FOR: SAN MIGUEL ELECTRIC COOPERATIVE, INC.
Post Office Box 280
Jourdanton, Texas 78026
ATTENTION: Mr. Clyde Price

PROJECT: 1A Ash Pond Soil Testing
P.O. #26643-032108

DATE: August 14, 1987 OUR REPORT NO: 311-70065-29

TEST DATA: Optimum moisture: (22, 33.0)

TEST NO	DATE	LIFT OR DEPTH	SOIL TYPE NUMBER	MAXIMUM LABORATORY DENSITY	WATER CONTENT	PERCENT OF LABORATORY DENSITY	PERCENT COMPACTION	COMMENT *
1	08-14-87	2nd Lift	22	82.6	36.5	82.8	100.2	1 - A
2	08-14-87	2nd Lift	22	82.6	37.1	82.7	100.1	1 - A
3	08-14-87	2nd Lift	22	82.6	37.5	82.5	99.8	1 - A
4	08-14-87	2nd Lift	22	82.6	36.0	82.8	100.2	1 - A
5	08-14-87	2nd Lift	22	82.6	36.6	80.5	97.4	1 - A
6	08-14-87	2nd Lift	22	82.6	37.2	79.8	96.6	1 - A

TEST LOCATION:

1	20' West of Station 300' and 20' North from Toe of South Slope.
2	35' West of Station 400' and 25' North of South Slope.
3	60' West of Station 500' and 40' North of South Slope.
4	80' West of Station 600' and 5' North of South Slope.
5	25' West of Station 900' and 10' North of South Slope.
6	35' West of Station 800' and 30' North of South Slope.

NOTES: DENSITIES SHOWN [illegible]
WATER CONTENT: Percentage by weight
PERCENT COMPACTION: Based on maximum dry density obtained on soil type indicated by [illegible]

* 1 FILL MATERIAL
2 BACKFILL
3 BASE COURSE
4 SUBBASE
5 SOIL CEMENT
6 OTHER

A TEST RESULTS COMPLY WITH SPECIFICATIONS
H RECOMPACTION REQUIRED
C TEST IS AFTER RECOMPACTION

REMARKS:

Respectfully submitted,
Professional Service Industries, Inc.

Professional Service Industries, Inc.
Shilstone Engineering Testing Laboratory Division

REPORT OF FIELD COMPACTION TESTS

TESTED FOR: SAN MIGUEL ELECTRIC COOPERATIVE, INC. PROJECT: 1A Ash Pond Soil Testing
Post Office Box 280
Jourdanton, Texas 78026
ATTENTION: Mr. Clyde Price
P.O. #26643-032108

DATE: August 14, 1987 OUR REPORT NO: 311-70065-29

TEST DATA: Optimum moisture: (22, 33.0)

TEST NO	AT	KEY BLOWS	LOC. OF MOISTURE	WEIGHT OF WET SOIL (pcf)	WATER CONTENT	WEIGHT OF DRY SOIL (pcf)	PERCENT COMPACTION	COMMENT*
7	08-14-87	Grade	22	82.6	37.1	82.7	100.1	1 - A
8	08-14-87	1st Lift	22	82.6	38.4	82.0	99.2	1 - A
9	08-14-87	1st Lift	22	82.6	36.7	82.3	99.6	1 - A
10	08-14-87	2nd Lift	22	82.6	36.3	81.5	98.4	1 - A
11	08-14-87	2nd Lift	22	82.6	36.1	83.0	100.4	1 - A
12	08-14-87	Final	22	82.6	35.9	83.0	100.4	1 - A

TEST LOCATION: POND FLOOR (STATION 700'-900')

7	20' West of station 700' and 20' North of South Slope.
8	40' West of Station 700' and 35' North of South Slope.
9	60' West of Station 800' and 5' North of South Slope.
10	30' West of Station 700' and 15' North of South Slope.
11	20' West of Station 800' and 20' North of South Slope.
12	70' West of Station 800' and 40' North of South Slope.

NOTES: DENSITIES SHOWN ARE IN POUNDS PER CUBIC FOOT
WATER CONTENT: PERCENTAGE BY WEIGHT
PERCENT COMPACTION: BASED ON MAXIMUM DRY DENSITY OBTAINED ON SAMPLE INDICATED BY SOIL ID NUMBER

* 1 FILL MATERIAL
2 BACKFILL
3 BASE COURSE
4 SUBBASE
5 SOIL CEMENT
6 OTHER

A TEST RESULTS COMPLY WITH SPECIFICATIONS
B RECOMPACTION REQUIRED
C TEST IS AFTER RECOMPACTION

REMARKS.

Respectfully submitted,
Professional Service Industries, Inc.

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100
000
2375'
2475'
150'
250'
JA ASH POND LINER REGRADING

Professional Service Industries, Inc.
Shilstone Engineering Testing Laboratory Division

DAILY REPORT

TESTED FOR: SAN MIGUEL ELECTRIC COOPERATIVE, INC.
Post Office Box 280
Jourdanton, Texas 78026
ATTENTION: Mr. Clyde Price

PROJECT: 1A Ash Pond Soil Testing
P.O. #26643-032108

DATE: August 13, 1987 OUR REPORT NO: 311-70065-28

REMARKS:

Weather: Sunny & Clear
Temperature Range: 95° to 100°
Inspector: G. Quintanilla
Type of Inspection: Fill Control

Brief summary of work accomplished today:

Equipment Used:

1. (2) 637D Scrapers
2. (1) Liebherr Bulldozer
3. (1) D8 CAT. Dozer
4. (1) D6 CAT. Dozer with Rake
5. (1) 120G CAT. Grader
6. (1) CAT. Spray King
7. (1) Water Truck
8. Discing Equipment

V.K. Knowlton started at 7:00 a.m. V.K. Knowlton worked on the East Slope and the Pond Floor at Stations 400', 1500', 1000', 900', 300', and 500'-700'. Seepage is apparent once again on the Pond Floor at the S.E. corner, from Station 100'-600'. V.K. Knowlton will attempt to seal it off again. A total of twelve (12) in-place field density tests were taken today. V.K. Knowlton finished at 6:00 p.m.

If there are any questions concerning this report, please do not hesitate to contact our office at your convenience.

Respectfully submitted,

PROFESSIONAL SERVICE INDUSTRIES, INC.
(Shilstone Engineering Testing Laboratory Division)

cc: (2) Above
/dd

Professional Service Industries, Inc.
Shilstone Engineering Testing Laboratory Division

REPORT OF FIELD COMPACTION TESTS

TESTED FOR: SAN MIGUEL ELECTRIC COOPERATIVE, INC.
Post Office Box 280
Jourdanton, Texas 78026
ATTENTION: Mr. Clyde Price

PROJECT: 1A Ash Pond Soil Testing
P.O. #26643-032108

DATE: August 13, 1987 PSI REPORT NO: 311-70065-28

TEST DATA: Optimum moisture: (22, 33.0)

TEST NO.	DATE	FILL LIFT	SOIL TYPE NUMBER	MAXIMUM DRY DENSITY	WATER CONTENT	DRY DENSITY	PERCENT COMPACTION	COMMENTS*
1	08-13-87	1st Lift	22	82.6	36.0	80.3	97.2	1 - A
2	08-13-87	1st Lift	22	82.6	36.1	80.5	97.5	1 - A
3	08-13-87	2nd Lift	22	82.6	37.2	79.8	96.6	1 - A
4	08-13-87	2nd Lift	22	82.6	37.7	80.2	97.0	1 - A
5	08-13-87	Final	22	82.6	36.9	81.8	99.0	1 - A
6	08-13-87	Final	22	82.6	36.3	82.5	99.8	1 - A

TEST LOCATION: EAST SLOPE, POND FLOOR (STATIONS 400', 1000', and 1500')

1	20' South of N.E. Corner and 20' from Bottom of Slope. (Station 0-100', East Slope)
2	20' North of S.E. Corner and 35' from Bottom of Slope. (Station 0-100', East Slope)
3	40' West of Station 400' and 20' North from Toe of South Slope.
4	60' West of Station 1500' and 20' North from Toe of South Slope.
5	35' West of Station 1500' and 15' North from Toe of South Slope.
6	25' West of station 1000' and 10' North from Toe of South Slope.

NOTES: DENSITIES SHOWN ARE DRY UNIT WEIGHTS
WATER CONTENT: Per Cent of Dry Weight
PERCENT COMPACTION: Ratio of Field Dry Density Obtained on Sample to Standard Dry Density

* 1 FILL MATERIAL
2 BACKFILL
3 BASE COURSE
4 SUBBASE
5 SOIL CEMENT
6 OTHER

A TEST RESULTS COMPLY WITH SPECIFICATIONS
B RECOMPACTION REQUIRED
C TEST IS AFTER RECOMPACTION

REMARKS:

Respectfully submitted,
Professional Service Industries, Inc.

FORM A-1002

Professional Service Industries, Inc.
Shilstone Engineering Testing Laboratory Division

REPORT OF FIELD COMPACTION TESTS

TESTED FOR: SAN MIGUEL ELECTRIC COOPERATIVE, INC.
Post Office Box 280
Jourdanton, Texas 78026
ATTENTION: Mr. Clyde Price

PROJECT: 1A Ash Pond Soil Testing
P.O. #26643-032108

DATE: August 13, 1987 OUR REPORT NO: 311-70065-28

TEST DATA: Optimum moisture: (22, 33.0)

TEST NO.	DATE	LIFT / DEPTH	MOIST. NO.	MAX. DRY DENSITY	WATER CONTENT	RELATIVE DRY DENSITY	PERCENT COMPACTION	COMMENTS*
7	08-13-87	1st Lift	22	82.6	36.3	81.8	99.0	1 - A
8	08-13-87	1st Lift	22	82.6	37.1	82.8	100.2	1 - A
9	08-13-87	1st Lift	22	82.6	37.6	80.3	97.2	1 - A
10	08-13-87	1st lift	22	82.6	37.2	80.5	97.4	1 - A
11	08-13-87	Grade	22	82.6	38.2	80.3	97.2	1 - A
12	08-13-87	1st Lift	22	82.6	38.1	81.0	98.0	1 - A

TEST LOCATION: POND FLOOR (STATION 300'-700') (STATION 900')

7	20' West of station 300' and 20' North from Toe of South Slope.
8	40' West of station 400' and 30' North from Toe of South Slope.
9	60' West of Station 500' and 35' North from Toe of South Slope.
10	30' West of station 600' and 10' North from Toe of South Slope.
11	20' West of station 900' and 15' North from Toe of South Slope.
12	70' West of station 900' and 20' North from Toe of South Slope.

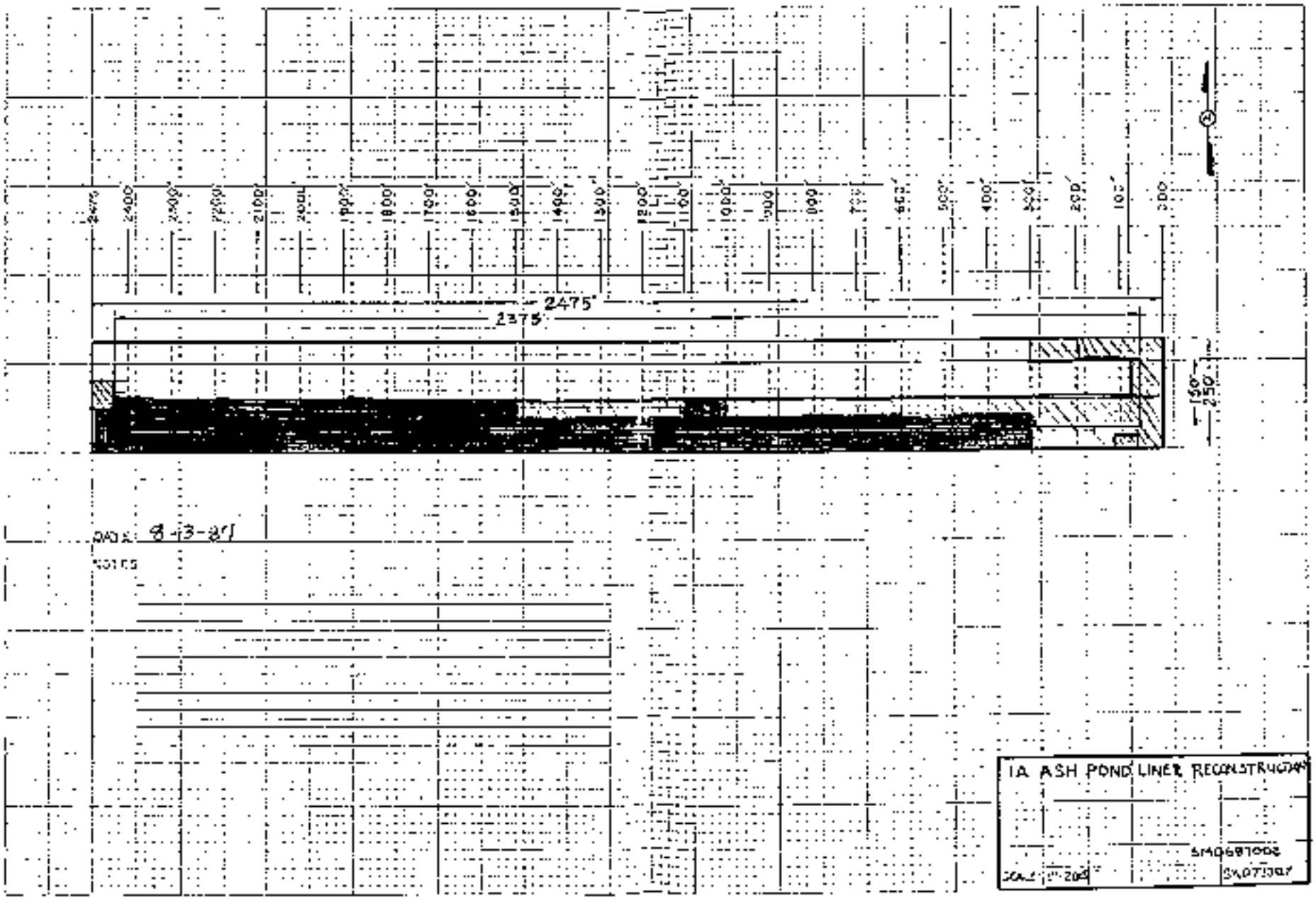
NOTES: DENSITIES SHOWN ARE DRY WEIGHTS
WATER CONTENT: Per Cent Dry Weight
PERCENT COMPACTION: Based on Test Proctor Dry Density obtained on sample indicated by Test No.

* 1 FILL MATERIAL
2 BACKFILL
3 BASE COURSE
4 SUBBASE
5 SOIL CEMENT
6 OTHER

A TEST RESULTS COMPLY WITH SPECIFICATIONS
U RECOMPACTION REQUIRED
C TEST IS AFTER RECOMPACTION

REMARKS:

Respectfully submitted,
Professional Service Industries, Inc.


2475'
2375'
250'
50'
1A ASH POND LINER RECONSTRUCTION

Professional Service Industries, Inc.
Shilstone Engineering Testing Laboratory Division

DAILY REPORT

TESTED FOR SAN MIGUEL ELECTRIC COOPERATIVE, INC.
Post Office Box 280
Jourdanton, Texas 78026
ATTENTION: Mr. Clyde Price

PROJECT 1A Ash Pond Soil Testing
P.O. #26643-032108

DATE August 12, 1987 OUR REPORT NO 311-70065-27

REMARKS:

Weather: Sunny & Clear
Temperature Range: 95° to 100°
Inspector: G. Quintanilla
Type of Inspection: Fill Control

Brief summary of work accomplished today:

Equipment Used:

1. (2) 637D Scrapers
2. (1) Liebherr Bulldozer
3. (1) D8 CAT. Dozer
4. (1) D6 CAT. Dozer
5. (1) 120G CAT. Grader
6. (1) CAT. Spray King
7. (1) Water Truck
8. Discing Equipment

V.K. Knowlton started working at 7:00 a.m. today. The areas worked include Station 1200'-1700', Station 300'-700', and the East Slope. A total of six (6) in-place field densities tests were taken today. V.K. Knowlton finished work at 6:00 p.m.

If there are any question concerning this report, please do not hesitate to contact our office at your convenience.

Respectfully submitted,

PROFESSIONAL SERVICE INDUSTRIES, INC.
(Shilstone Engineering Testing Laboratory Division)

cc: (2) Above
/dd

Professional Service Industries, Inc.
Shilstone Engineering Testing Laboratory Division

REPORT OF FIELD COMPACTION TESTS

TESTED FOR: SAN MIGUEL ELECTRIC COOPERATIVE, INC.
Post Office Box 280
Jourdanton, Texas 78026
ATTENTION: Mr. Clyde Price

PROJECT: 1A Ash Pond Soil Testing
P.O. 426643-032108

DATE: August 12, 1987 OUR REPORT NO: 311-70065-27

TEST DATA: Optimum moisture: (22, 33.0)

TEST NO.	DATE	FILL / LAYER	LIFT NUMBER	MAXIMUM LABORATORY DENSITY	WATER CONTENT	IN-PLACE DRY DENSITY	PERCENT COMPACTION	COMMENTS*
1	08-12-87	Grade	22	82.6	36.0	81.8	99.0	1 - A
2	08-12-87	Grade	22	82.6	37.2	79.8	96.6	1 - A
3	08-12-87	Grade	22	82.6	36.4	81.0	98.0	1 - A
4	08-12-87	Grade	22	82.6	36.2	79.3	96.0	1 - A
5	08-12-87	Grade	22	82.6	36.4	79.5	96.2	1 - A
6	08-12-87	Grade	22	82.6	36.0	81.3	98.4	1 - A

TEST LOCATION: EAST SLOPE, STATION 0-100'; POND FLOOR, STATION 300'-700'

1	20' South of the N.E. Corner in Station 0-100' and 20' from Bottom of Slope.
2	25' North of the S.E. Corner in Station 0-100' and 30' from Bottom of Slope.
3	20' West of Station 300' and 20' North from the Toe of the South Slope.
4	45' West of Station 400' and 25' North from the Toe of the South Slope.
5	65' West of Station 500' and 5' North from the Toe of the South Slope.
6	30' West of Station 600' and 10' North from the Toe of the South Slope.

NOTES: DENSITIES SHOWN ARE DRY WEIGHTS
WATER CONTENT: Per Cent of Dry Weight
PERCENT COMPACTION: Ratio of In-Place Dry Density to Maximum Laboratory Density obtained on samples tested by this laboratory

* 1 FILL MATERIAL
2 BACKFILL
3 BASE COURSE
4 SUBGRADE
5 SOIL CEMENT
6 OTHER

A TEST RESULTS COMPLY WITH SPECIFICATIONS
B RECOMPACTION REQUIRED
C TEST IS AFTER RECOMPACTION

REMARKS:

Respectfully submitted,
Professional Service Industries, Inc.

PSI-4 1082

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150
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SHEET

Professional Service Industries, Inc.
Shilstone Engineering Testing Laboratory Division

DAILY REPORT

TESTED FOR SAN MIGUEL ELECTRIC COOPERATIVE, INC. PROJECT 1A Ash Pond Soil Testing
Post Office Box 280 P.O. #26643-032108
Jourdanton, Texas 78026
ATTENTION: Mr. Clyde Price

DATE August 11, 1987 OUR REPORT NO 311-70065-25

REMARKS:

Weather: Sunny and Clear
Temperature Range: 95° to 100°
Inspector: G. Quintanilla
Type of Inspection: Fill Control

Brief summary of work accomplished today:

Equipment Used:

1. (2) 6370 Scrapers
2. (1) Liebherr Bulldozer
3. (1) D8 CAT. Dozer
4. (1) D6 CAT. Dozer with Rake
5. (1) 120G CAT. Grader
6. (1) CAT. Spray King
7. (1) Water Truck
8. Discing Equipment

V.K. Knowlton started at 7:00 a.m. today. Station 1000' was worked. The subgrade and the 1st Lift were completed in this area. V.K. Knowlton also concentrated work on trouble spots where standing water was found. Reworking of the south slope from station 1100'-2400' at the toe of the slope was also done today. V.K. Knowlton is attempting to repair seepage spots and tie into the pond bottom before using the alternative of weep holes. A total of three (3) densities were taken today. V.K. Knowlton stopped working at 6:00 p.m.

If there are any questions concerning this report, please do not hesitate to contact our office at your convenience.

Respectfully submitted,

PROFESSIONAL SERVICE INDUSTRIES, INC.
(Shilstone Engineering Testing Laboratory Division)

cc: (2) Above
/dd

REPORT OF FIELD COMPACTION TESTS

TESTED FOR: SAN MIGUEL ELECTRIC COOPERATIVE, INC
Post Office Box 280
Jourdanton, Texas 78026
ATTENTION: Mr. Clyde Price

PROJECT: 1A Ash Pond Soil Testing
P.O. #26643-032108

DATE: August 11, 1987

OUR REPORT NO: 311-70065-25

TEST DATA: Optimum moisture: (22, 33.0)

TEST NO.	DATE	ELEV. OR DEPTH	SOURCE NUMBER	MAXIMUM LABORATORY DENSITY	WATER CONTENT	IN-PLACE DRY DENSITY	PERCENT COMPACTION	REMARKS*
1	08-11-87	Grade	22	82.6	36.5	81.3	98.4	1 - A
2	08-11-87	1st Lift	22	82.6	36.1	83.0	100.4	1 - A
3	08-11-87	2nd Lift	22	82.6	36.5	82.8	100.2	1 - A

TEST LOCATION:

1	30' West of Station 1000' and 10' North from Toe of South Slope.
2	45' West of Station 1000' and 20' North from Toe of South Slope.
3	55' West of Station 1000' and 30' North from Toe of South Slope.

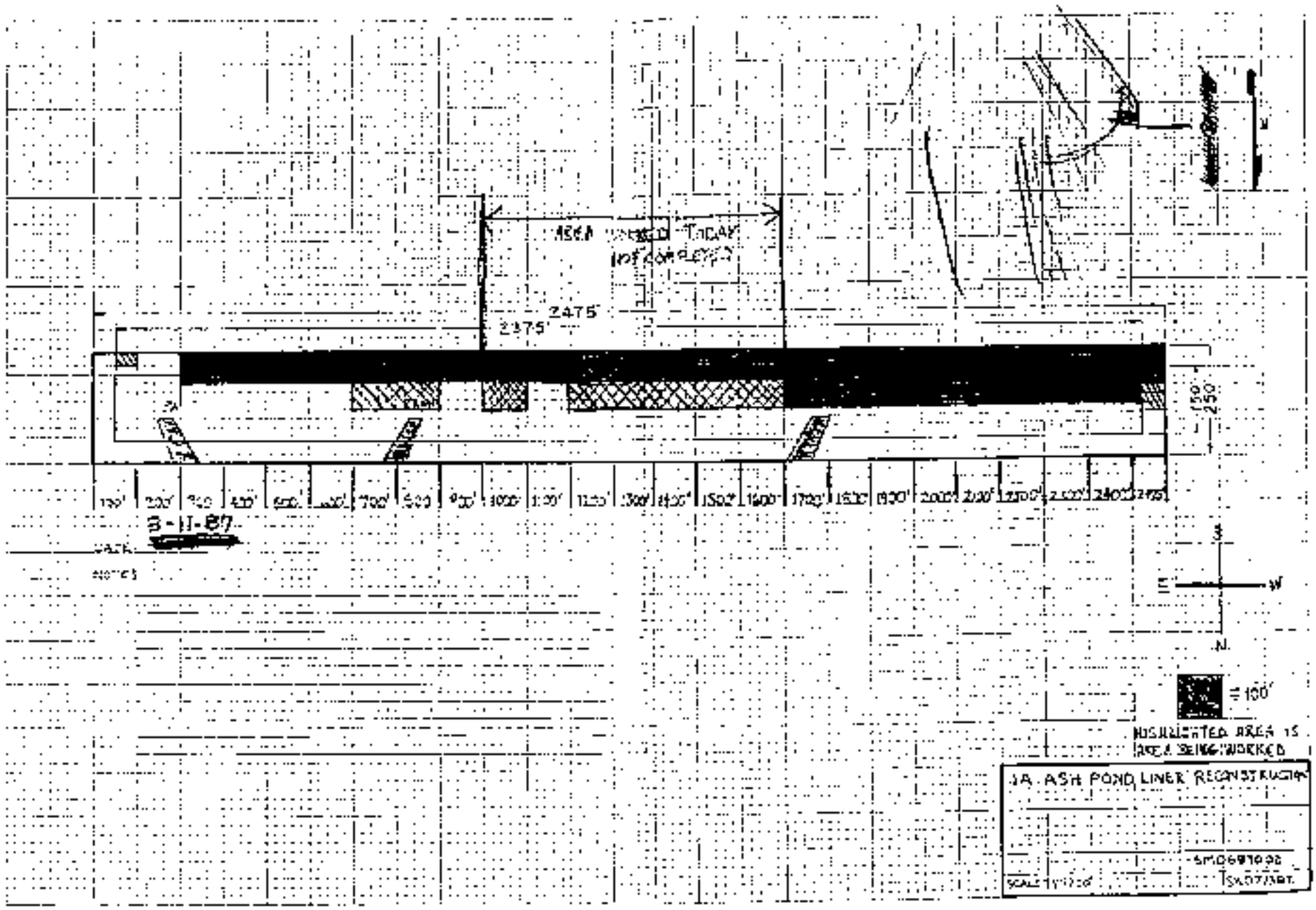
NOTES: DENSITIES SHOWN ARE IN POUNDS PER CUBIC FOOT.
WATER CONTENT: Per Cent of dry weight.
PERCENT COMPACTION: Based on maximum dry density obtained in accordance with ASTM Designation

* 1 FILL MATERIAL
2 BACKFILL
3 BASE COURSE
4 SUBBASE
5 SOIL CEMENT
6 OTHER

A TEST RESULTS COMPLY WITH SPECIFICATIONS
B RECOMPACTION REQUIRED
C TEST IS AFTER RECOMPACTION

REMARKS:

Respectfully submitted,
Professional Service Industries, Inc.


AREA
TODAY
(NOT COMPLETED)
2475'
2375'
150'
250'
3-11-87
N.
= 100'
UNSHADED AREA IS
AREA BEING WORKED
JA ASH POND LINER RECONSTRUCTION
SCALE 1" = 100'

Professional Service Industries, Inc.
Shilstone Engineering Testing Laboratory Division

DAILY REPORT

TESTED FOR: SAN MIGUEL ELECTRIC COOPERATIVE, INC.
Post Office Box 280
Jourdanton, Texas 78026
ATTENTION: Mr. Clyde Price

PROJECT: 1A Ash Pond Soil Testing
P.O. #26643-032108

DATE: August 10, 1987

OUR REPORT NO: 311-70065-24

REMARKS:

Weather: Sunny & Clear
Temperature Range: 90° to 96°
Inspector: G. Quintanilla
Type of Inspection: Fill Control

Work was concentrated on the pond floor, between Station 1200'-2400'. Trouble spots where heavy concentration of water is encountered, are areas being worked. V.K. Knowlton has removed 3' of material in these areas and they are attempting to seal heavy water spots by replacing sandy material with good clay. A total of 12 densities were taken today. V.K. Knowlton began work at 7:00 a.m. and finished at 6:00 p.m.

If there are any questions concerning this report, please do not hesitate to contact our office at your convenience.

Respectfully submitted,

PROFESSIONAL SERVICE INDUSTRIES, INC.
(Shilstone Engineering Testing
Laboratory Division)

cc: (2) Above
/dd

Professional Service Industries, Inc.
Shilstone Engineering Testing Laboratory Division

REPORT OF FIELD COMPACTION TESTS

TESTED FOR: SAN MIGUEL ELECTRIC COOPERATIVE, INC.
Post Office Box 280
Jourdanton, Texas 78026
ATTENTION: Mr. Clyde Price

PROJECT: 1A Ash Pond Soil Testing
P.O. #26643-032108

DATE: August 10, 1987 CUP REPORT NO: 311-70065-24

TEST DATA: Optimum moisture: (22, 33.0)

TEST NO.	DATE	TEST LOCATION / SOIL TYPE	LIFT NO.	MAXIMUM DRY DENSITY	WATER CONTENT	DRY DENSITY	PERCENT COMPACTION	REMARKS*
1	08-10-87	Grade	22	82.6	36.1	83.0	100.4	1 - A
2	08-10-87	Grade	22	82.6	37.3	82.3	99.6	1 - A
3	08-10-87	Grade	22	82.6	36.9	81.8	99.0	1 - A
4	08-10-87	Grade	22	82.6	36.3	83.3	100.8	1 - A
5	08-10-87	Final	22	82.6	36.0	82.5	99.8	1 - A
6	08-10-87	2nd Lift	22	82.6	36.1	81.8	99.0	1 - A,C

TEST LOCATION: POND FLOOR (1200'-1600')

1	20' West of Station 1200' and 10' North from Toe of South Slope.
2	30' West of Station 1300' and 15' North from Toe of South Slope.
3	45' West of Station 1400' and 25' North from Toe of South Slope.
4	55' West of Station 1500' and 20' North from Toe of South Slope.
5	60' West of Station 1600' and 5' North from Toe of South Slope.
6	Retest of Test #7 of Report OH-07-87 in Station 2200'.

NOTES: DENSITIES SHOWN: Dry density (pcf)
WATER CONTENT: Percentage by weight
PERCENT COMPACTION: Based on maximum dry density obtained on specimen indicated by test number

* 1 FILL MATERIAL
2 BACKFILL
3 SUBGRADE
4 SUBBASE
5 SOIL CEMENT
6 OTHER

A TEST RESULTS COMPLY WITH SPECIFICATIONS
B RECOMPACTION REQUIRED
C TEST IS AFTER RECOMPACTION

REMARKS:

Respectfully submitted,
Professional Service Industries, Inc.

PSI-4.10C3

Professional Service Industries, Inc.
Shilstone Engineering Testing Laboratory Division

REPORT OF FIELD COMPACTION TESTS

TESTED FOR: SAN MIGUEL ELECTRIC COOPERATIVE, INC.
Post Office Box 280
Jourdanton, Texas 78026
ATTENTION: Mr. Clyde Price

PROJECT: 1A Ash Pond Soil Testing
P.O. #26643-032108

DATE: August 10, 1987 OUR REPORT NO: 311-70065-24

TEST DATA: Optimum moisture: (22, 33.0)

TEST NO.	DATE	TEST TYPE	SOIL TYPE NUMBER	MAXIMUM DRY DENSITY	WATER CONTENT	% OF MAX. DRY DENSITY	PERCENT COMPACTION	COMMENT*
7	08-10-87	Final	22	82.6	36.5	81.3	98.4	1 - A
8	08-10-87	Final	22	82.6	36.1	81.5	98.6	1 - A
9	08-10-87	Final	22	82.6	36.4	81.0	98.0	1 - A
10	08-10-87	Final	22	82.6	36.5	81.5	98.6	1 - A
11	08-10-87	Final	22	82.6	37.2	80.5	97.4	1 - A
12	08-10-87	1st Lift	22	82.6	36.5	82.8	100.2	1 - A

TEST LOCATION: POND FLOOR (STATION 2000'-2400') (STATION 1600')

7	30' West of Station 2000' and 20' North from Toe of South Slope.
8	60' West of Station 2100' and 30' North from Toe of South Slope.
9	50' West of station 2200' and 15' North from Toe of South Slope.
10	35' West of Station 2300' and 10' North from Toe of South Slope.
11	10' West of station 2400' and 5' North from Toe of South Slope.
12	20' West of Station 1600' and 10' North from Toe of South Slope.

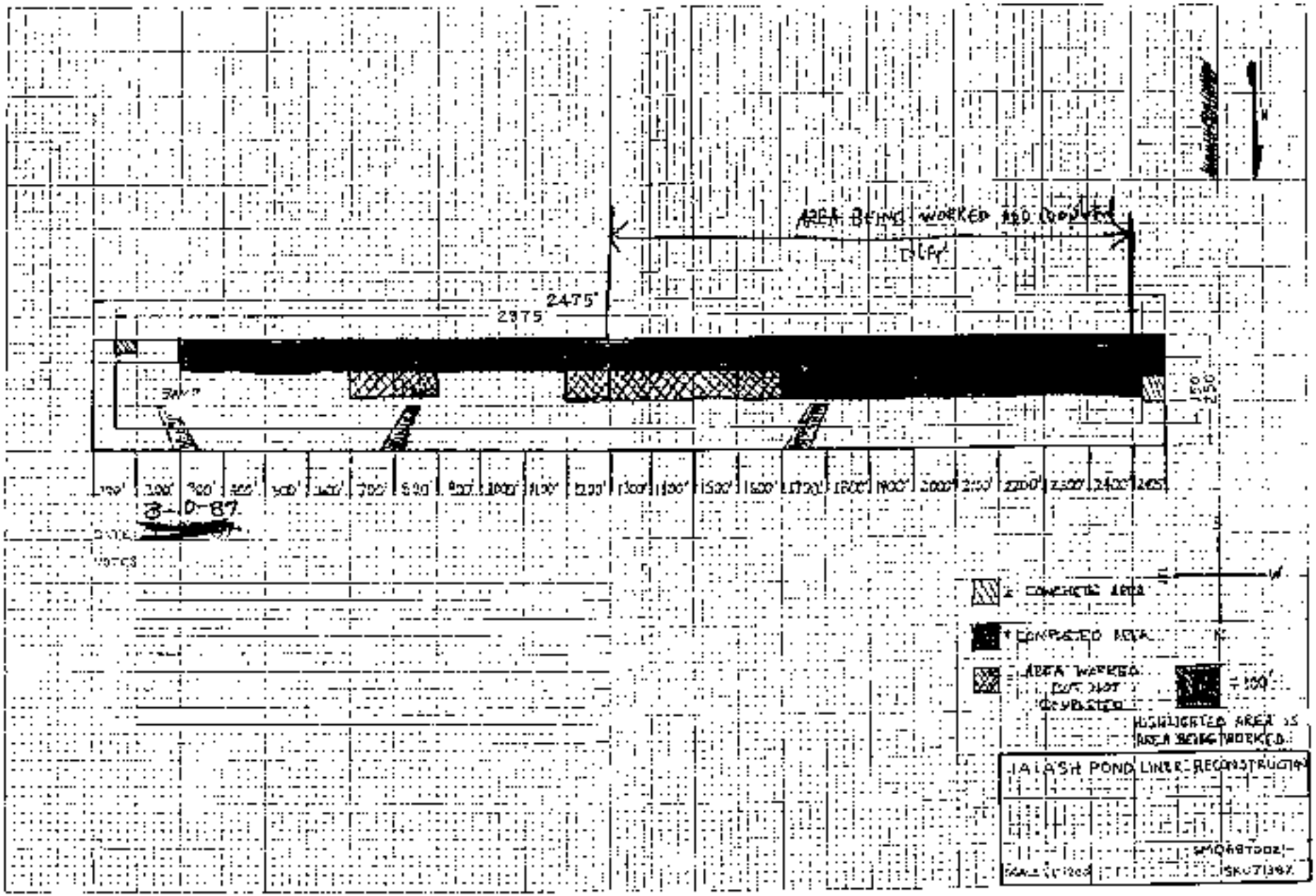
NOTES: DENSITIES SHOWN ARE BASED ON
WATER CONTENT PERCENT BY DRY WEIGHT
PERCENT COMPACTION BASED ON
STANDARD

* 1 FILL MATERIAL
2 BACKFILL
3 BASE COURSE
4 SUBBASE
5 SOIL CEMENT
6 OTHER

A TEST RESULTS COMPLY WITH SPECIFICATIONS
B RECOMPACTION REQUIRED
C TEST IS AFTER RECOMPACTION

REMARKS.

Respectfully submitted
Professional Service Industries, Inc.


AREA BEING WORKED 150 (APPROX)
DAM
2475'
2375'
150'
3-0-87
CONCRETE AREA
COMPACTED AREA
AREA WORKED BUT NOT COMPACTED
± 100'
HIGHLIGHTED AREA IS AREA BEING WORKED
TALASH POND LINER RECONSTRUCTION

Professional Service Industries, Inc.
Shilstone Engineering Testing Laboratory Division

DAILY REPORT

TESTED FOR: SAN MIGUEL ELECTRIC COOPERATIVE, INC.
Post Office Box 280
Jourdanton, Texas 78026
ATTENTION: Mr. Clyde Price

PROJECT: 1A Ash Pond Soil Testing
P.O. #26643-032108

DATE: August 7, 1987 OUR REPORT NO: 311-70065-21

REMARKS:

Weather: Sunny & Clear
Temperature Range: 90° to 100°
Inspector: G. Quintanilla
Type of Inspection: Soils, Controlled Fill (Compaction)

Brief summary of work accomplisted today:

The area at Station 300' on the South Slope was worked and completed. The pond floor between Station 1700' and 2100' was also completed today. Thirteen (13) density tests were performed today. V.K. Knowlton worked from 7:00 a.m. to 6:00 p.m. Results of tests performed on samples of soil from the South Slope are enclosed for your review.

If there are any questions concerning this report, please do not hesitate to contact our office at your convenience.

Respectfully submitted,

PROFESSIONAL SERVICE INDUSTRIES, INC.
(Shilstone Engineering Testing
Laboratory Division)

cc: (2) Above
/dd

Professional Service Industries, Inc.
Shilstone Engineering Testing Laboratory Division

REPORT OF FIELD COMPACTION TESTS

TESTED FOR SAN MIGUEL ELECTRIC COOPERATIVE, INC. PROJECT 1A Ash Pond Soil Testing
Post Office Box 280 P.O. #26643-032108
Jourdanton, Texas 78026
ATTENTION: Mr. Clyde Price

DATE August 7, 1987 OUR REPORT NO 311-70065-21

TEST DATA: Optimum moisture: (5, 28.2)

TEST NO.	DATE	TYPE	SOIL & NUMBER	DENSITY LBS/CU FT	WATER CONTENT %	% OF MAX DENSITY	PERCENT COMPACTION	COMMENTS*
1	08-07-87	Grade	5	86.8	31.5	84.8	97.6	1 - A
2	08-07-87	1st Lift	5	86.8	32.3	85.0	97.9	1 - A
3	08-07-87	2nd Lift	5	86.8	31.3	84.5	97.3	1 - A
4	08-07-87	Final	5	86.8	33.5	84.3	97.1	1 - A

TEST LOCATION: SOUTH SLOPE, STATION 300' (100' SECTION).

1	30' West of Station 300' and 15' from Bottom of Slope.
2	50' West of Station 300' and 25' from Top of Slope.
3	75' West of Station 300' and 40' from Bottom of Slope.
4	15' West of Station 300' and 10' from Bottom of Slope.

NOTES: DENSITIES SHOWN ARE DRY DENSITIES
WATER CONTENT: Percentage of dry weight
PERCENT COMPACTION: Ratio of field density to laboratory maximum density
Tests performed in accordance with ASTM D-698

* 1 FILL MATERIAL
2 BACKFILL
3 BASE COURSE
4 SUBBASE
5 NO COMMENT
6 OTHER

A TEST RESULTS COMPLY WITH SPECIFICATIONS
B RECOMPACTION REQUIRED
C TESTS AFTER RECOMPACTION

REMARKS.

Respectfully submitted,
Professional Service Industries, Inc.

Professional Service Industries, Inc.
Shilstone Engineering Testing Laboratory Division

REPORT OF FIELD COMPACTION TESTS

TESTED FOR: SAN MIGUEL ELECTRIC COOPERATIVE, INC.
Post Office Box 280
Jourdanton, Texas 78026
ATTENTION: Mr. Clyde Price

PROJECT: 1A Ash Pond Soil Testing
P.O. #26643-032108

DATE: August 7, 1987 OUR REPORT NO: 311-70065-21 Page 3 of 4

TEST DATA: Optimum moisture: (22, 33.0)

TEST NO.	DATE	FILL LIFT NUMBER	SOIL TYPE NUMBER	MAXIMUM DRY DENSITY	WATER CONTENT	DRY DENSITY	PERCENT COMPACTION	COMMENTS*
1	08-07-87	2nd Lift	22	82.6	36.2	79.3	96.0	1 - A
2	08-07-87	Final	22	82.6	35.7	79.2	95.8	1 - A
3	08-07-87	Final	22	82.6	36.4	79.5	96.2	1 - A
4	08-07-87	Final	22	82.6	36.9	78.5	95.0	1 - A
5	08-07-87	2nd Lift	22	82.6	35.0	80.0	96.8	1 - A
6	08-07-87	2nd Lift	22	82.6	36.8	79.3	96.0	1 - A

TEST LOCATION: POND FLOOR STATION 1600'-2400' (800' SECTION)

1	20' West of Station 1600' and 20' North from Toe of South Slope.
2	30' West of Station 1700' and 15' North from Toe of South Slope.
3	40' West of Station 1800' and 20' North from Toe of South Slope.
4	60' West of Station 1900' and 5' North from Toe of South Slope.
5	75' West of Station 2000' and 30' North from Toe os South Slope.
6	15' West of Station 2100' and 10' North from Toe of South Slope.

NOTES: DENSITIES SHOWN IN PER CUBIC FOOT
WATER CONTENT: PERCENT OF DRY WEIGHT
PERCENT COMPACTION: RATIO OF FIELD DRY DENSITY TO MAXIMUM DRY DENSITY

* 1 FILL MATERIAL
2 BACKFILL
3 BASE COURSE
4 SUBBASE
5 SOIL CEMENT
6 OTHER

A TEST RESULTS COMPLY WITH SPECIFICATIONS
B RECOMPACTION REQUIRED
C TESTS AFTER RECOMPACTION

REMARKS

Respectfully submitted,
Professional Service Industries, Inc.

PSI-A1.02

Professional Service Industries, Inc.
Shilstone Engineering Testing Laboratory Division

REPORT OF FIELD COMPACTION TESTS

TESTED FOR: SAN MIGUEL ELECTRIC COOPERATIVE, INC
Post Office Box 280
Jourdanton, Texas 78026

ATTENTION: Mr. Clyde Price

PROJECT: 1A Ash Pond Soil Testing
P.O. #26643-032108

DATE: August 7, 1987

OUR REPORT NO: 311-70065-21

TEST DATA: Optimum moisture: (22, 33.0)

TEST NO.	DATE	TEST LOCATION / LIFT	VOL. OF SAMPLE	MAXIMUM DRY DENSITY	WATER CONTENT	DENSITY OF TEST	PERCENT COMPACTION	COMMENTS*
7	08-07-87	2nd Lift	22	82.6	34.3	80.0	96.8	1 - A
8	08-07-87	2nd Lift	22	82.6	35.0	80.0	96.8	1 - A
9	08-07-87	2nd Lift	22	82.6	36.9	78.5	95.0	1 - A

TEST LOCATION:

7	30' West of Station 2200' and 20' North from the Toe of the South Slope.
8	55' West of Station 2300' and 10' North from the Toe of the South Slope.
9	85' West of Station 2400' and 35' North from the Toe of the South Slope.

NOTES: DENSITIES SHOWN ARE DRY WEIGHT BASIS
WATER CONTENT: Per Cent of Dry Weight
PERCENT COMPACTION: Based on Maximum Dry Density Determined by ASTM D-698

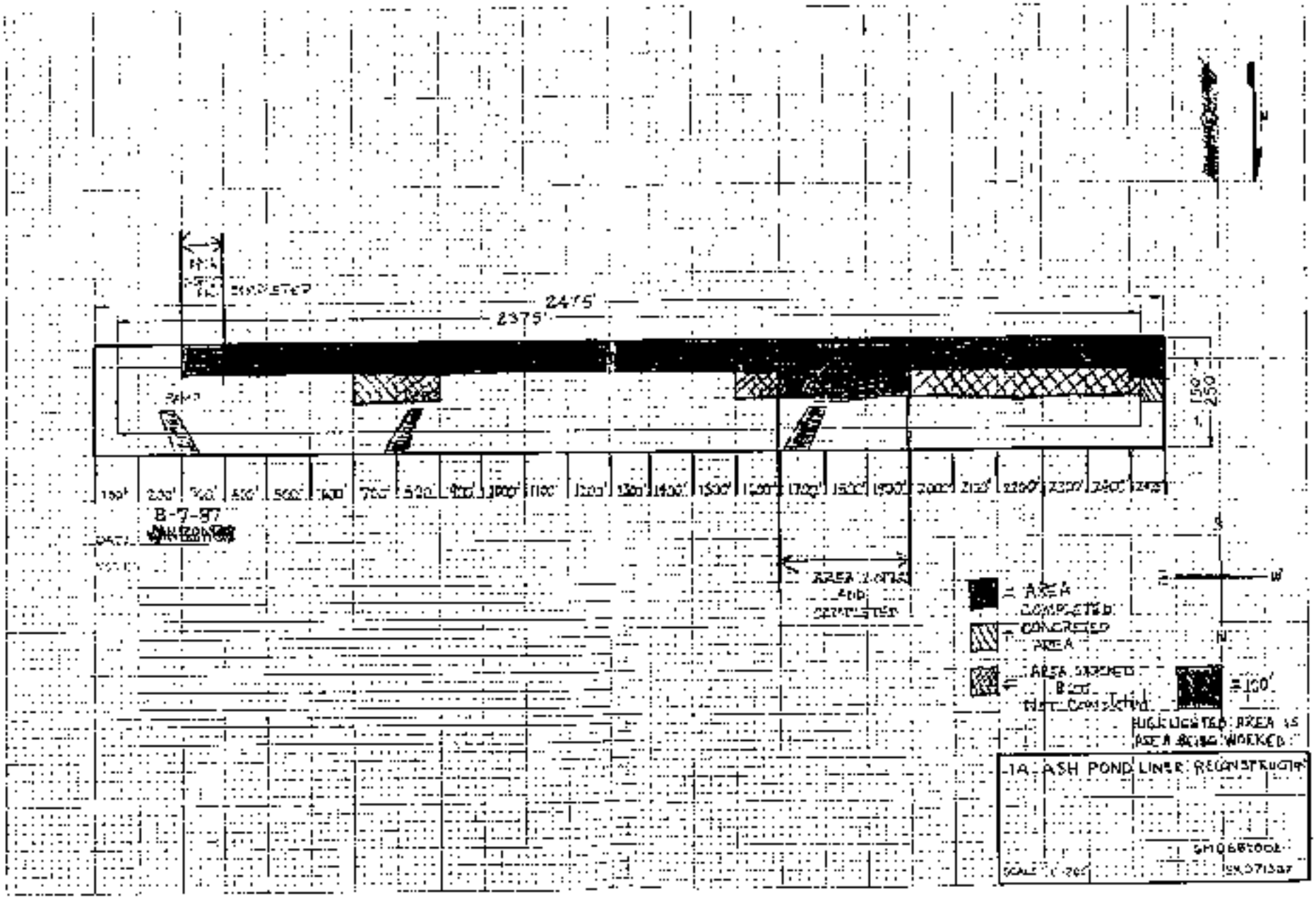
* 1 FILL MATERIAL
2 BACKFILL
3 BASE COURSE
4 SUBBASE
5 SOIL CEMENT
6 OTHER

A TEST RESULTS COMPLY WITH SPECIFICATIONS
B RECOMPACTION REQUIRED
C TESTS AFTER RECOMPACTION

REMARKS:

Respectfully submitted,
Professional Service Industries, Inc.

Rev. 4-86


2475'
2375'
250'
B-7-97
AREA COMPLETED
CONCRETED AREA
AREA MARKED BLUE NOT CONCRETED
=100'
SUGGESTED AREA TO BE WORKED
1A ASH POND LINER RECONSTRUCTION

Professional Service Industries, Inc.
Shilstone Engineering Testing Laboratory Division

REPORT OF MOISTURE DENSITY RELATIONSHIP OF SOIL

TESTED FOR: SAN MIGUEL ELECTRIC COOPERATIVE, INC.
Post Office Box 280
Jourdanton, Texas 78026
ATTENTION: Mr. Clyde Price

PROJECT: 1A Ash Pond Soil Testing
P.O. #26643-032108

DATE: August 7, 1987

OUR REPORT NO: 311-70065-23

TEST DATA

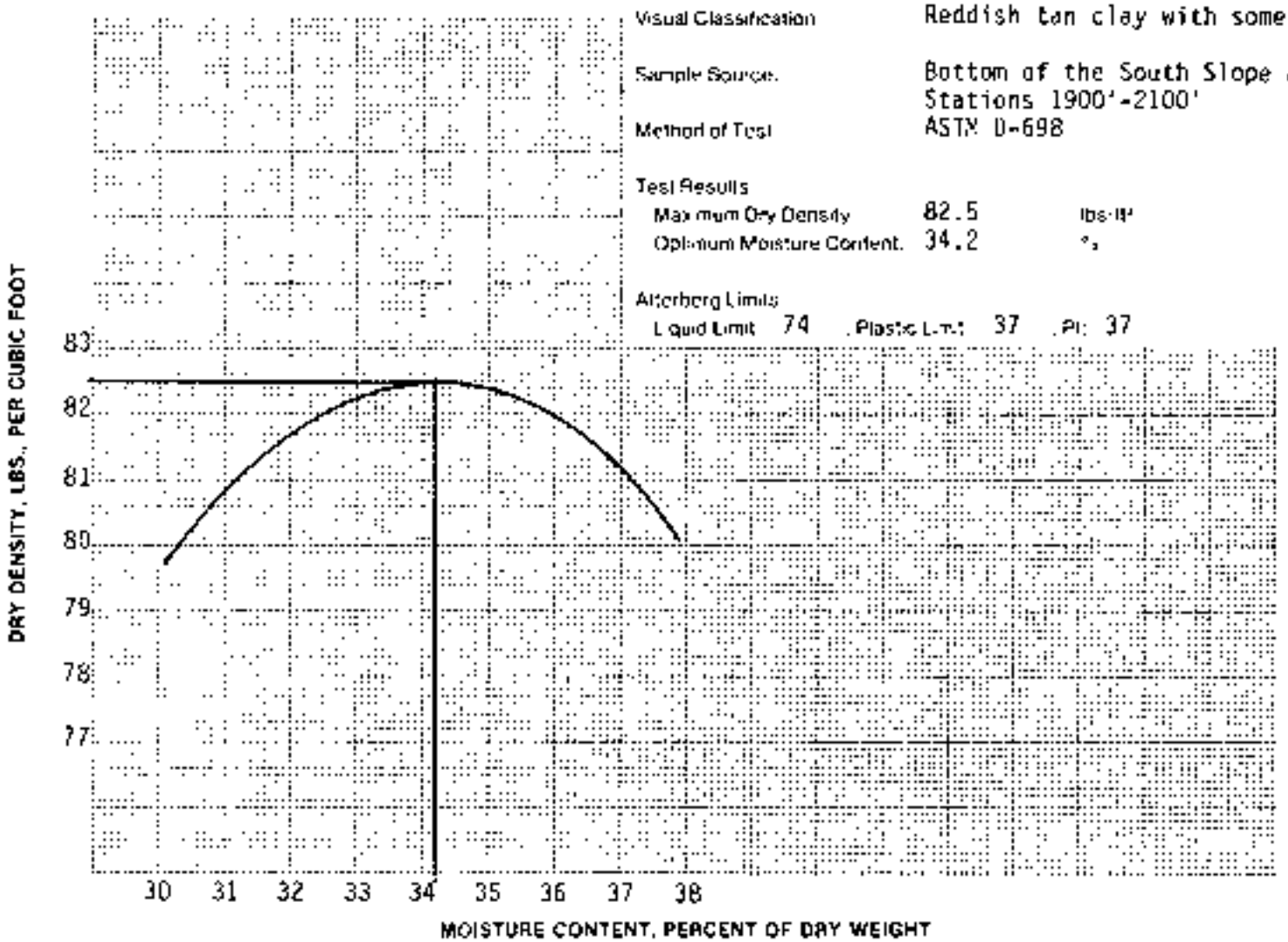
Visual Classification: Reddish tan clay with some sar

Sample Source: Bottom of the South Slope at Stations 1900'-2100'

Method of Test: ASTM D-698

Test Results
- Maximum Dry Density: 82.5 lbs/ft³
- Optimum Moisture Content: 34.2 %

Atterberg Limits
Liquid Limit 74 Plastic Limit: 37 PI: 37



Respectfully submitted,
Professional Service Industries, Inc.

cc: (2) Above
/dd

Professional Service Industries, Inc.
Shilstone Engineering Testing Leboretory Division

DAILY REPORT

TESTED FOR SAN MIGUEL ELECTRIC COOPERATIVE, INC.
Post Office Box 280
Jourdanton, Texas 78026
ATTENTION: Mr. Clyde Price

PROJECT 1A Ash Pond Soil Testing
P.O. #26643-032108

DATE August 6, 1987 OUR REPORT NO. 311-70065-20 Page 1 of 5

REMARKS:

Weather: Sunny & Clear
Temperature Range: 95° to 100°
Inspector: G. Quintanilla
Type of Inspection: Soils, Controlled Fill (Compaction)

Brief Resume' of Work Accomplished on This Day:

Equipment Used:

1. (2) 6370 Scrapers
2. (1) Liebherr Bulldozer
3. (1) D8 Dozer
4. (1) D6 Dozer with Rake
5. (1) Water Truck
6. (1) Spray King
7. Discing Equipment

V.K. Knowlton worked on the South Slope, Station 400'-600' and the Pond Floor, Station 1600'-2400'. The South Slope, Station 400'-600' was completed and Pond Floor section will be completed tomorrow. A total of 17 compaction tests were taken and comply with the project specifications. Equipment used today is listed above. V.K. Knowlton started work at 7:00 a.m. and finished at 6:30 p.m.

If there are any questions concerning this report, please do not hesitate to contact our office at your convenience.

Respectfully submitted,

PROFESSIONAL SERVICE INDUSRIES, INC.
(Shilstone Engineering Testing Laboratory Division)

cc: (2) Above
/dd

Professional Service Industries, Inc.
Shilstone Engineering Testing Laboratory Division

REPORT OF FIELD COMPACTION TESTS

DESIGNED FOR: SAN MIGUEL ELECTRIC COOPERATIVE, INC. PROJECT: 1A Ash Pond Soil Testing
Post Office Box 280
Jourdanton, Texas 78026
P.O. #26643-032108
ATTENTION: Mr. Clyde Price

DATE: August 6, 1987 OUR REPORT NO: 311-70065-20

TEST DATA: Optimum moisture: (5, 28.2)

TEST NO.	FIELD TEST DATE	FIELD TEST LOCATION	SOIL NUMBER	MAXIMUM DRY DENSITY	WATER CONTENT	% PLACE DRY DENSITY	PERCENT COMPACTION	COMMENTS*
1	08-06-87	Grade	5	86.8	31.4	83.7	96.4	1 - A
2	08-06-87	Grade	5	86.8	30.6	84.3	97.1	1 - A
3	08-06-87	1st Lift	5	86.8	30.7	85.7	98.7	1 - A
4	08-06-87	1st Lift	5	86.8	32.5	83.8	96.5	1 - A
5	08-06-87	2nd Lift	5	86.8	35.1	82.5	95.0	1 - A
6	08-06-87	2nd Lift	5	86.8	33.5	85.0	97.9	1 - A

TEST LOCATION:

1	40' West of Station 400' and 20' from Bottom of Slope.
2	60' West of Station 500' and 40' from Top of Slope.
3	20' West of Station 400' and 40' from Bottom of Slope.
4	75' West of Station 500' and 30' from Bottom of Slope.
5	10' West of Station 400' and 30' from Bottom of Slope.
6	40' West of Station 500' and 15' from Bottom of Slope.

NOTES: [illegible]

* 1 FILL MATERIAL
2 BACKFILL
3 BASE COURSE
4 SUBBASE
5 SOIL CEMENT
6 OTHER

A TEST RESULTS COMPLY WITH SPECIFICATIONS
B RECOMPACTION REQUIRED
C TEST IS AFTER RECOMPACTION

REMARKS.

Respectfully submitted,
Professional Service Industries, Inc.

PSI-1003

Professional Service Industries, Inc.
Shilstone Engineering Testing Laboratory Division

REPORT OF FIELD COMPACTION TESTS

TESTED FOR: SAN MIGUEL ELECTRIC COOPERATIVE, INC.
Post Office Box 280
Jourdanton, Texas 78026
ATTENTION: Mr. Clyde Price

PROJECT: 1A Ash Pond Soil Testing
P.O. #26643-032108

DATE: August 6, 1987 CDR REPORT NO: 311-70065-20

TEST DATA: Optimum moisture: (5, 28.2)

TEST NO	DATE	LIFT	SOIL CLASS	MAXIMUM DRY DENSITY	WATER CONTENT	IN-PLACE DRY DENSITY	PERCENT COMPACTION	COMMENTS *
7	08-06-87	Final	5	86.8	33.1	85.3	98.2	1 - A
8	08-06-87	Final	5	86.8	31.8	85.2	98.1	1 - A

TEST LOCATION: SOUTH SLOPE (400'-600') (200' SECTION)

7	75' West of Station 400' and 15' from Top of Slope.
8	80' West of station 500' and 50' from Bottom of Slope.

NOTES: DENSITIES SHOWN ARE PCF
WATER CONTENT: Per Centage by weight
PERCENT COMPACTION: Ratio of moisture to density determined in accordance with ASTM Designation

* 1 FILL MATERIAL
2 BACKFILL
3 BASE COURSE
4 SUBGRADE
5 SOIL CEMENT
6 OTHER

A TEST RESULTS COMPLY WITH SPECIFICATIONS
B RECOMPACTION REQUIRED
C TEST #S AFTER RECOMPACTION

REMARKS:

Respectfully submitted,
Professional Service Industries, Inc.

Professional Service Industries, Inc.
Shilstone Engineering Testing Laboratory Division

REPORT OF FIELD COMPACTION TESTS

TESTED FOR: SAN MIGUEL ELECTRIC COOPERATIVE, INC.
Post Office Box 280
Jourdanton, Texas 78026
ATTENTION: Mr. Clyde Price

PROJECT: 1A Ash Pond Soil Testing
P.O. #26643-032108

DATE: August 6, 1987

OUR REPORT NO: 311-70065-20

TEST DATA: Optimum moisture: (5, 28.2)

TEST NO.	DATE	LIFT	SOIL TYPE	MAXIMUM DRY DENSITY	WATER CONTENT	DRY DENSITY	PERCENT COMPACTION	COMMENTS*
1	08-06-87	2nd Lift	5	86.8	34.1	85.0	98.0	1 - A
2	08-06-87	2nd Lift	5	86.8	34.7	84.2	97.3	1 - A
3	08-06-87	2nd Lift	5	86.8	33.9	84.7	97.5	1 - A
4	08-06-87	1st Lift	5	86.8	32.7	84.8	97.6	1 - A
5	08-06-87	1st Lift	5	86.8	31.1	85.1	98.0	1 - A
6	08-06-87	1st Lift	5	86.8	33.9	84.8	97.6	1 - A

TEST LOCATION: POND FLOOR STATION 1700'-2400' (700' SECTION)

1	25' West of Station 1700' and 20' North from Toe of South Slope.
2	40' West of Station 1800' and 15' North from Toe of South Slope.
3	55' West of Station 1900' and 25' North from Toe of South Slope.
4	30' West of Station 2000' and 5' North from Toe of South Slope.
5	70' West of Station 2100' and 10' North from Toe of South Slope.
6	60' West of station 2200' and 15' North from Toe of South Slope.

NOTES: DENSITIES SHOWN ARE IN POUNDS PER CUBIC FOOT.
WATER CONTENT: PERCENTAGE OF DRY WEIGHT.
PERCENT COMPACTION: BASED ON MAXIMUM DRY DENSITY OBTAINED IN ACCORDANCE WITH ASTM D698.

* 1 FILL MATERIAL
2 BACKFILL
3 BASE COURSE
4 SUBBASE
5 SOIL-CEMENT
6 OTHER

A TEST RESULTS COMPLY WITH SPECIFICATIONS
B RECOMPACTION REQUIRED
C TEST IS AFTER RECOMPACTION

REMARKS:

Respectfully submitted,
Professional Service Industries, Inc.

Professional Service Industries, Inc.
Shilstone Engineering Testing Laboratory Division

REPORT OF FIELD COMPACTION TESTS

TESTED FOR: SAN MIGUEL ELECTRIC COOPERATIVE, INC.
Post Office Box 280
Jourdanton, Texas 78026
ATTENTION: Mr. Clyde Price

PROJECT: 1A Ash Pond Soil Testing
P.O. #26643-032108

DATE: August 6, 1987

OUR REPORT NO: 311-70065-20

TEST DATA: Optimum moisture: (5, 28.2)

TEST NO.	DATE	FILL LIFT NUMBER	SOIL CEMENT NUMBER	MAXIMUM DRY DENSITY	WATER CONTENT	PERCENT DRY DENSITY	PERCENT COMPACTION	COMMENTS *
7	08-06-87	1st Lift	5	86.8	30.9	85.5	98.5	1 - A
8	08-06-87	1st Lift	5	86.8	32.9	85.8	98.8	1 - A
9	08-06-87	1st Lift	5	86.8	32.3	85.0	97.9	1 - A

TEST LOCATION:

7	20' West of Station 2300' and 5' North from toe of South Slope.
8	40' West of Station 2400' and 10' North from Toe of South Slope.
9	50' West of Station 1600' and 25' North from Toe of South Slope.

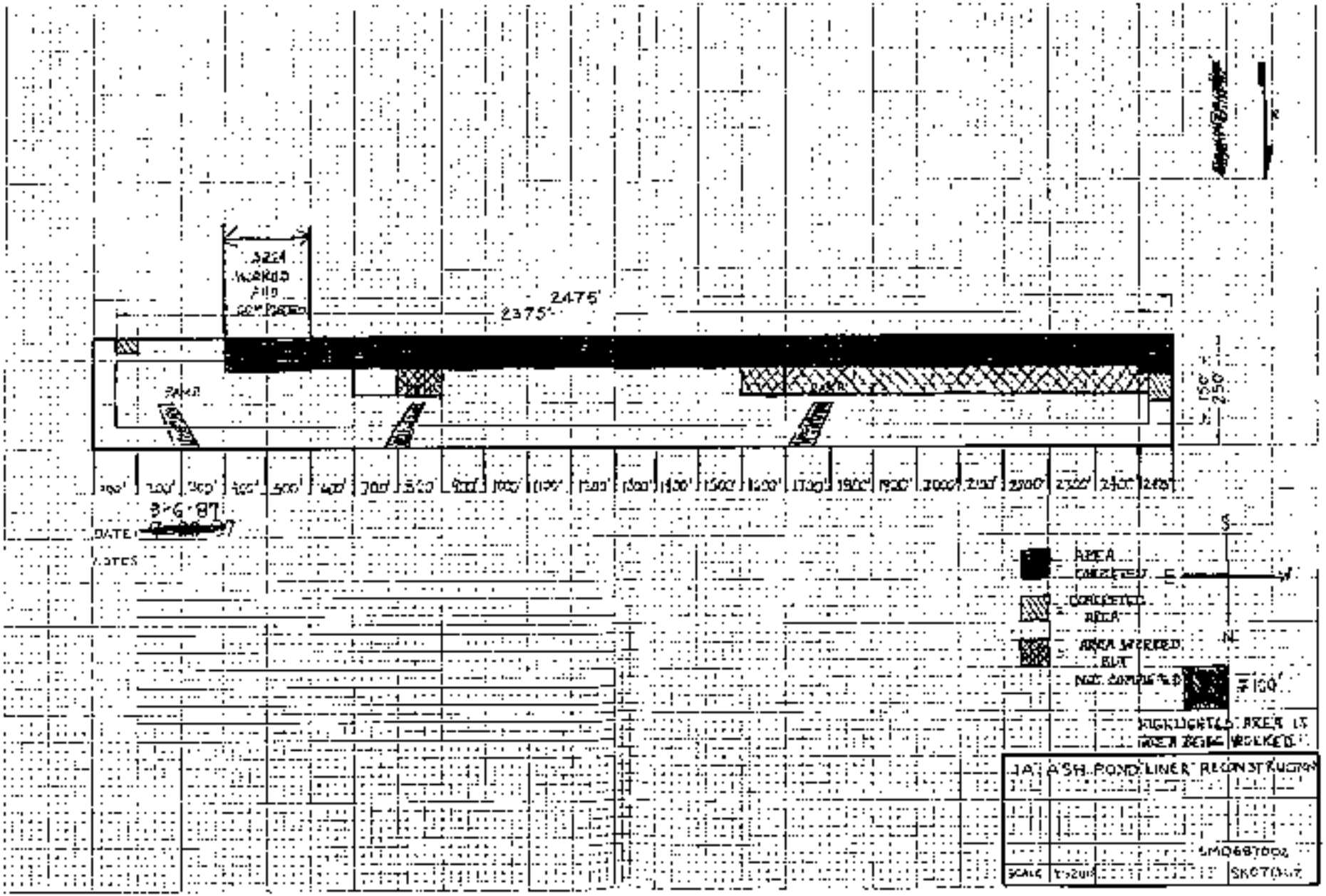
NOTES: DENSITIES SHOWN are pounds per cubic foot
WATER CONTENT Per Cent of dry weight
PERCENT COMPACTION Based on maximum dry density obtained on samples tested by [illegible]

* 1 FILL MATERIAL
2 BACKFILL
3 BASE COURSE
4 SUBBASE
5 SOIL CEMENT
6 OTHER

A TEST RESULTS COMPLY WITH SPECIFICATIONS
B RECOMPACTION REQUIRED
C TEST IS AFTER RECOMPACTION

REMARKS:

Respectfully submitted,
Professional Service Industries, Inc.


AREA WORKED THIS SEPARATION
2375'
2475'
150'
250'
DATE
NOTES
AREA CONCRETED
CONCRETED AREA
AREA WORKED BUT NOT CONCRETED
N
1"=100'
HIGHLIGHTED AREA IS AREA WORKED
JA ASH POND LINER RECONSTRUCTION
SCALE 1"=200'
SECTION

Professional Service Industries, Inc.
Shilstone Engineering Testing Laboratory Division

REPORT OF MOISTURE DENSITY RELATIONSHIP OF SOIL

TESTED FOR SAN MIGUEL ELECTRIC COOPERATIVE, INC. PROJECT 1A Ash Pond Soil Testing
Post Office Box 280 P.O. #26643-032108
Jourdanton, Texas 78026
ATTENTION: Mr. Clyde Price

DATE August 6, 1987 OUR REPORT NO 311-70065-22

TEST DATA

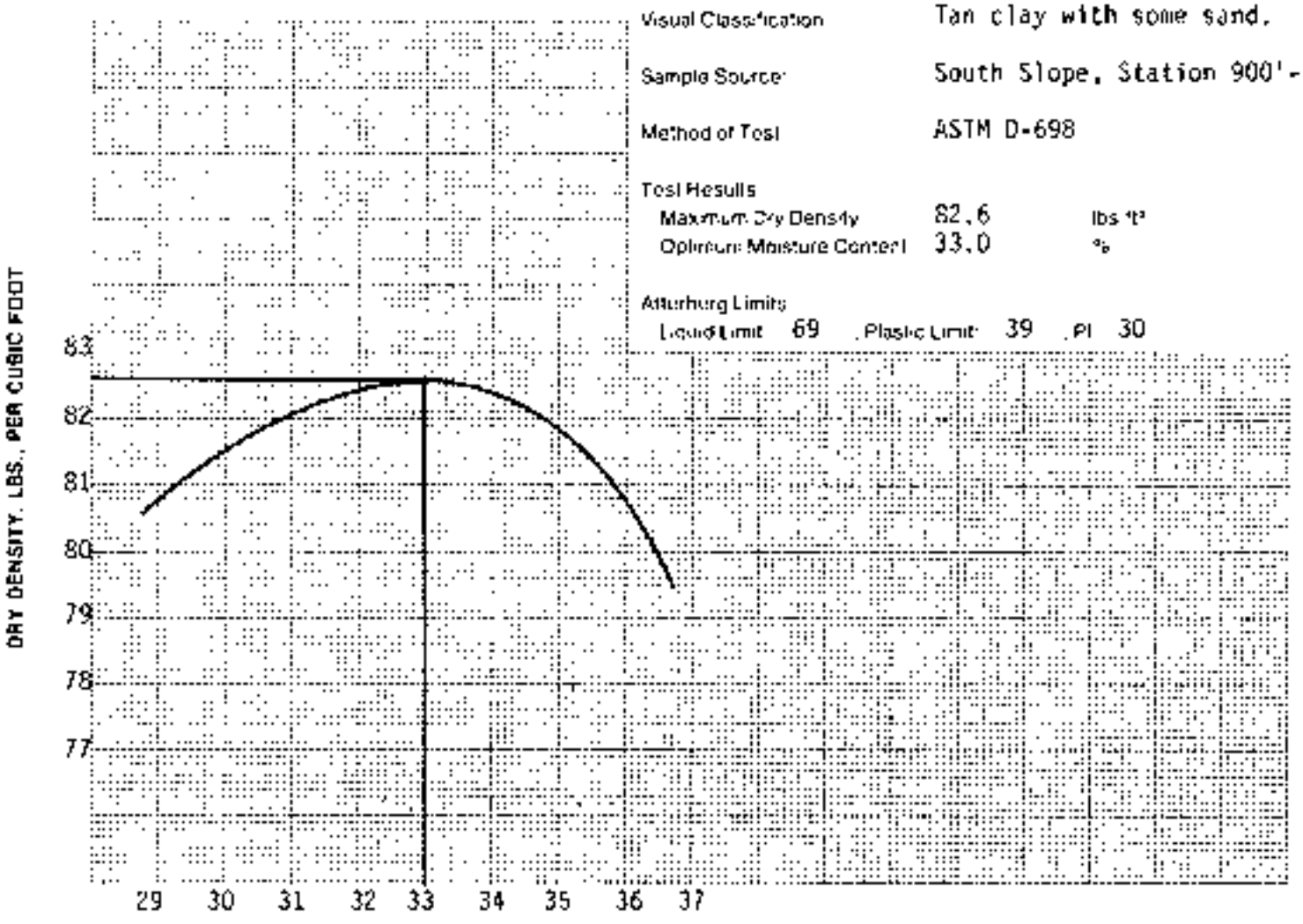
Visual Classification: Tan clay with some sand.

Sample Source: South Slope, Station 900'-130(

Method of Test: ASTM D-698

Test Results
- Maximum Dry Density: 82.6 lbs/ft³
- Optimum Moisture Content: 33.0 %

Atterburg Limits
Liquid Limit 69 Plastic Limit 39 PI 30



cc: (2) Above
/dd

Respectfully submitted,
Professional Service Industries, Inc.

Professional Service Industries, Inc.
Shilstone Engineering Testing Laboratory Division

DAILY REPORT

TESTED FOR: SAN MIGUEL ELECTRIC COOPERATIVE, INC
Post Office Box 280
Jourdanton, Texas 78026
ATTENTION: Mr. Clyde Price

PROJECT: 1A Ash Pond Soil Testing
P.O. #26643-032108

DATE: August 5, 1987 OUR REPORT NO: 311-70065-19

REMARKS:

Weather: Sunny & Clear
Temperature Range: 90° to 95°
Inspector: G Quintanilla

Equipment Used:

1. (3) 637D Scrapers
2. (1) Liebherr Bulldozer
3. (1) D8 CAT. Bulldozer
4. (1) D6 Bulldozer with Rake
5. (1) CAT. Spray King
6. (1) Water Truck
7. Discing Equipment

V.K. Knowlton is working a 300' section of the slope and a 300' section of the pond floor. A total of 25 compaction tests were taken today. One (1) density test taken today was unacceptable due to a lack of moisture. A retest was taken in this area yielding a passing test. V.K. Knowlton started at 7:00 a.m. and finished at 6:00 p.m. The equipment used today is listed above.

Another small area with seepage was encountered today in Station 1500'. SMC wants V.K. Knowlton to finish slope and then note the trouble spots for discussion at a later date. Another thing that needs to be brought to the attention of V.K. Knowlton is an area in Station 1500'-1800' on the Pond Floor was worked and is being placed in a manner that does not comply with contract. Under General Notes #3 - fill must be placed in a manner which will result in a uniform clay fill with minimum permeability. Pictures were taken in this area to show the uneveness of the 1st lift. At 4:00 p.m. SMC, PSI, and V.K. Knowlton discussed and resolved the problem.

If there are any questions concerning this report, please do not hesitate to contact our office at your convenience.

Respectfully submitted,

PROFESSIONAL SERVICE INDUSTRIES, INC.
(Shilstone Engineering Testing Laboratory Division)

Professional Service Industries, Inc.
Shilstone Engineering Testing Laboratory Division

REPORT OF FIELD COMPACTION TESTS

TESTED FOR: SAN MIGUEL ELECTRIC COOPERATIVE, INC.
Post Office Box 280
Jourdanton, Texas 78026
ATTENTION: Mr. Clyde Price

PROJECT: 1A Ash Pond Soil Testing
P.O. #26643-032108

DATE: August 5, 1987 OUR REPORT NO: 311-70065-19

TEST DATA: Optimum moisture: (5, 28.2)

TEST NO.	DATE	TEST LOCATION	VOLUME NUMBER	MAXIMUM DENSITY (PCF)	FIELD MOISTURE CONTENT	% PLACE DENSITY	RELATIVE COMPACTION	COMMENTS*
1	08-05-87	Grade	5	86.8	30.9	84.0	96.7	1 - A
2	08-05-87	Grade	5	86.8	29.6	85.3	98.2	1 - E
3	08-05-87	Grade	5	86.8	31.5	84.7	97.5	1 - A
4	08-05-87	1st Lift	5	86.8	30.6	85.7	98.7	1 - A
5	08-05-87	1st Lift	5	86.8	31.3	84.5	97.3	1 - A
6	08-05-87	1st Lift	5	86.8	31.1	84.3	97.1	1 - A

TEST LOCATION: POND FLOOR BETWEEN STATION 1700'-2000'.

1	Station 1700'.
2	Station 1800'.
3	Station 1900'.
4	Station 1700'.
5	Station 1800'.
6	Station 1900'.

NOTES: [illegible]

* 1 FILL MATERIAL
2 BACKFILL
3 BASE COURSE
4 SUBBASE
5 SOIL CEMENT
6 OTHER

A TEST RESULTS COMPLY WITH SPECIFICATIONS
B RECOMPACTION REQUIRED
C TEST IS AT % RECOMPACTION

REMARKS:

Respectfully submitted,
Professional Service Industries, Inc.

PS-4 (REV.)

Professional Service Industries, Inc.
Shilstone Engineering Testing Laboratory Division

REPORT OF FIELD COMPACTION TESTS

TESTED FOR: SAN MIGUEL ELECTRIC COOPERATIVE, INC.
Post Office Box 280
Jourdanton, Texas 78026
ATTENTION: Mr. Clyde Price

PROJECT: 1A Ash Pond Soil Testing
P.O. #26643-032108

DATE: August 5, 1987 OUR REPORT NO: 311-70065-19

TEST DATA. Optimum moisture: (5, 28.2)

TEST NO	DATE	TYPE (SOIL)	SOIL NUMBER	MAXIMUM DENSITY	WATER CONTENT	% PLANT DENSITY	PERCENT COMPACTION	COMMENTS *
7	08-05-87	Grade	5	86.8	31.9	84.5	97.3	1 - A
8	08-05-87	Grade	5	86.8	33.3	84.7	97.5	1 - A
9	08-05-87	Grade	5	86.8	32.3	85.0	97.9	1 - A
0	08-05-87	Grade	5	86.8	30.6	85.0	97.9	1 - A
11	08-05-87	Grade	5	86.8	30.8	86.0	99.0	1 - A
12	08-05-87	Grade	5	86.8	31.3	84.5	97.3	1 - A

TEST LOCATION: SOUTH SLOPE (STATION 600'-900') (300' SECTION/DAY)

7	85' West of Station 600' and 40' from Bottom of Slope.
8	20' West of Station 700' and 15' from Bottom of Slope.
9	10' West of Station 800' and 45' from Bottom of Slope.
10	15' West of Station 600' and 15' from Top of Slope.
11	35' West of Station 700' and 35' from Bottom of Slope.
12	25' West of Station 800' and 10' from Top of Slope.

NOTES: DENSITIES SHOWN ARE IN POUNDS PER CUBIC FOOT
WATER CONTENT IS EXPRESSED AS A PERCENTAGE BY WEIGHT
PERCENT COMPACTION: DENSITY OBTAINED AS A PERCENTAGE OF MAXIMUM DENSITY
DENSITY OBTAINED: DENSITY OBTAINED BY TEST METHOD

* 1 FILL MATERIAL
2 BACKFILL
3 BASE COURSE
4 SUBBASE
5 SOIL CEMENT
6 OTHER

A TEST RESULTS COMPLY WITH SPECIFICATIONS
B RECOMPACTION REQUIRED
C TESTING AFTER RECOMPACTION

REMARKS.

Respectfully submitted,
Professional Service Industries, Inc.

Professional Service Industries, Inc.
Shilstone Engineering Testing Laboratory Division

REPORT OF FIELD COMPACTION TESTS

TESTED FOR: SAN MIGUEL ELECTRIC COOPERATIVE, INC.
Post Office Box 280
Jourdanton, Texas 78026
ATTENTION: Mr. Clyde Price

PROJECT: 1A Ash Pond Soil Testing
P.O. #26643-032108

DATE: August 5, 1987 OUR REPORT NO: 311-70065-19

TEST DATA: Optimum moisture: (5, 28.2)

TEST NO.	DATE	LOCATION	SOIL TYPE	MAXIMUM DRY DENSITY	WATER CONTENT	IN PLACE DRY DENSITY	PERCENT COMPACTION	COMMENTS*
1	08-05-87	Grade	5	86.8	32.1	84.7	97.5	1 - A,C

TEST LOCATION: SOUTH SLOPE (STATION 600'-900')

1	Retest of Test #2.

NOTES: DENSITIES SHOWN IN POUNDS PER CUBIC FOOT
WATER CONTENT IN PERCENT OF DRY WEIGHT
PERCENT COMPACTION BASED ON MAXIMUM DRY DENSITY
DETERMINED BY ASTM D-698

* 1 FILL MATERIAL
2 BACKFILL
3 BASE COURSE
4 SUBBASE
5 SOIL CEMENT
6 OTHER

A TEST RESULTS COMPLY WITH SPECIFICATIONS
B RECOMPACTION REQUIRED
C TEST IS AFTER RECOMPACTION

REMARKS:

Respectfully submitted,
Professional Service Industries, Inc.

PSI-A (5/82)

Professional Service Industries, Inc.
Shilstone Engineering Testing Laboratory Division

REPORT OF FIELD COMPACTION TESTS

TESTED FOR SAN MIGUEL ELECTRIC COOPERATIVE, INC.
Post Office Box 280
Jourdanton, Texas 78026
ATTENTION: Mr. Clyde Price

PROJECT 1A Ash Pond Soil Testing
P.O. #26643-032108

DATE August 5, 1987 OUR REPORT NO. 311-70065-19

TEST DATA: Optimum moisture: (5, 28.2)

TEST NO.	DATE	LIFT / LOCATION	GRID / ELEVATION	WET DENSITY (PCF)	WATER CONTENT (%)	DRY DENSITY (PCF)	PERCENT COMPACTION	COMMENTS*
1	08-05-87	Grade	5	86.8	35.7	82.5	95.0	1 - A
2	08-05-87	Grade	5	86.8	32.1	85.5	98.5	1 - A
3	08-05-87	Grade	5	86.8	33.5	82.7	95.2	1 - A
4	08-05-87	1st Lift	5	86.8	32.5	84.5	97.3	1 - A
5	08-05-87	1st Lift	5	86.8	33.0	82.5	95.0	1 - A
6	08-05-87	1st Lift	5	86.8	34.1	82.7	95.2	1 - A

TEST LOCATION: POND FLOOR BETWEEN STATION 1700'-2000'.

1	35' West of Station 1500' and 15' North from Toe of South Slope.
2	40' West of Station 1600' and 25' North from Toe of South Slope.
3	55' West of station 1700' and 20' North from Toe of South Slope.
4	65' West of Station 1500' and 30' North from Toe of South Slope.
5	70' West of Station 1600' and 10' North from Toe of South Slope.
6	85' West of Station 1700' and 15' North from Toe of South Slope.

NOTES: DENSITIES SHOWN ARE DETERMINED AND REPORTED AS WATER CONTENT: Dry Unit Weight in PERCENT COMPACTION: Based on the Maximum Dry Density obtained by ASTM D-698

* 1 FILL MATERIAL
2 BACKFILL
3 BASE COURSE
4 SUBGRADE
5 SOIL CEMENT
6 OTHER

A TEST RESULTS COMPLY WITH SPECIFICATIONS
B RECOMPACTION REQUIRED
C TEST IS AFTER RECOMPACTION

REMARKS:

Respectfully submitted,
Professional Service Industries, Inc.

Professional Service Industries, Inc.
Shilstone Engineering Testing Laboratory Division

REPORT OF FIELD COMPACTION TESTS

TESTED FOR: SAN MIGUEL ELECTRIC COOPERATIVE, INC.
Post Office Box 280
Jourdanton, Texas 78026
ATTENTION: Mr. Clyde Price

PROJECT: JA Ash Pond Soil Testing
P.O. #26643-032108

DATE: August 5, 1987 OUR REPORT NO: 311-70065-19

TEST DATA: Optimum moisture: (5, 28.2)

TEST NO	DATE	TYPE / LOCATION	LIFT NUMBER	MOISTURE TARGET (PERCENT)	WATER CONTENT (PERCENT)	DRY DENSITY (PCF)	PERCENT COMPACTION	COMMENTS*
7	08-05-87	Grade	5	86.8	32.3	85.0	97.9	1 - A
8	08-05-87	Grade	5	86.8	32.5	85.3	98.2	1 - A
9	08-05-87	Grade	5	86.8	31.3	86.0	99.0	1 - A
0	08-05-87	Grade	5	86.8	32.9	85.0	97.9	1 - A
11	08-05-87	Grade	5	86.8	32.7	84.0	96.7	1 - A
12	08-05-87	Grade	5	86.8	33.3	84.0	96.7	1 - A

TEST LOCATION: POND FLOOR BETWEEN (STATION 2000'-2400'), (STATION 1600')

7	10' West of Staiton 2000' and 20' North from Toe of South Slope.
8	20' West of Station 2100' and 10' North from Tow of South Slope.
9	35' West of station 2200' and 5' North from Toe of South Slope.
10	15' West of Station 2300' and 5' North from Toe of South Slope.
11	35' West of station 2400' and 25' North from Toe of South Slope.
12	45' West of station 1600' and 20' North from Toe of South Slope.

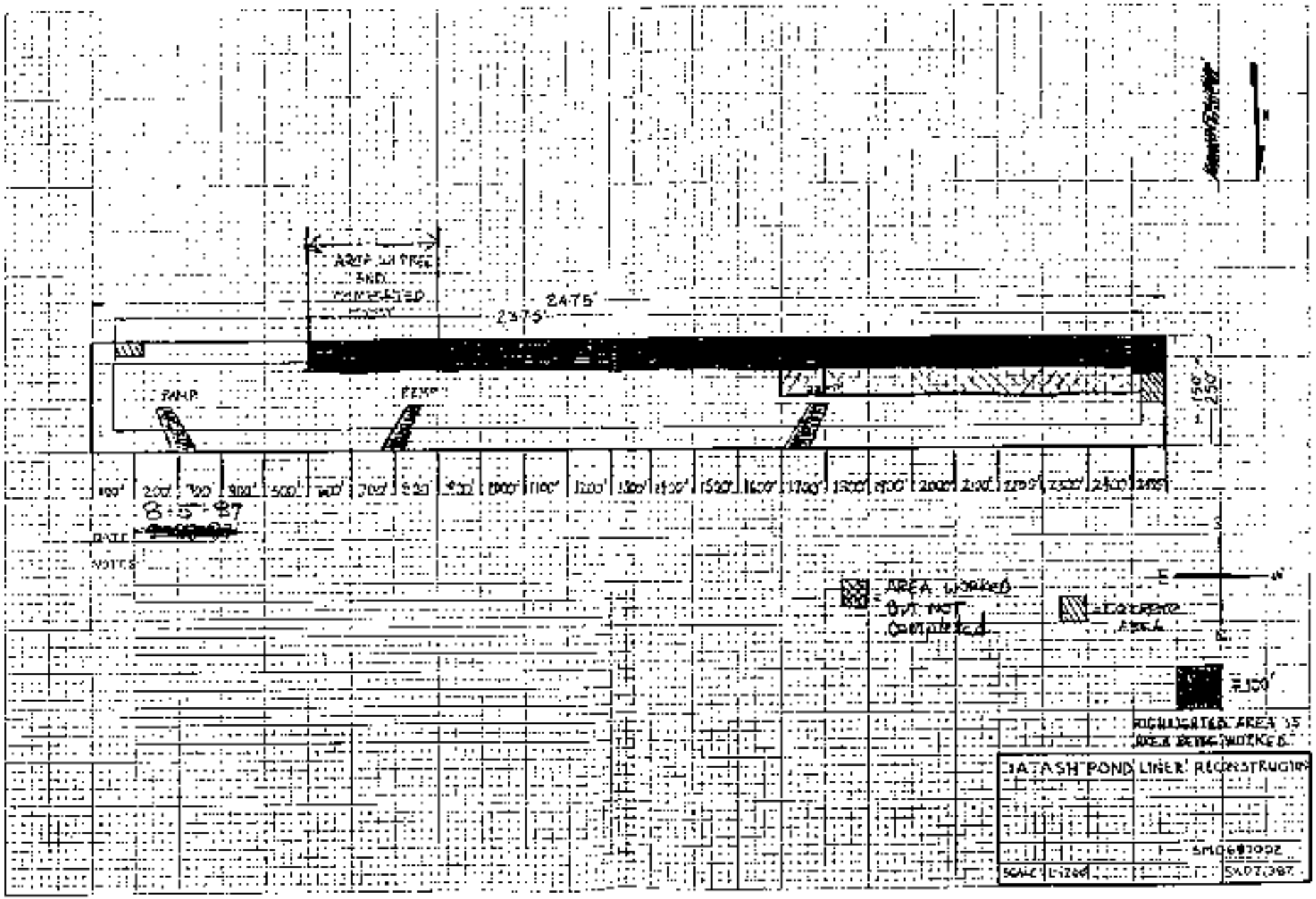
NOTES: DENSITIES SHOWN ARE DRY DENSITIES
WATER CONTENT: Per Cent of Dry Weight
PERCENT COMPACTION: Relation of Field Density to Laboratory Density Obtained by ASTM D698

* 1 - FILL MATERIAL
2 - BACKFILL
3 - BASE COURSE
4 - SUBBASE
5 - SOIL CEMENT
6 - OTHER

A - TEST RESULTS COMPLY WITH SPECIFICATIONS
B - RECOMPACTION REQUIRED
C - TEST IS AFTER RECOMPACTION

REMARKS:

Respectfully submitted
Professional Service Industries, Inc


AREA NOT YET BEING CONSTRUCTED
2475'
2375'
RAMP
RAMP
150'
250'
8-5-87
NOTES
AREA WORKED BUT NOT Completed
AREA
1150'
REMAINING AREA TO BE WORKED
DATASH POND LINER RECONSTRUCTION
SCALE 1:1200
SM06#2092
SM07/387

Professional Service Industries, Inc.
Shilstone Engineering Testing Laboratory Division

DAILY REPORT

TESTED FOR: SAN MIGUEL ELECTRIC COOPERATIVE, INC.
Post Office Box 280
Jourdanton, Texas 78026
ATTENTION: Mr. Clyde Price

PROJECT: 1A Ash Pond Soil Testing
P.O. #26643-032108

DATE: August 4, 1987 OUR REPORT NO: 311-70065-18

Weather: Sunny & Clear
Temperature Range: 85° to 90°
Inspector: G. Quintanilla

Equipment Used:

1. (1) Liebherr Dozer
2. (1) D8 CAT. Dozer
3. (1) D6 Dozer/Rake
4. (3) 637D Scrapers
5. (1) CAT. Spray King
6. (1) Water Truck
7. Discing Equipment
8. (1) CAT. 1206 Grader

V.K. Knowlton completed Station 2200'-2475' and also Station 1200'. A total of 18 density tests were taken today and the results comply with the project specifications. No seepage has been encountered in any other areas besides the area between Station 900'-1100'. V.K. Knowlton has started using discing equipment on the bottom of the pond. They started working at 7:00 a.m. and stopped at 6:00 p.m.

V.K. Knowlton is starting to work a section on the bottom of the pond between Station 900'-1300'. After removing some material, a reddish, sandy clay was encountered and sampled for testing. At 3:00 p.m., it was recommended to the foreman representing V.K. Knowlton to use a sheepsfoot for compacting material on the bottom of the pond. The foreman did not agree to this method and used scrapers for compacting.

If there are any questions concerning this report, please do not hesitate to contact our office at your convenience.

Respectfully submitted,

PROFESSIONAL SERVICE INDUSTRIES, INC.
(Shilstone Engineering Testing
Laboratory Division)

cc: (2) Above
/dd

Professional Service Industries, Inc.
Shilstone Engineering Testing Laboratory Division

REPORT OF FIELD COMPACTION TESTS

TESTED FOR: SAN MIGUEL ELECTRIC COOPERATIVE, INC.
Post Office Box 280
Jourdanton, Texas 78026
ATTENTION: Mr. Clyde Price

PROJECT: 1A Pond Soil Testing
P.O. #26643-032108

DATE: August 4, 1987 OUR REPORT NO.: 311-70065-18

TEST DATA: Optimum moisture: (5, 28.2)

TEST NO.	DATE	LIFT / DEPTH	MATERIAL NUMBER	MAXIMUM DENSITY (PCF)	OPTIMUM MOISTURE (%)	IN-PLACE DENSITY (PCF)	PERCENT COMPACTION	CODES*
1	08-04-87	Grade	5	86.8	35.5	82.3	95.0	1 - A
2	08-04-87	Grade	5	86.8	31.3	85.3	98.2	1 - A
3	08-04-87	Grade	5	86.8	32.3	84.8	97.6	1 - A
4	08-04-87	Grade	5	86.8	30.9	84.7	97.5	1 - A
5	08-04-87	1st Lift	5	86.8	31.1	83.5	96.1	1 - A
6	08-04-87	1st Lift	5	86.8	31.1	83.5	96.1	1 - A

TEST LOCATION: SOUTH SLOPE / S.W. CORNER OF SLOPE (375' Section) 2200'-2475'.

1	25' West of Station 2200' and 15' from Bottom of Slope.
2	40' West of Station 2300' and 35' from Bottom of Slope.
3	50' West of Station 2400' and 25' from Top of Slope.
4	10' North of Station 2475' and 35' from Top of Slope.
5	40' West of Station 2200' and 30' from Bottom of Slope.
6	15' West of Station 2300' and 20' from Top of Slope.

NOTES: DENSITIES SHOWN ARE DRY WEIGHTS
MOISTURE CONTENT PERCENTAGES ARE BY DRY WEIGHT
PERCENT COMPACTION BASED ON MAXIMUM DRY DENSITY
ASTM D698 METHOD

* CODES:
1 SOIL MATERIAL
2 BACKFILL
3 BASE COURSE
4 SUBBASE
5 SOIL CEMENT
6 OTHER

A TEST RESULTS COMPLY WITH SPECIFICATIONS
B RECOMPACTION REQUIRED
C TEST AFTER RECOMPACTION

REMARKS:

cc: (2) Above

Respectfully submitted
Professional Service Industries, Inc.

Professional Service Industries, Inc.
Shilstone Engineering Testing Laboratory Division

REPORT OF FIELD COMPACTION TESTS

SUBMITTED FOR: SAN MIGUEL ELECTRIC COOPERATIVE, INC. Post Office Box 280 Jourdanton, Texas 78026 ATTENTION: Mr. Clyde Price	PROJECT: 1A Ash Pond Soil Testing P.O. #26643-032108

DATE: August 4, 1987 CON REPORT NO: 311-70065-18

TEST DATA: Optimum moisture: (5, 28.2)

TEST NO.	DATE	TEST DEPTH	LIFT NO.	DRY DENSITY (PCF)	WATER CONTENT	WET DENSITY (PCF)	PERCENT COMPACTION	COMMENTS *
7	08-04-87	1st Lift	5	86.8	31.3	84.5	97.3	1 - A
8	08-04-87	1st Lift	5	86.8	33.3	84.0	96.7	1 - A
9	08-04-87	2nd Lift	5	86.8	33.9	83.3	95.9	1 - A
10	08-04-87	2nd Lift	5	86.8	31.5	84.8	97.6	1 - A
11	08-04-87	2nd Lift	5	86.8	33.1	83.8	96.5	1 - A
12	08-04-87	2nd Lift	5	86.8	30.7	85.0	97.9	1 - A

TEST LOCATION: SOUTH SLOPE / S.W. CORNER OF SLOPE (375' Section) 2200'-2475'

7	65' West of Station 2400' and 10' from Bottom of Slope.
8	20' North of Station 2475' and 25' from Bottom of Slope.
9	60' West of Station 2200' and 30' from Top of Slope.
10	15' West of station 2300' and 40' from Top of Slope.
11	70' West of station 2400' and 20' from Bottom of Slope.
12	35' North of Station 2475' and 45' from Bottom of Slope.

NOTES: DENSITIES SHOWN IN PARENTHESES ARE NOT USED IN CALCULATING PERCENT COMPACTION. WATER CONTENT IS PERCENT OF DRY WEIGHT. PERCENT COMPACTION BASED ON MAXIMUM DRY DENSITY OBTAINED FROM LABORATORY STANDARD PROCTOR TEST.

* 1 FILL MATERIAL
2 BACKFILL
3 BASE COURSE
4 SUBBASE
5 SOIL CEMENT
6 OTHER

A TEST RESULTS COMPLY WITH SPECIFICATIONS
B RECOMPACTION REQUIRED
C TESTING AFTER RECOMPACTION

REMARKS:

Respectfully submitted,
Professional Service Industries, Inc.

Professional Service Industries, Inc.
Shilstone Engineering Testing Laboratory Division

REPORT OF FIELD COMPACTION TESTS

TESTED FOR: SAN MIGUEL ELECTRIC COOPERATIVE, INC.
Post Office Box 280
Jourdanton, Texas 78026
ATTENTION: Mr. Clyde Price

PROJECT: 1A Ash Pond Soil Testing
P.O. #26643-032108

DATE: August 4, 1987 OUR REPORT NO: 311-70065-18 Page 4 of 4

TEST DATA: Optimum moisture: (5, 28.2)

TEST NO	DATE	TEST STRUCTURE	NO. OF LAYERS	MAXIMUM DRY DENSITY	WATER CONTENT	IN PLACE DRY DENSITY	PERCENT COMPACTION	COMMENTS *
13	08-04-87	Final	5	86.8	30.9	83.3	95.9	1 - A
14	08-04-87	Final	5	86.8	31.3	83.8	96.5	1 - A
15	08-04-87	Final	5	86.8	30.7	83.8	96.5	1 - A
6	08-04-87	Final	5	86.8	32.5	83.7	96.4	1 - A
17	08-04-87	2nd Lift	5	86.8	31.7	84.3	97.1	1 - A
18	08-04-87	Final	5	86.8	34.5	83.2	95.8	1 - A

TEST LOCATION: SOUTH SLOPE / S.W. CORNER OF SLOPE (375' Section) (100' Section) 2200'-2475'

13	10' West of Station 2200' and 10' from Bottom of Slope.
14	30' West of Station 2300' and 20' from Bottom of Slope.
15	50' West of Station 2400' and 40' from Top of Slope.
16	40' North of Station 2475' and 35' from Bottom of Slope.
17	75' West of Station 1200' and 15' from Bottom of Slope.
18	65' West of Station 1200' and 30' from Bottom of Slope.

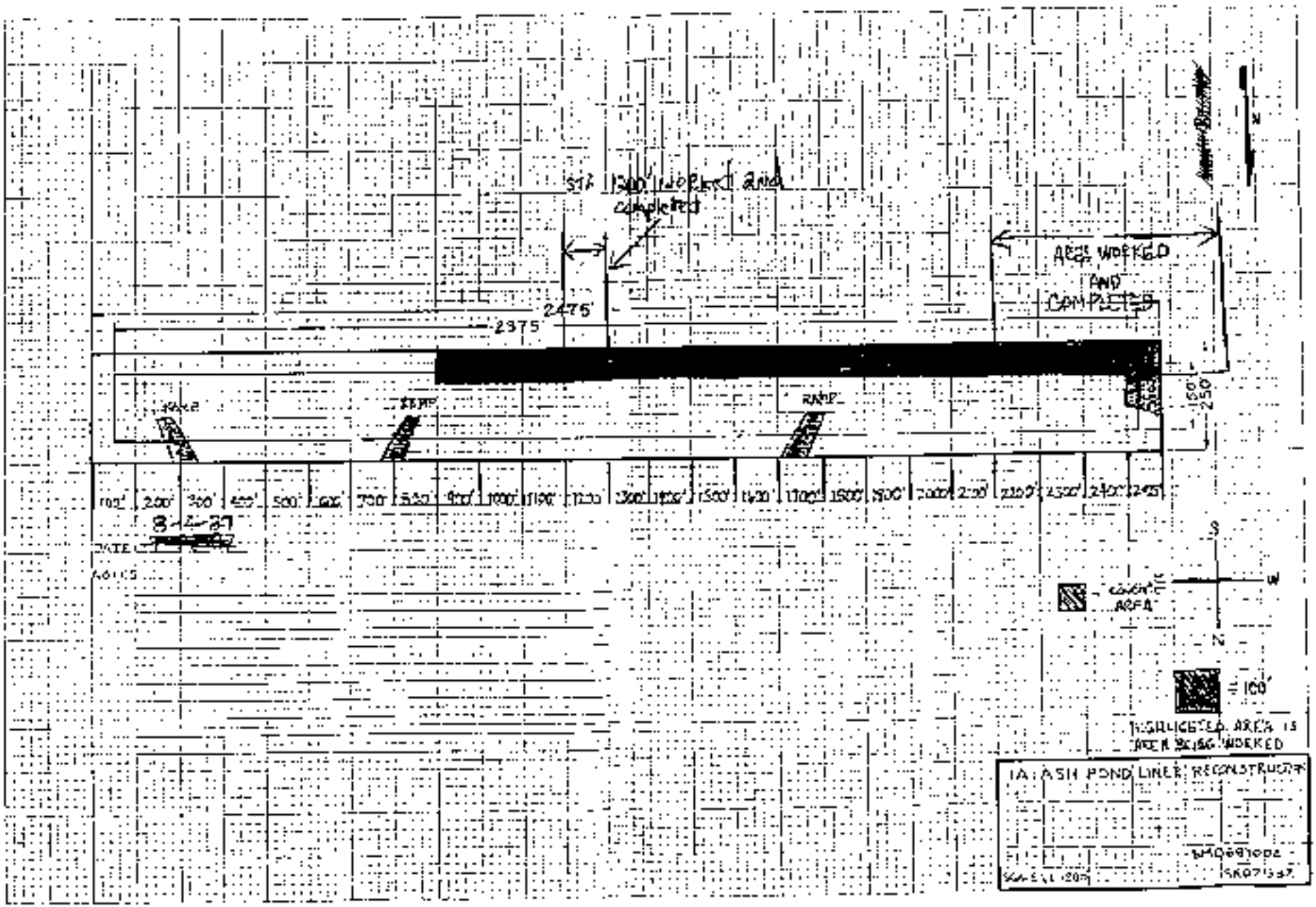
NOTES: DENSITIES SHOWN IN POUNDS PER CUBIC FOOT
WATER CONTENT: PERCENTAGE BY DRY WEIGHT
PERCENT COMPACTION: BASED ON TEST METHOD
MOISTURE OBTAINED BY SPECIFIED METHOD

* 1 FILL MATERIAL
2 BACKFILL
3 BASE COURSE
4 SUBBASE
5 SOIL CEMENT
6 OTHER

A TEST RESULTS COMPLY WITH SPECIFICATIONS
B RE-COMPACTION REQUIRED
C TEST IS AFTER RE-COMPACTION

REMARKS:

Respectfully submitted,
Professional Service Industries, Inc.


AREA WORKED AND COMPLETED
2475'
2375'
RAMP
RAMP
RAMP
8-4-87
DATE
AREAS
N
S
W
E
= 100'
HIGHLIGHTED AREA IS AREA BEING WORKED
1A ASH POND LINER RECONSTRUCTION

Professional Service Industries, Inc.
Shilstone Engineering Testing Laboratory Division

DAILY REPORT

TESTED FOR: SAN MIGUEL ELECTRIC COOPERATIVE, INC. PROJECT: 1A Ash Pond Soil Testing
Post Office Box 280
Jourdanton, Texas 78026
P.O. #26643-032108

ATTENTION: Mr. Clyde Price

DATE: August 3, 1987 OUR REPORT NO: 311-70065-17 Page 1 of 3

Weather Conditions: Sunny & Clear
Temperature Range: 85° to 90°
Inspector: G. Quintanilla

A 300' section, station 1900'-2100', on the south slope was worked and completed today. Twelve (12) density tests were taken with the results complying with the project specifications. Minimal seepage has been encountered in the area of stations 900'-1100'. The area of stations 1300'-2100' appears to be sealed. Due to a change in material, a sample for testing was collected in the area of stations 1900'-2100'.

If there are any questions concerning this report, please do not hesitate to contact our office at your convenience.

Respectfully submitted,

PROFESSIONAL SERVICE INDUSTRIES, INC.
(Shilstone Engineering Testing Laboratory Division)

cc: (2) Above
/dd

Professional Service Industries, Inc.
Shilstone Engineering Testing Laboratory Division

REPORT OF FIELD COMPACTION TESTS

TESTED FOR: SAN MIGUEL ELECTRIC COOPERATIVE, INC.
Post Office Box 280
Jourdanton, Texas 78026
ATTENTION: Mr. Clyde Price

PROJECT: 1A Ash Pond Soil Testing
P.O. #26643-032108

DATE: August 3, 1987 OUR REPORT NO: 311-70065-17

TEST DATA: Optimum moisture: (5, 28.2)

TEST NO	DATE	LIFT	SOIL SYMBOL	MAXIMUM DRY DENSITY	WATER CONTENT	IN-PLACE DRY DENSITY	PERCENT COMPACTION	COMMENT*
1	08-03-87	Grade	5	86.8	30.9	83.3	95.9	1 - A
2	08-03-87	Grade	5	86.8	30.8	86.0	99.0	1 - A
3	08-03-87	Grade	5	86.8	30.7	84.5	97.3	1 - A
4	08-03-87	1st Lift	5	86.8	30.8	84.5	97.3	1 - A
5	08-03-87	1st Lift	5	86.8	33.3	82.5	95.0	1 - A
6	08-03-87	1st Lift	5	86.8	32.9	84.3	97.1	1 - A

TEST LOCATION: SOUTH SLOPE 1900'-2100' (300' Section/Day)

1	35' West of station 1900' and 30' from Top of Slope.
2	45' West of Staiton 2000' and 25' from Bottom of Slope.
3	60' West of Station 2100' and 35' from Top of Slope.
4	65' West of Station 1900' and 20' from Bottom of Slope.
5	70' West of Station 2000' and 40' from Top of Slope.
6	20' West of Station 2100' and 25' from Bottom of Slope.

NOTES: DENSITIES SHOWN ARE POUNDS PER CUBIC FOOT
WATER CONTENT IN PERCENT OF DRY WEIGHT
PERCENT COMPACTION BASED ON MAXIMUM DRY DENSITY
OBTAINED FROM LABORATORY COMPACTION TEST
ASTM D-698

* 1 IN PLACE MATERIAL
2 BACKFILL
3 BASE COURSE
4 SUBBASE
5 SO. CEMENT
6 OTHER

A TEST RESULTS COMPLY WITH SPECIFICATIONS
B RECOMPACTION REQUIRED
C TEST TAKEN AFTER RECOMPACTION

REMARKS:

cc: (2) Above

Respectfully submitted
Professional Service Industries, Inc.

PSI 4-79-7

Professional Service Industries, Inc.
Shilstone Engineering Testing Laboratory Division

REPORT OF FIELD COMPACTION TESTS

TESTED FOR: SAN MIGUEL ELECTRIC COOPERATIVE, INC.
Post Office Box 280
Jourdanton, Texas 78026
ATTENTION: Mr. Clyde Price

PROJECT: 1A Ash Pond Soil Testing
P.O. #26643-032108

DATE: August 3, 1987 OUR REPORT NO: 311-70065-17

TEST DATA: Optimum moisture: (5, 28.2)

TEST NO	DATE	FILL LIFT / LOCATION	SOIL TYPE NUMBER	MAXIMUM DRY DENSITY	WATER CONTENT	IN PLACE DRY DENSITY	PERCENT COMPACTION	COMMENTS*
7	08-03-87	2nd Lift	5	86.8	31.1	83.5	96.1	1 - A
8	08-03-87	2nd Lift	5	86.8	30.9	85.5	98.5	1 - A
9	08-03-87	2nd Lift	5	86.8	32.7	84.0	96.7	1 - A
10	08-03-87	Final	5	86.8	30.7	86.5	99.6	1 - A
11	08-03-87	Final	5	86.8	31.7	82.8	95.3	1 - A
12	08-03-87	Final	5	86.8	30.9	83.3	95.9	1 - A

TEST LOCATION: SOUTH SLOPE 1900'-2100' (300' Section/Day)

7	20' West of Station 1900' and 35' from Top of Slope.
8	40' West of Station 2000' and 20' from Bottom of Slope.
9	50' West of Station 2100' and 40' from Top of Slope.
10	65' West of Station 1900' and 15' from Bottom of Slope.
11	15' West of Station 2000' and 30' fro Top of Slope.
12	10' West of station 2100' and 25' from Bottom of Slope.

NOTES: DENSITIES SHOWN: Lbs. per Cubic Foot
WATER CONTENT: Per Cent of Dry Weight
PERCENT COMPACTION: Based on Maximum Dry Density Obtained on Sample Tested by Soil Laboratory

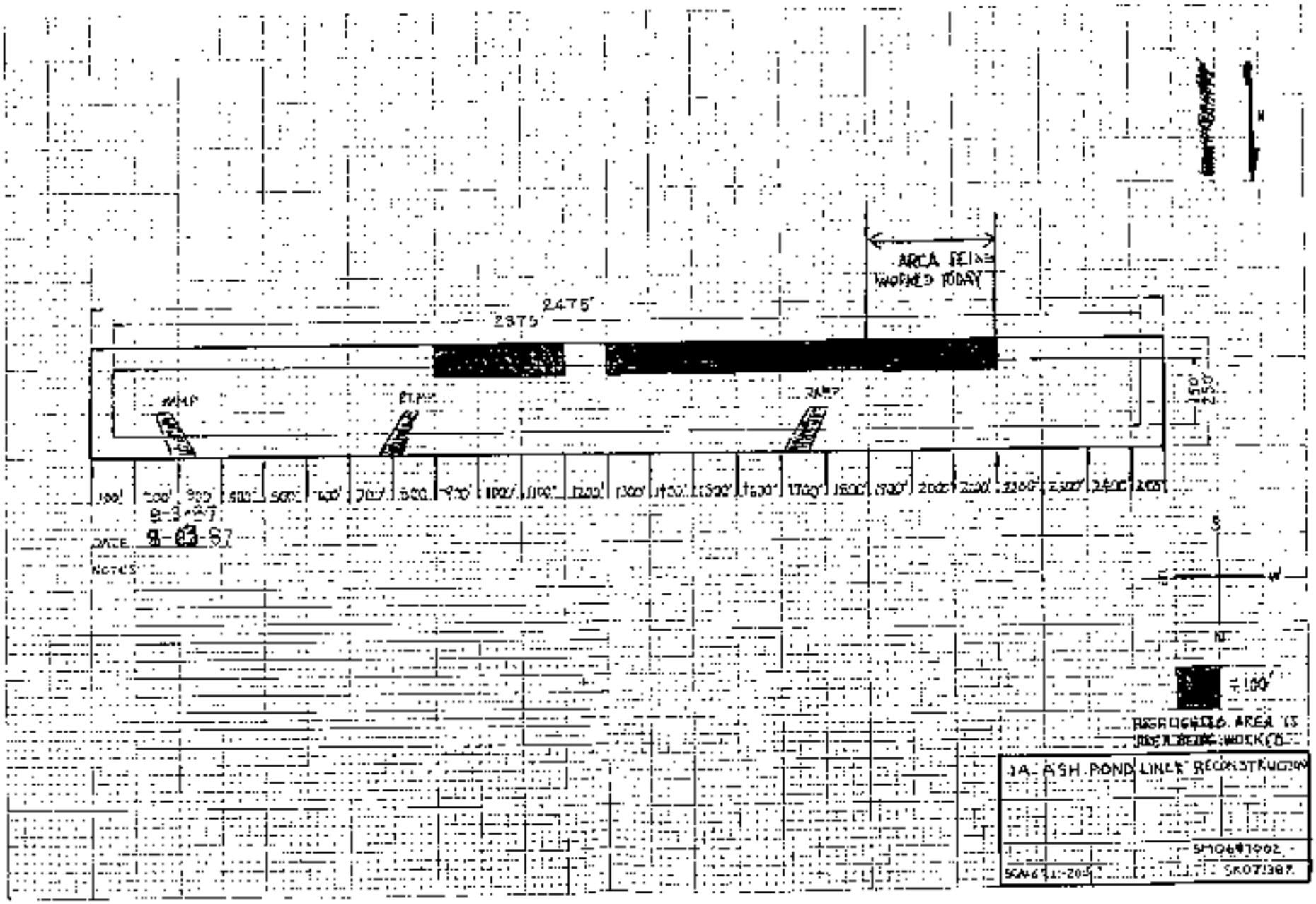
* 1 FILL MATERIAL
2 BACKFILL
3 BASE COURSE
4 SUBBASE
5 SOIL CEMENT
6 OTHER

A TEST RESULTS COMPLY WITH SPECIFICATIONS
B RECOMPACTION REQUIRED
C TEST IS AFTER RECOMPACTION

REMARKS

cc: (2) Above
/dd

Respectfully submitted,
Professional Service Industries, Inc.


AREA BEING WORKED TODAY
2475'
2375'
RAMP
RAMP
RAMP
DATE 9-03-87
NOTES
N
S
W
E
NE
±100'
REGRADED AREA IS RECEIVING WORK (S)
JA. ASH POND LINER RECONSTRUCTION
SHEET 1902
SCALE 1:-20-
SK07387

Professional Service Industries, Inc.
Shilstone Engineering Testing Laboratory Division

DAILY FIELD REPORT

TESTED FOR SAN MIGUEL ELECTRIC COOPERATIVE, INC. PROJECT
Post Office Box 280
Jourdanton, Texas 78026
ATTENTION: Mr. Clyde Price

1A Ash Pond Soil Testing
P.O. #26643-032108

DATE July 31, 1987 OUR REPORT NO 311-70065-16

WEATHER Sunny & Clear

TEMPERATURE RANGE 90° TO 95°

INSPECTOR G. Quintanilla

TYPE OF INSPECTION BEING PERFORMED

X SOILS	___ CONCRETE
___ FOUNDATIONS	___ BATCH PLANT
X CONTROLLED FILL (COMPACTION)	___ PLACEMENT (JOB SITE)
___	___
ASPHALT	___ OTHER
___ BATCH PLANT	___
___ PLACEMENT (JOB SITE)	___

BRIEF RESUME OF WORK ACCOMPLISHED THIS DATE: The south slope, station 1,500'-1,800' was completed today. Seepage was encountered in a completed area on the south slope. At station 1,000' water has come through in an area approximately 15'-20' wide at the bottom of the slope. It appears to be coming through an area where the ash is concentrated past the 3' of material required to be worked. Overall, the rest of this section appears to be satisfactory. A total of 13 compaction tests were performed today.

: (2) Above
/dd

Respectfully submitted,
Professional Service Industries, Inc.

Professional Service Industries, Inc.
Shilstone Engineering Testing Laboratory Division

REPORT OF FIELD COMPACTION TESTS

TESTED FOR SAN MIGUEL ELECTRIC COOPERATIVE, INC. PROJECT
Post Office Box 280
Jourdanton, Texas 78026
ATTENTION: Mr. Clyde Price

1A Ash Pond Soil Testing
P.O. #26643-032108

DATE July 31, 1987 OUR REPORT NO 311-70065-16

TEST DATA: Optimum moisture: (5, 28.2)

TEST NO	DATE	FILL AREA	NO. OF BLOWS	MAX. DRY DENSITY PCF	WATER CONTENT %	% PLACE DRY DENSITY	PERCENT COMPACTION	COMMENTS
1	07-31-87	Grade	5	86.8	30.8	86.0	99.0	1 - A
2	07-31-87	Grade	5	86.8	30.3	79.0	91.0	1 - B
3	07-31-87	Grade	5	86.8	30.6	86.8	100.0	1 - A
4	07-31-87	Grade	5	86.8	30.9	86.3	94.4	1 - A,C
5	07-31-87	1st Lift	5	86.8	32.5	85.3	98.2	1 - A
6	07-31-87	1st Lift	5	86.8	31.3	83.0	95.6	1 - A

TEST LOCATION: SOUTH SLOPE 1,600'-1,800' (300' AREA/DAY).

1	20' West of Station 1,600' and 30' from Top of Slope.
2	35' West of Station 1,700' and 40' from Bottom of Slope.
3	45' West of Station 1,800' and 25' from Bottom of Slope.
4	Retest of Test #2.
5	35' West of Station 1,600' and 35' from Bottom of Slope.
6	40' West of Station 1,700' and 40' from Top of Slope.

NOTES: DENSITIES SHOWN ARE DRY DENSITY PCF
WATER CONTENT IS % DRY WEIGHT
PERCENT COMPACTION IS RATIO OF FIELD DRY DENSITY TO MAX. DRY DENSITY EXPRESSED AS A PERCENTAGE

1 FILL MATERIAL
2 BACKFILL
3 BASE COURSE
4 SUBBASE
5 SOIL CEMENT
6 OTHER

A TEST RESULTS COMPLY WITH SPECIFICATIONS
B RECOMPACTION REQUIRED
C TEST IS AFTER RECOMPACTION

REMARKS:

Respectfully submitted,
Professional Service Industries, Inc.

Professional Service Industries, Inc.
Shilstone Engineering Testing Laboratory Division

REPORT OF FIELD COMPACTION TESTS

TESTED FOR: SAN MIGUEL ELECTRIC COOPERATIVE, INC.
Post Office Box 280
Jourdanton, Texas 78026
ATTENTION: Mr. Clyde Price

PROJECT: 1A Ash Pond Soil Testing
P.O. #26643-032108

DATE: July 31, 1987

OUR REPORT NO: 311-70065-16

TEST DATA: Optimum moisture: (5, 28.2)

TEST NO.	DATE	LIFT / DEPTH	TEST NO.	MAXIMUM LABORATORY DENSITY	WATER CONTENT	FIELD DRY DENSITY	% FIELD COMPACTION	COMMENTS*
7	07-31-87	1st Lift	5	86.8	30.5	83.5	96.1	1 - A
8	07-31-87	2nd Lift	5	86.8	31.7	85.8	98.8	1 - A
9	07-31-87	2nd Lift	5	86.8	32.1	85.5	98.5	1 - A
9	07-31-87	2nd Lift	5	86.8	32.1	85.5	98.5	1 - A
11	07-31-87	Final	5	86.8	33.9	82.5	95.0	1 - A
12	07-31-87	Final	5	86.8	34.2	82.6	95.1	1 - A

TEST LOCATION: SOUTH SLOPE (1,600'-1,800') 300' AREA/DAY.

7	50' West of Station 1,800' and 30' from Top of Slope.
8	65' West of Station 1,600' and 25' from Bottom of Slope.
9	70' West of Station 1,700' and 30' from Top of Slope.
10	15' West of Station 1,800' and 10' from Bottom of Slope.
11	80' West of Station 1,600' and 20' from Bottom of Slope.
12	50' West of Station 1,700' and 40' from Top of Slope.

NOTES: DENSITY SHOWN IS [illegible]
WATER CONTENT PERCENT OF [illegible]
PERCENT COMPACTION BASED ON [illegible]
[illegible]

* 1 - FILL MATERIAL
2 - BACKFILL
3 - BASE COURSE
4 - SUBBASE
5 - SCC, CEMENT
6 - OTHER

A - TEST RESULTS COMPLY WITH SPECIFICATIONS
B - RECOMPACTION REQUIRED
C - TEST IS ALTERED RECOMPACTION

REMARKS:

Respectfully submitted,
Professional Service Industries, Inc.

Professional Service Industries, Inc.
Shilstone Engineering Testing Laboratory Division

REPORT OF FIELD COMPACTION TESTS

TESTED FOR: SAN MIGUEL ELECTRIC COOPERATIVE, INC.
Post Office Box 280
Jourdanton, Texas 78026
ATTENTION: Mr. Clyde Price

PROJECT: 1A Ash Pond Soil Testing
P.O. #26643-032108

DATE: July 31, 1987 OUR REPORT NO: 311-70065-16

TEST DATA: Optimum moisture; (5, 28.2)

TEST NO.	DATE	TEST TYPE	SOIL TYPE	MAXIMUM DRY DENSITY	WATER CONTENT	IN-PLACE DRY DENSITY	PERCENT COMPACTION	COMMENTS*
13	07-31-87	Final	5	86.8	33.5	82.8	95.3	1 - A

TEST LOCATION: SOUTH SLOPE (1,600'-1,800') 300' AREA/DAY.

13	35' West of Station 1,800' and 30' from Bottom of Slope.

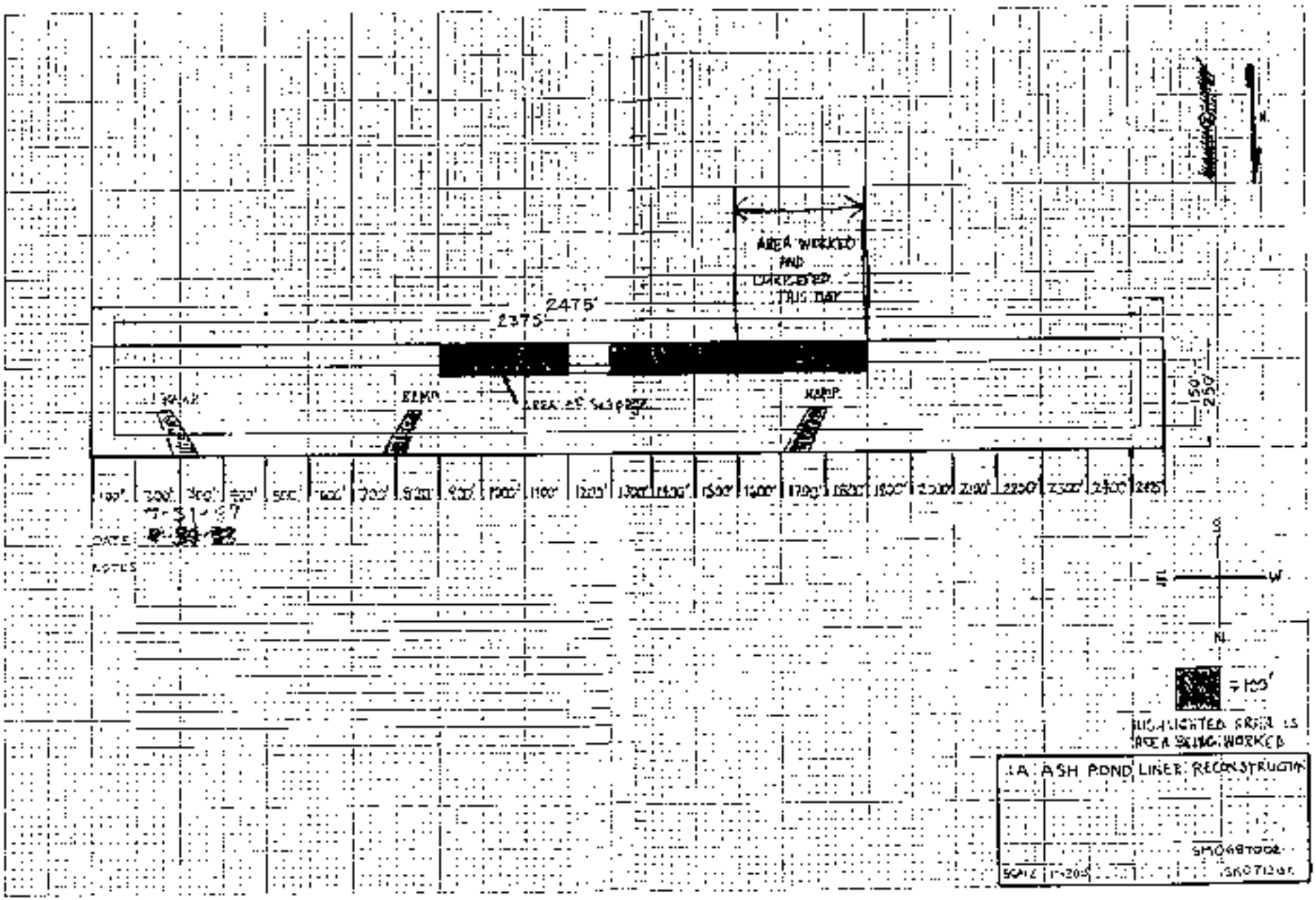
NOTES: DENSITIES SHOWN ARE PER CUBIC FOOT.
WATER CONTENT PERCENTAGES ARE BASED ON DRY WEIGHT OF SOIL.
PERCENT COMPACTION BASED ON MAXIMUM DRY DENSITY OBTAINED ON SAMPLE INDICATED BY SOIL TYPE.

REMARKS

* 1 FILL MATERIAL
2 BACKFILL
3 BASE COURSE
4 SUBBASE
5 SOIL CEMENT
6 OTHER

A TEST RESULTS COMPLY WITH SPECIFICATIONS
B RECOMPACTION REQUIRED
C TEST IS AFTER RECOMPACTION

Respectfully submitted,
Professional Service Industries, Inc.


AREA WORKED AND COMPLETED THIS DAY
2475'
2375'
RAMP
RAMP
150'
250'
N
W
= 100'
HIGHLIGHTED AREA IS AREA BEING WORKED
1A ASH POND LINER RECONSTRUCTION

Professional Service Industries, Inc.
Shilstone Engineering Testing Laboratory Division

DAILY FIELD REPORT

TESTED FOR: SAN MIGUEL ELECTRIC COOPERATIVE, INC
Post Office Box 280
Jourdanton, Texas 78026
ATTENTION: Mr. Clyde Price

PROJECT: 1A Ash Pond Soil Testing
P.O. #26643-032108

DATE: July 30, 1987 OUR REPORT NO: 311-70065-15 Page 1 of 4

WEATHER: Sunny & Clear

TEMPERATURE RANGE: 90° TO: 95°

INSPECTOR: G. Guintanilla

TYPE OF INSPECTION BEING PERFORMED

X SOILS	___ CONCRETE
___ FOUNDATIONS	___ BATCH PLANT
X CONTROLLED FILL (COMPACTION)	___ PLACEMENT (JOB SITE)
___	___
___ ASPHALT	___ OTHER
___ BATCH PLANT	___
___ PLACEMENT (JOB SITE)	___

BRIEF RESUME OF WORK ACCOMPLISHED THIS DATE: Work was done on south slope approximately 1,300'-1,500' (300' section). Twelve (12) compaction tests were taken today. All tests comply with the project specifications. 300' area work of 07-29-87 appears to be holding pretty well. No apparent seepage was found. V.K. Knowlton started at 7:00 a.m. and finished at 6:00 p.m. A 400' section will be attented tomorrow.

(2) Above

Respectfully submitted,
Professional Service Industries, Inc.

Professional Service Industries, Inc.
Shilstone Engineering Testing Laboratory Division

DAILY REPORT

TESTED FOR SAN MIGUEL ELECTRIC COOPERATIVE, INC.
Post Office Box 280
Jourdanton, Texas 78026
ATTENTION: Mr. Clyde Price

PROJECT 1A Ash Pond Soil Testing
P.O. #26643-032108

DATE July 30, 1987 OUR REPORT NO 311-70065-15

REMARKS:

EQUIPMENT USED:

1. 1 - D-7 Bulldozer with Rake
2. 1 - Liebherr 731 Bulldozer
3. 1 - D8H CAT. Bulldozer
4. 1 - Spray King
5. 2 - 637D CAT. Scrapers

V.K. Knowlton has been using a D-7 Bulldozer with a rake attached to the blade for scarifying. This equipment appears to be breaking and scarifying the material to the 1' depth required by the project specifications. Three (3) lifts are being placed after scarifying and compacting the bottom 1'. A 300' area is being worked per day. Friday, V.K. Knowlton will try to finish a 400' section. Overlaps at the 100' mark of each section have been approximately 4'-5'.

If there are any questions concerning this report, please do not hesitate to contact our office at your convenience.

Respectfully submitted,

PROFESSIONAL SERVICE INDUSTRIES, INC.
(Shilstone Engineering Testing
Laboratory Division)

cc: (2) Above
/dd

Professional Service Industries, Inc.
Shilstone Engineering Testing Laboratory Division

REPORT OF FIELD COMPACTION TESTS

TESTED FOR SAN MIGJEL ELECTRIC COOPERATIVE, INC.
Post Office Box 280
Jourdanton, Texas 78026
ATTENTION: Mr. Clyde Price

PROJECT 1A Ash Pond Soil Testing
P.O. #26643-032108

DATE July 30, 1987 OUR REPORT NO 311-70065-15

TEST DATA: Optimum moisture: (5, 28.2)

TEST NO	DATE	TEST LOCATION / ELEV	NO. OF BLOWS	MAXIMUM DRY DENSITY	WATER CONTENT	IN PLACE DRY DENSITY	PERCENT COMPACTION	COMMENTS*
1	07-30-87	Grade	5	86.8	33.1	85.3	98.2	1 - A
2	07-30-87	Grade	5	86.8	31.9	86.0	99.0	1 - A
3	07-30-87	Grade	5	86.8	33.1	83.8	96.5	1 - A
4	07-30-87	1st Lift	5	86.8	33.2	85.3	98.2	1 - A
5	07-30-87	1st Lift	5	86.8	32.1	82.5	95.0	1 - A
6	07-30-87	1st Lift	5	86.8	30.4	85.5	98.5	1 - A

TEST LOCATION: SOUTH SLOPE - 1,300'-1,500' (300' AREA/DAY).

1	30' West of Station 1,300' and 30' from Bottom of Slope.
2	40' West of Station 1,400' and 45' from Bottom of Slope.
3	25' West of Station 1,500' and 20' from Bottom of Slope.
4	20' West of Station 1,300' and 15' from Bottom of Slope.
5	30' West of Station 1,400' and 30' from Bottom of Slope.
6	60' West of Station 1,500' and 30' from Top of Slope.

NOTES: DENSITY SHOWN IN POUNDS PER CUBIC FOOT
WATER CONTENT PERCENT OF DRY WEIGHT
PERCENT COMPACTION BASED ON MAXIMUM DRY DENSITY OBTAINED BY ASTM D-698

* 1 FILL MATERIAL
2 BACKFILL
3 BASE COURSE
4 SUBGRADE
5 SOIL CEMENT
6 OTHER

A TEST RESULTS COMPLY WITH SPECIFICATIONS
B RE-COMPACTION REQUIRED
C TEST # AFTER RECOMPACTION

REMARKS:

Respectfully submitted,
Professional Service Industries, Inc.

Professional Service Industries, Inc.
Shilstone Engineering Testing Laboratory Division

REPORT OF FIELD COMPACTION TESTS

TESTED FOR: SAN MIGUEL ELECTRIC COOPERATIVE, INC.
Post Office Box 280
Jourdanton, Texas 78026
ATTENTION: Mr. Clyde Price

PROJECT: 1A Ash Pond Soil Testing
P.O. #26643-032108

DATE: July 30, 1987 OUR REPORT NO: 311-70065-15

TEST DATA: Optimum moisture: (5, 28.2)

TEST NO.	DATE	LIFT NO. / MATERIAL	COMPACTION % WATER	MAXIMUM DRY DENSITY	WATER CONTENT	IN-PLACE DRY DENSITY	PERCENT COMPACTION	COMMENTS*
7	07-30-87	2nd Lift	5	86.8	30.9	85.5	98.5	4-A
8	07-30-87	2nd Lift	5	86.8	31.0	83.3	95.9	4-A
9	07-30-87	2nd Lift	5	86.8	33.1	83.8	96.5	4-A
10	07-30-87	Final	5	86.8	32.9	82.8	95.3	4-A
11	07-30-87	Final	5	86.8	33.3	82.5	95.0	4-A
12	07-30-87	Final	5	86.8	31.3	85.8	98.4	4-A

TEST LOCATION: SOUTH SLOPE (1,300'-1,500') 300' AREA/DAY.

7	15' West of Station 1,300' and 25' from Top of Slope.
8	35' West of Station 1,400' and 30' from Bottom of Slope.
9	50' West of Station 1,500' and 20' from Bottom of Slope.
10	30' West of Station 1,300' and 15' from Bottom of Slope.
11	40' West of Station 1,400' and 20' from Top of Slope.
12	60' West of Station 1,500' and 30' from Top of Slope.

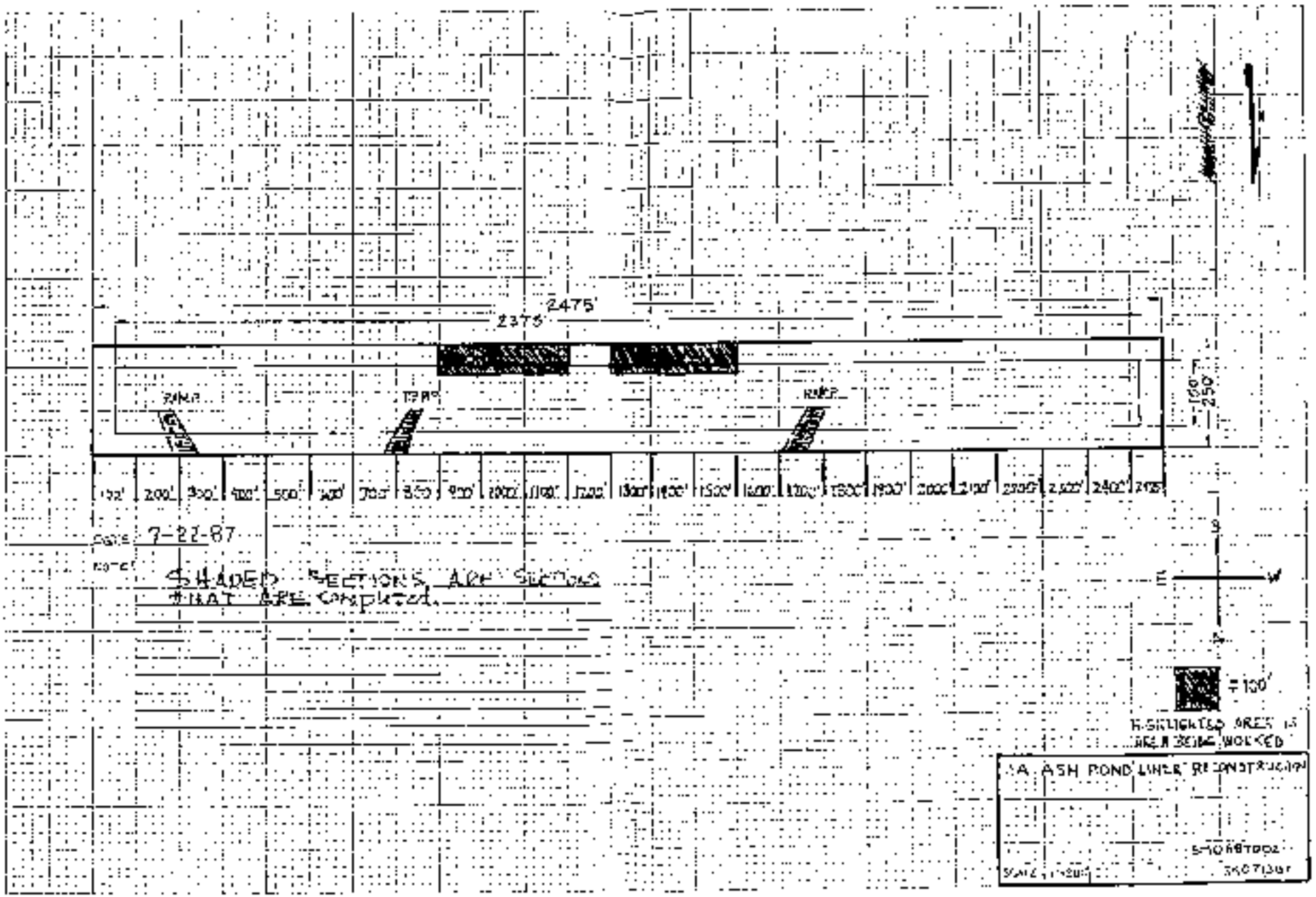
NOTES: DENSITIES SHOWN ARE IN POUNDS PER CUBIC FOOT
WATER CONTENT IS EXPRESSED AS A PERCENT OF DRY WEIGHT
PERCENT COMPACTION IS BASED ON MAXIMUM DRY DENSITY OF LABORATORY STANDARD (ASTM D-698) OR MODIFIED (ASTM D-1557)

* 1 FILL MATERIAL
2 BACKFILL
3 BASE COURSE
4 SUBBASE
5 SOIL CEMENT
6 OTHER

A TEST RESULTS COMPLY WITH SPECIFICATIONS
B RECOMPACTION REQUIRED
C TEST IS AFTER RECOMPACTION

REMARKS:

Respectfully submitted
Professional Service Industries, Inc.


2475'
2375'
7-22-87
SHADED SECTIONS ARE SECTIONS THAT ARE COMPLETED.
= 100'
SHOTCRETE
SECTION

Professional Service Industries, Inc.
Shilstone Engineering Testing Laboratory Division

DAILY FIELD REPORT

TESTED FOR: SAN MIGUEL ELECTRIC COOPERATIVE, INC.
Post Office Box 280
Jourdanton, Texas 78026
ATTENTION: Mr. Clyde Price

PROJECT: 1A Ash Pond Soil Testing
P.O. #26643-032108

DATE: July 29, 1987

OUR REPORT NO: 311-70005-14

WEATHER: Sunny & Clear

TEMPERATURE RANGE: 90° TO 95°

INSPECTOR: G. Quintanilla

TYPE OF INSPECTION BEING PERFORMED

X SOILS	____ CONCRETE
____ FOUNDATIONS	____ BATCH PLANT
X CONTROLLED FILL (COMPACTION)	____ PLACEMENT (JOB SITE)
____	____
____ ASPHALT	____ OTHER
____ BATCH PLANT	____
____ PLACEMENT (JOB SITE)	____

BRIEF RESUME OF WORK ACCOMPLISHED THIS DATE: V.K. Knowlton was able to complete a 300' section in one day. The 1st foot was scarified, compacted and tested. An additional (3) 9" lifts were added to complete liner in this area. A total of 24 compaction tests were taken today. All tests taken today met the project specifications. V.K. Knowlton commenced at 7:00 a.m. and finished at 6:00 p.m.

: (2) Above
/dd

Respectfully submitted,
Professional Service Industries, Inc.

Professional Service Industries, Inc.
Shilstone Engineering Testing Laboratory Division

REPORT OF FIELD COMPACTION TESTS

TESTED FOR SAN MIGUEL ELECTRIC COOPERATIVE, INC.
Post Office Box 280
Jourdanton, Texas 78026
ATTENTION: Mr. Clyde Price

PROJECT 1A Ash Pond Soil Testing
P.O. #26643-032108

DATE July 29, 1987 OUR REPORT NO 311-70005-14

TEST DATA: Optimum moisture: (5. 28.2)

TEST NO.	DATE	TYPE	LOCATION NUMBER	MAXIMUM DRY DENSITY	WATER CONTENT	% PLACE DRY DENSITY	RELATIVE COMPACTION	REMARKS*
1	07-29-87	Grade	5	86.8	31.5	82.5	95.0	1 - A
2	07-29-87	Grade	5	86.8	32.1	82.5	95.0	1 - A
3	07-29-87	Grade	5	86.8	33.5	85.0	97.9	1 - A
4	07-29-87	Grade	5	86.8	31.9	86.0	99.0	1 - A
5	07-29-87	Grade	5	86.8	32.9	85.0	97.9	1 - A
6	07-29-87	Grade	5	86.8	33.1	85.3	98.2	1 - A

TEST LOCATION: SOUTH SLOPE - STATION 900'-1,000', 1,000'-1,100', 1,100'-1,200' (300' AREA PER DA

1	25' West of Station 900' and 40' from bottom of slope.
2	70' West of Station 900' and 20' from top of slope.
3	30' West of Station 1,000' and 30' from bottom of slope.
4	20' East of Station 1,100' and 20' from top of slope.
5	10' West of Station 1,100' and 10' from bottom of slope.
6	25' East of Station 1,200' and 20' from top of slope.

NOTES: DENSITIES SHOWN ARE DETERMINED IN ACCORDANCE WITH ASTM D-1557-78 METHOD C. WATER CONTENT DETERMINED IN ACCORDANCE WITH ASTM D-2216. RELATIVE COMPACTION BASED ON MAXIMUM DRY DENSITY DETERMINED BY ASTM D-1557-78 METHOD C.

* 1. FILL MATERIAL
2. BACKFILL
3. BASE COURSE
4. SUBGRADE
5. SO. CEMENT
6. OTHER

A. TEST RESULTS COMPLY WITH SPECIFICATIONS
B. RECOMPACTION REQUIRED
C. TEST IS AFTER RECOMPACTION

REMARKS:

Respectfully submitted,
Professional Service Industries, Inc.

Professional Service Industries, Inc.
Shilstone Engineering Testing Laboratory Division

REPORT OF FIELD COMPACTION TESTS

TESTED FOR: SAN MIGUEL ELECTRIC COOPERATIVE, INC.
Post Office Box 280
Jourdanton, Texas 78026
ATTENTION: Mr. Clyde Price

PROJECT: 1A Ash Pond Soil Testing
P.O. #26643-032108

DATE: July 29, 1987 OUR REPORT NO: 311-70065-14

TEST DATA: Optimum moisture: (5, 28.2)

TEST NO.	TEST DATE	LOCATION	LIFT (INCHES)	MOISTURE CONTENT (%)	WET DENSITY (PCF)	PERCENT COMPACTION	COMMENTS*
7	07-29-87	1st Lift	5	86.8	31.7	82.8	95.3	1 - A
8	07-29-87	1st Lift	5	86.8	31.9	84.5	97.3	1 - A
9	07-29-87	1st Lift	5	86.8	31.7	85.0	97.9	1 - A
0	07-29-87	1st Lift	5	86.8	34.5	84.0	96.7	1 - A
11	07-29-87	1st Lift	5	86.8	35.5	83.0	95.6	1 - A
12	07-29-87	1st Lift	5	86.8	33.9	84.0	96.7	1 - A

TEST LOCATION: SOUTH SLOPE - STATION 900'-1,200' (300' AREA/DAY)

7	30' West of Station 900' and 45' from bottom of slope.
8	20' East of station 1,000' and 20' from top of slope.
9	35' West of Station 1,000' and 15' from top of slope.
10	20' East of Station 1,100' and 20' from bottom of slope.
11	50' West of Station 1,100' and 25' from bottom of slope.
12	10' East of Station 1,200' and 30' from top of slope.

NOTES: DENSITIES SHOWN ARE DRY WEIGHT
WATER CONTENT: PERCENT OF DRY WEIGHT
PERCENT COMPACTION: BASED ON MAXIMUM DRY DENSITY OBTAINED ON SAMPLE IDENTIFIED BY TEST NUMBER

* 1 FILL MATERIAL
2 BACKFILL
3 BASE COURSE
4 SUBBASE
5 SOIL CEMENT
6 OTHER

A TEST RESULTS COMPLY WITH SPECIFICATIONS
B RECOMPACTION REQUIRED
C TEST IS AFTER RECOMPACTION

REMARKS:

Respectfully submitted,
Professional Service Industries, Inc.

Professional Service Industries, Inc.
Shilstone Engineering Testing Laboratory Division

REPORT OF FIELD COMPACTION TESTS

TESTED FOR SAN MIGUEL ELECTRIC COOPERATIVE, INC. PROJECT 1A Ash Pond Soil Testing
Post Office Box 280 P.O. #26643-032108
Jourdanton, Texas 78026
ATTENTION: Mr. Clyde Price

DATE July 29, 1987 OUR REPORT NO 311-70065-14

TEST DATA: Optimum moisture: (5, 28.2)

TEST NO	DATE	TEST LOCATION	SOIL CLASS NUMBER	MAXIMUM DRY DENSITY	WATER CONTENT	IN PLACE DRY DENSITY	PERCENT COMPACTION	COMMENTS*
13	07-29-87	2nd Lift	5	86.8	31.2	84.5	97.3	1 - A
14	07-29-87	2nd Lift	5	86.8	32.5	83.8	96.6	1 - A
15	07-29-87	2nd Lift	5	86.8	33.7	83.7	96.5	1 - A
6	07-29-87	2nd Lift	5	86.8	31.2	83.7	96.5	1 - A
17	07-29-87	2nd Lift	5	86.8	32.7	83.3	95.9	1 - A
18	07-29-87	2nd Lift	5	86.8	33.1	83.6	96.4	1 - A

TEST LOCATION: SOUTH SLOPE 900'-1,200' (300' AREA/DAY)

13	25' West of Station 900' and 25' from top of slope.
14	40' East of Station 1,000' and 40' from bottom of slope.
15	45' West of Station 1,000' and 30' from top of slope.
16	40' East of Station 1,100' and 20' from bottom of slope.
17	35' West of station 1,100' and 30' from top of slope.
18	45' East of Station 1,200' and 15' from bottom of slope.

NOTES: DENSITIES SHOWN ARE DETERMINED BY ASTM
WATER CONTENT Per Cent of dry weight
PERCENT COMPACTION Related to maximum dry density obtained by ASTM Designation for sample indicated by test number.

* 1 FILL MATERIAL
2 BACKFILL
3 BASE COURSE
4 SUBBASE
5 SOIL CEMENT
6 OTHER

A TEST RESULTS COMPLY WITH SPECIFICATIONS
B RECOMPACTION REQUIRED
C TEST IS AFTER RECOMPACTION

REMARKS:

Respectfully submitted,
Professional Service Industries, Inc

Professional Service Industries, Inc.
Shilstone Engineering Testing Laboratory Division

REPORT OF FIELD COMPACTION TESTS

TESTED FOR SAN MIGUEL ELECTRIC COOPERATIVE, INC.
Post Office Box 280
Jourdanton, Texas 78026
ATTENTION: Mr. Clyde Price

PROJECT 1A Ash Pond Soil Testing
P.O. #26643-03210B

DATE July 29, 1987 OUR REPORT NO 311-70065-14

TEST DATA: Optimum moisture: (5, 28.2)

TEST NO	DATE	TEST DEPTH	LIFT NUMBER	MAXIMUM DENSITY	WATER CONTENT	DRY DENSITY	PERCENT COMPACTION	COMMENT*
19	07-29-87	Final Lift	5	86.8	33.5	85.0	97.9	1 - A
20	07-29-87	Final Lift	5	86.8	35.8	81.0	95.0	1 - A
21	07-29-87	Final Lift	5	86.8	33.5	84.3	96.0	1 - A
22	07-29-87	Final Lift	5	86.8	32.5	84.5	97.3	1 - A
23	07-29-87	Final Lift	5	86.8	31.3	83.3	95.9	1 - A
24	07-29-87	Final Lift	5	86.8	30.7	83.8	96.4	1 - A

TEST LOCATION: SOUTH SLOPE - STATION 900'-1,200' (300' AREA/DAY)

19	30' West of Station 900' and 20' from top of slope.
20	20' East of Station 1,000' and 15' from bottom of slope.
21	10' West of Station 1,000' and 20' from top of slope.
22	40' East of Station 1,100' and 25' from bottom of slope.
23	55' West of Station 1,100' and 10' from top of slope.
24	30' East of Station 1,200' and 15' from bottom of slope.

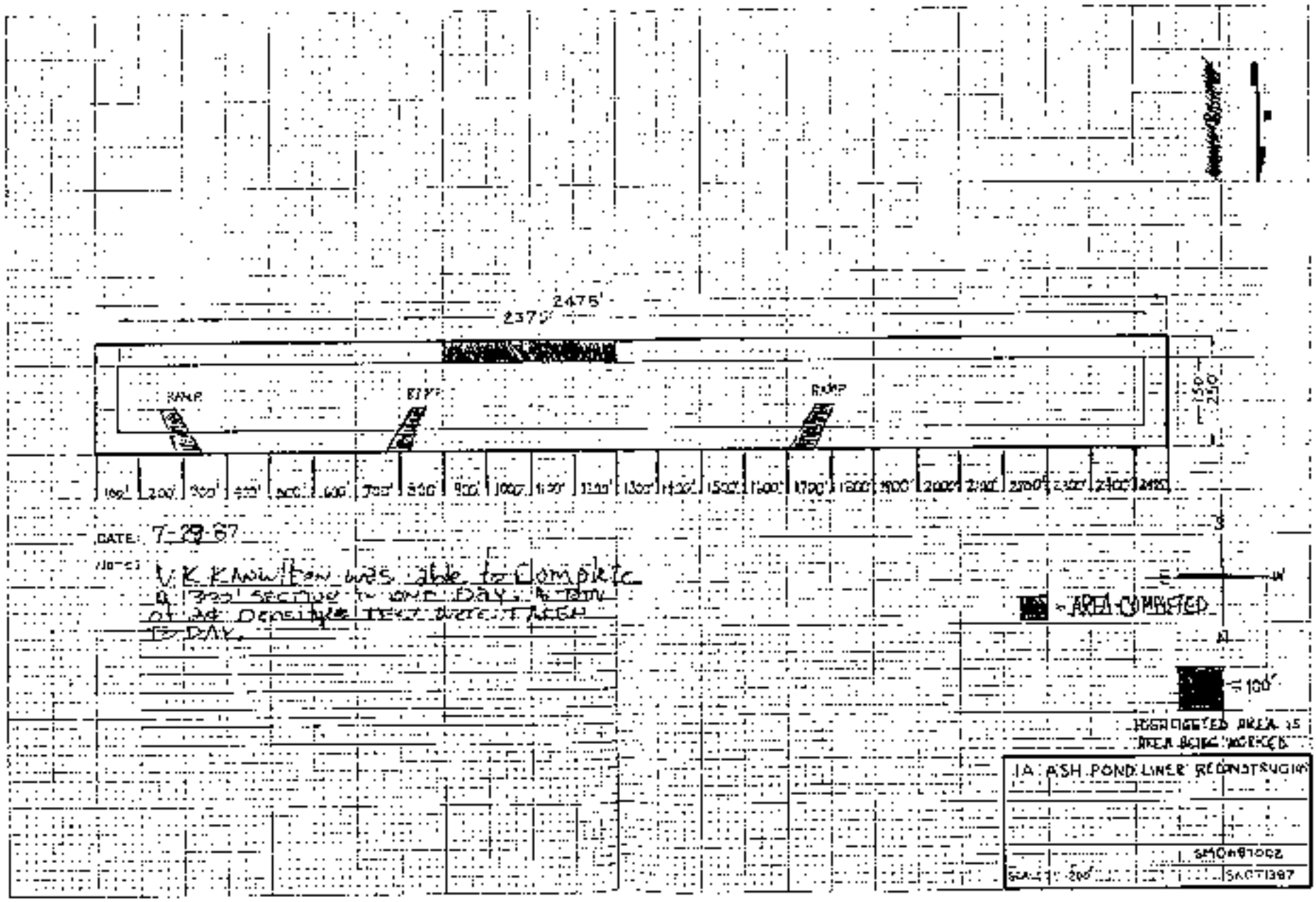
NOTES: RESULTS SHOWN ARE FOR SPECIFIED DEPTH
WATER CONTENT: Percent of dry weight
PERCENT COMPACTION: Based on maximum density determined by ASTM D-698

* 1 FILL MATERIAL
2 BACKFILL
3 BASE COURSE
4 SUBBASE
5 SOIL CEMENT
6 OTHER

A TEST RESULTS COMPLY WITH SPECIFICATIONS
B RECOMPACTION REQUIRED
C TEST IS AFTER RECOMPACTION

REMARKS:

Respectfully submitted,
Professional Service Industries, Inc.


2475'
2375'
RAMP
RAMP
RAMP
DATE: 7-29-67
V.K. Knowlton was able to complete
a 300' section in one day. A team
of 24 people could excavate
15 DAY.
= AREA COMPLETED
= 100'
HIGHLIGHTED AREA IS
AREA BEING WORKED
IA ASH POND LINER RECONSTRUCTION
SMO-87002
SACTI387

Professional Service Industries, Inc.
Shilstone Engineering Testing Laboratory Division

REPORT OF MOISTURE DENSITY RELATIONSHIP OF SOIL

TESTED FOR: SAN MIGUEL ELECTRIC COOPERATIVE, INC.
Post Office Box 280
Jourdanton, Texas 78026
Attention: Mr. Clyde Price

PROJECT: 1A Ash Pond Soil Testing
P.O. #26643-032108

DATE: July 29, 1987

OUR REPORT NO: 311-70065-5

TEST DATA

Visual Classification: Tan sandy clay

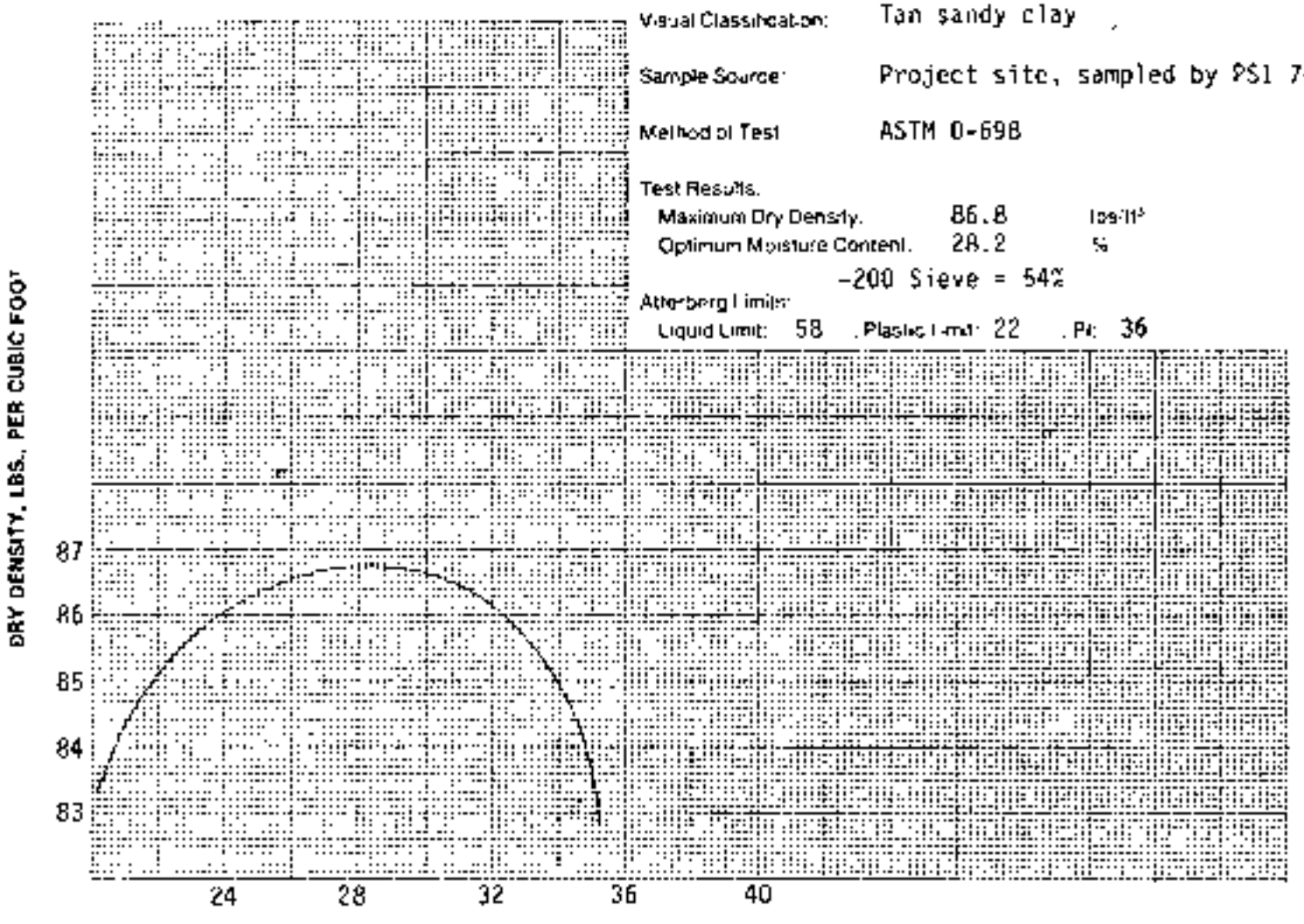
Sample Source: Project site, sampled by PSI 7-25-

Method of Test: ASTM D-698

Test Results:
- Maximum Dry Density: 86.8 lbs/ft³
- Optimum Moisture Content: 28.2 %

-200 Sieve = 54%

Atterberg Limits:
Liquid Limit: 58 . Plastic Limit: 22 . PI: 36



cc: (2) Above
/ps

Respectfully submitted,
Professional Service Industries, Inc.

Professional Service Industries, Inc.
Shilstone Engineering Testing Laboratory Division

DAILY FIELD REPORT

TESTED FOR SAN MIGUEL ELECTRIC COOPERATIVE, INC. PROJECT 1A Ash Pond Soil Testing
Post Office Box 280 P.O. #26643-032108
Jourdanton, Texas 78026
ATTENTION: Mr. Clyde Price

DATE July 28, 1987 OUR REPORT NO 311-70065-13 Page 1 of 2

WEATHER Clear

TEMPERATURE RANGE 80° TO 85°

INSPECTOR G. Quintanilla

TYPE OF INSPECTION BEING PERFORMED

X SOILS	___ CONCRETE
___ FOUNDATIONS	___ BATCH PLANT
X CONTROLLED FILL (COMPACTION)	___ PLACEMENT (JOB SITE)
___	___
ASPHALT	___ OTHER
___ BATCH PLANT	___
___ PLACEMENT (JOB SITE)	___
___	___

BRIEF RESUME OF WORK ACCOMPLISHED THIS DATE: Two (2) tests were taken on the south slope at station 1,000'-1,100'. V.K. Knowlton was unable to work pond due to weather conditions from previous day. The pond will need to dry out for 1 or 2 days before construction can be continued. V.K. Knowlton worked from 7:00 - 12:00.

cc: (2) Above

Respectfully submitted,
Professional Service Industries, Inc.

Professional Service Industries, Inc.
Shilstone Engineering Testing Laboratory Division

REPORT OF FIELD COMPACTION TESTS

TESTED FOR: SAN MIGUEL ELECTRIC COOPERATIVE, INC.
Post Office Box 280
Jourdanton, Texas 78026
ATTENTION: Mr. Clyde Price

PROJECT: 1A Ash Pond Soil Testing
P.O. #25643-032108

DATE: July 28, 1987

OUR REPORT NO: 311-70065-13

TEST DATA: Optimum moisture: (5, 28.2)

TEST NO.	DATE	TYPE / ITEM	LIFT NO.	MAXIMUM DRY DENSITY	WATER CONTENT	IN PLACE DRY DENSITY	PERCENT COMPACTION	COMMENTS*
1	07-24-87	1st Lift	5	85.8	28.0	88.3	101.7	This lift will be
2	07-24-87	1st Lift	5	86.8	27.5	89.0	102.5	Reworked Due to Rain.

TEST LOCATION: SOUTH SLOPE

1	10' West of Station 1,000' and 15' from Top of Slope.
2	15' East of Station 1,100' and 15' from Bottom of Slope.

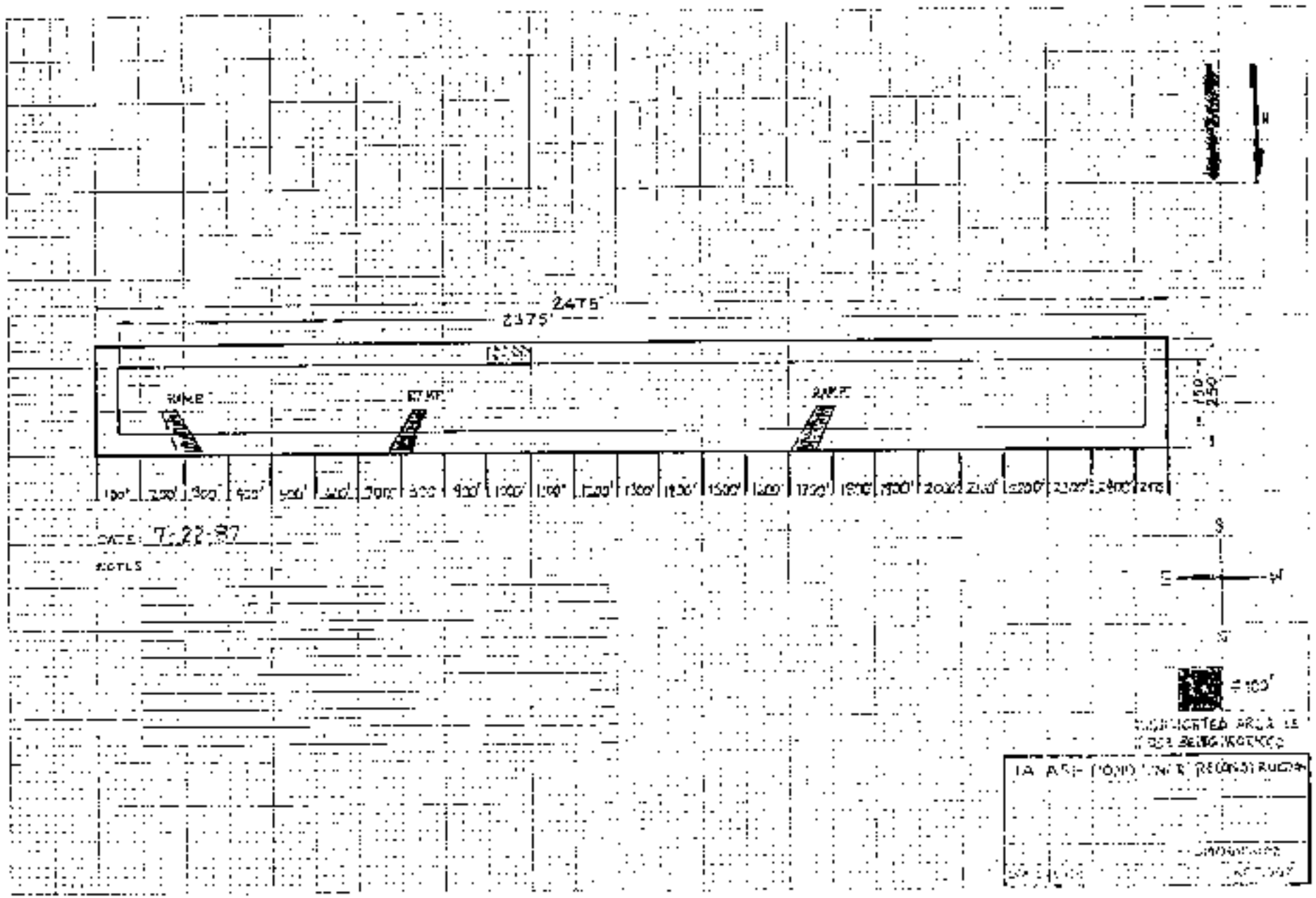
NOTES: DENSITIES SHOWN ARE IN POUNDS PER CUBIC FOOT
WATER CONTENT: Percentage by weight
PERCENT COMPACTION: Based on Standard ASTM D698
Density Determined on Sample Obtained by ASTM D1556

* 1 FILL MATERIAL
2 BACKFILL
3 BASE COURSE
4 SUBBASE
5 SOIL CEMENT
6 OTHER

A TEST RESULTS COMPLY WITH SPECIFICATIONS
B RECOMPACTION REQUIRED
C TEST IS AFTER RECOMPACTION

REMARKS:

Respectfully submitted,
Professional Service Industries, Inc.


2475'
2375'
DATE 7-22-87
NOTES
N
S
E
W
1" = 100'

Professional Service Industries, Inc.
Shilstone Engineering Testing Laboratory Division

DAILY FIELD REPORT

TESTED FOR: SAN MIGUEL ELECTRIC COOPERATIVE, INC.
Post Office Box 280
Jourdanton, Texas 78026
ATTENTION: Mr. Clyde Price

PROJECT: 1A Ash Pond Soil Testing
P.O. #26643-03210B

DATE: July 27, 1987

OUR REPORT NO: 311-70065-12

WEATHER: Overcast

TEMPERATURE RANGE: 76° TO 80°

INSPECTOR: G. Quintanilla

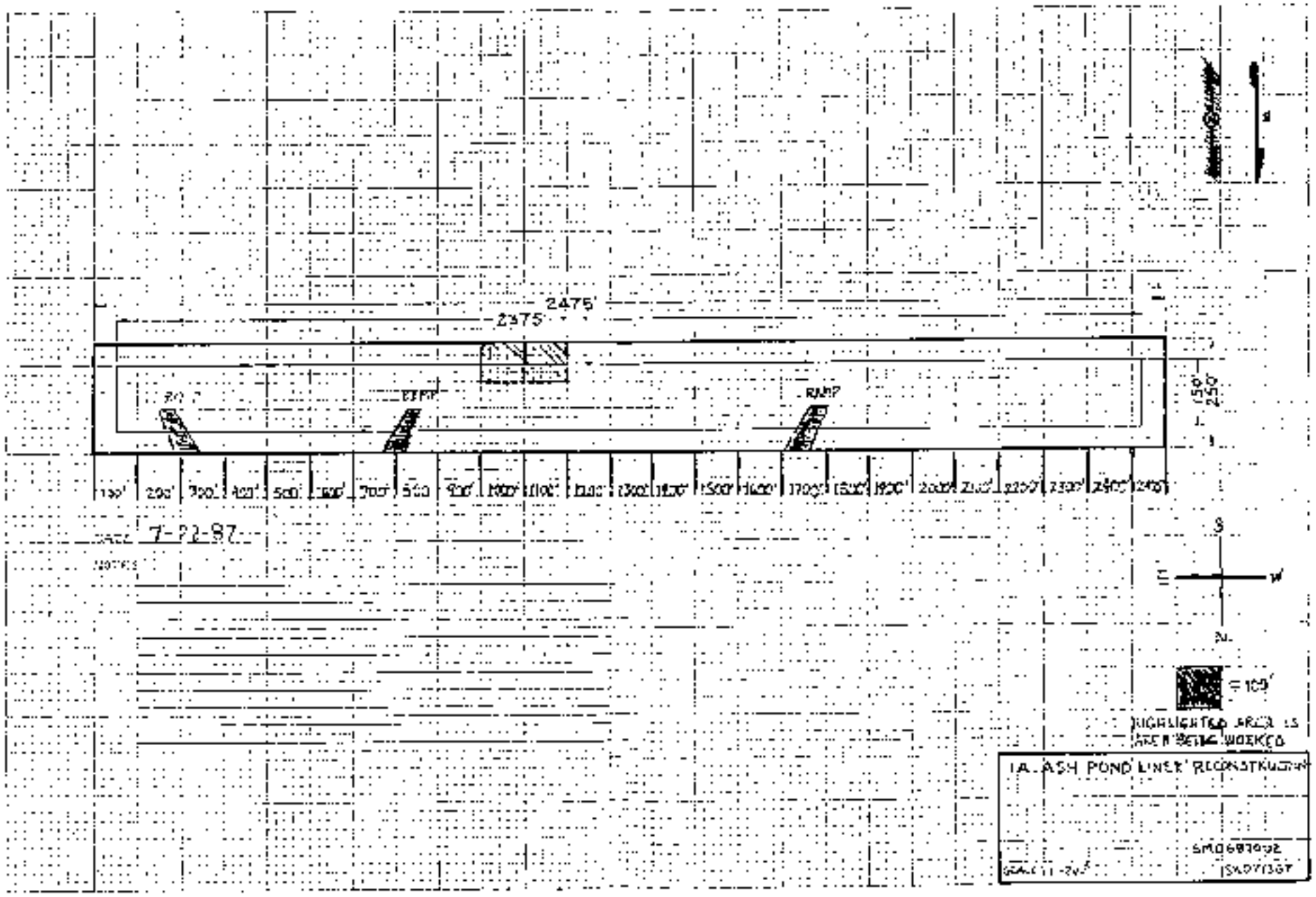
TYPE OF INSPECTION BEING PERFORMED

X SOILS	____ CONCRETE
____ FOUNDATIONS	____ BATCH PLANT
X CONTROLLED FILL (COMPACTION)	____ PLACEMENT (JOB SITE)
____ ASPHALT	____ OTHER
____ BATCH PLANT	____
____ PLACEMENT (JOB SITE)	____

BRIEF RESUME OF WORK ACCOMPLISHED THIS DATE: Due to rain over the weekend, V.K. Knowlton was unable to work the area properly. The 1st lift was removed from station 1,000'-1,100' on south slope. The 1st lift was placed once again. No tests were taken on this date. It started raining at about 11:00 a.m. and work on the slope was stopped. V.K. Knowlton worked from 7:00 to 12:00.

(2) Above

Respectfully submitted,
Professional Service Industries, Inc.


2475'
2375'
RAMP
RAMP
150'
250'
7-22-87
1A. ASH POND LINER RECONSTRUCTION

Professional Service Industries, Inc.
Shilstone Engineering Testing Laboratory Division

DAILY FIELD REPORT

TESTED FOR: SAN MIGUEL ELECTRIC COOPERATIVE, INC.
Post Office Box 280
Jourdanton, Texas 78026
ATTENTION: Mr. Clyde Price

PROJECT: 1A Ash Pond Soil Testing
P.O. #26643-032108

DATE: July 24, 1987

OUR REPORT NO: 311-70065-11

WEATHER: Overcast

TEMPERATURE RANGE: 75° TO 80°

INSPECTOR: G. Quintanilla

TYPE OF INSPECTION BEING PERFORMED

X SOILS	____ CONCRETE
____ FOUNDATIONS	____ BATCH PLANT
X CONTROLLED FILL (COMPACTION)	____ PLACEMENT (JOB SITE)
____ ASPHALT	____ OTHER
____ BATCH PLANT	____
____ PLACEMENT (JOB SITE)	____

BRIEF RESUME OF WORK ACCOMPLISHED THIS DATE: Trouble spots in 1A Pond were discussed between PSI, SMC, and V.K. Knowlton. After careful observation of the trouble spots in 1A Pond, the decision was made to continue to remove 2' of good material and scarfy the bottom 1' of the liner. The other alternative was to remove the 3' of material, work it, and replace it according to specifications. A 100' section was worked. A proctor sample was taken to the lab this date.

(2) Above

/dd

Respectfully submitted,
Professional Service Industries, Inc.

PS-A-0002

Professional Service Industries, Inc.
Shilstone Engineering Testing Laboratory Division

DAILY REPORT

TESTED FOR SAN MIGUEL ELECTRIC COOPERATIVE, INC. PROJECT 1A Ash Pond Soil Testing
Post Office Box 280 P.O. #26643-032108
Jourdanton, Texas 78026
ATTENTION: Mr. Clyde Price

DATE July 24, 1987 OUR REPORT NO 311-70065-11

REMARKS:

EQUIPMENT USED:

1. 1 - Liebherr 731 Bulldozer
2. 1 - D8H CAT. Bulldozer
3. 1 - 120G CAT. Grader
4. 1 - CAT. Spray King

Due to the lack of proper equipment, V.K. Knowlton was unable to scarfy the required 1' of material after removal of the top 2'. Instead, 3' were removed in a 100' section on the south slope, approximately 1,000'-1,100' to be worked and replaced. Due to seepage in the south slope, each section worked must be completed on the same day. If 3' of clay is removed, it is to be placed in 9" lifts with 4 lifts per section. At approximately 3:00 p.m., due to rain, work in this area was incomplete. The 1st lift was sealed and work will resume on Monday (07-27-87). V.K. Knowlton started at 7:00 a.m. and finished at 5:00 p.m.

If there are any questions concerning this report, please do not hesitate to contact our office at your convenience.

Respectfully submitted,

PROFESSIONAL SERVICE INDUSTRIES, INC.
(Shilstone Engineering Testing
Laboratory Division)

/dd

Professional Service Industries, Inc.
Shilstone Engineering Testing Laboratory Division

REPORT OF FIELD COMPACTION TESTS

TESTED FOR SAN MIGUEL ELECTRIC COOPERATIVE, INC.
Post Office Box 280
Jourdanton, Texas 78026
ATTENTION: Mr. Clyde Price

PROJECT 1A Ash Pond Soil Testing
P.O. #26643-032108

DATE July 24, 1987 OUR REPORT NO 311-70065-11

TEST DATA: Optimum moisture: (5, 28.2)

TEST NO	DATE / DEPTH	SOIL TYPE NUMBER	MAXIMUM DRY DENSITY	WATER CONTENT	% PLACE DRY DENSITY	PERCENT COMPACTION	COMMENTS
1	07-24-87	1st Lift	5	86.8	28.2	85.8	98.8	1 - A
2	07-24-87	1st Lift	5	86.8	29.2	88.8	102.3	1 - A

TEST LOCATION: SOUTH SLOPE

1	15' West of Station 1,000' and 15' from Bottom of Slope.
2	20' East of Station 1,100' and 20' from Top of Slope.

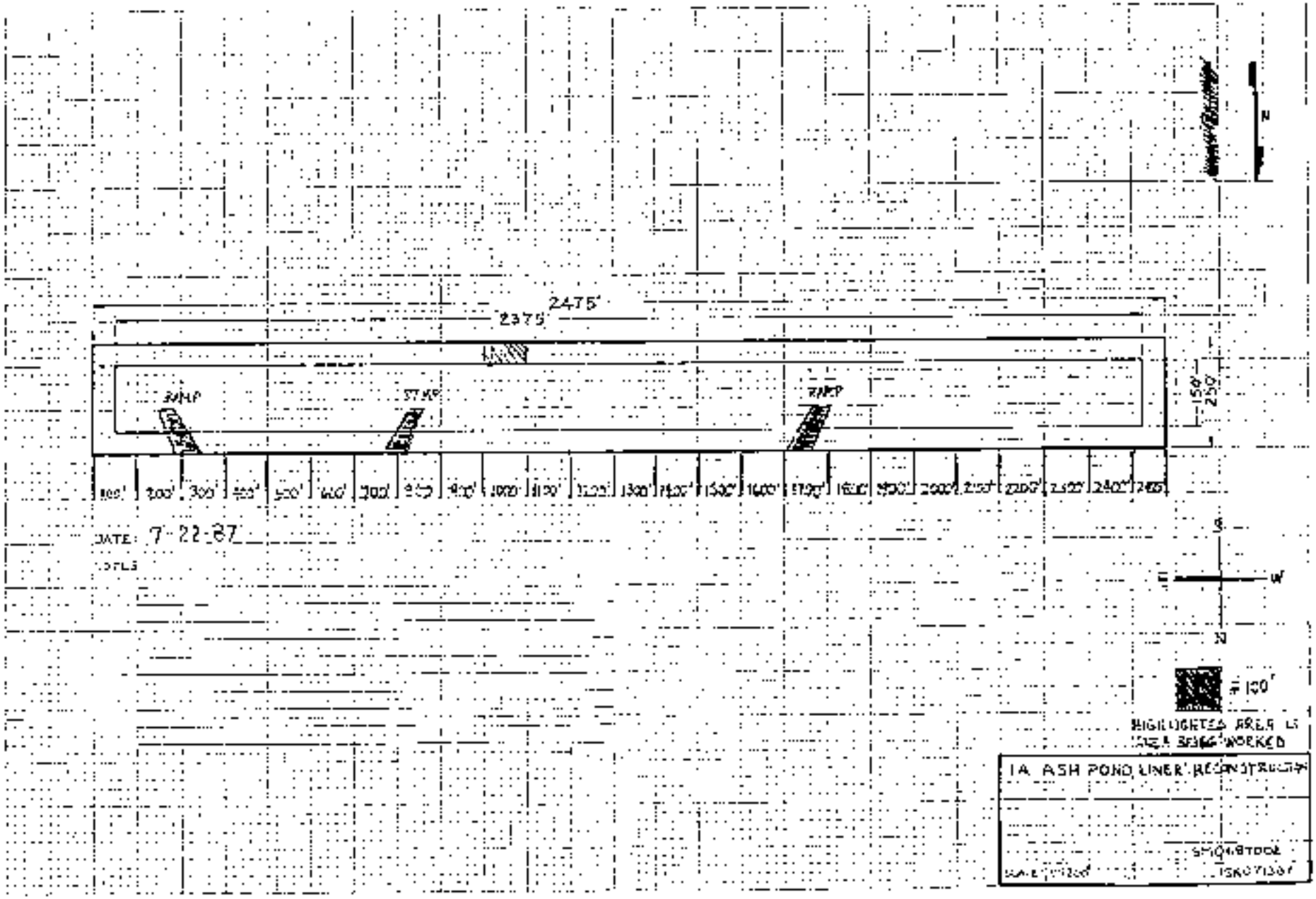
NOTES: UNLESS SHOWN OTHERWISE, TEST RESULTS MEET
WATER CONTENT: PER COMPACTION AGENT
PERCENT COMPACTION: BASED ON MAXIMUM DRY
DENSITY OBTAINED ON SOIL TYPE SHOWN
ABOVE UNLESS NOTED.

* 1 FILL MATERIAL
2 BACKFILL
3 BASE COURSE
4 SUBBASE
5 SOIL CEMENT
6 OTHER

A TEST RESULTS COMPLY WITH SPECIFICATIONS
B RECOMPACTION REQUIRED
C TEST IS AFTER RECOMPACTION

REMARKS:

Respectfully submitted,
Professional Service Industries, Inc.


2475'
2375'
RAMP
STAIR
RAMP
150'
250'
DATE: 7-22-87
N
W
S
E
= 100'
HIGHLIGHTED AREA IS
AREA BEING WORKED
1A ASH POND LINER RECONSTRUCTION

Professional Service Industries, Inc.
Shilstone Engineering Testing Laboratory Division

DAILY FIELD REPORT

TESTED FOR SAN MIGUEL ELECTRIC COOPERATIVE, INC. PROJECT
Post Office Box 280
Jourdanton, Texas 78026
ATTENTION: Mr. Clyde Price

1A Ash Pond Soil Testing
P.O. #26643-032108

DATE July 23, 1987 OUR REPORT NO 311-70065-10 Page 1 of 3

WEATHER Sunny & Clear

TEMPERATURE RANGE 80° TO 85°

INSPECTOR G. Quintanilla

TYPE OF INSPECTION BEING PERFORMED

X SOILS
FOUNDATIONS
X CONTROLLED FILL (COMPACTION)

ASPHALT
BATCH PLANT
PLACEMENT (JOB SITE)

CONCRETE
BATCH PLANT
PLACEMENT (JOB SITE)

OTHER

BRIEF RESUME OF WORK ACCOMPLISHED THIS DATE: I observed the continuing clean-up of 1A pond. No reconstruction has been done yet. I ran three (3) tests to check moisture content on the west end of pond. V.K. Knowlton started at 7:00 a.m. and finished at 6:00 p.m.

: (2) Above
dd

Respectfully submitted,
Professional Service Industries, Inc.

Professional Service Industries, Inc.
Shilstone Engineering Testing Laboratory Division

REPORT OF FIELD COMPACTION TESTS

TESTED FOR SAN MIGUEL ELECTRIC COOPERATIVE, INC. PROJECT 3A Ash Pond Soil Testing
Post Office Box 280 P.O. #26643-032108
Jourdanton, Texas 78026
ATTENTION: Mr. Clyde Price

DATE July 23, 1987 OUR REPORT NO 311-70065-10

TEST DATA: Optimum moisture: (9, 37.7)

TEST NO.	DATE	TYPE / DEPTH	LIFT NUMBER	MAXIMUM DRY DENSITY	WATER CONTENT	DRY DENSITY	PERCENT COMPACTION	COMMENTS *
1	07-22-87	Grade	9	77.9	37.5	74.5	95.6	
2	07-22-87	Grade	9	77.9	29.3	80.8	100+	
3	07-22-87	Grade	9	77.9	34.5	78.8	100+	

TEST LOCATION:

1	Test taken in 1,800'-1,900' Area - 30' South of North Slope & 20' West of 1,800' Mark.
2	Test taken in 1,800'-1,900' Area - 40' South of North Slope & 30' West of 1,800' Mark.
3	Test taken in 1,800'-1,900' Area - 20' North of South Slope & 40' East of 1,900' Mark.

NOTES: DENSITIES SHOWN ARE IN POUNDS PER CUBIC FOOT
WATER CONTENT IN PERCENT DRY WEIGHT
PERCENT COMPACTION BASED ON MAXIMUM DRY DENSITY OBTAINED IN ACCORDANCE WITH ASTM D-698

* 1 FILL MATERIAL
2 BACKFILL
3 BASE COURSE
4 SUBGRADE
5 SOIL CEMENT
6 OTHER

A TEST RESULTS COMPLY WITH SPECIFICATIONS
B RECOMPACTION REQUIRED
C TEST IS AFTER RECOMPACTION

REMARKS:

/dd

Respectfully submitted,
Professional Service Industries, Inc.

Professional Service Industries, Inc.
Shilstone Engineering Testing Laboratory Division

DAILY REPORT

TESTED FOR SAN MIGUEL ELECTRIC COOPERATIVE, INC.
Post Office Box 280
Jourdanton, Texas 78026
ATTENTION: Mr. Clyde Price

PROJECT 1A Ash Pond Soil Testing
P.O. #26643-032108

DATE July 23, 1987 OUR REPORT NO 311-70065-10

REMARKS:

EQUIPMENT USED:

1. 3 - 637G CAT. Scrapers
2. 1 - Liebherr 731 Bulldozer
3. 1 - D8H CAT. Bulldozer
4. 1 - 120G CAT. Grader

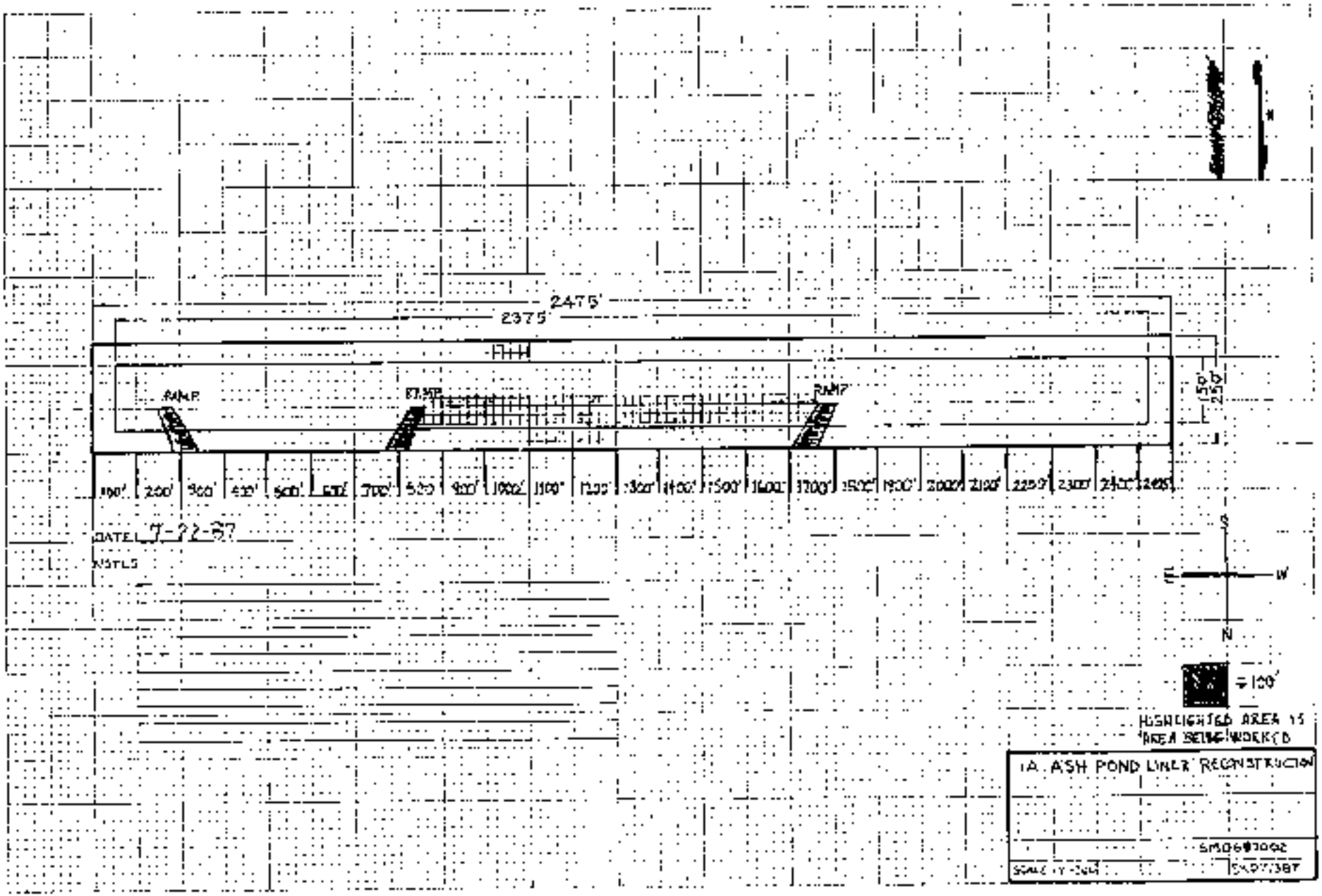
V.K. Knowlton is working the area approximately 800'-1,700' on the north side. The north slope in this area is also being cleaned. V.K. Knowlton has also begun to scrape an area on the south slope approximately 1,000'-1,100', removing 2' of material to replace in with good clay in 9" lifts. Three (3) density tests were taken on the west end between 1,800'-1,900' to check the moisture content. Moisture content ranged from 29.3% - 37.5%. A copy of the results is enclosed for your review. Due to a chance of heavy rain V.K. Knowlton will begin tomorrow putting material in the south slope, 1,000' - 1,100' area.

If there are any questions concerning this report, please do not hesitate to contact our office at your convenience.

Respectfully submitted,

PROFESSIONAL SERVICE INDUSTRIES, INC.
(Shilstone Engineering Testing
Laboratory Division)

/dd


2475'
2375'
PUMP
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DATE 7-22-87
NTS
N
S
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= 100'
HIGHLIGHTED AREA IS
AREA BEING WORKED
1A ASH POND LINER RECONSTRUCTION

Professional Service Industries, Inc.
Shilstone Engineering Testing Laboratory Division

DAILY FIELD REPORT

TESTED FOR SAN MIGUEL ELECTRIC COOPERATIVE, INC. PROJECT 1A Ash Pond Soil Testing
Post Office Box 280 P.O. #26643-032108
Jourdanton, Texas 78026
ATTENTION: Mr. Clyde Price

DATE July 22, 1987 OUR REPORT NO 311-70065-9 Page 1 of 5

WEATHER Sunny & Clear

TEMPERATURE RANGE 85° TO 90°

INSPECTOR G. Quintanilla

TYPE OF INSPECTION BEING PERFORMED

X SOILS

___ FOUNDATIONS

X CONTROLLED FILL (COMPACTION)

___ ASPHALT

___ BATCH PLANT

___ PLACEMENT (JOB SITE)

CONCRETE

___ BATCH PLANT

___ PLACEMENT (JOB SITE)

OTHER

___

___

BRIEF RESUME OF WORK ACCOMPLISHED THIS DATE: V.K. Knowlton is continuing on the clean-up of the contaminated material on this day in the east end, approximately 300'-700' on north side and will remain in this area for the entire day. No compaction testing was done on this day.

(2) Above

/dd

Respectfully submitted,
Professional Service Industries, Inc.

DAILY REPORT

TESTED FOR SAN MIGUEL ELECTRIC COOPERATIVE, INC. PROJECT 1A Ash Pond Soil Testing
Post Office Box 280 P.O. #26643-032108
Jourdanton, Texas 78026
ATTENTION: Mr. Clyde Price

DATE July 22, 1987 OUR REPORT NO 311-70065-9

REMARKS:

At the request of SMC, PSI is documenting the trouble spots of the pond with brief descriptions:

1. On the S.E. corner of the pond in the area approximately 0'-200' on the south side and south slope, sandy clay is saturated. Water was pumped out of the pond in this area only to find within a 12-hour period that the area refilled with water.
2. On the north side of the pond at the east end in the area approximately 400'-700', sandy pockets are encountered with heavy saturation.
3. On the south side of the pond at the east end in the area approximately 600'-800', sandy pockets are encountered with standing water. This area has also been pumped of excess water only to find that it had refilled within a 12-hour period.
4. On the south slope 800'-1,000' the walls appear to be saturated as well. The floor in this area is dry.
5. The area in the N.W. corner in the bottom of the pond, (appromimately 1,800'-2,100') standing water is encountered.

In Area #1, V.K. Knowlton has excavated approximately 4' only to encounter more sandy clay. They are now working in Area #2 of this report.

EQUIPMENT USED:

1. 4 - 637D CAT. Scrapers
2. 1 - Liebherr 731 Bulldozer
3. 1 - D8H CAT. Bulldozer
4. 1 - 120G CAT. Grader

Area #1 is being filled with good clay from the bottom of the pond. Results of tests performed on material sampled on 07-17-87 were verified today. The material taken from the N.W. corner (labeled as Sample #1) of the pond has a plasticity index of 67 and is classified as tan sandy benotonitic clay. Highly plastic material coded (CH). The material (labeled as Sample #2) that was believed to have been unacceptable due to large deposits of

Professional Service Industries, Inc.
Shilstone Engineering Testing Laboratory Division

DAILY REPORT

TESTED FOR SAN MIGUEL ELECTRIC COOPERATIVE, INC.
Post Office Box 280
Jourdanton, Texas 78026

ATTENTION: Mr. Clyde Price

PROJECT 1A Ash Pond Soil Testing
P.O. #26643-032108

DATE July 22, 1987 OUR REPORT NO 311-70065-9

REMARKS:

sand is acceptable with the stipulation that more clayey than sandy material is used. All sandstone must be removed. This material has a plasticity index of 50 and is classified as tan sandy bentonitic clay.

Results of the tests performed on Sample #1 are enclosed for your review. If there are any questions concerning these results, please do not hesitate to contact our office at your convenience.

Respectfully submitted,

PROFESSIONAL SERVICE INDUSTRIES, INC.
(Shilstone Engineering Testing
Laboratory Division)

cc: (2) Above
/dd

Professional Service Industries, Inc.
Shilstone Engineering Testing Laboratory Division

REPORT OF MOISTURE DENSITY RELATIONSHIP OF SOIL

TESTED FOR: SAN MIGUEL ELECTRIC COOPERATIVE, INC. (PHOUSC)
Post Office Box 280
Jourdanton, Texas 78026
ATTENTION: Mr. Clyde Price

1A Ash Pond Soil Testing
P.O. #26643-032108

DATE: July 22, 1987 — CKIR REPORT NO: 311-70065-9 —

TEST DATA

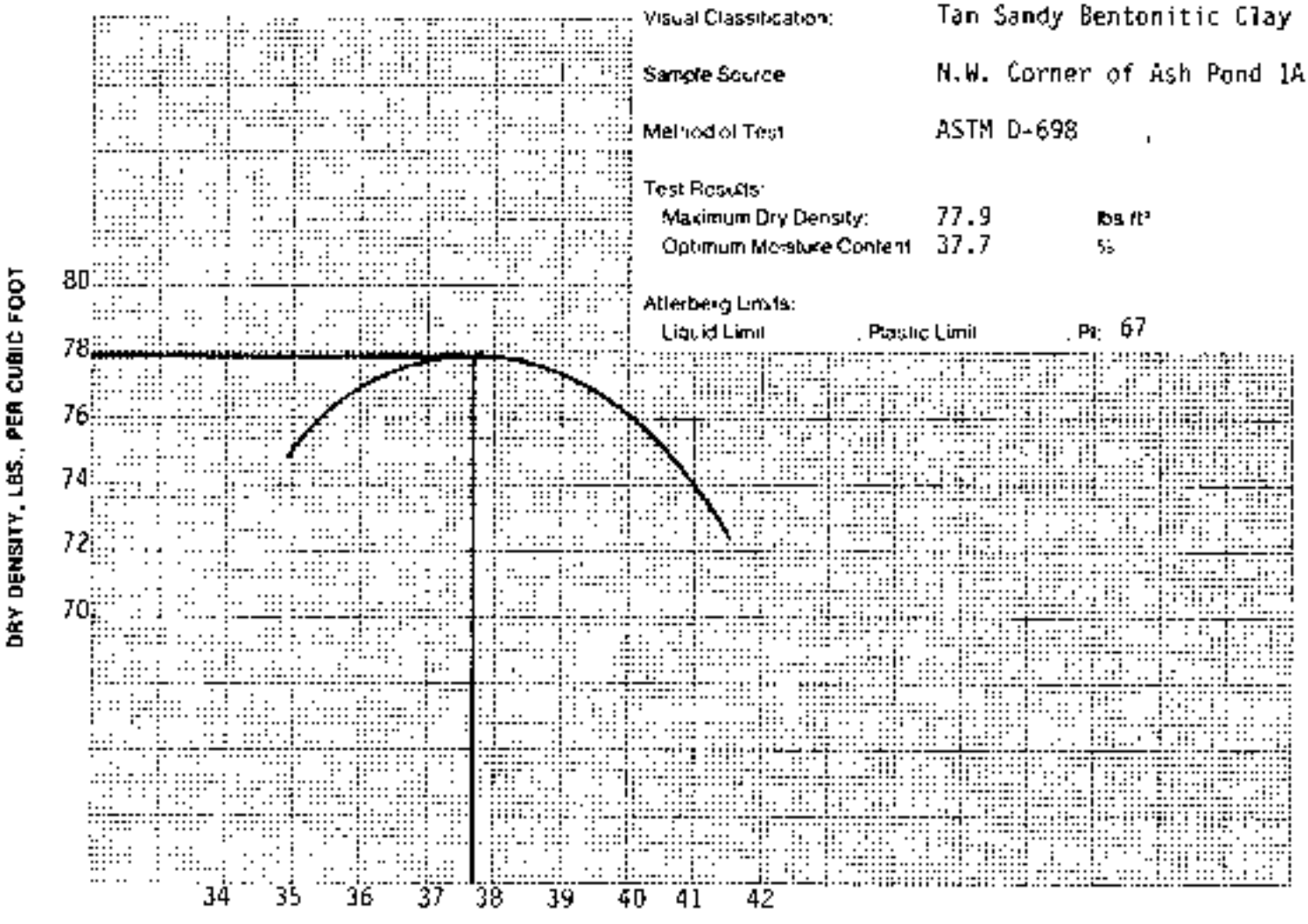
Visual Classification: Tan Sandy Bentonitic Clay

Sample Source: N.W. Corner of Ash Pond 1A

Method of Test: ASTM D-698

Test Results:
- Maximum Dry Density: 77.9 lbs/ft³
- Optimum Moisture Content: 37.7 %

Atterberg Limits:
Liquid Limit , Plastic Limit , PI: 67



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Respectfully submitted,
Professional Service Industries, Inc.

Professional Service Industries, Inc.
Shilstone Engineering Testing Laboratory Division

REPORT OF MOISTURE DENSITY RELATIONSHIP OF SOIL

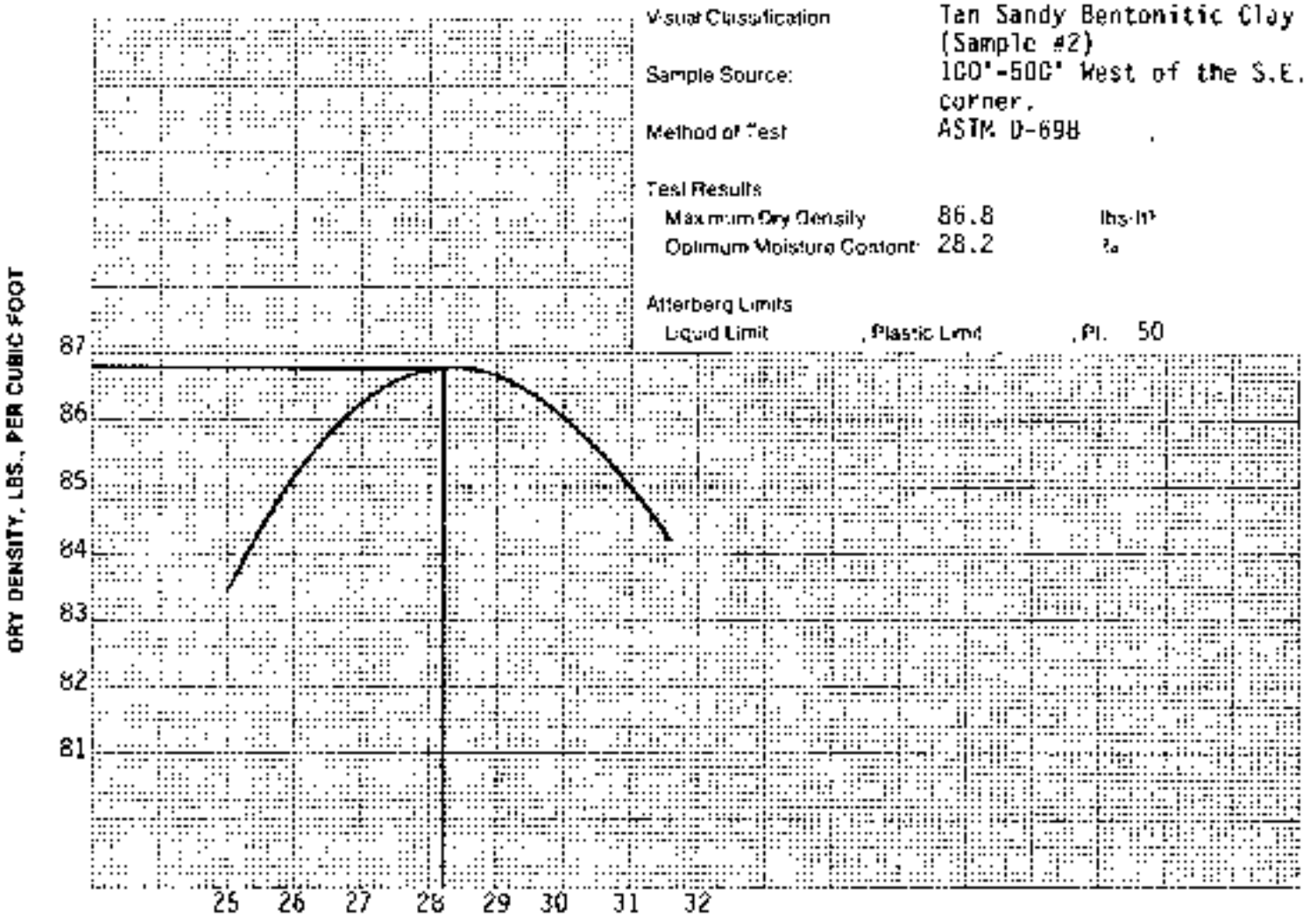
TESTED FOR: SAN MIGUEL ELECTRIC COOPERATIVE, INC.
Post Office Box 280
Jourdanton, Texas 78026
ATTENTION: Mr. Clyde Price

PROJECT: 1A Ash Pond Soil Testing
P.O. #26643-032108

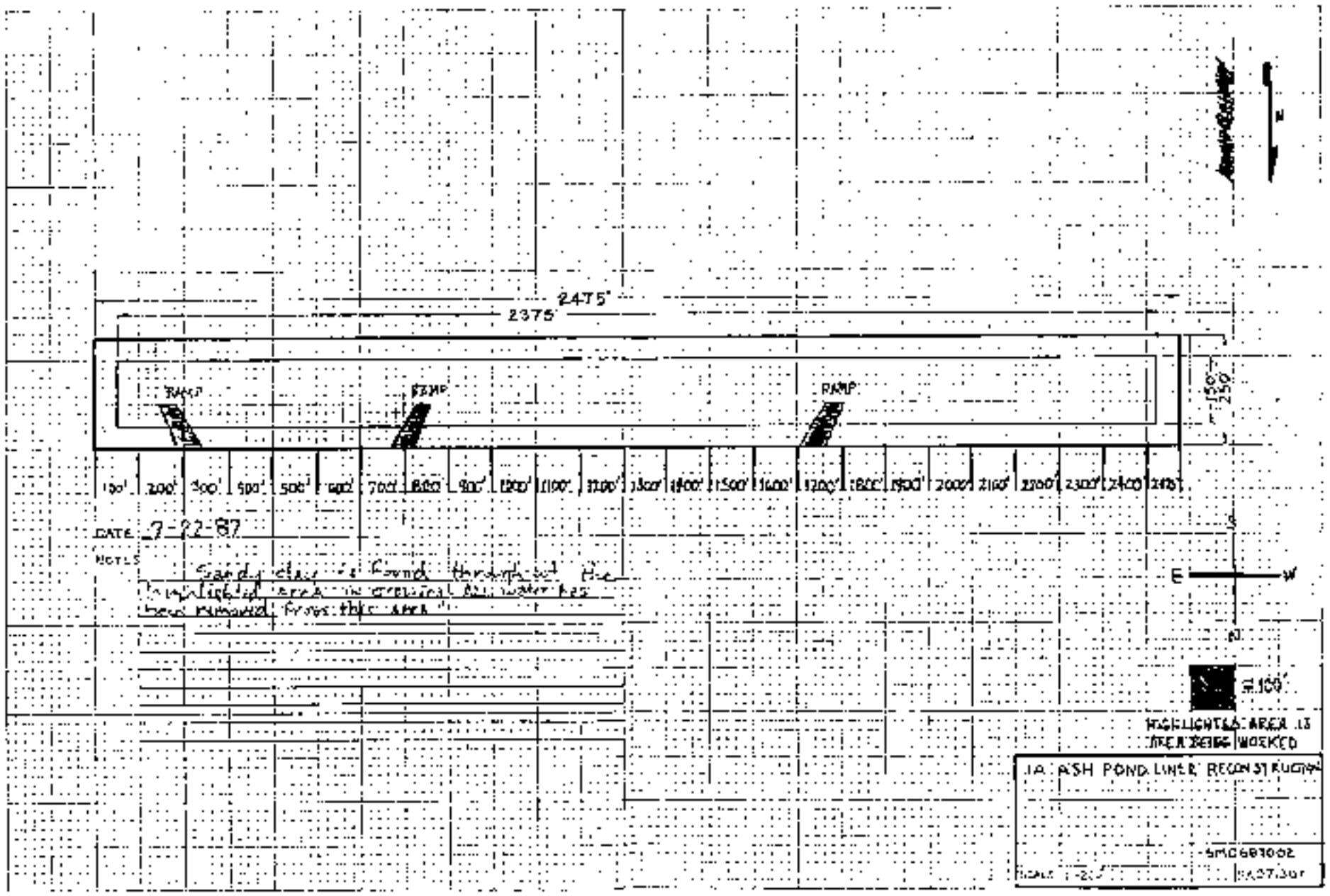
DATE: July 22, 1987 | OUR REPORT NO: 311-/0065-11 |

TEST DATA

Visual Classification	Tan Sandy Bentonitic Clay (Sample #2)	
Sample Source:	100'-500' West of the S.E. corner.	
Method of Test	ASTM D-698	
Test Results		
Maximum Dry Density	86.8	lbs/ft³
Optimum Moisture Content	28.2	%
Atterberg Limits		
Liquid Limit	, Plastic Limit	, PI. 50



Respectfully submitted,
Professional Service Industries, Inc.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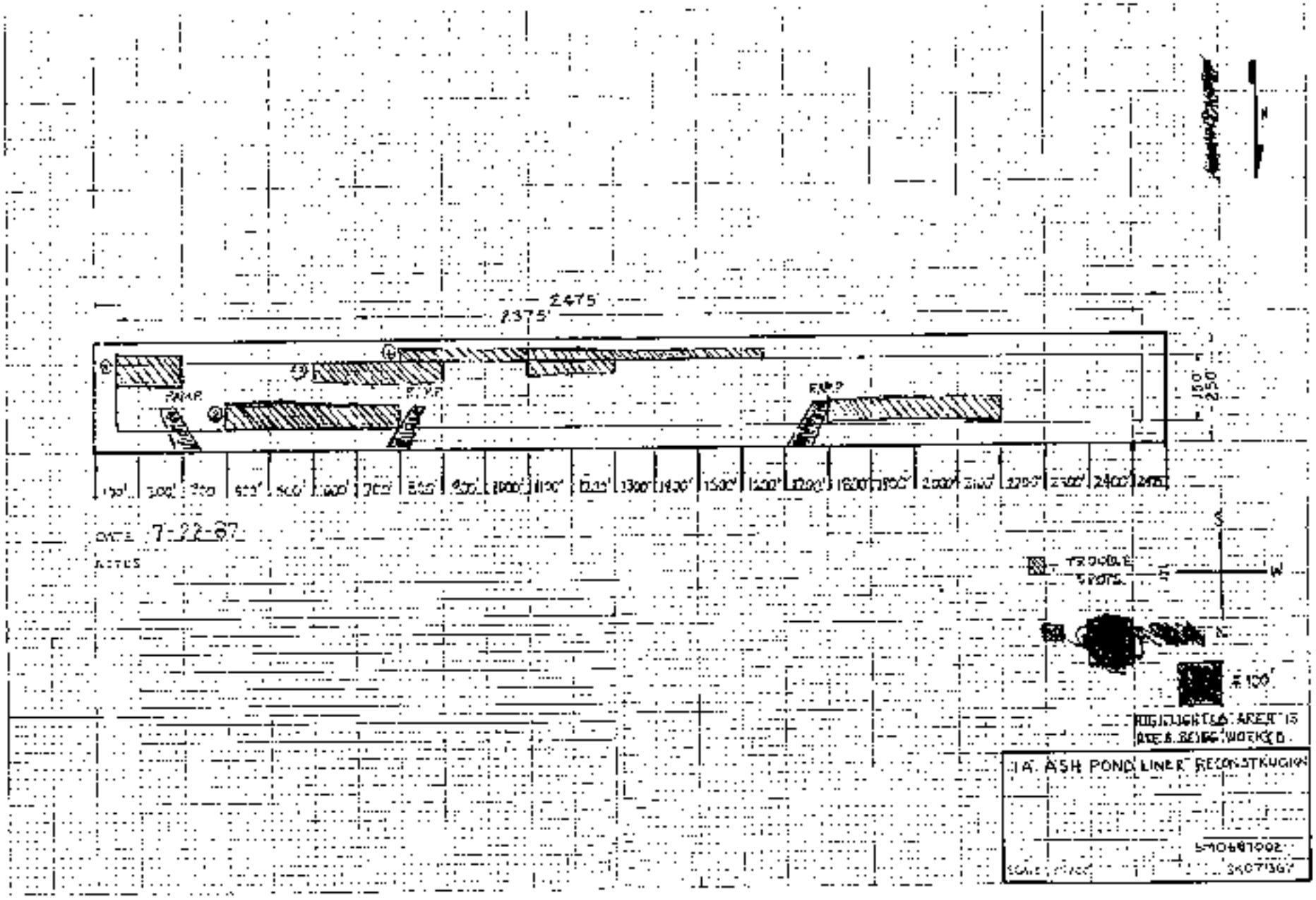
1500'
1600'
1700'
1800'
1900'
2000'
2100'
2200'
2300'
2400'
2475'
DATE 7-22-87
NOTES
Sandy clay is found throughout the
highlighted area in critical. All water has
been removed from this area.
N
E
W
S
±100'
HIGHLIGHTED AREA IS
AREA BEING WORKED
1A ASH POND LINER RECONSTRUCTION
SMC687002
SCALE 1"=200'
DRAWING


2475'
1375'
PUMP
PUMP
PUMP
DATE 7-22-87
AUTOS
TROUBLE SPOTS
N
S
W
E
100'
HIGHLIGHTED AREA IS AREA BEING WORKED.
IA. ASH POND LINER RECONSTRUCTION
SHEET 2 OF 3

Professional Service Industries, Inc.
Shilstone Engineering Testing Laboratory Division

DAILY REPORT

TESTED FOR: SAN MIGUEL ELECTRIC COOPERATIVE, INC.
Post Office Box 280
Jourdanton, Texas 78026
ATTENTION: Mr. Clyde Price

PROJECT: 1A Ash Pond Soil Testing
P.O. 426643-032108
Contractor: V.K. Knowlton

DATE: July 21, 1987

OUR REPORT NO: 311-70065-8

REMARKS:

EQUIPMENT USED:

1. 4 - 637D CAT. Scrapers
2. 1 - Liebherr 731 Bulldozer
3. 1 - 120G Grader
4. 1 - D8ll CAT. Bulldozer
5. 1 - CAT Spray King

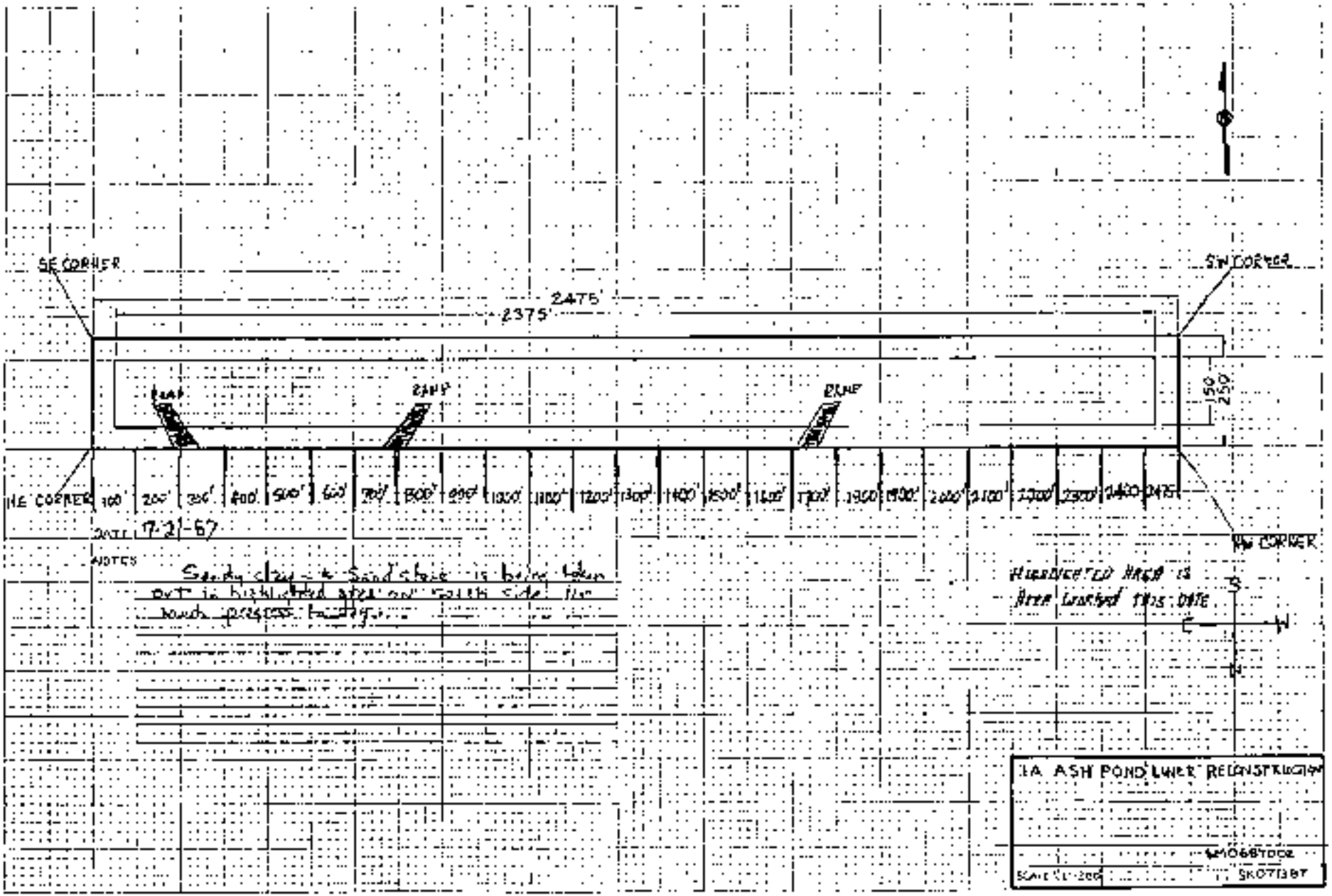
All water has been pumped out of the trouble spots. V.K. Knowlton continues to work on the east half at the bottom of the pond, approximately 100'-500' west of the S.E. corner. They are encountering more sandy clay in this area that appears to be unacceptable. This material is being placed just north of 1A Pond to dry. Some of this material may be acceptable in placement on the bottom of the pond. The grader is being used on the bottom of the pond, on the east half, approximately 100'-400' from the N.E. corner on the north half to smooth surface. Not much progress has been made this day. V.K. Knowlton remained in this area all day. No compaction tests were required on this day.

If there are any questions concerning this report, please do not hesitate to contact our office at your convenience.

Respectfully submitted,

PROFESSIONAL SERVICE INDUSTRIES, INC.
(Shilstone Engineering Testing
Laboratory Division)

cc: (2) Above
/dd


SE CORNER
SW CORNER
2475'
2375'
RAMP
RAMP
RAMP
150
250
NE CORNER
100'
200'
300'
400'
500'
600'
700'
800'
900'
1000'
1100'
1200'
1300'
1400'
1500'
1600'
1700'
1800'
1900'
2000'
2100'
2200'
2300'
2400'
2475'
NW CORNER
DATE 7-21-67
NOTES
Sandy clay & Sand stone is being taken
out is highlighted area on South side for
South process building.
HIGHLIGHTED AREA IS
BEEN LOCKED THIS DATE
S
E
W
N
1A ASH POND LINER RECONSTRUCTION
SCALE 1"=200'
SHEET 1 OF 1

Professional Service Industries, Inc.
Shilstone Engineering Testing Laboratory Division

REPORT OF MOISTURE DENSITY RELATIONSHIP OF SOIL

TESTED FOR: SAN MIGUEL ELECTRIC COOPERATIVE, INC
Post Office Box 280
Jourdanton, Texas 78026
Attention: Mr. Clyde Price

PROJECT: 1A Ash Pond Soil Testing
P.O. #26643-032108

DATE: July 21, 1987

OUR REPORT NO: 311-70065-4

TEST DATA

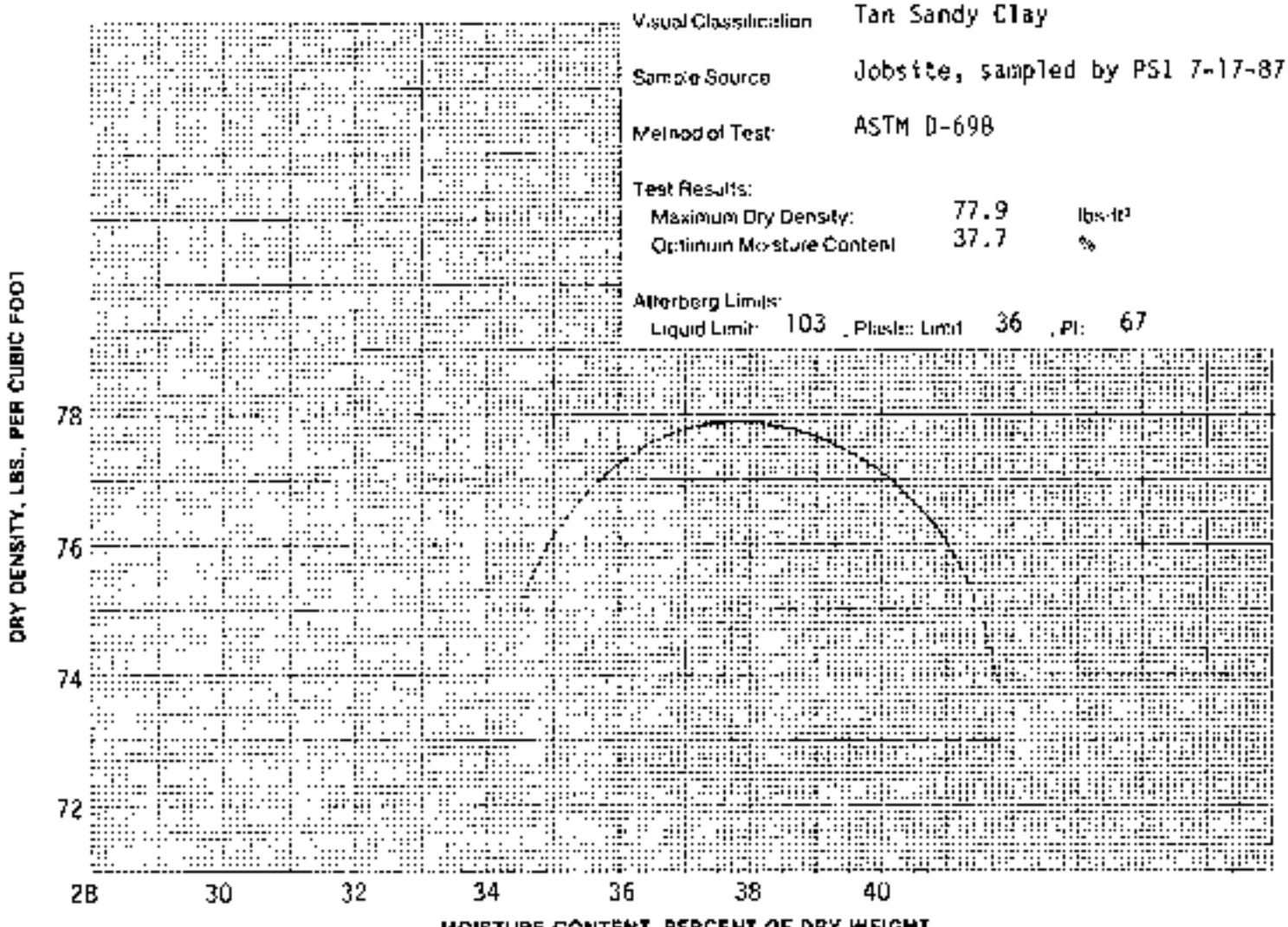
Visual Classification: Tan Sandy Clay

Sample Source: Jobsite, sampled by PSI 7-17-87

Method of Test: ASTM D-698

Test Results:
- Maximum Dry Density: 77.9 lbs/ft³
- Optimum Moisture Content: 37.7 %

Atterberg Limits:
Liquid Limit: 103, Plastic Limit: 36, PI: 67



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/ps

Respectfully submitted,
Professional Service Industries, Inc.

Professional Service Industries, Inc.
Shilstone Engineering Testing Laboratory Division

DAILY REPORT

TESTED FOR: SAN MIGUEL ELECTRIC COOPERATIVE, INC.
Post Office Box 280
Jourdanton, Texas 78026
ATTENTION: Mr. Clyde Price

PROJECT: 1A Ash Pond Soil Testing
P.O. #26643-032108
Contractor: V.K. Knowlton

DATE: July 20, 1987

OUR REPORT NO: 311-70065-7

REMARKS:

EQUIPMENT USED

1. 3 - 637D CAT. Scrapers
2. 1 - Liebherr 731 Bulldozer
3. 1 - D8H CAT. Bulldozer
4. 1 - 120G CAT. Grader
5. 1 - CAT. Spray King

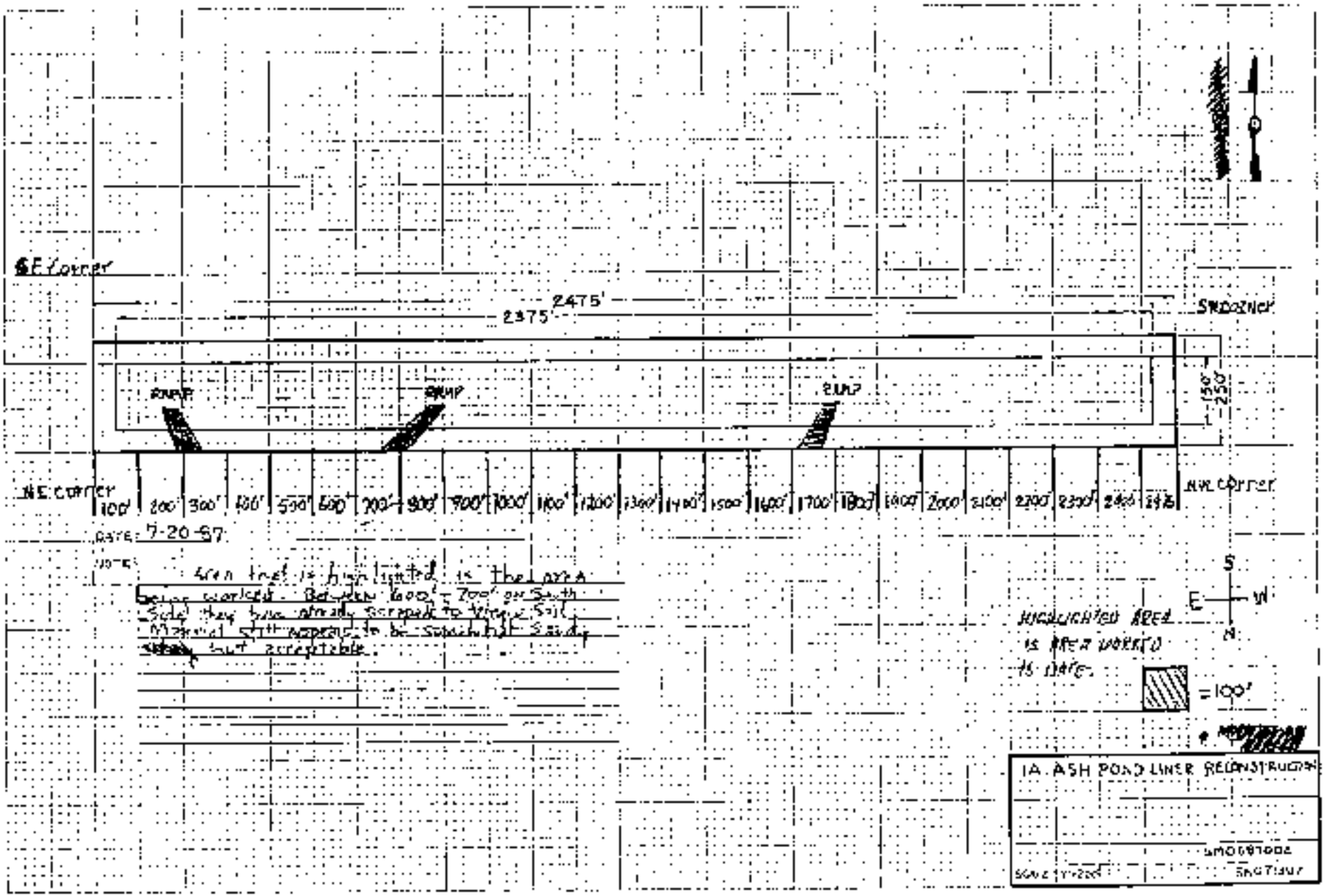
V.K. Knowlton is working the area on the bottom of 1A Pond, approximately 500'-800' west of the N.E. corner running the total width of the pond. V.K. Knowlton is still encountering sandy clay that is unacceptable in this area. In the area on the bottom of the pond, approximately 600'-800' west of the N.E. corner, water is still pretty heavy. This area may require coring to further continue construction. Approximately 60% of the pond has been cleaned of vegetation and contaminated soils. No actual reconstruction of the pond was performed on this date. No compaction tests were required on this day. Road on north side of 1A Pond was graded to smoother surface for better hauling. Pumps were put into the pond to remove water today.

If there are are questions concerning this report, please do not hesitate to contact our office at your convenience.

Respectfully submitted,

PROFESSIONAL SERVICE INDUSTRIES, INC.
(Shilstone Engineering Testing Laboratory Division)

cc: (2) Above
/dd


SE Corner
2475'
2375'
SLOPE
SLOPE
SLOPE
SLOPE
150'
250'
NE corner
NW corner
100' 200' 300' 400' 500' 600' 700' 800' 900' 1000' 1100' 1200' 1300' 1400' 1500' 1600' 1700' 1800' 1900' 2000' 2100' 2200' 2300' 2400' 2475'
DATE: 7-20-87
NOTE:
Area that is highlighted is the area being worked. Between 600' - 700' on South Side they have already scraped to virgin soil. Material still appears to be Suitable Sandy but acceptable.
HIGHLIGHTED AREA IS AREA WORKED TO DATE.
= 100'
S
E
W
N
1A ASH POND LINER RECONSTRUCTION
SCALE 1"=200'

Professional Service Industries, Inc.
Shilstone Engineering Testing Laboratory Division

REPORT OF MOISTURE DENSITY RELATIONSHIP OF SOIL

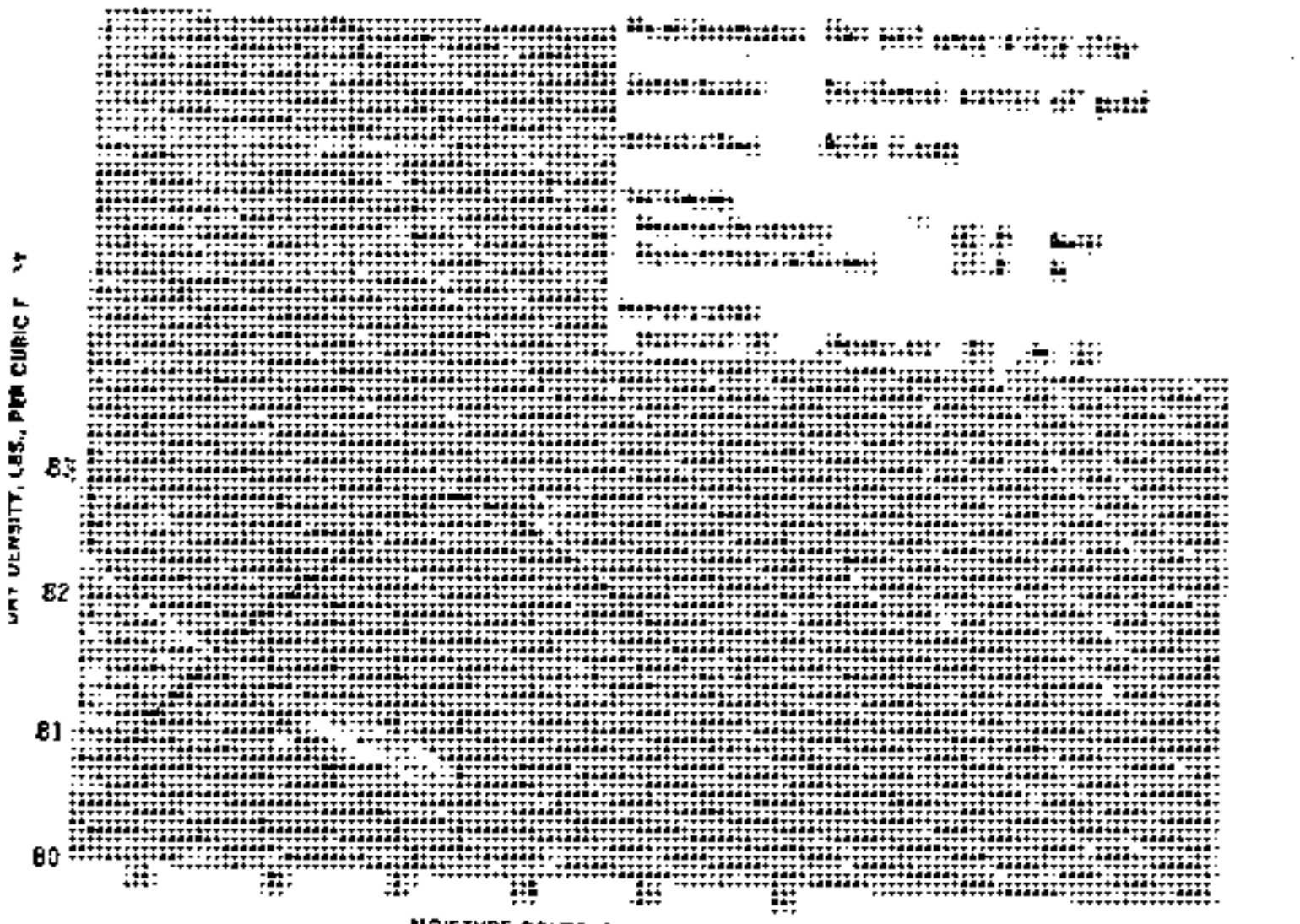
TESTED FOR: SAN MIGUEL ELECTRIC COOP., INC.
Post Office Box 280
Jourdanton, Texas 78026
Attention: Mr. Clyde Price

PROJECT: Pond 1A Repair Project
San Miguel Plant
Jourdanton, Texas

DATE: May 7, 1987

OUR REPORT NO: 311-70065-1

TEST DATA



Respectfully submitted,
Professional Service Industries, Inc.

DAILY FIELD REPORT

TESTED FOR: San Miguel Coop PROJECT: 1A Pond

DATE 7-23-87 OUR REPORT NO.: 311 -

WEATHER: Sunny & clear

TEMPERATURE RANGE: 85° TO. 90°

INSPECTOR: G. Quintanilla

TYPE OF INSPECTION BEING PERFORMED

- X SOILS
  - ____ FOUNDATIONS
  - X CONTROLLED FILL (COMPACTION)
- ____ ASPHALT
  - ____ BATCH PLANT
  - ____ PLACEMENT (JOB SITE)
- ____ CONCRETE
  - ____ BATCH PLANT
  - ____ PLACEMENT (JOB SITE)
- ____ OTHER

BRIEF RESUME OF WORK ACCOMPLISHED THIS DATE: V & K Knowlton is continuing clean up of contaminated material this day in the East End approximately 300'-700' on north side and will remain in this area for the entire day. No compaction testing done today.

Respectfully submitted,
Professional Service Industries, Inc.

PSI A 302 2

DAILY FIELD REPORT

TESTED FOR: San Miguel Coop PROJECT: 1A Pond

DATE: 7-23-87 OUR REPORT NO.: 311

WEATHER: Sunny & Clear

TEMPERATURE RANGE: 80° TO: 85°

INSPECTOR: G Quintanilla

TYPE OF INSPECTION BEING PERFORMED

X SOILS	____ CONCRETE
____ FOUNDATIONS	____ BATCH PLANT
X CONTROLLED FILL (COMPACTION)	____ PLACEMENT (JOB SITE)
____	____
____ ASPHALT	____ OTHER
____ BATCH PLANT	____
____ PLACEMENT (JOB SITE)	____
____	____

BRIEF RESUME OF WORK ACCOMPLISHED THIS DATE: I OBSERVED the contrivery clean up of 1A Pond. No reconstruction has been done Yet. I ran 3 Tests To check Moisture Content on the west end of pond, We finished STARTED AT 7:00 A.M. AND FINISHED AT 6:00 P.M.

Respectfully submitted,
Professional Service Industries, Inc.

DAILY FIELD REPORT

TESTED FOR: San Miguel Coop PROJECT: SMC IA Pond

DATE: 7-24-87 OUR REPORT NO: 311-

WEATHER: Overcast

TEMPERATURE RANGE: 75° TO 85°

INSPECTOR: G. Ortiz-Ilo

TYPE OF INSPECTION BEING PERFORMED

- X SOILS
  - ____ FOUNDATIONS
  - X CONTROLLED FILL (COMPACTION)
  - ____
- ____ ASPHALT
  - ____ BATCH PLANT
  - ____ PLACEMENT (JOB SITE)
  - ____
- ____ CONCRETE
  - ____ BATCH PLANT
  - ____ PLACEMENT (JOB SITE)
  - ____
- ____ OTHER
  - ____
  - ____
  - ____

BRIEF RESUME OF WORK ACCOMPLISHED THIS DATE: Trouble spots in IA Pond were discussed between PSI, SMC, & V.K. Engineering. After careful observation of the trouble spots in IA Pond, it was decided to remove 2' of apart material and overexcavate bottom 1' of the Liner. The other alternative was to remove liner, clean it, and replace it according to specs. Also Southwestern Water Service was to [illegible]

Tech Time 7:00 AM - 5:00 PM.

Engineer - 2 HRS.

Respectfully submitted,
Professional Service Industries, Inc.

PSI A 300 2

DAILY FIELD REPORT

TESTED FOR: San Miguel PROJECT: 1A Pond

DATE 7-27-21 OUR REPORT NO. 3[illegible]

WEATHER: Overcast

TEMPERATURE RANGE: [illegible] TO: [illegible]

INSPECTOR G. D[illegible]

TYPE OF INSPECTION BEING PERFORMED

- [X] SOILS
  - [ ] FOUNDATIONS
  - [X] CONTROLLED FILL (COMPACTION)
  - [ ] _____
- [ ] ASPHALT
  - [ ] BATCH PLANT
  - [ ] PLACEMENT (JOB SITE)
  - [ ] _____
- [ ] CONCRETE
  - [ ] BATCH PLANT
  - [ ] PLACEMENT (JOB SITE)
  - [ ] _____
- [ ] OTHER
  - [ ] _____
  - [ ] _____
  - [ ] _____

BRIEF RESUME OF WORK ACCOMPLISHED THIS DATE: Due to rain over the weekend we were unable to work the area properly. The 1st lift was removed from STA 12+00 - 8+00 on south slope. The 1st lift was placed once again. No Test were taken this date. Started [illegible] 1st lift on slope [illegible]

Test Time 5:30 – 12:00

Respectfully submitted,
Professional Service Industries, Inc.

PSI A 300 2

DAILY FIELD REPORT

TESTED FOR: San Miguel Corp PROJECT: SMC IA Bldg

DATE: 7-26-07 OUR REPORT NO. 21 —

WEATHER: Clear

TEMPERATURE RANGE: [illegible] TO. —

INSPECTOR: [illegible]

TYPE OF INSPECTION BEING PERFORMED

- [X] SOILS
  - [ ] FOUNDATIONS
  - [X] CONTROLLED FILL (COMPACTION)
  - [ ] _____
- [ ] ASPHALT
  - [ ] BATCH PLANT
  - [ ] PLACEMENT (JOB SITE)
  - [ ] _____
- [ ] CONCRETE
  - [ ] BATCH PLANT
  - [ ] PLACEMENT (JOB SITE)
  - [ ] _____
- [ ] OTHER
  - [ ] _____
  - [ ] _____
  - [ ] _____

BRIEF RESUME OF WORK ACCOMPLISHED THIS DATE: I [illegible] 1200 - 800'. [illegible] to [illegible] for [illegible] 2 days before [illegible]

Respectfully submitted,
Professional Service Industries, Inc.

DAILY FIELD REPORT

TESTED FOR: San Miguel Coop PROJECT: SMC 1A Ponds

DATE: 7-29-87 OUR REPORT NO.: 311-

WEATHER: Sunny & CLEAR

TEMPERATURE RANGE: 90- TO: 95°

INSPECTOR: G. Quintanilla

TYPE OF INSPECTION BEING PERFORMED

- [X] SOILS
  - [ ] FOUNDATIONS
  - [X] CONTROLLED FILL (COMPACTION)
- [ ] ASPHALT
  - [ ] BATCH PLANT
  - [ ] PLACEMENT (JOB SITE)
- [ ] CONCRETE
  - [ ] BATCH PLANT
  - [ ] PLACEMENT (JOB SITE)
- [ ] OTHER

BRIEF RESUME OF WORK ACCOMPLISHED THIS DATE: VK Knowlton was able to complete A 300' section in one DAY. The 1st foot was SCARIFIED, compacted And TESTED. An Additional 3 more Lifts were added to complete Liner in this area. A total of 24 compaction test were taken today. ALL TESTS MEET SPECS. VK Knowlton commenced AT 9:00 And Finished AT 6:00.

Respectfully submitted,
Professional Service Industries, Inc.

DAILY FIELD REPORT

TESTED FOR: San Miguel Coop PROJECT: SMC IA POND

DATE: 7-30-87 OUR REPORT NO.: 311-

WEATHER: Sunny & CLEAR

TEMPERATURE RANGE: 90° TO: 95°

INSPECTOR: G. Quintanilla

TYPE OF INSPECTION BEING PERFORMED

- [X] SOILS
  - [ ] FOUNDATIONS
  - [X] CONTROLLED FILL (COMPACTION)
  - [ ] _____
- [ ] ASPHALT
  - [ ] BATCH PLANT
  - [ ] PLACEMENT (JOB SITE)
  - [ ] _____
- [ ] CONCRETE
  - [ ] BATCH PLANT
  - [ ] PLACEMENT (JOB SITE)
  - [ ] _____
- [ ] OTHER
  - [ ] _____
  - [ ] _____
  - [ ] _____

BRIEF RESUME OF WORK ACCOMPLISHED THIS DATE: WORK WAS DONE ON SOUTH SIDE Approximately 1300'-1500' (300' section). 12 compaction test were taken today. ~~1 failed~~ All Tests comply with specs. The 300' AREA work 7-29-87 Appears To Be Holding pretty well. No Apparent seepage is Found. Vic Knowlton started At 9:00 AM and finished at 6:00. A 400' section will be Attempted Tomorrow

Respectfully submitted,
Professional Service Industries, Inc.

DAILY FIELD REPORT

TESTED FOR: San Miguel Coop PROJECT: SMC 1A Pond

DATE 7-31-87 OUR REPORT NO: 311

WEATHER: Sunny + Clear

TEMPERATURE RANGE: 90° TO: 95°

INSPECTOR: G. Quintela

TYPE OF INSPECTION BEING PERFORMED

X SOILS	____ CONCRETE
____ FOUNDATIONS	____ BATCH PLANT
X CONTROLLED FILL (COMPACTION)	____ PLACEMENT (JOB SITE)
____	____
____ ASPHALT	____ OTHER
____ BATCH PLANT	____
____ PLACEMENT (JOB SITE)	____
____	____

BRIEF RESUME OF WORK ACCOMPLISHED THIS DATE: Ck'd on the workers working on the 30' section today. The south slope, STA. 1600'–1800' was completed today. Seepage was encountered in a completed area on south slope. In STA. 1000' water has come through approximately 15'-20' wide at bottom of slope. Saturated area starts from about the middle of slope to the bottom. It appears to be coming through an area where the ash is concentrated past the 3' depth required to be wiped. Overall the rest of this section appears to be holding quite well. A total 13 compaction test were taken today.

Respectfully submitted,
Professional Service Industries, Inc.

PSI A 300 7

DAILY FIELD REPORT

TESTED FOR: San Miguel Coop PROJECT:

DATE: OUR REPORT NO.

WEATHER:

TEMPERATURE RANGE: TO:

INSPECTOR:

TYPE OF INSPECTION BEING PERFORMED

X SOILS	____ CONCRETE
____ FOUNDATIONS	____ BATCH PLANT
X CONTROLLED FILL (COMPACTION)	____ PLACEMENT (JOB SITE)
____	____
____ ASPHALT	____ OTHER
____ BATCH PLANT	____
____ PLACEMENT (JOB SITE)	____
____	____

BRIEF RESUME OF WORK ACCOMPLISHED THIS DATE:

1.
2.
3.
4.
5.
6.

Respectfully submitted,
Professional Service Industries, Inc.

FORM A 3007

DAILY FIELD REPORT

TESTED FOR: San Miguel Coop PROJECT: SMC 1A Pond

DATE: 8-4-87 OUR REPORT NO.: 311-

WEATHER: Sunny & Clear

TEMPERATURE RANGE: 85° TO: 40°

INSPECTOR: G. Quintanilla

TYPE OF INSPECTION BEING PERFORMED

X SOILS	____ CONCRETE
____ FOUNDATIONS	____ BATCH PLANT
X CONTROLLED FILL (COMPACTION)	____ PLACEMENT (JOB SITE)
____	____
____ ASPHALT	____ OTHER
____ BATCH PLANT	____
____ PLACEMENT (JOB SITE)	____
____	____

BRIEF RESUME OF WORK ACCOMPLISHED THIS DATE: VK Knowlton Continued sta. 2300-2375' and also completed sta. 1200. Atterberg limits were taken today and results comply with Specs. No samples for berm construction in any other areas besides sta 900'-1100' area. VK Knowlton was started using discing equipment for better mixing. It appears to be working good for proper mixing of material and spreading water uniformly throughout the material. VK Knowlton started at 7:00-6:00 pm. Equipment used this day are as follows:

1. 1-Hitachi EX04 3-6370 Excavator
2. 1-D8CAT Dozer 5.1 CAT 950A Loader
3. 1-D6D CAT/Euclid water truck
7. Discing equipment
5. 1-CAT 140G Grader

Respectfully submitted,
Professional Service Industries, Inc.

DAILY FIELD REPORT

TESTED FOR: San Miguel Coop PROJECT: SMCIA POND

DATE: 8-5-87 OUR REPORT NO: 311

WEATHER: Sunny & Clear

TEMPERATURE RANGE: 70 TO: 95

INSPECTOR E. Castanilla

TYPE OF INSPECTION BEING PERFORMED

- [X] SOILS
  - [ ] FOUNDATIONS
  - [X] CONTROLLED FILL (COMPACTION)
  - [ ] _____
- [ ] ASPHALT
  - [ ] BATCH PLANT
  - [ ] PLACEMENT (JOB SITE)
  - [ ] _____
- [ ] CONCRETE
  - [ ] BATCH PLANT
  - [ ] PLACEMENT (JOB SITE)
  - [ ] _____
- [ ] OTHER
  - [ ] _____
  - [ ] _____
  - [ ] _____

BRIEF RESUME OF WORK ACCOMPLISHED THIS DATE: V.K. Knutson is working a 300' section of stock and a 200' section of the pond floor, they will be having 3 more mock up sprinklers come out for the duration of the job. A total of 25 compaction test were taken today. 1 failure on moisture in STA. 700A Retest was taken and test Results complied with specs. V.K. Knutson started at 7:00-6:00. THE Equipment used today are as follows;

1. 3-637D scrapers
2. 1-Letourneau Bulldozer
3. 1-D8 CAT Bulldozer
4. 1-D6 Bulldozer w/rake
5. 1-CAT sheep foot
7. Discing equipment

Respectfully submitted,
Professional Service Industries, Inc.

PSA 3007

DAILY FIELD REPORT

TESTED FOR: San Miguel Coop

PROJECT: SMC IA Pond

DATE: 8-6-87

OUR REPORT NO.: 311-

WEATHER: Sunny + Clear

TEMPERATURE RANGE: 95° TO 100°

INSPECTOR: G. Quintanilla

TYPE OF INSPECTION BEING PERFORMED

- [X] SOILS
- [ ] FOUNDATIONS
- [X] CONTROLLED FILL (COMPACTION)
- [ ] _____
- [ ] ASPHALT
- [ ] BATCH PLANT
- [ ] PLACEMENT (JOB SITE)
- [ ] _____
- [ ] CONCRETE
- [ ] BATCH PLANT
- [ ] PLACEMENT (JOB SITE)
- [ ] _____
- [ ] OTHER
- [ ] _____
- [ ] _____
- [ ] _____

BRIEF RESUME OF WORK ACCOMPLISHED THIS DATE: VK. Knowlton worked on SOUTH SLOPE, STA. 400'-600', POND FLOOR STA. 1600'-2400', 800'. South Slope STA. 400-600' was completed and Pond Floor will be completed tomorrow. A total of 17 compaction test were taken and comply with SPECS. Equipment used today areas follows: VK Knowlton Worked from 7:00-6:30

1. 2 - 637D Scrapers
2. 1 - LIEBHERR Bulldozer
3. 1 - D8 Dozer
4. 1 - D6 DOZER W/RAKE
5. 1 - Water truck
6. 1 - SPREAD KING
7. Discing Equipment

Respectfully submitted,
Professional Service Industries, Inc.

DAILY FIELD REPORT

TESTED FOR: San Miguel Coop PROJECT: 1A Pond

DATE: 8-7-87 OUR REPORT NO.: 311

WEATHER: Sunny & Clear

TEMPERATURE RANGE: 95° TO: 100°

INSPECTOR: G.D. Tarvin

TYPE OF INSPECTION BEING PERFORMED

X SOILS	CONCRETE
FOUNDATIONS	BATCH PLANT
X CONTROLLED FILL (COMPACTION)	PLACEMENT (JOB SITE)
ASPHALT	OTHER
BATCH PLANT	
PLACEMENT (JOB SITE)	

BRIEF RESUME OF WORK ACCOMPLISHED THIS DATE:

Compaction test STA 3+00 was worked and completed. Pad Floor between STA 7+00 — 9+00 was also completed today. A total of 13 compaction test were taken today. Everything went pretty smoothly today. No problems encountered. VK Knutson worked from 7:00

Respectfully submitted,
Professional Service Industries, Inc.

T. I.
30 min lunch

DAILY FIELD REPORT

TESTED FOR: San Miguel

PROJECT: SMCIA Pond

DATE: 8-24-87

OUR REPORT NO:

WEATHER: Clear

TEMPERATURE RANGE: 93° TO: 98°

INSPECTOR: Keith Ms Williams

TYPE OF INSPECTION BEING PERFORMED

X SOILS	____ CONCRETE
____ FOUNDATIONS	____ BATCH PLANT
____ CONTROLLED FILL (COMPACTION)	____ PLACEMENT (JOB SITE)
X In-place density tests	____
____ ASPHALT	____ OTHER
____ BATCH PLANT	____
____ PLACEMENT (JOB SITE)	____
____	____

BRIEF RESUME OF WORK ACCOMPLISHED THIS DAYE: A representative of PSI arrived on the jobsite at 2:20 pm. In-place density tests were performed on north slope and pond floor. A total of 15 tests were taken. Our representative left the jobsite at 6:10 pm.

Respectfully submitted,
Professional Service Industries, Inc.

TESTED FOR San Miguel

PROJECT SMC1A Pond

DATE 8-24-87

OUR REPORT NO

REMARKS:

Client : San Miguel Coop
Contractor : VK Knowlton
Weather : Sunny & Clear
Temp. Range : 93° to 98°
Inspector : K. McWilliams

Project : SMC1A Pond
Equipment used today :

1. 1 - 637 D scraper
2. 1 - Liebherr bulldozer
3. 1 - D6 cat dozer w/rake
4. 1 - cat. spray king
5. 1 - water truck
6. 1 - Discing equipment

V.K. Knowlton worked on north slope and pond floor. See F.C.T. for locations. Areas tested were too dry and will be wetted in the morning on 8-25. A total of 15 density tests were taken. V.K. Knowlton stopped at 6:00 pm.

DAILY REPORT

TESTED FOR SAN MIGUEL ELECTRIC COOPERATIVE, INC
Post Office Box 280
Jourdanton, Texas 78026
ATTENTION: Mr. Clyde Price

PROJECT 1A Ash Pond Soil Testing
P.O. #26643-032108

DATE 8-26-87

OUR REPORT NO: 311-70065-

Weather: Sunny & Clear
Temperature Range: 90'-95°
Inspector: G. Quintanilla
Type of Inspection: Fill Control

Brief Resume' of Work Accomplished on This Day:

Equipment Used:

1. 2 637D Scrapers
2. 1 D6 Dozer
3. 1 Liebherr Dozer
4. 1 - Spray King
5. 1 - water truck
6. 1 120G Motor Grader
7. Discing Equipment
8.

REMARKS:

North slope - STA. 1300'-1500' was completed. Pond Floor STA. 900'-2000' was worked but not completed. There were 4 failures today due to moisture below specs. These areas were reworked and retested. The 4 retest complied with specs. A total of 22 compaction test were taken today. Upon request of SMC. I took measurements of an area where heavy saturation and standing water is still reoccuring. My estimation of the measurements taken from STA. 0-1000' X 20' wide. For the time

DAILY REPORT

TESTED FOR: SAN MIGUEL ELECTRIC COOPERATIVE, INC
Post Office Box 280
Jourdanton, Texas 78026
ATTENTION: Mr. Clyde Price

PROJECT: 1A Ash Pond Soil Testing
P.O. #26643-032108

DATE 8-26-87

OUR REPORT NO: 311-70065-

Weather:
Temperature Range:
Inspector:
Type of Inspection:

Brief Resume' of Work Accomplished on This Day:

Equipment Used:

1.	5.
2.	6.
3.	7.
4.	8.

REMARKS:

of seep areas. An alternative for these trouble spots is using betinite in these areas. V/C Knowlton stopped at 6:00 p.m.

Respectfully Submitted
G. Quintanilla

PSI A 900-1

DAILY REPORT

TESTED FOR: SAN MIGUEL ELECTRIC COOPERATIVE, INC
Post Office Box 280
Jourdanton, Texas 78026
ATTENTION: Mr. Clyde Price

PROJECT: 1A Ash Pond Soil Testing
P.O. #26643-032108

DATE 8-27-87

OUR REPORT NO 311-70065-

Weather: Sunny + Clear
Temperature Range: 85°—90°
Inspector: G. Quintanilla
Type of Inspection: Fill control

Brief Resume' of Work Accomplished on This Day:

Equipment Used:

1. 2 - 627D Scrapers
2. 1 - D6 Dozer
3. 1 - Lighter Dozer
4. 1 - watertruck
5. 1 Cat. SPRAY KING
6. 1 120G Motor Grader
7. Discing Equipment
8.

REMARKS:

Pond Floor STA. 900-1400' was completed today. North Slope STA. 1500'-1900' worked but not completed. 4 failures due to moisture below specs. on not slope. These areas were reworked and retested and passed according to specs. An area of concern on South slope was discussed with SME. 2 areas where fractures have occurred needs to be Reworked. I Emphasized that sweep holes (to spec) be placed in these areas to keep fractures from occurring. A total of 24 Densities taken today

Respectfully Submitted,

DAILY REPORT

TESTED FOR: SAN MIGUEL ELECTRIC COOPERATIVE, INC
Post Office Box 280
Jourdanton, Texas 78026
ATTENTION: Mr. Clyde Price

PROJECT: 1A Ash Pond Soil Testing
P.O. #26643-032108

DATE 8-28-87

OUR REPORT NO: 311-70065-

Weather: Rainy
Temperature Range: 64 - 76
Inspector: G. Quintanilla
Type of Inspection: Fill Control

Brief Resume' of Work Accomplished on This Day:

Equipment Used:

1. 1 - Liebherr Dozer
2. 1 - D6 Dozer
3. 1 - 120G Grader
4. 1 Akerd Scraper
5.
6.
7.
8.

REMARKS:

Vibration Completed Sta 1600 - 1800' on North Slope.
We've been catching rain on and off all day.
Some work was done on pond bottom, from
Sta. 1600'--2000'. A total of 10 densities
taken today. Rain shut us down about 4:30 p.m.
today.

Respectfully Submitted
G. Quintanilla

DAILY REPORT

TESTED FOR SAN MIGUEL ELECTRIC COOPERATIVE, INC
Post Office Box 280
Jourdanton, Texas 78026
ATTENTION: Mr. Clyde Price

PROJECT 1A Ash Pond Soil Testing
P.O. #26643-032108

DATE 8-31-87

OUR REPORT NO 311-70065-

Weather: Cloudy
Temperature Range: 65° - 75°
Inspector: G. Quintanilla
Type of Inspection: Fill Control

Brief Resume' of Work Accomplished on This Day:

Equipment Used:

1.
2.
3.
4.
5.
6.
7.
8.

REMARKS:

VK Knowlton started at 7:30 A.M. 1A Pond was too wet to work. VK Knowlton left about 8:00 A.M. I waited for techs to arrive, to commence drilling weep holes. An attempt was made but we were unable to do work due to the condition of the pond which was too wet to work. Techs left at 11:30 a.m. I reviewed and corrected reports from previous week for SMC. I Left at 1:00 p.m.

6:30 - 2:00
No Lunch

DAILY REPORT

TESTED FOR: SAN MIGUEL ELECTRIC COOPERATIVE, INC
Post Office Box 280
Jourdanton, Texas 78026
ATTENTION: Mr. Clyde Price

PROJECT: 1A Ash Pond Soil Testing
P.O. #26643-032108

DATE 9-1-87

OUR REPORT NO 311-70065-

Weather: Sunny + Clear
Temperature Range: 75°-80°
Inspector: G. Quintanilla
Type of Inspection: Fill Control

Brief Resume' of Work Accomplished on This Day:

Equipment Used: None

1. 5.
2. 6.
3. 7.
4. 8.

REMARKS:

VK Knowlton [redacted] did not show up. I arrived at 7:00 A.m. Mike from VK Knowlton came out to check situation of the pond. Pond is still too wet to work. I told Mike that water should be pumped out of pond floor. No testing done today.

6:30 - 11:30 A.M.
5 Hrs.

PSI • 3001

DAILY REPORT

TESTED FOR: SAN MIGUEL ELECTRIC COOPERATIVE, INC
Post Office Box 280
Jourdanton, Texas 78026
ATTENTION: Mr. Clyde Price

PROJECT: 1A Ash Pond Soil Testing
P.O. #26643-032108

DATE: 9-2-87

OUR REPORT NO: 311-70065-

Weather: Sunny & Clear
Temperature Range: 75° – 95°
Inspector: G. Quintanilla
Type of Inspection: Fill control

Brief Resume' of Work Accomplished on This Day:

Equipment Used: None

1. [redacted]
2.
3.
4.
5.
6.
7.
8.

REMARKS:

VK Knowlton reported in at 7:00 A.M. only to find pond still too wet to work with heavy equipment. VK Knowlton left job at 8:00 A.M. I spent the day staking ACC areas where weep holes should be drilled. I finished at 1:30 P.M.

6:30 – 2:00 P.M.

7.5 HRS.

DAILY REPORT

TESTED FOR SAN MIGUEL ELECTRIC COOPERATIVE, INC
Post Office Box 280
Jourdanton, Texas 78026
ATTENTION: Mr. Clyde Price

PROJECT 1A Ash Pond Soil Testing
P.O. #26643-032108

DATE 9-3-87 OUR REPORT NO 311-70065-

Weather: ~~[redacted]~~ Sunny & Clear
Temperature Range: 80-85°
Inspector: G. Quintanilla
Type of Inspection: Fill Control

Brief Resume' of Work Accomplished on This Day:

Equipment Used:

1. 1 - Lichtrr dozer
2. 1 D637 Scraper
3.
4.
5.
6.
7.
8.

REMARKS:

VK Knoulton arrived at 7:00 A.M. only 2 of VK Knoulton's people worked today. VK Knoulton began pumping water out of pond today and cleaning muddy areas around pond for better maneuveri of heavy equipment. Keith and Kevin arrived about 8:30 A.M. We three worked on drilling weep holes that were staked. A total of 17 holes were drilled. We completed drilling at 2:00 p.m. They left at 2:30 p.m.

PSI A 330 1

DAILY REPORT

TESTED FOR: SAN MIGUEL ELECTRIC COOPERATIVE, INC
Post Office Box 280
Jourdanton, Texas 78026
ATTENTION: Mr. Clyde Price

PROJECT: 1A Ash Pond Soil Testing
P.O. #26643-032108

DATE: 9-4-87

OUR REPORT NO: 311-70065-

Weather: Sunny & Clear
Temperature Range: 85° - 90°
Inspector: G. Quintanilla
Type of Inspection: Fill control

Brief Resume' of Work Accomplished on This Day:

Equipment Used:

1. 1 Liebherr Dozer
2. 1 water truck
3.
4.
5.
6.
7.
8.

REMARKS:

UK Knowlton arrived at 7:00 A.M. They worked on more clean up around pond. UK Knowlton is still unable to work pond due to ~~w~~ water. I monitored there work for awhile, I mapped off locations of weep holes drill rand weep holes still to be drilled for SMC. No testing done today. Work will resume tuesday morning.

6:30 - 7:30.

PSI A 300-1

DAILY REPORT

TESTED FOR: SAN MIGUEL ELECTRIC COOPERATIVE, INC (PROJECT)
Post Office Box 280
Jourdanton, Texas 78026
ATTENTION: Mr. Clyde Price

1A Ash Pond Soil Testing
P.O. #26643-0321GA

DATE 9-6-91 OUR REPORT NO 311-70065-

Weather: Sunny & Clear
Temperature Range: 90's to 95°
Inspector: G. Gunter
Type of Inspection: Fill Control

Brief Resume' of Work Accomplished on This Day:

Equipment Used:

1. 1 - 631D Scraper
2. 1 - Liebherr Dozer
3. 1 - Water Truck
4. 1 - 120G Motor Grader
5.
6.
7.
8.

REMARKS:

Grading on North Slope was completed today. VK Knotts has had 4 diesel pumps on East end and 2 diesel pumps in about center of pond where most standing water is encountered. Productivity is still slow due to water in pond. A total of 2 density tests taken today. VK Knotts stopped at 6:00 p.m.

Respectfully Submitted

FSI A 2001

DAILY REPORT

TESTED FOR: SAN MIGUEL ELECTRIC COOPERATIVE, INC
Post Office Box 280
Jourdanton, Texas 78026
ATTENTION: Mr. Clyde Price

PROJECT: 1A Ash Pond Soil Testing
P.O. #26643-032108

DATE 9-9-87

OUR REPORT NO: 311-70065-

Weather: Sunny & Clear
Temperature Range: 90°- 95°
Inspector: G. Quintanilla
Type of Inspection: Fill Control

Brief Resume' of Work Accomplished on This Day:

Equipment Used:

1. 1 - 637D Scraper
2. 1 - Lee Boy Dozer
3. 1 - Water truck
4. 1 - 120G Motor Grader
5.
6.
7.
8.

REMARKS:

STA. 1900 - 2100' on North Slope being worked today. Water is still being pumped from pond floor. Productivity will slow today due to water on pond floor. A total of 2 densities were taken today. Upon observing South Slope of 1A Pond, A letter was submitted to SMEC describing areas to be reworked due to fractures, cave-ins, and weather conditi

Respectfully Submitted

DAILY REPORT

TESTED FOR: SAN MIGUEL ELECTRIC COOPERATIVE, INC
Post Office Box 280
Jourdanton, Texas 78026
ATTENTION: Mr. Clyde Price

PROJECT: 1A Ash Pond Soil Testing
P.O. #26613-032108

DATE: 9-10-87

OUR REPORT NO.: 311-70065-

Weather: Sunny & Clear
Temperature Range: 90°-95°
Inspector: G. Quintanilla
Type of Inspection: Fill Control

Brief Resume' of Work Accomplished on This Day:

Equipment Used:

1. 1 - Water truck
2. 1 - D6 Dozer
3. 1 - LIEBHERR Dozer
4. 1 - 637D Scraper
5. 1 - 120G Motor Grader
6.
7.
8.

REMARKS:

STA. 1900' -- 2300' were worked today. STA. 1900' was completed. VK Knowlton is still pumping water from pond floor. VK Knowlton began at 7:00 and finished at 6:00 p.m. A total of 6 densities were taken today.

Respectfully Submitted
G. Quintanilla

FS A 300-1

DAILY REPORT

TESTED FOR SAN MIGUEL ELECTRIC COOPERATIVE, INC
Post Office Box 280
Jourdanton, Texas 78026
ATTENTION: Mr. Clyde Price

PROJECT 1A Ash Pond Soil Testing
P.O. #26643-032108

DATE 9-11-87

OUR REPORT NO 311-70065-

Weather: Sunny & Clear
Temperature Range: 65°-90°
Inspector: G. Quintanilla
Type of Inspection: Fill control

Brief Resume' of Work Accomplished on This Day:

Equipment Used:

1. 1-637D Scraper
2. 1-Liebherr Dozer
3. 1-D6 Dozer
4. 1-Water truck
5. 1-120G Motor Grader
6.
7.
8.

REMARKS:

STA. 2000-2300 on North Slope were completed today. VK Knowlton is still pumping water from Pond Floor. Pond Floor should be ready for working on [redacted] Monday. A total of 9 tests were taken today. No problems were encountered today.

Respectfully Submitted
G. Quintanilla

DAILY REPORT

TESTED FOR: SAN MIGUEL ELECTRIC COOPERATIVE, INC
Post Office Box 280
Jourdanton, Texas 78026
ATTENTION: Mr. Clyde Price

PROJECT: 1A Ash Pond Soil Testing
P.O. #26643-032108

DATE: 9-12-87

OUR REPORT NO: 311-70065-

Weather: Sunny + Clear
Temperature Range: 90°-95°
Inspector: G Quintanilla
Type of Inspection: Fill Control

Brief Resume' of Work Accomplished on This Day:

Equipment Used:

1. 1-120G Motor Grader
2. 1-water truck
3. 1-LIEBERR Dozer
4.
5.
6.
7.
8.

REMARKS:

VK Knowlton worked on shaping north slope. North slope STA 2100-2400' was completed for Final testing. 1 operator showed up with V.K. Knowlton. Slopes were also watered today. 3 Density Test were taken today.

Respectfully Submitted
G. Quintanilla

DAILY REPORT

TESTED FOR: SAN MIGUEL ELECTRIC COOPERATIVE, INC
Post Office Box 280
Jourdanton, Texas 78026
ATTENTION: Mr. Clyde Price

PROJECT: 1A Ash Pond Soil Testing
P.O. #26643-032108

DATE 9-14-85

OUR REPORT NO 311-70065-

Weather: Sunny & Clear
Temperature Range: 90'-95'
Inspector: Co. Quintanilla
Type of Inspection: Fill Control

Brief Resume' of Work Accomplished on This Day:

Equipment Used:

1. 1-LIEBHERR Dozer
2. 1-D6 Dozer
3. 1-120G Motor Grader
4. 1-Water truck
5. 1 SPRAY KING
6. 1-637D Scraper
7.
8.

REMARKS:

Work was concentrated on West Slope in N.W. corner and from STA 1500'-2000' on pond floor. Productivity seems to be picking up. A total of 8 densities were taken. VK Knowlton began AT 7:00 - 6:00 p.m.

Respectfully Submitted

G. Quintanilla

PS A 300.1

DAILY REPORT

TESTED FOR: SAN MIGUEL ELECTRIC COOPERATIVE, INC
Post Office Box 280
Jourdanton, Texas 78026
ATTENTION: Mr. Clyde Price

PROJECT: 1A Ash Pond Soil Testing
P.O. #26643-032108

DATE: 9-15-87

OUR REPORT NO: 311-70065-

Weather: Sunny & Clear
Temperature Range: 90'-95°
Inspector: G. Quintanilla
Type of Inspection: Fill Control

Brief Resume' of Work Accomplished on This Day:

Equipment Used:

1. 1 - 120G Motor Grader
2. 1 - Liebherr Dozer
3. 1 - D6 Dozer
4. 1 - 637D Scraper
5. 1 - Water truck
6. 1 - CAT. Spray King
7. Discing Equipment
8.

REMARKS:

West slope STA. 2400'-2475' was completed today. About 90% of 1A Pond is completed. [redacted] STA. 1600'-2300' on Pond Floor is yet tobe completed and STA 0-200' on South slope needs to be completed. Motor-Grader is being used to [redacted] do final tuch up work on slopes and pond Floor. A total of 12 densities were taken today. Water is still being pumped from pond floor. VK Knowlton started at 7:00 and Finished at 6:00 p.m. today.

Respectfully Submitted,

DAILY REPORT

TESTED FOR SAN MIGUEL ELECTRIC COOPERATIVE, INC
Post Office Box 280
Jourdanton, Texas 78026
ATTENTION: Mr. Clyde Price

PROJECT 1A Ash Pond Soil Testing
P.O. #26643-032108

DATE 9-16-87

OUR REPORT NO 311-70065-

Weather: Sunny + Clear
Temperature Range: 90°-95°
Inspector: G. Quintanilla
Type of Inspection: Fill Control

Brief Resume' of Work Accomplished on This Day:

Equipment Used:

1. 1 - Liebherr Dozer
2. 1 - D6 Dozer
3. 1 - 120G Motor Grader
4. 1 - 637D Scraper
5. 1 - water truck
6. 1 - CAT Spray King
7.
8.

REMARKS:

Pond floor was completed today, with the exception of clean up and shape up of floor. VK Knowlton worked one of the reconstructed areas that had a fracture problem. This area seems to be holding quite well. Water is still being pumped out of pond floor. VK Knowlton got one of there dozers stuck today and have spent from 11:30 A.M. - 5:00 p.m. trying to repair it and have been unable to remove it. Due to this problem, productivity for the day was very slow. A total of 13 compaction test were taken today.

DAILY REPORT

TESTED FOR: SAN MIGUEL ELECTRIC COOPERATIVE, INC
Post Office Box 280
Jourdanton, Texas 78026
ATTENTION: Mr. Clyde Price

PROJECT: 1A Ash Pond Soil Testing
P.O. #26643-032108

DATE 9-17-87

OUR REPORT NO. 311-70065-

Weather: Sunny & Clear
Temperature Range: 90°-95°.
Inspector: G. Quintanilla
Type of Inspection: Fill Control

Brief Resume' of Work Accomplished on This Day:

Equipment Used:

1. 1 - LIEBHERR Dozer
2. 1 - 120G. Motor GRADER
3. 1 - 637D Scraper
4. 1 - Water truck
5. 1 - CAT. SPRAY KING
6.
7.
8.

REMARKS:

VK Knowlton finally (10 00) removed dozer from a muddy area. An agreement has not yet been reached on the reconstructed AREAS with FRACTURES. VK Knowlton is waiting for front end Loader to Arrive on the Job site - for the placement of Rip-RAP on both ends of POND. Productivity is Almost At A half At this time due to the condition of the pond Floor. VK Knowlton cannot do any work on Pond Floor without damaging Floor. POND Floor is still being pumped of excess water. A 200' Section still remains to be worked on the south slope.. No completion test taken to d

PSI A 300-1

DAILY REPORT

TESTED FOR: SAN MIGUEL ELECTRIC COOPERATIVE, INC
Post Office Box 280
Jourdanton, Texas 78026
ATTENTION: Mr. Clyde Price

PROJECT: 1A Ash Pond Soil Testing
P.O. #26643-032108

DATE: 10-18-84

OUR REPORT NO: 311-70065-

Weather: Cloudy - overcast
Temperature Range: 75° - 80°
Inspector: G. Quintanilla
Type of Inspection: Fill Control

Brief Resume' of Work Accomplished on This Day:

Equipment Used:

1. 1 LIEBHERR Dozer
2. 1 120G Motor GRADER
3. 1 - water truck
4. 1 - CAT SPRAY KING
5. 1 - TRACK LOADER
6.
7.
8.

REMARKS:

Damaged AREA in Bottom of pond was repaired today. Most of the work will be concentrated on Pond floor today. Rip RAP was placed on west slope on Both sides of concreted AREA. A 200' Section is yet to be completed on the south slope. Fractures were inspected today and an alternative for repairing these fractures has been ~~reached~~ decided. VK Knowlton started at 7:00 A.M. and stopped at 3:30 due to Rain. A total of 2 densities were taken.

FORM A 3004

DAILY REPORT

TESTED FOR: SAN MIGUEL ELECTRIC COOPERATIVE, INC
Post Office Box 280
Jourdanton, Texas 78026
ATTENTION: Mr. Clyde Price

PROJECT: IA Ash Pond Soil Testing
P.O. #26643-032108

DATE 9-22-87

OUR REPORT NO. 311-70065-

Weather: Sunny & Clear
Temperature Range: 80° - 85°
Inspector: G. Quintanilla
Type of Inspection: Fill Control

Brief Resume' of Work Accomplished on This Day:

Equipment Used:

1. 1 - LIEBHERR Dozer
2. 1 - TRACK LOADER
3. 1 - CAT. SPRAY KING
4. 1 - 120G Motor GRADER
5.
6.
7.
8.

REMARKS:

STA. 100 - 300'
South Slope was completed today.
UK Knowlton has begun to move out most of there equipment today. Fractures repaired will begin today. A betinite slurry will be used in fracture areas. A total of 4 densities were taken today.

FS-A300 1

DAILY REPORT

TESTED FOR SAN MIGUEL ELECTRIC COOPERATIVE, INC
Post Office Box 280
Jourdanton, Texas 78026
ATTENTION: Mr. Clyde Price

PROJECT 1A Ash Pond Soil Testing
P.O. #25643-032108

DATE 9-23-87

OUR REPORT NO 311-70005-

Weather: Sunny + Clear
Temperature Range: 80-85°
Inspector: G. Quintanilla
Type of Inspection: Fill Control

Brief Resume' of Work Accomplished on This Day:

Equipment Used:

1. Track Loader
2. CAT. Spray King
3.
4.
5.
6.
7.
8.

REMARKS:

Fractures were repaired today. A Betinite Slurry was injected into fractured areas. Betinite pellets were worked into weep holes. South Slope is completed for all repairs. Rick and I started at 8:00 and completed final repairs at 6:00 p.m.

7:30 - 8:00

PSI-4 3001

DAILY REPORT

TESTED FOR: SAN MIGUEL ELECTRIC COOPERATIVE, INC
Post Office Box 280
Jourdanton, Texas 78026
ATTENTION: Mr. Clyde Price

PROJECT: 1A Ash Pond Soil Testing
P.O. #25643-032108

DATE 9-24-87

OUR REPORT NO. 311-70065-

Weather: Sunny and Clear
Temperature Range: 80 - 85°
Inspector: G. Quintanilla
Type of Inspection: Fill Control

Brief Resume' of Work Accomplished on This Day:

Equipment Used:

1. TRACK Loader	5.
2. CAT SPRAY KING	6.
3.	7.
4.	8.

REMARKS:

Final RAMP was cut out today and Rip RAP is being placed. A Final inspection of Betinite injected Fractures will be done tomorrow. UK Knowlton will be pulling off jobsite today!

DAILY REPORT

TESTED FOR: SAN MIGUEL ELECTRIC COOPERATIVE, INC. PROJECT
Post Office Box 280
Jourdanton, Texas 78026
ATTENTION: Mr. Clyde Price

TA #: [illegible]
P.O. #: [illegible]

DATE: 9-25-87

OUR REPORT NO.: [illegible]

Weather: Sunny & Clear
Temperature Range: 80 - 85°
Inspector: G. Quintanilla
Type of Inspection: Fill Control

Brief Resume' of Work Accomplished on This Day:

Equipment Used:

1. 1-Track Loader
2. 1-CAT SPRAY King
3.
4.
5.
6.
7.
8.

REMARKS:

A final inspection was made this morning on fractured areas that were repaired with a betinite slurry. All these areas appear to be holding quite well. SMEC anticipates ~~[illegible]~~ to begin filling pond with water today. V.E. Knowlton is still doing some final touch up work. Rip Rap should be placed and completed today.

PS A 2011

7-13-87 KNOWLTON is to Mobile to plant site this morning. They are to bring contract, bond and insurance certificate.

12:57 PM KNOWLTON on site. Mike will send [illegible] to [illegible]

2:30 PM - TWO CAT SCRAPERS ARE ON SITE. ONE UTILITY IS RUNNING WATER. ONE MAN ARRIVES A LITTLE OF THE BUILDING. I CAUTION [illegible] ROOM OF CONTRACTORS. DON'S PARK [illegible] WILL BE [illegible] IF THEY [illegible] WORK TOO [illegible] NOW MAGGIE IS A CONTRACTOR [illegible] [illegible] WILL BE PUT ON SITE [illegible] [illegible] FRIDAY MORNING [illegible] 3:30 PM [illegible] FIVE [illegible] [illegible] KNOWLTON [illegible] [illegible]

6:30 PM KNOWLTON [illegible] IGC NOTE & CONDUIT ON N.W. SIDE OF POLE CALLED MIKE ON [illegible] FROM M.R. CRP.

7-14 PJ Talked with Steve Dunn, owner of the Bennett residence on Central Island along the North length of the IA POND. Mr. Dunn stated that he could see the water line from his dock (Looking from)
North to South) is running approx. 4-5' above the WEST TO EAST. At 11:30 AM APPROX 1000 FT completely. Seepage are working the west pond flow.
Called PST. Robert AR can will be on site Wednesday morning for inspection. as of today the following equipment is on site: 2 ea 630 CAT dozers
1 ea CAT 140 Grader
1 ea CAT Loader
at 3:00 PM a large cat dozer was also working.
A message was left at Jim Jones PM CAPS

7-15-87 - N.W POND FLOOR HAS water returning. Scrapers are working this area. Mike will bring in a D-9 CAT dozer Thursday morning. an additional D-6 CAT dozer was on site today plus another scraper.

Kirt Brian [illegible] this morning. We discussed [illegible] [illegible] [illegible]

[illegible] stated that [illegible] [illegible] [illegible] about [illegible] materials [illegible] [illegible] pond [illegible].

36 exposure of ASA 200 color film taken of pond work.

[illegible] [illegible] [illegible] [illegible] [illegible] [illegible] for [illegible].

PSI engineer [illegible] [illegible] [illegible]. [illegible] engineer [illegible] [illegible]. CRP

7-15-87.

JOHN STUART, SCOTT KNOWLTON were on site this morning. We discussed the work of South Elk.

Tom [illegible] [illegible] FRIDAY Morning to visit with ROBERT [illegible] Pond and myself. A LOCATION FOR AN [illegible] CAMP will be discussed.

7-20-21. Work is continuing [illegible] SAMPLES. [illegible] SAMPLES. MATHESON is now [illegible] FOR KNOWLTON. PSI (GARY) is collecting SAMPLES. [illegible] Raymark Corydon is removing the 3" Nipple & VALVE AT SPINDAY.

A copy of drawing No 1-M-1L Showing location of service water line on dumping area was given to Mike with Knowlton. He stated he was aware of location of line and there would be no problem - Knowlton is currently dumping dirt in 2 areas - 1 on East side of pond the other on West side of pond - the

7-17-07 Daily Field Report

CLIENT - SMC CONTRACTOR - VK KNOULTON

Project - 1A POND

Upon observing 1A Pond, I found 3 questionable AREAS of concern. The N.W. corner of 1A Pond has water seepage. The clay in this area appears to be in good condition. Approximately 700'-800' west of S.E. corner of 1A POND, VK KNOULTON encountered a joint of sand clay that is unacceptable according to Spec's. A sample was taken to verify unacceptability of material. Water seepage was also encountered in this area. In the S.E. corner of 1A Pond water was encountered as well. The decision has been agreed upon that all vegetation, fly ash, or contaminated clays of any kind will be removed before actual reconstruction of 1A pond. A sample of good clay was taken on the west side of pond in N.W. corner for testing - to verify acceptability of material. The rest of 1A Pond overall appears to be in good shape.

Daily Field Report

7-20-87 - Monday
Client - San Miguel Coop. contractor - V.K. Knowlton
Project - 1A Pond

Equipment used
1. 3 - 637D CAT. Scrapers
2. 1 - Liebherr 731 Bulldozer
3. 1 - D8H CAT. Bulldozer
4. 1 - 120G CAT. Grader
5. 1 - CAT. SPRAY RIG
6.

V.K. Knowlton is working area on bottom of 1A Pond Approximately 500'-800' west of N.E. corner running total width of pond. V.K. Knowlton is still encountering sandy clay that is ~~wet~~ unacceptable in this area. In the area on bottom of pond Approximately 600-800' west of N.E. corner water is still pretty heavy This area may require curing to further continue construction. About 60% of Pond has been cleaned of vegetation and contaminated soils. No actual reconstruction of pond done this day. No compaction test required this day. Road on North side of 1A Pond was graded to a smoother surface for better hauling. Pumps were put into pond to remove water today.

Daily Field Report

7-21-87-Tuesday
Client - SMC
Project - 1A Pond

Contractor - V K Knowlton

Equipment used:
1. 4 - 637D Scrapers
2. 1 - Liebherr 731 Bulldozer
3. 1 - 120G Grader
4. 1 - D8H Cat Bulldozer
5. 1 - CAT Spray King

All water has been pumped out of trouble spots. VK Knowlton continues to work on East half at bottom of pond approximately 100'- 500' west of S.E. corner. They are encountering more sandy clay in this area that appears to be unacceptable. This material is being placed just North of 1A Pond to Dry. Some of this material may be acceptable in placement on bottom of pond. Grader is being used on bottom of pond on East half 100'-400' from NE. corner on North half to smooth surface. Not much progress has been made this day. VK Knowlton remained in this area All day. No compaction test were required this day.

Daily Report

7-22-87
Client - SMC
Project - 1A Pond

Upon request of SMC - I am documenting trouble spots in pond with brief descriptions.
1. On the SE. corner of pond in area 0-200' on south side and south slope sandy clay is saturated. water was pumped out of pond in this area only to find within a 12 Hr period that the area refilled with water.
2. on the north side of pond on the East end in the area approximately 400'-700'; sandy pockets are encountered with heavy saturation.
3. on the south side of the pond EAST in the area Approximately 600'-800'; sandy pockets are encountered with standing water. This area has also been pumped from excess water only to find that it had refilled within a 12 Hr. period.
4. on the south slope. 800'-1000' the walls appear to be saturated as well. The floor in this area is dry.
5. The area in the NW corner in the bottom of the pond (approximately 1600-2100'), standing water is encountered.

In area #1 U.K. Knowlton has excavated about 4' only to encounter more sandy clay. It is my recomendation that in the sandy clay areas, they should only excavate 3' of material and replace it

with good clay according to specs. V.K. Knowlton is now working in Area # 2 of this report.

Equipment used :

1. 4 637D CAT. SCRAPERS
2. 1 LIEBHERR 731 Bulldozer
3. 1 D8H CAT. Bulldozer
4. 1 120G CAT GRADER

Contractor : V.K. KNOWLTON

AREA # 1 is being filled with good clay from the bottom of the pond. Results on Material Sampled on 7-17-87 (Labeled as Sample #1 were verified today. The material taken from N.W. corner of pond has a PI of 67 and is classified as Tan Sandy (Bentonite Clay. Highly Plastic material ; code : CH (Labeled as Sample # 2)

The material that was believed to have been unacceptable due to large deposits of sand is acceptable with the stipulation that more clayey than sandy material is used. All sandstone must be removed. This material has a PI of 50 and is classified as Tan Sandy Slickacise or Betinite Clay.

Sample # 1 - Proctor Results are as follows

Maximum Dry Lab Density — 77.9

optimum moisture content — 37.7 + 3-4% = 40.7 - 41.7%

Respectfully Submitted.

PSE - TECH: G. Quintanilla

Daily Report

7-23-87 - Thursday

Client : San Miguel Coop CONTRACTOR : V K KNOWLTON

Project : 1A Bnd

EQUIPMENT USED :

1. - 3 637D CAT Scrapers
2. 1 - LIEBHERR 931 Bulldozer
3. 1 - D8H CAT. Bulldozer
4. 1 - 120G CAT. GRADER

V K KNOWLTON is working AREA Approximately 800'-1700' ON NORTH SIDE. NORTH SLOPE IN this AREA is being cleaned ALSO. V.K. KNOWLTON has also begun to scrape AN AREA ON the South SLope Approximately 1000'-1100' removing 2' foot of material to Replace in with good clay in 9" Lifts. 3 Density TEST were TAKEN ON the NEST GRID between 1800'-1900' to check moisture CONTENT. Moisture Content Ranged from 29.3 - 37.5 %. Due to a chance of Heavy Rain V.K. KNowlton will begin tomorrow putting material in the South Slope ; 1000-1100' AREA.

Respectfully Submitted

PSI - G. Quintanilla

7/24/81 DSL, KNOWLTON & SMEC HELD
MEETING TO DISCUSS ACCOUNTING FOR
OF THE BOOTH SIZE, AND QUANTITIES.
ADJUSTMENT FOR FLOOR AREA. KNOWLTON
STATED THAT SOUTH DIKE WAS TOO WIDE
FOR WORK.

I NOTED THAT KNOWLTON DID NOT WORK

Daily Report

7-21-87

Client - SMC

Project 1A Pond

Contractor - V.K. Kwalik

Equipment used:

1. 1 - Dresser 730 Bulldozer
2. 1 - D8K CAT Bulldozer
3. 1 - D6C CAT Dozer.
4. 1 - CAT 950 Front End Loader.

Due to the [illegible] equipment
[illegible]
[illegible]
[illegible]

Sta. 1200 - 1300'

[illegible]
[illegible] EC 3' of clay is removed,
[illegible] to be placed in 9" Lifts with 4 Lifts
per Section. [illegible]
to rain work in [illegible] area [illegible].
1st Lift was compacted and work will
resume on Monday 7-27-87. V.K. Kwalik
started at 7:00 A.M. and quit at 5:00 P.M.

[illegible]

DOE - G. Quinville

[illegible]

[illegible]

Daily Report

7-30-87

CLIENT : SMC

Contractor: VK Knowlton

Project : 1A Pond

EQUIPMENT USED :

1. 1 D-7 Bulldozer with RAKE
2. 1 - LIEBHERR 731 Bulldozer
3. 1 - D8 H CAT. Bulldozer
4. 1 - SPRAY KING
5. 2 - 637D CAT. SCRAPERS

VK Knowlton has been using a D-7 Bulldozer with a Rake ATTACHED TO BLADE for scarfying. It APPEARS to be working well. Material is breaking up well and ~~[illegible]~~! THE Material is getting scarfied to the required 1' According to SPECS. 3 Lifts ARE Being placed After scarfying and compacting bottom 1'. A 300' AREA is being worked per day. Friday, VK Knowlton will try to finish A 400' section. Overlaps at the 100' mark of EACH section has been about 4'-5'.

Respectfully Submitted

PSI - G. Quintanilla

8-3-87: 7:15 AM Check 1-A pond South Slope - The wall looked good except for a few areas - You could see the leaked areas - But in contrast they were small. Pictures were taken: 8:45 am. B. Cmiel & J. Evans toured the pond and observed the South Slope - Robert Aeies is suppose to be on site this morning and we will meet with Kaulta and discuss leaks on South Slope -.
3:25 Robert Aeies did not come - Plans are to continue as plan -

Daily Field Report

8-4-87

CLIENT: San Miguel Coop Contractor: VK Knowlton

Project 1A POND

VK Knowlton is starting to work a section on the bottom of the pond between STA. 900'-13 After removing some material, a reddish sandy clay was encountered and sampled for testing. AT 3:00 pm. I recommended to the foreman representing VK Knowlton to use sheeps foot for compacting material on the bottom of pond. The foreman did not agree to this method and wanted to use scrapers instead for compacting. His reasoning was for more productivity. I do not agree with his method of compacting and told the foreman that I was not in agreeance with his method of compacting.

Respectfully Submitted

PSI- G. Quintanilla

8-5-87: Gary with P.S.I. came into the office and ask that I (J. Evans) go down into the pond and look at an area that was of question. Knowlton wanted the area to be tested and P.S.I. said that the area was too rough and needed to be compacted in a more uniform manner. I took pictures of the area and P.S.I, myself and a Rep of Knowlton looked at the pictures and agreed that the area was not done in a uniform manner. Mike Cavitt Knowlton came in later and this matter was discuss with him and He, B. Smeal + myself went back down into the pond. By this time they had packed down the floor more and it was suitable to be tested. All agreed on what SMEC was expecting. Pictures were then taken for record — P.S.I tested the area and it passed the test.

Hand Radios will be given to Knowlton + P.S.I. So Everyone will be in contact with each other when needed - Knowlton + P.S.I will leave their Radios with the SMEC Board every afternoon and pick up every morning. Knowlton Call No will be 26 D and P.S.I will be 26 C.

Daily Field Report

8-5-87

CLIENT: San Miguel Coop CONTRACTOR: V K Knowlton

Project: SMCIA Pond

Another small Area with seepage was encountered today in STA. 1500'. SMC was informed. SMC wants VK Knowlton to finish slope and then note the trouble spots for discussion at a later date. Another thing that needs to be brought to the attention of V.K. Knowlton is an area in STA. 1500'-1800' on the Pond Floor was worked and is being placed in a manner that does not comply with contract. Under General Notes #3 - Fill must be placed in a manner which will result in a uniform clay fill with minimum permeability. Pictures were taken in this area to show the unevenness of 1st Lift. At 4:00 SMC, PSI, and VK Knowlton discussed and resolved the problems.

Respectfully Submitted

PSI G. Quintanilla

8-8-87 - K.U. Knowlton came out and watered down the South Slope and floor of 1-A Ash Pond. They also sweeped the toe of Slope on South Side.

8-9-87 - K.U. Knowlton came out and watered down the South Slope and floor of 1-A Ash Pond.

Daily Field Report

DATE : 8-10-87
CLIENT : San Miguel Coop Project : SMCIA Pond
CONTRACTOR : VK Knowlton
Weather : Sunny & Clear
Temp. Range : 90° TO 96°
Inspector : G. Quintanilla
Type of Inspection being performed : Fill cont.

Work was concentrated on Pond Floor between STA. 1200' - 2400'. Trouble spots, were heavy concentration of water is encountered, are areas being worked the most today. VK Knowlton has removed 3' of material in these areas and they are attempting to seal heavy water spots by replacing sandy material with good clay. A total of 12 Densities were taken today. VK Knowlton started at 7:00 - 6:00.

Respectfully Submitted
G. Quintanilla

7

Daily Field Report

DATE: 8-11-87

CLIENT: San Miguel Coop

Project: SMCIA Pond

CONTRACTOR: V.K. Knowlton

WEATHER: Sunny & CLEAR

TEMP. RANGE: 95° to 100°

INSPECTOR: G. Quintanilla

TYPE of Inspection being PERFORMED: Fill control

EQUIPMENT USED:

1. 2-637D Scrapers
2. 1-Liebherr Bulldozer
3. 1- D8 Cat. Dozer
4. 1- D6 Cat. Dozer w/Ripper
5. 1- 120G Cat. Grader
6. 1- Cat Sheep's Foot
7. 1- water truck
8. Discing Equipment

Brief summary of work accomplished today:

V.K. Knowlton started at 7:00 A.M. today. STA. 1000' was worked. subgrade and 1st Lift were completed in this area. V.K. Knowlton also concentrated work on trouble spots where standing water is found. Reworking of south slope from STA. 1100'-2400' at toe of slope was also done today. V.K. Knowlton is attempting to repair seepage spots and tie into to pond bottom before using alternative of weep holes. A total of 3 densities were taken today. V.K. Knowlton stopped at 6:00 p.m.

Respectfully Submitted

G. Quintanilla

Daily Field Report

8-12-87

Client : San Miguel Coop
Contractor : VK Knowlton
Weather : Sunny + Clear
Temp Range 95° to 100°
Inspector : G. Quintanilla
Type of Inspection being performed : Fill Control

Project : SMC IA Pond
Equipment used today :
1. 2-637D Scrapers
2. 1-LIEBHERR Bulldozer
3. 1-D8 CAT. Dozer
4. 1-D6 CAT. Dozer
5. 1-120G CAT. Grader
6. 1-CAT SPRAY KING
7. 1-water truck
8. Discing equipment

Brief Summary of work accomplished :
VK Knowlton started at 7:00 a.m. today STA 1200'-1700' worked, STA. 300-700' worked, and East Slope worked today. No problems encountered today. A total of 6 densities ~~take~~ were taken today. VK Knowlton stopped at. 6:00 p.m.

Respectfully Submitted
G. Quintanilla

Daily Field Report

8-13-87

CLIENT : San Miguel Coop

CONTRACTOR : V K Knowlton

WEATHER : Sunny & CLEAR

TEMP. RANGE 95° to 100°

INSPECTOR : G. Quintanilla

TYPE of Inspection performed : Fill Control

Project: SMC IA Pond

Equipment used today :

1. 2 - 637D Scrapers
2. 1 - LIEBHERR Bulldozer
3. 1 - D8 CAT Dozer
4. 1 - D6 CAT DOZER w/RAKE
5. 1 - 120G CAT. GRADER
6. 1 - CAT. SPRAY KING
7. 1 - water truck
8. Discing equipment

Brief summary of work accomplished :

V.K. Knowlton started at 7:00 A.M. VK Knowlton worked on east slope and pond floor STA. 400', 1500', 1000', 900', 300', 500 - 700'. Seepage is apparent once again in the pond floor in the S.E. corner from STA. 100' - 600'. VK Knowlton will attempt seal it off again. No other problems were encountered. A total of 12 densities were taken today. VK Knowlton stopped at 6:00 p.m.

Respectfully Submitted,
G. Quintanilla

Daily Field Report

8-14-87

Client : San Miguel Coop
contractor : V.K. Knowlton
Weather : Sunny + Clear
Temp Range : 95 to 100°
Inspector : G. Quintanilla
Type of Inspection performed : Fill control

Project : SMC IA Pond
Equipment used today :

1. 2 - 630D Scrapers
2. 1 - Liebherr Bulldozer
3. 1 - D8 Cat. Dozer
4. 1 - D6 Cat. Dozer w/ Rake
5. 1 - 120G Cat. Grader
6. 1 - Cat Spray King
7. 1 - water truck
8. Discing equipment

Brief Summary of work accomplished :

V K Knowlton started at 7:00 A.M. V K Knowlton worked on Pond floor Sta. 300-700, 800', 900'. Water has been removed from Pond floor on North side between sta. 300' - 700'. this water hole will be sealed off today. I took several test in areas were seepage has reoccured and as a result, they have all passed compaction and moisture content with the exception of one area on the South slope. This area will be reworked. A total of 12 Densities were taken this day. V K Knowlton stopped at 6:00 P.M.

Respectfully Submitted
G. Quintanilla

Daily Field Report

8-17-87

Client : San Miguel Coop
Contractor : V K Knowlton
Weather : Sunny & Clear
Temp Range 95° to 100°
Inspector : G. Quintanilla
Type of Inspection performed : Fill Control

Project : SMC IA Pond
Equipment used this day
1. 1 - 637D Scraper
2. 1 - Liebherr dozer
3. 1 - D8 dozer
4. 1 - D6 dozer w/Rake
5. 1 - 120G Cat. Grader
6. 1 - CAT spray king
7. 1 - water truck
8. Discing Equipment

Brief summary of work accomplished:

V. K. Knowlton started at 7:00 A.M. Areas worked today were on Pond floor STA. 1200'-1500', 700', 300-700', 900', 0-300'. Seepage has reoccured again in S.E. corner STA. 60'-600'. Another alternative will have to be used in this area. A change in material was encountered on North slope and Pond floor. A sample was taken for testing. A total of 24 densities taken today. V K Knowlton stopped at 6:00 P.M.

Respectfully Submitted
G. Quintanilla

Daily Field Report

8-18-87

Client: San Miguel Coop
Contractor: V K Knowlton
Weather: Sunny & Clear
Temp. Range: 95° to 100°
Inspector: G. Quintanilla
Type of Inspection performed:
Fill Control

Project - 1A Pond
Equipment Used this day:

1. 1 - 637D Scraper
2. 1 - Liebherr Dozer
3. 1 - D-8 Dozer
4. 1 - D-6 Dozer w/Rake
5. 1 - Water truck
6. 1 - Cat. Spray King
7. 1 - 120G Motor Grader

Brief Summary of work accomplished:

V K Knowlton started at 7:00 A.M. Areas worked today were North Slope. STA. 100' — 500'. Everything went pretty smoothly today, no problems encountered. A total of 18 Densities were taken. 4 failures on moisture - this area is being watered and reworked again. V K Knowlton stopped at 6:00.

Respectfully Submitted
G. Quintanilla

Daily Field Report

8-19-82

Client : San Miguel Coop — Project 1A Pond
Contractor : V.K Knowlton — Equipment used this d
Weather : Sunny & Clear
Temp. Range : 95° to 100°
Inspector : G. Quintanilla
Type of Inspection performed
Fill Control

1. 1-637D Scraper
2. 1- LIEHBEER Dozer
3. 1- D-8 Dozer
4. 1 - D-6 Dozer w/RAKE
5. 1 -Water truck
6. 1 - CAT. Spray Rig
7. 1 - 120G Motor Grader

Brief Summary of work accomplished:

V K Knowlton commenced at 7:00 A.M. V.K Knowlton was able to work a 300' section today. The North Slope Sta. 400-700' was worked and 200' was completed, A total of 18 Densities taken today. V.K. Knowlton stopped at 6:00 p.m.

Respectfully Submitted
G. Quintanilla

Daily Field Report

8-20-87

CLient: San Miguel Coop
Contractor: V K Knowlton
Weather, Sunny & Clear
Temp. Range: 95° to 100°
Inspector: G. Quintanilla
Type of Inspection performed:
Fill control

Project SMCIA Pond
Equipment Used today:
1. 2 - 637D Scrapers
2. 1 - Liebherr Dozer
3. 1 - D-8 Dozer
4. 1 - D-6 Dozer w/Rake
5. 1 - Water truck
6. 1 - Cat Spray King
7. 1 - 120G. Motor Grader
8. Discing Equipment

Brief Summary of work accomplished:

V K Knowlton started at 9:00.
A fill section was worked today. 300' on pond floor and 300' on slope. The 300' section on North slope was completed. No problems encountered today besides a dozer breaking down. A total of 24 densities were taken. Densities from Report # 8-18-87 which failed moisture content have passed today
V K Knowlton stopped at 6:00 p.m.

Respectfully Submitted
G Quintanilla

Daily Field Report

8-21-87

CLIENT: San Miguel Coop Project: IA Pond

CONTRACTOR: V.K. Knowlton

WEATHER: Sunny & CLEAR

TEMP RANGE: 95 to 100°

INSPECTOR: G. Quintanilla

TYPE of INSPECTION performed: Fill control

EQUIPMENT used:

1. 2 - 637D Scrapers
2. 1 - LIEBHERR Dozer
3. 1 D-6 Dozer
4. 1 water truck
5. 1 CAT Sheep's foot
6. 1 - 120 G. Motor Grader
7. Discing Equipment.

Brief Summary of Work Accomplished:

V.K. KNOWLTON worked and completed STA. 100 - 300' ON pond FLOOR and STA. 900 - 1200' ON NORTH slope. New proctor values were used today. Proctor came back at 88.2 Maximum Dry Density and 23.7 optimum moisture content. PI on this material (i.e. ST. This proctor is working out a lot better with material being work at this time. No problems encountered today. A total of 30 densities were taken. V.K. Knowlton started at 7:00 and finished at 6:00 p.m.

Respectfully Submitted

G. Quintanilla

Daily Field Report

8-25-87

CLIENT : San Miguel Coop.
Contractor : V K Knowlton
Weather : Sunny & Clear
Temp Range : 90° to 95°
Inspector : G. Quintanilla/ Keith McWilliams
Type of Inspection : Fill Control

Project : 1A Pond
Equipment used :
1. JD 620 Scraper
2. 1 - Lighter Dozer
3. 1 - D6 Dozer
4. 1 - Spray King
5. 1 - 120G Motor Grader
6. Discing Equipment
7. 1 - water truck

Brief summary of work accomplished

North slope STA. 1300 - 1500', Pond Floor STA. 400 - 1400 were areas worked this day [redacted] AREAS that failed [redacted] have been reworked and retests comply with specs. Most of the work was concentrated on Pond floor. No other problems were encountered. V.K. Knowlton worked until 6:00 p.m. A total of 23 [redacted] compaction test were taken today.

Respectfully Submitted
G Quintanilla/Keith McWilli

San Miguel Coop - 1A Pond

ATTN. CLYDE PRICE

8-27-87

In observing south slope of 1A Pond, once again I must emphasize that weep holes be placed in seepage areas. There are two areas on south slope where fractures have occurred. In those areas VK Knowlton should rework materi and then place weep holes to insure that seepage stays in a controlled area. and to further cause anymore fracturing of Liner.

Respectfully Submitted
P.S.I. - G. Quintanilla

9-1-87

Attached Photos

9-9-87

Client: San Miguel Coop Project: IAP-D

As of 9-9-87, Areas that need to be reworked due to fractures and weather conditions are as follows:

1) STA. 300'-400', 80'x30' AREA; CAVE-IN; a 2' AREA should be reworked.

2) STA. 1400'-1500', 50'x30' AREA; FRACTURE; a 9" LIFT should be reworked.

3) STA. 2200'-2400', 175'x30' AREA; DEEP FRACTURES & CAVE-INS. A 2' AREA is Advised to be reworked

From my observations of the South Slope in IA Pond, our (PST) recommendations are that these areas listed above should be reworked and immediatly there after, weep holes should be placed to reduce or correct any further problems that may be encountered on the south slope. If there are any questions concerning the south slope, please feel free to contact me (Carl Q.) or our office at (970) 241-4611

PST

Sept. 23. 1987:

P.S. I [illegible] the [illegible]
[illegible] [illegible] [illegible]
[illegible] [illegible] U.K [illegible]
[illegible] [illegible] (Sept 23. 1987). [illegible]
[illegible] U.K [illegible]
[illegible] [illegible] [illegible]
[illegible]

Professional Service Industries, Inc.
Shilstone Engineering Testing Laboratory Division

REPORT OF FIELD COMPACTION TESTS

TESTED FOR San Miguel Coop PROJECT 1A Pond

DATE 7-22-87 OUR REPORT NO 311 –

TEST DATA: O.M.C. 37.7

TEST NO	DATE	ELEV / DEPTH	SOIL & NUMBER	MAXIMUM LABORATORY DENSITY	WATER CONTENT	IN PLACE DRY DENSITY	PER CENT COMPACTION	COMMENT
1	7-22-87	GRADE		77.9	37.5	74.5	95.6	
2	↓	↓		↓	29.3	80.8	103.7	
3	↓	↓		↓	34.5	78.8	100+	

TEST LOCATION: 1A POND

1 TEST TAKEN IN 1800' – 1900' AREA – 30'S. OF NORTH SLOPE AND 20' WEST of 1800' MARK.

2 " " " " " " – 40'S. OF NORTH SLOPE AND 30' WEST of 1900' MARK

3 " " " " " " – 20'N. of South SLOPE AND 0' EAST of 1900' MARK.

TEST TAKEN TO CHECK Moisture CONTENT! (NOT A RECONSTRUCTED AREA)

	A	B	C	D	E	F	G	H	I
Test No	Probe Depth	Density Count	Density Ratio	Wet Density	Moisture Count	Moisture Ratio	Moisture PCF	Water Content	Dry Density	Percent Compactn
1	8"	2453	0.405	102.5	2468	0.670	28.00	37.5	74.5	95.6
2	↓	2374	0.392	104.5	2113	0.574	23.75	29.3	80.8	103.7
3	↓	2348	0.388	106.0	2406	0.653	27.25	34.5	78.8	100+

NOTES: (PSI NOTES SHOWN ON REPORT ONLY)
WATER CONTENT: Per Cent of dry weight
PERCENT COMPACTION: Based on maximum dry density obtained on sample indicated by soil ID number

REMARKS:

1 FILL MATERIAL
2 BACKFILL
3 BASE COURSE
4 SUBBASE
5 SOIL CEMENT
6 OTHER

A TEST RESULTS COMPLY WITH SPECIFICATIONS
B RECOMPACTION REQUIRED 6048
C TEST #'S AFTER RECOMPACTION 3680
D. Moisture in excess of specs
E. Moisture below specs

Professional Service Industries, Inc.
Shilstone Engineering Testing Laboratory Division

REPORT OF FIELD COMPACTION TESTS

ED FOR: San Miguel Coop (NEW DRIVE) PROJECT: 1A Pond

DATE 7-24-97 OUR REPORT NO 311-

TEST DATA: 37.9, 28.2

TEST NO	DATE	ELEV / DEPTH	SOIL ID NUMBER	MAXIMUM LAB DRY DENSITY	WATER CONTENT	IN PLACE DRY DENSITY	PER CENT COMPACTION	COMMENT*
1	7-24-97	GRADE	2	92.5	28.2	95.2	99.1	1-E
2	↓	↓	↓	↓	29.1	86.8	102.3	↓

TEST LOCATION:

1	1200'
2	1200'

A Test No.	B Probe Depth	C Density Count	D Density Ratio	E Wet Density	F Moisture Count	G Moisture Ratio	H Moisture PCF	I Water Content	J Dry Density	K Percent Compact
1	6"	2738	1.448	107.5	2215	0584	34.25	28.2	95.2	99.1
2	↓	2221	1.357	113.5	2350	0.625	2600	29.1	88.8	102.3

NOTES: DENSITIES SHOWN: Lbs. per cubic foot
WATER CONTENT: Per Cent of dry weight
PERCENT COMPACTION: Based on maximum dry density obtained on sample indicated by soil ID number

1 FILL MATERIAL
2 BACKFILL
3 BASE COURSE
4 SUBBASE
5 SOIL CEMENT
6 OTHER

A TEST RESULTS COMPLY WITH SPECIFICATIONS
B RECOMPACTION REQUIRED
C TEST IS AFTER RECOMPACTION
D moisture in excess of specs
E moisture below specs

REMARKS:

Professional Service Industries, Inc.
Shilstone Engineering Testing Laboratory Division

REPORT OF FIELD COMPACTION TESTS

FOR: San Miguel Coop PROJECT: 1A Pond

DATE 7-28-87 (New Proctor) OUR REPORT NO: 311 –

TEST DATA: 28.2

TEST NO	DATE	ELEV DEPTH	SOIL ID NUMBER	MAXIMUM LAB DRY DENSITY	WATER CONTENT	IN PLACE DRY DENSITY	PERCENT COMPACTION	COMMENTS
1	7-24-87	GRADE	1	86.6	23.0	88.3	101.7	[illegible]
2	↓	↓	↓	↓	21.5	[illegible]	100	[illegible]

TEST LOCATION: SOUTH SLOPE

1 [illegible] 1200' [illegible]

2 15' [illegible] 1300' [illegible]

	A	B	C	D	E	F	G	H	I
Test No	Probe Depth	Density Count	Density Ratio	Wet Density	Moisture Count	Moisture Ratio	Moisture PCF	Water Content	Dry Density	Percent Compacti
1	6"	7341	1.291	113.0	2291	0.403	24.75	23.0	88.3	101.7
2	↓	11177	1.965	113.5	2268	0.590	24.50	21.5	89.0	102.5

NOTES: DENSITIES SHOWN: Lbs. per cubic foot
WATER CONTENT: Per Cent of dry weight
PERCENT COMPACTION: Based on maximum dry density obtained on soil(s) indicated by soil ID number

1 FILL MATERIAL
2 BACKFILL
3 BASE COURSE
4 SUBBASE
5 SOIL CEMENT
6 OTHER

A TEST RESULTS COMPLY WITH SPECIFICATIONS
B RECOMPACTION REQUIRED
C TEST IS AFTER RECOMPACTION
D. moisture in excess of specs
E. moisture below specs

REMARKS: Test 1 & 2 [illegible]

Professional Service Industries, Inc.
Shilstone Engineering Testing Laboratory Division

REPORT OF FIELD COMPACTION TESTS

REPORTED FOR: San Miguel Coop PROJECT: SMC 1A Pond

DATE 7-29-87 NEW PROJECT OUR REPORT NO 31[illegible]

TEST DATA: 22.2

TEST NO	DATE	ELEV / DEPTH / GRADE	SOIL ID NUMBER	MAXIMUM LAB DRY DENSITY	WATER CONTENT	IN PLACE DRY DENSITY	PER CENT COMPACTION	COMMENT *
1	7-29-87	GRADE	7	86.8	31.5	82.5	95.0	1-A
2					32.1	82.5	95.0	
3					33.5	85.0	97.9	
4					31.9	86.0	99.0	
5					32.9	85.0	97.9	
6					33.1	85.3	98.2	

TEST LOCATION: SOUTH SLOPE STA. 900'-1000', 1000'-1100', 1100-1200' (300' AREA PER DAY)

1	25' WEST of STA. 900' and 40' from bottom of slope
2	70' WEST of STA. 900' and 20' from Top of slope
3	30' WEST of STA. 1000' and 30' from bottom of slope
4	20' EAST of STA. 1100' and 20' from Top of slope
5	10' WEST of STA. 1100' and 10' from Bottom of slope
6	25' EAST of STA. 1200' and 30' from Top of slope

	A	B	C	D	E	F	G	H	I
Test No.	Probe Depth	Density Count	Density Ratio	Wet Density	Moisture Count	Moisture Ratio	Moisture PCF	Water Content	Dry Density	Percent Compacti
1	6"	8575	1.412	108.5	2092	0.628	26.00	31.5	82.5	95.0
2		8547	1.407	109.0	2128	0.639	26.50	32.1	82.5	95.0
3		7738	1.274	113.5	2271	0.682	28.50	33.5	85.0	97.9
4		7810	1.286	113.5	2199	0.660	27.50	31.9	86.0	99.0
5		7840	1.291	113.0	2230	0.669	28.00	32.9	85.0	97.9
6		7795	1.283	113.5	2245	0.674	28.25	33.1	85.3	98.2

NOTES: DENSITIES SHOWN ARE per cubic foot
WATER CONTENT Per Cent of dry weight
PERCENT COMPACTION Based on maximum dry density obtained on sample indicated by soil ID number

1 FILL MATERIAL
2 BACKFILL
3 BASE COURSE
4 SUBBASE
5 SOIL CEMENT
6 OTHER

A TEST RESULTS COMPLY WITH SPECIFICATIONS
B RECOMPACTION REQUIRED 6078
C TEST IS AFTER RECOMPACTION 3329
D. Moisture in excess of specs
E. Moisture below specs

FORM 1133-R-2

Professional Service Industries, Inc.
Shilstone Engineering Testing Laboratory Division

REPORT OF FIELD COMPACTION TESTS

ISSUED FOR: San Miguel Coop PROJECT: SNC 1A Pond

DATE: 7-29-87 OUR REPORT NO 311—

TEST DATA: OM = 28.2

TEST NO	DATE	FILL DEPTH	SOIL ID NUMBER	MAXIMUM LAB DRY DENSITY	WATER CONTENT	IN PLACE DRY DENSITY	PER CENT COMPACTION	COMMENTS *
7	7-29-87	1st LIFT	2	86.8	31.7	82.8	95.3	1-A
8					31.9	84.5	97.3	
9					31.7	85.0	99.9	
10					34.5	84.0	96.7	
11					35.5	83.0	95.6	
12	↓	↓	↓	↓	33.9	84.0	96.7	↓

TEST LOCATION: SOUTH SLOPE STA. 900 - 1200' (300' AREA/DAY)

7	30' WEST of STA. 900' and 45' from bottom of slope
8	20' EAST of STA. 1000' and 20' from top of slope
9	35' WEST of STA. 1000' and 15' from TOP of slope
10	20' EAST of STA. 1100' and 20' from Bottom of slope
11	50' WEST of STA. 1100' and 25' from bottom of slope
12	10' EAST of STA. 1200' and 30' from top of slope

	A	B	C	D	E	F	G	H	I
Test No.	Probe Depth	Density Count	Density Ratio	Wet Density	Moisture Count	Moisture Ratio	Moisture PCF	Water Content	Dry Density	Percent Compact
7	6"	8514	1.402	109.0	2097	0.629	26.25	31.7	82.8	95.3
8		8082	1.331	111.5	2167	0.650	27.00	31.9	84.5	97.3
9		8039	1.323	112.0	2169	0.651	27.00	31.7	85.0	99.9
10		7871	1.296	113.0	2310	0.693	29.00	34.5	84.0	96.7
11		7970	1.312	112.5	2351	0.706	29.50	35.5	83.0	95.6
12	↓	7931	1.306	112.5	2265	0.680	28.50	33.9	84.0	96.7

Computations

NOTES: DENSITIES SHOWN Lbs per cubic foot
WATER CONTENT Per Cent of dry weight
PERCENT COMPACTION Based on maximum dry density obtained on sample indicated by soil ID number

1 FILL MATERIAL
2 BACKFILL
3 BASE COURSE
4 SUBBASE
5 SOIL CEMENT
6 OTHER

A TEST RESULTS COMPLY WITH SPECIFICATIONS
B RECOMPACTION REQUIRED
C TEST IS AFTER RECOMPACTION
D. Moisture in excess of specs
E. Moisture below specs

Copies: 3329

Professional Service Industries, Inc.
Shilstone Engineering Testing Laboratory Division

REPORT OF FIELD COMPACTION TESTS

REPORTED FOR: San Miguel Coop PROJECT: SMC - 1A POND

DATE: 7-29-87 NEW PROCTOR OUR REPORT NO 311-

TEST DATA: O.M.C. 28.2

TEST NO	DATE	ELEV OFFSET	SOIL ID NUMBER	MAXIMUM LAB DRY DENSITY	WATER CONTENT	IN PLACE DRY DENSITY	PER CENT COMPACTION	COMMENT
13	7-29-87	2nd Lift	5	86.8	31.2	84.5	97.3	1-A
14					32.5	83.8	96.6	
15					33.7	83.7	96.5	
16					31.2	83.7	96.5	
17					32.7	83.3	95.9	
18					33.1	83.6	96.4	

TEST LOCATION: SOUTH SLOPE 900'-1200' (300' AREA / DAY)

13	25' WEST OF STA. 900' and 25' from Top of SLOPE
14	40' EAST of STA. 1000' and 40' from bottom of slope
15	45' WEST of STA. 1000' and 30' from Top of Slope
16	40' EAST of STA. 1100' and 20' from bottom of slope
17	35' WEST of STA. 1100' and 30' from Top of Slope
18	45' EAST of STA. 1200' and 15' from bottom of slope

	A	B	C	D	E	F	G	H	I
Test No.	Probe Depth	Density Count	Density Ratio	Wet Density	Moisture Count	Moisture Ratio	Moisture PCF	Water Content	Dry Density	Percent Compacti
13	6"	8291	1.365	110.5	2085	0.626	26.00	31.2	84.5	97.3
14		8190	1348	111.0	2175	0.653	27.25	32.5	83.8	96.6
15		7983	1.314	112.0	[illegible]	0.688	28.15	33.7	83.8	96.5
16		8560	1.409	109.0	2093	0.607	25.25	31.2	83.8	96.5
17		8250	1358	110.5	2183	0.655	27.25	32.7	83.3	95.9
18	↓	8135	1339	111.5	2205	0.662	27.75	33.1	83.8	96.4

NOTES: DENSITIES SHOWN Lbs per cubic foot
WATER CONTENT Per Cent of dry weight
PERCENT COMPACTION Based on maximum dry density obtained on sample indicated by soil ID number

REMARKS: TEST 6.0

1 FILL MATERIAL
2 BACKFILL
3 BASE COURSE
4 SUBBASE
5 SOIL CEMENT
6 OTHER

A TEST RESULTS COMPLY WITH SPECIFICATIONS
B RECOMPACTION REQUIRED 6072
C TEST IS AFTER RECOMPACTION 3329
D. Moisture in excess of specs
E. Moisture below specs

Professional Service Industries, Inc.
Shilstone Engineering Testing Laboratory Division

REPORT OF FIELD COMPACTION TESTS

CLIENT FOR San Miguel Coop PROJECT SMC 1A Road

DATE 7-29-87 OUR REPORT NO: 311-

TEST DATA: O.M.C. 28.2

TEST NO	DATE	ELEV / DEPTH	SOIL ID NUMBER	MAXIMUM LAB DRY DENSITY	WATER CONTENT	IN PLACE DRY DENSITY	PER CENT COMPACTION	COMMENT *
19	7-29-87	Final LIA	?	86.8	33.5	85.0	97.9	1-A
20					35.8	81.0	95.0	
21					33.5	84.3	96.0	
22					32.5	84.5	97.3	
23					31.3	83.3	95.9	
24					30.7	83.8	96.4	

TEST LOCATION: SOUTH SLOPE STA 900'-1200' (300' AREA/DAY)

19	30' WEST of STA. 900' and 20' from Top of slope
20	20' EAST of STA. 1000' and 15 from bottom of slope
21	10' WEST of STA. 1000' and 20' from top of slope
22	40' East of STA. 1100' and 25' from bottom of slope
23	55' WEST of STA. 1100' and 15' from top of slope
24	30' EAST of STA. 1200' and 15' from bottom of slope

	A	B	C	D	E	F	G	H	I
Test No.	Probe Depth	Density Count	Density Ratio	Wet Density	Moisture Count	Moisture Ratio	Moisture PCF	Water Content	Dry Density	Percent Compacti
19	6"	7842	1.291	113.5	2260	0.678	28.50	33.5	85.0	97.9
20		7890	1.370	110.0	2305	0.692	29.00	35.8	81.0	95.0
21		7954	1.309	112.5	2254	0.677	28.25	33.5	84.3	96.0
22		8032	1.322	112.0	2193	0.658	27.50	32.5	84.5	97.3
23		8591	1.414	108.5	2035	0.611	25.25	31.3	83.3	95.9
24		8432	1.388	109.5	2060	0.618	25.75	30.7	83.8	96.4

computer runs

NOTES: DENSITIES SHOWN: lbs per cubic foot
WATER CONTENT: Per Cent of dry weight
PERCENT COMPACTION: Based on maximum dry density obtained on sample indicated by soil ID number

REMARKS:

1 FILL MATERIAL
2 BACKFILL
3 BASE COURSE
4 SUBBASE
5 SOIL CEMENT
6 OTHER

A TEST RESULTS COMPLY WITH SPECIFICATIONS
B RECOMPACTION REQUIRED 6072
C TEST IS AFTER RECOMPACTION 3329

D. Moisture in excess of specs
E. Moisture below spec

Professional Service Industries, Inc.
Shilstone Engineering Testing Laboratory Division

REPORT OF FIELD COMPACTION TESTS

FOR San Miguel Cap PROJECT: SMC 1A POND

DATE 7-30-87 NEW PROCTOR OUR REPORT NO 311-

TEST DATA: (282)

TEST NO	DATE	DEPTH / DESCRIPTION	SOIL ID NUMBER	MAXIMUM LAB DRY DENSITY	WATER CONTENT	IN PLACE DRY DENSITY	PER CENT COMPACTION	COMMENT
1	7-30-87	GRADE	?	86.8	33.1	85.3	98.2	1-A 1 TEST/100' SECTION REQUIRED
2	"	"	"	"	31.9	86.0	99.0	"
3	"	"	"	"	33.1	83.8	96.5	"
4	"	1st Lift	"	"	33.2	85.3	98.2	"
5	"	"	"	"	32.1	82.5	95.0	"
6	"	"	"	"	30.4	85.5	98.5	"

TEST LOCATION. SOUTH SLOPE - 1300'-1500' (300' AREA 1 DAY)

1	30' WEST OF STA. 1500' AND 30' FROM BOTTOM OF SLOPE
2	40' WEST OF STA. 1400' AND 45' FROM BOTTOM OF SLOPE
3	25' WEST OF STA. 1500' AND 20' FROM BOTTOM OF SLOPE
4	20' WEST OF STA. 1300' AND 15' FROM BOTTOM OF SLOPE
5	30' WEST OF STA. 1400' AND 30' FROM BOTTOM OF SLOPE
6	60' WEST OF STA. 1500' AND 30' FROM TOP OF SLOPE

	A	B	C	D	E	F	G	H	I
Test No.	Probe Depth	Density Count	Density Ratio	Wet Density	Moisture Count	Moisture Ratio	Moisture PCF	Water Content	Dry Density	Percent Compaction
1	6"	7796	1.283	113.5	2248	0.675	28.25	33.1	85.3	98.2
2	"	7751	1.276	113.5	2190	0.659	27.50	31.9	86.0	99.0
3	"	8113	1.336	111.5	2222	0.667	27.75	33.1	83.8	96.5
4	"	7831	1.289	113.5	2242	0.673	28.25	33.2	85.3	98.2
5	"	8560	1.409	109.0	2120	0.636	26.50	32.1	82.5	95.0
6	"	8122	1.337	111.5	2084	0.626	26.00	30.4	85.5	98.5

NOTES: DENSITIES SHOWN Lbs. per cubic foot
WATER CONTENT Per Cent of dry weight
PERCENT COMPACTION Based on maximum dry density obtained on sample indicated by soil ID number

Remarks: TECH G.O.

1 FILL MATERIAL
2 BACKFILL
3 BASE COURSE
4 SUBGRADE
5 SOIL CEMENT
6 OTHER

A TEST RESULTS COMPLY WITH SPECIFICATIONS
B RECOMPACTION REQUIRED 6072
C TEST IS AFTER RECOMPACTION 3329
D. Moisture in excess of Spec.
E. Moisture below spec.

Shilstone Engineering Testing Laboratory Division

REPORT OF FIELD COMPACTION TESTS

FOR: San Miguel Coop PROJECT: SMC. 1A Pond

DATE 7-30-87 OUR REPORT NO. 311—

TEST DATA: 28.2

TEST NO	DATE	ELEV / DEPTH	SOIL ID NUMBER	MAXIMUM DRY DENSITY	WATER CONTENT	IN PLACE DRY DENSITY	PER CENT COMPACTION	COMMENTS
7	7-30-87	2nd Lift	1	86.8	30.9	85.5	98.5	1-1
8					31.0	83.3	95.9	
9					33.1	83.8	96.5	
10		Final			32.1	83.[illegible]	96.3	
11					32.[illegible]	83.[illegible]	[illegible]	
12					[illegible]	83.[illegible]	96.1	

TEST LOCATION: SOUTH SLOPE (1300'-1500') 300' AREA / DAY

7	15' WEST of STA 1300' and 25' from top of slope.
8	35' WEST of STA 1400' and 30' from bottom of slope
1	150' WEST of STA. 1500' and 20' from bottom of slope
10	30' WEST of STA. 1300' and 15' from bottom of slope
11	90' WEST of STA. 1400' and 20' from top of slope
12	60' WEST of STA. 1500' and 30' from top of slope

	A	B	C	D	E	F	G	H	I
Test No.	Probe Depth	Density Count	Density Ratio	Wet Density	Moisture Count	Moisture Ratio	Moisture PCF	Water Content	Dry Density	Percent Compact
7	6"	8063	1.327	112.0	2127	0.638	26.50	30.9	85.5	98.5
8		8467	1.394	1[illegible]90	20[illegible]0	0.615	25.75	31.0	83.3	95.9
9		8130	1.338	11[illegible]5	22[illegible]15	0.665	27.75	33.1	83.8	96.5
10		8[illegible]1	1.3[illegible]	[illegible]	3[illegible]16	[illegible]	[illegible]	[illegible]		[illegible]
11		[illegible]	[illegible]	[illegible]	[illegible]	[illegible]		[illegible]	[illegible]	[illegible]
12		7[illegible]2	1.2[illegible]	1[illegible]7	21[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]

NOTES: DENSITIES SHOWN IN pounds per cubic foot
WATER CONTENT: Per Cent of dry weight
PERCENT COMPACTION: Based on maximum dry density obtained on sample indicated by soil ID number

1 FILL MATERIAL
2 BACKFILL
3 BASE COURSE
4 SUBBASE
5 SOIL CEMENT
6 Other

A TEST RESULTS COMPLY WITH SPECIFICATIONS
B RECOMPACTION REQUIRED
C TEST IS AFTER RECOMPACTION
D. moisture in excess of specs
E. moisture below specs

6071
3329

Technician
Tech. 6, 10

Professional Service Industries, Inc.
Shilstone Engineering Testing Laboratory Division

REPORT OF FIELD COMPACTION TESTS

TESTED FOR San Miguel Coop PROJECT SMC 1A Pond

DATE 7-31-87 OUR REPORT NO 311-

TEST DATA: 28.2

TEST NO	DATE	FILL DEPTH	SOIL CLASS NUMBER	MAXIMUM LAB DRY DENSITY	WATER CONTENT	IN PLACE DRY DENSITY	PERCENT COMPACTION	COMMENTS
1	7-31-87	GRADE	5	86.8	30.2	86.0	99.0	1-A
2					30.3	79.0	91.0	1-B
3					30.6	86.8	100.0	1-A
4		GRADE			30.9	86.3	99.4	1-AC
5					32.5	85.3	98.2	1-A
6								

TEST LOCATION: SOUTH SLOPE 1600'-1800' STA. AREA

1	20' West of STA. [illegible] Top of Slope
2	35' West of STA. 1700' and 25' from bottom of slope
3	45' West of STA. 1600' and 35' from bottom of slope
4	Repeat of Test = 2
5	30' West of STA. 1600' and 35' from bottom of slope
6	40' West of STA. 1700' and 40' from top of slope

	A	B	C	D	E	F	G	H	I
Test No.	Probe Depth	Density Count	Density Ratio	Wet Density	Moisture Count	Moisture Ratio	Moisture PCF	Water Content	Dry Density	Percent Compacti
1	6"	7899	1.300	112.5	2023	0.637	26.50	30.8	86.0	99.0
2		9613	1.583	103.0	1937	0.581	24.00	30.3	79.0	91.0
3		7966	1.311	112.5	2067	0.620	25.75	30.6	86.8	100.0
4		7830	1.294	110	2149	0.645	26.75	30.9	86.3	99.4
5		7950	1.309	112.5	2183	0.655	27.25	32.5	85.3	98.2
6		8548	1.407	109.0	2075	0.623	26.00	31.3	83.0	95.6

Computerized

NOTES: DENSITIES SHOWN: Lbs. per cubic foot
WATER CONTENT: Per Cent of dry weight
PERCENT COMPACTION: Based on maximum dry density obtained on sample indicated by solid number

REMARKS:

1 FILL MATERIAL
2 BACKFILL
3 BASE COURSE
4 SUBBASE
5 SOIL CEMENT
6 OTHER

A TEST RESULTS COMPLY WITH SPECIFICATIONS
B RE-COMPACTION REQUIRED 6073
C TEST AFTER RE-COMPACTION 3329
D. Moisture in excess of specs
E. Moisture below specs

Professional Service Industries, Inc.
Shilstone Engineering Testing Laboratory Division

REPORT OF FIELD COMPACTION TESTS

REPORTED FOR San Miguel Coop PROJECT SMC 1A Pond

DATE 7-31-87 OUR REPORT NO 311-

TEST DATA: OMC - 28.2

TEST NO	DATE	ELEV / DEPTH	SOILS NUMBER	MAXIMUM LAB DRY DENSITY	WATER CONTENT	IN PLACE DRY DENSITY	PERCENT COMPACTION	COMMENTS
7	7-31-87	1st Lift	?	86.8	30.5	83.5	96.1	1-A
8		2nd Lift			31.7	85.8	98.8	
9					32.1	85.5	98.5	
10					32.1	85.5	98.5	
11		Final			33.9	82.5	95.0	
12					31.2	[illegible]	95.1	

TEST LOCATION: South Slope [illegible] 3rd Area/Day

7 50' West of [illegible]

8 65' West of [illegible]

9 [illegible]

10 [illegible]

11 50' West [illegible]

12 50' West [illegible]

	A	B	C	D	E	F	G	H	I
Test No.	Probe Depth	Density Count	Density Ratio	Wet Density	Moisture Count	Moisture Ratio	Moisture PCF	Water Content	Dry Density	Percent Compact
7	6"	8520	1.403	109.0	2097	0.611	25.50	30.5	83.5	96.1
8		7911	1.305	113.0	2184	0.656	27.25	31.7	85.8	98.8
9		7914	1.303	113.0	2190	0.657	27.50	32.1	85.5	98.5
10		7890	1.299	113.0	2196	0.659	27.50	32.1	85.5	98.5
11		8448	1.391	109.5	2232	0.670	28.00	33.9	82.5	95.0
12		8290	1.365	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	95.1

NOTES: DENSITIES SHOWN ARE PER CUBIC FOOT
WATER CONTENT: Per Cent (Dry weight)
PERCENT COMPACTION: Based on maximum dry density obtained on sample identified by soil(s) number

1 FILL MATERIAL
2 BACKFILL
3 BASE COURSE
4 SUBBASE
5 SOIL CEMENT
6 OTHER

A TEST RESULTS COMPLY WITH SPECIFICATIONS
B RECOMPACTION REQUIRED 6911, 3329
C TEST IS AFTER RECOMPACTION
D. moisture in excess of specs
E. Moisture below specs

REMARKS

Professional Service Industries, Inc.
Shilstone Engineering Testing Laboratory Division

REPORT OF FIELD COMPACTION TESTS

ED FOR San Miguel Coop PROJECT SMC 1A Pond

DATE 7-31-87 OUR REPORT NO 31-

TEST DATA: 282

TEST NO	DATE	ELEV / DEPTH	SOIL ID NUMBER	MAXIMUM LAB DRY DENSITY	WATER CONTENT	IN PLACE DRY DENSITY	PERCENT COMPACTION	COMMENTS*
13	7-31-87	Fill	7	86.8	33.5	82.5	95.3	1-A

TEST LOCATION: [illegible]

13 [illegible] SW corner of Pond #1 [illegible] NW corner of Pond #2

Test No	Probe Depth	Density Count	Density Ratio	Wet Density	Moisture Count	Moisture Ratio	Moisture PCF	Water Content	Dry Density	Percent Compacti
	A	B	C	D	E	F	G	H	I	
13	6"	[illegible]	1.34	[illegible]	[illegible]	[illegible]	27.75	33.5	82.5	95.3

NOTES: DENSITIES SHOWN: Lbs. per cubic foot
WATER CONTENT: Per Cent of dry weight
PERCENT COMPACTION: Based on maximum dry density obtained on sample indicated by soil ID number

1 FILL MATERIAL
2 BACKFILL
3 BASE COURSE
4 SUBBASE
5 SOIL CEMENT
6 OTHER

A TEST RESULTS CONFORM WITH SPECIFICATIONS
B RECOMPACTION REQUIRED
C TEST IS AFTER RECOMPACTION
D. Moisture in excess of specs
E. Moisture below specs

REMARKS: Tech: C.M.

Professional Service Industries, Inc.
Shilstone Engineering Testing Laboratory Division

REPORT OF FIELD COMPACTION TESTS

FURNISHED FOR San Miguel Coop PROJECT SMCIA Pond

DATE 8-3-87 OUR REPORT NO. 311 –

TEST DATA: O.M.C. (5, 28.2)

TEST NO	DATE	DEPTH / ELEV	SOIL ID NUMBER	MAXIMUM LAB DRY DENSITY	WATER CONTENT	IN PLACE DRY DENSITY	PERCENT COMPACTION	COMMENT *
1	8-3-87	GRADE	5	86.8	30.9	83.3	95.9	1-A
2					30.8	86.0	99.0	
3					30.7	84.5	97.3	
4		1ST LIFT			30.8	84.5	97.3	1-A
5					33.3	82.5	95.0	
6					32.9	84.3	97.1	

TEST LOCATION: SOUTH SLOPE 1900' - 2100' (300 feet in / DEV)

1. 35' WEST OF STA. 1900' AND 30' FROM TOP OF SLOPE
2. 45' WEST OF STA. 2000' AND 25' FROM BOTTOM OF SLOPE.
3. 60' WEST OF STA. 2100' AND 35' FROM TOP OF SLOPE
4. 65' WEST OF STA. 1900' AND 20' FROM BOTTOM OF SLOPE
5. 70' WEST OF STA. 2000' AND 40' FROM TOP OF SLOPE
6. 20' WEST OF STA. 2100' AND 25' FROM BOTTOM OF SLOPE

	A	B	C	D	E	F	G	H	I
Test No.	Probe Depth	Density Count	Density Ratio	Wet Density	Moisture Count	Moisture Ratio	Moisture PCF	Water Content	Dry Density	Percent Compact
1	6"	8538	1.406	109.0	2067	0.620	25.75	30.9	83.3	95.9
2	|	7943	1.308	112.5	2118	0.636	26.50	30.8	86.0	99.0
3	|	8395	1.382	110.0	2038	0.612	25.50	30.7	84.5	97.3
4	8"	5279	0.869	110.5	2089	0.627	26.00	30.8	84.5	97.3
5	|	5311	0.874	110.0	2232	0.670	27.50	33.3	82.5	95.0
6	↓	5095	0.835	111.5	2165	0.650	27.25	32.9	84.3	97.1

Computations

NOTES: DENSITIES SHOWN: Lbs. per cubic foot
WATER CONTENT: Per Cent of dry weight
PERCENT COMPACTION: Based on maximum dry density obtained on sample indicated by soil ID number

1 FILL MATERIAL
2 BACKFILL
3 BASE COURSE
4 SUBBASE
5 SOIL CEMENT
6 OTHER

A TEST RESULTS COMPLY WITH SPECIFICATIONS
B RECOMPACTION REQUIRED 6072
C TEST IS AFTER RECOMPACTION 3329
D. Moisture in excess of specs
E. Moisture below specs

REMARKS:

Professional Service Industries, Inc.
Shilstone Engineering Testing Laboratory Division

REPORT OF FIELD COMPACTION TESTS

TESTED FOR: San Miguel Coop PROJECT: SMC IA POND

DATE: 8-3-87 OUR REPORT NO: 311-

TEST DATA: OMC's, 28.2

TEST NO	DATE	ELEV / DEPTH	SOIL ID NUMBER	MAXIMUM LABORATORY DENSITY	WATER CONTENT	IN PLACE DRY DENSITY	PERCENT COMPACTION	COMMENTS
7	8-3-87	2nd Lift	5	86.8				
8	"	"	"	"				
9	"	"	"	"				
10	"	Final	"	"				
11	"	"	"	"				
12	"	"	"	"				

TEST LOCATION: Soil - Sil[illegible] (Sandstone Clay)

7	20' west of STA 1900' and 35' from top of slope
	40' West of STA. 2000' and 20' from bottom of slope
9	50' West of STA. 2100' and 40' from top of slope
10	65' west of STA. 1900' and 15' from bottom of slope
11	15' West of STA. 2000' and 30' from top of slope
12	10' west of STA. 2100' and 25' from bottom of slope

	A	B	C	D	E	F	G	H	I
Test No.	Probe Depth	Density Count	Density Ratio	Wet Density	Moisture Count	Moisture Ratio	Moisture PCF	Water Content	Dry Density	Percent Compacti
7	8"	5641			2080					
8	"	5065			2113					
9	"	5080			2185					
10	6"									
11	"									
12	"									

NOTES: DENSITIES SHOWN: lbs. per cubic foot
WATER CONTENT: Per Cent of dry weight
PERCENT COMPACTION: Based on maximum dry density obtained on sample indicated by soil ID number

1 FILL MATERIAL
2 BACKFILL
3 BASE COURSE
4 SUBBASE
5 SOIL CEMENT
6 OTHER

A TEST RESULTS COMPLY WITH SPECIFICATIONS
B RECOMPACTION REQUIRED 6077
C TEST AS AFTER RECOMPACTION 3329
D. Moisture in excess of specs
E. Moisture below specs

REVIEWED BY:

Professional Service Industries, Inc.
Shilstone Engineering Testing Laboratory Division

REPORT OF FIELD COMPACTION TESTS

REPORT FOR: San Miguel Coop PROJECT: SMC IA Pond

DATE: 8-4-87 OUR REPORT NO: 311-

TEST DATA: SMC (5, 28.2)

TEST NO	DATE	ELEV / DEPTH	SOIL ID NUMBER	MAXIMUM LABORATORY DENSITY	WATER CONTENT	IN PLACE DRY DENSITY	PERCENT COMPACTION	COMMENTS*
1	8-4-87	GRADE	5	86.8	35.5	82.3	95.0	1-A
2	"	GRADE	"	"	31.3	85.3	98.2	"
3	"	GRADE	"	"	32.3	84.8	97.6	"
4	"	GRADE	"	"	30.9	84.7	97.5	"
5	"	1st Lift	"	"	31.1	83.5	96.1	1-A
6	"	"	"	"	31.1	83.5	96.1	"

TEST LOCATION: SOIL CEMENT / SM. CONE OF SLOPE / (375 STATION) 2300' 2405'

1	25' WEST of STA. 2300' AND 5' from bottom of slope
2	40' [illegible] of STA. 2300' AND 35' from bottom of slope
3	50' WEST of STA. 2400' AND 25' from top of slope
4	10' NORTH of STA. 2405' and 35' from top of slope
5	40' WEST of STA. 2200' AND 30' from bottom of slope
6	15' WEST of STA. 2300' AND 20' from top of slope

	A	B	C	D	E	F	G	H	I
Test No.	Probe Depth	Density Count	Density Ratio	Wet Density	Moisture Count	Moisture Ratio	Moisture PCF	Water Content	Dry Density	Percent Compacti
1	8"	5135	0.845	111.5	2327	0.699	29.25	35.5	82.3	95.0
2	"	5036	0.837	112.9	2139	0.642	26.75	31.3	85.3	98.2
3	"	5086	0.837	112.0	2175	0.653	27.25	32.1	84.8	97.6
4	"	5770	0.851	111.0	2073	0.628	26.25	30.9	84.7	97.5
5	"	5347	0.880	109.5	2069	0.621	26.00	31.1	83.5	96.1
6	"	5379	0.885	109.5	2092	0.628	26.00	31.1	83.5	96.1

NOTES: DENSITIES SHOWN: Lbs. per cubic foot
WATER CONTENT: Per Cent of dry weight
PERCENT COMPACTION: Based on maximum dry density obtained on sample indicated by soil ID number

1 FILL MATERIAL
2 BACKFILL
3 BASE COURSE
4 SUBBASE
5 SOIL CEMENT
6 OTHER

A TEST RESULTS COMPLY WITH SPECIFICATIONS
B RECOMPACTION REQUIRED
C TEST IS AFTER RECOMPACTION
D. Moisture in excess of specs
E. Moisture below specs

REMARKS: Tests G.O

Professional Service Industries, Inc.
Shilstone Engineering Testing Laboratory Division

REPORT OF FIELD COMPACTION TESTS

TED FOR: San Miguel Coop PROJECT SMC 1A Pond

DATE 8-4-87 OUR REPORT NO. 311 -

TEST DATA: OMC (5,28.2)

TEST NO	DATE	ELEV / DEPTH	SOIL ID NUMBER	MAXIMUM LAB DRY DENSITY	WATER CONTENT	IN PLACE DRY DENSITY	PERCENT COMPACTION	COMMENTS
7	8-4-87	1st Lift	5	86.8	31.3	84.5	97.3	1-A
8		↓	↓	↓	33.3	84.0	96.7	↓
9		2ND LIFT			33.9	83.3	95.9	1-A
10					31.5	84.8	97.6	
11					33.1	83.8	96.5	
12	↓	↓	↓	↓	30.7	85.0	97.9	↓

TEST LOCATION: SOUTH SLOPE (SW CORNER OF SLOPE) 2200' - 2475'

7	65' west of STA. 2400' and 1' from bottom of slope
8	20' north of STA. 2475' and 3' from bottom of slope
9	60' west of STA. 2200' and 30' from top of slope
10	5' west of STA. 2300' and 40' from top of slope
11	70' west of STA. 2400' and 20' from bottom of slope
12	35' north of STA. 2475' and 45' from bottom of slope

	A	B	C	D	E	F	G	H	I
Test No.	Probe Depth	Density Count	Density Ratio	Wet Density	Moisture Count	Moisture Ratio	Moisture PCF	Water Content	Dry Density	Percent Compact
7	8"	5147	0.847	111.0	2124	0.633	26.50	31.3	84.5	97.3
8		5087	0.837	112.0	2231	0.670	28.00	33.3	84.0	96.7
9		5132	0.845	111.5	2262	0.679	28.25	33.9	83.3	95.9
10		5120	0.843	111.5	2128	0.639	26.75	31.5	84.8	97.6
11		5092	0.838	111.5	2198	0.660	27.75	33.1	83.8	96.5
12	↓	5170	0.851	111.0	2081	0.625	26.00	30.7	85.0	97.9

NOTES: DENSITIES SHOWN: Lbs. per cubic foot
WATER CONTENT: Per Cent of dry weight
PERCENT COMPACTION: Based on maximum dry density obtained on sample indicated by soil ID number above.

1 FILL MATERIAL
2 BACKFILL
3 BASE COURSE
4 SUBBASE
5 SOIL CEMENT
6 OTHER

A TEST RESULTS COMPLY WITH SPECIFICATIONS
B RECOMPACTION REQUIRED
C TEST IS AFTER RECOMPACTION
D. Moisture in excess of specs
E. Moisture below specs

Professional Service Industries, Inc.
Shilstone Engineering Testing Laboratory Division

REPORT OF FIELD COMPACTION TESTS

LD FOR San Miguel Coop / PROJECT: SMC 1A Pond

DATE: 8-4-87 OUR REPORT NO. 311 —

TEST DATA: OMC (5, 28.2)

TEST NO	DATE	ELEV / DEPTH	SOIL ID NUMBER	MAXIMUM DRY DENSITY	WATER CONTENT	IN PLACE DRY DENSITY	PERCENT COMPACTION	COMMENT*
13	8-4-87	Final	5	86.8	30.9	83.3	95.9	1-A
14					31.3	83.8	96.5	
15					30.7	83.8	96.5	
16					32.5	83.7	96.4	
17		3rd Lift			31.7	84.3	97.1	1-A
18		Final						

TEST LOCATION: [illegible] Section 1100' S.E. of 1375 Section 1100' S.E. of 2201-2475' 12

13	15' West of STA 2200' and 5' from bottom of slope
14	30' West of STA. 2200' and 5' from bottom of slope
15	50' West of STA 2200' and 40' from top of slope
16	40' North of STA. 2200' and 5' from bottom of slope
17	75' West of STA. 2200' and 5' from bottom of slope
18	65' West of STA. 2200' and 30' from bottom of slope

	A	B	C	D	E	F	G	H	I
Test No.	Probe Depth	Density Count	Density Ratio	Wet Density	Moisture Count	Moisture Ratio	Moisture PCF	Water Content	Dry Density	Percent Compacti
13	6"	8550	1.408	109.0	2072	0.622	25.75	30.9	83.3	95.9
14		8358	1.376	110.0	2112	0.634	26.25	31.3	83.8	96.5
15		8485	1.397	109.5	2065	0.620	25.75	30.7	83.8	96.5
16		8163	1.344	111.0	2190	0.657	27.25	32.5	83.7	96.4
17	8'	5186	0.854	111.0	2141	0.643	26.75	31.7	84.3	97.1
18	6'									

NOTES: DENSITIES SHOWN: Lbs. per cubic foot
WATER CONTENT: Per Cent of dry weight
PERCENT COMPACTION: Based on maximum dry density obtained on sample indicated by soil ID number

1 FILL MATERIAL
2 BACKFILL
3 BASE COURSE
4 SUBBASE
5 SOIL CEMENT
6 OTHER

A TEST RESULTS COMPLY WITH SPECIFICATIONS
B RECOMPACTION REQUIRED
C TEST IS AFTER RECOMPACTION
D. moisture in excess of specs
E. moisture below specs

Professional Service Industries, Inc.
Shilstone Engineering Testing Laboratory Division

REPORT OF FIELD COMPACTION TESTS

FOR: San Miguel Coop PROJECT: Lot 6 U.C.

DATE 8-5-87 OUR REPORT NO. 311

TEST DATA: O.M.C. 5, 28.2

TEST NO	DATE	DEPTH / ELEV	SOIL ID NUMBER	MAXIMUM LAB DRY DENSITY	WATER CONTENT	IN PLACE DRY DENSITY	PER CENT COMPACTION	COMMENT *
1	8-5-87	GRADE	5	86.8	30.9	84.0	96.7	1-A
2					29.6	85.3	98.2	1-E X
3					31.5	84.7	97.5	1-A
4		1st Lift			30.6	85.7	98.7	
5					31.3	84.5	97.3	
6					31.1	84.3	97.1	

TEST LOCATION: SOUTH SLOPE (STA. 600'-900') 300' SECTION/DAY ON SLOPE)

1	30' WEST OF STA. 600' AND 20' FROM BOTTOM OF SLOPE
2	50' WEST OF STA. 700' AND 30' FROM BOTTOM OF SLOPE
	70' WEST OF STA 800' AND 30' FROM TOP OF SLOPE
4	60' WEST OF STA. 600' AND 20' FROM TOP OF SLOPE
5	80' WEST OF STA '11+00' AND 35' FROM TOP OF SLOPE
6	30' WEST OF STA 900' AND 20' FROM BOTTOM OF SLOPE

	A	B	C	D	E	F	G	H	I
Test No.	Probe Depth	Density Count	Density Ratio	Wet Density	Moisture Count	Moisture Ratio	Moisture PCF	Water Content	Dry Density	Percent Compacti
1	8"	5280	0.869	1100	2095	0.629	26.00	30.9	84.0	96.7
2		5224	0.860	110.5	2030	0.609	25.25	29.6	85.3	98.2
3		5095	0839	111.5	2135	0.641	26.75	31.5	84.7	97.5
4		5050	0.831	112.0	2099	0.630	26.25	30.6	85.7	98.7
5		5179	0.852	111.0	2119	0.636	26.50	31.3	84.5	97.3
6		5272	0.868	110.5	2095	0.629	26.25	31.1	84.3	97.1

NOTES: DENSITIES SHOWN: Lbs. per cubic foot
WATER CONTENT: Per Cent of dry weight
PERCENT COMPACTION: Based on maximum dry density obtained on sample indicated by soil ID number

1 FILL MATERIAL
2 BACKFILL
3 BASE COURSE
4 SUBBASE
5 SOIL CEMENT
6 OTHER

A TEST RESULTS COMPLY WITH SPECIFICATIONS
B RECOMPACTION REQUIRED
C TEST IS AFTER RECOMPACTION
O. moisture in excess of specs
E. moisture below specs

Professional Service Industries, Inc.
Shilstone Engineering Testing Laboratory Division

REPORT OF FIELD COMPACTION TESTS

ED FOR: San Miguel Coop PROJECT: 1A Pond

DATE 8-5-87 OUR REPORT NO 311-

TEST DATA: O.M.C. (5, 28.2)

TEST NO	DATE	TEST DEPTH	SOIL ID NUMBER	MAXIMUM LAB DRY DENSITY	WATER CONTENT	IN PLACE DRY DENSITY	PER CENT COMPACTION	COMMENT*
7	8-5-87	2nd Lift	5	86.8	31.9	84.5	97.3	1-A
8					33.3	84.7	97.5	
9					32.3	85.0	97.9	
10		Final			33.	8[illegible]	[illegible]	
11					[illegible]	[illegible]		
12					[illegible]	[illegible]		

TEST LOCATION: SOUTH SLOPE (STA. 600'-900') (200' SECTION / DAY)

7	85' West of STA. 600' and 40' From bottom of Slope
9	20' West of STA. 700' and 15' From bottom of slope
4	10' West of STA. 800' and 45' From bottom of slope
10	15' West of STA. 600' and 15' From top of slope
11	35' West of STA. 700' and 35' From bottom of Slope
12	25' West of STA. 800' and 10' From top of slope

	A	B	C	D	E	F	G	H	I
Test No.	Probe Depth	Density Count	Density Ratio	Wet Density	Moisture Count	Moisture Ratio	Moisture PCF	Water Content	Dry Density	Percen Compact
7	8"	5160	0.849	111.5	2159	0.648	27.00	31.9	84.5	97.3
8	↓	4935	0.812	113.0	2260	0.678	28.25	33.3	84.7	97.5
9	↓	4985	0.820	112.5	2200	0.660	27.50	32.3	85.0	97.9
10	6"	8226	1.354	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
11	↓	7905	1.30[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
12	↓	8220	1.35[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]

Computations

NOTES: DENSITIES SHOWN Lbs. per cubic foot
WATER CONTENT Per Cent of dry weight
PERCENT COMPACTION Based on maximum dry density obtained on sample indicated by soil ID number

1 FILL MATERIAL
2 BACKFILL
3 BASE COURSE
4 SUBBASE
5 SOIL CEMENT
6 OTHER

A TEST RESULTS COMPLY WITH SPECIFICATIONS
B RECOMPACTION REQUIRED
C TEST IS AFTER RECOMPACTION
D. moisture in excess of specs
E. moisture below specs

Professional Service Industries, Inc.
Shilstone Engineering Testing Laboratory Division

REPORT OF FIELD COMPACTION TESTS

FOR: San Miguel Coop — PROJECT: SMC, EA Pond

DATE: 8-5-87 — OUR REPORT NO.: 311-

TEST DATA: O.M.C. = (5, 28.2)

TEST NO	DATE	DEPTH / ELEV	SOIL ID NUMBER	MAXIMUM LAB DRY DENSITY	WATER CONTENT	IN PLACE DRY DENSITY	PER CENT COMPACTION	COMMENTS
1	8-5-87	GRADE	5	86.8	35.7	82.5	95.0	1-A
2					32.1	85.5	98.5	
3					33.5	82.7	95.2	
4		1ST 1 FT			32.5	84.5	97.3	
5					33.0	82.5	95.0	
6					34.1	82.7	95.2	

TEST LOCATION: POND FLOOR BETWEEN STA. 1700' - 2000'

1	35' WEST OF STA. 1500' and 15' N. from toe of south slope
2	40' WEST OF STA. 1600' and 25' N. from toe of south slope
3	55' WEST of STA. 1700' and 20' N. from toe of south slope
4	65' WEST of STA. 1500' and 30' N. from toe of south slope
5	70' WEST of STA. 1600' and 10' N. from toe of south slope
6	85' WEST of STA. 1700' and 15' N. from toe of south slope

	A	B	C	D	E	F	G	H	I
Test No	Probe Depth	Density Count	Density Ratio	Wet Density	Moisture Count	Moisture Ratio	Moisture PCF	Water Content	Dry Density	Percent Compacti
1	8"	5085	0.837	112.0	2357	0.708	29.50	35.7	82.5	95.0
2		4965	0.817	113.0	2190	0.657	27.50	32.1	85.5	98.5
3		5382	0.886	110.5	2227	0.668	27.75	33.5	82.7	95.2
4		5065	0.834	112.0	2196	0.659	27.50	32.5	84.5	97.3
5		5347	0.883	109.5	2180	0.654	27.25	33.0	82.5	95.0
	↓	5254	0.865	111.0	2251	0.676	28.25	34.1	82.7	95.2

NOTES: DENSITIES SHOWN: lbs. per cubic foot
WATER CONTENT: Per Cent of dry weight
PERCENT COMPACTION: Based on maximum dry density obtained on sample indicated by soil ID number

1 FILL MATERIAL
2 BACKFILL
3 BASE COURSE
4 SUBBASE
5 SOIL CEMENT
6 OTHER

A TEST RESULTS COMPLY WITH SPECIFICATIONS
B RECOMPACTION REQUIRED
C TEST IS AFTER RECOMPACTION
D. moisture in excess of specs
E. moisture below specs

Professional Service Industries, Inc.
Shilstone Engineering Testing Laboratory Division

REPORT OF FIELD COMPACTION TESTS

FOR San Miguel Coop PROJECT IA Pond

DATE 8-5-87 OUR REPORT NO 311-

TEST DATA: OMC (5,282)

TEST NO	DATE	FLEV / DEPTH	SOIL ID NUMBER	MAXIMUM LAB DRY DENSITY	WATER CONTENT	IN PLACE DRY DENSITY	PERCENT COMPACTION	COMMENT *
7	8-5-87	GRADE	5	86.8	32.3	85.0	97.9	1-A
8					32.5	85.3	98.2	
9					31.3	86.0	99.0	
10					32.9	85.0	97.9	
11					32.7	84.0	96.7	
12	↓	↓	↓	↓	33.3	84.0	96.7	↓

TEST LOCATION: In D - 1st lift (STA 2000-2400', STA 1600')

7	10' West of STA 2000' and 80' N. from toe of south slope
8	20' West of STA 2100 and 10' N. from toe of south slope
9	35' West of STA 2200' and 5'N from toe of South slope.
10	15' West of STA 2300' and 5' N. From toe of South slope
11	35' West of STA 2400 and 25' N. From toe of south slope
12	45' West of STA 1600' and 20' N. From toe of south slope

	A	B	C	D	E	F	G	H	I
Test No	Probe Depth	Density Count	Density Ratio	Wet Density	Moisture Count	Moisture Ratio	Moisture PCF	Water Content	Dry Density	Percent Compactn
7	8"	4995	0.820	112.5	2190	0.657	27.50	32.3	85.0	97.9
8		4935	0.812	113.0	2210	0.663	27.75	32.5	85.3	98.2
9		4951	0.815	113.0	2165	0.650	27.00	31.3	86.0	99.0
10		4970	0.818	113.0	2235	0.671	28.00	32.9	85.0	97.9
11		5121	0.843	111.5	2198	0.660	27.50	32.7	84.0	96.7
12	↓	5065	0.834	112.0	2235	0.671	28.00	33.3	84.0	96.7

NOTES: DENSITIES SHOWN: Lbs per cubic foot
WATER CONTENT: Per Cent of dry weight
PERCENT COMPACTION: Based on maximum dry density obtained on Soil/Job indicated by soil ID number

1 FILL MATERIAL
2 BACKFILL
3 BASE COURSE
4 SUBBASE
5 SOIL CEMENT
6 OTHER

A TEST RESULTS COMPLY WITH SPECIFICATIONS
B RECOMPACTION REQUIRED
C TEST IS AFTER RECOMPACTION
D. moisture in excess of specs
E. moisture below specs

REMARKS:

Professional Service Industries, Inc.
Shilstone Engineering Testing Laboratory Division

REPORT OF FIELD COMPACTION TESTS

REPORTED FOR: San Miguel Coop PROJECT: SMC IA POND

DATE: 8-5-81 PSI REPORT NO: 311-

TEST DATA: OMC 28.2

TEST NO	DATE	ELEV / DEPTH	SOIL ID NUMBER	MAXIMUM LABORATORY DENSITY	WATER CONTENT	IN PLACE DRY DENSITY	PERCENT COMPACTION	COMMENT
1	8-5-81	GRADE	5	84.4	32.1	84.7	97.5	1-AC

TEST LOCATION: SOUTH SLOPE 1 STA. 620'-90'

1 Retest of Test #1 at Point 8" Fill in Sta 620'

Test No.	Probe Depth	Density Count	Density Ratio	Wet Density	Moisture Count	Moisture Ratio	Moisture PCF	Water Content	Dry Density	Percent Compacti
		A	B	C	D	E	F	G	H	I
1	8"	5031	0.828	112.0	2169	0.631	27.25	32.1	84.7	97.5

NOTES: DENSITIES SHOWN: Lbs per cubic foot
WATER CONTENT: Per Cent of dry weight
PERCENT COMPACTION: Based on maximum dry density obtained on sample identified by soil ID number

1 FILL MATERIAL
2 BACKFILL
3 BASE COURSE
4 SUBBASE
5 SOIL CEMENT
6 OTHER

A TEST RESULTS COMPLY WITH SPECIFICATIONS
B RECOMPACTION REQUIRED
C TEST IS AFTER RECOMPACTION

D. moisture in excess of specs
E. Moisture below specs

Professional Service Industries, Inc.
Shilstone Engineering Testing Laboratory Division

COMPACTION TESTS

PROJECT: SMC 1A Pond

OUR REPORT NO.: 311-

(5,28.2)

	TEST NO.	TEST DEPTH / BUILDING GRADE	SOIL ID NUMBER	MAXIMUM LAB DRY DENSITY	WATER CONTENT	IN PLACE DRY DENSITY	PERCENT COMPACTION	COMMENT *
	1	GRADE	5	86.8	31.4	83.7	96.4	1-A
	2	↓	↓	↓	30.6	84.3	97.1	↓
	3	1ST LIFT			30.7	85.7	98.7	
	4	↓			32.5	83.8	96.5	↓
	5	2ND LIFT			35.1	82.5	95.0	1-A
	6	↓	↓	↓	33.5	85.0	97.9	↓

TEST LOCATION: SOUTH SLOPE 400'-600' (200' SECTION)

1	40' WEST OF STA. 400' and 20' from bottom of slope
2	60' WEST OF STA. 500' and 10' from top of slope
3	20' WEST OF STA. 400' and 40' from bottom of slope
4	75' WEST OF STA. 500' and 30' from bottom of slope
5	10' WEST OF STA. 400' and 30' from bottom of slope
6	40' West of STA. 500' and 15' from bottom of slope

	A	B	C	D	E	F	G	H	I
Test No.	Probe Depth	Density Count	Density Ratio	Wet Density	Moisture Count	Moisture Ratio	Moisture PCF	Water Content	Dry Density	Percent Compact
1	8"	5294	0.871	110.0	2103	0.631	26.25	31.4	83.7	96.4
2	8"	5301	0.873	110.0	2061	0.619	25.75	30.6	84.3	97.1
3	8"	5052	0.832	112.0	2092	0.628	26.25	30.7	85.7	98.7
4	8"	5153	0.848	111.0	2180	0.654	27.25	32.5	83.8	96.5
5	8"	5049	0.849	111.5	2303	0.691	29.00	35.1	82.5	95.0
6	8"	4911	0.805	113.5	2265	0.680	28.50	33.5	85.0	97.9

Lbs. per cubic foot
Per Cent of dry weight
SION Based on maximum dry
ined on sample indicated by

1 FILL MATERIAL
2 BACKFILL
3 BASE COURSE
4 SUBBASE
5 SOIL CEMENT
6 OTHER

A TEST RESULTS COMPLY WITH SPECIFICATIONS
B RECOMPACTION REQUIRED
C TEST IS AFTER RECOMPACTION
D. moisture in excess of specs
E. moisture below specs

6.0

Professional Service Industries, Inc.
Shilstone Engineering Testing Laboratory Division

REPORT OF FIELD COMPACTION TESTS

ED FOR: SMC

PROJECT: IA Pond

DATE 8-6-87

OUR REPORT NO 311-

TEST DATA: O.M.C. (5, 28.2)

TEST NO	DATE	ELEV / DEPTH	SOIL ID NUMBER	MAXIMUM LAB DRY DENSITY	WATER CONTENT	IN PLACE DRY DENSITY	PERCENT COMPACTION	COMMENT*
7	8-6-87	Final	5	86.8	33.1	85.3	98.2	1-A
8	↓	↓	↓	↓	31.8	85.2	98.1	↓

TEST LOCATION: SOUTH SLOPE (400-605') (200 SECTION)

7 & 8: 75' West of STA. 400' and 15' from top of slope.
80' West of STA. 500' and 50' from bottom of slope

	A	b	c	D	E	F	G	H	I
Test No.	Probe Depth	Density Count	Density Ratio	Wet Density	Moisture Count	Moisture Ratio	Moisture PCF	Water Content	Dry Density	Percent Compacti
7	6"									
8	↓									

CORRELATIONS

NOTES: DENSITIES SHOWN: lbs. per cubic foot
WATER CONTENT: Per Cent of dry weight
PERCENT COMPACTION: Based on laboratory tests by ASTM and on sample indicated by soil ID number.

1 FILL MATERIAL
2 BACKFILL
3 BASE COURSE
4 SUBBASE
5 SOIL CEMENT
6 OTHER

A TEST RESULTS COMPLY WITH SPECIFICATIONS
B RECOMPACTION REQUIRED
C TEST IS AFTER RECOMPACTION
D. Moisture in excess of specs
E. Moisture below specs

Professional Service Industries, Inc.
Shilstone Engineering Testing Laboratory Division

REPORT OF FIELD COMPACTION TESTS

TED FOR San Miguel Coop PROJECT I A Pond

DATE 8-6-87 OUR REPORT NO. 311-

TEST DATA: OMC. +(5, 282)

TEST NO	DATE	ELEV / DEPTH	SOIL ID NUMBER	MAXIMUM LAB DRY DENSITY	WATER CONTENT	IN PLACE DRY DENSITY	PERCENT COMPACTION	COMMENTS
1	8-6-87	2nd Lift	5	86.8	34.1	85.0	98.0	1-A
2					34.7	84.2	97.3	
3					33.9	84.7	97.5	
4		1st Lift			32.7	84.8	97.6	
5					31.1	85.1	98.0	
6					33.9	84.8	97.6	

TEST LOCATION: Pond Floor STA. 1700' - 2200' (700' Section)

1. 25' West of STA 1700' and 30' N. from toe of South SLOPE
2. 40' West of STA. 1800' and 15' N. from toe of South SLOPE
3. 55' West of STA. 1900' and 25' N. from toe of South SLOPE
4. 30' West of STA. 2000' and 5' N. from toe of south slope
5. 70' West of STA. 2100' and 10' N. from toe of south slope
6. 60' West of STA. 2200' and 15' N. from toe of south slope

	A	B	C	D	E	F	G	H	I
Test No	Probe Depth	Density Count	Density Ratio	Wet Density	Moisture Count	Moisture Ratio	Moisture PCF	Water Content	Dry Density	Percen Compact
1	8"	4736	0.779	114.5	2313	0.694	29.00	34.1	85.0	98.(
2		4857	0.799	113.5	2328	0.699	29.25	34.7	84.2	97.3
3		4916	0.809	113.0	2287	0.686	28.75	33.9	84.7	97.5
4		4990	0.821	112.5	2207	0.662	27.75	32.7	84.8	97.6
5		5129	0.844	111.5	2123	0.637	26.50	31.1	85.1	98.0
6		4895	0.806	113.5	2296	0.689	28.75	33.9	84.8	97.6

Computations

NOTES: DENSITIES SHOWN lbs per cubic foot
WATER CONTENT Per Cent of dry weight
PERCENT OF COMPACTION Based on maximum dry density obtained on sample indicated by soil ID number

1 FILL MATERIAL
2 BACKFILL
3 BASE COURSE
4 SUBBASE
5 SOIL CEMENT
6 OTHER

A TEST RESULTS COMPLY WITH SPECIFICATIONS
B RECOMPACTION REQUIRED
C TEST IS AFTER RECOMPACTION
D. moisture in excess of specs
E. moisture below specs

over

Professional Service Industries, Inc.
Shilstone Engineering Testing Laboratory Division

REPORT OF FIELD COMPACTION TESTS

FOR: SMC PROJECT: I A Pond

DATE: 8-6-87 OUR REPORT NO.: 311-

TEST DATA: O.M.C. (5, 28.2)

TEST NO	DATE	ELEV / DEPTH	SOIL ID NUMBER	MAXIMUM LAB DRY DENSITY	WATER CONTENT	IN PLACE DRY DENSITY	PER CENT COMPACTION	COMMENT
7	8-6-87	1ST LIFT	5	86.8	30.9	85.5	98.5	1-A
8					32.9	85.8	98.8	
9					32.3	85.0	97.9	
10								
11								
12								

1ST LIFT

TEST LOCATION: Pond Floor (STA. 1120'-2400') 8:00' Section (STA 1200')

7 20' west of STA. 2300' and 5' N. from toe of south slope
8 40' west of STA. 2400' and 10' N. from toe of south slope
9 60' west of STA. 1600' and 25' N. from toe of south slope
10
11
12

	A	B	C	D	E	F	G	H	I
Test No.	Probe Depth	Density Count	Density Ratio	Wet Density	Moisture Count	Moisture Ratio	Moisture PCF	Water Content	Dry Density	Percent Compact
7	8"	4993	0.822	112.5	2128	0.639	26.50	30.9	85.5	98.5
8		4850	0.798	114.0	2248	0.675	28.25	32.9	85.8	98.8
9		4962	0.817	112.5	2195	0.659	27.50	32.3	85.0	97.9
10										
11										
12										

NOTES: DENSITIES SHOWN LBS. per cubic foot
WATER CONTENT: Per Cent of dry weight
PERCENT COMPACTION: Based on maximum dry density obtained on sample identified by soil ID number

1 FILL MATERIAL
2 BACKFILL
3 BASE COURSE
4 SUBBASE
5 SOIL CEMENT
6 OTHER

A TEST RESULTS COMPLY WITH SPECIFICATIONS
B RECOMPACTION REQUIRED
C TEST IS AFTER RECOMPACTION
D. moisture in excess of spec.
E. Moisture below spec.

REMARKS

Professional Service Industries, Inc.
Shilstone Engineering Testing Laboratory Division

REPORT OF FIELD COMPACTION TESTS

TESTED FOR: San Miguel Coop PROJECT: SMC IA Pond

DATE: 8-7-87 OUR REPORT NO.: 311-

TEST DATA: O.M.C. (5, 28.2)

TEST NO	DATE	ELEV. / DEPTH	SOIL TYPE NUMBER	MAXIMUM LABORATORY DENSITY	WATER CONTENT	IN PLACE DRY DENSITY	PERCENT COMPACTION	COMMENTS
1	87-87	GRADE	5	86.8	31.5	84.8	97.6	1-A
2		1ST LIFT	1	1	32.3	85.0	97.9	
3		2nd LIFT	1		31.3	84.5	97.3	
4		Final	1		33.9	84.0	96.7	1-A

TEST LOCATION: SOUTH SLOPE IA POND (Low Corner)

1. 3' WEST OF STA. 3+00 and 15' FROM TOE of slope
2. 3' WEST OF STA. 3+00 and 25' FROM TOE of slope
3. 7' WEST OF STA. 3+00 and 40' FROM bottom of slope
4. 15' WEST OF STA. 3+00 and 10' FROM bottom of slope

	A	B	C	D	E	F	G	H	I
Test No	Probe Depth	Density Count	Density Ratio	Wet Density	Moisture Count	Moisture Ratio	Moisture PCF	Water Content	Dry Density	Percent Compact
1	8"	5130	0.844	111.5	2135	0.641	26.75	31.5	84.8	97.6
2		5021	0.826	112.5	2201	0.661	27.50	32.3	85.0	97.9
3		5172	0.851	111.0	2110	0.633	26.50	31.3	84.5	97.3
4	6"	7930	1.305	112.5	2257	0.677	28.50	33.9	84.0	96.7

Computations

NOTES: DENSITIES SHOWN: Lbs. per cubic foot
WATER CONTENT: Per Cent of dry weight
PERCENT COMPACTION: Based on maximum dry density obtained on sample identified by soil ID number

1 FILL MATERIAL
2 BACKFILL
3 BASE COURSE
4 SUBBASE
5 SOIL CEMENT
6 OTHER

A TEST RESULTS COMPLY WITH SPECIFICATIONS
B RECOMPACTION REQUIRED
C TEST IS AFTER RECOMPACTION
D Moisture increase of 3.0%
E Moisture [illegible]

Professional Service Industries, Inc.
Shilstone Engineering Testing Laboratory Division

REPORT OF FIELD COMPACTION TESTS

STED FOR: San Miguel Coop PROJECT: SMC EA Road

DATE 8-7-87 "NEW PROCTOR" OUR REPORT NO 3[illegible]-

TEST DATA: O.M.C. (1,350)

TEST NO	DATE	DEPTH	SOIL ID NUMBER	MAXIMUM LAB DRY DENSITY	WATER CONTENT	IN PLACE DRY DENSITY	PERCENT COMPACTION	COMMENTS
1	8-7-87	[illegible]	1	82.6	36.2	79.3	960	1-A
2		Final			35.7	79.2	95.8	
3					36.4	79.5	96.2	
4		↓			36.9	78.5	950	
5		2nd Lift			35.0	80.0	96.8	
6	↓	↓	↓	↓	36.8	79.3	960	↓

TEST LOCATION: Road Block STA 1600'+ 2400' Eastbound

1. 20' west of STA. 1600' and 5'N. from toe of soft slope
2. 30' west of STA 1400' and 15'N. from toe of soft slope
3. 40' west of STA. 1800' and 20'N. from toe of south slope
4. 60' west of STA. 1900' and 5'N. from toe of south slope
5. 75' west of STA. 2000' and 30'N. from toe of soft slope
6. 15' west of STA. 2100' and 10'N. from toe of south slope.

Test No.	Probe Depth	Density Count	Density Ratio	Wet Density	Moisture Count	Moisture Ratio	Moisture PCF	Water Content	Dry Density	Percent Compact
	A	B	C	D	E	F	G	H	I	
1	8"	5536	0.911	108.0	2285	0.682	28.77	36.2	79.3	96.0
2		5645	0.929	107.5	2260	0.678	28.35	35.7	79.2	95.8
3		5475	0.901	108.5	2301	0.691	29.00	36.4	79.5	96.2
4	↓	5631	0.927	107.5	2313	0.694	29.00	36.9	78.5	95.0
5	8"	5560	0.915	108.0	2235	0.671	28.00	35.0	80.0	96.8
6	↓	5518	0.908	108.5	2323	0.697	29.25	36.8	79.3	96.0

Computations

NOTES DENSITIES SHOWN ARE PCF CUBIC FOOT
WATER CONTENT Per Cent of dry weight
PERCENT COMPACTION Based on maximum dry density obtained on sample indicated by soil ID number

REMARKS:

1 FILL MATERIAL
2 BACKFILL
3 BASE COURSE
4 SUBBASE
5 SOIL CEMENT
6 OTHER

A TEST RESULTS COMPLY WITH SPECIFICATIONS
B RECOMPACTION REQUIRED
C TEST IS AFTER RECOMPACTION
D. Moisture in excess of specs
E. Moisture below specs

Professional Service Industries, Inc.
Shilstone Engineering Testing Laboratory Division

REPORT OF FIELD COMPACTION TESTS

SUBMITTED FOR: San Miguel Coop PROJECT: SMC IA Pond

DATE: 8-7-87 "NEW PROCTOR" OUR REPORT NO: 311-

TEST DATA: ORD 33.0

TEST NO	DATE	ELEV / DEPTH	SOIL ID NUMBER	MAXIMUM LAB DRY DENSITY	WATER CONTENT	IN PLACE DRY DENSITY	PER CENT COMPACTION	COMMENTS
7	8-7-87	3rd Lift	8?	82.6	34.3	80.0	96.8	1-E ✓
8	↓	↓	↓	↓	35.0	80.0	96.8	1-A
9	↓	↓	↓	↓	36.9	78.5	95.0	1-C

TEST LOCATION: Lift 3 Pond 3 Elev 33.0

1 [illegible] 2nd 35'N. from the S. slope.
8 55' West of 7 and 10'N from the S. slope
9 85' West of 7 and 35'N. from the S. slope

	A	B	C	D	E	F	G	H	I
Test No.	Probe Depth	Density Count	Density Ratio	Wet Density	Moisture Count	Moisture Ratio	Moisture PCF	Water Content	Dry Density	Percent Compacti
7	8"	5601	0.922	[illegible]	2199	0.660	27.50	34.3	80.0	96.8
8	↓	5578	0.910	108.0	2234	0.671	28.00	35.0	80.0	96.8
9	↓	5630	0.927	107.5	2315	0.695	29.00	36.9	78.5	95.0

NOTES: DENSITIES SHOWN: lbs per cubic foot
WATER CONTENT: Per Cent of dry weight
PERCENT COMPACTION: Based on maximum dry density obtained on sample and coded by soil ID number

1 FILL MATERIAL
2 BACKFILL
3 BASE COURSE
4 SUBBASE
5 SOIL CEMENT
6 OTHER

A TEST RESULTS COMPLY WITH SPECIFICATIONS
B RECOMPACTION REQUIRED
C TEST IS AFTER RECOMPACTION
D. moisture in excess of spec.
E. Moisture below spec.

Professional Service Industries, Inc.
Shilstone Engineering Testing Laboratory Division

REPORT OF FIELD COMPACTION TESTS

STED FOR: San Miguel Coop PROJECT: SMC IA POND

DATE 8-10-87 NEW PROCTOR OUR REPORT NO: 311-

TEST DATA: QMG (33.0)

TEST NO	DATE	DEPTH / ELEV	SOIL SYMBOL	MAXIMUM LABORATORY DENSITY	WATER CONTENT	PROJECT DRY DENSITY	PERCENT COMPACTION	COMMENT
1	8-10-87	GRADE	?	82.6	36.1	83.0	100.4	1-A
2					37.3	82.3	99.6	
3					36.9	81.8	99.0	
4					36.3	83.3	100.8	
5		Final			36.0	82.5	99.8	
6		2nd			36.1	81.8	99.0	1-AC

TEST LOCATION: POND FLOOR (Road = 1600')

1. 20' west of sta. 12 1' and 10' N. from toe of south slope
2. 13' West of sta. 130' and 15' N. from toe of south slope
3. 45' West of sta. 1100' and 25' N. from toe of south slope
4. 55' West of sta. 1000' and 20' N. from toe of south slope
5. 60' West of sta 1000' and 5' N. from toe of south slope
6. Repeat of Test #1 of Report #7-87 in sta. 2200'

	A	B	C	D	E	F	G	H	I
Test No.	Probe Depth	Density Count	Density Ratio	Wet Density	Moisture Count	Moisture Ratio	Moisture Per	Moisture Percent	Dry Density	Percent Compact
1	8"	4960	0.8[illegible]	130	2375	0.[illegible]3	30.00	36.1	83.0	100.1
2		4932	0.812	113.0	2441	0.733	30.75	37.3	82.3	99.6
3		5051	0.831	112.0	2393	0.718	30.25	36.9	81.8	99.0
4		4895	0.806	113.5	2391	0.718	30.25	36.3	83.3	100.8
5		5085	0.837	111.5	2296	0.689	29.00	36.0	82.5	99.8
6		5275	0.868	110.5	2280	0.684	28.75	36.1	81.8	99.0

Computations

NOTES: DENSITIES SHOWN ARE per cubic foot
WATER CONTENT: Per Cent of dry weight
PERCENT COMPACTION: Based on maximum dry density obtained on previous reference by above ID number

Remarks

1. [illegible]
2. BACKFILL
3. BASE COURSE
4. SUBGRADE
5. [illegible]
6. other

A. TEST [illegible] COMPLY WITH SPECIFICATIONS
B. RECOMPACTION REQUIRED
C. TEST [illegible] FOR RECOMPACTION
D. [illegible] (in excess of specs
E. [illegible] (below specs

Professional Service Industries, Inc.
Shilstone Engineering Testing Laboratory Division

REPORT OF FIELD COMPACTION TESTS

TED FOR San Miguel Coop. PROJECT: SMC IA Pond

DATE 8-10-87 New Proctor OUR REPORT NO 311-

TEST DATA: OMC 13.3 0

TEST NO	DATE	ELEV / DEPTH	SOIL NUMBER	MAXIMUM LABORATORY DENSITY	WATER CONTENT	IN PLACE DRY DENSITY	PERCENT COMPACTION	COMMENTS*
7	8-10 87	Final	?	82.6	36.5	81.3	98.4	1-A
8					36.1	81.5	98.6	
9					36.4	81.0	98.0	
10					36.5	81.5	98.6	
11					37.2	80.5	97.4	
12		1st Lift			36.5	82.8	100.2	

TEST LOCATION: Pond Fill (Sta. 2+00 to 15+00)

7 30' west of Sta. 2001 and 2' N from toe of south slope
8 60' west of Sta. 2100' and 30 N. from toe of south slope
9 60' west of Sta. 2200' and 15 N. from toe of south slope
10 35' west of Sta. 2300' and 2 N. from toe of south slope
11 10' west of Sta. 2400' and 5 N. from toe of south slope
12 20' west of Sta. 1500' and 10 N from toe of south slope

	A	B	C	D	E	F	G	H	I
Test No.	Probe Depth	Density Count	Density Ratio	Wet Density	Moisture Count	Moisture Ratio	Moisture PCF	Water Content	Dry Density	Percent Compact
7	6"	8250	1.359	111.0	2365	0.710	29.75	36.5	81.3	98.4
8		8223	1.354	111.0	2338	0.702	29.50	36.1	81.5	98.6
9		8211	1.362	110.5	2345	0.704	29.50	36.4	81.0	98.0
10		8230	1.355	111.0	2351	0.706	29.75	36.5	81.5	98.6
11		9250	1.352	110.5	2375	0.713	30.00	37.2	80.5	97.4
12	8"	4975	0.819	113.0	2410	0.723	30.25	36.5	82.8	100.2

Computations

NOTES: DENSITIES SHOWN Lbs. per cubic foot
WATER CONTENT: Per cent dry weight
PERCENT COMPACTION: based on maximum dry density obtained on sample indicated by soil ID number

1 FILL MATERIAL
2 B CONFIL
3 BASE COURSE
4 SUBBASE
5 ST. CEMENT
6 OTHER

A TEST MEETS SPECIFICATIONS
B RECOMPACTION REQUIRED
C TEST AFTER RECOMPACTION
D moisture increase of specs
E moisture below specs

Professional Service Industries, Inc.
Shilstone Engineering Testing Laboratory Division

REPORT OF FIELD COMPACTION TESTS

REPORTED FOR: San Miguel Coop PROJECT: SMC IA POND

DATE: 8-11-87 NEW PROCTOR OUR REPORT NO: 311-

TEST DATA: OM.C. 33.0

TEST NO	DATE	ELEV DEPTH	SOIL ID NUMBER	MAXIMUM LAB DRY DENSITY	WATER CONTENT	IN PLACE DRY DENSITY	PER CENT COMPACTION	COMMENT *
1	8-11-87	GRADE	1	82.6	36.5	81.3	98.4	1-A
2	↓	1st LIFT	↓	↓	36.1	83.0	100.4	↓
3	↓	2nd LIFT	↓	↓	36.5	82.8	100.2	↓

TEST LOCATION: POND FLOOR AT STA 1000'

1. 30' west of STA 1000' and 10' N. from toe of south slope
2. 45' west of STA. 1000' and 20' N. from toe of south slope
3. 55' west of STA 1000' and 30' N. from toe of south slope

	A	B	C	D	E	F	G	H	I
Test No	Probe Depth	Density Count	Density Ratio	Wet Density	Moisture Count	Moisture Ratio	Moisture PCF	Water Content	Dry Density	Percent Compactic
1	8"	5165	0.850	111.0	2355	0.707	29.75	36.5	81.3	98.4
2	↓	4905	0.807	113.0	2380	0.714	30.00	36.1	83.0	100.4
3	↓	4932	0.812	113.0	2391	0.718	30.25	36.5	82.8	100.2

NOTES: DENSITIES SHOWN: Lbs. per cubic foot
WATER CONTENT: Per Cent of dry weight
PERCENT COMPACTION: Based on maximum dry density obtained on sample indicated by soil ID number.

1 FILL MATERIAL
2 BACKFILL
3 BASE COURSE
4 SUBBASE
5 SOIL CEMENT
6 Other

A TEST RESULTS COMPLY WITH SPECIFICATIONS
B RECOMPACTION REQUIRED
C TEST IS AFTER RECOMPACTION
D. [illegible] Increase of [illegible]
E. Moisture below specs

Tech

Professional Service Industries, Inc.
Shilstone Engineering Testing Laboratory Division

REPORT OF FIELD COMPACTION TESTS

FILED FOR San Miguel Coop PROJECT SMCIA Pond

DATE 8-12-87 NEW PROCTOR OUR REPORT NO. 311—

TEST DATA: O.M.C. 33.0

TEST NO	DATE	ELEV / DEPTH	SOILS NUMBER	MAXIMUM LAB DRY DENSITY	WATER CONTENT	IN PLACE DRY DENSITY	PERCENT COMPACTION	COMMENTS
1	8-12-87	GRADE	2	82.6	36.0	81.8	99.0	1-A
2					37.2	79.8	96.6	
3					36.4	81.0	98.0	
4					36.2	79.3	96.0	
5					36.4	79.5	96.2	
6	↓	↓	↓	↓	36.0	81.3	98.4	↓

TEST LOCATION: EAST SLOPE STA. 0-100' / Pond Floor STA. 300-700'

1. 20' S. of N.E. Corner in STA. 0-100' 2nd 20' from bottom of Slope
2. 25' N. of SE corner in STA. 0-100' 2nd 20' from bottom of Slope
3. 20' west of STA 300' 2nd 20' N. from toe of south slope
4. 45' west of STA 400' and 25' N. from toe of South slope
5. 65' west of STA 500' and 5' N. from toe of South slope
6. 30' west of STA 600' and 10' N. from toe of south slope

	A	B	C	D	E	F	G	H	I
Test No.	Probe Depth	Density Count	Density Ratio	Wet Density	Moisture Count	Moisture Ratio	Moisture PCF	Water Content	Dry Density	Percent Compaction
1	8"	5260	0.866	110.5	2295	0.689	28.75	36.0	81.8	99.0
2	↓	5376	0.885	109.5	2361	0.708	29.75	37.2	79.8	96.6
3		5236	0.862	110.5	2345	0.704	29.50	36.4	81.0	98.0
4		5586	0.919	108.0	2283	0.686	28.75	36.2	79.3	96.0
5		5474	0.901	108.5	2299	0.690	29.00	36.4	79.5	96.2
6	↓	5265	0.867	110.5	2330	0.699	29.25	36.0	81.3	98.4

NOTES: DENSITIES SHOWN: Lbs. per cubic foot
WATER CONTENT: Per Cent of dry weight
PERCENT COMPACTION: Based on maximum dry density obtained on soil type indicated by soils number

REMARKS:

1 FILL MATERIAL
2 BACKFILL
3 BASE COURSE
4 SUBBASE
5 SOIL CEMENT
6 OTHER

A TEST RESULTS COMPLY WITH SPECIFICATIONS
B RECOMPACTION REQUIRED
C TEST AFTER RECOMPACTION
D. Moisture in excess of specs
E. Moisture below specs

Professional Service Industries, Inc.
Shilstone Engineering Testing Laboratory Division

REPORT OF FIELD COMPACTION TESTS

LO FOR: San Miguel Coop PROJECT: SMC IA Pond

DATE 8-13-87 NEW PROCTOR OUR REPORT NO 311-

TEST DATA: OMC 33.0

TEST NO	DATE	ELEV / DEPTH	SOIL ID NUMBER	MAXIMUM LAB DRY DENSITY	WATER CONTENT	IN PLACE DRY DENSITY	PERCENT COMPACTION	COMMENT
1	8-13-87	1st Lift	(	82.6	36.0	80.3	97.2	1-A
2		↓			36.1	80.5	97.5	
3		2nd Lift			31.2	79.8	96.6	
4		↓			31.7	80.2	97.0	
5		Final			36.5	81.8	99.0	
6	↓	↓		↓	36.3	82.5	99.8	↓

TEST LOCATION: EAST SLOPE STA. 0-100' / 1ST. LIFT - POND FLOOR / STA. 1500' 0-100' (EAST SLOPE)

1	20' S. of N.E. corner and 20' from bottom of slope (EAST SLOPE)
2	20' N. of S.E. corner and 35' from bottom of slope (EAST SLOPE)
3	40' west of STA. 420' and 20' N. from toe of south slope
4	60' west of STA. 1500' and 20' N. from toe of south slope
5	35' west of STA. 1500' and 15' N. from toe of south slope
6	25' west of STA 1000' and 10' N. from toe of south slope

	A	B	C	D	E	F	G	H	I
Test No.	Probe Depth	Density Count	Density Ratio	Wet Density	Moisture Count	Moisture Ratio	Moisture PCF	Water Content	Dry Density	Percent Compactic
1	8"	5438	0.895	109.0	2285	0,686	28.15	36.0	80.3	97.2
2		5308	0.874	109.5	2299	0.690	29.00	36.1	80.5	97.5
3		5340	0.819	109.5	2361	0.709	29.75	37.2	77.8	96.6
4	↓	5196	0.854	110.5	2397	0.720	30.25	37.9	80.2	97.0
5	6"	8033	1.322	112.0	2398	0.720	30.25	36.9	81.8	99.0
6	↓	7936	1.306	112.5	2365	0.710	30.00	36.3	82.5	99.8

NOTES: DENSITIES SHOWN lbs. per cubic foot
WATER CONTENT Per Cent of dry weight
PERCENT COMPACTION Based on maximum dry density obtained on sample indicated by soil ID number

1 FILL MATERIAL
2 BACKFILL
3 BASE COURSE
4 SUBBASE
5 SOIL CEMENT
6 OTHER

A TEST RESULTS COMPLY WITH SPECIFICATIONS
B RECOMPACTION REQUIRED
C TEST IS AFTER RECOMPACTION

6.7%
5329

Professional Service Industries, Inc.
Shilstone Engineering Testing Laboratory Division

REPORT OF FIELD COMPACTION TESTS

TESTED FOR: San Miguel Coop PROJECT: SMC IA POND

DATE: 8-13-87 NEW PROCTOR OUR REPORT NO.:

TEST DATA: OMC 33.0

TEST NO	DATE	ELEV / DEPTH	SOIL ID NUMBER	MAXIMUM LAB DRY DENSITY	WATER CONTENT	IN-PLACE DRY DENSITY	PERCENT COMPACTION	COMMENTS
7	8-13-87	1ST LIFT		82.6	36.3	81.8	99.0	1-A
8	"	"		"	37.1	82.8	100.2	"
9	"	"		"	37.6	80.3	97.2	"
10	"	"		"	37.2	80.5	97.4	"
11	"	GRADE		"	38.2	80.3	97.2	"
12	"	1ST LIFT		"	38.1	81.0	98.0	"

TEST LOCATION: POND FLOOR @ 300-700 - 8" ABOVE

7	20' west of STA. 300' and 20' N. from toe of south slope
8	40' west of STA. 400' and 3' N. from toe of south slope
9	60' west of STA 500' and 35' N. from toe of south slope
10	30' west of STA 600' and 10' N. from toe of south slope
11	20' west of STA. 900' and 15' N. from toe of south slope
12	70' west of STA. 900' and 20' N. from toe of south slope

	A	B	C	D	E	F	G	H	I
Test No.	Probe Depth	Density Count	Density Ratio	Wet Density	Moisture Count	Moisture Ratio	Moisture PCF	Water Content	Dry Density	Percent Compactn
7	8"	5113	0.842	111.5	2530	0.699	2995	36.3	81.8	99.0
8	"	4897	0.806	113.5	2424	0.728	30.75	37.1	82.8	100.2
9	"	5222	0.860	110.5	2395	0.719	30.25	37.6	80.3	97.2
10	"	5265	0.867	110.5	2375	0.713	30.00	37.2	80.5	97.4
11	"	5165	0.850	111.0	2431	0.730	30.15	38.2	80.3	97.2
12	"	5071	0.835	112.0	2467	0.741	31.00	38.1	81.0	98.0

NOTES: DENSITIES SHOWN: Lbs. per cubic foot
WATER CONTENT: Per Cent of dry weight
PERCENT COMPACTION: Based on maximum dry density obtained on sample indicated by soil ID number

1 FILL MATERIAL
2 BACKFILL
3 BASE COURSE
4 SUBBASE
5 SOIL CEMENT
6 OTHER

A TEST RESULTS COMPLY WITH SPECIFICATIONS
B RECOMPACTION REQUIRED
C TEST IS AFTER RECOMPACTION
D. Moisture in excess of specs
E. Moisture below specs

Professional Service Industries, Inc.
Shilstone Engineering Testing Laboratory Division

REPORT OF FIELD COMPACTION TESTS

TED FOR San Miguel Coop PROJECT: SMC IA POND

DATE 8-14-87 OUR REPORT NO 311-

TEST DATA: 33.0

TEST NO	DATE	LIFT / DEPTH	SOIL ID NUMBER	MAXIMUM LAB DRY DENSITY	WATER CONTENT	IN PLACE DRY DENSITY	PERCENT COMPACTION	COMMENTS
1	8-14-87	2nd Lift		82.6	36.5	82.8	100.2	1-A
2					37.1	82.7	100.1	
3					37.5	82.5	99.8	
4					36.0	82.8	100.2	
5					36.6	80.5	97.4	
6		GRADE			37.2	79.8	96.6	

TEST LOCATION: Pond Floor (Sta. 300'-700') (Sta. 900') (Sta. 600')

1. 20' West of Sta 300' and 20' N. from the toe of south slope
2. 35' west of Sta 400' and 25' N. of south slope
3. 60' West of Sta. 500' and 40' N. of south slope
4. 80' West of Sta. 600' and 5' N. of south slope
5. 25' West of Sta. 900' and 10' N. of south slope
6. 35' West of Sta. 800' and 30' N. of south slope

A	B	C	D	E	F	G	H	I
Test No.	Probe Depth	Density Count	Density Ratio	Wet Density	Moisture Count	Moisture Ratio	Moisture PCF	Water Content	Dry Density	Percent Compact
1	8"	4917	0.809	113.0	2377	0.720	30.25	36.5	82.8	100.2
2		4865	0.801	113.5	2435	0.731	30.15	37.1	82.7	100.1
3		4890	0.805	113.5	2461	0.739	31.00	37.5	82.5	99.8
4		4981	0.820	112.5	2370	0.711	29.75	36.0	82.8	100.2
5		5265	0.867	110.0	2332	0.700	29.50	36.6	80.5	97.4
6		5314	0.875	109.5	2356	0.707	29.75	37.2	79.8	96.6

Computations

NOTES DENSITIES SHOWN Lbs per cubic foot
WATER CONTENT Per Cent of dry weight
PERCENT COMPACTION Based on maximum dry density obtained on sample indicated by soil ID number

1 FILL MATERIAL
2 BACKFILL
3 BASE COURSE
4 SUBBASE
5 SOIL CEMENT
6 OTHER

A TEST RESULTS COMPLY WITH SPECIFICATIONS
B RECOMPACTION REQUIRED
C TEST IS AFTER RECOMPACTION
D. moisture in excess of specs
E. Moisture below specs

Professional Service Industries, Inc.
Shilstone Engineering Testing Laboratory Division

REPORT OF FIELD COMPACTION TESTS

D FOR San Miguel Coop PROJECT SMC IA POND

DATE 8-14-87 NEW PROCTOR OUR REPORT NO. 311-

TEST DATA: 33.0

TEST NO	DATE	ELEV / DEPTH	SOIL ID NUMBER	MAXIMUM LAB DRY DENSITY	WATER CONTENT	IN PLACE DRY DENSITY	PERCENT COMPACTION	COMMENT *
7	8-14-87	GRADE		82.6	37.1	82.7	100.1	1-A
8		1ST			38.4	82.0	99.2	
9		↓			36.7	82.3	99.6	
10		2ND			36.3	81.5	98.4	
11		↓			36.1	83.0	100.4	
12		FINAL			35.9	83.0	100.4	

TEST LOCATION: POND FLOOR (STA. 700-900')

7	20' west of STA. 700' and 20' N. of south slope
8	40' west of STA. 700' and 35' N. of south slope
9	60' west of STA. 800' and 5' N. of south slope
10	30' west of STA 700' and 15' N. of south slope
11	20' west of STA. 800' and 20' N. of south slope
12	70' west of STA. 900' and 40' N. of south slope

	A	B	C	D	E	F	G	H	I
Test No.	Probe Depth	Density Count	Density Ratio	Wet Density	Moisture Count	Moisture Ratio	Moisture PCF	Water Content	Dry Density	Percent Compacti
7	8"	4880	0.803	113.5	2435	0731	30.75	37.1	82.7	100.1
8		4899	0.806	113.5	2490	0.747	31.50	38.4	82.0	99.2
9		4967	0.818	112.5	2400	0.720	30.25	36.7	82.3	99.6
10		5126	0.844	111.5	2381	0.715	30.00	36.3	81.5	98.4
11	↓	4928	0.811	113.0	2382	0.715	30.00	36.1	83.0	100.4
12	6"	7963	1.311	112.5	2335	0.701	29.50	35.9	83.0	100.4

NOTES: DENSITIES SHOWN: Lbs. per cubic foot
WATER CONTENT: Per Cent of dry weight
PERCENT COMPACTION: Based on maximum dry density obtained on sample identified by soil ID number

REMARKS:

1 FILL MATERIAL
2 BACKFILL
3 BASE COURSE
4 SUBBASE
5 SOIL CEMENT
6 OTHER

A TEST RESULTS COMPLY WITH SPECIFICATIONS
B RECOMPACTION REQUIRED 60'12
C TEST AFTER RECOMPACTION 3329
D. ELEVATION TO AGREE OF SPEC.
E. MOISTURE TO AGREE SPEC.

Professional Service Industries, Inc.
Shilstone Engineering Testing Laboratory Division

REPORT OF FIELD COMPACTION TESTS

SUBMITTED FOR: San Miguel Coop PROJECT: SMC I A Pond

DATE: 8-17-81 NEW PROCTOR OUR REPORT NO: 311-

TEST DATA: Dike

TEST NO	DATE	ELEV / DEPTH	SOIL TO PULVERIZE	MAXIMUM LABORATORY DENSITY	WATER CONTENT	IN PLACE DRY DENSITY	PERCENT COMPACTION	COMMENT*
1	8-17-81	1st Lift	(	82.4	36.2	80.8	97.8	1-A
2					38.3	78.8	95.3	
3					37.5	80.0	96.8	
4		2nd Lift			38.5	79.8	96.6	
5					36.7	79.7	96.4	
6					37.2	80.5	97.4	

TEST LOCATION: Pond Floor (Sta. 1200 - 1500')

1. 20' west of Sta. 1200' and 10' N. of south slope
2. 60' west of Sta 1300' and 15' N. of south slope
3. 30 west of Sta. 1400' and 35' N. of south slope
4. 70 west of Sta. 1200' and 45' N. of south slope
5. 10' west of Sta. 1300' and 5' N. of south slope
6. 85' west of Sta. 1400' and 15' N. of south slope

	A	B	C	D	E	F	G	H	I
Test No	Probe Depth	Density Count	Density Ratio	Wet Density	Moisture Count	Moisture Ratio	Moisture PCF	Water Content	Dry Density	Percent Compact
1	8"	4250	0.902	110.0	2513	0.724	29.25	36.2	80.8	97.8
2		4331	0.919	109.0	2633	0.749	30.25	38.3	78.8	95.3
3		4229	0.897	110.0	2597	0.739	30.00	37.5	80.0	96.8
4		4180	0.887	110.5	2668	0.769	30.75	38.5	79.8	96.6
5		4373	0.928	109.0	2539	0.722	29.25	36.7	79.7	96.4
6		4200	0891	110.5	2601	0.740	30.00	37.2	80.5	97.4

Computations

NOTES: DENSITIES SHOWN: Lbs. per cubic foot
WATER CONTENT: Per Cent of dry weight
PERCENT COMPACTION: Based on maximum dry density obtained on sample indicated by soil ID number

REMARKS:

1 FILL MATERIAL
2 BACKFILL
3 BASE COURSE
4 SUBBASE
5 SOIL CEMENT
6 OTHER

A TEST PASSES COMPLY WITH SPECIFICATIONS
B RECOMPACTION REQUIRED
C TEST IS AFTER RECOMPACTION

4711
3512

Professional Service Industries, Inc.
Shilstone Engineering Testing Laboratory Division

REPORT OF FIELD COMPACTION TESTS

D FOR San Miguel Coop PROJECT SMC IA Pond

DATE 8-17-81 NEW PROCTOR OUR REPORT NO. 311-

TEST DATA: 33.0

TEST NO	DATE	ELEV / DEPTH	SOIL ID NUMBER	MAXIMUM LAB DRY DENSITY	WATER CONTENT	IN PLACE DRY DENSITY	PERCENT COMPACTION	COMMENT *
7	8-17-81	Final		82.6	36.9	81.8	99.0	1-A
8					36.5	81.3	98.4	
9					37.0	81.0	98.0	
10					37.6	81.1	98.1	
11					38.0	91.5	98.6	
12					36.0	82.0	99.2	

TEST LOCATION: Pond Floor (STA. 700, 300-700) (+2 Road)

7	10' west of STA. 700 and 20' N. of south slope
8	60' west of STA. 700 and 10' N. of south slope
9	25' west of STA. 400 and 45' N. of south slope
10	55' west of STA. 500 and 25' N. of south slope
11	65' west of STA. 600 and 5' N. of South slope
12	15' west of STA. 900' and 35' N. of South slope

	A	B	C	D	E	F	G	H	I
Test No.	Probe Depth	Density Count	Density Ratio	Wet Density	Moisture Count	Moisture Ratio	Moisture PCF	Water Content	Dry Density	Percent Compact
7	6"	6355	1.348	112.0	2601	0.742	30.25	36.9	81.8	99.0
8		6431	1.365	111.0	2582	0.735	29.75	36.5	81.3	98.4
9		6474	1.374	111.0	2590	0.739	30.00	37.0	81.0	98.0
10		6378	1.353	111.5	2635	0.750	30.50	37.6	81.1	98.1
11		6299	1.337	112.5	2671	0.760	31.00	38.0	81.5	98.6
12		6410	1.360	111.5	2556	0.727	29.50	36.0	82.0	99.2

NOTES: DENSITIES SHOWN: Lbs. per cubic foot
WATER CONTENT: Per Cent of dry weight
PERCENT COMPACTION: Based on maximum dry density obtained on sample indicated by soil ID number

1 FILL MATERIAL
2 BACKFILL
3 BASE COURSE
4 SUBBASE
5 SOIL CEMENT
6 OTHER

A TEST RESULTS COMPLY WITH SPECIFICATIONS
B RECOMPACTION REQUIRED 4711
C TESTS AFTER RECOMPACTION 5512

Professional Service Industries, Inc.
Shilstone Engineering Testing Laboratory Division

REPORT OF FIELD COMPACTION TESTS

TO FOR: San Miguel Coop PROJECT: SMC I A POND

DATE 8-17-81 NEW PROCTOR OUR REPORT NO. 311-

TEST DATA: 33.0

TEST NO	DATE	ELEV DEPTH	SOIL ID NUMBER	MAXIMUM LAB DRY DENSITY	WATER CONTENT	IN PLACE DRY DENSITY	PER CENT COMPACTION	COMMENT *
13	8-17-81	GRADE		82.6	37.4	80.7	97.6	1-A
14					38.9	80.2	97.0	
15					37.0	80.3	97.2	
16		1ST			36.8	80.8	97.8	
17					39.4	78.5	95.0	
18					36.4	80.3	97.2	

TEST LOCATION: ROAD FILL (STA 0-300')

13	20' west of STA 0-100' and 10' N. of south slope
14	35' west of STA 100' and 5' N. of South slope
15	45' west of STA. 200' and 30' N. of S. ½ slope
16	10' west of STA 0-100' and 45' N of South slope
17	40' west of STA. 100' and 5' N of South slope
18	15' west of STA 200' and 15' N. of South slope

A B C D E F G H I

Test No	Probe Depth	Density Count	Density Ratio	Wet Density	Moisture Count	Moisture Ratio	Moisture PCF	Water Content	Dry Density	Percent Compact
13	8"	4136	0.877	111.0	2620	0.796	30.25	37.4	80.7	97.6
14		4092	0.866	111.5	2695	0.767	31.25	38.9	80.2	97.0
15		4216	0.894	110.0	2581	0.734	29.75	37.0	80.3	97.2
16		4177	0.886	110.5	2577	0.733	29.75	36.8	80.8	97.8
17		4285	0.909	109.5	2687	0.765	31.00	39.4	78.5	95.0
18		4300	0.912	109.5	2534	0.721	29.25	36.4	80.3	97.2

NOTES: DENSITIES SHOWN: Lbs. per cubic foot
WATER CONTENT: Per Cent of dry weight
PERCENT COMPACTION: Based on maximum dry density obtained on sample indicated by soil ID number

REMARKS:

1 FILL MATERIAL
2 BACKFILL
3 BASE COURSE
4 SURFACE
5 SOIL CEMENT
6 OTHER

A TEST RESULTS COMPLY WITH SPECIFICATIONS
B RECOMPACTION REQUIRED
C TEST IS AFTER RECOMPACTION

4/11/35'2

Professional Service Industries, Inc.
Shilstone Engineering Testing Laboratory Division

REPORT OF FIELD COMPACTION TESTS

ED FOR: San Miguel Coop PROJECT: SMCIA POND

DATE 8-17-87 NEW OPOCTOR OUR REPORT NO 311-

TEST DATA: O.M.C 33.0

TEST NO	DATE	ELEV / DEPTH	SOIL ID NUMBER	MAXIMUM LAB DRY DENSITY	WATER CONTENT	IN PLACE DRY DENSITY	PERCENT COMPACTION	COMMENT *
19	8-11-87	2nd Lift		82.6	36.0	81.0	98.0	1-A
20					36.3	81.1	98.1	
21					38.6	78.3	95.0	
22		Final			37.0	81.0	98.0	
23					38.0	80.8	97.8	
24					35.9	82.7	100.1	

TEST LOCATION: POND FLOOR (STA. 0-300')

19	50' west of STA 0-100' and 15' N. of south slope
20	15' west of STA 100' and 30' N. of south slope
21	85' west of STA 200' and 30' N. of south slope
22	40' west of STA 0-100' and 40' N. of south slope
23	15' west of STA 200' and 5' N. of south slope
24	30' west of STA 200' and 45' N. of south slope

	A	B	C	D	E	F	G	H	I
Test No.	Probe Depth	Density Count	Density Ratio	Wet Density	Moisture Count	Moisture Ratio	Moisture PCF	Water Content	Dry Density	Percent Compacti
19	8"	4165	0.884	110.0	2515	0.716	29.00	36.0	81.0	98.0
20	↓	4199	0.891	110.5	2560	0.728	29.50	36.3	81.1	98.1
21	↓	4401	0.934	108.5	2622	0.746	30.25	38.6	78.3	95.0
22	6"	6421	1.362	111.0	2605	0.741	30.00	37.0	81.0	98.0
23	↓	6360	1.350	111.5	2653	0.755	30.75	38.0	80.8	97.8
24	↓	6315	1.340	112.0	2531	0.720	29.25	35.9	82.7	100.1

NOTES: DENSITIES SHOWN: Lbs. per cubic foot
WATER CONTENT: Per Cent of dry weight
PERCENT COMPACTION: Based on maximum dry density obtained on sample indicated by soil ID number

1 FILL MATERIAL
2 BACKFILL
3 BASE COURSE
4 SUBBASE
5 SOIL CEMENT
6 OTHER

A TEST RESULTS COMPLY WITH SPECIFICATIONS
B RECOMPACTION REQUIRED
C TEST IS AFTER RECOMPACTION

Professional Service Industries, Inc.
Shilstone Engineering Testing Laboratory Division

REPORT OF FIELD COMPACTION TESTS

FOR [illegible] Coop PROJECT [illegible]

DATE 9-18-87 OUR REPORT NO [illegible]

TEST DATA:

TEST NO	DATE	ELEV / DEPTH	SOILS NUMBER	MAXIMUM LABORATORY DENSITY	WATER CONTENT	IN PLACE DRY DENSITY	PERCENT COMPACTION	COMMENTS
1					36.0	81.5	98.6	1-A
2					36.6	80.5	97.4	1
3					36.5	82.0	99.2	1
4					36.1	82.3	99.6	1
5					36.3	79.5	96.2	1
6	✓				39.0	78.8	95.3	✓

TEST LOCATION:

1. 20' South of NE corner [illegible]
2. 3' North of [illegible]
3. 4' South of NE corner [illegible]
4. 10' North of S.E corner 2nd [illegible]
5. 20' west of [illegible]
6. 60' west of STA 0+00 2nd 30' from top of slope

	A	B	C	D	E	F	G	H	I
Test No	Probe Depth	Density Count	Density Ratio	Wet Density	Moisture Count	Moisture Ratio	Moisture PCF	Water Content	Dry Density	Percent Compact
1	6	4156	2.892	116.5	25[illegible]	0.716	27.00	36.0	81.5	98.6
2	✓	4221	2.935	110.0	25[illegible]	0.727	29.50	36.6	80.5	97.4
3		6305	1.338	113.0	27[illegible]	0.737	30.00	36.5	82.0	99.2
4	✓	6290	1.335	112.5	26[illegible]	0.745	30.25	36.1	82.3	99.6
5	6	4256	0.903	110.0	2640	0.751	30.50	39.3	79.5	96.2
6	✓	4270	0.906	109.5	2659	0.756	30.15	39.0	78.8	95.3

Computations

NOTES: DENSITIES SHOWN: Lbs. per cubic foot
WATER CONTENT: Per Cent of dry weight
PERCENT COMPACTION: Based on maximum dry density obtained on sample and coded by soil ID number

1 FILL MATERIAL
2 BACKFILL
3 BASE COURSE
4 SUBBASE
5 SOIL CEMENT
6 OTHER ---

A TEST RESULTS COMPLY WITH SPECIFICATIONS
B RECOMPACTION REQUIRED
C TEST IS AFTER RECOMPACTION

D. moisture in excess of specs
E. moisture below specs

Professional Service Industries, Inc.
Shilstone Engineering Testing Laboratory Division

REPORT OF FIELD COMPACTION TESTS

TESTED FOR San Miguel Coop PROJECT: SMC IA Road

DATE 5-15-07 NEW MEXICO OUR REPORT NO 31-

TEST DATA:

TEST NO	DATE	ELEV DEPTH	SOIL ID NUMBER	MAXIMUM LAB DRY DENSITY	WATER CONTENT	IN PLACE DRY DENSITY	PER CENT COMPACTION	COMMENT
1	5-14-07			82.6	36.8	80.7	97.6	1-A
2		6"			36.3	82.5	99.8	
3					36.7	82.2	99.5	
4					36.2	80.0	96.8	
5		1'			38.8	78.5	95.0	
6	↓	↓		↓	39.4	78.6	95.1	↓

TEST LOCATION.

1. 20' west of STA. 0-100' and 20' from bottom of slope
2. 40' west of STA. 0-100' and 5' from bottom of slope
3. 50' west of STA. 200' and 5' from top of slope
4. 70' west of STA. 300' and 15' from bottom of slope
5. 15' west of STA. 400' and 20' from top of slope
6. 30' west of STA. 0-00' and 20' South of North slope

Test No	Probe Depth	Density Count	Density Ratio	Wet Density	Moisture Count	Moisture Ratio	Moisture PCF	Water Content	Dry Density	Percent Compact
1	8"	4185	0.898	110.5	2533	0.134	29.75	36.8	80.7	97.6
2	6"	4270	1.330	112.5	2597	0.740	30.00	36.3	82.5	99.8
3	"	4195	0.890	112.5	2619	0.745	30.25	36.7	82.2	99.5
4	1	4323	0.917	1090	2503	0.712	29.00	36.2	80.0	96.8
5	1	4331	0.919	1090	2644	0.752	30.50	38.8	78.5	95.0
6	↓	4273	0.907	1095	2634	0.764	31.00	39.4	78.6	95.1

Computations

NOTES DENSITIES SHOWN Lbs. per cubic foot
WATER CONTENT Per Cent of dry weight
PERCENT COMPACTION Based on maximum dry density obtained on sample indicated by soil ID number

1 FILL MATERIAL
2 BACKFILL
3 BASE COURSE
4 SUBBASE
5 SOIL CEMENT
6 OTHER

A TEST RESULTS COMPLY WITH SPECIFICATIONS
B RECOMPACTION REQUIRED
C TEST IS AFTER RECOMPACTION
D. Moisture in excess of specs
E. Moisture below specs

4111/3512

Professional Service Industries, Inc.
Shilstone Engineering Testing Laboratory Division

REPORT OF FIELD COMPACTION TESTS

TESTED FOR: San Miguel Coop PROJECT: SMC. I A Pond

DATE 8-16-81 OUR REPORT NO.: 7-1-

TEST DATA: 73 C

TEST NO	DATE	ELEV / DEPTH	SOIL ID NUMBER	MAXIMUM LAB DRY DENSITY	WATER CONTENT	IN PLACE DRY DENSITY	PERCENT COMPACTION	COMMENT *
1	8-18-81	1st Lift			33.3	83.2	100.7	1-E
2		Cut			32.3	84.3	102.0	
3					33.1	83.7	101.3	
4					33.3	84.0	101.6	
5					37.5	80.0	96.8	1-A
6		Subgrade			37.6	80.3	97.2	

TEST LOCATION:

1	30' West of STA 0+00 and 15' S. of North slope *
2	40' West of STA 1+00 and 30' S. of North slope *
3	65' West of STA 2+00 and 20' S. of North slope *
4	10' West of STA 3+00 and 40' S. of North slope *
5	75' West of STA 4+00 and 50' S. of North slope
6	10' West of STA 5+00 and 10' S. of North slope

	A	B	C	D	E	F	G	H	I
Test No.	Probe Depth	Density Count	Density Ratio	Wet Density	Moisture Count	Moisture Ratio	Moisture PCF	Water Content	Dry Density	Percent Compacti
1	6"	4125	0.875	111.0	2599	0.683	27.75	33.3	83.2	100.7
2	1	4081	0.866	111.5	2364	0.673	27.25	32.3	84.3	102.0
3	1	4041	0.857	111.5	2410	0.686	27.75	33.1	83.7	101.3
4	1	4063	0.862	112.0	2437	0.693	28.00	33.3	84.0	101.6
5	1	4217	0.895	110.0	2598	0.739	30.00	37.5	80.0	96.8
6	↓	4153	0.881	110.5	2620	0.746	30.25	37.6	80.3	97.2

NOTES: DENSITIES SHOWN: Lbs. per cubic foot
WATER CONTENT: Per Cent of dry weight
PERCENT COMPACTION: Based on maximum dry density obtained on sample indicated by soil ID number

1 FILL MATERIAL
2 BACKFILL
3 BASE COURSE
4 SUBBASE
5 SOIL CEMENT
6 OTHER

A TEST RESULTS COMPLY WITH SPECIFICATIONS
B RECOMPACTION REQUIRED
C TEST IS AFTER RECOMPACTION
Q. moisture in excess of specs
E. Moisture below specs

Professional Service Industries, Inc.
Shilstone Engineering Testing Laboratory Division

REPORT OF FIELD COMPACTION TESTS

TESTED FOR San Miguel Corp PROJECT SMC EA Pond

DATE 9-19-97 OUR REPORT NO 311 —

TEST DATA: 33.0

TEST NO	DATE	ELEV DEPTH	SOIL & NUMBER	MAXIMUM LAB DRY DENSITY	WATER CONTENT	IN PLACE DRY DENSITY	PERCENT COMPACTION	COMMENTS
1	9-19-97	1.[illegible]		82.6	37.2	[illegible]	9[illegible]	1-
2		[illegible]			36.0	82.[illegible]	[illegible]	
3		[illegible]			3[illegible]	[illegible]	[illegible]	
4		2[illegible]			[illegible]	3[illegible]	[illegible]	✓
5		Final			36.4	83.3	91.7	1-F
6	✓	[illegible]	✓		[illegible]	[illegible]	99.[illegible]	✓

TEST LOCATION: [illegible]

1	[illegible] 10' from bottom of slope
2	[illegible] 20' from bottom of slope
3	[illegible] 51.5' 10' from top of slope
4	[illegible] 15' from top of slope
5	45' west of [illegible] 51.5' and 10' from bottom of slope
6	85' west of [illegible] 51.5' and 20' from bottom of slope

A	B	C	D	E	F	G	H	I
Test No	Probe Depth	Density Count	Density Ratio	Wet Density	Moisture Count	Moisture Ratio	Moisture PCF	Water Content	Dry Density	Percent Compact
1	8"	[illegible]	0.823	110.5	2591	0.737	30.00	37.2	80.5	97.4
2	✓	[illegible]	0.865	111.5	2553	0.726	29.50	36.0	82.0	99.[illegible]
3		4028	0.854	112.0	2600	0.740	30.25	36.9	81.9	99.[illegible]
4		4326	0.918	109.0	2519	0.717	29.00	36.2	80.0	96.8
5		4296	0.911	109.5	2530	0.720	29.25	36.4	80.3	97.[illegible]
6	✓	4115	0.873	111.0	2501	0.712	29.00	35.9	82.0	99.[illegible]

Computations

NOTES: DENSITIES SHOWN ARE ON DRY BASIS
WATER CONTENT: PERCENT OF DRY WEIGHT
PERCENT COMPACTION: RATIO OF FIELD DRY DENSITY TO LABORATORY MAXIMUM DRY DENSITY EXPRESSED AS A PERCENTAGE

1 FILL MATERIAL
2 BACKFILL
3 BASE COURSE
4 SUBBASE
5 SOIL CEMENT
6 OTHER

A TEST RESULTS DO NOT MEET SPECIFICATIONS
B RECOMPACTION REQUIRED
C TEST IS AFTER RECOMPACTION
D. [illegible] in excess of specs
E. Moisture below specs

Reviewed by:

Professional Service Industries, Inc.
Shilstone Engineering Testing Laboratory Division

REPORT OF FIELD COMPACTION TESTS

SUBMITTED FOR San Miguel Coop PROJECT SMC IA Pond

DATE 8-19-97 OUR REPORT NO 311—

TEST DATA O.M.C. 33.0

TEST NO	DATE	FILL DEPTH	SOIL NUMBER	MAXIMUM LABORATORY DENSITY	WATER CONTENT	IN PLACE DRY DENSITY	PERCENT COMPACTION	COMMENTS
1	8-19-97	Final	1	82.4	36.4	79.5	96.2	1-A
2	"	1st	"	"	37.9	79.8	96.6	
3	"	2nd	"	"	38.1	80.0	96.8	
4	"	Final	"	"	37.7	79.4	96.1	
5	"	SUBGRADE	"	"	37.4	80.8	97.8	
6	↓	↓	↓	↓	36.3	80.3	97.2	↓

TEST LOCATION: N. Side Slope STA. 200 – 600'

1	30 west of STA 2 and 12' from bottom of slope
2	25' west of STA. 300' and 20' from bottom of slope
3	65' west of STA. 400' and 15' from top of slope
4	75' west of STA. 500' and 25' from top of slope
5	10' west of STA. 400' and 20' from bottom of slope
6	50' west of STA. 500' and 5' from bottom of slope

A	B	C	D	E	F	G	H	I
Test No.	Probe Depth	Density Count	Density Ratio	Wet Density	Moisture Count	Moisture Ratio	Moisture PCF	Water Content	Dry Density	Percent Compact
1	8"	4415	0.937	108.5	2510	0.714	29.00	36.4	79.5	96.2
2	"	4200	0.891	110.0	2609	0.742	30.25	37.9	79.8	96.6
3	"	4170	0.885	110.5	2631	0.749	30.50	38.1	80.0	96.8
4	"	4263	0.904	109.5	2592	0.738	30.00	37.7	79.4	96.1
5	"	4105	0.871	111.0	2617	0.745	30.25	37.4	80.8	97.8
6	↓	4310	0.914	109.5	2528	0.719	29.25	36.3	80.3	97.2

NOTES: DENSITIES SHOWN ARE per cubic foot
WATER CONTENT: Per Cent of dry weight
PERCENT COMPACTION: Based on maximum dry density obtained on sample designated by soil ID number

REMARKS

1 FILL MATERIAL
2 BACKFILL
3 BASE COURSE
4 SUBBASE
5 SOIL CEMENT
6 OTHER

A TEST RESULTS COMPLY WITH SPECIFICATIONS
B RECOMPACTION REQUIRED
C TEST IS AFTER RECOMPACTION
D. Moisture in excess of specs
E. Moisture below specs

COPIES TO

Professional Service Industries, Inc.
Shilstone Engineering Testing Laboratory Division

REPORT OF FIELD COMPACTION TESTS

TED FOR: San Miguel Coop PROJECT: SNC I A Pond

DATE 8-19-87 OUR REPORT NO 311-

TEST DATA: 33.0

TEST NO	DATE	ELEV / DEPTH	SOIL NUMBER	MAXIMUM LAB DRY DENSITY	WATER CONTENT	IN PLACE DRY DENSITY	PERCENT COMPACTION	COMMENT
1	8-19-87	GRADE	(	82.6	38.3	78.6	95.3	1-A
		1st			37.8	81.3	98.4	
		2rd			35.9	82.5	99.8	
		3rd			36.0	83.5	101.0	
		4th			38.1	80.0	96.9	
6	↓	5th	↓	↓	37.0	80.3	97.2	↓

TEST LOCATION: NORTH SLOPE 100' - 300'

1. 20' west of STA 100' and 2' from top of slope
2. 35' west of STA 100' and 30' from bottom of slope
3. 60' west of STA 100' and 10' from top of slope
4. 15' west of STA 100' and 15' from top of slope
5. 10' west of STA 200' and 50' from bottom of slope
6. 25' west of STA 200' and 10' from bottom of slope

	A	B	C	D	E	F	G	H	I
Test No.	Probe Depth	Density Count	Density Ratio	Wet Density	Moisture Count	Moisture Ratio	Moisture PCF	Water Content	Dry Density	Percent Compact
1	8"	4320	0.911	109.0	2615	0.741	30.25	38.3	78.8	95.3
2	↓	4040	0.852	112.0	2654	0.752	30.15	37.8	81.3	98.4
3	↓	4090	0.866	111.5	2516	0.713	29.00	35.9	82.5	99.8
4	6"	6135	1.302	113.5	2603	0.741	30.00	36.0	83.5	101.0
5	8"	4195	0.888	110.5	2652	0.755	30.50	38.1	80.0	96.9
6	↓	4207	0.893	110.0	2594	0.735	29.15	37.0	80.3	97.2

Computations

NOTES: DENSITIES SHOWN: Lbs. per cubic foot
WATER CONTENT: Per Cent of dry weight
PERCENT COMPACTION: Based on maximum dry density obtained on sample indicated by soil ID number

1 FILL MATERIAL
2 BACKFILL
3 BASE COURSE
4 SUBBASE
5 SOIL CEMENT
6 OTHER

A TEST RESULTS COMPLY WITH SPECIFICATIONS
B RECOMPACTION REQUIRED
C TEST IS AFTER RECOMPACTION
D. Moisture in excess of specs
E. Moisture below specs

Professional Service Industries, Inc.
Shilstone Engineering Testing Laboratory Division

REPORT OF FIELD COMPACTION TESTS

TED FOR: San Miguel Coop PROJECT: I & Pond

DATE 8-20-87 OUR REPORT NO. 311 —

TEST DATA: 330

TEST NO	DATE	ELEV / DEPTH	SOIL ID NUMBER	MAXIMUM LAB DRY DENSITY	WATER CONTENT	IN PLACE DRY DENSITY	PER CENT COMPACTION	COMMENT
1	8-20-8	Final		82.6	35.9	81.8	99.0	1-A
2		1st Lift			36.8	81.5	98.6	
3		GRADE			36.4	80.3	97.2	
4		↓			36.5	79.5	96.2	
5		2nd Lift			36.6	82.0	99.2	
6	↓	1st Lift	↓	↓	36.4	81.3	98.4	↓

TEST LOCATION: [illegible]

1	20' west of STA 600' and 10' from bottom of slope
2	20' west of STA 600' and 20' from bottom of slope
3	65' west of STA 700' and 15' from top of slope
4	30' West of STA 500' and 30' from top of slope
5	15' west of STA 600' and 5' from bottom of slope
6	45' West of STA 700' and 25' from bottom of slope

	A	B	C	D	E	F	G	H	I
Test No.	Probe Depth	Density Count	Density Ratio	Wet Density	Moisture Count	Moisture Ratio	Moisture PCF	Water Content	Dry Density	Percent Compact
1	8"	4121	0.874	111.0	2540	0.723	29.25	35.9	81.8	99.0
2		4089	0.867	111.5	2511	0.739	30.00	36.8	81.5	98.6
3		4310	0.914	109.5	2531	0.720	29.25	36.4	80.3	97.2
4		4375	0.928	108.5	2519	0.719	29.00	36.5	79.5	96.2
5		4039	0.857	112.0	2605	0.741	30.00	36.6	82.0	99.2
6	↓	4120	0.874	111.0	2593	0.732	29.75	36.4	81.3	98.4

Computations

NOTES: DENSITIES SHOWN: Lbs per cubic foot
WATER CONTENT: Per Cent of dry weight
PERCENT COMPACTION: Based on maximum dry density obtained on Simplex indicated by soil ID number

1 FILL MATERIAL
2 BACKFILL
3 BASE COURSE
4 SUBBASE
5 SOIL CEMENT
6 OTHER

A TEST RESULTS COMPLY WITH SPECIFICATIONS
B RECOMPACTION REQUIRED
C TEST IS AFTER RECOMPACTION
D. moisture in excess of specs
E. moisture below specs

Professional Service Industries, Inc.
Shilstone Engineering Testing Laboratory Division

REPORT OF FIELD COMPACTION TESTS

ED FOR San Miguel Coop PROJECT: SMCIA Pond

DATE 8-20-87 OUR REPORT NO: 311-

TEST DATA: 32.0

TEST NO	DATE	FILL DEPTH	SOIL ID NUMBER	MAXIMUM LAB DRY DENSITY	WATER CONTENT	IN PLACE DRY DENSITY	PERCENT COMPACTION	COMMENTS
7	8-20-87	1st Lift	(	82.6	35.8	82.0	99.2	1-AC
8		GRADE	)		35.7	82.3	99.6	
9			(		37.2	81.3	98.4	
10			)		37.8	80.5	97.4	
11		1st Lift	(		37.6	81.0	98.0	1-A
12		1st Lift	)		37.0	80.2	97.0	

TEST LOCATION:

7	Retest from Report 8-18-87 on #13 STA. 0-10c' " " " " " "
8	" " " #14 STA. 100' " " " " " "
9	" " " #15 STA. 200' " " " " " "
10	" " " #16 STA. 300' " " " " " "
11	25' West of STA. 400' and 10' S. of North slope
12	40' west of STA. 500' and 20's of North slope

Test No	Probe Depth	Density Count	Density Ratio	Wet Density	Moisture Count	Moisture Ratio	Moisture PCF	Water Content	Dry Density	Percen Compact
7	9"	4150	0.890	111.0	2519	0.716	29.00	35.8	82.0	99.2
8	1	4105	0.871	111.5	2535	0.721	29.25	35.7	82.3	99.6
9	1	4066	0.863	111.5	2610	0.743	30.25	37.2	81.3	98.4
10	1	4091	0.868	111.0	2631	0.749	30.50	37.8	80.5	97.4
11	1	4102	0.870	111.5	2645	0.753	30.50	37.6	81.0	98.0
12	1	4212	0.894	110.0	2578	0.734	29.75	37.0	80.2	97.0

Computations

NOTES: DENSITIES SHOWN: Lbs per cubic foot
WATER CONTENT: Per Cent of dry weight
PERCENT COMPACTION: Based on maximum dry density obtained on sample indicated by soil ID number

1 FILL MATERIAL
2 BACKFILL
3 BASE COURSE
4 SUBBASE
5 SOIL CEMENT
6 OTHER

A TEST RESULTS COMPLY WITH SPECIFICATIONS
B RECOMPACTION REQUIRED
C TEST IS AFTER RECOMPACTION
D. moisture in excess of specs
E. Moisture below specs

Remarks:

Professional Service Industries, Inc.
Shilstone Engineering Testing Laboratory Division

REPORT OF FIELD COMPACTION TESTS

FOR SMC PROJECT: SMC IA POND

DATE 8-20-87 OUR REPORT NO 311

TEST DATA: 33.0

TEST NO	DATE	ELEV / DEPTH	SOILS NUMBER	MAXIMUM LAB DRY DENSITY	WATER CONTENT	IN PLACE DRY DENSITY	PERCENT COMPACTION	COMMENT *
13	8-20-87	1st Lift		82.6	37.6	81.0	98.0	1-A
14		2nd Lift			36.5	82.0	99.2	
15		1st Lift			37.0	81.7	98.9	
16		↓			36.3	81.8	99.0	
17		Final			37.1	81.0	98.0	
18	↓	2nd Lift	↓	↓	36.8	80.0	96.8	↓

TEST LOCATION: (NORTH SLOPE, STA 900) (POND FLOOR STA. 0-300') (NORTH SLOPE STA 0-300')

13 25' west of STA 900' and 30' from bottom of slope (NORTH SLOPE)
14 30' west of STA. 0-100' and 20's. of NORTH Slope (POND FLOOR)
15 50' west of STA. 100' and 25's. of NORTH slope " "
16 90' west of STA. 200' and 35's. of NORTH slope " "
17 20' west of STA. 600' and 12' from bottom of slope
18 45' west of STA. 700' and 25' from bottom of slope

	A	B	C	D	E	F	G	H	I
Test No	Probe Depth	Density Count	Density Ratio	Wet Density	Moisture Count	Moisture Ratio	Moisture PCF	Water Content	Dry Density	Percent Compact
13	8"	4046	0.863	111.5	2657	0.750	30.50	37.6	81.0	98.0
14		4009	0.850	112.0	2602	0.740	30.00	36.5	82.0	99.2
15		4035	0.856	112.0	2633	0.749	30.25	37.0	81.7	98.9
16		4071	0.864	111.5	2581	0.734	29.75	36.3	81.8	99.0
17		4113	0.872	111.0	2595	0.738	30.00	37.1	81.0	98.0
3	↓	4316	0.916	109.5	2560	0.728	29.50	36.8	80.0	96.8

NOTES: DENSITIES SHOWN Lbs. per cubic foot
WATER CONTENT Per Cent of dry weight
PERCENT COMPACTION Based on maximum dry density obtained on sample indicated by soil ID number

1 FILL MATERIAL
2 BACKFILL
3 BASE COURSE
4 SUBBASE
5 SOIL CEMENT
6 OTHER

A TEST RESULTS COMPLY WITH SPECIFICATIONS
B RECOMPACTION REQUIRED
C TEST IS AFTER RECOMPACTION
D. moisture in excess of specs
E. moisture below specs

distribution:

Professional Service Industries, Inc.
Shilstone Engineering Testing Laboratory Division

REPORT OF FIELD COMPACTION TESTS

FOR: San Miguel Coop PROJECT: SMC IA Bond

DATE 8-20-87 OUR REPORT NO. 311-

TEST DATA: 33.0

TEST NO	DATE	DEPTH / LIFT	SOIL ID NUMBER	MAXIMUM LAB DRY DENSITY	WATER CONTENT	IN PLACE DRY DENSITY	PER CENT COMPACTION	COMMENT *	
19.	8-20-87	2nd Lift	)	82.6	36.1	81.5	98.6	1-A	
20		Final			36.7	79.0	95.6	↓	
21		↓			37.2	82.2	99.5	↓	
22		First			35.1	83.2	100.7	1-E	X
23		2nd Lift			34.9	82.3	99.6	↓	X
24	↓	↓	)	↓	36.2	80.7	97.6	1-A	

TEST LOCATION: NORTH SLOPE STA. [illegible] and [illegible] from bottom of slope

19	30' west of STA 200' and 2' from bottom of slope
20	60' west of STA 200' and 15' from top of slope
21	45' west of STA 200' and 10' from bottom of slope
22	20' west of STA 200' and 20's. of North slope
23	40' west of STA 200' and 25's. of North slope
24	10' west of STA. 200' and 5's. of North slope

	A	B	C	D	E	F	G	H	I
Test No.	Probe Depth	Density Count	Density Ratio	Wet Density	Moisture Count	Moisture Ratio	Moisture PCF	Water Content	Dry Density	Percent Compactn
19	8"	4099	0.870	101.0	2565	0.730	29.50	36.1	81.5	98.6
20	6"	6397	1.464	108.0	2513	0.715	29.00	36.7	79.0	95.6
21	↓	6215	1.319	113.0	2655	0.755	30.75	37.2	82.2	99.5
22	↓	6212	1.318	112.5	2536	0.722	29.25	35.1	83.2	100.7
23	8"	4111	0.872	111.0	2499	0.711	28.75	34.9	82.3	99.6
	↓	4221	0.895	110.0	2530	0.720	29.25	36.2	80.7	97.6

NOTES: DENSITIES SHOWN ARE per cubic foot
WATER CONTENT: Per Cent of dry weight
PERCENT COMPACTION: Based on maximum dry density obtained on sample indicated by soil ID number

1 FILL MATERIAL
2 BACKFILL
3 BASE COURSE
4 SUBBASE
5 SOIL CEMENT
6 OTHER

A TEST RESULTS COMPLY WITH SPECIFICATIONS
B RECOMPACTION REQUIRED
C TEST IS AFTER RECOMPACTION
D. moisture in excess of specs
E. moisture below specs

Professional Service Industries, Inc.
Shilstone Engineering Testing Laboratory Division

REPORT OF FIELD COMPACTION TESTS

TESTED FOR San Miguel Coop PROJECT IA Pond

DATE 8-21-87 NEW PROJECT OUR REPORT NO 311-

TEST DATA: 23.7

TEST NO	DATE	ELEV / DEPTH	SOIL ID NUMBER	MAXIMUM LABORATORY DENSITY	WATER CONTENT	IN PLACE DRY DENSITY	PER CENT COMPACTION	COMMENT
1	8-21-87	SIDE	1	88.2	30.9	85.5	96.9	1-A
2		1st LIFT			32.0	84.2	95.4	
3		2nd			30.2	87.5	99.2	
4		↓			31.1	85.0	96.3	
5		END			29.0	85.8	98.4	
6	↓	↓	↓	↓	30.0	85.8	97.2	↓

TEST LOCATION. NOTE: 1-6 = STA. 900 - [illegible] FOR STA. 100-300'

1. 20' west of STA. 900 and 1' S. of south slope
2. 30' west of STA. 900 and 2' S. of south slope
3. 15' west of STA 1000 and 1' S. of south slope
4. 60' west of STA 1100 and 2' S. of south slope
5. 15' west of STA. 100' and 5' S. of south slope
6. 50' west of STA. 200' and 5' S. of south slope

	A	B	C	D	E	F	G	H	I
Test No	Probe Depth	Density Count	Density Ratio	Wet Density	Moisture Count	Moisture Ratio	Moisture PCF	Water Content	Dry Density	Percent Compact
1	8"	4027	0.854	112.0	2316	0.659	26.50	30.9	85.5	96.9
2		4064	0.862	111.2	2345	0.667	27.00	32.0	84.2	95.4
3		3834	0.813	114.0	2301	0.655	26.50	30.2	87.5	99.2
4		4085	0.867	111.5	2319	0.660	26.50	31.1	85.0	96.3
5		4007	0.850	112.0	2207	0.628	25.25	29.0	86.8	98.4
6	↓	4061	0.862	111.5	2244	0.638	25.75	30.0	85.8	97.2

Computations

NOTES: DENSITIES SHOWN Lbs. per cubic foot
WATER CONTENT Per Cent of dry weight
PERCENT COMPACTION Based on maximum dry density obtained on sample indicated by soil ID number

1 FILL MATERIAL
2 BACKFILL
3 BASE COURSE
4 SUBBASE
5 SOIL CEMENT
6 OTHER

A TEST RESULTS COMPLY WITH SPECIFICATIONS
B RECOMPACTION REQUIRED
C TEST IS AFTER RECOMPACTION
D. Moisture in excess of specs
E. Moisture below specs

REMARKS:

Professional Service Industries, Inc.
Shilstone Engineering Testing Laboratory Division

REPORT OF FIELD COMPACTION TESTS

REPORTED FOR San Miguel Coop PROJECT IA Pond

DATE 8-21-91 OUR REPORT NO 311-

TEST DATA: 23.7

TEST NO	DATE	ELEV / DEPTH	SOIL ID NUMBER	MAXIMUM LAB DRY DENSITY	WATER CONTENT	IN PLACE DRY DENSITY	PERCENT COMPACTION	COMMENT
7	8-21-91	1st Lift		88.2	27.6	87.8	99.5	1-A
8		2nd Lift			28.9	87.3	98.9	
9					30.0	85.8	97.2	
10		Subgrade			28.3	91.2	98.8	
11					28.7	91.0	98.6	
12					30.4	85.5	96.9	

TEST LOCATION: Pond Edge Sta. 300'-600', 600-900'

7	5' west of STA 300' and 5' S. of North slope
8	60' west of STA 400' and 4' S. of North slope
9	85' west of STA 500' and 25' S. of North slope
10	35' west of STA 600' and 35' S. of North slope
11	30' west of STA 700' and 5' S. of North slope
12	15' west of STA 800' and 15' S. of North slope

	A	B	C	D	E	F	G	H	I
Test No	Probe Depth	Density Count	Density Ratio	Wet Density	Moisture Count	Moisture Ratio	Moisture PCF	Water Content	Dry Density	Percent Compacti
7	8"	4007	2.850	112.0	2116	0.602	24.25	27.6	81.8	99.5
8		3965	0.841	112.5	2205	0.627	25.25	28.9	87.3	98.9
9		4060	2.861	111.5	2251	0.640	25.75	30.0	85.8	97.2
10		4041	0.857	112.0	2163	0.615	24.75	28.3	87.2	98.8
11		4028	0.855	112.0	2180	0.620	25.00	28.7	89.0	98.6
12	↓	4086	0.867	111.5	2263	0.644	26.00	30.4	85.5	96.9

NOTES: DENSITIES SHOWN Lbs. per cubic foot
WATER CONTENT Per Cent of dry weight
PERCENT COMPACTION Based on maximum dry density obtained on sample indicated by soil ID number

1 FILL MATERIAL
2 BACKFILL
3 BASE COURSE
4 SUBBASE
5 SOIL CEMENT
6 OTHER

A TEST RESULTS COMPLY WITH SPECIFICATIONS
B RECOMPACTION REQUIRED
C TEST IS AFTER RECOMPACTION
D. moisture in excess of specs
S. moisture below spec

REMARKS:

CONSULTANTS

Professional Service Industries, Inc.
Shilstone Engineering Testing Laboratory Division

REPORT OF FIELD COMPACTION TESTS

TESTED FOR: San Miguel Coop PROJECT: SWCIA Pond

DATE 8-21-87 NEW PROCTOR OUR REPORT NO 311—

TEST DATA:

TEST NO	DATE	ELEV DEPTH	SOIL ID NUMBER	MAXIMUM LAB DRY DENSITY	WATER CONTENT	IN PLACE DRY DENSITY	PERCENT COMPACTION	COMMENT
13	8-21-87	2nd LIFT		88.2	29.4	91.3	98.9	1-A
14		1st LIFT			28.2	87.7	99.4	
15		1st LIFT			29.6	86.0	97.5	
16		Final			29.0	86.8	98.4	
17		2nd LIFT			30.8	86.0	97.5	
18		NORTH SIDE			30.9	86.3	97.8	

TEST LOCATION:

13	50' west of ste[illegible] from Top bottom of North slope
14	65' west of ste[illegible] from bottom of North slope
15	7[illegible] west of ste[illegible] from top of North slope
16	[illegible] west of ste[illegible] from bottom of North slope
17	2[illegible] west of ste[illegible] from top of North slope
18	1[illegible] west of ste[illegible] from bottom of North slope

A B C D E F G H I

Test No	Probe Depth	Density Count	Density Ratio	Wet Density	Moisture Count	Moisture Ratio	Moisture PCF	Water Content	Dry Density	Percen Compact
13	1	3950	0.838	113.0	2261	0.643	25.75	29.4	87.3	98.9
14	1	3970	0.842	113.5	2172	0.618	24.75	28.2	87.7	99.4
15	1	4061	0.862	111.5	2235	0.636	25.50	29.6	86.0	97.5
16	1	4005	0.850	112.0	2218	0.631	25.25	29.0	86.8	98.4
17	1	3995	0.848	112.5	2307	0.656	26.50	30.8	86.0	97.5
18	1	3932	0.834	113.0	2333	0.664	26.75	30.9	86.3	97.8

Computations

NOTES: DENSITIES SHOWN: Lbs. per cubic foot
WATER CONTENT: Per Cent of dry weight
PERCENT COMPACTION: Based on maximum dry density obtained on sample indicated by soil ID number

1 FILL MATERIAL
2 BACKFILL
3 BASE COURSE
4 SUBBASE
5 SOIL CEMENT
6 OTHER

A TEST RESULTS COMPLY WITH SPECIFICATIONS
B RECOMPACTION REQUIRED
C TEST IS AFTER RECOMPACTION
C. moisture in excess of specs
&. moisture below specs

REMARKS:

Professional Service Industries, Inc.
Shilstone Engineering Testing Laboratory Division

REPORT OF FIELD COMPACTION TESTS

SUBMITTED FOR

PROJECT

DATE 8-21-87

OUR REPORT NO.:

TEST DATA: 23.7

TEST NO	DATE	ELEV DATA	SOIL ID NUMBER	MAXIMUM LAB DRY DENSITY	WATER CONTENT	IN PLACE DRY DENSITY	PER CENT COMPACTION	COMMENT *
19	8-21-87	Subgrade		88.2	28.9	88.0	99.7	1-A
20		Final			27.5	87.0	98.6	
21		↓			28.2	87.7	99.4	
22		Final			27.0	87.0	98.6	
23		Subgrade			29.8	87.1	98.7	
24	↓	↓		↓	26.4	87.0	98.6	↓

TEST LOCATION: Pond Block <= 300 = 600, 2100, 2200

19 30' west of STA 300 and 20'S. of NORTH SLOPE
20 25' west of STA 300 and 35'S. of NORTH SLOPE
21 10' west of STA 300 and 40'S. of NORTH SLOPE
22 at west of STA 300 and 30'S. of NORTH SLOPE
23 10' west of STA 2100 and 15'S. of NORTH SLOPE
24 7' west of STA 2100 and 5'S. of NORTH SLOPE

	A	B	C	D	E	F	G	H	I
Test No.	Probe Depth	Density Count	Density Ratio	Wet Density	Moisture Count	Moisture Ratio	Moisture PCF	Water Content	Dry Density	Percent Compac
19	8"	3861	0.819	113.5	2230	0.634	25.50	28.9	88.0	99.7
20		4116	0.873	111.0	2105	0.599	24.00	27.5	87.0	98.6
21		4035	0.856	112.0	2120	0.603	24.25	28.2	87.7	99.4
22		4195	0.890	110.5	2073	0.590	23.50	27.0	87.0	98.6
23		3943	0.836	113.0	2262	0.644	26.00	29.8	87.1	98.7
24	↓	4200	0.891	110.0	2009	0.572	23.00	26.4	87.0	98.6

Computations

NOTES: DENSITIES SHOWN: lbs. per cubic foot
WATER CONTENT: Per Cent of dry weight
PERCENT COMPACTION: Based on maximum dry density obtained on sample indicated by soil ID number

1 FILL MATERIAL
2 BACKFILL
3 BASE COURSE
4 SUBBASE
5 SOIL CEMENT
6 OTHER

A TEST RESULTS COMPLY WITH SPECIFICATIONS
B RECOMPACTION REQUIRED
C TEST IS AFTER RECOMPACTION
D. moisture in excess of specs
E. moisture below specs

Professional Service Industries, Inc.
Shilstone Engineering Testing Laboratory Division

REPORT OF FIELD COMPACTION TESTS

TESTED FOR: San Miguel Coop PROJECT: SMC IA POND

DATE 8-21-87 NEW PROCTOR OUR REPORT NO: 311-

TEST DATA: 23.7

TEST NO	DATE	ELEV DEPTH	SOIL ID NUMBER	MAXIMUM LAB DRY DENSITY	WATER CONTENT	IN PLACE DRY DENSITY	PERCENT COMPACTION	COMMENT*
25	8-21-87	Final		88.2	26.6	90.0	102.0	1-A
26		↓			26.5	90.5	102.6	
27		8"			29.6	86.8	98.4	
28					29.3	87.0	98.6	
29		↓			28.7	87.0	98.6	
30	↓	Final		↓	26.1	90.8	102.9	↓

TEST LOCATION: NORTH SLOPE STA 1000-1200' PARKING - STA. [illegible]

25	20' west of STA. 1000' and 20' from top of north slope
26	40' west of STA. 1100' and 10' from bottom of north slope
27	45' west of STA. 600' and 10' S. of north slope
28	75' west of STA 800' and 25' S. of north slope
29	15' west of STA. 700' and 15' S. of north slope
30	25' west of STA. 300' and 30' S. of north slope

	A	B	C	D	E	F	G	H	I
Test No.	Probe Depth	Density Count	Density Ratio	Wet Density	Moisture Count	Moisture Ratio	Moisture PCF	Water Content	Dry Density	Percent Compacti
25	6"	6040	1.288	114.0	2090	0.593	24.00	26.6	90.0	102.0
26	↓	5961	1.265	1145	2095	0.596	24.00	26.5	90.5	102.6
27	8"	3992	0.847	112.5	2260	0.643	25.75	29.6	86.8	98.4
28	↓	3961	0.840	112.5	2222	0.632	25.50	29.3	87.0	98.6
29	↓	4005	0.850	112.0	2182	0.621	25.00	28.7	87.0	98.6
30	6"	5975	1.268	114.5	2087	0.594	23.75	26.1	90.8	102.9

Computations

NOTES: DENSITIES SHOWN: Lbs per cubic foot
WATER CONTENT: Per Cent of dry weight
PERCENT COMPACTION: Based on maximum dry density obtained on sample indicated by soil ID number

1 FILL MATERIAL
2 BACKFILL
3 BASE COURSE
4 SUBBASE
5 SOIL CEMENT
6 OTHER

A TEST RESULTS COMPLY WITH SPECIFICATIONS
B RECOMPACTION REQUIRED
C TEST IS AFTER RECOMPACTION
D. moisture in excess of specs
E. moisture below specs

Professional Service Industries, Inc.
Shilstone Engineering Testing Laboratory Division

REPORT OF FIELD COMPACTION TESTS

TESTED FOR San Miguel PROJECT SMC 1A Pond

DATE 8-24-87 OUR REPORT NO

TEST DATA: OMC 23.7

TEST NO.	DATE	ELEV. / DEPTH	SOIL ID NUMBER	MAX. MOIST. AND DRY DENSITY	WATER CONTENT	% PLACE DRY DENSITY	PERCENT COMPACTION	COMMENTS
1	8-24	Subgrade	New	88.2	22.2	94.5	107.1	1 E
2			Prev.		20.7	84.5	95.8	1 BE
3					16.4	80.7	91.5	1 BE
1a					28.6	85.5	96.9	1 AC
2a					23.4	81.0	91.8	1 BEC
3a					23.2	76.2	86.4	1 BEC

TEST LOCATION: North Slope

1	North Slope ; Sta. - 12+50 , 25' from bottom of slope
2	" " " 13+55 , 30' " " "
3	" " " 14+35 , 20' " " "
1a	" "
2a	" "
3a	" "

	A	B	C	D	E	F	G	H	I
Test No.	Probe Depth	Density Count	Density Ratio	Wet Density	Moisture Count	Moisture Ratio	Moisture PCF	Water Content	Dry Density	Percent Compact
1	8"	5870	.868	115.5	2139	.583	21.00	22.2	94.5	107.1
2		8172	1.208	102.0	1830	.499	17.50	20.7	84.5	95.8
3		9965	1.473	94.0	1427	.389	13.25	16.4	80.75	91.5
1a		6690	.989	110.0	2467	.672	24.50	28.6	85.5	96.9
2a		8623	1.275	100.0	1952	.532	19.00	23.4	81.0	91.8
3a		9928	1.468	94.0	1849	.504	17.75	23.2	76.25	86.4

NOTES: DENSITIES SHOWN lbs. per cubic foot
WATER CONTENT Per Cent of dry weight
PERCENT COMPACTION Based on maximum dry density obtained on sample indicated by soil ID number Granite Brown 6764 3669

1 FILL MATERIAL
2 BACKFILL
3 BASE COURSE
4 SUBBASE
5 SOIL CEMENT
6 OTHER

A TEST RESULTS COMPLY WITH SPECIFICATIONS
B RECOMPACTION REQUIRED
C TEST IS AFTER RECOMPACTION
D. moisture in excess of specs
E. Moisture below specs

Professional Service Industries, Inc.
Shilstone Engineering Testing Laboratory Division

REPORT OF FIELD COMPACTION TESTS

TESTED FOR San Miguel PROJECT Smcia Pond

DATE 8-24-87 OUR REPORT NO [illegible]

TEST DATA: OMC 23.7

TEST NO	DATE	LIFT DEPTH	SOIL & NUMBER	MAXIMUM DRY DENSITY	WATER CONTENT	IN PLACE DRY DENSITY	PERCENT COMPACTION	COMMENTS
4	8-24-87	[illegible] New		88.2	20.2	85.2	96.6	1 E
5		9" lift	Rec		19.8	91.7	104.0	1 E
6		↓			21.7	87.5	99.2	1 E
7		[illegible] subgrade			20.4	88.0	99.7	1 E
8		↓			17.6	86.2	97.7	1 E
9		↓	↓	↓	22.7	86.7	98.3	1 E

TEST LOCATION: Pond Floor

4	Floor, 60' south of north slope Sta 6+00
5	" 50' Rec south of North slope Sta 7+25
6	" 40' " " " " Sta 8+15
7	" 50' " " " " Sta 9+10
8	" 50' " " " " Sta 10+20
9	40' Sta 11+15

	A	B	C	D	E	F	G	H	I
Test No.	Probe Depth	Density Count	Density Ratio	Wet Density	Moisture Count	Moisture Ratio	Moisture PCF	Water Content	Dry Density	Percen Compact
4	8"	8049	1.190	102.5	1793	.489	17.25	20.2	85.25	96.6
5	↓	6732	.995	110.0	1901	.518	18.25	19.8	91.75	104.0
6		7309	1.081	106.5	1975	.538	19.00	21.7	87.5	99.2
7		7446	1.101	106.0	1882	.513	18.00	20.4	88.0	99.7
8		8325	1.231	101.5	1627	.443	15.25	17.6	86.25	97.7
9	↓	7319	1.082	106.5	2041	.556	19.75	22.7	86.75	98.3

NOTES: DENSITIES SHOWN: Lbs. per cubic foot
WATER CONTENT: Per Cent of dry weight
PERCENT COMPACTION: Based on maximum dry density obtained on sample indicated by soil ID number

6764
3669

1 FILL MATERIAL
2 BACKFILL
3 BASE COURSE
4 SUBBASE
5 SOIL CEMENT
6 Other

A TEST RESULTS COMPLY WITH SPECIFICATIONS
B RECOMPACTION REQUIRED
C TEST IS AFTER RECOMPACTION
D. Moisture in excess of specs
E. Moisture below specs

REMARKS: Ground Pic Sand Clay

Professional Service Industries, Inc.
Shilstone Engineering Testing Laboratory Division

REPORT OF FIELD COMPACTION TESTS

TESTED FOR San Miguel PROJECT SMC 1A Pond

DATE 8-24-87 OUR REPORT NO

TEST DATA: OMC 23.7

TEST NO	DATE	DEPTH / LIFT	SOIL ID NUMBER	MAXIMUM LAB DRY DENSITY	WATER CONTENT	IN PLACE DRY DENSITY	PERCENT COMPACTION	COMMENTS*
10	8-24	subgrade	New	88.2	24.0	91.5	103.7	1 E
11	"	"	Floor	"	24.0	89.5	101.4	1 E
12	"	"	"	"	30.8	81.7	92.6	1 B

TEST LOCATION: Pond Floor

10 Floor, 40' south of North slope, Sta. 12+10
11 " 40' " " " " Sta. 13+00
12 " 35' " " " " Sta. 14+00

	A	B	C	D	E	F	G	H	I
Test No.	Probe Depth	Density Count	Density Ratio	Wet Density	Moisture Count	Moisture Ratio	Moisture PCF	Water Content	Dry Density	Percent Compac
10	8"	6193	.916	113.5	2248	.613	20.00	24.0	91.5	103.7
11	"	6558	.970	111.0	2182	.595	21.50	24.0	89.5	101.4
12	"	7262	1.074	107.0	2549	.695	25.25	30.8	81.75	92.6

Computations

NOTES: DENSITIES SHOWN Lbs. per cubic foot
WATER CONTENT Per Cent of dry weight
PERCENT COMPACTION Based on maximum dry density obtained on sample indicated by soil ID number 6764 3469

1 FILL MATERIAL
2 BACKFILL
3 BASE COURSE
4 SUBBASE
5 SOIL CEMENT
6 OTHER

A TEST RESULTS COMPLY WITH SPECIFICATIONS
B RECOMPACTION REQUIRED
C TEST IS AFTER RECOMPACTION
D. Moisture in excess of specs
E. Moisture below specs

remarks

1/

Professional Service Industries, Inc.
Shilstone Engineering Testing Laboratory Division

REPORT OF FIELD COMPACTION TESTS

TESTED FOR San Miguel Coop PROJECT SMCIA Pond

DATE 8-25-87 OUR REPORT NO 311-

TEST DATA:

TEST NO	DATE	FILL DEPTH	SOIL ID NUMBER	MAXIMUM LAB DRY DENSITY	WATER CONTENT	IN PLACE DRY DENSITY	PER CENT COMPACTION	COMMENTS
1	8-25-87	New		88.2	28.7	87.8	99.5	1-AC
2		Pond			28.5	86.8	98.4	
3		2nd Lift			29.6	86.0	97.5	
4					27.7	86.5	98.0	
5					30.1	86.1	97.6	
6		Subgrade			30.8	86.0	97.5	

TEST LOCATION: North Slope STA. 1300, 1400; Pond Floor STA. 600, 700, 800, 900, 1000, 1100

1	Retest of test #2 Report of 8-24-87
2	" " " #3 " " " " "
3	Retest of test #4 " " " " " (Pond Floor) STA. 600'
4	" " " " 5 " " " " " " " 700'
5	" " " " 6 " " " " " " " 800'
6	" " " " 7 " " " " " " " 900'

	A	B	C	D	E	F	G	H	I
Test No.	Probe Depth	Density Count	Density Ratio	Wet Density	Moisture Count	Moisture Ratio	Moisture PCF	Water Content	Dry Density	Perce Compac
1	8"	3935	0.835	113.0	2200	0.626	25.25	28.7	87.8	99.5
2		4101	0.870	111.0	2173	0.618	24.75	28.5	86.8	98.4
3		4063	0.862	111.5	2228	0.634	25.50	29.6	86.0	97.5
4		4155	0.881	110.5	2096	0.596	24.00	27.7	86.5	98.0
5		4028	0.855	112.0	2276	0.648	26.00	30.1	86.1	97.6
6		3946	0.841	112.5	2307	0.656	26.50	30.8	86.0	97.5

Computations

NOTES: DENSITIES SHOWN: Lbs. per cubic foot
WATER CONTENT: Per Cent of dry weight
PERCENT COMPACTION: Based on maximum dry density obtained on sample indicated by soil ID number Tech: Keith M. 6805 3682

1 FILL MATERIAL
2 BACKFILL
3 BASE COURSE
4 SUBBASE
5 SOIL CEMENT
6 OTHER

A TEST RESULTS COMPLY WITH SPECIFICATIONS
B RECOMPACTION REQUIRED
C TEST IS AFTER RECOMPACTION
D. moisture in excess of specs
E. Moisture below specs

Professional Service Industries, Inc.
Shilstone Engineering Testing Laboratory Division

REPORT OF FIELD COMPACTION TESTS

TESTED FOR: San Miguel Coop PROJECT: SME 1A Pond

DATE: 8-25-87 OUR REPORT NO.: 311

TEST DATA: (23.7 ± 3% -4%)

TEST NO	DATE	ELEV DEPTH	SOIL ID NUMBER	MAXIMUM LABORATORY DENSITY	WATER CONTENT	IN PLACE DRY DENSITY	PERCENT COMPACTION	COMMENTS
7	8-25-87	Subgrade	#W	23.2	26.4	87.0	98.6	1-AC
8			#1		28.0	86.3	97.8	
9					29.1	86.7	98.2	
10		Subgrade			30.0	86.5	98.0	
11					31.0	84.3	95.5	

TEST LOCATION: Pond Floor #1 1000', 1100', 1200', 1300', 1400'

7	Retest of test # 8 Report of 8-24-87 Sta. 1000' Lined Liner
8	" " " " 9 " " " " " 1100' " "
9	" " " " 10 " " " " " 1200' " "
10	" " " " " " " " " " 1300' " "
11	" " " " 12 " " " " " 1400' " "

	A	B	C	D	E	F	G	H	I
Test No.	Probe Depth	Density Count	Density Ratio	Wet Density	Moisture Count	Moisture Ratio	Moisture PCF	Water Content	Dry Density	Percent Compact
7	8"	4216	0.894	110.0	2025	0.576	23.00	26.4	87.0	98.6
8	"	4176	0.886	110.5	2121	0.603	24.25	28.0	86.3	97.8
9	"	4050	0.859	112.0	2216	0.630	25.25	29.1	86.7	98.2
10	"	3988	0.846	112.5	2270	0.646	26.00	30.0	86.5	98.0
11	"	4173	0.885	110.5	2273	0.647	26.25	31.0	84.3	95.5

Computations

NOTES: DENSITIES SHOWN: Lbs. per cubic foot
WATER CONTENT: Per Cent of dry weight
PERCENT COMPACTION: Based on maximum dry density obtained on sample indicated by soil ID number

1 FILL MATERIAL
2 BACKFILL
3 BASE COURSE
4 SUBBASE
5 SOIL CEMENT
6 OTHER

A TEST RESULTS COMPLY WITH SPECIFICATIONS
B RECOMPACTION REQUIRED
C TEST IS AFTER RECOMPACTION
D. Moisture in excess of spec.
E. Moisture below spec.

TECH KEITA R.

Professional Service Industries, Inc.
Shilstone Engineering Testing Laboratory Division

REPORT OF FIELD COMPACTION TESTS

TESTED FOR: San Miguel Coop PROJECT: 1A POND

DATE: 8-25-87 OUR REPORT NO 311

TEST DATA: (23.7 ± 3%)

TEST NO	DATE	ELEV DEPTH	SOIL ID NUMBER	MAXIMUM LAB DRY DENSITY	WATER CONTENT	IN PLACE DRY DENSITY	PERCENT COMPACTION	COMMENTS *
1	8-25-87	Subgrade	Fine Plas.	88.2	29.2	85.5	96.9	1-A
2		Emb			28.0	87.5	99.2	
3					29.8	85.4	96.8	
4					26.7	88.8	100.6	
5		1st lift			26.8	88.3	100.1	
6					26.7	88.7	100.5	

TEST LOCATION: Pond Floor (STA 2000) (STA 600) (STA 1000)

1	20' west of STA 2000 + 30' E of North Slope
2	35' west of STA 600 and 20' E of North slope
3	60' west of STA 900 and 35' S of North slope
4	85' west of STA 800 and 40' S of North slope
5	10' west of STA 900' and 10' S of North slope
6	25' west of STA 1000 and 15' S of North slope

	A	B	C	D	E	F	G	H	I
Test No	Probe Depth	Density Count	Density Ratio	Wet Density	Moisture Count	Moisture Ratio	Moisture PCF	Water Content	Dry Density	Percent Compacti
1	8"	4185	0.888	110.5	2193	0.624	25.00	29.2	85.5	96.9
2		4039	0.857	112.0	2146	0.611	24.50	28.0	87.5	99.2
3		4122	0.874	111.0	2238	0.637	25.50	29.8	85.4	96.8
4		3967	0.842	112.5	2035	0.593	23.75	26.7	88.8	100.6
5		4092	0.868	111.5	2041	0.581	23.25	26.8	88.3	100.1
6		3986	0.846	112.5	2089	0.594	23.75	26.7	88.7	100.5

Computations

NOTES: DENSITIES SHOWN Lbs per cubic foot
WATER CONTENT Per Cent of dry weight
PERCENT COMPACTION Based on maximum dry density obtained on sample indicated by soil ID number

1 FILL MATERIAL
2 BACKFILL
3 BASE COURSE
4 SUBBASE
5 SOIL CEMENT
6 OTHER

A TEST RESULTS COMPLY WITH SPECIFICATIONS
B RECOMPACTION REQUIRED
C TEST IS AFTER RECOMPACTION
D. Density is in excess of specs
E. Moisture below specs

Professional Service Industries, Inc.
Shilstone Engineering Testing Laboratory Division

REPORT OF FIELD COMPACTION TESTS

TESTED FOR San Miguel Coop. PROJECT: 1A Pond

DATE 8-25-87 New Proctor OUR REPORT NO: 311

TEST DATA: 23.7 + 3% - 4%

TEST NO	DATE	ELEV / DEPTH	SOIL ID NUMBER	MAXIMUM LAB DRY DENSITY	WATER CONTENT	IN PLACE DRY DENSITY	PERCENT COMPACTION	COMMENT*
7	8-25-87	1st Lift	1	88.2	29.8	85.5	96.9	1-A
8	"	"	"	"	27.9	86.7	98.2	"
9	"	"	"	"	29.0	86.8	98.4	"
10	"	"	"	"	29.3	87.0	98.6	"
11	"	"	"	"	30.4	86.3	97.8	"
12	"	"	"	"	30.8	86.0	97.5	"

TEST LOCATION: Pond Floor (STA 400, 500, 1100 - 1300) North Slope STA. 1300'

7	45' west of STA. 1100' and 25' S. of North Slope
8	70' west of STA. 1200' and 5' S. of North Slope
9	60' west of STA. 1300' and 35' S. of North Slope
10	80' west of STA. 1400 and 15' S. of North slope
11	95' west of STA. 1500 and 45' S. of North slope
12	40' west of STA. 1300 and 10' from bottom of slope

	A	B	C	D	E	F	G	H	I
Test No.	Probe Depth	Density Count	Density Ratio	Wet Density	Moisture Count	Moisture Ratio	Moisture PCF	Water Content	Dry Density	Percent Compacti
7	8"	4133	0.877	111.0	2236	0.636	25.50	29.8	85.5	96.9
8	"	4145	0.879	111.0	2186	0.605	24.25	27.9	86.7	98.2
9	"	4031	0.855	112.0	2214	0.630	25.25	29.0	86.8	98.4
10	"	3965	0.841	112.5	2235	0.636	25.50	29.3	87.0	98.6
11	"	3991	0.847	112.5	2295	0.653	26.25	30.4	86.3	97.8
12	"	4000	0.849	112.5	2321	0.660	26.50	30.8	86.0	97.5

TES: DENSITIES SHOWN Lbs. per cubic foot
WATER CONTENT Per Cent of dry weight
PERCENT COMPACTION Based on maximum dry density obtained on sample indicated by soil ID number

1 FILL MATERIAL
2 BACKFILL
3 BASE COURSE
4 SUBBASE
5 SOIL CEMENT
6 OTHER

A TEST RESULTS COMPLY WITH SPECIFICATIONS
B RECOMPACTION REQUIRED
C TEST IS AFTER RECOMPACTION
D. moisture in excess of specs
E. moisture below specs

Professional Service Industries, Inc.
Shilstone Engineering Testing Laboratory Division

REPORT OF FIELD COMPACTION TESTS

TESTED FOR: San Miguel Coop PROJECT: 1A Pond

DATE 8-26-87 NEW PROCTOR OUR REPORT NO 311 —

TEST DATA: 23.7 + 3% - 4%

TEST NO	DATE	ELEV DEPTH	SOIL ID NUMBER	MAXIMUM LAB DRY DENSITY	WATER CONTENT	IN PLACE DRY DENSITY	PERCENT COMPACTION	COMMENT
1	8-26-87	~~Subgrade~~		88.2	19.6	92.8	105.2	1-E
2		Subgrade			18.4	95.0	107.7	1-E
3					19.5	89.5	101.4	1-E
4					16.3	90.3	102.3	1-E
5					26.0	87.0	98.6	1-A
6		1st Lift						

TEST LOCATION: (Pond Floor - 1500 - 2000) (NORTH SLOPE STA. 1400)

1	20' west of STA. 1500' and 20's of NORTH Slope
2	65' west of STA. 1600' and 5's of North slope
3	90' west of STA. 1700' and 15's of north slope
4	15' west of STA. 1800' and 35's of North slope
5	40' west of STA. 1900' and 30' S. of North slope
6	15' west of STA. 1400' and 10's of North slope

	A	B	C	D	E	F	G	H	I
Test No	Probe Depth	Density Count	Density Ratio	Wet Density	Moisture Count	Moisture Ratio	Moisture PCF	Water Content	Dry Density	Percent Compacti
1	8"	4448	0.880	111.0	1638	0.466	18.25	19.6	92.8	105.2
2		3996	0.843	112.5	1562	0.444	17.50	18.4	95.0	107.7
3		4568	0.969	107.0	1571	0.447	17.50	19.5	89.5	101.4
4		4819	1.022	106.0	1348	0.383	14.75	16.3	90.3	102.3
5		4296	0.911	109.5	1995	0.568	22.50	26.0	87.0	98.6
6		4085	0.867	111.5	2139	0.609	24.50	28.1	87.0	98.6

Stations

NOTES: DENSITIES SHOWN Lbs per cubic foot
WATER CONTENT Per Cent of dry weight
PERCENT COMPACTION Based on maximum dry density obtained on sample indicated by soil ID number

1 FILL MATERIAL
2 BACKFILL
3 BASE COURSE
4 SUBBASE
5 SOIL CEMENT
6 OTHER

A TEST RESULTS COMPLY WITH SPECIFICATIONS
B RECOMPACTION REQUIRED
C TEST IS AFTER RECOMPACTION
D. moisture in excess of specs
E. Moisture below spec

Professional Service Industries, Inc.
Shilstone Engineering Testing Laboratory Division

REPORT OF FIELD COMPACTION TESTS

TESTED FOR: San Miguel Coop PROJECT: 1A Pond

DATE: 8-26-87 OUR REPORT NO. 311-

TEST DATA: 23.7 ± 3%-4%

TEST NO	DATE	ELEV / DEPTH	SOIL ID NUMBER	MAXIMUM LAB DRY DENSITY	WATER CONTENT	IN PLACE DRY DENSITY	PERCENT COMPACTION	COMMENT *
7	8-26-87	2nd Lift	New Pond	88.2	26.0	90.0	102.0	1-A
8		1st Lift			27.4	87.5	99.2	
9		Subgrade			27.5	87.0	98.6	1-AC
10					27.2	88.0	99.7	
11					28.3	86.5	98.0	
12					28.2	85.8	97.2	

TEST LOCATION: NORTH SLOPE STA. 1300'-1500', Pond Floor STA. 1500-1900'

7 35' west of STA. 1300' and 20' from bottom of slope
8 60' west of STA. 1400' and 10' from top of slope
9 Retest of Test # 1 at STA. 1500'
10 " " " " 2 STA. 1600'
11 " " " " 3 STA. 1700'
12 " " " " 4 STA. 1800'

	A	B	C	D	E	F	G	H	I
Test No.	Probe Depth	Density Count	Density Ratio	Wet Density	Moisture Count	Moisture Ratio	Moisture PCF	Water Content	Dry Density	Percent Compacti
7	8"	4001	0.849	112.5	1998	0.568	22.50	26.0	90.0	102.0
8		4063	0.862	111.5	2109	0.600	24.00	27.4	87.5	99.2
9		4106	0.871	111.0	2108	0.600	24.00	27.5	87.0	98.6
10		4056	0.860	112.0	2097	0.597	24.00	27.2	88.0	99.7
11		4110	0.872	111.0	2154	0.613	24.50	28.3	86.5	98.0
12		4221	0.895	110.0	2117	0.602	24.25	28.2	85.8	97.2

* UNLESS SHOWN: Lbs. per cubic foot
CONTENT: Per Cent of dry weight
COMPACTION: Based on maximum dry density obtained on sample indicated by

1 FILL MATERIAL
2 BACKFILL
3 BASE COURSE
4 SUBBASE
5 SOIL CEMENT
6 OTHER

A TEST RESULTS COMPLY WITH SPECIFICATIONS
B RECOMPACTION REQUIRED
C TEST IS AFTER RECOMPACTION
D moisture in excess of specs
E moisture below specs

[redacted]

DATE 8-26-87 OUR REPORT NO 711—

TEST DATA:

TEST NO	DATE	ELEV / DEPTH	SOIL ID NUMBER	MAXIMUM LAB DRY DENSITY	WATER CONTENT	IN PLACE DRY DENSITY	PERCENT COMPACTION	COMMENT *
13	8-26-87	STAKES [redacted]		88.2	27.2	87.3	98.9	1-A
14	"	↓			28.1	87.0	98.6	
15		Subgrade			26.2	84.3	95.5	
16		2nd Lift			29.2	85.5	96.9	
17					27.1	86.5	98.0	
18	↓	↓	↓	↓	28.5	84.8	96.1	↓

TEST LOCATION: STA. 1300-1600 NORTH SLOPE (Pond Floor 900'-1500')

13	30' west of STA. 1300' and 10' from bottom of slope
14	25' west of STA. 1400' and 30' from bottom of slope
15	10' west of STA 1500 and 25' from bottom of slope
16	50' west of STA. 900' and 25's. of North slope
17	95' west of STA. 1000' and 45's. of North slope
18	40' west of STA. 1100' and 15's. of north slope

A	B	C	D	E	F	G	H	I
Test No.	Probe Depth	Density Count	Density Ratio	Wet Density	Moisture Count	Moisture Ratio	Moisture PCF	Water Content	Dry Density	Percent Compacti
13	8"	4136	0.877	111.0	2077	0.591	23.75	27.2	87.3	98.9
14		4089	0.867	111.5	2136	0.608	24.50	28.1	87.0	98.6
15		3965	0.840	106.0	1906	0.542	21.75	26.2	84.3	95.5
16		4188	0.888	110.5	2180	0.620	25.00	29.2	85.5	96.9
17		4231	0.898	110.0	2059	0.586	23.50	27.1	86.5	98.0
18		4359	0.925	109.0	2122	0.604	24.25	28.5	84.8	96.1

NOTES: DENSITIES SHOWN lbs per cubic foot
WATER CONTENT Per Cent of dry weight
PERCENT COMPACTION Based on maximum dry density obtained on sample indicated by soil ID number

1 FILL MATERIAL
2 BACKFILL
3 BASE COURSE
4 SUBBASE
5 SOIL CEMENT
6 OTHER

A TEST RESULTS COMPLY WITH SPECIFICATIONS
B RECOMPACTION REQUIRED
C TEST IS AFTER RECOMPACTION
D. moisture in excess of specs
E. moisture below specs

Professional Service Industries, Inc.
Shilstone Engineering Testing Laboratory Division

REPORT OF FIELD COMPACTION TESTS

TESTED FOR: Carl Mixed Coop PROJECT: 1A Pond

DATE: 8-26-87 OUR REPORT NO.: 311

TEST DATA: 23.7 + 3% - 4%

TEST NO	DATE	ELEV DEPTH	SOIL ID NUMBER	MAXIMUM LAB DRY DENSITY	WATER CONTENT	IN PLACE DRY DENSITY	PERCENT COMPACTION	COMMENT*
19	8-26-87	2nd Lift		88.2	26.1	86.5	98.0	1-A
20		↓			28.0	84.8	96.1	
21		1st Lift			30.1	84.5	95.8	
22		2nd Lift			29.1	84.8	96.1	↓

TEST LOCATION: STA. 1200' - 1600' Pond Floor

19	65' west of STA. 1200' and 25's. of North slope
20	95' west of STA. 1300' and 5's. of North slope
21	10' west of STA. 1400' and 45's. of North slope
22	20' west of STA. 1400' and 30's. of North slope

	A	B	C	D	E	F	G	H	I
Test No.	Probe Depth	Density Count	Density Ratio	Wet Density	Moisture Count	Moisture Ratio	Moisture PCF	Water Content	Dry Density	Percent Compacti
19	8"	4329	0.918	109.0	1995	0.562	22.50	26.1	86.5	98.0
20	↓	4368	0.927	108.5	2093	0.595	23.75	28.0	84.8	96.1
21	↓	4216	0.894	110.0	2230	0.634	25.50	30.1	84.5	95.8
22	↓	4267	0.905	109.5	2164	0.616	24.75	29.1	84.8	96.1

NOTES: DENSITIES SHOWN: Lbs. per cubic foot
WATER CONTENT: Per Cent of dry weight
PERCENT COMPACTION: Based on maximum dry density obtained on sample indicated by soil ID number

1 FILL MATERIAL
2 BACKFILL
3 BASE COURSE
4 SUBBASE
5 SOIL CEMENT
6 OTHER

A TEST RESULTS COMPLY WITH SPECIFICATIONS
B RECOMPACTION REQUIRED
C TEST IS AFTER RECOMPACTION
D. moisture in excess of specs
E. moisture below specs

Professional Service Industries, Inc.
Shilstone Engineering Testing Laboratory Division

REPORT OF FIELD COMPACTION TESTS

TESTED FOR: Sandy Water Coop PROJECT: 1A POND

DATE: 8-27-87 OUR REPORT NO: 311-

TEST DATA: (23.7 +3% -4%)

TEST NO	DATE	ELEV / DEPTH	SOIL ID NUMBER	MAXIMUM LAB DRY DENSITY	WATER CONTENT	IN PLACE DRY DENSITY	PER CENT COMPACTION	COMMENTS*
1	8-27-87	Subgrade	(Proc)	88.2	22.7	91.3	103.5	1-E
2					12.2	89.5	101.4	1-E
3					23.5	85.0	96.3	1-E
4					24.3	83.2	94.3	1-BE
5		[illegible]			28.4	84.5	95.8	1-A
6		[illegible]			32.3	83.5	95.0	

TEST LOCATION: NORTH SLOPE STA. 1500-1900' (Pond Floor STA. 1400'-2000'

1. 35' west of STA. 1500' and 10' from top of slope
2. 68' west of STA. 1600' and 20' from top of slope
3. 75' west of STA. 1700' and 15' from bottom of slope
4. 10' west of STA. 1800' and 30' from bottom of slope
5. 25' west of STA. 2400' and 30's. of North slope
6. 80' west of STA. 1500' and 20' S. of North slope

A Test No.	B Probe Depth	C Density Count	D Density Ratio	E Wet Density	F Moisture Count	G Moisture Ratio	H Moisture PCF	I Water Content	J Dry Density	K Percent Compact
1	8"	4026	0.854	112.0	1832	0.521	20.75	22.7	91.3	103.5
2		5398	1.145	100.5	1034	0.294	11.00	12.2	89.5	101.4
3		4822	1.023	105.0	1768	0.503	20.00	23.5	85.0	96.3
4		5009	1.063	103.5	1793	0.510	20.25	24.3	83.2	94.3
5		4389	0.931	108.5	2093	0.596	24.00	28.4	84.5	95.8
6		4205	0.892	110.5	2252	0.669	27.00	32.3	83.5	95.0

Computations ...

NOTES: DENSITIES SHOWN Lbs per cubic foot
WATER CONTENT Per Cent of dry weight
PERCENT COMPACTION Based on maximum dry density obtained on sample indicated by soil ID number

1 FILL MATERIAL
2 BACKFILL
3 BASE COURSE
4 SUBBASE
5 SOIL CEMENT
6 OTHER

A TEST RESULTS COMPLY WITH SPECIFICATIONS
B RECOMPACTION REQUIRED
C TEST IS AFTER RECOMPACTION

O. moisture in excess of specs
B. Moisture below specs

Professional Service Industries, Inc.
Shilstone Engineering Testing Laboratory Division

REPORT OF FIELD COMPACTION TESTS

TESTED FOR: San Miguel Coop PROJECT: LA Pond

DATE 8-27-87 OUR REPORT NO 311-

TEST DATA: (23.7 +3%-4%)

TEST NO	DATE	DEPTH / ELEV	SOIL ID NUMBER	MAXIMUM LAB DRY DENSITY	WATER CONTENT	IN PLACE DRY DENSITY	PER CENT COMPACTION	COMMENTS
7	8-27-87	8"	2	88.2	33.7	84.5	95.8	1-A
8					27.7	86.5	98.0	
9					27.9	86.8	98.4	
10					27.4	87.5	99.2	
11		5.5 Fade			28.0	85.5	96.9	1-AC
12					27.0	87.0	98.6	

TEST LOCATION: (POND FLOOR 1600'-2000') (NORTH SLOPE 1500'-1900' Retests)

7	30' west of STA. 1600 and 5's of North slope
8	65' west of STA. 1700' and 10's. of north slope
9	20' west of STA 1900' and 15's. of North slope
10	80' west of STA. 1900' and 25's. of North slope
11	Retest of # 1 STA. 1500' Slope
12	Retest of # 2 STA. 1600' Slope

	A	B	C	D	E	F	G	H	I
Test No.	Probe Depth	Density Count	Density Ratio	Wet Density	Moisture Count	Moisture Ratio	Moisture PCF	Water Content	Dry Density	Percent Compact
7	8"	3936	0.835	113.0	2413	0.704	28.50	33.7	84.5	95.8
8		4175	0.886	110.5	2103	0.598	24.00	27.7	86.5	98.0
9		4132	0.877	111.0	2119	0.603	24.25	27.9	86.8	98.4
10		4075	0.864	111.5	2093	0.595	24.00	27.4	87.5	99.2
11		4261	0.904	109.5	2110	0.600	24.00	28.0	85.5	96.9
12		4150	0.880	110.5	2065	0.587	23.50	27.0	87.0	98.6

Computations

NOTES: DENSITIES SHOWN Lbs per cubic foot
WATER CONTENT Per Cent of dry weight
PERCENT COMPACTION Based on maximum dry density obtained on sample indicated by soil ID number

1 FILL MATERIAL
2 BACKFILL
3 BASE COURSE
4 SUBBASE
5 SOIL CEMENT
6 OTHER

A TEST RESULTS COMPLY WITH SPECIFICATIONS
B RECOMPACTION REQUIRED
C TEST IS AFTER RECOMPACTION
D. moisture in excess of specs
E. moisture below spec

Professional Service Industries, Inc.
Shilstone Engineering Testing Laboratory Division

REPORT OF FIELD COMPACTION TESTS

PROJECT: 1A Pond

DATE: 8-27-87

OUR REPORT NO. 311-

TEST DATA: 23.7 (+3% -4%)

TEST NO	DATE	DEPTH / ELEV	SOIL ID NUMBER	MAXIMUM LAB DRY DENSITY	WATER CONTENT	IN PLACE DRY DENSITY	PERCENT COMPACTION	COMMENT *
13	8-27-87	Finish Grade	Non Plastic	88.2	27.1	86.5	98.0	1-AC
14		↓			26.7	86.8	97.5	1-A
15		1st Lift			26.5	86.5	98.0	
16		2nd Lift			27.3	84.0	95.2	
17		1st Lift			29.1	83.3	95.0	
18	↓	↓	↓	↓	30.3	84.0	95.2	↓

TEST LOCATION: NORTH SLOPE (STA. 1700' - 1900') (STA. 1500' - 1900')

13	Retest of #3 STA. 1700' Slope
14	Retest of #4 STA. 1800' Slope
15	10' west of STA 1500' and 10' from bottom of slope
16	20' west of STA 1500' and 20' from top of slope
17	30' west of STA 1600' and 15' from bottom of slope
18	45' west of STA 1700' and 30' from top of slope

A Test No.	B Probe Depth	D Density Count	E Density Ratio	F Wet Density	G Moisture Count	H Moisture Ratio	I Moisture PCF	J Water Content	K Dry Density	L Percent Compacti
13	8"	4216	0.894	110.0	2070	0.589	23.50	27.1	86.5	98.0
14	↓	4235	0.898	110.0	2052	0.584	23.25	26.7	86.8	97.5
15		4316	0.916	109.5	2035	0.579	23.00	26.5	86.5	98.0
16		4591	0.974	107.0	2016	0.574	23.00	27.3	84.0	95.2
17		4487	0.952	107.5	2117	0.602	24.25	29.1	83.3	95.0
18	↓	4278	0.908	109.5	2216	0.630	25.50	30.3	84.0	95.2

NOTES: DENSITIES SHOWN: lbs. per cubic foot
WATER CONTENT: Per Cent of dry weight
PERCENT COMPACTION: Based on maximum dry density obtained on sample indicated by soil ID number

1 FILL MATERIAL
2 BACKFILL
3 BASE COURSE
4 SUBBASE
5 SOIL CEMENT
6 OTHER

A TEST RESULTS COMPLY WITH SPECIFICATIONS
B RE-COMPACTION REQUIRED
C TEST IS AFTER RE-COMPACTION
D. Moisture in excess of specs
E. Moisture below specs

Professional Service Industries, Inc.
Shilstone Engineering Testing Laboratory Division

REPORT OF FIELD COMPACTION TESTS

TESTED FOR: San Miguel Coop PROJECT: 1A POND

DATE 8-27-87 OUR REPORT NO: 311-

TEST DATA: 23.7 +3% -4%

TEST NO	DATE	ELEV / DEPTH	SOIL ID NUMBER	MAXIMUM LAB DRY DENSITY	WATER CONTENT	IN PLACE DRY DENSITY	PERCENT COMPACTION	COMMENT *
19	8-27-87	1st Lift	NFSM	98.2	27.4	85.5	96.9	1-A
20		Final			27.3	86.8	98.4	
21					27.6	85.0	96.3	
22					29.4	85.0	96.3	
23					27.3	86.7	98.2	
24					27.7	85.8	97.2	

TEST LOCATION: (NORTH SLOPE STA. 1800') (STA. 900 - 1400' AND FLOOR)

19	90' west of STA. 1800' and 20' from bottom of slope
20	5' west of STA. 900 and 30's. of north slope
21	25' west of STA. 1000 and 45' s. of north slope
22	40' west of STA. 1100 and 50's. of north slope
23	65' west of STA. 1200 and 35's. of north slope
24	80' west of STA. 1300' and 20's of north slope.

	A	B	C	D	E	F	G	H	I
Test No	Probe Depth	Density Count	Density Ratio	Wet Density	Moisture Count	Moisture Ratio	Moisture PCF	Water Content	Dry Density	Percent Compact
19	8"	4390	0.931	109.0	2065	0.587	23.50	27.4	85.5	96.9
20		4202	0.891	110.5	2091	0.595	23.75	27.3	86.8	98.4
21		4395	0.932	108.5	2071	0.589	23.50	27.6	85.0	96.3
22		4221	0.895	110.0	2178	0.620	25.00	29.4	85.0	96.3
23		4200	0.891	110.5	2080	0.592	23.75	27.3	86.8	98.2
24	V	4310	0.914	109.5	2077	0.591	23.75	27.7	85.8	97.2

Computations

NOTES: DENSITIES SHOWN lbs. per cubic foot
WATER CONTENT Per Cent of dry weight
PERCENT COMPACTION Based on maximum dry density obtained on sample indicated by test ID number

1 FILL MATERIAL
2 BACKFILL
3 BASE COURSE
4 SUBBASE
5 SOIL CEMENT
6 OTHER

A TEST RESULTS COMPLY WITH SPECIFICATIONS
B RECOMPACTION REQUIRED
C TEST IS AFTER RECOMPACTION
D. moisture in excess of specs
E. moisture below specs

Professional Service Industries, Inc.
Shilstone Engineering Testing Laboratory Division

REPORT OF FIELD COMPACTION TESTS

TESTED FOR: San Miguel Coop PROJECT: 1A Pond #2

DATE 8-28-87 OUR REPORT NO: 311-

TEST DATA: (23.7 + 3% - 4%)

TEST NO	DATE	ELEV / DEPTH	SOIL ID NUMBER	MAXIMUM LAB DRY DENSITY	WATER CONTENT	IN PLACE DRY DENSITY	PER CENT COMPACTION	COMMENT*
1	8-28-87	Final	New Pad	88.2	28.5	84.8	96.1	1-A
2		2nd Lift			26.9	85.5	96.9	
3					27.6	85.8	97.2	
4		[illegible]			27.0	85.0	96.3	
5		Final			28.9	84.5	95.8	
6					29.4	85.0	96.3	

TEST LOCATION: NORTH SLOPE STA. 1500' - 1900'

1	45' west of STA. 1500' and 5' from top of slope
2	70' west of STA. 1600' and 10' from bottom of slope
3	25' west of STA. 1700' and 15' from top of slope
4	80' west of STA. 1800' and 20' from bottom of slope
5	30' west of STA. 1600' and 25' from top of slope.
6	95' west of STA. 1700' and 10' from bottom of slope

	A	B	C	D	E	F	G	H	I
Test No.	Probe Depth	Density Count	Density Ratio	Wet Density	Moisture Count	Moisture Ratio	Moisture PCF	Water Content	Dry Density	Percent Compact
1	8"	4356	0.924	109.0	2130	0.606	24.25	28.5	84.8	96.
2		4387	0.931	108.5	2020	0.575	23.00	26.9	85.5	96.9
3		4293	0.907	109.5	2077	0.591	23.75	27.6	85.8	97.2
4		4416	0.937	108.0	2029	0.577	23.00	27.0	85.0	96.3
5		4337	0.920	109.0	2151	0.612	24.50	28.9	84.5	95.8
6		4217	0.895	110.0	2199	0.625	25.00	29.4	85.0	96.3

NOTES: DENSITIES SHOWN: Lbs. per Cubic Foot
WATER CONTENT: Per Cent of dry weight
PERCENT COMPACTION: Based on maximum dry density obtained on sample indicated by soil ID number

1 FILL MATERIAL
2 BACKFILL
3 BASE COURSE
4 SUBBASE
5 SOIL CEMENT
6 OTHER

A TEST RESULTS COMPLY WITH SPECIFICATIONS
B RECOMPACTION REQUIRED
C TEST IS AFTER RECOMPACTION
D. moisture in excess of specs
E. moisture below specs

See computations

Professional Service Industries, Inc.
Shilstone Engineering Testing Laboratory Division

REPORT OF FIELD COMPACTION TESTS

TESTED FOR: San Miguel Coop PROJECT: [illegible] A Pond

DATE: 8-28-87 OUR REPORT NO.: 3127

TEST DATA:

TEST NO	DATE	ELEV DEPTH	SOIL ID NUMBER	MAXIMUM LAB DRY DENSITY	WATER CONTENT	IN PLACE DRY DENSITY	PER CENT COMPACTION	COMMENT
7	8-28-87	1st Lift	Non Plas	88.2	29.1	83.3	95.0	1-A
8	"	Subgrade	"	"	27.6	85.8	97.2	"
9	"	"	"	"	28.8	85.7	97.1	"
10	"	"	"	"	27.4	85.5	96.9	"

TEST LOCATION: NORTH SLOPE STA. 1800 - 2200

7 30' west of STA. 1800' and 20' from top of slope
8 21' west of STA. 1900' [illegible]
9 70' west of STA. 2000' [illegible]
10 60' west of STA. 2600' [illegible]

	A	B	C	D	E	F	G	H	I
Test No	Probe Depth	Density Count	Density Ratio	Wet Density	Moisture Count	Moisture Ratio	Moisture PCF	Water Content	Dry Density	Percen Compact
7	8"	4488	0.952	107.5	2123	0.604	24.25	29.1	83.3	95.0
8	"	4293	0.911	109.5	2082	0.592	23.75	27.6	85.8	97.2
9	"	4166	0.884	110.5	2175	0.619	24.75	28.8	85.7	97.1
10	"	4333	0.919	109.0	2044	0.582	23.50	27.4	85.5	96.9

NOTES: DENSITIES SHOWN Lbs. per cubic foot
WATER CONTENT Per Cent of dry weight
PERCENT COMPACTION Based on maximum dry density obtained on sample indicated by [illegible]

1 FILL MATERIAL
2 BACKFILL
3 BASE COURSE
4 SUBBASE

A TEST RESULTS COMPLY WITH SPECIFICATIONS
B RECOMPACTION REQUIRED
C TEST IS AFTER RECOMPACTION
D. Material is [illegible] of soils

Professional Service Industries, Inc.
Shilstone Engineering Testing Laboratory Division

REPORT OF FIELD COMPACTION TESTS

TESTED FOR: San Miguel Coop PROJECT: 1A Pond

DATE: 9-8-87 OUR REPORT NO.: 311-

TEST DATA: (23.7 + 3% - 4%)

TEST NO	DATE	ELEV / DEPTH	SOIL ID NUMBER	LABORATORY DRY DENSITY	WATER CONTENT	IN PLACE DRY DENSITY	PERCENT COMPACTION	COMMENTS
1		2nd Lift	2	88.2	23.1	84.3	95.5	1-A
2		First Lift			27.1	86.5	98.0	↓
3								
4								
5								
6								

TEST LOCATION: NORTH SLOPE STA. 1800' - 2000'

1	20' west of [illegible] and 20' from bottom of slope
2	60' west of [illegible] and 10' from TOP of slope
3	
4	
5	
6	

	A	B	C	D	E	F	G	H	I
Test No	Proctor Depth	Density Count	Density Ratio	Wet Density	Moisture Count	Moisture Ratio	Moisture PCF	Water Content	Dry Density	Percent Compact
1	8"	4484	0.951	108.0	2084	0.593	23.75	28.1	84.3	95.5
2		4171	0.903	110.0	2015	0.590	23.50	27.1	86.5	98.0
3										
4										
5										
6										

NOTES: DENSITIES SHOWN: Lbs. per cubic foot
WATER CONTENT: Per Cent of dry weight
PERCENT COMPACTION: Based on maximum dry density obtained on sample indicated by soil ID number

1 FILL MATERIAL
2 BACKFILL
3 BASE COURSE
4 SUBBASE
5 SOIL CEMENT
6 OTHER

A TEST RESULTS COMPLY
B RECOMPACTION REQUIRED
C TESTS AFTER RECOMPACTION
D. moisture [illegible]
E. moisture [illegible]

SPECIFICATIONS

Professional Service Industries, Inc.
Shilstone Engineering Testing Laboratory Division

REPORT OF FIELD COMPACTION TESTS

TED FOR: San Miguel Coop PROJECT: 1A POND

DATE: 9-9-87 OUR REPORT NO: 311—

TEST DATA: (237 ± 3% - 4%)

TEST NO	DATE	ELEV / DEPTH	SOIL ID NUMBER	MAXIMUM LAB DRY DENSITY	WATER CONTENT	IN PLACE DRY DENSITY	PER CENT COMPACTION	COMMENTS *
1	9-9-87	1st Lift	2	88.2	27½	88.5	100.3	1-A
2		2nd Lift		↓	27.5	87.0	99.1	↓

TEST LOCATION:

1	[illegible]
2	[illegible]

	A	B	C	D	E	F	G	H	I
Test No	Probe Depth	Density Count	Density Ratio	Wet Density	Moisture Count	Moisture Ratio	Moisture PCF	Water Content	Dry Density	Percent Compacti
1	8"	3921	0.892	113.0	2152	[illegible]	24.00	27.6	88.5	100.3
2	↓	4031	0.955	112.0	2071	3.52	24.00	27.2	88.0	99.7

NOTES: DENSITIES SHOWN: Lbs. per cubic foot
WATER CONTENT: Per Cent of dry weight
PERCENT COMPACTION: Based on maximum dry density obtained on sample indicated by soil ID number

1 FILL MATERIAL
2 BACKFILL
3 BASE COURSE
4 SUBBASE
5 SOIL CEMENT
6 [illegible]

A TEST RESULTS COMPLY WITH SPECIFICATIONS
B RECOMPACTION REQUIRED
C TESTS AFTER RECOMPACTION

G. moisture in excess of spec
B. Moisture below spec

Computer Edition

Professional Service Industries, Inc.
Shilstone Engineering Testing Laboratory Division

REPORT OF FIELD COMPACTION TESTS

LAB FOR: San Miguel Corp. PROJECT: Civic 1A Road

DATE: 9-10-87 CUSTOMER NO: 5111

TEST DATA: [illegible]

TEST NO	DATE	ELEV / DEPTH	SOILS NUMBER	MAXIMUM LABORATORY DENSITY	WATER CONTENT	IN PLACE DRY DENSITY	PERCENT COMPACTION	COMMENT
1	9-10-87	Subgrade	5	99.2	26.5	85.8	97.2	1-A
2	"	"	"	"	26.6	86.5	98.0	"
3	"	Final	"	"	26.0	87.8	99.5	"
4	"	1st Lift	"	"	26.8	87.5	99.2	"
5	"	"	"	"	27.1	86.5	98.0	1-A
6	"	"	"	"	26.7	86.0	97.5	"

TEST LOCATION: Subgrade [illegible] 2000, 2100

1. 30' west of STA. 2000' and 2' from bottom of slope
2. 65' west of STA. 2000' and 2' from bottom of slope
3. 45' west of STA. 2000' and 5' from bottom of slope
4. 90' west of STA. 2000' and 5' from top of slope
5. 15' west of STA. 2100' and 15' from top of slope
6. 45' west of STA. 2200' and 20' from bottom of slope

	A	B	C	D	E	F	G	H	I
Test No.	Probe Depth	Density Count	Density Ratio	Net Density	Moisture Count	Moisture Ratio	Moisture PCF	Water Content	Dry Density	Percent Compacti
1		[illegible]	0.934	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	97.2
2		4317	0.911	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	86.5	98.0
3		[illegible]	0.891	110.5	[illegible]	0.570	22.75	26.0	87.8	99.5
4		11128	0.874	111.0	2069	0.583	23.50	26.8	87.5	99.2
5		4231	0.896	110.0	2092	0.589	23.50	27.1	86.5	98.0
6		4136	0.923	109.0	2038	0.574	2300	26.7	86.0	97.5

NOTES: DENSITIES SHOWN ARE DRY DENSITIES
WATER CONTENT: Per Cent of dry weight
PERCENT COMPACTION: Based on maximum dry density obtained on sample indicated by soil ID number

1 FILL MATERIAL
2 BACKFILL
3 BASE COURSE
4 SUBBASE
5 SOIL CEMENT
6 OTHER

A TEST RESULTS COMPLY WITH SPECIFICATIONS
B RECOMPACTION REQUIRED
C TEST IS AFTER RECOMPACTION
D. moisture in excess of spec
E. moisture below spec

Reference

Professional Service Industries, Inc.
Shilstone Engineering Testing Laboratory Division

REPORT OF FIELD COMPACTION TESTS

FOR: San Miguel Coop PROJECT: IA Pond

DATE 9-14-87 OUR REPORT NO 311-

TEST DATA: 23.7 + 3% - 4%

TEST NO	DATE	ELEV / DEPTH	STR ID NUMBER	MAXIMUM LAB DRY DENSITY	WATER CONTENT	IN PLACE DRY DENSITY	PER CENT COMPACTION	COMMENTS
1	9-14-87	1st Lift	2	88.2	26.1	87.3	98.9	1-A
2	"	2nd Lift	3	"	26.2	87.5	99.2	"
3	"	2nd Lift	1	"	26.5	85.8	97.2	"
4	"	2nd Lift	1	"	26.8	88.3	100.1	"
5	"	2nd Lift	1	"	27.6	88.5	100.3	"
6	"	Final	1	"	26.7	86.8	98.4	"

TEST LOCATION: NORTH SLOPE

1	40' west of STA. 2300 and 20' from bottom of slope
2	20' west of STA. 2000 and 10' from top of slope
3	15' west of STA. 2100' and 5' from bottom of slope
4	55' west of STA 2200' and 15' from bottom of slope
5	75' west of STA. 2300' and 10' from top of slope
6	85' west of STA. 2000 and 15' from top of slope

	A	B	C	D	E	F	G	H	I
Test No.	Probe Depth	Density Count	Density Ratio	Wet Density	Moisture Count	Moisture Ratio	Moisture PCF	Water Content	Dry Density	Percent Compactic
1	8"	4226	0.895	110.0	2028	0.571	22.75	26.1	87.3	98.9
2	↓	4160	0.881	110.5	2045	0.576	23.00	26.2	87.5	99.2
3	8"	4391	0.930	108.5	2033	0.572	22.75	26.5	85.8	97.2
4	↓	4025	0.852	112.0	2115	0.596	23.75	26.8	88.3	100.1
5	↓	3945	0.835	113.0	2163	0.609	24.50	27.6	88.5	100.3
6	↓	4261	0.902	110.0	2073	0.584	23.25	26.7	86.8	98.4

NOTES: DENSITIES SHOWN ARE per cubic foot
WATER CONTENT: Per Cent of dry weight
PERCENT COMPACTION: Based on maximum dry density obtained on sample identified by soil ID number

Remarks:

Tech G. Quintanilla

1 FILL MATERIAL
2 BACKFILL
3 BASE COURSE
4 SUBBASE
5 SOIL CEMENT
6 OTHER

A TEST RESULTS COMPLY WITH SPECIFICATIONS
B RECOMPACTION REQUIRED
C TESTS AFTER RECOMPACTION

4720/ 4
C. moisture [illegible] of spec
G. Moisture below spec

Professional Service Industries, Inc.
Shilstone Engineering Testing Laboratory Division

REPORT OF FIELD COMPACTION TESTS

TESTED FOR: San Miguel Coop PROJECT: 1A Pond

DATE: 9-12-87 OUR REPORT NO.: 311—

TEST DATA: 23.7 ± 3%-4%

TEST NO	DATE	ELEV / DEPTH	SOIL ID NUMBER	MAXIMUM LAB DRY DENSITY	WATER CONTENT	IN PLACE DRY DENSITY	PERCENT COMPACTION	COMMENTS
1	9-12-87	Final		88.2	26.7	86.8	98.4	1-A
2	↓	↓		↓	28.9	84.5	95.8	↓
3	↓	↓		↓	27.3	86.7	98.2	↓

TEST LOCATION: NORTH SLOPE STA. 2100-2400

1. 25' west of STA. 2100 and 10' from top of slope.
2. 40' west of STA. 2200 and 20' from bottom of slope.
3. 65' west of STA. 2300 and 15' from bottom of slope.

	A	B	C	D	E	F	G	H	I
Test No	Probe Depth	Density Count	Density Ratio	Wet Density	Moisture Count	Moisture Ratio	Moisture PCF	Water Content	Dry Density	Percent Compacti
1	8"	4243	0.898	110.0	2064	0.581	23.25	26.7	86.8	98.4
2	↓	4332	0.917	109.0	2176	0.613	24.50	28.9	84.5	95.8
3	↓	4185	0.886	110.5	2107	0.593	23.75	27.3	86.7	98.2

NOTES: DENSITIES SHOWN: Lbs. per cubic foot
WATER CONTENT: Per Cent of dry weight
PERCENT COMPACTION: Based on maximum dry density obtained on sample indicated by soil ID number

1 P.C.C. MATERIAL
2 BACKFILL
3 BASE COURSE
4 SUBBASE
5 SOIL CEMENT
6 OTHER

A TEST RESULTS COMPLY WITH SPECIFICATIONS
B RECOMPACTION REQUIRED
C TEST IS AFTER RECOMPACTION
D. moisture increase of spec
E. moisture below spec

Professional Service Industries, Inc.
Shilstone Engineering Testing Laboratory Division

REPORT OF FIELD COMPACTION TESTS

SUBMITTED FOR: San Miguel Coop PROJECT: SMC IA Pond

DATE 9-14-87 OUR REPORT NO.: 311-

TEST DATA: 23.7 +3% -4%

TEST NO	DATE	ELEV. / DEPTH	SOIL ID NUMBER	MAXIMUM LAB DRY DENSITY	WATER CONTENT	IN PLACE DRY DENSITY	PER CENT COMPACTION	COMMENT*
1	9-14-87	Final		88.2	27.0	85.8	97.2	1-A
2		2nd Lift			27.1	87.0	98.6	
3					26.5	86.5	98.0	
4					26.2	86.7	98.2	
5					27.9	86.0	97.5	
6		1st Lift			28.3	87.3	98.9	

TEST LOCATION: Pond FLOOR STA. 1500-2100'

1	20' west of STA. 1500' and 20' S. of North slope
2	40' west of STA. 1600' and 35' S. of North slope
3	65' west of STA. 1700' and 10' S. of North slope
4	80' west of STA. 1800' and 45' S. of North slope
5	10' west of STA. 1900' and 15' S. of North slope
6	55' west of STA. 2000 and 30' S. of North slope

	A	B	C	D	E	F	G	H	I
Test No	Probe Depth	Density Count	Density Ratio	Wet Density	Moisture Count	Moisture Ratio	Moisture PCF	Water Content	Dry Density	Percent Compactn
1	8"	4362	0.923	109.0	2071 2085	0.583	23.25	27.0	85.8	97.2
2		4302	0.890	110.5	2085	0.587	23.50	27.1	87.0	98.6
3		4333	0.918	109.5	2058	0.578	23.00	26.5	86.5	98.0
4		4315	0.914	109.5	2085	0.573	22.75	26.2	86.7	98.2
5		4259	0.902	110.0	2129	0.600	24.00	27.9	86.0	97.5
6		4029	0.853	112.0	2193	0.618	24.75	28.3	87.3	98.9

NOTES: DENSITIES SHOWN Lbs. per cubic foot
WATER CONTENT Per Cent of dry weight
PERCENT COMPACTION Based on maximum dry density obtained on sample indicated by soil ID number

1 FILL MATERIAL
2 BACKFILL
3 BASE COURSE
4 SLABBASE
5 SOIL CEMENT
6 OTHER

A TEST RESULTS COMPLY WITH SPECIFICATIONS
B RECOMPACTION REQUIRED
C TEST IS AFTER RECOMPACTION
D. Moisture in excess of spec
E. Moisture below spec

REMARKS:

Professional Service Industries, Inc.
Shilstone Engineering Testing Laboratory Division

REPORT OF FIELD COMPACTION TESTS

TO FOR: San Miguel Coop PROJECT: SMC IA Pond

DATE: 9-14-87 CUR REPORT NO: 311

TEST DATA: 237 +3%-4%

TEST NO	DATE	ELEV / DEPTH	SOIL ID NUMBER	MAXIMUM LAB DRY DENSITY	WATER CONTENT	IN PLACE DRY DENSITY	PER CENT COMPACTION	COMMENT*
7	9-14-87	Subgrade	2	88.2	28.0	85.5	96.9	1-A
8	"	1st Lift	2		26.7	86.0	97.5	"

TEST LOCATION: "WEST SLOPE IN NW. CORNER STA. 2400-2475'

7 20' south of N.W. corner of STA. 2400-2475' of west slope and 5' from bottom of slope.

8 35' south of N.W. corner of STA. 2400-2475' of west slope and 20' from bottom of slope

	A	B	C	D	E	F	G	H	I
Test No.	Probe Depth	Density Count	Density Ratio	Wet Density	Moisture Count	Moisture Ratio	Moisture PCF	Water Content	Dry Density	Percent Compactn
7	8"	4279	0.906	109.5	2125	0.598	24.00	28.0	85.5	96.9
8	"	4372	0.926	109.0	2045	0.576	23.00	26.7	86.0	97.5

NOTES. DENSITIES SHOWN Lbs. per cubic foot
WATER CONTENT Per Cent of dry weight
PERCENT COMPACTION Based on maximum dry density obtained on sample indicated by soil ID number

REMARKS:

1 FILL MATERIAL
2 BACKFILL
3 BASE COURSE
4 SUBBASE
5 SOIL CEMENT
6 OTHER

A TEST RESULTS COMPLY WITH SPECIFICATIONS
B RECOMPACTION REQUIRED
C TEST IS AFTER RECOMPACTION
D moisture in excess of spec
E moisture below spec

Professional Service Industries, Inc.
Shilstone Engineering Testing Laboratory Division

REPORT OF FIELD COMPACTION TESTS

TESTED FOR: San Miguel Coop PROJECT: SMC IA POND

DATE: 9-15-87 OUR REPORT NO.: 311-

TEST DATA: 23.7 + 3% − 4%

TEST NO	DATE	ELEV / DEPTH	SOIL ID NUMBER	MAXIMUM LAB DRY DENSITY	WATER CONTENT	IN PLACE DRY DENSITY	PERCENT COMPACTION	COMMENTS
1	9-15-87	2nd Lift		88.2	29.3	80.0	90.7	1-B
2		~~2nd Lift~~		↓	26.3	86.2	97.7	1-AC
3		Final			28.2	82.3	93.3	1-B
4		↓			26.1	88.5	100.3	1-AC
5					29.2	77.0	87.3	1-B
6	↓			↓	26.3	83.5	94.6	1-B, 12-1 ?

TEST LOCATION: WEST SLOPE STA 2400-2475' (POND FLOOR NORTH SIDE)

1	40' South of N.W. corner of west slope and 15' from top of slope
2	Retest of test # 1
3	15' South of N.W. corner of west slope and 20' from bottom of slope
4	Retest of test # 2
5	20' west of STA. 1600 and 20' S. of north slope
6	35' west of STA. 1800 and 5' S. of north slope

	A	B	C	D	E	F	G	H	I
Test No	Probe Depth	Density Count	Density Ratio	Wet Density	Moisture Count	Moisture Ratio	Moisture PCF	Water Content	Dry Density	Percent Compact
1	8"	4965	1.051	103.5	2092	0.589	23.50	29.3	80.0	90.7
2	↓	4332	0.917	109.0	2025	0.570	22.75	26.3	86.2	97.7
3		4981	1.012	105.5	2075	0.584	23.25	28.2	82.3	93.3
4		4100	0.868	111.5	2035	0.573	23.00	26.1	88.5	100.3
5		5551	1.176	99.5	1995	0.562	22.50	29.2	77.0	87.3
6	↓	4765	1.009	105.5	1965	0.553	22.00	26.3	83.5	94.6

Computations

NOTES: DENSITIES SHOWN: Lbs. per cubic foot
WATER CONTENT: Per Cent of dry weight
PERCENT COMPACTION: Based on maximum dry density obtained on sample indicated by soil ID number

REMARKS:

1 FILL MATERIAL
2 BACKFILL
3 BASE COURSE
4 SUBGRADE
5 SOIL CEMENT
6 OTHER

A TEST RESULTS COMPLY WITH SPECIFICATIONS
B RECOMPACTION REQUIRED
C TEST IS AFTER RECOMPACTION
D moisture in excess of spec
E moisture below spec

Professional Service Industries, Inc.
Shilstone Engineering Testing Laboratory Division

REPORT OF FIELD COMPACTION TESTS

SUBMITTED FOR: San Miguel Coop PROJECT: SMC IA Pond

DATE: 9-15-87 OUR REPORT NO.: 311-

TEST DATA: 23.7 +3% -4%

TEST NO	DATE	ELEV / DEPTH	SOIL ID NUMBER	MARSHALL LAB DRY DENSITY	WATER CONTENT	IN PLACE DRY DENSITY	PERCENT COMPACTION	COMMENT *
7	9-15-87	Final	2	88.2	26.7	86.8	98.4	1-AC
8					27.6	85.0	96.3	1-A
9					26.2	87.5	99.2	1-AC
10					27.7	85.8	97.2	1-A
11		1st Lift			28.2	85.0	96.3	
12		1st Lift			28.8	85.7	97.1	

TEST LOCATION: Pond Floor STA. 1600'-2200'

7	Retest of → STA. 1600' from test #5 of first page of this report
8	65' west of STA. 1700' and 15' S. of north slope
9	Retest of → STA. 1900' from test #6 of first page of this Report
10	20' west of STA. 1900' and 30' S. of north slope
11	90' west of STA. 2000' and 25' S. of north slope
12	15' west of STA. 2100' and 10' S. of north slope

	A	B	C	D	E	F	G	H	I
Test No.	Probe Depth	Density Count	Density Ratio	Wet Density	Moisture Count	Moisture Ratio	Moisture PCF	Water Content	Dry Density	Percent Compaction
7	8"	4219	0.893	110.0	2049	0.577	23.25	26.7	86.8	98.4
8		4431	0.938	108.5	2087	0.588	23.50	27.6	85.0	96.3
9		4193	0.888	110.5	2041	0.575	23.00	26.2	87.5	99.2
10		4266	0.903	109.5	2105	0.593	23.75	27.7	85.8	97.2
11		4361	0.923	109.0	2110	0.594	24.00	28.2	85.0	96.3
12		4001	0.847	112.5	2176	0.613	24.75	28.8	85.7	97.1

NOTES: DENSITIES SHOWN: Lbs. per cubic foot
WATER CONTENT: Per Cent of dry weight
PERCENT COMPACTION: Based on maximum dry density obtained on sample indicated by soil ID number

REMARKS:

1 FILL MATERIAL
2 BACKFILL
3 BASE COURSE
4 SUBBASE
5 SOIL CEMENT
6 OTHER

A TEST RESULTS COMPLY WITH SPECIFICATIONS
B RECOMPACTION REQUIRED
C TEST IS AFTER RECOMPACTION
D. moisture [illegible] of spec
E. Moisture below Range

Professional Service Industries, Inc.
Shilstone Engineering Testing Laboratory Division

REPORT OF FIELD COMPACTION TESTS

TESTED FOR: San Miguel Coop PROJECT: SMC IA Pond

DATE: 9-16-87 OUR REPORT NO.: 311-

TEST DATA: 23.7 +3% -4%

TEST NO	DATE	ELEV / DEPTH	SOIL ID NUMBER	MAXIMUM LAB DRY DENSITY	WATER CONTENT	IN PLACE DRY DENSITY	PERCENT COMPACTION	COMMENT *
1	9-16-87	Fine		88.2	26.3	86.3	97.8	1-A
2		2nd Lift			26.5	88.5	100.3	
3		1st Lift			26.6	87.3	98.9	
4		subgrade			27.9	86.8	98.4	
5		1st Lift			27.5	87.0	98.6	
6					27.0	87.8	99.5	

TEST LOCATION: Pond FLOOR STA. 2000' - 2475'

1	35' west of STA. 2000' and 5' S. of North slope
2	10' west of STA. 2100' and 10' S. of North slope
3	90' west of STA. 2200' and 15' S. of North slope
4	55' west of STA. 2300' and 20' S. of North slope
5	70' west of STA. 2400' and 25' S. of North slope
6	20' west of STA. 2300' and 30' S. of North slope

	A	B	C	D	E	F	G	H	I
Test No.	Probe Depth	Density Count	Density Ratio	Wet Density	Moisture Count	Moisture Ratio	Moisture PCF	Water Content	Dry Density	Percent Compactio
1	8"	4362	0.924	109.0	2033	0.572	22.75	26.3	86.3	97.8
2		4038	0.855	112.0	2084	0.587	23.50	26.5	88.5	100.3
3		4184	0.886	110.5	2069	0.583	23.25	26.6	87.3	98.9
4		4165	0.882	111.0	2137	0.602	24.25	27.9	86.8	98.4
5		4125	0.873	111.0	2112	0.595	24.00	27.5	87.0	98.6
6		4057	0.859	111.5	2100	0.591	23.75	27.0	87.8	99.5

NOTES: DENSITIES SHOWN: Lbs. per cubic foot
WATER CONTENT: Per Cent of dry weight
PERCENT COMPACTION: Based on maximum dry density obtained on sample indicated by soil ID number

1 FILL MATERIAL
2 BACKFILL
3 BASE COURSE
4 SUBBASE
5 SOIL CEMENT
6 OTHER

A TEST RESULTS COMPLY WITH SPECIFICATIONS
B RECOMPACTION REQUIRED
C TEST IS AFTER RECOMPACTION
D. [illegible] of spec
E. [illegible] specs

Professional Service Industries, Inc.
Shilstone Engineering Testing Laboratory Division

REPORT OF FIELD COMPACTION TESTS

TESTED FOR: San Miguel Coop PROJECT: SMC IA Pond

DATE: 9-16-87 OUR REPORT NO.: 311-

TEST DATA: 23.7 +3% -4%

Test No	Date	Elev. or Depth	Soil ID Number	Maximum Lab Dry Density	Water Content	In Place Dry Density	Percent Compaction	Comment
7	9-16-87	Finals	2	88.2	26.5	86.5	98.0	1-A
8		2nd Lift			27.8	85.3	96.7	
9		↓			26.1	86.0	97.5	
10		2nd Lift			27.5	87.0	98.6	
11		Final			27.4	86.3	97.8	
12	↓	↓	↓	↓	26.0	87.8	99.5	↓

TEST LOCATION: Pond Floor 2100'-2975'

7	30' west of	STA. 2100' and 35' S. of North slope
8	20' west of	STA. 2200' and 40' S. of North slope
9	80' west of	STA. 2300' and 25' S. of North slope
10	65' west of	STA. 2400' and 20' S. of North slope
11	60' west of	STA. 2200' and 15' S. of North slope
12	10' west of	STA. 2300' and 10' S. of North slope

	A	B	C	D	E	F	G	H	I
Test No	Probe Depth	Density Count	Density Ratio	Wet Density	Moisture Count	Moisture Ratio	Moisture PCF	Water Content	Dry Density	Percent Compaction
7	8"	4286	0.908	109.5	2040	0.574	23.00	26.5	86.5	98.0
8		4323	0.915	109.0	2094	0.590	23.75	27.8	85.3	96.7
9		4415	0.935	108.5	2012	0.567	22.50	26.1	86.0	97.5
10		4135	0.876	111.0	2120	0.597	24.00	27.5	87.0	98.6
11		4254	0.901	110.0	2103	0.592	23.75	27.4	86.3	97.8
12	↓	4230	0.896	110.0	2134	0.601	22.25	26.0	87.8	99.5

NOTES: DENSITIES SHOWN Lbs. per cubic foot
WATER CONTENT Per Cent of dry weight
PERCENT COMPACTION Based on maximum dry density obtained on sample indicated by soil ID number

1 FILL MATERIAL
2 BACKFILL
3 BASE COURSE
4 SUBBASE
5 SOIL CEMENT
6 OTHER

A TEST RESULTS COMPLY WITH SPECIFICATIONS
B RECOMPACTION REQUIRED
C TEST IS AFTER RECOMPACTION
D. Moisture in excess of spec
E. Moisture below spec

Professional Service Industries, Inc.
Shilstone Engineering Testing Laboratory Division

REPORT OF FIELD COMPACTION TESTS

TESTED FOR: San Miguel Coop PROJECT: SMC IA Pond

DATE: 9-16-87 OUR REPORT NO.: 311-

TEST DATA: 23.7 +3% -4%

TEST NO	DATE	ELEV / DEPTH	SOIL ID NUMBER	MAXIMUM LAB DRY DENSITY	WATER CONTENT	IN PLACE DRY DENSITY	PERCENT COMPACTION	COMMENT *
13	9-16-87	Final	2	88.2	27.8	85.3	96.7	1 A
12								
10								
9								

TEST LOCATION: Pond Floor STA. 2400'

13	45' west of STA. 2400' and 45' s. of North slope

Test No.	Probe Depth	Density Count	Density Ratio	Wet Density	Moisture Count	Moisture Ratio	Moisture PCF	Water Content	Dry Density	Percent Compactn
	A	B	C	D	E	F	G	H	I	
13	8"	4367	0.925	109.0	2111	0.594	23.75	27.8	85.3	96.7

NOTES: DENSITIES SHOWN Lbs. per cubic foot
WATER CONTENT Per Cent of dry weight
PERCENT COMPACTION Based on maximum dry density obtained on sample indicated by soil ID number

1 FILL MATERIAL
2 BACKFILL
3 BASE COURSE
4 SUBBASE
5 SOIL CEMENT
6 OTHER

A TEST RESULTS COMPLY WITH SPECIFICATIONS
B RECOMPACTION REQUIRED
C TEST IS AFTER RECOMPACTION
E. moisture increase of spec
G. Moisture content grams

REMARKS:

Professional Service Industries, Inc.
Shilstone Engineering Testing Laboratory Division

REPORT OF FIELD COMPACTION TESTS

TESTED FOR: San Miguel Coop PROJECT: SMC IA Pond

DATE: 9-17-87 OUR REPORT NO: 311-

TEST DATA: 23.7 +3% -4%

TEST NO	DATE	ELEV / DEPTH	SOIL ID NUMBER	MAXIMUM LAB DRY DENSITY	WATER CONTENT	IN PLACE DRY DENSITY	PERCENT COMPACTION	COMMENT*
1	9-17-87	Finish	2	88.2	28.5	84.0	95.2	1-A
2		↓		↓	27.6	85.0	96.3	↓
3								
4								
5								
6	↓							

TEST LOCATION: Pond Berm South Slope Reworked Reshaped Areas Pond Floor

1. 40' North of south slope and 20 west of STA. 200'
2. 50' North of south slope and 85' west of STA. 200'
3.
4. (Reconstructed Areas that
5. were damaged!)
6.

	A	B	C	D	E	F	G	H	I
Test No.	Probe Depth	Density Count	Density Ratio	Wet Density	Moisture Count	Moisture Ratio	Moisture PCF	Water Content	Dry Density	Percent Compacti
1	8"	4466	0.946	108.0	2133	0.601	24.00	28.5	84.0	95.2
2		4416	0.935	108.5	2069	0.583	23.50	27.6	85.0	96.3
3										
4										
5										
6										

Computations

NOTES: DENSITIES SHOWN: Lbs. per cubic foot
WATER CONTENT: Per Cent of dry weight
PERCENT COMPACTION: Based on maximum dry density obtained on sample indicated by soil ID number

1 FILL MATERIAL
2 BACKFILL
3 BASE COURSE
4 SUBBASE
5 SOIL CEMENT
6 OTHER

A TEST RESULTS COMPLY WITH SPECIFICATIONS
B RECOMPACTION REQUIRED
C TEST IS AFTER RECOMPACTION
D. moisture increase of spec
E. moisture below specs

REMARKS:

Professional Service Industries, Inc.
Shilstone Engineering Testing Laboratory Division

REPORT OF FIELD COMPACTION TESTS

ED FOR: San Miguel Coop PROJECT: SMC IA Pond

DATE: 9-21-87 OUR REPORT NO: 311-

TEST DATA: 23.7 +3% -4%

TEST NO	DATE	ELEV / DEPTH	SOIL ID NUMBER	MAXIMUM LAB DRY DENSITY	WATER CONTENT	IN PLACE DRY DENSITY	PER CENT COMPACTION	COMMENTS
1	9-21-87	Subgrade	2	88.2	27.1	88.5	100.3	1-A
2					26.6	87.3	98.9	
3		1st Lift			26.3	86.3	97.8	
4					27.5	86.2	97.7	

TEST LOCATION: Pond FLOOR STA. 100' - 200' SOUTH SLOPE

1	40' west of STA. 100' and 25' from bottom of slope
2	70' west of STA. 200' and 12' from top of slope
3	20' west of STA. 100' and 15' from top of slope
4	50' west of STA. 200' and 10' from bottom of slope

	A	B	C	D	E	F	G	H	I
Test No	Probe Depth	Density Count	Density Ratio	Wet Density	Moisture Count	Moisture Ratio	Moisture PCF	Water Content	Dry Density	Percent Compacti
1	8"	3995	0.846	112.5	2131	0.600	24.00	27.1	88.5	100.3
2		4165	0.882	110.5	2074	0.584	23.25	26.6	87.3	98.9
3		4378	0.927	109.0	2025	0.570	22.75	26.3	86.3	97.8
4		4210	0.891	110.0	2100	0.591	23.75	27.5	86.2	97.7

NOTES: DENSITIES SHOWN: Lbs. per cubic foot
WATER CONTENT: Per Cent of dry weight
PERCENT COMPACTION: Based on maximum dry density obtained on sample indicated by soil ID number

REMARKS

1 FILL MATERIAL
2 BACKFILL
3 BASE COURSE
4 SUBGRADE
5 SOIL CEMENT
6 OTHER

A TEST RESULTS COMPLY WITH SPECIFICATIONS
B RECOMPACTION REQUIRED
C TESTS AFTER RECOMPACTION
D [illegible] to base of spec
E [illegible] below grade

Professional Service Industries, Inc.
Shilstone Engineering Testing Laboratory Division

REPORT OF FIELD COMPACTION TESTS

TESTED FOR: San Miguel Coop PROJECT: SMC IA Pond

DATE 9-22-87 OUR REPORT NO.: 311-

TEST DATA: 23.7 +3% -4%

TEST NO	DATE	ELEV DEPTH	SOIL & MOISTURE	MAXIMUM LAB DRY DENSITY	WATER CONTENT	IN PLACE DRY DENSITY	PERCENT COMPACTION	COMMENT
1	9-22-87	2nd.	2	88.2	27.0	87.0	98.6	1-A
2	↓	↓	↓	↓	28.0	85.5	96.9	↓
3		Final			26.7	86.0	97.5	
4	↓	↓	↓	↓	28.5	86.8	98.4	↓

TEST LOCATION: South Slope, STA. 100-300'

1. 30' west of STA. 100' and 15' from top of slope
2. 60' west of STA. 200' and 10' from bottom of slope
3. 20' west of STA. 100' and 25' from bottom of slope
4. 90' west of STA. 200' and 20' from top of slope

	A	B	C	D	E	F	G	H	
Test No	Probe Depth	Density Count	Density Ratio	Wet Density	Moisture Count	Moisture Ratio	Moisture PCF	Water Content	Dry Density	
1	8"	4165	0.882	110.5	2089	0.588	23.50	27.0	87.0	98.6
2	↓	4280	0.906	109.5	2135	0.601	24.00	28.0	85.5	96.9
3		4354	0.922	109.0	2035	0.573	23.00	26.7	86.0	97.5
4	↓	4096	0.867	111.5	2196	0.618	24.75	28.5	86.8	98.4

NOTES: DENSITIES SHOWN: lbs. per cubic foot
WATER CONTENT: Per Cent of dry weight
PERCENT COMPACTION: Based on maximum dry density obtained on sample indicated by soil ID number

REMARKS:

1 FILL MATERIAL
2 BACKFILL
3 BASE COURSE
4 SUBBASE
5 SOIL CEMENT
6 OTHER

A TEST RESULTS COMPLY WITH SPECIFICATIONS
B RECOMPACTION REQUIRED
C TESTS AFTER RECOMPACTION

4320
3544

PSI 1987d Letter to San Miguel Electric Cooperative, Inc. Re: *Pond Liner*, San Miguel Power Plant, Project No. 311-70065-2, from Robert P. Arias, P.E., Professional Services Industries, Inc., July 21, 1987.

Professional Service Industries, Inc.
Shilstone Engineering Testing Laboratory Division

July 21, 1987

San Miguel Electric Cooperative, Inc.
Post Office Box 280
Jourdanton, Texas 78026

Attention: Mr. Clyde Price

Re: Pond Liner
San Miguel Electric Power Plant
Jourdanton, Texas
PSI Project No.: 311-70065-2

Gentlemen:

During the course of excavation work for the subject pond liner, a sandstone layer was encountered within the bottom of the existing pond liner. The sandstone and clayey sands should be removed from the site and placed in the designated on-site disposal areas. These materials should be completely removed until suitable clays are encountered or to a minimum depth of three feet below the existing pond bottom elevation. On-site clays from the existing pond liner should then be utilized to replace and compact the required three foot clay liner.

Some discussion has also taken place about not removing and replacing the required two feet of clay liner along the south dike due to the proximity of the adjacent pond. PSI does not agree with this scenario and believes the work along this dike should be completed as initially intended. Should serious seepage problems develop during the course of this work then an alternative means of accomplishing the work will have to be developed.

Work along the toe of the dike where current seepage is apparent should also be conducted as per the contract scope of work. It is anticipated that the toe areas exhibiting seepage will have to be worked in short sections. The wet section should be dewatered by means of a sump trench and excavated to a depth of two feet below existing pond bottom. Dewatering should continue during compaction of the bottom foot or another foot or so excavated if the bottom foot of liner is too wet to be compacted. Replacement and compaction of the clay liner should then proceed preferably the same day as the excavation and during continuous dewatering.

Finally, it is suggested that excavation and recompaction of the dike slopes should proceed prior to replacing the pond bottom liner along any section. This sequence will help reduce traffic and potential damage to the completed portions of the bottom liner.

We would be pleased to discuss the above comments in greater detail at your convenience.

Very truly yours,

PROFESSIONAL SERVICE INDUSTRIES, INC.
(Shilstone Engineering Testing
Laboratory Division)

Robert P. Arias, P.E.
Vice President

RPA/tt

PSI 1987e Letter to San Miguel Electric Cooperative, Inc. Re: *-200 Sieve Analysis 1A Ash Pond Soil Testing*, PSI File No. 311-70065-3, from Robert P. Arias, P.E., Professional Services Industries, Inc., July 21, 1987.

Professional Service Industries, Inc.
Shilstone Engineering Testing Laboratory Division

July 21, 1987

SAN MIGUEL ELECTRIC COOPERATIVE, INC.
Post Office Box 280
Jourdanton, Texas 78026

Attention: Mr. Clyde Price

RE: -200 Sieve Analysis
1A Ash Pond Soil Testing
P.O. #26643-032108
PSI File #311-70065-3

Gentlemen:

As requested, we have conducted a -200 Sieve Analysis, equal to 44.6%, on the sample of soil obtained from the project site on July 17, 1987. The sample was taken from the center of the pond. It consisted of tan sandy clay. The liquid limit equalled 70, with a plasticity index of 50.

If there are any further questions concerning this report, please contact our office at your convenience.

Respectfully submitted,

PROFESSIONAL SERVICE INDUSTRIES, INC.
(Shilstone Engineering Testing
Laboratory Division)

Robert P. Arias, P.E.
Vice President

RPA:ps

cc: (2) Above

Professional Service Industries, Inc.
Shilstone Engineering Testing Laboratory Division

REPORT OF MOISTURE DENSITY RELATIONSHIP OF SOIL

TESTED FOR: SAN MIGUEL ELECTRIC COOPERATIVE, INC
Post Office Box 280
Jourdanton, Texas 78026
Attention: Mr. Clyde Price

PROJECT: 1A Ash Pond Soil Testing
P.O. #26643-032108

DATE: July 21, 1987

OUR REPORT NO. 311-70065-4

TEST DATA

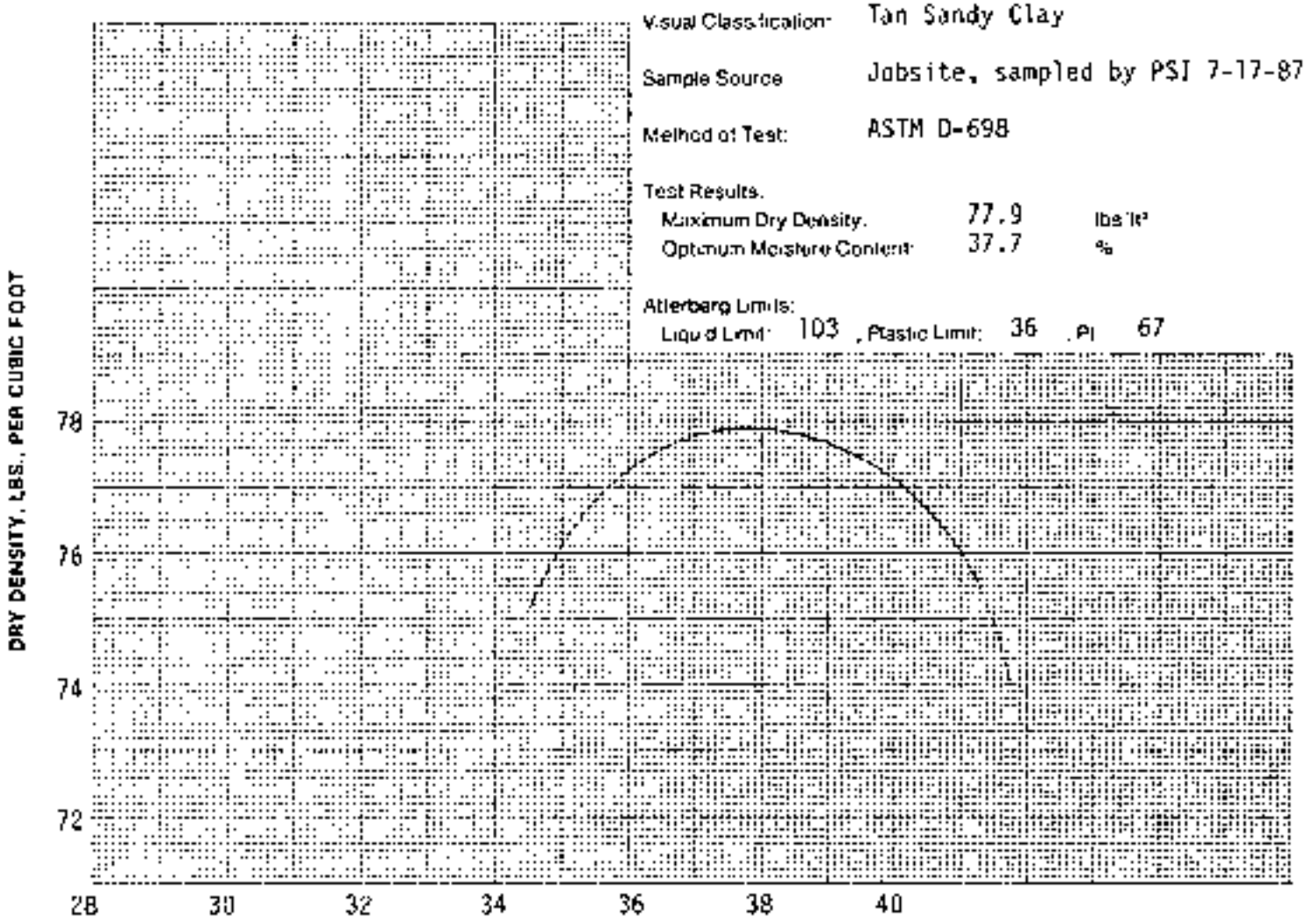
Visual Classification: Tan Sandy Clay

Sample Source: Jobsite, sampled by PSI 7-17-87

Method of Test: ASTM D-698

Test Results:
Maximum Dry Density: 77.9 lbs/ft³
Optimum Moisture Content: 37.7 %

Atterberg Limits:
Liquid Limit: 103, Plastic Limit: 36, PI 67



cc: (2) Above
/ps

Respectfully submitted,
Professional Service Industries, Inc.

Professional Service Industries, Inc.
Shilstone Engineering Testing Laboratory Division

REPORT OF MOISTURE DENSITY RELATIONSHIP OF SOIL

TESTED FOR: SAN MIGUEL ELECTRIC COOPERATIVE, INC.
Post Office Box 280
Jourdanton, Texas 78026
Attention: Mr. Clyde Price

PROJECT: 1A Ash Pond Soil Testing
P.O. #20643-032108

DATE: July 29, 1987

OUR REPORT NO: 311-70065-5

TEST DATA

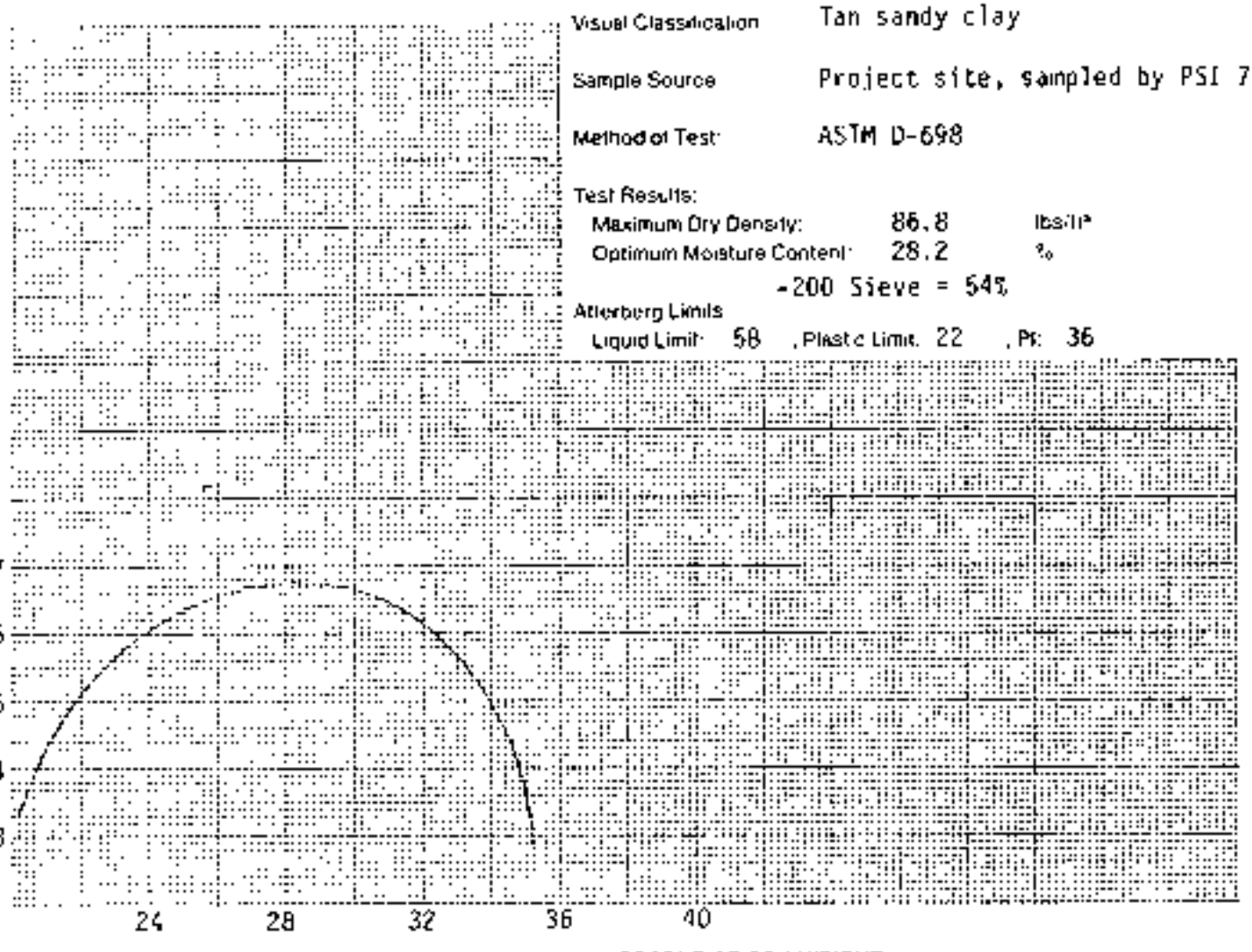
Visual Classification: Tan sandy clay

Sample Source: Project site, sampled by PSI 7-25-

Method of Test: ASTM D-698

Test Results:
- Maximum Dry Density: 86.8 lbs/ft³
- Optimum Moisture Content: 28.2 %
- -200 Sieve = 54%

Atterberg Limits
Liquid Limit: 58, Plastic Limit: 22, PI: 36



cc: (2) Above
/ps

Respectfully submitted,
Professional Service Industries, Inc.

Three Burwood Lane ■ San Antonio, TX 78216 ■ Phone: 512/342 9377

PSI 1987f Letter to San Miguel Electric Cooperative, Inc. Re: *Pond Liner Rehabilitation*, PSI Project No. 311-70065-26, from Robert P. Arias, P.E., Professional Services Industries, Inc., August 19, 1987.

Professional Service Industries, Inc.
Shilstone Engineering Testing Laboratory Division

August 19, 1987

SAN MIGUEL ELECTRIC COOPERATIVE, INC.
Post Office Box 280
Jourdanton, Texas 78026

ATTENTION: Mr. Clyde Price

RE: Pond Liner Rehabilitation
San Miguel, Texas
PSI Project #311-70065-26

Gentlemen:

It is our understanding that some areas on the south side of the pond re-compacted clay liner show evidence of water seepage after clay liner recompaction and testing. The seepage is most likely due to the high level of water pressure exerted by the adjacent pond. If these areas were properly compacted in compliance with specifications they can be considered as acceptable liner for the project.

We do recommend however, that seepage areas be relieved of excess water pressure, to prevent fracturing of the re-compacted liner, by drilling small weep holes on approximate five feet centers in the area of seepage. The weep holes can be augered three feet through the clay liner and left open just prior to filling of the pond. Prior to pond filling, the auger weep holes should be filled with bentonite pellets and saturated with water in six inch depths to seal the weep holes.

Also, sandstone layers have been encounterd during the excavation process. The sandstone may be mixed with the onsite clays for re-use in the liner as long as it is properly broken up and mixed with the available clay materials and that the sandstone does not constitute more than 20 to 30 of the final clay mix. Large amounts of sandstone should be removed.

If there are any questions concerning this report, please do not hesitate to contact our office at your convenience.

Respectfully submitted,

PROFESSIONAL SERVICE INDUSTRIES, INC.
(Shilstone Engineering Testing
Laboratory Division)

Robert P. Arias, P.E.
Vice President

RPA:dd

Three Burwood Lane • San Antonio, TX 78210 • Phone: 512/342-9377

PSI 1987g Letter to San Miguel Electric Cooperative, Inc. Re: *Summary Report Pond 1A Soil Liner Re-Construction*, PSI File No. 311-70065-66, Robert P. Arias, P.E., Professional Services Industries, Inc., October 30, 1987.

Professional Service Industries, Inc.
Shilstone Engineering Testing Laboratory Division

October 30, 1987

RECEIVED
S.M.E.C., Inc.
NOV - 1987

SAN MIGUEL ELECTRIC CO-OPERATIVE, INC.
Post Office Box 200
Jourdanton, Texas 78026

Jourdanton, Texas 78025

Re: Summary Report
Pond 1A Soil Liner
Re-Construction
Jourdanton, Texas
PSI File No.: 311-70065-66

Gentlemen:

Re-construction of the subject pond clay liner was begun on July 13, 1987 by V.K. Knowlton Co. Re-construction of the pond was conducted in accordance with report recommendations provided by Professional Service Industries, Inc. dated January 27, 1987.

Prior to the construction operations, PSI visited the site and sampled in situ clay liner materials for testing on March 16, 1987. The results of this testing program as documented in our report dated May 7, 1987, indicated the in situ clays would be suitable for re-use for the pond liner reconstruction.

PSI began our testing and observation operations on July 20, 1987. Density tests were conducted for every 10,000 square feet of surface per lift while V.K. Knowlton prepared 300x300 foot section of clay liner. Prior to July 20, 1987, V.K. Knowlton had been stripping the pond of residual ash left over from the previous major ash removal operations.

It was apparent during the first week of clay liner re-construction that seepage along the south dike from pond 1B was going to slow liner construction in localized areas.

Accordingly, V.K. Knowlton requested that several areas along the south dike not be re-worked due to potential construction problems. PSI declined this request as noted in our correspondence dated July 21, 1987, Report No. 311-70065-2.

Clay liner re-construction commenced along the south dike slope. Liner placement and compaction was constantly monitored during the re-construction process. Areas of failed densities were re-worked until specification compliance was met. In several instances, the contractor elected to completely remove the bottom foot of in situ liner on the pond slopes as opposed to scarification and re-compaction in place.

Five (5) saturated areas along the south dike toes and south dike slope were identified and reported on July 22, 1987, in Report No. 311-70065-9. These areas were dewatered and excavated. During this process unsuitable clayey sands or sandstone layers were identified and removed from the pond.

After completion of clay liner re-construction along the south dike slope and toe, seepage reappeared in several areas. Accordingly, weepholes were recommended in these areas to relieve the seepage pressures as noted in our Report No. 311-70065-26. These weepholes were subsequently filled with bentonite just prior to re-filling of the pond. Additionally, fractured or cracked portions of the re-constructed clay liners due to seepage along the south dike slope were repaired on September 23, 1987 by injection of a bentonite slurry mix.

Final construction details such as placement of rip rap was conducted on September 24, 1987. Density testing was completed on September 22, 1987.

Pond filling began shortly after rip rap placement. On September 29, 1987 the depth of water in the pond was approximately toree feet deep. It should be noted that maintenance of the clay liner in the form of moisture control has not been conducted after construction operations ceased and during pond filling. Moisture maintenance of the clay liner is necessary to prevent cracking of the clay liner due to drying or clay shrinkage. Shrinkage cracks in the liner are definite potential seepage outlets. Future previsions for clay liner re-construction of Pond 1B should include more stringent moisture maintenance requirements during and after construction prior to completion of re-filling of the pond.

Finally, based on our experience with re-construction of the liner for Pond 1A, it is suggested that a general construction sequence guideline be incorporated into the contract documents. Also, it is suggested that a longer contractor daily or weekly working period be considered to allow for potential weather delays.

In summary, the pond 1A clay liner was re-constructed in accordance with project specifications. We enjoyed and appreciated the opportunity to provide our services to you on this project.

Very truly yours,

PROFESSIONAL SERVICE INDUSTRIES, INC.

Robert P. Arias, P.E.
Division Manager, Central Texas Operations

RPA/hw

PSI 1991 *Report of Inspection Services, San Miguel Electric Cooperative*, Report No. 911-00155-63, Professional Services Industries, Inc., June 13, 1991.

Professional Service Industries, Inc.

REPORT OF INSPECTION SERVICES

TESTED FOR: MORRISON-KNUDSEN
P.O. Box 850
Jourdanton, Texas 78026
Attn: Mr. Dennis Price, P.E.

PROJECT: Ash Pond 3 Liner
San Miguel Power Plant

DATE: June 23, 1992

OUR REPORT NO.: 311-00156-63

REMARKS: Technician: J. Schlomach

SUMMARY OF INSPECTION

As requested by Mr. Dennis Price of your firm, a representative of Professional Service Industries, Inc. arrived at the above referenced project to conduct compaction testing. Test results are attached for your review. Equipment available on this date consisted of: a maintainer, a compactor, a water truck, two bulldozers, and two scrapers.

CONDITIONS REQUIRING CORRECTION - CORRECTIVE ACTION TAKEN

None. Project specifications require compaction to be a minimum of 95% at a moisture content of optimum to 4% above optimum.

cc: (2) Above

Respectfully submitted,
Professional Service Industries, Inc.

Professional Service Industries, Inc.

REPORT OF FIELD COMPACTION TESTS

TESTED FOR: MORRISON-KNUDSEN
P.O. Box 850
Jourdanton, Texas 78026
Attn: Mr. Dennis Price, P.E.

PROJECT: Ash Pond B Liner
San Miguel Power Plant

DATE: June 13, 1991

OUR REPORT NO: 311-00155-63

TEST DATA: Optimum moisture: (34, 36.2%)

TEST NO	DATE	FILL DEPTH	SOIL TYPE NUMBER	MAXIMUM DRY DENSITY	WATER CONTENT	REPLACE DRY DENSITY	PERCENT COMPACTION	REMARKS*
1	06-13-91	Final	34	80.6	36.7	81.2	100.7	1-A
2	06-13-91	Final	34	80.6	36.4	81.0	100.5	1-A
3	06-13-91	Final	34	80.6	38.8	78.5	97.4	1-A
4	06-13-91	Final	34	80.6	37.3	80.5	99.9	1-A
5	06-13-91	Final	34	80.6	36.9	80.0	99.2	1-A
6	06-13-91	Final	34	80.6	37.0	81.0	100.5	1-A

TEST LOCATION:

1	Ash Pond B floor area - N 2 + 10 and E 27 + 50
2	Ash Pond B floor area - N 2 + 70 and E 23 + 00
3	Ash Pond B floor area - N 2 + 60 and E 20 + 00
4	Ash Pond B floor area - N 2 + 10 and E 17 + 50
5	Ash Pond B floor area - N 2 + 50 and E 15 + 00
6	Ash Pond B floor area - N 2 + 20 and E 13 + 50

NOTES: DENSITIES SHOWN: Lbs. per cubic foot
WATER CONTENT: Per Cent of dry weight
PERCENT COMPACTION: Based on maximum dry density obtained on sample indicated by SOIL ID number

* 1 FILL MATERIAL
2 BACKFILL
3 BASE COURSE
4 SUBBASE
5 SOIL CEMENT
6 OTHER

A TEST RESULTS COMPLY WITH SPECIFICATIONS
B RECOMPACTION REQUIRED
C TEST IS AFTER RECOMPACTION

REMARKS:

cc: (2) Above

Respectfully submitted,
Professional Service Industries, Inc.

Professional Service Industries, Inc.

REPORT OF FIELD COMPACTION TESTS

TESTED FOR: MORRISON-KNUDSEN
P.O. Box 850
Jourdanton, Texas 78026
Attn: Mr. Dennis Price, P.E.

PROJECT: Ash Pond B Liner
San Miguel Power Plant

DATE: June 13, 1991

OUR REPORT NO: 311-00166-63

TEST DATA: Optimum moisture: (34, 36.2%), (2, 28.2%)

TEST NO.	DATE	CLASS / SOIL ELEMENT	SOIL ELEMENT	MAXIMUM DRY DENSITY	WATER CONTENT	IN PLACE DRY DENSITY	PERCENT COMPACTION	COMMENT*
7	06-13-91	Lift 24	34	80.6	38.0	79.0	98.0	1-A
8	06-13-91	Lift 26	34	80.6	38.4	79.5	98.6	1-A
9	06-13-91	Lift 28	34	80.6	38.5	78.7	97.6	1-A
10	06-13-91	Lift 30	34	80.6	38.9	79.2	98.3	1-A
11	06-13-91	Final	2	89.8	28.5	89.5	99.7	1-A
12	06-13-91	Final	2	89.8	28.5	88.7	98.8	1-A

TEST LOCATION:

7	Ash Pond B floor area - N 2 + 20 and E 12 + 10
8	Ash Pond B floor area - N 2 + 10 and E 12 + 20
9	Ash Pond B floor area - N 2 + 25 and E 12 + 25
10	Ash Pond B floor area - N 2 + 10 and E 12 + 10
11	Ash Pond B floor area - N 2 + 30 and E 12 + 25
12	Ash Pond B floor area - N 2 + 00 and E 12 + 30

NOTES: DENSITIES SHOWN are per cubic foot
WATER CONTENT: Per Cent of dry weight
PERCENT COMPACTION: Based on maximum dry density obtained on sample indicated by soil ID number

* 1 FILL MATERIAL
2 BACKFILL
3 BASE COURSE
4 SUBBASE
5 SOIL CEMENT
6 OTHER

A TEST RESULTS COMPLY WITH SPECIFICATIONS
B RECOMPACTION REQUIRED
C TEST IS AFTER RECOMPACTION

REMARKS:

cc: (2) Above

Respectfully submitted,
Professional Service Industries, Inc

PSI 4 1/90 2

San Miguel 1979a Letter to National Soil Services, Inc. Re: Certification of Ponds, from Gerald V. Camber, San Miguel Electric Cooperative, Inc., February 13, 1979.

BOBBY E. SULLIVAN Secretary AC A. COALSON President E. J. SCIARD Vice President

16.2/

SAN MIGUEL ELECTRIC COOPERATIVE, INC.

P. O. Box 280, Jourdanton, Texas 78026

ERNEST I. WOHLSCHLEGEL
General Manager

Nat. Soils
Plant Island
MBP 2/14/79

February 13, 1979

Tillman A. Riewe, P.E.
National Soil Services, Inc.
P.O. Box 24596
4087 Shilling Way
Dallas, Texas 75224

Dear Tillman,

This letter is in reference to your letter of February 9, 1979 concerning the clarification of the five ponds at the San Miguel Plant Site.

In his inspection of the ponds, Raymond Harris, Field Representative, Texas Department of Water Resources recommended to TDWR Office in Austin that they be certified as inspected. He was recommending certification of the ponds as they were the date of inspection and not on the alternate plan. We are hoping to have them certified without having to use the alternate plan.

If you have any questions, please call us.

Sincerely yours,

Gerald V. Comer
Environmentalist

GC/jas

cc: Ron Magel
John Cleary

San Miguel 1979b Letter to National Soil Services, Inc., Re: Authorization to Proceed, from E.I. Wohlschlegel, San Miguel Electric Cooperative, Inc., February 14, 1979.

BOBBY E. SULLIVAN Secretary MAC A. COALSON President E. J. BOTARD Vice President

107.21

SAN MIGUEL ELECTRIC COOPERATIVE, INC.

P. O. Box 280, Jourdanton, Texas 78026

ERNEST I. WOHLSCHLEGEL
General Manager

Pond Certification

NOTED FEB 23 1979 E. I. BOYLE

February 14, 1979

Pierce L. Chandler, Jr. P.E.
National Soil Service, Inc.
4087 Shilling Way
Dallas, Texas 75224

Dear Pierce,

We are authorizing you to proceed in providing us a report on the Compaction Tests for the five ponds at the San Miguel Plant Site. Also, you are to provide us a report on the clay soil material that was used as a three-foot clay blanket over the southeast quadrant of the yard drainage retention pond. These reports are necessary in helping us to get these five ponds certified by the Texas Department of Water Resources. The reports are to be sent to us and they in turn will be sent to the Texas Department of Water Resources Office.

The cost for services in providing us with the reports are to be added to the Geotechnical Quality Studies for Plant Island.

If you have any questions, please call us.

Sincerely,

E.I. WOHLSCHLEGEL
General Manager

CC/jas

cc: Ron Magel

San Miguel 1983	Letter to Texas Department of Water Resources, Re: Industrial Wastewater Inspection of May 26, 1983, San Miguel Electric Cooperative, SMEC File No. 311.9055, from R.P. Metcalfe, P.E., San Miguel Electric Cooperative, Inc., August 19, 1983.

P.O. Box 280,

(512) 784-3411

SAN MIGUEL ELECTRIC COOPERATIVE, INC.

August 19, 1983

Texas Department of Water Resources
District 8
831 Center Street, Suite 1103
San Antonio, Texas 78202

Attn: Mr. Vernon R. Francis

Re: San Miguel Steam Electric Station, Jourdanton Plant Site
Industrial Wastewater Inspection of May 26, 1983
Permit No. 0261
Atascosa County
TDWR Letter Dated July 29, 1983 [redacted] File: 911.9055)

Dear Mr. Francis:

The following is in reply to your letter, dated July 29, 1983.

1) "F.G.D. sludge and fly ash mixed with chromate bearing wastewater were observed in a storm water ditch on the southwest side of the plant.
This material has apparently been discharged to the yard retention pond.

A. Please identify these sources."

This material came from the F.G.D. filtrate sump as a result of an accidental opening being made between the sump system and the storm drain system. This opening was located and sealed on May 29, 1983. In addition, new pumps with a higher discharge head are currently being installed to transfer this filtrate directly to the thickener tanks instead of the sump system.

B. "Eliminate this discharge immediately."

Accomplished on May 29, 1983. See above.

2) "The west and east side outer banks of Ash Pond "A" are apparently leaking contents. The clay liner on the inner bank of Ash Pond "A" (near the inlet pipes) has begun to erode.

A. A program to vegetate the outer banks should be looked into in order to stop erosion."

Various programs for prevention of erosion are being evaluated at this time, including rip rap, vegetation, etc.

B. "Please identify the reason for pond leakage and your proposals for elimination."

We are currently at a loss to explain the leakage. We have contacted two (2) consulting firms that are competent to assess the problem and recommend a solution. In the meantime, we are ordering pipe in order to place the South pond in service. When the North pond is empty, we can make the necessary inspections to the inside of the dike and attempt to locate the point of seepage. During this time, we also plan to remove the ash that has built up, although the pond is far from being filled to capacity.

3) "Ash Pond "A" had only six inches (6) of freeboard. This pond is also approaching sludge capacity."

See above. Presently the pond level has been lowered and we are operating with freeboard of 12" - 18". Further studies will be made of the ash water suction piping to see if it is possible to eliminate vortexing. If this study results in vortex elimination, the pond level can be reduced further.

4) "Back-up pump at the bottom ash hopper was not working."

The electrical problem that occurred during the day of the inspection has been located and corrected. However, one of the pumps will be removed and replaced with another Calliger pump as soon as possible. The Clow pump has not proved to be satisfactory in this type service.

5) "Head tanks for the ash water booster pumps have overflowed and discharged their contents towards Souse Creek."

It is impossible to explain how or why this could have happened at that time. The suction piping extends from the intake structure near the East end of both ponds and then into the two head tanks. If we had experienced a <u>total</u> power outage, and all pumps were on and running at

5) capacity, the inertia of the flowing water could possibly cause the tanks to overflow. However, on the day of the inspection, and the days before, there had been no power outages and the plant had operated normally.

6) "Seals on ash-water pond pumps are leaking to an overflow gutter which discharges to Souse Creek."

Plans are underway to curb around this pump area and to collect pump seal leakage. This leakage will be pumped back into the ash pond or into the pumps suction system.

I hope that we have answered your questions in a satisfactory manner. It is our intention to operate in compliance with all available regulations. If you have any further questions or want to discuss the previous points in more detail, please let me know.

Yours very truly,

R.P. Metcalfe, P.E.
Chief Engineer

RPM:mle
cc: R. Cmiel
E. Lange
R. Magel
R. McCaskill
File

San Miguel 1984 Letter to Texas Depart of Water Resources Re: *San Miguel Steam Electric Station, Plantsite. Industrial Wastewater Inspection of May 27, 1983*, from Robert Cmiel, San Miguel Electric Cooperative, Inc., March 2, 1984.

P.O. Box 280, Jourdanton, Texas 78026 (512) 784-3411

SAN MIGUEL ELECTRIC COOPERATIVE, INC.

March 2, 1984

Texas Department of Water Resources
District 8
321 Center Street, Suite 1103
San Antonio, Texas 78202
Attn: Mr. Vernon R. Francis

Subject: San Miguel Steam Electric Station, Plantsite.
Industrial Wastewater Inspection of May 27, 1983,
Permit Number 0261, Atascosa County. TDWR Letter
dated July 29, 1983.

Dear Mr. Francis:

This letter is written to further detail our plans to eliminate problems with the apparent ash pond leakage. These plans are based on your July 29, 1983 letter, Comment 2.B., "Please identify the reason for pond leakage and your proposals for elimination."

We have contacted NFS Services., and they have investigated the problem. Their response is attached. Our proposal for corrective action is as follows: Please refer to the attached Figure 1 while reviewing our proposal.

A. WET AREA "A".

Install concrete pad around pumps and piping. This pad will collect any pond leakage and/or pump seal water and drain it to the yard retention pond. Here it can be pumped into the ash pond.

B. WET AREA "B".

Install cooling tower splash guards. This will prevent water from splashing out of the cooling tower.

C. WET AREA "C".

Install collection trench and sump with pump. Any water collected will be pumped into ash pond.

D. WET AREA "D".

Same as "C".

March 2, 1984

Texas Department of Water Resources
San Antonio, Texas

Subject: San Miguel Steam Electric Station, Plantsite.
Industrial Wastewater Inspection of May 27, 1983.
Permit Number 0261, Atascosa County. TDWR Letter
dated July 29, 1983.

E. WET AREA "E".

Corrective Action in "C" and "D" above will eliminate ash pond water in this area.

F. WET AREA "F".

Same as "C".

G. WET AREA "G".

Corrective action in "A" and "B" above will eliminate ash pond water and cooling tower water in this area.

Upon receipt of your approval, SMEC will proceed with the corrective action outlined above.

Yours truly,

Robert Caiel
Power Engineer

RC/jas

Encls: (2)

STUDY OF ASH POND LEAKAGE
SAN MIGUEL STEAM ELECTRIC STATION
JOURDANTON, TEXAS

Report to

TIPPETT & GEE, INC.
Consulting Engineers
Abilene, Texas

By

NFS SERVICES, INC.
Consulting Engineers
Dallas, Texas

January, 1984

JAN 25 1984

TIPPETT & GEE

NFS SERVICES, INC.
CONSULTING ENGINEERS

P.O. BOX 24398
DALLAS, TEXAS 75224

SOILS ENGINEERING REPORT

STUDY OF ASH POND LEAKAGE
SAN MIGUEL STEAM ELECTRIC STATION
JOURDANTON, TEXAS

January 20, 1984
Report No. D-75285-13A

Tippett & Gee, Inc.
Consulting Engineers
502 North Willis Street
Abilene, Texas 79603

Attention: Mr. M. L. Hughes, P. E.

Gentlemen:

Submitted here is our report of our study of the ash pond leakage at the above-referenced facility. This study was requested by your letter of October 21, 1983.

DISCUSSION OF LEAKAGE PROBLEM

The San Miguel Steam Electric Station has two ash disposal ponds, identified as ponds "A" and "B," which are located south of the plant power block as shown on the Plan of Borings, Plate 1, in the Illustrations section of the report. Both of these ash disposal ponds are rectangular impoundments, 2,475 feet long by 265 feet wide (measured along center line of embankment crest) with a common dike separating the north pond (pond "A") from the south pond (pond "B"). Construction of the ash disposal ponds started in July, 1977, and was completed in May, 1978.

In early June of 1978, extremely heavy rainfall associated with a tropical storm was experienced throughout South Texas. A substantial amount of water accumulated in both ash disposal ponds as a result of this storm, with the ponds remaining partially filled with

surface water for a long period thereafter. Pond "A" was placed into service in 1981 and has been full of liquid ash waste for approximately two years. Pond "B" has not had significant use to date and contains only a few feet of liquid ash waste.

In July, 1983, San Miguel Electric Cooperative, Inc., was notified by the Texas Department of Water Resources (TDWR) that, as a result of a routine industrial wastewater inspection made on May 26, 1983 by a TDWR representative, the west and east side outer banks of ash pond "A" were apparently leaking contents. TDWR requested that the reason for the pond leakage be identified and proposals made for correction of the problem. A copy of the TDWR correspondence, together with copies of all other correspondence related to the ash ponds, are included in the appendix to this report.

Subsequent inspections and tests made by San Miguel plant personnel revealed seven suspected leakage areas around the ash ponds. The areas are designated as areas "A" through "G" and are shown on Plate 2. Areas "A," "C," and "D" correspond to the locations of leakage cited by TDWR. Samples of surface water were analyzed for evidence of contamination with the following results:

Date	Sampling Point	pH	Specific Conductance (umhos/cm)	Sulfate (ppm)	Chloride (ppm)
10/15/83	A	7.45	4,700	1,964	749
	B	8.3	5,400	2,357	760
	C	7.5	8,600	5,108	737
	D	7.4	6,800	2,750	760
	E	7.4	4,700	2,200	647
	F	7.4	6,200	2,652	1,010
	G	7.95	4,500	2,122	318
	Ash Pond "A"	7.8	8,100	3,929	964
	Ash Pond "B"	8.3	7,900	4,518	783
10/30/83	A	7.2	4,300	2,161	629
	B	8.1	1,800	668	33
	C	8.4	7,000	12,573	1,953
	D	7.5	8,000	2,947	835
	E	8.0	7,000	2,357	391
	F	----------Not Tested----------			
	G	7.9	7,000	1,650	532
	Ash Pond "A"	7.2	7,000	4,479	1,020
	Ash Pond "B"	8.4	7,000	4,322	781

Comparison of the parameters defining the surface water quality with those characterizing the quality of the wastewater in the ponds indicates the probability of contamination of the surface water at the seven sampling points.

A site meeting was held on November 9, 1983 to permit assessment of the pond leakage by representatives of NFS Services, Inc. Those in attendance were:

NFS Services, Inc.	Mr. R. F. Reuss Mr. W. C. Worley Mr. G. G. LaFrance
San Miguel Electric Cooperative, Inc.	Mr. Robert Cmiel
Tippett & Gee, Inc.	Mr. E. G. Peveler

A second site inspection was made on January 9, 1984, to determine locations of proposed seepage collection lines and sumps. Messrs. Robert Cmiel and Wade Sebby of the San Miguel Station and G. G. LaFrance of NFS participated in this latter inspection.

PREVIOUS INVESTIGATIONS

Geotechnical parameters relating to design and construction of the ash disposal ponds are presented in Volume I, Foundation Design Analysis and Recommendations for the Plant Island, and Volume II, Field and Laboratory Data for the Plant Island, of NFS Report No. 75285, dated May 14, 1978. Records of field inspections and tests performed by NFS Services, Inc., during construction of the ash disposal ponds are summarized in NFS Inspection Report Nos. 194 (dated July 28, 1977) through 361 (dated June 8, 1978).

Additional geotechnical studies were performed by NFS Services, Inc., relative to certification of the ash disposal ponds, as well as the other plant site ponds. The initial certification plan for the ash disposal ponds was developed in November, 1977 and was based on drilling ten borings in the pond bottom (five in each pond) to a depth of five feet below the pond bottom. In addition, eight borings were to be drilled along the embankment crest of the dikes. Samples obtained from these borings were to be used for the determination of

dry unit weight, grain-size distribution, coefficient of permeability, and liquid and plastic limits for each of the soil types encountered. In addition, the information from this investigation was to be correlated with the previously developed soils data.

Due to the prolonged wet conditions in the ash disposal ponds, as well as the other plant site ponds, an alternate certification plan was proposed by NFS Services, Inc., based on drilling borings on the down dip side and partial perimeter of the various ponds shown on Plate 1 of the illustrations for this report. Both the initial certification plan and the revised certification plan are explained in detail in the NFS correspondence dated September 25, 1978, a copy of which is included in the appendix.

Subsequently, a field representative for TDWR recommended certification of the plant site ponds, including the ash disposal ponds, based on a field inspection performed by TDWR prior to January 30, 1979. Final certification of the ponds, including the ash disposal ponds, by TDWR was based in part on representations made by NFS as to the construction of the ponds as outlined in the NFS letter dated March 19, 1979 (refer to the appendix for a copy of this letter) in lieu of implementation of either the original or the revised certification programs.

SUBSURFACE CONDITIONS AND POND CONSTRUCTION

Preconstruction subsurface conditions in the vicinity of the ash disposal ponds are represented by the logs of borings B-35, B-39, B-41, B-42, B-60, B-65, B-66, B-105, B-106, B-107, and B-108. Locations of the borings are shown on Plate 1, with the logs of the referenced borings being presented on Plates 3 through 15. Logs of these borings are also illustrated in graphical form on Sections A-A', B-B', C-C', and D-D' of the Generalized Soils Profiles, Plates 16 through 19.

In general, the preconstruction subsurface soil formations consisted of an upper clay stratum underlain by a sand stratum. The upper clay stratum was comprised of hard, medium to high-plasticity clays, sandy clays, and silty clays having some evidence of jointing

and slickensides. Results of six falling-head permeability tests performed on undisturbed clay specimens situated within the uppermost 15 feet below the original ground surface showed coefficient of permeability values ranging from 6.30×10^{-7} cm/sec to 4.29×10^{-9} cm/sec. The lower sand stratum consists of very dense, green to light brown and light gray, silty fine sand. Based on the boring data, the upper clay stratum extends to at or below Elev 288, or at least seven feet below the bottom of the ash ponds. Piezometric data developed during the geotechnical investigation for the plant site indicated the existence of a very deep groundwater table at about Elev 268 or approximately 27 feet below the bottom of the ash ponds.

Original ground surface elevations in the vicinity of the ash disposal ponds varied from a high of about Elev 316 at the middle of the north dike of pond "A" to a low of about Elev 292 at the southwestern corner of pond "B." The top of dike elevation is 315, with the bottom of the ponds being at Elev 295. Except for previously noted areas of high and low original ground elevations, the dikes of ponds "A" and B" are comprised of a lower section of in-situ clay and an upper section of compacted clay. A five-foot-deep inspection trench was opened and backfilled with compacted clay along the toe of the interior slope except in areas where the dike is composed entirely of compacted clay embankment, in which case the inspection trench was positioned beneath the embankment crest. Interior and exterior slopes of the dikes are 2.5 H:1 V.

Field inspection records verify that no pervious soil strata were encountered in either the inspection trenches or the pond bottoms. Above-ground portions of the dikes consist of compacted medium to high-plasticity clays, sandy clays, and silty clays obtained from excavations made in the interior of the ash ponds. The clay fill was placed in maximum nine-inch loose lifts and compacted at a moisture content ranging from minus one to plus four percentage points above the optimum moisture content to at least 95 percent of the maximum dry density determined by THD Method TEX 113-E.

ANALYSES AND RECOMMENDATIONS

Areas of suspected pond leakage, identified as areas "A" through "G" and shown on Plate 2, were observed by NFS personnel during the November 9, 1983 site inspection. Based on the visual observations made at that time and also during the January 9, 1984 inspection, it is very probable that, with the exception of areas "B" and "G", the identified wet areas do result from pond leakage. In the case of suspected leakage area "B", the absence of seepage emerging from the outer dike slope at this location makes it less clear as to the probable source of the contaminated surface water sampled from the deep swale near the northwest corner of pond "A". With respect to suspected leakage area "G", this wet area appears to result from surface water being discharged from the nearby culvert. Both areas "B" and "G" should be assessed further during a dry period when the effects of surface water are absent.

The geotechnical parameters recommended by this firm for use in designing the ash ponds were based on the assumption the medium to high-plasticity clays comprising the dikes and bottom of the ponds would have a permeability of less than 1×10^{-7} cm/sec when wetted. For the most part, field performance of the ash ponds has verified the initial design assumption. At the locations of the suspected leakage areas, subsurface conditions are different than previously assumed due to localized variations in soil types or structure, such as the presence of continuous joints. Based on the observed pattern of lateral movement of fluid from the ponds at several locations of leakage, it is likely that jointing of the in-situ clays at certain locations has provided a continuous flow path instead of a discontinuous flow path. The presence of massive clay formations beneath the bottom of the ponds and decreased jointing with depth warrant the conclusion that downward migration is negligible. Consequently, the leakage problem essentially involves lateral movement of pond fluid through localized discontinuities.

Recommended remedial work to control the pond leakage and to eliminate the possibility of contaminating surface water consists of installing seepage collection pipes, channeling the seepage to sumps, and pumping the accumulated seepage back into the ponds. A suggested plan and details for the collection system are shown on Plate 20. This recommended collection system, however, will not alleviate the leakage, if any, at area "B" inasmuch as any seepage emerging from or at the toe of slope would immediately enter the culvert and be discharged to the area west of ash disposal pond "B". If further assessment of the "B" area during a dry period confirms the likelihood of pond leakage at this location, a pipe toe drain and sump, constituting a closed system in order to separate seepage from the surface water runoff in the swale, will be required at this location. If required, typical design details will be furnished at a later date.

We trust that the information presented in this report satisfies the recent inquiries made about the ash pond leakage and provides a reasonable solution for correcting the problem. Please call us if there are any questions or if we may be of additional assistance.

Very truly yours,

NFS SERVICES, INC.

Gary G. EdFrance, P. E.
Manager of Engineering

Ralph F. Reuss /gc
Ralph F. Reuss, P. E.
President

GGL/RFR/lcr

Copies submitted: 3

LIST OF STRUCTURES

1. Lignite receiving hopper.
2. Lignite storage silos.
3. Limestone receiving hopper
4. Stacker-reclaimer
5. Ready pile reclaiming hopper
6. Conveyor drive room.
7. Crusher house
8. Chimney Unit No 1
9. Fly ash silos
10. Bottom ash dewatering tank
11. Fuel oil storage tank
12. Service buildings.
13. Ash pond.
14. Elevated water tank
15. Switch yard.
16. Boiler.
17. Pollution equipment control room
18. Scrubbers
19. Turbine generators
20. Warehouse
21. Well water storage pond.
22. Yard drainage retention pond
23. Cooling tower
24. Lime slurry thickeners.
25. Dead storage pile
26. Plant control room.
27. Primary breaker
28. Precipitator.
29. Conveyor transfer tower.

Scale 1" = 400'

LEGEND

- Existing Borings
- Proposed Borings

DEAD STORAGE PILE 25

YARD DRAINAGE RETENTION POND 22

WATER WELL STORAGE POND 21

SLUDGE DISPOSAL BASIN

ASH DISPOSAL POND 13

ASH DISPOSAL POND

SITE DETAIL ON ANO TURBINATOR AREA

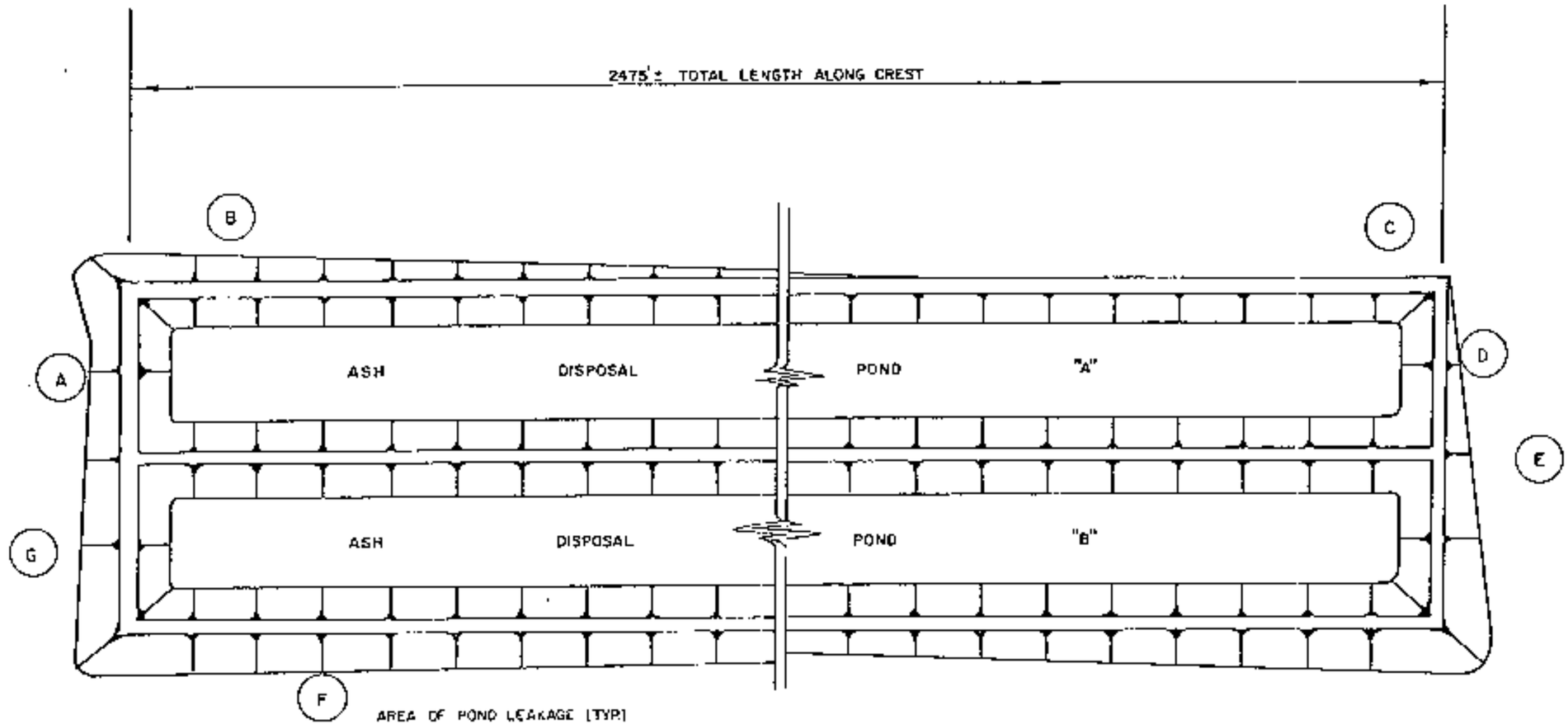
PLANT ENTRY

SITE LOAD TEST

A
B
C
D

N

Scale: 1" = 200'



LOCATION OF LEAKAGE AREAS

LOG OF BORING NO. B-SES-35
G&T COOPERATIVE PROJECT
PLEASANTON, TEXAS

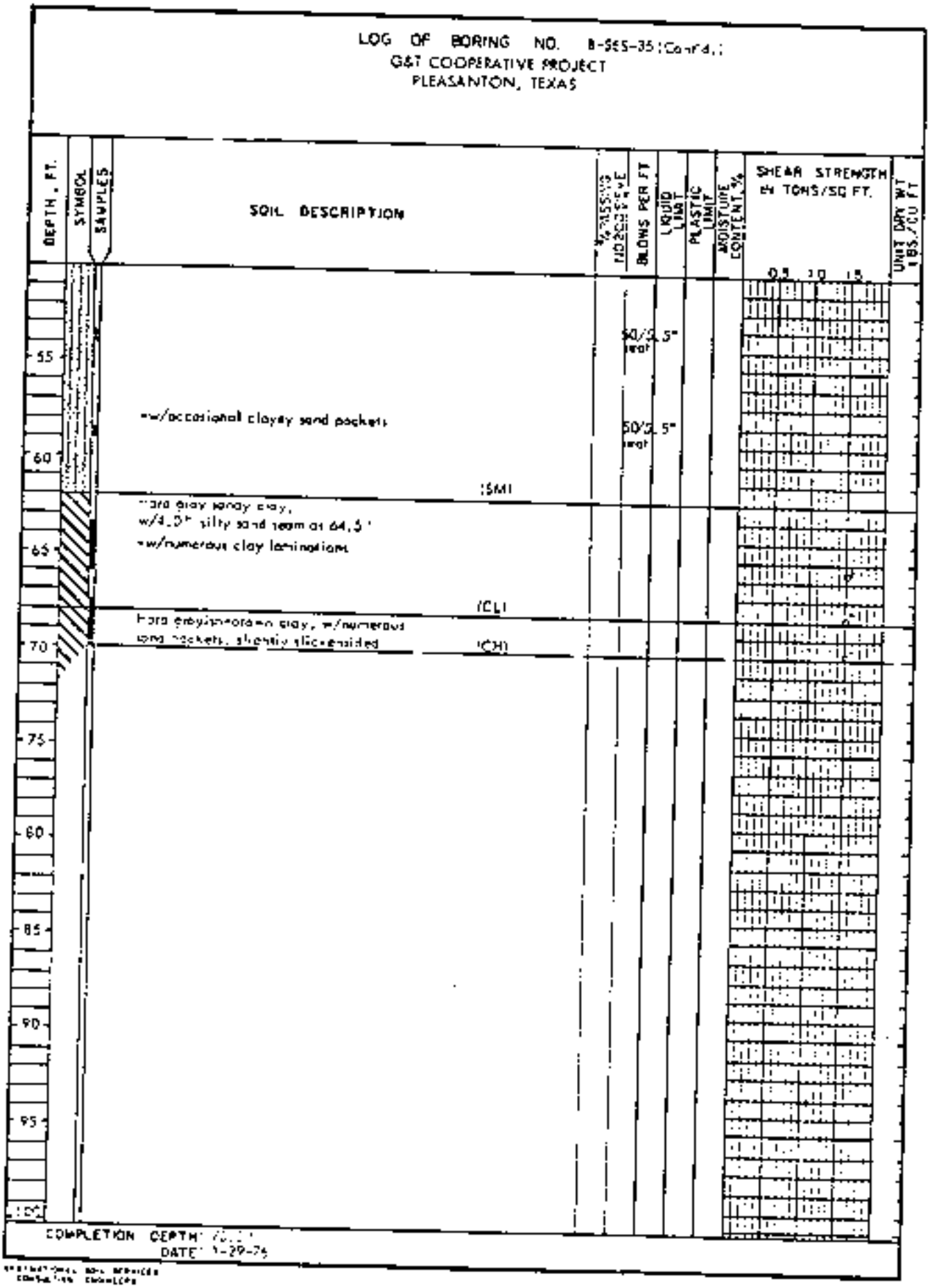
TYPE BORING: Undisturbed Sample LOCATION: See Plan of Borings

DEPTH, FT.	SYMBOL	SAMPLES	SOIL DESCRIPTION	% PASSING NO. 200 SIEVE	BLOWS PER FT.	LIQUID LIMIT	PLASTIC LIMIT	MOISTURE CONTENT, %	SHEAR STRENGTH IN TONS/SQ.FT. 0.5 1.0 1.5	UNIT DRY WT. LBS/CU FT
			ELEVATION: 316.0							
			Hard brown clay (CH)							
5			Hard light tan silty clay w/calcareous pockets w/occasional coarse sand (CL - CH)							
10			Hard light gray sandy clay w/iron stains			55	15			
15			(CL)							
20			Hard light reddish-brown clay w/occasional silty clay seams w/limonite laminations w/selenite pockets (CH)							
25			Hard light red and light gray silty clay w/iron laminations, selenite laminations w/some sand (CL)							
30			Hard light brownish-tan clay w/selenite seams w/jointed (CH)							
40			Hard tan sandy clay w/calcareous specks w/clay w/iron stains (CL)							
45			Very dense green to tan fine sand		50/2" 50/5"					
				27						

(Continued)

PLATE 3

LOG OF BORING NO. B-565-35 (Cont'd.)
G&T COOPERATIVE PROJECT
PLEASANTON, TEXAS



COMPLETION DEPTH: [illegible]
DATE: 1-29-74

PLATE 4

LOG OF BORING NO B-SES-39
G&T COOPERATIVE PROJECT
PLEASANTON, TEXAS

TYPE BORING: Undisturbed Sample LOCATION: See Plan of Boring

ELEVATION: 391.0

DEPTH, FT.	SYMBOL	SAMPLES	SOIL DESCRIPTION	% PASSING NO 200 SIEVE	BLOWS PER FT	LIQUID LIMIT	PLASTIC LIMIT	MOISTURE CONTENT %	SHEAR STRENGTH IN TONS/SQ FT (0.5 1.0 1.5)	UNIT DRY WT. LBS./CU FT
0			Hard dark brown sandy clay (CL)							
5			Hard light brownish-tan clay, jointed w/selenite seams and limonite pockets (CH)							
10			Hard reddish-brown sandy clay, w/occasional limonite pockets (CL)							
15			Very dense light gray and light brown silty fine sand, w/light brown clay seams, clayey fine sand seams and occasional selenite seams (SM)		87/6"					
20										
25										
30										
35										
40										
45										

COMPLETION DEPTH: 25.0'
DATE: [illegible]

[illegible] SOIL RESEARCH
CONSULTING ENGINEERS

PLATE 5

LOG OF BORING NO. B-SES-41
G&T COOPERATIVE PROJECT
PLEASANTON, TEXAS

TYPE BORING: Undisturbed Sample LOCATION: See Plan of Borings

DEPTH, FT.	SYMBOL	SAMPLES	SOIL DESCRIPTION	% PASSING NO. 200 SIEVE	LIQUID LIMIT	PLASTIC LIMIT	MOISTURE CONTENT, %	SHEAR STRENGTH IN TONS/SQ.FT. 0.5 1.0 1.5	UNIT DRY WT. LBS/CU.FT.
			ELEVATION: 306.2						
			Hard dark brown clay						
			(CH)						
5			Hard reddish-tan and light gray silty clay, w/ selenite seams and pockets						
10									
15			(CL)						
			Hard light reddish-brown clay, jointed w/iron laminations and selenite seams						
20			w/silty clay seams at 20.0' w/iron laminations						
			(CH)						
25									
30									
35									
40									
45									
50									

COMPLETION DEPTH: 41.3'
DATE: 1-31-74

PLATE 6

LOG OF BORING NO. B-SSS-42
G&T COOPERATIVE PROJECT
PLEASANTON, TEXAS

TYPE BORING: Undisturbed Sample LOCATION: See Plan of Borings

DEPTH, FT.	SYMBOL	SAMPLES	SOIL DESCRIPTION	% PASSING NO. 200 SIEVE	LIQUID LIMIT	PLASTIC LIMIT	MOISTURE CONTENT, %	SHEAR STRENGTH IN TONS/SQ FT (0.5, 1.0, 1.5)	UNIT DRY WT LBS./CU FT.
			ELEVATION: 285.6						
			Hard dark brown clay						
			(CH)						
5			Hard light reddish-tan and light gray silty clay, w/numerous clay laminations and seams						
			(CL)						
10			Hard light brownish-tan clay, w/selenite seams, jointed						
15			-turning slightly sandy at 15.0' -w/occasional iron stains						
			(CH)						
20			Hard brown sandy clay						
			(CL)						
			Very dense gray clayey fine sand, w/occasional dark gray clay balls						
			(SC)						
25									
30									
35									
40									
45									
50									

COMPLETION DEPTH: 41.5'
DATE: 1-15-76

PLATE 7

LOG OF BORING NO. A-SES-60
G&T COOPERATIVE PROJECT
PLEASANTON, TEXAS

TYPE BORING: Undisturbed Sample LOCATION: See Plan of Borings

ELEVATION: 319.2

DEPTH, FT.	SYMBOL	SAMPLES	SOIL DESCRIPTION	% PASSING #200 SIEVE	BLOWS PER FT	LIQUID LIMIT	PLASTIC LIMIT	MOISTURE CONTENT, %	SHEAR STRENGTH IN TONS/SQ FT (0.5 1.0 1.5)	UNIT DRY WT LBS/CU FT
0			Hard brown sandy clay							
			(CL)							
5			Hard light gray silty clay w/numerous selenite pockets							
			(CL)							
10			Hard light red clay w/selenite seams							
			-w/numerous iron laminations							
15			(CH)							
			Hard light gray silty clay w/occasional clayey pockets							
20			(CL)							
			Hard light brownish-tan clay w/iron stains, jointed							
25			-w/selenite pockets							
30			(CH)							
			Hard light brown sandy clay w/clay pockets and iron stains							
35			(CL)							
			Very dense light green silty fine sand, w/iron stains		50/5.5" Ref.					
40										
45			-w/occasional red clay seams							
			-w/occasional sandy silt laminations below 48'							
50										

PLATE 8

LOG OF BORING NO. B-565-60 (Cont'd.)
G&T COOPERATIVE PROJECT
PLEASANTON, TEXAS

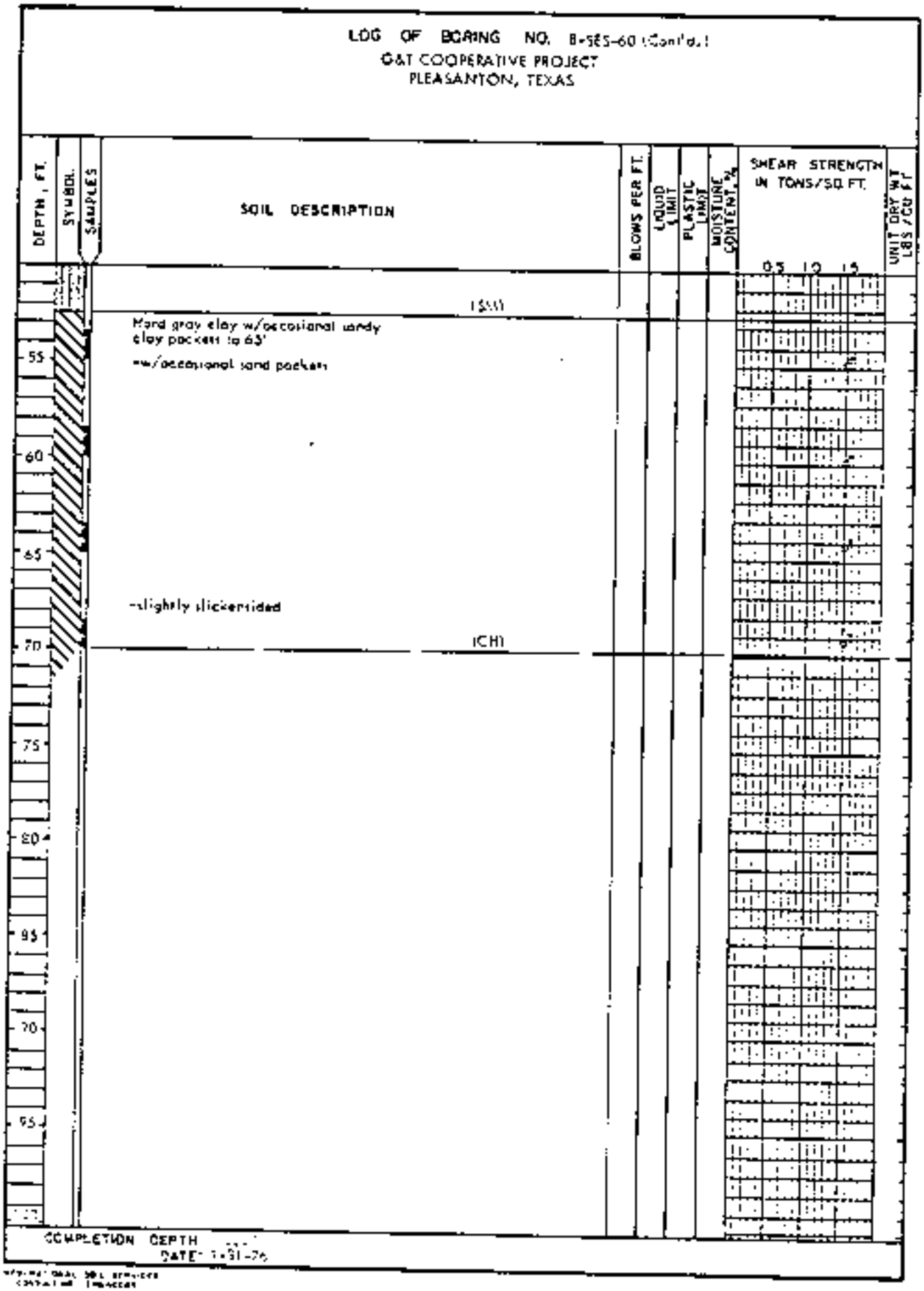


PLATE 9

LOG OF BORING NO. B-SES-65
G&T COOPERATIVE PROJECT
PLEASANTON, TEXAS

TYPE BORING: Undisturbed Sample LOCATION: See Plan of Borings

DEPTH, FT.	SYMBOL	SAMPLES	SOIL DESCRIPTION		% PASSING NO. 200 SIEVE	LIQUID LIMIT	PLASTIC LIMIT	MOISTURE CONTENT, %	SHEAR STRENGTH IN TONS/SQ. FT. 0.5 1.0 1.5	UNIT DRY WT LBS./CU. FT.
			ELEVATION: 304.9							
			Hard dark brown clay	(CH)						
5			Hard light red and light gray silty clay	(CL)						
			Very dense light gray clayey fine sand	(SC)						
10			Hard light reddish-brown clay -w/silty clay laminations and pockets -jointed -w/limonite stains							
15										
20			-selenite seams	(CH)						
25										
30										
35										
40										
45										
50										

COMPLETION DEPTH: 51.5'
DATE: [illegible] 73

PLATE 10

LOG OF BORING NO. B-SES-66
G&T COOPERATIVE PROJECT
PLEASANTON, TEXAS

TYPE BORING: Undisturbed Sample LOCATION: See Plan of Borings

ELEVATION: 295.0

DEPTH, FT.	SYMBOL	SAMPLES	SOIL DESCRIPTION	% PASSING NO. 200 SIEVE	LIQUID LIMIT	PLASTIC LIMIT	MOISTURE CONTENT, %	SHEAR STRENGTH IN TONS/SQ FT. (0.5 1.0 1.5)	UNIT DRY WT. LBS./CU FT.
			Hard dark brown clay (CH)						
5			Hard light reddish-brown silty clay, jointed, w/numerous clay laminations and iron stains (CL)						
10			Hard light reddish-tan clay, w/silty clay laminations (CH)						
15			Hard light brownish-tan clay, w/selenite seams, jointed =slightly slickensided						
20			=w/sandy clay laminations and pockets below 20.8' (CH)						
25									
30									
35									
40									
45									
50									

COMPLETION DEPTH: 47.0'
DATE: 1-18-66

PLATE 11

LOG OF BORING NO. B-105
G & T COOPERATIVE PROJECT
PLEASANTON, TEXAS

TYPE BORING: Undisturbed Sample

LOCATION: See Plan of Borings

ELEVATION: 290.8'

DEPTH, FT.	SYMBOL	SAMPLES	SOIL DESCRIPTION	% PASSING NO. 200 SIEVE	LIQUID LIMIT	PLASTIC LIMIT	MOISTURE CONTENT, %	SHEAR STRENGTH IN TONS/SQ FT. 0.5 1.0 1.5	UNIT DRY WT. LBS./CU FT.
			Stiff brown silty clay (CL)						
5			Tan clay, w/occasional crystal material (CL)	55	34	15			
10			Dense tan sandy silt (ML)	54	29	19			
			-iron stained		31	18			
15									
20			Dense tan silty fine sand, iron stained (SM)						
25									
30									
35									
40									
45									
50									

COMPLETION DEPTH: 25.0'

DATE: 2-20-74

LOG OF BORING NO. B-106
G & T COOPERATIVE PROJECT
PLEASANTON, TEXAS

TYPE BORING: Undisturbed Sample LOCATION: See Plan of Borings

ELEVATION: 332.2'

DEPTH, FT.	SYMBOL	SAMPLES	SOIL DESCRIPTION	% PASSING NO. 200 SIEVE	LIQUID LIMIT	PLASTIC LIMIT	MOISTURE CONTENT, %	SHEAR STRENGTH IN TONS/SQ FT. 0.5 1.0 1.5	UNIT DRY WT. LBS./CU FT.
0			Very stiff dark brown clay (CH)						
5			Hard tan lime silty clay -iron staine (CL)		44	27			
10			hard tan clay, w/occasional selenite (CH)						
15			Very stiff light brown clay, w/occasional selenite (CH)						
20			Hard tan silty clay, w/occasional calcareous material (CL)	62	61	24			
25									
30									
35									
40									
45									
50									

COMPLETION DEPTH: 25.0'
DATE: 7-20-76

LOG OF BORING NO. B-107
G & T COOPERATIVE PROJECT
PLEASANTON, TEXAS

TYPE BORING: Undisturbed Sample LOCATION: See Plan of Borings

DEPTH, FT.	SYMBOL	SAMPLES	SOIL DESCRIPTION	% PASSING NO 200 SIEVE	LIQUID LIMIT	PLASTIC LIMIT	MOISTURE CONTENT, %	SHEAR STRENGTH IN TONS/SQ FT. 0.5 1.0 1.5	UNIT DRY WT. LBS./CU. FT.
			ELEVATION: 302.9'						
			Stiff dark brown clay (CH)						
5			Hard light tan clay, w/iron stain	71	83	28			
10			-light brown -occasional very stiff selenite (CH)	67	52	22			
15			Hard tan clay -occasional crystal material (CH)		89	31			
20									
25			Very dense silty fine sand (SM)						
30									
35									
40									
45									
50									

COMPLETION DEPTH: 25.0'
DATE: 7-20-74

RPS/National Soil Services
Consulting Engineers

PLATE

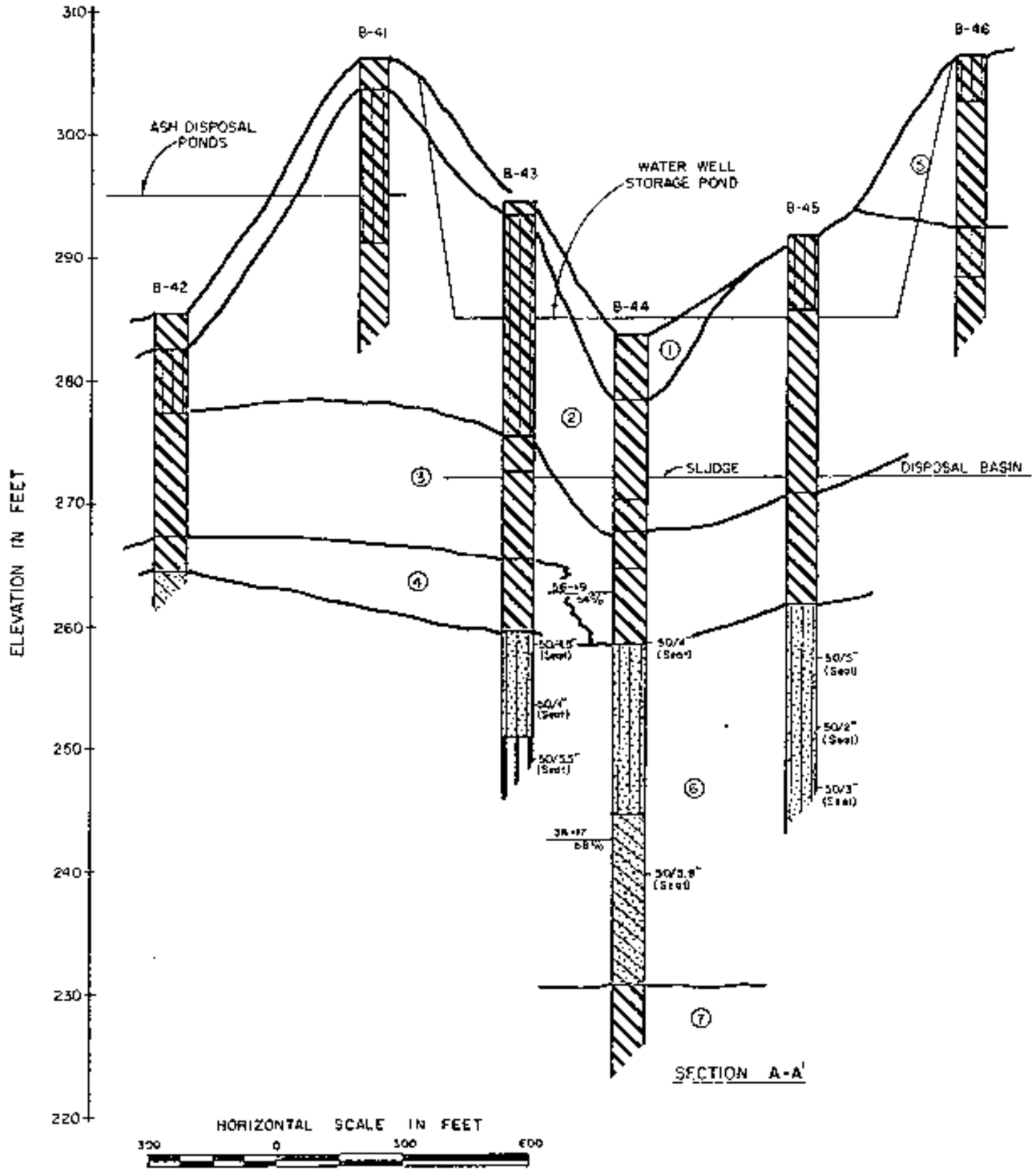
LOG OF BORING NO. B-109
G & T COOPERATIVE PROJECT
PLEASANTON, TEXAS

TYPE BORING: Undisturbed Sample LOCATION: See Plan of Borings

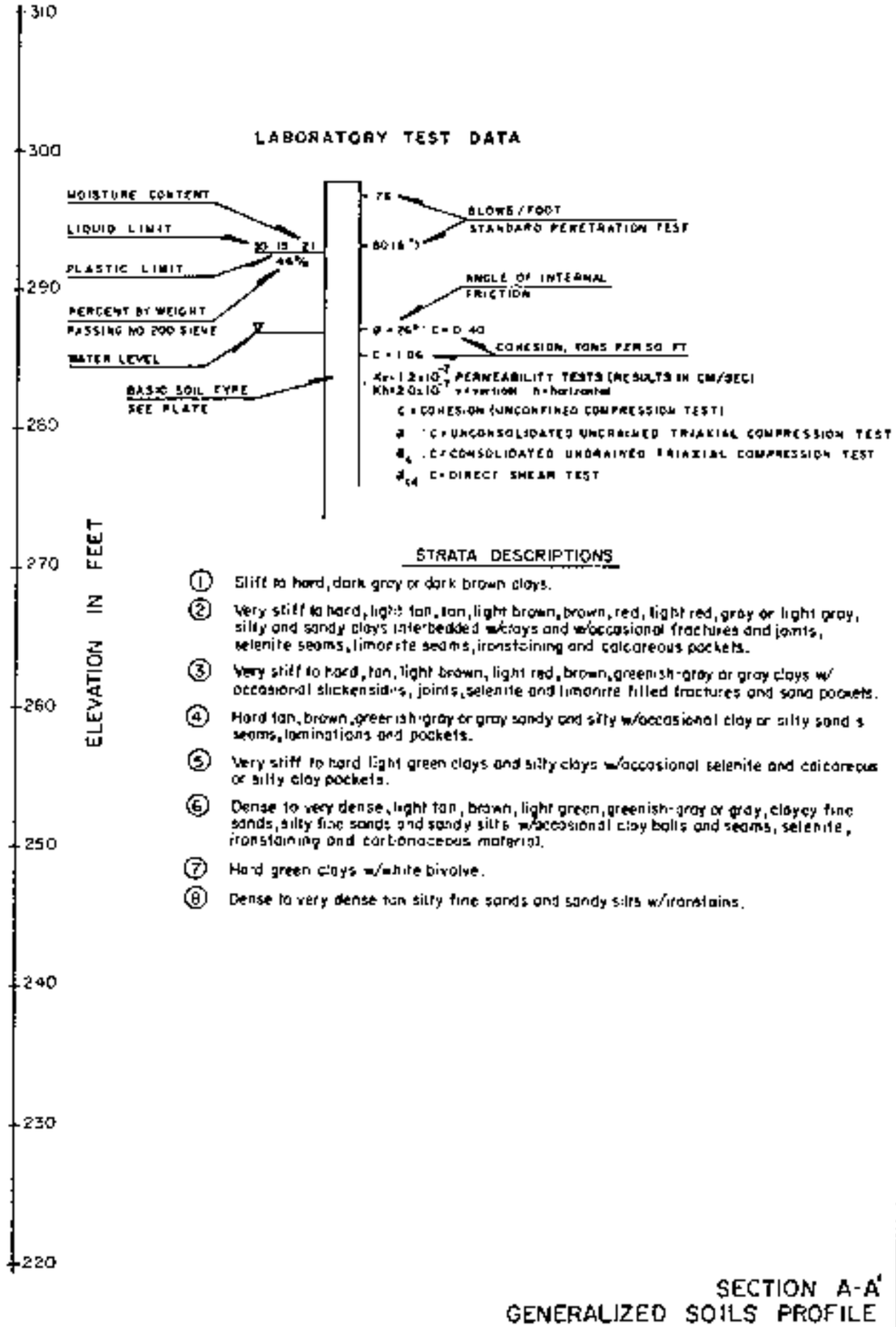
DEPTH, FT.	SYMBOL	SAMPLES	SOIL DESCRIPTION	% PASSING NO. 200 SIEVE	LIQUID LIMIT	PLASTIC LIMIT	MOISTURE CONTENT, %	SHEAR STRENGTH IN TONS/SQ FT. 0.5 1.0 1.5	UNIT DRY WT. LBS/CU FT
			ELEVATION: 300.9'						
5			Stiff dark brown clay -very stiff (CH)						
10			Very stiff brown clay, iron stained -tan		67	24			
15			(CH)						
20			Hard light brown clay, iron stained (CH)						
25									
30									
35									
40									
45									
50									

COMPLETION DEPTH: 25.0'
DATE: 2-7-76

ILLUSTRATIONS



SECTION A-A'



STRATA DESCRIPTIONS

① Stiff to hard, dark gray or dark brown clays.

② Very stiff to hard, light tan, tan, light brown, brown, red, light red, gray or light gray, silty and sandy clays interbedded w/clays and w/occasional fractures and joints, selenite seams, limonite seams, ironstaining and calcareous pockets.

③ Very stiff to hard, tan, light brown, light red, brown, greenish-gray or gray clays w/ occasional slickensides, joints, selenite and limonite filled fractures and sand pockets.

④ Hard tan, brown, greenish-gray or gray sandy and silty w/occasional clay or silty sand s seams, laminations and pockets.

⑤ Very stiff to hard light green clays and silty clays w/occasional selenite and calcareous or silty clay pockets.

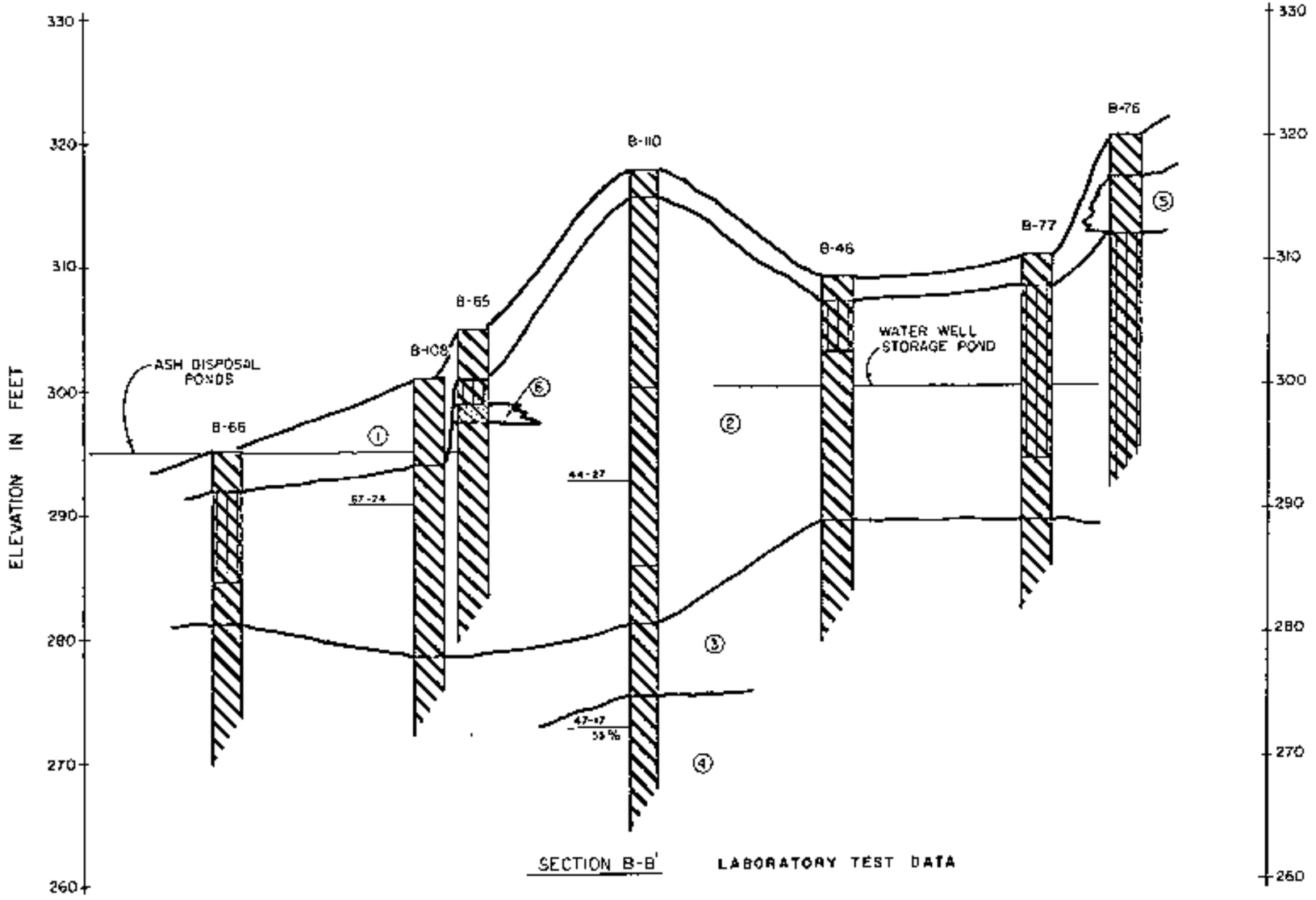
⑥ Dense to very dense, light tan, brown, light green, greenish-gray or gray, clayey fine sands, silty fine sands and sandy silts w/occasional clay balls and seams, selenite, ironstaining and carbonaceous material.

⑦ Hard green clays w/white bivolve.

⑧ Dense to very dense tan silty fine sands and sandy silts w/ironstains.

SECTION A-A'
GENERALIZED SOILS PROFILE

PLATE 1A



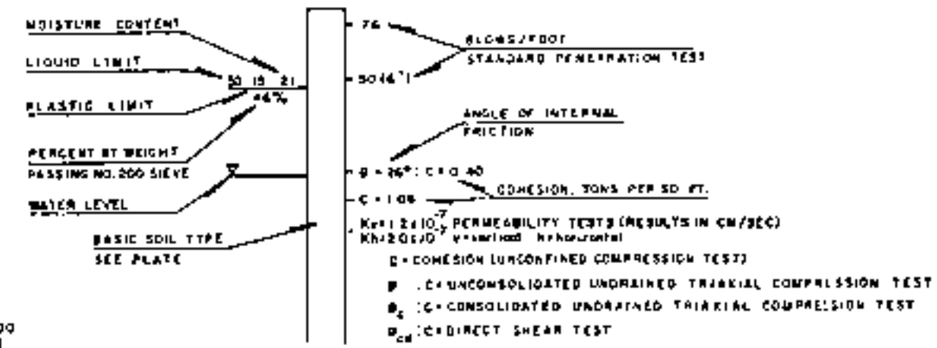
SECTION B-B'

NOTE: For Strata Descriptions see Section A-A'

HORIZONTAL SCALE IN FEET

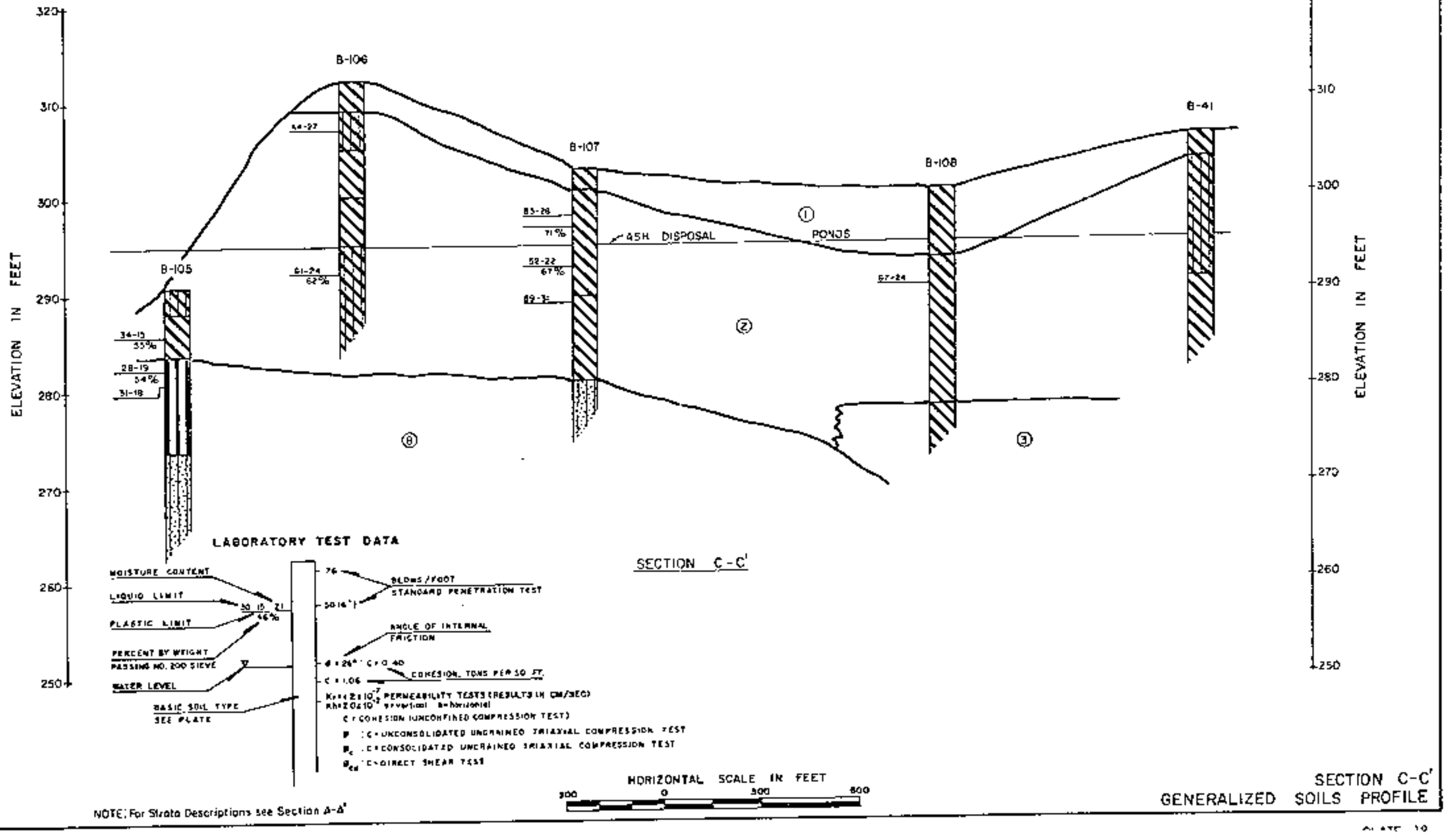
300 0 300 600

LABORATORY TEST DATA



SECTION B-B'
GENERALIZED SOILS PROFILE

PLATE 17

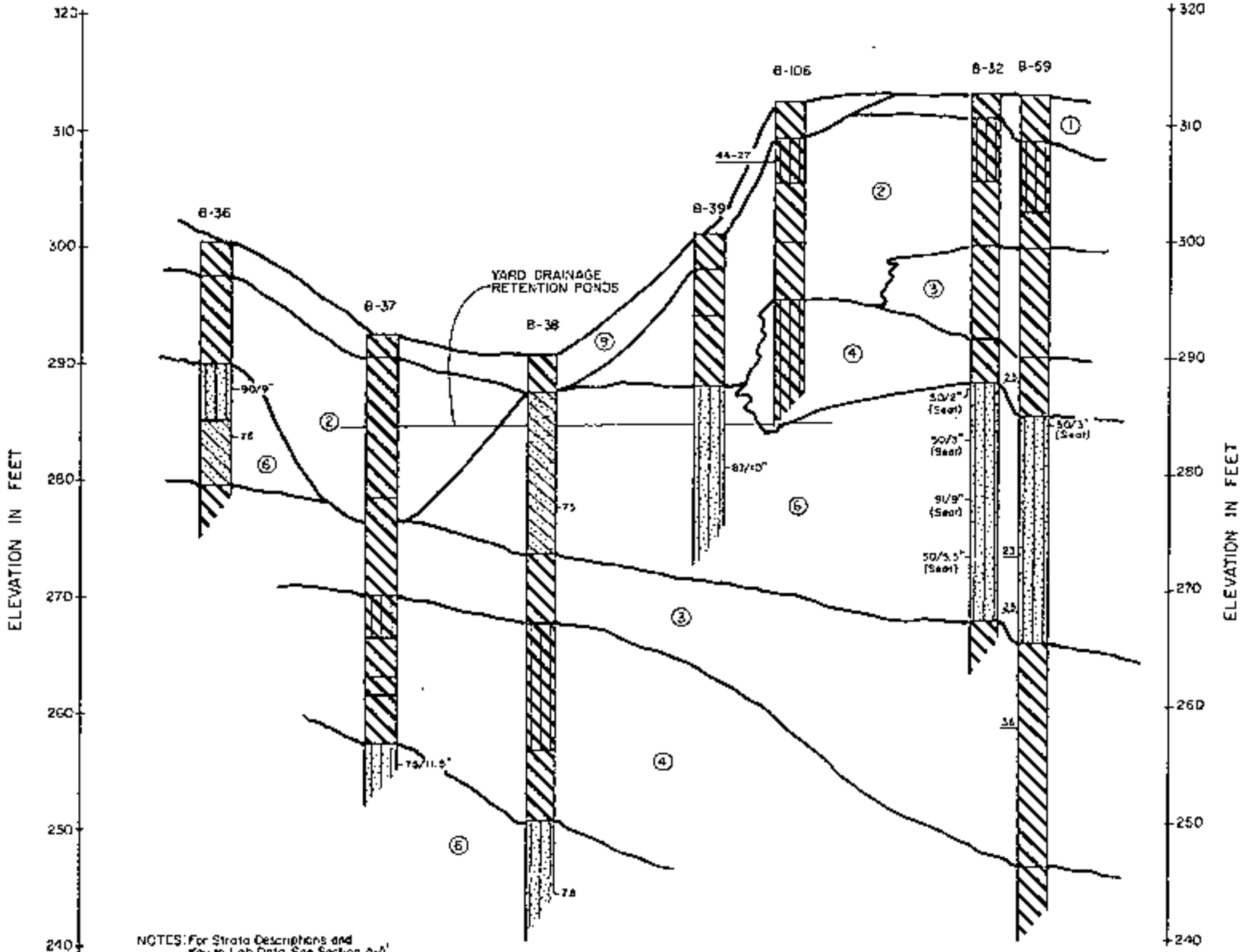


SECTION C-C'

NOTE: For Strata Descriptions see Section A-A'

SECTION C-C'
GENERALIZED SOILS PROFILE

PLATE 19



SECTION D-D'
GENERALIZED SOILS PROFILE

PLATE 19

N

Not to Scale

2475'± TOTAL LENGTH ALONG CREST

Wet Area "C"
Locate sump at edge of swale in line with the dike crest. Extend drain line to west 150'. Ground elevation difference between sump location and upper end of drain line is about one foot.

SUMP (TYP)

SEEPAGE COLLECTION PIPE (TYP)

Wet Area "A"
Position sump at toe of slope midway between wet area and pump foundation slab. Upper edge of wet area is about 8' higher than toe of slope. North drain line to sump (100'±) should extend through wet area. South drain line to sump (45'±) will collect runoff from pump area. Relocate existing compressed air lines at southern edge of wet area.

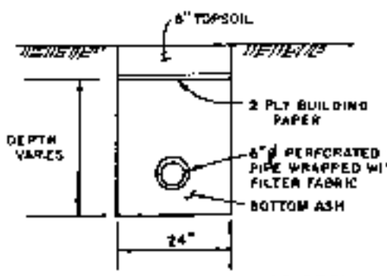
ASH DISPOSAL POND "D"

ASH DISPOSAL POND "B"

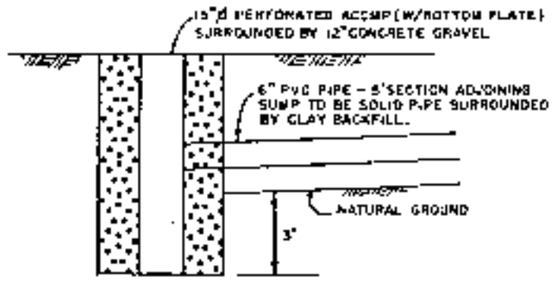
Wet Area "D"
Locate sump in level area beyond toe of slope about 40' north of common dike. Extend drain line 200'± northwest to beyond limits of wet area. Ground elevation difference between sump location and upper limit of wet area is about 8'.

EXISTING FENCE

Wet Area "F"
Wet area extends beyond fence. Locate sump on west side of wet area midway between fence and north edge of wet area. Extend drain to the east beyond limits of wet area (250'±). Ground elevation difference between sump location and upper end of drain line is about one foot.



SEEPAGE COLLECTION PIPE DETAIL
Not to Scale



SUMP DETAIL
Not to Scale

PLAN AND DETAILS OF SEEPAGE COLLECTION PIPE AND SUMPS

San Miguel 1987a Letter to Professional Service Industries, Inc. Re: *General Notes for San Miguel Unit #1, 1A Ash Pond Clay Liner Construction*, SMEC File No. 311.8400, from Clyde Price, San Miguel Electric Cooperative, Inc., May 8, 1987.

SAN MIGUEL ELECTRIC COOPERATIVE, INC.

May 8, 1987

Professional Service Industries, Inc.
Mr. Gary Davis
Three Burwood Lane
San Antonio, Texas 78216

Re: General Notes for San Miguel Unit #1, 1A Ash Pond Clay Liner Construction
(SMEC File: 311.8400)

Dear Mr. Davis:

San Miguel Electric Cooperative wishes to commence work on 1A Ash Pond starting on Monday, June 1, 1987. The earthwork contractor should begin mobilization prior to this date.

The employees of San Miguel normally work from 7:00 AM until 3:30 PM, Monday thru Friday. The earthwork contractor and your firm shall be expected to perform your respective work during the hours of 7:00 AM thru 6:00 PM, Monday thru Friday. Since coordination among the three companies and work phases will be necessary to prevent conflicts, delays, etc., this working time frame should prove advantageous to all concerned.

Contractors are expected to comply with normal safety requirements of the areas within which they are working. SAFETY GLASSES AND HARD HATS WILL BE WORN AT ALL TIMES WHILE ON THE PLANT SITE, EXCEPT WHILE INSIDE OFFICE BUILDINGS. Contractor(s) are expected to practice good daily housekeeping and final clean-up of the job site. Please refer to the attached "General Safety Instructions" for all visitors and contractors.

The 1A Ash Pond involves the four inner bank walls and the pond bottom. Your soil testing company shall test clays to meet the following specifications.

1. Liquid limit greater than 30
2. Plasticity index greater than 15
3. Permeability less than 1 x 10-7 cm/sec
4. Compaction tests shall be based on 95% density at moisture content three to four percent above optimum as determined by ASTM D 698, Standard Proctor.

EXHIBIT

Please instruct your field technician to provide me with a daily list of

1. Employees
2. Field tests/progress reports
3. Time charges
4. Any additional equipment charges above base contract

Prior to your mobilization, please provide SMEC with a copy of "Proof of Insurance." This document should be sent to:

Mrs. Doris Park
Administrative Assistant
San Miguel Electric Cooperative, Inc.
P. O. Box 280
Jourdanton, Texas 78026

If you should have any questions or need information on motels, housing or etc., please feel free to give me a call.

Yours truly,

Clyde Price
Project Engineer

CRP/bn

San Miguel 1987b Letter to V.K. Knowlton Paving Contractor, Inc. Re: *San Miguel Unit #1 General Notes for 1A Ash Pond Clay Liner Construction*, SMEC File No. 311.8400, from Clyde Price, San Miguel Electric Cooperative, Inc., May 8, 1987.

SAN MIGUEL ELECTRIC COOPERATIVE, INC.

May 8, 1987

V.K. Knowlton Paving Contractor, Inc.
Mr. John Stuart
Rt. 3, Box 209GK
San Antonio, Texas 78218

Re: San Miguel Unit #1 General Notes for 1A Ash Pond Clay Liner Construction
(SMEC File: 311.8400)

Dear Mr. Stuart:

San Miguel Electric Cooperative wishes to commence work on 1A Ash Pond, starting on Monday, June 1, 1987. Mobilization should start prior to this date.

The 1A Ash Pond involves the four inner bank walls and the pond bottom. Our soil testing company will test clays to meet the following specifications:

1. Liquid limit greater than 30
2. Plasticity index greater than 15
3. Permeability less than 1 x 10-7 cm/sec
4. Compaction tests shall be based on 95% density at moisture content three to four percent above optimum as determined by ASTM D 698, Standard Proctor.

Should any of the tests fail to meet the specifications, the Project Engineer in charge shall be notified for corrective action.

The employees of San Miguel normally work from 7:00 AM until 3:30 PM, Monday thru Friday. Per our discussion on Thrusday, May 7, 1987, the soil testing company and your firm shall be expected to perform your respective work during the hours 7:00 AM thru 5:00 PM, Monday thru Friday. Since coordination among the three companies and work phases will be necessary to prevent conflicts, delays, etc., this working time frame should prove advantageous to all concerned.

RECEIVED

EXHIBIT B

MAY 22 1987

KENDRICK & FRAZIER

Also during our meeting Thursday, we agreed to the following items.

1. Schedule starting date is June 1, 1987. Estimated completion date is July 31, 1987.
2. Knowlton Co. shall provide insurance certificates to:
   Mrs. Doris Park
   Administrative Assistant
   San Miguel Electric Cooperative, Inc.
   P. O. Box 280
   Jourdanton, Texas 78026
3. Knowlton shall provide SMEC with performance bond. Subject to San Miguel Corporate legal counsel approval.
4. SMEC shall pump existing water from the 1A Ash Pond prior to contractors arrival. Knowlton shall furnish additional pumps for the duration of the project.
5. Knowlton's Job Foreman to provide weekly time sheets, man power list, and job progress reports.
6. Billing and drawing schedule shall be once per month.
7. SMEC shall not be charged for "rain outs."
8. SMEC shall be responsible for pond fill and irrigation of the banks upon Knowlton's completion of the clay pond liner.
9. Contractors are expected to comply with normal plant safety requirements of the areas within which they are working. SAFETY GLASSES AND HARD HATS WILL BE WORN AT ALL TIMES WHILE ON THE PLANT SITE, EXCEPT WHILE INSIDE OFFICE BUILDINGS. Contractor(s) are expected to practice good daily housekeeping and final clean-up of the job site. Please refer to the attached "General Safety Instructions" for all visitors and contractors.

I look forward to working with you and your firm on this project. If you should have any questions or need information on motels, housing etc., please feel free to give me a call.

Yours truly,

Clyde Price
Project Engineer

Attachment

CRP/bn

San Miguel 1987c *Contract for 1A Ash Pond Liner Reconstruction – V.K. Knowlton Paving Contractor, Inc.*, San Miguel Electric Cooperative, Inc., July 10, 1987.

CONTRACT FOR 1A ASH POND LINER RECONSTRUCTION

DATE: July 10, 1987

OWNER: San Miguel Electric Cooperative, Inc.

CONTRACTOR: V. K. KNOWLTON PAVING CONTRACTOR, INC.

PLANT LOCATION: Atascosa County, Texas

1. V. K. Knowlton Paving Contractor, Inc. (hereinafter called "Contractor") hereby agrees to complete all earth work necessary for the 1A Ash Pond Liner Reconstruction in accordance with Professional Service Industries, Inc.'s ("PSI") letter dated January 27, 1987, San Miguel Electric Cooperative, Inc.'s (hereinafter called "Owner") letters of General Notes for 1A Ash Pond Clay Liner Construction dated May 8, 1987, respectively attached hereto and incorporated herein as Exhibits "A", "B" and "E" and PSI's letter dated May 7, 1987 attached hereto and incorporated herein as Exhibit "F" ("the Contract Documents"). Contractor further agrees that after each area of the 1A Ash Pond Liner is completed by Contractor and determined by PSI to meet the requirements set forth in the Contract Documents, the Contractor shall thereafter maintain such completed area at a level equal to or exceeding placement moisture content until Contractor's total performance of the Contract is accepted by Owner in accordance with paragraph 7 hereof.

2. Owner shall pay Contractor a total of $166,001.93 for the work.

3. Progress Payments - The Owner shall make monthly installment payments on account of the contract price on the tenth day of each month beginning on the tenth day of the month following the first full month of work. Such payment shall be in an amount equal to ninety (90%) percent of the value of the labor and materials incorporated in the work and of materials suitably stored at the work site up to and including the final day of the previous month, as determined by the certificate of the Contractor and in accordance with the established contract price, less the total amount of previous payments as to work approved by Owner. At the time a request for payment is made, Contractor shall provide Owner with copies of all invoices, work orders, manpower list, weekly time sheets, job progress reports, statements, bills, etc. supporting the work for which Contractor requests payment. The last installment payment to be made after all work has been

completed shall be in an amount equal to ninety percent (90%) of the contract price, less the total amount of previous payments.

Progress payments may be withheld if:

(a) Work is found defective and not remedied;

(b) The Contractor does not make prompt and proper payments to any subcontractors;

(c) The Contractor does not make prompt and proper payment for labor, materials, or equipment furnished it; or

(d) Claims or liens are filed on the job.

The Owner shall make final payment to the Contractor after thirty (30) days but before thirty-five (35) days after the work is approved by PSI and the Owner, if the contract is at that time fully performed and subject to the condition that final payment shall not be due until the Contractor has delivered to the Owner upon its request, a complete release of all liens arising out of the contract herein, or receipts in full covering all labor, materials, and equipment for which a lien could be filed, or in the alternative, a bond satisfactory to the Owner indemnifying it against such liens.

The Contractor, by accepting final payment, waives all claims for further payment, except those which it has previously made in writing and which remain unsettled at the time of acceptance.

4. Time for Performance - The work shall commence no earlier than June 23, 1987, nor later than July 13, 1987 and shall be completed by 4:00 p.m., September 13, 1987 or sixty (60) calendar days after work commences, whichever date is earlier. The work shall be performed by Contractor between the hours of 7:00 a.m. to 6:00 p.m. Monday through Friday of each work week.

5. Force-Majeure - The time of performance shall be extended for the period of any reasonable delay due exclusively to causes beyond the control and without fault of the Contractor, including Acts of God, fires, strikes, floods, inability to obtain materials, changes in the specifications as herein provided and acts or omissions of the Owner with respect to matters for which the Owner is solely responsible. Provided, however, that no such extension of time for completion shall be granted the Contractor unless within three (3) days after the happening of any event relied upon by the Contractor for such an extension of time, the Contractor shall have made a request therefor in writing to the Owner and, provided further, that no delay in such time of completion or in the progress of the work which results from any of the above causes

except acts or omissions of the Owner, shall result in any liability on the part of the Owner.

6. Inspection and Testing - During construction and upon completion, the Contractor's performance will be inspected by PSI which shall test the clay to insure that it meets the following specifications:

a. Liquid limit greater than 30,

b. Plasticity index greater than 15,

c. Permeability less than 1 x 10-7 cm/sec,

d. Compaction tests shall be based on 95% density at moisture content three to four percent above optimum as determined by ASTM D 698, Standard Proctor.

All deficiencies discovered by PSI shall be noted in a written report made by PSI to the Owner. If it is determined by PSI that any such deficiency was caused by the Contractor's failure to perform the work in accordance with the requirements set forth in the Contract Documents, then Contractor shall take all steps necessary to correct any such deficiency, at no cost to Owner. Provided, however, if it is determined by PSI that any such deficiency was caused by the characteristics of the clay material provided by the Owner or pre-existing in the 1A Ash Pond, then Contractor hereby agrees to perform all work necessary to correct any such deficiency and it shall be paid by the Owner for such extra work in accordance with the unit prices described in Exhibit "G", attached hereto and incorporated herein for all purposes.

7. The Owner shall have the option of refusing to accept the Contractor's performance until such time as the items listed in PSI's report have been satisfactorily corrected or, in the alternative, it may accept the Contractor's performance in its then present condition; said acceptance being expressly conditioned upon the Contractor's written assurance that the corrections can be satisfactorily made within thirty (30) days at Contractor's expense. Said assurance shall be in addition to the Contractor's responsibilities relative to any and all warranties set forth herein and/or implied by law.

Failure of the Owner to discover and/or report any defects in the Contractor's performance will not constitute a waiver of or in any way alleviate the Contractor's responsibilities as set forth herein.

8. Performance Bond - The Contractor shall furnish the Owner with a performance bond in the amount of $166,001.93 upon execution of this Contract. The Owner desires the maximum financial protection possible. The performance bond shall be in effect one

protection possible. The performance bond shall be in effect one day after signing of this Contract and shall continue thereafter during all terms of the Contract and any extensions thereafter entered into by and between the Owner and the Contractor.

The performance bond shall be duly and properly executed by the Contractor as principal and by a corporate surety company, rated at least A+10 and authorized to do business in the State of Texas, with a resident agent in Atascosa County, as Surety. A Power of Attorney shall be attached to the Bond by any Attorney-in-Fact executing such Bond for either the Contractor or Surety.

9. Indemnification - The Contractor warrants that the Owner will not be legally responsible for liabilities resulting from or relating to activities by the Contractor and/or Contractor's employees/subcontractors. In this regard, the Contractor agrees to indemnify, save harmless, and defend, the Owner, its officers, directors, agents, employees, attorneys, consultants, and engineers (hereinafter "Indemnitees") from and against any and all claims, suits, damages, and expenses of every kind, including attorney's fees, asserted against, incurred by and/or recovered from Indemnitees for injury to or death of any person or persons and for damages to or loss of property, arising out of or attributed, directly or indirectly, from the activities performed by the Contractor's employees/subcontractors, to include, but not limited to, the preparation, performance, and/or inspection of the work and/or services to be provided in accordance with this Contract. This indemnity expressly includes all claims or demands arising both from alleged negligent conduct and/or claims and demands based upon a theory of product liability or strict liability in tort.

If Indemnitees, in the proper enforcement of this Indemnity Agreement, shall incur reasonable and necessary expenses, or become obligated to pay attorney's fees or court costs, Contractor agrees to reimburse Indemnitees for such expenses, attorney's fees and costs within thirty (30) days after receipt of written notice from Indemnitees of the incurrence of such expenses, costs, or obligations.

10. Insurance - Contractor and its subcontractors shall provide proof of and maintain until completion of the above described work at Owner's plant, the insurance coverage described in Exhibit "C", which is attached hereto and incorporated herein for all purposes.

11. Safety Policies - Contractor, its employees, supervisors, and subcontractors, shall adhere to all applicable federal, state, and local laws, all OSHA standards, and Owner's safety policies and standards (Exhibit "D").

12. Default - If default shall be made by the Contractor in the performance of any of the terms of this Contract, the Owner,

without in any manner limiting its legal and equitable remedies in the circumstances, may serve upon the Contractor and/or the Surety upon the Contractor's Performance Bond, a written notice requiring the Contractor to cause such default to be corrected forthwith. Unless within ten (10) calendar days after the service of such notice upon the Contractor, such default shall be corrected or arrangements for the corrections thereof satisfactory to the Owner shall be made by the Contractor or its Surety, the Owner may terminate this Contract and the Contractor and its Surety shall be liable to the Owner for any cost or expense in excess of the Contract price occasioned by the Owner's reletting the Contract to a different Contractor.

13. Construction of Documents - This Contract shall be governed by the laws of the State of Texas.

14. Severability - In the event that any provision or portion thereof of any Contract Documents shall be found to be invalid or unenforceable, then such provision or portion thereof shall be reformed in accordance with the applicable laws. The invalidity or unenforceability of any provision or portion of any Contract Documents shall not affect the validity or enforceability of any other provision or portion of the Contract Documents.

15. Modification - The Owner shall have the right to request modifications to the Contractor's performance, subject to Contractor's approval as to the feasibility of such modifications, and the agreement between the Owner and Contractor as to the additional cost thereof.

16. Nondiscrimination - Contractor warrants that it will not engage in employment practices which have the effect of discriminating against employees or prospective employees because of race, color, sex, creed, age, handicap, or national origin and will submit such reports as the Owner may hereafter require to assure compliance.

17. Unauthorized Publications - Except for the prior written consent of the Owner, the Contractor shall not release, publish, or cause to be published or communicated to others, any information or data with the respect to this purchase, or use the Owner's name in conjunction therewith.

18. Headings - The headings in this Contract are inserted for convenience and identification only and are not intended to describe, interpret, define, or limit the scope, extent, or intent of this Contract or any provision hereof.

19. Originals - This Contract may be executed in several copies all of which together shall constitute but one agreement binding on all parties hereto, each fully executed copy which shall be deemed an original.

20. Venue - Venue for any dispute hereunder shall lie in Atascosa County, Texas.

21. Parole Evidence Rule - The Contract Documents supersede any and all other agreements, either oral or written, between the parties hereto with respect to the subject matter hereof and contain all of the covenants and agreements between the parties with respect to said matters. Each party to this Contract acknowledges that no representations, inducements, promises, or other agreements, orally or otherwise, have been made by any party or anyone acting on behalf of any party, which are not embodied in the Contract Documents, and that no other agreement, statement, or promise not contained in the Contract Documents shall be valid or binding.

22. Notices - Any notice given under this Contract shall be sufficient, if in writing and mailed by either registered or certified mail, return receipt requested, postage prepaid, as follows:

Owner: San Miguel Electric Cooperative, Inc.
Attention Clyde Price
P.O. Box 280
Jourdanton, Texas 78026

Contractor: V. K. Knowlton Paving Contractor, Inc.
Rt. 3, Box 209GK
San Antonio, Texas 78218

23. Waiver - The waiver by any party hereto of a breach of any provision of the Contract Documents shall not operate or be construed as a waiver of any subsequent breach by any party and may not be changed except by written agreement duly executed by the parties hereto.

24. Additional Documentation - In connection with this Contract, as well as all transactions related to this Contract, the parties hereto agree to execute and deliver such additional documents and instruments and to perform such additional acts as may be necessary and appropriate to effectuate and perform all of the terms, provisions, and conditions of this Contract and all other transactions associated therewith.

25. Award of Attorney's Fees - Any party to this Contract who is the prevailing party in any legal proceeding against the other party brought under or with relation to this Contract or

transaction shall be additionally entitled to recover court costs and reasonable attorney's fees from the non-prevailing party.

26. Formation of Contract - This proposal shall become a contract between the Contractor and the Owner when accepted by the Contractor and approved in writing by an officer of the Owner and when so accepted and approved it shall be binding upon the parties hereto and upon their respective heirs, executors, successors and assigns.

27. Amendments - No amendments to this Contract shall be valid unless prepared in writing and executed by each of the parties hereto.

Executed this 10th day of July, 1987.

SAN MIGUEL ELECTRIC COOPERATIVE, INC.

By Ronald L Nagel

Title Plant Mgr.

Attest _____

V. K. KNOWLTON PAVING CONTRACTOR, INC.

By _____

Title General Manager

Attest _____

San Miguel 1987d *Contract for 1A Ash Pond Liner Reconstruction – Professional Service Industries, Inc.*, San Miguel Electric Cooperative, Inc., July 10, 1987.

CONTRACT FOR 1A ASH POND LINER RECONSTRUCTION

DATE: July 10, 1987

OWNER: San Miguel Electric Cooperative, Inc.

CONTRACTOR: Professional Service Industries, Inc.

PLANT LOCATION: Atascosa County, Texas

1. Professional Service Industries, Inc. (hereinafter called "Contractor") hereby agrees to complete the soil testing necessary for the 1A Ash Pond Liner Reconstruction in accordance with Professional Service Industries, Inc.'s ("PSI") letter dated January 27, 1987, and San Miguel Electric Cooperative, Inc.'s (hereinafter called "Owner") letters of General Notes for 1A Ash Pond Clay Liner Construction dated May 8, 1987, respectively attached hereto and incorporated herein as Exhibits "A", "B" and "E" ("the Contract Documents"). Contractor acknowledges Owner is relying on the accuracy of Contractor's test results and other information contained in PSI's letter dated May 7, 1987 which is attached hereto and incorporated herein as Exhibit "F".

2. Owner shall pay Contractor for services as outlined in PSI's proposal dated February 5, 1987 which is attached hereto and incorporated herein as Exhibit "G". In the event of a conflict between this contract and Exhibit "G", this contract shall prevail. Owner is to be billed for actual days utilized by PSI on this project.

3. Progress Payments - The Owner shall make monthly installment payments on account of the contract price on the tenth day of each month beginning on the tenth day of the month following the first full month of work. Such payment shall be in an amount equal to one hundred (100%) percent of the contract prices described in Exhibit "G" for the value of the labor performed and the rental value of the equipment used by the Contractor at the work site up to and including the final day of the previous month, as determined by the certificate of the Contractor. At the time a request for payment is made, Contractor shall provide Owner with copies of all invoices, work orders, manpower lists, weekly time sheets, job progress reports, equipment logs, statements, bills, etc. supporting the work and/or equipment for which Contractor requests payment.

Progress payments may be withheld if:

(a) Work is found defective and not remedied;

(b) The Contractor does not make prompt and proper payments to any subcontractors;

(c) The Contractor does not make prompt and proper payment for labor, materials, or equipment furnished it; or

(d) Claims or liens are filed on the job.

The Owner shall make final payment to the Contractor for work performed and/or equipment used by the Contractor during the last month of work after thirty (30) days but before thirty-five (35) days after the Contractor's performance is accepted by the Owner in accordance with paragraph 7 hereof; provided, however, such final payment shall further be conditioned upon the Contractor's delivery to the Owner of a complete release of all liens arising out of the contract herein, or receipts in full covering all labor, materials, and equipment for which a lien could be filed, or in the alternative, a bond satisfactory to the Owner indemnifying it against such liens.

The Contractor, by accepting final payment, waives all claims for further payment, except those which it has previously made in writing and which remain unsettled at the time of acceptance.

4. Time for Performance - The Contractor shall commence work within twenty-four (24) hours after it receives written notice from the Owner to commence work. Contractor further agrees to complete the work within seven (7) calendar days after V. K. Knowlton Paving Contractor, Inc.'s performance is accepted by Owner. The work shall be performed by Contractor between the hours of 7:00 a.m. to 6:00 p.m. Monday through Friday of each work week.

5. Force-Majeure - The time of performance shall be extended for the period of any reasonable delay due exclusively to causes beyond the control and without fault of the Contractor, including Acts of God, fires, strikes, floods, inability to obtain materials, changes in the specifications as herein provided and acts or omissions of the Owner with respect to matters for which the Owner is solely responsible. Provided, however, that no such extension of time for completion shall be granted the Contractor unless within three (3) days after the happening of any event relied upon by the Contractor for such an extension of time, the Contractor shall have made a request therefor in writing to the Owner and, provided further, that no delay in such time of completion or in the progress of the work which results from any of the above causes

except acts or omissions of the Owner, shall result in any liability on the part of the Owner.

6. Inspection and Testing - During construction and upon completion, PSI shall test the clay to insure that it meets the following specifications:

a. Liquid limit greater than 30,

b. Plasticity index greater than 15,

c. Permeability less than 1 x 10-7 cm/sec,

d. Compaction tests shall be based on 95% density at moisture content three to four percent above optimum as determined by ASTM D 698, Standard Proctor.

The results of the above tests shall be noted in a written report made by PSI to the Owner.

7. Upon completion of performance, the Owner shall inspect the Contractor's performance and shall prepare a written report noting any deficiencies with respect to the Contractor's performance. The Owner shall have the option of refusing to accept the Contractor's performance until such time as the items listed in the Owner's report have been satisfactorily corrected or, in the alternative, it may accept the Contractor's performance in its then present condition; said acceptance being expressly conditioned upon the Contractor's written assurance that the corrections can be satisfactorily made within thirty (30) days at Contractor's expense. Said assurance shall be in addition to the Contractor's responsibilities relative to any and all warranties set forth herein and/or implied by law.

Failure of the Owner to discover and/or report any defects in the Contractor's performance will not constitute a waiver of or in any way alleviate the Contractor's responsibilities as set forth herein.

8. Indemnification - The Contractor warrants that the Owner will not be legally responsible for liabilities resulting from or relating to activities by the Contractor and/or Contractor's employees/subcontractors. In this regard, the Contractor agrees to indemnify, save harmless, and defend, the Owner, its officers, directors, agents, employees, attorneys, consultants, and engineers (hereinafter "Indemnitees") from and against any and all claims, suits, damages, and expenses of every kind, including attorney's fees, asserted against, incurred by and/or recovered from Indemnitees for injury to or death of any person or persons and for damages to or loss of property, arising out of or attributed, directly or indirectly, from the activities performed by the Contractor's employees/subcontractors, to include, but not limited

to, the preparation, performance, and/or inspection of the work and/or services to be provided in accordance with this Contract. This indemnity expressly includes all claims or demands arising both from alleged negligent conduct and/or claims and demands based upon a theory of product liability or strict liability in tort.

If Indemnitees, in the proper enforcement of this Indemnity Agreement, shall incur reasonable and necessary expenses, or become obligated to pay attorney's fees or court costs, Contractor agrees to reimburse Indemnitees for such expenses, attorney's fees and costs within thirty (30) days after receipt of written notice from Indemnitees of the incurrence of such expenses, costs, or obligations.

9. Insurance - Contractor and its subcontractors shall provide proof of and maintain until completion of the above described work at Owner's plant, the insurance coverage described in Exhibit "C", which is attached hereto and incorporated herein for all purposes.

10. Safety Policies - Contractor, its employees, supervisors, and subcontractors, shall adhere to all applicable federal, state, and local laws, all OSHA standards, and Owner's safety policies and standards (Exhibit "D").

11. Default - If default shall be made by the Contractor in the performance of any of the terms of this Contract, the Owner, without in any manner limiting its legal and equitable remedies in the circumstances, may serve upon the Contractor a written notice requiring the Contractor to cause such default to be corrected forthwith. Unless within three (3) calendar days after the service of such notice upon the Contractor, such default shall be corrected or arrangements for the corrections thereof satisfactory to the Owner shall be made by the Contractor, the Owner may terminate this Contract and the Contractor shall be liable to the Owner for any cost or expense in excess of the Contract price occasioned by the Owner's reletting the Contract to a different Contractor.

12. Construction of Documents - This Contract shall be governed by the laws of the State of Texas.

13. Severability - In the event that any provision or portion thereof of any Contract Documents shall be found to be invalid or unenforceable, then such provision or portion thereof shall be reformed in accordance with the applicable laws. The invalidity or unenforceability of any provision or portion of any Contract Documents shall not affect the validity or enforceability of any other provision or portion of the Contract Documents.

14. Modification - The Owner shall have the right to request modifications to the Contractor's performance, subject to Contractor's approval as to the feasibility of such modifications, and the agreement between the Owner and Contractor as to the additional cost thereof.

15. Nondiscrimination - Contractor warrants that it will not engage in employment practices which have the effect of discriminating against employees or prospective employees because of race, color, sex, creed, age, handicap, or national origin and will submit such reports as the Owner may hereafter require to assure compliance.

16. Unauthorized Publications - Except for the prior written consent of the Owner, the Contractor shall not release, publish, or cause to be published or communicated to others, any information or data with the respect to this purchase, or use the Owner's name in conjunction therewith.

17. Headings - The headings in this Contract are inserted for convenience and identification only and are not intended to describe, interpret, define, or limit the scope, extent, or intent of this Contract or any provision hereof.

18. Originals - This Contract may be executed in several copies all of which together shall constitute but one agreement binding on all parties hereto, each fully executed copy which shall be deemed an original.

19. Venue - Venue for any dispute hereunder shall lie in Atascosa County, Texas.

20. Parole Evidence Rule - The Contract Documents supersede any and all other agreements, either oral or written, between the parties hereto with respect to the subject matter hereof and contain all of the covenants and agreements between the parties with respect to said matters. Each party to this Contract acknowledges that no representations, inducements, promises, or other agreements, orally or otherwise, have been made by any party or anyone acting on behalf of any party, which are not embodied in the Contract Documents, and that no other agreement, statement, or promise not contained in the Contract Documents shall be valid or binding.

21. Notices - Any notice given under this Contract shall be sufficient, if in writing and mailed by either registered or certified mail, return receipt requested, postage prepaid, as follows:

Owner: San Miguel Electric Cooperative, Inc.
Attention Clyde Price
P.O. Box 280
Jourdanton, Texas 78026

Contractor: Professional Service Industries, Inc.
Three Burwood Lane
San Antonio, Texas 78216

22. Waiver - The waiver by any party hereto of a breach of any provision of the Contract Documents shall not operate or be construed as a waiver of any subsequent breach by any party and may not be changed except by written agreement duly executed by the parties hereto.

23. Additional Documentation - In connection with this Contract, as well as all transactions related to this Contract, the parties hereto agree to execute and deliver such additional documents and instruments and to perform such additional acts as may be necessary and appropriate to effectuate and perform all of the terms, provisions, and conditions of this Contract and all other transactions associated therewith.

24. Award of Attorney's Fees - Any party to this Contract who is the prevailing party in any legal proceeding against the other party brought under or with relation to this Contract or transaction shall be additionally entitled to recover court costs and reasonable attorney's fees from the non-prevailing party.

25. Formation of Contract - This proposal shall become a contract between the Contractor and the Owner when accepted by the Contractor and approved in writing by an officer of the Owner and when so accepted and approved it shall be binding upon the parties hereto and upon their respective heirs, executors, successors and assigns.

26. Amendments - No amendments to this Contract shall be valid unless prepared in writing and executed by each of the parties hereto.

Executed this 10th day of July, 1987.

SAN MIGUEL ELECTRIC COOPERATIVE, INC.

By Ronald L. Magel

Title Plt. Mgr.

Attest _____

PROFESSIONAL SERVICE INDUSTRIES, INC.

By _____, P.E.

Title Vice President

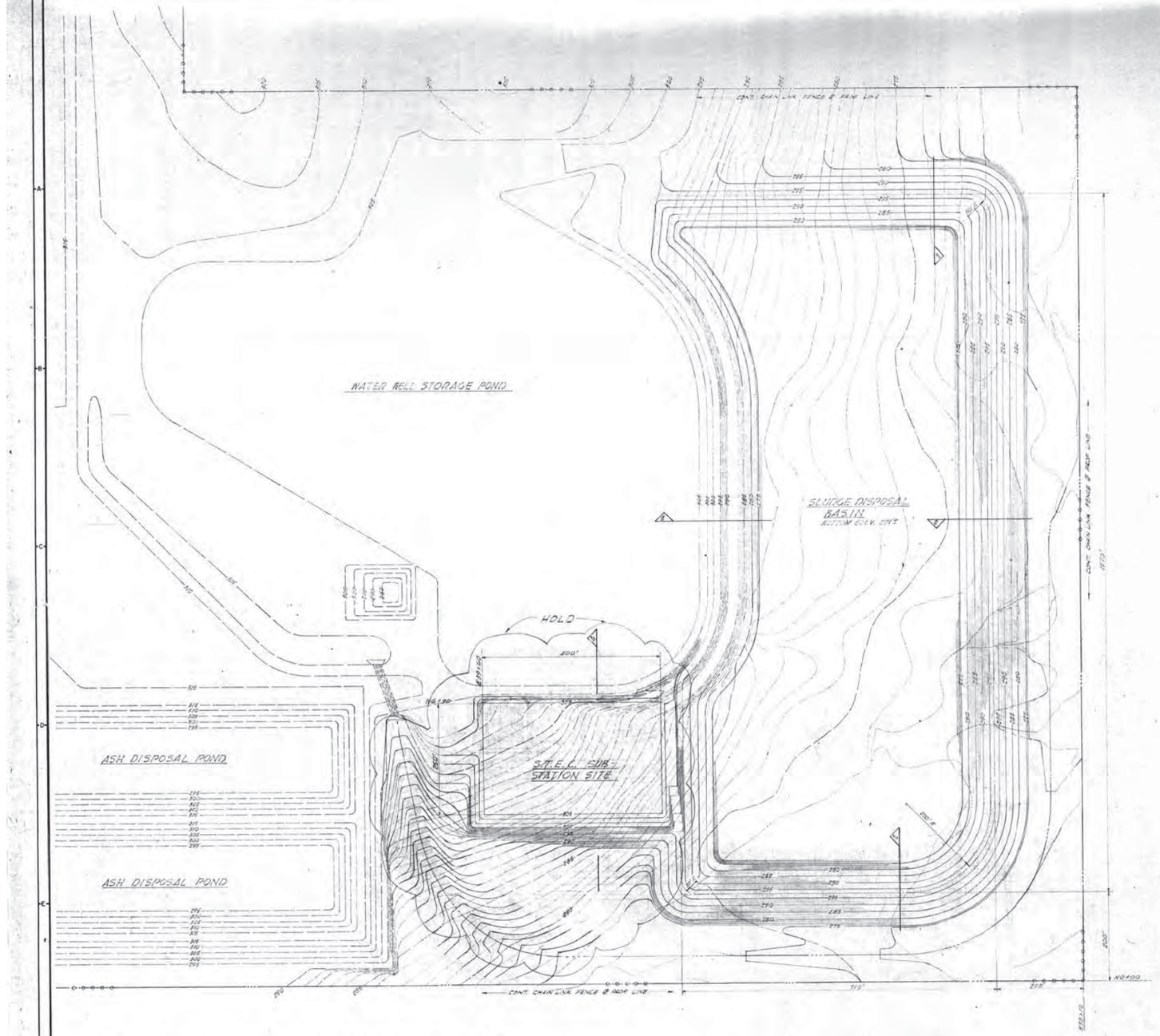
Attest _____

10/12/16 Draft
Privileged and Confidential
Attorney Work Product

ASH POND AND EQUALIZATION POND DRAWINGS

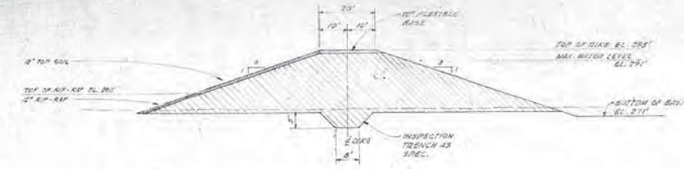
Environmental Resources Management
206 East 9th Street, Suite 1700
Austin, Texas 78701
(512) 459-4700

T&G 1977a *Sludge Disposal Basin, 69 kV Substation & Temp. Parking Area, San Miguel Plant Unit No. 1*, Drawing No. C-12, Rev. 0, Tippet & Gee, Inc., April 1, 1977, revised April 5, 1977.

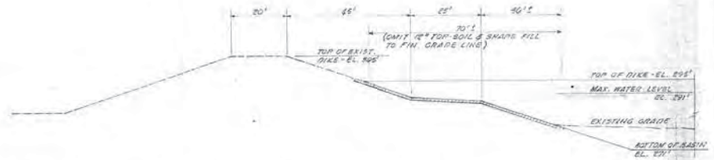


1 PLAN - SLUDGE DISPOSAL BASIN & SUBSTATION SITE
SCALE: 1" = 100'

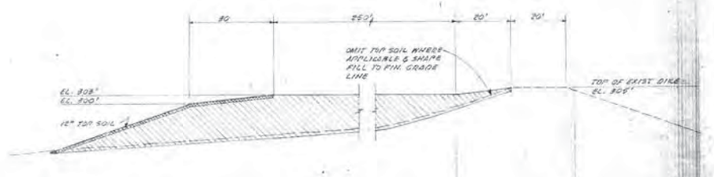
——— EXIST. CONTOURS PER CONTRACT DWG. C-4, REV. 8
——— REVISED CONTOURS



2 TYPICAL DIKE SECTION
SCALE: 1" = 20'

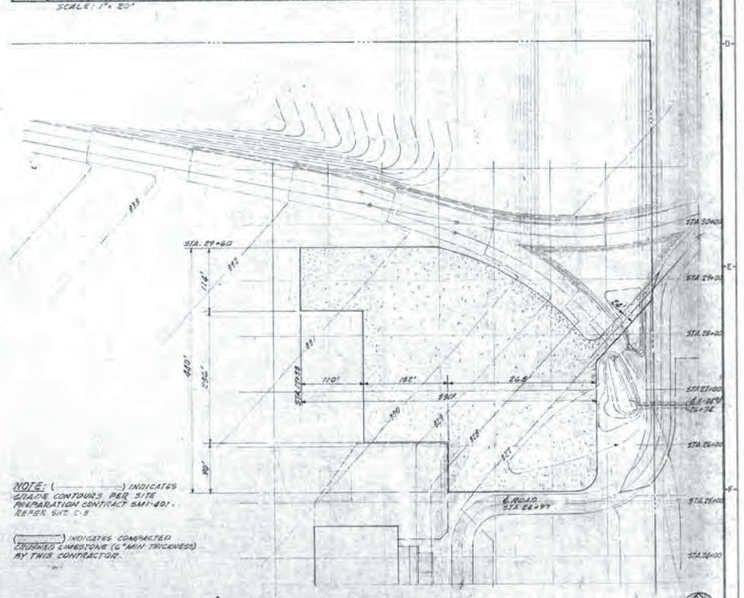


3 TYPICAL DIKE SECTION (EXIST. @ WATER WELL STG. POND)
SCALE: 1" = 20'



4 TYPICAL SECTION - SUBSTATION SITE
SCALE: 1" = 20'

6 TYP. SECTION - PARKING AREA



NOTE: (——) INDICATES GRADE CONTOURS PER SITE PREPARATION CONTRACT SMI-401, REF. SHT. C-8

(——) INDICATES COMPACTED CRUSHED LIMESTONE (6" MIN THICKNESS) BY THIS CONTRACTOR.

5 PLAN - CONSTRUCTION WORKERS' PARKING
SCALE: 1" = 100'

NOTES
1. ALL FILL INDICATED ⚠ SHALL BE AS SPECIFIED FOR CONTROLLED COMPACTED FILL.

NO.	DATE	BY	DESCRIPTION
0			RE: ADD THIS DRAWING TO CONTRACT DRAWINGS

SCALE: AS NOTED
DRAWN: J.R.K.
DATE: 4-8-72
CHECKED: C.A.D.
APPROVED:

William G. Hollowell 15137 REGISTERED ENGINEER
M. L. HUGHES 25324 REGISTERED ENGINEER

TIPPETT & GEE, INC.
CONSULTING ENGINEERS
ABILENE TEXAS

SAN MIGUEL PLANT
UNIT NO. 1
B.E.P.C. S.T.E.C.

SLUDGE DISPOSAL BASIN, 69 KV SUBSTATION & TEMP. PARKING AREA

JOB NO. SMI-401
REV. 0
DRAWING NUMBER C-12

T&G 1977b *Site Plan Section No. 8, San Miguel Plant Unit No. 1*, Drawing No. 1-C-37, Rev. 0, Tippet & Gee, Inc., April 1, 1977, revised August 18, 1977.

N7+00

N6+00

N5+00

N4+00

N3+00

N2+00

N1+00

STA N0+00

EL. 310

EL. 315

℄ DIKE N6+40

EL. 315
EL. 315
EL. 310
EL. 305
EL. 300
EL. 295

ASH DISPOSAL POND
(EXIST'G.)

EL. 295
EL. 300
EL. 305
EL. 310
EL. 315

90° ⌀ EXISTING PIPE

℄ DIKE N3+75

EL. 315
EL. 310
EL. 305
EL. 300
EL. 295

ASH DISPOSAL POND
(EXIST'G.)

EL. 295
EL. 300
EL. 305
EL. 310
EL. 315

℄ DIKE N1+10

EL. 315
EL. 310
EL. 305
EL. 300

EL. 295

CONT. CHAIN LINK FENCE & PROP. LINE

PROPERTY LINE

CONT. CHAIN LINK FENCE & PROP. LINE

E13+00 E14+00 E15+00 E16+00 E17+00 E18+00 E19+00 E20+00 E21+00 E22+00 E23+00 E24+00 E25+00 E26+00

NOTES

REV.	DATE	BY	DESCRIPTION
A	5-18-77		REVISED P&P. ADDENDUM NO. 1
0	8-16-77		FINAL BID SET

SCALE 1"=40'
DRAWN P.G.M.
DATE 4-1-77
CHECKED C.A.D.
APPROVED M.L.H., W.G.H.

STATE OF TEXAS M. L. HUGHES 25324 REGISTERED PROFESSIONAL ENGINEER
STATE OF TEXAS William G. Hollowell 15137 REGISTERED PROFESSIONAL ENGINEER
STATE OF TEXAS CHARLES A. DOBY 37603 REGISTERED PROFESSIONAL ENGINEER

TIPPETT & GEE, INC.
CONSULTING ENGINEERS
ABILENE TEXAS

SAN MIGUEL PLANT
UNIT NO. 1
B.E.P.C. S.T.E.C.

SITE PLAN
SECTION NO. 8

JOB NO. SMI-406
REV. 0
DRAWING NUMBER 1-C-37

T&G 1977c *Site Preparation Sections & Details, San Miguel Plant Unit No. 1*, Drawing No. C-2 Rev. 2, Tippet & Gee, Inc., 1977.

1 SECTION - SITE GRADING & ASH DISPOSAL AREAS

2 SECTION - SITE GRADING & ASH DISPOSAL AREAS

3 SECTION - SITE GRADING & ASH DISPOSAL AREAS

4 SECTION - SITE GRADING & ASH DISPOSAL AREAS

5 SECTION - SITE GRADING & ASH DISPOSAL AREAS

6 SECTION - SITE GRADING & YARD DRAINAGE RETENTION AREA

7 SECTION - SITE GRADING & WATER WELL STORAGE AREA

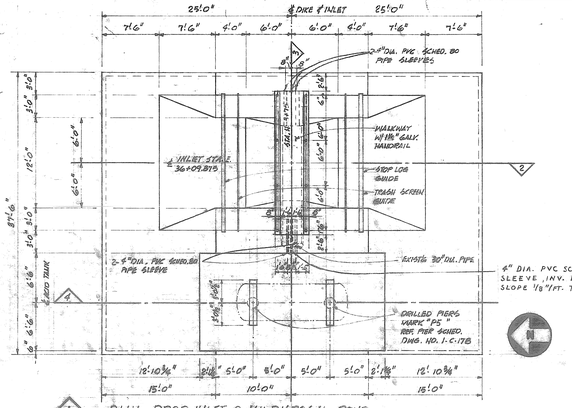
8 SECTION - SITE GRADING & ASH ON SITE RETENTION

9 SECTION - SITE GRADING IN WATER WELL FIELD AREA

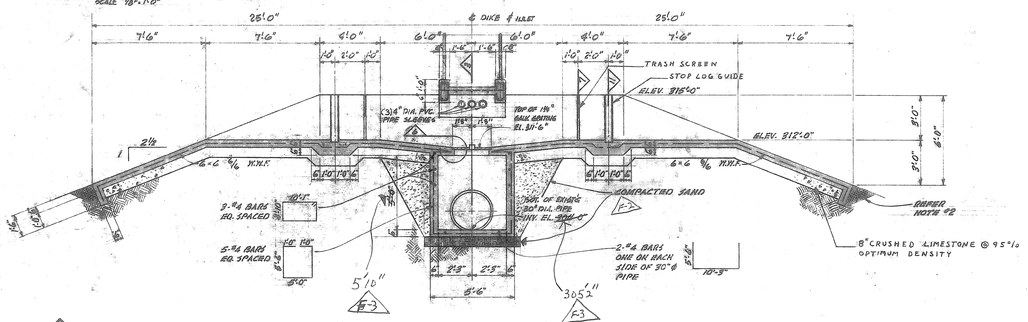
TIPPETT & GEE, INC.
CONSULTING ENGINEERS

SITE PREPARATION
SECTIONS & DETAILS

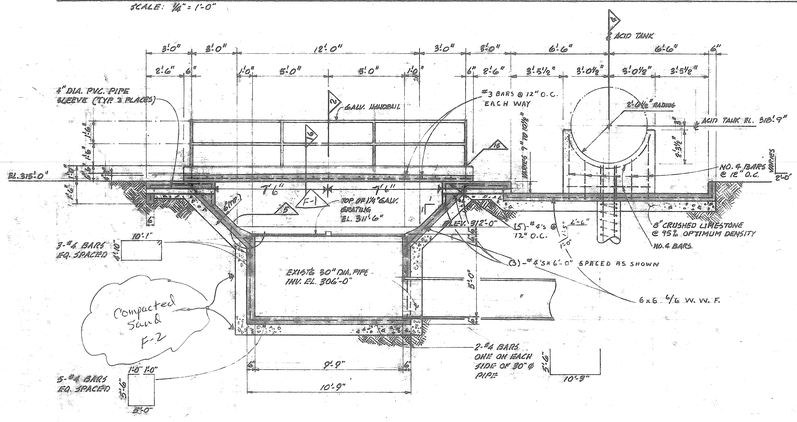
T&G 1979 *Ash Pond Drop Inlet, Found. Plan & Details Ash Pond Acid Tank Pier, Found. Plan & Details*, Drawing No. 1-C-177, Rev. 3F3. Tippet & Gee, Inc., April 1, 1977, revised April 6, 1979.



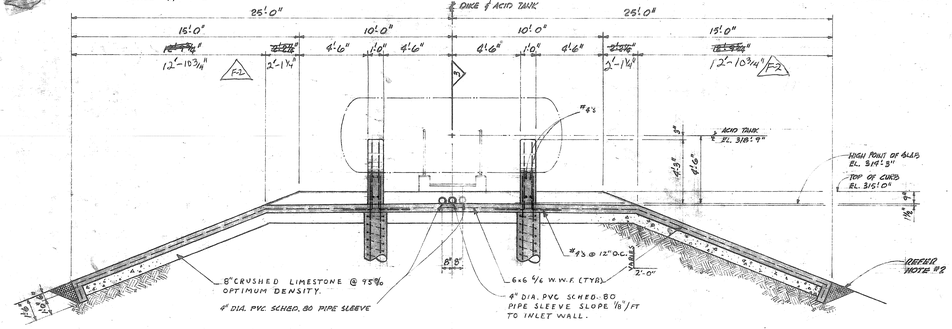
1 PLAN - DROP INLET @ MAIN DISPOSAL POND
SCALE 1/8" = 1'-0"



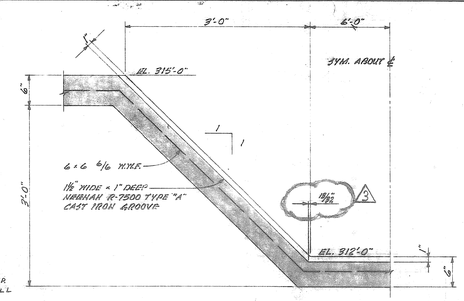
2 SECTION
SCALE: 1/8" = 1'-0"



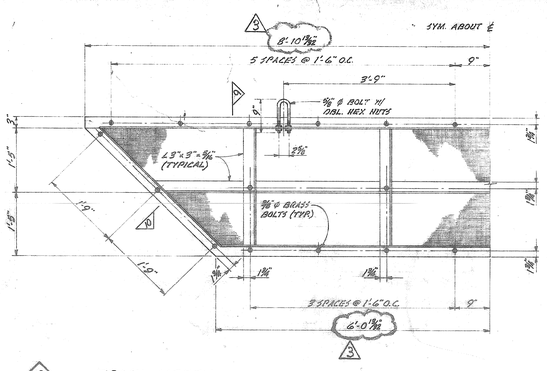
3 SECTION
SCALE: 1/8" = 1'-0"



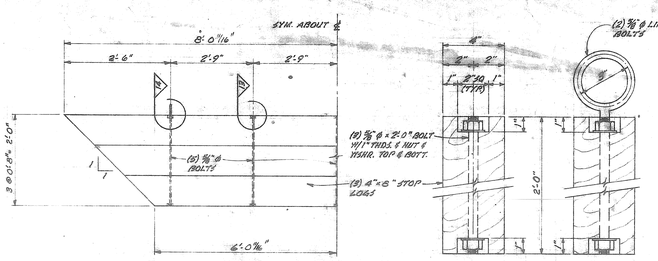
4 SECTION
SCALE 1/8" = 1'-0"



7 TRASH SCREEN GUIDE
SCALE: 1" = 1'-0" (2 THUS,)



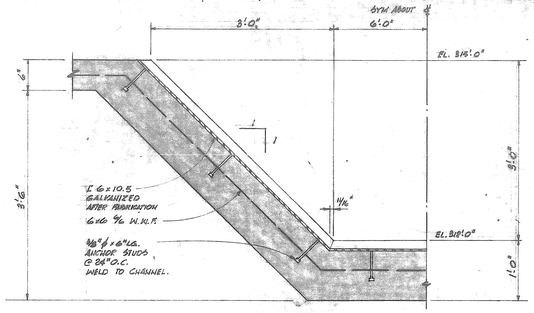
8 TRASH SCREEN
SCALE: ⅜" = 1'-0" (1 THUS)



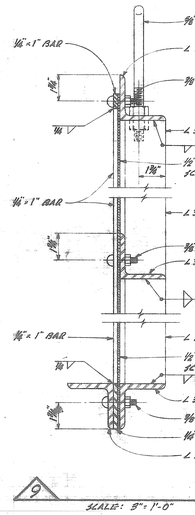
12 STOP LOG DETAILS
SCALE: NONE (1 THUG)

13 NO SCALE

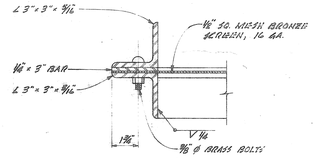
14 NO SCALE



11 STOP LOG GUIDE
SCALE 1" = 1'-0" (2 THUS)

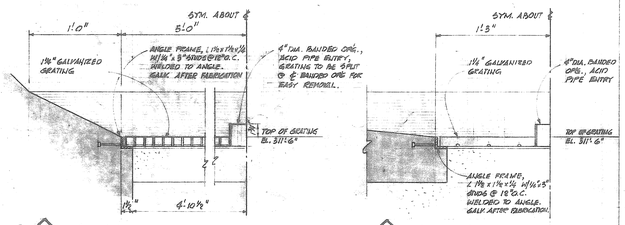


9 SCALE: 3" = 1'-0"



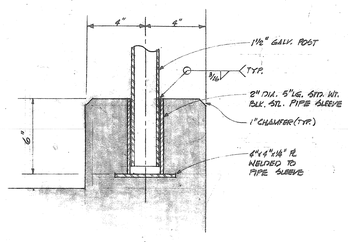
10 SCALE: 3" = 1'-0"

NOTE:
ALL METAL, EXCEPT BRONZE AND BRASS TO BE GALVANIZED AFTER FABRICATION.

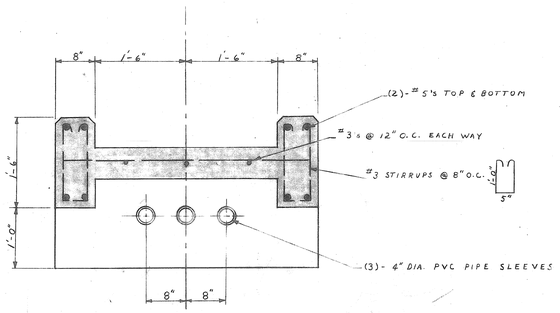


5 SECTION
SCALE 1½" = 1'-0"

6 SECTION
SCALE 1½" = 1'-0"



15 HANDRAIL PIPE SLEEVE DETAIL
SCALE 3": 1'-0" (8 THUG)



16 SECTION
SCALE 1" = 1'-0"

F-1 Per Thomasson (T4G) July 11, 1979
F-2 Per Thomasson (T4G) July 16, 1979
F-3 Per Thomasson (T4G) July 19, 1979

NOTES

1. REFER TO GENERAL NOTES I-C-70 FOR FOUNDATION REQUIREMENTS.
2. COMPACTED STRUCTURAL BACKFILL.
CONTRACTOR MAY USE EXCAVATED CLAY.
LIME STABILIZATION IS NOT REQUIRED AT THIS AREA.

REV	DATE	BY	DESCRIPTION
A	1/31/77	J.J.F.	REVISED PER ADDENDUM NO. #1
B	8-3-77		REVISED PER ADDENDUM, NO. "5"
0	8-18-77		FINAL BID SET.
1	1-18-78	JJB	ADDED TOTAL NOTES FOR CLARIFICATION AT DAT. "2" & "4".
2	5-9-78	D.C.B.	ADDED NOTE 5, DIMEN. @ PLAN "1" SECT. "2" "3" "5" REV DIMEN @ 11, 13, 14
3	4-6-79	JJB	ADD. DIM. @ △3 ; CORR. DIM @ △4

SCALE	AS NOTED
DRAWN	J.B., J.L.F.
DATE	4-1-77
CHECKED	B.R., C.A.D.
APPROVED	M.L.H., W.G.H.

STATE OF TEXAS — M. L. HUGHES — 25324 — REGISTERED PROFESSIONAL ENGINEER
STATE OF TEXAS — William G. Hollowell — 15137 — REGISTERED PROFESSIONAL ENGINEER
STATE OF TEXAS — CHARLES A. DOBY — 37593 — REGISTERED PROFESSIONAL ENGINEER

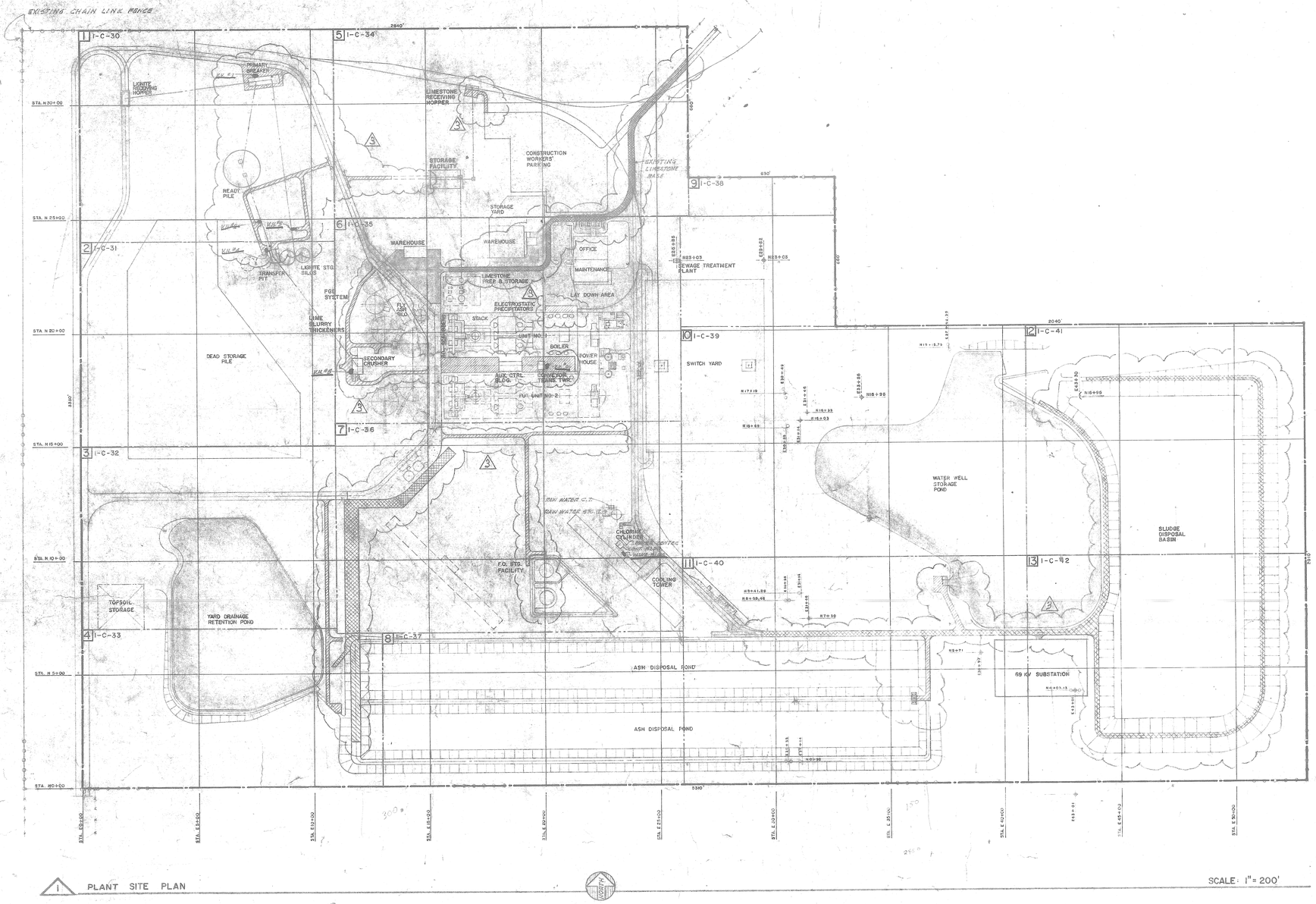
TIPPETT & GEE, INC.
CONSULTING ENGINEERS
ABILENE TEXAS

SAN MIGUEL PLANT
UNIT NO. 1
B.E.P.C. S.T.E.C.

ASH POND DROP INLET, FOUND. PLAN & DETAILS
ASH POND ACID TANK PIER, FOUND. PLAN & DETAILS

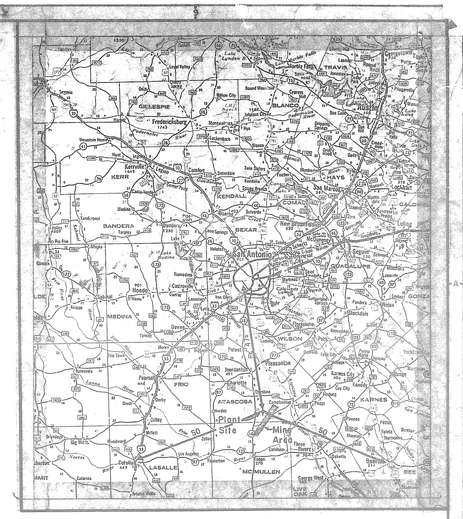
JOB NO. SMI-406
REV. 3 F-3
DRAWING NUMBER I-C-177

T&G 1980a *Plant Site Plan and Vicinity Map, San Miguel Plant Unit No. 1*, Drawing No, 1-C-1C, Rev. 3, Tippet & Gee, Inc., April 1, 1977, revised April 14, 1980.



1 PLANT SITE PLAN

SCALE: 1" = 200'



2 VICINITY MAP NO SCALE

LEGEND

	EXISTING CONTOURS; EXISTING UTILITIES
	FINISH CONTOURS; FINISH UTILITIES
	PAVING & BASE AS SPEC. THIS CONTRACT.
	TYPE 'B' FLEX. BASE ROADS BY THIS CONTRACTOR
	EXISTING TYPE 'B' FLEX. BASE ROADS
	ASPHALT PAVING ON EXISTING BASE
	CONCRETE PAVING & BASE AS SPEC. THIS CONTRACT.

3

NOTES

REV	DATE	BY	DESCRIPTION
A	6-13-77	WL	REVISED PER ADDENDUM NO. 3
B	7-1-77		REVISED PER ADDENDUM NO. 4
C	8-8-77		FINAL BID SET
1	8-25-77	R.L.H.	EXTENDED ROAD AT WAREHOUSE
2	4-4-78	J.W.	CORRECTED TO ADDRESS WIDENED DWGS. ADDED LAMBERT GRID
3	4-14-80	J.B.	ADD. TYP'D ST. FLOR. BASE (ON) NOTED EXISTING REAR WASTE PDS.
			ADD. LAGUNA & ANNA SOUTH OF BOILER BLDG.

SCALE	AS NOTED
DRAWN	B.W.
DATE	4-1-77
CHECKED	C.A.D.
APPROVED	M.L.H. W.S.H.

CERTIFICATE OF TEXAS — M.L. HUGHES — 25324 — REGISTERED PROFESSIONAL ENGINEER

STATE OF TEXAS — William G. Hollowell — 15137 — REGISTERED PROFESSIONAL ENGINEER

STATE OF TEXAS — CHARLES A. DOBY — 37503 — REGISTERED PROFESSIONAL ENGINEER

TIPPETT & GEE, INC.
CONSULTING ENGINEERS
ABILENE TEXAS

SAN MIGUEL PLANT
UNIT NO. 1
B.E.P.C. S.T.E.C.

PLANT SITE PLAN AND VICINITY MAP

JOB NO. SMI-406 | REV. 3

DRAWING NUMBER I-C-1-C

T&G 1980b *Site Plan Section No. 13, San Miguel Plant Unit No. 1*, Drawing No. 1-C-42, Rev. 2, Tippet & Gee, Inc., April 1, 1977, revised April 14, 1980.

WATER WELL STORAGE POND (EXIST'G)

EXIST TYPE "A" FLEX BASE

EL. 285
EL. 290
EL. 295
EL. 300
EL. 305

EXIST TYPE "A" FLEX BASE
EL. 305
EL. 304
EL. 303
EL. 302

20'
20'
20'

TYPE "A" FLEX BASE BY THIS CONTRACTOR.

WATER WELL DISCHARGE BY OTHERS

℄ ENTRY GATE EL. 304 (TYP.)

S.T.E.C. SUB-STATION SITE (EXIST'G)

EXIST TYPE "A" FLEX BASE

E43+01

E43+40

N4+03.13

EL. 302
EL. 301
EL. 300
EL. 295
EL. 290
EL. 285

EL. 280

SLUDGE DISPOSAL BASIN (EXIST'G)

EL. 275
EL. 280
EL. 285
EL. 290
EL. 295
EXIST TYPE "A" FLEX BASE
EL. 295
EL. 290
EL. 285
EL. 280
EL. 275

EXIST TYPE "A" FLEX BASE

EL. 275
EL. 280
EL. 285
EL. 290
EL. 295

(EXIST'G) CONT. CHAIN LINK FENCE @ PROPERTY LINE

(EXIST'G) CONT. CHAIN LINK FENCE @ PROPERTY LINE

N10+00
N9+00
N8+00
N7+00
N6+00
N5+00
N4+00
N3+00
N2+00
N1+00
STA. NO+00

E41+00
E42+00
E43+00
E44+00
E45+00
E46+00
E47+00
E48+00
E49+00
E50+00
E51+00
E52+00
E53+00
E53+10

NOTES

REV.	DATE	BY	DESCRIPTION
A	6-8-77	WL	REVISED PER ADDENDUM NO. 1
0	6-16-77		FINAL BID SET
1	4-6-78	LW	LOCATED WATER WELL DISCHARGE
2	4-24-80	LB	ADDED FENCE AROUND SUB-STATION SITE, ADDED ACCESS RD. @ SUB-STA. ENTRANCE, REV. EXIST. CONTOURS TO AGREE W/CONTOUR MAP (401), NOTED EXIST. TYPE "A" FLEX BASE RDS.

SCALE 1" = 40'
DRAWN P.C.M.
DATE 4-1-77
CHECKED C.A.D.
APPROVED M.L.H., W.G.H.

M. L. HUGHES 25324 REGISTERED PROFESSIONAL ENGINEER
STATE OF TEXAS
William G. Hollowell II 15137 REGISTERED PROFESSIONAL ENGINEER
STATE OF TEXAS
CHARLES A. DOBY 37503 REGISTERED PROFESSIONAL ENGINEER

TIPPETT & GEE, INC.
CONSULTING ENGINEERS
ABILENE TEXAS

SAN MIGUEL PLANT
UNIT NO. 1
B.E.P.C. S.T.E.C.

SITE PLAN
SECTION NO. 13

JOB NO. SMI-406
REV. 2
DRAWING NUMBER I-C-42

T&G 1980c *Site Plan Section No. 11, San Miguel Plant Unit No. 1*, Drawing No. 1-C-40, Rev. 6, Tippet & Gee, Inc., April 1, 1977, revised June 13, 1980.

OIL UNLOADING STA.
REF. DWG. 1-C-157

ACID UNLOADING STA.
REF. DWG. 1-C-157

RAILROAD - REF. FOR RAILBED CONSTR. DTL.

CONC. PAVING

STA. N. 7+28.91
END OF TRACK

STA. N. 6+60

STA. E. 29+36.25

ASH DISPOSAL POND
(EXISTG.)

RETENTION BERM
SCALE: 1/8" = 1'-0"

EXISTING GRADE

EXIST. TYPE "A" FLEX BASE

STA. N. 8+80

INTAKE STRUCTURE & PUMP HOUSE

WATER WELL STORAGE POND
(EXISTG.)

"TYPE "A" FLEX BASE BY THIS CONTRACTOR.

THIS CONTRACTOR SHALL FURNISH & INSTALL ADDITIONAL 12" (MIN.) FROM EL. 298 TO EL. 305 AS REQUIRED BY EXCAVATED SLOPES.

EXISTING CULVERT

TYPE "A" FLEX BASE BY THIS CONTR.

S.T.E.C. SUB-STATION SITE
(EXIST'G.)

STA. N. 3+75

ASH POND DROP INLET & ACID TANK
REF. DWG. 1-C-157

BMG'S 30" FABR'D. REINF. PIPE

EXIST. CHAIN LINK FENCE @ PROP. LINE

STA. E 28+00 | E 27+00 | E 28+00 | E 29+00 | E 30+00 | E 31+00 | E 32+00 | E 33+00 | E 34+00 | E 35+00 | E 36+00 | E 37+00 | E 38+00 | E 39+00 | E 40+00 | E 41+00 | STA. N 0+00

N 10+00 | N 9+00 | N 8+00 | N 7+00 | N 6+00 | N 5+00 | N 4+00 | N 3+00 | N 2+00 | N 1+00

NOTES

CONTRACTOR SHOULD EXAMINE THE GENERAL, MECHANICAL AND ELECTRICAL CONSTRUCTION DRAWINGS, AND ALL PERTINENT EQUIPMENT MANUFACTURER'S DRAWINGS TO DETERMINE THE EXISTENCE AND LOCATION OF GROUNDING CABLES, PIPE PENETRATIONS, CONDUIT PENETRATIONS, BLOCKOUTS, DRAINS, ETC. AS ARE REQUIRED TO BE INSTALLED UNDER OTHER PORTIONS OF THIS CONTRACT.

REVISIONS		
REV.	DATE	DESCRIPTION
6	12-22-77	CAS REVISED CONTOURS AT COOLING TOWER & DRAINAGE DITCH.

REVISIONS			
REV.	DATE	BY	DESCRIPTION
A	5-16-77	W.L.	REVISED PER ADDENDUM NO. 1
B	7-7-77	W.L.	REVISED PER ADDENDUM NO. 4
0	9-16-77		FINAL BID SET
1	9-23-77	G.L.M.	REVISED CONTOURS, REVISED OR ADDED ELEVATIONS & ELEVATION POINTS, ADDED REFERENCE NOTE
2	10-4-77	G.H.	CORRECTED CONTOURS TO AGREE WITH SMI-401 CONTRACT, DELETED REF. NOTE
3	11-3-77	L.H.	CORRECTED CONTOURS @ E 27+00 & N 7+00 TO AGREE W/ BID SET.
4	11-21-77	L.B.	ADDED ATTENTION NEAR OUTFALL & TIE SECTION
5	4-18-78	L.B.	NEW WIDTH & BASE MAT'L. ON RD. TO INTAKE STRUCT., INDICATED FENCE.

SCALE	1"=40'
DRAWN	P.G.H.
DATE	4-11-77
CHECKED	E.A.D.
APPROVED	M.L.H., W.G.H.

M. L. HUGHES 25324 REGISTERED PROFESSIONAL ENGINEER
William G. Holloway II 15137 REGISTERED PROFESSIONAL ENGINEER
CHARLES A. DOBY 37982 REGISTERED PROFESSIONAL ENGINEER

TIPPETT & GEE, INC.
CONSULTING ENGINEERS
ABILENE TEXAS

SAN MIGUEL PLANT
UNIT NO. 1
B.E.P.C. S.T.E.C.

SITE PLAN
SECTION NO. II

JOB NO.	REV.
SMI-406	6

DRAWING NUMBER
I-C-40

T&G 1980d *Site Plan Section No. 12, San Miguel Plant Unit No. 1*, Drawing No. 1-C-41, Rev 4, Tippet & Gee, Inc., April 1, 1977, revised August 6, 1980.

(EXIST'G) CONT. CHAIN LINK FENCE & PROP. LINE

N20+10
N20+00
N19+00
N18+00
N17+00
N16+00
N15+00
N14+00
N13+00
N12+00
N11+00
STA. N10+00

EL. 310
EL. 305
EL. 300
EL. 310
EL. 310
EL. 305
EL. 300
EL. 295
EL. 290
EL. 285
EL. 280
EL. 275
EL. 270
EL. 265
EL. 260
EL. 255
EL. 250

4

60'-0"

1-C-16

DRAIN LINE
(REFER MECHANICAL PLANS
DWG. 1-M-1W

4" UNREINFORCED CONCRETE
SLAB ON EXISTING GRADE

4

EL. 305
EL. 300
EL. 295
EL. 210
EL. 285

WATER WELL
STORAGE POND
(EXIST'G)

ABOUT TYPE "A" FLEX BASE

SLUDGE DISPOSAL
BASIN
(EXIST'G)

EL. 275
EL. 280
EL. 285
EL. 290
EL. 295
EL. 300
EL. 305
EL. 310
EL. 315
EL. 320
EL. 325
EL. 330
EL. 335
EL. 340
EL. 345
EL. 350
EL. 355
EL. 360
EL. 365
EL. 370
EL. 375

ABOUT TYPE "A" FLEX BASE

(EXIST'G) CHAIN LINK FENCE & PROP. LINE

STA. E41+00
E42+00
E43+00
E44+00
E45+00
E46+00
E47+00
E48+00
E49+00
E50+00
E51+00
E52+00
E53+00
E53+10

CONTRACTOR SHOULD EXAMINE THE GENERAL, MECHANICAL AND ELECTRICAL CONSTRUCTION DRAWINGS, AND ALL PERTINENT EQUIPMENT MANUFACTURER'S DRAWINGS TO DETERMINE THE EXISTENCE AND LOCATION OF GROUNDING CABLES, PIPE PENETRATIONS, CONDUIT PENETRATIONS, BLOCKOUTS, DRAINS, ETC. AS ARE REQUIRED TO BE INSTALLED UNDER OTHER PORTIONS OF THIS CONTRACT.

NOTES

REV	DATE	BY	DESCRIPTION
A	5-12-77	W.L.	REV. PER ADDENDUM NO. "1"
1	9-23-77	D.L.H.	FINAL BID SET ADDED TWO RIPRAPS WITH DIMENSIONS, NOTES, & REFERENCE SECTION MARKS. REFERENCE NOTES, ADDED 10" DRAINLINE, ADDED 20" WELL WATERLINE.
2	12-7-77	C.H.	CHANGED RIPRAP TO CONC. SLAB
3	4-6-79	L.W.	DELETED SPLASH BLOCK & (3) PIPE SUPPORTS.
4	4-14-80	J.S.	NOTED EXIST. TYPE "A" FLEX BASE TOP.

SCALE 1"=40'
DRAWN P.G.N.
DATE 4-1-77
CHECKED C.A.D.
APPROVED M.L.H., W.G.H.

STATE OF TEXAS — M. L. HUGHES — 25324 — REGISTERED PROFESSIONAL ENGINEER
STATE OF TEXAS — William G. Hollowell — 15137 — REGISTERED PROFESSIONAL ENGINEER
STATE OF TEXAS — CHARLES A. DOBY — 37593 — REGISTERED PROFESSIONAL ENGINEER

TIPPETT & GEE, INC.
CONSULTING ENGINEERS
ABILENE TEXAS

SAN MIGUEL PLANT
UNIT NO. 1
B.E.P.C. S.T.E.C.

SITE PLAN
SECTION NO. 12

JOB NO. SMI-406
REV. 4
DRAWING NUMBER 1-C-41

T&G 1981 *Site Plan Section No. 4, San Miguel Plant Unit No. 1*, Drawing No. 1-C-33, Rev. 7, Tippet & Gee, Inc., April 1, 1977, revised May 13, 1981.

YARD DRAINAGE RETENTION POND (EXIST'G)

ASH DISPOSAL POND (EXIST'G)

EXIST. CHAIN LINK FENCE

HAUL ROAD

BY OTHERS

BEGINNING POINT HAUL ROAD @ PLANT SITE

10FT. B/W FENCE

FUTURE B/W FENCE BY OTHER CONTRACTS

FUTURE BARB WIRE FENCE BY OTHER CONTRACTS

950'-0"

900'-0"

50'-0

EXIST. CHAIN LINK FENCE & PROP. LINE

EXIST. CHAIN LINK & PROP. LINE

STA. NO+00 N1+00 N2+00 N3+00 N4+00 N5+00 N6+00 N7+00

E0+00 E1+00 E2+00 E3+00 E4+00 E5+00 E6+00 E7+00 E8+00 E9+00 E10+00 E11+00 E12+00 E13+00

N6+49.5

TYPE "A" FLEX BASE BY THIS CONTRACTOR

EXIST. CONC. FDN. PER NOTE "B"

ASH WATER RETURN

24"ϕ GALV. CORR. STEEL PIPE APPROX. 70'-0" LONG, REFER 1-C-178 FOR DETAILS.

SUBGRADE IN DRAINS AREA TO BE STABILIZED BY THE LIME SLURRY POST HOLE METHOD AS SPECIFIED IN SECTION I-III, ITEM J, GENERAL CONSTRUCTION SPECIFICATIONS.

EXIST'G 40"ϕ CULVERTS & HEADWALLS

EXIST'G 70"ϕ (EXIST'G)

EXIST'G 40"ϕ CULVERT & HEADWALL

EXIST. LIME STAB. AREA @ PUMP COMPLEX

N 6+33.5 ℄

E 10+76.20

20'-0¾"

45° TYP.

10"

3'-6"

2'-0" MIN. TO EXIST. GRADE

3" CL. TYP.

#5 @ 6" O.C. VERT. BARS

#4 @ 9" O.C. HORIZ.

#5 @ 6" O.C. TOP & BOTTOM

#4 @ 1'-0" O.C. TOP & BOTTOM

2-#5's

1" CHAMFER

T.O.C. EL. 305'-0"

12'-0" (USUAL) RECK. PLAN. POR WALL

1 PLAN
SCALE: 3/32" = 1'-0"

2 RETAINING WALL
SCALE: 3/8" = 1'-0"

3 ROAD SECTION ADJ. TO PUMP COMPLEX
SCALE: NONE

NOTES

1. THIS CONTRACTOR TO FURNISH & INSTALL 12" RIPRAP ALONG SLOPE AROUND CONC. PUMP SUPPORT STRUCT. AS SHOWN. RIPRAP SHALL EXTEND FULL HT. OF SLOPE (EL. 288' TO EL. 300').
2. EXISTING CONC. FOUNDATION TO BE REMOVED TO TOP OF PIER, EL. 299.0"

REV.	DATE	BY	DESCRIPTION
G	6-14-80	JLB	REV. CONTOURS @ YARD RETENTION PUMP, ADDED TYPE "A" FLEX BASE ROAD, INDICATED PLANT GRADE ON THIS CONTR. @ ASH POND DIKE, DELETING & NOTED AREA TO RECEIVE RIPRAP, INDICATED & NOTED PIPE TO BE REMOVED, ADD. ⚠
7	5-13-31	LB	REV. CONTOURS & ADDED RETAINING WALL, ADDED FLEX BASE ROAD

REV.	DATE	BY	DESCRIPTION
A	5-18-77		REVISED PER ADDENDUM NO. 1
B	6-15-77	JLF	REVISED PER ADDENDUM NO. 2
C	7-7-77	JLF	REVISED PER ADDENDUM NO. 3
D	8-18-77		FINAL BID SET.
E	7-21-78	RLH	REVISED REF. NOTE, ADDED REF. NOTE 7
F	6-7-79	DAM	REVISED PIPE FOUNDATION
G	10-24-79	GR	CORRECTED PULLBOX LOCATION.
H	6-1-79	LB	CHG'D. ⚠ TO ⚠ REVISED ELEV. OF TRANSFORMER POWER STA. REMOVED MOTOR CONTROL CENTER FDN., REVISED STATION COORDINATE
J	1-23-80	LBJ	REV. PIPE SUPPORTS AS NOTED.

SCALE 1" = 40'
DRAWN R. G. M.
DATE 4-1-77
CHECKED C. A. D.
APPROVED M. L. H., W. G. H.

STATE OF TEXAS — M. L. HUGHES — 25324 — REGISTERED PROFESSIONAL ENGINEER
STATE OF TEXAS — William G. Hollowell — 15137 — REGISTERED PROFESSIONAL ENGINEER
STATE OF TEXAS — CHARLES A. DOBY — 37593 — REGISTERED PROFESSIONAL ENGINEER

TIPPETT & GEE, INC.
CONSULTING ENGINEERS
ABILENE TEXAS

SAN MIGUEL PLANT
UNIT NO. 1
B.E.P.C. S.T.E.C.

SITE PLAN
SECTION NO. 4

JOB NO. SMI-406
REV.
DRAWING NUMBER
I-C-33