EM CSF 25.2 V7
EMRRR 25.2 V1

Pond 18 Closure Plan

Volume 2 - Cell A (Cont'd)

Astaris Idaho, LLC
Pocatello, Idaho

August 2001

USEPA SF
1361663

Appendix Q

APPENDIX G

CONSTRUCTION QUALITY ASSURANCE PLAN, TECHNICAL SPECIFICATIONS, DATA SHEETS, AND DRAWINGS

CONSTRUCTION QUALITY ASSURANCE PLAN

Table of Contents

Section		Page
1	**Objective**	1
2	**Responsibility and Authority**	2
	2.1 Responsible Parties	2
	2.1.1 Facility Owner	2
	2.1.2 Design Engineer/Construction Manager	2
	2.1.3 CQA Personnel	2
	2.1.4 Construction Contractor	5
	2.2 Project Meetings	5
3	**Inspection Activity**	7
4	**Sampling Strategies**	10
5	**Documentation**	11
	5.1 Document Control	11
	5.2 Final Report	11

Pond 18, Cell A Construction Quality Assurance Plan

1. OBJECTIVE

This Construction Quality Assurance (CQA) Plan has been developed to ensure that the completed flexible membrane liner/composite liner cap system for the ponds meet or exceed all design criteria, plans, and specifications. This CQA plan also demonstrates that the guidance provided by the EPA ("Final Covers on Hazardous Waste Landfills and Surface Impoundments," EPA/530-SW-89-047, July 1989) for final cap covers has been followed. This plan will be used in monitoring and documenting the quality of material used and the construction practices employed in their placement. Deviations from this CQA plan, Specifications, Data Sheets, and Construction Drawings which are less stringent will require EPA concurrence prior to implementation

Included in this plan, together with the technical specifications, are the submittals, approvals, inspections, observations, testing, and documentation required during the preconstruction, construction, and post-construction periods. These plan requirements are listed below.

Preconstruction

- Qualifications and authority of CQA Manager and Construction Inspector(s).
- Review and approval of material submittals and shop drawings.

Construction

- Conformance to excavation and fill construction sequence and extent specified in the specifications and drawings.
- Daily inspection reports and photographs.
- High density polyethylene (HDPE) liner testing.
- Grade checks.

Post-Construction

- Final inspection.
- Final documentation report.

2. RESPONSIBILITY AND AUTHORITY

2.1 Responsible Parties

The following parties will participate in Construction Quality Assurance (CQA) for the closure of ponds at Astaris (formerly FMC) phosphorus plant in Pocatello, Idaho.

2.1.1 Facility Owner

The facility owner is Astaris LLC (Astaris). This entity is also the operator of the facility. Astaris will be responsible for permitting, design, and construction of the closure. Astaris will also contract for the construction of the closure at the appropriate time, provide a senior construction person (its own or contracted) to be in charge, supervise the CQA activities, and carry out future monitoring of the closure activities with its own or contracted forces.

2.1.2 Design Engineer/Construction Manager

Bechtel Environmental, Inc. (BEI) is the design engineer, and will also be acting as agent for Astaris and serve as the construction manager for the closure and is referred to as "Bechtel" in the technical specifications. The technical documents produced during the design have been reviewed and approved by Astaris and are part of the closure plan. They will later be included in a future contract between Astaris and a Contractor when the closure is carried out. As construction manager, Bechtel is responsible for coordinating all construction activities. Where specified in the specifications, matters relating to CQA requiring Bechtel approval will require approval from the CQA officer and will be forwarded to the CQA officer for his approval.

2.1.3 CQA Personnel

Qualifications - A senior representative of Astaris (Astaris employee or contracted) will provide oversight during construction. This person also will select the CQA officer, responsible for implementing the CQA plan during construction. Responsibilities will include conducting inspections, reviewing documents and material certifications, and performing other activities as required to ensure the completed construction is in conformance with the requirements set forth in the technical specifications and design drawings. The CQA officer will be a registered professional civil or geotechnical engineer with sufficient practical, technical, and managerial experience to successfully oversee and implement CQA activities for installing cover systems

over hazardous waste facilities. The CQA officer will ensure that communication of all CQA-related matters is conveyed to and acted upon by the affected organizations.

The inspection staff will possess adequate formal training and sufficient practical, technical, and administrative experience to execute and record inspection activities successfully.

The CQA officer and inspector(s) will function independently of the Owner/Operator or Construction Contractor.

Authority - The CQA officer will report to Astaris's senior representative and will serve as Astaris's liaison with the construction Contractor. The construction inspector(s) will report directly to the CQA officer.

Responsibilities - The CQA officer is singularly responsible for all aspects of executing the CQA program. The officer will train the inspector(s) and direct, oversee, and check his (their) work. The construction inspector(s) will conduct the daily on-site observations, testing, and recordkeeping. The major areas of responsibilities include the following:

1. Serve as Astaris's liaison with the Contractor in interpreting and clarifying drawings and specifications. (At the CQA Officer's discretion, the design engineer or other professional suited to perform this task may be designated as needed).

2. Approve submittals required by the technical specifications. Evaluate "equal" materials proposed for use by Contractor. (Product literature and certification can be used to provide that "equal" material meets or exceeds the specified material.) (At the CQA Officer's discretion, the design engineer or other professional suited to perform this task may be designated as needed).

3. Review panel layout shop drawings. Ensure that every effort is taken to minimize fields seams especially in critical areas. (At the CQA Officer's discretion, the design engineer or other professional suited to perform this task may be designated as needed).

4. Ensure that the Contractor's personnel comply with the site safety regulations. (At the CQA Officer's discretion, a health and safety professional suited to perform this task may be designated as needed).

5. Complete daily inspection reports which will provide a chronological framework of the project. These reports should include, as a minimum, those items specified in the technical specifications.

6. Confirm that the testing equipment, personnel and procedures do not change over time or that any changes do not result in a deterioration of the inspection process.

7. Provide to the Astaris senior representative reports on the inspection results including:

   - Review and interpretations of observation records and test results.
   - Identification of work that the CQA officer believes should be accepted, rejected, or uncovered for observation, or that may require special testing, inspection, or approval.
   - Reports that reject defective work and specify corrective measures.

8. Verify that the Contractor's construction quality control plan is being followed.

9. Verify that the equipment used in testing meets the test requirements and that the tests are conducted by qualified personnel according to the procedures defined in the Contractor's quality control plan.

10. Monitor all tests conducted by the Contractor's personnel as may be required by the contract and/or the technical specifications.

11. Perform independent on-site inspection of the work in progress to assess compliance by the Contractor with the plans and specifications.

12. Report to the Contractor results of all observations and tests as the work progresses and interact with the Contractor to provide assistance in modifying the materials and work to comply with the specified design.

13. Accept or reject units of work.

14. Prepare the final CQA report. The objective of the CQA report is to provide a permanent record of the construction to assure regulatory agencies that the pond final cover system was constructed in accordance with the plans, specifications, and permit requirements. The detailed contents of the report are described in Section 5.2.

2.1.4 Construction Contractor

Responsibility - Astaris will engage a Contractor to carry out the closure construction. The contract will stipulate the responsibility of the Contractor to comply with the quality assurance procedures, and to provide the appropriate documents, access, and opportunity to monitor the work. The Construction Contractor will be responsible for construction of the final cover system for the ponds, and inspecting and ensuring material delivered to the site for geosynthetic clay liner, flexible membrane liner, geonet and geotextile are in conformance with the material properties as specified in the construction specifications. The closure construction work shall be performed in strict accordance with plans and specifications, using the necessary construction procedures and techniques. The Contractor will submit its quality control plan to Astaris for approval. The technical documents produced previously by the design engineer will specify the sampling and testing process to be carried out as the work progresses. This sampling and testing will be part of the Contractor's responsibilities as will the requirement to turn over copies of all sampling and testing results to the CQA officer.

Authority - The Construction Contractor has the authority to direct and manage its employees and the equipment they use to accomplish the construction.

2.2 Project Meetings

Frequent, planned meetings will be held to enhance communication between the parties involved. The structure of these meeting will be established by Astaris, but will, as a minimum, consist of the following:

1. Preconstruction Meeting

   A preconstruction meeting will be held at the site. The purpose of the preconstruction meeting is to:

   - Review the responsibilities of each organization.
   - Review lines of authority and communication for and between each organization.
   - Discuss and establish the material submittal review process and time allowance required.
   - Discuss the established protocol for observations and tests.

- Discuss the established protocol for handling construction deficiencies, repairs, and retesting.
- Review methods for documenting and reporting inspection data.
- Review methods for distributing and storing documents and reports.
- Review work area security and safety protocol.
- Discuss any modifications of the CQA plan to ensure that site-specific considerations are addressed.
- Discuss procedures for the protection of materials and for the prevention of damage from inclement weather or other events.
- Conduct a site walk-around to verify that the design plans and specifications are understood and to review material and equipment storage locations.

The meeting will be documented by a designated person and minutes will be transmitted to all parties.

2. Progress Meetings

Progress meetings will be held daily at the work area at an agreed-upon time. The purpose of the meetings is to:

- Review the previous day's activities and accomplishments.
- Review the work location and activities for the day.
- Identify the Contractor's personnel and equipment assignments for the day.
- Discuss any potential construction or safety problems.

These meetings will be documented.

3. Problem or Work Deficiency Meetings

Special meetings will be held when a problem or deficiency has occurred or is likely to occur. The purpose of the meeting is to define and resolve the problem or recurring work deficiency in the following manner:

- Define and discuss the problem or deficiency.
- Review alternative solutions.
- Implement a plan and schedule to resolve the problem or deficiency.

These meetings will be documented.

3. INSPECTION ACTIVITY

The closure construction work will be performed in accordance with detailed technical specifications. The specifications contain detailed requirements for submittals of material samples, methods of working, sampling, and testing. They also contain the required level of quality to be met by each type of work activity. The Contractor's responsibility includes providing details of work methods, carrying out the required sampling, and arranging for proper testing.

The types of work activity to be inspected include:

- Earthwork and Grading

  1. Inspect and ensure that operations for subgrade preparation, including compaction of existing surface to receive fill and fills for depression are performed in accordance with Specification No. S-4, Subsection 3.2.

  2. Inspect and ensure excavations for the anchor trench for the geosynthetic materials and drainage piping conform to Specification No. S-4, Subsection 3.3.

  3. Inspect and ensure operations for liner subgrade, anchor trench backfill and sand and slag for the cover protective layer are performed conforming to Specification No. S-4, Subsection 3.4

  4. Inspect and verify compaction requirements of slag fill are established in conformance with test section as specified in Specification S-4, Subsection 3.4.4.

  5. Inspect and ensure drainage piping and culverts, if required, are installed conforming to Specification S-4, Subsection 3.5.

6. Inspect and ensure installation of channels and ditches conform to Specification S-4, Subsection 3.6.

7. Perform soil density testing in accordance with Specification S-4, Subsection 3.9.

- Geosynthetic Clay Liner (GCL)

  1. Visually inspect GCL for damage upon delivery to the site.

  2. Visually inspect GCL for damage prior to installation.

  3. Inspect and ensure surface to receive GCL is acceptable and has also been accepted by the installation Subcontractor.

  4. Inspect and ensure the installation of the GCL conforms to Specification S-5, Subsection 3.2.

- Flexible Membrane Liner (FML)

  1. Visually inspect FML for damage upon delivery to the site.

  2. Visually inspect FML for damage prior to installation.

  3. Inspect and ensure the installation of the FML conforms to Specification S-6, Subsection 3.3.

  4. Inspect and ensure the installed FML are tested in conformance with Specification S-6, Subsection 3.4.

- Temperature, Pressure and Gas Monitoring Systems, and Lift Stations

  1. Visually inspect piping materials for damage upon delivery to the site.

  2. Inspect and ensure the installations of the Temperature Monitoring Points conform to Specification S-9.

  3. Inspect and ensure instrumentations and lift stations are installed in conformance with manufacturers' installation instructions.

- Geonet and Geotextile

  1. Visually inspect geonet and geotextile for damage upon delivery to the site.

  2. Visually inspect geonet and geotextile for damage prior to installation.

  3. Inspect and ensure geonet and geotextile are installed in conformance with Specification S-7, Subsections 3.1 and 3.2 respectively.

  4. Inspect and ensure geotextiles are covered within the time limit as specified in Specification S-7, Subsection 3.3.

- Topsoil and Seeding

  1. Inspect and ensure seeding is performed within the periods as specified in Specification S-8, Subsection 1.6.

  2. Inspect and ensure topsoil and seed mixture conforms to Specification S-8, Subsection 2.2.

  3. Inspect and ensure surface to receive topsoil is acceptable prior to topsoil placement.

  4. Inspect and ensure topsoil areas are acceptable prior to seeding.

  5. Inspect and ensure topsoil and amendments are spread conforming to Specification S-8, Subsection 3.2.

  6. Inspect and ensure seeding is performed in conformance with Specification S-8, Subsections 3.3 through 3.5.

  7. Inspect and ensure seeded areas are acceptable after seed germination as specified in Specification S-8, Subsection 3.6.1.

An Independent Professional Engineer registered in the State of Idaho will inspect the work as they are performed to verify that closure of the pond(s) was conducted in conformance with the drawings and specifications. The Professional Engineer will perform site inspections during closure activities for closure certification purposes, as indicated in Table 1, and will sign the closure certification.

TABLE 1
CLOSURE INSPECTION/CERTIFICATION SCHEDULE

STAGE OF CLOSURE ACTIVITY	(APPROXIMATE) DAYS FROM BEGINNING OF CONSTRUCTION OF FINAL CAP
Completion of preparation of subgrade	45
During GCL placement and at completion	60 and 75
During FML placement, weld testing and completion	65 and 80
At completion of geonet and geofabric installation	90
At beginning, during compaction and at completion of installation of slag and filter layers	105, 120 and 135
At completion of top soil and permanent settlement monument installations	220

4. SAMPLING STRATEGIES

The sample numbers, frequencies, and methods to be followed in construction are detailed in the technical specifications and as outlined below:

- Earthwork testing and sampling to conform to Specification S-4, Subsection 3.9.1.
- GCL testing and sampling to conform to Specification S-5, Subsections 2.2.3 and 2.2.4.
- FML testing and sampling to conform to Specification S-6, Subsection 2.1.3 and 3.4.
- Geonet and Geotextile testing and sampling to conform to Specification S-7, Subsections 2.1.3 and 2.2.2 respectively.
- Minimum one sample of all supplied materials required for topsoil and seeding as specified in Specification S-8, Subsection 1.3(b)

5. DOCUMENTATION

5.1 Document Control

All CQA documents will be logged into a filing system, such that each document has a unique number and is filed sequentially. The system will maintain subject codes as needed for each document so as to permit searches by subject, date, etc.

5.2 Final Report

A final report of the closure will be prepared at completion of the closure. This report will contain all applicable documentation and will be certified correct by the CQA officer. Copies of the report will be filed with the permitting agency and also maintained at the facility.

Content - At a minimum, the report will contain:

1. General summary of work performed by the Contractor and his Subcontractors. Construction activities, observations, problems and corrective actions, deviations from design, etc. shall be included.
2. Daily inspection reports.
3. Manufacturer's literature and certification of materials used in the construction.
4. Test results and certification for soil tests performed and geosynthetic properties, including permeabilities, manufacturer testing data sheets, and welded seams.
5. Foundation acceptance form from lining Subcontractor.
6. Material samples.
7. Project photographs with dates and descriptions.
8. As-built drawings.
9. Certification from CQA officer that the document accurately represents the activities and findings of the CQA program.

TECHNICAL SPECIFICATIONS

ASTARIS, LLC

PHOSPHORUS PLANT

POCATELLO, IDAHO

TECHNICAL SPECIFICATION
EARTHWORK AND GRADING

0		ISSUED FOR CLOSURE PLAN SUBMITTAL			
REV.	**DATE**	**REASON FOR REVISION**	**BY**	**CH'K**	**APPR**

ORIGIN BECHTEL SF-BEI	**TECHNICAL SPECIFICATION** **EARTHWORK AND GRADING** **FINAL POND COVER**	**JOB NO. 24230** **SPECIFICATION NO.** **18A-S-4** **REV. 0** **SHEET 1 OF 17**

TABLE OF CONTENTS

Sections			Page
1	GENERAL		3
	1.1	Related Specifications	3
	1.2	Definitions	3
	1.3	Submittals	3
2	EQUIPMENT AND MATERIALS		4
	2.1	Equipment	4
	2.2	Materials	4
3	EXECUTION		7
	3.1	General	7
	3.2	Subgrade Preparation	7
	3.3	Excavation	9
	3.4	Fill Placement and Compaction	10
	3.5	Placing and Jointing of Culverts and Drainage Piping	13
	3.6	Channels and Ditches	14
	3.7	Drainage and Water Control	15
	3.8	Tolerances	15
	3.9	Testing	15
	3.10	Daily Quality Control Log	16
	3.11	Inspection	17
	3.12	Cleanup	17

1 GENERAL

This specification describes the requirements for grading of existing fill, and the materials and placement of a final cover over an existing pond at the Astaris, LLC plant in Pocatello, Idaho. Work will be performed in accordance with the Construction Quality Assurance Plan, Construction Drawings and task-specific health and safety plan.

1.1 RELATED SPECIFICATIONS

The following specifications contain requirements that relate to this specification:

a. 18A-S-5 Geosynthetic Clay Liner

b. 18A-S-6 Flexible Membrane Liner

c. 18A-S-7 Geonet and Geotextile

d. 18A-S-8 Topsoil and Seeding

e. 18A-S-9 Temperature Monitoring Points (Wells)

1.2 DEFINITIONS

a. Owner: Astaris, LLC.

b. Bechtel: Bechtel Environmental, Inc. and any of its authorized representatives, acting as agent for Astaris, LLC.

c. Contractor: The party to whom the Contract for the work described herein has been awarded and any of its authorized representatives.

1.3 SUBMITTALS

The Contractor shall submit the following documents for Bechtel's approval and acceptance prior to mobilization:

a. Fill placement method and plan.

b. Material certifications for concrete components, and drainage and culvert piping systems, including cement, aggregate, welded wire fabric, and piping materials.

2 EQUIPMENT AND MATERIALS

2.1 EQUIPMENT

Conventional earth-moving equipment shall be used for the construction of the final cover, including low-ground-pressure (LGP) equipment as required and needed for the placement of the initial soil layer over geosynthetic materials, or other equipment as approved by Bechtel. All equipment shall be decontaminated prior to arrival at the site, in good working condition, and suitable for its intended use.

2.2 MATERIALS

2.2.1 The following materials shall be furnished by the Contractor:

a. Subsurface drainage piping: Corrugated High Density Polyethylene (HDPE) pipe with smooth interior and corrugated exterior. The pipe shall be N-12 as manufactured by Advanced Drainage Systems, Inc. (ADS) or approved equal (Advanced Drainage Systems, 3300 Riverside Drive, Columbus, OH 43221, 1-800-733-8523) and shall be solid or with slotted perforations as specified on the drawings. The drainage piping will be located at the perimeter of the final cover as a means to drain water from the drainage layer. The pipe shall be manufactured to comply with AASHTO M 252. Pipe materials shall meet ASTM F 405.

The pipe joints and fittings shall also be manufactured to comply with ASTM F 405 requirements and manufactured by the same manufacturer as the pipe.

b. Pressure monitoring piping: PolyVinyl Chloride (PVC) pipe with and without perforations as specified on the drawings. Where specified, perforations shall consist of two rows of 1/2-inch diameter openings spaced at 6 inch centers or approved equal. The pipe shall be manufactured to comply with ASTM D 1785, Schedule 40.

Carbon steel pipe shall be manufactured in accordance with ASTM A 53, Type S. All buried portion of steel piping shall be externally coated and wrapped conforming to the requirements of AWWA C 209 cold applied primers and prefabricated tape type II or III meeting the following requirements:

- Coating material shall be Polyken 930, Tapecoat 10/40, No. 20, or approved equal.

- Primers and mastics shall be as recommended by the manufacturer of the selected coating system.
- The wrapping thickness shall be 60 mils minimum applied in 2 layers.

c. Culverts: Corrugated Metal Pipe (CMP) shall be in accordance with AASHTO M36. Size, corrugation, and gage shall be as shown on design drawings.

d. Drainage Fill: Material shall be a clean, durable graded sand and gravel conforming to the following gradation limits when tested in accordance with ASTM D 422:

U.S. Standard Series Sieve Size	Percent Passing
1 inch	100
3/4 inch	75 - 100
#4	0 - 40
#40	0 - 5

e. Gravel Filter: Material shall be crushed and screened slag or a clean, durable graded sand and gravel conforming to the following gradation limits when tested in accordance with ASTM D 422:

U.S. Standard Series Sieve Size	Percent Passing
4 inch	100
2 inch	49 - 87
1 1/2 inch	42 - 80
3/4 inch	22 - 60
3/8 inch	5 - 42
#4	0 - 20

f. Sand Filter: Material shall be crushed and screened slag or a clean, durable graded sand and fine gravel conforming to the following gradation limits when tested in accordance with ASTM D 422:

U.S. Standard Series Sieve Size	Percent Passing
3/4 inch	100
3/8 inch	87 - 100
# 4	66 - 96
# 40	2 - 32
# 200	0 - 22

This material shall be classified as non-plastic when tested in accordance with ASTM D 4318.

g. Liner Foundation Material: Material shall be crushed and screened slag or a clean, well-graded, fine-to-coarse sand and fine gravel conforming to the following gradation limits when tested in accordance with ASTM D 422.

U.S. Standard Series Sieve Size	Percent Passing
3/8 inch	100
#200	22 (max)

This material shall be classified as non-plastic when tested in accordance with ASTM D 4318.

h. Concrete: Concrete for settlement monuments, lining channels, and ditches shall be in accordance with ASTM C 94 having a minimum compressive strength at 28 days of 3,000 pounds per square inch (psi) and maximum aggregate size not exceeding 3/4 inch.

i. Miscellaneous Metal: Steel plates for settlement monuments and topsoil thickness indicators shall be in accordance with ASTM A 36. Steel pipe for settlement monuments and topsoil thickness indicators shall be in accordance with ASTM A 53.

j. Welded Wire Fabric: Welded wire fabric for ditch lining shall be in accordance with ASTM A 185 and as specified on the design drawings.

k. Sand-Cement Backfill Material: Sand-cement backfill material for the observation wells shall conform to the following:

Cement	2 90-pound sacks per cubic yard
Water	45 gallons per cubic yard
Coarse and Fine Sand	50% of remaining volume of mixture each or approximately 9.7 cubic feet per cubic yard each

The Contractor may propose alternative mixes for Bechtel's approval. It shall be demonstrated that the mix can fill the observation wells without voids and will develop a minimum 28-day unconfined compressive strength of 150 psi.

2.2.2 Owner will furnish the following materials at no charge to the Contractor:

a. Coarse Slag: Well graded slag will be derived from the Astaris, LLC plant. The Contractor is responsible for loading, hauling, and delivery of the slag material to the jobsite, including, screening and/or crushing the slag to a well graded material having no particles larger than 12 inches and smaller than 1-1/2 inches in size.

b. Common Fill: Slag or soil excavated from the pond area or from plant borrow areas. Material shall have no particles larger than 12 inches in size.

3 EXECUTION

3.1 GENERAL

The work is to be performed at a pond which has stored sludge containing elemental phosphorus. Precaution shall be taken during any excavation at the site as elemental phosphorus may be encountered and exposed to air. Should elemental phosphorus be exposed by said activities, the exposed material shall be immediately covered and Bechtel immediately notified.

3.2 SUBGRADE PREPARATION

a. Prior to the placement of the Liner Foundation material, the temporary HDPE liner over the pond, the existing temporary settlement markers, and the existing dewatering piping are to be removed. The existing 2-inch diameter HDPE pipe inserts and 6-inch diameter drainage pipes are to be cut back and capped with concrete. The steel pipes for the observation

wells are to be cut and removed to top-of-finish subgrade and backfilled with sand-cement backfill as shown on the Design Drawings. The 2-inch diameter steel dewatering discharge piping and the steel dewatering header are to be disconnected, cut into manageable length, decontaminated, and disposed of on-site.

Any buried piping encountered within the limit of the final cover shall be excavated, decontaminated, and removed unless otherwise specified, or directed by Bechtel. These excavations are subject to approval of Bechtel and shall be in accordance with Section 3.3. Bechtel will inspect the work throughout the duration of the excavation and may stop all work if deemed unsafe and/or possibly exposing elemental phosphorus. The area is to be backfilled in accordance with Section 3.2.b only after approval from Bechtel.

The observation wells are to be backfilled in such a way so as the annular space of the wells is completely filled with the sand-cement mixture. The mixture shall not be dropped from the top of the wells, but tremied with hose or pipe starting from the bottoms of the wells.

The temporary liner shall be cut into manageable pieces in the same direction as existing seams, rolled and properly stored. The seam strips shall be cut out and properly disposed of. Care shall be taken as much as practical to not damage the liner in any shape or form, including over-stretching, or puncturing the material. Damaged areas are to be marked for later repair or cut out as approved by Bechtel. Handling and storage of the material shall be in accordance with Specification 18A-S-6.

b. The existing dike and the slag backfill over the pond shall be graded to the lines, grades, and cross sections as shown on the design drawings. The surface to receive fill shall be compacted with three coverages of a vibratory roller with a minimum static weight of 12 tons. Any soft area shall be immediately reported to Bechtel and the material removed and/or scarified and recompacted as directed by Bechtel.

Grading shall include excavating excess material and filling of depressed areas and bench widening as needed for constructing other works as shown on the drawings. Excavations shall be in accordance with Section 3.3. Depressed areas shall be filled with excavated material or general fill placed in maximum loose lifts of 12 inches and compacted with three coverages of a vibratory roller with a minimum static weight of 12 tons. The finished subgrade to receive the Liner Foundation material shall form a tight and smooth surface without any large rock protrusions after compactions; if required, the rocks shall be removed and replaced with finer materials, and recompacted as directed by Bechtel.

c. Materials removed, with the exception of the temporary HDPE liner, are to be disposed of on-site as directed by Bechtel.

3.3 EXCAVATION

a. Excavation is unclassified and includes excavation to required grade, or subgrade elevations, regardless of the character of materials and obstructions encountered.

b. Anchor trench excavation shall be performed to the line, grade, and cross section as shown on the design drawing and to the tolerances as specified herein. Anchor trench shall be excavated prior to geosynthetics placement.

The corners of the anchor trench where geosynthetics are to be placed shall be slightly rounded to avoid sharp bends in the geosynthetics. Sharp projections or irregularities on the surface of the finished subgrade or anchor trench will not be permitted.

c. Tolerance for all excavated surfaces shall be within ±0.1 foot of the elevation as specified in the design drawings.

d. Overexcavation required to suit the Contractor construction equipment or methods shall be backfilled and recompacted to the required grade by and at the Contractor's expense, conforming to the requirements as specified in Section 3.4.

e. Excavation for culverts and drainage piping where required shall consist of open cut trenches. The bottom width of the trench shall be the outside pipe diameter plus 2 feet. Shoring and bracing shall be placed to the extent necessary to retain the soil encountered, or the trench walls shall be sloped back to a minimum 1-to-1 slope or as shown on the design drawings, all in accordance with the safety requirements of the local and federal codes. The bottom of the trench shall be overexcavated by 6 inches to allow for bedding when coarse rock or slag are encountered.

The trench bottom shall be shaped to conform to the pipe barrel or shall be a bedding material consisting of drainage fill material.

3.4 FILL PLACEMENT AND COMPACTION

3.4.1 Liner Subgrade Preparation

a. After the completion of subgrade preparation, as specified in Section 3.2, a layer of Sand Filter material shall be placed and compacted in a single 6-inch compacted lift. On top of the compacted Sand Filter layer, a layer of Liner Foundation material shall be placed and compacted in a single 6-inch compacted lift.

The finished surfaces of both the Sand Filter and Liner Foundation layers shall receive a minimum of three coverages of a smooth steel wheel vibratory roller with a minimum static weight of 5 tons to ensure no sharp protrusions remain. No sharp particles or other hard objects shall be present in the top 1 inch of the surfaces where geosynthetics are to be placed.

The surface to be covered with Geosynthetic Clay Liner (GCL) shall be smooth and free of all rocks, sharp stones, sticks, roots, other sharp objects, or debris of any kind. The surface shall have no sudden, sharp, or abrupt changes or break in grade.

Deformations in the surface shall not be greater than 1 inch in depth. If bedding surface is frozen, then deformations shall be not greater than 0.5 inch in depth.

b. Prior to the installation of the GCL, the Contractor or GCL Installation Subcontractor, if other than the Contractor, shall, with concurrence from Bechtel, verify the conditions of the Liner Foundation surface on which the GCL will be placed to ensure that this surface represents a stable surface to support the material. The Liner Foundation surface preparation is deemed complete only after the GCL Installation Subcontractor notifies Bechtel in writing of acceptance of the prepared surface.

3.4.2 Backfilling Anchor Trench

a. The anchor trench shall be adequately drained to prevent ponding or softening of the adjacent soils while the trench is open. The anchor trench shall be backfilled after the geosynthetics are installed. The backfill material shall be placed in 6-inch loose lifts and well tamped.

b. Consideration shall be given to backfilling the geosynthetic liners at its most contracted state, preferably during the cool of the morning or extended period of overcast skies, to avoid stretching of the lining materials.

3.4.3 Sand Filter or Liner Foundation Material above Geosynthetic Materials

a. Sand Filter or Liner Foundation material, with a minimum compacted thickness of 12 inches, shall be spread over the drainage net and geotextile by an LGP Caterpillar D-6 tractor or approved equal. The tractor shall have a contact pressure not exceeding 5 psi, or equivalent, to initially spread the material. The material shall be spread in one lift, in a direction perpendicular to the underlying seams of the geosynthetic material, and when a sufficient area is completed, it shall immediately be covered with 18 inches of slag. Hauling equipment shall be permitted to move on slag only to prevent displacement of the Sand Filter/Liner Foundation material. Dozers or graders shall not be permitted to turn on the Sand Filter/Liner Foundation material.

b. The Sand Filter or Liner Foundation material shall be placed in a manner that does not damage, puncture, displace, or otherwise degrade the geotextiles. If damage to the liner occurs or the geotextile is considered by Bechtel to be endangered, the Contractor shall cease operation at the direction of Bechtel and modify his operations, equipment, or methods. Any damage to the fabric or other geosynthetics shall be repaired according to the more stringent of the techniques recommended by the manufacturer, pre-approved by Bechtel, or using methods included in the specifications at no expense to Owner/Bechtel.

3.4.4 Coarse Slag Fill

a. Coarse slag shall be placed in one 18-inch compacted layer. The slag shall be spread with a dozer. The slag is to be pushed by the dozer so that at all times the dozer will only be traveling on the newly placed slag. After placement, the slag shall be compacted with a smooth wheel vibratory roller in accordance with the procedures established under Section 3.4.4.b to achieve adequate compaction.

b. Prior to general placement of slag over the geotextiles, a test section having minimum dimensions of 30-foot wide by 50-foot long shall be constructed as specified herein. The coarse slag layer shall be compacted with a smooth wheel vibratory roller having a minimum static load of 5 tons. The settlement of the surface shall be measured and the number of coverages recorded, all to determine a relationship between the number of coverages and settlement. Adequate compaction shall be defined as the number of coverages to achieve 80 percent of the ultimate compaction settlement which is achievable by the specified method. A minimum of three coverages shall be required. Contractor's pricing shall be based on three coverages. Additional coverages will be paid as additional work.

3.4.5 Gravel Filter Layer

a. The gravel filter material shall be placed and compacted in a single lift.

b. The finished surface shall receive a minimum of three coverages of a smooth steel wheel vibratory roller with a minimum static weight of 5 tons.

3.4.6 Sand Filter Layer

a. The sand filter material shall be placed and compacted in a single lift.

b. The finished surface shall receive a minimum of three coverages of a smooth steel wheel vibratory roller with a minimum static weight of 5 tons.

3.4.7 Trench Backfill

a. Trench backfill shall be placed along both sides of the pipe equally in uniform layers. Care shall be taken to ensure the pipe is not displaced or damaged and the voids under the haunches are filled.

b. Backfill material and compaction requirements shall be as follows:

Compacted backfill material around culverts or pipes to 12 inches above pipe:

Pipe Material	Backfill Material	Max Loose lifts (inches)	% Max Dry Density[1]
HDPE	Drainage fill	6	well tamped
PVC, CMP Carbon steel	Local material as approved[2]	6	85

Trench backfill from 12 inches above pipe to finish grade:

Pipe Material	Backfill Material	Max Loose lifts (inches)	% Max. Dry Density[1]
HDPE	Drainage fill	12	well tamped
CMP	Local material as approved[3]	12	90

[1] In accordance with ASTM D 1557.
[2] No particle larger than 3 inches.
[3] No clay, frozen soil, brush, or any organic or deleterious materials. Maximum particle size not exceeding 6 inches.

c. All surfaces shall be restored to their original condition that existed prior to the trench excavation, including paved areas, where the surfaces shall be constructed to match those of the existing pavement sections.

3.4.8 Lift Station Backfill

a. Backfill materials shall consist of approved local materials and shall be free of expansive clay, frozen soil, brush, or any organic or deleterious materials. Maximum particle size shall not exceed 6 inches.

b. Backfill materials shall not be placed on snow, ice, or frozen ground surfaces. All surfaces to receive backfill shall be cleaned of all trash and debris.

c. Backfill shall be placed in uniform loose lifts not to exceed 8 inches in thickness and shall be compacted to not less than 85 percent of maximum dry density as determined in accordance with ASTM D 1557.

d. Backfill adjacent to lift stations shall be placed and compacted equally along both sides of the structure to prevent strain on or displacement of the structure.

e. Finished surfaces shall conform to the lines and grades shown on the drawings.

3.5 PLACING AND JOINTING OF CULVERTS AND DRAINAGE PIPING

3.5.1 Prior to lowering pipe into the trench, the joints shall be thoroughly cleaned and carefully checked. Pipe shall be laid true to line and grade according to the requirements as specified herein.

3.5.2 Laying shall start from the lowest end. Perforated pipe shall be laid with perforation down and centered about the flow line.

3.5.3 Pipe shall be installed in accordance with the manufacturer's instructions. The CMP shall be jointed with galvanized steel coupling bands with neoprene gaskets. Corrugated HDPE pipes shall be jointed with corrugated HDPE split couplings in accordance with manufacturer's instructions.

3.5.4 No vehicular traffic shall be permitted to travel across the HDPE pipes until a minimum of 2 feet of cover is placed and compacted over the pipes in accordance with Section 3.4.5.

3.6 CHANNELS AND DITCHES

3.6.1 Drainage channels and ditches shall be excavated true to the lines, grade, and cross sections as shown in the design drawings. If excavation beyond the specified grades is required in order to remove boulders or other obstructions, the voids remaining shall be backfilled with suitable local material as approved by Bechtel.

3.6.2 Backfill shall be placed in loose lifts of 6 inches with suitable excavated material free of expansive clay, organic, or deleterious material and compacted to not less than 90 percent of maximum dry density as determined in accordance with ASTM D 1557.

3.6.3 Vertical tolerance for unlined channels and ditches shall be 0.1 foot above and 0.2 foot below the specified grade of the channels and ditches.

3.6.4 Concrete-Lined Channels and Ditches

a. The area to be concrete-lined shall be prepared by shaping, compacting, and excavating of the channels or ditches including the cut-off walls. All depressions and overexcavation shall be filled and compacted in accordance with Section 3.6.2 or filled with lean concrete.

b. Concrete shall be placed directly on firm excavated surface to the line, grade, and dimensions shown on the design drawings. The surface on which concrete is to be placed shall be free of water. The vertical tolerance shall be plus or minus 0.04 foot.

c. Concrete shall be of such consistency that it can be placed on the slopes without flowing. All control joints shall be completed as shown on the design drawings. In the event it is not feasible to complete the entire placing in one operation, the placement shall be terminated with a construction joint.

d. As a minimum, the concrete surface shall be given a float finish and cured.

e. All concrete work shall be in accordance with applicable sections of ACI 301, 304, 305 and 306.

f. Methods such as gunite may be used for placing the lining. The proposed methods will be subject to approval of all details and be capable of

demonstrating to the satisfaction of Bechtel that they will achieve the thickness, flow line, finish, and durability as specified.

3.6.5 Settlement Monument

Concrete work shall be in accordance with Section 3.6.4.b and e. Welding shall be in accordance with AWS D1.1.

3.6.6 Topsoil Thickness Indicators

Concrete work shall be in accordance with Section 3.6.4.b and e. Welding shall be in accordance with AWS D1.1.

3.7 DRAINAGE AND WATER CONTROL

3.7.1 Contractor shall take measures as necessary to control soil erosion in the construction areas during the life of the Contract. Such measures shall include berms, dikes, dams, sediment basins, fiber mats, netting, gravel, mulches, grasses, slope drains, and other erosion control devices or methods.

3.7.2 Off-site drainage shall be diverted from the site and areas of work by such means as grading to drain away from the area of concern, and/or constructing temporary berms or ditches. Water in excavations shall be controlled and removed. Discharges from pumps shall be directed away from the area of the pond final cover to locations as directed by Bechtel.

3.8 TOLERANCES

Tolerances shall be plus and minus 0.10 foot unless otherwise specified herein.

3.9 TESTING

3.9.1 Tests for specified compaction for trench backfill shall be conducted by an authorized independent test laboratory at no extra cost to Owner/Bechtel in accordance with the following:

a. Maximum dry density and optimum moisture content shall be determined in accordance with ASTM D 1557, Method D.

b. In-place density shall be determined in accordance with the test procedure given in ASTM D 1556.

At the option of the Contractor, in-place density determined by ASTM D 2922 meeting the following requirements may be used. The nuclear densometer shall be calibrated by comparison with results from

ASTM D 1556. Initially, three (3) check tests of density and moisture shall be performed by the sand cone method. Thereafter, one (1) test in ten (10) shall be verified with a sand cone test. At least one check shall be performed each day for each material. Nuclear densometers shall not be used under freezing conditions.

c. Tests for maximum dry density and optimum moisture content shall be made for each type of material encountered or one test for each five sand cone tests with a minimum of one test for every 5 work days.

d. Field in-place density and moisture tests shall be made, as required, to verify that the specified compaction is achieved. A minimum of one test for every 1,000 cubic yards of compacted fill or one test per shift shall be made for each different type of material being placed or when materials or material sources change.

e. Where compaction of fill material does not meet the specified compaction, it shall be reworked until it complies with the specified in-place density.

3.10 DAILY QUALITY CONTROL LOG

a. The Contractor shall maintain a Daily Quality Control (QC) log during all phases of the earthwork and drainage piping installation. This log shall document the daily progression of these installations from the delivery of the materials to final acceptance. The log shall designate those construction activities that influence the integrity of the earthwork and drainage systems during installation. The log, at a minimum, shall include entries and detailed documentation of the following:

- Weather: temperature, winds, and precipitation.
- Preparation activities, including removal of water, and over-excavation, backfilling, and recompaction of subgrade.
- Elemental phosphorus encountered, if any, during excavation and corrective action taken.
- Repairs and replacements of piping materials.
- Compaction operations including lift thicknesses, equipment used, and number of coverages, and the type of compaction equipment.
- Results, locations, and elevations of in-place density testing, including corrective action taken.

- Inspection and installation of drainage piping and culverts, including the excavation and backfilling of pipe trenches.
- Names of all personnel conducting work at the site.
- Names, dates, and times for when the jobsite is visited by regulatory personnel, Contractors or vendors, and the Astaris, LLC plant personnel.
- Photographs of all phases of earthwork operations and piping installation.
- Limit and extent of excavation if required for removal of buried piping.
- Deviations from the Construction Quality Assurance Plan, drawings and specifications.

b. Prior to performing the work, the Contractor shall submit the Daily QC log format for approval by Bechtel.

3.11 INSPECTION

Bechtel will be present for the entire duration of the work. The Contractor shall provide access and support, as needed, for inspection by Bechtel while work is in progress as well as at the completion of each operation.

Inspection by Bechtel does not imply acceptance until all the requirements of this specification are met.

3.12 CLEANUP

At the end of the work, all temporary working areas shall be restored to their original conditions with all temporary construction materials removed and the site cleaned.

ASTARIS, LLC

PHOSPHORUS PLANT

POCATELLO, IDAHO

TECHNICAL SPECIFICATION
GEOSYNTHETIC CLAY LINER

REV.	DATE	REASON FOR REVISION	BY	CH'K	APPR
0		ISSUED FOR CLOSURE PLAN SUBMITTAL			

ORIGIN BECHTEL SF-BEI	**TECHNICAL SPECIFICATION** **GEOSYNTHETIC CLAY LINER** **POND FINAL COVER**	**JOB NO. 24230** **SPECIFICATION NO.** **18A-S-5** **REV. 3** **SHEET 1 OF 12**

TABLE OF CONTENTS

Sections			Page
1	GENERAL		3
	1.1	Related Specifications	3
	1.2	Definitions	3
	1.3	Material Testing Procedures	3
	1.4	Submittals	4
	1.5	Delivery, Storage, and Handling	4
2	EQUIPMENT AND MATERIALS		5
	2.1	Equipment	5
	2.2	Materials	6
3	EXECUTION		9
	3.1	Surface Acceptance by Installation Subcontractor	9
	3.2	Installation Procedure	9
	3.3	Daily Quality Control Log	11
	3.4	Inspection	12
	3.5	Cleanup	12

1 GENERAL

This specification includes requirements for the manufacture, supply, delivery, testing, storage, and installation of Geosynthetic Clay Liner (GCL) within the final cover system. Work will be performed in accordance with the Construction Quality Assurance Plan, Construction Drawings and task-specific health and safety plan.

The GCL will be installed over suitably prepared subgrade and underneath a Flexible Membrane Liner (FML) which are covered by separate and related specifications.

1.1 RELATED SPECIFICATIONS

The following specifications contain requirements that relate to this specification:

a. 18A-S-4 Earthwork and Grading

b. 18A-S-6 Flexible Membrane Liner

c. 18A-S-7 Geonet and Geotextile

d. 18A-S-8 Topsoil and Seeding

e. 18A-S-9 Temperature Monitoring Points

1.2 DEFINITIONS

a. Owner: Astaris, LLC.

b. Bechtel: Bechtel Environmental, Inc. and any of its authorized representatives, acting as agent for Astaris, LLC.

c. Contractor: The party to whom the Contract for the work described herein has been awarded and any of its authorized representatives.

d. Installation Subcontractor: The party who will be responsible for the actual installation of the GCL liner, if other than the Contractor.

1.3 MATERIAL TESTING PROCEEDURES

Geosynthetic testing is evolving, should any of the test methods referenced in this specification become obsolete at the time of construction, more current test methods may be substituted at the discretion of Bechtel.

1.4 SUBMITTALS

The Contractor shall submit the following documents for Bechtel's approval and acceptance prior to mobilization of the GCL installer unless otherwise noted:

a. GCL placement method and plan per Section 3.2.a shall be submitted, including jointing of the liner material.

b. Certified reports presenting the results of the laboratory testing required by this specification shall be submitted to Bechtel for review and approval prior to delivery. The submittals shall clearly show the date the GCL to be used for this project was manufactured. The Contractor must satisfy Bechtel that the material proposed meets every requirement of this specification.

c. Within 2 weeks after award of the Contract, the Contractor shall submit two (2) samples of the materials to Bechtel for review and approval.

d. The Contractor shall submit, within 2 weeks after award of the Contract, the manufacturer's recommended installation procedures for the placement and jointing of the GCL material, including procedures for repair.

e. The Contractor shall provide Bechtel with Record (as-built) Drawings showing the limits of the installed GCL material. The Record Drawings shall also indicate the corresponding panel and roll numbers, and where samples were taken for plant testing. The record drawings shall be submitted within 2 weeks of completion of geosynthetics placement.

f. The GCL manufacturer's certification or written approval of the installation subcontractor, and the name and qualification of the manufacturer's representative shall be submitted to Bechtel 7 days prior to installation. The GCL manufacturer must have experience in manufacturing, or fabricating, at least 1,000,000 m^2 (10,000,000 ft^2) of similar geosynthetic material. The geosynthetic installer must have experience installing at least 1,000,000 m^2 (10,000,000 ft^2) of similar geosynthetic material.

1.5 DELIVERY, STORAGE, AND HANDLING

a. GCL material shall be delivered to the site only after Bechtel has approved the required submittals. Storage and handling of the materials shall conform to the manufacturer's recommendations and shall be accomplished in such a manner as to prevent damage to any part of the work. The Contractor shall provide sufficient labor and equipment to properly unload material upon delivery to the site.

Owner will provide an area near the site for storage of material. The material shall be stored in a reasonably smooth, well-drained, level portion of the storage area provided, away from sharp objects or rocks that may puncture the material; away from brush, oil, grease, or fuels; and in an area accessible for inspection. Stacking shall always allow access to at least one end of each role. To prevent degradation or wetting of the materials, the protective wrapper on each GCL roll shall not be removed until the material is ready for deployment. Any damage to the wrapper during delivery shall be repaired to the satisfaction of Bechtel.

b. Identification tags attached to the rolls of GCL material delivered to the site shall not be removed until the material is installed. Each GCL roll or panel shall be identified with the following information:

1. Product type and/or name
2. Name of manufacturer
3. Manufacturing batch code
4. Manufacturing roll number
5. Dimensions of panel or roll (length and width)

c. GCL panels or rolls that are not clearly labeled shall be rejected for use on the Project until the labeling is corrected. The Contractor shall carefully inspect each roll or panel upon arrival at the site to ensure compliance with the labeling procedures. The Contractor shall also keep a record of the identification tags for each roll and panel. Any roll not properly identified prior to deployment activities may be rejected and deemed unacceptable for use by Bechtel, at the expense of the Contractor, until such information is provided/corrected.

2 EQUIPMENT AND MATERIALS

2.1 EQUIPMENT

The GCL shall be placed using suitable equipment that can pull and place the liner material over the area to receive the GCL, and as agreed upon between Contractor and Bechtel and approved by the GCL manufacturer. All equipment shall be decontaminated prior to arrival at the site, in good working condition, and suitable for its intended use.

2.2 MATERIALS

The GCL is a material consisting of a very thin layer of bentonite bonded to one or more geosynthetics and has a very low hydraulic conductivity that is suitable for use as a hydraulic barrier to restrict the penetration of water. At the option of the Contractor, the two types of GCL that can be used shall be either a Type I or a Type II material. The Type I material consists of a layer of bentonite mixture bonded to a High Density Polyethylene (HDPE) geomembrane backing on one side (see Table 1). The Type II material consists of a layer of bentonite bonded on both sides with a geotextile material.

2.2.1 The acceptable GCL materials shall meet all the requirements as specified herein.

2.2.2 The physical properties of the GCL shall be as specified in Tables 2 and 3.

Table 1
Physical Properties of HDPE Geomembrane
Used as GCL Backing Material for Type I GCL

Property	ASTM Test Method	Required Minimum Value[1]	Unit
Tensile strength @ yield	D 638	20	lb/in
Elongation @ yield	D 638	10	%
Puncture	D 4833	20	lb
Density	D 1505	0.94	g/cm^3

[1] Minimum average roll values.

Table 2
Mechanical and Hydraulic Properties
of Type I GCL

Property	ASTM Test Method	Required Minimum Value[2]	Unit
Bentonite density	D 5993[1]	0.75	lb/ft^2
Hydraulic conductivity: Overlapped Seam	D 5887	$5x10^{-11}$	m/sec (max.)
Hydraulic conductivity	D 5887	$4x10^{-14}$	m/sec (max.)

[1] At 0% adjusted moisture content.
[2] Minimum average roll values.

Table 3
Mechanical and Hydraulic Properties of Type II GCL

Property	ASTM Test Method	Required Minimum Value[1]	Unit
Bentonite density	D 5993[2]	0.75	lb/ft^2
Grab tensile strength	D 4632	80	lb
Peel strength	D 4632	15	lb
Saturated hydraulic conductivity (Tested with water at 5 lb/in^2 effective stress and 2 lb/in head)	D 5084 or D 5887	$5x10^{-9}$	cm/sec (max.)

[1] Minimum average roll values.
[2] At 0% adjusted moisture content.

2.2.3 Raw Material Testing and Compliance

a. The active ingredient of all GCL materials shall be sodium bentonite. The bentonite shall exhibit a maximum fluid loss of 18 ml when tested in accordance with ASTM 5891 and a minimum swell index (free swell) of 24 ml / 2g when tested in accordance with ASTM D 5890. The GCL manufacturer shall conduct one of each of these tests on the sodium bentonite material used at a frequency of 100,000 pounds of bentonite used in GCL production.

b. The shipment container of the lot from which each test sample is collected shall be correlated to the GCL rolls produced. In addition, Certificates of Compliance shall be submitted by the bentonite suppliers to the GCL manufacturers certifying that the raw sodium bentonite satisfies the manufacturer's specifications. The GCL manufacturer shall collect and maintain these certificates for this Project. The Contractor shall submit certified reports presenting laboratory test results and copies of the Certificates of Compliance indicated above to Bechtel prior to installation of GCL material.

2.2.4 Conformance Testing

a. Geomembrane material used to form the backing layer of Type I GCL, if provided, shall be tested by the geomembrane manufacturer(s), prior to shipment to the GCL manufacturer, to ensure that the physical and mechanical properties of the material are in conformance with this

specification. The required material properties for the geomembrane backing material are presented in Table 1.

b. The Type I GCL itself, if provided, shall also be tested to verify that its weight and mechanical and hydraulic properties are in conformance with this specification. The required material properties for Type I GCL are presented in Table 2. The GCL shall be sampled and tested in conformance with the manufacturer's written quality assurance plan and in conformance with this specification. Bentonite density tests shall be performed one per every 40,000 ft^2 of GCL produced for this project. Hydraulic conductivity testing shall be performed a minimum of once weekly for the production line used to manufacture the GCL for this project, with the results of the last 20 tests being reported. In addition, one (1) coupon measuring 3 feet in length by the full roll width shall be collected by the Contractor for every 100,000 ft^2 of GCL produced shall be retained intact by the manufacturer until construction of the final cover system, for which the GCL is used, is complete. These coupons shall be submitted to Bechtel upon request. Conformance testing shall be performed on the GCL for the properties listed in Table 2.

c. The Type II GCL, if provided, shall be tested to ensure that the physical and mechanical properties of the material are in conformance with this specification. The required material properties for Type II GCL are presented in Table 3. Bentonite density and peal strength tests shall be performed one per every 40,000 ft^2 of GCL produced for this project. Grab tensile strength tests shall be performed one per every 200,000 ft^2 of GCL produced for this project. Hydraulic conductivity testing shall be performed a minimum of once weekly for the production line used to manufacture the GCL for this project, with the results of the last 20 tests being reported. In addition, one (1) coupon measuring 3 feet in length by the full roll width shall be collected by the Contractor for every 100,000 ft^2 of GCL delivered and shall be submitted to Bechtel. Conformance testing shall be performed on the GCL for the properties listed in Table 3.

d. If the average test values of any individual lot sampling unit (one roll of material) does not meet one or more specification values, the entire lot (total number of rolls to be deployed at the pond) shall be re-sampled and tested; the lot sampling unit that failed the initial testing will be rejected prior to resampling the lot. The entire lot will be rejected if all the lot sampling units fail the initial testing or if the average test values for any individual lot sampling unit from the resample do not meet one or more of the acceptable specification values.

2.2.5 Laboratory Testing

a. Unless otherwise indicated, the materials furnished by the Contractor shall be tested by the manufacturer or a certified independent geosynthetics testing laboratory and at the expense of the manufacturer or the Contractor.

2.2.6 Visual Inspection During Installation

a. During deployment of the GCL materials, the Contractor shall perform visual inspections of the material surfaces. Bechtel will also perform his own visual inspections in addition to those by the Contractor. Any faulty areas relating to material integrity, uniformity, rips or tears, seaming completeness, and seam overlap shall be repaired by the GCL Subcontractor using the more stringent of the techniques recommended by the manufacturer, pre-approved by Bechtel, or as specified in Section 3.2 of this specifications. Such repairs shall be reported to Bechtel by means of the Daily Quality Control (QC) log. At any point in the work, if the Daily QC log has not been submitted to Bechtel, Bechtel has the right to stop the GCL installation activities at the expense of the Contractor.

3 EXECUTION

3.1 SURFACE ACCEPTANCE BY INSTALLATION SUBCONTRACTOR

Prior to installation of the GCL, the Installation Subcontractor, with concurrence from Bechtel, shall verify the conditions of the installed material surface on which the GCL will be placed. He shall ensure that this surface provides stable support for the GCL and is free of all potentially harmful objects such as sticks, rocks, and sandbags. The Installation Subcontractor shall notify Bechtel, in writing, of acceptance of the prepared surface prior to installation of the GCL by completing, signing, and submitting the appropriate documentation to Bechtel. This acceptance shall be consistent with the requirements of the GCL manufacturer for the liner subgrade surface in order to preserve the warranty for the GCL. The surface on which the GCL is to be placed shall be maintained in a firm, clean, dry, and smooth condition during lining installation.

3.2 INSTALLATION PROCEDURE

a. The GCL panels shall be deployed and installed consistent with the most stringent of these specification, Bechtel-approved panel installation drawings or manufacturer's recommendations. The GCL shall not be placed during any precipitation, in the presence of excessive moisture, or

in the presence of excessive winds. The GCL shall be installed by the Contractor with personnel who are experienced in installation of such material. Bechtel's approval of the drawings does not relieve the Contractor of its responsibility to properly install the GCL material.

b. The Type I GCL, if provided, shall be handled and staged for installation with the geomembrane backing facing down (clay side up towards the Flexible Membrane Liner [FML]). If a Type II GCL is provided that has different weight geotextile on either side, then the side with the heavier geotextile shall be placed facing down. The GCL shall then be deployed in a generally downslope direction to provide for drainage, collection, and removal of precipitation away from the work area. Adjacent GCL panels shall be overlapped in accordance with manufacturer's recommendations.

c. GCL panels shall be of such lengths and widths and shall be placed in such a manner as to minimize seams. The overlying FML geomembrane material shall be placed over the GCL as soon as practical after placement of the GCL. Only those panels of GCL material that can be covered that same day with said material shall be unpacked and placed in position.

d. The GCL shall be dry when installed and covered. The Contractor shall have tarps and other materials available on-site for covering exposed GCL in the event that an unexpected rainfall event occurs. Any GCL material that becomes wet will be deemed unacceptable and rejected by Bechtel. The rejected material shall be removed off-site and replaced with acceptable material at the expense of the Contractor.

e. During times when wind is prevalent, GCL installation should start at the upwind side and proceed downwind. The leading edge of the GCL shall be secured by the Contractor at all times with sandbags or other means sufficient to hold it down during high winds.

f. The first and succeeding panels of GCL shall be adjusted to smooth out creases or irregularities in the panels. Once the first panel has been deployed, adjoining panels shall be laid with a minimum 6-inch overlap on each side, or a greater overlap if recommended by the manufacturer. End-of-roll seams shall be overlapped a minimum of 12 inches. All dirt shall be removed from the overlap area of the GCL panels. The GCL shall be installed in a relaxed condition and shall be free of tension or stress upon completion of the installation. The overlap shall conform to the contours of the panels laid with no gaps in between. Stretching of the GCL to fit required overlaps will not be allowed.

g. If required by the manufacturer for proper seaming, granular bentonite shall be dispersed evenly from the panel edge to the overlap limit at the

recommended minimum rate and continuously along all seams and overlap areas. Granular bentonite shall be the same as that used to manufacture the GCL.

h. In hot weather, expansion of the Type I GCLs may occur soon after placement when no FML geomembrane material has yet been placed. In order to account for the possibility of shrinkage after covering with said geomembrane under these conditions, the longitudinal seam overlap shall be increased as required and approved by Bechtel.

i. Irregular shapes, cuts, or tears in installed GCL material shall be covered with sufficient GCL to provide a 12-inch overlap on all adjoining GCL panels, or a greater overlap if recommended by the manufacturer.

j. A representative of the GCL's manufacturer shall be provided by the installer to observe and inspect installation procedures for QC conformance during the first day of liner placement. If necessary, the GCL manufacturer's representative shall remain on-site at no additional cost to Owner/Bechtel, until, in the opinion of the representative, the installation procedures complies with the manufacturer's QC standards.

3.3 DAILY QUALITY CONTROL LOG

a. The Contractor shall maintain a Daily QC log during all phases of GCL installation. This log shall document the daily progression of the GCL installation from the delivery of the GCL to final acceptance. The log shall designate those construction activities that influence the integrity of the GCL during installation. The log, at a minimum, shall include entries and detailed documentation of the following:

- Weather: temperature, winds, and precipitation.
- Preparation activities, including removal of water, sediment, GCL cleaning, or underlying support/bedding layer smoothing and repair.
- Repairs and replacements.
- Seaming activities.
- Equipment used to place the GCL.
- Inspection and backfilling of anchor trench.
- Photographs of GCL installation.

- Names of all personnel conducting work at the site.

- Names, dates, and times for when the jobsite is visited by regulatory personnel, subcontractors or vendors, and the Astaris, LLC plant personnel.

- Deviations from the Construction Quality Assurance Plan, drawings and specifications.

b. Prior to performing the work, the Contractor shall submit the Daily QC log format for approval by Bechtel.

3.4 INSPECTION

Bechtel will be present during the entire GCL material installation. Bechtel will also inspect the GCL material as it is placed. The Contractor shall provide access and support, as needed, for the inspection of the GCL material.

Inspection by Bechtel does not imply acceptance until all the requirements of this specification are met.

3.5 CLEANUP

At the end of the work, all temporary working areas shall be restored to their original conditions with all temporary construction materials removed and the site cleaned.

ASTARIS, LLC

PHOSPHORUS PLANT

POCATELLO, IDAHO

TECHNICAL SPECIFICATION
FLEXIBLE MEMBRANE LINER

0		ISSUED FOR CLOSURE PLAN SUBMITTAL			
REV.	**DATE**	**REASON FOR REVISION**	**BY**	**CH'K**	**APPR**

ORIGIN BECHTEL SF-BEI	**TECHNICAL SPECIFICATION** **FLEXIBLE MEMBRANE LINER** **POND FINAL COVER**	**JOB NO. 24230** **SPECIFICATION NO.** **18A-S-6** **REV. 0** **SHEET 1 OF 17**

TABLE OF CONTENTS

Sections			Page
1	GENERAL		3
	1.1	Related Specifications	3
	1.2	Definitions	3
	1.3	Material Testing Procedures	3
	1.4	Submittals	4
	1.5	Delivery, Storage, and Handling	6
2	MATERIALS		7
	2.1	Sheet Geomembrane	7
3	EXECUTION		10
	3.1	Inspection of Sheet Geomembrane at Job Site	10
	3.2	Protection of Surface to Receive FML	10
	3.3	Installation	10
	3.4	Testing and Quality Control	13
	3.5	Daily Quality Control Log	16
	3.6	Inspection	17
	3.7	Cleanup	17

1 GENERAL

This specification includes requirements for the manufacture, supply, delivery, testing, storage, and installation of the Flexible Membrane Liner (FML) within the final cover system. Work will be performed in accordance with the Construction Quality Assurance Plan, Construction Drawings and task-specific health and safety plan.

1.1 RELATED SPECIFICATIONS

The following specifications contain requirements that relate to this specification:

a. 18A-S-4 Earthwork and Grading

b. 18A-S-5 Geosynthetic Clay Liner

c. 18A-S-7 Geonet and Geotextile

d. 18A-S-8 Topsoil and Seeding

e. 18A-S-9 Temperature Monitoring Points (Wells)

1.2 DEFINITIONS

a. Owner: Astaris, LLC.

b. Bechtel: Bechtel Environmental, Inc. and any of its authorized representatives, acting as agent for Astaris, LLC.

c. Contractor: The party to whom the Contract for the work described herein has been awarded and any of its authorized representatives.

d. Installation Subcontractor: The party who will be responsible for the actual installation of the FML, if other than the Contractor.

1.3 MATERIAL TESTING PROCEEDURES

Geosynthetic testing is evolving, should any of the test methods referenced in this specification become obsolete at the time of construction, more current test methods may be substituted at the discretion of Bechtel.

1.4 SUBMITTALS

The Contractor shall submit the following documents for Bechtel's approval and acceptance prior to mobilization of the FML installer unless otherwise noted.

a. FML placement method and plan per Section 3.3.1.a shall be submitted, including manpower, equipment, and a detailed description of field testing methods to be performed.

b. Certified reports presenting the results of the laboratory testing required by this specification shall be submitted to Bechtel for review and approval prior to delivery. The submittals shall clearly show the date the FML to be used for this project was manufactured. The Contractor must satisfy Bechtel that the material proposed meets every requirement of this specification.

c. Within 2 weeks after award of the Contract, the Contractor shall submit two (2) samples of the materials to Bechtel for review and approval.

d. The Contractor shall submit, within 2 weeks after award of the Contract, the manufacturer's recommended installation procedures for the placement and jointing of the FML material, including procedures for repair.

e. The Contractor shall provide Bechtel with Record (as-built) Drawings showing the limits of the installed FML material. The Record Drawings shall also indicate all factory and field seams, construction repairs, coupon test locations, repaired factory defects, patches, panel numbers with directions rolled, welds, and panel remnant locations. The Record Drawings shall also indicate the factory and field panel numbers from which coupons were taken prior to installation and the samples for manufacturing plant physical property testing, as required in Sections 2.1.3. The record drawings shall be submitted within 2 weeks of completion of geosynthetics placement.

f. The FML manufacturer's certification or written approval of the Installation Subcontractor, and the name and qualification of the manufacturer's representative shall be submitted to Bechtel 7 days prior to installation.

g. The manufacturer's Quality Assurance (QA) program and/or manual shall be submitted to Bechtel. The QA program or manual shall outline the factory and field quality control procedures to be used in the manufacture, installation, and field testing of these materials. This shall address, at a minimum, delivery and handling of raw materials, geomembrane sheet roll production, and Quality Assurance/Quality Control (QA/QC) of these

activities. It shall also address manufacturer's recommended installation and repair procedures with construction details for the installation of geomembrane, penetration and anchorage, including all necessary seaming equipment and accessories.

The requirements of this QA manual shall be considered minimum required standards and specifications for the manufacture, installation, and testing of the geomembrane; however, where the requirements of these specifications are more stringent than those of the QA manual, these specifications shall govern the construction. Where these specifications are of the less stringent standards, the requirements of the QA manual shall govern the construction.

h. Laboratory test results, certified by the testing laboratory, for the conformance tests required under Section 2.1.3 shall be submitted prior to installation of the geomembrane. These tests shall be performed on samples collected from geomembrane rolls to be used for this Project.

i. Shop drawings showing locations of proposed panel layout and associated field seams to cover the area as shown on the drawings. The panels shall be laid out for installation in such a way as to conform to the corresponding GCL panel layout, and the installation sequence and cover protection requirements as specified in Specification 18A-S-5. Shop drawings shall also indicate the direction the liner is folded or rolled, and shall show panel sizes consistent with the material quantity requirements as described herein. The panels shall also be laid out in such a manner as to minimize seams running parallel to the anchor trench, either inside or at the immediate vicinity of the trench.

j. Detailed sequence of installation.

k. Manufacturer's Warranty for the installed geomembrane.

l. Complete description of field-seaming procedures.

m. Manufacturer's nondestructive and destructive seams testing procedures shall be submitted. These procedures shall include type(s) of tests, list of equipment required, frequency of tests with locations, methods, qualifications of personnel that perform the tests, and acceptance/rejection criteria for tested seams.

n. Construction procedures for anchor trenches, including method of placement, equipment, and personnel. Details as required for a complete installation shall also be included.

o. Contractor's Daily Quality Control (QC) log format to be used during geomembrane installation.

p. The Contractor shall submit written notification to Bechtel of the geomembrane field supervisor and welders' work experience relative to High Density Polyethylene (HDPE) geomembrane installation and welding. The installer's supervisor shall have been responsible for installing at least 250,000 ft^2 of HDPE geomembrane. Each welder is required to have a minimum of 1 year's experience welding HDPE geomembrane and the master welder shall have a minimum of 3 years' experience welding HDPE or similar geomembrane. No geomembrane welding shall begin until Bechtel has received the notifications and has approved the supervisor and individual welder qualifications.

1.5 DELIVERY, STORAGE, AND HANDLING

a. Each factory-fabricated panel, if any, shall be prominently and indelibly marked with the panel size. Panels shall be protected as necessary to prevent damage to the panel during shipment.

b. Identification tags attached to the rolls of FML material delivered to the site shall not be removed until the material is installed. Each FML roll or panel shall be identified with the following information:

1. Product type and/or name
2. Name of manufacturer
3. Manufacturing batch code
4. Manufacturing roll number
5. Panel number (if relevant)
6. Dimensions of panel or roll (length and width)

c. Materials shall be delivered to the site only after the required submittals have been furnished and approved. Storage and handling of the materials shall conform to the manufacturer's recommendations and shall be accomplished in such a manner as to prevent damage to any part of the materials. The Contractor shall provide labor and equipment to properly unload material upon arrival at the site.

Owner will provide an area near the site for storage of material. Storage shall be in the area provided and the Contractor is to take measures to store the materials in a manner reasonably free of dirt, dust, direct sunlight, extreme heat and disturbance.

The material shall be stored in a reasonably level area that is well-drained, away from oils/fuels, brush, debris, in an accessible area for inspection, and on a smooth surface so that the material is well-supported and not resting on sharp objects that could damage it. Stacking shall always allow access to at least one end of each roll. The protective covers used to wrap each roll of geomembrane, if used by the manufacturer, shall not be removed until immediately before the material is to be installed in the field.

2 MATERIALS

2.1 SHEET GEOMEMBRANE

a. The lining material shall be nominal 60 mil HDPE flexible geomembrane of uniform color, thickness, size, and surface texture. The finished sheet geomembrane shall be free from pinholes, blisters, and contaminants.

b. The lining material shall be manufactured from a composition of high-quality domestic virgin HDPE resin. Reprocessed or reground materials are not acceptable. The material's physical properties shall conform to Table 1.

c. Sufficient geomembrane panel material shall be fabricated and furnished to cover the area to be lined as shown on the drawings, including overlaps at field seams and perimeter anchorage. Two (2) percent shall be added to the area of each fabricated panel to allow for shrinkage and wrinkles.

2.1.1 Manufacturer Qualifications

The HDPE manufacturer shall be a specialist in the manufacturing of HDPE geomembrane and shall have produced and supplied at least 2 million ft^2 of said material that was used in successful applications.

2.1.2 Installer Qualifications

a. The HDPE Installation Subcontractor shall be experienced in all aspects of HDPE geomembrane handling, storage, and installation. The Installation Subcontractor shall have successfully installed at least 1 million ft^2 of HDPE geomembrane within the last 5 years.

b. The Installation Subcontractor shall employ a field installation supervisor experienced in the installation of HDPE geomembrane liner. The installation supervisor shall meet the requirements as specified in Section

1.4.p. The Installation Subcontractor shall be subject to the approval of Bechtel and authorized as a qualified installer by the liner manufacturer.

2.1.3 Material Testing

a. The HDPE geomembrane shall be tested in conformance with the manufacturer's testing procedures prior to shipment from the manufacturing plant to ensure that the physical and chemical properties (see Table 1) of the finished product are in conformance with these specifications.

In addition, conformance testing of geomembrane presented in Table 2 are also required. Acceptable test values for these tests shall be as indicated in Table 1. The FML shall be sampled and tested in conformance with the manufacturer's written quality assurance plan and in conformance with this specification. At a minimum, the test frequency shall be one (1) of each test for every 50,000 ft^2 of membrane produced for this project.

Within 2 weeks of award of Contract, the Installation Subcontractor shall also provide a certified statement (Certificate of Compliance) from the manufacturer that the geomembrane to be used meets the physical and chemical properties presented in Table 1. In addition, one coupon measuring 3 feet in length by the full width of the geomembrane roll per every 100,000 ft^2 of geomembrane produced shall be retained intact by the manufacturer until construction of the final cover system, for which the geomembrane is used, is complete. The machine direction of each sample shall be clearly marked in indelible ink. These coupons shall be submitted to Bechtel upon request.

b. Unless otherwise indicated, all field and laboratory testing of sheet geomembrane materials shall be performed by the manufacturer or an independent laboratory, approved by Bechtel, with materials furnished by and at the expense of the Contractor.

c. If the average test value of any individual lot sampling unit (one roll of material) does not meet one or more specification values, the entire lot (total number of rolls to be deployed at the pond) shall be re-sampled and tested; the lot sampling unit which failed the initial testing will be rejected prior to resampling the lot. The entire lot will be rejected if all the lot sampling units fail the initial testing or if the average test value for any individual lot sampling unit from the re-sample do not meet one or more of the acceptable specification values.

Table 1

Physical Properties of HDPE Geomembrane

Property	ASTM Test Method	Acceptable Test Results	Unit
Gauge (nominal)	D 5199	60	mils
Thickness	D 5199	54	mils (min)
Density	D 1505	0.935	g/cm^3 (min)
Elongation at break	D 638	500	% (min)
Elongation at yield	D 638	12	% (min)
Tensile strength at break	D 638	220	lb/in (min)
Tensile strength at yield	D 638	120	lb/in (min)
Tear resistance initiation	D 1004	40	lb (min)
Carbon black content	D 1603 or D 4218	2 - 3	%
Carbon black dispersion	D 5596	Category 1 or 2	--
Puncture resistance	D4833	100	lb
Environmental stress crack	D 5397	200	hr (min)

Table 2

Conformance Testing Requirements for HDPE Geomembrane

Property	ASTM Test Method
Thickness	D 5199
Tensile properties	D 638
Tear resistance	D 1004
Puncture Resistance	D 4833
Density[1]	D 1505

[1] A minimum of one (1) density test shall be performed for each resin batch used.

3 EXECUTION

3.1 INSPECTION OF SHEET GEOMEMBRANE AT JOBSITE

a. The Contractor shall be responsible for the inspection of the geomembrane panels upon its arrival at the job site. Should panels show damage from transit, they shall be so identified by the Contractor and set aside for either return to the manufacturer or repaired in accordance with manufacturer's recommendations.

b. During unrolling of the geomembrane panels, the Contractor shall visually inspect the geomembrane sheet surface. Any faulty areas shall be repaired by the Contractor using the pre-approved techniques. Such repairs shall be recorded on the shop drawings (record) and reported to Bechtel by means of a Daily QC log per Section 3.5. At any point in the work, if the Daily QC log has not been submitted, Bechtel has the right to stop the geomembrane installation at the cost of the Contractor until the Daily QC log is submitted.

3.2 PROTECTION OF SURFACE TO RECEIVE FML

The geomembrane is to be installed over an installed Geosynthetic Clay Liner (GCL). Care shall be taken to ensure that the installed GCL is not damaged by the geomembrane installation. Vehicular traffic is not allowed on top of the installed GCL and FML liners. Equipment used to install and weld the geomembrane shall be subject to approval by Bechtel and GCL manufacturer, prior to the start of geomembrane installation. Geomembrane installation equipment shall also conform to the geomembrane manufacturer's requirements.

Any damages to the GCL during the installation of the geomembrane shall be repaired using GCL manufacturer-approved repair methods at the expense of the Contractor.

3.3 INSTALLATION

3.3.1 General

a. The limits of the HDPE geomembrane shall be as shown on the drawings. The geomembrane shall be laid out and installed in accordance with the most stringent of these specifications, applicable panel installation drawings approved by Bechtel or the manufacturer's recommendations. The geomembrane shall be installed by the geomembrane manufacturer or manufacturer-approved installer. The installer shall take precautions that newly placed FML is not damaged during FML placement.

b. All geomembrane shall be installed in a generally downslope manner to minimize the potential of surface water flowing beneath the placed geomembrane. The geomembrane panels shall be placed to permit termination at the edge of the final cover within the perimeter anchor trenches as shown on the drawings. The anchorage geometry, backfill material, method of backfilling, and sequence shall be approved by Bechtel.

c. The geomembrane shall be installed in a relaxed condition and shall be free of tension or stress upon completion of the installation. Stretching of the geomembrane during installation will not be allowed.

d. A representative of the geomembrane's manufacturer shall be required to oversee portions of the installation. At a minimum, the representative shall observe and inspect installation procedures for QC conformance during the first day of membrane installation, during first seaming event, during the first day of geonet/geotextile installation, and during the first day of soil placement above the installed geosynthetic materials.

3.3.2 Field Panel Placement

The geomembrane placement shall be coordinated with the GCL placement activities. The geomembrane shall be installed in a sequence conforming to the cover protection requirements of the underlying GCL layer as specified in Specification 18A-S-5 and to the following requirements:

a. The geomembrane shall be placed over the installed GCL in such a manner as to ensure minimum handling. The geomembrane panels shall be of such lengths and widths and shall be placed in such a manner as to minimize field seaming. Only those panels of liner material that can be anchored and sealed together that same day shall be unpacked and placed in position.

b. Perimeter anchorage excavation and any preparation shall be completed before liner installation begins. All anchorages shall be prepared and maintained so as to preclude ponding of surface or subsurface water in trenches and to promote positive drainage away from anchorage locations.

c. Sandbags or rubber tires may be used as required to hold down the panels in position during installation. The Installation Subcontractor shall take all precautions as necessary to eliminate surface damage during installation. Any and all damages to the geomembrane shall be repaired as specified in Section 3.3.2.h at the expense of the Contractor.

d. Field seaming shall only be performed when the sealed areas can be kept dry and in such a manner so as to prevent dust, dirt, or other foreign material from contaminating the seam. No field seaming will be allowed when the temperature measured within 6 inches of the liner surface is below 45 °F or above 100 °F unless otherwise approved by Bechtel. Seaming activities shall be coordinated with the GCL installation.

e. All seams shall be welded. Seams shall be overlapped at a minimum of 3 inches for extrusion welding and 4 inches for fusion welding, or a greater overlap if recommended by the manufacturer or warranted by field conditions. Welds shall be fusion-welded using an automatic double hot-wedge machine. Extrusion welds using a hand-held extrusion welder will only be used where needed for repairs or as approved by Bechtel. Welding devices shall have controls to regulate temperature to compensate for on-site conditions.

f. In addition to the qualification requirements set forth in Section 1.4.p, each welder shall be qualified by welding a test sample similar to the field weld to be used. A field peel test, which has a Film Tearing Bond (FTB) break, shall be performed to test the integrity of the sample weld and welding machine temperature settings. The trial weld shall be repeated, in its entirety, when any of the trial weld samples fail. When repeated trial welds fail, the welding apparatus and welder shall not be used for welding until the reason for the sample failure is identified and corrected.

   Welders must conduct a minimum of 6 feet of successful warm-up weld each day, checked by peel test, before commencing welding for the day. Each welder shall use only the specific welding equipment he was tested with for welding the geomembrane. Test strips or trial seams shall also be made twice per day or shift (for example, at the beginning of the work shift and after the lunch break). Trial seams shall also be made whenever personnel or equipment are changed, when climate conditions reflect wide changes in geomembrane temperature, or when other conditions occur that could affect seam quality.

g. Passage of construction equipment, other than that required for placement and welding of the geomembrane over exposed GCL and FML surface, is prohibited at any time during construction and after the liner has been placed.

h. Any tears, rips, or puncture of the liner during the installation shall be repaired by patching with a patch that extends at least 6 inches beyond each edge of the defect (For example, if a 4-inch square hole requires patching, the patch must measure the size of the hole, plus 6 inches on every side, or 16 inches square.) and in accordance with the

manufacturer's recommended procedure at the expense of the Contractor. Small tears (less than one inch long), pin holes, or other localized flaws may be spot welded. If Bechtel determines that patching of the damaged geomembrane becomes excessive, the entire roll will be rejected.

i. When installing the geomembrane, care shall be taken to minimize seam length. No more than three sheets may meet at any point unless special circumstances warrant and the approval of Bechtel is obtained in writing. Where more than three seams meet, the area shall be covered by a patch at least 4-foot square.

j. Seams, which run parallel to the anchor trench and are either inside or in immediate vicinity of the trench shall be minimized.

k. The deployed geomembrane shall not have excessive slack to the point where permanent creases fold over upon themselves, either during placement or seaming.

3.3.3 HDPE Boot Installation (Penetration)

Geomembrane penetrations shall be sealed with a HDPE boot installed in accordance with manufacturer's standard installation instructions. HDPE boots shall be prefabricated at the manufacturer's plant, all seams and boots shall be factory leak-tested, and the testing records shall be submitted to Bechtel for approval prior to delivery to the jobsite. HDPE boot shall be welded to the geomembrane in accordance with Section 3.3.2 and seal to the penetration with sealant and stainless steel clamp, unless otherwise shown on the Design Drawings.

3.4 TESTING AND QUALITY CONTROL

3.4.1 Non-destructive Seam Continuity Testing

a. All fusion joined seams shall be visually examined for voids or imperfect bonds.

b. The Contractor shall non-destructively test all field seams, including repair seams, over their full length using a vacuum test unit, air pressure (for double-fusion seams only), or other approved methods. Non-destructive testing shall be carried out as the seaming progresses and not at completion of all field seaming.

c. Vacuum Testing

The equipment shall, at a minimum, comprise the following:

- A vacuum box assembly consisting of a rigid housing, a transparent viewing window, a soft neoprene gasket attached to the bottom, port hole or valve assembly, and a gauge to indicate chamber vacuum.

- A steel vacuum tank and pump assembly equipped with a pressure controller and pipe connections.

- A rubber pressure/vacuum hose with fittings and connections.

Vacuum testing shall consist of placing the vacuum box assembly over the liner seam. The suction chamber shall be connected to the vacuum pump. A foaming agent shall be applied to the seam area under test to indicate possible leaks. The seam shall be maintained under 5 psig suction for a minimum of 10 seconds. All areas where soap bubbles appear shall be marked. The test areas shall have a minimum 3-inch overlap from the previous section.

Defective seams found during the testing shall be repaired and retested. Such tests and adjustments shall be repeated until the seam is leak-free, and in the opinion of Bechtel, the repairs are satisfactory and complete. All repairs shall be made by and at the Contractor's expense.

d. Air Pressure Testing (for double seam with an enclosed space)

The equipment shall consist of the following:

- An air pump (manual or motor driven) equipped with pressure gauge capable of generating and sustaining pressure over 35 psi and mounted on a cushion to protect the liner.

- A rubber hose with fittings and connections.

- A sharp hollow needle or other approved pressure feed device.

- A pressure gauge with an accuracy of 1 psi.

The test procedure shall consist of the following steps:

- Seal both ends of the seam to be tested.

- Insert needle or other approved pressure feed device into the channel created by the double-wedge weld.

- Energize the air pump to a minimum pressure of 30 psi or 1/2 psi per mil of liner thickness, whichever is greater; close valve and sustain pressure for at least 5 minutes.

- If pressure loss exceeds 3 psi or does not stabilize, locate faulty area and repair as described in these specifications.

- Puncture opposite end of seam to release air. If blockage is present, locate and test seam on both sides of blockage.

- Remove needle or other approved pressure feed device and seal penetration holes by extrusion welding.

3.4.2 Destructive Testing

a. Random weld samples, selected by Bechtel, shall be removed from the installed welded sheeting at a frequency of one test location per 500 feet of seam length or as directed by Bechtel, whichever results in more test sample locations. The sampled locations shall be repaired in accordance with Section 3.3.2.h. Seam samples shall be tested by an independent testing laboratory at the Contractor's expense. The laboratory shall provide certified test results to the Contractor and Bechtel. The samples shall be tested in shear and peel in accordance with ASTM D 4437. For each sample, a minimum of four out of each five tested specimens shall meet the following requirements:

- Bonded Seam Strength (Shear): equal to or greater than 208 lb/in

- Peal adhesion: equal to or greater than 84 lb/in

- All peal adhesion specimen break types shall be the "FTB" classification, which is defined as the break occurring in the polymer material (parent material), not in the weld.

The Contractor shall repair all areas damaged by sampling immediately after the sample is taken at no additional expense to Bechtel.

b. If a seam fails to meet the requirements of Section 3.4.2.a, additional tests shall be taken 10 feet from each end of the original test location. This procedure will continue until samples from both ends pass. The weld between the acceptable samples shall be considered defective and repaired by capping the weld with a minimum 18-inch wide cap.

c. All samples shall be numbered and marked with permanent identification, including the machine direction. The reason for taking the sample shall

also be indicated (such as statistical routine, suspicious feature, change in sheet temperature, etc.).

3.5 DAILY QUALITY CONTROL LOG

a. The Contractor shall maintain a Daily QC log during all phases of the geomembrane installation. This log shall document the daily progression of the geomembrane installation from the delivery of the material to final acceptance. The log shall designate those construction activities that influence the integrity of the geomembrane during installation. The log, at a minimum, shall include entries and detailed documentation of the following:

- Weather: temperature, winds, and precipitation.
- Preparation activities, including removal of water and sediment, geomembrane cleaning, or underlying GCL repair.
- Repairs and replacements.
- Seaming activities, including name of welder(s) for each seam and any leakage detected in testing of that seam.
- HDPE boot installation (penetration).
- Results and locations of destructive testing performed as part of geomembrane installation, including corrective action taken.
- Results and locations of non-destructive testing performed as part of geomembrane installation, including corrective action taken.
- Equipment used to place and weld the geomembrane.
- Inspection and backfilling of anchor trench.
- Calibration dates of each piece of seaming equipment and seam test equipment.
- Names of all personnel conducting work at the site.
- Names, dates, and times for when the job site is visited by regulatory personnel, subcontractors or vendors, and the Astaris, LLC plant personnel.

- Photographs of geomembrane installation, seaming, and field testing.
- Deviations from the Construction Quality Assurance Plan, drawings and specifications.

b. Prior to performing the work, the Contractor shall submit the Daily QC log format for approval by Bechtel.

3.6 INSPECTION

Bechtel will be present during the entire geomembrane material installation. Bechtel will also inspect the geomembrane material as it is placed. The Contractor shall provide access and support, as needed, for the inspection of the geomembrane material.

Inspection by Bechtel does not imply acceptance until all the requirements of this specification are met.

3.7 CLEANUP

At the end of the work, all temporary working areas shall be restored to their original conditions with all temporary construction materials removed and the site cleaned.

ASTARIS, LLC

PHOSPHORUS PLANT

POCATELLO, IDAHO

TECHNICAL SPECIFICATION
GEONET AND GEOTEXTILE

REV.	DATE	REASON FOR REVISION	BY	CH'K	APPR
0		ISSUED FOR CLOSURE PLAN SUBMITTAL			

ORIGIN BECHTEL SF-BEI	**TECHNICAL SPECIFICATION GEONET AND GEOTEXTILE POND FINAL COVER**	**JOB NO. 24230** **SPECIFICATION NO. 18A-S-7 REV. 0** **SHEET 1 OF 11**

TABLE OF CONTENTS

Sections			Page
1	GENERAL		3
	1.1	Related Specifications	3
	1.2	Definitions	3
	1.3	Material Testing Procedures	3
	1.4	Submittals	3
	1.5	Delivery, Storage, and Handling	4
2	MATERIALS		5
	2.1	Geonet	5
	2.2	Geotextile	7
3	EXECUTION		9
	3.1	Geonet Installation	9
	3.2	Geotextile Placement	9
	3.3	Covering Geotextiles	10
	3.4	Daily Quality Control Log	10
	3.5	Inspection	11
	3.6	Cleanup	11

1 GENERAL

This specification includes requirements for the manufacture, supply, delivery, testing, storage, and installation of geonet and geotextile within the final cover system. Work will be performed in accordance with the Construction Quality Assurance Plan, Construction Drawings and task-specific health and safety plan.

1.1 RELATED SPECIFICATIONS

The following specifications contain requirements that relate to this specification:

a. 18A-S-4 Earthwork and Grading

b. 18A-S-5 Geosynthetic Clay Liner

c. 18A-S-6 Flexible Membrane Liner

d. 18A-S-8 Topsoil and Seeding

e. 18A-S-9 Temperature Monitoring Points

1.2 DEFINITIONS

a. Owner: Astaris, LLC.

b. Bechtel: Bechtel Environmental, Inc. and any of its authorized representatives, acting as agent for Astaris, LLC.

c. Contractor: The party to whom the Contract for the work described herein has been awarded and any of its authorized representatives.

1.3 MATERIAL TESTING PROCEEDURES

Geosynthetic testing is evolving, should any of the test methods referenced in this specification become obsolete at the time of construction, more current test methods may be substituted at the discretion of Bechtel.

1.4 SUBMITTALS

The Contractor shall submit the following documents for Contractor's approval and acceptance prior to mobilization of geonet and geotextile installer unless otherwise noted:

a. Geonet and geotextile placement method and plan, including jointing of the materials shall be submitted.

b. Certified test reports presenting the results of the laboratory testing required by this specification shall be submitted to Bechtel for review and approval prior to the time the material is shipped. The submittals shall clearly show the date the material to be used for this project was manufactured. The Contractor must satisfy Bechtel that the material proposed meets every requirement of this specification.

c. Within 2 weeks after award of the Contract, the Contractor shall submit samples of the materials to Bechtel for review and approval.

d. The Contractor shall submit, within 2 weeks after award of the Contract, the manufacturer's recommended installation procedures for the placement and jointing requirements of the geonet and geotextile material, including procedures for repair.

e. The Contractor shall provide Bechtel with Record (as-built) Drawings showing the limits of the installed geonet and geotextile material. The Record Drawings shall also indicate the corresponding panel and roll numbers, and where geotextile samples were taken for plant and field testing. The record drawings shall be submitted within 2 weeks of completion of geosynthetics placement.

f. Any sewing of the geotextile shall be performed by trained personnel of the Contractor or his subcontractors; the geotextile installer must be approved by Bechtel. Any sewing must (1) use a thread type that is polymeric with chemical and ultraviolet light resistance properties equal to or greater than that of the geotextile itself, (2) use locking stitch, (3) use sewing thread color that contrasts with the color of geotextile being sewn, to allow ease of inspection, and (4) include a continuous seam. The Contractor may also be requested to submit training or experience records of the installer personnel for approval.

1.5 DELIVERY, STORAGE, AND HANDLING

a. Material shall be delivered to the site only after Bechtel has approved the required submittals. Storage and handling of the materials shall conform to the manufacturer's recommendations and shall be accomplished in such a manner as to prevent damage to any part of the material. The Contractor shall provide labor and equipment to properly unload material upon arrival at the site. Owner will provide an area near the site for storage of material. The material shall be stored in a reasonably level, smooth, and well-drained area that is away from sharp objects or rocks which may puncture or otherwise damage the material; away from brush, oil, grease, or fuels;

and in an accessible area for inspection. Stacking shall always allow access to at least one end of each roll.

To prevent ultraviolet degradation of the material, the protective wrapper on each geotextile roll shall not be removed until the material is ready for use. Any rolls that are delivered without protective wrappers shall be rejected by Bechtel at the expense of the Contractor. Any rolls of geotextile that will not be installed within 14 days following delivery to the site shall be covered with tarps to protect the rolls from the elements.

2 MATERIALS

Geonet and geotextile shall meet all the requirements as specified herein, but may be supplied as a geocomposite or separate individual materials.

2.1 GEONET

2.1.1 The physical properties of the geonet shall be as specified in Table 1.

Table 1

Mechanical and Hydraulic Properties of Geonet

Property	ASTM Test Method	Required Minimum Value[1]	Unit
Specific gravity	D 1505	0.94	g/cm^3
Carbon black content	D 1603 or D 4218	2	%
Transmissivity (1.0 gradient at 15,000 psf (min) compressive load)	D 4716	0.001	m^2/sec
Tensile strength (machine direction)	D 5035	25	lb/in

[1] Minimum average roll values (MARV).

2.1.2 Manufacturer Qualifications

The geonet manufacturer(s) shall be specialist(s) in the manufacturing of polyethylene geonet and shall have produced and manufactured a minimum of 1 million ft^2 of said geonet that was used in successful installations.

2.1.3 Conformance Testing

a. Geonet shall be tested by the manufacturer prior to shipment to ensure that the physical and mechanical properties of the finished product are in accordance with these specifications. The required material properties, test methods, values, and units are presented in Table 1. The geonet shall be sampled and tested in conformance with the manufacturer's written quality assurance plan and in conformance with this specification. At a minimum, conformance tests shall be performed one per every 200,000 ft^2 of geonet produced. In addition, one coupon 3 feet in length by the width of the entire geonet roll for every 200,000 ft^2 of geonet produced shall be retained by the manufacturer until construction of the final cap is complete. These coupons shall be submitted to Bechtel upon request.

b. Unless otherwise indicated, material testing shall be performed by the manufacturer or an approved independent geosynthetics testing laboratory; the materials shall be furnished by and at the expense of the Contractor.

c. If the average test values of any individual lot sampling unit (one roll of material) do not meet one or more specification values, the entire lot (total number of rolls to be deployed at the pond) shall be resampled and tested; the lot sampling unit that failed the initial testing will be rejected prior to resampling the lot. The entire lot will be rejected if all the lot sampling units fail the initial testing or if the average test values for any individual lot sampling unit from the resample do not meet one or more of the acceptable specification values.

2.1.4 Laboratory Testing

Unless otherwise indicated, testing shall be performed by the manufacturer or an approved independent geosynthetics testing laboratory with materials furnished by the Contractor and at the expense of the Contractor.

2.1.5 Visual Inspection During Installation

During deployment of the geonet, the Contractor shall perform visual inspections of the material surfaces. Bechtel will also perform its own visual inspections in addition to those by the Contractor. Any faulty areas relating to material integrity, uniformity, and seam overlap shall be repaired by the Contractor using techniques recommended by the manufacturer, pre-approved by Bechtel, and included in these specifications, whichever is the more stringent. Such repairs shall be

reported to Bechtel by means of the Daily Quality Control (QC) log. At any point in the work, if the Daily QC log has not been submitted to Bechtel, Bechtel has the right to stop the geonet installation activities at the expense of the Contractor.

2.2 GEOTEXTILE

Nonwoven, needle-punched geotextile shall be provided to meet the minimum physical and mechanical properties outlined in Table 2 and as designated on the drawings. The properties shown represent the minimum average roll values (MARVs) for the installed materials, unless otherwise indicated.

Table 2

Physical and Mechanical Properties of Geotextile

Property	Test Method	Required Minimum Value[1]	Unit
Unit weight	ASTM D 5261	(6[2])	oz/yd^2
Puncture strength	ASTM D 4833	95	lbs
Grab strength (MD)	ASTM D 4632	150	lbs
Grab elongation	ASTM D 4632	50	%
Trapezoidal tear strength	ASTM D 4533	60	lb
Mullen Burst strength	ASTM D 3786	325	psi
UV Resistance[3] (@ 500 Hours)	ASTM D 4355	70	% strength retained
Apparent opening size	ASTM D 4751	0.212	mm (max)
Permittivity	ASTM D 4491	1.3	sec^{-1}

[1] Minimum average roll values (MARVs).
[2] For information only; not a required property.
[3] Manufacturer's certification required which states product exceeds required value for typical roll values.

2.2.1 Manufacturer Qualifications

The geotextile manufacturer(s) shall be specialist(s) in the manufacturing of polyester, polyethylene, and/or polypropylene geotextile (as applicable). In addition, the manufacturer shall have produced and manufactured a minimum of 5 million ft^2 of said geotextiles that were used in successful installations.

2.2.2 Conformance Testing

a. The geotextile shall be tested by the manufacturer prior to shipment to ensure that the physical and mechanical properties of the finished product are in accordance with these specifications. The required material properties, test methods, values, and units are presented in Table 2. The geotextile shall be sampled and tested in conformance with the manufacturer's written quality assurance plan and in conformance with this specification. At a minimum, conformance tests shall be performed one per every 100,000 ft^2 of geotextile produced. In addition, one coupon 3 feet in length by the entire width of geotextile roll for every 100,000 ft^2 of geotextile produced shall be retained by the manufacturer until construction of the final cap is complete. These coupons shall be submitted to Bechtel upon request.

b. Unless otherwise indicated, material testing shall be performed by the manufacturer or an approved independent geosynthetics testing laboratory; the materials shall be furnished by and at the expense of the Contractor.

c. If the average test values of any individual lot sampling unit (one roll of material) does not meet one or more specification values, the entire lot (total number of rolls to be deployed at the pond) shall be resampled and tested; the lot sampling unit which failed the initial testing will be rejected prior to resampling the lot. The entire lot will be rejected if all the lot sampling units fail the initial testing or if the average test values for any individual lot sampling unit from the re-sample do not meet one or more of the acceptable specification values.

2.2.3 Laboratory Testing

Unless otherwise indicated, testing shall be performed by the manufacturer or an approved independent geosynthetics testing laboratory with materials furnished by and at the expense of the Contractor.

2.2.4 Visual Inspection During Installation

During deployment of the geotextile, the Contractor shall carry out visual inspections of the material surfaces. Bechtel will also perform its own visual inspections in addition to those by the Contractor. Any faulty areas relating to material integrity, uniformity, rips or tears, and seam overlap shall be repaired by the Contractor using techniques as recommended by the manufacturer, pre-approved by Bechtel, and included in these specifications, whichever is the more stringent. Such repairs shall be reported to Bechtel by means of the Daily QC log. At any point in the work, if the Daily QC log has not been submitted to Bechtel,

Bechtel has the right to stop the geotextile installation activities at the expense of the Contractor.

3 EXECUTION

3.1 GEONET INSTALLATION

a. The geonet shall terminate in a perimeter anchor trench at the locations shown on the drawings and in accordance with manufacturer's recommended details.

b. Panels (rolls or roll segments) shall be overlapped 6 inches minimum and joined using electrical plastic cable ties at an average frequency of one every 6 feet on center along the length of the panel. End-to-end joining of panels on slopes shall be minimized, but when necessary, the panels shall be joined by using plastic cable ties at a frequency of one every 12 inches on center.

c. The geonet shall not be attached to the geomembrane.

d. Care shall be taken during installation of the geonet to avoid damage or disturbance of the underlying geosynthetic layers.

e. Any material placed on top of the geonet shall be done in such a manner so as not to damage the geonet or any underlying materials.

f. Trimming of geonet shall be performed using only upward- cutting hook blades.

3.2 GEOTEXTILE PLACEMENT

a. Geotextile shall be placed at the locations and to the limits shown on the drawings. The geotextile are to be jointed by overlapping the panels with a minimum of 18 inches or sewn with a minimum overlap of 4 inches. Cross-slope joints shall be avoided as much as possible. Geotextile shall be laid out in such a way that the panels are perpendicular to the underlying Geosynthetic Clay Liner (GCL) panels.

b. Care shall be taken during installation of the geotextile to avoid damage or disturbance of the underlying geosynthetic layers.

c. A minimum of 12 inches of the sand filter material shall be placed, immediately above the geotextile, in accordance with Specification 18A-S-4, Section 3.4.3, to protect the underlying geosynthetic layers from

subsequent construction activities. The material shall be spread in the same direction as the fabric is joined and perpendicular to the GCL seams.

d. During periods of high winds, sandbags or other methods approved by the manufacturer(s) shall be used by the Contractor to temporarily secure any exposed geotextile in place.

e. During placement, care must be taken not to entrap, either within or beneath geonet and geotextile, potentially harmful materials (stones, dirt, water, etc.) that could damage the geomembrane, clog the drains or filters, or hamper subsequent seaming. Once deployed, a visual examination shall be performed to ensure the surface of the geotextile is free of potentially harmful materials.

f. Trimming of geotextile shall be performed using only upward- cutting hook blades.

3.3 COVERING GEOTEXTILES

a. All geotextile shall be covered by sand filter material within 14 calendar days, following removal of their protective wrapping and their placement in the field, to protect them from ultraviolet degradation. The Contractor shall stage construction activities to accomplish this schedule. Any geotextile left exposed longer than the 14 calendar days shall, at Bechtel's direction, be removed and replaced at the expense of the Contractor.

3.4 DAILY QUALITY CONTROL LOG

a. The Contractor shall maintain a Daily QC log during all phases of geonet and geotextile installations. This log shall document the daily progression of the installations from the delivery of the materials to final acceptance. The log shall designate those construction activities that influence the integrity of the materials during installation. The log, at a minimum, shall include entries and detailed documentation of the following:

- Weather: temperature, winds, and precipitation.
- Preparation activities, including removal of water, or sediment.
- Repairs and replacements.
- Equipment used to place the geonet and geotextile.
- Inspection and backfilling of anchor trench.

- Names of all personnel conducting work at the site.
- Names, dates, and times for when the jobsite is visited by regulatory personnel, subcontractors or vendors, and the Astaris, LLC plant personnel.
- Deviations from the Construction Quality Assurance Plan, drawings and specifications.

b. Prior to performing the work, the Contractor shall submit the Daily QC log format for approval by Bechtel.

3.5 INSPECTION

Bechtel will be present during the entire geonet and geotextile installations. Bechtel will also inspect the materials as they are placed. The Contractor shall provide access and support, as needed, for the inspection of the geonet and geotextile materials.

Inspection by Bechtel does not imply acceptance until all the requirements of this specification are met.

3.6 CLEANUP

At the end of the work, all temporary working areas shall be restored to their original conditions with all temporary construction materials removed and the site cleaned.

ASTARIS, LLC

PHOSPHORUS PLANT

POCATELLO, IDAHO

TECHNICAL SPECIFICATION
TOPSOIL AND SEEDING

REV.	DATE	REASON FOR REVISION	BY	CH'K	APPR
0		ISSUED FOR CLOSURE PLAN SUBMITTAL			

ORIGIN BECHTEL SF-BEI	**TECHNICAL SPECIFICATION TOPSOIL AND SEEDING FOR POND FINAL COVER**	**JOB NO. 24230** **SPECIFICATION NO. 18A-S-8 REV. 0** **SHEET 1 OF 13**

TABLE OF CONTENTS

Sections			Page
1	GENERAL		3
	1.1	Related Specifications	3
	1.2	Definitions	3
	1.3	Submittals	3
	1.4	Storage and Handling	4
	1.5	Personnel	4
	1.6	Sequence of Work/Schedule	4
	1.7	Quality	4
2	EQUIPMENT AND MATERIALS		5
	2.1	Equipment	5
	2.2	Materials	5
3	EXECUTION		8
	3.1	General	8
	3.2	Topsoil Spreading	8
	3.3	Drill Seeding	9
	3.4	Straw Crimping	9
	3.5	Protection of Work	9
	3.6	Inspection	9
	3.7	Replacement	10
	3.8	Daily Quality Control Log	10
	3.9	Cleanup	11

1 GENERAL

This specification describes the requirements for furnishing and placement of topsoil and completing the seeding of a final cover over an existing pond at Astaris, LLC's plant in Pocatello, Idaho. Seed will be placed by the drill seeding method. Work will be performed in accordance with the Construction Quality Assurance Plan, Construction Drawings and task-specific health and safety plan.

1.1 RELATED SPECIFICATIONS

The following specification contains requirements that relate to this specification:

a. 18A-S-4 Earthwork and Grading

b. 18A-S-9 Temperature Monitoring Points (Wells)

1.2 DEFINITIONS

a. Owner: Astaris, LLC.

b. Bechtel: Bechtel Environmental, Inc. and any of its authorized representatives, acting as agent for Astaris, LLC.

c. Contractor: The party to whom the Contract for the work described herein has been awarded and any of its authorized representatives.

1.3 SUBMITTALS

The Contractor shall submit the following documents for Bechtel's approval and acceptance prior to mobilization:

a. Details of all supplied products (i.e., imported topsoil, fertilizer, seed, seed mix, supplemental organic matter, straw, including name of supplier).

b. Sample of all supplied materials including imported topsoil, if applicable.

c. Analytical data of the proposed topsoil from an agricultural soils laboratory.

d. Certificates bearing the manufacturer's guaranteed analysis and physical or chemical make-up of the materials.

1.4 STORAGE AND HANDLING

a. Topsoil shall be stored on site in area designated by Bechtel prior to spreading.

b. Fertilizer and lime (if required) shall not be stored with any other landscape materials.

c. On-Site storage of materials shall be only in areas designated or as approved by Bechtel.

d. The seed containers and containers of all products to be used in this operation shall be stored immediately in a dry, weather- and damp-proof structure. Any seed or product, which has become wet, moldy, or is otherwise damaged in transit or storage will not be acceptable.

1.5 PERSONNEL

Seeding shall be performed by personnel familiar with procedures required of their trade and shall be supervised by a qualified foreman.

1.6 SEQUENCE OF WORK/SCHEDULE

Seeding shall not begin until Contractor receives approval to proceed from Bechtel. Contractor shall be responsible for scheduling the work and obtaining the necessary approvals. Seeding shall be performed only at either of the following periods and the surfaces to be seeded shall be protected until vegetation is established as specified in Subsection 3.1:

a. Late Fall: Prior to initial snow fall, when day time temperatures do not rise above 40°F; this could cause seed germination prior to the onset of winter.

b. Spring: When ground snow has melted and prior to the conclusion of spring rains that are needed for germination.

1.7 QUALITY

All work shall be of the highest quality and shall be subject to the approval of Bechtel. Any work that does not meet the requirements of this specification and the approval of Bechtel shall be removed by the Contractor immediately and replaced with work that is acceptable. Removal of defective work and replacement will be at the expense of the Contractor.

2 EQUIPMENT AND MATERIALS

2.1 EQUIPMENT

Conventional earth-moving and seeding equipment shall be used for the construction of the topsoil layer over the final cover. All equipment shall be decontaminated prior to arrival at the site, in good working condition, and suitable for its intended use.

Soil stabilization(pulverizing) equipment may be required to sufficiently break up frozen or over-compacted topsoil to ensure proper mixing of soil additives and performance of seeding operations.

2.2 MATERIALS

2.2.1 General

All materials shall be of standard, approved first-grade quality and shall be in prime condition when installed and accepted. Any commercially processed or packaged materials shall be delivered to the site in the original unopened containers bearing the manufacturer's guaranteed analysis and dealer's label.

2.2.2 Topsoil

a. General Qualifications

Composition - Use only locally obtained fertile, friable, well-drained soil, of uniform quality. The soil shall be free of stones over 1-inch diameter, sticks, oils, chemicals, plaster, concrete and other materials deleterious for the purposes of a planting medium. Some, or all, of the topsoil material may be furnished by the Owner. It is the responsibility of the Contractor to verify and ensure that all requirements of these specifications are satisfied, including all testing and amendment additives and mixing as specified herein.

b. Testing

- Parasites - Test all soils that have been used for agricultural purposes within the prior 12 months for parasitic nematodes. Soils shall be acceptable if the parasitic nematode population is less than 200 per 50 cubic centimeters of soil. Do not artificially dry soil prior to testing.

- Herbicide - Perform a radish/ryegrass growth trial as directed by Bechtel if herbicide contamination is suspected.

c. Areas to receive topsoil shall be as shown on the design drawings.

d. Topsoil: The Contractor shall perform tests and analysis as required to ensure Owner or Contractor furnished topsoil meets the standards specified under Section 2.2.2.a., including the following:

- Analysis - Obtain an agricultural suitability analysis of the proposed topsoil for each soil source from a State of Idaho (or equivalent) certified soils laboratory at Contractor's cost. This analysis is to include recommended amendments as required to support the growth of the plants specified in the seed mix.

- Acceptance - Submit soils analysis and recommendations to Bechtel for acceptance. Amend topsoil per accepted soils analysis report.

- Samples - Bechtel reserves the right to take samples of the topsoil delivered to the site for testing to verify conformance to the specifications.

- Pea Gravel - Clean, durable natural stone or rock with 100% passing the 3/8-inch sieve and 98% retained on the #10 sieve.

- Rejected Topsoil - Immediately remove rejected topsoil off the site at Contractor's expense.

2.2.3 Seed

a. Seed mixture shall be noxious-weed free, with the percent of purity and germination rate as specified in 2.2.3.b. All seed shall be re-cleaned Grade A "new crop" seed. The dealer may mix the seed provided a guaranteed statement of composition of moisture and percentages of purity and germination of each variety is attached to the sealed container. If the germination rates of any of the dealer's seeds are less than the rates specified in Table 1, then the weight per acre of those seeds shall be increased such that the specified rate of viable seed is provided.

b. Seed mix to be as specified in Table 1, supplied by S & S Seeds, 5690 Casitas Pass Road, Carpenteria, CA 94553-2205 (phone no. 805-684-0436, FAX no. 805- 684-2798) or approved equal. The seed mix was developed based on local climatic conditions in conjunction with past experiences of vegetation at the site locality and predominately consists of vegetation native to the area.

c. Application rate of seed mix: 46.5 pounds per acre.

Table 1

Seed	Lb/acre	% of Mix	Min. Pure/Germ
Indian Ricegrass	4	8.6	98/85
Rubber Rabbitbrush	4	8.6	10/65
Covar Sheeps Fescue	10	21.5	98/85
Great Basin Sagebrush	3	6.5	25/50
Sand Dropseed	2	4.3	90/75
Needle and Thread Grass	1	2.1	60/50
Lewis Blue Flax	1	2.1	98/70
Desert Globemallow	0.5	1.1	98/50
Sulfur Buckwheat	0.5	1.1	25/25
California Poppy	0.5	1.1	98/80
Wheat Hybrid	20	43.0	90/80
Totals	46.5	100	

2.2.4 Fertilizer

The type and quantity of fertilizer shall be determined from the specified agricultural suitability analysis.

2.2.5 Supplemental Organic Matter

a. Supplemental organic matter, if required by the agricultural suitability analysis, shall consist of approved compost, peat, or equivalent. Alternative mulches will be considered for approval by Bechtel.

b. Supplemental organic matter shall be certified to be free of noxious weeds.

c. Weight specifications of this material from suppliers and for all applications shall refer only to air dry weight of the organic material. A minimum of four representative samples of the proposed material shall be collected and submitted to a qualified laboratory for determination of the percentage of organic material. The application rate of the proposed material shall be increased to reflect the average non-organic portion.

d. The need for and application rate of supplemental organic matter shall be determined from the specified agricultural suitability analysis. For bidding purposes only, the application rate shall be assumed to be 15 tons of organic matter per acre.

e. The proposed material shall be tested by a qualified laboratory to determine the quantity of available Nitrogen and Phosphorus on a per-acre basis. The amount of Nitrogen or Phosphorus in the fertilizer required by subsection 2.2.4 shall be reduced by one pound per acre for each four pounds per acre of available Nitrogen or Phosphorus, respectively, in the proposed organic material. If the amount of available Nitrogen in the proposed organic material is more than four times the rate required by subsection 2.2.4, then that material shall be considered unacceptable.

2.2.6 Straw

a. The straw to be crimped to the finished surface shall be certified to be free of noxious weeds.

b. Application rate: 2 tons per acre.

3 EXECUTION

3.1 GENERAL

Prior to any application of topsoil, Contractor shall obtain approval of Bechtel for the completed underlying soil layer. Similarly, prior to any seeding, Contractor shall ensure that all finish grading in the area to be seeded has been completed and approved by Bechtel.

The area to be seeded is that shown on the drawings to receive topsoil and any grass area disturbed during construction and as directed by Bechtel. All topsoil and disturbed grass areas are to be protected by application of erosion control materials.

3.2 TOPSOIL SPREADING

3.2.1 Spreading of Topsoil

a. Verification: Do not commence spreading of topsoil prior to acceptance by Bechtel of underlying soil layer.

b. Topsoil Depth: Minimum depth of 42 inches after natural settlement and light rolling. Topsoil is to be placed in 12-inch maximum loose lifts. Pea gravel and any required supplemental organic material are to be incorporated into the top 12 inches of topsoil. The pea gravel material shall be added to the topsoil with a pug mill or other method as approved by Bechtel. The amount of pea gravel shall be 15 ± 3% by weight of the

topsoil mix. If pug mill is chosen, the pug mill and mixing process shall conform to the following requirements:

- Each material shall be measured by weighing. The weighing of each material shall be a distinct operation.
- A metering device shall measure and control any added water.
- Material retention time within the pug mill box shall be sufficient to assure a uniform mix.

c. Placement: Do not place topsoil under muddy conditions.

d. Topsoil Testing: Tests for the following specified in-place topsoil properties shall be conducted by an authorized independent test laboratory at no extra cost to Owner. Each test shall be conducted at a frequency of one for every 5,000 cubic yards of topsoil placed but not less than one per lift of material placed.

Soil Property	Test
Capillary-Moisture relationship	ASTM D 3152
Saturated Hydraulic Conductivity	ASTM D 5084

Bechtel will evaluate the test results and determine the acceptability of the topsoil based on the following:

Soil Property	Acceptable Value
Saturated Hydraulic Conductivity per ASTM D 5084	$< 9.35 \times 10^{-4}$ cm/s
Relative Hydraulic Conductivity vs. Degree of Saturation curve based on Van Genuchten Parameters derived from the Capillary-Moisture relationship per ASTM D 3152	Below curve plotted in Figure 1

The topsoil layer shall be modified by the addition of suitable topsoil to a thickness hydraulically equivalent to that of a topsoil layer meeting the above requirements should the in-place topsoil not satisfy the above requirements as directed by Bechtel. The cost for additional topsoil and re-testing will be paid as extras.

3.2.2 Amending of Topsoil

Amending of imported topsoil shall be determined from the specified agricultural suitability analysis. The following additives may or may not be required. The application rates shown are to be used for the add and deduct unit price for bidding purposes only and should not be included in the total bid price:

Application - Incorporate per acre

30 cubic yards	Nitrogen - Treated Sawdust
100 pounds	30-30-0 (N-P-K) Commercial Fertilizer, slow release
1,000 pounds	Dolomite Lime

Spread amendments on the previously placed topsoil by approved methods and thoroughly mix to a depth of three inches or as recommended by the agricultural suitability analysis.

3.3 DRILL SEEDING

The seed shall be drilled to a depth of ¾ to 1 inch uniformly at the rate specified in Subsection 2.2.3.c.

3.4 STRAW CRIMPING

After drilling the seed, straw shall be uniformly placed at the rate specified in Subsection 2.2.6.b and crimped into the topsoil using suitable equipment.

3.5 PROTECTION OF WORK

The seeded area shall be protected against trespassing and from damage at all times. If areas are damaged, they shall be reseeded at the Contractor's expense. No work shall be executed in or over the seeded area without proper safeguards. Protective barriers shall be removed at time of final acceptance.

3.6 INSPECTION

3.6.1 At the completion of work, the Contractor shall request a preliminary inspection by Bechtel to determine the condition of the seeding.

A final inspection shall be requested 48 hours in advance after seed germination. The Contractor and Bechtel will be present for the inspection. Seeded areas considered ready for final inspection shall show a uniform smooth ground surface without eroded ruts or gullies and evidence of uniform seed germination.

3.6.2 Acceptance:

If the installation is found satisfactory, Bechtel will approve the work in writing.

If the installation is found unsatisfactory, Bechtel will submit a punch list of conditions to correct by and at the Contractor's expense. The Contractor is responsible for requesting additional inspections after the conditions of the punch list have been corrected.

3.7 REPLACEMENT

Seed shall be replaced in any area, including washout gullies and/or slopes, where growth has not initiated during the first rainy season, November through April, following initial application. Washout gullies will require amended topsoil to fill washouts, and finish grading to this specification and Specification 18A-S-4 prior to reseeding. These replacements shall be at no additional cost to Bechtel.

3.8 DAILY QUALITY CONTROL LOG

a. The Contractor shall maintain a Daily QC log during all phases of topsoil installation and seeding operation. This log shall document the daily progression of the work from the delivery of the topsoil and seeding materials to final acceptance. The log shall designate those construction activities that influence the development and growth of plants for the vegetated cover during installation. The log, at a minimum, shall include entries and detailed documentation of the following:

- Weather: temperature, winds, and precipitation.
- Preparation activities, including soil amendments.
- Topsoil spreading.
- Equipment used for seeding.
- Repairs and replacements of topsoil and seeded areas.
- Photographs of the topsoil and seeding installation.
- Names of all personnel conducting work at the site.
- Names, dates, and times for when the jobsite is visited by regulatory personnel, subcontractors or vendors, and the Astaris, LLC plant personnel.

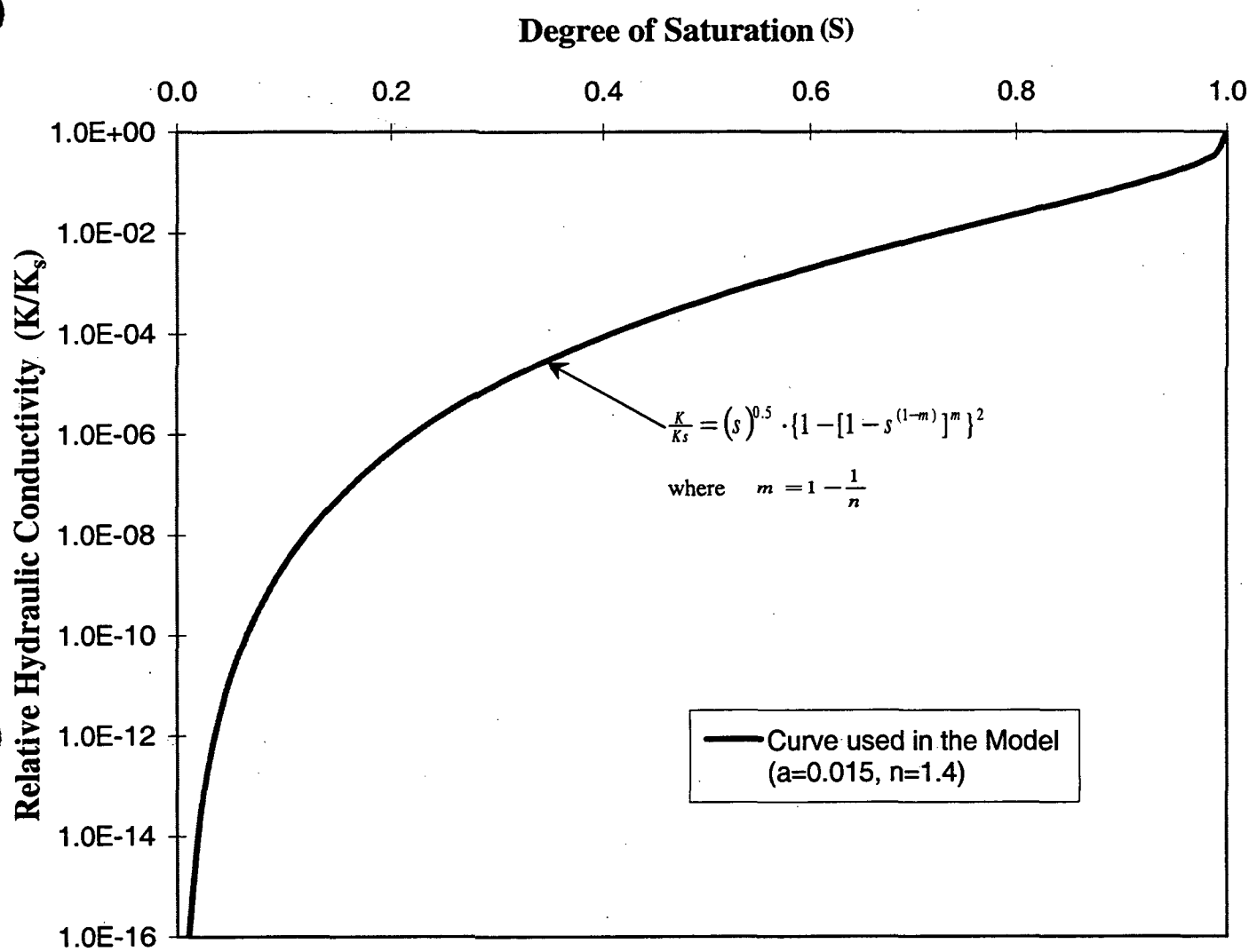
- Deviations from the Construction Quality Assurance Plan, drawings and specifications.

b. Prior to performing the work, the Contractor shall submit the Daily QC log format for approval by Bechtel.

3.9 CLEANUP

All areas of work shall be kept clean, neat, and orderly at all times.

At the end of the work, all temporary working areas shall be restored to their original conditions with all temporary construction materials removed and the site cleaned.



Soil Characteristic Curve

Figure 1

ASTARIS, LLC

POCATELLO, IDAHO

TECHNICAL SPECIFICATION AND SCOPE OF WORK FOR INSTALLATION OF TEMPERATURE MONITORING POINTS (WELLS)

REV.	DATE	REASON FOR REVISION	BY	CH'K	APPR
0		ISSUED FOR CLOSURE PLAN SUBMITTAL			

ORIGIN BECHTEL SF-BEI	**TECHNICAL SPECIFICATION** **TEMPERATURE MONITORING POINTS** **FINAL POND COVER**	**JOB NO. 24230** **SPECIFICATION NO.** **18A-S-9** **REV. 0** **SHEET 1 OF 8**

TABLE OF CONTENTS

Sections			Page
1	GENERAL		3
	1.1	Scope of Work	3
	1.2	Related Specifications	3
	1.3	TMP Installer Requirements	4
	1.4	Definitions	4
	1.5	Submittals	4
	1.6	Environmental Protection	5
	1.7	Abandonment of TMPs	5
2	MATERIALS		5
	2.1	Monitoring Point Outer Casing	5
	2.2	Monitoring Point Well Casing	5
	2.3	Filter Pack	5
	2.4	Bentonite Backfill	6
	2.5	Monitoring Head	6
	2.6	Grout Seal	6
	2.7	Protective Casing	6
	2.8	Resistance Temperature Detector	6
3	EXECUTION		6
	3.1	TMP Construction	6
	3.2	Cleanup	8

1 GENERAL

This specification describes the requirements for Temperature Monitoring Points (TMPs) to be installed within a final cover over a pond at the Astaris, LLC plant in Pocatello, Idaho. The TMPs will be used to monitor temperature underneath the final cover and will allow for gas sampling. Work will be performed in accordance with the Construction Quality Assurance Plan, Construction Drawings and task-specific health and safety plan.

1.1 SCOPE OF WORK

TMPs will be installed at locations as shown on the Design Drawings. The TMPs are installed in the cap area to monitor temperature near the pond solids and sand fill interface.

A typical construction profile of the TMP is shown on the Design Drawings. Each TMP will be installed to the depths as shown on the Design Drawings. Outer casings will be installed during drilling activities associated with TMP installation. The installation of the TMPs will entail drilling boreholes, installation of outer casing, and TMP sensor casing, installation of filter pack, and completion of the well.

All the TMPs shall be completed above grade using protective casings with lockable caps as shown on the Design Drawings, or approved equal, to protect the TMPs from any inadvertent damages while allowing ready access for sampling and repairs. The protective casing will be attached to the concrete at the base.

1.2 RELATED SPECIFICATIONS

The following specifications contain requirements that relate to this specification:

a. 18A-S-4 Earthwork and Grading

b. 18A-S-5 Geosynthetic Clay Liner

c. 18A-S-6 Flexible Membrane Liner

d. 18A-S-7 Geonet and Geotextile

e. 18A-S-8 Topsoil and Seeding

1.3 TMP INSTALLER REQUIREMENTS

The execution of this work shall be performed by competent workers under the direct supervision of an experienced well driller. Any soil cuttings generated during TMP installation activities shall be placed as subsoil within the limit of final cover of the pond unless otherwise specified herein. Any soil cuttings encountered that contain elemental phosphorus, as evidenced by smoking or burning, shall be containerized and disposed at a permitted off-site facility. All casing and other TMP materials shall be of compatible materials to prevent reaction between components of the completed TMP. All accessories required for satisfactory completion of the TMPs shall be essentially standard products of reliable manufacturers regularly engaged in the production of such equipment.

1.4 DEFINITIONS

a. Owner: Astaris, LLC.

b. Bechtel: Bechtel Environmental, Inc. and any of its authorized representatives, hereby acting as agent for Astaris, LLC.

c. Contractor: The party to whom the Contract for the work described herein has been awarded and any of its authorized representatives.

d. Temperature Monitoring Point: A temperature monitoring point (TMP), referred throughout this specification, is a temperature monitoring well that is capable of providing access for continuous measurement of temperature underneath the closure cap at approximately the waste/fill interface.

1.5 SUBMITTALS

The Contractor shall submit the following documents for Bechtel's approval and acceptance prior to mobilization or as otherwise noted:

a. Work Plan: The Contractor shall submit a proposed plan for installing TMPs before beginning work. The work plan for installing the TMPs must be no less stringent than these specifications. The plan shall include, but not be limited to, the proposed method of boring and equipment to be used, details on proposed casing, grouting materials, filter pack materials, bentonite backfill materials and any equipment necessary for completion of the TMPs. No work shall be performed until the work plan has been approved and no deviation from the approved work plans will be permitted without prior approval of Bechtel. Details of specific methods to be employed to control potential contamination or pollution arising from TMP installation activities shall be included.

b. Permits: The Contractor shall submit copies of all permits, licenses, or other requirements necessary for execution of the work.

c. Temperature Monitoring Point Completion Record: The Contractor shall prepare a TMP completion record indicating completion details including, at a minimum, ground elevation, total well depth below grade, thermowell depth below grade, depth below grade to top of filter pack, thickness of bentonite seal, and stick-up above grade to the top of the monitoring head for each TMP.

1.6 ENVIRONMENTAL PROTECTION

The Contractor shall take all precautions necessary to prevent contamination of the ground surface or of surface waters resulting from installation of the monitoring point.

1.7 ABANDONMENT OF TMPs

In the event that the Contractor must abandon a TMP because of loss of tools or for any other cause, the Contractor, at the instruction of Bechtel, shall remove the monitoring point materials from the borehole and fill the abandoned hole from the bottom of the hole to ground surface with bentonite-cement grout placed with a tremie.

2 MATERIALS

2.1 MONITORING POINT OUTER CASING (hereafter referred to as "outer casing"): Each TMP well outer casing shall be constructed of standard weight carbon steel pipe, ASTM A 53, Type S, in the size and depth as shown on the Design Drawings. Casing shall be either a single piece construction or pipe sections that are welded together or connected with threaded joints. Slip-type connections will not be permitted.

2.2 MONITORING POINT WELL CASING: Each monitoring point well casing (thermowell) shall consist of a Schedule 40 PolyVinyl Chloride (PVC) pipe, size as designated on the Design Drawings, extending down to a depth below ground surface as shown on the Design Drawings. PVC pipe shall conform to ASTM D1785. Separate sections of PVC casing shall be connected with threaded joints. The bottom one-foot of the PVC casing shall be screened appropriately.

2.3 FILTER PACK: The filter pack sand shall be composed of round, hard water-worn silica sand, free of flat or elongated pieces, organic matter, or other foreign

matter. The sand shall be Colorado Silica Sand 10-20, or approved equal, and shall be a product of a commercial sand and gravel manufacturer.

2.4 *BENTONITE BACKFILL: The bentonite backfill shall consist of 1/4 to 3/8-inch* (typical) bentonite pellets, which shall be hydrated insitu with potable water at the ratio specified by the manufacturer.

2.5 MONITORING HEAD: The monitoring head shall be constructed on a 3-inch 150# flat face flange and include one sampling port for gas monitoring as shown on the Design Drawings. The sample port shall be supplied with a 3/8-inch shutoff ball valve and a 2-foot section of 1/4-inch Poly-Propylene tubing with 1/4-inch stainless steel compression fitting for connecting to Owner's gas sampler. The Temperature Transmitter shall be mounted on top of the monitoring head.

2.6 GROUT SEAL: The grout shall consist of a Portland Type I cement/bentonite/water ratio of 94 lbs/4 lbs/7.8 gallons.

2.7 PROTECTIVE CASING: All TMP stations shall be completed above grade using a protective casing with a lock and lockable cap as shown on the Design Drawings. The casing shall be sized to allow easy access for gas sampling and maintenance.

2.8 Resistance Temperature Detector (RTD): RTD shall conform to requirements as specified in data sheet.

3 EXECUTION

3.1 TMP CONSTRUCTION

3.1.1 Drilling of Borehole: Drilling of the borehole will be conducted using a hollow stem auger or other approved equipment. The well shall be drilled straight, plumb and circular from the bottom. The borehole shall be drilled to the depth shown on the Design Drawings.

3.1.2 Installation of TMP Casing: When the borehole has been completed and outer casing installed, the depth to the bottom of the borehole shall be measured using a weighted measuring tape. All depths shall be recorded relative to the ground surface at the borehole location. The PVC thermowell will then be inserted into the borehole. The thermowell shall be assembled first. Before lowering the thermowell into the borehole, the sand filter pack shall be poured into the bottom of the borehole for about three inches. Then, the thermowell shall be lowered into the hole by a method that will allow for control of the rate of fall of the thermowell. The thermowell shall not be dropped or allowed to fall uncontrolled

into the borehole. The end of the thermowell should rest firmly on the bottom of the borehole.

3.1.3. Installation of Filter Pack: After the thermowell has been lowered into the outer casing, the thermowell shall be centered in the outer casing and the filter pack shall be placed between the thermowell and the wall of the outer casing (centering devices shall not be used). The sand shall be installed around the thermowell by pouring the sand into the outer casing. The height of the sand shall be continuously measured. The sand shall not be added at a rate that will cause "bridging" between the thermowell and the outer casing. The filter pack shall be installed continuously until the sand has been placed to a height of three feet above the bottom of the thermowell. The depth to the top of the filter pack shall be measured relative to the ground surface with a weighted tape and recorded.

3.1.4 Installation of Bentonite Pellets: Following the installation of the filter pack, a bentonite seal shall be placed directly on top of the filter pack and completely filling the annular space between the thermowell and the outer casing. The bentonite seal shall be installed by pouring 1/4 to 3/8-inch bentonite pellets down the outer casing to allow the pellets to flow on to the top of the filter pack. The depth to the bentonite pellets shall be measured relative to ground surface and the addition of bentonite shall terminate when two feet of bentonite has been installed. The bentonite pellets shall then be hydrated with potable water according to the manufacturer's specifications. The depth to the top of the bentonite shall be measured relative to the ground surface with a weighted tape and recorded.

3.1.5 Installation of Grout Seal: The remaining annular space between the thermowell and the outer casing shall be filled with grout from the top of the hydrated bentonite pellets to the top of the outer casing. The grout shall be mixed in a grout mixer with potable water in the ratio specified in Subsection 2.6. The grout shall then be installed by inserting a tremie pipe down the inside of the outer casing and forcing the grout into the annulus between the casings starting from the top of the bentonite pellets and moving up toward the ground surface. Installation of this grout shall be done continuously in such a manner as to ensure that the entire annular space is filled in one operation.

3.1.6 Installation of GCL and HDPE Seals: The penetration of the outer casing through the GCL and HDPE membrane shall be sealed as shown on the drawings. The HDPE boot shall be welded to HDPE liner and sealed to the outer casing with sealant and stainless steel band.

3.1.7 TMP completion: The TMP sensor element, monitoring head, and protective casing shall be constructed and installed as shown on the Design Drawings.

3.2 CLEAN UP: Upon completion of the monitoring well construction and other incidentals, all debris and surplus materials resulting from the work shall be removed in accordance with appropriate disposal requirements.

DATA SHEETS

ASTARIS LLC
POCATELLO, IDAHO
POND 18, CELL A

INSTRUMENT DATA SHEETS

JOB NO. 24230

Data Sheet No.	No. of Sheets	Title
DS-J-01	1	Gas Detectors
DS-J-02	2	Temperature Elements/ Transmitters
DS-J-03	1	Pressure Transmitters
DS-J-04	1	Turbine Flowmeters
DS-J-05	2	Annunciators

ASTARIS LLC POCATELLO, IDAHO **POND 18, CELL A** INSTRUMENT DATA SHEET	GAS DETECTORS				SHEET 1 OF 1	
	NO	BY	DATE	REVISION	DATA SHEET NO. DS-J-01	REV.
					CONTRACT 24230	DATE
					REQ. - P.O.	
					BY / CHK'D	APPR.

1	Tag Number	AE/AIT-001	AE/AIT-002	AE/AIT-003	
2	Service	TEMPERATURE WELL	TEMPERATURE WELL	TEMPERATURE WELL	
3	Application	Portable Monitor	Portable Monitor	Portable Monitor	
4	Function	Sample/ Display/ Alarm	Sample/ Display/ Alarm	Sample/ Display/ Alarm	
5	Monitored Gas	Phosphine (PH_3)	Hydrogen (H_2)	Hydrogen Cyanide (HCN)	
6	Anticipated Concentration				
7					
8	Monitoring Wells				
9	Sample Line Size/Depth	3/8" / 23'	3/8" / 1"	3/8" / 23'	
10	Sample Line Material	316 SS Tube	316 SS	316 SS	
11	Sample Connection Line Size/Length	¼" / 2'	¼" / 2'	¼" / 2'	
12	Sample Connection Line Material	Polypropylene	Polypropylene	Polypropylene	
13	Sample Connection Size/Type	¼" Compression Nut	¼" Compression Nut	¼" Compression Nut	
14	Sample Connection 'Tag'	"Lower Sample"	"Upper Sample"	"Lower Sample"	
15					
16	Detector Data				
17	Type	Hand Held Portable	Hand Held Portable	Hand Held Portable	
18	Sensor Type *	MFR. STD.	MFR. STD.	MFR. STD.	
19	Range	0-1000 PPB	0-2000 PPM	0-20 PPM	
20	Resolution	10 PPB	1 PPM	0.1 PPM	
21	Gas	PH_3	H_2	HCN	
22	Repeatability	+/- 3%	+/- 3%	+/- 3%	
23	Linearity	+/- 2%	+/- 2%	+/- 2%	
24	Alarm Setpoint				
25	Low Battery	Yes	Yes	Yes	
26	Pump Out	Yes	Yes	Yes	
27	Audible Beeper	Yes	Yes	Yes	
28	Display: Type	LCD	LCD	LCD	
29	Lines/Characters	2 / 8	2 / 8	2 / 8	
30	Concentration	PPB or PPM	PPB or PPM	PPB or PPM	
31	Alarms	Yes	Yes	Yes	
32	Power: Type	Rechargeable Battery	Rechargeable Battery	Rechargeable Battery	
33	Min Operation	12 HR	12 HR	12 HR	
34	Electronic Rating	Intrinsically Safe	Intrinsically Safe	Intrinsically Safe	
35	Sample Pump	Internal	Internal	Internal	
36	Type *	Rotary Vane	Rotary Vane	Rotary Vane	
37	Rating *	400 CC/min	400 CC/min	400 CC/min	
38	Sample Connection	1/8" NPT - Note (1)	1/8" NPT - Note (1)	1/8" NPT - Note (1)	
39	Discharge Connection	Note (2)	Note (2)	Note (2)	
40	Accessories				
41	Storage Case	Yes	Yes	Yes	
42	Battery Charger	Yes	Yes	Yes	
43					
44	Manufacturer *	Analytical Technology Inc. (or equal)	Analytical Technology Inc. (or equal)	Analytical Technology Inc. (or equal)	
45	Model Number *	B16-32-1-1000-2	B16-18-1-2000-1	B16-22-1-0020-1	
46					
47	Notes:				
48	(1) To be provided w/ 1/8" x 1/4" NPT Male to Male adapter to mate with ¼" NPT Compression Nut.				
49	(2) To be provided w/ connection adapter.				
50	* Manufacturer to specify.				

ISA Form S20.3b

Form S2068M Rev 3

DATA SHEET NO. DS-J-02 REV. A	TEMPERATURE ELEMENTS/TRANSMITTERS					
MR NO.	REV	DATE	DESCRIPTION	BY	CHK	APP
JOB NO. 24230						
ASTARIS LLC POCATELLO, IDAHO						
POND 18, CELL A INSTRUMENT DATA SHEET						

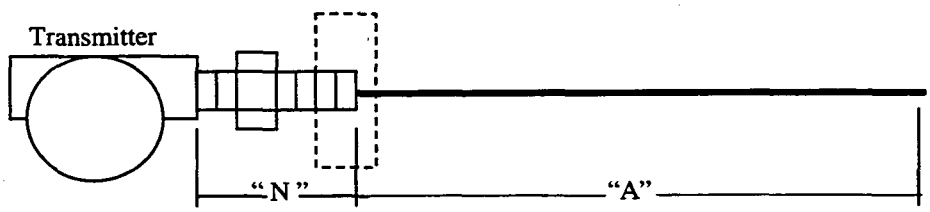
GENERAL	1	Service	POND 18, CELL A CAP TEMPERATURE MONITORING
	2	P & ID	N/A
	3	Line No. / Equip. No.	N/A
XMTR	4	Mounting	See Sheet 2
	5	Elec. Area Class.	N/A
	6	Enclosure Type	NEMA 4
	7	Calib. Characteristics	100 ohm Platinum RTD
	8	Calib. Range	0°C to 35°C
	9	Output Signal	4-20ma (isolated)
	10	Accuracy	±0.2%
	11	Elec. Conn. Size	½" NPT
	12	Power Supply	24 Vdc (2 wire loop power)
	13	Burnout	Up scale
	14	Local Ind. / Scale Range	N/A
ELEMENT	15	Sensor	RTD
	16	Type	Platinum (100Ω)
	17	Conn. Size / Length	Integrated / see sheet 2
	18	Insulation / Sheath Matl	Teflon / 316 SS
	19	No. of Wire	4
	20	Mounting Configuration	Direct Immersion
THERMO-WELL	21	Type / Style	N/A
	22	Material / Bore Diameter	
	24	Process Connection	
	25	U / T Length	
HEAD ASSEMBLY	26	Enclosure/Material	N/A
	27	Terminal Block	
	28	Elect. Conn. Size	
	29	Extension Assembly	
OPTIONS	30		
	31		

Notes:

DEVICE TYPE	TAG NUMBER	MNAUFACTURER*	MODEL NUMBER
	See Sheet 2	Rosemount or equal	444 Transmitter/88 Series RTD

ASTARIS LLC POCATELLO, IDAHO POND 18, CELL A INSTRUMENT DATA SHEET	RESISTANCE TEMPERATURE SENSORS				SHEET 2 OF 2	
	NO.	BY	DATE	REVISION	DATA SHEET NO. DS-J-02	REV. A
					CONTRACT 24230	DATE
					REQ. – P.O.	
					BY / CHK'D	APPR.

1. Complete Assembly (circled) Other
HEAD (TRANSMITTER)
2. Screwed Cover ☒ Other NEMA 4X
3. Explosive Proof ☐ Class
4. Material Aluminum Cond. Conn. ½" NPT
5. Nipple Size ½" Dim. "N" Note 2 Union ☐
ELEMENT
6. Platinum ☒ Nickel ☐ Other
7. Ice Point Resistance 100 Ohm
8. Temperature Range 0°C to 35°C
9. Leads: STD ☐ Potted ☒ Herm. Sealed ☐
10. Sheath Material 316SS O.D. 3/16
11. Mounting Thread ½" NPT
12. Connection: 2-Wire ☐ 3-Wire ☐ 4-Wire ☒
Lead Wires ☒ Receptacle ☐ Bayonet Lock ☐
WELL OR TUBE
13. Material N/A
14. Construction: Tapered ☐ Straight ☐
Drilled ☐ Built-Up ☐ Closed-End ☐
Tube
15. Dim: MFR STD ☐ O.D. ____ I.D. ____
16. Internal Thread
17. Process Connection



Rev.	Tag No.	Process Conn.	Well Dim. U	Well Dim. T	Element Length "A"	Single or Dual	Service	Notes
	TE/T-01	½" NPT			16' 0"	Single	Temp. monitoring well, Air	1,2,3
	TE/T-02	½" NPT			16' 0"	Single	Temp. monitoring well, Air	1,2,3
	TE/T-03	½" NPT			16' 0"	Single	Temp. monitoring well, Air	1,2,3
	TE/T-04	½" NPT			16' 0"	Single	Temp. monitoring well, Air	1,2,3

Notes:
1. Temperature assembly to mount vertically on a 3" 150# blind flange drilled and taped for ½" NPT.
2. Nipple coupling to be 3" nominal length, Mfgr. std. material.
3. Mfr. to provide sheath protecting tube with sensor.

ISA FORM S20.13a

Form S2067M Rev 2

DATA SHEET NO. DS-J-03 REV. A

MR NO.

JOB. NO. 24230

ASTARIS LLC POCATELLO, IDAHO

POND 18, CELL A INSTRUMENT DATA SHEET

PRESSURE TRANSMITTERS

REV	DATE	DESCRIPTION	BY	CHK	APP

XMTR BODY AND ELEMENT	1	Transmitter Type	ABSOLUTE PRESSURE
	2	Mounting	2" Pipe Stand.
	3	Element Type	Capacitance Diaphragm
	4	Element Material	316 SS
	5	Body Material	Aluminum
	6	Process Connection	½" NPT
	7	Fill Liquid	N/A
	8	Drain/Vent Vlv Matl	N/A
	9	Armor Material	N/A
	10	Capillary material	N/A
	11	Capillary length	N/A
XMTR	12	Area Classification	Non- Hazardous
	13	Enclosure Type	NEMA 4X
	14	Intrinsic Safe	
	15	Elec. Connection	½" NPT
	16	Power Supply	24 Vdc (2 wire)
	17	Output Signal	4-20 ma
	18	Accuracy	0.2% Span
AIR	19	Air Supply	N/A
	20	Air Connection	N/A
OPTION	21	Airset w/Gauge	USE OPTION CODE A
	22		USE OPTION CODE B
	23		USE OPTION CODE C
	24	Pressure/Units	IN Hg
	25	Manufacturer *	Rosemount Model 1151 SMART (or equal)

Notes:

* Mfr to Specify

Tag Number	Service	Fluid	Maximum Temp	Max Press	Norm Press	Cal. Pressure Range	Adjustable * Range	Notes/Option Codes	Model Number *
PT-001	Pond 18, CELL A Cap Press	AIR	120°F	26" HgA	23" HgA	20" HgA to 30" HgA	0"HgA to 55" HgA		1151 SMART Range 5 (or equal)

ASTARIS LLC POCATELLO, IDAHO **POND 18, CELL A** INSTRUMENT DATA SHEET	TURBINE FLOWMETERS				SHEET 1 OF 1		
	NO	BY	DATE	REVISION	DATA SHEET NO. DS-J-04		REV. A
					CONTRACT 24230		DATE
					REQ. - P.O.		
					BY	CHK'D	APPR.

	1	Tag Number		FE-001							
	2	Service		Pond 18 Cap Drain							
	3	Meter Location		In Line							
	4	Line Size		1 ½ "							
	5	End Connections		Flange 150 # RF							
	6	Body Rating	*	150 psi min.							
	7	Nominal Flow Range	*	10 – 50 GPM							
	8	Accuracy		± 1 %							
	9	Linearity		± 0.5 %							
	10	K Factor, Cycles per Vol. Unit	*								
METERS	11	Excitation	*	24 Vdc							
	12	Materials: Body	*	316 SS							
	13	Support	*	316 SS							
	14	Shaft	*	316 SS							
	15	Flanges	*	316 SS							
	16	Rotor	*	17-4							
	17	Bearings: Type	*	Ball Bearing							
	18	Bearing Material	*	Tungsten Carbide							
	19	Maximum Speed	*								
	20	Minimum Output Voltage	*								
	21	Pickoff Type		Magnetic							
	22	Enclosure Class	*								
	23										
	24	Fluid		Drain Water							
	25	Flow Rate: Min.	Max GPM	0	50						
	26	Normal Flow	GPM	35							
	27	Operating Pressure		Approx. 5 psi							
	28	Back Pressure		Approx. 1 psi							
FLUID DATA	29	Operating Temp. Max.	Min.	90 ° F	33 ° F						
	30	Operating Specific Gravity		1.0							
	31	Viscosity Range									
	32	Percent Solids & Type		Clean							
	33										
	34	Secondary Instr. Tag No.		F1 / FQ1 - 001							
	35	Preamplifier	*								
SECONDARY	36	Function		Local Rate/Total Indicator							
INSTR.	37	Mounting		Pipe Stand							
	38	Power Supply		Battery							
	39	Scale Range (min)		4 Digits GPM							
	40	Output Range		N/A							
	41	Totalizer Type Digital (min)		6 Digits GPM							
	42	Compensation	*								
OPTIONS	43	Preset Counter									
	44	Enclosure Class		NEMA 4X							
	45	Strainer Size & Mesh									
		Connector Cable		10 ft							
	46										
	47										
	48										
	49	Manufacturer		Note (1)							
	50	Meter Model No.		Note (1)							
	51	Secondary Instr. Model No.		Note (1)							

Notes: * Manufacturer to specify

1. Acceptable Manufacturers (or equal)
   a. Hoffer, Model HO Turbine Flowmeter w/ Model 46 Digital Total/Rate Indicator
   b. ITT Barton, Model 8000 Turbine Meter w/ Model BA202 Rate- Totalizer

ISA Form S20.24

ASTARIS LLC POCATELLO, IDAHO **POND 18, CELL A** INSTRUMENT DATA SHEET	ANNUNCIATORS				SHEET 1 OF 2	
	NO	BY	DATE	REVISION	DATA SHEET NO. DS-J-05	REV. A
					CONTRACT 24230	DATE
					REQ. - P.O.	
					BY / CHK'D	APPR.

GENERAL

1 Tag No. AP-01 Location: Outdoor/Self Contained Panel
2 Cabinet Size: * Rows High By 2 Columns Wide 3
3 Mounting: Flush Panel ☐ Surface ☒
4 Cabinet Style: Plug-In Boxes ☐ Swing Door ☒ Remote Logic Cabinet ☐ Watertight Door ☒
5 Rating: General Purpose ☐ Weather proof ☒ Explosion proof ☐ Class_____ Group_____ Diversion _____
6 Power Supply: 117V 60Hz ☒ 125 Vdc ☐ 12 Vdc ☐ 24 Vdc ☐ Other: _____

DISPLAY

7 Backlighted Nameplates: White Translucent ☒ Other: _____ Size: 2.75" x 3.00"
8 Alarm Points Per Lightbox: One ☒ Two ☐ Three ☐ Four ☐
Lamps Per Alarm: One ☐ Two ☒ Three ☐ Four ☐
9 Bullseye Type: Number of Lights _____ Color: _____
10 Other Display: _____

LOGIC

11 Logic: Electro-Mechanical Relay ☐ Solid-State Electronic ☒ Mercury Bottle ☐ Fluidic ☐
12 In Display Cabinet ☒ Remote Cabinet ☐ Strip Chassis ☐
13 General Purpose ☐ Weather proof ☒ Explosion proof ☐ Class_____ Group_____ Division_____ Intrinsically Safe ☐
14 Field Contact Voltage: 117 Vac ☐ 12 Vdc ☐ 125 Vdc ☐ Other: MFR STD (24 Vdc max)
15 On Alarm, Actuating Contacts: Open (Close) Filed Selectable Form SPST

FEATURES

16 Required Features: Lock-In of Momentary Alarms ☒ Auxiliary Contacts ☐ Sequential Alarm Circuit ☐
17 Ring-Back Circuit: Via Alarm Audible Signal ☐ Via Other Audible Signal ☐
18 Fail-Safe Circuit to Signal Own Failure ☐ Operational Test ☒ Lamp Test ☐
19 Flasher: Remote ☐ In Cabinet ☒ Model No: _____
20 Acknowledge Common ☒ Unit ☐ Light ☐ Audible ☐ PB Location in Cabinet ☒ Remote ☐ Others ☐
21 Reset Common ☐ Unit ☐ Light ☐ Audible ☐ PB Location in Cabinet ☐ Remote ☐ Others ☐

SEQUENCE

22

STAGE	VISUAL SIGNAL	AUDIBLE SIGNAL
Normal	OFF	SILENT
Alert, Initial	FLASHING	AUDIBLE
Alert, Subsequent	FLASHING	AUDIBLE
Acknowledge, Int.	ON	SILENT
Acknowledge, Subs.	ON	SILENT
Return to Normal	OFF	SILENT
Reset	N/A	N/A
Test	FLASHING	AUDIBLE

ISA Sequence Number: A (Automatic Reset)

OPTIONS

23 Horn: Yes, See Note 1
24 Bell:
25 Dimmer:
26 Color Caps:
27 Power Supply Location: Logic Cabinet
28
*29 Manufacturer: Ronan (or equal) Model No. *

Notes: 1. Provide aux contacts on alarm horn relay for buyer's use to actuate aux alarm beacon.

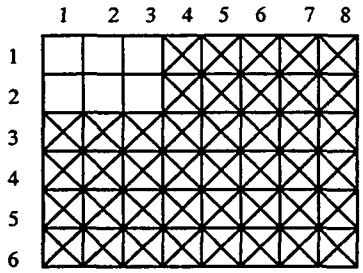
*Manufacturer to provide information

ISA Form S20.3b

ASTARIS LLC POCATELLO, IDAHO **POND 18, CELL A** INSTRUMENT DATA SHEET	ANNUNCIATORS NAMEPPLATE SCHEDULE				SHEET 2 OF 2		
	NO	BY	DATE	REVISION	DATA SHEET NO.		REV.
					DS-J-05		A
					CONTRACT		DATE
					24230		
					REQ. -	P.O.	
					BY	CHK'D	APPR.

COLUMN

ROW



Alarm Tag No.	Legend	Row	Column	Tag No. of Contact	Notes
PAH-001	CAP PRESSURE HIGH	1	1		1) Windows to be engraved with black
TAH-01	TEMP WELL 01 HIGH TEMP	1	2		letters on white translucent windows.
TAH-02	TEMP WELL 02 HIGH TEMP	1	3		
TAH-03	TEMP WELL 03 HIGH TEMP	2	2		2) All windows are to use the same size
TAH-04	TEMP WELL 04 HIGH TEMP	2	3		engraving.
					3) Window 2-3 to be left blank.

ISA Form S20.2b

DRAWINGS

UNITED STATES ENVIRONMENTAL PROTECTION AGENCY
REGION 10
1200 SIXTH AVENUE
SEATTLE, WA 98101

TARGET SHEET

The following document was not imaged.
This is due to the Original being:

X Oversized

____ CD Rom

____ Computer Disk

____ Video Tape

Other: _____

**A copy of the document may be requested from the Superfund Records Center.

Document Information

Document ID #: 1361663

File #: EMCSF 25.2 V.7
EMRRR 25.2 V.1

Site Name: EMRRR

Pond 18 Cell A – Final Cap Grading and Storm Water Management
Job Number – 24230
Drawing No. S- 1

UNITED STATES ENVIRONMENTAL PROTECTION AGENCY
REGION 10
1200 SIXTH AVENUE
SEATTLE, WA 98101

TARGET SHEET

The following document was not imaged.
This is due to the Original being:

X Oversized

CD Rom

Computer Disk

Video Tape

Other:

**A copy of the document may be requested from the Superfund Records Center.

Document Information

Document ID #: 1361663

File #: EMCSF 25.2 V.7
EMRRR 25.2 V.1

Site Name: EMRRR

Pond 18 Cell A – Final Cap Section A-A
Job Number – 24230
Drawing No. S- 2

Appendix H

APPENDIX H

FINAL REPORT, GEOTECHNICAL LABORATORY RESULTS - PONDS 8E AND PHASE IV SAMPLES

Applied Geotechnical Engineering Consultants

FINAL REPORT
GEOTECHNICAL LABORATORY TEST RESULTS
PONDS 8E, 11S, 12S, AND 13S
FMC'S ELEMENTAL PHOSPHORUS PLANT

Eastern Michaud Flats Project
Pocatello, Idaho
Subcontract No. 21372-AS-01
Amendment No. 009

Submitted To:

Bechtel Environmental, Inc.
50 Beale Street
San Francisco, Ca 94105-1895

Attention: Gary Oberholtzer

Submitted By:

Mountain States Analytical, Inc.
1645 West 2200 South
Salt Lake City, Ut 84119

And

Applied Geotechnical Engineering Consultants, Inc.
158 West 1600 South
St. George, Ut 84770

PROJECT NO. 973376 **OCTOBER 13, 1997**

TABLE OF CONTENTS

SCOPE OF WORK . . . . . Page 1

DESCRIPTION OF TEST METHODS . . . . . Page 1

DISCUSSION OF TEST RESULTS . . . . . Page 9

SUMMARY OF TEST RESULTS
- MOISTURE CONTENT (P_4 corrected/uncorrected), ATTERBERG LIMITS, SPECIFIC GRAVITY — Table 1
- GRADATION/HYDROMETER — Figures 1-12
- CONSOLIDATION
  - Void ratio vs. log of pressure — Figures 13-21
  - Deformation vs. square root of time — Figures 22-93
  - Deformation vs. log of time — Figures 94-165

APPENDICES - DATA CALCULATIONS
- MOISTURE CONTENTS (P_4 corrections) — Appendix A
- ATTERBERG LIMITS — Appendix B
- SPECIFIC GRAVITY — Appendix C
- GRADATION/HYDROMETER — Appendix D
- CONSOLIDATION — Appendix E

REPORT

SCOPE OF WORK

Mountain States Analytical, Inc. (MSAI), and Applied Geotechnical Engineering Consultants, Inc. (AGEC), were requested to collaboratively conduct geotechnical laboratory tests for Ponds 8E, 11S, 12S, and 13S sludge samples at the FMC, Inc. Elemental Phosphorus Plant in Pocatello, Idaho. The work was conducted in accordance with our proposal submitted to Bechtel Environmental, Inc. (BEI), dated June 19, 1997. The tests were conducted to characterize and provide parameters for the closure design of ponds 8E, 11S, 12S, and 13S.

The following tests were requested and conducted in general accordance with the listed test methods:

Test	Test Method	No. Tests Completed
Moisture Content	ASTM D2216	44
Atterberg Limit	ASTM D4318	9
Specific Gravity	ASTM D854	6
Gradation/Hydrometer	ASTM D422	23
One-Dimensional Consolidation	ASTM D2435	9

The sludge samples contained elemental phosphorus and had a consistency of a slurry, which required special procedures for conducting the tests. In our previous study in 1994, MSAI and AGEC developed special procedures for conducting tests with phosphorus laden samples. A description of these handling techniques and test methods listed above were included in our previous report.

Mobilization to the FMC facility in Pocatello, Idaho, occurred on July 27, 1997. The equipment was setup and tests were conducted in the FMC Mining Laboratory from July 28 to August 25, 1997.

DESCRIPTION OF TEST METHODS

All testing was performed in accordance with ASTM procedures except where the nature of the material (very soft consistency and phosphorus content) required that special procedures be adopted. Variances from the ASTM procedures are described in this section. The number system of the ASTM procedures have been maintained to provide cross referencing. Those sections of the procedures which were adhered to as specified in the ASTM documents, have not been reproduced here.

Moisture Content (ASTM D2216-80)

This method is an adaptation of the ASTM standard D2216-80, "Standard Method for Laboratory Determinations of Water (Moisture) content of Soil, Rock, and Soil-Aggregate

Mixtures." As such, in determining the moisture contents of elemental white phosphorus laden materials, method D2216-80 should be followed as written, incorporating the modifications noted below:

1. Scope

1.1 This method includes laboratory moisture determinations of elemental white phosphorus laden materials.

1.3 Since white phosphorus is vaporized out of the sample during the analysis, the accuracy of this method is inversely proportional to the relative concentration of white phosphorus in the sample. To improve the accuracy, the sample is analyzed for percent white phosphorus (by FMC Method No. G-2, Toluene Insolubles for Sludge and Precipitator Dust, described below), and the moisture content values corrected accordingly.

FMC Method G-2 Summary

Phosphorous, sludges, and precipitator dusts are occasionally analyzed to determine the concentration of phosphorous. To determine phosphorous concentration in these samples, the phosphorous is extracted with toluene using a ceramic thimble in an extraction apparatus. Upon completion, the toluene solution is then prepared for analysis on the Hewlett Packard 5890 gas detector. The instrument will analyze for phosphorous and calculate the phosphorous concentration in the sample.

2. Summary of Method

2.1 The sample is dried to a constant mass in a drying oven controlled at 150 ± 5°C. The mass lost is that of the water and the white phosphorus. The remaining mass is that of the dry material minus the elemental white phosphorus. However, the elemental white phosphorous is a solid and must be corrected for. This is done by determining the percent elemental white phosphorous and calculating its weight in grams relative to the total sample. This weight is then added on to the uncorrected dry sample weight and subtracted from the uncorrected water weight. This allows the corrected moisture content to be calculated by dividing the corrected weight of water by the corrected weight of dry soil.

3. Significance and Use

3.4 The sample is dried at 150°C.

4. Apparatus

4.1 Drying oven, heated to 150 ± 5°C.

4.3 Specimen containers, consisting of Erlymeyer flasks fitted with two-hole rubber stoppers. Two metal or Teflon tubes are inserted through the holes in each stopper, one to purge the flask with dry O_2-free N_2, the other to exhaust N_2 and vapors from the sample. The exhaust tube should reach to the outside of the oven to avoid contaminating the oven with phosphorus and/or phosphorus oxides.

4.4 Desiccators are not used in this method.

6. Test Specimen

6.2.1 Test specimen masses are approximately 20 g.

7. Procedure

7.2 Determine the mass of a clean, dry flask; introduce the test specimen; and determine the mass of the specimen.

7.3 Insert the two-hole stopper into the mouth of the flask, purge the flask with N_2 (20mL/min or faster), and heat it in an oven controlled at 150 ± 5°C, and dry the specimen to a constant mass.

7.4 After the material has reached a constant weight, remove the flask from the oven and allow the flask to cool to room temperature under the N_2 purge. Remove the stopper and determine the mass of the flask and its contents.

Atterberg Limits (ASTM D4318-93)

1. Scope

1.1 This test method covers the determination of the Liquid Limit, Plastic Limit, and Plasticity Index of phosphorus laden samples.

4. Summary of Test Method

4.1 Due to the presence of elemental phosphorus in the samples, the tests were conducted inside a glove box with a nitrogen atmosphere. The portion of the liquid limit test conducted with the liquid limit device and the rolling of the soil into a thread for the plastic limit test were conducted inside the glove box. The moisture determinations were conducted using the modified ASTM D 2216 method described above.

6. Apparatus

6.1 The standard equipment described in the ASTM test method was used to conduct the test. In addition, the tests were conducted in a glove box purged with dry, O_2 -free N_2 to create an oxygen free atmosphere.

10. Preparation of Test Specimens

10.1 *Wet Preparation* - The samples tested had very high moisture contents, much higher than the Liquid Limit and Plastic Limit values, thus requiring drying of the samples prior to testing. Approximately 100 percent passed through the No. 40 sieve, based on visual observation as verified with gradation tests.

The drying of samples was accomplished by blotting the samples with paper towels repeatedly.

14. Procedure (Liquid Limit)

14.1 The *ONE-POINT LIQUID LIMIT- METHOD B* option was used. The liquid limit was performed inside the glove box and the select portion of the sample for moisture determination was placed in an Erlenmeyer flask and dried using the modified ASTM D2216 method described above.

17. Procedure (Plastic Limit)

17.1 The glove box was equipped with neoprene gloves. Silver lining gloves were placed over the neoprene gloves for protection.

18/19. Calculation

The uncorrected and P_4 corrected moisture contents were calculated.

Specific Gravity Test (ASTM D854-92)

1. Scope

1.1 This test method covers the determination of specific gravity of phosphorus laden sludge samples (100% passing the No. 4 sieve) by means of a pycnometer.

5. Apparatus

5.1 A 250 ml volumetric flask was used. The entrapped air was removed by a vacuum with less than 30 inches of absolute pressure.

6. Reagents

6.1 Distilled water was used for the reagent.

7. Test Specimen

7.1 Oven dried samples were used. The samples were dried in the oven described by the moisture determination method. (Modified ASTM D 2216)

9. Procedure

Test Method A - the procedure for Oven-Dried specimens was used.

10. Calculation

The specific gravity was calculated based on the measured weight; no correction for phosphorus content was applied as the majority of the phosphorus had been vaporized in the drying process prior to testing.

Gradation/Hydrometer Tests (ASTM D422-63)

1. Scope

1.1 This test method covers the quantitative determination of the particle size distribution of phosphorus laden sludge samples.

3. Apparatus

3.1 Standard equipment was used for the test. Apparatus A was used for stirring the sample.

4. Dispersing Agent

4.1 A solution of sodium hexametaphosphate (40 g/L of solution) was used.

5. Test Sample

5.1 Each sample was prepared by placing in a sample dish the amount of wet sample that would dry to approximately 50 to 65 g of dry sample, based on the predetermined moisture content of the sample.

7. Determination of Composite Correction for Hydrometer Reading

7.1 The correction was determined as described in the ASTM method.

8. Hygroscopic Moisture

8.1 A hygroscopic moisture was not determined, but the previously conducted moisture content on a sample from the sample jar was assumed to be representative of the moisture content of the gradation/hydrometer sample.

9. Dispersion of Soil Sample

9.1 The dispersion of the sample was accomplished as described in the ASTM method using stirring apparatus A.

10. Hydrometer Test

The hydrometer portion of the test was conducted as described in the ASTM method.

11. Sieve Analysis

Following the last reading for the hydrometer test, the sample was transferred to a No. 200 sieve and washed. The sample was washed in the sink in the FMC lab room adjacent to the mining lab area. The material retained on the No. 200 sieve was dried in the drying oven according to the modified ASTM D2216 method. After drying a sieve analysis was conducted on the sample.

12. Calculation

The test was calculated as described in the ASTM method. A specific gravity of 2.79 was used.

Consolidation Tests (ASTM D2435-90)

1. Scope

This test covers procedures for determining the magnitude and rate of consolidation of phosphorus laden sludge when it is restrained laterally and drained axially while subjected to incrementally applied controlled-stress loading.

1.1 *Test Method B* - Time deformation readings were taken on all load increments. Successive load increments were applied after less than 0.0003 inches of deformation occurred over 1 hour.

5. Significance and Use

5.2 The test results can be greatly affected by sample disturbance. The phosphorus laden samples were slurry-like in consistency. The samples

were not undisturbed or remolded but placed at the approximate consistency and moisture content as they appeared in the sample jars.

6. Apparatus

6.1 *Load Device* - A standard loading device was used.

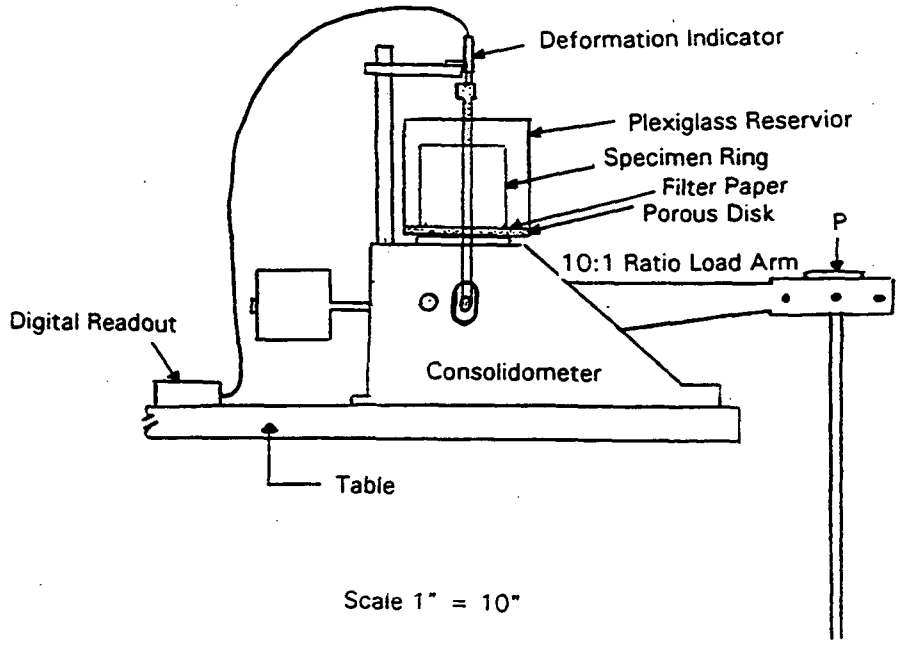
6.2 *Consolidometer* - The consolidometer for conducting the tests on the slurry like samples consists of a 4-inch (I.D.) ring. 4 inches in height.

6.3 *Porous Disks* - A porous disk was embedded into the a stainless steel loading disk. The ring was placed over a 5-inch diameter porous disk and inside of 6-inch (I.D.) plex-glass dish with a stainless steel bottom.

6.3.1 *Diameter* - The top loading disk was machined to slide into the ring with a very small tolerance (less than the standard). The small tolerance was to reduce the potential for the sludge to escape around the top disk during loading.

6.5 *Deformation Indicator* - The deformation was electronically monitored using a Linear Displacement Transducer (accurate to 0.0001 inches) and stored using a data acquisition system on a PC.

Sketch of the Consolidation Setup



9. Specimen Preparation

9.1 The specimen was prepared by placing the slurry into the ring at approximately the same consistency and moisture content as was sampled. No additional vibration, stirring or distortion was conducted.

9.7 An initial weight of the sample was not obtained.

9.10 An initial moisture content was obtained on a separate portion of the sample from the same sample jar.

11. Procedure

11.1 The sample dish was filled with water after placing the sample in the ring.

11.5.2 Test Method B was used. The height of each sample was recorded at the following intervals ninety (90) 10 second readings, ninety (90) 1 minute readings, ninety (90) 10 minute readings, ninety (90) 15 minute readings, ninety (90) 30 minute readings and any additional readings at 1 hour intervals.

11.6 Moisture contents were obtained on a portion of the sample tested after completion of the test.

12. Calculation

The void ratio for each test was calculated based on the after test moisture content. In determining the void ratio, saturation (S) was assumed to be 100 percent and a value of 1 was used for "S." This allowed the initial void ratio to be determined using the following equation:

$$Y_d = \frac{G_s Y_w}{1+e}$$

Thus:

$$e = \left(\frac{G_s Y_w}{Y}\right) - 1$$

All other parameters such as dry density and moisture content were determined from standard laboratory methods.

DISCUSSION OF TEST RESULTS

Moisture Contents

Thirty-two (32) moisture content tests were conducted on Ponds 8E, 11S, 12S, and 13S samples at the moisture content as sampled and twelve (12) moisture contents conducted on samples after consolidation, and gradation/hydrometer tests.

Initial moisture content values ranged from 83 to 368 percent of the dry weight uncorrected and 81 to 346 percent corrected for P_4 content. The accuracy of the corrected values is dependant upon the accuracy of the P_4 content.

The results of the tests are listed in Table 1 and the data calculation sheet is found in Appendix A.

Atterberg Limits

The results of the tests indicate liquid limit values ranging from 61 to 158 percent uncorrected and 56 to 158 percent corrected for P_4 content. The plastic limit tests indicate values of 37 to 76 percent uncorrected and 13 to 69 percent corrected for P_4 content. The plasticity index of the uncorrected values ranges from 24 to 114 percent and from 16 to 115 percent corrected for P_4 content. The values indicate classifications varying from a lean clay (CL) to an elastic silt (MH) to a fat clay (CH) with the predominant soil type being an elastic silt (MH) according to ASTM D2487. The accuracy of the corrected values is dependant upon the accuracy of the P_4 content.

The Atterberg Limit tests were conducted inside of a glove box with an oxygen free atmosphere. The samples were obtained at relatively high moisture contents that required drying. Initially, drying was attempted by air circulation with the fan inside the glove box. Several samples were placed in open dishes, but drying was slow. It was observed during pressing, rolling, and mixing the samples that the samples appeared to take on additional moisture. Samples were then dried using blotting techniques with paper towels.

The neoprene and silver lining gloves resulted in a loss of dexterity for conducting the plastic limit tests. The difficulty involved rolling the thread down to ⅛ inch diameter. There was an obvious loss of accuracy in conducting this portion of the test. The tests were all conducted by the same individual, which would provide consistency.

The results of the tests are listed in Table 1 and the data-calculation sheet shown in Appendix B.

It should be noted that the sample from Pond 13S BH-2 at 15.8 feet could not be performed due to the high moisture content. After blotting with paper towels, the amount of solids which remained was insufficient to conduct the test.

Specific Gravity

Specific gravity tests were conducted on six samples of the sludge. The values range from 2.67 to 2.91 with an average value of 2.79.

A value of 2.79 was used in calculations for other test results. The results of the test are listed in Table 1 and the data-calculation sheet in Appendix C.

Gradation\Hydrometer

Grain size distribution tests were conducted on 23 samples of the sludge. The samples contained 40 to 100 percent passing the No. 200 sieve. The samples contained 6 to 81 percent clay size particles (<0.005 mm) with an average of 51 percent.

The samples were prepared wet. The dry weight was determined using the moisture content obtained from the same sample jar. Inaccuracies could result from any differences in the moisture content of the test sample and the moisture content sample. Any inaccuracies would probably not be significant.

Results of the tests are shown graphically in Figures 1 through 5 and the data-calculation sheets are included in Appendix D.

Consolidation

We conducted 9 one-dimensional consolidation tests on samples of the sludge. The samples were tested in a modified consolidometer. The tests were loaded at pressures of 25, 50, 100, 250, 500, 1000, 2000 and 4000 psf. Time deformation readings were taken for each increment. The void ratio (e) vs. log of pressure results are shown graphically on Figures 13 through 21. Time consolidation plots for deformation vs. square root of time are shown on Figures 22 through 93 and plots for deformation vs. log of time are shown on Figures 94 through 165. The test data and calculations for the tests are listed in Appendix E.

Initial void ratios varied from 2.54 to 6.87. The void ratio values were calculated based on the final moisture content as opposed to the initial moisture content. The initial moisture content was taken from the same sample jar and final moisture content from the actual sample tested. The final P_4 corrected moisture contents ranged from 63 to 126 percent.

It was observed that the time vs. deformation plots for samples 8E BH-2 at 10.2 feet, 8E BH-3 at 13.5 feet, 12S BH-1 at 13.5 feet, and 13S BH-3 at 14.5 feet experienced sporadic deformations. We feel the sporadic deformation was a result of friction between the loading disk and the consolidometer ring. It was noted that each of the tests were conducted on the same apparatus, except 8E BH-2 at 10.2 feet. The time vs. deformation data for these samples should be interpreted carefully or not used in your analysis. The void ratio vs. pressure plots for the sample should also be interpreted carefully. The electronic equipment

used was calibrated prior to use at the site. In addition, the data logged and visually observed was verified.

APPLIED GEOTECHNICAL ENGINEERING CONSULTANTS, INC.

Jared Hanks

Jared Hanks, E.I.T.

G. Wayne Rogers

Reviewed by: G. Wayne Rogers, P.E.

JH/lhb C:\MyFiles\AGEC\FMC OTHER\973376.rep.wpd

SUMMARY OF TEST RESULTS

Applied Geotechnical Engineering Consultants, Inc.

FMC Pond Sampling
Table 1 - Summary of Laboratory Test Results

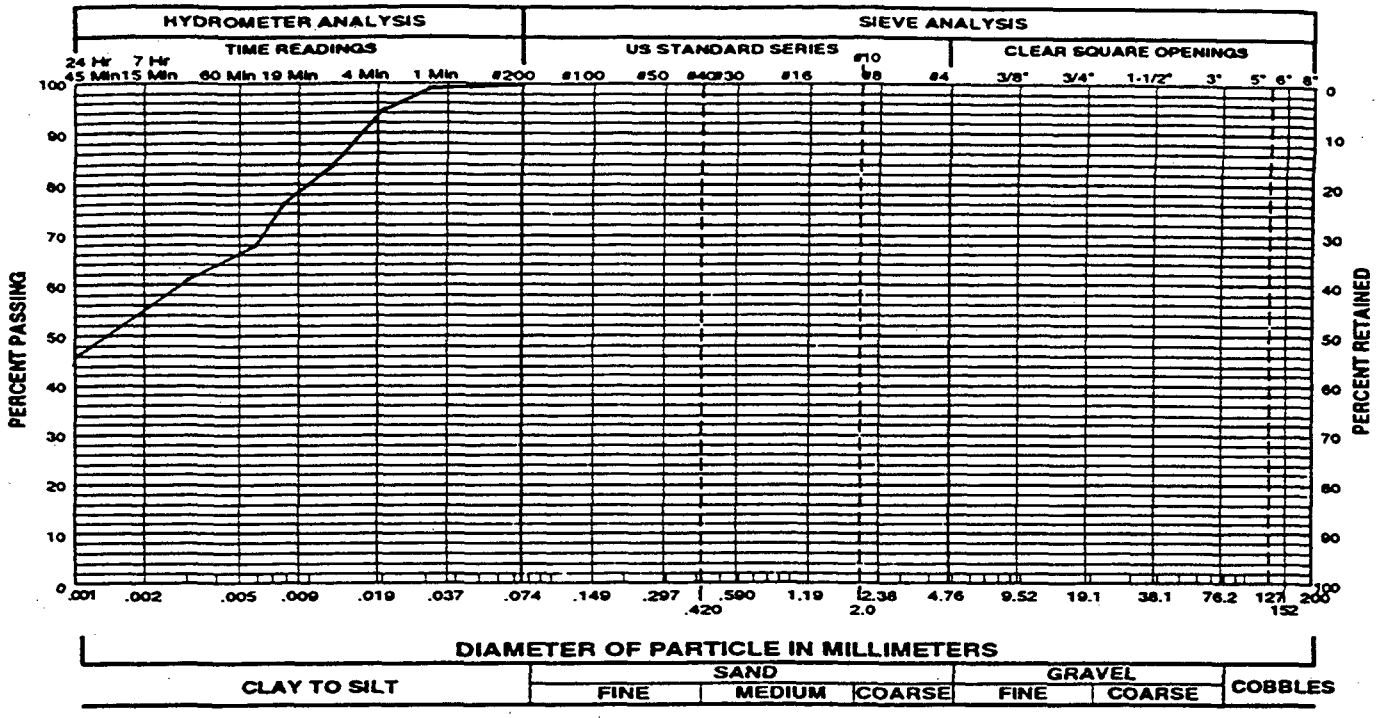
Pond No.	Boring No.	Depth (ft.)	Moisture Content (%)	Phosphorous Corrected Moisture Content (%)	Atterberg Limits			Specific Gravity
					Liquid Limit (%)	Plastic Limit (%)	Plasticity Index (%)	
8E	BH-1	4.0	215	215	127	45	82	-
		7.0	233	232	-	-	-	-
		10.0	151	151	-	-	-	-
		13.0	102	89	-	-	-	-
	BH-2	4.2	146	146	114	42	72	-
		7.2	237	237	158	43	115	-
		10.2	166	166	-	-	-	-
		13.2	120	117	-	-	-	-
	BH-3	4.5	162	161	-	-	-	-
		7.5	346	346	-	-	-	2.84
		10.5	97	90	56	36	20	-
		13.5	146	146	-	-	-	-
	BH-4	4.2	107	106	-	-	-	-
		7.2	243	242	-	-	-	-
		10.2	101	100	-	-	-	-
		13.2	102	100	-	-	-	-
		14.0	83	82	-	-	-	-
	BH-5	4.5	263	262	-	-	-	-
		7.5	278	278	-	-	-	-
		10.5	158	158	-	-	-	2.81
		13.5	191	188	100	53	47	-
11S	BH-1	4.5	368	200	-	-	-	-
		7.5	279	187	-	-	-	-
		10.5	180	157	-	-	-	2.79
		13.5	147	129	91	55	36	-

Applied Geotechnical Engineering Consultants, Inc.

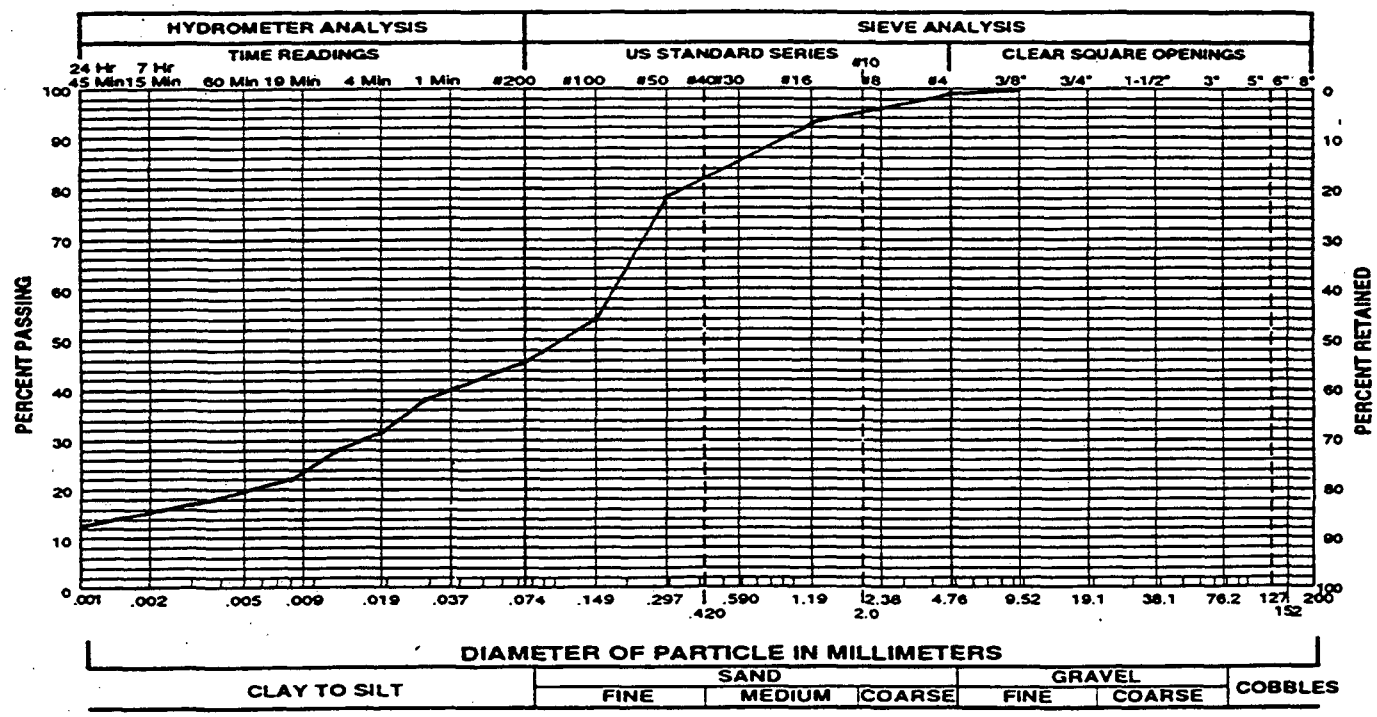
FMC Pond Sampling
Table 1 - Summary of Laboratory Test Results

Pond No.	Boring No.	Depth (ft.)	Moisture Content (%)	Phosphorous Corrected Moisture Content (%)	Atterberg Limits			Specific Gravity
					Liquid Limit (%)	Plastic Limit (%)	Plasticity Index (%)	
12S	BH-1	7.5	303	241	-	-	-	-
		10.5	151	113	-	-	-	2.91
		13.5	173	134	-	-	-	-
		16.5	160	145	106	69	37	-
	BH-2	7.5	93	76	-	-	-	-
		10.5	277	138	29	13	16	-
		13.5	171	126	-	-	-	-
		16.5	173	143	-	-	-	-
		18.5	162	160	-	-	-	-
	BH-3	7.8	310	82	-	-	-	-
		10.8	168	133	-	-	-	-
		13.8	171	169	110	60	50	-
		16.8	157	127	-	-	-	2.73
		18.5	166	162	-	-	-	-
13S	BH-1	16.0	215	212	-	-	-	2.67
	BH-2	15.8	289	285	-	-	-	-
		17.8	238	238	-	-	-	-
	BH-3	14.5	263	229	-	-	-	-
		17.0	209	194	-	-	-	-

Applied Geotechnical Engineering Consultants, Inc.



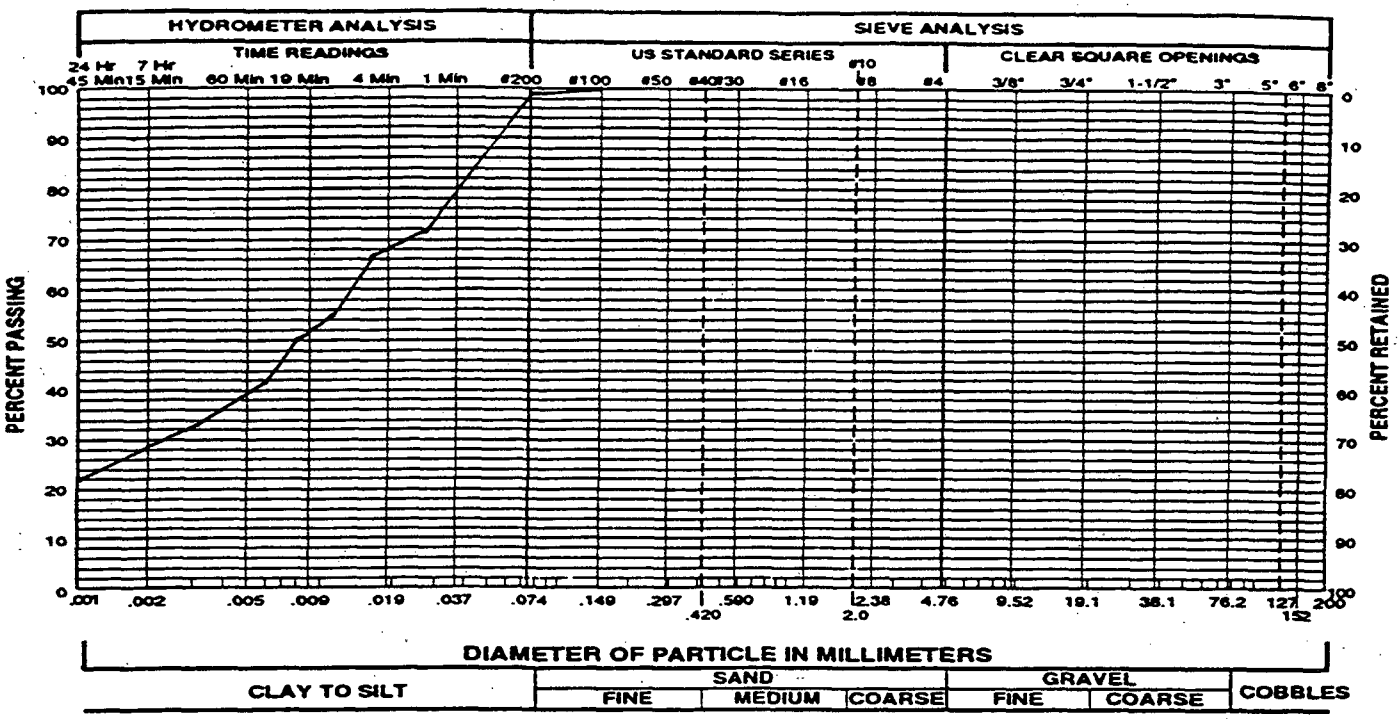
Gravel 0 % Sand 0 % Silt and Clay 100 %
Liquid Limit - % Plasticity Index - %
Sample of Pond 8E Sludge From BH-1 at 10 feet



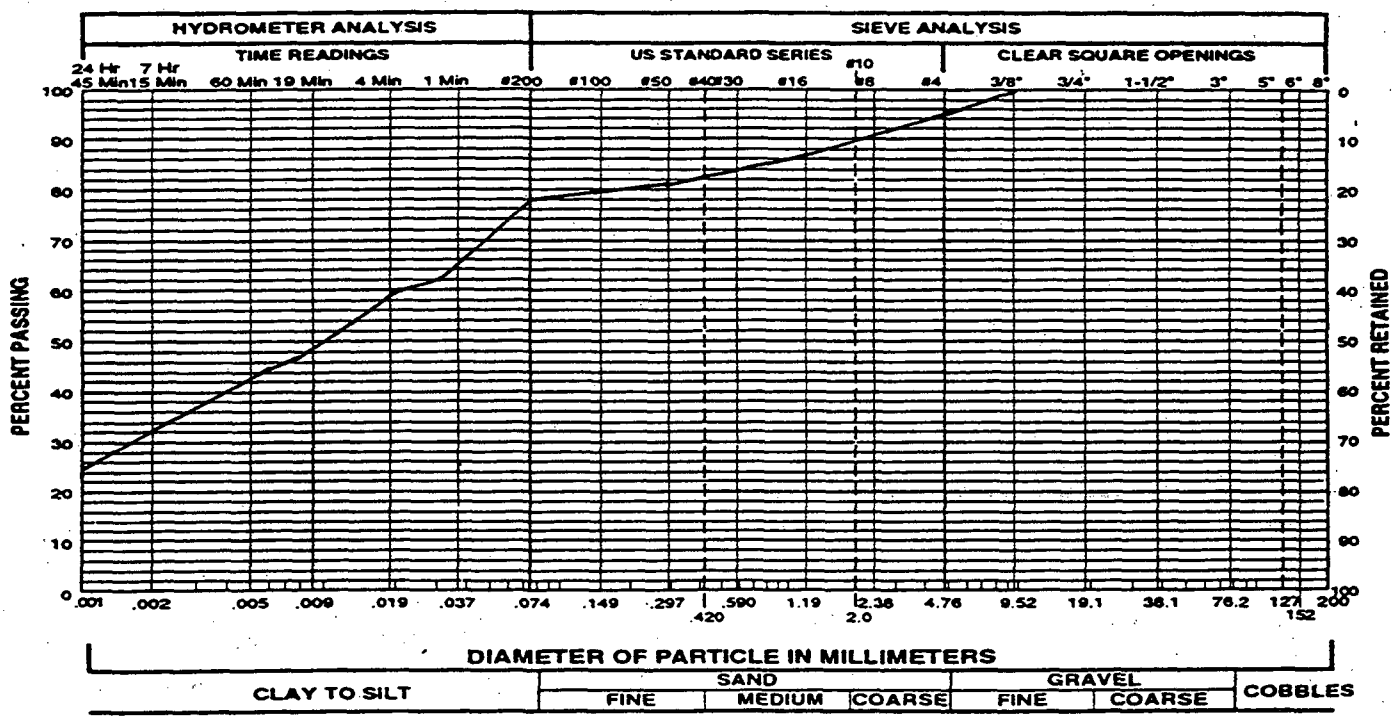
Gravel 1 % Sand 53 % Silt and Clay 46 %
Liquid Limit - % Plasticity Index - %
Sample of Pond 8E Sludge From BH-1 at 13 feet

Project No. 963376 **GRADATION TEST RESULTS** Figure 1

Applied Geotechnical Engineering Consultants, Inc.



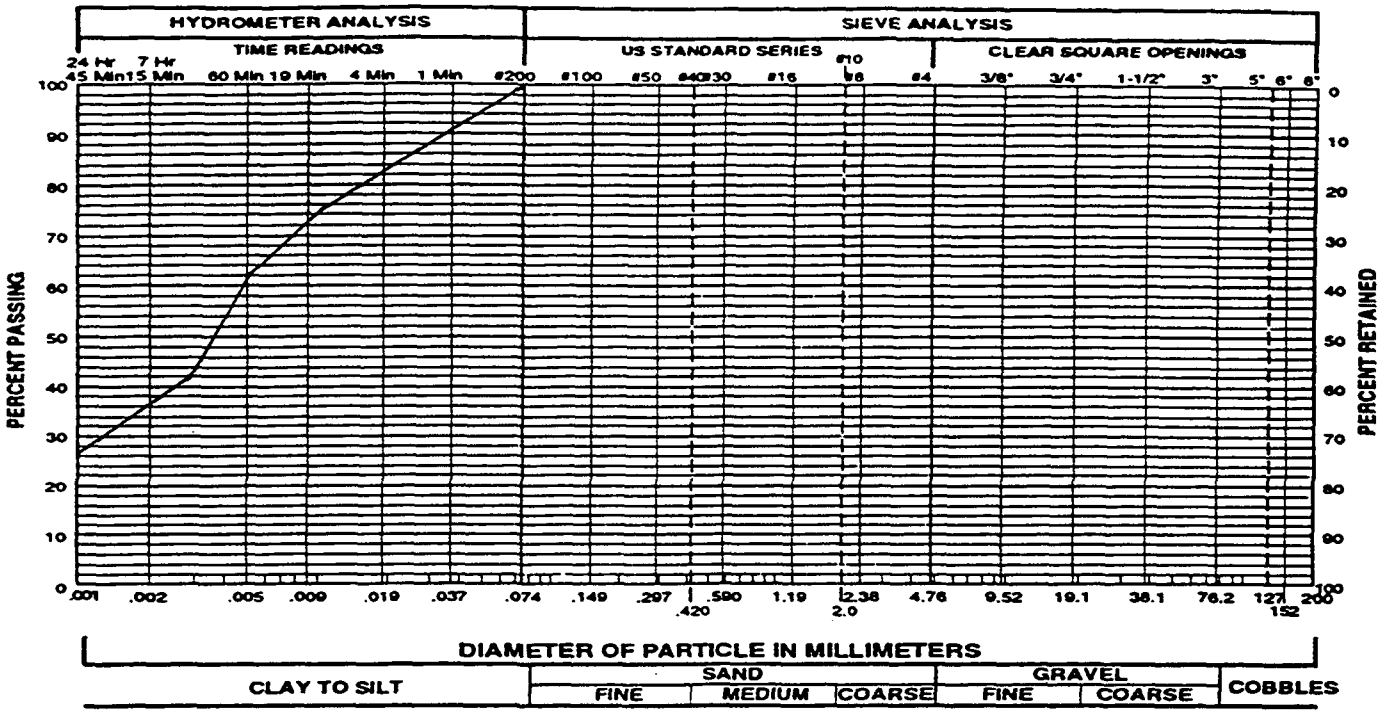
Gravel 0 % Sand 1 % Silt and Clay 99 %
Liquid Limit 114 % Plasticity Index 72 %
Sample of Pond 8E Sludge From BH-2 at 4.2 feet



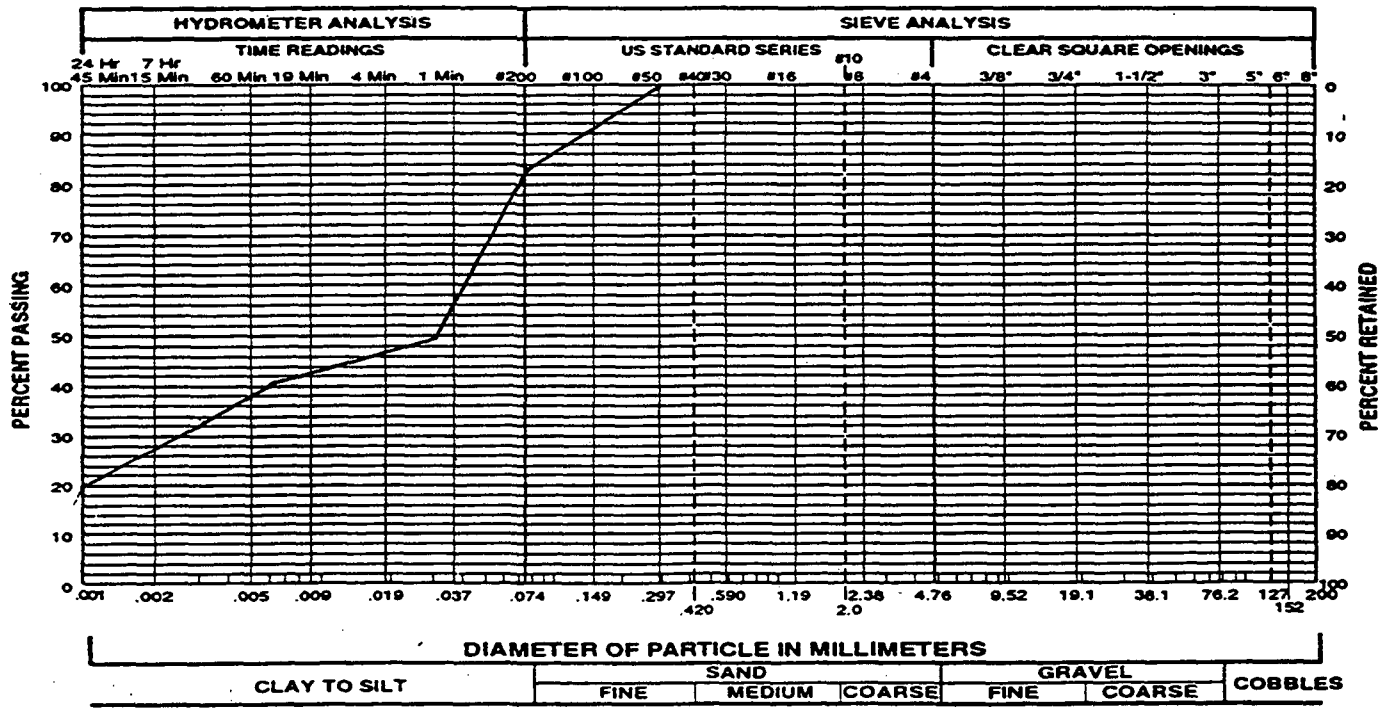
Gravel 5 % Sand 17 % Silt and Clay 78 %
Liquid Limit - % Plasticity Index - %
Sample of Pond 8E Sludge From BH-2 at 13.2 feet

Project No. 963376 **GRADATION TEST RESULTS** Figure 2

Applied Geotechnical Engineering Consultants, Inc.



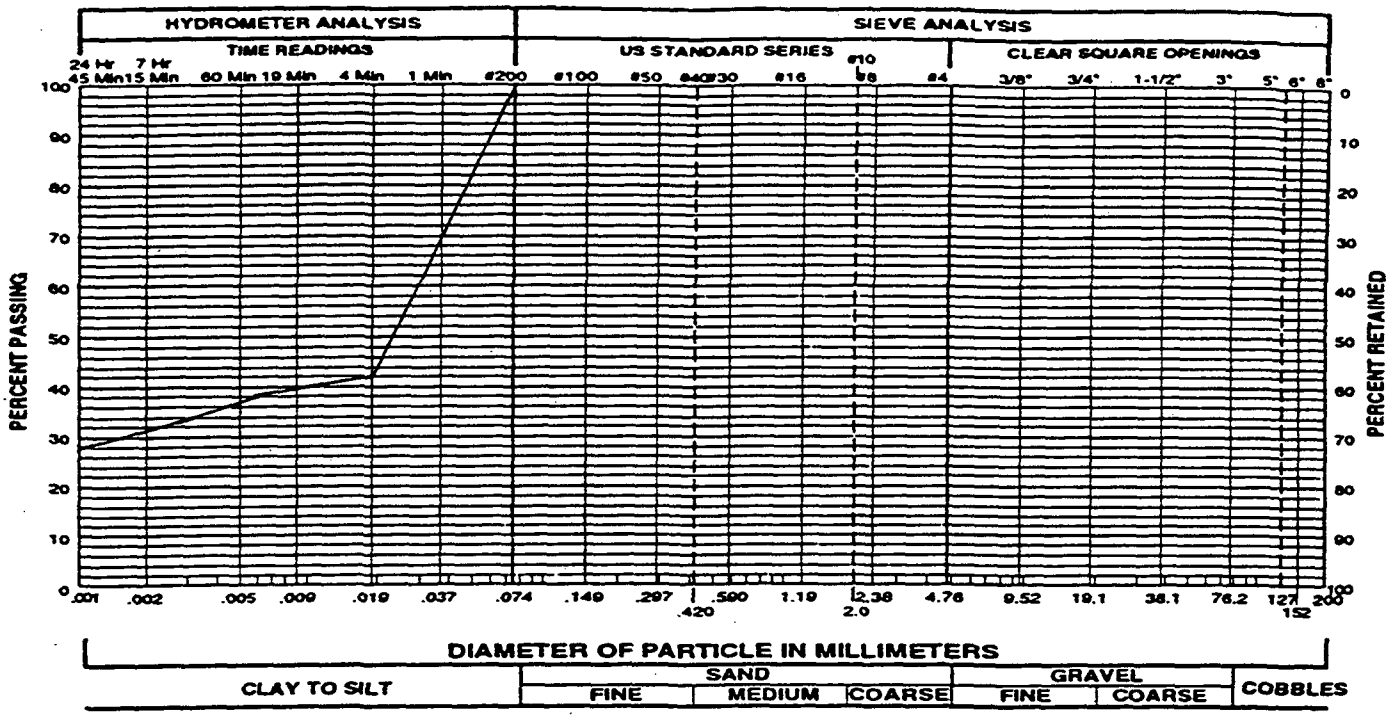
Gravel 0 % Sand 0 % Silt and Clay 100 %
Liquid Limit - % Plasticity Index - %
Sample of Pond 8E Sludge From BH-3 at 4.5 feet



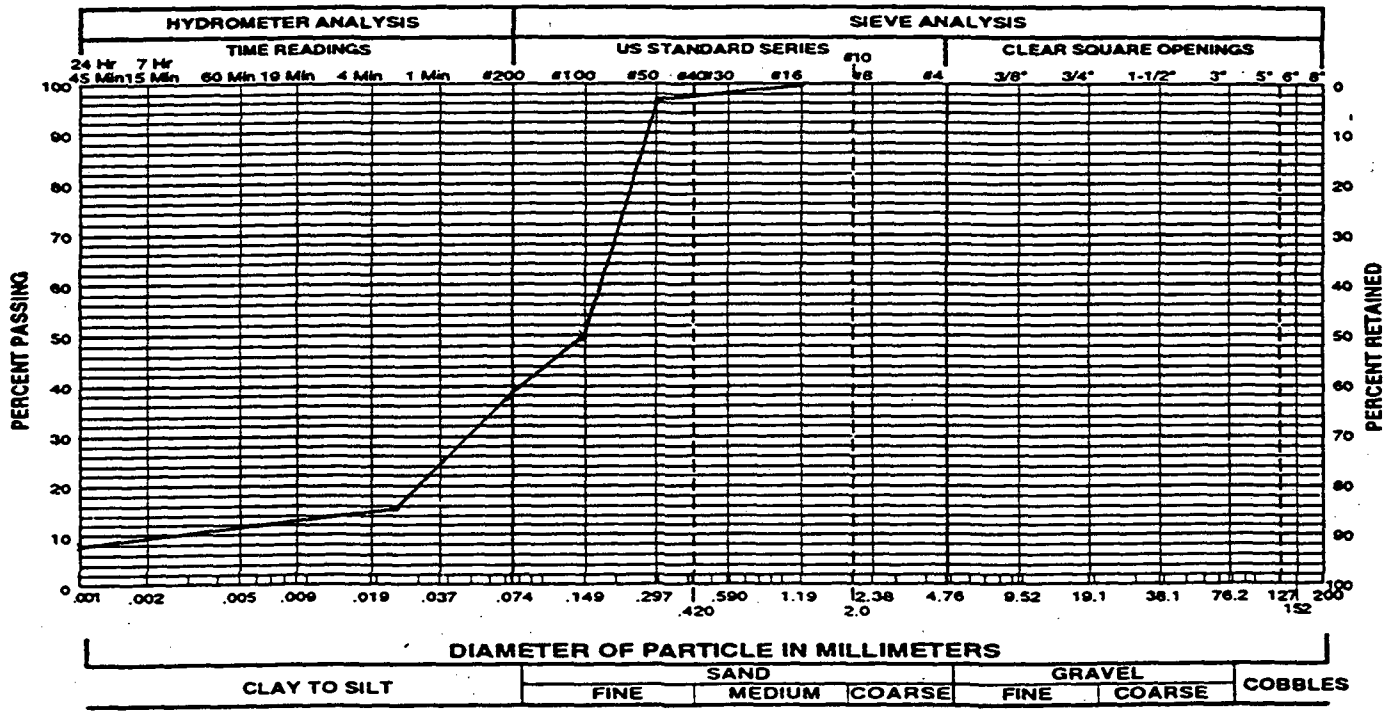
Gravel 0 % Sand 17 % Silt and Clay 83 %
Liquid Limit - % Plasticity Index - %
Sample of Pond 8E Sludge From BH-4 at 4.2 feet

Project No. 963376 **GRADATION TEST RESULTS** Figure 3

Applied Geotechnical Engineering Consultants, Inc.



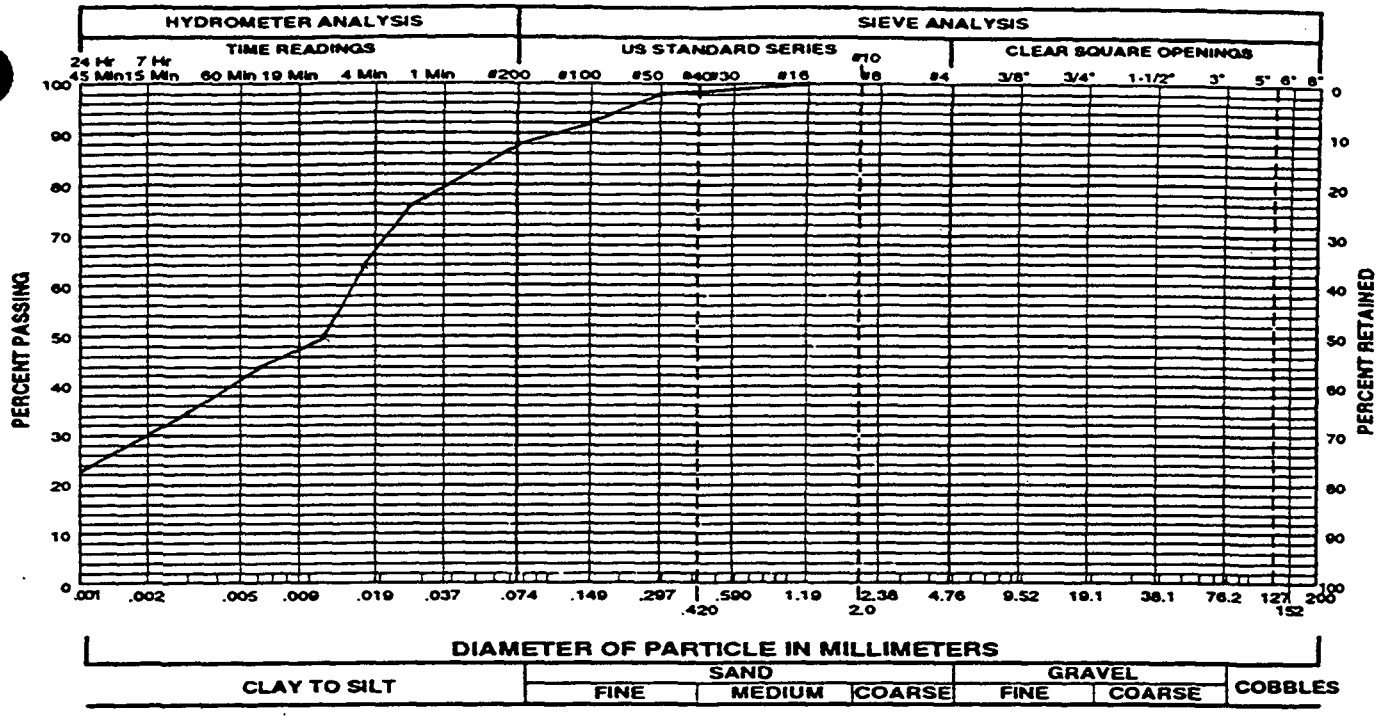
Gravel 0 % Sand 0 % Silt and Clay 100 %
Liquid Limit - % Plasticity Index - %
Sample of Pond 8E Sludge From BH-4 at 7.2 feet



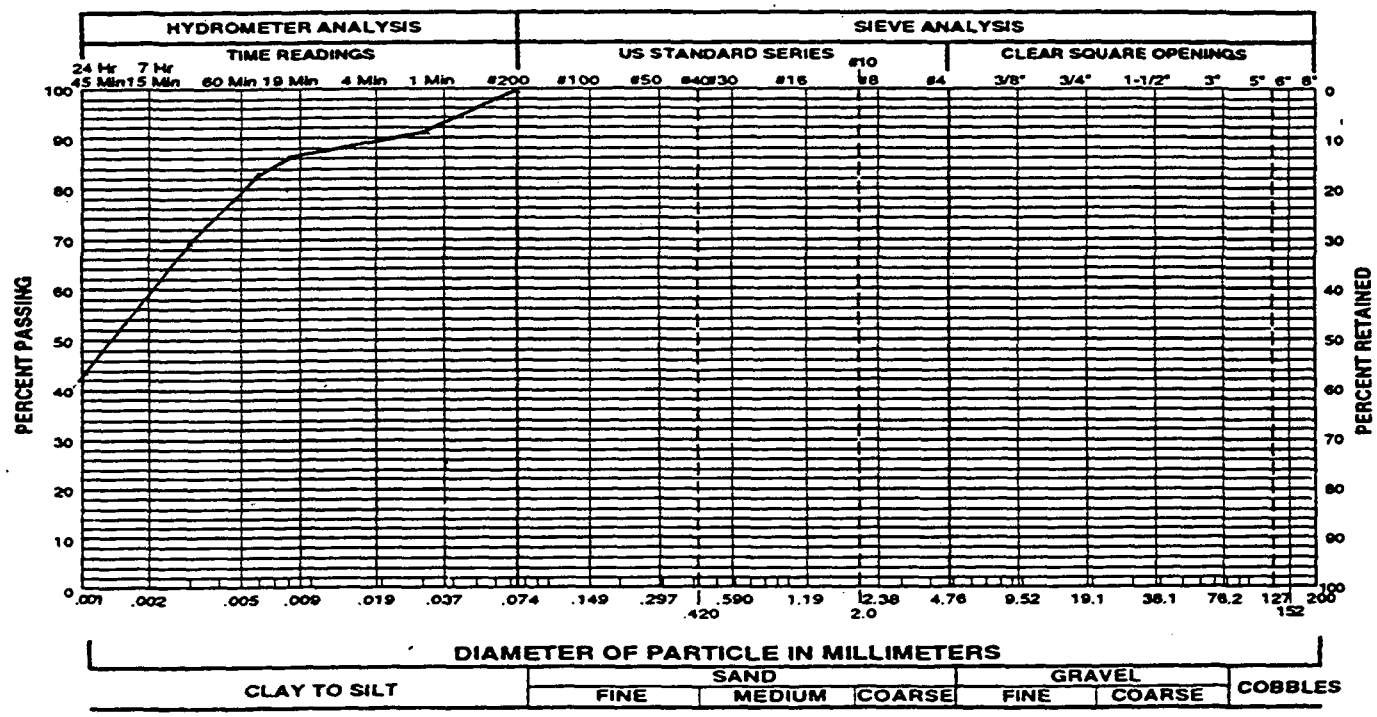
Gravel 0 % Sand 61 % Silt and Clay 39 %
Liquid Limit - % Plasticity Index - %
Sample of Pond 8E Sludge From BH-4 at 10.2 feet

Project No. 963376 **GRADATION TEST RESULTS** Figure 4

Applied Geotechnical Engineering Consultants, Inc.



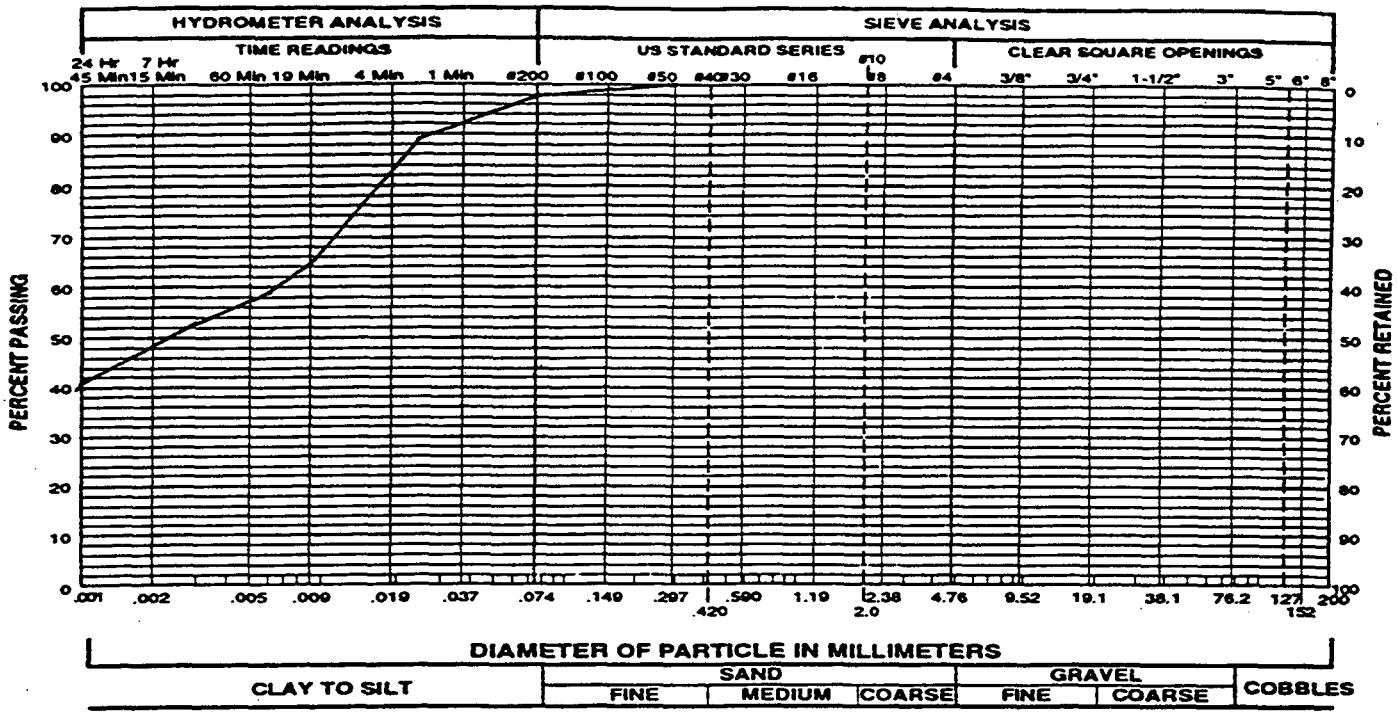
Gravel 0 % Sand 12 % Silt and Clay 88 %
Liquid Limit - % Plasticity Index - %
Sample of Pond 8E Sludge From BH-4 at 13.2 feet



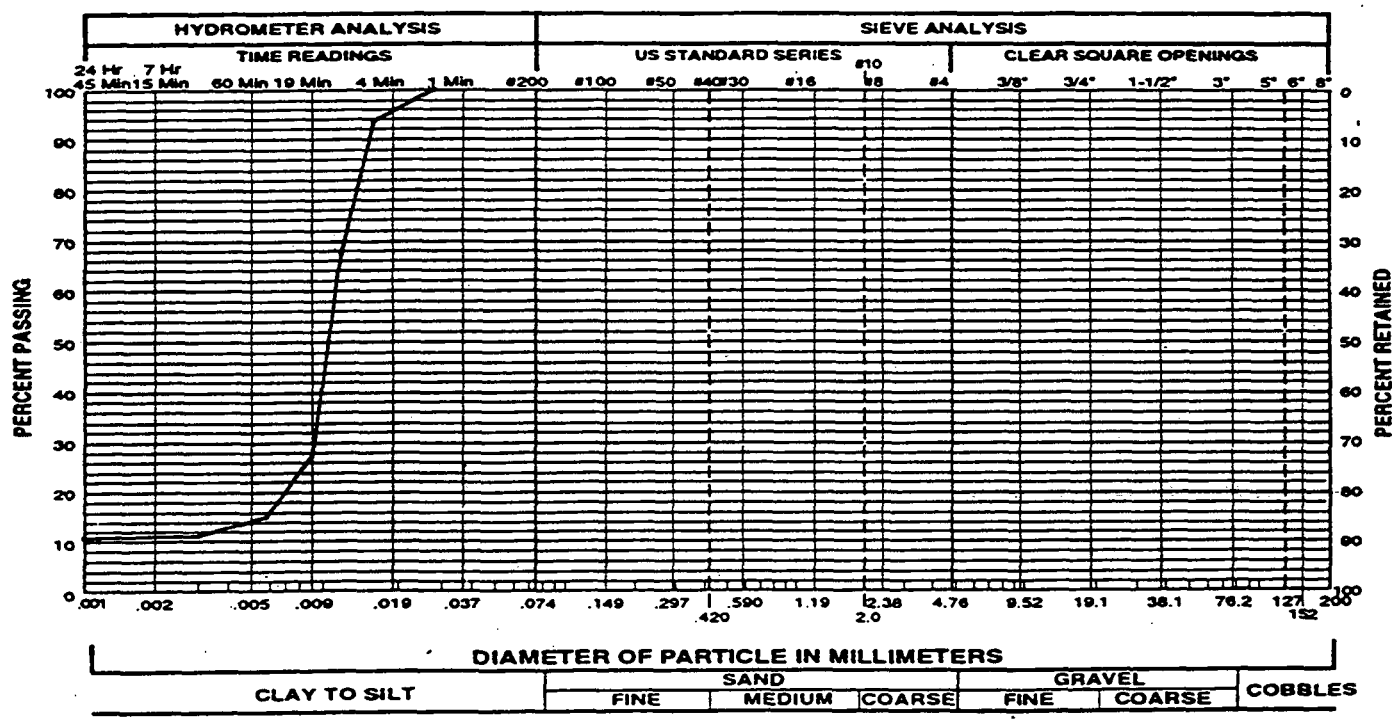
Gravel 0 % Sand 0 % Silt and Clay 100 %
Liquid Limit - % Plasticity Index - %
Sample of Pond 8E Sludge From BH-5 at 7.5 feet

Project No. 963376 **GRADATION TEST RESULTS** Figure 5

Applied Geotechnical Engineering Consultants, Inc.



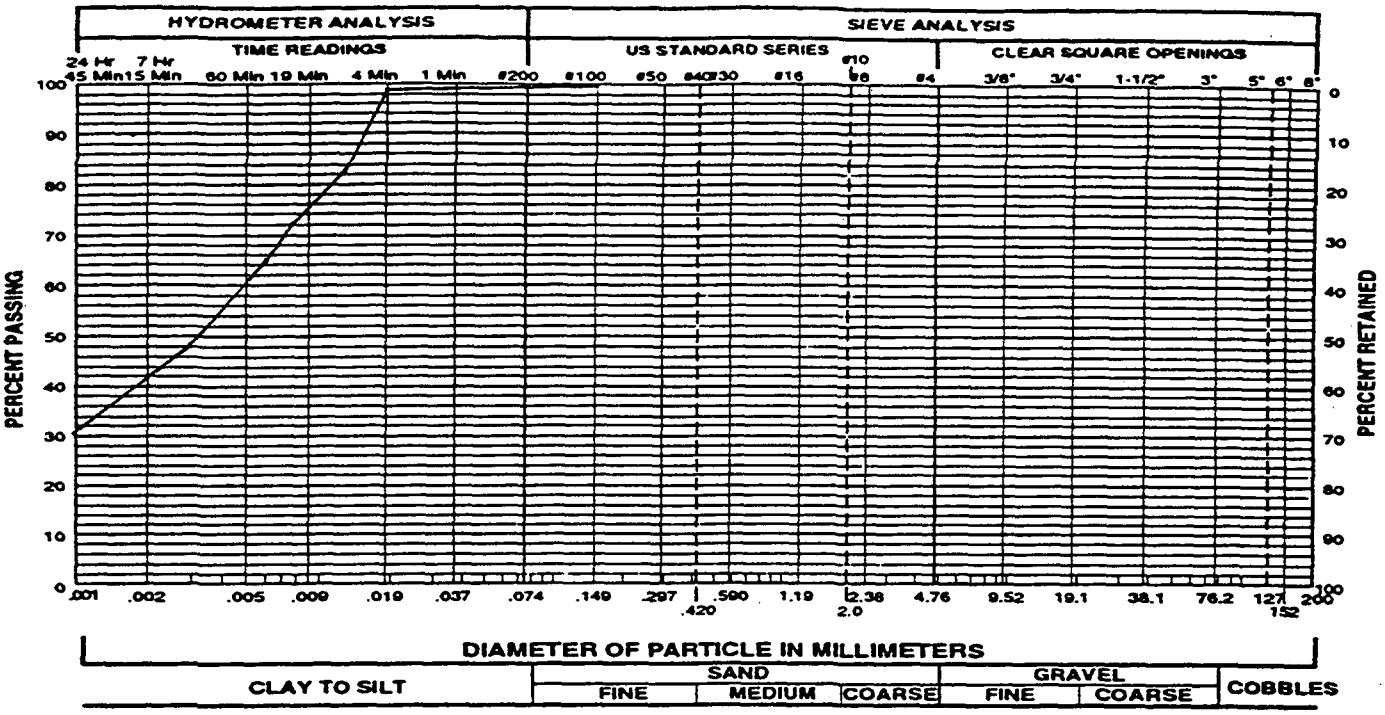
Gravel 0 % Sand 2 % Silt and Clay 98 %
Liquid Limit - % Plasticity Index - %
Sample of Pond 11S Sludge From BH-1 at 4.5 feet



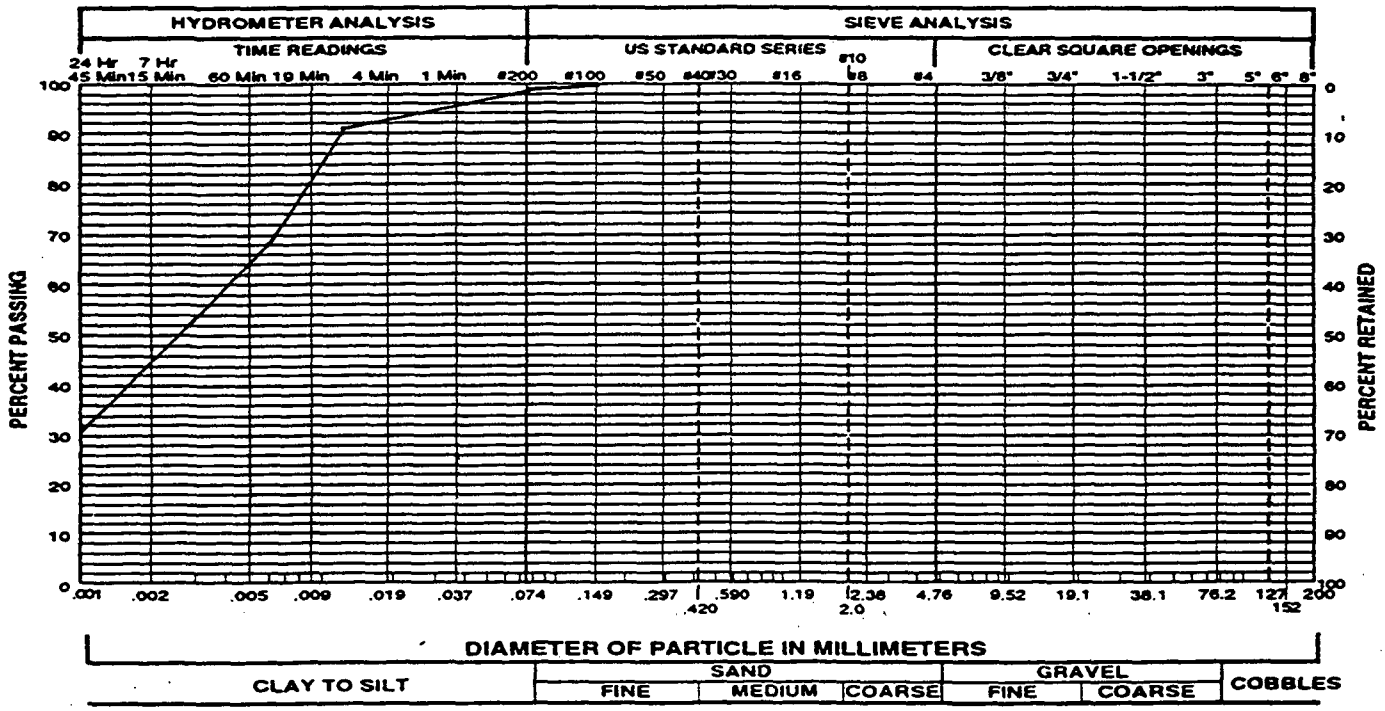
Gravel 0 % Sand 0 % Silt and Clay 100 %
Liquid Limit - % Plasticity Index - %
Sample of Pond 11S Sludge From BH-1 at 10.5 feet

Project No. 963376 **GRADATION TEST RESULTS** Figure 6

Applied Geotechnical Engineering Consultants, Inc.



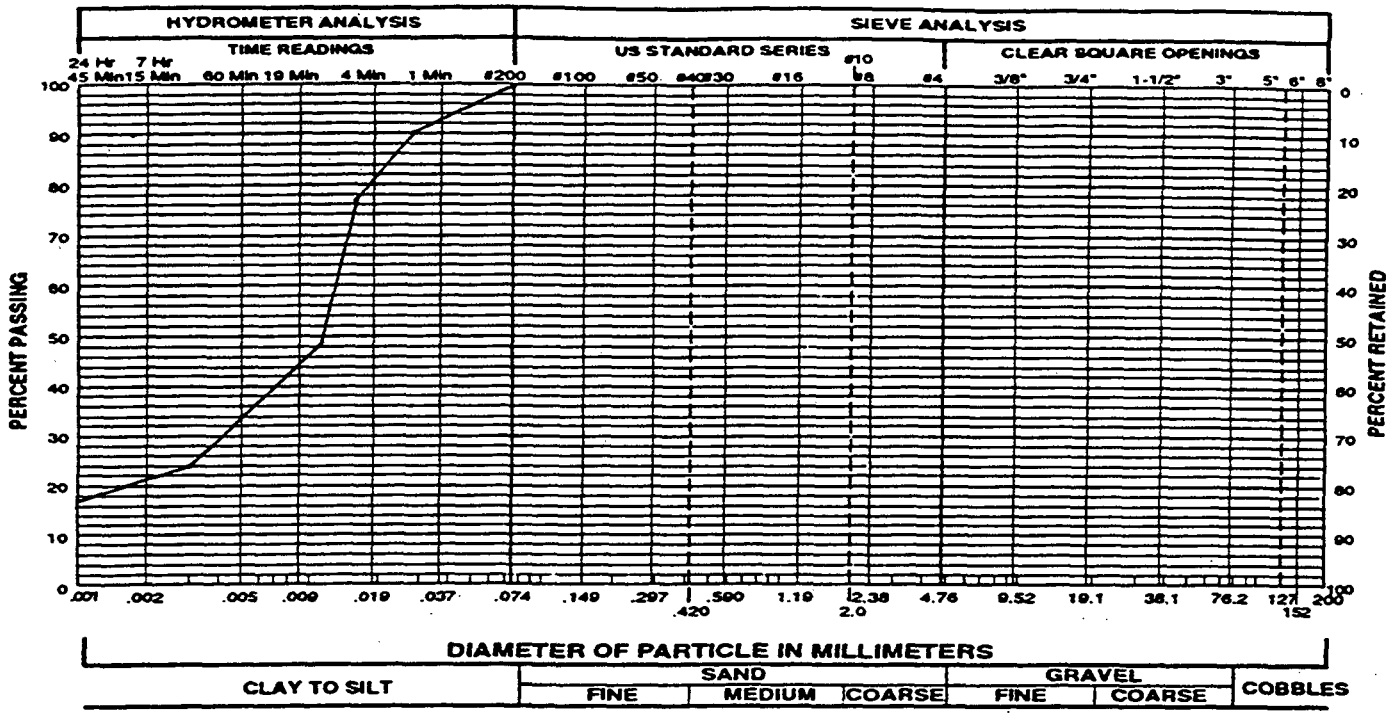
Gravel 0 % Sand 1 % Silt and Clay 99 %
Liquid Limit 91 % Plasticity Index 36 %
Sample of Pond 11S Sludge From BH-1 at 13.5 feet



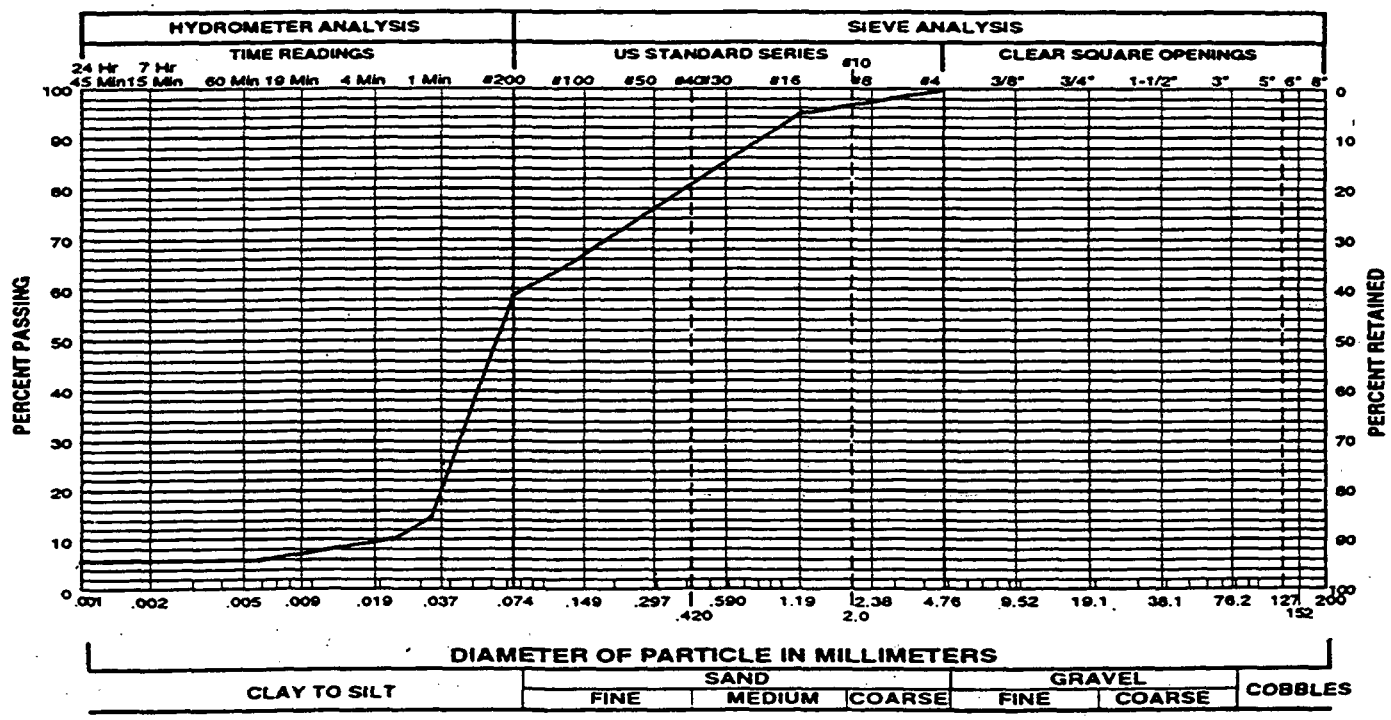
Gravel 0 % Sand 1 % Silt and Clay 99 %
Liquid Limit - % Plasticity Index - %
Sample of Pond 12S Sludge From BH-1 at 7.5 feet

Project No. 963376 **GRADATION TEST RESULTS** Figure 7

Applied Geotechnical Engineering Consultants, Inc.



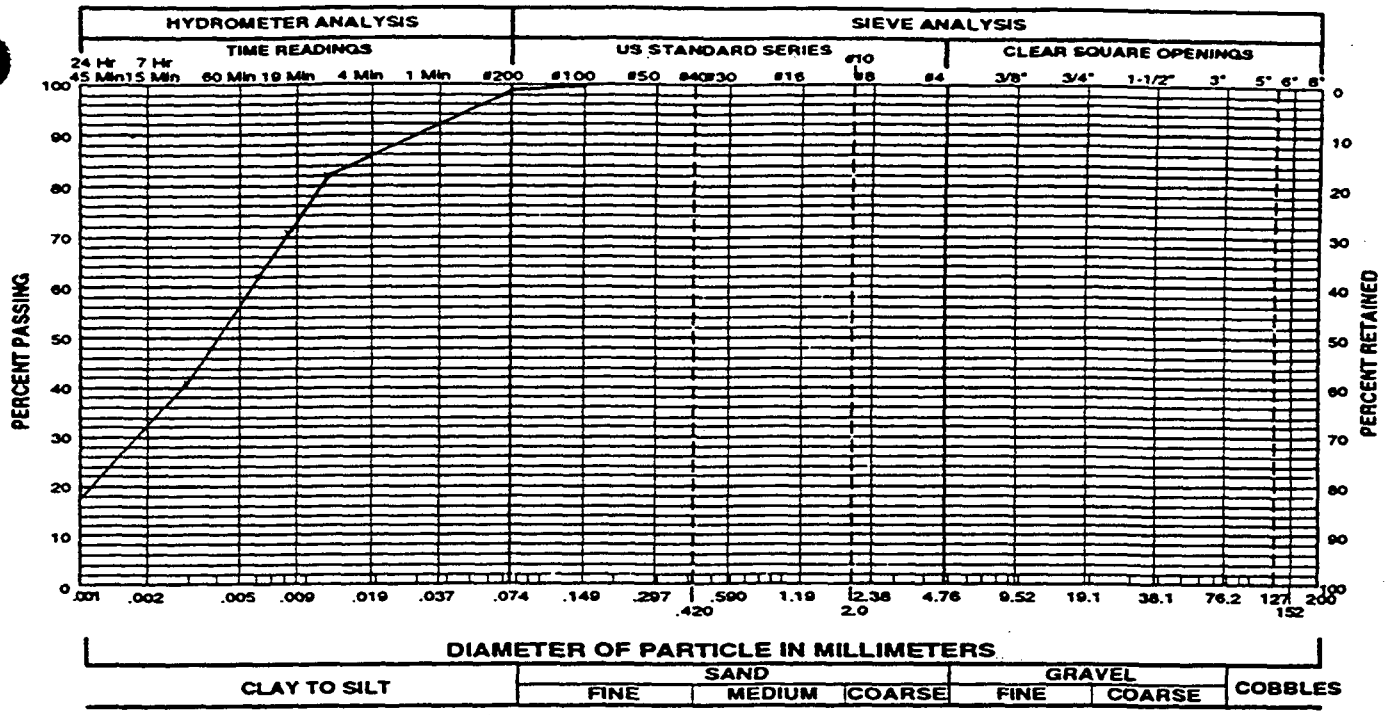
Gravel 0 % Sand 0 % Silt and Clay 100 %
Liquid Limit - % Plasticity Index - %
Sample of Pond 12S Sludge From BH-1 at 10.5 feet



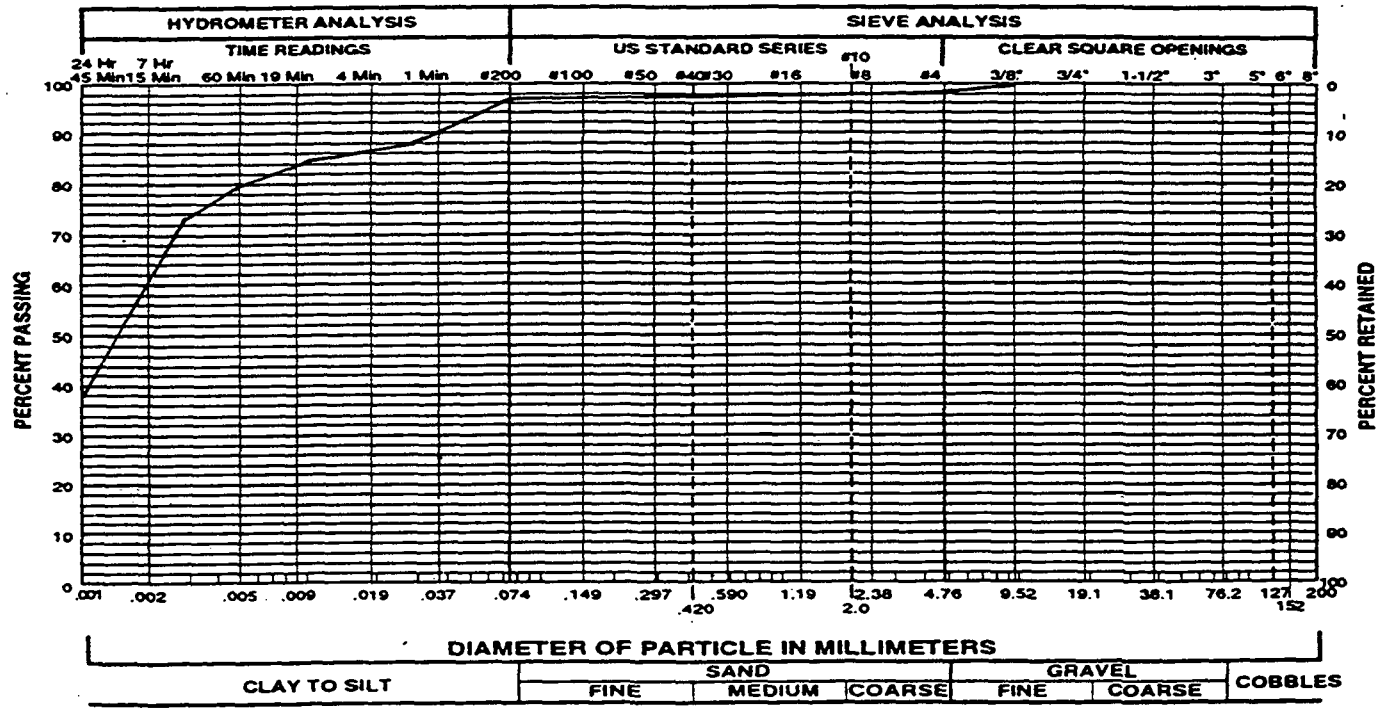
Gravel 0 % Sand 41 % Silt and Clay 59 %
Liquid Limit - % Plasticity Index - %
Sample of Pond 12S Sludge From BH-2 at 7.5 feet

Project No. 963376 **GRADATION TEST RESULTS** Figure 8

Applied Geotechnical Engineering Consultants, Inc.



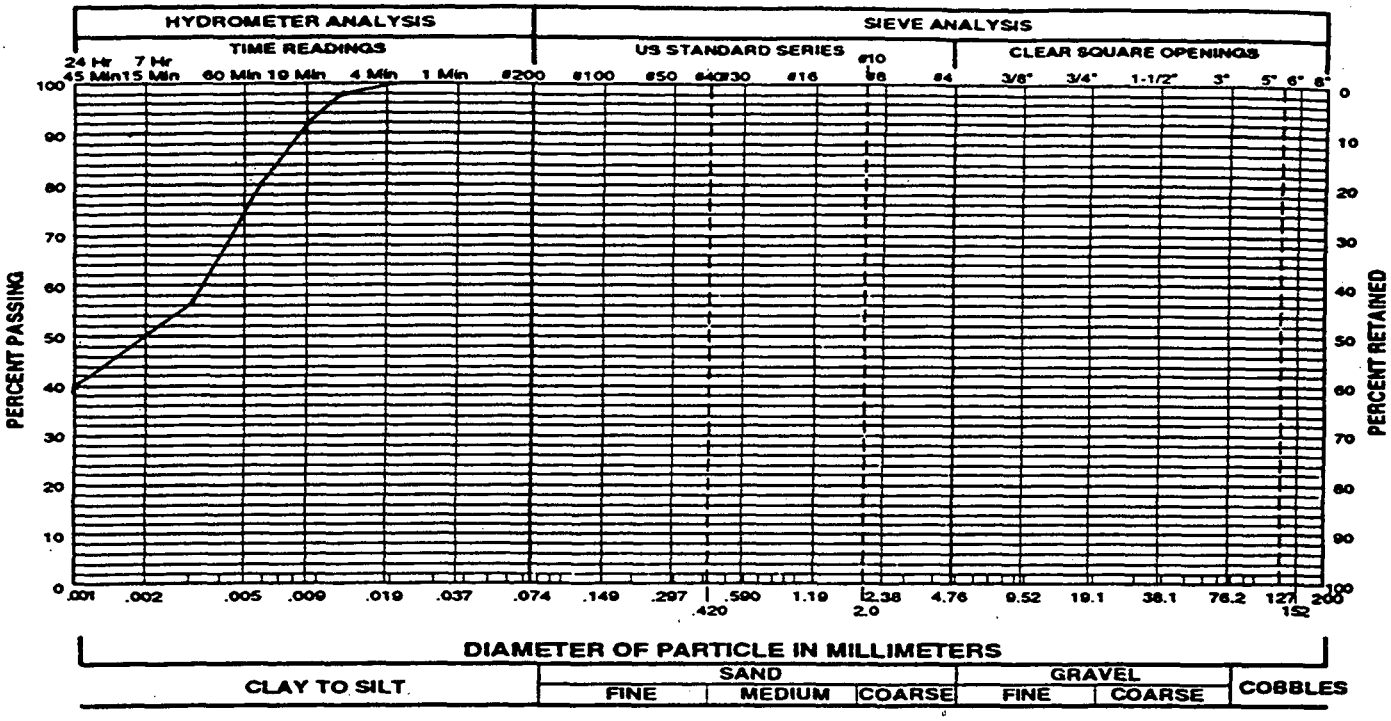
Gravel 0 % Sand 1 % Silt and Clay 99 %
Liquid Limit - % Plasticity Index - %
Sample of Pond 12S Sludge From BH-2 at 13.5 feet



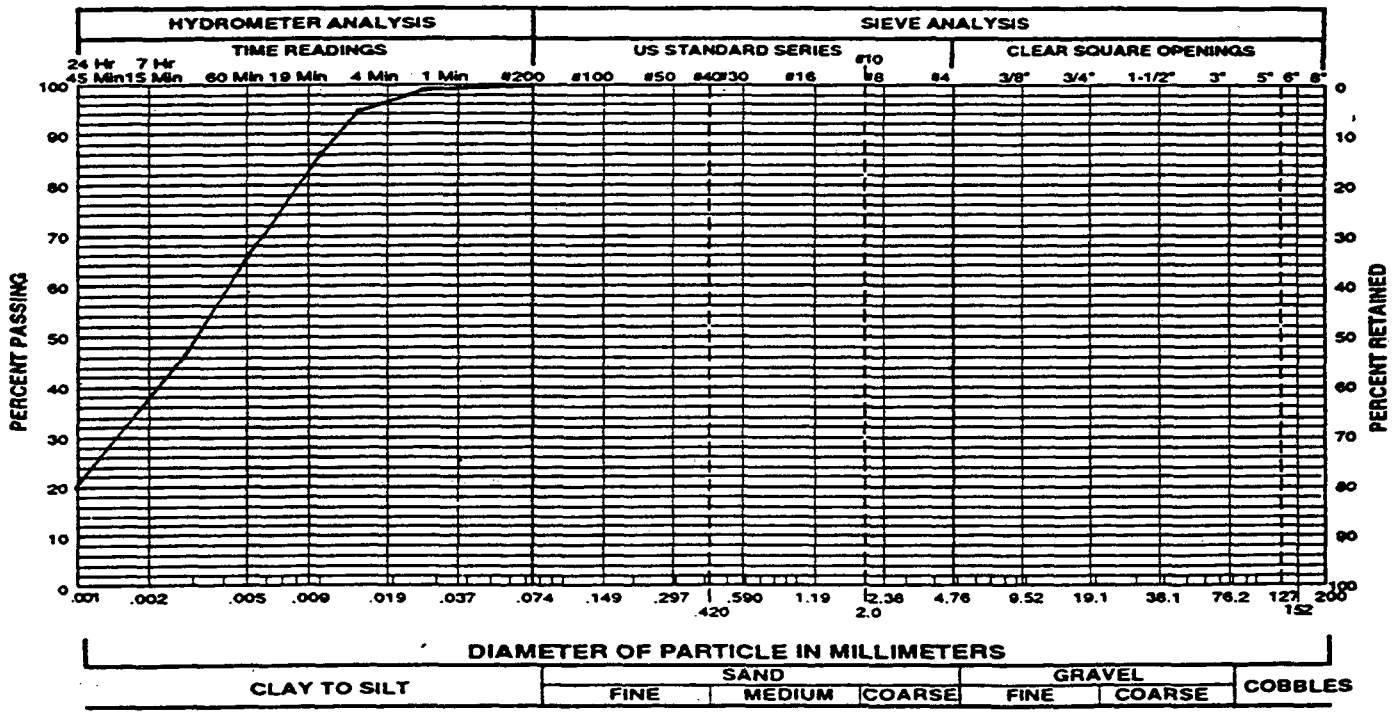
Gravel 2 % Sand 1 % Silt and Clay 97 %
Liquid Limit - % Plasticity Index - %
Sample of Pond 12S Sludge From BH-2 at 18.5 feet

Project No. 963376 **GRADATION TEST RESULTS** Figure 9

Applied Geotechnical Engineering Consultants, Inc.



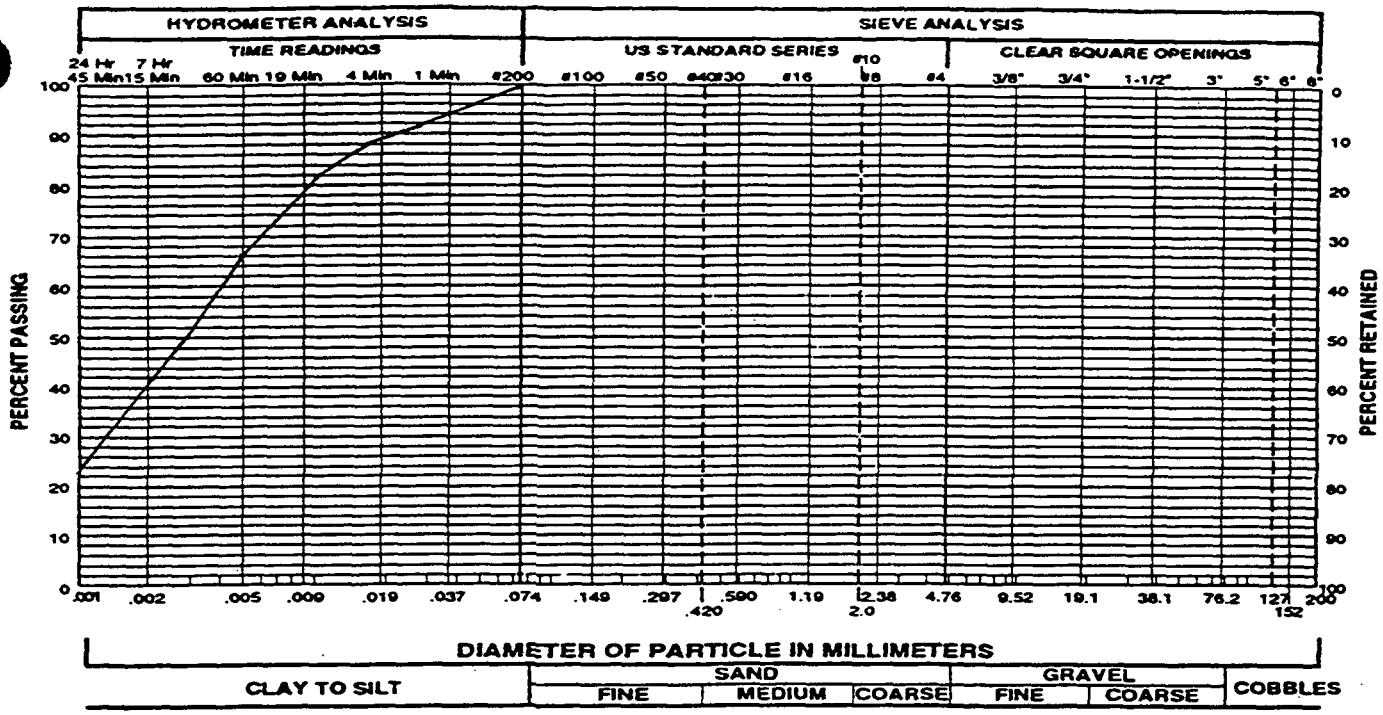
Gravel 0 % Sand 0 % Silt and Clay 100 %
Liquid Limit - % Plasticity Index - %
Sample of Pond 12S Sludge From BH-3 at 7.8 feet



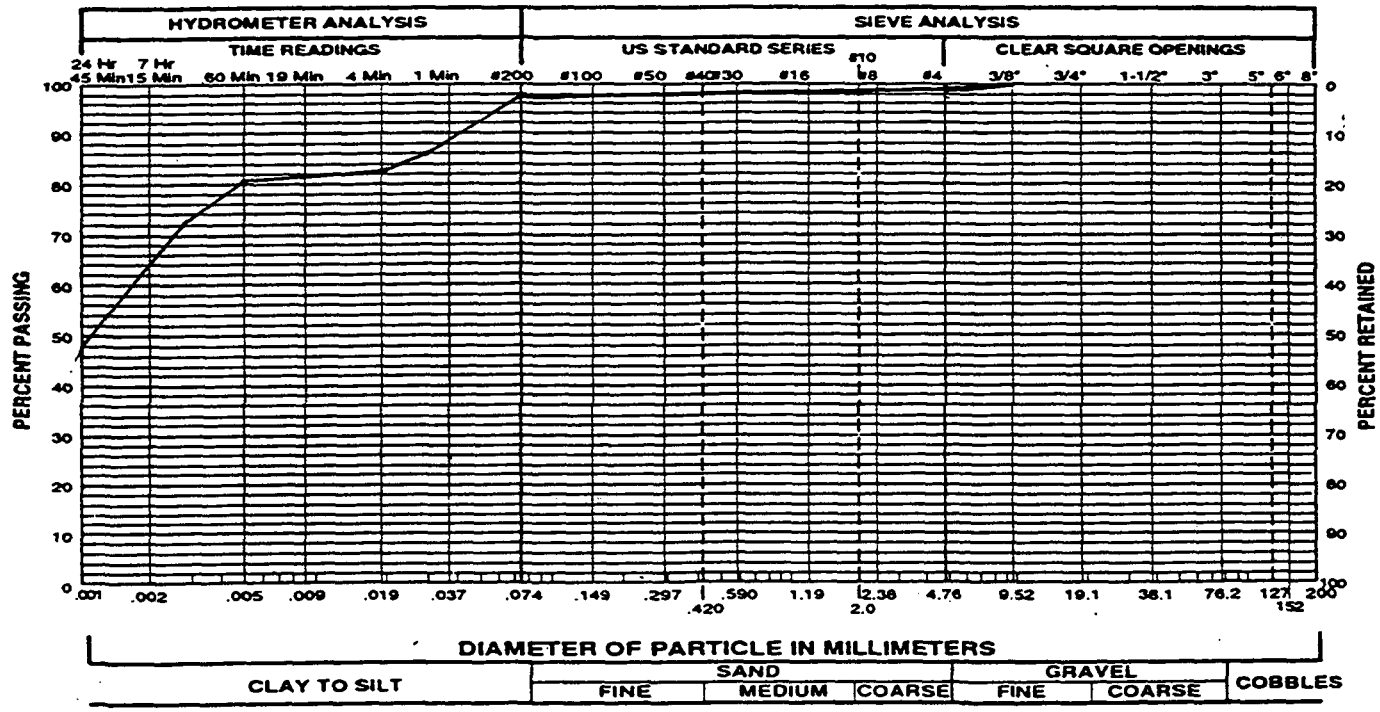
Gravel 0 % Sand 0 % Silt and Clay 100 %
Liquid Limit - % Plasticity Index - %
Sample of Pond 12S Sludge From BH-3 at 16.8 feet

Project No. 963376 **GRADATION TEST RESULTS** Figure 10

Applied Geotechnical Engineering Consultants, Inc.



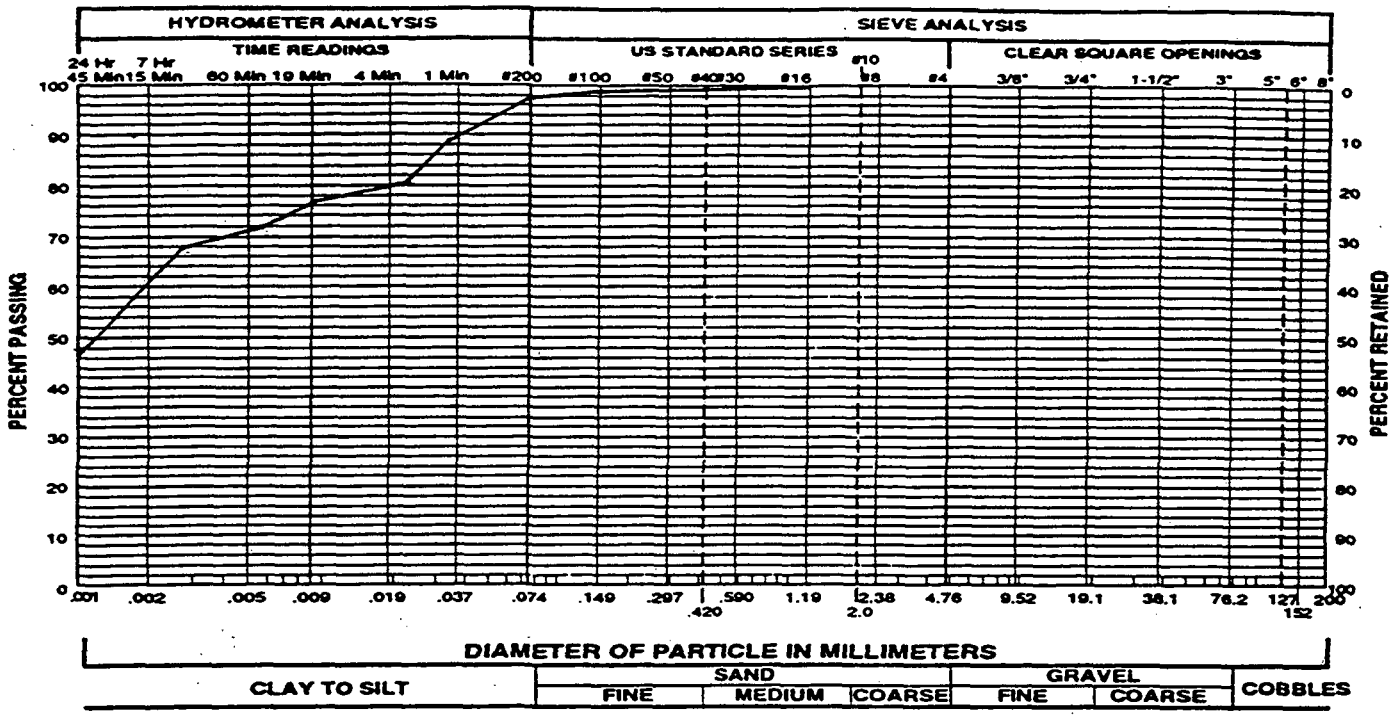
Gravel 0 % Sand 0 % Silt and Clay 100 %
Liquid Limit - % Plasticity Index - %
Sample of Pond 12S Sludge From BH-3 at 18.5 feet



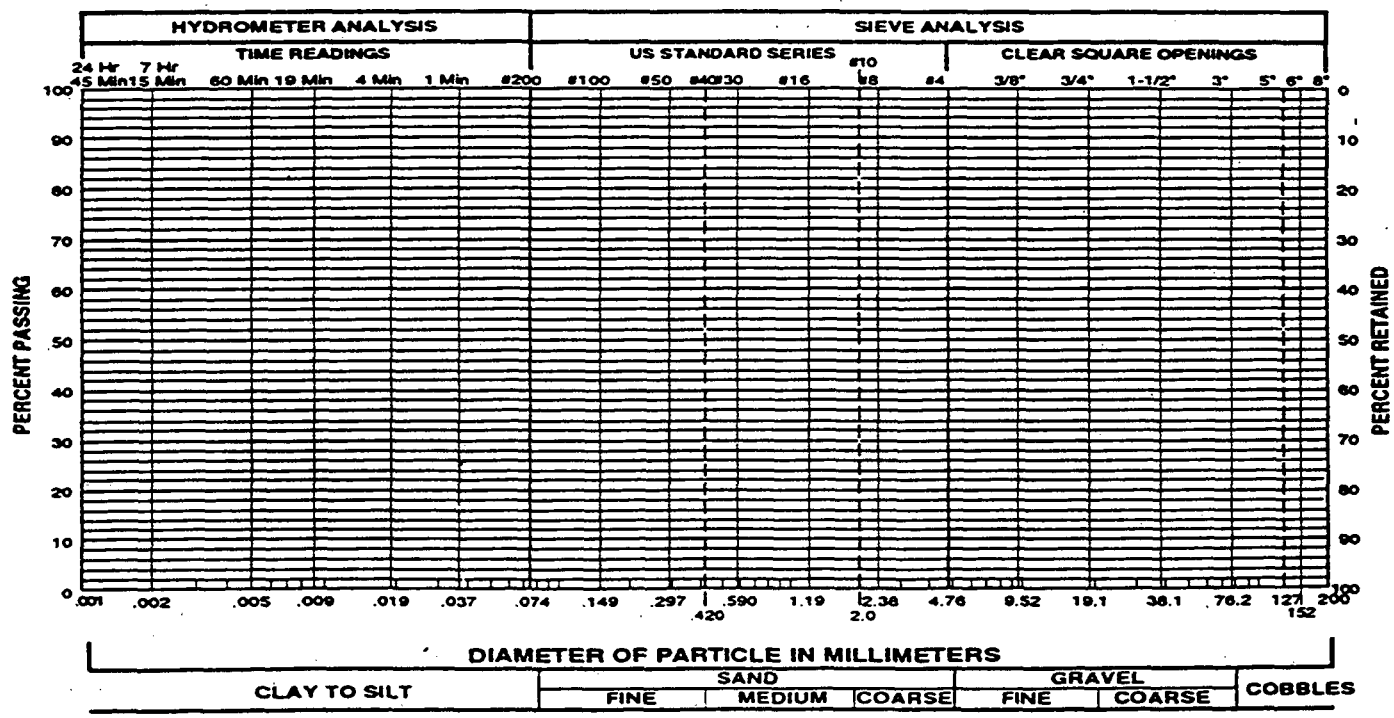
Gravel 1 % Sand 1 % Silt and Clay 98 %
Liquid Limit - % Plasticity Index - %
Sample of Pond 13S Sludge From BH-2 at 17.8 feet

Project No. 963376 **GRADATION TEST RESULTS** Figure 11

Applied Geotechnical Engineering Consultants, Inc.



Gravel 0 % Sand 2 % Silt and Clay 98 %
Liquid Limit - % Plasticity Index - %
Sample of Pond 13S Sludge From BH-3 at 17 feet

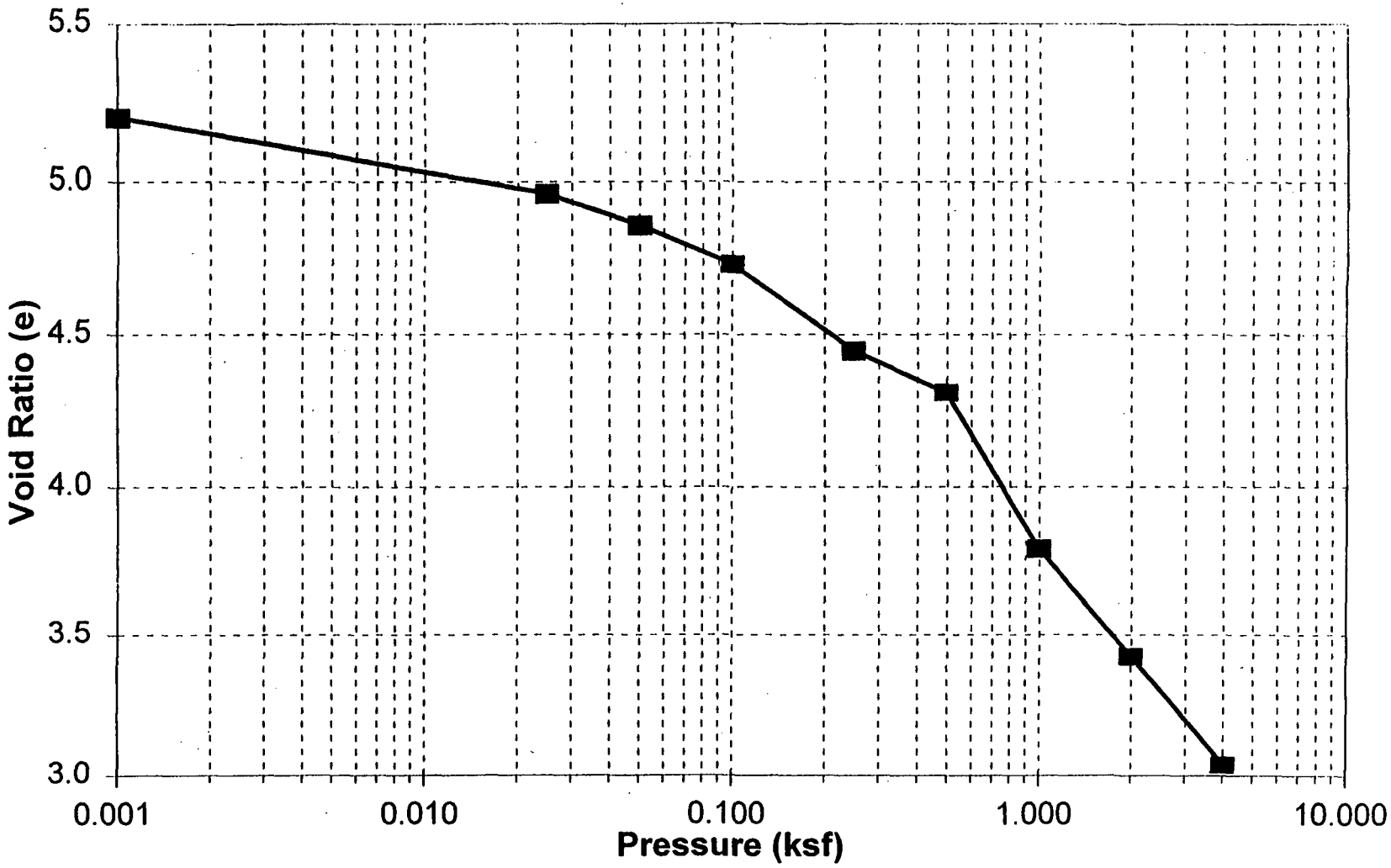


Gravel ____ % Sand ____ % Silt and Clay ____ %
Liquid Limit ____ % Plasticity Index ____ %
Sample of ____ From ____

Project No. 963376 **GRADATION TEST RESULTS** Figure 12

One Dimensional Consolidation

Sample: Pond 8E, BH-1 @ 7 feet

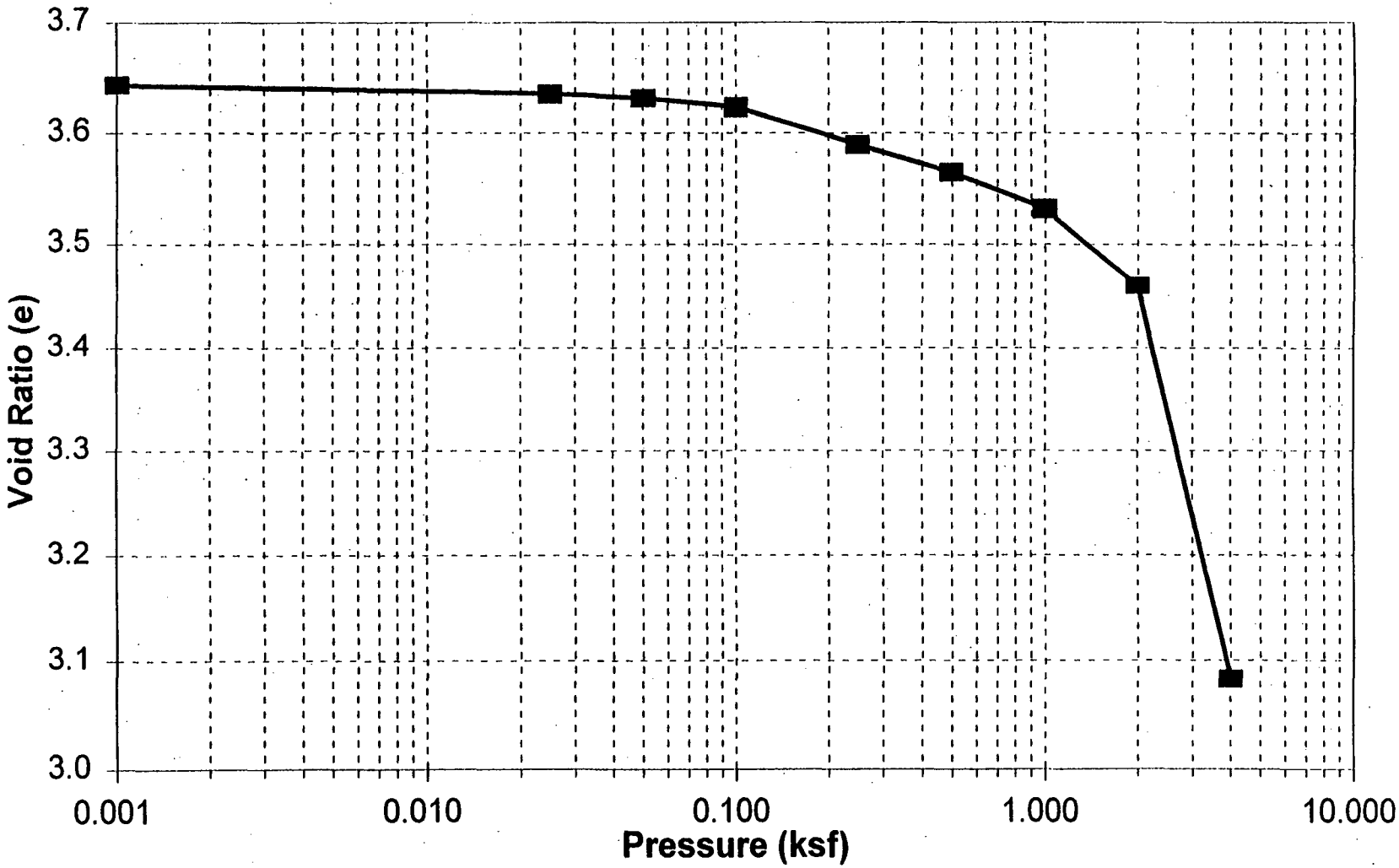


Project No. 973376

Figure 13

One Dimensional Consolidation

Sample: Pond 8E, BH-2 @ 10.2 feet

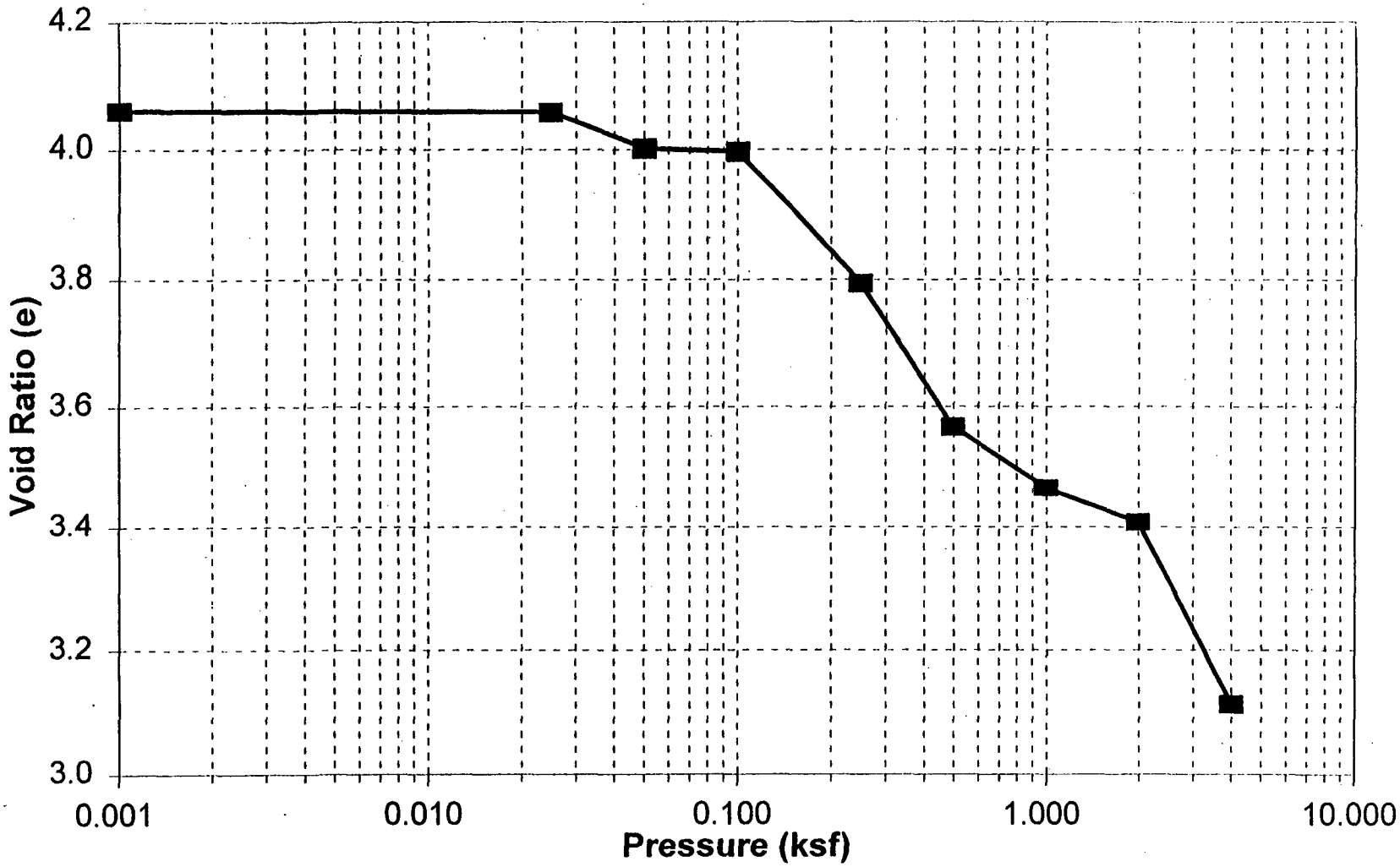


Project No. 973376

Figure 14

One Dimensional Consolidation

Sample: Pond 8E, BH-3 @ 13.5 feet

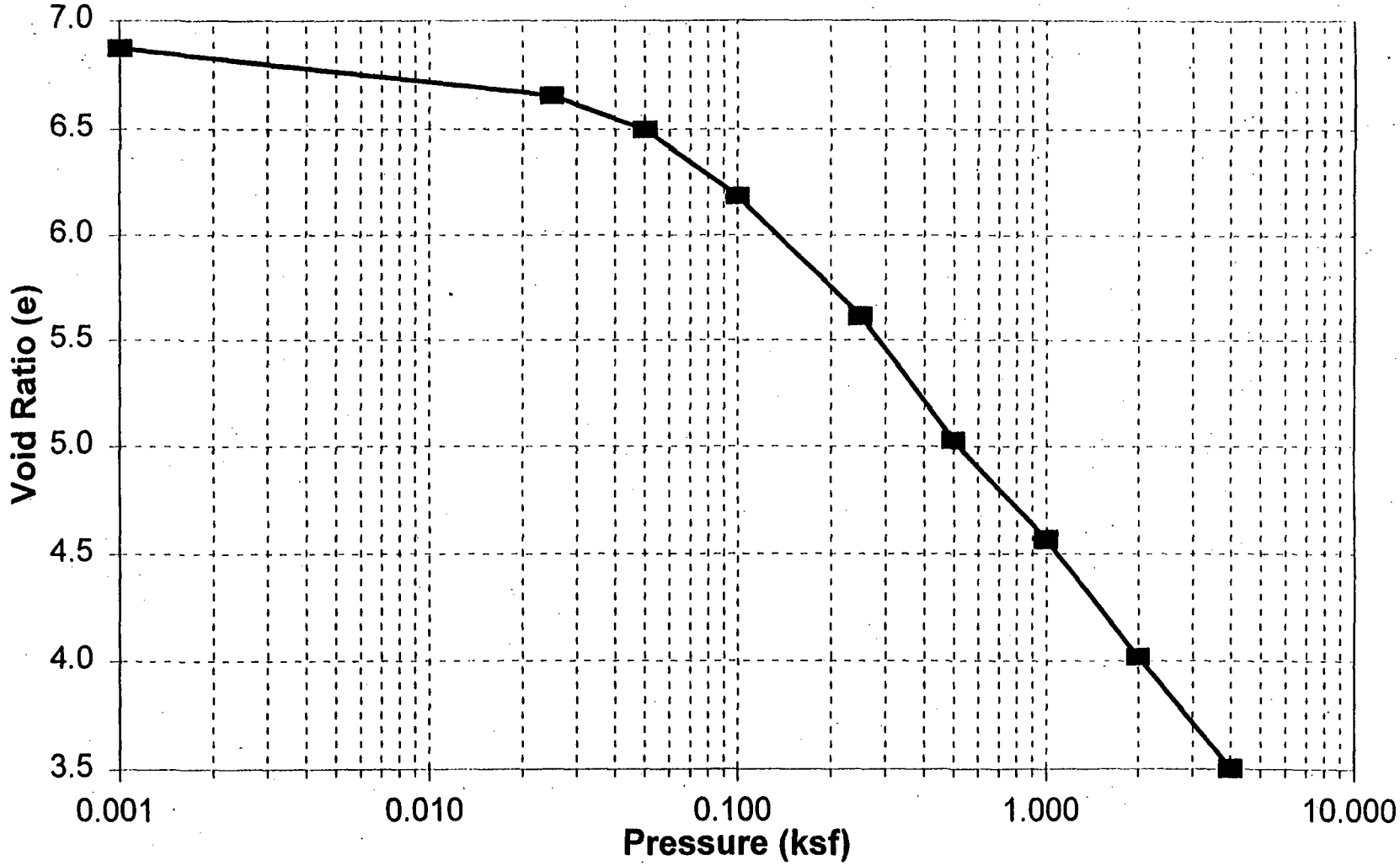


Project No. 973376

Figure 15

One Dimensional Consolidation

Sample: Pond 8E, BH-5 @ 4.5 feet

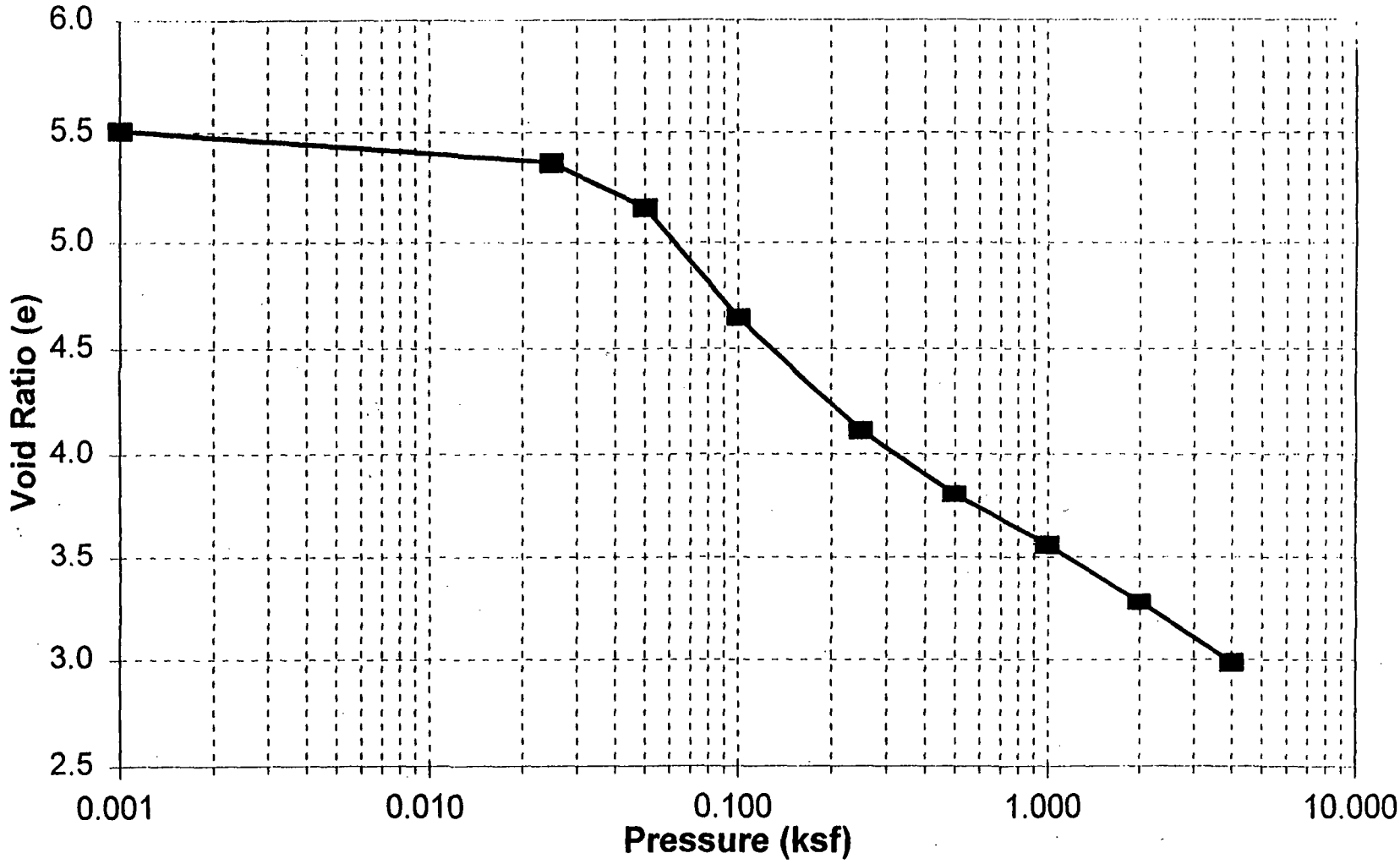


Project No. 973376

Figure 16

One Dimensional Consolidation

Sample: Pond 11S, BH-1 @ 7.5 feet

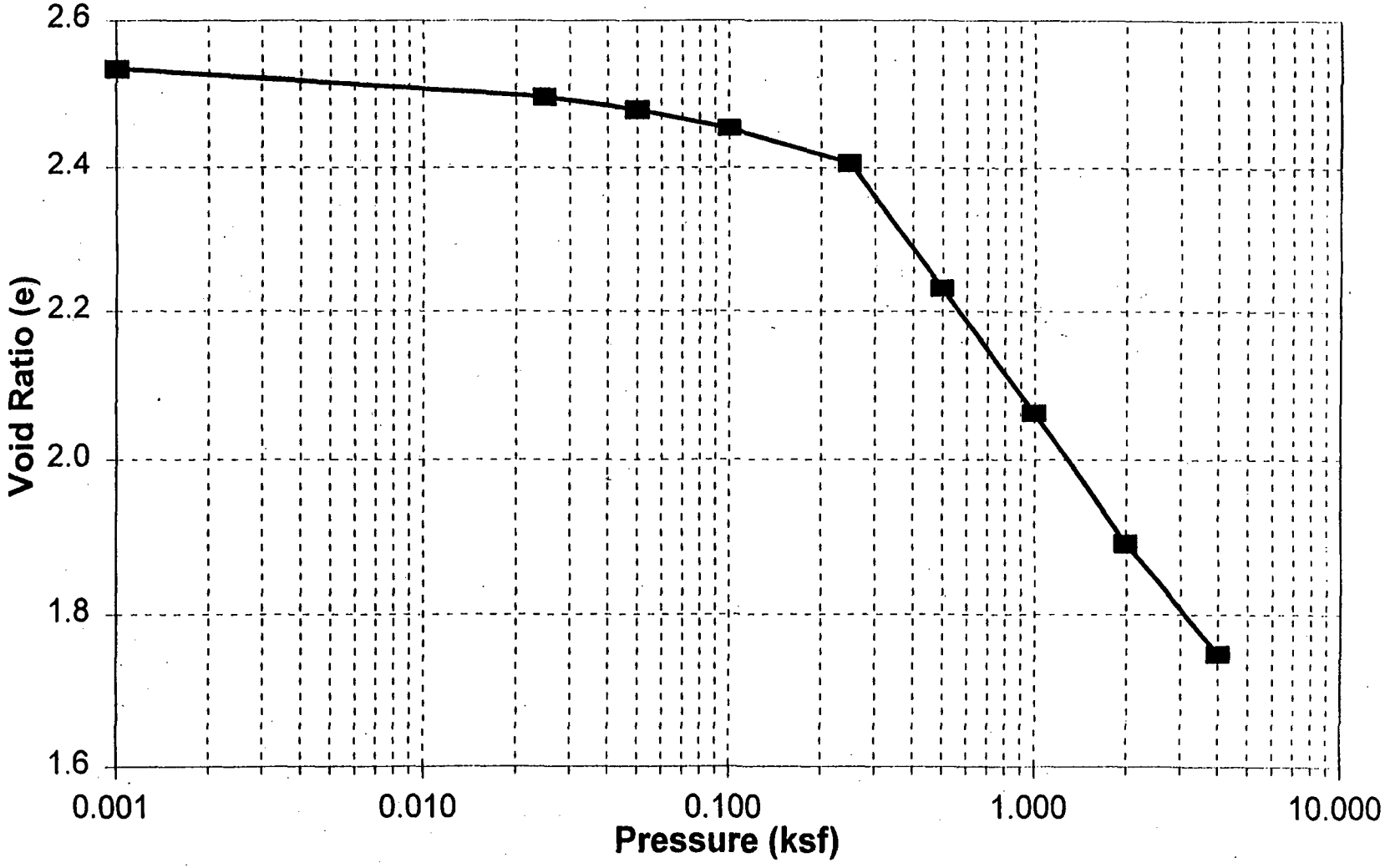


Project No. 973376

Figure 17

One Dimensional Consolidation

Sample: Pond 12S, BH-1 @ 13.5 feet

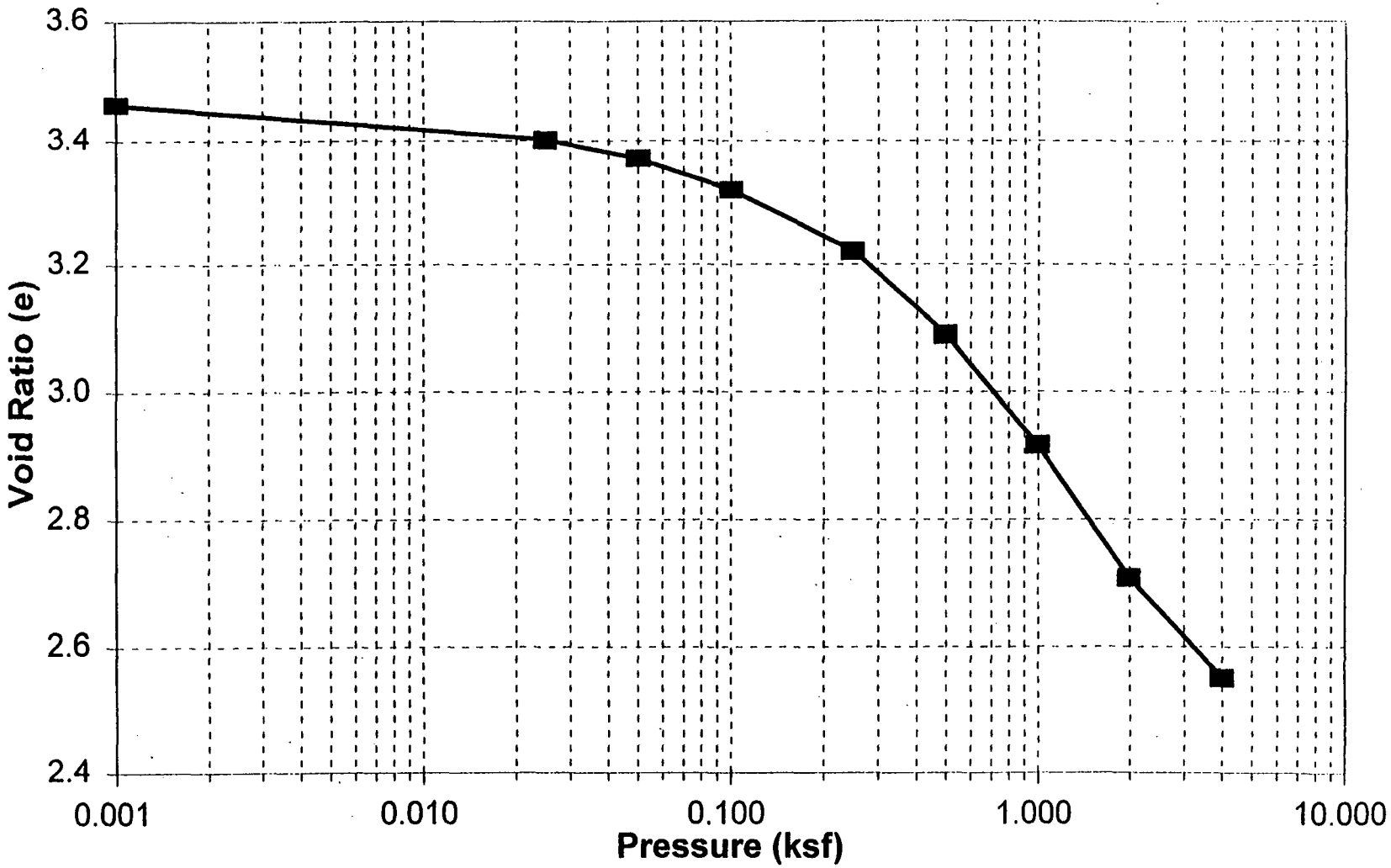


Project No. 973376

Figure 18

One Dimensional Consolidation

Sample: Pond 12S, BH-2 @ 16.5 feet

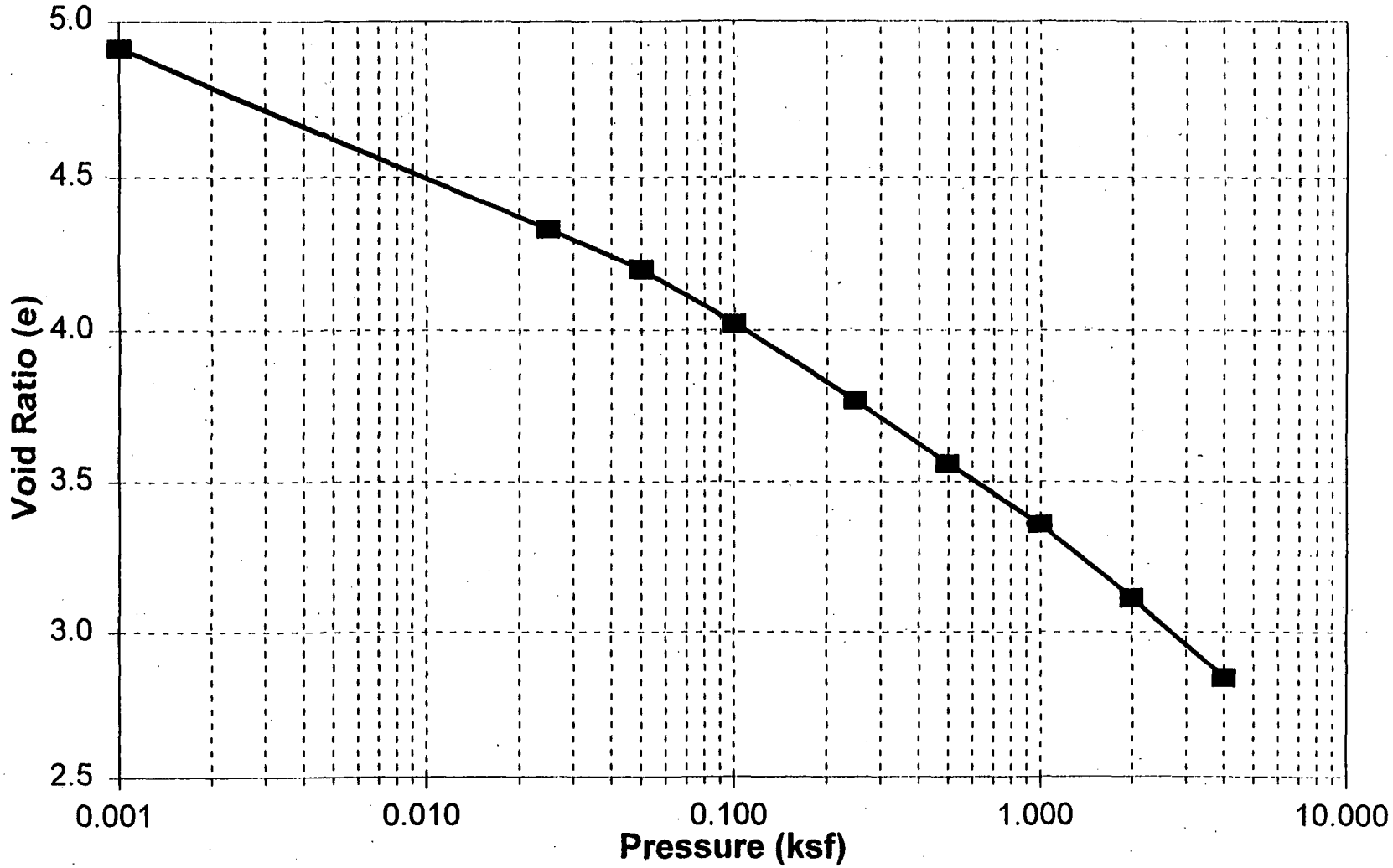


Project No. 973376

Figure 19

One Dimensional Consolidation

Sample: Pond 12S, BH-3 @ 10.8 feet

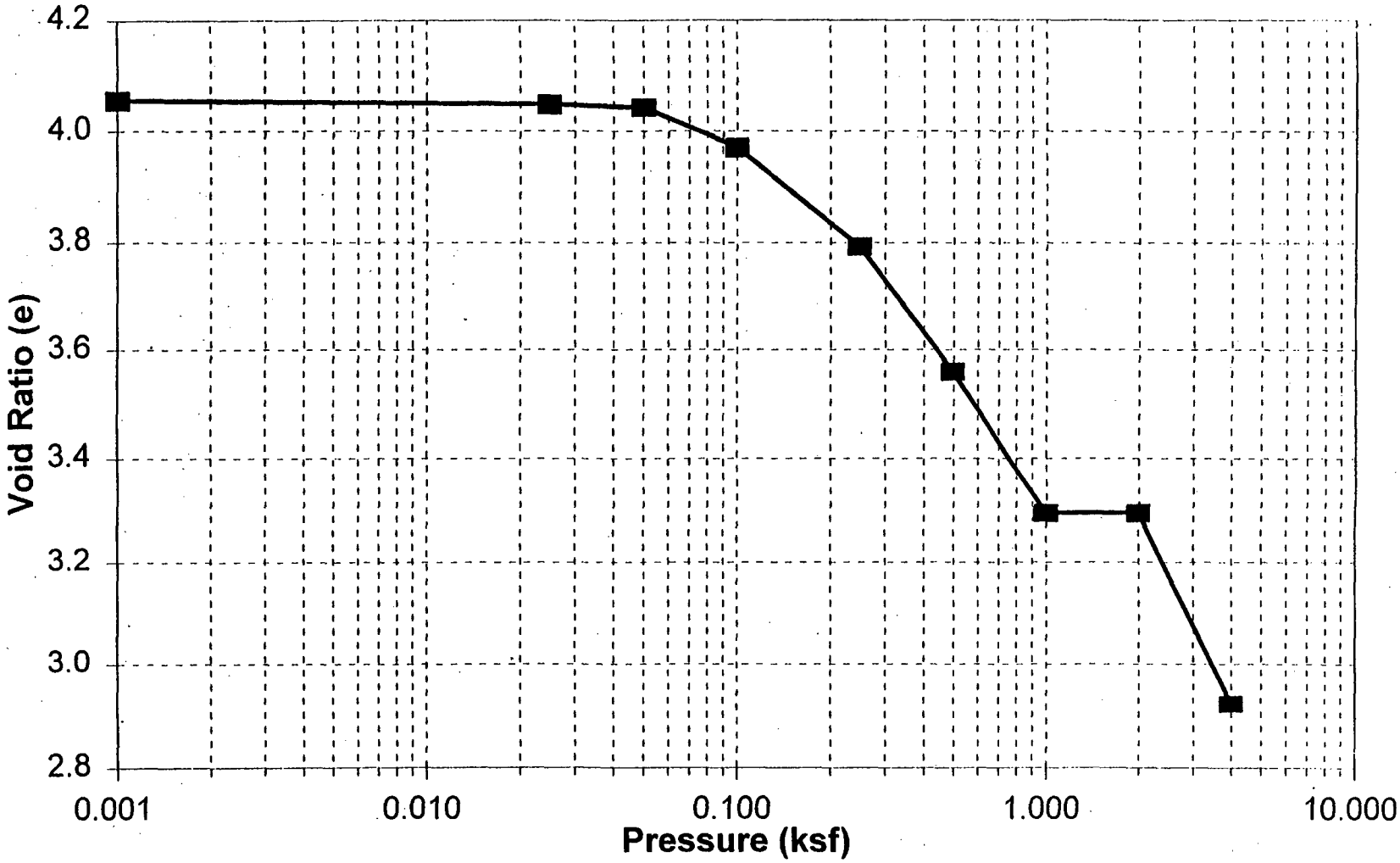


Project No. 973376

Figure 20

One Dimensional Consolidation

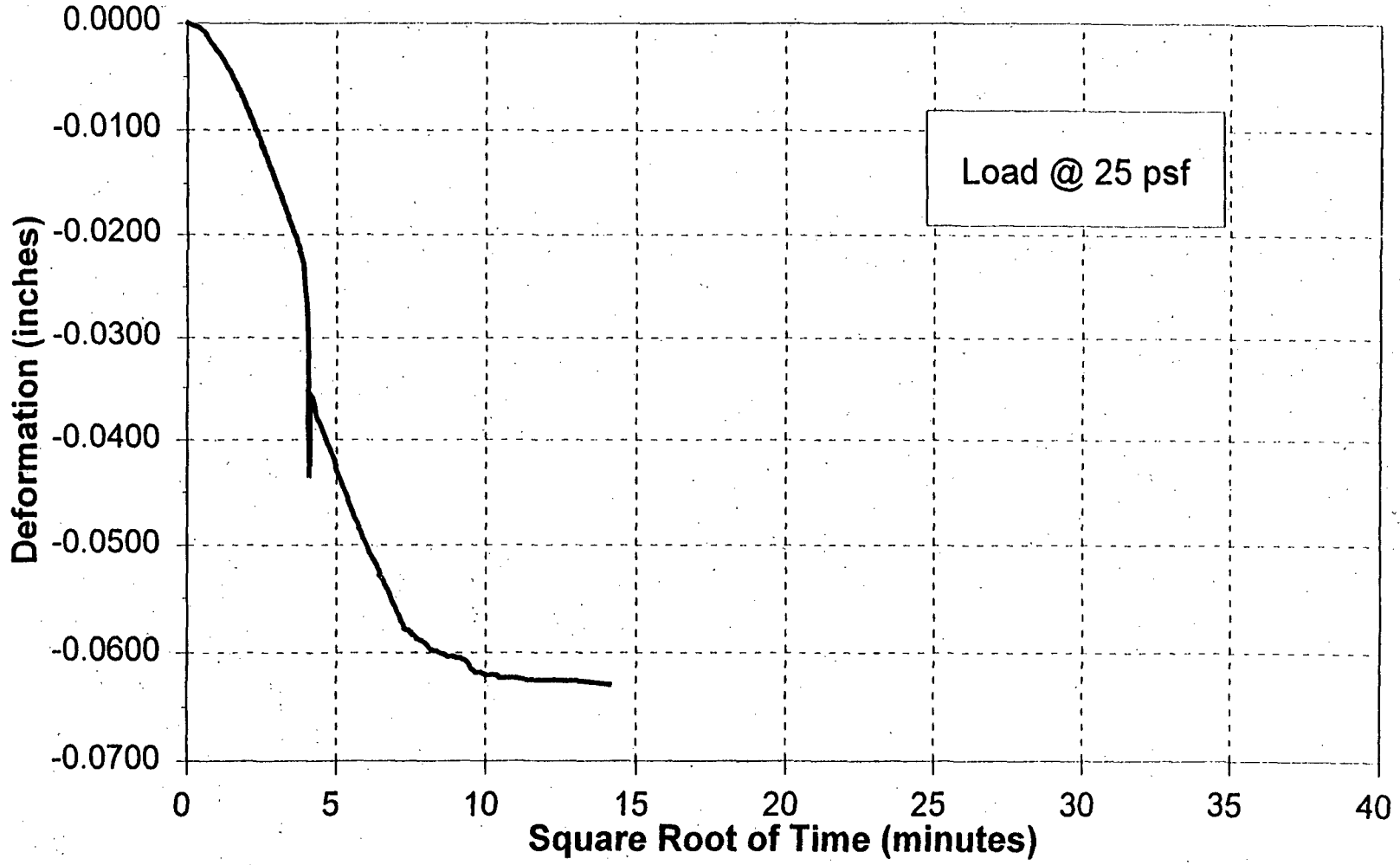
Sample: Pond 13S, BH-3 @ 14.5 feet



Project No. 973376

Figure 21

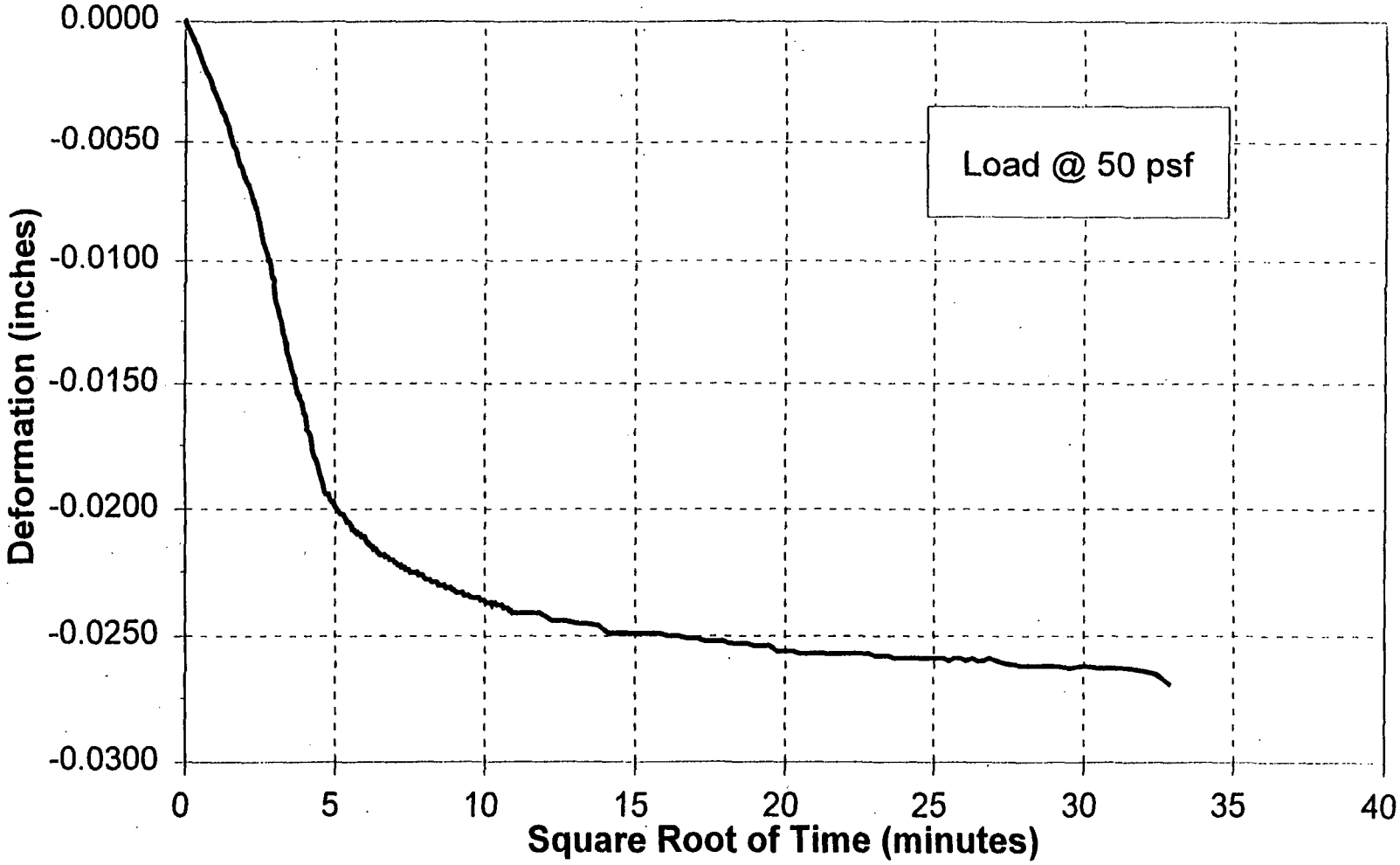
Time Rate of Consolidation
Sample: Pond 8E, BH-1 @ 7 feet



Project No. 973376

Figure 22

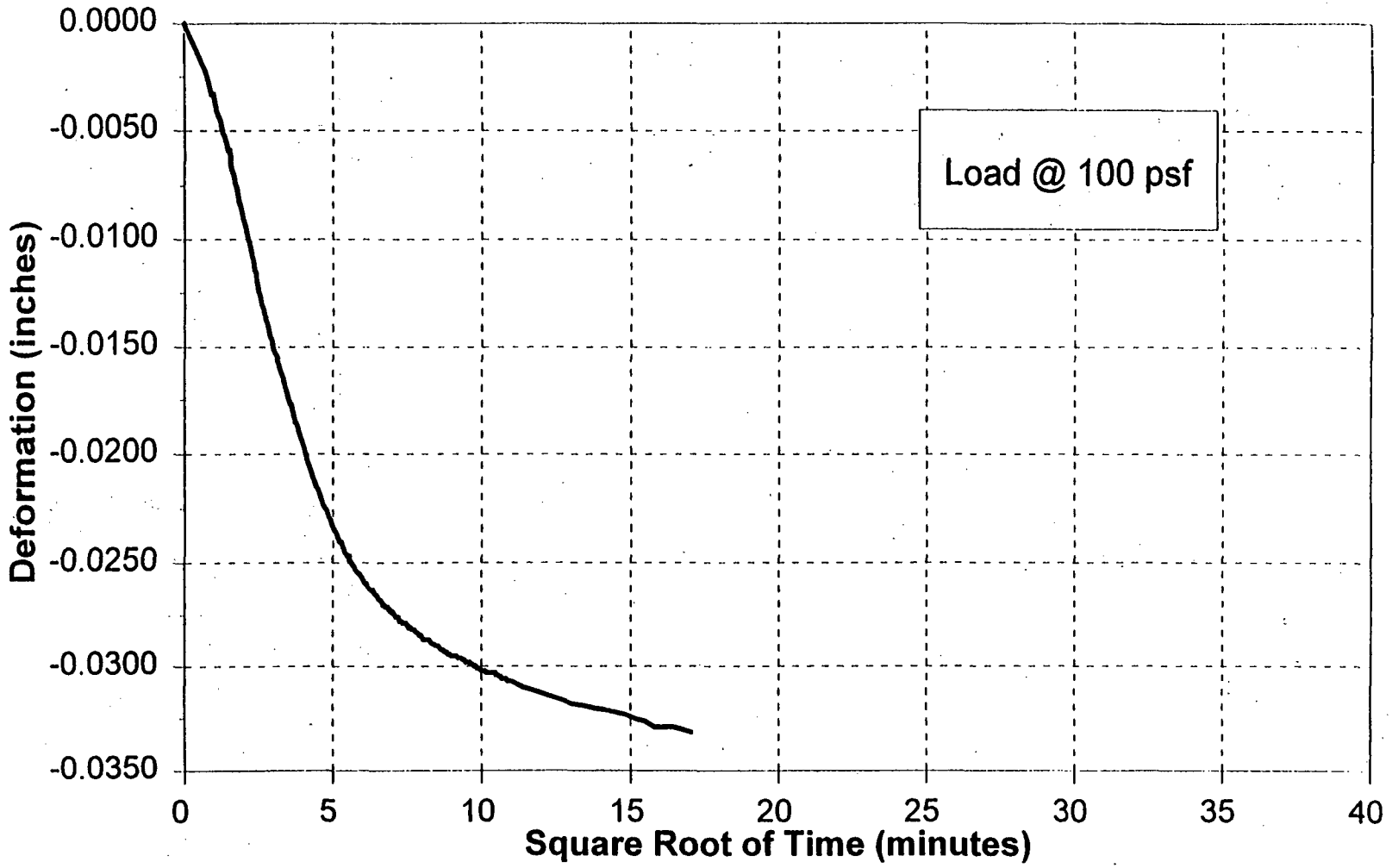
Time Rate of Consolidation
Sample: Pond 8E, BH-1 @ 7 feet



Project No. 973376

Figure 23

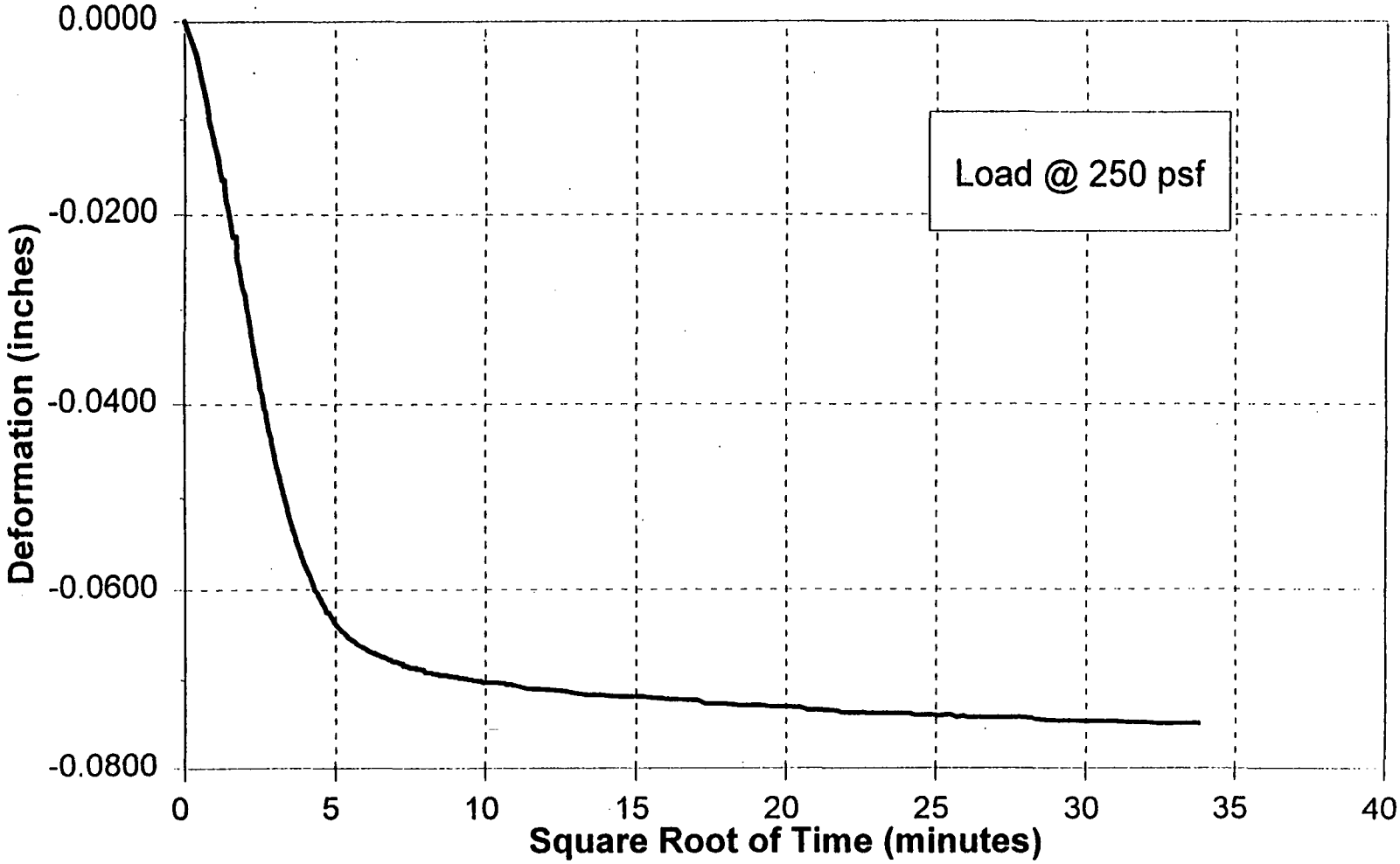
Time Rate of Consolidation
Sample: Pond 8E, BH-1 @ 7 feet



Project No. 973376

Figure 24

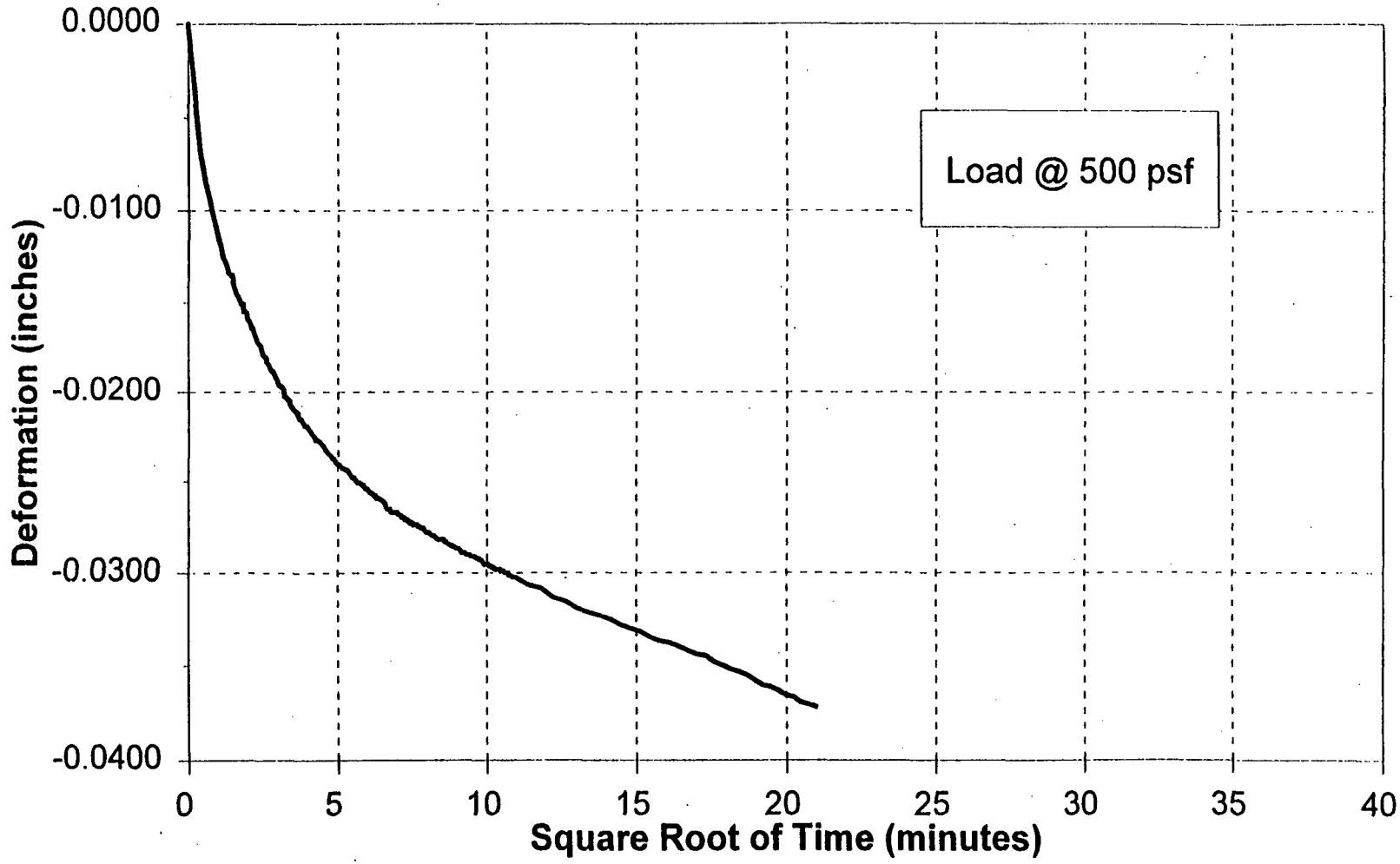
Time Rate of Consolidation
Sample: Pond 8E, BH-1 @ 7 feet



Project No. 973376

Figure 25

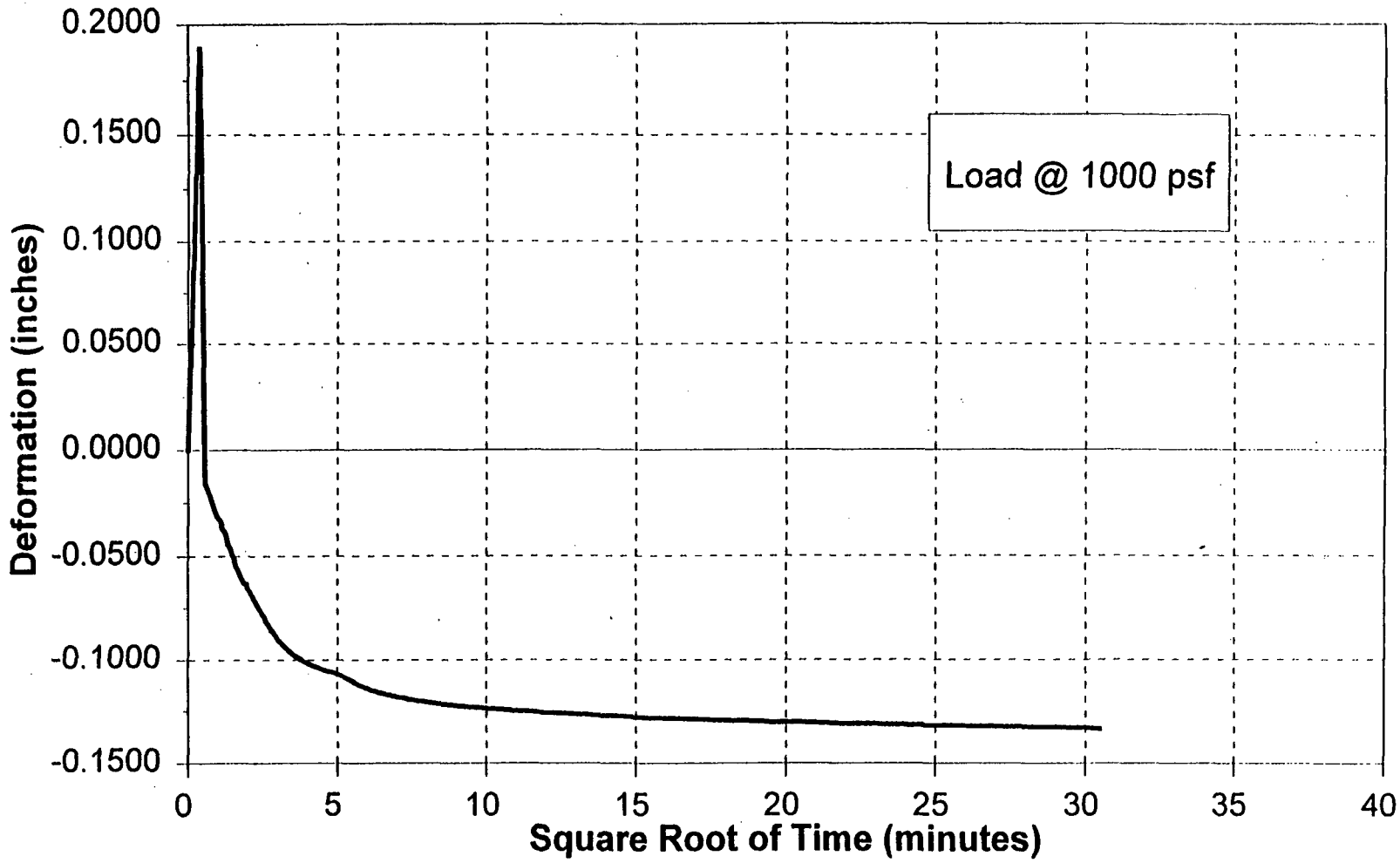
Time Rate of Consolidation
Sample: Pond 8E, BH-1 @ 7 feet



Project No. 973376

Figure 26

Time Rate of Consolidation
Sample: Pond 8E, BH-1 @ 7 feet

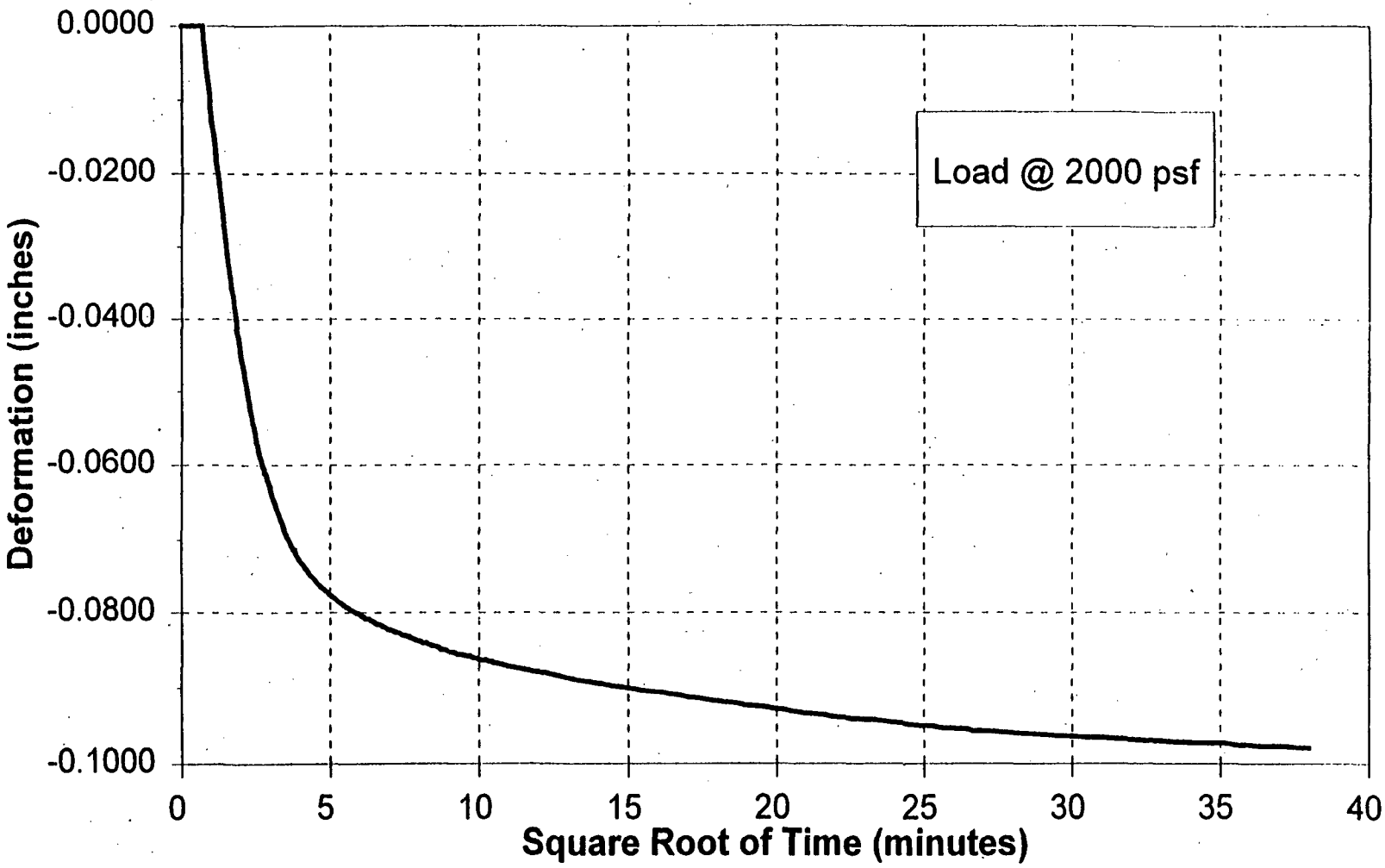


Project No. 973376

Figure 27

Time Rate of Consolidation

Sample: Pond 8E, BH-1 @ 7 feet

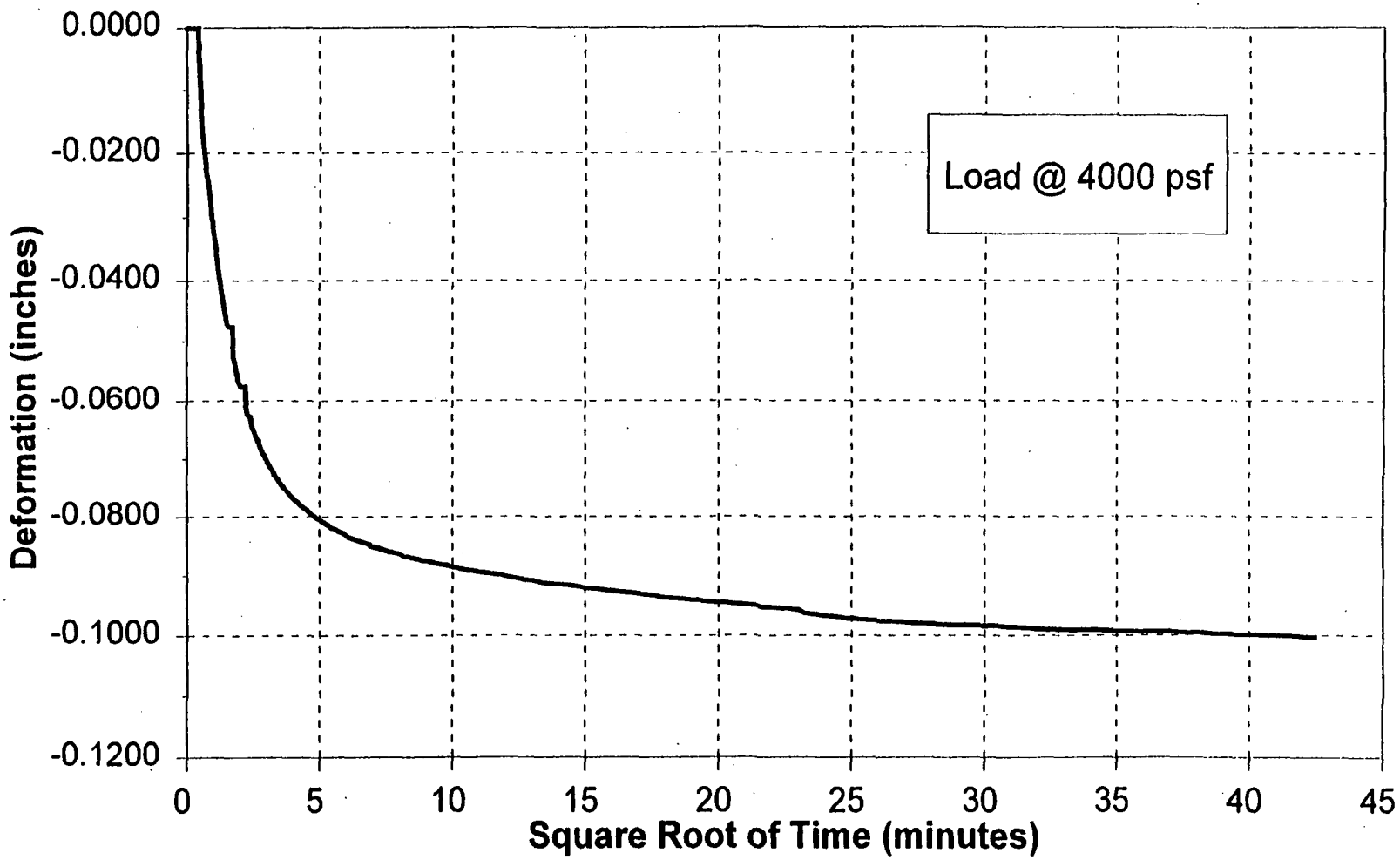


Project No. 973376

Figure 28

Time Rate of Consolidation

Sample: Pond 8E, BH-1 @ 7 feet

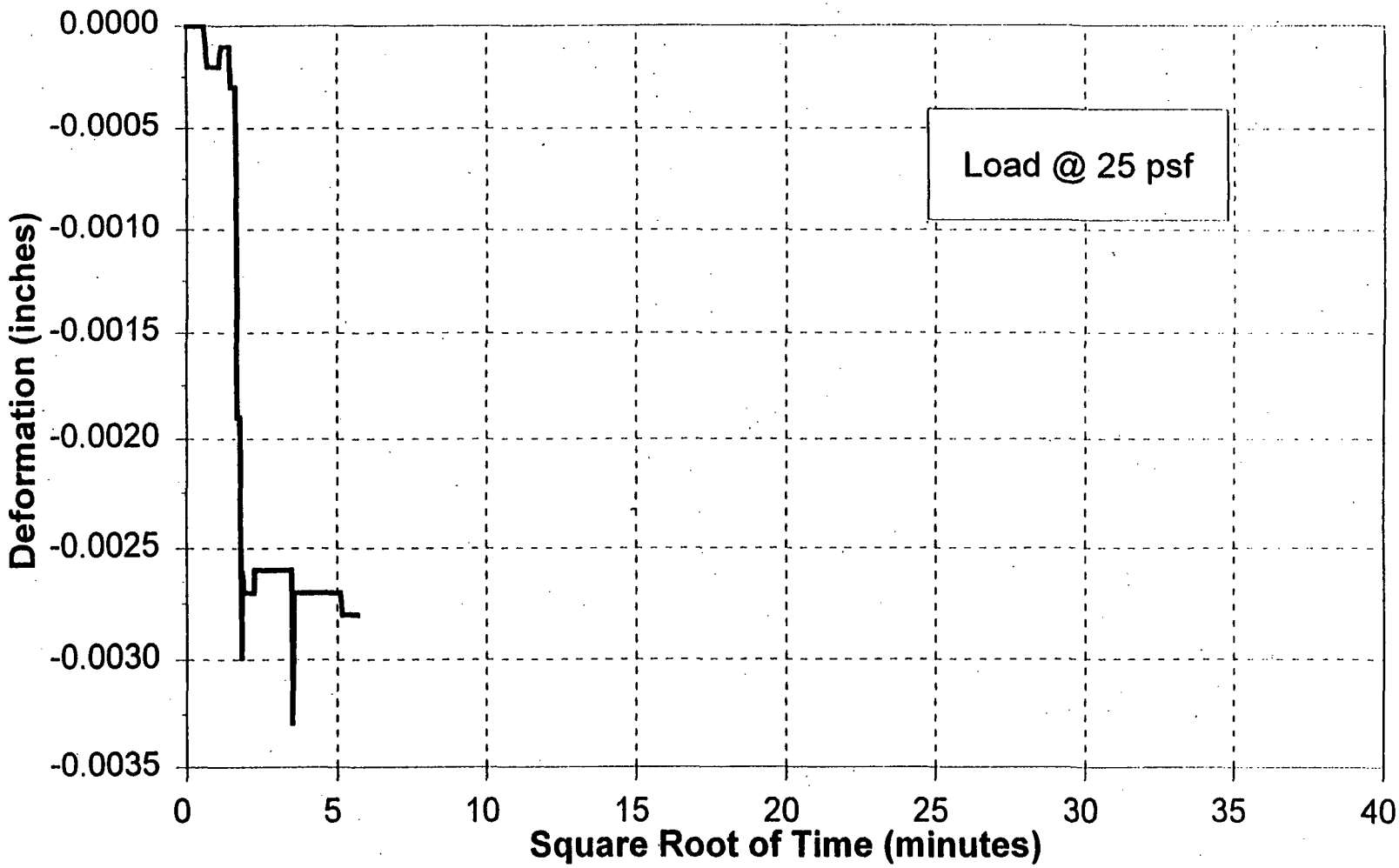


Project No. 973376

Figure 29

Time Rate of Consolidation

Sample: Pond 8E, BH-2 @ 10.5 feet

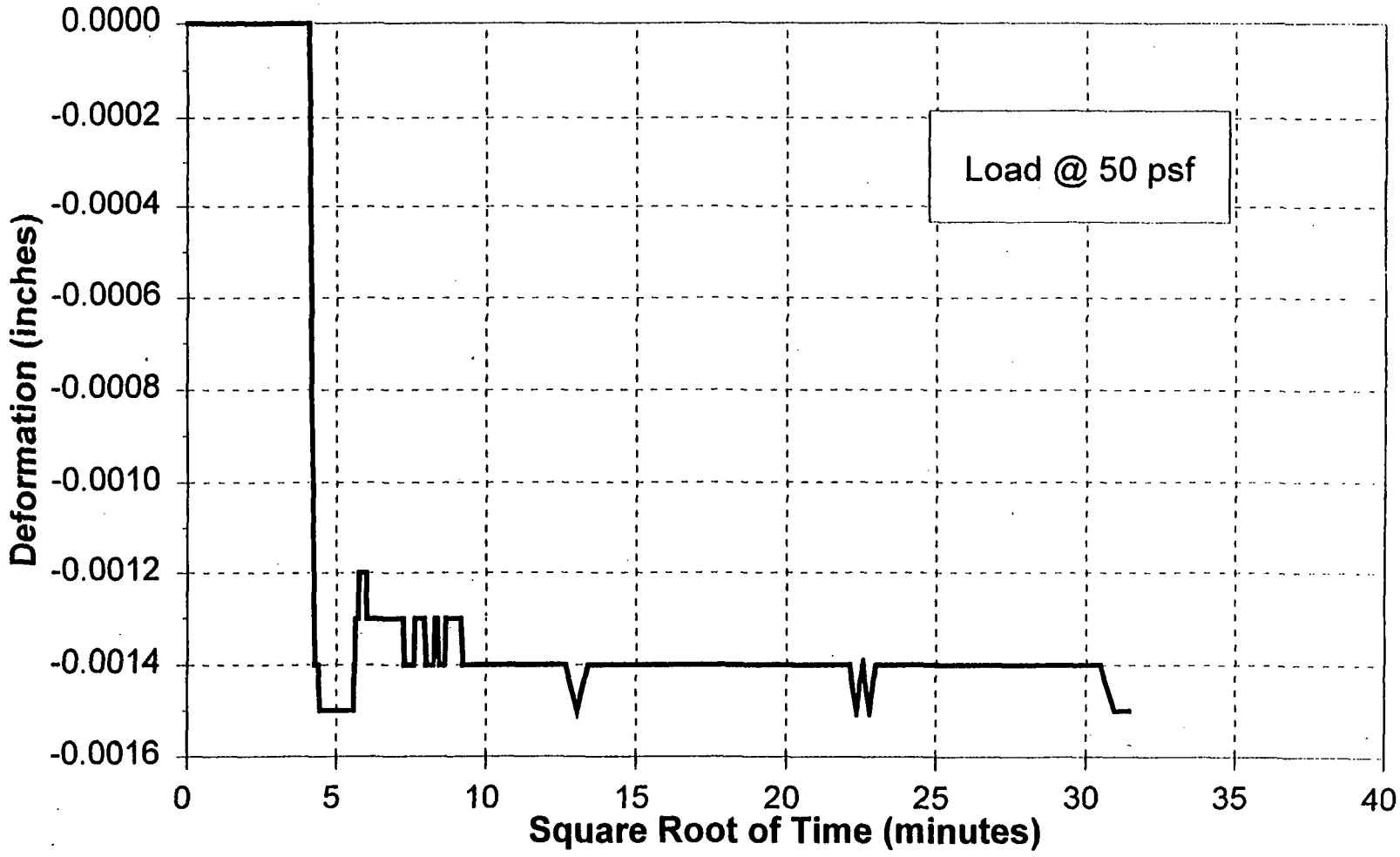


Project No. 973376

Figure 30

Time Rate of Consolidation

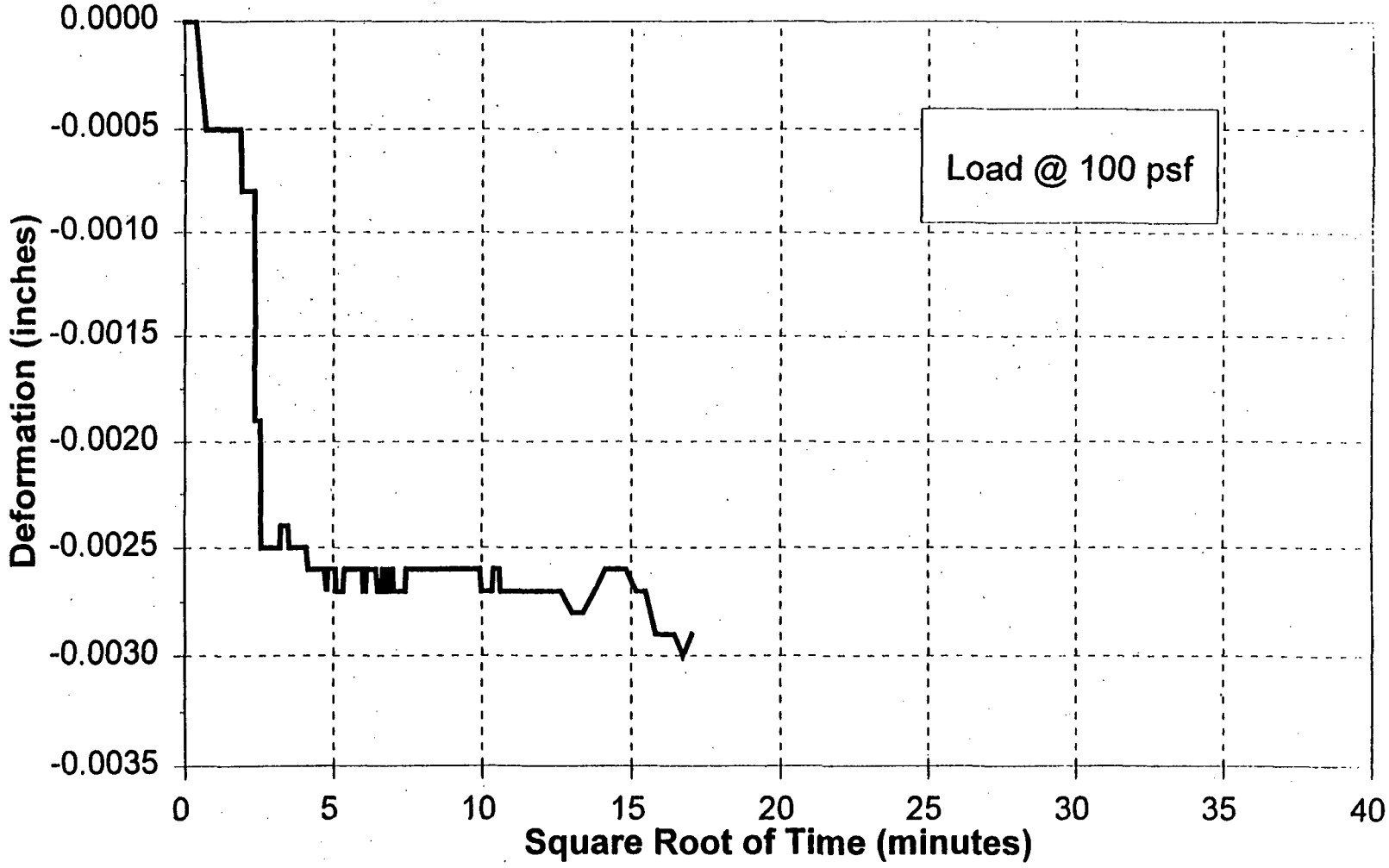
Sample: Pond 8E, BH-2 @ 10.2 feet



Project No. 973376

Figure 31

Time Rate of Consolidation
Sample: Pond 8E, BH-2 @ 10.2 feet

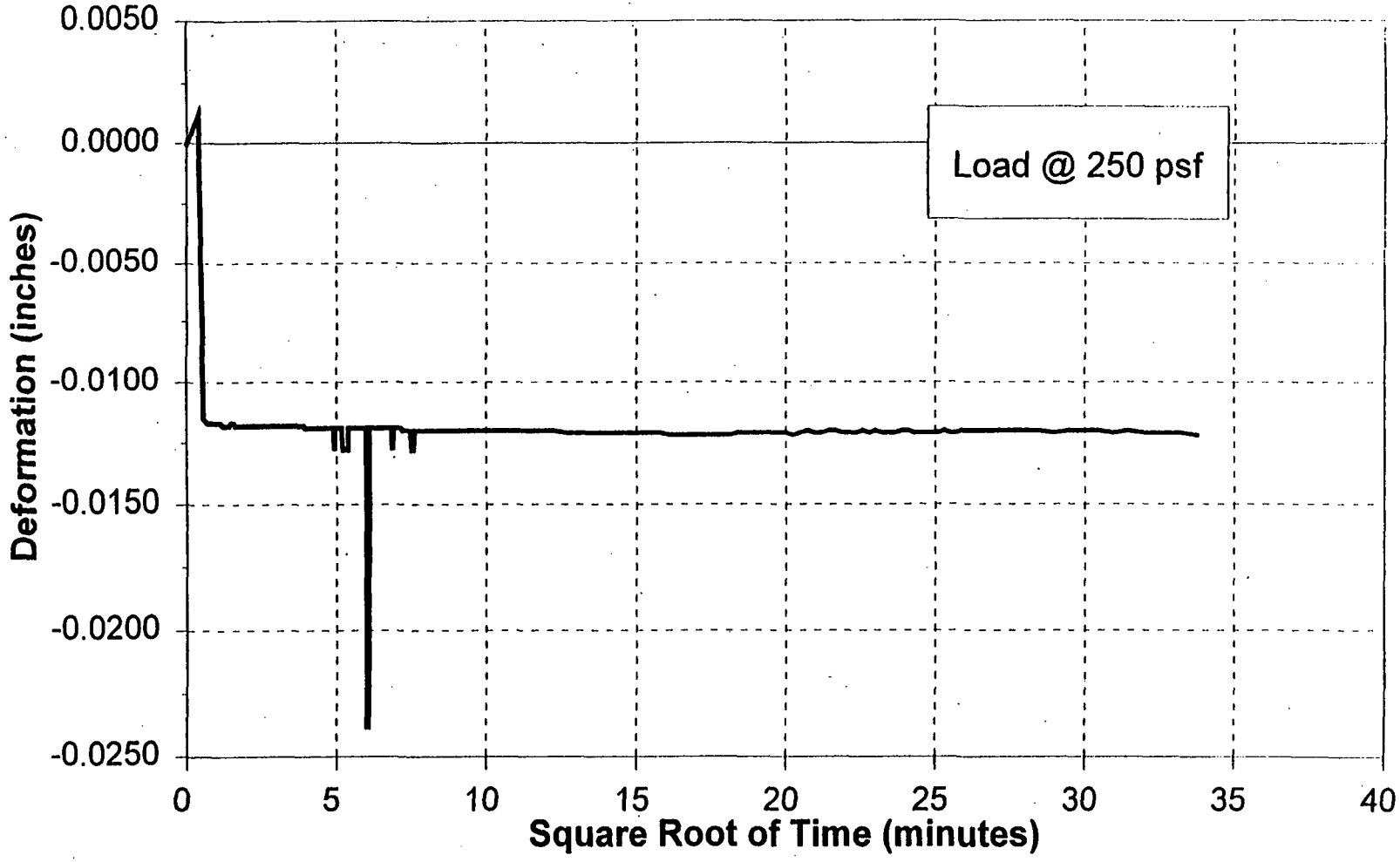


Project No. 973376

Figure 32

Time Rate of Consolidation

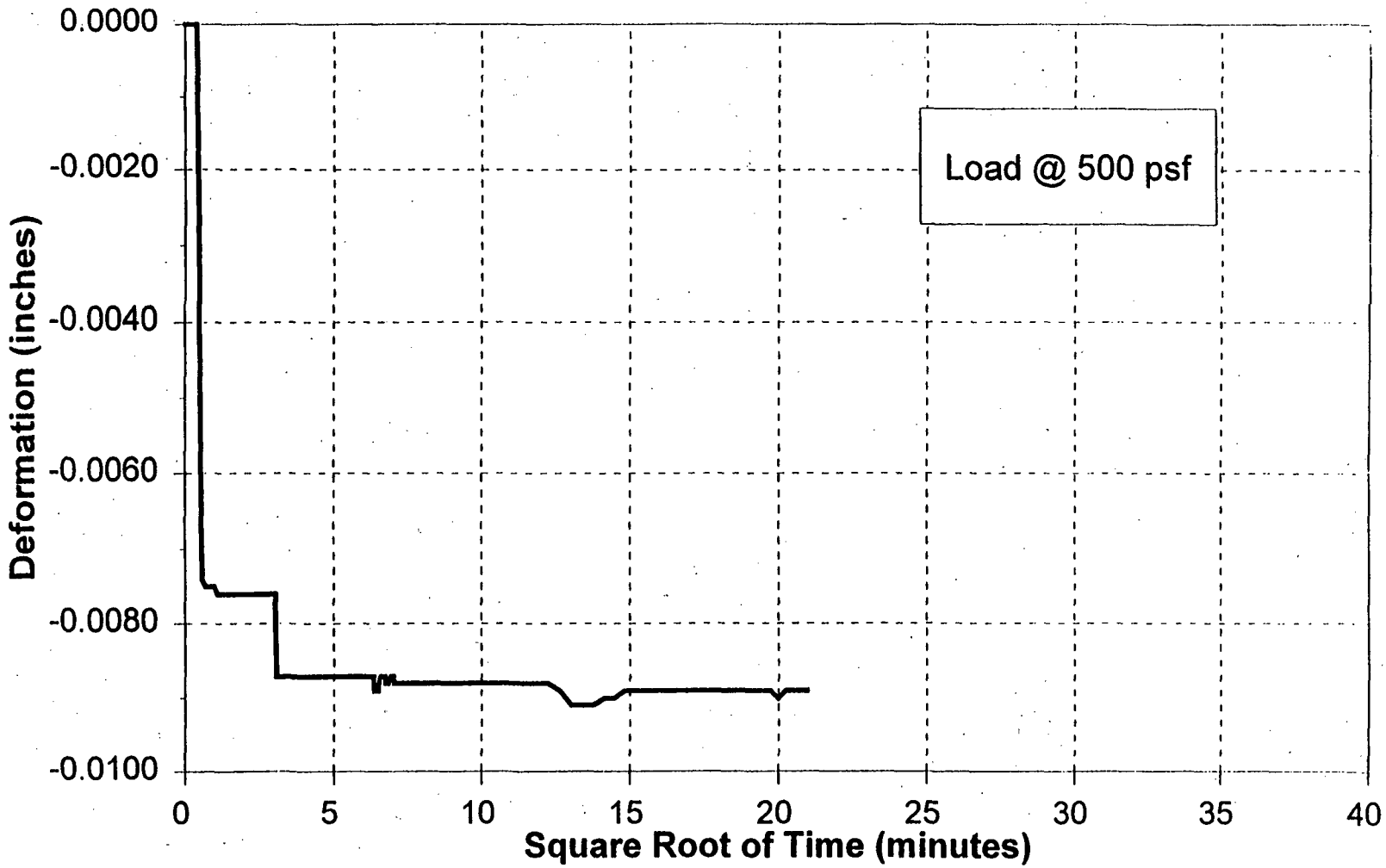
Sample: Pond 8E, BH-2 @ 10.2 feet



Project No. 973376

Figure 33

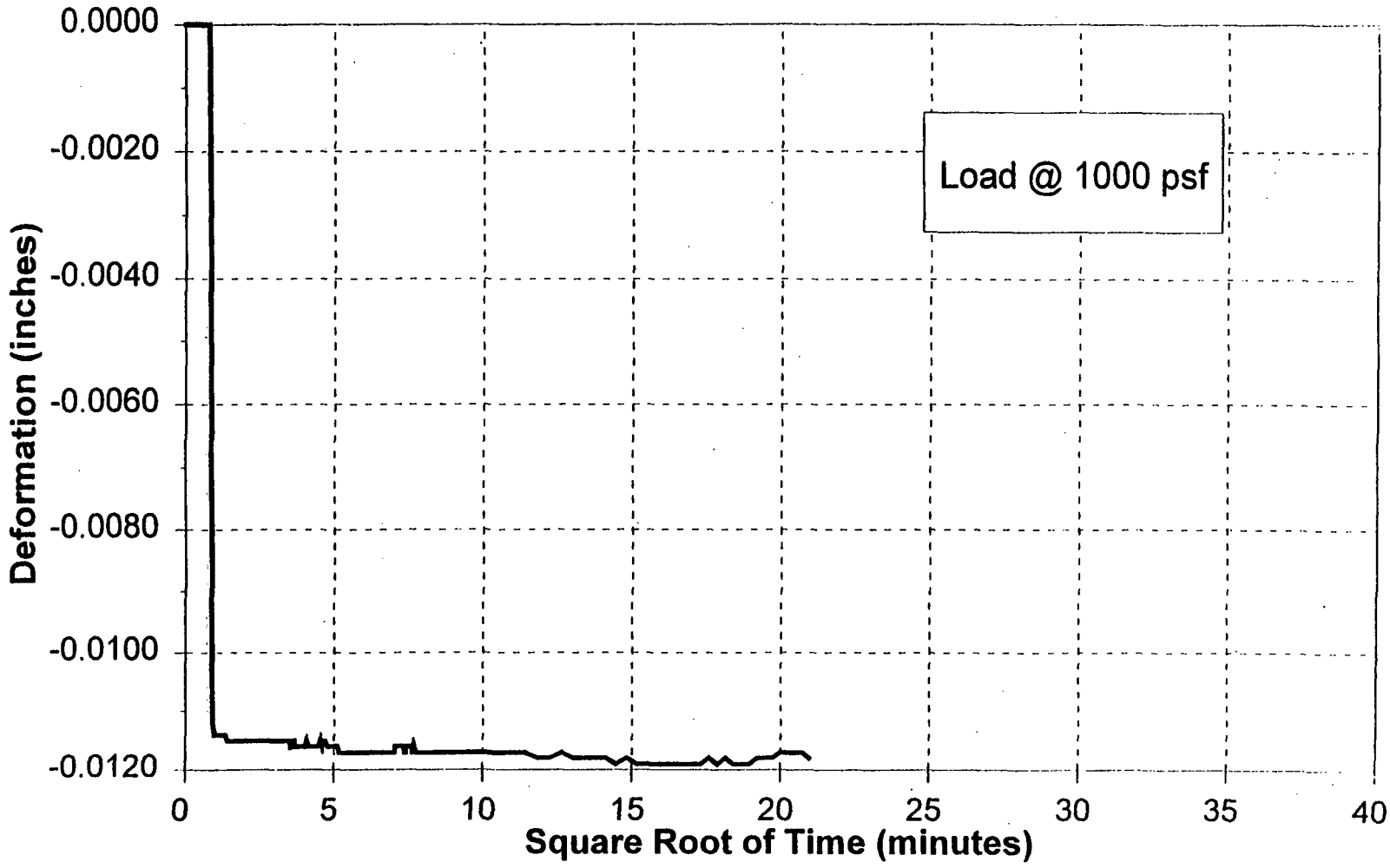
Time Rate of Consolidation
Sample: Pond 8E, BH-2 @ 10.2 feet



Project No. 973376

Figure 34

Time Rate of Consolidation
Sample: Pond 8E, BH-2 @ 10.2 feet

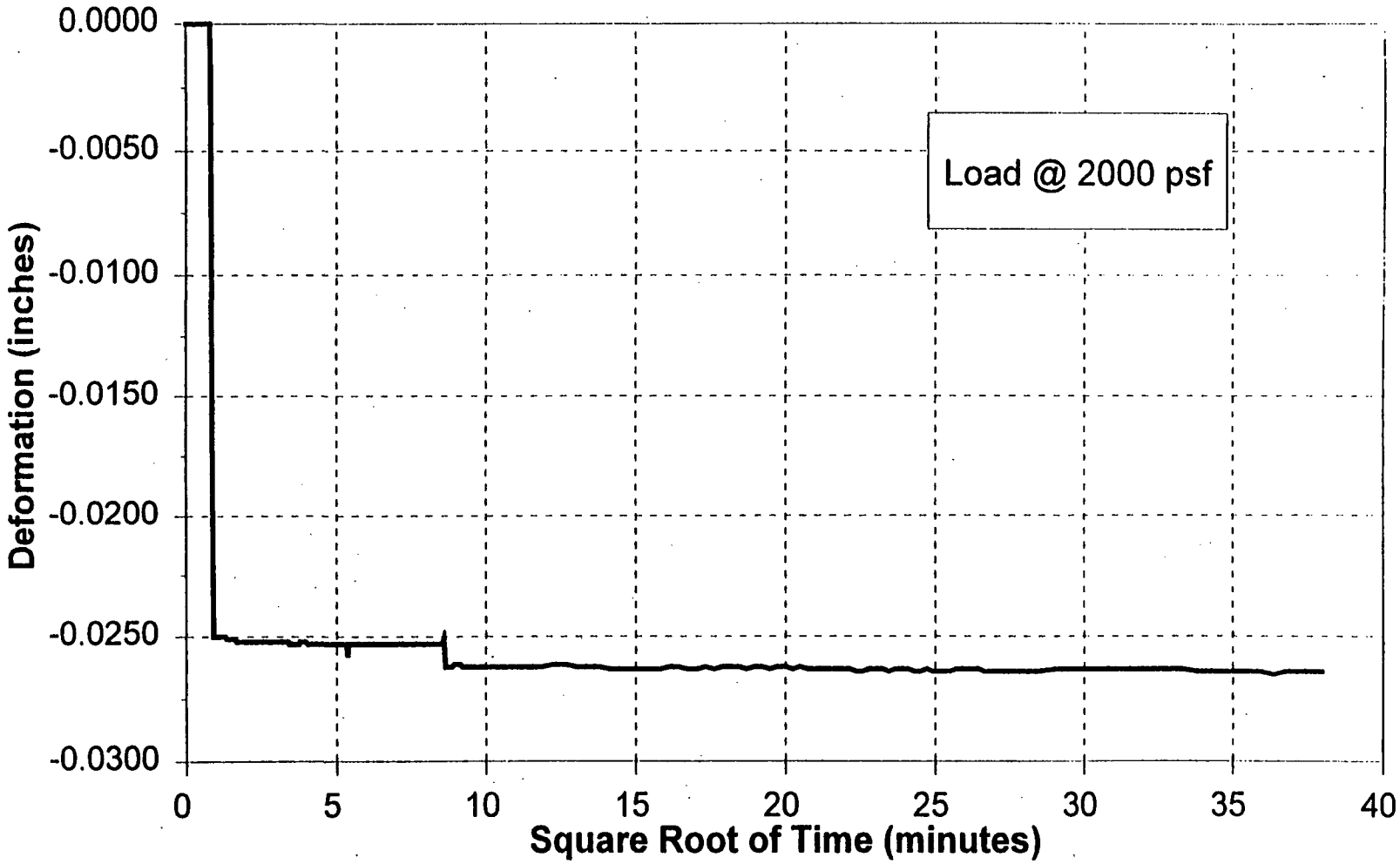


Project No. 973376

Figure 35

Time Rate of Consolidation

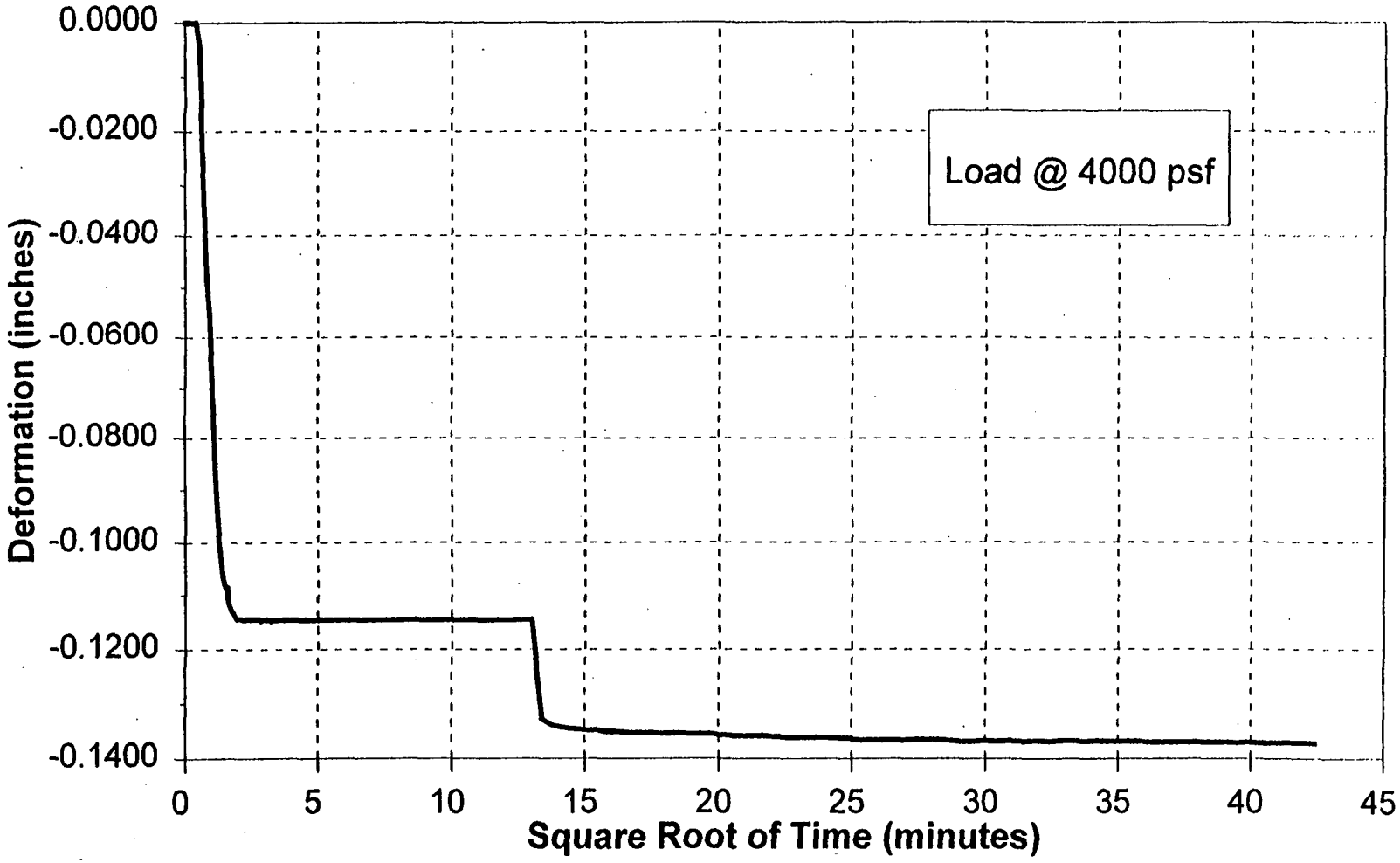
Sample: Pond 8E, BH-2 @ 10.2 feet



Project No. 973376

Figure 36

Time Rate of Consolidation
Sample: Pond 8E, BH-2 @ 10.2 feet

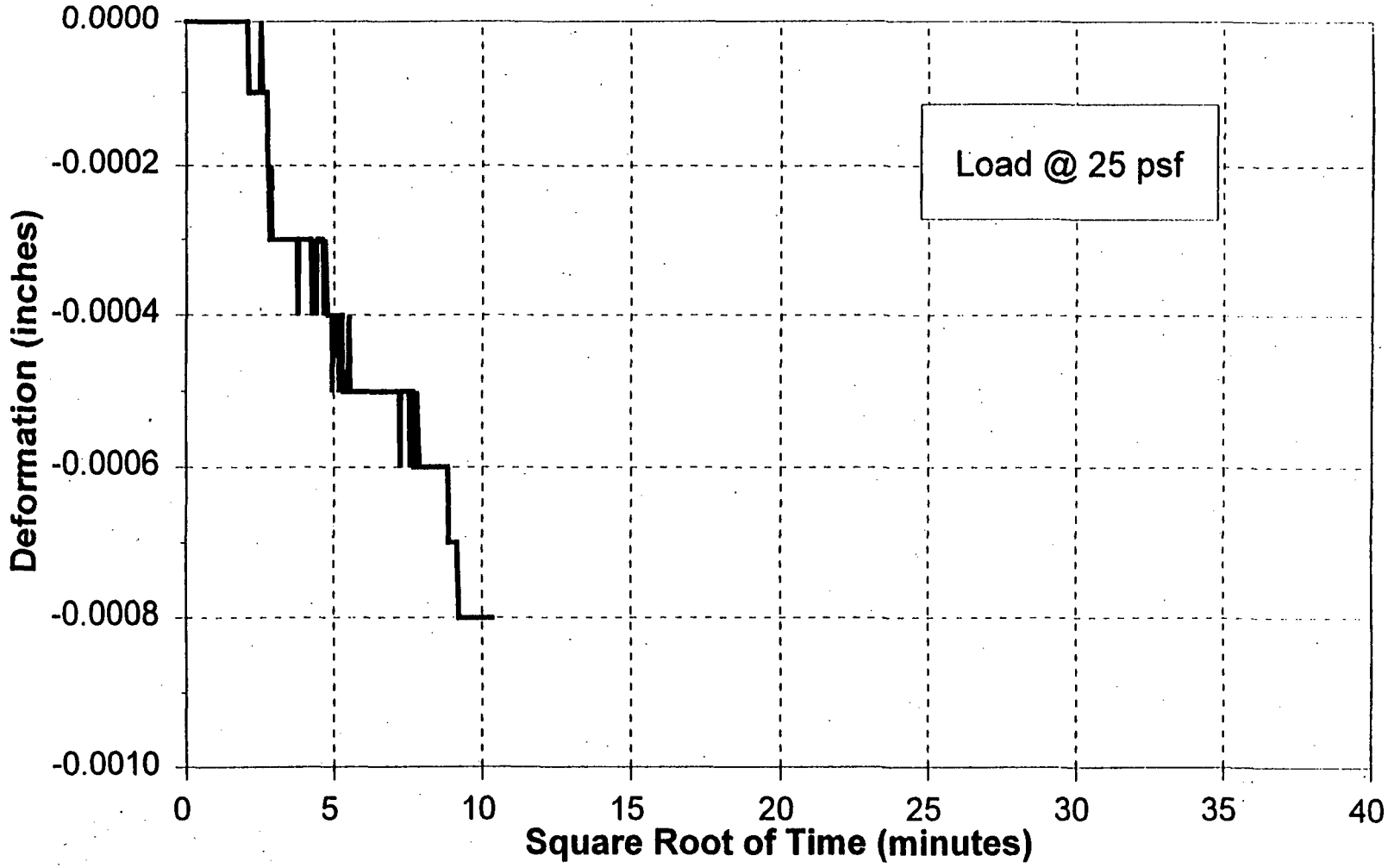


Project No. 973376

Figure 37

Time Rate of Consolidation

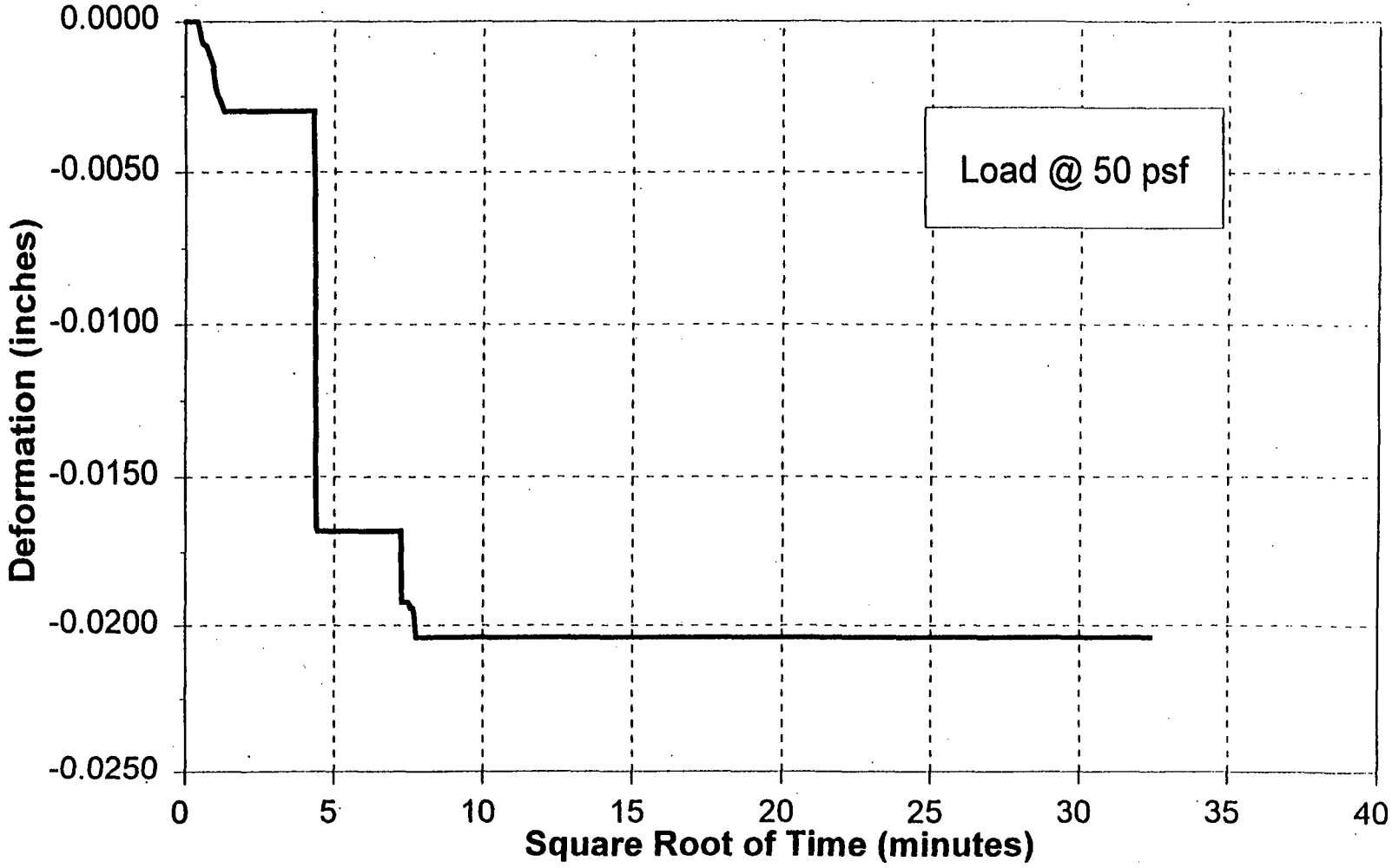
Sample: Pond 8E, BH-3 @ 13.5 feet



Project No. 973376

Figure 38

Time Rate of Consolidation
Sample: Pond 8E, BH-3 @ 13.5 feet

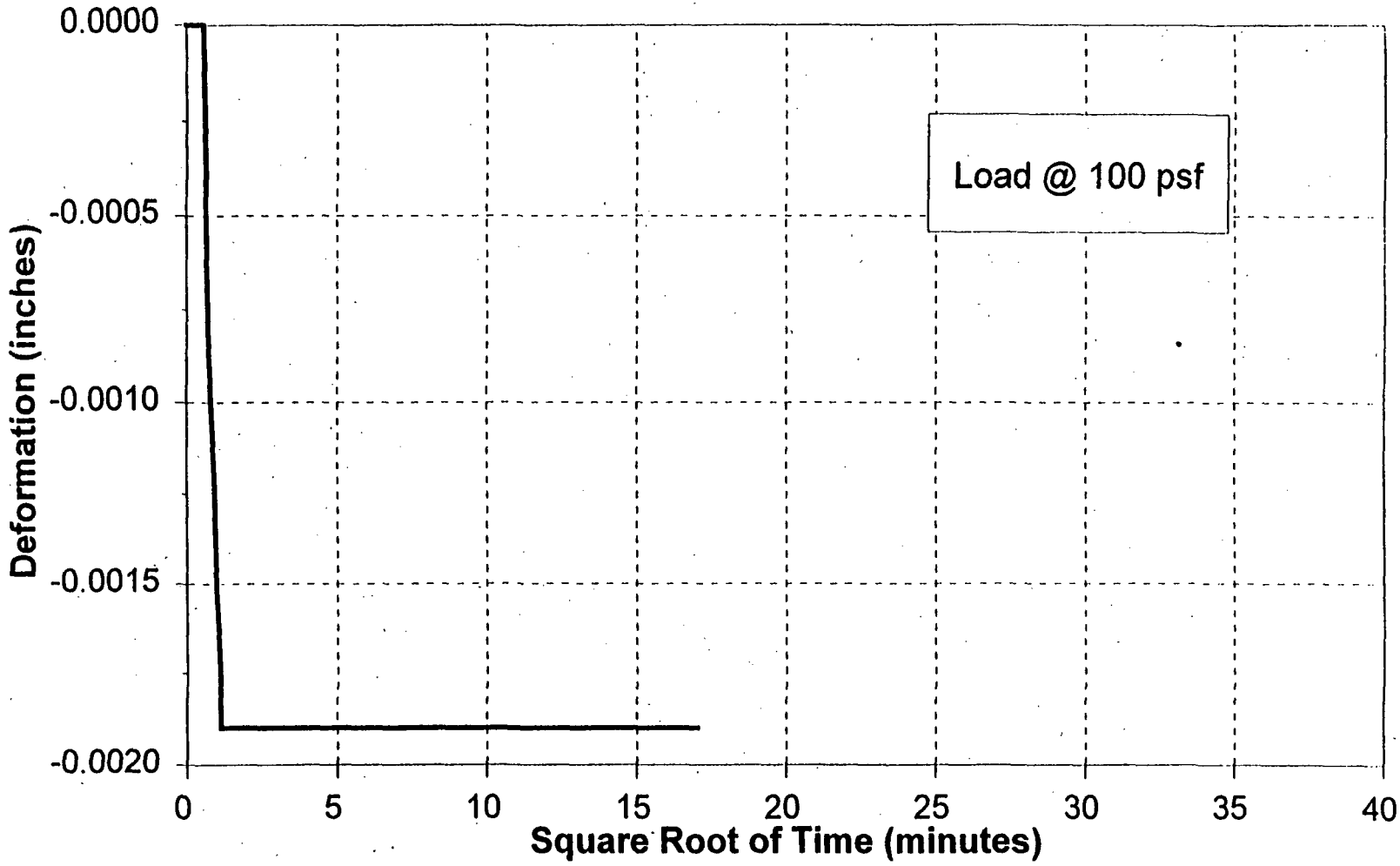


Project No. 973376

Figure 39

Time Rate of Consolidation

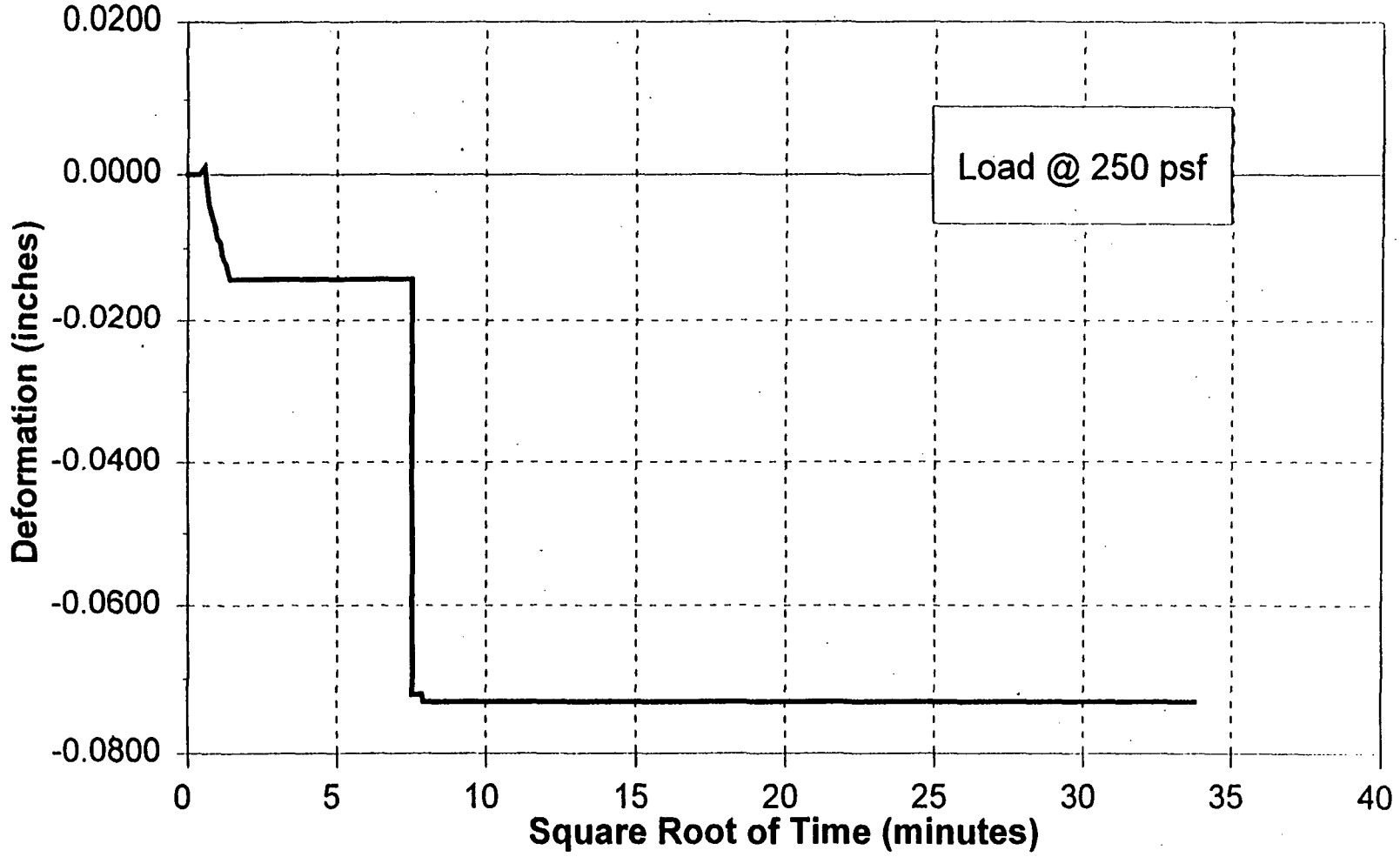
Sample: Pond 8E, BH-3 @ 13.5 feet



Project No. 973376

Figure 40

Time Rate of Consolidation
Sample: Pond 8E, BH-3 @ 13.5 feet

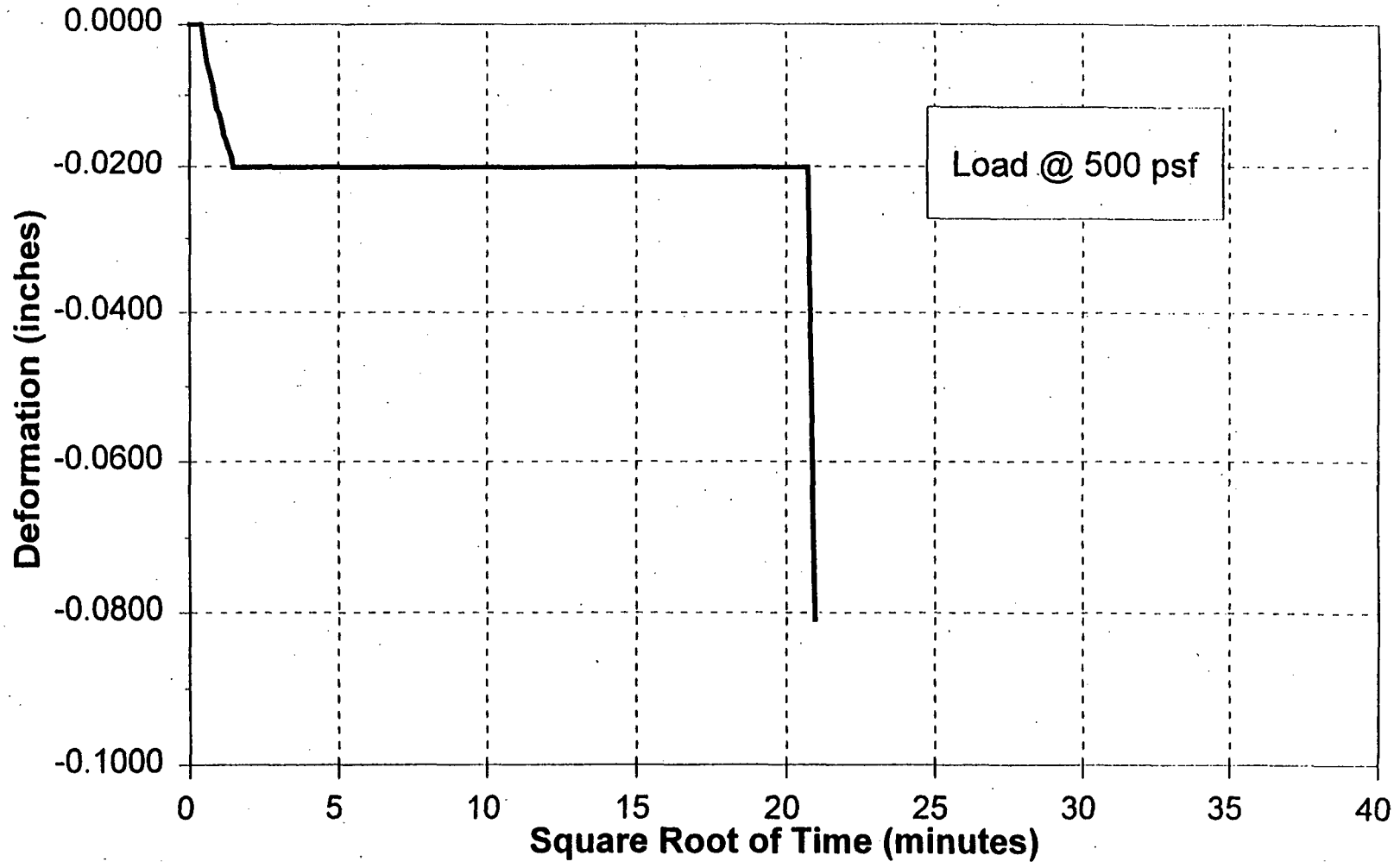


Project No. 973376

Figure 41

Time Rate of Consolidation

Sample: Pond 8E, BH-3 @ 13.5 feet

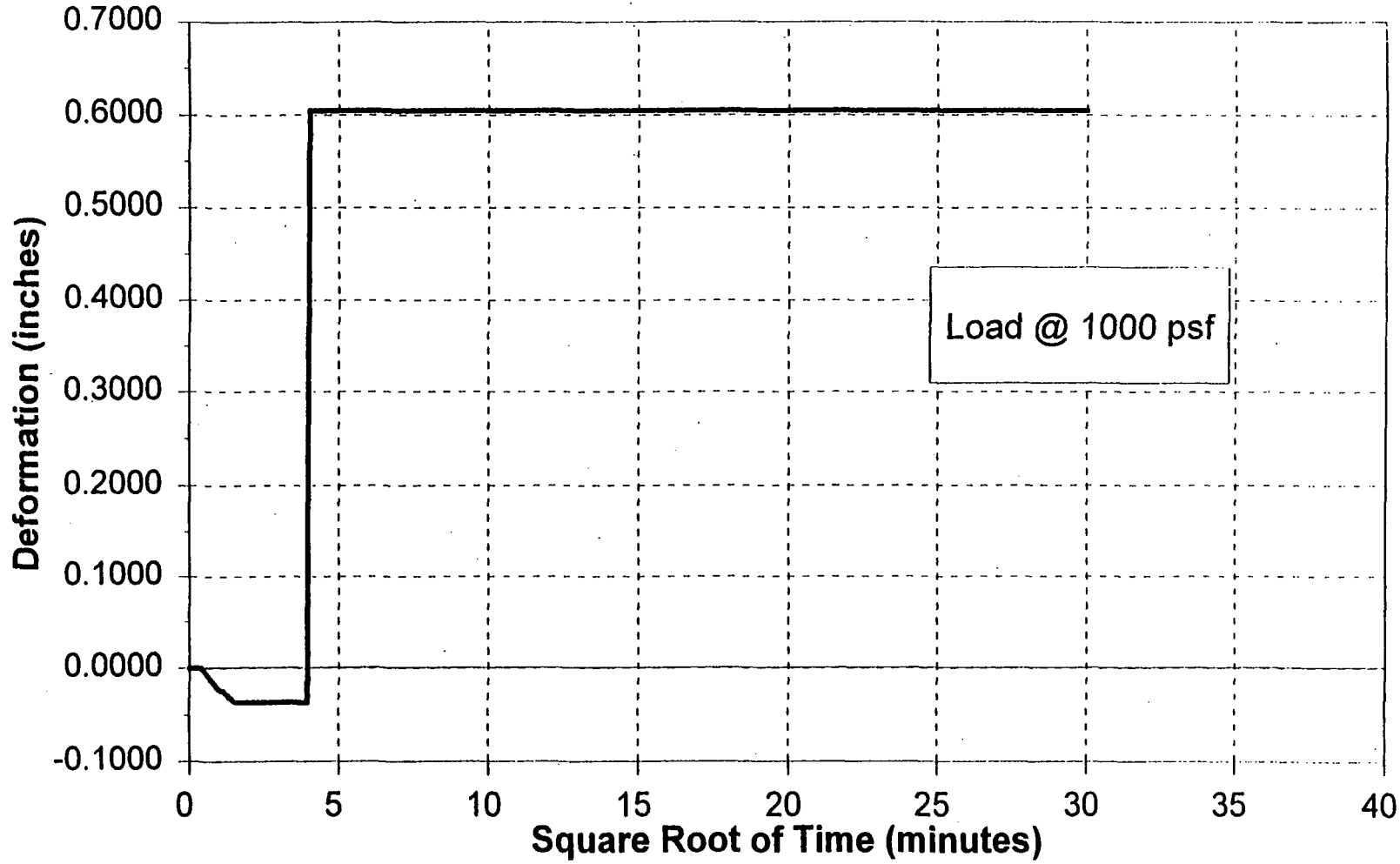


Project No. 973376

Figure 42

Time Rate of Consolidation

Sample: Pond 8E, BH-3 @ 13.5 feet

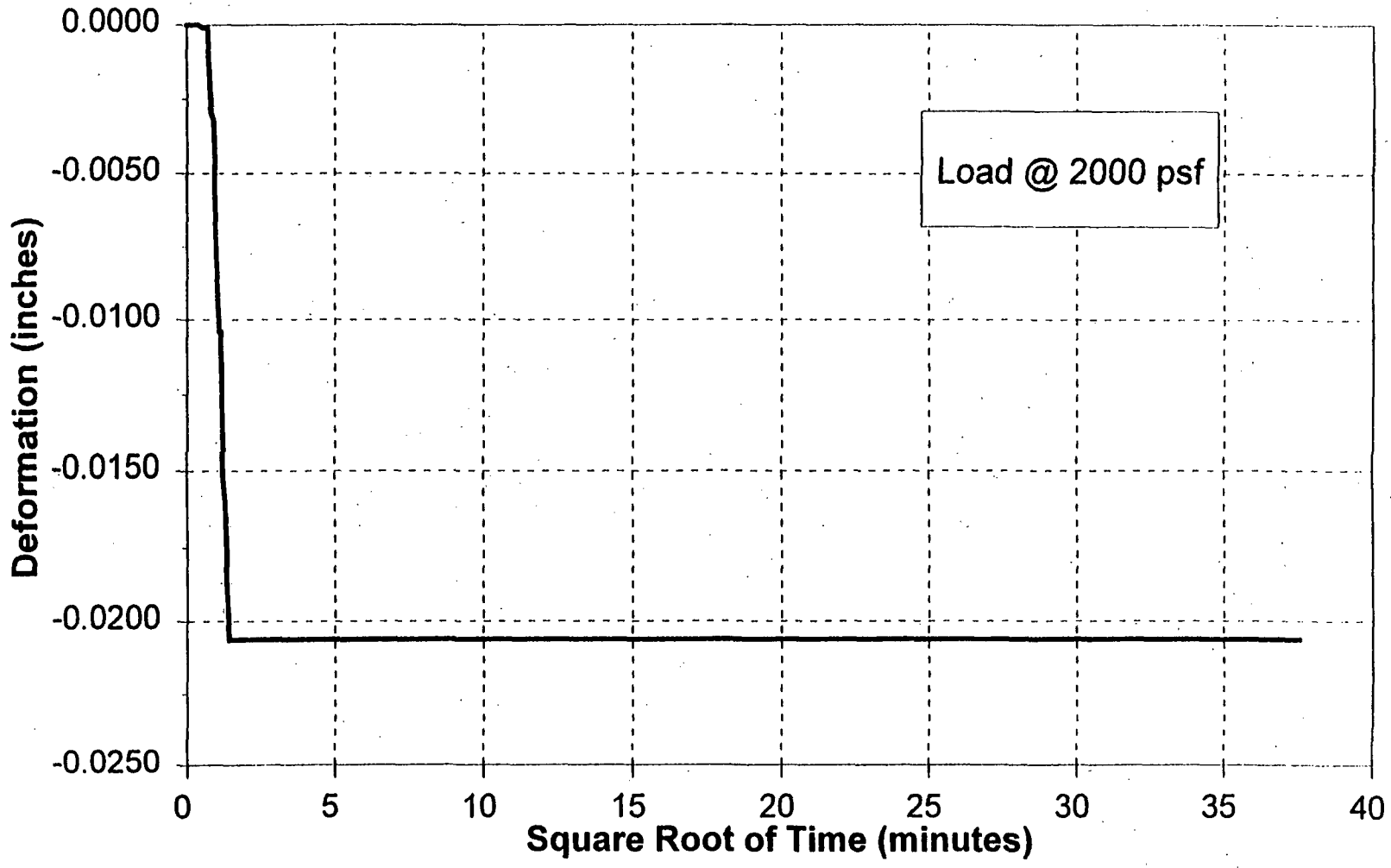


Project No. 973376

Figure 43

Time Rate of Consolidation

Sample: Pond 8E, BH-3 @ 13.5 feet

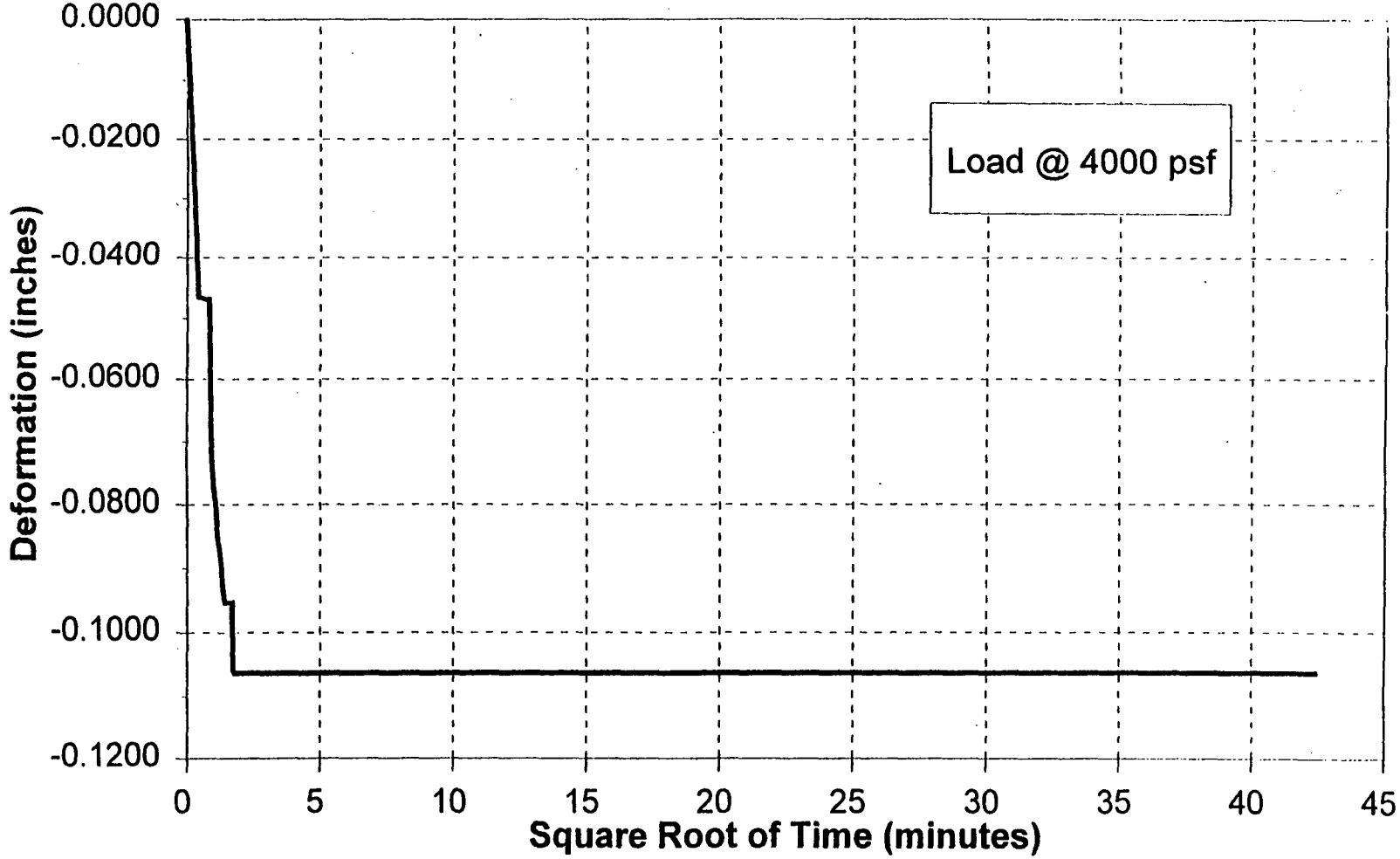


Project No. 973376

Figure 44

Time Rate of Consolidation

Sample: Pond 8E, BH-3 @ 13.5 feet

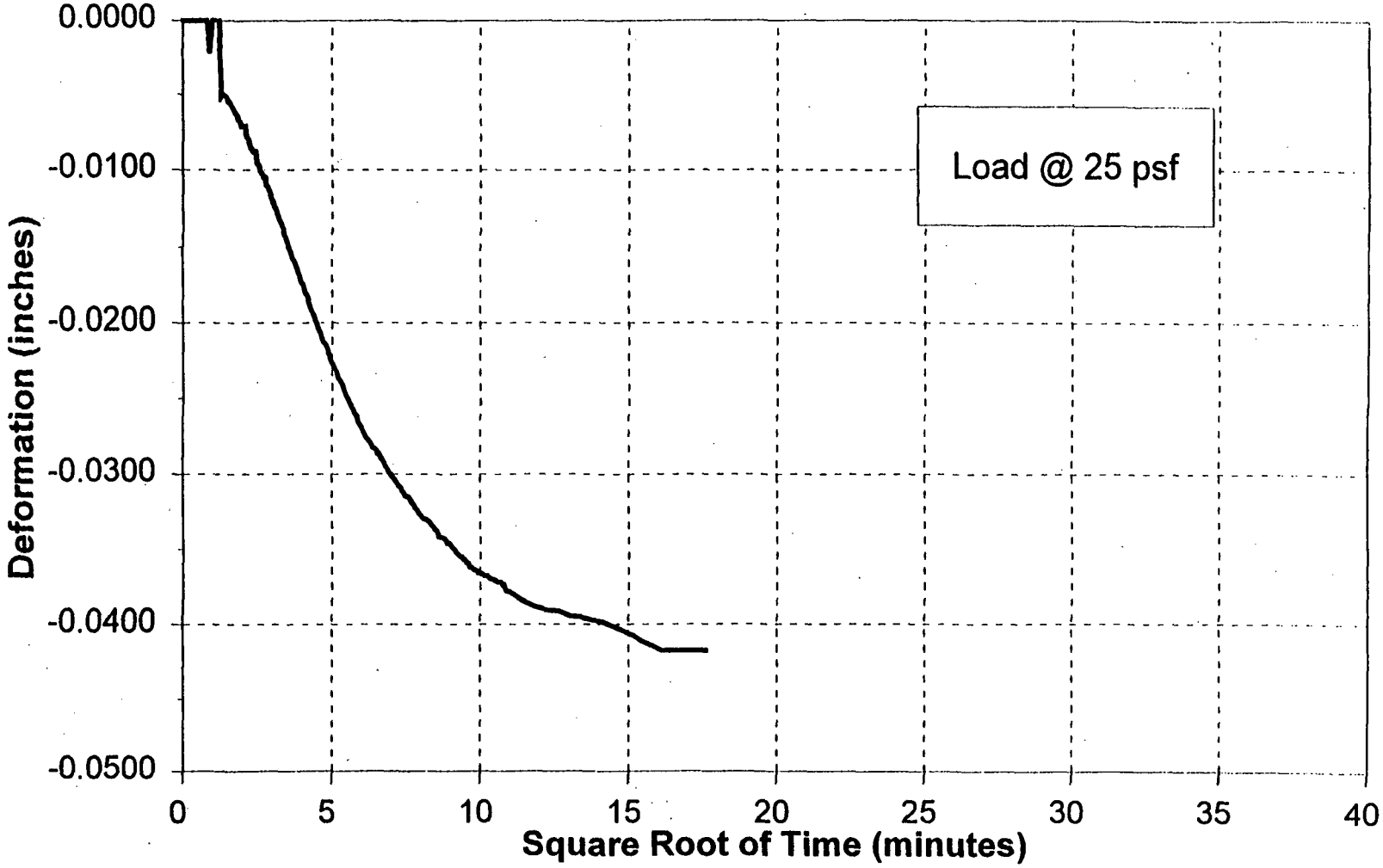


Project No. 973376

Figure 45

Time Rate of Consolidation

Sample: Pond 8E, BH-5 @ 4.5 feet

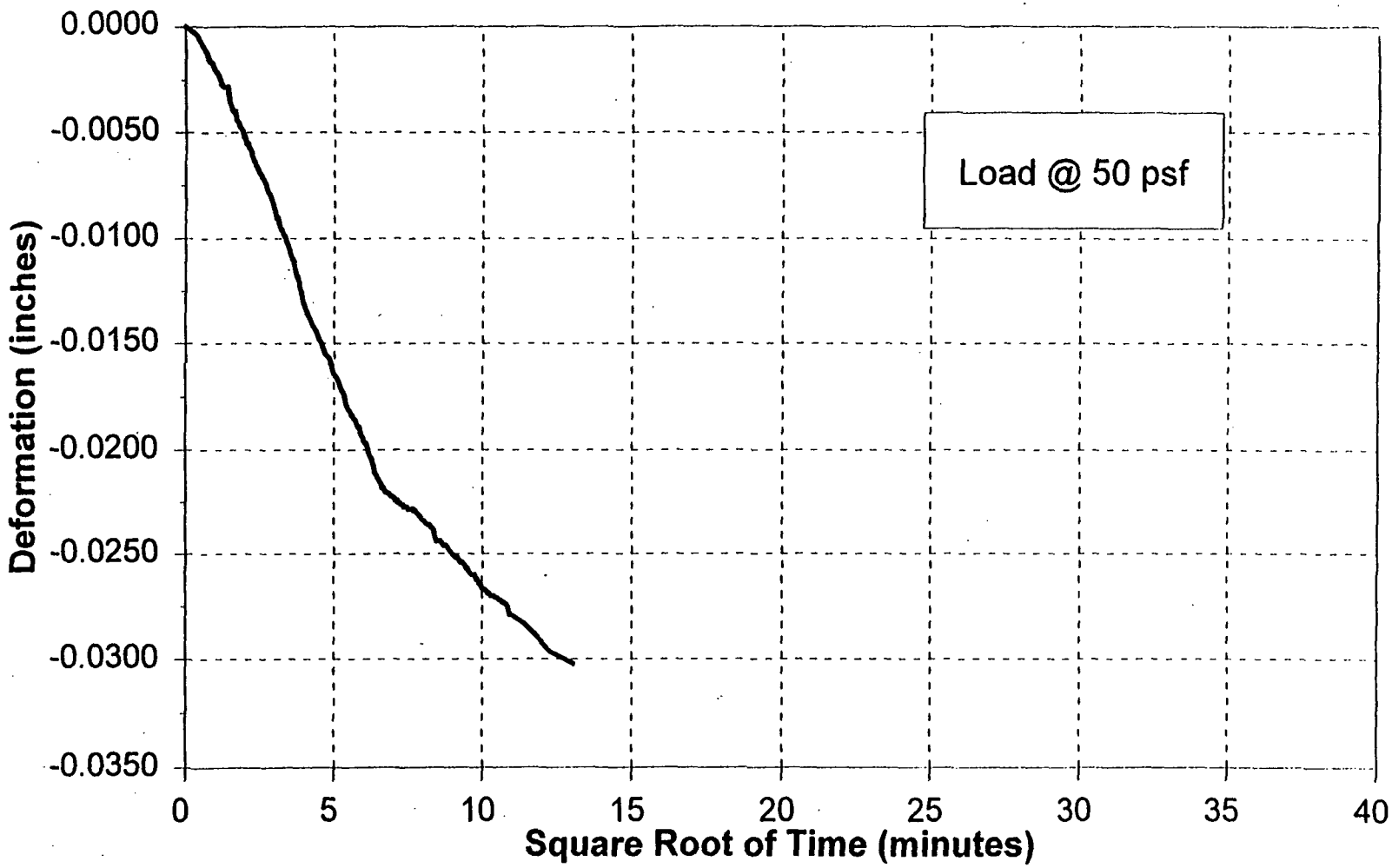


Project No. 973376

Figure 46

Time Rate of Consolidation

Sample: Pond 8E, BH-5 @ 4.5 feet

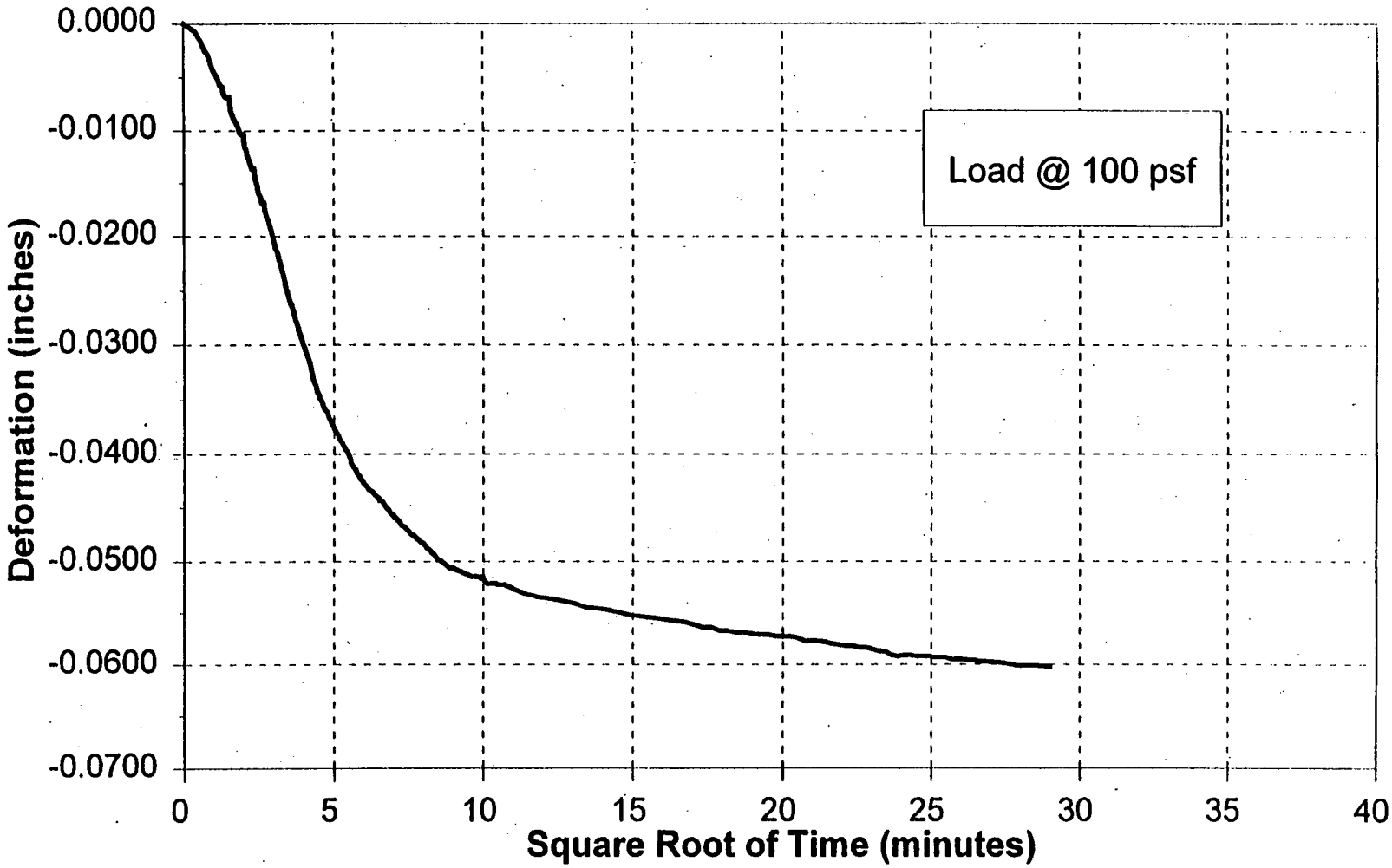


Project No. 973376

Figure 47

Time Rate of Consolidation

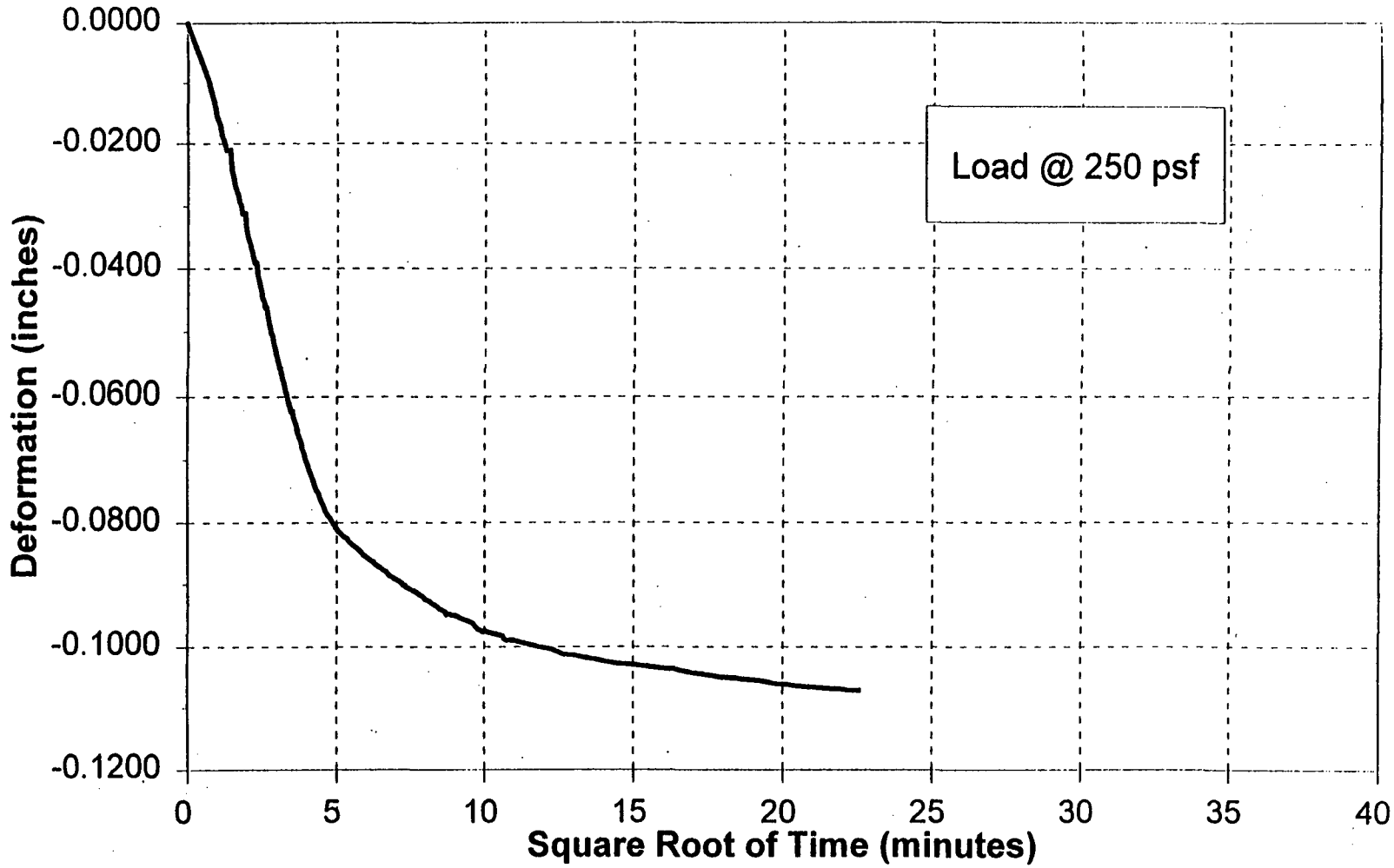
Sample: Pond 8E, BH-5 @ 4.5 feet



Project No. 973376

Figure 48

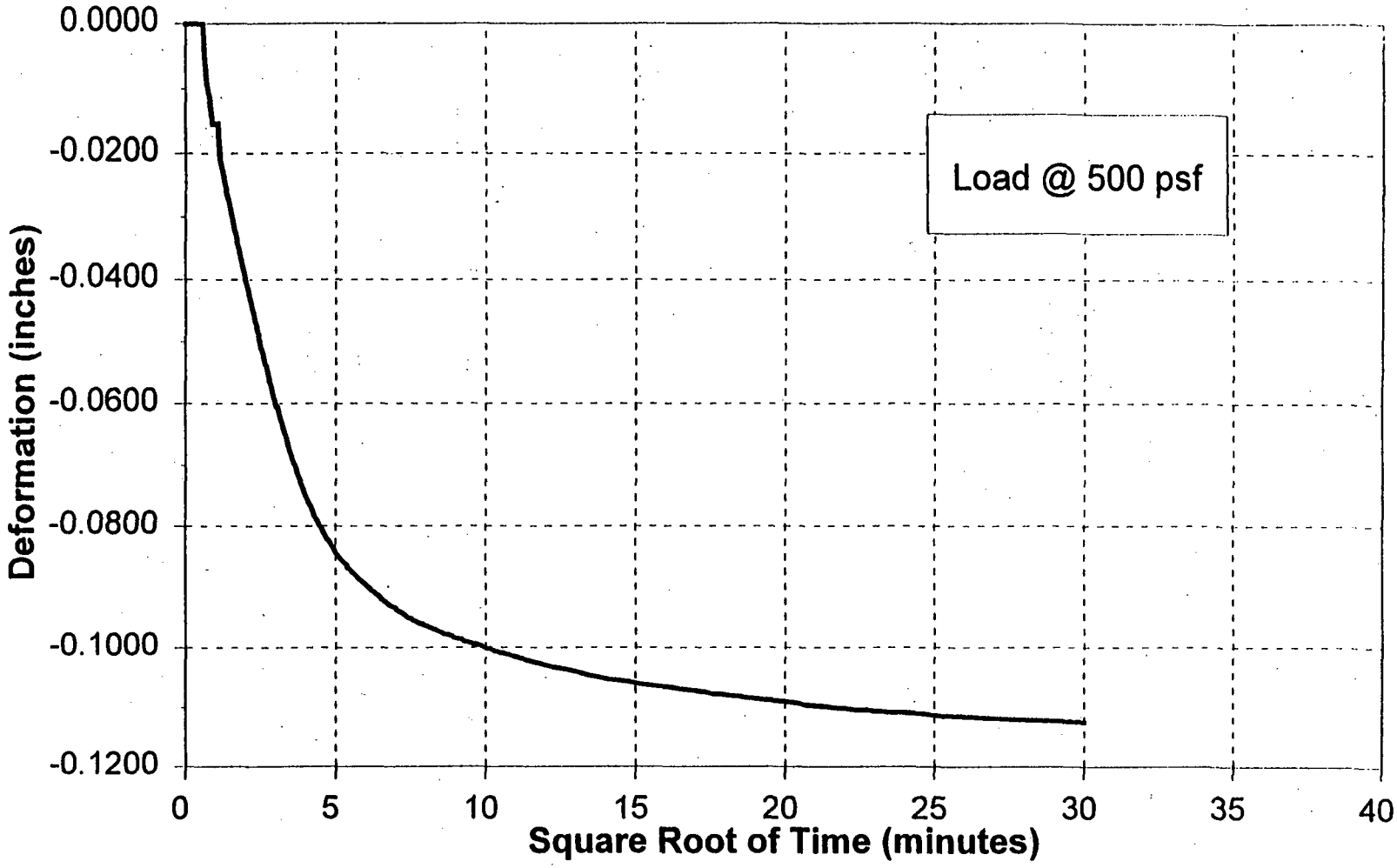
Time Rate of Consolidation
Sample: Pond 8E, BH-5 @ 4.5 feet



Project No. 973376

Figure 49

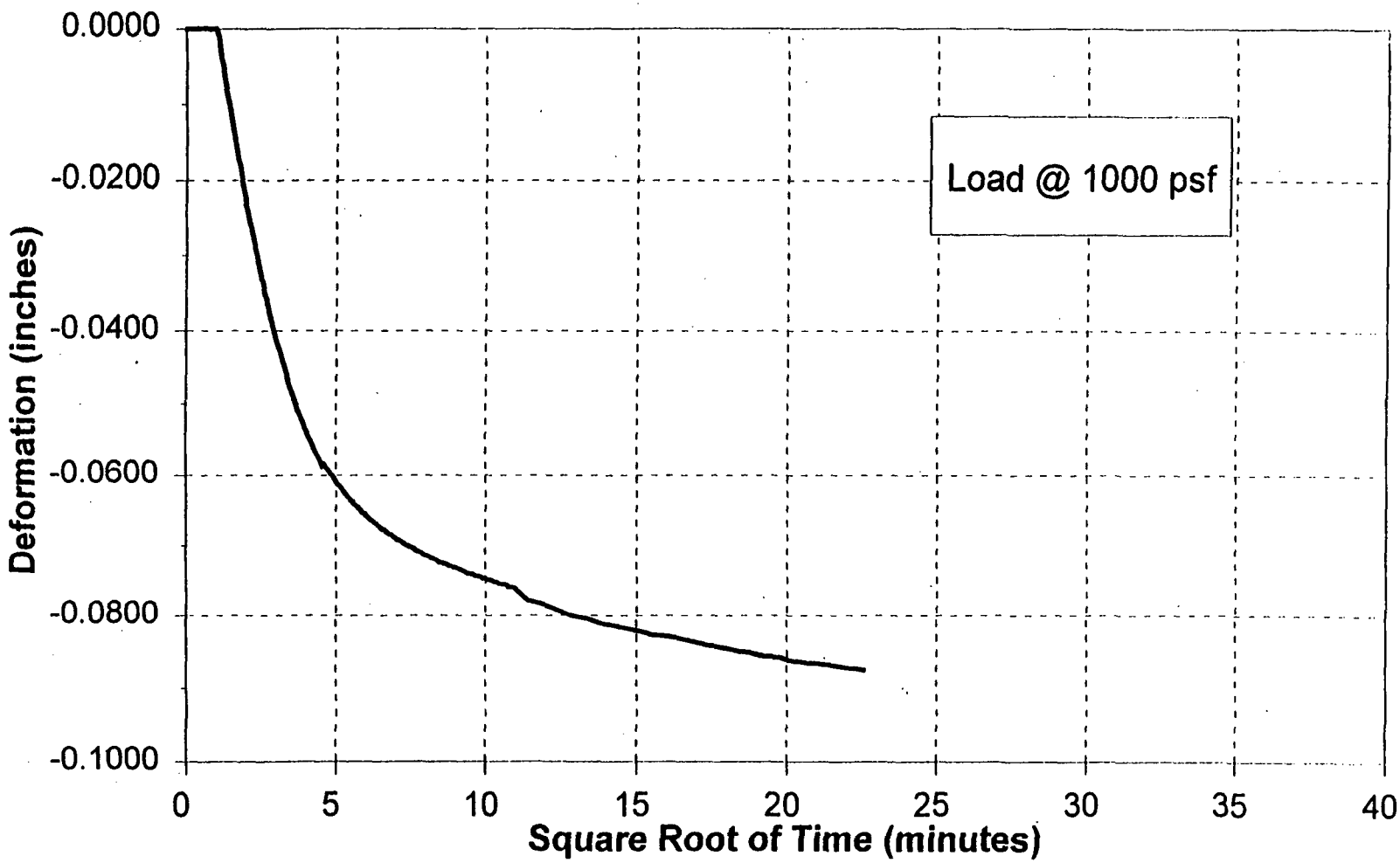
Time Rate of Consolidation
Sample: Pond 8E, BH-5 @ 4.5 feet



Project No. 973376

Figure 50

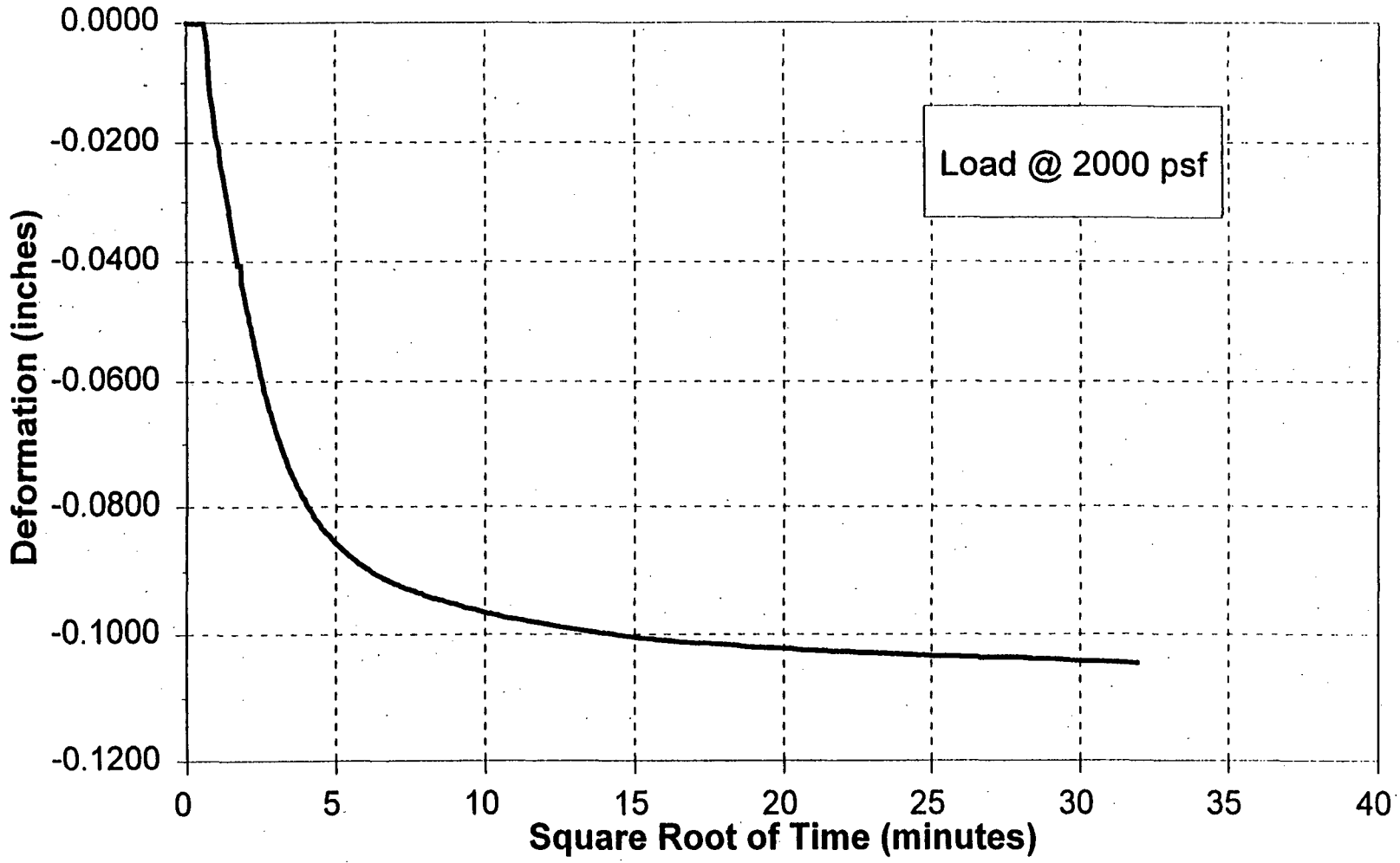
Time Rate of Consolidation
Sample: Pond 8E, BH-5 @ 4.5 feet



Project No. 973376

Figure 51

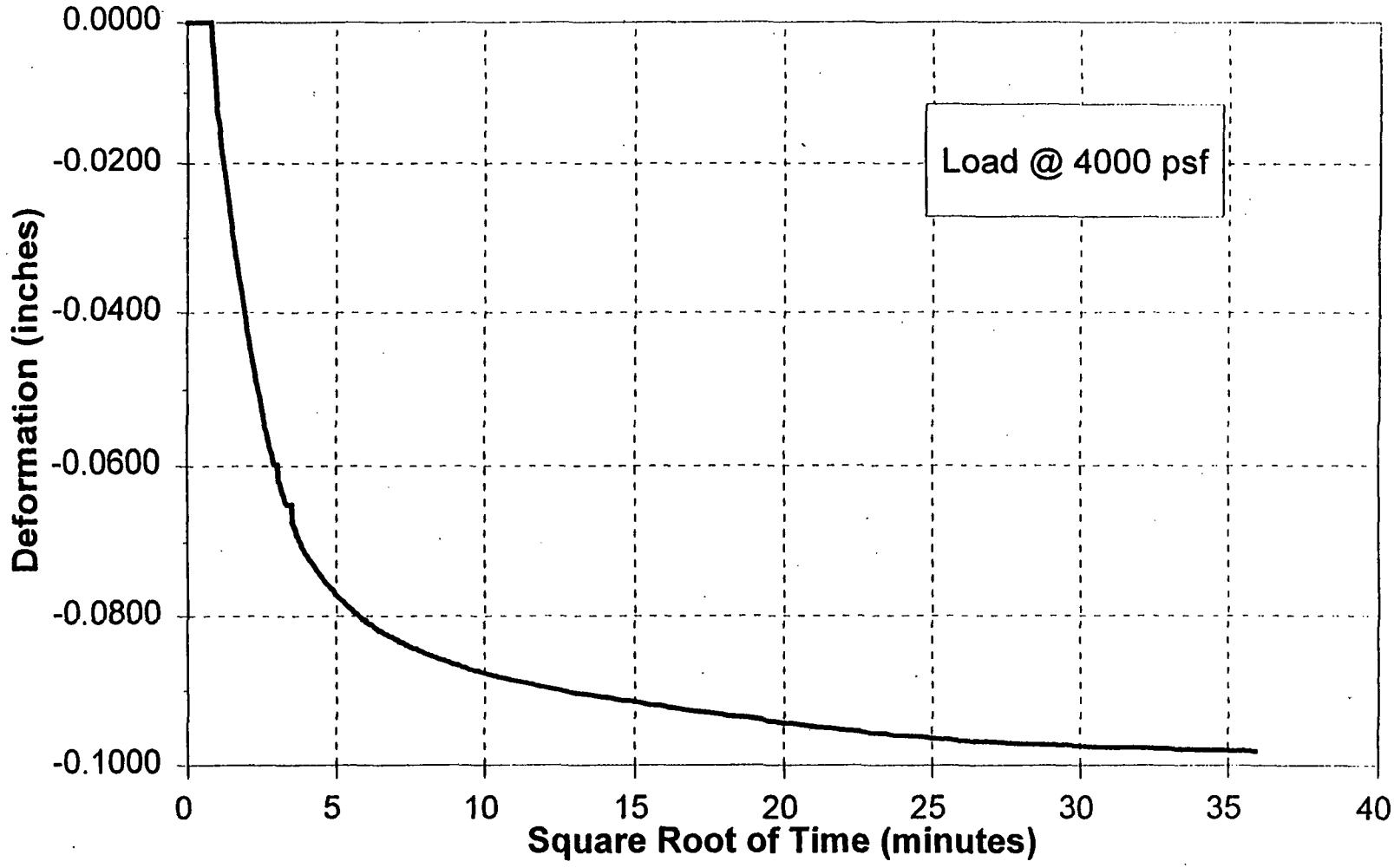
Time Rate of Consolidation
Sample: Pond 8E, BH-5 @ 4.5 feet



Project No. 973376

Figure 52

Time Rate of Consolidation
Sample: Pond 8E, BH-5 @ 4.5 feet

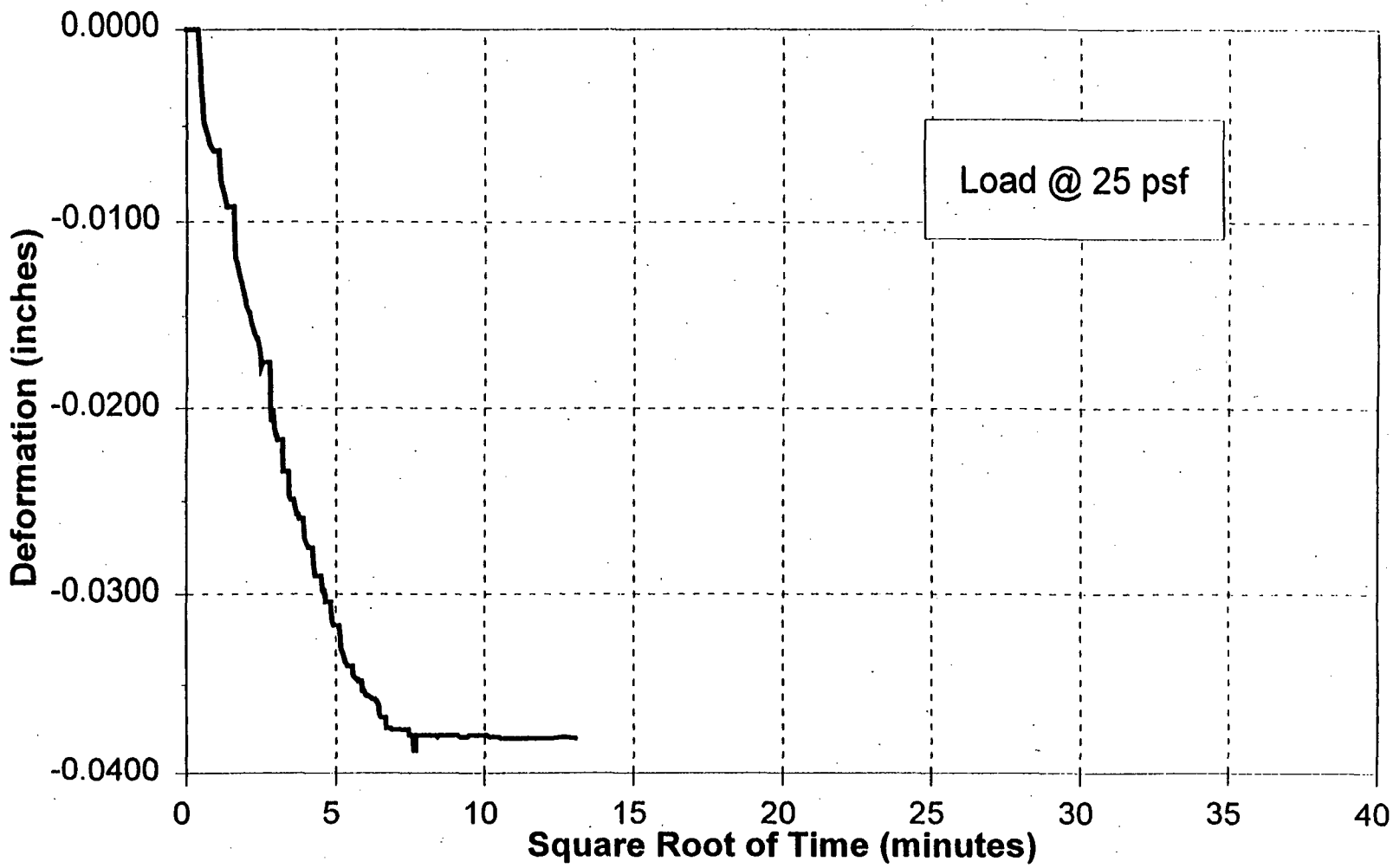


Project No. 973376

Figure 53

Time Rate of Consolidation

Sample: Pond 11S, BH-1 @ 7.5 feet

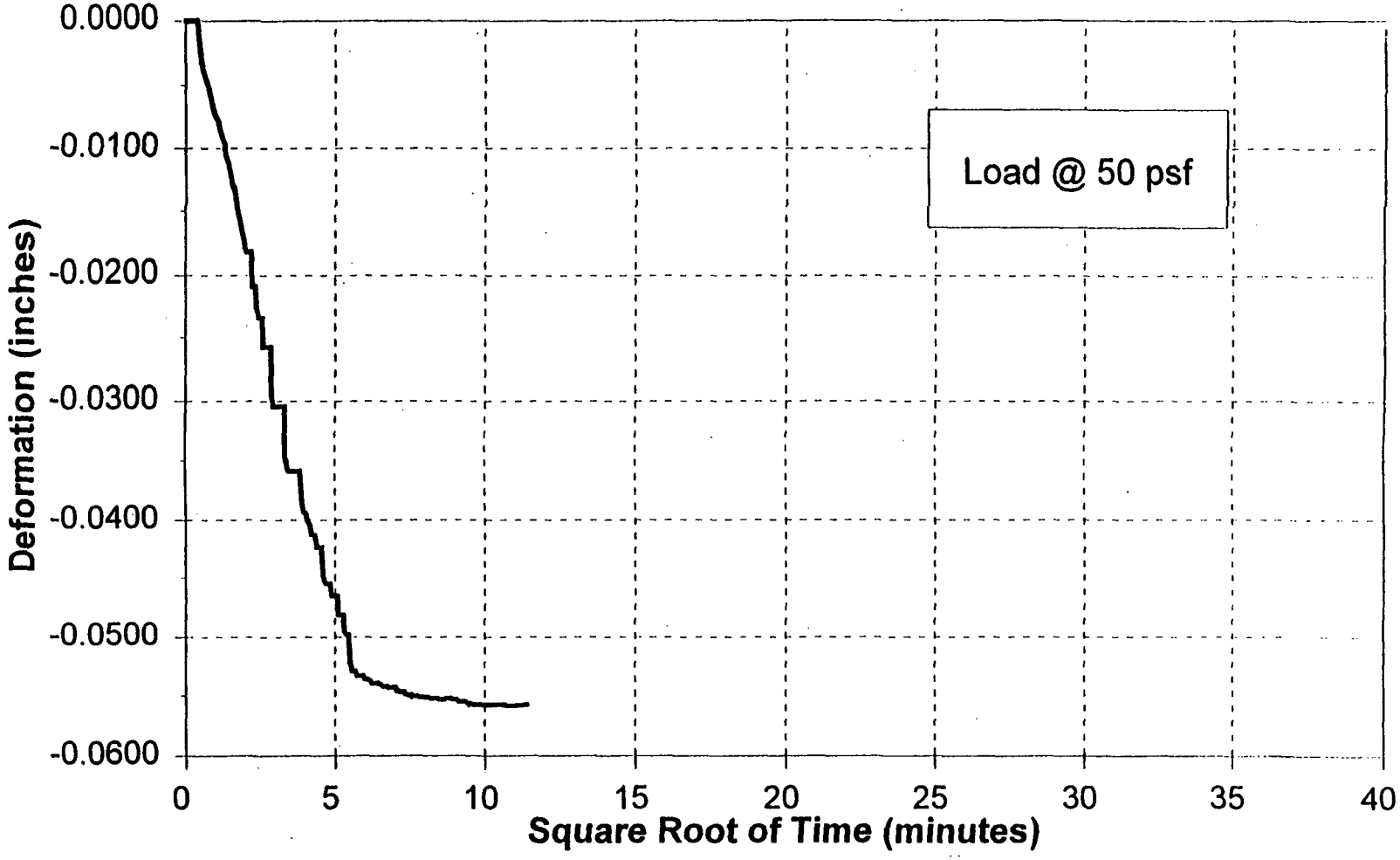


Project No. 973376

Figure 54

Time Rate of Consolidation

Sample: Pond 11S, BH-1 @ 7.5 feet

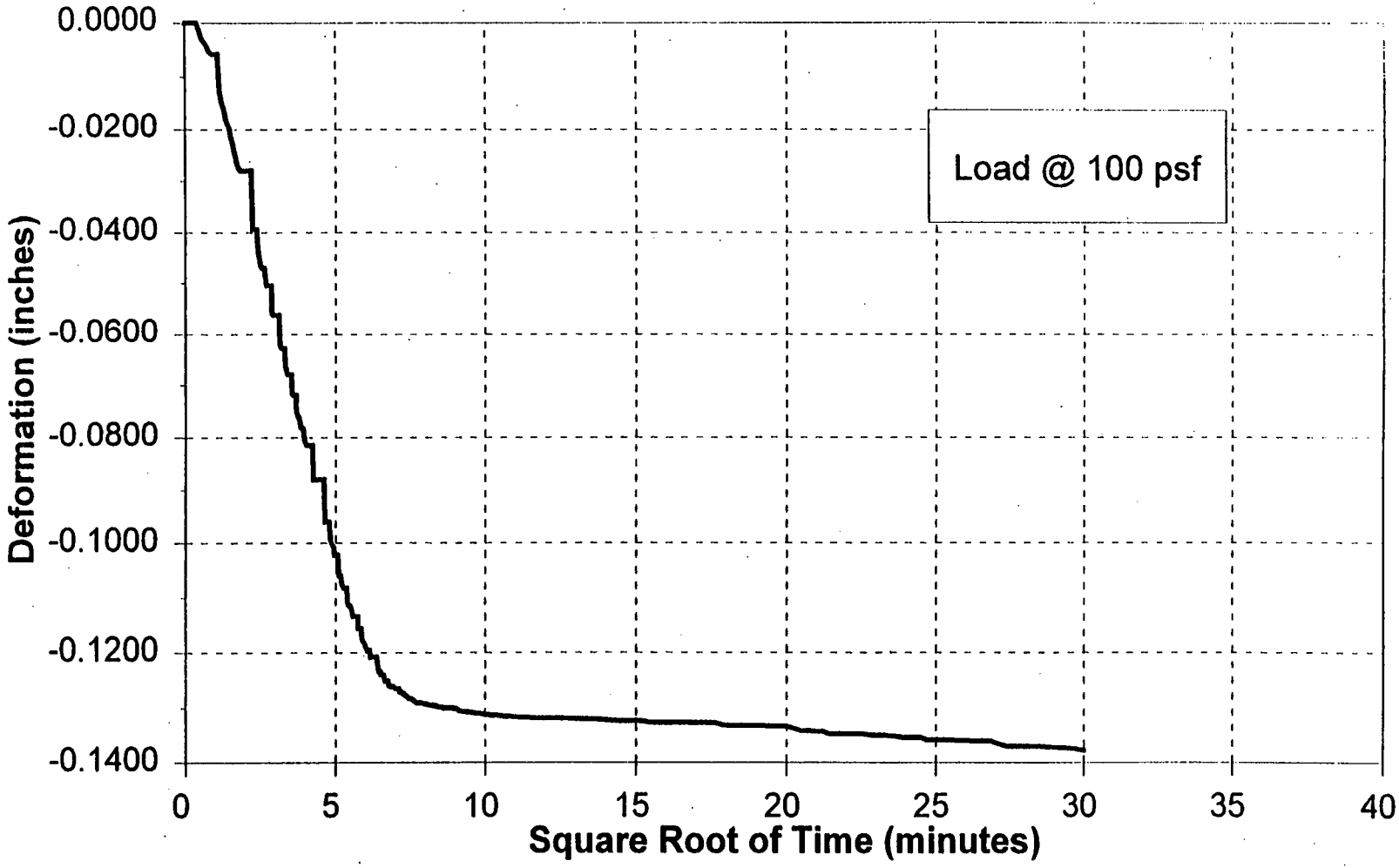


Project No. 973376

Figure 55

Time Rate of Consolidation

Sample: Pond 11S, BH-1 @ 7.5 feet

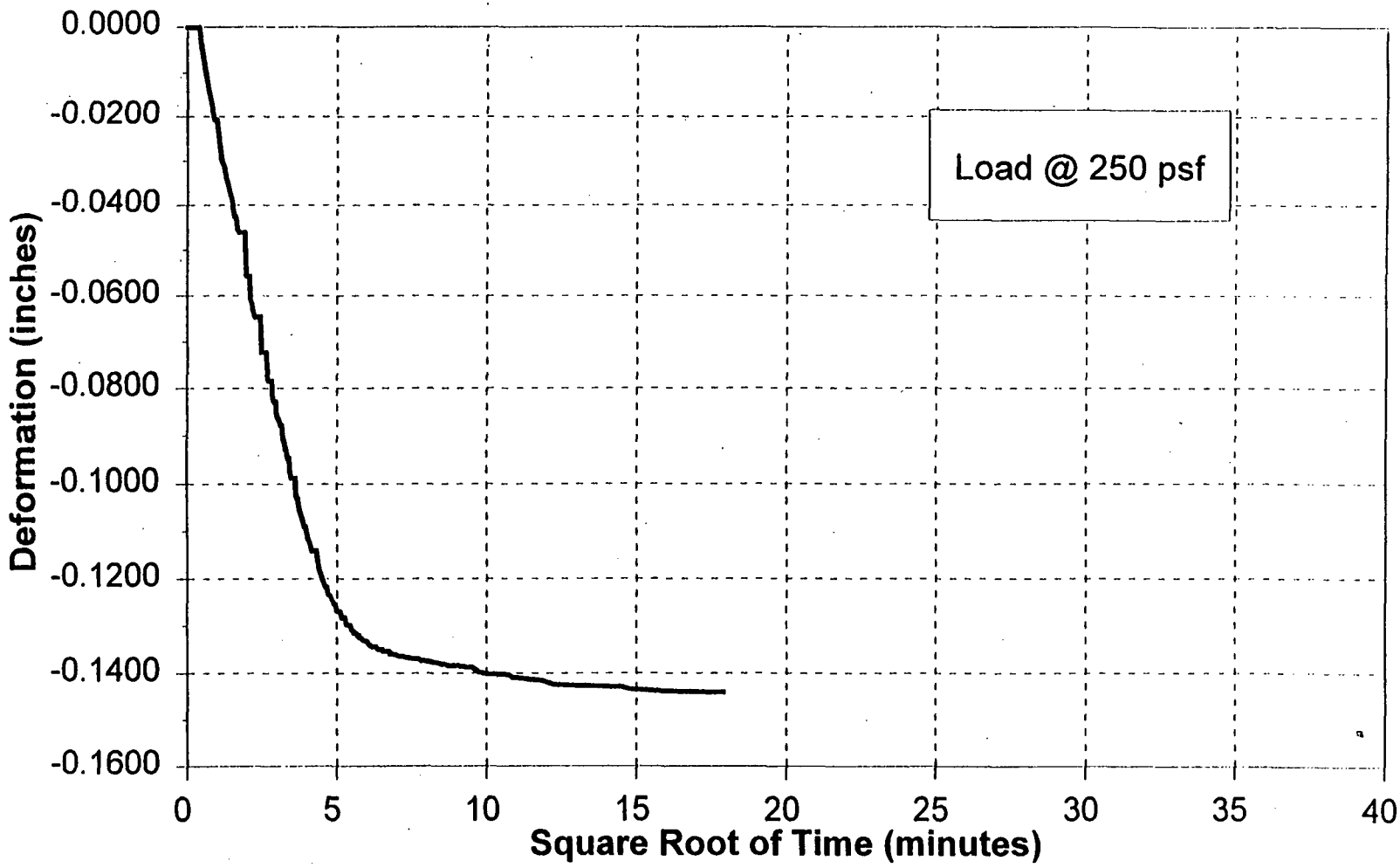


Project No. 973376

Figure 56

Time Rate of Consolidation

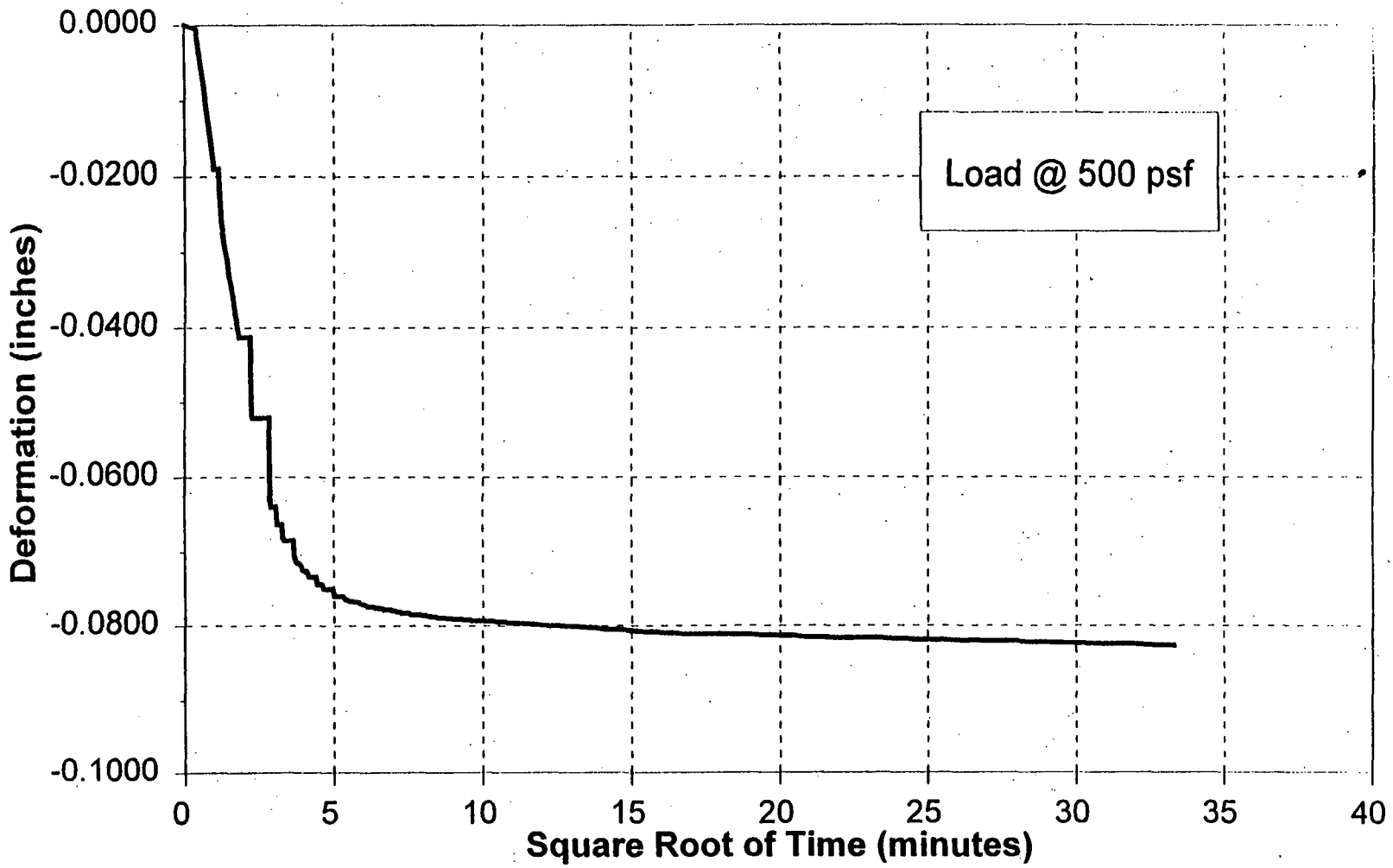
Sample: Pond 11S, BH-1 @ 7.5 feet



Project No. 973376

Figure 57

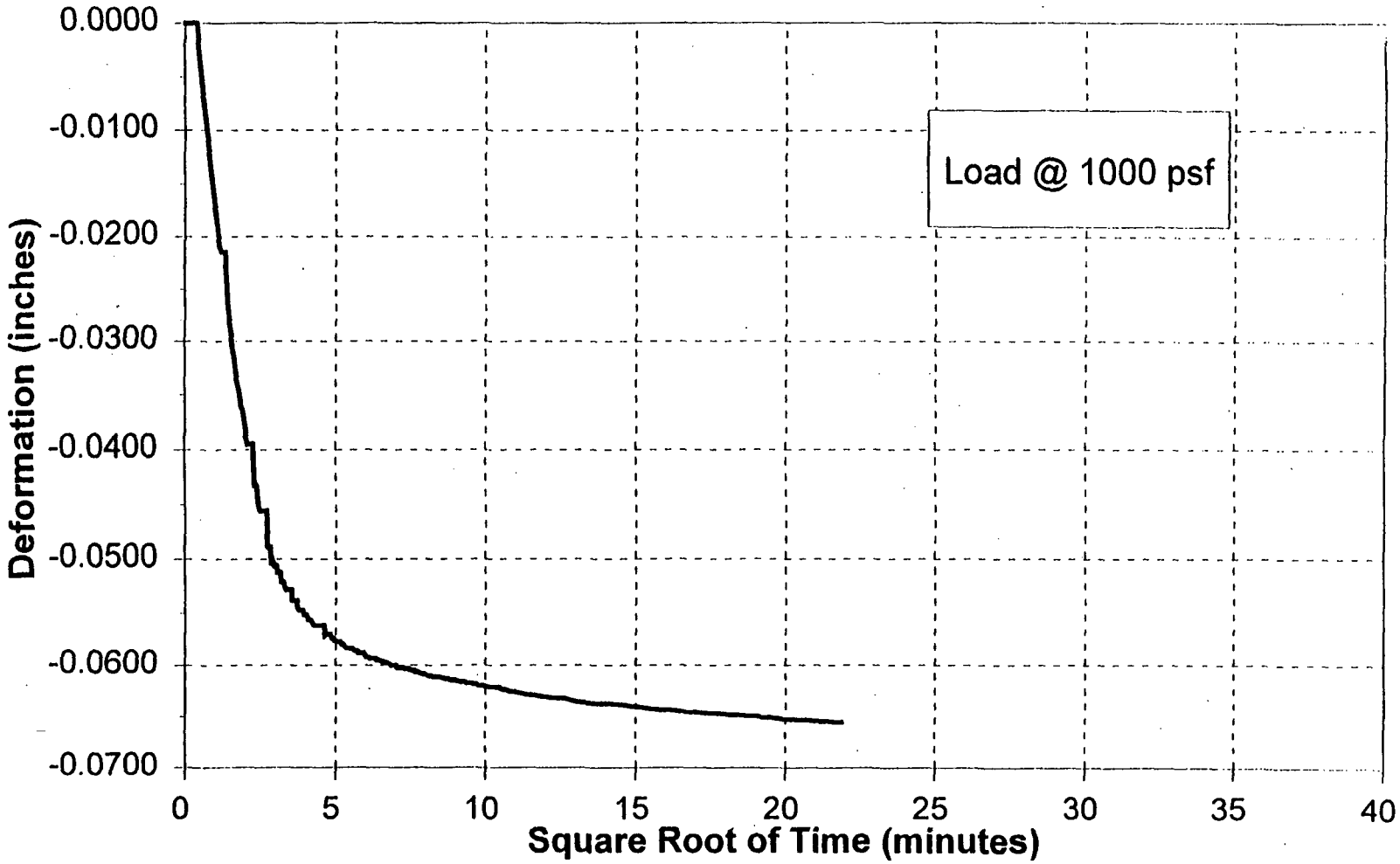
Time Rate of Consolidation
Sample: Pond 11S, BH-1 @ 7.5 feet



Project No. 973376

Figure 58

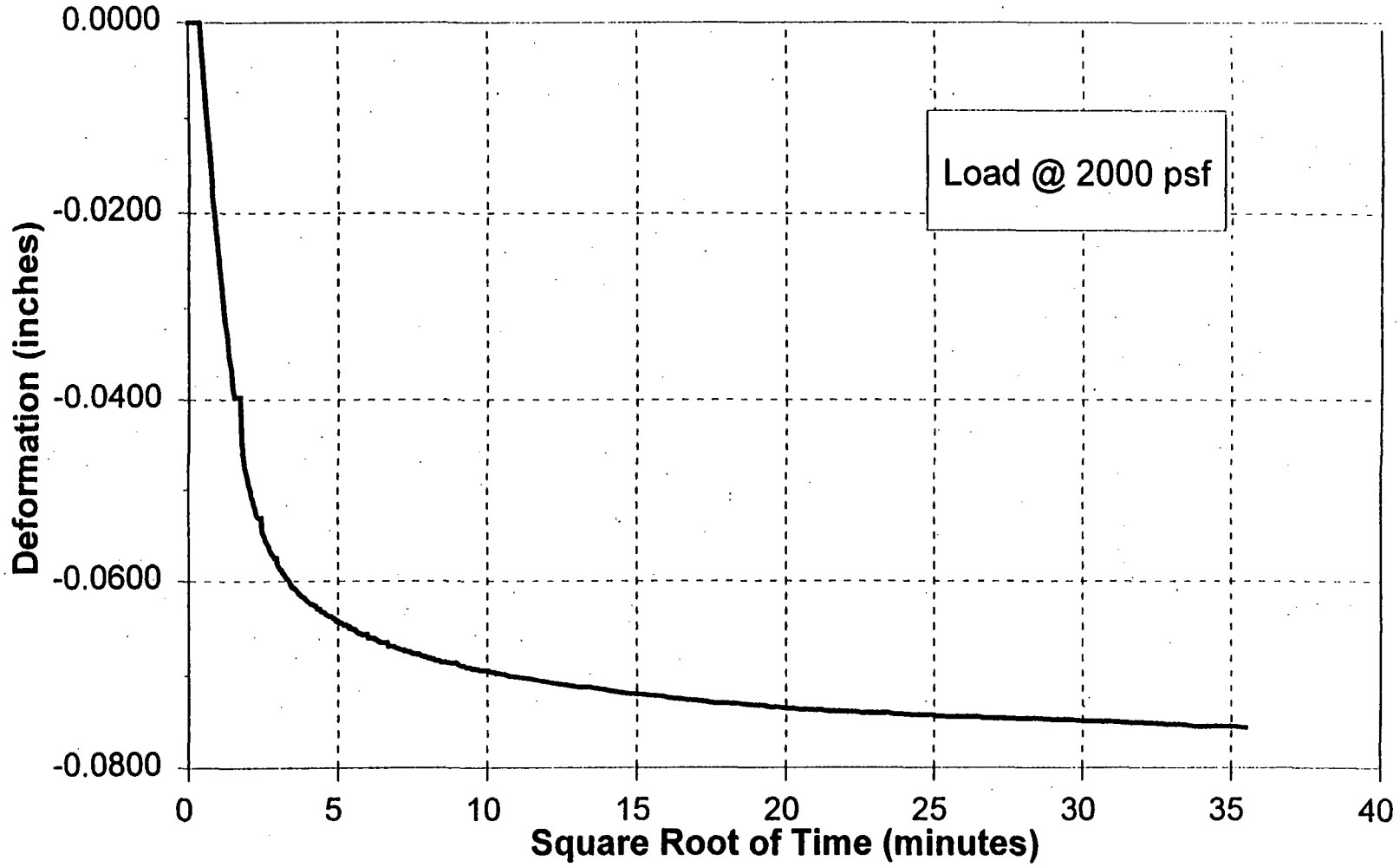
Time Rate of Consolidation
Sample: Pond 11S, BH-1 @ 7.5 feet



Project No. 973376

Figure 59

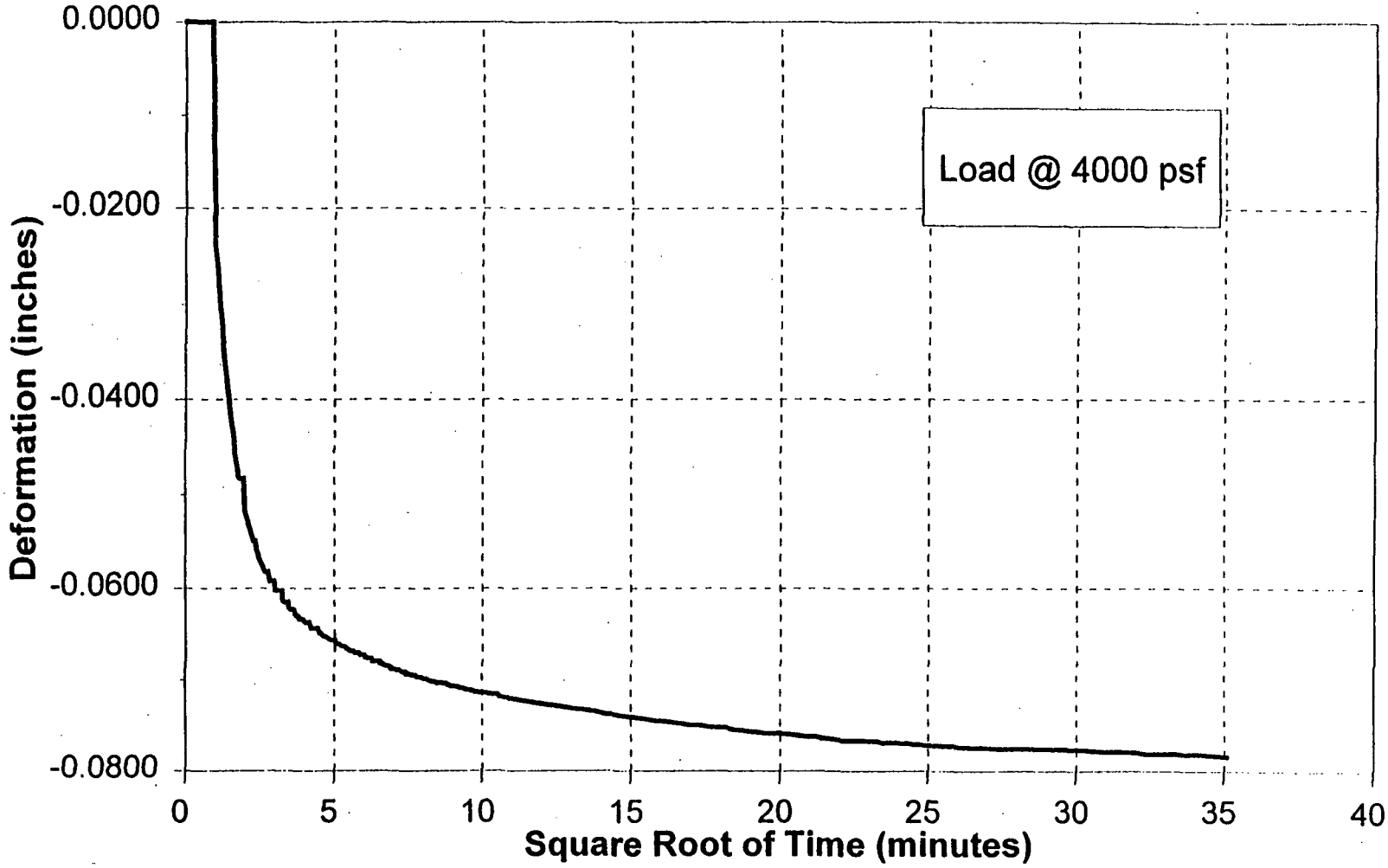
Time Rate of Consolidation
Sample: Pond 11S, BH-1 @ 7.5 feet



Project No. 973376

Figure 60

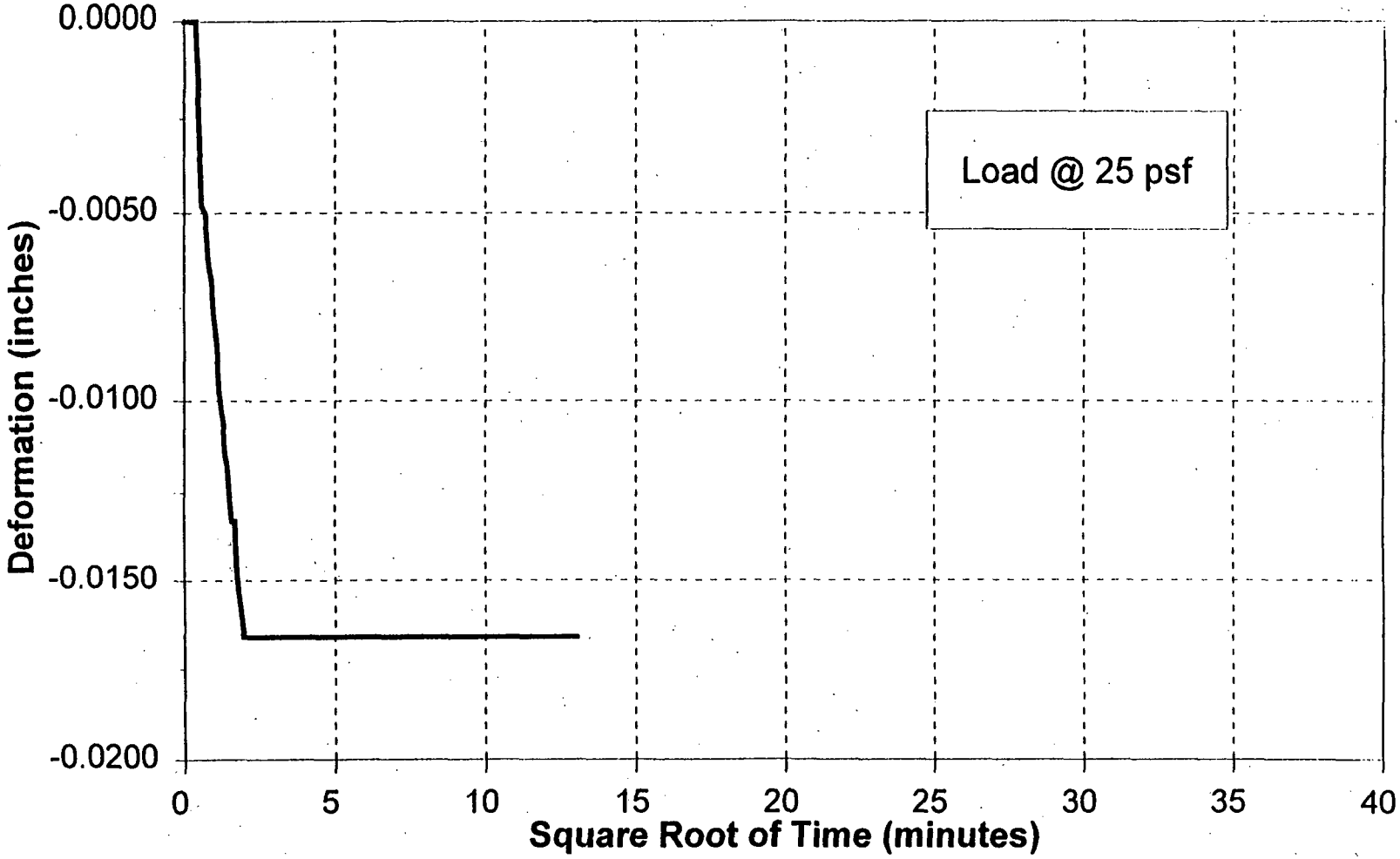
Time Rate of Consolidation
Sample: Pond 11S, BH-1 @ 7.5 feet



Project No. 973376

Figure 61

Time Rate of Consolidation
Sample: Pond 12S, BH-1 @ 13.5 feet

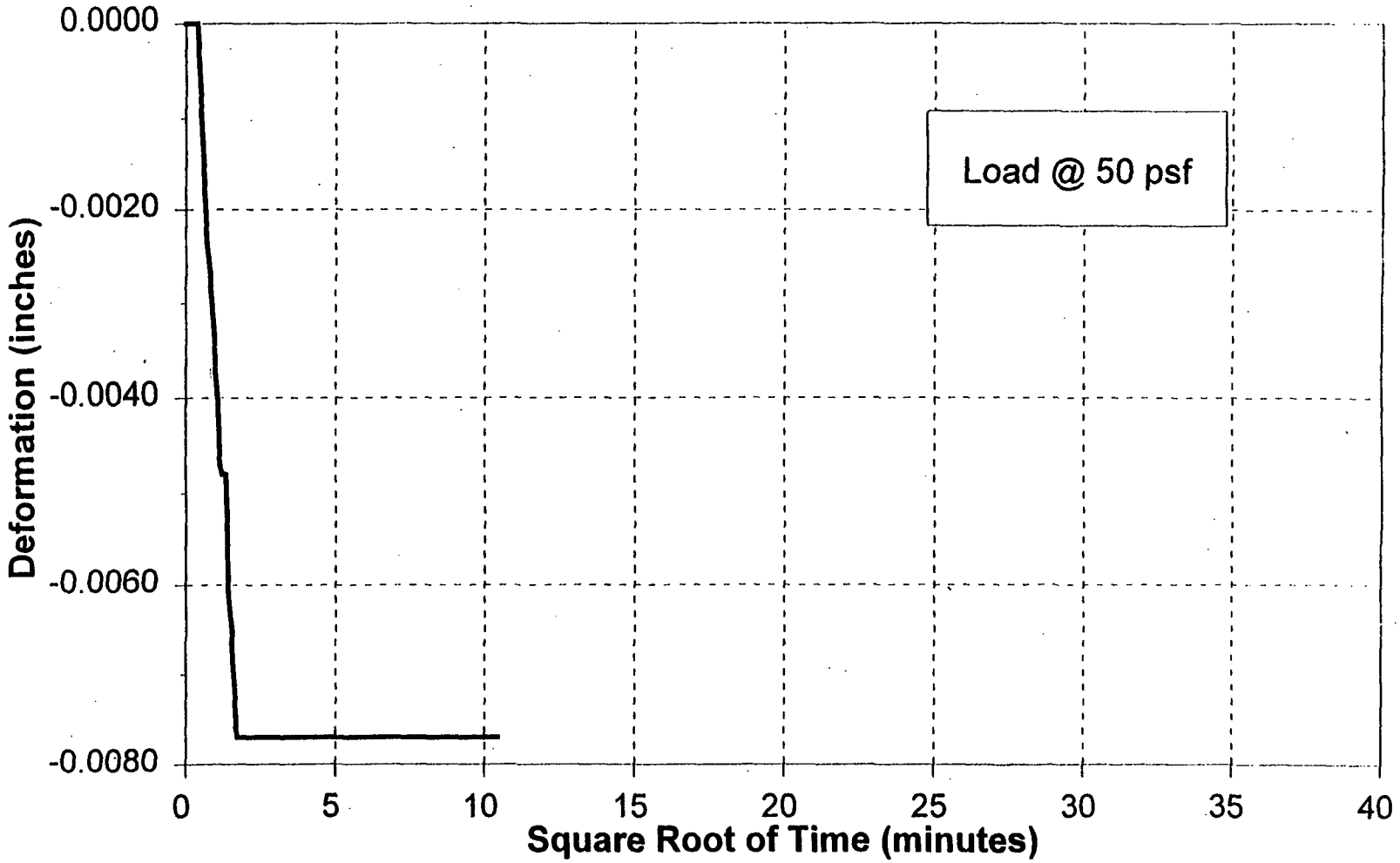


Project No. 973376

Figure 62

Time Rate of Consolidation

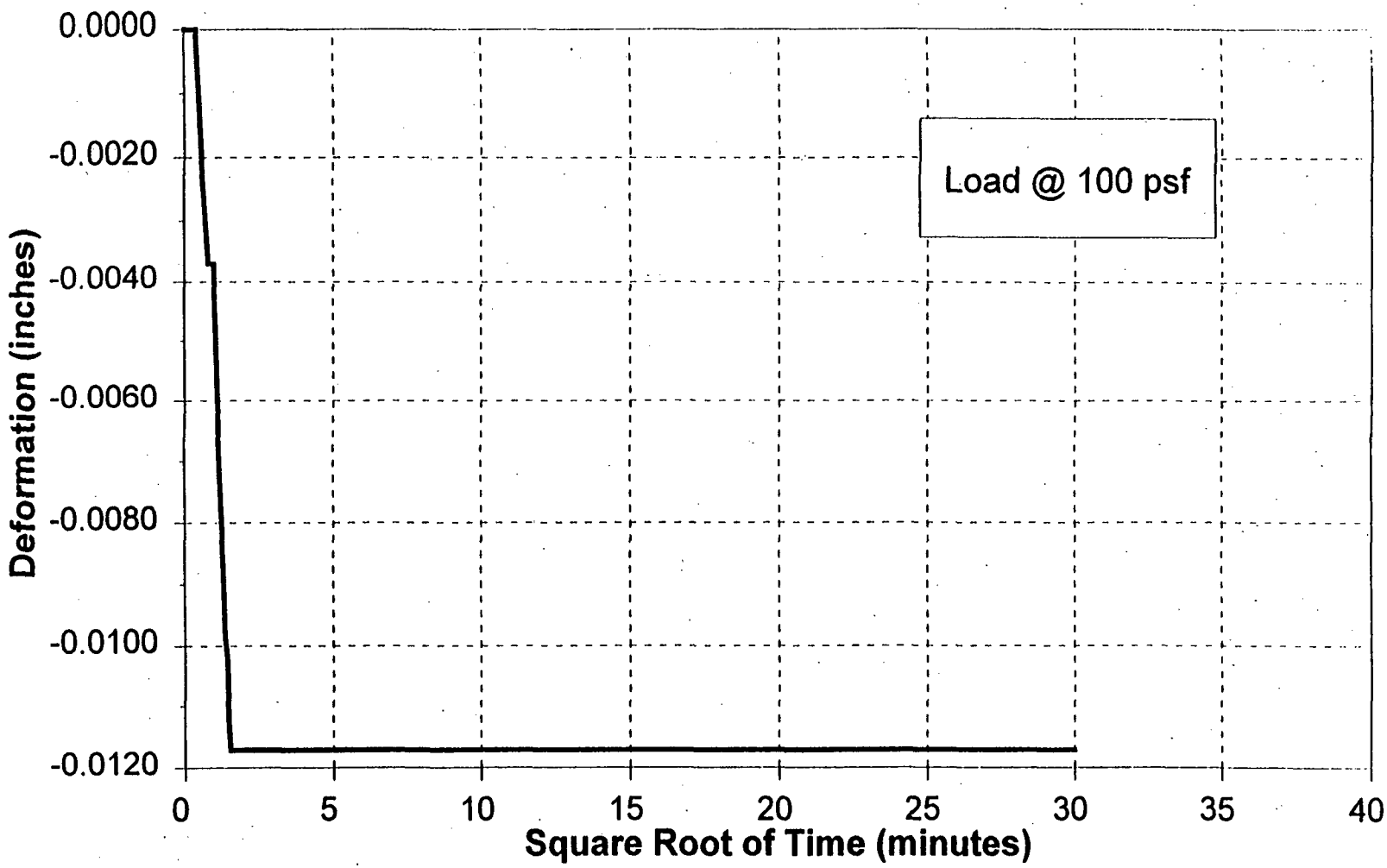
Sample: Pond 12S, BH-1 @ 13.5 feet



Project No. 973376

Figure 63

Time Rate of Consolidation
Sample: Pond 12S, BH-1 @ 13.5 feet

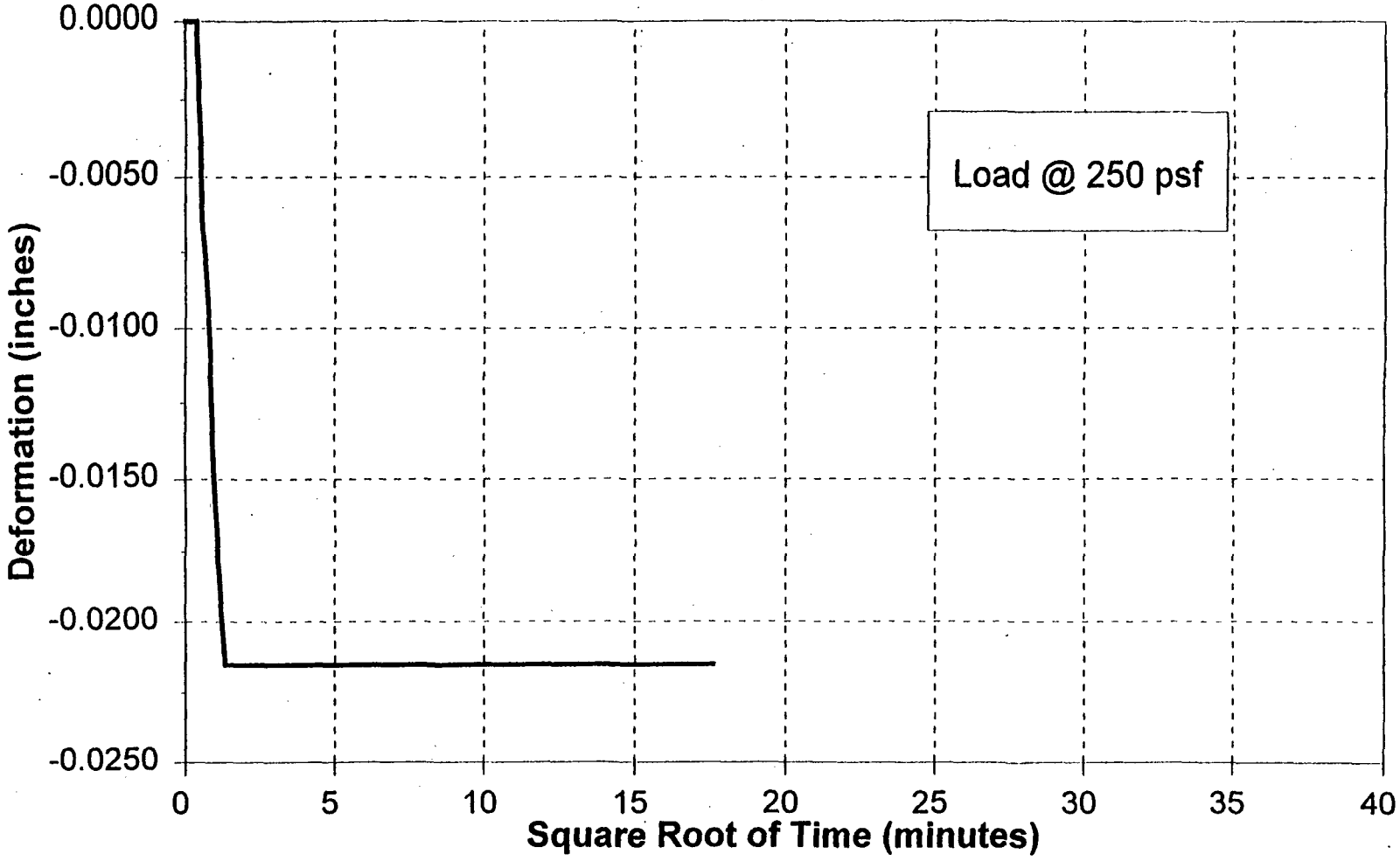


Project No. 973376

Figure 64

Time Rate of Consolidation

Sample: Pond 12S, BH-1 @ 13.5 feet

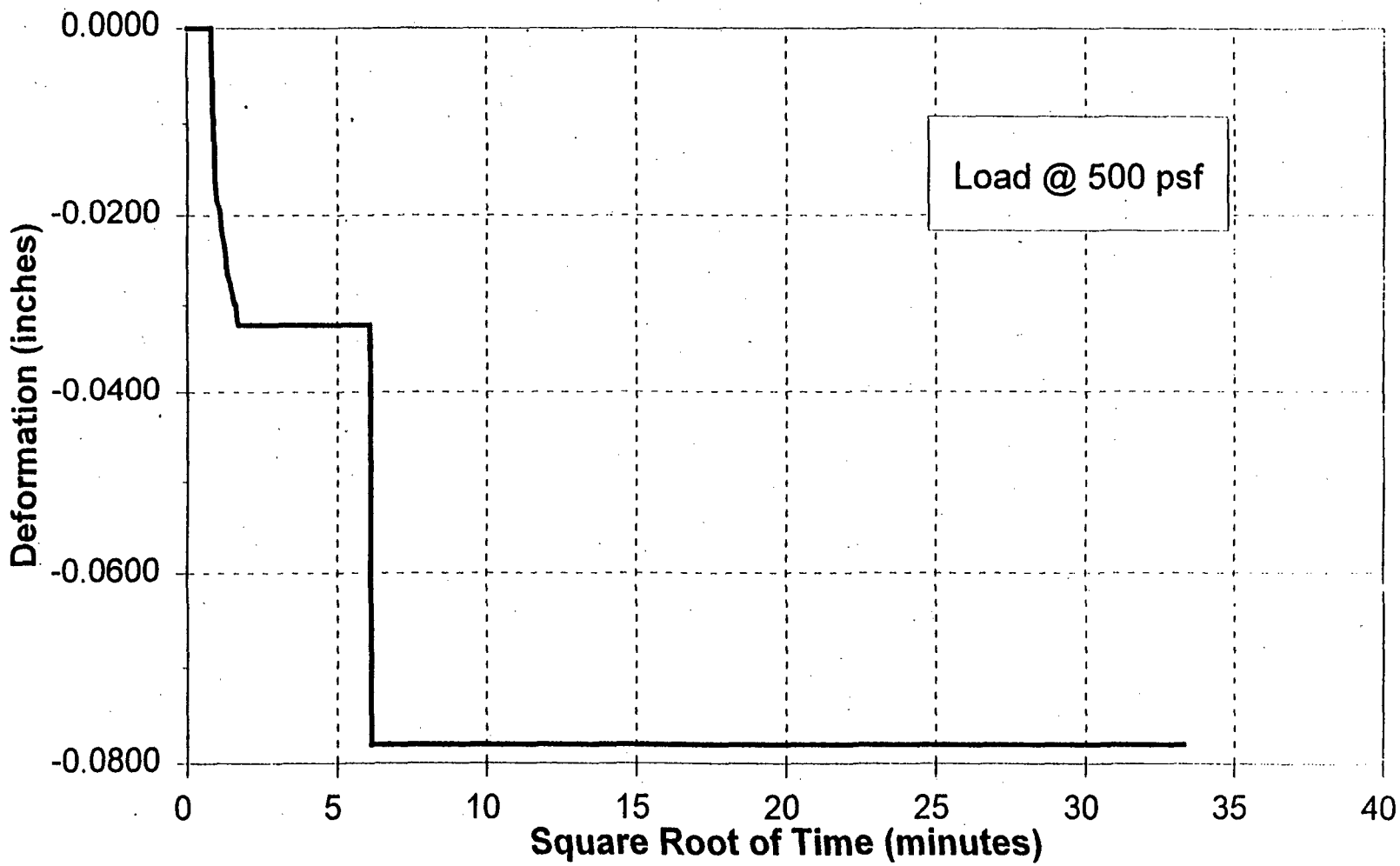


Project No. 973376

Figure 65

Time Rate of Consolidation

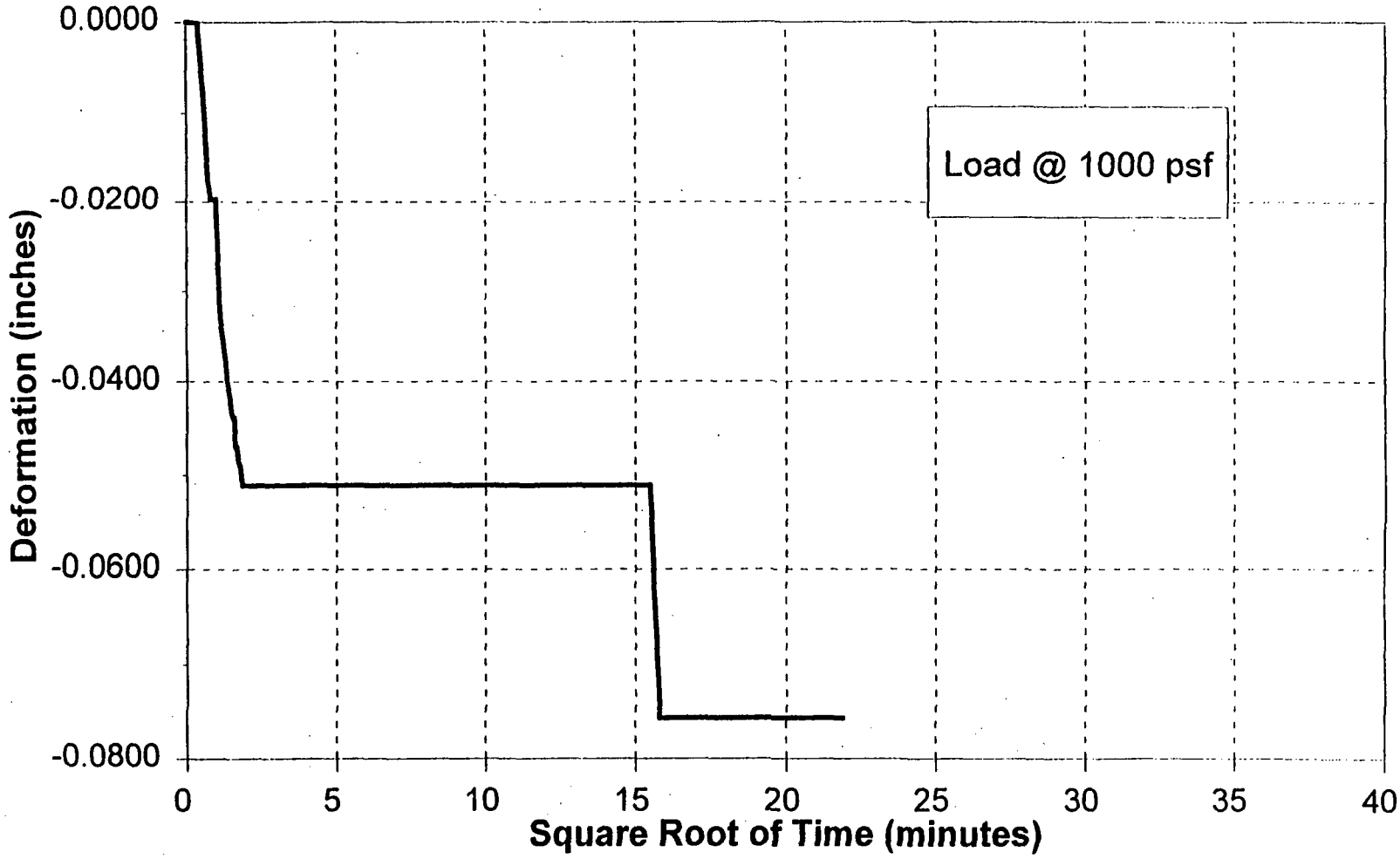
Sample: Pond 12S, BH-1 @ 13.5 feet



Project No. 973376

Figure 66

Time Rate of Consolidation
Sample: Pond 12S, BH-1 @ 13.5 feet

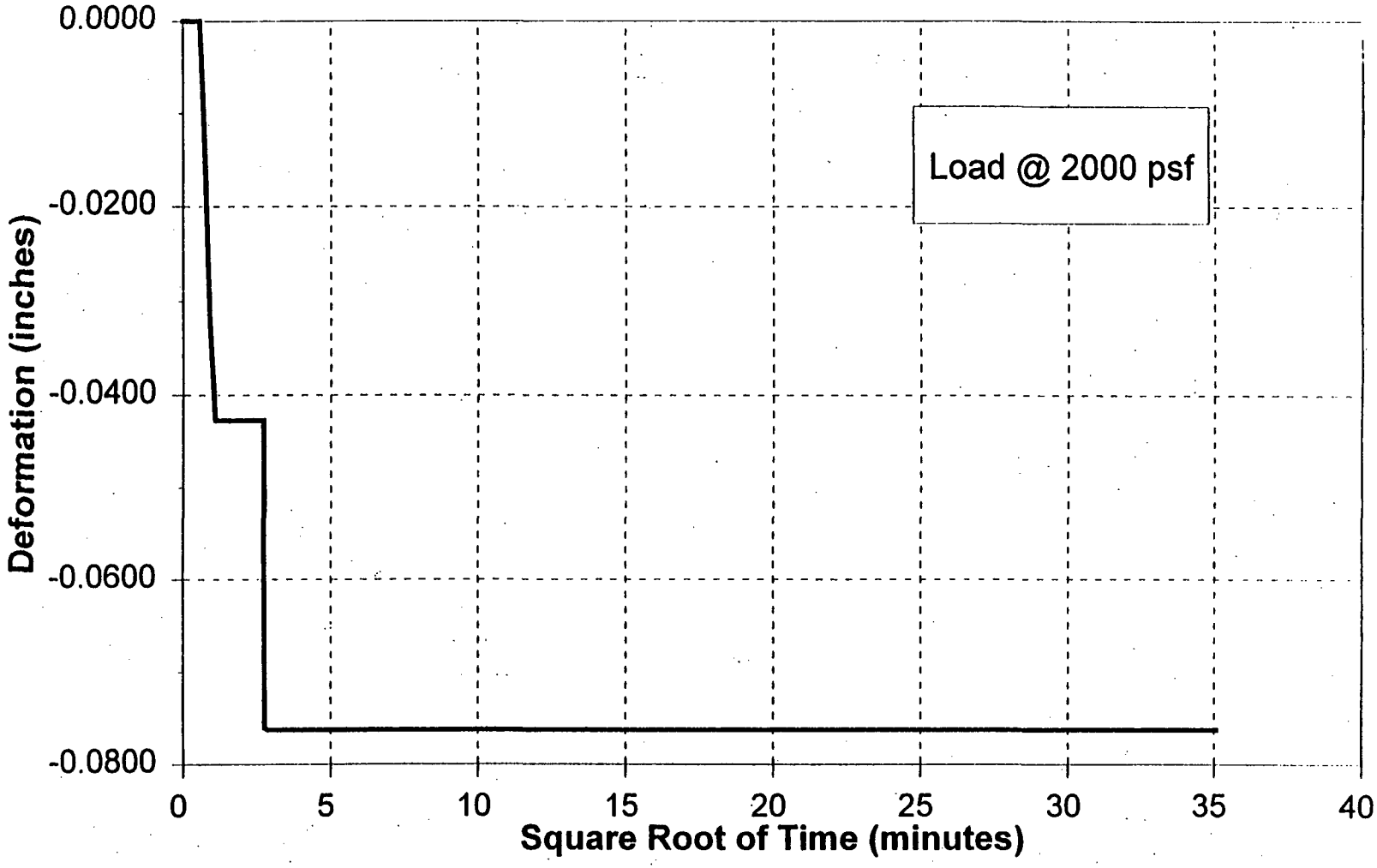


Project No. 973376

Figure 67

Time Rate of Consolidation

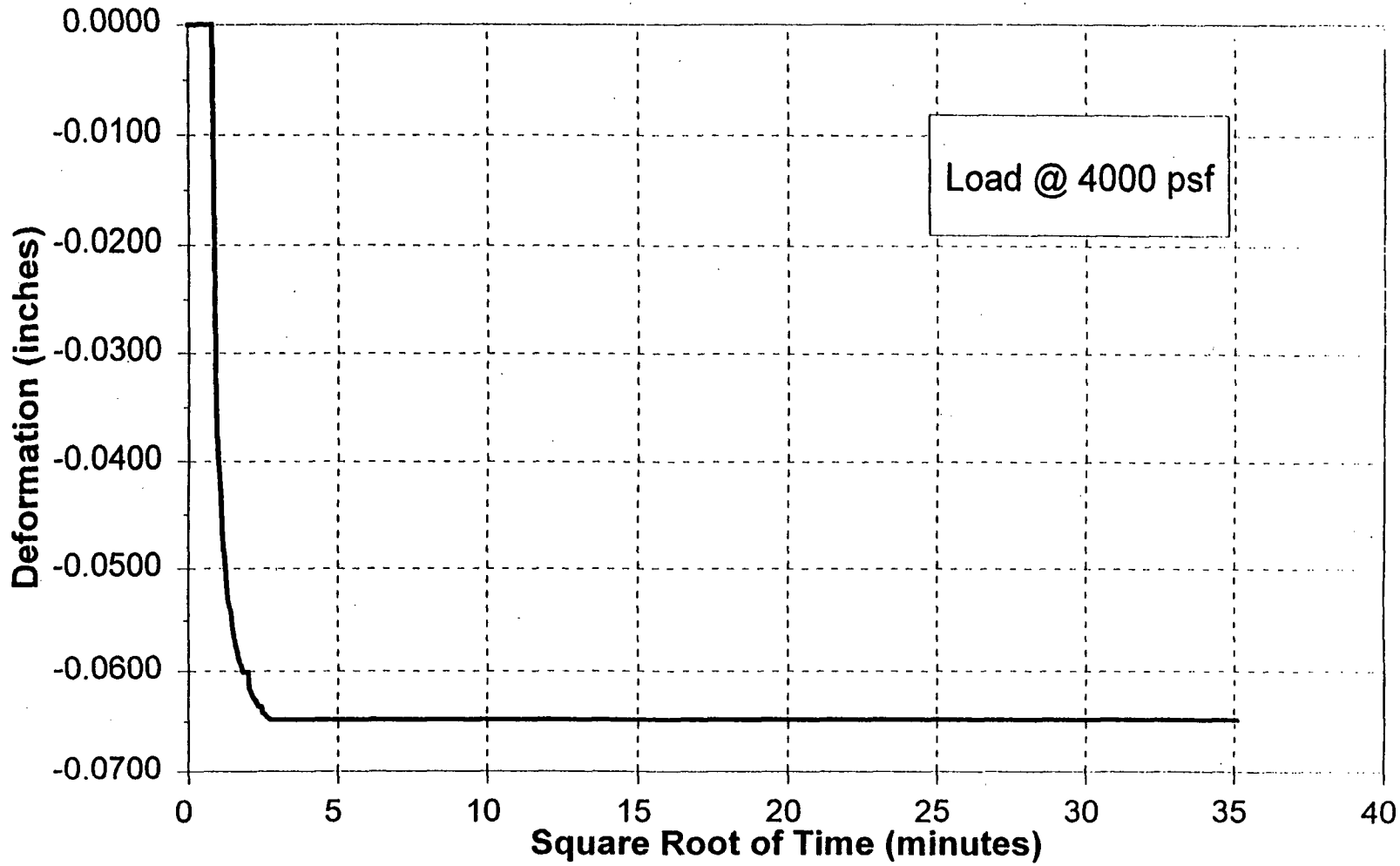
Sample: Pond 12S, BH-1 @ 13.5 feet



Project No. 973376

Figure 68

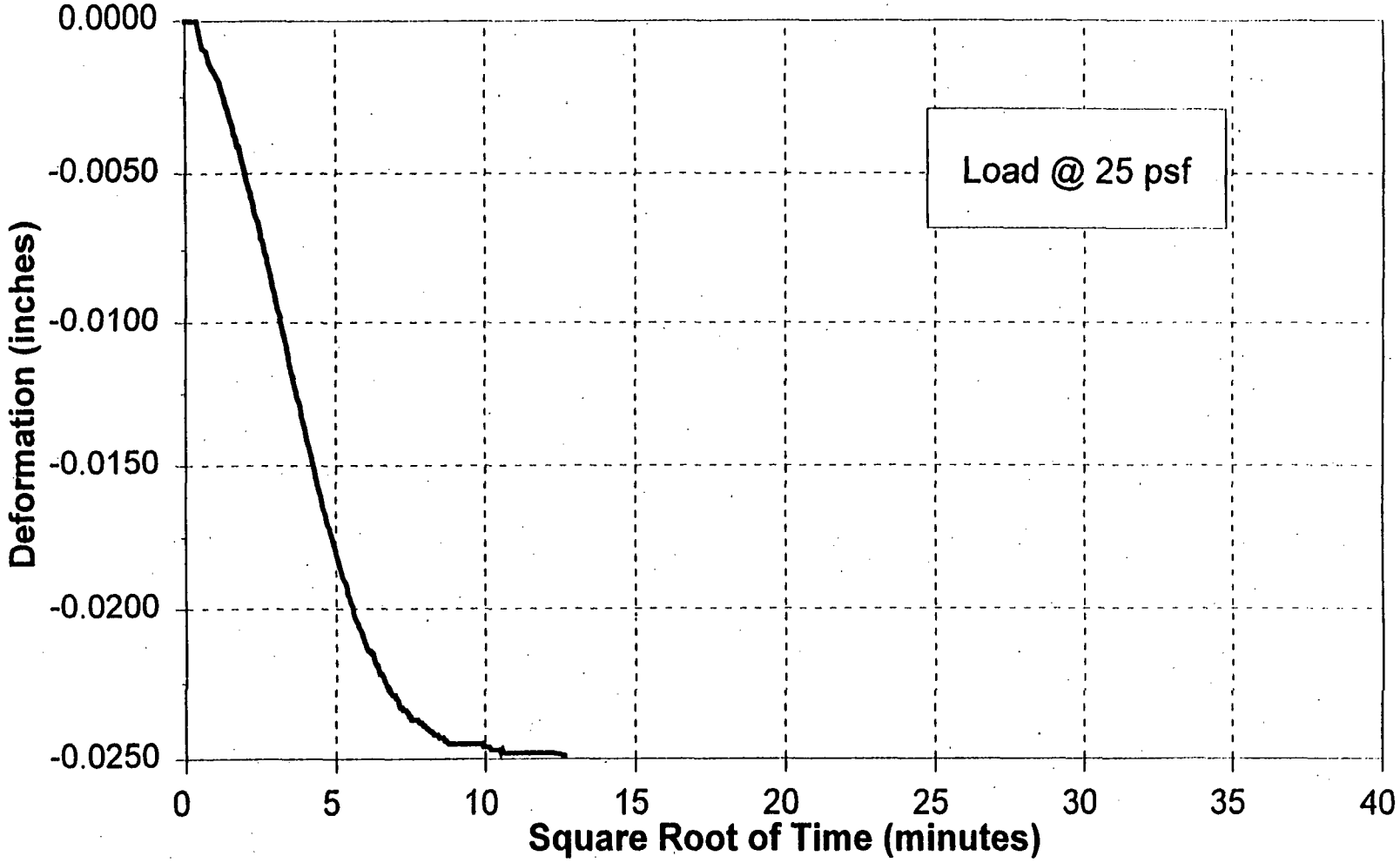
Time Rate of Consolidation
Sample: Pond 12S, BH-1 @ 13.5 feet



Project No. 973376

Figure 69

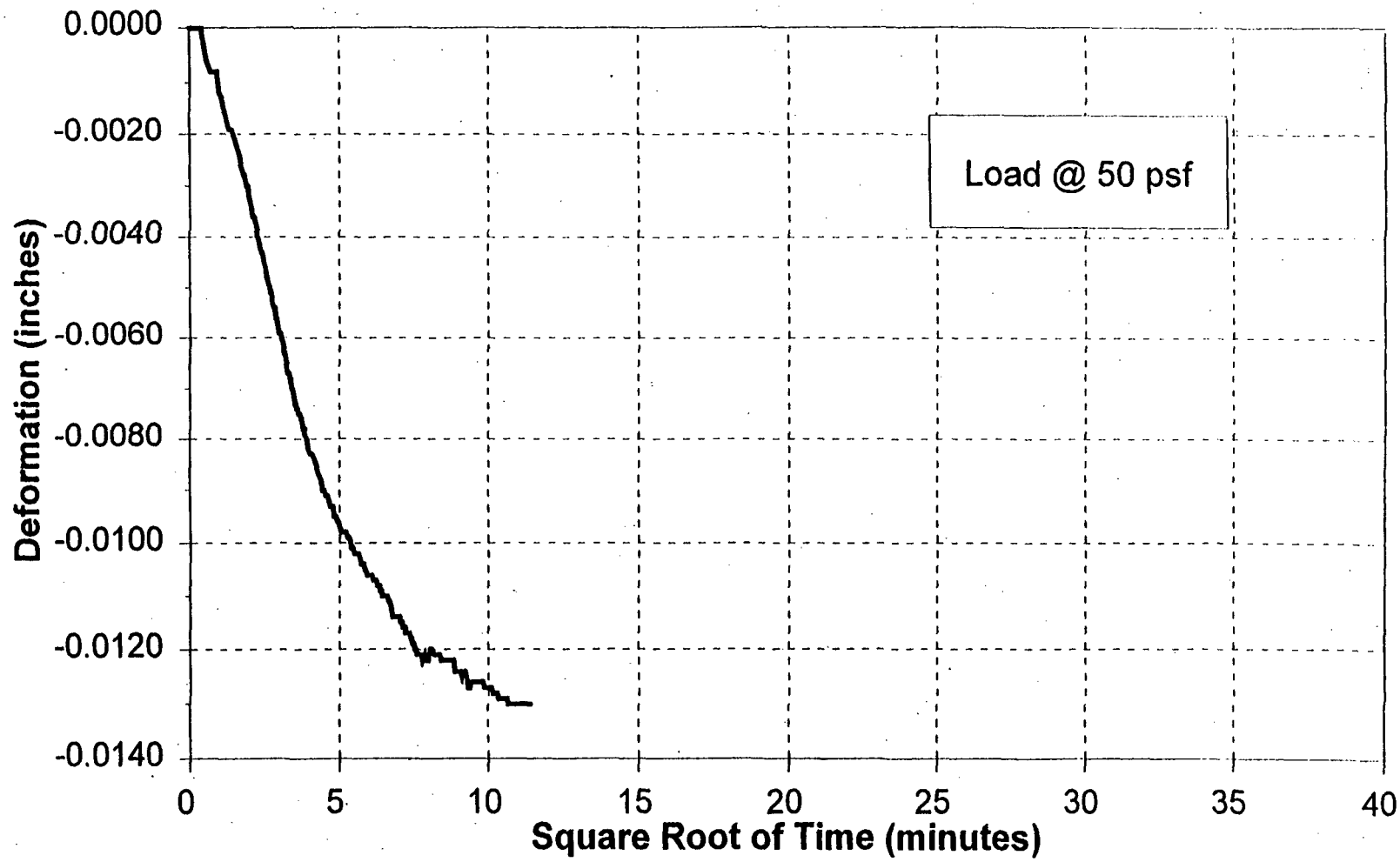
Time Rate of Consolidation
Sample: Pond 12S, BH-2 @ 16.5 feet



Project No. 973376

Figure 70

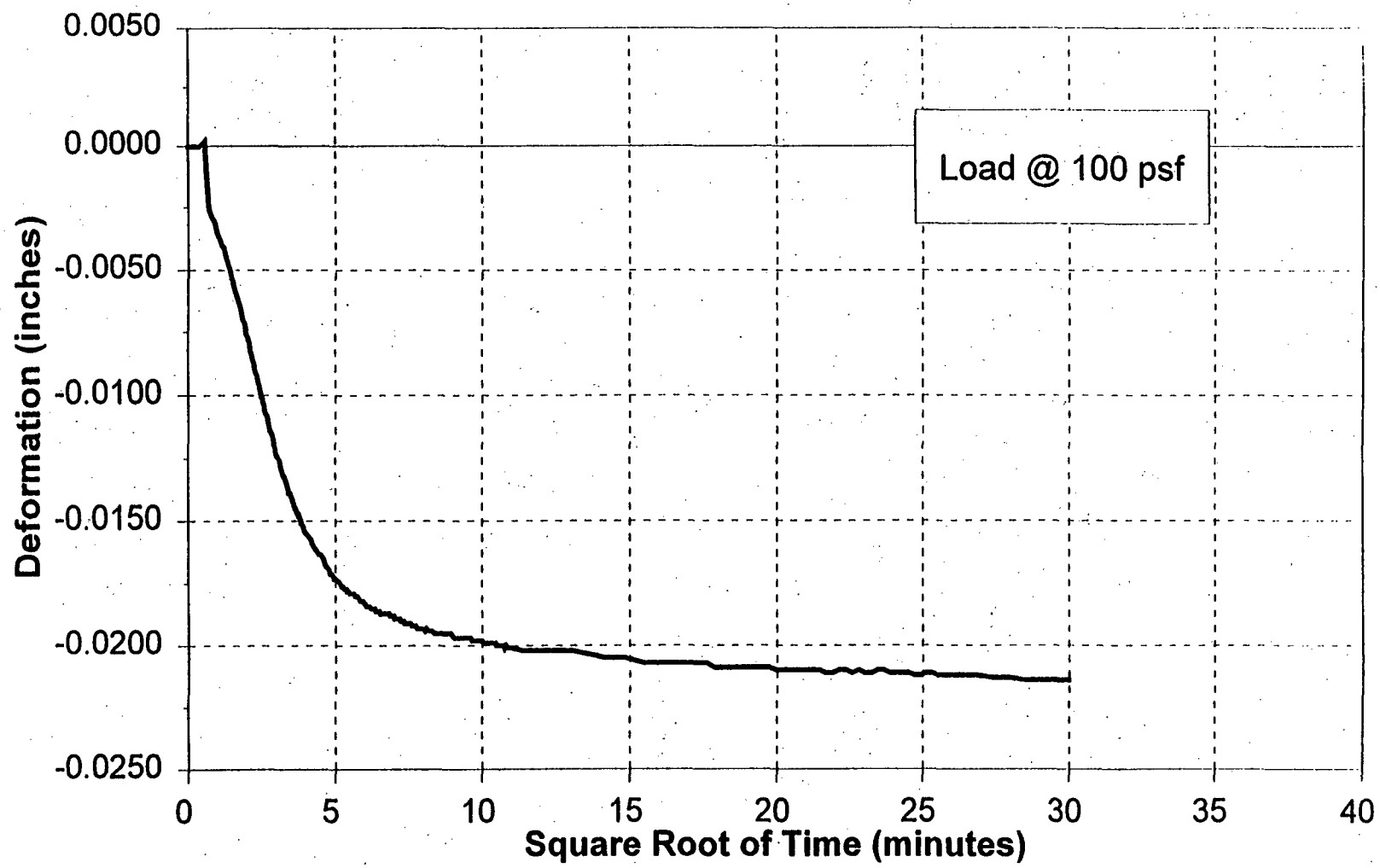
Time Rate of Consolidation
Sample: Pond 12S, BH-2 @ 16.5 feet



Project No. 973376

Figure 71

Time Rate of Consolidation
Sample: Pond 12S, BH-2 @ 16.5 feet

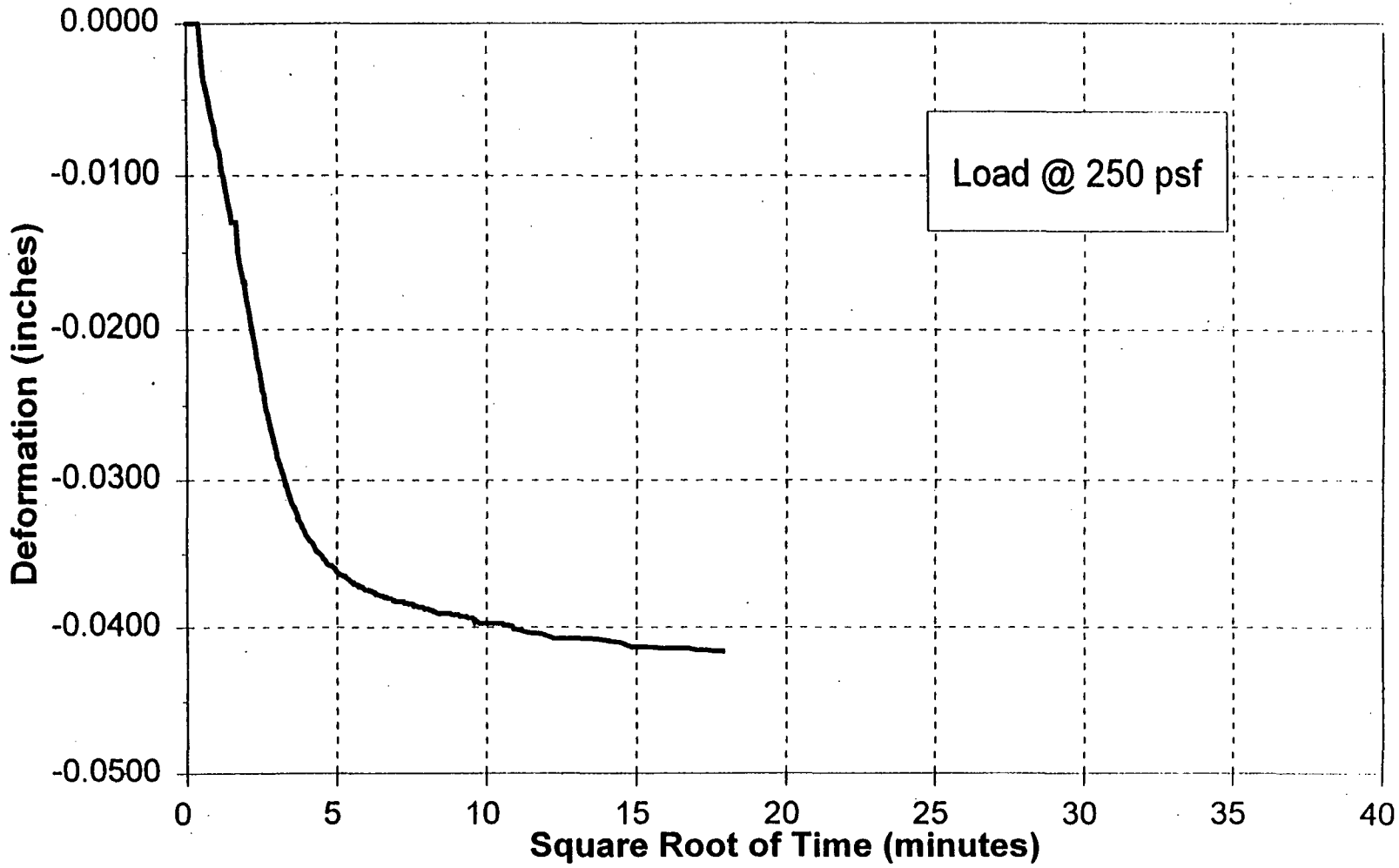


Project No. 973376

Figure 72

Time Rate of Consolidation

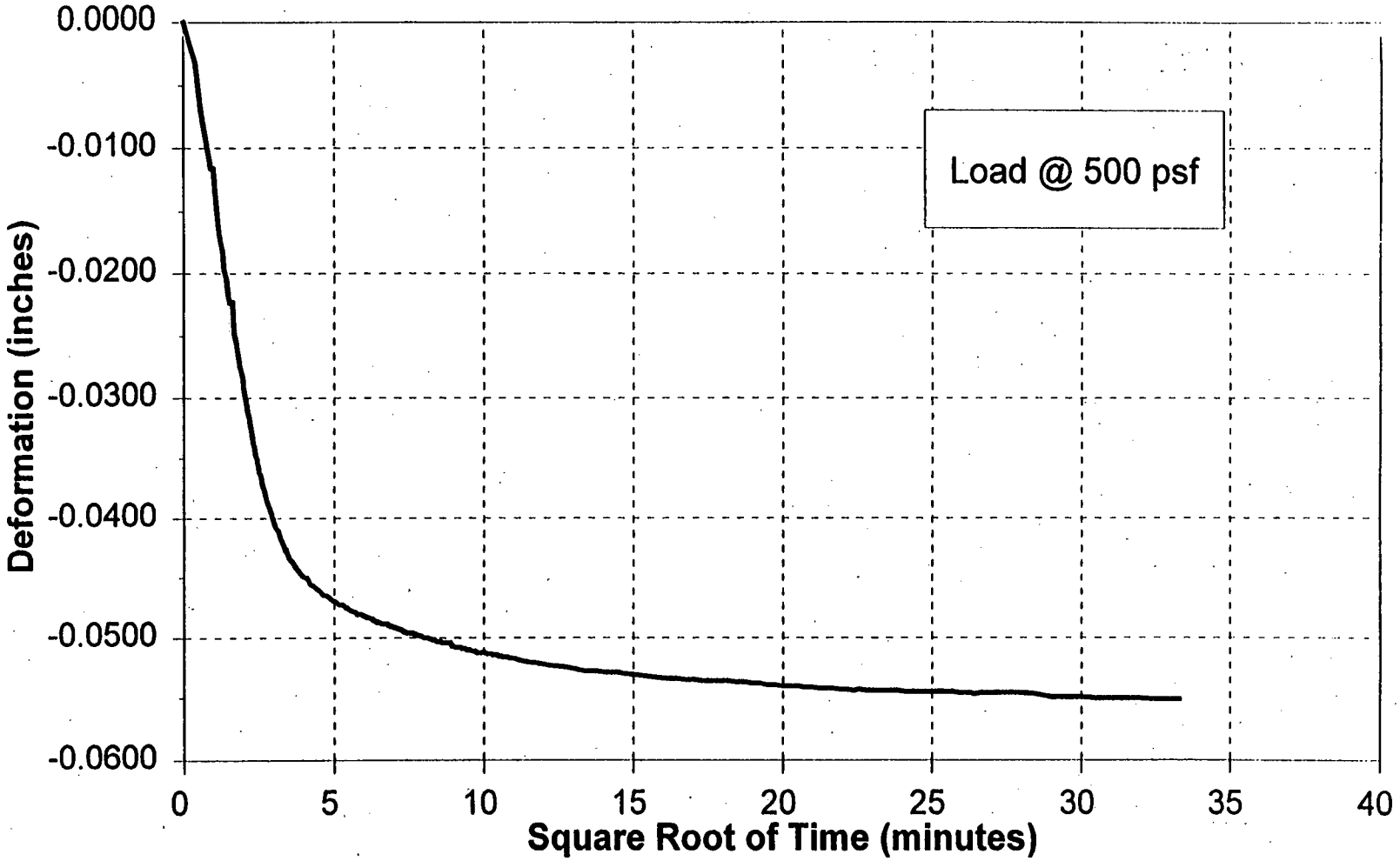
Sample: Pond 12S, BH-2 @ 16.5 feet



Project No. 973376

Figure 73

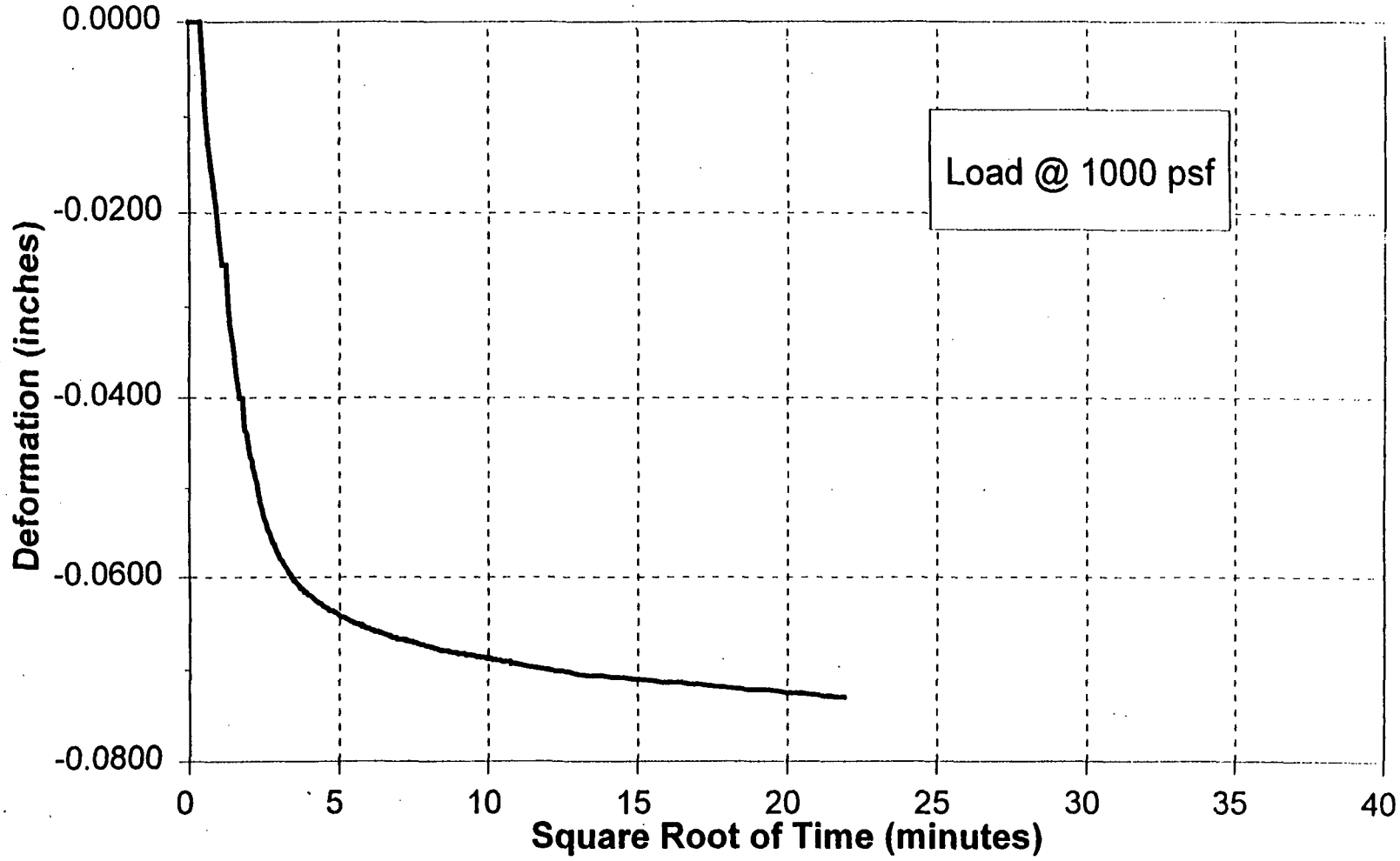
Time Rate of Consolidation
Sample: Pond 12S, BH-2 @ 16.5 feet



Project No. 973376

Figure 74

Time Rate of Consolidation
Sample: Pond 12S, BH-2 @ 16.5 feet

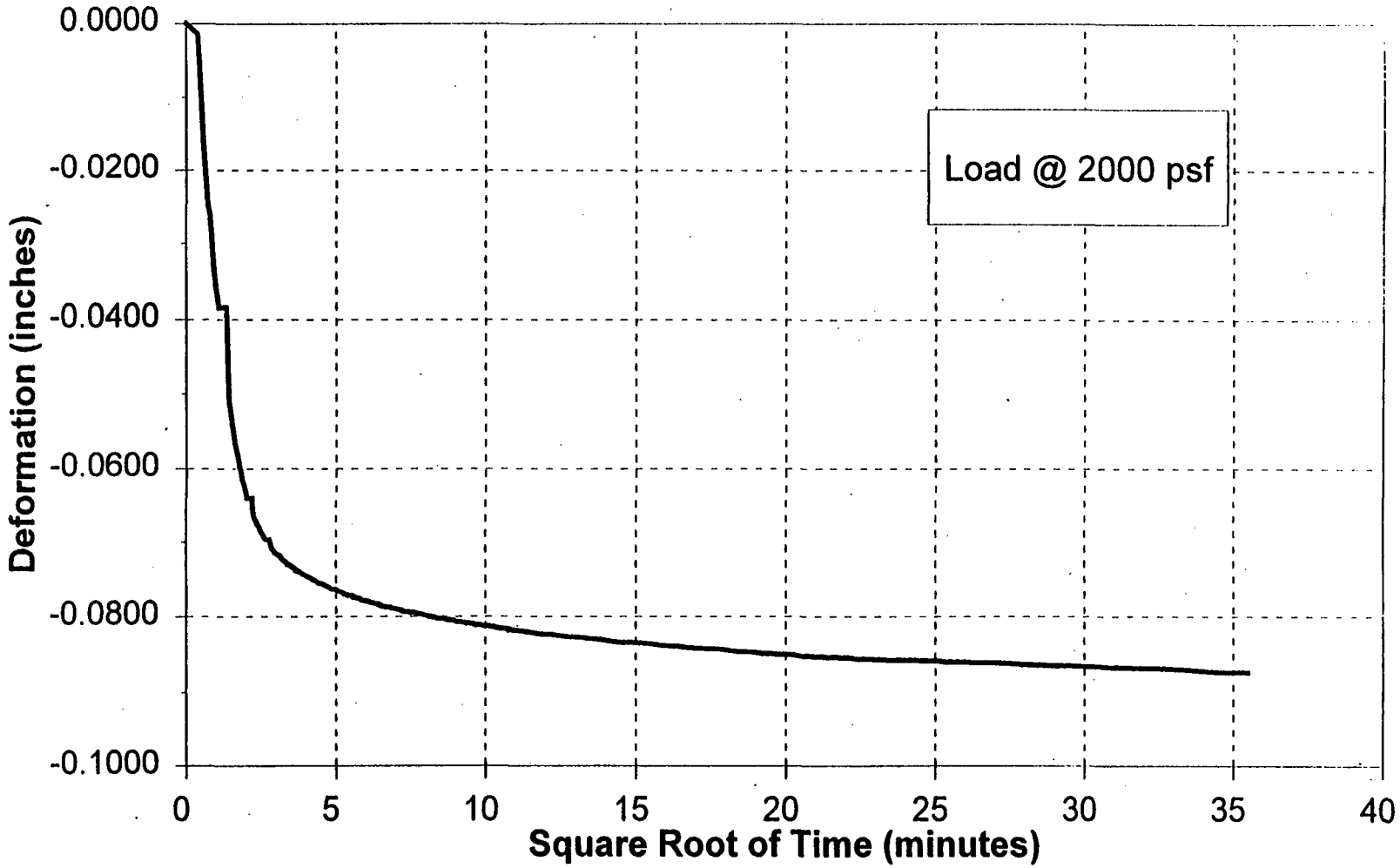


Project No. 973376

Figure 75

Time Rate of Consolidation

Sample: Pond 12S, BH-2 @ 16.5 feet

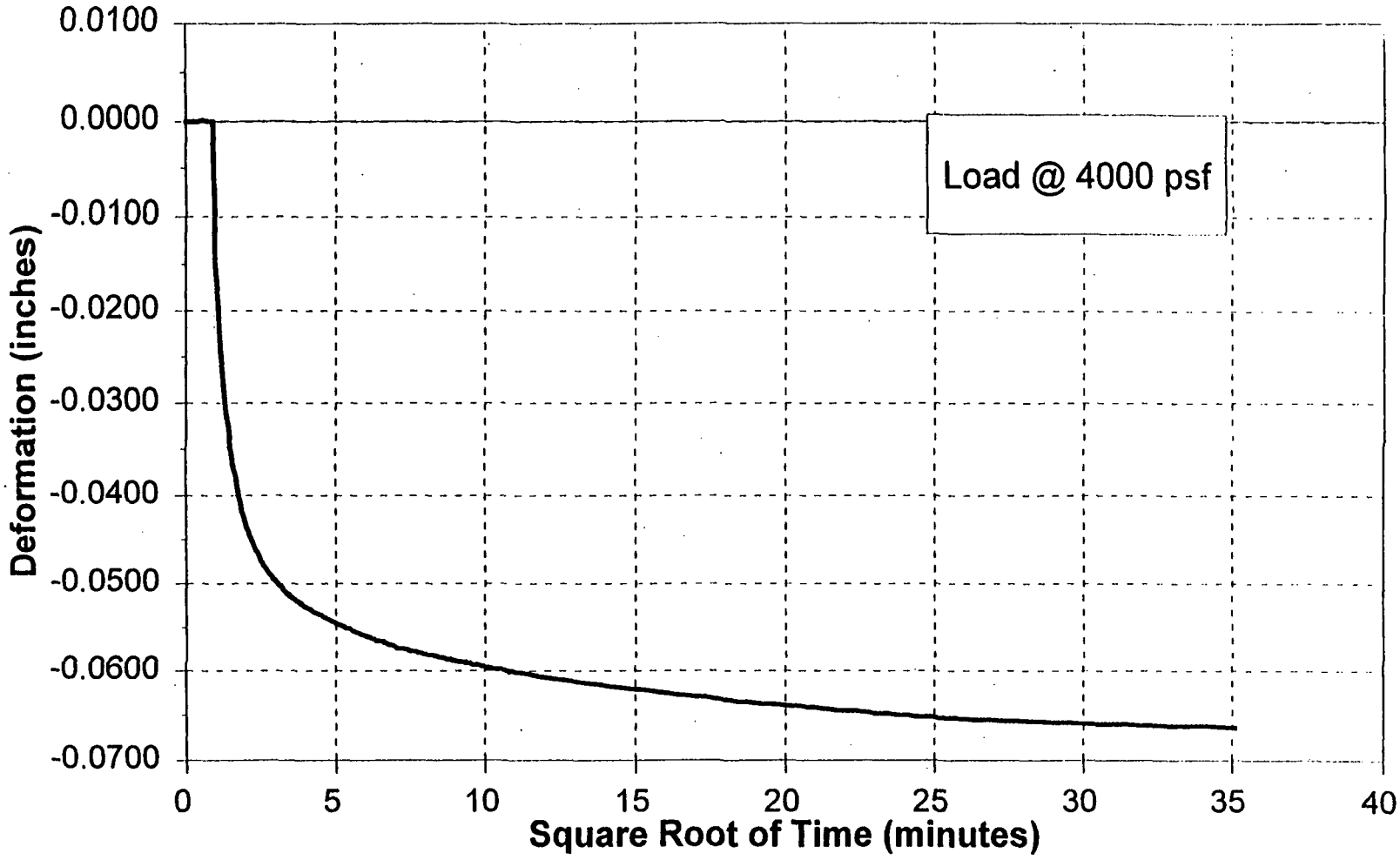


Project No. 973376

Figure 76

Time Rate of Consolidation

Sample: Pond 12S, BH-2 @ 16.5 feet

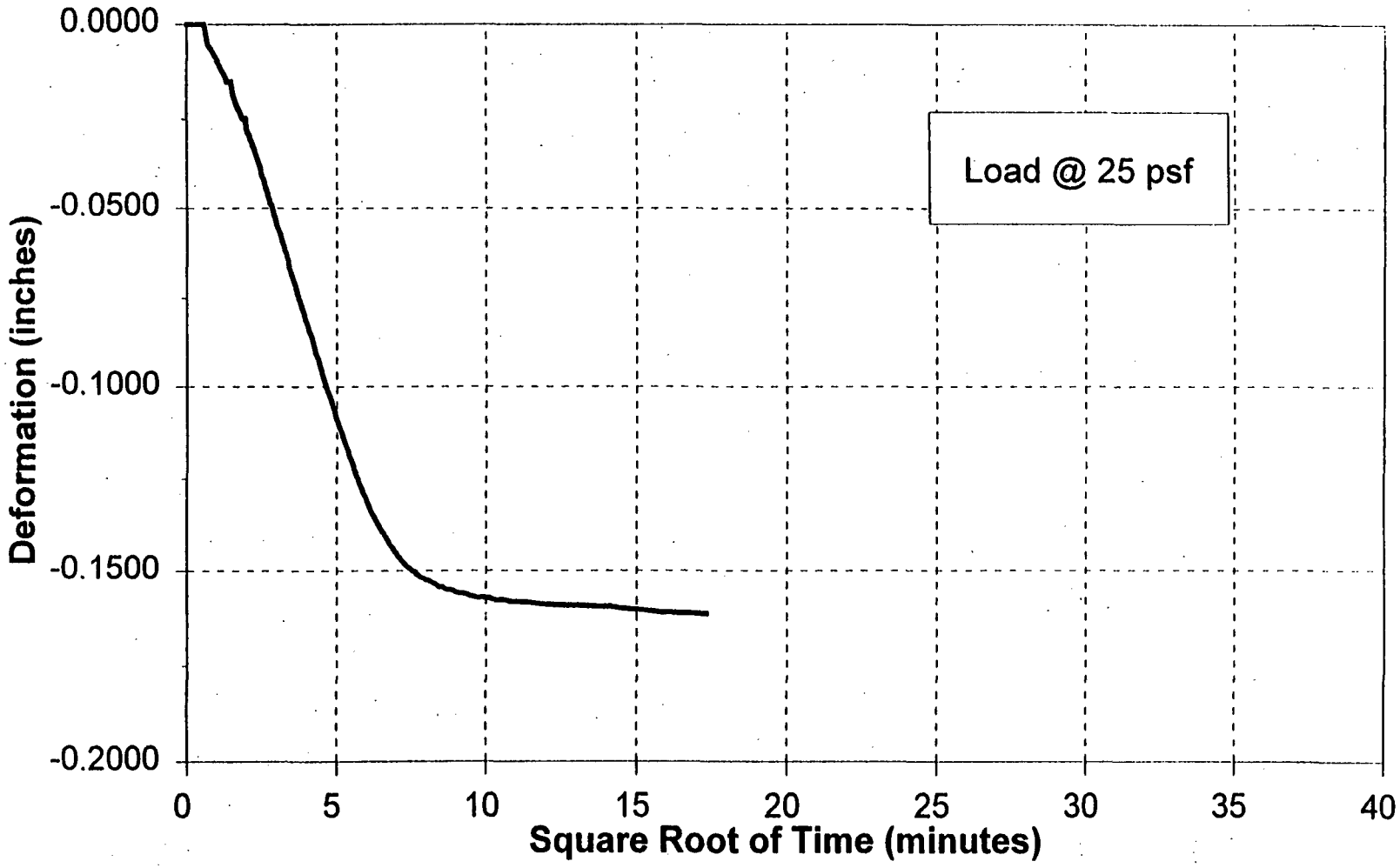


Project No. 973376

Figure 77

Time Rate of Consolidation

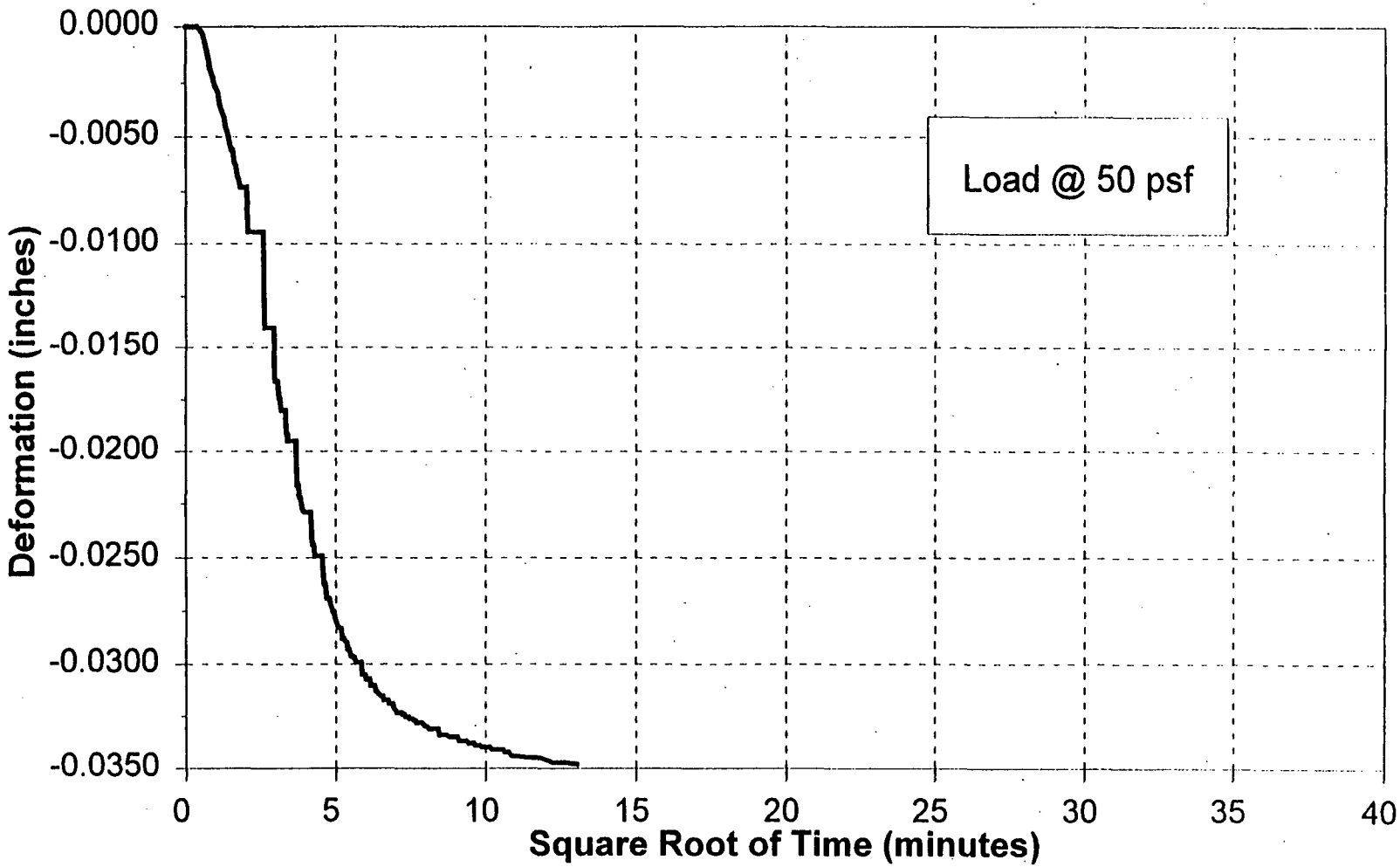
Sample: Pond 12S, BH-3 @ 10.8 feet



Project No. 973376

Figure 78

Time Rate of Consolidation
Sample: Pond 12S, BH-3 @ 10.8 feet

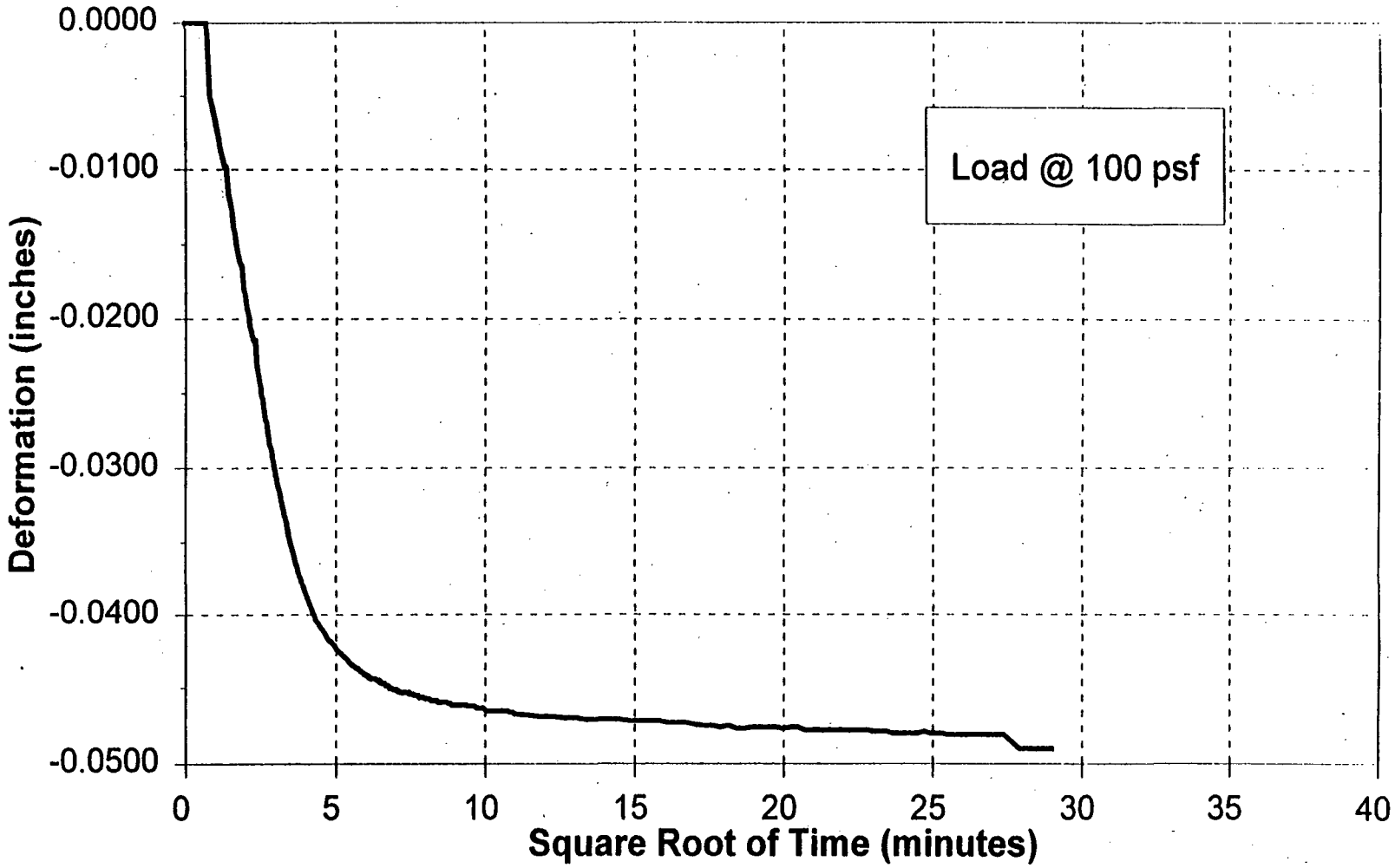


Project No. 973376

Figure 79

Time Rate of Consolidation

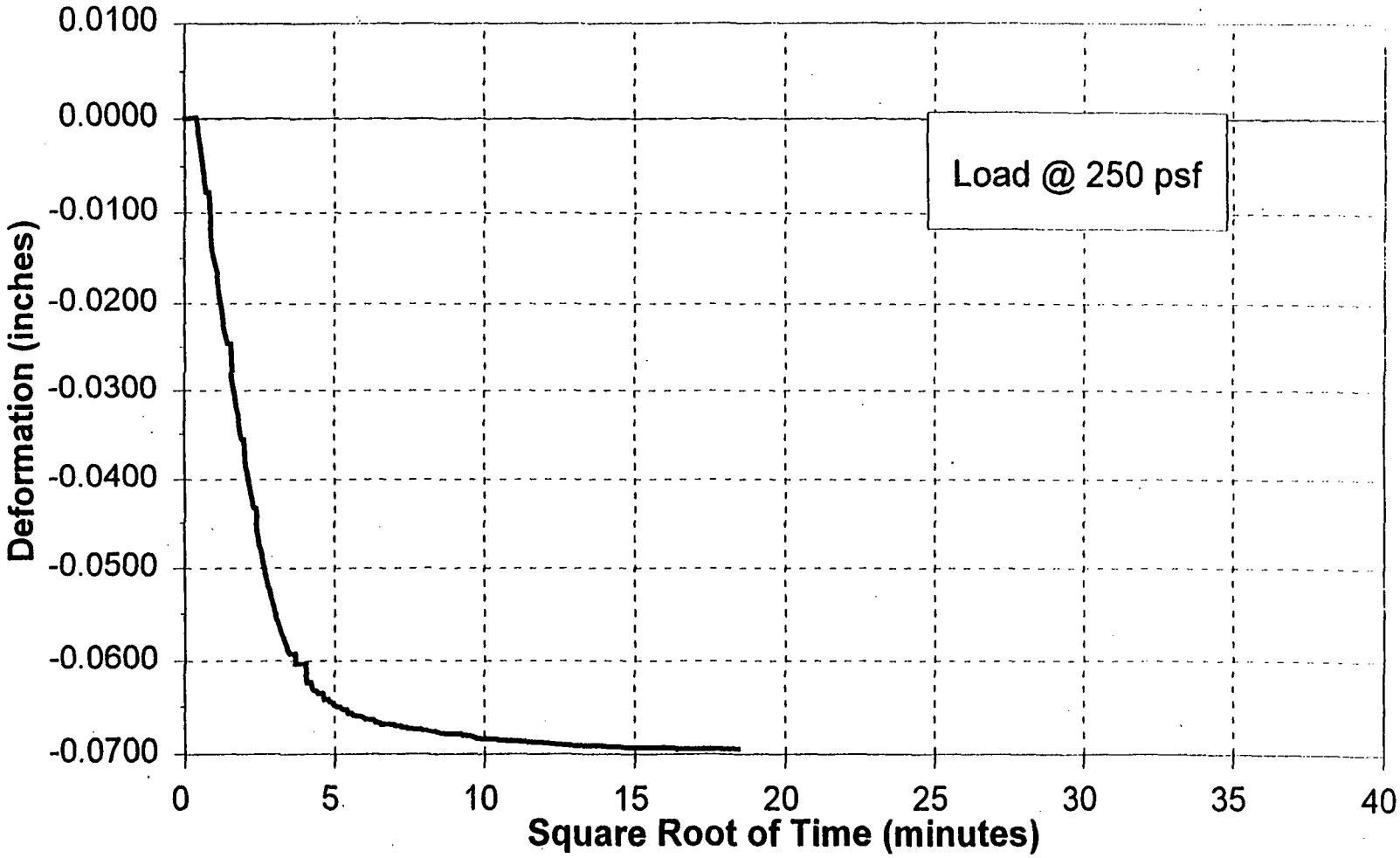
Sample: Pond 12S, BH-3 @ 10.8 feet



Project No. 973376

Figure 80

Time Rate of Consolidation
Sample: Pond 12S, BH-3 @ 10.8 feet

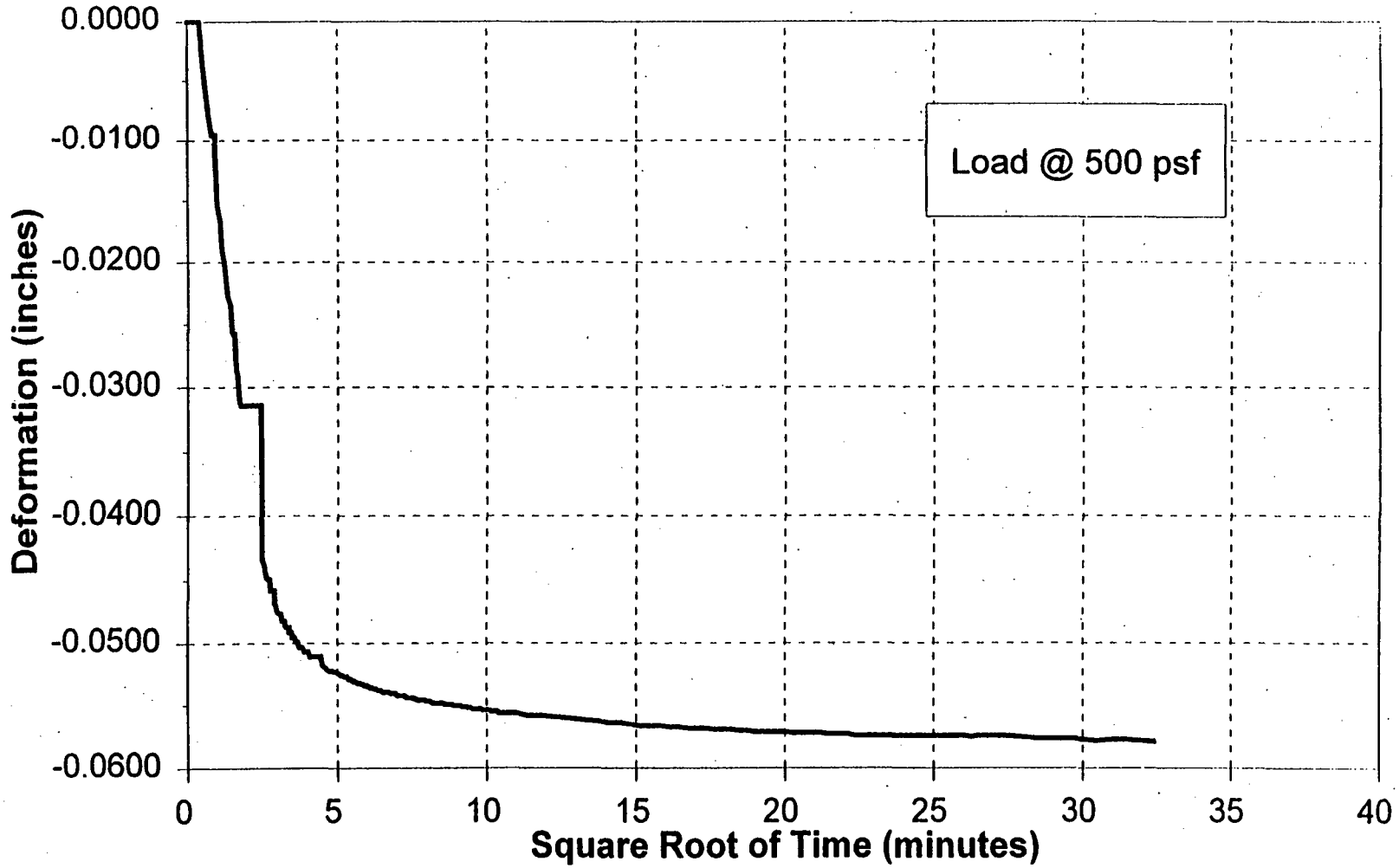


Project No. 973376

Figure 81

Time Rate of Consolidation

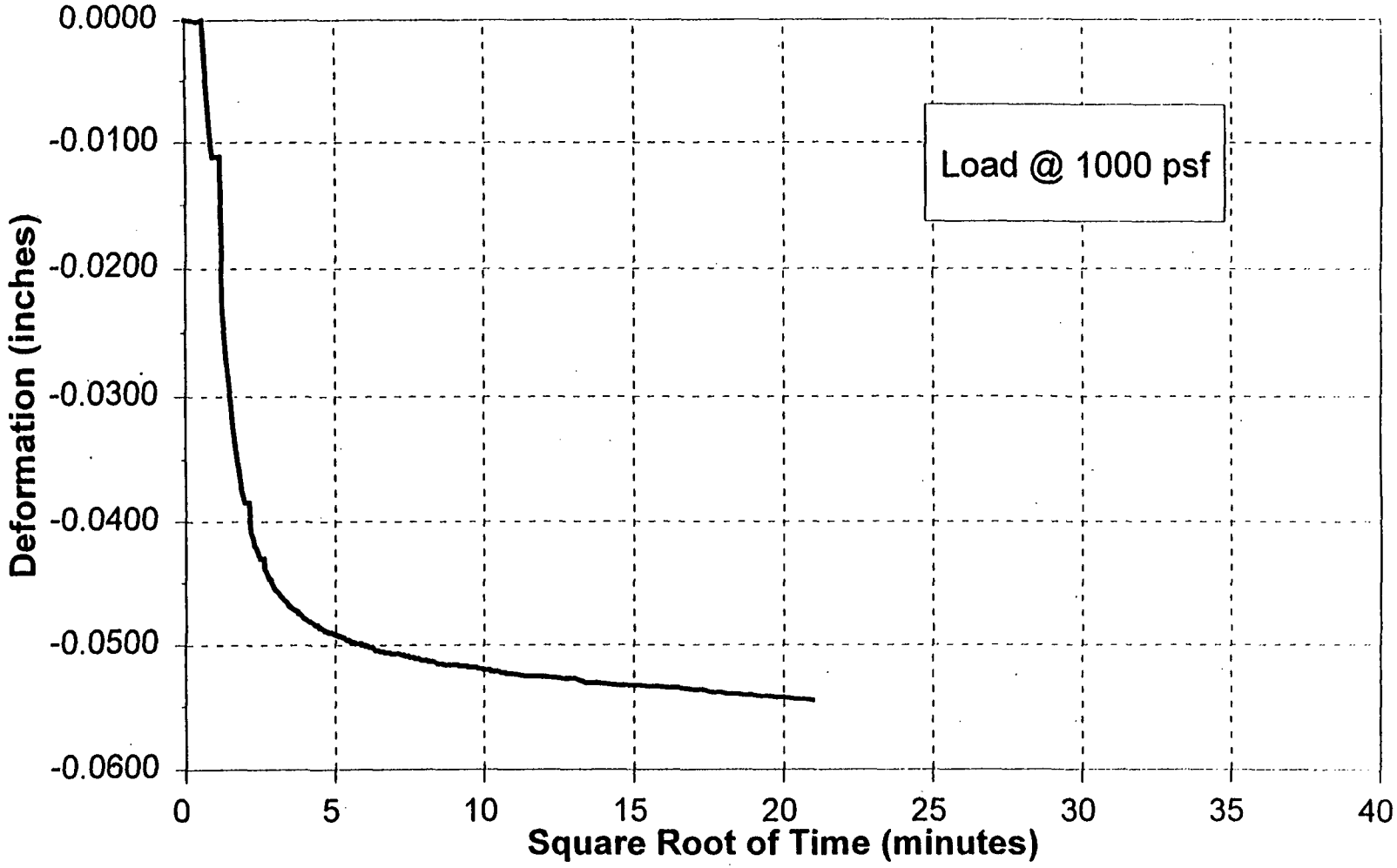
Sample: Pond 12S, BH-3 @ 10.8 feet



Project No. 973376

Figure 82

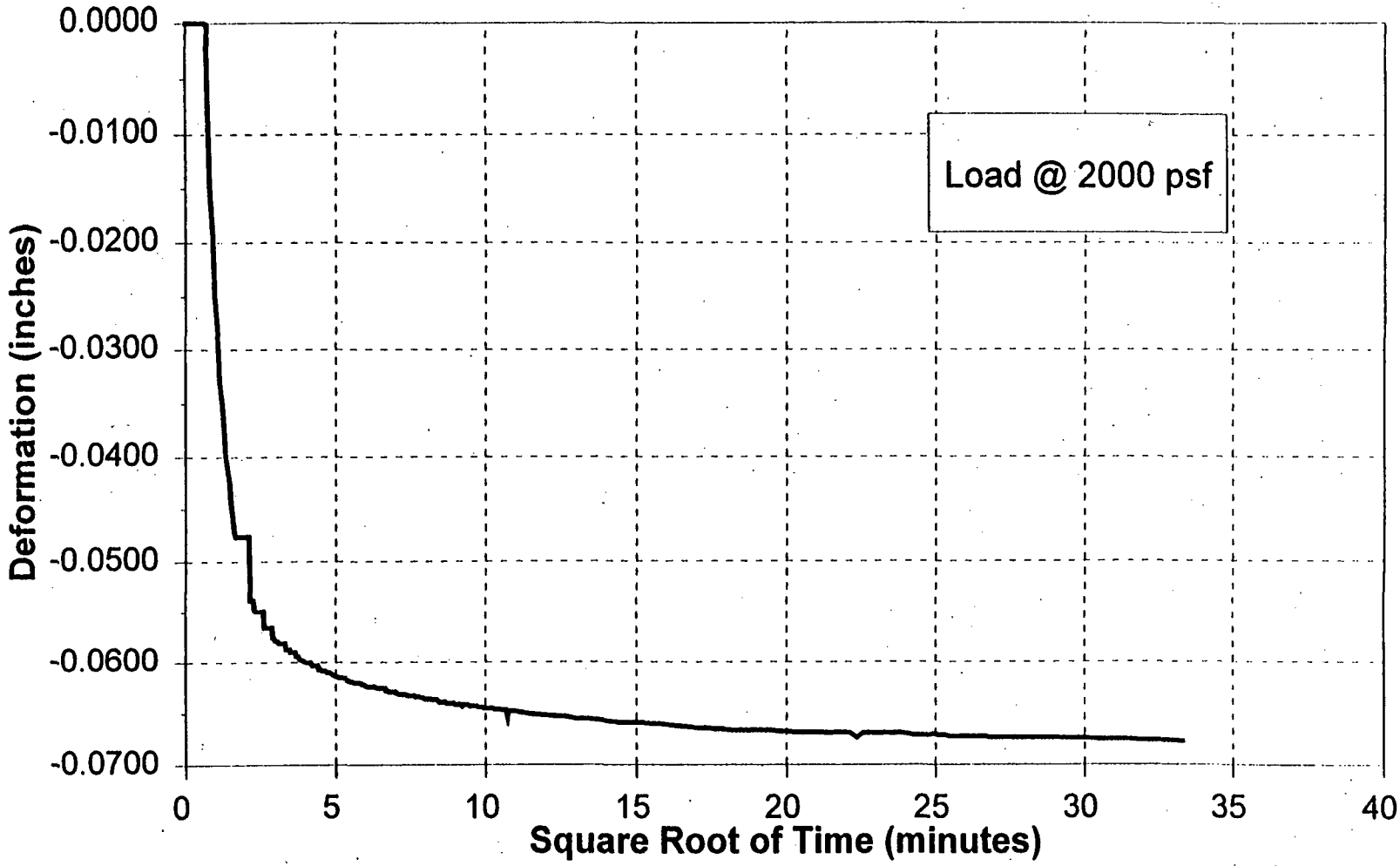
Time Rate of Consolidation
Sample: Pond 12S, BH-3 @ 10.8 feet



Project No. 973376

Figure 83

Time Rate of Consolidation
Sample: Pond 12S, BH-3 @ 10.8 feet

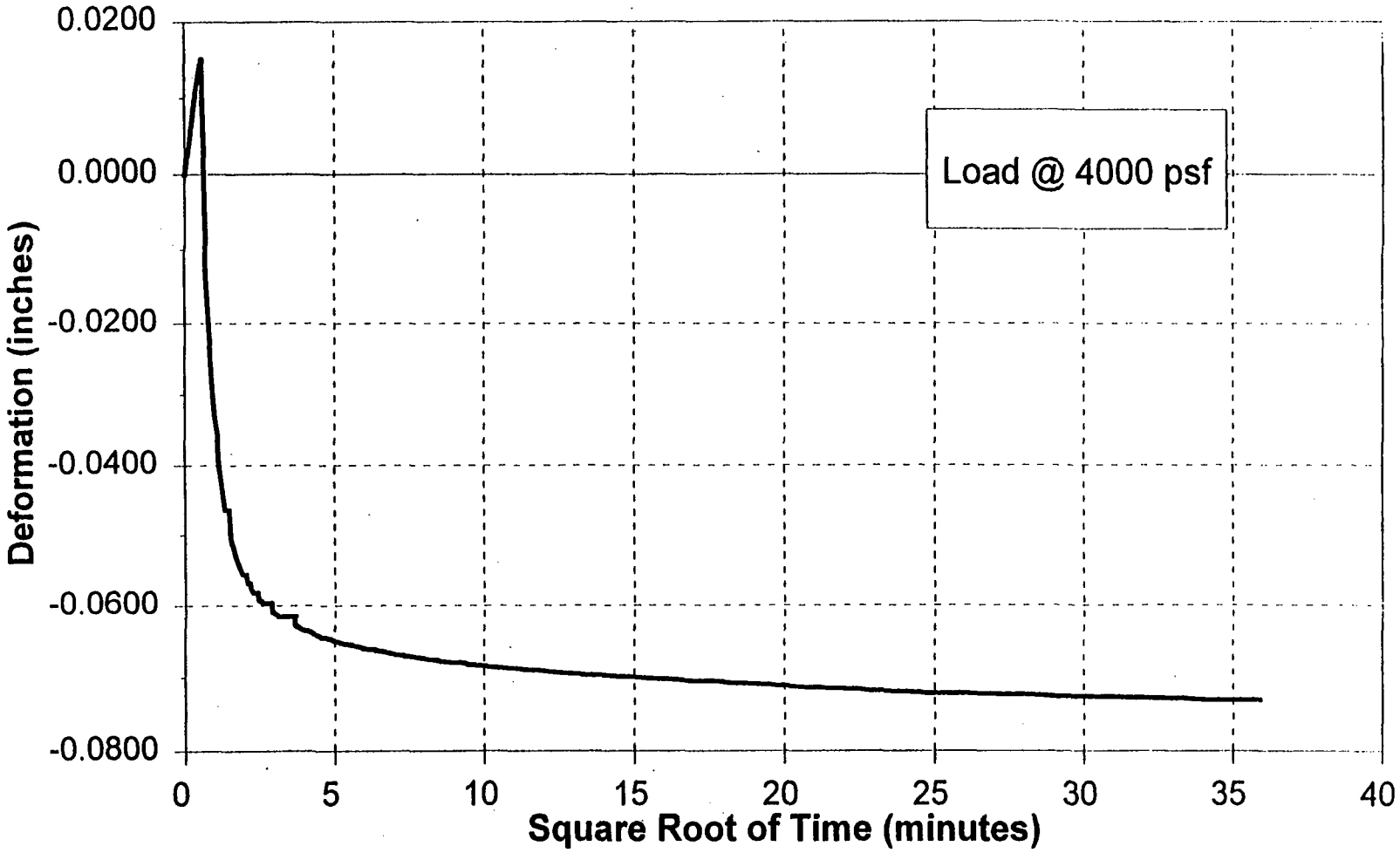


Project No. 973376

Figure 84

Time Rate of Consolidation

Sample: Pond 12S, BH-3 @ 10.8 feet

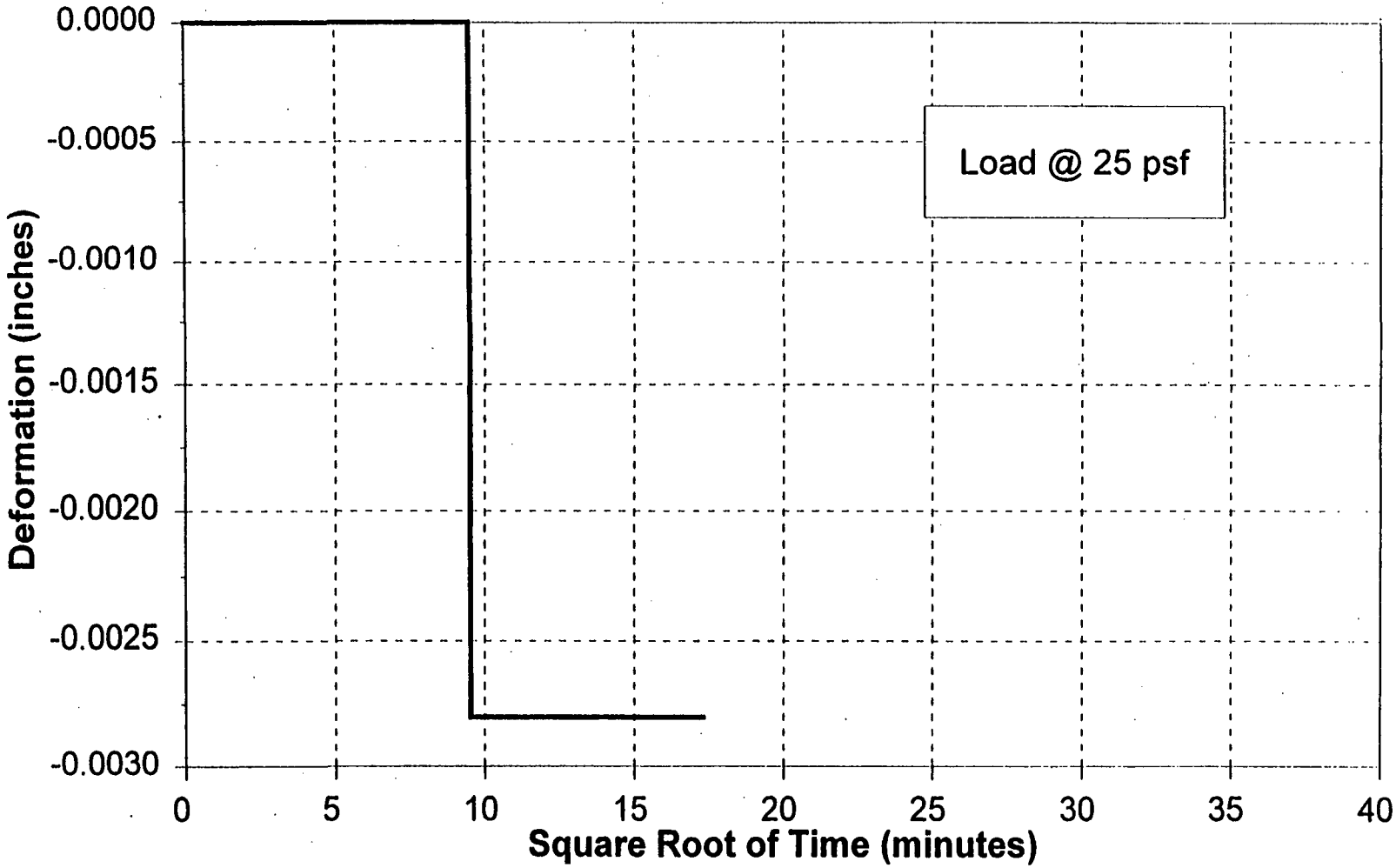


Project No. 973376

Figure 85

Time Rate of Consolidation

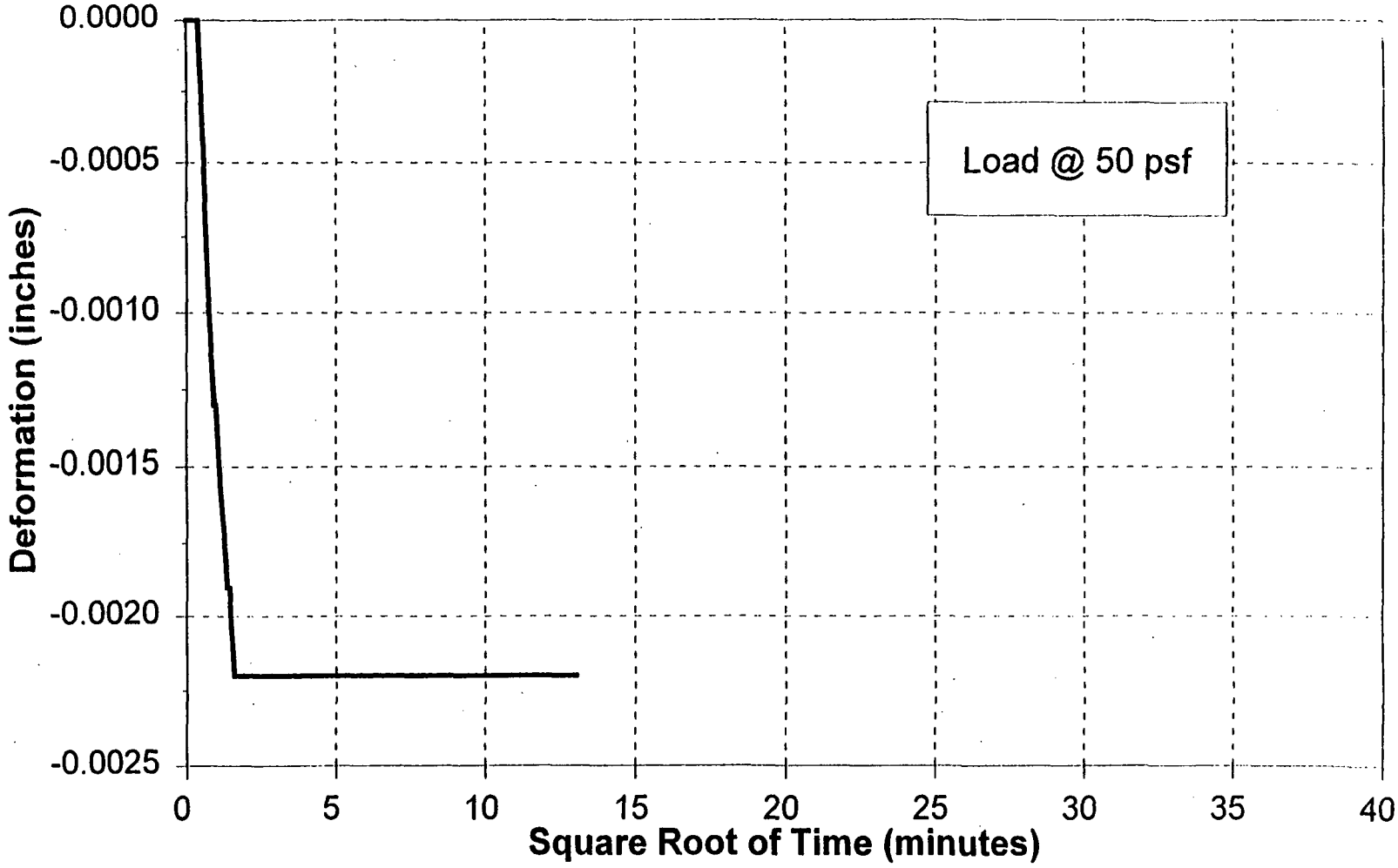
Sample: Pond 13S, BH-3 @ 14.5 feet



Project No. 973376

Figure 86

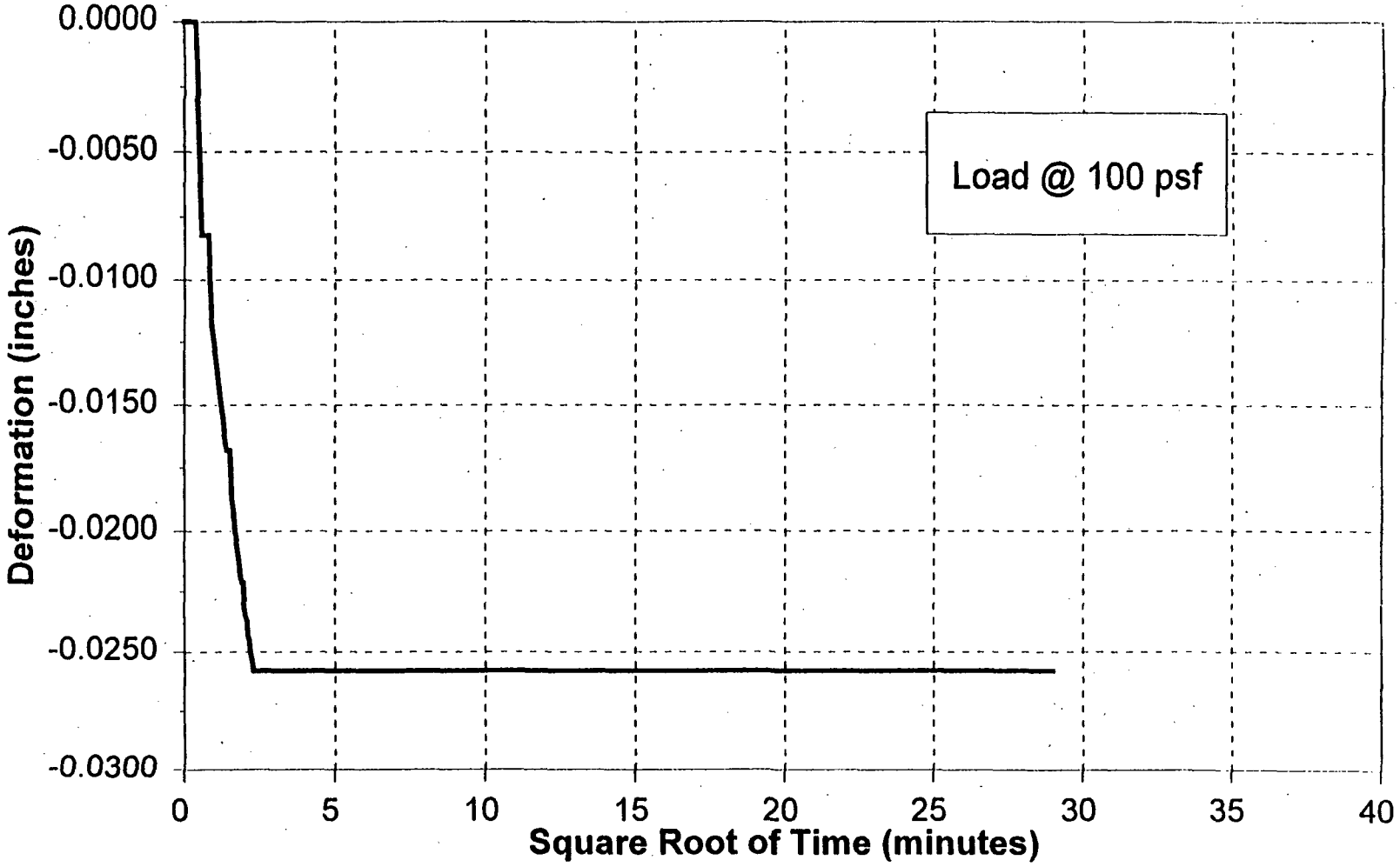
Time Rate of Consolidation
Sample: Pond 13S, BH-3 @ 14.5 feet



Project No. 973376

Figure 87

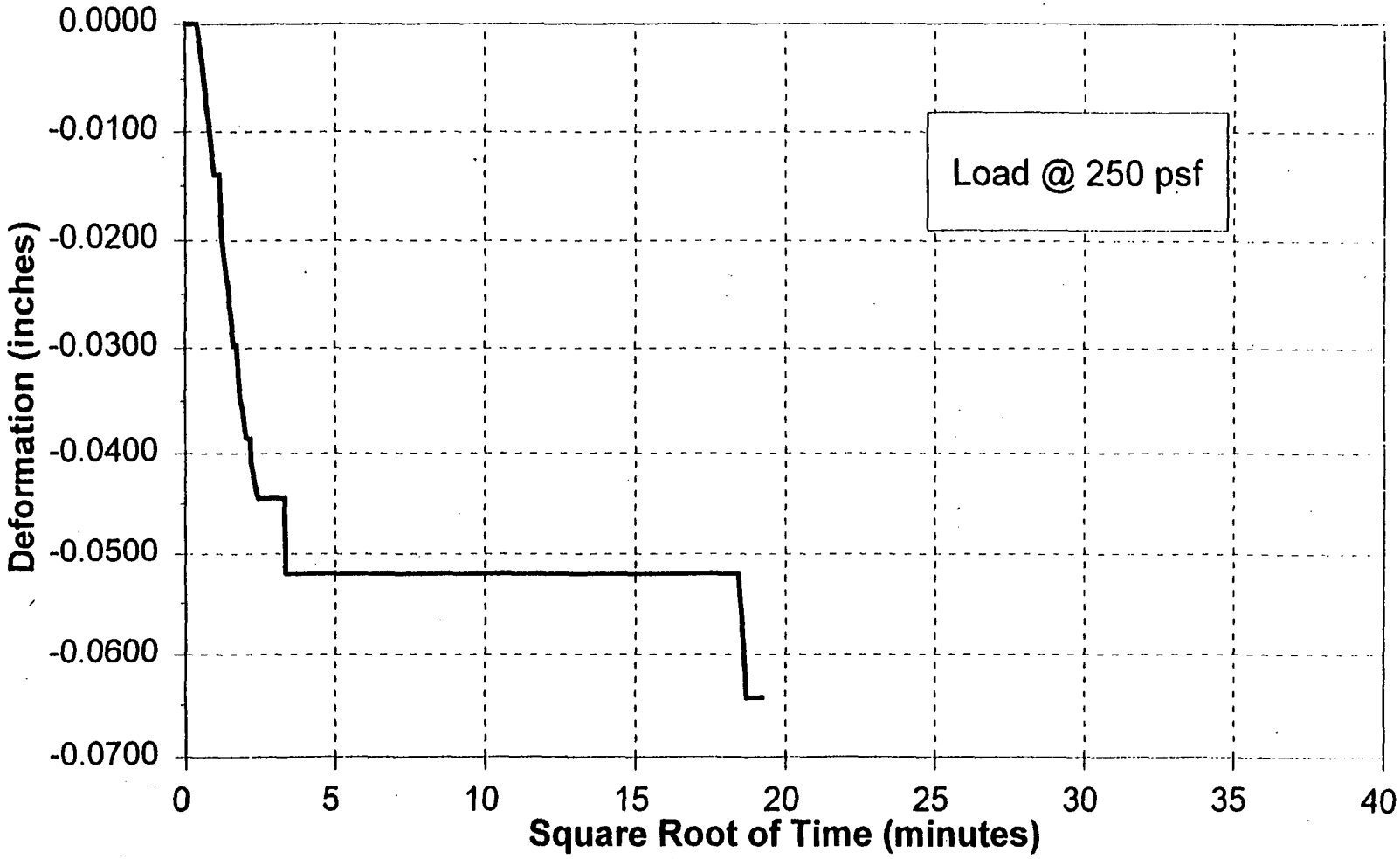
Time Rate of Consolidation
Sample: Pond 13S, BH-3 @ 14.5 feet



Project No. 973376

Figure 88

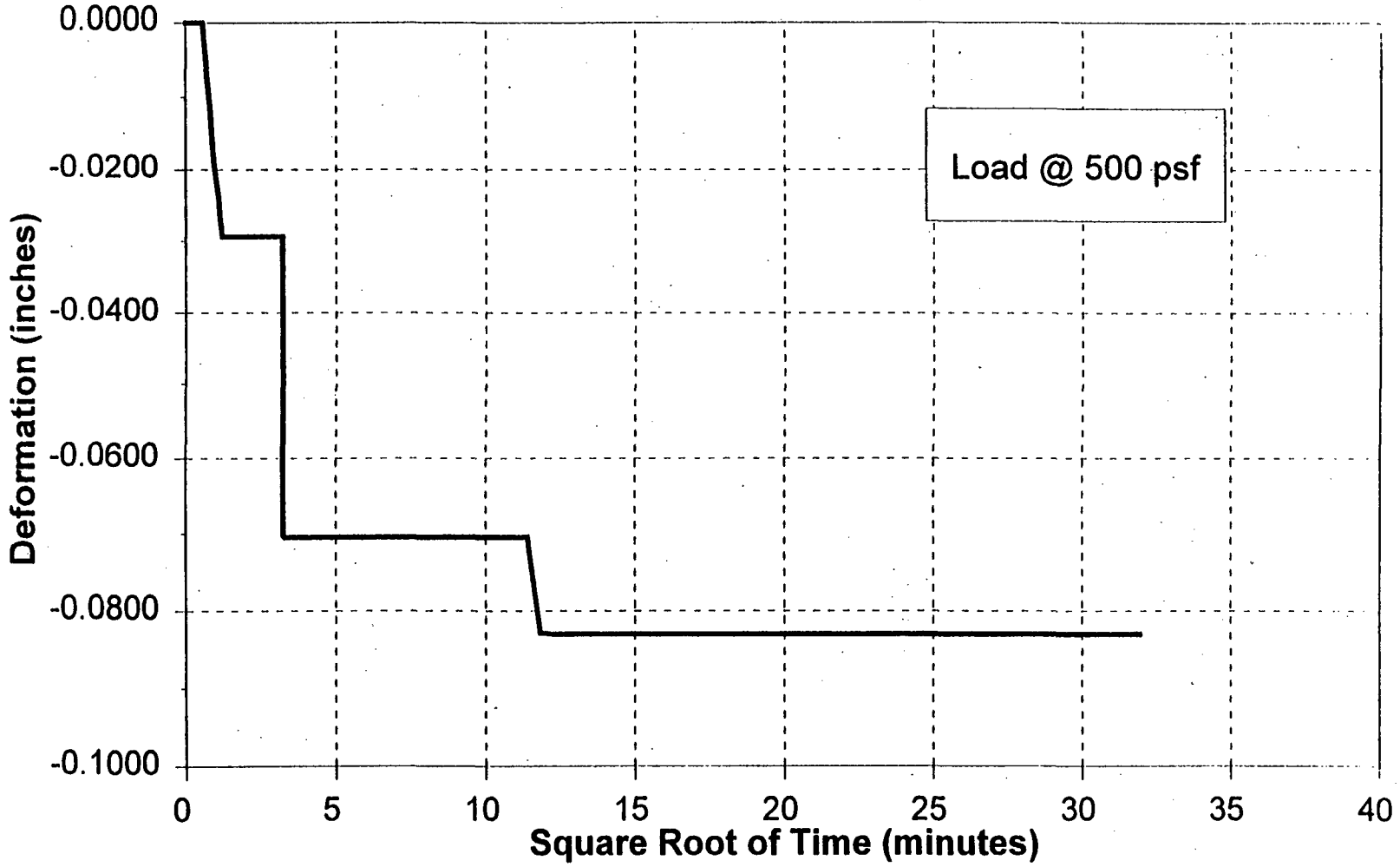
Time Rate of Consolidation
Sample: Pond 13S, BH-3 @ 14.5 feet



Project No. 973376

Figure 89

Time Rate of Consolidation
Sample: Pond 13S, BH-3 @ 14.5 feet

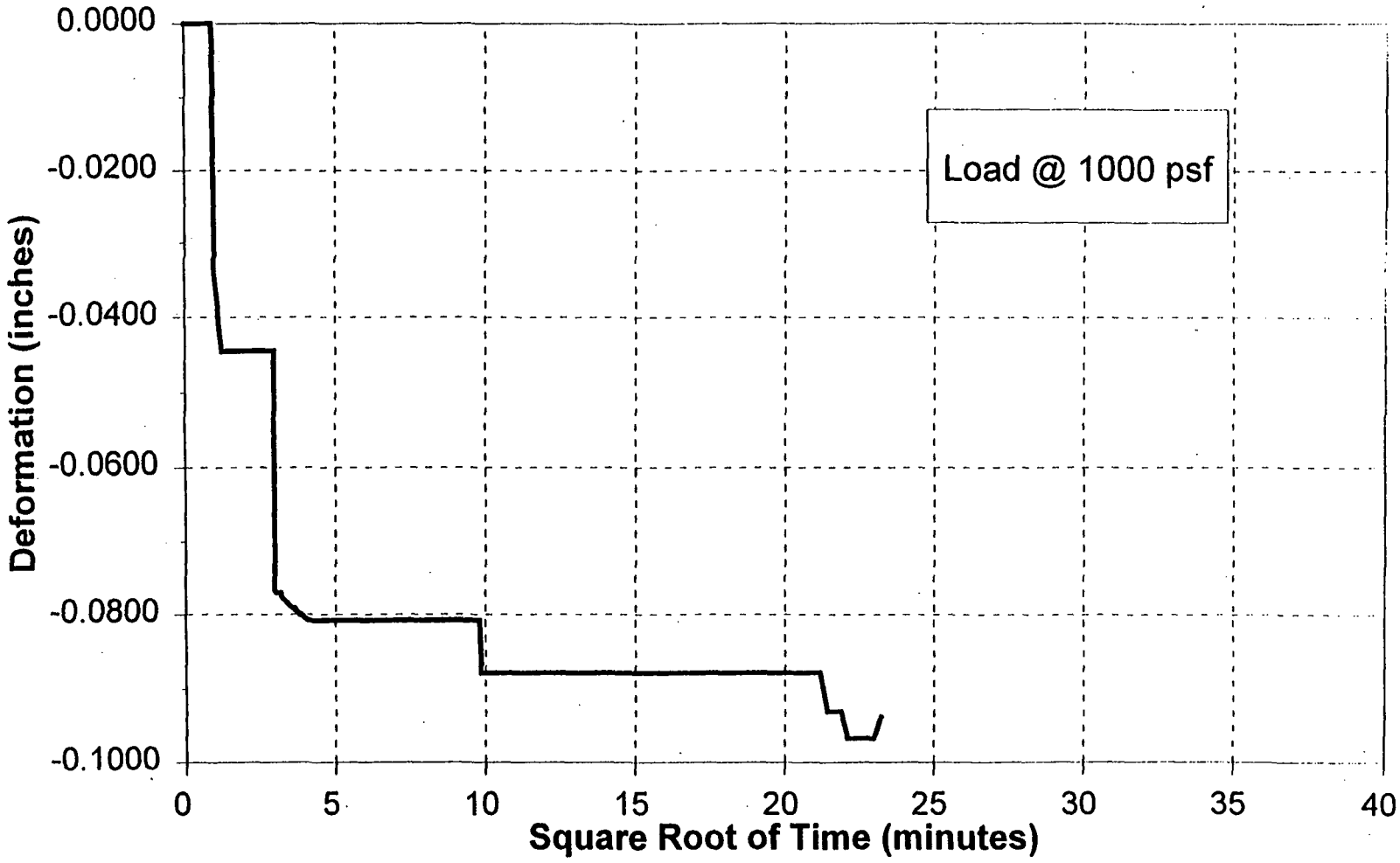


Project No. 973376

Figure 90

Time Rate of Consolidation

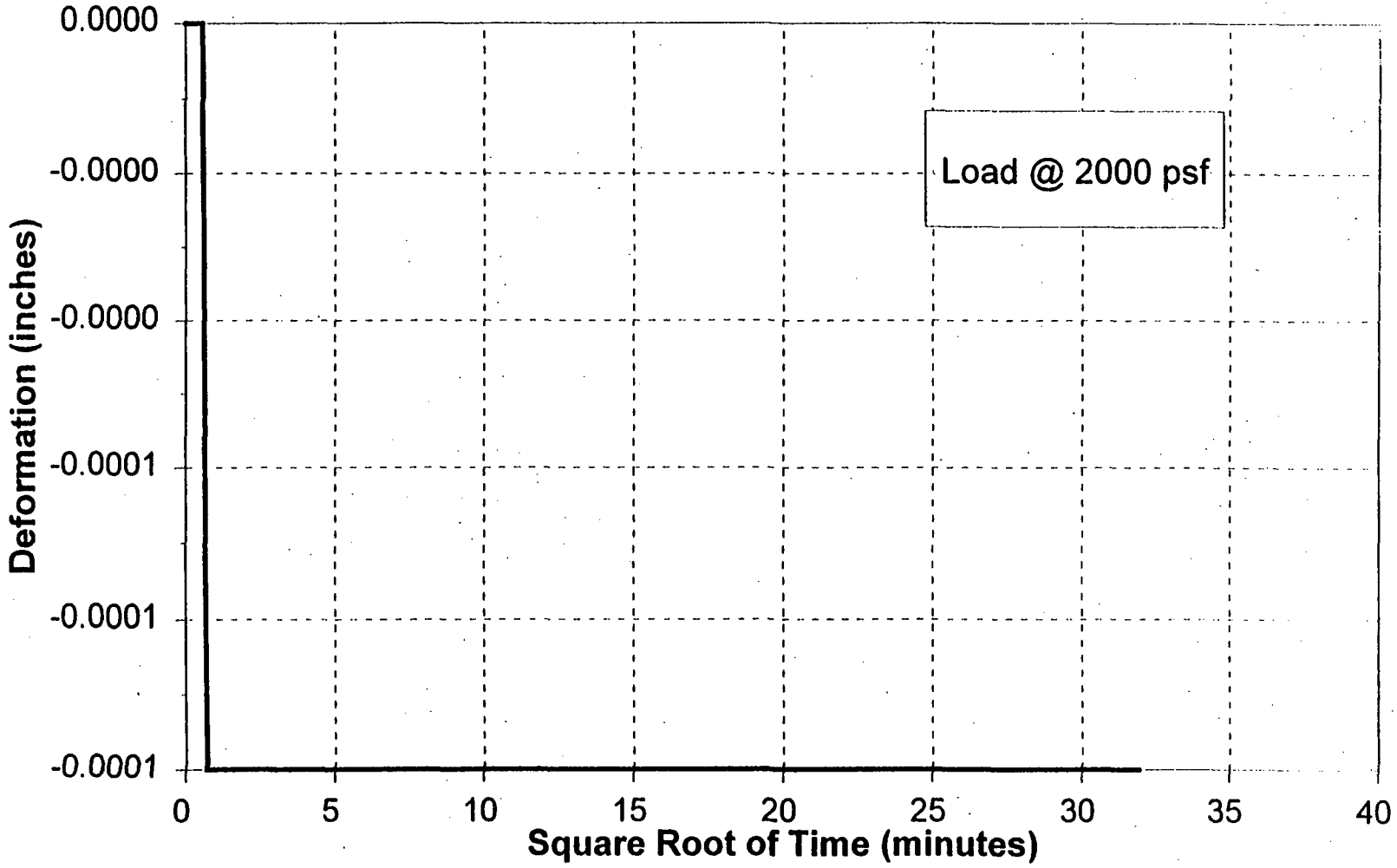
Sample: Pond 13S, BH-3 @ 14.5 feet



Project No. 973376

Figure 91

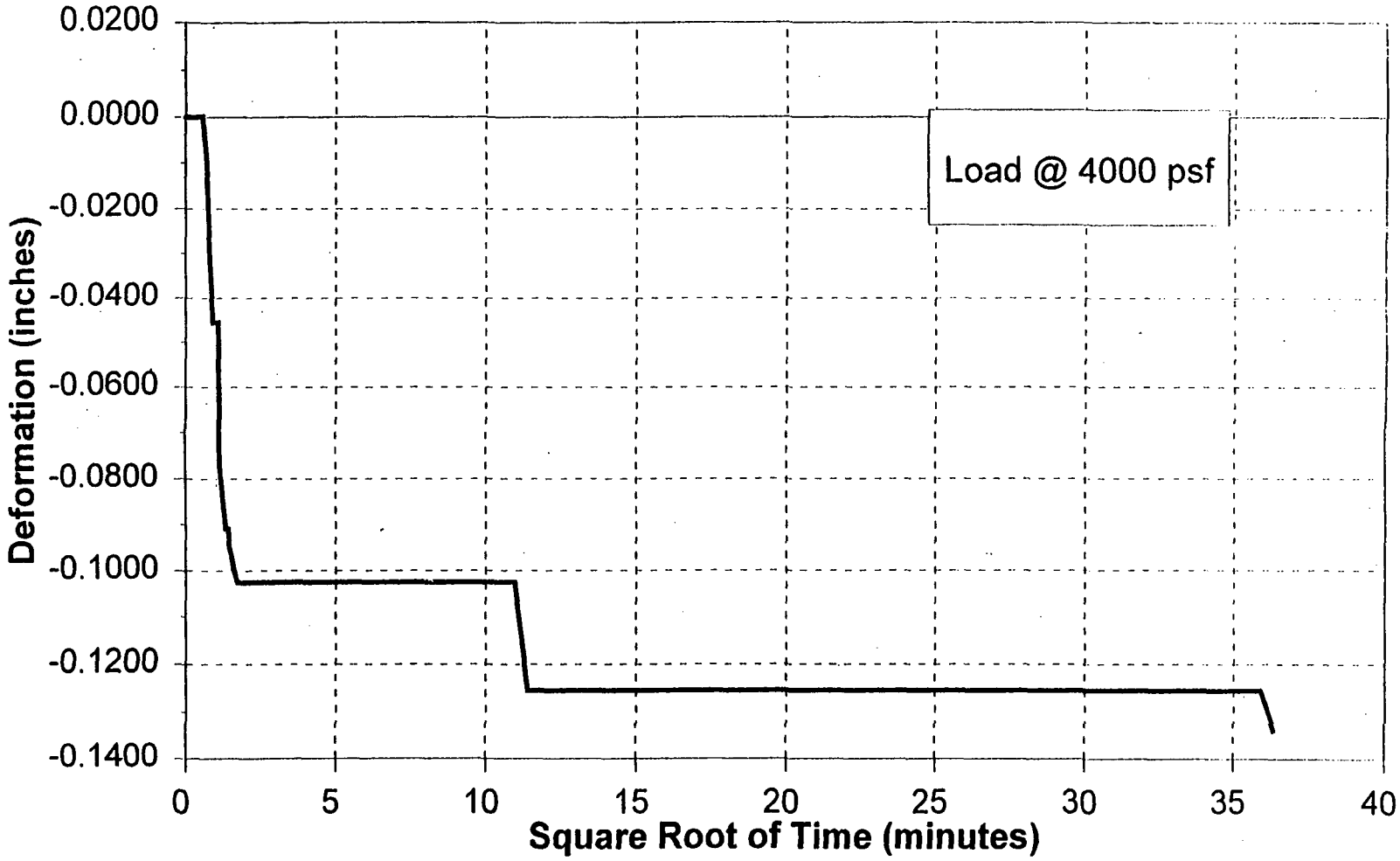
Time Rate of Consolidation
Sample: Pond 13S, BH-3 @ 14.5 feet



Project No. 973376

Figure 92

Time Rate of Consolidation
Sample: Pond 13S, BH-1 @ 14.5 feet

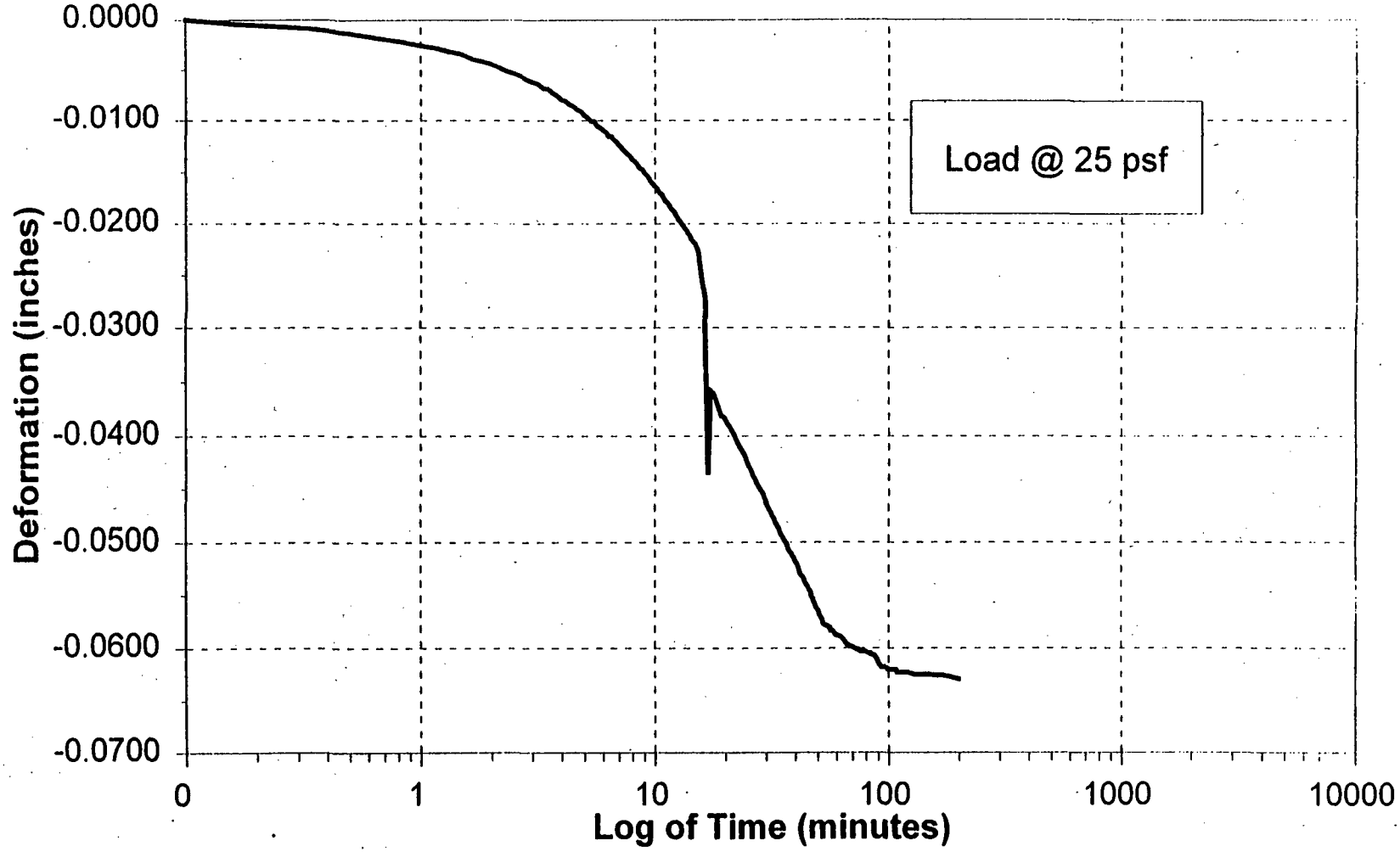


Project No. 973376

Figure 93

Time Rate of Consolidation

Sample: Pond 8E, BH-1 @ 7 feet

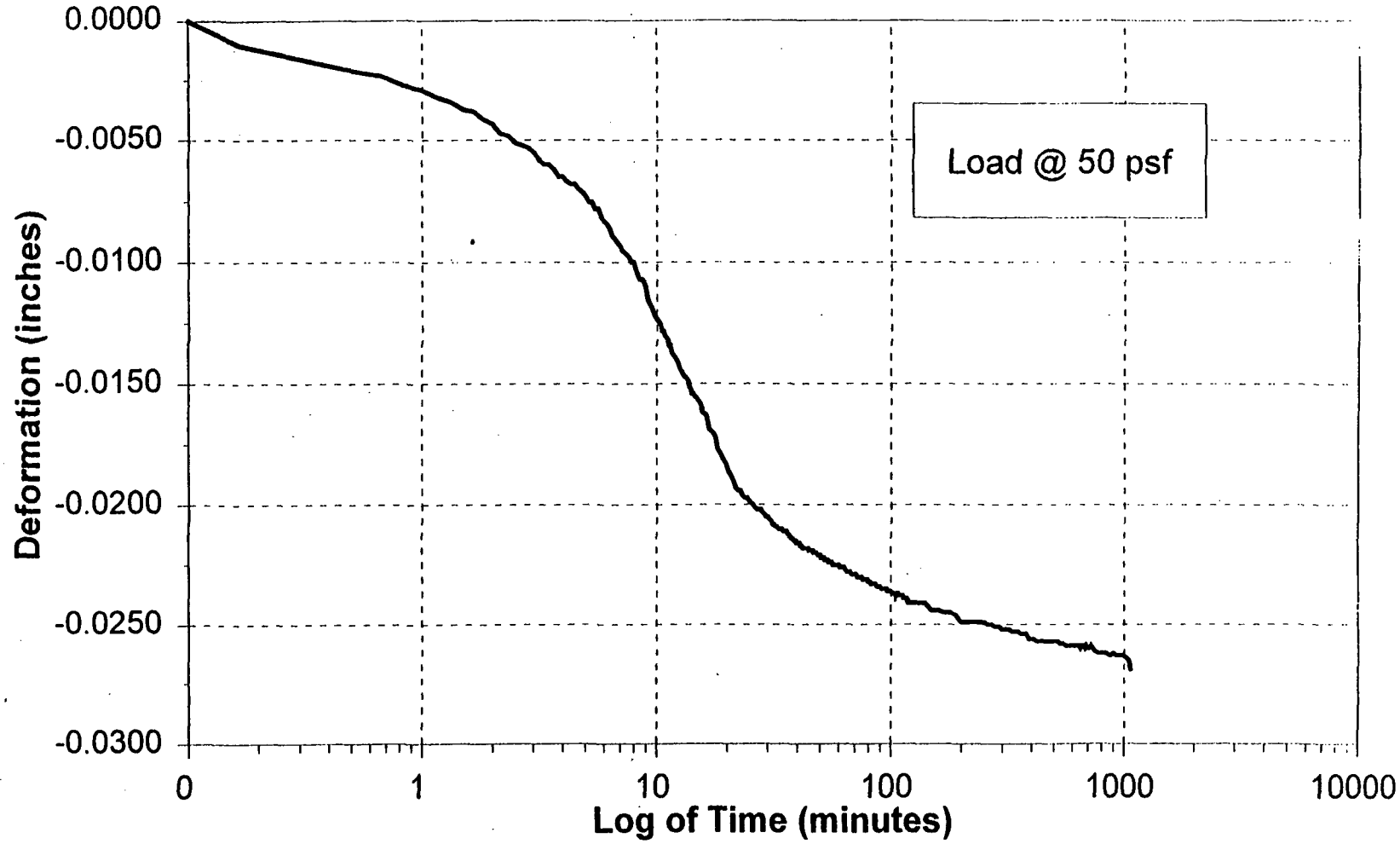


Project No. 973376

Figure 94

Time Rate of Consolidation

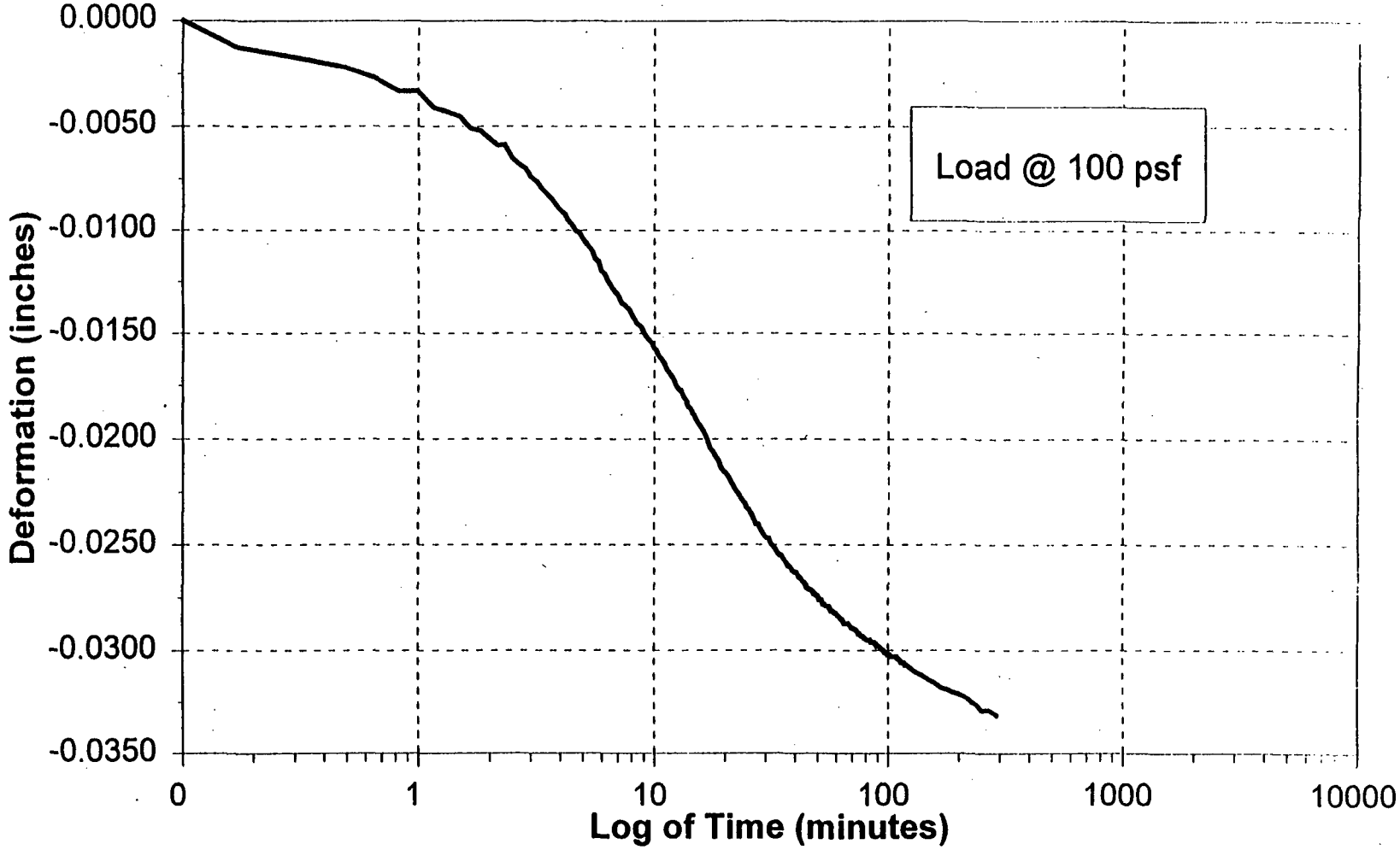
Sample: Pond 8E, BH-1 @ 7 feet



Project No. 973376

Figure 95

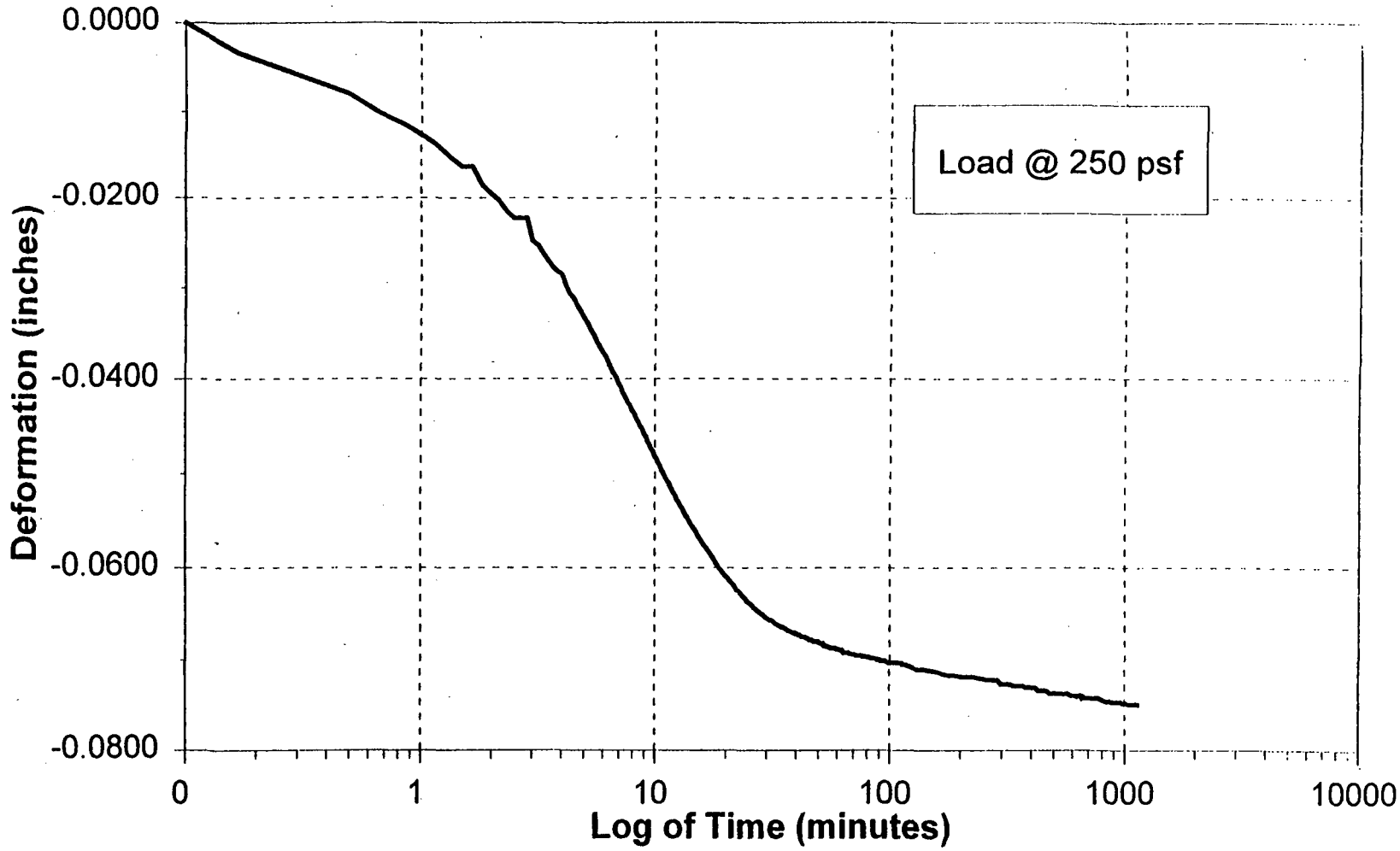
Time Rate of Consolidation
Sample: Pond 8E, BH-1 @ 7 feet



Project No. 973376

Figure 96

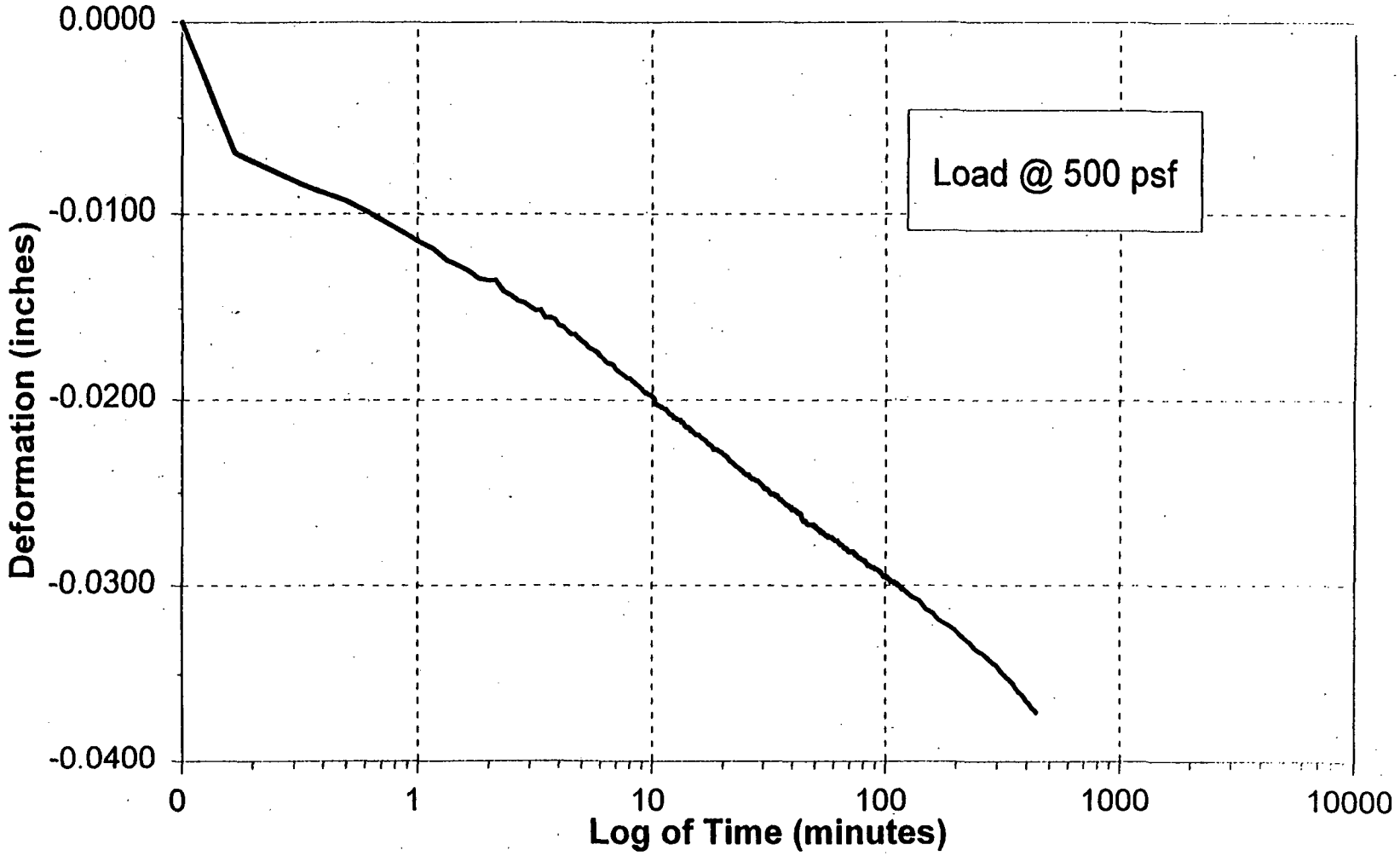
Time Rate of Consolidation
Sample: Pond 8E, BH-1 @ 7 feet



Project No. 973376

Figure 97

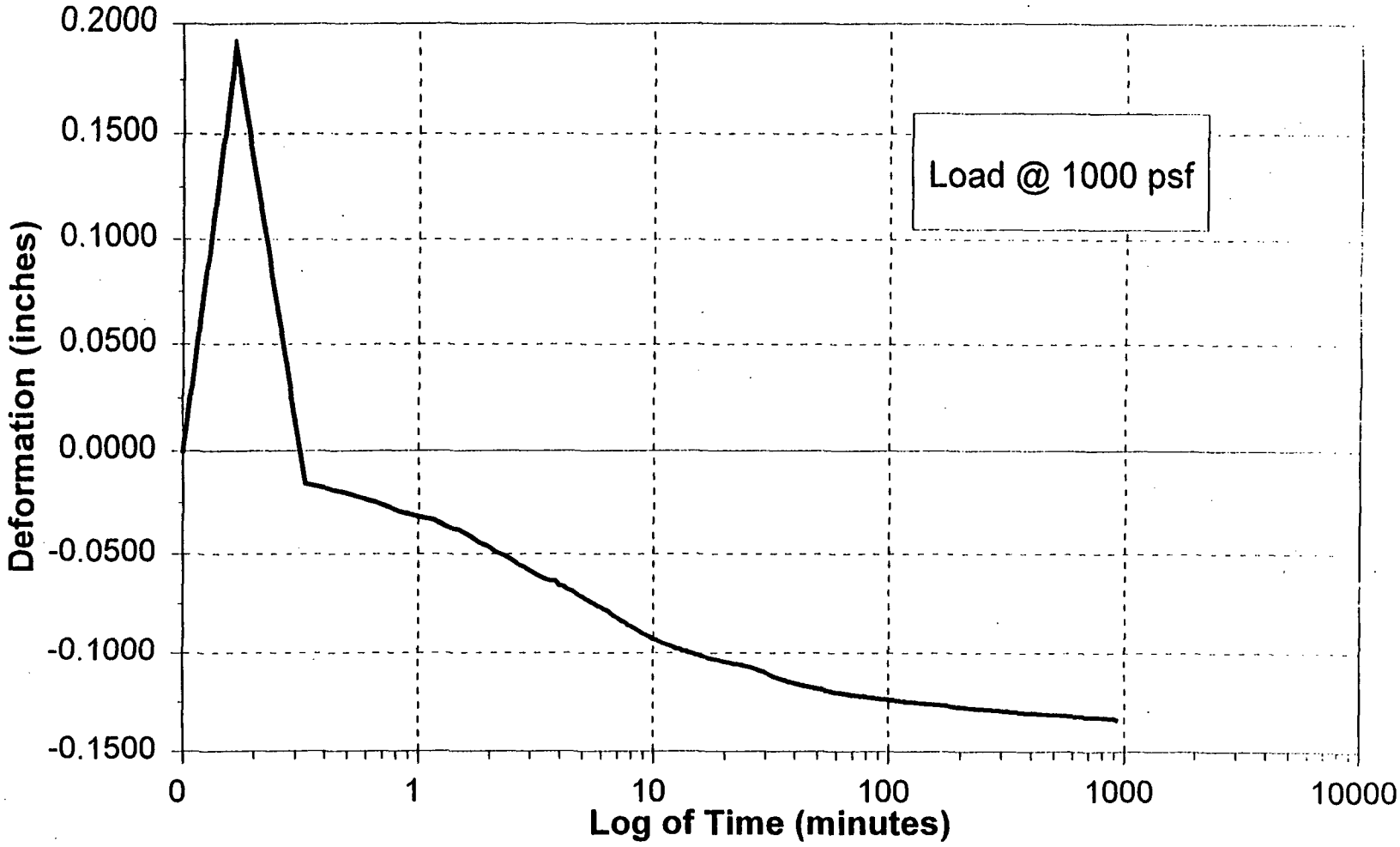
Time Rate of Consolidation
Sample: Pond 8E, BH-1 @ 7 feet



Project No. 973376

Figure 98

Time Rate of Consolidation
Sample: Pond 8E, BH-1 @ 7 feet

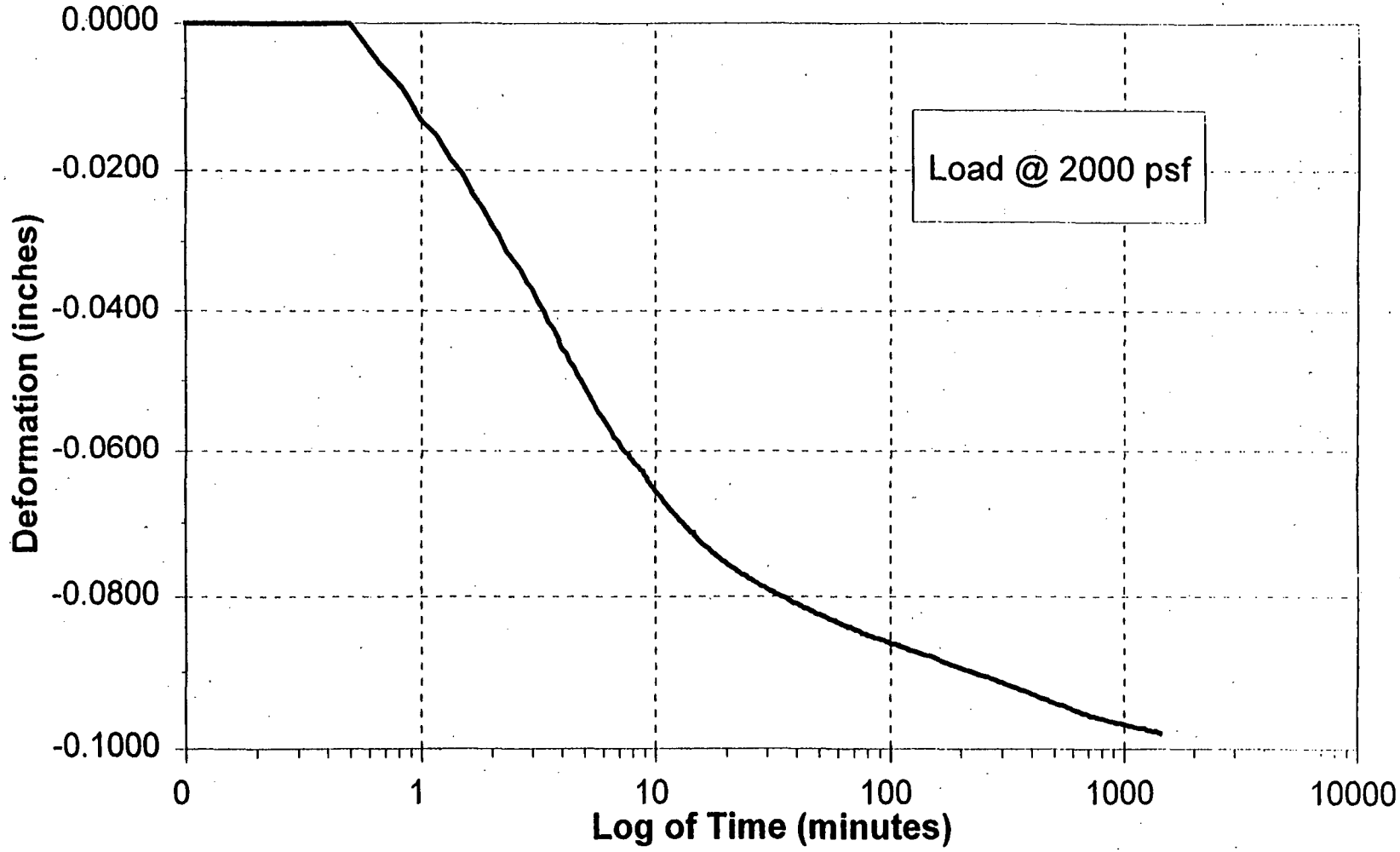


Project No. 973376

Figure 99

Time Rate of Consolidation

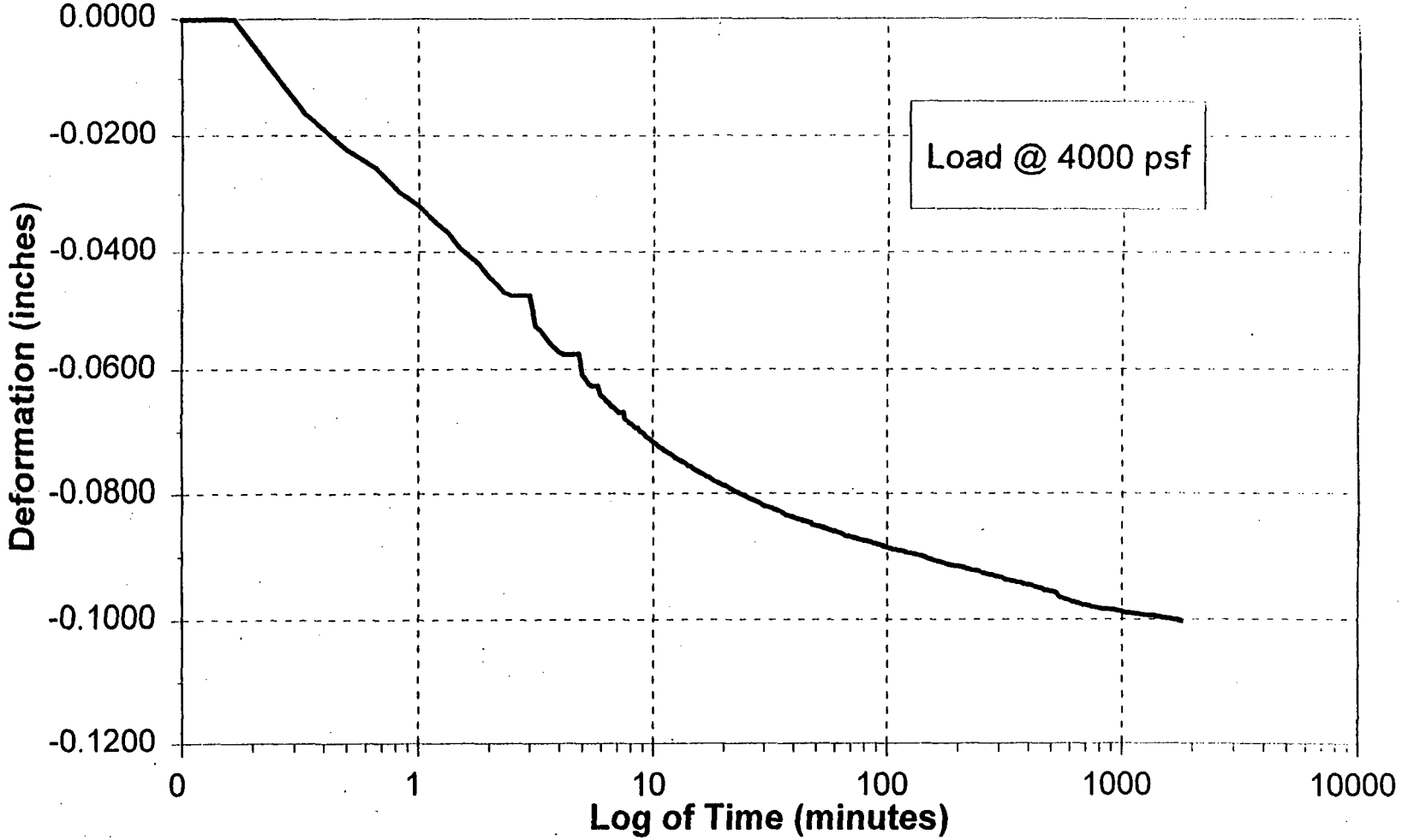
Sample: Pond 8E, BH-1 @ 7 feet



Project No. 973376

Figure 100

Time Rate of Consolidation
Sample: Pond 8E, BH-1 @ 7 feet

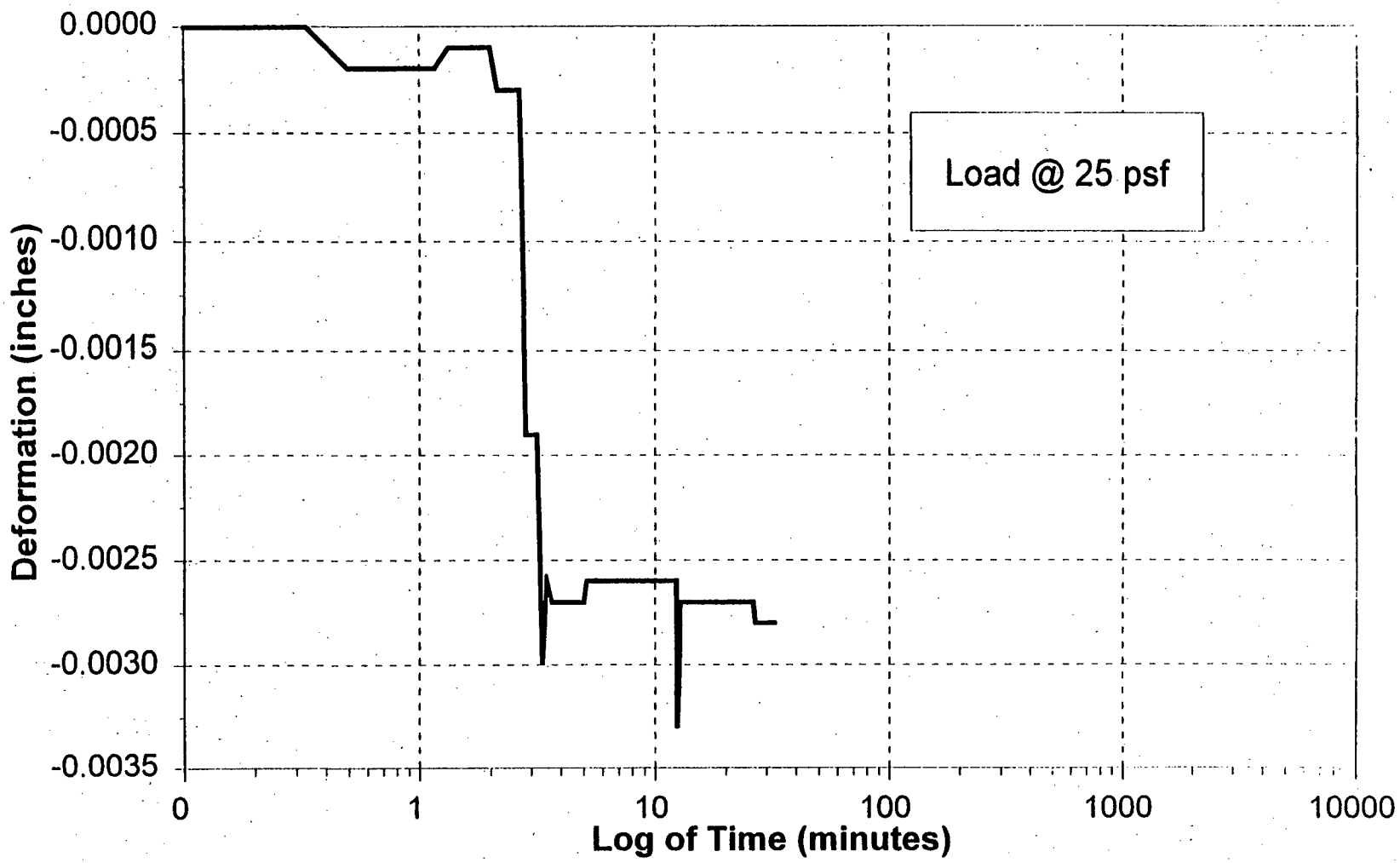


Project No. 973376

Figure 101

Time Rate of Consolidation

Sample: Pond 8E, BH-2 @ 10.2 feet

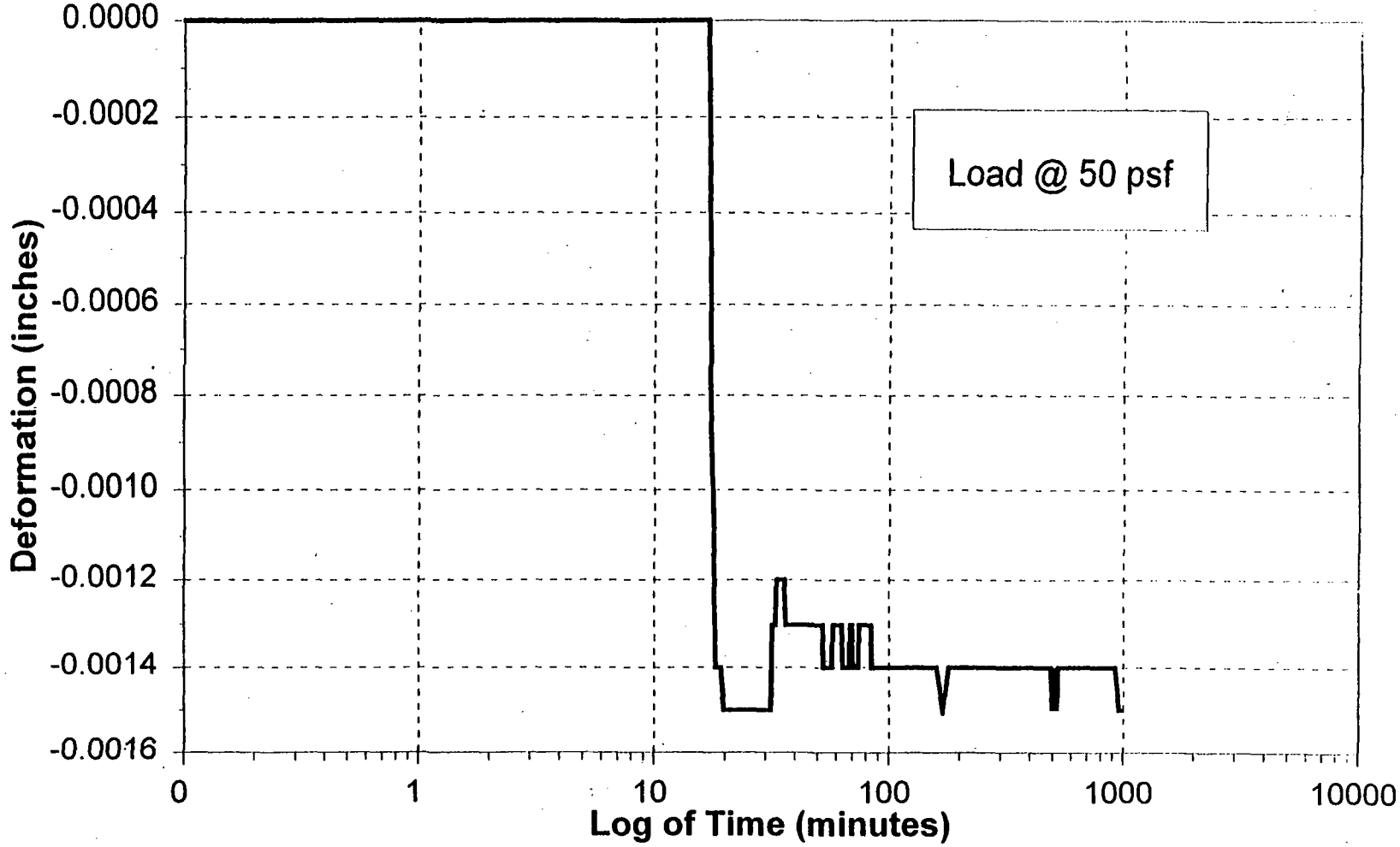


Project No. 973376

Figure 102

Time Rate of Consolidation

Sample: Pond 8E, BH-2 @ 10.2 feet

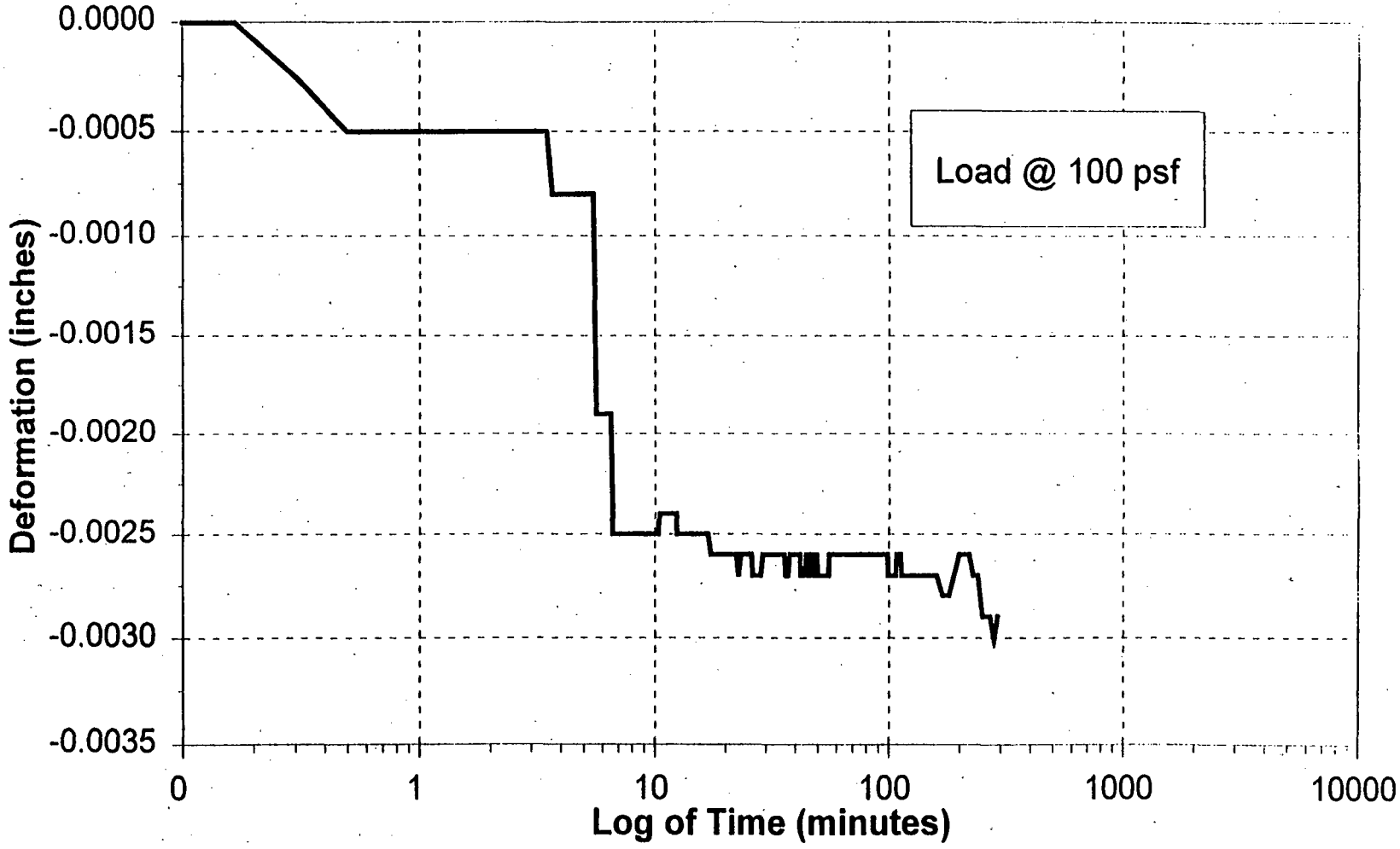


Project No. 973376

Figure 103

Time Rate of Consolidation

Sample: Pond 8E, BH-2 @ 10.2 feet

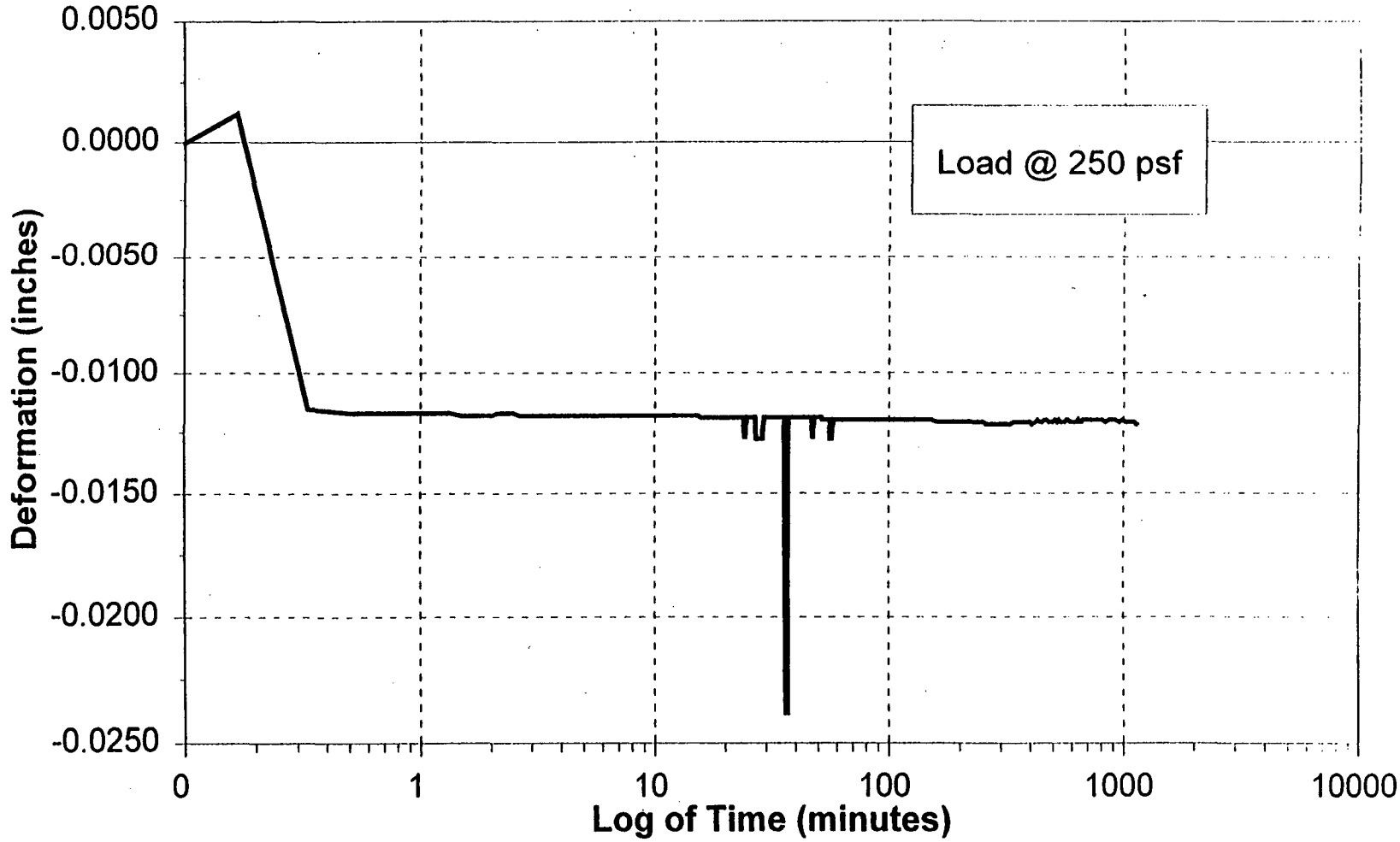


Project No. 973376

Figure 104

Time Rate of Consolidation

Sample: Pond 8E, BH-2 @ 10.2 feet

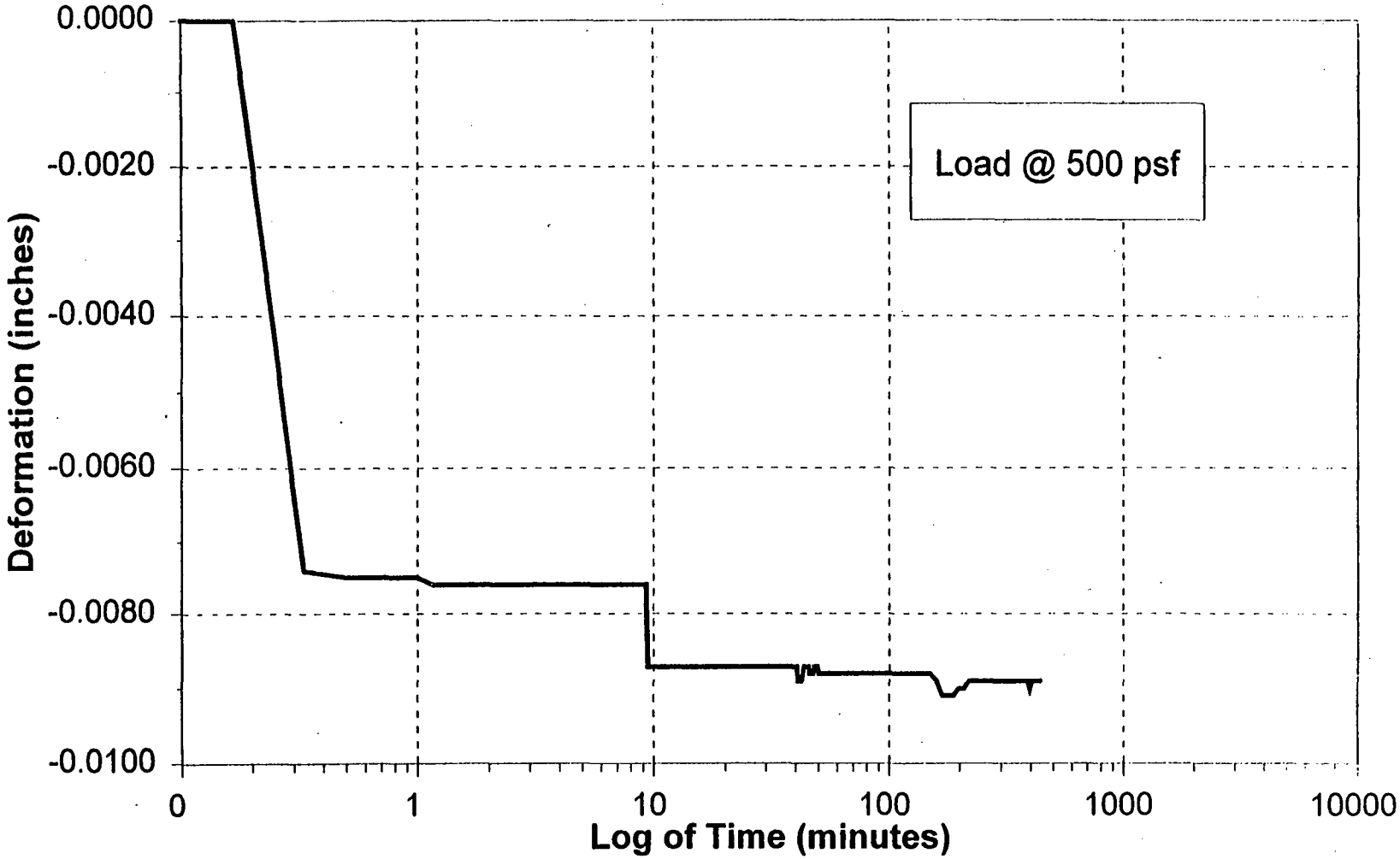


Project No. 973376

Figure 105

Time Rate of Consolidation

Sample: Pond 8E, BH-2 @ 10.2 feet

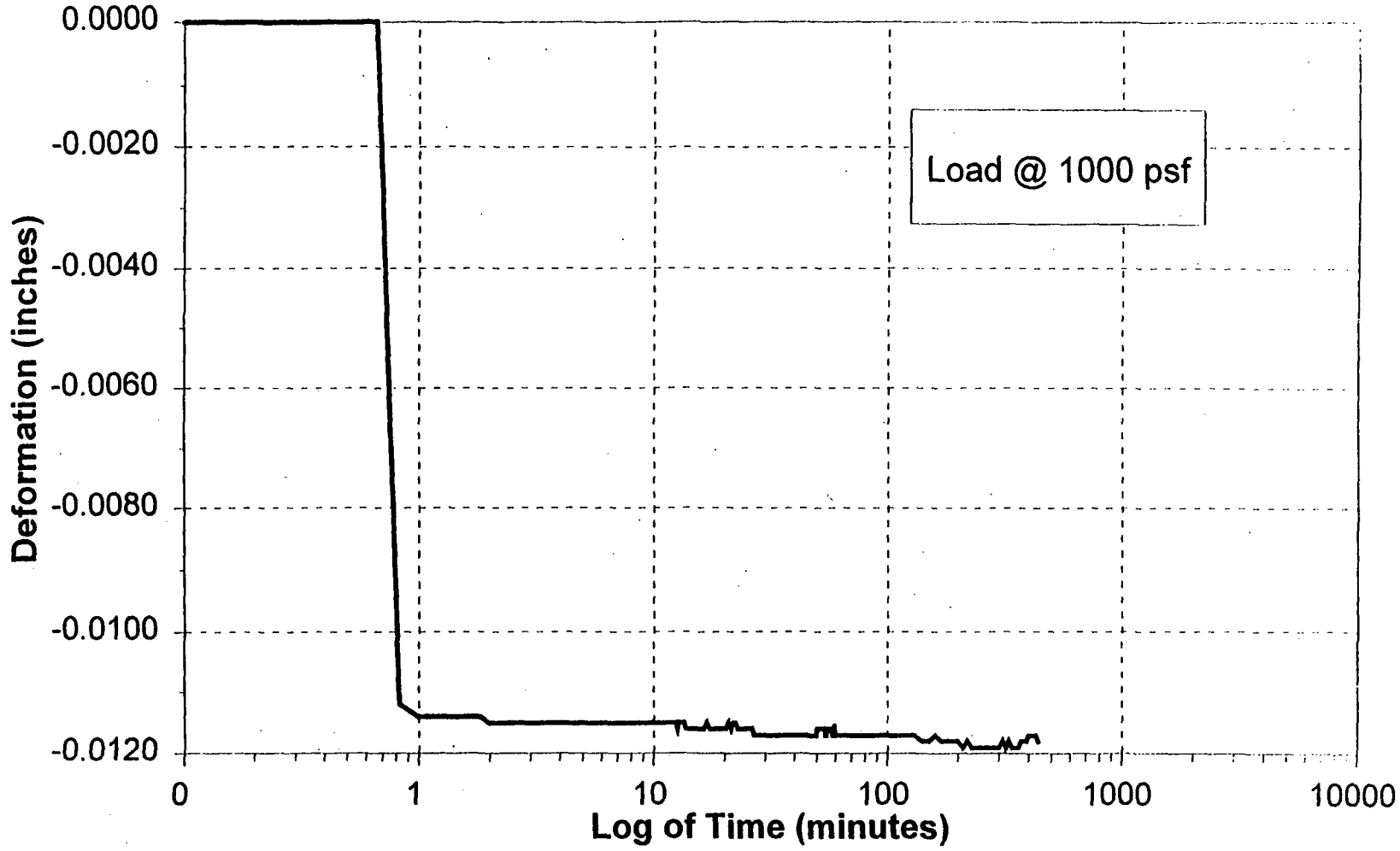


Project No. 973376

Figure 106

Time Rate of Consolidation

Sample: Pond 8E, BH-2 @ 10.2 feet

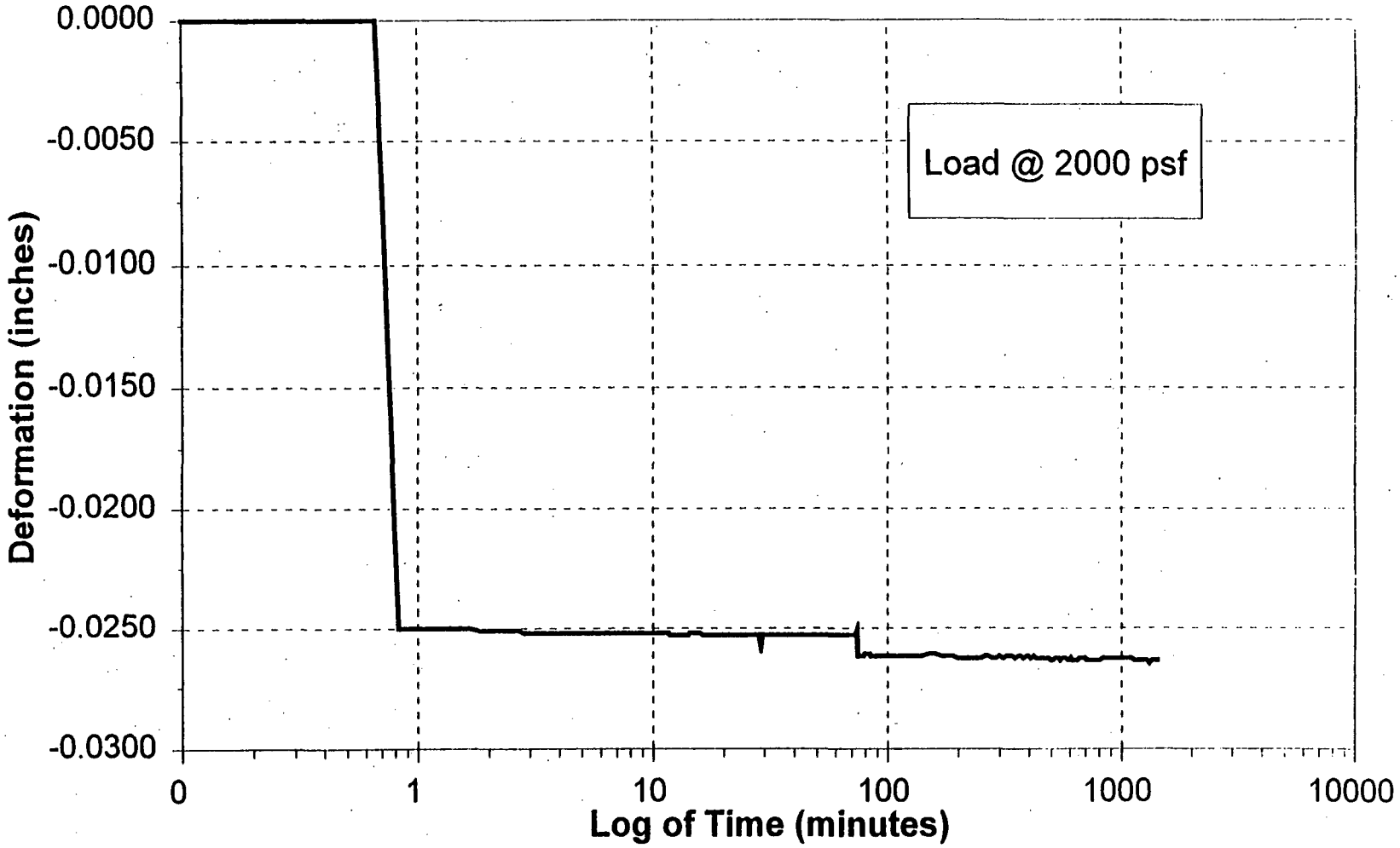


Project No. 973376

Figure 107

Time Rate of Consolidation

Sample: Pond 8E, BH-2 @ 10.2 feet

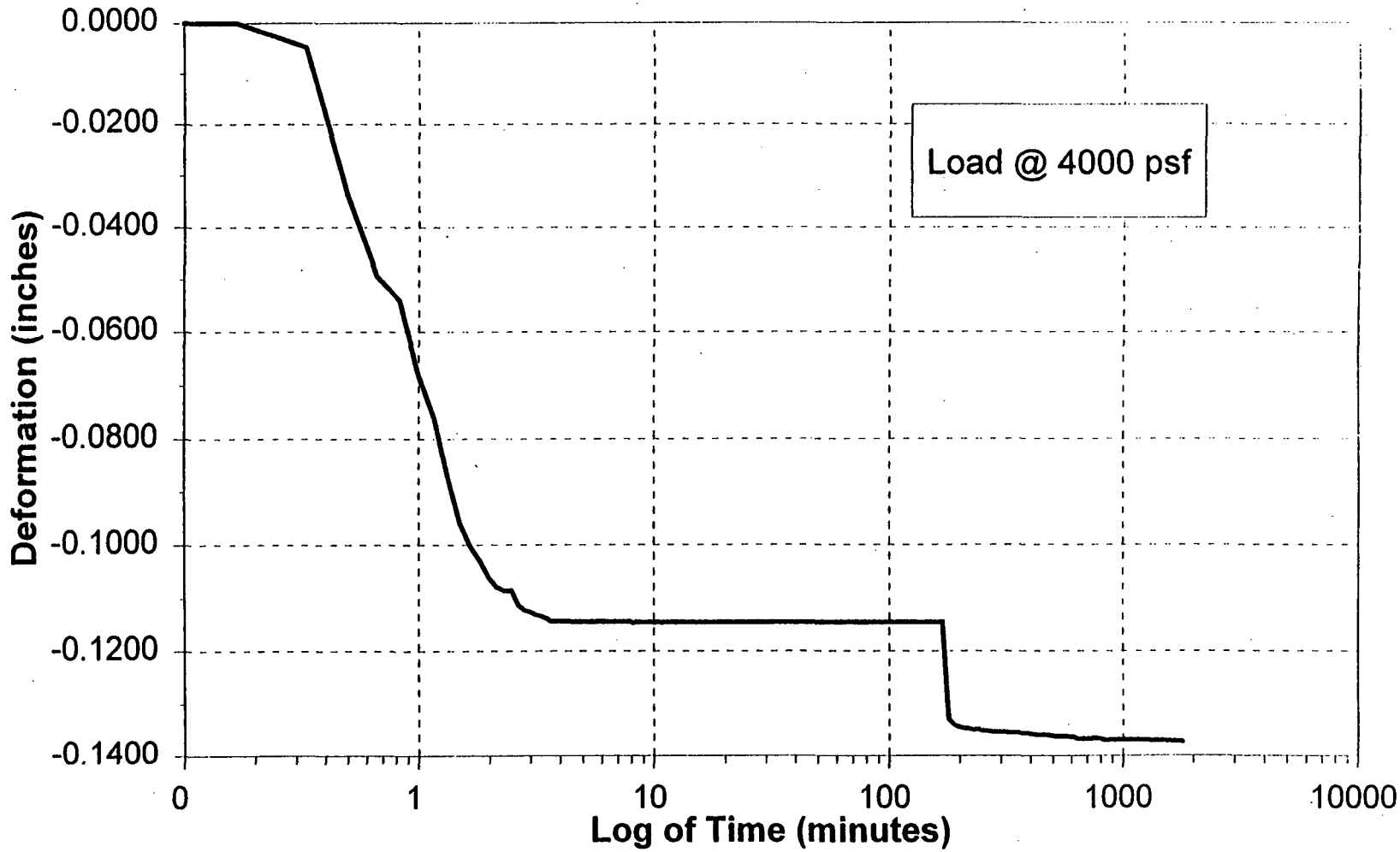


Project No. 973376

Figure 108

Time Rate of Consolidation

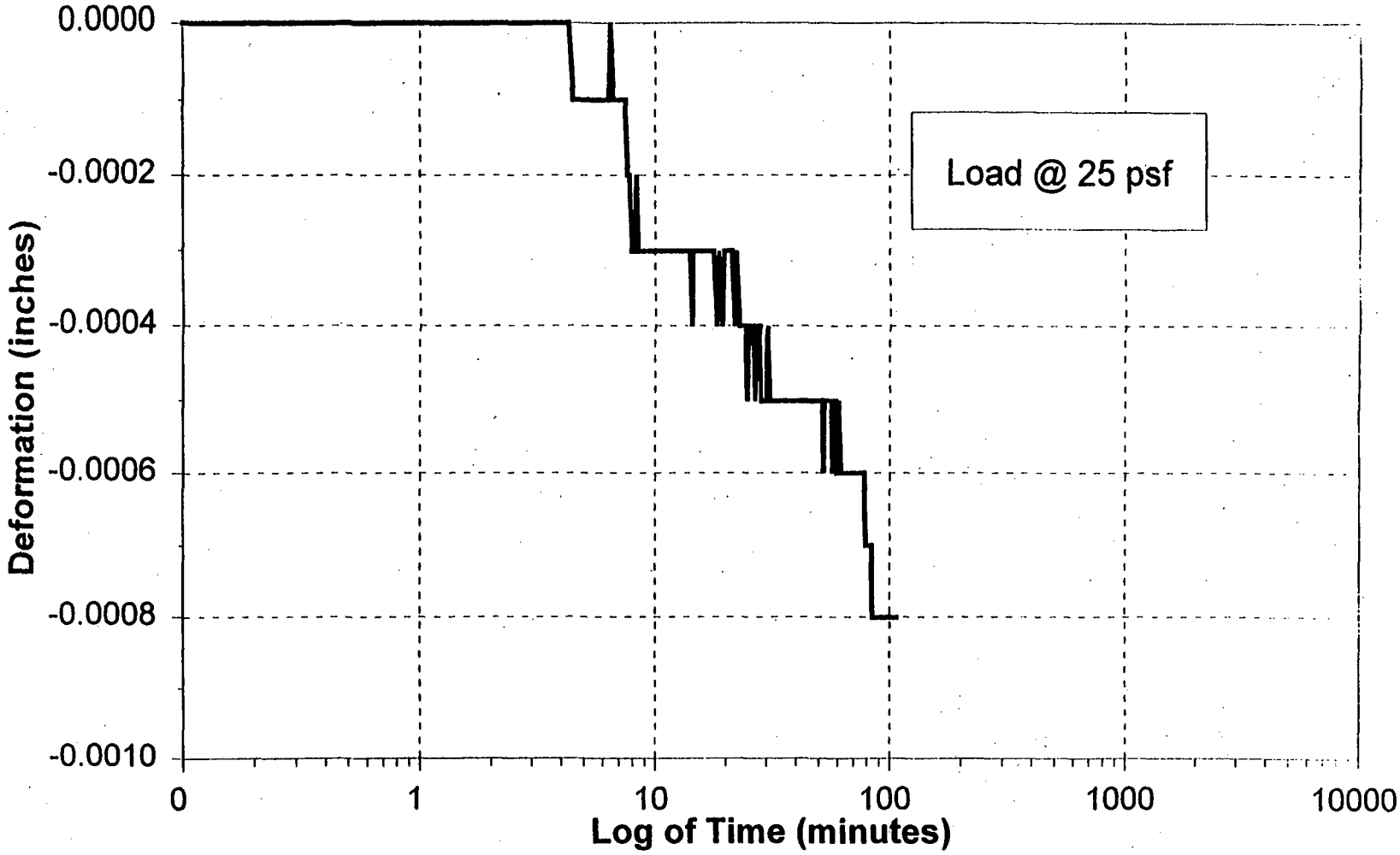
Sample: Pond 8E, BH-2 @ 10.2 feet



Project No. 973376

Figure 109

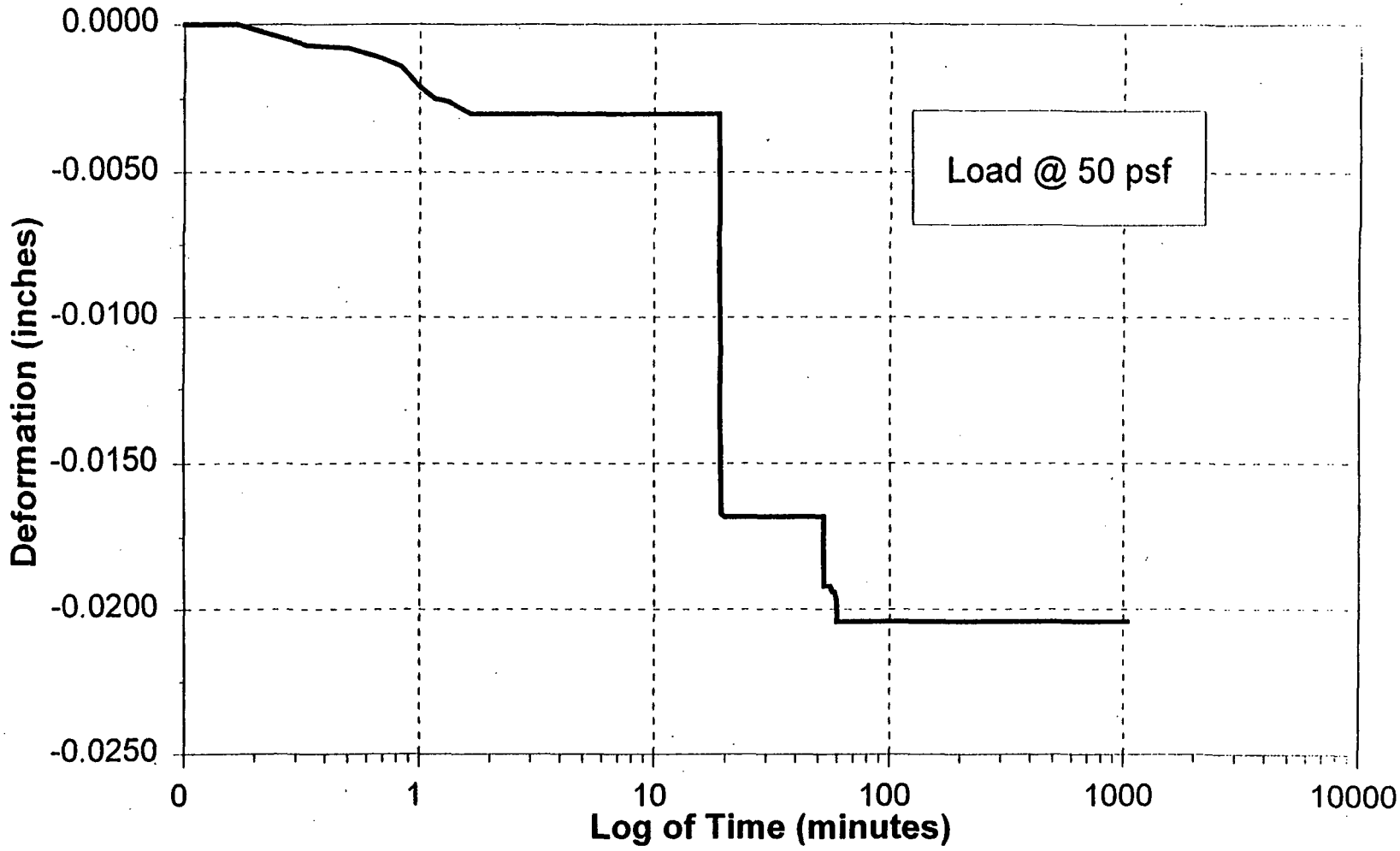
Time Rate of Consolidation
Sample: Pond 8E, BH-3 @ 13.5 feet



Project No. 973376

Figure 110

Time Rate of Consolidation
Sample: Pond 8E, BH-3 @ 13.5 feet

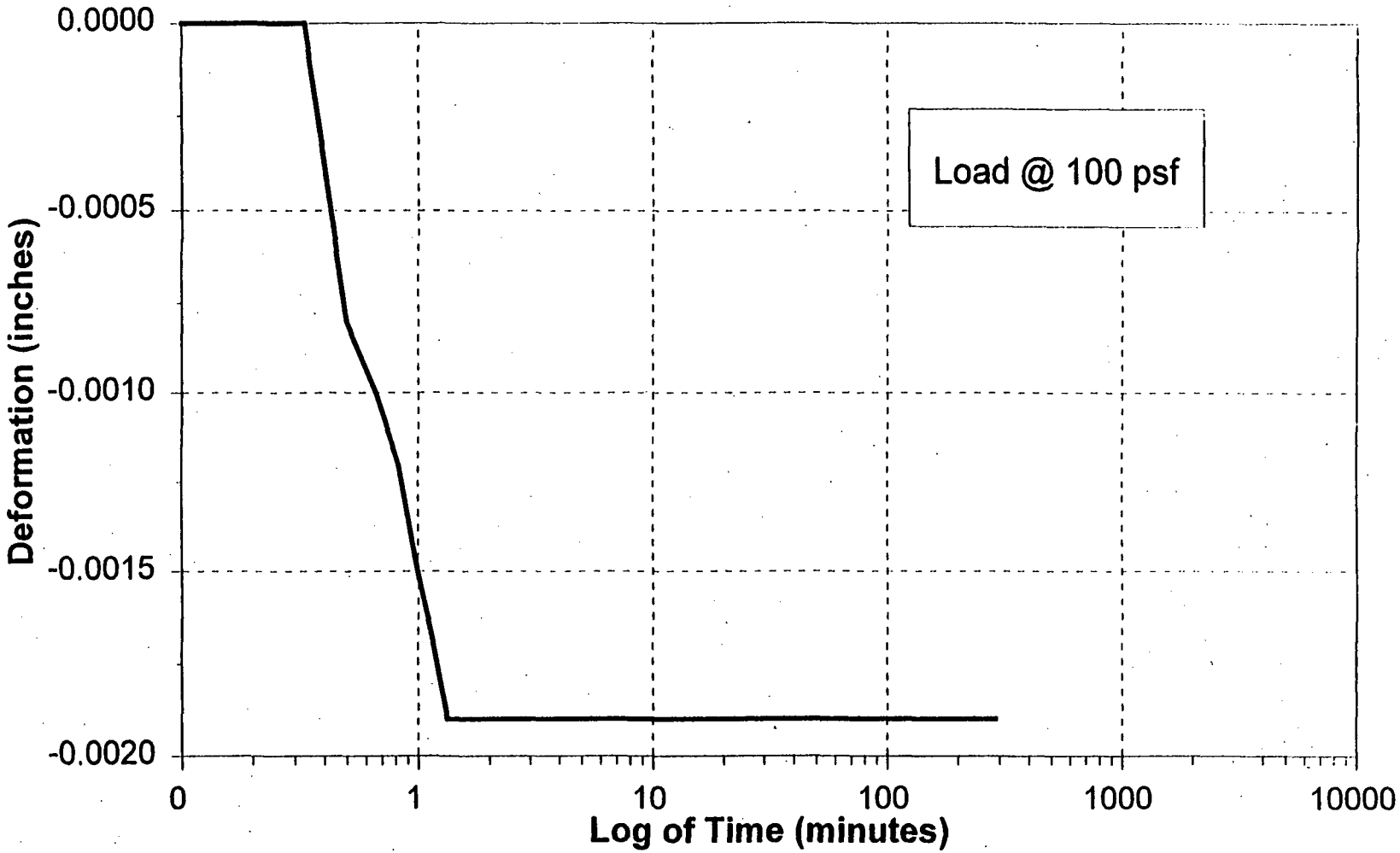


Project No. 973376

Figure 111

Time Rate of Consolidation

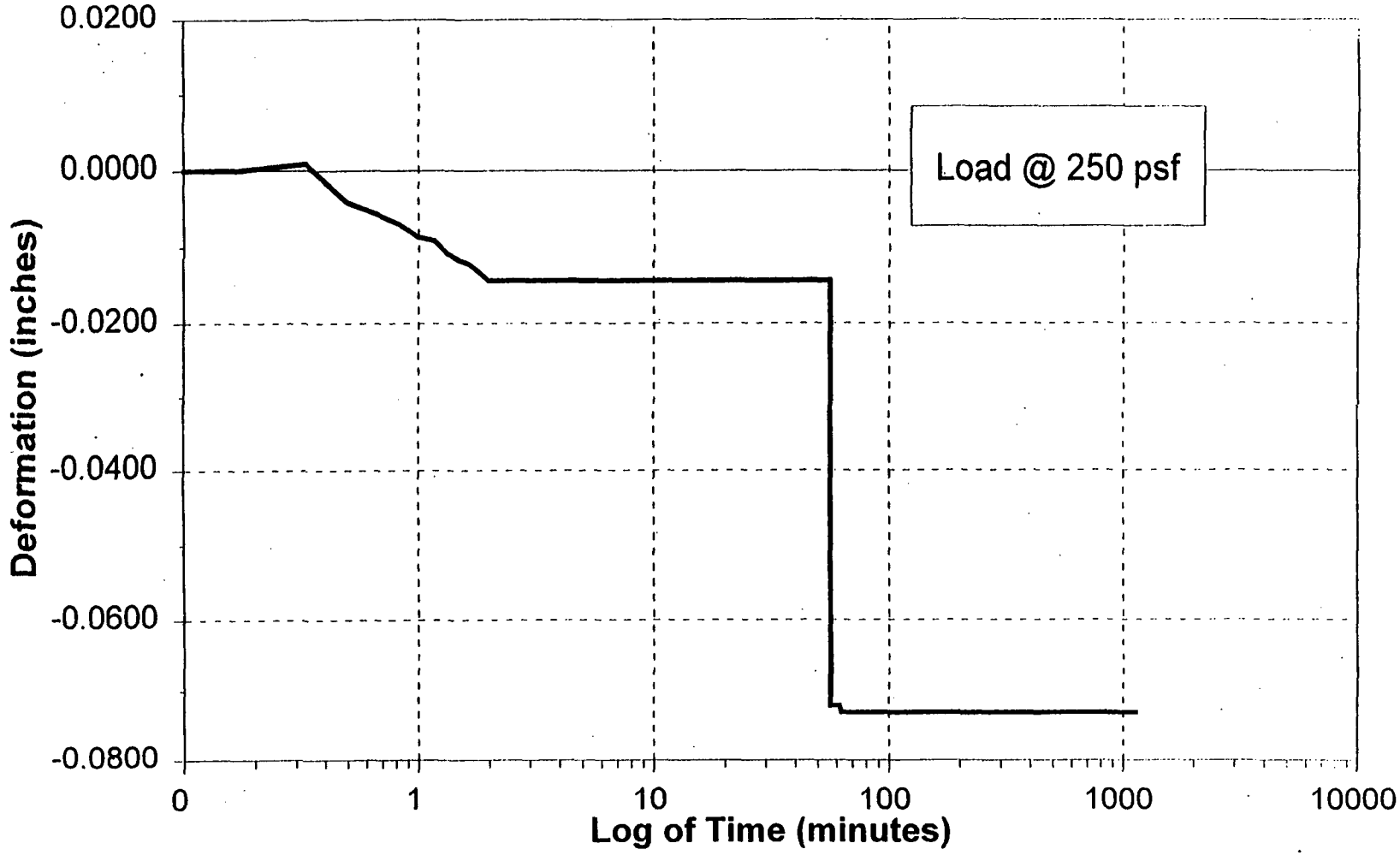
Sample: Pond 8E, BH-3 @ 13.5 feet



Project No. 973376

Figure 112

Time Rate of Consolidation
Sample: Pond 8E, BH-3 @ 13.5 feet

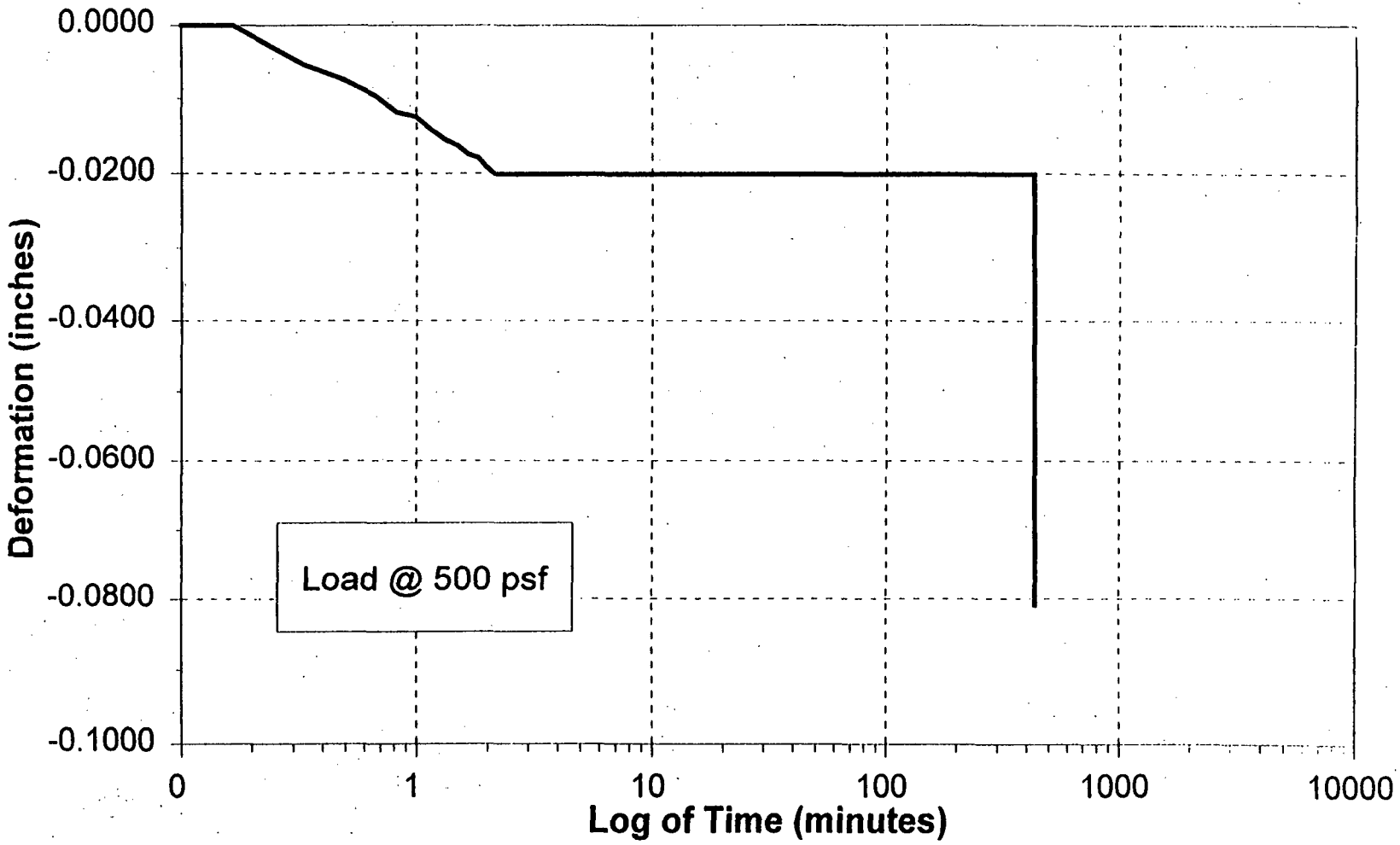


Project No. 973376

Figure 113

Time Rate of Consolidation

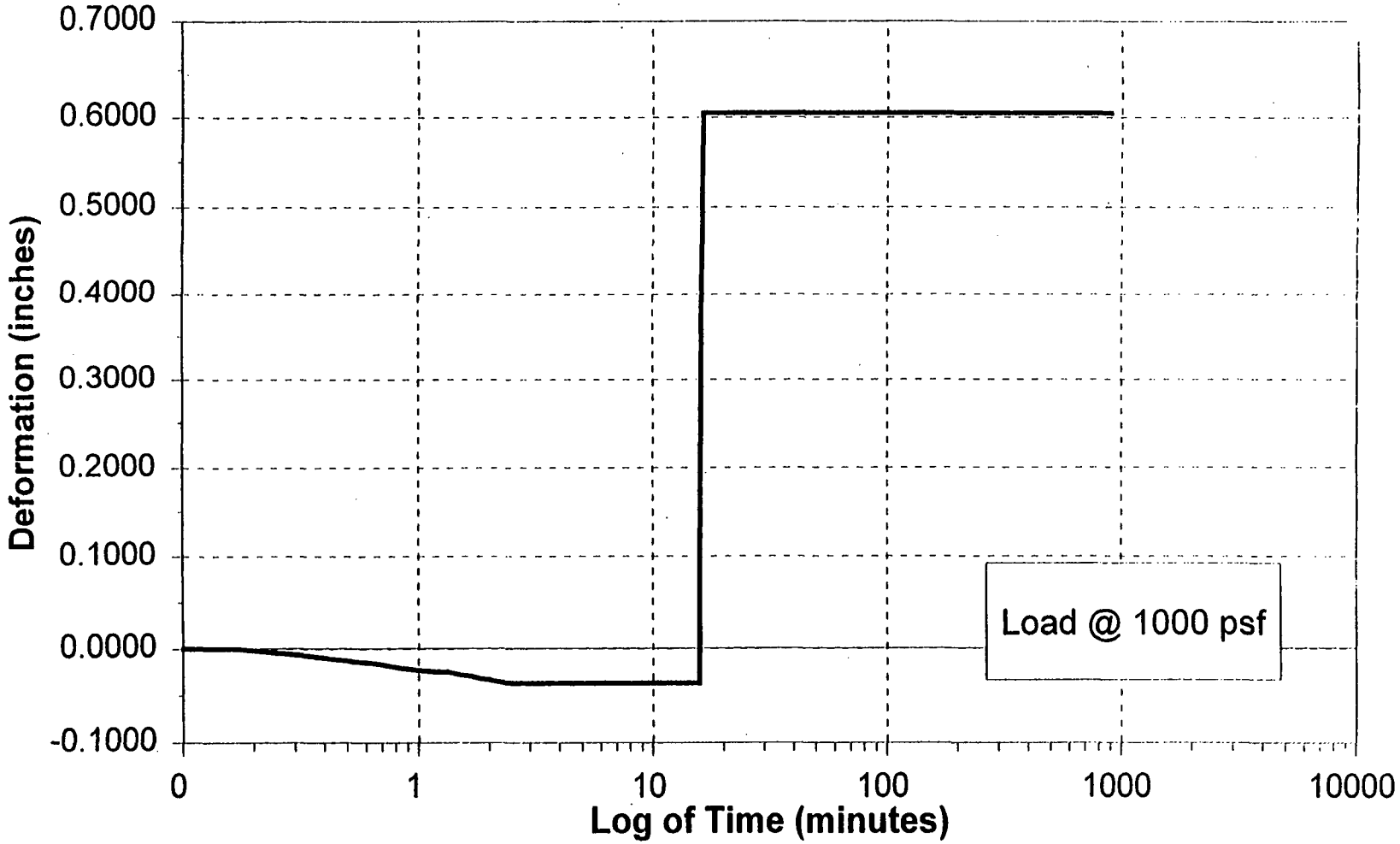
Sample: Pond 8E, BH-3 @ 13.5 feet



Project No. 973376

Figure 114

Time Rate of Consolidation
Sample: Pond 8E, BH-3 @ 13.5 feet

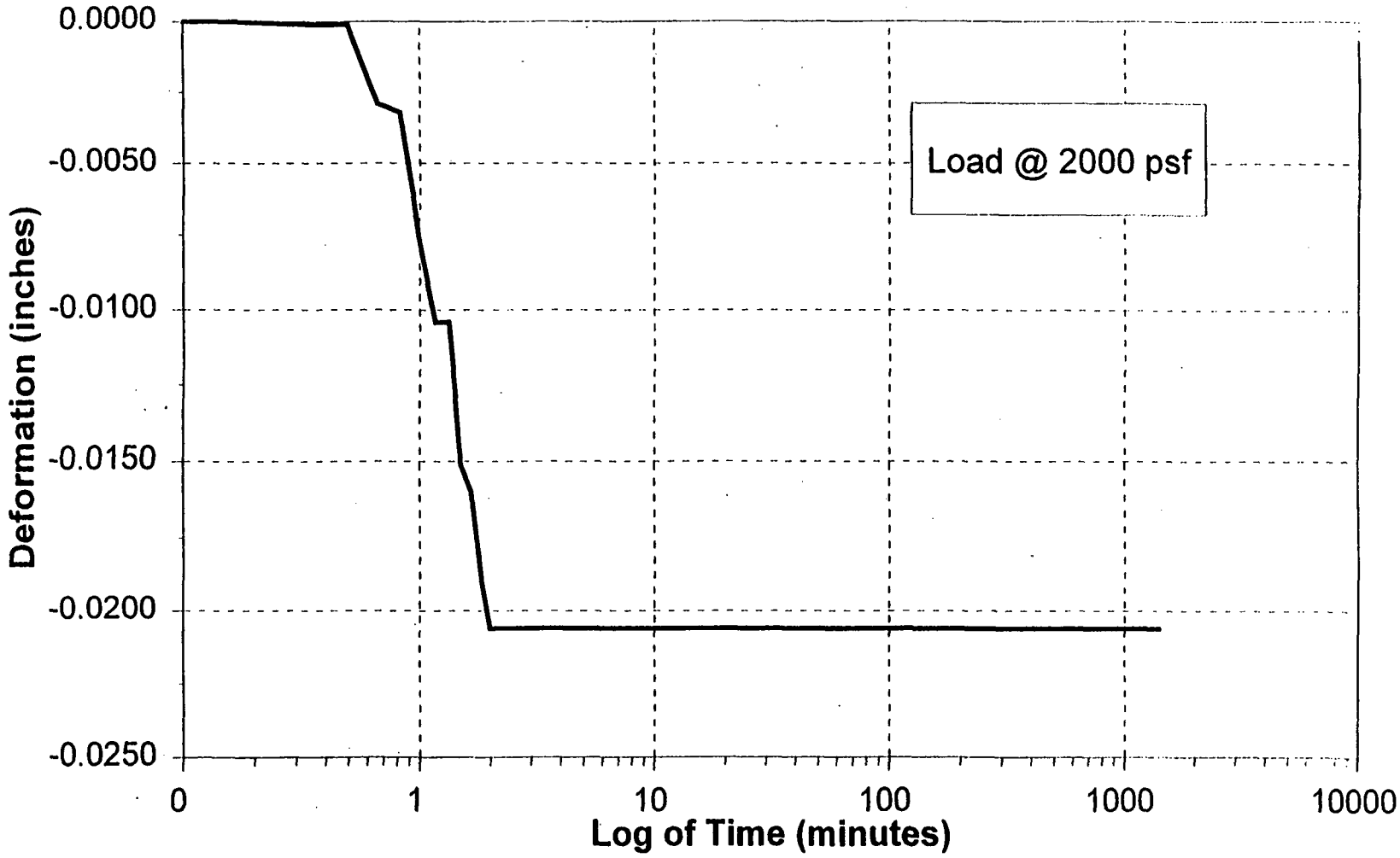


Project No. 973376

Figure 115

Time Rate of Consolidation

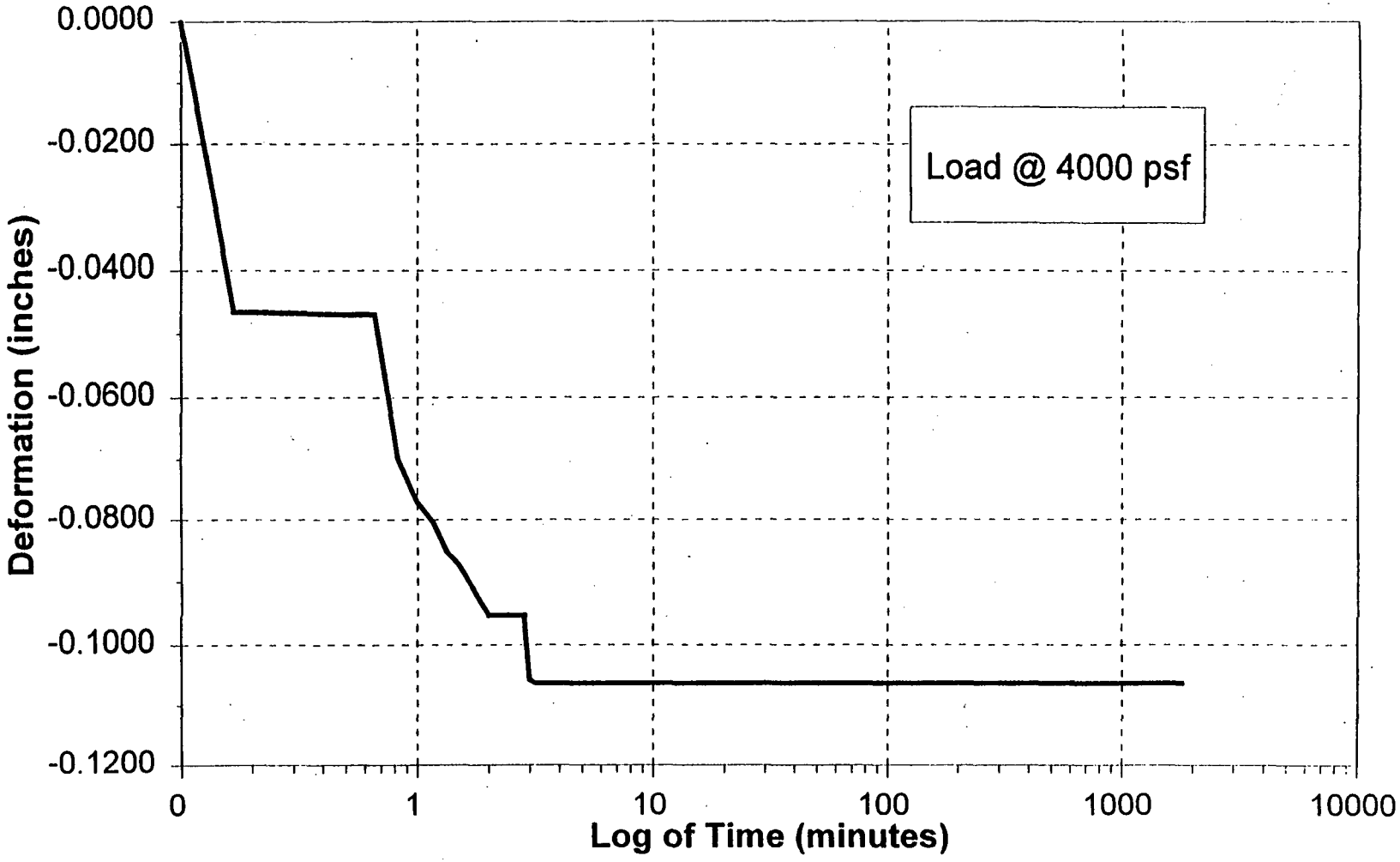
Sample: Pond 8E, BH-3 @ 13.5 feet



Project No. 973376

Figure 116

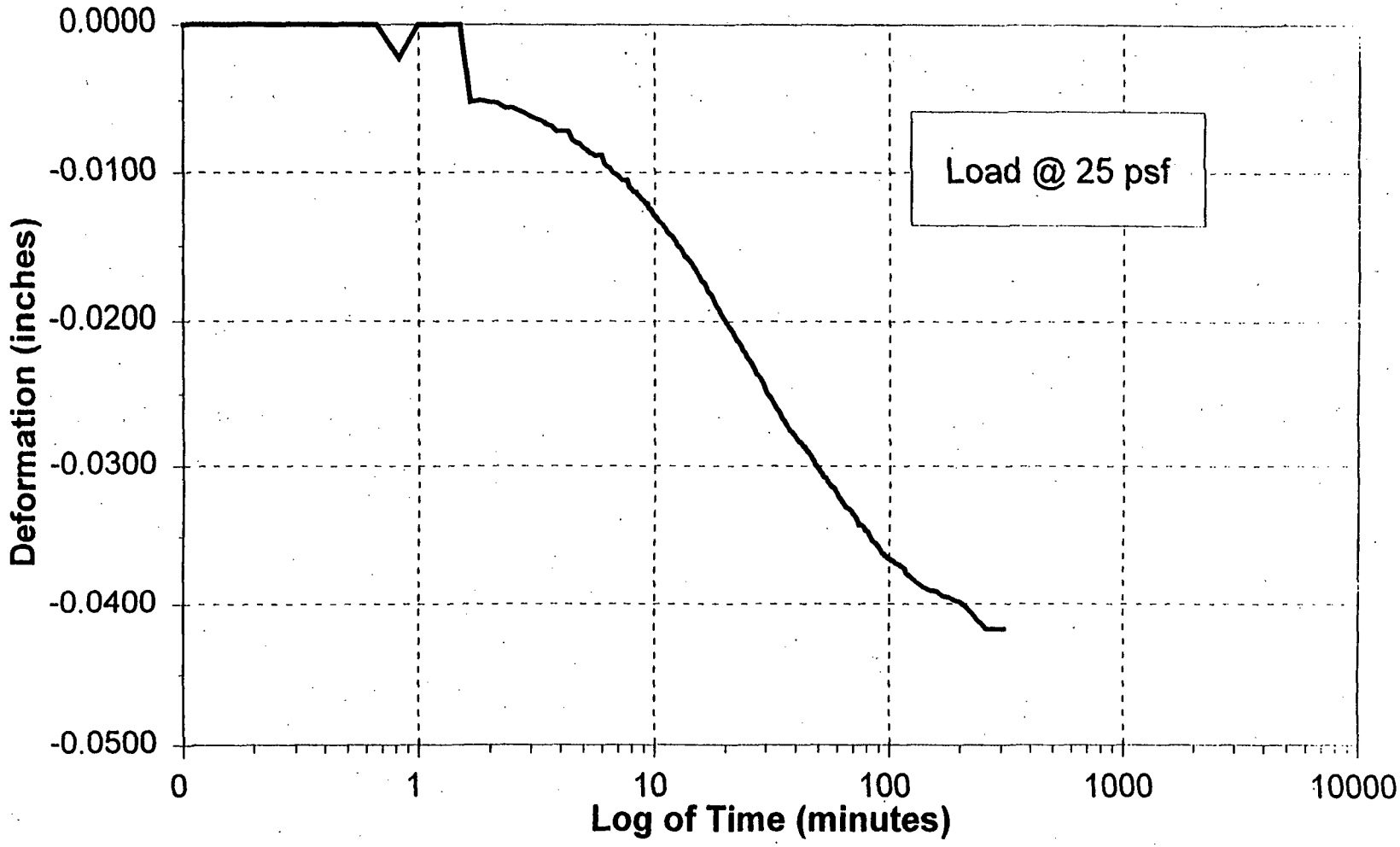
Time Rate of Consolidation
Sample: Pond 8E, BH-3 @ 13.5 feet



Project No. 973376

Figure 117

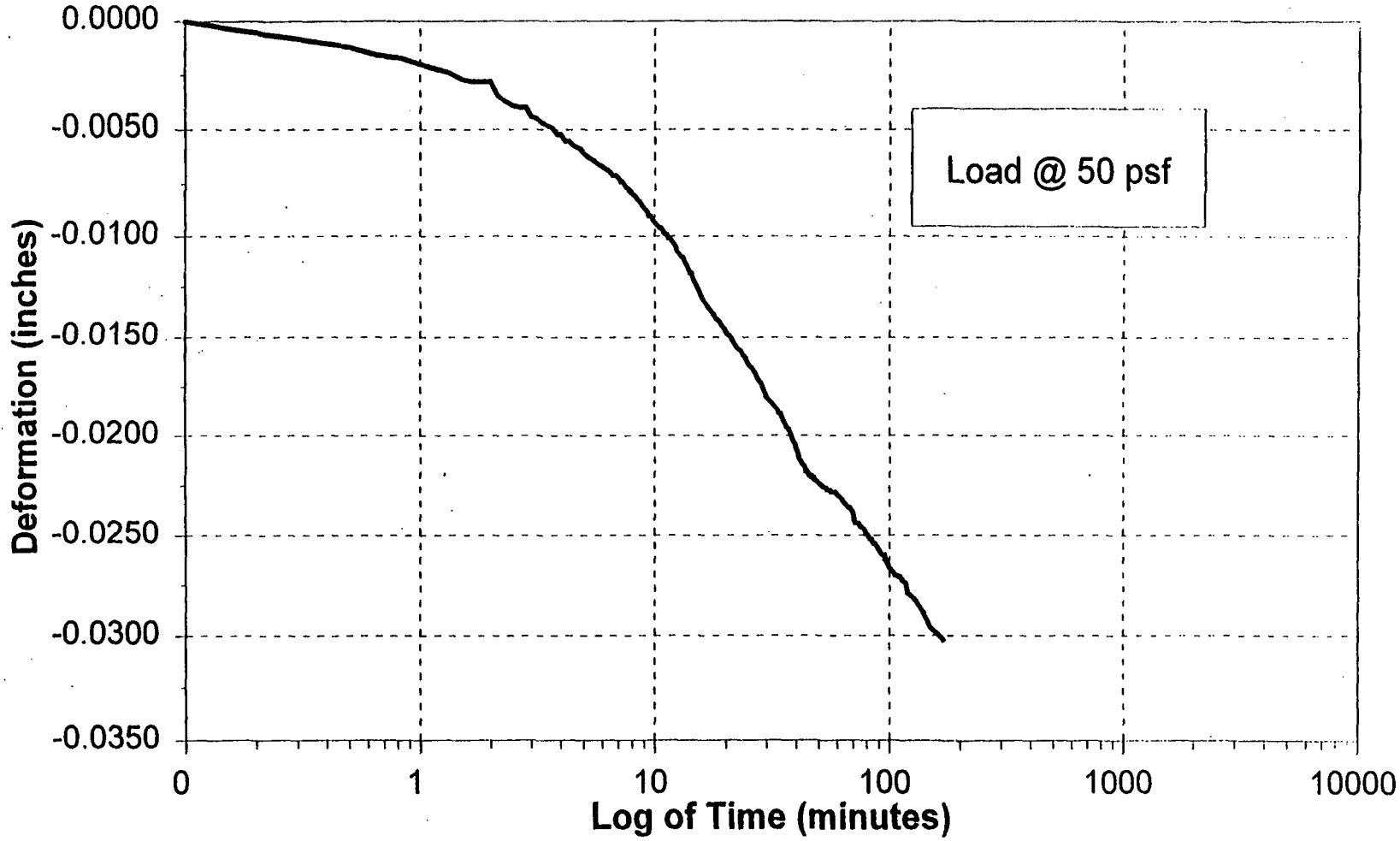
Time Rate of Consolidation
Sample: Pond 8E, BH-5 @ 4.5 feet



Project No. 973376

Figure 118

Time Rate of Consolidation
Sample: Pond 8E, BH-5 @ 4.5 feet

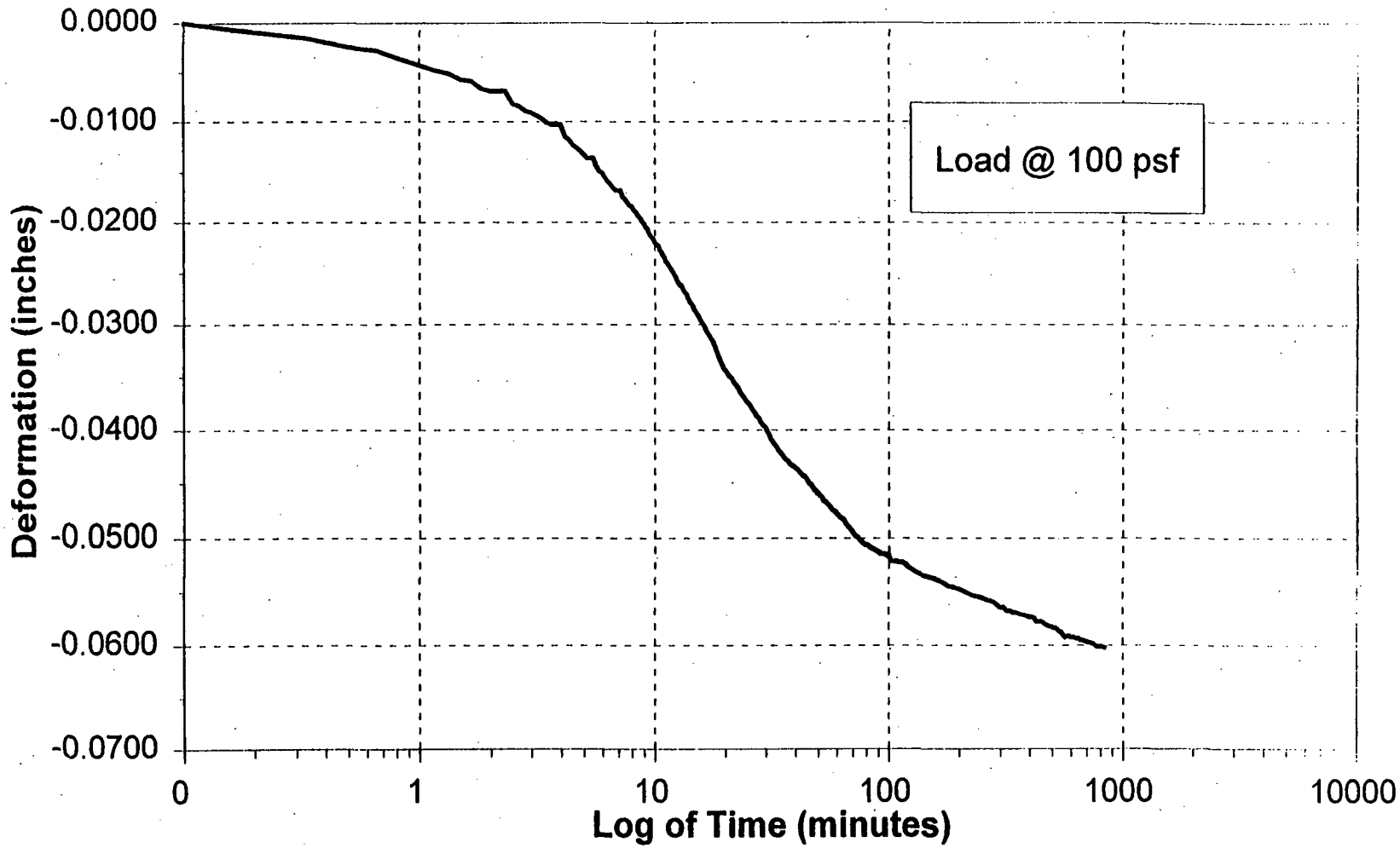


Project No. 973376

Figure 119

Time Rate of Consolidation

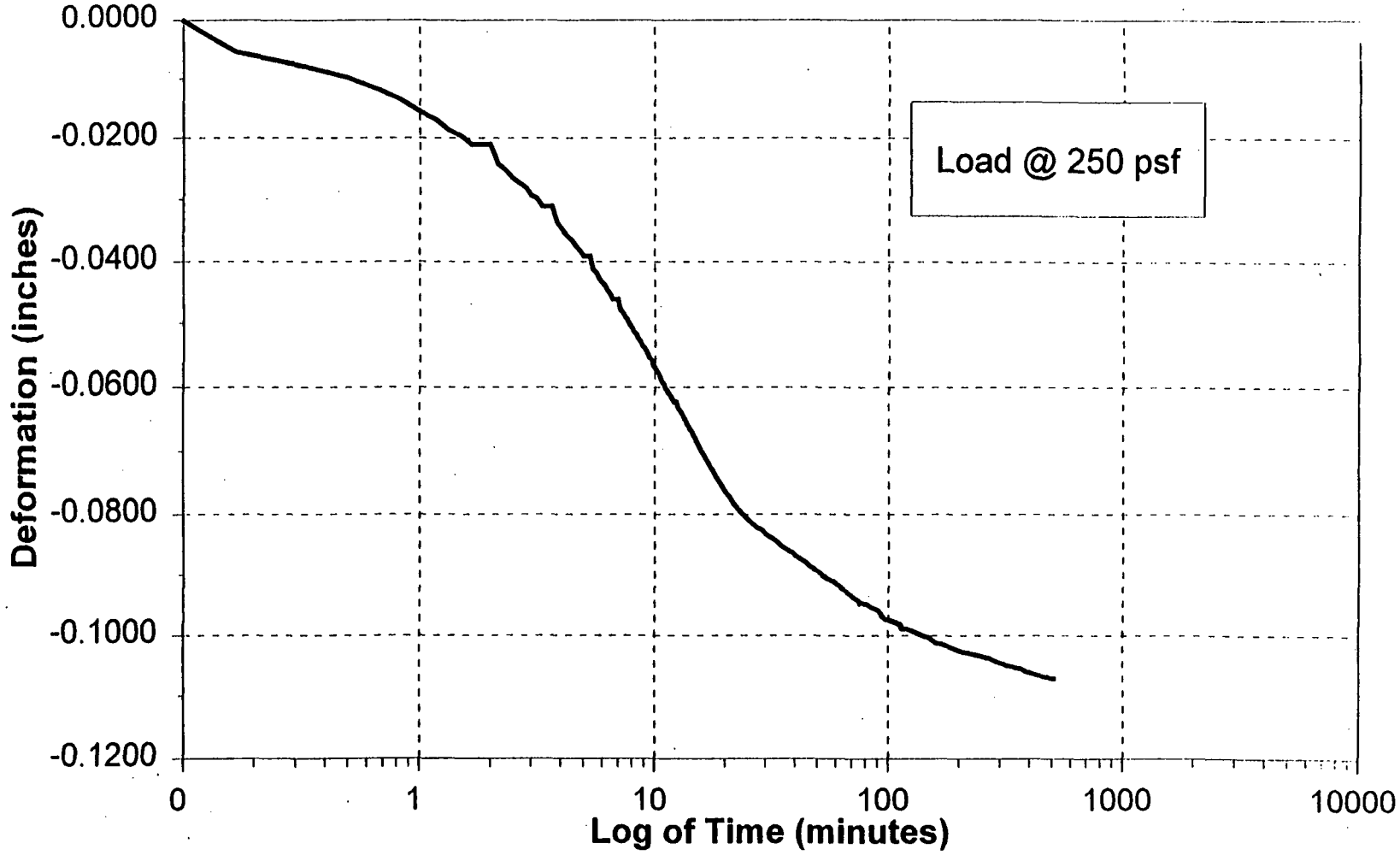
Sample: Pond 8E, BH-5 @ 4.5 feet



Project No. 973376

Figure 120

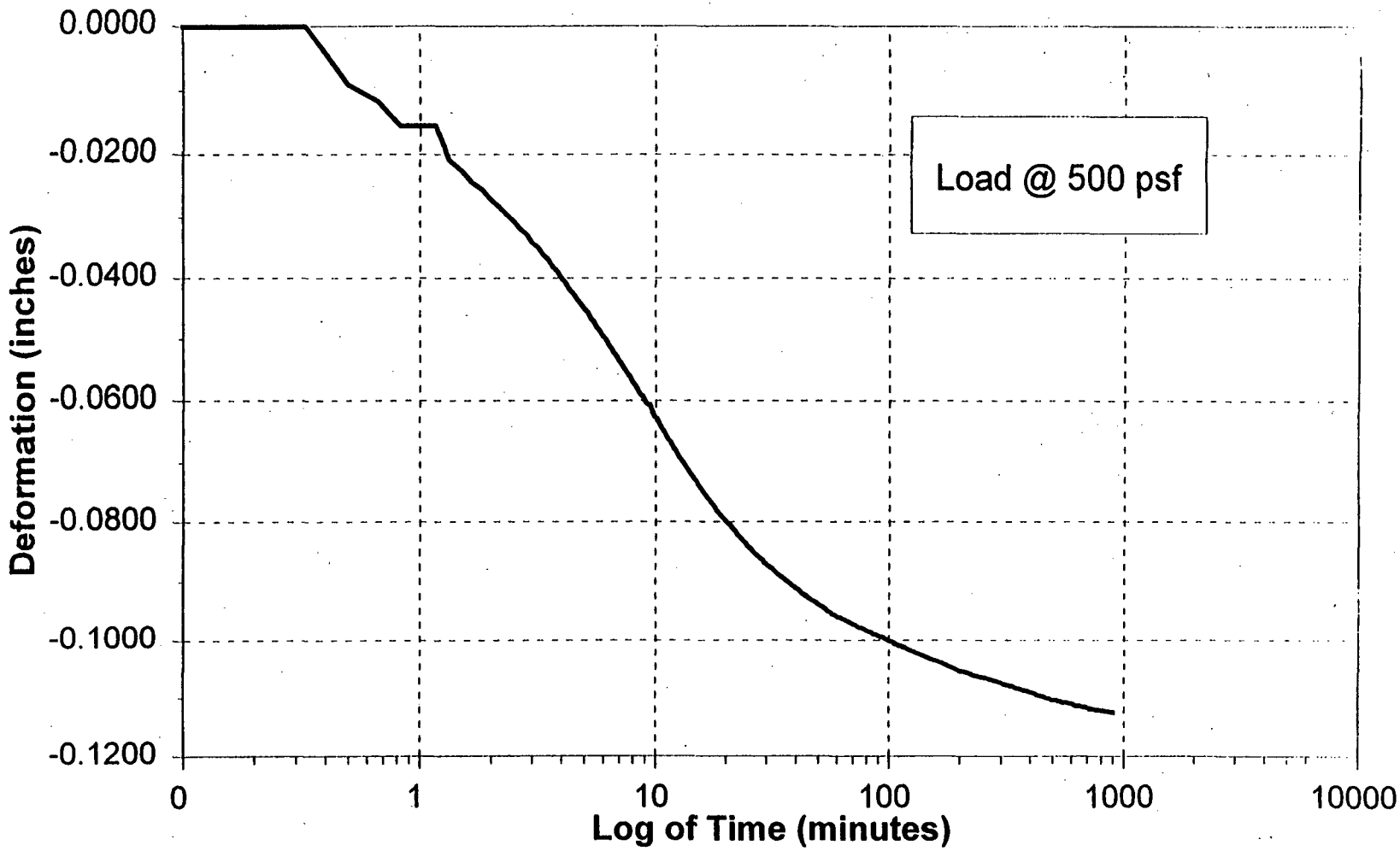
Time Rate of Consolidation
Sample: Pond 8E, BH-5 @ 4.5 feet



Project No. 973376

Figure 121

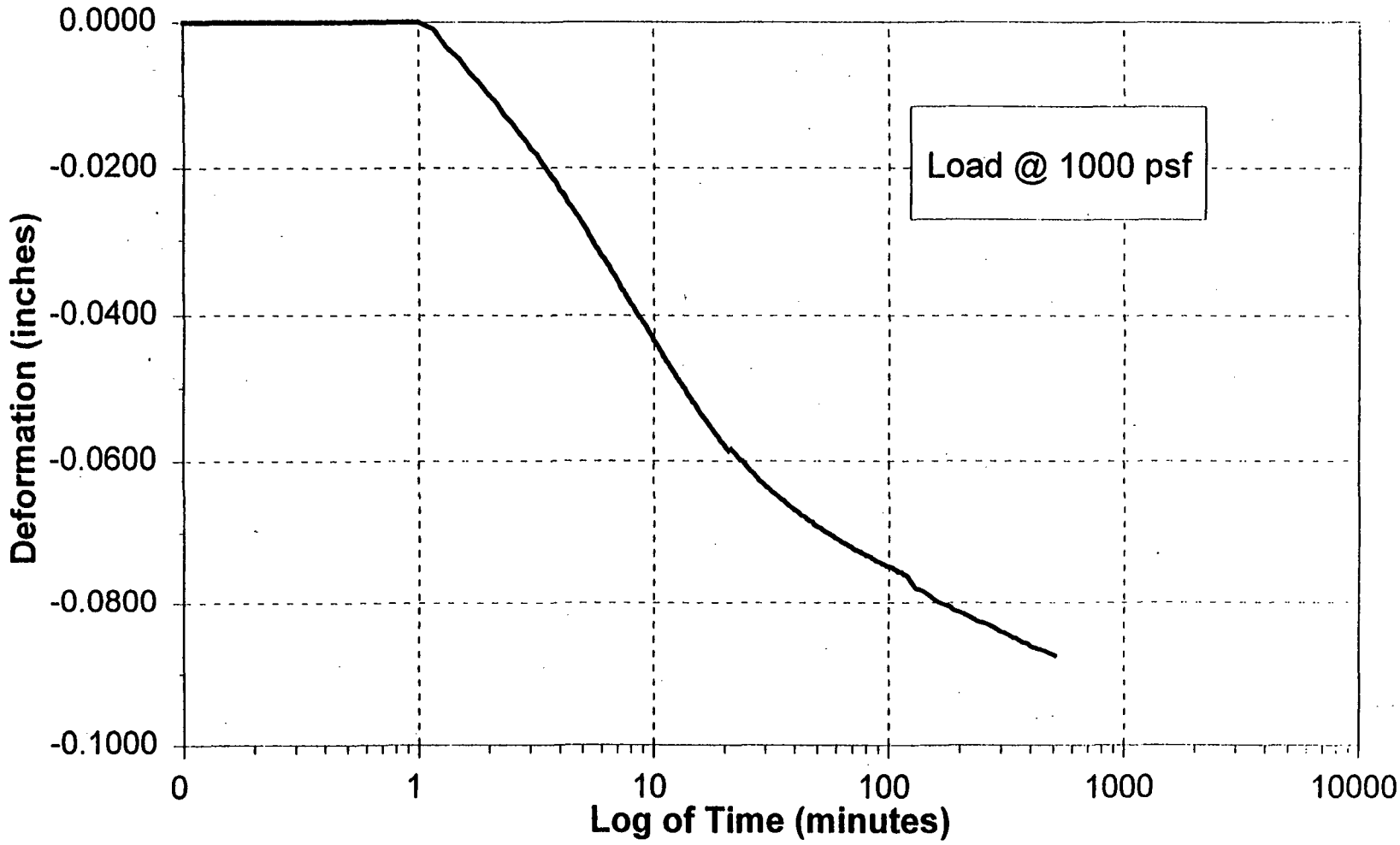
Time Rate of Consolidation
Sample: Pond 8E, BH-5 @ 4.5 feet



Project No. 973376

Figure 122

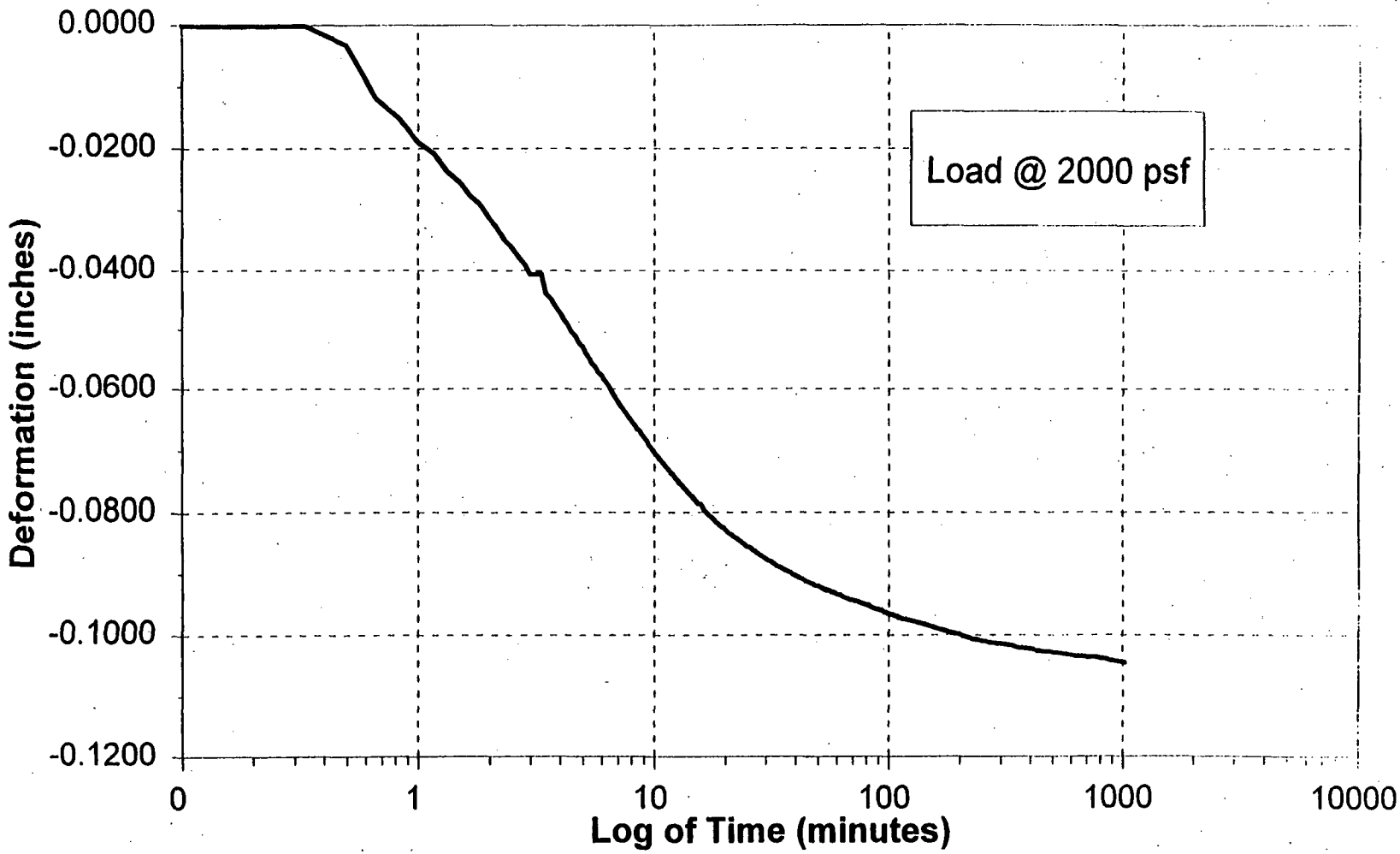
Time Rate of Consolidation
Sample: Pond 8E, BH-5 @ 4.5 feet



Project No. 973376

Figure 123

Time Rate of Consolidation
Sample: Pond 8E, BH-5 @ 4.5 feet

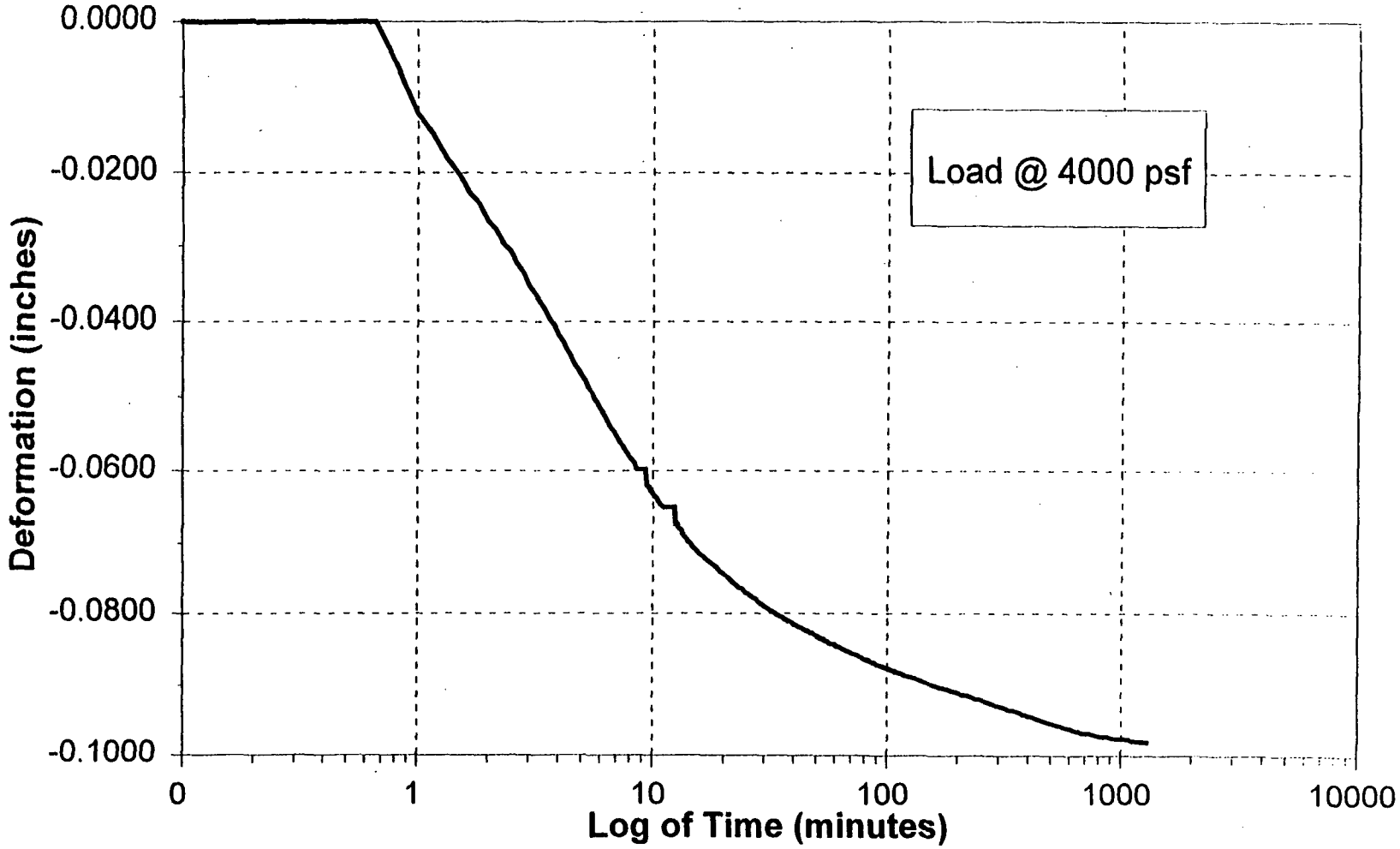


Project No. 973376

Figure 124

Time Rate of Consolidation

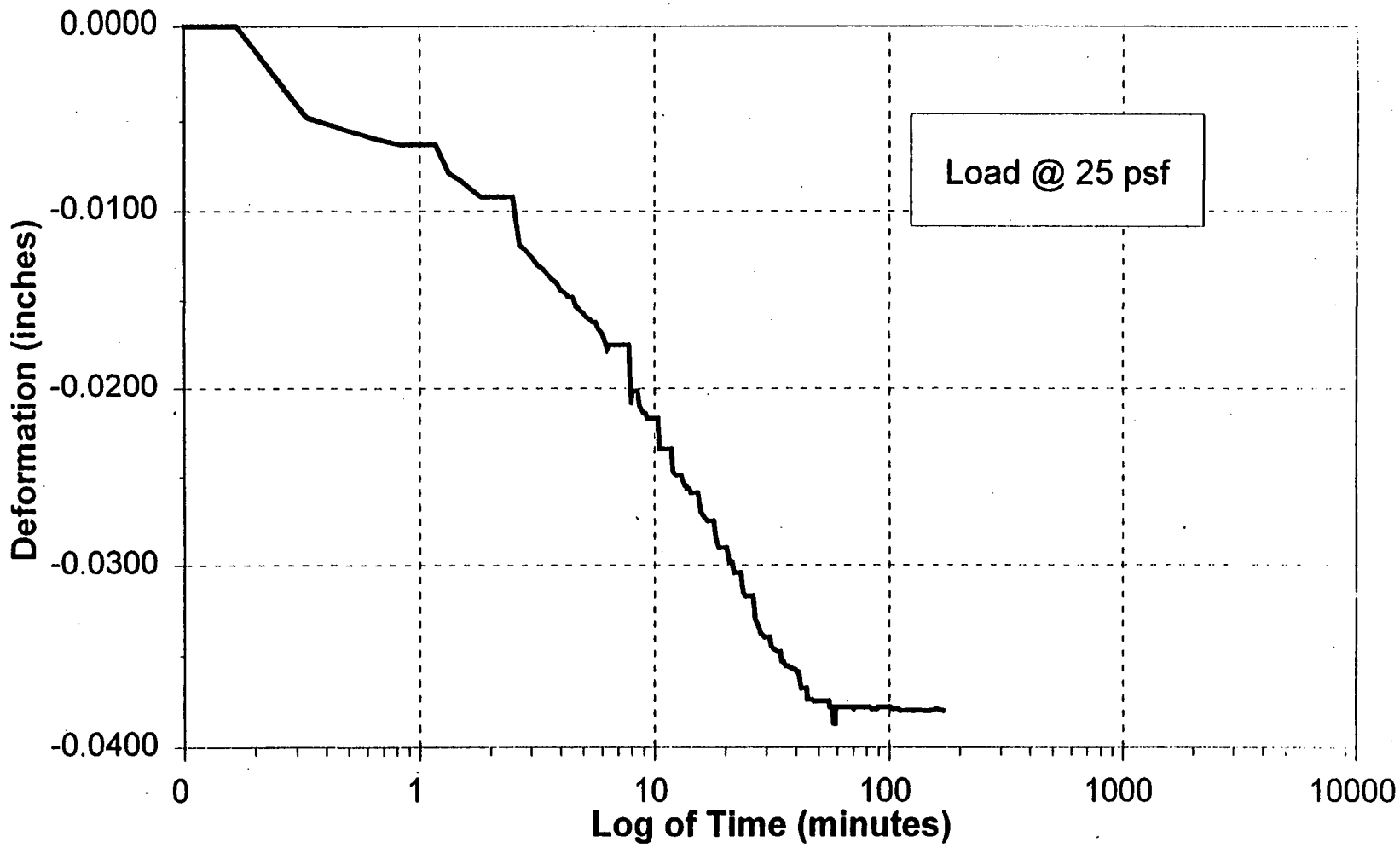
Sample: Pond 8E, BH-5 @ 4.5 feet



Project No. 973376

Figure 125

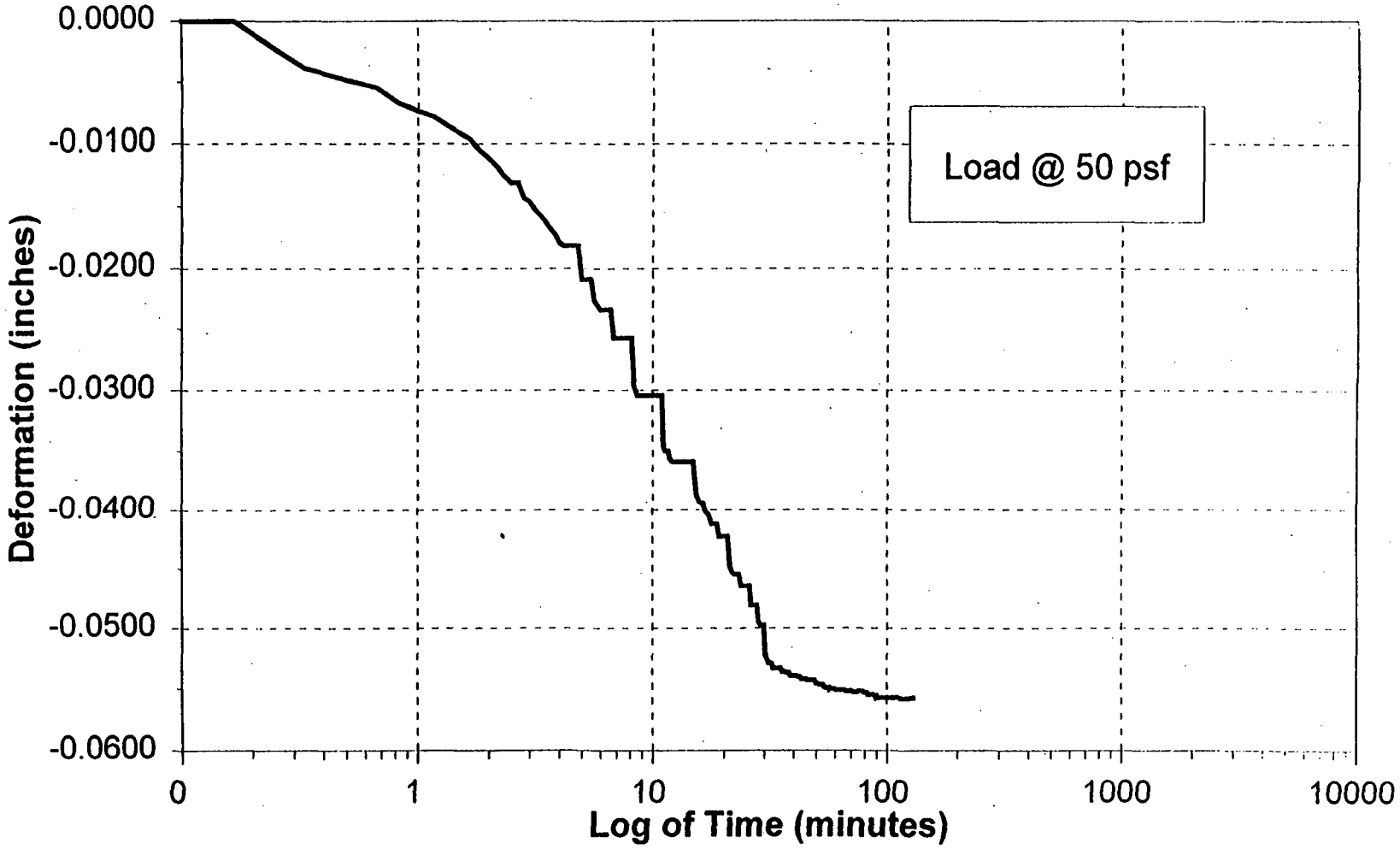
Time Rate of Consolidation
Sample: Pond 11S, BH-1 @ 7.5 feet



Project No. 973376

Figure 126

Time Rate of Consolidation
Sample: Pond 11S, BH-1 @ 7.5 feet

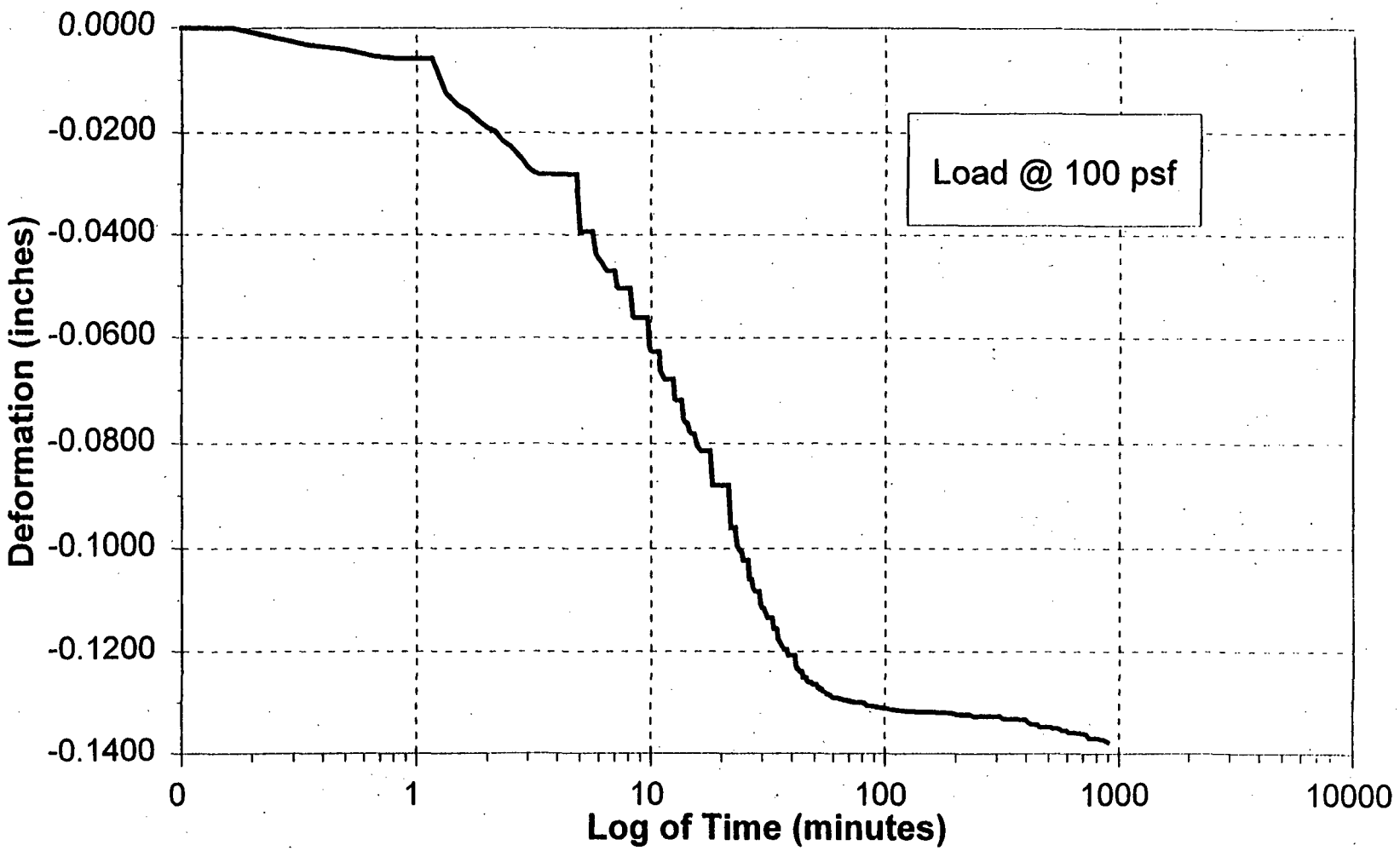


Project No. 973376

Figure 127

Time Rate of Consolidation

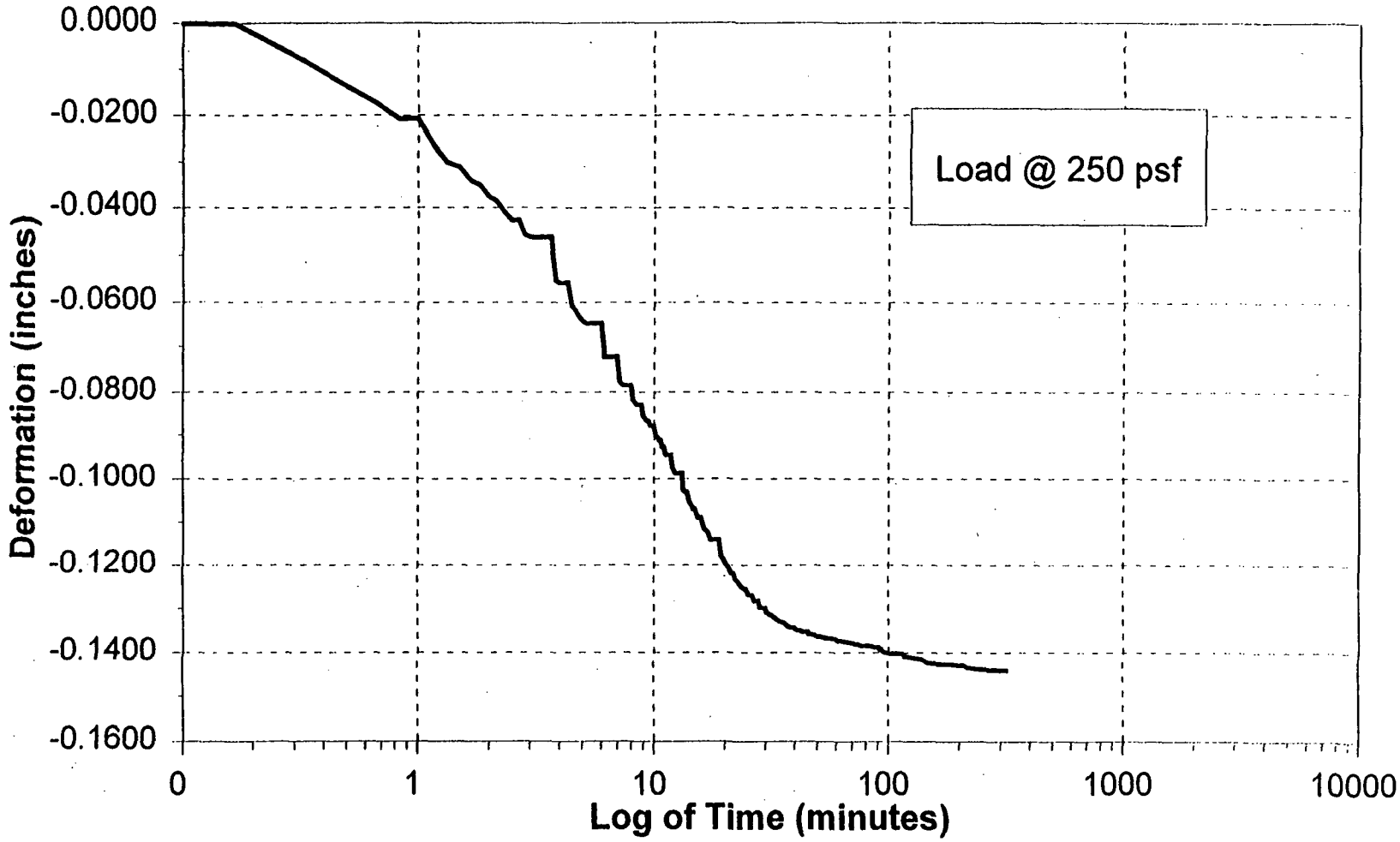
Sample: Pond 11S, BH-1 @ 7.5 feet



Project No. 973376

Figure 128

Time Rate of Consolidation
Sample: Pond 11S, BH-1 @ 7.5 feet

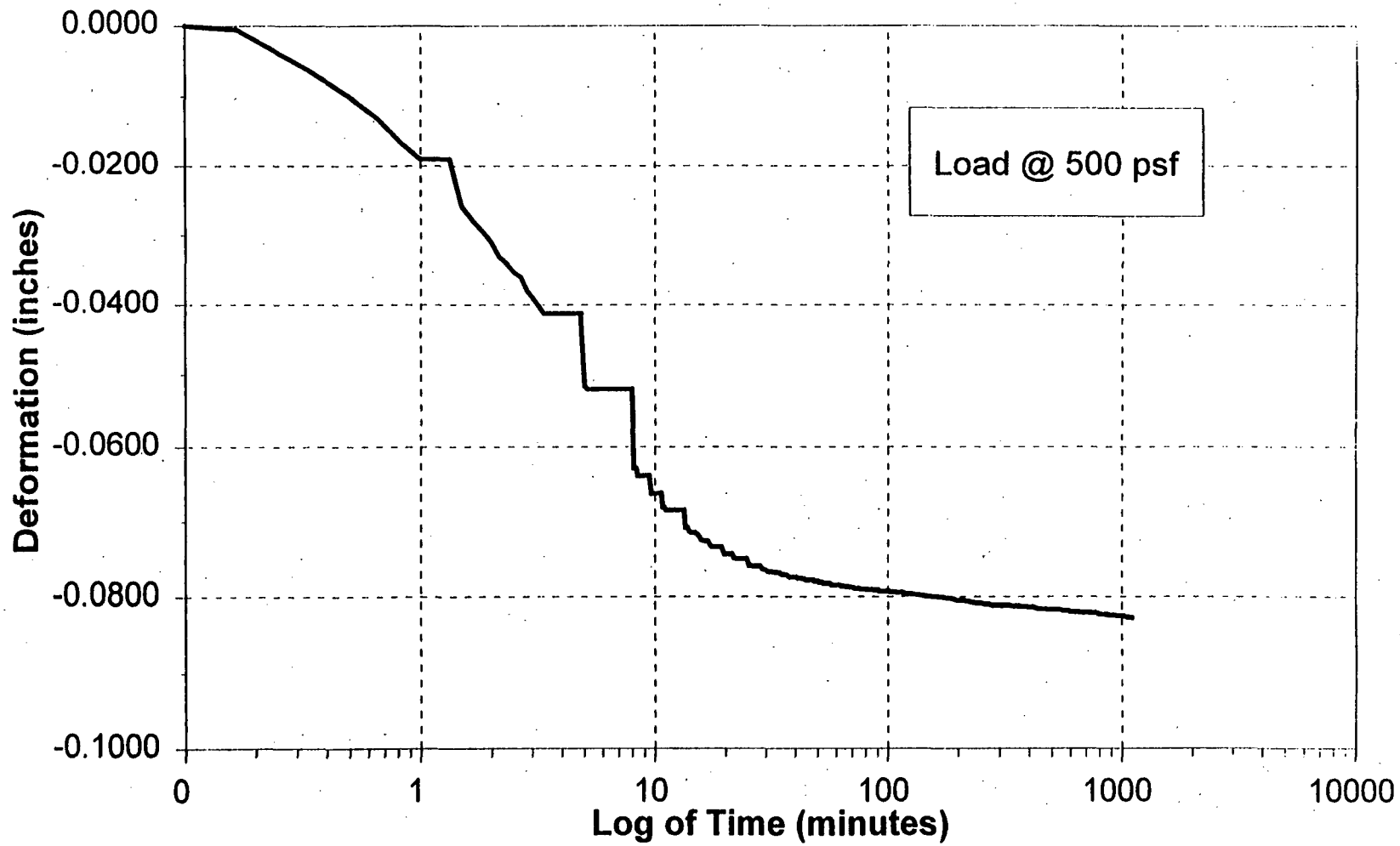


Project No. 973376

Figure 129

Time Rate of Consolidation

Sample: Pond 11S, BH-1 @ 7.5 feet

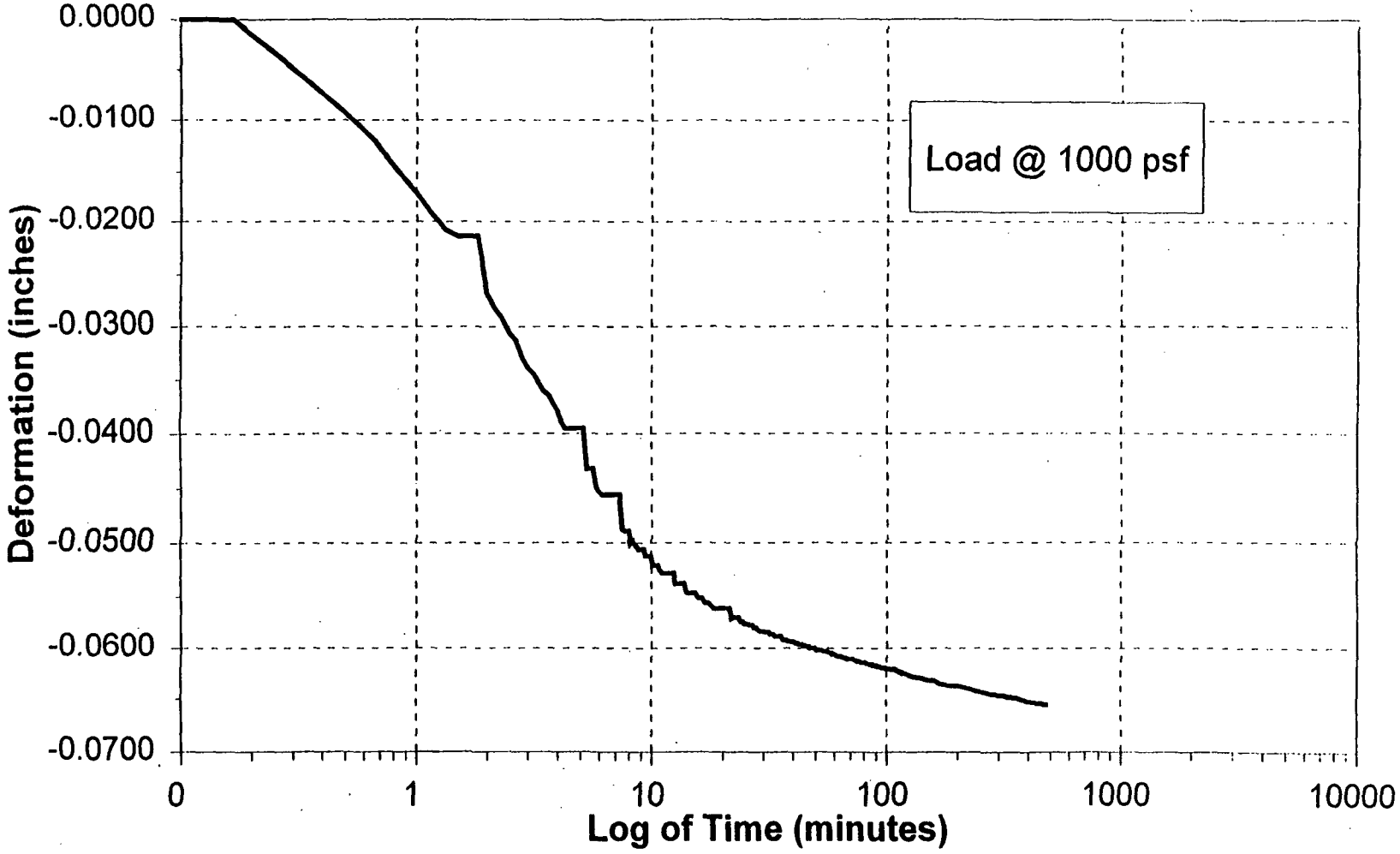


Project No. 973376

Figure 130

Time Rate of Consolidation

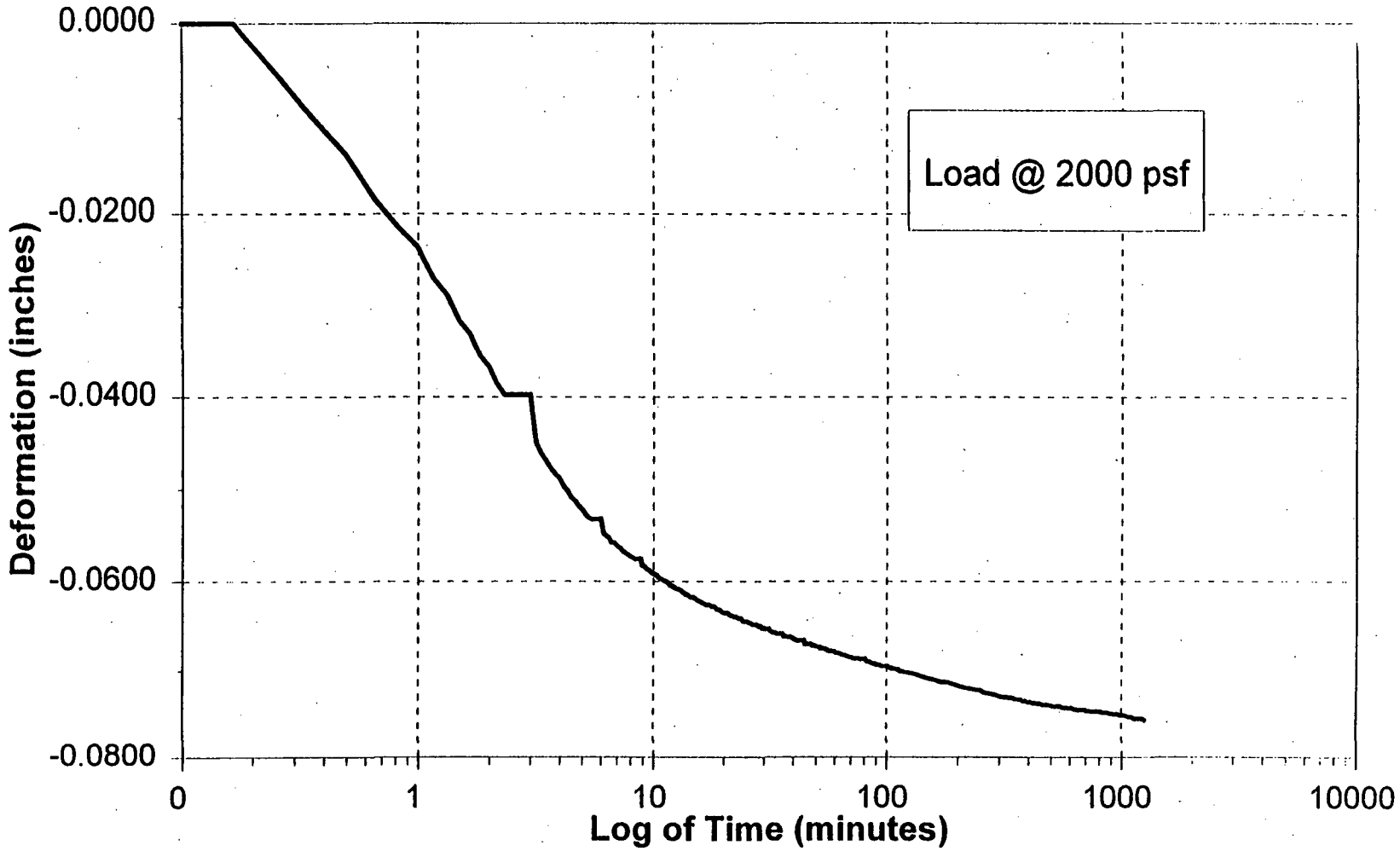
Sample: Pond 11S, BH-1 @ 7.5 feet



Project No. 973376

Figure 131

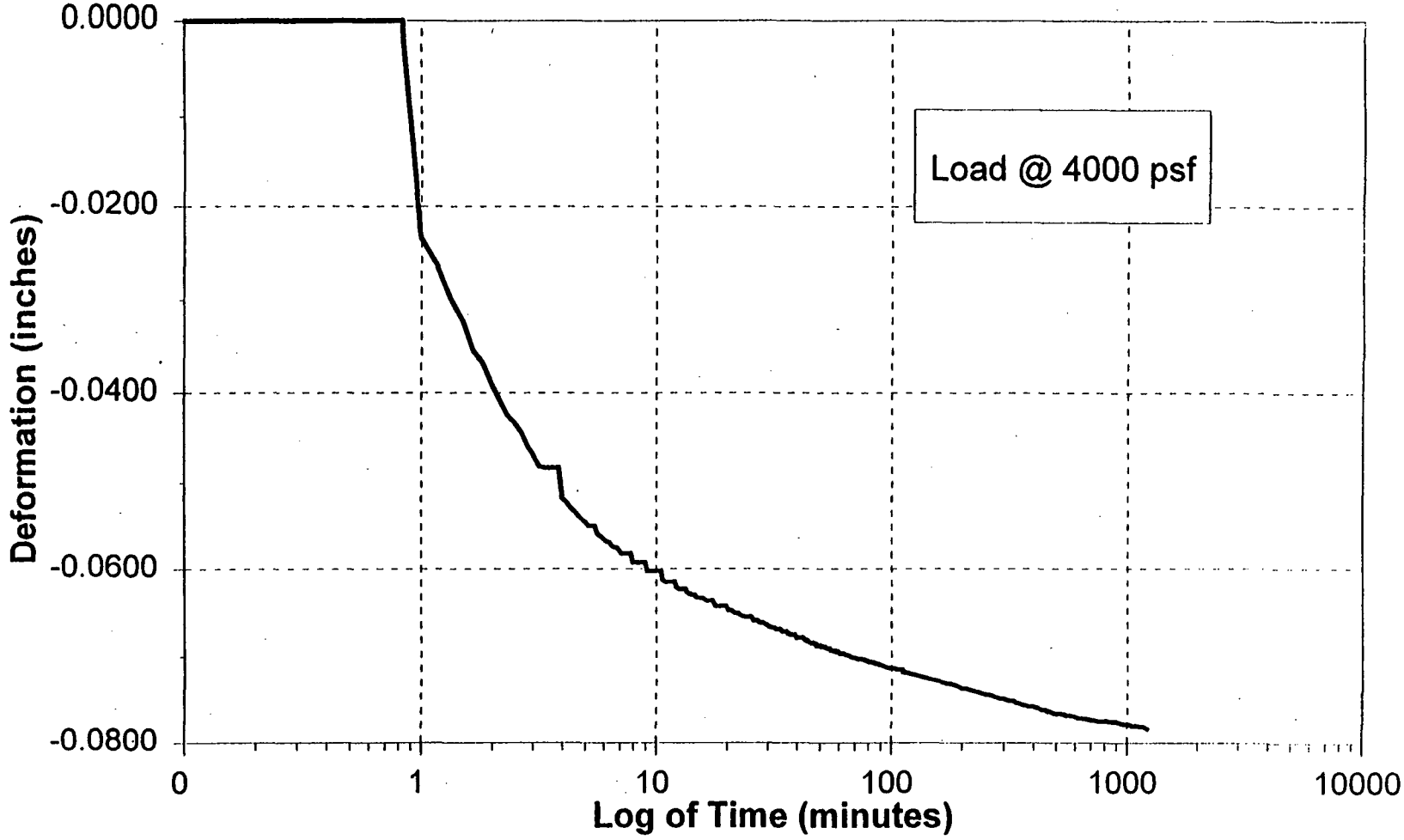
Time Rate of Consolidation
Sample: Pond 11S, BH-1 @ 7.5 feet



Project No. 973376

Figure 132

Time Rate of Consolidation
Sample: Pond 11S, BH-1 @ 7.5 feet

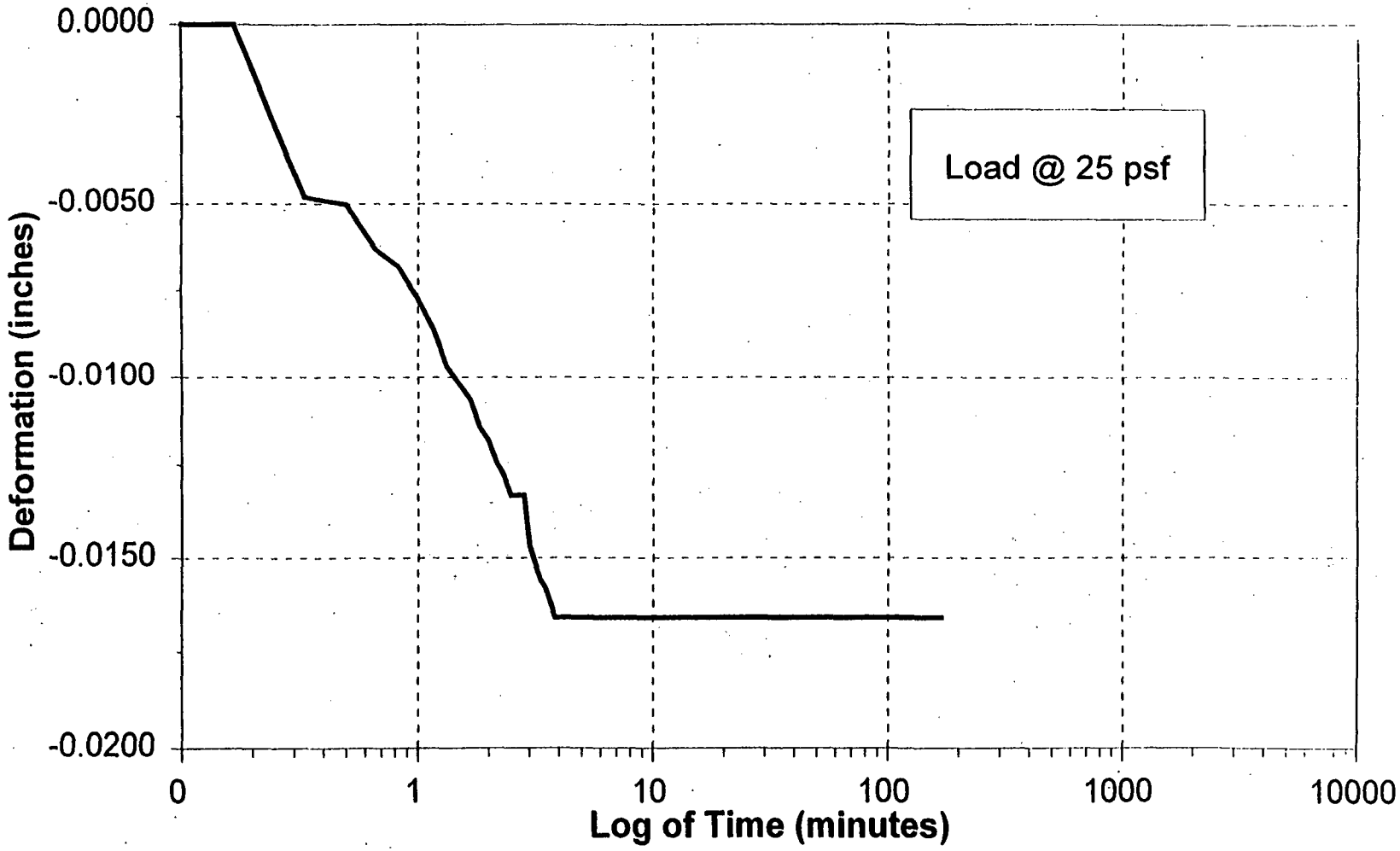


Project No. 973376

Figure 133

Time Rate of Consolidation

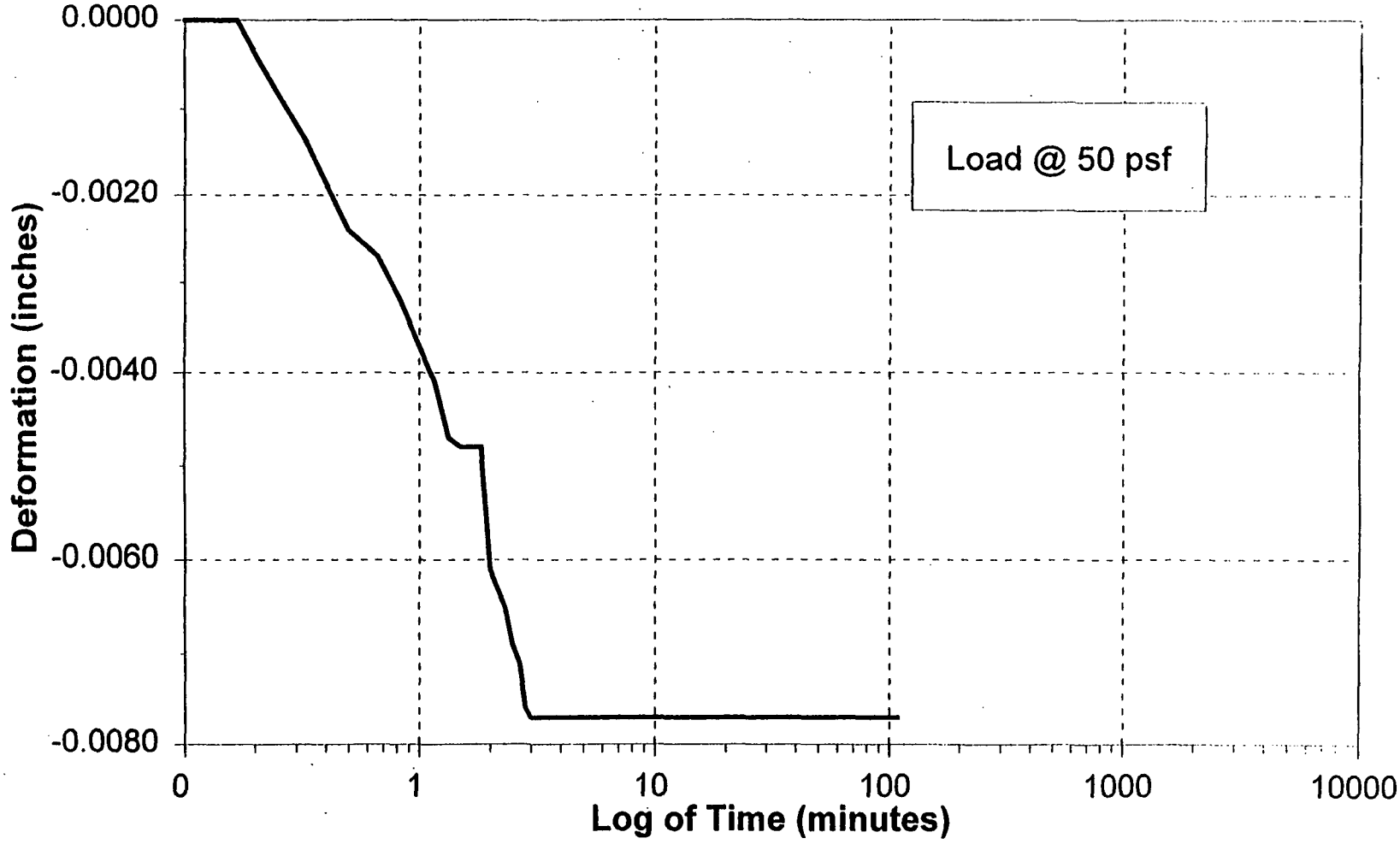
Sample: Pond 12S, BH-1 @ 13.5 feet



Project No. 973376

Figure 134

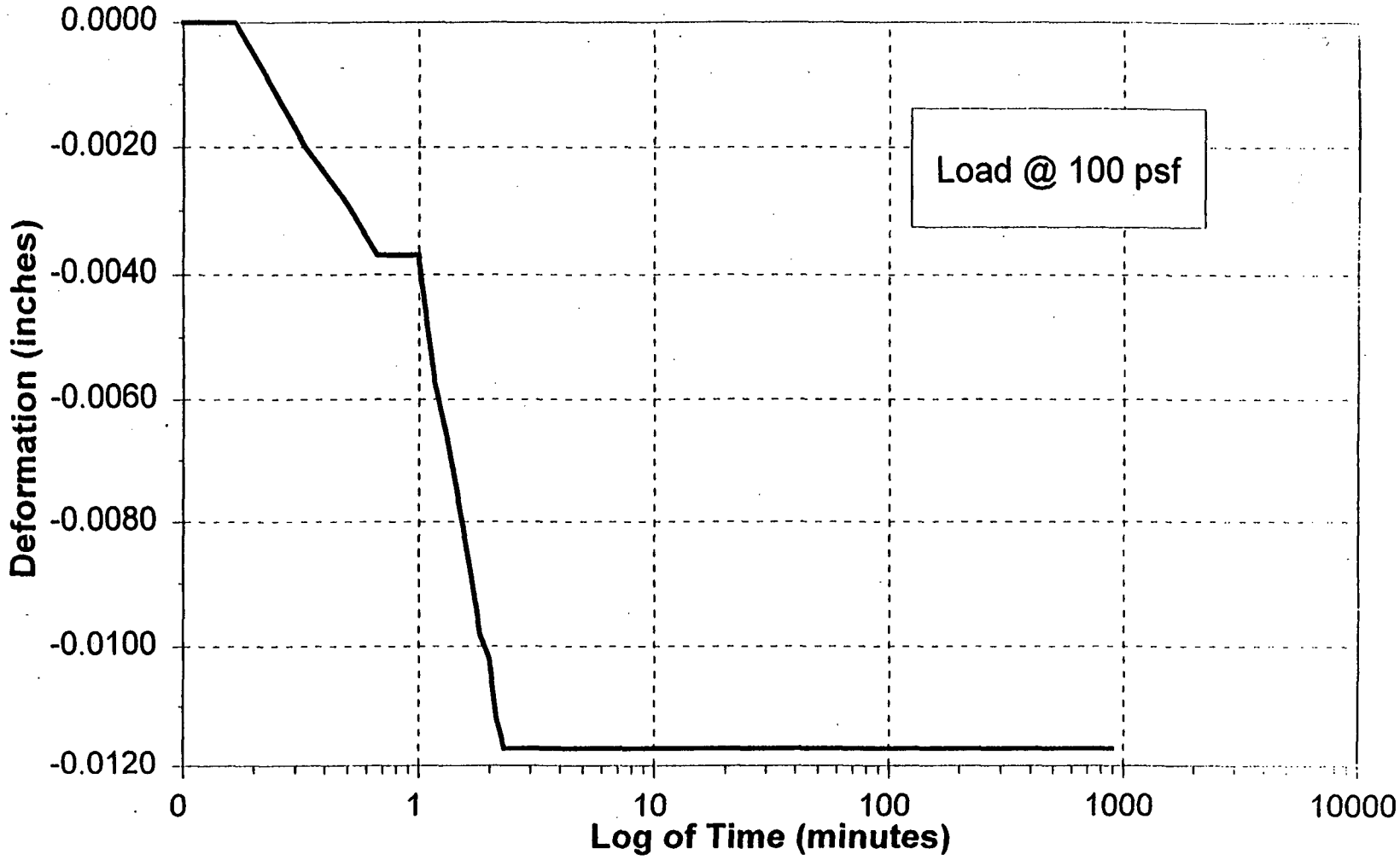
Time Rate of Consolidation
Sample: Pond 12S, BH-1 @ 13.5 feet



Project No. 973376

Figure 135

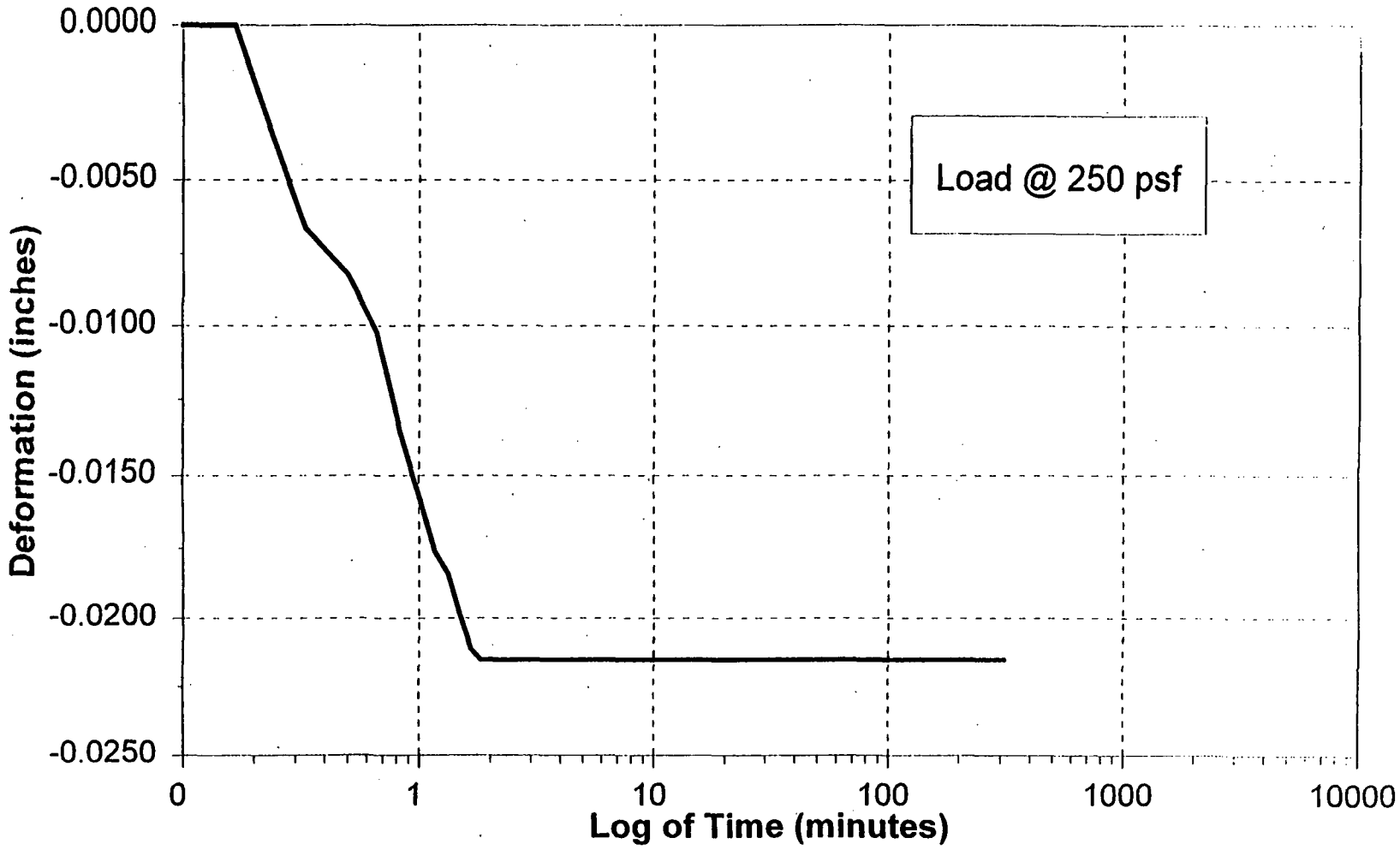
Time Rate of Consolidation
Sample: Pond 12S, BH-1 @ 13.5 feet



Project No. 973376

Figure 136

Time Rate of Consolidation
Sample: Pond 12S, BH-1 @ 13.5 feet

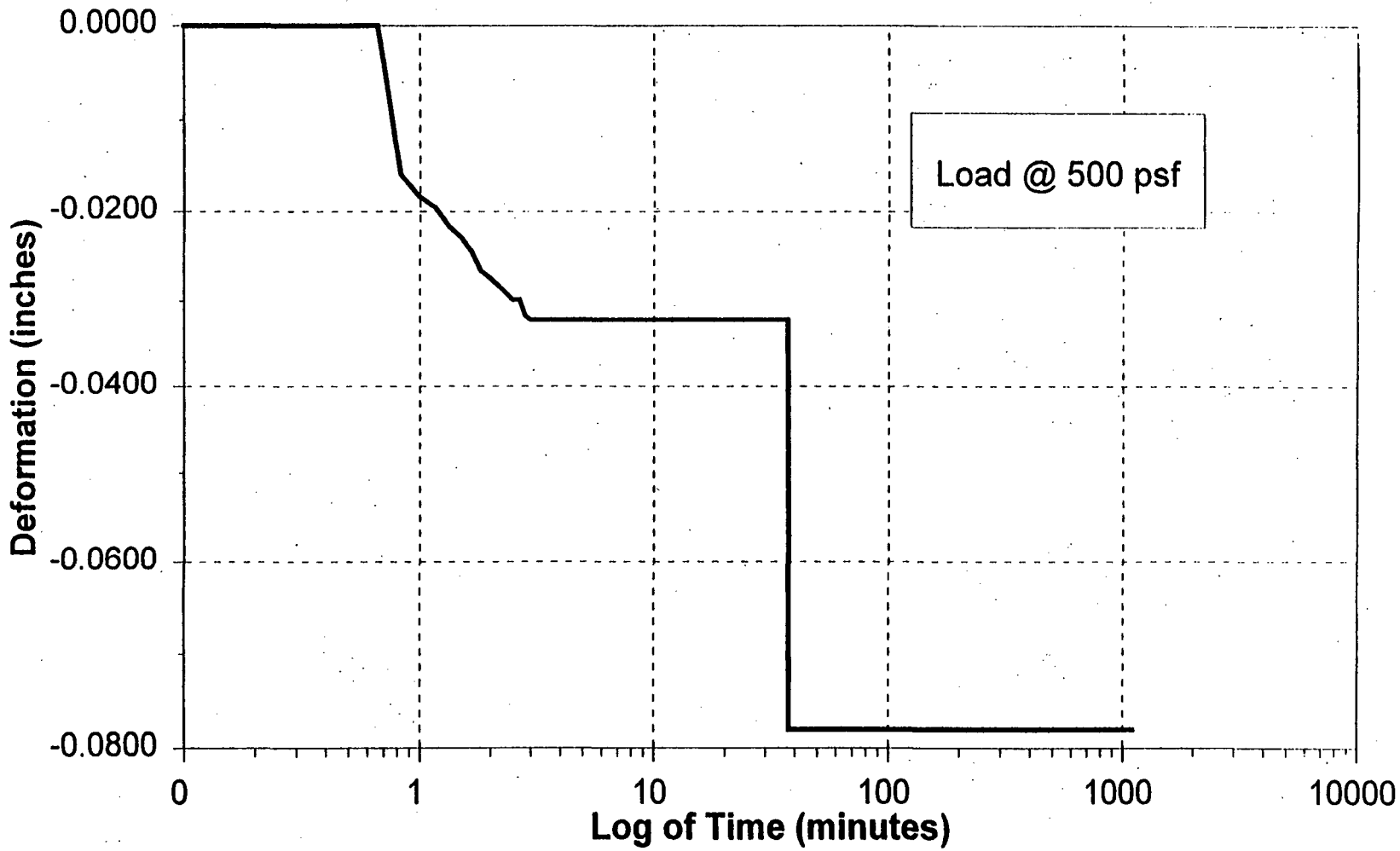


Project No. 973376

Figure 137

Time Rate of Consolidation

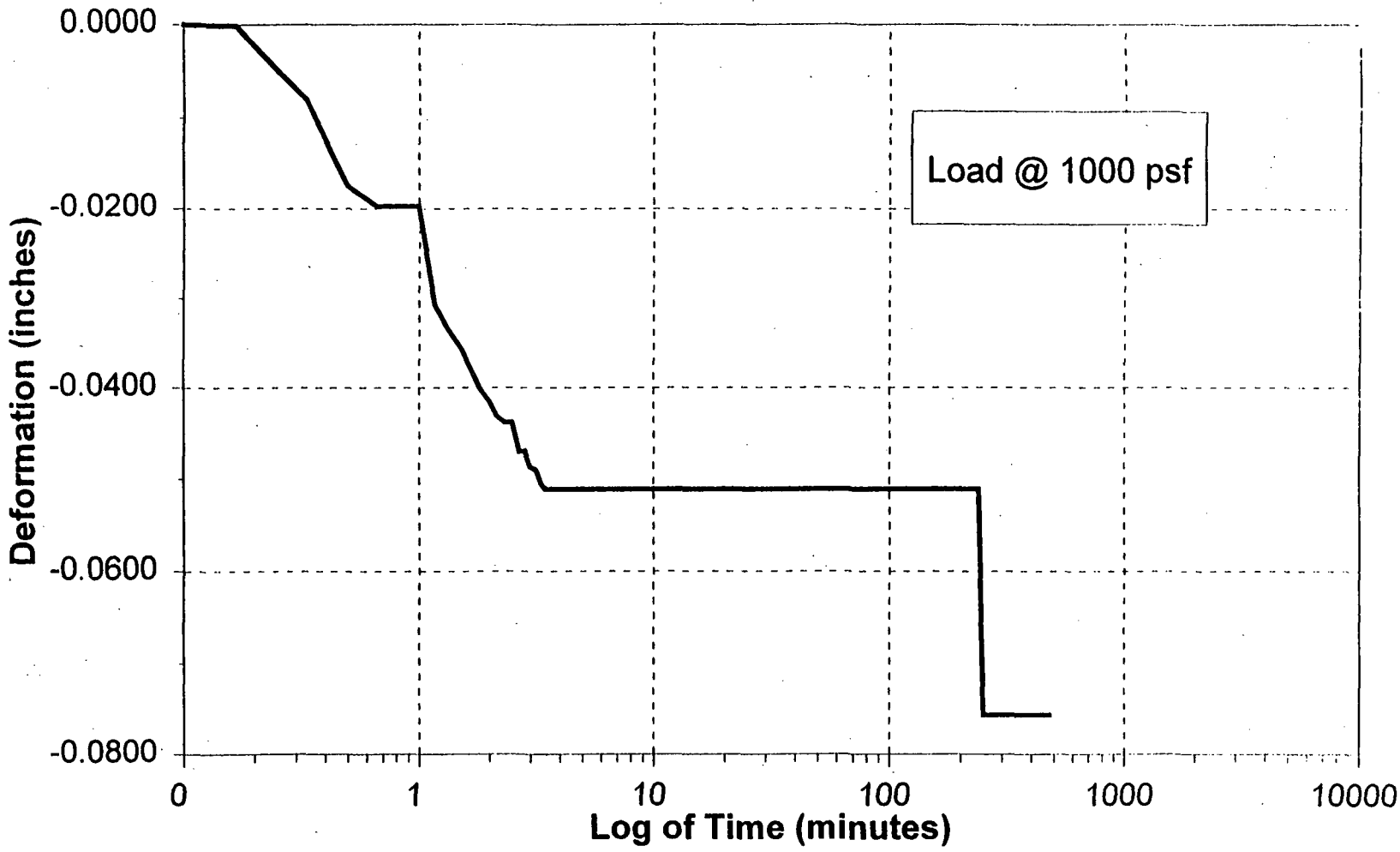
Sample: Pond 12S, BH-1 @ 13.5 feet



Project No. 973376

Figure 138

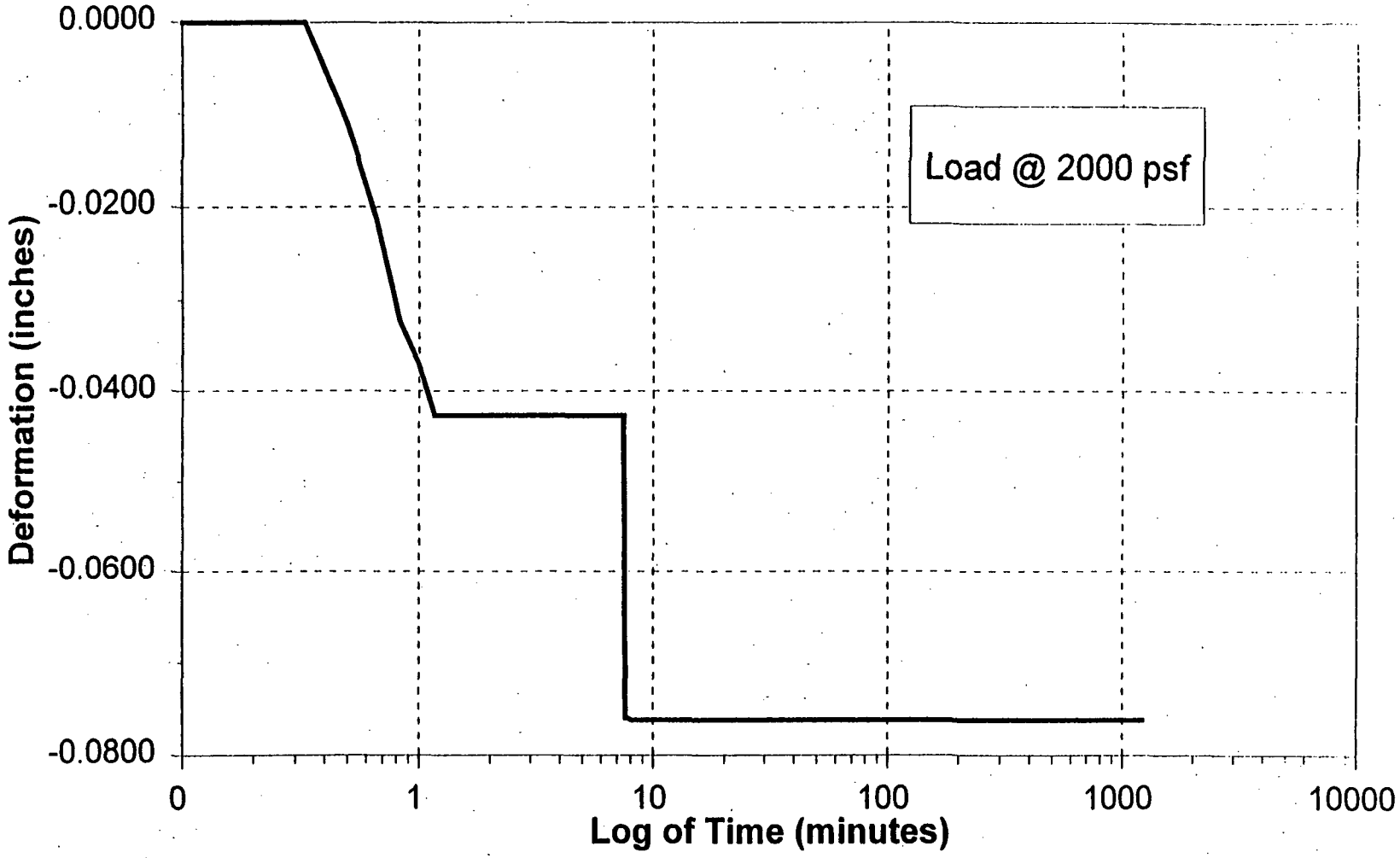
Time Rate of Consolidation
Sample: Pond 12S, BH-1 @ 13.5 feet



Project No. 973376

Figure 139

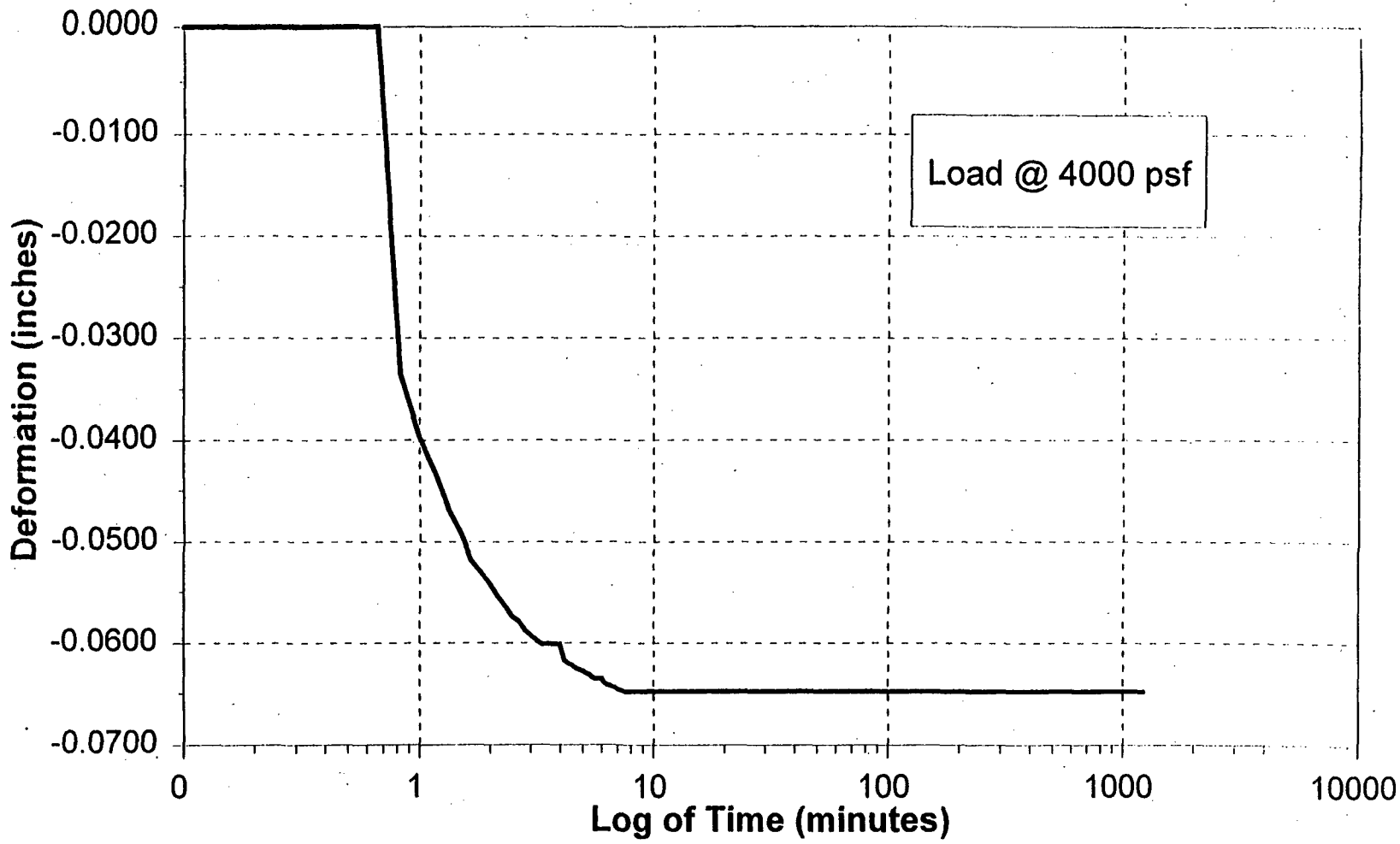
Time Rate of Consolidation
Sample: Pond 12S, BH-1 @ 13.5 feet



Project No. 973376

Figure 140

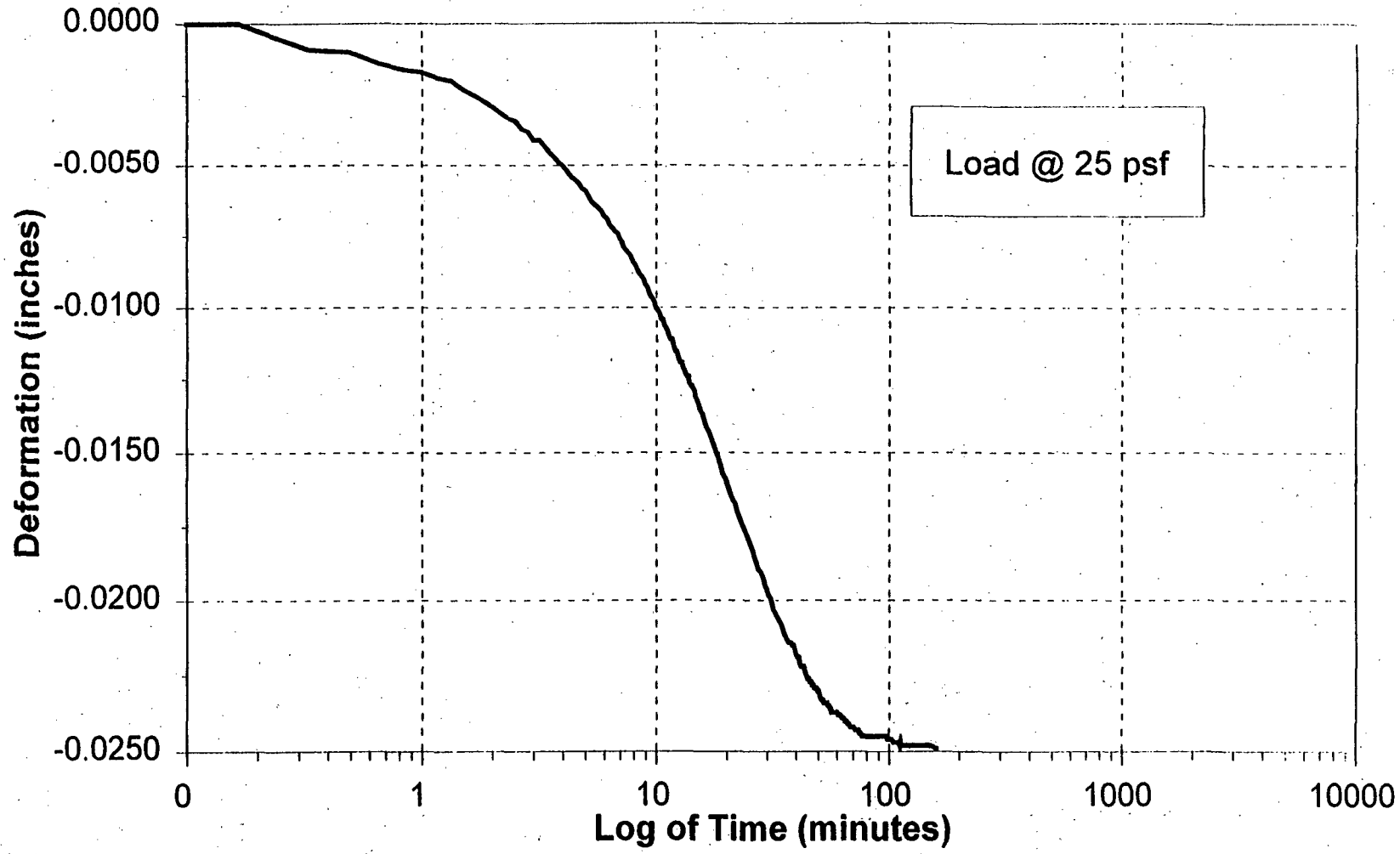
Time Rate of Consolidation
Sample: Pond 12S, BH-1 @ 13.5 feet



Project No. 973376

Figure 141

Time Rate of Consolidation
Sample: Pond 12S, BH-2 @ 16.5 feet

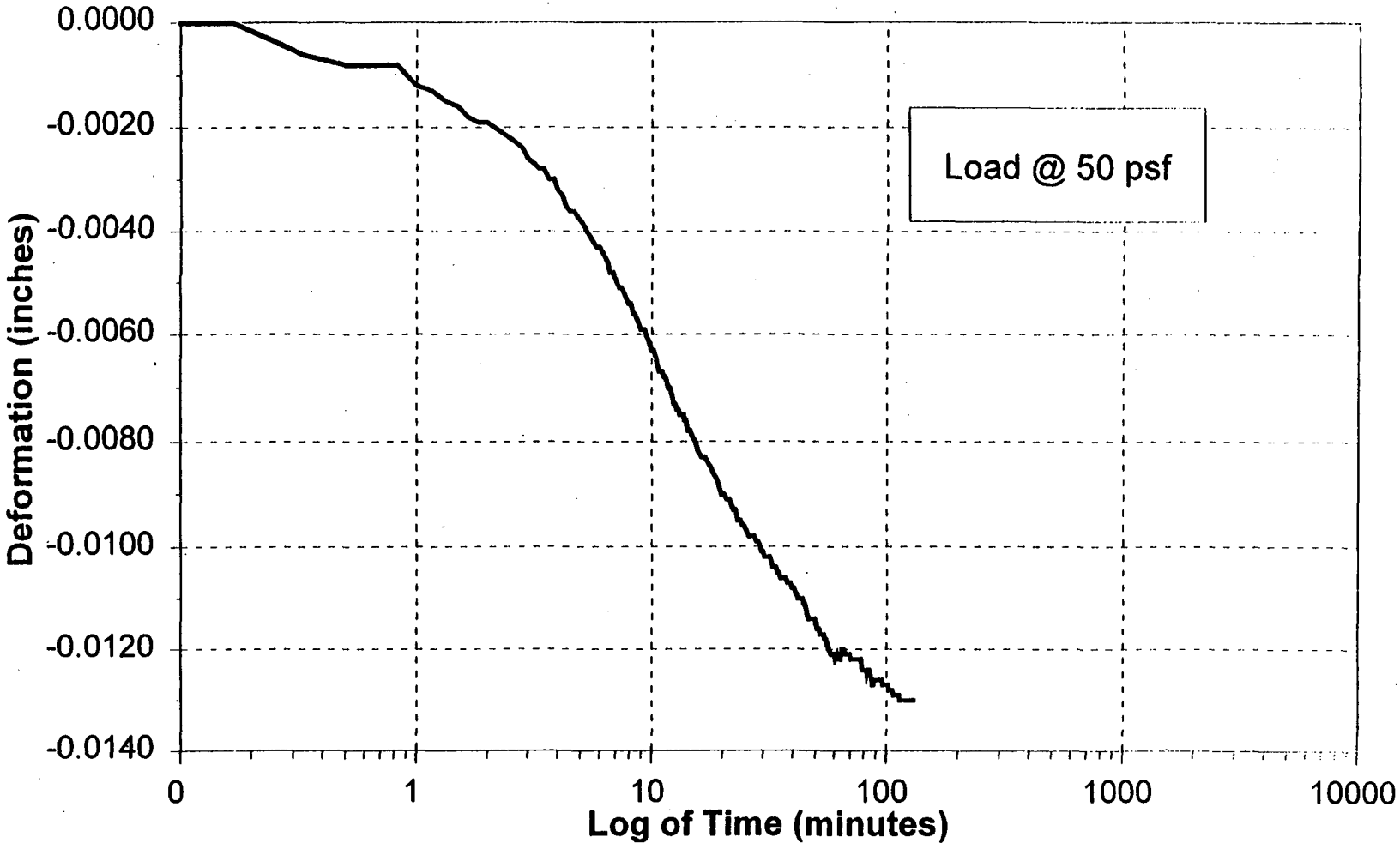


Project No. 973376

Figure 142

Time Rate of Consolidation

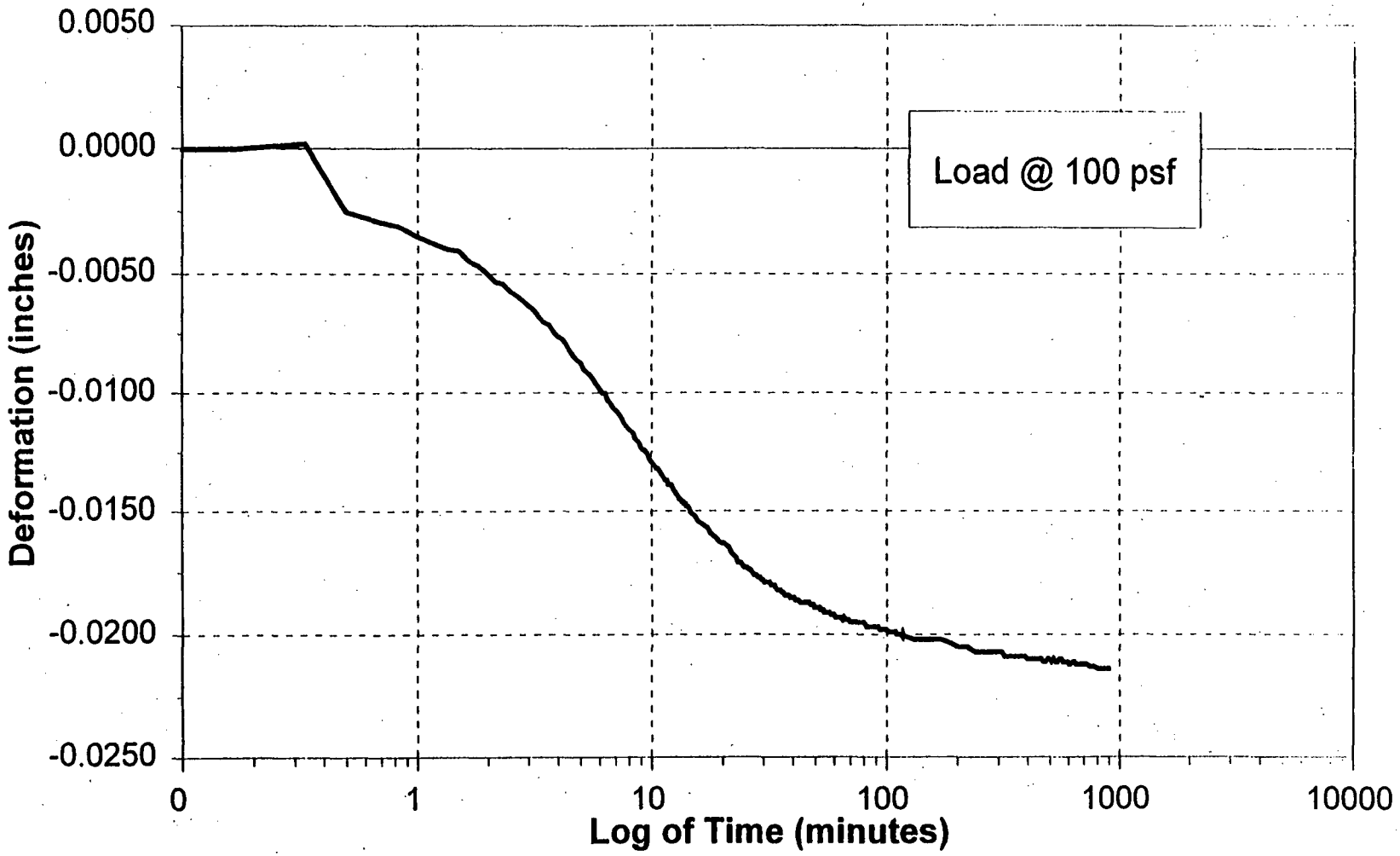
Sample: Pond 12S, BH-2 @ 16.5 feet



Project No. 973376

Figure 143

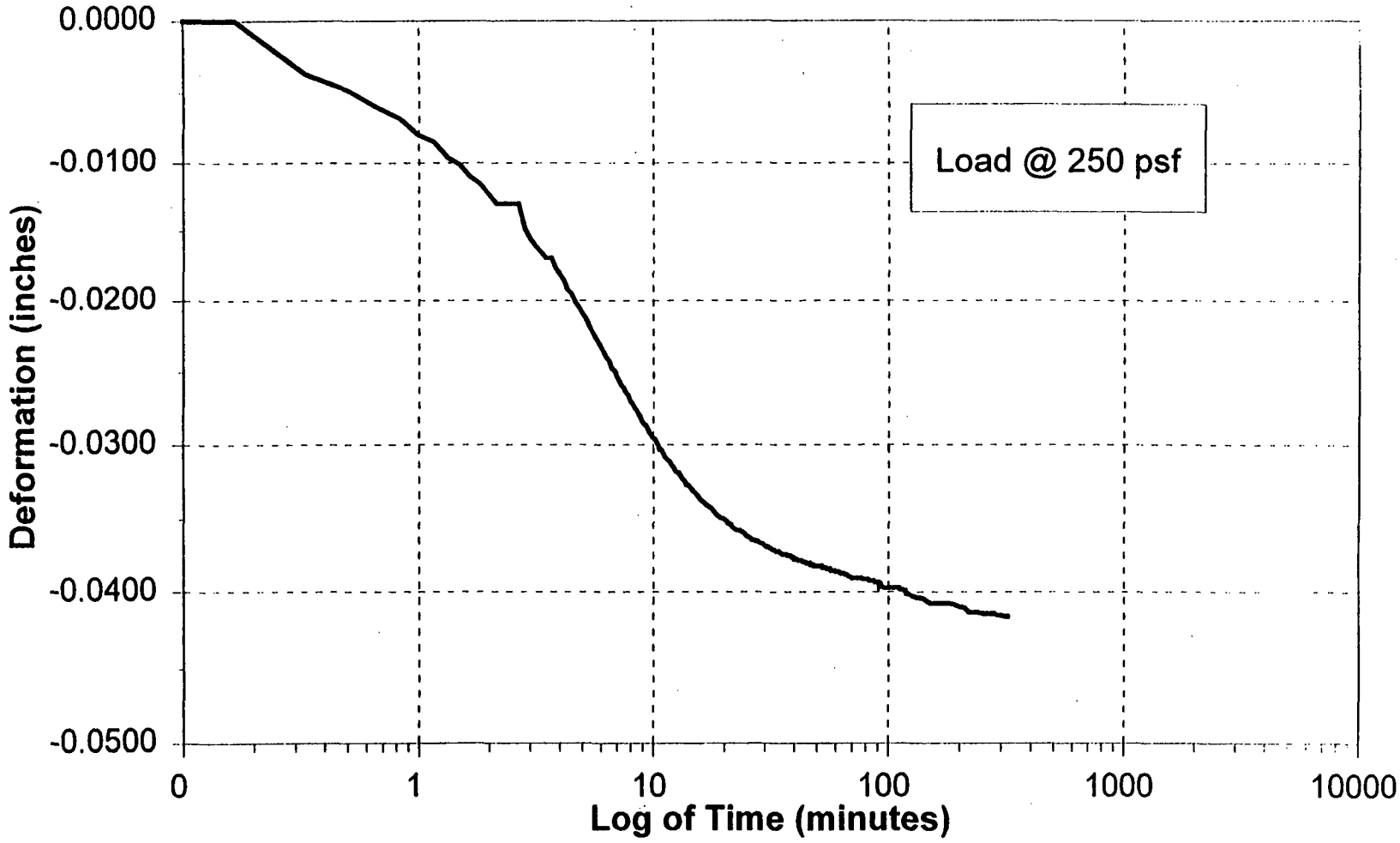
Time Rate of Consolidation
Sample: Pond 12S, BH-2 @ 16.5 feet



Project No. 973376

Figure 144

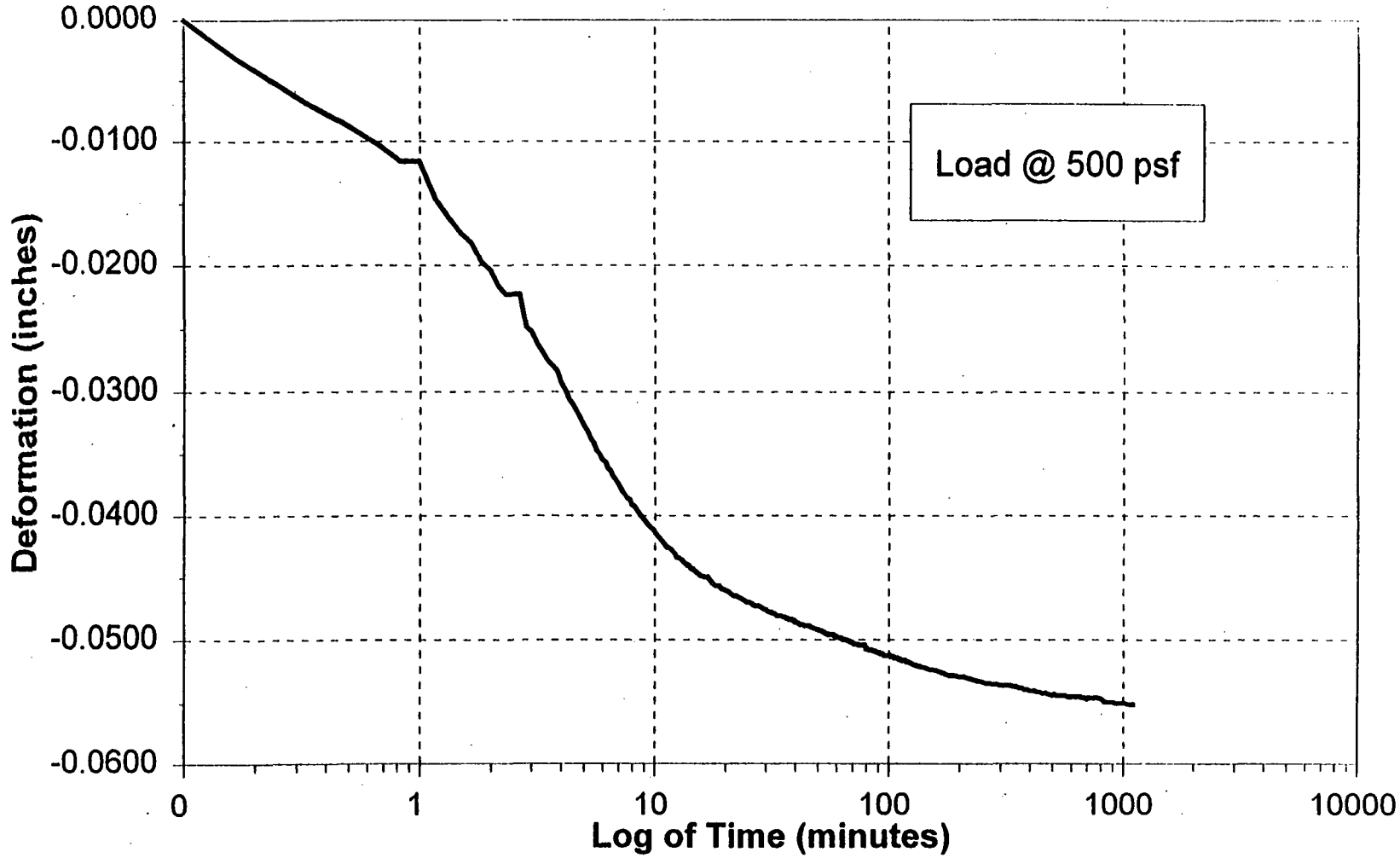
Time Rate of Consolidation
Sample: Pond 12S, BH-2 @ 16.5 feet



Project No. 973376

Figure 145

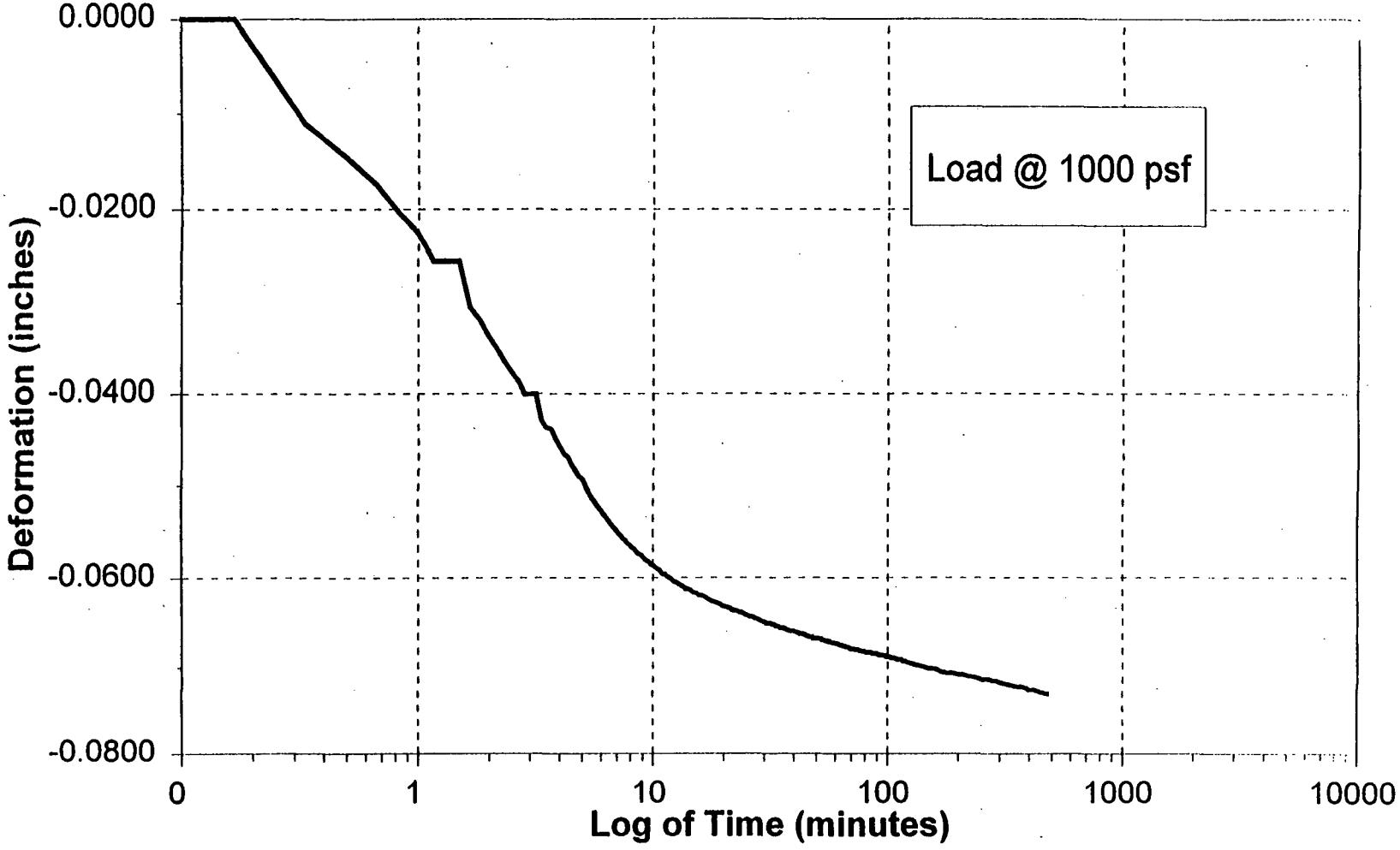
Time Rate of Consolidation
Sample: Pond 12S, BH-2 @ 16.5 feet



Project No. 973376

Figure 146

Time Rate of Consolidation
Sample: Pond 12S, BH-2 @ 16.5 feet

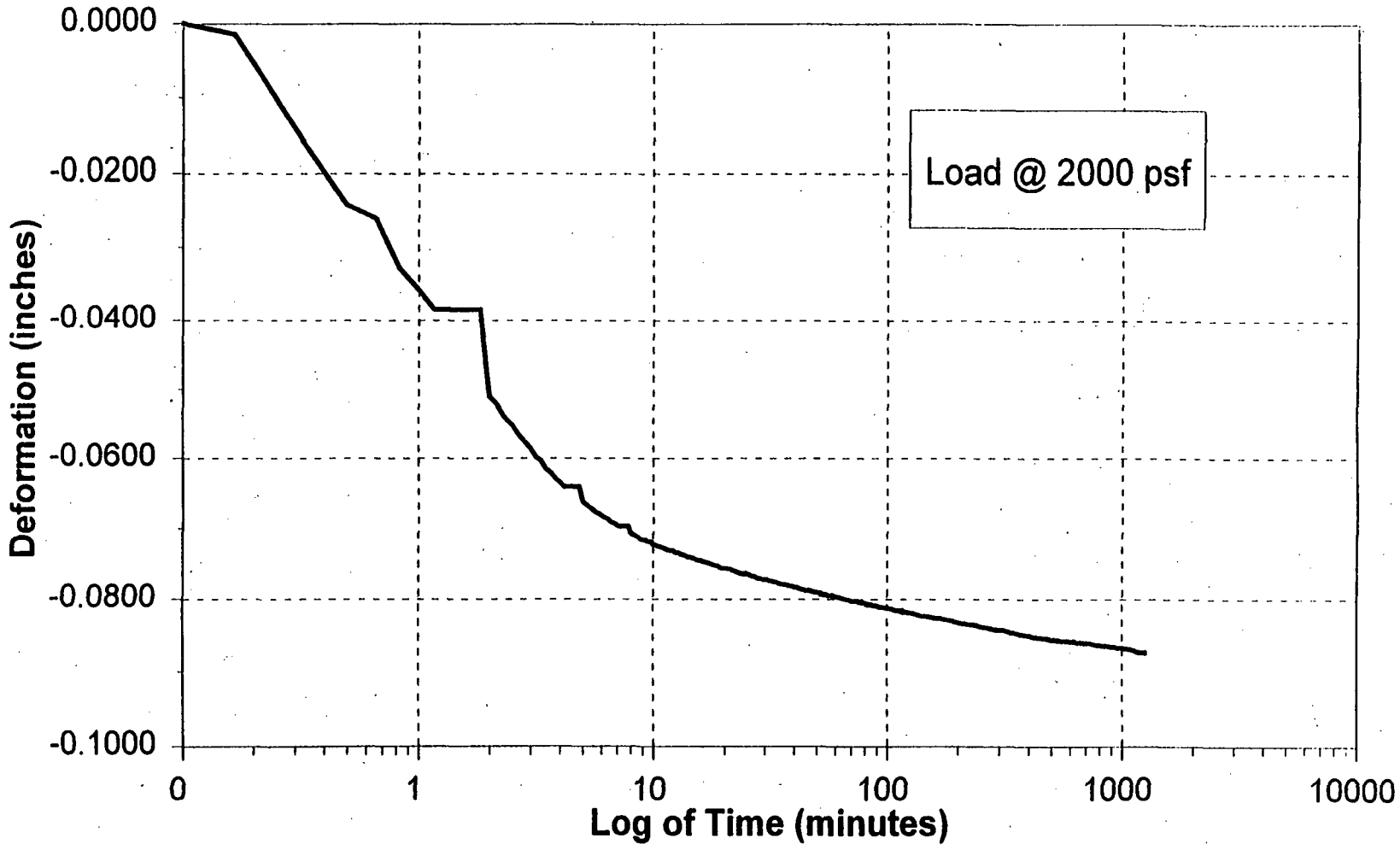


Project No. 973376

Figure 147

Time Rate of Consolidation

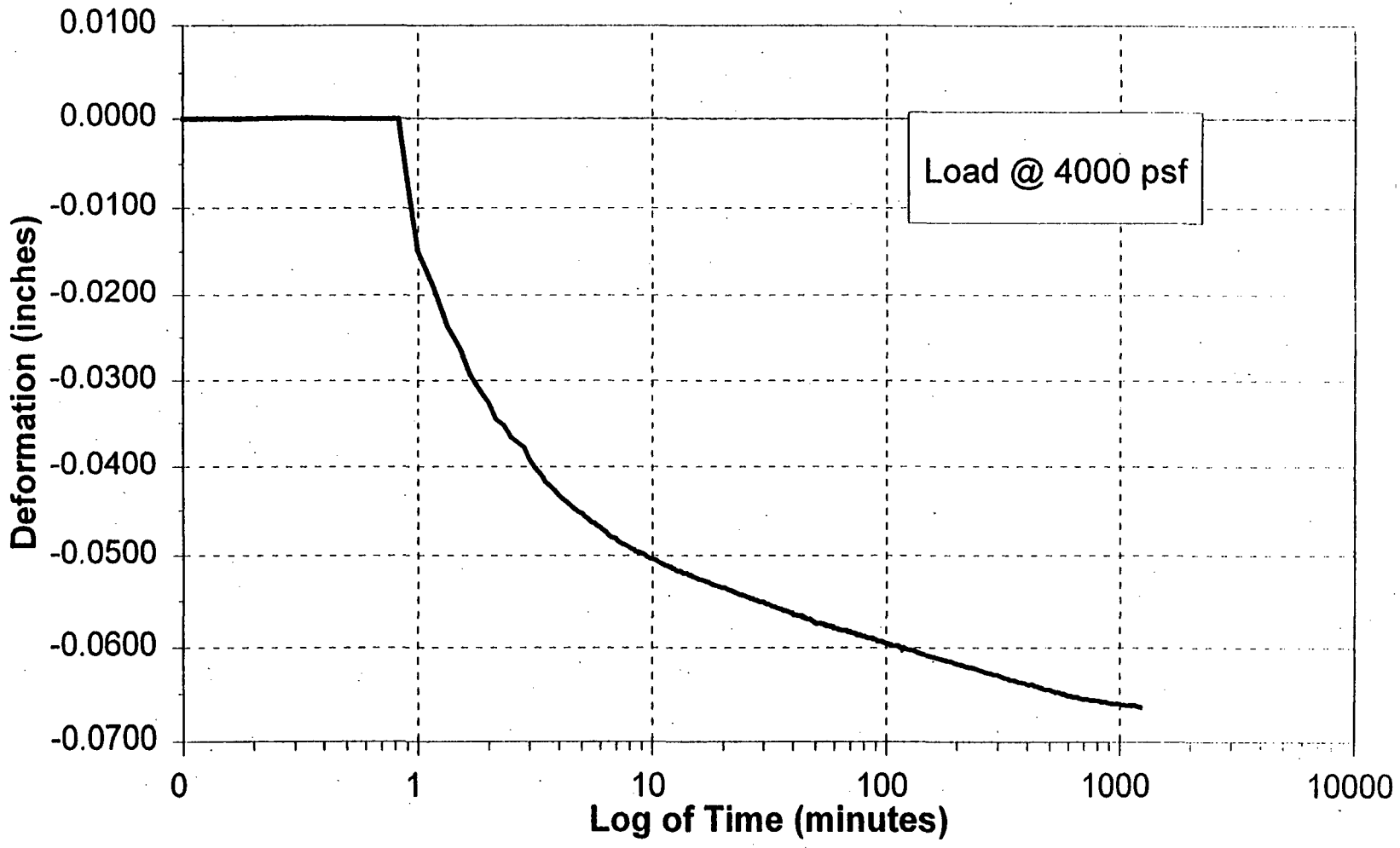
Sample: Pond 12S, BH-2 @ 16.5 feet



Project N[illegible]073376

Figure 148

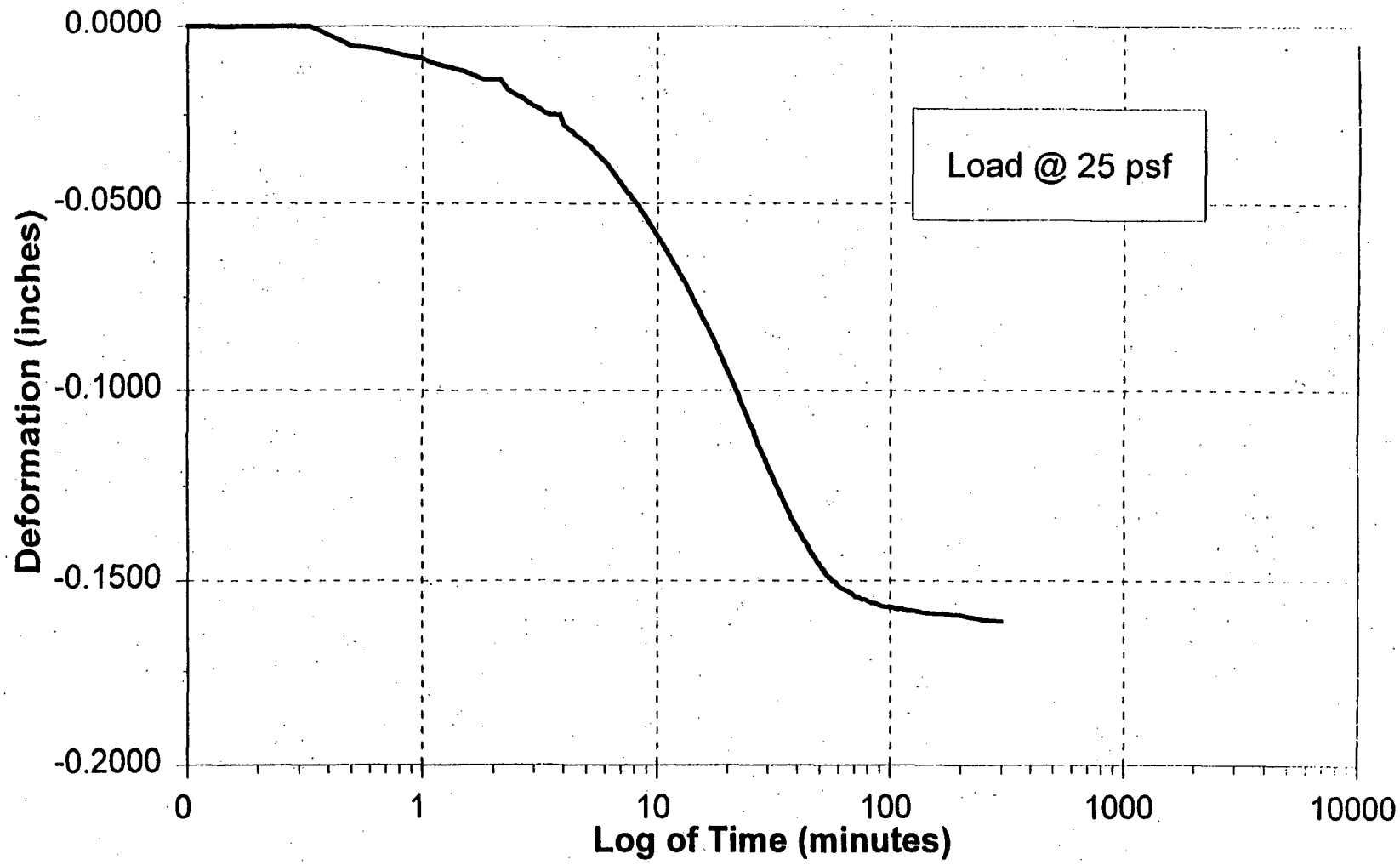
Time Rate of Consolidation
Sample: Pond 12S, BH-2 @ 16.5 feet



Project No. 973376

Figure 149

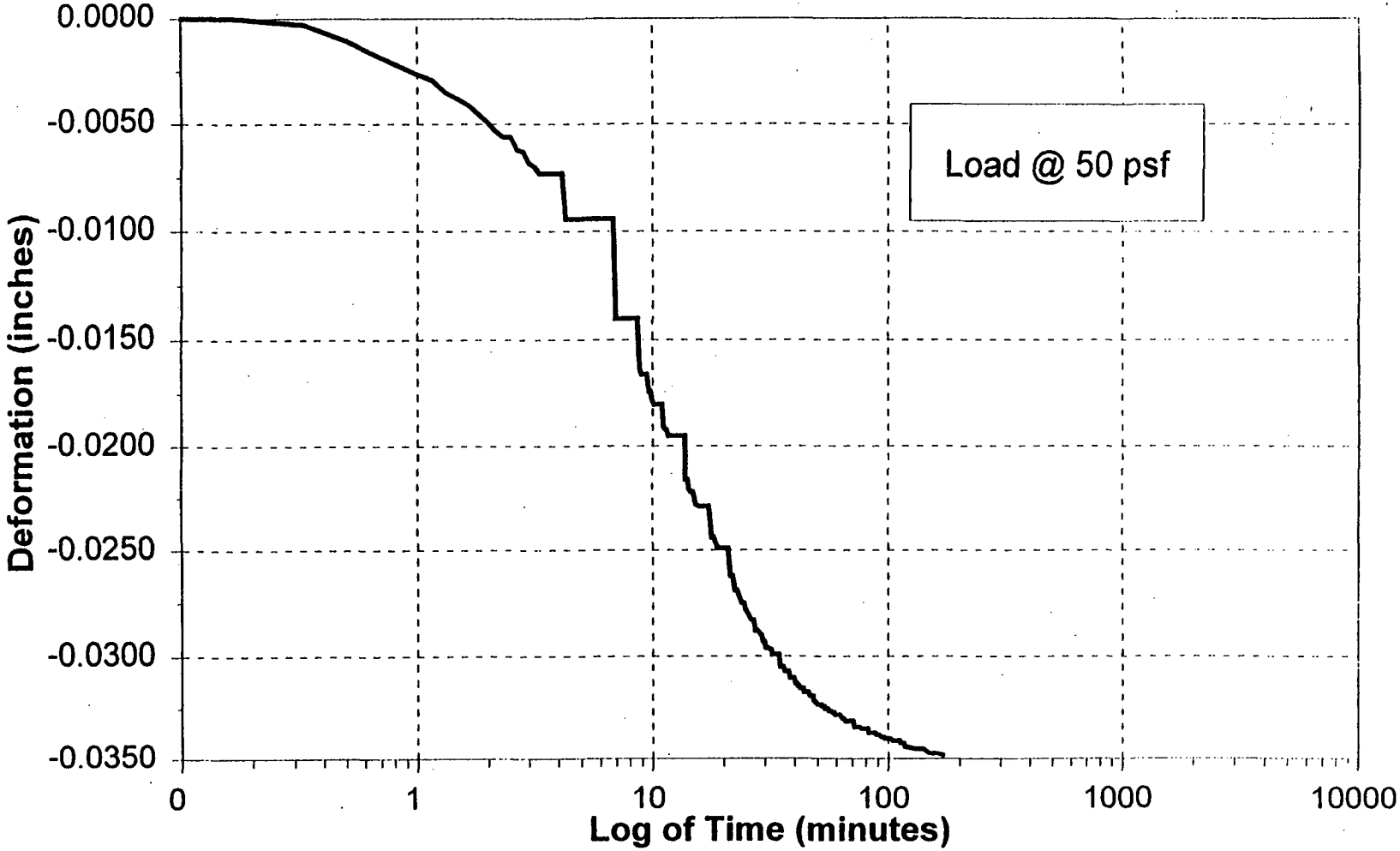
Time Rate of Consolidation
Sample: Pond 12S, BH-3 @ 10.8 feet



Project No. 973376

Figure 150

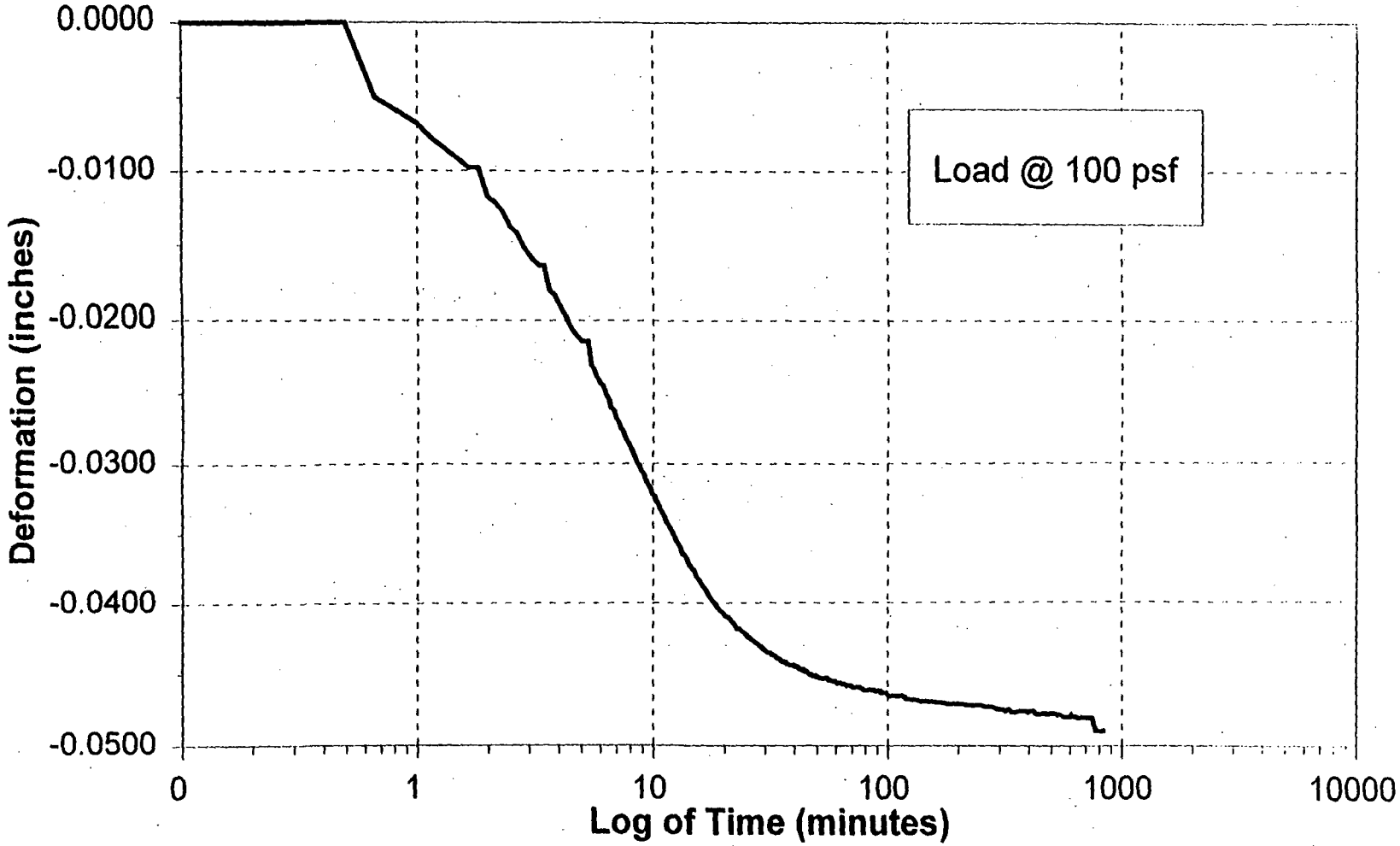
Time Rate of Consolidation
Sample: Pond 12S, BH-3 @ 10.8 feet



Project No. 973376

Figure 151

Time Rate of Consolidation
Sample: Pond 12S, BH-3 @ 10.8'

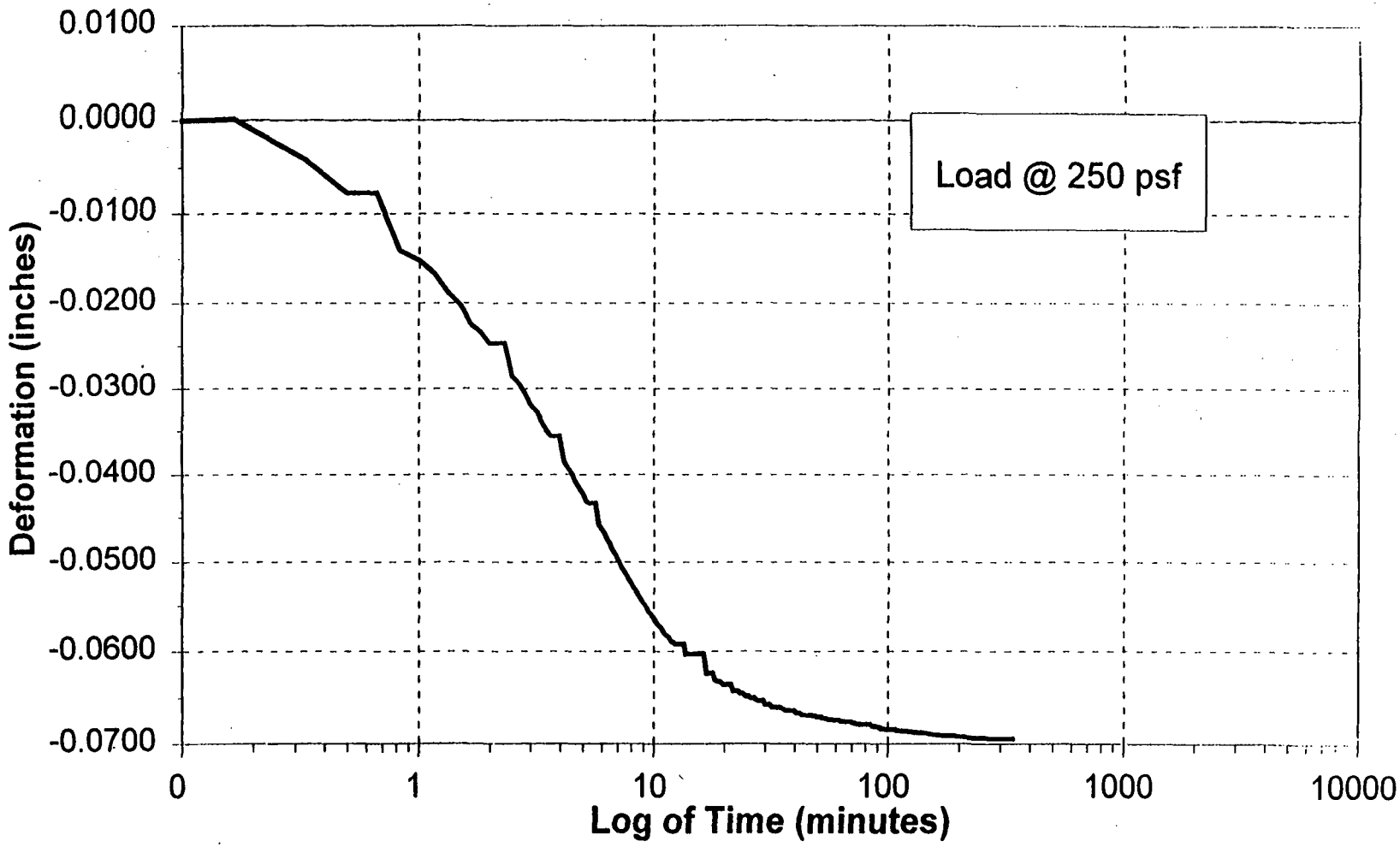


Project No. 973376

Figure 152

Time Rate of Consolidation

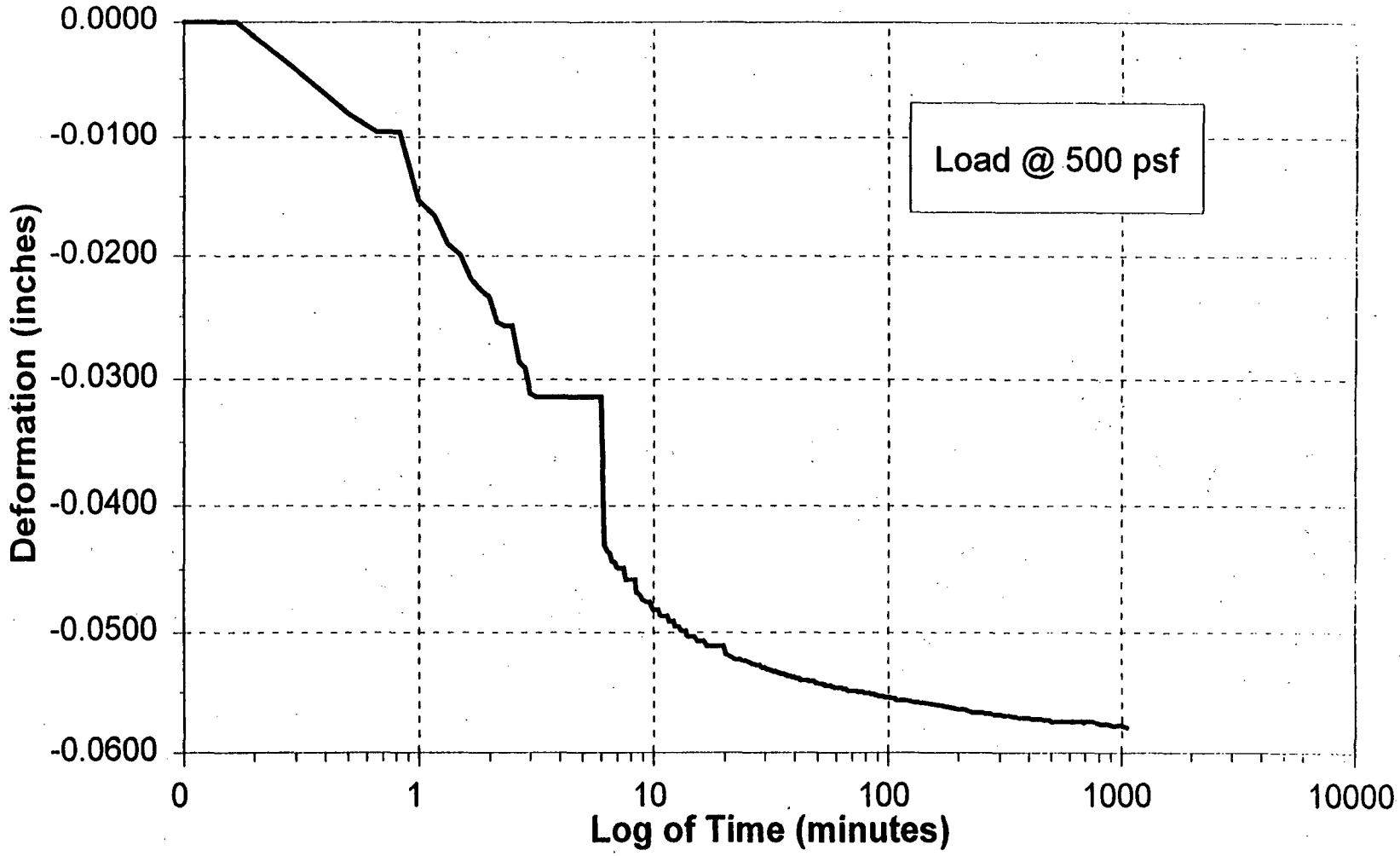
Sample: Pond 12S, BH-3 @ 10.8 feet



Project No. 973376

Figure 153

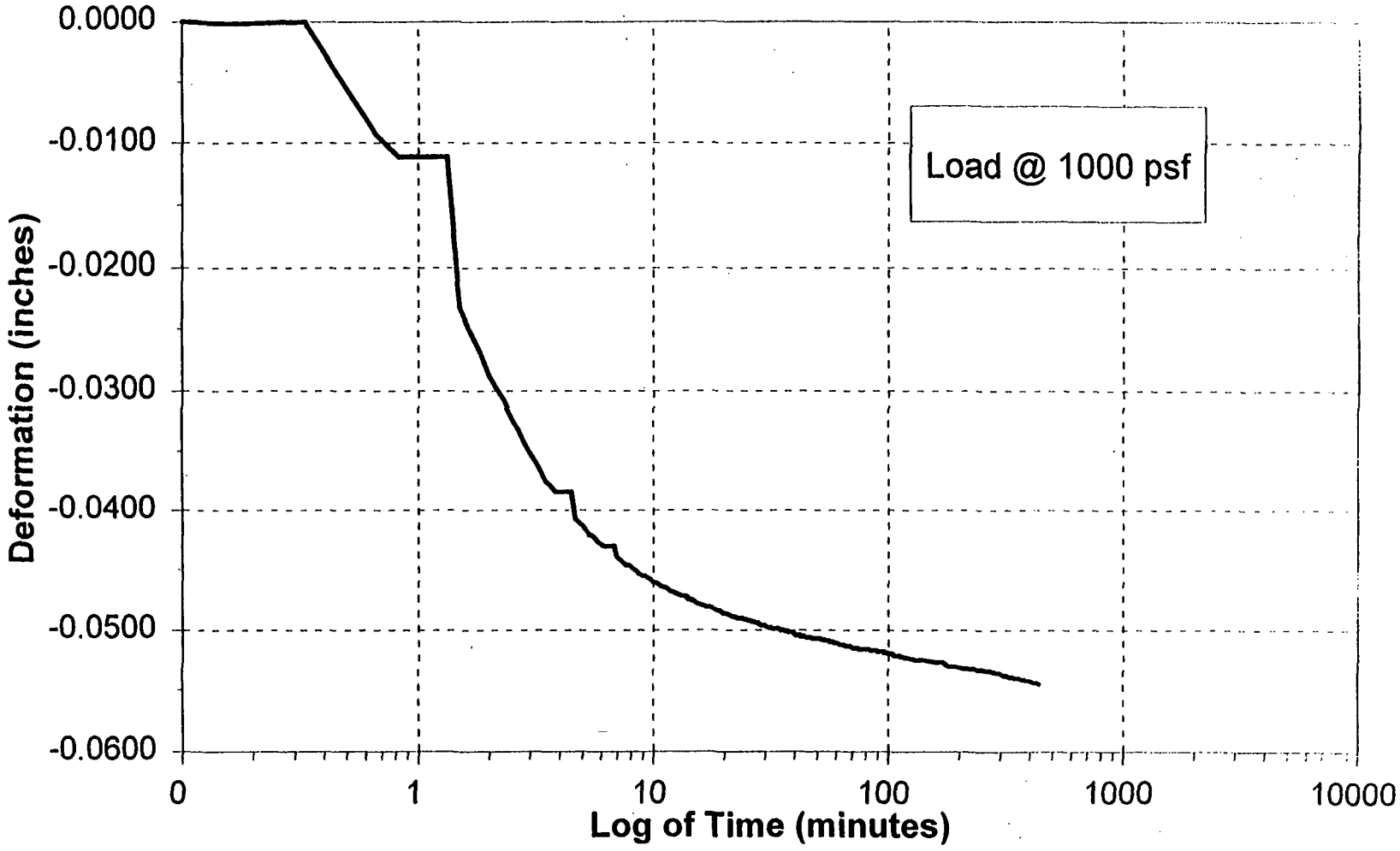
Time Rate of Consolidation
Sample: Pond 12S, BH-3 @ 10.8 feet



Project No. 973376

Figure 154

Time Rate of Consolidation
Sample: Pond 12S, BH-3 @ 10.8 feet

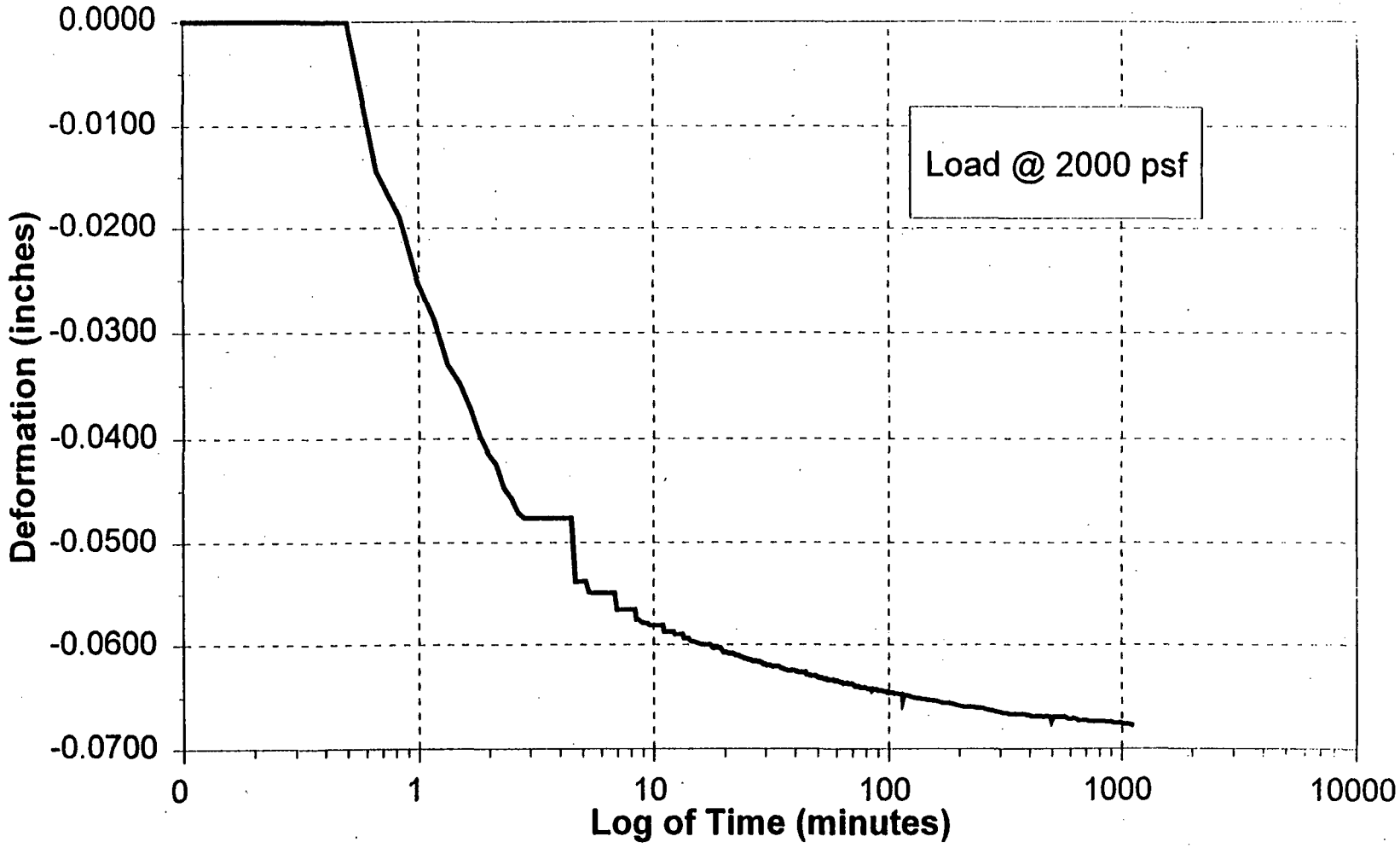


Project No. 973376

Figure 155

Time Rate of Consolidation

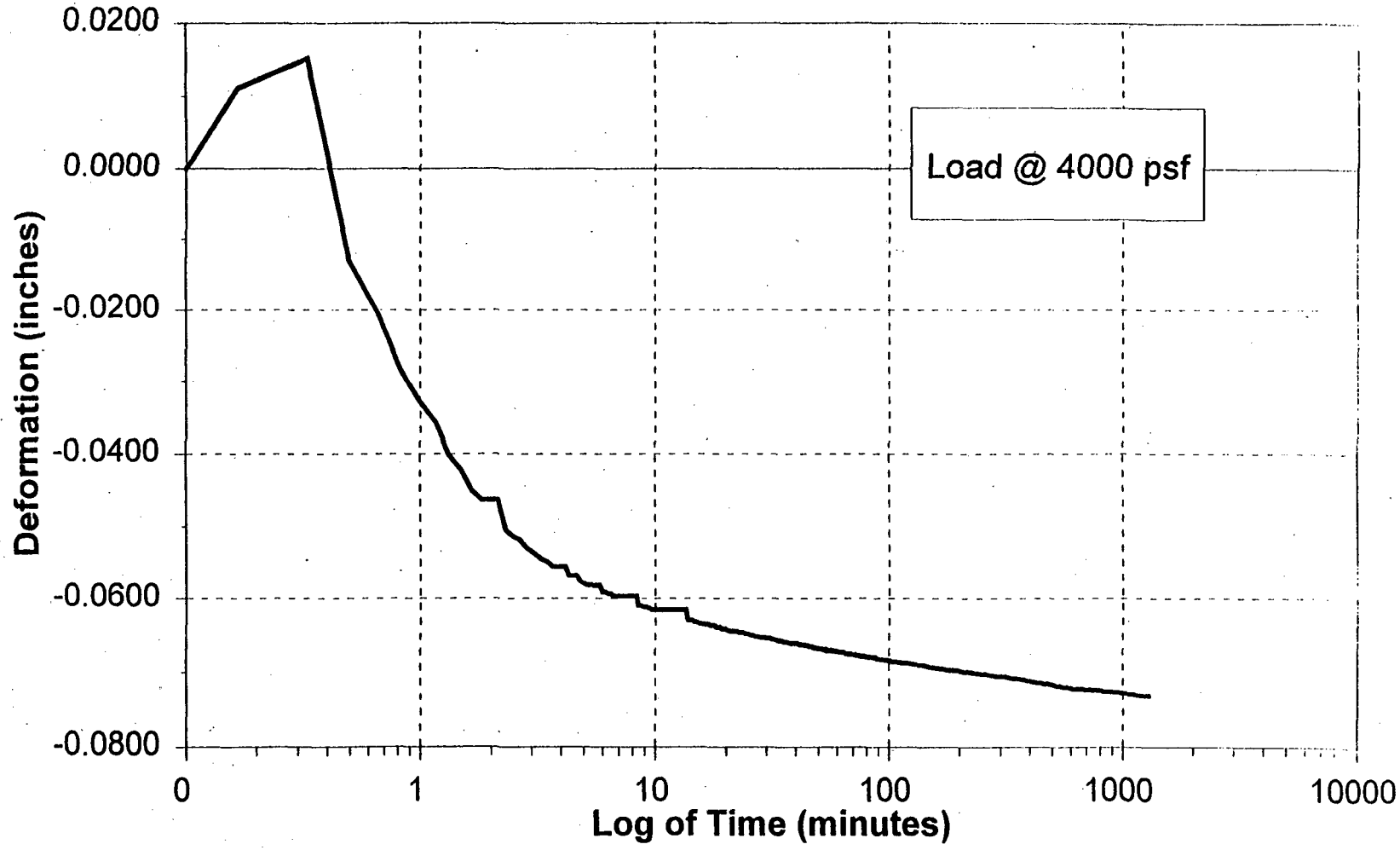
Sample: Pond 12S, BH-3 @ 10.8 feet



Project No. 973376

Figure 156

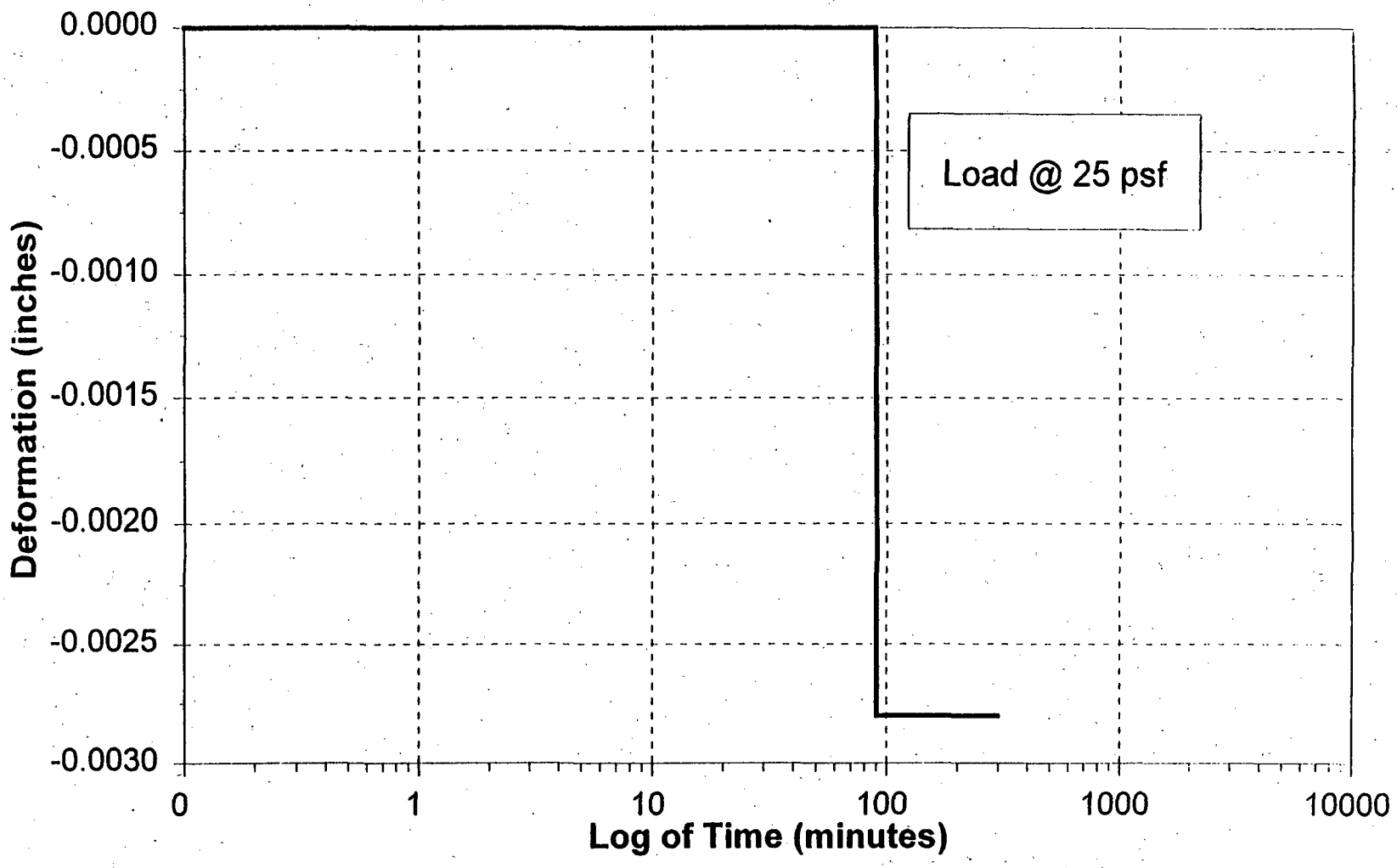
Time Rate of Consolidation
Sample: Pond 12S, BH-3 @ 10.8 feet



Project No. 973376

Figure 157

Time Rate of Consolidation
Sample: Pond 13S, BH-3 @ 14.5 feet

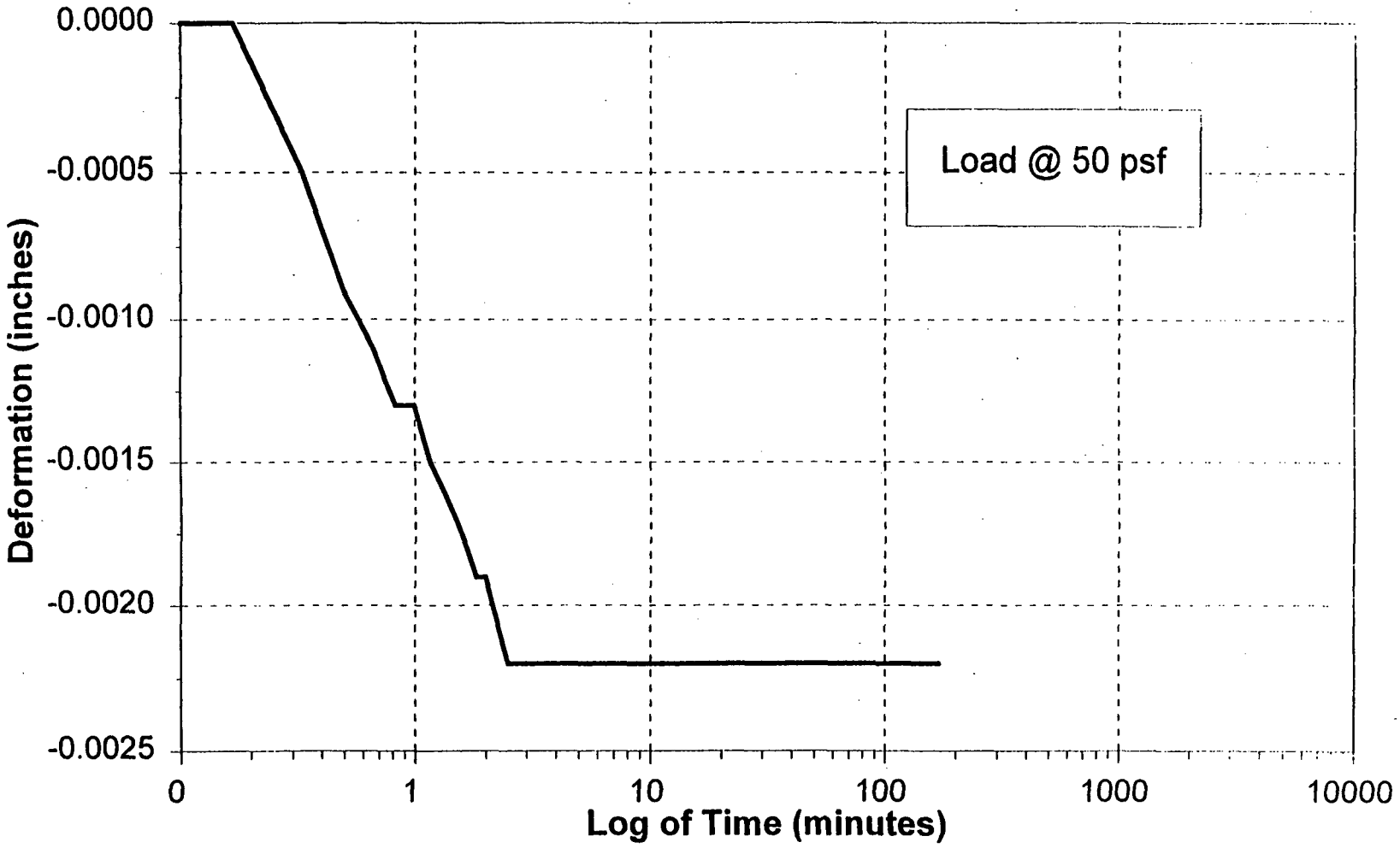


Project No. 973376

Figure 158

Time Rate of Consolidation

Sample: Pond 13S, BH-3 @ 14.5 feet

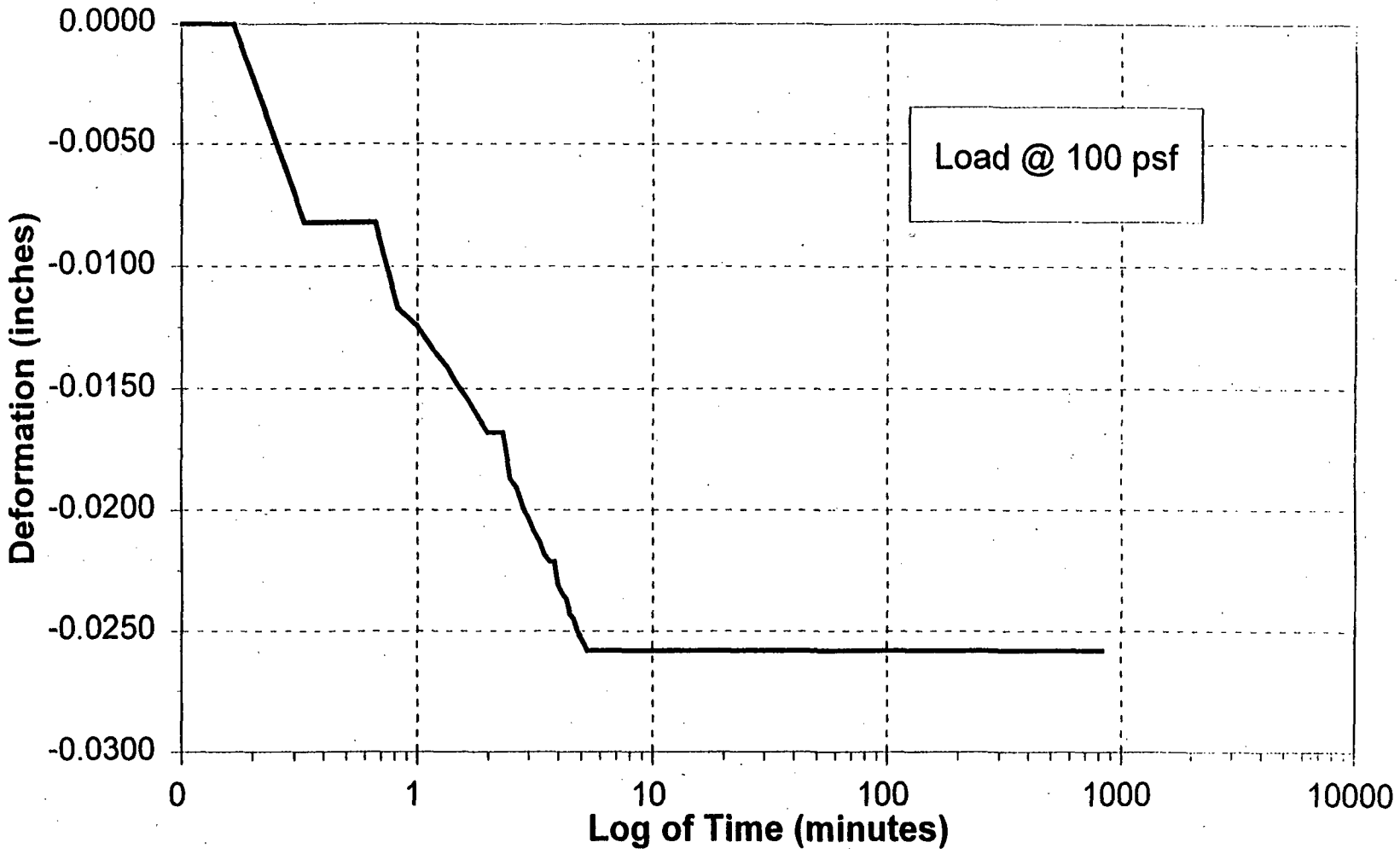


Project No. 973376

Figure 159

Time Rate of Consolidation

Sample: Pond 13S, BH-3 @ 14.5 feet

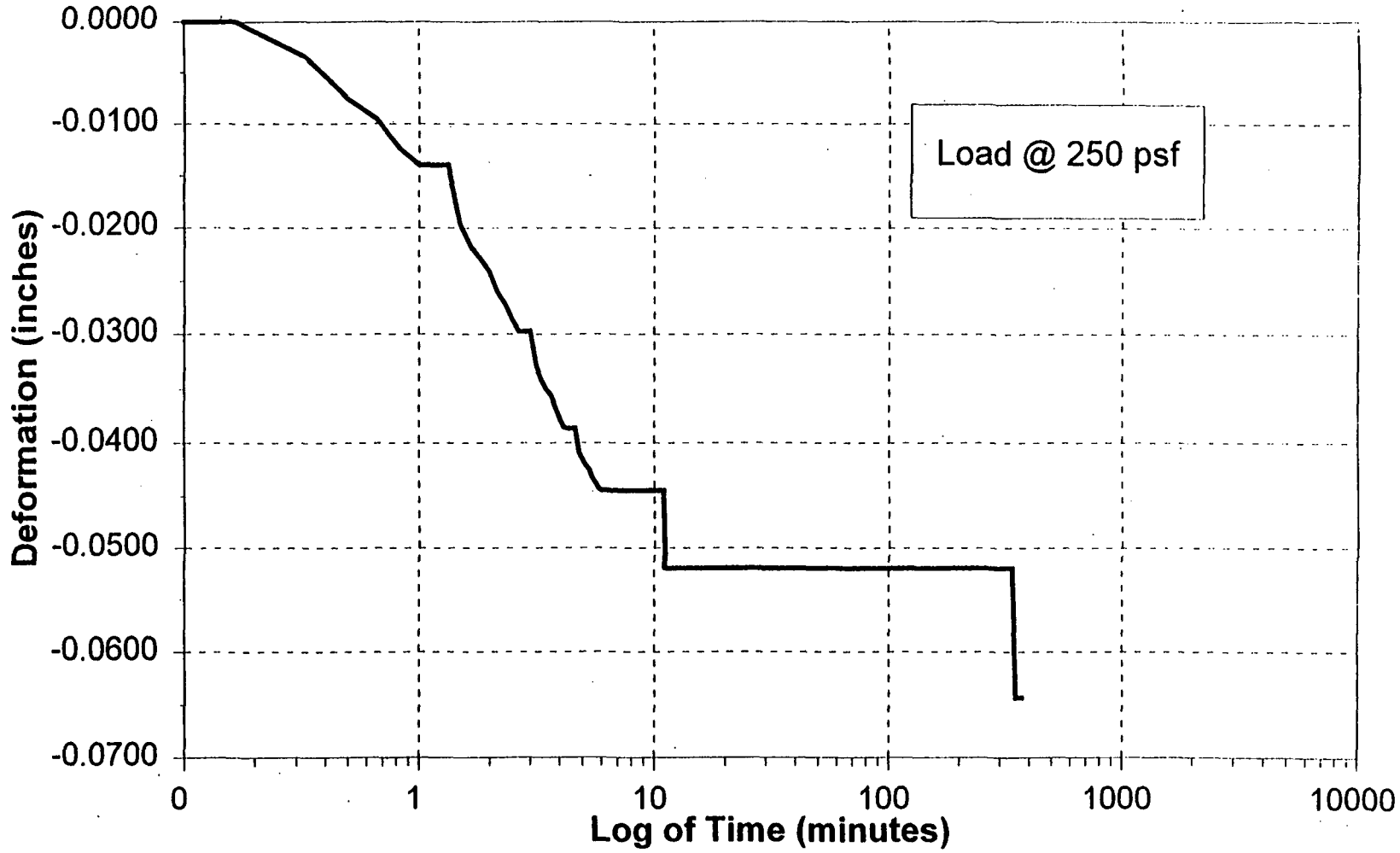


Project No. 973376

Figure 160

Time Rate of Consolidation

Sample: Pond 13S, BH-3 @ 14.5 feet

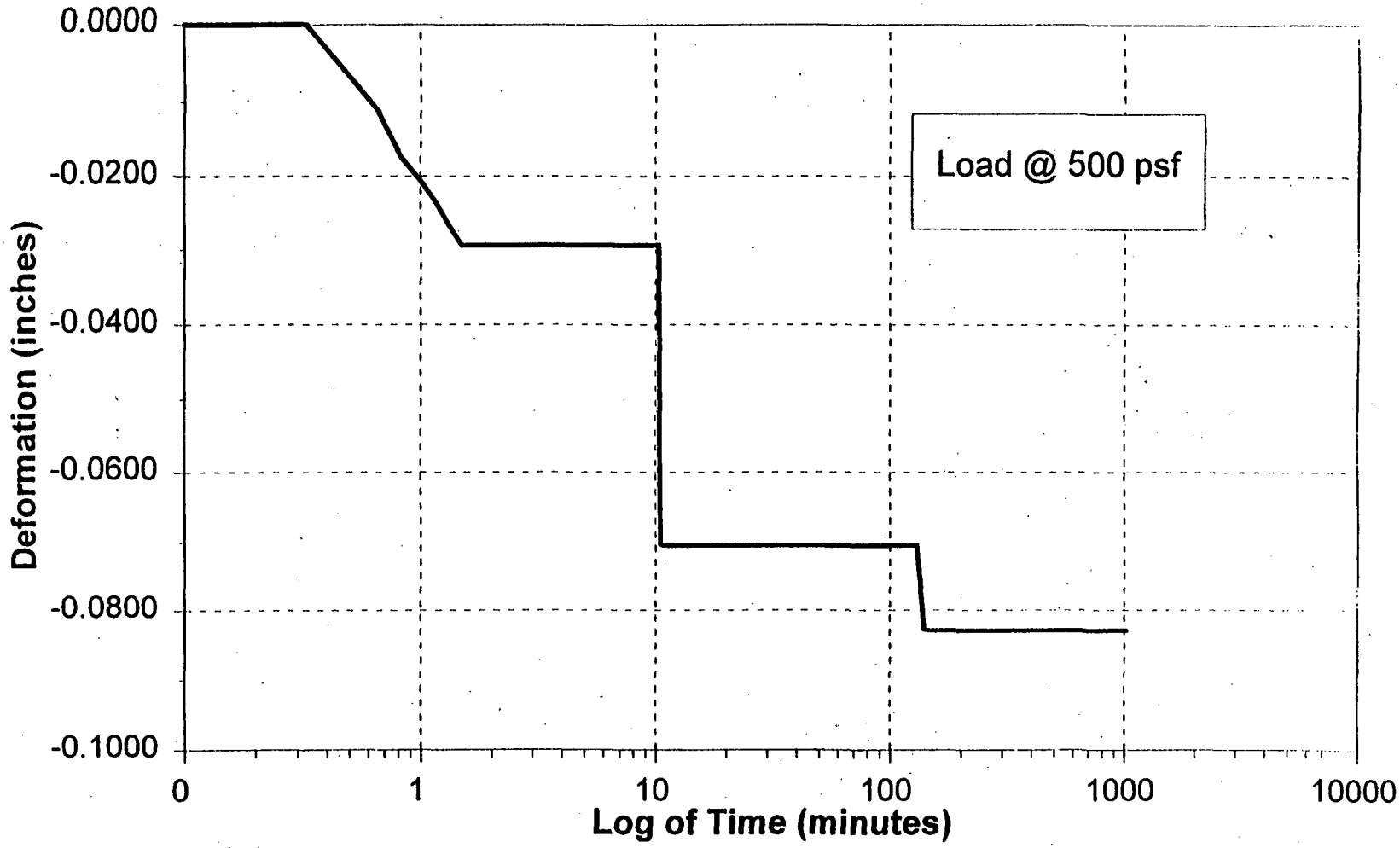


Project No. 973376

Figure 161

Time Rate of Consolidation

Sample: Pond 13S, BH-3 @ 14.5 feet

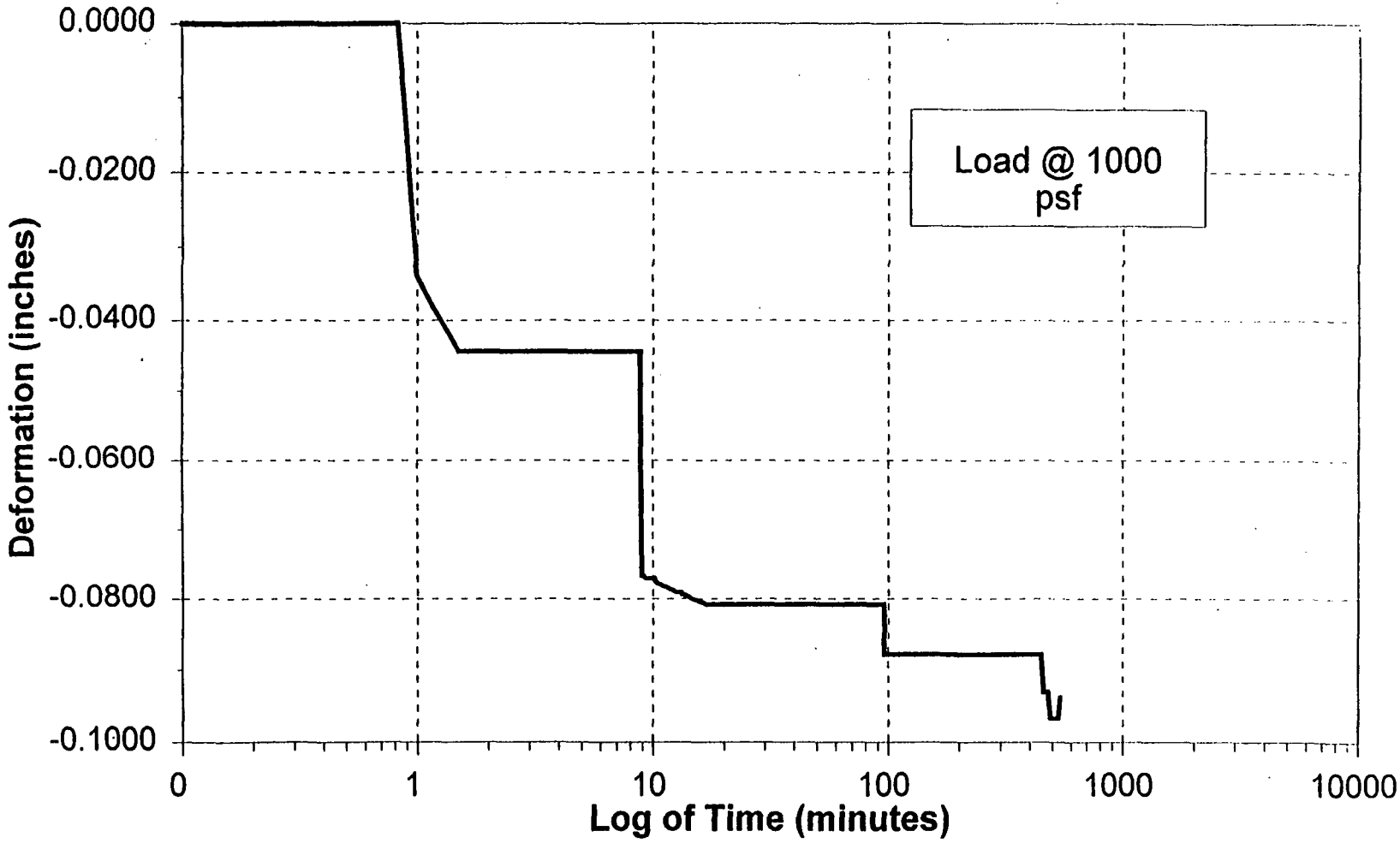


Project No. 973376

Figure 162

Time Rate of Consolidation

Sample: Pond 13S, BH-3 @ 14.5 feet

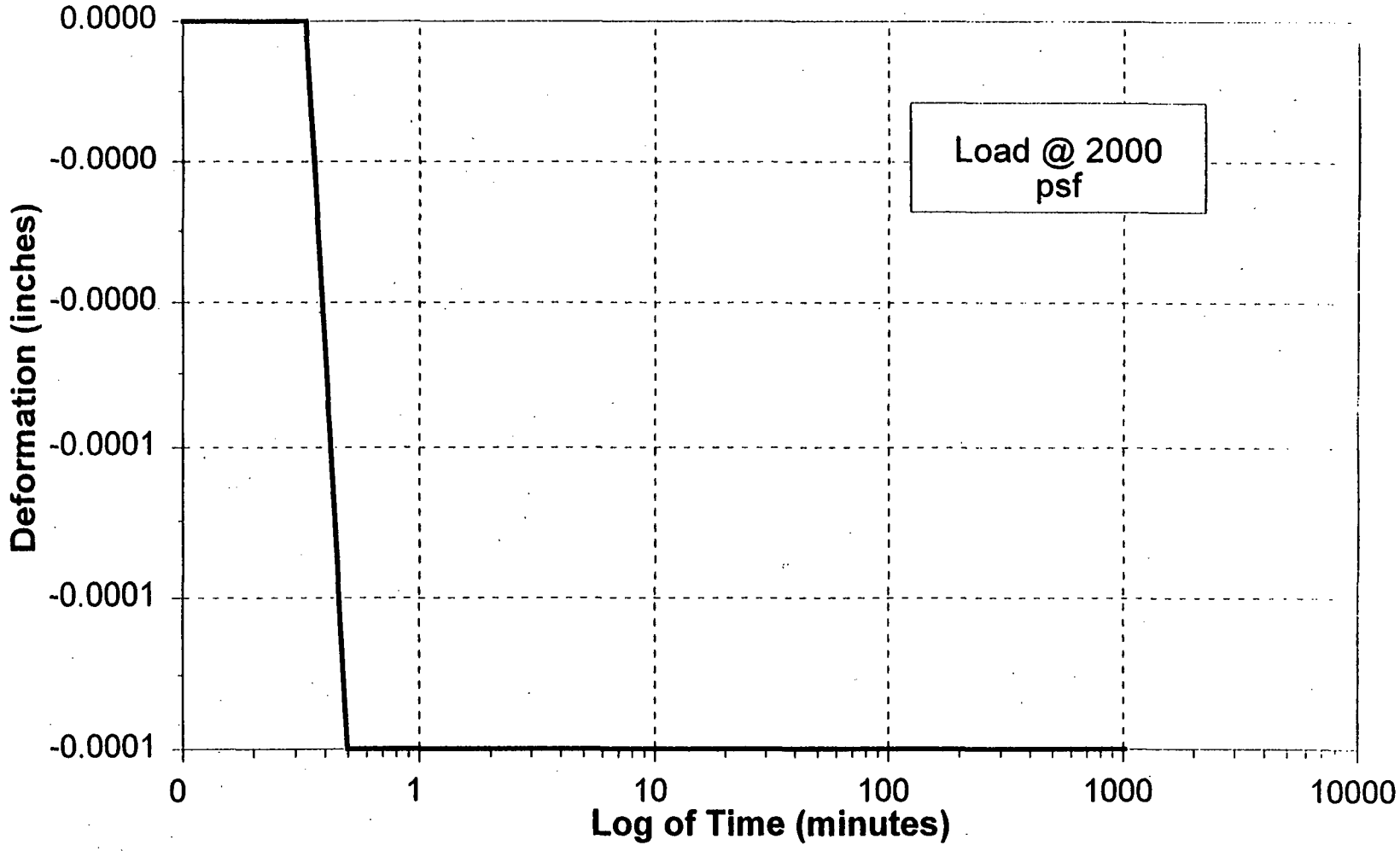


Project No. 973376

Figure 163

Time Rate of Consolidation

Sample: Pond 13S, BH-3 @ 14.5 feet

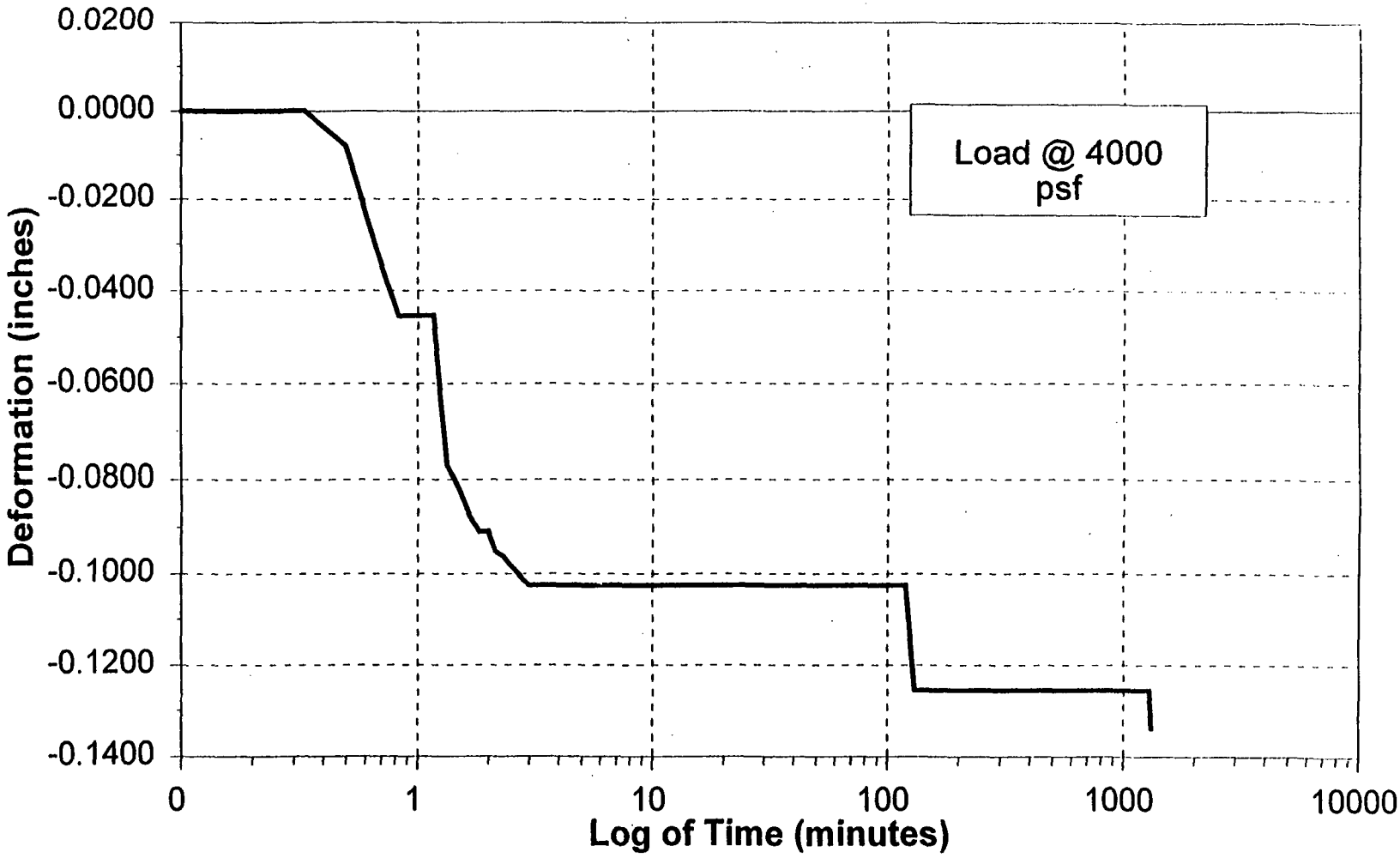


Project No. 973376

Figure 164

Time Rate of Consolidation

Sample: Pond 13S, BH-3 @ 14.5 feet



Project No. 973376

Figure 165

APPENDIX A

MOISTURE CONTENT TESTS
DATA - CALCULATIONS

Moisture Contents

Laboratory Data

Pond No.	Boring No.	Depth (feet)	Phos. content (measured	Uncorrected Weights (grams)						Phos. Wt. (g)	Corrected Weights (grams)		MC (uncorr) (%)	MC (corr) (%)
				Flask	Wet Sample + Flask	Wet Sample	Dry Sample + Flask	Dry Sample	Water		Dry Sample	Water		
8E	BH-1	4.0	0.0039	105.81	124.87	19.06	111.86	6.05	13.01	0.001	6.05	13.01	215.04	215.00
		7.0	0.0063	101.55	129.55	28.00	109.97	8.42	19.58	0.002	8.42	19.58	232.54	232.47
		10.0	0.0103	108.26	134.34	26.08	118.66	10.40	15.68	0.003	10.40	15.68	150.77	150.70
		13.0	3.2500	104.87	126.91	22.04	115.80	10.93	11.11	0.716	11.65	10.39	101.65	89.24
	BH-2	4.2	0.0589	108.40	131.98	23.58	117.98	9.58	14.00	0.014	9.59	13.99	146.14	145.78
		7.2	0.0068	102.94	132.14	29.20	111.61	8.67	20.53	0.002	8.67	20.53	236.79	236.72
		10.2	0.0151	101.50	115.52	14.02	106.77	5.27	8.75	0.002	5.27	8.75	166.03	165.93
		13.2	0.5773	108.21	126.80	18.59	116.66	8.45	10.14	0.107	8.56	10.03	120.00	117.24
	BH-3	4.5	0.0263	104.82	124.49	19.67	112.34	7.52	12.15	0.005	7.53	12.14	161.57	161.39
		7.5	0.0070	103.41	153.46	50.05	114.63	11.22	38.83	0.004	11.22	38.83	346.08	345.94
		10.5	1.8900	105.76	125.43	19.67	115.73	9.97	9.70	0.372	10.34	9.33	97.29	90.20
		13.5	0.1331	108.22	118.52	10.30	112.40	4.18	6.12	0.014	4.19	6.11	146.41	145.61
	BH-4	4.2	0.1984	101.28	133.07	31.79	116.67	15.39	16.40	0.062	15.45	16.34	106.56	105.73
		7.2	0.0100	101.53	128.01	26.48	109.26	7.73	18.75	0.003	7.73	18.75	242.56	242.44
		10.2	0.1631	103.72	126.45	22.73	115.04	11.32	11.41	0.037	11.36	11.37	100.80	100.14
		13.2	0.3003	104.34	127.30	22.96	115.73	11.39	11.57	0.069	11.46	11.50	101.58	100.37
		14.0	0.3000	103.42	128.42	25.00	117.11	13.69	11.31	0.075	13.76	11.23	82.62	81.62
	BH-5	4.5	0.0008	104.36	124.15	19.79	109.82	5.46	14.33	0.000	5.46	14.33	262.45	262.44
		7.5	0.0050	107.61	127.97	20.36	113.00	5.39	14.97	0.001	5.39	14.97	277.74	277.67
		10.5	0.1143	108.23	239.35	131.12	158.99	50.76	80.36	0.150	50.91	80.21	158.31	157.55
		13.5	0.3229	104.83	119.88	15.05	110.01	5.18	9.87	0.049	5.23	9.82	190.54	187.84
11S	BH-1	4.5	11.9500	104.35	127.17	22.82	109.23	4.88	17.94	2.727	7.61	15.21	367.62	199.99
		7.5	8.4100	103.43	122.41	18.98	108.44	5.01	13.97	1.596	6.61	12.37	278.84	187.31
		10.5	3.2900	108.34	250.79	142.45	159.15	50.81	91.64	4.687	55.50	86.95	180.36	156.68
		13.5	3.2200	108.35	129.28	20.93	116.83	8.48	12.45	0.674	9.15	11.78	146.82	128.64
12S	BH-1	7.5	4.5000	101.74	131.25	29.51	109.06	7.32	22.19	1.328	8.65	20.86	303.14	241.24
		10.5	7.1100	101.53	242.64	141.11	157.70	56.17	84.94	10.033	66.20	74.91	151.22	113.15
		13.5	6.1100	103.41	125.65	22.24	111.57	8.16	14.08	1.359	9.52	12.72	172.55	133.64
		16.5	2.3800	102.90	118.96	16.06	109.07	6.17	9.89	0.382	6.55	9.51	160.29	145.11
	BH-2	7.5	4.8800	105.76	130.47	24.71	118.58	12.82	11.89	1.206	14.03	10.68	92.75	76.17
		10.5	15.5400	101.55	122.23	20.68	107.03	5.48	15.20	3.214	8.69	11.99	277.37	137.87
		13.5	7.4000	101.51	129.58	28.07	111.88	10.37	17.70	2.077	12.45	15.62	170.68	125.51
		16.5	4.5200	105.77	125.12	19.35	112.86	7.09	12.26	0.875	7.96	11.39	172.92	142.95
		18.5	0.3638	107.94	131.74	23.80	117.01	9.07	14.73	0.087	9.16	14.64	162.40	159.92
	BH-3	7.8	30.5100	106.72	131.21	24.49	112.70	5.98	18.51	7.472	13.45	11.04	309.53	82.06
		10.8	5.6300	101.50	124.52	23.02	110.09	8.59	14.43	1.296	9.89	13.13	167.99	132.85
		13.8	0.2898	103.72	118.64	14.92	109.22	5.50	9.42	0.043	5.54	9.38	171.27	169.16
		16.8	5.1100	101.25	251.05	149.80	159.53	58.28	91.52	7.655	65.93	83.87	157.04	127.19
		18.5	0.5733	101.54	130.03	28.49	112.25	10.71	17.78	0.163	10.87	17.62	166.01	162.02
13S	BH-1	16.0	0.3059	104.82	251.72	146.90	151.42	46.60	100.30	0.449	47.05	99.85	215.24	212.23
	BH-2	15.8	0.2344	101.75	130.38	28.63	109.11	7.36	21.27	0.067	7.43	21.20	288.99	285.48
		17.8	0.0266	105.75	129.99	24.24	112.92	7.17	17.07	0.006	7.18	17.06	238.08	237.77
	BH-3	14.5	2.8000	101.49	130.16	28.67	109.39	7.90	20.77	0.803	8.70	19.97	262.91	229.44
		17.0	1.6900	108.36	130.39	22.03	115.49	7.13	14.90	0.372	7.50	14.53	208.98	193.64

APPENDIX B

ATTERBERG LIMIT TESTS
DATA - CALCULATIONS

Atterberg Limits

Laboratory Data

LIQUID LIMIT

Pond No.	Boring No.	Depth (feet)	Phos. content (measured)	Uncorrected Weights (grams) Flask	Wet Sample + Flask	Wet Sample	Dry Sample + Flask	Dry Sample	Water	Phos. Wt. (g)	Corrected Weights (grams) Dry Sample	Water	NO. DROPS	DROPS CORR. VALUE	LL (uncorr) (%)	LL (corr) (%)
8E	BH-1	4.0	0.0039	107.95	114.42	6.47	110.81	2.86	3.61	0.00	2.86	3.61	27	1.009	127.40	127.38
8E	BH-2	4.2	0.0589	101.54	110.50	8.96	105.68	4.14	4.82	0.01	4.15	4.81	21	0.979	113.99	113.72
8E	BH-2	7.2	0.0066	107.60	115.62	8.02	110.66	3.06	4.96	0.00	3.06	4.96	20	0.973	157.77	157.73
8E	BH-3	10.5	1.8900	107.94	118.41	10.47	114.49	6.55	3.92	0.20	6.75	3.72	28	1.014	60.67	55.92
8E	BH-5	13.5	0.3229	108.35	116.93	8.58	112.65	4.30	4.28	0.03	4.33	4.25	29	1.018	101.34	100.04
11S	BH-1	13.5	3.2200	102.88	111.13	8.25	106.87	3.99	4.26	0.27	4.26	3.99	20	0.973	103.92	91.36
12S	BH-1	16.5	2.3600	103.72	110.77	7.05	106.93	3.21	3.84	0.17	3.38	3.67	20	0.973	116.44	105.82
12S	BH-2	10.5	15.5400	104.34	114.29	9.95	110.52	6.18	3.77	1.55	7.73	2.22	27	1.009	61.67	29.06
12S	BH-3	13.8	0.2898	104.82	114.07	9.25	109.23	4.41	4.84	0.03	4.44	4.81	28	1.014	111.27	109.98

PLASTIC LIMIT/PLASTICITY INDEX

Boring No.	Sample No.	Depth (feet)	Phos. content (measured)	Uncorrected Weights (grams) Flask	Wet Sample + Flask	Wet Sample	Dry Sample + Flask	Dry Sample	Water	Phos. Wt. (g)	Corrected Weights (grams) Dry Sample	Water	PL (uncorr) (%)	PL (corr) (%)	PI (uncorr) (%)	PI (corr) (%)
8E	BH-1	4.0	0.0039	106.73	111.02	4.29	109.69	2.96	1.33	0.00	2.96	1.33	44.93	44.92	82.47	82.46
8E	BH-2	4.2	0.0589	103.72	116.03	12.31	112.40	8.68	3.63	0.01	8.69	3.62	41.82	41.70	72.17	72.02
8E	BH-2	7.2	0.0066	101.75	116.82	15.07	112.26	10.51	4.56	0.00	10.51	4.56	43.39	43.37	114.39	114.36
8E	BH-3	10.5	1.8900	106.72	122.64	15.92	118.13	11.41	4.51	0.30	11.71	4.21	39.53	35.94	21.15	19.98
8E	BH-5	13.5	0.3229	102.90	130.26	27.36	120.74	17.84	9.52	0.09	17.93	9.43	53.36	52.61	47.98	47.43
11S	BH-1	13.5	3.2200	101.23	114.13	12.90	109.16	7.93	4.97	0.42	8.35	4.55	62.67	54.58	41.25	36.78
12S	BH-1	16.5	2.3800	101.26	111.27	10.01	106.95	5.69	4.32	0.24	5.93	4.08	76.92	68.85	40.52	36.97
12S	BH-2	10.5	15.5400	107.62	120.13	12.51	116.72	9.10	3.41	1.94	11.04	1.47	37.47	13.27	24.10	15.78
12S	BH-3	13.8	0.2898	108.22	129.27	21.05	121.40	13.18	7.87	0.06	13.24	7.81	59.71	58.98	51.55	51.01

*Sample from Pond 13S BH-2 @ 15.8 could not be performed due to initial wettness.

APPENDIX C

SPECIFIC GRAVITY TESTS
DATA - CALCULATIONS

Specific Gravity

Laboratory Data

Pond No.	Boring No.	Depth (feet)	Cal. Flask Volume	Dry Sample	Dry Sample +Flask Vol	Flask+Soil +Water	Displaced Water	Temp. of Water & Soil	Temp. Corr. Factor	Specific Gravity	Average Specific Gravity
8E	BH-3	7.5	359.49	18.65	378.14	371.57	6.57	21.5	0.9997	2.838	
											2.838
8E	BH-5	10.5	336.44	25.00	361.44	352.43	9.01	22.0	0.9997	2.774	
			359.08	25.21	384.29	375.40	8.89	21.0	0.9998	2.835	2.805
11S	BH-1	10.5	339.22	25.05	364.27	355.30	8.97	20.0	1.0000	2.793	
			362.58	25.28	387.86	378.78	9.08	18.0	1.0004	2.785	2.789
12S	BH-1	10.5	336.47	26.45	362.92	353.74	9.18	21.5	0.9997	2.880	
			362.32	25.99	388.31	379.50	8.81	23.0	0.9993	2.948	2.914
12S	BH-3	16.8	362.43	29.06	391.49	380.94	10.55	21.0	0.9998	2.754	
			336.69	30.35	367.04	355.81	11.23	17.0	1.0006	2.704	2.729
13S	BH-1	16.0	359.67	22.50	382.17	373.77	8.40	18.0	1.0004	2.680	
			359.18	23.97	383.15	374.14	9.01	19.0	1.0002	2.661	2.670

APPENDIX D

GRADATION/HYDROMETER TESTS
DATA - CALCULATIONS

SIEVE/HYDROMETER WORKSHEET

Project #	973376
Project	FMC Corp
Sample Loc.	Pond 8E, BH-1 @ 10 feet

TOTAL SAMPLE WEIGHT (dry) 26.03

PORTION + NO. 4

SIEVE SIZE	WEIGHT RETAINED	PERCENT PASSING
5"	0	100
3"	0	100
1-1/2"	0	100
3/4"	0	100
3/8"	0	100
NO. 4	0	100

PORTION -NO. 4

SAMPLE WEIGHT (DRY) 26.03 Sample Wet Weight 65.27

SIEVE SIZE	Weight Retained	Weight Passing	% PASSING
NO .10	0.00		100
NO. 16	0.00	26.027914	100
NO. 40	0.01	26.017914	100
NO. 50	0.01	26.017914	100
NO. 100	0.02	26.007914	100
NO. 200	0.04	25.987914	100

MOISTURE CORRECTION	
WET+DISH	134.34
DRY+DISH	118.66
DISH	108.26
WET	26.08
DRY	10.40
MC%	150.77

HYDROMETER

SAMPLE WEIGHT (WET) 65.27 SPECIFIC GRAVITY 2.79 8

Wc 26.03 MENISCUS CORR. 1

CYLINDER NO. 2

CYLINDER AREA 27.8

ELAPSED TIME (MINUTES)	HYDROMETER READING	TEMP.	STD HYD READING	CORR. HYD READING	PERCENT FINER	MENISCUS CORR. HYD	K	L	DIAMETER (mm)
2	32	21	6	26	97	33	0.01291	10.9	0.030
5	31	21	6	25	93	32	0.01291	11.0	0.019
15	28	21	6	22	82	29	0.01291	11.5	0.011
30	26	21	6	20	75	27	0.01291	11.9	0.008
60	24	22	6	18	67	25	0.01276	12.2	0.006
250	21	25	5	16	60	22	0.01232	12.7	0.003
1440	17	23	5	12	45	18	0.01261	13.3	0.001

SIEVE/HYDROMETER WORKSHEET

Project #	973376
Project	FMC Corp
Sample Loc.	Pond 8E, BH-1 @ 13 feet

TOTAL SAMPLE WEIGHT (dry) 69.62

PORTION + NO. 4

SIEVE SIZE	WEIGHT RETAINED	PERCENT PASSING
5"	0	100
3"	0	100
1-1/2"	0	100
3/4"	0	100
3/8"	0	100
NO. 4	1.04	99

PORTION -NO. 4

SAMPLE WEIGHT (DRY) 69.62 Sample Wet Weight 140.39

SIEVE SIZE	Weight Retained	Weight Passing	% PASSING
NO .10	4.71		93
NO. 16	4.71	64.91172	93
NO. 40	15.15	54.47172	78
NO. 50	15.15	54.47172	78
NO. 100	31.96	37.66172	54
NO. 200	37.57	32.05172	46

MOISTURE CORRECTION	
WET+DISH	126.91
DRY+DISH	115.80
DISH	104.87
WET	22.04
DRY	10.93
MC%	101.65

HYDROMETER

SAMPLE WEIGHT (WET) 140.39 SPECIFIC GRAVITY 2.79 8

Wc 74.67 MENISCUS CORR. 1

CYLINDER NO. 1

CYLINDER AREA 27.8

ELAPSED TIME (MINUTES)	HYDROMETER READING	TEMP.	STD HYD READING	CORR. HYD READING	PERCENT FINER	MENISCUS CORR. HYD	K	L	DIAMETER (mm)
2	35	21	6	29	38	36	0.01291	10.4	0.029
5	30	21	6	24	31	31	0.01291	11.2	0.019
15	27	21	6	21	27	28	0.01291	11.7	0.011
30	24	21	6	18	23	25	0.01291	12.2	0.008
60	22	22	6	16	21	23	0.01276	12.5	0.006
250	18	25	5	13	17	19	0.01232	13.2	0.003
1440	15	24	5	10	13	16	0.01246	13.7	0.001

SIEVE/HYDROMETER WORKSHEET

Project #	973376
Project	FMC Corp
Sample Loc.	Pond 8E, BH-2 @ 4.2 feet

TOTAL SAMPLE WEIGHT (dry) 59.39

PORTION + NO. 4

SIEVE SIZE	WEIGHT RETAINED	PERCENT PASSING
5"	0	100
3"	0	100
1-1/2"	0	100
3/4"	0	100
3/8"	0	100
NO. 4	0	100

PORTION -NO. 4

SAMPLE WEIGHT (DRY) 59.39 Sample Wet Weight 146.19

SIEVE SIZE	Weight Retained	Weight Passing	% PASSING
NO .10	0.00		100
NO. 16	0.00	59.393562	100
NO. 40	0.01	59.383562	100
NO. 50	0.01	59.383562	100
NO. 100	0.07	59.323562	100
NO. 200	0.49	58.903562	99

MOISTURE CORRECTION	
WET+DISH	131.98
DRY+DISH	117.98
DISH	108.40
WET	23.58
DRY	9.58
MC%	146.14

HYDROMETER

SAMPLE WEIGHT (WET)	146.19	SPECIFIC GRAVITY	2.79	8
Wc	59.39	MENISCUS CORR.	1	
CYLINDER NO.	13			
CYLINDER AREA	27.8			

ELAPSED TIME (MINUTES)	HYDROMETER READING	TEMP.	STD HYD READING	CORR. HYD READING	PERCENT FINER	MENISCUS CORR. HYD	K	L	DIAMETER (mm)
2	49	21	6	43	70	50	0.01291	8.1	0.026
5	49	21	6	43	70	50	0.01291	8.1	0.016
15	39	21	6	33	54	40	0.01291	9.7	0.010
30	36	21	6	30	49	37	0.01291	10.2	0.008
60	31	22	6	25	41	32	0.01276	11.0	0.005
250	25	25	5	20	33	26	0.01232	12.0	0.003
1440	18	24	5	13	21	19	0.01246	13.2	0.001

SIEVE/HYDROMETER WORKSHEET

Project #	973376
Project	FMC Corp
Sample Loc.	Pond 8E, BH-2 @ 13.2 feet

TOTAL SAMPLE WEIGHT (dry) 34.35

PORTION + NO. 4

SIEVE SIZE	WEIGHT RETAINED	PERCENT PASSING
5"	0	100
3"	0	100
1-1/2"	0	100
3/4"	0	100
3/8"	0	100
NO. 4	1.6	95

PORTION -NO. 4

SAMPLE WEIGHT (DRY) 34.35 Sample Wet Weight 75.57

SIEVE SIZE	Weight Retained	Weight Passing	% PASSING
NO .10	4.62		87
NO. 16	4.62	29.73	87
NO. 40	6.51	27.84	81
NO. 50	6.51	27.84	81
NO. 100	7.09	27.26	79
NO. 200	7.45	26.9	78

MOISTURE CORRECTION	
WET+DISH	126.80
DRY+DISH	116.66
DISH	108.21
WET	18.59
DRY	8.45
MC%	120.00

HYDROMETER

SAMPLE WEIGHT (WET) 75.57 SPECIFIC GRAVITY 2.79 8

Wc 39.69 MENISCUS CORR. 1

CYLINDER NO. 12

CYLINDER AREA 27.8

ELAPSED TIME (MINUTES)	HYDROMETER READING	TEMP.	STD HYD READING	CORR. HYD READING	PERCENT FINER	MENISCUS CORR. HYD	K	L	DIAMETER (mm)
2	31	21	6	25	61	32	0.01291	11.0	0.030
5	30	21	6	24	59	31	0.01291	11.2	0.019
15	27	22	6	21	51	28	0.01276	11.7	0.011
30	25	22	6	19	46	26	0.01276	12.0	0.008
60	24	22	6	18	44	25	0.01276	12.2	0.006
250	20	26	5	15	37	21	0.01218	12.9	0.003
1440	15	24	5	10	24	16	0.01246	13.7	0.001

SIEVE/HYDROMETER WORKSHEET

Project #	973376
Project	FMC Corp
Sample Loc.	Pond 8E, BH-3 @ 4.5 feet

TOTAL SAMPLE WEIGHT (dry) 51.37

PORTION + NO. 4

SIEVE SIZE	WEIGHT RETAINED	PERCENT PASSING
5"	0	100
3"	0	100
1-1/2"	0	100
3/4"	0	100
3/8"	0	100
NO. 4	0	100

PORTION -NO. 4

SAMPLE WEIGHT (DRY) 51.37 Sample Wet Weight 134.37

SIEVE SIZE	Weight Retained	Weight Passing	% PASSING	MOISTURE CORRECTION	
NO .10	0.00		100	WET+DISH	124.49
NO. 16	0.00	51.370737	100	DRY+DISH	112.34
NO. 40	0.01	51.360737	100	DISH	104.82
NO. 50	0.01	51.360737	100	WET	19.67
NO. 100	0.02	51.350737	100	DRY	7.52
NO. 200	0.04	51.330737	100	MC%	161.57

HYDROMETER

SAMPLE WEIGHT (WET)	134.37	SPECIFIC GRAVITY	2.79	8
Wc	51.37	MENISCUS CORR.	1	
CYLINDER NO.	14			
CYLINDER AREA	27.8			

ELAPSED TIME (MINUTES)	HYDROMETER READING	TEMP.	STD HYD READING	CORR. HYD READING	PERCENT FINER	MENISCUS CORR. HYD	K	L	DIAMETER (mm)
2	48	21	6	42	79	49	0.01291	8.3	0.026
5	48	21	6	42	79	49	0.01291	8.3	0.017
15	45	22	6	39	74	46	0.01276	8.8	0.010
30	42	22	6	36	68	43	0.01276	9.2	0.007
60	38	22	6	32	60	39	0.01276	9.9	0.005
250	27	26	5	22	42	28	0.01218	11.7	0.003
1440	19	24	5	14	26	20	0.01246	13.0	0.001

SIEVE/HYDROMETER WORKSHEET

Project #	973376
Project	FMC Corp
Sample Loc.	Pond 8E, BH-4 @ 4.2 feet

TOTAL SAMPLE WEIGHT (dry) 63.33

PORTION + NO. 4

SIEVE SIZE	WEIGHT RETAINED	PERCENT PASSING
5"	0	100
3"	0	100
1-1/2"	0	100
3/4"	0	100
3/8"	0	100
NO. 4	0	100

PORTION -NO. 4

SAMPLE WEIGHT (DRY) 63.33 Sample Wet Weight 130.72

SIEVE SIZE	Weight Retained	Weight Passing	% PASSING
NO .10	0.00		100
NO. 16	0.00	63.325847	100
NO. 40	0.15	63.175847	100
NO. 50	0.15	63.175847	100
NO. 100	5.55	57.775847	91
NO. 200	10.55	52.775847	83

MOISTURE CORRECTION	
WET+DISH	133.07
DRY+DISH	116.67
DISH	101.26
WET	31.81
DRY	15.41
MC%	106.42

HYDROMETER

SAMPLE WEIGHT (WET) 130.72 SPECIFIC GRAVITY 2.79 8

Wc 63.33 MENISCUS CORR. 1

CYLINDER NO. 12

CYLINDER AREA 27.8

ELAPSED TIME (MINUTES)	HYDROMETER READING	TEMP.	STD HYD READING	CORR. HYD READING	PERCENT FINER	MENISCUS CORR. HYD	K	L	DIAMETER (mm)
2	36	21	6	30	46	37	0.01291	10.2	0.029
5	36	21	6	30	46	37	0.01291	10.2	0.018
15	34	21	6	28	43	35	0.01291	10.6	0.011
30	33	20	6	27	41	34	0.01307	10.7	0.008
60	32	20	6	26	40	33	0.01307	10.9	0.006
250	27	20	6	21	32	28	0.01307	11.7	0.003
1440	19	18	6	13	20	20	0.01339	13.0	0.001

SIEVE/HYDROMETER WORKSHEET

Project #	973376
Project	FMC Corp
Sample Loc.	Pond 8E, BH-4 @ 7.2 feet

TOTAL SAMPLE WEIGHT (dry) 63.19

PORTION + NO. 4

SIEVE SIZE	WEIGHT RETAINED	PERCENT PASSING
5"	0	100
3"	0	100
1-1/2"	0	100
3/4"	0	100
3/8"	0	100
NO. 4	0	100

PORTION -NO. 4

SAMPLE WEIGHT (DRY) 63.19 Sample Wet Weight 130.44

SIEVE SIZE	Weight Retained	Weight Passing	% PASSING
NO .10	0.02		100
NO. 16	0.02	63.170204	100
NO. 40	0.06	63.130204	100
NO. 50	0.06	63.130204	100
NO. 100	0.12	63.070204	100
NO. 200	0.17	63.020204	100

MOISTURE CORRECTION	
WET+DISH	133.07
DRY+DISH	116.67
DISH	101.26
WET	31.81
DRY	15.41
MC%	106.42

HYDROMETER

SAMPLE WEIGHT (WET) 130.44 SPECIFIC GRAVITY 2.79 8

Wc 63.21 MENISCUS CORR. 1

CYLINDER NO. 1

CYLINDER AREA 27.8

ELAPSED TIME (MINUTES)	HYDROMETER READING	TEMP.	STD HYD READING	CORR. HYD READING	PERCENT FINER	MENISCUS CORR. HYD	K	L	DIAMETER (mm)
2	33	21	6	27	41	34	0.01291	10.7	0.030
5	33	21	6	27	41	34	0.01291	10.7	0.019
15	32	20	6	26	40	33	0.01307	10.9	0.011
30	31	20	6	25	38	32	0.01307	11.0	0.008
60	30	20	6	24	37	31	0.01307	11.2	0.006
250	27	21	6	21	32	28	0.01291	11.7	0.003
1440	25	18	7	18	28	26	0.01339	12.0	0.001

SIEVE/HYDROMETER WORKSHEET

Project #	973376
Project	FMC Corp
Sample Loc.	Pond 8E. BH-4 @ 10.2 feet

TOTAL SAMPLE WEIGHT (dry) 74.97

PORTION + NO. 4

SIEVE SIZE	WEIGHT RETAINED	PERCENT PASSING
5"	0	100
3"	0	100
1-1/2"	0	100
3/4"	0	100
3/8"	0	100
NO. 4	0	100

PORTION -NO. 4

SAMPLE WEIGHT (DRY) 74.97 Sample Wet Weight 150.53

SIEVE SIZE	Weight Retained	Weight Passing	% PASSING
NO .10	0.05		100
NO. 16	0.05	74.916986	100
NO. 40	1.94	73.026986	97
NO. 50	1.94	73.026986	97
NO. 100	37.29	37.676986	50
NO. 200	45.67	29.296986	39

MOISTURE CORRECTION	
WET+DISH	126.45
DRY+DISH	115.04
DISH	103.72
WET	22.73
DRY	11.32
MC%	100.80

HYDROMETER

SAMPLE WEIGHT (WET) 150.53 SPECIFIC GRAVITY 2.79 8

Wc 75.02 MENISCUS CORR. 1

CYLINDER NO. 13

CYLINDER AREA 27.8

ELAPSED TIME (MINUTES)	HYDROMETER READING	TEMP.	STD HYD READING	CORR. HYD READING	PERCENT FINER	MENISCUS CORR. HYD	K	L	DIAMETER (mm)
2	23	21	6	17	22	24	0.01291	12.4	0.032
5	16	21	6	10	13	17	0.01291	13.5	0.021
15	16	20	6	10	13	17	0.01307	13.5	0.012
30	15	20	6	9	12	16	0.01307	13.7	0.009
60	15	20	6	9	12	16	0.01307	13.7	0.006
250	14	21	6	8	10	15	0.01291	13.8	0.003
1440	13	18	7	6	8	14	0.01339	14.0	0.001

SIEVE/HYDROMETER WORKSHEET

Project #	973376
Project	FMC Corp
Sample Loc.	Pond 8E, BH-4 @ 13.2 feet

TOTAL SAMPLE WEIGHT (dry) 64.79

PORTION + NO. 4

SIEVE SIZE	WEIGHT RETAINED	PERCENT PASSING
5"	0	100
3"	0	100
1-1/2"	0	100
3/4"	0	100
3/8"	0	100
NO. 4	0	100

PORTION -NO. 4

SAMPLE WEIGHT (DRY) 64.79 Sample Wet Weight 130.60

SIEVE SIZE	Weight Retained	Weight Passing	% PASSING
NO .10	0.24		100
NO. 16	0.24	64.548066	100
NO. 40	1.36	63.428066	98
NO. 50	1.36	63.428066	98
NO. 100	4.95	59.838066	92
NO. 200	7.77	57.018066	88

MOISTURE CORRECTION	
WET+DISH	127.30
DRY+DISH	115.73
DISH	104.34
WET	22.96
DRY	11.39
MC%	101.58

HYDROMETER

SAMPLE WEIGHT (WET) 130.60 SPECIFIC GRAVITY 2.79 8

Wc 65.03 MENISCUS CORR. 1

CYLINDER NO. 14

CYLINDER AREA 27.8

ELAPSED TIME (MINUTES)	HYDROMETER READING	TEMP.	STD HYD READING	CORR. HYD READING	PERCENT FINER	MENISCUS CORR. HYD	K	L	DIAMETER (mm)
2	56	20	6	50	75	57	0.01307	6.9	0.024
5	48	20	6	42	63	49	0.01307	8.3	0.017
15	39	20	6	33	49	40	0.01307	9.7	0.011
30	37	20	6	31	46	38	0.01307	10.1	0.008
60	35	19	6	29	43	36	0.01323	10.4	0.006
250	29	21	6	23	34	30	0.01291	11.4	0.003
1440	22	18	7	15	22	23	0.01339	12.5	0.001

SIEVE/HYDROMETER WORKSHEET

Project #	973376
Project	FMC Corp
Sample Loc.	Pond 8E, BH-5 @ 7.5 feet

TOTAL SAMPLE WEIGHT (dry) 34.65

PORTION + NO. 4

SIEVE SIZE	WEIGHT RETAINED	PERCENT PASSING
5"	0	100
3"	0	100
1-1/2"	0	100
3/4"	0	100
3/8"	0	100
NO. 4	0	100

PORTION -NO. 4

SAMPLE WEIGHT (DRY) 34.65 Sample Wet Weight 130.87

SIEVE SIZE	Weight Retained	Weight Passing	% PASSING
NO .10	0.00		100
NO. 16	0.00	34.64584	100
NO. 40	0.02	34.62584	100
NO. 50	0.02	34.62584	100
NO. 100	0.03	34.61584	100
NO. 200	0.03	34.61584	100

MOISTURE CORRECTION	
WET+DISH	127.97
DRY+DISH	113.00
DISH	107.61
WET	20.36
DRY	5.39
MC%	277.74

HYDROMETER

SAMPLE WEIGHT (WET)	130.87	SPECIFIC GRAVITY	2.79	8
Wc	34.65	MENISCUS CORR.	1	
CYLINDER NO.	2			
CYLINDER AREA	27.8			

ELAPSED TIME (MINUTES)	HYDROMETER READING	TEMP.	STD HYD READING	CORR. HYD READING	PERCENT FINER	MENISCUS CORR. HYD	K	L	DIAMETER (mm)
2	38	20	6	32	90	39	0.01307	9.9	0.029
5	37	20	6	31	87	38	0.01307	10.1	0.019
15	37	20	6	31	87	38	0.01307	10.1	0.011
30	36	20	6	30	84	37	0.01307	10.2	0.008
60	35	19	6	29	81	36	0.01323	10.4	0.006
250	30	21	6	24	67	31	0.01291	11.2	0.003
1440	22	18	7	15	42	23	0.01339	12.5	0.001

SIEVE/HYDROMETER WORKSHEET

Project #	973376
Project	FMC Corp
Sample Loc.	Pond 11S, BH-1 @ 4.5 feet

TOTAL SAMPLE WEIGHT (dry) 16.72

PORTION + NO. 4

SIEVE SIZE	WEIGHT RETAINED	PERCENT PASSING
5"	0	100
3"	0	100
1-1/2"	0	100
3/4"	0	100
3/8"	0	100
NO. 4	0	100

PORTION -NO. 4

SAMPLE WEIGHT (DRY) 16.72 Sample Wet Weight 78.20

SIEVE SIZE	Weight Retained	Weight Passing	% PASSING
NO .10	0.00		100
NO. 16	0.00	16.722875	100
NO. 40	0.02	16.702875	100
NO. 50	0.02	16.702875	100
NO. 100	0.09	16.632875	99
NO. 200	0.40	16.322875	98

MOISTURE CORRECTION	
WET+DIS	127.17
DRY+DISH	109.23
DISH	104.35
WET	22.82
DRY	4.88
MC%	367.62

HYDROMETER

SAMPLE WEIGHT (WET) 78.20 SPECIFIC GRAVITY 2.79 8

Wc 16.72 MENISCUS CORR. 1

CYLINDER NO. 14

CYLINDER AREA 27.8

ELAPSED TIME (MINUTES)	HYDROMETER READING	TEMP.	STD HYD READING	CORR. HYD READING	PERCENT FINER	MENISCUS CORR. HYD	K	L	DIAMETER (mm)
2	28	19	6	22	98	29	0.01323	11.5	0.032
5	21	19	6	15	87	22	0.01323	12.7	0.021
15	17	19	6	11	64	18	0.01323	13.3	0.012
30	17	20	6	11	64	18	0.01307	13.3	0.009
60	16	20	6	10	58	17	0.01307	13.5	0.006
250	15	22	6	9	52	16	0.01276	13.7	0.003
1440	13	21	6	7	41	14	0.01291	14.0	0.001

SIEVE/HYDROMETER WORKSHEET

Project #	973376
Project	FMC Corp
Sample Loc.	Pond 11S, BH-1 @ 10.5 feet

TOTAL SAMPLE WEIGHT (dry) 46.52

PORTION + NO. 4

SIEVE SIZE	WEIGHT RETAINED	PERCENT PASSING
5"	0	100
3"	0	100
1-1/2"	0	100
3/4"	0	100
3/8"	0	100
NO. 4	0	100

PORTION -NO. 4

SAMPLE WEIGHT (DRY) 46.52 Sample Wet Weight 130.42

SIEVE SIZE	Weight Retained	Weight Passing	% PASSING
NO .10	0.00		100
NO. 16	0.00	46.519061	100
NO. 40	0.05	46.469061	100
NO. 50	0.05	46.469061	100
NO. 100	0.11	46.409061	100
NO. 200	0.20	46.319061	100

MOISTURE CORRECTION	
WET+DIS	250.79
DRY+DISH	159.15
DISH	108.34
WET	142.45
DRY	50.81
MC%	180.36

HYDROMETER

SAMPLE WEIGHT (WET)	130.42	SPECIFIC GRAVITY	2.79	8
Wc	46.52	MENISCUS CORR.	1	
CYLINDER NO.	12			
CYLINDER AREA	27.8			

ELAPSED TIME (MINUTES)	HYDROMETER READING	TEMP.	STD HYD READING	CORR. HYD READING	PERCENT FINER	MENISCUS CORR. HYD	K	L	DIAMETER (mm)
2	52	22	5	47	98	53	0.01276	7.6	0.025
5	49	22	5	44	92	50	0.01276	8.1	0.016
15	37	22	5	32	67	38	0.01276	10.1	0.010
30	18	22	5	13	27	19	0.01276	13.2	0.008
60	12	22	5	7	15	13	0.01276	14.2	0.006
250	10	25	5	5	10	11	0.01232	14.5	0.003
1440	10	24	5	5	10	11	0.01246	14.5	0.001

SIEVE/HYDROMETER WORKSHEET

Project #	973376
Project	FMC Corp
Sample Loc.	Pond 11S, BH-1 @ 13.5 feet

TOTAL SAMPLE WEIGHT (dry) 28.75

PORTION + NO. 4

SIEVE SIZE	WEIGHT RETAINED	PERCENT PASSING
5"	0	100
3"	0	100
1-1/2"	0	100
3/4"	0	100
3/8"	0	100
NO. 4	0	100

PORTION -NO. 4

SAMPLE WEIGHT (DRY) 28.75 Sample Wet Weight 70.96

SIEVE SIZE	Weight Retained	Weight Passing	% PASSING	MOISTURE CORRECTION	
NO .10	0.00		100	WET+DIS	129.28
NO. 16	0.00	28.750158	100	DRY+DISH	116.83
NO. 40	0.01	28.740158	100	DISH	108.35
NO. 50	0.01	28.740158	100	WET	20.93
NO. 100	0.05	28.700158	100	DRY	8.48
NO. 200	0.37	28.380158	99	MC%	146.82

HYDROMETER

SAMPLE WEIGHT (WET)	70.96	SPECIFIC GRAVITY	2.79	8
Wc	28.75	MENISCUS CORR.	1	
CYLINDER NO.	12			
CYLINDER AREA	27.8			

ELAPSED TIME (MINUTES)	HYDROMETER READING	TEMP.	STD HYD READING	CORR. HYD READING	PERCENT FINER	MENISCUS CORR. HYD	K	L	DIAMETER (mm)
2	38	19	6	32	99	39	0.01323	9.9	0.029
5	36	19	6	30	99	37	0.01323	10.2	0.019
15	30	19	6	24	81	31	0.01323	11.2	0.011
30	27	20	6	21	71	28	0.01307	11.7	0.008
60	25	20	6	19	64	26	0.01307	12.0	0.006
250	20	22	6	14	47	21	0.01276	12.9	0.003
1440	15	21	6	9	30	16	0.01291	13.7	0.001

SIEVE/HYDROMETER WORKSHEET

Project #	973376
Project	FMC Corp
Sample Loc.	Pond 12S. BH-1 @ 7.5 feet

TOTAL SAMPLE WEIGHT (dry) 31.59

PORTION + NO. 4

SIEVE SIZE	WEIGHT RETAINED	PERCENT PASSING
5"	0	100
3"	0	100
1-1/2"	0	100
3/4"	0	100
3/8"	0	100
NO. 4	0	100

PORTION -NO. 4

SAMPLE WEIGHT (DRY) 31.59 Sample Wet Weight 128.41

SIEVE SIZE	Weight Retained	Weight Passing	% PASSING
NO .10	0.00		100
NO. 16	0.00	31.59121	100
NO. 40	0.01	31.58121	100
NO. 50	0.01	31.58121	100
NO. 100	0.04	31.55121	100
NO. 200	0.21	31.38121	99

MOISTURE CORRECTION	
WET+DISH	131.25
DRY+DISH	109.00
DISH	101.74
WET	29.51
DRY	7.26
MC%	306.47

HYDROMETER

SAMPLE WEIGHT (WET)	128.41	SPECIFIC GRAVITY	2.79	8
Wc	31.59	MENISCUS CORR.	1	
CYLINDER NO.	2			
CYLINDER AREA	27.8			

ELAPSED TIME (MINUTES)	HYDROMETER READING	TEMP.	STD HYD READING	CORR. HYD READING	PERCENT FINER	MENISCUS CORR. HYD	K	L	DIAMETER (mm)
2	46	19	6	40	123	47	0.01323	8.6	0.027
5	42	19	6	36	111	43	0.01323	9.2	0.018
15	35	19	6	29	89	36	0.01323	10.4	0.011
30	31	20	6	25	77	32	0.01307	11.0	0.008
60	28	20	6	22	68	29	0.01307	11.5	0.006
250	23	23	6	17	52	24	0.01261	12.4	0.003
1440	16	21	7	9	28	17	0.01291	13.5	0.001

SIEVE/HYDROMETER WORKSHEET

Project #	973376
Project	FMC Corp
Sample Loc.	Pond 12S, BH-1 @ 10.5 feet

TOTAL SAMPLE WEIGHT (dry) 52.77

PORTION + NO. 4

SIEVE SIZE	WEIGHT RETAINED	PERCENT PASSING
5"	0	100
3"	0	100
1-1/2"	0	100
3/4"	0	100
3/8"	0	100
NO. 4	0	100

PORTION -NO. 4

SAMPLE WEIGHT (DRY) 52.77 Sample Wet Weight 132.58

SIEVE SIZE	Weight Retained	Weight Passing	% PASSING
NO .10	0.02		100
NO. 16	0.02	52.754563	100
NO. 40	0.06	52.714563	100
NO. 50	0.06	52.714563	100
NO. 100	0.14	52.634563	100
NO. 200	0.24	52.534563	100

MOISTURE CORRECTION	
WET+DISH	242.64
DRY+DISH	157.70
DISH	101.53
WET	141.11
DRY	56.17
MC%	151.22

HYDROMETER

SAMPLE WEIGHT (WET)	132.58	SPECIFIC GRAVITY	2.79	8
Wc	52.79	MENISCUS CORR.	1	
CYLINDER NO.	13			
CYLINDER AREA	27.8			

ELAPSED TIME (MINUTES)	HYDROMETER READING	TEMP.	STD HYD READING	CORR. HYD READING	PERCENT FINER	MENISCUS CORR. HYD	K	L	DIAMETER (mm)
2	53	22	5	48	88	54	0.01276	7.4	0.025
5	46	22	5	41	75	47	0.01276	8.6	0.017
15	31	22	5	26	48	32	0.01276	11.0	0.011
30	28	22	5	23	42	29	0.01276	11.5	0.008
60	24	23	5	19	35	25	0.01261	12.2	0.006
250	18	25	5	13	24	19	0.01232	13.2	0.003
1440	14	24	5	9	17	15	0.01246	13.8	0.001

SIEVE/HYDROMETER WORKSHEET

Project #	973376
Project	FMC Corp
Sample Loc.	Pond 12S, BH-2 @ 7.5 feet

TOTAL SAMPLE WEIGHT (dry) 67.48

PORTION + NO. 4

SIEVE SIZE	WEIGHT RETAINED	PERCENT PASSING
5"	0	100
3"	0	100
1-1/2"	0	100
3/4"	0	100
3/8"	0	100
NO. 4	0	100

PORTION -NO. 4

SAMPLE WEIGHT (DRY) 67.48 Sample Wet Weight 130.07

SIEVE SIZE	Weight Retained	Weight Passing	% PASSING
NO .10	3.17		95
NO. 16	3.17	64.312695	95
NO. 40	16.15	51.332695	76
NO. 50	16.15	51.332695	76
NO. 100	21.96	45.522695	67
NO. 200	27.50	39.982695	59

MOISTURE CORRECTION	
WET+DISH	130.47
DRY+DISH	118.58
DISH	105.76
WET	24.71
DRY	12.82
MC%	92.75

HYDROMETER

SAMPLE WEIGHT (WET)	130.07	SPECIFIC GRAVITY	2.79	8
Wc	70.81	MENISCUS CORR.	1	
CYLINDER NO.	1			
CYLINDER AREA	27.8			

ELAPSED TIME (MINUTES)	HYDROMETER READING	TEMP.	STD HYD READING	CORR. HYD READING	PERCENT FINER	MENISCUS CORR. HYD	K	L	DIAMETER (mm)
2	17	19	6	11	15	18	0.01323	13.3	0.034
5	13	19	6	7	10	14	0.01323	14.0	0.022
15	12	19	6	6	8	13	0.01323	14.2	0.013
30	11	19	6	5	7	12	0.01323	14.3	0.009
60	10	20	6	4	5	11	0.01307	14.5	0.006
250	10	22	6	4	5	11	0.01276	14.5	0.003
1440	10	21	6	4	5	11	0.01291	14.5	0.001

SIEVE/HYDROMETER WORKSHEET

Project #	973376
Project	FMC Corp
Sample Loc.	Pond 12S, BH-2 @ 13.5 feet

TOTAL SAMPLE WEIGHT (dry) 33.65

PORTION + NO. 4

SIEVE SIZE	WEIGHT RETAINED	PERCENT PASSING
5"	0	100
3"	0	100
1-1/2"	0	100
3/4"	0	100
3/8"	0	100
NO. 4	0	100

PORTION -NO. 4

SAMPLE WEIGHT (DRY) 33.65 Sample Wet Weight 130.97

SIEVE SIZE	Weight Retained	Weight Passing	% PASSING
NO .10	0.00		100
NO. 16	0.00	33.649723	100
NO. 40	0.01	33.639723	100
NO. 50	0.01	33.639723	100
NO. 100	0.07	33.579723	100
NO. 200	0.31	33.339723	99

MOISTURE CORRECTION	
WET+DISH	129.58
DRY+DISH	111.88
DISH	105.76
WET	23.82
DRY	6.12
MC%	289.22

HYDROMETER

SAMPLE WEIGHT (WET)		130.97	SPECIFIC GRAVITY	2.79	8
	Wc	33.65	MENISCUS CORR.	1	
CYLINDER NO.	13				
CYLINDER AREA	27.8				

ELAPSED TIME (MINUTES)	HYDROMETER READING	TEMP.	STD HYD READING	CORR. HYD READING	PERCENT FINER	MENISCUS CORR. HYD	K	L	DIAMETER (mm)
2	52	19	6	46	99	53	0.01323	7.6	0.026
5	44	19	6	38	99	45	0.01323	8.9	0.018
15	34	19	6	28	81	35	0.01323	10.6	0.011
30	30	19	6	24	69	31	0.01323	11.2	0.008
60	27	20	6	21	61	28	0.01307	11.7	0.006
250	20	22	6	14	40	21	0.01276	12.9	0.003
1440	12	21	6	6	17	13	0.01291	14.2	0.001

SIEVE/HYDROMETER WORKSHEET

Project #	973376
Project	FMC Corp
Sample Loc.	Pond 12S, BH-2 @ 18.5 feet

TOTAL SAMPLE WEIGHT (dry) 40.63

PORTION + NO. 4

SIEVE SIZE	WEIGHT RETAINED	PERCENT PASSING
5"	0	100
3"	0	100
1-1/2"	0	100
3/4"	0	100
3/8"	0	100
NO. 4	0.79	98

PORTION -NO. 4

SAMPLE WEIGHT (DRY) 40.63 Sample Wet Weight 106.62

SIEVE SIZE	Weight Retained	Weight Passing	% PASSING
NO .10	1.15		97
NO. 16	1.15	39.482076	97
NO. 40	1.17	39.462076	97
NO. 50	1.17	39.462076	97
NO. 100	1.19	39.442076	97
NO. 200	1.21	39.422076	97

MOISTURE CORRECTION	
WET+DISH	131.74
DRY+DISH	117.01
DISH	107.94
WET	23.80
DRY	9.07
MC%	162.40

HYDROMETER

SAMPLE WEIGHT (WET) 106.62 SPECIFIC GRAVITY 2.79 8

Wc 41.82 MENISCUS CORR. 1

CYLINDER NO. 14

CYLINDER AREA 27.8

ELAPSED TIME (MINUTES)	HYDROMETER READING	TEMP.	STD HYD READING	CORR. HYD READING	PERCENT FINER	MENISCUS CORR. HYD	K	L	DIAMETER (mm)
2	43	21	6	37	86	44	0.01291	9.1	0.028
5	42	21	6	36	84	43	0.01291	9.2	0.018
15	42	21	6	36	84	43	0.01291	9.2	0.010
30	41	20	6	35	81	42	0.01307	9.4	0.007
60	40	20	6	34	79	41	0.01307	9.6	0.005
250	37	23	6	31	72	38	0.01261	10.1	0.003
1440	23	19	7	16	37	24	0.01323	12.4	0.001

SIEVE/HYDROMETER WORKSHEET

Project #	973376
Project	FMC Corp
Sample Loc.	Pond 12S, BH-3 @ 7.8 feet

TOTAL SAMPLE WEIGHT (dry) 17.23

PORTION + NO. 4

SIEVE SIZE	WEIGHT RETAINED	PERCENT PASSING
5"	0	100
3"	0	100
1-1/2"	0	100
3/4"	0	100
3/8"	0	100
NO. 4	0	100

PORTION -NO. 4

SAMPLE WEIGHT (DRY) 17.23 Sample Wet Weight 70.57

SIEVE SIZE	Weight Retained	Weight Passing	% PASSING
NO .10	0.00		100
NO. 16	0.00	17.231874	100
NO. 40	0.01	17.221874	100
NO. 50	0.01	17.221874	100
NO. 100	0.02	17.211874	100
NO. 200	0.04	17.191874	100

MOISTURE CORRECTION	
WET+DISH	131.21
DRY+DISH	112.70
DISH	106.72
WET	24.49
DRY	5.98
MC%	309.53

HYDROMETER

SAMPLE WEIGHT (WET)	70.57	SPECIFIC GRAVITY	2.79	8
Wc	17.23	MENISCUS CORR.	1	
CYLINDER NO.	1			
CYLINDER AREA	27.8			

ELAPSED TIME (MINUTES)	HYDROMETER READING	TEMP.	STD HYD READING	CORR. HYD READING	PERCENT FINER	MENISCUS CORR. HYD	K	L	DIAMETER (mm)
2	28	21	6	22	100	29	0.01291	11.5	0.031
5	26	21	6	20	100	27	0.01291	11.9	0.020
15	23	21	6	17	96	24	0.01291	12.4	0.012
30	22	20	6	16	90	23	0.01307	12.5	0.008
60	20	20	6	14	79	21	0.01307	12.9	0.006
250	16	23	6	10	56	17	0.01261	13.5	0.003
1440	14	19	7	7	39	15	0.01323	13.8	0.001

SIEVE/HYDROMETER WORKSHEET

Project #	973376
Project	FMC Corp
Sample Loc.	Pond 12S, BH-3 @ 16.8 feet

TOTAL SAMPLE WEIGHT (dry) 50.88

PORTION + NO. 4

SIEVE SIZE	WEIGHT RETAINED	PERCENT PASSING
5"	0	100
3"	0	100
1-1/2"	0	100
3/4"	0	100
3/8"	0	100
NO. 4	0	100

PORTION -NO. 4

SAMPLE WEIGHT (DRY) 50.88 Sample Wet Weight 130.79

SIEVE SIZE	Weight Retained	Weight Passing	% PASSING
NO .10	0.00		100
NO. 16	0.00	50.88412	100
NO. 40	0.01	50.87412	100
NO. 50	0.01	50.87412	100
NO. 100	0.02	50.86412	100
NO. 200	0.05	50.83412	100

MOISTURE CORRECTION	
WET+DISH	251.05
DRY+DISH	159.53
DISH	101.25
WET	149.80
DRY	58.28
MC%	157.04

HYDROMETER

SAMPLE WEIGHT (WET)	130.79	SPECIFIC GRAVITY	2.79	8
Wc	50.88	MENISCUS CORR.	1	
CYLINDER NO.	1			
CYLINDER AREA	27.8			

ELAPSED TIME (MINUTES)	HYDROMETER READING	TEMP.	STD HYD READING	CORR. HYD READING	PERCENT FINER	MENISCUS CORR. HYD	K	L	DIAMETER (mm)
2	56	22	5	51	97	57	0.01276	6.9	0.024
5	54	22	5	49	93	55	0.01276	7.3	0.015
15	49	22	5	44	84	50	0.01276	8.1	0.009
30	44	22	5	39	74	45	0.01276	8.9	0.007
60	39	23	5	34	65	40	0.01261	9.7	0.005
250	29	25	5	24	46	30	0.01232	11.4	0.003
1440	16	24	5	11	21	17	0.01246	13.5	0.001

SIEVE/HYDROMETER WORKSHEET

Project #	973376
Project	FMC Corp
Sample Loc.	Pond 12S, BH-3 @ 18.5 feet

TOTAL SAMPLE WEIGHT (dry) 49.24

PORTION + NO. 4

SIEVE SIZE	WEIGHT RETAINED	PERCENT PASSING
5"	0	100
3"	0	100
1-1/2"	0	100
3/4"	0	100
3/8"	0	100
NO. 4	0	100

PORTION -NO. 4

SAMPLE WEIGHT (DRY) 49.24 Sample Wet Weight 130.99

SIEVE SIZE	Weight Retained	Weight Passing	% PASSING
NO .10	0.00		100
NO. 16	0.00	49.241941	100
NO. 40	0.01	49.231941	100
NO. 50	0.01	49.231941	100
NO. 100	0.01	49.231941	100
NO. 200	0.02	49.221941	100

MOISTURE CORRECTION	
WET+DISH	130.03
DRY+DISH	112.25
DISH	101.54
WET	28.49
DRY	10.71
MC%	166.01

HYDROMETER

SAMPLE WEIGHT (WET) 130.99 SPECIFIC GRAVITY 2.79 8

Wc 49.24 MENISCUS CORR. 1

CYLINDER NO. 12

CYLINDER AREA 27.8

ELAPSED TIME (MINUTES)	HYDROMETER READING	TEMP.	STD HYD READING	CORR. HYD READING	PERCENT FINER	MENISCUS CORR. HYD	K	L	DIAMETER (mm)
2	52	21	6	46	91	53	0.01291	7.6	0.025
5	50	21	6	44	87	51	0.01291	7.9	0.016
15	47	21	6	41	81	48	0.01291	8.4	0.010
30	43	21	6	37	73	44	0.01291	9.1	0.007
60	39	20	6	33	65	40	0.01307	9.7	0.005
250	31	22	6	25	49	32	0.01276	11.0	0.003
1440	19	19	7	12	24	20	0.01323	13.0	0.001

SIEVE/HYDROMETER WORKSHEET

Project #	973376
Project	FMC Corp
Sample Loc.	Pond 13S, BH-2 @ 17.8 feet

TOTAL SAMPLE WEIGHT (dry) 38.65

PORTION + NO. 4

SIEVE SIZE	WEIGHT RETAINED	PERCENT PASSING
5"	0	100
3"	0	100
1-1/2"	0	100
3/4"	0	100
3/8"	0	100
NO. 4	0.45	99

PORTION -NO. 4

SAMPLE WEIGHT (DRY) 38.65 Sample Wet Weight 130.68

SIEVE SIZE	Weight Retained	Weight Passing	% PASSING
NO .10	0.45		99
NO. 16	0.45	38.204109	99
NO. 40	0.45	38.204109	99
NO. 50	0.45	38.204109	99
NO. 100	0.47	38.184109	99
NO. 200	0.58	38.074109	98

MOISTURE CORRECTION	
WET+DISH	129.99
DRY+DISH	112.92
DISH	105.75
WET	24.24
DRY	7.17
MC%	238.08

HYDROMETER

SAMPLE WEIGHT (WET)	130.68	SPECIFIC GRAVITY	2.79	8
Wc	39.11	MENISCUS CORR.	1	
CYLINDER NO.	2			
CYLINDER AREA	27.8			

ELAPSED TIME (MINUTES)	HYDROMETER READING	TEMP.	STD HYD READING	CORR. HYD READING	PERCENT FINER	MENISCUS CORR. HYD	K	L	DIAMETER (mm)
2	40	21	6	34	84	41	0.01291	9.6	0.028
5	39	21	6	33	82	40	0.01291	9.7	0.018
15	38	20	6	32	79	39	0.01307	9.9	0.011
30	38	20	6	32	79	39	0.01307	9.9	0.008
60	38	20	6	32	79	39	0.01307	9.9	0.005
250	35	23	6	29	72	36	0.01261	10.4	0.003
1440	26	19	7	19	47	27	0.01323	11.9	0.001

SIEVE/HYDROMETER WORKSHEET

Project #	973376
Project	FMC Corp
Sample Loc.	Pond 13S BH-3 @ 17'

TOTAL SAMPLE WEIGHT (dry) 23.21

PORTION + NO. 4

SIEVE SIZE	WEIGHT RETAINED	PERCENT PASSING
5"	0	100
3"	0	100
1-1/2"	0	100
3/4"	0	100
3/8"	0	100
NO. 4	0	100

PORTION -NO. 4

SAMPLE WEIGHT (DRY) 23.21 Sample Wet Weight 71.72

SIEVE SIZE	Weight Retained	Weight Passing	% PASSING
NO .10	0.03		100
NO. 16	0.03	23.182147	100
NO. 40	0.12	23.092147	99
NO. 50	0.12	23.092147	99
NO. 100	0.20	23.012147	99
NO. 200	0.49	22.722147	98

MOISTURE CORRECTION	
WET+DISH	130.39
DRY+DISH	115.49
DISH	108.36
WET	22.03
DRY	7.13
MC%	208.98

HYDROMETER

SAMPLE WEIGHT (WET) 71.72 SPECIFIC GRAVITY 2.79 8

Wc 23.24 MENISCUS CORR. 1

CYLINDER NO. 13

CYLINDER AREA 27.8

ELAPSED TIME (MINUTES)	HYDROMETER READING	TEMP.	STD HYD READING	CORR. HYD READING	PERCENT FINER	MENISCUS CORR. HYD	K	L	DIAMETER (mm)
2	27	21	6	21	88	28	0.01291	11.7	0.031
5	25	21	6	19	79	26	0.01291	12.0	0.020
15	24	21	6	18	75	25	0.01291	12.2	0.012
30	24	20	6	18	75	25	0.01307	12.2	0.008
60	23	20	6	17	71	24	0.01307	12.4	0.006
250	22	23	6	16	67	23	0.01261	12.5	0.003
1440	18	19	7	11	46	19	0.01323	13.2	0.001

APPENDIX E

CONSOLIDATION TESTS
DATA - CALCULATIONS

One Dimensional Consolidation

Project No.	973376
Project	FMC
Sample ID	Pond 8E, BH-1 @ 7 feet
Sample Ht.	1.625 (in)
Sample Dia.	4.000 (in)
Sample Area	0.087 (sq-ft)
Sample Vol.	0.012 (cu-ft)
Phos Cont.	0.0063 (%)
Init. M.C.	232.54 (%)
Init. M.C. (corr)	232.47 (%)
Final M.C.	108.97 (%)
Final M.C. (corr)	108.95 (%)
Dry Wt. of Soil/f	150.57 (g)
Dry Wt. of Soil/i	124.77 (g)
Spec. Grav.	2.79
Pocket Pen.	(tsf)

Moisture Content Weights	
(initial)	
Total Wet Wt. (g)	28
Phos. Wt. (g)	0.00
Dry Wt. (g)	8.42
Dry Wt. + Phos Wt. (g)	8.42
Water Wt. + Phos (g)	19.58
Water Wt. (g)	19.58
(final)	
Total Wet Wt. (g)	27.71
Phos. Wt. (g)	0.00
Dry Wt. (g)	13.26
Dry Wt. + Phos Wt. (g)	13.26
Water Wt. + Phos (g)	14.45
Water Wt. (g)	14.45

Pressure (ksf)	Final Dial Reading (inches)	Deformation (inches)	Sample Ht. (inches)	Strain (%)	Void Ratio (e)	Dry Density (pcf)	Void Ratio (e)	Dry Density (pcf)
					Calc. from final MC		Calc. from initial MC	
0.001	0.4132	0.0000	1.6250	0	5.203	28.06	6.486	23.26
0.0250	0.3503	0.0629	1.5621	3.87	4.963	29.19	6.196	24.19
0.0500	0.3234	0.0898	1.5352	5.53	4.861	29.71	6.072	24.62
0.1000	0.2848	0.1229	1.5021	7.56	4.734	30.36	5.920	25.16
0.2500	0.2036	0.1978	1.4272	12.17	4.448	31.95	5.575	26.48
0.5000	0.1663	0.2349	1.3901	14.46	4.307	32.81	5.404	27.19
1.0000	0.0317	0.3686	1.2564	22.68	3.796	36.30	4.788	30.08
2.0000	0.3154	0.4665	1.1585	28.71	3.423	39.37	4.337	32.62
4.0000	0.2150	0.5668	1.0582	34.88	3.040	43.10	3.875	35.71

Note: Initial MC not taken from actual sample tested, but from same sample jar.
Final MC taken from actual sample tested.
Void Ratio (e), calculated from final MC likely to be most accurate.
Final data readings may vary when compared to deformation values due to resetting the dial. The deformation values are based on the actual data in Appendix E.

Sample: Pond 8E, BH-1 @ 7 feet

Time (minutes)	Square Root of Time (minutes)	Test 1 @ 25 psf		Test 2 @ 50 psf		Test 3 @ 100 psf		Test 4 @ 250 psf	
		Dial Reading (inches)	Deflection (inches)	Dial Reading (inches)	Deflection (inches)	Dial Reading (inches)	Deflection (inches)	Dial Reading (inches)	Deflection (inches)
0.00	0.00	0.4132	0.0000	0.3503	0.0000	0.3179	0.0000	0.2785	0.0000
0.17	0.41	0.4128	-0.0004	0.3493	-0.0010	0.3167	-0.0012	0.2751	-0.0034
0.33	0.58	0.4124	-0.0008	0.3486	-0.0017	0.3161	-0.0018	0.2722	-0.0063
0.50	0.71	0.4119	-0.0013	0.3482	-0.0021	0.3157	-0.0022	0.2705	-0.0080
0.67	0.82	0.4114	-0.0018	0.3480	-0.0023	0.3152	-0.0027	0.2684	-0.0101
0.83	0.91	0.4111	-0.0021	0.3476	-0.0027	0.3146	-0.0033	0.2672	-0.0113
1.00	1.00	0.4107	-0.0025	0.3474	-0.0029	0.3146	-0.0033	0.2659	-0.0126
1.17	1.08	0.4104	-0.0028	0.3471	-0.0032	0.3138	-0.0041	0.2648	-0.0137
1.33	1.15	0.4101	-0.0031	0.3469	-0.0034	0.3136	-0.0043	0.2633	-0.0152
1.50	1.22	0.4098	-0.0034	0.3466	-0.0037	0.3134	-0.0045	0.2622	-0.0163
1.67	1.29	0.4093	-0.0039	0.3465	-0.0038	0.3128	-0.0051	0.2622	-0.0163
1.83	1.35	0.4091	-0.0041	0.3462	-0.0041	0.3127	-0.0052	0.2600	-0.0185
2.00	1.41	0.4088	-0.0044	0.3460	-0.0043	0.3123	-0.0056	0.2590	-0.0195
2.17	1.47	0.4085	-0.0047	0.3456	-0.0047	0.3120	-0.0059	0.2582	-0.0203
2.33	1.53	0.4081	-0.0051	0.3455	-0.0048	0.3120	-0.0059	0.2570	-0.0215
2.50	1.58	0.4079	-0.0053	0.3452	-0.0051	0.3114	-0.0065	0.2562	-0.0223
2.67	1.63	0.4076	-0.0056	0.3451	-0.0052	0.3111	-0.0068	0.2562	-0.0223
2.83	1.68	0.4072	-0.0060	0.3450	-0.0053	0.3109	-0.0070	0.2562	-0.0223
3.00	1.73	0.4070	-0.0062	0.3448	-0.0055	0.3105	-0.0074	0.2537	-0.0248
3.17	1.78	0.4068	-0.0064	0.3445	-0.0058	0.3103	-0.0076	0.2532	-0.0253
3.33	1.83	0.4064	-0.0068	0.3443	-0.0060	0.3099	-0.0080	0.2522	-0.0263
3.50	1.87	0.4063	-0.0069	0.3443	-0.0060	0.3097	-0.0082	0.2515	-0.0270
3.67	1.91	0.4059	-0.0073	0.3441	-0.0062	0.3094	-0.0085	0.2507	-0.0278
3.83	1.96	0.4056	-0.0076	0.3438	-0.0065	0.3091	-0.0088	0.2502	-0.0283
4.00	2.00	0.4053	-0.0079	0.3438	-0.0065	0.3089	-0.0090	0.2500	-0.0285
4.17	2.04	0.4051	-0.0081	0.3436	-0.0067	0.3087	-0.0092	0.2487	-0.0298
4.33	2.08	0.4048	-0.0084	0.3435	-0.0068	0.3084	-0.0095	0.2478	-0.0307
4.50	2.12	0.4046	-0.0086	0.3435	-0.0068	0.3082	-0.0097	0.2473	-0.0312
4.67	2.16	0.4043	-0.0089	0.3433	-0.0070	0.3079	-0.0100	0.2464	-0.0321
4.83	2.20	0.4041	-0.0091	0.3432	-0.0071	0.3078	-0.0101	0.2459	-0.0326
5.00	2.24	0.4037	-0.0095	0.3430	-0.0073	0.3075	-0.0104	0.2451	-0.0334
5.17	2.27	0.4035	-0.0097	0.3428	-0.0075	0.3073	-0.0106	0.2446	-0.0339
5.33	2.31	0.4032	-0.0100	0.3428	-0.0075	0.3071	-0.0108	0.2438	-0.0347
5.50	2.35	0.4031	-0.0101	0.3425	-0.0078	0.3069	-0.0110	0.2433	-0.0352
5.67	2.38	0.4027	-0.0105	0.3425	-0.0078	0.3065	-0.0114	0.2426	-0.0359
5.83	2.42	0.4025	-0.0107	0.3422	-0.0081	0.3064	-0.0115	0.2420	-0.0365
6.00	2.45	0.4023	-0.0109	0.3420	-0.0083	0.3059	-0.0120	0.2414	-0.0371
6.17	2.48	0.4021	-0.0111	0.3419	-0.0084	0.3058	-0.0121	0.2409	-0.0376
6.33	2.52	0.4017	-0.0115	0.3417	-0.0086	0.3055	-0.0124	0.2402	-0.0383
6.50	2.55	0.4017	-0.0115	0.3414	-0.0089	0.3053	-0.0126	0.2397	-0.0388
6.67	2.58	0.4014	-0.0118	0.3413	-0.0090	0.3051	-0.0128	0.2392	-0.0393
6.83	2.61	0.4012	-0.0120	0.3411	-0.0092	0.3049	-0.0130	0.2387	-0.0398
7.00	2.65	0.4009	-0.0123	0.3410	-0.0093	0.3048	-0.0131	0.2381	-0.0404
7.17	2.68	0.4007	-0.0125	0.3408	-0.0095	0.3046	-0.0133	0.2377	-0.0408
7.33	2.71	0.4004	-0.0128	0.3407	-0.0096	0.3044	-0.0135	0.2371	-0.0414
7.50	2.74	0.4002	-0.0130	0.3406	-0.0097	0.3043	-0.0136	0.2366	-0.0419
7.67	2.77	0.4000	-0.0132	0.3405	-0.0098	0.3042	-0.0137	0.2360	-0.0425
7.83	2.80	0.3998	-0.0134	0.3403	-0.0100	0.3041	-0.0138	0.2357	-0.0428
8.00	2.83	0.3995	-0.0137	0.3403	-0.0100	0.3039	-0.0140	0.2351	-0.0434
8.17	2.86	0.3993	-0.0139	0.3400	-0.0103	0.3037	-0.0142	0.2348	-0.0437
8.33	2.89	0.3991	-0.0141	0.3397	-0.0106	0.3035	-0.0144	0.2342	-0.0443
8.50	2.92	0.3989	-0.0143	0.3396	-0.0107	0.3034	-0.0145	0.2339	-0.0446
8.67	2.94	0.3986	-0.0146	0.3396	-0.0107	0.3033	-0.0146	0.2334	-0.0451
8.83	2.97	0.3985	-0.0147	0.3395	-0.0108	0.3032	-0.0147	0.2331	-0.0454
9.00	3.00	0.3982	-0.0150	0.3393	-0.0110	0.3030	-0.0149	0.2326	-0.0459
9.17	3.03	0.3980	-0.0152	0.3388	-0.0115	0.3028	-0.0151	0.2323	-0.0462
9.33	3.06	0.3978	-0.0154	0.3386	-0.0117	0.3027	-0.0152	0.2318	-0.0467
9.50	3.08	0.3976	-0.0156	0.3385	-0.0118	0.3026	-0.0153	0.2315	-0.0470
9.67	3.11	0.3972	-0.0160	0.3383	-0.0120	0.3025	-0.0154	0.2310	-0.0475
9.83	3.14	0.3971	-0.0161	0.3381	-0.0122	0.3024	-0.0155	0.2308	-0.0477
10.00	3.16	0.3969	-0.0163	0.3380	-0.0123	0.3022	-0.0157	0.2303	-0.0482
10.17	3.19	0.3967	-0.0165	0.3379	-0.0124	0.3021	-0.0158	0.2300	-0.0485
10.33	3.21	0.3964	-0.0168	0.3378	-0.0125	0.3019	-0.0160	0.2296	-0.0489
10.50	3.24	0.3962	-0.0170	0.3375	-0.0128	0.3018	-0.0161	0.2294	-0.0491
10.67	3.27	0.3961	-0.0171	0.3375	-0.0128	0.3017	-0.0162	0.2289	-0.0496

Sample: Pond 8E, BH-1 @ 7 feet

Time (minutes)	Square Root of Time (minutes)	Test 1 @ 25 psf		Test 2 @ 50 psf		Test 3 @ 100 psf		Test 4 @ 250 psf	
		Dial Reading (inches)	Deflection (inches)	Dial Reading (inches)	Deflection (inches)	Dial Reading (inches)	Deflection (inches)	Dial Reading (inches)	Deflection (inches)
[illegible].83	3.29	0.3959	-0.0173	0.3373	-0.0130	0.3016	-0.0163	0.2287	-0.0498
11.00	3.32	0.3956	-0.0176	0.3372	-0.0131	0.3015	-0.0164	0.2283	-0.0502
11.17	3.34	0.3954	-0.0178	0.3371	-0.0132	0.3014	-0.0165	0.2280	-0.0505
11.33	3.37	0.3953	-0.0179	0.3369	-0.0134	0.3012	-0.0167	0.2277	-0.0508
11.50	3.39	0.3951	-0.0181	0.3369	-0.0134	0.3011	-0.0168	0.2275	-0.0510
11.67	3.42	0.3948	-0.0184	0.3366	-0.0137	0.3010	-0.0169	0.2271	-0.0514
11.83	3.44	0.3946	-0.0186	0.3365	-0.0138	0.3009	-0.0170	0.2269	-0.0516
12.00	3.46	0.3945	-0.0187	0.3364	-0.0139	0.3008	-0.0171	0.2265	-0.0520
12.17	3.49	0.3943	-0.0189	0.3363	-0.0140	0.3007	-0.0172	0.2263	-0.0522
12.33	3.51	0.3940	-0.0192	0.3362	-0.0141	0.3005	-0.0174	0.2260	-0.0525
12.50	3.54	0.3939	-0.0193	0.3361	-0.0142	0.3004	-0.0175	0.2257	-0.0528
12.67	3.56	0.3936	-0.0196	0.3359	-0.0144	0.3003	-0.0176	0.2255	-0.0530
12.83	3.58	0.3935	-0.0197	0.3358	-0.0145	0.3002	-0.0177	0.2252	-0.0533
13.00	3.61	0.3932	-0.0200	0.3357	-0.0146	0.3002	-0.0177	0.2249	-0.0536
13.17	3.63	0.3931	-0.0201	0.3356	-0.0147	0.3000	-0.0179	0.2247	-0.0538
13.33	3.65	0.3929	-0.0203	0.3356	-0.0147	0.2999	-0.0180	0.2245	-0.0540
13.50	3.67	0.3927	-0.0205	0.3355	-0.0148	0.2998	-0.0181	0.2242	-0.0543
13.67	3.70	0.3925	-0.0207	0.3354	-0.0149	0.2997	-0.0182	0.2239	-0.0546
13.83	3.72	0.3923	-0.0209	0.3352	-0.0151	0.2996	-0.0183	0.2238	-0.0547
14.00	3.74	0.3922	-0.0210	0.3351	-0.0152	0.2994	-0.0185	0.2235	-0.0550
14.17	3.76	0.3920	-0.0212	0.3349	-0.0154	0.2994	-0.0185	0.2233	-0.0552
14.33	3.79	0.3917	-0.0215	0.3349	-0.0154	0.2993	-0.0186	0.2231	-0.0554
14.50	3.81	0.3915	-0.0217	0.3348	-0.0155	0.2992	-0.0187	0.2229	-0.0556
14.67	3.83	0.3914	-0.0218	0.3348	-0.0155	0.2991	-0.0188	0.2227	-0.0558
14.83	3.85	0.3913	-0.0219	0.3347	-0.0156	0.2990	-0.0189	0.2225	-0.0560
15.33	3.92	0.3905	-0.0227	0.3345	-0.0158	0.2987	-0.0192	0.2219	-0.0566
15.83	3.98	0.3880	-0.0252	0.3341	-0.0162	0.2985	-0.0194	0.2214	-0.0571
16.33	4.04	0.3860	-0.0272	0.3340	-0.0163	0.2982	-0.0197	0.2208	-0.0577
16.83	4.10	0.3696	-0.0436	0.3334	-0.0169	0.2979	-0.0200	0.2204	-0.0581
17.33	4.16	0.3774	-0.0358	0.3333	-0.0170	0.2975	-0.0204	0.2199	-0.0586
[illegible].83	4.22	0.3771	-0.0361	0.3331	-0.0172	0.2973	-0.0206	0.2194	-0.0591
[illegible].33	4.28	0.3765	-0.0367	0.3326	-0.0177	0.2971	-0.0208	0.2190	-0.0595
18.83	4.34	0.3757	-0.0375	0.3324	-0.0179	0.2969	-0.0210	0.2185	-0.0600
19.33	4.40	0.3751	-0.0381	0.3322	-0.0181	0.2966	-0.0213	0.2182	-0.0603
19.83	4.45	0.3749	-0.0383	0.3320	-0.0183	0.2964	-0.0215	0.2178	-0.0607
20.33	4.51	0.3745	-0.0387	0.3317	-0.0186	0.2963	-0.0216	0.2175	-0.0610
20.83	4.56	0.3741	-0.0391	0.3315	-0.0188	0.2961	-0.0218	0.2171	-0.0614
21.33	4.62	0.3737	-0.0395	0.3313	-0.0190	0.2959	-0.0220	0.2168	-0.0617
21.83	4.67	0.3733	-0.0399	0.3310	-0.0193	0.2957	-0.0222	0.2165	-0.0620
22.33	4.73	0.3728	-0.0404	0.3309	-0.0194	0.2955	-0.0224	0.2161	-0.0624
22.83	4.78	0.3724	-0.0408	0.3309	-0.0194	0.2954	-0.0225	0.2160	-0.0625
23.33	4.83	0.3720	-0.0412	0.3307	-0.0196	0.2952	-0.0227	0.2157	-0.0628
23.83	4.88	0.3716	-0.0416	0.3306	-0.0197	0.2950	-0.0229	0.2154	-0.0631
24.33	4.93	0.3712	-0.0420	0.3306	-0.0197	0.2949	-0.0230	0.2152	-0.0633
24.83	4.98	0.3708	-0.0424	0.3305	-0.0198	0.2947	-0.0232	0.2149	-0.0636
25.33	5.03	0.3703	-0.0429	0.3304	-0.0199	0.2946	-0.0233	0.2147	-0.0638
25.83	5.08	0.3699	-0.0433	0.3303	-0.0200	0.2944	-0.0235	0.2145	-0.0640
26.33	5.13	0.3695	-0.0437	0.3302	-0.0201	0.2943	-0.0236	0.2143	-0.0642
26.83	5.18	0.3692	-0.0440	0.3301	-0.0202	0.2941	-0.0238	0.2141	-0.0644
27.33	5.23	0.3688	-0.0444	0.3301	-0.0202	0.2939	-0.0240	0.2139	-0.0646
27.83	5.28	0.3684	-0.0448	0.3301	-0.0202	0.2939	-0.0240	0.2138	-0.0647
28.33	5.32	0.3681	-0.0451	0.3300	-0.0203	0.2937	-0.0242	0.2136	-0.0649
28.83	5.37	0.3678	-0.0454	0.3299	-0.0204	0.2935	-0.0244	0.2135	-0.0650
29.33	5.42	0.3674	-0.0458	0.3298	-0.0205	0.2934	-0.0245	0.2133	-0.0652
29.83	5.46	0.3670	-0.0462	0.3298	-0.0205	0.2933	-0.0246	0.2132	-0.0653
30.33	5.51	0.3667	-0.0465	0.3297	-0.0206	0.2932	-0.0247	0.2131	-0.0654
30.83	5.55	0.3663	-0.0469	0.3296	-0.0207	0.2932	-0.0247	0.2129	-0.0556
31.33	5.60	0.3660	-0.0472	0.3295	-0.0208	0.2930	-0.0249	0.2129	-0.0656
31.83	5.64	0.3657	-0.0475	0.3295	-0.0208	0.2929	-0.0250	0.2128	-0.0657
32.33	5.69	0.3655	-0.0477	0.3294	-0.0209	0.2928	-0.0251	0.2126	-0.0659
32.83	5.73	0.3651	-0.0481	0.3294	-0.0209	0.2927	-0.0252	0.2125	-0.0660
[illegible]3.33	5.77	0.3648	-0.0484	0.3293	-0.0210	0.2926	-0.0253	0.2124	-0.0661
[illegible].83	5.82	0.3646	-0.0486	0.3293	-0.0210	0.2925	-0.0254	0.2123	-0.0662
34.33	5.86	0.3642	-0.0490	0.3293	-0.0210	0.2924	-0.0255	0.2122	-0.0663
34.83	5.90	0.3639	-0.0493	0.3292	-0.0211	0.2924	-0.0255	0.2121	-0.0664

Sample: Pond 8E, BH-1 @ 7 feet

Time (minutes)	Square Root of Time (minutes)	Test 1 @ 25 psf		Test 2 @ 50 psf		Test 3 @ 100 psf		Test 4 @ 250 psf	
		Dial Reading (inches)	Deflection (inches)	Dial Reading (inches)	Deflection (inches)	Dial Reading (inches)	Deflection (inches)	Dial Reading (inches)	Deflection (inches)
35.33	5.94	0.3637	-0.0495	0.3292	-0.0211	0.2923	-0.0256	0.2121	-0.0664
35.83	5.99	0.3634	-0.0498	0.3292	-0.0211	0.2922	-0.0257	0.2120	-0.0665
36.33	6.03	0.3632	-0.0500	0.3291	-0.0212	0.2921	-0.0258	0.2119	-0.0666
36.83	6.07	0.3629	-0.0503	0.3290	-0.0213	0.2920	-0.0259	0.2118	-0.0667
37.33	6.11	0.3626	-0.0506	0.3290	-0.0213	0.2919	-0.0260	0.2117	-0.0668
37.83	6.15	0.3624	-0.0508	0.3289	-0.0214	0.2919	-0.0260	0.2117	-0.0668
38.33	6.19	0.3622	-0.0510	0.3289	-0.0214	0.2918	-0.0261	0.2116	-0.0669
38.83	6.23	0.3619	-0.0513	0.3288	-0.0215	0.2917	-0.0262	0.2115	-0.0670
39.33	6.27	0.3617	-0.0515	0.3288	-0.0215	0.2916	-0.0263	0.2115	-0.0670
39.83	6.31	0.3615	-0.0517	0.3287	-0.0216	0.2916	-0.0263	0.2114	-0.0671
40.33	6.35	0.3613	-0.0519	0.3287	-0.0216	0.2916	-0.0263	0.2114	-0.0671
40.83	6.39	0.3610	-0.0522	0.3287	-0.0216	0.2915	-0.0264	0.2113	-0.0672
41.33	6.43	0.3607	-0.0525	0.3286	-0.0217	0.2914	-0.0265	0.2113	-0.0672
41.83	6.47	0.3603	-0.0529	0.3286	-0.0217	0.2914	-0.0265	0.2112	-0.0673
42.33	6.51	0.3601	-0.0531	0.3285	-0.0218	0.2913	-0.0266	0.2111	-0.0674
42.83	6.54	0.3600	-0.0532	0.3285	-0.0218	0.2912	-0.0267	0.2111	-0.0674
43.33	6.58	0.3598	-0.0534	0.3285	-0.0218	0.2911	-0.0268	0.2110	-0.0675
43.83	6.62	0.3594	-0.0538	0.3285	-0.0218	0.2911	-0.0268	0.2110	-0.0675
44.33	6.66	0.3593	-0.0539	0.3285	-0.0218	0.2910	-0.0269	0.2109	-0.0676
44.83	6.70	0.3591	-0.0541	0.3284	-0.0219	0.2909	-0.0270	0.2109	-0.0676
45.33	6.73	0.3589	-0.0543	0.3284	-0.0219	0.2909	-0.0270	0.2108	-0.0677
45.83	6.77	0.3587	-0.0545	0.3284	-0.0219	0.2908	-0.0271	0.2107	-0.0678
46.33	6.81	0.3585	-0.0547	0.3284	-0.0219	0.2908	-0.0271	0.2107	-0.0678
46.83	6.84	0.3581	-0.0551	0.3283	-0.0220	0.2908	-0.0271	0.2107	-0.0678
47.33	6.88	0.3579	-0.0553	0.3283	-0.0220	0.2907	-0.0272	0.2106	-0.0679
47.83	6.92	0.3576	-0.0556	0.3283	-0.0220	0.2907	-0.0272	0.2106	-0.0679
48.33	6.95	0.3575	-0.0557	0.3283	-0.0220	0.2906	-0.0273	0.2106	-0.0679
48.83	6.99	0.3571	-0.0561	0.3282	-0.0221	0.2906	-0.0273	0.2106	-0.0679
49.33	7.02	0.3570	-0.0562	0.3282	-0.0221	0.2905	-0.0274	0.2105	-0.0680
49.83	7.06	0.3568	-0.0564	0.3282	-0.0221	0.2905	-0.0274	0.2105	-0.0680
50.33	7.09	0.3566	-0.0566	0.3281	-0.0222	0.2904	-0.0275	0.2104	-0.0681
50.83	7.13	0.3563	-0.0569	0.3281	-0.0222	0.2903	-0.0276	0.2104	-0.0681
51.33	7.16	0.3561	-0.0571	0.3281	-0.0222	0.2903	-0.0276	0.2103	-0.0682
51.83	7.20	0.3559	-0.0573	0.3281	-0.0222	0.2903	-0.0276	0.2103	-0.0682
52.33	7.23	0.3558	-0.0574	0.3280	-0.0223	0.2902	-0.0277	0.2103	-0.0682
52.83	7.27	0.3555	-0.0577	0.3280	-0.0223	0.2901	-0.0278	0.2101	-0.0684
53.33	7.30	0.3554	-0.0578	0.3280	-0.0223	0.2901	-0.0278	0.2101	-0.0684
53.83	7.34	0.3553	-0.0579	0.3280	-0.0223	0.2901	-0.0278	0.2100	-0.0685
54.33	7.37	0.3553	-0.0579	0.3279	-0.0224	0.2900	-0.0279	0.2100	-0.0685
54.83	7.40	0.3553	-0.0579	0.3279	-0.0224	0.2900	-0.0279	0.2100	-0.0685
55.33	7.44	0.3552	-0.0580	0.3279	-0.0224	0.2900	-0.0279	0.2099	-0.0686
55.83	7.47	0.3551	-0.0581	0.3279	-0.0224	0.2900	-0.0279	0.2099	-0.0686
56.33	7.51	0.3551	-0.0581	0.3278	-0.0225	0.2899	-0.0280	0.2098	-0.0687
56.83	7.54	0.3549	-0.0583	0.3278	-0.0225	0.2899	-0.0280	0.2098	-0.0687
57.33	7.57	0.3549	-0.0583	0.3278	-0.0225	0.2898	-0.0281	0.2098	-0.0687
57.83	7.60	0.3548	-0.0584	0.3278	-0.0225	0.2898	-0.0281	0.2098	-0.0687
58.33	7.64	0.3547	-0.0585	0.3278	-0.0225	0.2898	-0.0281	0.2098	-0.0687
58.83	7.67	0.3546	-0.0586	0.3278	-0.0225	0.2897	-0.0282	0.2098	-0.0687
59.33	7.70	0.3545	-0.0587	0.3278	-0.0225	0.2897	-0.0282	0.2097	-0.0688
59.83	7.74	0.3545	-0.0587	0.3278	-0.0225	0.2897	-0.0282	0.2097	-0.0688
60.83	7.80	0.3544	-0.0588	0.3277	-0.0226	0.2896	-0.0283	0.2097	-0.0688
61.83	7.86	0.3543	-0.0589	0.3277	-0.0226	0.2895	-0.0284	0.2096	-0.0689
62.83	7.93	0.3542	-0.0590	0.3277	-0.0226	0.2894	-0.0285	0.2096	-0.0689
63.83	7.99	0.3541	-0.0591	0.3276	-0.0227	0.2894	-0.0285	0.2093	-0.0692
64.83	8.05	0.3539	-0.0593	0.3275	-0.0228	0.2892	-0.0287	0.2093	-0.0692
65.83	8.11	0.3537	-0.0595	0.3275	-0.0228	0.2892	-0.0287	0.2093	-0.0692
66.83	8.18	0.3535	-0.0597	0.3275	-0.0228	0.2892	-0.0287	0.2093	-0.0692
67.83	8.24	0.3535	-0.0597	0.3274	-0.0229	0.2892	-0.0287	0.2092	-0.0693
68.83	8.30	0.3534	-0.0598	0.3274	-0.0229	0.2891	-0.0288	0.2092	-0.0693
69.83	8.36	0.3534	-0.0598	0.3274	-0.0229	0.2890	-0.0289	0.2091	-0.0694
70.83	8.42	0.3533	-0.0599	0.3274	-0.0229	0.2890	-0.0289	0.2091	-0.0694
71.83	8.48	0.3532	-0.0600	0.3273	-0.0230	0.2889	-0.0290	0.2090	-0.0695
72.83	8.53	0.3531	-0.0601	0.3273	-0.0230	0.2889	-0.0290	0.2090	-0.0695
73.83	8.59	0.3531	-0.0601	0.3273	-0.0230	0.2888	-0.0291	0.2090	-0.0695
74.83	8.65	0.3530	-0.0602	0.3273	-0.0230	0.2887	-0.0292	0.2090	-0.0695

Sample: Pond 8E, BH-1 @ 7 feet

Time (minutes)	Square Root of Time (minutes)	Test 1 @ 25 psf		Test 2 @ 50 psf		Test 3 @ 100 psf		Test 4 @ 250 psf	
		Dial Reading (inches)	Deflection (inches)	Dial Reading (inches)	Deflection (inches)	Dial Reading (inches)	Deflection (inches)	Dial Reading (inches)	Deflection (inches)
[illegible].83	8.71	0.3529	-0.0603	0.3272	-0.0231	0.2887	-0.0292	0.2090	-0.0695
76.83	8.77	0.3529	-0.0603	0.3272	-0.0231	0.2886	-0.0293	0.2089	-0.0696
77.83	8.82	0.3529	-0.0603	0.3272	-0.0231	0.2886	-0.0293	0.2089	-0.0696
78.83	8.88	0.3529	-0.0603	0.3272	-0.0231	0.2885	-0.0294	0.2089	-0.0696
79.83	8.93	0.3529	-0.0603	0.3271	-0.0232	0.2885	-0.0294	0.2088	-0.0697
80.83	8.99	0.3528	-0.0604	0.3271	-0.0232	0.2884	-0.0295	0.2088	-0.0697
81.83	9.05	0.3527	-0.0605	0.3270	-0.0233	0.2884	-0.0295	0.2088	-0.0697
82.83	9.10	0.3527	-0.0605	0.3270	-0.0233	0.2884	-0.0295	0.2087	-0.0698
83.83	9.16	0.3527	-0.0605	0.3270	-0.0233	0.2884	-0.0295	0.2087	-0.0698
84.83	9.21	0.3526	-0.0606	0.3270	-0.0233	0.2883	-0.0296	0.2087	-0.0698
85.83	9.26	0.3526	-0.0606	0.3270	-0.0233	0.2883	-0.0296	0.2086	-0.0699
86.83	9.32	0.3525	-0.0607	0.3269	-0.0234	0.2883	-0.0296	0.2086	-0.0699
87.83	9.37	0.3524	-0.0608	0.3269	-0.0234	0.2882	-0.0297	0.2086	-0.0699
88.83	9.43	0.3522	-0.0610	0.3269	-0.0234	0.2882	-0.0297	0.2085	-0.0700
89.83	9.48	0.3520	-0.0612	0.3269	-0.0234	0.2881	-0.0298	0.2085	-0.0700
90.83	9.53	0.3517	-0.0615	0.3268	-0.0235	0.2881	-0.0298	0.2085	-0.0700
91.83	9.58	0.3516	-0.0616	0.3268	-0.0235	0.2881	-0.0298	0.2084	-0.0701
92.83	9.64	0.3514	-0.0618	0.3268	-0.0235	0.2880	-0.0299	0.2084	-0.0701
93.83	9.69	0.3514	-0.0618	0.3268	-0.0235	0.2880	-0.0299	0.2084	-0.0701
94.83	9.74	0.3514	-0.0618	0.3268	-0.0235	0.2879	-0.0300	0.2084	-0.0701
95.83	9.79	0.3514	-0.0618	0.3268	-0.0235	0.2879	-0.0300	0.2083	-0.0702
96.83	9.84	0.3514	-0.0618	0.3267	-0.0236	0.2878	-0.0301	0.2083	-0.0702
97.83	9.89	0.3513	-0.0619	0.3267	-0.0236	0.2878	-0.0301	0.2082	-0.0703
98.83	9.94	0.3513	-0.0619	0.3267	-0.0236	0.2878	-0.0301	0.2082	-0.0703
99.83	9.99	0.3512	-0.0620	0.3267	-0.0236	0.2877	-0.0302	0.2082	-0.0703
100.83	10.04	0.3512	-0.0620	0.3266	-0.0237	0.2877	-0.0302	0.2082	-0.0703
101.83	10.09	0.3512	-0.0620	0.3266	-0.0237	0.2877	-0.0302	0.2082	-0.0703
102.83	10.14	0.3512	-0.0620	0.3266	-0.0237	0.2876	-0.0303	0.2082	-0.0703
103.83	10.19	0.3512	-0.0620	0.3266	-0.0237	0.2876	-0.0303	0.2082	-0.0703
104.83	10.24	0.3512	-0.0620	0.3265	-0.0238	0.2876	-0.0303	0.2082	-0.0703
[illegible].83	10.29	0.3512	-0.0620	0.3266	-0.0237	0.2876	-0.0303	0.2082	-0.0703
[illegible].83	10.34	0.3511	-0.0621	0.3266	-0.0237	0.2876	-0.0303	0.2082	-0.0703
107.83	10.38	0.3511	-0.0621	0.3265	-0.0238	0.2876	-0.0303	0.2082	-0.0703
108.83	10.43	0.3509	-0.0623	0.3265	-0.0238	0.2876	-0.0303	0.2081	-0.0704
109.83	10.48	0.3509	-0.0623	0.3265	-0.0238	0.2875	-0.0304	0.2081	-0.0704
110.83	10.53	0.3509	-0.0623	0.3265	-0.0238	0.2875	-0.0304	0.2081	-0.0704
111.83	10.58	0.3509	-0.0623	0.3265	-0.0238	0.2874	-0.0305	0.2081	-0.0704
112.83	10.62	0.3509	-0.0623	0.3264	-0.0239	0.2874	-0.0305	0.2081	-0.0704
113.83	10.67	0.3509	-0.0623	0.3264	-0.0239	0.2873	-0.0306	0.2080	-0.0705
114.83	10.72	0.3509	-0.0623	0.3264	-0.0239	0.2873	-0.0306	0.2080	-0.0705
115.83	10.76	0.3509	-0.0623	0.3264	-0.0239	0.2873	-0.0306	0.2080	-0.0705
116.83	10.81	0.3509	-0.0623	0.3263	-0.0240	0.2873	-0.0306	0.2080	-0.0705
117.83	10.86	0.3509	-0.0623	0.3263	-0.0240	0.2872	-0.0307	0.2080	-0.0705
118.83	10.90	0.3509	-0.0623	0.3262	-0.0241	0.2872	-0.0307	0.2079	-0.0706
119.83	10.95	0.3509	-0.0623	0.3262	-0.0241	0.2872	-0.0307	0.2079	-0.0706
129.83	11.39	0.3507	-0.0625	0.3262	-0.0241	0.2869	-0.0310	0.2075	-0.0710
139.83	11.83	0.3507	-0.0625	0.3262	-0.0241	0.2867	-0.0312	0.2074	-0.0711
149.83	12.24	0.3507	-0.0625	0.3259	-0.0244	0.2865	-0.0314	0.2073	-0.0712
159.83	12.64	0.3506	-0.0626	0.3259	-0.0244	0.2863	-0.0316	0.2072	-0.0713
169.83	13.03	0.3506	-0.0626	0.3258	-0.0245	0.2861	-0.0318	0.2069	-0.0716
179.83	13.41	0.3505	-0.0627	0.3258	-0.0245	0.2860	-0.0319	0.2068	-0.0717
189.83	13.78	0.3504	-0.0628	0.3257	-0.0246	0.2859	-0.0320	0.2068	-0.0717
199.83	14.14	0.3503	-0.0629	0.3254	-0.0249	0.2858	-0.0321	0.2067	-0.0718
209.83	14.49			0.3254	-0.0249	0.2857	-0.0322	0.2066	-0.0719
219.83	14.83			0.3254	-0.0249	0.2856	-0.0323	0.2066	-0.0719
229.83	15.16			0.3254	-0.0249	0.2854	-0.0325	0.2066	-0.0719
239.83	15.49			0.3254	-0.0249	0.2853	-0.0326	0.2065	-0.0720
249.83	15.81			0.3254	-0.0249	0.2850	-0.0329	0.2064	-0.0721
259.83	16.12			0.3253	-0.0250	0.2850	-0.0329	0.2063	-0.0722
269.83	16.43			0.3253	-0.0250	0.2850	-0.0329	0.2063	-0.0722
279.83	16.73			0.3252	-0.0251	0.2849	-0.0330	0.2062	-0.0723
[illegible]9.83	17.02			0.3252	-0.0251	0.2848	-0.0331	0.2062	-0.0723
[illegible].83	17.32			0.3251	-0.0252			0.2058	-0.0727
[illegible]9.83	17.60			0.3251	-0.0252			0.2058	-0.0727
319.83	17.88			0.3251	-0.0252			0.2058	-0.0727

Sample: Pond 8E, BH-1 @ 7 feet

Time (minutes)	Square Root of Time (minutes)	Test 1 @ 25 psf		Test 2 @ 50 psf		Test 3 @ 100 psf		Test 4 @ 250 psf	
		Dial Reading (inches)	Deflection (inches)	Dial Reading (inches)	Deflection (inches)	Dial Reading (inches)	Deflection (inches)	Dial Reading (inches)	Deflection (inches)
329.83	18.16			0.3250	-0.0253			0.2057	-0.0728
339.83	18.43			0.3250	-0.0253			0.2056	-0.0729
349.83	18.70			0.3250	-0.0253			0.2056	-0.0729
359.83	18.97			0.3249	-0.0254			0.2056	-0.0729
369.83	19.23			0.3249	-0.0254			0.2056	-0.0729
379.83	19.49			0.3249	-0.0254			0.2055	-0.0730
389.83	19.74			0.3247	-0.0256			0.2055	-0.0730
399.83	20.00			0.3247	-0.0256			0.2055	-0.0730
409.83	20.24			0.3247	-0.0256			0.2054	-0.0731
419.83	20.49			0.3246	-0.0257			0.2054	-0.0731
429.83	20.73			0.3246	-0.0257			0.2051	-0.0734
439.83	20.97			0.3246	-0.0257			0.2051	-0.0734
449.83	21.21			0.3246	-0.0257			0.2051	-0.0734
459.83	21.44			0.3246	-0.0257			0.2051	-0.0734
469.83	21.68			0.3246	-0.0257			0.2050	-0.0735
479.83	21.91			0.3246	-0.0257			0.2048	-0.0737
489.83	22.13			0.3246	-0.0257			0.2048	-0.0737
499.83	22.36			0.3246	-0.0257			0.2048	-0.0737
509.83	22.58			0.3246	-0.0257			0.2048	-0.0737
519.83	22.80			0.3246	-0.0257			0.2047	-0.0738
529.83	23.02			0.3245	-0.0258			0.2047	-0.0738
539.83	23.23			0.3245	-0.0258			0.2047	-0.0738
549.83	23.45			0.3245	-0.0258			0.2047	-0.0738
559.83	23.66			0.3244	-0.0259			0.2047	-0.0738
569.83	23.87			0.3244	-0.0259			0.2047	-0.0738
579.83	24.08			0.3244	-0.0259			0.2047	-0.0738
589.83	24.29			0.3244	-0.0259			0.2045	-0.0740
599.83	24.49			0.3244	-0.0259			0.2045	-0.0740
609.83	24.69			0.3244	-0.0259			0.2045	-0.0740
619.83	24.90			0.3244	-0.0259			0.2045	-0.0740
629.83	25.10			0.3244	-0.0259			0.2044	-0.0741
639.83	25.29			0.3244	-0.0259			0.2045	-0.0740
649.83	25.49			0.3243	-0.0260			0.2045	-0.0740
659.83	25.69			0.3244	-0.0259			0.2043	-0.0742
669.83	25.88			0.3244	-0.0259			0.2044	-0.0741
679.83	26.07			0.3243	-0.0260			0.2043	-0.0742
689.83	26.26			0.3244	-0.0259			0.2043	-0.0742
699.83	26.45			0.3243	-0.0260			0.2043	-0.0742
709.83	26.64			0.3243	-0.0260			0.2043	-0.0742
719.83	26.83			0.3244	-0.0259			0.2043	-0.0742
749.83	27.38			0.3242	-0.0261			0.2043	-0.0742
779.83	27.93			0.3241	-0.0262			0.2043	-0.0742
809.83	28.46			0.3241	-0.0262			0.2040	-0.0745
839.83	28.98			0.3241	-0.0262			0.2039	-0.0746
869.83	29.49			0.3240	-0.0263			0.2039	-0.0746
899.83	30.00			0.3241	-0.0262			0.2038	-0.0747
929.83	30.49			0.3240	-0.0263			0.2038	-0.0747
959.83	30.98			0.3240	-0.0263			0.2038	-0.0747
989.83	31.46			0.3240	-0.0263			0.2037	-0.0748
1019.83	31.93			0.3239	-0.0264			0.2037	-0.0748
1049.83	32.40			0.3238	-0.0265			0.2036	-0.0749
1079.83	32.86			0.3234	-0.0269			0.2036	-0.0749
1109.83	33.31							0.2036	-0.0749
1139.83	33.76							0.2036	-0.0749

Sample: Pond 8E, BH-1 @ 7 feet

Time (minutes)	Square Root of Time (minutes)	Test 5 @ 500 psf		Test 6 @ 1000 psf		Test 7 @ 2000 psf		Test 8 @ 4000 psf	
		Dial Reading (inches)	Deflection (inches)	Dial Reading (inches)	Deflection (inches)	Dial Reading (inches)	Deflection (inches)	Dial Reading (inches)	Deflection (inches)
00	0.00	0.2034	0.0000	0.1654	0.0000	0.4133	0.0000	0.3153	0.0000
0.17	0.41	0.1966	-0.0068	0.3553	0.1899	0.4133	0.0000	0.3153	0.0000
0.33	0.58	0.1949	-0.0085	0.1500	-0.0154	0.4133	0.0000	0.2993	-0.0160
0.50	0.71	0.1941	-0.0093	0.1454	-0.0200	0.4133	0.0000	0.2930	-0.0223
0.67	0.82	0.1933	-0.0101	0.1405	-0.0249	0.4079	-0.0054	0.2897	-0.0256
0.83	0.91	0.1926	-0.0108	0.1362	-0.0292	0.4047	-0.0086	0.2856	-0.0297
1.00	1.00	0.1920	-0.0114	0.1337	-0.0317	0.4004	-0.0129	0.2833	-0.0320
1.17	1.08	0.1916	-0.0118	0.1319	-0.0335	0.3982	-0.0151	0.2806	-0.0347
1.33	1.15	0.1910	-0.0124	0.1288	-0.0366	0.3949	-0.0184	0.2786	-0.0367
1.50	1.22	0.1907	-0.0127	0.1272	-0.0382	0.3928	-0.0205	0.2759	-0.0394
1.67	1.29	0.1904	-0.0130	0.1244	-0.0410	0.3900	-0.0233	0.2744	-0.0409
1.83	1.35	0.1900	-0.0134	0.1211	-0.0443	0.3882	-0.0251	0.2730	-0.0423
2.00	1.41	0.1899	-0.0135	0.1190	-0.0464	0.3858	-0.0275	0.2711	-0.0442
2.17	1.47	0.1899	-0.0135	0.1162	-0.0492	0.3843	-0.0290	0.2698	-0.0455
2.33	1.53	0.1893	-0.0141	0.1145	-0.0509	0.3820	-0.0313	0.2683	-0.0470
2.50	1.58	0.1891	-0.0143	0.1126	-0.0528	0.3806	-0.0327	0.2677	-0.0476
2.67	1.63	0.1888	-0.0146	0.1103	-0.0551	0.3793	-0.0340	0.2677	-0.0476
2.83	1.68	0.1887	-0.0147	0.1088	-0.0566	0.3774	-0.0359	0.2677	-0.0476
3.00	1.73	0.1885	-0.0149	0.1073	-0.0581	0.3764	-0.0369	0.2677	-0.0476
3.17	1.78	0.1883	-0.0151	0.1052	-0.0602	0.3745	-0.0388	0.2625	-0.0528
3.33	1.83	0.1883	-0.0151	0.1040	-0.0614	0.3734	-0.0399	0.2617	-0.0536
3.50	1.87	0.1879	-0.0155	0.1028	-0.0626	0.3718	-0.0415	0.2606	-0.0547
3.67	1.91	0.1879	-0.0155	0.1018	-0.0636	0.3708	-0.0425	0.2595	-0.0558
3.83	1.96	0.1878	-0.0156	0.1018	-0.0636	0.3695	-0.0438	0.2588	-0.0565
4.00	2.00	0.1875	-0.0159	0.0997	-0.0657	0.3680	-0.0453	0.2582	-0.0571
4.17	2.04	0.1874	-0.0160	0.0992	-0.0662	0.3673	-0.0460	0.2578	-0.0575
4.33	2.08	0.1872	-0.0162	0.0978	-0.0676	0.3660	-0.0473	0.2578	-0.0575
4.50	2.12	0.1870	-0.0164	0.0970	-0.0684	0.3654	-0.0479	0.2578	-0.0575
4.67	2.16	0.1870	-0.0164	0.0960	-0.0694	0.3641	-0.0492	0.2578	-0.0575
4.83	2.20	0.1868	-0.0166	0.0948	-0.0706	0.3633	-0.0500	0.2578	-0.0575
00	2.24	0.1866	-0.0168	0.0939	-0.0715	0.3623	-0.0510	0.2544	-0.0609
17	2.27	0.1865	-0.0169	0.0928	-0.0726	0.3616	-0.0517	0.2537	-0.0616
5.33	2.31	0.1863	-0.0171	0.0920	-0.0734	0.3607	-0.0526	0.2530	-0.0623
5.50	2.35	0.1862	-0.0172	0.0910	-0.0744	0.3600	-0.0533	0.2526	-0.0627
5.67	2.38	0.1861	-0.0173	0.0903	-0.0751	0.3591	-0.0542	0.2526	-0.0627
5.83	2.42	0.1860	-0.0174	0.0893	-0.0761	0.3585	-0.0548	0.2526	-0.0627
6.00	2.45	0.1858	-0.0176	0.0887	-0.0767	0.3579	-0.0554	0.2511	-0.0642
6.17	2.48	0.1857	-0.0177	0.0877	-0.0777	0.3573	-0.0560	0.2507	-0.0646
6.33	2.52	0.1855	-0.0179	0.0871	-0.0783	0.3566	-0.0567	0.2501	-0.0652
6.50	2.55	0.1854	-0.0180	0.0861	-0.0793	0.3561	-0.0572	0.2499	-0.0654
6.67	2.58	0.1854	-0.0180	0.0852	-0.0802	0.3553	-0.0580	0.2494	-0.0659
6.83	2.61	0.1853	-0.0181	0.0841	-0.0813	0.3549	-0.0584	0.2491	-0.0662
7.00	2.65	0.1851	-0.0183	0.0834	-0.0820	0.3545	-0.0588	0.2487	-0.0666
7.17	2.68	0.1850	-0.0184	0.0825	-0.0829	0.3538	-0.0595	0.2483	-0.0670
7.33	2.71	0.1849	-0.0185	0.0819	-0.0835	0.3534	-0.0599	0.2483	-0.0670
7.50	2.74	0.1848	-0.0186	0.0811	-0.0843	0.3530	-0.0603	0.2483	-0.0670
7.67	2.77	0.1847	-0.0187	0.0806	-0.0848	0.3529	-0.0604	0.2473	-0.0680
7.83	2.80	0.1846	-0.0188	0.0797	-0.0857	0.3522	-0.0611	0.2471	-0.0682
8.00	2.83	0.1846	-0.0188	0.0792	-0.0862	0.3521	-0.0612	0.2467	-0.0686
8.17	2.86	0.1845	-0.0189	0.0784	-0.0870	0.3515	-0.0618	0.2465	-0.0688
8.33	2.89	0.1844	-0.0190	0.0779	-0.0875	0.3512	-0.0621	0.2461	-0.0692
8.50	2.92	0.1843	-0.0191	0.0774	-0.0880	0.3510	-0.0623	0.2459	-0.0694
8.67	2.94	0.1842	-0.0192	0.0768	-0.0886	0.3506	-0.0627	0.2459	-0.0694
8.83	2.97	0.1841	-0.0193	0.0761	-0.0893	0.3505	-0.0628	0.2453	-0.0700
9.00	3.00	0.1840	-0.0194	0.0755	-0.0899	0.3498	-0.0635	0.2452	-0.0701
9.17	3.03	0.1839	-0.0195	0.0749	-0.0905	0.3495	-0.0638	0.2449	-0.0704
9.33	3.06	0.1838	-0.0196	0.0746	-0.0908	0.3490	-0.0643	0.2446	-0.0707
9.50	3.08	0.1838	-0.0196	0.0740	-0.0914	0.3488	-0.0645	0.2444	-0.0709
9.67	3.11	0.1837	-0.0197	0.0737	-0.0917	0.3483	-0.0650	0.2442	-0.0711
9.83	3.14	0.1837	-0.0197	0.0731	-0.0923	0.3481	-0.0652	0.2439	-0.0714
10.00	3.16	0.1836	-0.0198	0.0728	-0.0926	0.3477	-0.0656	0.2437	-0.0716
.17	3.19	0.1835	-0.0199	0.0724	-0.0930	0.3474	-0.0659	0.2435	-0.0718
33	3.21	0.1832	-0.0202	0.0720	-0.0934	0.3471	-0.0662	0.2433	-0.0720
0.50	3.24	0.1832	-0.0202	0.0716	-0.0938	0.3469	-0.0664	0.2430	-0.0723
10.67	3.27	0.1831	-0.0203	0.0713	-0.0941	0.3466	-0.0667	0.2429	-0.0724

Sample: Pond 8E, BH-1 @ 7 feet

Time (minutes)	Square Root of Time (minutes)	Test 5 @ 500 psf		Test 6 @ 1000 psf		Test 7 @ 2000 psf		Test 8 @ 4000 psf	
		Dial Reading (inches)	Deflection (inches)	Dial Reading (inches)	Deflection (inches)	Dial Reading (inches)	Deflection (inches)	Dial Reading (inches)	Deflection (inches)
10.83	3.29	0.1831	-0.0203	0.0709	-0.0945	0.3463	-0.0670	0.2427	-0.0726
11.00	3.32	0.1830	-0.0204	0.0706	-0.0948	0.3459	-0.0674	0.2426	-0.0727
11.17	3.34	0.1830	-0.0204	0.0702	-0.0952	0.3458	-0.0675	0.2423	-0.0730
11.33	3.37	0.1829	-0.0205	0.0700	-0.0954	0.3455	-0.0678	0.2422	-0.0731
11.50	3.39	0.1829	-0.0205	0.0697	-0.0957	0.3453	-0.0680	0.2420	-0.0733
11.67	3.42	0.1828	-0.0206	0.0694	-0.0960	0.3450	-0.0683	0.2419	-0.0734
11.83	3.44	0.1827	-0.0207	0.0690	-0.0964	0.3448	-0.0685	0.2417	-0.0736
12.00	3.46	0.1826	-0.0208	0.0689	-0.0965	0.3445	-0.0688	0.2416	-0.0737
12.17	3.49	0.1826	-0.0208	0.0685	-0.0969	0.3443	-0.0690	0.2414	-0.0739
12.33	3.51	0.1825	-0.0209	0.0683	-0.0971	0.3441	-0.0692	0.2412	-0.0741
12.50	3.54	0.1824	-0.0210	0.0681	-0.0973	0.3440	-0.0693	0.2411	-0.0742
12.67	3.56	0.1824	-0.0210	0.0678	-0.0976	0.3436	-0.0697	0.2410	-0.0743
12.83	3.58	0.1823	-0.0211	0.0675	-0.0979	0.3435	-0.0698	0.2408	-0.0745
13.00	3.61	0.1823	-0.0211	0.0674	-0.0980	0.3433	-0.0700	0.2407	-0.0746
13.17	3.63	0.1823	-0.0211	0.0671	-0.0983	0.3431	-0.0702	0.2405	-0.0748
13.33	3.65	0.1822	-0.0212	0.0670	-0.0984	0.3429	-0.0704	0.2405	-0.0748
13.50	3.67	0.1822	-0.0212	0.0666	-0.0988	0.3427	-0.0706	0.2403	-0.0750
13.67	3.70	0.1821	-0.0213	0.0666	-0.0988	0.3426	-0.0707	0.2402	-0.0751
13.83	3.72	0.1820	-0.0214	0.0663	-0.0991	0.3424	-0.0709	0.2401	-0.0752
14.00	3.74	0.1819	-0.0215	0.0662	-0.0992	0.3422	-0.0711	0.2399	-0.0754
14.17	3.76	0.1819	-0.0215	0.0659	-0.0995	0.3420	-0.0713	0.2397	-0.0756
14.33	3.79	0.1819	-0.0215	0.0658	-0.0996	0.3420	-0.0713	0.2397	-0.0756
14.50	3.81	0.1818	-0.0216	0.0655	-0.0999	0.3420	-0.0713	0.2396	-0.0757
14.67	3.83	0.1817	-0.0217	0.0653	-0.1001	0.3415	-0.0718	0.2395	-0.0758
14.83	3.85	0.1817	-0.0217	0.0651	-0.1003	0.3413	-0.0720	0.2393	-0.0760
15.33	3.92	0.1815	-0.0219	0.0645	-0.1009	0.3409	-0.0724	0.2390	-0.0763
15.83	3.98	0.1815	-0.0219	0.0640	-0.1014	0.3405	-0.0728	0.2387	-0.0766
16.33	4.04	0.1813	-0.0221	0.0636	-0.1018	0.3401	-0.0732	0.2384	-0.0769
16.83	4.10	0.1812	-0.0222	0.0632	-0.1022	0.3398	-0.0735	0.2381	-0.0772
17.33	4.16	0.1810	-0.0224	0.0628	-0.1026	0.3394	-0.0739	0.2379	-0.0774
17.83	4.22	0.1809	-0.0225	0.0624	-0.1030	0.3391	-0.0742	0.2376	-0.0777
18.33	4.28	0.1807	-0.0227	0.0621	-0.1033	0.3388	-0.0745	0.2373	-0.0780
18.83	4.34	0.1807	-0.0227	0.0618	-0.1036	0.3385	-0.0748	0.2371	-0.0782
19.33	4.40	0.1806	-0.0228	0.0615	-0.1039	0.3382	-0.0751	0.2369	-0.0784
19.83	4.45	0.1805	-0.0229	0.0611	-0.1043	0.3380	-0.0753	0.2366	-0.0787
20.33	4.51	0.1804	-0.0230	0.0609	-0.1045	0.3377	-0.0756	0.2365	-0.0788
20.83	4.56	0.1803	-0.0231	0.0606	-0.1048	0.3375	-0.0758	0.2363	-0.0790
21.33	4.62	0.1801	-0.0233	0.0603	-0.1051	0.3372	-0.0761	0.2361	-0.0792
21.83	4.67	0.1800	-0.0234	0.0601	-0.1053	0.3371	-0.0762	0.2359	-0.0794
22.33	4.73	0.1799	-0.0235	0.0598	-0.1056	0.3368	-0.0765	0.2357	-0.0796
22.83	4.78	0.1798	-0.0236	0.0596	-0.1058	0.3366	-0.0767	0.2356	-0.0797
23.33	4.83	0.1797	-0.0237	0.0593	-0.1061	0.3364	-0.0769	0.2354	-0.0799
23.83	4.88	0.1796	-0.0238	0.0591	-0.1063	0.3363	-0.0770	0.2352	-0.0801
24.33	4.93	0.1795	-0.0239	0.0588	-0.1066	0.3361	-0.0772	0.2351	-0.0802
24.83	4.98	0.1794	-0.0240	0.0587	-0.1067	0.3359	-0.0774	0.2349	-0.0804
25.33	5.03	0.1793	-0.0241	0.0584	-0.1070	0.3357	-0.0776	0.2347	-0.0806
25.83	5.08	0.1793	-0.0241	0.0581	-0.1073	0.3356	-0.0777	0.2345	-0.0808
26.33	5.13	0.1792	-0.0242	0.0578	-0.1076	0.3354	-0.0779	0.2344	-0.0809
26.83	5.18	0.1791	-0.0243	0.0575	-0.1079	0.3353	-0.0780	0.2343	-0.0810
27.33	5.23	0.1791	-0.0243	0.0572	-0.1082	0.3351	-0.0782	0.2342	-0.0811
27.83	5.28	0.1790	-0.0244	0.0569	-0.1085	0.3349	-0.0784	0.2341	-0.0812
28.33	5.32	0.1790	-0.0244	0.0565	-0.1089	0.3348	-0.0785	0.2340	-0.0813
28.83	5.37	0.1789	-0.0245	0.0562	-0.1092	0.3347	-0.0786	0.2338	-0.0815
29.33	5.42	0.1788	-0.0246	0.0558	-0.1096	0.3346	-0.0787	0.2336	-0.0817
29.83	5.46	0.1787	-0.0247	0.0555	-0.1099	0.3344	-0.0789	0.2334	-0.0819
30.33	5.51	0.1786	-0.0248	0.0550	-0.1104	0.3343	-0.0790	0.2334	-0.0819
30.83	5.55	0.1786	-0.0248	0.0547	-0.1107	0.3341	-0.0792	0.2333	-0.0820
31.33	5.60	0.1785	-0.0249	0.0542	-0.1112	0.3341	-0.0792	0.2332	-0.0821
31.83	5.64	0.1784	-0.0250	0.0538	-0.1116	0.3340	-0.0793	0.2331	-0.0822
32.33	5.69	0.1783	-0.0251	0.0534	-0.1120	0.3338	-0.0795	0.2330	-0.0823
32.83	5.73	0.1783	-0.0251	0.0531	-0.1123	0.3337	-0.0796	0.2328	-0.0825
33.33	5.77	0.1783	-0.0251	0.0528	-0.1126	0.3336	-0.0797	0.2328	-0.0825
33.83	5.82	0.1782	-0.0252	0.0525	-0.1129	0.3335	-0.0798	0.2326	-0.0827
34.33	5.86	0.1782	-0.0252	0.0523	-0.1131	0.3334	-0.0799	0.2326	-0.0827
34.83	5.90	0.1781	-0.0253	0.0520	-0.1134	0.3333	-0.0800	0.2325	-0.0828

Sample: Pond 8E, BH-1 @ 7 feet

Time (minutes)	Square Root of Time (minutes)	Test 5 @ 500 psf		Test 6 @ 1000 psf		Test 7 @ 2000 psf		Test 8 @ 4000 psf	
		Dial Reading (inches)	Deflection (inches)	Dial Reading (inches)	Deflection (inches)	Dial Reading (inches)	Deflection (inches)	Dial Reading (inches)	Deflection (inches)
35.33	5.94	0.1780	-0.0254	0.0518	-0.1136	0.3333	-0.0800	0.2324	-0.0829
35.83	5.99	0.1780	-0.0254	0.0516	-0.1138	0.3332	-0.0801	0.2323	-0.0830
36.33	6.03	0.1779	-0.0255	0.0513	-0.1141	0.3331	-0.0802	0.2322	-0.0831
36.83	6.07	0.1778	-0.0256	0.0511	-0.1143	0.3329	-0.0804	0.2320	-0.0833
37.33	6.11	0.1778	-0.0256	0.0509	-0.1145	0.3329	-0.0804	0.2319	-0.0834
37.83	6.15	0.1777	-0.0257	0.0507	-0.1147	0.3328	-0.0805	0.2319	-0.0834
38.33	6.19	0.1777	-0.0257	0.0505	-0.1149	0.3326	-0.0807	0.2318	-0.0835
38.83	6.23	0.1776	-0.0258	0.0503	-0.1151	0.3325	-0.0808	0.2317	-0.0836
39.33	6.27	0.1776	-0.0258	0.0501	-0.1153	0.3325	-0.0808	0.2317	-0.0836
39.83	6.31	0.1775	-0.0259	0.0500	-0.1154	0.3325	-0.0808	0.2316	-0.0837
40.33	6.35	0.1775	-0.0259	0.0498	-0.1156	0.3324	-0.0809	0.2315	-0.0838
40.83	6.39	0.1775	-0.0259	0.0496	-0.1158	0.3323	-0.0810	0.2314	-0.0839
41.33	6.43	0.1774	-0.0260	0.0494	-0.1160	0.3322	-0.0811	0.2313	-0.0840
41.83	6.47	0.1774	-0.0260	0.0493	-0.1161	0.3321	-0.0812	0.2313	-0.0840
42.33	6.51	0.1773	-0.0261	0.0491	-0.1163	0.3320	-0.0813	0.2312	-0.0841
42.83	6.54	0.1773	-0.0261	0.0489	-0.1165	0.3319	-0.0814	0.2312	-0.0841
43.33	6.58	0.1772	-0.0262	0.0488	-0.1166	0.3318	-0.0815	0.2311	-0.0842
43.83	6.62	0.1770	-0.0264	0.0486	-0.1168	0.3318	-0.0815	0.2310	-0.0843
44.33	6.66	0.1769	-0.0265	0.0485	-0.1169	0.3317	-0.0816	0.2310	-0.0843
44.83	6.70	0.1769	-0.0265	0.0484	-0.1170	0.3317	-0.0816	0.2309	-0.0844
45.33	6.73	0.1769	-0.0265	0.0483	-0.1171	0.3316	-0.0817	0.2309	-0.0844
45.83	6.77	0.1768	-0.0266	0.0481	-0.1173	0.3315	-0.0818	0.2308	-0.0845
46.33	6.81	0.1767	-0.0267	0.0480	-0.1174	0.3315	-0.0818	0.2307	-0.0846
46.83	6.84	0.1767	-0.0267	0.0479	-0.1175	0.3314	-0.0819	0.2307	-0.0846
47.33	6.88	0.1767	-0.0267	0.0478	-0.1176	0.3313	-0.0820	0.2306	-0.0847
47.83	6.92	0.1767	-0.0267	0.0477	-0.1177	0.3312	-0.0821	0.2305	-0.0848
48.33	6.95	0.1767	-0.0267	0.0476	-0.1178	0.3311	-0.0822	0.2305	-0.0848
48.83	6.99	0.1767	-0.0267	0.0474	-0.1180	0.3311	-0.0822	0.2304	-0.0849
49.33	7.02	0.1766	-0.0268	0.0473	-0.1181	0.3310	-0.0823	0.2303	-0.0850
49.83	7.06	0.1766	-0.0268	0.0472	-0.1182	0.3310	-0.0823	0.2303	-0.0850
50.33	7.09	0.1765	-0.0269	0.0471	-0.1183	0.3309	-0.0824	0.2302	-0.0851
50.83	7.13	0.1765	-0.0269	0.0470	-0.1184	0.3309	-0.0824	0.2302	-0.0851
51.33	7.16	0.1764	-0.0270	0.0470	-0.1184	0.3308	-0.0825	0.2302	-0.0851
51.83	7.20	0.1764	-0.0270	0.0469	-0.1185	0.3308	-0.0825	0.2301	-0.0852
52.33	7.23	0.1764	-0.0270	0.0468	-0.1186	0.3307	-0.0826	0.2301	-0.0852
52.83	7.27	0.1763	-0.0271	0.0466	-0.1188	0.3307	-0.0826	0.2300	-0.0853
53.33	7.30	0.1763	-0.0271	0.0465	-0.1189	0.3306	-0.0827	0.2300	-0.0853
53.83	7.34	0.1763	-0.0271	0.0464	-0.1190	0.3305	-0.0828	0.2299	-0.0854
54.33	7.37	0.1762	-0.0272	0.0463	-0.1191	0.3305	-0.0828	0.2299	-0.0854
54.83	7.40	0.1762	-0.0272	0.0462	-0.1192	0.3304	-0.0829	0.2298	-0.0855
55.33	7.44	0.1761	-0.0273	0.0462	-0.1192	0.3303	-0.0830	0.2298	-0.0855
55.83	7.47	0.1761	-0.0273	0.0461	-0.1193	0.3303	-0.0830	0.2297	-0.0856
56.33	7.51	0.1761	-0.0273	0.0460	-0.1194	0.3302	-0.0831	0.2296	-0.0857
56.83	7.54	0.1760	-0.0274	0.0459	-0.1195	0.3302	-0.0831	0.2296	-0.0857
57.33	7.57	0.1760	-0.0274	0.0458	-0.1196	0.3301	-0.0832	0.2295	-0.0858
57.83	7.60	0.1760	-0.0274	0.0457	-0.1197	0.3301	-0.0832	0.2295	-0.0858
58.33	7.64	0.1760	-0.0274	0.0456	-0.1198	0.3301	-0.0832	0.2294	-0.0859
58.83	7.67	0.1760	-0.0274	0.0456	-0.1198	0.3300	-0.0833	0.2294	-0.0859
59.33	7.70	0.1759	-0.0275	0.0454	-0.1200	0.3300	-0.0833	0.2294	-0.0859
59.83	7.74	0.1759	-0.0275	0.0454	-0.1200	0.3299	-0.0834	0.2294	-0.0859
60.83	7.80	0.1758	-0.0276	0.0453	-0.1201	0.3298	-0.0835	0.2293	-0.0860
61.83	7.86	0.1758	-0.0276	0.0451	-0.1203	0.3297	-0.0836	0.2292	-0.0861
62.83	7.93	0.1757	-0.0277	0.0450	-0.1204	0.3296	-0.0837	0.2291	-0.0862
63.83	7.99	0.1756	-0.0278	0.0448	-0.1206	0.3295	-0.0838	0.2290	-0.0863
64.83	8.05	0.1756	-0.0278	0.0447	-0.1207	0.3294	-0.0839	0.2289	-0.0864
65.83	8.11	0.1755	-0.0279	0.0446	-0.1208	0.3293	-0.0840	0.2288	-0.0865
66.83	8.18	0.1754	-0.0280	0.0445	-0.1209	0.3293	-0.0840	0.2287	-0.0866
67.83	8.24	0.1754	-0.0280	0.0443	-0.1211	0.3293	-0.0840	0.2287	-0.0866
68.83	8.30	0.1753	-0.0281	0.0442	-0.1212	0.3291	-0.0842	0.2287	-0.0866
69.83	8.36	0.1752	-0.0282	0.0441	-0.1213	0.3290	-0.0843	0.2286	-0.0867
70.83	8.42	0.1752	-0.0282	0.0440	-0.1214	0.3289	-0.0844	0.2285	-0.0868
71.83	8.48	0.1752	-0.0282	0.0439	-0.1215	0.3289	-0.0844	0.2284	-0.0869
72.83	8.53	0.1752	-0.0282	0.0438	-0.1216	0.3288	-0.0845	0.2284	-0.0869
73.83	8.59	0.1751	-0.0283	0.0437	-0.1217	0.3287	-0.0846	0.2283	-0.0870
74.83	8.65	0.1751	-0.0283	0.0436	-0.1218	0.3286	-0.0847	0.2282	-0.0871

Sample: Pond 8E, BH-1 @ 7 feet

Time (minutes)	Square Root of Time (minutes)	Test 5 @ 500 psf		Test 6 @ 1000 psf		Test 7 @ 2000 psf		Test 8 @ 4000 psf	
		Dial Reading (inches)	Deflection (inches)	Dial Reading (inches)	Deflection (inches)	Dial Reading (inches)	Deflection (inches)	Dial Reading (inches)	Deflection (inches)
75.83	8.71	0.1750	-0.0284	0.0435	-0.1219	0.3284	-0.0849	0.2282	-0.0871
76.83	8.77	0.1749	-0.0285	0.0434	-0.1220	0.3284	-0.0849	0.2281	-0.0872
77.83	8.82	0.1749	-0.0285	0.0434	-0.1220	0.3283	-0.0850	0.2280	-0.0873
78.83	8.88	0.1748	-0.0286	0.0433	-0.1221	0.3283	-0.0850	0.2279	-0.0874
79.83	8.93	0.1748	-0.0286	0.0432	-0.1222	0.3282	-0.0851	0.2279	-0.0874
80.83	8.99	0.1747	-0.0287	0.0431	-0.1223	0.3281	-0.0852	0.2279	-0.0874
81.83	9.05	0.1747	-0.0287	0.0430	-0.1224	0.3281	-0.0852	0.2278	-0.0875
82.83	9.10	0.1746	-0.0288	0.0430	-0.1224	0.3280	-0.0853	0.2278	-0.0875
83.83	9.16	0.1745	-0.0289	0.0429	-0.1225	0.3280	-0.0853	0.2277	-0.0876
84.83	9.21	0.1745	-0.0289	0.0428	-0.1226	0.3279	-0.0854	0.2277	-0.0876
85.83	9.26	0.1745	-0.0289	0.0426	-0.1228	0.3278	-0.0855	0.2276	-0.0877
86.83	9.32	0.1744	-0.0290	0.0425	-0.1229	0.3278	-0.0855	0.2275	-0.0878
87.83	9.37	0.1744	-0.0290	0.0425	-0.1229	0.3278	-0.0855	0.2274	-0.0879
88.83	9.43	0.1744	-0.0290	0.0424	-0.1230	0.3277	-0.0856	0.2274	-0.0879
89.83	9.48	0.1743	-0.0291	0.0423	-0.1231	0.3277	-0.0856	0.2273	-0.0880
90.83	9.53	0.1743	-0.0291	0.0422	-0.1232	0.3276	-0.0857	0.2273	-0.0880
91.83	9.58	0.1743	-0.0291	0.0422	-0.1232	0.3275	-0.0858	0.2272	-0.0881
92.83	9.64	0.1742	-0.0292	0.0421	-0.1233	0.3275	-0.0858	0.2272	-0.0881
93.83	9.69	0.1742	-0.0292	0.0421	-0.1233	0.3275	-0.0858	0.2271	-0.0882
94.83	9.74	0.1741	-0.0293	0.0420	-0.1234	0.3274	-0.0859	0.2271	-0.0882
95.83	9.79	0.1741	-0.0293	0.0419	-0.1235	0.3273	-0.0860	0.2271	-0.0882
96.83	9.84	0.1740	-0.0294	0.0419	-0.1235	0.3273	-0.0860	0.2270	-0.0883
97.83	9.89	0.1739	-0.0295	0.0418	-0.1236	0.3272	-0.0861	0.2270	-0.0883
98.83	9.94	0.1739	-0.0295	0.0417	-0.1237	0.3272	-0.0861	0.2269	-0.0884
99.83	9.99	0.1739	-0.0295	0.0417	-0.1237	0.3271	-0.0862	0.2269	-0.0884
100.83	10.04	0.1739	-0.0295	0.0416	-0.1238	0.3270	-0.0863	0.2268	-0.0885
101.83	10.09	0.1738	-0.0296	0.0415	-0.1239	0.3270	-0.0863	0.2268	-0.0885
102.83	10.14	0.1738	-0.0296	0.0415	-0.1239	0.3270	-0.0863	0.2267	-0.0886
103.83	10.19	0.1737	-0.0297	0.0415	-0.1239	0.3270	-0.0863	0.2267	-0.0886
104.83	10.24	0.1737	-0.0297	0.0414	-0.1240	0.3270	-0.0863	0.2266	-0.0887
105.83	10.29	0.1736	-0.0298	0.0414	-0.1240	0.3269	-0.0864	0.2265	-0.0888
106.83	10.34	0.1736	-0.0298	0.0413	-0.1241	0.3268	-0.0865	0.2265	-0.0888
107.83	10.38	0.1736	-0.0298	0.0413	-0.1241	0.3268	-0.0865	0.2265	-0.0888
108.83	10.43	0.1736	-0.0298	0.0412	-0.1242	0.3268	-0.0865	0.2265	-0.0888
109.83	10.48	0.1735	-0.0299	0.0412	-0.1242	0.3267	-0.0866	0.2264	-0.0889
110.83	10.53	0.1735	-0.0299	0.0411	-0.1243	0.3267	-0.0866	0.2264	-0.0889
111.83	10.58	0.1735	-0.0299	0.0410	-0.1244	0.3266	-0.0867	0.2263	-0.0890
112.83	10.62	0.1734	-0.0300	0.0410	-0.1244	0.3266	-0.0867	0.2263	-0.0890
113.83	10.67	0.1734	-0.0300	0.0409	-0.1245	0.3265	-0.0868	0.2263	-0.0890
114.83	10.72	0.1734	-0.0300	0.0409	-0.1245	0.3265	-0.0868	0.2263	-0.0890
115.83	10.76	0.1733	-0.0301	0.0408	-0.1246	0.3264	-0.0869	0.2262	-0.0891
116.83	10.81	0.1733	-0.0301	0.0408	-0.1246	0.3264	-0.0869	0.2262	-0.0891
117.83	10.86	0.1732	-0.0302	0.0407	-0.1247	0.3263	-0.0870	0.2261	-0.0892
118.83	10.90	0.1732	-0.0302	0.0407	-0.1247	0.3263	-0.0870	0.2261	-0.0892
119.83	10.95	0.1732	-0.0302	0.0406	-0.1248	0.3262	-0.0871	0.2260	-0.0893
129.83	11.39	0.1728	-0.0306	0.0403	-0.1251	0.3259	-0.0874	0.2257	-0.0896
139.83	11.83	0.1726	-0.0308	0.0399	-0.1255	0.3255	-0.0878	0.2254	-0.0899
149.83	12.24	0.1721	-0.0313	0.0396	-0.1258	0.3253	-0.0880	0.2250	-0.0903
159.83	12.64	0.1719	-0.0315	0.0392	-0.1262	0.3249	-0.0884	0.2247	-0.0906
169.83	13.03	0.1715	-0.0319	0.0389	-0.1265	0.3246	-0.0887	0.2245	-0.0908
179.83	13.41	0.1713	-0.0321	0.0386	-0.1268	0.3243	-0.0890	0.2241	-0.0912
189.83	13.78	0.1711	-0.0323	0.0383	-0.1271	0.3241	-0.0892	0.2239	-0.0914
199.83	14.14	0.1709	-0.0325	0.0381	-0.1273	0.3238	-0.0895	0.2238	-0.0915
209.83	14.49	0.1706	-0.0328	0.0378	-0.1276	0.3236	-0.0897	0.2236	-0.0917
219.83	14.83	0.1704	-0.0330	0.0376	-0.1278	0.3234	-0.0899	0.2234	-0.0919
229.83	15.16	0.1702	-0.0332	0.0374	-0.1280	0.3232	-0.0901	0.2232	-0.0921
239.83	15.49	0.1699	-0.0335	0.0372	-0.1282	0.3230	-0.0903	0.2231	-0.0922
249.83	15.81	0.1697	-0.0337	0.0370	-0.1284	0.3228	-0.0905	0.2229	-0.0924
259.83	16.12	0.1696	-0.0338	0.0368	-0.1286	0.3227	-0.0906	0.2227	-0.0926
269.83	16.43	0.1694	-0.0340	0.0367	-0.1287	0.3225	-0.0908	0.2225	-0.0928
279.83	16.73	0.1692	-0.0342	0.0365	-0.1289	0.3223	-0.0910	0.2224	-0.0929
289.83	17.02	0.1690	-0.0344	0.0364	-0.1290	0.3221	-0.0912	0.2222	-0.0931
299.83	17.32	0.1689	-0.0345	0.0362	-0.1292	0.3220	-0.0913	0.2221	-0.0932
309.83	17.60	0.1686	-0.0348	0.0360	-0.1294	0.3218	-0.0915	0.2219	-0.0934
319.83	17.88	0.1684	-0.0350	0.0359	-0.1295	0.3216	-0.0917	0.2217	-0.0936

Sample: Pond 8E, BH-1 @ 7 feet

Time (minutes)	Square Root of Time (minutes)	Test 5 @ 500 psf		Test 6 @ 1000 psf		Test 7 @ 2000 psf		Test 8 @ 4000 psf	
		Dial Reading (inches)	Deflection (inches)	Dial Reading (inches)	Deflection (inches)	Dial Reading (inches)	Deflection (inches)	Dial Reading (inches)	Deflection (inches)
329.83	18.16	0.1682	-0.0352	0.0358	-0.1296	0.3215	-0.0918	0.2216	-0.0937
339.83	18.43	0.1681	-0.0353	0.0357	-0.1297	0.3214	-0.0919	0.2215	-0.0938
349.83	18.70	0.1679	-0.0355	0.0356	-0.1298	0.3212	-0.0921	0.2214	-0.0939
359.83	18.97	0.1676	-0.0358	0.0355	-0.1299	0.3210	-0.0923	0.2212	-0.0941
369.83	19.23	0.1674	-0.0360	0.0353	-0.1301	0.3209	-0.0924	0.2212	-0.0941
379.83	19.49	0.1673	-0.0361	0.0352	-0.1302	0.3208	-0.0925	0.2210	-0.0943
389.83	19.74	0.1671	-0.0363	0.0352	-0.1302	0.3207	-0.0926	0.2209	-0.0944
399.83	20.00	0.1669	-0.0365	0.0351	-0.1303	0.3205	-0.0928	0.2208	-0.0945
409.83	20.24	0.1668	-0.0366	0.0350	-0.1304	0.3204	-0.0929	0.2208	-0.0945
419.83	20.49	0.1665	-0.0369	0.0350	-0.1304	0.3203	-0.0930	0.2206	-0.0947
429.83	20.73	0.1664	-0.0370	0.0348	-0.1306	0.3201	-0.0932	0.2205	-0.0948
439.83	20.97	0.1663	-0.0371	0.0348	-0.1306	0.3200	-0.0933	0.2204	-0.0949
449.83	21.21			0.0347	-0.1307	0.3199	-0.0934	0.2203	-0.0950
459.83	21.44			0.0345	-0.1309	0.3198	-0.0935	0.2202	-0.0951
469.83	21.68			0.0345	-0.1309	0.3197	-0.0936	0.2200	-0.0953
479.83	21.91			0.0344	-0.1310	0.3195	-0.0938	0.2200	-0.0953
489.83	22.13			0.0344	-0.1310	0.3194	-0.0939	0.2199	-0.0954
499.83	22.36			0.0343	-0.1311	0.3193	-0.0940	0.2198	-0.0955
509.83	22.58			0.0343	-0.1311	0.3192	-0.0941	0.2198	-0.0955
519.83	22.80			0.0343	-0.1311	0.3192	-0.0941	0.2196	-0.0957
529.83	23.02			0.0342	-0.1312	0.3191	-0.0942	0.2195	-0.0958
539.83	23.23			0.0341	-0.1313	0.3191	-0.0942	0.2190	-0.0963
549.83	23.45			0.0340	-0.1314	0.3190	-0.0943	0.2188	-0.0965
559.83	23.66			0.0339	-0.1315	0.3189	-0.0944	0.2187	-0.0966
569.83	23.87			0.0339	-0.1315	0.3188	-0.0945	0.2186	-0.0967
579.83	24.08			0.0338	-0.1316	0.3187	-0.0946	0.2185	-0.0968
589.83	24.29			0.0337	-0.1317	0.3186	-0.0947	0.2184	-0.0969
599.83	24.49			0.0337	-0.1317	0.3185	-0.0948	0.2183	-0.0970
609.83	24.69			0.0336	-0.1318	0.3184	-0.0949	0.2182	-0.0971
619.83	24.90			0.0336	-0.1318	0.3183	-0.0950	0.2181	-0.0972
629.83	25.10			0.0336	-0.1318	0.3183	-0.0950	0.2181	-0.0972
639.83	25.29			0.0336	-0.1318	0.3182	-0.0951	0.2179	-0.0974
649.83	25.49			0.0336	-0.1318	0.3181	-0.0952	0.2179	-0.0974
659.83	25.69			0.0335	-0.1319	0.3180	-0.0953	0.2178	-0.0975
669.83	25.88			0.0335	-0.1319	0.3180	-0.0953	0.2177	-0.0976
679.83	26.07			0.0333	-0.1321	0.3179	-0.0954	0.2176	-0.0977
689.83	26.26			0.0333	-0.1321	0.3179	-0.0954	0.2176	-0.0977
699.83	26.45			0.0332	-0.1322	0.3178	-0.0955	0.2176	-0.0977
709.83	26.64			0.0332	-0.1322	0.3176	-0.0957	0.2175	-0.0978
719.83	26.83			0.0332	-0.1322	0.3176	-0.0957	0.2175	-0.0978
749.83	27.38			0.0330	-0.1324	0.3175	-0.0958	0.2173	-0.0980
779.83	27.93			0.0330	-0.1324	0.3174	-0.0959	0.2172	-0.0981
809.83	28.46			0.0327	-0.1327	0.3173	-0.0960	0.2170	-0.0983
839.83	28.98			0.0327	-0.1327	0.3171	-0.0962	0.2169	-0.0984
869.83	29.49			0.0325	-0.1329	0.3170	-0.0963	0.2169	-0.0984
899.83	30.00			0.0325	-0.1329	0.3169	-0.0964	0.2168	-0.0985
929.83	30.49			0.0317	-0.1337	0.3167	-0.0966	0.2168	-0.0985
959.83	30.98					0.3167	-0.0966	0.2166	-0.0987
989.83	31.46					0.3166	-0.0967	0.2165	-0.0988
1019.83	31.93					0.3165	-0.0968	0.2164	-0.0989
1049.83	32.40					0.3163	-0.0970	0.2163	-0.0990
1079.83	32.86					0.3163	-0.0970	0.2163	-0.0990
1109.83	33.31					0.3162	-0.0971	0.2162	-0.0991
1139.83	33.76					0.3161	-0.0972	0.2162	-0.0991
1169.83	34.20					0.3160	-0.0973	0.2162	-0.0991
1199.83	34.64					0.3160	-0.0973	0.2161	-0.0992
1229.83	35.07					0.3160	-0.0973	0.2160	-0.0993
1259.83	35.49					0.3158	-0.0975	0.2160	-0.0993
1289.83	35.91					0.3158	-0.0975	0.2159	-0.0994
1319.83	36.33					0.3156	-0.0977	0.2159	-0.0994
1349.83	36.74					0.3156	-0.0977	0.2159	-0.0994
1379.83	37.15					0.3156	-0.0977	0.2159	-0.0994
1409.83	37.55					0.3155	-0.0978	0.2157	-0.0996
1439.83	37.95					0.3154	-0.0979	0.2157	-0.0996
1469.83	38.34							0.2157	-0.0996

Sample: Pond 8E, BH-1 @ 7 feet

Time (minutes)	Square Root of Time (minutes)	Test 5 @ 500 psf		Test 6 @ 1000 psf		Test 7 @ 2000 psf		Test 8 @ 4000 psf	
		Dial Reading (inches)	Deflection (inches)	Dial Reading (inches)	Deflection (inches)	Dial Reading (inches)	Deflection (inches)	Dial Reading (inches)	Deflection (inches)
1499.83	38.73							0.2155	-0.0998
1529.83	39.11							0.2155	-0.0998
1559.83	39.49							0.2154	-0.0999
1589.83	39.87							0.2154	-0.0999
1619.83	40.25							0.2154	-0.0999
1649.83	40.62							0.2153	-0.1000
1679.83	40.99							0.2153	-0.1000
1709.83	41.35							0.2152	-0.1001
1739.83	41.71							0.2152	-0.1001
1769.83	42.07							0.2150	-0.1003
1799.83	42.42							0.2150	-0.1003

One Dimensional Consolidation

Project No.	973376
Project	FMC
Sample ID	Pond 8E, BH-2 @ 10.2 feet
Sample Ht.	1.688 (in)
Sample Dia.	4.000 (in)
Sample Area	0.087 (sq-ft)
Sample Vol.	0.012 (cu-ft)
Phos Cont.	0.0151 (%)
Init. M.C.	166.03 (%)
Init. M.C. (corr)	165.93 (%)
Final M.C.	110.56 (%)
Final M.C. (corr)	110.50 (%)
Dry Wt. of Soil/f	208.96 (g)
Dry Wt. of Soil/i	172.36 (g)
Spec. Grav.	2.79
Pocket Pen.	(tsf)

Moisture Content Weights	
(initial)	
Total Wet Wt. (g)	14.02
Phos. Wt. (g)	0.00
Dry Wt. (g)	5.27
Dry Wt. + Phos Wt. (g)	5.27
Water Wt. + Phos (g)	8.75
Water Wt. (g)	8.75
(final)	
Total Wet Wt. (g)	23.92
Phos. Wt. (g)	0.00
Dry Wt. (g)	11.36
Dry Wt. + Phos Wt. (g)	11.36
Water Wt. + Phos (g)	12.56
Water Wt. (g)	12.56

Pressure (ksf)	Final Dial Reading (inches)	Deformation (inches)	Sample Ht. (inches)	Strain (%)	Void Ratio (e)	Dry Density (pcf)	Void Ratio (e)	Dry Density (pcf)
					Calc. from final MC		Calc. from initial MC	
0.0010	0.4423	0.0000	1.6880	0	3.643	37.50	4.629	30.93
0.0250	0.4395	0.0028	1.6852	0.17	3.635	37.56	4.620	30.98
0.0500	0.4366	0.0043	1.6837	0.25	3.631	37.59	4.615	31.01
0.1000	0.4338	0.0072	1.6808	0.43	3.623	37.66	4.605	31.06
0.2500	0.4216	0.0194	1.6686	1.15	3.590	37.93	4.565	31.29
0.5000	0.4127	0.0283	1.6597	1.68	3.565	38.13	4.535	31.45
1.0000	0.4008	0.0401	1.6479	2.38	3.533	38.41	4.496	31.68
2.0000	0.3734	0.0665	1.6215	3.94	3.460	39.03	4.408	32.19
4.0000	0.3055	0.2037	1.4843	12.07	3.083	42.64	3.950	35.17

Note: Initial MC not taken from actual sample tested, but from same sample jar.
Final MC taken from actual sample tested.
Void Ratio (e), calculated from final MC likely to be most accurate.
Final data readings may vary when compared to deformation values due to resetting the dial. The deformation values are based on the actual data in Appendix E.

Sample: Pond 8E, BH-2 @ 10.2 feet

Time (minutes)	Square Root of Time (minutes)	Test 1 @ 25 psf		Test 2 @ 50 psf		Test 3 @ 100 psf		Test 4 @ 250 psf	
		Dial Reading (inches)	Deflection (inches)	Dial Reading (inches)	Deflection (inches)	Dial Reading (inches)	Deflection (inches)	Dial Reading (inches)	Deflection (inches)
0.00	0.00	0.4423	0.0000	0.4381	0.0000	0.4367	0.0000	0.4338	0.0000
0.17	0.41	0.4423	0.0000	0.4381	0.0000	0.4367	0.0000	0.4350	0.0012
0.33	0.58	0.4423	0.0000	0.4381	0.0000	0.4364	-0.0003	0.4223	-0.0115
0.50	0.71	0.4421	-0.0002	0.4381	0.0000	0.4362	-0.0005	0.4221	-0.0117
0.67	0.82	0.4421	-0.0002	0.4381	0.0000	0.4362	-0.0005	0.4221	-0.0117
0.83	0.91	0.4421	-0.0002	0.4381	0.0000	0.4362	-0.0005	0.4221	-0.0117
1.00	1.00	0.4421	-0.0002	0.4381	0.0000	0.4362	-0.0005	0.4221	-0.0117
1.17	1.08	0.4421	-0.0002	0.4381	0.0000	0.4362	-0.0005	0.4221	-0.0117
1.33	1.15	0.4422	-0.0001	0.4381	0.0000	0.4362	-0.0005	0.4221	-0.0117
1.50	1.22	0.4422	-0.0001	0.4381	0.0000	0.4362	-0.0005	0.4220	-0.0118
1.67	1.29	0.4422	-0.0001	0.4381	0.0000	0.4362	-0.0005	0.4220	-0.0118
1.83	1.35	0.4422	-0.0001	0.4381	0.0000	0.4362	-0.0005	0.4220	-0.0118
2.00	1.41	0.4422	-0.0001	0.4381	0.0000	0.4362	-0.0005	0.4220	-0.0118
2.17	1.47	0.4420	-0.0003	0.4381	0.0000	0.4362	-0.0005	0.4221	-0.0117
2.33	1.53	0.4420	-0.0003	0.4381	0.0000	0.4362	-0.0005	0.4221	-0.0117
2.50	1.58	0.4420	-0.0003	0.4381	0.0000	0.4362	-0.0005	0.4221	-0.0117
2.67	1.63	0.4420	-0.0003	0.4381	0.0000	0.4362	-0.0005	0.4220	-0.0118
2.83	1.68	0.4404	-0.0019	0.4381	0.0000	0.4362	-0.0005	0.4220	-0.0118
3.00	1.73	0.4404	-0.0019	0.4381	0.0000	0.4362	-0.0005	0.4220	-0.0118
3.17	1.78	0.4404	-0.0019	0.4381	0.0000	0.4362	-0.0005	0.4220	-0.0118
3.33	1.83	0.4393	-0.0030	0.4381	0.0000	0.4362	-0.0005	0.4220	-0.0118
3.50	1.87	0.4397	-0.0026	0.4381	0.0000	0.4362	-0.0005	0.4220	-0.0118
3.67	1.91	0.4396	-0.0027	0.4381	0.0000	0.4359	-0.0008	0.4220	-0.0118
3.83	1.96	0.4396	-0.0027	0.4381	0.0000	0.4359	-0.0008	0.4220	-0.0118
4.00	2.00	0.4396	-0.0027	0.4381	0.0000	0.4359	-0.0008	0.4220	-0.0118
4.17	2.04	0.4396	-0.0027	0.4381	0.0000	0.4359	-0.0008	0.4220	-0.0118
4.33	2.08	0.4396	-0.0027	0.4381	0.0000	0.4359	-0.0008	0.4220	-0.0118
4.50	2.12	0.4396	-0.0027	0.4381	0.0000	0.4359	-0.0008	0.4220	-0.0118
4.67	2.16	0.4396	-0.0027	0.4381	0.0000	0.4359	-0.0008	0.4220	-0.0118
4.83	2.20	0.4396	-0.0027	0.4381	0.0000	0.4359	-0.0008	0.4220	-0.0118
5.00	2.24	0.4396	-0.0027	0.4381	0.0000	0.4359	-0.0008	0.4220	-0.0118
5.17	2.27	0.4397	-0.0026	0.4381	0.0000	0.4359	-0.0008	0.4220	-0.0118
5.33	2.31	0.4397	-0.0026	0.4381	0.0000	0.4359	-0.0008	0.4220	-0.0118
5.50	2.35	0.4397	-0.0026	0.4381	0.0000	0.4359	-0.0008	0.4220	-0.0118
5.67	2.38	0.4397	-0.0026	0.4381	0.0000	0.4348	-0.0019	0.4220	-0.0118
5.83	2.42	0.4397	-0.0026	0.4381	0.0000	0.4348	-0.0019	0.4220	-0.0118
6.00	2.45	0.4397	-0.0026	0.4381	0.0000	0.4348	-0.0019	0.4220	-0.0118
6.17	2.48	0.4397	-0.0026	0.4381	0.0000	0.4348	-0.0019	0.4220	-0.0118
6.33	2.52	0.4397	-0.0026	0.4381	0.0000	0.4348	-0.0019	0.4220	-0.0118
6.50	2.55	0.4397	-0.0026	0.4381	0.0000	0.4348	-0.0019	0.4220	-0.0118
6.67	2.58	0.4397	-0.0026	0.4381	0.0000	0.4342	-0.0025	0.4220	-0.0118
6.83	2.61	0.4397	-0.0026	0.4381	0.0000	0.4342	-0.0025	0.4220	-0.0118
7.00	2.65	0.4397	-0.0026	0.4381	0.0000	0.4342	-0.0025	0.4220	-0.0118
7.17	2.68	0.4397	-0.0026	0.4381	0.0000	0.4342	-0.0025	0.4220	-0.0118
7.33	2.71	0.4397	-0.0026	0.4381	0.0000	0.4342	-0.0025	0.4220	-0.0118
7.50	2.74	0.4397	-0.0026	0.4381	0.0000	0.4342	-0.0025	0.4220	-0.0118
7.67	2.77	0.4397	-0.0026	0.4381	0.0000	0.4342	-0.0025	0.4220	-0.0118
7.83	2.80	0.4397	-0.0026	0.4381	0.0000	0.4342	-0.0025	0.4220	-0.0118
8.00	2.83	0.4397	-0.0026	0.4381	0.0000	0.4342	-0.0025	0.4220	-0.0118
8.17	2.86	0.4397	-0.0026	0.4381	0.0000	0.4342	-0.0025	0.4220	-0.0118
8.33	2.89	0.4397	-0.0026	0.4381	0.0000	0.4342	-0.0025	0.4220	-0.0118
8.50	2.92	0.4397	-0.0026	0.4381	0.0000	0.4342	-0.0025	0.4220	-0.0118
8.67	2.94	0.4397	-0.0026	0.4381	0.0000	0.4342	-0.0025	0.4220	-0.0118
8.83	2.97	0.4397	-0.0026	0.4381	0.0000	0.4342	-0.0025	0.4220	-0.0118
9.00	3.00	0.4397	-0.0026	0.4381	0.0000	0.4342	-0.0025	0.4220	-0.0118
9.17	3.03	0.4397	-0.0026	0.4381	0.0000	0.4342	-0.0025	0.4220	-0.0118
9.33	3.06	0.4397	-0.0026	0.4381	0.0000	0.4342	-0.0025	0.4220	-0.0118
9.50	3.08	0.4397	-0.0026	0.4381	0.0000	0.4342	-0.0025	0.4220	-0.0118
9.67	3.11	0.4397	-0.0026	0.4381	0.0000	0.4342	-0.0025	0.4220	-0.0118
9.83	3.14	0.4397	-0.0026	0.4381	0.0000	0.4342	-0.0025	0.4220	-0.0118
10.00	3.16	0.4397	-0.0026	0.4381	0.0000	0.4342	-0.0025	0.4220	-0.0118
10.17	3.19	0.4397	-0.0026	0.4381	0.0000	0.4342	-0.0025	0.4220	-0.0118
10.33	3.21	0.4397	-0.0026	0.4381	0.0000	0.4342	-0.0025	0.4220	-0.0118
10.50	3.24	0.4397	-0.0026	0.4381	0.0000	0.4343	-0.0024	0.4220	-0.0118
10.67	3.27	0.4397	-0.0026	0.4381	0.0000	0.4343	-0.0024	0.4220	-0.0118

Sample: Pond 8E, BH-2 @ 10.2 feet

Time (minutes)	Square Root of Time (minutes)	Test 1 @ 25 psf		Test 2 @ 50 psf		Test 3 @ 100 psf		Test 4 @ 250 psf	
		Dial Reading (inches)	Deflection (inches)	Dial Reading (inches)	Deflection (inches)	Dial Reading (inches)	Deflection (inches)	Dial Reading (inches)	Deflection (inches)
10.83	3.29	0.4397	-0.0026	0.4381	0.0000	0.4343	-0.0024	0.4220	-0.0118
11.00	3.32	0.4397	-0.0026	0.4381	0.0000	0.4343	-0.0024	0.4220	-0.0118
11.17	3.34	0.4397	-0.0026	0.4381	0.0000	0.4343	-0.0024	0.4220	-0.0118
11.33	3.37	0.4397	-0.0026	0.4381	0.0000	0.4343	-0.0024	0.4220	-0.0118
11.50	3.39	0.4397	-0.0026	0.4381	0.0000	0.4343	-0.0024	0.4220	-0.0118
11.67	3.42	0.4397	-0.0026	0.4381	0.0000	0.4343	-0.0024	0.4220	-0.0118
11.83	3.44	0.4397	-0.0026	0.4381	0.0000	0.4343	-0.0024	0.4220	-0.0118
12.00	3.46	0.4397	-0.0026	0.4381	0.0000	0.4343	-0.0024	0.4220	-0.0118
12.17	3.49	0.4397	-0.0026	0.4381	0.0000	0.4343	-0.0024	0.4220	-0.0118
12.33	3.51	0.4397	-0.0026	0.4381	0.0000	0.4343	-0.0024	0.4220	-0.0118
12.50	3.54	0.4390	-0.0033	0.4381	0.0000	0.4342	-0.0025	0.4220	-0.0118
12.67	3.56	0.4392	-0.0031	0.4381	0.0000	0.4342	-0.0025	0.4220	-0.0118
12.83	3.58	0.4396	-0.0027	0.4381	0.0000	0.4342	-0.0025	0.4220	-0.0118
13.00	3.61	0.4396	-0.0027	0.4381	0.0000	0.4342	-0.0025	0.4220	-0.0118
13.17	3.63	0.4396	-0.0027	0.4381	0.0000	0.4342	-0.0025	0.4220	-0.0118
13.33	3.65	0.4396	-0.0027	0.4381	0.0000	0.4342	-0.0025	0.4220	-0.0118
13.50	3.67	0.4396	-0.0027	0.4381	0.0000	0.4342	-0.0025	0.4220	-0.0118
13.67	3.70	0.4396	-0.0027	0.4381	0.0000	0.4342	-0.0025	0.4220	-0.0118
13.83	3.72	0.4396	-0.0027	0.4381	0.0000	0.4342	-0.0025	0.4220	-0.0118
14.00	3.74	0.4396	-0.0027	0.4381	0.0000	0.4342	-0.0025	0.4220	-0.0118
14.17	3.76	0.4396	-0.0027	0.4381	0.0000	0.4342	-0.0025	0.4220	-0.0118
14.33	3.79	0.4396	-0.0027	0.4381	0.0000	0.4342	-0.0025	0.4220	-0.0118
14.50	3.81	0.4396	-0.0027	0.4381	0.0000	0.4342	-0.0025	0.4220	-0.0118
14.67	3.83	0.4396	-0.0027	0.4381	0.0000	0.4342	-0.0025	0.4220	-0.0118
14.83	3.85	0.4396	-0.0027	0.4381	0.0000	0.4342	-0.0025	0.4220	-0.0118
15.33	3.92	0.4396	-0.0027	0.4381	0.0000	0.4342	-0.0025	0.4220	-0.0118
15.83	3.98	0.4396	-0.0027	0.4381	0.0000	0.4342	-0.0025	0.4219	-0.0119
16.33	4.04	0.4396	-0.0027	0.4381	0.0000	0.4342	-0.0025	0.4219	-0.0119
16.83	4.10	0.4396	-0.0027	0.4381	0.0000	0.4342	-0.0025	0.4219	-0.0119
17.33	4.16	0.4396	-0.0027	0.4373	-0.0008	0.4341	-0.0026	0.4219	-0.0119
17.83	4.22	0.4396	-0.0027	0.4370	-0.0011	0.4341	-0.0026	0.4219	-0.0119
18.33	4.28	0.4396	-0.0027	0.4367	-0.0014	0.4341	-0.0026	0.4219	-0.0119
18.83	4.34	0.4396	-0.0027	0.4367	-0.0014	0.4341	-0.0026	0.4219	-0.0119
19.33	4.40	0.4396	-0.0027	0.4367	-0.0014	0.4341	-0.0026	0.4219	-0.0119
19.83	4.45	0.4396	-0.0027	0.4366	-0.0015	0.4341	-0.0026	0.4219	-0.0119
20.33	4.51	0.4396	-0.0027	0.4366	-0.0015	0.4341	-0.0026	0.4219	-0.0119
20.83	4.56	0.4396	-0.0027	0.4366	-0.0015	0.4341	-0.0026	0.4219	-0.0119
21.33	4.62	0.4396	-0.0027	0.4366	-0.0015	0.4341	-0.0026	0.4219	-0.0119
21.83	4.67	0.4396	-0.0027	0.4366	-0.0015	0.4341	-0.0026	0.4219	-0.0119
22.33	4.73	0.4396	-0.0027	0.4366	-0.0015	0.4341	-0.0026	0.4219	-0.0119
22.83	4.78	0.4396	-0.0027	0.4366	-0.0015	0.4340	-0.0027	0.4219	-0.0119
23.33	4.83	0.4396	-0.0027	0.4366	-0.0015	0.4341	-0.0026	0.4219	-0.0119
23.83	4.88	0.4396	-0.0027	0.4366	-0.0015	0.4341	-0.0026	0.4219	-0.0119
24.33	4.93	0.4396	-0.0027	0.4366	-0.0015	0.4341	-0.0026	0.4210	-0.0128
24.83	4.98	0.4396	-0.0027	0.4366	-0.0015	0.4341	-0.0026	0.4219	-0.0119
25.33	5.03	0.4396	-0.0027	0.4366	-0.0015	0.4341	-0.0026	0.4219	-0.0119
25.83	5.08	0.4396	-0.0027	0.4366	-0.0015	0.4341	-0.0026	0.4219	-0.0119
26.33	5.13	0.4396	-0.0027	0.4366	-0.0015	0.4340	-0.0027	0.4219	-0.0119
26.83	5.18	0.4395	-0.0028	0.4366	-0.0015	0.4340	-0.0027	0.4219	-0.0119
27.33	5.23	0.4395	-0.0028	0.4366	-0.0015	0.4340	-0.0027	0.4210	-0.0128
27.83	5.28	0.4395	-0.0028	0.4366	-0.0015	0.4340	-0.0027	0.4210	-0.0128
28.33	5.32	0.4395	-0.0028	0.4366	-0.0015	0.4340	-0.0027	0.4210	-0.0128
28.83	5.37	0.4395	-0.0028	0.4366	-0.0015	0.4341	-0.0026	0.4210	-0.0128
29.33	5.42	0.4395	-0.0028	0.4366	-0.0015	0.4341	-0.0026	0.4219	-0.0119
29.83	5.46	0.4395	-0.0028	0.4366	-0.0015	0.4341	-0.0026	0.4219	-0.0119
30.33	5.51	0.4395	-0.0028	0.4366	-0.0015	0.4341	-0.0026	0.4219	-0.0119
30.83	5.55	0.4395	-0.0028	0.4366	-0.0015	0.4341	-0.0026	0.4219	-0.0119
31.33	5.60	0.4395	-0.0028	0.4366	-0.0015	0.4341	-0.0026	0.4219	-0.0119
31.83	5.64	0.4395	-0.0028	0.4368	-0.0013	0.4341	-0.0026	0.4219	-0.0119
32.33	5.69	0.4395	-0.0028	0.4368	-0.0013	0.4341	-0.0026	0.4219	-0.0119
32.83	5.73			0.4368	-0.0013	0.4341	-0.0026	0.4219	-0.0119
33.33	5.77			0.4369	-0.0012	0.4341	-0.0026	0.4219	-0.0119
33.83	5.82			0.4369	-0.0012	0.4341	-0.0026	0.4219	-0.0119
34.33	5.86			0.4369	-0.0012	0.4341	-0.0026	0.4219	-0.0119
34.83	5.90			0.4369	-0.0012	0.4341	-0.0026	0.4219	-0.0119

Sample: Pond 8E, BH-2 @ 10.2 feet

Time (minutes)	Square Root of Time (minutes)	Test 1 @ 25 psf		Test 2 @ 50 psf		Test 3 @ 100 psf		Test 4 @ 250 psf	
		Dial Reading (inches)	Deflection (inches)	Dial Reading (inches)	Deflection (inches)	Dial Reading (inches)	Deflection (inches)	Dial Reading (inches)	Deflection (inches)
35.33	5.94			0.4369	-0.0012	0.4341	-0.0026	0.4219	-0.0119
35.83	5.99			0.4369	-0.0012	0.4341	-0.0026	0.4219	-0.0119
36.33	6.03			0.4368	-0.0013	0.4340	-0.0027	0.4100	-0.0238
36.83	6.07			0.4368	-0.0013	0.4340	-0.0027	0.4100	-0.0238
37.33	6.11			0.4368	-0.0013	0.4340	-0.0027	0.4219	-0.0119
37.83	6.15			0.4368	-0.0013	0.4341	-0.0026	0.4219	-0.0119
38.33	6.19			0.4368	-0.0013	0.4341	-0.0026	0.4219	-0.0119
38.83	6.23			0.4368	-0.0013	0.4341	-0.0026	0.4219	-0.0119
39.33	6.27			0.4368	-0.0013	0.4341	-0.0026	0.4219	-0.0119
39.83	6.31			0.4368	-0.0013	0.4341	-0.0026	0.4219	-0.0119
40.33	6.35			0.4368	-0.0013	0.4341	-0.0026	0.4219	-0.0119
40.83	6.39			0.4368	-0.0013	0.4341	-0.0026	0.4219	-0.0119
41.33	6.43			0.4368	-0.0013	0.4341	-0.0026	0.4219	-0.0119
41.83	6.47			0.4368	-0.0013	0.4341	-0.0026	0.4219	-0.0119
42.33	6.51			0.4368	-0.0013	0.4340	-0.0027	0.4219	-0.0119
42.83	6.54			0.4368	-0.0013	0.4340	-0.0027	0.4219	-0.0119
43.33	6.58			0.4368	-0.0013	0.4340	-0.0027	0.4219	-0.0119
43.83	6.62			0.4368	-0.0013	0.4340	-0.0027	0.4219	-0.0119
44.33	6.66			0.4368	-0.0013	0.4341	-0.0026	0.4219	-0.0119
44.83	6.70			0.4368	-0.0013	0.4341	-0.0026	0.4219	-0.0119
45.33	6.73			0.4368	-0.0013	0.4340	-0.0027	0.4219	-0.0119
45.83	6.77			0.4368	-0.0013	0.4340	-0.0027	0.4219	-0.0119
46.33	6.81			0.4368	-0.0013	0.4341	-0.0026	0.4219	-0.0119
46.83	6.84			0.4368	-0.0013	0.4341	-0.0026	0.4219	-0.0119
47.33	6.88			0.4368	-0.0013	0.4340	-0.0027	0.4210	-0.0128
47.83	6.92			0.4368	-0.0013	0.4340	-0.0027	0.4219	-0.0119
48.33	6.95			0.4368	-0.0013	0.4340	-0.0027	0.4219	-0.0119
48.83	6.99			0.4368	-0.0013	0.4341	-0.0026	0.4219	-0.0119
49.33	7.02			0.4368	-0.0013	0.4341	-0.0026	0.4219	-0.0119
49.83	7.06			0.4368	-0.0013	0.4340	-0.0027	0.4219	-0.0119
50.33	7.09			0.4368	-0.0013	0.4340	-0.0027	0.4219	-0.0119
50.83	7.13			0.4368	-0.0013	0.4340	-0.0027	0.4219	-0.0119
51.33	7.16			0.4368	-0.0013	0.4340	-0.0027	0.4219	-0.0119
51.83	7.20			0.4368	-0.0013	0.4340	-0.0027	0.4218	-0.0120
52.33	7.23			0.4368	-0.0013	0.4340	-0.0027	0.4218	-0.0120
52.83	7.27			0.4367	-0.0014	0.4340	-0.0027	0.4218	-0.0120
53.33	7.30			0.4367	-0.0014	0.4340	-0.0027	0.4218	-0.0120
53.83	7.34			0.4367	-0.0014	0.4340	-0.0027	0.4218	-0.0120
54.33	7.37			0.4367	-0.0014	0.4340	-0.0027	0.4218	-0.0120
54.83	7.40			0.4367	-0.0014	0.4340	-0.0027	0.4218	-0.0120
55.33	7.44			0.4367	-0.0014	0.4340	-0.0027	0.4218	-0.0120
55.83	7.47			0.4367	-0.0014	0.4341	-0.0026	0.4218	-0.0120
56.33	7.51			0.4367	-0.0014	0.4341	-0.0026	0.4210	-0.0128
56.83	7.54			0.4367	-0.0014	0.4341	-0.0026	0.4210	-0.0128
57.33	7.57			0.4367	-0.0014	0.4341	-0.0026	0.4210	-0.0128
57.83	7.60			0.4368	-0.0013	0.4341	-0.0026	0.4218	-0.0120
58.33	7.64			0.4368	-0.0013	0.4341	-0.0026	0.4218	-0.0120
58.83	7.67			0.4368	-0.0013	0.4341	-0.0026	0.4218	-0.0120
59.33	7.70			0.4368	-0.0013	0.4341	-0.0026	0.4218	-0.0120
59.83	7.74			0.4368	-0.0013	0.4341	-0.0026	0.4218	-0.0120
60.83	7.80			0.4368	-0.0013	0.4341	-0.0026	0.4218	-0.0120
61.83	7.86			0.4368	-0.0013	0.4341	-0.0026	0.4218	-0.0120
62.83	7.93			0.4368	-0.0013	0.4341	-0.0026	0.4218	-0.0120
63.83	7.99			0.4367	-0.0014	0.4341	-0.0026	0.4218	-0.0120
64.83	8.05			0.4367	-0.0014	0.4341	-0.0026	0.4218	-0.0120
65.83	8.11			0.4367	-0.0014	0.4341	-0.0026	0.4218	-0.0120
66.83	8.18			0.4367	-0.0014	0.4341	-0.0026	0.4218	-0.0120
67.83	8.24			0.4367	-0.0014	0.4341	-0.0026	0.4218	-0.0120
68.83	8.30			0.4368	-0.0013	0.4341	-0.0026	0.4218	-0.0120
69.83	8.36			0.4368	-0.0013	0.4341	-0.0026	0.4218	-0.0120
70.83	8.42			0.4367	-0.0014	0.4341	-0.0026	0.4218	-0.0120
71.83	8.48			0.4367	-0.0014	0.4341	-0.0026	0.4218	-0.0120
72.83	8.53			0.4367	-0.0014	0.4341	-0.0026	0.4218	-0.0120
73.83	8.59			0.4367	-0.0014	0.4341	-0.0026	0.4218	-0.0120
74.83	8.65			0.4368	-0.0013	0.4341	-0.0026	0.4218	-0.0120

Sample: Pond 8E, BH-2 @ 10.2 feet

Time (minutes)	Square Root of Time (minutes)	Test 1 @ 25 psf		Test 2 @ 50 psf		Test 3 @ 100 psf		Test 4 @ 250 psf	
		Dial Reading (inches)	Deflection (inches)	Dial Reading (inches)	Deflection (inches)	Dial Reading (inches)	Deflection (inches)	Dial Reading (inches)	Deflection (inches)
75.83	8.71			0.4368	-0.0013	0.4341	-0.0026	0.4218	-0.0120
76.83	8.77			0.4368	-0.0013	0.4341	-0.0026	0.4218	-0.0120
77.83	8.82			0.4368	-0.0013	0.4341	-0.0026	0.4218	-0.0120
78.83	8.88			0.4368	-0.0013	0.4341	-0.0026	0.4218	-0.0120
79.83	8.93			0.4368	-0.0013	0.4341	-0.0026	0.4218	-0.0120
80.83	8.99			0.4368	-0.0013	0.4341	-0.0026	0.4218	-0.0120
81.83	9.05			0.4368	-0.0013	0.4341	-0.0026	0.4218	-0.0120
82.83	9.10			0.4368	-0.0013	0.4341	-0.0026	0.4218	-0.0120
83.83	9.16			0.4368	-0.0013	0.4341	-0.0026	0.4218	-0.0120
84.83	9.21			0.4367	-0.0014	0.4341	-0.0026	0.4218	-0.0120
85.83	9.26			0.4367	-0.0014	0.4341	-0.0026	0.4218	-0.0120
86.83	9.32			0.4367	-0.0014	0.4341	-0.0026	0.4218	-0.0120
87.83	9.37			0.4367	-0.0014	0.4341	-0.0026	0.4218	-0.0120
88.83	9.43			0.4367	-0.0014	0.4341	-0.0026	0.4218	-0.0120
89.83	9.48			0.4367	-0.0014	0.4341	-0.0026	0.4218	-0.0120
90.83	9.53			0.4367	-0.0014	0.4341	-0.0026	0.4218	-0.0120
91.83	9.58			0.4367	-0.0014	0.4341	-0.0026	0.4218	-0.0120
92.83	9.64			0.4367	-0.0014	0.4341	-0.0026	0.4218	-0.0120
93.83	9.69			0.4367	-0.0014	0.4341	-0.0026	0.4218	-0.0120
94.83	9.74			0.4367	-0.0014	0.4341	-0.0026	0.4218	-0.0120
95.83	9.79			0.4367	-0.0014	0.4341	-0.0026	0.4218	-0.0120
96.83	9.84			0.4367	-0.0014	0.4341	-0.0026	0.4218	-0.0120
97.83	9.89			0.4367	-0.0014	0.4341	-0.0026	0.4218	-0.0120
98.83	9.94			0.4367	-0.0014	0.4341	-0.0026	0.4218	-0.0120
99.83	9.99			0.4367	-0.0014	0.4340	-0.0027	0.4218	-0.0120
100.83	10.04			0.4367	-0.0014	0.4340	-0.0027	0.4218	-0.0120
101.83	10.09			0.4367	-0.0014	0.4340	-0.0027	0.4218	-0.0120
102.83	10.14			0.4367	-0.0014	0.4340	-0.0027	0.4218	-0.0120
103.83	10.19			0.4367	-0.0014	0.4340	-0.0027	0.4218	-0.0120
104.83	10.24			0.4367	-0.0014	0.4340	-0.0027	0.4218	-0.0120
105.83	10.29			0.4367	-0.0014	0.4340	-0.0027	0.4218	-0.0120
106.83	10.34			0.4367	-0.0014	0.4340	-0.0027	0.4218	-0.0120
107.83	10.38			0.4367	-0.0014	0.4341	-0.0026	0.4218	-0.0120
108.83	10.43			0.4367	-0.0014	0.4341	-0.0026	0.4218	-0.0120
109.83	10.48			0.4367	-0.0014	0.4341	-0.0026	0.4218	-0.0120
110.83	10.53			0.4367	-0.0014	0.4341	-0.0026	0.4218	-0.0120
111.83	10.58			0.4367	-0.0014	0.4341	-0.0026	0.4218	-0.0120
112.83	10.62			0.4367	-0.0014	0.4340	-0.0027	0.4218	-0.0120
113.83	10.67			0.4367	-0.0014	0.4340	-0.0027	0.4218	-0.0120
114.83	10.72			0.4367	-0.0014	0.4340	-0.0027	0.4218	-0.0120
115.83	10.76			0.4367	-0.0014	0.4340	-0.0027	0.4218	-0.0120
116.83	10.81			0.4367	-0.0014	0.4340	-0.0027	0.4218	-0.0120
117.83	10.86			0.4367	-0.0014	0.4340	-0.0027	0.4218	-0.0120
118.83	10.90			0.4367	-0.0014	0.4340	-0.0027	0.4218	-0.0120
119.83	10.95			0.4367	-0.0014	0.4340	-0.0027	0.4218	-0.0120
129.83	11.39			0.4367	-0.0014	0.4340	-0.0027	0.4218	-0.0120
139.83	11.83			0.4367	-0.0014	0.4340	-0.0027	0.4218	-0.0120
149.83	12.24			0.4367	-0.0014	0.4340	-0.0027	0.4218	-0.0120
159.83	12.64			0.4367	-0.0014	0.4340	-0.0027	0.4217	-0.0121
169.83	13.03			0.4366	-0.0015	0.4339	-0.0028	0.4217	-0.0121
179.83	13.41			0.4367	-0.0014	0.4339	-0.0028	0.4217	-0.0121
189.83	13.78			0.4367	-0.0014	0.4340	-0.0027	0.4217	-0.0121
199.83	14.14			0.4367	-0.0014	0.4341	-0.0026	0.4217	-0.0121
209.83	14.49			0.4367	-0.0014	0.4341	-0.0026	0.4217	-0.0121
219.83	14.83			0.4367	-0.0014	0.4341	-0.0026	0.4217	-0.0121
229.83	15.16			0.4367	-0.0014	0.4340	-0.0027	0.4217	-0.0121
239.83	15.49			0.4367	-0.0014	0.4340	-0.0027	0.4217	-0.0121
249.83	15.81			0.4367	-0.0014	0.4338	-0.0029	0.4217	-0.0121
259.83	16.12			0.4367	-0.0014	0.4338	-0.0029	0.4216	-0.0122
269.83	16.43			0.4367	-0.0014	0.4338	-0.0029	0.4216	-0.0122
279.83	16.73			0.4367	-0.0014	0.4337	-0.0030	0.4216	-0.0122
289.83	17.02			0.4367	-0.0014	0.4338	-0.0029	0.4216	-0.0122
299.83	17.32			0.4367	-0.0014			0.4216	-0.0122
309.83	17.60			0.4367	-0.0014			0.4216	-0.0122
319.83	17.88			0.4367	-0.0014			0.4216	-0.0122

Sample: Pond 8E, BH-2 @ 10.2 feet

Time (minutes)	Square Root of Time (minutes)	Test 1 @ 25 psf		Test 2 @ 50 psf		Test 3 @ 100 psf		Test 4 @ 250 psf	
		Dial Reading (inches)	Deflection (inches)	Dial Reading (inches)	Deflection (inches)	Dial Reading (inches)	Deflection (inches)	Dial Reading (inches)	Deflection (inches)
329.83	18.16			0.4367	-0.0014			0.4216	-0.0122
339.83	18.43			0.4367	-0.0014			0.4217	-0.0121
349.83	18.70			0.4367	-0.0014			0.4217	-0.0121
359.83	18.97			0.4367	-0.0014			0.4217	-0.0121
369.83	19.23			0.4367	-0.0014			0.4217	-0.0121
379.83	19.49			0.4367	-0.0014			0.4217	-0.0121
389.83	19.74			0.4367	-0.0014			0.4217	-0.0121
399.83	20.00			0.4367	-0.0014			0.4217	-0.0121
409.83	20.24			0.4367	-0.0014			0.4216	-0.0122
419.83	20.49			0.4367	-0.0014			0.4217	-0.0121
429.83	20.73			0.4367	-0.0014			0.4218	-0.0120
439.83	20.97			0.4367	-0.0014			0.4217	-0.0121
449.83	21.21			0.4367	-0.0014			0.4217	-0.0121
459.83	21.44			0.4367	-0.0014			0.4218	-0.0120
469.83	21.68			0.4367	-0.0014			0.4218	-0.0120
479.83	21.91			0.4367	-0.0014			0.4217	-0.0121
489.83	22.13			0.4367	-0.0014			0.4217	-0.0121
499.83	22.36			0.4366	-0.0015			0.4217	-0.0121
509.83	22.58			0.4367	-0.0014			0.4218	-0.0120
519.83	22.80			0.4366	-0.0015			0.4217	-0.0121
529.83	23.02			0.4367	-0.0014			0.4218	-0.0120
539.83	23.23			0.4367	-0.0014			0.4217	-0.0121
549.83	23.45			0.4367	-0.0014			0.4217	-0.0121
559.83	23.66			0.4367	-0.0014			0.4217	-0.0121
569.83	23.87			0.4367	-0.0014			0.4218	-0.0120
579.83	24.08			0.4367	-0.0014			0.4218	-0.0120
589.83	24.29			0.4367	-0.0014			0.4217	-0.0121
599.83	24.49			0.4367	-0.0014			0.4217	-0.0121
609.83	24.69			0.4367	-0.0014			0.4217	-0.0121
619.83	24.90			0.4367	-0.0014			0.4217	-0.0121
629.83	25.10			0.4367	-0.0014			0.4217	-0.0121
639.83	25.29			0.4367	-0.0014			0.4218	-0.0120
649.83	25.49			0.4367	-0.0014			0.4217	-0.0121
659.83	25.69			0.4367	-0.0014			0.4217	-0.0121
669.83	25.88			0.4367	-0.0014			0.4218	-0.0120
679.83	26.07			0.4367	-0.0014			0.4218	-0.0120
689.83	26.26			0.4367	-0.0014			0.4218	-0.0120
699.83	26.45			0.4367	-0.0014			0.4218	-0.0120
709.83	26.64			0.4367	-0.0014			0.4218	-0.0120
719.83	26.83			0.4367	-0.0014			0.4218	-0.0120
749.83	27.38			0.4367	-0.0014			0.4218	-0.0120
779.83	27.93			0.4367	-0.0014			0.4218	-0.0120
809.83	28.46			0.4367	-0.0014			0.4218	-0.0120
839.83	28.98			0.4367	-0.0014			0.4217	-0.0121
869.83	29.49			0.4367	-0.0014			0.4218	-0.0120
899.83	30.00			0.4367	-0.0014			0.4218	-0.0120
929.83	30.49			0.4367	-0.0014			0.4218	-0.0120
959.83	30.98			0.4366	-0.0015			0.4217	-0.0121
989.83	31.46			0.4366	-0.0015			0.4218	-0.0120
1019.83	31.93							0.4217	-0.0121
1049.83	32.40							0.4217	-0.0121
1079.83	32.86							0.4217	-0.0121
1109.83	33.31							0.4217	-0.0121
1139.83	33.76							0.4216	-0.0122

Sample: Pond 8E, BH-2 @ 10.2 feet

Time (minutes)	Square Root of Time (minutes)	Test 5 @ 500 psf		Test 6 @ 1000 psf		Test 7 @ 2000 psf		Test 8 @ 4000 psf	
		Dial Reading (inches)	Deflection (inches)	Dial Reading (inches)	Deflection (inches)	Dial Reading (inches)	Deflection (inches)	Dial Reading (inches)	Deflection (inches)
0.00	0.00	0.4216	0.0000	0.4126	0.0000	0.3998	0.0000	0.4427	0.0000
0.17	0.41	0.4216	0.0000	0.4126	0.0000	0.3998	0.0000	0.4427	0.0000
0.33	0.58	0.4142	-0.0074	0.4126	0.0000	0.3998	0.0000	0.4380	-0.0047
0.50	0.71	0.4141	-0.0075	0.4126	0.0000	0.3998	0.0000	0.4091	-0.0336
0.67	0.82	0.4141	-0.0075	0.4126	0.0000	0.3998	0.0000	0.3934	-0.0493
0.83	0.91	0.4141	-0.0075	0.4014	-0.0112	0.3748	-0.0250	0.3888	-0.0539
1.00	1.00	0.4141	-0.0075	0.4012	-0.0114	0.3748	-0.0250	0.3748	-0.0679
1.17	1.08	0.4140	-0.0076	0.4012	-0.0114	0.3748	-0.0250	0.3667	-0.0760
1.33	1.15	0.4140	-0.0076	0.4012	-0.0114	0.3748	-0.0250	0.3558	-0.0869
1.50	1.22	0.4140	-0.0076	0.4012	-0.0114	0.3748	-0.0250	0.3468	-0.0959
1.67	1.29	0.4140	-0.0076	0.4012	-0.0114	0.3748	-0.0250	0.3425	-0.1002
1.83	1.35	0.4140	-0.0076	0.4012	-0.0114	0.3747	-0.0251	0.3397	-0.1030
2.00	1.41	0.4140	-0.0076	0.4011	-0.0115	0.3747	-0.0251	0.3366	-0.1061
2.17	1.47	0.4140	-0.0076	0.4011	-0.0115	0.3747	-0.0251	0.3350	-0.1077
2.33	1.53	0.4140	-0.0076	0.4011	-0.0115	0.3747	-0.0251	0.3342	-0.1085
2.50	1.58	0.4140	-0.0076	0.4011	-0.0115	0.3747	-0.0251	0.3342	-0.1085
2.67	1.63	0.4140	-0.0076	0.4011	-0.0115	0.3747	-0.0251	0.3313	-0.1114
2.83	1.68	0.4140	-0.0076	0.4011	-0.0115	0.3746	-0.0252	0.3305	-0.1122
3.00	1.73	0.4140	-0.0076	0.4011	-0.0115	0.3746	-0.0252	0.3301	-0.1126
3.17	1.78	0.4140	-0.0076	0.4011	-0.0115	0.3746	-0.0252	0.3296	-0.1131
3.33	1.83	0.4140	-0.0076	0.4011	-0.0115	0.3746	-0.0252	0.3292	-0.1135
3.50	1.87	0.4140	-0.0076	0.4011	-0.0115	0.3746	-0.0252	0.3289	-0.1138
3.67	1.91	0.4140	-0.0076	0.4011	-0.0115	0.3746	-0.0252	0.3284	-0.1143
3.83	1.96	0.4140	-0.0076	0.4011	-0.0115	0.3746	-0.0252	0.3284	-0.1143
4.00	2.00	0.4140	-0.0076	0.4011	-0.0115	0.3746	-0.0252	0.3284	-0.1143
4.17	2.04	0.4140	-0.0076	0.4011	-0.0115	0.3746	-0.0252	0.3284	-0.1143
4.33	2.08	0.4140	-0.0076	0.4011	-0.0115	0.3746	-0.0252	0.3284	-0.1143
4.50	2.12	0.4140	-0.0076	0.4011	-0.0115	0.3746	-0.0252	0.3283	-0.1144
4.67	2.16	0.4140	-0.0076	0.4011	-0.0115	0.3746	-0.0252	0.3283	-0.1144
4.83	2.20	0.4140	-0.0076	0.4011	-0.0115	0.3746	-0.0252	0.3283	-0.1144
5.00	2.24	0.4140	-0.0076	0.4011	-0.0115	0.3746	-0.0252	0.3283	-0.1144
5.17	2.27	0.4140	-0.0076	0.4011	-0.0115	0.3746	-0.0252	0.3283	-0.1144
5.33	2.31	0.4140	-0.0076	0.4011	-0.0115	0.3746	-0.0252	0.3283	-0.1144
5.50	2.35	0.4140	-0.0076	0.4011	-0.0115	0.3746	-0.0252	0.3283	-0.1144
5.67	2.38	0.4140	-0.0076	0.4011	-0.0115	0.3746	-0.0252	0.3283	-0.1144
5.83	2.42	0.4140	-0.0076	0.4011	-0.0115	0.3746	-0.0252	0.3283	-0.1144
6.00	2.45	0.4140	-0.0076	0.4011	-0.0115	0.3746	-0.0252	0.3283	-0.1144
6.17	2.48	0.4140	-0.0076	0.4011	-0.0115	0.3746	-0.0252	0.3283	-0.1144
6.33	2.52	0.4140	-0.0076	0.4011	-0.0115	0.3746	-0.0252	0.3283	-0.1144
6.50	2.55	0.4140	-0.0076	0.4011	-0.0115	0.3746	-0.0252	0.3283	-0.1144
6.67	2.58	0.4140	-0.0076	0.4011	-0.0115	0.3746	-0.0252	0.3283	-0.1144
6.83	2.61	0.4140	-0.0076	0.4011	-0.0115	0.3746	-0.0252	0.3283	-0.1144
7.00	2.65	0.4140	-0.0076	0.4011	-0.0115	0.3746	-0.0252	0.3283	-0.1144
7.17	2.68	0.4140	-0.0076	0.4011	-0.0115	0.3746	-0.0252	0.3283	-0.1144
7.33	2.71	0.4140	-0.0076	0.4011	-0.0115	0.3746	-0.0252	0.3283	-0.1144
7.50	2.74	0.4140	-0.0076	0.4011	-0.0115	0.3746	-0.0252	0.3283	-0.1144
7.67	2.77	0.4140	-0.0076	0.4011	-0.0115	0.3746	-0.0252	0.3283	-0.1144
7.83	2.80	0.4140	-0.0076	0.4011	-0.0115	0.3746	-0.0252	0.3283	-0.1144
8.00	2.83	0.4140	-0.0076	0.4011	-0.0115	0.3746	-0.0252	0.3283	-0.1144
8.17	2.86	0.4140	-0.0076	0.4011	-0.0115	0.3746	-0.0252	0.3280	-0.1147
8.33	2.89	0.4140	-0.0076	0.4011	-0.0115	0.3746	-0.0252	0.3282	-0.1145
8.50	2.92	0.4140	-0.0076	0.4011	-0.0115	0.3746	-0.0252	0.3282	-0.1145
8.67	2.94	0.4140	-0.0076	0.4011	-0.0115	0.3746	-0.0252	0.3282	-0.1145
8.83	2.97	0.4140	-0.0076	0.4011	-0.0115	0.3746	-0.0252	0.3282	-0.1145
9.00	3.00	0.4140	-0.0076	0.4011	-0.0115	0.3746	-0.0252	0.3282	-0.1145
9.17	3.03	0.4140	-0.0076	0.4011	-0.0115	0.3746	-0.0252	0.3282	-0.1145
9.33	3.06	0.4140	-0.0076	0.4011	-0.0115	0.3746	-0.0252	0.3282	-0.1145
9.50	3.08	0.4129	-0.0087	0.4011	-0.0115	0.3746	-0.0252	0.3282	-0.1145
9.67	3.11	0.4129	-0.0087	0.4011	-0.0115	0.3746	-0.0252	0.3282	-0.1145
9.83	3.14	0.4129	-0.0087	0.4011	-0.0115	0.3746	-0.0252	0.3282	-0.1145
10.00	3.16	0.4129	-0.0087	0.4011	-0.0115	0.3746	-0.0252	0.3282	-0.1145
10.17	3.19	0.4129	-0.0087	0.4011	-0.0115	0.3746	-0.0252	0.3282	-0.1145
10.33	3.21	0.4129	-0.0087	0.4011	-0.0115	0.3746	-0.0252	0.3282	-0.1145
10.50	3.24	0.4129	-0.0087	0.4011	-0.0115	0.3746	-0.0252	0.3282	-0.1145
10.67	3.27	0.4129	-0.0087	0.4011	-0.0115	0.3746	-0.0252	0.3282	-0.1145

Sample: Pond 8E, BH-2 @ 10.2 feet

Time (minutes)	Square Root of Time (minutes)	Test 5 @ 500 psf		Test 6 @ 1000 psf		Test 7 @ 2000 psf		Test 8 @ 4000 psf	
		Dial Reading (inches)	Deflection (inches)	Dial Reading (inches)	Deflection (inches)	Dial Reading (inches)	Deflection (inches)	Dial Reading (inches)	Deflection (inches)
10.83	3.29	0.4129	-0.0087	0.4011	-0.0115	0.3746	-0.0252	0.3280	-0.1147
11.00	3.32	0.4129	-0.0087	0.4011	-0.0115	0.3746	-0.0252	0.3282	-0.1145
11.17	3.34	0.4129	-0.0087	0.4011	-0.0115	0.3746	-0.0252	0.3282	-0.1145
11.33	3.37	0.4129	-0.0087	0.4011	-0.0115	0.3746	-0.0252	0.3282	-0.1145
11.50	3.39	0.4129	-0.0087	0.4011	-0.0115	0.3746	-0.0252	0.3282	-0.1145
11.67	3.42	0.4129	-0.0087	0.4011	-0.0115	0.3746	-0.0252	0.3282	-0.1145
11.83	3.44	0.4129	-0.0087	0.4011	-0.0115	0.3745	-0.0253	0.3282	-0.1145
12.00	3.46	0.4129	-0.0087	0.4011	-0.0115	0.3745	-0.0253	0.3282	-0.1145
12.17	3.49	0.4129	-0.0087	0.4011	-0.0115	0.3745	-0.0253	0.3282	-0.1145
12.33	3.51	0.4129	-0.0087	0.4011	-0.0115	0.3745	-0.0253	0.3282	-0.1145
12.50	3.54	0.4129	-0.0087	0.4011	-0.0115	0.3745	-0.0253	0.3282	-0.1145
12.67	3.56	0.4129	-0.0087	0.4010	-0.0116	0.3745	-0.0253	0.3282	-0.1145
12.83	3.58	0.4129	-0.0087	0.4011	-0.0115	0.3745	-0.0253	0.3282	-0.1145
13.00	3.61	0.4129	-0.0087	0.4011	-0.0115	0.3745	-0.0253	0.3282	-0.1145
13.17	3.63	0.4129	-0.0087	0.4011	-0.0115	0.3745	-0.0253	0.3282	-0.1145
13.33	3.65	0.4129	-0.0087	0.4011	-0.0115	0.3745	-0.0253	0.3282	-0.1145
13.50	3.67	0.4129	-0.0087	0.4011	-0.0115	0.3745	-0.0253	0.3282	-0.1145
13.67	3.70	0.4129	-0.0087	0.4010	-0.0116	0.3745	-0.0253	0.3282	-0.1145
13.83	3.72	0.4129	-0.0087	0.4010	-0.0116	0.3745	-0.0253	0.3282	-0.1145
14.00	3.74	0.4129	-0.0087	0.4010	-0.0116	0.3745	-0.0253	0.3282	-0.1145
14.17	3.76	0.4129	-0.0087	0.4010	-0.0116	0.3745	-0.0253	0.3282	-0.1145
14.33	3.79	0.4129	-0.0087	0.4010	-0.0116	0.3746	-0.0252	0.3282	-0.1145
14.50	3.81	0.4129	-0.0087	0.4010	-0.0116	0.3746	-0.0252	0.3282	-0.1145
14.67	3.83	0.4129	-0.0087	0.4010	-0.0116	0.3746	-0.0252	0.3282	-0.1145
14.83	3.85	0.4129	-0.0087	0.4010	-0.0116	0.3746	-0.0252	0.3282	-0.1145
15.33	3.92	0.4129	-0.0087	0.4010	-0.0116	0.3746	-0.0252	0.3282	-0.1145
15.83	3.98	0.4129	-0.0087	0.4010	-0.0116	0.3746	-0.0252	0.3282	-0.1145
16.33	4.04	0.4129	-0.0087	0.4010	-0.0116	0.3745	-0.0253	0.3282	-0.1145
16.83	4.10	0.4129	-0.0087	0.4011	-0.0115	0.3745	-0.0253	0.3282	-0.1145
17.33	4.16	0.4129	-0.0087	0.4010	-0.0116	0.3745	-0.0253	0.3282	-0.1145
17.83	4.22	0.4129	-0.0087	0.4010	-0.0116	0.3745	-0.0253	0.3282	-0.1145
18.33	4.28	0.4129	-0.0087	0.4010	-0.0116	0.3745	-0.0253	0.3282	-0.1145
18.83	4.34	0.4129	-0.0087	0.4010	-0.0116	0.3745	-0.0253	0.3282	-0.1145
19.33	4.40	0.4129	-0.0087	0.4010	-0.0116	0.3745	-0.0253	0.3282	-0.1145
19.83	4.45	0.4129	-0.0087	0.4010	-0.0116	0.3745	-0.0253	0.3282	-0.1145
20.33	4.51	0.4129	-0.0087	0.4010	-0.0116	0.3745	-0.0253	0.3282	-0.1145
20.83	4.56	0.4129	-0.0087	0.4011	-0.0115	0.3745	-0.0253	0.3282	-0.1145
21.33	4.62	0.4129	-0.0087	0.4010	-0.0116	0.3745	-0.0253	0.3282	-0.1145
21.83	4.67	0.4129	-0.0087	0.4011	-0.0115	0.3745	-0.0253	0.3282	-0.1145
22.33	4.73	0.4129	-0.0087	0.4011	-0.0115	0.3745	-0.0253	0.3282	-0.1145
22.83	4.78	0.4129	-0.0087	0.4010	-0.0116	0.3745	-0.0253	0.3282	-0.1145
23.33	4.83	0.4129	-0.0087	0.4010	-0.0116	0.3745	-0.0253	0.3282	-0.1145
23.83	4.88	0.4129	-0.0087	0.4010	-0.0116	0.3745	-0.0253	0.3282	-0.1145
24.33	4.93	0.4129	-0.0087	0.4010	-0.0116	0.3745	-0.0253	0.3281	-0.1146
24.83	4.98	0.4129	-0.0087	0.4010	-0.0116	0.3745	-0.0253	0.3281	-0.1146
25.33	5.03	0.4129	-0.0087	0.4010	-0.0116	0.3745	-0.0253	0.3281	-0.1146
25.83	5.08	0.4129	-0.0087	0.4010	-0.0116	0.3745	-0.0253	0.3281	-0.1146
26.33	5.13	0.4129	-0.0087	0.4010	-0.0116	0.3745	-0.0253	0.3281	-0.1146
26.83	5.18	0.4129	-0.0087	0.4009	-0.0117	0.3745	-0.0253	0.3281	-0.1146
27.33	5.23	0.4129	-0.0087	0.4009	-0.0117	0.3745	-0.0253	0.3281	-0.1146
27.83	5.28	0.4129	-0.0087	0.4009	-0.0117	0.3745	-0.0253	0.3281	-0.1146
28.33	5.32	0.4129	-0.0087	0.4009	-0.0117	0.3745	-0.0253	0.3281	-0.1146
28.83	5.37	0.4129	-0.0087	0.4009	-0.0117	0.3740	-0.0258	0.3281	-0.1146
29.33	5.42	0.4129	-0.0087	0.4009	-0.0117	0.3745	-0.0253	0.3281	-0.1146
29.83	5.46	0.4129	-0.0087	0.4009	-0.0117	0.3745	-0.0253	0.3281	-0.1146
30.33	5.51	0.4129	-0.0087	0.4009	-0.0117	0.3745	-0.0253	0.3281	-0.1146
30.83	5.55	0.4129	-0.0087	0.4009	-0.0117	0.3745	-0.0253	0.3281	-0.1146
31.33	5.60	0.4129	-0.0087	0.4009	-0.0117	0.3745	-0.0253	0.3281	-0.1146
31.83	5.64	0.4129	-0.0087	0.4009	-0.0117	0.3745	-0.0253	0.3281	-0.1146
32.33	5.69	0.4129	-0.0087	0.4009	-0.0117	0.3745	-0.0253	0.3281	-0.1146
32.83	5.73	0.4129	-0.0087	0.4009	-0.0117	0.3745	-0.0253	0.3281	-0.1146
33.33	5.77	0.4129	-0.0087	0.4009	-0.0117	0.3745	-0.0253	0.3281	-0.1146
33.83	5.82	0.4129	-0.0087	0.4009	-0.0117	0.3745	-0.0253	0.3281	-0.1146
34.33	5.86	0.4129	-0.0087	0.4009	-0.0117	0.3745	-0.0253	0.3281	-0.1146
34.83	5.90	0.4129	-0.0087	0.4009	-0.0117	0.3745	-0.0253	0.3281	-0.1146

Sample: Pond 8E, BH-2 @ 10.2 feet

Time (minutes)	Square Root of Time (minutes)	Test 5 @ 500 psf		Test 6 @ 1000 psf		Test 7 @ 2000 psf		Test 8 @ 4000 psf	
		Dial Reading (inches)	Deflection (inches)	Dial Reading (inches)	Deflection (inches)	Dial Reading (inches)	Deflection (inches)	Dial Reading (inches)	Deflection (inches)
35.33	5.94	0.4129	-0.0087	0.4009	-0.0117	0.3745	-0.0253	0.3281	-0.1146
35.83	5.99	0.4129	-0.0087	0.4009	-0.0117	0.3745	-0.0253	0.3281	-0.1146
36.33	6.03	0.4129	-0.0087	0.4009	-0.0117	0.3745	-0.0253	0.3281	-0.1146
36.83	6.07	0.4129	-0.0087	0.4009	-0.0117	0.3745	-0.0253	0.3281	-0.1146
37.33	6.11	0.4129	-0.0087	0.4009	-0.0117	0.3745	-0.0253	0.3281	-0.1146
37.83	6.15	0.4129	-0.0087	0.4009	-0.0117	0.3745	-0.0253	0.3281	-0.1146
38.33	6.19	0.4129	-0.0087	0.4009	-0.0117	0.3745	-0.0253	0.3281	-0.1146
38.83	6.23	0.4129	-0.0087	0.4009	-0.0117	0.3745	-0.0253	0.3281	-0.1146
39.33	6.27	0.4129	-0.0087	0.4009	-0.0117	0.3745	-0.0253	0.3281	-0.1146
39.83	6.31	0.4129	-0.0087	0.4009	-0.0117	0.3745	-0.0253	0.3281	-0.1146
40.33	6.35	0.4129	-0.0087	0.4009	-0.0117	0.3745	-0.0253	0.3281	-0.1146
40.83	6.39	0.4127	-0.0089	0.4009	-0.0117	0.3745	-0.0253	0.3281	-0.1146
41.33	6.43	0.4127	-0.0089	0.4009	-0.0117	0.3745	-0.0253	0.3281	-0.1146
41.83	6.47	0.4127	-0.0089	0.4009	-0.0117	0.3745	-0.0253	0.3282	-0.1145
42.33	6.51	0.4127	-0.0089	0.4009	-0.0117	0.3745	-0.0253	0.3281	-0.1146
42.83	6.54	0.4128	-0.0088	0.4009	-0.0117	0.3745	-0.0253	0.3281	-0.1146
43.33	6.58	0.4129	-0.0087	0.4009	-0.0117	0.3745	-0.0253	0.3281	-0.1146
43.83	6.62	0.4129	-0.0087	0.4009	-0.0117	0.3745	-0.0253	0.3281	-0.1146
44.33	6.66	0.4129	-0.0087	0.4009	-0.0117	0.3745	-0.0253	0.3281	-0.1146
44.83	6.70	0.4129	-0.0087	0.4009	-0.0117	0.3745	-0.0253	0.3281	-0.1146
45.33	6.73	0.4129	-0.0087	0.4009	-0.0117	0.3745	-0.0253	0.3281	-0.1146
45.83	6.77	0.4128	-0.0088	0.4009	-0.0117	0.3745	-0.0253	0.3281	-0.1146
46.33	6.81	0.4128	-0.0088	0.4009	-0.0117	0.3745	-0.0253	0.3281	-0.1146
46.83	6.84	0.4128	-0.0088	0.4009	-0.0117	0.3745	-0.0253	0.3281	-0.1146
47.33	6.88	0.4128	-0.0088	0.4009	-0.0117	0.3745	-0.0253	0.3281	-0.1146
47.83	6.92	0.4129	-0.0087	0.4009	-0.0117	0.3745	-0.0253	0.3282	-0.1145
48.33	6.95	0.4129	-0.0087	0.4009	-0.0117	0.3745	-0.0253	0.3282	-0.1145
48.83	6.99	0.4129	-0.0087	0.4009	-0.0117	0.3745	-0.0253	0.3282	-0.1145
49.33	7.02	0.4129	-0.0087	0.4009	-0.0117	0.3745	-0.0253	0.3282	-0.1145
49.83	7.06	0.4128	-0.0088	0.4010	-0.0116	0.3745	-0.0253	0.3281	-0.1146
50.33	7.09	0.4128	-0.0088	0.4010	-0.0116	0.3745	-0.0253	0.3281	-0.1146
50.83	7.13	0.4128	-0.0088	0.4010	-0.0116	0.3745	-0.0253	0.3281	-0.1146
51.33	7.16	0.4128	-0.0088	0.4010	-0.0116	0.3745	-0.0253	0.3281	-0.1146
51.83	7.20	0.4128	-0.0088	0.4010	-0.0116	0.3745	-0.0253	0.3281	-0.1146
52.33	7.23	0.4128	-0.0088	0.4010	-0.0116	0.3745	-0.0253	0.3281	-0.1146
52.83	7.27	0.4128	-0.0088	0.4010	-0.0116	0.3745	-0.0253	0.3281	-0.1146
53.33	7.30	0.4128	-0.0088	0.4010	-0.0116	0.3745	-0.0253	0.3281	-0.1146
53.83	7.34	0.4128	-0.0088	0.4010	-0.0116	0.3745	-0.0253	0.3281	-0.1146
54.33	7.37	0.4128	-0.0088	0.4009	-0.0117	0.3745	-0.0253	0.3281	-0.1146
54.83	7.40	0.4128	-0.0088	0.4009	-0.0117	0.3745	-0.0253	0.3281	-0.1146
55.33	7.44	0.4128	-0.0088	0.4010	-0.0116	0.3745	-0.0253	0.3281	-0.1146
55.83	7.47	0.4128	-0.0088	0.4010	-0.0116	0.3745	-0.0253	0.3282	-0.1145
56.33	7.51	0.4128	-0.0088	0.4010	-0.0116	0.3745	-0.0253	0.3282	-0.1145
56.83	7.54	0.4128	-0.0088	0.4010	-0.0116	0.3745	-0.0253	0.3282	-0.1145
57.33	7.57	0.4128	-0.0088	0.4010	-0.0116	0.3745	-0.0253	0.3282	-0.1145
57.83	7.60	0.4128	-0.0088	0.4009	-0.0117	0.3745	-0.0253	0.3282	-0.1145
58.33	7.64	0.4128	-0.0088	0.4009	-0.0117	0.3745	-0.0253	0.3282	-0.1145
58.83	7.67	0.4128	-0.0088	0.4009	-0.0117	0.3745	-0.0253	0.3282	-0.1145
59.33	7.70	0.4128	-0.0088	0.4010	-0.0116	0.3745	-0.0253	0.3282	-0.1145
59.83	7.74	0.4128	-0.0088	0.4009	-0.0117	0.3745	-0.0253	0.3282	-0.1145
60.83	7.80	0.4128	-0.0088	0.4009	-0.0117	0.3745	-0.0253	0.3282	-0.1145
61.83	7.86	0.4128	-0.0088	0.4009	-0.0117	0.3745	-0.0253	0.3282	-0.1145
62.83	7.93	0.4128	-0.0088	0.4009	-0.0117	0.3745	-0.0253	0.3282	-0.1145
63.83	7.99	0.4128	-0.0088	0.4009	-0.0117	0.3745	-0.0253	0.3282	-0.1145
64.83	8.05	0.4128	-0.0088	0.4009	-0.0117	0.3745	-0.0253	0.3282	-0.1145
65.83	8.11	0.4128	-0.0088	0.4009	-0.0117	0.3745	-0.0253	0.3282	-0.1145
66.83	8.18	0.4128	-0.0088	0.4009	-0.0117	0.3745	-0.0253	0.3282	-0.1145
67.83	8.24	0.4128	-0.0088	0.4009	-0.0117	0.3745	-0.0253	0.3282	-0.1145
68.83	8.30	0.4128	-0.0088	0.4009	-0.0117	0.3745	-0.0253	0.3282	-0.1145
69.83	8.36	0.4128	-0.0088	0.4009	-0.0117	0.3745	-0.0253	0.3282	-0.1145
70.83	8.42	0.4128	-0.0088	0.4009	-0.0117	0.3745	-0.0253	0.3282	-0.1145
71.83	8.48	0.4128	-0.0088	0.4009	-0.0117	0.3745	-0.0253	0.3282	-0.1145
72.83	8.53	0.4128	-0.0088	0.4009	-0.0117	0.3745	-0.0253	0.3282	-0.1145
73.83	8.59	0.4128	-0.0088	0.4009	-0.0117	0.3747	-0.0251	0.3282	-0.1145
74.83	8.65	0.4128	-0.0088	0.4009	-0.0117	0.3736	-0.0262	0.3282	-0.1145

Sample: Pond 8E, BH-2 @ 10.2 feet

Time (minutes)	Square Root of Time (minutes)	Test 5 @ 500 psf		Test 6 @ 1000 psf		Test 7 @ 2000 psf		Test 8 @ 4000 psf	
		Dial Reading (inches)	Deflection (inches)	Dial Reading (inches)	Deflection (inches)	Dial Reading (inches)	Deflection (inches)	Dial Reading (inches)	Deflection (inches)
75.83	8.71	0.4128	-0.0088	0.4009	-0.0117	0.3736	-0.0262	0.3282	-0.1145
76.83	8.77	0.4128	-0.0088	0.4009	-0.0117	0.3736	-0.0262	0.3282	-0.1145
77.83	8.82	0.4128	-0.0088	0.4009	-0.0117	0.3736	-0.0262	0.3282	-0.1145
78.83	8.88	0.4128	-0.0088	0.4009	-0.0117	0.3736	-0.0262	0.3282	-0.1145
79.83	8.93	0.4128	-0.0088	0.4009	-0.0117	0.3737	-0.0261	0.3282	-0.1145
80.83	8.99	0.4128	-0.0088	0.4009	-0.0117	0.3737	-0.0261	0.3282	-0.1145
81.83	9.05	0.4128	-0.0088	0.4009	-0.0117	0.3737	-0.0261	0.3282	-0.1145
82.83	9.10	0.4128	-0.0088	0.4009	-0.0117	0.3737	-0.0261	0.3282	-0.1145
83.83	9.16	0.4128	-0.0088	0.4009	-0.0117	0.3737	-0.0261	0.3282	-0.1145
84.83	9.21	0.4128	-0.0088	0.4009	-0.0117	0.3736	-0.0262	0.3282	-0.1145
85.83	9.26	0.4128	-0.0088	0.4009	-0.0117	0.3736	-0.0262	0.3282	-0.1145
86.83	9.32	0.4128	-0.0088	0.4009	-0.0117	0.3736	-0.0262	0.3282	-0.1145
87.83	9.37	0.4128	-0.0088	0.4009	-0.0117	0.3736	-0.0262	0.3282	-0.1145
88.83	9.43	0.4128	-0.0088	0.4009	-0.0117	0.3736	-0.0262	0.3282	-0.1145
89.83	9.48	0.4128	-0.0088	0.4009	-0.0117	0.3736	-0.0262	0.3282	-0.1145
90.83	9.53	0.4128	-0.0088	0.4009	-0.0117	0.3736	-0.0262	0.3282	-0.1145
91.83	9.58	0.4128	-0.0088	0.4009	-0.0117	0.3736	-0.0262	0.3282	-0.1145
92.83	9.64	0.4128	-0.0088	0.4009	-0.0117	0.3736	-0.0262	0.3282	-0.1145
93.83	9.69	0.4128	-0.0088	0.4009	-0.0117	0.3736	-0.0262	0.3282	-0.1145
94.83	9.74	0.4128	-0.0088	0.4009	-0.0117	0.3736	-0.0262	0.3282	-0.1145
95.83	9.79	0.4128	-0.0088	0.4009	-0.0117	0.3736	-0.0262	0.3282	-0.1145
96.83	9.84	0.4128	-0.0088	0.4009	-0.0117	0.3736	-0.0262	0.3282	-0.1145
97.83	9.89	0.4128	-0.0088	0.4009	-0.0117	0.3736	-0.0262	0.3282	-0.1145
98.83	9.94	0.4128	-0.0088	0.4009	-0.0117	0.3736	-0.0262	0.3282	-0.1145
99.83	9.99	0.4128	-0.0088	0.4009	-0.0117	0.3736	-0.0262	0.3282	-0.1145
100.83	10.04	0.4128	-0.0088	0.4009	-0.0117	0.3736	-0.0262	0.3282	-0.1145
101.83	10.09	0.4128	-0.0088	0.4009	-0.0117	0.3736	-0.0262	0.3282	-0.1145
102.83	10.14	0.4128	-0.0088	0.4009	-0.0117	0.3736	-0.0262	0.3282	-0.1145
103.83	10.19	0.4128	-0.0088	0.4009	-0.0117	0.3736	-0.0262	0.3282	-0.1145
104.83	10.24	0.4128	-0.0088	0.4009	-0.0117	0.3736	-0.0262	0.3282	-0.1145
105.83	10.29	0.4128	-0.0088	0.4009	-0.0117	0.3736	-0.0262	0.3282	-0.1145
106.83	10.34	0.4128	-0.0088	0.4009	-0.0117	0.3736	-0.0262	0.3282	-0.1145
107.83	10.38	0.4128	-0.0088	0.4009	-0.0117	0.3736	-0.0262	0.3282	-0.1145
108.83	10.43	0.4128	-0.0088	0.4009	-0.0117	0.3736	-0.0262	0.3282	-0.1145
109.83	10.48	0.4128	-0.0088	0.4009	-0.0117	0.3736	-0.0262	0.3282	-0.1145
110.83	10.53	0.4128	-0.0088	0.4009	-0.0117	0.3736	-0.0262	0.3282	-0.1145
111.83	10.58	0.4128	-0.0088	0.4009	-0.0117	0.3736	-0.0262	0.3282	-0.1145
112.83	10.62	0.4128	-0.0088	0.4009	-0.0117	0.3736	-0.0262	0.3282	-0.1145
113.83	10.67	0.4128	-0.0088	0.4009	-0.0117	0.3736	-0.0262	0.3282	-0.1145
114.83	10.72	0.4128	-0.0088	0.4009	-0.0117	0.3736	-0.0262	0.3282	-0.1145
115.83	10.76	0.4128	-0.0088	0.4009	-0.0117	0.3736	-0.0262	0.3282	-0.1145
116.83	10.81	0.4128	-0.0088	0.4009	-0.0117	0.3736	-0.0262	0.3282	-0.1145
117.83	10.86	0.4128	-0.0088	0.4009	-0.0117	0.3736	-0.0262	0.3282	-0.1145
118.83	10.90	0.4128	-0.0088	0.4009	-0.0117	0.3736	-0.0262	0.3282	-0.1145
119.83	10.95	0.4128	-0.0088	0.4009	-0.0117	0.3736	-0.0262	0.3282	-0.1145
129.83	11.39	0.4128	-0.0088	0.4009	-0.0117	0.3736	-0.0262	0.3282	-0.1145
139.83	11.83	0.4128	-0.0088	0.4008	-0.0118	0.3736	-0.0262	0.3282	-0.1145
149.83	12.24	0.4128	-0.0088	0.4008	-0.0118	0.3737	-0.0261	0.3282	-0.1145
159.83	12.64	0.4127	-0.0089	0.4009	-0.0117	0.3737	-0.0261	0.3282	-0.1145
169.83	13.03	0.4125	-0.0091	0.4008	-0.0118	0.3736	-0.0262	0.3281	-0.1146
179.83	13.41	0.4125	-0.0091	0.4008	-0.0118	0.3736	-0.0262	0.3099	-0.1328
189.83	13.78	0.4125	-0.0091	0.4008	-0.0118	0.3736	-0.0262	0.3088	-0.1339
199.83	14.14	0.4126	-0.0090	0.4008	-0.0118	0.3735	-0.0263	0.3084	-0.1343
209.83	14.49	0.4126	-0.0090	0.4007	-0.0119	0.3735	-0.0263	0.3082	-0.1345
219.83	14.83	0.4127	-0.0089	0.4008	-0.0118	0.3735	-0.0263	0.3081	-0.1346
229.83	15.16	0.4127	-0.0089	0.4007	-0.0119	0.3735	-0.0263	0.3078	-0.1349
239.83	15.49	0.4127	-0.0089	0.4007	-0.0119	0.3735	-0.0263	0.3079	-0.1348
249.83	15.81	0.4127	-0.0089	0.4007	-0.0119	0.3735	-0.0263	0.3076	-0.1351
259.83	16.12	0.4127	-0.0089	0.4007	-0.0119	0.3736	-0.0262	0.3076	-0.1351
269.83	16.43	0.4127	-0.0089	0.4007	-0.0119	0.3736	-0.0262	0.3075	-0.1352
279.83	16.73	0.4127	-0.0089	0.4007	-0.0119	0.3735	-0.0263	0.3074	-0.1353
289.83	17.02	0.4127	-0.0089	0.4007	-0.0119	0.3735	-0.0263	0.3074	-0.1353
299.83	17.32	0.4127	-0.0089	0.4007	-0.0119	0.3736	-0.0262	0.3074	-0.1353
309.83	17.60	0.4127	-0.0089	0.4008	-0.0118	0.3735	-0.0263	0.3074	-0.1353
319.83	17.88	0.4127	-0.0089	0.4007	-0.0119	0.3736	-0.0262	0.3073	-0.1354

Sample: Pond 8E, BH-2 @ 10.2 feet

Time (minutes)	Square Root of Time (minutes)	Test 5 @ 500 psf		Test 6 @ 1000 psf		Test 7 @ 2000 psf		Test 8 @ 4000 psf	
		Dial Reading (inches)	Deflection (inches)	Dial Reading (inches)	Deflection (inches)	Dial Reading (inches)	Deflection (inches)	Dial Reading (inches)	Deflection (inches)
329.83	18.16	0.4127	-0.0089	0.4008	-0.0118	0.3736	-0.0262	0.3073	-0.1354
339.83	18.43	0.4127	-0.0089	0.4007	-0.0119	0.3736	-0.0262	0.3073	-0.1354
349.83	18.70	0.4127	-0.0089	0.4007	-0.0119	0.3735	-0.0263	0.3073	-0.1354
359.83	18.97	0.4127	-0.0089	0.4007	-0.0119	0.3736	-0.0262	0.3072	-0.1355
369.83	19.23	0.4127	-0.0089	0.4008	-0.0118	0.3736	-0.0262	0.3072	-0.1355
379.83	19.49	0.4127	-0.0089	0.4008	-0.0118	0.3735	-0.0263	0.3072	-0.1355
389.83	19.74	0.4127	-0.0089	0.4008	-0.0118	0.3736	-0.0262	0.3072	-0.1355
399.83	20.00	0.4126	-0.0090	0.4009	-0.0117	0.3736	-0.0262	0.3069	-0.1358
409.83	20.24	0.4127	-0.0089	0.4009	-0.0117	0.3735	-0.0263	0.3069	-0.1358
419.83	20.49	0.4127	-0.0089	0.4009	-0.0117	0.3736	-0.0262	0.3068	-0.1359
429.83	20.73	0.4127	-0.0089	0.4009	-0.0117	0.3735	-0.0263	0.3068	-0.1359
439.83	20.97	0.4127	-0.0089	0.4008	-0.0118	0.3735	-0.0263	0.3068	-0.1359
449.83	21.21					0.3735	-0.0263	0.3068	-0.1359
459.83	21.44					0.3735	-0.0263	0.3068	-0.1359
469.83	21.68					0.3735	-0.0263	0.3068	-0.1359
479.83	21.91					0.3735	-0.0263	0.3067	-0.1360
489.83	22.13					0.3735	-0.0263	0.3066	-0.1361
499.83	22.36					0.3734	-0.0264	0.3066	-0.1361
509.83	22.58					0.3734	-0.0264	0.3065	-0.1362
519.83	22.80					0.3735	-0.0263	0.3065	-0.1362
529.83	23.02					0.3735	-0.0263	0.3065	-0.1362
539.83	23.23					0.3735	-0.0263	0.3065	-0.1362
549.83	23.45					0.3734	-0.0264	0.3065	-0.1362
559.83	23.66					0.3735	-0.0263	0.3065	-0.1362
569.83	23.87					0.3735	-0.0263	0.3065	-0.1362
579.83	24.08					0.3735	-0.0263	0.3065	-0.1362
589.83	24.29					0.3734	-0.0264	0.3064	-0.1363
599.83	24.49					0.3734	-0.0264	0.3064	-0.1363
609.83	24.69					0.3735	-0.0263	0.3064	-0.1363
619.83	24.90					0.3734	-0.0264	0.3064	-0.1363
629.83	25.10					0.3734	-0.0264	0.3062	-0.1365
639.83	25.29					0.3734	-0.0264	0.3061	-0.1366
649.83	25.49					0.3734	-0.0264	0.3061	-0.1366
659.83	25.69					0.3735	-0.0263	0.3061	-0.1366
669.83	25.88					0.3735	-0.0263	0.3061	-0.1366
679.83	26.07					0.3735	-0.0263	0.3061	-0.1366
689.83	26.26					0.3735	-0.0263	0.3061	-0.1366
699.83	26.45					0.3735	-0.0263	0.3061	-0.1366
709.83	26.64					0.3734	-0.0264	0.3061	-0.1366
719.83	26.83					0.3734	-0.0264	0.3061	-0.1366
749.83	27.38					0.3734	-0.0264	0.3062	-0.1365
779.83	27.93					0.3734	-0.0264	0.3062	-0.1365
809.83	28.46					0.3734	-0.0264	0.3061	-0.1366
839.83	28.98					0.3735	-0.0263	0.3059	-0.1368
869.83	29.49					0.3735	-0.0263	0.3059	-0.1368
899.83	30.00					0.3735	-0.0263	0.3060	-0.1367
929.83	30.49					0.3735	-0.0263	0.3059	-0.1368
959.83	30.98					0.3735	-0.0263	0.3060	-0.1367
989.83	31.46					0.3735	-0.0263	0.3059	-0.1368
1019.83	31.93					0.3735	-0.0263	0.3060	-0.1367
1049.83	32.40					0.3735	-0.0263	0.3059	-0.1368
1079.83	32.86					0.3735	-0.0263	0.3060	-0.1367
1109.83	33.31					0.3735	-0.0263	0.3060	-0.1367
1139.83	33.76					0.3734	-0.0264	0.3059	-0.1368
1169.83	34.20					0.3734	-0.0264	0.3060	-0.1367
1199.83	34.64					0.3734	-0.0264	0.3059	-0.1368
1229.83	35.07					0.3734	-0.0264	0.3059	-0.1368
1259.83	35.49					0.3734	-0.0264	0.3059	-0.1368
1289.83	35.91					0.3734	-0.0264	0.3059	-0.1368
1319.83	36.33					0.3733	-0.0265	0.3057	-0.1370
1349.83	36.74					0.3734	-0.0264	0.3057	-0.1370
1379.83	37.15					0.3734	-0.0264	0.3057	-0.1370
1409.83	37.55					0.3734	-0.0264	0.3057	-0.1370
1439.83	37.95					0.3734	-0.0264	0.3057	-0.1370
1469.83	38.34							0.3057	-0.1370

Sample: Pond 8E, BH-2 @ 10.2 feet

Time (minutes)	Square Root of Time (minutes)	Test 5 @ 500 psf		Test 6 @ 1000 psf		Test 7 @ 2000 psf		Test 8 @ 4000 psf	
		Dial Reading (inches)	Deflection (inches)	Dial Reading (inches)	Deflection (inches)	Dial Reading (inches)	Deflection (inches)	Dial Reading (inches)	Deflection (inches)
1499.83	38.73							0.3057	-0.1370
1529.83	39.11							0.3057	-0.1370
1559.83	39.49							0.3056	-0.1371
1589.83	39.87							0.3057	-0.1370
1619.83	40.25							0.3056	-0.1371
1649.83	40.62							0.3056	-0.1371
1679.83	40.99							0.3056	-0.1371
1709.83	41.35							0.3056	-0.1371
1739.83	41.71							0.3056	-0.1371
1769.83	42.07							0.3056	-0.1371
1799.83	42.42							0.3055	-0.1372

One Dimensional Consolidation

Project No.	973376
Project	FMC
Sample ID	Pond 8E, BH-3 @ 13.5 feet
Sample Ht.	1.813 (in)
Sample Dia.	4.000 (in)
Sample Area	0.087 (sq-ft)
Sample Vol.	0.013 (cu-ft)
Phos Cont.	0.1331 (%)
Init. M.C.	146.41 (%)
Init. M.C. (corr)	145.61 (%)
Final M.C.	112.15 (%)
Final M.C. (corr)	111.55 (%)
Dry Wt. of Soil/f	205.97 (g)
Dry Wt. of Soil/i	205.85 (g)
Spec. Grav.	2.79
Pocket Pen.	(tsf)

Moisture Content Weights	
(initial)	
Total Wet Wt. (g)	10.3
Phos. Wt. (g)	0.01
Dry Wt. (g)	4.18
Dry Wt. + Phos Wt. (g)	4.19
Water Wt. + Phos (g)	6.12
Water Wt. (g)	6.11
(final)	
Total Wet Wt. (g)	25.14
Phos. Wt. (g)	0.03
Dry Wt. (g)	11.85
Dry Wt. + Phos Wt. (g)	11.88
Water Wt. + Phos (g)	13.29
Water Wt. (g)	13.26

Pressure (ksf)	Final Dial Reading (inches)	Deformation (inches)	Sample Ht. (inches)	Strain (%)	Void Ratio (e)	Dry Density (pcf)	Void Ratio (e)	Dry Density (pcf)
					Calc. from final MC		Calc. from initial MC	
0.0010	0.3512	0.0000	1.8130	0	4.060	34.41	4.062	34.39
0.0250	0.3504	0.0008	1.8122	0.04	4.057	34.42	4.060	34.41
0.0500	0.3870	0.0204	1.7926	1.13	4.003	34.80	4.005	34.78
0.1000	0.3783	0.0223	1.7907	1.23	3.997	34.84	4.000	34.82
0.2500	0.2889	0.0953	1.7177	5.26	3.794	36.32	3.796	36.30
0.5000	0.1964	0.1761	1.6369	9.71	3.568	38.11	3.571	38.09
1.0000	0.1593	0.2126	1.6004	11.73	3.466	38.98	3.469	38.96
2.0000	0.4235	0.2332	1.5798	12.86	3.409	39.49	3.411	39.47
4.0000	0.2970	0.3394	1.4736	18.72	3.112	42.33	3.115	42.31

Note: Initial MC not taken from actual sample tested, but from same sample jar.
Final MC taken from actual sample tested.
Void Ratio (e), calculated from final MC likely to be most accurate.
Final data readings may vary when compared to deformation values due to resetting the dial. The deformation values are based on the actual data in Appendix E.

Sample: Pond 8E, BH-3 @ 13.5 feet

Time (minutes)	Square Root of Time (minutes)	Test 1 @ 25 psf		Test 2 @ 50 psf		Test 3 @ 100 psf		Test 4 @ 250 psf	
		Dial Reading (inches)	Deflection (inches)	Dial Reading (inches)	Deflection (inches)	Dial Reading (inches)	Deflection (inches)	Dial Reading (inches)	Deflection (inches)
0.10	0.00	0.3512	0.0000	0.4074	0.0000	0.3802	0.0000	0.3619	0.0000
0.17	0.41	0.3512	0.0000	0.4074	0.0000	0.3802	0.0000	0.3619	0.0000
0.33	0.58	0.3512	0.0000	0.4067	-0.0007	0.3802	0.0000	0.3628	0.0009
0.50	0.71	0.3512	0.0000	0.4066	-0.0008	0.3794	-0.0008	0.3578	-0.0041
0.67	0.82	0.3512	0.0000	0.4063	-0.0011	0.3792	-0.0010	0.3563	-0.0056
0.83	0.91	0.3512	0.0000	0.4060	-0.0014	0.3790	-0.0012	0.3550	-0.0069
1.00	1.00	0.3512	0.0000	0.4053	-0.0021	0.3787	-0.0015	0.3533	-0.0086
1.17	1.08	0.3512	0.0000	0.4049	-0.0025	0.3785	-0.0017	0.3528	-0.0091
1.33	1.15	0.3512	0.0000	0.4048	-0.0026	0.3783	-0.0019	0.3511	-0.0108
1.50	1.22	0.3512	0.0000	0.4046	-0.0028	0.3783	-0.0019	0.3503	-0.0116
1.67	1.29	0.3512	0.0000	0.4044	-0.0030	0.3783	-0.0019	0.3498	-0.0121
1.83	1.35	0.3512	0.0000	0.4044	-0.0030	0.3783	-0.0019	0.3487	-0.0132
2.00	1.41	0.3512	0.0000	0.4044	-0.0030	0.3783	-0.0019	0.3476	-0.0143
2.17	1.47	0.3512	0.0000	0.4044	-0.0030	0.3783	-0.0019	0.3476	-0.0143
2.33	1.53	0.3512	0.0000	0.4044	-0.0030	0.3783	-0.0019	0.3476	-0.0143
2.50	1.58	0.3512	0.0000	0.4044	-0.0030	0.3783	-0.0019	0.3476	-0.0143
2.67	1.63	0.3512	0.0000	0.4044	-0.0030	0.3783	-0.0019	0.3476	-0.0143
2.83	1.68	0.3512	0.0000	0.4044	-0.0030	0.3783	-0.0019	0.3476	-0.0143
3.00	1.73	0.3512	0.0000	0.4044	-0.0030	0.3783	-0.0019	0.3476	-0.0143
3.17	1.78	0.3512	0.0000	0.4044	-0.0030	0.3783	-0.0019	0.3476	-0.0143
3.33	1.83	0.3512	0.0000	0.4044	-0.0030	0.3783	-0.0019	0.3476	-0.0143
3.50	1.87	0.3512	0.0000	0.4044	-0.0030	0.3783	-0.0019	0.3476	-0.0143
3.67	1.91	0.3512	0.0000	0.4044	-0.0030	0.3783	-0.0019	0.3476	-0.0143
3.83	1.96	0.3512	0.0000	0.4044	-0.0030	0.3783	-0.0019	0.3476	-0.0143
4.00	2.00	0.3512	0.0000	0.4044	-0.0030	0.3783	-0.0019	0.3476	-0.0143
4.17	2.04	0.3512	0.0000	0.4044	-0.0030	0.3783	-0.0019	0.3476	-0.0143
4.33	2.08	0.3512	0.0000	0.4044	-0.0030	0.3783	-0.0019	0.3476	-0.0143
4.50	2.12	0.3511	-0.0001	0.4044	-0.0030	0.3783	-0.0019	0.3476	-0.0143
4.67	2.16	0.3511	-0.0001	0.4044	-0.0030	0.3783	-0.0019	0.3476	-0.0143
4.83	2.20	0.3511	-0.0001	0.4044	-0.0030	0.3783	-0.0019	0.3476	-0.0143
5.00	2.24	0.3511	-0.0001	0.4044	-0.0030	0.3783	-0.0019	0.3476	-0.0143
5.17	2.27	0.3511	-0.0001	0.4044	-0.0030	0.3783	-0.0019	0.3476	-0.0143
5.33	2.31	0.3511	-0.0001	0.4044	-0.0030	0.3783	-0.0019	0.3476	-0.0143
5.50	2.35	0.3511	-0.0001	0.4044	-0.0030	0.3783	-0.0019	0.3476	-0.0143
5.67	2.38	0.3511	-0.0001	0.4044	-0.0030	0.3783	-0.0019	0.3476	-0.0143
5.83	2.42	0.3511	-0.0001	0.4044	-0.0030	0.3783	-0.0019	0.3476	-0.0143
6.00	2.45	0.3511	-0.0001	0.4044	-0.0030	0.3783	-0.0019	0.3476	-0.0143
6.17	2.48	0.3511	-0.0001	0.4044	-0.0030	0.3783	-0.0019	0.3476	-0.0143
6.33	2.52	0.3511	-0.0001	0.4044	-0.0030	0.3783	-0.0019	0.3476	-0.0143
6.50	2.55	0.3512	0.0000	0.4044	-0.0030	0.3783	-0.0019	0.3476	-0.0143
6.67	2.58	0.3511	-0.0001	0.4044	-0.0030	0.3783	-0.0019	0.3476	-0.0143
6.83	2.61	0.3511	-0.0001	0.4044	-0.0030	0.3783	-0.0019	0.3476	-0.0143
7.00	2.65	0.3511	-0.0001	0.4044	-0.0030	0.3783	-0.0019	0.3476	-0.0143
7.17	2.68	0.3511	-0.0001	0.4044	-0.0030	0.3783	-0.0019	0.3476	-0.0143
7.33	2.71	0.3511	-0.0001	0.4044	-0.0030	0.3783	-0.0019	0.3476	-0.0143
7.50	2.74	0.3511	-0.0001	0.4044	-0.0030	0.3783	-0.0019	0.3476	-0.0143
7.67	2.77	0.3510	-0.0002	0.4044	-0.0030	0.3783	-0.0019	0.3476	-0.0143
7.83	2.80	0.3510	-0.0002	0.4044	-0.0030	0.3783	-0.0019	0.3476	-0.0143
8.00	2.83	0.3509	-0.0003	0.4044	-0.0030	0.3783	-0.0019	0.3476	-0.0143
8.17	2.86	0.3509	-0.0003	0.4044	-0.0030	0.3783	-0.0019	0.3476	-0.0143
8.33	2.89	0.3510	-0.0002	0.4044	-0.0030	0.3783	-0.0019	0.3476	-0.0143
8.50	2.92	0.3509	-0.0003	0.4044	-0.0030	0.3783	-0.0019	0.3476	-0.0143
8.67	2.94	0.3509	-0.0003	0.4044	-0.0030	0.3783	-0.0019	0.3476	-0.0143
8.83	2.97	0.3509	-0.0003	0.4044	-0.0030	0.3783	-0.0019	0.3476	-0.0143
9.00	3.00	0.3509	-0.0003	0.4044	-0.0030	0.3783	-0.0019	0.3476	-0.0143
9.17	3.03	0.3509	-0.0003	0.4044	-0.0030	0.3783	-0.0019	0.3476	-0.0143
9.33	3.06	0.3509	-0.0003	0.4044	-0.0030	0.3783	-0.0019	0.3476	-0.0143
9.50	3.08	0.3509	-0.0003	0.4044	-0.0030	0.3783	-0.0019	0.3476	-0.0143
9.67	3.11	0.3509	-0.0003	0.4044	-0.0030	0.3783	-0.0019	0.3476	-0.0143
9.83	3.14	0.3509	-0.0003	0.4044	-0.0030	0.3783	-0.0019	0.3476	-0.0143
10.00	3.16	0.3509	-0.0003	0.4044	-0.0030	0.3783	-0.0019	0.3476	-0.0143
10.17	3.19	0.3509	-0.0003	0.4044	-0.0030	0.3783	-0.0019	0.3476	-0.0143
10.33	3.21	0.3509	-0.0003	0.4044	-0.0030	0.3783	-0.0019	0.3476	-0.0143
10.50	3.24	0.3509	-0.0003	0.4044	-0.0030	0.3783	-0.0019	0.3476	-0.0143
10.67	3.27	0.3509	-0.0003	0.4044	-0.0030	0.3783	-0.0019	0.3476	-0.0143

Sample: Pond 8E, BH-3 @ 13.5 feet

Time (minutes)	Square Root of Time (minutes)	Test 1 @ 25 psf		Test 2 @ 50 psf		Test 3 @ 100 psf		Test 4 @ 250 psf	
		Dial Reading (inches)	Deflection (inches)	Dial Reading (inches)	Deflection (inches)	Dial Reading (inches)	Deflection (inches)	Dial Reading (inches)	Deflection (inches)
10.83	3.29	0.3509	-0.0003	0.4044	-0.0030	0.3783	-0.0019	0.3476	-0.0143
11.00	3.32	0.3509	-0.0003	0.4044	-0.0030	0.3783	-0.0019	0.3476	-0.0143
11.17	3.34	0.3509	-0.0003	0.4044	-0.0030	0.3783	-0.0019	0.3476	-0.0143
11.33	3.37	0.3509	-0.0003	0.4044	-0.0030	0.3783	-0.0019	0.3476	-0.0143
11.50	3.39	0.3509	-0.0003	0.4044	-0.0030	0.3783	-0.0019	0.3476	-0.0143
11.67	3.42	0.3509	-0.0003	0.4044	-0.0030	0.3783	-0.0019	0.3476	-0.0143
11.83	3.44	0.3509	-0.0003	0.4044	-0.0030	0.3783	-0.0019	0.3476	-0.0143
12.00	3.46	0.3509	-0.0003	0.4044	-0.0030	0.3783	-0.0019	0.3476	-0.0143
12.17	3.49	0.3509	-0.0003	0.4044	-0.0030	0.3783	-0.0019	0.3476	-0.0143
12.33	3.51	0.3509	-0.0003	0.4044	-0.0030	0.3783	-0.0019	0.3476	-0.0143
12.50	3.54	0.3509	-0.0003	0.4044	-0.0030	0.3783	-0.0019	0.3476	-0.0143
12.67	3.56	0.3509	-0.0003	0.4044	-0.0030	0.3783	-0.0019	0.3476	-0.0143
12.83	3.58	0.3509	-0.0003	0.4044	-0.0030	0.3783	-0.0019	0.3476	-0.0143
13.00	3.61	0.3509	-0.0003	0.4044	-0.0030	0.3783	-0.0019	0.3476	-0.0143
13.17	3.63	0.3509	-0.0003	0.4044	-0.0030	0.3783	-0.0019	0.3476	-0.0143
13.33	3.65	0.3509	-0.0003	0.4044	-0.0030	0.3783	-0.0019	0.3476	-0.0143
13.50	3.67	0.3509	-0.0003	0.4044	-0.0030	0.3783	-0.0019	0.3476	-0.0143
13.67	3.70	0.3509	-0.0003	0.4044	-0.0030	0.3783	-0.0019	0.3476	-0.0143
13.83	3.72	0.3509	-0.0003	0.4044	-0.0030	0.3783	-0.0019	0.3476	-0.0143
14.00	3.74	0.3509	-0.0003	0.4044	-0.0030	0.3783	-0.0019	0.3476	-0.0143
14.17	3.76	0.3509	-0.0003	0.4044	-0.0030	0.3783	-0.0019	0.3476	-0.0143
14.33	3.79	0.3508	-0.0004	0.4044	-0.0030	0.3783	-0.0019	0.3476	-0.0143
14.50	3.81	0.3509	-0.0003	0.4044	-0.0030	0.3783	-0.0019	0.3476	-0.0143
14.67	3.83	0.3509	-0.0003	0.4044	-0.0030	0.3783	-0.0019	0.3476	-0.0143
14.83	3.85	0.3509	-0.0003	0.4044	-0.0030	0.3783	-0.0019	0.3476	-0.0143
15.33	3.92	0.3509	-0.0003	0.4044	-0.0030	0.3783	-0.0019	0.3476	-0.0143
15.83	3.98	0.3509	-0.0003	0.4044	-0.0030	0.3783	-0.0019	0.3476	-0.0143
16.33	4.04	0.3509	-0.0003	0.4044	-0.0030	0.3783	-0.0019	0.3476	-0.0143
16.83	4.10	0.3509	-0.0003	0.4044	-0.0030	0.3783	-0.0019	0.3476	-0.0143
17.33	4.16	0.3509	-0.0003	0.4044	-0.0030	0.3783	-0.0019	0.3476	-0.0143
17.83	4.22	0.3509	-0.0003	0.4044	-0.0030	0.3783	-0.0019	0.3476	-0.0143
18.33	4.28	0.3508	-0.0004	0.4044	-0.0030	0.3783	-0.0019	0.3476	-0.0143
18.83	4.34	0.3509	-0.0003	0.4044	-0.0030	0.3783	-0.0019	0.3476	-0.0143
19.33	4.40	0.3508	-0.0004	0.3907	-0.0167	0.3783	-0.0019	0.3476	-0.0143
19.83	4.45	0.3509	-0.0003	0.3906	-0.0168	0.3783	-0.0019	0.3476	-0.0143
20.33	4.51	0.3509	-0.0003	0.3906	-0.0168	0.3783	-0.0019	0.3476	-0.0143
20.83	4.56	0.3509	-0.0003	0.3906	-0.0168	0.3783	-0.0019	0.3476	-0.0143
21.33	4.62	0.3509	-0.0003	0.3906	-0.0168	0.3783	-0.0019	0.3476	-0.0143
21.83	4.67	0.3508	-0.0004	0.3906	-0.0168	0.3783	-0.0019	0.3476	-0.0143
22.33	4.73	0.3509	-0.0003	0.3906	-0.0168	0.3783	-0.0019	0.3476	-0.0143
22.83	4.78	0.3508	-0.0004	0.3906	-0.0168	0.3783	-0.0019	0.3476	-0.0143
23.33	4.83	0.3508	-0.0004	0.3906	-0.0168	0.3783	-0.0019	0.3476	-0.0143
23.83	4.88	0.3508	-0.0004	0.3906	-0.0168	0.3783	-0.0019	0.3476	-0.0143
24.33	4.93	0.3508	-0.0004	0.3906	-0.0168	0.3783	-0.0019	0.3476	-0.0143
24.83	4.98	0.3507	-0.0005	0.3906	-0.0168	0.3783	-0.0019	0.3476	-0.0143
25.33	5.03	0.3508	-0.0004	0.3906	-0.0168	0.3783	-0.0019	0.3476	-0.0143
25.83	5.08	0.3508	-0.0004	0.3906	-0.0168	0.3783	-0.0019	0.3476	-0.0143
26.33	5.13	0.3508	-0.0004	0.3906	-0.0168	0.3783	-0.0019	0.3476	-0.0143
26.83	5.18	0.3507	-0.0005	0.3906	-0.0168	0.3783	-0.0019	0.3476	-0.0143
27.33	5.23	0.3508	-0.0004	0.3906	-0.0168	0.3783	-0.0019	0.3476	-0.0143
27.83	5.28	0.3508	-0.0004	0.3906	-0.0168	0.3783	-0.0019	0.3476	-0.0143
28.33	5.32	0.3507	-0.0005	0.3906	-0.0168	0.3783	-0.0019	0.3476	-0.0143
28.83	5.37	0.3507	-0.0005	0.3906	-0.0168	0.3783	-0.0019	0.3476	-0.0143
29.33	5.42	0.3507	-0.0005	0.3906	-0.0168	0.3783	-0.0019	0.3476	-0.0143
29.83	5.46	0.3507	-0.0005	0.3906	-0.0168	0.3783	-0.0019	0.3476	-0.0143
30.33	5.51	0.3508	-0.0004	0.3906	-0.0168	0.3783	-0.0019	0.3476	-0.0143
30.83	5.55	0.3507	-0.0005	0.3906	-0.0168	0.3783	-0.0019	0.3476	-0.0143
31.33	5.60	0.3507	-0.0005	0.3906	-0.0168	0.3783	-0.0019	0.3476	-0.0143
31.83	5.64	0.3507	-0.0005	0.3906	-0.0168	0.3783	-0.0019	0.3476	-0.0143
32.33	5.69	0.3507	-0.0005	0.3906	-0.0168	0.3783	-0.0019	0.3476	-0.0143
32.83	5.73	0.3507	-0.0005	0.3906	-0.0168	0.3783	-0.0019	0.3476	-0.0143
33.33	5.77	0.3507	-0.0005	0.3906	-0.0168	0.3783	-0.0019	0.3476	-0.0143
33.83	5.82	0.3507	-0.0005	0.3906	-0.0168	0.3783	-0.0019	0.3476	-0.0143
34.33	5.86	0.3507	-0.0005	0.3906	-0.0168	0.3783	-0.0019	0.3476	-0.0143
34.83	5.90	0.3507	-0.0005	0.3906	-0.0168	0.3783	-0.0019	0.3476	-0.0143

Sample: Pond 8E, BH-3 @ 13.5 feet

Time (minutes)	Square Root of Time (minutes)	Test 1 @ 25 psf		Test 2 @ 50 psf		Test 3 @ 100 psf		Test 4 @ 250 psf	
		Dial Reading (inches)	Deflection (inches)	Dial Reading (inches)	Deflection (inches)	Dial Reading (inches)	Deflection (inches)	Dial Reading (inches)	Deflection (inches)
35.33	5.94	0.3507	-0.0005	0.3906	-0.0168	0.3783	-0.0019	0.3476	-0.0143
35.83	5.99	0.3507	-0.0005	0.3906	-0.0168	0.3783	-0.0019	0.3476	-0.0143
36.33	6.03	0.3507	-0.0005	0.3906	-0.0168	0.3783	-0.0019	0.3476	-0.0143
36.83	6.07	0.3507	-0.0005	0.3906	-0.0168	0.3783	-0.0019	0.3476	-0.0143
37.33	6.11	0.3507	-0.0005	0.3906	-0.0168	0.3783	-0.0019	0.3476	-0.0143
37.83	6.15	0.3507	-0.0005	0.3906	-0.0168	0.3783	-0.0019	0.3476	-0.0143
38.33	6.19	0.3507	-0.0005	0.3906	-0.0168	0.3783	-0.0019	0.3476	-0.0143
38.83	6.23	0.3507	-0.0005	0.3906	-0.0168	0.3783	-0.0019	0.3476	-0.0143
39.33	6.27	0.3507	-0.0005	0.3906	-0.0168	0.3783	-0.0019	0.3476	-0.0143
39.83	6.31	0.3507	-0.0005	0.3906	-0.0168	0.3783	-0.0019	0.3476	-0.0143
40.33	6.35	0.3507	-0.0005	0.3906	-0.0168	0.3783	-0.0019	0.3476	-0.0143
40.83	6.39	0.3507	-0.0005	0.3906	-0.0168	0.3783	-0.0019	0.3476	-0.0143
41.33	6.43	0.3507	-0.0005	0.3906	-0.0168	0.3783	-0.0019	0.3476	-0.0143
41.83	6.47	0.3507	-0.0005	0.3906	-0.0168	0.3783	-0.0019	0.3476	-0.0143
42.33	6.51	0.3507	-0.0005	0.3906	-0.0168	0.3783	-0.0019	0.3476	-0.0143
42.83	6.54	0.3507	-0.0005	0.3906	-0.0168	0.3783	-0.0019	0.3476	-0.0143
43.33	6.58	0.3507	-0.0005	0.3906	-0.0168	0.3783	-0.0019	0.3476	-0.0143
43.83	6.62	0.3507	-0.0005	0.3906	-0.0168	0.3783	-0.0019	0.3476	-0.0143
44.33	6.66	0.3507	-0.0005	0.3906	-0.0168	0.3783	-0.0019	0.3476	-0.0143
44.83	6.70	0.3507	-0.0005	0.3906	-0.0168	0.3783	-0.0019	0.3476	-0.0143
45.33	6.73	0.3507	-0.0005	0.3906	-0.0168	0.3783	-0.0019	0.3476	-0.0143
45.83	6.77	0.3507	-0.0005	0.3906	-0.0168	0.3783	-0.0019	0.3476	-0.0143
46.33	6.81	0.3507	-0.0005	0.3906	-0.0168	0.3783	-0.0019	0.3476	-0.0143
46.83	6.84	0.3507	-0.0005	0.3906	-0.0168	0.3783	-0.0019	0.3476	-0.0143
47.33	6.88	0.3507	-0.0005	0.3906	-0.0168	0.3783	-0.0019	0.3476	-0.0143
47.83	6.92	0.3507	-0.0005	0.3906	-0.0168	0.3783	-0.0019	0.3476	-0.0143
48.33	6.95	0.3507	-0.0005	0.3906	-0.0168	0.3783	-0.0019	0.3476	-0.0143
48.83	6.99	0.3507	-0.0005	0.3906	-0.0168	0.3783	-0.0019	0.3476	-0.0143
49.33	7.02	0.3507	-0.0005	0.3906	-0.0168	0.3783	-0.0019	0.3476	-0.0143
49.83	7.06	0.3507	-0.0005	0.3906	-0.0168	0.3783	-0.0019	0.3476	-0.0143
50.33	7.09	0.3507	-0.0005	0.3906	-0.0168	0.3783	-0.0019	0.3476	-0.0143
50.83	7.13	0.3507	-0.0005	0.3906	-0.0168	0.3783	-0.0019	0.3476	-0.0143
51.33	7.16	0.3507	-0.0005	0.3906	-0.0168	0.3783	-0.0019	0.3476	-0.0143
51.83	7.20	0.3507	-0.0005	0.3906	-0.0168	0.3783	-0.0019	0.3476	-0.0143
52.33	7.23	0.3506	-0.0006	0.3906	-0.0168	0.3783	-0.0019	0.3476	-0.0143
52.83	7.27	0.3507	-0.0005	0.3882	-0.0192	0.3783	-0.0019	0.3476	-0.0143
53.33	7.30	0.3507	-0.0005	0.3882	-0.0192	0.3783	-0.0019	0.3476	-0.0143
53.83	7.34	0.3507	-0.0005	0.3882	-0.0192	0.3783	-0.0019	0.3476	-0.0143
54.33	7.37	0.3507	-0.0005	0.3882	-0.0192	0.3783	-0.0019	0.3476	-0.0143
54.83	7.40	0.3507	-0.0005	0.3882	-0.0192	0.3783	-0.0019	0.3476	-0.0143
55.33	7.44	0.3507	-0.0005	0.3882	-0.0192	0.3783	-0.0019	0.3476	-0.0143
55.83	7.47	0.3507	-0.0005	0.3882	-0.0192	0.3783	-0.0019	0.3476	-0.0143
56.33	7.51	0.3507	-0.0005	0.3881	-0.0193	0.3783	-0.0019	0.3476	-0.0143
56.83	7.54	0.3507	-0.0005	0.3881	-0.0193	0.3783	-0.0019	0.2898	-0.0721
57.33	7.57	0.3506	-0.0006	0.3880	-0.0194	0.3783	-0.0019	0.2898	-0.0721
57.83	7.60	0.3507	-0.0005	0.3880	-0.0194	0.3783	-0.0019	0.2898	-0.0721
58.33	7.64	0.3507	-0.0005	0.3880	-0.0194	0.3783	-0.0019	0.2898	-0.0721
58.83	7.67	0.3507	-0.0005	0.3879	-0.0195	0.3783	-0.0019	0.2898	-0.0721
59.33	7.70	0.3506	-0.0006	0.3878	-0.0196	0.3783	-0.0019	0.2898	-0.0721
59.83	7.74	0.3506	-0.0006	0.3870	-0.0204	0.3783	-0.0019	0.2898	-0.0721
60.83	7.80	0.3507	-0.0005	0.3870	-0.0204	0.3783	-0.0019	0.2898	-0.0721
61.83	7.86	0.3506	-0.0006	0.3870	-0.0204	0.3783	-0.0019	0.2898	-0.0721
62.83	7.93	0.3506	-0.0006	0.3870	-0.0204	0.3783	-0.0019	0.2889	-0.0730
63.83	7.99	0.3506	-0.0006	0.3870	-0.0204	0.3783	-0.0019	0.2889	-0.0730
64.83	8.05	0.3506	-0.0006	0.3870	-0.0204	0.3783	-0.0019	0.2889	-0.0730
65.83	8.11	0.3506	-0.0006	0.3870	-0.0204	0.3783	-0.0019	0.2889	-0.0730
66.83	8.18	0.3506	-0.0006	0.3870	-0.0204	0.3783	-0.0019	0.2889	-0.0730
67.83	8.24	0.3506	-0.0006	0.3870	-0.0204	0.3783	-0.0019	0.2889	-0.0730
68.83	8.30	0.3506	-0.0006	0.3870	-0.0204	0.3783	-0.0019	0.2889	-0.0730
69.83	8.36	0.3506	-0.0006	0.3870	-0.0204	0.3783	-0.0019	0.2889	-0.0730
70.83	8.42	0.3506	-0.0006	0.3870	-0.0204	0.3783	-0.0019	0.2889	-0.0730
71.83	8.48	0.3506	-0.0006	0.3870	-0.0204	0.3783	-0.0019	0.2889	-0.0730
72.83	8.53	0.3506	-0.0006	0.3870	-0.0204	0.3783	-0.0019	0.2889	-0.0730
73.83	8.59	0.3506	-0.0006	0.3870	-0.0204	0.3783	-0.0019	0.2889	-0.0730
74.83	8.65	0.3506	-0.0006	0.3870	-0.0204	0.3783	-0.0019	0.2889	-0.0730

Sample: Pond 8E, BH-3 @ 13.5 feet

Time (minutes)	Square Root of Time (minutes)	Test 1 @ 25 psf		Test 2 @ 50 psf		Test 3 @ 100 psf		Test 4 @ 250 psf	
		Dial Reading (inches)	Deflection (inches)	Dial Reading (inches)	Deflection (inches)	Dial Reading (inches)	Deflection (inches)	Dial Reading (inches)	Deflection (inches)
75.83	8.71	0.3506	-0.0006	0.3870	-0.0204	0.3783	-0.0019	0.2889	-0.0730
76.83	8.77	0.3506	-0.0006	0.3870	-0.0204	0.3783	-0.0019	0.2889	-0.0730
77.83	8.82	0.3506	-0.0006	0.3870	-0.0204	0.3783	-0.0019	0.2889	-0.0730
78.83	8.88	0.3505	-0.0007	0.3870	-0.0204	0.3783	-0.0019	0.2889	-0.0730
79.83	8.93	0.3505	-0.0007	0.3870	-0.0204	0.3783	-0.0019	0.2889	-0.0730
80.83	8.99	0.3505	-0.0007	0.3870	-0.0204	0.3783	-0.0019	0.2889	-0.0730
81.83	9.05	0.3505	-0.0007	0.3870	-0.0204	0.3783	-0.0019	0.2889	-0.0730
82.83	9.10	0.3505	-0.0007	0.3870	-0.0204	0.3783	-0.0019	0.2889	-0.0730
83.83	9.16	0.3505	-0.0007	0.3870	-0.0204	0.3783	-0.0019	0.2889	-0.0730
84.83	9.21	0.3504	-0.0008	0.3870	-0.0204	0.3783	-0.0019	0.2889	-0.0730
85.83	9.26	0.3504	-0.0008	0.3870	-0.0204	0.3783	-0.0019	0.2889	-0.0730
86.83	9.32	0.3504	-0.0008	0.3870	-0.0204	0.3783	-0.0019	0.2889	-0.0730
87.83	9.37	0.3504	-0.0008	0.3870	-0.0204	0.3783	-0.0019	0.2889	-0.0730
88.83	9.43	0.3504	-0.0008	0.3870	-0.0204	0.3783	-0.0019	0.2889	-0.0730
89.83	9.48	0.3504	-0.0008	0.3870	-0.0204	0.3783	-0.0019	0.2889	-0.0730
90.83	9.53	0.3504	-0.0008	0.3870	-0.0204	0.3783	-0.0019	0.2889	-0.0730
91.83	9.58	0.3504	-0.0008	0.3870	-0.0204	0.3783	-0.0019	0.2889	-0.0730
92.83	9.64	0.3504	-0.0008	0.3870	-0.0204	0.3783	-0.0019	0.2889	-0.0730
93.83	9.69	0.3504	-0.0008	0.3870	-0.0204	0.3783	-0.0019	0.2889	-0.0730
94.83	9.74	0.3504	-0.0008	0.3870	-0.0204	0.3783	-0.0019	0.2889	-0.0730
95.83	9.79	0.3504	-0.0008	0.3870	-0.0204	0.3783	-0.0019	0.2889	-0.0730
96.83	9.84	0.3504	-0.0008	0.3870	-0.0204	0.3783	-0.0019	0.2889	-0.0730
97.83	9.89	0.3504	-0.0008	0.3870	-0.0204	0.3783	-0.0019	0.2889	-0.0730
98.83	9.94	0.3504	-0.0008	0.3870	-0.0204	0.3783	-0.0019	0.2889	-0.0730
99.83	9.99	0.3504	-0.0008	0.3870	-0.0204	0.3783	-0.0019	0.2889	-0.0730
100.83	10.04	0.3504	-0.0008	0.3870	-0.0204	0.3783	-0.0019	0.2889	-0.0730
101.83	10.09	0.3504	-0.0008	0.3870	-0.0204	0.3783	-0.0019	0.2889	-0.0730
102.83	10.14	0.3504	-0.0008	0.3870	-0.0204	0.3783	-0.0019	0.2889	-0.0730
103.83	10.19	0.3504	-0.0008	0.3870	-0.0204	0.3783	-0.0019	0.2889	-0.0730
104.83	10.24	0.3504	-0.0008	0.3870	-0.0204	0.3783	-0.0019	0.2889	-0.0730
105.83	10.29	0.3504	-0.0008	0.3870	-0.0204	0.3783	-0.0019	0.2889	-0.0730
106.83	10.34	0.3504	-0.0008	0.3870	-0.0204	0.3783	-0.0019	0.2889	-0.0730
107.83	10.38			0.3870	-0.0204	0.3783	-0.0019	0.2889	-0.0730
108.83	10.43			0.3870	-0.0204	0.3783	-0.0019	0.2889	-0.0730
109.83	10.48			0.3870	-0.0204	0.3783	-0.0019	0.2889	-0.0730
110.83	10.53			0.3870	-0.0204	0.3783	-0.0019	0.2889	-0.0730
111.83	10.58			0.3870	-0.0204	0.3783	-0.0019	0.2889	-0.0730
112.83	10.62			0.3870	-0.0204	0.3783	-0.0019	0.2889	-0.0730
113.83	10.67			0.3870	-0.0204	0.3783	-0.0019	0.2889	-0.0730
114.83	10.72			0.3870	-0.0204	0.3783	-0.0019	0.2889	-0.0730
115.83	10.76			0.3870	-0.0204	0.3783	-0.0019	0.2889	-0.0730
116.83	10.81			0.3870	-0.0204	0.3783	-0.0019	0.2889	-0.0730
117.83	10.86			0.3870	-0.0204	0.3783	-0.0019	0.2889	-0.0730
118.83	10.90			0.3870	-0.0204	0.3783	-0.0019	0.2889	-0.0730
119.83	10.95			0.3870	-0.0204	0.3783	-0.0019	0.2889	-0.0730
129.83	11.39			0.3870	-0.0204	0.3783	-0.0019	0.2889	-0.0730
139.83	11.83			0.3870	-0.0204	0.3783	-0.0019	0.2889	-0.0730
149.83	12.24			0.3870	-0.0204	0.3783	-0.0019	0.2889	-0.0730
159.83	12.64			0.3870	-0.0204	0.3783	-0.0019	0.2889	-0.0730
169.83	13.03			0.3870	-0.0204	0.3783	-0.0019	0.2889	-0.0730
179.83	13.41			0.3870	-0.0204	0.3783	-0.0019	0.2889	-0.0730
189.83	13.78			0.3870	-0.0204	0.3783	-0.0019	0.2889	-0.0730
199.83	14.14			0.3870	-0.0204	0.3783	-0.0019	0.2889	-0.0730
209.83	14.49			0.3870	-0.0204	0.3783	-0.0019	0.2889	-0.0730
219.83	14.83			0.3870	-0.0204	0.3783	-0.0019	0.2889	-0.0730
229.83	15.16			0.3870	-0.0204	0.3783	-0.0019	0.2889	-0.0730
239.83	15.49			0.3870	-0.0204	0.3783	-0.0019	0.2889	-0.0730
249.83	15.81			0.3870	-0.0204	0.3783	-0.0019	0.2889	-0.0730
259.83	16.12			0.3870	-0.0204	0.3783	-0.0019	0.2889	-0.0730
269.83	16.43			0.3870	-0.0204	0.3783	-0.0019	0.2889	-0.0730
279.83	16.73			0.3870	-0.0204	0.3783	-0.0019	0.2889	-0.0730
289.83	17.02			0.3870	-0.0204	0.3783	-0.0019	0.2889	-0.0730
299.83	17.32			0.3870	-0.0204			0.2889	-0.0730
309.83	17.60			0.3870	-0.0204			0.2889	-0.0730
319.83	17.88			0.3870	-0.0204			0.2889	-0.0730

Sample: Pond 8E, BH-3 @ 13.5 feet

Time (minutes)	Square Root of Time (minutes)	Test 1 @ 25 psf		Test 2 @ 50 psf		Test 3 @ 100 psf		Test 4 @ 250 psf	
		Dial Reading (inches)	Deflection (inches)	Dial Reading (inches)	Deflection (inches)	Dial Reading (inches)	Deflection (inches)	Dial Reading (inches)	Deflection (inches)
329.83	18.16			0.3870	-0.0204			0.2889	-0.0730
339.83	18.43			0.3870	-0.0204			0.2889	-0.0730
349.83	18.70			0.3870	-0.0204			0.2889	-0.0730
359.83	18.97			0.3870	-0.0204			0.2889	-0.0730
369.83	19.23			0.3870	-0.0204			0.2889	-0.0730
379.83	19.49			0.3870	-0.0204			0.2889	-0.0730
389.83	19.74			0.3870	-0.0204			0.2889	-0.0730
399.83	20.00			0.3870	-0.0204			0.2889	-0.0730
409.83	20.24			0.3870	-0.0204			0.2889	-0.0730
419.83	20.49			0.3870	-0.0204			0.2889	-0.0730
429.83	20.73			0.3870	-0.0204			0.2889	-0.0730
439.83	20.97			0.3870	-0.0204			0.2889	-0.0730
449.83	21.21			0.3870	-0.0204			0.2889	-0.0730
459.83	21.44			0.3870	-0.0204			0.2889	-0.0730
469.83	21.68			0.3870	-0.0204			0.2889	-0.0730
479.83	21.91			0.3870	-0.0204			0.2889	-0.0730
489.83	22.13			0.3870	-0.0204			0.2889	-0.0730
499.83	22.36			0.3870	-0.0204			0.2889	-0.0730
509.83	22.58			0.3870	-0.0204			0.2889	-0.0730
519.83	22.80			0.3870	-0.0204			0.2889	-0.0730
529.83	23.02			0.3870	-0.0204			0.2889	-0.0730
539.83	23.23			0.3870	-0.0204			0.2889	-0.0730
549.83	23.45			0.3870	-0.0204			0.2889	-0.0730
559.83	23.66			0.3870	-0.0204			0.2889	-0.0730
569.83	23.87			0.3870	-0.0204			0.2889	-0.0730
579.83	24.08			0.3870	-0.0204			0.2889	-0.0730
589.83	24.29			0.3870	-0.0204			0.2889	-0.0730
599.83	24.49			0.3870	-0.0204			0.2889	-0.0730
609.83	24.69			0.3870	-0.0204			0.2889	-0.0730
619.83	24.90			0.3870	-0.0204			0.2889	-0.0730
629.83	25.10			0.3870	-0.0204			0.2889	-0.0730
639.83	25.29			0.3870	-0.0204			0.2889	-0.0730
649.83	25.49			0.3870	-0.0204			0.2889	-0.0730
659.83	25.69			0.3870	-0.0204			0.2889	-0.0730
669.83	25.88			0.3870	-0.0204			0.2889	-0.0730
679.83	26.07			0.3870	-0.0204			0.2889	-0.0730
689.83	26.26			0.3870	-0.0204			0.2889	-0.0730
699.83	26.45			0.3870	-0.0204			0.2889	-0.0730
709.83	26.64			0.3870	-0.0204			0.2889	-0.0730
719.83	26.83			0.3870	-0.0204			0.2889	-0.0730
749.83	27.38			0.3870	-0.0204			0.2889	-0.0730
779.83	27.93			0.3870	-0.0204			0.2889	-0.0730
809.83	28.46			0.3870	-0.0204			0.2889	-0.0730
839.83	28.98			0.3870	-0.0204			0.2889	-0.0730
869.83	29.49			0.3870	-0.0204			0.2889	-0.0730
899.83	30.00			0.3870	-0.0204			0.2889	-0.0730
929.83	30.49			0.3870	-0.0204			0.2889	-0.0730
959.83	30.98			0.3870	-0.0204			0.2889	-0.0730
989.83	31.46			0.3870	-0.0204			0.2889	-0.0730
1019.83	31.93			0.3870	-0.0204			0.2889	-0.0730
1049.83	32.40			0.3870	-0.0204			0.2889	-0.0730
1079.83	32.86							0.2889	-0.0730
1109.83	33.31							0.2889	-0.0730
1139.83	33.76							0.2889	-0.0730

Sample: Pond 8E, BH-3 @ 13.5 feet

Time (minutes)	Square Root of Time (minutes)	Test 5 @ 500 psf		Test 6 @ 1000 psf		Test 7 @ 2000 psf		Test 8 @ 4000 psf	
		Dial Reading (inches)	Deflection (inches)	Dial Reading (inches)	Deflection (inches)	Dial Reading (inches)	Deflection (inches)	Dial Reading (inches)	Deflection (inches)
0.10	0.00	0.2772	0.0000	0.1958	0.0000	0.4441	0.0000	0.4032	0.0000
0.17	0.41	0.2772	0.0000	0.1958	0.0000	0.4441	0.0000	0.3567	-0.0465
0.33	0.58	0.2718	-0.0054	0.1887	-0.0071	0.4440	-0.0001	0.3565	-0.0467
0.50	0.71	0.2697	-0.0075	0.1831	-0.0127	0.4440	-0.0001	0.3563	-0.0469
0.67	0.82	0.2676	-0.0096	0.1803	-0.0155	0.4412	-0.0029	0.3563	-0.0469
0.83	0.91	0.2653	-0.0119	0.1758	-0.0200	0.4409	-0.0032	0.3334	-0.0698
1.00	1.00	0.2648	-0.0124	0.1733	-0.0225	0.4365	-0.0076	0.3263	-0.0769
1.17	1.08	0.2630	-0.0142	0.1715	-0.0243	0.4337	-0.0104	0.3228	-0.0804
1.33	1.15	0.2617	-0.0155	0.1715	-0.0243	0.4337	-0.0104	0.3181	-0.0851
1.50	1.22	0.2609	-0.0163	0.1678	-0.0280	0.4290	-0.0151	0.3159	-0.0873
1.67	1.29	0.2598	-0.0174	0.1670	-0.0288	0.4281	-0.0160	0.3130	-0.0902
1.83	1.35	0.2593	-0.0179	0.1643	-0.0315	0.4253	-0.0188	0.3102	-0.0930
2.00	1.41	0.2580	-0.0192	0.1628	-0.0330	0.4235	-0.0206	0.3079	-0.0953
2.17	1.47	0.2571	-0.0201	0.1611	-0.0347	0.4235	-0.0206	0.3079	-0.0953
2.33	1.53	0.2571	-0.0201	0.1601	-0.0357	0.4235	-0.0206	0.3079	-0.0953
2.50	1.58	0.2571	-0.0201	0.1593	-0.0365	0.4235	-0.0206	0.3079	-0.0953
2.67	1.63	0.2571	-0.0201	0.1593	-0.0365	0.4235	-0.0206	0.3079	-0.0953
2.83	1.68	0.2571	-0.0201	0.1593	-0.0365	0.4235	-0.0206	0.3079	-0.0953
3.00	1.73	0.2571	-0.0201	0.1593	-0.0365	0.4235	-0.0206	0.2975	-0.1057
3.17	1.78	0.2571	-0.0201	0.1593	-0.0365	0.4235	-0.0206	0.2970	-0.1062
3.33	1.83	0.2571	-0.0201	0.1593	-0.0365	0.4235	-0.0206	0.2970	-0.1062
3.50	1.87	0.2571	-0.0201	0.1593	-0.0365	0.4235	-0.0206	0.2970	-0.1062
3.67	1.91	0.2571	-0.0201	0.1593	-0.0365	0.4235	-0.0206	0.2970	-0.1062
3.83	1.96	0.2571	-0.0201	0.1593	-0.0365	0.4235	-0.0206	0.2970	-0.1062
4.00	2.00	0.2571	-0.0201	0.1593	-0.0365	0.4235	-0.0206	0.2970	-0.1062
4.17	2.04	0.2571	-0.0201	0.1593	-0.0365	0.4235	-0.0206	0.2970	-0.1062
4.33	2.08	0.2571	-0.0201	0.1593	-0.0365	0.4235	-0.0206	0.2970	-0.1062
4.50	2.12	0.2571	-0.0201	0.1593	-0.0365	0.4235	-0.0206	0.2970	-0.1062
4.67	2.16	0.2571	-0.0201	0.1593	-0.0365	0.4235	-0.0206	0.2970	-0.1062
4.83	2.20	0.2571	-0.0201	0.1593	-0.0365	0.4235	-0.0206	0.2970	-0.1062
5.00	2.24	0.2571	-0.0201	0.1593	-0.0365	0.4235	-0.0206	0.2970	-0.1062
5.17	2.27	0.2571	-0.0201	0.1593	-0.0365	0.4235	-0.0206	0.2970	-0.1062
5.33	2.31	0.2571	-0.0201	0.1593	-0.0365	0.4235	-0.0206	0.2970	-0.1062
5.50	2.35	0.2571	-0.0201	0.1593	-0.0365	0.4235	-0.0206	0.2970	-0.1062
5.67	2.38	0.2571	-0.0201	0.1593	-0.0365	0.4235	-0.0206	0.2970	-0.1062
5.83	2.42	0.2571	-0.0201	0.1593	-0.0365	0.4235	-0.0206	0.2970	-0.1062
6.00	2.45	0.2571	-0.0201	0.1593	-0.0365	0.4235	-0.0206	0.2970	-0.1062
6.17	2.48	0.2571	-0.0201	0.1593	-0.0365	0.4235	-0.0206	0.2970	-0.1062
6.33	2.52	0.2571	-0.0201	0.1593	-0.0365	0.4235	-0.0206	0.2970	-0.1062
6.50	2.55	0.2571	-0.0201	0.1593	-0.0365	0.4235	-0.0206	0.2970	-0.1062
6.67	2.58	0.2571	-0.0201	0.1593	-0.0365	0.4235	-0.0206	0.2970	-0.1062
6.83	2.61	0.2571	-0.0201	0.1593	-0.0365	0.4235	-0.0206	0.2970	-0.1062
7.00	2.65	0.2571	-0.0201	0.1593	-0.0365	0.4235	-0.0206	0.2970	-0.1062
7.17	2.68	0.2571	-0.0201	0.1593	-0.0365	0.4235	-0.0206	0.2970	-0.1062
7.33	2.71	0.2571	-0.0201	0.1593	-0.0365	0.4235	-0.0206	0.2970	-0.1062
7.50	2.74	0.2571	-0.0201	0.1593	-0.0365	0.4235	-0.0206	0.2970	-0.1062
7.67	2.77	0.2571	-0.0201	0.1593	-0.0365	0.4235	-0.0206	0.2970	-0.1062
7.83	2.80	0.2571	-0.0201	0.1593	-0.0365	0.4235	-0.0206	0.2970	-0.1062
8.00	2.83	0.2571	-0.0201	0.1593	-0.0365	0.4235	-0.0206	0.2970	-0.1062
8.17	2.86	0.2571	-0.0201	0.1593	-0.0365	0.4235	-0.0206	0.2970	-0.1062
8.33	2.89	0.2571	-0.0201	0.1593	-0.0365	0.4235	-0.0206	0.2970	-0.1062
8.50	2.92	0.2571	-0.0201	0.1593	-0.0365	0.4235	-0.0206	0.2970	-0.1062
8.67	2.94	0.2571	-0.0201	0.1593	-0.0365	0.4235	-0.0206	0.2970	-0.1062
8.83	2.97	0.2571	-0.0201	0.1593	-0.0365	0.4235	-0.0206	0.2970	-0.1062
9.00	3.00	0.2571	-0.0201	0.1593	-0.0365	0.4235	-0.0206	0.2970	-0.1062
9.17	3.03	0.2571	-0.0201	0.1593	-0.0365	0.4235	-0.0206	0.2970	-0.1062
9.33	3.06	0.2571	-0.0201	0.1593	-0.0365	0.4235	-0.0206	0.2970	-0.1062
9.50	3.08	0.2571	-0.0201	0.1593	-0.0365	0.4235	-0.0206	0.2970	-0.1062
9.67	3.11	0.2571	-0.0201	0.1593	-0.0365	0.4235	-0.0206	0.2970	-0.1062
9.83	3.14	0.2571	-0.0201	0.1593	-0.0365	0.4235	-0.0206	0.2970	-0.1062
10.00	3.16	0.2571	-0.0201	0.1593	-0.0365	0.4235	-0.0206	0.2970	-0.1062
10.17	3.19	0.2571	-0.0201	0.1593	-0.0365	0.4235	-0.0206	0.2970	-0.1062
10.33	3.21	0.2571	-0.0201	0.1593	-0.0365	0.4235	-0.0206	0.2970	-0.1062
10.50	3.24	0.2571	-0.0201	0.1593	-0.0365	0.4235	-0.0206	0.2970	-0.1062
10.67	3.27	0.2571	-0.0201	0.1593	-0.0365	0.4235	-0.0206	0.2970	-0.1062

Sample: Pond 8E, BH-3 @ 13.5 feet

Time (minutes)	Square Root of Time (minutes)	Test 5 @ 500 psf		Test 6 @ 1000 psf		Test 7 @ 2000 psf		Test 8 @ 4000 psf	
		Dial Reading (inches)	Deflection (inches)	Dial Reading (inches)	Deflection (inches)	Dial Reading (inches)	Deflection (inches)	Dial Reading (inches)	Deflection (inches)
10.83	3.29	0.2571	-0.0201	0.1593	-0.0365	0.4235	-0.0206	0.2970	-0.1062
11.00	3.32	0.2571	-0.0201	0.1593	-0.0365	0.4235	-0.0206	0.2970	-0.1062
11.17	3.34	0.2571	-0.0201	0.1593	-0.0365	0.4235	-0.0206	0.2970	-0.1062
11.33	3.37	0.2571	-0.0201	0.1593	-0.0365	0.4235	-0.0206	0.2970	-0.1062
11.50	3.39	0.2571	-0.0201	0.1593	-0.0365	0.4235	-0.0206	0.2970	-0.1062
11.67	3.42	0.2571	-0.0201	0.1593	-0.0365	0.4235	-0.0206	0.2970	-0.1062
11.83	3.44	0.2571	-0.0201	0.1593	-0.0365	0.4235	-0.0206	0.2970	-0.1062
12.00	3.46	0.2571	-0.0201	0.1593	-0.0365	0.4235	-0.0206	0.2970	-0.1062
12.17	3.49	0.2571	-0.0201	0.1593	-0.0365	0.4235	-0.0206	0.2970	-0.1062
12.33	3.51	0.2571	-0.0201	0.1593	-0.0365	0.4235	-0.0206	0.2970	-0.1062
12.50	3.54	0.2571	-0.0201	0.1593	-0.0365	0.4235	-0.0206	0.2970	-0.1062
12.67	3.56	0.2571	-0.0201	0.1593	-0.0365	0.4235	-0.0206	0.2970	-0.1062
12.83	3.58	0.2571	-0.0201	0.1593	-0.0365	0.4235	-0.0206	0.2970	-0.1062
13.00	3.61	0.2571	-0.0201	0.1593	-0.0365	0.4235	-0.0206	0.2970	-0.1062
13.17	3.63	0.2571	-0.0201	0.1593	-0.0365	0.4235	-0.0206	0.2970	-0.1062
13.33	3.65	0.2571	-0.0201	0.1593	-0.0365	0.4235	-0.0206	0.2970	-0.1062
13.50	3.67	0.2571	-0.0201	0.1593	-0.0365	0.4235	-0.0206	0.2970	-0.1062
13.67	3.70	0.2571	-0.0201	0.1593	-0.0365	0.4235	-0.0206	0.2970	-0.1062
13.83	3.72	0.2571	-0.0201	0.1593	-0.0365	0.4235	-0.0206	0.2970	-0.1062
14.00	3.74	0.2571	-0.0201	0.1593	-0.0365	0.4235	-0.0206	0.2970	-0.1062
14.17	3.76	0.2571	-0.0201	0.1593	-0.0365	0.4235	-0.0206	0.2970	-0.1062
14.33	3.79	0.2571	-0.0201	0.1593	-0.0365	0.4235	-0.0206	0.2970	-0.1062
14.50	3.81	0.2571	-0.0201	0.1593	-0.0365	0.4235	-0.0206	0.2970	-0.1062
14.67	3.83	0.2571	-0.0201	0.1593	-0.0365	0.4235	-0.0206	0.2970	-0.1062
14.83	3.85	0.2571	-0.0201	0.1593	-0.0365	0.4235	-0.0206	0.2970	-0.1062
15.33	3.92	0.2571	-0.0201	0.1593	-0.0365	0.4235	-0.0206	0.2970	-0.1062
15.83	3.98	0.2571	-0.0201	0.1593	-0.0365	0.4235	-0.0206	0.2970	-0.1062
16.33	4.04	0.2571	-0.0201	0.8000	0.6042	0.4235	-0.0206	0.2970	-0.1062
16.83	4.10	0.2571	-0.0201	0.8000	0.6042	0.4235	-0.0206	0.2970	-0.1062
17.33	4.16	0.2571	-0.0201	0.8000	0.6042	0.4235	-0.0206	0.2970	-0.1062
17.83	4.22	0.2571	-0.0201	0.8000	0.6042	0.4235	-0.0206	0.2970	-0.1062
18.33	4.28	0.2571	-0.0201	0.8000	0.6042	0.4235	-0.0206	0.2970	-0.1062
18.83	4.34	0.2571	-0.0201	0.8000	0.6042	0.4235	-0.0206	0.2970	-0.1062
19.33	4.40	0.2571	-0.0201	0.8000	0.6042	0.4235	-0.0206	0.2970	-0.1062
19.83	4.45	0.2571	-0.0201	0.8000	0.6042	0.4235	-0.0206	0.2970	-0.1062
20.33	4.51	0.2571	-0.0201	0.8000	0.6042	0.4235	-0.0206	0.2970	-0.1062
20.83	4.56	0.2571	-0.0201	0.8000	0.6042	0.4235	-0.0206	0.2970	-0.1062
21.33	4.62	0.2571	-0.0201	0.8000	0.6042	0.4235	-0.0206	0.2970	-0.1062
21.83	4.67	0.2571	-0.0201	0.8000	0.6042	0.4235	-0.0206	0.2970	-0.1062
22.33	4.73	0.2571	-0.0201	0.8000	0.6042	0.4235	-0.0206	0.2970	-0.1062
22.83	4.78	0.2571	-0.0201	0.8000	0.6042	0.4235	-0.0206	0.2970	-0.1062
23.33	4.83	0.2571	-0.0201	0.8000	0.6042	0.4235	-0.0206	0.2970	-0.1062
23.83	4.88	0.2571	-0.0201	0.8000	0.6042	0.4235	-0.0206	0.2970	-0.1062
24.33	4.93	0.2571	-0.0201	0.8000	0.6042	0.4235	-0.0206	0.2970	-0.1062
24.83	4.98	0.2571	-0.0201	0.8000	0.6042	0.4235	-0.0206	0.2970	-0.1062
25.33	5.03	0.2571	-0.0201	0.8000	0.6042	0.4235	-0.0206	0.2970	-0.1062
25.83	5.08	0.2571	-0.0201	0.8000	0.6042	0.4235	-0.0206	0.2970	-0.1062
26.33	5.13	0.2571	-0.0201	0.8000	0.6042	0.4235	-0.0206	0.2970	-0.1062
26.83	5.18	0.2571	-0.0201	0.8000	0.6042	0.4235	-0.0206	0.2970	-0.1062
27.33	5.23	0.2571	-0.0201	0.8000	0.6042	0.4235	-0.0206	0.2970	-0.1062
27.83	5.28	0.2571	-0.0201	0.8000	0.6042	0.4235	-0.0206	0.2970	-0.1062
28.33	5.32	0.2571	-0.0201	0.8000	0.6042	0.4235	-0.0206	0.2970	-0.1062
28.83	5.37	0.2571	-0.0201	0.8000	0.6042	0.4235	-0.0206	0.2970	-0.1062
29.33	5.42	0.2571	-0.0201	0.8000	0.6042	0.4235	-0.0206	0.2970	-0.1062
29.83	5.46	0.2571	-0.0201	0.8000	0.6042	0.4235	-0.0206	0.2970	-0.1062
30.33	5.51	0.2571	-0.0201	0.8000	0.6042	0.4235	-0.0206	0.2970	-0.1062
30.83	5.55	0.2571	-0.0201	0.8000	0.6042	0.4235	-0.0206	0.2970	-0.1062
31.33	5.60	0.2571	-0.0201	0.8000	0.6042	0.4235	-0.0206	0.2970	-0.1062
31.83	5.64	0.2571	-0.0201	0.8000	0.6042	0.4235	-0.0206	0.2970	-0.1062
32.33	5.69	0.2571	-0.0201	0.8000	0.6042	0.4235	-0.0206	0.2970	-0.1062
32.83	5.73	0.2571	-0.0201	0.8000	0.6042	0.4235	-0.0206	0.2970	-0.1062
33.33	5.77	0.2571	-0.0201	0.8000	0.6042	0.4235	-0.0206	0.2970	-0.1062
33.83	5.82	0.2571	-0.0201	0.8000	0.6042	0.4235	-0.0206	0.2970	-0.1062
34.33	5.86	0.2571	-0.0201	0.8000	0.6042	0.4235	-0.0206	0.2970	-0.1062
34.83	5.90	0.2571	-0.0201	0.8000	0.6042	0.4235	-0.0206	0.2970	-0.1062

Sample: Pond 8E, BH-3 @ 13.5 feet

Time (minutes)	Square Root of Time (minutes)	Test 5 @ 500 psf		Test 6 @ 1000 psf		Test 7 @ 2000 psf		Test 8 @ 4000 psf	
		Dial Reading (inches)	Deflection (inches)	Dial Reading (inches)	Deflection (inches)	Dial Reading (inches)	Deflection (inches)	Dial Reading (inches)	Deflection (inches)
35.33	5.94	0.2571	-0.0201	0.8000	0.6042	0.4235	-0.0206	0.2970	-0.1062
35.83	5.99	0.2571	-0.0201	0.8000	0.6042	0.4235	-0.0206	0.2970	-0.1062
36.33	6.03	0.2571	-0.0201	0.8000	0.6042	0.4235	-0.0206	0.2970	-0.1062
36.83	6.07	0.2571	-0.0201	0.8000	0.6042	0.4235	-0.0206	0.2970	-0.1062
37.33	6.11	0.2571	-0.0201	0.8000	0.6042	0.4235	-0.0206	0.2970	-0.1062
37.83	6.15	0.2571	-0.0201	0.8000	0.6042	0.4235	-0.0206	0.2970	-0.1062
38.33	6.19	0.2571	-0.0201	0.8000	0.6042	0.4235	-0.0206	0.2970	-0.1062
38.83	6.23	0.2571	-0.0201	0.8000	0.6042	0.4235	-0.0206	0.2970	-0.1062
39.33	6.27	0.2571	-0.0201	0.8000	0.6042	0.4235	-0.0206	0.2970	-0.1062
39.83	6.31	0.2571	-0.0201	0.8000	0.6042	0.4235	-0.0206	0.2970	-0.1062
40.33	6.35	0.2571	-0.0201	0.8000	0.6042	0.4235	-0.0206	0.2970	-0.1062
40.83	6.39	0.2571	-0.0201	0.8000	0.6042	0.4235	-0.0206	0.2970	-0.1062
41.33	6.43	0.2571	-0.0201	0.8000	0.6042	0.4235	-0.0206	0.2970	-0.1062
41.83	6.47	0.2571	-0.0201	0.8000	0.6042	0.4235	-0.0206	0.2970	-0.1062
42.33	6.51	0.2571	-0.0201	0.8000	0.6042	0.4235	-0.0206	0.2970	-0.1062
42.83	6.54	0.2571	-0.0201	0.8000	0.6042	0.4235	-0.0206	0.2970	-0.1062
43.33	6.58	0.2571	-0.0201	0.8000	0.6042	0.4235	-0.0206	0.2970	-0.1062
43.83	6.62	0.2571	-0.0201	0.8000	0.6042	0.4235	-0.0206	0.2970	-0.1062
44.33	6.66	0.2571	-0.0201	0.8000	0.6042	0.4235	-0.0206	0.2970	-0.1062
44.83	6.70	0.2571	-0.0201	0.8000	0.6042	0.4235	-0.0206	0.2970	-0.1062
45.33	6.73	0.2571	-0.0201	0.8000	0.6042	0.4235	-0.0206	0.2970	-0.1062
45.83	6.77	0.2571	-0.0201	0.8000	0.6042	0.4235	-0.0206	0.2970	-0.1062
46.33	6.81	0.2571	-0.0201	0.8000	0.6042	0.4235	-0.0206	0.2970	-0.1062
46.83	6.84	0.2571	-0.0201	0.8000	0.6042	0.4235	-0.0206	0.2970	-0.1062
47.33	6.88	0.2571	-0.0201	0.8000	0.6042	0.4235	-0.0206	0.2970	-0.1062
47.83	6.92	0.2571	-0.0201	0.8000	0.6042	0.4235	-0.0206	0.2970	-0.1062
48.33	6.95	0.2571	-0.0201	0.8000	0.6042	0.4235	-0.0206	0.2970	-0.1062
48.83	6.99	0.2571	-0.0201	0.8000	0.6042	0.4235	-0.0206	0.2970	-0.1062
49.33	7.02	0.2571	-0.0201	0.8000	0.6042	0.4235	-0.0206	0.2970	-0.1062
49.83	7.06	0.2571	-0.0201	0.8000	0.6042	0.4235	-0.0206	0.2970	-0.1062
50.33	7.09	0.2571	-0.0201	0.8000	0.6042	0.4235	-0.0206	0.2970	-0.1062
50.83	7.13	0.2571	-0.0201	0.8000	0.6042	0.4235	-0.0206	0.2970	-0.1062
51.33	7.16	0.2571	-0.0201	0.8000	0.6042	0.4235	-0.0206	0.2970	-0.1062
51.83	7.20	0.2571	-0.0201	0.8000	0.6042	0.4235	-0.0206	0.2970	-0.1062
52.33	7.23	0.2571	-0.0201	0.8000	0.6042	0.4235	-0.0206	0.2970	-0.1062
52.83	7.27	0.2571	-0.0201	0.8000	0.6042	0.4235	-0.0206	0.2970	-0.1062
53.33	7.30	0.2571	-0.0201	0.8000	0.6042	0.4235	-0.0206	0.2970	-0.1062
53.83	7.34	0.2571	-0.0201	0.8000	0.6042	0.4235	-0.0206	0.2970	-0.1062
54.33	7.37	0.2571	-0.0201	0.8000	0.6042	0.4235	-0.0206	0.2970	-0.1062
54.83	7.40	0.2571	-0.0201	0.8000	0.6042	0.4235	-0.0206	0.2970	-0.1062
55.33	7.44	0.2571	-0.0201	0.8000	0.6042	0.4235	-0.0206	0.2970	-0.1062
55.83	7.47	0.2571	-0.0201	0.8000	0.6042	0.4235	-0.0206	0.2970	-0.1062
56.33	7.51	0.2571	-0.0201	0.8000	0.6042	0.4235	-0.0206	0.2970	-0.1062
56.83	7.54	0.2571	-0.0201	0.8000	0.6042	0.4235	-0.0206	0.2970	-0.1062
57.33	7.57	0.2571	-0.0201	0.8000	0.6042	0.4235	-0.0206	0.2970	-0.1062
57.83	7.60	0.2571	-0.0201	0.8000	0.6042	0.4235	-0.0206	0.2970	-0.1062
58.33	7.64	0.2571	-0.0201	0.8000	0.6042	0.4235	-0.0206	0.2970	-0.1062
58.83	7.67	0.2571	-0.0201	0.8000	0.6042	0.4235	-0.0206	0.2970	-0.1062
59.33	7.70	0.2571	-0.0201	0.8000	0.6042	0.4235	-0.0206	0.2970	-0.1062
59.83	7.74	0.2571	-0.0201	0.8000	0.6042	0.4235	-0.0206	0.2970	-0.1062
60.83	7.80	0.2571	-0.0201	0.8000	0.6042	0.4235	-0.0206	0.2970	-0.1062
61.83	7.86	0.2571	-0.0201	0.8000	0.6042	0.4235	-0.0206	0.2970	-0.1062
62.83	7.93	0.2571	-0.0201	0.8000	0.6042	0.4235	-0.0206	0.2970	-0.1062
63.83	7.99	0.2571	-0.0201	0.8000	0.6042	0.4235	-0.0206	0.2970	-0.1062
64.83	8.05	0.2571	-0.0201	0.8000	0.6042	0.4235	-0.0206	0.2970	-0.1062
65.83	8.11	0.2571	-0.0201	0.8000	0.6042	0.4235	-0.0206	0.2970	-0.1062
66.83	8.18	0.2571	-0.0201	0.8000	0.6042	0.4235	-0.0206	0.2970	-0.1062
67.83	8.24	0.2571	-0.0201	0.8000	0.6042	0.4235	-0.0206	0.2970	-0.1062
68.83	8.30	0.2571	-0.0201	0.8000	0.6042	0.4235	-0.0206	0.2970	-0.1062
69.83	8.36	0.2571	-0.0201	0.8000	0.6042	0.4235	-0.0206	0.2970	-0.1062
70.83	8.42	0.2571	-0.0201	0.8000	0.6042	0.4235	-0.0206	0.2970	-0.1062
71.83	8.48	0.2571	-0.0201	0.8000	0.6042	0.4235	-0.0206	0.2970	-0.1062
72.83	8.53	0.2571	-0.0201	0.8000	0.6042	0.4235	-0.0206	0.2970	-0.1062
73.83	8.59	0.2571	-0.0201	0.8000	0.6042	0.4235	-0.0206	0.2970	-0.1062
74.83	8.65	0.2571	-0.0201	0.8000	0.6042	0.4235	-0.0206	0.2970	-0.1062

Sample: Pond 8E, BH-3 @ 13.5 feet

Time (minutes)	Square Root of Time (minutes)	Test 5 @ 500 psf		Test 6 @ 1000 psf		Test 7 @ 2000 psf		Test 8 @ 4000 psf	
		Dial Reading (inches)	Deflection (inches)	Dial Reading (inches)	Deflection (inches)	Dial Reading (inches)	Deflection (inches)	Dial Reading (inches)	Deflection (inches)
75.83	8.71	0.2571	-0.0201	0.8000	0.6042	0.4235	-0.0206	0.2970	-0.1062
76.83	8.77	0.2571	-0.0201	0.8000	0.6042	0.4235	-0.0206	0.2970	-0.1062
77.83	8.82	0.2571	-0.0201	0.8000	0.6042	0.4235	-0.0206	0.2970	-0.1062
78.83	8.88	0.2571	-0.0201	0.8000	0.6042	0.4235	-0.0206	0.2970	-0.1062
79.83	8.93	0.2571	-0.0201	0.8000	0.6042	0.4235	-0.0206	0.2970	-0.1062
80.83	8.99	0.2571	-0.0201	0.8000	0.6042	0.4235	-0.0206	0.2970	-0.1062
81.83	9.05	0.2571	-0.0201	0.8000	0.6042	0.4235	-0.0206	0.2970	-0.1062
82.83	9.10	0.2571	-0.0201	0.8000	0.6042	0.4235	-0.0206	0.2970	-0.1062
83.83	9.16	0.2571	-0.0201	0.8000	0.6042	0.4235	-0.0206	0.2970	-0.1062
84.83	9.21	0.2571	-0.0201	0.8000	0.6042	0.4235	-0.0206	0.2970	-0.1062
85.83	9.26	0.2571	-0.0201	0.8000	0.6042	0.4235	-0.0206	0.2970	-0.1062
86.83	9.32	0.2571	-0.0201	0.8000	0.6042	0.4235	-0.0206	0.2970	-0.1062
87.83	9.37	0.2571	-0.0201	0.8000	0.6042	0.4235	-0.0206	0.2970	-0.1062
88.83	9.43	0.2571	-0.0201	0.8000	0.6042	0.4235	-0.0206	0.2970	-0.1062
89.83	9.48	0.2571	-0.0201	0.8000	0.6042	0.4235	-0.0206	0.2970	-0.1062
90.83	9.53	0.2571	-0.0201	0.8000	0.6042	0.4235	-0.0206	0.2970	-0.1062
91.83	9.58	0.2571	-0.0201	0.8000	0.6042	0.4235	-0.0206	0.2970	-0.1062
92.83	9.64	0.2571	-0.0201	0.8000	0.6042	0.4235	-0.0206	0.2970	-0.1062
93.83	9.69	0.2571	-0.0201	0.8000	0.6042	0.4235	-0.0206	0.2970	-0.1062
94.83	9.74	0.2571	-0.0201	0.8000	0.6042	0.4235	-0.0206	0.2970	-0.1062
95.83	9.79	0.2571	-0.0201	0.8000	0.6042	0.4235	-0.0206	0.2970	-0.1062
96.83	9.84	0.2571	-0.0201	0.8000	0.6042	0.4235	-0.0206	0.2970	-0.1062
97.83	9.89	0.2571	-0.0201	0.8000	0.6042	0.4235	-0.0206	0.2970	-0.1062
98.83	9.94	0.2571	-0.0201	0.8000	0.6042	0.4235	-0.0206	0.2970	-0.1062
99.83	9.99	0.2571	-0.0201	0.8000	0.6042	0.4235	-0.0206	0.2970	-0.1062
100.83	10.04	0.2571	-0.0201	0.8000	0.6042	0.4235	-0.0206	0.2970	-0.1062
101.83	10.09	0.2571	-0.0201	0.8000	0.6042	0.4235	-0.0206	0.2970	-0.1062
102.83	10.14	0.2571	-0.0201	0.8000	0.6042	0.4235	-0.0206	0.2970	-0.1062
103.83	10.19	0.2571	-0.0201	0.8000	0.6042	0.4235	-0.0206	0.2970	-0.1062
104.83	10.24	0.2571	-0.0201	0.8000	0.6042	0.4235	-0.0206	0.2970	-0.1062
105.83	10.29	0.2571	-0.0201	0.8000	0.6042	0.4235	-0.0206	0.2970	-0.1062
106.83	10.34	0.2571	-0.0201	0.8000	0.6042	0.4235	-0.0206	0.2970	-0.1062
107.83	10.38	0.2571	-0.0201	0.8000	0.6042	0.4235	-0.0206	0.2970	-0.1062
108.83	10.43	0.2571	-0.0201	0.8000	0.6042	0.4235	-0.0206	0.2970	-0.1062
109.83	10.48	0.2571	-0.0201	0.8000	0.6042	0.4235	-0.0206	0.2970	-0.1062
110.83	10.53	0.2571	-0.0201	0.8000	0.6042	0.4235	-0.0206	0.2970	-0.1062
111.83	10.58	0.2571	-0.0201	0.8000	0.6042	0.4235	-0.0206	0.2970	-0.1062
112.83	10.62	0.2571	-0.0201	0.8000	0.6042	0.4235	-0.0206	0.2970	-0.1062
113.83	10.67	0.2571	-0.0201	0.8000	0.6042	0.4235	-0.0206	0.2970	-0.1062
114.83	10.72	0.2571	-0.0201	0.8000	0.6042	0.4235	-0.0206	0.2970	-0.1062
115.83	10.76	0.2571	-0.0201	0.8000	0.6042	0.4235	-0.0206	0.2970	-0.1062
116.83	10.81	0.2571	-0.0201	0.8000	0.6042	0.4235	-0.0206	0.2970	-0.1062
117.83	10.86	0.2571	-0.0201	0.8000	0.6042	0.4235	-0.0206	0.2970	-0.1062
118.83	10.90	0.2571	-0.0201	0.8000	0.6042	0.4235	-0.0206	0.2970	-0.1062
119.83	10.95	0.2571	-0.0201	0.8000	0.6042	0.4235	-0.0206	0.2970	-0.1062
129.83	11.39	0.2571	-0.0201	0.8000	0.6042	0.4235	-0.0206	0.2970	-0.1062
139.83	11.83	0.2571	-0.0201	0.8000	0.6042	0.4235	-0.0206	0.2970	-0.1062
149.83	12.24	0.2571	-0.0201	0.8000	0.6042	0.4235	-0.0206	0.2970	-0.1062
159.83	12.64	0.2571	-0.0201	0.8000	0.6042	0.4235	-0.0206	0.2970	-0.1062
169.83	13.03	0.2571	-0.0201	0.8000	0.6042	0.4235	-0.0206	0.2970	-0.1062
179.83	13.41	0.2571	-0.0201	0.8000	0.6042	0.4235	-0.0206	0.2970	-0.1062
189.83	13.78	0.2571	-0.0201	0.8000	0.6042	0.4235	-0.0206	0.2970	-0.1062
199.83	14.14	0.2571	-0.0201	0.8000	0.6042	0.4235	-0.0206	0.2970	-0.1062
209.83	14.49	0.2571	-0.0201	0.8000	0.6042	0.4235	-0.0206	0.2970	-0.1062
219.83	14.83	0.2571	-0.0201	0.8000	0.6042	0.4235	-0.0206	0.2970	-0.1062
229.83	15.16	0.2571	-0.0201	0.8000	0.6042	0.4235	-0.0206	0.2970	-0.1062
239.83	15.49	0.2571	-0.0201	0.8000	0.6042	0.4235	-0.0206	0.2970	-0.1062
249.83	15.81	0.2571	-0.0201	0.8000	0.6042	0.4235	-0.0206	0.2970	-0.1062
259.83	16.12	0.2571	-0.0201	0.8000	0.6042	0.4235	-0.0206	0.2970	-0.1062
269.83	16.43	0.2571	-0.0201	0.8000	0.6042	0.4235	-0.0206	0.2970	-0.1062
279.83	16.73	0.2571	-0.0201	0.8000	0.6042	0.4235	-0.0206	0.2970	-0.1062
289.83	17.02	0.2571	-0.0201	0.8000	0.6042	0.4235	-0.0206	0.2970	-0.1062
299.83	17.32	0.2571	-0.0201	0.8000	0.6042	0.4235	-0.0206	0.2970	-0.1062
309.83	17.60	0.2571	-0.0201	0.8000	0.6042	0.4235	-0.0206	0.2970	-0.1062
319.83	17.88	0.2571	-0.0201	0.8000	0.6042	0.4235	-0.0206	0.2970	-0.1062

Sample: Pond 8E, BH-3 @ 13.5 feet

Time (minutes)	Square Root of Time (minutes)	Test 5 @ 500 psf		Test 6 @ 1000 psf		Test 7 @ 2000 psf		Test 8 @ 4000 psf	
		Dial Reading (inches)	Deflection (inches)	Dial Reading (inches)	Deflection (inches)	Dial Reading (inches)	Deflection (inches)	Dial Reading (inches)	Deflection (inches)
329.83	18.16	0.2571	-0.0201	0.8000	0.6042	0.4235	-0.0206	0.2970	-0.1062
339.83	18.43	0.2571	-0.0201	0.8000	0.6042	0.4235	-0.0206	0.2970	-0.1062
349.83	18.70	0.2571	-0.0201	0.8000	0.6042	0.4235	-0.0206	0.2970	-0.1062
359.83	18.97	0.2571	-0.0201	0.8000	0.6042	0.4235	-0.0206	0.2970	-0.1062
369.83	19.23	0.2571	-0.0201	0.8000	0.6042	0.4235	-0.0206	0.2970	-0.1062
379.83	19.49	0.2571	-0.0201	0.8000	0.6042	0.4235	-0.0206	0.2970	-0.1062
389.83	19.74	0.2571	-0.0201	0.8000	0.6042	0.4235	-0.0206	0.2970	-0.1062
399.83	20.00	0.2571	-0.0201	0.8000	0.6042	0.4235	-0.0206	0.2970	-0.1062
409.83	20.24	0.2571	-0.0201	0.8000	0.6042	0.4235	-0.0206	0.2970	-0.1062
419.83	20.49	0.2571	-0.0201	0.8000	0.6042	0.4235	-0.0206	0.2970	-0.1062
429.83	20.73	0.2571	-0.0201	0.8000	0.6042	0.4235	-0.0206	0.2970	-0.1062
439.83	20.97	0.1964	-0.0808	0.8000	0.6042	0.4235	-0.0206	0.2970	-0.1062
449.83	21.21			0.8000	0.6042	0.4235	-0.0206	0.2970	-0.1062
459.83	21.44			0.8000	0.6042	0.4235	-0.0206	0.2970	-0.1062
469.83	21.68			0.8000	0.6042	0.4235	-0.0206	0.2970	-0.1062
479.83	21.91			0.8000	0.6042	0.4235	-0.0206	0.2970	-0.1062
489.83	22.13			0.8000	0.6042	0.4235	-0.0206	0.2970	-0.1062
499.83	22.36			0.8000	0.6042	0.4235	-0.0206	0.2970	-0.1062
509.83	22.58			0.8000	0.6042	0.4235	-0.0206	0.2970	-0.1062
519.83	22.80			0.8000	0.6042	0.4235	-0.0206	0.2970	-0.1062
529.83	23.02			0.8000	0.6042	0.4235	-0.0206	0.2970	-0.1062
539.83	23.23			0.8000	0.6042	0.4235	-0.0206	0.2970	-0.1062
549.83	23.45			0.8000	0.6042	0.4235	-0.0206	0.2970	-0.1062
559.83	23.66			0.8000	0.6042	0.4235	-0.0206	0.2970	-0.1062
569.83	23.87			0.8000	0.6042	0.4235	-0.0206	0.2970	-0.1062
579.83	24.08			0.8000	0.6042	0.4235	-0.0206	0.2970	-0.1062
589.83	24.29			0.8000	0.6042	0.4235	-0.0206	0.2970	-0.1062
599.83	24.49			0.8000	0.6042	0.4235	-0.0206	0.2970	-0.1062
609.83	24.69			0.8000	0.6042	0.4235	-0.0206	0.2970	-0.1062
619.83	24.90			0.8000	0.6042	0.4235	-0.0206	0.2970	-0.1062
629.83	25.10			0.8000	0.6042	0.4235	-0.0206	0.2970	-0.1062
639.83	25.29			0.8000	0.6042	0.4235	-0.0206	0.2970	-0.1062
649.83	25.49			0.8000	0.6042	0.4235	-0.0206	0.2970	-0.1062
659.83	25.69			0.8000	0.6042	0.4235	-0.0206	0.2970	-0.1062
669.83	25.88			0.8000	0.6042	0.4235	-0.0206	0.2970	-0.1062
679.83	26.07			0.8000	0.6042	0.4235	-0.0206	0.2970	-0.1062
689.83	26.26			0.8000	0.6042	0.4235	-0.0206	0.2970	-0.1062
699.83	26.45			0.8000	0.6042	0.4235	-0.0206	0.2970	-0.1062
709.83	26.64			0.8000	0.6042	0.4235	-0.0206	0.2970	-0.1062
719.83	26.83			0.8000	0.6042	0.4235	-0.0206	0.2970	-0.1062
749.83	27.38			0.8000	0.6042	0.4235	-0.0206	0.2970	-0.1062
779.83	27.93			0.8000	0.6042	0.4235	-0.0206	0.2970	-0.1062
809.83	28.46			0.8000	0.6042	0.4235	-0.0206	0.2970	-0.1062
839.83	28.98			0.8000	0.6042	0.4235	-0.0206	0.2970	-0.1062
869.83	29.49			0.8000	0.6042	0.4235	-0.0206	0.2970	-0.1062
899.83	30.00			0.8000	0.6042	0.4235	-0.0206	0.2970	-0.1062
929.83	30.49					0.4235	-0.0206	0.2970	-0.1062
959.83	30.98					0.4235	-0.0206	0.2970	-0.1062
989.83	31.46					0.4235	-0.0206	0.2970	-0.1062
1019.83	31.93					0.4235	-0.0206	0.2970	-0.1062
1049.83	32.40					0.4235	-0.0206	0.2970	-0.1062
1079.83	32.86					0.4235	-0.0206	0.2970	-0.1062
1109.83	33.31					0.4235	-0.0206	0.2970	-0.1062
1139.83	33.76					0.4235	-0.0206	0.2970	-0.1062
1169.83	34.20					0.4235	-0.0206	0.2970	-0.1062
1199.83	34.64					0.4235	-0.0206	0.2970	-0.1062
1229.83	35.07					0.4235	-0.0206	0.2970	-0.1062
1259.83	35.49					0.4235	-0.0206	0.2970	-0.1062
1289.83	35.91					0.4235	-0.0206	0.2970	-0.1062
1319.83	36.33					0.4235	-0.0206	0.2970	-0.1062
1349.83	36.74					0.4235	-0.0206	0.2970	-0.1062
1379.83	37.15					0.4235	-0.0206	0.2970	-0.1062
1409.83	37.55					0.4235	-0.0206	0.2970	-0.1062
1439.83	37.95							0.2970	-0.1062
1469.83	38.34							0.2970	-0.1062

Sample: Pond 8E, BH-3 @ 13.5 feet

Time (minutes)	Square Root of Time (minutes)	Test 5 @ 500 psf		Test 6 @ 1000 psf		Test 7 @ 2000 psf		Test 8 @ 4000 psf	
		Dial Reading (inches)	Deflection (inches)	Dial Reading (inches)	Deflection (inches)	Dial Reading (inches)	Deflection (inches)	Dial Reading (inches)	Deflection (inches)
1499.83	38.73							0.2970	-0.1062
1529.83	39.11							0.2970	-0.1062
1559.83	39.49							0.2970	-0.1062
1589.83	39.87							0.2970	-0.1062
1619.83	40.25							0.2970	-0.1062
1649.83	40.62							0.2970	-0.1062
1679.83	40.99							0.2970	-0.1062
1709.83	41.35							0.2970	-0.1062
1739.83	41.71							0.2970	-0.1062
1769.83	42.07							0.2970	-0.1062
1799.83	42.42							0.2970	-0.1062

One Dimensional Consolidation

Project No.	973376
Project	FMC
Sample ID	Pond 8E, BH-5 @ 4.5 feet
Sample Ht.	1.500 (in)
Sample Dia.	4.000 (in)
Sample Area	0.087 (sq-ft)
Sample Vol.	0.011 (cu-ft)
Phos Cont.	0.0008 (%)
Init. M.C.	262.45 (%)
Init. M.C. (corr)	262.44 (%)
Final M.C.	125.67 (%)
Final M.C. (corr)	125.67 (%)
Dry Wt. of Soil/f	109.50 (g)
Dry Wt. of Soil/i	103.60 (g)
Spec. Grav.	2.79
Pocket Pen.	(tsf)

Moisture Content Weights	
(initial)	
Total Wet Wt. (g)	19.79
Phos. Wt. (g)	0.00
Dry Wt. (g)	5.46
Dry Wt. + Phos Wt. (g)	5.46
Water Wt. + Phos (g)	14.33
Water Wt. (g)	14.33
(final)	
Total Wet Wt. (g)	23.56
Phos. Wt. (g)	0.00
Dry Wt. (g)	10.44
Dry Wt. + Phos Wt. (g)	10.44
Water Wt. + Phos (g)	13.12
Water Wt. (g)	13.12

Pressure (ksf)	Final Dial Reading (inches)	Deformation (inches)	Sample Ht. (inches)	Strain (%)	Void Ratio (e)	Dry Density (pcf)	Void Ratio (e)	Dry Density (pcf)
					Calc. from final MC		Calc. from initial MC	
0.0010	0.4135	0.0000	1.5000	0	6.874	22.11	7.322	20.92
0.0250	0.3718	0.0417	1.4583	2.78	6.655	22.74	7.091	21.52
0.0500	0.3416	0.0719	1.4281	4.79	6.497	23.22	6.923	21.97
0.1000	0.2812	0.1321	1.3679	8.81	6.181	24.25	6.589	22.94
0.2500	0.1740	0.2392	1.2608	15.95	5.618	26.30	5.995	24.89
0.5000	0.0615	0.3516	1.1484	23.44	5.028	28.88	5.371	27.32
1.0000	0.3261	0.4390	1.0610	29.27	4.570	31.26	4.887	29.58
2.0000	0.2216	0.5435	0.9565	36.23	4.021	34.67	4.307	32.81
4.0000	0.1235	0.6416	0.8584	42.77	3.506	38.64	3.763	36.56

Note: Initial MC not taken from actual sample tested, but from same sample jar.
Final MC taken from actual sample tested.
Void Ratio (e), calculated from final MC likely to be most accurate.
Final data readings may vary when compared to deformation values due to resetting the dial. The deformation values are based on the actual data in Appendix E.

Sample: Pond 8E, BH-5 @ 4.5 feet

Time (minutes)	Square Root of Time (minutes)	Test 1 @ 25 psf		Test 2 @ 50 psf		Test 3 @ 100 psf		Test 4 @ 250 psf	
		Dial Reading (inches)	Deflection (inches)	Dial Reading (inches)	Deflection (inches)	Dial Reading (inches)	Deflection (inches)	Dial Reading (inches)	Deflection (inches)
0.00	0.00	0.4135	0.0000	0.3718	0.0000	0.3414	0.0000	0.2811	0.0000
0.17	0.41	0.4135	0.0000	0.3714	-0.0004	0.3407	-0.0007	0.2758	-0.0053
0.33	0.58	0.4135	0.0000	0.3709	-0.0009	0.3399	-0.0015	0.2732	-0.0079
0.50	0.71	0.4135	0.0000	0.3706	-0.0012	0.3390	-0.0024	0.2713	-0.0098
0.67	0.82	0.4135	0.0000	0.3702	-0.0016	0.3386	-0.0028	0.2693	-0.0118
0.83	0.91	0.4113	-0.0022	0.3701	-0.0017	0.3378	-0.0036	0.2676	-0.0135
1.00	1.00	0.4135	0.0000	0.3698	-0.0020	0.3372	-0.0042	0.2656	-0.0155
1.17	1.08	0.4135	0.0000	0.3696	-0.0022	0.3366	-0.0048	0.2643	-0.0168
1.33	1.15	0.4135	0.0000	0.3694	-0.0024	0.3363	-0.0051	0.2625	-0.0186
1.50	1.22	0.4135	0.0000	0.3691	-0.0027	0.3357	-0.0057	0.2616	-0.0195
1.67	1.29	0.4084	-0.0051	0.3690	-0.0028	0.3355	-0.0059	0.2601	-0.0210
1.83	1.35	0.4085	-0.0050	0.3690	-0.0028	0.3348	-0.0066	0.2601	-0.0210
2.00	1.41	0.4084	-0.0051	0.3690	-0.0028	0.3345	-0.0069	0.2601	-0.0210
2.17	1.47	0.4083	-0.0052	0.3683	-0.0035	0.3345	-0.0069	0.2569	-0.0242
2.33	1.53	0.4080	-0.0055	0.3681	-0.0037	0.3345	-0.0069	0.2559	-0.0252
2.50	1.58	0.4080	-0.0055	0.3679	-0.0039	0.3332	-0.0082	0.2546	-0.0265
2.67	1.63	0.4078	-0.0057	0.3678	-0.0040	0.3329	-0.0085	0.2537	-0.0274
2.83	1.68	0.4076	-0.0059	0.3678	-0.0040	0.3325	-0.0089	0.2530	-0.0281
3.00	1.73	0.4074	-0.0061	0.3674	-0.0044	0.3323	-0.0091	0.2518	-0.0293
3.17	1.78	0.4072	-0.0063	0.3673	-0.0045	0.3320	-0.0094	0.2513	-0.0298
3.33	1.83	0.4071	-0.0064	0.3671	-0.0047	0.3317	-0.0097	0.2500	-0.0311
3.50	1.87	0.4068	-0.0067	0.3670	-0.0048	0.3313	-0.0101	0.2500	-0.0311
3.67	1.91	0.4067	-0.0068	0.3669	-0.0049	0.3311	-0.0103	0.2500	-0.0311
3.83	1.96	0.4064	-0.0071	0.3666	-0.0052	0.3311	-0.0103	0.2475	-0.0336
4.00	2.00	0.4064	-0.0071	0.3666	-0.0052	0.3311	-0.0103	0.2467	-0.0344
4.17	2.04	0.4064	-0.0071	0.3663	-0.0055	0.3299	-0.0115	0.2457	-0.0354
4.33	2.08	0.4064	-0.0071	0.3663	-0.0055	0.3296	-0.0118	0.2451	-0.0360
4.50	2.12	0.4058	-0.0077	0.3661	-0.0057	0.3291	-0.0123	0.2444	-0.0367
4.67	2.16	0.4056	-0.0079	0.3660	-0.0058	0.3288	-0.0126	0.2436	-0.0375
4.83	2.20	0.4055	-0.0080	0.3659	-0.0059	0.3285	-0.0129	0.2429	-0.0382
5.00	2.24	0.4052	-0.0083	0.3657	-0.0061	0.3281	-0.0133	0.2420	-0.0391
5.17	2.27	0.4051	-0.0084	0.3656	-0.0062	0.3278	-0.0136	0.2420	-0.0391
5.33	2.31	0.4049	-0.0086	0.3655	-0.0063	0.3278	-0.0136	0.2420	-0.0391
5.50	2.35	0.4048	-0.0087	0.3654	-0.0064	0.3278	-0.0136	0.2399	-0.0412
5.67	2.38	0.4047	-0.0088	0.3653	-0.0065	0.3270	-0.0144	0.2394	-0.0417
5.83	2.42	0.4047	-0.0088	0.3652	-0.0066	0.3265	-0.0149	0.2384	-0.0427
6.00	2.45	0.4047	-0.0088	0.3651	-0.0067	0.3263	-0.0151	0.2378	-0.0433
6.17	2.48	0.4041	-0.0094	0.3650	-0.0068	0.3258	-0.0156	0.2372	-0.0439
6.33	2.52	0.4039	-0.0096	0.3649	-0.0069	0.3255	-0.0159	0.2364	-0.0447
6.50	2.55	0.4038	-0.0097	0.3648	-0.0070	0.3252	-0.0162	0.2359	-0.0452
6.67	2.58	0.4035	-0.0100	0.3647	-0.0071	0.3249	-0.0165	0.2351	-0.0460
6.83	2.61	0.4034	-0.0101	0.3647	-0.0071	0.3246	-0.0168	0.2351	-0.0460
7.00	2.65	0.4033	-0.0102	0.3646	-0.0072	0.3246	-0.0168	0.2351	-0.0460
7.17	2.68	0.4031	-0.0104	0.3644	-0.0074	0.3246	-0.0168	0.2334	-0.0477
7.33	2.71	0.4030	-0.0105	0.3644	-0.0074	0.3239	-0.0175	0.2330	-0.0481
7.50	2.74	0.4030	-0.0105	0.3642	-0.0076	0.3237	-0.0177	0.2323	-0.0488
7.67	2.77	0.4030	-0.0105	0.3641	-0.0077	0.3234	-0.0180	0.2318	-0.0493
7.83	2.80	0.4025	-0.0110	0.3640	-0.0078	0.3231	-0.0183	0.2310	-0.0501
8.00	2.83	0.4024	-0.0111	0.3639	-0.0079	0.3230	-0.0184	0.2305	-0.0506
8.17	2.86	0.4022	-0.0113	0.3638	-0.0080	0.3226	-0.0188	0.2298	-0.0513
8.33	2.89	0.4022	-0.0113	0.3637	-0.0081	0.3224	-0.0190	0.2294	-0.0517
8.50	2.92	0.4020	-0.0115	0.3636	-0.0082	0.3221	-0.0193	0.2287	-0.0524
8.67	2.94	0.4019	-0.0116	0.3635	-0.0083	0.3219	-0.0195	0.2283	-0.0528
8.83	2.97	0.4017	-0.0118	0.3633	-0.0085	0.3215	-0.0199	0.2276	-0.0535
9.00	3.00	0.4016	-0.0119	0.3632	-0.0086	0.3213	-0.0201	0.2273	-0.0538
9.17	3.03	0.4014	-0.0121	0.3631	-0.0087	0.3209	-0.0205	0.2267	-0.0544
9.33	3.06	0.4014	-0.0121	0.3630	-0.0088	0.3207	-0.0207	0.2263	-0.0548
9.50	3.08	0.4011	-0.0124	0.3628	-0.0090	0.3203	-0.0211	0.2257	-0.0554
9.67	3.11	0.4010	-0.0125	0.3628	-0.0090	0.3200	-0.0214	0.2254	-0.0557
9.83	3.14	0.4008	-0.0127	0.3626	-0.0092	0.3198	-0.0216	0.2247	-0.0564
10.00	3.16	0.4006	-0.0129	0.3625	-0.0093	0.3195	-0.0219	0.2244	-0.0567
10.17	3.19	0.4005	-0.0130	0.3624	-0.0094	0.3192	-0.0222	0.2238	-0.0573
10.33	3.21	0.4003	-0.0132	0.3623	-0.0095	0.3191	-0.0223	0.2234	-0.0577
10.50	3.24	0.4002	-0.0133	0.3622	-0.0096	0.3187	-0.0227	0.2229	-0.0582
10.67	3.27	0.4001	-0.0134	0.3622	-0.0096	0.3185	-0.0229	0.2224	-0.0587

Sample: Pond 8E, BH-5 @ 4.5 feet

Time (minutes)	Square Root of Time (minutes)	Test 1 @ 25 psf		Test 2 @ 50 psf		Test 3 @ 100 psf		Test 4 @ 250 psf	
		Dial Reading (inches)	Deflection (inches)	Dial Reading (inches)	Deflection (inches)	Dial Reading (inches)	Deflection (inches)	Dial Reading (inches)	Deflection (inches)
10.83	3.29	0.4000	-0.0135	0.3621	-0.0097	0.3182	-0.0232	0.2219	-0.0592
11.00	3.32	0.3998	-0.0137	0.3620	-0.0098	0.3180	-0.0234	0.2216	-0.0595
11.17	3.34	0.3997	-0.0138	0.3619	-0.0099	0.3176	-0.0238	0.2210	-0.0601
11.33	3.37	0.3995	-0.0140	0.3619	-0.0099	0.3174	-0.0240	0.2207	-0.0604
11.50	3.39	0.3994	-0.0141	0.3617	-0.0101	0.3172	-0.0242	0.2203	-0.0608
11.67	3.42	0.3993	-0.0142	0.3617	-0.0101	0.3169	-0.0245	0.2200	-0.0611
11.83	3.44	0.3992	-0.0143	0.3616	-0.0102	0.3167	-0.0247	0.2196	-0.0615
12.00	3.46	0.3991	-0.0144	0.3615	-0.0103	0.3165	-0.0249	0.2192	-0.0619
12.17	3.49	0.3989	-0.0146	0.3614	-0.0104	0.3162	-0.0252	0.2189	-0.0622
12.33	3.51	0.3988	-0.0147	0.3613	-0.0105	0.3160	-0.0254	0.2189	-0.0622
12.50	3.54	0.3986	-0.0149	0.3611	-0.0107	0.3157	-0.0257	0.2189	-0.0622
12.67	3.56	0.3985	-0.0150	0.3610	-0.0108	0.3155	-0.0259	0.2180	-0.0631
12.83	3.58	0.3984	-0.0151	0.3609	-0.0109	0.3152	-0.0262	0.2176	-0.0635
13.00	3.61	0.3983	-0.0152	0.3608	-0.0110	0.3152	-0.0262	0.2173	-0.0638
13.17	3.63	0.3981	-0.0154	0.3608	-0.0110	0.3149	-0.0265	0.2169	-0.0642
13.33	3.65	0.3980	-0.0155	0.3607	-0.0111	0.3147	-0.0267	0.2166	-0.0645
13.50	3.67	0.3978	-0.0157	0.3605	-0.0113	0.3145	-0.0269	0.2161	-0.0650
13.67	3.70	0.3978	-0.0157	0.3604	-0.0114	0.3144	-0.0270	0.2158	-0.0653
13.83	3.72	0.3977	-0.0158	0.3603	-0.0115	0.3141	-0.0273	0.2153	-0.0658
14.00	3.74	0.3976	-0.0159	0.3601	-0.0117	0.3138	-0.0276	0.2151	-0.0660
14.17	3.76	0.3975	-0.0160	0.3600	-0.0118	0.3136	-0.0278	0.2146	-0.0665
14.33	3.79	0.3974	-0.0161	0.3600	-0.0118	0.3135	-0.0279	0.2144	-0.0667
14.50	3.81	0.3972	-0.0163	0.3598	-0.0120	0.3132	-0.0282	0.2140	-0.0671
14.67	3.83	0.3971	-0.0164	0.3597	-0.0121	0.3130	-0.0284	0.2137	-0.0674
14.83	3.85	0.3970	-0.0165	0.3595	-0.0123	0.3128	-0.0286	0.2132	-0.0679
15.33	3.92	0.3966	-0.0169	0.3592	-0.0126	0.3123	-0.0291	0.2122	-0.0689
15.83	3.98	0.3962	-0.0173	0.3588	-0.0130	0.3117	-0.0297	0.2112	-0.0699
16.33	4.04	0.3960	-0.0175	0.3585	-0.0133	0.3112	-0.0302	0.2104	-0.0707
16.83	4.10	0.3955	-0.0180	0.3583	-0.0135	0.3107	-0.0307	0.2095	-0.0716
17.33	4.16	0.3953	-0.0182	0.3581	-0.0137	0.3102	-0.0312	0.2087	-0.0724
17.83	4.22	0.3949	-0.0186	0.3579	-0.0139	0.3097	-0.0317	0.2079	-0.0732
18.33	4.28	0.3946	-0.0189	0.3577	-0.0141	0.3091	-0.0323	0.2072	-0.0739
18.83	4.34	0.3943	-0.0192	0.3576	-0.0142	0.3083	-0.0331	0.2065	-0.0746
19.33	4.40	0.3940	-0.0195	0.3574	-0.0144	0.3078	-0.0336	0.2059	-0.0752
19.83	4.45	0.3937	-0.0198	0.3572	-0.0146	0.3072	-0.0342	0.2052	-0.0759
20.33	4.51	0.3934	-0.0201	0.3570	-0.0148	0.3069	-0.0345	0.2045	-0.0766
20.83	4.56	0.3931	-0.0204	0.3569	-0.0149	0.3065	-0.0349	0.2040	-0.0771
21.33	4.62	0.3929	-0.0206	0.3567	-0.0151	0.3063	-0.0351	0.2034	-0.0777
21.83	4.67	0.3926	-0.0209	0.3565	-0.0153	0.3059	-0.0355	0.2028	-0.0783
22.33	4.73	0.3923	-0.0212	0.3563	-0.0155	0.3056	-0.0358	0.2024	-0.0787
22.83	4.78	0.3921	-0.0214	0.3562	-0.0156	0.3053	-0.0361	0.2019	-0.0792
23.33	4.83	0.3919	-0.0216	0.3561	-0.0157	0.3049	-0.0365	0.2016	-0.0795
23.83	4.88	0.3915	-0.0220	0.3559	-0.0159	0.3046	-0.0368	0.2011	-0.0800
24.33	4.93	0.3914	-0.0221	0.3558	-0.0160	0.3043	-0.0371	0.2008	-0.0803
24.83	4.98	0.3911	-0.0224	0.3556	-0.0162	0.3041	-0.0373	0.2004	-0.0807
25.33	5.03	0.3909	-0.0226	0.3554	-0.0164	0.3039	-0.0375	0.2001	-0.0810
25.83	5.08	0.3907	-0.0228	0.3553	-0.0165	0.3035	-0.0379	0.1998	-0.0813
26.33	5.13	0.3905	-0.0230	0.3552	-0.0166	0.3033	-0.0381	0.1996	-0.0815
26.83	5.18	0.3902	-0.0233	0.3550	-0.0168	0.3030	-0.0384	0.1993	-0.0818
27.33	5.23	0.3899	-0.0236	0.3548	-0.0170	0.3027	-0.0387	0.1990	-0.0821
27.83	5.28	0.3898	-0.0237	0.3546	-0.0172	0.3025	-0.0389	0.1988	-0.0823
28.33	5.32	0.3896	-0.0239	0.3545	-0.0173	0.3022	-0.0392	0.1987	-0.0824
28.83	5.37	0.3893	-0.0242	0.3542	-0.0176	0.3019	-0.0395	0.1985	-0.0826
29.33	5.42	0.3891	-0.0244	0.3540	-0.0178	0.3018	-0.0396	0.1982	-0.0829
29.83	5.46	0.3888	-0.0247	0.3538	-0.0180	0.3016	-0.0398	0.1980	-0.0831
30.33	5.51	0.3886	-0.0249	0.3537	-0.0181	0.3013	-0.0401	0.1978	-0.0833
30.83	5.55	0.3884	-0.0251	0.3536	-0.0182	0.3009	-0.0405	0.1975	-0.0836
31.33	5.60	0.3883	-0.0252	0.3535	-0.0183	0.3005	-0.0409	0.1974	-0.0837
31.83	5.64	0.3881	-0.0254	0.3534	-0.0184	0.3003	-0.0411	0.1972	-0.0839
32.33	5.69	0.3879	-0.0256	0.3533	-0.0185	0.3001	-0.0413	0.1970	-0.0841
32.83	5.73	0.3877	-0.0258	0.3532	-0.0186	0.2999	-0.0415	0.1968	-0.0843
33.33	5.77	0.3875	-0.0260	0.3531	-0.0187	0.2997	-0.0417	0.1966	-0.0845
33.83	5.82	0.3874	-0.0261	0.3529	-0.0189	0.2994	-0.0420	0.1964	-0.0847
34.33	5.86	0.3872	-0.0263	0.3529	-0.0189	0.2993	-0.0421	0.1962	-0.0849
34.83	5.90	0.3870	-0.0265	0.3527	-0.0191	0.2991	-0.0423	0.1960	-0.0851

Sample: Pond 8E, BH-5 @ 4.5 feet

Time (minutes)	Square Root of Time (minutes)	Test 1 @ 25 psf		Test 2 @ 50 psf		Test 3 @ 100 psf		Test 4 @ 250 psf	
		Dial Reading (inches)	Deflection (inches)	Dial Reading (inches)	Deflection (inches)	Dial Reading (inches)	Deflection (inches)	Dial Reading (inches)	Deflection (inches)
35.33	5.94	0.3868	-0.0267	0.3525	-0.0193	0.2989	-0.0425	0.1958	-0.0853
35.83	5.99	0.3867	-0.0268	0.3524	-0.0194	0.2987	-0.0427	0.1956	-0.0855
36.33	6.03	0.3865	-0.0270	0.3522	-0.0196	0.2986	-0.0428	0.1955	-0.0856
36.83	6.07	0.3863	-0.0272	0.3521	-0.0197	0.2985	-0.0429	0.1953	-0.0858
37.33	6.11	0.3862	-0.0273	0.3521	-0.0197	0.2984	-0.0430	0.1952	-0.0859
37.83	6.15	0.3860	-0.0275	0.3519	-0.0199	0.2982	-0.0432	0.1950	-0.0861
38.33	6.19	0.3859	-0.0276	0.3517	-0.0201	0.2981	-0.0433	0.1949	-0.0862
38.83	6.23	0.3858	-0.0277	0.3515	-0.0203	0.2980	-0.0434	0.1948	-0.0863
39.33	6.27	0.3857	-0.0278	0.3514	-0.0204	0.2979	-0.0435	0.1946	-0.0865
39.83	6.31	0.3856	-0.0279	0.3512	-0.0206	0.2978	-0.0436	0.1944	-0.0867
40.33	6.35	0.3854	-0.0281	0.3510	-0.0208	0.2977	-0.0437	0.1943	-0.0868
40.83	6.39	0.3853	-0.0282	0.3507	-0.0211	0.2976	-0.0438	0.1941	-0.0870
41.33	6.43	0.3852	-0.0283	0.3506	-0.0212	0.2975	-0.0439	0.1940	-0.0871
41.83	6.47	0.3852	-0.0283	0.3505	-0.0213	0.2974	-0.0440	0.1939	-0.0872
42.33	6.51	0.3851	-0.0284	0.3504	-0.0214	0.2973	-0.0441	0.1937	-0.0874
42.83	6.54	0.3849	-0.0286	0.3503	-0.0215	0.2971	-0.0443	0.1936	-0.0875
43.33	6.58	0.3849	-0.0286	0.3502	-0.0216	0.2971	-0.0443	0.1934	-0.0877
43.83	6.62	0.3847	-0.0288	0.3500	-0.0218	0.2970	-0.0444	0.1933	-0.0878
44.33	6.66	0.3846	-0.0289	0.3500	-0.0218	0.2968	-0.0446	0.1932	-0.0879
44.83	6.70	0.3845	-0.0290	0.3499	-0.0219	0.2967	-0.0447	0.1930	-0.0881
45.33	6.73	0.3844	-0.0291	0.3498	-0.0220	0.2965	-0.0449	0.1928	-0.0883
45.83	6.77	0.3843	-0.0292	0.3498	-0.0220	0.2964	-0.0450	0.1927	-0.0884
46.33	6.81	0.3842	-0.0293	0.3498	-0.0220	0.2963	-0.0451	0.1925	-0.0886
46.83	6.84	0.3840	-0.0295	0.3497	-0.0221	0.2962	-0.0452	0.1924	-0.0887
47.33	6.88	0.3839	-0.0296	0.3497	-0.0221	0.2960	-0.0454	0.1923	-0.0888
47.83	6.92	0.3837	-0.0298	0.3496	-0.0222	0.2959	-0.0455	0.1922	-0.0889
48.33	6.95	0.3836	-0.0299	0.3496	-0.0222	0.2958	-0.0456	0.1920	-0.0891
48.83	6.99	0.3835	-0.0300	0.3495	-0.0223	0.2957	-0.0457	0.1919	-0.0892
49.33	7.02	0.3834	-0.0301	0.3495	-0.0223	0.2955	-0.0459	0.1918	-0.0893
49.83	7.06	0.3833	-0.0302	0.3494	-0.0224	0.2955	-0.0459	0.1917	-0.0894
50.33	7.09	0.3832	-0.0303	0.3494	-0.0224	0.2954	-0.0460	0.1916	-0.0895
50.83	7.13	0.3831	-0.0304	0.3494	-0.0224	0.2953	-0.0461	0.1915	-0.0896
51.33	7.16	0.3830	-0.0305	0.3493	-0.0225	0.2952	-0.0462	0.1913	-0.0898
51.83	7.20	0.3829	-0.0306	0.3493	-0.0225	0.2951	-0.0463	0.1912	-0.0899
52.33	7.23	0.3828	-0.0307	0.3493	-0.0225	0.2949	-0.0465	0.1910	-0.0901
52.83	7.27	0.3827	-0.0308	0.3492	-0.0226	0.2948	-0.0466	0.1909	-0.0902
53.33	7.30	0.3827	-0.0308	0.3492	-0.0226	0.2947	-0.0467	0.1909	-0.0902
53.83	7.34	0.3826	-0.0309	0.3492	-0.0226	0.2947	-0.0467	0.1907	-0.0904
54.33	7.37	0.3824	-0.0311	0.3491	-0.0227	0.2946	-0.0468	0.1906	-0.0905
54.83	7.40	0.3823	-0.0312	0.3491	-0.0227	0.2945	-0.0469	0.1905	-0.0906
55.33	7.44	0.3822	-0.0313	0.3491	-0.0227	0.2944	-0.0470	0.1904	-0.0907
55.83	7.47	0.3821	-0.0314	0.3491	-0.0227	0.2943	-0.0471	0.1904	-0.0907
56.33	7.51	0.3820	-0.0315	0.3490	-0.0228	0.2942	-0.0472	0.1903	-0.0908
56.83	7.54	0.3820	-0.0315	0.3490	-0.0228	0.2941	-0.0473	0.1902	-0.0909
57.33	7.57	0.3820	-0.0315	0.3490	-0.0228	0.2940	-0.0474	0.1901	-0.0910
57.83	7.60	0.3819	-0.0316	0.3490	-0.0228	0.2939	-0.0475	0.1901	-0.0910
58.33	7.64	0.3818	-0.0317	0.3490	-0.0228	0.2939	-0.0475	0.1900	-0.0911
58.83	7.67	0.3817	-0.0318	0.3490	-0.0228	0.2938	-0.0476	0.1898	-0.0913
59.33	7.70	0.3816	-0.0319	0.3489	-0.0229	0.2938	-0.0476	0.1898	-0.0913
59.83	7.74	0.3815	-0.0320	0.3489	-0.0229	0.2936	-0.0478	0.1896	-0.0915
60.83	7.80	0.3813	-0.0322	0.3488	-0.0230	0.2935	-0.0479	0.1894	-0.0917
61.83	7.86	0.3811	-0.0324	0.3487	-0.0231	0.2933	-0.0481	0.1893	-0.0918
62.83	7.93	0.3809	-0.0326	0.3486	-0.0232	0.2932	-0.0482	0.1890	-0.0921
63.83	7.99	0.3808	-0.0327	0.3485	-0.0233	0.2931	-0.0483	0.1888	-0.0923
64.83	8.05	0.3806	-0.0329	0.3484	-0.0234	0.2929	-0.0485	0.1886	-0.0925
65.83	8.11	0.3805	-0.0330	0.3483	-0.0235	0.2927	-0.0487	0.1885	-0.0926
66.83	8.18	0.3805	-0.0330	0.3482	-0.0236	0.2925	-0.0489	0.1882	-0.0929
67.83	8.24	0.3804	-0.0331	0.3482	-0.0236	0.2924	-0.0490	0.1880	-0.0931
68.83	8.30	0.3803	-0.0332	0.3481	-0.0237	0.2922	-0.0492	0.1878	-0.0933
69.83	8.36	0.3801	-0.0334	0.3480	-0.0238	0.2920	-0.0494	0.1876	-0.0935
70.83	8.42	0.3800	-0.0335	0.3476	-0.0242	0.2918	-0.0496	0.1874	-0.0937
71.83	8.48	0.3798	-0.0337	0.3474	-0.0244	0.2916	-0.0498	0.1872	-0.0939
72.83	8.53	0.3797	-0.0338	0.3474	-0.0244	0.2916	-0.0498	0.1870	-0.0941
73.83	8.59	0.3793	-0.0342	0.3474	-0.0244	0.2914	-0.0500	0.1869	-0.0942
74.83	8.65	0.3793	-0.0342	0.3473	-0.0245	0.2913	-0.0501	0.1868	-0.0943

Sample: Pond 8E, BH-5 @ 4.5 feet

Time (minutes)	Square Root of Time (minutes)	Test 1 @ 25 psf		Test 2 @ 50 psf		Test 3 @ 100 psf		Test 4 @ 250 psf	
		Dial Reading (inches)	Deflection (inches)	Dial Reading (inches)	Deflection (inches)	Dial Reading (inches)	Deflection (inches)	Dial Reading (inches)	Deflection (inches)
75.83	8.71	0.3793	-0.0342	0.3472	-0.0246	0.2912	-0.0502	0.1863	-0.0948
76.83	8.77	0.3792	-0.0343	0.3472	-0.0246	0.2910	-0.0504	0.1864	-0.0947
77.83	8.82	0.3791	-0.0344	0.3471	-0.0247	0.2909	-0.0505	0.1863	-0.0948
78.83	8.88	0.3789	-0.0346	0.3470	-0.0248	0.2908	-0.0506	0.1862	-0.0949
79.83	8.93	0.3789	-0.0346	0.3469	-0.0249	0.2908	-0.0506	0.1862	-0.0949
80.83	8.99	0.3788	-0.0347	0.3468	-0.0250	0.2908	-0.0506	0.1861	-0.0950
81.83	9.05	0.3786	-0.0349	0.3467	-0.0251	0.2907	-0.0507	0.1860	-0.0951
82.83	9.10	0.3785	-0.0350	0.3466	-0.0252	0.2906	-0.0508	0.1859	-0.0952
83.83	9.16	0.3783	-0.0352	0.3466	-0.0252	0.2906	-0.0508	0.1858	-0.0953
84.83	9.21	0.3782	-0.0353	0.3465	-0.0253	0.2905	-0.0509	0.1857	-0.0954
85.83	9.26	0.3781	-0.0354	0.3464	-0.0254	0.2905	-0.0509	0.1856	-0.0955
86.83	9.32	0.3780	-0.0355	0.3464	-0.0254	0.2903	-0.0511	0.1855	-0.0956
87.83	9.37	0.3780	-0.0355	0.3463	-0.0255	0.2903	-0.0511	0.1854	-0.0957
88.83	9.43	0.3778	-0.0357	0.3462	-0.0256	0.2902	-0.0512	0.1853	-0.0958
89.83	9.48	0.3778	-0.0357	0.3461	-0.0257	0.2902	-0.0512	0.1852	-0.0959
90.83	9.53	0.3776	-0.0359	0.3460	-0.0258	0.2901	-0.0513	0.1851	-0.0960
91.83	9.58	0.3775	-0.0360	0.3459	-0.0259	0.2900	-0.0514	0.1849	-0.0962
92.83	9.64	0.3773	-0.0362	0.3458	-0.0260	0.2900	-0.0514	0.1846	-0.0965
93.83	9.69	0.3773	-0.0362	0.3458	-0.0260	0.2900	-0.0514	0.1842	-0.0969
94.83	9.74	0.3772	-0.0363	0.3458	-0.0260	0.2900	-0.0514	0.1840	-0.0971
95.83	9.79	0.3771	-0.0364	0.3456	-0.0262	0.2899	-0.0515	0.1839	-0.0972
96.83	9.84	0.3771	-0.0364	0.3456	-0.0262	0.2899	-0.0515	0.1838	-0.0973
97.83	9.89	0.3770	-0.0365	0.3454	-0.0264	0.2898	-0.0516	0.1836	-0.0975
98.83	9.94	0.3769	-0.0366	0.3454	-0.0264	0.2899	-0.0515	0.1836	-0.0975
99.83	9.99	0.3769	-0.0366	0.3452	-0.0266	0.2899	-0.0515	0.1836	-0.0975
100.83	10.04	0.3768	-0.0367	0.3451	-0.0267	0.2896	-0.0518	0.1836	-0.0975
101.83	10.09	0.3768	-0.0367	0.3451	-0.0267	0.2894	-0.0520	0.1835	-0.0976
102.83	10.14	0.3767	-0.0368	0.3450	-0.0268	0.2893	-0.0521	0.1834	-0.0977
103.83	10.19	0.3767	-0.0368	0.3449	-0.0269	0.2893	-0.0521	0.1834	-0.0977
104.83	10.24	0.3767	-0.0368	0.3449	-0.0269	0.2893	-0.0521	0.1833	-0.0978
105.83	10.29	0.3766	-0.0369	0.3448	-0.0270	0.2893	-0.0521	0.1832	-0.0979
106.83	10.34	0.3765	-0.0370	0.3448	-0.0270	0.2893	-0.0521	0.1832	-0.0979
107.83	10.38	0.3765	-0.0370	0.3448	-0.0270	0.2893	-0.0521	0.1831	-0.0980
108.83	10.43	0.3765	-0.0370	0.3447	-0.0271	0.2893	-0.0521	0.1831	-0.0980
109.83	10.48	0.3764	-0.0371	0.3447	-0.0271	0.2892	-0.0522	0.1830	-0.0981
110.83	10.53	0.3764	-0.0371	0.3447	-0.0271	0.2892	-0.0522	0.1830	-0.0981
111.83	10.58	0.3763	-0.0372	0.3446	-0.0272	0.2892	-0.0522	0.1829	-0.0982
112.83	10.62	0.3763	-0.0372	0.3446	-0.0272	0.2892	-0.0522	0.1828	-0.0983
113.83	10.67	0.3763	-0.0372	0.3445	-0.0273	0.2892	-0.0522	0.1823	-0.0988
114.83	10.72	0.3762	-0.0373	0.3445	-0.0273	0.2892	-0.0522	0.1822	-0.0989
115.83	10.76	0.3761	-0.0374	0.3444	-0.0274	0.2891	-0.0523	0.1822	-0.0989
116.83	10.81	0.3761	-0.0374	0.3444	-0.0274	0.2891	-0.0523	0.1822	-0.0989
117.83	10.86	0.3758	-0.0377	0.3442	-0.0276	0.2890	-0.0524	0.1822	-0.0989
118.83	10.90	0.3757	-0.0378	0.3439	-0.0279	0.2890	-0.0524	0.1822	-0.0989
119.83	10.95	0.3757	-0.0378	0.3439	-0.0279	0.2888	-0.0526	0.1822	-0.0989
129.83	11.39	0.3751	-0.0384	0.3435	-0.0283	0.2883	-0.0531	0.1816	-0.0995
139.83	11.83	0.3747	-0.0388	0.3429	-0.0289	0.2880	-0.0534	0.1811	-0.1000
149.83	12.24	0.3745	-0.0390	0.3422	-0.0296	0.2878	-0.0536	0.1807	-0.1004
159.83	12.64	0.3744	-0.0391	0.3419	-0.0299	0.2876	-0.0538	0.1799	-0.1012
169.83	13.03	0.3741	-0.0394	0.3416	-0.0302	0.2874	-0.0540	0.1797	-0.1014
179.83	13.41	0.3740	-0.0395			0.2870	-0.0544	0.1793	-0.1018
189.83	13.78	0.3738	-0.0397			0.2869	-0.0545	0.1790	-0.1021
199.83	14.14	0.3737	-0.0398			0.2867	-0.0547	0.1787	-0.1024
209.83	14.49	0.3734	-0.0401			0.2865	-0.0549	0.1784	-0.1027
219.83	14.83	0.3731	-0.0404			0.2863	-0.0551	0.1783	-0.1028
229.83	15.16	0.3728	-0.0407			0.2861	-0.0553	0.1781	-0.1030
239.83	15.49	0.3724	-0.0411			0.2860	-0.0554	0.1779	-0.1032
249.83	15.81	0.3721	-0.0414			0.2859	-0.0555	0.1777	-0.1034
259.83	16.12	0.3718	-0.0417			0.2857	-0.0557	0.1775	-0.1036
269.83	16.43	0.3718	-0.0417			0.2856	-0.0558	0.1774	-0.1037
279.83	16.73	0.3718	-0.0417			0.2855	-0.0559	0.1771	-0.1040
289.83	17.02	0.3718	-0.0417			0.2853	-0.0561	0.1769	-0.1042
299.83	17.32	0.3718	-0.0417			0.2850	-0.0564	0.1767	-0.1044
309.83	17.60	0.3718	-0.0417			0.2850	-0.0564	0.1765	-0.1046
319.83	17.88					0.2847	-0.0567	0.1762	-0.1049

Sample: Pond 8E, BH-5 @ 4.5 feet

Time (minutes)	Square Root of Time (minutes)	Test 1 @ 25 psf		Test 2 @ 50 psf		Test 3 @ 100 psf		Test 4 @ 250 psf	
		Dial Reading (inches)	Deflection (inches)	Dial Reading (inches)	Deflection (inches)	Dial Reading (inches)	Deflection (inches)	Dial Reading (inches)	Deflection (inches)
329.83	18.16					0.2847	-0.0567	0.1761	-0.1050
339.83	18.43					0.2845	-0.0569	0.1760	-0.1051
349.83	18.70					0.2845	-0.0569	0.1758	-0.1053
359.83	18.97					0.2844	-0.0570	0.1757	-0.1054
369.83	19.23					0.2843	-0.0571	0.1756	-0.1055
379.83	19.49					0.2843	-0.0571	0.1754	-0.1057
389.83	19.74					0.2842	-0.0572	0.1752	-0.1059
399.83	20.00					0.2841	-0.0573	0.1751	-0.1060
409.83	20.24					0.2841	-0.0573	0.1750	-0.1061
419.83	20.49					0.2840	-0.0574	0.1748	-0.1063
429.83	20.73					0.2837	-0.0577	0.1747	-0.1064
439.83	20.97					0.2837	-0.0577	0.1746	-0.1065
449.83	21.21					0.2837	-0.0577	0.1745	-0.1066
459.83	21.44					0.2836	-0.0578	0.1744	-0.1067
469.83	21.68					0.2834	-0.0580	0.1743	-0.1068
479.83	21.91					0.2833	-0.0581	0.1743	-0.1068
489.83	22.13					0.2832	-0.0582	0.1741	-0.1070
499.83	22.36					0.2832	-0.0582	0.1740	-0.1071
509.83	22.58					0.2831	-0.0583	0.1740	-0.1071
519.83	22.80					0.2831	-0.0583		
529.83	23.02					0.2829	-0.0585		
539.83	23.23					0.2827	-0.0587		
549.83	23.45					0.2827	-0.0587		
559.83	23.66					0.2823	-0.0591		
569.83	23.87					0.2822	-0.0592		
579.83	24.08					0.2823	-0.0591		
589.83	24.29					0.2823	-0.0591		
599.83	24.49					0.2822	-0.0592		
609.83	24.69					0.2822	-0.0592		
619.83	24.90					0.2822	-0.0592		
629.83	25.10					0.2821	-0.0593		
639.83	25.29					0.2821	-0.0593		
649.83	25.49					0.2821	-0.0593		
659.83	25.69					0.2819	-0.0595		
669.83	25.88					0.2819	-0.0595		
679.83	26.07					0.2819	-0.0595		
689.83	26.26					0.2818	-0.0596		
699.83	26.45					0.2818	-0.0596		
709.83	26.64					0.2817	-0.0597		
719.83	26.83					0.2817	-0.0597		
749.83	27.38					0.2816	-0.0598		
779.83	27.93					0.2813	-0.0601		
809.83	28.46					0.2813	-0.0601		
839.83	28.98					0.2812	-0.0602		

Sample: Pond 8E, BH-5 @ 4.5 feet

Time (minutes)	Square Root of Time (minutes)	Test 5 @ 500 psf		Test 6 @ 1000 psf		Test 7 @ 2000 psf		Test 8 @ 4000 psf	
		Dial Reading (inches)	Deflection (inches)	Dial Reading (inches)	Deflection (inches)	Dial Reading (inches)	Deflection (inches)	Dial Reading (inches)	Deflection (inches)
0.00	0.00	0.1739	0.0000	0.4135	0.0000	0.3261	0.0000	0.2216	0.0000
0.17	0.41	0.1739	0.0000	0.4135	0.0000	0.3260	-0.0001	0.2216	0.0000
0.33	0.58	0.1739	0.0000	0.4135	0.0000	0.3261	0.0000	0.2216	0.0000
0.50	0.71	0.1649	-0.0090	0.4135	0.0000	0.3228	-0.0033	0.2216	0.0000
0.67	0.82	0.1623	-0.0116	0.4135	0.0000	0.3143	-0.0118	0.2216	0.0000
0.83	0.91	0.1585	-0.0154	0.4135	0.0000	0.3112	-0.0149	0.2155	-0.0061
1.00	1.00	0.1585	-0.0154	0.4135	0.0000	0.3073	-0.0188	0.2094	-0.0122
1.17	1.08	0.1585	-0.0154	0.4125	-0.0010	0.3053	-0.0208	0.2067	-0.0149
1.33	1.15	0.1531	-0.0208	0.4100	-0.0035	0.3024	-0.0237	0.2035	-0.0181
1.50	1.22	0.1514	-0.0225	0.4086	-0.0049	0.3008	-0.0253	0.2014	-0.0202
1.67	1.29	0.1495	-0.0244	0.4065	-0.0070	0.2985	-0.0276	0.1989	-0.0227
1.83	1.35	0.1484	-0.0255	0.4052	-0.0083	0.2971	-0.0290	0.1975	-0.0241
2.00	1.41	0.1468	-0.0271	0.4035	-0.0100	0.2947	-0.0314	0.1951	-0.0265
2.17	1.47	0.1457	-0.0282	0.4024	-0.0111	0.2932	-0.0329	0.1939	-0.0277
2.33	1.53	0.1444	-0.0295	0.4008	-0.0127	0.2912	-0.0349	0.1920	-0.0296
2.50	1.58	0.1433	-0.0306	0.3997	-0.0138	0.2900	-0.0361	0.1910	-0.0306
2.67	1.63	0.1420	-0.0319	0.3983	-0.0152	0.2884	-0.0377	0.1892	-0.0324
2.83	1.68	0.1411	-0.0328	0.3974	-0.0161	0.2872	-0.0389	0.1881	-0.0335
3.00	1.73	0.1398	-0.0341	0.3962	-0.0173	0.2855	-0.0406	0.1865	-0.0351
3.17	1.78	0.1389	-0.0350	0.3954	-0.0181	0.2855	-0.0406	0.1854	-0.0362
3.33	1.83	0.1377	-0.0362	0.3942	-0.0193	0.2855	-0.0406	0.1842	-0.0374
3.50	1.87	0.1370	-0.0369	0.3934	-0.0201	0.2821	-0.0440	0.1832	-0.0384
3.67	1.91	0.1357	-0.0382	0.3923	-0.0212	0.2812	-0.0449	0.1818	-0.0398
3.83	1.96	0.1350	-0.0389	0.3915	-0.0220	0.2799	-0.0462	0.1810	-0.0406
4.00	2.00	0.1339	-0.0400	0.3904	-0.0231	0.2790	-0.0471	0.1799	-0.0417
4.17	2.04	0.1331	-0.0408	0.3897	-0.0238	0.2778	-0.0483	0.1790	-0.0426
4.33	2.08	0.1321	-0.0418	0.3887	-0.0248	0.2770	-0.0491	0.1779	-0.0437
4.50	2.12	0.1314	-0.0425	0.3881	-0.0254	0.2758	-0.0503	0.1771	-0.0445
4.67	2.16	0.1304	-0.0435	0.3872	-0.0263	0.2751	-0.0510	0.1760	-0.0456
4.83	2.20	0.1297	-0.0442	0.3866	-0.0269	0.2739	-0.0522	0.1753	-0.0463
5.00	2.24	0.1288	-0.0451	0.3856	-0.0279	0.2732	-0.0529	0.1744	-0.0472
5.17	2.27	0.1283	-0.0456	0.3851	-0.0284	0.2721	-0.0540	0.1738	-0.0478
5.33	2.31	0.1273	-0.0466	0.3842	-0.0293	0.2714	-0.0547	0.1728	-0.0488
5.50	2.35	0.1268	-0.0471	0.3836	-0.0299	0.2704	-0.0557	0.1723	-0.0493
5.67	2.38	0.1258	-0.0481	0.3828	-0.0307	0.2698	-0.0563	0.1715	-0.0501
5.83	2.42	0.1252	-0.0487	0.3823	-0.0312	0.2689	-0.0572	0.1709	-0.0507
6.00	2.45	0.1244	-0.0495	0.3815	-0.0320	0.2684	-0.0577	0.1701	-0.0515
6.17	2.48	0.1239	-0.0500	0.3811	-0.0324	0.2676	-0.0585	0.1695	-0.0521
6.33	2.52	0.1230	-0.0509	0.3805	-0.0330	0.2670	-0.0591	0.1688	-0.0528
6.50	2.55	0.1225	-0.0514	0.3801	-0.0334	0.2662	-0.0599	0.1682	-0.0534
6.67	2.58	0.1217	-0.0522	0.3794	-0.0341	0.2656	-0.0605	0.1675	-0.0541
6.83	2.61	0.1211	-0.0528	0.3789	-0.0346	0.2648	-0.0613	0.1671	-0.0545
7.00	2.65	0.1204	-0.0535	0.3784	-0.0351	0.2643	-0.0618	0.1665	-0.0551
7.17	2.68	0.1200	-0.0539	0.3779	-0.0356	0.2636	-0.0625	0.1660	-0.0556
7.33	2.71	0.1193	-0.0546	0.3772	-0.0363	0.2631	-0.0630	0.1654	-0.0562
7.50	2.74	0.1188	-0.0551	0.3768	-0.0367	0.2625	-0.0636	0.1650	-0.0566
7.67	2.77	0.1182	-0.0557	0.3761	-0.0374	0.2621	-0.0640	0.1644	-0.0572
7.83	2.80	0.1177	-0.0562	0.3757	-0.0378	0.2615	-0.0646	0.1640	-0.0576
8.00	2.83	0.1170	-0.0569	0.3751	-0.0384	0.2610	-0.0651	0.1634	-0.0582
8.17	2.86	0.1165	-0.0574	0.3748	-0.0387	0.2605	-0.0656	0.1631	-0.0585
8.33	2.89	0.1158	-0.0581	0.3742	-0.0393	0.2601	-0.0660	0.1627	-0.0589
8.50	2.92	0.1154	-0.0585	0.3739	-0.0396	0.2595	-0.0666	0.1620	-0.0596
8.67	2.94	0.1148	-0.0591	0.3734	-0.0401	0.2593	-0.0668	0.1618	-0.0598
8.83	2.97	0.1146	-0.0593	0.3730	-0.0405	0.2587	-0.0674	0.1618	-0.0598
9.00	3.00	0.1139	-0.0600	0.3726	-0.0409	0.2584	-0.0677	0.1618	-0.0598
9.17	3.03	0.1135	-0.0604	0.3722	-0.0413	0.2579	-0.0682	0.1618	-0.0598
9.33	3.06	0.1133	-0.0606	0.3718	-0.0417	0.2576	-0.0685	0.1618	-0.0598
9.50	3.08	0.1133	-0.0606	0.3714	-0.0421	0.2570	-0.0691	0.1596	-0.0620
9.67	3.11	0.1122	-0.0617	0.3710	-0.0425	0.2567	-0.0694	0.1594	-0.0622
9.83	3.14	0.1118	-0.0621	0.3706	-0.0429	0.2562	-0.0699	0.1588	-0.0628
10.00	3.16	0.1113	-0.0626	0.3702	-0.0433	0.2559	-0.0702	0.1586	-0.0630
10.17	3.19	0.1110	-0.0629	0.3698	-0.0437	0.2554	-0.0707	0.1581	-0.0635
10.33	3.21	0.1104	-0.0635	0.3694	-0.0441	0.2552	-0.0709	0.1579	-0.0637
10.50	3.24	0.1100	-0.0639	0.3691	-0.0444	0.2547	-0.0714	0.1575	-0.0641
10.67	3.27	0.1095	-0.0644	0.3687	-0.0448	0.2545	-0.0716	0.1572	-0.0644

Sample: Pond 8E, BH-5 @ 4.5 feet

Time (minutes)	Square Root of Time (minutes)	Test 5 @ 500 psf		Test 6 @ 1000 psf		Test 7 @ 2000 psf		Test 8 @ 4000 psf	
		Dial Reading (inches)	Deflection (inches)	Dial Reading (inches)	Deflection (inches)	Dial Reading (inches)	Deflection (inches)	Dial Reading (inches)	Deflection (inches)
10.83	3.29	0.1091	-0.0648	0.3684	-0.0451	0.2541	-0.0720	0.1569	-0.0647
11.00	3.32	0.1087	-0.0652	0.3679	-0.0456	0.2538	-0.0723	0.1567	-0.0649
11.17	3.34	0.1083	-0.0656	0.3677	-0.0458	0.2535	-0.0726	0.1566	-0.0650
11.33	3.37	0.1078	-0.0661	0.3672	-0.0463	0.2532	-0.0729	0.1566	-0.0650
11.50	3.39	0.1075	-0.0664	0.3670	-0.0465	0.2529	-0.0732	0.1566	-0.0650
11.67	3.42	0.1071	-0.0668	0.3666	-0.0469	0.2526	-0.0735	0.1566	-0.0650
11.83	3.44	0.1067	-0.0672	0.3663	-0.0472	0.2523	-0.0738	0.1566	-0.0650
12.00	3.46	0.1062	-0.0677	0.3660	-0.0475	0.2521	-0.0740	0.1566	-0.0650
12.17	3.49	0.1060	-0.0679	0.3657	-0.0478	0.2519	-0.0742	0.1566	-0.0650
12.33	3.51	0.1055	-0.0684	0.3654	-0.0481	0.2515	-0.0746	0.1566	-0.0650
12.50	3.54	0.1052	-0.0687	0.3651	-0.0484	0.2514	-0.0747	0.1542	-0.0674
12.67	3.56	0.1048	-0.0691	0.3648	-0.0487	0.2511	-0.0750	0.1542	-0.0674
12.83	3.58	0.1045	-0.0694	0.3646	-0.0489	0.2507	-0.0754	0.1538	-0.0678
13.00	3.61	0.1041	-0.0698	0.3642	-0.0493	0.2506	-0.0755	0.1535	-0.0681
13.17	3.63	0.1039	-0.0700	0.3640	-0.0495	0.2503	-0.0758	0.1534	-0.0682
13.33	3.65	0.1036	-0.0703	0.3637	-0.0498	0.2501	-0.0760	0.1530	-0.0686
13.50	3.67	0.1033	-0.0706	0.3635	-0.0500	0.2499	-0.0762	0.1527	-0.0689
13.67	3.70	0.1029	-0.0710	0.3632	-0.0503	0.2497	-0.0764	0.1525	-0.0691
13.83	3.72	0.1027	-0.0712	0.3629	-0.0506	0.2494	-0.0767	0.1524	-0.0692
14.00	3.74	0.1023	-0.0716	0.3625	-0.0510	0.2492	-0.0769	0.1521	-0.0695
14.17	3.76	0.1020	-0.0719	0.3624	-0.0511	0.2490	-0.0771	0.1518	-0.0698
14.33	3.79	0.1017	-0.0722	0.3621	-0.0514	0.2488	-0.0773	0.1517	-0.0699
14.50	3.81	0.1015	-0.0724	0.3619	-0.0516	0.2486	-0.0775	0.1515	-0.0701
14.67	3.83	0.1012	-0.0727	0.3616	-0.0519	0.2484	-0.0777	0.1512	-0.0704
14.83	3.85	0.1010	-0.0729	0.3615	-0.0520	0.2482	-0.0779	0.1510	-0.0706
15.33	3.92	0.1001	-0.0738	0.3608	-0.0527	0.2475	-0.0786	0.1506	-0.0710
15.83	3.98	0.0994	-0.0745	0.3601	-0.0534	0.2474	-0.0787	0.1500	-0.0716
16.33	4.04	0.0985	-0.0754	0.3594	-0.0541	0.2465	-0.0796	0.1497	-0.0719
16.83	4.10	0.0979	-0.0760	0.3589	-0.0546	0.2460	-0.0801	0.1493	-0.0723
17.33	4.16	0.0972	-0.0767	0.3583	-0.0552	0.2455	-0.0806	0.1490	-0.0726
17.83	4.22	0.0965	-0.0774	0.3577	-0.0558	0.2451	-0.0810	0.1486	-0.0730
18.33	4.28	0.0958	-0.0781	0.3572	-0.0563	0.2447	-0.0814	0.1484	-0.0732
18.83	4.34	0.0953	-0.0786	0.3568	-0.0567	0.2443	-0.0818	0.1480	-0.0736
19.33	4.40	0.0948	-0.0791	0.3562	-0.0573	0.2439	-0.0822	0.1476	-0.0740
19.83	4.45	0.0943	-0.0796	0.3558	-0.0577	0.2436	-0.0825	0.1473	-0.0743
20.33	4.51	0.0938	-0.0801	0.3553	-0.0582	0.2432	-0.0829	0.1470	-0.0746
20.83	4.56	0.0934	-0.0805	0.3549	-0.0586	0.2428	-0.0833	0.1467	-0.0749
21.33	4.62	0.0928	-0.0811	0.3551	-0.0584	0.2426	-0.0835	0.1464	-0.0752
21.83	4.67	0.0925	-0.0814	0.3548	-0.0587	0.2422	-0.0839	0.1461	-0.0755
22.33	4.73	0.0919	-0.0820	0.3545	-0.0590	0.2420	-0.0841	0.1459	-0.0757
22.83	4.78	0.0915	-0.0824	0.3541	-0.0594	0.2417	-0.0844	0.1456	-0.0760
23.33	4.83	0.0911	-0.0828	0.3537	-0.0598	0.2414	-0.0847	0.1453	-0.0763
23.83	4.88	0.0907	-0.0832	0.3535	-0.0600	0.2412	-0.0849	0.1452	-0.0764
24.33	4.93	0.0903	-0.0836	0.3531	-0.0604	0.2409	-0.0852	0.1449	-0.0767
24.83	4.98	0.0899	-0.0840	0.3529	-0.0606	0.2406	-0.0855	0.1446	-0.0770
25.33	5.03	0.0895	-0.0844	0.3525	-0.0610	0.2405	-0.0856	0.1445	-0.0771
25.83	5.08	0.0892	-0.0847	0.3522	-0.0613	0.2403	-0.0858	0.1442	-0.0774
26.33	5.13	0.0889	-0.0850	0.3520	-0.0615	0.2400	-0.0861	0.1440	-0.0776
26.83	5.18	0.0886	-0.0853	0.3517	-0.0618	0.2398	-0.0863	0.1438	-0.0778
27.33	5.23	0.0883	-0.0856	0.3514	-0.0621	0.2396	-0.0865	0.1437	-0.0779
27.83	5.28	0.0880	-0.0859	0.3511	-0.0624	0.2394	-0.0867	0.1434	-0.0782
28.33	5.32	0.0877	-0.0862	0.3508	-0.0627	0.2392	-0.0869	0.1432	-0.0784
28.83	5.37	0.0875	-0.0864	0.3506	-0.0629	0.2390	-0.0871	0.1430	-0.0786
29.33	5.42	0.0871	-0.0868	0.3504	-0.0631	0.2388	-0.0873	0.1429	-0.0787
29.83	5.46	0.0870	-0.0869	0.3502	-0.0633	0.2386	-0.0875	0.1427	-0.0789
30.33	5.51	0.0867	-0.0872	0.3499	-0.0636	0.2384	-0.0877	0.1426	-0.0790
30.83	5.55	0.0864	-0.0875	0.3498	-0.0637	0.2382	-0.0879	0.1424	-0.0792
31.33	5.60	0.0862	-0.0877	0.3495	-0.0640	0.2381	-0.0880	0.1422	-0.0794
31.83	5.64	0.0860	-0.0879	0.3493	-0.0642	0.2379	-0.0882	0.1421	-0.0795
32.33	5.69	0.0857	-0.0882	0.3491	-0.0644	0.2378	-0.0883	0.1420	-0.0796
32.83	5.73	0.0855	-0.0884	0.3490	-0.0645	0.2376	-0.0885	0.1418	-0.0798
33.33	5.77	0.0853	-0.0886	0.3488	-0.0647	0.2374	-0.0887	0.1417	-0.0799
33.83	5.82	0.0851	-0.0888	0.3486	-0.0649	0.2373	-0.0888	0.1415	-0.0801
34.33	5.86	0.0849	-0.0890	0.3484	-0.0651	0.2372	-0.0889	0.1414	-0.0802
34.83	5.90	0.0847	-0.0892	0.3482	-0.0653	0.2370	-0.0891	0.1413	-0.0803

Sample: Pond 8E, BH-5 @ 4.5 feet

Time (minutes)	Square Root of Time (minutes)	Test 5 @ 500 psf		Test 6 @ 1000 psf		Test 7 @ 2000 psf		Test 8 @ 4000 psf	
		Dial Reading (inches)	Deflection (inches)	Dial Reading (inches)	Deflection (inches)	Dial Reading (inches)	Deflection (inches)	Dial Reading (inches)	Deflection (inches)
35.33	5.94	0.0845	-0.0894	0.3481	-0.0654	0.2369	-0.0892	0.1412	-0.0804
35.83	5.99	0.0843	-0.0896	0.3480	-0.0655	0.2367	-0.0894	0.1411	-0.0805
36.33	6.03	0.0841	-0.0898	0.3477	-0.0658	0.2366	-0.0895	0.1409	-0.0807
36.83	6.07	0.0839	-0.0900	0.3476	-0.0659	0.2365	-0.0896	0.1408	-0.0808
37.33	6.11	0.0838	-0.0901	0.3474	-0.0661	0.2364	-0.0897	0.1407	-0.0809
37.83	6.15	0.0837	-0.0902	0.3473	-0.0662	0.2363	-0.0898	0.1406	-0.0810
38.33	6.19	0.0834	-0.0905	0.3471	-0.0664	0.2361	-0.0900	0.1406	-0.0810
38.83	6.23	0.0832	-0.0907	0.3470	-0.0665	0.2360	-0.0901	0.1405	-0.0811
39.33	6.27	0.0831	-0.0908	0.3468	-0.0667	0.2359	-0.0902	0.1403	-0.0813
39.83	6.31	0.0829	-0.0910	0.3467	-0.0668	0.2358	-0.0903	0.1402	-0.0814
40.33	6.35	0.0827	-0.0912	0.3466	-0.0669	0.2357	-0.0904	0.1401	-0.0815
40.83	6.39	0.0826	-0.0913	0.3465	-0.0670	0.2356	-0.0905	0.1400	-0.0816
41.33	6.43	0.0824	-0.0915	0.3463	-0.0672	0.2355	-0.0906	0.1399	-0.0817
41.83	6.47	0.0823	-0.0916	0.3462	-0.0673	0.2354	-0.0907	0.1398	-0.0818
42.33	6.51	0.0821	-0.0918	0.3460	-0.0675	0.2353	-0.0908	0.1398	-0.0818
42.83	6.54	0.0819	-0.0920	0.3459	-0.0676	0.2352	-0.0909	0.1397	-0.0819
43.33	6.58	0.0818	-0.0921	0.3458	-0.0677	0.2351	-0.0910	0.1396	-0.0820
43.83	6.62	0.0816	-0.0923	0.3458	-0.0677	0.2349	-0.0912	0.1395	-0.0821
44.33	6.66	0.0816	-0.0923	0.3456	-0.0679	0.2349	-0.0912	0.1394	-0.0822
44.83	6.70	0.0814	-0.0925	0.3454	-0.0681	0.2348	-0.0913	0.1393	-0.0823
45.33	6.73	0.0812	-0.0927	0.3453	-0.0682	0.2347	-0.0914	0.1392	-0.0824
45.83	6.77	0.0811	-0.0928	0.3452	-0.0683	0.2346	-0.0915	0.1392	-0.0824
46.33	6.81	0.0809	-0.0930	0.3451	-0.0684	0.2345	-0.0916	0.1391	-0.0825
46.83	6.84	0.0808	-0.0931	0.3451	-0.0684	0.2344	-0.0917	0.1390	-0.0826
47.33	6.88	0.0807	-0.0932	0.3450	-0.0685	0.2344	-0.0917	0.1390	-0.0826
47.83	6.92	0.0806	-0.0933	0.3448	-0.0687	0.2343	-0.0918	0.1389	-0.0827
48.33	6.95	0.0805	-0.0934	0.3446	-0.0689	0.2342	-0.0919	0.1388	-0.0828
48.83	6.99	0.0804	-0.0935	0.3445	-0.0690	0.2342	-0.0919	0.1387	-0.0829
49.33	7.02	0.0802	-0.0937	0.3444	-0.0691	0.2341	-0.0920	0.1386	-0.0830
49.83	7.06	0.0801	-0.0938	0.3443	-0.0692	0.2341	-0.0920	0.1386	-0.0830
50.33	7.09	0.0800	-0.0939	0.3443	-0.0692	0.2340	-0.0921	0.1384	-0.0832
50.83	7.13	0.0799	-0.0940	0.3442	-0.0693	0.2339	-0.0922	0.1384	-0.0832
51.33	7.16	0.0798	-0.0941	0.3441	-0.0694	0.2338	-0.0923	0.1383	-0.0833
51.83	7.20	0.0797	-0.0942	0.3440	-0.0695	0.2337	-0.0924	0.1382	-0.0834
52.33	7.23	0.0796	-0.0943	0.3439	-0.0696	0.2337	-0.0924	0.1382	-0.0834
52.83	7.27	0.0795	-0.0944	0.3438	-0.0697	0.2336	-0.0925	0.1382	-0.0834
53.33	7.30	0.0794	-0.0945	0.3437	-0.0698	0.2335	-0.0926	0.1381	-0.0835
53.83	7.34	0.0792	-0.0947	0.3436	-0.0699	0.2334	-0.0927	0.1380	-0.0836
54.33	7.37	0.0791	-0.0948	0.3435	-0.0700	0.2334	-0.0927	0.1379	-0.0837
54.83	7.40	0.0789	-0.0950	0.3435	-0.0700	0.2334	-0.0927	0.1379	-0.0837
55.33	7.44	0.0788	-0.0951	0.3434	-0.0701	0.2333	-0.0928	0.1378	-0.0838
55.83	7.47	0.0788	-0.0951	0.3433	-0.0702	0.2333	-0.0928	0.1377	-0.0839
56.33	7.51	0.0787	-0.0952	0.3433	-0.0702	0.2332	-0.0929	0.1376	-0.0840
56.83	7.54	0.0786	-0.0953	0.3432	-0.0703	0.2331	-0.0930	0.1376	-0.0840
57.33	7.57	0.0785	-0.0954	0.3431	-0.0704	0.2331	-0.0930	0.1375	-0.0841
57.83	7.60	0.0784	-0.0955	0.3430	-0.0705	0.2330	-0.0931	0.1374	-0.0842
58.33	7.64	0.0784	-0.0955	0.3429	-0.0706	0.2329	-0.0932	0.1374	-0.0842
58.83	7.67	0.0783	-0.0956	0.3428	-0.0707	0.2329	-0.0932	0.1374	-0.0842
59.33	7.70	0.0782	-0.0957	0.3427	-0.0708	0.2328	-0.0933	0.1373	-0.0843
59.83	7.74	0.0781	-0.0958	0.3427	-0.0708	0.2327	-0.0934	0.1373	-0.0843
60.83	7.80	0.0779	-0.0960	0.3426	-0.0709	0.2326	-0.0935	0.1371	-0.0845
61.83	7.86	0.0779	-0.0960	0.3424	-0.0711	0.2326	-0.0935	0.1370	-0.0846
62.83	7.93	0.0777	-0.0962	0.3422	-0.0713	0.2325	-0.0936	0.1369	-0.0847
63.83	7.99	0.0776	-0.0963	0.3421	-0.0714	0.2323	-0.0938	0.1368	-0.0848
64.83	8.05	0.0775	-0.0964	0.3419	-0.0716	0.2322	-0.0939	0.1367	-0.0849
65.83	8.11	0.0773	-0.0966	0.3419	-0.0716	0.2321	-0.0940	0.1366	-0.0850
66.83	8.18	0.0772	-0.0967	0.3417	-0.0718	0.2320	-0.0941	0.1365	-0.0851
67.83	8.24	0.0770	-0.0969	0.3416	-0.0719	0.2319	-0.0942	0.1364	-0.0852
68.83	8.30	0.0769	-0.0970	0.3415	-0.0720	0.2318	-0.0943	0.1363	-0.0853
69.83	8.36	0.0768	-0.0971	0.3414	-0.0721	0.2318	-0.0943	0.1362	-0.0854
70.83	8.42	0.0767	-0.0972	0.3412	-0.0723	0.2317	-0.0944	0.1361	-0.0855
71.83	8.48	0.0766	-0.0973	0.3411	-0.0724	0.2316	-0.0945	0.1360	-0.0856
72.83	8.53	0.0764	-0.0975	0.3411	-0.0724	0.2316	-0.0945	0.1359	-0.0857
73.83	8.59	0.0762	-0.0977	0.3409	-0.0726	0.2315	-0.0946	0.1358	-0.0858
74.83	8.65	0.0761	-0.0978	0.3408	-0.0727	0.2314	-0.0947	0.1358	-0.0858

Sample: Pond 8E, BH-5 @ 4.5 feet

Time (minutes)	Square Root of Time (minutes)	Test 5 @ 500 psf		Test 6 @ 1000 psf		Test 7 @ 2000 psf		Test 8 @ 4000 psf	
		Dial Reading (inches)	Deflection (inches)	Dial Reading (inches)	Deflection (inches)	Dial Reading (inches)	Deflection (inches)	Dial Reading (inches)	Deflection (inches)
75.83	8.71	0.0761	-0.0978	0.3408	-0.0727	0.2313	-0.0948	0.1357	-0.0859
76.83	8.77	0.0760	-0.0979	0.3406	-0.0729	0.2312	-0.0949	0.1356	-0.0860
77.83	8.82	0.0759	-0.0980	0.3405	-0.0730	0.2311	-0.0950	0.1355	-0.0861
78.83	8.88	0.0758	-0.0981	0.3404	-0.0731	0.2310	-0.0951	0.1354	-0.0862
79.83	8.93	0.0756	-0.0983	0.3403	-0.0732	0.2310	-0.0951	0.1353	-0.0863
80.83	8.99	0.0755	-0.0984	0.3403	-0.0732	0.2309	-0.0952	0.1352	-0.0864
81.83	9.05	0.0754	-0.0985	0.3402	-0.0733	0.2309	-0.0952	0.1352	-0.0864
82.83	9.10	0.0753	-0.0986	0.3401	-0.0734	0.2308	-0.0953	0.1351	-0.0865
83.83	9.16	0.0753	-0.0986	0.3400	-0.0735	0.2307	-0.0954	0.1351	-0.0865
84.83	9.21	0.0752	-0.0987	0.3399	-0.0736	0.2306	-0.0955	0.1350	-0.0866
85.83	9.26	0.0750	-0.0989	0.3398	-0.0737	0.2305	-0.0956	0.1349	-0.0867
86.83	9.32	0.0749	-0.0990	0.3397	-0.0738	0.2304	-0.0957	0.1349	-0.0867
87.83	9.37	0.0749	-0.0990	0.3396	-0.0739	0.2303	-0.0958	0.1348	-0.0868
88.83	9.43	0.0748	-0.0991	0.3395	-0.0740	0.2303	-0.0958	0.1347	-0.0869
89.83	9.48	0.0747	-0.0992	0.3395	-0.0740	0.2302	-0.0959	0.1346	-0.0870
90.83	9.53	0.0746	-0.0993	0.3394	-0.0741	0.2302	-0.0959	0.1345	-0.0871
91.83	9.58	0.0745	-0.0994	0.3393	-0.0742	0.2301	-0.0960	0.1345	-0.0871
92.83	9.64	0.0745	-0.0994	0.3392	-0.0743	0.2301	-0.0960	0.1344	-0.0872
93.83	9.69	0.0744	-0.0995	0.3391	-0.0744	0.2300	-0.0961	0.1343	-0.0873
94.83	9.74	0.0743	-0.0996	0.3391	-0.0744	0.2299	-0.0962	0.1343	-0.0873
95.83	9.79	0.0742	-0.0997	0.3390	-0.0745	0.2298	-0.0963	0.1343	-0.0873
96.83	9.84	0.0741	-0.0998	0.3389	-0.0746	0.2298	-0.0963	0.1342	-0.0874
97.83	9.89	0.0740	-0.0999	0.3388	-0.0747	0.2297	-0.0964	0.1342	-0.0874
98.83	9.94	0.0739	-0.1000	0.3388	-0.0747	0.2296	-0.0965	0.1341	-0.0875
99.83	9.99	0.0738	-0.1001	0.3388	-0.0747	0.2296	-0.0965	0.1340	-0.0876
100.83	10.04	0.0737	-0.1002	0.3387	-0.0748	0.2295	-0.0966	0.1340	-0.0876
101.83	10.09	0.0737	-0.1002	0.3386	-0.0749	0.2294	-0.0967	0.1339	-0.0877
102.83	10.14	0.0737	-0.1002	0.3386	-0.0749	0.2294	-0.0967	0.1339	-0.0877
103.83	10.19	0.0735	-0.1004	0.3385	-0.0750	0.2294	-0.0967	0.1338	-0.0878
104.83	10.24	0.0734	-0.1005	0.3384	-0.0751	0.2293	-0.0968	0.1337	-0.0879
105.83	10.29	0.0733	-0.1006	0.3383	-0.0752	0.2292	-0.0969	0.1337	-0.0879
106.83	10.34	0.0733	-0.1006	0.3383	-0.0752	0.2292	-0.0969	0.1336	-0.0880
107.83	10.38	0.0732	-0.1007	0.3382	-0.0753	0.2291	-0.0970	0.1336	-0.0880
108.83	10.43	0.0731	-0.1008	0.3381	-0.0754	0.2291	-0.0970	0.1335	-0.0881
109.83	10.48	0.0730	-0.1009	0.3381	-0.0754	0.2290	-0.0971	0.1335	-0.0881
110.83	10.53	0.0730	-0.1009	0.3380	-0.0755	0.2290	-0.0971	0.1335	-0.0881
111.83	10.58	0.0729	-0.1010	0.3380	-0.0755	0.2289	-0.0972	0.1334	-0.0882
112.83	10.62	0.0729	-0.1010	0.3380	-0.0755	0.2288	-0.0973	0.1334	-0.0882
113.83	10.67	0.0728	-0.1011	0.3379	-0.0756	0.2288	-0.0973	0.1333	-0.0883
114.83	10.72	0.0727	-0.1012	0.3378	-0.0757	0.2287	-0.0974	0.1333	-0.0883
115.83	10.76	0.0727	-0.1012	0.3376	-0.0759	0.2287	-0.0974	0.1332	-0.0884
116.83	10.81	0.0726	-0.1013	0.3376	-0.0759	0.2287	-0.0974	0.1332	-0.0884
117.83	10.86	0.0725	-0.1014	0.3376	-0.0759	0.2287	-0.0974	0.1331	-0.0885
118.83	10.90	0.0724	-0.1015	0.3375	-0.0760	0.2286	-0.0975	0.1331	-0.0885
119.83	10.95	0.0723	-0.1016	0.3374	-0.0761	0.2286	-0.0975	0.1330	-0.0886
129.83	11.39	0.0717	-0.1022	0.3357	-0.0778	0.2282	-0.0979	0.1327	-0.0889
139.83	11.83	0.0712	-0.1027	0.3352	-0.0783	0.2279	-0.0982	0.1322	-0.0894
149.83	12.24	0.0706	-0.1033	0.3346	-0.0789	0.2275	-0.0986	0.1319	-0.0897
159.83	12.64	0.0702	-0.1037	0.3338	-0.0797	0.2272	-0.0989	0.1316	-0.0900
169.83	13.03	0.0698	-0.1041	0.3334	-0.0801	0.2269	-0.0992	0.1313	-0.0903
179.83	13.41	0.0693	-0.1046	0.3331	-0.0804	0.2266	-0.0995	0.1311	-0.0905
189.83	13.78	0.0689	-0.1050	0.3325	-0.0810	0.2263	-0.0998	0.1308	-0.0908
199.83	14.14	0.0685	-0.1054	0.3322	-0.0813	0.2262	-0.0999	0.1306	-0.0910
209.83	14.49	0.0683	-0.1056	0.3319	-0.0816	0.2259	-0.1002	0.1303	-0.0913
219.83	14.83	0.0681	-0.1058	0.3316	-0.0819	0.2257	-0.1004	0.1302	-0.0914
229.83	15.16	0.0678	-0.1061	0.3313	-0.0822	0.2255	-0.1006	0.1300	-0.0916
239.83	15.49	0.0676	-0.1063	0.3309	-0.0826	0.2254	-0.1007	0.1297	-0.0919
249.83	15.81	0.0674	-0.1065	0.3307	-0.0828	0.2252	-0.1009	0.1296	-0.0920
259.83	16.12	0.0673	-0.1066	0.3306	-0.0829	0.2251	-0.1010	0.1294	-0.0922
269.83	16.43	0.0670	-0.1069	0.3303	-0.0832	0.2249	-0.1012	0.1292	-0.0924
279.83	16.73	0.0668	-0.1071	0.3301	-0.0834	0.2248	-0.1013	0.1290	-0.0926
289.83	17.02	0.0666	-0.1073	0.3298	-0.0837	0.2247	-0.1014	0.1288	-0.0928
299.83	17.32	0.0664	-0.1075	0.3295	-0.0840	0.2247	-0.1014	0.1287	-0.0929
309.83	17.60	0.0662	-0.1077	0.3293	-0.0842	0.2246	-0.1015	0.1286	-0.0930
319.83	17.88	0.0661	-0.1078	0.3291	-0.0844	0.2245	-0.1016	0.1284	-0.0932

Sample: Pond 8E, BH-5 @ 4.5 feet

Time (minutes)	Square Root of Time (minutes)	Test 5 @ 500 psf		Test 6 @ 1000 psf		Test 7 @ 2000 psf		Test 8 @ 4000 psf	
		Dial Reading (inches)	Deflection (inches)	Dial Reading (inches)	Deflection (inches)	Dial Reading (inches)	Deflection (inches)	Dial Reading (inches)	Deflection (inches)
329.83	18.16	0.0659	-0.1080	0.3288	-0.0847	0.2244	-0.1017	0.1282	-0.0934
339.83	18.43	0.0658	-0.1081	0.3286	-0.0849	0.2243	-0.1018	0.1281	-0.0935
349.83	18.70	0.0655	-0.1084	0.3285	-0.0850	0.2241	-0.1020	0.1280	-0.0936
359.83	18.97	0.0654	-0.1085	0.3282	-0.0853	0.2240	-0.1021	0.1279	-0.0937
369.83	19.23	0.0652	-0.1087	0.3280	-0.0855	0.2240	-0.1021	0.1277	-0.0939
379.83	19.49	0.0651	-0.1088	0.3279	-0.0856	0.2239	-0.1022	0.1275	-0.0941
389.83	19.74	0.0650	-0.1089	0.3278	-0.0857	0.2239	-0.1022	0.1274	-0.0942
399.83	20.00	0.0648	-0.1091	0.3275	-0.0860	0.2238	-0.1023	0.1272	-0.0944
409.83	20.24	0.0647	-0.1092	0.3273	-0.0862	0.2238	-0.1023	0.1272	-0.0944
419.83	20.49	0.0645	-0.1094	0.3272	-0.0863	0.2237	-0.1024	0.1271	-0.0945
429.83	20.73	0.0644	-0.1095	0.3270	-0.0865	0.2236	-0.1025	0.1269	-0.0947
439.83	20.97	0.0643	-0.1096	0.3270	-0.0865	0.2236	-0.1025	0.1268	-0.0948
449.83	21.21	0.0642	-0.1097	0.3269	-0.0866	0.2235	-0.1026	0.1267	-0.0949
459.83	21.44	0.0641	-0.1098	0.3268	-0.0867	0.2235	-0.1026	0.1266	-0.0950
469.83	21.68	0.0639	-0.1100	0.3266	-0.0869	0.2234	-0.1027	0.1265	-0.0951
479.83	21.91	0.0638	-0.1101	0.3265	-0.0870	0.2234	-0.1027	0.1264	-0.0952
489.83	22.13	0.0637	-0.1102	0.3263	-0.0872	0.2234	-0.1027	0.1263	-0.0953
499.83	22.36	0.0635	-0.1104	0.3262	-0.0873	0.2233	-0.1028	0.1262	-0.0954
509.83	22.58	0.0635	-0.1104	0.3261	-0.0874	0.2232	-0.1029	0.1261	-0.0955
519.83	22.80	0.0635	-0.1104			0.2232	-0.1029	0.1260	-0.0956
529.83	23.02	0.0633	-0.1106			0.2232	-0.1029	0.1259	-0.0957
539.83	23.23	0.0633	-0.1106			0.2231	-0.1030	0.1258	-0.0958
549.83	23.45	0.0631	-0.1108			0.2231	-0.1030	0.1258	-0.0958
559.83	23.66	0.0631	-0.1108			0.2230	-0.1031	0.1257	-0.0959
569.83	23.87	0.0631	-0.1108			0.2230	-0.1031	0.1256	-0.0960
579.83	24.08	0.0630	-0.1109			0.2229	-0.1032	0.1256	-0.0960
589.83	24.29	0.0629	-0.1110			0.2229	-0.1032	0.1255	-0.0961
599.83	24.49	0.0629	-0.1110			0.2228	-0.1033	0.1255	-0.0961
609.83	24.69	0.0628	-0.1111			0.2228	-0.1033	0.1254	-0.0962
619.83	24.90	0.0627	-0.1112			0.2227	-0.1034	0.1253	-0.0963
629.83	25.10	0.0626	-0.1113			0.2226	-0.1035	0.1252	-0.0964
639.83	25.29	0.0626	-0.1113			0.2226	-0.1035	0.1251	-0.0965
649.83	25.49	0.0626	-0.1113			0.2226	-0.1035	0.1251	-0.0965
659.83	25.69	0.0625	-0.1114			0.2226	-0.1035	0.1250	-0.0966
669.83	25.88	0.0625	-0.1114			0.2226	-0.1035	0.1249	-0.0967
679.83	26.07	0.0624	-0.1115			0.2225	-0.1036	0.1249	-0.0967
689.83	26.26	0.0624	-0.1115			0.2225	-0.1036	0.1248	-0.0968
699.83	26.45	0.0623	-0.1116			0.2225	-0.1036	0.1248	-0.0968
709.83	26.64	0.0622	-0.1117			0.2224	-0.1037	0.1248	-0.0968
719.83	26.83	0.0622	-0.1117			0.2224	-0.1037	0.1248	-0.0968
749.83	27.38	0.0620	-0.1119			0.2224	-0.1037	0.1246	-0.0970
779.83	27.93	0.0619	-0.1120			0.2224	-0.1037	0.1245	-0.0971
809.83	28.46	0.0618	-0.1121			0.2222	-0.1039	0.1244	-0.0972
839.83	28.98	0.0617	-0.1122			0.2222	-0.1039	0.1243	-0.0973
869.83	29.49	0.0616	-0.1123			0.2220	-0.1041	0.1243	-0.0973
899.83	30.00	0.0615	-0.1124			0.2219	-0.1042	0.1242	-0.0974
929.83	30.49					0.2219	-0.1042	0.1241	-0.0975
959.83	30.98					0.2218	-0.1043	0.1240	-0.0976
989.83	31.46					0.2217	-0.1044	0.1240	-0.0976
1019.83	31.93					0.2216	-0.1045	0.1240	-0.0976
1049.83	32.40							0.1239	-0.0977
1079.83	32.86							0.1239	-0.0977
1109.83	33.31							0.1238	-0.0978
1139.83	33.76							0.1238	-0.0978
1169.83	34.20							0.1237	-0.0979
1199.83	34.64							0.1237	-0.0979
1229.83	35.07							0.1236	-0.0980
1259.83	35.49							0.1236	-0.0980
1289.83	35.91							0.1235	-0.0981

One Dimensional Consolidation

Project No.	973376
Project	FMC
Sample ID	Pond 11S, BH-1 @ 7.5 feet
Sample Ht.	1.750 (in)
Sample Dia.	4.000 (in)
Sample Area	0.087 (sq-ft)
Sample Vol.	0.013 (cu-ft)
Phos Cont.	8.41 (%)
Init. M.C.	278.84 (%)
Init. M.C. (corr)	187.31 (%)
Final M.C.	150.81 (%)
Final M.C. (corr)	107.12 (%)
Dry Wt. of Soil/f	154.57 (g)
Dry Wt. of Soil/i	161.57 (g)
Spec. Grav.	2.79
Pocket Pen.	(tsf)

Moisture Content Weights	
(initial)	
Total Wet Wt. (g)	18.98
Phos. Wt. (g)	1.60
Dry Wt. (g)	5.01
Dry Wt. + Phos Wt. (g)	6.61
Water Wt. + Phos (g)	13.97
Water Wt. (g)	12.37
(final)	
Total Wet Wt. (g)	27.84
Phos. Wt. (g)	2.34
Dry Wt. (g)	11.1
Dry Wt. + Phos Wt. (g)	13.44
Water Wt. + Phos (g)	16.74
Water Wt. (g)	14.40

Pressure (ksf)	Final Dial Reading (inches)	Deformation (inches)	Sample Ht. (inches)	Strain (%)	Void Ratio (e)	Dry Density (pcf)	Void Ratio (e)	Dry Density (pcf)
					Calc. from final MC		Calc. from initial MC	
0.0010	0.4267	0.0000	1.7500	0	5.508	26.75	5.226	27.96
0.0250	0.3887	0.0380	1.7120	2.17	5.366	27.35	5.091	28.58
0.0500	0.3330	0.0937	1.6563	5.35	5.159	28.27	4.892	29.55
0.1000	0.1953	0.2313	1.5187	13.22	4.648	30.83	4.403	32.22
0.2500	0.0510	0.3754	1.3746	21.45	4.112	34.06	3.890	35.60
0.5000	0.3581	0.4580	1.2920	26.17	3.805	36.24	3.596	37.88
1.0000	0.2926	0.5235	1.2265	29.91	3.561	38.17	3.363	39.90
2.0000	0.2169	0.5991	1.1509	34.23	3.280	40.68	3.094	42.52
4.0000	0.1386	0.6774	1.0726	38.71	2.989	43.65	2.816	45.62

Note: Initial MC not taken from actual sample tested, but from same sample jar.
Final MC taken from actual sample tested.
Void Ratio (e), calculated from final MC likely to be most accurate.
Final data readings may vary when compared to deformation values due to resetting the dial. The deformation values are based on the actual data in Appendix E.

Sample: Pond 11S, BH-1 @ 7.5 feet

Time (minutes)	Square Root of Time (minutes)	Test 1 @ 25 psf		Test 2 @ 50 psf		Test 3 @ 100 psf		Test 4 @ 250 psf	
		Dial Reading (inches)	Deflection (inches)	Dial Reading (inches)	Deflection (inches)	Dial Reading (inches)	Deflection (inches)	Dial Reading (inches)	Deflection (inches)
0.00	0.00	0.4267	0.0000	0.3887	0.0000	0.3329	0.0000	0.1951	0.0000
0.17	0.41	0.4267	0.0000	0.3887	0.0000	0.3329	0.0000	0.1951	0.0000
0.33	0.58	0.4219	-0.0048	0.3849	-0.0038	0.3299	-0.0030	0.1869	-0.0082
0.50	0.71	0.4212	-0.0055	0.3839	-0.0048	0.3289	-0.0040	0.1814	-0.0137
0.67	0.82	0.4207	-0.0060	0.3833	-0.0054	0.3276	-0.0053	0.1778	-0.0173
0.83	0.91	0.4204	-0.0063	0.3820	-0.0067	0.3271	-0.0058	0.1743	-0.0208
1.00	1.00	0.4204	-0.0063	0.3814	-0.0073	0.3271	-0.0058	0.1743	-0.0208
1.17	1.08	0.4204	-0.0063	0.3809	-0.0078	0.3271	-0.0058	0.1687	-0.0264
1.33	1.15	0.4188	-0.0079	0.3802	-0.0085	0.3205	-0.0124	0.1650	-0.0301
1.50	1.22	0.4184	-0.0083	0.3796	-0.0091	0.3182	-0.0147	0.1640	-0.0311
1.67	1.29	0.4179	-0.0088	0.3791	-0.0096	0.3169	-0.0160	0.1611	-0.0340
1.83	1.35	0.4175	-0.0092	0.3782	-0.0105	0.3153	-0.0176	0.1601	-0.0350
2.00	1.41	0.4175	-0.0092	0.3776	-0.0111	0.3138	-0.0191	0.1576	-0.0375
2.17	1.47	0.4175	-0.0092	0.3770	-0.0117	0.3133	-0.0196	0.1566	-0.0385
2.33	1.53	0.4175	-0.0092	0.3762	-0.0125	0.3114	-0.0215	0.1541	-0.0410
2.50	1.58	0.4175	-0.0092	0.3756	-0.0131	0.3104	-0.0225	0.1525	-0.0426
2.67	1.63	0.4148	-0.0119	0.3756	-0.0131	0.3090	-0.0239	0.1525	-0.0426
2.83	1.68	0.4145	-0.0122	0.3744	-0.0143	0.3078	-0.0251	0.1495	-0.0456
3.00	1.73	0.4142	-0.0125	0.3741	-0.0146	0.3064	-0.0265	0.1490	-0.0461
3.17	1.78	0.4137	-0.0130	0.3734	-0.0153	0.3054	-0.0275	0.1490	-0.0461
3.33	1.83	0.4135	-0.0132	0.3729	-0.0158	0.3049	-0.0280	0.1490	-0.0461
3.50	1.87	0.4132	-0.0135	0.3725	-0.0162	0.3049	-0.0280	0.1490	-0.0461
3.67	1.91	0.4129	-0.0138	0.3719	-0.0168	0.3049	-0.0280	0.1490	-0.0461
3.83	1.96	0.4127	-0.0140	0.3714	-0.0173	0.3049	-0.0280	0.1398	-0.0553
4.00	2.00	0.4123	-0.0144	0.3708	-0.0179	0.3049	-0.0280	0.1394	-0.0557
4.17	2.04	0.4121	-0.0146	0.3705	-0.0182	0.3049	-0.0280	0.1394	-0.0557
4.33	2.08	0.4119	-0.0148	0.3705	-0.0182	0.3049	-0.0280	0.1394	-0.0557
4.50	2.12	0.4119	-0.0148	0.3705	-0.0182	0.3049	-0.0280	0.1344	-0.0607
4.67	2.16	0.4114	-0.0153	0.3705	-0.0182	0.3049	-0.0280	0.1333	-0.0618
4.83	2.20	0.4112	-0.0155	0.3705	-0.0182	0.3049	-0.0280	0.1318	-0.0633
5.00	2.24	0.4110	-0.0157	0.3678	-0.0209	0.2937	-0.0392	0.1308	-0.0643
5.17	2.27	0.4108	-0.0159	0.3678	-0.0209	0.2937	-0.0392	0.1303	-0.0648
5.33	2.31	0.4107	-0.0160	0.3678	-0.0209	0.2937	-0.0392	0.1303	-0.0648
5.50	2.35	0.4105	-0.0162	0.3678	-0.0209	0.2937	-0.0392	0.1303	-0.0648
5.67	2.38	0.4105	-0.0162	0.3661	-0.0226	0.2937	-0.0392	0.1303	-0.0648
5.83	2.42	0.4101	-0.0166	0.3657	-0.0230	0.2894	-0.0435	0.1303	-0.0648
6.00	2.45	0.4099	-0.0168	0.3653	-0.0234	0.2883	-0.0446	0.1303	-0.0648
6.17	2.48	0.4095	-0.0172	0.3653	-0.0234	0.2876	-0.0453	0.1228	-0.0723
6.33	2.52	0.4090	-0.0177	0.3653	-0.0234	0.2866	-0.0463	0.1228	-0.0723
6.50	2.55	0.4092	-0.0175	0.3653	-0.0234	0.2859	-0.0470	0.1228	-0.0723
6.67	2.58	0.4092	-0.0175	0.3653	-0.0234	0.2859	-0.0470	0.1228	-0.0723
6.83	2.61	0.4092	-0.0175	0.3630	-0.0257	0.2859	-0.0470	0.1228	-0.0723
7.00	2.65	0.4092	-0.0175	0.3630	-0.0257	0.2859	-0.0470	0.1228	-0.0723
7.17	2.68	0.4092	-0.0175	0.3630	-0.0257	0.2829	-0.0500	0.1176	-0.0775
7.33	2.71	0.4092	-0.0175	0.3630	-0.0257	0.2825	-0.0504	0.1169	-0.0782
7.50	2.74	0.4092	-0.0175	0.3630	-0.0257	0.2825	-0.0504	0.1167	-0.0784
7.67	2.77	0.4092	-0.0175	0.3630	-0.0257	0.2825	-0.0504	0.1167	-0.0784
7.83	2.80	0.4092	-0.0175	0.3630	-0.0257	0.2825	-0.0504	0.1167	-0.0784
8.00	2.83	0.4060	-0.0207	0.3630	-0.0257	0.2825	-0.0504	0.1167	-0.0784
8.17	2.86	0.4066	-0.0201	0.3630	-0.0257	0.2825	-0.0504	0.1133	-0.0818
8.33	2.89	0.4066	-0.0201	0.3592	-0.0295	0.2772	-0.0557	0.1126	-0.0825
8.50	2.92	0.4066	-0.0201	0.3588	-0.0299	0.2769	-0.0560	0.1122	-0.0829
8.67	2.94	0.4057	-0.0210	0.3583	-0.0304	0.2769	-0.0560	0.1122	-0.0829
8.83	2.97	0.4055	-0.0212	0.3583	-0.0304	0.2769	-0.0560	0.1122	-0.0829
9.00	3.00	0.4053	-0.0214	0.3583	-0.0304	0.2769	-0.0560	0.1098	-0.0853
9.17	3.03	0.4053	-0.0214	0.3583	-0.0304	0.2769	-0.0560	0.1090	-0.0861
9.33	3.06	0.4050	-0.0217	0.3583	-0.0304	0.2769	-0.0560	0.1085	-0.0866
9.50	3.08	0.4050	-0.0217	0.3583	-0.0304	0.2769	-0.0560	0.1085	-0.0866
9.67	3.11	0.4050	-0.0217	0.3583	-0.0304	0.2769	-0.0560	0.1074	-0.0877
9.83	3.14	0.4050	-0.0217	0.3583	-0.0304	0.2712	-0.0617	0.1074	-0.0877
10.00	3.16	0.4050	-0.0217	0.3583	-0.0304	0.2705	-0.0624	0.1074	-0.0877
10.17	3.19	0.4050	-0.0217	0.3583	-0.0304	0.2702	-0.0627	0.1050	-0.0901
10.33	3.21	0.4050	-0.0217	0.3583	-0.0304	0.2702	-0.0627	0.1046	-0.0905
10.50	3.24	0.4033	-0.0234	0.3583	-0.0304	0.2702	-0.0627	0.1039	-0.0912
10.67	3.27	0.4033	-0.0234	0.3583	-0.0304	0.2702	-0.0627	0.1039	-0.0912

Sample: Pond 11S, BH-1 @ 7.5 feet

Time (minutes)	Square Root of Time (minutes)	Test 1 @ 25 psf		Test 2 @ 50 psf		Test 3 @ 100 psf		Test 4 @ 250 psf	
		Dial Reading (inches)	Deflection (inches)	Dial Reading (inches)	Deflection (inches)	Dial Reading (inches)	Deflection (inches)	Dial Reading (inches)	Deflection (inches)
10.83	3.29	0.4033	-0.0234	0.3583	-0.0304	0.2702	-0.0627	0.1024	-0.0927
11.00	3.32	0.4033	-0.0234	0.3583	-0.0304	0.2666	-0.0663	0.1024	-0.0927
11.17	3.34	0.4033	-0.0234	0.3540	-0.0347	0.2662	-0.0667	0.1011	-0.0940
11.33	3.37	0.4033	-0.0234	0.3537	-0.0350	0.2656	-0.0673	0.1005	-0.0946
11.50	3.39	0.4033	-0.0234	0.3537	-0.0350	0.2650	-0.0679	0.1005	-0.0946
11.67	3.42	0.4033	-0.0234	0.3537	-0.0350	0.2650	-0.0679	0.1005	-0.0946
11.83	3.44	0.4033	-0.0234	0.3531	-0.0356	0.2650	-0.0679	0.1005	-0.0946
12.00	3.46	0.4020	-0.0247	0.3529	-0.0358	0.2650	-0.0679	0.0976	-0.0975
12.17	3.49	0.4019	-0.0248	0.3528	-0.0359	0.2650	-0.0679	0.0971	-0.0980
12.33	3.51	0.4018	-0.0249	0.3528	-0.0359	0.2650	-0.0679	0.0963	-0.0988
12.50	3.54	0.4018	-0.0249	0.3528	-0.0359	0.2650	-0.0679	0.0963	-0.0988
12.67	3.56	0.4018	-0.0249	0.3528	-0.0359	0.2613	-0.0716	0.0963	-0.0988
12.83	3.58	0.4018	-0.0249	0.3528	-0.0359	0.2611	-0.0718	0.0963	-0.0988
13.00	3.61	0.4018	-0.0249	0.3528	-0.0359	0.2611	-0.0718	0.0963	-0.0988
13.17	3.63	0.4015	-0.0252	0.3528	-0.0359	0.2611	-0.0718	0.0963	-0.0988
13.33	3.65	0.4014	-0.0253	0.3528	-0.0359	0.2611	-0.0718	0.0925	-0.1026
13.50	3.67	0.4012	-0.0255	0.3528	-0.0359	0.2611	-0.0718	0.0921	-0.1030
13.67	3.70	0.4012	-0.0255	0.3528	-0.0359	0.2582	-0.0747	0.0921	-0.1030
13.83	3.72	0.4010	-0.0257	0.3528	-0.0359	0.2577	-0.0752	0.0921	-0.1030
14.00	3.74	0.4010	-0.0257	0.3528	-0.0359	0.2570	-0.0759	0.0904	-0.1047
14.17	3.76	0.4010	-0.0257	0.3528	-0.0359	0.2568	-0.0761	0.0897	-0.1054
14.33	3.79	0.4008	-0.0259	0.3528	-0.0359	0.2568	-0.0761	0.0892	-0.1059
14.50	3.81	0.4008	-0.0259	0.3528	-0.0359	0.2558	-0.0771	0.0886	-0.1065
14.67	3.83	0.4008	-0.0259	0.3528	-0.0359	0.2552	-0.0777	0.0880	-0.1071
14.83	3.85	0.4008	-0.0259	0.3528	-0.0359	0.2548	-0.0781	0.0880	-0.1071
15.33	3.92	0.4008	-0.0259	0.3500	-0.0387	0.2547	-0.0782	0.0861	-0.1090
15.83	3.98	0.3997	-0.0270	0.3494	-0.0393	0.2524	-0.0805	0.0861	-0.1090
16.33	4.04	0.3994	-0.0273	0.3493	-0.0394	0.2515	-0.0814	0.0835	-0.1116
16.83	4.10	0.3992	-0.0275	0.3486	-0.0401	0.2515	-0.0814	0.0829	-0.1122
17.33	4.16	0.3992	-0.0275	0.3483	-0.0404	0.2515	-0.0814	0.0811	-0.1140
17.83	4.22	0.3992	-0.0275	0.3475	-0.0412	0.2515	-0.0814	0.0811	-0.114[illegible]
18.33	4.28	0.3982	-0.0285	0.3475	-0.0412	0.2450	-0.0879	0.0811	-0.114[illegible]
18.83	4.34	0.3977	-0.0290	0.3475	-0.0412	0.2450	-0.0879	0.0811	-0.1140
19.33	4.40	0.3977	-0.0290	0.3464	-0.0423	0.2450	-0.0879	0.0773	-0.1178
19.83	4.45	0.3977	-0.0290	0.3464	-0.0423	0.2450	-0.0879	0.0764	-0.1187
20.33	4.51	0.3977	-0.0290	0.3464	-0.0423	0.2450	-0.0879	0.0752	-0.1199
20.83	4.56	0.3969	-0.0298	0.3464	-0.0423	0.2450	-0.0879	0.0744	-0.1207
21.33	4.62	0.3969	-0.0298	0.3438	-0.0449	0.2450	-0.0879	0.0734	-0.1217
21.83	4.67	0.3963	-0.0304	0.3434	-0.0453	0.2369	-0.0960	0.0734	-0.1217
22.33	4.73	0.3963	-0.0304	0.3432	-0.0455	0.2369	-0.0960	0.0719	-0.1232
22.83	4.78	0.3963	-0.0304	0.3432	-0.0455	0.2369	-0.0960	0.0715	-0.1236
23.33	4.83	0.3963	-0.0304	0.3432	-0.0455	0.2335	-0.0994	0.0706	-0.1245
23.83	4.88	0.3952	-0.0315	0.3422	-0.0465	0.2326	-0.1003	0.0700	-0.1251
24.33	4.93	0.3950	-0.0317	0.3422	-0.0465	0.2321	-0.1008	0.0696	-0.1255
24.83	4.98	0.3950	-0.0317	0.3422	-0.0465	0.2307	-0.1022	0.0696	-0.1255
25.33	5.03	0.3950	-0.0317	0.3422	-0.0465	0.2307	-0.1022	0.0684	-0.1267
25.83	5.08	0.3950	-0.0317	0.3422	-0.0465	0.2307	-0.1022	0.0682	-0.1269
26.33	5.13	0.3950	-0.0317	0.3406	-0.0481	0.2271	-0.1058	0.0682	-0.1269
26.83	5.18	0.3937	-0.0330	0.3406	-0.0481	0.2271	-0.1058	0.0669	-0.1282
27.33	5.23	0.3935	-0.0332	0.3406	-0.0481	0.2253	-0.1076	0.0669	-0.1282
27.83	5.28	0.3932	-0.0335	0.3406	-0.0481	0.2248	-0.1081	0.0669	-0.1282
28.33	5.32	0.3929	-0.0338	0.3392	-0.0495	0.2248	-0.1081	0.0655	-0.1296
28.83	5.37	0.3928	-0.0339	0.3389	-0.0498	0.2248	-0.1081	0.0653	-0.1298
29.33	5.42	0.3927	-0.0340	0.3389	-0.0498	0.2221	-0.1108	0.0653	-0.1298
29.83	5.46	0.3927	-0.0340	0.3389	-0.0498	0.2214	-0.1115	0.0653	-0.1298
30.33	5.51	0.3927	-0.0340	0.3366	-0.0521	0.2214	-0.1115	0.0643	-0.1308
30.83	5.55	0.3927	-0.0340	0.3362	-0.0525	0.2203	-0.1126	0.0641	-0.1310
31.33	5.60	0.3922	-0.0345	0.3358	-0.0529	0.2196	-0.1133	0.0637	-0.1314
31.83	5.64	0.3921	-0.0346	0.3358	-0.0529	0.2196	-0.1133	0.0637	-0.1314
32.33	5.69	0.3920	-0.0347	0.3358	-0.0529	0.2196	-0.1133	0.0632	-0.1319
32.83	5.73	0.3920	-0.0347	0.3354	-0.0533	0.2196	-0.1133	0.0632	-0.1319
33.33	5.77	0.3919	-0.0348	0.3354	-0.0533	0.2174	-0.1155	0.0627	-0.13[illegible]
33.83	5.82	0.3919	-0.0348	0.3354	-0.0533	0.2174	-0.1155	0.0625	-0.13[illegible]
34.33	5.86	0.3919	-0.0348	0.3354	-0.0533	0.2174	-0.1155	0.0622	-0.1329
34.83	5.90	0.3914	-0.0353	0.3354	-0.0533	0.2153	-0.1176	0.0622	-0.1329

Sample: Pond 11S, BH-1 @ 7.5 feet

Time (minutes)	Square Root of Time (minutes)	Test 1 @ 25 psf		Test 2 @ 50 psf		Test 3 @ 100 psf		Test 4 @ 250 psf	
		Dial Reading (inches)	Deflection (inches)	Dial Reading (inches)	Deflection (inches)	Dial Reading (inches)	Deflection (inches)	Dial Reading (inches)	Deflection (inches)
35.33	5.94	0.3914	-0.0353	0.3354	-0.0533	0.2148	-0.1181	0.0619	-0.1332
35.83	5.99	0.3912	-0.0355	0.3351	-0.0536	0.2143	-0.1186	0.0619	-0.1332
36.33	6.03	0.3911	-0.0356	0.3351	-0.0536	0.2138	-0.1191	0.0616	-0.1335
36.83	6.07	0.3911	-0.0356	0.3351	-0.0536	0.2134	-0.1195	0.0613	-0.1338
37.33	6.11	0.3911	-0.0356	0.3350	-0.0537	0.2134	-0.1195	0.0610	-0.1341
37.83	6.15	0.3910	-0.0357	0.3350	-0.0537	0.2134	-0.1195	0.0610	-0.1341
38.33	6.19	0.3910	-0.0357	0.3350	-0.0537	0.2122	-0.1207	0.0608	-0.1343
38.83	6.23	0.3909	-0.0358	0.3348	-0.0539	0.2122	-0.1207	0.0608	-0.1343
39.33	6.27	0.3909	-0.0358	0.3348	-0.0539	0.2122	-0.1207	0.0608	-0.1343
39.83	6.31	0.3909	-0.0358	0.3348	-0.0539	0.2122	-0.1207	0.0608	-0.1343
40.33	6.35	0.3908	-0.0359	0.3348	-0.0539	0.2122	-0.1207	0.0603	-0.1348
40.83	6.39	0.3908	-0.0359	0.3348	-0.0539	0.2122	-0.1207	0.0602	-0.1349
41.33	6.43	0.3906	-0.0361	0.3348	-0.0539	0.2101	-0.1228	0.0601	-0.1350
41.83	6.47	0.3901	-0.0366	0.3347	-0.0540	0.2095	-0.1234	0.0601	-0.1350
42.33	6.51	0.3899	-0.0368	0.3347	-0.0540	0.2095	-0.1234	0.0601	-0.1350
42.83	6.54	0.3899	-0.0368	0.3347	-0.0540	0.2090	-0.1239	0.0598	-0.1353
43.33	6.58	0.3899	-0.0368	0.3345	-0.0542	0.2090	-0.1239	0.0598	-0.1353
43.83	6.62	0.3899	-0.0368	0.3345	-0.0542	0.2090	-0.1239	0.0598	-0.1353
44.33	6.66	0.3899	-0.0368	0.3345	-0.0542	0.2077	-0.1252	0.0598	-0.1353
44.83	6.70	0.3893	-0.0374	0.3345	-0.0542	0.2077	-0.1252	0.0598	-0.1353
45.33	6.73	0.3893	-0.0374	0.3345	-0.0542	0.2077	-0.1252	0.0598	-0.1353
45.83	6.77	0.3893	-0.0374	0.3344	-0.0543	0.2077	-0.1252	0.0593	-0.1358
46.33	6.81	0.3893	-0.0374	0.3344	-0.0543	0.2070	-0.1259	0.0593	-0.1358
46.83	6.84	0.3893	-0.0374	0.3344	-0.0543	0.2069	-0.1260	0.0593	-0.1358
47.33	6.88	0.3892	-0.0375	0.3344	-0.0543	0.2069	-0.1260	0.0592	-0.1359
47.83	6.92	0.3892	-0.0375	0.3344	-0.0543	0.2069	-0.1260	0.0592	-0.1359
48.33	6.95	0.3892	-0.0375	0.3344	-0.0543	0.2069	-0.1260	0.0592	-0.1359
48.83	6.99	0.3892	-0.0375	0.3344	-0.0543	0.2064	-0.1265	0.0589	-0.1362
49.33	7.02	0.3892	-0.0375	0.3344	-0.0543	0.2064	-0.1265	0.0589	-0.1362
49.83	7.06	0.3892	-0.0375	0.3341	-0.0546	0.2064	-0.1265	0.0588	-0.1363
50.33	7.09	0.3892	-0.0375	0.3341	-0.0546	0.2064	-0.1265	0.0588	-0.1363
50.83	7.13	0.3892	-0.0375	0.3341	-0.0546	0.2064	-0.1265	0.0588	-0.1363
51.33	7.16	0.3892	-0.0375	0.3340	-0.0547	0.2058	-0.1271	0.0587	-0.1364
51.83	7.20	0.3892	-0.0375	0.3340	-0.0547	0.2058	-0.1271	0.0586	-0.1365
52.33	7.23	0.3892	-0.0375	0.3340	-0.0547	0.2058	-0.1271	0.0586	-0.1365
52.83	7.27	0.3892	-0.0375	0.3340	-0.0547	0.2054	-0.1275	0.0585	-0.1366
53.33	7.30	0.3892	-0.0375	0.3340	-0.0547	0.2054	-0.1275	0.0585	-0.1366
53.83	7.34	0.3892	-0.0375	0.3339	-0.0548	0.2052	-0.1277	0.0584	-0.1367
54.33	7.37	0.3892	-0.0375	0.3339	-0.0548	0.2052	-0.1277	0.0584	-0.1367
54.83	7.40	0.3892	-0.0375	0.3338	-0.0549	0.2050	-0.1279	0.0584	-0.1367
55.33	7.44	0.3892	-0.0375	0.3338	-0.0549	0.2049	-0.1280	0.0583	-0.1368
55.83	7.47	0.3889	-0.0378	0.3338	-0.0549	0.2047	-0.1282	0.0583	-0.1368
56.33	7.51	0.3889	-0.0378	0.3338	-0.0549	0.2047	-0.1282	0.0582	-0.1369
56.83	7.54	0.3889	-0.0378	0.3337	-0.0550	0.2047	-0.1282	0.0582	-0.1369
57.33	7.57	0.3889	-0.0378	0.3338	-0.0549	0.2045	-0.1284	0.0582	-0.1369
57.83	7.60	0.3880	-0.0387	0.3337	-0.0550	0.2043	-0.1286	0.0581	-0.1370
58.33	7.64	0.3880	-0.0387	0.3337	-0.0550	0.2043	-0.1286	0.0581	-0.1370
58.83	7.67	0.3880	-0.0387	0.3337	-0.0550	0.2041	-0.1288	0.0581	-0.1370
59.33	7.70	0.3889	-0.0378	0.3337	-0.0550	0.2040	-0.1289	0.0581	-0.1370
59.83	7.74	0.3889	-0.0378	0.3337	-0.0550	0.2039	-0.1290	0.0581	-0.1370
60.83	7.80	0.3889	-0.0378	0.3336	-0.0551	0.2039	-0.1290	0.0578	-0.1373
61.83	7.86	0.3889	-0.0378	0.3336	-0.0551	0.2039	-0.1290	0.0578	-0.1373
62.83	7.93	0.3889	-0.0378	0.3336	-0.0551	0.2038	-0.1291	0.0577	-0.1374
63.83	7.99	0.3889	-0.0378	0.3336	-0.0551	0.2037	-0.1292	0.0576	-0.1375
64.83	8.05	0.3889	-0.0378	0.3336	-0.0551	0.2037	-0.1292	0.0576	-0.1375
65.83	8.11	0.3889	-0.0378	0.3336	-0.0551	0.2035	-0.1294	0.0575	-0.1376
66.83	8.18	0.3889	-0.0378	0.3335	-0.0552	0.2034	-0.1295	0.0575	-0.1376
67.83	8.24	0.3889	-0.0378	0.3335	-0.0552	0.2034	-0.1295	0.0574	-0.1377
68.83	8.30	0.3889	-0.0378	0.3335	-0.0552	0.2033	-0.1296	0.0574	-0.1377
69.83	8.36	0.3889	-0.0378	0.3335	-0.0552	0.2033	-0.1296	0.0572	-0.1379
70.83	8.42	0.3888	-0.0379	0.3335	-0.0552	0.2032	-0.1297	0.0572	-0.1379
71.83	8.48	0.3889	-0.0378	0.3334	-0.0553	0.2031	-0.1298	0.0570	-0.1381
72.83	8.53	0.3889	-0.0378	0.3334	-0.0553	0.2031	-0.1298	0.0570	-0.1381
73.83	8.59	0.3889	-0.0378	0.3334	-0.0553	0.2030	-0.1299	0.0570	-0.1381
74.83	8.65	0.3889	-0.0378	0.3334	-0.0553	0.2030	-0.1299	0.0569	-0.1382

Sample: Pond 11S, BH-1 @ 7.5 feet

Time (minutes)	Square Root of Time (minutes)	Test 1 @ 25 psf		Test 2 @ 50 psf		Test 3 @ 100 psf		Test 4 @ 250 psf	
		Dial Reading (inches)	Deflection (inches)	Dial Reading (inches)	Deflection (inches)	Dial Reading (inches)	Deflection (inches)	Dial Reading (inches)	Deflection (inches)
75.83	8.71	0.3889	-0.0378	0.3335	-0.0552	0.2030	-0.1299	0.0568	-0.1383
76.83	8.77	0.3889	-0.0378	0.3335	-0.0552	0.2030	-0.1299	0.0568	-0.1383
77.83	8.82	0.3889	-0.0378	0.3335	-0.0552	0.2030	-0.1299	0.0567	-0.1384
78.83	8.88	0.3889	-0.0378	0.3335	-0.0552	0.2030	-0.1299	0.0567	-0.1384
79.83	8.93	0.3889	-0.0378	0.3334	-0.0553	0.2030	-0.1299	0.0567	-0.1384
80.83	8.99	0.3889	-0.0378	0.3334	-0.0553	0.2029	-0.1300	0.0567	-0.1384
81.83	9.05	0.3889	-0.0378	0.3334	-0.0553	0.2029	-0.1300	0.0567	-0.1384
82.83	9.10	0.3889	-0.0378	0.3332	-0.0555	0.2027	-0.1302	0.0566	-0.1385
83.83	9.16	0.3888	-0.0379	0.3332	-0.0555	0.2024	-0.1305	0.0566	-0.1385
84.83	9.21	0.3888	-0.0379	0.3332	-0.0555	0.2024	-0.1305	0.0566	-0.1385
85.83	9.26	0.3888	-0.0379	0.3332	-0.0555	0.2023	-0.1306	0.0565	-0.1386
86.83	9.32	0.3888	-0.0379	0.3332	-0.0555	0.2023	-0.1306	0.0564	-0.1387
87.83	9.37	0.3888	-0.0379	0.3332	-0.0555	0.2023	-0.1306	0.0564	-0.1387
88.83	9.43	0.3888	-0.0379	0.3331	-0.0556	0.2022	-0.1307	0.0564	-0.1387
89.83	9.48	0.3889	-0.0378	0.3330	-0.0557	0.2022	-0.1307	0.0564	-0.1387
90.83	9.53	0.3889	-0.0378	0.3331	-0.0556	0.2022	-0.1307	0.0564	-0.1387
91.83	9.58	0.3889	-0.0378	0.3330	-0.0557	0.2021	-0.1308	0.0559	-0.1392
92.83	9.64	0.3889	-0.0378	0.3330	-0.0557	0.2021	-0.1308	0.0559	-0.1392
93.83	9.69	0.3889	-0.0378	0.3330	-0.0557	0.2020	-0.1309	0.0555	-0.1396
94.83	9.74	0.3889	-0.0378	0.3330	-0.0557	0.2020	-0.1309	0.0552	-0.1399
95.83	9.79	0.3889	-0.0378	0.3330	-0.0557	0.2020	-0.1309	0.0552	-0.1399
96.83	9.84	0.3889	-0.0378	0.3330	-0.0557	0.2020	-0.1309	0.0551	-0.1400
97.83	9.89	0.3889	-0.0378	0.3330	-0.0557	0.2019	-0.1310	0.0551	-0.1400
98.83	9.94	0.3889	-0.0378	0.3330	-0.0557	0.2019	-0.1310	0.0550	-0.1401
99.83	9.99	0.3889	-0.0378	0.3330	-0.0557	0.2018	-0.1311	0.0550	-0.1401
100.83	10.04	0.3889	-0.0378	0.3330	-0.0557	0.2018	-0.1311	0.0549	-0.1402
101.83	10.09	0.3889	-0.0378	0.3330	-0.0557	0.2018	-0.1311	0.0549	-0.1402
102.83	10.14	0.3888	-0.0379	0.3330	-0.0557	0.2018	-0.1311	0.0549	-0.1402
103.83	10.19	0.3888	-0.0379	0.3330	-0.0557	0.2017	-0.1312	0.0549	-0.1402
104.83	10.24	0.3888	-0.0379	0.3330	-0.0557	0.2017	-0.1312	0.0549	-0.1402
105.83	10.29	0.3888	-0.0379	0.3330	-0.0557	0.2017	-0.1312	0.0549	-0.1402
106.83	10.34	0.3888	-0.0379	0.3330	-0.0557	0.2017	-0.1312	0.0549	-0.1402
107.83	10.38	0.3888	-0.0379	0.3330	-0.0557	0.2017	-0.1312	0.0549	-0.1402
108.83	10.43	0.3888	-0.0379	0.3330	-0.0557	0.2016	-0.1313	0.0548	-0.1403
109.83	10.48	0.3888	-0.0379	0.3330	-0.0557	0.2016	-0.1313	0.0548	-0.1403
110.83	10.53	0.3887	-0.0380	0.3330	-0.0557	0.2016	-0.1313	0.0548	-0.1403
111.83	10.58	0.3887	-0.0380	0.3330	-0.0557	0.2016	-0.1313	0.0548	-0.1403
112.83	10.62	0.3887	-0.0380	0.3330	-0.0557	0.2015	-0.1314	0.0548	-0.1403
113.83	10.67	0.3887	-0.0380	0.3330	-0.0557	0.2015	-0.1314	0.0547	-0.1404
114.83	10.72	0.3887	-0.0380	0.3329	-0.0558	0.2015	-0.1314	0.0547	-0.1404
115.83	10.76	0.3887	-0.0380	0.3329	-0.0558	0.2015	-0.1314	0.0546	-0.1405
116.83	10.81	0.3887	-0.0380	0.3329	-0.0558	0.2015	-0.1314	0.0545	-0.1406
117.83	10.86	0.3887	-0.0380	0.3329	-0.0558	0.2015	-0.1314	0.0542	-0.1409
118.83	10.90	0.3887	-0.0380	0.3329	-0.0558	0.2014	-0.1315	0.0542	-0.1409
119.83	10.95	0.3887	-0.0380	0.3329	-0.0558	0.2014	-0.1315	0.0542	-0.1409
129.83	11.39	0.3887	-0.0380	0.3330	-0.0557	0.2012	-0.1317	0.0538	-0.1413
139.83	11.83	0.3887	-0.0380			0.2011	-0.1318	0.0536	-0.1415
149.83	12.24	0.3887	-0.0380			0.2011	-0.1318	0.0527	-0.1424
159.83	12.64	0.3888	-0.0379			0.2011	-0.1318	0.0526	-0.1425
169.83	13.03	0.3887	-0.0380			0.2010	-0.1319	0.0525	-0.1426
179.83	13.41					0.2010	-0.1319	0.0524	-0.1427
189.83	13.78					0.2009	-0.1320	0.0523	-0.1428
199.83	14.14					0.2008	-0.1321	0.0522	-0.1429
209.83	14.49					0.2007	-0.1322	0.0522	-0.1429
219.83	14.83					0.2007	-0.1322	0.0517	-0.1434
229.83	15.16					0.2007	-0.1322	0.0516	-0.1435
239.83	15.49					0.2004	-0.1325	0.0514	-0.1437
249.83	15.81					0.2004	-0.1325	0.0513	-0.1438
259.83	16.12					0.2004	-0.1325	0.0513	-0.1438
269.83	16.43					0.2003	-0.1326	0.0512	-0.1439
279.83	16.73					0.2003	-0.1326	0.0512	-0.1439
289.83	17.02					0.2003	-0.1326	0.0512	-0.1439
299.83	17.32					0.2003	-0.1326	0.0511	-0.1440
309.83	17.60					0.2003	-0.1326	0.0510	-0.1441
319.83	17.88					0.1999	-0.1330	0.0510	-0.1441

Sample: Pond 11S, BH-1 @ 7.5 feet

Time (minutes)	Square Root of Time (minutes)	Test 1 @ 25 psf		Test 2 @ 50 psf		Test 3 @ 100 psf		Test 4 @ 250 psf	
		Dial Reading (inches)	Deflection (inches)	Dial Reading (inches)	Deflection (inches)	Dial Reading (inches)	Deflection (inches)	Dial Reading (inches)	Deflection (inches)
329.83	18.16					0.1998	-0.1331		
339.83	18.43					0.1998	-0.1331		
349.83	18.70					0.1998	-0.1331		
359.83	18.97					0.1998	-0.1331		
369.83	19.23					0.1998	-0.1331		
379.83	19.49					0.1997	-0.1332		
389.83	19.74					0.1997	-0.1332		
399.83	20.00					0.1997	-0.1332		
409.83	20.24					0.1993	-0.1336		
419.83	20.49					0.1988	-0.1341		
429.83	20.73					0.1988	-0.1341		
439.83	20.97					0.1987	-0.1342		
449.83	21.21					0.1987	-0.1342		
459.83	21.44					0.1983	-0.1346		
469.83	21.68					0.1983	-0.1346		
479.83	21.91					0.1982	-0.1347		
489.83	22.13					0.1982	-0.1347		
499.83	22.36					0.1982	-0.1347		
509.83	22.58					0.1982	-0.1347		
519.83	22.80					0.1980	-0.1349		
529.83	23.02					0.1980	-0.1349		
539.83	23.23					0.1980	-0.1349		
549.83	23.45					0.1979	-0.1350		
559.83	23.66					0.1978	-0.1351		
569.83	23.87					0.1976	-0.1353		
579.83	24.08					0.1976	-0.1353		
589.83	24.29					0.1976	-0.1353		
599.83	24.49					0.1976	-0.1353		
609.83	24.69					0.1972	-0.1357		
619.83	24.90					0.1971	-0.1358		
629.83	25.10					0.1971	-0.1358		
639.83	25.29					0.1971	-0.1358		
649.83	25.49					0.1971	-0.1358		
659.83	25.69					0.1970	-0.1359		
669.83	25.88					0.1970	-0.1359		
679.83	26.07					0.1970	-0.1359		
689.83	26.26					0.1969	-0.1360		
699.83	26.45					0.1969	-0.1360		
709.83	26.64					0.1969	-0.1360		
719.83	26.83					0.1969	-0.1360		
749.83	27.38					0.1961	-0.1368		
779.83	27.93					0.1960	-0.1369		
809.83	28.46					0.1960	-0.1369		
839.83	28.98					0.1958	-0.1371		
869.83	29.49					0.1957	-0.1372		
899.83	30.00					0.1953	-0.1376		

Sample: Pond 11S, BH-1 @ 7.5 feet

Time (minutes)	Square Root of Time (minutes)	Test 5 @ 500 psf		Test 6 @ 1000 psf		Test 7 @ 2000 psf		Test 8 @ 4000 psf	
		Dial Reading (inches)	Deflection (inches)	Dial Reading (inches)	Deflection (inches)	Dial Reading (inches)	Deflection (inches)	Dial Reading (inches)	Deflection (inches)
0.00	0.00	0.4407	0.0000	0.3581	0.0000	0.2925	0.0000	0.2169	0.0000
0.17	0.41	0.4402	-0.0005	0.3581	0.0000	0.2925	0.0000	0.2169	0.0000
0.33	0.58	0.4346	-0.0061	0.3524	-0.0057	0.2835	-0.0090	0.2169	0.0000
0.50	0.71	0.4307	-0.0100	0.3489	-0.0092	0.2788	-0.0137	0.2169	0.0000
0.67	0.82	0.4276	-0.0131	0.3461	-0.0120	0.2739	-0.0186	0.2169	0.0000
0.83	0.91	0.4241	-0.0166	0.3433	-0.0148	0.2711	-0.0214	0.2169	0.0000
1.00	1.00	0.4217	-0.0190	0.3412	-0.0169	0.2690	-0.0235	0.1935	-0.0234
1.17	1.08	0.4217	-0.0190	0.3388	-0.0193	0.2655	-0.0270	0.1907	-0.0262
1.33	1.15	0.4217	-0.0190	0.3373	-0.0208	0.2637	-0.0288	0.1870	-0.0299
1.50	1.22	0.4149	-0.0258	0.3367	-0.0214	0.2610	-0.0315	0.1847	-0.0322
1.67	1.29	0.4129	-0.0278	0.3367	-0.0214	0.2596	-0.0329	0.1815	-0.0354
1.83	1.35	0.4113	-0.0294	0.3367	-0.0214	0.2572	-0.0353	0.1802	-0.0367
2.00	1.41	0.4097	-0.0310	0.3313	-0.0268	0.2559	-0.0366	0.1778	-0.0391
2.17	1.47	0.4077	-0.0330	0.3300	-0.0281	0.2540	-0.0385	0.1762	-0.0407
2.33	1.53	0.4067	-0.0340	0.3289	-0.0292	0.2528	-0.0397	0.1745	-0.0424
2.50	1.58	0.4054	-0.0353	0.3275	-0.0306	0.2528	-0.0397	0.1736	-0.0433
2.67	1.63	0.4047	-0.0360	0.3267	-0.0314	0.2528	-0.0397	0.1725	-0.0444
2.83	1.68	0.4027	-0.0380	0.3252	-0.0329	0.2528	-0.0397	0.1710	-0.0459
3.00	1.73	0.4018	-0.0389	0.3243	-0.0338	0.2528	-0.0397	0.1701	-0.0468
3.17	1.78	0.4006	-0.0401	0.3237	-0.0344	0.2475	-0.0450	0.1688	-0.0481
3.33	1.83	0.3995	-0.0412	0.3228	-0.0353	0.2463	-0.0462	0.1686	-0.0483
3.50	1.87	0.3995	-0.0412	0.3221	-0.0360	0.2456	-0.0469	0.1686	-0.0483
3.67	1.91	0.3995	-0.0412	0.3217	-0.0364	0.2447	-0.0478	0.1686	-0.0483
3.83	1.96	0.3995	-0.0412	0.3208	-0.0373	0.2441	-0.0484	0.1686	-0.0483
4.00	2.00	0.3995	-0.0412	0.3202	-0.0379	0.2437	-0.0488	0.1652	-0.0517
4.17	2.04	0.3995	-0.0412	0.3192	-0.0389	0.2428	-0.0497	0.1647	-0.0522
4.33	2.08	0.3995	-0.0412	0.3186	-0.0395	0.2424	-0.0501	0.1641	-0.0528
4.50	2.12	0.3995	-0.0412	0.3186	-0.0395	0.2417	-0.0508	0.1637	-0.0532
4.67	2.16	0.3995	-0.0412	0.3186	-0.0395	0.2413	-0.0512	0.1632	-0.0537
4.83	2.20	0.3995	-0.0412	0.3186	-0.0395	0.2408	-0.0517	0.1628	-0.0541
5.00	2.24	0.3891	-0.0516	0.3186	-0.0395	0.2404	-0.0521	0.1624	-0.0545
5.17	2.27	0.3887	-0.0520	0.3186	-0.0395	0.2399	-0.0526	0.1620	-0.0549
5.33	2.31	0.3887	-0.0520	0.3149	-0.0432	0.2396	-0.0529	0.1620	-0.0549
5.50	2.35	0.3887	-0.0520	0.3149	-0.0432	0.2394	-0.0531	0.1620	-0.0549
5.67	2.38	0.3887	-0.0520	0.3149	-0.0432	0.2394	-0.0531	0.1610	-0.0559
5.83	2.42	0.3887	-0.0520	0.3132	-0.0449	0.2394	-0.0531	0.1607	-0.0562
6.00	2.45	0.3887	-0.0520	0.3128	-0.0453	0.2394	-0.0531	0.1604	-0.0565
6.17	2.48	0.3887	-0.0520	0.3126	-0.0455	0.2378	-0.0547	0.1601	-0.0568
6.33	2.52	0.3887	-0.0520	0.3126	-0.0455	0.2376	-0.0549	0.1600	-0.0569
6.50	2.55	0.3887	-0.0520	0.3126	-0.0455	0.2373	-0.0552	0.1596	-0.0573
6.67	2.58	0.3887	-0.0520	0.3126	-0.0455	0.2369	-0.0556	0.1594	-0.0575
6.83	2.61	0.3887	-0.0520	0.3126	-0.0455	0.2368	-0.0557	0.1593	-0.0576
7.00	2.65	0.3887	-0.0520	0.3126	-0.0455	0.2366	-0.0559	0.1590	-0.0579
7.17	2.68	0.3887	-0.0520	0.3126	-0.0455	0.2363	-0.0562	0.1587	-0.0582
7.33	2.71	0.3887	-0.0520	0.3126	-0.0455	0.2361	-0.0564	0.1587	-0.0582
7.50	2.74	0.3887	-0.0520	0.3094	-0.0487	0.2358	-0.0567	0.1587	-0.0582
7.67	2.77	0.3887	-0.0520	0.3092	-0.0489	0.2357	-0.0568	0.1587	-0.0582
7.83	2.80	0.3887	-0.0520	0.3092	-0.0489	0.2355	-0.0570	0.1587	-0.0582
8.00	2.83	0.3887	-0.0520	0.3092	-0.0489	0.2353	-0.0572	0.1577	-0.0592
8.17	2.86	0.3778	-0.0629	0.308	-0.0501	0.2352	-0.0573	0.1577	-0.0592
8.33	2.89	0.3778	-0.0629	0.3083	-0.0498	0.2350	-0.0575	0.1577	-0.0592
8.50	2.92	0.3768	-0.0639	0.3080	-0.0501	0.2350	-0.0575	0.1577	-0.0592
8.67	2.94	0.3768	-0.0639	0.3078	-0.0503	0.2350	-0.0575	0.1577	-0.0592
8.83	2.97	0.3768	-0.0639	0.3075	-0.0506	0.2350	-0.0575	0.1577	-0.0592
9.00	3.00	0.3768	-0.0639	0.3075	-0.0506	0.2343	-0.0582	0.1577	-0.0592
9.17	3.03	0.3768	-0.0639	0.3075	-0.0506	0.2342	-0.0583	0.1567	-0.0602
9.33	3.06	0.3768	-0.0639	0.3075	-0.0506	0.2340	-0.0585	0.1567	-0.0602
9.50	3.08	0.3768	-0.0639	0.3069	-0.0512	0.2338	-0.0587	0.1567	-0.0602
9.67	3.11	0.3744	-0.0663	0.3069	-0.0512	0.2337	-0.0588	0.1567	-0.0602
9.83	3.14	0.3744	-0.0663	0.3069	-0.0512	0.2335	-0.0590	0.1567	-0.0602
10.00	3.16	0.3744	-0.0663	0.3069	-0.0512	0.2334	-0.0591	0.1567	-0.0602
10.17	3.19	0.3744	-0.0663	0.306	-0.0521	0.2333	-0.0592	0.1567	-0.0602
10.33	3.21	0.3744	-0.0663	0.3060	-0.0521	0.2332	-0.0593	0.1567	-0.0602
10.50	3.24	0.3744	-0.0663	0.3060	-0.0521	0.2330	-0.0595	0.1567	-0.0602
10.67	3.27	0.3744	-0.0663	0.3060	-0.0521	0.2329	-0.0596	0.1556	-0.0613

Sample: Pond 11S, BH-1 @ 7.5 feet

Time (minutes)	Square Root of Time (minutes)	Test 5 @ 500 psf		Test 6 @ 1000 psf		Test 7 @ 2000 psf		Test 8 @ 4000 psf	
		Dial Reading (inches)	Deflection (inches)	Dial Reading (inches)	Deflection (inches)	Dial Reading (inches)	Deflection (inches)	Dial Reading (inches)	Deflection (inches)
10.83	3.29	0.3726	-0.0681	0.3056	-0.0525	0.2328	-0.0597	0.1555	-0.0614
11.00	3.32	0.3726	-0.0681	0.3054	-0.0527	0.2327	-0.0598	0.1554	-0.0615
11.17	3.34	0.3722	-0.0685	0.3053	-0.0528	0.2326	-0.0599	0.1554	-0.0615
11.33	3.37	0.3722	-0.0685	0.3053	-0.0528	0.2325	-0.0600	0.1554	-0.0615
11.50	3.39	0.3722	-0.0685	0.3053	-0.0528	0.2324	-0.0601	0.1554	-0.0615
11.67	3.42	0.3722	-0.0685	0.3053	-0.0528	0.2323	-0.0602	0.1554	-0.0615
11.83	3.44	0.3722	-0.0685	0.3053	-0.0528	0.2321	-0.0604	0.1554	-0.0615
12.00	3.46	0.3722	-0.0685	0.3053	-0.0528	0.2321	-0.0604	0.1554	-0.0615
12.17	3.49	0.3722	-0.0685	0.3053	-0.0528	0.2319	-0.0606	0.1548	-0.0621
12.33	3.51	0.3722	-0.0685	0.3053	-0.0528	0.2319	-0.0606	0.1547	-0.0622
12.50	3.54	0.3722	-0.0685	0.3053	-0.0528	0.2318	-0.0607	0.1546	-0.0623
12.67	3.56	0.3722	-0.0685	0.3043	-0.0538	0.2317	-0.0608	0.1546	-0.0623
12.83	3.58	0.3722	-0.0685	0.3043	-0.0538	0.2317	-0.0608	0.1546	-0.0623
13.00	3.61	0.3722	-0.0685	0.3043	-0.0538	0.2316	-0.0609	0.1546	-0.0623
13.17	3.63	0.3722	-0.0685	0.3043	-0.0538	0.2315	-0.0610	0.1546	-0.0623
13.33	3.65	0.3722	-0.0685	0.3043	-0.0538	0.2314	-0.0611	0.1546	-0.0623
13.50	3.67	0.3699	-0.0708	0.3043	-0.0538	0.2313	-0.0612	0.1542	-0.0627
13.67	3.70	0.3699	-0.0708	0.3043	-0.0538	0.2312	-0.0613	0.1541	-0.0628
13.83	3.72	0.3699	-0.0708	0.3043	-0.0538	0.2311	-0.0614	0.1540	-0.0629
14.00	3.74	0.3694	-0.0713	0.3037	-0.0544	0.2311	-0.0614	0.1540	-0.0629
14.17	3.76	0.3693	-0.0714	0.3035	-0.0546	0.2310	-0.0615	0.1539	-0.0630
14.33	3.79	0.3692	-0.0715	0.3034	-0.0547	0.2309	-0.0616	0.1539	-0.0630
14.50	3.81	0.3692	-0.0715	0.3034	-0.0547	0.2308	-0.0617	0.1539	-0.0630
14.67	3.83	0.3692	-0.0715	0.3034	-0.0547	0.2308	-0.0617	0.1537	-0.0632
14.83	3.85	0.3692	-0.0715	0.3034	-0.0547	0.2308	-0.0617	0.1536	-0.0633
15.33	3.92	0.3688	-0.0719	0.3034	-0.0547	0.2306	-0.0619	0.1535	-0.0634
15.83	3.98	0.3683	-0.0724	0.3030	-0.0551	0.2304	-0.0621	0.1535	-0.0634
16.33	4.04	0.3681	-0.0726	0.3030	-0.0551	0.2302	-0.0623	0.1532	-0.0637
16.83	4.10	0.3681	-0.0726	0.3025	-0.0556	0.2300	-0.0625	0.1532	-0.0637
17.33	4.16	0.3674	-0.0733	0.3025	-0.0556	0.2300	-0.0625	0.1532	-0.0637
17.83	4.22	0.3673	-0.0734	0.3022	-0.0559	0.2298	-0.0627	0.1526	-0.0643
18.33	4.28	0.3673	-0.0734	0.3020	-0.0561	0.2298	-0.0627	0.1526	-0.0643
18.83	4.34	0.3673	-0.0734	0.3020	-0.0561	0.2295	-0.0630	0.1526	-0.0643
19.33	4.40	0.3673	-0.0734	0.3020	-0.0561	0.2295	-0.0630	0.1526	-0.0643
19.83	4.45	0.3664	-0.0743	0.3020	-0.0561	0.2292	-0.0633	0.1526	-0.0643
20.33	4.51	0.3664	-0.0743	0.3020	-0.0561	0.2291	-0.0634	0.1521	-0.0648
20.83	4.56	0.3664	-0.0743	0.3020	-0.0561	0.2291	-0.0634	0.1521	-0.0648
21.33	4.62	0.3664	-0.0743	0.3020	-0.0561	0.2289	-0.0636	0.1518	-0.0651
21.83	4.67	0.3658	-0.0749	0.301	-0.0571	0.2288	-0.0637	0.1517	-0.0652
22.33	4.73	0.3657	-0.0750	0.3011	-0.0570	0.2287	-0.0638	0.1517	-0.0652
22.83	4.78	0.3657	-0.0750	0.3011	-0.0570	0.2287	-0.0638	0.1515	-0.0654
23.33	4.83	0.3657	-0.0750	0.3011	-0.0570	0.2285	-0.0640	0.1514	-0.0655
23.83	4.88	0.3657	-0.0750	0.3007	-0.0574	0.2285	-0.0640	0.1513	-0.0656
24.33	4.93	0.3657	-0.0750	0.3007	-0.0574	0.2282	-0.0643	0.1513	-0.0656
24.83	4.98	0.3657	-0.0750	0.3005	-0.0576	0.2282	-0.0643	0.1513	-0.0656
25.33	5.03	0.3649	-0.0758	0.3005	-0.0576	0.2282	-0.0643	0.1513	-0.0656
25.83	5.08	0.3649	-0.0758	0.3004	-0.0577	0.2280	-0.0645	0.1509	-0.0660
26.33	5.13	0.3648	-0.0759	0.3004	-0.0577	0.2280	-0.0645	0.1509	-0.0660
26.83	5.18	0.3648	-0.0759	0.3004	-0.0577	0.2278	-0.0647	0.1509	-0.0660
27.33	5.23	0.3648	-0.0759	0.3001	-0.0580	0.2278	-0.0647	0.1507	-0.0662
27.83	5.28	0.3648	-0.0759	0.3001	-0.0580	0.2278	-0.0647	0.1506	-0.0663
28.33	5.32	0.3648	-0.0759	0.2999	-0.0582	0.2276	-0.0649	0.1506	-0.0663
28.83	5.37	0.3644	-0.0763	0.2998	-0.0583	0.2276	-0.0649	0.1505	-0.0664
29.33	5.42	0.3643	-0.0764	0.2998	-0.0583	0.2274	-0.0651	0.1504	-0.0665
29.83	5.46	0.3643	-0.0764	0.2998	-0.0583	0.2274	-0.0651	0.1503	-0.0666
30.33	5.51	0.3642	-0.0765	0.2997	-0.0584	0.2273	-0.0652	0.1502	-0.0667
30.83	5.55	0.3641	-0.0766	0.2997	-0.0584	0.2273	-0.0652	0.1501	-0.0668
31.33	5.60	0.3641	-0.0766	0.2997	-0.0584	0.2273	-0.0652	0.1501	-0.0668
31.83	5.64	0.3641	-0.0766	0.2995	-0.0586	0.2271	-0.0654	0.1501	-0.0668
32.33	5.69	0.3640	-0.0767	0.2995	-0.0586	0.2270	-0.0655	0.1499	-0.0670
32.83	5.73	0.3640	-0.0767	0.2995	-0.0586	0.2269	-0.0656	0.1499	-0.0670
33.33	5.77	0.3640	-0.0767	0.2993	-0.0588	0.2269	-0.0656	0.1499	-0.0670
33.83	5.82	0.3639	-0.0768	0.2993	-0.0588	0.2268	-0.0657	0.1499	-0.0670
34.33	5.86	0.3639	-0.0768	0.2993	-0.0588	0.2268	-0.0657	0.1497	-0.0672
34.83	5.90	0.3638	-0.0769	0.2993	-0.0588	0.2268	-0.0657	0.1497	-0.0672

Sample: Pond 11S, BH-1 @ 7.5 feet

Time (minutes)	Square Root of Time (minutes)	Test 5 @ 500 psf		Test 6 @ 1000 psf		Test 7 @ 2000 psf		Test 8 @ 4000 psf	
		Dial Reading (inches)	Deflection (inches)	Dial Reading (inches)	Deflection (inches)	Dial Reading (inches)	Deflection (inches)	Dial Reading (inches)	Deflection (inches)
35.33	5.94	0.3637	-0.0770	0.2993	-0.0588	0.2268	-0.0657	0.1497	-0.0672
35.83	5.99	0.3637	-0.0770	0.2990	-0.0591	0.2268	-0.0657	0.1497	-0.0672
36.33	6.03	0.3637	-0.0770	0.2989	-0.0592	0.2265	-0.0660	0.1494	-0.0675
36.83	6.07	0.3636	-0.0771	0.2989	-0.0592	0.2265	-0.0660	0.1494	-0.0675
37.33	6.11	0.3635	-0.0772	0.2989	-0.0592	0.2265	-0.0660	0.1493	-0.0676
37.83	6.15	0.3634	-0.0773	0.2988	-0.0593	0.2264	-0.0661	0.1493	-0.0676
38.33	6.19	0.3634	-0.0773	0.2988	-0.0593	0.2264	-0.0661	0.1493	-0.0676
38.83	6.23	0.3634	-0.0773	0.2988	-0.0593	0.2264	-0.0661	0.1493	-0.0676
39.33	6.27	0.3634	-0.0773	0.2988	-0.0593	0.2263	-0.0662	0.1490	-0.0679
39.83	6.31	0.3634	-0.0773	0.2987	-0.0594	0.2263	-0.0662	0.1490	-0.0679
40.33	6.35	0.3634	-0.0773	0.2987	-0.0594	0.2261	-0.0664	0.1490	-0.0679
40.83	6.39	0.3632	-0.0775	0.2986	-0.0595	0.2261	-0.0664	0.1490	-0.0679
41.33	6.43	0.3632	-0.0775	0.2986	-0.0595	0.2260	-0.0665	0.1490	-0.0679
41.83	6.47	0.3632	-0.0775	0.2986	-0.0595	0.2260	-0.0665	0.1490	-0.0679
42.33	6.51	0.3632	-0.0775	0.2985	-0.0596	0.2260	-0.0665	0.1490	-0.0679
42.83	6.54	0.3631	-0.0776	0.2985	-0.0596	0.2260	-0.0665	0.1487	-0.0682
43.33	6.58	0.3631	-0.0776	0.2985	-0.0596	0.2260	-0.0665	0.1487	-0.0682
43.83	6.62	0.3631	-0.0776	0.2984	-0.0597	0.2260	-0.0665	0.1486	-0.0683
44.33	6.66	0.3630	-0.0777	0.2984	-0.0597	0.2260	-0.0665	0.1486	-0.0683
44.83	6.70	0.3630	-0.0777	0.2984	-0.0597	0.2256	-0.0669	0.1485	-0.0684
45.33	6.73	0.3630	-0.0777	0.2983	-0.0598	0.2256	-0.0669	0.1484	-0.0685
45.83	6.77	0.3630	-0.0777	0.2983	-0.0598	0.2256	-0.0669	0.1484	-0.0685
46.33	6.81	0.3630	-0.0777	0.2983	-0.0598	0.2256	-0.0669	0.1484	-0.0685
46.83	6.84	0.3630	-0.0777	0.2981	-0.0600	0.2256	-0.0669	0.1484	-0.0685
47.33	6.88	0.3630	-0.0777	0.2981	-0.0600	0.2256	-0.0669	0.1483	-0.0686
47.83	6.92	0.3630	-0.0777	0.2981	-0.0600	0.2255	-0.0670	0.1483	-0.0686
48.33	6.95	0.3628	-0.0779	0.2981	-0.0600	0.2254	-0.0671	0.1481	-0.0688
48.83	6.99	0.3628	-0.0779	0.2981	-0.0600	0.2254	-0.0671	0.1481	-0.0688
49.33	7.02	0.3628	-0.0779	0.2981	-0.0600	0.2254	-0.0671	0.1481	-0.0688
49.83	7.06	0.3628	-0.0779	0.2979	-0.0602	0.2253	-0.0672	0.1481	-0.0688
50.33	7.09	0.3627	-0.0780	0.2979	-0.0602	0.2253	-0.0672	0.1480	-0.0689
50.83	7.13	0.3627	-0.0780	0.2979	-0.0602	0.2253	-0.0672	0.1480	-0.0689
51.33	7.16	0.3627	-0.0780	0.2979	-0.0602	0.2252	-0.0673	0.1480	-0.0689
51.83	7.20	0.3627	-0.0780	0.2979	-0.0602	0.2252	-0.0673	0.1480	-0.0689
52.33	7.23	0.3627	-0.0780	0.2979	-0.0602	0.2251	-0.0674	0.1479	-0.0690
52.83	7.27	0.3625	-0.0782	0.2979	-0.0602	0.2251	-0.0674	0.1479	-0.0690
53.33	7.30	0.3625	-0.0782	0.2978	-0.0603	0.2251	-0.0674	0.1478	-0.0691
53.83	7.34	0.3625	-0.0782	0.2978	-0.0603	0.2250	-0.0675	0.1478	-0.0691
54.33	7.37	0.3625	-0.0782	0.2978	-0.0603	0.2250	-0.0675	0.1478	-0.0691
54.83	7.40	0.3625	-0.0782	0.2978	-0.0603	0.2250	-0.0675	0.1478	-0.0691
55.33	7.44	0.3625	-0.0782	0.2978	-0.0603	0.2249	-0.0676	0.1476	-0.0693
55.83	7.47	0.3625	-0.0782	0.2977	-0.0604	0.2249	-0.0676	0.1476	-0.0693
56.33	7.51	0.3625	-0.0782	0.2977	-0.0604	0.2248	-0.0677	0.1476	-0.0693
56.83	7.54	0.3624	-0.0783	0.2976	-0.0605	0.2248	-0.0677	0.1475	-0.0694
57.33	7.57	0.3623	-0.0784	0.2976	-0.0605	0.2248	-0.0677	0.1475	-0.0694
57.83	7.60	0.3623	-0.0784	0.2976	-0.0605	0.2248	-0.0677	0.1475	-0.0694
58.33	7.64	0.3623	-0.0784	0.2975	-0.0606	0.2247	-0.0678	0.1474	-0.0695
58.83	7.67	0.3623	-0.0784	0.2975	-0.0606	0.2247	-0.0678	0.1474	-0.0695
59.33	7.70	0.3623	-0.0784	0.2975	-0.0606	0.2247	-0.0678	0.1474	-0.0695
59.83	7.74	0.3623	-0.0784	0.2975	-0.0606	0.2247	-0.0678	0.1474	-0.0695
60.83	7.80	0.3623	-0.0784	0.2974	-0.0607	0.2246	-0.0679	0.1472	-0.0697
61.83	7.86	0.3623	-0.0784	0.2973	-0.0608	0.2245	-0.0680	0.1472	-0.0697
62.83	7.93	0.3622	-0.0785	0.2973	-0.0608	0.2245	-0.0680	0.1472	-0.0697
63.83	7.99	0.3622	-0.0785	0.2973	-0.0608	0.2244	-0.0681	0.1471	-0.0698
64.83	8.05	0.3622	-0.0785	0.2972	-0.0609	0.2243	-0.0682	0.1470	-0.0699
65.83	8.11	0.3621	-0.0786	0.2971	-0.0610	0.2243	-0.0682	0.1470	-0.0699
66.83	8.18	0.3621	-0.0786	0.2971	-0.0610	0.2242	-0.0683	0.1469	-0.0700
67.83	8.24	0.3621	-0.0786	0.2970	-0.0611	0.2242	-0.0683	0.1468	-0.0701
68.83	8.30	0.3620	-0.0787	0.2970	-0.0611	0.2241	-0.0684	0.1468	-0.0701
69.83	8.36	0.3620	-0.0787	0.2970	-0.0611	0.2241	-0.0684	0.1467	-0.0702
70.83	8.42	0.3620	-0.0787	0.2970	-0.0611	0.2240	-0.0685	0.1467	-0.0702
71.83	8.48	0.3619	-0.0788	0.2970	-0.0611	0.2239	-0.0686	0.1466	-0.0703
72.83	8.53	0.3619	-0.0788	0.2969	-0.0612	0.2239	-0.0686	0.1466	-0.0703
73.83	8.59	0.3619	-0.0788	0.2969	-0.0612	0.2239	-0.0686	0.1466	-0.0703
74.83	8.65	0.3619	-0.0788	0.2968	-0.0613	0.2239	-0.0686	0.1466	-0.0703

Sample: Pond 11S, BH-1 @ 7.5 feet

Time (minutes)	Square Root of Time (minutes)	Test 5 @ 500 psf		Test 6 @ 1000 psf		Test 7 @ 2000 psf		Test 8 @ 4000 psf	
		Dial Reading (inches)	Deflection (inches)	Dial Reading (inches)	Deflection (inches)	Dial Reading (inches)	Deflection (inches)	Dial Reading (inches)	Deflection (inches)
75.83	8.71	0.3619	-0.0788	0.2968	-0.0613	0.2239	-0.0686	0.1465	-0.0704
76.83	8.77	0.3618	-0.0789	0.2968	-0.0613	0.2238	-0.0687	0.1465	-0.0704
77.83	8.82	0.3618	-0.0789	0.2967	-0.0614	0.2238	-0.0687	0.1464	-0.0705
78.83	8.88	0.3618	-0.0789	0.2967	-0.0614	0.2238	-0.0687	0.1464	-0.0705
79.83	8.93	0.3618	-0.0789	0.2967	-0.0614	0.2238	-0.0687	0.1463	-0.0706
80.83	8.99	0.3617	-0.0790	0.2967	-0.0614	0.2238	-0.0687	0.1463	-0.0706
81.83	9.05	0.3617	-0.0790	0.2966	-0.0615	0.2236	-0.0689	0.1463	-0.0706
82.83	9.10	0.3617	-0.0790	0.2966	-0.0615	0.2235	-0.0690	0.1462	-0.0707
83.83	9.16	0.3617	-0.0790	0.2965	-0.0616	0.2235	-0.0690	0.1462	-0.0707
84.83	9.21	0.3617	-0.0790	0.2965	-0.0616	0.2235	-0.0690	0.1461	-0.0708
85.83	9.26	0.3617	-0.0790	0.2965	-0.0616	0.2234	-0.0691	0.1461	-0.0708
86.83	9.32	0.3616	-0.0791	0.2965	-0.0616	0.2233	-0.0692	0.1460	-0.0709
87.83	9.37	0.3616	-0.0791	0.2964	-0.0617	0.2233	-0.0692	0.1460	-0.0709
88.83	9.43	0.3616	-0.0791	0.2964	-0.0617	0.2233	-0.0692	0.1459	-0.0710
89.83	9.48	0.3616	-0.0791	0.2964	-0.0617	0.2232	-0.0693	0.1459	-0.0710
90.83	9.53	0.3616	-0.0791	0.2964	-0.0617	0.2232	-0.0693	0.1458	-0.0711
91.83	9.58	0.3615	-0.0792	0.2963	-0.0618	0.2232	-0.0693	0.1458	-0.0711
92.83	9.64	0.3615	-0.0792	0.2963	-0.0618	0.2231	-0.0694	0.1457	-0.0712
93.83	9.69	0.3615	-0.0792	0.2963	-0.0618	0.2231	-0.0694	0.1457	-0.0712
94.83	9.74	0.3615	-0.0792	0.2962	-0.0619	0.2230	-0.0695	0.1456	-0.0713
95.83	9.79	0.3615	-0.0792	0.2962	-0.0619	0.2230	-0.0695	0.1456	-0.0713
96.83	9.84	0.3615	-0.0792	0.2962	-0.0619	0.2230	-0.0695	0.1456	-0.0713
97.83	9.89	0.3615	-0.0792	0.2962	-0.0619	0.2230	-0.0695	0.1455	-0.0714
98.83	9.94	0.3615	-0.0792	0.2962	-0.0619	0.2230	-0.0695	0.1455	-0.0714
99.83	9.99	0.3615	-0.0792	0.2961	-0.0620	0.2230	-0.0695	0.1455	-0.0714
100.83	10.04	0.3615	-0.0792	0.2961	-0.0620	0.2230	-0.0695	0.1455	-0.0714
101.83	10.09	0.3614	-0.0793	0.2961	-0.0620	0.2229	-0.0696	0.1455	-0.0714
102.83	10.14	0.3614	-0.0793	0.2961	-0.0620	0.2228	-0.0697	0.1455	-0.0714
103.83	10.19	0.3614	-0.0793	0.2960	-0.0621	0.2228	-0.0697	0.1454	-0.0715
104.83	10.24	0.3614	-0.0793	0.2960	-0.0621	0.2228	-0.0697	0.1454	-0.0715
105.83	10.29	0.3614	-0.0793	0.2960	-0.0621	0.2227	-0.0698	0.1454	-0.0715
106.83	10.34	0.3614	-0.0793	0.2960	-0.0621	0.2227	-0.0698	0.1453	-0.0716
107.83	10.38	0.3614	-0.0793	0.2960	-0.0621	0.2227	-0.0698	0.1453	-0.0716
108.83	10.43	0.3613	-0.0794	0.2960	-0.0621	0.2227	-0.0698	0.1453	-0.0716
109.83	10.48	0.3613	-0.0794	0.2959	-0.0622	0.2226	-0.0699	0.1453	-0.0716
110.83	10.53	0.3613	-0.0794	0.2959	-0.0622	0.2226	-0.0699	0.1453	-0.0716
111.83	10.58	0.3613	-0.0794	0.2958	-0.0623	0.2226	-0.0699	0.1451	-0.0718
112.83	10.62	0.3613	-0.0794	0.2958	-0.0623	0.2225	-0.0700	0.1451	-0.0718
113.83	10.67	0.3613	-0.0794	0.2958	-0.0623	0.2225	-0.0700	0.1451	-0.0718
114.83	10.72	0.3613	-0.0794	0.2957	-0.0624	0.2224	-0.0701	0.1450	-0.0719
115.83	10.76	0.3613	-0.0794	0.2957	-0.0624	0.2224	-0.0701	0.1450	-0.0719
116.83	10.81	0.3612	-0.0795	0.2956	-0.0625	0.2224	-0.0701	0.1450	-0.0719
117.83	10.86	0.3612	-0.0795	0.2956	-0.0625	0.2224	-0.0701	0.1450	-0.0719
118.83	10.90	0.3612	-0.0795	0.2956	-0.0625	0.2223	-0.0702	0.1449	-0.0720
119.83	10.95	0.3612	-0.0795	0.2956	-0.0625	0.2223	-0.0702	0.1449	-0.0720
129.83	11.39	0.3611	-0.0796	0.2953	-0.0628	0.2221	-0.0704	0.1446	-0.0723
139.83	11.83	0.3609	-0.0798	0.2952	-0.0629	0.2219	-0.0706	0.1444	-0.0725
149.83	12.24	0.3608	-0.0799	0.2950	-0.0631	0.2216	-0.0709	0.1442	-0.0727
159.83	12.64	0.3608	-0.0799	0.2949	-0.0632	0.2214	-0.0711	0.1440	-0.0729
169.83	13.03	0.3607	-0.0800	0.2946	-0.0635	0.2212	-0.0713	0.1438	-0.0731
179.83	13.41	0.3606	-0.0801	0.2945	-0.0636	0.2212	-0.0713	0.1437	-0.0732
189.83	13.78	0.3605	-0.0802	0.2944	-0.0637	0.2210	-0.0715	0.1435	-0.0734
199.83	14.14	0.3603	-0.0804	0.2944	-0.0637	0.2208	-0.0717	0.1432	-0.0737
209.83	14.49	0.3603	-0.0804	0.2943	-0.0638	0.2206	-0.0719	0.1431	-0.0738
219.83	14.83	0.3602	-0.0805	0.2942	-0.0639	0.2205	-0.0720	0.1429	-0.0740
229.83	15.16	0.3601	-0.0806	0.2941	-0.0640	0.2204	-0.0721	0.1428	-0.0741
239.83	15.49	0.3600	-0.0807	0.2939	-0.0642	0.2203	-0.0722	0.1427	-0.0742
249.83	15.81	0.3600	-0.0807	0.2938	-0.0643	0.2202	-0.0723	0.1425	-0.0744
259.83	16.12	0.3598	-0.0809	0.2938	-0.0643	0.2200	-0.0725	0.1424	-0.0745
269.83	16.43	0.3598	-0.0809	0.2937	-0.0644	0.2199	-0.0726	0.1423	-0.0746
279.83	16.73	0.3597	-0.0810	0.2936	-0.0645	0.2198	-0.0727	0.1421	-0.0748
289.83	17.02	0.3597	-0.0810	0.2936	-0.0645	0.2197	-0.0728	0.1420	-0.0749
299.83	17.32	0.3597	-0.0810	0.2935	-0.0646	0.2196	-0.0729	0.1420	-0.0749
309.83	17.60	0.3597	-0.0810	0.2935	-0.0646	0.2195	-0.0730	0.1418	-0.0751
319.83	17.88	0.3597	-0.0810	0.2934	-0.0647	0.2195	-0.0730	0.1417	-0.0752

Sample: Pond 11S, BH-1 @ 7.5 feet

Time (minutes)	Square Root of Time (minutes)	Test 5 @ 500 psf		Test 6 @ 1000 psf		Test 7 @ 2000 psf		Test 8 @ 4000 psf	
		Dial Reading (inches)	Deflection (inches)	Dial Reading (inches)	Deflection (inches)	Dial Reading (inches)	Deflection (inches)	Dial Reading (inches)	Deflection (inches)
329.83	18.16	0.3597	-0.0810	0.2933	-0.0648	0.2194	-0.0731	0.1417	-0.0752
339.83	18.43	0.3596	-0.0811	0.2933	-0.0648	0.2194	-0.0731	0.1415	-0.0754
349.83	18.70	0.3596	-0.0811	0.2932	-0.0649	0.2193	-0.0732	0.1414	-0.0755
359.83	18.97	0.3596	-0.0811	0.2932	-0.0649	0.2192	-0.0733	0.1413	-0.0756
369.83	19.23	0.3595	-0.0812	0.2931	-0.0650	0.2192	-0.0733	0.1412	-0.0757
379.83	19.49	0.3595	-0.0812	0.2931	-0.0650	0.2190	-0.0735	0.1411	-0.0758
389.83	19.74	0.3595	-0.0812	0.2930	-0.0651	0.2190	-0.0735	0.1411	-0.0758
399.83	20.00	0.3594	-0.0813	0.2929	-0.0652	0.2189	-0.0736	0.1411	-0.0758
409.83	20.24	0.3594	-0.0813	0.2929	-0.0652	0.2189	-0.0736	0.1410	-0.0759
419.83	20.49	0.3594	-0.0813	0.2928	-0.0653	0.2188	-0.0737	0.1409	-0.0760
429.83	20.73	0.3593	-0.0814	0.2928	-0.0653	0.2188	-0.0737	0.1408	-0.0761
439.83	20.97	0.3592	-0.0815	0.2927	-0.0654	0.2187	-0.0738	0.1407	-0.0762
449.83	21.21	0.3592	-0.0815	0.2927	-0.0654	0.2187	-0.0738	0.1407	-0.0762
459.83	21.44	0.3592	-0.0815	0.2927	-0.0654	0.2186	-0.0739	0.1405	-0.0764
469.83	21.68	0.3592	-0.0815	0.2926	-0.0655	0.2186	-0.0739	0.1405	-0.0764
479.83	21.91	0.3591	-0.0816	0.2926	-0.0655	0.2186	-0.0739	0.1404	-0.0765
489.83	22.13	0.3591	-0.0816			0.2185	-0.0740	0.1403	-0.0766
499.83	22.36	0.3591	-0.0816			0.2185	-0.0740	0.1403	-0.0766
509.83	22.58	0.3591	-0.0816			0.2184	-0.0741	0.1403	-0.0766
519.83	22.80	0.3591	-0.0816			0.2184	-0.0741	0.1403	-0.0766
529.83	23.02	0.3591	-0.0816			0.2184	-0.0741	0.1402	-0.0767
539.83	23.23	0.3591	-0.0816			0.2184	-0.0741	0.1402	-0.0767
549.83	23.45	0.3591	-0.0816			0.2184	-0.0741	0.1401	-0.0768
559.83	23.66	0.3590	-0.0817			0.2183	-0.0742	0.1401	-0.0768
569.83	23.87	0.3590	-0.0817			0.2183	-0.0742	0.1401	-0.0768
579.83	24.08	0.3590	-0.0817			0.2183	-0.0742	0.1400	-0.0769
589.83	24.29	0.3590	-0.0817			0.2182	-0.0743	0.1400	-0.0769
599.83	24.49	0.3589	-0.0818			0.2182	-0.0743	0.1399	-0.0770
609.83	24.69	0.3589	-0.0818			0.2182	-0.0743	0.1399	-0.0770
619.83	24.90	0.3589	-0.0818			0.2182	-0.0743	0.1398	-0.0771
629.83	25.10	0.3589	-0.0818			0.2181	-0.0744	0.1398	-0.0771
639.83	25.29	0.3588	-0.0819			0.2181	-0.0744	0.1398	-0.0771
649.83	25.49	0.3589	-0.0818			0.2180	-0.0745	0.1397	-0.0772
659.83	25.69	0.3588	-0.0819			0.2180	-0.0745	0.1397	-0.0772
669.83	25.88	0.3588	-0.0819			0.2180	-0.0745	0.1397	-0.0772
679.83	26.07	0.3588	-0.0819			0.2180	-0.0745	0.1396	-0.0773
689.83	26.26	0.3587	-0.0820			0.2180	-0.0745	0.1396	-0.0773
699.83	26.45	0.3588	-0.0819			0.2180	-0.0745	0.1395	-0.0774
709.83	26.64	0.3588	-0.0819			0.2179	-0.0746	0.1395	-0.0774
719.83	26.83	0.3587	-0.0820			0.2179	-0.0746	0.1395	-0.0774
749.83	27.38	0.3587	-0.0820			0.2178	-0.0747	0.1394	-0.0775
779.83	27.93	0.3587	-0.0820			0.2178	-0.0747	0.1394	-0.0775
809.83	28.46	0.3586	-0.0821			0.2178	-0.0747	0.1394	-0.0775
839.83	28.98	0.3586	-0.0821			0.2177	-0.0748	0.1394	-0.0775
869.83	29.49	0.3585	-0.0822			0.2177	-0.0748	0.1393	-0.0776
899.83	30.00	0.3584	-0.0823			0.2176	-0.0749	0.1393	-0.0776
929.83	30.49	0.3584	-0.0823			0.2175	-0.0750	0.1392	-0.0777
959.83	30.98	0.3583	-0.0824			0.2175	-0.0750	0.1391	-0.0778
989.83	31.46	0.3583	-0.0824			0.2174	-0.0751	0.1391	-0.0778
1019.83	31.93	0.3583	-0.0824			0.2174	-0.0751	0.1390	-0.0779
1049.83	32.40	0.3582	-0.0825			0.2173	-0.0752	0.1389	-0.0780
1079.83	32.86	0.3582	-0.0825			0.2172	-0.0753	0.1389	-0.0780
1109.83	33.31	0.3581	-0.0826			0.2172	-0.0753	0.1389	-0.0780
1139.83	33.76					0.2170	-0.0755	0.1388	-0.0781
1169.83	34.20					0.2170	-0.0755	0.1388	-0.0781
1199.83	34.64					0.2170	-0.0755	0.1387	-0.0782
1229.83	35.07					0.2170	-0.0755	0.1386	-0.0783
1259.83	35.49					0.2169	-0.0756		

One Dimensional Consolidation

Project No.	973376
Project	FMC
Sample ID	Pond 12S, BH-1 @ 13.5 feet
Sample Ht.	1.580 (in)
Sample Dia.	4.000 (in)
Sample Area	0.087 (sq-ft)
Sample Vol.	0.011 (cu-ft)
Phos Cont.	6.11 (%)
Init. M.C.	172.55 (%)
Init. M.C. (corr)	133.64 (%)
Final M.C.	80.58 (%)
Final M.C. (corr)	62.63 (%)
Dry Wt. of Soil/f	256.89 (g)
Dry Wt. of Soil/i	192.06 (g)
Spec. Grav.	2.79
Pocket Pen.	(tsf)

Moisture Content Weights	
(initial)	
Total Wet Wt. (g)	22.24
Phos. Wt. (g)	1.36
Dry Wt. (g)	8.16
Dry Wt. + Phos Wt. (g)	9.52
Water Wt. + Phos (g)	14 08
Water Wt. (g)	12.72
(final)	
Total Wet Wt. (g)	29.47
Phos. Wt. (g)	1.80
Dry Wt. (g)	16.32
Dry Wt. + Phos Wt. (g)	18.12
Water Wt. + Phos (g)	13.15
Water Wt. (g)	11.35

Pressure (ksf)	Final Dial Reading (inches)	Deformation (inches)	Sample Ht. (inches)	Strain (%)	Void Ratio (e)	Dry Density (pcf)	Void Ratio (e)	Dry Density (pcf)
					Calc. from final MC		Calc. from initial MC	
0.0010	0.4292	0.0000	1.5800	0	2.535	49.25	3.729	36.82
0.0250	0.4126	0.0166	1.5634	1.05	2.498	49.77	3.679	37.21
0.0500	0.3636	0.0243	1.5557	1.54	2.481	50.01	3.656	37.39
0.1000	0.3262	0.0360	1.5440	2.28	2.455	50.39	3.621	37.68
0.2500	0.2717	0.0575	1.5225	3.64	2.407	51.11	3.557	38.21
0.5000	0.1400	0.1355	1.4445	8.58	2.232	53.86	3.323	40.27
1.0000	0.0730	0.2111	1.3689	13.36	2.063	56.84	3.097	42.50
2.0000	0.3680	0.2873	1.2927	18.18	1.892	60.19	2.869	45.00
4.0000	0.2914	0.3521	1.2279	22.28	1.747	63.37	2.675	47.38

Note: Initial MC not taken from actual sample tested, but from same sample jar.
Final MC taken from actual sample tested.
Void Ratio (e), calculated from final MC likely to be most accurate.
Final data readings may vary when compared to deformation values due to resetting the dial. The deformation values are based on the actual data in Appendix E.

Sample: Pond 12S, BH-1 @ 13.5 feet

Time (minutes)	Square Root of Time (minutes)	Test 1 @ 25 psf		Test 2 @ 50 psf		Test 3 @ 100 psf		Test 4 @ 250 psf	
		Dial Reading (inches)	Deflection (inches)	Dial Reading (inches)	Deflection (inches)	Dial Reading (inches)	Deflection (inches)	Dial Reading (inches)	Deflection (inches)
0.00	0.00	0.4292	0.0000	0.3713	0.0000	0.3379	0.0000	0.2932	0.0000
0.17	0.41	0.4292	0.0000	0.3713	0.0000	0.3379	0.0000	0.2932	0.0000
0.33	0.58	0.4244	-0.0048	0.3699	-0.0014	0.3359	-0.0020	0.2866	-0.0066
0.50	0.71	0.4242	-0.0050	0.3689	-0.0024	0.3350	-0.0029	0.2850	-0.0082
0.67	0.82	0.4229	-0.0063	0.3686	-0.0027	0.3342	-0.0037	0.2830	-0.0102
0.83	0.91	0.4224	-0.0068	0.3681	-0.0032	0.3342	-0.0037	0.2797	-0.0135
1.00	1.00	0.4215	-0.0077	0.3676	-0.0037	0.3342	-0.0037	0.2776	-0.0156
1.17	1.08	0.4206	-0.0086	0.3672	-0.0041	0.3322	-0.0057	0.2756	-0.0176
1.33	1.15	0.4195	-0.0097	0.3666	-0.0047	0.3312	-0.0067	0.2748	-0.0184
1.50	1.22	0.4190	-0.0102	0.3665	-0.0048	0.3301	-0.0078	0.2733	-0.0199
1.67	1.29	0.4186	-0.0106	0.3665	-0.0048	0.3291	-0.0088	0.2721	-0.0211
1.83	1.35	0.4178	-0.0114	0.3665	-0.0048	0.3281	-0.0098	0.2717	-0.0215
2.00	1.41	0.4174	-0.0118	0.3652	-0.0061	0.3277	-0.0102	0.2717	-0.0215
2.17	1.47	0.4168	-0.0124	0.3650	-0.0063	0.3267	-0.0112	0.2717	-0.0215
2.33	1.53	0.4164	-0.0128	0.3648	-0.0065	0.3262	-0.0117	0.2717	-0.0215
2.50	1.58	0.4159	-0.0133	0.3644	-0.0069	0.3262	-0.0117	0.2717	-0.0215
2.67	1.63	0.4159	-0.0133	0.3642	-0.0071	0.3262	-0.0117	0.2717	-0.0215
2.83	1.68	0.4159	-0.0133	0.3637	-0.0076	0.3262	-0.0117	0.2717	-0.0215
3.00	1.73	0.4145	-0.0147	0.3636	-0.0077	0.3262	-0.0117	0.2717	-0.0215
3.17	1.78	0.4140	-0.0152	0.3636	-0.0077	0.3262	-0.0117	0.2717	-0.0215
3.33	1.83	0.4136	-0.0156	0.3636	-0.0077	0.3262	-0.0117	0.2717	-0.0215
3.50	1.87	0.4134	-0.0158	0.3636	-0.0077	0.3262	-0.0117	0.2717	-0.0215
3.67	1.91	0.4130	-0.0162	0.3636	-0.0077	0.3262	-0.0117	0.2717	-0.0215
3.83	1.96	0.4126	-0.0166	0.3636	-0.0077	0.3262	-0.0117	0.2717	-0.0215
4.00	2.00	0.4126	-0.0166	0.3636	-0.0077	0.3262	-0.0117	0.2717	-0.0215
4.17	2.04	0.4126	-0.0166	0.3636	-0.0077	0.3262	-0.0117	0.2717	-0.0215
4.33	2.08	0.4126	-0.0166	0.3636	-0.0077	0.3262	-0.0117	0.2717	-0.0215
4.50	2.12	0.4126	-0.0166	0.3636	-0.0077	0.3262	-0.0117	0.2717	-0.0215
4.67	2.16	0.4126	-0.0166	0.3636	-0.0077	0.3262	-0.0117	0.2717	-0.0215
4.83	2.20	0.4126	-0.0166	0.3636	-0.0077	0.3262	-0.0117	0.2717	-0.0215
5.00	2.24	0.4126	-0.0166	0.3636	-0.0077	0.3262	-0.0117	0.2717	-0.0215
5.17	2.27	0.4126	-0.0166	0.3636	-0.0077	0.3262	-0.0117	0.2717	-0.0215
5.33	2.31	0.4126	-0.0166	0.3636	-0.0077	0.3262	-0.0117	0.2717	-0.0215
5.50	2.35	0.4126	-0.0166	0.3636	-0.0077	0.3262	-0.0117	0.2717	-0.0215
5.67	2.38	0.4126	-0.0166	0.3636	-0.0077	0.3262	-0.0117	0.2717	-0.0215
5.83	2.42	0.4126	-0.0166	0.3636	-0.0077	0.3262	-0.0117	0.2717	-0.0215
6.00	2.45	0.4126	-0.0166	0.3636	-0.0077	0.3262	-0.0117	0.2717	-0.0215
6.17	2.48	0.4126	-0.0166	0.3636	-0.0077	0.3262	-0.0117	0.2717	-0.0215
6.33	2.52	0.4126	-0.0166	0.3636	-0.0077	0.3262	-0.0117	0.2717	-0.0215
6.50	2.55	0.4126	-0.0166	0.3636	-0.0077	0.3262	-0.0117	0.2717	-0.0215
6.67	2.58	0.4126	-0.0166	0.3636	-0.0077	0.3262	-0.0117	0.2717	-0.0215
6.83	2.61	0.4126	-0.0166	0.3636	-0.0077	0.3262	-0.0117	0.2717	-0.0215
7.00	2.65	0.4126	-0.0166	0.3636	-0.0077	0.3262	-0.0117	0.2717	-0.0215
7.17	2.68	0.4126	-0.0166	0.3636	-0.0077	0.3262	-0.0117	0.2717	-0.0215
7.33	2.71	0.4126	-0.0166	0.3636	-0.0077	0.3262	-0.0117	0.2717	-0.0215
7.50	2.74	0.4126	-0.0166	0.3636	-0.0077	0.3262	-0.0117	0.2717	-0.0215
7.67	2.77	0.4126	-0.0166	0.3636	-0.0077	0.3262	-0.0117	0.2717	-0.0215
7.83	2.80	0.4126	-0.0166	0.3636	-0.0077	0.3262	-0.0117	0.2717	-0.0215
8.00	2.83	0.4126	-0.0166	0.3636	-0.0077	0.3262	-0.0117	0.2717	-0.0215
8.17	2.86	0.4126	-0.0166	0.3636	-0.0077	0.3262	-0.0117	0.2717	-0.0215
8.33	2.89	0.4126	-0.0166	0.3636	-0.0077	0.3262	-0.0117	0.2717	-0.0215
8.50	2.92	0.4126	-0.0166	0.3636	-0.0077	0.3262	-0.0117	0.2717	-0.0215
8.67	2.94	0.4126	-0.0166	0.3636	-0.0077	0.3262	-0.0117	0.2717	-0.0215
8.83	2.97	0.4126	-0.0166	0.3636	-0.0077	0.3262	-0.0117	0.2717	-0.0215
9.00	3.00	0.4126	-0.0166	0.3636	-0.0077	0.3262	-0.0117	0.2717	-0.0215
9.17	3.03	0.4126	-0.0166	0.3636	-0.0077	0.3262	-0.0117	0.2717	-0.0215
9.33	3.06	0.4126	-0.0166	0.3636	-0.0077	0.3262	-0.0117	0.2717	-0.0215
9.50	3.08	0.4126	-0.0166	0.3636	-0.0077	0.3262	-0.0117	0.2717	-0.0215
9.67	3.11	0.4126	-0.0166	0.3636	-0.0077	0.3262	-0.0117	0.2717	-0.0215
9.83	3.14	0.4126	-0.0166	0.3636	-0.0077	0.3262	-0.0117	0.2717	-0.0215
10.00	3.16	0.4126	-0.0166	0.3636	-0.0077	0.3262	-0.0117	0.2717	-0.0215
10.17	3.19	0.4126	-0.0166	0.3636	-0.0077	0.3262	-0.0117	0.2717	-0.0215
10.33	3.21	0.4126	-0.0166	0.3636	-0.0077	0.3262	-0.0117	0.2717	-0.0215
10.50	3.24	0.4126	-0.0166	0.3636	-0.0077	0.3262	-0.0117	0.2717	-0.0215
10.67	3.27	0.4126	-0.0166	0.3636	-0.0077	0.3262	-0.0117	0.2717	-0.0215

Sample: Pond 12S, BH-1 @ 13.5 feet

Time (minutes)	Square Root of Time (minutes)	Test 1 @ 25 psf		Test 2 @ 50 psf		Test 3 @ 100 psf		Test 4 @ 250 psf	
		Dial Reading (inches)	Deflection (inches)	Dial Reading (inches)	Deflection (inches)	Dial Reading (inches)	Deflection (inches)	Dial Reading (inches)	Deflection (inches)
10.83	3.29	0.4126	-0.0166	0.3636	-0.0077	0.3262	-0.0117	0.2717	-0.0215
11.00	3.32	0.4126	-0.0166	0.3636	-0.0077	0.3262	-0.0117	0.2717	-0.0215
11.17	3.34	0.4126	-0.0166	0.3636	-0.0077	0.3262	-0.0117	0.2717	-0.0215
11.33	3.37	0.4126	-0.0166	0.3636	-0.0077	0.3262	-0.0117	0.2717	-0.0215
11.50	3.39	0.4126	-0.0166	0.3636	-0.0077	0.3262	-0.0117	0.2717	-0.0215
11.67	3.42	0.4126	-0.0166	0.3636	-0.0077	0.3262	-0.0117	0.2717	-0.0215
11.83	3.44	0.4126	-0.0166	0.3636	-0.0077	0.3262	-0.0117	0.2717	-0.0215
12.00	3.46	0.4126	-0.0166	0.3636	-0.0077	0.3262	-0.0117	0.2717	-0.0215
12.17	3.49	0.4126	-0.0166	0.3636	-0.0077	0.3262	-0.0117	0.2717	-0.0215
12.33	3.51	0.4126	-0.0166	0.3636	-0.0077	0.3262	-0.0117	0.2717	-0.0215
12.50	3.54	0.4126	-0.0166	0.3636	-0.0077	0.3262	-0.0117	0.2717	-0.0215
12.67	3.56	0.4126	-0.0166	0.3636	-0.0077	0.3262	-0.0117	0.2717	-0.0215
12.83	3.58	0.4126	-0.0166	0.3636	-0.0077	0.3262	-0.0117	0.2717	-0.0215
13.00	3.61	0.4126	-0.0166	0.3636	-0.0077	0.3262	-0.0117	0.2717	-0.0215
13.17	3.63	0.4126	-0.0166	0.3636	-0.0077	0.3262	-0.0117	0.2717	-0.0215
13.33	3.65	0.4126	-0.0166	0.3636	-0.0077	0.3262	-0.0117	0.2717	-0.0215
13.50	3.67	0.4126	-0.0166	0.3636	-0.0077	0.3262	-0.0117	0.2717	-0.0215
13.67	3.70	0.4126	-0.0166	0.3636	-0.0077	0.3262	-0.0117	0.2717	-0.0215
13.83	3.72	0.4126	-0.0166	0.3636	-0.0077	0.3262	-0.0117	0.2717	-0.0215
14.00	3.74	0.4126	-0.0166	0.3636	-0.0077	0.3262	-0.0117	0.2717	-0.0215
14.17	3.76	0.4126	-0.0166	0.3636	-0.0077	0.3262	-0.0117	0.2717	-0.0215
14.33	3.79	0.4126	-0.0166	0.3636	-0.0077	0.3262	-0.0117	0.2717	-0.0215
14.50	3.81	0.4126	-0.0166	0.3636	-0.0077	0.3262	-0.0117	0.2717	-0.0215
14.67	3.83	0.4126	-0.0166	0.3636	-0.0077	0.3262	-0.0117	0.2717	-0.0215
14.83	3.85	0.4126	-0.0166	0.3636	-0.0077	0.3262	-0.0117	0.2717	-0.0215
15.33	3.92	0.4126	-0.0166	0.3636	-0.0077	0.3262	-0.0117	0.2717	-0.0215
15.83	3.98	0.4126	-0.0166	0.3636	-0.0077	0.3262	-0.0117	0.2717	-0.0215
16.33	4.04	0.4126	-0.0166	0.3636	-0.0077	0.3262	-0.0117	0.2717	-0.0215
16.83	4.10	0.4126	-0.0166	0.3636	-0.0077	0.3262	-0.0117	0.2717	-0.0215
17.33	4.16	0.4126	-0.0166	0.3636	-0.0077	0.3262	-0.0117	0.2717	-0.0215
17.83	4.22	0.4126	-0.0166	0.3636	-0.0077	0.3262	-0.0117	0.2717	-0.0215
18.33	4.28	0.4126	-0.0166	0.3636	-0.0077	0.3262	-0.0117	0.2717	-0.0215
18.83	4.34	0.4126	-0.0166	0.3636	-0.0077	0.3262	-0.0117	0.2717	-0.0215
19.33	4.40	0.4126	-0.0166	0.3636	-0.0077	0.3262	-0.0117	0.2717	-0.0215
19.83	4.45	0.4126	-0.0166	0.3636	-0.0077	0.3262	-0.0117	0.2717	-0.0215
20.33	4.51	0.4126	-0.0166	0.3636	-0.0077	0.3262	-0.0117	0.2717	-0.0215
20.83	4.56	0.4126	-0.0166	0.3636	-0.0077	0.3262	-0.0117	0.2717	-0.0215
21.33	4.62	0.4126	-0.0166	0.3636	-0.0077	0.3262	-0.0117	0.2717	-0.0215
21.83	4.67	0.4126	-0.0166	0.3636	-0.0077	0.3262	-0.0117	0.2717	-0.0215
22.33	4.73	0.4126	-0.0166	0.3636	-0.0077	0.3262	-0.0117	0.2717	-0.0215
22.83	4.78	0.4126	-0.0166	0.3636	-0.0077	0.3262	-0.0117	0.2717	-0.0215
23.33	4.83	0.4126	-0.0166	0.3636	-0.0077	0.3262	-0.0117	0.2717	-0.0215
23.83	4.88	0.4126	-0.0166	0.3636	-0.0077	0.3262	-0.0117	0.2717	-0.0215
24.33	4.93	0.4126	-0.0166	0.3636	-0.0077	0.3262	-0.0117	0.2717	-0.0215
24.83	4.98	0.4126	-0.0166	0.3636	-0.0077	0.3262	-0.0117	0.2717	-0.0215
25.33	5.03	0.4126	-0.0166	0.3636	-0.0077	0.3262	-0.0117	0.2717	-0.0215
25.83	5.08	0.4126	-0.0166	0.3636	-0.0077	0.3262	-0.0117	0.2717	-0.0215
26.33	5.13	0.4126	-0.0166	0.3636	-0.0077	0.3262	-0.0117	0.2717	-0.0215
26.83	5.18	0.4126	-0.0166	0.3636	-0.0077	0.3262	-0.0117	0.2717	-0.0215
27.33	5.23	0.4126	-0.0166	0.3636	-0.0077	0.3262	-0.0117	0.2717	-0.0215
27.83	5.28	0.4126	-0.0166	0.3636	-0.0077	0.3262	-0.0117	0.2717	-0.0215
28.33	5.32	0.4126	-0.0166	0.3636	-0.0077	0.3262	-0.0117	0.2717	-0.0215
28.83	5.37	0.4126	-0.0166	0.3636	-0.0077	0.3262	-0.0117	0.2717	-0.0215
29.33	5.42	0.4126	-0.0166	0.3636	-0.0077	0.3262	-0.0117	0.2717	-0.0215
29.83	5.46	0.4126	-0.0166	0.3636	-0.0077	0.3262	-0.0117	0.2717	-0.0215
30.33	5.51	0.4126	-0.0166	0.3636	-0.0077	0.3262	-0.0117	0.2717	-0.0215
30.83	5.55	0.4126	-0.0166	0.3636	-0.0077	0.3262	-0.0117	0.2717	-0.0215
31.33	5.60	0.4126	-0.0166	0.3636	-0.0077	0.3262	-0.0117	0.2717	-0.0215
31.83	5.64	0.4126	-0.0166	0.3636	-0.0077	0.3262	-0.0117	0.2717	-0.0215
32.33	5.69	0.4126	-0.0166	0.3636	-0.0077	0.3262	-0.0117	0.2717	-0.0215
32.83	5.73	0.4126	-0.0166	0.3636	-0.0077	0.3262	-0.0117	0.2717	-0.0215
33.33	5.77	0.4126	-0.0166	0.3636	-0.0077	0.3262	-0.0117	0.2717	-0.0215
33.83	5.82	0.4126	-0.0166	0.3636	-0.0077	0.3262	-0.0117	0.2717	-0.0215
34.33	5.86	0.4126	-0.0166	0.3636	-0.0077	0.3262	-0.0117	0.2717	-0.0215
34.83	5.90	0.4126	-0.0166	0.3636	-0.0077	0.3262	-0.0117	0.2717	-0.0215

Sample: Pond 12S, BH-1 @ 13.5 feet

Time (minutes)	Square Root of Time (minutes)	Test 1 @ 25 psf		Test 2 @ 50 psf		Test 3 @ 100 psf		Test 4 @ 250 psf	
		Dial Reading (inches)	Deflection (inches)	Dial Reading (inches)	Deflection (inches)	Dial Reading (inches)	Deflection (inches)	Dial Reading (inches)	Deflection (inches)
35.33	5.94	0.4126	-0.0166	0.3636	-0.0077	0.3262	-0.0117	0.2717	-0.0215
35.83	5.99	0.4126	-0.0166	0.3636	-0.0077	0.3262	-0.0117	0.2717	-0.0215
36.33	6.03	0.4126	-0.0166	0.3636	-0.0077	0.3262	-0.0117	0.2717	-0.0215
36.83	6.07	0.4126	-0.0166	0.3636	-0.0077	0.3262	-0.0117	0.2717	-0.0215
37.33	6.11	0.4126	-0.0166	0.3636	-0.0077	0.3262	-0.0117	0.2717	-0.0215
37.83	6.15	0.4126	-0.0166	0.3636	-0.0077	0.3262	-0.0117	0.2717	-0.0215
38.33	6.19	0.4126	-0.0166	0.3636	-0.0077	0.3262	-0.0117	0.2717	-0.0215
38.83	6.23	0.4126	-0.0166	0.3636	-0.0077	0.3262	-0.0117	0.2717	-0.0215
39.33	6.27	0.4126	-0.0166	0.3636	-0.0077	0.3262	-0.0117	0.2717	-0.0215
39.83	6.31	0.4126	-0.0166	0.3636	-0.0077	0.3262	-0.0117	0.2717	-0.0215
40.33	6.35	0.4126	-0.0166	0.3636	-0.0077	0.3262	-0.0117	0.2717	-0.0215
40.83	6.39	0.4126	-0.0166	0.3636	-0.0077	0.3262	-0.0117	0.2717	-0.0215
41.33	6.43	0.4126	-0.0166	0.3636	-0.0077	0.3262	-0.0117	0.2717	-0.0215
41.83	6.47	0.4126	-0.0166	0.3636	-0.0077	0.3262	-0.0117	0.2717	-0.0215
42.33	6.51	0.4126	-0.0166	0.3636	-0.0077	0.3262	-0.0117	0.2717	-0.0215
42.83	6.54	0.4126	-0.0166	0.3636	-0.0077	0.3262	-0.0117	0.2717	-0.0215
43.33	6.58	0.4126	-0.0166	0.3636	-0.0077	0.3262	-0.0117	0.2717	-0.0215
43.83	6.62	0.4126	-0.0166	0.3636	-0.0077	0.3262	-0.0117	0.2717	-0.0215
44.33	6.66	0.4126	-0.0166	0.3636	-0.0077	0.3262	-0.0117	0.2717	-0.0215
44.83	6.70	0.4126	-0.0166	0.3636	-0.0077	0.3262	-0.0117	0.2717	-0.0215
45.33	6.73	0.4126	-0.0166	0.3636	-0.0077	0.3262	-0.0117	0.2717	-0.0215
45.83	6.77	0.4126	-0.0166	0.3636	-0.0077	0.3262	-0.0117	0.2717	-0.0215
46.33	6.81	0.4126	-0.0166	0.3636	-0.0077	0.3262	-0.0117	0.2717	-0.0215
46.83	6.84	0.4126	-0.0166	0.3636	-0.0077	0.3262	-0.0117	0.2717	-0.0215
47.33	6.88	0.4126	-0.0166	0.3636	-0.0077	0.3262	-0.0117	0.2717	-0.0215
47.83	6.92	0.4126	-0.0166	0.3636	-0.0077	0.3262	-0.0117	0.2717	-0.0215
48.33	6.95	0.4126	-0.0166	0.3636	-0.0077	0.3262	-0.0117	0.2717	-0.0215
48.83	6.99	0.4126	-0.0166	0.3636	-0.0077	0.3262	-0.0117	0.2717	-0.0215
49.33	7.02	0.4126	-0.0166	0.3636	-0.0077	0.3262	-0.0117	0.2717	-0.0215
49.83	7.06	0.4126	-0.0166	0.3636	-0.0077	0.3262	-0.0117	0.2717	-0.0215
50.33	7.09	0.4126	-0.0166	0.3636	-0.0077	0.3262	-0.0117	0.2717	-0.0215
50.83	7.13	0.4126	-0.0166	0.3636	-0.0077	0.3262	-0.0117	0.2717	-0.0215
51.33	7.16	0.4126	-0.0166	0.3636	-0.0077	0.3262	-0.0117	0.2717	-0.0215
51.83	7.20	0.4126	-0.0166	0.3636	-0.0077	0.3262	-0.0117	0.2717	-0.0215
52.33	7.23	0.4126	-0.0166	0.3636	-0.0077	0.3262	-0.0117	0.2717	-0.0215
52.83	7.27	0.4126	-0.0166	0.3636	-0.0077	0.3262	-0.0117	0.2717	-0.0215
53.33	7.30	0.4126	-0.0166	0.3636	-0.0077	0.3262	-0.0117	0.2717	-0.0215
53.83	7.34	0.4126	-0.0166	0.3636	-0.0077	0.3262	-0.0117	0.2717	-0.0215
54.33	7.37	0.4126	-0.0166	0.3636	-0.0077	0.3262	-0.0117	0.2717	-0.0215
54.83	7.40	0.4126	-0.0166	0.3636	-0.0077	0.3262	-0.0117	0.2717	-0.0215
55.33	7.44	0.4126	-0.0166	0.3636	-0.0077	0.3262	-0.0117	0.2717	-0.0215
55.83	7.47	0.4126	-0.0166	0.3636	-0.0077	0.3262	-0.0117	0.2717	-0.0215
56.33	7.51	0.4126	-0.0166	0.3636	-0.0077	0.3262	-0.0117	0.2717	-0.0215
56.83	7.54	0.4126	-0.0166	0.3636	-0.0077	0.3262	-0.0117	0.2717	-0.0215
57.33	7.57	0.4126	-0.0166	0.3636	-0.0077	0.3262	-0.0117	0.2717	-0.0215
57.83	7.60	0.4126	-0.0166	0.3636	-0.0077	0.3262	-0.0117	0.2717	-0.0215
58.33	7.64	0.4126	-0.0166	0.3636	-0.0077	0.3262	-0.0117	0.2717	-0.0215
58.83	7.67	0.4126	-0.0166	0.3636	-0.0077	0.3262	-0.0117	0.2717	-0.0215
59.33	7.70	0.4126	-0.0166	0.3636	-0.0077	0.3262	-0.0117	0.2717	-0.0215
59.83	7.74	0.4126	-0.0166	0.3636	-0.0077	0.3262	-0.0117	0.2717	-0.0215
60.83	7.80	0.4126	-0.0166	0.3636	-0.0077	0.3262	-0.0117	0.2717	-0.0215
61.83	7.86	0.4126	-0.0166	0.3636	-0.0077	0.3262	-0.0117	0.2717	-0.0215
62.83	7.93	0.4126	-0.0166	0.3636	-0.0077	0.3262	-0.0117	0.2717	-0.0215
63.83	7.99	0.4126	-0.0166	0.3636	-0.0077	0.3262	-0.0117	0.2717	-0.0215
64.83	8.05	0.4126	-0.0166	0.3636	-0.0077	0.3262	-0.0117	0.2717	-0.0215
65.83	8.11	0.4126	-0.0166	0.3636	-0.0077	0.3262	-0.0117	0.2717	-0.0215
66.83	8.18	0.4126	-0.0166	0.3636	-0.0077	0.3262	-0.0117	0.2717	-0.0215
67.83	8.24	0.4126	-0.0166	0.3636	-0.0077	0.3262	-0.0117	0.2717	-0.0215
68.83	8.30	0.4126	-0.0166	0.3636	-0.0077	0.3262	-0.0117	0.2717	-0.0215
69.83	8.36	0.4126	-0.0166	0.3636	-0.0077	0.3262	-0.0117	0.2717	-0.0215
70.83	8.42	0.4126	-0.0166	0.3636	-0.0077	0.3262	-0.0117	0.2717	-0.0215
71.83	8.48	0.4126	-0.0166	0.3636	-0.0077	0.3262	-0.0117	0.2717	-0.0215
72.83	8.53	0.4126	-0.0166	0.3636	-0.0077	0.3262	-0.0117	0.2717	-0.0215
73.83	8.59	0.4126	-0.0166	0.3636	-0.0077	0.3262	-0.0117	0.2717	-0.0215
74.83	8.65	0.4126	-0.0166	0.3636	-0.0077	0.3262	-0.0117	0.2717	-0.0215

Sample: Pond 12S, BH-1 @ 13.5 feet

Time (minutes)	Square Root of Time (minutes)	Test 1 @ 25 psf		Test 2 @ 50 psf		Test 3 @ 100 psf		Test 4 @ 250 psf	
		Dial Reading (inches)	Deflection (inches)	Dial Reading (inches)	Deflection (inches)	Dial Reading (inches)	Deflection (inches)	Dial Reading (inches)	Deflection (inches)
75.83	8.71	0.4126	-0.0166	0.3636	-0.0077	0.3262	-0.0117	0.2717	-0.0215
76.83	8.77	0.4126	-0.0166	0.3636	-0.0077	0.3262	-0.0117	0.2717	-0.0215
77.83	8.82	0.4126	-0.0166	0.3636	-0.0077	0.3262	-0.0117	0.2717	-0.0215
78.83	8.88	0.4126	-0.0166	0.3636	-0.0077	0.3262	-0.0117	0.2717	-0.0215
79.83	8.93	0.4126	-0.0166	0.3636	-0.0077	0.3262	-0.0117	0.2717	-0.0215
80.83	8.99	0.4126	-0.0166	0.3636	-0.0077	0.3262	-0.0117	0.2717	-0.0215
81.83	9.05	0.4126	-0.0166	0.3636	-0.0077	0.3262	-0.0117	0.2717	-0.0215
82.83	9.10	0.4126	-0.0166	0.3636	-0.0077	0.3262	-0.0117	0.2717	-0.0215
83.83	9.16	0.4126	-0.0166	0.3636	-0.0077	0.3262	-0.0117	0.2717	-0.0215
84.83	9.21	0.4126	-0.0166	0.3636	-0.0077	0.3262	-0.0117	0.2717	-0.0215
85.83	9.26	0.4126	-0.0166	0.3636	-0.0077	0.3262	-0.0117	0.2717	-0.0215
86.83	9.32	0.4126	-0.0166	0.3636	-0.0077	0.3262	-0.0117	0.2717	-0.0215
87.83	9.37	0.4126	-0.0166	0.3636	-0.0077	0.3262	-0.0117	0.2717	-0.0215
88.83	9.43	0.4126	-0.0166	0.3636	-0.0077	0.3262	-0.0117	0.2717	-0.0215
89.83	9.48	0.4126	-0.0166	0.3636	-0.0077	0.3262	-0.0117	0.2717	-0.0215
90.83	9.53	0.4126	-0.0166	0.3636	-0.0077	0.3262	-0.0117	0.2717	-0.0215
91.83	9.58	0.4126	-0.0166	0.3636	-0.0077	0.3262	-0.0117	0.2717	-0.0215
92.83	9.64	0.4126	-0.0166	0.3636	-0.0077	0.3262	-0.0117	0.2717	-0.0215
93.83	9.69	0.4126	-0.0166	0.3636	-0.0077	0.3262	-0.0117	0.2717	-0.0215
94.83	9.74	0.4126	-0.0166	0.3636	-0.0077	0.3262	-0.0117	0.2717	-0.0215
95.83	9.79	0.4126	-0.0166	0.3636	-0.0077	0.3262	-0.0117	0.2717	-0.0215
96.83	9.84	0.4126	-0.0166	0.3636	-0.0077	0.3262	-0.0117	0.2717	-0.0215
97.83	9.89	0.4126	-0.0166	0.3636	-0.0077	0.3262	-0.0117	0.2717	-0.0215
98.83	9.94	0.4126	-0.0166	0.3636	-0.0077	0.3262	-0.0117	0.2717	-0.0215
99.83	9.99	0.4126	-0.0166	0.3636	-0.0077	0.3262	-0.0117	0.2717	-0.0215
100.83	10.04	0.4126	-0.0166	0.3636	-0.0077	0.3262	-0.0117	0.2717	-0.0215
101.83	10.09	0.4126	-0.0166	0.3636	-0.0077	0.3262	-0.0117	0.2717	-0.0215
102.83	10.14	0.4126	-0.0166	0.3636	-0.0077	0.3262	-0.0117	0.2717	-0.0215
103.83	10.19	0.4126	-0.0166	0.3636	-0.0077	0.3262	-0.0117	0.2717	-0.0215
104.83	10.24	0.4126	-0.0166	0.3636	-0.0077	0.3262	-0.0117	0.2717	-0.0215
105.83	10.29	0.4126	-0.0166	0.3636	-0.0077	0.3262	-0.0117	0.2717	-0.0215
106.83	10.34	0.4126	-0.0166	0.3636	-0.0077	0.3262	-0.0117	0.2717	-0.0215
107.83	10.38	0.4126	-0.0166	0.3636	-0.0077	0.3262	-0.0117	0.2717	-0.0215
108.83	10.43	0.4126	-0.0166	0.3636	-0.0077	0.3262	-0.0117	0.2717	-0.0215
109.83	10.48	0.4126	-0.0166			0.3262	-0.0117	0.2717	-0.0215
110.83	10.53	0.4126	-0.0166			0.3262	-0.0117	0.2717	-0.0215
111.83	10.58	0.4126	-0.0166			0.3262	-0.0117	0.2717	-0.0215
112.83	10.62	0.4126	-0.0166			0.3262	-0.0117	0.2717	-0.0215
113.83	10.67	0.4126	-0.0166			0.3262	-0.0117	0.2717	-0.0215
114.83	10.72	0.4126	-0.0166			0.3262	-0.0117	0.2717	-0.0215
115.83	10.76	0.4126	-0.0166			0.3262	-0.0117	0.2717	-0.0215
116.83	10.81	0.4126	-0.0166			0.3262	-0.0117	0.2717	-0.0215
117.83	10.86	0.4126	-0.0166			0.3262	-0.0117	0.2717	-0.0215
118.83	10.90	0.4126	-0.0166			0.3262	-0.0117	0.2717	-0.0215
119.83	10.95	0.4126	-0.0166			0.3262	-0.0117	0.2717	-0.0215
129.83	11.39	0.4126	-0.0166			0.3262	-0.0117	0.2717	-0.0215
139.83	11.83	0.4126	-0.0166			0.3262	-0.0117	0.2717	-0.0215
149.83	12.24	0.4126	-0.0166			0.3262	-0.0117	0.2717	-0.0215
159.83	12.64	0.4126	-0.0166			0.3262	-0.0117	0.2717	-0.0215
169.83	13.03	0.4126	-0.0166			0.3262	-0.0117	0.2717	-0.0215
179.83	13.41					0.3262	-0.0117	0.2717	-0.0215
189.83	13.78					0.3262	-0.0117	0.2717	-0.0215
199.83	14.14					0.3262	-0.0117	0.2717	-0.0215
209.83	14.49					0.3262	-0.0117	0.2717	-0.0215
219.83	14.83					0.3262	-0.0117	0.2717	-0.0215
229.83	15.16					0.3262	-0.0117	0.2717	-0.0215
239.83	15.49					0.3262	-0.0117	0.2717	-0.0215
249.83	15.81					0.3262	-0.0117	0.2717	-0.0215
259.83	16.12					0.3262	-0.0117	0.2717	-0.0215
269.83	16.43					0.3262	-0.0117	0.2717	-0.0215
279.83	16.73					0.3262	-0.0117	0.2717	-0.0215
289.83	17.02					0.3262	-0.0117	0.2717	-0.0215
299.83	17.32					0.3262	-0.0117	0.2717	-0.0215
309.83	17.60					0.3262	-0.0117	0.2717	-0.0215
319.83	17.88					0.3262	-0.0117		

Sample: Pond 12S, BH-1 @ 13.5 feet

Time (minutes)	Square Root of Time (minutes)	Test 1 @ 25 psf		Test 2 @ 50 psf		Test 3 @ 100 psf		Test 4 @ 250 psf	
		Dial Reading (inches)	Deflection (inches)	Dial Reading (inches)	Deflection (inches)	Dial Reading (inches)	Deflection (inches)	Dial Reading (inches)	Deflection (inches)
329.83	18.16					0.3262	-0.0117		
339.83	18.43					0.3262	-0.0117		
349.83	18.70					0.3262	-0.0117		
359.83	18.97					0.3262	-0.0117		
369.83	19.23					0.3262	-0.0117		
379.83	19.49					0.3262	-0.0117		
389.83	19.74					0.3262	-0.0117		
399.83	20.00					0.3262	-0.0117		
409.83	20.24					0.3262	-0.0117		
419.83	20.49					0.3262	-0.0117		
429.83	20.73					0.3262	-0.0117		
439.83	20.97					0.3262	-0.0117		
449.83	21.21					0.3262	-0.0117		
459.83	21.44					0.3262	-0.0117		
469.83	21.68					0.3262	-0.0117		
479.83	21.91					0.3262	-0.0117		
489.83	22.13					0.3262	-0.0117		
499.83	22.36					0.3262	-0.0117		
509.83	22.58					0.3262	-0.0117		
519.83	22.80					0.3262	-0.0117		
529.83	23.02					0.3262	-0.0117		
539.83	23.23					0.3262	-0.0117		
549.83	23.45					0.3262	-0.0117		
559.83	23.66					0.3262	-0.0117		
569.83	23.87					0.3262	-0.0117		
579.83	24.08					0.3262	-0.0117		
589.83	24.29					0.3262	-0.0117		
599.83	24.49					0.3262	-0.0117		
609.83	24.69					0.3262	-0.0117		
619.83	24.90					0.3262	-0.0117		
629.83	25.10					0.3262	-0.0117		
639.83	25.29					0.3262	-0.0117		
649.83	25.49					0.3262	-0.0117		
659.83	25.69					0.3262	-0.0117		
669.83	25.88					0.3262	-0.0117		
679.83	26.07					0.3262	-0.0117		
689.83	26.26					0.3262	-0.0117		
699.83	26.45					0.3262	-0.0117		
709.83	26.64					0.3262	-0.0117		
719.83	26.83					0.3262	-0.0117		
749.83	27.38					0.3262	-0.0117		
779.83	27.93					0.3262	-0.0117		
809.83	28.46					0.3262	-0.0117		
839.83	28.98					0.3262	-0.0117		
869.83	29.49					0.3262	-0.0117		
899.83	30.00					0.3262	-0.0117		
929.83	30.49								

Sample: Pond 12S, BH-1 @ 13.5 feet

Time (minutes)	Square Root of Time (minutes)	Test 5 @ 500 psf		Test 6 @ 1000 psf		Test 7 @ 2000 psf		Test 8 @ 4000 psf	
		Dial Reading (inches)	Deflection (inches)	Dial Reading (inches)	Deflection (inches)	Dial Reading (inches)	Deflection (inches)	Dial Reading (inches)	Deflection (inches)
0.00	0.00	0.2180	0.0000	0.1486	0.0000	0.4442	0.0000	0.3562	0.0000
0.17	0.41	0.2180	0.0000	0.1485	-0.0001	0.4442	0.0000	0.3562	0.0000
0.33	0.58	0.2180	0.0000	0.1407	-0.0079	0.4442	0.0000	0.3562	0.0000
0.50	0.71	0.2180	0.0000	0.1312	-0.0174	0.4332	-0.0110	0.3562	0.0000
0.67	0.82	0.2180	0.0000	0.1289	-0.0197	0.4230	-0.0212	0.3562	0.0000
0.83	0.91	0.2022	-0.0158	0.1289	-0.0197	0.4120	-0.0322	0.3227	-0.0335
1.00	1.00	0.1997	-0.0183	0.1289	-0.0197	0.4073	-0.0369	0.3166	-0.0396
1.17	1.08	0.1984	-0.0196	0.1179	-0.0307	0.4016	-0.0426	0.3131	-0.0431
1.33	1.15	0.1963	-0.0217	0.1151	-0.0335	0.4016	-0.0426	0.3093	-0.0469
1.50	1.22	0.1951	-0.0229	0.1131	-0.0355	0.4016	-0.0426	0.3070	-0.0492
1.67	1.29	0.1936	-0.0244	0.1108	-0.0378	0.4016	-0.0426	0.3044	-0.0518
1.83	1.35	0.1914	-0.0266	0.1085	-0.0401	0.4016	-0.0426	0.3032	-0.0530
2.00	1.41	0.1906	-0.0274	0.1071	-0.0415	0.4016	-0.0426	0.3020	-0.0542
2.17	1.47	0.1898	-0.0282	0.1054	-0.0432	0.4016	-0.0426	0.3008	-0.0554
2.33	1.53	0.1890	-0.0290	0.1047	-0.0439	0.4016	-0.0426	0.2998	-0.0564
2.50	1.58	0.1881	-0.0299	0.1047	-0.0439	0.4016	-0.0426	0.2988	-0.0574
2.67	1.63	0.1881	-0.0299	0.1016	-0.0470	0.4016	-0.0426	0.2983	-0.0579
2.83	1.68	0.1862	-0.0318	0.1016	-0.0470	0.4016	-0.0426	0.2975	-0.0587
3.00	1.73	0.1857	-0.0323	0.1000	-0.0486	0.4016	-0.0426	0.2970	-0.0592
3.17	1.78	0.1857	-0.0323	0.0996	-0.0490	0.4016	-0.0426	0.2965	-0.0597
3.33	1.83	0.1857	-0.0323	0.0981	-0.0505	0.4016	-0.0426	0.2961	-0.0601
3.50	1.87	0.1857	-0.0323	0.0975	-0.0511	0.4016	-0.0426	0.2961	-0.0601
3.67	1.91	0.1857	-0.0323	0.0975	-0.0511	0.4016	-0.0426	0.2961	-0.0601
3.83	1.96	0.1857	-0.0323	0.0975	-0.0511	0.4016	-0.0426	0.2961	-0.0601
4.00	2.00	0.1857	-0.0323	0.0975	-0.0511	0.4016	-0.0426	0.2961	-0.0601
4.17	2.04	0.1857	-0.0323	0.0975	-0.0511	0.4016	-0.0426	0.2945	-0.0617
4.33	2.08	0.1857	-0.0323	0.0975	-0.0511	0.4016	-0.0426	0.2942	-0.0620
4.50	2.12	0.1857	-0.0323	0.0975	-0.0511	0.4016	-0.0426	0.2940	-0.0622
4.67	2.16	0.1857	-0.0323	0.0975	-0.0511	0.4016	-0.0426	0.2937	-0.0625
4.83	2.20	0.1857	-0.0323	0.0975	-0.0511	0.4016	-0.0426	0.2935	-0.0627
5.00	2.24	0.1857	-0.0323	0.0975	-0.0511	0.4016	-0.0426	0.2934	-0.0628
5.17	2.27	0.1857	-0.0323	0.0975	-0.0511	0.4016	-0.0426	0.2932	-0.0630
5.33	2.31	0.1857	-0.0323	0.0975	-0.0511	0.4016	-0.0426	0.2931	-0.0631
5.50	2.35	0.1857	-0.0323	0.0975	-0.0511	0.4016	-0.0426	0.2928	-0.0634
5.67	2.38	0.1857	-0.0323	0.0975	-0.0511	0.4016	-0.0426	0.2927	-0.0635
5.83	2.42	0.1857	-0.0323	0.0975	-0.0511	0.4016	-0.0426	0.2927	-0.0635
6.00	2.45	0.1857	-0.0323	0.0975	-0.0511	0.4016	-0.0426	0.2927	-0.0635
6.17	2.48	0.1857	-0.0323	0.0975	-0.0511	0.4016	-0.0426	0.2923	-0.0639
6.33	2.52	0.1857	-0.0323	0.0975	-0.0511	0.4016	-0.0426	0.2921	-0.0641
6.50	2.55	0.1857	-0.0323	0.0975	-0.0511	0.4016	-0.0426	0.2920	-0.0642
6.67	2.58	0.1857	-0.0323	0.0975	-0.0511	0.4016	-0.0426	0.2919	-0.0643
6.83	2.61	0.1857	-0.0323	0.0975	-0.0511	0.4016	-0.0426	0.2918	-0.0644
7.00	2.65	0.1857	-0.0323	0.0975	-0.0511	0.4016	-0.0426	0.2917	-0.0645
7.17	2.68	0.1857	-0.0323	0.0975	-0.0511	0.4016	-0.0426	0.2916	-0.0646
7.33	2.71	0.1857	-0.0323	0.0975	-0.0511	0.4016	-0.0426	0.2915	-0.0647
7.50	2.74	0.1857	-0.0323	0.0975	-0.0511	0.4016	-0.0426	0.2914	-0.0648
7.67	2.77	0.1857	-0.0323	0.0975	-0.0511	0.3683	-0.0759	0.2914	-0.0648
7.83	2.80	0.1857	-0.0323	0.0975	-0.0511	0.3683	-0.0759	0.2914	-0.0648
8.00	2.83	0.1857	-0.0323	0.0975	-0.0511	0.3681	-0.0761	0.2914	-0.0648
8.17	2.86	0.1857	-0.0323	0.0975	-0.0511	0.3680	-0.0762	0.2914	-0.0648
8.33	2.89	0.1857	-0.0323	0.0975	-0.0511	0.3680	-0.0762	0.2914	-0.0648
8.50	2.92	0.1857	-0.0323	0.0975	-0.0511	0.3680	-0.0762	0.2914	-0.0648
8.67	2.94	0.1857	-0.0323	0.0975	-0.0511	0.3680	-0.0762	0.2914	-0.0648
8.83	2.97	0.1857	-0.0323	0.0975	-0.0511	0.3680	-0.0762	0.2914	-0.0648
9.00	3.00	0.1857	-0.0323	0.0975	-0.0511	0.3680	-0.0762	0.2914	-0.0648
9.17	3.03	0.1857	-0.0323	0.0975	-0.0511	0.3680	-0.0762	0.2914	-0.0648
9.33	3.06	0.1857	-0.0323	0.0975	-0.0511	0.3680	-0.0762	0.2914	-0.0648
9.50	3.08	0.1857	-0.0323	0.0975	-0.0511	0.3680	-0.0762	0.2914	-0.0648
9.67	3.11	0.1857	-0.0323	0.0975	-0.0511	0.3680	-0.0762	0.2914	-0.0648
9.83	3.14	0.1857	-0.0323	0.0975	-0.0511	0.3680	-0.0762	0.2914	-0.0648
10.00	3.16	0.1857	-0.0323	0.0975	-0.0511	0.3680	-0.0762	0.2914	-0.0648
10.17	3.19	0.1857	-0.0323	0.0975	-0.0511	0.3680	-0.0762	0.2914	-0.0648
10.33	3.21	0.1857	-0.0323	0.0975	-0.0511	0.3680	-0.0762	0.2914	-0.0648
10.50	3.24	0.1857	-0.0323	0.0975	-0.0511	0.3680	-0.0762	0.2914	-0.0648
10.67	3.27	0.1857	-0.0323	0.0975	-0.0511	0.3680	-0.0762	0.2914	-0.0648

Sample: Pond 12S, BH-1 @ 13.5 feet

Time (minutes)	Square Root of Time (minutes)	Test 5 @ 500 psf		Test 6 @ 1000 psf		Test 7 @ 2000 psf		Test 8 @ 4000 psf	
		Dial Reading (inches)	Deflection (inches)	Dial Reading (inches)	Deflection (inches)	Dial Reading (inches)	Deflection (inches)	Dial Reading (inches)	Deflection (inches)
10.83	3.29	0.1857	-0.0323	0.0975	-0.0511	0.3680	-0.0762	0.2914	-0.0648
11.00	3.32	0.1857	-0.0323	0.0975	-0.0511	0.3680	-0.0762	0.2914	-0.0648
11.17	3.34	0.1857	-0.0323	0.0975	-0.0511	0.3680	-0.0762	0.2914	-0.0648
11.33	3.37	0.1857	-0.0323	0.0975	-0.0511	0.3680	-0.0762	0.2914	-0.0648
11.50	3.39	0.1857	-0.0323	0.0975	-0.0511	0.3680	-0.0762	0.2914	-0.0648
11.67	3.42	0.1857	-0.0323	0.0975	-0.0511	0.3680	-0.0762	0.2914	-0.0648
11.83	3.44	0.1857	-0.0323	0.0975	-0.0511	0.3680	-0.0762	0.2914	-0.0648
12.00	3.46	0.1857	-0.0323	0.0975	-0.0511	0.3680	-0.0762	0.2914	-0.0648
12.17	3.49	0.1857	-0.0323	0.0975	-0.0511	0.3680	-0.0762	0.2914	-0.0648
12.33	3.51	0.1857	-0.0323	0.0975	-0.0511	0.3680	-0.0762	0.2914	-0.0648
12.50	3.54	0.1857	-0.0323	0.0975	-0.0511	0.3680	-0.0762	0.2914	-0.0648
12.67	3.56	0.1857	-0.0323	0.0975	-0.0511	0.3680	-0.0762	0.2914	-0.0648
12.83	3.58	0.1857	-0.0323	0.0975	-0.0511	0.3680	-0.0762	0.2914	-0.0648
13.00	3.61	0.1857	-0.0323	0.0975	-0.0511	0.3680	-0.0762	0.2914	-0.0648
13.17	3.63	0.1857	-0.0323	0.0975	-0.0511	0.3680	-0.0762	0.2914	-0.0648
13.33	3.65	0.1857	-0.0323	0.0975	-0.0511	0.3680	-0.0762	0.2914	-0.0648
13.50	3.67	0.1857	-0.0323	0.0975	-0.0511	0.3680	-0.0762	0.2914	-0.0648
13.67	3.70	0.1857	-0.0323	0.0975	-0.0511	0.3680	-0.0762	0.2914	-0.0648
13.83	3.72	0.1857	-0.0323	0.0975	-0.0511	0.3680	-0.0762	0.2914	-0.0648
14.00	3.74	0.1857	-0.0323	0.0975	-0.0511	0.3680	-0.0762	0.2914	-0.0648
14.17	3.76	0.1857	-0.0323	0.0975	-0.0511	0.3680	-0.0762	0.2914	-0.0648
14.33	3.79	0.1857	-0.0323	0.0975	-0.0511	0.3680	-0.0762	0.2914	-0.0648
14.50	3.81	0.1857	-0.0323	0.0975	-0.0511	0.3680	-0.0762	0.2914	-0.0648
14.67	3.83	0.1857	-0.0323	0.0975	-0.0511	0.3680	-0.0762	0.2914	-0.0648
14.83	3.85	0.1857	-0.0323	0.0975	-0.0511	0.3680	-0.0762	0.2914	-0.0648
15.33	3.92	0.1857	-0.0323	0.0975	-0.0511	0.3680	-0.0762	0.2914	-0.0648
15.83	3.98	0.1857	-0.0323	0.0975	-0.0511	0.3680	-0.0762	0.2914	-0.0648
16.33	4.04	0.1857	-0.0323	0.0975	-0.0511	0.3680	-0.0762	0.2914	-0.0648
16.83	4.10	0.1857	-0.0323	0.0975	-0.0511	0.3680	-0.0762	0.2914	-0.0648
17.33	4.16	0.1857	-0.0323	0.0975	-0.0511	0.3680	-0.0762	0.2914	-0.0648
17.83	4.22	0.1857	-0.0323	0.0975	-0.0511	0.3680	-0.0762	0.2914	-0.0648
18.33	4.28	0.1857	-0.0323	0.0975	-0.0511	0.3680	-0.0762	0.2914	-0.0648
18.83	4.34	0.1857	-0.0323	0.0975	-0.0511	0.3680	-0.0762	0.2914	-0.0648
19.33	4.40	0.1857	-0.0323	0.0975	-0.0511	0.3680	-0.0762	0.2914	-0.0648
19.83	4.45	0.1857	-0.0323	0.0975	-0.0511	0.3680	-0.0762	0.2914	-0.0648
20.33	4.51	0.1857	-0.0323	0.0975	-0.0511	0.3680	-0.0762	0.2914	-0.0648
20.83	4.56	0.1857	-0.0323	0.0975	-0.0511	0.3680	-0.0762	0.2914	-0.0648
21.33	4.62	0.1857	-0.0323	0.0975	-0.0511	0.3680	-0.0762	0.2914	-0.0648
21.83	4.67	0.1857	-0.0323	0.0975	-0.0511	0.3680	-0.0762	0.2914	-0.0648
22.33	4.73	0.1857	-0.0323	0.0975	-0.0511	0.3680	-0.0762	0.2914	-0.0648
22.83	4.78	0.1857	-0.0323	0.0975	-0.0511	0.3680	-0.0762	0.2914	-0.0648
23.33	4.83	0.1857	-0.0323	0.0975	-0.0511	0.3680	-0.0762	0.2914	-0.0648
23.83	4.88	0.1857	-0.0323	0.0975	-0.0511	0.3680	-0.0762	0.2914	-0.0648
24.33	4.93	0.1857	-0.0323	0.0975	-0.0511	0.3680	-0.0762	0.2914	-0.0648
24.83	4.98	0.1857	-0.0323	0.0975	-0.0511	0.3680	-0.0762	0.2914	-0.0648
25.33	5.03	0.1857	-0.0323	0.0975	-0.0511	0.3680	-0.0762	0.2914	-0.0648
25.83	5.08	0.1857	-0.0323	0.0975	-0.0511	0.3680	-0.0762	0.2914	-0.0648
26.33	5.13	0.1857	-0.0323	0.0975	-0.0511	0.3680	-0.0762	0.2914	-0.0648
26.83	5.18	0.1857	-0.0323	0.0975	-0.0511	0.3680	-0.0762	0.2914	-0.0648
27.33	5.23	0.1857	-0.0323	0.0975	-0.0511	0.3680	-0.0762	0.2914	-0.0648
27.83	5.28	0.1857	-0.0323	0.0975	-0.0511	0.3680	-0.0762	0.2914	-0.0648
28.33	5.32	0.1857	-0.0323	0.0975	-0.0511	0.3680	-0.0762	0.2914	-0.0648
28.83	5.37	0.1857	-0.0323	0.0975	-0.0511	0.3680	-0.0762	0.2914	-0.0648
29.33	5.42	0.1857	-0.0323	0.0975	-0.0511	0.3680	-0.0762	0.2914	-0.0648
29.83	5.46	0.1857	-0.0323	0.0975	-0.0511	0.3680	-0.0762	0.2914	-0.0648
30.33	5.51	0.1857	-0.0323	0.0975	-0.0511	0.3680	-0.0762	0.2914	-0.0648
30.83	5.55	0.1857	-0.0323	0.0975	-0.0511	0.3680	-0.0762	0.2914	-0.0648
31.33	5.60	0.1857	-0.0323	0.0975	-0.0511	0.3680	-0.0762	0.2914	-0.0648
31.83	5.64	0.1857	-0.0323	0.0975	-0.0511	0.3680	-0.0762	0.2914	-0.0648
32.33	5.69	0.1857	-0.0323	0.0975	-0.0511	0.3680	-0.0762	0.2914	-0.0648
32.83	5.73	0.1857	-0.0323	0.0975	-0.0511	0.3680	-0.0762	0.2914	-0.0648
33.33	5.77	0.1857	-0.0323	0.0975	-0.0511	0.3680	-0.0762	0.2914	-0.0648
33.83	5.82	0.1857	-0.0323	0.0975	-0.0511	0.3680	-0.0762	0.2914	-0.0648
34.33	5.86	0.1857	-0.0323	0.0975	-0.0511	0.3680	-0.0762	0.2914	-0.0648
34.83	5.90	0.1857	-0.0323	0.0975	-0.0511	0.3680	-0.0762	0.2914	-0.0648

Sample: Pond 12S, BH-1 @ 13.5 feet

Time (minutes)	Square Root of Time (minutes)	Test 5 @ 500 psf		Test 6 @ 1000 psf		Test 7 @ 2000 psf		Test 8 @ 4000 psf	
		Dial Reading (inches)	Deflection (inches)	Dial Reading (inches)	Deflection (inches)	Dial Reading (inches)	Deflection (inches)	Dial Reading (inches)	Deflection (inches)
35.33	5.94	0.1857	-0.0323	0.0975	-0.0511	0.3680	-0.0762	0.2914	-0.0648
35.83	5.99	0.1857	-0.0323	0.0975	-0.0511	0.3680	-0.0762	0.2914	-0.0648
36.33	6.03	0.1857	-0.0323	0.0975	-0.0511	0.3680	-0.0762	0.2914	-0.0648
36.83	6.07	0.1857	-0.0323	0.0975	-0.0511	0.3680	-0.0762	0.2914	-0.0648
37.33	6.11	0.1857	-0.0323	0.0975	-0.0511	0.3680	-0.0762	0.2914	-0.0648
37.83	6.15	0.1400	-0.0780	0.0975	-0.0511	0.3680	-0.0762	0.2914	-0.0648
38.33	6.19	0.1400	-0.0780	0.0975	-0.0511	0.3680	-0.0762	0.2914	-0.0648
38.83	6.23	0.1400	-0.0780	0.0975	-0.0511	0.3680	-0.0762	0.2914	-0.0648
39.33	6.27	0.1400	-0.0780	0.0975	-0.0511	0.3680	-0.0762	0.2914	-0.0648
39.83	6.31	0.1400	-0.0780	0.0975	-0.0511	0.3680	-0.0762	0.2914	-0.0648
40.33	6.35	0.1400	-0.0780	0.0975	-0.0511	0.3680	-0.0762	0.2914	-0.0648
40.83	6.39	0.1400	-0.0780	0.0975	-0.0511	0.3680	-0.0762	0.2914	-0.0648
41.33	6.43	0.1400	-0.0780	0.0975	-0.0511	0.3680	-0.0762	0.2914	-0.0648
41.83	6.47	0.1400	-0.0780	0.0975	-0.0511	0.3680	-0.0762	0.2914	-0.0648
42.33	6.51	0.1400	-0.0780	0.0975	-0.0511	0.3680	-0.0762	0.2914	-0.0648
42.83	6.54	0.1400	-0.0780	0.0975	-0.0511	0.3680	-0.0762	0.2914	-0.0648
43.33	6.58	0.1400	-0.0780	0.0975	-0.0511	0.3680	-0.0762	0.2914	-0.0648
43.83	6.62	0.1400	-0.0780	0.0975	-0.0511	0.3680	-0.0762	0.2914	-0.0648
44.33	6.66	0.1400	-0.0780	0.0975	-0.0511	0.3680	-0.0762	0.2914	-0.0648
44.83	6.70	0.1400	-0.0780	0.0975	-0.0511	0.3680	-0.0762	0.2914	-0.0648
45.33	6.73	0.1400	-0.0780	0.0975	-0.0511	0.3680	-0.0762	0.2914	-0.0648
45.83	6.77	0.1400	-0.0780	0.0975	-0.0511	0.3680	-0.0762	0.2914	-0.0648
46.33	6.81	0.1400	-0.0780	0.0975	-0.0511	0.3680	-0.0762	0.2914	-0.0648
46.83	6.84	0.1400	-0.0780	0.0975	-0.0511	0.3680	-0.0762	0.2914	-0.0648
47.33	6.88	0.1400	-0.0780	0.0975	-0.0511	0.3680	-0.0762	0.2914	-0.0648
47.83	6.92	0.1400	-0.0780	0.0975	-0.0511	0.3680	-0.0762	0.2914	-0.0648
48.33	6.95	0.1400	-0.0780	0.0975	-0.0511	0.3680	-0.0762	0.2914	-0.0648
48.83	6.99	0.1400	-0.0780	0.0975	-0.0511	0.3680	-0.0762	0.2914	-0.0648
49.33	7.02	0.1400	-0.0780	0.0975	-0.0511	0.3680	-0.0762	0.2914	-0.0648
49.83	7.06	0.1400	-0.0780	0.0975	-0.0511	0.3680	-0.0762	0.2914	-0.0648
50.33	7.09	0.1400	-0.0780	0.0975	-0.0511	0.3680	-0.0762	0.2914	-0.0648
50.83	7.13	0.1400	-0.0780	0.0975	-0.0511	0.3680	-0.0762	0.2914	-0.0648
51.33	7.16	0.1400	-0.0780	0.0975	-0.0511	0.3680	-0.0762	0.2914	-0.0648
51.83	7.20	0.1400	-0.0780	0.0975	-0.0511	0.3680	-0.0762	0.2914	-0.0648
52.33	7.23	0.1400	-0.0780	0.0975	-0.0511	0.3680	-0.0762	0.2914	-0.0648
52.83	7.27	0.1400	-0.0780	0.0975	-0.0511	0.3680	-0.0762	0.2914	-0.0648
53.33	7.30	0.1400	-0.0780	0.0975	-0.0511	0.3680	-0.0762	0.2914	-0.0648
53.83	7.34	0.1400	-0.0780	0.0975	-0.0511	0.3680	-0.0762	0.2914	-0.0648
54.33	7.37	0.1400	-0.0780	0.0975	-0.0511	0.3680	-0.0762	0.2914	-0.0648
54.83	7.40	0.1400	-0.0780	0.0975	-0.0511	0.3680	-0.0762	0.2914	-0.0648
55.33	7.44	0.1400	-0.0780	0.0975	-0.0511	0.3680	-0.0762	0.2914	-0.0648
55.83	7.47	0.1400	-0.0780	0.0975	-0.0511	0.3680	-0.0762	0.2914	-0.0648
56.33	7.51	0.1400	-0.0780	0.0975	-0.0511	0.3680	-0.0762	0.2914	-0.0648
56.83	7.54	0.1400	-0.0780	0.0975	-0.0511	0.3680	-0.0762	0.2914	-0.0648
57.33	7.57	0.1400	-0.0780	0.0975	-0.0511	0.3680	-0.0762	0.2914	-0.0648
57.83	7.60	0.1400	-0.0780	0.0975	-0.0511	0.3680	-0.0762	0.2914	-0.0648
58.33	7.64	0.1400	-0.0780	0.0975	-0.0511	0.3680	-0.0762	0.2914	-0.0648
58.83	7.67	0.1400	-0.0780	0.0975	-0.0511	0.3680	-0.0762	0.2914	-0.0648
59.33	7.70	0.1400	-0.0780	0.0975	-0.0511	0.3680	-0.0762	0.2914	-0.0648
59.83	7.74	0.1400	-0.0780	0.0975	-0.0511	0.3680	-0.0762	0.2914	-0.0648
60.83	7.80	0.1400	-0.0780	0.0975	-0.0511	0.3680	-0.0762	0.2914	-0.0648
61.83	7.86	0.1400	-0.0780	0.0975	-0.0511	0.3680	-0.0762	0.2914	-0.0648
62.83	7.93	0.1400	-0.0780	0.0975	-0.0511	0.3680	-0.0762	0.2914	-0.0648
63.83	7.99	0.1400	-0.0780	0.0975	-0.0511	0.3680	-0.0762	0.2914	-0.0648
64.83	8.05	0.1400	-0.0780	0.0975	-0.0511	0.3680	-0.0762	0.2914	-0.0648
65.83	8.11	0.1400	-0.0780	0.0975	-0.0511	0.3680	-0.0762	0.2914	-0.0648
66.83	8.18	0.1400	-0.0780	0.0975	-0.0511	0.3680	-0.0762	0.2914	-0.0648
67.83	8.24	0.1400	-0.0780	0.0975	-0.0511	0.3680	-0.0762	0.2914	-0.0648
68.83	8.30	0.1400	-0.0780	0.0975	-0.0511	0.3680	-0.0762	0.2914	-0.0648
69.83	8.36	0.1400	-0.0780	0.0975	-0.0511	0.3680	-0.0762	0.2914	-0.0648
70.83	8.42	0.1400	-0.0780	0.0975	-0.0511	0.3680	-0.0762	0.2914	-0.0648
71.83	8.48	0.1400	-0.0780	0.0975	-0.0511	0.3680	-0.0762	0.2914	-0.0648
72.83	8.53	0.1400	-0.0780	0.0975	-0.0511	0.3680	-0.0762	0.2914	-0.0648
73.83	8.59	0.1400	-0.0780	0.0975	-0.0511	0.3680	-0.0762	0.2914	-0.0648
74.83	8.65	0.1400	-0.0780	0.0975	-0.0511	0.3680	-0.0762	0.2914	-0.0648

Sample: Pond 12S, BH-1 @ 13.5 feet

Time (minutes)	Square Root of Time (minutes)	Test 5 @ 500 psf		Test 6 @ 1000 psf		Test 7 @ 2000 psf		Test 8 @ 4000 psf	
		Dial Reading (inches)	Deflection (inches)	Dial Reading (inches)	Deflection (inches)	Dial Reading (inches)	Deflection (inches)	Dial Reading (inches)	Deflection (inches)
75.83	8.71	0.1400	-0.0780	0.0975	-0.0511	0.3680	-0.0762	0.2914	-0.0648
76.83	8.77	0.1400	-0.0780	0.0975	-0.0511	0.3680	-0.0762	0.2914	-0.0648
77.83	8.82	0.1400	-0.0780	0.0975	-0.0511	0.3680	-0.0762	0.2914	-0.0648
78.83	8.88	0.1400	-0.0780	0.0975	-0.0511	0.3680	-0.0762	0.2914	-0.0648
79.83	8.93	0.1400	-0.0780	0.0975	-0.0511	0.3680	-0.0762	0.2914	-0.0648
80.83	8.99	0.1400	-0.0780	0.0975	-0.0511	0.3680	-0.0762	0.2914	-0.0648
81.83	9.05	0.1400	-0.0780	0.0975	-0.0511	0.3680	-0.0762	0.2914	-0.0648
82.83	9.10	0.1400	-0.0780	0.0975	-0.0511	0.3680	-0.0762	0.2914	-0.0648
83.83	9.16	0.1400	-0.0780	0.0975	-0.0511	0.3680	-0.0762	0.2914	-0.0648
84.83	9.21	0.1400	-0.0780	0.0975	-0.0511	0.3680	-0.0762	0.2914	-0.0648
85.83	9.26	0.1400	-0.0780	0.0975	-0.0511	0.3680	-0.0762	0.2914	-0.0648
86.83	9.32	0.1400	-0.0780	0.0975	-0.0511	0.3680	-0.0762	0.2914	-0.0648
87.83	9.37	0.1400	-0.0780	0.0975	-0.0511	0.3680	-0.0762	0.2914	-0.0648
88.83	9.43	0.1400	-0.0780	0.0975	-0.0511	0.3680	-0.0762	0.2914	-0.0648
89.83	9.48	0.1400	-0.0780	0.0975	-0.0511	0.3680	-0.0762	0.2914	-0.0648
90.83	9.53	0.1400	-0.0780	0.0975	-0.0511	0.3680	-0.0762	0.2914	-0.0648
91.83	9.58	0.1400	-0.0780	0.0975	-0.0511	0.3680	-0.0762	0.2914	-0.0648
92.83	9.64	0.1400	-0.0780	0.0975	-0.0511	0.3680	-0.0762	0.2914	-0.0648
93.83	9.69	0.1400	-0.0780	0.0975	-0.0511	0.3680	-0.0762	0.2914	-0.0648
94.83	9.74	0.1400	-0.0780	0.0975	-0.0511	0.3680	-0.0762	0.2914	-0.0648
95.83	9.79	0.1400	-0.0780	0.0975	-0.0511	0.3680	-0.0762	0.2914	-0.0648
96.83	9.84	0.1400	-0.0780	0.0975	-0.0511	0.3680	-0.0762	0.2914	-0.0648
97.83	9.89	0.1400	-0.0780	0.0975	-0.0511	0.3680	-0.0762	0.2914	-0.0648
98.83	9.94	0.1400	-0.0780	0.0975	-0.0511	0.3680	-0.0762	0.2914	-0.0648
99.83	9.99	0.1400	-0.0780	0.0975	-0.0511	0.3680	-0.0762	0.2914	-0.0648
100.83	10.04	0.1400	-0.0780	0.0975	-0.0511	0.3680	-0.0762	0.2914	-0.0648
101.83	10.09	0.1400	-0.0780	0.0975	-0.0511	0.3680	-0.0762	0.2914	-0.0648
102.83	10.14	0.1400	-0.0780	0.0975	-0.0511	0.3680	-0.0762	0.2914	-0.0648
103.83	10.19	0.1400	-0.0780	0.0975	-0.0511	0.3680	-0.0762	0.2914	-0.0648
104.83	10.24	0.1400	-0.0780	0.0975	-0.0511	0.3680	-0.0762	0.2914	-0.0648
105.83	10.29	0.1400	-0.0780	0.0975	-0.0511	0.3680	-0.0762	0.2914	-0.0648
106.83	10.34	0.1400	-0.0780	0.0975	-0.0511	0.3680	-0.0762	0.2914	-0.0648
107.83	10.38	0.1400	-0.0780	0.0975	-0.0511	0.3680	-0.0762	0.2914	-0.0648
108.83	10.43	0.1400	-0.0780	0.0975	-0.0511	0.3680	-0.0762	0.2914	-0.0648
109.83	10.48	0.1400	-0.0780	0.0975	-0.0511	0.3680	-0.0762	0.2914	-0.0648
110.83	10.53	0.1400	-0.0780	0.0975	-0.0511	0.3680	-0.0762	0.2914	-0.0648
111.83	10.58	0.1400	-0.0780	0.0975	-0.0511	0.3680	-0.0762	0.2914	-0.0648
112.83	10.62	0.1400	-0.0780	0.0975	-0.0511	0.3680	-0.0762	0.2914	-0.0648
113.83	10.67	0.1400	-0.0780	0.0975	-0.0511	0.3680	-0.0762	0.2914	-0.0648
114.83	10.72	0.1400	-0.0780	0.0975	-0.0511	0.3680	-0.0762	0.2914	-0.0648
115.83	10.76	0.1400	-0.0780	0.0975	-0.0511	0.3680	-0.0762	0.2914	-0.0648
116.83	10.81	0.1400	-0.0780	0.0975	-0.0511	0.3680	-0.0762	0.2914	-0.0648
117.83	10.86	0.1400	-0.0780	0.0975	-0.0511	0.3680	-0.0762	0.2914	-0.0648
118.83	10.90	0.1400	-0.0780	0.0975	-0.0511	0.3680	-0.0762	0.2914	-0.0648
119.83	10.95	0.1400	-0.0780	0.0975	-0.0511	0.3680	-0.0762	0.2914	-0.0648
129.83	11.39	0.1400	-0.0780	0.0975	-0.0511	0.3680	-0.0762	0.2914	-0.0648
139.83	11.83	0.1400	-0.0780	0.0975	-0.0511	0.3680	-0.0762	0.2914	-0.0648
149.83	12.24	0.1400	-0.0780	0.0975	-0.0511	0.3680	-0.0762	0.2914	-0.0648
159.83	12.64	0.1400	-0.0780	0.0975	-0.0511	0.3680	-0.0762	0.2914	-0.0648
169.83	13.03	0.1400	-0.0780	0.0975	-0.0511	0.3680	-0.0762	0.2914	-0.0648
179.83	13.41	0.1400	-0.0780	0.0975	-0.0511	0.3680	-0.0762	0.2914	-0.0648
189.83	13.78	0.1400	-0.0780	0.0975	-0.0511	0.3680	-0.0762	0.2914	-0.0648
199.83	14.14	0.1400	-0.0780	0.0975	-0.0511	0.3680	-0.0762	0.2914	-0.0648
209.83	14.49	0.1400	-0.0780	0.0975	-0.0511	0.3680	-0.0762	0.2914	-0.0648
219.83	14.83	0.1400	-0.0780	0.0975	-0.0511	0.3680	-0.0762	0.2914	-0.0648
229.83	15.16	0.1400	-0.0780	0.0975	-0.0511	0.3680	-0.0762	0.2914	-0.0648
239.83	15.49	0.1400	-0.0780	0.0975	-0.0511	0.3680	-0.0762	0.2914	-0.0648
249.83	15.81	0.1400	-0.0780	0.0730	-0.0756	0.3680	-0.0762	0.2914	-0.0648
259.83	16.12	0.1400	-0.0780	0.0730	-0.0756	0.3680	-0.0762	0.2914	-0.0648
269.83	16.43	0.1400	-0.0780	0.0730	-0.0756	0.3680	-0.0762	0.2914	-0.0648
279.83	16.73	0.1400	-0.0780	0.0730	-0.0756	0.3680	-0.0762	0.2914	-0.0648
289.83	17.02	0.1400	-0.0780	0.0730	-0.0756	0.3680	-0.0762	0.2914	-0.0648
299.83	17.32	0.1400	-0.0780	0.0730	-0.0756	0.3680	-0.0762	0.2914	-0.0648
309.83	17.60	0.1400	-0.0780	0.0730	-0.0756	0.3680	-0.0762	0.2914	-0.0648
319.83	17.88	0.1400	-0.0780	0.0730	-0.0756	0.3680	-0.0762	0.2914	-0.0648

Sample: Pond 12S, BH-1 @ 13.5 feet

Time (minutes)	Square Root of Time (minutes)	Test 5 @ 500 psf		Test 6 @ 1000 psf		Test 7 @ 2000 psf		Test 8 @ 4000 psf	
		Dial Reading (inches)	Deflection (inches)	Dial Reading (inches)	Deflection (inches)	Dial Reading (inches)	Deflection (inches)	Dial Reading (inches)	Deflection (inches)
329.83	18.16	0.1400	-0.0780	0.0730	-0.0756	0.3680	-0.0762	0.2914	-0.0648
339.83	18.43	0.1400	-0.0780	0.0730	-0.0756	0.3680	-0.0762	0.2914	-0.0648
349.83	18.70	0.1400	-0.0780	0.0730	-0.0756	0.3680	-0.0762	0.2914	-0.0648
359.83	18.97	0.1400	-0.0780	0.0730	-0.0756	0.3680	-0.0762	0.2914	-0.0648
369.83	19.23	0.1400	-0.0780	0.0730	-0.0756	0.3680	-0.0762	0.2914	-0.0648
379.83	19.49	0.1400	-0.0780	0.0730	-0.0756	0.3680	-0.0762	0.2914	-0.0648
389.83	19.74	0.1400	-0.0780	0.0730	-0.0756	0.3680	-0.0762	0.2914	-0.0648
399.83	20.00	0.1400	-0.0780	0.0730	-0.0756	0.3680	-0.0762	0.2914	-0.0648
409.83	20.24	0.1400	-0.0780	0.0730	-0.0756	0.3680	-0.0762	0.2914	-0.0648
419.83	20.49	0.1400	-0.0780	0.0730	-0.0756	0.3680	-0.0762	0.2914	-0.0648
429.83	20.73	0.1400	-0.0780	0.0730	-0.0756	0.3680	-0.0762	0.2914	-0.0648
439.83	20.97	0.1400	-0.0780	0.0730	-0.0756	0.3680	-0.0762	0.2914	-0.0648
449.83	21.21	0.1400	-0.0780	0.0730	-0.0756	0.3680	-0.0762	0.2914	-0.0648
459.83	21.44	0.1400	-0.0780	0.0730	-0.0756	0.3680	-0.0762	0.2914	-0.0648
469.83	21.68	0.1400	-0.0780	0.0730	-0.0756	0.3680	-0.0762	0.2914	-0.0648
479.83	21.91	0.1400	-0.0780	0.0730	-0.0756	0.3680	-0.0762	0.2914	-0.0648
489.83	22.13	0.1400	-0.0780			0.3680	-0.0762	0.2914	-0.0648
499.83	22.36	0.1400	-0.0780			0.3680	-0.0762	0.2914	-0.0648
509.83	22.58	0.1400	-0.0780			0.3680	-0.0762	0.2914	-0.0648
519.83	22.80	0.1400	-0.0780			0.3680	-0.0762	0.2914	-0.0648
529.83	23.02	0.1400	-0.0780			0.3680	-0.0762	0.2914	-0.0648
539.83	23.23	0.1400	-0.0780			0.3680	-0.0762	0.2914	-0.0648
549.83	23.45	0.1400	-0.0780			0.3680	-0.0762	0.2914	-0.0648
559.83	23.66	0.1400	-0.0780			0.3680	-0.0762	0.2914	-0.0648
569.83	23.87	0.1400	-0.0780			0.3680	-0.0762	0.2914	-0.0648
579.83	24.08	0.1400	-0.0780			0.3680	-0.0762	0.2914	-0.0648
589.83	24.29	0.1400	-0.0780			0.3680	-0.0762	0.2914	-0.0648
599.83	24.49	0.1400	-0.0780			0.3680	-0.0762	0.2914	-0.0648
609.83	24.69	0.1400	-0.0780			0.3680	-0.0762	0.2914	-0.0648
619.83	24.90	0.1400	-0.0780			0.3680	-0.0762	0.2914	-0.0648
629.83	25.10	0.1400	-0.0780			0.3680	-0.0762	0.2914	-0.0648
639.83	25.29	0.1400	-0.0780			0.3680	-0.0762	0.2914	-0.0648
649.83	25.49	0.1400	-0.0780			0.3680	-0.0762	0.2914	-0.0648
659.83	25.69	0.1400	-0.0780			0.3680	-0.0762	0.2914	-0.0648
669.83	25.88	0.1400	-0.0780			0.3680	-0.0762	0.2914	-0.0648
679.83	26.07	0.1400	-0.0780			0.3680	-0.0762	0.2914	-0.0648
689.83	26.26	0.1400	-0.0780			0.3680	-0.0762	0.2914	-0.0648
699.83	26.45	0.1400	-0.0780			0.3680	-0.0762	0.2914	-0.0648
709.83	26.64	0.1400	-0.0780			0.3680	-0.0762	0.2914	-0.0648
719.83	26.83	0.1400	-0.0780			0.3680	-0.0762	0.2914	-0.0648
749.83	27.38	0.1400	-0.0780			0.3680	-0.0762	0.2914	-0.0648
779.83	27.93	0.1400	-0.0780			0.3680	-0.0762	0.2914	-0.0648
809.83	28.46	0.1400	-0.0780			0.3680	-0.0762	0.2914	-0.0648
839.83	28.98	0.1400	-0.0780			0.3680	-0.0762	0.2914	-0.0648
869.83	29.49	0.1400	-0.0780			0.3680	-0.0762	0.2914	-0.0648
899.83	30.00	0.1400	-0.0780			0.3680	-0.0762	0.2914	-0.0648
929.83	30.49	0.1400	-0.0780			0.3680	-0.0762	0.2914	-0.0648
959.83	30.98	0.1400	-0.0780			0.3680	-0.0762	0.2914	-0.0648
989.83	31.46	0.1400	-0.0780			0.3680	-0.0762	0.2914	-0.0648
1019.83	31.93	0.1400	-0.0780			0.3680	-0.0762	0.2914	-0.0648
1049.83	32.40	0.1400	-0.0780			0.3680	-0.0762	0.2914	-0.0648
1079.83	32.86	0.1400	-0.0780			0.3680	-0.0762	0.2914	-0.0648
1109.83	33.31	0.1400	-0.0780			0.3680	-0.0762	0.2914	-0.0648
1139.83	33.76					0.3680	-0.0762	0.2914	-0.0648
1169.83	34.20					0.3680	-0.0762	0.2914	-0.0648
1199.83	34.64					0.3680	-0.0762	0.2914	-0.0648
1229.83	35.07					0.3680	-0.0762	0.2914	-0.0648

One Dimensional Consolidation

Project No.	973376
Project	FMC
Sample ID	Pond 12S, BH-2 @ 16.5 feet
Sample Ht.	1.875 (in)
Sample Dia.	4.000 (in)
Sample Area	0.087 (sq-ft)
Sample Vol.	0.014 (cu-ft)
Phos Cont.	4.52 (%)
Init. M.C.	172.92 (%)
Init. M.C. (corr)	142.95 (%)
Final M.C.	109.57 (%)
Final M.C. (corr)	91.43 (%)
Dry Wt. of Soil/f	241.55 (g)
Dry Wt. of Soil/i	216.05 (g)
Spec. Grav.	2.79
Pocket Pen.	(tsf)

Moisture Content Weights	
(initial)	
Total Wet Wt. (g)	19.35
Phos. Wt. (g)	0.87
Dry Wt. (g)	7.09
Dry Wt. + Phos Wt. (g)	7.96
Water Wt. + Phos (g)	12.26
Water Wt. (g)	11.39
(final)	
Total Wet Wt. (g)	29.57
Phos. Wt. (g)	1.34
Dry Wt. (g)	14.11
Dry Wt. + Phos Wt. (g)	15.45
Water Wt. + Phos (g)	15.46
Water Wt. (g)	14.12

Pressure (ksf)	Final Dial Reading (inches)	Deformation (inches)	Sample Ht. (inches)	Strain (%)	Void Ratio (e)	Dry Density (pcf)	Void Ratio (e)	Dry Density (pcf)
					Calc. from final MC		Calc. from initial MC	
0.0010	0.4034	0.0000	1.8750	0	3.462	39.02	3.988	34.90
0.0250	0.3785	0.0249	1.8501	1.33	3.402	39.55	3.922	35.37
0.0500	0.3655	0.0379	1.8371	2.02	3.371	39.83	3.887	35.62
0.1000	0.3439	0.0593	1.8157	3.16	3.321	40.29	3.831	36.04
0.2500	0.3023	0.1009	1.7741	5.38	3.222	41.24	3.720	36.89
0.5000	0.2468	0.1566	1.7184	8.35	3.089	42.58	3.572	38.08
1.0000	0.1736	0.2290	1.6460	12.21	2.917	44.45	3.379	39.76
2.0000	0.0863	0.3163	1.5587	16.87	2.709	46.94	3.147	41.98
4.0000	0.3471	0.3827	1.4923	20.41	2.551	49.03	2.970	43.85

Note: Initial MC not taken from actual sample tested, but from same sample jar.
Final MC taken from actual sample tested.
Void Ratio (e), calculated from final MC likely to be most accurate.
Final data readings may vary when compared to deformation values due to resetting the dial. The deformation values are based on the actual data in Appendix E.

Sample: Pond 12S, BH-2 @ 16.5 feet

Time (minutes)	Square Root of Time (minutes)	Test 1 @ 25 psf		Test 2 @ 50 psf		Test 3 @ 100 psf		Test 4 @ 250 psf	
		Dial Reading (inches)	Deflection (inches)	Dial Reading (inches)	Deflection (inches)	Dial Reading (inches)	Deflection (inches)	Dial Reading (inches)	Deflection (inches)
0.00	0.00	0.4034	0.0000	0.3785	0.0000	0.3653	0.0000	0.3439	0.0000
0.17	0.41	0.4034	0.0000	0.3785	0.0000	0.3653	0.0000	0.3439	0.0000
0.33	0.58	0.4025	-0.0009	0.3779	-0.0006	0.3655	0.0002	0.3402	-0.0037
0.50	0.71	0.4024	-0.0010	0.3777	-0.0008	0.3628	-0.0025	0.3391	-0.0048
0.67	0.82	0.4020	-0.0014	0.3777	-0.0008	0.3624	-0.0029	0.3379	-0.0060
0.83	0.91	0.4018	-0.0016	0.3777	-0.0008	0.3622	-0.0031	0.3371	-0.0068
1.00	1.00	0.4017	-0.0017	0.3773	-0.0012	0.3618	-0.0035	0.3359	-0.0080
1.17	1.08	0.4015	-0.0019	0.3772	-0.0013	0.3615	-0.0038	0.3354	-0.0085
1.33	1.15	0.4014	-0.0020	0.3770	-0.0015	0.3613	-0.0040	0.3343	-0.0096
1.50	1.22	0.4011	-0.0023	0.3769	-0.0016	0.3612	-0.0041	0.3338	-0.0101
1.67	1.29	0.4009	-0.0025	0.3767	-0.0018	0.3608	-0.0045	0.3329	-0.0110
1.83	1.35	0.4007	-0.0027	0.3766	-0.0019	0.3606	-0.0047	0.3324	-0.0115
2.00	1.41	0.4005	-0.0029	0.3766	-0.0019	0.3603	-0.0050	0.3316	-0.0123
2.17	1.47	0.4003	-0.0031	0.3765	-0.0020	0.3600	-0.0053	0.3309	-0.0130
2.33	1.53	0.4001	-0.0033	0.3764	-0.0021	0.3599	-0.0054	0.3309	-0.0130
2.50	1.58	0.4000	-0.0034	0.3763	-0.0022	0.3596	-0.0057	0.3309	-0.0130
2.67	1.63	0.3997	-0.0037	0.3762	-0.0023	0.3594	-0.0059	0.3309	-0.0130
2.83	1.68	0.3996	-0.0038	0.3761	-0.0024	0.3592	-0.0061	0.3291	-0.0148
3.00	1.73	0.3993	-0.0041	0.3759	-0.0026	0.3590	-0.0063	0.3284	-0.0155
3.17	1.78	0.3993	-0.0041	0.3758	-0.0027	0.3588	-0.0065	0.3278	-0.0161
3.33	1.83	0.3991	-0.0043	0.3757	-0.0028	0.3585	-0.0068	0.3274	-0.0165
3.50	1.87	0.3989	-0.0045	0.3757	-0.0028	0.3583	-0.0070	0.3270	-0.0169
3.67	1.91	0.3987	-0.0047	0.3755	-0.0030	0.3582	-0.0071	0.3270	-0.0169
3.83	1.96	0.3985	-0.0049	0.3755	-0.0030	0.3579	-0.0074	0.3262	-0.0177
4.00	2.00	0.3984	-0.0050	0.3753	-0.0032	0.3577	-0.0076	0.3259	-0.0180
4.17	2.04	0.3982	-0.0052	0.3752	-0.0033	0.3576	-0.0077	0.3254	-0.0185
4.33	2.08	0.3980	-0.0054	0.3750	-0.0035	0.3574	-0.0079	0.3247	-0.0192
4.50	2.12	0.3979	-0.0055	0.3749	-0.0036	0.3571	-0.0082	0.3244	-0.0195
4.67	2.16	0.3978	-0.0056	0.3749	-0.0036	0.3569	-0.0084	0.3238	-0.0201
4.83	2.20	0.3976	-0.0058	0.3748	-0.0037	0.3567	-0.0086	0.3235	-0.0204
5.00	2.24	0.3975	-0.0059	0.3747	-0.0038	0.3566	-0.0087	0.3230	-0.0209
5.17	2.27	0.3973	-0.0061	0.3746	-0.0039	0.3563	-0.0090	0.3227	-0.0212
5.33	2.31	0.3971	-0.0063	0.3745	-0.0040	0.3562	-0.0091	0.3222	-0.0217
5.50	2.35	0.3970	-0.0064	0.3744	-0.0041	0.3561	-0.0092	0.3218	-0.0221
5.67	2.38	0.3969	-0.0065	0.3743	-0.0042	0.3559	-0.0094	0.3214	-0.0225
5.83	2.42	0.3968	-0.0066	0.3742	-0.0043	0.3557	-0.0096	0.3211	-0.0228
6.00	2.45	0.3966	-0.0068	0.3742	-0.0043	0.3555	-0.0098	0.3207	-0.0232
6.17	2.48	0.3965	-0.0069	0.3741	-0.0044	0.3553	-0.0100	0.3203	-0.0236
6.33	2.52	0.3963	-0.0071	0.3740	-0.0045	0.3553	-0.0100	0.3199	-0.0240
6.50	2.55	0.3962	-0.0072	0.3739	-0.0046	0.3550	-0.0103	0.3197	-0.0242
6.67	2.58	0.3961	-0.0073	0.3737	-0.0048	0.3549	-0.0104	0.3192	-0.0247
6.83	2.61	0.3960	-0.0074	0.3737	-0.0048	0.3547	-0.0106	0.3190	-0.0249
7.00	2.65	0.3958	-0.0076	0.3736	-0.0049	0.3546	-0.0107	0.3186	-0.0253
7.17	2.68	0.3957	-0.0077	0.3735	-0.0050	0.3545	-0.0108	0.3183	-0.0256
7.33	2.71	0.3955	-0.0079	0.3734	-0.0051	0.3544	-0.0109	0.3180	-0.0259
7.50	2.74	0.3954	-0.0080	0.3734	-0.0051	0.3542	-0.0111	0.3178	-0.0261
7.67	2.77	0.3953	-0.0081	0.3733	-0.0052	0.3540	-0.0113	0.3175	-0.0264
7.83	2.80	0.3952	-0.0082	0.3732	-0.0053	0.3539	-0.0114	0.3173	-0.0266
8.00	2.83	0.3950	-0.0084	0.3731	-0.0054	0.3538	-0.0115	0.3169	-0.0270
8.17	2.86	0.3949	-0.0085	0.3731	-0.0054	0.3537	-0.0116	0.3167	-0.0272
8.33	2.89	0.3947	-0.0087	0.3729	-0.0056	0.3536	-0.0117	0.3164	-0.0275
8.50	2.92	0.3946	-0.0088	0.3729	-0.0056	0.3534	-0.0119	0.3163	-0.0276
8.67	2.94	0.3945	-0.0089	0.3728	-0.0057	0.3533	-0.0120	0.3160	-0.0279
8.83	2.97	0.3944	-0.0090	0.3727	-0.0058	0.3532	-0.0121	0.3158	-0.0281
9.00	3.00	0.3942	-0.0092	0.3726	-0.0059	0.3530	-0.0123	0.3155	-0.0284
9.17	3.03	0.3941	-0.0093	0.3726	-0.0059	0.3529	-0.0124	0.3153	-0.0286
9.33	3.06	0.3939	-0.0095	0.3726	-0.0059	0.3529	-0.0124	0.3152	-0.0287
9.50	3.08	0.3938	-0.0096	0.3725	-0.0060	0.3528	-0.0125	0.3150	-0.0289
9.67	3.11	0.3937	-0.0097	0.3724	-0.0061	0.3527	-0.0126	0.3147	-0.0292
9.83	3.14	0.3936	-0.0098	0.3723	-0.0062	0.3525	-0.0128	0.3146	-0.0293
10.00	3.16	0.3934	-0.0100	0.3722	-0.0063	0.3524	-0.0129	0.3144	-0.0295
10.17	3.19	0.3933	-0.0101	0.3722	-0.0063	0.3523	-0.0130	0.3143	-0.0296
10.33	3.21	0.3932	-0.0102	0.3721	-0.0064	0.3522	-0.0131	0.3141	-0.0298
10.50	3.24	0.3930	-0.0104	0.3720	-0.0065	0.3521	-0.0132	0.3139	-0.0300
10.67	3.27	0.3930	-0.0104	0.3719	-0.0066	0.3521	-0.0132	0.3136	-0.0303

Sample: Pond 12S, BH-2 @ 16.5 feet

Time (minutes)	Square Root of Time (minutes)	Test 1 @ 25 psf		Test 2 @ 50 psf		Test 3 @ 100 psf		Test 4 @ 250 psf	
		Dial Reading (inches)	Deflection (inches)	Dial Reading (inches)	Deflection (inches)	Dial Reading (inches)	Deflection (inches)	Dial Reading (inches)	Deflection (inches)
10.83	3.29	0.3928	-0.0106	0.3718	-0.0067	0.3520	-0.0133	0.3136	-0.0303
11.00	3.32	0.3927	-0.0107	0.3718	-0.0067	0.3519	-0.0134	0.3134	-0.0305
11.17	3.34	0.3926	-0.0108	0.3718	-0.0067	0.3518	-0.0135	0.3132	-0.0307
11.33	3.37	0.3924	-0.0110	0.3717	-0.0068	0.3517	-0.0136	0.3130	-0.0309
11.50	3.39	0.3923	-0.0111	0.3717	-0.0068	0.3516	-0.0137	0.3129	-0.0310
11.67	3.42	0.3923	-0.0111	0.3716	-0.0069	0.3516	-0.0137	0.3128	-0.0311
11.83	3.44	0.3921	-0.0113	0.3715	-0.0070	0.3514	-0.0139	0.3127	-0.0312
12.00	3.46	0.3919	-0.0115	0.3715	-0.0070	0.3514	-0.0139	0.3125	-0.0314
12.17	3.49	0.3919	-0.0115	0.3714	-0.0071	0.3514	-0.0139	0.3124	-0.0315
12.33	3.51	0.3917	-0.0117	0.3713	-0.0072	0.3513	-0.0140	0.3122	-0.0317
12.50	3.54	0.3916	-0.0118	0.3712	-0.0073	0.3512	-0.0141	0.3121	-0.0318
12.67	3.56	0.3915	-0.0119	0.3712	-0.0073	0.3511	-0.0142	0.3120	-0.0319
12.83	3.58	0.3915	-0.0119	0.3711	-0.0074	0.3510	-0.0143	0.3120	-0.0319
13.00	3.61	0.3913	-0.0121	0.3711	-0.0074	0.3509	-0.0144	0.3118	-0.0321
13.17	3.63	0.3912	-0.0122	0.3710	-0.0075	0.3508	-0.0145	0.3117	-0.0322
13.33	3.65	0.3911	-0.0123	0.3710	-0.0075	0.3508	-0.0145	0.3116	-0.0323
13.50	3.67	0.3910	-0.0124	0.3710	-0.0075	0.3507	-0.0146	0.3115	-0.0324
13.67	3.70	0.3910	-0.0124	0.3710	-0.0075	0.3507	-0.0146	0.3113	-0.0326
13.83	3.72	0.3908	-0.0126	0.3709	-0.0076	0.3506	-0.0147	0.3112	-0.0327
14.00	3.74	0.3907	-0.0127	0.3709	-0.0076	0.3506	-0.0147	0.3112	-0.0327
14.17	3.76	0.3907	-0.0127	0.3708	-0.0077	0.3505	-0.0148	0.3111	-0.0328
14.33	3.79	0.3906	-0.0128	0.3707	-0.0078	0.3505	-0.0148	0.3110	-0.0329
14.50	3.81	0.3905	-0.0129	0.3707	-0.0078	0.3504	-0.0149	0.3109	-0.0330
14.67	3.83	0.3903	-0.0131	0.3707	-0.0078	0.3503	-0.0150	0.3108	-0.0331
14.83	3.85	0.3902	-0.0132	0.3706	-0.0079	0.3502	-0.0151	0.3107	-0.0332
15.33	3.92	0.3899	-0.0135	0.3705	-0.0080	0.3501	-0.0152	0.3105	-0.0334
15.83	3.98	0.3897	-0.0137	0.3703	-0.0082	0.3499	-0.0154	0.3102	-0.0337
16.33	4.04	0.3893	-0.0141	0.3702	-0.0083	0.3498	-0.0155	0.3100	-0.0339
16.83	4.10	0.3891	-0.0143	0.3702	-0.0083	0.3497	-0.0156	0.3098	-0.0341
17.33	4.16	0.3888	-0.0146	0.3701	-0.0084	0.3496	-0.0157	0.3097	-0.0342
17.83	4.22	0.3885	-0.0149	0.3700	-0.0085	0.3494	-0.0159	0.3095	-0.0344
18.33	4.28	0.3883	-0.0151	0.3699	-0.0086	0.3493	-0.0160	0.3093	-0.0346
18.83	4.34	0.3880	-0.0154	0.3698	-0.0087	0.3492	-0.0161	0.3091	-0.0348
19.33	4.40	0.3877	-0.0157	0.3697	-0.0088	0.3491	-0.0162	0.3090	-0.0349
19.83	4.45	0.3875	-0.0159	0.3695	-0.0090	0.3490	-0.0163	0.3089	-0.0350
20.33	4.51	0.3873	-0.0161	0.3695	-0.0090	0.3490	-0.0163	0.3088	-0.0351
20.83	4.56	0.3870	-0.0164	0.3694	-0.0091	0.3489	-0.0164	0.3086	-0.0353
21.33	4.62	0.3868	-0.0166	0.3694	-0.0091	0.3488	-0.0165	0.3085	-0.0354
21.83	4.67	0.3867	-0.0167	0.3693	-0.0092	0.3486	-0.0167	0.3083	-0.0356
22.33	4.73	0.3864	-0.0170	0.3692	-0.0093	0.3485	-0.0168	0.3082	-0.0357
22.83	4.78	0.3862	-0.0172	0.3692	-0.0093	0.3484	-0.0169	0.3081	-0.0358
23.33	4.83	0.3860	-0.0174	0.3690	-0.0095	0.3482	-0.0171	0.3081	-0.0358
23.83	4.88	0.3858	-0.0176	0.3690	-0.0095	0.3482	-0.0171	0.3080	-0.0359
24.33	4.93	0.3856	-0.0178	0.3689	-0.0096	0.3481	-0.0172	0.3079	-0.0360
24.83	4.98	0.3855	-0.0179	0.3689	-0.0096	0.3480	-0.0173	0.3078	-0.0361
25.33	5.03	0.3853	-0.0181	0.3688	-0.0097	0.3480	-0.0173	0.3077	-0.0362
25.83	5.08	0.3851	-0.0183	0.3687	-0.0098	0.3479	-0.0174	0.3076	-0.0363
26.33	5.13	0.3849	-0.0185	0.3687	-0.0098	0.3479	-0.0174	0.3075	-0.0364
26.83	5.18	0.3847	-0.0187	0.3687	-0.0098	0.3478	-0.0175	0.3075	-0.0364
27.33	5.23	0.3845	-0.0189	0.3687	-0.0098	0.3477	-0.0176	0.3074	-0.0365
27.83	5.28	0.3844	-0.0190	0.3686	-0.0099	0.3477	-0.0176	0.3074	-0.0365
28.33	5.32	0.3843	-0.0191	0.3686	-0.0099	0.3476	-0.0177	0.3073	-0.0366
28.83	5.37	0.3841	-0.0193	0.3685	-0.0100	0.3476	-0.0177	0.3072	-0.0367
29.33	5.42	0.3839	-0.0195	0.3684	-0.0101	0.3475	-0.0178	0.3072	-0.0367
29.83	5.46	0.3838	-0.0196	0.3684	-0.0101	0.3475	-0.0178	0.3071	-0.0368
30.33	5.51	0.3836	-0.0198	0.3683	-0.0102	0.3474	-0.0179	0.3070	-0.0369
30.83	5.55	0.3835	-0.0199	0.3683	-0.0102	0.3474	-0.0179	0.3070	-0.0369
31.33	5.60	0.3833	-0.0201	0.3683	-0.0102	0.3474	-0.0179	0.3069	-0.0370
31.83	5.64	0.3831	-0.0203	0.3683	-0.0102	0.3474	-0.0179	0.3069	-0.0370
32.33	5.69	0.3830	-0.0204	0.3682	-0.0103	0.3473	-0.0180	0.3068	-0.0371
32.83	5.73	0.3829	-0.0205	0.3681	-0.0104	0.3473	-0.0180	0.3068	-0.0371
33.33	5.77	0.3828	-0.0206	0.3681	-0.0104	0.3473	-0.0180	0.3067	-0.0372
33.83	5.82	0.3827	-0.0207	0.3681	-0.0104	0.3472	-0.0181	0.3067	-0.0372
34.33	5.86	0.3826	-0.0208	0.3680	-0.0105	0.3471	-0.0182	0.3067	-0.0372
34.83	5.90	0.3825	-0.0209	0.3680	-0.0105	0.3471	-0.0182	0.3066	-0.0373

Sample: Pond 12S, BH-2 @ 16.5 feet

Time (minutes)	Square Root of Time (minutes)	Test 1 @ 25 psf		Test 2 @ 50 psf		Test 3 @ 100 psf		Test 4 @ 250 psf	
		Dial Reading (inches)	Deflection (inches)	Dial Reading (inches)	Deflection (inches)	Dial Reading (inches)	Deflection (inches)	Dial Reading (inches)	Deflection (inches)
35.33	5.94	0.3823	-0.0211	0.3679	-0.0106	0.3471	-0.0182	0.3065	-0.0374
35.83	5.99	0.3822	-0.0212	0.3679	-0.0106	0.3470	-0.0183	0.3065	-0.0374
36.33	6.03	0.3821	-0.0213	0.3679	-0.0106	0.3470	-0.0183	0.3065	-0.0374
36.83	6.07	0.3820	-0.0214	0.3679	-0.0106	0.3469	-0.0184	0.3065	-0.0374
37.33	6.11	0.3820	-0.0214	0.3679	-0.0106	0.3469	-0.0184	0.3064	-0.0375
37.83	6.15	0.3820	-0.0214	0.3678	-0.0107	0.3469	-0.0184	0.3064	-0.0375
38.33	6.19	0.3819	-0.0215	0.3678	-0.0107	0.3469	-0.0184	0.3064	-0.0375
38.83	6.23	0.3819	-0.0215	0.3678	-0.0107	0.3468	-0.0185	0.3063	-0.0376
39.33	6.27	0.3817	-0.0217	0.3677	-0.0108	0.3468	-0.0185	0.3063	-0.0376
39.83	6.31	0.3816	-0.0218	0.3677	-0.0108	0.3468	-0.0185	0.3062	-0.0377
40.33	6.35	0.3815	-0.0219	0.3677	-0.0108	0.3468	-0.0185	0.3062	-0.0377
40.83	6.39	0.3815	-0.0219	0.3676	-0.0109	0.3467	-0.0186	0.3062	-0.0377
41.33	6.43	0.3813	-0.0221	0.3676	-0.0109	0.3467	-0.0186	0.3061	-0.0378
41.83	6.47	0.3812	-0.0222	0.3675	-0.0110	0.3467	-0.0186	0.3061	-0.0378
42.33	6.51	0.3812	-0.0222	0.3675	-0.0110	0.3467	-0.0186	0.3061	-0.0378
42.83	6.54	0.3812	-0.0222	0.3675	-0.0110	0.3466	-0.0187	0.3061	-0.0378
43.33	6.58	0.3811	-0.0223	0.3675	-0.0110	0.3466	-0.0187	0.3060	-0.0379
43.83	6.62	0.3810	-0.0224	0.3675	-0.0110	0.3466	-0.0187	0.3060	-0.0379
44.33	6.66	0.3809	-0.0225	0.3674	-0.0111	0.3466	-0.0187	0.3060	-0.0379
44.83	6.70	0.3808	-0.0226	0.3674	-0.0111	0.3466	-0.0187	0.3059	-0.0380
45.33	6.73	0.3808	-0.0226	0.3673	-0.0112	0.3466	-0.0187	0.3059	-0.0380
45.83	6.77	0.3807	-0.0227	0.3672	-0.0113	0.3466	-0.0187	0.3059	-0.0380
46.33	6.81	0.3807	-0.0227	0.3671	-0.0114	0.3466	-0.0187	0.3059	-0.0380
46.83	6.84	0.3806	-0.0228	0.3671	-0.0114	0.3466	-0.0187	0.3058	-0.0381
47.33	6.88	0.3806	-0.0228	0.3671	-0.0114	0.3465	-0.0188	0.3058	-0.0381
47.83	6.92	0.3805	-0.0229	0.3671	-0.0114	0.3465	-0.0188	0.3058	-0.0381
48.33	6.95	0.3805	-0.0229	0.3671	-0.0114	0.3465	-0.0188	0.3057	-0.0382
48.83	6.99	0.3805	-0.0229	0.3671	-0.0114	0.3465	-0.0188	0.3057	-0.0382
49.33	7.02	0.3804	-0.0230	0.3671	-0.0114	0.3464	-0.0189	0.3057	-0.0382
49.83	7.06	0.3804	-0.0230	0.3670	-0.0115	0.3464	-0.0189	0.3057	-0.0382
50.33	7.09	0.3803	-0.0231	0.3670	-0.0115	0.3464	-0.0189	0.3057	-0.0382
50.83	7.13	0.3802	-0.0232	0.3669	-0.0116	0.3464	-0.0189	0.3057	-0.0382
51.33	7.16	0.3801	-0.0233	0.3669	-0.0116	0.3464	-0.0189	0.3057	-0.0382
51.83	7.20	0.3801	-0.0233	0.3669	-0.0116	0.3464	-0.0189	0.3057	-0.0382
52.33	7.23	0.3801	-0.0233	0.3668	-0.0117	0.3463	-0.0190	0.3057	-0.0382
52.83	7.27	0.3800	-0.0234	0.3668	-0.0117	0.3463	-0.0190	0.3056	-0.0383
53.33	7.30	0.3800	-0.0234	0.3668	-0.0117	0.3463	-0.0190	0.3056	-0.0383
53.83	7.34	0.3800	-0.0234	0.3668	-0.0117	0.3463	-0.0190	0.3056	-0.0383
54.33	7.37	0.3800	-0.0234	0.3668	-0.0117	0.3462	-0.0191	0.3056	-0.0383
54.83	7.40	0.3799	-0.0235	0.3667	-0.0118	0.3462	-0.0191	0.3055	-0.0384
55.33	7.44	0.3799	-0.0235	0.3667	-0.0118	0.3462	-0.0191	0.3055	-0.0384
55.83	7.47	0.3798	-0.0236	0.3666	-0.0119	0.3462	-0.0191	0.3055	-0.0384
56.33	7.51	0.3798	-0.0236	0.3666	-0.0119	0.3462	-0.0191	0.3055	-0.0384
56.83	7.54	0.3797	-0.0237	0.3665	-0.0120	0.3462	-0.0191	0.3055	-0.0384
57.33	7.57	0.3797	-0.0237	0.3665	-0.0120	0.3462	-0.0191	0.3054	-0.0385
57.83	7.60	0.3797	-0.0237	0.3664	-0.0121	0.3461	-0.0192	0.3054	-0.0385
58.33	7.64	0.3797	-0.0237	0.3664	-0.0121	0.3461	-0.0192	0.3054	-0.0385
58.83	7.67	0.3797	-0.0237	0.3664	-0.0121	0.3461	-0.0192	0.3054	-0.0385
59.33	7.70	0.3797	-0.0237	0.3664	-0.0121	0.3461	-0.0192	0.3054	-0.0385
59.83	7.74	0.3797	-0.0237	0.3664	-0.0121	0.3461	-0.0192	0.3053	-0.0386
60.83	7.80	0.3796	-0.0238	0.3663	-0.0122	0.3460	-0.0193	0.3053	-0.0386
61.83	7.86	0.3796	-0.0238	0.3664	-0.0121	0.3460	-0.0193	0.3053	-0.0386
62.83	7.93	0.3795	-0.0239	0.3663	-0.0122	0.3460	-0.0193	0.3052	-0.0387
63.83	7.99	0.3795	-0.0239	0.3663	-0.0122	0.3460	-0.0193	0.3052	-0.0387
64.83	8.05	0.3794	-0.0240	0.3665	-0.0120	0.3459	-0.0194	0.3052	-0.0387
65.83	8.11	0.3794	-0.0240	0.3665	-0.0120	0.3460	-0.0193	0.3051	-0.0388
66.83	8.18	0.3793	-0.0241	0.3664	-0.0121	0.3459	-0.0194	0.3051	-0.0388
67.83	8.24	0.3793	-0.0241	0.3664	-0.0121	0.3459	-0.0194	0.3050	-0.0389
68.83	8.30	0.3792	-0.0242	0.3664	-0.0121	0.3459	-0.0194	0.3050	-0.0389
69.83	8.36	0.3792	-0.0242	0.3664	-0.0121	0.3458	-0.0195	0.3049	-0.0390
70.83	8.42	0.3792	-0.0242	0.3663	-0.0122	0.3458	-0.0195	0.3049	-0.0390
71.83	8.48	0.3791	-0.0243	0.3663	-0.0122	0.3458	-0.0195	0.3049	-0.0390
72.83	8.53	0.3791	-0.0243	0.3663	-0.0122	0.3458	-0.0195	0.3049	-0.0390
73.83	8.59	0.3791	-0.0243	0.3663	-0.0122	0.3458	-0.0195	0.3049	-0.0390
74.83	8.65	0.3790	-0.0244	0.3663	-0.0122	0.3458	-0.0195	0.3049	-0.0390

Sample: Pond 12S, BH-2 @ 16.5 feet

Time (minutes)	Square Root of Time (minutes)	Test 1 @ 25 psf		Test 2 @ 50 psf		Test 3 @ 100 psf		Test 4 @ 250 psf	
		Dial Reading (inches)	Deflection (inches)	Dial Reading (inches)	Deflection (inches)	Dial Reading (inches)	Deflection (inches)	Dial Reading (inches)	Deflection (inches)
75.83	8.71	0.3790	-0.0244	0.3663	-0.0122	0.3458	-0.0195	0.3049	-0.0390
76.83	8.77	0.3789	-0.0245	0.3663	-0.0122	0.3458	-0.0195	0.3049	-0.0390
77.83	8.82	0.3789	-0.0245	0.3663	-0.0122	0.3458	-0.0195	0.3048	-0.0391
78.83	8.88	0.3789	-0.0245	0.3661	-0.0124	0.3458	-0.0195	0.3048	-0.0391
79.83	8.93	0.3789	-0.0245	0.3661	-0.0124	0.3458	-0.0195	0.3048	-0.0391
80.83	8.99	0.3789	-0.0245	0.3661	-0.0124	0.3457	-0.0196	0.3048	-0.0391
81.83	9.05	0.3789	-0.0245	0.3661	-0.0124	0.3456	-0.0197	0.3048	-0.0391
82.83	9.10	0.3789	-0.0245	0.3660	-0.0125	0.3456	-0.0197	0.3047	-0.0392
83.83	9.16	0.3789	-0.0245	0.3661	-0.0124	0.3456	-0.0197	0.3047	-0.0392
84.83	9.21	0.3789	-0.0245	0.3661	-0.0124	0.3456	-0.0197	0.3047	-0.0392
85.83	9.26	0.3789	-0.0245	0.3660	-0.0125	0.3456	-0.0197	0.3047	-0.0392
86.83	9.32	0.3789	-0.0245	0.3658	-0.0127	0.3456	-0.0197	0.3047	-0.0392
87.83	9.37	0.3789	-0.0245	0.3658	-0.0127	0.3456	-0.0197	0.3046	-0.0393
88.83	9.43	0.3789	-0.0245	0.3659	-0.0126	0.3456	-0.0197	0.3046	-0.0393
89.83	9.48	0.3789	-0.0245	0.3659	-0.0126	0.3456	-0.0197	0.3046	-0.0393
90.83	9.53	0.3789	-0.0245	0.3659	-0.0126	0.3456	-0.0197	0.3046	-0.0393
91.83	9.58	0.3789	-0.0245	0.3659	-0.0126	0.3456	-0.0197	0.3043	-0.0396
92.83	9.64	0.3789	-0.0245	0.3659	-0.0126	0.3455	-0.0198	0.3044	-0.0395
93.83	9.69	0.3789	-0.0245	0.3659	-0.0126	0.3455	-0.0198	0.3043	-0.0396
94.83	9.74	0.3789	-0.0245	0.3659	-0.0126	0.3455	-0.0198	0.3042	-0.0397
95.83	9.79	0.3789	-0.0245	0.3659	-0.0126	0.3455	-0.0198	0.3042	-0.0397
96.83	9.84	0.3789	-0.0245	0.3658	-0.0127	0.3455	-0.0198	0.3042	-0.0397
97.83	9.89	0.3789	-0.0245	0.3658	-0.0127	0.3455	-0.0198	0.3042	-0.0397
98.83	9.94	0.3788	-0.0246	0.3658	-0.0127	0.3455	-0.0198	0.3042	-0.0397
99.83	9.99	0.3788	-0.0246	0.3658	-0.0127	0.3455	-0.0198	0.3042	-0.0397
100.83	10.04	0.3788	-0.0246	0.3658	-0.0127	0.3454	-0.0199	0.3042	-0.0397
101.83	10.09	0.3788	-0.0246	0.3658	-0.0127	0.3454	-0.0199	0.3042	-0.0397
102.83	10.14	0.3788	-0.0246	0.3657	-0.0128	0.3454	-0.0199	0.3042	-0.0397
103.83	10.19	0.3787	-0.0247	0.3657	-0.0128	0.3454	-0.0199	0.3042	-0.0397
104.83	10.24	0.3787	-0.0247	0.3657	-0.0128	0.3454	-0.0199	0.3042	-0.0397
105.83	10.29	0.3787	-0.0247	0.3657	-0.0128	0.3454	-0.0199	0.3042	-0.0397
106.83	10.34	0.3787	-0.0247	0.3656	-0.0129	0.3454	-0.0199	0.3042	-0.0397
107.83	10.38	0.3787	-0.0247	0.3656	-0.0129	0.3454	-0.0199	0.3042	-0.0397
108.83	10.43	0.3787	-0.0247	0.3656	-0.0129	0.3454	-0.0199	0.3042	-0.0397
109.83	10.48	0.3787	-0.0247	0.3656	-0.0129	0.3453	-0.0200	0.3042	-0.0397
110.83	10.53	0.3786	-0.0248	0.3656	-0.0129	0.3453	-0.0200	0.3042	-0.0397
111.83	10.58	0.3787	-0.0247	0.3656	-0.0129	0.3453	-0.0200	0.3041	-0.0398
112.83	10.62	0.3786	-0.0248	0.3656	-0.0129	0.3453	-0.0200	0.3041	-0.0398
113.83	10.67	0.3786	-0.0248	0.3655	-0.0130	0.3453	-0.0200	0.3041	-0.0398
114.83	10.72	0.3786	-0.0248	0.3655	-0.0130	0.3453	-0.0200	0.3041	-0.0398
115.83	10.76	0.3786	-0.0248	0.3655	-0.0130	0.3452	-0.0201	0.3040	-0.0399
116.83	10.81	0.3786	-0.0248	0.3655	-0.0130	0.3453	-0.0200	0.3040	-0.0399
117.83	10.86	0.3786	-0.0248	0.3655	-0.0130	0.3452	-0.0201	0.3040	-0.0399
118.83	10.90	0.3786	-0.0248	0.3655	-0.0130	0.3452	-0.0201	0.3038	-0.0401
119.83	10.95	0.3786	-0.0248	0.3655	-0.0130	0.3452	-0.0201	0.3038	-0.0401
129.83	11.39	0.3786	-0.0248	0.3655	-0.0130	0.3451	-0.0202	0.3036	-0.0403
139.83	11.83	0.3786	-0.0248			0.3451	-0.0202	0.3035	-0.0404
149.83	12.24	0.3786	-0.0248			0.3451	-0.0202	0.3032	-0.0407
159.83	12.64	0.3785	-0.0249			0.3451	-0.0202	0.3032	-0.0407
169.83	13.03					0.3451	-0.0202	0.3032	-0.0407
179.83	13.41					0.3450	-0.0203	0.3032	-0.0407
189.83	13.78					0.3449	-0.0204	0.3031	-0.0408
199.83	14.14					0.3448	-0.0205	0.3030	-0.0409
209.83	14.49					0.3448	-0.0205	0.3029	-0.0410
219.83	14.83					0.3448	-0.0205	0.3026	-0.0413
229.83	15.16					0.3447	-0.0206	0.3026	-0.0413
239.83	15.49					0.3446	-0.0207	0.3026	-0.0413
249.83	15.81					0.3446	-0.0207	0.3025	-0.0414
259.83	16.12					0.3446	-0.0207	0.3025	-0.0414
269.83	16.43					0.3446	-0.0207	0.3025	-0.0414
279.83	16.73					0.3446	-0.0207	0.3025	-0.0414
289.83	17.02					0.3446	-0.0207	0.3024	-0.0415
299.83	17.32					0.3446	-0.0207	0.3024	-0.0415
309.83	17.60					0.3446	-0.0207	0.3023	-0.0416
319.83	17.88					0.3444	-0.0209	0.3023	-0.0416

Sample: Pond 12S, BH-2 @ 16.5 feet

Time (minutes)	Square Root of Time (minutes)	Test 1 @ 25 psf		Test 2 @ 50 psf		Test 3 @ 100 psf		Test 4 @ 250 psf	
		Dial Reading (inches)	Deflection (inches)	Dial Reading (inches)	Deflection (inches)	Dial Reading (inches)	Deflection (inches)	Dial Reading (inches)	Deflection (inches)
329.83	18.16					0.3444	-0.0209		
339.83	18.43					0.3444	-0.0209		
349.83	18.70					0.3444	-0.0209		
359.83	18.97					0.3444	-0.0209		
369.83	19.23					0.3444	-0.0209		
379.83	19.49					0.3444	-0.0209		
389.83	19.74					0.3444	-0.0209		
399.83	20.00					0.3443	-0.0210		
409.83	20.24					0.3443	-0.0210		
419.83	20.49					0.3443	-0.0210		
429.83	20.73					0.3443	-0.0210		
439.83	20.97					0.3443	-0.0210		
449.83	21.21					0.3443	-0.0210		
459.83	21.44					0.3443	-0.0210		
469.83	21.68					0.3442	-0.0211		
479.83	21.91					0.3442	-0.0211		
489.83	22.13					0.3443	-0.0210		
499.83	22.36					0.3443	-0.0210		
509.83	22.58					0.3442	-0.0211		
519.83	22.80					0.3443	-0.0210		
529.83	23.02					0.3442	-0.0211		
539.83	23.23					0.3442	-0.0211		
549.83	23.45					0.3443	-0.0210		
559.83	23.66					0.3443	-0.0210		
569.83	23.87					0.3442	-0.0211		
579.83	24.08					0.3442	-0.0211		
589.83	24.29					0.3442	-0.0211		
599.83	24.49					0.3442	-0.0211		
609.83	24.69					0.3441	-0.0212		
619.83	24.90					0.3441	-0.0212		
629.83	25.10					0.3442	-0.0211		
639.83	25.29					0.3442	-0.0211		
649.83	25.49					0.3441	-0.0212		
659.83	25.69					0.3441	-0.0212		
669.83	25.88					0.3441	-0.0212		
679.83	26.07					0.3441	-0.0212		
689.83	26.26					0.3441	-0.0212		
699.83	26.45					0.3441	-0.0212		
709.83	26.64					0.3441	-0.0212		
719.83	26.83					0.3441	-0.0212		
749.83	27.38					0.3440	-0.0213		
779.83	27.93					0.3440	-0.0213		
809.83	28.46					0.3439	-0.0214		
839.83	28.98					0.3439	-0.0214		
869.83	29.49					0.3439	-0.0214		
899.83	30.00					0.3439	-0.0214		

Sample: Pond 12S, BH-2 @ 16.5 feet

Time (minutes)	Square Root of Time (minutes)	Test 5 @ 500 psf		Test 6 @ 1000 psf		Test 7 @ 2000 psf		Test 8 @ 4000 psf	
		Dial Reading (inches)	Deflection (inches)	Dial Reading (inches)	Deflection (inches)	Dial Reading (inches)	Deflection (inches)	Dial Reading (inches)	Deflection (inches)
0.00	0.00	0.3019	0.0000	0.2466	0.0000	0.1736	0.0000	0.4135	0.0000
0.17	0.41	0.2987	-0.0032	0.2466	0.0000	0.1722	-0.0014	0.4135	0.0000
0.33	0.58	0.2950	-0.0069	0.2355	-0.0111	0.1575	-0.0161	0.4136	0.0001
0.50	0.71	0.2932	-0.0087	0.2320	-0.0146	0.1496	-0.0240	0.4135	0.0000
0.67	0.82	0.2917	-0.0102	0.2292	-0.0174	0.1476	-0.0260	0.4135	0.0000
0.83	0.91	0.2903	-0.0116	0.2262	-0.0204	0.1409	-0.0327	0.4135	0.0000
1.00	1.00	0.2903	-0.0116	0.2241	-0.0225	0.1380	-0.0356	0.3986	-0.0149
1.17	1.08	0.2873	-0.0146	0.2211	-0.0255	0.1352	-0.0384	0.3943	-0.0192
1.33	1.15	0.2858	-0.0161	0.2211	-0.0255	0.1352	-0.0384	0.3898	-0.0237
1.50	1.22	0.2845	-0.0174	0.2211	-0.0255	0.1352	-0.0384	0.3873	-0.0262
1.67	1.29	0.2837	-0.0182	0.2161	-0.0305	0.1352	-0.0384	0.3843	-0.0292
1.83	1.35	0.2822	-0.0197	0.2148	-0.0318	0.1352	-0.0384	0.3825	-0.0310
2.00	1.41	0.2815	-0.0204	0.2129	-0.0337	0.1227	-0.0509	0.3810	-0.0325
2.17	1.47	0.2803	-0.0216	0.2117	-0.0349	0.1215	-0.0521	0.3790	-0.0345
2.33	1.53	0.2796	-0.0223	0.2102	-0.0364	0.1196	-0.0540	0.3783	-0.0352
2.50	1.58	0.2796	-0.0223	0.2090	-0.0376	0.1185	-0.0551	0.3769	-0.0366
2.67	1.63	0.2796	-0.0223	0.2080	-0.0386	0.1170	-0.0566	0.3763	-0.0372
2.83	1.68	0.2771	-0.0248	0.2066	-0.0400	0.1160	-0.0576	0.3757	-0.0378
3.00	1.73	0.2767	-0.0252	0.2066	-0.0400	0.1151	-0.0585	0.3744	-0.0391
3.17	1.78	0.2757	-0.0262	0.2066	-0.0400	0.1138	-0.0598	0.3733	-0.0402
3.33	1.83	0.2751	-0.0268	0.2037	-0.0429	0.1132	-0.0604	0.3727	-0.0408
3.50	1.87	0.2745	-0.0274	0.2029	-0.0437	0.1122	-0.0614	0.3718	-0.0417
3.67	1.91	0.2740	-0.0279	0.2027	-0.0439	0.1116	-0.0620	0.3713	-0.0422
3.83	1.96	0.2736	-0.0283	0.2016	-0.0450	0.1108	-0.0628	0.3708	-0.0427
4.00	2.00	0.2727	-0.0292	0.2009	-0.0457	0.1103	-0.0633	0.3703	-0.0432
4.17	2.04	0.2720	-0.0299	0.2000	-0.0466	0.1096	-0.0640	0.3698	-0.0437
4.33	2.08	0.2713	-0.0306	0.1997	-0.0469	0.1096	-0.0640	0.3695	-0.0440
4.50	2.12	0.2709	-0.0310	0.1988	-0.0478	0.1096	-0.0640	0.3691	-0.0444
4.67	2.16	0.2703	-0.0316	0.1982	-0.0484	0.1096	-0.0640	0.3687	-0.0448
4.83	2.20	0.2698	-0.0321	0.1976	-0.0490	0.1096	-0.0640	0.3684	-0.0451
5.00	2.24	0.2692	-0.0327	0.1972	-0.0494	0.1075	-0.0661	0.3682	-0.0453
5.17	2.27	0.2688	-0.0331	0.1964	-0.0502	0.1071	-0.0665	0.3678	-0.0457
5.33	2.31	0.2682	-0.0337	0.1959	-0.0507	0.1067	-0.0669	0.3676	-0.0459
5.50	2.35	0.2678	-0.0341	0.1953	-0.0513	0.1064	-0.0672	0.3672	-0.0463
5.67	2.38	0.2672	-0.0347	0.1949	-0.0517	0.1060	-0.0676	0.3671	-0.0464
5.83	2.42	0.2669	-0.0350	0.1944	-0.0522	0.1058	-0.0678	0.3668	-0.0467
6.00	2.45	0.2664	-0.0355	0.1940	-0.0526	0.1055	-0.0681	0.3666	-0.0469
6.17	2.48	0.2662	-0.0357	0.1935	-0.0531	0.1052	-0.0684	0.3663	-0.0472
6.33	2.52	0.2657	-0.0362	0.1932	-0.0534	0.1050	-0.0686	0.3661	-0.0474
6.50	2.55	0.2655	-0.0364	0.1928	-0.0538	0.1047	-0.0689	0.3658	-0.0477
6.67	2.58	0.2651	-0.0368	0.1925	-0.0541	0.1045	-0.0691	0.3656	-0.0479
6.83	2.61	0.2648	-0.0371	0.1921	-0.0545	0.1043	-0.0693	0.3655	-0.0480
7.00	2.65	0.2645	-0.0374	0.1918	-0.0548	0.1041	-0.0695	0.3654	-0.0481
7.17	2.68	0.2642	-0.0377	0.1915	-0.0551	0.1039	-0.0697	0.3651	-0.0484
7.33	2.71	0.2639	-0.0380	0.1913	-0.0553	0.1039	-0.0697	0.3650	-0.0485
7.50	2.74	0.2636	-0.0383	0.1909	-0.0557	0.1039	-0.0697	0.3648	-0.0487
7.67	2.77	0.2633	-0.0386	0.1908	-0.0558	0.1039	-0.0697	0.3647	-0.0488
7.83	2.80	0.2632	-0.0387	0.1904	-0.0562	0.1039	-0.0697	0.3646	-0.0489
8.00	2.83	0.2628	-0.0391	0.1903	-0.0563	0.1031	-0.0705	0.3645	-0.0490
8.17	2.86	0.2627	-0.0392	0.1900	-0.0566	0.1028	-0.0708	0.3643	-0.0492
8.33	2.89	0.2624	-0.0395	0.1898	-0.0568	0.1027	-0.0709	0.3642	-0.0493
8.50	2.92	0.2623	-0.0396	0.1896	-0.0570	0.1026	-0.0710	0.3640	-0.0495
8.67	2.94	0.2620	-0.0399	0.1893	-0.0573	0.1024	-0.0712	0.3639	-0.0496
8.83	2.97	0.2618	-0.0401	0.1892	-0.0574	0.1022	-0.0714	0.3639	-0.0496
9.00	3.00	0.2616	-0.0403	0.1890	-0.0576	0.1021	-0.0715	0.3638	-0.0497
9.17	3.03	0.2614	-0.0405	0.1888	-0.0578	0.1020	-0.0716	0.3637	-0.0498
9.33	3.06	0.2612	-0.0407	0.1886	-0.0580	0.1020	-0.0716	0.3636	-0.0499
9.50	3.08	0.2611	-0.0408	0.1885	-0.0581	0.1019	-0.0717	0.3634	-0.0501
9.67	3.11	0.2609	-0.0410	0.1884	-0.0582	0.1018	-0.0718	0.3633	-0.0502
9.83	3.14	0.2608	-0.0411	0.1881	-0.0585	0.1018	-0.0718	0.3632	-0.0503
10.00	3.16	0.2606	-0.0413	0.1880	-0.0586	0.1015	-0.0721	0.3632	-0.0503
10.17	3.19	0.2604	-0.0415	0.1878	-0.0588	0.1014	-0.0722	0.3631	-0.0504
10.33	3.21	0.2602	-0.0417	0.1877	-0.0589	0.1013	-0.0723	0.3630	-0.0505
10.50	3.24	0.2601	-0.0418	0.1876	-0.0590	0.1012	-0.0724	0.3629	-0.0506
10.67	3.27	0.2599	-0.0420	0.1875	-0.0591	0.1012	-0.0724	0.3628	-0.0507

Sample: Pond 12S, BH-2 @ 16.5 feet

Time (minutes)	Square Root of Time (minutes)	Test 5 @ 500 psf		Test 6 @ 1000 psf		Test 7 @ 2000 psf		Test 8 @ 4000 psf	
		Dial Reading (inches)	Deflection (inches)	Dial Reading (inches)	Deflection (inches)	Dial Reading (inches)	Deflection (inches)	Dial Reading (inches)	Deflection (inches)
10.83	3.29	0.2598	-0.0421	0.1873	-0.0593	0.1011	-0.0725	0.3627	-0.0508
11.00	3.32	0.2596	-0.0423	0.1871	-0.0595	0.1010	-0.0726	0.3626	-0.0509
11.17	3.34	0.2595	-0.0424	0.1870	-0.0596	0.1009	-0.0727	0.3625	-0.0510
11.33	3.37	0.2593	-0.0426	0.1870	-0.0596	0.1008	-0.0728	0.3624	-0.0511
11.50	3.39	0.2593	-0.0426	0.1868	-0.0598	0.1007	-0.0729	0.3624	-0.0511
11.67	3.42	0.2592	-0.0427	0.1867	-0.0599	0.1006	-0.0730	0.3624	-0.0511
11.83	3.44	0.2591	-0.0428	0.1866	-0.0600	0.1006	-0.0730	0.3623	-0.0512
12.00	3.46	0.2589	-0.0430	0.1865	-0.0601	0.1005	-0.0731	0.3623	-0.0512
12.17	3.49	0.2588	-0.0431	0.1863	-0.0603	0.1005	-0.0731	0.3621	-0.0514
12.33	3.51	0.2586	-0.0433	0.1862	-0.0604	0.1004	-0.0732	0.3621	-0.0514
12.50	3.54	0.2585	-0.0434	0.1862	-0.0604	0.1003	-0.0733	0.3620	-0.0515
12.67	3.56	0.2585	-0.0434	0.1861	-0.0605	0.1003	-0.0733	0.3619	-0.0516
12.83	3.58	0.2584	-0.0435	0.1860	-0.0606	0.1002	-0.0734	0.3618	-0.0517
13.00	3.61	0.2583	-0.0436	0.1859	-0.0607	0.1001	-0.0735	0.3618	-0.0517
13.17	3.63	0.2582	-0.0437	0.1858	-0.0608	0.1000	-0.0736	0.3618	-0.0517
13.33	3.65	0.2581	-0.0438	0.1857	-0.0609	0.1000	-0.0736	0.3617	-0.0518
13.50	3.67	0.2580	-0.0439	0.1856	-0.0610	0.0999	-0.0737	0.3616	-0.0519
13.67	3.70	0.2579	-0.0440	0.1855	-0.0611	0.0998	-0.0738	0.3616	-0.0519
13.83	3.72	0.2578	-0.0441	0.1854	-0.0612	0.0998	-0.0738	0.3616	-0.0519
14.00	3.74	0.2578	-0.0441	0.1854	-0.0612	0.0997	-0.0739	0.3616	-0.0519
14.17	3.76	0.2577	-0.0442	0.1854	-0.0612	0.0997	-0.0739	0.3615	-0.0520
14.33	3.79	0.2576	-0.0443	0.1853	-0.0613	0.0997	-0.0739	0.3614	-0.0521
14.50	3.81	0.2576	-0.0443	0.1852	-0.0614	0.0996	-0.0740	0.3614	-0.0521
14.67	3.83	0.2575	-0.0444	0.1851	-0.0615	0.0995	-0.0741	0.3613	-0.0522
14.83	3.85	0.2574	-0.0445	0.1850	-0.0616	0.0995	-0.0741	0.3612	-0.0523
15.33	3.92	0.2572	-0.0447	0.1849	-0.0617	0.0993	-0.0743	0.3611	-0.0524
15.83	3.98	0.2570	-0.0449	0.1847	-0.0619	0.0992	-0.0744	0.3609	-0.0526
16.33	4.04	0.2569	-0.0450	0.1846	-0.0620	0.0990	-0.0746	0.3608	-0.0527
16.83	4.10	0.2569	-0.0450	0.1844	-0.0622	0.0989	-0.0747	0.3607	-0.0528
17.33	4.16	0.2566	-0.0453	0.1842	-0.0624	0.0988	-0.0748	0.3606	-0.0529
17.83	4.22	0.2563	-0.0456	0.1840	-0.0626	0.0986	-0.0750	0.3604	-0.0531
18.33	4.28	0.2562	-0.0457	0.1839	-0.0627	0.0985	-0.0751	0.3603	-0.0532
18.83	4.34	0.2562	-0.0457	0.1838	-0.0628	0.0984	-0.0752	0.3602	-0.0533
19.33	4.40	0.2560	-0.0459	0.1837	-0.0629	0.0982	-0.0754	0.3601	-0.0534
19.83	4.45	0.2559	-0.0460	0.1835	-0.0631	0.0981	-0.0755	0.3600	-0.0535
20.33	4.51	0.2558	-0.0461	0.1834	-0.0632	0.0981	-0.0755	0.3600	-0.0535
20.83	4.56	0.2557	-0.0462	0.1833	-0.0633	0.0980	-0.0756	0.3598	-0.0537
21.33	4.62	0.2555	-0.0464	0.1832	-0.0634	0.0979	-0.0757	0.3597	-0.0538
21.83	4.67	0.2554	-0.0465	0.1830	-0.0636	0.0978	-0.0758	0.3596	-0.0539
22.33	4.73	0.2554	-0.0465	0.1830	-0.0636	0.0977	-0.0759	0.3595	-0.0540
22.83	4.78	0.2553	-0.0466	0.1829	-0.0637	0.0975	-0.0761	0.3594	-0.0541
23.33	4.83	0.2552	-0.0467	0.1828	-0.0638	0.0974	-0.0762	0.3593	-0.0542
23.83	4.88	0.2551	-0.0468	0.1827	-0.0639	0.0973	-0.0763	0.3592	-0.0543
24.33	4.93	0.2550	-0.0469	0.1826	-0.0640	0.0973	-0.0763	0.3592	-0.0543
24.83	4.98	0.2549	-0.0470	0.1825	-0.0641	0.0973	-0.0763	0.3591	-0.0544
25.33	5.03	0.2549	-0.0470	0.1824	-0.0642	0.0972	-0.0764	0.3590	-0.0545
25.83	5.08	0.2548	-0.0471	0.1823	-0.0643	0.0971	-0.0765	0.3589	-0.0546
26.33	5.13	0.2547	-0.0472	0.1823	-0.0643	0.0970	-0.0766	0.3588	-0.0547
26.83	5.18	0.2546	-0.0473	0.1822	-0.0644	0.0969	-0.0767	0.3588	-0.0547
27.33	5.23	0.2546	-0.0473	0.1821	-0.0645	0.0968	-0.0768	0.3587	-0.0548
27.83	5.28	0.2546	-0.0473	0.1820	-0.0646	0.0967	-0.0769	0.3586	-0.0549
28.33	5.32	0.2545	-0.0474	0.1819	-0.0647	0.0967	-0.0769	0.3585	-0.0550
28.83	5.37	0.2544	-0.0475	0.1818	-0.0648	0.0966	-0.0770	0.3584	-0.0551
29.33	5.42	0.2543	-0.0476	0.1818	-0.0648	0.0965	-0.0771	0.3584	-0.0551
29.83	5.46	0.2543	-0.0476	0.1817	-0.0649	0.0965	-0.0771	0.3584	-0.0551
30.33	5.51	0.2542	-0.0477	0.1816	-0.0650	0.0965	-0.0771	0.3583	-0.0552
30.83	5.55	0.2541	-0.0478	0.1815	-0.0651	0.0964	-0.0772	0.3582	-0.0553
31.33	5.60	0.2541	-0.0478	0.1815	-0.0651	0.0963	-0.0773	0.3582	-0.0553
31.83	5.64	0.2540	-0.0479	0.1815	-0.0651	0.0963	-0.0773	0.3581	-0.0554
32.33	5.69	0.2540	-0.0479	0.1814	-0.0652	0.0962	-0.0774	0.3580	-0.0555
32.83	5.73	0.2539	-0.0480	0.1814	-0.0652	0.0961	-0.0775	0.3579	-0.0556
33.33	5.77	0.2538	-0.0481	0.1813	-0.0653	0.0961	-0.0775	0.3579	-0.0556
33.83	5.82	0.2538	-0.0481	0.1813	-0.0653	0.0960	-0.0776	0.3578	-0.0557
34.33	5.86	0.2538	-0.0481	0.1812	-0.0654	0.0959	-0.0777	0.3577	-0.0558
34.83	5.90	0.2538	-0.0481	0.1811	-0.0655	0.0959	-0.0777	0.3577	-0.0558

Sample: Pond 12S, BH-2 @ 16.5 feet

Time (minutes)	Square Root of Time (minutes)	Test 5 @ 500 psf		Test 6 @ 1000 psf		Test 7 @ 2000 psf		Test 8 @ 4000 psf	
		Dial Reading (inches)	Deflection (inches)	Dial Reading (inches)	Deflection (inches)	Dial Reading (inches)	Deflection (inches)	Dial Reading (inches)	Deflection (inches)
35.33	5.94	0.2537	-0.0482	0.1811	-0.0655	0.0958	-0.0778	0.3576	-0.0559
35.83	5.99	0.2537	-0.0482	0.1810	-0.0656	0.0958	-0.0778	0.3576	-0.0559
36.33	6.03	0.2536	-0.0483	0.1810	-0.0656	0.0957	-0.0779	0.3575	-0.0560
36.83	6.07	0.2536	-0.0483	0.1809	-0.0657	0.0957	-0.0779	0.3575	-0.0560
37.33	6.11	0.2535	-0.0484	0.1808	-0.0658	0.0957	-0.0779	0.3574	-0.0561
37.83	6.15	0.2535	-0.0484	0.1808	-0.0658	0.0956	-0.0780	0.3574	-0.0561
38.33	6.19	0.2535	-0.0484	0.1807	-0.0659	0.0956	-0.0780	0.3573	-0.0562
38.83	6.23	0.2534	-0.0485	0.1807	-0.0659	0.0955	-0.0781	0.3572	-0.0563
39.33	6.27	0.2534	-0.0485	0.1807	-0.0659	0.0955	-0.0781	0.3572	-0.0563
39.83	6.31	0.2533	-0.0486	0.1807	-0.0659	0.0954	-0.0782	0.3571	-0.0564
40.33	6.35	0.2533	-0.0486	0.1806	-0.0660	0.0953	-0.0783	0.3570	-0.0565
40.83	6.39	0.2532	-0.0487	0.1806	-0.0660	0.0953	-0.0783	0.3570	-0.0565
41.33	6.43	0.2532	-0.0487	0.1805	-0.0661	0.0953	-0.0783	0.3570	-0.0565
41.83	6.47	0.2531	-0.0488	0.1805	-0.0661	0.0952	-0.0784	0.3569	-0.0566
42.33	6.51	0.2531	-0.0488	0.1804	-0.0662	0.0952	-0.0784	0.3569	-0.0566
42.83	6.54	0.2531	-0.0488	0.1804	-0.0662	0.0951	-0.0785	0.3569	-0.0566
43.33	6.58	0.2530	-0.0489	0.1804	-0.0662	0.0951	-0.0785	0.3569	-0.0566
43.83	6.62	0.2530	-0.0489	0.1803	-0.0663	0.0950	-0.0786	0.3568	-0.0567
44.33	6.66	0.2530	-0.0489	0.1803	-0.0663	0.0950	-0.0786	0.3568	-0.0567
44.83	6.70	0.2530	-0.0489	0.1802	-0.0664	0.0949	-0.0787	0.3567	-0.0568
45.33	6.73	0.2530	-0.0489	0.1802	-0.0664	0.0949	-0.0787	0.3566	-0.0569
45.83	6.77	0.2530	-0.0489	0.1801	-0.0665	0.0949	-0.0787	0.3566	-0.0569
46.33	6.81	0.2529	-0.0490	0.1801	-0.0665	0.0949	-0.0787	0.3565	-0.0570
46.83	6.84	0.2529	-0.0490	0.1800	-0.0666	0.0949	-0.0787	0.3565	-0.0570
47.33	6.88	0.2528	-0.0491	0.1800	-0.0666	0.0948	-0.0788	0.3565	-0.0570
47.83	6.92	0.2528	-0.0491	0.1800	-0.0666	0.0948	-0.0788	0.3564	-0.0571
48.33	6.95	0.2528	-0.0491	0.1799	-0.0667	0.0948	-0.0788	0.3564	-0.0571
48.83	6.99	0.2527	-0.0492	0.1799	-0.0667	0.0947	-0.0789	0.3563	-0.0572
49.33	7.02	0.2527	-0.0492	0.1799	-0.0667	0.0947	-0.0789	0.3562	-0.0573
49.83	7.06	0.2527	-0.0492	0.1799	-0.0667	0.0947	-0.0789	0.3561	-0.0574
50.33	7.09	0.2526	-0.0493	0.1799	-0.0667	0.0946	-0.0790	0.3561	-0.0574
50.83	7.13	0.2526	-0.0493	0.1799	-0.0667	0.0946	-0.0790	0.3561	-0.0574
51.33	7.16	0.2526	-0.0493	0.1798	-0.0668	0.0945	-0.0791	0.3561	-0.0574
51.83	7.20	0.2525	-0.0494	0.1798	-0.0668	0.0945	-0.0791	0.3561	-0.0574
52.33	7.23	0.2525	-0.0494	0.1798	-0.0668	0.0944	-0.0792	0.3561	-0.0574
52.83	7.27	0.2525	-0.0494	0.1797	-0.0669	0.0944	-0.0792	0.3561	-0.0574
53.33	7.30	0.2524	-0.0495	0.1797	-0.0669	0.0944	-0.0792	0.3560	-0.0575
53.83	7.34	0.2524	-0.0495	0.1797	-0.0669	0.0943	-0.0793	0.3560	-0.0575
54.33	7.37	0.2524	-0.0495	0.1796	-0.0670	0.0943	-0.0793	0.3560	-0.0575
54.83	7.40	0.2523	-0.0496	0.1796	-0.0670	0.0943	-0.0793	0.3559	-0.0576
55.33	7.44	0.2523	-0.0496	0.1796	-0.0670	0.0943	-0.0793	0.3559	-0.0576
55.83	7.47	0.2523	-0.0496	0.1795	-0.0671	0.0942	-0.0794	0.3558	-0.0577
56.33	7.51	0.2523	-0.0496	0.1795	-0.0671	0.0942	-0.0794	0.3558	-0.0577
56.83	7.54	0.2523	-0.0496	0.1795	-0.0671	0.0942	-0.0794	0.3558	-0.0577
57.33	7.57	0.2523	-0.0496	0.1795	-0.0671	0.0942	-0.0794	0.3558	-0.0577
57.83	7.60	0.2523	-0.0496	0.1794	-0.0672	0.0942	-0.0794	0.3558	-0.0577
58.33	7.64	0.2522	-0.0497	0.1794	-0.0672	0.0942	-0.0794	0.3557	-0.0578
58.83	7.67	0.2522	-0.0497	0.1794	-0.0672	0.0941	-0.0795	0.3557	-0.0578
59.33	7.70	0.2522	-0.0497	0.1793	-0.0673	0.0941	-0.0795	0.3557	-0.0578
59.83	7.74	0.2521	-0.0498	0.1793	-0.0673	0.0941	-0.0795	0.3556	-0.0579
60.83	7.80	0.2521	-0.0498	0.1793	-0.0673	0.0940	-0.0796	0.3556	-0.0579
61.83	7.86	0.2520	-0.0499	0.1792	-0.0674	0.0940	-0.0796	0.3555	-0.0580
62.83	7.93	0.2520	-0.0499	0.1791	-0.0675	0.0939	-0.0797	0.3554	-0.0581
63.83	7.99	0.2519	-0.0500	0.1791	-0.0675	0.0938	-0.0798	0.3554	-0.0581
64.83	8.05	0.2519	-0.0500	0.1790	-0.0676	0.0938	-0.0798	0.3553	-0.0582
65.83	8.11	0.2519	-0.0500	0.1790	-0.0676	0.0937	-0.0799	0.3553	-0.0582
66.83	8.18	0.2518	-0.0501	0.1789	-0.0677	0.0937	-0.0799	0.3553	-0.0582
67.83	8.24	0.2518	-0.0501	0.1789	-0.0677	0.0936	-0.0800	0.3553	-0.0582
68.83	8.30	0.2517	-0.0502	0.1788	-0.0678	0.0936	-0.0800	0.3552	-0.0583
69.83	8.36	0.2517	-0.0502	0.1787	-0.0679	0.0935	-0.0801	0.3552	-0.0583
70.83	8.42	0.2516	-0.0503	0.1787	-0.0679	0.0934	-0.0802	0.3551	-0.0584
71.83	8.48	0.2516	-0.0503	0.1787	-0.0679	0.0934	-0.0802	0.3551	-0.0584
72.83	8.53	0.2516	-0.0503	0.1786	-0.0680	0.0934	-0.0802	0.3550	-0.0585
73.83	8.59	0.2515	-0.0504	0.1786	-0.0680	0.0934	-0.0802	0.3550	-0.0585
74.83	8.65	0.2515	-0.0504	0.1786	-0.0680	0.0934	-0.0802	0.3549	-0.0586

Sample: Pond 12S, BH-2 @ 16.5 feet

Time (minutes)	Square Root of Time (minutes)	Test 5 @ 500 psf		Test 6 @ 1000 psf		Test 7 @ 2000 psf		Test 8 @ 4000 psf	
		Dial Reading (inches)	Deflection (inches)	Dial Reading (inches)	Deflection (inches)	Dial Reading (inches)	Deflection (inches)	Dial Reading (inches)	Deflection (inches)
75.83	8.71	0.2515	-0.0504	0.1785	-0.0681	0.0933	-0.0803	0.3548	-0.0587
76.83	8.77	0.2515	-0.0504	0.1785	-0.0681	0.0933	-0.0803	0.3548	-0.0587
77.83	8.82	0.2515	-0.0504	0.1784	-0.0682	0.0932	-0.0804	0.3548	-0.0587
78.83	8.88	0.2515	-0.0504	0.1784	-0.0682	0.0932	-0.0804	0.3547	-0.0588
79.83	8.93	0.2512	-0.0507	0.1784	-0.0682	0.0932	-0.0804	0.3547	-0.0588
80.83	8.99	0.2512	-0.0507	0.1783	-0.0683	0.0931	-0.0805	0.3547	-0.0588
81.83	9.05	0.2511	-0.0508	0.1783	-0.0683	0.0930	-0.0806	0.3546	-0.0589
82.83	9.10	0.2511	-0.0508	0.1783	-0.0683	0.0930	-0.0806	0.3546	-0.0589
83.83	9.16	0.2511	-0.0508	0.1783	-0.0683	0.0930	-0.0806	0.3545	-0.0590
84.83	9.21	0.2511	-0.0508	0.1783	-0.0683	0.0930	-0.0806	0.3545	-0.0590
85.83	9.26	0.2510	-0.0509	0.1782	-0.0684	0.0929	-0.0807	0.3545	-0.0590
86.83	9.32	0.2510	-0.0509	0.1782	-0.0684	0.0929	-0.0807	0.3545	-0.0590
87.83	9.37	0.2510	-0.0509	0.1782	-0.0684	0.0928	-0.0808	0.3544	-0.0591
88.83	9.43	0.2509	-0.0510	0.1782	-0.0684	0.0928	-0.0808	0.3544	-0.0591
89.83	9.48	0.2509	-0.0510	0.1781	-0.0685	0.0928	-0.0808	0.3544	-0.0591
90.83	9.53	0.2509	-0.0510	0.1781	-0.0685	0.0927	-0.0809	0.3543	-0.0592
91.83	9.58	0.2508	-0.0511	0.1780	-0.0686	0.0927	-0.0809	0.3542	-0.0593
92.83	9.64	0.2508	-0.0511	0.1780	-0.0686	0.0926	-0.0810	0.3542	-0.0593
93.83	9.69	0.2508	-0.0511	0.1780	-0.0686	0.0926	-0.0810	0.3542	-0.0593
94.83	9.74	0.2507	-0.0512	0.1779	-0.0687	0.0926	-0.0810	0.3542	-0.0593
95.83	9.79	0.2507	-0.0512	0.1779	-0.0687	0.0926	-0.0810	0.3541	-0.0594
96.83	9.84	0.2507	-0.0512	0.1779	-0.0687	0.0926	-0.0810	0.3541	-0.0594
97.83	9.89	0.2507	-0.0512	0.1779	-0.0687	0.0925	-0.0811	0.3540	-0.0595
98.83	9.94	0.2507	-0.0512	0.1778	-0.0688	0.0925	-0.0811	0.3540	-0.0595
99.83	9.99	0.2507	-0.0512	0.1778	-0.0688	0.0925	-0.0811	0.3540	-0.0595
100.83	10.04	0.2507	-0.0512	0.1778	-0.0688	0.0925	-0.0811	0.3539	-0.0596
101.83	10.09	0.2506	-0.0513	0.1778	-0.0688	0.0924	-0.0812	0.3539	-0.0596
102.83	10.14	0.2506	-0.0513	0.1777	-0.0689	0.0924	-0.0812	0.3539	-0.0596
103.83	10.19	0.2506	-0.0513	0.1777	-0.0689	0.0923	-0.0813	0.3538	-0.0597
104.83	10.24	0.2506	-0.0513	0.1777	-0.0689	0.0923	-0.0813	0.3538	-0.0597
105.83	10.29	0.2505	-0.0514	0.1776	-0.0690	0.0923	-0.0813	0.3537	-0.0598
106.83	10.34	0.2505	-0.0514	0.1776	-0.0690	0.0922	-0.0814	0.3537	-0.0598
107.83	10.38	0.2505	-0.0514	0.1776	-0.0690	0.0922	-0.0814	0.3537	-0.0598
108.83	10.43	0.2505	-0.0514	0.1775	-0.0691	0.0922	-0.0814	0.3537	-0.0598
109.83	10.48	0.2504	-0.0515	0.1775	-0.0691	0.0921	-0.0815	0.3537	-0.0598
110.83	10.53	0.2504	-0.0515	0.1775	-0.0691	0.0921	-0.0815	0.3537	-0.0598
111.83	10.58	0.2504	-0.0515	0.1775	-0.0691	0.0921	-0.0815	0.3537	-0.0598
112.83	10.62	0.2503	-0.0516	0.1775	-0.0691	0.0921	-0.0815	0.3536	-0.0599
113.83	10.67	0.2503	-0.0516	0.1775	-0.0691	0.0920	-0.0816	0.3536	-0.0599
114.83	10.72	0.2503	-0.0516	0.1775	-0.0691	0.0920	-0.0816	0.3535	-0.0600
115.83	10.76	0.2503	-0.0516	0.1773	-0.0693	0.0919	-0.0817	0.3535	-0.0600
116.83	10.81	0.2503	-0.0516	0.1773	-0.0693	0.0920	-0.0816	0.3534	-0.0601
117.83	10.86	0.2502	-0.0517	0.1773	-0.0693	0.0919	-0.0817	0.3535	-0.0600
118.83	10.90	0.2502	-0.0517	0.1773	-0.0693	0.0919	-0.0817	0.3535	-0.0600
119.83	10.95	0.2502	-0.0517	0.1772	-0.0694	0.0919	-0.0817	0.3534	-0.0601
129.83	11.39	0.2499	-0.0520	0.1769	-0.0697	0.0917	-0.0819	0.3532	-0.0603
139.83	11.83	0.2498	-0.0521	0.1767	-0.0699	0.0914	-0.0822	0.3529	-0.0606
149.83	12.24	0.2496	-0.0523	0.1765	-0.0701	0.0913	-0.0823	0.3527	-0.0608
159.83	12.64	0.2495	-0.0524	0.1764	-0.0702	0.0911	-0.0825	0.3525	-0.0610
169.83	13.03	0.2493	-0.0526	0.1761	-0.0705	0.0910	-0.0826	0.3523	-0.0612
179.83	13.41	0.2491	-0.0528	0.1760	-0.0706	0.0908	-0.0828	0.3521	-0.0614
189.83	13.78	0.2491	-0.0528	0.1760	-0.0706	0.0907	-0.0829	0.3520	-0.0615
199.83	14.14	0.2490	-0.0529	0.1758	-0.0708	0.0904	-0.0832	0.3518	-0.0617
209.83	14.49	0.2490	-0.0529	0.1758	-0.0708	0.0903	-0.0833	0.3517	-0.0618
219.83	14.83	0.2489	-0.0530	0.1756	-0.0710	0.0903	-0.0833	0.3515	-0.0620
229.83	15.16	0.2488	-0.0531	0.1755	-0.0711	0.0902	-0.0834	0.3514	-0.0621
239.83	15.49	0.2487	-0.0532	0.1754	-0.0712	0.0901	-0.0835	0.3513	-0.0622
249.83	15.81	0.2486	-0.0533	0.1752	-0.0714	0.0899	-0.0837	0.3511	-0.0624
259.83	16.12	0.2485	-0.0534	0.1752	-0.0714	0.0898	-0.0838	0.3510	-0.0625
269.83	16.43	0.2485	-0.0534	0.1752	-0.0714	0.0897	-0.0839	0.3508	-0.0627
279.83	16.73	0.2484	-0.0535	0.1750	-0.0716	0.0896	-0.0840	0.3507	-0.0628
289.83	17.02	0.2484	-0.0535	0.1750	-0.0716	0.0895	-0.0841	0.3506	-0.0629
299.83	17.32	0.2483	-0.0536	0.1749	-0.0717	0.0894	-0.0842	0.3506	-0.0629
309.83	17.60	0.2483	-0.0536	0.1748	-0.0718	0.0894	-0.0842	0.3504	-0.0631
319.83	17.88	0.2483	-0.0536	0.1747	-0.0719	0.0893	-0.0843	0.3503	-0.0632

Sample: Pond 12S, BH-2 @ 16.5 feet

Time (minutes)	Square Root of Time (minutes)	Test 5 @ 500 psf		Test 6 @ 1000 psf		Test 7 @ 2000 psf		Test 8 @ 4000 psf	
		Dial Reading (inches)	Deflection (inches)	Dial Reading (inches)	Deflection (inches)	Dial Reading (inches)	Deflection (inches)	Dial Reading (inches)	Deflection (inches)
329.83	18.16	0.2483	-0.0536	0.1746	-0.0720	0.0892	-0.0844	0.3502	-0.0633
339.83	18.43	0.2482	-0.0537	0.1745	-0.0721	0.0890	-0.0846	0.3500	-0.0635
349.83	18.70	0.2482	-0.0537	0.1744	-0.0722	0.0890	-0.0846	0.3500	-0.0635
359.83	18.97	0.2481	-0.0538	0.1744	-0.0722	0.0889	-0.0847	0.3499	-0.0636
369.83	19.23	0.2481	-0.0538	0.1744	-0.0722	0.0888	-0.0848	0.3498	-0.0637
379.83	19.49	0.2480	-0.0539	0.1743	-0.0723	0.0888	-0.0848	0.3498	-0.0637
389.83	19.74	0.2480	-0.0539	0.1742	-0.0724	0.0887	-0.0849	0.3497	-0.0638
399.83	20.00	0.2479	-0.0540	0.1740	-0.0726	0.0887	-0.0849	0.3496	-0.0639
409.83	20.24	0.2479	-0.0540	0.1740	-0.0726	0.0886	-0.0850	0.3495	-0.0640
419.83	20.49	0.2479	-0.0540	0.1740	-0.0726	0.0885	-0.0851	0.3496	-0.0639
429.83	20.73	0.2478	-0.0541	0.1739	-0.0727	0.0885	-0.0851	0.3494	-0.0641
439.83	20.97	0.2478	-0.0541	0.1738	-0.0728	0.0884	-0.0852	0.3494	-0.0641
449.83	21.21	0.2477	-0.0542	0.1737	-0.0729	0.0884	-0.0852	0.3493	-0.0642
459.83	21.44	0.2477	-0.0542	0.1737	-0.0729	0.0883	-0.0853	0.3492	-0.0643
469.83	21.68	0.2477	-0.0542	0.1736	-0.0730	0.0883	-0.0853	0.3491	-0.0644
479.83	21.91	0.2476	-0.0543	0.1736	-0.0730	0.0882	-0.0854	0.3490	-0.0645
489.83	22.13	0.2476	-0.0543			0.0882	-0.0854	0.3490	-0.0645
499.83	22.36	0.2475	-0.0544			0.0881	-0.0855	0.3490	-0.0645
509.83	22.58	0.2476	-0.0543			0.0881	-0.0855	0.3489	-0.0646
519.83	22.80	0.2475	-0.0544			0.0881	-0.0855	0.3488	-0.0647
529.83	23.02	0.2475	-0.0544			0.0880	-0.0856	0.3487	-0.0648
539.83	23.23	0.2475	-0.0544			0.0880	-0.0856	0.3487	-0.0648
549.83	23.45	0.2475	-0.0544			0.0879	-0.0857	0.3487	-0.0648
559.83	23.66	0.2475	-0.0544			0.0879	-0.0857	0.3486	-0.0649
569.83	23.87	0.2475	-0.0544			0.0879	-0.0857	0.3485	-0.0650
579.83	24.08	0.2474	-0.0545			0.0879	-0.0857	0.3485	-0.0650
589.83	24.29	0.2474	-0.0545			0.0879	-0.0857	0.3484	-0.0651
599.83	24.49	0.2474	-0.0545			0.0878	-0.0858	0.3483	-0.0652
609.83	24.69	0.2474	-0.0545			0.0878	-0.0858	0.3483	-0.0652
619.83	24.90	0.2474	-0.0545			0.0878	-0.0858	0.3483	-0.0652
629.83	25.10	0.2474	-0.0545			0.0878	-0.0858	0.3482	-0.0653
639.83	25.29	0.2474	-0.0545			0.0877	-0.0859	0.3482	-0.0653
649.83	25.49	0.2474	-0.0545			0.0877	-0.0859	0.3482	-0.0653
659.83	25.69	0.2474	-0.0545			0.0877	-0.0859	0.3482	-0.0653
669.83	25.88	0.2473	-0.0546			0.0877	-0.0859	0.3481	-0.0654
679.83	26.07	0.2473	-0.0546			0.0877	-0.0859	0.3481	-0.0654
689.83	26.26	0.2473	-0.0546			0.0876	-0.0860	0.3480	-0.0655
699.83	26.45	0.2472	-0.0547			0.0876	-0.0860	0.3480	-0.0655
709.83	26.64	0.2473	-0.0546			0.0876	-0.0860	0.3480	-0.0655
719.83	26.83	0.2473	-0.0546			0.0876	-0.0860	0.3480	-0.0655
749.83	27.38	0.2473	-0.0546			0.0875	-0.0861	0.3479	-0.0656
779.83	27.93	0.2473	-0.0546			0.0874	-0.0862	0.3479	-0.0656
809.83	28.46	0.2472	-0.0547			0.0873	-0.0863	0.3478	-0.0657
839.83	28.98	0.2470	-0.0549			0.0872	-0.0864	0.3477	-0.0658
869.83	29.49	0.2470	-0.0549			0.0872	-0.0864	0.3477	-0.0658
899.83	30.00	0.2470	-0.0549			0.0871	-0.0865	0.3476	-0.0659
929.83	30.49	0.2469	-0.0550			0.0871	-0.0865	0.3475	-0.0660
959.83	30.98	0.2469	-0.0550			0.0870	-0.0866	0.3475	-0.0660
989.83	31.46	0.2469	-0.0550			0.0870	-0.0866	0.3475	-0.0660
1019.83	31.93	0.2469	-0.0550			0.0869	-0.0867	0.3474	-0.0661
1049.83	32.40	0.2468	-0.0551			0.0869	-0.0867	0.3474	-0.0661
1079.83	32.86	0.2468	-0.0551			0.0868	-0.0868	0.3473	-0.0662
1109.83	33.31	0.2468	-0.0551			0.0867	-0.0869	0.3473	-0.0662
1139.83	33.76					0.0866	-0.0870	0.3473	-0.0662
1169.83	34.20					0.0864	-0.0872	0.3473	-0.0662
1199.83	34.64					0.0863	-0.0873	0.3472	-0.0663
1229.83	35.07					0.0863	-0.0873	0.3471	-0.0664
1259.83	35.49					0.0863	-0.0873		

One Dimensional Consolidation

Project No.	973376
Project	FMC
Sample ID	Pond 12S, BH-3 @ 10.8 feet
Sample Ht.	1.625 (in)
Sample Dia.	4.000 (in)
Sample Area	0.087 (sq-ft)
Sample Vol.	0.012 (cu-ft)
Phos Cont.	5.63 (%)
Init. M.C.	167.99 (%)
Init. M.C. (corr)	132.85 (%)
Final M.C.	127.82 (%)
Final M.C. (corr)	101.92 (%)
Dry Wt. of Soil/f	157.91 (g)
Dry Wt. of Soil/i	198.45 (g)
Spec. Grav.	2.79
Pocket Pen.	(tsf)

Moisture Content Weights	
(initial)	
Total Wet Wt. (g)	23.02
Phos. Wt. (g)	1.30
Dry Wt. (g)	8.59
Dry Wt. + Phos Wt. (g)	9.89
Water Wt. + Phos (g)	14.43
Water Wt. (g)	13.13
(final)	
Total Wet Wt. (g)	24.24
Phos. Wt. (g)	1.36
Dry Wt. (g)	10.64
Dry Wt. + Phos Wt. (g)	12.00
Water Wt. + Phos (g)	13.6
Water Wt. (g)	12.24

Pressure (ksf)	Final Dial Reading (inches)	Deformation (inches)	Sample Ht. (inches)	Strain (%)	Void Ratio (e)	Dry Density (pcf)	Void Ratio (e)	Dry Density (pcf)
					Calc. from final MC		Calc. from initial MC	
0.0010	0.4418	0.0000	1.6250	0	4.915	29.43	3.707	36.99
0.0250	0.2806	0.1612	1.4638	9.92	4.328	32.67	3.240	41.06
0.0500	0.2457	0.1960	1.4290	12.06	4.202	33.47	3.139	42.06
0.1000	0.1966	0.2450	1.3800	15.08	4.023	34.66	2.997	43.56
0.2500	0.1272	0.3144	1.3106	19.35	3.771	36.49	2.796	45.86
0.5000	0.0692	0.3723	1.2527	22.91	3.560	38.18	2.628	47.98
1.0000	0.3873	0.4268	1.1982	26.26	3.362	39.92	2.470	50.17
2.0000	0.3196	0.4945	1.1305	30.43	3.115	42.31	2.274	53.17
4.0000	0.2465	0.5691	1.0559	35.02	2.844	45.30	2.058	56.93

Note: Initial MC not taken from actual sample tested, but from same sample jar.
Final MC taken from actual sample tested.
Void Ratio (e), calculated from final MC likely to be most accurate.
Final data readings may vary when compared to deformation values due to resetting the dial. The deformation values are based on the actual data in Appendix E.

Sample: Pond 12S, BH-3 @ 10.8 feet

Time (minutes)	Square Root of Time (minutes)	Test 1 @ 25 psf		Test 2 @ 50 psf		Test 3 @ 100 psf		Test 4 @ 250 psf	
		Dial Reading (inches)	Deflection (inches)	Dial Reading (inches)	Deflection (inches)	Dial Reading (inches)	Deflection (inches)	Dial Reading (inches)	Deflection (inches)
0.00	0.00	0.4418	0.0000	0.2805	0.0000	0.2456	0.0000	0.1966	0.0000
0.17	0.41	0.4418	0.0000	0.2805	0.0000	0.2456	0.0000	0.1967	0.0001
0.33	0.58	0.4418	0.0000	0.2802	-0.0003	0.2456	0.0000	0.1925	-0.0041
0.50	0.71	0.4363	-0.0055	0.2795	-0.0010	0.2456	0.0000	0.1889	-0.0077
0.67	0.82	0.4352	-0.0066	0.2788	-0.0017	0.2406	-0.0050	0.1889	-0.0077
0.83	0.91	0.4337	-0.0081	0.2783	-0.0022	0.2397	-0.0059	0.1826	-0.0140
1.00	1.00	0.4327	-0.0091	0.2779	-0.0026	0.2389	-0.0067	0.1815	-0.0151
1.17	1.08	0.4310	-0.0108	0.2776	-0.0029	0.2378	-0.0078	0.1800	-0.0166
1.33	1.15	0.4301	-0.0117	0.2770	-0.0035	0.2371	-0.0085	0.1778	-0.0188
1.50	1.22	0.4291	-0.0127	0.2767	-0.0038	0.2364	-0.0092	0.1764	-0.0202
1.67	1.29	0.4279	-0.0139	0.2764	-0.0041	0.2358	-0.0098	0.1742	-0.0224
1.83	1.35	0.4268	-0.0150	0.2760	-0.0045	0.2358	-0.0098	0.1733	-0.0233
2.00	1.41	0.4268	-0.0150	0.2756	-0.0049	0.2339	-0.0117	0.1720	-0.0246
2.17	1.47	0.4268	-0.0150	0.2752	-0.0053	0.2335	-0.0121	0.1720	-0.0246
2.33	1.53	0.4237	-0.0181	0.2749	-0.0056	0.2329	-0.0127	0.1720	-0.0246
2.50	1.58	0.4224	-0.0194	0.2749	-0.0056	0.2318	-0.0138	0.1681	-0.0285
2.67	1.63	0.4215	-0.0203	0.2743	-0.0062	0.2314	-0.0142	0.1672	-0.0294
2.83	1.68	0.4202	-0.0216	0.2742	-0.0063	0.2305	-0.0151	0.1660	-0.0306
3.00	1.73	0.4193	-0.0225	0.2737	-0.0068	0.2300	-0.0156	0.1647	-0.0319
3.17	1.78	0.4185	-0.0233	0.2735	-0.0070	0.2295	-0.0161	0.1640	-0.0326
3.33	1.83	0.4175	-0.0243	0.2732	-0.0073	0.2292	-0.0164	0.1627	-0.0339
3.50	1.87	0.4170	-0.0248	0.2732	-0.0073	0.2292	-0.0164	0.1618	-0.0348
3.67	1.91	0.4170	-0.0248	0.2732	-0.0073	0.2276	-0.0180	0.1611	-0.0355
3.83	1.96	0.4170	-0.0248	0.2732	-0.0073	0.2273	-0.0183	0.1611	-0.0355
4.00	2.00	0.4141	-0.0277	0.2732	-0.0073	0.2268	-0.0188	0.1611	-0.0355
4.17	2.04	0.4129	-0.0289	0.2732	-0.0073	0.2262	-0.0194	0.1581	-0.0385
4.33	2.08	0.4122	-0.0296	0.2711	-0.0094	0.2258	-0.0198	0.1574	-0.0392
4.50	2.12	0.4111	-0.0307	0.2711	-0.0094	0.2252	-0.0204	0.1568	-0.0398
4.67	2.16	0.4104	-0.0314	0.2711	-0.0094	0.2248	-0.0208	0.1558	-0.0408
4.83	2.20	0.4095	-0.0323	0.2711	-0.0094	0.2245	-0.0211	0.1551	-0.0415
5.00	2.24	0.4084	-0.0334	0.2711	-0.0094	0.2242	-0.0214	0.1544	-0.0422
5.17	2.27	0.4080	-0.0338	0.2711	-0.0094	0.2242	-0.0214	0.1535	-0.0431
5.33	2.31	0.4068	-0.0350	0.2711	-0.0094	0.2242	-0.0214	0.1533	-0.0433
5.50	2.35	0.4058	-0.0360	0.2711	-0.0094	0.2226	-0.0230	0.1533	-0.0433
5.67	2.38	0.4050	-0.0368	0.2711	-0.0094	0.2222	-0.0234	0.1533	-0.0433
5.83	2.42	0.4040	-0.0378	0.2711	-0.0094	0.2217	-0.0239	0.1508	-0.0458
6.00	2.45	0.4033	-0.0385	0.2711	-0.0094	0.2213	-0.0243	0.1503	-0.0463
6.17	2.48	0.4019	-0.0399	0.2711	-0.0094	0.2211	-0.0245	0.1498	-0.0468
6.33	2.52	0.4011	-0.0407	0.2711	-0.0094	0.2205	-0.0251	0.1491	-0.0475
6.50	2.55	0.4001	-0.0417	0.2711	-0.0094	0.2202	-0.0254	0.1487	-0.0479
6.67	2.58	0.3994	-0.0424	0.2711	-0.0094	0.2196	-0.0260	0.1480	-0.0486
6.83	2.61	0.3982	-0.0436	0.2711	-0.0094	0.2194	-0.0262	0.1476	-0.0490
7.00	2.65	0.3975	-0.0443	0.2665	-0.0140	0.2189	-0.0267	0.1470	-0.0496
7.17	2.68	0.3964	-0.0454	0.2665	-0.0140	0.2186	-0.0270	0.1465	-0.0501
7.33	2.71	0.3957	-0.0461	0.2665	-0.0140	0.2182	-0.0274	0.1460	-0.0506
7.50	2.74	0.3947	-0.0471	0.2665	-0.0140	0.2179	-0.0277	0.1455	-0.0511
7.67	2.77	0.3943	-0.0475	0.2665	-0.0140	0.2175	-0.0281	0.1451	-0.0515
7.83	2.80	0.3932	-0.0486	0.2665	-0.0140	0.2172	-0.0284	0.1447	-0.0519
8.00	2.83	0.3926	-0.0492	0.2665	-0.0140	0.2169	-0.0287	0.1443	-0.0523
8.17	2.86	0.3918	-0.0500	0.2665	-0.0140	0.2166	-0.0290	0.1438	-0.0528
8.33	2.89	0.3912	-0.0506	0.2665	-0.0140	0.2162	-0.0294	0.1434	-0.0532
8.50	2.92	0.3900	-0.0518	0.2665	-0.0140	0.2160	-0.0296	0.1431	-0.0535
8.67	2.94	0.3894	-0.0524	0.2665	-0.0140	0.2156	-0.0300	0.1427	-0.0539
8.83	2.97	0.3885	-0.0533	0.2641	-0.0164	0.2154	-0.0302	0.1423	-0.0543
9.00	3.00	0.3878	-0.0540	0.2639	-0.0166	0.2151	-0.0305	0.1420	-0.0546
9.17	3.03	0.3869	-0.0549	0.2639	-0.0166	0.2149	-0.0307	0.1417	-0.0549
9.33	3.06	0.3863	-0.0555	0.2639	-0.0166	0.2145	-0.0311	0.1414	-0.0552
9.50	3.08	0.3857	-0.0561	0.2639	-0.0166	0.2143	-0.0313	0.1411	-0.0555
9.67	3.11	0.3850	-0.0568	0.2631	-0.0174	0.2140	-0.0316	0.1408	-0.0558
9.83	3.14	0.3840	-0.0578	0.2631	-0.0174	0.2138	-0.0318	0.1405	-0.0561
10.00	3.16	0.3834	-0.0584	0.2627	-0.0178	0.2134	-0.0322	0.1403	-0.0563
10.17	3.19	0.3825	-0.0593	0.2625	-0.0180	0.2133	-0.0323	0.1400	-0.0566
10.33	3.21	0.3818	-0.0600	0.2625	-0.0180	0.2129	-0.0327	0.1397	-0.0569
10.50	3.24	0.3811	-0.0607	0.2625	-0.0180	0.2128	-0.0328	0.1395	-0.0571
10.67	3.27	0.3804	-0.0614	0.2625	-0.0180	0.2125	-0.0331	0.1393	-0.0573

Sample: Pond 12S, BH-3 @ 10.8 feet

Time (minutes)	Square Root of Time (minutes)	Test 1 @ 25 psf		Test 2 @ 50 psf		Test 3 @ 100 psf		Test 4 @ 250 psf	
		Dial Reading (inches)	Deflection (inches)	Dial Reading (inches)	Deflection (inches)	Dial Reading (inches)	Deflection (inches)	Dial Reading (inches)	Deflection (inches)
10.83	3.29	0.3796	-0.0622	0.2625	-0.0180	0.2123	-0.0333	0.1392	-0.0574
11.00	3.32	0.3792	-0.0626	0.2625	-0.0180	0.2121	-0.0335	0.1388	-0.0578
11.17	3.34	0.3782	-0.0636	0.2614	-0.0191	0.2119	-0.0337	0.1386	-0.0580
11.33	3.37	0.3777	-0.0641	0.2613	-0.0192	0.2116	-0.0340	0.1384	-0.0582
11.50	3.39	0.3769	-0.0649	0.2613	-0.0192	0.2114	-0.0342	0.1383	-0.0583
11.67	3.42	0.3763	-0.0655	0.2610	-0.0195	0.2112	-0.0344	0.1382	-0.0584
11.83	3.44	0.3755	-0.0663	0.2610	-0.0195	0.2110	-0.0346	0.1378	-0.0588
12.00	3.46	0.3750	-0.0668	0.2610	-0.0195	0.2108	-0.0348	0.1376	-0.0590
12.17	3.49	0.3742	-0.0676	0.2610	-0.0195	0.2106	-0.0350	0.1376	-0.0590
12.33	3.51	0.3737	-0.0681	0.2610	-0.0195	0.2104	-0.0352	0.1374	-0.0592
12.50	3.54	0.3729	-0.0689	0.2610	-0.0195	0.2102	-0.0354	0.1374	-0.0592
12.67	3.56	0.3724	-0.0694	0.2610	-0.0195	0.2100	-0.0356	0.1374	-0.0592
12.83	3.58	0.3715	-0.0703	0.2610	-0.0195	0.2099	-0.0357	0.1374	-0.0592
13.00	3.61	0.3710	-0.0708	0.2610	-0.0195	0.2096	-0.0360	0.1374	-0.0592
13.17	3.63	0.3702	-0.0716	0.2610	-0.0195	0.2094	-0.0362	0.1374	-0.0592
13.33	3.65	0.3698	-0.0720	0.2610	-0.0195	0.2092	-0.0364	0.1374	-0.0592
13.50	3.67	0.3689	-0.0729	0.2610	-0.0195	0.2091	-0.0365	0.1374	-0.0592
13.67	3.70	0.3685	-0.0733	0.2610	-0.0195	0.2090	-0.0366	0.1363	-0.0603
13.83	3.72	0.3679	-0.0739	0.2589	-0.0216	0.2089	-0.0367	0.1363	-0.0603
14.00	3.74	0.3673	-0.0745	0.2589	-0.0216	0.2086	-0.0370	0.1363	-0.0603
14.17	3.76	0.3665	-0.0753	0.2589	-0.0216	0.2085	-0.0371	0.1363	-0.0603
14.33	3.79	0.3660	-0.0758	0.2584	-0.0221	0.2083	-0.0373	0.1363	-0.0603
14.50	3.81	0.3653	-0.0765	0.2583	-0.0222	0.2082	-0.0374	0.1363	-0.0603
14.67	3.83	0.3648	-0.0770	0.2583	-0.0222	0.2081	-0.0375	0.1363	-0.0603
14.83	3.85	0.3642	-0.0776	0.2583	-0.0222	0.2080	-0.0376	0.1363	-0.0603
15.33	3.92	0.3627	-0.0791	0.2577	-0.0228	0.2075	-0.0381	0.1363	-0.0603
15.83	3.98	0.3608	-0.0810	0.2576	-0.0229	0.2072	-0.0384	0.1363	-0.0603
16.33	4.04	0.3592	-0.0826	0.2576	-0.0229	0.2068	-0.0388	0.1363	-0.0603
16.83	4.10	0.3574	-0.0844	0.2576	-0.0229	0.2065	-0.0391	0.1342	-0.0624
17.33	4.16	0.3559	-0.0859	0.2576	-0.0229	0.2061	-0.0395	0.1342	-0.0624
17.83	4.22	0.3541	-0.0877	0.2561	-0.0244	0.2058	-0.0398	0.1342	-0.0624
18.33	4.28	0.3526	-0.0892	0.2561	-0.0244	0.2056	-0.0400	0.1335	-0.0631
18.83	4.34	0.3508	-0.0910	0.2556	-0.0249	0.2053	-0.0403	0.1333	-0.0633
19.33	4.40	0.3493	-0.0925	0.2556	-0.0249	0.2051	-0.0405	0.1333	-0.0633
19.83	4.45	0.3475	-0.0943	0.2556	-0.0249	0.2049	-0.0407	0.1330	-0.0636
20.33	4.51	0.3462	-0.0956	0.2556	-0.0249	0.2047	-0.0409	0.1330	-0.0636
20.83	4.56	0.3445	-0.0973	0.2556	-0.0249	0.2046	-0.0410	0.1330	-0.0636
21.33	4.62	0.3432	-0.0986	0.2543	-0.0262	0.2044	-0.0412	0.1330	-0.0636
21.83	4.67	0.3417	-0.1001	0.2543	-0.0262	0.2042	-0.0414	0.1324	-0.0642
22.33	4.73	0.3406	-0.1012	0.2536	-0.0269	0.2040	-0.0416	0.1324	-0.0642
22.83	4.78	0.3390	-0.1028	0.2536	-0.0269	0.2038	-0.0418	0.1324	-0.0642
23.33	4.83	0.3378	-0.1040	0.2533	-0.0272	0.2038	-0.0418	0.1321	-0.0645
23.83	4.88	0.3364	-0.1054	0.2530	-0.0275	0.2036	-0.0420	0.1321	-0.0645
24.33	4.93	0.3352	-0.1066	0.2530	-0.0275	0.2035	-0.0421	0.1319	-0.0647
24.83	4.98	0.3339	-0.1079	0.2527	-0.0278	0.2034	-0.0422	0.1318	-0.0648
25.33	5.03	0.3327	-0.1091	0.2525	-0.0280	0.2032	-0.0424	0.1318	-0.0648
25.83	5.08	0.3315	-0.1103	0.2523	-0.0282	0.2031	-0.0425	0.1316	-0.0650
26.33	5.13	0.3303	-0.1115	0.2522	-0.0283	0.2030	-0.0426	0.1316	-0.0650
26.83	5.18	0.3291	-0.1127	0.2522	-0.0283	0.2029	-0.0427	0.1316	-0.0650
27.33	5.23	0.3279	-0.1139	0.2517	-0.0288	0.2028	-0.0428	0.1314	-0.0652
27.83	5.28	0.3266	-0.1152	0.2517	-0.0288	0.2027	-0.0429	0.1313	-0.0653
28.33	5.32	0.3255	-0.1163	0.2516	-0.0289	0.2026	-0.0430	0.1313	-0.0653
28.83	5.37	0.3244	-0.1174	0.2515	-0.0290	0.2025	-0.0431	0.1313	-0.0653
29.33	5.42	0.3234	-0.1184	0.2512	-0.0293	0.2024	-0.0432	0.1313	-0.0653
29.83	5.46	0.3223	-0.1195	0.2512	-0.0293	0.2023	-0.0433	0.1309	-0.0657
30.33	5.51	0.3213	-0.1205	0.2509	-0.0296	0.2022	-0.0434	0.1309	-0.0657
30.83	5.55	0.3203	-0.1215	0.2509	-0.0296	0.2021	-0.0435	0.1309	-0.0657
31.33	5.60	0.3193	-0.1225	0.2508	-0.0297	0.2021	-0.0435	0.1309	-0.0657
31.83	5.64	0.3183	-0.1235	0.2508	-0.0297	0.2020	-0.0436	0.1307	-0.0659
32.33	5.69	0.3175	-0.1243	0.2506	-0.0299	0.2019	-0.0437	0.1307	-0.0659
32.83	5.73	0.3166	-0.1252	0.2506	-0.0299	0.2019	-0.0437	0.1307	-0.0659
33.33	5.77	0.3157	-0.1261	0.2506	-0.0299	0.2018	-0.0438	0.1306	-0.0660
33.83	5.82	0.3147	-0.1271	0.2506	-0.0299	0.2017	-0.0439	0.1306	-0.0660
34.33	5.86	0.3139	-0.1279	0.2506	-0.0299	0.2017	-0.0439	0.1306	-0.0660
34.83	5.90	0.3130	-0.1288	0.2500	-0.0305	0.2016	-0.0440	0.1306	-0.0660

Sample: Pond 12S, BH-3 @ 10.8 feet

Time (minutes)	Square Root of Time (minutes)	Test 1 @ 25 psf		Test 2 @ 50 psf		Test 3 @ 100 psf		Test 4 @ 250 psf	
		Dial Reading (inches)	Deflection (inches)	Dial Reading (inches)	Deflection (inches)	Dial Reading (inches)	Deflection (inches)	Dial Reading (inches)	Deflection (inches)
35.33	5.94	0.3122	-0.1296	0.2500	-0.0305	0.2015	-0.0441	0.1305	-0.0661
35.83	5.99	0.3114	-0.1304	0.2500	-0.0305	0.2015	-0.0441	0.1304	-0.0662
36.33	6.03	0.3106	-0.1312	0.2498	-0.0307	0.2014	-0.0442	0.1303	-0.0663
36.83	6.07	0.3098	-0.1320	0.2498	-0.0307	0.2014	-0.0442	0.1303	-0.0663
37.33	6.11	0.3091	-0.1327	0.2498	-0.0307	0.2013	-0.0443	0.1303	-0.0663
37.83	6.15	0.3083	-0.1335	0.2498	-0.0307	0.2013	-0.0443	0.1303	-0.0663
38.33	6.19	0.3076	-0.1342	0.2495	-0.0310	0.2012	-0.0444	0.1302	-0.0664
38.83	6.23	0.3069	-0.1349	0.2495	-0.0310	0.2012	-0.0444	0.1302	-0.0664
39.33	6.27	0.3063	-0.1355	0.2495	-0.0310	0.2012	-0.0444	0.1302	-0.0664
39.83	6.31	0.3057	-0.1361	0.2495	-0.0310	0.2012	-0.0444	0.1302	-0.0664
40.33	6.35	0.3051	-0.1367	0.2492	-0.0313	0.2011	-0.0445	0.1300	-0.0666
40.83	6.39	0.3045	-0.1373	0.2492	-0.0313	0.2011	-0.0445	0.1300	-0.0666
41.33	6.43	0.3040	-0.1378	0.2491	-0.0314	0.2011	-0.0445	0.1300	-0.0666
41.83	6.47	0.3034	-0.1384	0.2491	-0.0314	0.2010	-0.0446	0.1299	-0.0667
42.33	6.51	0.3029	-0.1389	0.2490	-0.0315	0.2010	-0.0446	0.1299	-0.0667
42.83	6.54	0.3023	-0.1395	0.2490	-0.0315	0.2009	-0.0447	0.1298	-0.0668
43.33	6.58	0.3019	-0.1399	0.2490	-0.0315	0.2009	-0.0447	0.1298	-0.0668
43.83	6.62	0.3013	-0.1405	0.2488	-0.0317	0.2009	-0.0447	0.1298	-0.0668
44.33	6.66	0.3008	-0.1410	0.2488	-0.0317	0.2008	-0.0448	0.1298	-0.0668
44.83	6.70	0.3002	-0.1416	0.2488	-0.0317	0.2008	-0.0448	0.1298	-0.0668
45.33	6.73	0.2997	-0.1421	0.2488	-0.0317	0.2008	-0.0448	0.1298	-0.0668
45.83	6.77	0.2992	-0.1426	0.2488	-0.0317	0.2007	-0.0449	0.1298	-0.0668
46.33	6.81	0.2988	-0.1430	0.2486	-0.0319	0.2006	-0.0450	0.1298	-0.0668
46.83	6.84	0.2984	-0.1434	0.2486	-0.0319	0.2006	-0.0450	0.1298	-0.0668
47.33	6.88	0.2980	-0.1438	0.2486	-0.0319	0.2006	-0.0450	0.1298	-0.0668
47.83	6.92	0.2976	-0.1442	0.2486	-0.0319	0.2005	-0.0451	0.1297	-0.0669
48.33	6.95	0.2971	-0.1447	0.2484	-0.0321	0.2005	-0.0451	0.1297	-0.0669
48.83	6.99	0.2968	-0.1450	0.2483	-0.0322	0.2005	-0.0451	0.1297	-0.0669
49.33	7.02	0.2964	-0.1454	0.2483	-0.0322	0.2005	-0.0451	0.1296	-0.0670
49.83	7.06	0.2959	-0.1459	0.2482	-0.0323	0.2004	-0.0452	0.1296	-0.0670
50.33	7.09	0.2955	-0.1463	0.2482	-0.0323	0.2004	-0.0452	0.1296	-0.0670
50.83	7.13	0.2952	-0.1466	0.2482	-0.0323	0.2004	-0.0452	0.1296	-0.0670
51.33	7.16	0.2948	-0.1470	0.2482	-0.0323	0.2003	-0.0453	0.1296	-0.0670
51.83	7.20	0.2944	-0.1474	0.2482	-0.0323	0.2003	-0.0453	0.1296	-0.0670
52.33	7.23	0.2942	-0.1476	0.2481	-0.0324	0.2003	-0.0453	0.1295	-0.0671
52.83	7.27	0.2939	-0.1479	0.2481	-0.0324	0.2003	-0.0453	0.1295	-0.0671
53.33	7.30	0.2935	-0.1483	0.2481	-0.0324	0.2003	-0.0453	0.1294	-0.0672
53.83	7.34	0.2933	-0.1485	0.2480	-0.0325	0.2003	-0.0453	0.1294	-0.0672
54.33	7.37	0.2930	-0.1488	0.2480	-0.0325	0.2003	-0.0453	0.1294	-0.0672
54.83	7.40	0.2927	-0.1491	0.2480	-0.0325	0.2003	-0.0453	0.1294	-0.0672
55.33	7.44	0.2926	-0.1492	0.2480	-0.0325	0.2003	-0.0453	0.1293	-0.0673
55.83	7.47	0.2923	-0.1495	0.2479	-0.0326	0.2002	-0.0454	0.1293	-0.0673
56.33	7.51	0.2921	-0.1497	0.2479	-0.0326	0.2002	-0.0454	0.1293	-0.0673
56.83	7.54	0.2918	-0.1500	0.2479	-0.0326	0.2002	-0.0454	0.1293	-0.0673
57.33	7.57	0.2917	-0.1501	0.2479	-0.0326	0.2002	-0.0454	0.1293	-0.0673
57.83	7.60	0.2915	-0.1503	0.2478	-0.0327	0.2001	-0.0455	0.1293	-0.0673
58.33	7.64	0.2912	-0.1506	0.2478	-0.0327	0.2001	-0.0455	0.1292	-0.0674
58.83	7.67	0.2910	-0.1508	0.2478	-0.0327	0.2001	-0.0455	0.1292	-0.0674
59.33	7.70	0.2909	-0.1509	0.2477	-0.0328	0.2001	-0.0455	0.1292	-0.0674
59.83	7.74	0.2906	-0.1512	0.2477	-0.0328	0.2001	-0.0455	0.1292	-0.0674
60.83	7.80	0.2902	-0.1516	0.2477	-0.0328	0.2000	-0.0456	0.1292	-0.0674
61.83	7.86	0.2899	-0.1519	0.2477	-0.0328	0.2000	-0.0456	0.1292	-0.0674
62.83	7.93	0.2896	-0.1522	0.2476	-0.0329	0.2000	-0.0456	0.1291	-0.0675
63.83	7.99	0.2894	-0.1524	0.2475	-0.0330	0.1999	-0.0457	0.1291	-0.0675
64.83	8.05	0.2892	-0.1526	0.2475	-0.0330	0.1999	-0.0457	0.1291	-0.0675
65.83	8.11	0.2890	-0.1528	0.2474	-0.0331	0.1999	-0.0457	0.1290	-0.0676
66.83	8.18	0.2887	-0.1531	0.2474	-0.0331	0.1998	-0.0458	0.1290	-0.0676
67.83	8.24	0.2884	-0.1534	0.2474	-0.0331	0.1998	-0.0458	0.1290	-0.0676
68.83	8.30	0.2882	-0.1536	0.2474	-0.0331	0.1998	-0.0458	0.1290	-0.0676
69.83	8.36	0.2879	-0.1539	0.2474	-0.0331	0.1998	-0.0458	0.1290	-0.0676
70.83	8.42	0.2875	-0.1543	0.2474	-0.0331	0.1997	-0.0459	0.1289	-0.0677
71.83	8.48	0.2874	-0.1544	0.2471	-0.0334	0.1997	-0.0459	0.1289	-0.0677
72.83	8.53	0.2874	-0.1544	0.2471	-0.0334	0.1997	-0.0459	0.1288	-0.0678
73.83	8.59	0.2872	-0.1546	0.2471	-0.0334	0.1997	-0.0459	0.1288	-0.0678
74.83	8.65	0.2869	-0.1549	0.2471	-0.0334	0.1997	-0.0459	0.1288	-0.0678

Sample: Pond 12S, BH-3 @ 10.8 feet

Time (minutes)	Square Root of Time (minutes)	Test 1 @ 25 psf		Test 2 @ 50 psf		Test 3 @ 100 psf		Test 4 @ 250 psf	
		Dial Reading (inches)	Deflection (inches)	Dial Reading (inches)	Deflection (inches)	Dial Reading (inches)	Deflection (inches)	Dial Reading (inches)	Deflection (inches)
75.83	8.71	0.2867	-0.1551	0.2471	-0.0334	0.1997	-0.0459	0.1287	-0.0679
76.83	8.77	0.2866	-0.1552	0.2470	-0.0335	0.1996	-0.0460	0.1287	-0.0679
77.83	8.82	0.2866	-0.1552	0.2470	-0.0335	0.1996	-0.0460	0.1287	-0.0679
78.83	8.88	0.2865	-0.1553	0.2470	-0.0335	0.1995	-0.0461	0.1287	-0.0679
79.83	8.93	0.2863	-0.1555	0.2470	-0.0335	0.1995	-0.0461	0.1287	-0.0679
80.83	8.99	0.2861	-0.1557	0.2470	-0.0335	0.1995	-0.0461	0.1287	-0.0679
81.83	9.05	0.2859	-0.1559	0.2470	-0.0335	0.1995	-0.0461	0.1287	-0.0679
82.83	9.10	0.2858	-0.1560	0.2468	-0.0337	0.1995	-0.0461	0.1287	-0.0679
83.83	9.16	0.2857	-0.1561	0.2468	-0.0337	0.1995	-0.0461	0.1287	-0.0679
84.83	9.21	0.2857	-0.1561	0.2468	-0.0337	0.1995	-0.0461	0.1287	-0.0679
85.83	9.26	0.2856	-0.1562	0.2468	-0.0337	0.1995	-0.0461	0.1286	-0.0680
86.83	9.32	0.2855	-0.1563	0.2468	-0.0337	0.1995	-0.0461	0.1286	-0.0680
87.83	9.37	0.2854	-0.1564	0.2468	-0.0337	0.1995	-0.0461	0.1286	-0.0680
88.83	9.43	0.2852	-0.1566	0.2467	-0.0338	0.1994	-0.0462	0.1285	-0.0681
89.83	9.48	0.2850	-0.1568	0.2467	-0.0338	0.1994	-0.0462	0.1285	-0.0681
90.83	9.53	0.2849	-0.1569	0.2467	-0.0338	0.1994	-0.0462	0.1285	-0.0681
91.83	9.58	0.2848	-0.1570	0.2467	-0.0338	0.1994	-0.0462	0.1284	-0.0682
92.83	9.64	0.2848	-0.1570	0.2466	-0.0339	0.1994	-0.0462	0.1284	-0.0682
93.83	9.69	0.2847	-0.1571	0.2466	-0.0339	0.1993	-0.0463	0.1283	-0.0683
94.83	9.74	0.2847	-0.1571	0.2466	-0.0339	0.1993	-0.0463	0.1283	-0.0683
95.83	9.79	0.2846	-0.1572	0.2466	-0.0339	0.1993	-0.0463	0.1283	-0.0683
96.83	9.84	0.2846	-0.1572	0.2465	-0.0340	0.1993	-0.0463	0.1283	-0.0683
97.83	9.89	0.2846	-0.1572	0.2465	-0.0340	0.1993	-0.0463	0.1282	-0.0684
98.83	9.94	0.2846	-0.1572	0.2465	-0.0340	0.1993	-0.0463	0.1282	-0.0684
99.83	9.99	0.2845	-0.1573	0.2465	-0.0340	0.1992	-0.0464	0.1282	-0.0684
100.83	10.04	0.2845	-0.1573	0.2465	-0.0340	0.1991	-0.0465	0.1282	-0.0684
101.83	10.09	0.2845	-0.1573	0.2465	-0.0340	0.1991	-0.0465	0.1282	-0.0684
102.83	10.14	0.2845	-0.1573	0.2465	-0.0340	0.1991	-0.0465	0.1282	-0.0684
103.83	10.19	0.2842	-0.1576	0.2464	-0.0341	0.1991	-0.0465	0.1282	-0.0684
104.83	10.24	0.2842	-0.1576	0.2464	-0.0341	0.1991	-0.0465	0.1282	-0.0684
105.83	10.29	0.2840	-0.1578	0.2464	-0.0341	0.1991	-0.0465	0.1282	-0.0684
106.83	10.34	0.2840	-0.1578	0.2464	-0.0341	0.1991	-0.0465	0.1282	-0.0684
107.83	10.38	0.2840	-0.1578	0.2464	-0.0341	0.1991	-0.0465	0.1282	-0.0684
108.83	10.43	0.2840	-0.1578	0.2464	-0.0341	0.1991	-0.0465	0.1281	-0.0685
109.83	10.48	0.2840	-0.1578	0.2464	-0.0341	0.1991	-0.0465	0.1281	-0.0685
110.83	10.53	0.2840	-0.1578	0.2464	-0.0341	0.1991	-0.0465	0.1281	-0.0685
111.83	10.58	0.2840	-0.1578	0.2464	-0.0341	0.1991	-0.0465	0.1281	-0.0685
112.83	10.62	0.2840	-0.1578	0.2463	-0.0342	0.1991	-0.0465	0.1281	-0.0685
113.83	10.67	0.2839	-0.1579	0.2463	-0.0342	0.1991	-0.0465	0.1281	-0.0685
114.83	10.72	0.2837	-0.1581	0.2463	-0.0342	0.1991	-0.0465	0.1280	-0.0686
115.83	10.76	0.2836	-0.1582	0.2463	-0.0342	0.1991	-0.0465	0.1280	-0.0686
116.83	10.81	0.2835	-0.1583	0.2462	-0.0343	0.1990	-0.0466	0.1280	-0.0686
117.83	10.86	0.2835	-0.1583	0.2461	-0.0344	0.1990	-0.0466	0.1280	-0.0686
118.83	10.90	0.2835	-0.1583	0.2461	-0.0344	0.1990	-0.0466	0.1280	-0.0686
119.83	10.95	0.2835	-0.1583	0.2461	-0.0344	0.1989	-0.0467	0.1280	-0.0686
129.83	11.39	0.2833	-0.1585	0.2460	-0.0345	0.1988	-0.0468	0.1279	-0.0687
139.83	11.83	0.2829	-0.1589	0.2460	-0.0345	0.1987	-0.0469	0.1278	-0.0688
149.83	12.24	0.2827	-0.1591	0.2458	-0.0347	0.1987	-0.0469	0.1277	-0.0689
159.83	12.64	0.2826	-0.1592	0.2458	-0.0347	0.1986	-0.0470	0.1276	-0.0690
169.83	13.03	0.2825	-0.1593	0.2457	-0.0348	0.1986	-0.0470	0.1275	-0.0691
179.83	13.41	0.2824	-0.1594			0.1985	-0.0471	0.1275	-0.0691
189.83	13.78	0.2823	-0.1595			0.1985	-0.0471	0.1275	-0.0691
199.83	14.14	0.2822	-0.1596			0.1985	-0.0471	0.1274	-0.0692
209.83	14.49	0.2818	-0.1600			0.1985	-0.0471	0.1274	-0.0692
219.83	14.83	0.2817	-0.1601			0.1984	-0.0472	0.1273	-0.0693
229.83	15.16	0.2814	-0.1604			0.1984	-0.0472	0.1273	-0.0693
239.83	15.49	0.2811	-0.1607			0.1984	-0.0472	0.1273	-0.0693
249.83	15.81	0.2808	-0.1610			0.1984	-0.0472	0.1273	-0.0693
259.83	16.12	0.2808	-0.1610			0.1983	-0.0473	0.1273	-0.0693
269.83	16.43	0.2807	-0.1611			0.1983	-0.0473	0.1272	-0.0694
279.83	16.73	0.2807	-0.1611			0.1983	-0.0473	0.1272	-0.0694
289.83	17.02	0.2806	-0.1612			0.1982	-0.0474	0.1272	-0.0694
299.83	17.32	0.2806	-0.1612			0.1981	-0.0475	0.1272	-0.0694
309.83	17.60					0.1981	-0.0475	0.1272	-0.0694
319.83	17.88					0.1980	-0.0476	0.1272	-0.0694

Sample: Pond 12S, BH-3 @ 10.8 feet

Time (minutes)	Square Root of Time (minutes)	Test 1 @ 25 psf		Test 2 @ 50 psf		Test 3 @ 100 psf		Test 4 @ 250 psf	
		Dial Reading (inches)	Deflection (inches)	Dial Reading (inches)	Deflection (inches)	Dial Reading (inches)	Deflection (inches)	Dial Reading (inches)	Deflection (inches)
329.83	18.16					0.1981	-0.0475	0.1272	-0.0694
339.83	18.43					0.1979	-0.0477	0.1272	-0.0694
349.83	18.70					0.1979	-0.0477		
359.83	18.97					0.1980	-0.0476		
369.83	19.23					0.1980	-0.0476		
379.83	19.49					0.1980	-0.0476		
389.83	19.74					0.1980	-0.0476		
399.83	20.00					0.1979	-0.0477		
409.83	20.24					0.1980	-0.0476		
419.83	20.49					0.1980	-0.0476		
429.83	20.73					0.1978	-0.0478		
439.83	20.97					0.1978	-0.0478		
449.83	21.21					0.1978	-0.0478		
459.83	21.44					0.1978	-0.0478		
469.83	21.68					0.1978	-0.0478		
479.83	21.91					0.1978	-0.0478		
489.83	22.13					0.1978	-0.0478		
499.83	22.36					0.1978	-0.0478		
509.83	22.58					0.1978	-0.0478		
519.83	22.80					0.1978	-0.0478		
529.83	23.02					0.1977	-0.0479		
539.83	23.23					0.1977	-0.0479		
549.83	23.45					0.1977	-0.0479		
559.83	23.66					0.1976	-0.0480		
569.83	23.87					0.1976	-0.0480		
579.83	24.08					0.1976	-0.0480		
589.83	24.29					0.1976	-0.0480		
599.83	24.49					0.1976	-0.0480		
609.83	24.69					0.1977	-0.0479		
619.83	24.90					0.1976	-0.0480		
629.83	25.10					0.1976	-0.0480		
639.83	25.29					0.1976	-0.0480		
649.83	25.49					0.1975	-0.0481		
659.83	25.69					0.1975	-0.0481		
669.83	25.88					0.1975	-0.0481		
679.83	26.07					0.1975	-0.0481		
689.83	26.26					0.1975	-0.0481		
699.83	26.45					0.1975	-0.0481		
709.83	26.64					0.1975	-0.0481		
719.83	26.83					0.1975	-0.0481		
749.83	27.38					0.1975	-0.0481		
779.83	27.93					0.1966	-0.0490		
809.83	28.46					0.1966	-0.0490		
839.83	28.98					0.1966	-0.0490		

Sample: Pond 12S, BH-3 @ 10.8 feet

Time (minutes)	Square Root of Time (minutes)	Test 5 @ 500 psf		Test 6 @ 1000 psf		Test 7 @ 2000 psf		Test 8 @ 4000 psf	
		Dial Reading (inches)	Deflection (inches)	Dial Reading (inches)	Deflection (inches)	Dial Reading (inches)	Deflection (inches)	Dial Reading (inches)	Deflection (inches)
0.00	0.00	0.1271	0.0000	0.4418	0.0000	0.3873	0.0000	0.3196	0.0000
0.17	0.41	0.1271	0.0000	0.4417	-0.0001	0.3873	0.0000	0.3307	0.0111
0.33	0.58	0.1222	-0.0049	0.4418	0.0000	0.3873	0.0000	0.3349	0.0153
0.50	0.71	0.1192	-0.0079	0.4363	-0.0055	0.3872	-0.0001	0.3067	-0.0129
0.67	0.82	0.1176	-0.0095	0.4325	-0.0093	0.3729	-0.0144	0.2990	-0.0206
0.83	0.91	0.1176	-0.0095	0.4307	-0.0111	0.3685	-0.0188	0.2911	-0.0285
1.00	1.00	0.1118	-0.0153	0.4307	-0.0111	0.3621	-0.0252	0.2869	-0.0327
1.17	1.08	0.1105	-0.0166	0.4307	-0.0111	0.3586	-0.0287	0.2840	-0.0356
1.33	1.15	0.1081	-0.0190	0.4307	-0.0111	0.3543	-0.0330	0.2795	-0.0401
1.50	1.22	0.1072	-0.0199	0.4186	-0.0232	0.3525	-0.0348	0.2773	-0.0423
1.67	1.29	0.1052	-0.0219	0.4166	-0.0252	0.3502	-0.0371	0.2745	-0.0451
1.83	1.35	0.1043	-0.0228	0.4150	-0.0268	0.3475	-0.0398	0.2732	-0.0464
2.00	1.41	0.1037	-0.0234	0.4131	-0.0287	0.3458	-0.0415	0.2732	-0.0464
2.17	1.47	0.1017	-0.0254	0.4120	-0.0298	0.3449	-0.0424	0.2732	-0.0464
2.33	1.53	0.1014	-0.0257	0.4110	-0.0308	0.3426	-0.0447	0.2691	-0.0505
2.50	1.58	0.1014	-0.0257	0.4096	-0.0322	0.3416	-0.0457	0.2683	-0.0513
2.67	1.63	0.0985	-0.0286	0.4086	-0.0332	0.3402	-0.0471	0.2678	-0.0518
2.83	1.68	0.0980	-0.0291	0.4075	-0.0343	0.3397	-0.0476	0.2668	-0.0528
3.00	1.73	0.0960	-0.0311	0.4067	-0.0351	0.3397	-0.0476	0.2662	-0.0534
3.17	1.78	0.0957	-0.0314	0.4059	-0.0359	0.3397	-0.0476	0.2656	-0.0540
3.33	1.83	0.0957	-0.0314	0.4051	-0.0367	0.3397	-0.0476	0.2650	-0.0546
3.50	1.87	0.0957	-0.0314	0.4043	-0.0375	0.3397	-0.0476	0.2648	-0.0548
3.67	1.91	0.0957	-0.0314	0.4039	-0.0379	0.3397	-0.0476	0.2642	-0.0554
3.83	1.96	0.0957	-0.0314	0.4034	-0.0384	0.3397	-0.0476	0.2641	-0.0555
4.00	2.00	0.0957	-0.0314	0.4034	-0.0384	0.3397	-0.0476	0.2641	-0.0555
4.17	2.04	0.0957	-0.0314	0.4034	-0.0384	0.3397	-0.0476	0.2641	-0.0555
4.33	2.08	0.0957	-0.0314	0.4034	-0.0384	0.3397	-0.0476	0.2628	-0.0568
4.50	2.12	0.0957	-0.0314	0.4034	-0.0384	0.3397	-0.0476	0.2628	-0.0568
4.67	2.16	0.0957	-0.0314	0.4011	-0.0407	0.3335	-0.0538	0.2628	-0.0568
4.83	2.20	0.0957	-0.0314	0.4008	-0.0410	0.3335	-0.0538	0.2620	-0.0576
5.00	2.24	0.0957	-0.0314	0.4005	-0.0413	0.3335	-0.0538	0.2617	-0.0579
5.17	2.27	0.0957	-0.0314	0.4002	-0.0416	0.3335	-0.0538	0.2615	-0.0581
5.33	2.31	0.0957	-0.0314	0.3998	-0.0420	0.3325	-0.0548	0.2615	-0.0581
5.50	2.35	0.0957	-0.0314	0.3997	-0.0421	0.3324	-0.0549	0.2615	-0.0581
5.67	2.38	0.0957	-0.0314	0.3995	-0.0423	0.3324	-0.0549	0.2615	-0.0581
5.83	2.42	0.0957	-0.0314	0.3992	-0.0426	0.3324	-0.0549	0.2615	-0.0581
6.00	2.45	0.0957	-0.0314	0.3990	-0.0428	0.3324	-0.0549	0.2605	-0.0591
6.17	2.48	0.0840	-0.0431	0.3988	-0.0430	0.3324	-0.0549	0.2605	-0.0591
6.33	2.52	0.0836	-0.0435	0.3988	-0.0430	0.3324	-0.0549	0.2603	-0.0593
6.50	2.55	0.0834	-0.0437	0.3988	-0.0430	0.3324	-0.0549	0.2603	-0.0593
6.67	2.58	0.0828	-0.0443	0.3988	-0.0430	0.3324	-0.0549	0.2600	-0.0596
6.83	2.61	0.0827	-0.0444	0.3988	-0.0430	0.3324	-0.0549	0.2600	-0.0596
7.00	2.65	0.0823	-0.0448	0.3979	-0.0439	0.3308	-0.0565	0.2600	-0.0596
7.17	2.68	0.0822	-0.0449	0.3977	-0.0441	0.3308	-0.0565	0.2600	-0.0596
7.33	2.71	0.0822	-0.0449	0.3976	-0.0442	0.3308	-0.0565	0.2600	-0.0596
7.50	2.74	0.0822	-0.0449	0.3974	-0.0444	0.3308	-0.0565	0.2600	-0.0596
7.67	2.77	0.0813	-0.0458	0.3972	-0.0446	0.3308	-0.0565	0.2600	-0.0596
7.83	2.80	0.0813	-0.0458	0.3972	-0.0446	0.3308	-0.0565	0.2600	-0.0596
8.00	2.83	0.0813	-0.0458	0.3971	-0.0447	0.3308	-0.0565	0.2600	-0.0596
8.17	2.86	0.0813	-0.0458	0.3969	-0.0449	0.3308	-0.0565	0.2600	-0.0596
8.33	2.89	0.0813	-0.0458	0.3968	-0.0450	0.3308	-0.0565	0.2600	-0.0596
8.50	2.92	0.0803	-0.0468	0.3967	-0.0451	0.3298	-0.0575	0.2587	-0.0609
8.67	2.94	0.0802	-0.0469	0.3965	-0.0453	0.3298	-0.0575	0.2587	-0.0609
8.83	2.97	0.0800	-0.0471	0.3964	-0.0454	0.3296	-0.0577	0.2586	-0.0610
9.00	3.00	0.0797	-0.0474	0.3963	-0.0455	0.3295	-0.0578	0.2585	-0.0611
9.17	3.03	0.0796	-0.0475	0.3963	-0.0455	0.3295	-0.0578	0.2585	-0.0611
9.33	3.06	0.0795	-0.0476	0.3962	-0.0456	0.3294	-0.0579	0.2583	-0.0613
9.50	3.08	0.0795	-0.0476	0.3961	-0.0457	0.3294	-0.0579	0.2583	-0.0613
9.67	3.11	0.0795	-0.0476	0.3960	-0.0458	0.3292	-0.0581	0.2581	-0.0615
9.83	3.14	0.0791	-0.0480	0.3959	-0.0459	0.3292	-0.0581	0.2581	-0.0615
10.00	3.16	0.0789	-0.0482	0.3958	-0.0460	0.3292	-0.0581	0.2581	-0.0615
10.17	3.19	0.0789	-0.0482	0.3957	-0.0461	0.3292	-0.0581	0.2581	-0.0615
10.33	3.21	0.0789	-0.0482	0.3957	-0.0461	0.3292	-0.0581	0.2581	-0.0615
10.50	3.24	0.0789	-0.0482	0.3956	-0.0462	0.3292	-0.0581	0.2581	-0.0615
10.67	3.27	0.0785	-0.0486	0.3955	-0.0463	0.3292	-0.0581	0.2581	-0.0615

Sample: Pond 12S, BH-3 @ 10.8 feet

Time (minutes)	Square Root of Time (minutes)	Test 5 @ 500 psf		Test 6 @ 1000 psf		Test 7 @ 2000 psf		Test 8 @ 4000 psf	
		Dial Reading (inches)	Deflection (inches)	Dial Reading (inches)	Deflection (inches)	Dial Reading (inches)	Deflection (inches)	Dial Reading (inches)	Deflection (inches)
10.83	3.29	0.0784	-0.0487	0.3954	-0.0464	0.3292	-0.0581	0.2581	-0.0615
11.00	3.32	0.0784	-0.0487	0.3954	-0.0464	0.3292	-0.0581	0.2581	-0.0615
11.17	3.34	0.0784	-0.0487	0.3953	-0.0465	0.3286	-0.0587	0.2581	-0.0615
11.33	3.37	0.0784	-0.0487	0.3953	-0.0465	0.3286	-0.0587	0.2581	-0.0615
11.50	3.39	0.0784	-0.0487	0.3952	-0.0466	0.3286	-0.0587	0.2581	-0.0615
11.67	3.42	0.0780	-0.0491	0.3951	-0.0467	0.3286	-0.0587	0.2581	-0.0615
11.83	3.44	0.0780	-0.0491	0.3950	-0.0468	0.3286	-0.0587	0.2581	-0.0615
12.00	3.46	0.0780	-0.0491	0.3950	-0.0468	0.3286	-0.0587	0.2581	-0.0615
12.17	3.49	0.0780	-0.0491	0.3949	-0.0469	0.3286	-0.0587	0.2581	-0.0615
12.33	3.51	0.0776	-0.0495	0.3949	-0.0469	0.3283	-0.0590	0.2581	-0.0615
12.50	3.54	0.0776	-0.0495	0.3948	-0.0470	0.3283	-0.0590	0.2581	-0.0615
12.67	3.56	0.0776	-0.0495	0.3948	-0.0470	0.3283	-0.0590	0.2581	-0.0615
12.83	3.58	0.0776	-0.0495	0.3947	-0.0471	0.3283	-0.0590	0.2581	-0.0615
13.00	3.61	0.0773	-0.0498	0.3947	-0.0471	0.3283	-0.0590	0.2581	-0.0615
13.17	3.63	0.0772	-0.0499	0.3946	-0.0472	0.3283	-0.0590	0.2581	-0.0615
13.33	3.65	0.0772	-0.0499	0.3946	-0.0472	0.3283	-0.0590	0.2581	-0.0615
13.50	3.67	0.0772	-0.0499	0.3946	-0.0472	0.3279	-0.0594	0.2581	-0.0615
13.67	3.70	0.0772	-0.0499	0.3946	-0.0472	0.3279	-0.0594	0.2568	-0.0628
13.83	3.72	0.0769	-0.0502	0.3945	-0.0473	0.3279	-0.0594	0.2567	-0.0629
14.00	3.74	0.0768	-0.0503	0.3945	-0.0473	0.3279	-0.0594	0.2567	-0.0629
14.17	3.76	0.0768	-0.0503	0.3943	-0.0475	0.3279	-0.0594	0.2567	-0.0629
14.33	3.79	0.0768	-0.0503	0.3943	-0.0475	0.3277	-0.0596	0.2567	-0.0629
14.50	3.81	0.0768	-0.0503	0.3943	-0.0475	0.3276	-0.0597	0.2565	-0.0631
14.67	3.83	0.0768	-0.0503	0.3942	-0.0476	0.3276	-0.0597	0.2564	-0.0632
14.83	3.85	0.0768	-0.0503	0.3942	-0.0476	0.3276	-0.0597	0.2564	-0.0632
15.33	3.92	0.0764	-0.0507	0.3940	-0.0478	0.3275	-0.0598	0.2563	-0.0633
15.83	3.98	0.0764	-0.0507	0.3939	-0.0479	0.3274	-0.0599	0.2562	-0.0634
16.33	4.04	0.0764	-0.0507	0.3938	-0.0480	0.3273	-0.0600	0.2561	-0.0635
16.83	4.10	0.0760	-0.0511	0.3937	-0.0481	0.3273	-0.0600	0.2561	-0.0635
17.33	4.16	0.0760	-0.0511	0.3937	-0.0481	0.3273	-0.0600	0.2560	-0.0636
17.83	4.22	0.0760	-0.0511	0.3936	-0.0482	0.3270	-0.0603	0.2560	-0.0636
18.33	4.28	0.0760	-0.0511	0.3935	-0.0483	0.3270	-0.0603	0.2557	-0.0639
18.83	4.34	0.0760	-0.0511	0.3934	-0.0484	0.3270	-0.0603	0.2557	-0.0639
19.33	4.40	0.0760	-0.0511	0.3934	-0.0484	0.3270	-0.0603	0.2555	-0.0641
19.83	4.45	0.0760	-0.0511	0.3932	-0.0486	0.3266	-0.0607	0.2555	-0.0641
20.33	4.51	0.0753	-0.0518	0.3932	-0.0486	0.3266	-0.0607	0.2553	-0.0643
20.83	4.56	0.0752	-0.0519	0.3931	-0.0487	0.3265	-0.0608	0.2552	-0.0644
21.33	4.62	0.0751	-0.0520	0.3930	-0.0488	0.3265	-0.0608	0.2552	-0.0644
21.83	4.67	0.0750	-0.0521	0.3929	-0.0489	0.3265	-0.0608	0.2552	-0.0644
22.33	4.73	0.0749	-0.0522	0.3929	-0.0489	0.3263	-0.0610	0.2552	-0.0644
22.83	4.78	0.0749	-0.0522	0.3928	-0.0490	0.3263	-0.0610	0.2550	-0.0646
23.33	4.83	0.0749	-0.0522	0.3928	-0.0490	0.3262	-0.0611	0.2550	-0.0646
23.83	4.88	0.0748	-0.0523	0.3928	-0.0490	0.3261	-0.0612	0.2549	-0.0647
24.33	4.93	0.0748	-0.0523	0.3927	-0.0491	0.3260	-0.0613	0.2548	-0.0648
24.83	4.98	0.0748	-0.0523	0.3927	-0.0491	0.3260	-0.0613	0.2548	-0.0648
25.33	5.03	0.0747	-0.0524	0.3926	-0.0492	0.3259	-0.0614	0.2547	-0.0649
25.83	5.08	0.0746	-0.0525	0.3926	-0.0492	0.3259	-0.0614	0.2546	-0.0650
26.33	5.13	0.0745	-0.0526	0.3925	-0.0493	0.3258	-0.0615	0.2546	-0.0650
26.83	5.18	0.0745	-0.0526	0.3925	-0.0493	0.3258	-0.0615	0.2545	-0.0651
27.33	5.23	0.0744	-0.0527	0.3924	-0.0494	0.3258	-0.0615	0.2545	-0.0651
27.83	5.28	0.0744	-0.0527	0.3924	-0.0494	0.3257	-0.0616	0.2544	-0.0652
28.33	5.32	0.0744	-0.0527	0.3923	-0.0495	0.3257	-0.0616	0.2543	-0.0653
28.83	5.37	0.0742	-0.0529	0.3922	-0.0496	0.3256	-0.0617	0.2543	-0.0653
29.33	5.42	0.0742	-0.0529	0.3922	-0.0496	0.3255	-0.0618	0.2543	-0.0653
29.83	5.46	0.0742	-0.0529	0.3922	-0.0496	0.3255	-0.0618	0.2542	-0.0654
30.33	5.51	0.0741	-0.0530	0.3921	-0.0497	0.3254	-0.0619	0.2542	-0.0654
30.83	5.55	0.0741	-0.0530	0.3920	-0.0498	0.3254	-0.0619	0.2542	-0.0654
31.33	5.60	0.0740	-0.0531	0.3920	-0.0498	0.3254	-0.0619	0.2541	-0.0655
31.83	5.64	0.0740	-0.0531	0.3920	-0.0498	0.3253	-0.0620	0.2541	-0.0655
32.33	5.69	0.0739	-0.0532	0.3919	-0.0499	0.3253	-0.0620	0.2540	-0.0656
32.83	5.73	0.0739	-0.0532	0.3919	-0.0499	0.3253	-0.0620	0.2540	-0.0656
33.33	5.77	0.0739	-0.0532	0.3919	-0.0499	0.3253	-0.0620	0.2539	-0.0657
33.83	5.82	0.0738	-0.0533	0.3919	-0.0499	0.3253	-0.0620	0.2539	-0.0657
34.33	5.86	0.0738	-0.0533	0.3919	-0.0499	0.3252	-0.0621	0.2538	-0.0658
34.83	5.90	0.0737	-0.0534	0.3918	-0.0500	0.3251	-0.0622	0.2538	-0.0658

Sample: Pond 12S, BH-3 @ 10.8 feet

Time (minutes)	Square Root of Time (minutes)	Test 5 @ 500 psf		Test 6 @ 1000 psf		Test 7 @ 2000 psf		Test 8 @ 4000 psf	
		Dial Reading (inches)	Deflection (inches)	Dial Reading (inches)	Deflection (inches)	Dial Reading (inches)	Deflection (inches)	Dial Reading (inches)	Deflection (inches)
35.33	5.94	0.0737	-0.0534	0.3918	-0.0500	0.3251	-0.0622	0.2537	-0.0659
35.83	5.99	0.0737	-0.0534	0.3918	-0.0500	0.3250	-0.0623	0.2537	-0.0659
36.33	6.03	0.0736	-0.0535	0.3917	-0.0501	0.3250	-0.0623	0.2537	-0.0659
36.83	6.07	0.0736	-0.0535	0.3917	-0.0501	0.3249	-0.0624	0.2536	-0.0660
37.33	6.11	0.0735	-0.0536	0.3917	-0.0501	0.3249	-0.0624	0.2536	-0.0660
37.83	6.15	0.0735	-0.0536	0.3916	-0.0502	0.3249	-0.0624	0.2535	-0.0661
38.33	6.19	0.0735	-0.0536	0.3916	-0.0502	0.3249	-0.0624	0.2535	-0.0661
38.83	6.23	0.0734	-0.0537	0.3916	-0.0502	0.3249	-0.0624	0.2535	-0.0661
39.33	6.27	0.0734	-0.0537	0.3916	-0.0502	0.3249	-0.0624	0.2535	-0.0661
39.83	6.31	0.0734	-0.0537	0.3915	-0.0503	0.3249	-0.0624	0.2535	-0.0661
40.33	6.35	0.0733	-0.0538	0.3914	-0.0504	0.3248	-0.0625	0.2535	-0.0661
40.83	6.39	0.0733	-0.0538	0.3914	-0.0504	0.3248	-0.0625	0.2534	-0.0662
41.33	6.43	0.0733	-0.0538	0.3914	-0.0504	0.3247	-0.0626	0.2534	-0.0662
41.83	6.47	0.0733	-0.0538	0.3914	-0.0504	0.3247	-0.0626	0.2534	-0.0662
42.33	6.51	0.0732	-0.0539	0.3913	-0.0505	0.3247	-0.0626	0.2533	-0.0663
42.83	6.54	0.0732	-0.0539	0.3913	-0.0505	0.3247	-0.0626	0.2533	-0.0663
43.33	6.58	0.0732	-0.0539	0.3913	-0.0505	0.3247	-0.0626	0.2533	-0.0663
43.83	6.62	0.0732	-0.0539	0.3913	-0.0505	0.3247	-0.0626	0.2532	-0.0664
44.33	6.66	0.0732	-0.0539	0.3912	-0.0506	0.3247	-0.0626	0.2532	-0.0664
44.83	6.70	0.0732	-0.0539	0.3912	-0.0506	0.3245	-0.0628	0.2532	-0.0664
45.33	6.73	0.0732	-0.0539	0.3912	-0.0506	0.3245	-0.0628	0.2531	-0.0665
45.83	6.77	0.0731	-0.0540	0.3912	-0.0506	0.3245	-0.0628	0.2531	-0.0665
46.33	6.81	0.0731	-0.0540	0.3912	-0.0506	0.3244	-0.0629	0.2531	-0.0665
46.83	6.84	0.0731	-0.0540	0.3912	-0.0506	0.3244	-0.0629	0.2531	-0.0665
47.33	6.88	0.0731	-0.0540	0.3911	-0.0507	0.3244	-0.0629	0.2530	-0.0666
47.83	6.92	0.0731	-0.0540	0.3911	-0.0507	0.3244	-0.0629	0.2530	-0.0666
48.33	6.95	0.0731	-0.0540	0.3911	-0.0507	0.3244	-0.0629	0.2530	-0.0666
48.83	6.99	0.0729	-0.0542	0.3911	-0.0507	0.3244	-0.0629	0.2529	-0.0667
49.33	7.02	0.0729	-0.0542	0.3911	-0.0507	0.3243	-0.0630	0.2529	-0.0667
49.83	7.06	0.0729	-0.0542	0.3911	-0.0507	0.3243	-0.0630	0.2528	-0.0668
50.33	7.09	0.0729	-0.0542	0.3911	-0.0507	0.3242	-0.0631	0.2528	-0.0668
50.83	7.13	0.0729	-0.0542	0.3911	-0.0507	0.3242	-0.0631	0.2528	-0.0668
51.33	7.16	0.0729	-0.0542	0.3911	-0.0507	0.3242	-0.0631	0.2528	-0.0668
51.83	7.20	0.0729	-0.0542	0.3910	-0.0508	0.3242	-0.0631	0.2527	-0.0669
52.33	7.23	0.0729	-0.0542	0.3910	-0.0508	0.3241	-0.0632	0.2527	-0.0669
52.83	7.27	0.0728	-0.0543	0.3910	-0.0508	0.3241	-0.0632	0.2527	-0.0669
53.33	7.30	0.0728	-0.0543	0.3910	-0.0508	0.3241	-0.0632	0.2527	-0.0669
53.83	7.34	0.0727	-0.0544	0.3909	-0.0509	0.3241	-0.0632	0.2526	-0.0670
54.33	7.37	0.0727	-0.0544	0.3909	-0.0509	0.3241	-0.0632	0.2526	-0.0670
54.83	7.40	0.0727	-0.0544	0.3909	-0.0509	0.3240	-0.0633	0.2526	-0.0670
55.33	7.44	0.0727	-0.0544	0.3909	-0.0509	0.3240	-0.0633	0.2526	-0.0670
55.83	7.47	0.0727	-0.0544	0.3909	-0.0509	0.3240	-0.0633	0.2526	-0.0670
56.33	7.51	0.0727	-0.0544	0.3908	-0.0510	0.3240	-0.0633	0.2526	-0.0670
56.83	7.54	0.0727	-0.0544	0.3908	-0.0510	0.3240	-0.0633	0.2526	-0.0670
57.33	7.57	0.0726	-0.0545	0.3908	-0.0510	0.3240	-0.0633	0.2526	-0.0670
57.83	7.60	0.0726	-0.0545	0.3908	-0.0510	0.3240	-0.0633	0.2525	-0.0671
58.33	7.64	0.0726	-0.0545	0.3908	-0.0510	0.3240	-0.0633	0.2525	-0.0671
58.83	7.67	0.0725	-0.0546	0.3907	-0.0511	0.3239	-0.0634	0.2525	-0.0671
59.33	7.70	0.0725	-0.0546	0.3907	-0.0511	0.3239	-0.0634	0.2525	-0.0671
59.83	7.74	0.0725	-0.0546	0.3907	-0.0511	0.3239	-0.0634	0.2524	-0.0672
60.83	7.80	0.0725	-0.0546	0.3907	-0.0511	0.3239	-0.0634	0.2524	-0.0672
61.83	7.86	0.0725	-0.0546	0.3906	-0.0512	0.3238	-0.0635	0.2523	-0.0673
62.83	7.93	0.0725	-0.0546	0.3906	-0.0512	0.3238	-0.0635	0.2523	-0.0673
63.83	7.99	0.0724	-0.0547	0.3906	-0.0512	0.3237	-0.0636	0.2523	-0.0673
64.83	8.05	0.0724	-0.0547	0.3906	-0.0512	0.3237	-0.0636	0.2522	-0.0674
65.83	8.11	0.0724	-0.0547	0.3905	-0.0513	0.3237	-0.0636	0.2522	-0.0674
66.83	8.18	0.0723	-0.0548	0.3905	-0.0513	0.3237	-0.0636	0.2521	-0.0675
67.83	8.24	0.0723	-0.0548	0.3905	-0.0513	0.3236	-0.0637	0.2521	-0.0675
68.83	8.30	0.0723	-0.0548	0.3905	-0.0513	0.3236	-0.0637	0.2521	-0.0675
69.83	8.36	0.0723	-0.0548	0.3904	-0.0514	0.3236	-0.0637	0.2520	-0.0676
70.83	8.42	0.0723	-0.0548	0.3903	-0.0515	0.3235	-0.0638	0.2520	-0.0676
71.83	8.48	0.0723	-0.0548	0.3903	-0.0515	0.3234	-0.0639	0.2520	-0.0676
72.83	8.53	0.0723	-0.0548	0.3903	-0.0515	0.3234	-0.0639	0.2519	-0.0677
73.83	8.59	0.0722	-0.0549	0.3903	-0.0515	0.3234	-0.0639	0.2519	-0.0677
74.83	8.65	0.0722	-0.0549	0.3902	-0.0516	0.3234	-0.0639	0.2519	-0.0677

Sample: Pond 12S, BH-3 @ 10.8 feet

Time (minutes)	Square Root of Time (minutes)	Test 5 @ 500 psf		Test 6 @ 1000 psf		Test 7 @ 2000 psf		Test 8 @ 4000 psf	
		Dial Reading (inches)	Deflection (inches)	Dial Reading (inches)	Deflection (inches)	Dial Reading (inches)	Deflection (inches)	Dial Reading (inches)	Deflection (inches)
75.83	8.71	0.0722	-0.0549	0.3902	-0.0516	0.3233	-0.0640	0.2518	-0.0678
76.83	8.77	0.0722	-0.0549	0.3902	-0.0516	0.3233	-0.0640	0.2518	-0.0678
77.83	8.82	0.0722	-0.0549	0.3902	-0.0516	0.3233	-0.0640	0.2518	-0.0678
78.83	8.88	0.0721	-0.0550	0.3902	-0.0516	0.3233	-0.0640	0.2517	-0.0679
79.83	8.93	0.0721	-0.0550	0.3902	-0.0516	0.3233	-0.0640	0.2517	-0.0679
80.83	8.99	0.0721	-0.0550	0.3902	-0.0516	0.3232	-0.0641	0.2517	-0.0679
81.83	9.05	0.0721	-0.0550	0.3902	-0.0516	0.3232	-0.0641	0.2517	-0.0679
82.83	9.10	0.0721	-0.0550	0.3902	-0.0516	0.3232	-0.0641	0.2517	-0.0679
83.83	9.16	0.0720	-0.0551	0.3901	-0.0517	0.3232	-0.0641	0.2517	-0.0679
84.83	9.21	0.0720	-0.0551	0.3901	-0.0517	0.3230	-0.0643	0.2517	-0.0679
85.83	9.26	0.0720	-0.0551	0.3901	-0.0517	0.3232	-0.0641	0.2516	-0.0680
86.83	9.32	0.0720	-0.0551	0.3901	-0.0517	0.3231	-0.0642	0.2516	-0.0680
87.83	9.37	0.0719	-0.0552	0.3901	-0.0517	0.3231	-0.0642	0.2516	-0.0680
88.83	9.43	0.0719	-0.0552	0.3901	-0.0517	0.3231	-0.0642	0.2515	-0.0681
89.83	9.48	0.0719	-0.0552	0.3900	-0.0518	0.3230	-0.0643	0.2515	-0.0681
90.83	9.53	0.0718	-0.0553	0.3900	-0.0518	0.3230	-0.0643	0.2514	-0.0682
91.83	9.58	0.0718	-0.0553	0.3900	-0.0518	0.3230	-0.0643	0.2514	-0.0682
92.83	9.64	0.0718	-0.0553	0.3900	-0.0518	0.3230	-0.0643	0.2514	-0.0682
93.83	9.69	0.0718	-0.0553	0.3900	-0.0518	0.3230	-0.0643	0.2514	-0.0682
94.83	9.74	0.0718	-0.0553	0.3900	-0.0518	0.3229	-0.0644	0.2513	-0.0683
95.83	9.79	0.0718	-0.0553	0.3899	-0.0519	0.3229	-0.0644	0.2513	-0.0683
96.83	9.84	0.0717	-0.0554	0.3899	-0.0519	0.3229	-0.0644	0.2513	-0.0683
97.83	9.89	0.0717	-0.0554	0.3899	-0.0519	0.3229	-0.0644	0.2513	-0.0683
98.83	9.94	0.0717	-0.0554	0.3899	-0.0519	0.3228	-0.0645	0.2512	-0.0684
99.83	9.99	0.0717	-0.0554	0.3898	-0.0520	0.3228	-0.0645	0.2512	-0.0684
100.83	10.04	0.0717	-0.0554	0.3898	-0.0520	0.3228	-0.0645	0.2512	-0.0684
101.83	10.09	0.0717	-0.0554	0.3898	-0.0520	0.3228	-0.0645	0.2512	-0.0684
102.83	10.14	0.0716	-0.0555	0.3898	-0.0520	0.3228	-0.0645	0.2511	-0.0685
103.83	10.19	0.0716	-0.0555	0.3898	-0.0520	0.3228	-0.0645	0.2511	-0.0685
104.83	10.24	0.0716	-0.0555	0.3897	-0.0521	0.3228	-0.0645	0.2511	-0.0685
105.83	10.29	0.0716	-0.0555	0.3897	-0.0521	0.3227	-0.0646	0.2511	-0.0685
106.83	10.34	0.0716	-0.0555	0.3897	-0.0521	0.3227	-0.0646	0.2511	-0.0685
107.83	10.38	0.0715	-0.0556	0.3897	-0.0521	0.3227	-0.0646	0.2511	-0.0685
108.83	10.43	0.0715	-0.0556	0.3897	-0.0521	0.3227	-0.0646	0.2510	-0.0686
109.83	10.48	0.0715	-0.0556	0.3897	-0.0521	0.3227	-0.0646	0.2510	-0.0686
110.83	10.53	0.0715	-0.0556	0.3897	-0.0521	0.3226	-0.0647	0.2510	-0.0686
111.83	10.58	0.0715	-0.0556	0.3896	-0.0522	0.3226	-0.0647	0.2510	-0.0686
112.83	10.62	0.0715	-0.0556	0.3896	-0.0522	0.3226	-0.0647	0.2509	-0.0687
113.83	10.67	0.0715	-0.0556	0.3896	-0.0522	0.3226	-0.0647	0.2509	-0.0687
114.83	10.72	0.0715	-0.0556	0.3896	-0.0522	0.3220	-0.0653	0.2509	-0.0687
115.83	10.76	0.0715	-0.0556	0.3895	-0.0523	0.3225	-0.0648	0.2509	-0.0687
116.83	10.81	0.0715	-0.0556	0.3895	-0.0523	0.3225	-0.0648	0.2509	-0.0687
117.83	10.86	0.0715	-0.0556	0.3895	-0.0523	0.3225	-0.0648	0.2509	-0.0687
118.83	10.90	0.0715	-0.0556	0.3895	-0.0523	0.3225	-0.0648	0.2509	-0.0687
119.83	10.95	0.0715	-0.0556	0.3895	-0.0523	0.3225	-0.0648	0.2509	-0.0687
129.83	11.39	0.0713	-0.0558	0.3893	-0.0525	0.3223	-0.0650	0.2507	-0.0689
139.83	11.83	0.0713	-0.0558	0.3893	-0.0525	0.3222	-0.0651	0.2506	-0.0690
149.83	12.24	0.0712	-0.0559	0.3892	-0.0526	0.3221	-0.0652	0.2504	-0.0692
159.83	12.64	0.0711	-0.0560	0.3891	-0.0527	0.3220	-0.0653	0.2502	-0.0694
169.83	13.03	0.0710	-0.0561	0.3891	-0.0527	0.3218	-0.0655	0.2501	-0.0695
179.83	13.41	0.0709	-0.0562	0.3888	-0.0530	0.3218	-0.0655	0.2500	-0.0696
189.83	13.78	0.0708	-0.0563	0.3888	-0.0530	0.3217	-0.0656	0.2500	-0.0696
199.83	14.14	0.0707	-0.0564	0.3887	-0.0531	0.3215	-0.0658	0.2499	-0.0697
209.83	14.49	0.0707	-0.0564	0.3886	-0.0532	0.3214	-0.0659	0.2497	-0.0699
219.83	14.83	0.0706	-0.0565	0.3886	-0.0532	0.3214	-0.0659	0.2497	-0.0699
229.83	15.16	0.0705	-0.0566	0.3886	-0.0532	0.3214	-0.0659	0.2496	-0.0700
239.83	15.49	0.0705	-0.0566	0.3885	-0.0533	0.3213	-0.0660	0.2495	-0.0701
249.83	15.81	0.0705	-0.0566	0.3885	-0.0533	0.3213	-0.0660	0.2494	-0.0702
259.83	16.12	0.0704	-0.0567	0.3884	-0.0534	0.3212	-0.0661	0.2494	-0.0702
269.83	16.43	0.0704	-0.0567	0.3884	-0.0534	0.3211	-0.0662	0.2493	-0.0703
279.83	16.73	0.0703	-0.0568	0.3883	-0.0535	0.3210	-0.0663	0.2492	-0.0704
289.83	17.02	0.0703	-0.0568	0.3882	-0.0536	0.3209	-0.0664	0.2491	-0.0705
299.83	17.32	0.0703	-0.0568	0.3882	-0.0536	0.3209	-0.0664	0.2491	-0.0705
309.83	17.60	0.0702	-0.0569	0.3880	-0.0538	0.3208	-0.0665	0.2491	-0.0705
319.83	17.88	0.0702	-0.0569	0.3880	-0.0538	0.3208	-0.0665	0.2490	-0.0706

Sample: Pond 12S, BH-3 @ 10.8 feet

Time (minutes)	Square Root of Time (minutes)	Test 5 @ 500 psf		Test 6 @ 1000 psf		Test 7 @ 2000 psf		Test 8 @ 4000 psf	
		Dial Reading (inches)	Deflection (inches)	Dial Reading (inches)	Deflection (inches)	Dial Reading (inches)	Deflection (inches)	Dial Reading (inches)	Deflection (inches)
329.83	18.16	0.0702	-0.0569	0.3879	-0.0539	0.3207	-0.0666	0.2489	-0.0707
339.83	18.43	0.0701	-0.0570	0.3879	-0.0539	0.3207	-0.0666	0.2488	-0.0708
349.83	18.70	0.0701	-0.0570	0.3878	-0.0540	0.3207	-0.0666	0.2488	-0.0708
359.83	18.97	0.0700	-0.0571	0.3878	-0.0540	0.3207	-0.0666	0.2487	-0.0709
369.83	19.23	0.0700	-0.0571	0.3877	-0.0541	0.3207	-0.0666	0.2486	-0.0710
379.83	19.49	0.0700	-0.0571	0.3877	-0.0541	0.3207	-0.0666	0.2486	-0.0710
389.83	19.74	0.0700	-0.0571	0.3876	-0.0542	0.3206	-0.0667	0.2485	-0.0711
399.83	20.00	0.0700	-0.0571	0.3876	-0.0542	0.3206	-0.0667	0.2485	-0.0711
409.83	20.24	0.0699	-0.0572	0.3875	-0.0543	0.3205	-0.0668	0.2484	-0.0712
419.83	20.49	0.0699	-0.0572	0.3874	-0.0544	0.3205	-0.0668	0.2483	-0.0713
429.83	20.73	0.0699	-0.0572	0.3874	-0.0544	0.3205	-0.0668	0.2482	-0.0714
439.83	20.97	0.0699	-0.0572	0.3873	-0.0545	0.3205	-0.0668	0.2482	-0.0714
449.83	21.21	0.0699	-0.0572			0.3205	-0.0668	0.2482	-0.0714
459.83	21.44	0.0698	-0.0573			0.3204	-0.0669	0.2481	-0.0715
469.83	21.68	0.0698	-0.0573			0.3205	-0.0668	0.2481	-0.0715
479.83	21.91	0.0698	-0.0573			0.3205	-0.0668	0.2481	-0.0715
489.83	22.13	0.0698	-0.0573			0.3204	-0.0669	0.2480	-0.0716
499.83	22.36	0.0697	-0.0574			0.3200	-0.0673	0.2480	-0.0716
509.83	22.58	0.0697	-0.0574			0.3204	-0.0669	0.2479	-0.0717
519.83	22.80	0.0697	-0.0574			0.3204	-0.0669	0.2478	-0.0718
529.83	23.02	0.0697	-0.0574			0.3204	-0.0669	0.2478	-0.0718
539.83	23.23	0.0697	-0.0574			0.3204	-0.0669	0.2478	-0.0718
549.83	23.45	0.0697	-0.0574			0.3204	-0.0669	0.2477	-0.0719
559.83	23.66	0.0697	-0.0574			0.3204	-0.0669	0.2476	-0.0720
569.83	23.87	0.0697	-0.0574			0.3204	-0.0669	0.2476	-0.0720
579.83	24.08	0.0697	-0.0574			0.3203	-0.0670	0.2476	-0.0720
589.83	24.29	0.0697	-0.0574			0.3202	-0.0671	0.2475	-0.0721
599.83	24.49	0.0697	-0.0574			0.3202	-0.0671	0.2475	-0.0721
609.83	24.69	0.0697	-0.0574			0.3202	-0.0671	0.2474	-0.0722
619.83	24.90	0.0697	-0.0574			0.3203	-0.0670	0.2474	-0.0722
629.83	25.10	0.0697	-0.0574			0.3202	-0.0671	0.2474	-0.0722
639.83	25.29	0.0697	-0.0574			0.3202	-0.0671	0.2474	-0.0722
649.83	25.49	0.0697	-0.0574			0.3201	-0.0672	0.2474	-0.0722
659.83	25.69	0.0697	-0.0574			0.3201	-0.0672	0.2474	-0.0722
669.83	25.88	0.0697	-0.0574			0.3201	-0.0672	0.2474	-0.0722
679.83	26.07	0.0697	-0.0574			0.3201	-0.0672	0.2474	-0.0722
689.83	26.26	0.0696	-0.0575			0.3201	-0.0672	0.2473	-0.0723
699.83	26.45	0.0697	-0.0574			0.3201	-0.0672	0.2473	-0.0723
709.83	26.64	0.0697	-0.0574			0.3201	-0.0672	0.2473	-0.0723
719.83	26.83	0.0697	-0.0574			0.3200	-0.0673	0.2473	-0.0723
749.83	27.38	0.0697	-0.0574			0.3200	-0.0673	0.2472	-0.0724
779.83	27.93	0.0696	-0.0575			0.3200	-0.0673	0.2472	-0.0724
809.83	28.46	0.0695	-0.0576			0.3200	-0.0673	0.2471	-0.0725
839.83	28.98	0.0695	-0.0576			0.3200	-0.0673	0.2470	-0.0726
869.83	29.49	0.0695	-0.0576			0.3199	-0.0674	0.2470	-0.0726
899.83	30.00	0.0694	-0.0577			0.3199	-0.0674	0.2470	-0.0726
929.83	30.49	0.0693	-0.0578			0.3198	-0.0675	0.2469	-0.0727
959.83	30.98	0.0694	-0.0577			0.3198	-0.0675	0.2469	-0.0727
989.83	31.46	0.0694	-0.0577			0.3198	-0.0675	0.2468	-0.0728
1019.83	31.93	0.0693	-0.0578			0.3197	-0.0676	0.2468	-0.0728
1049.83	32.40	0.0692	-0.0579			0.3197	-0.0676	0.2467	-0.0729
1079.83	32.86					0.3197	-0.0676	0.2467	-0.0729
1109.83	33.31					0.3196	-0.0677	0.2467	-0.0729
1139.83	33.76							0.2466	-0.0730
1169.83	34.20							0.2465	-0.0731
1199.83	34.64							0.2465	-0.0731
1229.83	35.07							0.2465	-0.0731
1259.83	35.49							0.2465	-0.0731
1289.83	35.91							0.2465	-0.0731

One Dimensional Consolidation

Project No.	973376
Project	FMC
Sample ID	Pond 13S, BH-3 @ 14.5 feet
Sample Ht.	1.813 (in)
Sample Dia.	4.000 (in)
Sample Area	0.087 (sq-ft)
Sample Vol.	0.013 (cu-ft)
Phos Cont.	2.8 (%)
Init. M.C.	262.91 (%)
Init. M.C. (corr)	229.44 (%)
Final M.C.	117.17 (%)
Final M.C. (corr)	104.73 (%)
Dry Wt. of Soil/f	206.04 (g)
Dry Wt. of Soil/i	140.76 (g)
Spec. Grav.	2.79
Pocket Pen.	(tsf)

Moisture Content Weights	
(initial)	
Total Wet Wt. (g)	28.67
Phos. Wt. (g)	0.80
Dry Wt. (g)	7.9
Dry Wt. + Phos Wt. (g)	8.70
Water Wt. + Phos (g)	20.77
Water Wt. (g)	19.97
(final)	
Total Wet Wt. (g)	29.21
Phos. Wt. (g)	0.82
Dry Wt. (g)	13.45
Dry Wt. + Phos Wt. (g)	14.27
Water Wt. + Phos (g)	15.76
Water Wt. (g)	14.94

Pressure (ksf)	Final Dial Reading (inches)	Deformation (inches)	Sample Ht. (inches)	Strain (%)	Void Ratio (e)	Dry Density (pcf)	Void Ratio (e)	Dry Density (pcf)
					Calc. from final MC		Calc. from initial MC	
0.0010	0.4437	0.0000	1.8125	0	4.056	34.43	6.401	23.52
0.0250	0.4409	0.0028	1.8097	0.15	4.049	34.48	6.390	23.56
0.0500	0.4385	0.0050	1.8075	0.28	4.042	34.53	6.381	23.59
0.1000	0.4061	0.0308	1.7817	1.70	3.971	35.03	6.275	23.93
0.2500	0.3256	0.0951	1.7174	5.25	3.791	36.34	6.013	24.83
0.5000	0.2426	0.1780	1.6345	9.82	3.560	38.18	5.674	26.08
1.0000	0.1428	0.2728	1.5397	15.05	3.295	40.53	5.287	27.69
2.0000	0.1426	0.2729	1.5396	15.06	3.295	40.53	5.287	27.69
4.0000	0.3098	0.4067	1.4058	22.44	2.922	44.39	4.741	30.33

Note: Initial MC not taken from actual sample tested, but from same sample jar.
Final MC taken from actual sample tested.
Void Ratio (e), calculated from final MC likely to be most accurate.
Final data readings may vary when compared to deformation values due to resetting the dial. The deformation values are based on the actual data in Appendix E.

Sample: Pond 13S, BH-3 @ 14.5 feet

Time (minutes)	Square Root of Time (minutes)	Test 1 @ 25 psf		Test 2 @ 50 psf		Test 3 @ 100 psf		Test 4 @ 250 psf	
		Dial Reading (inches)	Deflection (inches)	Dial Reading (inches)	Deflection (inches)	Dial Reading (inches)	Deflection (inches)	Dial Reading (inches)	Deflection (inches)
0.00	0.00	0.4437	0.0000	0.4407	0.0000	0.4319	0.0000	0.3899	0.0000
0.17	0.41	0.4437	0.0000	0.4407	0.0000	0.4319	0.0000	0.3899	0.0000
0.33	0.58	0.4437	0.0000	0.4402	-0.0005	0.4237	-0.0082	0.3864	-0.0035
0.50	0.71	0.4437	0.0000	0.4398	-0.0009	0.4237	-0.0082	0.3824	-0.0075
0.67	0.82	0.4437	0.0000	0.4396	-0.0011	0.4237	-0.0082	0.3804	-0.0095
0.83	0.91	0.4437	0.0000	0.4394	-0.0013	0.4202	-0.0117	0.3775	-0.0124
1.00	1.00	0.4437	0.0000	0.4394	-0.0013	0.4195	-0.0124	0.3759	-0.0140
1.17	1.08	0.4437	0.0000	0.4392	-0.0015	0.4185	-0.0134	0.3759	-0.0140
1.33	1.15	0.4437	0.0000	0.4391	-0.0016	0.4178	-0.0141	0.3759	-0.0140
1.50	1.22	0.4437	0.0000	0.4390	-0.0017	0.4170	-0.0149	0.3703	-0.0196
1.67	1.29	0.4437	0.0000	0.4389	-0.0018	0.4164	-0.0155	0.3681	-0.0218
1.83	1.35	0.4437	0.0000	0.4388	-0.0019	0.4157	-0.0162	0.3670	-0.0229
2.00	1.41	0.4437	0.0000	0.4388	-0.0019	0.4151	-0.0168	0.3658	-0.0241
2.17	1.47	0.4437	0.0000	0.4387	-0.0020	0.4151	-0.0168	0.3639	-0.0260
2.33	1.53	0.4437	0.0000	0.4386	-0.0021	0.4151	-0.0168	0.3628	-0.0271
2.50	1.58	0.4437	0.0000	0.4385	-0.0022	0.4132	-0.0187	0.3613	-0.0286
2.67	1.63	0.4437	0.0000	0.4385	-0.0022	0.4128	-0.0191	0.3602	-0.0297
2.83	1.68	0.4437	0.0000	0.4385	-0.0022	0.4120	-0.0199	0.3602	-0.0297
3.00	1.73	0.4437	0.0000	0.4385	-0.0022	0.4116	-0.0203	0.3602	-0.0297
3.17	1.78	0.4437	0.0000	0.4385	-0.0022	0.4110	-0.0209	0.3570	-0.0329
3.33	1.83	0.4437	0.0000	0.4385	-0.0022	0.4106	-0.0213	0.3558	-0.0341
3.50	1.87	0.4437	0.0000	0.4385	-0.0022	0.4101	-0.0218	0.3550	-0.0349
3.67	1.91	0.4437	0.0000	0.4385	-0.0022	0.4098	-0.0221	0.3544	-0.0355
3.83	1.96	0.4437	0.0000	0.4385	-0.0022	0.4098	-0.0221	0.3532	-0.0367
4.00	2.00	0.4437	0.0000	0.4385	-0.0022	0.4088	-0.0231	0.3524	-0.0375
4.17	2.04	0.4437	0.0000	0.4385	-0.0022	0.4084	-0.0235	0.3514	-0.0385
4.33	2.08	0.4437	0.0000	0.4385	-0.0022	0.4082	-0.0237	0.3513	-0.0386
4.50	2.12	0.4437	0.0000	0.4385	-0.0022	0.4076	-0.0243	0.3513	-0.0386
4.67	2.16	0.4437	0.0000	0.4385	-0.0022	0.4074	-0.0245	0.3513	-0.0386
4.83	2.20	0.4437	0.0000	0.4385	-0.0022	0.4069	-0.0250	0.3490	-0.0409
5.00	2.24	0.4437	0.0000	0.4385	-0.0022	0.4066	-0.0253	0.3483	-0.0416
5.17	2.27	0.4437	0.0000	0.4385	-0.0022	0.4064	-0.0255	0.3478	-0.0421
5.33	2.31	0.4437	0.0000	0.4385	-0.0022	0.4061	-0.0258	0.3474	-0.0425
5.50	2.35	0.4437	0.0000	0.4385	-0.0022	0.4061	-0.0258	0.3467	-0.0432
5.67	2.38	0.4437	0.0000	0.4385	-0.0022	0.4061	-0.0258	0.3462	-0.0437
5.83	2.42	0.4437	0.0000	0.4385	-0.0022	0.4061	-0.0258	0.3457	-0.0442
6.00	2.45	0.4437	0.0000	0.4385	-0.0022	0.4061	-0.0258	0.3455	-0.0444
6.17	2.48	0.4437	0.0000	0.4385	-0.0022	0.4061	-0.0258	0.3455	-0.0444
6.33	2.52	0.4437	0.0000	0.4385	-0.0022	0.4061	-0.0258	0.3455	-0.0444
6.50	2.55	0.4437	0.0000	0.4385	-0.0022	0.4061	-0.0258	0.3455	-0.0444
6.67	2.58	0.4437	0.0000	0.4385	-0.0022	0.4061	-0.0258	0.3455	-0.0444
6.83	2.61	0.4437	0.0000	0.4385	-0.0022	0.4061	-0.0258	0.3455	-0.0444
7.00	2.65	0.4437	0.0000	0.4385	-0.0022	0.4061	-0.0258	0.3455	-0.0444
7.17	2.68	0.4437	0.0000	0.4385	-0.0022	0.4061	-0.0258	0.3455	-0.0444
7.33	2.71	0.4437	0.0000	0.4385	-0.0022	0.4061	-0.0258	0.3455	-0.0444
7.50	2.74	0.4437	0.0000	0.4385	-0.0022	0.4061	-0.0258	0.3455	-0.0444
7.67	2.77	0.4437	0.0000	0.4385	-0.0022	0.4061	-0.0258	0.3455	-0.0444
7.83	2.80	0.4437	0.0000	0.4385	-0.0022	0.4061	-0.0258	0.3455	-0.0444
8.00	2.83	0.4437	0.0000	0.4385	-0.0022	0.4061	-0.0258	0.3455	-0.0444
8.17	2.86	0.4437	0.0000	0.4385	-0.0022	0.4061	-0.0258	0.3455	-0.0444
8.33	2.89	0.4437	0.0000	0.4385	-0.0022	0.4061	-0.0258	0.3455	-0.0444
8.50	2.92	0.4437	0.0000	0.4385	-0.0022	0.4061	-0.0258	0.3455	-0.0444
8.67	2.94	0.4437	0.0000	0.4385	-0.0022	0.4061	-0.0258	0.3455	-0.0444
8.83	2.97	0.4437	0.0000	0.4385	-0.0022	0.4061	-0.0258	0.3455	-0.0444
9.00	3.00	0.4437	0.0000	0.4385	-0.0022	0.4061	-0.0258	0.3455	-0.0444
9.17	3.03	0.4437	0.0000	0.4385	-0.0022	0.4061	-0.0258	0.3455	-0.0444
9.33	3.06	0.4437	0.0000	0.4385	-0.0022	0.4061	-0.0258	0.3455	-0.0444
9.50	3.08	0.4437	0.0000	0.4385	-0.0022	0.4061	-0.0258	0.3455	-0.0444
9.67	3.11	0.4437	0.0000	0.4385	-0.0022	0.4061	-0.0258	0.3455	-0.0444
9.83	3.14	0.4437	0.0000	0.4385	-0.0022	0.4061	-0.0258	0.3455	-0.0444
10.00	3.16	0.4437	0.0000	0.4385	-0.0022	0.4061	-0.0258	0.3455	-0.0444
10.17	3.19	0.4437	0.0000	0.4385	-0.0022	0.4061	-0.0258	0.3455	-0.0444
10.33	3.21	0.4437	0.0000	0.4385	-0.0022	0.4061	-0.0258	0.3455	-0.0444
10.50	3.24	0.4437	0.0000	0.4385	-0.0022	0.4061	-0.0258	0.3455	-0.0444
10.67	3.27	0.4437	0.0000	0.4385	-0.0022	0.4061	-0.0258	0.3455	-0.0444

Sample: Pond 13S, BH-3 @ 14.5 feet

Time (minutes)	Square Root of Time (minutes)	Test 1 @ 25 psf		Test 2 @ 50 psf		Test 3 @ 100 psf		Test 4 @ 250 psf	
		Dial Reading (inches)	Deflection (inches)	Dial Reading (inches)	Deflection (inches)	Dial Reading (inches)	Deflection (inches)	Dial Reading (inches)	Deflection (inches)
10.83	3.29	0.4437	0.0000	0.4385	-0.0022	0.4061	-0.0258	0.3455	-0.0444
11.00	3.32	0.4437	0.0000	0.4385	-0.0022	0.4061	-0.0258	0.3455	-0.0444
11.17	3.34	0.4437	0.0000	0.4385	-0.0022	0.4061	-0.0258	0.3380	-0.0519
11.33	3.37	0.4437	0.0000	0.4385	-0.0022	0.4061	-0.0258	0.3379	-0.0520
11.50	3.39	0.4437	0.0000	0.4385	-0.0022	0.4061	-0.0258	0.3379	-0.0520
11.67	3.42	0.4437	0.0000	0.4385	-0.0022	0.4061	-0.0258	0.3379	-0.0520
11.83	3.44	0.4437	0.0000	0.4385	-0.0022	0.4061	-0.0258	0.3379	-0.0520
12.00	3.46	0.4437	0.0000	0.4385	-0.0022	0.4061	-0.0258	0.3379	-0.0520
12.17	3.49	0.4437	0.0000	0.4385	-0.0022	0.4061	-0.0258	0.3379	-0.0520
12.33	3.51	0.4437	0.0000	0.4385	-0.0022	0.4061	-0.0258	0.3379	-0.0520
12.50	3.54	0.4437	0.0000	0.4385	-0.0022	0.4061	-0.0258	0.3379	-0.0520
12.67	3.56	0.4437	0.0000	0.4385	-0.0022	0.4061	-0.0258	0.3379	-0.0520
12.83	3.58	0.4437	0.0000	0.4385	-0.0022	0.4061	-0.0258	0.3379	-0.0520
13.00	3.61	0.4437	0.0000	0.4385	-0.0022	0.4061	-0.0258	0.3379	-0.0520
13.17	3.63	0.4437	0.0000	0.4385	-0.0022	0.4061	-0.0258	0.3379	-0.0520
13.33	3.65	0.4437	0.0000	0.4385	-0.0022	0.4061	-0.0258	0.3379	-0.0520
13.50	3.67	0.4437	0.0000	0.4385	-0.0022	0.4061	-0.0258	0.3379	-0.0520
13.67	3.70	0.4437	0.0000	0.4385	-0.0022	0.4061	-0.0258	0.3379	-0.0520
13.83	3.72	0.4437	0.0000	0.4385	-0.0022	0.4061	-0.0258	0.3379	-0.0520
14.00	3.74	0.4437	0.0000	0.4385	-0.0022	0.4061	-0.0258	0.3379	-0.0520
14.17	3.76	0.4437	0.0000	0.4385	-0.0022	0.4061	-0.0258	0.3379	-0.0520
14.33	3.79	0.4437	0.0000	0.4385	-0.0022	0.4061	-0.0258	0.3379	-0.0520
14.50	3.81	0.4437	0.0000	0.4385	-0.0022	0.4061	-0.0258	0.3379	-0.0520
14.67	3.83	0.4437	0.0000	0.4385	-0.0022	0.4061	-0.0258	0.3379	-0.0520
14.83	3.85	0.4437	0.0000	0.4385	-0.0022	0.4061	-0.0258	0.3379	-0.0520
15.33	3.92	0.4437	0.0000	0.4385	-0.0022	0.4061	-0.0258	0.3379	-0.0520
15.83	3.98	0.4437	0.0000	0.4385	-0.0022	0.4061	-0.0258	0.3379	-0.0520
16.33	4.04	0.4437	0.0000	0.4385	-0.0022	0.4061	-0.0258	0.3379	-0.0520
16.83	4.10	0.4437	0.0000	0.4385	-0.0022	0.4061	-0.0258	0.3379	-0.0520
17.33	4.16	0.4437	0.0000	0.4385	-0.0022	0.4061	-0.0258	0.3379	-0.0520
17.83	4.22	0.4437	0.0000	0.4385	-0.0022	0.4061	-0.0258	0.3379	-0.0520
18.33	4.28	0.4437	0.0000	0.4385	-0.0022	0.4061	-0.0258	0.3379	-0.0520
18.83	4.34	0.4437	0.0000	0.4385	-0.0022	0.4061	-0.0258	0.3379	-0.0520
19.33	4.40	0.4437	0.0000	0.4385	-0.0022	0.4061	-0.0258	0.3379	-0.0520
19.83	4.45	0.4437	0.0000	0.4385	-0.0022	0.4061	-0.0258	0.3379	-0.0520
20.33	4.51	0.4437	0.0000	0.4385	-0.0022	0.4061	-0.0258	0.3379	-0.0520
20.83	4.56	0.4437	0.0000	0.4385	-0.0022	0.4061	-0.0258	0.3379	-0.0520
21.33	4.62	0.4437	0.0000	0.4385	-0.0022	0.4061	-0.0258	0.3379	-0.0520
21.83	4.67	0.4437	0.0000	0.4385	-0.0022	0.4061	-0.0258	0.3379	-0.0520
22.33	4.73	0.4437	0.0000	0.4385	-0.0022	0.4061	-0.0258	0.3379	-0.0520
22.83	4.78	0.4437	0.0000	0.4385	-0.0022	0.4061	-0.0258	0.3379	-0.0520
23.33	4.83	0.4437	0.0000	0.4385	-0.0022	0.4061	-0.0258	0.3379	-0.0520
23.83	4.88	0.4437	0.0000	0.4385	-0.0022	0.4061	-0.0258	0.3379	-0.0520
24.33	4.93	0.4437	0.0000	0.4385	-0.0022	0.4061	-0.0258	0.3379	-0.0520
24.83	4.98	0.4437	0.0000	0.4385	-0.0022	0.4061	-0.0258	0.3379	-0.0520
25.33	5.03	0.4437	0.0000	0.4385	-0.0022	0.4061	-0.0258	0.3379	-0.0520
25.83	5.08	0.4437	0.0000	0.4385	-0.0022	0.4061	-0.0258	0.3379	-0.0520
26.33	5.13	0.4437	0.0000	0.4385	-0.0022	0.4061	-0.0258	0.3379	-0.0520
26.83	5.18	0.4437	0.0000	0.4385	-0.0022	0.4061	-0.0258	0.3379	-0.0520
27.33	5.23	0.4437	0.0000	0.4385	-0.0022	0.4061	-0.0258	0.3379	-0.0520
27.83	5.28	0.4437	0.0000	0.4385	-0.0022	0.4061	-0.0258	0.3379	-0.0520
28.33	5.32	0.4437	0.0000	0.4385	-0.0022	0.4061	-0.0258	0.3379	-0.0520
28.83	5.37	0.4437	0.0000	0.4385	-0.0022	0.4061	-0.0258	0.3379	-0.0520
29.33	5.42	0.4437	0.0000	0.4385	-0.0022	0.4061	-0.0258	0.3379	-0.0520
29.83	5.46	0.4437	0.0000	0.4385	-0.0022	0.4061	-0.0258	0.3379	-0.0520
30.33	5.51	0.4437	0.0000	0.4385	-0.0022	0.4061	-0.0258	0.3379	-0.0520
30.83	5.55	0.4437	0.0000	0.4385	-0.0022	0.4061	-0.0258	0.3379	-0.0520
31.33	5.60	0.4437	0.0000	0.4385	-0.0022	0.4061	-0.0258	0.3379	-0.0520
31.83	5.64	0.4437	0.0000	0.4385	-0.0022	0.4061	-0.0258	0.3379	-0.0520
32.33	5.69	0.4437	0.0000	0.4385	-0.0022	0.4061	-0.0258	0.3379	-0.0520
32.83	5.73	0.4437	0.0000	0.4385	-0.0022	0.4061	-0.0258	0.3379	-0.0520
33.33	5.77	0.4437	0.0000	0.4385	-0.0022	0.4061	-0.0258	0.3379	-0.0520
33.83	5.82	0.4437	0.0000	0.4385	-0.0022	0.4061	-0.0258	0.3379	-0.0520
34.33	5.86	0.4437	0.0000	0.4385	-0.0022	0.4061	-0.0258	0.3379	-0.0520
34.83	5.90	0.4437	0.0000	0.4385	-0.0022	0.4061	-0.0258	0.3379	-0.0520

Sample: Pond 13S, BH-3 @ 14.5 feet

Time (minutes)	Square Root of Time (minutes)	Test 1 @ 25 psf		Test 2 @ 50 psf		Test 3 @ 100 psf		Test 4 @ 250 psf	
		Dial Reading (inches)	Deflection (inches)	Dial Reading (inches)	Deflection (inches)	Dial Reading (inches)	Deflection (inches)	Dial Reading (inches)	Deflection (inches)
35.33	5.94	0.4437	0.0000	0.4385	-0.0022	0.4061	-0.0258	0.3379	-0.0520
35.83	5.99	0.4437	0.0000	0.4385	-0.0022	0.4061	-0.0258	0.3379	-0.0520
36.33	6.03	0.4437	0.0000	0.4385	-0.0022	0.4061	-0.0258	0.3379	-0.0520
36.83	6.07	0.4437	0.0000	0.4385	-0.0022	0.4061	-0.0258	0.3379	-0.0520
37.33	6.11	0.4437	0.0000	0.4385	-0.0022	0.4061	-0.0258	0.3379	-0.0520
37.83	6.15	0.4437	0.0000	0.4385	-0.0022	0.4061	-0.0258	0.3379	-0.0520
38.33	6.19	0.4437	0.0000	0.4385	-0.0022	0.4061	-0.0258	0.3379	-0.0520
38.83	6.23	0.4437	0.0000	0.4385	-0.0022	0.4061	-0.0258	0.3379	-0.0520
39.33	6.27	0.4437	0.0000	0.4385	-0.0022	0.4061	-0.0258	0.3379	-0.0520
39.83	6.31	0.4437	0.0000	0.4385	-0.0022	0.4061	-0.0258	0.3379	-0.0520
40.33	6.35	0.4437	0.0000	0.4385	-0.0022	0.4061	-0.0258	0.3379	-0.0520
40.83	6.39	0.4437	0.0000	0.4385	-0.0022	0.4061	-0.0258	0.3379	-0.0520
41.33	6.43	0.4437	0.0000	0.4385	-0.0022	0.4061	-0.0258	0.3379	-0.0520
41.83	6.47	0.4437	0.0000	0.4385	-0.0022	0.4061	-0.0258	0.3379	-0.0520
42.33	6.51	0.4437	0.0000	0.4385	-0.0022	0.4061	-0.0258	0.3379	-0.0520
42.83	6.54	0.4437	0.0000	0.4385	-0.0022	0.4061	-0.0258	0.3379	-0.0520
43.33	6.58	0.4437	0.0000	0.4385	-0.0022	0.4061	-0.0258	0.3379	-0.0520
43.83	6.62	0.4437	0.0000	0.4385	-0.0022	0.4061	-0.0258	0.3379	-0.0520
44.33	6.66	0.4437	0.0000	0.4385	-0.0022	0.4061	-0.0258	0.3379	-0.0520
44.83	6.70	0.4437	0.0000	0.4385	-0.0022	0.4061	-0.0258	0.3379	-0.0520
45.33	6.73	0.4437	0.0000	0.4385	-0.0022	0.4061	-0.0258	0.3379	-0.0520
45.83	6.77	0.4437	0.0000	0.4385	-0.0022	0.4061	-0.0258	0.3379	-0.0520
46.33	6.81	0.4437	0.0000	0.4385	-0.0022	0.4061	-0.0258	0.3379	-0.0520
46.83	6.84	0.4437	0.0000	0.4385	-0.0022	0.4061	-0.0258	0.3379	-0.0520
47.33	6.88	0.4437	0.0000	0.4385	-0.0022	0.4061	-0.0258	0.3379	-0.0520
47.83	6.92	0.4437	0.0000	0.4385	-0.0022	0.4061	-0.0258	0.3379	-0.0520
48.33	6.95	0.4437	0.0000	0.4385	-0.0022	0.4061	-0.0258	0.3379	-0.0520
48.83	6.99	0.4437	0.0000	0.4385	-0.0022	0.4061	-0.0258	0.3379	-0.0520
49.33	7.02	0.4437	0.0000	0.4385	-0.0022	0.4061	-0.0258	0.3379	-0.0520
49.83	7.06	0.4437	0.0000	0.4385	-0.0022	0.4061	-0.0258	0.3379	-0.0520
50.33	7.09	0.4437	0.0000	0.4385	-0.0022	0.4061	-0.0258	0.3379	-0.0520
50.83	7.13	0.4437	0.0000	0.4385	-0.0022	0.4061	-0.0258	0.3379	-0.0520
51.33	7.16	0.4437	0.0000	0.4385	-0.0022	0.4061	-0.0258	0.3379	-0.0520
51.83	7.20	0.4437	0.0000	0.4385	-0.0022	0.4061	-0.0258	0.3379	-0.0520
52.33	7.23	0.4437	0.0000	0.4385	-0.0022	0.4061	-0.0258	0.3379	-0.0520
52.83	7.27	0.4437	0.0000	0.4385	-0.0022	0.4061	-0.0258	0.3379	-0.0520
53.33	7.30	0.4437	0.0000	0.4385	-0.0022	0.4061	-0.0258	0.3379	-0.0520
53.83	7.34	0.4437	0.0000	0.4385	-0.0022	0.4061	-0.0258	0.3379	-0.0520
54.33	7.37	0.4437	0.0000	0.4385	-0.0022	0.4061	-0.0258	0.3379	-0.0520
54.83	7.40	0.4437	0.0000	0.4385	-0.0022	0.4061	-0.0258	0.3379	-0.0520
55.33	7.44	0.4437	0.0000	0.4385	-0.0022	0.4061	-0.0258	0.3379	-0.0520
55.83	7.47	0.4437	0.0000	0.4385	-0.0022	0.4061	-0.0258	0.3379	-0.0520
56.33	7.51	0.4437	0.0000	0.4385	-0.0022	0.4061	-0.0258	0.3379	-0.0520
56.83	7.54	0.4437	0.0000	0.4385	-0.0022	0.4061	-0.0258	0.3379	-0.0520
57.33	7.57	0.4437	0.0000	0.4385	-0.0022	0.4061	-0.0258	0.3379	-0.0520
57.83	7.60	0.4437	0.0000	0.4385	-0.0022	0.4061	-0.0258	0.3379	-0.0520
58.33	7.64	0.4437	0.0000	0.4385	-0.0022	0.4061	-0.0258	0.3379	-0.0520
58.83	7.67	0.4437	0.0000	0.4385	-0.0022	0.4061	-0.0258	0.3379	-0.0520
59.33	7.70	0.4437	0.0000	0.4385	-0.0022	0.4061	-0.0258	0.3379	-0.0520
59.83	7.74	0.4437	0.0000	0.4385	-0.0022	0.4061	-0.0258	0.3379	-0.0520
60.83	7.80	0.4437	0.0000	0.4385	-0.0022	0.4061	-0.0258	0.3379	-0.0520
61.83	7.86	0.4437	0.0000	0.4385	-0.0022	0.4061	-0.0258	0.3379	-0.0520
62.83	7.93	0.4437	0.0000	0.4385	-0.0022	0.4061	-0.0258	0.3379	-0.0520
63.83	7.99	0.4437	0.0000	0.4385	-0.0022	0.4061	-0.0258	0.3379	-0.0520
64.83	8.05	0.4437	0.0000	0.4385	-0.0022	0.4061	-0.0258	0.3379	-0.0520
65.83	8.11	0.4437	0.0000	0.4385	-0.0022	0.4061	-0.0258	0.3379	-0.0520
66.83	8.18	0.4437	0.0000	0.4385	-0.0022	0.4061	-0.0258	0.3379	-0.0520
67.83	8.24	0.4437	0.0000	0.4385	-0.0022	0.4061	-0.0258	0.3379	-0.0520
68.83	8.30	0.4437	0.0000	0.4385	-0.0022	0.4061	-0.0258	0.3379	-0.0520
69.83	8.36	0.4437	0.0000	0.4385	-0.0022	0.4061	-0.0258	0.3379	-0.0520
70.83	8.42	0.4437	0.0000	0.4385	-0.0022	0.4061	-0.0258	0.3379	-0.0520
71.83	8.48	0.4437	0.0000	0.4385	-0.0022	0.4061	-0.0258	0.3379	-0.0520
72.83	8.53	0.4437	0.0000	0.4385	-0.0022	0.4061	-0.0258	0.3379	-0.0520
73.83	8.59	0.4437	0.0000	0.4385	-0.0022	0.4061	-0.0258	0.3379	-0.0520
74.83	8.65	0.4437	0.0000	0.4385	-0.0022	0.4061	-0.0258	0.3379	-0.0520

Sample: Pond 13S, BH-3 @ 14.5 feet

Time (minutes)	Square Root of Time (minutes)	Test 1 @ 25 psf		Test 2 @ 50 psf		Test 3 @ 100 psf		Test 4 @ 250 psf	
		Dial Reading (inches)	Deflection (inches)	Dial Reading (inches)	Deflection (inches)	Dial Reading (inches)	Deflection (inches)	Dial Reading (inches)	Deflection (inches)
75.83	8.71	0.4437	0.0000	0.4385	-0.0022	0.4061	-0.0258	0.3379	-0.0520
76.83	8.77	0.4437	0.0000	0.4385	-0.0022	0.4061	-0.0258	0.3379	-0.0520
77.83	8.82	0.4437	0.0000	0.4385	-0.0022	0.4061	-0.0258	0.3379	-0.0520
78.83	8.88	0.4437	0.0000	0.4385	-0.0022	0.4061	-0.0258	0.3379	-0.0520
79.83	8.93	0.4437	0.0000	0.4385	-0.0022	0.4061	-0.0258	0.3379	-0.0520
80.83	8.99	0.4437	0.0000	0.4385	-0.0022	0.4061	-0.0258	0.3379	-0.0520
81.83	9.05	0.4437	0.0000	0.4385	-0.0022	0.4061	-0.0258	0.3379	-0.0520
82.83	9.10	0.4437	0.0000	0.4385	-0.0022	0.4061	-0.0258	0.3379	-0.0520
83.83	9.16	0.4437	0.0000	0.4385	-0.0022	0.4061	-0.0258	0.3379	-0.0520
84.83	9.21	0.4437	0.0000	0.4385	-0.0022	0.4061	-0.0258	0.3379	-0.0520
85.83	9.26	0.4437	0.0000	0.4385	-0.0022	0.4061	-0.0258	0.3379	-0.0520
86.83	9.32	0.4437	0.0000	0.4385	-0.0022	0.4061	-0.0258	0.3379	-0.0520
87.83	9.37	0.4437	0.0000	0.4385	-0.0022	0.4061	-0.0258	0.3379	-0.0520
88.83	9.43	0.4437	0.0000	0.4385	-0.0022	0.4061	-0.0258	0.3379	-0.0520
89.83	9.48	0.4437	0.0000	0.4385	-0.0022	0.4061	-0.0258	0.3379	-0.0520
90.83	9.53	0.4409	-0.0028	0.4385	-0.0022	0.4061	-0.0258	0.3379	-0.0520
91.83	9.58	0.4409	-0.0028	0.4385	-0.0022	0.4061	-0.0258	0.3379	-0.0520
92.83	9.64	0.4409	-0.0028	0.4385	-0.0022	0.4061	-0.0258	0.3379	-0.0520
93.83	9.69	0.4409	-0.0028	0.4385	-0.0022	0.4061	-0.0258	0.3379	-0.0520
94.83	9.74	0.4409	-0.0028	0.4385	-0.0022	0.4061	-0.0258	0.3379	-0.0520
95.83	9.79	0.4409	-0.0028	0.4385	-0.0022	0.4061	-0.0258	0.3379	-0.0520
96.83	9.84	0.4409	-0.0028	0.4385	-0.0022	0.4061	-0.0258	0.3379	-0.0520
97.83	9.89	0.4409	-0.0028	0.4385	-0.0022	0.4061	-0.0258	0.3379	-0.0520
98.83	9.94	0.4409	-0.0028	0.4385	-0.0022	0.4061	-0.0258	0.3379	-0.0520
99.83	9.99	0.4409	-0.0028	0.4385	-0.0022	0.4061	-0.0258	0.3379	-0.0520
100.83	10.04	0.4409	-0.0028	0.4385	-0.0022	0.4061	-0.0258	0.3379	-0.0520
101.83	10.09	0.4409	-0.0028	0.4385	-0.0022	0.4061	-0.0258	0.3379	-0.0520
102.83	10.14	0.4409	-0.0028	0.4385	-0.0022	0.4061	-0.0258	0.3379	-0.0520
103.83	10.19	0.4409	-0.0028	0.4385	-0.0022	0.4061	-0.0258	0.3379	-0.0520
104.83	10.24	0.4409	-0.0028	0.4385	-0.0022	0.4061	-0.0258	0.3379	-0.0520
105.83	10.29	0.4409	-0.0028	0.4385	-0.0022	0.4061	-0.0258	0.3379	-0.0520
106.83	10.34	0.4409	-0.0028	0.4385	-0.0022	0.4061	-0.0258	0.3379	-0.0520
107.83	10.38	0.4409	-0.0028	0.4385	-0.0022	0.4061	-0.0258	0.3379	-0.0520
108.83	10.43	0.4409	-0.0028	0.4385	-0.0022	0.4061	-0.0258	0.3379	-0.0520
109.83	10.48	0.4409	-0.0028	0.4385	-0.0022	0.4061	-0.0258	0.3379	-0.0520
110.83	10.53	0.4409	-0.0028	0.4385	-0.0022	0.4061	-0.0258	0.3379	-0.0520
111.83	10.58	0.4409	-0.0028	0.4385	-0.0022	0.4061	-0.0258	0.3379	-0.0520
112.83	10.62	0.4409	-0.0028	0.4385	-0.0022	0.4061	-0.0258	0.3379	-0.0520
113.83	10.67	0.4409	-0.0028	0.4385	-0.0022	0.4061	-0.0258	0.3379	-0.0520
114.83	10.72	0.4409	-0.0028	0.4385	-0.0022	0.4061	-0.0258	0.3379	-0.0520
115.83	10.76	0.4409	-0.0028	0.4385	-0.0022	0.4061	-0.0258	0.3379	-0.0520
116.83	10.81	0.4409	-0.0028	0.4385	-0.0022	0.4061	-0.0258	0.3379	-0.0520
117.83	10.86	0.4409	-0.0028	0.4385	-0.0022	0.4061	-0.0258	0.3379	-0.0520
118.83	10.90	0.4409	-0.0028	0.4385	-0.0022	0.4061	-0.0258	0.3379	-0.0520
119.83	10.95	0.4409	-0.0028	0.4385	-0.0022	0.4061	-0.0258	0.3379	-0.0520
129.83	11.39	0.4409	-0.0028	0.4385	-0.0022	0.4061	-0.0258	0.3379	-0.0520
139.83	11.83	0.4409	-0.0028	0.4385	-0.0022	0.4061	-0.0258	0.3379	-0.0520
149.83	12.24	0.4409	-0.0028	0.4385	-0.0022	0.4061	-0.0258	0.3379	-0.0520
159.83	12.64	0.4409	-0.0028	0.4385	-0.0022	0.4061	-0.0258	0.3379	-0.0520
169.83	13.03	0.4409	-0.0028	0.4385	-0.0022	0.4061	-0.0258	0.3379	-0.0520
179.83	13.41	0.4409	-0.0028			0.4061	-0.0258	0.3379	-0.0520
189.83	13.78	0.4409	-0.0028			0.4061	-0.0258	0.3379	-0.0520
199.83	14.14	0.4409	-0.0028			0.4061	-0.0258	0.3379	-0.0520
209.83	14.49	0.4409	-0.0028			0.4061	-0.0258	0.3379	-0.0520
219.83	14.83	0.4409	-0.0028			0.4061	-0.0258	0.3379	-0.0520
229.83	15.16	0.4409	-0.0028			0.4061	-0.0258	0.3379	-0.0520
239.83	15.49	0.4409	-0.0028			0.4061	-0.0258	0.3379	-0.0520
249.83	15.81	0.4409	-0.0028			0.4061	-0.0258	0.3379	-0.0520
259.83	16.12	0.4409	-0.0028			0.4061	-0.0258	0.3379	-0.0520
269.83	16.43	0.4409	-0.0028			0.4061	-0.0258	0.3379	-0.0520
279.83	16.73	0.4409	-0.0028			0.4061	-0.0258	0.3379	-0.0520
289.83	17.02	0.4409	-0.0028			0.4061	-0.0258	0.3379	-0.0520
299.83	17.32	0.4409	-0.0028			0.4061	-0.0258	0.3379	-0.0520
309.83	17.60					0.4061	-0.0258	0.3379	-0.0520
319.83	17.88					0.4061	-0.0258	0.3379	-0.0520

Sample: Pond 13S, BH-3 @ 14.5 feet

Time (minutes)	Square Root of Time (minutes)	Test 1 @ 25 psf		Test 2 @ 50 psf		Test 3 @ 100 psf		Test 4 @ 250 psf	
		Dial Reading (inches)	Deflection (inches)	Dial Reading (inches)	Deflection (inches)	Dial Reading (inches)	Deflection (inches)	Dial Reading (inches)	Deflection (inches)
329.83	18.16					0.4061	-0.0258	0.3379	-0.0520
339.83	18.43					0.4061	-0.0258	0.3379	-0.0520
349.83	18.70					0.4061	-0.0258	0.3256	-0.0643
359.83	18.97					0.4061	-0.0258	0.3256	-0.0643
369.83	19.23					0.4061	-0.0258	0.3256	-0.0643
379.83	19.49					0.4061	-0.0258		
389.83	19.74					0.4061	-0.0258		
399.83	20.00					0.4061	-0.0258		
409.83	20.24					0.4061	-0.0258		
419.83	20.49					0.4061	-0.0258		
429.83	20.73					0.4061	-0.0258		
439.83	20.97					0.4061	-0.0258		
449.83	21.21					0.4061	-0.0258		
459.83	21.44					0.4061	-0.0258		
469.83	21.68					0.4061	-0.0258		
479.83	21.91					0.4061	-0.0258		
489.83	22.13					0.4061	-0.0258		
499.83	22.36					0.4061	-0.0258		
509.83	22.58					0.4061	-0.0258		
519.83	22.80					0.4061	-0.0258		
529.83	23.02					0.4061	-0.0258		
539.83	23.23					0.4061	-0.0258		
549.83	23.45					0.4061	-0.0258		
559.83	23.66					0.4061	-0.0258		
569.83	23.87					0.4061	-0.0258		
579.83	24.08					0.4061	-0.0258		
589.83	24.29					0.4061	-0.0258		
599.83	24.49					0.4061	-0.0258		
609.83	24.69					0.4061	-0.0258		
619.83	24.90					0.4061	-0.0258		
629.83	25.10					0.4061	-0.0258		
639.83	25.29					0.4061	-0.0258		
649.83	25.49					0.4061	-0.0258		
659.83	25.69					0.4061	-0.0258		
669.83	25.88					0.4061	-0.0258		
679.83	26.07					0.4061	-0.0258		
689.83	26.26					0.4061	-0.0258		
699.83	26.45					0.4061	-0.0258		
709.83	26.64					0.4061	-0.0258		
719.83	26.83					0.4061	-0.0258		
749.83	27.38					0.4061	-0.0258		
779.83	27.93					0.4061	-0.0258		
809.83	28.46					0.4061	-0.0258		
839.83	28.98					0.4061	-0.0258		

Sample: Pond 13S, BH-3 @ 14.5 feet

Time (minutes)	Square Root of Time (minutes)	Test 5 @ 500 psf		Test 6 @ 1000 psf		Test 7 @ 2000 psf		Test 8 @ 4000 psf	
		Dial Reading (inches)	Deflection (inches)	Dial Reading (inches)	Deflection (inches)	Dial Reading (inches)	Deflection (inches)	Dial Reading (inches)	Deflection (inches)
0.00	0.00	0.3255	0.0000	0.2367	0.0000	0.1427	0.0000	0.4436	0.0000
0.17	0.41	0.3255	0.0000	0.2367	0.0000	0.1427	0.0000	0.4436	0.0000
0.33	0.58	0.3255	0.0000	0.2367	0.0000	0.1427	0.0000	0.4437	0.0001
0.50	0.71	0.3189	-0.0066	0.2367	0.0000	0.1426	-0.0001	0.4357	-0.0079
0.67	0.82	0.3143	-0.0112	0.2367	0.0000	0.1426	-0.0001	0.4132	-0.0304
0.83	0.91	0.3081	-0.0174	0.2367	0.0000	0.1426	-0.0001	0.3982	-0.0454
1.00	1.00	0.3050	-0.0205	0.2030	-0.0337	0.1426	-0.0001	0.3982	-0.0454
1.17	1.08	0.3020	-0.0235	0.1986	-0.0381	0.1426	-0.0001	0.3982	-0.0454
1.33	1.15	0.2988	-0.0267	0.1955	-0.0412	0.1426	-0.0001	0.3666	-0.0770
1.50	1.22	0.2961	-0.0294	0.1923	-0.0444	0.1426	-0.0001	0.3616	-0.0820
1.67	1.29	0.2961	-0.0294	0.1923	-0.0444	0.1426	-0.0001	0.3559	-0.0877
1.83	1.35	0.2961	-0.0294	0.1923	-0.0444	0.1426	-0.0001	0.3528	-0.0908
2.00	1.41	0.2961	-0.0294	0.1923	-0.0444	0.1426	-0.0001	0.3528	-0.0908
2.17	1.47	0.2961	-0.0294	0.1923	-0.0444	0.1426	-0.0001	0.3484	-0.0952
2.33	1.53	0.2961	-0.0294	0.1923	-0.0444	0.1426	-0.0001	0.3474	-0.0962
2.50	1.58	0.2961	-0.0294	0.1923	-0.0444	0.1426	-0.0001	0.3454	-0.0982
2.67	1.63	0.2961	-0.0294	0.1923	-0.0444	0.1426	-0.0001	0.3438	-0.0998
2.83	1.68	0.2961	-0.0294	0.1923	-0.0444	0.1426	-0.0001	0.3423	-0.1013
3.00	1.73	0.2961	-0.0294	0.1923	-0.0444	0.1426	-0.0001	0.3412	-0.1024
3.17	1.78	0.2961	-0.0294	0.1923	-0.0444	0.1426	-0.0001	0.3412	-0.1024
3.33	1.83	0.2961	-0.0294	0.1923	-0.0444	0.1426	-0.0001	0.3412	-0.1024
3.50	1.87	0.2961	-0.0294	0.1923	-0.0444	0.1426	-0.0001	0.3412	-0.1024
3.67	1.91	0.2961	-0.0294	0.1923	-0.0444	0.1426	-0.0001	0.3412	-0.1024
3.83	1.96	0.2961	-0.0294	0.1923	-0.0444	0.1426	-0.0001	0.3412	-0.1024
4.00	2.00	0.2961	-0.0294	0.1923	-0.0444	0.1426	-0.0001	0.3412	-0.1024
4.17	2.04	0.2961	-0.0294	0.1923	-0.0444	0.1426	-0.0001	0.3412	-0.1024
4.33	2.08	0.2961	-0.0294	0.1923	-0.0444	0.1426	-0.0001	0.3412	-0.1024
4.50	2.12	0.2961	-0.0294	0.1923	-0.0444	0.1426	-0.0001	0.3412	-0.1024
4.67	2.16	0.2961	-0.0294	0.1923	-0.0444	0.1426	-0.0001	0.3412	-0.1024
4.83	2.20	0.2961	-0.0294	0.1923	-0.0444	0.1426	-0.0001	0.3412	-0.1024
5.00	2.24	0.2961	-0.0294	0.1923	-0.0444	0.1426	-0.0001	0.3412	-0.1024
5.17	2.27	0.2961	-0.0294	0.1923	-0.0444	0.1426	-0.0001	0.3412	-0.1024
5.33	2.31	0.2961	-0.0294	0.1923	-0.0444	0.1426	-0.0001	0.3412	-0.1024
5.50	2.35	0.2961	-0.0294	0.1923	-0.0444	0.1426	-0.0001	0.3412	-0.1024
5.67	2.38	0.2961	-0.0294	0.1923	-0.0444	0.1426	-0.0001	0.3412	-0.1024
5.83	2.42	0.2961	-0.0294	0.1923	-0.0444	0.1426	-0.0001	0.3412	-0.1024
6.00	2.45	0.2961	-0.0294	0.1923	-0.0444	0.1426	-0.0001	0.3412	-0.1024
6.17	2.48	0.2961	-0.0294	0.1923	-0.0444	0.1426	-0.0001	0.3412	-0.1024
6.33	2.52	0.2961	-0.0294	0.1923	-0.0444	0.1426	-0.0001	0.3412	-0.1024
6.50	2.55	0.2961	-0.0294	0.1923	-0.0444	0.1426	-0.0001	0.3412	-0.1024
6.67	2.58	0.2961	-0.0294	0.1923	-0.0444	0.1426	-0.0001	0.3412	-0.1024
6.83	2.61	0.2961	-0.0294	0.1923	-0.0444	0.1426	-0.0001	0.3412	-0.1024
7.00	2.65	0.2961	-0.0294	0.1923	-0.0444	0.1426	-0.0001	0.3412	-0.1024
7.17	2.68	0.2961	-0.0294	0.1923	-0.0444	0.1426	-0.0001	0.3412	-0.1024
7.33	2.71	0.2961	-0.0294	0.1923	-0.0444	0.1426	-0.0001	0.3412	-0.1024
7.50	2.74	0.2961	-0.0294	0.1923	-0.0444	0.1426	-0.0001	0.3412	-0.1024
7.67	2.77	0.2961	-0.0294	0.1923	-0.0444	0.1426	-0.0001	0.3412	-0.1024
7.83	2.80	0.2961	-0.0294	0.1923	-0.0444	0.1426	-0.0001	0.3412	-0.1024
8.00	2.83	0.2961	-0.0294	0.1923	-0.0444	0.1426	-0.0001	0.3412	-0.1024
8.17	2.86	0.2961	-0.0294	0.1923	-0.0444	0.1426	-0.0001	0.3412	-0.1024
8.33	2.89	0.2961	-0.0294	0.1923	-0.0444	0.1426	-0.0001	0.3412	-0.1024
8.50	2.92	0.2961	-0.0294	0.1923	-0.0444	0.1426	-0.0001	0.3412	-0.1024
8.67	2.94	0.2961	-0.0294	0.1923	-0.0444	0.1426	-0.0001	0.3412	-0.1024
8.83	2.97	0.2961	-0.0294	0.1923	-0.0444	0.1426	-0.0001	0.3412	-0.1024
9.00	3.00	0.2961	-0.0294	0.1601	-0.0766	0.1426	-0.0001	0.3412	-0.1024
9.17	3.03	0.2961	-0.0294	0.1600	-0.0767	0.1426	-0.0001	0.3412	-0.1024
9.33	3.06	0.2961	-0.0294	0.1598	-0.0769	0.1426	-0.0001	0.3412	-0.1024
9.50	3.08	0.2961	-0.0294	0.1598	-0.0769	0.1426	-0.0001	0.3412	-0.1024
9.67	3.11	0.2961	-0.0294	0.1598	-0.0769	0.1426	-0.0001	0.3412	-0.1024
9.83	3.14	0.2961	-0.0294	0.1598	-0.0769	0.1426	-0.0001	0.3412	-0.1024
10.00	3.16	0.2961	-0.0294	0.1598	-0.0769	0.1426	-0.0001	0.3412	-0.1024
10.17	3.19	0.2961	-0.0294	0.1598	-0.0769	0.1426	-0.0001	0.3412	-0.1024
10.33	3.21	0.2961	-0.0294	0.1591	-0.0776	0.1426	-0.0001	0.3412	-0.1024
10.50	3.24	0.2553	-0.0702	0.1590	-0.0777	0.1426	-0.0001	0.3412	-0.1024
10.67	3.27	0.2552	-0.0703	0.1589	-0.0778	0.1426	-0.0001	0.3412	-0.1024

Sample: Pond 13S, BH-3 @ 14.5 feet

Time (minutes)	Square Root of Time (minutes)	Test 5 @ 500 psf		Test 6 @ 1000 psf		Test 7 @ 2000 psf		Test 8 @ 4000 psf	
		Dial Reading (inches)	Deflection (inches)	Dial Reading (inches)	Deflection (inches)	Dial Reading (inches)	Deflection (inches)	Dial Reading (inches)	Deflection (inches)
10.83	3.29	0.2550	-0.0705	0.1588	-0.0779	0.1426	-0.0001	0.3412	-0.1024
11.00	3.32	0.2550	-0.0705	0.1587	-0.0780	0.1426	-0.0001	0.3412	-0.1024
11.17	3.34	0.2550	-0.0705	0.1586	-0.0781	0.1426	-0.0001	0.3412	-0.1024
11.33	3.37	0.2550	-0.0705	0.1585	-0.0782	0.1426	-0.0001	0.3412	-0.1024
11.50	3.39	0.2550	-0.0705	0.1584	-0.0783	0.1426	-0.0001	0.3412	-0.1024
11.67	3.42	0.2550	-0.0705	0.1583	-0.0784	0.1426	-0.0001	0.3412	-0.1024
11.83	3.44	0.2550	-0.0705	0.1582	-0.0785	0.1426	-0.0001	0.3412	-0.1024
12.00	3.46	0.2550	-0.0705	0.1581	-0.0786	0.1426	-0.0001	0.3412	-0.1024
12.17	3.49	0.2550	-0.0705	0.1580	-0.0787	0.1426	-0.0001	0.3412	-0.1024
12.33	3.51	0.2550	-0.0705	0.1579	-0.0788	0.1426	-0.0001	0.3412	-0.1024
12.50	3.54	0.2550	-0.0705	0.1578	-0.0789	0.1426	-0.0001	0.3412	-0.1024
12.67	3.56	0.2550	-0.0705	0.1577	-0.0790	0.1426	-0.0001	0.3412	-0.1024
12.83	3.58	0.2550	-0.0705	0.1577	-0.0790	0.1426	-0.0001	0.3412	-0.1024
13.00	3.61	0.2550	-0.0705	0.1577	-0.0790	0.1426	-0.0001	0.3412	-0.1024
13.17	3.63	0.2550	-0.0705	0.1577	-0.0790	0.1426	-0.0001	0.3412	-0.1024
13.33	3.65	0.2550	-0.0705	0.1574	-0.0793	0.1426	-0.0001	0.3412	-0.1024
13.50	3.67	0.2550	-0.0705	0.1574	-0.0793	0.1426	-0.0001	0.3412	-0.1024
13.67	3.70	0.2550	-0.0705	0.1573	-0.0794	0.1426	-0.0001	0.3412	-0.1024
13.83	3.72	0.2550	-0.0705	0.1572	-0.0795	0.1426	-0.0001	0.3412	-0.1024
14.00	3.74	0.2550	-0.0705	0.1571	-0.0796	0.1426	-0.0001	0.3412	-0.1024
14.17	3.76	0.2550	-0.0705	0.1571	-0.0796	0.1426	-0.0001	0.3412	-0.1024
14.33	3.79	0.2550	-0.0705	0.1569	-0.0798	0.1426	-0.0001	0.3412	-0.1024
14.50	3.81	0.2550	-0.0705	0.1568	-0.0799	0.1426	-0.0001	0.3412	-0.1024
14.67	3.83	0.2550	-0.0705	0.1568	-0.0799	0.1426	-0.0001	0.3412	-0.1024
14.83	3.85	0.2550	-0.0705	0.1567	-0.0800	0.1426	-0.0001	0.3412	-0.1024
15.33	3.92	0.2550	-0.0705	0.1566	-0.0801	0.1426	-0.0001	0.3412	-0.1024
15.83	3.98	0.2550	-0.0705	0.1564	-0.0803	0.1426	-0.0001	0.3412	-0.1024
16.33	4.04	0.2550	-0.0705	0.1562	-0.0805	0.1426	-0.0001	0.3412	-0.1024
16.83	4.10	0.2550	-0.0705	0.1560	-0.0807	0.1426	-0.0001	0.3412	-0.1024
17.33	4.16	0.2550	-0.0705	0.1560	-0.0807	0.1426	-0.0001	0.3412	-0.1024
17.83	4.22	0.2550	-0.0705	0.1560	-0.0807	0.1426	-0.0001	0.3412	-0.1024
18.33	4.28	0.2550	-0.0705	0.1560	-0.0807	0.1426	-0.0001	0.3412	-0.1024
18.83	4.34	0.2550	-0.0705	0.1560	-0.0807	0.1426	-0.0001	0.3412	-0.1024
19.33	4.40	0.2550	-0.0705	0.1560	-0.0807	0.1426	-0.0001	0.3412	-0.1024
19.83	4.45	0.2550	-0.0705	0.1560	-0.0807	0.1426	-0.0001	0.3412	-0.1024
20.33	4.51	0.2550	-0.0705	0.1560	-0.0807	0.1426	-0.0001	0.3412	-0.1024
20.83	4.56	0.2550	-0.0705	0.1560	-0.0807	0.1426	-0.0001	0.3412	-0.1024
21.33	4.62	0.2550	-0.0705	0.1560	-0.0807	0.1426	-0.0001	0.3412	-0.1024
21.83	4.67	0.2550	-0.0705	0.1560	-0.0807	0.1426	-0.0001	0.3412	-0.1024
22.33	4.73	0.2550	-0.0705	0.1560	-0.0807	0.1426	-0.0001	0.3412	-0.1024
22.83	4.78	0.2550	-0.0705	0.1560	-0.0807	0.1426	-0.0001	0.3412	-0.1024
23.33	4.83	0.2550	-0.0705	0.1560	-0.0807	0.1426	-0.0001	0.3412	-0.1024
23.83	4.88	0.2550	-0.0705	0.1560	-0.0807	0.1426	-0.0001	0.3412	-0.1024
24.33	4.93	0.2550	-0.0705	0.1560	-0.0807	0.1426	-0.0001	0.3412	-0.1024
24.83	4.98	0.2550	-0.0705	0.1560	-0.0807	0.1426	-0.0001	0.3412	-0.1024
25.33	5.03	0.2550	-0.0705	0.1560	-0.0807	0.1426	-0.0001	0.3412	-0.1024
25.83	5.08	0.2550	-0.0705	0.1560	-0.0807	0.1426	-0.0001	0.3412	-0.1024
26.33	5.13	0.2550	-0.0705	0.1560	-0.0807	0.1426	-0.0001	0.3412	-0.1024
26.83	5.18	0.2550	-0.0705	0.1560	-0.0807	0.1426	-0.0001	0.3412	-0.1024
27.33	5.23	0.2550	-0.0705	0.1560	-0.0807	0.1426	-0.0001	0.3412	-0.1024
27.83	5.28	0.2550	-0.0705	0.1560	-0.0807	0.1426	-0.0001	0.3412	-0.1024
28.33	5.32	0.2550	-0.0705	0.1560	-0.0807	0.1426	-0.0001	0.3412	-0.1024
28.83	5.37	0.2550	-0.0705	0.1560	-0.0807	0.1426	-0.0001	0.3412	-0.1024
29.33	5.42	0.2550	-0.0705	0.1560	-0.0807	0.1426	-0.0001	0.3412	-0.1024
29.83	5.46	0.2550	-0.0705	0.1560	-0.0807	0.1426	-0.0001	0.3412	-0.1024
30.33	5.51	0.2550	-0.0705	0.1560	-0.0807	0.1426	-0.0001	0.3412	-0.1024
30.83	5.55	0.2550	-0.0705	0.1560	-0.0807	0.1426	-0.0001	0.3412	-0.1024
31.33	5.60	0.2550	-0.0705	0.1560	-0.0807	0.1426	-0.0001	0.3412	-0.1024
31.83	5.64	0.2550	-0.0705	0.1560	-0.0807	0.1426	-0.0001	0.3412	-0.1024
32.33	5.69	0.2550	-0.0705	0.1560	-0.0807	0.1426	-0.0001	0.3412	-0.1024
32.83	5.73	0.2550	-0.0705	0.1560	-0.0807	0.1426	-0.0001	0.3412	-0.1024
33.33	5.77	0.2550	-0.0705	0.1560	-0.0807	0.1426	-0.0001	0.3412	-0.1024
33.83	5.82	0.2550	-0.0705	0.1560	-0.0807	0.1426	-0.0001	0.3412	-0.1024
34.33	5.86	0.2550	-0.0705	0.1560	-0.0807	0.1426	-0.0001	0.3412	-0.1024
34.83	5.90	0.2550	-0.0705	0.1560	-0.0807	0.1426	-0.0001	0.3412	-0.1024

Sample: Pond 13S, BH-3 @ 14.5 feet

Time (minutes)	Square Root of Time (minutes)	Test 5 @ 500 psf		Test 6 @ 1000 psf		Test 7 @ 2000 psf		Test 8 @ 4000 psf	
		Dial Reading (inches)	Deflection (inches)	Dial Reading (inches)	Deflection (inches)	Dial Reading (inches)	Deflection (inches)	Dial Reading (inches)	Deflection (inches)
35.33	5.94	0.2550	-0.0705	0.1560	-0.0807	0.1426	-0.0001	0.3412	-0.1024
35.83	5.99	0.2550	-0.0705	0.1560	-0.0807	0.1426	-0.0001	0.3412	-0.1024
36.33	6.03	0.2550	-0.0705	0.1560	-0.0807	0.1426	-0.0001	0.3412	-0.1024
36.83	6.07	0.2550	-0.0705	0.1560	-0.0807	0.1426	-0.0001	0.3412	-0.1024
37.33	6.11	0.2550	-0.0705	0.1560	-0.0807	0.1426	-0.0001	0.3412	-0.1024
37.83	6.15	0.2550	-0.0705	0.1560	-0.0807	0.1426	-0.0001	0.3412	-0.1024
38.33	6.19	0.2550	-0.0705	0.1560	-0.0807	0.1426	-0.0001	0.3412	-0.1024
38.83	6.23	0.2550	-0.0705	0.1560	-0.0807	0.1426	-0.0001	0.3412	-0.1024
39.33	6.27	0.2550	-0.0705	0.1560	-0.0807	0.1426	-0.0001	0.3412	-0.1024
39.83	6.31	0.2550	-0.0705	0.1560	-0.0807	0.1426	-0.0001	0.3412	-0.1024
40.33	6.35	0.2550	-0.0705	0.1560	-0.0807	0.1426	-0.0001	0.3412	-0.1024
40.83	6.39	0.2550	-0.0705	0.1560	-0.0807	0.1426	-0.0001	0.3412	-0.1024
41.33	6.43	0.2550	-0.0705	0.1560	-0.0807	0.1426	-0.0001	0.3412	-0.1024
41.83	6.47	0.2550	-0.0705	0.1560	-0.0807	0.1426	-0.0001	0.3412	-0.1024
42.33	6.51	0.2550	-0.0705	0.1560	-0.0807	0.1426	-0.0001	0.3412	-0.1024
42.83	6.54	0.2550	-0.0705	0.1560	-0.0807	0.1426	-0.0001	0.3412	-0.1024
43.33	6.58	0.2550	-0.0705	0.1560	-0.0807	0.1426	-0.0001	0.3412	-0.1024
43.83	6.62	0.2550	-0.0705	0.1560	-0.0807	0.1426	-0.0001	0.3412	-0.1024
44.33	6.66	0.2550	-0.0705	0.1560	-0.0807	0.1426	-0.0001	0.3412	-0.1024
44.83	6.70	0.2550	-0.0705	0.1560	-0.0807	0.1426	-0.0001	0.3412	-0.1024
45.33	6.73	0.2550	-0.0705	0.1560	-0.0807	0.1426	-0.0001	0.3412	-0.1024
45.83	6.77	0.2550	-0.0705	0.1560	-0.0807	0.1426	-0.0001	0.3412	-0.1024
46.33	6.81	0.2550	-0.0705	0.1560	-0.0807	0.1426	-0.0001	0.3412	-0.1024
46.83	6.84	0.2550	-0.0705	0.1560	-0.0807	0.1426	-0.0001	0.3412	-0.1024
47.33	6.88	0.2550	-0.0705	0.1560	-0.0807	0.1426	-0.0001	0.3412	-0.1024
47.83	6.92	0.2550	-0.0705	0.1560	-0.0807	0.1426	-0.0001	0.3412	-0.1024
48.33	6.95	0.2550	-0.0705	0.1560	-0.0807	0.1426	-0.0001	0.3412	-0.1024
48.83	6.99	0.2550	-0.0705	0.1560	-0.0807	0.1426	-0.0001	0.3412	-0.1024
49.33	7.02	0.2550	-0.0705	0.1560	-0.0807	0.1426	-0.0001	0.3412	-0.1024
49.83	7.06	0.2550	-0.0705	0.1560	-0.0807	0.1426	-0.0001	0.3412	-0.1024
50.33	7.09	0.2550	-0.0705	0.1560	-0.0807	0.1426	-0.0001	0.3412	-0.1024
50.83	7.13	0.2550	-0.0705	0.1560	-0.0807	0.1426	-0.0001	0.3412	-0.1024
51.33	7.16	0.2550	-0.0705	0.1560	-0.0807	0.1426	-0.0001	0.3412	-0.1024
51.83	7.20	0.2550	-0.0705	0.1560	-0.0807	0.1426	-0.0001	0.3412	-0.1024
52.33	7.23	0.2550	-0.0705	0.1560	-0.0807	0.1426	-0.0001	0.3412	-0.1024
52.83	7.27	0.2550	-0.0705	0.1560	-0.0807	0.1426	-0.0001	0.3412	-0.1024
53.33	7.30	0.2550	-0.0705	0.1560	-0.0807	0.1426	-0.0001	0.3412	-0.1024
53.83	7.34	0.2550	-0.0705	0.1560	-0.0807	0.1426	-0.0001	0.3412	-0.1024
54.33	7.37	0.2550	-0.0705	0.1560	-0.0807	0.1426	-0.0001	0.3412	-0.1024
54.83	7.40	0.2550	-0.0705	0.1560	-0.0807	0.1426	-0.0001	0.3412	-0.1024
55.33	7.44	0.2550	-0.0705	0.1560	-0.0807	0.1426	-0.0001	0.3412	-0.1024
55.83	7.47	0.2550	-0.0705	0.1560	-0.0807	0.1426	-0.0001	0.3412	-0.1024
56.33	7.51	0.2550	-0.0705	0.1560	-0.0807	0.1426	-0.0001	0.3412	-0.1024
56.83	7.54	0.2550	-0.0705	0.1560	-0.0807	0.1426	-0.0001	0.3412	-0.1024
57.33	7.57	0.2550	-0.0705	0.1560	-0.0807	0.1426	-0.0001	0.3412	-0.1024
57.83	7.60	0.2550	-0.0705	0.1560	-0.0807	0.1426	-0.0001	0.3412	-0.1024
58.33	7.64	0.2550	-0.0705	0.1560	-0.0807	0.1426	-0.0001	0.3412	-0.1024
58.83	7.67	0.2550	-0.0705	0.1560	-0.0807	0.1426	-0.0001	0.3412	-0.1024
59.33	7.70	0.2550	-0.0705	0.1560	-0.0807	0.1426	-0.0001	0.3412	-0.1024
59.83	7.74	0.2550	-0.0705	0.1560	-0.0807	0.1426	-0.0001	0.3412	-0.1024
60.83	7.80	0.2550	-0.0705	0.1560	-0.0807	0.1426	-0.0001	0.3412	-0.1024
61.83	7.86	0.2550	-0.0705	0.1560	-0.0807	0.1426	-0.0001	0.3412	-0.1024
62.83	7.93	0.2550	-0.0705	0.1560	-0.0807	0.1426	-0.0001	0.3412	-0.1024
63.83	7.99	0.2550	-0.0705	0.1560	-0.0807	0.1426	-0.0001	0.3412	-0.1024
64.83	8.05	0.2550	-0.0705	0.1560	-0.0807	0.1426	-0.0001	0.3412	-0.1024
65.83	8.11	0.2550	-0.0705	0.1560	-0.0807	0.1426	-0.0001	0.3412	-0.1024
66.83	8.18	0.2550	-0.0705	0.1560	-0.0807	0.1426	-0.0001	0.3412	-0.1024
67.83	8.24	0.2550	-0.0705	0.1560	-0.0807	0.1426	-0.0001	0.3412	-0.1024
68.83	8.30	0.2550	-0.0705	0.1560	-0.0807	0.1426	-0.0001	0.3412	-0.1024
69.83	8.36	0.2550	-0.0705	0.1560	-0.0807	0.1426	-0.0001	0.3412	-0.1024
70.83	8.42	0.2550	-0.0705	0.1560	-0.0807	0.1426	-0.0001	0.3412	-0.1024
71.83	8.48	0.2550	-0.0705	0.1560	-0.0807	0.1426	-0.0001	0.3412	-0.1024
72.83	8.53	0.2550	-0.0705	0.1560	-0.0807	0.1426	-0.0001	0.3412	-0.1024
73.83	8.59	0.2550	-0.0705	0.1560	-0.0807	0.1426	-0.0001	0.3412	-0.1024
74.83	8.65	0.2550	-0.0705	0.1560	-0.0807	0.1426	-0.0001	0.3412	-0.1024

Sample: Pond 13S, BH-3 @ 14.5 feet

Time (minutes)	Square Root of Time (minutes)	Test 5 @ 500 psf		Test 6 @ 1000 psf		Test 7 @ 2000 psf		Test 8 @ 4000 psf	
		Dial Reading (inches)	Deflection (inches)	Dial Reading (inches)	Deflection (inches)	Dial Reading (inches)	Deflection (inches)	Dial Reading (inches)	Deflection (inches)
75.83	8.71	0.2550	-0.0705	0.1560	-0.0807	0.1426	-0.0001	0.3412	-0.1024
76.83	8.77	0.2550	-0.0705	0.1560	-0.0807	0.1426	-0.0001	0.3412	-0.1024
77.83	8.82	0.2550	-0.0705	0.1560	-0.0807	0.1426	-0.0001	0.3412	-0.1024
78.83	8.88	0.2550	-0.0705	0.1560	-0.0807	0.1426	-0.0001	0.3412	-0.1024
79.83	8.93	0.2550	-0.0705	0.1560	-0.0807	0.1426	-0.0001	0.3412	-0.1024
80.83	8.99	0.2550	-0.0705	0.1560	-0.0807	0.1426	-0.0001	0.3412	-0.1024
81.83	9.05	0.2550	-0.0705	0.1560	-0.0807	0.1426	-0.0001	0.3412	-0.1024
82.83	9.10	0.2550	-0.0705	0.1560	-0.0807	0.1426	-0.0001	0.3412	-0.1024
83.83	9.16	0.2550	-0.0705	0.1560	-0.0807	0.1426	-0.0001	0.3412	-0.1024
84.83	9.21	0.2550	-0.0705	0.1560	-0.0807	0.1426	-0.0001	0.3412	-0.1024
85.83	9.26	0.2550	-0.0705	0.1560	-0.0807	0.1426	-0.0001	0.3412	-0.1024
86.83	9.32	0.2550	-0.0705	0.1560	-0.0807	0.1426	-0.0001	0.3412	-0.1024
87.83	9.37	0.2550	-0.0705	0.1560	-0.0807	0.1426	-0.0001	0.3412	-0.1024
88.83	9.43	0.2550	-0.0705	0.1560	-0.0807	0.1426	-0.0001	0.3412	-0.1024
89.83	9.48	0.2550	-0.0705	0.1560	-0.0807	0.1426	-0.0001	0.3412	-0.1024
90.83	9.53	0.2550	-0.0705	0.1560	-0.0807	0.1426	-0.0001	0.3412	-0.1024
91.83	9.58	0.2550	-0.0705	0.1560	-0.0807	0.1426	-0.0001	0.3412	-0.1024
92.83	9.64	0.2550	-0.0705	0.1560	-0.0807	0.1426	-0.0001	0.3412	-0.1024
93.83	9.69	0.2550	-0.0705	0.1560	-0.0807	0.1426	-0.0001	0.3412	-0.1024
94.83	9.74	0.2550	-0.0705	0.1560	-0.0807	0.1426	-0.0001	0.3412	-0.1024
95.83	9.79	0.2550	-0.0705	0.1560	-0.0807	0.1426	-0.0001	0.3412	-0.1024
96.83	9.84	0.2550	-0.0705	0.1489	-0.0878	0.1426	-0.0001	0.3412	-0.1024
97.83	9.89	0.2550	-0.0705	0.1489	-0.0878	0.1426	-0.0001	0.3412	-0.1024
98.83	9.94	0.2550	-0.0705	0.1489	-0.0878	0.1426	-0.0001	0.3412	-0.1024
99.83	9.99	0.2550	-0.0705	0.1489	-0.0878	0.1426	-0.0001	0.3412	-0.1024
100.83	10.04	0.2550	-0.0705	0.1489	-0.0878	0.1426	-0.0001	0.3412	-0.1024
101.83	10.09	0.2550	-0.0705	0.1489	-0.0878	0.1426	-0.0001	0.3412	-0.1024
102.83	10.14	0.2550	-0.0705	0.1489	-0.0878	0.1426	-0.0001	0.3412	-0.1024
103.83	10.19	0.2550	-0.0705	0.1489	-0.0878	0.1426	-0.0001	0.3412	-0.1024
104.83	10.24	0.2550	-0.0705	0.1489	-0.0878	0.1426	-0.0001	0.3412	-0.1024
105.83	10.29	0.2550	-0.0705	0.1489	-0.0878	0.1426	-0.0001	0.3412	-0.1024
106.83	10.34	0.2550	-0.0705	0.1489	-0.0878	0.1426	-0.0001	0.3412	-0.1024
107.83	10.38	0.2550	-0.0705	0.1489	-0.0878	0.1426	-0.0001	0.3412	-0.1024
108.83	10.43	0.2550	-0.0705	0.1489	-0.0878	0.1426	-0.0001	0.3412	-0.1024
109.83	10.48	0.2550	-0.0705	0.1489	-0.0878	0.1426	-0.0001	0.3412	-0.1024
110.83	10.53	0.2550	-0.0705	0.1489	-0.0878	0.1426	-0.0001	0.3412	-0.1024
111.83	10.58	0.2550	-0.0705	0.1489	-0.0878	0.1426	-0.0001	0.3412	-0.1024
112.83	10.62	0.2550	-0.0705	0.1489	-0.0878	0.1426	-0.0001	0.3412	-0.1024
113.83	10.67	0.2550	-0.0705	0.1489	-0.0878	0.1426	-0.0001	0.3412	-0.1024
114.83	10.72	0.2550	-0.0705	0.1489	-0.0878	0.1426	-0.0001	0.3412	-0.1024
115.83	10.76	0.2550	-0.0705	0.1489	-0.0878	0.1426	-0.0001	0.3412	-0.1024
116.83	10.81	0.2550	-0.0705	0.1489	-0.0878	0.1426	-0.0001	0.3412	-0.1024
117.83	10.86	0.2550	-0.0705	0.1489	-0.0878	0.1426	-0.0001	0.3412	-0.1024
118.83	10.90	0.2550	-0.0705	0.1489	-0.0878	0.1426	-0.0001	0.3412	-0.1024
119.83	10.95	0.2550	-0.0705	0.1489	-0.0878	0.1426	-0.0001	0.3412	-0.1024
129.83	11.39	0.2550	-0.0705	0.1489	-0.0878	0.1426	-0.0001	0.3181	-0.1255
139.83	11.83	0.2427	-0.0828	0.1489	-0.0878	0.1426	-0.0001	0.3181	-0.1255
149.83	12.24	0.2426	-0.0829	0.1489	-0.0878	0.1426	-0.0001	0.3181	-0.1255
159.83	12.64	0.2426	-0.0829	0.1489	-0.0878	0.1426	-0.0001	0.3181	-0.1255
169.83	13.03	0.2426	-0.0829	0.1489	-0.0878	0.1426	-0.0001	0.3181	-0.1255
179.83	13.41	0.2426	-0.0829	0.1489	-0.0878	0.1426	-0.0001	0.3181	-0.1255
189.83	13.78	0.2426	-0.0829	0.1489	-0.0878	0.1426	-0.0001	0.3181	-0.1255
199.83	14.14	0.2426	-0.0829	0.1489	-0.0878	0.1426	-0.0001	0.3181	-0.1255
209.83	14.49	0.2426	-0.0829	0.1489	-0.0878	0.1426	-0.0001	0.3181	-0.1255
219.83	14.83	0.2426	-0.0829	0.1489	-0.0878	0.1426	-0.0001	0.3181	-0.1255
229.83	15.16	0.2426	-0.0829	0.1489	-0.0878	0.1426	-0.0001	0.3181	-0.1255
239.83	15.49	0.2426	-0.0829	0.1489	-0.0878	0.1426	-0.0001	0.3181	-0.1255
249.83	15.81	0.2426	-0.0829	0.1489	-0.0878	0.1426	-0.0001	0.3181	-0.1255
259.83	16.12	0.2426	-0.0829	0.1489	-0.0878	0.1426	-0.0001	0.3181	-0.1255
269.83	16.43	0.2426	-0.0829	0.1489	-0.0878	0.1426	-0.0001	0.3181	-0.1255
279.83	16.73	0.2426	-0.0829	0.1489	-0.0878	0.1426	-0.0001	0.3181	-0.1255
289.83	17.02	0.2426	-0.0829	0.1489	-0.0878	0.1426	-0.0001	0.3181	-0.1255
299.83	17.32	0.2426	-0.0829	0.1489	-0.0878	0.1426	-0.0001	0.3181	-0.1255
309.83	17.60	0.2426	-0.0829	0.1489	-0.0878	0.1426	-0.0001	0.3181	-0.1255
319.83	17.88	0.2426	-0.0829	0.1489	-0.0878	0.1426	-0.0001	0.3181	-0.1255

Sample: Pond 13S, BH-3 @ 14.5 feet

Time (minutes)	Square Root of Time (minutes)	Test 5 @ 500 psf		Test 6 @ 1000 psf		Test 7 @ 2000 psf		Test 8 @ 4000 psf	
		Dial Reading (inches)	Deflection (inches)	Dial Reading (inches)	Deflection (inches)	Dial Reading (inches)	Deflection (inches)	Dial Reading (inches)	Deflection (inches)
329.83	18.16	0.2426	-0.0829	0.1489	-0.0878	0.1426	-0.0001	0.3181	-0.1255
339.83	18.43	0.2426	-0.0829	0.1489	-0.0878	0.1426	-0.0001	0.3181	-0.1255
349.83	18.70	0.2426	-0.0829	0.1489	-0.0878	0.1426	-0.0001	0.3181	-0.1255
359.83	18.97	0.2426	-0.0829	0.1489	-0.0878	0.1426	-0.0001	0.3181	-0.1255
369.83	19.23	0.2426	-0.0829	0.1489	-0.0878	0.1426	-0.0001	0.3181	-0.1255
379.83	19.49	0.2426	-0.0829	0.1489	-0.0878	0.1426	-0.0001	0.3181	-0.1255
389.83	19.74	0.2426	-0.0829	0.1489	-0.0878	0.1426	-0.0001	0.3181	-0.1255
399.83	20.00	0.2426	-0.0829	0.1489	-0.0878	0.1426	-0.0001	0.3181	-0.1255
409.83	20.24	0.2426	-0.0829	0.1489	-0.0878	0.1426	-0.0001	0.3181	-0.1255
419.83	20.49	0.2426	-0.0829	0.1489	-0.0878	0.1426	-0.0001	0.3181	-0.1255
429.83	20.73	0.2426	-0.0829	0.1489	-0.0878	0.1426	-0.0001	0.3181	-0.1255
439.83	20.97	0.2426	-0.0829	0.1489	-0.0878	0.1426	-0.0001	0.3181	-0.1255
449.83	21.21	0.2426	-0.0829	0.1489	-0.0878	0.1426	-0.0001	0.3181	-0.1255
459.83	21.44	0.2426	-0.0829	0.1436	-0.0931	0.1426	-0.0001	0.3181	-0.1255
469.83	21.68	0.2426	-0.0829	0.1436	-0.0931	0.1426	-0.0001	0.3181	-0.1255
479.83	21.91	0.2426	-0.0829	0.1436	-0.0931	0.1426	-0.0001	0.3181	-0.1255
489.83	22.13	0.2426	-0.0829	0.1400	-0.0967	0.1426	-0.0001	0.3181	-0.1255
499.83	22.36	0.2426	-0.0829	0.1400	-0.0967	0.1426	-0.0001	0.3181	-0.1255
509.83	22.58	0.2426	-0.0829	0.1400	-0.0967	0.1426	-0.0001	0.3181	-0.1255
519.83	22.80	0.2426	-0.0829	0.1400	-0.0967	0.1426	-0.0001	0.3181	-0.1255
529.83	23.02	0.2426	-0.0829	0.1400	-0.0967	0.1426	-0.0001	0.3181	-0.1255
539.83	23.23	0.2426	-0.0829	0.1428	-0.0939	0.1426	-0.0001	0.3181	-0.1255
549.83	23.45	0.2426	-0.0829			0.1426	-0.0001	0.3181	-0.1255
559.83	23.66	0.2426	-0.0829			0.1426	-0.0001	0.3181	-0.1255
569.83	23.87	0.2426	-0.0829			0.1426	-0.0001	0.3181	-0.1255
579.83	24.08	0.2426	-0.0829			0.1426	-0.0001	0.3181	-0.1255
589.83	24.29	0.2426	-0.0829			0.1426	-0.0001	0.3181	-0.1255
599.83	24.49	0.2426	-0.0829			0.1426	-0.0001	0.3181	-0.1255
609.83	24.69	0.2426	-0.0829			0.1426	-0.0001	0.3181	-0.1255
619.83	24.90	0.2426	-0.0829			0.1426	-0.0001	0.3181	-0.1255
629.83	25.10	0.2426	-0.0829			0.1426	-0.0001	0.3181	-0.1255
639.83	25.29	0.2426	-0.0829			0.1426	-0.0001	0.3181	-0.1255
649.83	25.49	0.2426	-0.0829			0.1426	-0.0001	0.3181	-0.1255
659.83	25.69	0.2426	-0.0829			0.1426	-0.0001	0.3181	-0.1255
669.83	25.88	0.2426	-0.0829			0.1426	-0.0001	0.3181	-0.1255
679.83	26.07	0.2426	-0.0829			0.1426	-0.0001	0.3181	-0.1255
689.83	26.26	0.2426	-0.0829			0.1426	-0.0001	0.3181	-0.1255
699.83	26.45	0.2426	-0.0829			0.1426	-0.0001	0.3181	-0.1255
709.83	26.64	0.2426	-0.0829			0.1426	-0.0001	0.3181	-0.1255
719.83	26.83	0.2426	-0.0829			0.1426	-0.0001	0.3181	-0.1255
749.83	27.38	0.2426	-0.0829			0.1426	-0.0001	0.3181	-0.1255
779.83	27.93	0.2426	-0.0829			0.1426	-0.0001	0.3181	-0.1255
809.83	28.46	0.2426	-0.0829			0.1426	-0.0001	0.3181	-0.1255
839.83	28.98	0.2426	-0.0829			0.1426	-0.0001	0.3181	-0.1255
869.83	29.49	0.2426	-0.0829			0.1426	-0.0001	0.3181	-0.1255
899.83	30.00	0.2426	-0.0829			0.1426	-0.0001	0.3181	-0.1255
929.83	30.49	0.2426	-0.0829			0.1426	-0.0001	0.3181	-0.1255
959.83	30.98	0.2426	-0.0829			0.1426	-0.0001	0.3181	-0.1255
989.83	31.46	0.2426	-0.0829			0.1426	-0.0001	0.3181	-0.1255
1019.83	31.93	0.2426	-0.0829			0.1426	-0.0001	0.3181	-0.1255
1049.83	32.40							0.3181	-0.1255
1079.83	32.86							0.3181	-0.1255
1109.83	33.31							0.3181	-0.1255
1139.83	33.76							0.3181	-0.1255
1169.83	34.20							0.3181	-0.1255
1199.83	34.64							0.3181	-0.1255
1229.83	35.07							0.3181	-0.1255
1259.83	35.49							0.3181	-0.1255
1289.83	35.91							0.3181	-0.1255
1319.83	36.33							0.3098	-0.1338

APPENDIX I

POND 18, CELL A
REPORT OF CONSOLIDATION/SETTLEMENT ANALYSIS

Table of Contents

Section		Page
1	**Introduction**	1
	1.1 Purpose and Scope	1
	1.2 Background	1
2	**Settlement Monitoring of Pond 8S**	5
3	**Soil Parameters**	5
4	**Pond Loading**	12
5	**Settlement Analysis**	15
	5.1 Method of Analysis	15
	5.2 Settlement	16
	5.3 Rate of Settlement	16
6	**References**	20

List of Figures

Figure		Page
1	Pond 18 Plan	2
2	Pond 8S, Location of Settlement Markers and Observation Wells	6
3	Pond 8S, Summary of Settlement / Time Data	7
4	Pond 8S, Summary of Settlement / Log Time Data	8
5	Pond 8S, Typical Settlement / Log time Data	9
6	Phase IV Consolidation Tests, Void Ratio vs Pressure	10
7	Pond 18, Void Ratio vs Pressure	11
8	Pond 12S Consolidation Test, Deformation vs Time	13
9	Pond 18, Cell A Fill and Settlement Profiles	14
10	Pond 18, Cell A Primary Settlement vs Pressure	17
11	Pond 18, Cell A Loading / Settlement vs Time	18

Pond 18, Cell A Report of Consolidation/Settlement Analysis

1. INTRODUCTION

1.1 Purpose and Scope

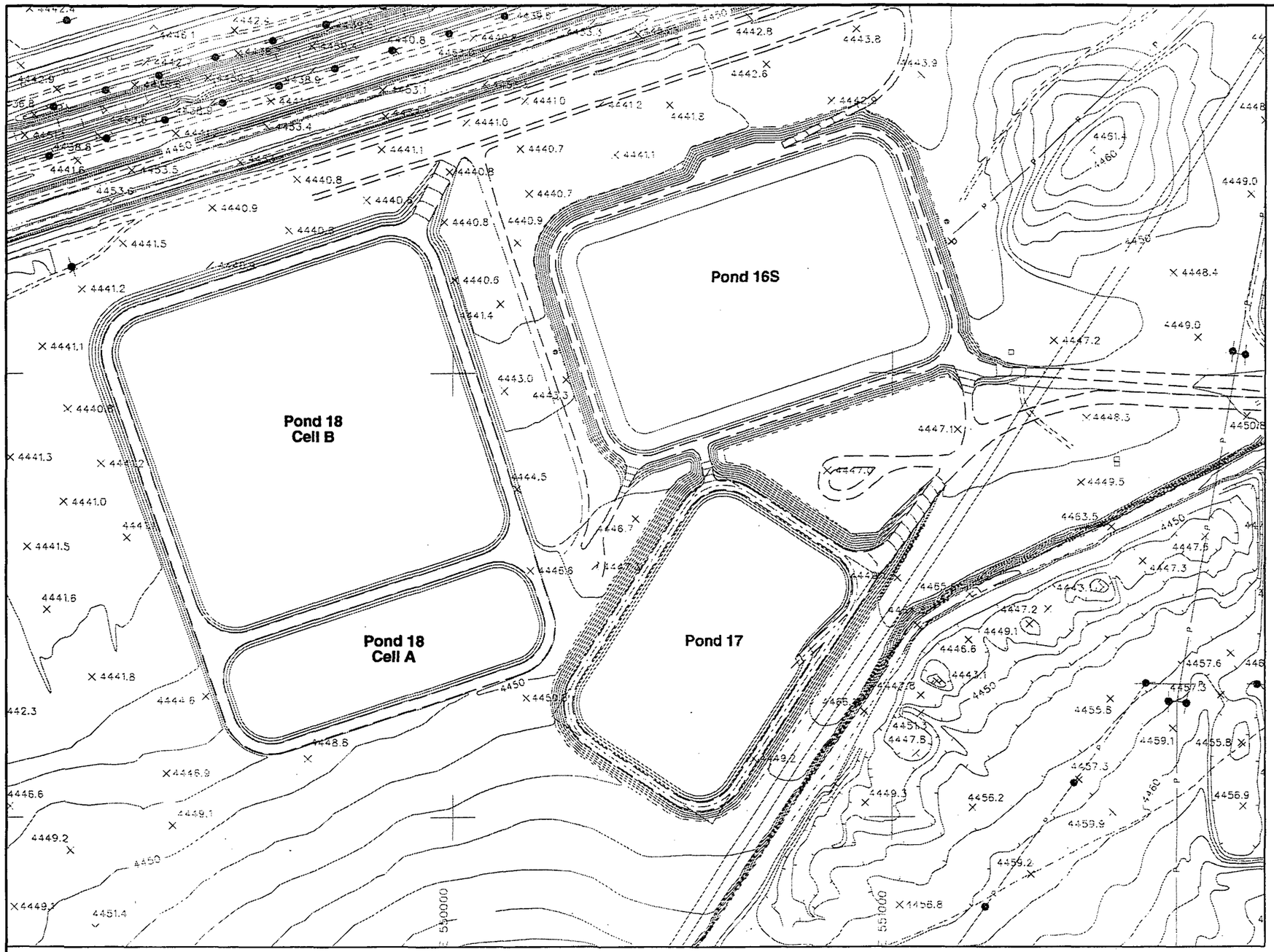
The purpose of this report is to present the results of studies to estimate the magnitude and time-rate of settlement of fill placed over the solids in Pond 18, Cell A. This fill will consist of an initial fill and a final cap for Pond 18, Cell A. The calculations are based on soil parameters developed from a laboratory testing program performed on samples from the Phase IV ponds. The study also included an evaluation of the performance of wick drains to accelerate the rate of settlement.

The scope of work included:

1. Development of soil parameters for the Pond 18, Cell A sediments from the results of the laboratory testing program performed on the Phase IV ponds.
2. Estimate of fill loading.
3. Estimate of the magnitude and time-rate of settlement.
4. Preparation of this report.

1.2 Background

Pond 18, Cell A has a design capacity of 40 acre-feet and is rectangular-shaped in plan, with side dimensions of about 250 feet by 750 feet. A plan of the pond is shown in Figure 1. The pond is double-lined and equipped with a leachate collection, detection, and removal system (LCDRS) between the two liners. The depth of sludge around the inside perimeter of the pond is about 10 feet. However, the bottom of the pond is sloped with a central valley drain that drains 6 feet deeper toward the west end. There is no protective cover over the bottom liner system.



Reference: Vertical Datum is Mean Sea Level.
Horizontal Datum is North American Datum 1983.

BECHTEL ENVIRONMENTAL, INC.
SAN FRANCISCO

ASTARIS IDAHO, LLC
POCATELLO, IDAHO

Pond 18 Plan

Job Number	Drawing No.	Rev.
24230	Figure 1	1

SFOSB092\BSEMF_DRAW\ROOT\FMC-RCRA\ 18cellA_CLOSE\ 18cellA_sed.dgn
8/16/01dd

It is currently planned to place a permanent cap over the pond solids. Excess water would be pumped from the pond as fill is placed, an initial fill placed over the pond solids, and after an interval of time provided to allow settlement to occur, a final cap would be placed over the initial fill. The initial fill fill would be allowed to settle until the rate of settlement had decreased to an acceptable rate. The projected settlement resulting from the initial filling loads and the additional loads of the final cap construction are estimated for a 500-year design life of the cap.

Ponds 18, Cell A and Cell B will be closed as a single waste management unit. The timing sequence for the closure will be as follows:

1. Pond 18, Cell A will be filled with slurry waste until May, 2002, at which time the unit will stop receiving waste and an initial fill will be placed over the sludge in the pond. During this time Pond 18, Cell B will be receiving only liquid waste.

2. Pond 18, Cell A sludge will be allowed to consolidate under the initial fill for about 2 to 3 years until it achieves a settlement rate less than 1 inch per year at which time a permanent cap will be placed.

Special measures and equipment are required to place the fill safely. The principal features of current planning include using a conveyor system to place the initial sand fill over the sludge in thin controlled layers to attain a thickness of approximately 5 feet. A maximum slag fill thickness of about 13 feet will be placed over the sand. The weight of the fill will cause substantial consolidation of the sediments and time-dependent settlement of the fill will result. The magnitude and rate of settlement of the fill are important factors in the planning, design, and scheduling of the closure process.

Estimating the magnitude and rate of settlement of very soft, fine-grained sediments is an approximate but well-established process. This process normally includes obtaining undisturbed samples of the sediments and measuring strength and consolidation characteristics in the laboratory. This process normally yields reasonable results for the magnitude of settlement, but prediction of time-rates of settlement without the support of field measurements is always a very approximate process.

In the case of high phosphorus content precipitator slurry, the accuracy of estimates of both the magnitude and time-rate of settlement is severely degraded because of the impossibility of obtaining undisturbed samples and the difficulty in accurately measuring basic, essential soil properties in the laboratory.

Information on Astaris (formerly FMC) waste sludge sediment properties was first obtained in 1993. Disturbed sampling and in-situ vane shear tests were performed at Ponds 8S and 15S. The vane shear strengths indicate the very soft nature of the Pond 8S sediments and the even weaker condition of the sediments in Pond 15S. Very limited laboratory tests were performed at that time. The findings of these investigations are presented in Reference 1.

This information on the sediments and published data were used to estimate settlement of Pond 8S. These theoretical analyses predicted large settlements and a long period of consolidation. Experience with placing the initial fill on Pond 8S suggested that the settlement of the pond solids would be less than predicted and consolidation would be faster than anticipated.

Additional sampling and special laboratory testing were performed in 1994 to provide more reliable data on the properties of the sediments, and to provide an improved basis for predicting the performance of Pond 15S. The testing primarily included moisture content, gradient ratio/permeability, and consolidation tests. The results of the testing are summarized in Reference 2.

In July 1997, a field and laboratory investigation program for Pond 8E and the Phase IV Ponds was conducted. The in-situ exploration consisted of vane shear tests and sludge sampling at representative locations. The vane shear test results indicated that the sludges in Pond 8E and the Phase IV Ponds are of essentially the same strength as those measured in Pond 15S. The field investigation program is summarized in Reference 3. Samples of the sludge were obtained from Pond 8E and the Phase IV Ponds and tested in the laboratory using specialized equipment and methodologies to determine moisture content, Atterberg Limits parameters, specific gravity, grain size distribution, and consolidation parameters. The results of the laboratory testing program are summarized in Reference 4.

Based on information provided by site personnel, it is understood that Pond 18, Cell A will operate for a relatively short period before it is closed, similar to the life-cycle of the Phase IV Ponds. Therefore, soil characteristics derived from the analysis of the Phase IV Ponds are considered appropriate for analysis of Pond 18, Cell A.

This current settlement analysis for Pond 18, Cell A is based on the following: (1) experience and settlement monitoring data obtained from Pond 8S; (2) 1994 and 1997 laboratory data obtained (References 2 and 4); and (3) use of analysis methods that account for the major changes in the basic soil properties of void ratio, permeability, and compressibility that take place during consolidation of these very soft sediments.

2. SETTLEMENT MONITORING OF POND 8S

Settlement of Pond 8S during placement of the initial fill was monitored using a portable piezometer sensor inserted in tubing placed at the sediment/fill interface (Reference 5). These measurements provided approximate data on the magnitude of total settlement. After the initial fill was completed, an array of settlement reference plates was placed on the surface of the fill. These plates have been observed periodically.

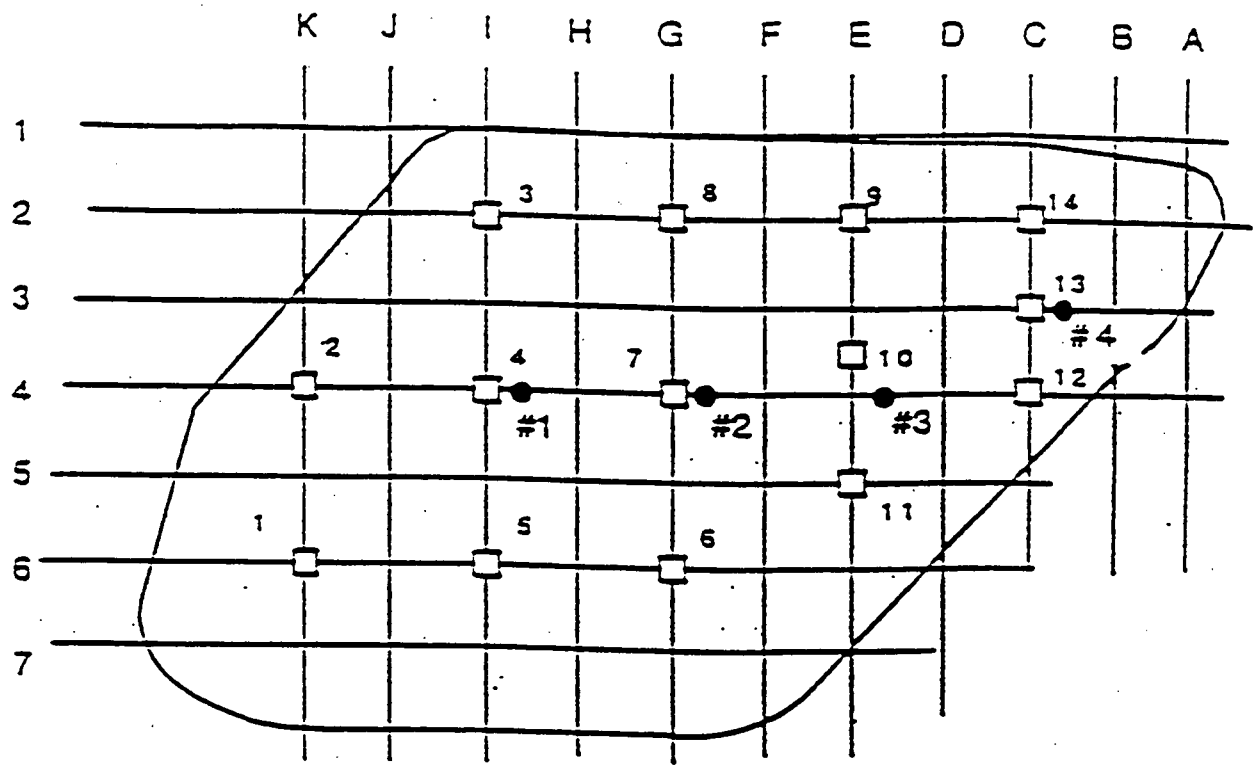
The array of settlement points are shown on Figure 2. A summary of settlement versus time and settlement versus log-time plots are presented on Figures 3 and 4. Typical settlement versus log-time plots that illustrate long-term trends are shown on Figure 5. These plots are a combination of the approximate piezometer sensor measurements taken during the first 50 to 80 days which comprise most of the settlement and the long-term trends established by the settlement reference points. These long-term trends appear as straight lines on the log-time plots.

Wick drains were installed 30 to 38 days after start of filling during an intermediate stage of the initial filling. These drains undoubtedly increased the rate of settlement, but it is also clear that the major portion of the settlement occurred during the placement of the fill. The magnitude of settlement depends primarily on the thickness of the sediments and generally amounts to about 10 to 15 percent of the thickness of the sediments.

3. SOIL PARAMETERS

As described earlier, the analysis is based on laboratory test data from Phase IV Pond sludge samples. The results of the laboratory testing are reported in Reference 4. The following summarizes the derivation of soil properties for Pond 18, Cell A.

The compressibility of the remolded sediments is illustrated by a plot of void ratio versus log-pressure, which is illustrated on Figure 6. For Pond 18, Cell A, the initial fill will exert a pressure up to about 2265 pounds per square foot (psf). The Pond 18, Cell A final cap will add another 840 psf to develop a total loading of 3105 psf. These plots illustrate the high degree of compressibility of the sediments under low loads and that a substantial portion of the total settlement will occur under a load of 300 to 400 psf, which is a small portion of the total loading. The curve adopted for estimating settlements is also shown on this figure. The adopted curve is also shown on Figure 7 along with the relationship between void ratio and pressure. The compression index (C_c) is 0.44 and the initial void ratio (at 1 psf) is 4.23.



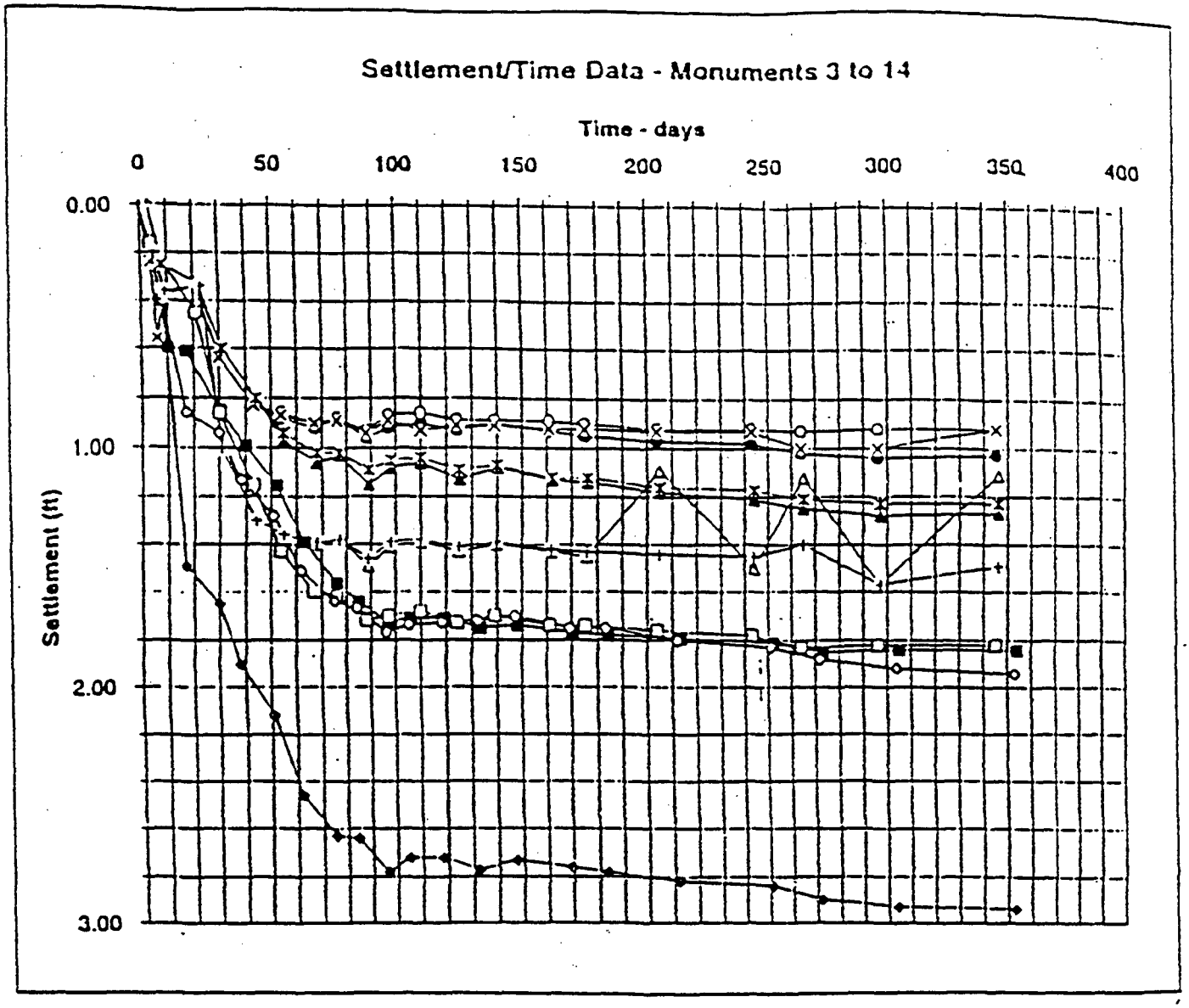
LEGEND

□ SETTLEMENT MARKER

● OBSERVATION WELL

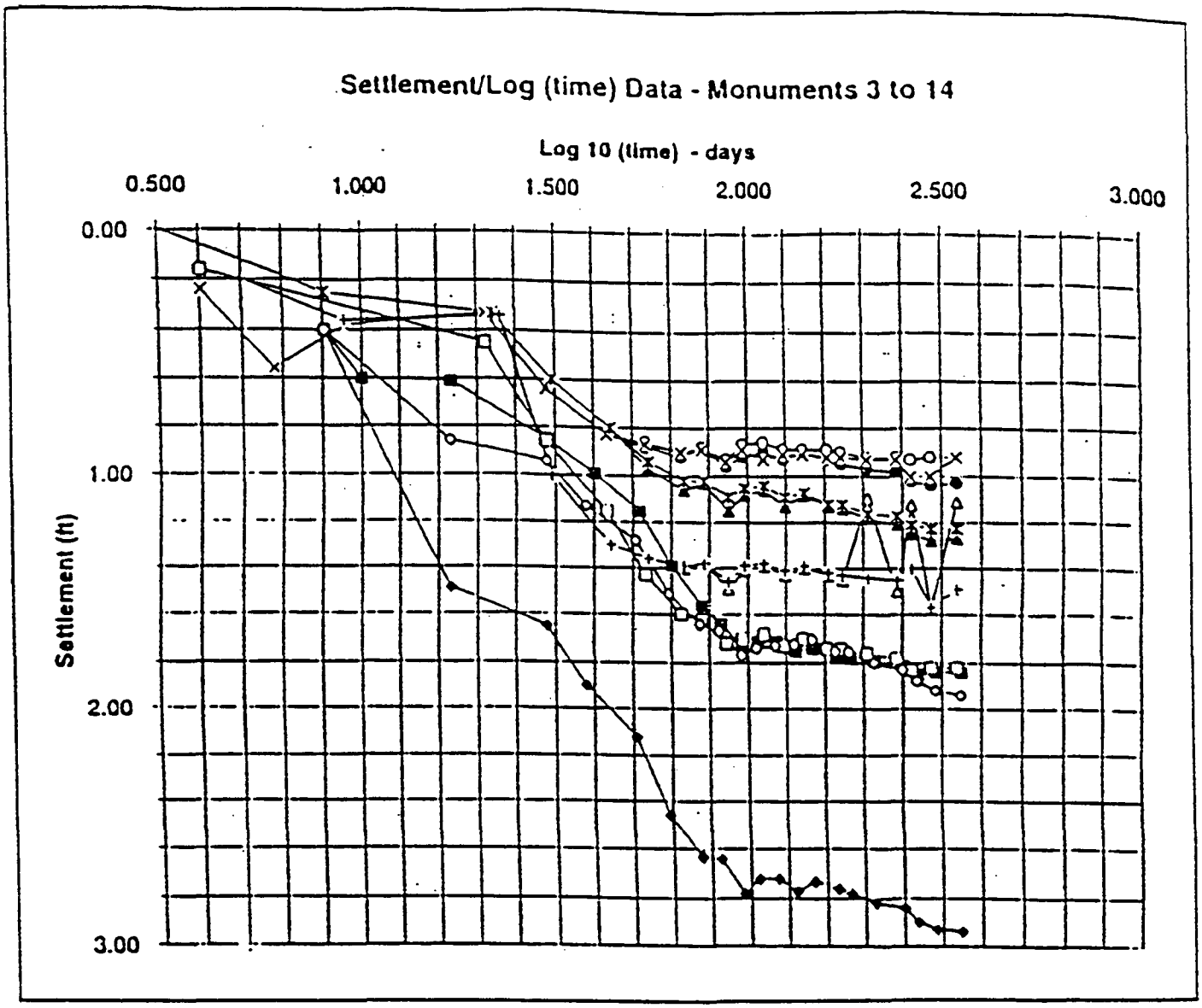
POND 8S
LOCATION OF SETTLEMENT MARKERS AND OBSERVATION WELLS

Figure 2



Monument 5
Monument 4
Monument 7
Monument 6
Monument 10
Monument 11
Monuments 8 & 9
Monument 3
Monument 14
Monument 13
Monument 12

Figure 3
Pond 8S
Summary of Settlement/Time Data



Monument 5
Monument 4
Monument 7
Monument 6
Monument 10
Monument 11
Monuments 8 & 9
Monument 3
Monument 14
Monument 13
Monument 12

Figure 4
Pond 8S
Summary of Settlement/LogTime Data

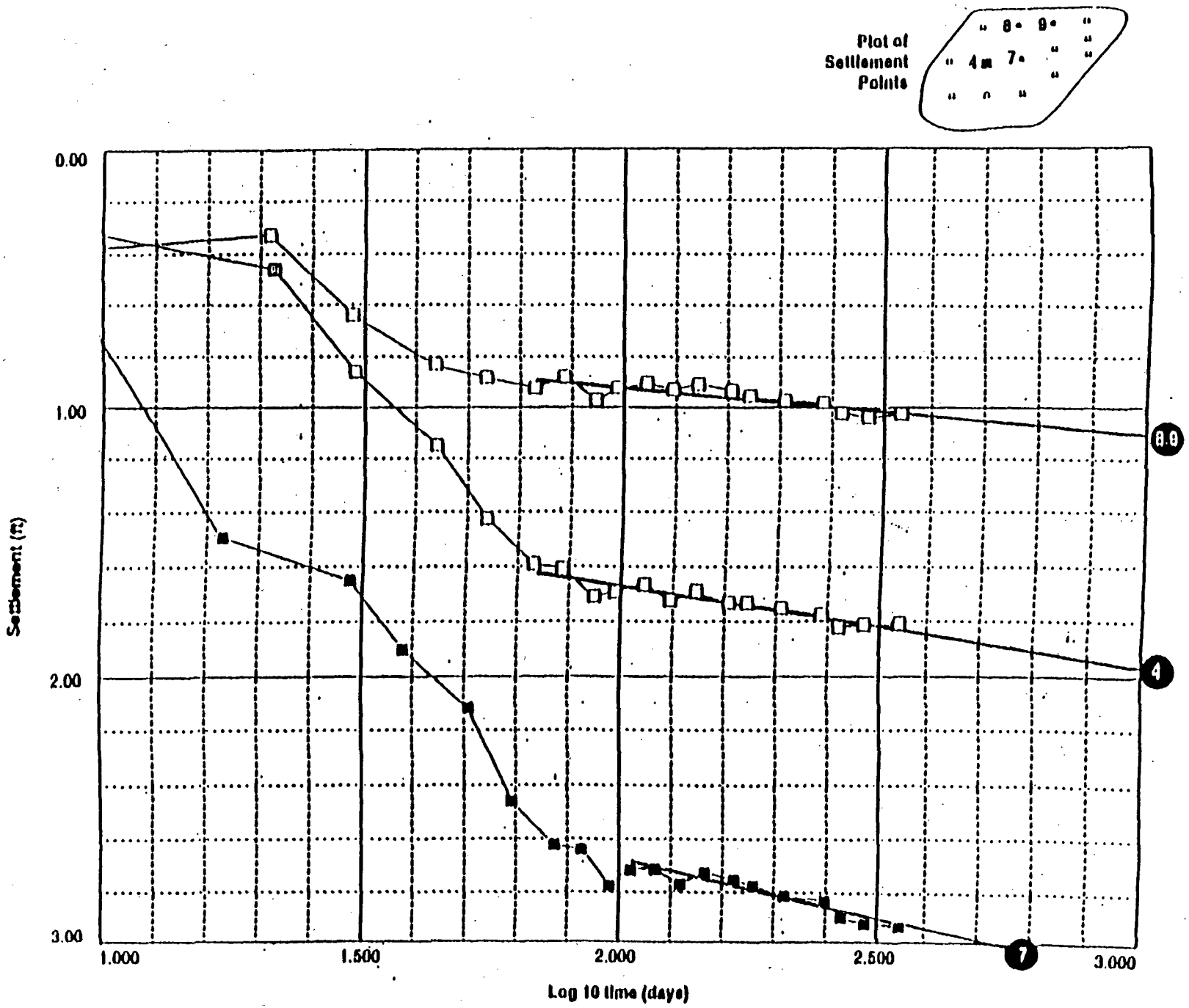
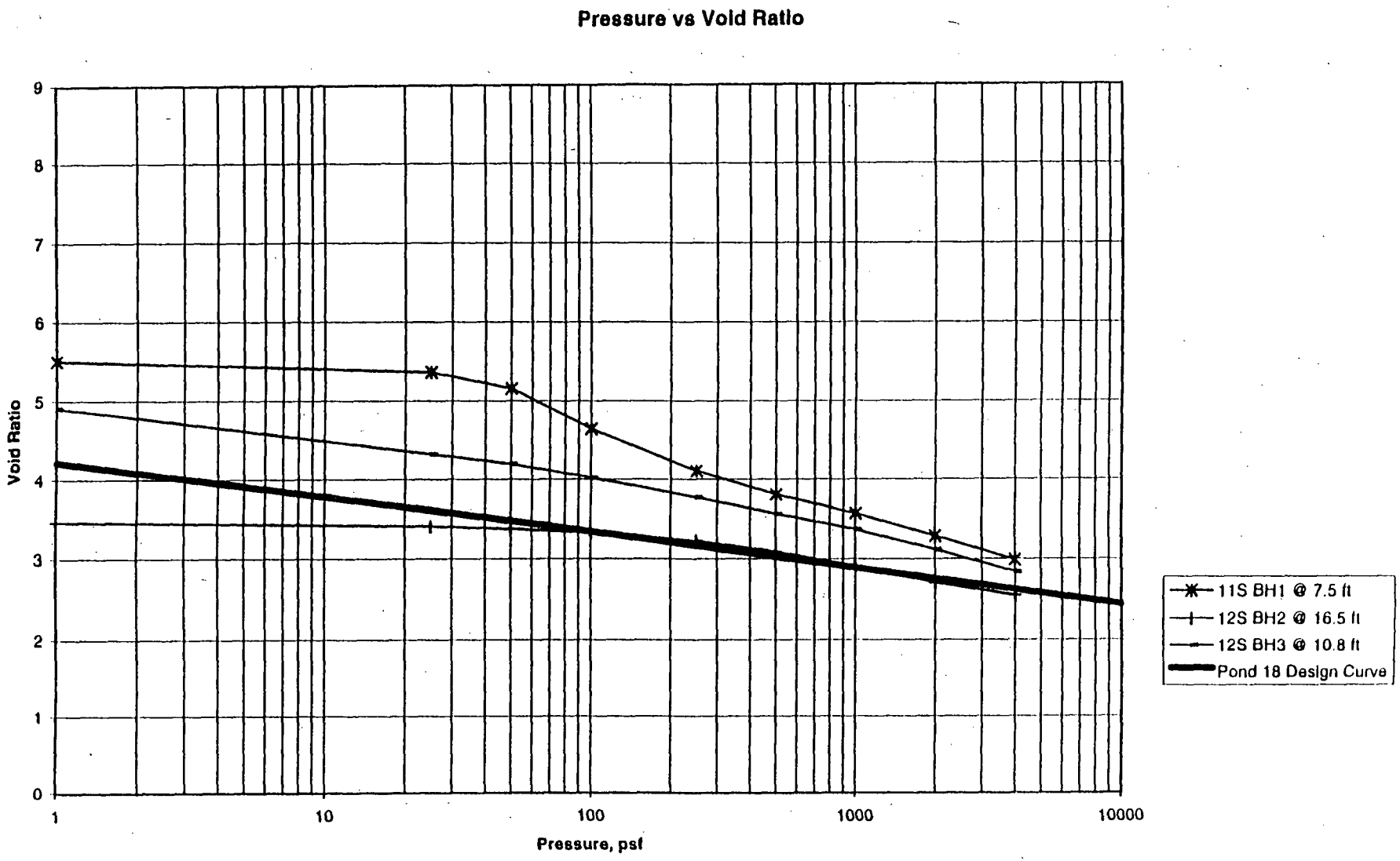
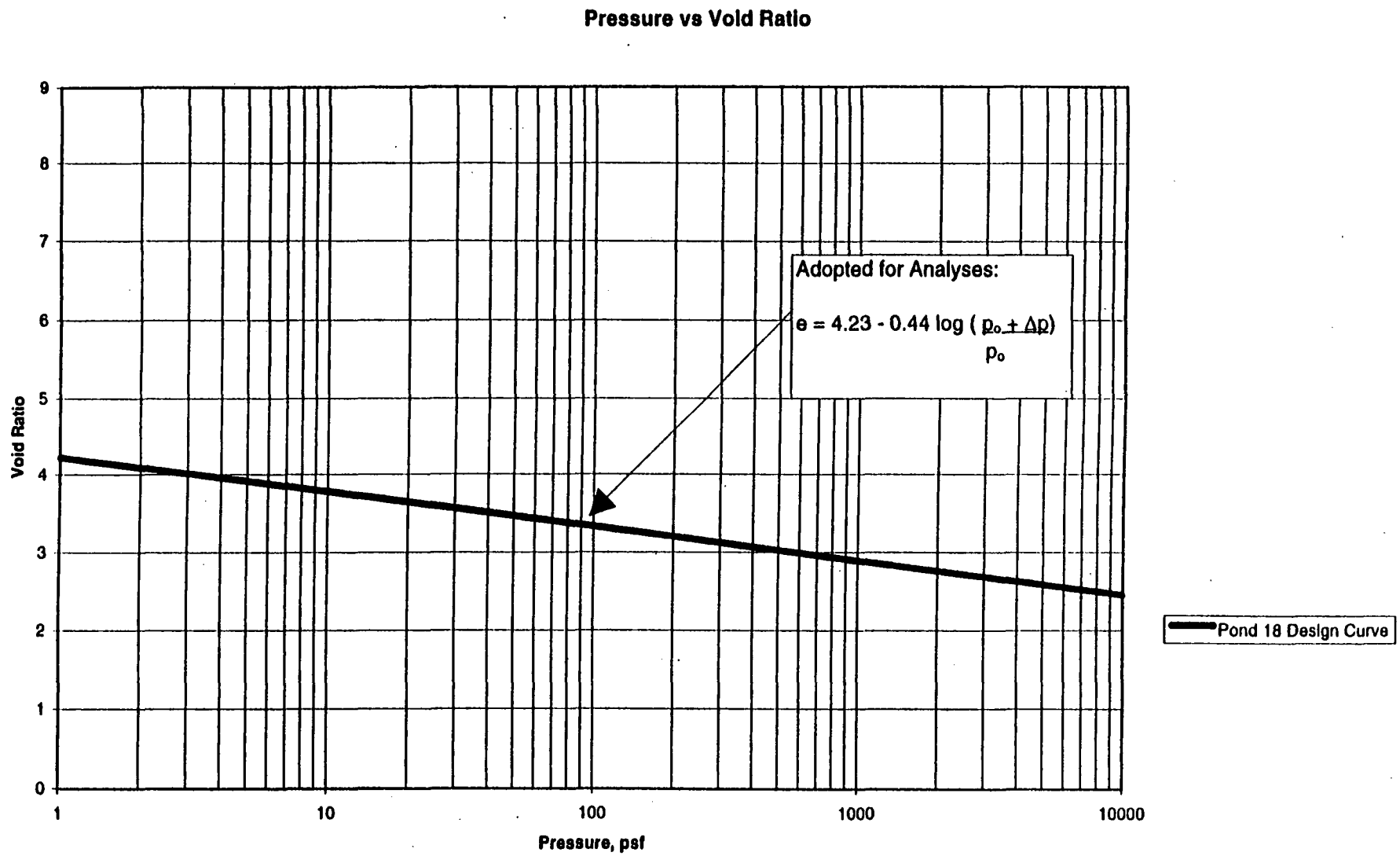


Figure 5
Pond 8S
Typical Settlement/Log Time Data



Phase IV Ponds - Consolidation Tests
Void Ratio vs Pressure

Figure 6



Pond 18 - Void Ratio vs Pressure

Figure 7

The time required for consolidation of the sediments at any given level of stress is inversely proportional to the coefficient of consolidation (C_v) parameter. This parameter is proportional to the square of the length of the drainage path and inversely proportional to the time required for consolidation to occur. The expression for this parameter is:

$$C_v = T_{90} (H^2) / t_{90}$$

where H = average drainage distance of the sample for each load increment

t_{90} = time for 90% consolidation, each load increment, values are obtained from test time curves

T_{90} = time factor, 0.848 for 90% consolidation

Values of t_{90} are obtained from the consolidation time curves for each load increment. The time curves for a typical sample of the Phase IV Ponds are shown in Figure 8.

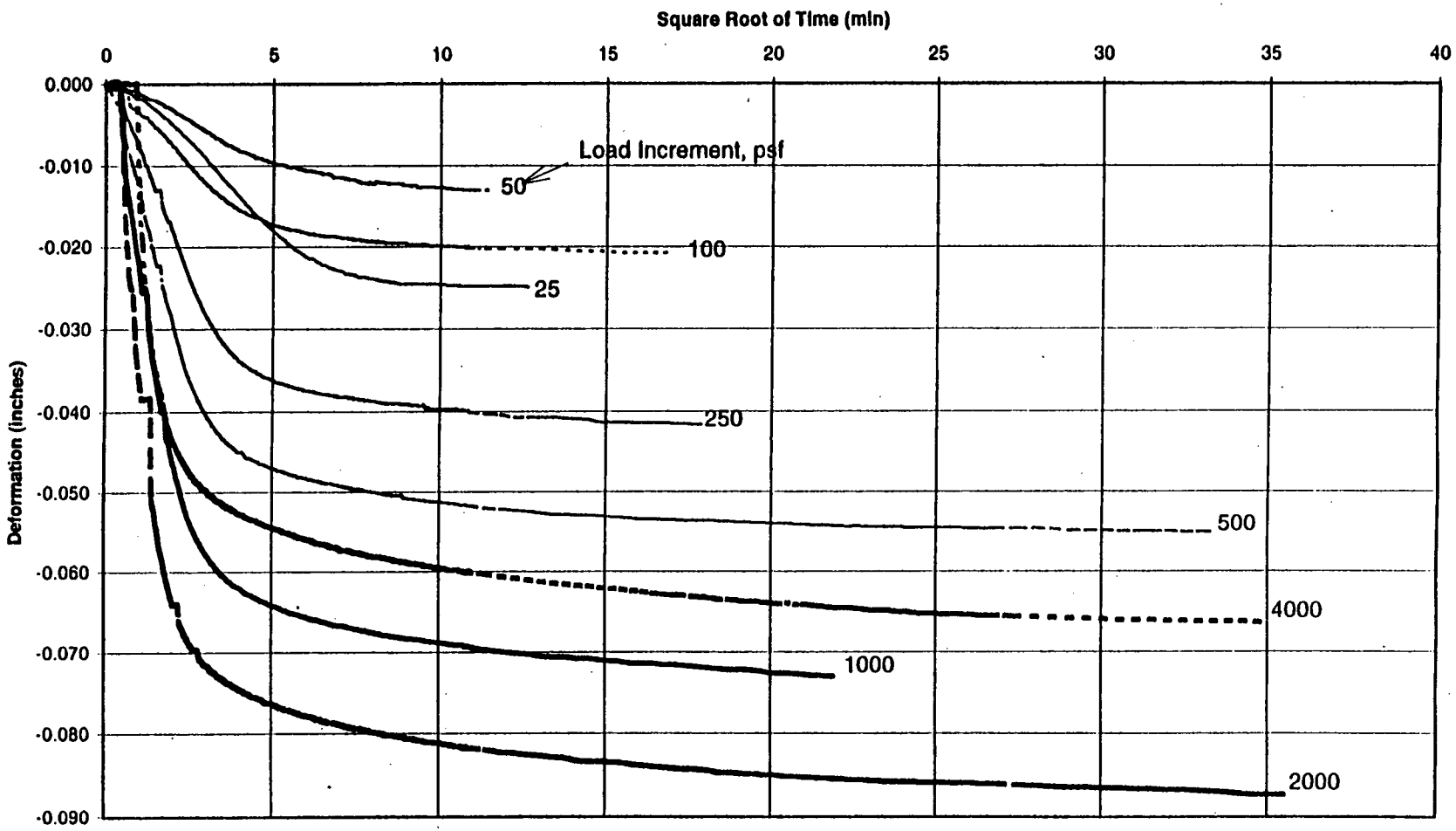
4. POND LOADING

The pond loading was assumed to result from placing up to 18 feet of initial fill consisting of 5 feet of sand fill with the balance composed of slag fill. Figure 9 schematically shows the sequence of fill layers. The phreatic surface was assumed to be maintained at the bottom of the sand fill by pumping. The loading stress was calculated as follows:

Material	Thickness (feet)	Total Unit Weight[1] (pcf)[2]	Pressure (psf)[3]
Sand fill	5	115	575
Slag fill	13	130	1690
Total load	18		2265

1 For analysis purposes, it is assumed that the total unit weights are approximately equal to the saturated unit weights.
2 pcf = pounds per cubic foot
3 psf = pounds per square foot

The permanent cap is assumed to be about 7 feet thick and will add 840 psf to the system. The final loading will be about 3105 psf.



Pond 12S, Sample BH2 @ 16.5 feet
Consolidation Test - Deformation vs Time

Figure 8

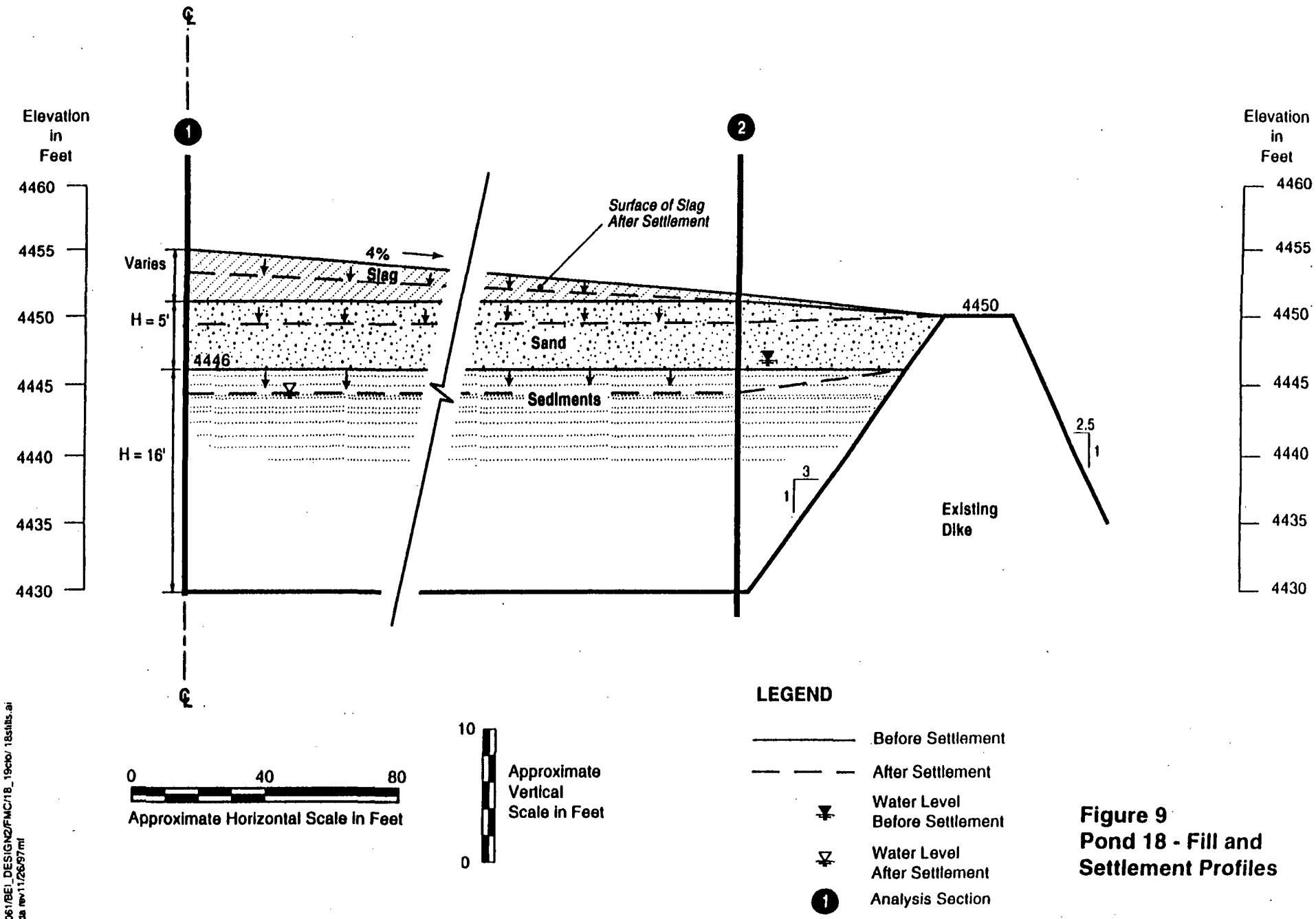


Figure 9
Pond 18 - Fill and Settlement Profiles

3FOS8061/BEI_DESIGN2/FMC/18_19cho/ 18stlts.ai
1/25/97ca rev11/26/97ml

5. SETTLEMENT ANALYSIS

5.1 Method of Analysis

The settlement analyses were performed using the computer code "ACCUMV" from the University of Colorado, Boulder, Colorado (Reference 6). ACCUMV is a finite difference code that implements a nonlinear finite strain theory of consolidation which accounts for changes in the thickness of the consolidating stratum (i.e., drainage path length). The program also accommodates nonlinear stress-dependent relationships of void ratio and permeability. Initially, the model was checked against design cases performed for Pond 8S and Pond 15S analyses. Results using the ACCUMV model produced similar amounts and rates of settlement.

The input parameters for the Pond 18, Cell A analyses included the following:

Thickness of sludge, 16 ft

Single drainage vertically to the surface.

Water level at top of sediments.

Compressibility, $e = e_i - C_c * \log(\frac{\sigma'_0 + \Delta\sigma'}{\sigma'_0})$;

where
- e_i = void ratio intercept at 1 psf on void ratio versus log(effective pressure) relationship
- C_c = slope of void ratio versus log(effective pressure) relationship
- e = void ratio
- σ_0' = effective soil stress
- $\Delta\sigma'$ = change in effective stress

Permeability (k) assumed to vary with pressure, per the relationship $k = 0.005\ e^{2.6}$, which was derived by fitting a curve through laboratory test results.

Coefficient of consolidation (C_v) assumed to vary with void ratio.

Fill loading modeled as occurring over an approximate 3-month period.

Maximum thickness of initial fill, 18 feet, 2265 psf.

5.2 Settlement

The estimated total settlement resulting from primary consolidation of sediments under the fill loading is illustrated in Figure 10 as a plot of primary settlement versus pressure. These settlements are summarized below for different loading conditions:

Sand fill, 5-foot thickness	1.3 feet
Sand and 13 feet of slag	2.5 feet

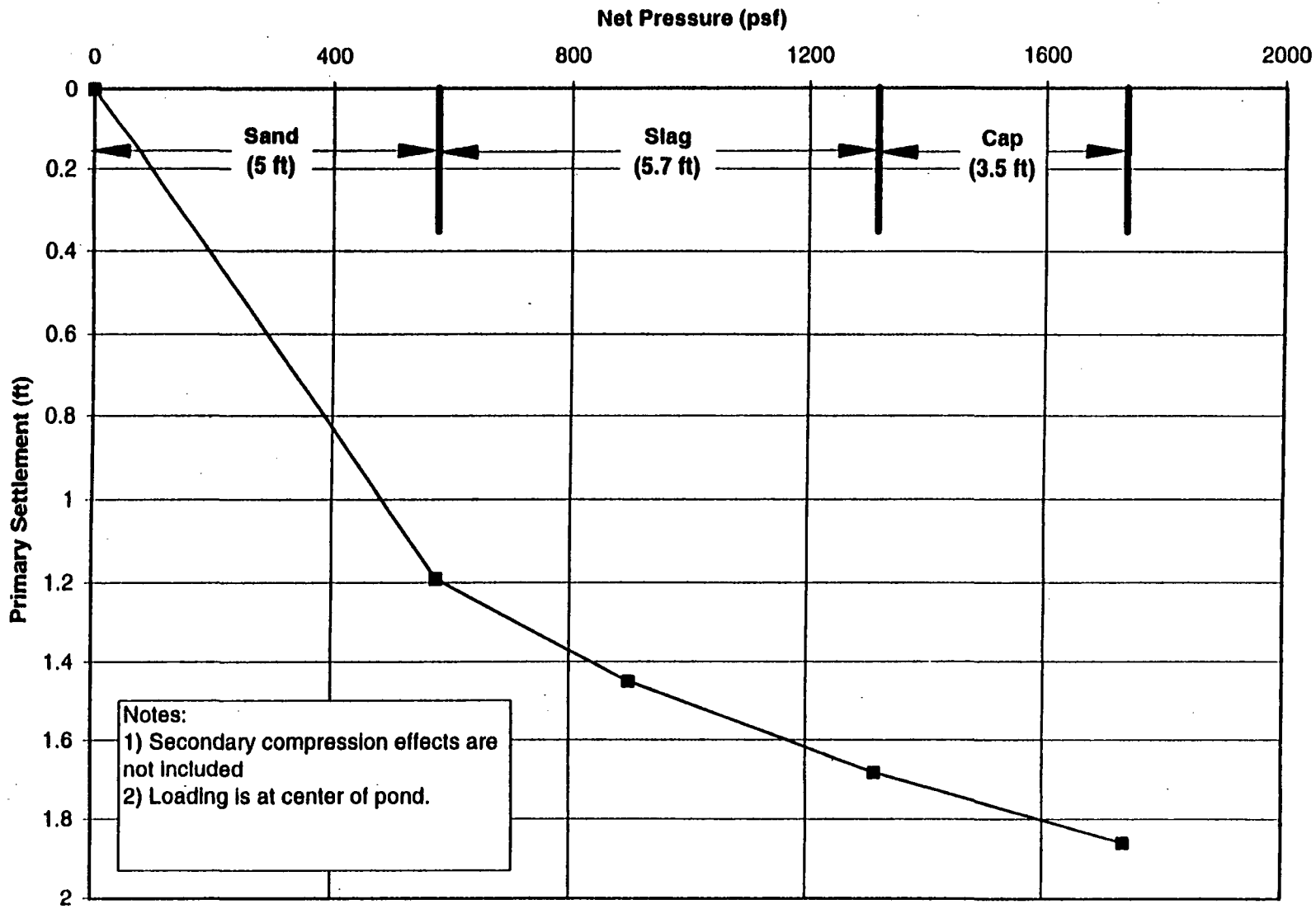
The thickness of slag listed above has been increased to include the estimated settlement of the sludge. It is estimated that the completed permanent cap will settle about 6 inches over its 500-year design life as a result of primary consolidation under the permanent cap and continued secondary settlement.

A possible configuration of the initial filling is shown on Figure 9 along with the superimposed settlement profiles. It should be noted that the interface between the sand fill and the slag is based on a 5-foot thickness of sand. The actual thickness of sand may vary from that shown because settlements will occur during placement. In a similar manner, the settlement during construction will influence the as-placed thickness of the slag.

5.3 Rate of Settlement

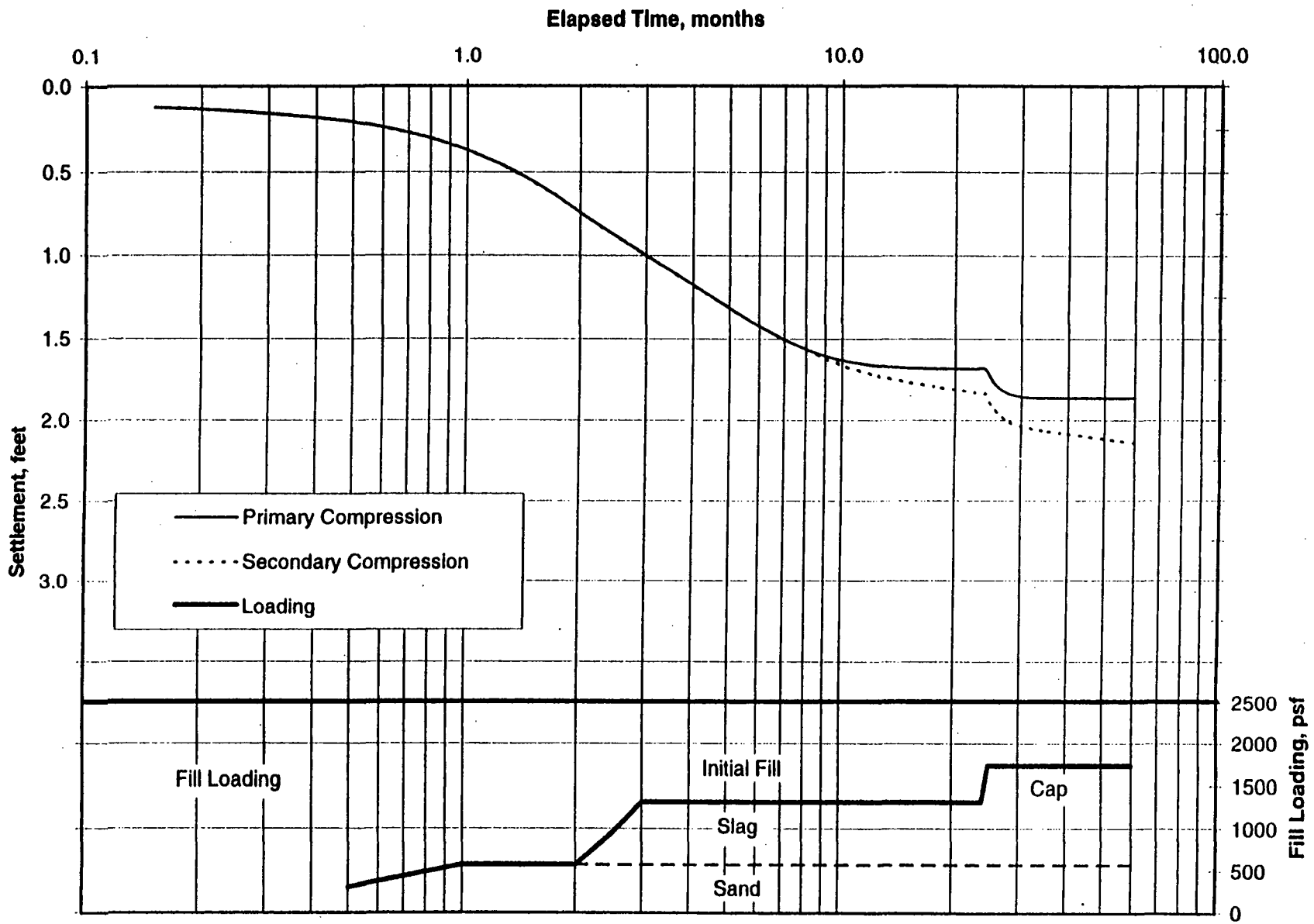
The estimated rate of settlement is illustrated by the settlement versus log-time plot on Figure 11. The rate of loading is also shown as a function of time.

The calculation indicates that primary consolidation will be completed in about 12 months after filling commences or 9 months after the initial filling is completed. The time to complete primary consolidation after filling is completed may be extended a month or two if the slag placement is initially delayed, then placed at a more rapid rate near the end of construction. In this case, the amount of consolidation during placement may be less than the calculations indicate.



POND 18 - Primary Settlement vs Pressure

Figure 10



Pond 18 - Loading/Settlement vs Time

Figure 11

As Figure 11 also shows, settlement has been extended beyond the period of primary consolidation to account for continued secondary settlement, or creep. The creep trend is based on the secondary settlement measurements made at Pond 8S, adjusted for intensity of loading and the thickness of compressible material. The creep trend was estimated to be 0.32 feet per log cycle.

Depending on the start of initial fill, it appears that settlement rates will be acceptable for permanent capping after one to two construction seasons. To further illustrate the effect of placing the permanent cap, the estimated additional settlement has been added to the settlement curve.

It should be carefully noted that the calculated rate of settlement is considered to be very approximate and the actual rate of settlement is expected to vary from that shown. However, the calculated rates are expected to be useful for planning and design.

6. REFERENCES

1. "Field Geotechnical Investigation, Eastern Michaud Flats Project, FMC Ponds 8S and 15S, Pocatello, Idaho," by Bromwell and Carrier, Inc., dated January 1994.

2. "Final Report, Geotechnical Laboratory Test Results, Pond 15S Samples, FMC's Elemental Phosphorous Plant," by Mountain States Analytical, Inc. and Applied Geotechnical Engineering Consultants, Inc., dated November 18, 1994 (Report also included as Appendix L of Pond 15S Closure Plan, September 1996).

3. Final Report for Field Geotechnical Investigation, FMC Corp. Eastern Michaud Flats Project, Pocatello, Idaho. Engineers and Scientists, Inc., Lakeland, Florida, August 1997.

4. Final Report, Geotechnical Laboratory Test Results, Ponds 8E, 11S, 12S, and 13S, FMC's Elemental Phosphorus Plant, Eastern Michaud Flats Project, Pocatello, Idaho, Applied Geotechnical Engineer Consultants, Inc., October 13, 1997.

5. "Pond 8S Closure Plan," by FMC Corporation, Pocatello, Idaho, dated January 1997.

6. "ACCUMV, the One-Dimensional Consolidation of Saturated Clays, a Computer Program for Non-linear Finite Strain Theory," by Schiffman, R.L., Sravits-Nessan, V., and McArthur, J.M., dated December 1992.

APPENDIX J

FIELD GEOTECHNICAL INVESTIGATION – FMC PONDS 8E AND PHASE IV

FIELD GEOTECHNICAL INVESTIGATION
FMC CORPORATION
EASTERN MICHAUD FLATS PROJECT
POCATELLO, IDAHO

Submitted to:

Bechtel Environmental, Inc.

San Francisco, California

Submitted by:

BCI
ENGINEERS & SCIENTISTS, INC.

Lakeland, Florida

BCI File No. 979704

August 1997

BCI
ENGINEERS & SCIENTISTS, INC.

P.O. Box 5467
Lakeland, FL 33807-5467

(941) 667-2345
FAX: (941) 667-2662

20 EXCELLENCE YEARS

August 22, 1997
BCI Project No. 979704

SENT VIA FEDERAL EXPRESS

Mr. Mike Kostanian
Bechtel Environmental, Inc.
45 Freemont Street
San Francisco, CA 94105-1895

RE: FMC Corporation
Eastern Michaud Flats Project
Pocatello, Idaho
Geotechnical Field Investigation Report

Dear Mike:

BCI is pleased to submit three copies of our report summarizing the geotechnical field investigation of Ponds 8E, 11S, 12S, and 13S at FMC Corporation's Pocatello, Idaho facility. We appreciate the assistance provided by Gary Oberholtzer and Merve Attwood during the field investigation portion of this challenging project. Please call us if you have any questions or need additional information.

Sincerely,

BCI

for Matthew L. Cain
Project Geologist

Cornelis Winkler III, P.G.
Project Manager

MLC
Enclosures
Finlrpt.doc

TABLE OF CONTENTS

Page

1.0 Introduction 1

2.0 Piston Tube Sampling 2

3.0 Vane Shear Testing 4

3.1 Vane Shear Test Methods 4

3.2 Vane Shear Test Results 6

4.0 Health and Safety 7

Acknowledgements

References

Tables

Figures

Appendix A - Field Reports

Appendix B – Vane Shear Data

TABLES

Table No.

2-1 Sampling and Testing Program Summary

FIGURES

Figure No.

1-1 Pond Location, Sampling and Testing Locations

2-1 BCI Stainless Steel Piston Tube Sampler

3-1 Shear Strength Vs. Depth, Pond 8E

3-2 Shear Strength Vs. Depth, Pond 11S

3-3 Shear Strength Vs. Depth, Pond 12S

3-4 Shear Strength Vs. Depth, Pond 13S

3-5 Shear Strength Vs. Depth, Pond 8E, BH-1

3-6 Shear Strength Vs. Depth, Pond 8E, BH-2

3-7 Shear Strength Vs. Depth, Pond 8E, BH-3

3-8 Shear Strength Vs. Depth, Pond 8E, BH-4

3-9 Shear Strength Vs. Depth, Pond 8E, BH-5

3-10 Shear Strength Vs. Depth, Pond 11S, BH-1

3-11 Shear Strength Vs. Depth, Pond 12S, BH-1

3-12 Shear Strength Vs. Depth, Pond 12S, BH-2

3-13 Shear Strength Vs. Depth, Pond 12S, BH-3

3-14 Shear Strength Vs. Depth, Pond 13S, BH-1

3-15 Shear Strength Vs. Depth, Pond 13S, BH-2

3-16 Shear Strength Vs. Depth, Pond 13S, BH-3

1.0 INTRODUCTION

In July 1997, BCI Engineers & Scientists, Inc. (BCI) personnel, under a subcontract with Bechtel Environmental Inc. (Bechtel) acting as agent for FMC, completed a geotechnical field investigation at the FMC Corporation's Facility in Pocatello, Idaho. The investigation included sampling the sludge and completing *in-situ* tests in Ponds 8E, 11S, 12S, and 13S. Sampling and testing were completed to obtain data for the design of the planned closure of the sludge ponds. All work was completed in accordance with FMC safety policies and the task-specific Health and Safety Plans developed by Bechtel.

Our field work was completed from a pontoon barge on the water surface of the ponds. FMC provided the barge and personnel to assist with the movement of the barge and our work on the ponds. Bechtel Environmental, Inc. provided an engineer and a site safety officer to assist in the investigation. The locations and tests completed at each location were selected by Bechtel's on-site engineer.

Samples of the sludge were collected at various depths using a piston tube sampler. Samples were transported by Bechtel's engineer to the FMC laboratory for analyses. *In-situ* tests included undrained shear strength using a shear vane. Sampling locations are indicated in Figure 1-1.

This report is organized in four sections. Section 2.0 presents procedures and data for piston tube sampling. Section 3.0 presents procedures for vane shear testing. Section 4.0 summarizes the health and safety aspects of the field work. Field reports and vane shear data are presented in the Appendices.

2.0 PISTON TUBE SAMPLING

Piston tube sampling techniques were used at five locations in Pond 8E, one location in pond 11S, and three locations each in ponds 12S and 13S. Our field work was completed from a pontoon barge on the water surface of the ponds. A surveyed grid system had been staked by FMC at the ponds to assist in visually aligning the barge to known locations on each pond. The barge was then tied off from three to four points to keep it at the desired location.

Test locations and tests completed at each pond were selected by Bechtel's on-site engineer. Table 2-1 summarizes the sampling and testing programs completed on the ponds. In Pond 11S, access was limited to a single test location. Only at the south end of the pond was the water depth sufficient to float the barge. It was not possible to raise the water level in this pond without overtopping the liner. In general, samples of the sludge were collected at three foot intervals and vane shear tests completed at 1.5 foot intervals.

The piston tube sampler was operated by manually pushing the sampler into the sludge to a specified depth and holding the piston stationary while advancing the sampling tube. The cylindrical piston tube sampler was used to sample material from just below the surface of the sludge to depths where refusal was encountered. The surface of the sludge was measured from the deck of the barge using an approximate 18-inch diameter dish. A locking mechanism on the cylindrical sampler prevents the sludge sample from displacing the piston as it is advanced to the sample depth. A diagram of the piston tube sampler is included as Figure 2-1. Daily field reports that summarize all sampling and testing activities are included in Appendix A.

At each location, sampling generally commenced near the surface of the sludge and continued at 3-foot intervals thereafter. Piston sampling in the ponds reached a maximum depth of about 16.3 feet below the water surface in pond 12S. Sampling terminated when the bottom of the ponds was encountered.

Upon recovery, samples were immediately extruded from the sampler into labeled glass jars by advancing the piston. The sample jars were then tapped on the barge deck and the samples typically slumped and filled the jar. Once the jar was filled, the lid was screwed on, the jar was rinsed and placed under water in a cooler. The pond samples were typically brown, very soft, silty

sludge with minor amounts of phosphorous. Every effort was made to completely fill the jar to obtain a zero head space sample. It was necessary to store the samples under water due to the ignitable nature of elemental phosphorous when exposed to air.

The recovered samples were transported to the FMC laboratory at the end of each day and stored under water pending start of the laboratory testing program.

3.0 VANE SHEAR TESTING

Vane shear testing was completed prior to sampling at each location. Water depths to the top of the sludge ranged from 1.8 feet at BH-1, Pond 8E to 11.6 feet at BH-2, Pond 13S. The test locations and tests completed at each location were selected by Bechtel's on-site engineer. Field test locations are shown on Figure 1-1. Table 2-1 summarizes the vane shear testing completed on Ponds 8E, 11S, 12S, and 13S.

3.1 Vane Shear Test Methods

Field vane shear strength testing was completed at five locations in Pond 8E, one location in Pond 11S, and three locations each in Ponds 12S and 13S (Figure 1-1) in accordance with ASTM D2753. Shear strength testing was completed with a modified torque wrench system and field vane/rod combinations capable of testing very soft to firm soils. Two different size vanes were used to accurately test the range of soil strengths encountered. Each vane consisted of four blades positioned at 90-degree angles.

The vane was pushed to the desired test depth, after which the wrench was slowly turned clockwise until the soil failed. The peak torque in inch-pounds was recorded along with the test depth and the vane size. Next, the vane was turned 360 degrees ten times, the torque wrench reset to zero, and the procedure repeated to determine the remolded torque. The vane was pushed to the next test depth and the procedure repeated until resistance to penetration precluded further advancement of the vane. The process was repeated at each test depth using only the rod to determine rod-only values.

Two different sized vanes were utilized for varying shear strengths. For weak or soft material, a large sized vane was used; a medium vane was used for firmer materials. Listed below are the dimensions of the vanes used to test the sludge in Pond 1.

Vane Designation	Vane Height (inches)	Vane Diameter (inches)	K (ft^3)
Medium	8.0	4.0	0.1344
Large	12.0	6.0	0.4536

A computer spreadsheet was used to reduce the data based on the applied torque and the size of the vane. The shear strength of the sludge was calculated using the following formula as found in ASTM D 2573-94 (ASTM, 1994):

$$s = T \times k$$

where: s = the shear strength of the sludge in pounds per square foot
T = the applied torque in inch-pounds
k = 1/K a constant dependent on the size of the vane in cubic feet

The constant K (ft^3) was determined using the following formula as found in ASTM D 2573-94:

$$K = (\pi/1728) \times (D^2H/2) \times [1 + (D/3H)]$$

where: D = the diameter of the vane in inches
H = the height of the vane in inches

3.2 Vane Shear Test Results

Shear strength profiles in the ponds extend to depths that range from the surface of the sludge to the pond bottoms. For each shear strength profile, initial and remolded shear strengths were evaluated with depth on 1.0 to 1.5 foot intervals. Vane shear data is included in Appendix B. The accuracy of the test results is primarily dependent on the accuracy of the torque wrench. The torque wrench used has an accuracy of 2.5 inch-pounds which corresponds to a shear strength of 0.5 and 1.5 pounds per square foot (psf) for the large and medium vane respectively. The K-D Model 2651 dial-type torque wrench was factory calibrated prior to mobilization to the FMC facility.

Figures 3-1 through 3-12 include vane shear data for the ponds. Peak strength values range from less than 5 to about 85 psf, values which are typical of very soft to soft soils. The remolded strength data range from about 0 to 20 psf. In general, both initial and remolded strength values increased with depth. Spikes in the data are interpreted to be the result of variations in the physical nature of the sludge.

Sensitivity of a material is the ratio of the undisturbed strength to the remolded strength. The vane shear data indicate the sensitivity values for the sludge generally range between 4 and 16, with a low of 2 and a high of 24. Based on these values, the sludge is moderately to highly sensitive (Holtz & Kovacs, 1981). In Pond 8E, BH-1 at 6 feet, sensitivity was calculated at 20, and in Pond 12S, BH-1 at 14 feet, sensitivity was calculated at 24. Both of these sensitivity values reflect materials in a quick condition.

4.0 HEALTH AND SAFETY

The sludge deposited in the ponds contains minor amounts of disseminated elemental phosphorus (P_4). Elemental phosphorus ignites spontaneously in air and burns extremely rapidly and hot, which posed obvious risks to our field crew. In addition, elemental phosphorus can combine with hydrogen to form phosphine gas (PH_3). Phosphine gas poses serious health hazards if inhaled. To minimize the risks to our field crew, BCI followed task-specific health and safety plans developed by Bechtel and FMC. These plans and the field procedures used on the barge resulted in the completion of the field geotechnical investigation without even a minor accident.

The burn risks posed by elemental phosphorous were minimized by the use of protective clothing and precautionary procedures. Protective clothing included rubber boots, rubber gloves, latex gloves, leather gauntlet gloves, hard hats, safety glasses and shields, and fire retardant "silver suits". Additional safety equipment was installed on the barge. A gravity feed water hose was used to rinse sludge from all equipment as it was retrieved from the pond and any sludge that got on gloves, etc. A jump tank, life jackets and radio were on the barge at all times.

In order to determine potential exposure to phosphine gas, the air was tested using phosphine gas meters and readings verified by Draeger tubes. This was completed on the barge and at other locations where work was executed.

Initial readings from Pond 8E indicated phosphine levels in excess of the 1 ppm Short Term Exposure Limit (STEL). Testing on Pond 8E was limited to BH-1 and BH-2 on July 9 and 10, due to continued detection of phosphine levels near the STEL. On Wednesday, July 10, as directed by Bechtel, BCI arranged for shipment of a supplied air cascade system to the site in order to complete the testing of the ponds without exceeding both the 8 hour TWA (Time Weighted Average) and STEL. The remainder of the investigation required use of the supplied air system by all four persons on board the sampling barge. Each person was equipped with a positive-pressure, pressure-demand full-face mask, a 50 foot air hose, and 5-minute emergency escape bottle. A local vendor was contacted to supply air for the system.

ACKNOWLEDGEMENTS

The following BCI personnel worked on this project:

Senior Project Manager	Wayne A. Ericson, P.E.
Project Manager	Cornelis Winkler III, P.G.
Sr. Project Geologist	Ted J. Smith, P.G.
Project Geologist	Matthew L. Cain
Clerical	Muriel W. Berry
Drafting/CADD	Mark A. Jones

The following personnel provided valuable support to the completion of the BCI field investigation:

Gary Oberholtzer, Bechtel Environmental
Mervin Attwood, Bechtel Environmental
Ron Hosking, FMC Corporation
Steve Payne, FMC Corporation
Alan Hall, FMC Corporation
Rob Hartman, FMC Corporation

Key Words
FMC Corporation
Bechtel Environmental
Phosphorus

Latitude 42°50' North
Longitude 112°25' West

REFERENCES

American Society for Testing and Materials, *1994 Annual Book of ASTM Standards, Section 4 Construction*, ASTM, Philadelphia, PA, 1994.

Carrier, W.D, III, L.G. Bromwell and F. Somogyi, "Design Capacity of Slurried Mineral Waste Ponds," *Journal of Geotechnical Engineering*, ASCE, Vol. 109, No. 5, May 1983, pp. 699-716.

Holtz, R.W. and W.D. Kovacs, *An Introduction to Geotechnical Engineering*, Prentice-Hall, Inc., Englewood Cliffs, N.J., 1981.

Lambe, T.W. and R.V. Whitman, *Soil Mechanics*, John Wiley & Sons, Inc., New York, 1969.

Puolos, S.J., et al., *Liquifaction Resistance of Thickened Tailings*, Journal of Geotechnical Engineering, Vol.111, No. 12, December, 1985.

TABLES

TABLE 2.1
Testing and Sampling Summary

POND# /POSITION	POND ELEV. (feet NGVD)	LOCATION	DEPTH TO SEDIMENT (feet)*	DEPTH TO POND BOTTOM (feet)*	SAMPLE DEPTHS (feet)*	VANE SHEAR DEPTHS (feet)*
8E/BH-1	4480.3	J+75'; 2+30'	4.0	14.0	4.0, 7.0, 10.0, 13.0	4.5, 6.0, 7.5, 9.0, 10.5, 12.0
8E/BH-2	4480.3	I+45'; 3+40'	4.2	14.0	4.2, 7.2, 10.2, 13.2	4.7, 6.2, 7.7, 9.2, 10.7, 12.2
8E/BH-3	4480.3	H+20'; 4+50'	4.5	14.5	4.5, 7.5, 10.5, 13.5	5.0, 6.5, 8.0, 9.5, 11.0, 12.5, 13.5
8E/BH-4	4480.3	H+85'; 2+45'	4.2	15.0	4.2, 7.2, 10.2, 13.2	4.7, 6.2, 7.7, 9.2, 10.7, 12.2, 13.7
8E/BH-5	4480.3	H+20'; 1+60'	4.5	14.0	4.5, 7.5, 10.5, 13.5	5.0, 6.5, 8.0, 9.5, 11.0, 12.5
11S/BH-1	4469.4	F; 2+30'	4.5	16.0	4.5, 7.5, 10.5, 13.5	5.0, 6.5, 8.0, 9.5, 11.0, 12.5, 14.0, 15.5
12S/BH-1	4469.2	D; 2+35'	7.5	17.5	7.5, 10.5, 13.5, 16.5	8.0, 9.5, 11.0, 12.5, 14.0, 15.5, 17.0
12S/BH-2	4469.2	D; 4+10'	7.5	19.5	7.5, 10.5, 13.5, 16.5, 18.5	8.0, 9.5, 11.0, 12.5, 14.0, 15.5, 17.0, 18.5
12S/BH-3	4469.2	D+5';5+90'	7.8	19.5	7.8, 10.8, 13.8, 16.8, 18.5	8.3, 9.8, 11.3, 12.8, 14.3, 15.8, 17.3, 18.8
13S/BH-1	4467.9	A+90';2+50'	13.5	17.0	14.0, 16.0	14.0, 15.0, 16.0
13S/BH-2	4467.9	A+90'; 4+15'	13.8	18.8	13.8, 15.8, 17.8	14.3, 15.3, 16.3, 17.3, 18.3
13S/BH-3	4467.9	A+95'; 5+80'	12.0	18.0	12.5, 14.5, 17.0	12.5, 13.5, 14.5, 15.5, 16.5, 17.5

* All depths relative to barge deck. Barge deck measured at 2.2 ft. above pond surface.

FIGURES

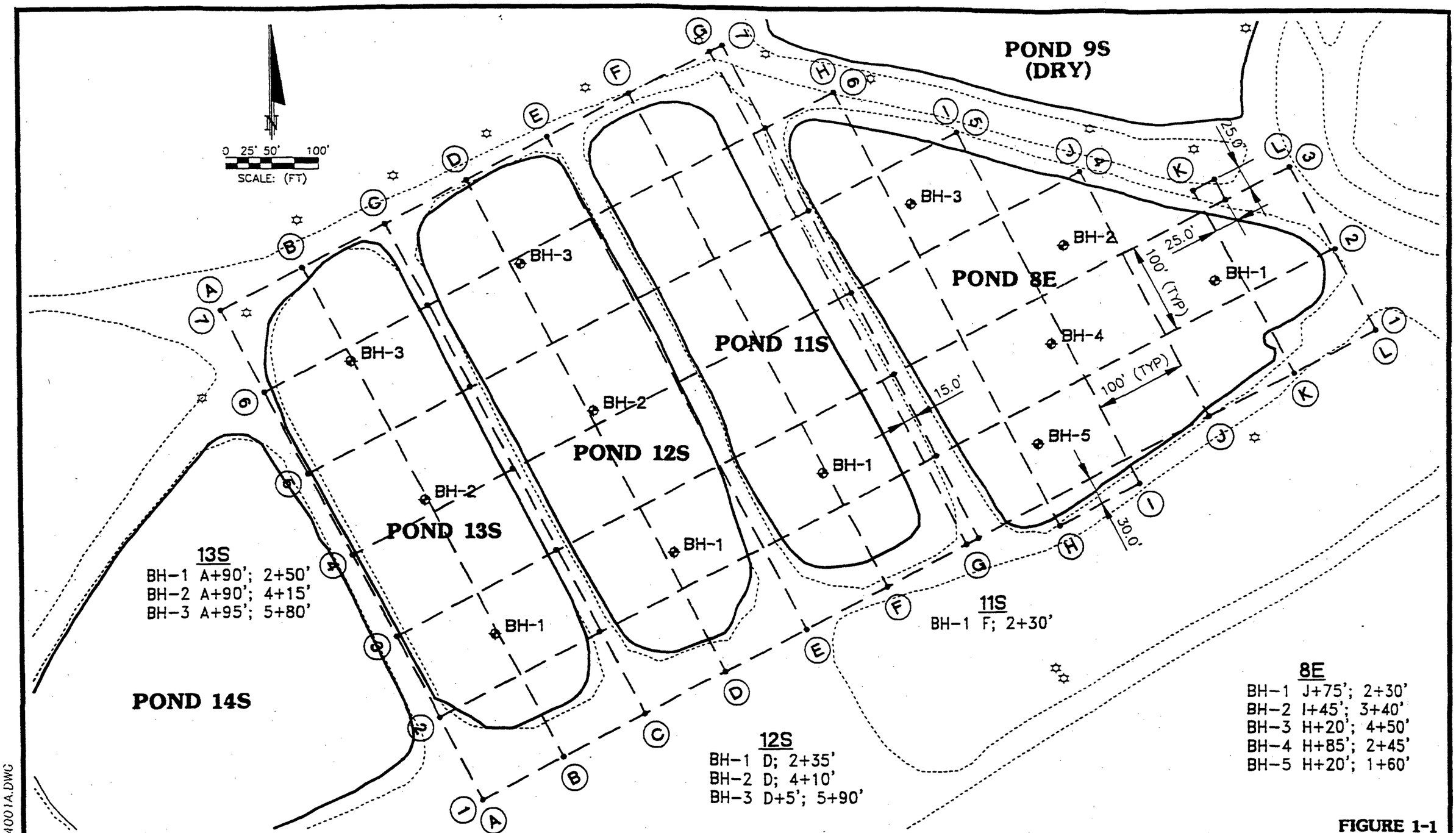


FIGURE 1-1

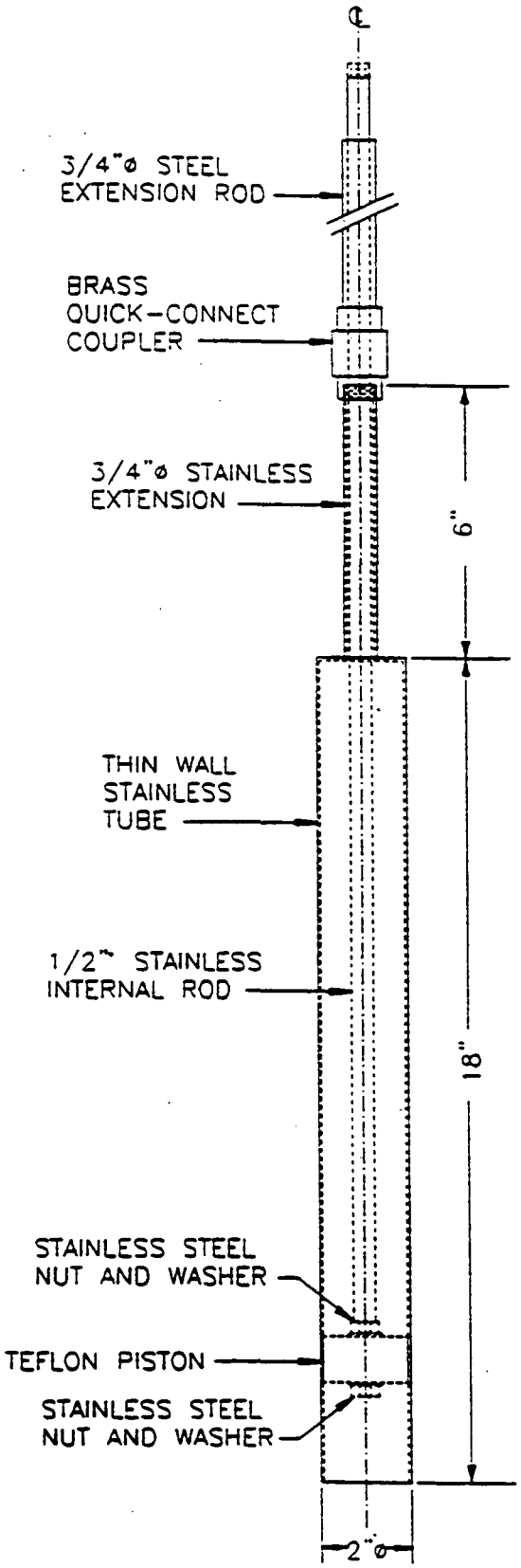
DATE	REVISIONS

BCI
ENGINEERS & SCIENTISTS, INC.
2000 E. EDGEWOOD DR., LAKELAND, FL 33803
PHONE: (941) / 667-2345

DESIGNED BY:	MLC	SCALE:	AS SHOWN
DRAWN BY:	MAJ	DATE:	7/97
CHECKED BY:	MLC	PROJECT NO.	979704
APPROVED BY:	MLC	BCI NO.	0572

BETCHEL ENVIRONMENTAL
FMC CORPORATION
EASTERN MICHAUD FLAT PROJECT
POND LOCATION, SAMPLING AND TESTING LOCATIONS

H:\9704\9704001A.DWG



BCI
ENGINEERS & SCIENTISTS, INC.
2000 E. EDGEWOOD DRIVE. LAKELAND. FL 33803
PHONE: (941) 667-2345

BECHTEL / FMC CORPORATION

FIGURE 2 - 1
BCI
STAINLESS STEEL
PISTON TUBE SAMPLER

DATE: 7/31/97	DRAWN BY: M.A.J.	SCALE: NOT TO SCALE	PROJECT NO.: 979704

Figure 3-1
Shear Strength vs. Depth, Pond 8E

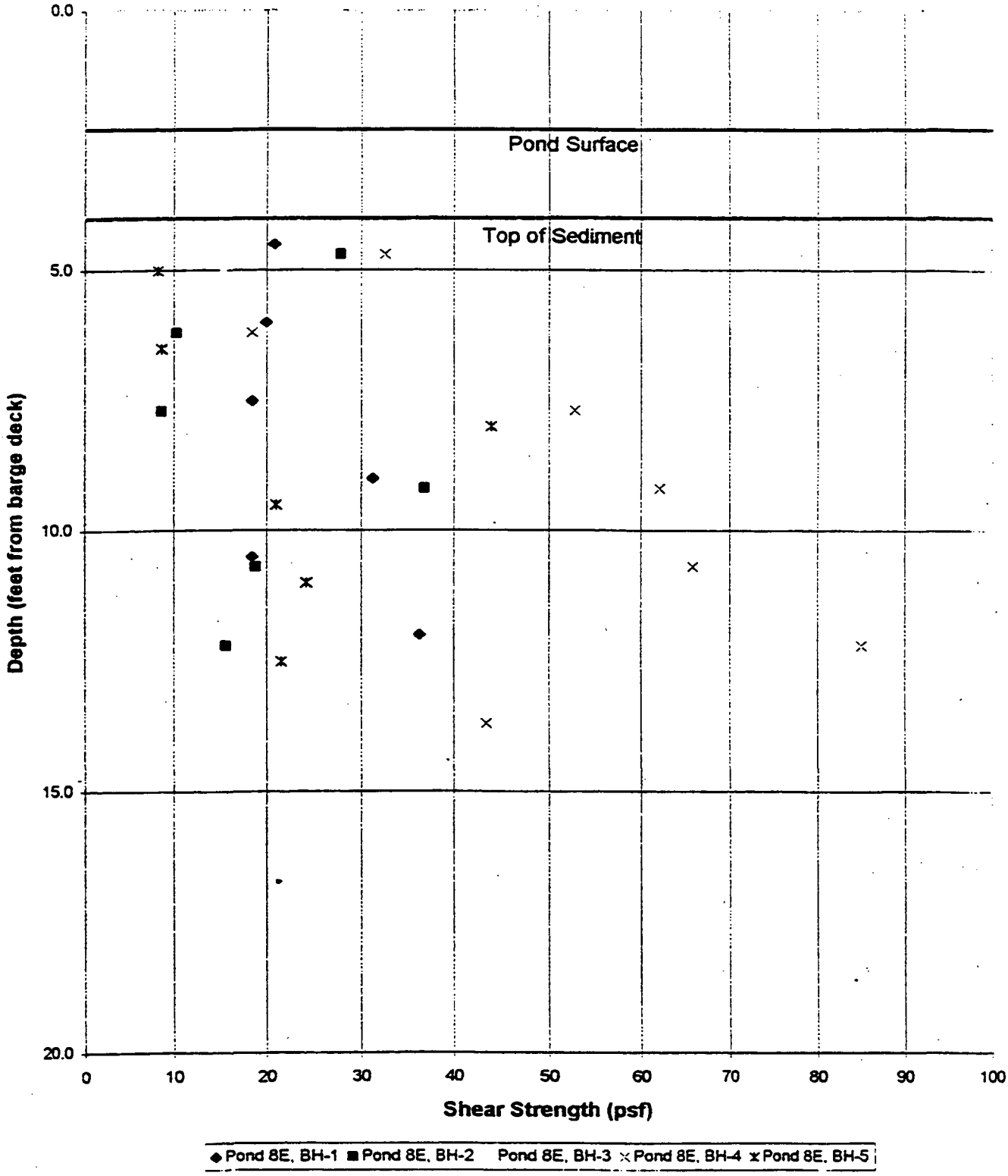


Figure 3-2

Shear Strength vs. Depth, Pond 11S

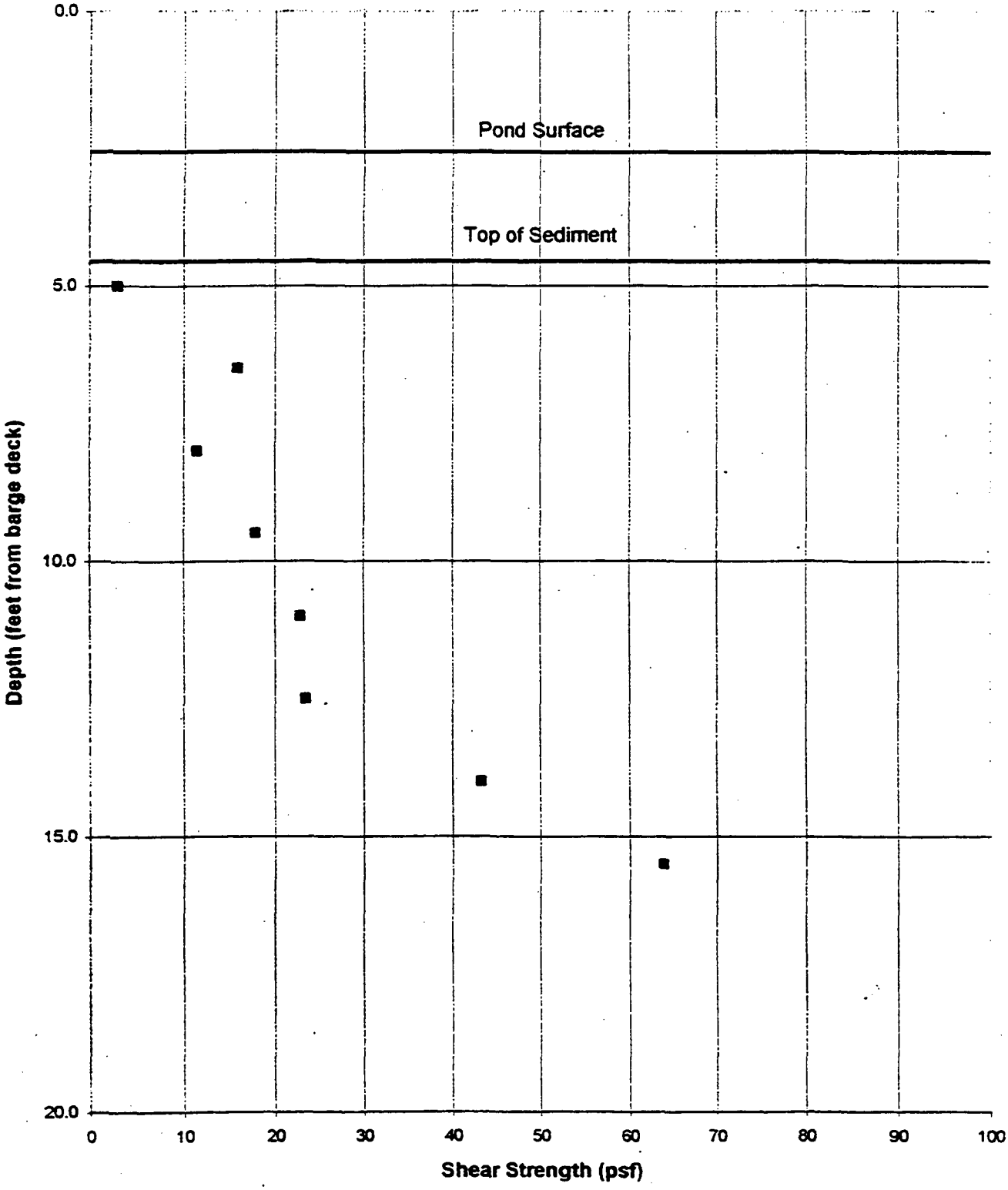


Figure 3-3

Shear Strength vs. Depth, Pond 12S

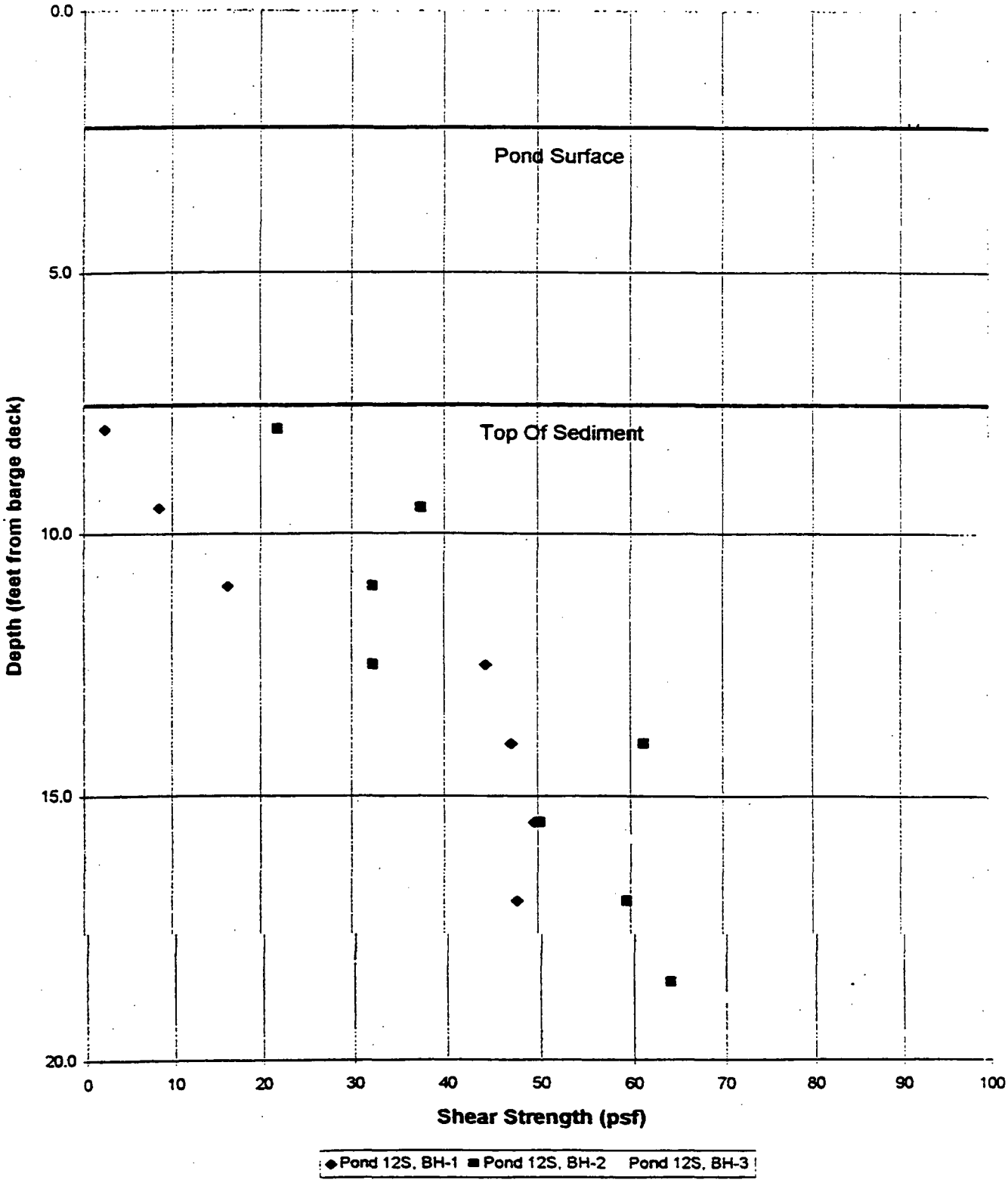


Figure 3-4
Shear Strength vs. Depth, Pond 13S

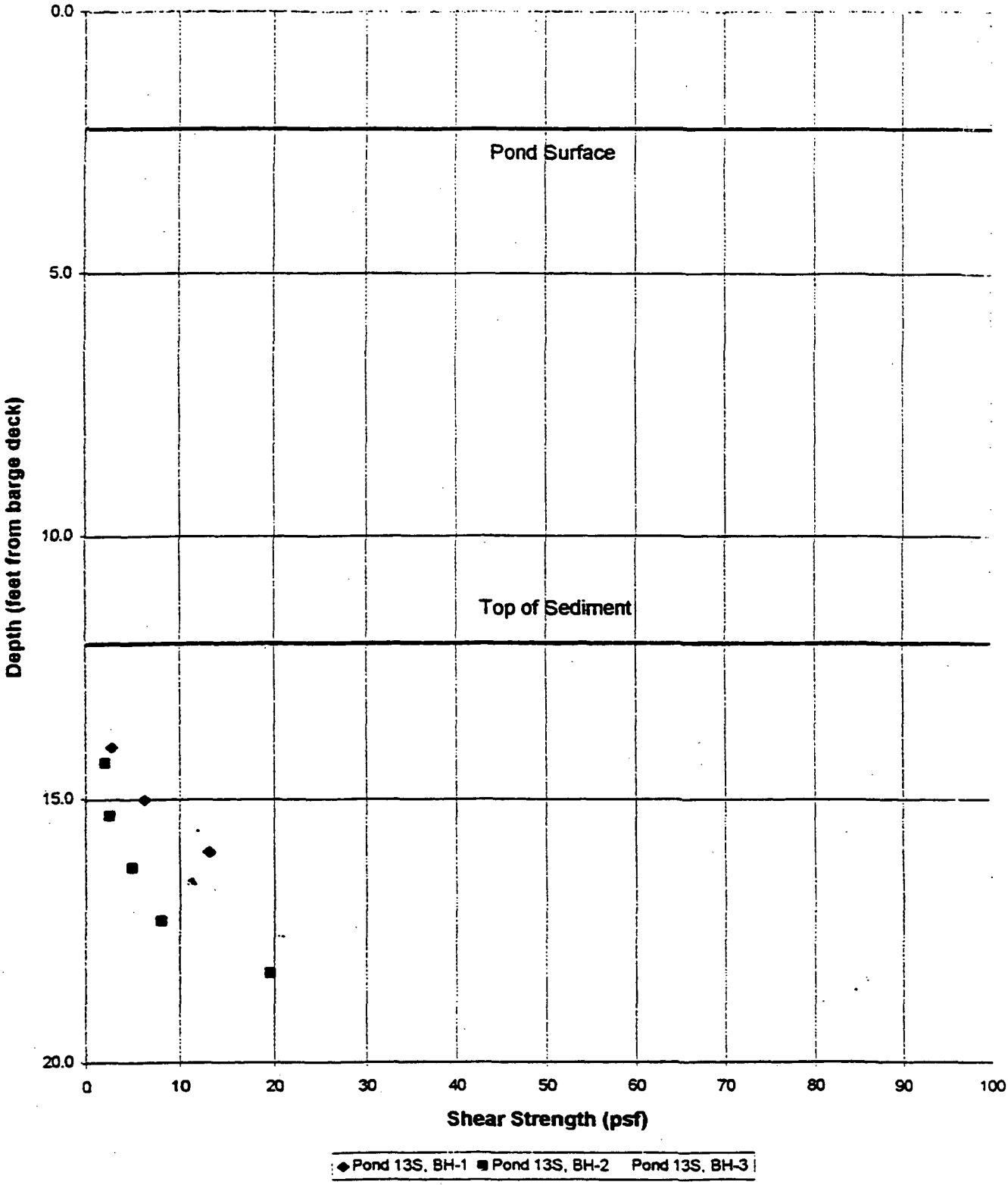


Figure 3-5

Shear Strength vs. Depth, Pond 8E, BH-1

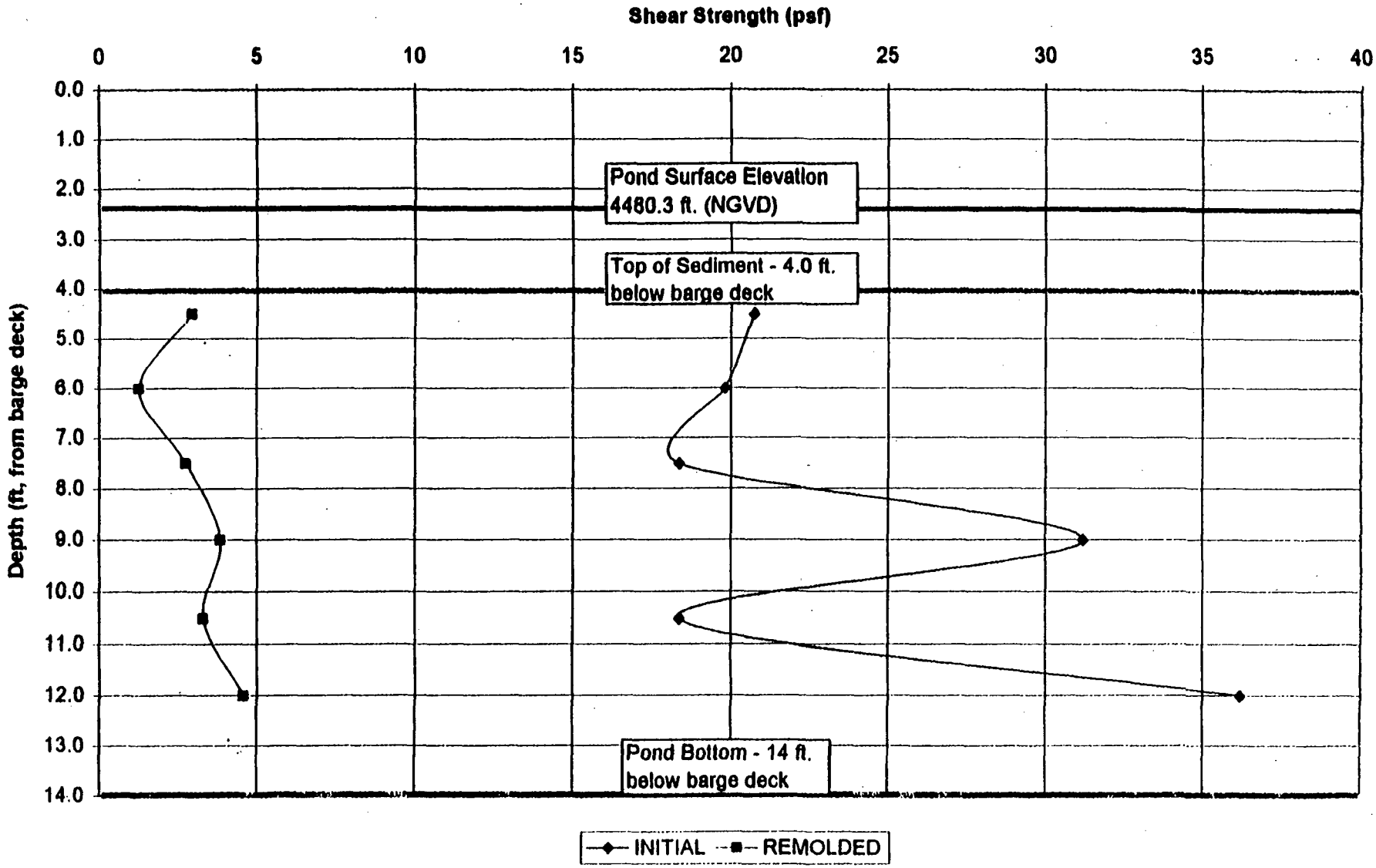


Figure 3-6

Shear Strength vs. Depth, Pond 8E, BH-2

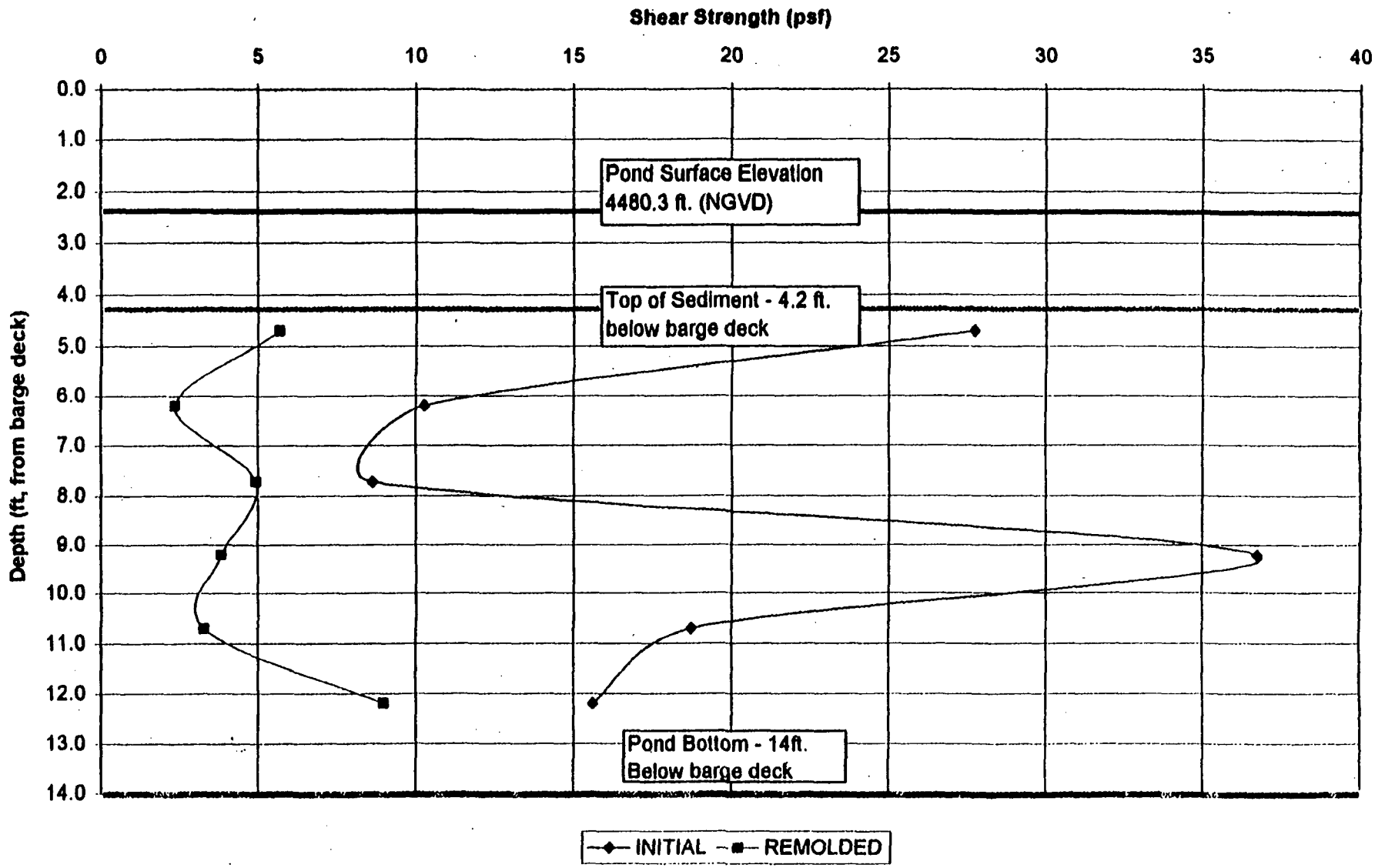


Figure 3-7

Shear Strength vs. Depth, Pond 8E, BH-3

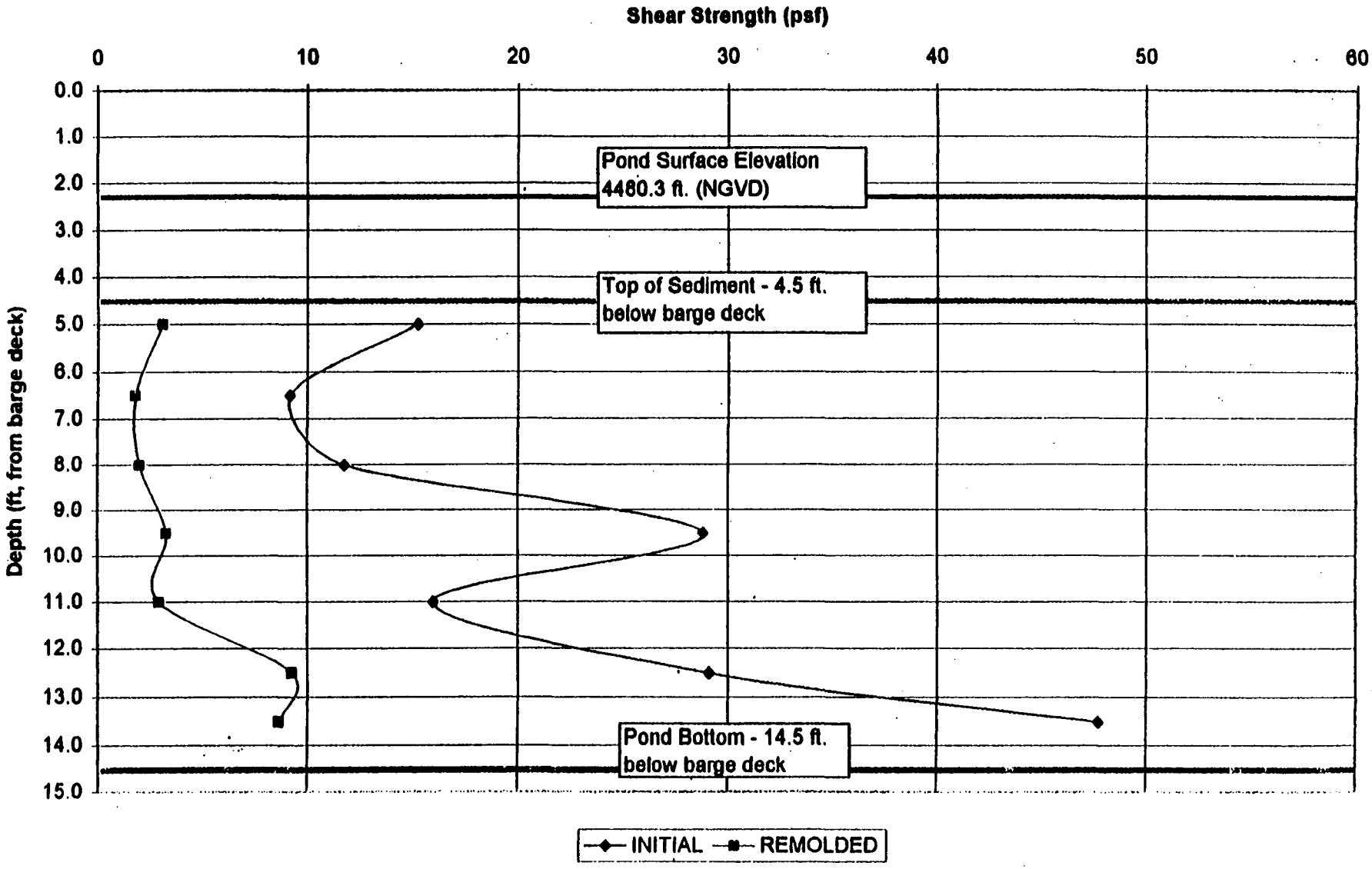


Figure 3-8

Shear Strength vs. Depth, Pond 8E, BH-4

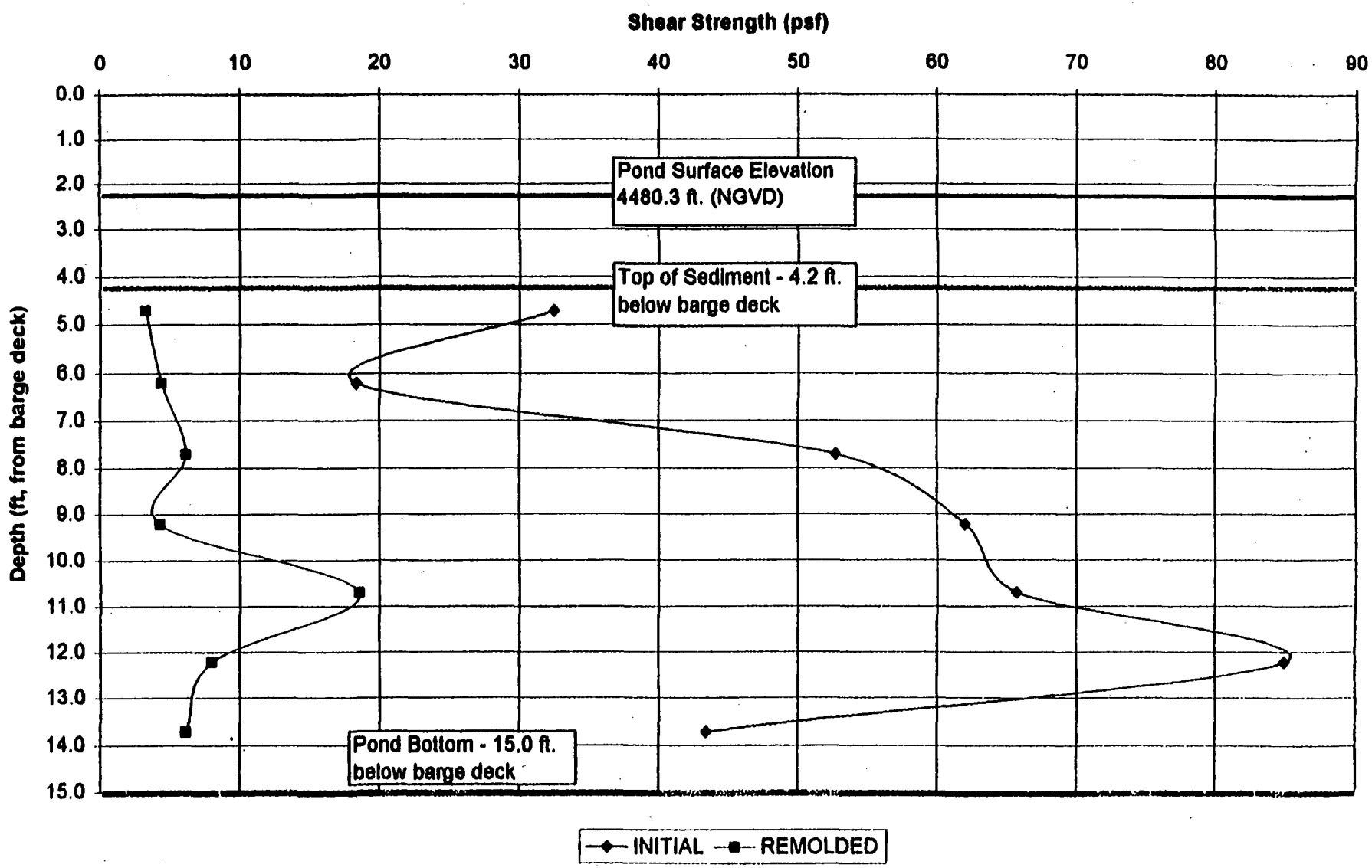


Figure 3-9

Shear Strength vs. Depth, Pond 8E, BH-5

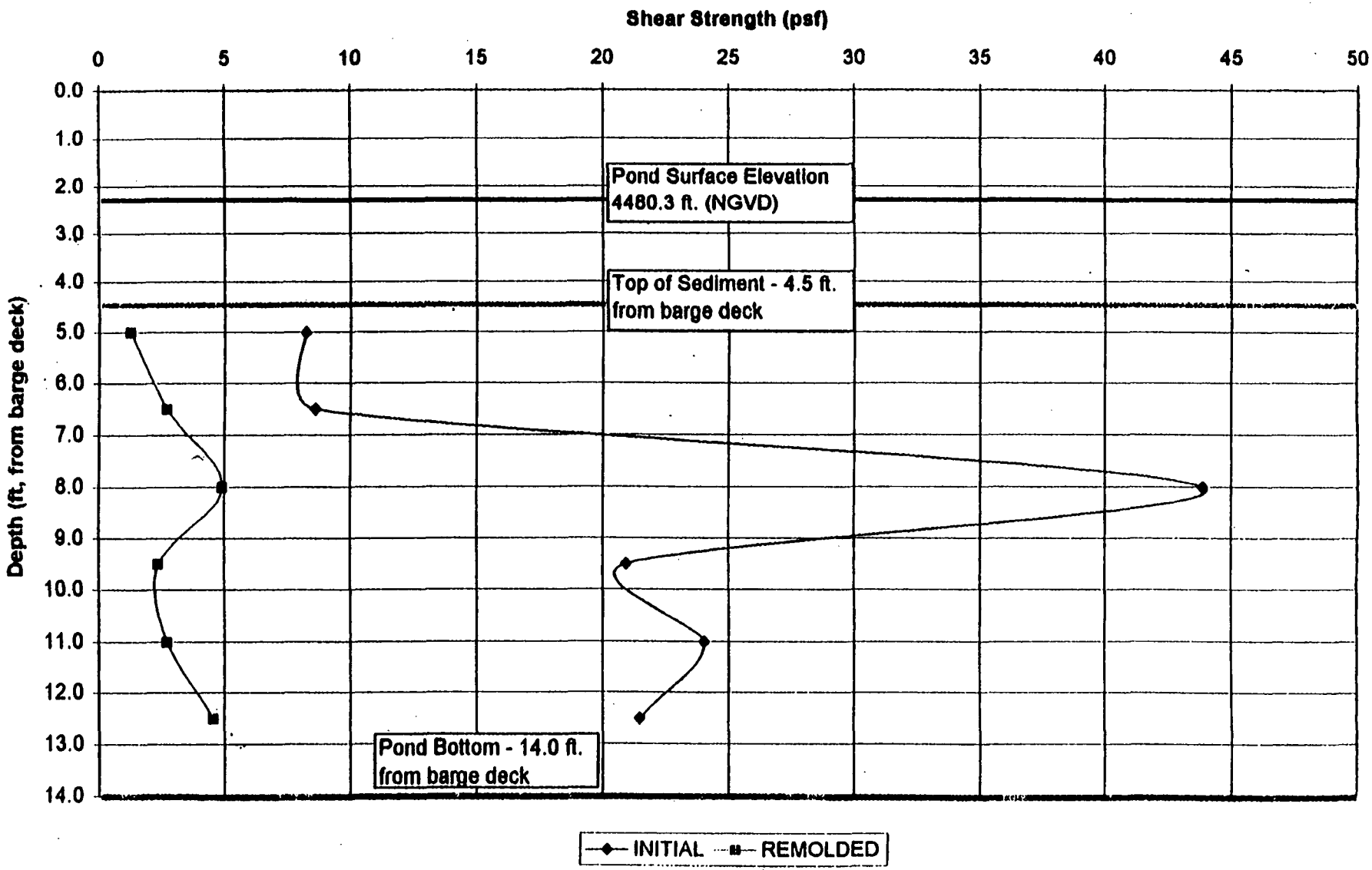


Figure 3-10

Shear Strength vs. Depth, Pond 11S, BH-1

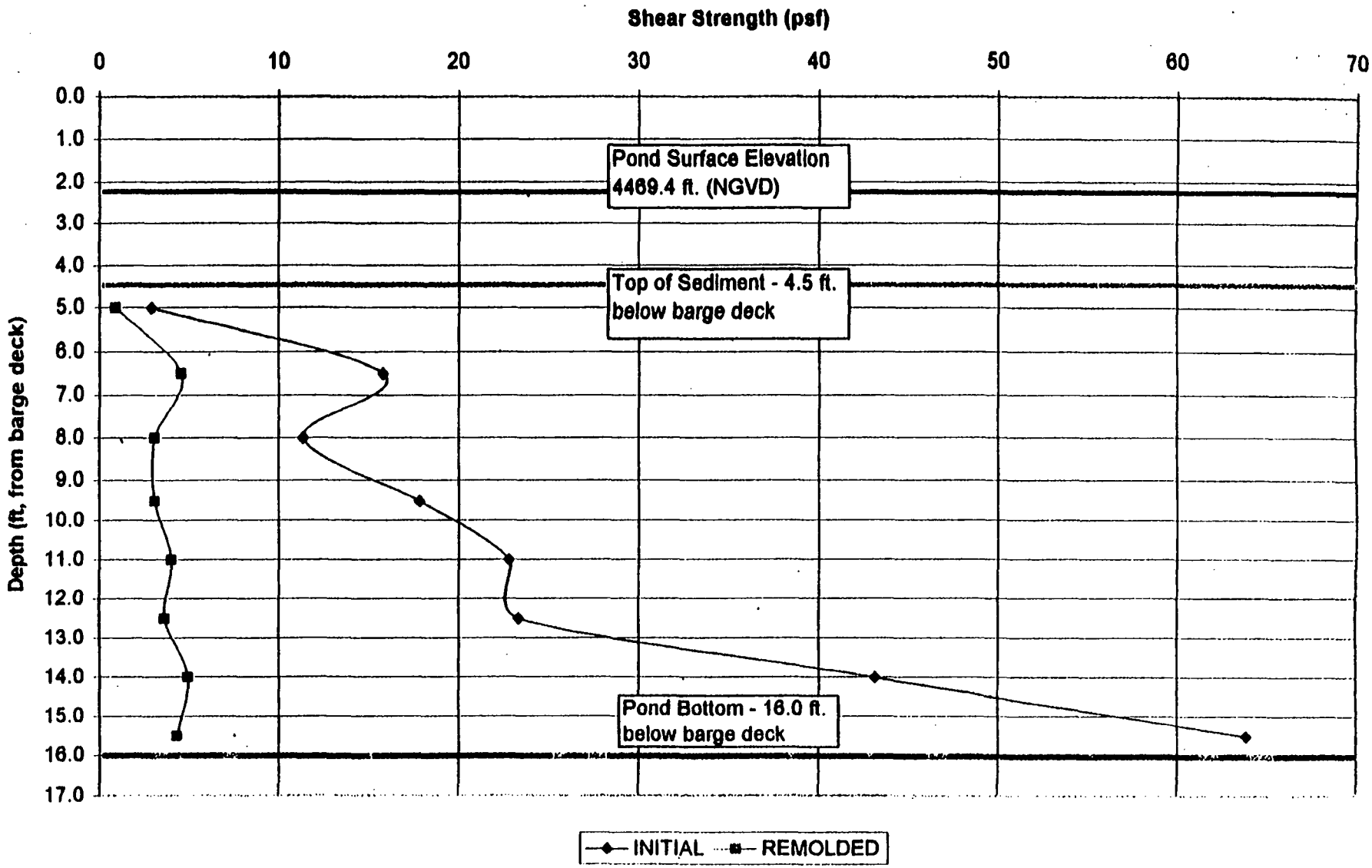


Figure 3-11

Shear Strength vs. Depth, Pond 12S, BH-1

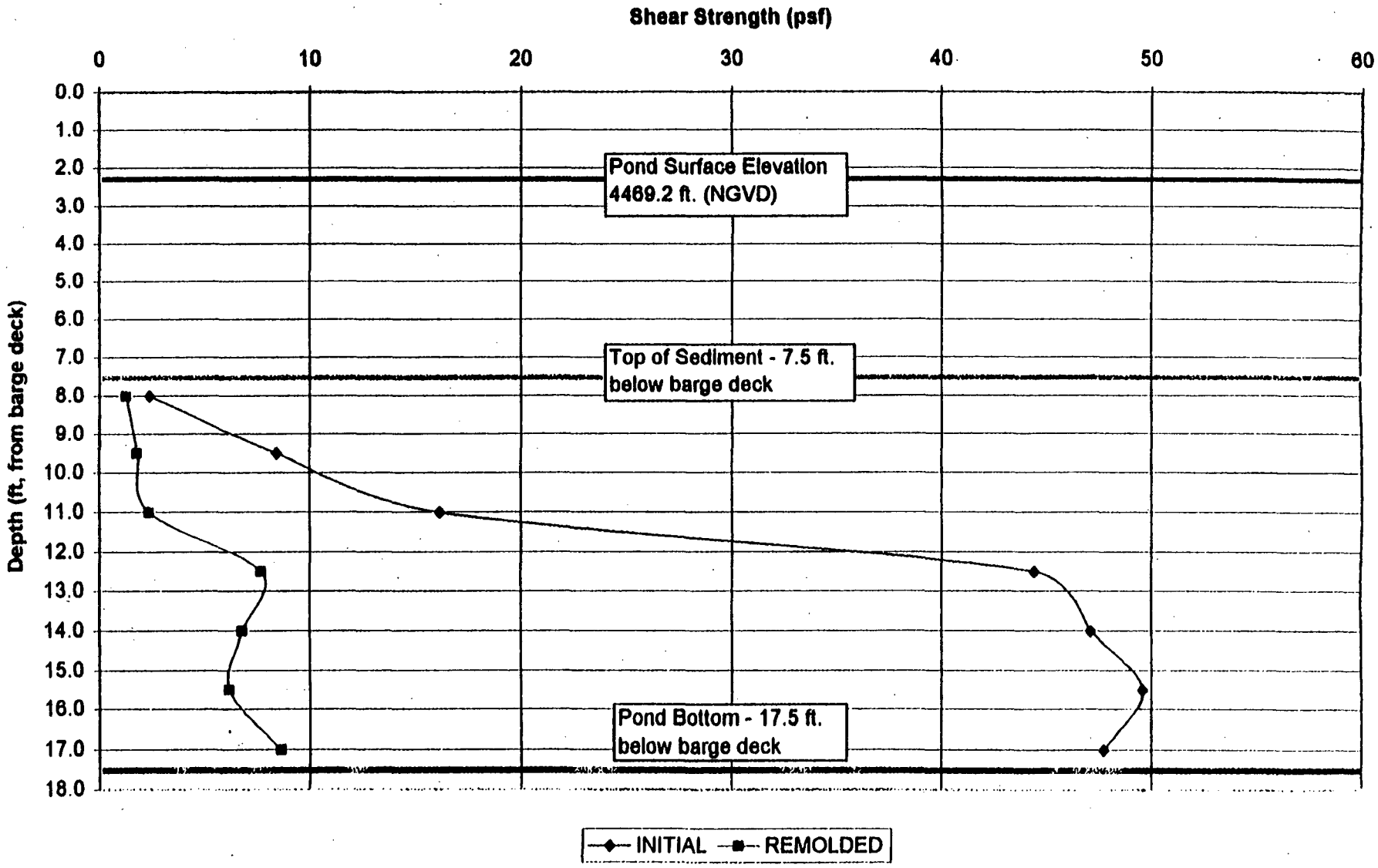


Figure 3-12

Shear Strength vs. Depth, Pond 12S, BH-2

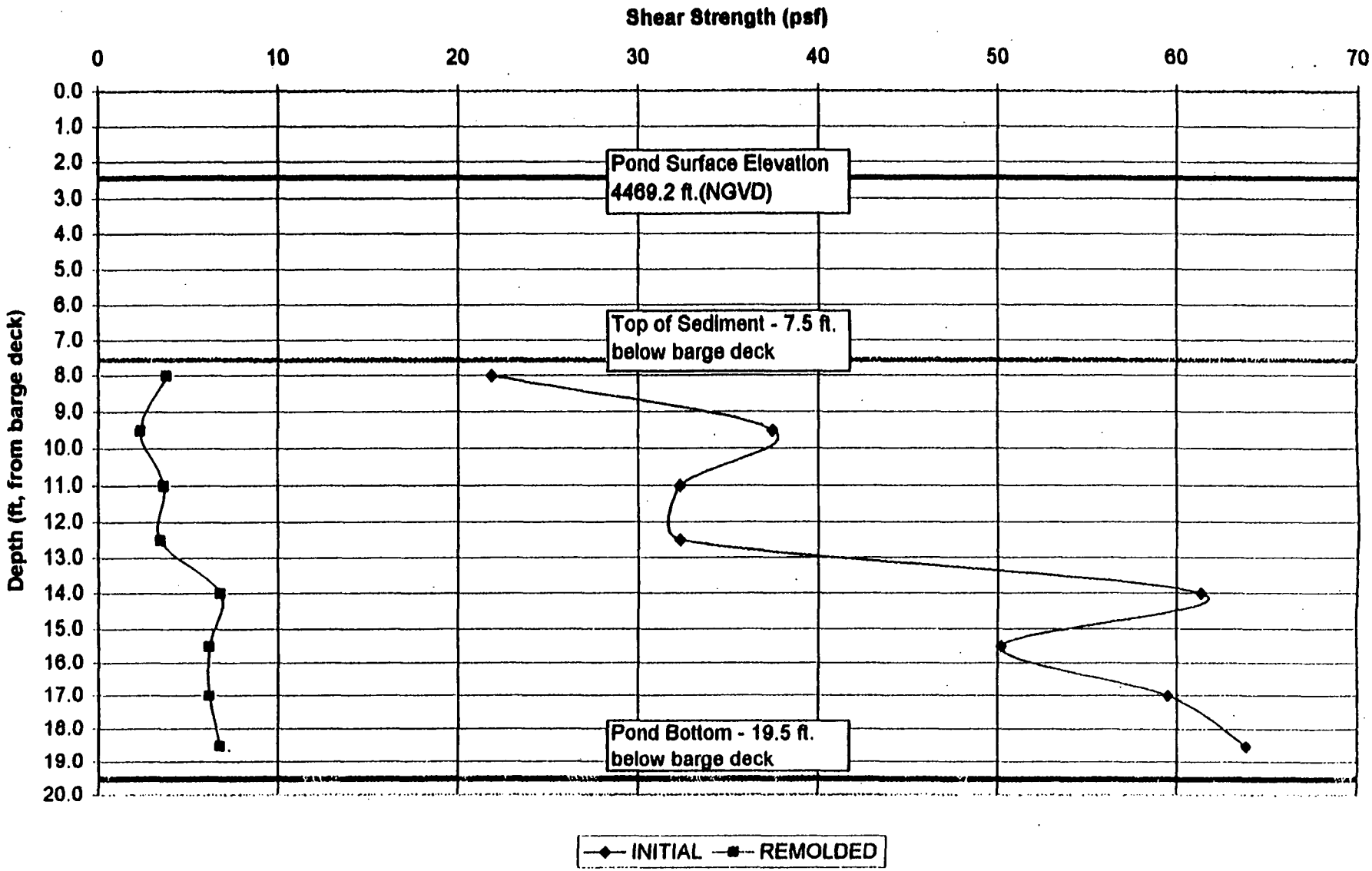


Figure 3-13

Shear Strength vs. Depth, Pond 12S, BH-3

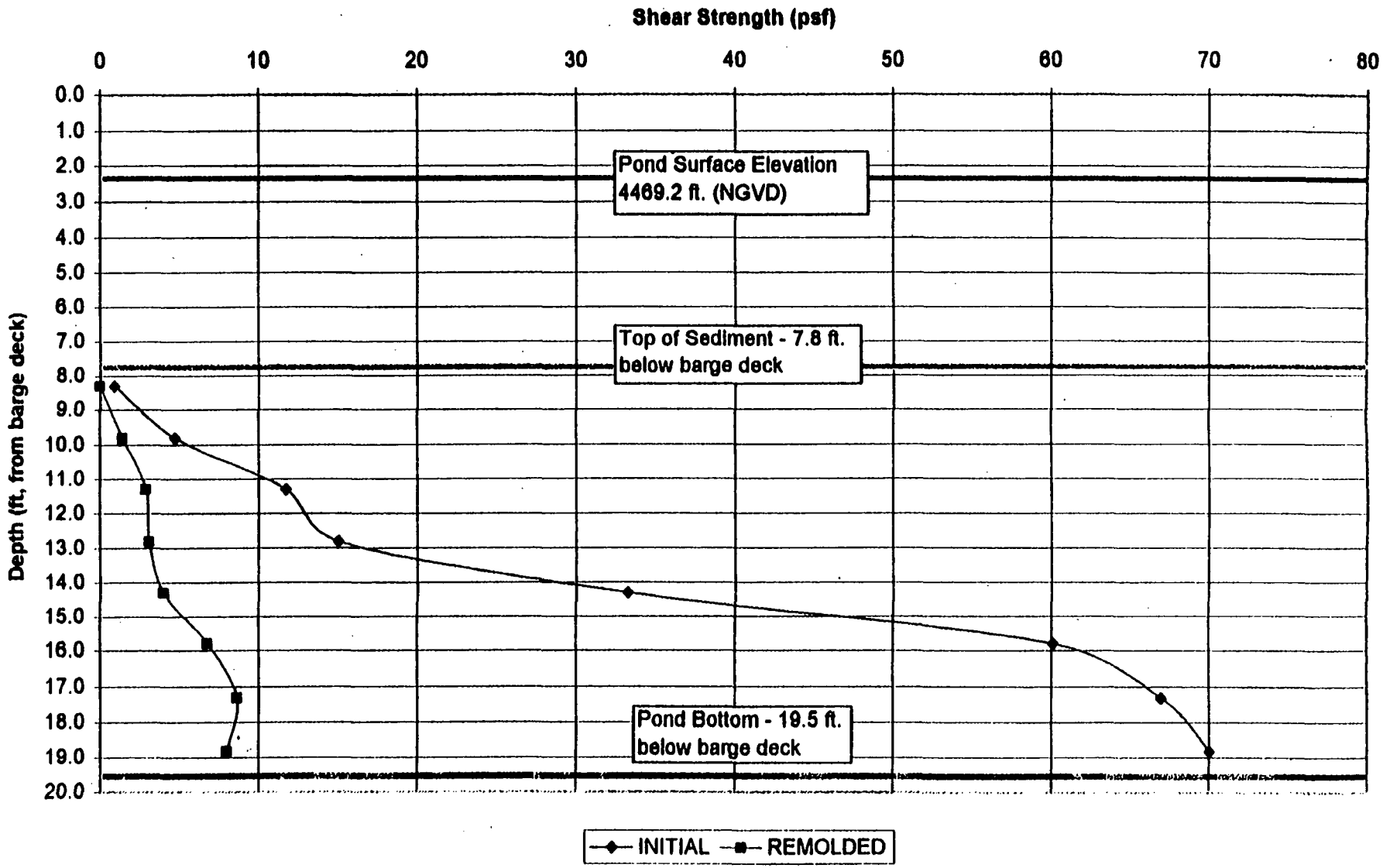


Figure 3-14

Shear Strength vs. Depth, Pond 13S, BH-1

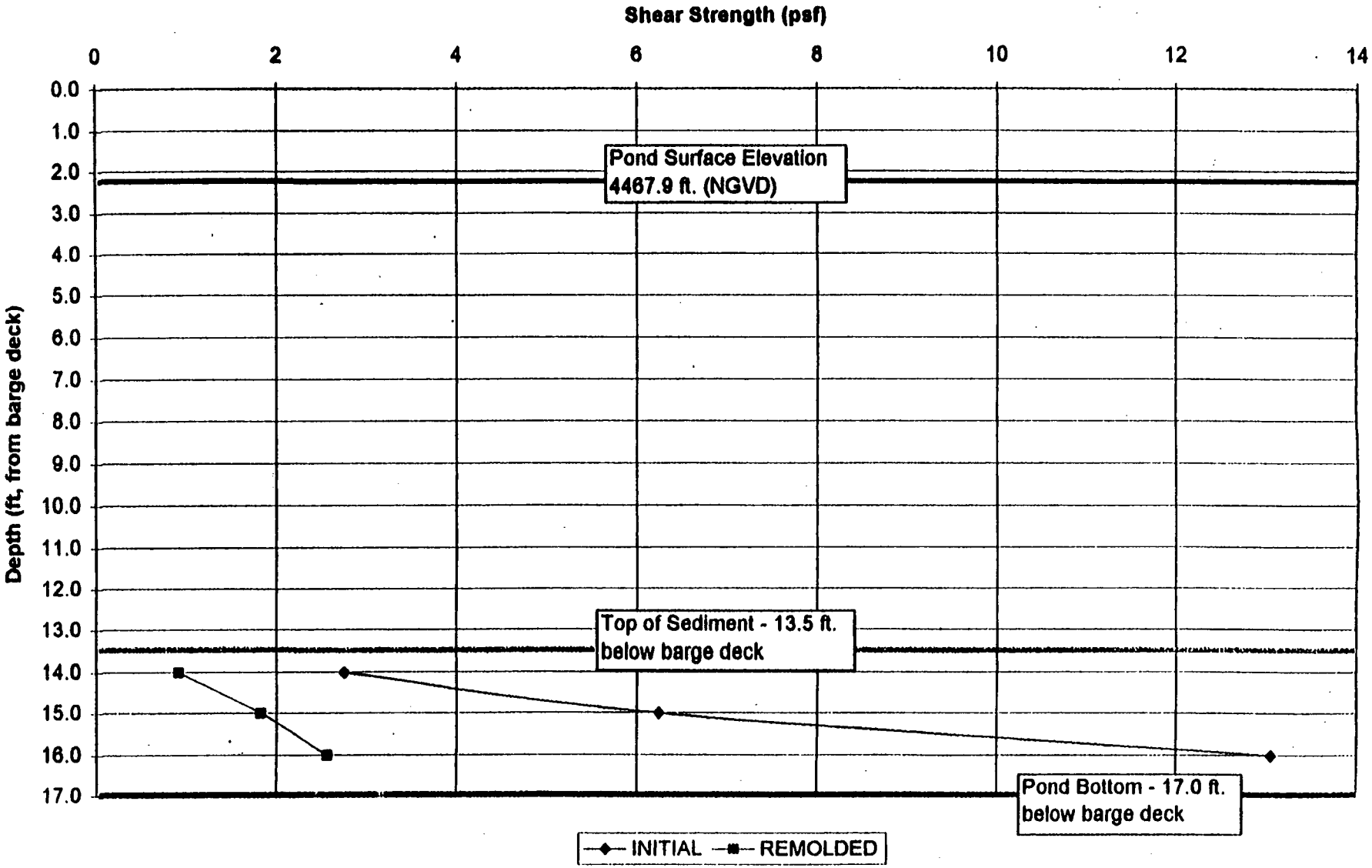


Figure 3-15

Shear Strength vs. Depth, Pond 13S, BH-2

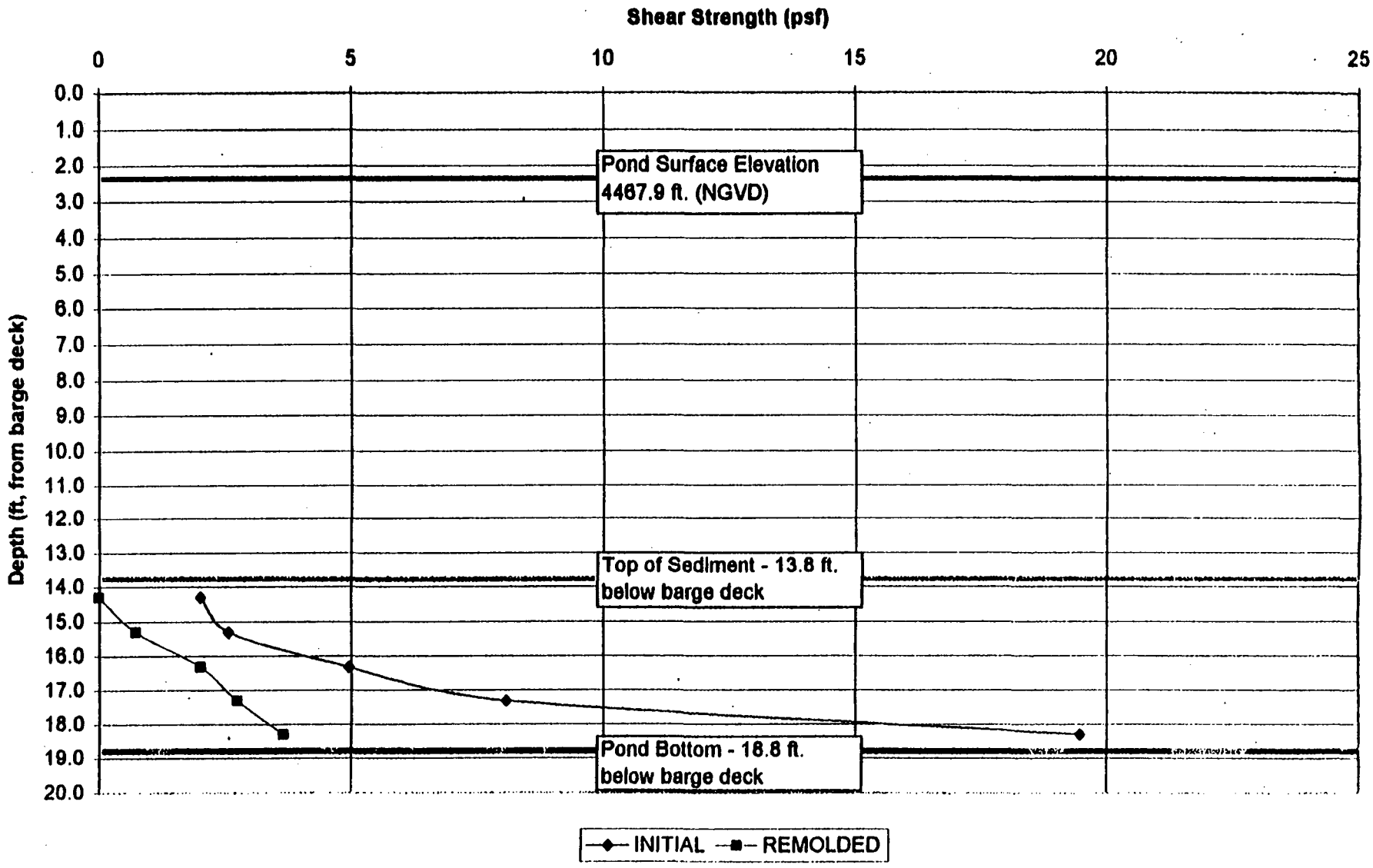
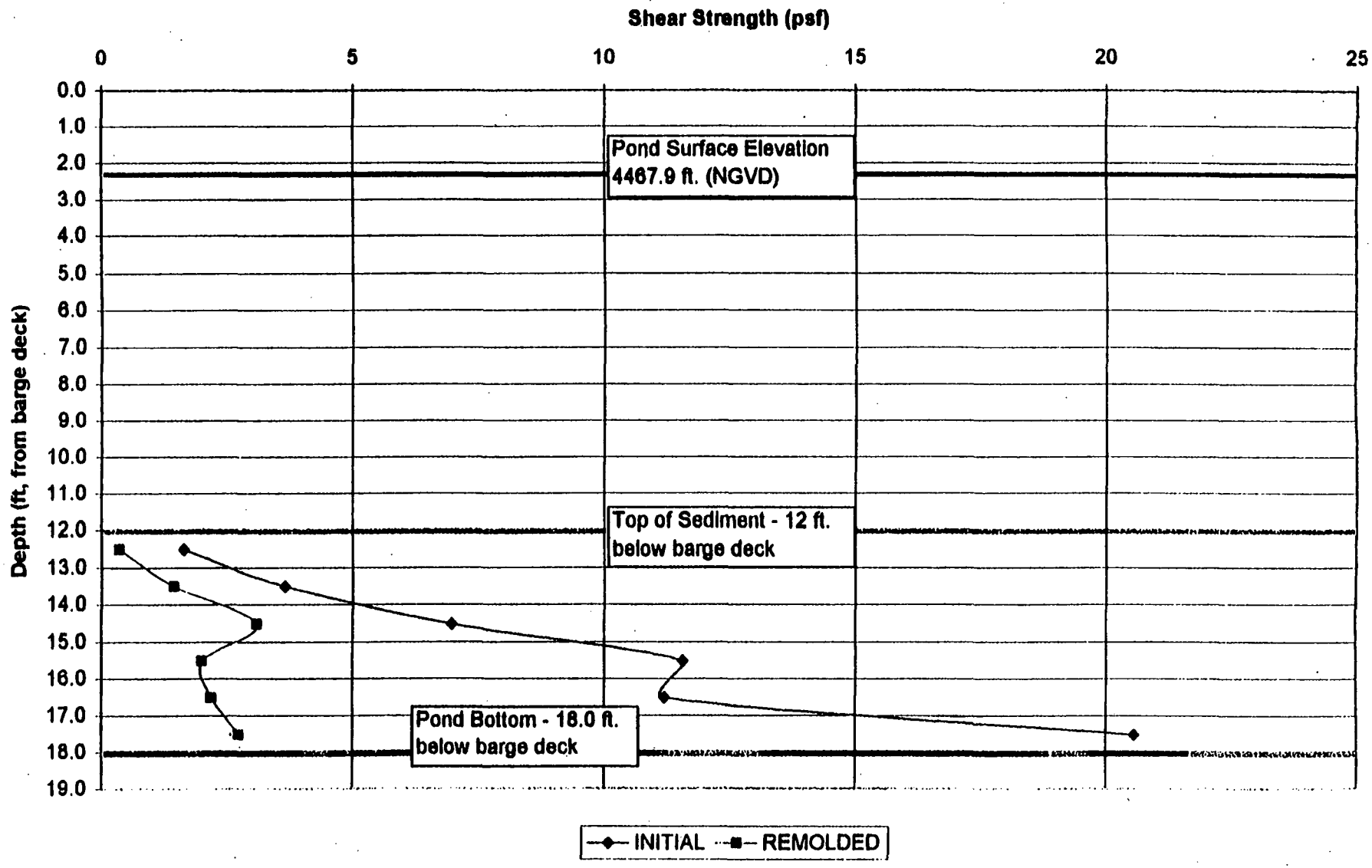


Figure 3-16
Shear Strength vs. Depth, Pond 13S, BH-3



APPENDIX A
FIELD REPORTS

BCI
CROMWELL & CARRIER, INC.
P.O. Box 6467
Lakeland, FL 33807
Phone 813-646-8691
Fax 813-644-6920

DAILY FIELD REPORT

ROUTE TO: Bechtel	COPY TO: BCI Files
DATE 7/7/97	PAGE 1 OF 1
PROJECT NO. 979704.200	CLIENT Bechtel
LOCATION FMC Pocatello	
BCI STAFF Ted Smith, Matt Cain	

WEATHER WIND DIRECTION SW WIND SPEED 20
CLOUDY☐ SUNNY☒ OVERCAST☐ RAINY☐ STORMY☐

DAY MONDAY☒ TUESDAY☐ WEDNESDAY☐ THURSDAY☐ FRIDAY☐ SATURDAY☐ SUNDAY☐

CONTRACTOR

CONTRACTOR'S SUPERVISOR

EQUIPMENT	HOURS WORKED	WORK PERFORMED
	2½	FMC Health & Safety Orientation
	1½	Bechtel / BCI Health & Safety Orientation
	5	Pond inspection, equipment inventory +
total =	9 hrs	setup, barge inspection, planning for
		testing + sampling

OTHER ACTIVITIES/COMMENTS

:00 - 10:30: FMC Health + Safety training - 3 video's, test

:30 - 12:00: Bechtel / BCI safety orientation - discussion of safety concerns + hazards + sampling & testing procedures.

.00 - 13:00: Pond inspection, barge setup w/ Steve Payne (FMC)

.00 - 14:00: Lunch

00 - 18:00: Equipment inventory, setup and inspection. Inspection of pond + barge, planning of pulley/rope system, planning for Tues. sampling schedule

Approved 7/7/97
[signature]
Bechtel Field Rep.

[signature]
BCI Sr. Project Geologist

DATA TRANSMITTED WITH THIS REPORT

BCI
BROMWELL & CARRIER, INC.

P.O. Box 6467
Lakeland, FL 33807
Phone 813-646-8691
Fax 813-644-6920

DAILY FIELD REPORT

ROUTE TO: G. Oberholtzer Bechtel	COPY TO: BCI Files
DATE 7/8/97	PAGE 1 OF 1
PROJECT NO. 979704	CLIENT Bechtel
LOCATION FMC Pocatello Idaho	
BCI STAFF Ted Smith Matt Cain	

WEATHER WIND DIRECTION W WIND SPEED 15
CLOUDY☐ SUNNY☒ OVERCAST☐ RAINY☐ STORMY☐

DAY MONDAY☐ TUESDAY☒ WEDNESDAY☐ THURSDAY☐ FRIDAY☐ SATURDAY☐ SUNDAY☐

TRACTOR

CONTRACTOR'S SUPERVISOR

EQUIPMENT	HOURS WORKED	WORK PERFORMED
	1	FMC badging, silver suits
	3	barge setup, equip. loading
	1/2	Mob/demob to/from barge
	1 1/4	Planning
	2 1/4	Standby

OTHER ACTIVITIES/COMMENTS total = 8 hrs

00 - 9:00 : FMC badging, picked up silver suits from FMC

30 - 12:00 : Set-up of barge lines water supply, equipment loading

- 13:00 : Lunch, waiting on Bechtel safety equipment

00 - 13:30 : Mobilized to barge for testing Pontoons dragging due to high sediment & low water-level in pond. Phosphine monitoring indicated levels in excess of STEL (1 ppm). Returned to shore to determine options

30 - 14:45 : Discussed options. FMC will attempt to raise water level in pond SE. Deposed site, expect to resume work, Wednesday AM.

45 - 17:00 : Stand-by. Arranged for possible rental units of air-line breathing system if Phosphine continues to be a problem.

Approved 7/8/97
Bechtel Field Rep.

BCI Sr. Project Geologist
7/8/97

ITEMS TRANSMITTED WITH THIS REPORT

* Vane shear torque to Strength calculation sheets

BCI
CROMWELL & CARRIER, INC.

P.O. Box 6467
Lakeland, FL 33807
Phone 813-646-8691
Fax 813-644-6920

DAILY FIELD REPORT

ROUTE TO: G. Oberholtzer Bechtel	COPY TO: BCI Files
DATE 7/9/97	PAGE 1 OF 1
PROJECT NO. 979704	CLIENT Bechtel
LOCATION FMC, Pocatello, ID	
BCI STAFF K. Smith M. Cain	

WEATHER WIND DIRECTION WSW WIND SPEED 30
CLOUDY☐ SUNNY☐ OVERCAST☐ RAINY☐ STORMY☒

DAY MONDAY☐ TUESDAY☐ WEDNESDAY☒ THURSDAY☐ FRIDAY☐ SATURDAY☐ SUNDAY☐

CONTRACTOR

CONTRACTOR'S SUPERVISOR

EQUIPMENT	HOURS WORKED	WORK PERFORMED
	3	Sampling BH-1, vane shear testing BH-1+2
	5	Safety planning, equip. arrangement + setup
total-	8	

OTHER ACTIVITIES/COMMENTS

7:00 - 7:30: Arrive at site, tool-box safety meeting - discussed phosphine concerns. Geared-up w/ PPE.

7:30 - 9:00: Mobilized to barge and test location B-1 on pond SE. Collected sludge samples. Phosphine monitoring indicated peaks in excess of 1 ppm during sampling activities. Demobed from pond.

9:00 - 11:00: Setup + phone calls for rental of supplied air system. Unit will be delivered from HAZCO - Denver on Thursday AM. Estimated ~2,000.00 additional equipment (PPE) costs.

11:00 - 13:00: To town for supplies and to arrange for breathing air cylinders.

13:00 - 14:00: Lunch

14:00 - 15:30: Geared-up, mobed to barge. Completed vane shear testing at BH-1, moved to BH-2 and completed vane shear testing. Demobed from barge due to reaching TWA limit for phosphine. Storm blowing through.

15:30 - 16:00: Stowed equipment, discussed Thurs. plans, departed site.

~~PICTURES REQUIRED WITH THIS REPORT~~

Approved 7/9/97
Bechtel Field Rep.

BCI, Sr. Project Geologist
7/9/97

BCI
BROMWELL & CARRIER, INC.
P.O. Box 6467
Lakeland, FL 33807
Phone 813-646-8681
Fax 813-644-6920

DAILY FIELD REPORT

ROUTE TO: G. Oberholtzer Bechtel	COPY TO: BCI Files
DATE 7/10/97	PAGE 1 OF 1
PROJECT NO. 979704	CLIENT Bechtel
LOCATION FMC Pocatello, ID	
BCI STAFF T. Smith M. Cain	

WEATHER WIND DIRECTION WSW WIND SPEED 30
CLOUDY☐ SUNNY☐ OVERCAST☐ RAINY☐ STORMY☒

DAY MONDAY☐ TUESDAY☐ WEDNESDAY☐ THURSDAY☒ FRIDAY☐ SATURDAY☐ SUNDAY☐

CONTRACTOR

CONTRACTOR'S SUPERVISOR

EQUIPMENT	HOURS WORKED	WORK PERFORMED
	3½	Sampling + vane shear testing, BH-2,3,4 on Pond 8E
	5½	Safety meeting, equip. arrangement and setup
total =	9 hrs	

OTHER ACTIVITIES/COMMENTS

7:00 - 8:30 : Arrive at site, toolbox safety meeting. Unloaded air tanks from Air liquide delivery truck

8:30 - 9:30 : Setup barge w/ air tanks, waiting for phosphine meter

9:30 - 11:30 : Accepted delivery of supplied air system. Setup of air lines and face masks. Gear up and mobilized to barge

11:30 - 15:00 : On pond 8E, completed sampling at loc. BH-2, completed vane shear testing on locs. BH-3 + BH-4. Noticed abundant phosphine bubbles during test work. Down to air reserve after loc. BH-4

15:00 - 15:30 : Demobed from pond, removed and stowed. Rain and thunder prevents return to pond

15:30 - 16:00 : Rest break

16:00 - 16:30 : Cleaning of respirators, planning for Friday. Departed site.

Approved 7/10/97
Bechtel Field Rep.

BCI, Sr. Project Geologist
7/10/97

DATA TRANSMITTED WITH THIS REPORT

Vane shear test data, pond 8E - BH-1

BCI
BROMWELL & CARRIER, INC.

P.O. Box 6467
Lakeland, FL 33807
Phone 813-646-8581
Fax 813-644-6920

DAILY FIELD REPORT

ROUTE TO: G. Oberholtzer Bechtel	COPY TO: BCI Files
DATE 7/11/97	PAGE 1 OF 1
PROJECT NO. 979704	CLIENT Bechtel
LOCATION FMC Pocatello TD	
BCI STAFF T. Smith M. Cain	

WEATHER WIND DIRECTION W WIND SPEED 10
CLOUDY☐ SUNNY☒ OVERCAST☐ RAINY☐ STORMY☐

DAY MONDAY☐ TUESDAY☐ WEDNESDAY☐ THURSDAY☐ FRIDAY☒ SATURDAY☐ SUNDAY☐

CONTRACTOR

CONTRACTOR'S SUPERVISOR

EQUIPMENT	HOURS WORKED	WORK PERFORMED
	4½	Sampling + vane shear tests 8E (BH-5), 13S (BH-1, 2, 3)
	3½	Barge moving, equip. moving, planning
total =	8	

OTHER ACTIVITIES/COMMENTS

7:15- 7:45: Arrive at site, gear up, mobilize to barge on pond 8E.

7:45- 9:05: Completed vane shear tests and sampling at loc. BH-5, using supplied air system.

9:05- 11:00: Demobilized from barge, gear down. Barged secured and moved to pond 13S with equipment.

11:00- 14:00: Sampled and conducted vane shear tests at locations BH-1, 2, and 3.

14:00- 15:30: Demobed from barge, gear down, rest break, discussed plans for Sat., departed site.
Barge moved from 13S to 13S. Ordered addit air bottles.

Approved 7/11/97
Bechtel Field Rep.

BCI Sr. Project Geologist
7/11/97

TRANSMITTED WITH THIS REPORT

Vane shear calculations, Pond 8E, test locs BH-2, 3, + 4

BCI
BROMWELL & CARRIER, INC.

P.O. Box 6467
Lakeland, FL 33807
Phone 813-646-8591
Fax 813-644-6920

DAILY FIELD REPORT

ROUTE TO: G. Oberholtzer Bechtel	COPY TO: BCI Files
DATE 7/12/97	PAGE 1 OF 1
PROJECT NO. 979704	CLIENT Bechtel
LOCATION FMC, Pocatello ID	
BCI STAFF T. Smith M. Cain	

WEATHER WIND DIRECTION W WIND SPEED 25
CLOUDY☐ SUNNY☐ OVERCAST☐ RAINY☒ STORMY☐

DAY MONDAY☐ TUESDAY☐ WEDNESDAY☐ THURSDAY☐ FRIDAY☐ SATURDAY☒ SUNDAY☐

CONTRACTOR

CONTRACTOR'S SUPERVISOR

EQUIPMENT	HOURS WORKED	WORK PERFORMED
	3	Sampled + vane shear testing, Pond 12S, BH-3,2
	4	Mobilization/ demob to barge, gear up/down,
total =	7	weather breaks, planning, safety meeting

OTHER ACTIVITIES/COMMENTS

7:15- 8:10: Arrive at site. Toolbox safety meeting, planning for sampling ponds 12S + 11S. Discussed sampling pond 15S. Gear up and mobilize to barge

8:10- 9:45: On pond 12S, vane shear testing and sampling at loc. BH-3. Mobilized off pond per Bechtel- cold, rain + wind

9:45- 11:50: Rest break, loaded barges with fresh air tanks

11:50- 13:30: Lunch break for weather

13:30- 14:00: Return to site, gear up, mobilized to barge

14:00- 15:30: On pond 12S, vane shear testing + sampling at BH-2

15:30- 16:00: Off barge, gear down, rest period - will resume on Monday AM, departed site

Approved 7/12/97

TRANSMITTED WITH THIS REPORT

Bechtel Field Rep.

BCI Sr. Project Geologist
7/12/97

BCI
BROMWELL & CARRIER, INC.

P.O. Box 6467
Lakeland, FL 33807
Phone 813-646-8591
Fax 813-644-6920

DAILY FIELD REPORT

ROUTE TO: G. Oberholtzer, Bechtel	COPY TO: BCI Files
DATE 7/14/97	PAGE 1 OF 1
PROJECT NO. 979704	CLIENT Bechtel
LOCATION FMC, Pocatello, Idaho	
BCI STAFF T. Smith, M. Cain	

WEATHER: CLOUDY☐ SUNNY☒ OVERCAST☐ RAINY☐ STORMY☐
WIND DIRECTION NE WIND SPEED 5

DAY: MONDAY☒ TUESDAY☐ WEDNESDAY☐ THURSDAY☐ FRIDAY☐ SATURDAY☐ SUNDAY☐

CONTRACTOR

CONTRACTOR'S SUPERVISOR

EQUIPMENT	HOURS WORKED	WORK PERFORMED
	2 3/4	Vane shear testing and sampling pond 12S BH-1, pond 11S, BH-1
	6 1/4	Mob/demob to barge, equip packing, shipping,
Total =	9 1/2	rest break

OTHER ACTIVITIES/COMMENTS

7:05 - 7:55: Arrive at site, gear up, mobilize to barge on pond 12S.

7:55 - 9:15: Vane shear testing and sampling on pond 12S, location BH-1

9:15 - 11:25: Demob. from pond, gear down. Assistance in moving barge to pond 11S. Loaded new air bottles. Rest break. Gear up, mobilize to barge.

11:25 - 12:45: Vane shear testing and sampling on pond 11S, loc. BH-1

12:45 - 14:45: Demobed. from barge, gear down, unload equipment and packing. Rest break, depart site

14:45 - 16:35: Equipment packing and shipping

Tim Smith
BCI Sr. Project Geologist
7/14/97

DATA TRANSMITTED WITH THIS REPORT

BCI
BROMWELL & CARRIER, INC.
P.O. Box 6467
Lakeland, FL 33807
Phone 813-646-8591
Fax 813-644-5920

DAILY FIELD REPORT

ROUTE TO: G. Oberholtzer, Bechtel	COPY TO: BCI Files
DATE 7/15/97	PAGE 1 OF 1
PROJECT NO. 979704	CLIENT Bechtel
LOCATION FMC, Pocatello, Idaho	
BCI STAFF T. Smith, M. Cain	

WEATHER WIND DIRECTION N WIND SPEED 5
CLOUDY☐ SUNNY☒ OVERCAST☐ RAINY☐ STORMY☐

DAY MONDAY☐ TUESDAY☒ WEDNESDAY☐ THURSDAY☐ FRIDAY☐ SATURDAY☐ SUNDAY☐

CONTRACTOR

CONTRACTOR'S SUPERVISOR

EQUIPMENT	HOURS WORKED	WORK PERFORMED
	4	Equipment packing + shipping. Vane shear data reduction

OTHER ACTIVITIES/COMMENTS

8:00- 8:20: Purchased packing supplies for equipment in town.

8:20- 9:30: Arrived at site, loaded and packed equipment, stored air bottles for pickup, collected vane shear data from Bechtel.

9:30- 10:00: Departed site, shipped equipment at FEDEX.

10:00- 12:00: Vane shear data calculations completed and printed spreadsheets.

BCI Senior Project Geologist
7/15/97

ATTACHMENTS TRANSMITTED WITH THIS REPORT

Calculation Sheet

Originator G. Oberholtzer Date
Project FMC Pocatello Job No.
Calc. No.
Checked
Rev. No.
Date
Sheet No.
Subject

Vane Size	Small	Medium	Large
Diameter (in)	3.0	4.0	6.0
Height (in)	6.0	8.0	12.0
K ($1/ft^3$)	17.46	7.37	2.18

Pond 8E
Borehole BH-1
Coordinates J+75'; 2+30'
Date July 8, 1997

Depth* (ft)	Vane Size	Initial Vane+Rod (in-lb)	Remolded Vane+Rod (in-lb)	Initial Rod (in-lb)	Remolded Rod (in-lb)	Initial Vane (in-lb)	Remolded Vane (in-lb)	Initial Shear (psf)	Remolded Shear (psf)
4.5	Large	113	16	0	0	113	16	21	3
6.0	"	108	7	0	0	108	7	20	1
7.5	"	100	15	0	0	100	15	18	3
9.0	"	170	21	0	0	170	21	31	4
10.5	"	100	18	0	0	100	18	18	3
12.0	"	197	25	0	0	197	25	36	5

Notes: *-All depths measured from deck of barge.
Distance from deck of barge to water surface = 2.2'
Distance from deck of barge to top of sediment = 4.0'
Depth of water over sediment = 4.0' - 2.2' = 1.8'
Piston samples taken at depths of 4.0', 7.0', 10.0', and 13.0' below deck of barge.
Slag encountered at depth of 14.0' below deck of barge.

Calculation Sheet

Originator: G. Oberholtzer
Project: FMC Pocatello
Subject:
Date:
Job No.:
Calc. No.:
Checked:
Rev. No.:
Date:
Sheet No.:

Bechtel

Vane Size	Small	Medium	Large
Diameter (in)	3.0	4.0	6.0
Height (in)	6.0	8.0	12.0
k ($^1/_{ft^3}$)	17.46	7.37	2.18

Pond: BE
Borehole: BH-2
Coordinates: I+45'; 3+40'
Date: July 9, 1997

Depth* (ft)	Vane Size	Initial Vane+Rod (in-lb)	Remolded Vane+Rod (in-lb)	Initial Rod (in-lb)	Remolded Rod (in-lb)	Initial Vane (in-lb)	Remolded Vane (in-lb)	Initial Shear (psf)	Remolded Shear (psf)
4.7	Large	151	31	0	0	151	31	27	6
6.2	"	56	13	0	0	56	13	10	2
7.7	"	47	27	0	0	47	27	9	5
9.2	"	200	21	0	0	200	21	36	4
10.7	"	102	18	0	0	102	18	19	3
12.2	"	85	49	0	0	85	49	15	9

Notes: *- All depths measured from deck of barge.
Distance from deck of barge to water surface = 2.2'
Distance from deck of barge to top of sediment = 4.2'
Depth of water over sediment = 4.2 - 2.2 = 2.0'
Piston samples taken at depths of 4.2', 7.2', 10.2', and 13.2' below deck of barge.
Slag encountered at depth of 14.0' below deck of barge.

Calculation Sheet

Originator: G. Oberholtzer
Project: FMC Pocatello
Subject:
Date:
Job No.:
Calc. No.:
Checked:
Rev. No.:
Date:
Sheet No.:

Bechtel

Vane Size	Small	Medium	Large
Diameter (in)	3.0	4.0	6.0
Height (in)	6.0	8.0	12.0
k ($1/ft^3$)	17.46	7.37	2.18

Pond: 8E
Borehole: BH-3
Coordinates: H+20'; 4+50'
Date: July 10, 1997

Depth* (ft)	Vane Size	Initial Vane+Rod (in-lb)	Remolded Vane+Rod (in-lb)	Initial Rod (in-lb)	Remolded Rod (in-lb)	Initial Vane (in-lb)	Remolded Vane (in-lb)	Initial Shear (psf)	Remolded Shear (psf)
5.0	Large	83	17	0	0	83	17	15	3
6.5	"	50	10	0	0	50	10	9	2
8.0	"	64	11	0	0	64	11	12	2
9.5	"	157	18	0	0	157	18	29	3
11.0	"	87	16	0	0	87	16	16	3
12.5	Medium	47	15	0	0	47	15	29	9
13.5	"	77	14	0	0	77	14	47	9

Notes: *- All depths measured from deck of barge.
Distance from deck of barge to water surface = 2.2'
Distance from deck of barge to top of sediment = 4.5'
Depth of water over sediment = 4.5 - 2.2 = 2.3'
Piston samples taken at depths of 4.5', 7.5', 10.5', and 13.5' below deck of barge.
Slag encountered at depth of 14.5' below deck of barge.

Calculation Sheet

Originator G. Oberholtzer Date _____ Calc. No. _____ Rev. No. _____

Project FMC Pocatello Job No. _____ Checked _____ Date _____

Subject _____ Sheet No. _____

Bechtel

Vane Size	Small	Medium	Large
Diameter (in)	3.0	4.0	6.0
Height (in)	6.0	8.0	12.0
k ($1/ft^3$)	17.46	7.37	2.18

Pond 8E
Borehole BH-4
Coordinates H+85'; 2+45'
Date July 10, 1997

Depth* (ft)	Vane Size	Initial Vane+Rod (in-lb)	Remolded Vane+Rod (in-lb)	Initial Rod (in-lb)	Remolded Rod (in-lb)	Initial Vane (in-lb)	Remolded Vane (in-lb)	Initial Shear (psf)	Remolded Shear (psf)
4.7	Large	177	18	0	0	177	18	32	3
6.2	"	100	24	0	0	100	24	18	4
7.7	Medium	85	10	0	0	85	10	52	6
9.2	"	100	7	0	0	100	7	61	4
10.7	"	106	30	0	0	106	30	65	18
12.2	"	137	13	0	0	137	13	84	8
13.7	"	70	10	0	0	70	10	43	6

Notes: *- All depths measured from deck of barge.
Distance from deck of barge to water surface = 2.2'
Distance from deck of barge to top of sediment = 4.2'
Depth of water over sediment = 4.2 - 2.2 = 2.0'
Piston samples taken at depths of 4.2', 7.2', 10.2', 13.2', and 14.0' below deck of barge.
Slag encountered at depth of 15.0' below deck of barge.

758 Rev 1 12/90 (ED-69)

Calculation Sheet

Originator G. Oberholtzer Date _____ Calc. No. _____ Rev. No. _____

Project FMC Pocatello Job No. _____ Checked _____ Date _____

Sheet No. _____

Bechtel

Vane Size	Small	Medium	Large
Diameter (in)	3.0	4.0	6.0
Height (in)	6.0	8.0	12.0
k ($1/ft^3$)	17.46	7.37	2.18

Pond 8E
Borehole BH-5
Coordinates H+20'; 1+60'
Date July 11, 1997

Depth (ft)*	Vane Size	Initial Vane+Rod (in-lb)	Remolded Vane+Rod (in-lb)	Initial Rod (in-lb)	Remolded Rod (in-lb)	Initial Vane (in-lb)	Remolded Vane (in-lb)	Initial Shear (psf)	Remolded Shear (psf)
5.0	Large	45	7	0	0	45	7	8	1
6.5	"	47	15	0	0	47	15	9	3
8.0	"	239	27	0	0	239	27	43	5
9.5	"	114	13	0	0	114	13	21	2
11.0	"	131	15	0	0	131	15	24	3
12.5	"	117	25	0	0	117	25	21	5

Notes: *- All depths measured from deck of barge.
Distance from deck of barge to water surface = 2.2'
Distance from deck of barge to top of sediment = 4.5'
Depth of water over sediment = 4.5 - 2.2 = 2.3'
Piston samples taken at depths of 4.5', 7.5', 10.5', and 13.5' below deck of barge.
Slag encountered at depth of 14.0' below deck of barge.

Calculation Sheet

Originator: G. Oberholtzer
Project: FMC Pocatello
Subject:
Date:
Job No.:
Calc. No.:
Checked:
Rev. No.:
Date:
Sheet No.:

Bechtel

Vane Size	Small	Medium	Large
Diameter (in)	3.0	4.0	6.0
Height (in)	6.0	8.0	12.0
k (1/ft³)	17.46	7.37	2.18

Pond: 115
Borehole: BH-1
Coordinates: F; 2+30'
Date: July 14, 1997

Depth* (ft)	Vane Size	Initial Vane+Rod (in-lb)	Remolded Vane+Rod (in-lb)	Initial Rod (in-lb)	Remolded Rod (in-lb)	Initial Vane (in-lb)	Remolded Vane (in-lb)	Initial Shear (psf)	Remolded Shear (psf)
5.0	Large	16	5	0	0	16	5	3	1
6.5	"	86	25	0	0	86	25	16	5
8.0	"	62	17	0	0	62	17	11	3
9.5	"	97	17	0	0	97	17	18	3
11.0	"	124	22	0	0	124	22	23	4
12.5	"	127	20	0	0	127	20	23	4
14.0	"	235	27	0	0	235	27	43	5
15.5	Medium	103	7	0	0	103	7	63	4

Notes: *- All depths measured from deck of barge.
Distance from deck of barge to water surface = 2.2'
Distance from deck of barge to top of sediment = 4.5'
Depth of water over sediment = 4.5 - 2.2 = 2.3'
Piston samples taken at depths of 4.5', 7.5', 10.5', and 13.5' below deck of barge.
Slag encountered at depth of 16.0' below deck of barge.

Calculation Sheet

Originator: G. Oberholtzer
Project: FMC Pocatello
Subject:
Date:
Job No.:
Calc. No.:
Checked:
Rev. No.:
Date:
Sheet No.:

Bechtel

Vane Size	Small	Medium	Large
Diameter (in)	3.0	4.0	6.0
Height (in)	6.0	8.0	12.0
k ($^1/_{ft^3}$)	17.46	7.37	2.18

Pond: 12S
Borehole: BH-1
Coordinates: D, 2+35'
Date: July 14, 1997

Depth* (ft)	Vane Size	Initial Vane+Rod (in-lb)	Remolded Vane+Rod (in-lb)	Initial Rod (in-lb)	Remolded Rod (in-lb)	Initial Vane (in-lb)	Remolded Vane (in-lb)	Initial Shear (psf)	Remolded Shear (psf)
8.0	Large	13	7	0	0	13	7	2	1
9.5	"	46	10	0	0	46	10	8	2
11.0	"	88	13	0	0	88	13	16	2
12.5	"	242	42	0	0	242	42	44	8
14.0	Medium	76	11	0	0	76	11	47	7
15.5	"	80	10	0	0	80	10	49	6
17.0	"	77	14	0	0	77	14	47	9

Notes: *- All depths measured from deck of barge.
Distance from deck of barge to water surface = 2.2'
Distance from deck of barge to top of sediment = 7.5'
Depth of water over sediment = 7.5 - 2.2 = 5.3'
Piston samples taken at depths of 7.5', 10.5', 13.5', and 16.5' below deck of barge.
Slag encountered at depth of 17.5' below deck of barge.

Calculation Sheet

Originator G. Oberholtzer Date _____ Calc. No. _____ Rev. No. _____
Project FMC Pocatello Job No. _____ Checked _____ Date _____
Subject _____ Sheet No. _____

Bechtel

Vane Size	Small	Medium	Large
Diameter (in)	3.0	4.0	6.0
Height (in)	6.0	8.0	12.0
k ($1/ft^3$)	17.46	7.37	2.18

Pond 12S
Borehole BH-2
Coordinates D; 4+10'
Date July 12, 1997

Depth (ft)*	Vane Size	Initial Vane+Rod (in-lb)	Remolded Vane+Rod (in-lb)	Initial Rod (in-lb)	Remolded Rod (in-lb)	Initial Vane (in-lb)	Remolded Vane (in-lb)	Initial Shear (psf)	Remolded Shear (psf)
8.0	Large	119	21	0	0	119	21	22	4
9.5	"	204	13	0	0	204	13	37	2
11.0	"	176	20	0	0	176	20	32	4
12.5	"	176	19	0	0	176	19	32	3
14.0	Medium	99	11	0	0	99	11	61	7
15.5	"	81	10	0	0	81	10	50	6
17.0	"	98	10	2	0	96	10	59	6
18.5	"	107	11	4	0	103	11	63	7

Notes: *- All depths measured from deck of barge.
Distance from deck of barge to water surface = 2.2'
Distance from deck of barge to top of sediment = 7.5'
Depth of water over sediment = 7.5 - 2.2 = 5.3'
Piston samples taken at depths of 7.5', 10.5', 13.5', 16.5', and 18.5' below deck of barge.
Slag encountered at depth of 19.5' below deck of barge.

Calculation Sheet

Originator: G. Oberholtzer
Project: FMC Pocatello
Subject:
Date:
Job No.:
Calc. No.:
Checked:
Rev. No.:
Date:
Sheet No.:

Bechtel

Vane Size	Small	Medium	Large
Diameter (in)	3.0	4.0	6.0
Height (in)	6.0	8.0	12.0
k ($1/ft^3$)	17.46	7.37	2.18

Pond: 12 S
Borehole: BH-3
Coordinates: D+5'; 5+90'
Date: July 12, 1997

Depth (ft)*	Vane Size	Initial Vane+Rod (in-lb)	Remolded Vane+Rod (in-lb)	Initial Rod (in-lb)	Remolded Rod (in-lb)	Initial Vane (in-lb)	Remolded Vane (in-lb)	Initial Shear (psf)	Remolded Shear (psf)
8.3	Large	5	0	0	0	5	0	1	0
9.8	"	26	8	0	0	26	8	5	1
11.3	"	64	16	0	0	64	16	12	3
12.8	"	82	17	0	0	82	17	15	3
14.3	"	181	22	0	0	181	22	33	4
15.8	Medium	97	11	0	0	97	11	60	7
17.3	"	111	14	3	0	108	14	66	9
18.8	"	116	13	3	0	113	13	69	8

Notes: *- All depths measured from deck of barge.
Distance from deck of barge to water surface = 2.2'
Distance from deck of barge to top of sediment = 7.8'
Depth of water over sediment = 7.8 - 2.2 = 5.6'
Piston samples taken at depths of 7.8', 10.8', 13.8', 16.8', and 18.5' below deck of barge.
Slag encountered at depth of 19.5' below deck of barge.

Calculation Sheet

Originator G. Oberholtzer Date _____ Calc. No. _____ Rev. No. _____

Project FMC Pocatello Job No. _____ Checked _____ Date _____

Project _____ Sheet No. _____

Bechtel

Vane Size	Small	Medium	Large
Diameter (in)	3.0	4.0	6.0
Height (in)	6.0	8.0	12.0
k ($1/ft^3$)	17.46	7.37	2.18

Pond 13S
Borehole BH-1
Coordinates A+90'; 2+50'
Date July 11, 1997

Depth* (ft)	Vane Size	Initial Vane + Rod (in-lb)	Remolded Vane + Rod (in-lb)	Initial Rod (in-lb)	Remolded Rod (in-lb)	Initial Vane (in-lb)	Remolded Vane (in-lb)	Initial Shear (psf)	Remolded Shear (psf)
14.0	Large	15	5	0	0	15	5	3	1
15.0	"	34	10	0	0	34	10	6	2
16.0	"	71	14	0	0	71	14	13	3

Notes: *- All depths measured from deck of barge.
Distance from deck of barge to water surface = 2.2'
Distance from deck of barge to top of sediment = 13.5'
Depth of water over sediment = 13.5 - 2.2 = 11.3'
Piston samples taken at depths of 14.0' and 16.0' below deck of barge.
Slag encountered at depth of 17.0' below deck of barge.

Calculation Sheet

Originator: G. Oberholtzer
Subject: FMC Pocatello
Date
Job No.
Calc. No.
Checked
Rev. No.
Date
Sheet No.

Bechtel

Vane Size	Small	Medium	Large
Diameter (in)	3.0	4.0	6.0
Height (in)	6.0	8.0	12.0
k ($^1/_{ft^3}$)	17.46	7.37	2.18

Pond: 135
Borehole: BH-2
Coordinates: A+90'; 4+15'
Date: July 11, 1997

Depth (ft)*	Vane Size	Initial Vane+Rod (in-lb)	Remolded Vane+Rod (in-lb)	Initial Rod (in-lb)	Remolded Rod (in-lb)	Initial Vane (in-lb)	Remolded Vane (in-lb)	Initial Shear (psf)	Remolded Shear (psf)
14.3	Large	11	0	0	0	11	0	2	0
15.3	"	14	4	0	0	14	4	3	1
16.3	"	27	11	0	0	27	11	5	2
17.3	"	44	15	0	0	44	15	8	3
18.3	"	106	20	0	0	106	20	19	4

Notes: *- All depths measured from deck of barge.
Distance from deck of barge to water surface = 2.2'
Distance from deck of barge to top of sediment = 13.8'
Depth of water over sediment = 13.8 - 2.2 = 11.6'
Piston samples taken at depths of 13.8', 15.8', and 17.8' below deck of barge.
Slag encountered at depth of 18.8' below deck of barge.

Calculation Sheet

Originator G. Oberholtzer Date
Subject FMC Pocatello Job No.
Calc. No.
Checked Date
Rev. No.
Sheet No.

Vane Size	Small	Medium	Large
Diameter (in)	3.0	4.0	6.0
Height (in)	6.0	8.0	12.0
k ($1/ft^3$)	17.46	7.37	2.18

Pond 135
Borehole BH-3
Coordinates A+95'; 5+80'
Date July 11, 1997

Depth (ft)*	Vane Size	Initial Vane+Rod (in-lb)	Remolded Vane+Rod (in-lb)	Initial Rod (in-lb)	Remolded Rod (in-lb)	Initial Vane (in-lb)	Remolded Vane (in-lb)	Initial Shear (psf)	Remolded Shear (psf)
12.5	Large	9	2	0	0	9	2	2	0
13.5	"	20	8	0	0	20	8	4	1
14.5	"	38	17	0	0	38	17	7	3
15.5	"	63	11	0	0	63	11	11	2
16.5	"	61	12	0	0	61	12	11	2
17.5	"	112	15	0	0	112	15	20	3

Notes: *- All depths measured from deck of barge.
Distance from deck of barge to water surface = 2.2'
Distance from deck of barge to top of sediment = 12.0'
Depth of water over sediment = 12.0 - 2.2 = 9.8'
Piston samples taken at depths of 12.5', 14.5', and 17.0' below deck of barge.
Slag encountered at depth of 18.0' below deck of barge.

Bechtel

APPENDIX B
VANE SHEAR DATA

VANE SHEAR RESULTS Location: Pond 8E, BH-1
Bectel/FMC: Geotechnical Testing & Sampling
Eastern Michaud Flats Project
BCI Project No. 979704 Date: July 8, 1997
Tested by: M. Cain, T. Smith

VANE SIZE =	SMALL	MEDIUM	LARGE
Diameter (inches) =	3.0	4.0	6.0
Height (inches) =	6.0	8.0	12.0
K (cu. ft.) =	0.0567	0.1344	0.4536

		FIELD RESULTS						SHEAR STRENGTH	
DEPTH (ft)	VANE SIZE	INITIAL VANE+ROD (in-lbs)	REMOLDED VANE+ROD (in-lbs)	INITIAL ROD (in-lbs)	REMOLDED ROD (in-lbs)	INITIAL VANE (in-lbs)	REMOLDED VANE (in-lbs)	INITIAL (psf)	REMOLDED (psf)
4.5	Large	113	16	0	0	113	16	21	3
6.0	Large	108	7	0	0	108	7	20	1
7.5	Large	100	15	0	0	100	15	18	3
9.0	Large	170	21	0	0	170	21	31	4
10.5	Large	100	18	0	0	100	18	18	3
12.0	Large	197	25	0	0	197	25	36	5

Notes: All depths relative to deck of barge *water surface elevation = 4480.3 ft.
Deck to water = 2.2 ft.
Deck to sediment = 4.0 ft.
Water depth = 4.0 - 2.2 = 1.8 ft.
Piston tube samples collected at 4, 7, 10,and 13 feet (from deck)
Pond bottom at 14 ft.

VANE SHEAR RESULTS
Bechtel/FMC: Geotechnical Testing & Sampling
Eastern Michaud Flats Project
BCI Project No. 979704

Location: Pond 8E, BH-2

Date: July 9, 1997
Tested by: M. Cain, T. Smith

VANE SIZE =	SMALL	MEDIUM	LARGE
Diameter (inches) =	3.0	4.0	6.0
Height (inches) =	6.0	8.0	12.0
K (cu. ft.) =	0.0567	0.1344	0.4536

FIELD RESULTS								SHEAR STRENGTH	
DEPTH (ft)	VANE SIZE	INITIAL VANE+ROD (in-lbs)	REMOLDED VANE+ROD (in-lbs)	INITIAL ROD (in-lbs)	REMOLDED ROD (in-lbs)	INITIAL VANE (in-lbs)	REMOLDED VANE (in-lbs)	INITIAL (psf)	REMOLDED (psf)
4.7	Large	151	31	0	0	151	31	28	6
6.2	Large	56	13	0	0	56	13	10	2
7.7	Large	47	27	0	0	47	27	9	5
9.2	Large	200	21	0	0	200	21	37	4
10.7	Large	102	18	0	0	102	18	19	3
12.2	Large	85	49	0	0	85	49	16	9

Notes: All depths relative to deck of barge *water surface elevation = 4480.3 ft.
Deck to water = 2.2 ft.
Deck to sediment = 4.2 ft.
Water depth = 4.2 - 2.2 = 2.0 ft.
Piston tube samples collected at 4.2, 7.2, 10.2,and 13.2 feet (from deck)
Pond bottom at 14 ft.

VANE SHEAR RESULTS Location: Pond 8E, BH-3
Bectel/FMC: Geotechnical Testing & Sampling
Eastern Michaud Flats Project
BCI Project No. 979704 Date: July 10, 1997
Tested by: M. Cain, T. Smith

VANE SIZE =	SMALL	MEDIUM	LARGE
Diameter (inches) =	3.0	4.0	6.0
Height (inches) =	6.0	8.0	12.0
K (cu. ft.) =	0.0567	0.1344	0.4536

FIELD RESULTS								SHEAR STRENGTH	
DEPTH (ft)	VANE SIZE	INITIAL VANE+ROD (in-lbs)	REMOLDED VANE+ROD (in-lbs)	INITIAL ROD (in-lbs)	REMOLDED ROD (in-lbs)	INITIAL VANE (in-lbs)	REMOLDED VANE (in-lbs)	INITIAL (psf)	REMOLDED (psf)
5.0	Large	83	17	0	0	83	17	15	3
6.5	Large	50	10	0	0	50	10	9	2
8.0	Large	64	11	0	0	64	11	12	2
9.5	Large	157	18	0	0	157	18	29	3
11.0	Large	87	16	0	0	87	16	16	3
12.5	Medium	47	15	0	0	47	15	29	9
13.5	Medium	77	14	0	0	77	14	48	9

Notes: All depths relative to deck of barge *water surface elevation = 4480.3 ft.
Deck to water = 2.2 ft.
Deck to sediment = 4.5 ft.
Water depth = 4.5 - 2.2 = 2.3 ft.
Piston tube samples collected at 4.5, 7.5, 10.5,and 13.5 feet (from deck)
Pond bottom at 14.5 ft.

VANE SHEAR RESULTS Location: Pond 8E, BH-4
Bectel/FMC: Geotechnical Testing & Sampling
Eastern Michaud Flats Project
BCI Project No. 979704 Date: July 10, 1997
Tested by: M. Cain, T. Smith

VANE SIZE =	SMALL	MEDIUM	LARGE
Diameter (inches) =	3.0	4.0	6.0
Height (inches) =	6.0	8.0	12.0
K (cu. ft.) =	0.0567	0.1344	0.4536

FIELD RESULTS								SHEAR STRENGTH	
DEPTH (ft)	VANE SIZE	INITIAL VANE+ROD (in-lbs)	REMOLDED VANE+ROD (in-lbs)	INITIAL ROD (in-lbs)	REMOLDED ROD (in-lbs)	INITIAL VANE (in-lbs)	REMOLDED VANE (in-lbs)	INITIAL (psf)	REMOLDED (psf)
4.7	Large	177	18	0	0	177	18	33	3
6.2	Large	100	24	0	0	100	24	18	4
7.7	Medium	85	10	0	0	85	10	53	6
9.2	Medium	100	7	0	0	100	7	62	4
10.7	Medium	106	30	0	0	106	30	66	19
12.2	Medium	137	13	0	0	137	13	85	8
13.7	Medium	70	10	0	0	70	10	43	6

Notes: All depths relative to deck of barge *water surface elevation = 4480.3 ft.
Deck to water = 2.2 ft.
Deck to sediment = 4.2 ft.
Water depth = 4.2 - 2.2 = 2.0 ft.
Piston tube samples collected at 4.2, 7.2, 10.2,and 13.2 feet (from deck)
Pond bottom at 15.0 ft.

VANE SHEAR RESULTS Location: Pond 8E, BH-5
Bectel/FMC: Geotechnical Testing & Sampling
Eastern Michaud Flats Project
BCI Project No. 979704 Date: July 11, 1997
Tested by: M. Cain, T. Smith

VANE SIZE =	SMALL	MEDIUM	LARGE
Diameter (inches) =	3.0	4.0	6.0
Height (inches) =	6.0	8.0	12.0
K (cu. ft.) =	0.0567	0.1344	0.4536

FIELD RESULTS								SHEAR STRENGTH	
DEPTH (ft)	VANE SIZE	INITIAL VANE+ROD (in-lbs)	REMOLDED VANE+ROD (in-lbs)	INITIAL ROD (in-lbs)	REMOLDED ROD (in-lbs)	INITIAL VANE (in-lbs)	REMOLDED VANE (in-lbs)	INITIAL (psf)	REMOLDED (psf)
5.0	Large	45	7	0	0	45	7	8	1
6.5	Large	47	15	0	0	47	15	9	3
8.0	Large	239	27	0	0	239	27	44	5
9.5	Large	114	13	0	0	114	13	21	2
11.0	Large	131	15	0	0	131	15	24	3
12.5	Large	117	25	0	0	117	25	21	5

Notes: All depths relative to deck of barge *water surface elevation = 4480.3 ft.
Deck to water = 2.2 ft.
Deck to sediment = 4.5 ft.
Water depth = 4.5 - 2.2 = 2.3 ft.
Piston tube samples collected at 4.5, 7.5, 10.5,and 13.5 feet (from deck)
Pond bottom at 14.0 ft.

VANE SHEAR RESULTS Location: Pond 11S, BH-1
Bectel/FMC: Geotechnical Testing & Sampling
Eastern Michaud Flats Project
BCI Project No. 979704 Date: July 14, 1997
Tested by: M. Cain, T. Smith

VANE SIZE =	SMALL	MEDIUM	LARGE
Diameter (inches) =	3.0	4.0	6.0
Height (inches) =	6.0	8.0	12.0
K (cu. ft.) =	0.0567	0.1344	0.4536

FIELD RESULTS								SHEAR STRENGTH	
DEPTH (ft)	VANE SIZE	INITIAL VANE+ROD (in-lbs)	REMOLDED VANE+ROD (in-lbs)	INITIAL ROD (in-lbs)	REMOLDED ROD (in-lbs)	INITIAL VANE (in-lbs)	REMOLDED VANE (in-lbs)	INITIAL (psf)	REMOLDED (psf)
5.0	Large	16	5	0	0	16	5	3	1
6.5	Large	86	25	0	0	86	25	16	5
8.0	Large	62	17	0	0	62	17	11	3
9.5	Large	97	17	0	0	97	17	18	3
11.0	Large	124	22	0	0	124	22	23	4
12.5	Large	127	20	0	0	127	20	23	4
14.0	Large	235	27	0	0	235	27	43	5
15.5	Medium	103	7	0	0	103	7	64	4

Notes: All depths relative to deck of barge *water surface elevation = 4469.4 ft.
Deck to water = 2.2 ft.
Deck to sediment = 4.5 ft.
Water depth = 4.5 - 2.2 = 2.3 ft.
Piston tube samples collected at 4.5, 7.5, 10.5,and 13.5 feet (from deck)
Pond bottom at 16.0 ft.

VANE SHEAR RESULTS Location: Pond 12S, BH-1
Bectel/FMC: Geotechnical Testing & Sampling
Eastern Michaud Flats Project
BCI Project No. 979704 Date: July 14, 1997
Tested by: M. Cain, T. Smith

VANE SIZE =	SMALL	MEDIUM	LARGE
Diameter (inches) =	3.0	4.0	6.0
Height (inches) =	6.0	8.0	12.0
K (cu. ft.) =	0.0567	0.1344	0.4536

FIELD RESULTS								SHEAR STRENGTH	
DEPTH (ft)	VANE SIZE	INITIAL VANE+ROD (in-lbs)	REMOLDED VANE+ROD (in-lbs)	INITIAL ROD (in-lbs)	REMOLDED ROD (in-lbs)	INITIAL VANE (in-lbs)	REMOLDED VANE (in-lbs)	INITIAL (psf)	REMOLDED (psf)
8.0	Large	13	7	0	0	13	7	2	1
9.5	Large	46	10	0	0	46	10	8	2
11.0	Large	88	13	0	0	88	13	16	2
12.5	Large	242	42	0	0	242	42	44	8
14.0	Medium	76	11	0	0	76	11	47	7
15.5	Medium	80	10	0	0	80	10	50	6
17.0	Medium	77	14	0	0	77	14	48	9

Notes: All depths relative to deck of barge *water surface elevation = 4469.2 ft.
Deck to water = 2.2 ft.
Deck to sediment = 7.5 ft.
Water depth = 7.5 - 2.2 = 5.3 ft.
Piston tube samples collected at 7.5, 10.5, 13.5, and 16.5 feet (from deck)
Pond bottom at 17.5 ft.

VANE SHEAR RESULTS Location: Pond 12S, BH-3
Bectel/FMC: Geotechnical Testing & Sampling
Eastern Michaud Flats Project
BCI Project No. 979704 Date: July 12, 1997
Tested by: M. Cain, T. Smith

VANE SIZE =	SMALL	MEDIUM	LARGE
Diameter (inches) =	3.0	4.0	6.0
Height (inches) =	6.0	8.0	12.0
K (cu. ft.) =	0.0567	0.1344	0.4536

FIELD RESULTS								SHEAR STRENGTH	
DEPTH (ft)	VANE SIZE	INITIAL VANE+ROD (in-lbs)	REMOLDED VANE+ROD (in-lbs)	INITIAL ROD (in-lbs)	REMOLDED ROD (in-lbs)	INITIAL VANE (in-lbs)	REMOLDED VANE (in-lbs)	INITIAL (psf)	REMOLDED (psf)
8.3	Large	5	0	0	0	5	0	1	0
9.8	Large	26	8	0	0	26	8	5	1
11.3	Large	64	16	0	0	64	16	12	3
12.8	Large	82	17	0	0	82	17	15	3
14.3	Large	181	22	0	0	181	22	33	4
15.8	Medium	97	11	0	0	97	11	60	7
17.3	Medium	111	14	3	0	108	14	67	9
18.8	Medium	116	13	3	0	113	13	70	8

Notes: All depths relative to deck of barge *water surface elevation = 4469.2 ft.
Deck to water = 2.2 ft.
Deck to sediment = 7.8 ft.
Water depth = 7.8 - 2.2 = 5.6 ft.
Piston tube samples collected at 7.8, 10.8, 13.8, 16.8,and 18.5 feet (from deck)
Pond bottom at 19.5 ft.

VANE SHEAR RESULTS Location: Pond 13S, BH-1
Bectel/FMC: Geotechnical Testing & Sampling
Eastern Michaud Flats Project
BCI Project No. 979704 Date: July 11, 1997
Tested by: M. Cain, T. Smith

VANE SIZE =	SMALL	MEDIUM	LARGE
Diameter (inches) =	3.0	4.0	6.0
Height (inches) =	6.0	8.0	12.0
K (cu. ft.) =	0.0567	0.1344	0.4536

FIELD RESULTS								SHEAR STRENGTH	
DEPTH (ft)	VANE SIZE	INITIAL VANE+ROD (in-lbs)	REMOLDED VANE+ROD (in-lbs)	INITIAL ROD (in-lbs)	REMOLDED ROD (in-lbs)	INITIAL VANE (in-lbs)	REMOLDED VANE (in-lbs)	INITIAL (psf)	REMOLDED (psf)
14.0	Large	15	5	0	0	15	5	3	1
15.0	Large	34	10	0	0	34	10	6	2
16.0	Large	71	14	0	0	71	14	13	3

Notes: All depths relative to deck of barge *water surface elevation = 4467.9 ft.
Deck to water = 2.2 ft.
Deck to sediment = 13.5 ft.
Water depth = 13.5 - 2.2 = 11.3 ft.
Piston tube samples collected at 14.0 and 16.0 feet (from deck)
Pond bottom at 17.0 ft.

VANE SHEAR RESULTS

Location: Pond 13S, BH-2

Bechtel/FMC: Geotechnical Testing & Sampling

Eastern Michaud Flats Project

BCI Project No. 979704

Date: July 11, 1997

Tested by: M. Cain, T. Smith

VANE SIZE =	SMALL	MEDIUM	LARGE
Diameter (inches) =	3.0	4.0	6.0
Height (inches) =	6.0	8.0	12.0
K (cu. ft.) =	0.0567	0.1344	0.4536

FIELD RESULTS								SHEAR STRENGTH	
DEPTH (ft)	VANE SIZE	INITIAL VANE+ROD (in-lbs)	REMOLDED VANE+ROD (in-lbs)	INITIAL ROD (in-lbs)	REMOLDED ROD (in-lbs)	INITIAL VANE (in-lbs)	REMOLDED VANE (in-lbs)	INITIAL (psf)	REMOLDED (psf)
14.3	Large	11	0	0	0	11	0	2	0
15.3	Large	14	4	0	0	14	4	3	1
16.3	Large	27	11	0	0	27	11	5	2
17.3	Large	44	15	0	0	44	15	8	3
18.3	Large	106	20	0	0	106	20	19	4

Notes: All depths relative to deck of barge

*water surface elevation = 4467.9 ft.

Deck to water = 2.2 ft.

Deck to sediment = 13.8 ft.

Water depth = 13.8 - 2.2 = 11.6 ft.

Piston tube samples collected at 13.8, 15.8, and 17.8 feet (from deck)

Pond bottom at 18.8 ft.

VANE SHEAR RESULTS Location: Pond 13S, BH-3
Bectel/FMC: Geotechnical Testing & Sampling
Eastern Michaud Flats Project
BCI Project No. 979704 Date: July 11, 1997
Tested by: M. Cain, T. Smith

VANE SIZE =	SMALL	MEDIUM	LARGE
Diameter (inches) =	3.0	4.0	6.0
Height (inches) =	6.0	8.0	12.0
K (cu. ft.) =	0.0567	0.1344	0.4536

FIELD RESULTS								SHEAR STRENGTH	
DEPTH (ft)	VANE SIZE	INITIAL VANE+ROD (in-lbs)	REMOLDED VANE+ROD (in-lbs)	INITIAL ROD (in-lbs)	REMOLDED ROD (in-lbs)	INITIAL VANE (in-lbs)	REMOLDED VANE (in-lbs)	INITIAL (psf)	REMOLDED (psf)
12.5	Large	9	2	0	0	9	2	2	0
13.5	Large	20	8	0	0	20	8	4	1
14.5	Large	38	17	0	0	38	17	7	3
15.5	Large	63	11	0	0	63	11	12	2
16.5	Large	61	12	0	0	61	12	11	2
17.5	Large	112	15	0	0	112	15	21	3

Notes: All depths relative to deck of barge *water surface elevation = 4467.9 ft.
Deck to water = 2.2 ft.
Deck to sediment = 12.0 ft.
Water depth = 12.0 - 2.2 = 9.8 ft.
Piston tube samples collected at 12.5, 14.5, and 17.0 feet (from deck)
Pond bottom at 18.0 ft.

Appendix K

APPENDIX K

PRELIMINARY STORMWATER DRAINAGE CALCULATIONS

PRELIMINARY STORMWATER DRAINAGE CALCULATIONS FOR POND 18, CELL A

CALCULATION COVER SHEET

PROJECT FMC Corporation Pocatello	JOB NO. 20906	CALC NO. P18calc1	SHEET 1
SUBJECT Estimation of Design Surface Runoff Rates for Pond 18		DISCIPLINE Hydrology/Modeling	

CALCULATION STATUS DESIGNATION	PRELIMINARY	CONFIRMED	SUPERSEDED	VOIDED
	x			

COMPUTER PROGRAM/TYPE	SCP	MAINFRAME	PC	PROGRAM NO.	VERSION/RELEASE NO.
	YES [ ] NO [x]	[ ]	[ ]		

Abstract

The purpose of this calculation is to estimate design surface runoff rates for Pond 18 at Pocatello, Idaho. A perimeter drain will be constructed along the southern edge of the pond to collect and convey surface runoff to existing local drainage courses. Drainage from the rest of the pond will discharge to Pond 19 located to the north, or will flow downgradient with the natural topography of the surrounding areas. The design flow rates are computed for 25-year and 100-year storm return periods. Intensity duration-frequency curves for both return periods are determined from the Precipitation Frequency Atlas for the State of Idaho. Based on the proposed grade of the cap and topography of surrounding areas, the southern portion of the cap area is divided into smaller sub-areas, discharging to the southern perimeter drain (Figure 1). The design storm for these sub-areas of the pond are estimated using the Kirpich formula. Peak surface runoff is estimated using the Rational Method.

The time of concentration for the different sub-areas range from 6 to 9 minutes. The design flow rates for the 25-year return period range from 3.3 to 13.3 cfs. The design flow rates for the 100-year return period range from 5.4 to 22.5 cfs.

No.	Reason for Revision	Total No. of Sheets	Last Sheet No.	By	Checked	Approved/ Accepted	Date
0	Preliminary Calculation	12	12	N.Copty	I.Kleyn	A.Findikakis	July 17, 2001

Record of Revisions

Table of Contents

LIST OF FIGURES 2

LIST OF TABLES 2

1. INTRODUCTION 3

2. INTENSITY DURATION-FREQUENCY CURVES 3

3. SURFACE RUNOFF 6

3.1. Runoff Coefficient *C* 6

3.2. Time of Concentration 7

3.3. Peak Flow Rate 9

4. LIST OF REFERENCES 10

List of Figures

Figure 1: Plan View of Pond 18 and Perimeter Drain 11

Figure 2: Intensity Duration-Frequency Curves for Pocatello, Idaho 12

List of Tables

Table 1: Rainfall-Duration Data for Pocatello, Idaho 4

Table 2: Time of Concentration for Pond 18 8

Table 3: Peak Surface Runoff for Downstream End of Southern Perimeter Drain 9

1. Introduction

A plan view of Pond 18 is shown in Figure 1. A perimeter drain will be constructed along the southern edge of the pond to collect and convey surface runoff to existing local drainage courses. Drainage from the rest of the pond will discharge to Pond 19 located to the north or will flow downgradient with the natural topography of the surrounding areas. Based on the proposed grade of the cap and topography of surrounding areas, the southern portion of the cap area is divided into four sub-areas, sub-areas A1 through A4, all discharging to the southern perimeter drain. The drainage system of the entire site is under CERCLA remediation of the FMC facility and will be addressed in this calculation.

The purpose of this calculation is to estimate the design flow rates for the southern perimeter drain of Pond 18. Drainage water from the other quadrants of Pond 18 are discharge into Pond 19 or will flow northward with the natural topography of the surrounding areas and, therefore, will not be addressed here. The calculation for the design flow rates are based on 25-year and the 100-year return periods. Intensity duration-frequency curves for Pocatello are determined from the Precipitation-Frequency Atlas of the Western United States, Volume V-Idaho (Miller et al., 1973). The time of concentration and the corresponding surface runoff are estimated using the Kirpich Formula and the Rational Method (described in Chow et al., 1988) respectively. These methods were selected because they are applicable to small undeveloped areas such as Pond 18.

The rest of the calculation is divided as follows: Section 2 develops intensity duration-frequency curves for the Pocatello region. Section 3 estimates the peak surface runoff.

2. Intensity Duration-Frequency Curves

Table 1 lists rainfall intensities for 2-year, 25-year and 100-year return periods and various storm duration determined from the Precipitation-Frequency Atlas of the Western United States, Volume V-Idaho (Miller et al., 1973). The rainfall intensity for the 6-hour and 24-hour duration storms are obtained from precipitation-frequency maps (Figures 19-30) for the town of Pocatello.

Table 1: Rainfall-Duration Data for Pocatello, Idaho

Storm Duration	Return Period (Years)	Rainfall (inches)
24 hours	100	2.6[1]
	25	2.1[1]
	2	1.1[1]
6 hours	100	1.7[1]
	25	1.4[1]
	2	0.8[1]
3 hours	100	1.4[4]
	25	1.1[4]
	2	0.6[4]
2 hours	100	1.3[4]
	25	1.0[4]
	2	0.5[4]
1 hour	100	1.1[2]
	25	0.8[3]
	2	0.4[2]
30 minutes	100	0.87[5]
	25	0.63[5]
	2	0.32[5]
15 minutes	100	0.63[5]
	25	0.46[5]
	2	0.23[5]
10 minutes	100	0.50[5]
	25	0.36[5]
	2	0.18[5]
5 minutes	100	0.32[5]
	25	0.23[5]
	2	0.12[5]

[1] Determined from precipitation-duration maps
[2] Estimated using regional regression equations
[3] Interpolated from the 2-year and 100-year rainfall values
[4] Interpolated from the 1-hour and 6-hour rainfall values
[5] Estimated from the one-hour rainfall values and adjustment factors

The 2-year 1-hour rainfall and the 100-year 1-hour rainfall are estimated using regression

equations defined in Table 12 for Region 2 (Miller et al., 1973):

$$Y_2 = 0.019 + 0.711\frac{X_1^2}{X_2} + 0.001Z \quad (1)$$

$$Y_{100} = 0.338 + 0.670\frac{X_3^2}{X_4} + 0.001Z \quad (2)$$

where

Y_2 2-year 1-hour estimated rainfall value [in]

Y_{100} 100-year 1-hour estimated rainfall value [in]

X_1 2-year 6-hour rainfall from precipitation-frequency maps [in]

X_2 2-year 24-hour rainfall from precipitation-frequency maps [in]

X_3 100-year 6-hour rainfall from precipitation-frequency maps [in]

X_4 100-year 24-hour rainfall from precipitation-frequency maps [in]

Z Point Elevation in hundreds of feet. For the FMC Pocatello site, Z=45.

The 25-year 1-hour rainfall is estimated by interpolating between the 2-year and 100-year values, as described in Figure 6 (Miller et al., 1973). The 2-hour and 3-hour rainfall values are estimated by interpolating between the 1-hour and 6-hour values. Finally, the rainfall for storm duration shorter than one hour is estimated from the Adjustment Factors listed in Table 13 (Miller et al., 1973).

Based on the data shown in Table 1, intensity duration-frequency curves for Pocatello are shown in Figure 2.

3. Surface Runoff

The rational method is a widely used method for the design of storm drains, particularly for small drainage areas. The rational method relates peak surface runoff flow rate to rainfall intensity, surface drainage area and the runoff coefficient C, defined as the fraction of rainfall that appears as surface runoff:

$$Q_R = CiA \tag{3}$$

where

Q_R peak runoff flow rate [L^3/T]

C runoff coefficient which includes the combined effects of ponding, infiltration and evaporation

A drainage area [L^2]

i rainfall intensity which depends on the design return period and the storm duration [L/T].

3.1. Runoff Coefficient C

The Runoff Coefficient C is a factor representing the fraction of rainfall that will reach the storm drains. It is influenced by the combination of many factors which include the following:

- storm intensity and duration
- soil properties such as: character and condition of the soil
- soil cover
- ground slope
- ponding character of the surface

- antecedent soil moisture content
- proximity of the water table
- depression storage

The runoff coefficient that is selected must take into account the integrated effects of all of the above factors. Typical values for the runoff coefficient as a function of surface characteristics and storm return period are listed by Chow et al. (Table 15.1.1, page 498, 1988). For a pasture/range soil cover and an average slope of 2-7 %, Chow et al. (1988) report C values of 0.42 and 0.49 for storm return values of 25 and 100 years, respectively. To provide some measure of conservatism, C values of 0.5 and 0.6 are used in this calculation for the 25-year and 100-year return periods, respectively.

3.2. Time of Concentration

The time of concentration for each sub-areas of Pond 18 is the sum of the overland travel-time from the most remote point and the channel travel-time:

$$t_c = t_o + t_{ch} \tag{4}$$

where

t_c time of concentration

t_o maximum overland travel-time to drainage channel

t_{ch} maximum channel travel-time

Several empirical equations are found in the literature for the estimation of the time of concentrations for various watershed areas and conditions. The equation selected in this calculation is the Kirpich formula (Kirpich, 1940) which was developed based on Soil Conservation Service data collected from small rural drainage areas:

$$t_o = 0.0078 L_o^{0.77} s^{-0.385} \tag{5}$$

where

t_o overland travel-time in minutes

L_o maximum overland flow distance in feet

s surface slope

The travel time through the channel can be estimated using Manning Equation. Alternatively, because the channel is not designed yet, an average channel velocity is assumed and the travel-time is given by:

$$t_o = \frac{L_{ch}}{V_{ch}} \tag{6}$$

where

L_{ch} is the channel length

V_{ch} average channel velocity

Reasonable flow velocities for a self-cleaning channel are 2-5 ft/s. In this calculation, we assume that the velocity is equal to the upper limit of this range, i.e., V_{ch}=5 ft/s.

Table 2 presents the overland travel-time, channel-travel time, and time of concentration for sub-areas A2 and A3. The time of concentration for A1 is based on a cap surface slope of 4 %. For A2, the time of concentration is based on an average surface slope of 2.5 % determined from elevation contours. Note that the the larger of the time of concentration of A1 and A2, and larger of the time of concentration of A3 and A4, will be used to determine the design flow rates for the southern perimeter drain.

Table 2: Time of Concentration for Pond 18

Pond Section	Area A (ft^2)	Overland Distance L_o (feet)	Channel Distance L_{ch} (feet)	Estimated Travel Time		Time of Concentration (min)
				Overland (min)	Channel (min)	
A1	65,000	150	600	1.3	2	3.3
A2	460,000	1100	600	7.1	2	9.1
A1 and A2	525,000					9.1 use 9
A3	25,000	150	200	1.3	0.7	2
A4	85,000	850	200	5.8	0.7	6.5
A3 and A4	110,000					6.5 use 6

3.3. Peak Flow Rate

Based on the rational equation (Eq. 1) and the runoff coefficient and time of concentration values estimated in Sections 3.1 and 3.2, the peak surface runoff flow rates at the downstream end of the southern perimeter drain for the 25-year and 100-year return periods are presented in Table 3.

Table 3: Peak Surface Runoff For Downstream End of Southern Perimeter Drain

Area	Surface Area A		Design Time of Concentration t_c	Return Period	Runoff Coefficient C	Rainfall Intensity I		Peak Surface Runoff Q_R
	Acres	ft^2	(min)	(year)		in	(in/hr)	(cfs)
A1, A2	12.1	525,000	9	25	0.5	0.33	2.2	13.3
				100	0.6	0.46	3.1	22.5
A3, A4	2.5	110,000	6	25	0.5	0.26	2.6	3.3
				100	0.6	0.36	3.6	5.4

4. List of References

Kirpich, Z. P., Time of concentration of small agricultural watersheds, *Civ Eng.*, Vol. 10, No. 6, p 362, 1940.

Miller, J. F., R. H., Frederick, and R. J. Tracey, 1973, *Precipitation-Frequency Atlas of the Western United States, Volume V-Idaho*, US Department of Commerce, National Oceanic and Atmospheric Administration.

Chow, V. T. D. R., Maidment, and L W. Mays, 1988, *Applied Hydrology*, McGraw-Hill.

USDA, Soil Conservation Service, 1985, *National Engineering Handbook, Section 4, Hydrology*, US Government Printing Office, Washington DC.

POND 16S

POND 18
Cell B

POND 18 Cell A

A1

A2

A3

A4

POND 17

Perimeter Drains

N

0 250 500 FEET

0 50 100 150 METERS

BECHTEL ENVIRONMENTAL, INC.

ASTARIS IDAHO, LLC
POCATELLO, IDAHO

Pond 18 Cell A Drainage System

Job Number	Drawing No.	Rev.
24230	Figure 1	1

5FOSB092\BS_EMF_DRAW\ROOT\FMC-RCRA\ 18cellA_CLOSE\
18cellA_drain.dgn 8/22/00

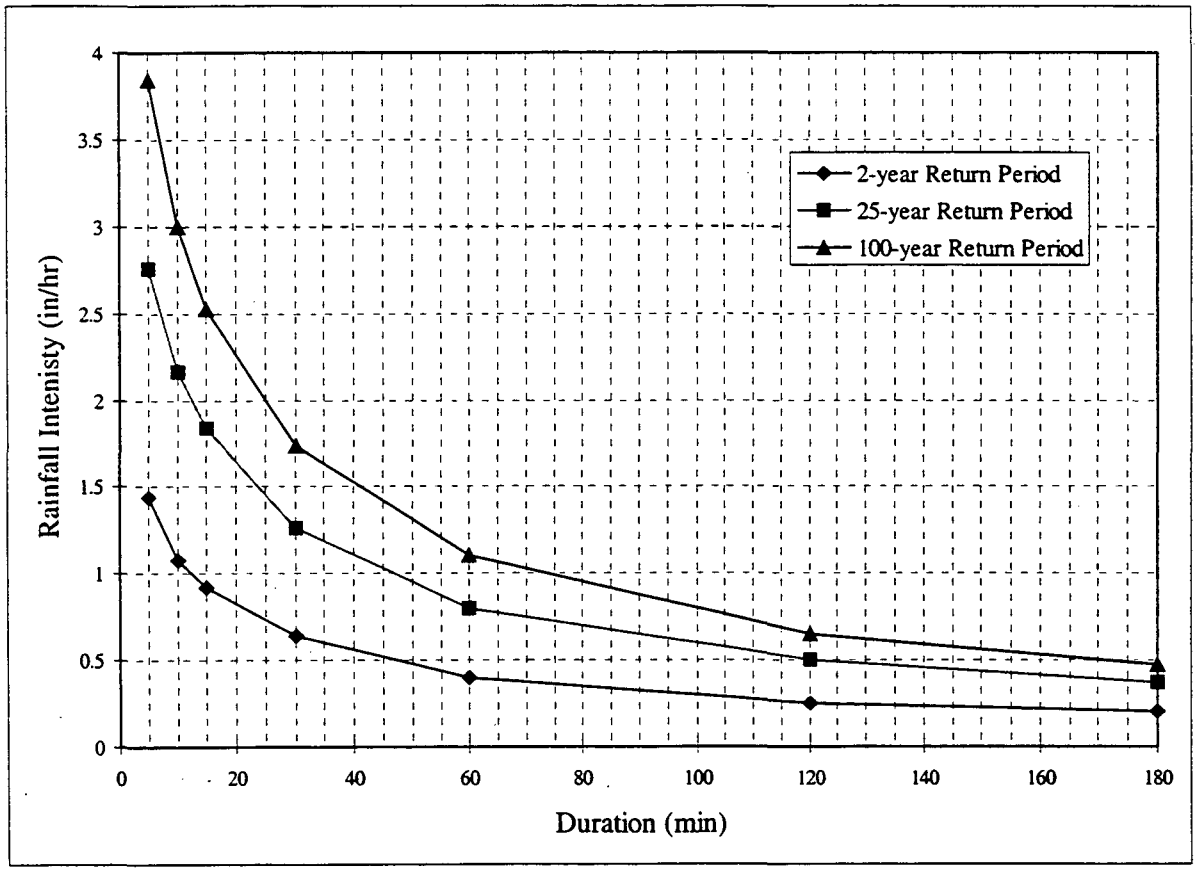


Figure 2: Intensity Duration-Frequency Curves for Pocatello, Idaho

Bechtel National, Inc.

CALCULATION COVER SHEET

PROJECT	JOB NO.	CALC NO.	SHEET
EMF	24230	P18calc102	1

SUBJECT	GROUP
Pond 18 - Surface drainage dtiches	Remediation Engineering

CALCULATION STATUS DESIGNATION	PRELIMINARY	CONFIRMED	SUPERSEDED	VOIDED
	[x]	[ ]	[ ]	[ ]

COMPUTER PROGRAM / TYPE	SCP	MAINFRAME	PC	PROGRAM NO.	VERSION / RELEASE NO.
	[ ] YES [x] NO	[ ]	[ ]		

NO.	REASON FOR REVISION	TOTAL NO OF SHEETS	LAST SHEET NO.	BY	CHECKED	APPROVED / ACCEPTED	DATE
0	Preliminary	3	3	RLN			

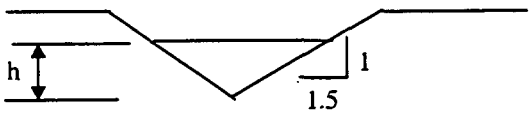
RECORD OF REVISIONS

Drainage Area	Discharge Rate Q (cfs) 25-year Storm	100-year Storm
A1, A2	13.3	22.5
A3, A4	3.3	5.4

Ditches for Drainage Areas A1,A2 & A3,A4

Manning's Formula:
v= 1.486*(HR)^(2/3)*s^(1/2)/n ; HR= A/WP ; WP= wetted perimeter ; A = area ;

Q= v*A



WP = (1^(2)+1.5^(2))^(1/2)*h*2 = 3.606 *h

A = h*(1.5*h) = 1.5*h^(2)

HR = A / WP = 0.416 *h

Drainage Area A1,A2:

Use unlined "V" ditch with 1-1/2 : 1 side slopes,

n= 0.025 ; minimum slope = 0.2 % or s = 0.002

v= 1.486*(.42h)^(2/3)*(.003)^(1/2)/.025 = 1.481 *h^(2/3)

Q = (1.83*h^(2/3)*1.5*h^(2) = 2.222 *h^(8/3)

Q_{25} = 13.3 = 2.72*h^(8/3) ; h = (3.6/2.72)^(3/8) = 1.956 ft. ; v = 2.3 fps

Q_{100} = 22.5 = 2.72*h^(8/3) ; h = (5.8/2.72)^(3/8) = 2.382 ft. v = 2.6 fps

USE UNLINED "V" DITCH W/ .2% SLOPE AND DEPTH OF 30 INCHES

Drainage Area A3,A4:

Use unlined "V" ditch with 1-1/2 : 1 side slopes,

n= 0.025 ; minimum slope = 0.25 % or s = 0.0025

v= 1.486*(.42h)^(2/3)*(.0025)^(1/2)/.025 = 1.656 *h^(2/3)

Q = (1.66*h(2/3)*1.5*h^(2) = 2.484 *h^(8/3)

Calculation Sheet

Originator	R. Ng	Date	7/19/2001	Calc. No.	P18calc102	Rev. No.	
Project	EMF	Job No.	24230-030	Checked		Date	
Subject	Pond 18 - Surface drainage dtiches					Sheet No.	3

Q_{25} = 3.3 = 2.48*h^(8/3) ; h = (6.4/2.48)^(3/8) = 1.112 ft. ; v = 1.8 fps

Q_{100} = 5.4 = 2.48*h^(8/3) ; h = (10.4/2.48)^(3/8) = 1.338 ft. v = 2.0 fps

USE UNLINED "V" DITCH W/ .25% SLOPE AND DEPTH OF 18 INCHES

Appendix L

APPENDIX L

GROUNDWATER CHEMISTRY STATISTICS FOR POND 18, CELL A

POND 18

Waste Management Unit 15

Note:

1. **Time series plot scales are variable depending on the concentrations.**

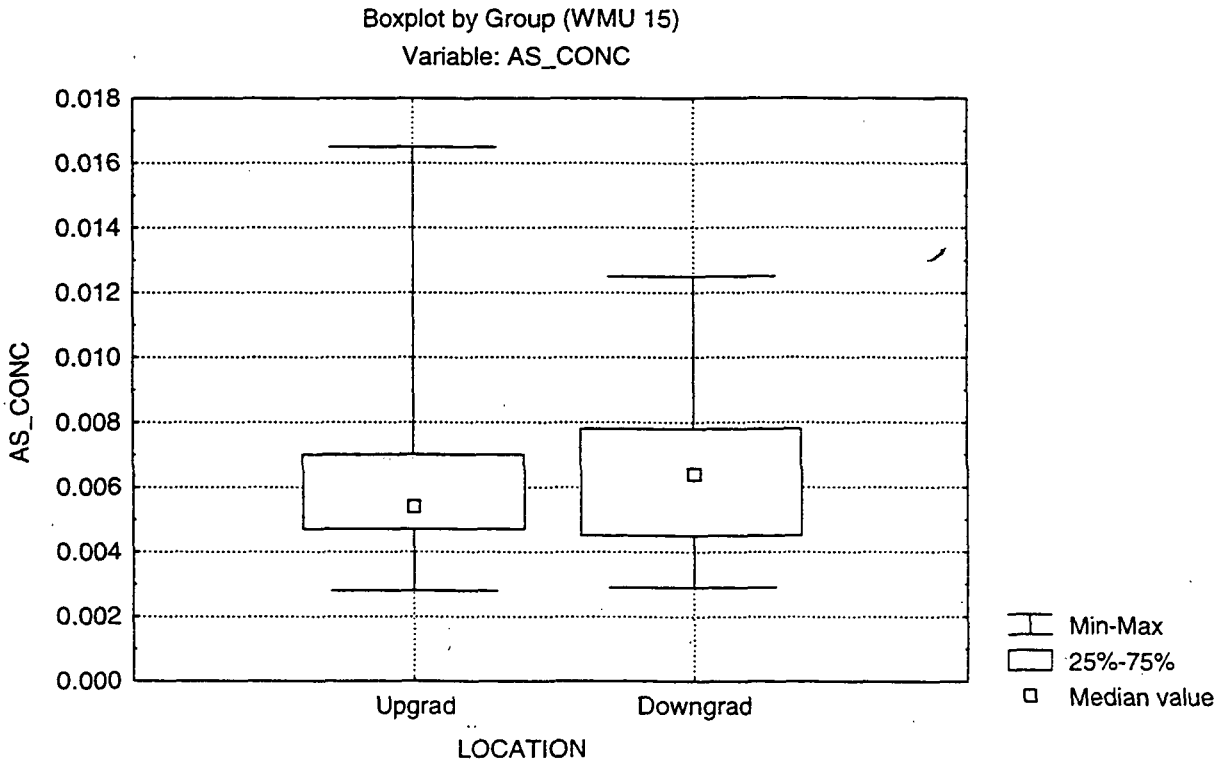
2. **Undetected values are not plotted on time series plots**

WMU 15 TEST 1 ARSENIC

STAT. NONPAR STATS	Mann-Whitney U Test (wmu15-as.sta) By variable LOCATION Group 1: 1-Upgrad Group 2: 2-Downgrad						
variable	Rank Sum Upgrad	Rank Sum Downgrad	U	Z	p-level	Z adjusted	p-level
AS_CONC	337.5000	1258.500	246.5000	-.640415	.521908	-.640820	.521644

STAT. NONPAR STATS	Mann-Whitney U Test (wmu15-as.sta) By variable LOCATION Group 1: 1-Upgrad Group 2: 2-Downgrad	
variable	Valid N Upgrad	Valid N Downgrad
AS_CONC	13	43

Summary: Downgradient and upgradient concentrations of arsenic are statistically the same.



TEST 2
STATISTICS FOR POND 18 (WMU 15)

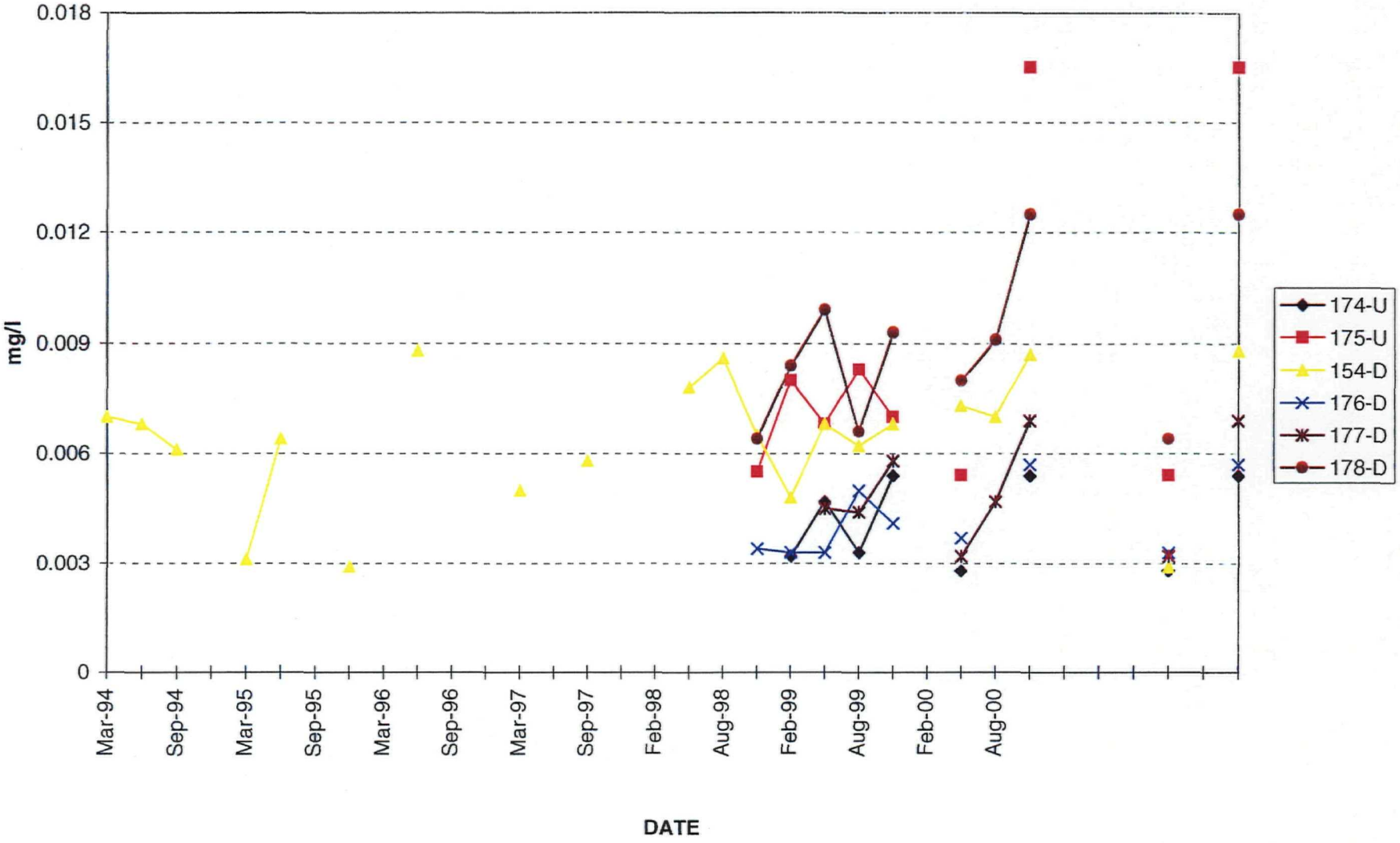
Arsenic

	Upgradient Wells			Downgradient Wells		
Date	Well 174	Well 175	Well 154	Well 176	Well 177	Well 178
Dec-92	N.S.	N.S.	U	N.S.	N.S.	N.S.
Mar-93	N.S.	N.S.	0.006	N.S.	N.S.	N.S.
Jun-93	N.S.	N.S.	0.008	N.S.	N.S.	N.S.
Sep-93	N.S.	N.S.	U	N.S.	N.S.	N.S.
Dec-93	N.S.	N.S.	0.003	N.S.	N.S.	N.S.
Mar-94	N.S.	N.S.	0.007	N.S.	N.S.	N.S.
Jun-94	N.S.	N.S.	0.007	N.S.	N.S.	N.S.
Sep-94	N.S.	N.S.	0.006	N.S.	N.S.	N.S.
Dec-94	N.S.	N.S.	U	N.S.	N.S.	N.S.
Mar-95	N.S.	N.S.	0.003	N.S.	N.S.	N.S.
Jun-95	N.S.	N.S.	0.006	N.S.	N.S.	N.S.
Sep-95	N.S.	N.S.	U	N.S.	N.S.	N.S.
Dec-95	N.S.	N.S.	0.003	N.S.	N.S.	N.S.
Mar-96	N.S.	N.S.	U	N.S.	N.S.	N.S.
Jun-96	N.S.	N.S.	0.009	N.S.	N.S.	N.S.
Sep-96	N.S.	N.S.	U	N.S.	N.S.	N.S.
Dec-96	N.S.	N.S.	U	N.S.	N.S.	N.S.
Mar-97	N.S.	N.S.	0.005	N.S.	N.S.	N.S.
Jun-97	N.S.	N.S.	U	N.S.	N.S.	N.S.
Sep-97	N.S.	N.S.	0.006	N.S.	N.S.	N.S.
Dec-97	N.S.	N.S.	U	N.S.	N.S.	N.S.
Feb-98	N.S.	N.S.	U	N.S.	N.S.	N.S.
May-98	N.S.	N.S.	0.0078	N.S.	N.S.	N.S.
Aug-98	N.S.	N.S.	0.0086	N.S.	N.S.	N.S.
Nov-98	U	**0.0055**	0.0065	0.0034	U	0.0064
Feb-99	**0.0032**	**0.008**	0.0048	0.0033	U	0.0084
May-99	**0.0047**	**0.0068**	0.0068	0.0033	0.0045	0.0099
Aug-99	**0.0033**	**0.0083**	0.0062	0.005	0.0044	0.0066
Nov-99	**0.0054**	**0.007**	0.0068	0.0041	0.0058	0.0093
Mar-00	*U*	*U*	*U*	*U*	*U*	*U*
May-00	*0.0028*	*0.0054*	*0.0073*	*0.0037*	*0.0032*	*0.008*
Aug-00	*U*	*U*	*0.007*	*U*	*0.0047*	*0.0091*
Nov-00	*0.0054*	*0.0165*	*0.0087*	*0.0057*	*0.0069*	*0.0125*

	Well 174	Well 175	Well 154	Well 176	Well 177	Well 178
Pre-2000 Mean	**0.004**	**0.007**	0.006	0.004	0.005	0.008
2000 Mean	**0.004**	**0.011**	0.008	0.005	0.005	0.010
1991-2000 Summary						
Mean	**0.004**	**0.008**	0.006	0.004	0.005	0.009
Standard Error	**0.000**	**0.001**	0.000	0.000	0.001	0.001
Median	**0.004**	**0.007**	0.007	0.004	0.005	0.009
Mode	**0.005**	#N/A	0.007	0.003	#N/A	#N/A
Standard Deviation	**0.001**	**0.004**	0.002	0.001	0.001	0.002
Sample Variance	**0.000**	**0.000**	0.000	0.000	0.000	0.000
Kurtosis	**-2.674**	**5.220**	-0.040	-0.180	0.305	0.992
Skewness	**0.090**	**2.188**	-0.641	1.083	0.463	0.746
Range	**0.003**	**0.011**	0.006	0.002	0.004	0.006
Minimum	**0.003**	**0.005**	0.003	0.003	0.003	0.006
Maximum	**0.005**	**0.017**	0.009	0.006	0.007	0.013
Sum	**0.025**	**0.058**	0.140	0.029	0.030	0.070
Count	**6**	**7**	22	7	6	8

U = Not Detected; #N/A = Value not calculated because of non-detect or not sampled values in data set.
N.S = Not Sampled, Upgradient well(s) in bold; 2000 data in italics.
All concentrations in mg/l.

Arsenic in Groundwater (WMU 15)

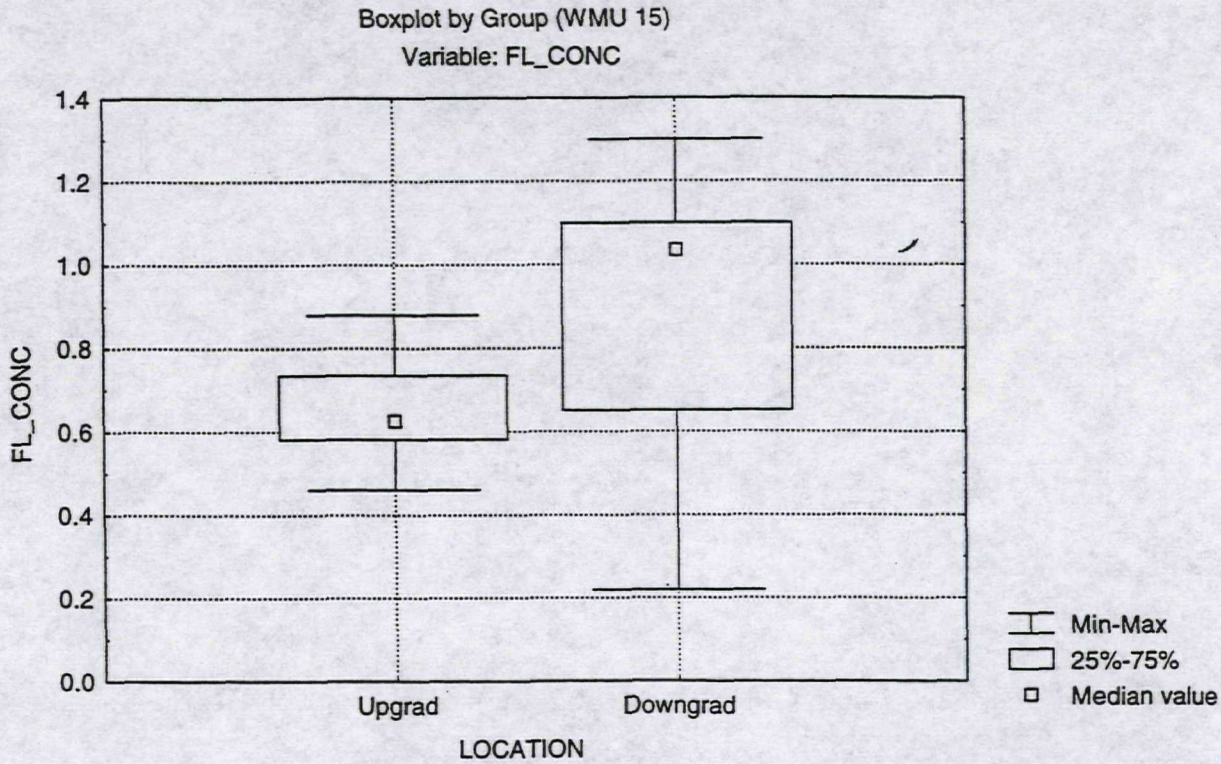


WMU 15 TEST 1 FLUORIDE

STAT. NONPAR STATS	Mann-Whitney U Test (wmu15-fl.sta) By variable LOCATION Group 1: 1-Upgrad Group 2: 2-Downgrad						
variable	Rank Sum Upgrad	Rank Sum Downgrad	U	Z	p-level	Z adjusted	p-level
FL_CONC	313.0000	2172.000	177.0000	-3.56652	.000362	-3.57030	.000357

STAT. NONPAR STATS	Mann-Whitney U Test (wmu15-fl.sta) By variable LOCATION Group 1: 1-Upgrad Group 2: 2-Downgrad	
variable	Valid N Upgrad	Valid N Downgrad
FL_CONC	16	54

Summary: Downgradient wells have statistically higher fluoride than upgradient wells.

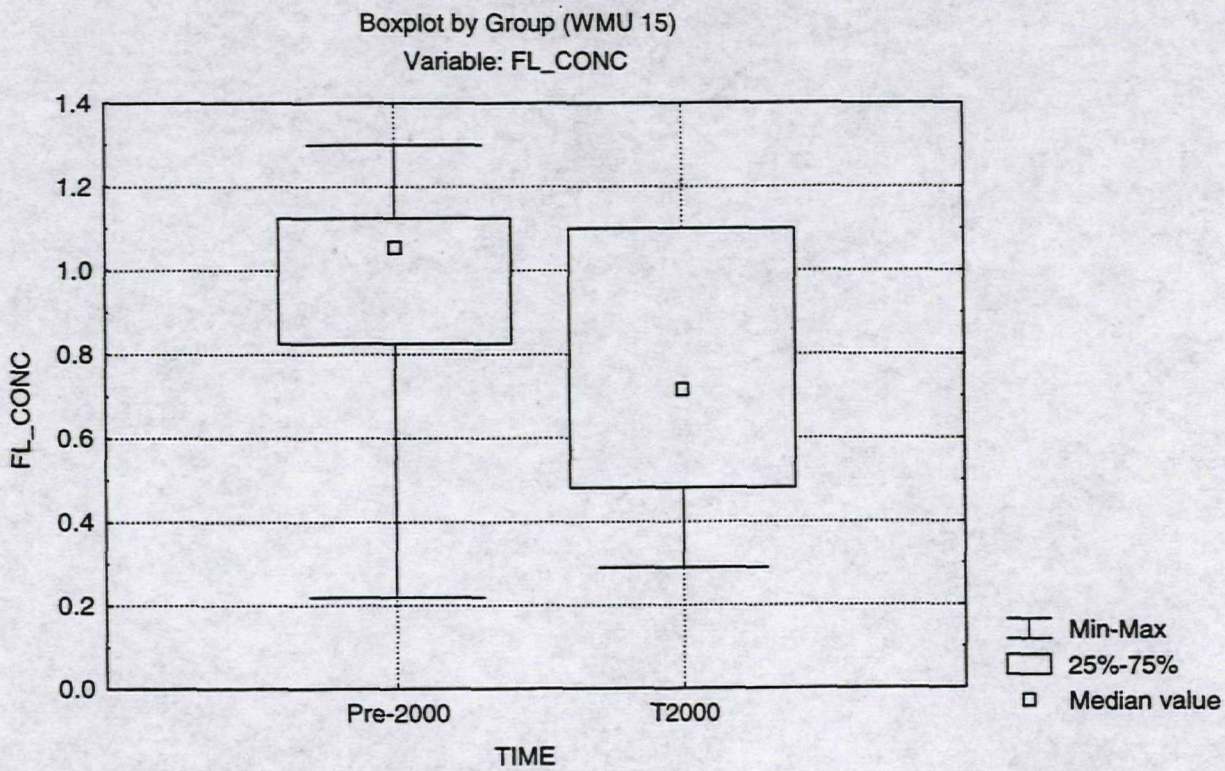


WMU 15 TEST 3 FLUORIDE

STAT. NONPAR STATS	Mann-Whitney U Test (wmu15fld.sta) By variable TIME Group 1: 4-Pre-2000 Group 2: 3-T2000						
variable	Rank Sum Pre-2000	Rank Sum T2000	U	Z	p-level	Z adjusted	p-level
FL_CONC	1218.000	267.0000	162.0000	-2.32915	.019857	-2.33400	.019602

STAT. NONPAR STATS	Mann-Whitney U Test (wmu15fld.sta) By variable TIME Group 1: 4-Pre-2000 Group 2: 3-T2000	
variable	Valid N Pre-2000	Valid N T2000
FL_CONC	40	14

Summary: T2000 fluoride concentrations are statistically lower than Pre-2000 fluoride concentrations.



TEST 2
STATISTICS FOR POND 18 (WMU 15)

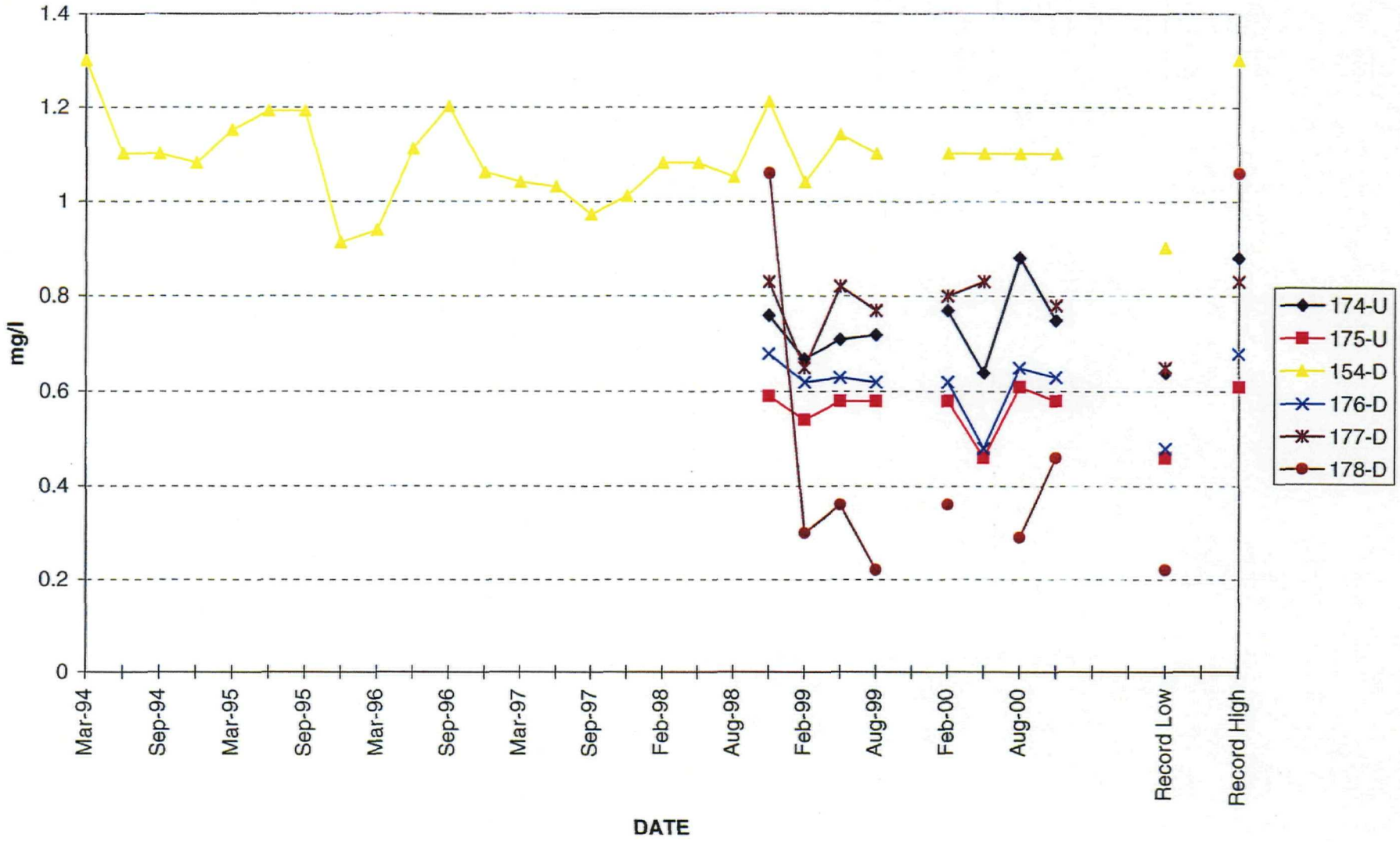
Fluoride

	Upgradient Wells			Downgradient Wells		
Date	Well 174	Well 175	Well 154	Well 176	Well 177	Well 178
Dec-92	N.S.	N.S.	1.200	N.S.	N.S.	N.S.
Mar-93	N.S.	N.S.	1.200	N.S.	N.S.	N.S.
Jun-93	N.S.	N.S.	1.100	N.S.	N.S.	N.S.
Sep-93	N.S.	N.S.	0.900	N.S.	N.S.	N.S.
Dec-93	N.S.	N.S.	1.200	N.S.	N.S.	N.S.
Mar-94	N.S.	N.S.	1.300	N.S.	N.S.	N.S.
Jun-94	N.S.	N.S.	1.100	N.S.	N.S.	N.S.
Sep-94	N.S.	N.S.	1.100	N.S.	N.S.	N.S.
Dec-94	N.S.	N.S.	1.080	N.S.	N.S.	N.S.
Mar-95	N.S.	N.S.	1.150	N.S.	N.S.	N.S.
Jun-95	N.S.	N.S.	1.190	N.S.	N.S.	N.S.
Sep-95	N.S.	N.S.	1.190	N.S.	N.S.	N.S.
Dec-95	N.S.	N.S.	0.910	N.S.	N.S.	N.S.
Mar-96	N.S.	N.S.	0.936	N.S.	N.S.	N.S.
Jun-96	N.S.	N.S.	1.110	N.S.	N.S.	N.S.
Sep-96	N.S.	N.S.	1.200	N.S.	N.S.	N.S.
Dec-96	N.S.	N.S.	1.060	N.S.	N.S.	N.S.
Mar-97	N.S.	N.S.	1.040	N.S.	N.S.	N.S.
Jun-97	N.S.	N.S.	1.030	N.S.	N.S.	N.S.
Sep-97	N.S.	N.S.	0.970	N.S.	N.S.	N.S.
Dec-97	N.S.	N.S.	1.010	N.S.	N.S.	N.S.
Feb-98	N.S.	N.S.	1.080	N.S.	N.S.	N.S.
May-98	N.S.	N.S.	1.080	N.S.	N.S.	N.S.
Aug-98	N.S.	N.S.	1.050	N.S.	N.S.	N.S.
Nov-98	**0.760**	**0.590**	1.210	0.680	0.830	1.060
Feb-99	**0.670**	**0.540**	1.040	0.620	0.650	0.300
May-99	**0.710**	**0.580**	1.140	0.630	0.820	0.360
Aug-99	**0.720**	**0.580**	1.100	0.620	0.770	0.220
Nov-99	**U**	**U**	U	U	U	U
Mar-00	***0.77***	***0.58***	*1.10*	*0.62*	*0.8*	*0.36*
May-00	***0.64***	***0.46***	*1.10*	*0.48*	*0.83*	*U*
Aug-00	***0.88***	***0.61***	*1.10*	*0.65*	*U*	*0.29*
Nov-00	***0.75***	***0.58***	*1.10*	*0.63*	*0.78*	*0.46*

	Well 174	Well 175	Well 154	Well 176	Well 177	Well 178
Pre-2000 Mean	**0.715**	**0.573**	1.096	0.638	0.768	0.485
2000 Mean	**0.760**	**0.558**	1.100	0.595	0.803	0.370
1991-2000 Summary						
Mean	**0.738**	**0.565**	1.096	0.616	0.783	0.436
Standard Error	**0.026**	**0.016**	0.016	0.021	0.024	0.108
Median	**0.735**	**0.580**	1.100	0.625	0.800	0.360
Mode	**#N/A**	**0.580**	1.100	0.620	0.830	0.360
Standard Deviation	**0.073**	**0.047**	0.091	0.059	0.063	0.285
Sample Variance	**0.005**	**0.002**	0.008	0.003	0.004	0.081
Kurtosis	**1.497**	**4.308**	0.218	5.510	4.079	5.530
Skewness	**0.828**	**-1.982**	-0.237	-2.088	-1.927	2.282
Range	**0.240**	**0.150**	0.400	0.200	0.180	0.840
Minimum	**0.640**	**0.460**	0.900	0.480	0.650	0.220
Maximum	**0.880**	**0.610**	1.300	0.680	0.830	1.060
Sum	**5.900**	**4.520**	35.08	4.930	5.480	3.050
Count	**8**	**8**	32	8	7	7

U = Not Detected; #N/A = Value not calculated because of non-detect or not sampled values in data set.
N.S = Not Sampled, Upgradient well(s) in bold; 2000 data in italics.
All concentrations in mg/l.

Fluoride in Groundwater (WMU 15)

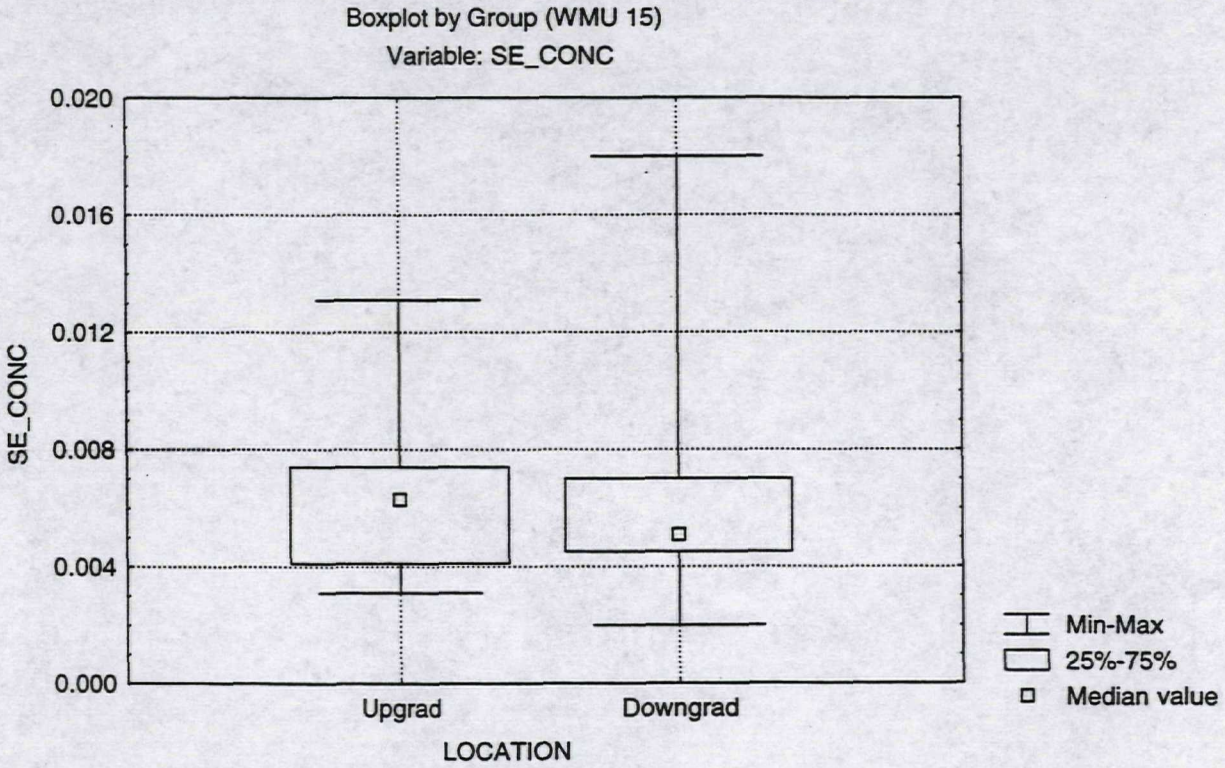


WMU 15 TEST 1 SELENIUM

STAT. NONPAR STATS	Mann-Whitney U Test (wmu15-se.sta) By variable LOCATION Group 1: 1-Upgrad Group 2: 2-Downgrad						
variable	Rank Sum Upgrad	Rank Sum Downgrad	U	Z	p-level	Z adjusted	p-level
SE_CONC	192.0000	438.0000	113.0000	-.438178	.661260	-.438393	.661104

STAT. NONPAR STATS	Mann-Whitney U Test (wmu15-se.sta) By variable LOCATION Group 1: 1-Upgrad Group 2: 2-Downgrad	
variable	Valid N Upgrad	Valid N Downgrad
SE_CONC	10	25

Summary: Downgradient and upgradient concentrations of selenium are statistically the same.



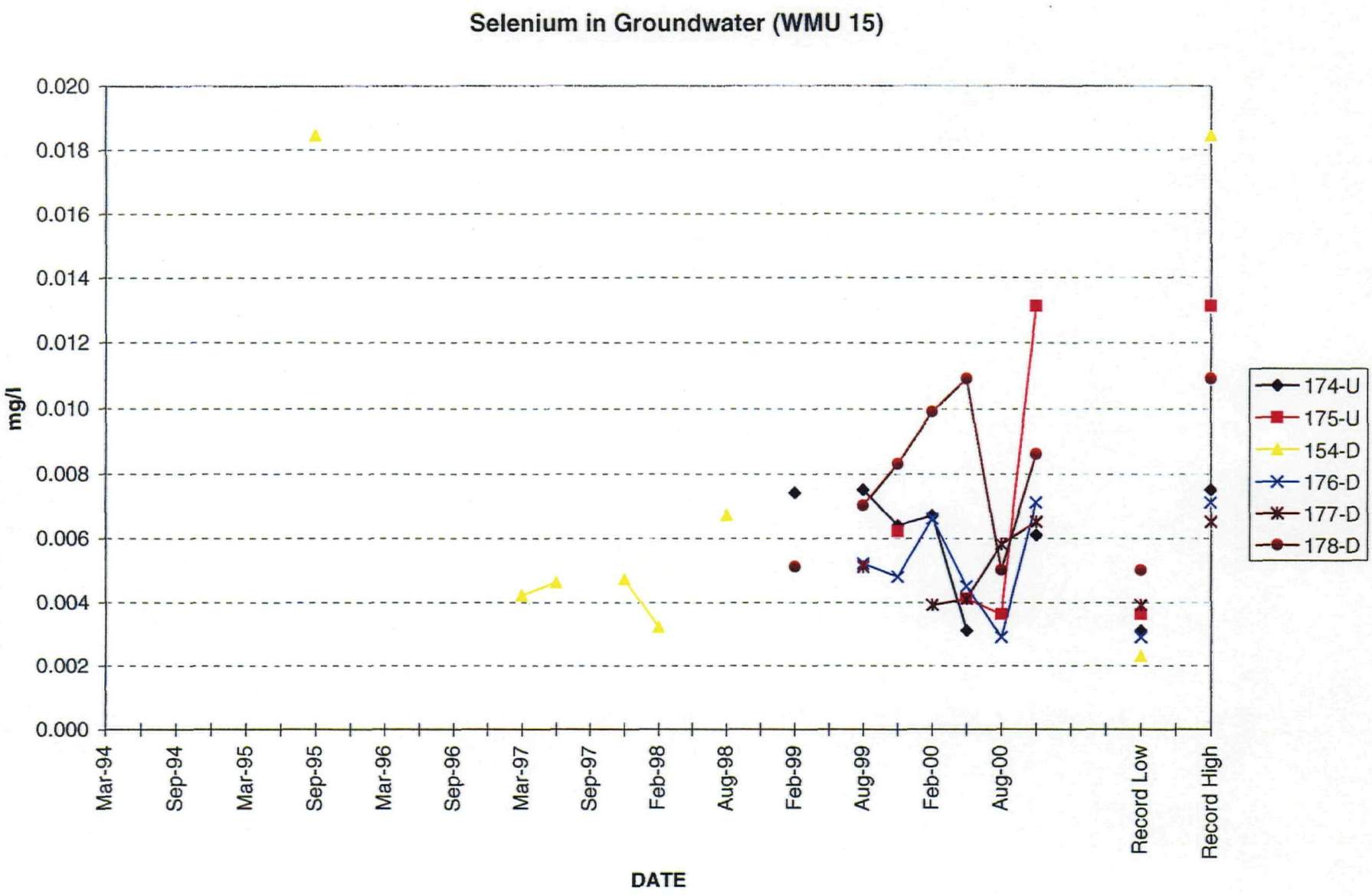
TEST 2
STATISTICS FOR POND 18 (WMU 15)

Selenium

	Upgradient Wells			Downgradient Wells		
Date	Well 174	Well 175	Well 154	Well 176	Well 177	Well 178
Dec-92	N.S.	N.S.	U	N.S.	N.S.	N.S.
Mar-93	N.S.	N.S.	0.002	N.S.	N.S.	N.S.
Jun-93	N.S.	N.S.	U	N.S.	N.S.	N.S.
Sep-93	N.S.	N.S.	U	N.S.	N.S.	N.S.
Dec-93	N.S.	N.S.	U	N.S.	N.S.	N.S.
Mar-94	N.S.	N.S.	U	N.S.	N.S.	N.S.
Jun-94	N.S.	N.S.	U	N.S.	N.S.	N.S.
Sep-94	N.S.	N.S.	U	N.S.	N.S.	N.S.
Dec-94	N.S.	N.S.	U	N.S.	N.S.	N.S.
Mar-95	N.S.	N.S.	U	N.S.	N.S.	N.S.
Jun-95	N.S.	N.S.	U	N.S.	N.S.	N.S.
Sep-95	N.S.	N.S.	0.018	N.S.	N.S.	N.S.
Dec-95	N.S.	N.S.	U	N.S.	N.S.	N.S.
Mar-96	N.S.	N.S.	U	N.S.	N.S.	N.S.
Jun-96	N.S.	N.S.	U	N.S.	N.S.	N.S.
Sep-96	N.S.	N.S.	U	N.S.	N.S.	N.S.
Dec-96	N.S.	N.S.	U	N.S.	N.S.	N.S.
Mar-97	N.S.	N.S.	0.004	N.S.	N.S.	N.S.
Jun-97	N.S.	N.S.	0.005	N.S.	N.S.	N.S.
Sep-97	N.S.	N.S.	U	N.S.	N.S.	N.S.
Dec-97	N.S.	N.S.	0.005	N.S.	N.S.	N.S.
Feb-98	N.S.	N.S.	0.0032	N.S.	N.S.	N.S.
May-98	N.S.	N.S.	U	N.S.	N.S.	N.S.
Aug-98	N.S.	N.S.	0.0067	N.S.	N.S.	N.S.
Nov-98	U	U	U	U	U	U
Feb-99	**0.0074**	U	U	U	U	0.0051
May-99	U	U	U	U	U	U
Aug-99	**0.0075**	U	U	0.0052	0.0051	0.007
Nov-99	**0.0064**	**0.0062**	U	0.0048	U	0.0083
Mar-00	*0.0067*	*U*	*U*	*0.0066*	*0.0039*	*0.0099*
May-00	*0.0031*	*0.0041*	*U*	*0.0045*	*0.0041*	*0.0109*
Aug-00	*U*	*0.0036*	*U*	*0.0029*	*0.0058*	*0.005*
Nov-00	*0.0061*	*0.0131*	*U*	*0.0071*	*0.0065*	*0.0086*

	Well 174	Well 175	Well 154	Well 176	Well 177	Well 178
Pre-2000 Mean	**0.007**	**0.006**	0.006	0.005	0.005	0.007
2000 Mean	**0.005**	**0.007**	#N/A	0.005	0.005	0.009
1991-2000 Summary						
Mean	**0.006**	**0.007**	0.006	0.005	0.005	0.008
Standard Error	**0.001**	**0.002**	0.002	0.001	0.000	0.001
Median	**0.007**	**0.005**	0.005	0.005	0.005	0.008
Mode	**#N/A**	**#N/A**	#N/A	#N/A	#N/A	#N/A
Standard Deviation	**0.002**	**0.004**	0.006	0.002	0.001	0.002
Sample Variance	**0.000**	**0.000**	0.000	0.000	0.000	0.000
Kurtosis	**3.768**	**2.556**	5.661	-0.311	-1.977	-1.334
Skewness	**-1.833**	**1.634**	2.317	-0.206	0.201	-0.103
Range	**0.004**	**0.010**	0.016	0.004	0.003	0.006
Minimum	**0.003**	**0.004**	0.002	0.003	0.004	0.005
Maximum	**0.008**	**0.013**	0.018	0.007	0.007	0.011
Sum	**0.037**	**0.027**	0.044	0.031	0.025	0.055
Count	**6**	**4**	7	6	5	7

U = Not Detected; #N/A = Value not calculated because of non-detect or not sampled values in data set.
N.S = Not Sampled, Upgradient well(s) in bold; 2000 data in italics.
All concentrations in mg/l.


Selenium in Groundwater (WMU 15)
mg/l
0.020
0.018
0.016
0.014
0.012
0.010
0.008
0.006
0.004
0.002
0.000
Mar-94
Sep-94
Mar-95
Sep-95
Mar-96
Sep-96
Mar-97
Sep-97
Feb-98
Aug-98
Feb-99
Aug-99
Feb-00
Aug-00
Record Low
Record High
DATE
174-U
175-U
154-D
176-D
177-D
178-D

Appendix M

APPENDIX M

VENDOR INFORMATION AND DATA RESULTS ON LINER COMPATIBILITY

GSE™
GSE Lining Technology, Inc.

19103 Gundle Road
Houston, Texas 77073
800-435-2008
713-443-8564
Fax: 713-875-6010

10 September, 1997

Bechtel Corporation
50 Beale Street
San Franscico, CA 94105

Attn: Michael Kostanian

Re: Chemical Resistance of Polyethylene Geomembranes

GSE geomembranes are made of high quality, virgin polyethylene resin which demonstrates excellent chemical resistance. GSE polyethylene geomembranes are resistant to a great number and combinations of chemicals. It is this property of HDPE geomembranes that makes it the lining material of choice.

The chemical resistance of polyethylene has been investigated by many people over the past several decades. We are able to draw from that work when making statements about the chemical resistance of today's polyethylene geomembranes. In addition to that, many tests have been performed that specifically use geomembranes and certain chemical mixtures. Naturally, however, every mixture of chemicals cannot be tested for. Please refer to the attached chemical resistance data sheet for polyethylene.

Polyethylene is, for practical purposes, considered impermeable. Be aware, however, that all materials are permeable to some extent that varies with concentration, temperature, pressure and type of permeant. The rates of permeation are so low, however, that they are usually insignificant. In general, oxidizing chemicals are the only substances that can degrade polyethylene. For example, long term containment of concentrated sulphuric acid is not recommended.

In the case of containment of phosphene and elemental phosphorous in the project you described, GSE recommends HDPE liner. HDPE can withstand exposure to phosphene and elemental phosphorous for many years without any permanent damage (provided the temperature is less than 30 °C); we cannot make any guarantee of *maximum* exposure time.

If you have any questions, please feel free to call or fax.

Regards,

Matt Adams

Matthew W. Adams
Technical Support
Chemist

Chemical Resistance

For environmental lining solutions...the world comes to GSE.

GSE is the world's leading supplier of high quality, polyethylene geomembranes. GSE polyethylene geomembranes are resistant to a great number and combinations of chemicals. Note that the effect of chemicals on any material is influenced by a number of variable factors such as temperature, concentration, exposed area and duration. Many tests have been performed that use geomembranes and certain specific chemical mixtures. Naturally, however, every mixture of chemicals cannot be tested for, and various criteria may be used to judge performance. Reported performance ratings may not apply to all applications of a given material in the same chemical. Therefore, these ratings are offered as a guide only.

Abbreviations

S = Satisfactory
L = Limited application possible
U = Unsatisfactory
— = Not tested

Concentration

sat. sol. = Saturated aqueous solution, prepared at 20°C (68°F)
sol. = aqueous solution with concentration above 10% but below saturation level
dil. sol. = diluted aqueous solution with concentration below 10%
cust. conc. = customary service concentration

Medium	Concentration	Resistance at: 20 °C (68 °F)	60 °C (140 °F)
A			
Acetic acid	100%	S	L
Acetic acid	10%	S	S
Acetic acid anhydride	100%	S	L
Acetone	100%	L	L
Adipic acid	sat. sol.	S	S
Allyl alcohol	96%	S	S
Aluminum chloride	sat. sol.	S	S
Aluminum fluoride	sat. sol.	S	S
Aluminum sulfate	sat. sol.	S	S
Alum	sol.	S	S
Ammonia, aqueous	dil. sol.	S	S
Ammonia, gaseous dry	100%	S	S
Ammonia, liquid	100%	S	S
Ammonium chloride	sat. sol.	S	S
Ammonium fluoride	sol.	S	S
Ammonium nitrate	sat. sol.	S	S
Ammonium sulfate	sat. sol.	S	S
Ammonium sulfide	sol.	S	S
Amyl acetate	100%	S	L
Amyl alcohol	100%	S	L
Aniline	100%	S	L
Antimony trichloride	90%	S	S
Arsenic acid	sat. sol.	S	S
Aqua regia	HCl-HNO3 3/1	U	U
B			
Barium carbonate	sat. sol.	S	S
Barium chloride	sat. sol.	S	S
Barium hydroxide	sat. sol	S	S
Barium sulfate	sat. sol	S	S
Barium sulfide	sol.	S	S
Benzaldehyde	100%	S	L
Benzene	—	L	L
Benzoic acid	sat. sol.	S	S
Beer	—	S	S
Borax (sodium tetraborate)	sat. sol.	S	S
Boric acid	sat. sol	S	S
Bromine, gaseous dry	100%	U	U
Bromine, liquid	100%	U	U
Butane, gaseous	100%	S	S
1-Butanol	100%	S	S
Butyric acid	100%	S	L
C			
Calcium carbonate	sat. sol.	S	S
Calcium chlorate	sat. sol.	S	S
Calcium chloride	sat. sol.	S	S
Calcium nitrate	sat. sol.	S	S
Calcium sulfate	sat. sol	S	S
Calcium sulfide	dil. sol.	L	L
Carbon dioxide, gaseous dry	100%	S	S
Carbon disulfide	100%	L	U
Carbon monoxide	100%	S	S
Chloracetic acid	sol.	S	S
Carbon tetrachloride	100%	L	U
Chlorine, aqueous solution	sat. sol.	L	U
Chlorine, gaseous dry	100%	L	U
Chloroform	100%	U	U
Chromic acid	20%	S	L
Chromic acid	50%	S	L
Citric acid	sat. sol.	S	S
Copper chloride	sat. sol.	S	S
Copper nitrate	sat. sol.	S	S
Copper sulfate	sat. sol.	S	S
Cresylic acid	sat. sol.	L	—
Cyclohexanol	100%	S	S
Cyclohexanone	100%	S	L
D			
Decahydronaphthalene	100%	S	L
Dextrine	sol.	S	S
Diethyl ether	100%	L	—
Dioctylphthalate	100%	S	L
Dioxane	100%	S	S
E			
Ethanediol	100%	S	S
Ethanol	40%	S	L
Ethyl acetate	100%	S	U
Ethylene trichloride	100%	U	U
F			
Ferric chloride	sat. sol.	S	S
Ferric nitrate	sol.	S	S
Ferric sulfate	sat. sol.	S	S
Ferrous chloride	sat. sol.	S	S
Ferrous sulfate	sat. sol.	S	S
Fluorine, gaseous	100%	U	U
Fluorosilicic acid	40%	S	S
Formaldehyde	40%	S	S
Formic acid	50%	S	S
Formic acid	98-100%	S	S
Furfuryl alcohol	100%	S	L
G			
Gasoline	—	S	L
Glacial acetic acid	96%	S	L
Glucose	sat. sol.	S	S
Glycerine	100%	S	S
Glycol	sol.	S	S
H			
Heptane	100%	S	U
Hydrobromic acid	50%	S	S

(CONTINUED ON OTHER SIDE)

(S) Satisfactory: *Liner material is resistant to the given reagent at the given concentration and temperature. No mechanical or chemical degradation is observed.*
(L) Limited Application Possible: *Liner material may reflect some attack. Factors such as concentration, pressure and temperature directly affect liner performance against the given media. Application, however, is possible under less severe conditions, e.g. lower concentration, secondary containment, additional liner protections, etc.*
(U) Unsatisfactory: *Liner material is not resistant to the given reagent at the given concentration and temperature. Mechanical and/or chemical degradation is observed.*
(—) Not tested

This information is provided for reference purposes only and is not intended as a warranty or guarantee. GSE assumes no liability in connection with the use of this information.

Medium	Concentration	Resistance at: 20 °C (68 °F)	60 °C (140 °F)
Hydrobromic acid	100%	S	S
Hydrochloric acid	10%	S	S
Hydrochloric acid	35%	S	S
Hydrocyanic acid	10%	S	S
Hydrofluoric acid	4%	S	S
Hydrofluoric acid	60%	S	L
Hydrogen	100%	S	S
Hydrogen peroxide	30%	S	L
Hydrogen peroxide	90%	S	U
Hydrogen sulfide, gaseous	100%	S	S
L			
Lactic acid	100%	S	S
Lead acetate	sat. sol.	S	—
M			
Magnesium carbonate	sat. sol.	S	S
Magnesium chloride	sat. sol.	S	S
Magnesium hydroxide	sat. sol.	S	S
Magnesium nitrate	sat. sol.	S	S
Maleic acid	sat. sol.	S	S
Mercuric chloride	sat. sol.	S	S
Mercuric cyanide	sat. sol.	S	S
Mercuric nitrate	sol.	S	S
Mercury	100%	S	S
Methanol	100%	S	S
Methylene chloride	100%	L	—
Milk	—	S	S
Molasses	—	S	S
N			
Nickel chloride	sat. sol.	S	S
Nickel nitrate	sat. sol.	S	S
Nickel sulfate	sat. sol.	S	S
Nicotinic acid	dil. sol.	S	—
Nitric acid	25%	S	S
Nitric acid	50%	S	U
Nitric acid	75%	U	U
Nitric acid	100%	U	U
O			
Oils and Grease	—	S	L
Oleic acid	100%	S	L
Orthophosphoric acid	50%	S	S
Orthophosphoric acid	95%	S	L
Oxalic acid	sat. sol.	S	S
Oxygen	100%	S	L
Ozone	100%	L	U
P			
Petroleum (kerosene)	—	S	L
Phenol	sol.	S	S
Phosphorus trichloride	100%	S	L
Photographic developer	cust. conc.	S	S
Picric acid	sat. sol.	S	—
Potassium bicarbonate	sat. sol	S	S
Potassium bisulfide	sol.	S	S
Potassium bromate	sat. sol.	S	S
Potassium bromide	sat. sol.	S	S
Potassium carbonate	sat. sol.	S	S
Potassium chlorate	sat. sol.	S	S
Potassium chloride	sat. sol.	S	S
Potassium chromate	sat. sol.	S	S
Potassium cyanide	sol.	S	S
Potassium dichromate	sat. sol.	S	S
Potassium ferricyanide	sat. sol.	S	S
Potassium ferrocyanide	sat. sol.	S	S
Potassium fluoride	sat. sol.	S	S
Potassium hydroxide	10%	S	S
Potassium hydroxide	sol.	S	S
Potassium hypochlorite	sol.	S	L
Potassium nitrate	sat. sol.	S	S
Potassium orthophosphate	sat. sol.	S	S
Potassium perchlorate	sat. sol.	S	S
Potassium permanganate	20%	S	S
Potassium persulfate	sat. sol.	S	S
Potassium sulfate	sat. sol.	S	S
Potassium sulfite	sol.	S	S
Propionic acid	50%	S	S
Propionic acid	100%	S	L
Pyridine	100%	S	L
Q			
Quinol (Hydroquinone)	sat. sol.	S	S
S			
Salicylic acid	sat. sol.	S	S
Silver acetate	sat. sol.	S	S
Silver cyanide	sat. sol.	S	S
Silver nitrate	sat. sol.	S	S
Sodium benzoate	sat. sol.	S	S
Sodium bicarbonate	sat. sol.	S	S
Sodium biphosphate	sat. sol.	S	S
Sodium bisulfite	sol.	S	S
Sodium bromide	sat. sol.	S	S
Sodium carbonate	sat. sol.	S	S
Sodium chlorate	sat. sol.	S	S
Sodium chloride	sat. sol.	S	S
Sodium cyanide	sat. sol.	S	S
Sodium ferricyanide	sat. sol.	S	S
Sodium ferrocyanide	sat. sol.	S	S
Sodium fluoride	sat. sol.	S	S
Sodium hydroxide	40%	S	S
Sodium hydroxide	sat. sol.	S	S
Sodium hypochlorite	15% active chlorine	S	S
Sodium nitrate	sat. sol.	S	S
Sodium nitrite	sat. sol.	S	S
Sodium orthophosphate	sat. sol.	S	S
Sodium sulfate	sat. sol.	S	S
Sodium sulfide	sat. sol.	S	S
Sulfur dioxide, dry	100%	S	S
Sulfur trioxide	100%	U	U
Sulfuric acid	10%	S	S
Sulfuric acid	50%	S	S
Sulfuric acid	98%	S	U
Sulfuric acid	fuming	U	U
Sulfurous acid	30%	S	S
T			
Tannic acid	sol.	S	S
Tartaric acid	sol.	S	S
Thionyl chloride	100%	L	U
Toluene	100%	L	U
Triethylamine	sol.	S	L
U			
Urea	sol.	S	S
Urine	—	S	S
W			
Water	—	S	S
Wine vinegar	—	S	S
Wines and liquors	—	S	S
X			
Xylenes	100%	L	U
Y			
Yeast	sol.	S	S
Z			
Zinc carbonate	sat. sol.	S	S
Zinc chloride	sat. sol.	S	S
Zinc (II) chloride	sat. sol.	S	S
Zinc (IV) chloride	sat. sol.	S	S
Zinc oxide	sat. sol.	S	S
Zinc sulfate	sat. sol.	S	S

Specific immersion testing should be undertaken to ascertain the suitability of chemicals not listed above with reference to special requirements.

GSE is a registered trademark of GSE Lining Technology, Inc.

GSE Lining Technology, Inc.
Corporate Headquarters
19103 Gundle Road
Houston, Texas 77073
USA
800-435-2008, 281-443-8564
FAX: 281-875-6010

GSE Lining Technology GmbH
European Headquarters
Buxtehuder Straße 112
D-21073 Hamburg
Germany
49-40-767-420
FAX: 49-40-767-42-33

Sales/Installation Offices
Australia
Egypt
Singapore
United Kingdom

Distributed by:

A Gundle/SLT Environmental, Inc. Company

STAFF

TECH FACTS

METHANE GAS TRANSMISSION RATES

UC 4000 has the best methane gas transmission rates or commercially available Geomembranes in today's market.

TEST RESULTS

Sample		Det.	CC/M² 24 Hours ATM	Thickness, mil	
Avg.	Min.	Max.			
36 MIL	1	48.5	36.8	36.4	37.3
UC 4000	2	47.9	36.9	36.5	37.7
	3	49.2	36.4	36.1	36.8
		Avg. 48.5			
36 MIL	1	52.8	37.9	37.6	38.1
HYPALON	2	53.6	37.5	37.2	38.0
	3	53.2	37.7	37.5	38.0
		Avg. 53.2			
40 MIL	1	63.5	39.4	39.9	38.9
HDPE	2	65.3	39.3	39.9	38.8
	3	63.0	39.7	40.0	39.3
		Avg. 63.9			
40 MIL	1	89.8	39.9	36.9	40.2
O.R. PVC	2	93.0	37.0	36.9	37.2
	3	90.9	39.0	38.0	39.4
		Avg. 91.2			
40 MIL	1	359	40.3	40.1	40.5
PVC	2	342	40.5	40.0	40.8
	3	339	40.9	40.0	41.0
		Avg. 347			

TEST PERFORMED: The submitted samples were tested for Methane Gas Permeability in accordance with the procedures outlined in ASTM D1434, Procedure V.

Staff Industries, Inc. 240 Chene, Detroit, MI 48207 (313) 259-1818 Fax (313) 259-0631

TRI/ENVIRONMENTAL, INC.
A Texas Research International Company

October 23, 1997

Ms. Susan E. Lackey
FMC Corporation
PO Box 4111
Pocatello, Idaho 83205

Dear Ms. Lackey:

This letter is written to forward a revised TRI 9090A report, generated under a 1995 work agreement for FMC Corporation. We understand from your office that the original leachate designation as "Calcium Chloride" was in error and that you are assured that new barrels had been used for leachate transportation to our laboratory for material exposure.

Per your request, we have changed the title on the applicable report pages to reflect the correct leachate designation of "NOSAP Precipitator Slurry".

TRI/Environmental, Inc. (TRI) is pleased to be of service to FMC. If you have any questions or if I may provide any additional assistance, please call me (1-800-880-8378).

Sincerely,

Sam R. Allen

Sam R. Allen
Vice President and Program Manager
Geosynthetics Testing Program

9063 Bee Caves Road • Austin TX 78733-6201 • (512) 263-2101 • FAX 263-2558 • 1-800-880-T-E-S-T

Sample locations for samples collected for 9090 waste compatibility testing.

NOSAP sample: Collected in August 1994, shipped December 1994.
Location: Pilot circulation loop, 2nd pass #4 furnace.
Amount collected: Two 55 gallon drums.

Dock Sample: Collected February 1997. Comprised of approximately 40% NE sump effluent and 60% North Solids Tank.
Location: Sample Port Pump discharges next to NE Sump and North Solids Tank.
Amount collected: 5 Ten gallon carboys (50 gallons)

V3600: Collected February 1997
Location: Sample taken at P3601 discharge pump bleed valve.
Amount collected: 5 Ten gallon carboys (50 gallons)

FMC Corporation
Phosphorus Chemicals Division
P. O. Box 4111 Highway 30 West of City
Pocatello, Idaho 83202

TRANSFER REPO[illegible]
692[illegible]

REQUESTER'S NAME	PURCHASE ORDER NO.	RELEASE NO.	DATE
Steve Wilf	9411137A		12/29/[illegible]
VENDOR'S NAME	**VENDOR'S ORDER NO.**		**O.S.&D. NO.**
TFI			

Please forward to the Shipping Department, the following material:

Material Located:

QUANTITY	UNIT OF MEASURE	DESCRIPTION	FMC STORES NO.	VALUE
5	[illegible]	Metal - 55 gallon - Drums		
		Contains: "NOSAP" Slurry		
		(Lime Slurry & PPT dust)		
		MSDS [illegible] with each drum		
		Corrosive Liquids Poisonous, N.O.S		
		8 (6.1) UN 2922 PG11		
		(Ph 12 Cadmium Contamination)		

REASON FOR SHIPMENT: [illegible]

RETURN SHIPMENT EXPECTED: YES
est June 1995

SPECIAL INSTRUCTIONS TO ACCOUNTING:

SPECIAL INSTRUCTIONS TO SHIPPING:

Ship To: [illegible]
[illegible] Marlin Nelson
9063 Bee Caves Road
[illegible] 78733-[illegible]

Ship Via: ☑ Prepaid ☐ Collect
UPS: Air: Vendor:
Mail: Truck: [illegible] Other:

CHARGE SHIPMENT COSTS TO: C94820005

AUTHORIZED SIGNATURE: [illegible]

SHIPPED BY:

[illegible]W SHIPPED:

PREPAID CHARGES:

DATE SHIPPED:

NO. OF CONTAINERS:

APPROX. WEIGHT:

CARRIER'S AGENT SIGNATURE:

BILL OF LADING NO.

6925

1st WHITE - Accounting Copy 2nd WHITE - Packing Slip 3rd YELLOW - Receiver 4th GOLD - Purchasing 5th PINK - Requestor 6th BLUE - Log Book

FMC Corporation
Phosphorus Chemicals Division
P. O. Box 4111 Highway 30 West of City
Pocatello, Idaho 83202

TRANSFER REPORT 125

REQUESTER'S NAME	PURCHASE ORDER NO.	RELEASE NO.	DATE
S.D.W.	97347 PIC		3/6/97
VENDOR'S NAME	**VENDOR'S ORDER NO.**		**O.S. & D. NO.**
TRI Environmental			

Please forward to the Shipping Department, the following material:

Material Located:

QUANTITY	UNIT OF MEASURE	DESCRIPTION	FMC STORES NO.	VALUE
4	DR	30 Gallon Drums, Waste		
		Phosphorus, white, [illegible]		
		water		

REASON FOR SHIPMENT: Analysis / Liner Testing

RETURN SHIPMENT EXPECTED: Yes

SPECIAL INSTRUCTIONS TO ACCOUNTING:

SPECIAL INSTRUCTIONS TO SHIPPING:

Ship To: TRI Environmental
7003 Bee Cave Rd
Austin TX 78733

Ship Via: ☒ Prepaid ☐ Collect
UPS: Air: Vendor:
Mail: Truck: Other:

CHARGE SHIPMENT COSTS TO: C 770600

AUTHORIZED SIGNATURE: [signature]

SHIPPED BY: EXPRESS [illegible]

HOW SHIPPED: [signature]

PREPAID CHARGES:

DATE SHIPPED:

NO. OF CONTAINERS:

APPROX. WEIGHT:

CARRIER'S AGENT SIGNATURE:

BILL OF LADING NO.:

125

1st WHITE - Accounting Copy 2nd WHITE - Packing Slip 3rd YELLOW - Receiver 4th GOLD - Purchasing 5th PINK - Requestor 6th BLUE - Log Bo

FMC Corporation
Phosphorus Chemicals Division
P. O. Box 4111 Highway 30 West of City
Pocatello, Idaho 83202

TRANSFER REPOR 1272

REQUESTER'S NAME	PURCHASE ORDER NO.	RELEASE NO.	DATE
[illegible]	7734781C		2/12/97
VENDOR'S NAME	**VENDOR'S ORDER NO.**		**O. S. & D. NO.**
TRT [illegible]			

Please forward to the Shipping Department, the following material:

Material Located:

QUANTITY	UNIT OF MEASURE	DESCRIPTION	FMC STORES NO.	VALUE
5	[illegible]	30 Gallon Drums - Solid		
		Phosphorus in Water.		

REASON FOR SHIPMENT: [illegible] Testing

RETURN SHIPMENT EXPECTED: YES

SPECIAL INSTRUCTIONS TO ACCOUNTING:

SPECIAL INSTRUCTIONS TO SHIPPING: [illegible] shipment

Ship To: [illegible]

Ship Via: ☐ Prepaid ☐ Collect
UPS: ____ Air: ____ Vendor: ____
Mail: ____ Truck: X Other: [illegible]

CHARGE SHIPMENT COSTS TO: [illegible]

AUTHORIZED SIGNATURE:

SHIPPED BY: THEL

HOW SHIPPED: X CF Bob Hackney

PREPAID CHARGES: [illegible]

DATE SHIPPED: [illegible]

NO. OF CONTAINERS: [illegible]

APPROX. WEIGHT: [illegible]

CARRIER'S AGENT SIGNATURE:

BILL OF LADING NO.: [illegible]

1272

1st WHITE - Accounting Copy 2nd WHITE - Packing Slip 3rd YELLOW - Receiver 4th GOLD - Purchasing 5th PINK - Requestor 6th BLUE - Log Book

MSDS ENCLOSED

Notice Concerning MSDS's Included in Shipment

MSDS's have been included for the following materials:

1. *Hydrated Lime Slurry*
2. *Treated Precipitator Dust (Co-Product)*

These materials are the constituents of the slurry comprising this shipment.

Note: The *treated precipitator dust* has fully reacted with water in forming the slurry comprising this shipment. **MSDS Fire, Explosion and Reactivity Data for *treated precipitator dust* listing water as a condition to avoid does not apply to the slurry comprising this shipment.**

Due to the high pH of the slurry comprising this shipment and the cadmium content of this slurry, it is being shipped with the following classification:

Corrosive liquids, poisonous, n.o.s.
8 (6.1) , UN2922, PG II,
(pH12, Cadmium Contamination).

MSDS FOR LIME SLURRY
01/31/90 10.48.09
REPORT NO. PSH4010

SECTION I

SOURCE: FMC CORPORATION
ADDRESS: P.O. BOX 4111
POCATELLO ID 83202
CHEM. NAME: CALCIUM HYDROXIDE SLURRY
TRADE NAME: HYDRATED LIME SLURRY

CAS NO: UNKNOWN
PHONE: (208)236-834
FMC FILE NO: 29
STORES NO: NO
LAST CHANGE: 01/25/88

SECTION II - HAZARDOUS INGREDIENTS

INGREDIENT	PERCENT	CAS NO	TLV
CALCIUM HYDROXIDE	30	1305-62-0	5.0 MG/M3

SECTION III - PHYSICAL DATA

^ILING POINT: 212 F
.POR PRESSURE: N.A.
APOR DENSITY: N.A.
SOLUBILITY: SOLUBLE
ROUTE OF ENTRY: SKIN
APPEARANCE: SMOOTH WHITE SLURRY
ODOR: EARTHY ODOR

SPECIFIC GRAVITY: 1.0-1.3
PERCENT VOLATILE: N.A.
EVAPORATION RATE: N.A.

SECTION IV - FIRE AND EXPLOSION HAZARD DATA

FLASH POINT: N.A. N.A.
FLAMMABLE LIMITS: N.A. N.A.
EXTINGUISHING MEDIA: NON COMBUSTIBLE
FIRE FIGHTING PROCEDURES: N.A. LIME SLURRY MAY BE HOT (185 F) WHEN FORMED. IT SHOULD NOT CAUSE FIRE DANGER.
FIRE & EXPLOSION HAZARDS: NONE

SECTION V - HEALTH HAZARD DATA

THRESHOLDS: OSHA PEL - 005.00 MG/M3
ACGIH TLV - 000.00
OTHER MAC - 000.00
CA^CINOGEN: NTP? U IARC? U OSHA? U
E SURE EFFECTS: IRRITATING TO GASTROINTESTINAL TRACT IF INGESTED IN LARGE QUANTITIES.SKIN & EYE CONTACT MAY CAUSE REDDENING AND IRRI INHALATION, THOUGH UNLIKELY, MAY CAUSE IRRITATION.
ST AID PROCEDURES: FLUSH EYES IMMEDIATELY WITH PLENTY OF WATER FOLLOWED WITH BORIC ACID SOLUTION. IF IRRITATION DEVELOPS FOLLOWING SKIN CONTACT, CONTACT PHYSICIAN. IF SWALLOWED, GIVE LARGE QUANT OF WATER. DO NOT INDUCE VOMITING. GET MEDICAL ATTENTION.

FMC

MATERIAL SAFETY DATA 69012 62 0

TREATED PRECIPITATOR COPRODUCT

NFPA.....704

RATINGS:
FIRE - 0
HEALTH - 2
REACTIVITY - 0
SPECIFIC HAZARD -

EMERGENCY TELEPHONE NOS:
CHEMTREC (800) 424-9300
MEDICAL (303) 595-9048
PLANT (208) 236-8200 POCATELLO, ID

REVISION: 01 EFFECTIVE: 11/15/88 PRINTED: 02/11/93

PREPARED FOR USE BY..... ERNEST SELDERS

IDENTIFICATION

INFORMATION PROVIDED BY..: FMC CORPORATION
1735 MARKET STREET
PHILADELPHIA, PA 19103

PRODUCT INFORMATION

SYNONYMS.....: TREATED PRECIPITATOR DUST
SHIPPING NAME - DOT.....: NONE: NOT REGULATED
IATA.....: NONE: NOT REGULATED
IMDG.....: NONE: NOT REGULATED
FORMULA.....: UNKNOWN
CHEMICAL FAMILY.....: MIXTURE
PRODUCT USES.....: RAW MATERIAL FOR FERTILIZERS AND FOR MINERAL RECOVERY.

PRECAUTIONARY INFORMATION

PRECAUTIONARY STATEMENT..: CAUTION. THIS PRODUCT CONTAINS REDUCED PHOSPHORUS COMPOUNDS. INGESTION OR INHALATION OF LARGE QUANTITIES MAY BE HARMFUL. PRODUCT MAY RELEASE PHOSPHINE GAS, PARTICULARLY IF HEATED. REPEATED OR PROLONGED SKIN CONTACT MAY CAUSE IRRITATION.

(PLEASE USE THIS STATEMENT TO SATISFY THE IN-PLANT LABELING REQUIREMENTS OF THE OSHA HAZARD COMMUNICATIONS STANDARD 29CFR 1910.1200)

FMC

MATERIAL SAFETY DATA 69012 62 0

NFPA.....704

TREATED PRECIPITATOR COPRODUCT

RATINGS:
FIRE - 0
HEALTH - 2
REACTIVITY - 0
SPECIFIC HAZARD -

EMERGENCY TELEPHONE NOS:
CHEMTREC (800) 424-9300
MEDICAL (303) 595-9048
PLANT (208) 236-8200 POCATELLO, ID

REVISION: 01 EFFECTIVE: 11/15/88 PRINTED: 02/11/93

========== FIRE, EXPLOSION AND REACTIVITY DATA ==========

FLASH POINT.....: NOT APPLICABLE
AUTOIGNITION TEMPERATURE.: NOT APPLICABLE
FLAMMABLE LIMITS UPPER..: NOT APPLICABLE
(AIR) LOWER..: NOT APPLICABLE
EXTINGUISHING MEDIA... WATER
SPECIAL FIREFIGHTING.....: PHOSPHINE (FLAMMABLE, POISONOUS) GAS MAY BE
PROCEDURES LIBERATED IF MATERIAL IS HEATED OR COMES IN CONTACT WITH MOISTURE.
DEGREE OF FIRE AND .....: SLIGHT DUE TO BUILDUP OF FLAMMABLE PHOSPHINE
EXPLOSION HAZARD GAS.
STABILITY.....: YES. STABLE
HAZARDOUS POLYMERIZATION.: NO. WILL NOT OCCUR
CONDITIONS TO AVOID.....: HEAT, WATER
MAJOR CONTAMINANTS THAT..: NONE
CONTRIBUTE TO INSTABILITY
INCOMPATIBILITY.....: STRONG OXIDIZING AGENTS
HAZARDOUS DECOMPOSITION..: PHOSPHINE
PRODUCTS
SENSITIVITY TO MECH.....: NONE
IMPACT
SENSITIVITY TO STATIC....: NONE
DISCHARGE

========== ROUTES OF EXPOSURE ==========

EYE CONTACT.....: YES
SKIN CONTACT.....: YES
SKIN ABSORPTION.....: UNLIKELY
INHALATION.....: YES
INGESTION.....: UNLIKELY

FMC

MATERIAL SAFETY DATA 69012 62 0

NFPA.....704

TREATED PRECIPITATOR COPRODUCT

RATINGS:
FIRE - 0
HEALTH - 2
REACTIVITY - 0
SPECIFIC HAZARD -

EMERGENCY TELEPHONE NOS:
CHEMTREC (800) 424-9300
MEDICAL (303) 595-9048
PLANT (208) 236-8200 POCATELLO, ID

REVISION: 01 EFFECTIVE: 11/15/88 PRINTED: 02/11/93

========== SPECIAL PROTECTION ==========

VENTILATION REQUIREMENTS.: LOCAL OR GENERAL VENTILATION SUFFICIENT TO REDUCE CADMIUM, ZINC AND PHOSPHINE CONCENTRATIONS BELOW PEL.

RECOMMENDED PERSONAL PROTECTIVE EQUIPMENT

RESPIRATORY.....: SELF CONTAINED BREATHING APPARATUS IF VENTILATION IS INADEQUATE.
EYES.....: SAFETY GLASSES OR GOGGLES
GLOVES.....: RECOMMENDED TO REDUCE IRRITATION.
SPECIAL CLOTHING..: NO SPECIAL REQUIREMENT
AND EQUIPMENT
FOOTWEAR.....: NO SPECIAL REQUIREMENT

========== STORAGE AND HANDLING ==========

(PLEASE USE THIS STATEMENT TO SATISFY THE IN-PLANT LABELING REQUIREMENTS OF THE OSHA HAZARD COMMUNICATIONS STANDARD 29CFR 1910.1200)

THIS MATERIAL SHOULD BE STORED IN A COOL, DRY WELL VENTILATED AREA. EXPOSURE TO HEAT AND/OR WATER MAY RELEASE PHOSPHINE GAS.

========== DISPOSAL, SPILL OR LEAK PROCEDURES ==========

PROCEDURE FOR RELEASE....: CONTAIN SPILL. VACUUM OR SHOVEL UP MATERIAL.
OR SPILL USE RESPIRATOR TO MINIMIZE DUST EXPOSURE.
WASTE DISPOSAL METHOD....: DISPOSE OF IN ACCORDANCE WITH LOCAL, STATE AND FEDERAL REGULATIONS.

========== TRANSPORTATION DATA ==========

DOT PROPER SHIPPING NAME.: NONE, NOT REGULATED
DOT CLASSIFICATION.....: NOT REGULATED
DOT LABELS.....: NOT REQUIRED
DOT MARKING.....: NONE
DOT PLACARD.....: NOT REQUIRED

MSDS ENCLOSED

Notice Concerning MSDS's Included in Shipment

MSDS's have been included for the following materials:

1. *Hydrated Lime Slurry*
2. *Treated Precipitator Dust (Co-Product)*

These materials are the constituents of the slurry comprising this shipment.

Note: The *treated precipitator dust* has fully reacted with water in forming the slurry comprising this shipment. **MSDS Fire, Explosion and Reactivity Data for *treated precipitator dust* listing water as a condition to avoid does not apply to the slurry comprising this shipment.**

Due to the high pH of the slurry comprising this shipment and the cadmium content of this slurry, it is being shipped with the following classification:

Corrosive liquids, poisonous, n.o.s.
8 (6.1), UN2922, PG II,
(pH12, Cadmium Contamination).

MSDS FOR LIME SLURRY
01/31/90 10.48.09
REPORT NO. PSH4010

SECTION I

SOURCE: FMC CORPORATION
ADDRESS: P.O. BOX 4111
POCATELLO ID 83202
CHEM. NAME: CALCIUM HYDROXIDE SLURRY
TRADE NAME: HYDRATED LIME SLURRY

CAS NO: UNKNOWN
PHONE: (208)236-834
FMC FILE NO: 29
STORES NO: NO
LAST CHANGE: 01/25/88

SECTION II - HAZARDOUS INGREDIENTS

INGREDIENT	PERCENT	CAS NO	TLV
CALCIUM HYDROXIDE	30	1305-62-0	5.0 MG/M3

SECTION III - PHYSICAL DATA

BOILING POINT: 212 F
SPECIFIC GRAVITY: 1.0-1.3
VAPOR PRESSURE: N.A.
PERCENT VOLATILE: N.A.
VAPOR DENSITY: N.A.
EVAPORATION RATE: N.A.
SOLUBILITY: SOLUBLE
ROUTE OF ENTRY: SKIN
APPEARANCE: SMOOTH WHITE SLURRY
ODOR: EARTHY ODOR

SECTION IV - FIRE AND EXPLOSION HAZARD DATA

FLASH POINT: N.A. N.A.
FLAMMABLE LIMITS: N.A. N.A.
EXTINGUISHING MEDIA: NON COMBUSTIBLE
FIRE FIGHTING PROCEDURES: N.A. LIME SLURRY MAY BE HOT (185 F) WHEN FORMED. IT SHOULD NOT CAUSE FIRE DANGER.
FIRE & EXPLOSION HAZARDS: NONE

SECTION V - HEALTH HAZARD DATA

THRESHOLDS: OSHA PEL - 005.00 MG/M3
ACGIH TLV - 000.00
OTHER MAC - 000.00
CARCINOGEN: NTP? U IARC? U OSHA? U
EXPOSURE EFFECTS: IRRITATING TO GASTROINTESTINAL TRACT IF INGESTED IN LARGE QUANTITIES.SKIN & EYE CONTACT MAY CAUSE REDDENING AND IRRI INHALATION, THOUGH UNLIKELY, MAY CAUSE IRRITATION.
FIRST AID PROCEDURES: FLUSH EYES IMMEDIATELY WITH PLENTY OF WATER FOLLOWED WITH BORIC ACID SOLUTION. IF IRRITATION DEVELOPS FOLLOWING SKIN CONTACT, CONTACT PHYSICIAN. IF SWALLOWED, GIVE LARGE QUANT. OF WATER. DO NOT INDUCE VOMITING. GET MEDICAL ATTENTION.

FMC

MATERIAL SAFETY DATA 69012 62 0

NFPA.....704

TREATED PRECIPITATOR COPRODUCT

RATINGS:
FIRE - 0
HEALTH - 2
REACTIVITY - 0
SPECIFIC HAZARD -

EMERGENCY TELEPHONE NOS:
CHEMTREC (800) 424-9300
MEDICAL (303) 595-9048
PLANT (208) 236-8200 POCATELLO, ID

REVISION: 01 EFFECTIVE: 11/15/88 PRINTED: 02/11/93

PREPARED FOR USE BY..... ERNEST SELDERS

========== IDENTIFICATION ==========

INFORMATION PROVIDED BY..: FMC CORPORATION
1735 MARKET STREET
PHILADELPHIA, PA 19103

========== PRODUCT INFORMATION ==========

SYNONYMS.....: TREATED PRECIPITATOR DUST
SHIPPING NAME - DOT.....: NONE: NOT REGULATED
IATA.....: NONE: NOT REGULATED
IMDG.....: NONE: NOT REGULATED
FORMULA.....: UNKNOWN
CHEMICAL FAMILY.....: MIXTURE
PRODUCT USES.....: RAW MATERIAL FOR FERTILIZERS AND FOR MINERAL RECOVERY.

========== PRECAUTIONARY INFORMATION ==========

PRECAUTIONARY STATEMENT..: CAUTION. THIS PRODUCT CONTAINS REDUCED PHOSPHORUS COMPOUNDS. INGESTION OR INHALATION OF LARGE QUANTITIES MAY BE HARMFUL. PRODUCT MAY RELEASE PHOSPHINE GAS, PARTICULARLY IF HEATED. REPEATED OR PROLONGED SKIN CONTACT MAY CAUSE IRRITATION.
(PLEASE USE THIS STATEMENT TO SATISFY THE IN-PLANT LABELING REQUIREMENTS OF THE OSHA HAZARD COMMUNICATIONS STANDARD 29CFR 1910.1200)

FMC

MATERIAL SAFETY DATA 69012 62 0

NFPA.....704

TREATED PRECIPITATOR COPRODUCT

RATINGS:
FIRE - 0
HEALTH - 2
REACTIVITY - 0
SPECIFIC HAZARD -

EMERGENCY TELEPHONE NOS:
CHEMTREC (800) 424-9300
MEDICAL (303) 595-9048
PLANT (208) 236-8200 POCATELLO, ID

REVISION: 01 EFFECTIVE: 11/15/88 PRINTED: 02/11/93

========== FIRE, EXPLOSION AND REACTIVITY DATA ==========

FLASH POINT.....: NOT APPLICABLE
AUTOIGNITION TEMPERATURE.: NOT APPLICABLE
FLAMMABLE LIMITS UPPER..: NOT APPLICABLE
(AIR) LOWER..: NOT APPLICABLE
EXTINGUISHING MEDIA... -: WATER
SPECIAL FIREFIGHTING.....: PHOSPHINE (FLAMMABLE, POISONOUS) GAS MAY BE
PROCEDURES LIBERATED IF MATERIAL IS HEATED OR COMES IN CONTACT WITH MOISTURE.
DEGREE OF FIRE AND .....: SLIGHT DUE TO BUILDUP OF FLAMMABLE PHOSPHINE
EXPLOSION HAZARD GAS.
STABILITY.....: YES. STABLE
HAZARDOUS POLYMERIZATION.: NO. WILL NOT OCCUR
CONDITIONS TO AVOID.....: HEAT, WATER
MAJOR CONTAMINANTS THAT..: NONE
CONTRIBUTE TO INSTABILITY
INCOMPATIBILITY.....: STRONG OXIDIZING AGENTS
HAZARDOUS DECOMPOSITION..: PHOSPHINE
PRODUCTS
SENSITIVITY TO MECH.....: NONE
IMPACT
SENSITIVITY TO STATIC....: NONE
DISCHARGE

========== ROUTES OF EXPOSURE ==========

EYE CONTACT.....: YES
SKIN CONTACT.....: YES
SKIN ABSORPTION.....: UNLIKELY
INHALATION.....: YES
INGESTION.....: UNLIKELY

FMC

MATERIAL SAFETY DATA 69012 62 0

TREATED PRECIPITATOR COPRODUCT

NFPA.....704

RATINGS:
FIRE - 0
HEALTH - 2
REACTIVITY - 0
SPECIFIC HAZARD -

EMERGENCY TELEPHONE NOS:
CHEMTREC (800) 424-9300
MEDICAL (303) 595-9048
PLANT (208) 236-8200 POCATELLO, ID

REVISION: 01 EFFECTIVE: 11/15/88 PRINTED: 02/11/93

SPECIAL PROTECTION

VENTILATION REQUIREMENTS.: LOCAL OR GENERAL VENTILATION SUFFICIENT TO REDUCE CADMIUM, ZINC AND PHOSPHINE CONCENTRATIONS BELOW PEL.

RECOMMENDED PERSONAL PROTECTIVE EQUIPMENT

RESPIRATORY.....: SELF CONTAINED BREATHING APPARATUS IF VENTILATION IS INADEQUATE.
EYES.....: SAFETY GLASSES OR GOGGLES
GLOVES.....: RECOMMENDED TO REDUCE IRRITATION.
SPECIAL CLOTHING..: NO SPECIAL REQUIREMENT
AND EQUIPMENT
FOOTWEAR.....: NO SPECIAL REQUIREMENT

STORAGE AND HANDLING

(PLEASE USE THIS STATEMENT TO SATISFY THE IN-PLANT LABELING REQUIREMENTS OF THE OSHA HAZARD COMMUNICATIONS STANDARD 29CFR 1910.1200)

THIS MATERIAL SHOULD BE STORED IN A COOL, DRY WELL VENTILATED AREA. EXPOSURE TO HEAT AND/OR WATER MAY RELEASE PHOSPHINE GAS.

DISPOSAL, SPILL OR LEAK PROCEDURES

PROCEDURE FOR RELEASE....: CONTAIN SPILL. VACUUM OR SHOVEL UP MATERIAL.
OR SPILL USE RESPIRATOR TO MINIMIZE DUST EXPOSURE.
WASTE DISPOSAL METHOD....: DISPOSE OF IN ACCORDANCE WITH LOCAL, STATE AND FEDERAL REGULATIONS.

TRANSPORTATION DATA

DOT PROPER SHIPPING NAME.: NONE, NOT REGULATED
DOT CLASSIFICATION.....: NOT REGULATED
DOT LABELS.....: NOT REQUIRED
DOT MARKING.....: NONE
DOT PLACARD.....: NOT REQUIRED

001604

A 120 Day Final Report:

Laboratory Testing of Geosynthetics for Waste Containment EPA Method 9090

June 1995
(Reissued: October 1997)

Submitted to:
FMC Corporation
P.O. Box 4111
Pocatello, Idaho 83205

Attn: Mr. Larry Plooster

Submitted by:

TRI/Environmental, Inc.
9063 Bee Caves Rd.
Austin, Texas 78733

TRI/ENVIRONMENTAL, INC.
A Texas Research International Company

October 23, 1997

Ms. Susan E. Lackey
FMC Corporation
PO Box 4111
Pocatello, Idaho 83205

Dear Ms. Lackey:

This letter is written to forward a revised TRI 9090A report, generated under a 1995 work agreement for FMC Corporation. We understand from your office that the original leachate designation as "Calcium Chloride" was in error and that you are assured that new barrels had been used for leachate transportation to our laboratory for material exposure.

Per your request, we have changed the title on the applicable report pages to reflect the correct leachate designation of "NOSAP Precipitator Slurry".

TRI/Environmental, Inc. (TRI) is pleased to be of service to FMC. If you have any questions or if I may provide any additional assistance, please call me (1-800-880-8378).

Sincerely,

Sam R. Allen

Sam R. Allen
Vice President and Program Manager
Geosynthetics Testing Program

9063 Bee Caves Road • Austin, TX 78733-6201 • (512) 263-2101 • FAX 263-2558 • 1-800-880-T·E·S·T

TRI/ENVIRONMENTAL, INC.
A Texas Research International Company

June 13, 1995

Mr. Larry Plooster
FMC Corporation
P.O. Box 4111
Pocatello, Idaho 83205

Dear Mr Plooster:

TRI/Environmental, Inc. (TRI) is pleased to present this 120 Day Final Report for geosynthetic chemical compatibility studies via EPA Method 9090.

TRI thanks FMC Corporation for the opportunity to participate in this project and looks forward to working with you in the future. Please call me if you have any questions or require any additional information.

Respectfully submitted,

Martin D. Nelson

Martin D. Nelson
Laboratory Administrator: Geosynthetic Technologies

cc: Sam R. Allen
Program Manager

9063 Bee Caves Road • Austin, TX 78733-6201 • (512) 263-2101 • FAX (512) 263-2558

FOREWORD

The testing reported herein is based upon accepted industry practice as well as the test method listed. TRI/Environmental Inc. (TRI) neither accepts responsibility for nor makes claim as to the final use and purpose of the materials tested.

Tests were performed under laboratory conditions and not under actual usage conditions. TRI can give no conclusions as to the serviceability, life expectancy or general durability of the products tested when used in a lining and/or leachate collection system.

1.0 INTRODUCTION

This report describes the work performed by TRI/Environmental, Inc. (TRI) to determine the chemical compatibility of various geosynthetic products with one waste leachate. The study included one textured high density polyethylene (HDPE) geomembrane, one polyvinyl chloride (PVC) geomembrane, one nonwoven polypropylene geotextile, one HDPE geonet, and one HDPE geopipe. The objective was to determine the resistance of each geosynthetic to changes caused by exposure to leachate. Changes in physical, mechanical and hydraulic properties were measured after exposure to leachate provided by FMC Corporation at 23°C and 50°C for 30, 60, 90 and 120 days following the exposure regimen specified in United States Environmental Protection Agency (EPA) Method 9090.

Methods, results and discussion are provided in the sections which follow. Test results are provided in the Tables and Graphs of Results which accompany this report.

2.0 METHODS

2.1 Materials

Table 1 lists products selected for evaluation in this chemical compatibility study.

Table 1. List of geomembranes evaluated in chemical compatibility study

Geosynthetic	Source
60 mil textured HDPE geomembrane	Serrot Corporation
30 mil PVC geomembrane	Staff Industries
Trevira 1120 nonwoven polypropylene geotextile	Hoechst Celanese Corporation
Polynet 3000 HDPE geonet	National Seal Company
Plexco 6" IPS 17.0 PE3408 HDPE geopipe	Chevron

2.2 Leachate

The waste leachate used during the testing was provided by FMC Corporation. The leachate provided was NOSAP precipitator slurry.

2.3 Exposure Conditions

Geosynthetic test specimens were exposed to the waste leachate following the specifications of EPA Method 9090A as they relate to exposure to waste fluids. The tanks used for these exposures were maintained at 23 $\pm$ 2°C and 50 $\pm$ 2°C throughout the 120-day exposure period. Tanks were constructed from chemically resistant stainless steel, fitted with stirrers and heated with a circulating hot water heat exchanger system. The 50°C tanks were sealed with a lid, and a reflux condenser was installed to minimize loss of volatile leachate components.

2.4 Testing Procedures

The following sections list tests performed on the various geosynthetic products.

2.4.1 HDPE Geomembrane

Table 2 lists tests performed on HDPE geomembrane. The number of test replicates was doubled for baseline determinations on unexposed material. Where required, testing was performed in both the machine and transverse directions

Table 2. Tests performed on HDPE geomembrane

Test or Physical Property	Method
Dimensions and weight	EPA 9090A
Hardness	ASTM D 2240 D scale
Volatiles and Extractables	EPA SW 870 Appendix III
Environmental Stress Crack Resistance	ASTM D 1693, Condition B
Specific Gravity	ASTM D 792
Tensile Properties	ASTM D 638
Modulus of Elasticity	ASTM D 882, 2% secant method
Hydrostatic Resistance	ASTM D 751 Method A
Tear Strength	ASTM D 1004
Puncture Resistance	FTMS 101C Method 2065
Seam Peel & Shear Strength	ASTM D 4437

2.4.2 *PVC Geomembrane*

Table 3 lists tests performed on PVC geomembrane. The number of test replicates was doubled for baseline determinations on unexposed material. Where required, testing was performed in both the machine and transverse directions

Table 3. Tests performed on PVC geomembrane

Test or Physical Property	Method
Dimensions and weight	EPA 9090A
Hardness	ASTM D 2240 D scale
Volatiles and Extractables	EPA SW 870 Appendix III
Specific Gravity	ASTM D 792
Tensile Properties	ASTM D 882
Hydrostatic Resistance	ASTM D 751 Method A
Tear Strength	ASTM D 1004
Puncture Resistance	FTMS 101C Method 2065
Seam Peel & Shear Strength	ASTM D 4437

2.4.3 *Geotextile*

Table 4 lists tests performed on the geotextile. The number of test replicates was doubled for baseline determinations on unexposed material.

Table 4. Tests performed on geotextile

Test or Physical Property	Method
Dimensions and weight	EPA 9090A
Grab Tensile Properties	ASTM D 4632
Trapezoidal Tear Resistance	ASTM D 4533
Puncture Resistance	ASTM D 4833
Mullen Burst Strength	ASTM D 3786
Permittivity (flow rate: gal/min/ft^2)	ASTM D 4491

At each testing period, exposed geotextile specimens dedicated to dimension analysis were rinsed, blotted dry with absorbent towels and dried in an air oven at 45°C for eight hours. Test specimens dedicated to mechanical testing were rinsed, blotted dry with absorbent towels and stored in polyethylene bags until tested. Test specimens were tested in a moist condition.

2.4.4 *HDPE Geonet*

Table 5 lists tests performed on the drainage geonet. The number of test replicates was doubled for baseline determinations on unexposed material.

Table 5. Tests performed on geonet

Test or Physical Property	Method
Dimensions and weight	EPA 9090A
Tensile Properties	ASTM D 1682
Transmissivity - machine direction Grad. 1.0 Normal Load:10000 psf	ASTM D 4716

At each testing period, exposed geonet specimens dedicated to mechanical property testing were rinsed, blotted dry with absorbent towels and stored in polyethylene bags until tested.

2.4.5 *HDPE Geopipe*

Table 6 lists tests performed on the HDPE geopipe. The number of test replicates was doubled for baseline determinations on unexposed material.

Table 6. Tests performed on geonet

Test or Physical Property	Method
Dimensions and weight	EPA 9090A
Compressive Strength @ 5% & 10% deflection	ASTM D 2412

At each testing period, exposed geopipe specimens dedicated to mechanical property testing were rinsed, blotted dry with absorbent towels and stored in polyethylene bags until tested.

3.0 DISCUSSION/RESULTS

Test results are presented in the Tables of Test Results (raw data) and graphical presentations are presented in Appendix A.

In considering these results, it must be determined through engineering judgment whether observed differences in the value of test results measured before and after immersion are due to product variability, unidentified factors relating to the test procedure, or leachate interaction with the products. Any significant chemical interaction with leachate would be expected to result in degradation trends which are consistent across the various properties being evaluated, and not isolated to one set of test results only. However, with each type of material there may be specific properties which are highly sensitive to leachate-induced effects. These factors must be considered in evaluating the various test results for a given product. These issues are addressed in the following sections for each class of geosynthetic

Also of critical importance is the issue of product variability. With geotextiles, a range of physical and mechanical index test values covering 25% or more of the average is not uncommon. This can be traced to variability inherent in the product, and the randomness associated with the onset of failure under the specified testing conditions. However, in chemical compatibility testing the statistical sampling of a broad range of manufactured product is not possible. Therefore, the small size of the sample population tested at each time point must be taken into consideration. The criteria to be applied in evaluating data measured before and after leachate immersion should be that property changes, if observed, are consistent and so great that product variability and experimental factors can be ruled out.

In this report, standard deviations (STD) are reported for most measurements involving three or more replicate specimens. In statistics, the standard deviation is defined as root of the mean squared deviations of individual test results about the mean value. The standard deviation is a quantitative measure of variability within a group of measurements.

One related measure of variability observed within a sample set, relative to the magnitude of the mean value itself, is the *coefficient of variation or variance* (COV). The coefficient of variance is defined as the standard deviation divided by the mean associated with a group of specimens, and may be expressed as a percentage. The COV provides an indication of what proportion of the mean value may be attributable to random experimental factors or product variability. It is useful to consider apparent changes in property values against the criterion of COV since observed changes which fall below the COV may not be significant. This approach was used in preparing the tables in the next sections.

The term *range* refers to the difference between the extreme highest and lowest points within a group of measured values. Considering range as a percentage of the mean values provides another measure of variability within a dataset.

In the tables, the high and low extremes for percentage change in mean values are listed for comparison against COV and range as a percentage of mean from the baseline sample group. The high and low percentage changes are the extremes from data measured at 30, 60, 90 and 120 days.

3.1 Serrot HDPE Geomembrane

Table 7 illustrates the range of variability in baseline data compared with some of the observed changes in average test values measured after immersion for Serrot HDPE geomembrane.

Table 7. Baseline coefficients of variation and range of percentage change results for Serrot HDPE Geomembrane

Test	Baseline COV (%)	Baseline Range as % of Mean	High Observed % Change	Low Observed % Change
Stress at yield (MD)	1	5	9	-7
Stress at break (MD)	6	16	-1	-24
Elongation at yield (MD)	9	24	21	-9
Elongation at break (MD)	9	25	-7	-23
Modulus (MD)	16	41	1	-16
Tear strength (MD)	2	6	9	0
Puncture Resistance	3	8	22	5
Hydrostatic Resistance	2	6	11	1
Seam Shear Strength	3	9	14	5
Seam Peel Strength	3	9	15	2

3.2 Staff PVC Geomembrane

Table 8 illustrates the range of variability in baseline data compared with some of the observed changes in average test values measured after immersion for Staff PVC geomembrane.

Table 8. Baseline coefficients of variation and range of percentage change results for Staff PVC Geomembrane

Test	Baseline COV (%)	Baseline Range as % of Mean	High Observed % Change	Low Observed % Change
Stress at break (MD)	4	11	14	-20
Elongation at break (MD)	8	23	13	-24
Tear strength (MD)	3	9	11	-2
Puncture Resistance	5	10	22	0
Hydrostatic Resistance	3	9	10	-9
Seam Shear Strength	6	17	17	4
Seam Peel Strength	10	26	42	8

3.3 Polypropylene Hoechst Celanese Trevira Geotextile

Table 9 illustrates the range of variability in baseline data compared with some of the observed changes in average test values measured after immersion for Trevira 1120 geotextile.

Table 9. Baseline coefficients of variation and range of percentage change results for Polypropylene Hoechst Celanese Geotextile

Test	Baseline COV (%)	Baseline Range as % of Mean	High Observed % Change	Low Observed % Change
Grab Strength (MD)	13	32	-5	-23
Grab Elongation (MD)	5	19	14	-18
Tear Strength (MD)	15	49	-13	-26
Puncture Resistance	13	44	-5	-23
Burst Strength	10	34	1	-11
Permittivity	6	24	3	-24

3.4 National Seal Polynet 3000 HDPE Geonet

Table 10 illustrates the range of variability in baseline data compared with some of the observed changes in average test values measured after immersion for Polynet 3000 HDPE geonet.

Table 10. Baseline coefficients of variation and range of percentage change results for Polynet 3000 HDPE Geonet

Test	Baseline COV (%)	Baseline Range as % of Mean	High Observed % Change	Low Observed % Change
Tensile Strength (MD)	7	24	6	-6
Transmissivity (MD)	3	8	-12	-17

3.5 Chevron Plexco HDPE Geopipe

Table 11 illustrates the range of variability in baseline data compared with some of the observed changes in average test values measured after immersion for Chevron Plexco HDPE geopipe.

Table 11. Baseline coefficients of variation and range of percentage change results for Plexco HDPE Geopipe

Test	Baseline COV (%)	Baseline Range as % of Mean	High Observed % Change	Low Observed % Change
Compressive Strength @ 5% deflection	22	57	21	-14
Compressive Strength @ 10% deflection	16	49	8	-17

4.0 CONCLUSION

While changes in certain measured physical and mechanical properties were noted for some products, the effects of product variability and experimental factors could not be ruled out as causes. In the opinion of the authors, the data, considered together, do not support the conclusion that observed changes were consistently and uniformly caused by the test exposures.

TRI/Environmental, Inc. is pleased to have been selected to participate in this project. We trust that the information provided in this report meets your requirements for technical documentation of this chemical compatibility study. Please do not hesitate to call me if I may provide any further information.

Respectfully submitted,

Sam R. Allen
Program Manager: Geosynthetics Testing Technologies

APPENDIX A - TEST RESULTS

This section includes generated test data provided in both tabular and graphical form. Each graph is represented by a series of "I" beam plots. Each "I" beam represents a single test population and illustrates the high and low value as the end points, and the mean as a central box on the beam.

At each testing period, two "I" beams are shown. The left beam represents the 23°C exposed specimens while the right beam represents the 50°C specimens. The initial "I" beam represents the baseline or unexposed test specimens. Graphical representations are

EPA METHOD 9090 TEST RESULTS

SERROT 60 mil TEXTURED HDPE GEOMEMBRANE

TABLE OF CHEMICAL COMPATIBILITY TEST RESULTS
Exposed to NOSAP Precipitator Slurry

SRA
Quality Review

Report Date: June 13, 1995
Reissued (October 21, 1997)

Test Parameters	Baseline	Exposure Time and Temperature: 30 Day 23C	30 Day 50C	60 Day 23C	60 Day 50C	90 Day 23C	90 Day 50C	120 Day 23C	120 Day 50C
GEOMEMBRANE: SERROT 60 mil TEXTURED HDPE GEOMEMBRANE									
Tensile Properties:									
Tensile Stress @ Yield (psi)	2569	2811	3007	2829	2878	2683	2587	2412	2488
ASTM D638	2694	2827	2595	2788	2899	2755	2847	2638	2350
Machine Direction	2640	2904	2811	2740	2622	2729	2571	2420	2447
	2623								
	2592								
	2619								
Average	2623	2847	2804	2786	2800	2722	2668	2490	2428
STD	39	41	168	36	126	30	127	105	58
Coefficient of Variation	1	1	6	1	4	1	5	4	2
% Change		9	7	6	7	4	2	-5	-7
Tensile Strength @ Break (psi)	3465	3342	2429	3254	3608	1688	1337	2830	1349
ASTM D638	3216	3226	2490	3285	3391	3117	3261	3115	2885
Machine Direction	2965	1864	3191	3111	1490	3191	3070	2842	3151
	3271								
	3148								
	3490								
Average	3259	2811	2703	3217	2830	2665	2556	2929	2462
STD	181	671	346	76	951	692	865	132	794
Coefficient of Variation	6	24	13	2	34	26	34	4	32
% Change		-14	-17	-1	-13	-18	-22	-10	-24
Tensile Properties									
Elongation @ Yield (%)	16	15	18	15	16	16	17	18	22
ASTM D638	16	15	19	17	17	17	15	17	19
Machine Direction	17	17	16	16	19	15	14	16	20
	20								
	16								
	16								
Average	17	16	18	16	17	16	15	17	20
STD	1	1	1	1	1	1	1	1	1
Coefficient of Variation	9	6	7	5	7	5	8	5	6
% Change		-7	5	-5	3	-5	-9	1	21

TABLE OF CHEMICAL COMPATIBILITY TEST RESULTS
Exposed to NOSAP Precipitator Slurry

Report Date: June 13, 1995
Reissued (October 21, 1997)

Quality Review

Test Parameters	Baseline	Exposure Time and Temperature: 30 Day 23C	30 Day 50C	60 Day 23C	60 Day 50C	90 Day 23C	90 Day 50C	120 Day 23C	120 Day 50C
Elongation @ Break (%)	454	398	242	383	420	308	256	370	301
ASTM D638	390	394	330	391	389	372	380	379	397
Machine Direction	358	354	374	358	241	392	411	370	394
	419								
	377								
	457								
Average	409	382	315	377	350	357	349	373	364
STD	38	20	55	15	78	36	87	4	45
Coefficient of Variation	9	5	17	4	22	10	19	1	12
% Change		-7	-23	-8	-14	-13	-15	-9	-11
Set after Break (%)	361	332	214	322	362	278	242	342	338
ASTM D638	314	294	250	300	331	276	274	387	367
Machine Direction	279	274	271	294	247	303	350	381	421
	345								
	307								
	354								
Average	327	300	245	305	313	286	289	370	375
STD	29	24	24	12	49	12	45	20	34
Coefficient of Variation	9	8	10	4	16	4	16	5	9
% Change		-8	-25	-7	-4	-13	-12	13	15
Stress @ 100% Elongation (psi)	2091	2333	2550	2399	2394	2252	2180	2055	2093
ASTM D638	2110	2338	2160	2400	2481	2249	2337	2292	2017
Machine Direction	2034	2305	2272	2355	2233	2247	2091	2079	2020
	2063								
	2103								
	2041								
Average	2074	2325	2327	2385	2369	2249	2203	2142	2043
STD	30	15	164	21	103	2	102	107	35
Coefficient of Variation	1	1	7	1	4	0	5	5	2
% Change		12	12	15	14	8	6	3	-1

TABLE OF CHEMICAL COMPATIBILITY TEST RESULTS
Exposed to NOSAP Precipitator Slurry

Report Date: June 13, 1995
Reissued (October 21, 1997)

~~SPA~~
Quality Review

Test Parameters	Baseline	30 Day 23C	30 Day 50C	60 Day 23C	60 Day 50C	90 Day 23C	90 Day 50C	120 Day 23C	120 Day 50C
		Exposure Time and Temperature							
Stress @ 200% Elongation (psi)	2174	2454	2456	2371	2523	2204	2111	2017	2101
ASTM D638	2249	2303	2217	2462	2387	2231	2385	2271	2133
Machine Direction	2137	2368	2361	2396	2177	2220	2161	2058	2065
	2186								
	2223								
	2205								
Average	2196	2375	2345	2410	2362	2218	2219	2115	2100
STD	36	62	98	38	142	11	119	111	28
Coefficient of Variation	2	3	4	2	6	0	5	5	1
% Change		8	7	10	8	1	1	-4	-4
Tensile Properties:									
Tensile Stress @ Yield (psi)	2651	3051	2552	2784	2758	2829	2727	2406	2472
ASTM D638	2624	3011	3064	2600	2749	2835	2839	2511	2726
Transverse Direction	2551	2992	2886	2763	2709	2865	2719	2638	2444
	2755								
	2826								
	2691								
Average	2683	3018	2834	2716	2739	2843	2762	2518	2547
STD	89	25	212	82	21	16	55	95	127
Coefficient of Variation	3	1	7	3	1	1	2	4	5
% Change		12	6	1	2	6	3	-6	-5
Tensile Strength @ Break (psi)	2807	1837	3199	2603	2937	2694	1997	1233	2586
ASTM D638	2850	2137	3561	2643	3090	1010	1223	2633	2910
Transverse Direction	2984	3249	2466	2512	3314	1579	1402	1482	2872
	3302								
	3114								
	2203								
Average	2877	2408	3075	2586	3114	1761	1541	1783	2789
STD	344	607	456	55	155	699	331	610	145
Coefficient of Variation	12	25	15	2	5	40	21	34	5
% Change		-16	7	-10	8	-39	-46	-38	-3

TABLE OF CHEMICAL COMPATIBILITY TEST RESULTS
Exposed to NOSAP Precipitator Slurry

Report Date: June 13, 1995
Reissued (October 21, 1997)

SRA
Quality Review

Test Parameters	Baseline	Exposure Time and Temperature: 30 Day 23C	30 Day 50C	60 Day 23C	60 Day 50C	90 Day 23C	90 Day 50C	120 Day 23C	120 Day 50C
Tensile Properties:									
Elongation @ Yield (%)	16	15	18	15	15	15	15	17	16
ASTM D638	16	15	16	16	16	16	16	16	16
Transverse Direction	19	15	18	15	14	16	17	18	18
	16								
	16								
	14								
Average	16	15	17	15	15	16	16	17	17
STD	1	0	1	0	1	0	1	1	1
Coefficient of Variation	9	0	5	3	5	3	5	5	6
% Change		-7	7	-5	-7	-3	-1	5	3
Elongation @ Break (%)	354	334	450	324	382	347	220	233	347
ASTM D638	368	360	423	358	409	177	241	358	342
Transverse Direction	393	415	217	325	440	280	342	324	386
	441								
	415								
	295								
Average	378	370	363	336	410	268	268	305	358
STD	47	34	104	16	24	70	53	53	20
Coefficient of Variation	12	9	29	5	6	26	20	17	5
% Change		-2	-4	-11	9	-29	-29	-19	-5
Set after Break (%)	286	275	372	274	388	282	213	352	362
ASTM D638	310	256	342	286	337	126	246	390	338
Transverse Direction	317	310	174	254	358	254	306	384	381
	359								
	355								
	265								
Average	315	280	296	271	361	221	255	375	360
STD	34	22	87	13	21	68	38	17	18
Coefficient of Variation	11	8	29	5	6	31	15	4	5
% Change		-11	-6	-14	14	-30	-19	19	14

TABLE OF CHEMICAL COMPATIBILITY TEST RESULTS
Exposed to NOSAP Precipitator Slurry

SRA
Quality Review

Report Date: June 13, 1995
Reissued (October 21, 1997)

Test Parameters	Baseline	Exposure Time and Temperature: 30 Day 23C	30 Day 50C	60 Day 23C	60 Day 50C	90 Day 23C	90 Day 50C	120 Day 23C	120 Day 50C
Stress @ 100% Elongation (psi)	1863	2133	1937	2022	2011	2118	1975	1808	1846
ASTM D638	1768	2145	2466	1992	2042	2076	2060	1966	2113
Transverse Direction	1831	2162	2213	2112	2099	2160	2003	1947	1834
	1970								
	1900								
	1954								
Average	1881	2147	2205	2042	2051	2118	2013	1907	1931
STD	70	12	216	51	36	34	35	70	129
Coefficient of Variation	4	1	10	2	2	2	2	4	7
% Change		14	17	9	9	13	7	1	3
Stress @ 200% Elongation (psi)	2060	2139	2075	2153	2094	2084	2034	1912	1962
ASTM D638	1938	2185	2325	1977	2085	2134	2111	2030	2117
Transverse Direction	1982	2178	2266	2089	2165	2102	2079	2076	1965
	2019								
	2004								
	1991								
Average	1999	2167	2222	2073	2115	2107	2075	2006	2015
STD	37	20	107	73	36	21	32	69	72
Coefficient of Variation	2	1	5	4	2	1	2	3	4
% Change		8	11	4	6	5	4	0	1
Modulus of Elasticity:									
ASTM D882 (psi)	77075	76389	68798	66892	65426	68554	64572	56211	67738
Machine Direction	80440	75964	65662	61443	68106	72186	76701	65329	69742
2% Secant	70599	71787	76096	70891	57168	73012	69998	65265	67716
	60724								
	62466								
	91264								
Average	73761	74713	70185	66409	63567	71251	70424	62268	68399
STD	11571	2543	5354	4743	5701	2372	6076	5246	1163
Coefficient of Variation	16	3	8	7	9	3	9	8	2
% Change		1	-5	-10	-14	-3	-5	-16	-7

TABLE OF CHEMICAL COMPATIBILITY TEST RESULTS
Exposed to NOSAP Precipitator Slurry

SPA
Quality Review

Report Date: June 13, 1995
Reissued (October 21, 1997)

Test Parameters	Baseline	Exposure Time and Temperature: 30 Day 23C	30 Day 50C	60 Day 23C	60 Day 50C	90 Day 23C	90 Day 50C	120 Day 23C	120 Day 50C
Modulus of Elasticity:									
ASTM D882 (psi)	66153	80634	59948	73617	66166	75450	75843	60607	73688
Transverse Direction	62397	78929	73594	68372	70382	71559	68234	60674	75371
2% Secant	50823	78892	69820	71628	68419	75683	61710	48320	63182
	57759								
	62897								
	75615								
Average	62574	78152	67787	71272	68322	74231	68596	56534	70747
STD	8297	2150	7046	2666	2110	2317	7073	7113	6605
Coefficient of Variation	13	3	10	4	3	3	10	13	9
% Change		25	8	14	9	19	10	-10	13
Indentation Hardness:									
Reading	53	46	54	48	51	49	49	43	46
ASTM D2240	56	53	55	49	51	50	48	38	43
(with TYPE D DUROMETER)	53	53	53	51	48	45	48	45	44
	53	52	51	50	53	49	48	48	50
	53	46	48	49	54	48	48	43	44
	52								
	52								
	48								
	48								
	53								
Average	52	50	52	49	51	48	48	43	45
STD	2	4	3	1	2	2	0	4	3
Coefficient of Variation	5	7	5	2	4	4	1	8	6
% Change		-4	0	-5	-1	-7	-7	-17	-13
Specific Gravity:									
ASTM D792, Method A	0.942	0.941	0.941	0.936	0.949	0.939	0.933	0.931	0.934
	0.947	0.940	0.938	0.936	0.947	0.933	0.933	0.934	0.942
	0.944	0.936	0.940	0.941	0.948	0.937	0.939	0.945	0.940
	0.940								
	0.944								
	0.939								
Average	0.943	0.939	0.940	0.938	0.948	0.936	0.935	0.937	0.939
STD	0.003	0.003	0.002	0.003	0.001	0.003	0.003	0.007	0.004
Coefficient of Variation	0	0	0	0	0	0	0	1	0
% Change		-0.39	-0.32	-0.53	0.57	-0.67	-0.81	-0.64	-0.42
Environmental Stress Crack Resistance:									
ASTM D1693, Condition B									
Machine Direction (% Failed)	N/A	0	0	0	0	0	0	0	0
Transverse Direction (% Failed)	N/A	0	0	0	0	0	0	0	0

TABLE OF CHEMICAL COMPATIBILITY TEST RESULTS
Exposed to NOSAP Precipitator Slurry

SRA
Quality Review

Report Date: June 13, 1995
Reissued (October 21, 1997)

Test Parameters	Baseline	30 Day 23C	30 Day 50C	60 Day 23C	60 Day 50C	90 Day 23C	90 Day 50C	120 Day 23C	120 Day 50C
		Exposure Time and Temperature							
Puncture Resistance:									
Load @ Rupture (lbs)	85	98	92	95	98	102	106	95	94
FTMS 101C Method 2065	86	95	98	96	99	103	105	95	91
	84	95	97	93	99	104	109	92	91
	89								
	91								
	91								
Average	88	96	96	95	99	103	107	94	92
STD	3	1	3	1	0	1	2	1	1
Coefficient of Variation	3	1	3	1	0	1	2	2	2
% Change		10	9	8	13	17	22	7	5
Volatiles and Extractables:									
Machine Diameter Change (%)	-0.16	-0.27	-0.10	0.00	-0.12	0.70	-0.35	-0.08	0.08
SW 870 - Appendix III-D	-0.16	-0.17	-0.03	-0.13	-0.75	-0.60	-0.23	-0.23	0.05
	-0.15								
	-0.16								
Average	-0.16	-0.22	-0.07	-0.07	-0.44	-0.29	-0.29	-0.16	0.07
STD	0.01	0.05	0.04	0.07	0.32	0.06	0.06	0.08	0.02
Transverse Diameter Change (%)	0.25	-0.58	-0.20	-0.22	-0.35	-0.95	-0.38	-0.30	-0.56
SW 870 - Appendix III-D	0.07	-0.40	-0.38	-0.25	-0.47	0.73	-0.12	-0.25	-0.58
	-0.29								
	-0.33								
Average	-0.08	-0.49	-0.29	-0.24	-0.41	-0.11	-0.25	-0.28	-0.57
STD	0.24	0.09	0.09	0.02	0.06	0.84	0.13	0.02	0.01
% Volatiles	0.03	0.04	0.10	0.05	0.05	0.08	0.08	0.10	0.18
SW 870 - Appendix III-D	0.04	0.04	0.06	0.04	0.05	0.07	0.08	0.09	0.19
	0.04								
	0.04								
Average	0.04	0.04	0.08	0.05	0.05	0.08	0.08	0.10	0.19
STD	0.00	0.00	0.02	0.01	0.00	0.00	0.00	0.01	0.01
% Extractables	0.08	0.06	0.10	0.49	0.43	0.35	0.26	0.50	0.48
SW 870 - Appendix III-D	0.09	0.24	0.17	0.46	0.38	0.35	0.25	0.31	0.29
	0.10								
	0.10								
Average	0.09	0.15	0.14	0.48	0.41	0.35	0.26	0.41	0.39
STD	0.01	0.09	0.04	0.01	0.02	0.00	0.01	0.10	0.10

TABLE OF CHEMICAL COMPATIBILITY TEST RESULTS
Exposed to NOSAP Precipitator Slurry

Report Date: June 13, 1995
Reissued (October 21, 1997)

SRA
Quality Review

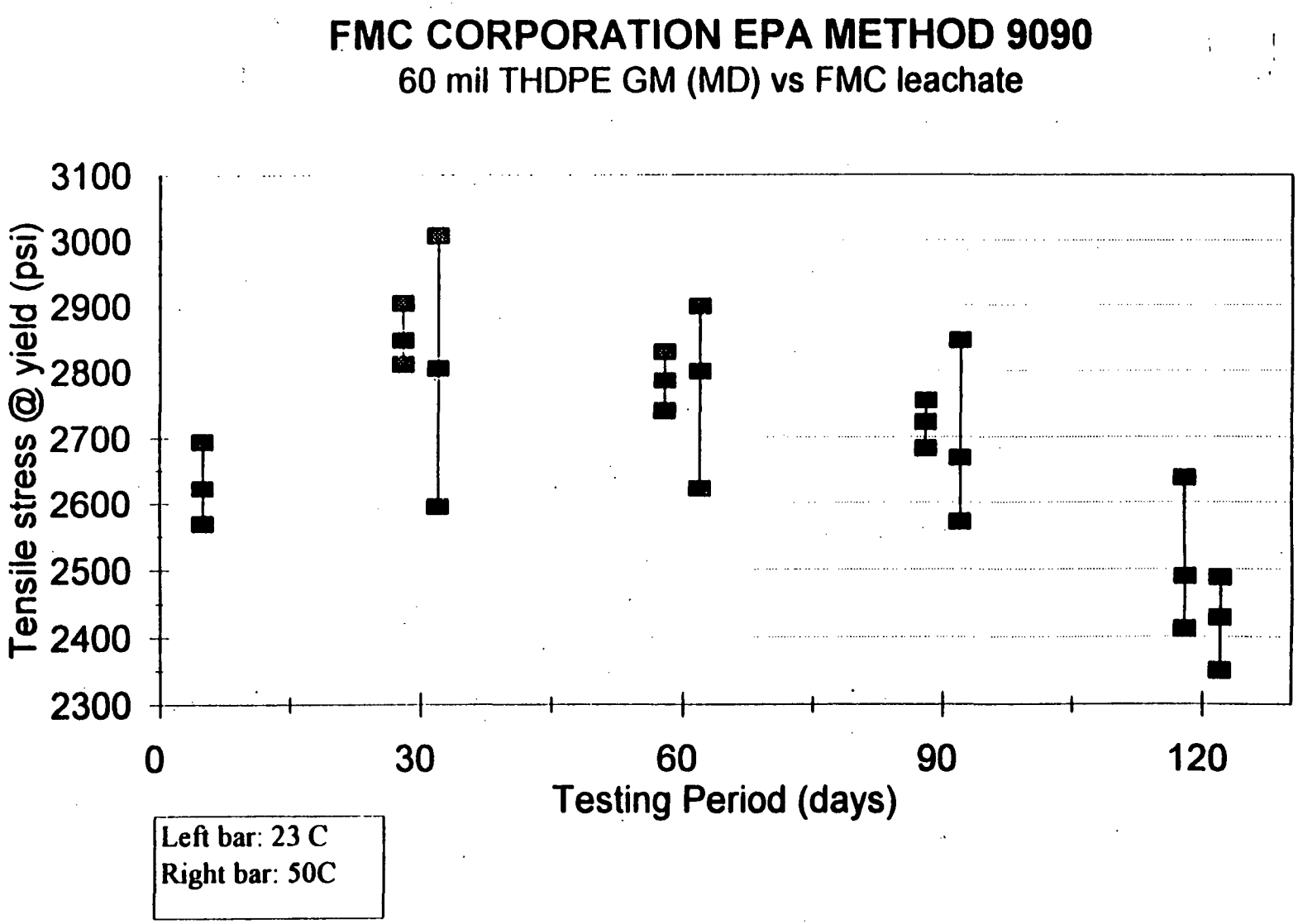
Test Parameters	Baseline	Exposure Time and Temperature: 30 Day 23C	30 Day 50C	60 Day 23C	60 Day 50C	90 Day 23C	90 Day 50C	120 Day 23C	120 Day 50C
Tear Resistance:									
ASTM D1004	53	54	56	57	56	53	54	51	50
(lbs)	51	55	57	52	53	53	52	51	50
Machine Direction	52	54	56	53	55	51	56	51	51
	53								
	52								
	50								
Average	52	54	56	54	55	52	54	51	50
STD	1	1	1	3	2	1	2	0	1
Coefficient of Variation	2	1	1	5	3	2	4	0	1
% Change		5	9	4	5	1	4	-2	-3
Tear Resistance:									
ASTM D1004	51	54	55	51	54	54	55	52	51
(lbs)	51	52	56	52	53	53	54	54	48
Transverse Direction	50	52	53	54	51	52	56	51	52
	51								
	50								
	50								
Average	51	53	55	52	53	53	55	52	50
STD	1	1	2	2	2	1	1	2	2
Coefficient of Variation	1	2	3	3	3	2	2	3	4
% Change		4	8	4	4	5	9	4	-0
Hydrostatic Resistance:									
ASTM D751	420	450	430	460	470	450	450	450	460
(psi)	420	440	410	470	480	450	475	425	480
	415	440	440	470	470	455	480	440	460
	425								
	420								
	440								
Average	423	443	427	467	473	452	468	438	467
STD	9	6	15	6	6	3	16	13	12
Coefficient of Variation	2	1	4	1	1	1	3	3	2
% Change		5	1	10	12	7	11	4	10

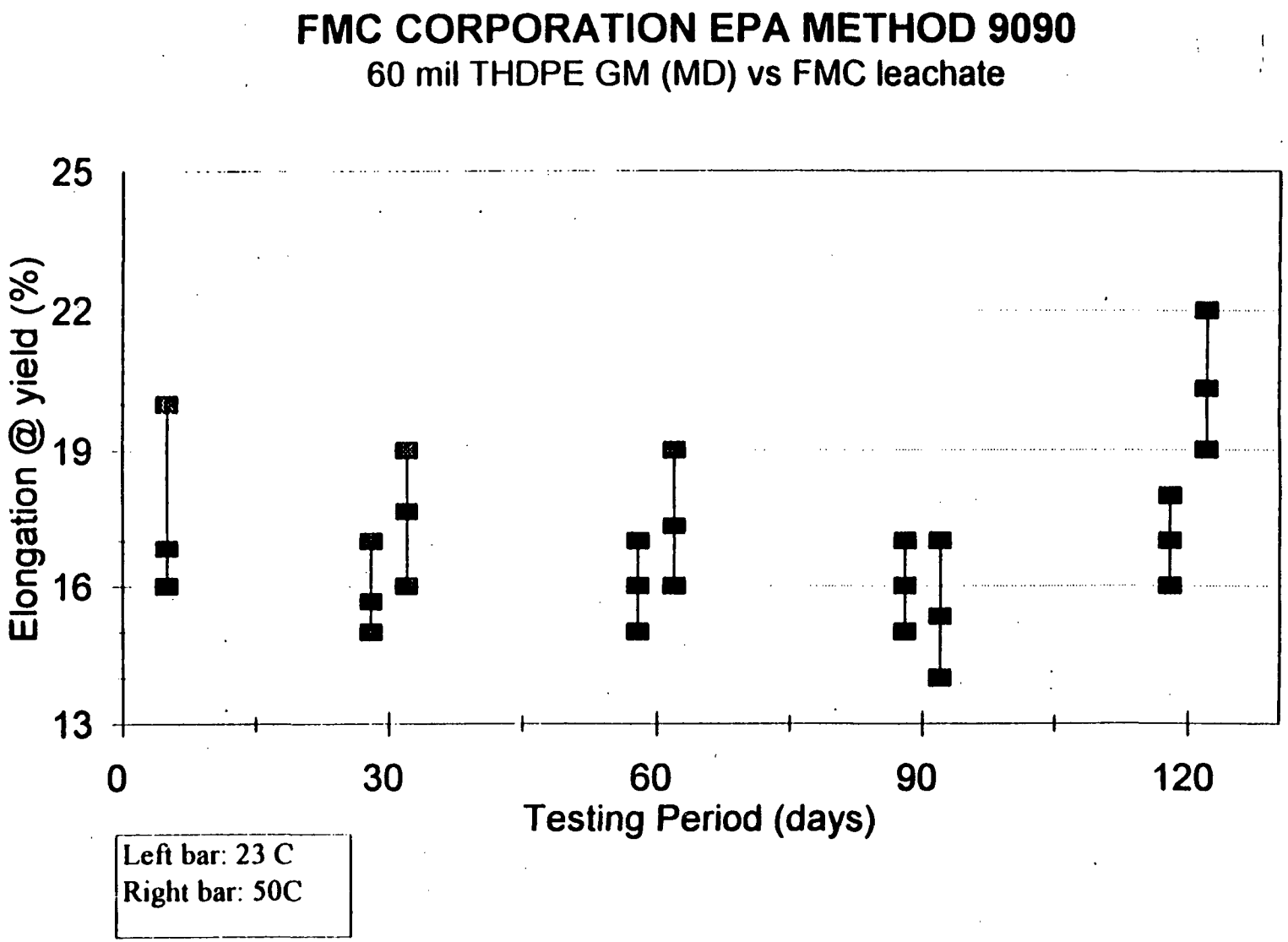
TABLE OF CHEMICAL COMPATIBILITY TEST RESULTS
Exposed to NOSAP Precipitator Slurry

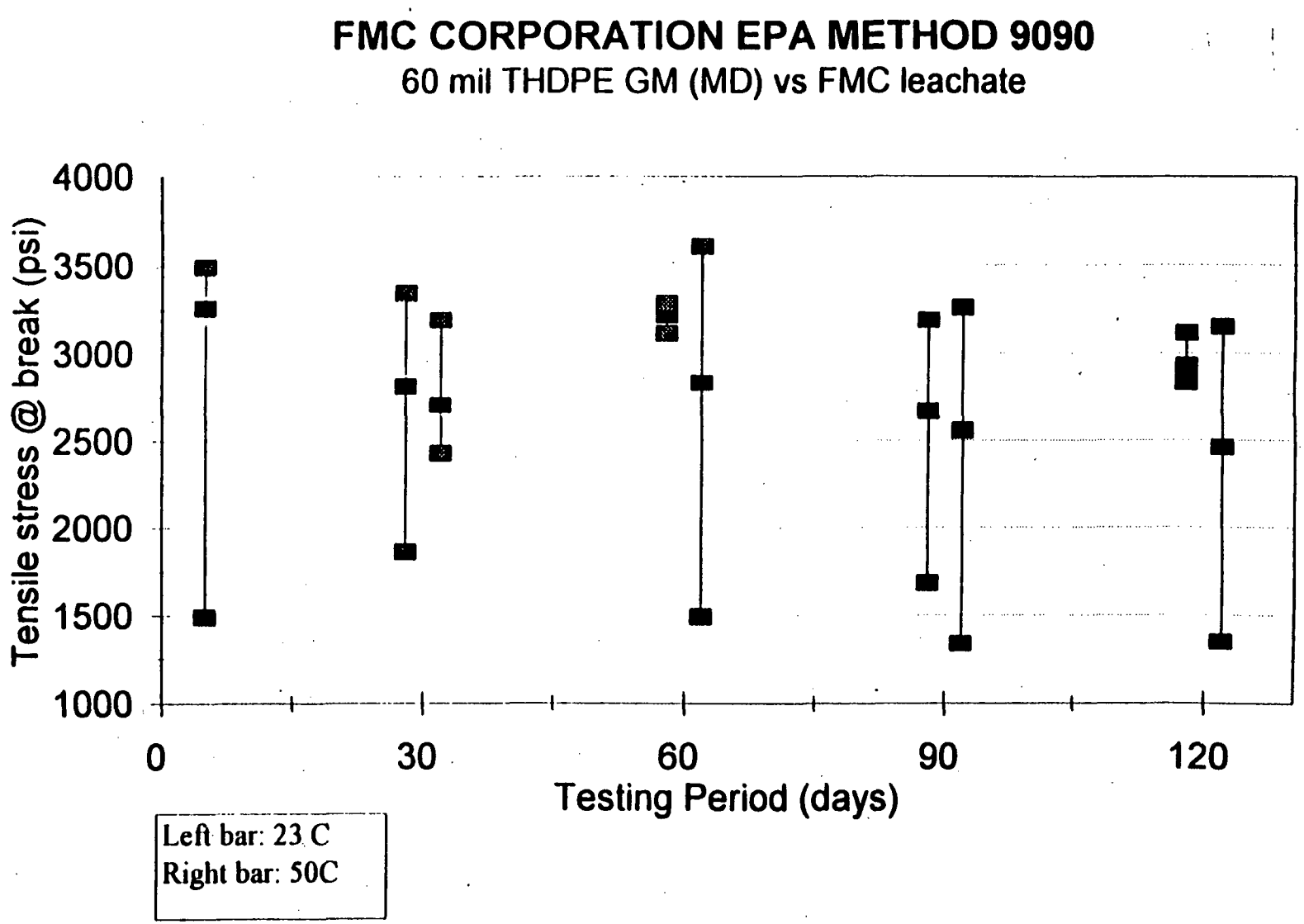
Report Date: June 13, 1995
Reissued (October 21, 1997)

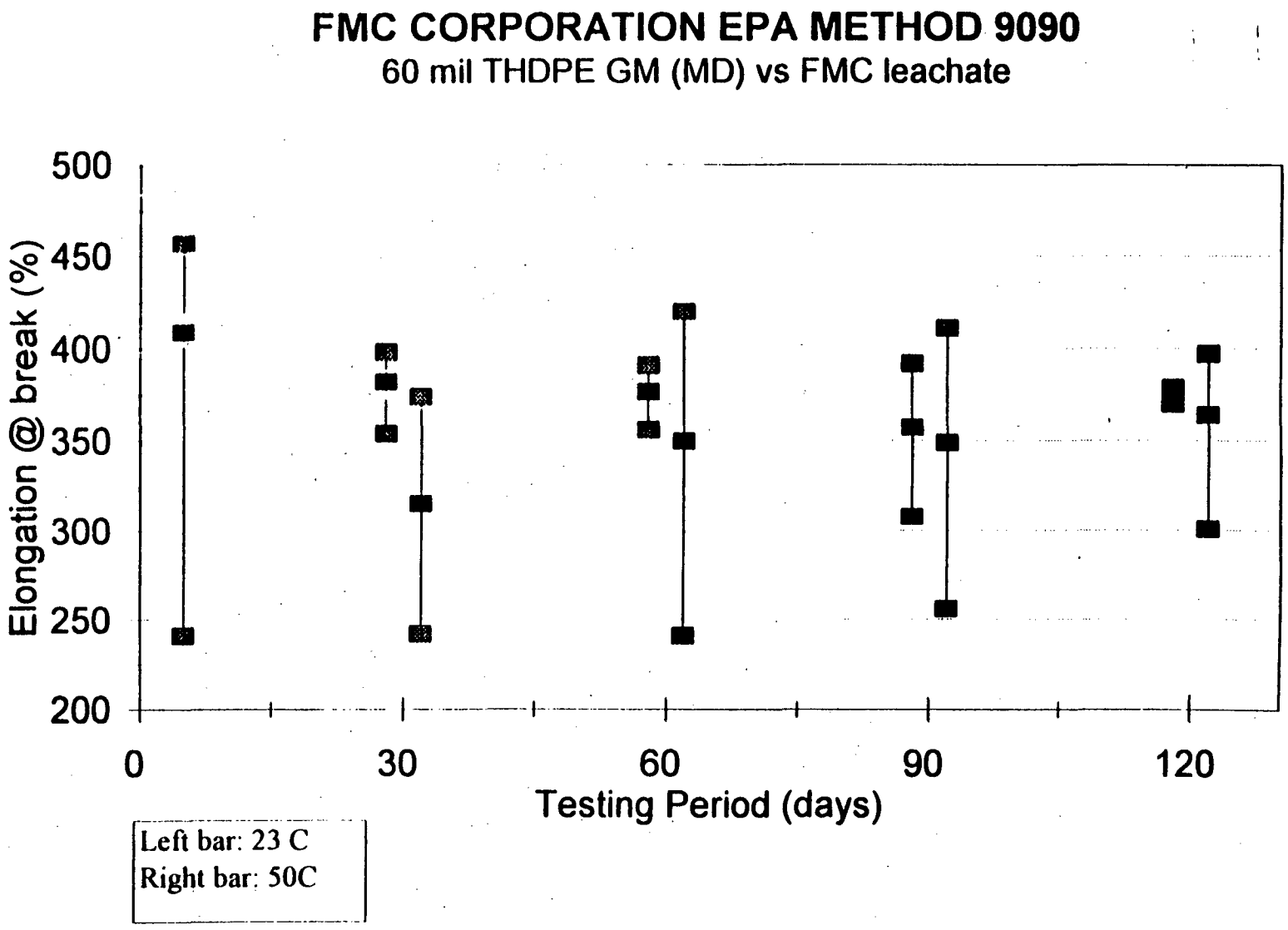
SRA
Quality Review

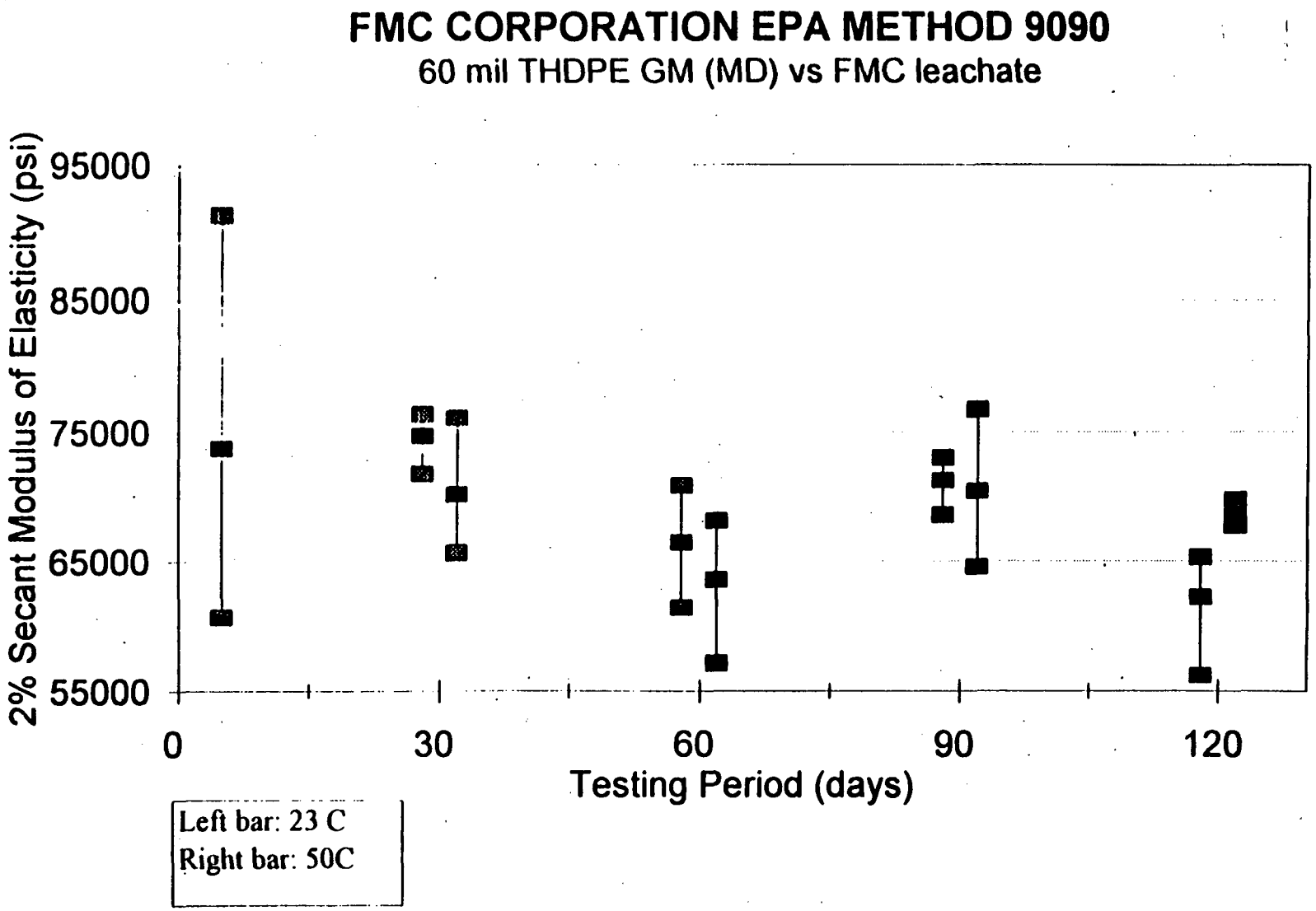
Test Parameters	Baseline	30 Day 23C	30 Day 50C	60 Day 23C	60 Day 50C	90 Day 23C	90 Day 50C	120 Day 23C	120 Day 50C
		Exposure Time and Temperature							
Seam Peel Adhesion:									
ASTM D4437 (lbs)	118	137	142	121	134	135	128	142	143
	128	142	148	132	121	122	124	138	130
	126	139	142	128	128	131	130	145	138
	119	128	136	131	137	122	130	133	140
	126	133	147	124	128	138	126	134	138
	124	145	136	133	117	126	119	139	136
	122								
	121								
	129								
	123								
	122								
	125								
Average	124	137	142	128	128	129	126	139	138
STD	3	6	5	4	7	6	4	4	4
Coefficient of Variation	3	4	3	3	5	5	3	3	3
% Change		11	15	4	3	4	2	12	11
Failure Mode (FTB = All Film Tear Bond)	FTB	FTB	FTB	FTB	FTB	FTB	FTB	FTB	FTB
Shear Seam Strength:									
Shear Seam Strength (lbs)	144	168	169	160	165	156	160	167	168
ASTM D4437	156	164	161	160	165	154	160	170	168
	145	169	163	162	163	154	160	166	166
	149								
	142								
	149								
Average	148	167	164	161	164	155	160	168	167
STD	5	2	3	1	1	1	0	2	1
Coefficient of Variation	3	1	2	1	1	1	0	1	1
% Change		13	11	9	11	5	8	14	13

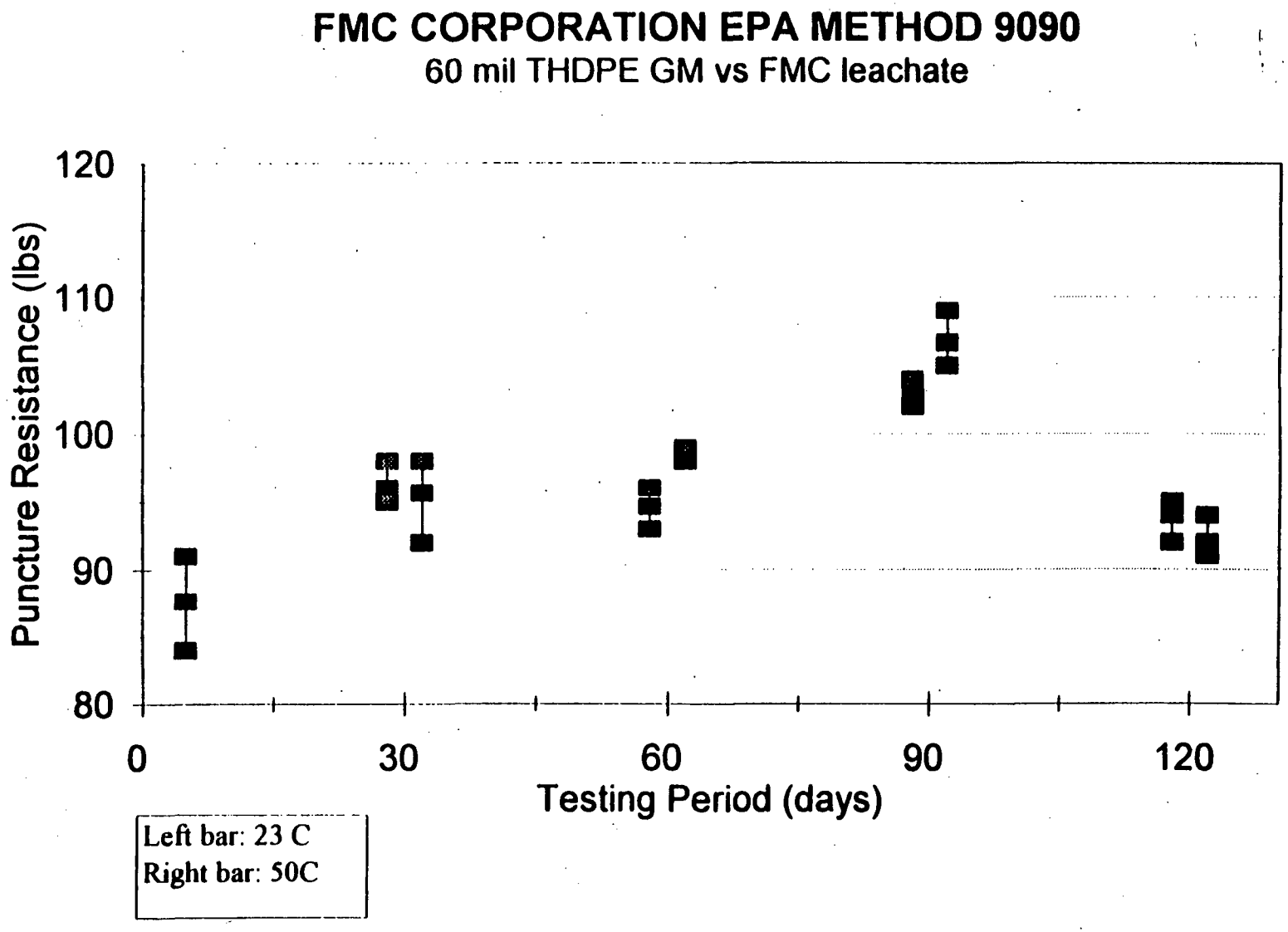

FMC CORPORATION EPA METHOD 9090
60 mil THDPE GM (MD) vs FMC leachate
Tensile stress @ yield (psi)
3100
3000
2900
2800
2700
2600
2500
2400
2300
0
30
60
90
120
Testing Period (days)
Left bar: 23 C
Right bar: 50C

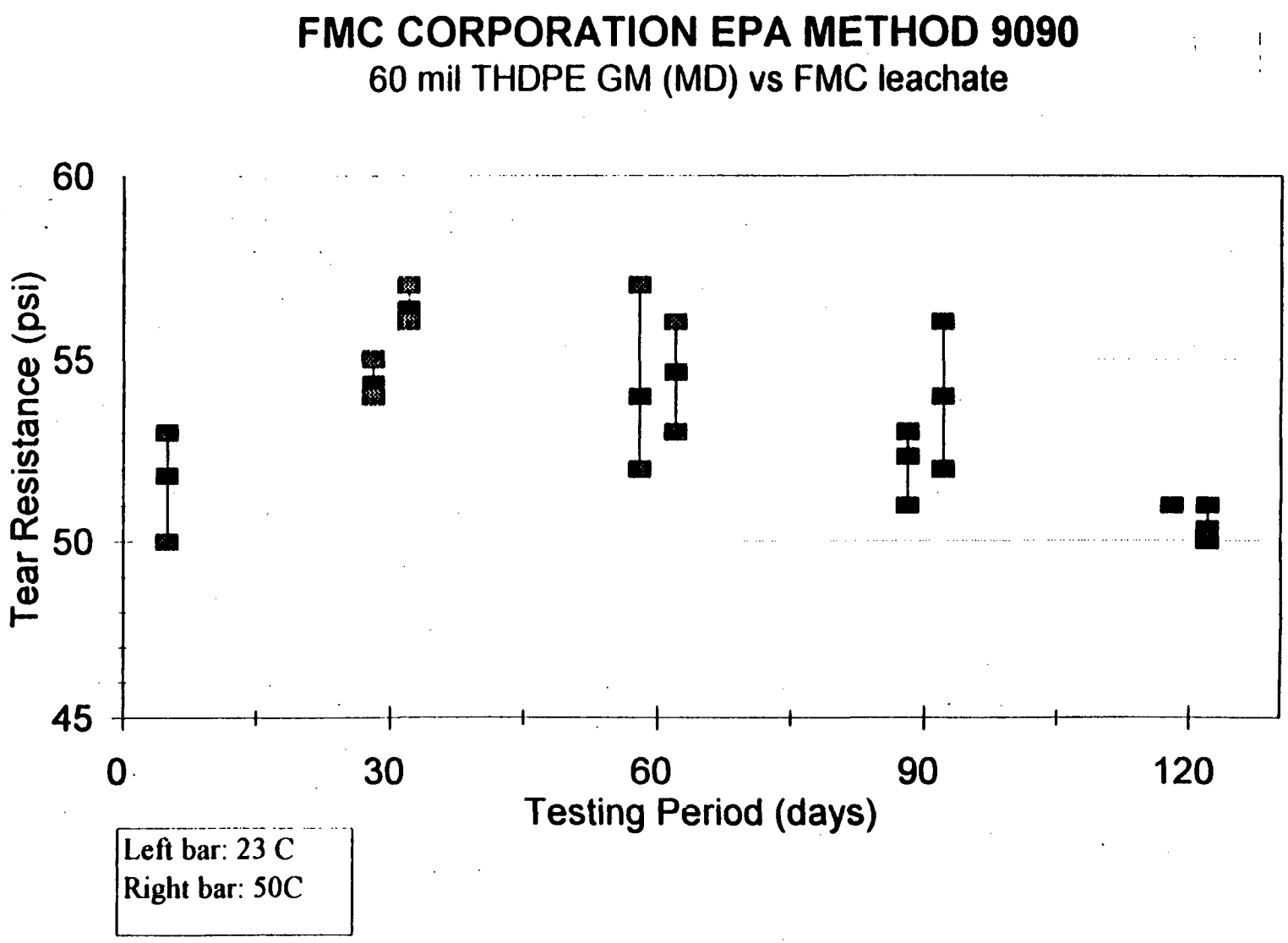

FMC CORPORATION EPA METHOD 9090
60 mil THDPE GM (MD) vs FMC leachate
Elongation @ yield (%)
25
22
19
16
13
0
30
60
90
120
Testing Period (days)
Left bar: 23 C
Right bar: 50C

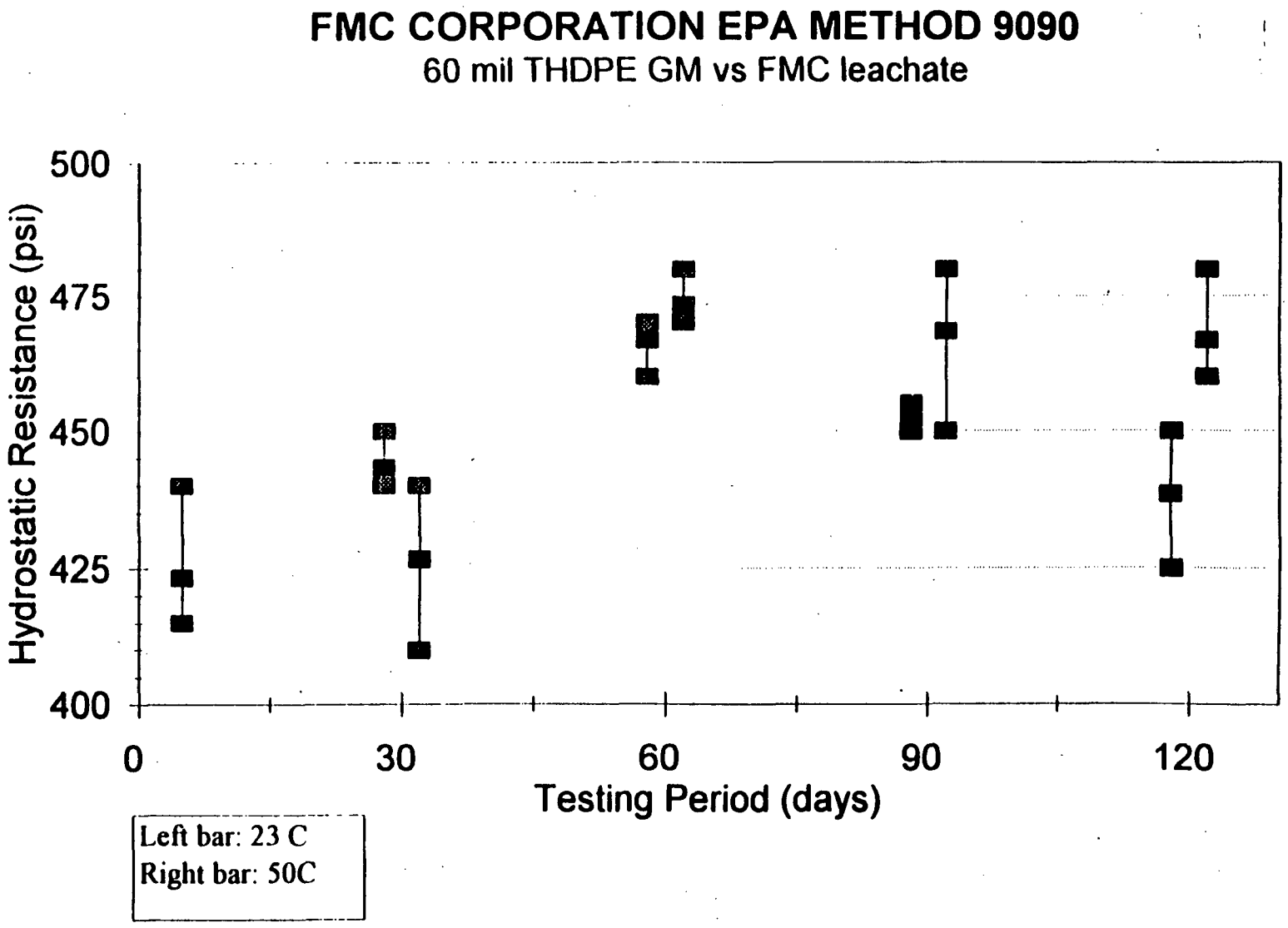

FMC CORPORATION EPA METHOD 9090
60 mil THDPE GM (MD) vs FMC leachate
Tensile stress @ break (psi)
4000
3500
3000
2500
2000
1500
1000
0
30
60
90
120
Testing Period (days)
Left bar: 23 C
Right bar: 50C

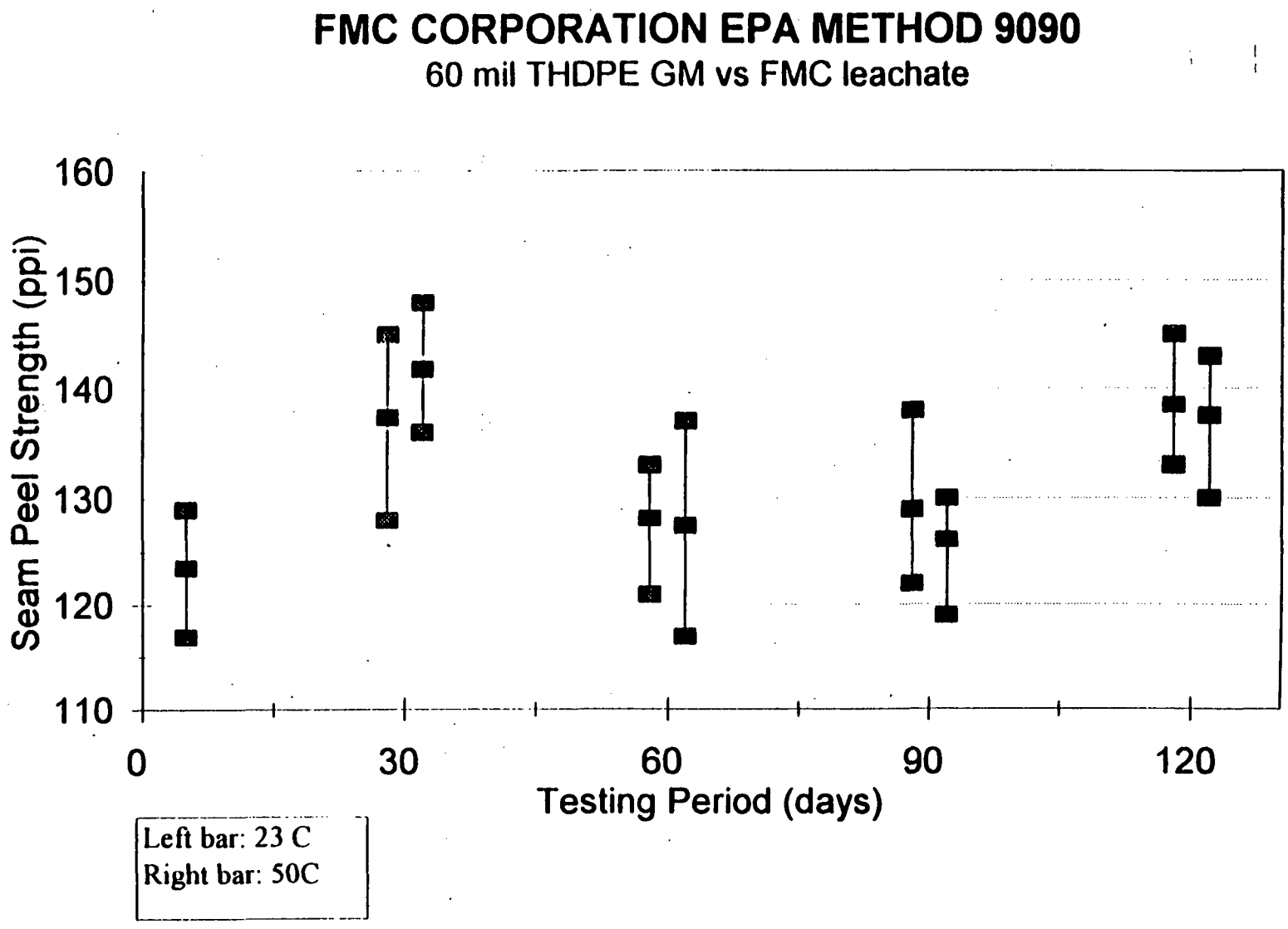

FMC CORPORATION EPA METHOD 9090
60 mil THDPE GM (MD) vs FMC leachate
Elongation @ break (%)
500
450
400
350
300
250
200
0
30
60
90
120
Testing Period (days)
Left bar: 23 C
Right bar: 50C

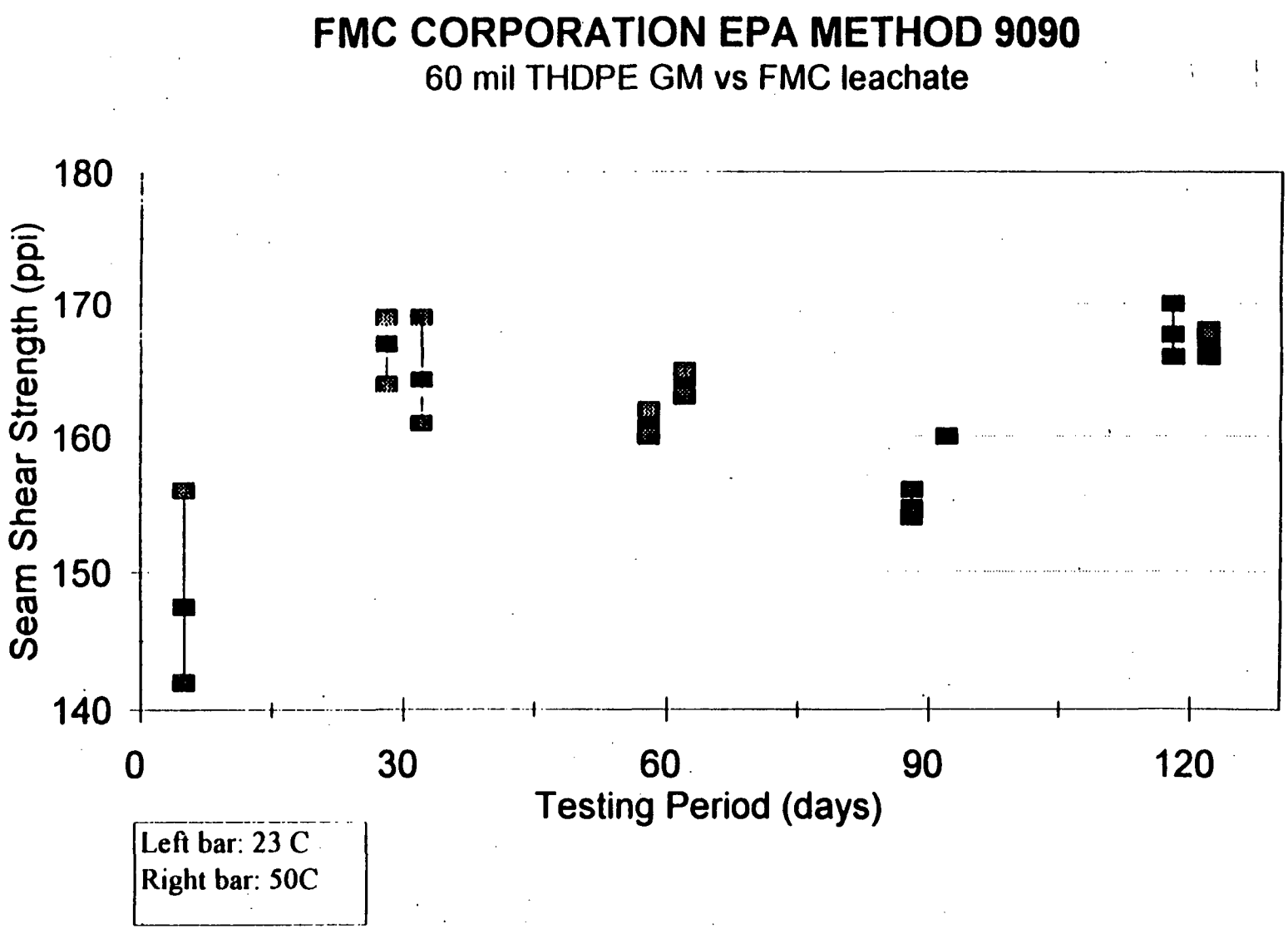

FMC CORPORATION EPA METHOD 9090
60 mil THDPE GM (MD) vs FMC leachate
2% Secant Modulus of Elasticity (psi)
95000
85000
75000
65000
55000
0
30
60
90
120
Testing Period (days)
Left bar: 23 C
Right bar: 50C


FMC CORPORATION EPA METHOD 9090
60 mil THDPE GM vs FMC leachate
Puncture Resistance (lbs)
120
110
100
90
80
0
30
60
90
120
Testing Period (days)
Left bar: 23 C
Right bar: 50C


FMC CORPORATION EPA METHOD 9090
60 mil THDPE GM (MD) vs FMC leachate
Tear Resistance (psi)
60
55
50
45
0
30
60
90
120
Testing Period (days)
Left bar: 23 C
Right bar: 50C


FMC CORPORATION EPA METHOD 9090
60 mil THDPE GM vs FMC leachate
Hydrostatic Resistance (psi)
500
475
450
425
400
0
30
60
90
120
Testing Period (days)
Left bar: 23 C
Right bar: 50C


FMC CORPORATION EPA METHOD 9090
60 mil THDPE GM vs FMC leachate
Seam Peel Strength (ppi)
160
150
140
130
120
110
0
30
60
90
120
Testing Period (days)
Left bar: 23 C
Right bar: 50C


FMC CORPORATION EPA METHOD 9090
60 mil THDPE GM vs FMC leachate
Seam Shear Strength (ppi)
180
170
160
150
140
0
30
60
90
120
Testing Period (days)
Left bar: 23 C
Right bar: 50C

EPA METHOD 9090 TEST RESULTS

STAFF 30 mil PVC GEOMEMBRANE

TABLE OF CHEMICAL COMPATIBILITY TEST RESULTS
Exposed to NOSAP Precipitator Slurry

Report Date: June 12, 1995
Reissued (October 21, 1997)

Quality Review

Test Parameters	Baseline	30 Day 23C	30 Day 50C	60 Day 23C	60 Day 50C	90 Day 23C	90 Day 50C	120 Day 23C	120 Day 50C
		Exposure Time and Temperature							
GEOMEMBRANE: STAFF INDUSTRIES 30 MIL PVC GEOMEMBRANE									
Tensile Properties:									
Tensile Stress @ Break (psi)	2593	2715	2802	2068	2158	2676	2947	2479	2514
ASTM D882	2675	2769	2791	2225	2099	2327	3094	2603	2712
Machine Direction	2561	2721	2593	2105	2250	2501	3030	2530	2715
	2861								
	2880								
	2812								
Average	2882	2735	2662	2133	2169	2501	3024	2537	2647
STD	95	24	91	67	62	142	60	51	94
Coefficient of Variation	4	1	3	3	3	6	2	2	4
% Change		3	0	-20	-19	-6	14	-5	-1
Tensile Properties:									
Elongation @ Break (%)	397	475	312	418	478	372	475	382	435
ASTM D882	403	389	344	468	427	305	480	417	472
Machine Direction	380	405	309	447	488	347	467	407	488
	477								
	460								
	410								
Average	421	423	322	444	464	341	474	402	465
STD	35	37	16	20	27	28	5	15	22
Coefficient of Variation	8	9	5	5	6	8	1	4	5
% Change		0	-24	6	10	-19	13	-5	10
Set after Break (%)	69	98	79	75	95	57	95	56	72
ASTM D882	69	96	73	100	82	42	100	68	78
Machine Direction	62	98	99	85	100	51	82	68	85
	95								
	76								
	68								
Average	73	98	84	87	92	50	92	64	78
STD	11	0	11	10	8	6	8	6	5
Coefficient of Variation	14	0	13	12	8	12	8	9	7
% Change		34	14	18	26	-32	26	-13	7
Stress @ 100% Elongation (psi)	1209	788	1137	1102	1128	1558	1604	1363	1378
ASTM D882	1257	1008	1170	1087	1140	1537	1653	1392	1390
Machine Direction	1304	933	1117	1062	1130	1537	1642	1345	1367
	1159								
	1180								
	1235								
Average	1224	909	1141	1084	1133	1544	1633	1367	1378
STD	49	91	22	16	5	10	21	19	9
Coefficient of Variation	4	10	2	2	0	1	1	1	1
% Change		-26	-7	-11	-7	26	33	12	13
Stress @ 200% Elongation (psi)	2049	1231	1467	1589	1572	2204	2168	1972	1917
ASTM D882	2092	1311	1516	1595	1590	2163	2241	1983	1938
Machine Direction	2092	1284	1440	1558	1576	2167	2253	1944	1897
	1981								
	1961								
	2014								
Average	2032	1275	1474	1581	1579	2178	2221	1966	1917
STD	51	33	31	16	8	18	38	16	17
Coefficient of Variation	2	3	2	1	0	1	2	1	1
% Change		-37	-27	-22	-22	7	9	-3	-6

TABLE OF CHEMICAL COMPATIBILITY TEST RESULTS

Exposed to NOSAP Precipitator Slurry

SRA

Report Date: June 12, 1995
Reissued (October 21, 1997)

Quality Review

Test Parameters	Baseline	30 Day 23C	30 Day 50C	60 Day 23C	60 Day 50C	90 Day 23C	90 Day 50C	120 Day 23C	120 Day 50C
		Exposure Time and Temperature							
Tensile Properties:									
Tensile Stress @ Break (psi)	2462	2711	2771	1853	1932	2794	2884	2546	2513
ASTM D882	2391	2844	2775	1998	2156	2780	2979	2496	2654
Transverse Direction	2434	2749	2869	2062	1968	2801	2888	2568	2524
	2496								
	2538								
	2514								
Average	2472	2701	2802	1970	2015	2792	2844	2537	2564
STD	49	43	41	87	100	9	120	30	64
Coefficient of Variation	2	2	1	4	5	0	4	1	2
% Change		9	13	-20	-18	13	15	3	4
Tensile Properties:									
Elongation @ Break (%)	440	326	360	400	422	482	482	487	482
ASTM D882	413	389	357	447	490	486	507	475	502
Transverse Direction	407	389	349	472	430	475	445	498	465
	453								
	457								
	447								
Average	436	369	355	440	447	481	471	487	476
STD	19	29	5	30	30	4	26	9	18
Coefficient of Variation	4	8	1	7	7	1	6	2	4
% Change		-15	-19	1	3	10	8	12	9
Set after Break (%)	83	79	99	75	89	109	104	96	78
ASTM D882	71	97	89	110	110	111	119	138	93
Transverse Direction	66	64	89	100	91	105	88	103	85
	85								
	78								
	80								
Average	77	80	92	95	97	108	103	112	85
STD	7	13	5	15	9	2	13	18	6
Coefficient of Variation	9	17	5	15	10	2	13	16	7
% Change		4	20	23	25	40	33	46	11
Stress @ 100% Elongation (psi)	1126	1107	1074	998	1080	1409	1554	1228	1341
ASTM D882	1132	932	1205	1010	1088	1404	1552	1237	1330
Transverse Direction	1147	1024	1219	1030	1056	1411	1527	1211	1327
	1130								
	1092								
	1147								
Average	1129	1021	1166	1013	1075	1408	1544	1225	1333
STD	18	71	65	13	13	3	12	11	6
Coefficient of Variation	2	7	6	1	1	0	1	1	0
% Change		-10	3	-10	-5	25	37	9	18
Stress @ 200% Elongation (psi)	1856	1434	1381	1437	1482	1996	2086	1747	1825
ASTM D882	1848	1251	1512	1470	1511	1984	2081	1753	1813
Transverse Direction	1898	1306	1504	1477	1477	1996	2030	1713	1809
	1832								
	1833								
	1878								
Average	1858	1330	1466	1461	1490	1992	2066	1738	1816
STD	24	77	60	17	15	6	25	18	7
Coefficient of Variation	1	6	4	1	1	0	1	1	0
% Change		-28	-21	-21	-20	7	11	-6	-2

TABLE OF CHEMICAL COMPATIBILITY TEST RESULTS

Exposed to NOSAP Precipitator Slurry

SRA
Quality Review

Report Date: June 12, 1996
Reissued (October 21, 1997)

Test Parameters	Baseline	30 Day 23C	30 Day 50C	60 Day 23C	60 Day 50C	90 Day 23C	90 Day 50C	120 Day 23C	120 Day 50C
		Exposure Time and Temperature							
Puncture Resistance:									
Load @ Rupture (lbs)	47	49	51	56	49	55	62	55	57
FTMS 101C Method 2065	48	51	51	45	50	58	62	56	54
	46	50	46	50	53	64	56	54	56
	50								
	52								
	52								
Average	49	50	49	50	51	59	60	55	56
STD	2	1	2	4	2	4	3	1	1
Coefficient of Variation	5	2	5	9	3	6	5	1	2
% Change		2	0	2	3	20	22	12	13
Tear Resistance:									
Maximum Load (ppi)	11	11	12	11	12	11	12	14	11
ASTM D1004	11	11	11	11	12	11	12	11	11
Machine Direction	11	12	12	10	12	11	11	11	12
	11								
	10								
	11								
Average	11	11	12	11	12	11	12	12	11
STD	0	0	0	0	0	0	0	1	0
Coefficient of Variation	3	4	4	4	0	0	4	12	4
% Change		5	8	-2	11	2	8	11	5
Maximum Load (ppi)	10	11	11	11	11	10	12	9	10
ASTM D1004	11	10	11	11	12	11	11	10	10
Transverse Direction	11	10	10	10	11	11	12	11	11
	12								
	11								
	11								
Average	11	10	11	11	11	11	12	10	10
STD	1	0	0	0	0	0	0	1	0
Coefficient of Variation	5	5	4	4	4	4	4	8	5
% Change		-6	-3	-3	3	-3	6	-9	-6

TABLE OF CHEMICAL COMPATIBILITY TEST RESULTS

Exposed to NOSAP Precipitator Slurry

SRA

Quality Review

Report Date: June 12, 1995
Reissued (October 21, 1997)

Test Parameters	Baseline	30 Day 23C	30 Day 50C	60 Day 23C	60 Day 50C	90 Day 23C	90 Day 50C	120 Day 23C	120 Day 50C
		Exposure Time and Temperature							
Indentation Hardness:									
Reading	86	84	83	89	89	92	90	90	88
ASTM D2240	87	90	85	89	89	92	90	87	88
(with TYPE D DUROMETER)	88	89	85	90	88	88	89	89	91
	88								
	86								
	87								
Average	87	88	84	89	89	91	90	89	89
STD	1	3	1	1	1	2	1	2	2
Coefficient of Variation	1	4	1	1	1	3	1	2	2
% Change		1	-3	3	2	4	3	2	2
Hydrostatic Resistance									
ASTM D751, Method A	107	98	110	105	110	108	104	97	94
	98	100	115	107	110	110	108	90	92
	108	110	118	107	110	107	107	99	98
	105								
	103								
	103								
Average	104	103	114	106	110	108	106	95	95
STD	3	6	4	1	0	2	2	5	3
Coefficient of Variation	3	6	4	1	0	1	2	5	3
% Change		-1	10	3	6	5	3	-8	-9
Specific Gravity:									
ASTM D792, Method A	1.205	1.244	1.252	1.284	1.281	1.221	1.231	1.237	1.233
	1.240	1.250	1.266	1.284	1.283	1.224	1.235	1.236	1.232
	1.232	1.243	1.255	1.284	1.284	1.232	1.238	1.232	1.236
	1.245								
	1.221								
	1.214								
Average	1.226	1.246	1.258	1.284	1.283	1.226	1.235	1.235	1.234
STD	0.016	0.004	0.007	0.000	0.002	0.006	0.004	0.003	0.002
Coefficient of Variation	1	0	1	0	0	0	0	0	0
% Change		1.59	2.57	4.72	4.61	-0.04	0.69	0.72	0.61

TABLE OF CHEMICAL COMPATIBILITY TEST RESULTS

Exposed to NOSAP Precipitator Slurry

SRA

Report Date: June 12, 1995
Reissued (October 21, 1997)

Quality Review

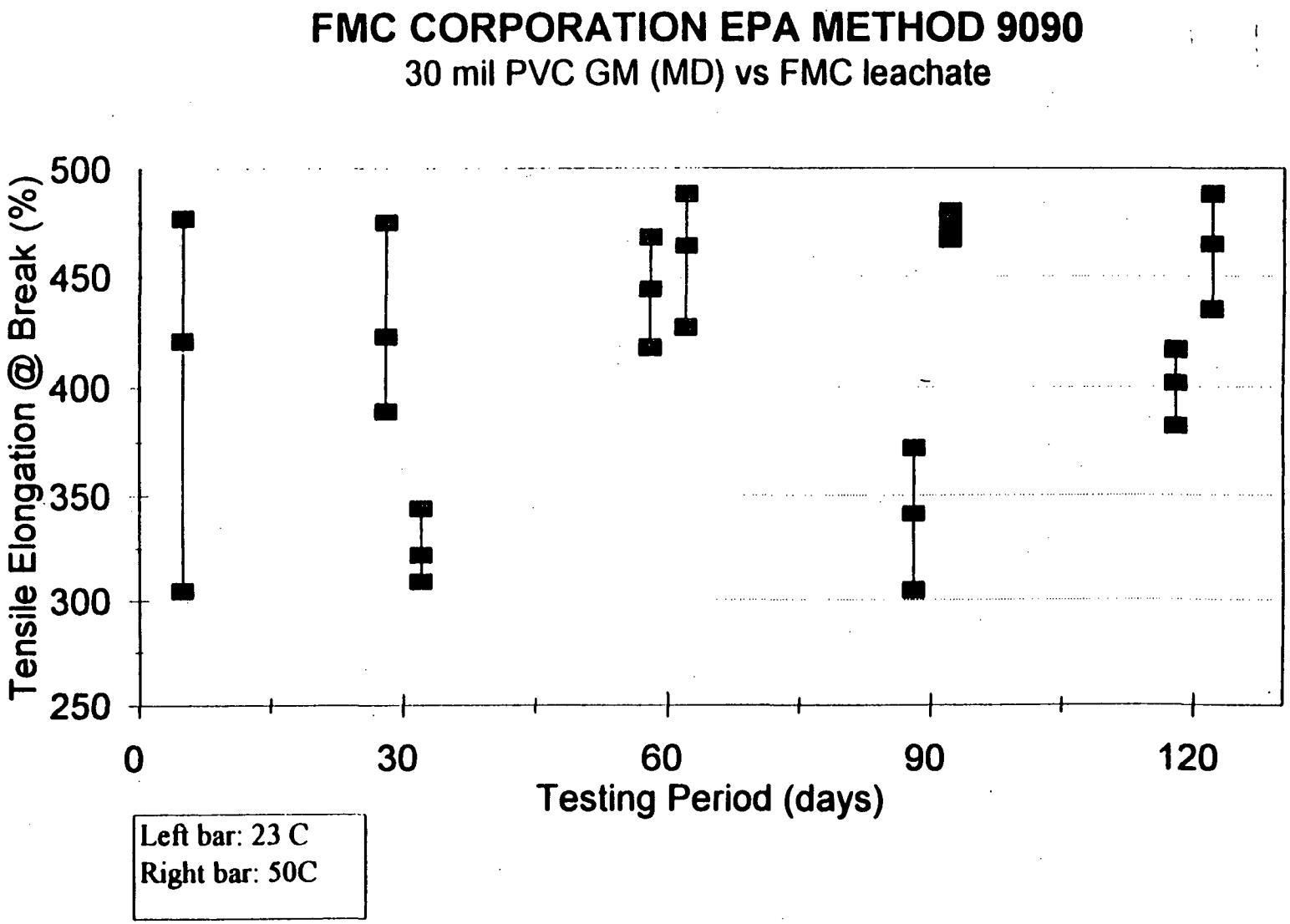
Test Parameters	Baseline	30 Day 23C	30 Day 50C	60 Day 23C	60 Day 50C	90 Day 23C	90 Day 50C	120 Day 23C	120 Day 50C
		Exposure Time and Temperature							
Volatiles and Extractables:									
Machine Diameter Change (%)	1.41	1.04	-2.33	-3.42	-5.66	-4.14	-0.86	-4.02	-2.52
SW 870 - Appendix III-D	-2.80	0.57	-3.28	-3.06	0.48	-3.45	0.50	-3.75	-2.98
	1.20								
	1.36								
Average	0.27	0.81	-2.81	-3.24	-2.59	-3.80	-0.23	-3.89	-2.75
STD	1.83	0.24	0.47	0.19	3.07	0.34	0.73	0.13	0.23
Transverse Diameter Change (%)	-4.46	-4.39	-0.10	0.58	1.15	1.31	0.18	0.58	-0.03
SW 870 - Appendix III-D	0.25	-4.34	0.15	0.93	-4.28	1.24	-1.42	0.28	1.47
	-3.65								
	-2.64								
Average	-2.63	-4.37	0.02	0.76	-1.57	1.28	-0.62	0.43	0.72
STD	1.78	0.02	0.13	0.18	2.72	0.04	0.80	0.15	0.75
% Volatiles	0.25	0.48	0.65	0.31	0.27	0.52	0.78	0.25	0.19
SW 870 - Appendix III-D	0.24	0.41	0.69	0.30	0.28	0.54	0.71	0.21	0.15
	0.18								
	0.13								
Average	0.20	0.45	0.67	0.31	0.28	0.53	0.75	0.23	0.17
STD	0.05	0.04	0.02	0.01	0.01	0.01	0.04	0.02	0.02
% Extractables	24.32	21.58	22.91	24.50	22.92	27.82	25.87	22.16	24.34
SW 870 - Appendix III-D	24.98	27.05	23.05	23.92	22.61	28.46	25.85	23.91	24.24
	24.43								
	23.41								
Average	24.29	24.32	22.98	24.21	22.77	28.14	25.86	23.04	24.29
STD	0.56	2.74	0.07	0.29	0.16	0.32	0.01	0.88	0.05

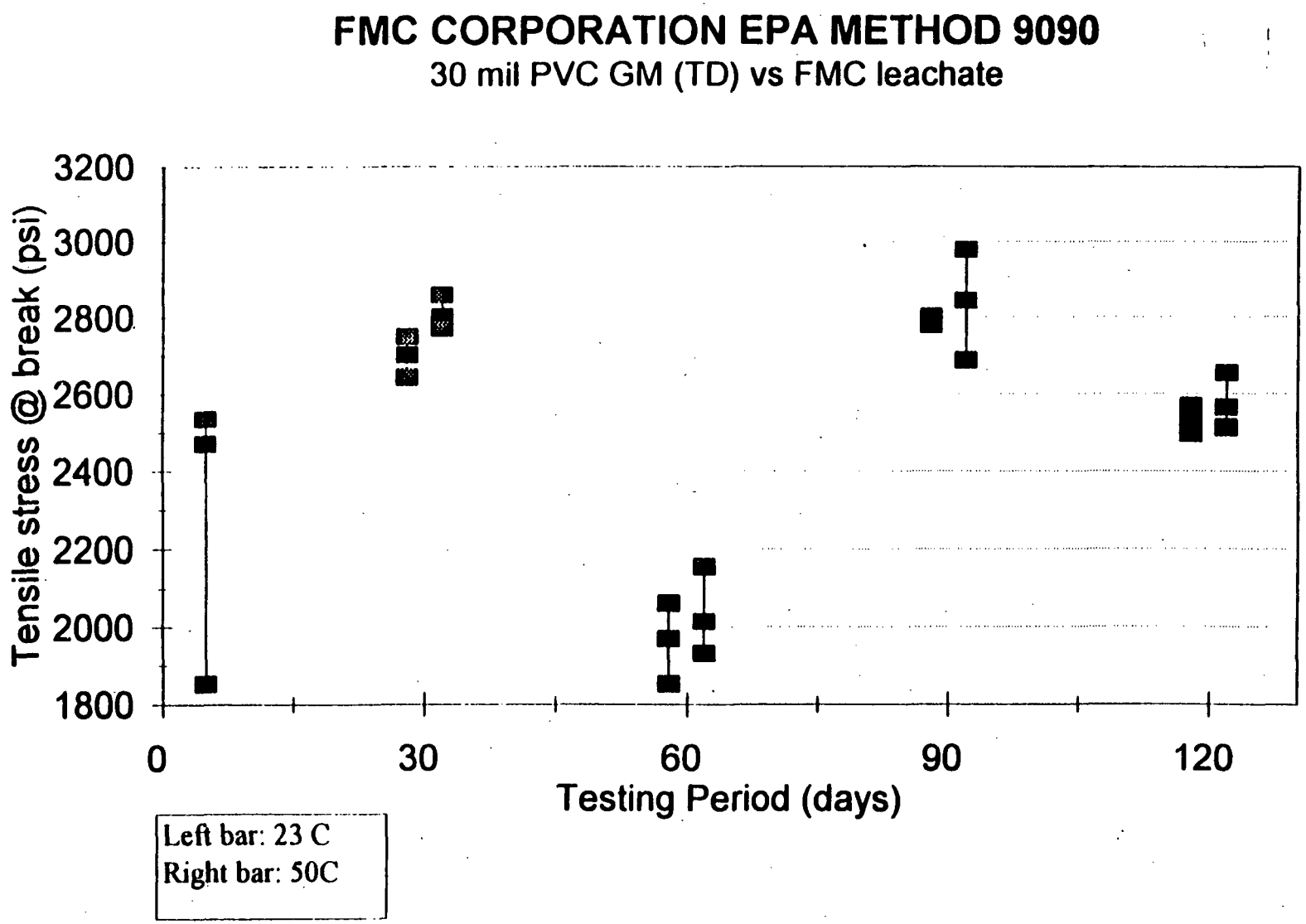
TABLE OF CHEMICAL COMPATIBILITY TEST RESULTS

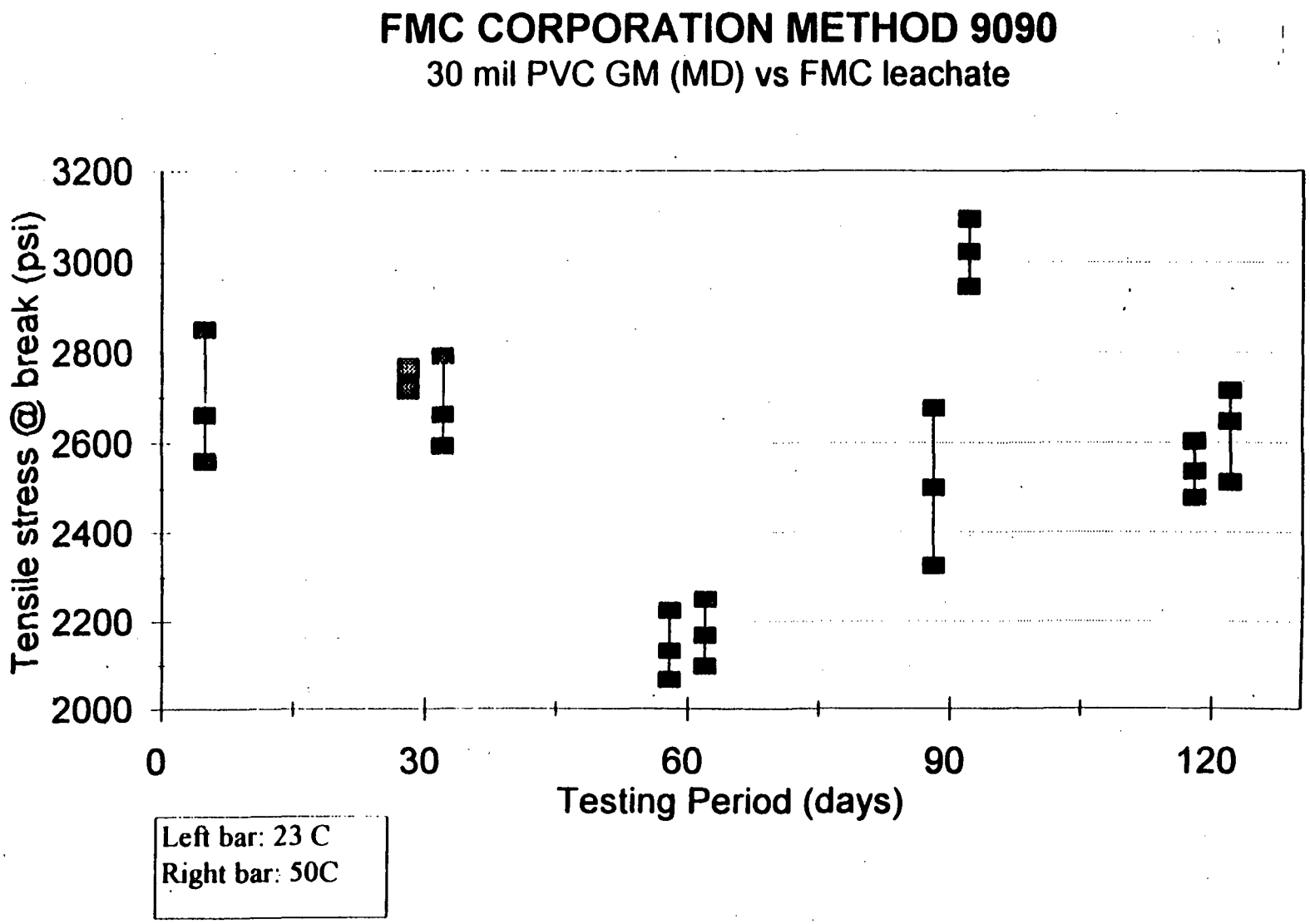
MDN
Quality Review

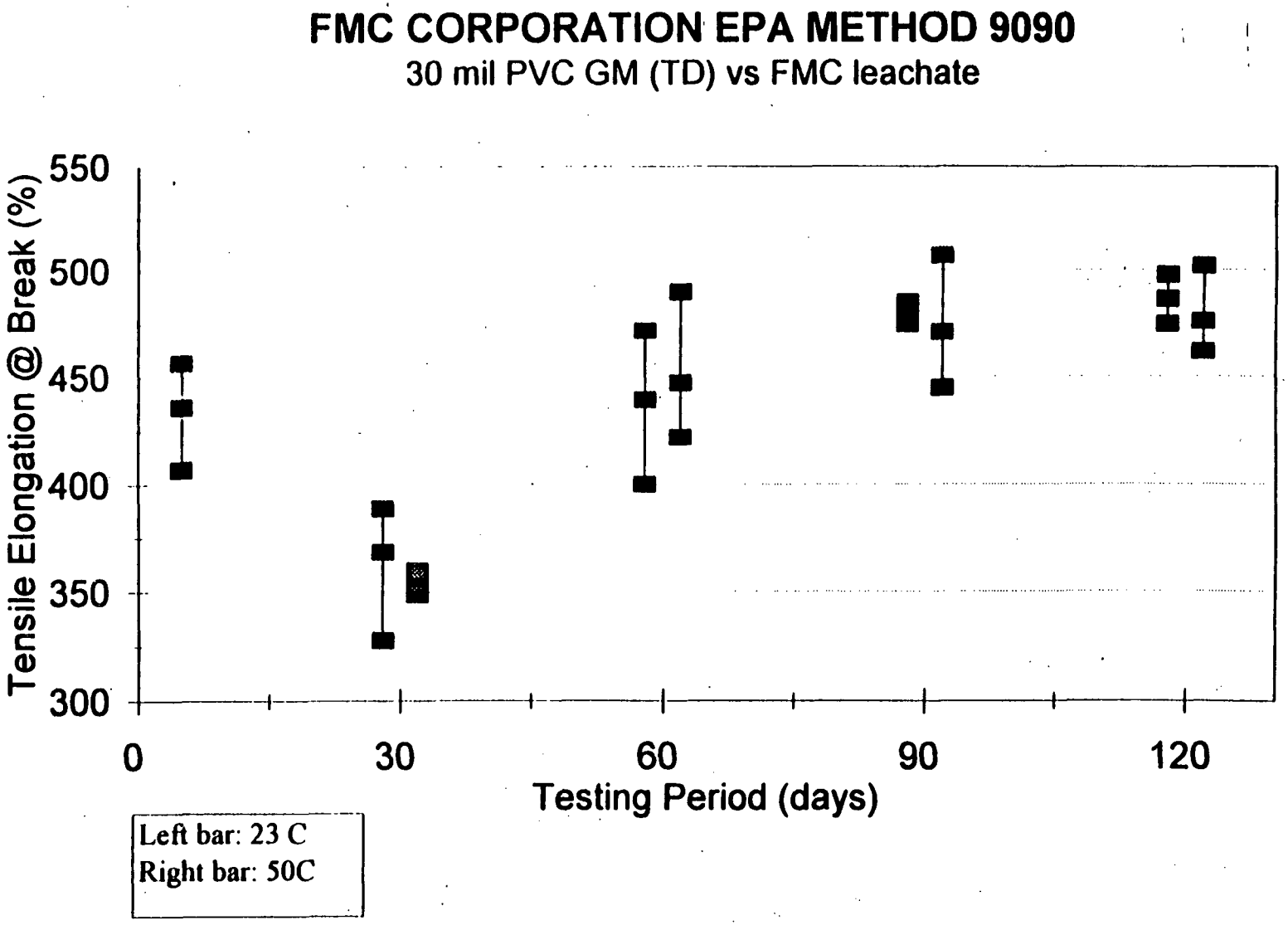
Report Date: June 12, 1995

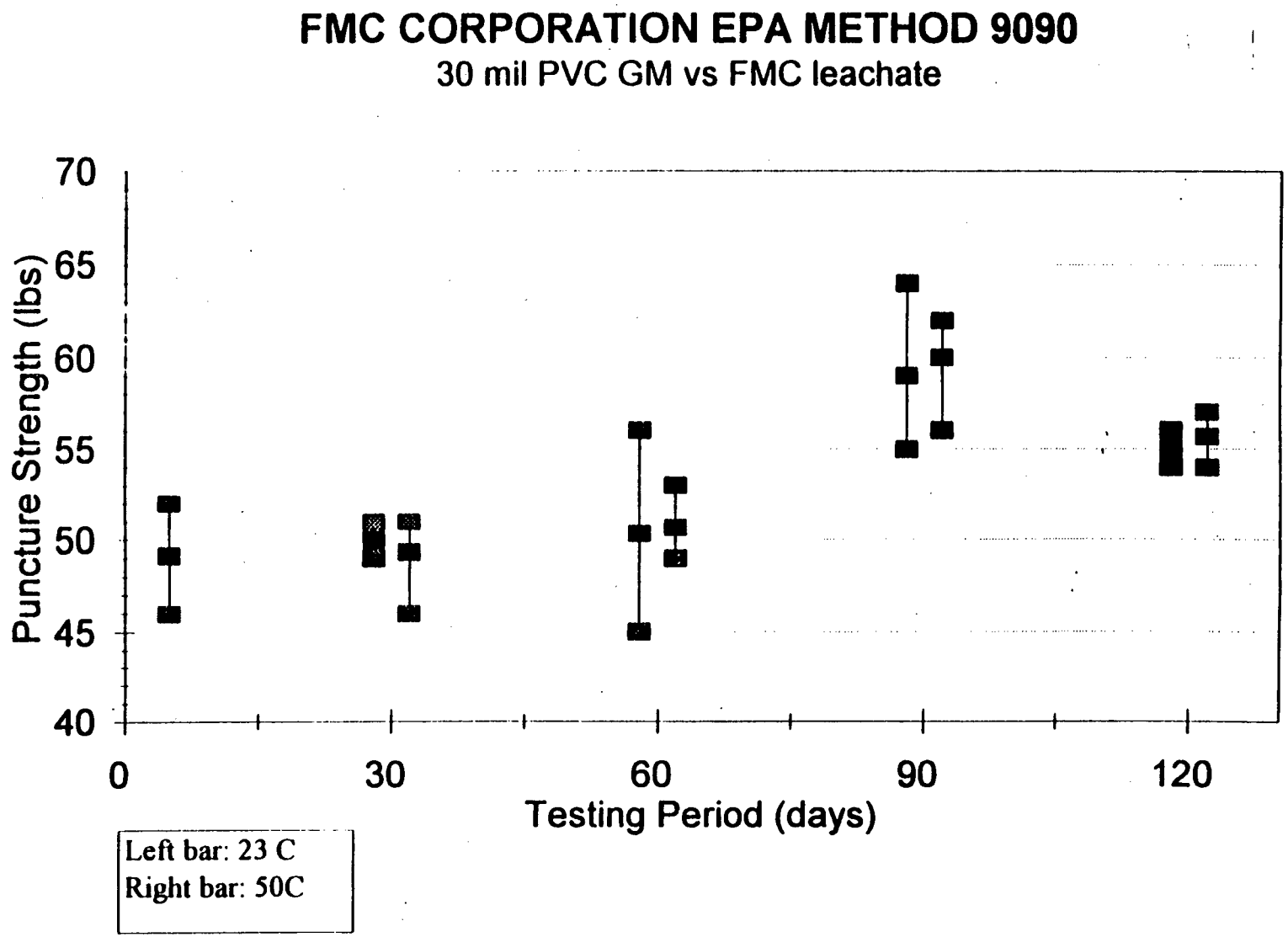
Test Parameters	Baseline	30 Day 23C	30 Day 50C	60 Day 23C	60 Day 50C	90 Day 23C	90 Day 50C	120 Day 23C	120 Day 50C
		Exposure Time and Temperature							
Seam Peel Adhesion:									
ASTM D4437 (lbs)	23	35	34	26	17	34	32	27	27
	24	19	28	30	30	31	31	27	34
	20	26	22	24	26	31	29	21	34
	25								
	19								
	24								
Average	23	27	28	27	24	32	31	25	32
STD	2	7	5	2	5	1	1	3	3
Coefficient of Variation	10	25	17	9	22	4	4	11	10
% Change		19	24	19	8	42	36	11	41
Failure Mode (SF: 100% Peel)	SF	SF	SF	SF	SF	SF	SF	SF	SF
Shear Seam Strength:									
Shear Seam Strength (lbs)	53	60	60	62	65	57	58	55	66
ASTM D4437	46	49	59	60	63	60	56	58	62
	54	57	62	49	58	58	55	70	55
	54								
	55								
	57								
Average	53	55	60	57	62	58	56	61	61
STD	3	5	1	6	3	1	1	6	5
Coefficient of Variation	6	8	2	10	5	2	2	11	7
% Change		4	13	7	17	10	6	15	15

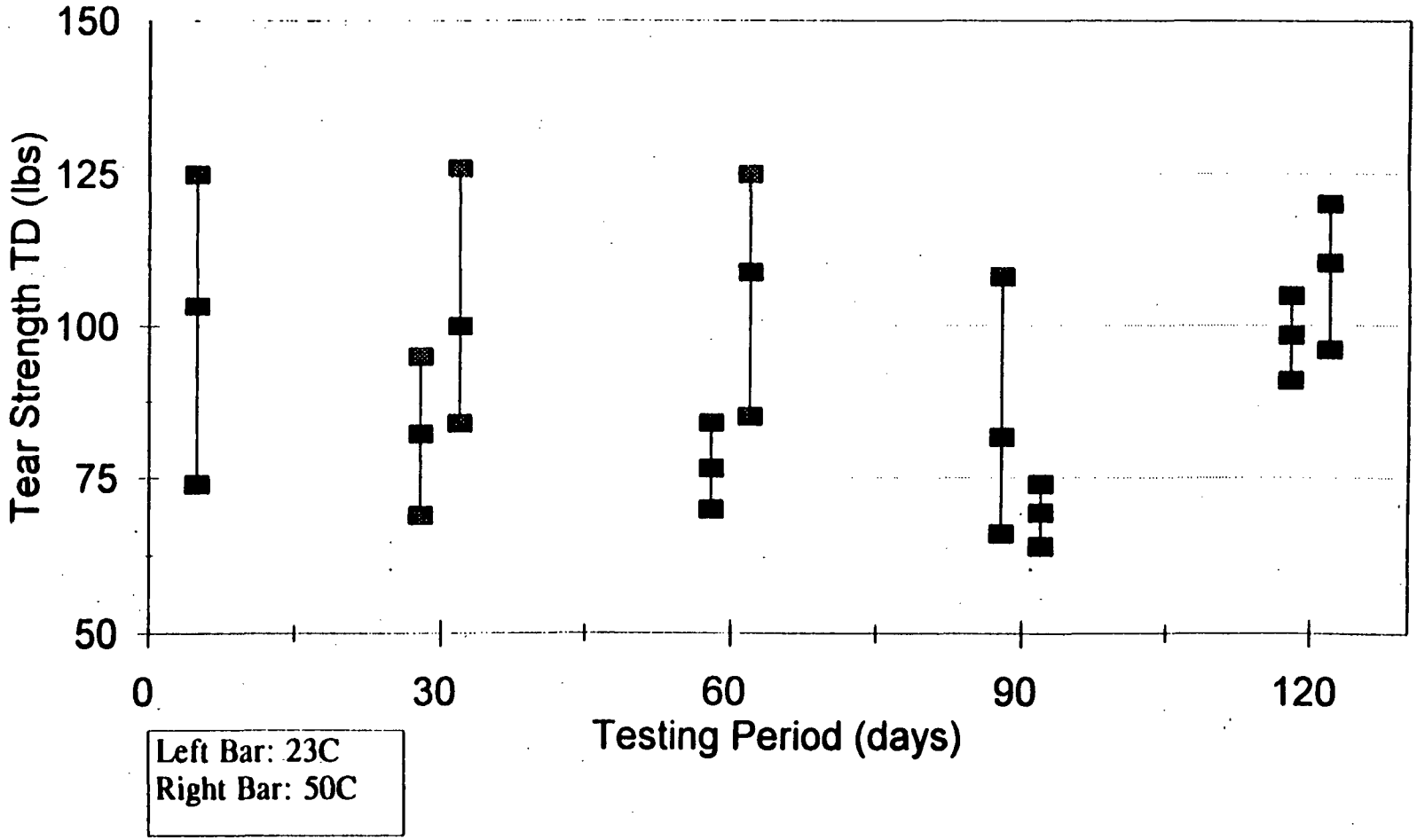

FMC CORPORATION EPA METHOD 9090
30 mil PVC GM (MD) vs FMC leachate
Tensile Elongation @ Break (%)
500
450
400
350
300
250
0
30
60
90
120
Testing Period (days)
Left bar: 23 C
Right bar: 50C

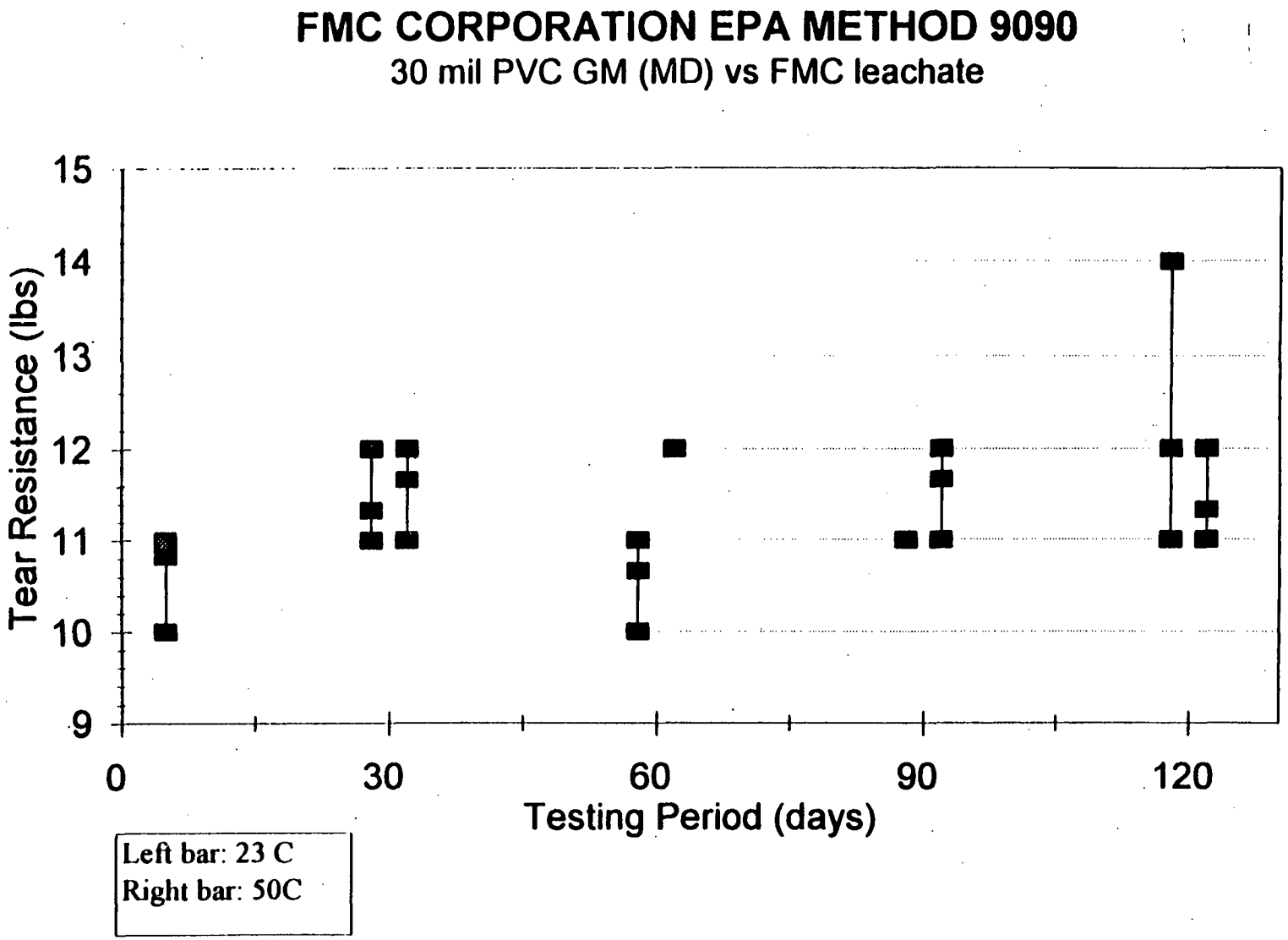

FMC CORPORATION EPA METHOD 9090
30 mil PVC GM (TD) vs FMC leachate
Tensile stress @ break (psi)
3200
3000
2800
2600
2400
2200
2000
1800
0
30
60
90
120
Testing Period (days)
Left bar: 23 C
Right bar: 50C

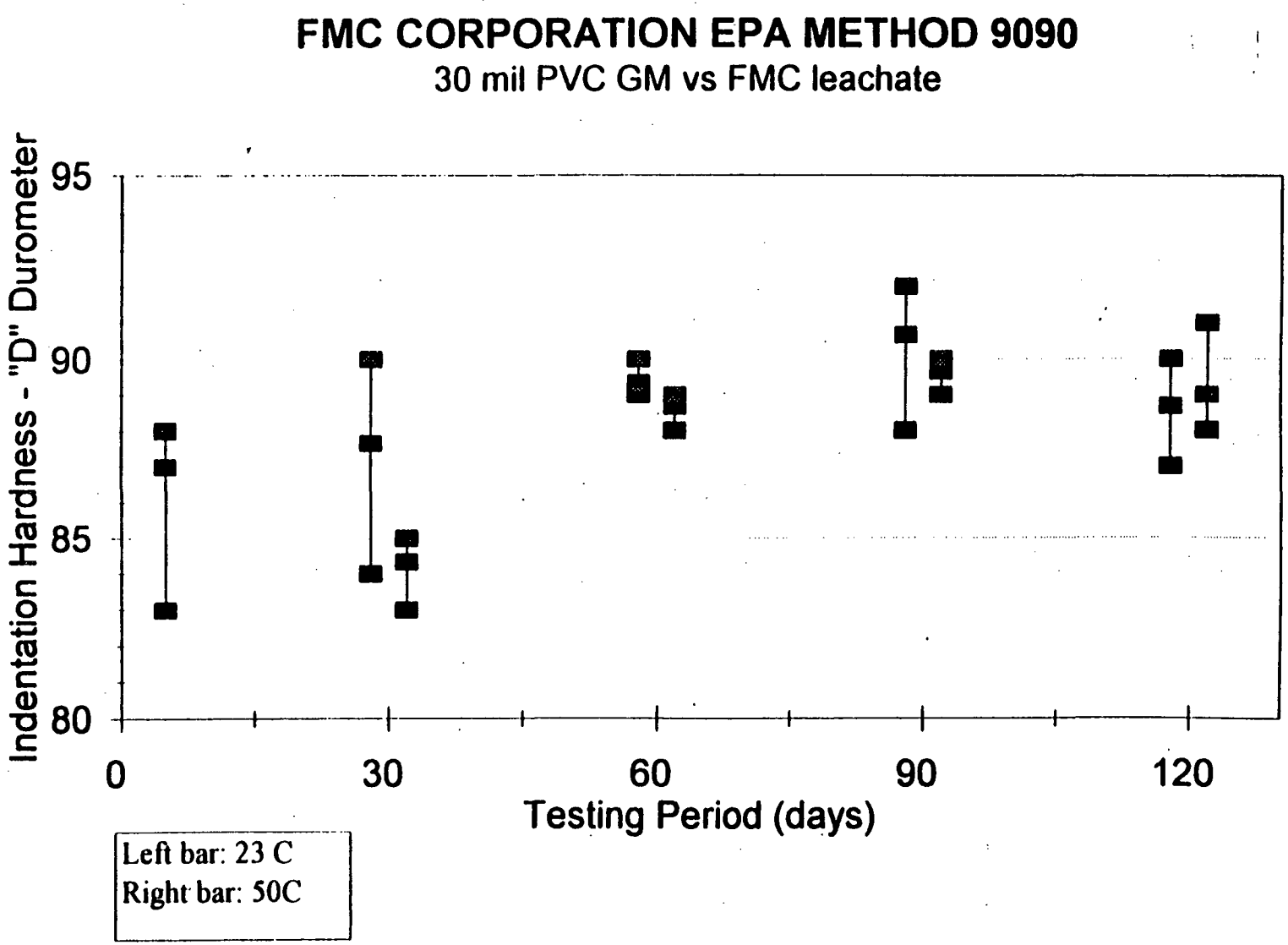

FMC CORPORATION METHOD 9090
30 mil PVC GM (MD) vs FMC leachate
Tensile stress @ break (psi)
3200
3000
2800
2600
2400
2200
2000
0
30
60
90
120
Testing Period (days)
Left bar: 23 C
Right bar: 50C

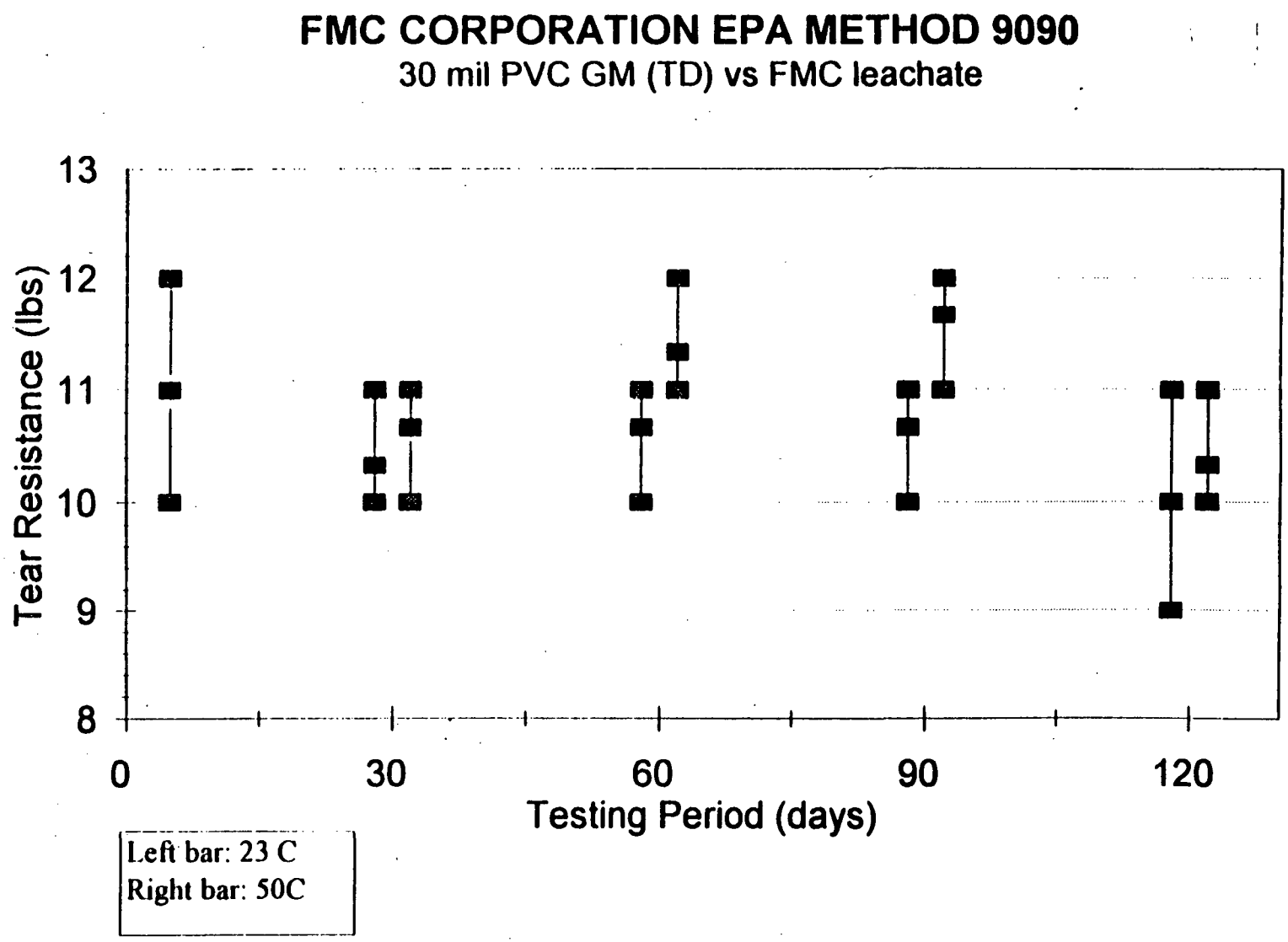

FMC CORPORATION EPA METHOD 9090
30 mil PVC GM (TD) vs FMC leachate
Tensile Elongation @ Break (%)
550
500
450
400
350
300
0
30
60
90
120
Testing Period (days)
Left bar: 23 C
Right bar: 50C

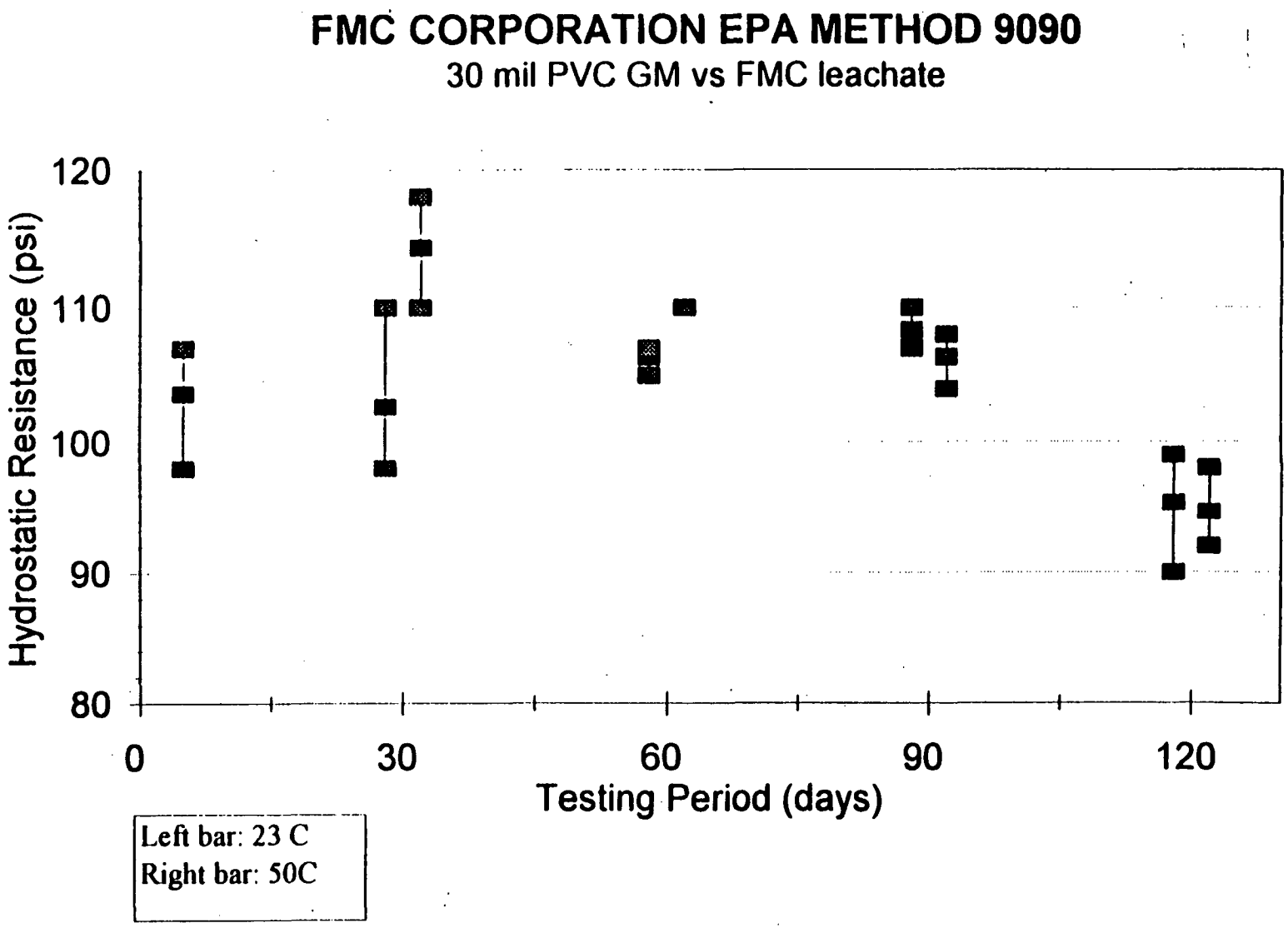

FMC CORPORATION EPA METHOD 9090
30 mil PVC GM vs FMC leachate
Puncture Strength (lbs)
70
65
60
55
50
45
40
0
30
60
90
120
Testing Period (days)
Left bar: 23 C
Right bar: 50C

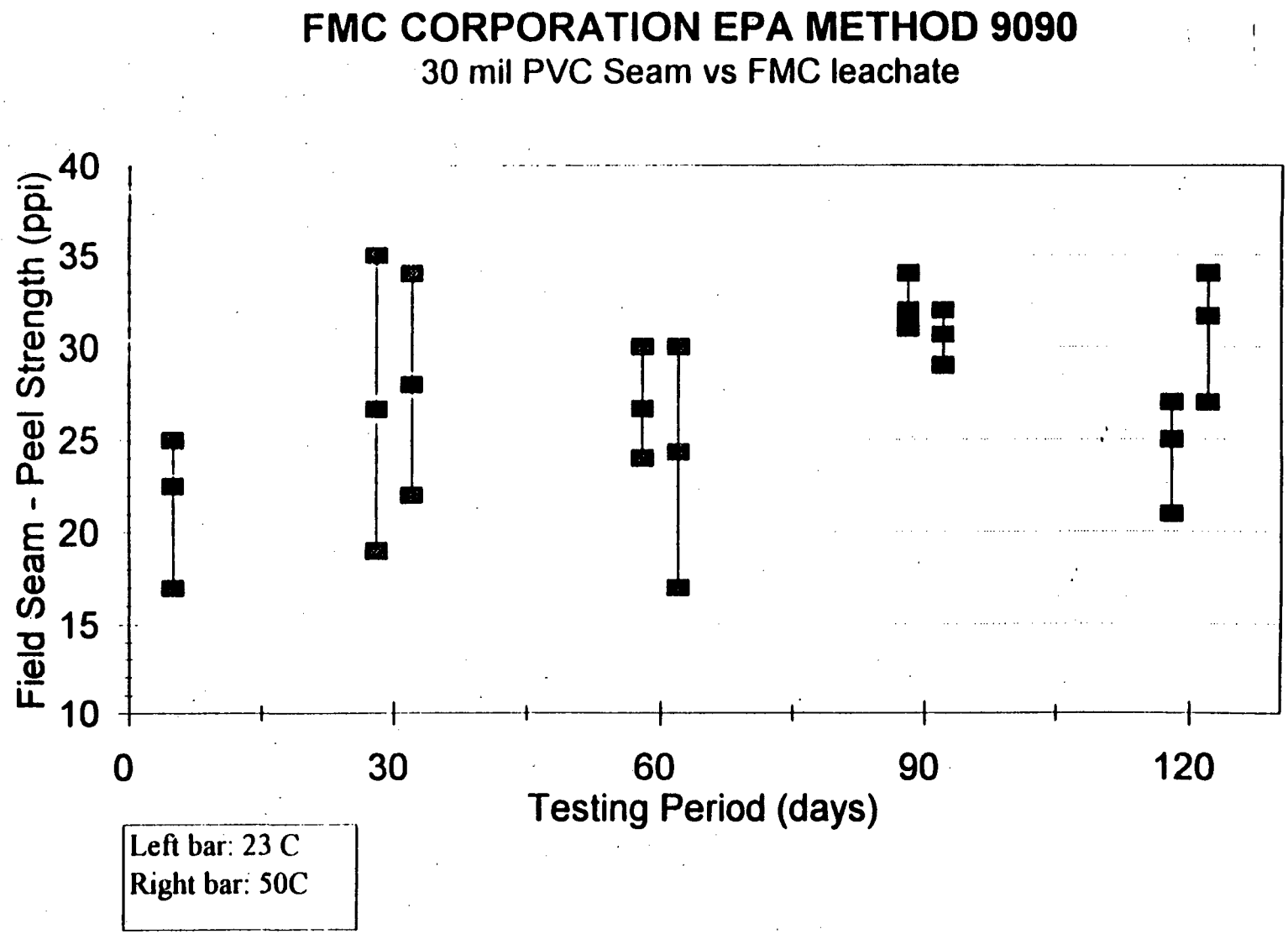

FMC CORPORATION EPA METHOD 9090
Trevira 1120 GT vs FMC Leachate
Tear Strength TD (lbs)
150
125
100
75
50
0
30
60
90
120
Testing Period (days)
Left Bar: 23C
Right Bar: 50C


FMC CORPORATION EPA METHOD 9090
30 mil PVC GM (MD) vs FMC leachate
Tear Resistance (lbs)
15
14
13
12
11
10
9
0
30
60
90
120
Testing Period (days)
Left bar: 23 C
Right bar: 50C


FMC CORPORATION EPA METHOD 9090
30 mil PVC GM vs FMC leachate
Indentation Hardness - "D" Durometer
95
90
85
80
0
30
60
90
120
Testing Period (days)
Left bar: 23 C
Right bar: 50C

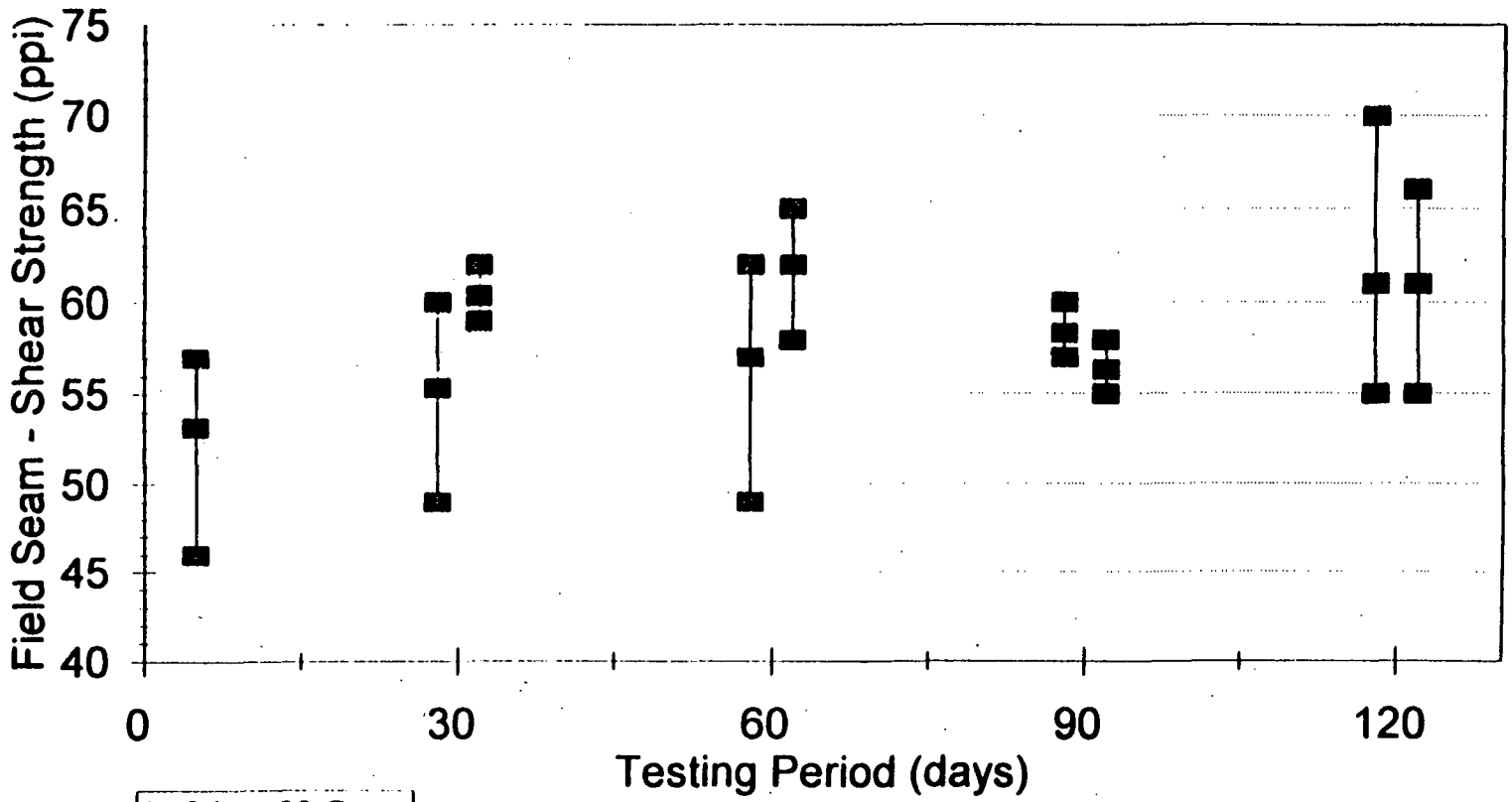

FMC CORPORATION EPA METHOD 9090
30 mil PVC GM (TD) vs FMC leachate
Tear Resistance (lbs)
13
12
11
10
9
8
0
30
60
90
120
Testing Period (days)
Left bar: 23 C
Right bar: 50C


FMC CORPORATION EPA METHOD 9090
30 mil PVC GM vs FMC leachate
Hydrostatic Resistance (psi)
120
110
100
90
80
0
30
60
90
120
Testing Period (days)
Left bar: 23 C
Right bar: 50C


FMC CORPORATION EPA METHOD 9090
30 mil PVC Seam vs FMC leachate
Field Seam - Peel Strength (ppi)
40
35
30
25
20
15
10
0
30
60
90
120
Testing Period (days)
Left bar: 23 C
Right bar: 50C

FMC CORPORATION EPA METHOD 9090

30 mil PVC Seam vs FMC leachate



Left bar: 23 C
Right bar: 50C

EPA METHOD 9090 TEST RESULTS

HOECHST CELANESE TREVIRA 1120 6 oz. GEOTEXTILE

TABLE OF CHEMICAL COMPATIBILITY TEST RESULTS
Exposed to NOSAP Precipitator Slurry

Report Date: June 12, 1995
Reissued (October 22, 1997)

Test Parameters	Baseline	Exposure Time and Temperature: 30 Day 23C	30 Day 50C	60 Day 23C	60 Day 50C	90 Day 23C	90 Day 50C	120 Day 23C	120 Day 50C
Grab:									
Grab Strength (lb)	191	176	162	205	186	224	193	199	166
ASTM D4632	213	204	182	202	180	206	143	214	174
Machine Direction	187	242	173	237	214	158	166	186	160
	204	204	174	201	216	174	172	193	173
	187	227	169	203	185	146	188	181	185
	230								
	257								
	256								
	258								
	237								
Average	222	211	172	210	196	182	172	195	172
STD	28	23	7	14	15	29	18	11	8
Coefficient of Variation	13	11	4	7	8	16	10	6	5
% Change		-5	-23	-6	-12	-18	-22	-12	-23
Grab Elongation (%)	75	65	68	63	63	93	84	78	80
ASTM D4632	88	65	81	60	67	69	63	96	83
Machine Direction	75	79	65	67	67	136	68	87	80
	79	75	77	64	75	73	68	92	93
	73	73	72	63	68	69	73	85	89
	75								
	80								
	76								
	79								
	75								
Average	78	71	73	63	68	88	71	88	85
STD	4	6	6	2	4	26	7	6	5
Coefficient of Variation	5	8	8	4	6	29	10	7	6
% Change		-8	-6	-18	-12	14	-8	13	10

SRA
Quality Review

TABLE OF CHEMICAL COMPATIBILITY TEST RESULTS
Exposed to NOSAP Precipitator Slurry

Report Date: June 12, 1995
Reissued (October 22, 1997)

Test Parameters	Baseline	Exposure Time and Temperature: 30 Day 23C	30 Day 50C	60 Day 23C	60 Day 50C	90 Day 23C	90 Day 50C	120 Day 23C	120 Day 50C
Grab:									
Grab Strength (lb)	167	165	135	138	155	150	139	215	187
ASTM D4632	160	152	157	148	152	145	151	158	200
Transverse Direction	175	147	138	143	179	138	134	225	187
	189	165	139	141	151	148	130	177	215
	177	140	154	145	158	146	129	188	192
	157								
	158								
	160								
	147								
	175								
Average	167	154	145	143	159	145	137	193	196
STD	12	10	9	3	10	4	8	25	11
Coefficient of Variation	7	6	6	2	6	3	6	13	5
% Change		-8	-13	-14	-5	-13	-18	16	18
Grab Elongation (%)	99	92	76	79	92	96	85	79	79
ASTM D4632	97	84	89	81	81	92	83	107	76
Transverse Direction	97	89	93	77	109	97	84	100	73
	99	99	91	67	80	97	75	75	75
	92	83	99	81	99	92	92	63	72
	85								
	95								
	87								
	83								
	91								
Average	93	89	90	77	92	95	84	85	75
STD	6	6	8	5	11	2	5	16	2
Coefficient of Variation	6	7	8	7	12	2	6	19	3
% Change		-3	-3	-17	-0	2	-9	-8	-19

3 RA
Quality Review

TABLE OF CHEMICAL COMPATIBILITY TEST RESULTS
Exposed to NOSAP Precipitator Slurry

Report Date: June 12, 1995
Reissued (October 22, 1997)

Test Parameters	Baseline	Exposure Time and Temperature: 30 Day 23C	30 Day 50C	60 Day 23C	60 Day 50C	90 Day 23C	90 Day 50C	120 Day 23C	120 Day 50C
Tear Resistance:									
Trapezoidal Tear Strength (lb)	93	67	74	74	77	68	82	74	82
ASTM D4533	89	71	67	77	75	57	74	65	90
Machine Direction	76	80	74	75	75	70	82	63	69
	80	63	78	72	80	71	62	65	74
	115	64	66	77	81	67	82	63	74
	94								
	71								
	110								
	79								
	86								
Average	89	69	72	75	78	67	76	66	78
STD	14	6	5	2	2	5	8	4	7
Coefficient of Variation	15	9	6	3	3	8	10	6	9
% Change		-23	-20	-16	-13	-25	-14	-26	-13
Tear Resistance:									
Trapezoidal Tear Strength (lb)	87	89	112	82	85	108	66	91	116
ASTM D4533	123	81	91	70	111	77	70	105	120
Transverse Direction	99	77	84	84	125	66	73	104	96
	99	95	126	74	112	88	64	94	106
	114	69	87	73	111	69	74	98	114
	120								
	74								
	96								
	97								
	125								
Average	103	82	100	77	109	82	69	98	110
STD	16	9	16	5	13	15	4	5	9
Coefficient of Variation	15	11	16	7	12	19	6	6	8
% Change		-21	-3	-26	5	-21	-33	-5	7
Puncture:									
Load @ Rupture (lb)	105	79	84	73	97	78	86	94	83
ASTM D4833	90	79	74	83	110	89	96	82	104
	111	91	98	88	92	83	107	84	91
	96	56	96	92	86	84	81	77	83
	103	85	80	80	92	88	99	93	68
	79								
	117								
	123								
	102								
	83								
Average	101	78	86	83	95	84	94	86	86
STD	13	12	9	7	8	4	9	7	12
Coefficient of Variation	13	15	11	8	8	5	10	8	14
% Change		-23	-14	-18	-5	-16	-7	-15	-15

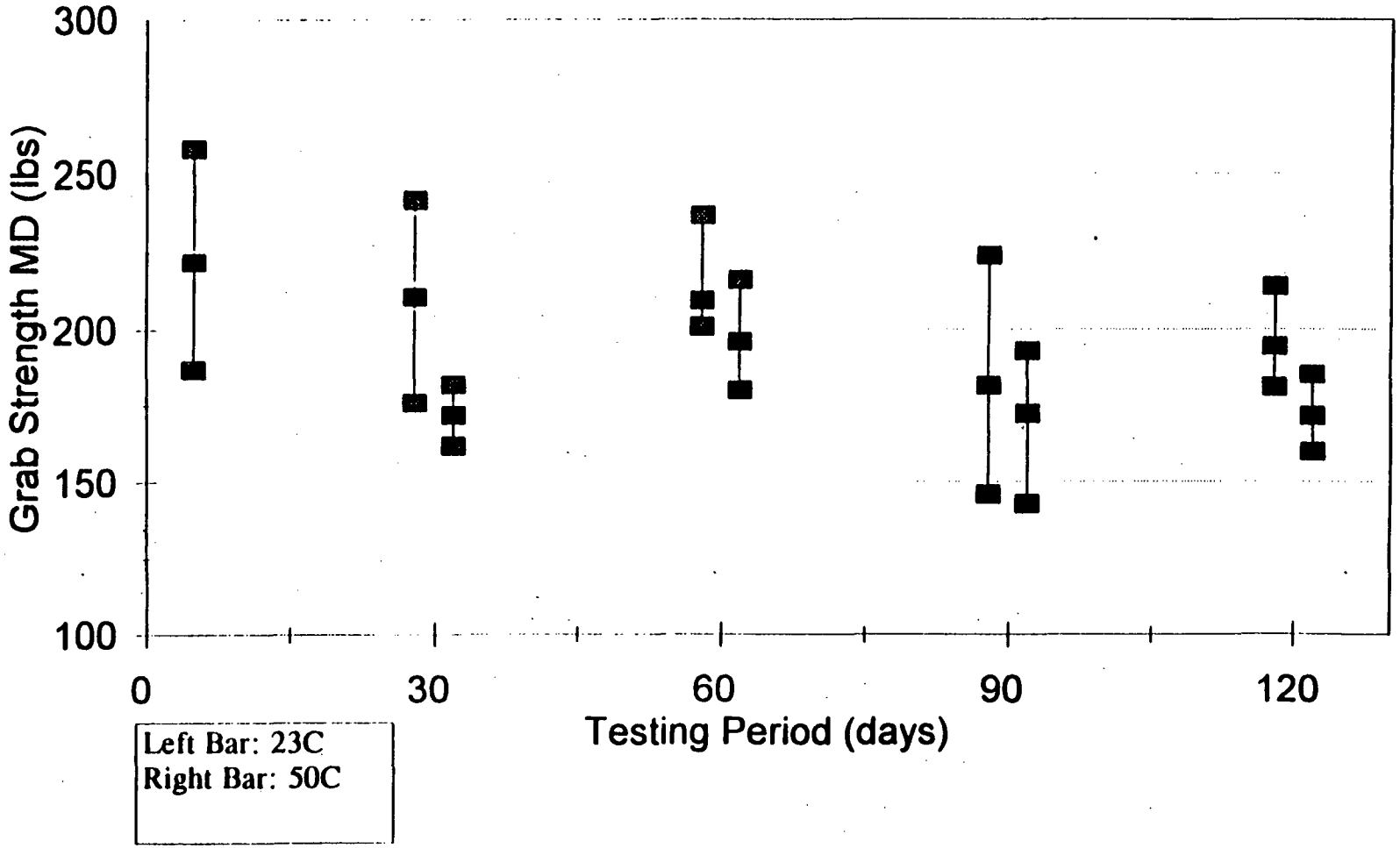
SRA

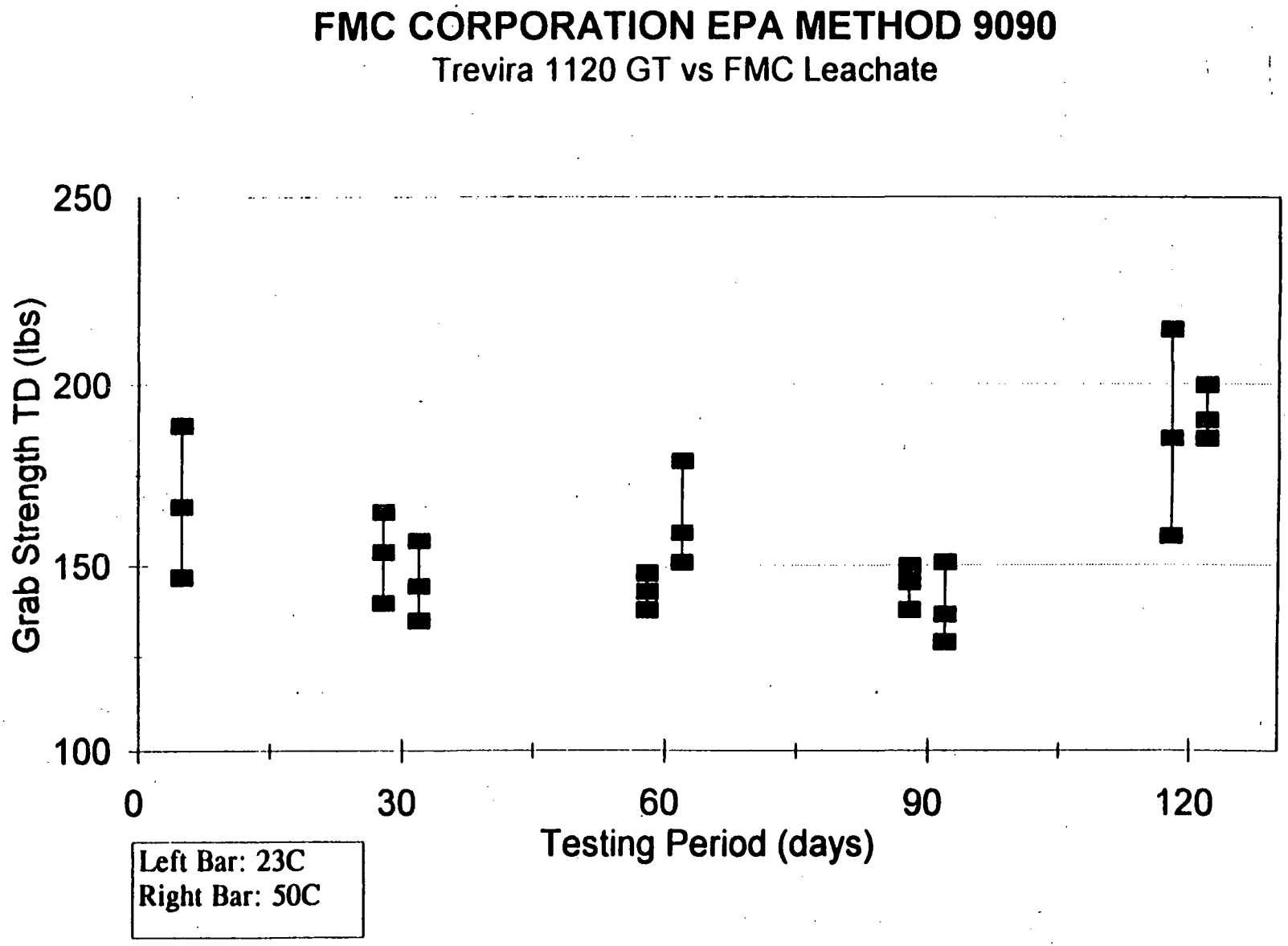
TABLE OF CHEMICAL COMPATIBILITY TEST RESULTS
Exposed to NOSAP Precipitator Slurry

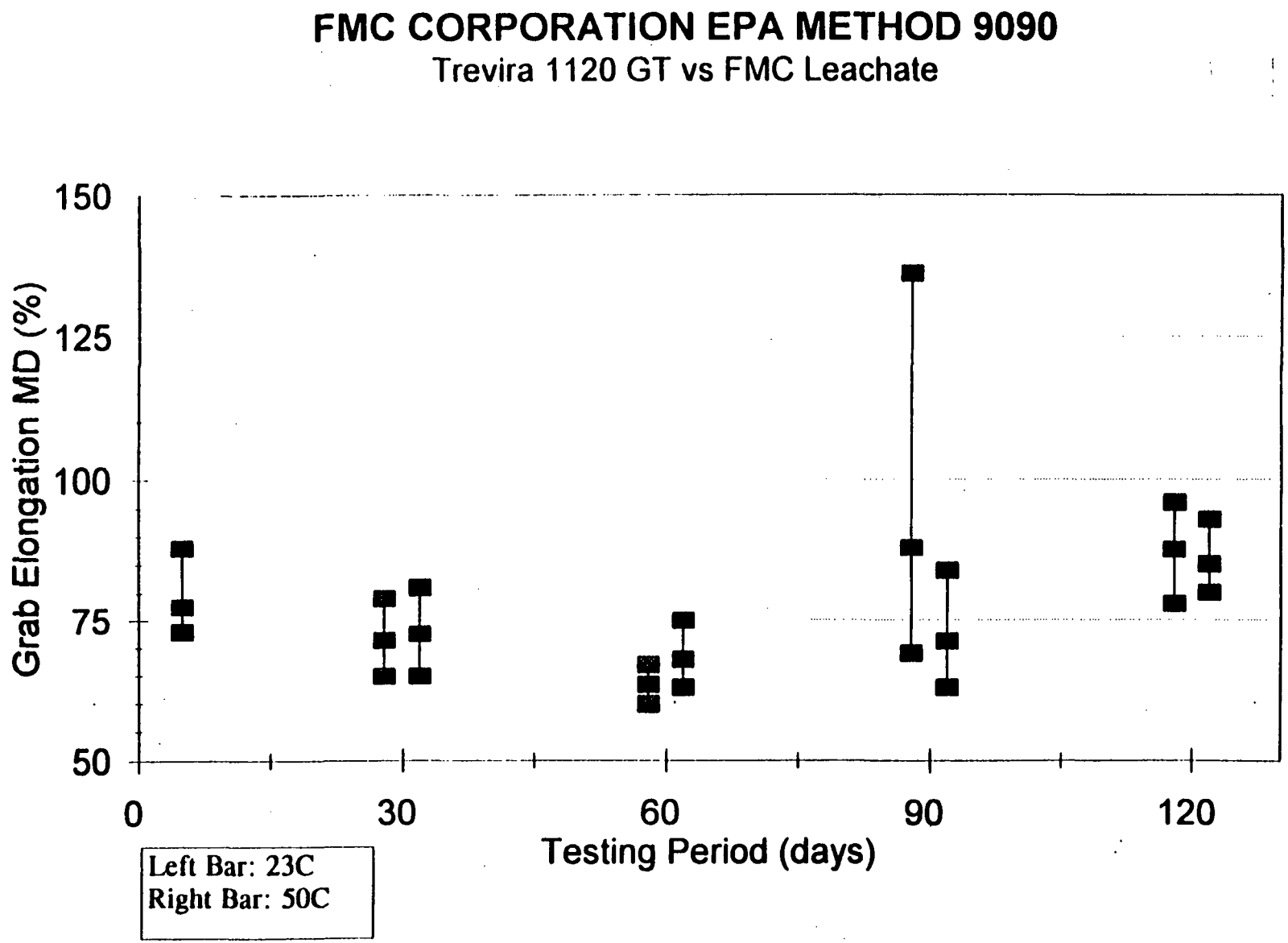
Report Date: June 12, 1995
Reissued (October 22, 1997)

Test Parameters	Baseline	Exposure Time and Temperature: 30 Day 23C	30 Day 50C	60 Day 23C	60 Day 50C	90 Day 23C	90 Day 50C	120 Day 23C	120 Day 50C
Permittivity:									
(gal/min/ft2)	129	143	160	127	141	133	127	150	140
ASTM D4491	158	143	151	135	153	123	128	147	149
	150	162	153	132	142	95	134	157	161
	144	163	149	132	132	125	122	150	156
	147	160	155	125	145	136	132	151	163
	165								
	156								
	145								
	149								
	159								
Average	150	154	154	130	143	122	129	151	154
STD	10	9	4	4	7	15	4	3	8
Coefficient of Variation	6	6	2	3	5	12	3	2	5
% Change		3	2	-13	-5	-19	-14	1	2
Mullen Burst:									
Burst Strength (psi)	310	280	280	280	280	250	290	290	260
ASTM D3786	270	280	285	240	250	280	275	250	255
	290	280	295	260	220	270	330	300	265
	280	285	295	240	280	270	280	300	300
	320	265	305	275	280	250	280	230	330
	250								
	260								
	265								
	310								
	350								
Average	291	278	292	259	262	264	291	274	282
STD	30	7	9	17	24	12	20	29	29
Coefficient of Variation	10	2	3	7	9	5	7	10	10
% Change		-4	1	-11	-10	-9	0	-6	-3

SRA
Quality Review

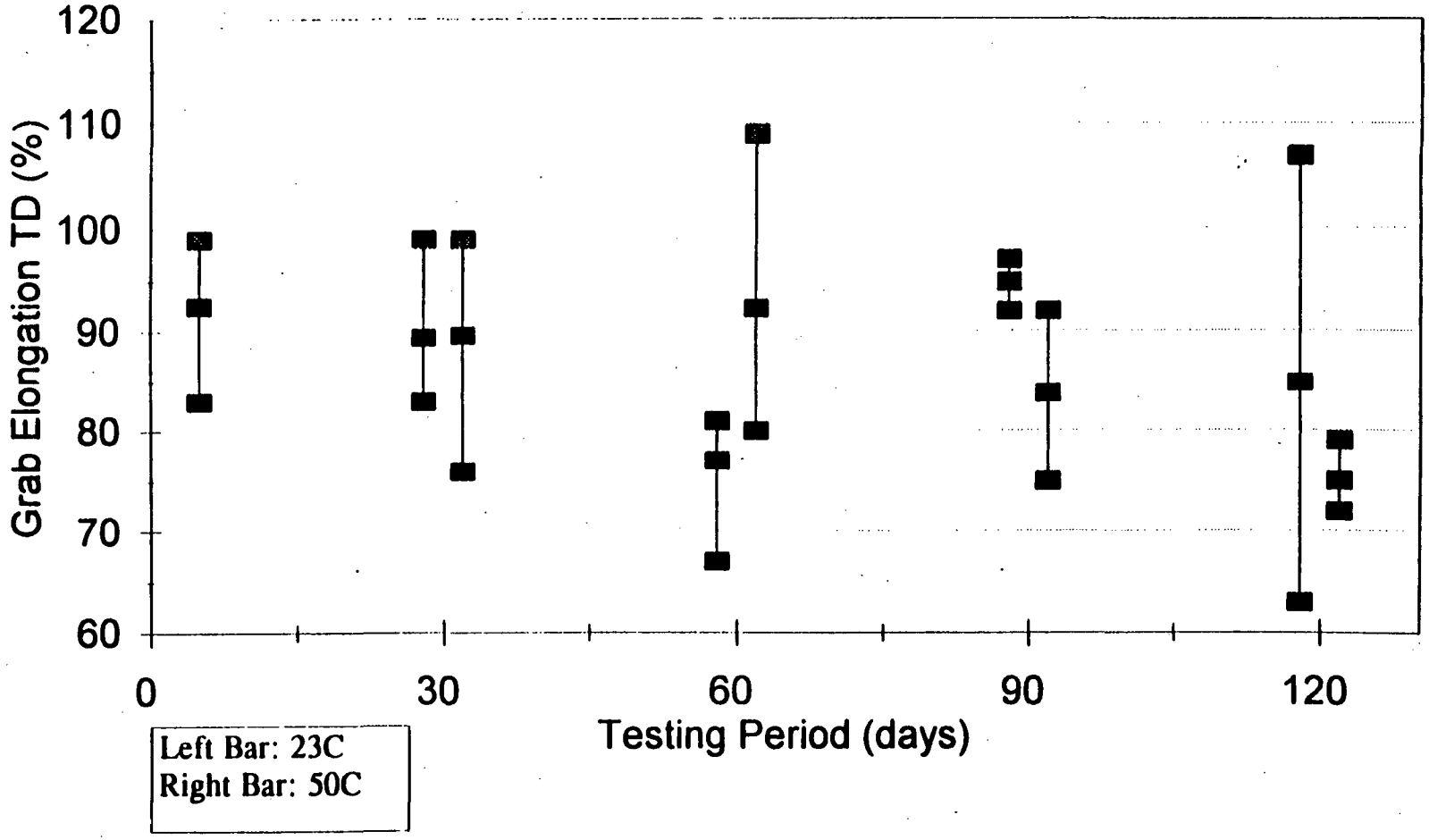

FMC CORPORATION EPA METHOD 9090
Trevira 1120 GT vs FMC Leachate
Grab Strength MD (lbs)
300
250
200
150
100
0
30
60
90
120
Testing Period (days)
Left Bar: 23C
Right Bar: 50C


FMC CORPORATION EPA METHOD 9090
Trevira 1120 GT vs FMC Leachate
Grab Strength TD (lbs)
250
200
150
100
0
30
60
90
120
Testing Period (days)
Left Bar: 23C
Right Bar: 50C


FMC CORPORATION EPA METHOD 9090
Trevira 1120 GT vs FMC Leachate
Grab Elongation MD (%)
150
125
100
75
50
0
30
60
90
120
Testing Period (days)
Left Bar: 23C
Right Bar: 50C

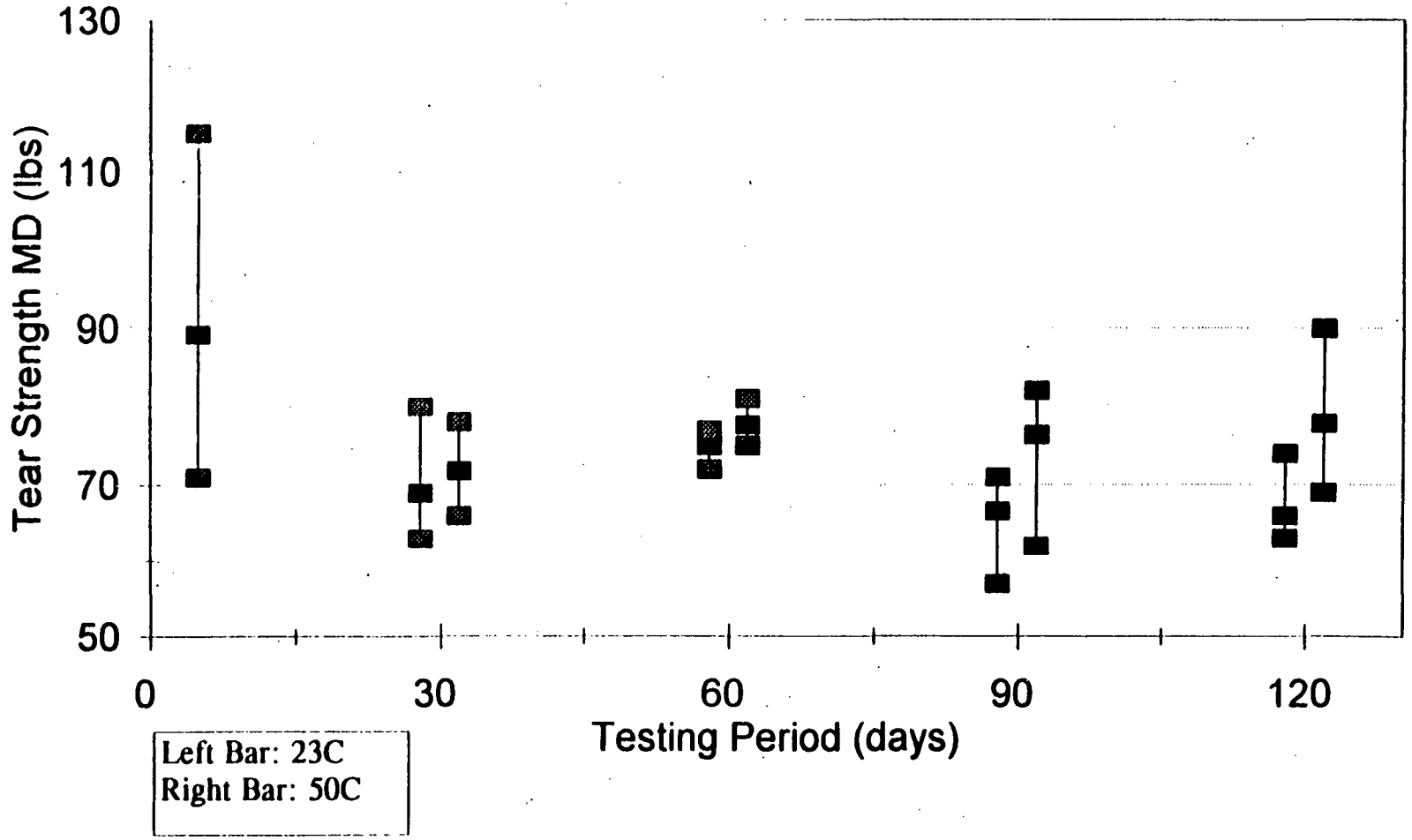
FMC CORPORATION EPA METHOD 9090

Trevira 1120 GT vs FMC Leachate



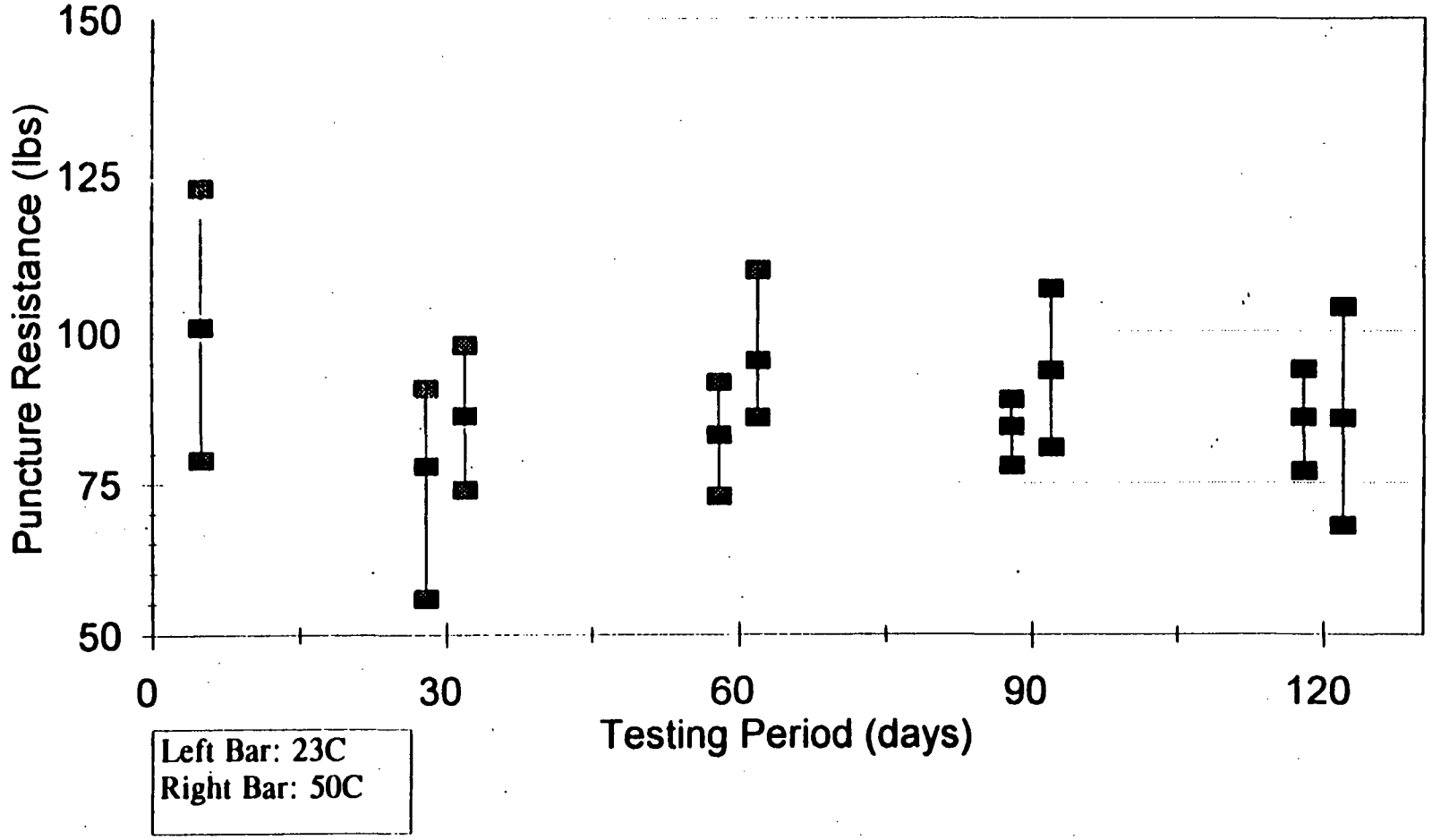
FMC CORPORATION EPA METHOD 9090

Trevira 1120 GT vs FMC Leachate



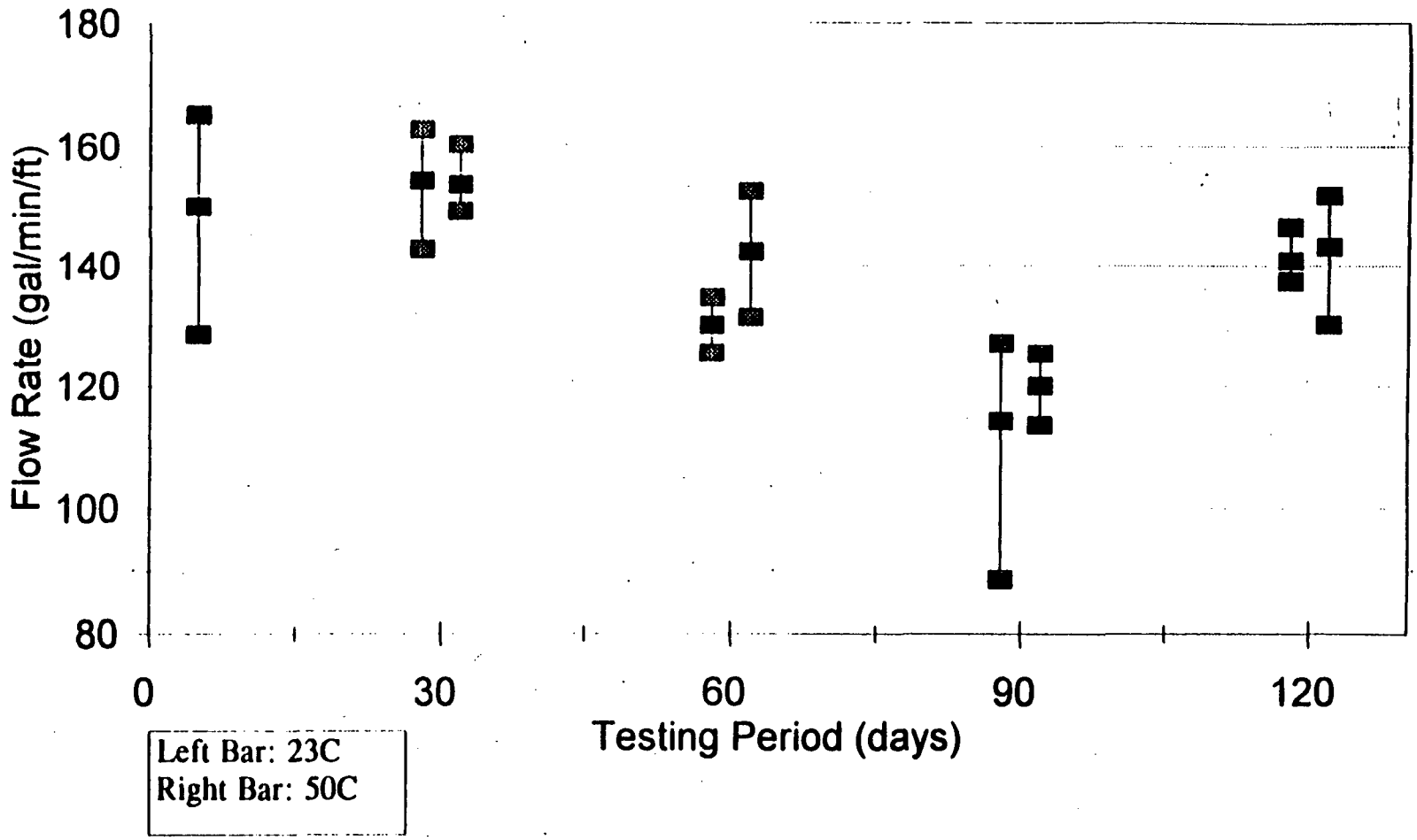
FMC CORPORATION EPA METHOD 9090

Trevira 1120 GT vs FMC Leachate



FMC CORPORATION EPA METHOD 9090

Trevira 1120 GT vs FMC Leachate



EPA METHOD 9090 TEST RESULTS

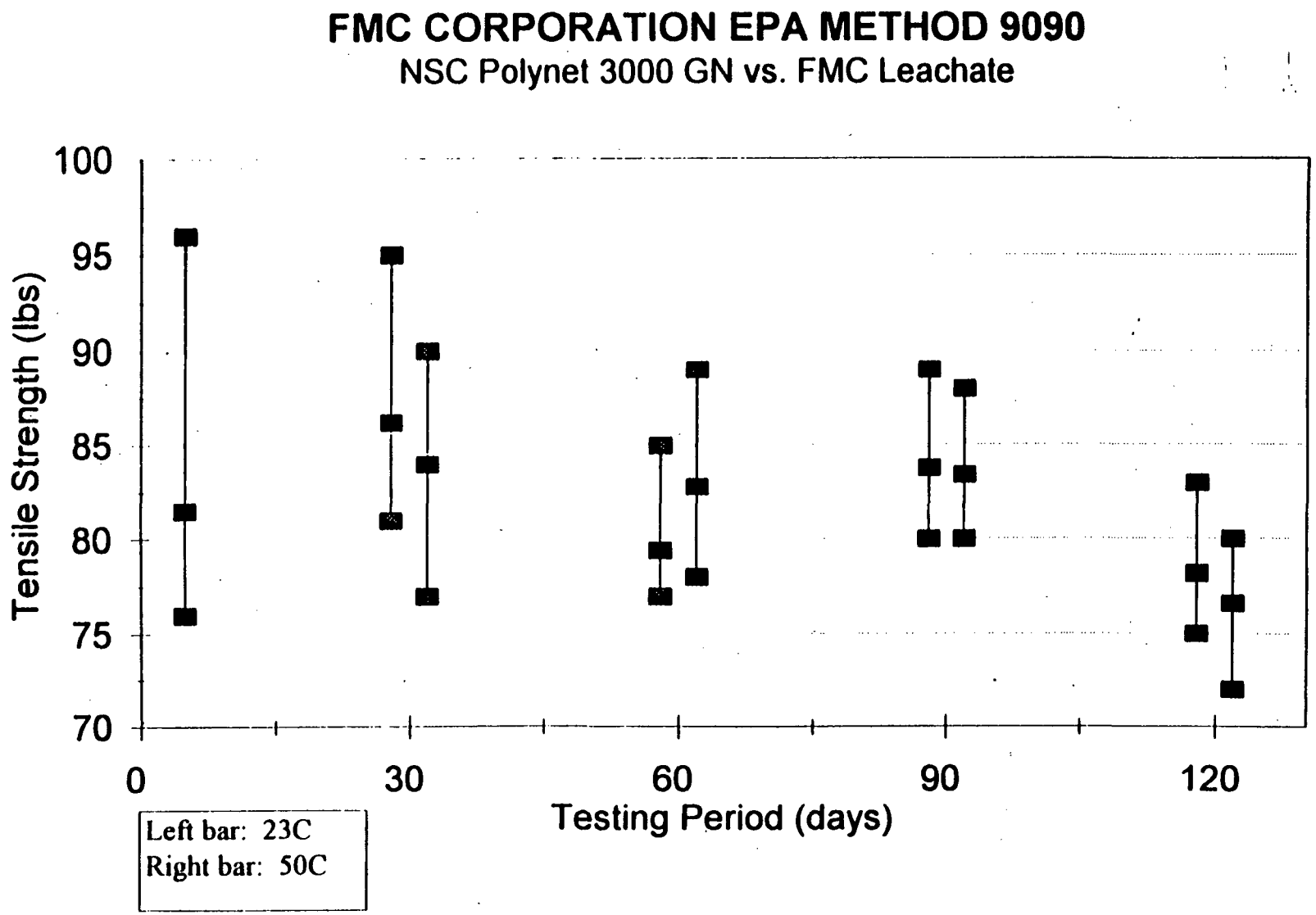
NATIONAL SEAL POLYNET 3000 HDPE GEONET

TABLE OF CHEMICAL COMPATIBILITY TEST RESULTS
Exposed to NOSAP Precipitator Slurry

Report Date: June 12, 1995
Reissued (October 21, 1997)

SRA
Quality Review

Test Parameters	Baseline	Exposure Time and Temperature: 30 Day 23C	30 Day 50C	60 Day 23C	60 Day 50C	90 Day 23C	90 Day 50C	120 Day 23C	120 Day 50C
GEONET: NATIONAL SEAL POLYNET 3000 HDPE GEONET									
Tensile Properties:									
Load at Break (lbs/in)	96	84	84	85	81	80	83	77	74
Machine Direction	82	89	77	77	89	81	88	80	78
ASTM D1682	79	95	86	78	78	88	81	76	80
	84	82	90	77	79	81	85	83	72
	77	81	83	80	87	89	80	75	79
	84								
	81								
	78								
	78								
	76								
Average	82	86	84	79	83	84	83	78	77
STD	6	5	4	3	4	4	3	3	3
Coefficient of Variation	7	6	5	4	5	5	3	4	4
% Change		6	3	-3	2	3	2	-4	-6
Load at Break (lbs/in)	53	50	55	54	54	55	53	51	55
Transverse Direction	54	54	54	54	52	54	55	49	54
ASTM D1682	55	51	56	54	53	52	53	52	54
	57	55	59	55	53	56	55	54	54
	55	55	56	54	53	55	52	53	53
	52								
	55								
	53								
	51								
	53								
Average	54	53	56	54	53	54	54	52	54
STD	2	2	2	0	1	1	1	2	1
Coefficient of Variation	3	4	3	1	1	2	2	3	1
% Change		-1	4	1	-1	1	-0	-4	0
Transmissivity:	1.71E-03	N/A	N/A	1.38E-03	1.39E-03	N/A	N/A	1.51E-03	1.41E-03
ASTM D4716 (m2/sec)	1.64E-03	N/A	N/A	1.50E-03	1.36E-03	N/A	N/A	1.42E-03	1.48E-03
Machine Direction	1.57E-03	N/A	N/A	1.52E-03	1.39E-03	N/A	N/A	1.34E-03	1.41E-03
Hydraulic Grad 1 0	1.67E-03								
Compressive Load 10000 psf	1.71E-03								
	1.69E-03								
Average	1.67E-03			1.47E-03	1.38E-03			1.42E-03	1.43E-03
STD	4.89E-05			6.18E-05	1.41E-05			6.94E-05	3.30E-05
Coefficient of Variation	2.94E+00			4.22E+00	1.02E+00			4.88E+00	2.30E+00
% Change				-12	-17			-15	-14


FMC CORPORATION EPA METHOD 9090
NSC Polynet 3000 GN vs. FMC Leachate
Tensile Strength (lbs)
100
95
90
85
80
75
70
0
30
60
90
120
Testing Period (days)
Left bar: 23C
Right bar: 50C

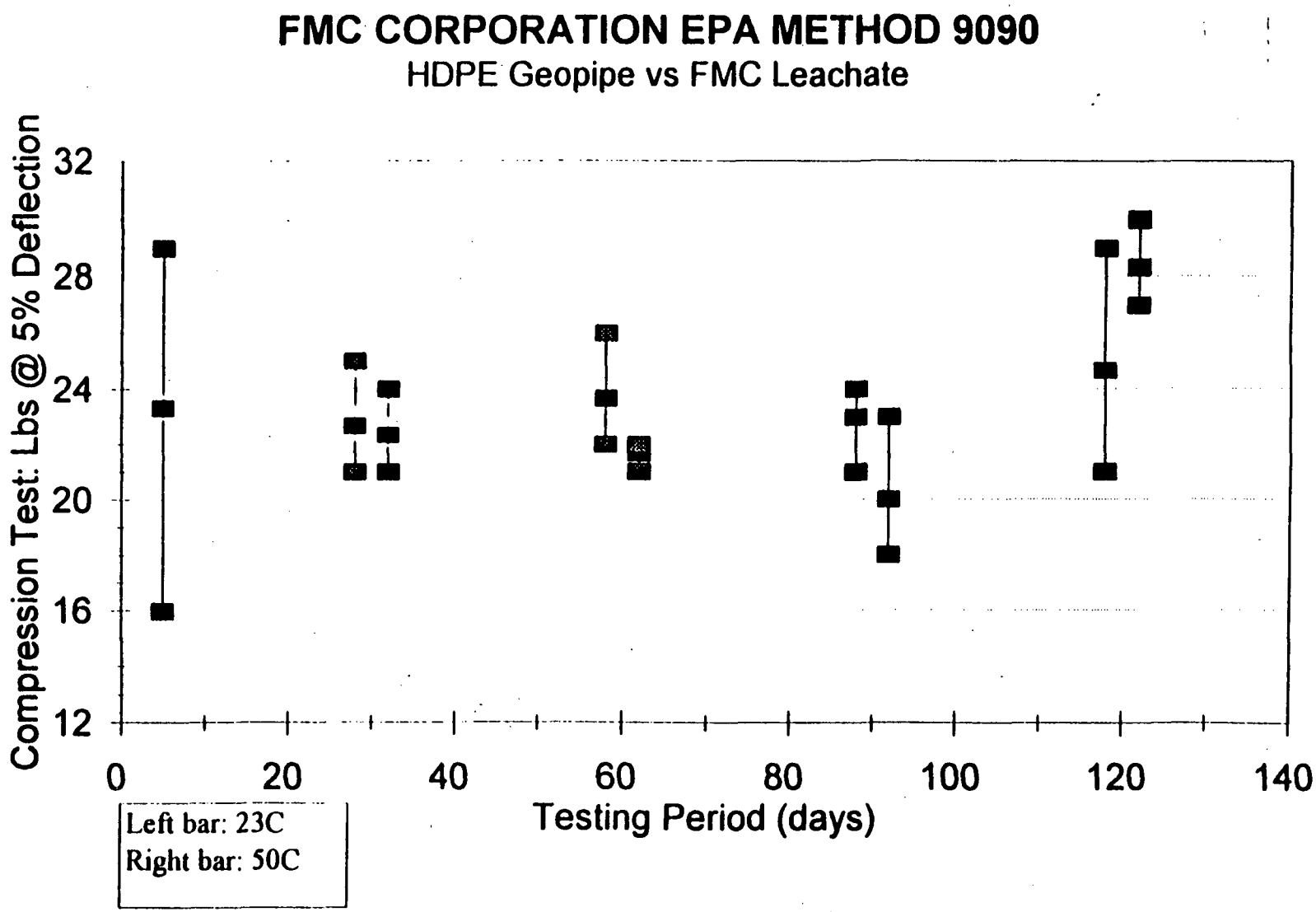
EPA METHOD 9090 TEST RESULTS

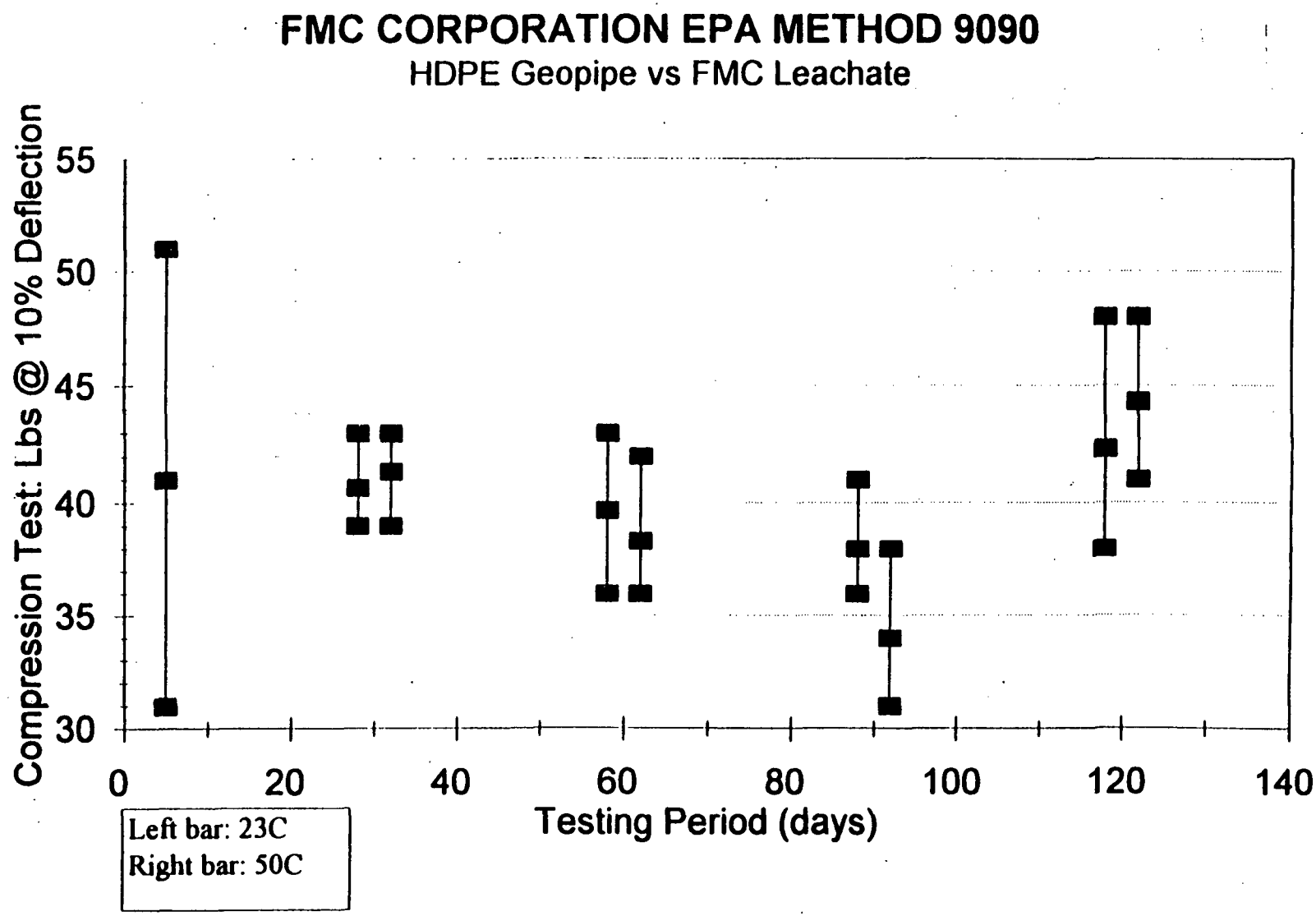
PLEXCO 6" IPS 17.0 PE3408 OIL & GAS GATHER HDPE GEOPIPE

TABLE OF CHEMICAL COMPATIBILITY TEST RESULTS
Exposed to NOSAP Precipitator Slurry

Report Date: June 12, 1995
Reissued (October 21, 1997)

Test Parameters	Baseline	Exposure Time and Temperature: 30 Day 23C	30 Day 50C	60 Day 23C	60 Day 50C	90 Day 23C	90 Day 50C	Quality Review: 120 Day 23C	120 Day 50C
GEOPIPE: PLEXCO 6" IPS 17.0 PE3408 OIL & GAS GATHER HDPE GEOPIPE									
Compression Test:	29	21	22	23	22	24	23	29	30
Load @ 5% deflection (lb)	20	25	24	26	22	21	18	21	27
ASTM D2412	28	22	21	22	21	24	19	24	28
	19								
	28								
	16								
Average	23	23	22	24	22	23	20	25	28
STD	5	2	1	2	0	1	2	3	1
Coefficient of Variation	22	7	6	7	2	6	11	13	4
% Change		-3	-4	1	-7	-1	-14	6	21
Compression Test:	51	40	39	36	42	36	38	48	48
Load @ 10% deflection (lb)	38	43	43	40	36	37	33	38	41
ASTM D 2412	46	39	42	43	37	41	31	41	44
	36								
	44								
	31								
Average	41	41	41	40	38	38	34	42	44
STD	7	2	2	3	3	2	3	4	3
Coefficient of Variation	16	4	4	7	7	6	9	10	6
% Change		-1	1	-3	-7	-7	-17	3	8


FMC CORPORATION EPA METHOD 9090
HDPE Geopipe vs FMC Leachate
Compression Test: Lbs @ 5% Deflection
32
28
24
20
16
12
0
20
40
60
80
100
120
140
Testing Period (days)
Left bar: 23C
Right bar: 50C


FMC CORPORATION EPA METHOD 9090
HDPE Geopipe vs FMC Leachate
Compression Test: Lbs @ 10% Deflection
55
50
45
40
35
30
0
20
40
60
80
100
120
140
Testing Period (days)
Left bar: 23C
Right bar: 50C

EPA METHOD 9090 TEST RESULTS

GEOSYNTHETIC DIMENSIONS

TABLE OF CHEMICAL COMPATIBILITY TEST RESULTS

Dimensional Stability Data — Exposed to NOSAP Precipitator Slurry

Report Date: June 13, 1995
Reissued (October 21, 1997)

Exposure Time and Temperature

SRA
Quality Review

Test Parameters	Temp.	Baseline	30 Day Exposed	% Change	Baseline	60 Day Exposed	% Change	Baseline	90 Day Exposed	% Change	Baseline	120 Day Exposed	% Change
GEOMEMBRANE: SERROT 60 mil TEXTURED HDPE GEOMEMBRANE													
Thickness (mils)	23C	60	58	-3.3	57	57	0.0	59	57	-3.4	59	62	5.1
	50C	61	61	0.0	58	59	1.7	62	60	-3.2	60	59	-1.7
Length (inches)	23C	10.04	10.03	-0.1	10.00	10.00	0.0	10.00	9.99	-0.1	9.98	10.00	0.2
	50C	10.00	9.99	-0.1	10.01	9.99	-0.2	10.03	10.04	0.1	10.00	10.01	0.1
Width (inches)	23C	8.13	8.11	-0.2	8.22	8.22	0.0	8.15	8.16	0.1	8.20	8.18	-0.2
	50C	8.22	8.22	0.0	8.26	8.26	0.0	8.09	8.10	0.1	8.14	8.13	-0.1
Mass (g)	23C	85.04	85.09	0.1	82.02	82.01	-0.0	85.22	85.18	-0.0	81.76	82.38	0.8
	50C	85.75	86.20	0.5	86.37	86.35	-0.0	85.37	85.45	0.1	85.69	86.64	1.1
GEOMEMBRANE: STAFF INDUSTRIES 30 Mil PVC GEOMEMBRANE													
Thickness (mils)	23C	28	29	3.6	29	29	0.0	28	30	7.1	28	29	3.6
	50C	29	29	0.0	28	29	3.6	28	29	3.6	28	29	3.6
Length (inches)	23C	9.98	9.99	0.1	10.02	9.96	-0.6	10.02	9.98	-0.4	9.99	9.94	-0.5
	50C	10.01	9.90	-1.1	10.03	10.00	-0.3	10.01	9.87	-1.4	10.01	9.86	-1.5
Width (inches)	23C	7.98	8.00	0.3	8.02	8.02	0.0	7.98	8.00	0.3	8.01	8.03	0.2
	50C	7.99	8.03	0.5	8.00	7.99	-0.1	7.99	8.04	0.6	8.01	8.02	0.1
Mass (g)	23C	46.70	46.71	0.0	47.52	47.35	-0.4	47.80	47.52	-0.6	46.53	46.62	0.2
	50C	46.95	47.39	0.9	47.36	47.22	-0.3	47.52	46.59	-2.0	47.13	47.02	-0.2

TABLE OF CHEMICAL COMPATIBILITY TEST RESULTS

Dimensional Stability Data — Exposed to NOSAP Precipitator Slurry

SRA
Quality Review

Report Date: June 13, 1995
Reissued (October 21, 1997)

Exposure Time and Temperature

Test Parameters	Temp.	Baseline	30 Day Exposed	% Change	Baseline	60 Day Exposed	% Change	Baseline	90 Day Exposed	% Change	Baseline	120 Day Exposed	% Change
GEOTEXTILE: HOECHST CELANESE TREVIRA 1120 6oz. GEOTEXTILE													
Thickness (mils)	23C	73	81	11.0	83	89	7.2	83	93	12.0	81	99	22.2
	50C	85	89	4.7	74	85	14.9	83	94	13.3	77	82	6.5
Length (inches)	23C	8.04	8.06	0.2	8.00	7.98	-0.2	8.03	8.12	1.1	8.00	8.17	2.1
	50C	8.03	8.04	0.1	8.02	7.90	-1.5	7.99	8.04	0.6	8.02	7.95	-0.9
Width (inches)	23C	4.02	4.02	0.0	4.03	4.02	-0.2	4.01	3.98	-0.7	4.04	4.03	-0.2
	50C	4.02	3.98	-1.0	4.01	3.90	-2.7	4.05	3.98	-1.7	4.03	3.94	-2.2
Mass (g)	23C	4.24	4.34	2.4	4.27	4.50	5.4	4.30	4.49	4.4	4.39	4.78	8.9
	50C	4.27	4.31	0.9	4.16	4.40	5.8	4.48	4.44	-0.9	4.22	4.24	0.5
GEONET: NATIONAL SEAL POLYNET 3000 HDPE GEONET													
Thickness (mils)	23C	226	225	-0.4	225	228	1.3	228	229	0.4	224	225	0.4
	50C	226	228	0.9	223	224	0.4	223	225	0.9	228	223	-2.2
Length (inches)	23C	5.45	5.45	0.0	5.62	5.62	0.0	5.68	5.67	-0.2	5.82	5.82	0.0
	50C	5.44	5.43	-0.2	5.40	5.41	0.2	5.72	5.74	0.3	5.60	5.55	-0.9
Width (inches)	23C	1.93	1.92	-0.5	1.95	1.94	-0.5	2.00	2.01	0.5	1.99	2.00	0.5
	50C	2.00	1.98	-1.0	1.99	1.99	0.0	1.98	1.98	0.0	1.93	1.96	1.6
Mass (g)	23C	8.56	8.55	-0.1	8.85	8.85	0.0	9.49	9.48	-0.1	9.66	9.67	0.1
	50C	8.87	8.89	0.2	8.67	8.77	1.2	9.35	9.34	-0.1	8.77	8.82	0.6

TABLE OF CHEMICAL COMPATIBILITY TEST RESULTS

Dimensional Stability Data — Exposed to NOSAP Precipitator Slurry

SRA
Quality Review

Report Date: June 13, 1995
Reissued (October 21, 1997)

Exposure Time and Temperature

Test Parameters	Temp.	30 Day Baseline	30 Day Exposed	30 Day % Change	60 Day Baseline	60 Day Exposed	60 Day % Change	90 Day Baseline	90 Day Exposed	90 Day % Change	120 Day Baseline	120 Day Exposed	120 Day % Change
GEOPIPE: PLEXCO 6" IPS 17.0 PE3408 OIL & GAS GATHER HDPE GEOPIPE													
Thickness (inches)	23C	0.417	0.415	-0.5	0.417	0.420	0.7	0.415	0.413	-0.5	0.423	0.429	1.3
	50C	0.418	0.417	-0.2	0.420	0.422	0.5	0.416	0.417	0.2	0.419	0.421	0.5
Width (inches)	23C	1.017	1.028	1.1	1.018	1.018	0.0	1.015	1.016	0.1	1.015	1.015	0.0
	50C	1.019	1.029	1.0	1.023	1.030	0.7	1.019	1.019	0.0	1.013	1.013	-0.1
Mass (g)	23C	129.19	129.23	0.0	129.38	130.79	1.1	129.34	129.28	-0.0	129.49	129.57	0.1
	50C	129.63	129.66	0.0	130.77	129.45	-1.0	130.24	130.21	-0.0	129.93	130.02	0.1

File C97-06 6.2.1.4

TRI/ENVIRONMENTAL, INC.

A Texas Research International Company

A 120 Day Final Report:

Laboratory Testing of Geosynthetics for Waste Containment EPA Method 9090A

Leachate: phosphorus bearing mixture of phos dock effluent from the north solids tank and northest sump

June 1997

TRI

A 120 Day Final Report:

Laboratory Testing of Geosynthetics for Waste Containment EPA Method 9090A

Leachate: phosphorus bearing mixture of phos dock effluent from the north solids tank and northest sump

June 1997
(Reissued October 1997)

Submitted to:
FMC Corporation
P.O. Box 4111
Pocatello, Idaho 83205

Attn: **Mr. Larry Plooster**

Submitted by:

TRI/Environmental, Inc.
9063 Bee Caves Rd.
Austin, Texas 78733

FOREWORD

The testing reported herein is based upon accepted industry practice as well as the test method listed. TRI/Environmental Inc. (TRI) neither accepts responsibility for nor makes claim as to the final use and purpose of the materials tested.

Tests were performed under laboratory conditions and not under actual usage conditions. TRI can give no conclusions as to the serviceability, life expectancy or general durability of the products tested when used in a lining and/or leachate collection system.

1.0 INTRODUCTION

This report describes the work performed by TRI/Environmental, Inc. (TRI) to determine the chemical compatibility of two geomembranes, one geonet, one geopipe and two component geotextiles (one woven and one nonwoven) of a geosynthetic clay liner product with one waste leachate. The products selected represented possible liner system materials for the proposed waste facility construction project. The objective was to determine the resistance of each product to changes caused by exposure to leachate. Changes in physical, mechanical properties and dimensional stability were measured after exposure to the leachate at 23°C and 50°C for 30, 60, 90 and 120 days following the exposure regime specified in United States Environmental Protection Agency (EPA) Method 9090A

Methods, results and discussion are provided in the sections which follow. Test results are provided in the Tables of Results which accompany this report.

2.0 METHODS

2.1 Materials

Table 1 lists products selected for evaluation in this chemical compatibility study.

Table 1. List of geosynthetics evaluated in chemical compatibility study
60 mil high density polyethylene (HDPE) geomembrane
30 mil poly-vinyl chloride (PVC) geomembrane
HDPE geonet
HDPE geopipe
geosynthetic clay liner (GCL) component woven geotextile
GCL component non-woven geotextile

2.2 Leachate

The waste leachate was received from FMC Corporation and used directly from the shipping tanks. The leachate represented a phosphorus bearing mixture of phos dock effluent from the north solids tank and the northeast sump.

2.3 Exposure Conditions

Geosynthetic test coupons and specimens were exposed to the exposure leachate following the specifications of EPA Method 9090A as they relate to exposure to waste fluids. The tanks used for these exposures were maintained at 23 ±2°C and 50 ±2°C throughout the 120-day exposure period. Tanks were constructed from chemically resistant stainless steel, fitted with stirrers and heated with a circulating hot water heat exchanger system. The 50°C tanks were sealed with a lid, and a reflux condenser was installed to minimize loss of volatile leachate components.

2.4 Testing Procedures

Testing coupons and specimens were cut from provided sample material for subsequent exposure in the leachate baths. Upon removal from the exposure baths, sample materials were rinsed with deionized water and wiped or patted with absorbent towels to remove excess water and stored in polyethylene baggies until tested.

At each testing session, samples of unexposed and exposed specimens were tested. This "baseline" testing at each testing interval served to minimize variation in observed changes caused by testing machine variability.

The following sections list tests performed on the various geosynthetic products.

2.4.1 HDPE Geomembrane

Table 2 lists tests performed on HDPE geomembrane. The number of test replicates was doubled for baseline determinations on unexposed material.

Table 2. Tests performed on HDPE geomembrane

Test or Physical Property	Method	Number of specimens
Dimensions and weight	EPA 9090A	3
Hardness	ASTM D 2240, D scale	3
Volatiles and Extractables	EPA SW 870, App..III	2
Specific Gravity	ASTM D 792	3
Tensile Properties	ASTM D 638	3
Modulus of Elasticity	ASTM D 882	3
Hydrostatic Resistance	ASTM D 751 Method A	3

Table 2. Tests performed on HDPE geomembrane		
Test or Physical Property	**Method**	**Number of specimens**
Tear Strength	ASTM D 1004	3
Puncture Resistance	FTMS 101C Method 2065	3
Seam Peel and Shear	ASTM D 4437	3

2.4.2 PVC Geomembrane

Table 3 lists tests performed on PVC geomembrane. The number of test replicates was doubled for baseline determinations on unexposed material.

Table 3. Tests performed on PVC geomembrane		
Test or Physical Property	**Method**	**Number of specimens**
Dimensions and weight	EPA 9090A	3
Hardness	ASTM D 2240, A scale	3
Volatiles and Extractables	EPA SW 870 Appendix III	2
Specific Gravity	ASTM D 792	3
Tensile Properties	ASTM D 882	3
Hydrostatic Resistance	ASTM D 751 Method A	3
Tear Strength	ASTM D 1004	3
Puncture Resistance	FTMS 101C Method 2065	3
Seam Shear Resistance	ASTM D 4437	3

2.4.3 *HDPE Geonet*

Table 4 lists tests performed on HDPE geonet. The number of test replicates was doubled for baseline determinations on unexposed material.

Table 4. Tests performed on HDPE geonet

Test or Physical Property	Method	Number of specimens
Dimensions and weight	EPA 9090A	3
Transmissivity	ASTM D 4716, grad. 0.5, load: 1000 psf	3
Tensile Properties	ASTM D 5035	3

Tensile properties were measures using strip test specimens cut in the machine direction only. Transmissivity testing was performed using a hydraulic gradient of 0.5 and a normal compressive stress of 1000 psf. Transmissivity testing was performed at 60 and 120 days only.

2.4.4 *Geopipe*

Table 5 lists tests performed on HDPE geopipe. The number of test replicates was doubled for baseline determinations on unexposed material.

Table 5. Tests performed on HDPE geopipe

Test or Physical Property	Method	Number of specimens
Dimensions and weight	EPA 9090A	3
Arc bend strength	ASTM D 2412, modified using arc shaped test specimens	3

2.4.5 *Woven Geotextile*

Table 6 lists tests performed on the GCL woven geotextile component material. The number of test replicates was doubled for baseline determinations on unexposed material.

Table 6. Tests performed on woven geotextile		
Test or Physical Property	**Method**	**Number of specimens**
Dimensions and weight	EPA 9090A	3
Grab Tensile Properties (MD)	ASTM D 4632	5
Tear Resistance (MD)	ASTM D 4533	5
Puncture Resistance	ASTM D 4833	5
Mullen Burst Strength	ASTM D 3786	5
Permittivity (falling head)	ASTM D 4491	5

Grab tensile properties and tear resistance strength were measured in the machine direction only. Permittivity was measured using a falling head test procedure.

2.4.6 Non Woven Geotextile

Table 7 lists tests performed on the GCL non woven geotextile component material. The number of test replicates was doubled for baseline determinations on unexposed material.

Table 7. Tests performed on non woven geotextile		
Test or Physical Property	**Method**	**Number of specimens**
Dimensions and weight	EPA 9090A	3
Grab Tensile Properties (MD)	ASTM D 4632	5
Tear Resistance (MD)	ASTM D 4533	5
Puncture Resistance	ASTM D 4833	5
Mullen Burst Strength	ASTM D 3786	5
Permittivity (constant head)	ASTM D 4491	5

Grab tensile properties and tear resistance strength were measured in the machine direction only. Permittivity was measured using a constant head testing apparatus and a 2 inch head.

3.0 Results and Discussion

Test results are presented in the Tables of Results which are included in the Appendix of this report.

In considering these results, it must be determined through engineering judgment whether observed differences in the value of test results measured before and after immersion are due to product variability, unidentified factors relating to the test procedure, or leachate interaction with the products. Any significant chemical interaction with leachate would be expected to result in degradation trends which are consistent across the various properties being evaluated, and not isolated to one set of test results only. However, with each type of material there may be specific properties which are highly sensitive to leachate-induced effects. These factors must be considered in evaluating the various test results for a given product. .

Also of critical importance is the issue of product variability. With most geosynthetics, a range of physical and mechanical index test values covering 15% or more of the average is not uncommon. This can be traced to variability inherent in the product, and the randomness associated with the onset of failure under the specified testing conditions. Due to this variability, TRI employed in this testing program baseline testing at each testing period rather than just at the beginning of the study. However, in chemical compatibility testing the statistical sampling of a broad range of manufactured product is not possible. Therefore, the small size of the sample population tested at each time point must be taken into consideration. The criteria to be applied in evaluating data measured before and after leachate immersion should be that property changes, if observed, are consistent and so great that product variability and experimental factors can be ruled out.

In this report, standard deviations (STD) are reported for most measurements involving three or more replicate specimens. In statistics, the standard deviation is defined as root of the mean squared deviations of individual test results about the mean value. The standard deviation is a quantitative measure of variability within a group of measurements.

One related measure of variability observed within a sample set, relative to the magnitude of the mean value itself, is the *coefficient of variation or variance* (COV). The coefficient of variance is defined as the standard deviation divided by the mean associated with a group of specimens, and may be expressed as a percentage. The COV provides an indication of what proportion of the mean value may be attributable to random experimental factors or product variability. It is useful to consider apparent changes in property values against the criterion of COV since observed changes which fall below the COV may not be significant. This approach was used in preparing the tables in the next sections.

The term *range* refers to the difference between the extreme highest and lowest points within a group of measured values. Considering range as a percentage of the mean values provides another measure of variability within a dataset.

In the tables, the high and low extremes for percentage change in selected mean values are listed for comparison against the largest COV and range-as-a-percentage-of-mean from all of the baseline sample groups. The high and low percentage changes are the extremes from data measured at 30, 60, 90 and 120 days.

3.1 HDPE Geomembrane

Table 8 illustrates the range of variability in baseline data compared with some of the observed changes in average test values measured after immersion for HDPE geomembrane.

Table 8. Baseline coefficients of variation and range of percentage change results for HDPE Geomembrane

Test	Baseline COV (%)	Baseline Range as % of Mean	High Observed % Change	Low Observed % Change
Stress at break (MD)	7	21	3	-7
Elongation at break (MD)	7	18	7	-5
Modulus (MD)	14	43	3	-7
Tear strength (MD)	2	6	3	-6
Puncture Resistance	4	13	5	-5
Hydrostatic resistance	4	14	5	-3
Seam Peel Adhesion	8	30	6	-4
Shear Seam Strength	2	7	11	-2

3.2 PVC Geomembrane

Table 9 illustrates the range of variability in baseline data compared with some of the observed changes in average test values measured after immersion for PVC geomembrane.

Table 9. Baseline coefficients of variation and range of percentage change results for PVC geomembrane

Test	Baseline COV (%)	Baseline Range as % of Mean	High Observed % Change	Low Observed % Change
Stress at break (MD)	4	11	1	-13
Elongation at break (MD)	7	18	6	-11
Tear strength (MD)	6	18	15	-4
Puncture resistance	6	20	12	-12
Hydrostatic resistance	7	20	10	-2
Shear Seam Strength	4	12	9	-2

3.2 HDPE Geonet

Table 10 illustrates the range of variability in baseline data compared with some of the observed changes in average test values measured after immersion for HDPE geonet.

Table 10. Baseline coefficients of variation and range of percentage change results for HDPE geonet

Test	Baseline COV (%)	Baseline Range as % of Mean	High Observed % Change	Low Observed % Change
Tensile strength (MD)	6	17	7	-13
Transmissivity (MD)	7	21	11	0

3.2 HDPE Geopipe

Table 11 illustrates the range of variability in baseline data compared with some of the observed changes in average test values measured after immersion for HDPE geonet.

Table 11. Baseline coefficients of variation and range of percentage change results for HDPE geopipe

Test	Baseline COV (%)	Baseline Range as % of Mean	High Observed % Change	Low Observed % Change
Arc Bend strength (@5% strain)	5	13	9	-5

Table 11. Baseline coefficients of variation and range of percentage change results for HDPE geopipe

Test	Baseline COV (%)	Baseline Range as % of Mean	High Observed % Change	Low Observed % Change
Arc Bend strength (@10% strain)	5	14	10	-6

3.4 Woven Component Geotextile of GCL

Table 12 illustrates the range of variability in baseline data compared with some of the observed changes in average test values measured after immersion for the woven component geotextile of GCL.

Table 12. Baseline coefficients of variation and range of percentage change results for woven geotextile

Test	Baseline COV (%)	Baseline Range as % of Mean	High Observed % Change	Low Observed % Change
Grab tensile strength (MD)	19	62	29	-13
Elongation @ break (MD)	14	43	8	-10
Tear strength (MD)	18	54	22	-17
Puncture resistance	19	73	48	-1
Mullen burst	17	54	7	-4
Permittivity	14	42	3	-8

3.5 Non Woven Component Geotextile of GCL

Table 13 illustrates the range of variability in baseline data compared with some of the observed changes in average test values measured after immersion for the non woven component geotextile of GCL.

Table 13. Baseline coefficients of variation and range of percentage change results for non woven geotextile

Test	Baseline COV (%)	Baseline Range as % of Mean	High Observed % Change	Low Observed % Change
Grab tensile strength (MD)	6	21	10	-1
Elongation @ break (MD)	20	65	11	-6
Tear strength (MD)	10	36	14	-9
Puncture resistance	9	30	39	-4
Mullen burst	11	29	9	0
Permittivity	19	67	42	-11

4.0 CONCLUSION

Because of random variability inherent in the geotextiles studied, results for most index mechanical property tests were observed to vary greatly. This was related to their construction as "component" geotextiles. In addition, certain measurements were subject to greater random variability. These included geomembrane modulus of elasticity (because of the visco-elastic properties of HDPE which cause uncertainty in the determination of the best linear fit), and tensile elongation at break and tensile set after break (attributed to the element of randomness associated with the initiation of tear upon failure). As a general rule, individual sample means showing changes within this range after exposure should not be considered significant, unless there is a pattern or trend which would suggest a time-dependent degradation process. Any loss of performance attributed to chemical interaction should be consistent across measurements of several physical and mechanical index properties, and would be expected to show changes outside the range of expected variability.

While changes in certain measured physical and mechanical properties were noted for some products, the effects of product variability and experimental factors could not be ruled out as causes. In the opinion of the authors, the data, considered together, do not support the conclusion that observed changes were caused by the test exposures.

TRI/Environmental, Inc. is pleased to have been selected to participate in this project. We trust that the information provided in this report meets your requirements for technical documentation of this chemical compatibility study. Please do not hesitate to call if we can provide any further information.

Respectfully submitted,

Sam R. Allen

Sam R. Allen
Vice President and Program Manager
Geosynthetics Technology

TEST RESULTS

This section includes generated test data provided in both tabular and graphical form. Each graph is represented by a series of "I" beam plots. Each "I" beam represents a single test population and illustrates the high and low value as the end points, and the mean as a central box on the beam.

At each testing period, three "I" beams are shown. The left beam represents the 23°C exposed specimens, the center beam represents unexposed baseline specimens, and the right beam represents the 50°C specimens.

EPA METHOD 9090 TEST RESULTS

GEOSYNTHETIC DIMENSIONS

TABLE OF CHEMICAL COMPATIBILITY TEST RESULTS

Phosphorus Bearing Mixture of Phos Dock Effluent from the North Solids Tank and Northeast Sump

Report Date: July 25, 1997
Reissued: October 21, 1997

Exposure T Exposure Time and Temperature

Test Parameters	Temp.	30 Day Baseline	30 Day Exposed	30 Day % Change	60 Day Baseline	60 Day Exposed	60 Day % Change	90 Day Baseline	90 Day Exposed	90 Day % Change	120 Day Baseline	120 Day Exposed	120 Day % Change
GEOMEMBRANE: 60 mil SMOOTH HDPE													
Thickness (mils)	23C	60	61	1.7	63	62	-1.6	60	61	1.7	62	61	-1.6
	50C	63	63	0.0	61	61	0.0	60	61	1.7	61	61	0.0
Length (inches)	23C	10.00	10.00	0.0	10.00	9.99	-0.1	10.00	10.00	0.0	10.00	10.00	0.0
	50C	10.01	10.00	-0.1	10.01	10.00	-0.1	10.00	9.99	-0.1	10.00	9.99	-0.1
Width (inches)	23C	8.01	8.01	0.0	8.01	7.99	-0.2	7.99	8.00	0.1	8.01	8.01	0.0
	50C	8.00	8.00	0.0	8.01	8.00	-0.1	7.97	7.99	0.3	8.01	7.99	-0.2
Mass (g)	23C	74.85	74.86	0.0	78.19	78.01	-0.2	75.17	75.31	0.2	76.32	76.11	-0.3
	50C	76.26	76.10	-0.2	74.80	74.76	-0.1	75.90	75.95	0.1	75.79	74.87	-1.2
GEOMEMBRANE: 30 mil PVC													
Thickness (mils)	23C	31	32	3.2	31	31	0.0	31	30	-3.2	31	31	0.0
	50C	31	32	3.2	31	31	0.0	30	30	0.0	31	31	0.0
Length (inches)	23C	9.98	9.98	0.0	9.98	9.98	0.0	9.90	9.94	0.4	10.00	9.94	-0.6
	50C	9.99	9.88	-1.1	9.98	9.85	-1.3	9.81	9.84	0.3	9.99	9.83	-1.6
Width (inches)	23C	8.00	8.01	0.1	7.98	8.02	0.4	7.98	8.01	0.4	8.01	7.99	-0.2
	50C	7.99	8.06	0.9	7.89	8.03	0.6	7.99	8.04	0.6	8.02	8.02	0.0
Mass (g)	23C	50.24	50.55	0.6	50.49	50.75	0.5	49.98	50.14	0.4	50.31	50.10	-0.4
	50C	48.51	50.85	4.8	50.25	50.50	0.5	51.95	52.04	0.2	50.48	50.07	-0.8
GEONET: HDPE GEONET													
Thickness (mils)	23C	231	230	-0.4	230	228	-0.9	224	227	1.3	225	227	0.9
	50C	225	224	-0.4	222	228	2.7	222	225	1.4	225	227	0.9
Mass (g)	23C	50.50	50.60	0.2	54.90	55.08	0.3	53.47	53.81	0.3	51.41	51.39	-0.0
	50C	52.84	52.73	0.2	51.39	51.96	1.1	52.28	52.41	0.2	51.90	51.95	0.1
GEOPIPE: HDPE GEOPIPE													
Thickness (mils)	23C	63	63	0.0	63	63	0.0	62	62	0.0	63	62	-1.6
	50C	63	64	1.6	62	63	1.6	64	64	0.0	61	61	0.0
Width (mils)	23C	1.00	1.00	0.0	1.00	1.01	1.0	1.00	1.00	0.0	1.00	1.00	0.0
	50C	1.00	1.01	1.0	1.00	1.01	1.0	1.00	1.00	0.0	1.00	1.00	-0.1
Mass (g)	23C	185.90	185.74	-0.1	183.52	183.89	0.2	184.23	184.56	0.2	183.78	185.11	0.7
	50C	188.32	188.51	0.1	185.28	185.29	0.0	184.86	185.07	0.1	188.31	188.69	0.2

SRA 12-22-97
Quality Review/Date

TABLE OF CHEMICAL COMPATIBILITY TEST RESULTS

Phosphorus Bearing Mixture of Phos Dock Effluent from the North Solids Tank and Northeast Sump

Report Date: June 18, 1997
Reissued: October 21, 1997

Exposure Time and Temperature

Test Parameters	Temp.	30 Day Baseline	30 Day Exposed	30 Day % Change	60 Day Baseline	60 Day Exposed	60 Day % Change	90 Day Baseline	90 Day Exposed	90 Day % Change	120 Day Baseline	120 Day Exposed	120 Day % Change
GEOTEXTILE: BENTOFIX GCL - woven textile component													
Thickness (mils)	23C	80	85	6.3	85	92	8.2	81	86	6.2	72	77	6.9
	50C	73	80	9.6	74	85	14.9	79	86	8.9	74	83	12.2
Length (inches)	23C	7.97	7.87	-1.3	7.96	7.95	-0.1	8.00	7.95	-0.6	7.97	7.96	-0.1
	50C	7.96	7.87	-1.1	7.98	7.91	-0.9	8.00	7.93	-0.9	8.01	7.97	-0.5
Width (inches)	23C	4.01	4.02	0.2	4.03	4.03	0.0	4.01	4.02	0.2	4.02	4.02	0.0
	50C	4.04	4.04	0.0	4.06	4.06	0.0	3.99	4.04	1.3	4.07	4.06	-0.2
Mass (g)	23C	5.88	5.94	-0.7	5.96	6.39	7.2	6.67	6.80	3.4	5.06	5.19	2.6
	50C	5.55	5.53	-0.4	5.63	5.93	1.7	6.09	6.18	1.5	5.83	5.93	1.7
GEOTEXTILE: BENTOFIX GCL - nonwoven textile component													
Thickness (mils)	23C	137	140	2.2	126	136	7.9	135	144	6.7	149	147	-1.3
	50C	133	135	1.5	128	134	4.7	138	140	1.4	143	143	0.0
Length (inches)	23C	7.85	7.86	-1.1	7.84	7.83	-0.1	7.86	7.83	-0.4	8.10	8.08	-0.2
	50C	7.98	7.95	-0.4	7.98	7.83	-1.9	7.99	7.94	-0.6	7.83	7.83	0.0
Width (inches)	23C	4.05	3.98	-1.7	4.01	4.00	-0.2	4.05	4.08	0.7	4.07	4.06	-0.2
	50C	4.08	3.97	-2.2	4.06	4.00	-1.5	4.01	4.07	1.5	4.05	4.05	0.0
Mass (g)	23C	5.15	5.09	-1.2	4.05	4.08	0.7	5.18	5.33	3.3	5.39	5.54	2.8
	50C	5.11	5.06	-1.0	4.77	4.83	1.3	5.27	5.28	0.2	5.32	5.48	3.0

SZA 12.22.97
Quality Review/Date

Client: FMC Corporation, File: 942-dim.wb1

EPA METHOD 9090 TEST RESULTS

FMC CORPORATION - POCATELLO

60 mil SMOOTH HDPE GEOMEMBRANE

TABLE OF CHEMICAL COMPATIBILITY TEST RESULTS

Phosphorus Bearing Mixture of Phos Dock Effluent from the North Solids Tank and Northeast Sump

Report Date: July 25, 1997
Reissued: October 21, 1997

Exposure Time and Temperature

Test Parameters	Baseline	30 Day 23C	30 Day 50C	Baseline	60 Day 23C	60 Day 50C	Baseline	90 Day 23C	90 Day 50C	Baseline	120 Day 23C	120 Day 50C
GEOMEMBRANE: 60 mil SMOOTH HDPE												
Tensile Properties:	2605	2538	2537	2485	2385	2234	2502	2466	2601	2527	2583	2648
Tensile Stress @ Yield (psi)	2630	2484	2593	2485	2306	2466	2523	2420	2599	2543	2478	2633
ASTM D638	2404	2612	2489	2495	2388	2667	2487	2506	2602	2567	2531	2684
Machine Direction	2523			2456			2463			2528		
	2516			2548			2494			2547		
	2490			2494			2462			2528		
Average	2528	2545	2540	2494	2360	2456	2489	2464	2601	2540	2531	2655
STD	75	52	42	27	38	177	21	35	1	14	43	21
Coefficient of Variation	3	2	2	1	2	7	1	1	0	1	2	1
Range as % of Baseline	9			4			2			2		
% Change		1	0		-5	-2		-1	5		-0	5
Tensile Properties:	4285	3848	4377	3919	3929	3622	4383	4144	4030	4017	4415	4256
Tensile Strength @ Break (psi)	4771	4740	3795	4254	3896	4212	4178	4664	4210	3985	4516	4510
ASTM D638	3957	4882	4666	3917	3811	4826	5007	4410	4831	4158	3136	3538
Machine Direction	4699			4147			4774			4231		
	4382			4664			4083			4366		
	4098			4117			4537			4631		
Average	4365	4490	4279	4170	3879	4220	4494	4406	4357	4231	4022	4101
STD	295	458	362	252	50	492	323	212	343	220	628	412
Coefficient of Variation	7	10	8	6	1	12	7	5	8	5	16	10
Range as % of Baseline	19			18			21			15		
% Change		3	-2		-7	1		-2	-3		-5	-3
Tensile Properties:	17	18	18	17	18	18	17	17	17	16	16	15
Elongation @ Yield (%)	18	17	18	17	17	18	17	19	18	16	16	16
ASTM D638	18	17	17	17	17	19	18	16	18	15	15	15
Machine Direction	17			17			17			16		
	18			17			17			16		
	18			17			17			16		
Average	18	17	18	17	17	18	17	17	18	16	16	15
STD	0	0	0	0	0	0	0	1	0	0	0	0
Coefficient of Variation	3	3	3	0	3	3	2	7	3	2	3	3
% Change		-2	0		2	8		1	3		-1	-3

SR4 10·21·97
Quality Review/Date

TABLE OF CHEMICAL COMPATIBILITY TEST RESULTS

Phosphorus Bearing Mixture of Phos Dock Effluent from the North Solids Tank and Northeast Sump

Report Date: July 25, 1997
Reissued: October 21, 1997

Exposure Time and Temperature

Test Parameters	Baseline	30 Day 23C	30 Day 50C	Baseline	60 Day 23C	60 Day 50C	Baseline	90 Day 23C	90 Day 50C	Baseline	120 Day 23C	120 Day 50C
GEOMEMBRANE: 60 mil SMOOTH HDPE												
Tensile Properties:	729	663	740	680	786	737	823	841	694	719	839	732
Elongation @ Break (%)	792	800	650	735	768	763	715	799	715	694	575	779
ASTM D638	694	813	804	708	786	814	840	778	807	722	757	677
Machine Direction	779			737			811			734		
	766			750			703			760		
	719			751			777			799		
Average	747	759	731	727	780	771	778	806	739	738	724	729
STD	35	68	63	25	8	32	53	26	49	34	110	42
Coefficient of Variation	5	9	9	3	1	4	7	3	7	5	15	6
Range as % of Baseline	13			10			18			14		
% Change		2	-2		7	6		4	-5		-2	-1
Tensile Properties:	647	618	660	625	686	667	715	707	602	660	695	638
Set after Break (%)	740	726	615	663	690	680	653	686	655	640	572	700
ASTM D638	615	710	734	685	685	731	665	672	689	688	640	590
Machine Direction	681			613			729			662		
	688			660			667			666		
	660			732			646			670		
Average	672	685	670	663	687	693	679	688	649	664	636	643
STD	39	48	49	39	2	28	31	14	36	14	50	45
Coefficient of Variation	6	7	7	6	0	4	5	2	6	2	8	7
Range as % of Baseline	19			18			12			7		
% Change		2	-0		4	4		1	-4		-4	-3
Tensile Properties:	1976	1984	2064	1953	1862	1680	1992	1948	2076	1984	2032	2024
Tensile Stress @ 100% Elongation (psi)	2018	1992	2078	1998	1823	1885	1988	2011	2076	2015	1969	2082
ASTM D638	1965	2025	2011	1966	1853	2071	1982	1946	2075	2034	2036	2099
Machine Direction	2028			1948			1942			2034		
	1949			1993			1988			2026		
	1933			1980			1956			2025		
Average	1978	2000	2051	1973	1846	1879	1975	1968	2076	2020	2012	2068
STD	34	18	29	19	17	160	19	30	0	17	31	32
Coefficient of Variation	2	1	1	1	1	9	1	2	0	1	2	2
Range as % of Baseline	5			3			3			2		
% Change		1	4		-6	-5		-0	5		-0	2
Tensile Properties:	2015	2025	2175	1992	1701	1672	2038	1933	2081	2007	2068	2029
Tensile Stress @ 200% Elongation (psi)	2081	2024	2093	1993	1726	1859	2002	2014	2093	2097	2014	2163
ASTM D638	2004	2054	2087	2004	1775	2063	2041	2009	2139	2021	2086	2119
Machine Direction	2058			1986			1995			2090		
	1982			1989			2024			2045		
	1988			1986			1988			2076		
Average	2018	2034	2118	1992	1734	1865	2015	1985	2104	2056	2056	2104
STD	31	14	40	6	31	160	21	37	25	34	31	56
Coefficient of Variation	2	1	2	0	2	9	1	2	1	2	1	3
Range as % of Baseline	4			1			3			4		
% Change		1	5		-13	-6		-1	4		0	2

SRA 10-21-97
Quality Review/Date

TABLE OF CHEMICAL COMPATIBILITY TEST RESULTS

Phosphorus Bearing Mixture of Phos Dock Effluent from the North Solids Tank and Northeast Sump

Report Date: July 25, 1997
Reissued: October 21, 1997

Exposure Time and Temperature

Test Parameters	30 Day Baseline	30 Day 23C	30 Day 50C	60 Day Baseline	60 Day 23C	60 Day 50C	90 Day Baseline	90 Day 23C	90 Day 50C	120 Day Baseline	120 Day 23C	120 Day 50C
GEOMEMBRANE: 60 mil SMOOTH HDPE												
Tensile Properties:	2568	2599	2567	2662	2270	2721	2642	2555	2752	2608	2568	2607
Tensile Stress @ Yield (psi)	2593	2625	2696	2546	2322	2705	2656	2587	2604	2576	2552	2739
ASTM D638	2581	2675	2601	2619	2264	2765	2623	2526	2626	2576	2559	2710
Transverse Direction	2606			2561			2420			2621		
	2676			2597			2553			2610		
	2615			2173			2608			2648		
Average	2607	2633	2621	2526	2285	2730	2584	2556	2661	2607	2560	2685
STD	35	32	55	162	26	25	80	25	65	25	7	57
Coefficient of Variation	1	1	2	6	1	1	3	1	2	1	0	2
Range as % of Baseline	4			19			9			3		
% Change		1	1		-10	8		-1	3		-2	3
Tensile Properties:	4360	4629	3660	3630	3439	3016	4195	4523	4582	3086	4415	4556
Tensile Strength @ Break (psi)	3537	4990	4369	3763	3619	3744	4059	3950	4280	4333	4516	4510
ASTM D638	4074	4518	4841	4428	2981	3756	3554	4282	4037	4159	3136	3538
Transverse Direction	4524			4148			3641			3077		
	4745			3791			3897			2680		
	4635			3565			3904			3484		
Average	4313	4712	4290	3888	3346	3505	3875	4252	4300	3470	4022	4201
STD	407	202	485	304	269	346	222	235	223	598	628	469
Coefficient of Variation	9	4	11	8	8	10	6	6	5	17	16	11
Range as % of Baseline	28			22			17			48		
% Change		9	-1		-14	-10		10	11		16	21
Tensile Properties:	15	16	19	15	16	16	15	16	16	16	15	15
Elongation @ Yield (%)	16	15	17	15	16	16	16	16	16	15	14	15
ASTM D638	16	16	16	15	14	16	15	16	16	15	15	16
Transverse Direction	16			16			19			15		
	16			15			16			15		
	16			15			16			15		
Average	16	16	17	15	15	16	16	16	16	15	15	15
STD	0	0	1	0	1	0	1	0	0	0	0	0
Coefficient of Variation	2	3	7	2	6	0	8	0	0	2	3	3
Range as % of Baseline	6			7			25			7		
% Change		-1	9		1	5		-1	-1		-3	1
Tensile Properties:	766	798	669	639	740	737	697	812	768	564	794	778
Elongation @ Break (%)	635	851	765	673	745	793	744	718	756	782	822	780
ASTM D638	718	770	846	770	725	781	615	765	715	752	579	766
Transverse Direction	765			743			649			561		
	793			725			606			667		
	787			730			619			627		
Average	744	806	760	713	737	770	655	765	746	659	732	775
STD	54	34	72	44	8	24	50	38	23	85	109	6
Coefficient of Variation	7	4	10	6	1	3	8	5	3	13	15	1
Range as % of Baseline	21			18			21			34		
% Change		8	2		3	8		17	14		11	18

SRA 10-21-97
Quality Review/Date

TABLE OF CHEMICAL COMPATIBILITY TEST RESULTS

Phosphorus Bearing Mixture of Phos Dock Effluent from the North Solids Tank and Northeast Sump

Report Date: July 25, 1997
Reissued: October 21, 1997

Exposure Time and Temperature

Test Parameters	Baseline	30 Day 23C	30 Day 50C	Baseline	60 Day 23C	60 Day 50C	Baseline	90 Day 23C	90 Day 50C	Baseline	120 Day 23C	120 Day 50C
GEOMEMBRANE: 60 mil SMOOTH HDPE												
Tensile Properties:	664	741	614	600	648	674	641	692	684	550	720	658
Set after Break (%)	615	725	682	654	663	683	650	653	673	672	715	780
ASTM D638	654	750	682	684	650	685	600	668	651	710	545	666
Transverse Direction	711			661			598			665		
	655			654			576			540		
	650			662			575			561		
Average	658	739	659	653	654	681	607	671	669	616	660	701
STD	28	10	32	26	7	5	29	16	14	68	81	56
Coefficient of Variation	4	1	5	4	1	1	5	2	2	11	12	8
Range as % of Baseline	15			13			12			28		
% Change		12	0		0	4		11	10		7	14
Tensile Properties:	1857	1896	1896	1897	1784	1978	1937	1856	1908	1895	1861	1836
Tensile Stress @ 100% Elongation (psi)	1862	1919	1876	1851	1854	1959	1887	1920	1862	1857	1876	1960
ASTM D638	1864	1965	1927	1868	1552	1994	1966	1859	1919	1862	1921	1910
Transverse Direction	1908			1842			1969			1910		
	1932			1835			1906			1861		
	1896			1592			1919			1934		
Average	1887	1927	1900	1814	1730	1977	1931	1878	1896	1887	1888	1902
STD	28	29	21	101	129	14	30	29	25	29	25	51
Coefficient of Variation	1	1	1	6	7	1	2	2	1	2	1	3
Range as % of Baseline	4			17			4			4		
% Change		2	1		-5	9		-3	-2		-0	1
Tensile Properties:	1950	1924	2016	1930	1926	2036	1981	1882	2027	1997	1932	1908
Tensile Stress @ 200% Elongation (psi)	1907	2018	1988	1907	1947	2051	1925	1884	1928	2006	2014	1960
ASTM D638	1923	1971	2007	1901	1912	2060	1959	1873	1949	1950	2062	1910
Transverse Direction	1962			1869			2004			1990		
	1987			1859			1926			2034		
	1980			1929			1923			2010		
Average	1952	1971	2004	1899	1928	2049	1953	1880	1968	1998	2003	1926
STD	29	38	12	27	14	10	31	5	43	25	54	24
Coefficient of Variation	1	2	1	1	1	0	2	0	2	1	3	1
Range as % of Baseline	4			4			4			4		
% Change		1	3		2	8		-4	1		0	-4
Modulus of Elasticity:	116722	85335	101415	67805	69213	79320	77511	78639	82095	66929	75555	66855
Tangential (psi)	75578	76904	90054	78409	82340	76408	80303	74854	83621	75202	73929	74911
ASTM D882	97419	104116	101954	84530	81997	61548	82092	82601	83099	78866	69958	80190
Machine Direction	92820			75034			76709			68145		
	96378			84972			84367			69951		
	95350			74804			83850			81159		
Average	95711	88785	97808	77592	77850	72425	80805	78698	82938	73375	73147	73985
STD	13105	13930	6720	5963	6109	7783	2930	3163	633	5396	2351	5483
Coefficient of Variation	14	16	7	8	8	11	4	4	1	7	3	7
Range as % of Baseline	43			22			9			19		
% Change		-7	2		0	-7		-3	3		-0	1

SR4 10-21-97
Quality Review/Date

TABLE OF CHEMICAL COMPATIBILITY TEST RESULTS

Phosphorus Bearing Mixture of Phos Dock Effluent from the North Solids Tank and Northeast Sump

Report Date: July 25, 1997
Reissued: October 21, 1997

Exposure Time and Temperature

Test Parameters	Baseline	30 Day 23C	30 Day 50C	Baseline	60 Day 23C	60 Day 50C	Baseline	90 Day 23C	90 Day 50C	Baseline	120 Day 23C	120 Day 50C
GEOMEMBRANE: 60 mil SMOOTH HDPE												
Modulus of Elasticity:	82872	75123	99583	83154	78609	73002	78929	77514	79862	75543	70109	67697
Tangential (psi)	91734	79360	95825	82909	76596	76612	81224	84358	81114	64657	79578	68921
ASTM D882	92860	115752	84933	65632	81622	79304	83570	76983	75832	72258	81452	84381
Transverse Direction	93412			76115			79391			56864		
	93013			82675			83440			74903		
	105500			72003			77667			81930		
Average	93232	90078	93447	77081	78942	76306	80704	79618	78936	71026	77046	73666
STD	7215	22335	7609	6582	2065	2582	2239	3358	2254	8134	4965	7593
Coefficient of Variation	8	25	8	9	3	3	3	4	3	11	6	10
Range as % of Baseline	24			23			7			35		
% Change		-3	0		2	-1		-1	-2		8	4
Indentation Hardness:	63	62	62	62	62	63	62	62	62	62	62	62
Reading	62	62	62	62	62	62	63	62	62	61	61	62
ASTM D2240	63	62	63	62	63	62	62	60	61	62	62	61
(with TYPE D DUROMETER)	61			62			62			62		
	63			62			62			62		
	62			62			63			61		
Average	62	62	62	62	62	62	62	61	62	62	62	62
STD	1	0	1	0	0	0	0	1	0	0	0	0
Coefficient of Variation	1	0	1	0	1	1	1	2	1	1	1	1
Range as % of Baseline	3			0			2			2		
% Change		-1	0		1	1		-2	-1		0	0
Specific Gravity:	0.951	0.950	0.950	0.952	0.949	0.952	0.949	0.957	0.949	0.946	0.948	0.949
Specific Gravity (grams/cu.cm)	0.951	0.950	0.950	0.953	0.958	0.951	0.953	0.947	0.949	0.948	0.949	0.946
ASTM D792, Method A	0.951	0.951	0.950	0.951	0.952	0.956	0.951	0.948	0.952	0.948	0.948	0.948
	0.951			0.949			0.951			0.944		
	0.951			0.953			0.949			0.946		
	0.951			0.950			0.952			0.947		
Average	0.951	0.950	0.950	0.951	0.953	0.953	0.951	0.951	0.950	0.947	0.948	0.948
STD	0.000	0.001	0.000	0.001	0.004	0.002	0.001	0.004	0.001	0.001	0.000	0.001
Coefficient of Variation	0.000	0.061	0.000	0.157	0.393	0.227	0.154	0.473	0.149	0.146	0.050	0.132
Range as % of Baseline	0.00			0.42			0.42			0.42		
% Change		-0.07	-0.11		0.18	0.18		-0.02	-0.09		0.19	0.12
Environmental Stress Crack Resistance:												
ASTM D1693, Condition B												
Machine Direction (% Failed)	N/A	0	0	N/A	0	0	N/A	0	0	N/A	0	0
Transverse Direction (% Failed)	N/A	0	0	N/A	0	0	N/A	0	0	N/A	0	0

SRA 10-21-97
Quality Review/Date

TABLE OF CHEMICAL COMPATIBILITY TEST RESULTS

Phosphorus Bearing Mixture of Phos Dock Effluent from the North Solids Tank and Northeast Sump

Report Date: July 25, 1997
Reissued: October 21, 1997

Exposure Time and Temperature

Test Parameters	30 Day Baseline	30 Day 23C	30 Day 50C	60 Day Baseline	60 Day 23C	60 Day 50C	90 Day Baseline	90 Day 23C	90 Day 50C	120 Day Baseline	120 Day 23C	120 Day 50C
GEOMEMBRANE: 60 mil SMOOTH HDPE												
Puncture Resistance:	88	85	91	86	93	93	90	88	93	89	90	97
Load @ Rupture (lbs)	91	85	91	94	94	89	87	88	93	92	93	97
FTMS 101C Method 2065	90	87	90	98	91	91	90	89	95	92	91	95
	90			98			87			92		
	90			94			88			93		
	91			96			92			93		
Average	90	86	91	94	93	91	89	88	94	92	91	96
STD	1	1	0	4	1	2	2	0	1	1	1	1
Coefficient of Variation	1	1	1	4	1	2	2	1	1	1	1	1
Range as % of Baseline	3			13			6			4		
% Change		-5	1		-2	-4		-1	5		-1	5
Volatiles and Extractables:	-0.48	-0.55	-0.32	0.05	-0.08	0.00	-0.28	-0.13	-0.20	-0.21	-0.18	-0.21
Diameter Change (%)	-0.43	-0.57	-0.20	-0.57	-0.28	-0.08	-0.23	-0.07	-0.15	-0.17	-0.23	-0.24
SW 870 - Appendix III-D	-0.48			-0.05			-0.17			-0.17		
Machine Direction	-0.28			-0.15			-0.22			-0.20		
Average	-0.42	-0.56	-0.26	-0.18	-0.18	-0.04	-0.23	-0.10	-0.18		-0.21	-0.23
STD	0.08	0.01	0.06	0.24	0.10	0.04	0.04	0.03	0.03		0.03	-100
Volatiles and Extractables:	-0.03	-0.10	0.18	-0.03	-0.15	-0.13	-0.05	-0.23	-0.02	-0.11	-0.15	-0.07
Diameter Change (%)	0.20	0.15	-0.08	-0.18	-0.18	-0.08	-0.18	-0.12	-0.04	-0.15	-0.19	-0.13
SW 870 - Appendix III-D	-0.10			0.30			-0.11			-0.06		
Transverse Direction	0.20			-0.23			-0.08			-0.14		
Average	0.07	0.02	0.05	-0.04	-0.17	-0.11	-0.11	-0.18	-0.03		-0.17	-0.10
STD	0.13	0.13	0.13	0.21	0.02	0.03	0.05	0.06	0.01		0.02	0.03
Volatiles and Extractables:	0.03	0.09	0.08	0.08	0.08	0.05	0.05	0.06	0.08	0.08	0.05	0.09
% Volatiles	0.02	0.08	0.05	0.07	0.09	0.07	0.05	0.07	0.06	0.07	0.08	0.09
SW 870 - Appendix III-D	0.04			0.04			0.06			0.09		
	0.02			0.03			0.07			0.07		
Average	0.03	0.09	0.07	0.06	0.09	0.06	0.06	0.07	0.07		0.07	0.09
STD	0.01	0.00	0.02	0.02	0.00	0.01	0.01	0.01	0.01		0.02	0.00
Volatiles and Extractables:	0.24	0.24	0.26	0.19	0.23	0.23	0.20	0.22	0.25	0.21	0.27	0.24
% Extractables	0.27	0.26	0.20	0.22	0.22	0.22	0.22	0.22	0.21	0.24	0.24	0.22
SW 870 - Appendix III-D	0.28			0.23			0.18			0.23		
	0.24			0.17			0.24			0.17		
Average	0.26	0.25	0.23	0.20	0.23	0.23	0.21	0.22	0.23		0.26	0.23
STD	0.02	0.01	0.03	0.02	0.01	0.01	0.02	0.00	0.02		0.02	0.01

SRA 10-21-97
Quality Review/Date

TABLE OF CHEMICAL COMPATIBILITY TEST RESULTS

Phosphorus Bearing Mixture of Phos Dock Effluent from the North Solids Tank and Northeast Sump

Report Date: July 25, 1997
Reissued: October 21, 1997

Exposure Time and Temperature

Test Parameters	30 Day Baseline	30 Day 23C	30 Day 50C	60 Day Baseline	60 Day 23C	60 Day 50C	90 Day Baseline	90 Day 23C	90 Day 50C	120 Day Baseline	120 Day 23C	120 Day 50C
GEOMEMBRANE: 60 mil SMOOTH HDPE												
Tear Resistance:	53	48	48	51	51	51	49	51	48	49	50	51
Tear Resistance (lbs)	50	47	49	51	51	51	52	51	52	51	49	53
ASTM D1004	51	48	50	50	51	52	50	47	50	50	51	50
Machine Direction	50			51			51			51		
	50			49			49			49		
	50			50			52			49		
Average	51	48	49	50	51	51	51	50	50	50	50	51
STD	1	1	1	1	0	0	1	2	2	1	1	1
Coefficient of Variation	2	1	2	1	0	1	2	4	3	2	2	2
Range as % of Baseline	6			4			6			4		
% Change		-6	-3		1	2		-2	-1		0	3
Tear Resistance:	50	49	52	46	49	47	48	49	49	49	46	50
Tear Resistance (lbs)	49	49	49	47	50	47	48	48	52	49	44	53
ASTM D1004	51	47	49	49	49	48	48	48	49	49	48	51
Transverse Direction	53			46			48			51		
	50			46			49			49		
	49			46			50					
Average	50	48	50	47	49	47	49	48	50	49	46	51
STD	2	1	2	1	0	0	1	0	1	1	2	1
Coefficient of Variation	3	2	3	2	1	1	2	1	3	2	4	2
Range as % of Baseline	8			6			4			4		
% Change		-4	-1		6	1		-0	3		-7	4
Hydrostatic Resistance:	450	430	440	470	460	485	510	510	525	458	453	454
Load @ Rupture (psi)	470	450	450	475	470	460	490	510	510	456	455	454
ASTM D751	440	440	455	470	450	455	480	520	520	458	454	453
	450			495			480			505		
	460			475			500			465		
	450			485			510			442		
Average	453	440	448	478	460	467	495	513	518	464	454	454
STD	10	10	8	9	8	13	13	5	6	20	1	0
Coefficient of Variation	2	2	2	2	2	3	3	1	1	4	0	0
Range as % of Baseline	7			5			6			14		
% Change		-3	-1		-4	-2		4	5		-2	-2

SRA 10-21-97
Quality Review/Date

TABLE OF CHEMICAL COMPATIBILITY TEST RESULTS

Phosphorus Bearing Mixture of Phos Dock Effluent from the North Solids Tank and Northeast Sump

Report Date: July 25, 1997
Reissued: October 21, 1997

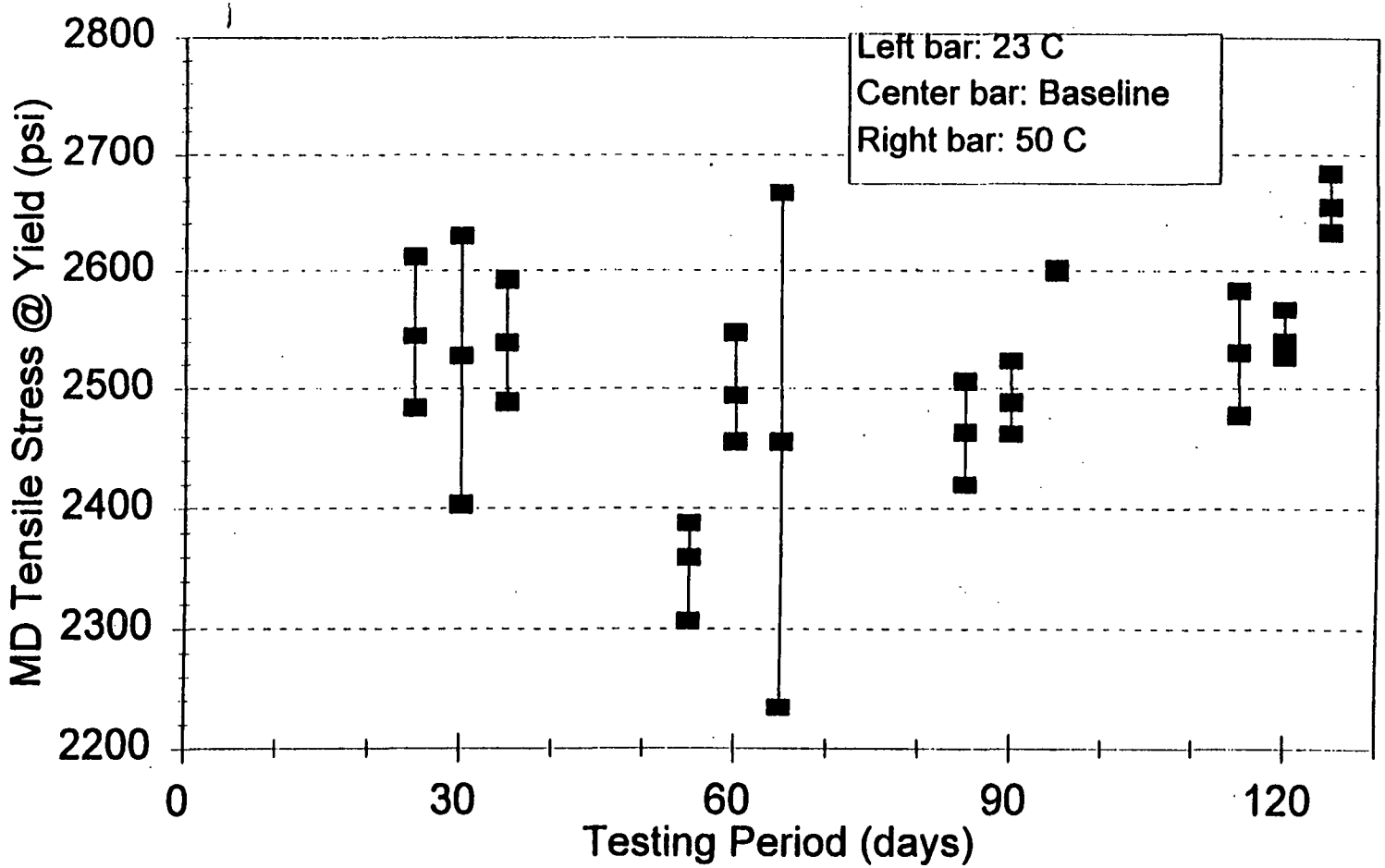
Exposure Time and Temperature

Test Parameters	30 Day Baseline	30 Day 23C	30 Day 50C	60 Day Baseline	60 Day 23C	60 Day 50C	90 Day Baseline	90 Day 23C	90 Day 50C	120 Day Baseline	120 Day 23C	120 Day 50C
GEOMEMBRANE: 60 mil SMOOTH HDPE												
Seam Shear Strength:	150	152	149	149	151	159	150	147	144	148	148	161
Seam Shear Strength (ppi)	151	156	150	149	150	158	150	148	142	146	152	163
ASTM D4437	150	155	144	153	152	160	151	149	147	148	153	167
	150			143			145			148		
	151			149			143			140		
	155			152			147			151		
Average	151	154	148	149	151	159	148	148	144	147	151	164
STD	2	2	3	3	1	1	3	1	2	3	2	2
Coefficient of Variation	1	1	2	2	1	1	2	1	1	2	1	2
Range as % of Baseline	3			7			5			7		
% Change		2	-2		1	7		0	-2		3	11
Seam Peel Adhesion:	127	131	121	120	130	128	125	131	120	120	112	120
Seam Peel Strength (ppi)	129	121	119	121	97	123	122	130	120	115	120	120
ASTM D4437	130	131	124	119	128	125	115	123	115	127	121	118
	126	118	121	131	114	121	118	121	121	117	127	133
	123	127	116	122	112	123	115	118	119	128	129	133
	116	119	119	120	112	124	120	120	117	120	130	127
	121			118			118			121		
	119			118			119			106		
	130			116			119			136		
	118			118			112			123		
	118			117			105			121		
	94			123			112			102		
Average	121	125	120	120	116	124	117	124	119	120	123	125
STD	9	5	2	4	11	2	5	5	2	9	6	6
Coefficient of Variation	8	4	2	3	10	2	4	4	2	7	5	5
Range as % of Baseline	30			6			12			28		
% Change		3	-1		-4	3		6	2		3	5
Failure Mode (FTB = All Film Tear Bond)	FTB	FTB	FTB	FTB	FTB	FTB	FTB	FTB	FTB	FTB	FTB	FTB

SRA 10-21-97
Quality Review/Date

FMC CORPORATION EPA METHOD 9090

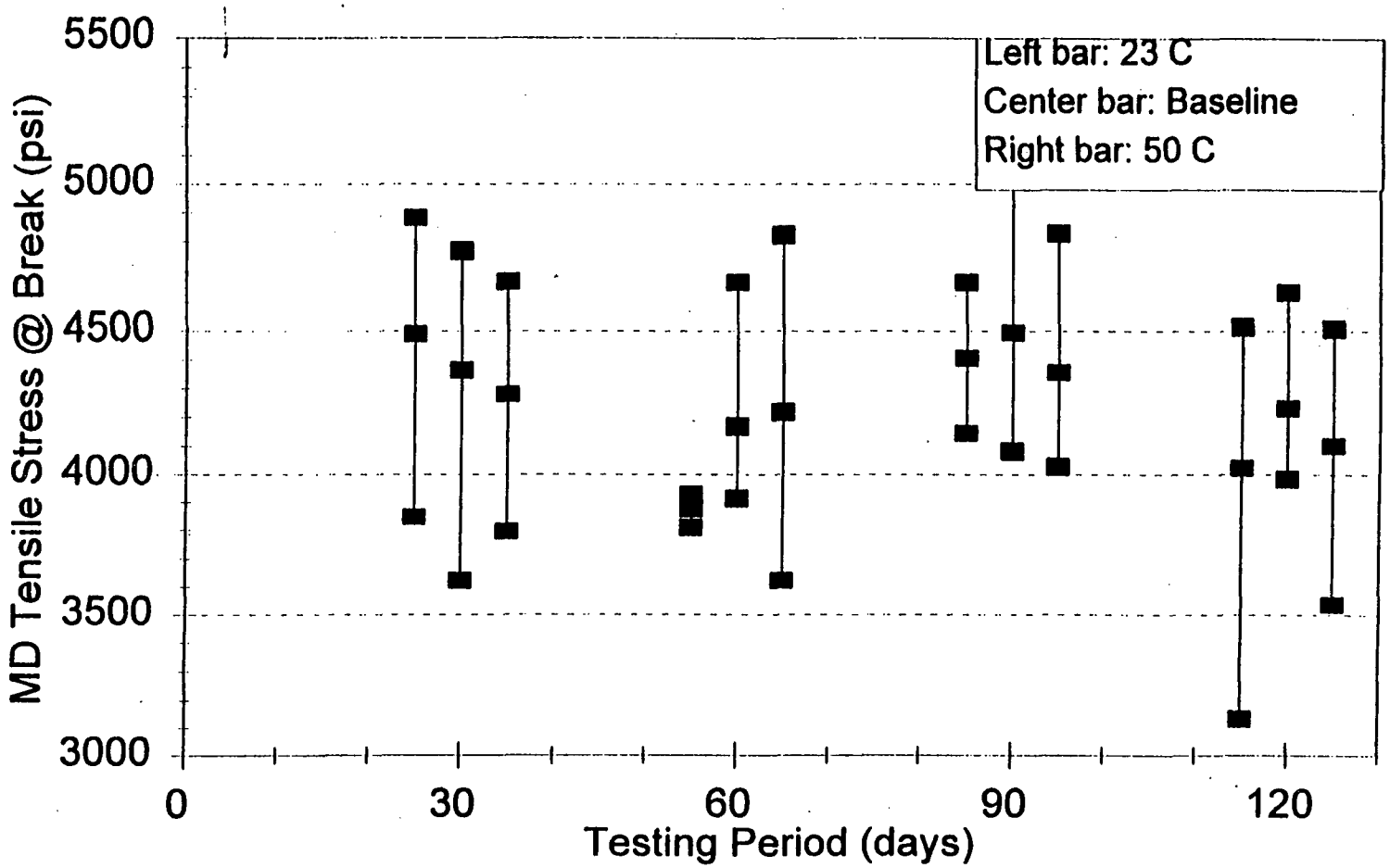
60 mil HDPE GM vs Phos Dock Effluent



Client: FMC Corporation, File: 942-fmc HDPE GM.wb1

FMC CORPORATION EPA METHOD 9090

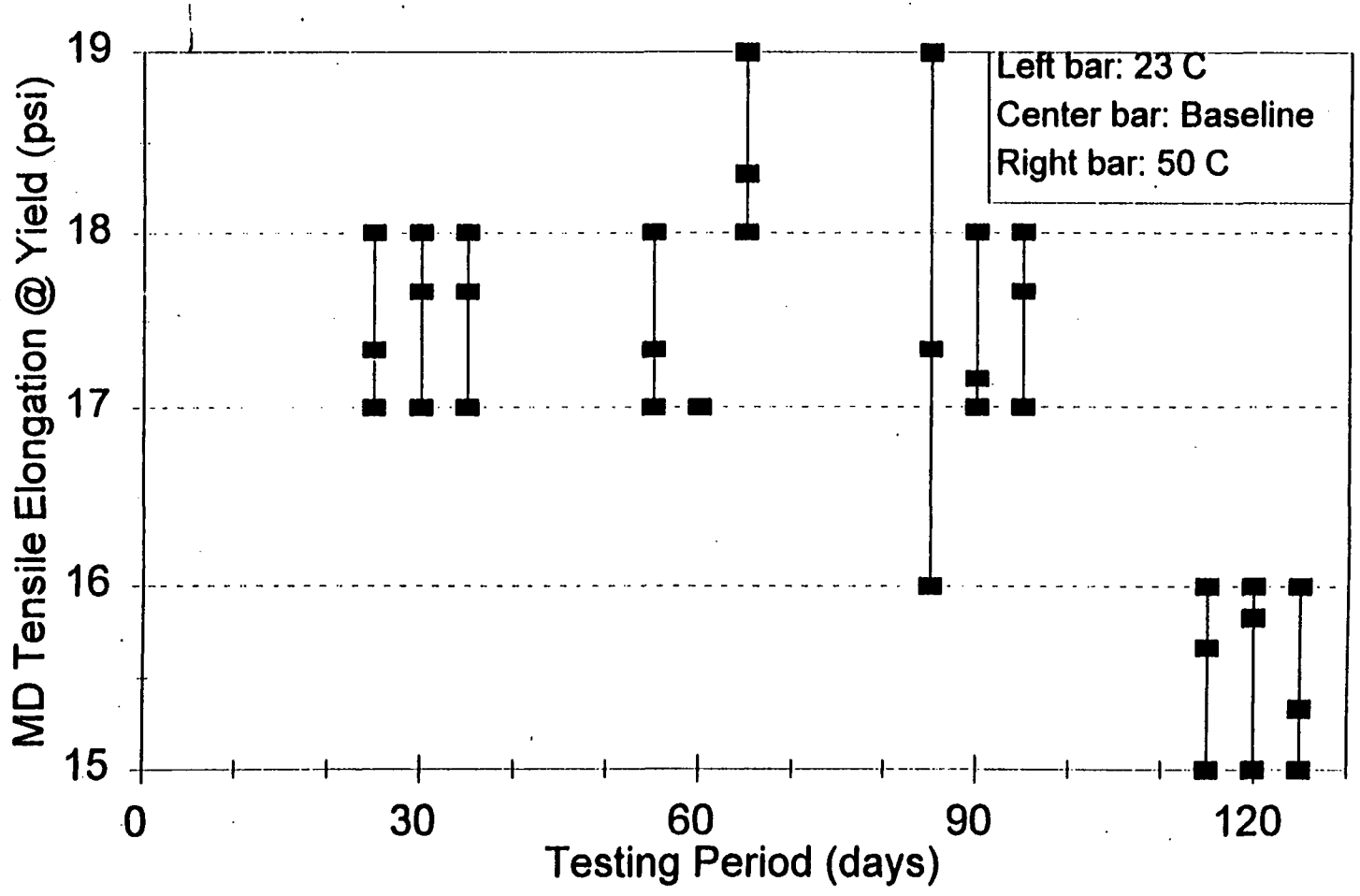
60 mil HDPE GM vs Phos Dock Effluent



Client: FMC Corporation, File: 942-fmc HDPE GM.wb1

FMC CORPORATION EPA METHOD 9090

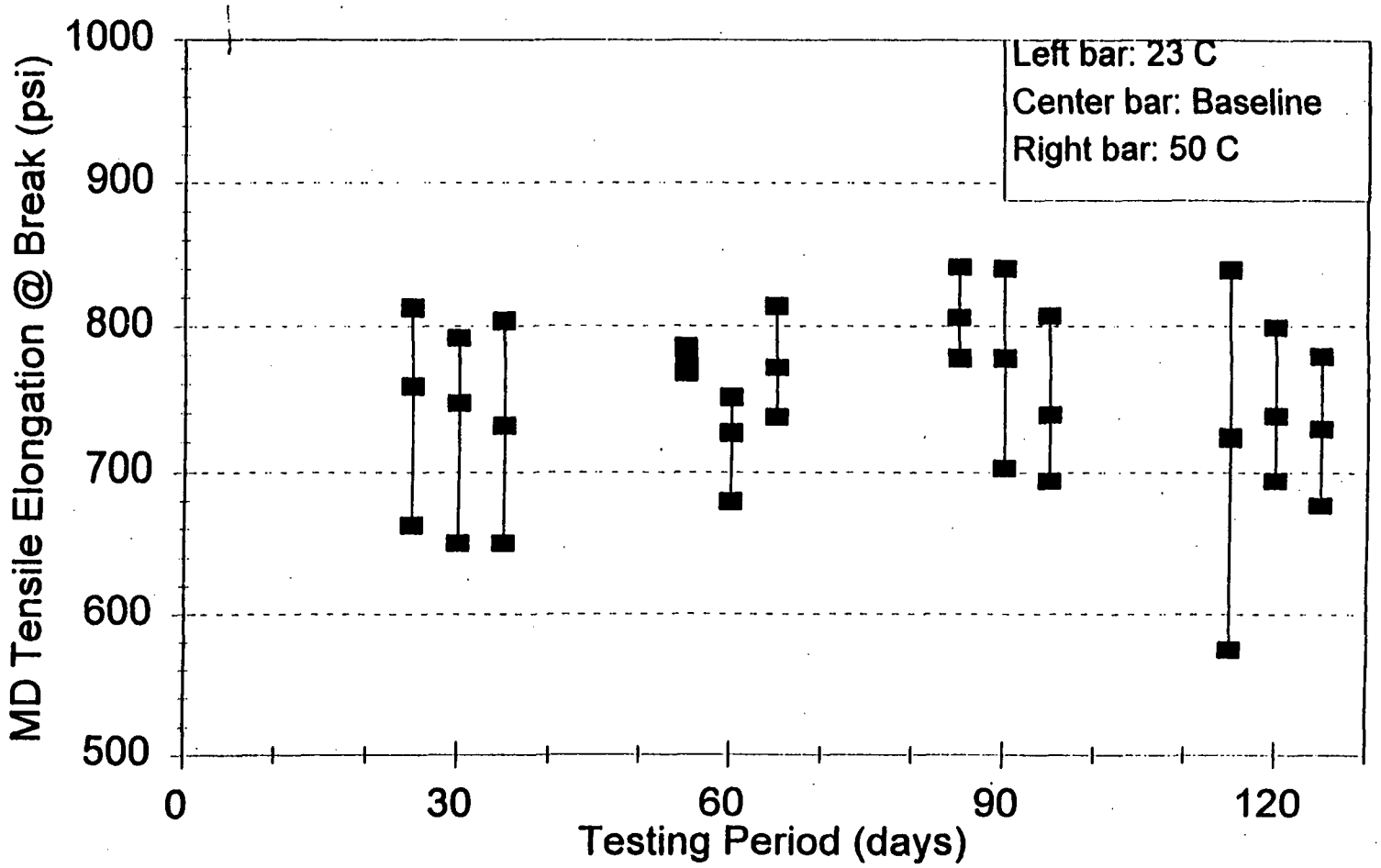
60 mil HDPE GM vs Phos Dock Effluent



Client: FMC Corporation, File: 942-fmc HDPE GM.wb1

FMC CORPORATION EPA METHOD 9090

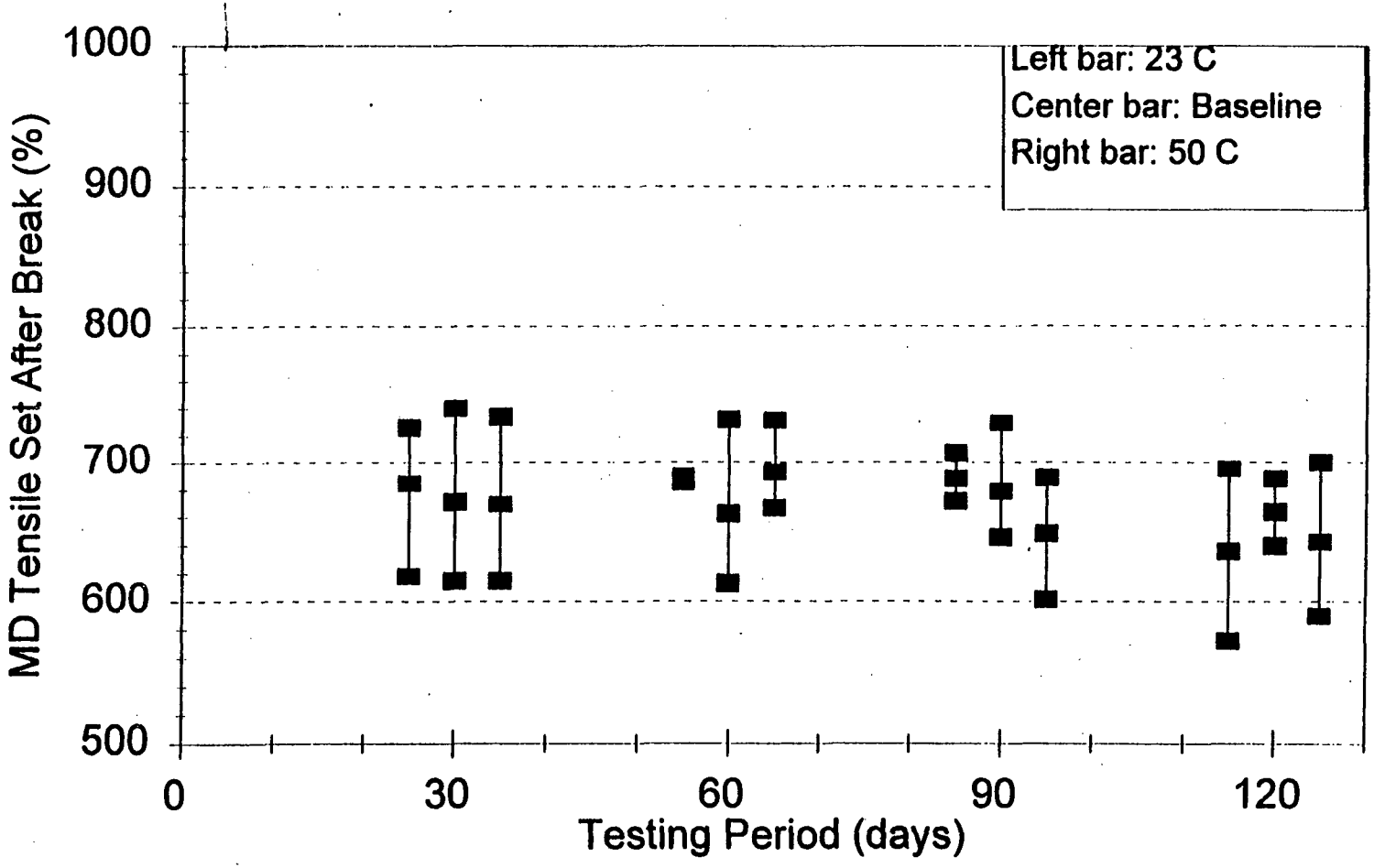
60 mil HDPE GM vs Phos Dock Effluent



Client: FMC Corporation, File: 942-fmc HDPE GM.wb1

FMC CORPORATION EPA METHOD 9090

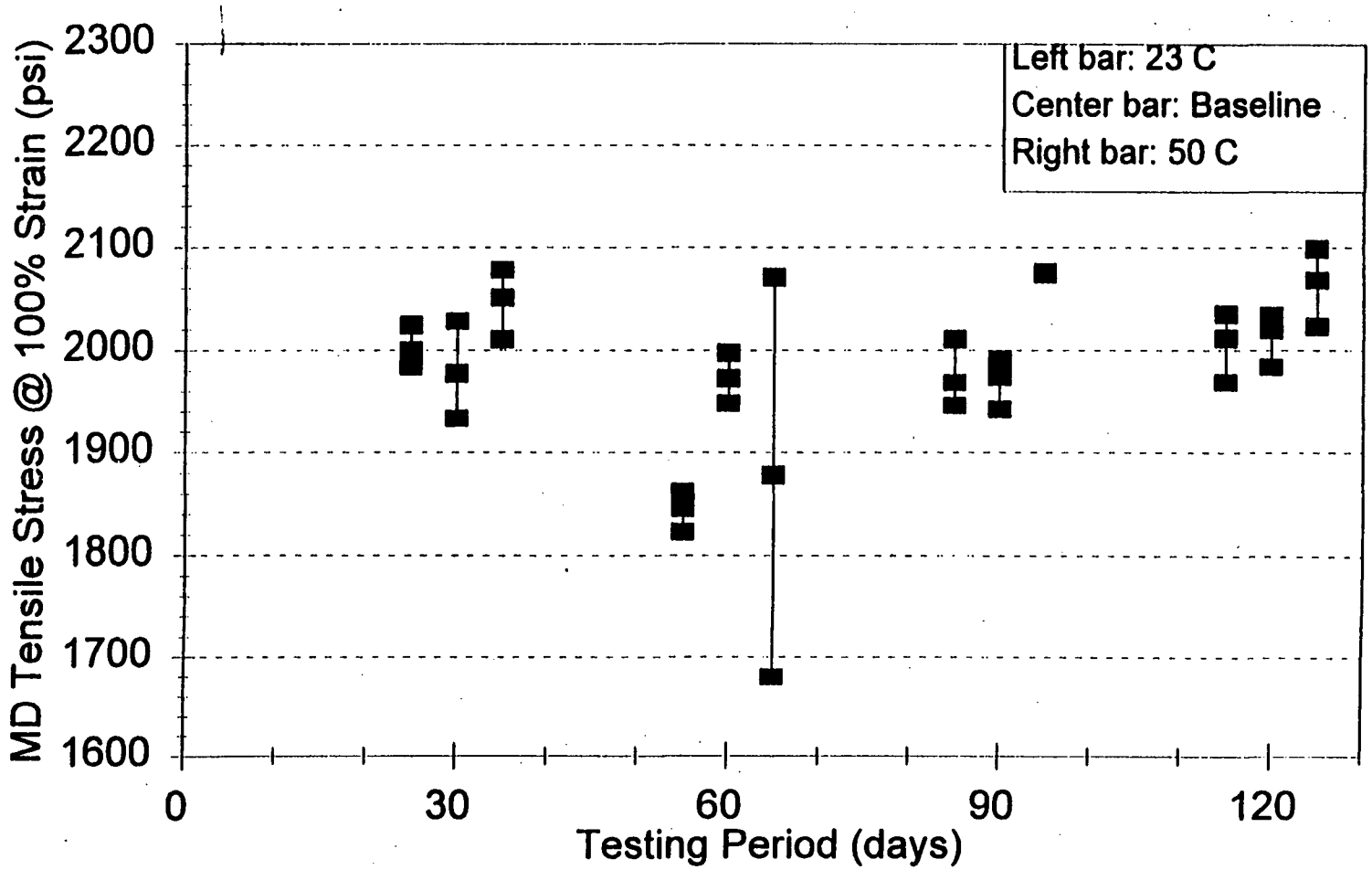
60 mil HDPE GM vs Phos Dock Effluent



Client: FMC Corporation, File: 942-fmc HDPE GM.wb1

FMC CORPORATION EPA METHOD 9090

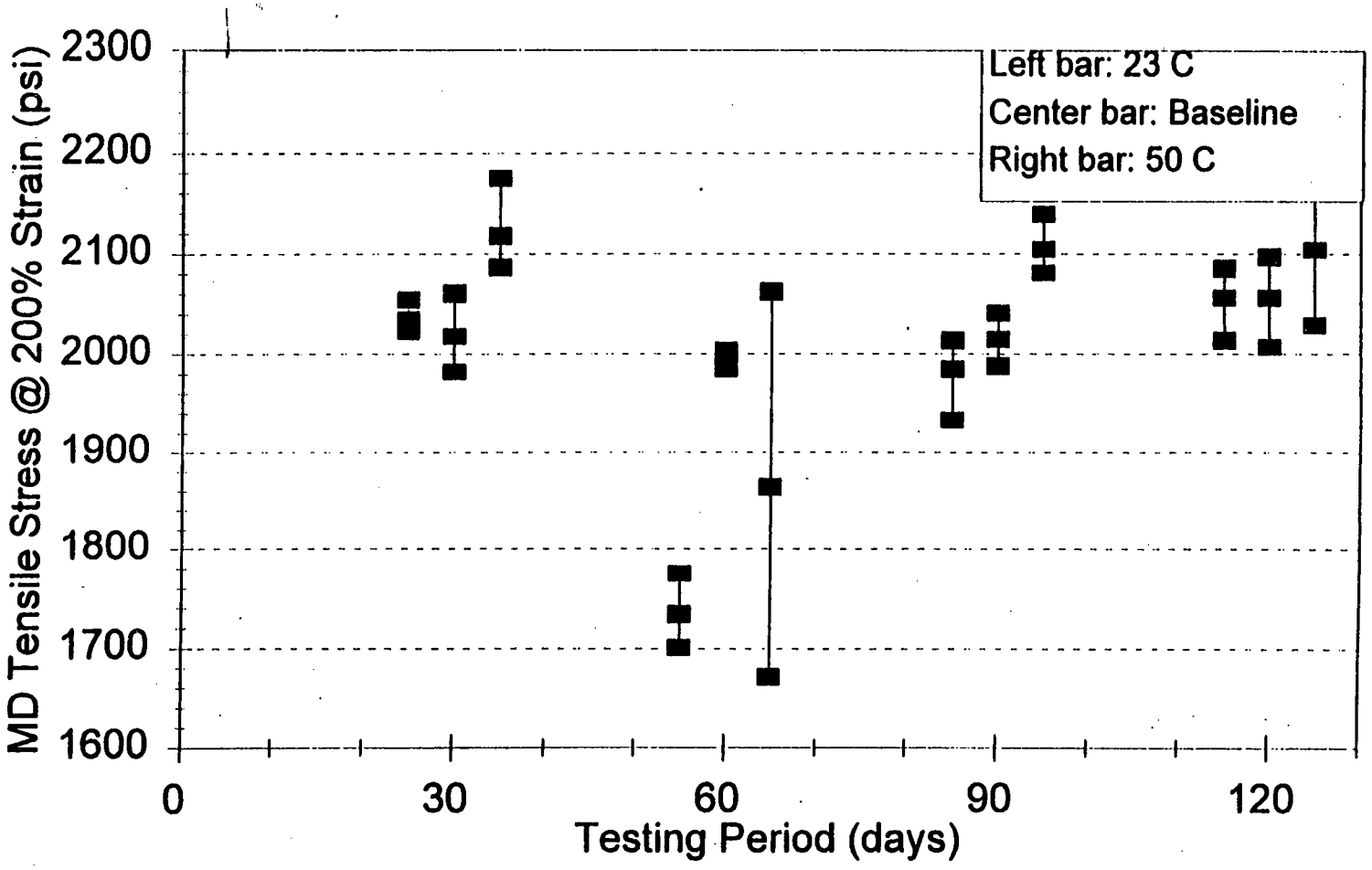
60 mil HDPE GM vs Phos Dock Effluent



Client: FMC Corporation, File: 942-fmc HDPE GM.wb1

FMC CORPORATION EPA METHOD 9090

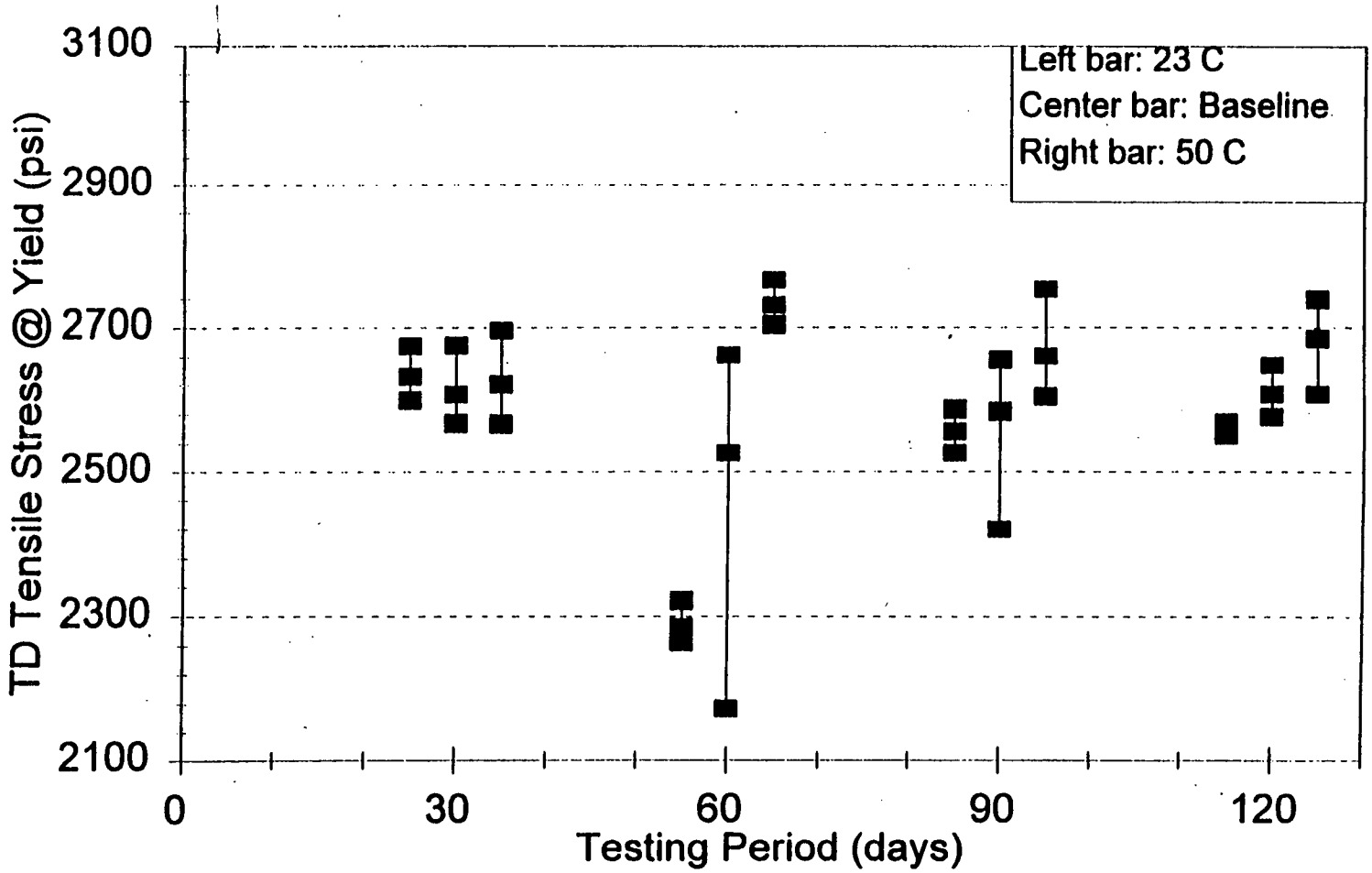
60 mil HDPE GM vs Phos Dock Effluent



Client: FMC Corporation, File: 942-fmc HDPE GM.wb1

FMC CORPORATION EPA METHOD 9090

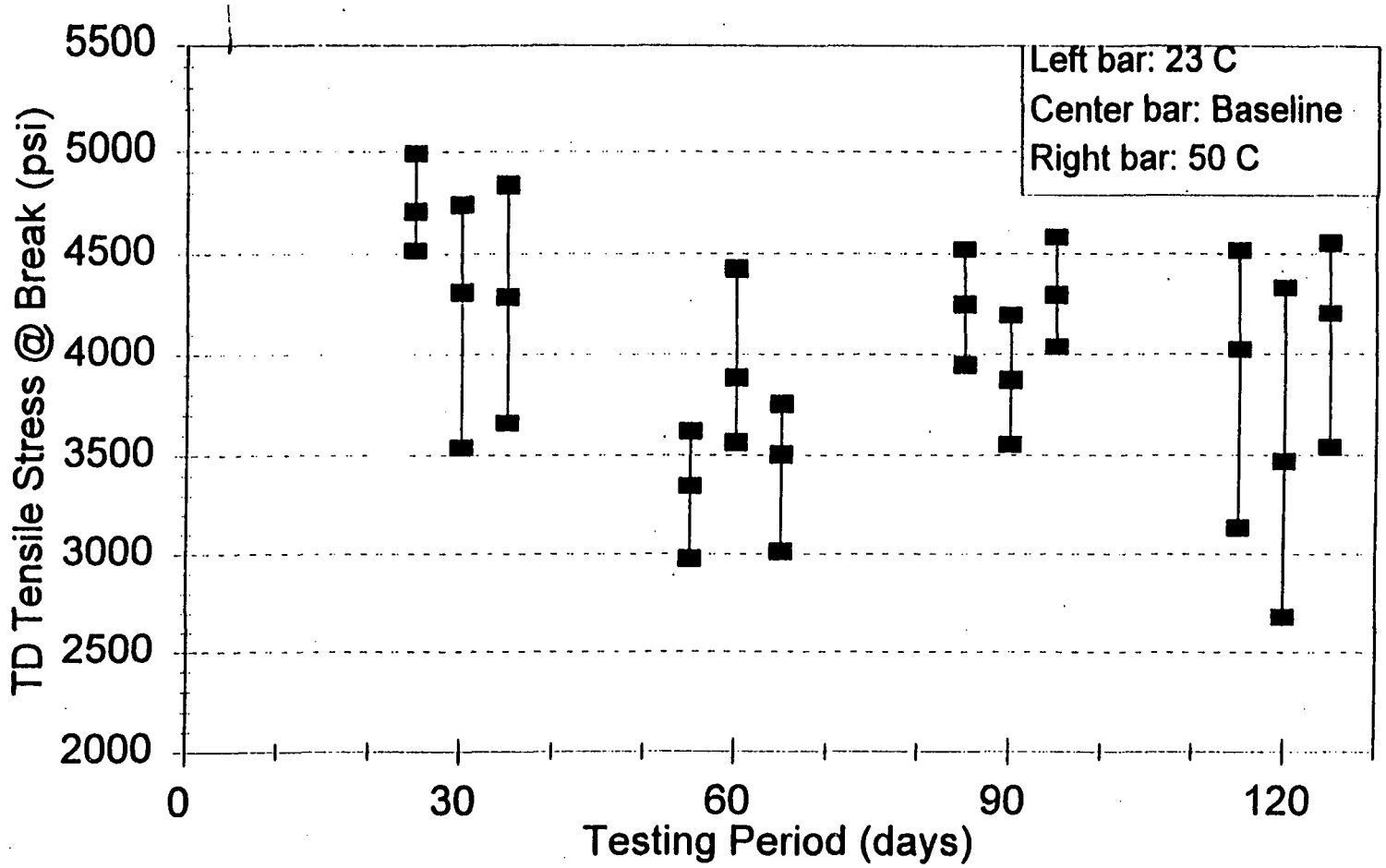
60 mil HDPE GM vs Phos Dock Effluent



Client: FMC Corporation, File: 942-fmc HDPE GM.wb1

FMC CORPORATION EPA METHOD 9090

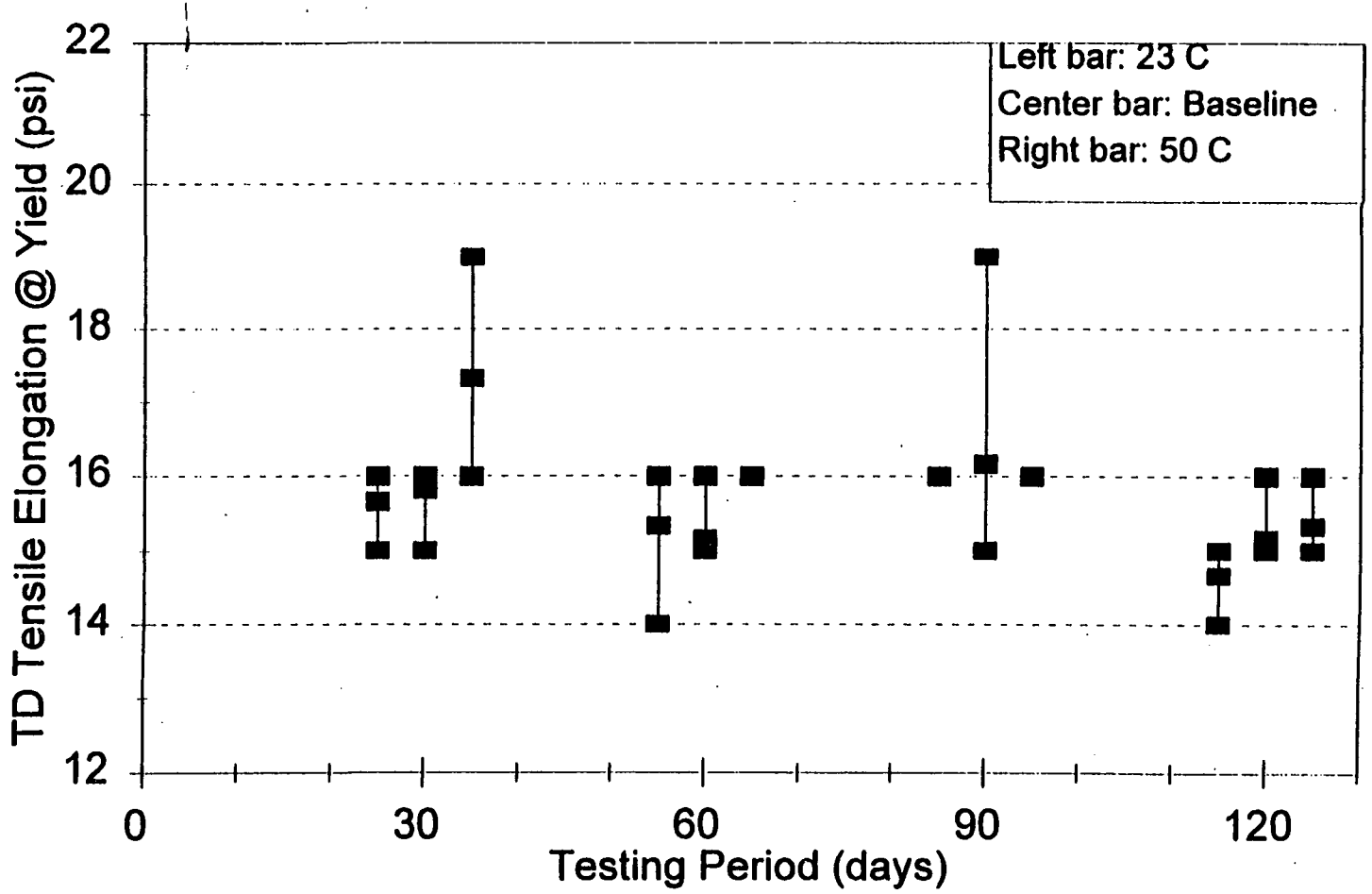
60 mil HDPE GM vs Phos Dock Effluent



Client: FMC Corporation, File: 942-fmc HDPE GM.wb1

FMC CORPORATION EPA METHOD 9090

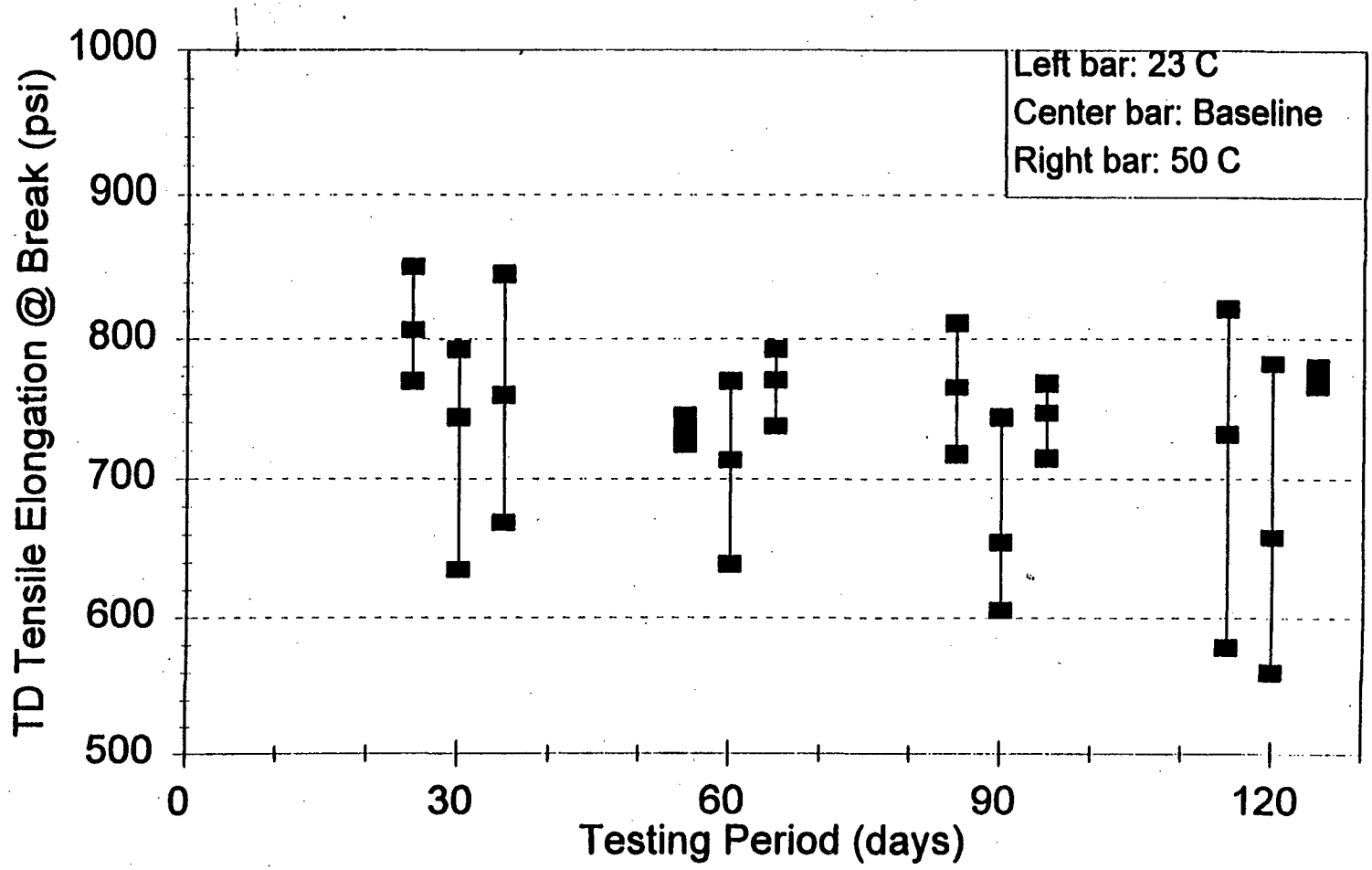
60 mil HDPE GM vs Phos Dock Effluent



Client: FMC Corporation, File: 942-fmc HDPE GM.wb1

FMC CORPORATION EPA METHOD 9090

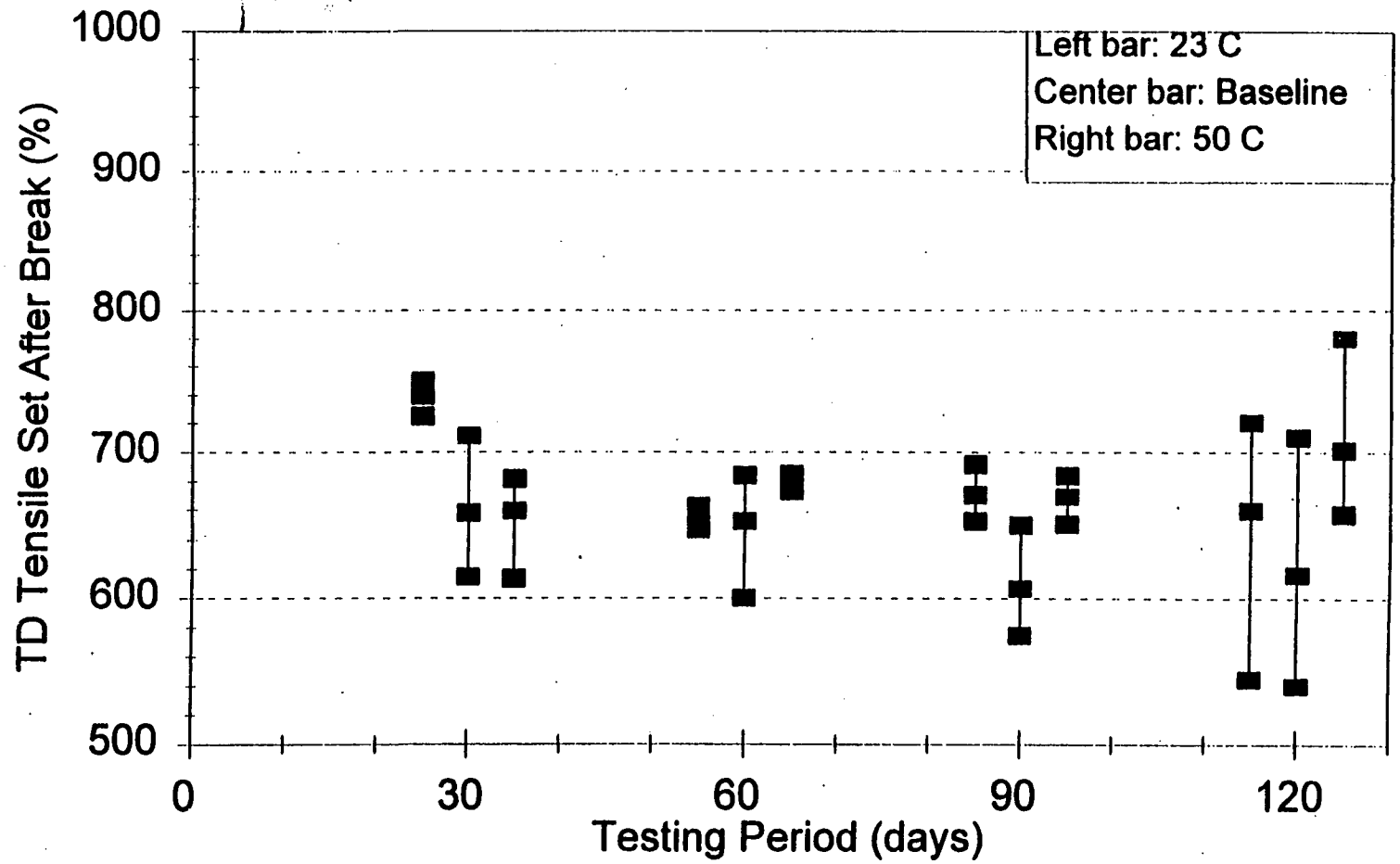
60 mil HDPE GM vs Phos Dock Effluent



Client: FMC Corporation, File: 942-fmc HDPE GM.wb1

FMC CORPORATION EPA METHOD 9090

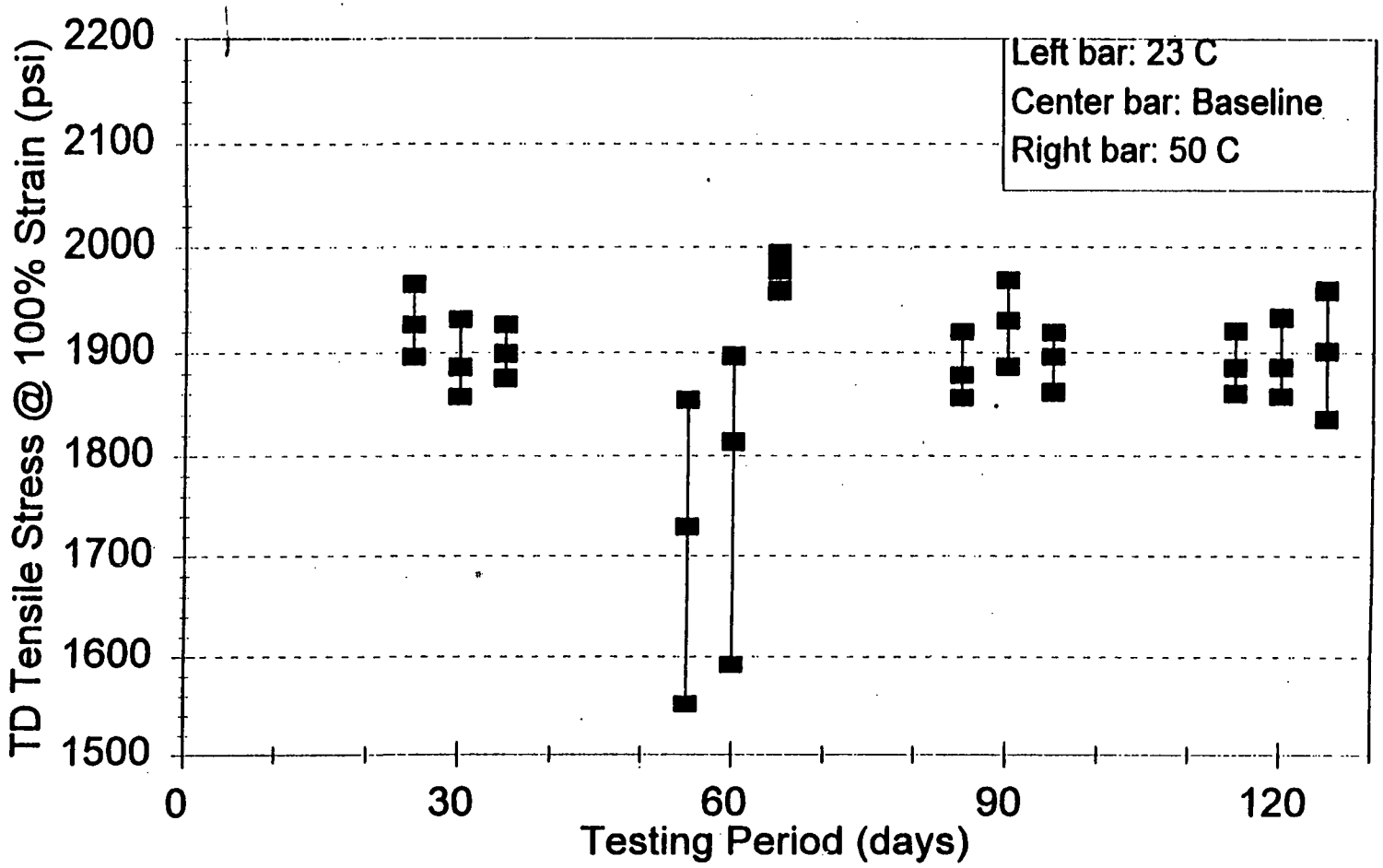
60 mil HDPE GM vs Phos Dock Effluent



Client: FMC Corporation, File: 942-fmc HDPE GM.wb1

FMC CORPORATION EPA METHOD 9090

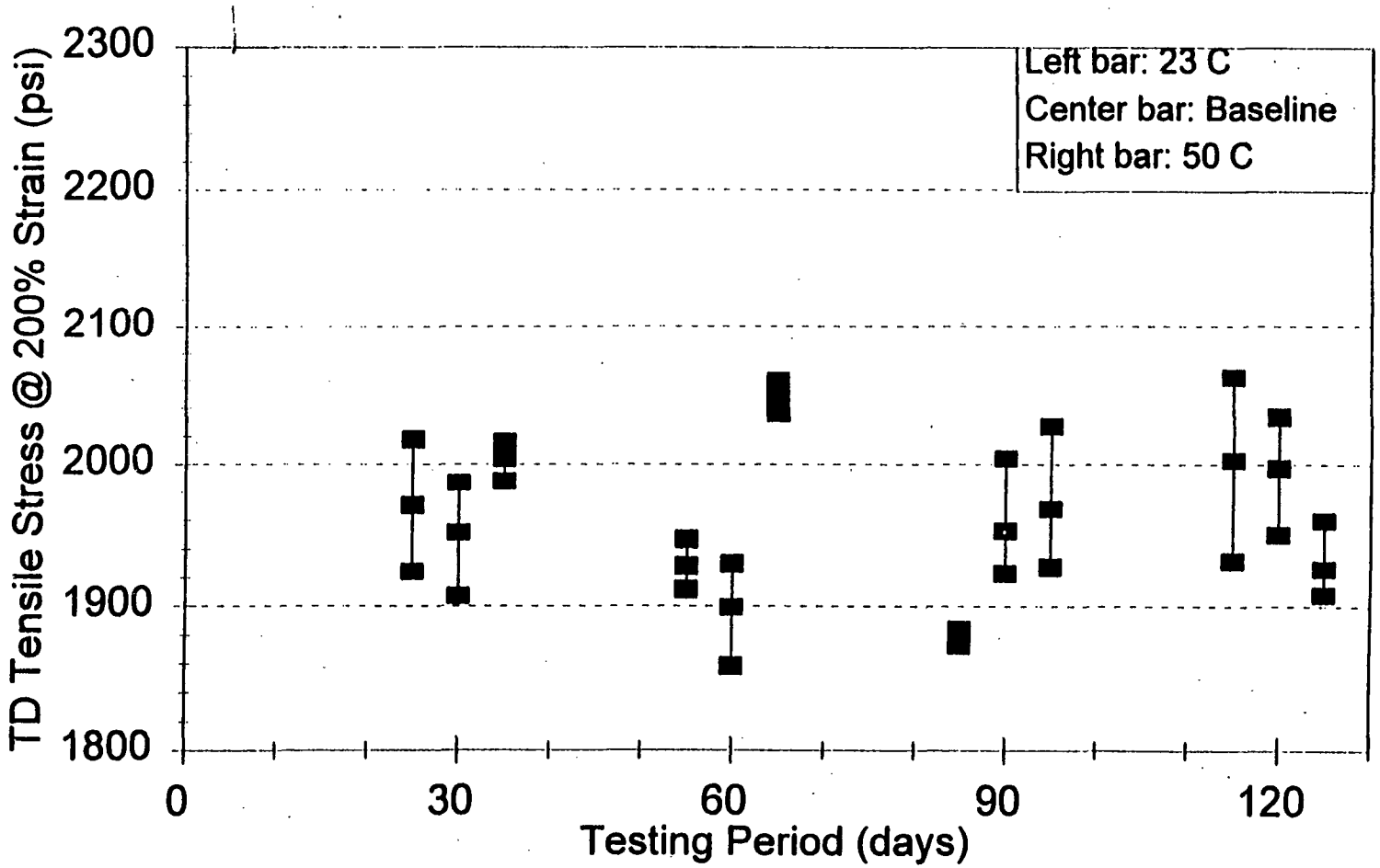
60 mil HDPE GM vs Phos Dock Effluent



Client: FMC Corporation, File: 942-fmc HDPE GM.wb1

FMC CORPORATION EPA METHOD 9090

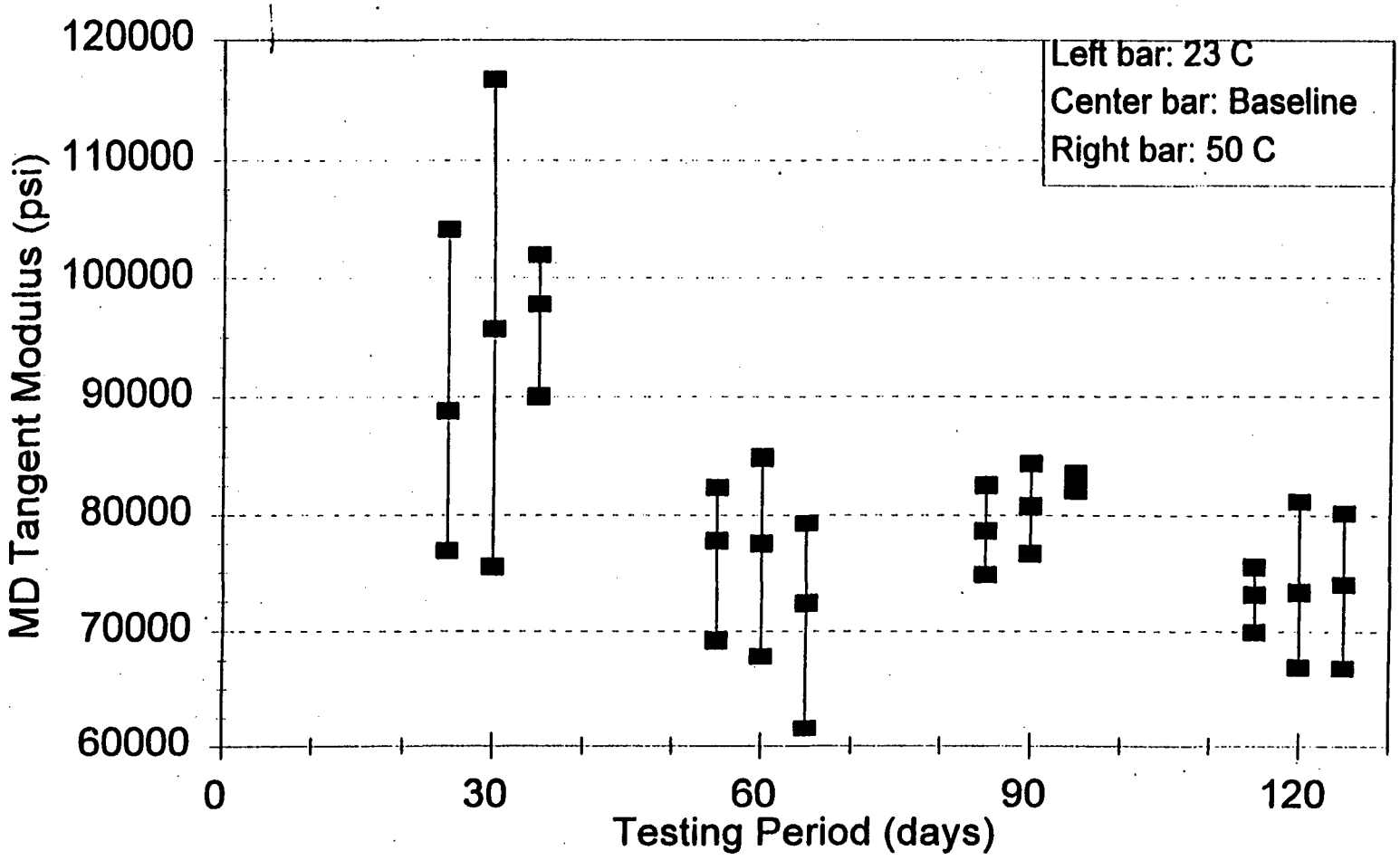
60 mil HDPE GM vs Phos Dock Effluent



Client: FMC Corporation, File: 942-fmc HDPE GM.wb1

FMC CORPORATION EPA METHOD 9090

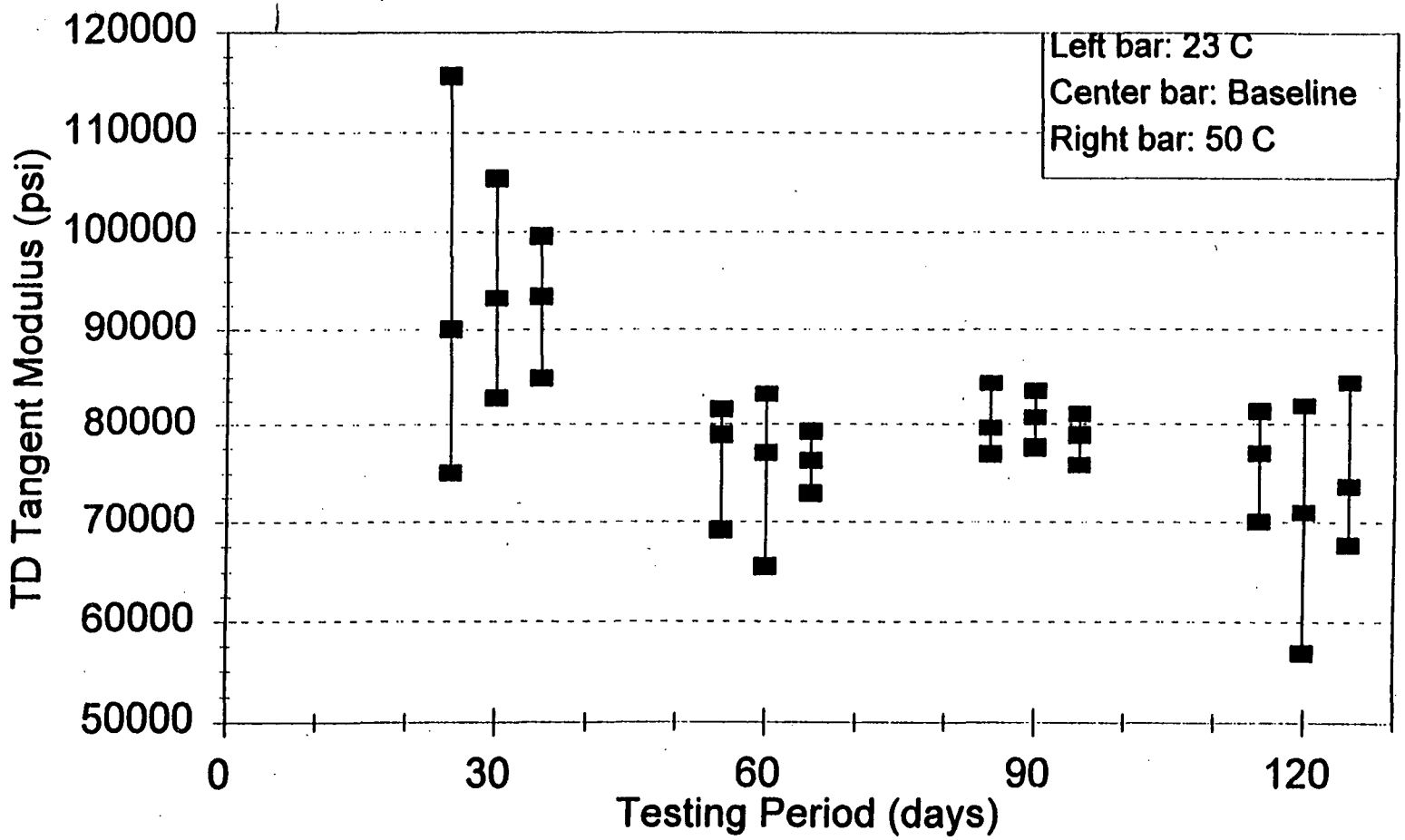
60 mil HDPE GM vs Phos Dock Effluent



Client: FMC Corporation, File: 942-fmc HDPE GM.wb1

FMC CORPORATION EPA METHOD 9090

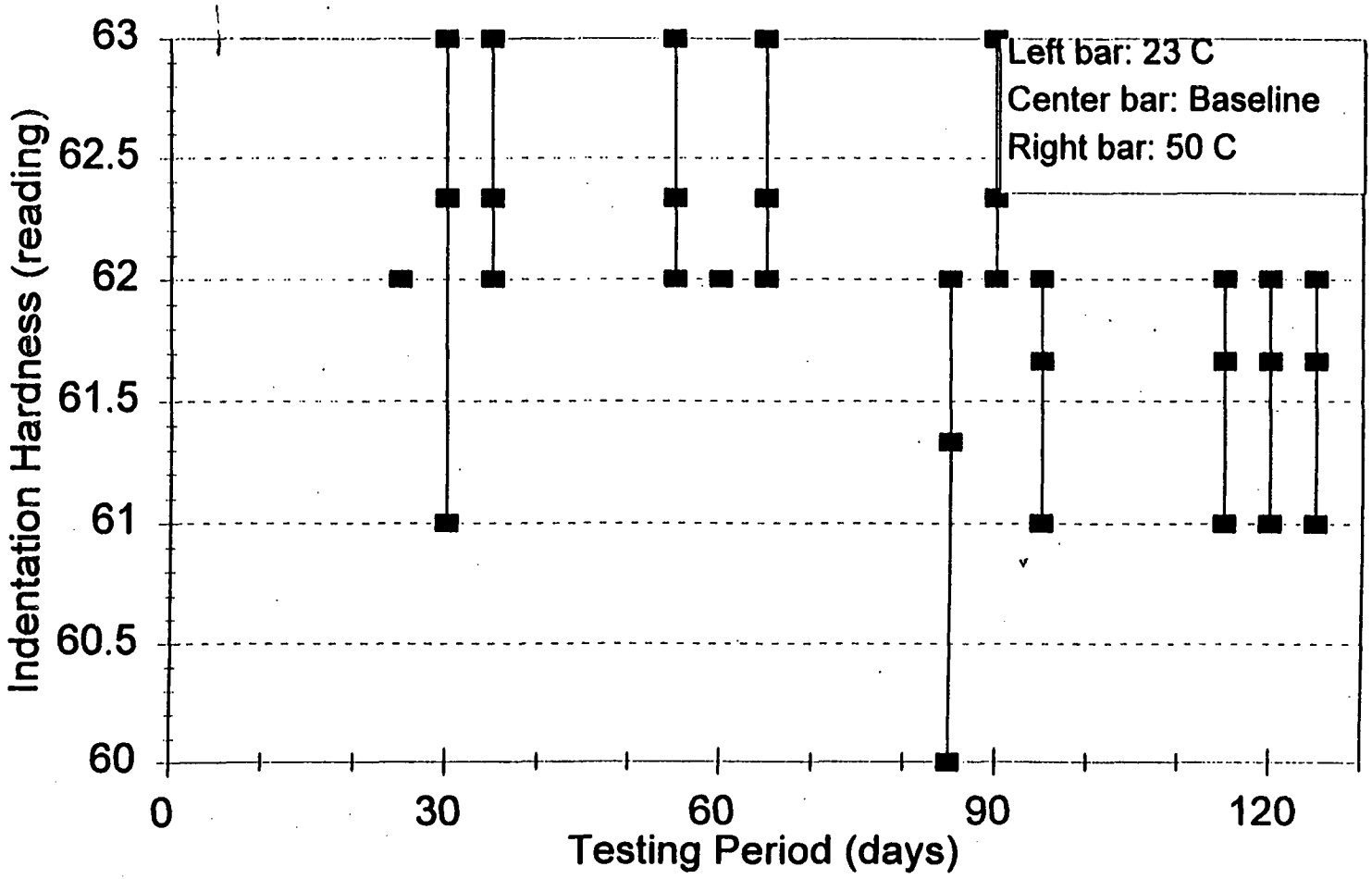
60 mil HDPE GM vs Phos Dock Effluent



Client: FMC Corporation, File: 942-fmc HDPE GM.wb1

FMC CORPORATION EPA METHOD 9090

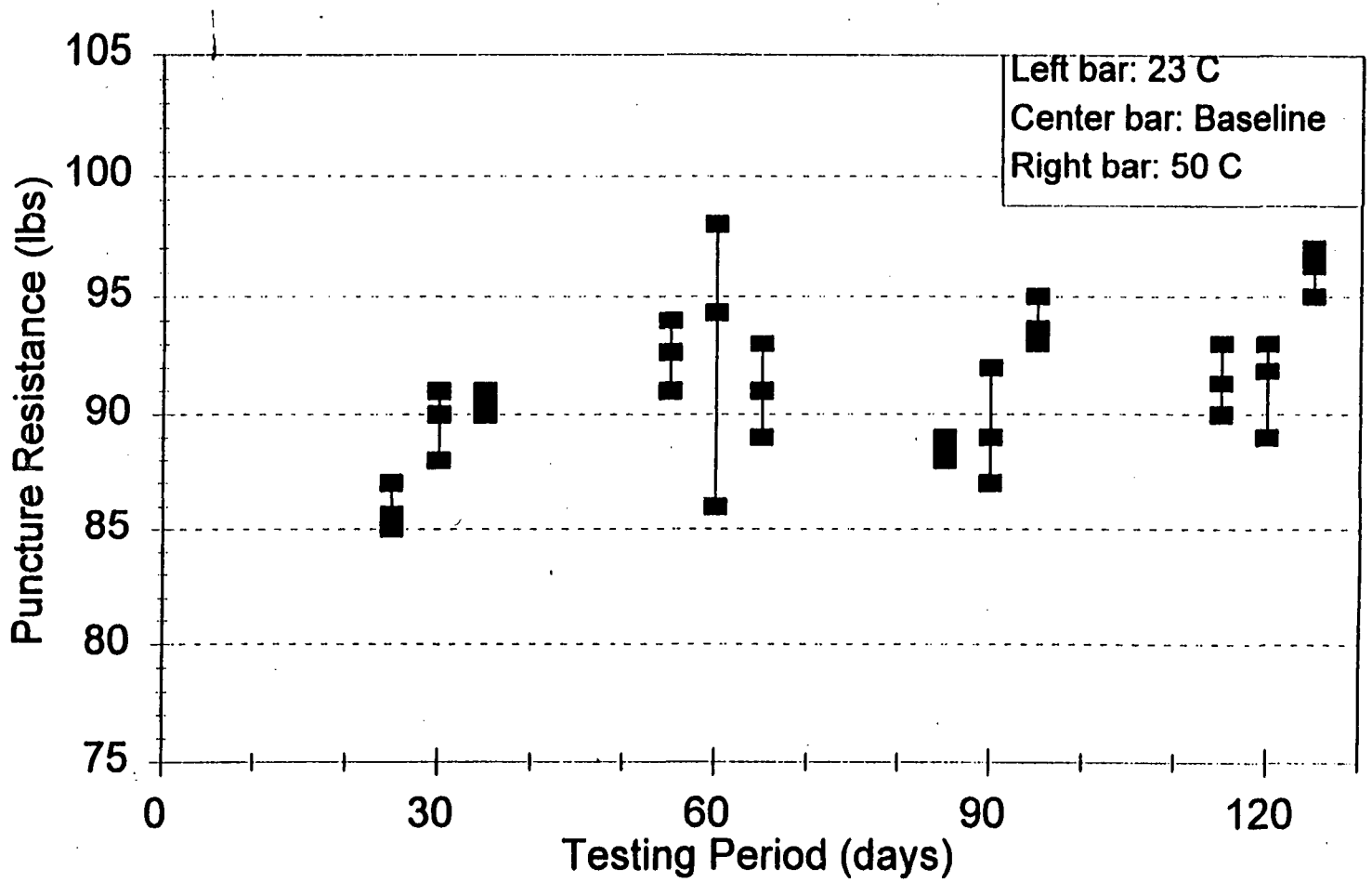
60 mil HDPE GM vs Phos Dock Effluent



Client: FMC Corporation, File: 942-fmc HDPE GM.wb1

FMC CORPORATION EPA METHOD 9090

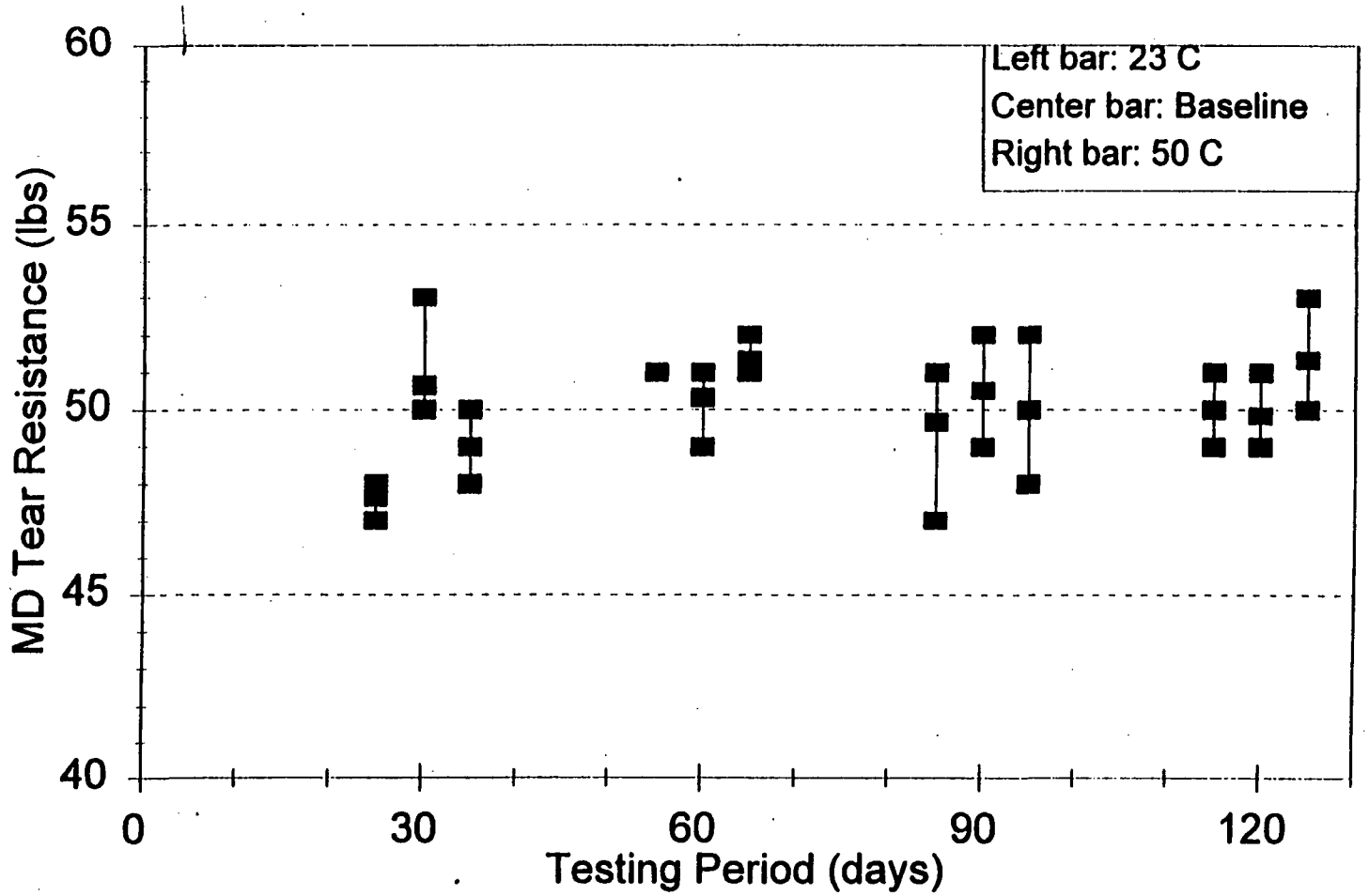
60 mil HDPE GM vs Phos Dock Effluent



Client: FMC Corporation, File: 942-fmc HDPE GM.wb1

FMC CORPORATION EPA METHOD 9090

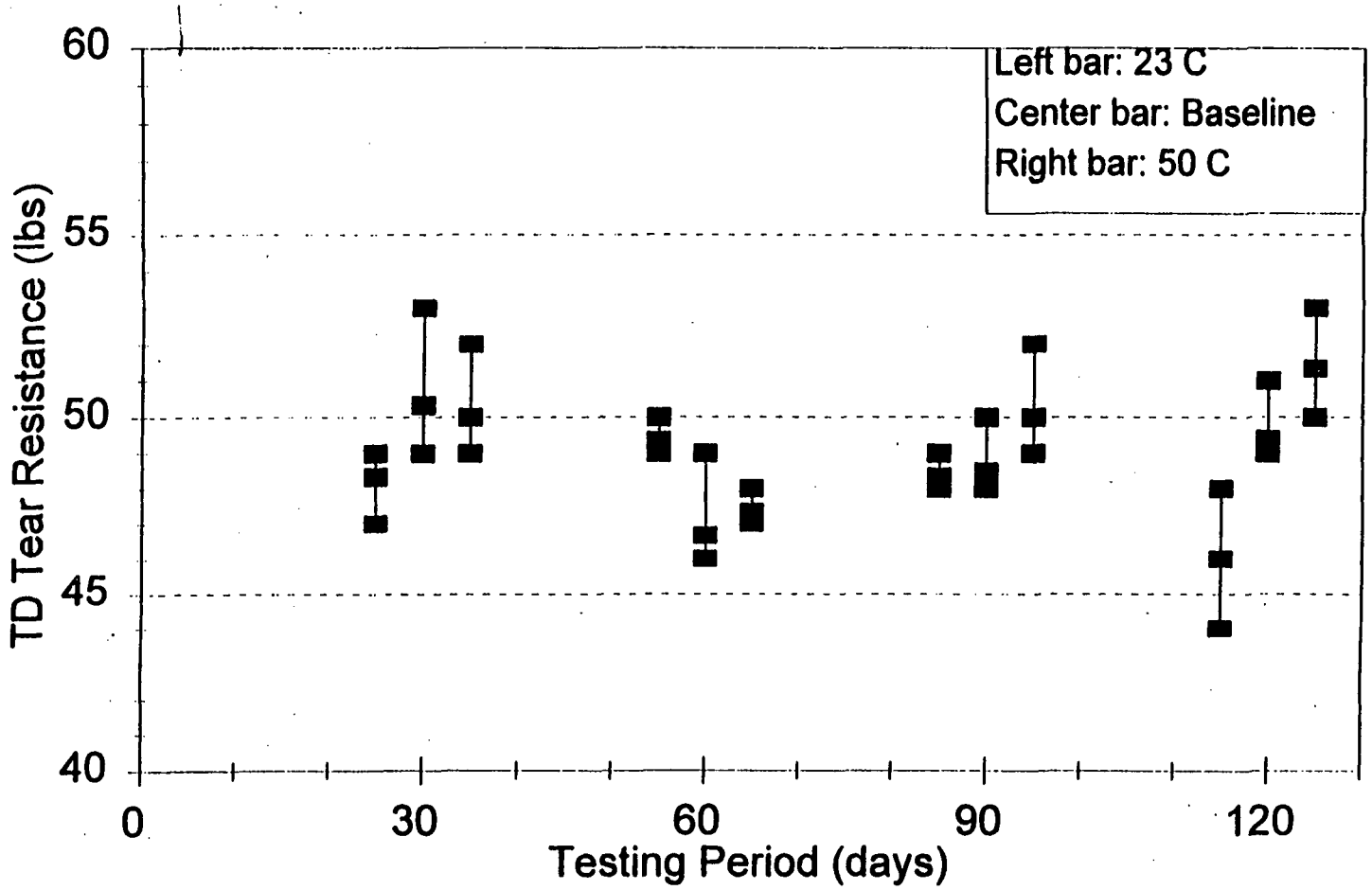
60 mil HDPE GM vs Phos Dock Effluent



Client: FMC Corporation, File: 942-fmc HDPE GM.wb1

FMC CORPORATION EPA METHOD 9090

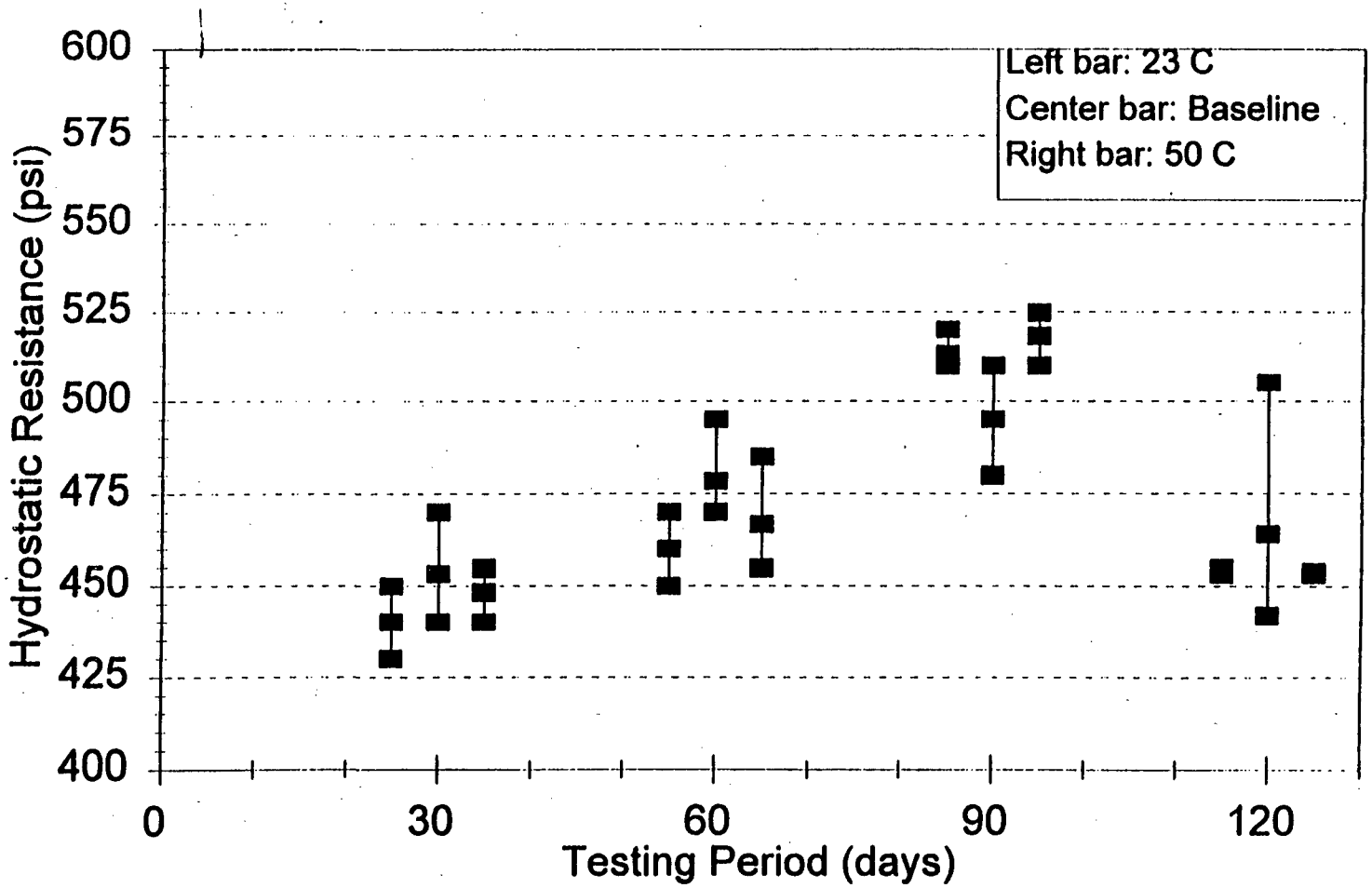
60 mil HDPE GM vs Phos Dock Effluent



Client: FMC Corporation, File: 942-fmc HDPE GM.wb1

FMC CORPORATION EPA METHOD 9090

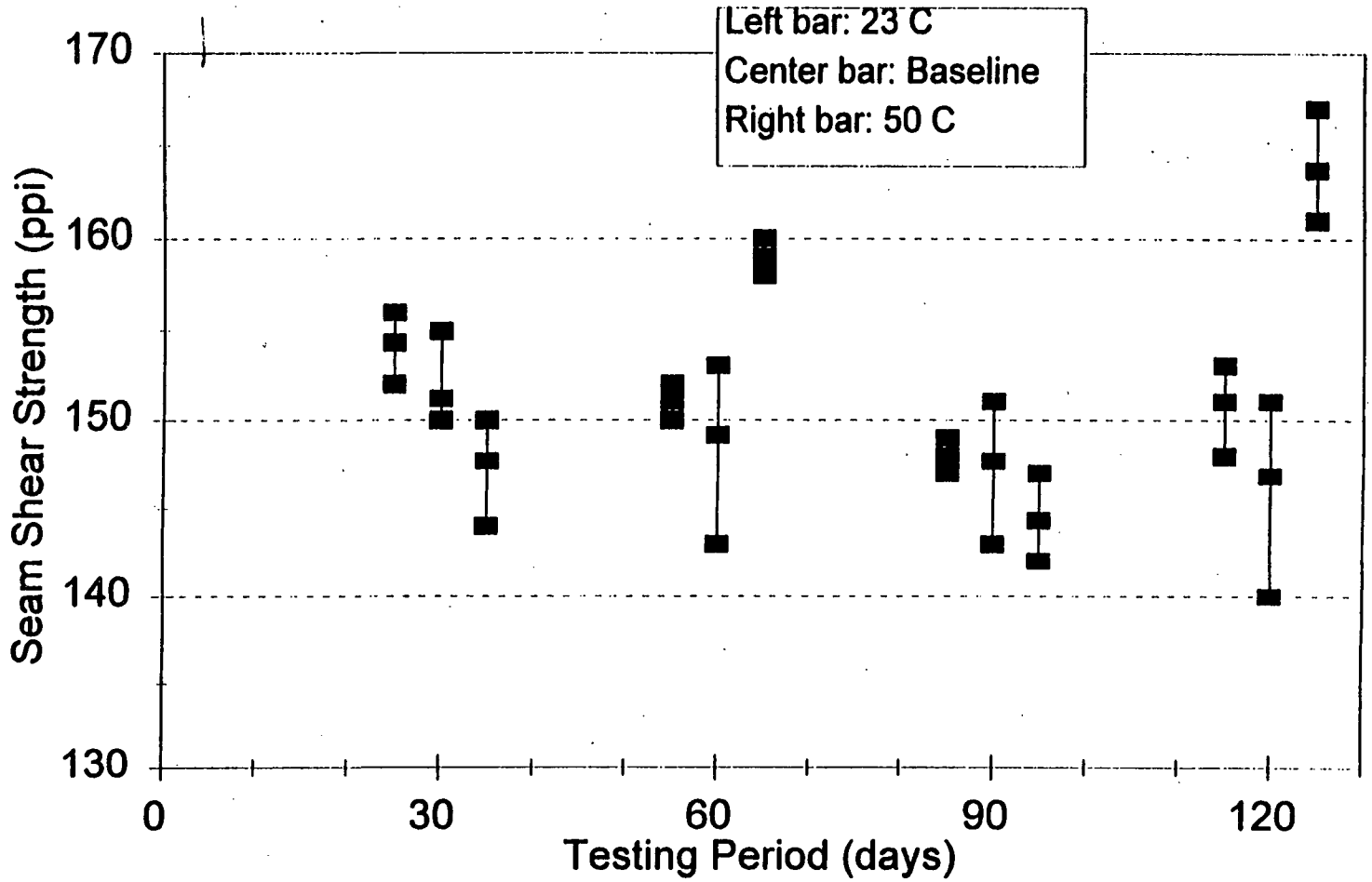
60 mil HDPE GM vs Phos Dock Effluent



Client: FMC Corporation, File: 942-fmc HDPE GM.wb1

FMC CORPORATION EPA METHOD 9090

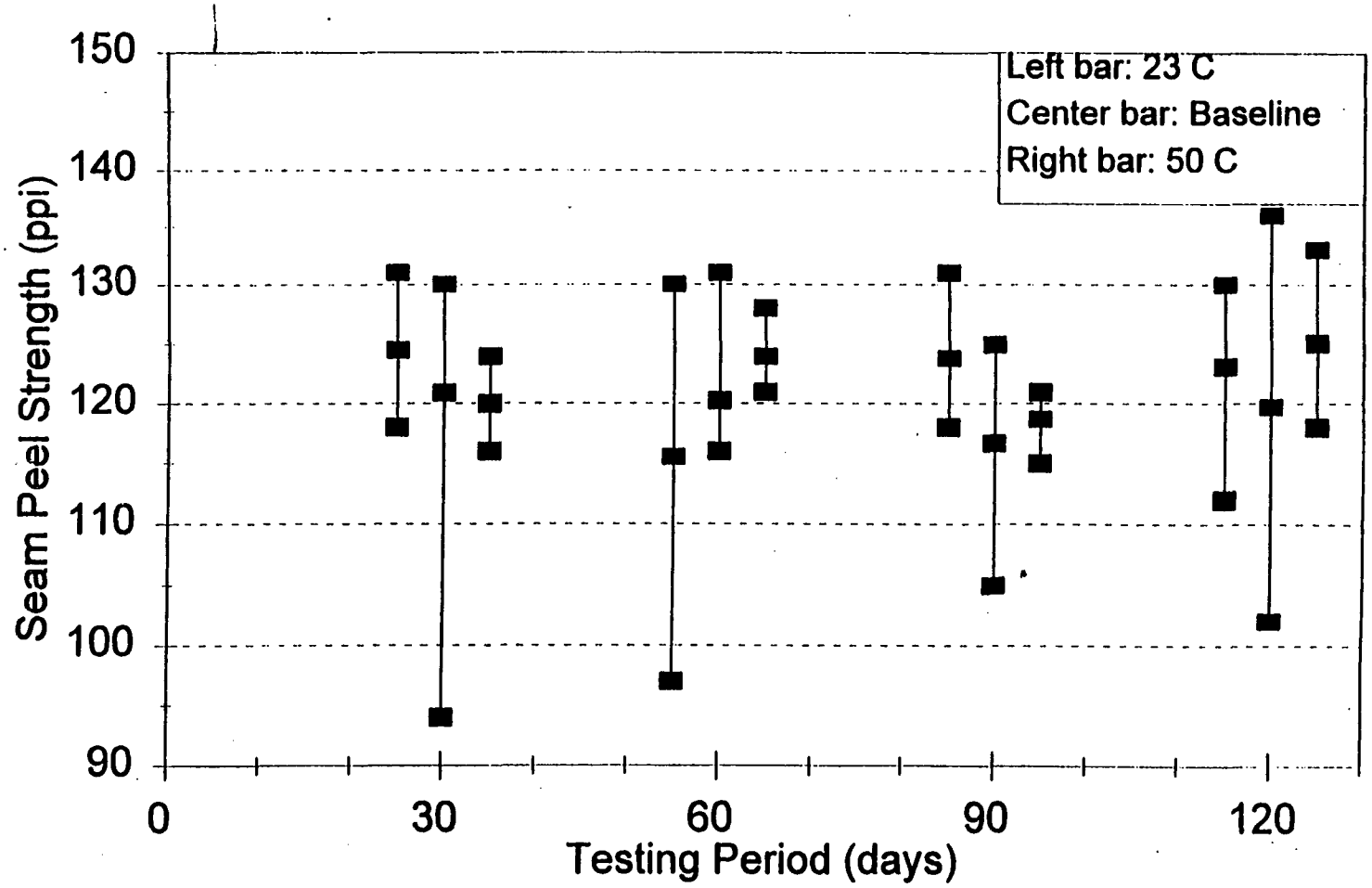
60 mil HDPE GM vs Phos Dock Effluent



Client: FMC Corporation, File: 942-fmc HDPE GM.wb1

FMC CORPORATION EPA METHOD 9090

60 mil HDPE GM vs Phos Dock Effluent



Client: FMC Corporation, File: 942-fmc HDPE GM.wb1

EPA METHOD 9090 TEST RESULTS

FMC CORPORATION - POCATELLO

30 mil PVC GEOMEMBRANE

TABLE OF CHEMICAL COMPATIBILITY TEST RESULTS

Phosphorus Bearing Mixture of Phos Dock Effluent from the North Solids Tank and Northeast Sump

Raport Date: July 25, 1997
Reissued: October 21, 1997

Exposure Time and Temperature

Test Parameters	30 Day Baseline	30 Day 23C	30 Day 50C	60 Day Baseline	60 Day 23C	60 Day 50C	90 Day Baseline	90 Day 23C	90 Day 50C	120 Day Baseline	120 Day 23C	120 Day 50C
GEOMEMBRANE: 30 mil PVC												
Tensile Properties:	3296	3234	3235	3116	3117	3062	3083	2965	2977	3086	2911	2756
Tensile Stress @ Break (psi)	3373	3054	3119	3165	2967	3200	3149	2893	2784	3050	2819	2718
ASTM D882	3388	3218	3219	3207	3392	2991	2991	3279	2963	2998	1963	2800
Machine Direction	3433			3252			2905			3079		
	3266			3266			3072			2749		
	3251			3314			2881			2816		
Average	3335	3169	3191	3220	3165	3084	3014	3046	2908	2963	2564	2758
STD	67	81	51	66	169	87	97	168	88	132	427	34
Coefficient of Variation	2	3	2	2	5	3	3	6	3	4	17	1
Range as % of Baseline	5			6			9			11		
% Change		-5	-4		-2	-4		1	-4		-13	-7
Tensile Properties:	449	458	474	521	492	484	490	467	436	497	470	463
Tensile Elongation @ Break (%)	460	393	484	469	477	512	499	476	415	540	436	506
ASTM D882	470	447	482	532	546	467	512	504	462	498	483	431
Machine Direction	465			564			485			540		
	444			514			500			475		
	433			532			454			449		
Average	454	433	480	522	505	488	490	482	438	500	463	467
STD	13	28	4	28	30	19	18	16	19	33	20	31
Coefficient of Variation	3	7	1	5	6	4	4	3	4	7	4	7
Range as % of Baseline	8			18			12			18		
% Change		-5	6		-3	-7		-2	-11		-7	-7
Tensile Properties:	1636	1627	1749	1488	1509	1645	1483	1424	1612	1377	1459	1575
Tensile Stress @ 100% Elongation (psi)	1658	1652	1592	1551	1474	1612	1495	1364	1547	1397	1440	1545
ASTM D882	1647	1639	1673	1470	1530	1596	1403	1482	1538	1413	1404	1546
Machine Direction	1664			1434			1389			1385		
	1625			1528			1440			1353		
	1688			1492			1440			1435		
Average	1653	1639	1671	1494	1504	1618	1442	1423	1566	1393	1434	1555
STD	20	10	64	38	23	20	38	48	33	26	23	14
Coefficient of Variation	1	1	4	3	2	1	3	3	2	2	2	1
Range as % of Baseline	4			8			7			6		
% Change		-1	1		1	8		-1	9		3	12
Tensile Properties:	2162	2150	2195	1965	1992	2072	1979	1923	2052	1855	1921	1961
Tensile Stress @ 200% Elongation (psi)	2196	2179	2032	2063	1949	2056	1991	1839	1963	1857	1908	1940
ASTM D882	2193	2169	2125	1948	2024	2021	1876	2003	1965	1880	1876	1945
Machine Direction	2214			1906			1857			1846		
	2166			2034			1932			1791		
	2228			1991			1921			1896		
Average	2193	2166	2117	1985	1988	2050	1926	1922	2000	1854	1902	1949
STD	24	12	67	52	31	21	49	67	37	33	19	9
Coefficient of Variation	1	1	3	3	2	1	3	3	2	2	1	0
Range as % of Baseline	3			8			7			6		
% Change		-1	-3		0	3		-0	4		3	5

SRA 10-21-97
Quality Review/Date

TABLE OF CHEMICAL COMPATIBILITY TEST RESULTS

Phosphorus Bearing Mixture of Phos Dock Effluent from the North Solids Tank and Northeast Sump

Report Date: July 25, 1997
Reissued: October 21, 1997

Exposure Time and Temperature

Test Parameters	30 Day Baseline	30 Day 23C	30 Day 50C	60 Day Baseline	60 Day 23C	60 Day 50C	90 Day Baseline	90 Day 23C	90 Day 50C	120 Day Baseline	120 Day 23C	120 Day 50C
GEOMEMBRANE: 30 mil PVC												
Tensile Properties:	2964	2820	3013	2659	3006	2773	2859	2713	2887	2740	2756	2856
Tensile Stress @ Break (psi)	3048	2888	2858	2690	2913	2710	2796	2802	2806	2735	2728	2839
ASTM D882	3023	2920	3167	2655	2675	2671	2833	2853	2901	2814	2800	2769
Transverse Direction	2921			2664			2850			2796		
	2777			2791			2805			2826		
	3013			2755			2819			2726		
Average	2958	2876	3013	2702	2865	2718	2827	2789	2865	2773	2761	2821
STD	91	42	126	52	139	42	22	58	42	40	30	38
Coefficient of Variation	3	1	4	2	5	2	1	2	1	1	1	1
Range as % of Baseline	9			5			2			4		
% Change		-3	2		6	1		-1	1		-0	2
Tensile Properties:	439	472	482	475	514	497	512	480	492	515	501	503
Tensile Elongation @ Break (%)	469	438	445	469	501	482	484	465	464	478	488	491
ASTM D882	492	484	519	455	462	445	531	477	484	521	512	462
Transverse Direction	500			475			490			505		
	469			492			497			515		
	494			455			517			505		
Average	477	465	482	470	492	475	505	474	480	507	500	485
STD	21	19	30	13	22	22	16	6	12	14	10	17
Coefficient of Variation	4	4	6	3	4	5	3	1	2	3	2	4
Range as % of Baseline	13			8			9			8		
% Change		-3	1		5	1		-6	-5		-1	-4
Tensile Properties:	1540	1422	1569	1338	1467	1389	1349	1289	1467	1318	1345	1476
Tensile Stress @ 100% Elongation (psi)	1536	1490	1527	1301	1426	1439	1383	1342	1474	1359	1337	1513
ASTM D882	1495	1410	1601	1335	1345	1411	1280	1352	1466	1333	1331	1531
Transverse Direction	1419			1332			1327			1325		
	1403			1368			1289			1327		
	1469			1372			1279			1281		
Average	1477	1441	1566	1341	1413	1413	1318	1328	1469	1324	1338	1507
STD	53	35	30	24	51	20	39	28	4	23	6	23
Coefficient of Variation	4	2	2	2	4	1	3	2	0	2	0	2
Range as % of Baseline	9			5			8			6		
% Change		-2	6		5	5		1	11		1	14
Tensile Properties:	2022	1867	1981	1769	1911	1779	1799	1729	1849	1735	1754	1851
Tensile Stress @ 200% Elongation (psi)	2013	1976	1942	1739	1871	1811	1826	1803	1864	1780	1747	1873
ASTM D882	1968	1879	2023	1770	1776	1810	1719	1815	1859	1748	1754	1904
Transverse Direction	1870			1753			1792			1751		
	1844			1793			1739			1761		
	1932			1821			1722			1711		
Average	1942	1907	1982	1774	1853	1800	1766	1782	1857	1748	1752	1876
STD	67	49	33	27	57	15	41	38	6	21	3	22
Coefficient of Variation	3	3	2	2	3	1	2	2	0	1	0	1
Range as % of Baseline	9			5			6			4		
% Change		-2	2		4	1		1	5		0	7

SRA 10-21-97
Quality Review/Date

TABLE OF CHEMICAL COMPATIBILITY TEST RESULTS

Phosphorus Bearing Mixture of Phos Dock Effluent from the North Solids Tank and Northeast Sump

Report Date: July 25, 1997
Reissued: October 21, 1997

Exposure Time and Temperature

Test Parameters	30 Day Baseline	30 Day 23C	30 Day 50C	60 Day Baseline	60 Day 23C	60 Day 50C	90 Day Baseline	90 Day 23C	90 Day 50C	120 Day Baseline	120 Day 23C	120 Day 50C
GEOMEMBRANE: 30 mil PVC												
Tear Resistance:	11	13	12	11	11	13	11	11	11	11	11	11
Tear Resistance (lbs)	11	13	13	12	11	13	11	11	11	11	13	13
ASTM D1004	11	12	11	11	13	13	12	11	10	12	12	12
Machine Direction	11			12			11			12		
	12			11			10			11		
	11			11			12			13		
Average	11	13	12	11	12	13	11	11	11	12	12	12
STD	0	0	1	0	1	0	1	0	0	1	1	1
Coefficient of Variation	3	4	7	4	8	0	6	0	4	6	7	7
Range as % of Baseline	9			9			18			17		
% Change		13	7		3	15		-1	-4		3	3
Tear Resistance:	10	11	11	11	11	12	10	10	10	10	9	11
Tear Resistance (lbs)	11	10	11	11	10	12	10	10	10	10	11	11
ASTM D1004	11	11	11	11	11	12	11	10	11	11	12	12
Transverse Direction	10			10			11			11		
	11			10			10			10		
	11			10			10			11		
Average	11	11	11	11	11	12	10	10	10	11	11	11
STD	0	0	0	1	0	0	0	0	0	1	1	0
Coefficient of Variation	4	4	0	5	4	0	5	0	5	5	12	4
Range as % of Baseline	9			10			10			10		
% Change		0	3		2	14		-3	0		2	8
Puncture Resistance:	65	64	56	67	63	60	68	67	68	54	59	62
Load @ Rupture (lbs)	62	57	57	65	63	59	68	71	67	57	62	61
FTMS 101C Method 2065	61	54	56	63	62	59	61	64	71	60	60	65
	65			64			70			58		
	68			66			65			49		
	65			61			70			57		
Average	64	58	56	64	63	59	67	67	69	56	60	63
STD	2	4	0	2	0	0	3	3	2	4	1	2
Coefficient of Variation	4	7	1	3	1	1	5	4	2	6	2	3
Range as % of Baseline	11			9			13			20		
% Change		-9	-12		-3	-8		0	2		8	12
Hydrostatic Resistance:	110	110	110	95	100	105	110	110	115	110	100	110
Load @ Rupture (psi)	110	110	110	95	100	100	110	110	120	100	90	105
ASTM D751	110	105	115	90	105	100	105	115	115	90	110	120
	110			95			110			110		
	110			100			115			100		
	110			100			110			100		
Average	110	108	112	96	102	102	110	112	117	102	100	112
STD	0	2	2	3	2	2	3	2	2	7	8	6
Coefficient of Variation	0	2	2	4	2	2	3	2	2	7	8	6
Range as % of Baseline	0			10			9			20		
% Change		-2	2		6	6		2	6		-2	10

SRA 10-21-97
Quality Review/Date

TABLE OF CHEMICAL COMPATIBILITY TEST RESULTS

Phosphorus Bearing Mixture of Phos Dock Effluent from the North Solids Tank and Northeast Sump

Report Date: July 25, 1997
Reissued: October 21, 1997

Exposure Time and Temperature

Test Parameters	30 Day Baseline	30 Day 23C	30 Day 50C	60 Day Baseline	60 Day 23C	60 Day 50C	90 Day Baseline	90 Day 23C	90 Day 50C	120 Day Baseline	120 Day 23C	120 Day 50C
GEOMEMBRANE: 30 mil PVC												
Indentation Hardness:	94	95	97	92	96	97	98	97	99	98	97	96
Reading	94	96	96	96	95	97	94	97	99	98	97	98
ASTM D2240	96	97	95	98	97	97	97	95	97	98	97	97
(with SHORE A DUROMETER)	96			95			97			99		
	98			96			96			98		
	95			97			95			99		
Average	95	96	96	96	96	97	96	96	98	98	97	96
STD	1	1	1	2	1	0	1	1	1	0	0	0
Coefficient of Variation	1	1	1	2	1	0	1	1	1	0	0	0
Range as % of Baseline	2			6			4			1		
% Change		1	1		0	1		0	2		-1	-2
Specific Gravity:	1.25	1.24	1.25	1.24	1.23	1.24	1.23	1.24	1.27	1.23	1.25	1.25
Specific Gravity (grams/cu.cm)	1.25	1.25	1.25	1.28	1.25	1.25	1.24	1.25	1.25	1.25	1.25	1.25
ASTM D792, Method A	1.25	1.24	1.25	1.25	1.27	1.25	1.24	1.24	1.24	1.25	1.24	1.24
Machine Direction	1.25			1.26			1.24			1.25		
	1.25			1.25			1.23			1.24		
	1.25			1.26			1.24			1.25		
Average	1.25	1.24	1.25	1.26	1.25	1.25	1.24	1.24	1.25	1.25	1.25	1.25
STD	0.00	0.01	0.00	0.01	0.02	0.00	0.00	0.00	0.01	0.01	0.00	0.00
Coefficient of Variation	0.00	0.46	0.00	0.99	1.31	0.38	0.38	0.38	1.00	0.61	0.38	0.38
Range as % of Baseline	0			3			1			2		
% Change		-0.53	0.00		-0.53	-0.80		0.54	1.35		0	0
Volatiles and Extractables:	-0.58	-0.25	-0.37	-0.26	-0.32	-0.15	-0.45	-0.24	-0.39	-0.34	-0.22	-0.31
Diameter Change (%)	-0.15	-0.25	-0.61	-0.22	-0.38	-0.27	-0.28	-0.26	-0.28	-0.27	-0.25	-0.27
SW 870 - Appendix III-D	-0.67			-0.37			-0.19			-0.31		
Machine Direction	-0.38			-0.08			-0.31			-0.25		
Average	-0.45	-0.25	-0.49	-0.23	-0.35	-0.21	-0.31	-0.25	-0.34	-0.29	-0.24	-0.29
STD	0.20	0.00	0.12	0.10	0.03	0.06	0.09	0.01	0.06	0.03	0.02	0.02
Volatiles and Extractables:	-0.45	0.50	0.05	0.11	0.33	0.17	0.05	0.15	0.21	0.07	0.12	0.21
Diameter Change (%)	0.28	0.48	0.30	-0.03	0.41	0.22	0.09	0.16	0.29	0.05	0.11	0.26
SW 870 - Appendix III-D	0.18			0.28			0.16			0.11		
Transverse Direction	0.23			0.14			0.01			0.08		
Average	0.06	0.49	0.18	0.13	0.37	0.20	0.08	0.16	0.25	0.08	0.12	0.24
STD	0.30	0.01	0.12	0.11	0.04	0.02	0.06	0.01	0.04	0.02	0.00	0.03

SZA 10·21·97
Quality Review/Date

TABLE OF CHEMICAL COMPATIBILITY TEST RESULTS

Phosphorus Bearing Mixture of Phos Dock Effluent from the North Solids Tank and Northeast Sump

Report Date: July 25, 1997
Reissued: October 21, 1997

Exposure Time and Temperature

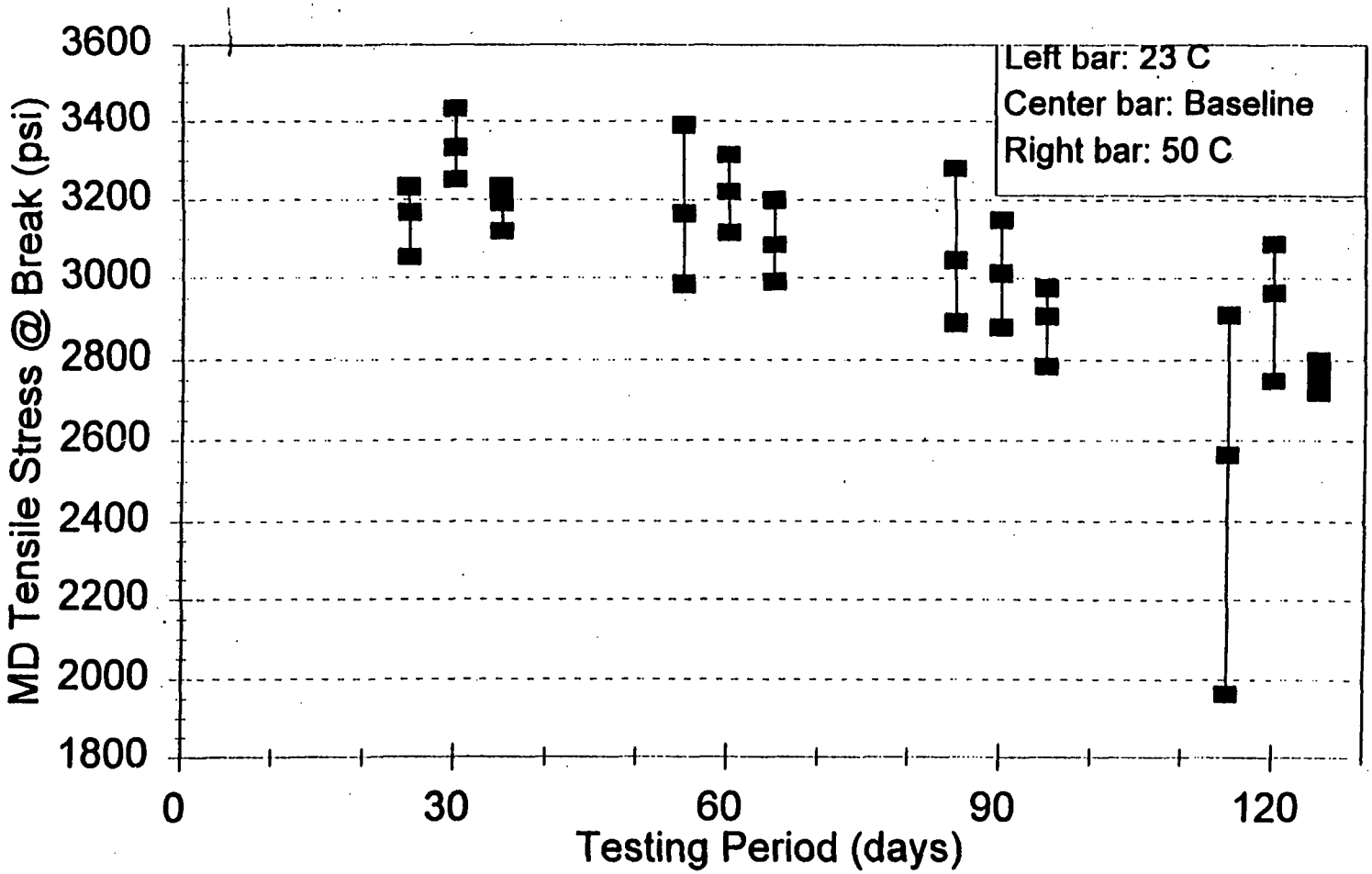
Test Parameters	30 Day Baseline	30 Day 23C	30 Day 50C	60 Day Baseline	60 Day 23C	60 Day 50C	90 Day Baseline	90 Day 23C	90 Day 50C	120 Day Baseline	120 Day 23C	120 Day 50C
GEOMEMBRANE: 30 mil PVC												
Volatiles and Extractables:	0.47	0.20	0.15	0.42	0.18	0.24	0.37	0.20	0.26	0.37	0.21	0.25
% Volatiles	0.26	0.15	0.18	0.44	0.23	0.30	0.29	0.12	0.23	0.28	0.18	0.24
SW 870 - Appendix III-D	0.32			0.36			0.33			0.34		
	0.31			0.48			0.28			0.29		
Average	0.34	0.18	0.17	0.43	0.21	0.27	0.32	0.16	0.25	0.32	0.20	0.25
STD	0.08	0.03	0.02	0.04	0.03	0.03	0.04	0.04	0.02	0.04	0.02	0.01
Volatiles and Extractables:	42.61	42.90	43.71	37.69	36.26	36.89	41.22	40.07	42.03	42.33	41.24	42.31
% Extractables	42.87	42.79	43.03	36.71	36.92	37.04	37.55	39.65	40.46	39.41	31.56	41.25
SW 870 - Appendix III-D	42.72			33.41			34.98			43.29		
	42.51			35.84			39.62			44.21		
Average	42.73	42.85	43.37	35.91	36.59	36.97	38.34	39.86	41.25	42.31	36.40	41.78
STD	0.14	0.05	0.34	1.59	0.33	0.07	2.34	0.21	0.79	1.80	4.84	0.53
Seam Shear Strength:	68	72	70	67	72	73	63	70	71	64	64	71
Seam Shear Strength (ppi)	63	68	65	71	70	73	65	69	69	65	63	69
ASTM D4437	65	71	75	76	71	75	65	70	70	64	63	70
	66			73			64			66		
	62			73			64			64		
	65			75			64			65		
Average	65	70	70	73	71	74	64	70	70	65	63	70
STD	2	2	5	3	1	1	1	0	1	1	0	1
Coefficient of Variation	3	3	7	4	1	1	1	1	1	1	1	1
Range as % of Baseline	9			12			3			3		
% Change		8	8		-2	2		9	9		-2	8

Note: Peel adhesion testing could not be performed due to lack of seam overlap

SRA 10-21-97
Quality Review/Date

FMC CORPORATION EPA METHOD 9090

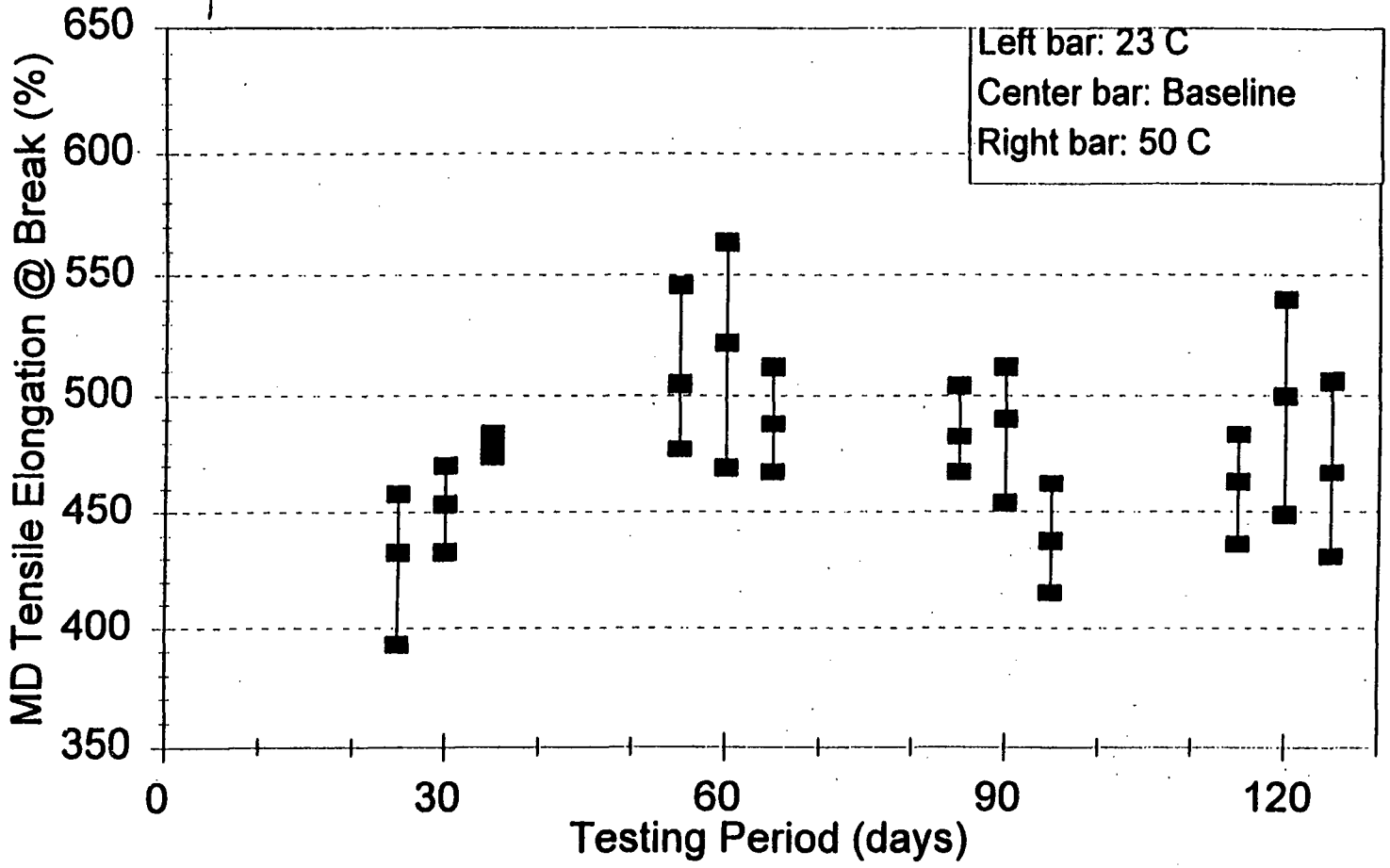
PVC GM vs Phos Dock Effluent



Client: FMC Corporation, File: 942-fmc PVC GM.wb1

FMC CORPORATION EPA METHOD 9090

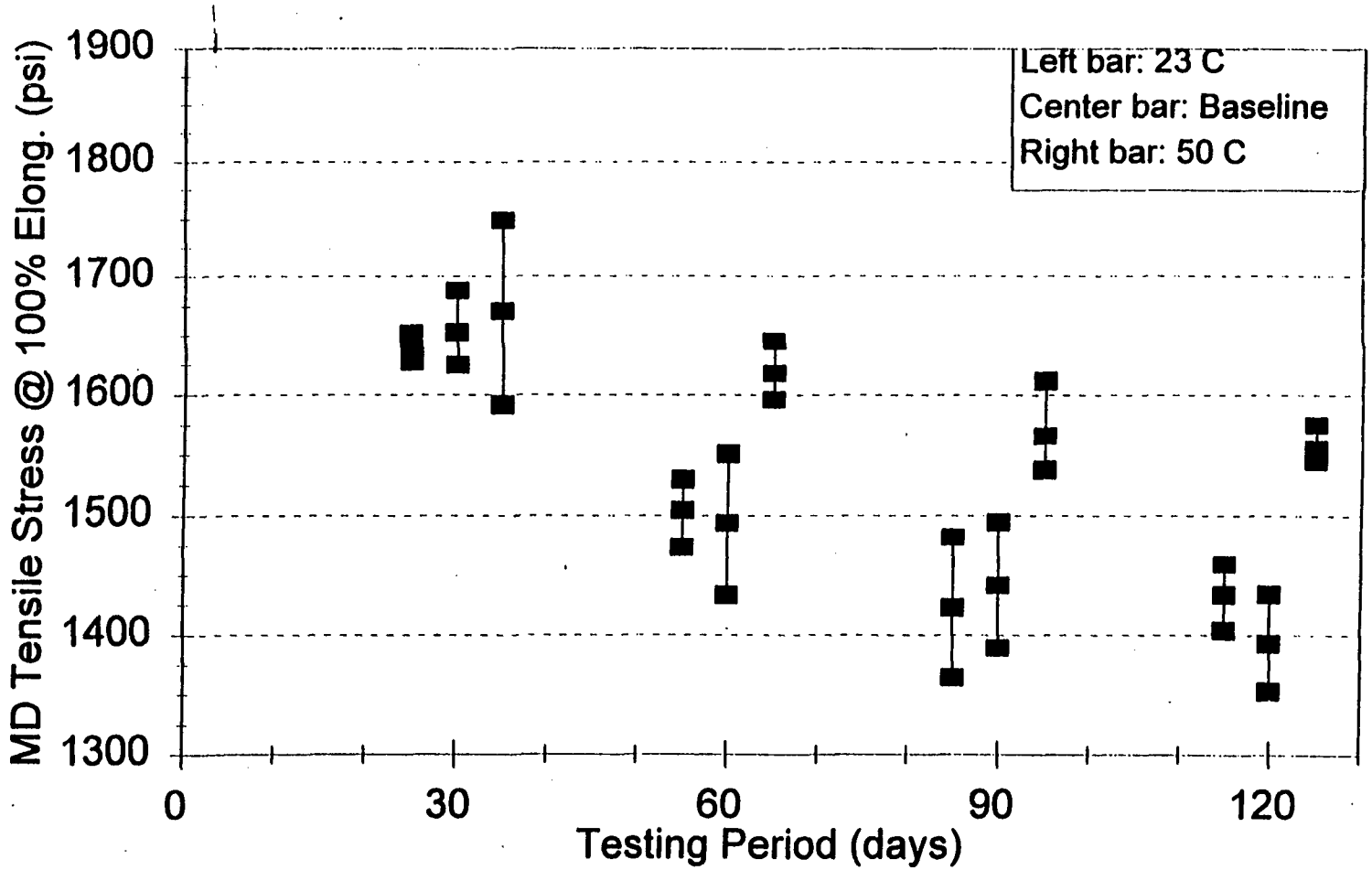
PVC GM vs Phos Dock Effluent



Client: FMC Corporation, File: 942-fmc PVC GM.wb1

FMC CORPORATION EPA METHOD 9090

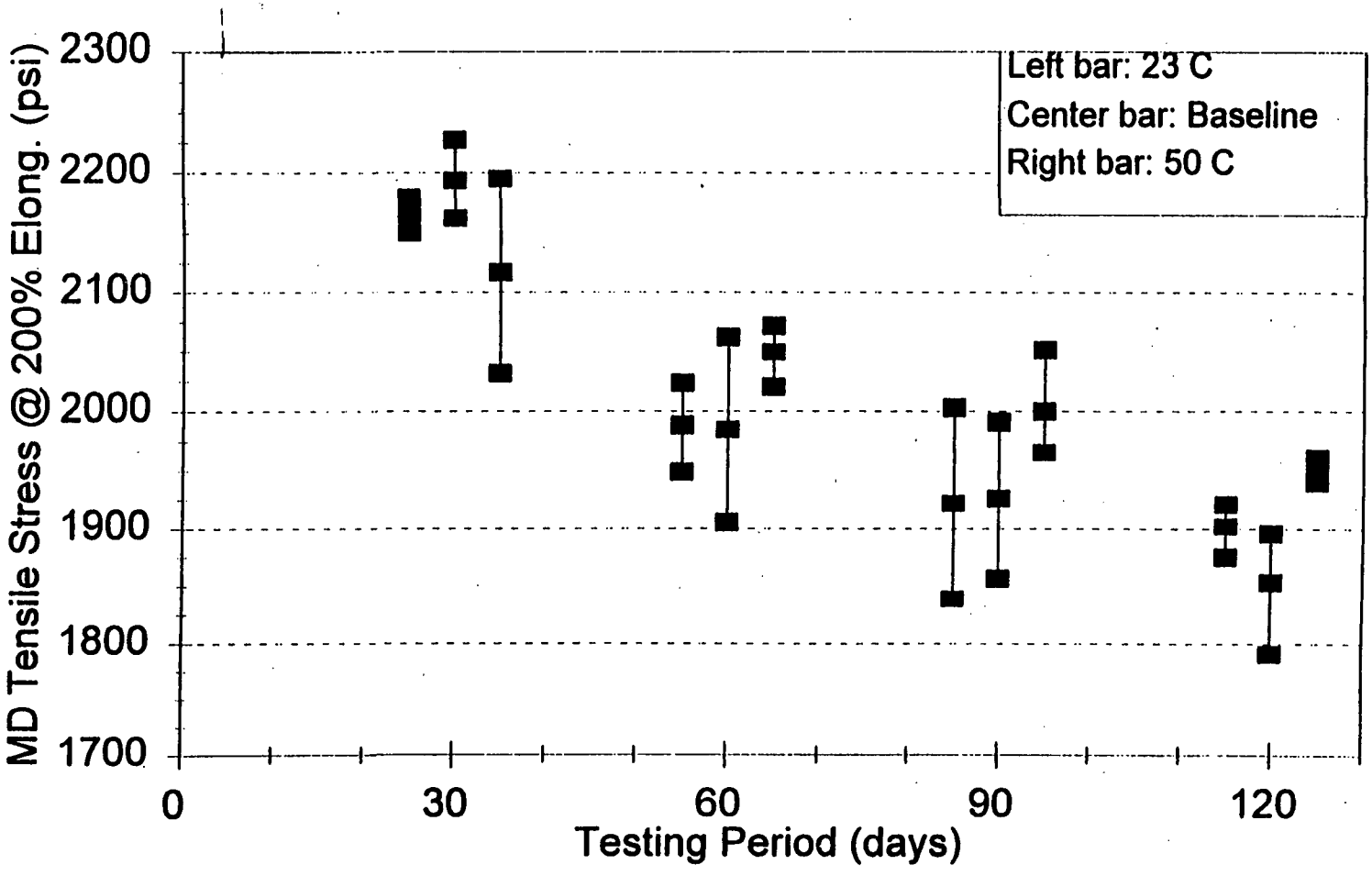
PVC GM vs Phos Dock Effluent



Client: FMC Corporation, File: 942-fmc PVC GM.wb1

FMC CORPORATION EPA METHOD 9090

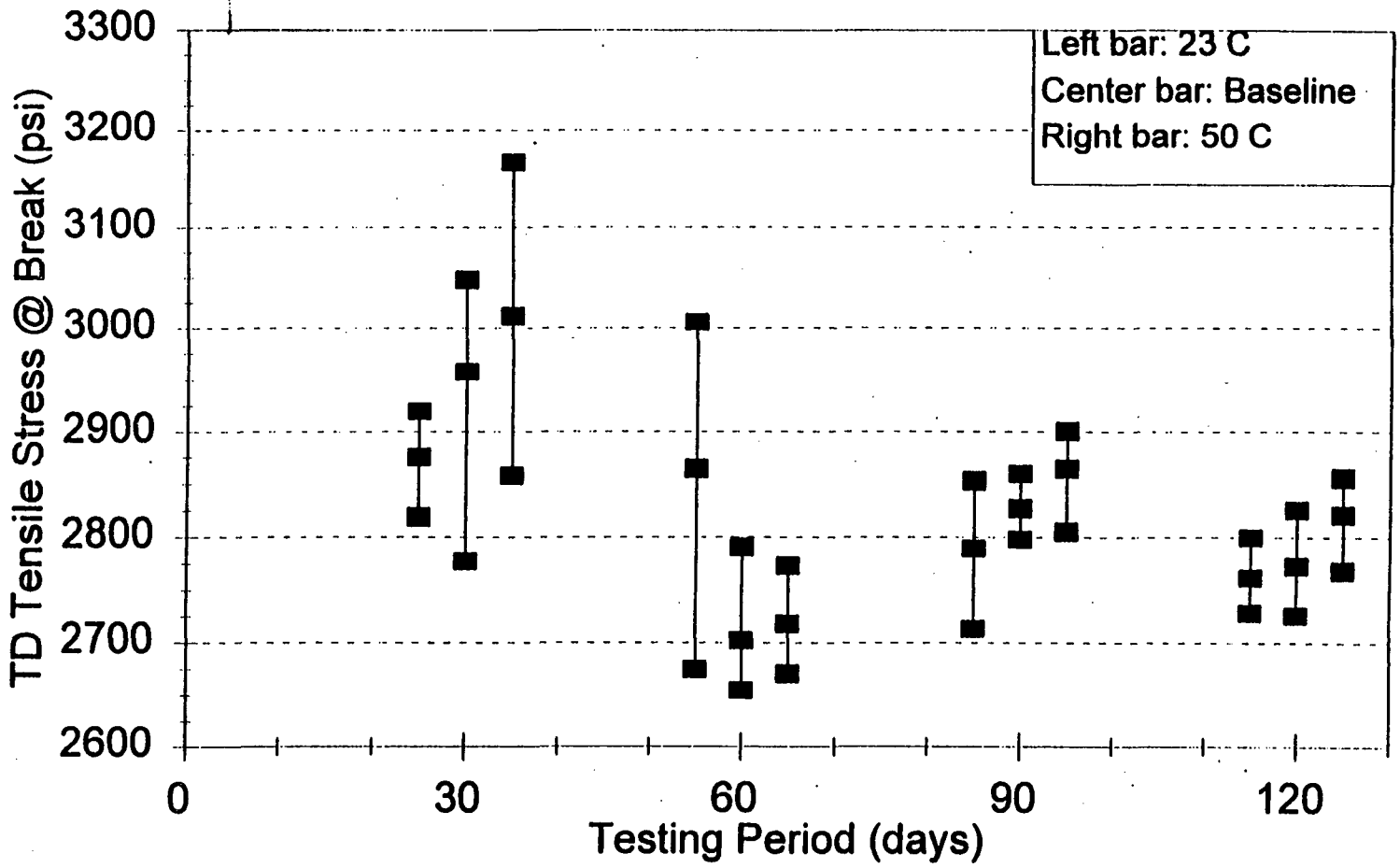
PVC GM vs Phos Dock Effluent



Client: FMC Corporation, File: 942-fmc PVC GM.wb1

FMC CORPORATION EPA METHOD 9090

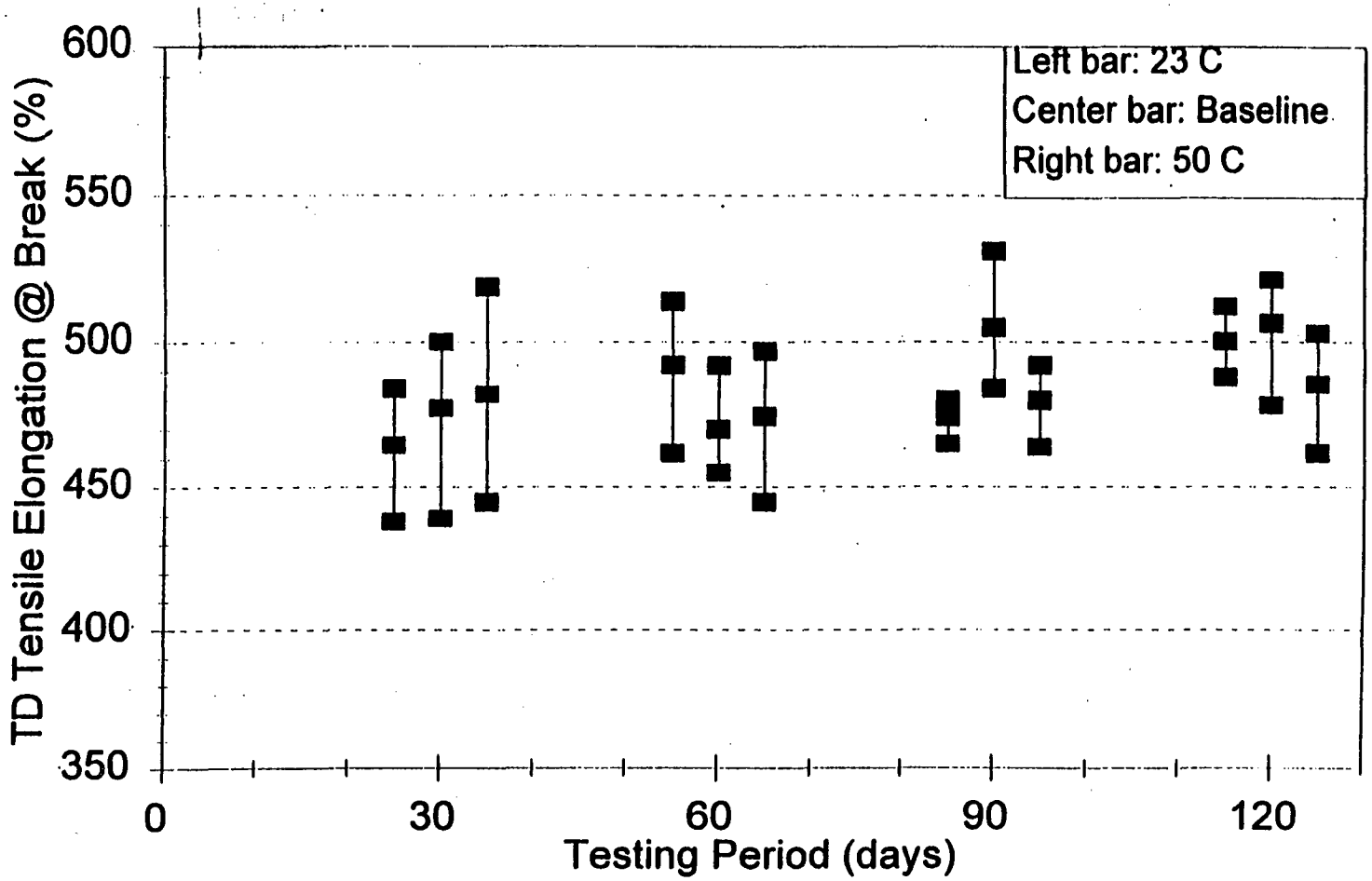
PVC GM vs Phos Dock Effluent



Client: FMC Corporation, File: 942-fmc PVC GM.wb1

FMC CORPORATION EPA METHOD 9090

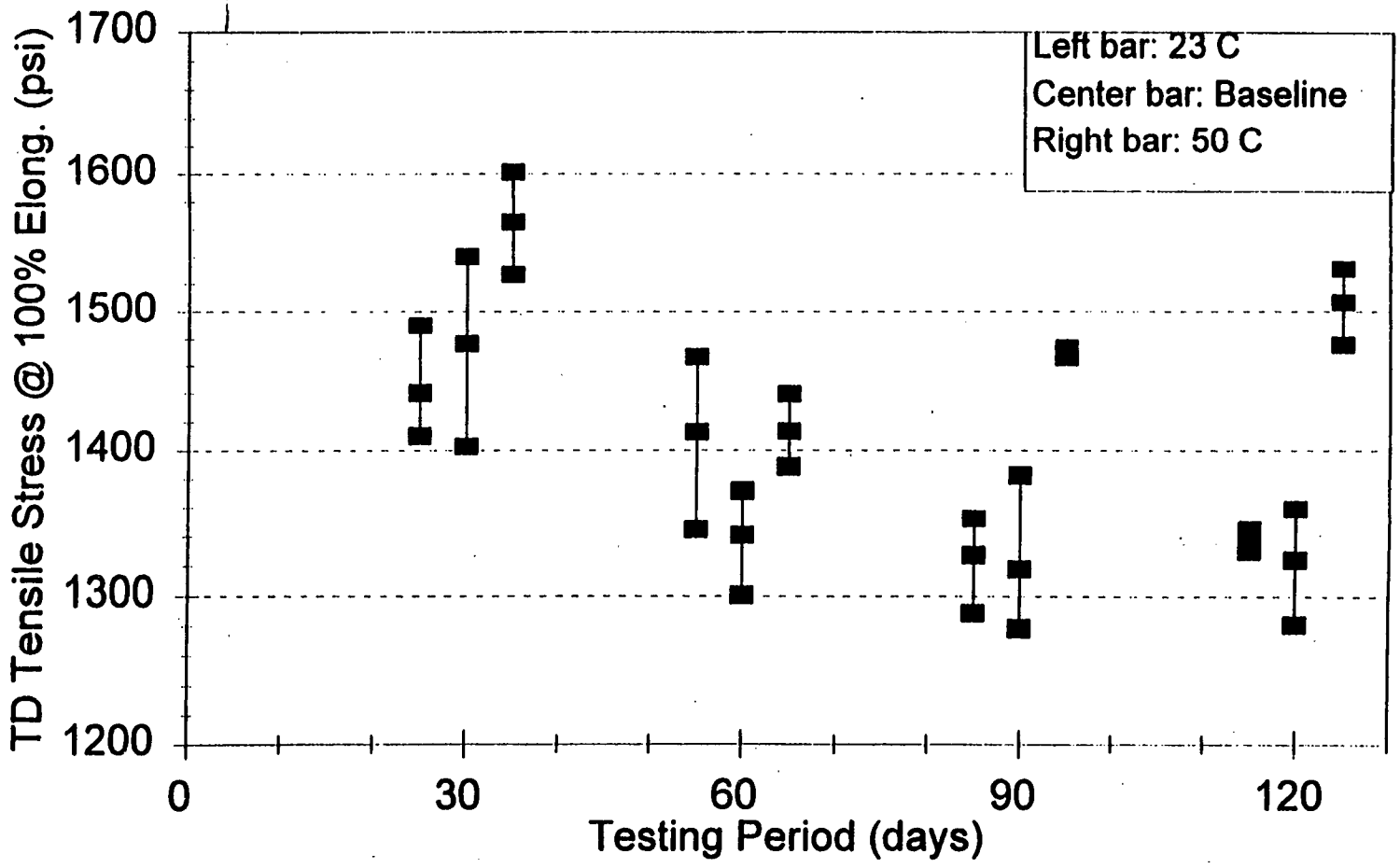
PVC GM vs Phos Dock Effluent



Client: FMC Corporation, File: 942-fmc PVC GM.wb1

FMC CORPORATION EPA METHOD 9090

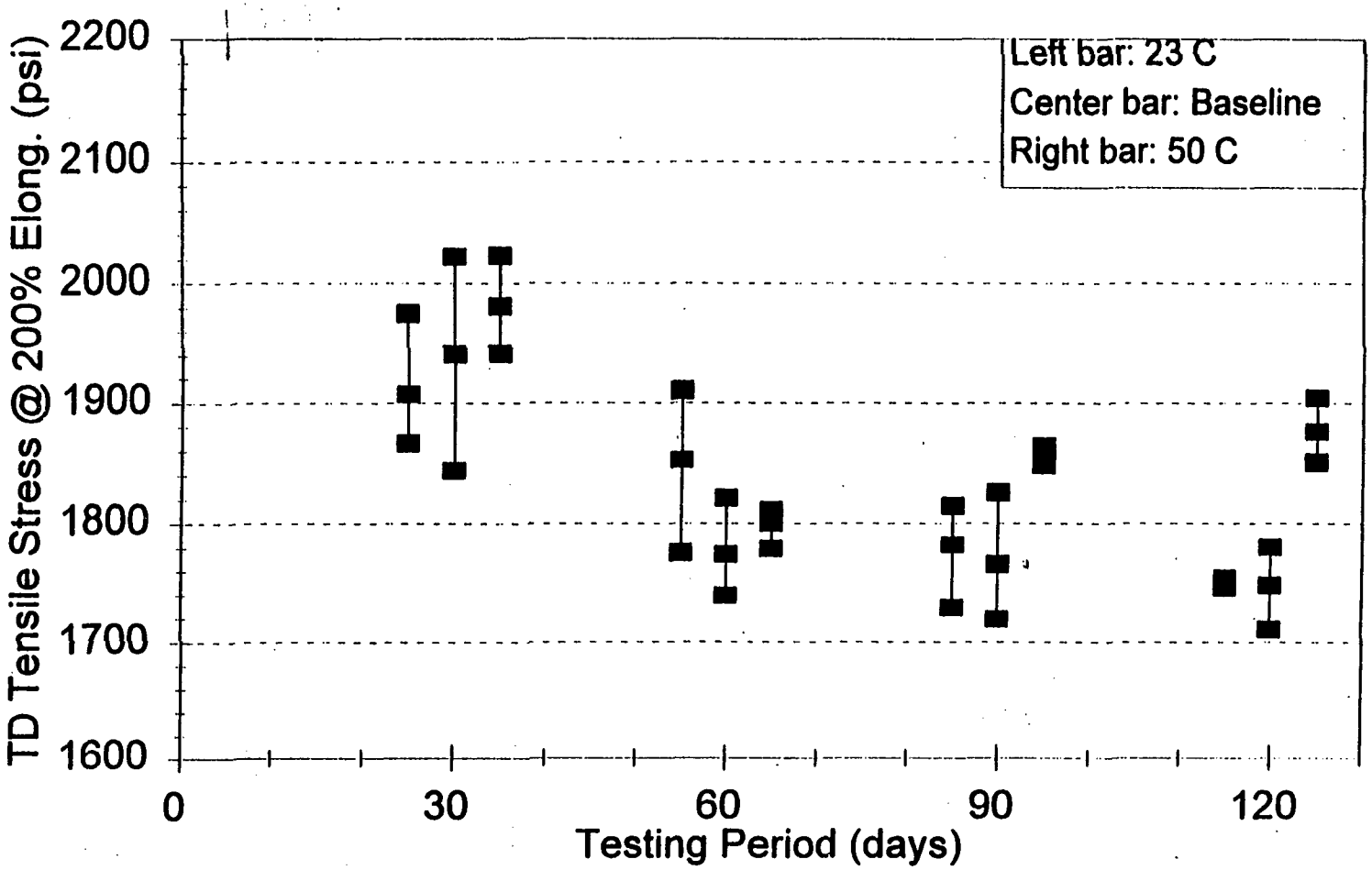
PVC GM vs Phos Dock Effluent



Client: FMC Corporation, File: 942-fmc PVC GM.wb1

FMC CORPORATION EPA METHOD 9090

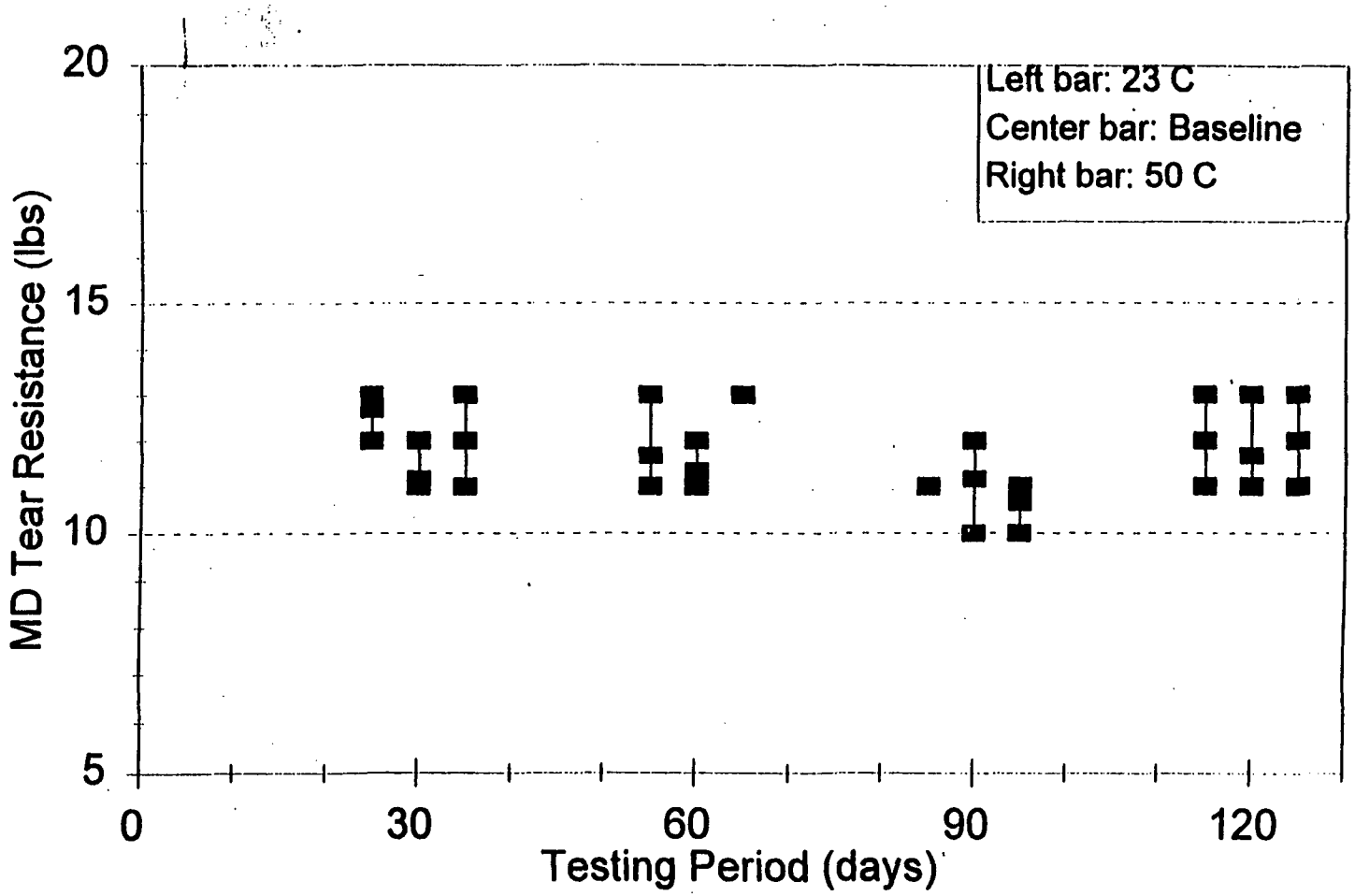
PVC GM vs Phos Dock Effluent



Client: FMC Corporation, File: 942-fmc PVC GM.wb1

FMC CORPORATION EPA METHOD 9090

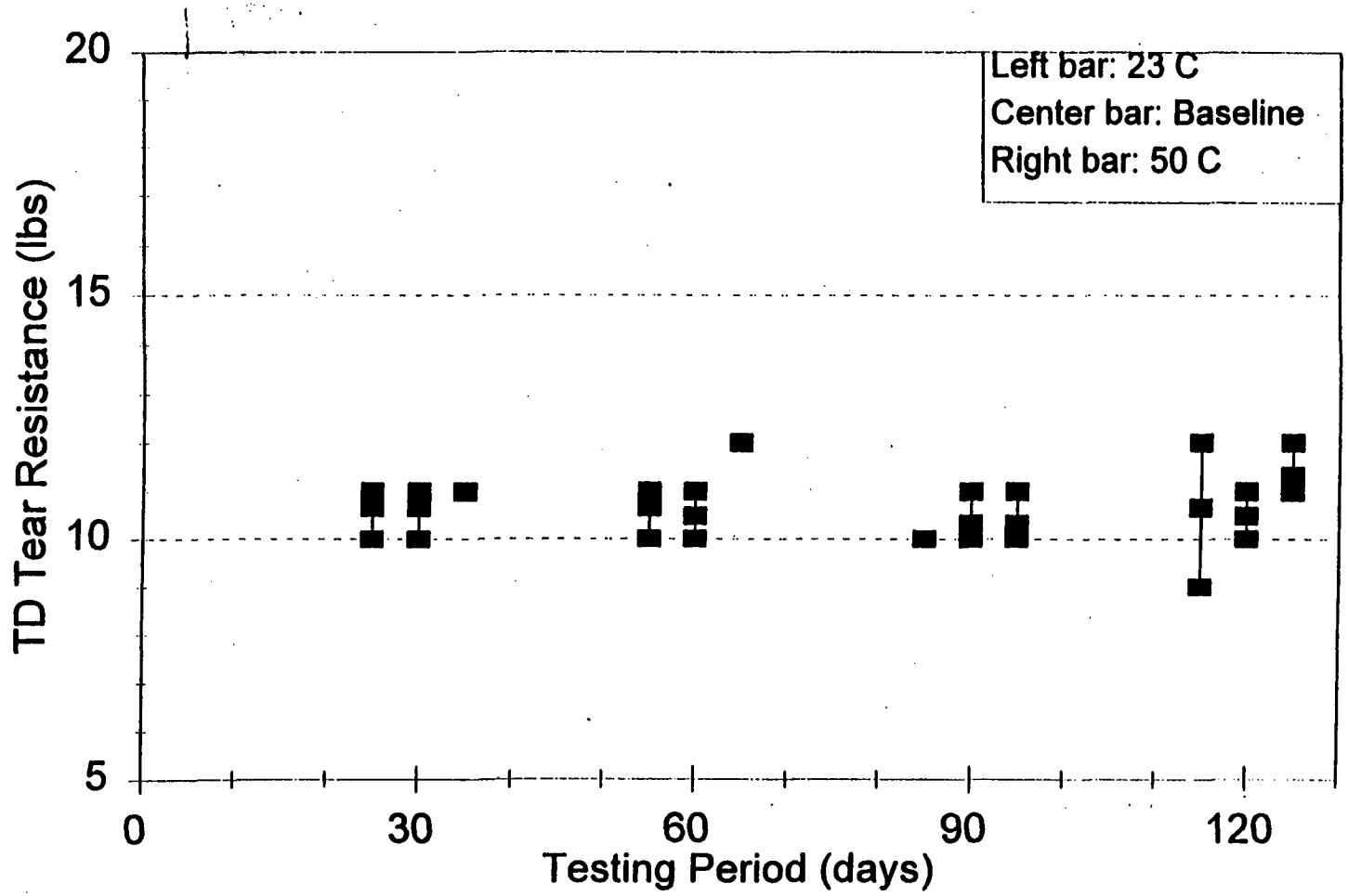
PVC GM vs Phos Dock Effluent



Client: FMC Corporation, File: 942-fmc PVC GM.wb1

FMC CORPORATION EPA METHOD 9090

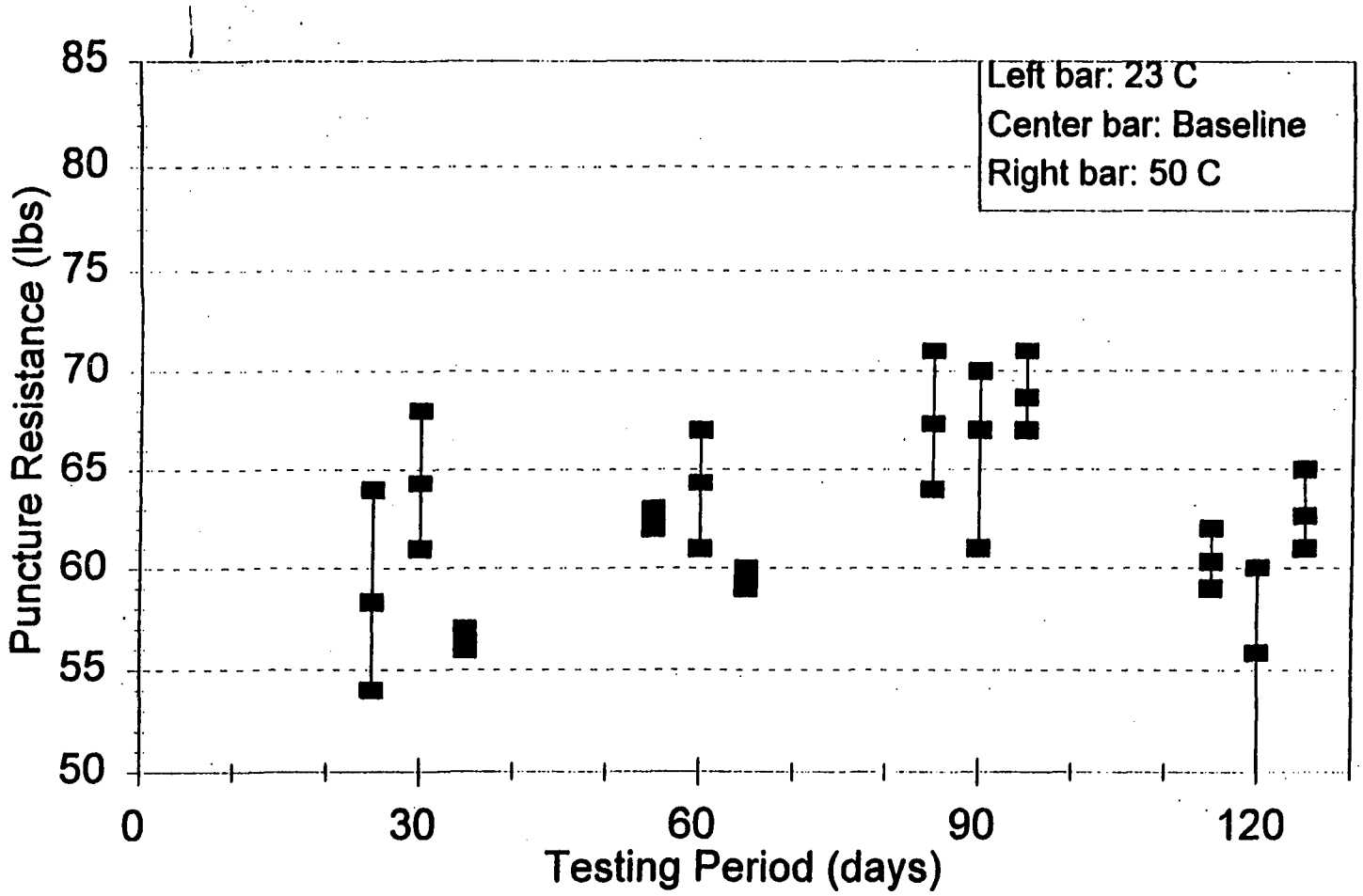
PVC GM vs Phos Dock Effluent



Client: FMC Corporation, File: 942-fmc PVC GM.wb1

FMC CORPORATION EPA METHOD 9090

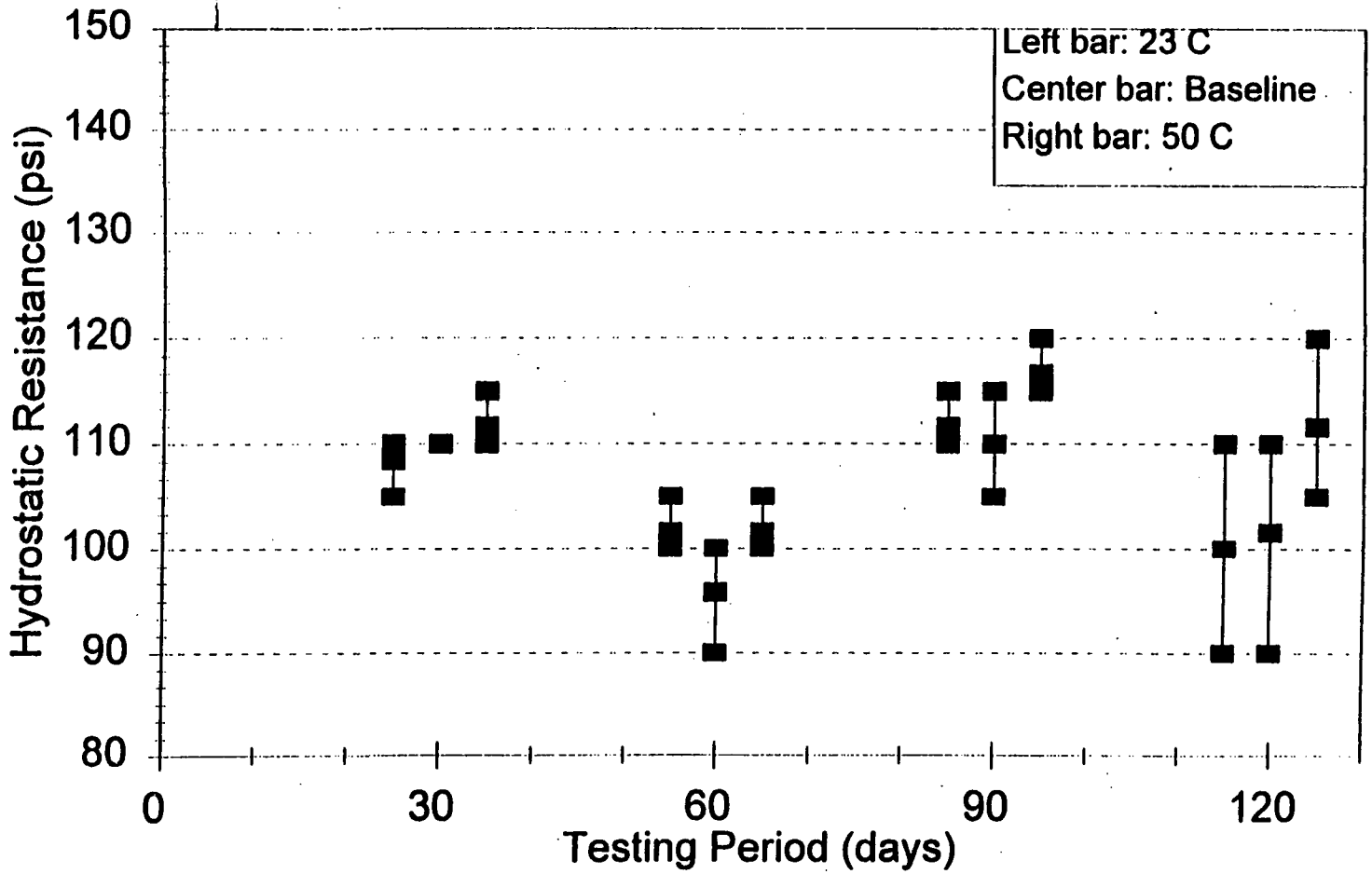
PVC GM vs Phos Dock Effluent



Client: FMC Corporation, File: 942-fmc PVC GM.wb1

FMC CORPORATION EPA METHOD 9090

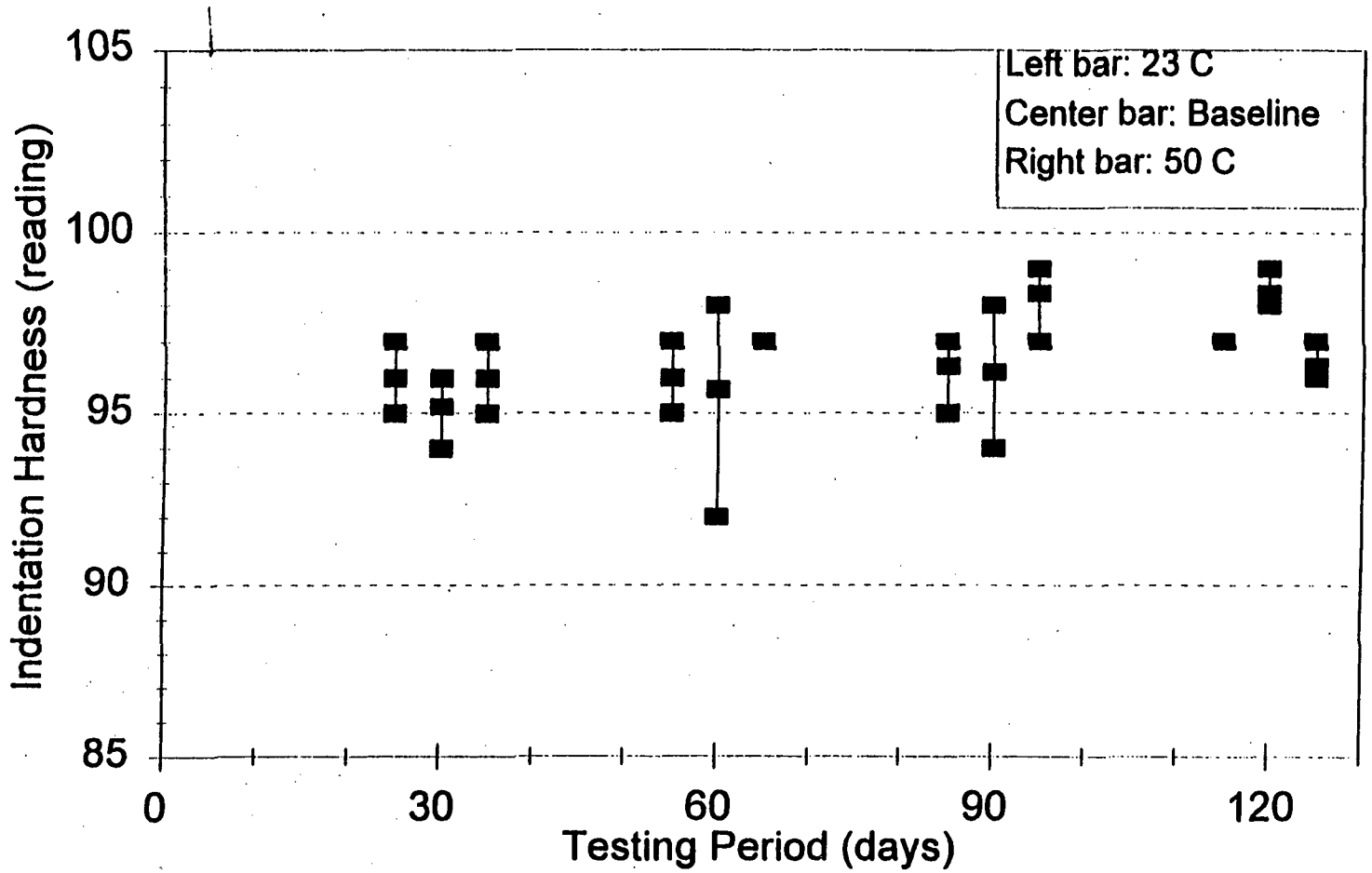
PVC GM vs Phos Dock Effluent



Client: FMC Corporation, File: 942-fmc PVC GM.wb1

FMC CORPORATION EPA METHOD 9090

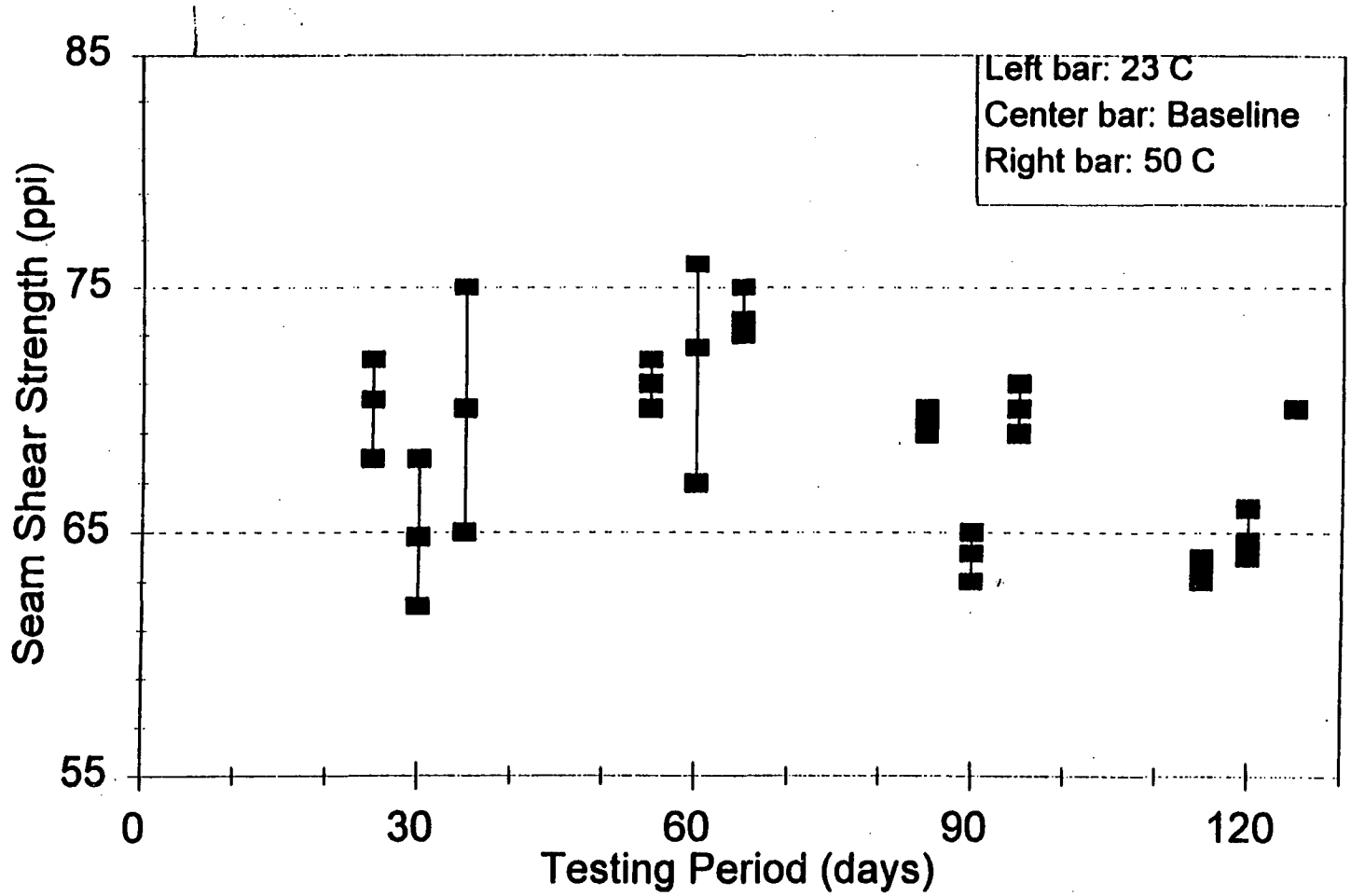
PVC Geomembrane vs Phos Dock Effluent



Client: FMC Corporation, File: 942-fmc PVC GM.wb1

FMC CORPORATION EPA METHOD 9090

PVC GM vs Phos Dock Effluent



Client: FMC Corporation, File: 942-fmc PVC GM.wb1

EPA METHOD 9090 TEST RESULTS

FMC CORPORATION - POCATELLO

HDPE GEONET

TABLE OF CHEMICAL COMPATIBILITY TEST RESULTS

Phosphorus Bearing Mixture of Phos Dock Effluent from the North Solids Tank and Northeast Sump

Report Date: July 25, 1997
Reissued: October 21, 1997

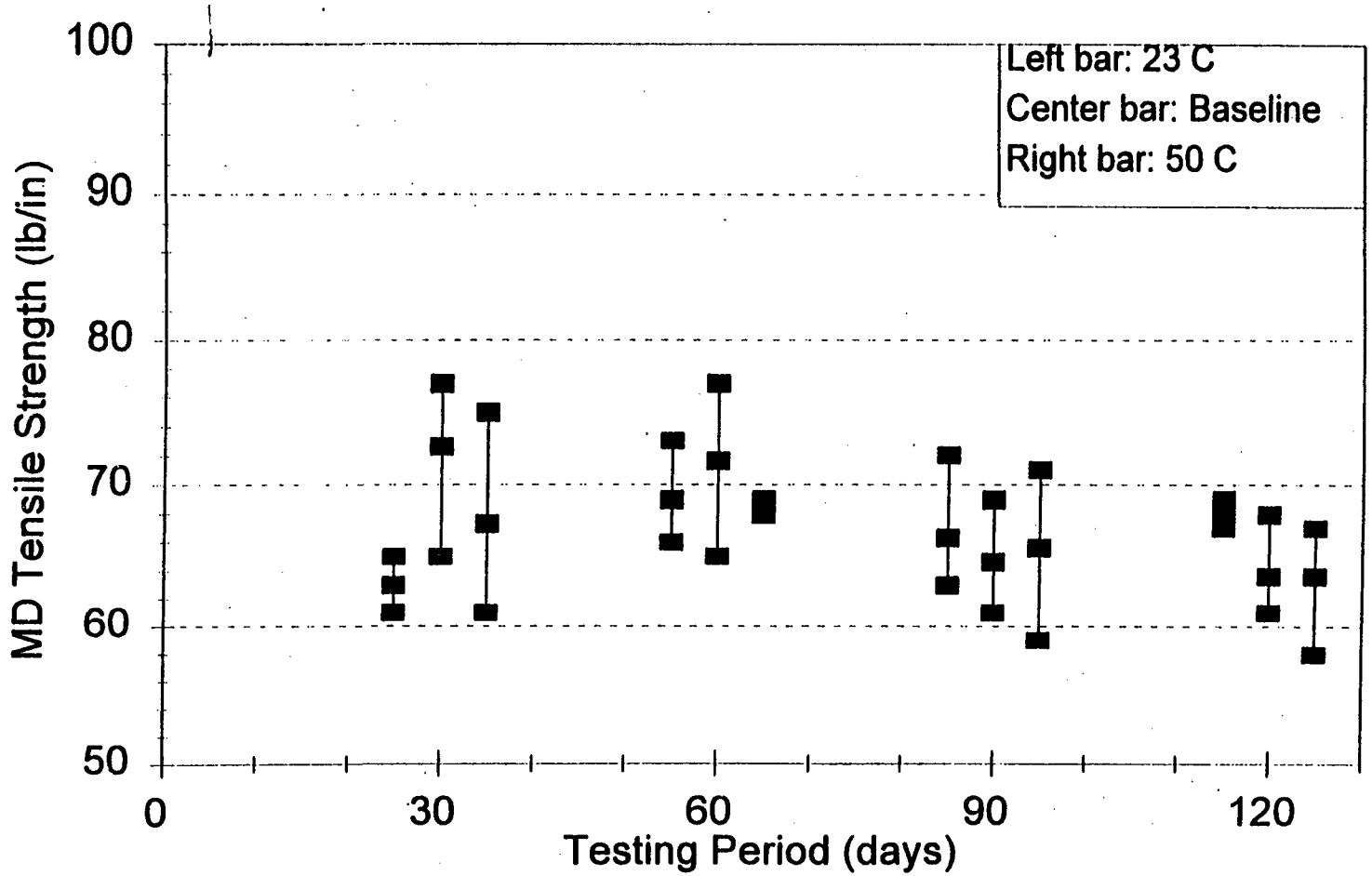
Exposure Time and Temperature

Test Parameters	30 Day Baseline	30 Day 23C	30 Day 50C	60 Day Baseline	60 Day 23C	60 Day 50C	90 Day Baseline	90 Day 23C	90 Day 50C	120 Day Baseline	120 Day 23C	120 Day 50C
GEONET: HDPE GEONET												
Tensile Properties:	77	65	61	77	68	68	61	64	59	68	68	58
Load at Break (lbs/in)	76	63	66	68	66	68	69	72	71	61	67	66
Machine Direction	74	61	75	69	73	69	64	63	67	64	69	67
ASTM D5035	65			75			62			65		
	71			76			63			63		
	73			65			69			61		
Average	73	63	67	72	69	68	65	66	66	64	68	64
STD	4	2	6	5	3	0	3	4	5	2	1	4
Coefficient of Variation	5	3	9	6	4	1	5	6	8	4	1	6
Range as % of Baseline	17			17			12			11		
% Change		-13	-7		-4	-5		3	2		7	0
Transmissivity:	N/A	N/A	N/A	1.70E-03	1.82E-03	1.83E-03	N/A	N/A	N/A	1.37E-03	1.49E-03	1.44E-03
ASTM D4716 (m2/sec)	N/A	N/A	N/A	1.63E-03	1.83E-03	1.81E-03	N/A	N/A	N/A	1.25E-03	1.37E-03	1.30E-03
Machine Direction	N/A	N/A	N/A	1.64E-03	1.83E-03	1.84E-03	N/A	N/A	N/A	1.19E-03	1.33E-03	1.28E-03
Hydraulic Gradient: 0.5	N/A			1.67E-03			N/A			1.47E-03		
Compressive Load: 1000 psf	N/A			1.63E-03			N/A			1.42E-03		
	N/A			1.64E-03			N/A			1.37E-03		
Average	0	0	0	1.65E-03	1.83E-03	1.83E-03	0	0	0	1.35E-03	1.40E-03	1.34E-03
STD	0	0	0	2.54E-05	4.71E-06	1.25E-05	0	0	0	9.62E-05	6.80E-05	7.12E-05
Coefficient of Variation	N/A	N/A	N/A	1.54E+00	2.58E-01	6.83E-01	N/A	N/A	N/A	7.15E+00	4.87E+00	5.31E+00
Range as % of Baseline	N/A	N/A	N/A	4			N/A	N/A	N/A	21		
% Change		N/A	N/A		11	11		N/A	N/A		4	-0

SRA 10-21-97
Quality Review/Date

FMC CORPORATION EPA METHOD 9090

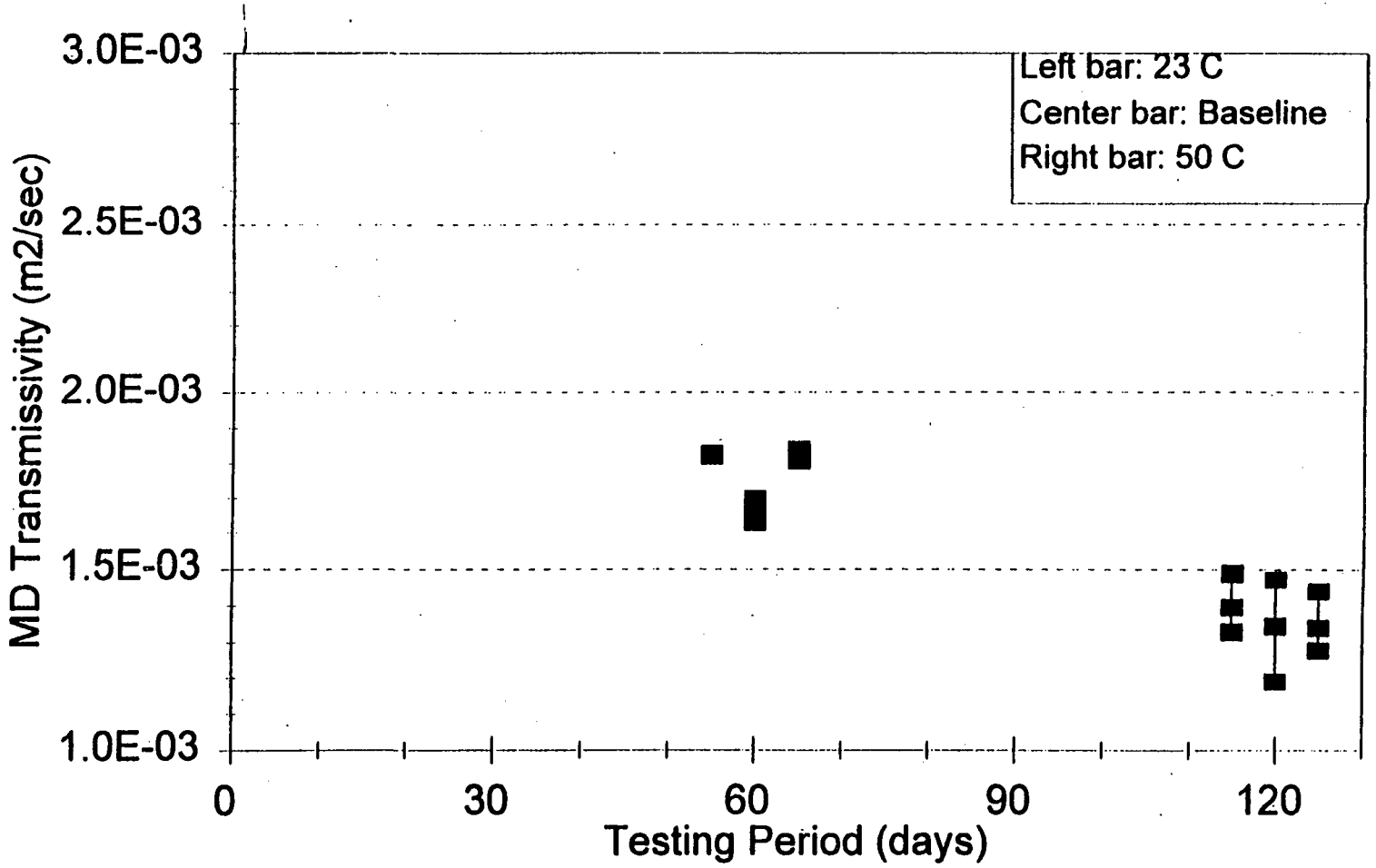
HDPE Geonet vs Phos Dock Effluent



Client: FMC Corporation, File: 942-net.wb1

FMC CORPORATION EPA METHOD 9090

HDPE Geonet vs Phos Dock Effluent



Client: FMC Corporation, File: 942-net.wb1

EPA METHOD 9090 TEST RESULTS

FMC CORPORATION - POCATELLO

HDPE GEOPIPE

TABLE OF CHEMICAL COMPATIBILITY TEST RESULTS

Phosphorus Bearing Mixture of Phos Dock Effluent from the North Solids Tank and Northeast Sump

Report Date: July 25, 1997
Reissued: October 21, 1997

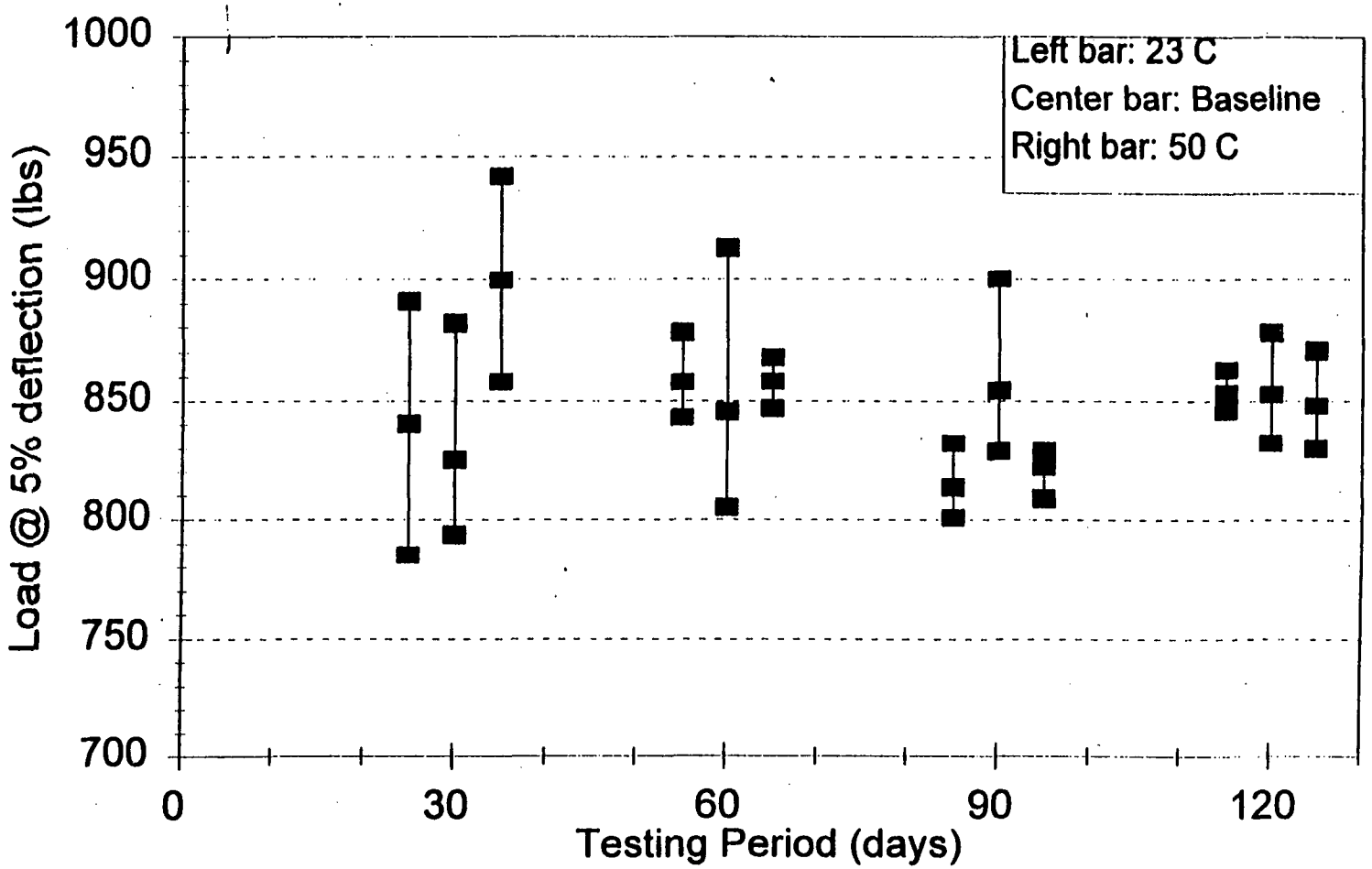
Exposure Time and Temperature

Test Parameters	30 Day Baseline	30 Day 23C	30 Day 50C	60 Day Baseline	60 Day 23C	60 Day 50C	90 Day Baseline	90 Day 23C	90 Day 50C	120 Day Baseline	120 Day 23C	120 Day 50C
GEONET: HDPE GEOPIPE												
Arc Bend Strength:	882	785	899	818	843	868	833	801	827	856	863	830
Load @ 5% deflection (lbs)	794	846	858	816	852	847	865	808	809	847	846	843
ASTM D 2412	822	891	942	879	878	859	839	832	829	832	851	871
	822			913			900			861		
	811			805			829			842		
	821			842			862			878		
Average	825	841	900	846	858	858	855	814	822	853	853	848
STD	27	43	34	39	15	9	24	13	9	15	7	17
Coefficient of Variation	3	5	4	5	2	1	3	2	1	2	1	2
Range as % of Baseline	11			13			8			5		
% Change		2	9		1	1		-5	-4		0	-1
Arc Bend Strength:	792	685	802	750	749	768	740	708	740	752	765	738
Load @ 10% deflection (lbs)	692	745	760	723	754	743	766	710	718	748	748	749
ASTM D 2412	723	798	832	781	780	762	739	733	734	759	758	769
Hydraulic Gradient: 0.5	726			810			796			789		
Compressive Load: 1000 psf	711			707			737			781		
	721			748			775			764		
Average	728	743	798	753	761	758	759	717	731	766	757	752
STD	31	46	30	34	14	11	22	11	9	15	7	13
Coefficient of Variation	4	6	4	5	2	1	3	2	1	2	1	2
Range as % of Baseline	14			14			8			5		
% Change		2	10		1	1		-6	-4		-1	-2

524 10-21-97
Quality Review/Date

FMC CORPORATION EPA METHOD 9090

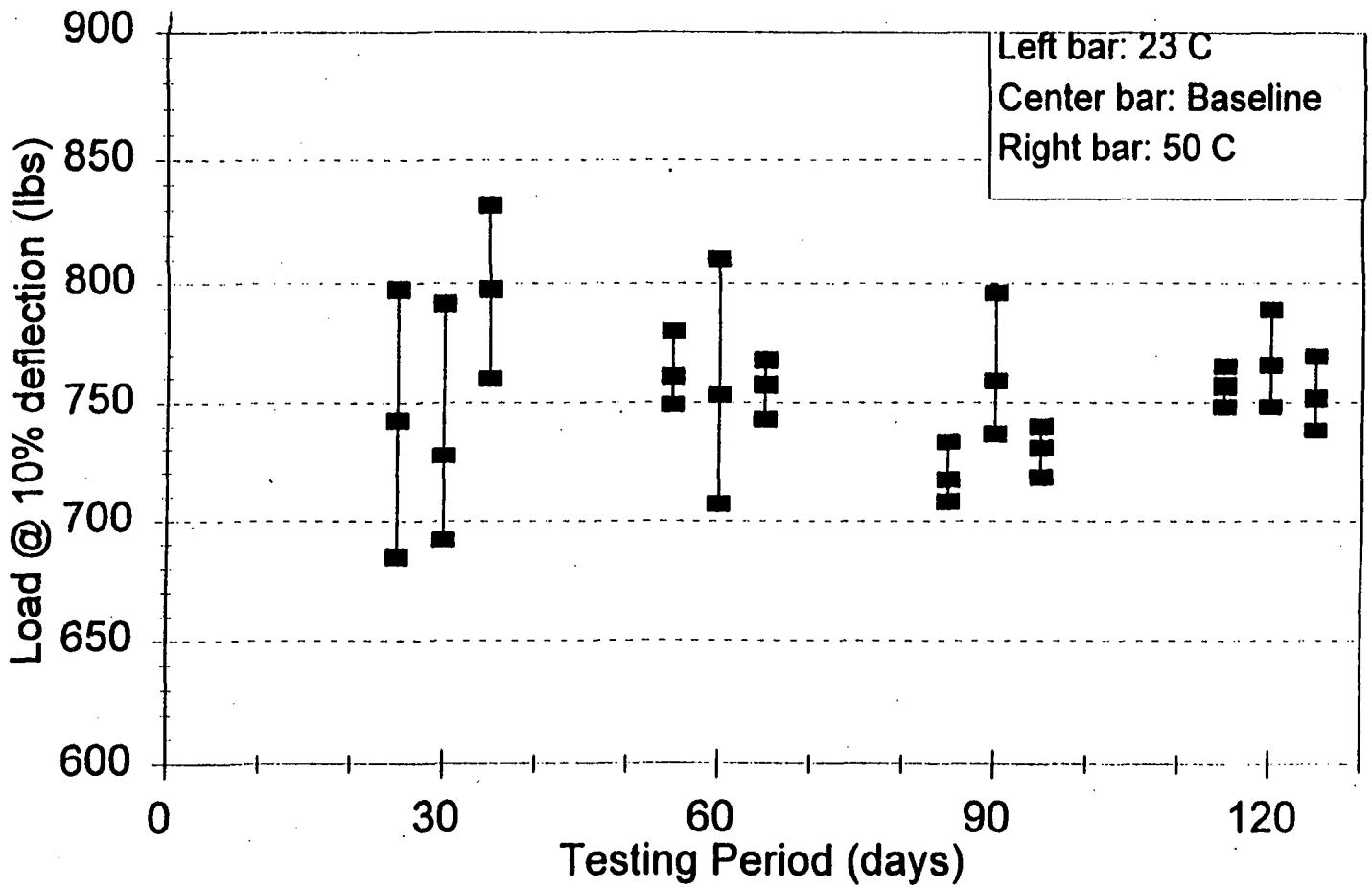
HDPE Geopipe vs Phos Dock Effluent



Client: FMC Corporation, File: 942-pipe.wb1

FMC CORPORATION EPA METHOD 9090

HDPE Geopipe vs Phos Dock Effluent



Client: FMC Corporation, File: 942-pipe.wb1

EPA METHOD 9090 TEST RESULTS

FMC CORPORATION - POCATELLO

WOVEN GEOTEXTILE COMPONENT - BENTOFIX GCL

TABLE OF CHEMICAL COMPATIBILITY TEST RESULTS

Phosphorus Bearing Mixture of Phos Dock Effluent from the North Solids Tank and Northeast Sump

Report Date: July 25, 1997
Reissued: October 21, 1997

Exposure Time and Temperature

Test Parameters	30 Day Baseline	30 Day 23C	30 Day 50C	60 Day Baseline	60 Day 23C	60 Day 50C	90 Day Baseline	90 Day 23C	90 Day 50C	120 Day Baseline	120 Day 23C	120 Day 50C
GEOTEXTILE: Bentofix GCL - woven textile component												
Grab Tensile Properties:	149	141	145	144	146	149	137	146	148	140	145	147
Maximum Strength (lbs)	132	150	137	138	143	141	129	147	145	149	136	150
ASTM D4632	150	145	140	144	152	151	142	150	150	152	138	153
Machine Direction	146	136	147	158	153	151	136	158	143	135	153	157
	131	147	143	139	153	165	133	150	126	161	146	145
	147			136			128			142		
	137			130			150			143		
	142			147			131			154		
	140			149			131			146		
	145			154			149			130		
Average	142	144	142	144	149	151	137	150	142	145	144	150
STD	6	5	4	8	4	8	8	4	9	9	6	4
Coefficient of Variation	5	3	2	6	3	5	6	3	6	6	4	3
Range as % of Baseline	13			19			16			21		
% Change		1	0		4	5		10	4		-1	4
Grab Tensile Properties:	21	19	24	21	19	21	19	19	21	17	18	18
Elongation @ Max. Strength (%)	17	19	18	21	19	19	16	23	23	20	18	18
ASTM D4632	18	19	17	20	19	23	17	21	19	22	18	20
Machine Direction	20	18	19	21	20	21	20	21	26	20	20	19
	21	15	18	21	23	25	25	24	22	21	19	18
	12			21			29			19		
	16			18			19			20		
	19			19			18			21		
	18			19			16			19		
	19			21			21			18		
Average	18	18	19	20	20	22	20	22	22	20	19	19
STD	3	2	2	1	2	2	4	2	2	1	1	1
Coefficient of Variation	14	9	13	5	8	9	20	8	10	7	4	4
Range as % of Baseline	50			15			65			25		
% Change		-1	6		-1	8		8	11		-6	-6
Tear Resistance:	71	72	88	80	90	75	72	85	64	73	76	96
Trapezoidal Tear Strength (lbs)	86	67	78	85	79	79	80	81	71	75	74	64
ASTM D4533	79	74	90	92	77	85	81	61	86	73	84	84
Machine Direction	73	73	85	74	68	79	86	70	79	83	90	75
	78	75	81	79	88	94	91	85	96	79	83	88
	68			67			79			83		
	80			67			102			75		
	74			87			84			81		
	68			84			86			79		
	65			81			76			73		
Average	74	72	84	80	80	82	84	76	79	77	81	81
STD	6	3	4	8	8	7	8	9	11	4	6	11
Coefficient of Variation	8	4	5	10	10	8	10	12	14	5	7	14
Range as % of Baseline	28			31			36			13		
% Change		-3	14		1	4		-9	-5		5	5

SRA 10-21-97
Quality Review/Date

TABLE OF CHEMICAL COMPATIBILITY TEST RESULTS

Phosphorus Bearing Mixture of Phos Dock Effluent from the North Solids Tank and Northeast Sump

Report Date: July 25, 1997
Reissued: October 21, 1997

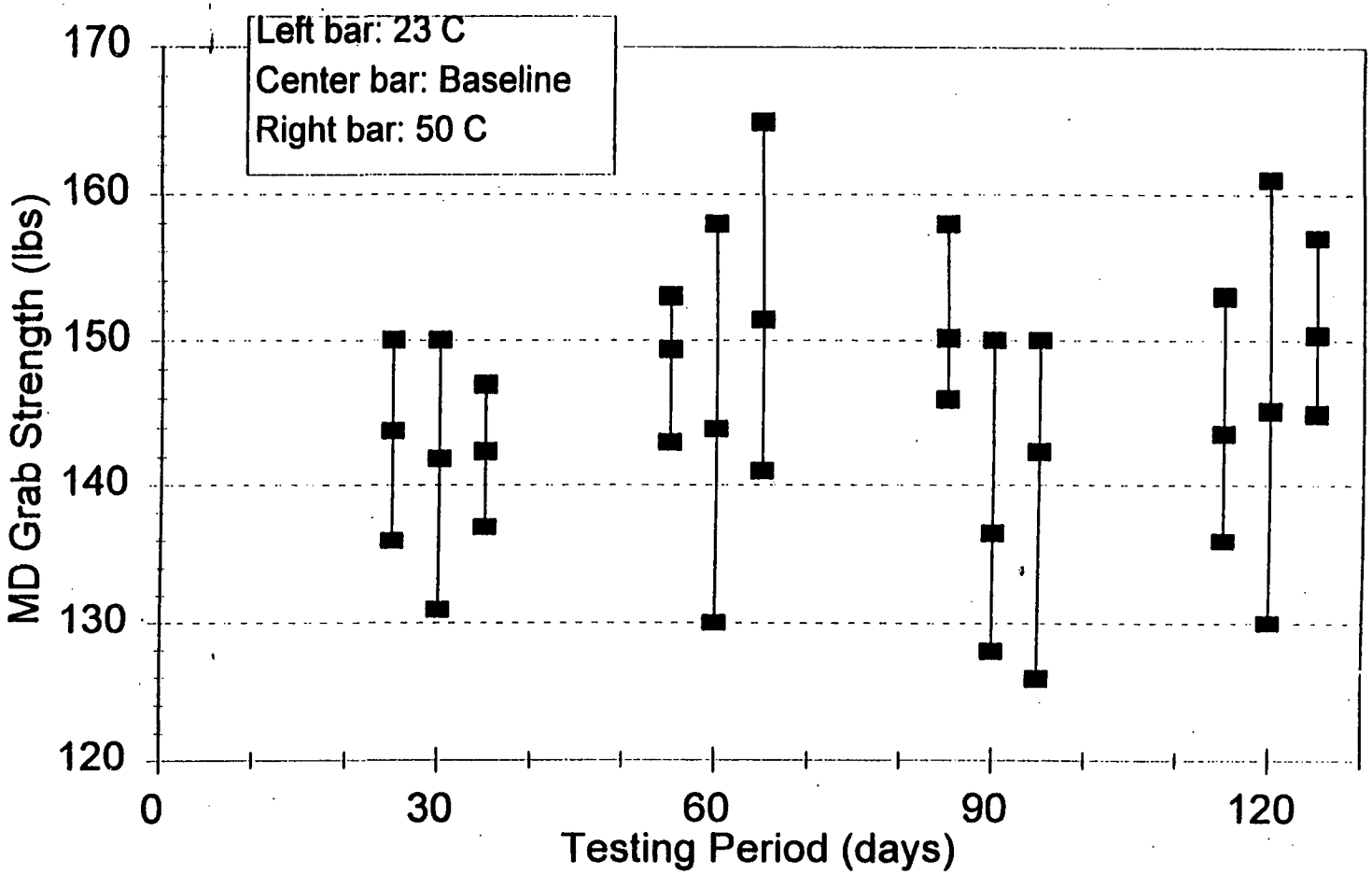
Exposure Time and Temperature

Test Parameters	30 Day Baseline	30 Day 23C	30 Day 50C	60 Day Baseline	60 Day 23C	60 Day 50C	90 Day Baseline	90 Day 23C	90 Day 50C	120 Day Baseline	120 Day 23C	120 Day 50C
GEOTEXTILE: Bentofix GCL - woven textile component												
Puncture Resistance:	143	155	179	128	149	152	129	164	165	134	135	145
Load @ Rupture (lb)	140	117	198	148	155	148	132	146	121	134	148	148
ASTM D4833	123	116	181	165	137	154	132	148	158	124	133	153
	132	106	229	125	134	162	137	141	145	131	163	140
	145	147	145	149	157	152	134	134	153	125		
	121			131			144			142		
	126			146			143			130		
	117			143			110			143		
	138			132			118			149		
	157			146			114			134		
Average	134	128	186	141	146	154	129	147	148	135	145	147
STD	12	19	27	12	9	5	11	10	15	8	12	5
Coefficient of Variation	9	15	15	8	6	3	9	7	10	6	8	3
Range as % of Baseline	30			28			26			19		
% Change		-4	39		4	9		13	15		8	9
Mullen Burst Strength:	540	560	525	450	475	460	435	550	455	425	465	425
Burst Strength (psi)	430	510	475	465	485	545	470	410	470	445	435	430
ASTM D3786	460	450	525	540	460	435	455	455	370	425	430	450
	405	505	475	415	480	480	460	490	460	430	455	425
	485	500	470	450	445	460	450	410	495	430	435	454
	530			460			430			425		
	430			460			455			420		
	405			450			420			415		
	525			520			445			435		
	430			490			470			465		
Average	464	505	494	470	469	476	449	463	450	432	444	437
STD	50	35	25	35	15	37	16	53	42	14	14	13
Coefficient of Variation	11	7	5	7	3	8	4	11	9	3	3	3
Range as % of Baseline	29			27			11			12		
% Change		9	6		-0	1		3	0		3	1
Permittivity:	0.040	0.070	0.050	0.050	0.060	0.070	0.055	0.055	0.060	0.060	0.070	0.075
(sec -1)	0.040	0.060	0.060	0.050	0.060	0.050	0.055	0.055	0.060	0.055	0.065	0.080
ASTM D4491	0.030	0.060	0.060	0.030	0.050	0.050	0.055	0.050	0.065	0.045	0.065	0.075
	0.050	0.060	0.070	0.040	0.050	0.040	0.060	0.045	0.050	0.050	0.085	0.070
	0.040	0.070	0.070	0.040	0.050	0.060	0.060	0.050	0.055	0.055	0.080	0.055
	0.040			0.040			0.045			0.055		
	0.050			0.030			0.055			0.065		
	0.050			0.050			0.060			0.060		
	0.060			0.040			0.060			0.060		
	0.050			0.030			0.065			0.065		
Average	0.045	0.064	0.062	0.040	0.054	0.054	0.057	0.051	0.058	0	0	0
STD	0.008	0.005	0.007	0.008	0.005	0.010	0.005	0.004	0.005	0	0	0
Coefficient of Variation	18	8	12	19	9	19	9	7	9	11	11	12
Range as % of Baseline	67			50			35			35		
% Change		42	38		35	35		-11	2		28	25

SRA 10-21-97
Quality Review/Date

FMC CORPORATION EPA METHOD 9090

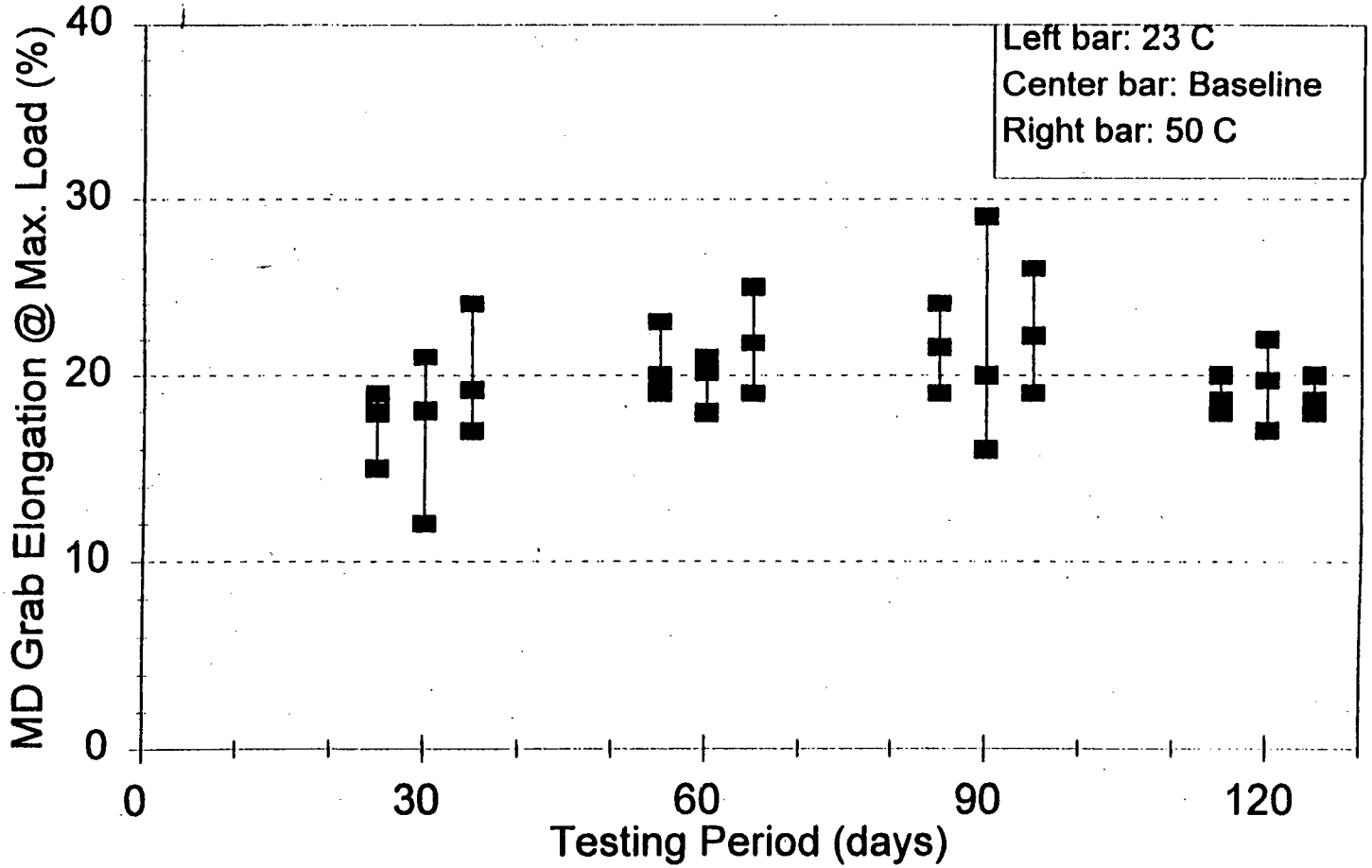
GCL (WV GT) vs Phos Dock Effluent



Client: FMC Corporation, File: 942textw.wb1

FMC CORPORATION EPA METHOD 9090

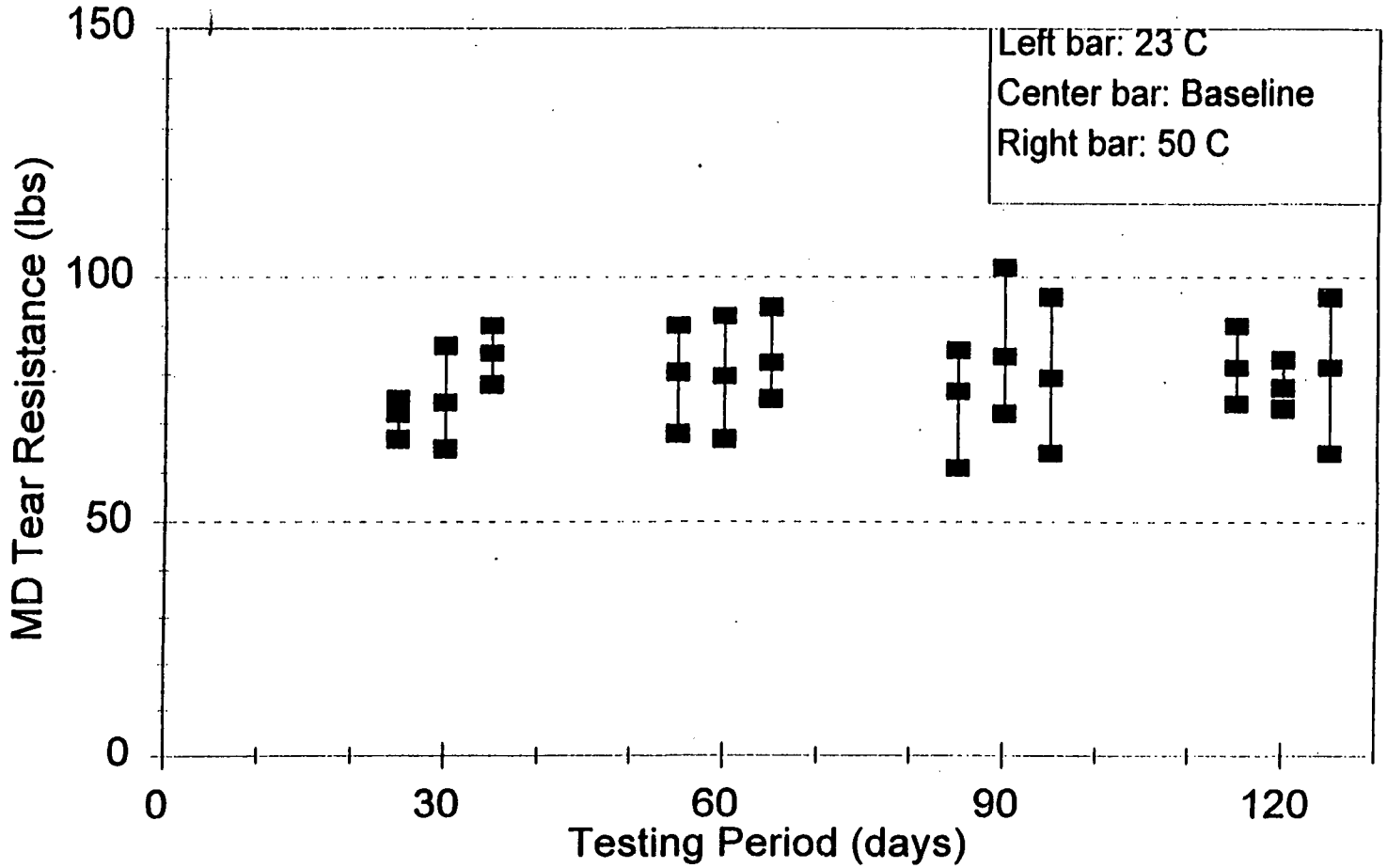
GCL (WV GT) vs Phos Dock Effluent



Client: FMC Corporation, File: 942textw.wb1

FMC CORPORATION EPA METHOD 9090

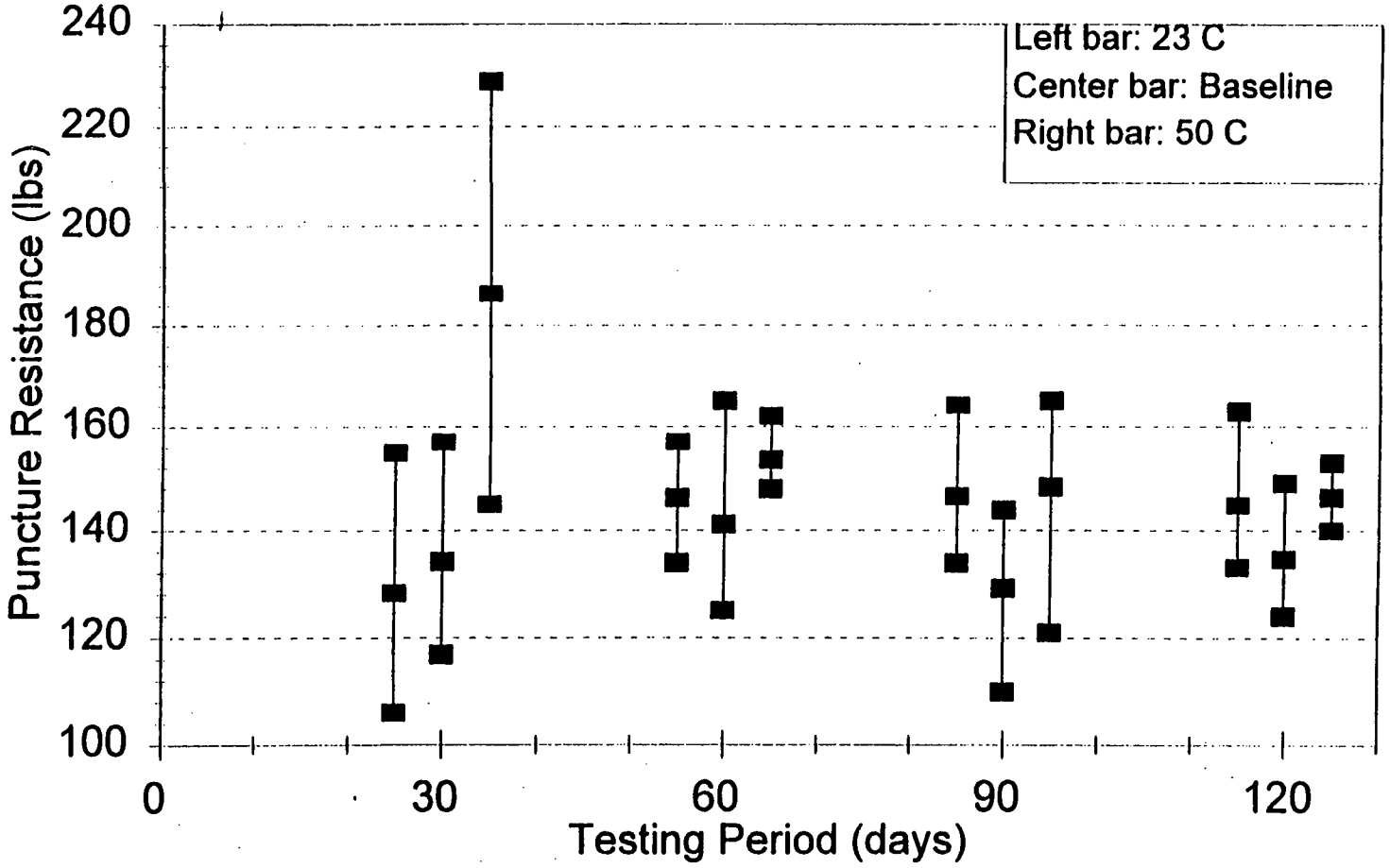
GCL (WV GT) vs Phos Dock Effluent



Client: FMC Corporation, File: 942textw.wb1

FMC CORPORATION EPA METHOD 9090

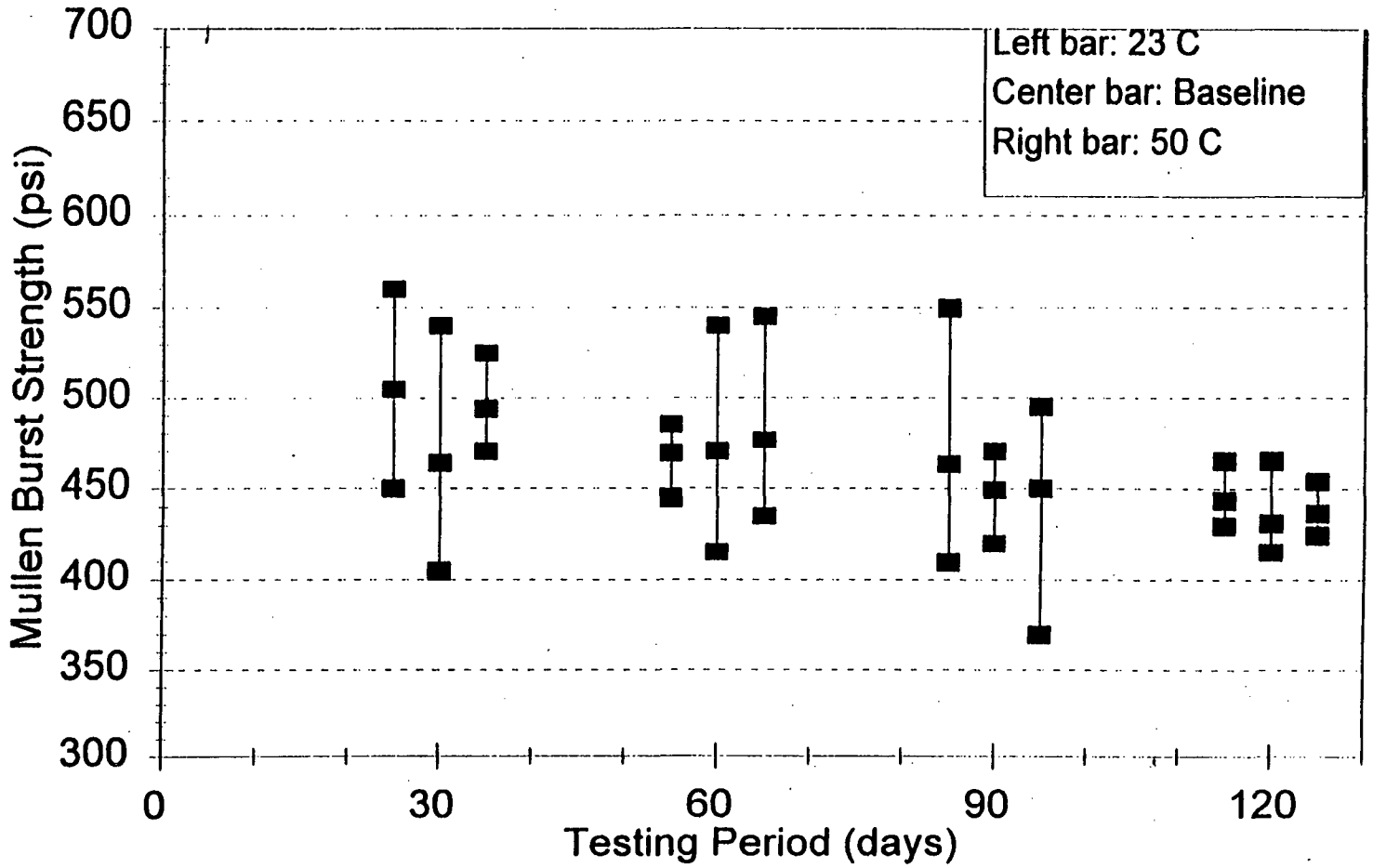
GCL (WV GT) vs Phos Dock Effluent



Client: FMC Corporation, File: 942textw.wb1

FMC CORPORATION EPA METHOD 9090

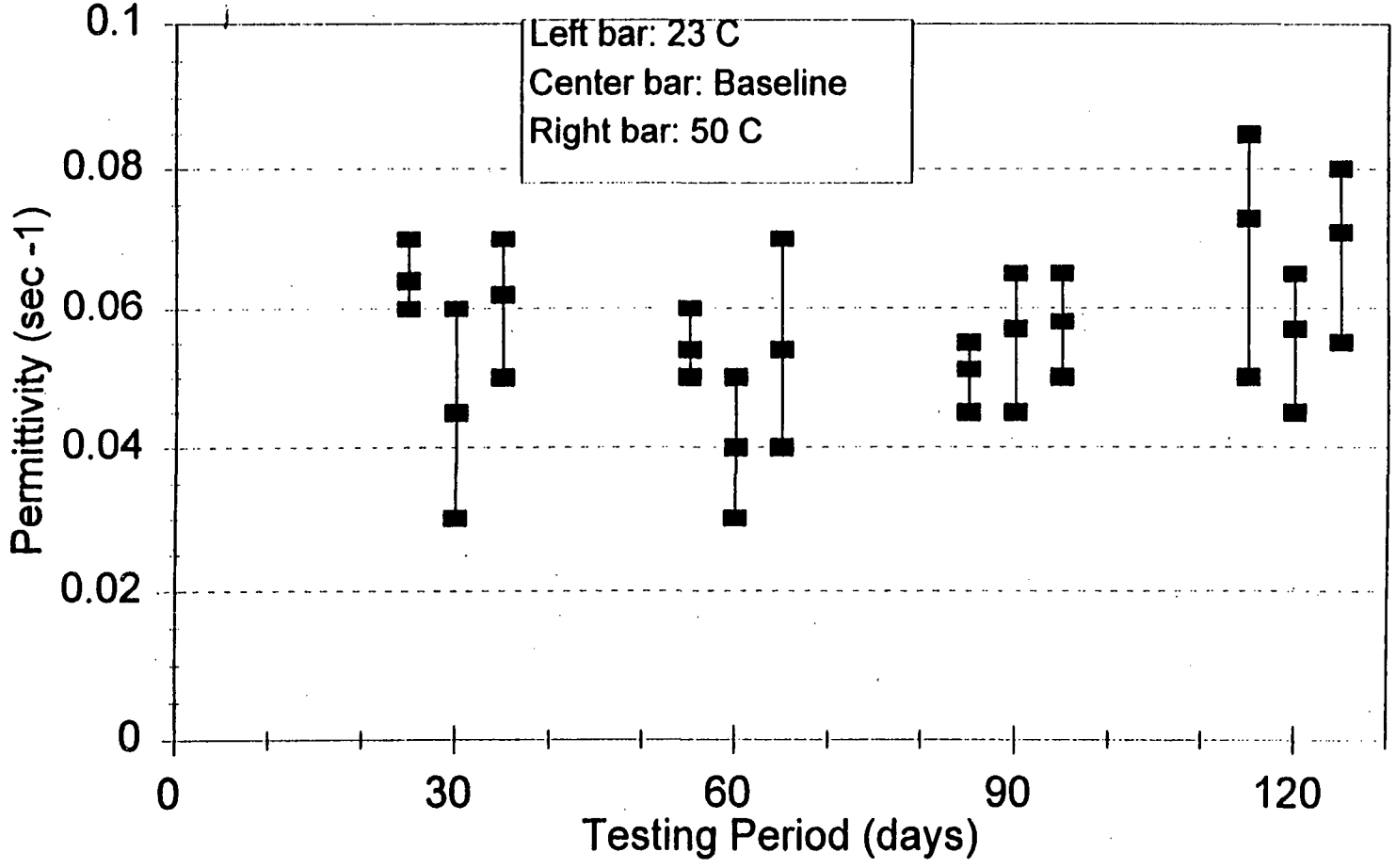
GCL (WV GT) vs Phos Dock Effluent



Client: FMC Corporation, File: 942textw.wb1

FMC CORPORATION EPA METHOD 9090

GCL (WV GT) vs Phos Dock Effluent



Client: FMC Corporation, File: 942textw.wb1

EPA METHOD 9090 TEST RESULTS

FMC CORPORATION - POCATELLO

NONWOVEN GEOTEXTILE COMPONENT - BENTOFIX GCL

TABLE OF CHEMICAL COMPATIBILITY TEST RESULTS

Phosphorus Bearing Mixture of Phos Dock Effluent from the North Solids Tank and Northeast Sump

Report Date: July 25, 1997
Reissued: October 21, 1997

Exposure Time and Temperature

Test Parameters	30 Day Baseline	30 Day 23C	30 Day 50C	60 Day Baseline	60 Day 23C	60 Day 50C	90 Day Baseline	90 Day 23C	90 Day 50C	120 Day Baseline	120 Day 23C	120 Day 50C
GEOTEXTILE: Bentofix GCL -nonwoven textile component												
Grab Tensile Properties:	74	63	86	65	69	76	56	64	81	94	83	91
Maximum Strength (lbs)	68	69	85	87	68	79	72	88	71	74	117	88
ASTM D4632	71	74	88	85	72	76	64	101	65	61	79	92
Machine Direction	72	61	70	66	74	75	85	88	64	74	88	106
	90	65	72	69	87	70	83	87	72	67	109	85
	74			74			98			61		
	72			75			81			77		
	71			66			77			85		
	92			65			53			73		
	80			67			61			71		
Average	76	66	80	72	74	75	73	86	71	74	95	92
STD	8	5	8	8	7	3	14	12	6	10	15	7
Coefficient of Variation	10	7	9	11	9	4	19	14	9	13	16	8
Range as % of Baseline	31			31			62			45		
% Change		-13	5		3	5		17	-3		29	25
Grab Tensile Properties:	194	196	188	201	205	209	179	175	291	220	207	177
Elongation @ Max. Strength (%)	192	181	208	198	203	209	177	210	212	215	208	221
ASTM D4632	206	189	211	195	207	208	224	191	249	209	199	187
Machine Direction	195	198	211	173	202	218	215	210	204	229	201	202
	192	184	209	205	205	213	208	196	225	196	217	184
	196			205			270			224		
	202			203			219			193		
	198			191			269			209		
	202			187			213			215		
	199			201			204			198		
Average	198	190	205	196	204	211	218	196	236	211	206	194
STD	4	7	9	9	2	4	30	13	31	12	6	16
Coefficient of Variation	2	3	4	5	1	2	14	7	13	5	3	8
Range as % of Baseline	7			16			43			17		
% Change		-4	4		4	8		-10	8		-2	-8
Tear Resistance:	33	25	35	32	49	36	29	21	28	34	46	41
Trapezoidal Tear Strength (lbs)	28	24	37	26	32	33	30	30	42	43	40	44
ASTM D4533	38	33	37	31	32	30	29	24	34	37	46	47
Machine Direction	30	38	37	27	27	34	20	19	26	24	45	44
	35	47	31	33	34	30	31	20	24	26	32	37
	33			34			31			32		
	34			34			27			31		
	29			28			25			38		
	34			34			25			41		
	35			34			27			43		
Average	33	33	35	31	35	33	27	23	31	35	42	43
STD	3	9	2	3	7	2	3	4	7	6	5	3
Coefficient of Variation	9	26	7	10	21	7	12	17	21	18	13	8
Range as % of Baseline	30			26			40			54		
% Change		2	8		11	4		-17	12		20	22

SRA 10-21-97
Quality Review/Date

TABLE OF CHEMICAL COMPATIBILITY TEST RESULTS

Phosphorus Bearing Mixture of Phos Dock Effluent from the North Solids Tank and Northeast Sump

Report Date: July 25, 1997
Reissued: October 21, 1997

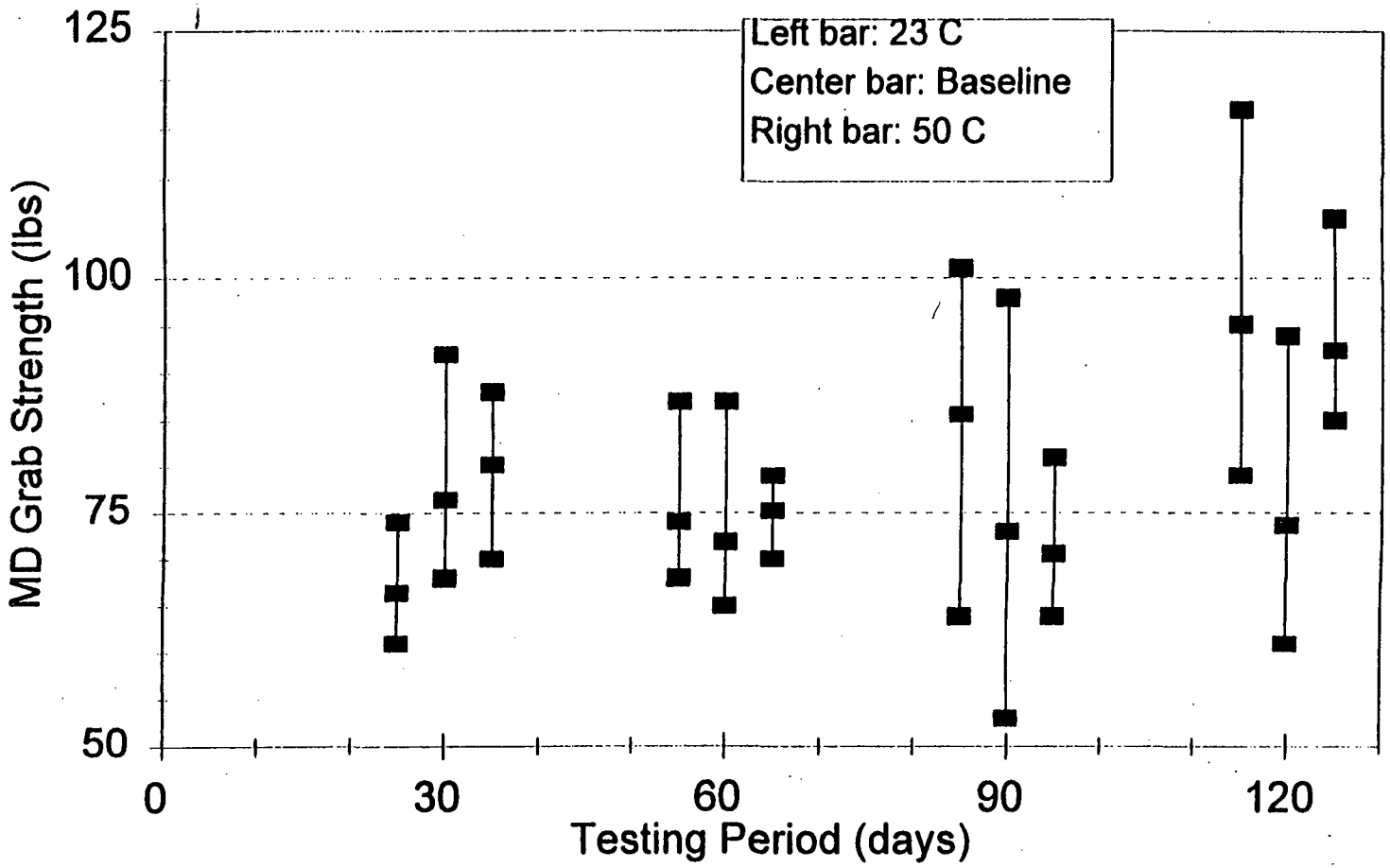
Exposure Time and Temperature

Test Parameters	30 Day Baseline	30 Day 23C	30 Day 50C	60 Day Baseline	60 Day 23C	60 Day 50C	90 Day Baseline	90 Day 23C	90 Day 50C	120 Day Baseline	120 Day 23C	120 Day 50C
GEOTEXTILE: Bentofix GCL -nonwoven textile component												
Puncture Resistance:	107	99	125	90	106	102	82	111	110	55	94	111
Load @ Rupture (lb)	108	93	80	99	84	94	70	99	92	64	87	88
ASTM D4833	108	94	89	91	95	94	56	132	109	73	116	92
	91	97	77	83	97	96	76	105	131	85	104	101
	91	99	138	92	79	89	88	94	142	80	92	95
	97			63			90			64		
	101			95			66			48		
	85			92			115			65		
	86			100			81			64		
	95			85			89					
Average	97	96	102	89	92	95	81	108	117	66	99	97
STD	8	2	25	10	10	4	15	13	18	11	10	8
Coefficient of Variation	9	3	24	11	10	4	19	12	15	16	10	8
Range as % of Baseline	24			42			73			56		
% Change		-1	5		4	7		33	44		48	47
Mullen Burst Strength:	325	300	295	210	290	250	220	235	220	370	340	350
Burst Strength (psi)	330	335	360	350	260	250	210	280	230	340	280	390
ASTM D3786	320	295	305	250	270	250	290	265	220	300	310	340
	210	285	340	240	250	240	225	260	240	300	340	300
	215	330	295	230	250	300	285	225	260	360	340	330
	275			260			205			310		
	345			300			200			330		
	310			280			250			330		
	370			250			275			260		
	330			240			290			310		
Average	303	309	319	261	264	258	245	253	234	321	322	342
STD	51	20	26	38	15	21	35	20	15	30	24	29
Coefficient of Variation	17	6	8	15	6	8	14	8	6	9	7	9
Range as % of Baseline	53			54			37			34		
% Change		2	5		1	-1		3	-4		0	7
Permittivity:	3.13	3.98	3.90	3.26	3.47	3.69	3.24	3.28	3.65	3.48	3.12	3.28
(sec -1)	4.01	4.67	4.09	3.77	3.71	3.55	3.41	3.63	3.52	3.44	2.92	3.28
ASTM D4491	4.67	4.57	3.76	3.59	3.98	3.96	3.55	3.45	3.91	3.28	2.92	2.92
	4.62	4.05	4.26	3.11	3.85	4.02	3.70	3.23	3.72	3.36	2.88	2.88
	4.86	3.85	4.47	4.44	3.66	4.10	4.30	3.77	3.50	3.28	2.84	2.8
	3.86			4.05			4.12			3.00		
	3.91			3.86			3.99			2.96		
	4.46			3.22			3.33			2.89		
	3.15			4.17			3.92			3.16		
	4.15			4.21			4.16			2.95		
Average	4.08	4.22	4.10	3.77	3.73	3.86	3.77	3.47	3.66	3	3	3
STD	0.57	0.33	0.25	0.44	0.17	0.21	0	0	0	0	0	0
Coefficient of Variation	14	8	6	12	5	5	9	6	4	7	3	7
Range as % of Baseline	42			35			28			19		
% Change		3	0		-1	3		-8	-3		-8	-5

SRA 10-21-97
Quality Review/Date

FMC CORPORATION EPA METHOD 9090

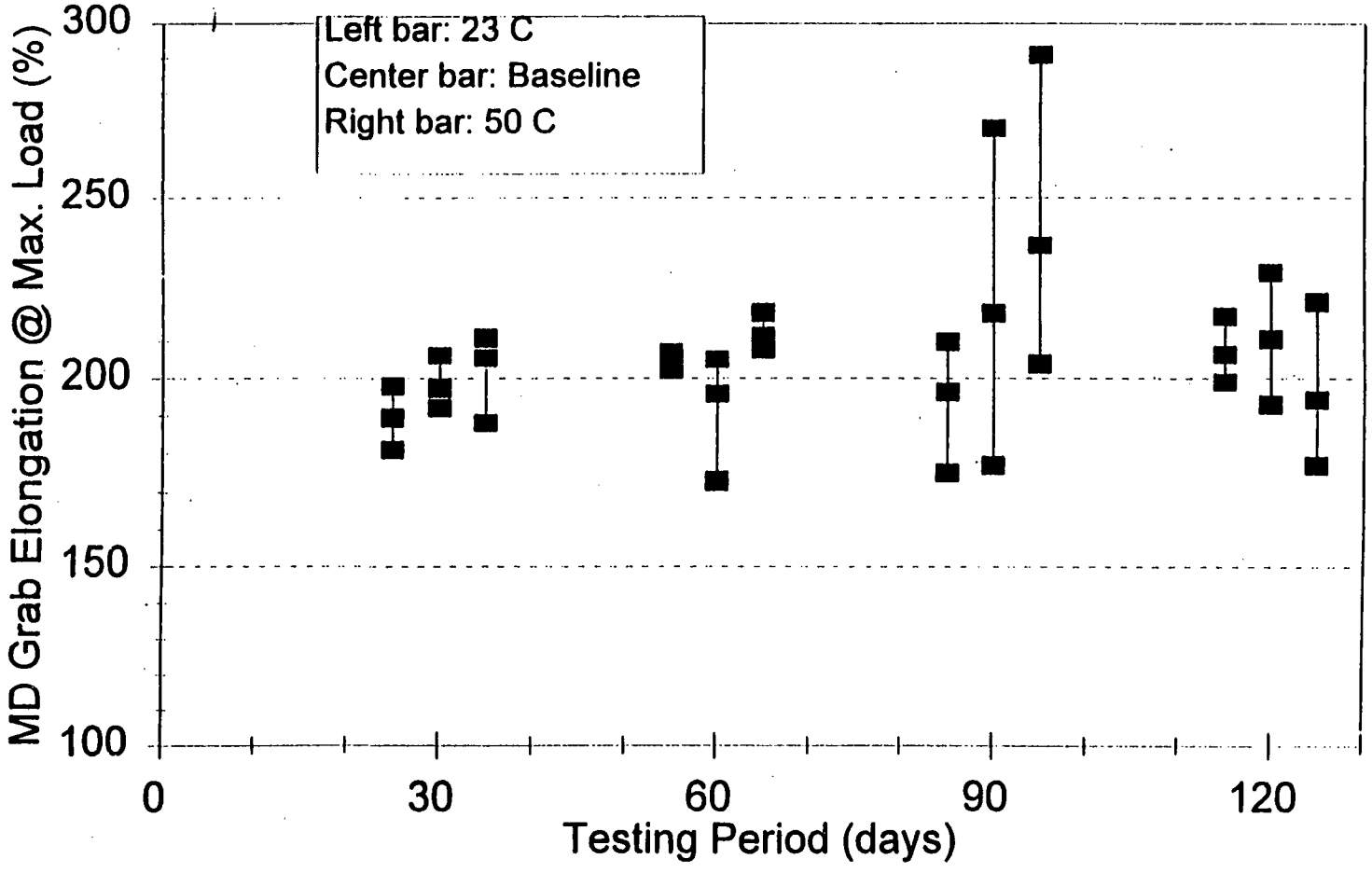
GCL (NW GT) vs Phos Dock Effluent



Client: FMC Corporation, File: 942textn.wb1

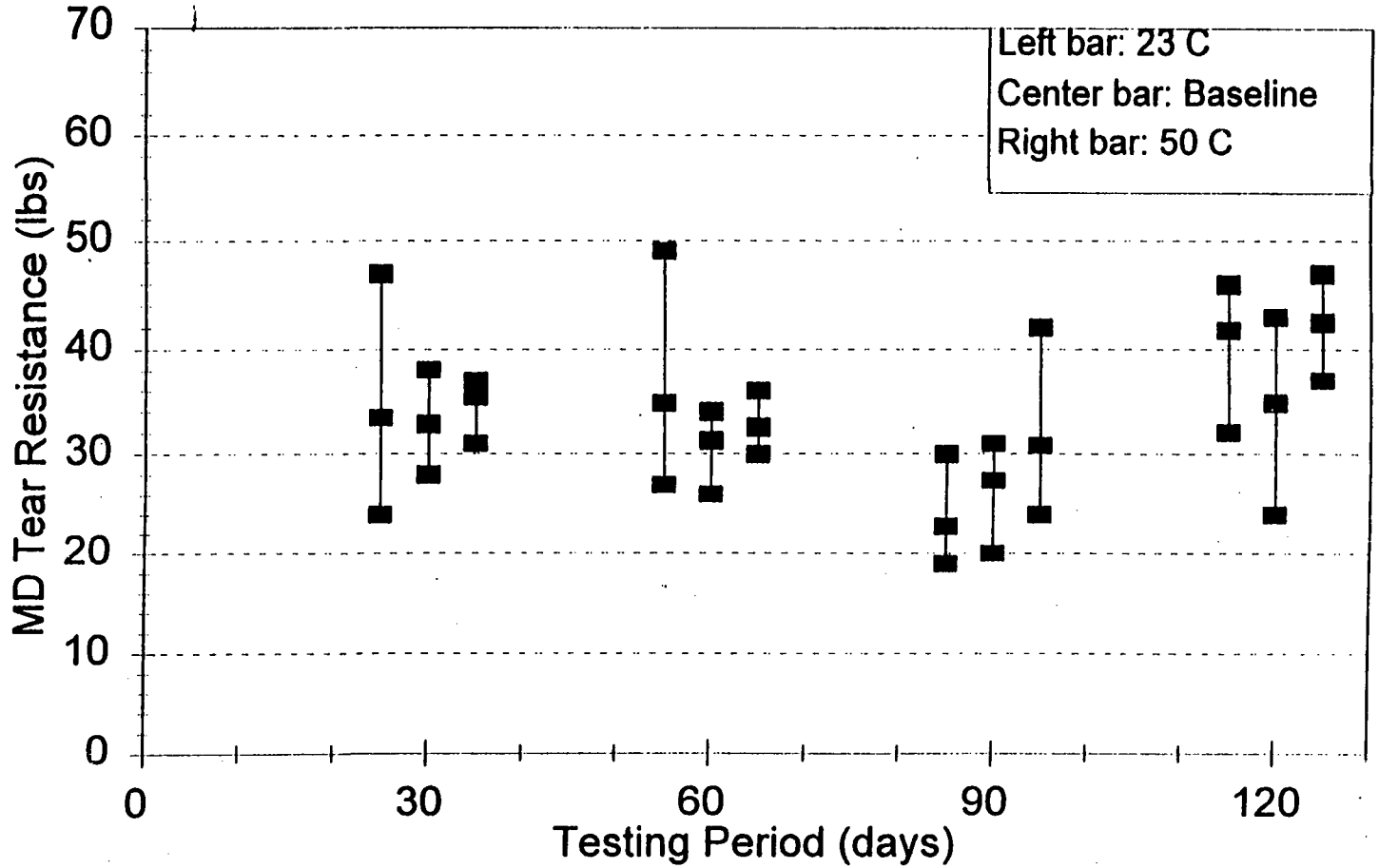
FMC CORPORATION EPA METHOD 9090

GCL (NW GT) vs Phos Dock Effluent



FMC CORPORATION EPA METHOD 9090

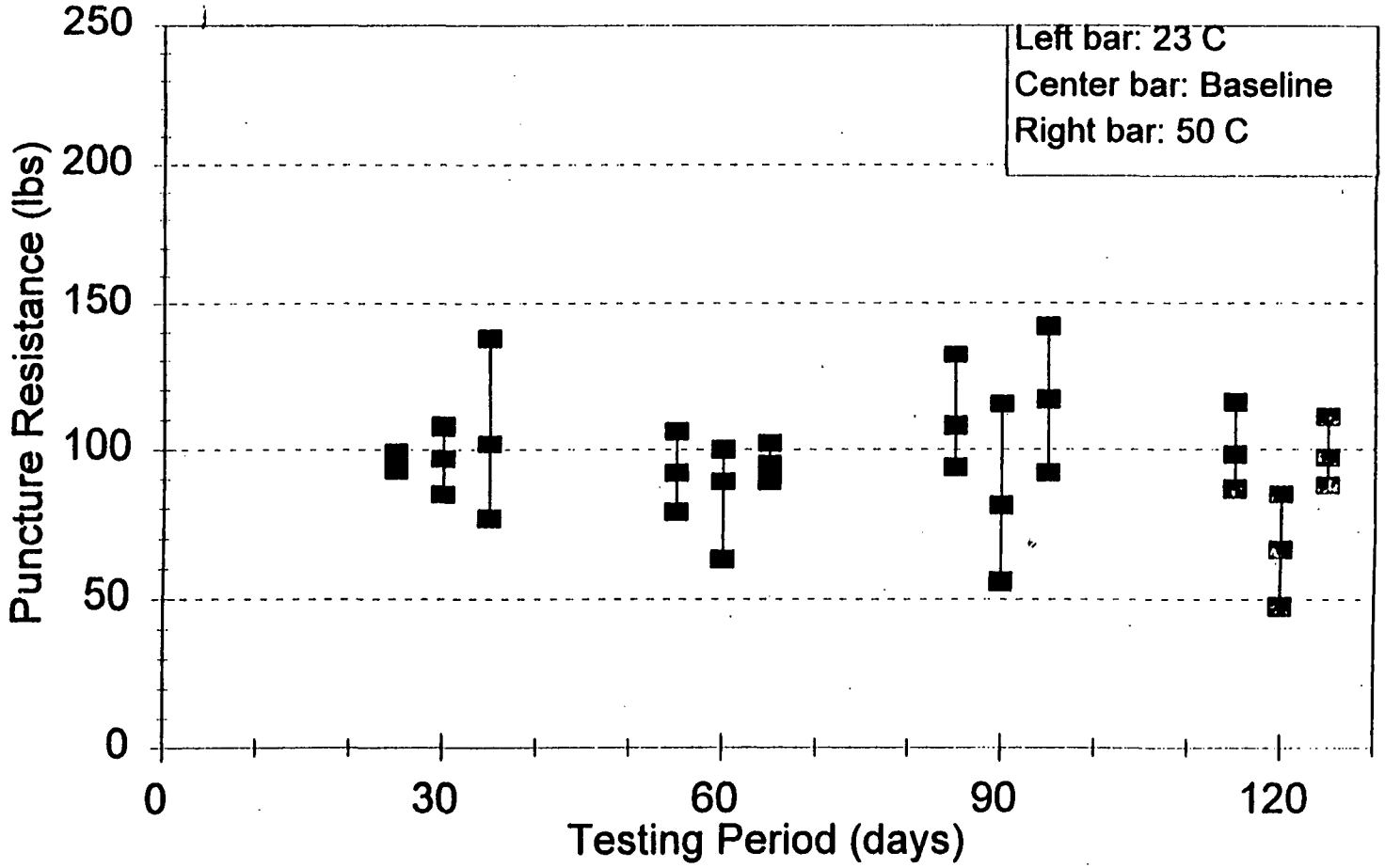
GCL (NW GT) vs Phos Dock Effluent



Client: FMC Corporation, File: 942textn.wb1

FMC CORPORATION EPA METHOD 9090

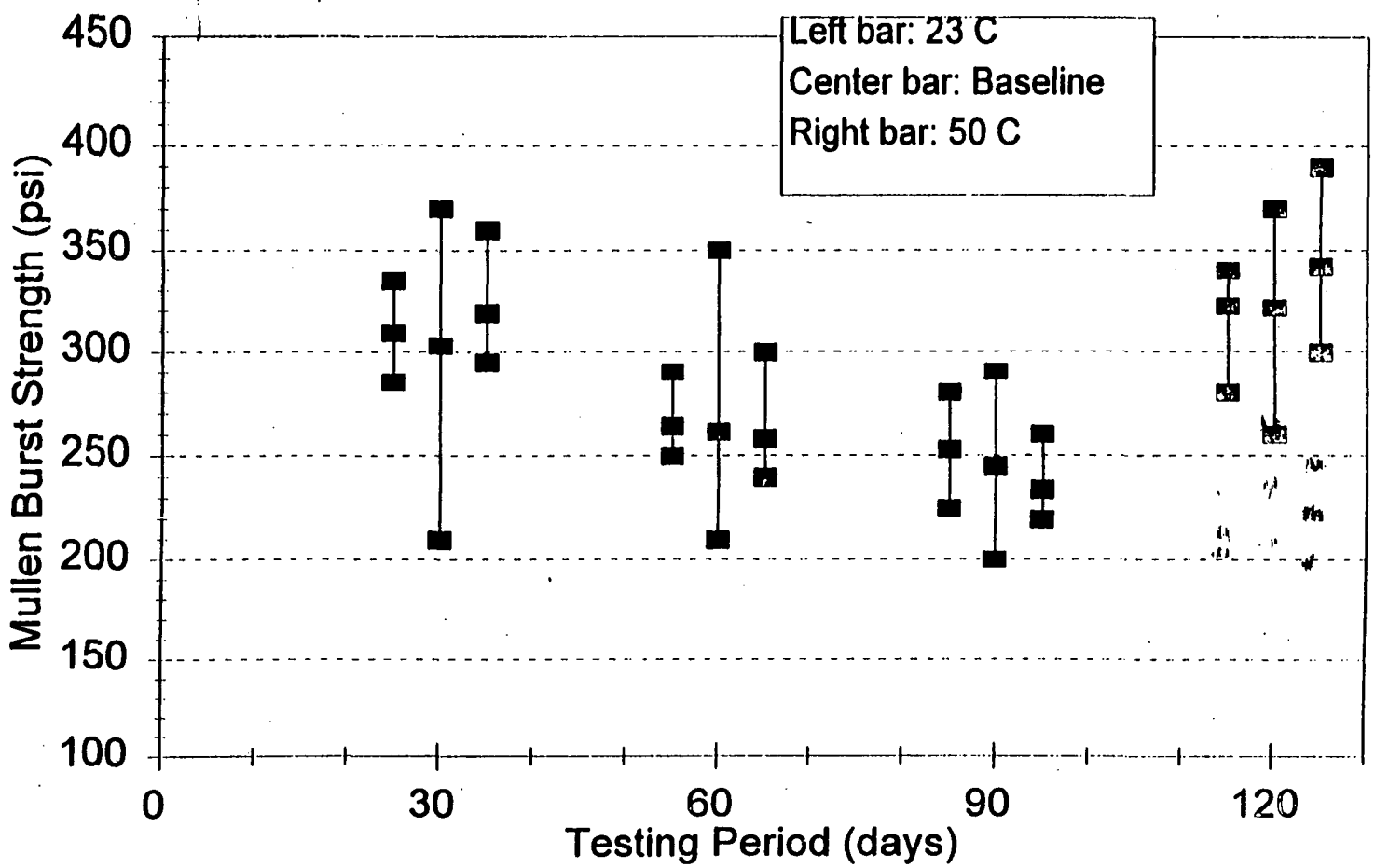
GCL (NW GT) vs Phos Dock Effluent



Client: FMC Corporation, File: 942textn.wb1

FMC CORPORATION EPA METHOD 9090

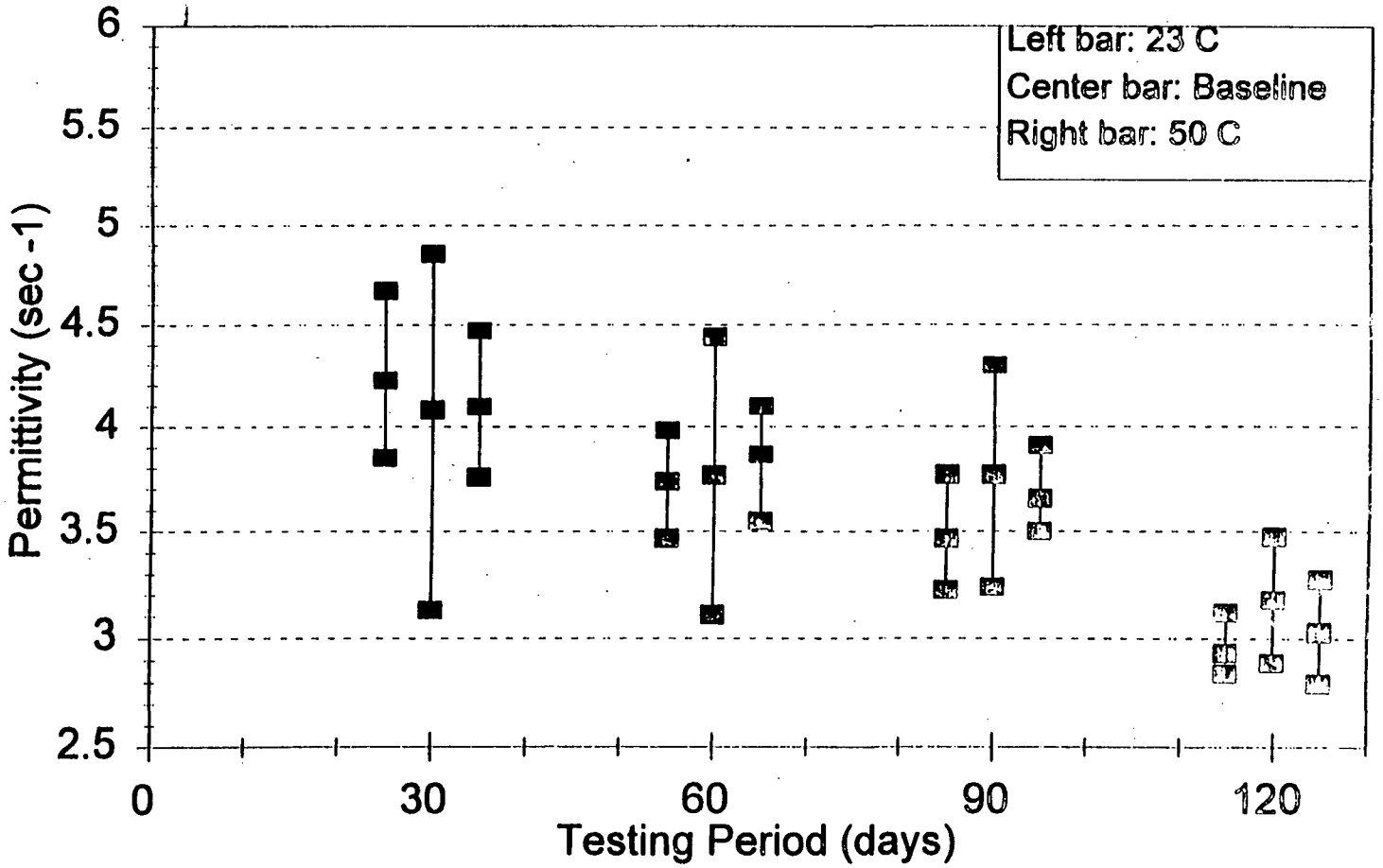
GCL (NW GT) vs Phos Dock Effluent



Client: FMC Corporation, File: 942textn.wb1

FMC CORPORATION EPA METHOD 9090

GCL (NW GT) vs Phos Dock Effluent



Client: FMC Corporation, File: 942textn.wb1