

February 9, 2010

Mr. Bryan Williams, PE

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Charleston, SC 29407

Re: Draft Report: Volume 1  
2010 Pinewood Site Improvement Projects  
Project 1: Evaluation of Section I Cover System  
Project 2: Evaluation of Section I Storm Water Management System  
Pinewood, South Carolina  
AECOM Project No. 60186203

Dear Mr. Williams:


AECOM is submitting to you three bound copies of Volume 1 the above referenced Draft Report for Projects 1 and 2 of the 2010 Pinewood Site Improvement Projects. Also included is an electronic copy of the document on compact disk.

Per your direction, this report is presented for discussions purposes only and should not be cited or quoted.

Upon your review and comment, we will be happy to discuss our findings, conclusions and recommendations with you and the Kestrel project team. We appreciate the opportunity to provide environmental consulting services to the Kestrel Horizons and the Pinewood Site Custodial Trust. In the mean time, if you have any questions or need additional information, please contact us.

Sincerely,

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***Draft for Discussion  
Do Not Cite or Quote***

## **2010 Pinewood Site Improvement Projects Pinewood, South Carolina**

### **Volume 1**

Project 1: Evaluation of Section I Cover System

Project 2: Evaluation of Section I Storm Water Management System

*Prepared for:*



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AECOM Project No. 60186203

February 9, 2011

## **EXECUTIVE SUMMARY**

Kestrel Horizons, LLC, as Trustee for the Pinewood Site Custodial Trust, awarded to AECOM three site improvement projects. Volume I of this report presents the findings and recommendations for Project 1: Detailed Performance Evaluation of Section I Cover System and Project 2: Section I Storm Water Management Evaluation.

AECOM evaluated the Section I cover system through a series of geophysical, soil gas sampling, test pit excavation and exploratory drilling tasks. Representative samples of the cover soils, liner clay and geomembrane were sampled for testing of physical properties. Pore water within the Section I cover was sampled from shallow cover wells. Leachate generation trends from Section I were compared with precipitation and the settlement of the cover system was evaluated from existing site data. Storm water management relating to Section I was evaluated by examining the water quality from the system of French drains and surface water management swales. The storm water conveyance structures associated with Section I of the landfill were modeled to determine if they were adequate to drain storm water runoff away from the landfill cover.

Based on the results of the evaluations, specific recommendations were developed.

The monitoring programs for soil gas, surface water, French drains and cover wells can be optimized to reduce unnecessary sampling and enhance the understanding of the inter-relationships of these potential contaminant transport pathways. Enhancing the monitoring of cover settlement plates will help identify potential differential or excessive settlement problems in the future. Comparing leachate generation data with water table and potentiometric surface variations over time could shed light on the cause of the increasing leachate generation rates for the Section I landfill. Improvements to the surface water drainage system will help move storm water off of and away from the cover, which will lessen the pooling of water over the landfill cover system.

Implementation of these recommendations will help in the understanding of contaminants in environmental media and aid in the operation and maintenance of the site to ensure environmental compliance and protection of the environment.

Overall, the Section I cover system appears to be in relatively good condition. Precipitation and storm water do not appear to be infiltrating through the cover in a predictable manner. VOC vapors are diffusing through the cover system and impacting pore water in the cover soils. However, the VOCs do not at the present time appear to be affecting the surface vegetation or storm water runoff or discharges to the outfall ponds via the French drains and drainage swales. Additional sampling is recommended to understand the relationship between pore water within the Section I cover and detections of VOCs in the nearby French drain.

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### LIST OF ACRONYMS

1,1-DCA	1,1-Dichloroethane
1,1,1-TCA	1,1,1-Trichloroethane
3-D	3 Dimensional
ASTM	American Society for Testing and Materials
BETX	Benzene, Ethylbenzene, Toluene and Xylenes
cm/s	Centimeter per Second
CO	Carbon Monoxide
CSM	Conceptual Site Model
EVS	Environmental Visualization Software
GIS	Geographic Information System
GPM	Gallons per Minute
GPR	Ground Penetrating Radar
H2S	Hydrogen Sulfide
lbs	Pounds
IDW	Investigation Derived Waste
LEL	Lower Explosive Limit
MGD	Million Gallons per Day
mm	Millimeter
NPDES	National Pollution Discharge Elimination System
O2	Oxygen
PCE	Tetrachloroethylene
PID	Photo-ionization Detector
ppi	Pounds per Inch
PPM	Parts per Million
PVC	Polyvinyl Chloride
PSCT	Pinewood Site Custodial Trust
QA/QC	Quality Assurance/Quality Control
RCRA	Resource Conservation and Recovery Act
SVOC	Semivolatile Organic Compound
SWMU	Solid Waste Management Unit
TCE	Trichloroethylene
ug/l	micrograms per liter
USEPA	United States Environmental Protection Agency
VOC	Volatile Organic Compound



## **1.0 INTRODUCTION**

The Pinewood Site Custodial Trust (PSCT) owns the former Safety-Kleen, Inc. hazardous waste storage, treatment, and landfill facility near Pinewood, South Carolina in Sumter County (Pinewood Site). Kestrel Horizons, LLC (Kestrel) is Trustee for the PSCT. Kestrel is responsible for overseeing consultants, contractors, and suppliers who provide services in study, design, construction, remediation, operation, maintenance, transportation, disposal, and monitoring for the Pinewood Site. The primary mission of the Trustee for the PSCT is to ensure the responsible use of Trust funds in carrying out the activities required to complete closure of the site and to care for and monitor the site over the next century, in accordance with the applicable laws, regulations, permits and agreements.

The Pinewood Site landfill consists of three sections (Section I, Section II, and Section III). The Section I landfill consists of five disposal cells (Cell 1A through Cell 1E) that occupy between 2.7 and 8 acres each, for a total of approximately 22 acres. Section I, the oldest landfill section at the Pinewood Landfill, was constructed and operated between 1978 and 1984, and cells were sequentially closed between 1980 and 1985. The maximum thickness of waste placed in Section I is approximately 45 feet. Wastes that have been landfilled lie primarily below the rim elevation of the liner system, though some landfill wastes lie above the liner rim. Hazardous wastes disposed in Section I included liquids, which were later banned from land disposal by state and federal regulations.

The final cover system installed for Section I consist of the following layers from top to bottom:

- Six-inch thick topsoil layer;
- Two-foot thick (minimum) protective cover soil layer;
- Two-foot thick low permeability clay layer; and
- 20-mil thick polyvinyl chloride (PVC) geomembrane that reportedly was joined with adhesive to the bottom Hypalon® geomembrane liner (at the anchor trench).

Beneath the cover, a one-foot thick sandy clay layer was placed directly over the waste to establish grade and protect the geomembrane.

### **1.1 SCOPE OF WORK**

Kestrel identified three site improvement projects to aid in the understanding of the relationships of the Section I landfill and site infrastructure with the hydrogeology and how best to monitor environmental media for protection of the environment:

- Project 1: Detailed Performance Evaluation of Section I Cover System
- Project 2: Section I Storm Water Management Evaluation

- Project 3 Element 1: Construction of a 3-dimension (3D) visualization of the Hydrogeologic Conceptual Site Model (CSM), landfill and infrastructure components
- Project 3, Element 2: Review, Enhancement, and Optimization of Environmental Monitoring Program

Based on the evaluation of the Section I cover, the goals of the PSCT for Project 1 are the following:

- Reduce infiltration of rainfall, cover surface water, cover drainage, and storm water into the Section I cells, thereby reducing leachate generation, the potential for loss of waste constituents to French drains, storm water, and surface water discharges, and the potential hydraulic pressure on the landfill liner system.
- Address the potential effects of vapor transport from wastes to cover soils in the Section I landfill and isolate affected cover soils from cover surface water, cover drainage, storm water, and surface water discharges to protect the quality of storm water runoff and groundwater.
- Maintain the condition and integrity of the cover system and the seal between the cover and liner system in Section I for the next century to provide a level of certainty that neither hazardous waste nor hazardous waste constituents are released to the environment through groundwater, storm water runoff, surface water discharges, or other means from the cover system or the seam where the cover system and liner system come together.

The primary objectives of Project 2 are to include the following:

- A detailed engineering evaluation of the existing storm water management system for the Section I landfill to identify improvements to the system to more effectively route rainfall, cover surface water, cover drainage, and storm water runoff from the cover for Section I into the perimeter drainage system for management, treatment, if necessary, and discharge to the waters of the State in accordance with a NPDES Permit.
- Provide recommendations, as needed, to include alternatives to segregate sources of water from French drains, primary sumps, surface drainage, cover drainage, storm water runoff, and surface water discharges into one or more new basins or existing basins for treatment (e.g., aeration basins, first flush basin, Pond A and/or Pond B).
- Evaluate the potential need for treatment of a source of water such as the French drains, primary sumps, surface drainage, cover drainage, and storm water runoff and the location of such treatment to meet NPDES Permit requirements.

Project 3 has been subdivided into two elements. Element 1 consists of 3-D visual model of comprehensive site design features relative to a hydrogeologic conceptual site model. The model will illustrate interconnected spatial relationships with stratigraphy and groundwater flow. The 3-D visualization of the site is populated with site-specific details that can be manipulated (e.g., rotated around an axis, overlying layers removed to reveal underlying features, cut or intersects along cross sectional lines) as desired to provide insight when evaluating specific spatial orientation or relationship matters.

This visualization model will serve as a powerful tool for communicating with regulators, members of the public, and other stakeholders. C Tech Development Corporation's Environmental Visualization Software® (EVS) was used to provide a state-of-the-art analysis/visualization of the site data.

Element 2 of Project 3 consists of a critical review of the environmental monitoring program. Element 2 comprises a comprehensive review of the monitoring requirements and the system currently in place for monitoring media at the site (i.e., groundwater, soil, storm water, air, and leachate). The review includes the key historical site characterization and environmental monitoring reports to verify that the environmental monitoring systems are working together to provide an indication if the closed units are functioning as designed.

An environmental monitoring program must include the evaluation of spatial and temporal data trends of environmental media and how the data relate so that potential releases are detected at the earliest possible time. The monitoring program, however, represents a significant portion of the costs to maintain the site over the post closure care period. Therefore, existing and emerging technologies, monitoring strategies, and data evaluation techniques need to be continually evaluated and modified to find the best balance between cost and protection of the environment.

## 1.2 REPORT ORGANIZATION

This report of the 2010 Pinewood Site Improvement Projects is organized into three volumes, as outlined below:

- Volume 1 consists of the field investigation, evaluations and recommendations for Projects 1 and 2.
- Volume 2 consists of the Data Management Plan and documentation for the 3D visualization of the site, electronic deliverables of the 3D model and design elements as shape files that can be used in an ARC-GIS platform.
- Volume 3 consists of the evaluation of the environmental monitoring systems and recommendations for improvements and optimization of the monitoring program at the Pinewood site.

## 2.0 PROJECT 1 - DETAILED PERFORMANCE EVALUATION OF SECTION I COVER SYSTEM

### 2.1 SOIL COVER THICKNESS EVALUATION

Preliminary evaluation of the construction drawings for the Section I final cover system indicated that the thickness of the cover soils over the clay layer could be variable and thicker in some areas of the cover relative to others. It was theorized that surface geophysics might be able to differentiate the two soil types and the relative thickness of the cover soils and clay layer. This information would be useful in the overall evaluation of the condition of the cover and could reduce the number of invasive test pits or penetrations of the cover.

#### 2.1.1 Geophysics Field Study

GEL Geophysics performed a 1-day geophysical investigation using ground penetrating radar (GPR) at selected locations on the Section I cover (Figure 2.1-1). The purpose of the investigation was to determine the effectiveness of the GPR in detecting shallow subsurface features in the cover material of the landfill. GPR surveys were conducted at 10 locations near some of the shallow cover wells, test pits and anchor trench locations so that the geophysical data could be compared with actual measured thicknesses of the soils as the excavations progressed:

- Cell A: 2 survey areas,
- Cell B: 1 survey area,
- Cell C: 2 survey areas,
- Cell D: 2 survey areas, and
- Cell E: 3 survey areas.

If meaningful information relating to the soil types and thicknesses could be inferred from the GPR data, a full survey across the Section I cover might be beneficial in understanding the thickness and placement of the cover soils over the clay layer. The GPR survey was conducted and evaluated prior to excavation of the test pits so that AECOM personnel could have an indication of whether the data would be useful in the interpretation of the subsurface soils.

#### 2.1.2 Results of Field Study

The GPR survey of each area consisted of multiple parallel profiles. The data were processed and evaluated in the field and later post-processed in the office using Groundvision® software.

The soils were determined to be not conductive for GPR. The maximum effective depth of penetration ranged from 1 to 2 feet below land surface and only gross differences between the top soil and underlying cover soils was discernable on the profiles. A letter report was provided by GEL Geophysics (Appendix

2.1-1). The report includes a description of the GPR methodology, a summary of the field investigation procedure and GEL's interpretation of the data collected during the investigation.

### 2.1.3 Conclusions

Due to the low soil conductivity to GPR and similarity between the cover soils and clay layer, thicknesses of the units could not be discerned using geophysical methods. To provide definitive data regarding the thickness and geotechnical properties of the cover soils and clay layer, sampling by test pits or soil test borings were required.

## 2.2 CLAY LAYER AND PVC GEOMEMBRANE EVALUATION

### 2.2.1 Test Pits, Anchor Trench Pits and Soil Borings

Test pits were excavated at four locations across the Section I cover and five locations across the anchor trenches. The locations for the test pits are illustrated on Figure 2.2-1. The test pits were located and staked by Lindler Surveying prior to mobilizing to the site. The purpose of the four test pits was to determine the thickness and obtain samples of the top soil, cover soils and clay layer, and to examine and sample the PVC geomembrane for analysis of physical properties. The locations across the Section I cover were selected to be close to the previously installed shallow wells where the cover soil is known not to be excessively thick. The purpose of the five anchor trench test pits was to examine the physical relationship of the bottom Hypalon® geomembrane liner and PVC cover geomembrane and to determine if they were bonded and if so, the condition of the bond. A sample of the PVC geomembrane also was obtained for analysis to determine the physical properties of the membrane at each anchor trench and test pit location.

#### 2.2.1.1 *Test Pit Excavation Procedures*

A large tracked excavator was initially used at each test pit to excavate cover soils and partially excavate the clay layer of the cap. The lower portion of the clay layer was excavated using a small excavator with a plate welded across the teeth of the bucket. As the excavation progressed, AECOM provided ambient air quality monitoring using a photo-ionization detector (PID) and tri-gas meter. The soils were segregated between cover soils and clay layer soils and these were stockpiled on plastic near each excavation. The depth to each soil horizon was measured and documented. The test pit sides were cut back to a 1:1 slope and benched, when necessary. When the clay liner soils were encountered, the surface was scrapped smooth and cleaned off by the operator.

The air quality within the test pits was monitored by AECOM in accordance with the Site-Specific Health and Safety Plan. Air monitoring was conducted for volatile organic compounds (VOCs), oxygen (O<sub>2</sub>), lower explosive limit (LEL), carbon monoxide (CO) and hydrogen sulfide (H<sub>2</sub>S) as the excavations progressed and while any personnel were in the pits.

A 30-inch long Shelby tube was used to collect an undisturbed sample of the clay layer for geotechnical testing. AECOM personnel entered the test pit and set a Shelby tube with its pusher bar on the clay layer to be sampled. AECOM personnel directed the excavator operator in pushing the Shelby tube into the soil and then extracting it.

All sampled tubes were sealed with wax at both ends and then capped. The Shelby tubes were labeled and stored in an area without direct sunlight or excessive heat. The undisturbed samples were shipped to AECOM's geotechnical laboratory in Green Bay, Wisconsin for testing. As the soil samples were extruded from the Shelby tubes, they were photographed. The photographs were reviewed by the Project 1 team in Greenville, South Carolina for a consensus on representative intervals of the clay layer or cover soils to be tested (Appendix 2.2-1). One test also was conducted on soil below the PVC geomembrane.

After the Shelby tube sample was collected, the test pit excavation continued to the PVC geomembrane. Caution was taken so that the excavation equipment did not damage the PVC geomembrane. The final six-inches of excavation were generally performed by hand digging by Leak personnel to avoid damaging the PVC geomembrane. The test pit was again monitored by AECOM for oxygen and volatile vapors while any persons were in the test pit. No persons entered a pit until the air quality was deemed safe by AECOM oversight personnel. Soils were cleaned off the PVC geomembrane using a shovel and paper towels, as appropriate, by Leak personnel. AECOM personnel then inspected and documented the exposed liner material and cut a typical 15-in x 15-in piece out of the liner in the interior of the test pit. The coupon of PVC geomembrane material was rinsed, dried and photographed prior to shipping to TRI/Environmental Laboratory in Austin, Texas for testing. Photographs of the PVC geomembrane coupons are presented in Appendix 2.2-1.

The total depth of each excavation from land surface to the PVC geomembrane was measured and documented. The thicknesses of the varying soil units were also measured and noted and typical bulk soil samples were collected in bags. Table 2.2-1 provides a summary of the depths and thicknesses of the soils that comprise the Section I cover system and illustrates the depth intervals sampled.

#### *2.2.1.2 Anchor Trench Test Pit Excavation Procedures*

The liner anchor trenches were excavated and examined in five locations, as illustrated on Figure 2.2-1. In general, excavation procedures followed those outlined in Section 2.2.1.1, above. When the PVC geomembrane was encountered, the trench was continued laterally until the bottom Hypalon® geomembrane liner was found. The physical relationship of the bottom geomembrane and cover geomembrane was examined to determine their physical condition, if they were bonded together, and if so, the condition of the bond. Air quality monitoring was performed in the excavations and at the bond between the two geomembranes to determine if volatile organic vapors were emanating from between the two liners. The anchor trench test pits were also monitored by AECOM for oxygen and VOC vapors while any persons were in the test pits. No persons entered a test pit until it was deemed safe. Soils were cleaned off the PVC geomembrane by Leak personnel using a shovel. AECOM personnel then inspected and documented the exposed geomembrane material and cut a typical 15-in x 15-in piece out of the

geomembrane in the interior of the test pit. The coupon of PVC geomembrane material was rinsed, dried and photographed prior to shipping to TRI/Environmental in Austin, Texas for laboratory testing.

#### *2.2.1.3 Test Pit Restoration Procedures*

Where the PVC geomembrane coupons were sampled, AECOM installed a new 20-mil PVC geomembrane repair patch with a minimum 6-inch overlap of the hole on each side. The patch was sealed to the existing liner with a non-volatile adhesive bead around the entire perimeter of the PVC patch. AECOM assessed the existing PVC geomembrane to determine whether it was competent enough to install a repair patch. It was determined that the PVC geomembrane was in satisfactory condition to make the repairs with new PVC material. The epoxy at each repair patch was allowed to cure for at least 30 minutes and checked for bonding before placing clay back in the excavation. Representative photographs of the test pits with geomembrane repairs are presented in Appendix 2.2-1.

Leak performed the placement, moisture conditioning, and compaction of the excavated clay and cover soils. The clay cover soil was conditioned to between 20 and 27 percent moisture and the soil was placed in a 1-foot thick compacted lift just above the PVC geomembrane. Leak utilized walk-behind sheepsfoot for the cohesive soils and vibratory plate compactors for the non-cohesive or granular soils. An AECOM geotechnical technician supervised the placement, moisture conditioning, and compaction of the cover soils. In-situ density and moisture content tests were performed with a nuclear density gauge to check that compaction in the restored clay and cover soils was achieved similar to compaction of the original clay and cover soils. The procedure was repeated on the next two 6-inch lifts.

The cover soils were then placed in lifts to achieve 8-inch thick compacted soil lifts. These lifts were continued until the pit area had been returned to its former grade. Leak then installed top soil, an appropriate grass seed mixture, fertilizer and erosion control measures in order to establish a stand of grass.

#### *2.2.1.4 Soil Test Borings*

Soil borings were completed at 10 locations across the Section I cover to gather additional information about the thickness of the cover soils and liner clay. The locations of the soil test borings are illustrated on Figure 2.2-1. The soil test borings were located and staked by Lindler Surveying prior to mobilizing to the site. EarthCon, of Greenville, South Carolina, was subcontracted to drill the soil test borings. The ten borings were drilled with a Mobile B-53 drill rig using hollow stem augers. Continuous soil samples were collected by pushing a 2-foot long split spoon sampler.

All drilling operations were supervised by an AECOM geologist. Detailed test boring reports were maintained by the AECOM geologist to record pertinent field observations and conditions encountered. Soils were logged and described on site using the Unified Soil Classification System. Representative samples were placed into appropriate containers for headspace screening with the PID and/or geotechnical laboratory analysis. Lithologic descriptions and headspace readings are included on the

Test Boring Reports, which are provided in Appendix 2.2-2. Table 2.2-1 provides a summary of the depths and thicknesses of the soils that comprise the Section I cover system and illustrates the depth intervals sampled.

Upon logging of the soil samples, undisturbed samples of the clay layer were collected from an adjacent boring using Shelby tubes that were pushed by the drill rig. The Shelby tubes were prepared in the field and delivered to the geotechnical laboratory in the same manner as described in Section 2.2.1.1.

Portions of the soil samples were collected from each soil core for headspace screening using a PID to provide a qualitative indication of the presence of VOCs. Soils were placed into plastic bags where any VOCs emanating from the soil were able to collect. The head space of the bagged soil samples was then scanned by inserting the tip of a PID probe through the plastic bag. PID readings were recorded on the Test Boring Reports (Appendix 2.2-2).

The borings were abandoned with a grout mixture consisting of five percent bentonite by weight with Portland cement. The grout mixture was placed into the hole from the bottom of the hole up to the ground surface.

Drilling equipment and tooling was decontaminated by pressure washing and steam cleaning prior to drilling and after the ten borings were completed. Wash waters and soils were collected on plastic sheeting and transferred to a drum as investigation derived waste (IDW). Soil cuttings/cores and purge water generated during completion of the soil test borings were also temporarily stored in drums. During this investigation, two drums containing soil and one drum containing aqueous liquids (groundwater and decontamination water) were generated.

The soil and aqueous IDW was retained and temporarily stored at three locations on Section I in Department of Transportation approved 55-gallon drums. The drums were labeled according to the contents and dated when the drum was filled. The soil and aqueous IDW was handled by other Pinewood site contractors.

## 2.2.2 Summary of Field Observations

### 2.2.2.1 *Top Soil and Cover Soils*

The upper cover soil typically consisted of six inches of topsoil vegetated with native grass. The vegetative cover also appeared to have an adequate stand of grass. No distressed vegetation was observed. Based on the results of the test pits, anchor trench test pits, and soil test borings, the cover soil thickness ranges from 1.5 feet in the test pits near the perimeter of the landfill to 6.0 feet in the interior portions of the cover (see Table 2.2-1).

The anchor trench test pits typically encountered stiff, red brown and yellow, sandy clay cover soils that ranged from 1.5 to 3 feet thick. Cover soil encountered in the soil borings and cover test pits ranged from



2 to 7 feet thick (Table 2.2-1). The test pit cover soils typically consisted of brown, sandy loam over dense, red brown, clayey sand and stiff, sandy clay. The soil test borings typically encountered a 0.5 foot layer of topsoil over a 2 to 6.5-foot thick layer of cover soils (Table 2.2-1). These brown and red brown cover soils typically consisted of dense, slightly silty sand, silty sand, clayey sand, and stiff sandy clay. The cover soils were dry. Organic vapor concentrations measured with the PID on cover soils were generally low and ranged from 0.0 to 0.4 parts per million (ppm) in ambient air. Photographs of representative test pit excavations are included in Appendix 2.2-1

#### 2.2.2.2 *Clay Layer*

Clay soils were encountered below the cover soils in each test pit, anchor trench pit and soil test boring. Thicknesses of the clay generally ranged from 2.0 to 3.0 feet, although not all explorations were extended to the PVC geomembrane (Table 2.2-1). These soils consisted of stiff highly plastic clay, lean clay, and dense clayey sand above the PVC geomembrane. Field descriptions indicate that the clay layer was still moist (averaged 24 percent). Hydraulic conductivities ranged from  $1.7 \times 10^{-7}$  to  $1.4 \times 10^{-8}$  centimeters per second (cm/sec), which is deemed adequate for clays used in landfill covers in conjunction with a geosynthetic membrane (see Section 2.2.3 below).

Organic vapor concentrations measured on the base of the clay soils ranged from 0.0 to 20.5 ppm on samples collected from test pits and borings in Cells 1A, 1B, and 1C. VOC concentrations in clay soils from Cell 1D ranged from 0.2 to 25 ppm. The highest VOC concentrations measured on clay soils were from test pit TP-1E-01 and ranged from 79 to 166 ppm, with a bagged soil sample result of 662 ppm. Strong chemical odors were also noted at this test pit.

#### 2.2.2.3 *PVC and Hypalon® Geomembranes*

PVC geomembrane was encountered in all cover test pits, anchor trench test pits, and in 5 out of 10 soil test borings at depths ranging from 3.4 to 8 feet below grade (Table 2.2-1). Those borings that did not contact the geomembrane presumably terminated above it.

The PVC geomembrane samples that were examined appeared to be in good condition at each of the test pits and anchor trench pits. None of the PVC geomembranes were observed to be torn or punctured by soils above or below. Some of the PVC geomembranes had been wrinkled but were not torn (see photographs in Appendix 2.2-1).

After the clay soils were removed from above the PVC geomembrane at anchor trench pit AT-1E-02, the membrane began to rise up due to gas/vapor pressure beneath the geomembrane. Measurements made with the PID and multi-gas meter above the geomembrane prior to cutting a sample indicated that:

- VOCs were detected at 23 ppm,
- Oxygen was at 21.3%, and

- LEL, CO, and H2S were all equal to zero.

Directly beneath the PVC geomembrane:

- VOCs were detected at 23.7 ppm,
- Oxygen was 11.4%, and
- LEL was high, and CO was 259 ppm.

After the PVC geomembrane sample was removed, measurements were made at 0.5 foot from the soil surface beneath the geomembrane.

- VOCs were measured at 2.0 ppm,
- Oxygen was normal, and
- LEL remained high and CO was 120 ppm.

Measurements in the breathing zone, at head level indicated:

- Low VOCs, and
- Normal oxygen, LEL, and CO concentrations.

The bond between the PVC and Hypalon® geomembranes was observed in each anchor trench test pit and appeared to be in good condition with no holes or tears observed. None of the bonds could be pulled apart. PID measurements of VOCs at the bonds ranged from 0.2 to 0.6 ppm above ambient background.

### 2.2.3 Geotechnical and Geosynthetic Laboratory Testing

The undisturbed soil samples and select bulk samples of the clay and cover soils were obtained from the soil test borings, cover test pits, and anchor trench test pits. These samples were submitted for geotechnical laboratory testing. Most of the undisturbed samples were obtained in the clay layer above the geomembrane. Two Shelby tubes obtained samples of the cover soil material above the clay layer and one soil sample was obtained below the PVC geomembrane. These soil samples were shipped to AECOM's geotechnical laboratory in Green Bay, Wisconsin. The bulk soil samples were tested in AECOM's Greenville, South Carolina laboratory. The following geotechnical tests were performed on the undisturbed soil samples:

- Hydraulic Conductivity (ASTM D5084)
- Moisture Content and Dry Unit Weight (ASTM D2216)
- Grain Size, with Hydrometer (ASTM D422)

- Atterberg Limits (ASTM D4318)

Hydraulic conductivity testing was performed on eight undisturbed samples of the clay layer from above the geomembrane. Based on the laboratory results of these samples, the hydraulic conductivity of this clay layer did not exceed  $1.71 \times 10^{-7}$  cm/sec. The original specification required the hydraulic conductivity of the clay layer to not exceed of  $1.0 \times 10^{-6}$  cm/sec. Six out of eight samples tested had hydraulic conductivities in the  $10^{-8}$  cm/sec range. Although, the two soil samples with hydraulic conductivities in the  $10^{-7}$  cm/sec range characterized as silty and clayey, they also contained some mica, and therefore these samples did not exhibit as much cohesion as the other more clayey material.

The gradation of the clay layer ranged from 37 to 90 percent passing the No. 200 sieve, with 9 out of 11 samples having more than 71 percent passing the No. 200 sieve. The Atterberg liquid limits ranged from 33 to 59 and the plasticity index ranged from 17 to 38 for this layer. The percent clay (*i.e.*, finer than 0.005 mm) ranged from 26 to 47 percent and the in-situ moisture content ranged from 16 to 30 percent for the clay layer. The activity of the clay (defined as the ratio of the plasticity index/clay content) ranged from 0.64 to 0.84.

The index properties of the clay soils are characteristic of those with low hydraulic conductivities, as reported by the laboratory testing (Table 2.2-2). The preferred index properties for a clay capping soil for use in landfill covers are liquid limits greater than 20, a plasticity indices greater than 10, clay contents greater than 25 percent, and activity greater than 0.30. The index properties of the Section I clay layer, therefore, are representative of material that is considered suitable for clay used in landfill covers.

About seven of the Shelby tubes included both the clay layer and the overlying cover soils. Hydraulic conductivity was performed on two of the overlying cover soil samples. The test results for the soil layer directly above the clay layer had a maximum hydraulic conductivity of  $2.85 \times 10^{-6}$  cm/sec (soil sample SB-1D-06). Although it was from the upper portion of the Shelby tube and obtained at a depth of 4 to 6 feet below grade, this silty sandy clay with more than 60 percent sand and had a moisture content of less than 17 percent. Based on these facts, this hydraulic conductivity is reasonable for the sample tested. This same material with higher moisture content would likely be able to achieve a lower hydraulic conductivity. Soil sample SB-1E-8 had a hydraulic conductivity of  $2.33 \times 10^{-6}$  cm/sec. This sample was obtained in the upper portion of the Shelby tube at a depth of 1.5 to 3.5 feet below grade. Trace roots and a small seam of sandier soil along the side of the test sample were observed. These features could be typical in a protective cover soil above the clay layer.

The geotechnical test results from the undisturbed soils are summarized in Table 2.2-2. Copies of the geotechnical testing reports are included in Appendix 2.2-3.

The following geotechnical tests were performed on the bag/bulk soil samples:

- Grain size (ASTM D422)
- Atterberg limits (ASTM D4318)

The gradation of the bulk samples of cover soils above the clay layer ranged from 15 to 52 percent passing the No. 200 sieve. The cover soils were either non-plastic or had Atterberg liquid limits ranging from 53 to 25 and the plasticity index range from 11 to 24. These index properties are typical of silty sands, clayey sands, and sandy clay that were used as cover soils over the clay layer of a cap. Geotechnical test results from the bulk samples are summarized in Table 2.2-3. Copies of the geotechnical testing reports are included in Appendix 2.2-3.

The samples of the PVC geomembrane were shipped to TRI/Environmental, Inc. in Austin, Texas for geosynthetic laboratory testing. The following analyses were performed on the PVC geomembrane:

- Tensile Properties (ASTM D 882)
- Thickness (ASTM D 5199)
- Peel and Shear (ASTM D 6392 / GRI GM19/D4437/NSF 54, D 6214)
- Percentage Plasticizer Content (ASTM D 2124)

The tensile strength at 100% strain also ranged from 31 to 54 pounds per inch (ppi). The recommended minimum tensile strength at 100% strain for new 20-mil PVC liner is 20 ppi. The break strength ranged from 44 to 60 ppi, with only three samples testing below the recommended break strength of 48 ppi. The break elongation of the samples ranged from 178 to 462%. The mean thickness measured of the 20-mil PVC geomembrane ranged from 16.7 to 20.3 mils. The tolerance for thickness of new PVC geomembrane is from 19 to 21 mils. About half the samples tested were thinner than 19 mils. As demonstrated by the test results, the tensile strength at 100% strain increased as the PVC got thinner, its break elongation also decreased.

The seam peel strength and shear strength results of 18 ppi and 46 ppi exceed the requirements of 12.5 ppi and 38.4 ppi, respectively. These results are summarized in Table 2.2-4. A copy of the laboratory testing report is included in Appendix 2.2-3.

As the PVC geomembrane loses its plasticizer, the tensile strength increases and the percent strain decreases. Therefore, the sample with the lowest percentage of break elongation and the maximum tensile strength was selected to for the percent plasticizer test. The percent of plasticizer was measured on sample AT-1A-01, which had a mean thickness of only 16.7 mils. This sample was reported to have 16.3 percent plasticizer remaining. New PVC typically has about 30% plasticizer, which tends to decrease over time. If there is too much reduction in plasticizer, the geomembrane could become brittle and susceptible to cracking. However, one field study by US Bureau of Reclamation on 10-mil PVC geomembrane concluded that even with a 40 percent reduction of the original amount of plasticizer, the PVC geomembrane maintained its design strength parameters for adequate performance (Levin and Hammond, 1990). Another laboratory study reported that as much as 75% of the plasticizer could be lost and the ultimate strain would be expected to exceed 100% (McKelvey, 1993).

#### 2.2.4 Conclusions

Review of facility design documents and results of the test pit and drilling program indicate that the low permeability clay layer was installed above the PVC geomembrane. This construction method is not an industry standard today because the clay can be exposed to cyclic periods of desiccation or wetting, which could be detrimental to a clay layer.

Considering the fact that the clay layer in the Section I cover is above the geomembrane and it has been exposed to cyclic weather elements over a 25-year period, it still appears to be in good condition. This 2 to 3 foot thick clay soil layer is still fairly moist and did not appear to be desiccated. The laboratory test results of the samples from this clay layer indicated that had retained a lower permeability than the design specifications. The clay layer was covered with 1.5 to 6.0 feet of cover soils with a viable stand of native grasses.

As expected, some of the PVC geomembrane was found to be slightly thinner than specified. The PVC geomembrane exceeded the minimum recommended the tensile strength at 100% strain and break strength requirements. The thickness of cover over the geomembrane did not appear to have affected its performance. However, the samples from the anchor trench, located closer to the edge of the landfill, had low break strain percentages than the other samples. Even with a 46 percent loss of its original 30 percent plasticizer, the thinnest sample with the highest tensile strength still had a minimum break strain of 178%. However, field and laboratory studies have found that 40% to as much as 75% of the plasticizer could be lost without significant degradation of the performance properties of the material. Therefore, it can be concluded that this PVC geomembrane should have enough plasticizer to continue to perform as designed for some time into the future. The PVC geomembrane still appears to be performing satisfactorily as an infiltration barrier

Overall, the final cover system appears to be in serviceable condition considering its age, material make-up and construction placement.

### 2.3 LEACHATE GENERATION VS. RAINFALL TREND EVALUATION

#### 2.3.1 Historical Leachate Generation and Rainfall Data

One of the primary purposes of the cover system is to minimize infiltration of rain water into the landfill. As part of the Section I cover evaluation, AECOM walked the cover. There were no observable breaches of the cover. In discussions with the PCST staff and review of the Critical Elements Analysis report (Golder Associates Inc., April 2007), AECOM learned that historically rainfall had been entering the landfill at the sump risers but recent improvements had eliminated this leakage.

However, even with these improvements, leachate generation rates for the Section I landfill are significant and increasing. As discussed in the Critical Elements Analysis report, leachate generation rates in closed landfills historically decrease one to three orders of magnitude within one year after closure (Golder

Associates Inc., April 2007). Therefore, the increasing leachate generation rate in the Section I landfill raises a concern about leakage into the landfill either through the cover system or the bottom liner.

Since leakage into the landfill cannot be measured directly, it must be inferred based on observable data. One line of evidence that the cover could be leaking would be a correlation between leachate generation rates and rainfall. Therefore, AECOM performed an analysis of the leachate data and rainfall data to determine if such a correlation exists.

Monthly leachate pumping data was provided by PCST for the period October 1996 through September 2010. Rainfall data for this same period was obtained from the nearest NOAA weather station in Rimini, SC, located approximately 1.5 miles from the site.

### 2.3.2 Analysis of Leachate Generation vs. Rainfall Data

Section I is comprised of five cells, A through E. Each cell has several vertical primary sumps. Leachate production data is collected for each leachate collection sump in Section I. By adding the data from each sump within a cell, leachate pumped from each cell was determined. By adding flow data from all of the sumps, monthly leachate pumped from Section I as a whole was determined. PCST indicated that leachate data was deemed to be significantly more reliable starting in 2005. Therefore, the trend analysis focused on the period from January 2005 through September 2010.

Monthly rainfall data was plotted against monthly leachate production data by sump, by cell and for the Section I landfill as a whole. Plots were also prepared showing raw data, linear trend lines, moving averages, and departures from normal (see Appendix 2.3-1). The plots were used to visually evaluate the data for significant correlations.

The narrative below discusses the analysis of leachate versus rainfall graphs for each of the four cases selected for analysis. The four cases selected were the following:

- Cell C,
- Cell E,
- Sump D2, and
- All of Section I.

Cell C was selected for analysis because each of its three sumps generates more than average quantities of leachate relative to the other cells in Section I. Cell E was selected because it has the largest surface area and has flat surface grades, which allow ponding on its surface. Sump D2 was selected because it currently generates significantly more leachate than any of the other sumps. And finally, a sum of all of the leachate generated by Section I was compared to the rainfall data.

Graphs of monthly leachate generation compared to monthly rainfall totals, including linear trend lines are presented in Appendix 2.3-1. Analysis of these plots of the raw data and linear trend lines did not yield any clear correlation between the leachate generation rates and the rainfall data. In fact the linear trend lines demonstrate that the leachate generation rates are trending upward in each case while the rainfall rate is relatively constant.

Graphs comparing 5-month running averages of monthly leachate generation and monthly rainfall totals are presented in Appendix 2.3-1. Analysis of these plots data did not yield any clear correlation between the leachate generation rates and the rainfall data. The leachate generation highs coincided with the rainfall highs at the same frequency that they coincided with the rainfall lows. (Note: Other periods of running average were also evaluated, with similar results)

Graphs were produced that compared leachate linear trend lines with the cumulative departure of rainfall totals from the norm (Appendix 2.3-1). Analysis of these plots clearly shows that in every case, the leachate generation rates are trending upward while rainfall is consistently less than the norm. When rainfall is less than normal, more of the rainfall is subject to evapotranspiration and less is available for seepage into the landfill.

### 2.3.3 Conclusions from Leachate Generation Analysis

All of the analyses summarized above support the conclusion that the Section I landfill cover is not a significant source of precipitation leakage into the landfill.

However, the fact that the landfill has been closed for over 20 years and the leachate generation rates are continuing to increase suggests that there may be a source of leakage into the Section I landfill other than the cover imperfections. The increasing leachate generation rates in Section I is especially telling when contrast with the sharply decreasing leachate generation rates for Sections II and III.

The Critical Elements Analysis report points to groundwater inflow through the bottom liner of Section I as a potential source of significant leachate (Golder Associates, Inc., April 2007). Analyzing the trends in water table and potentiometric surface elevations versus the leachate generation rates might be revealing. Currently the number and location of wells in the water table aquifer prevent a meaningful evaluation of the water table around the perimeter of Section I.

## 2.4 SETTLEMENT ANALYSIS

### 2.4.1 Historical Settlement Data

Evaluation of settlement data can be helpful in understanding the dynamics of the cover system. Settlement of a landfill's cover is normal due to consolidation and degradation of waste. The waste placed in Section I was either bulk waste, free liquid waste or, most often, was contained in drums. Bulk

waste would be expected to consolidate and drums would be expected to degrade over time leading to consolidation, especially if they held liquid wastes.

Excessive settlement of the cover system could result in the cracks in the clay layer, thinning of the clay layer, strain or rupture of the PVC geomembrane system or could result in surface depressions that allow rainfall to pond on the cover. Therefore, gathering and analysis of the cover settlement data is important in order to monitoring changes that may be affecting cover performance.

Thirteen settlement plates are installed on the Section I cover. Settlement data is available for five of the plates starting in 1983 and the remaining eight plates have been monitored since 2002. Settlement has typically been measured quarterly and is summarized on Table 2.4-1. The plates are dispersed as follows:

- Cell A – 1 plate
- Cell B – 3 plates
- Cell C – 1 plate
- Cell D – 5 plates
- Cell E – 3 plates

Figure 2.4-1 illustrates the topography of the Section I cover along with settlement plate locations and the cumulative settlement at each plate.

#### 2.4.2 Settlement Trends

Plots of the settlement data for each of the thirteen settlement plates are presented on Figure 2.4-2. The plots provide an understanding of the settlement history. The five markers on Cell D (D-1 through D-5) were installed in 1983, which was immediately after completion of the cover for this cell. These plots depict greater settlement for the first 2 or 3 years followed by a relatively slow settlement trend. The data for the remaining markers starts in 2002, approximately 15 years after installation of the cover and therefore, do not show the initial settlement period.

The settlement data indicates a relatively gradual and uniform settlement of the Section I cover. This type of settlement is a positive factor in the long-term performance of the cover system. Significant differential settlement would put additional strain on the cover system and potentially lead to damage to the cover system. Periodic small localized settlement is to be expected as drums and wastes decompose. Depressions formed due to this type settlement can be handled by backfilling and re-seeding and should not significantly impact the performance of the cover system.



The continued settlement of the cover, more than 20 years after closure, may in part be due to the quantities of leachate being removed. Analysis of settlement that may be associated with leachate removal is provided below.

#### 2.4.3 Analysis of Settlement vs. Leachate Removal Volumes

Between 100,000 and 400,000 gallon of leachate is removed from the Section I landfill annually. Removal of such significant quantities of leachate would be expected to result in settlement of the cover. The volume of leachate removed was used to calculate the settlement that would be projected to result. Calculations were performed for each sump and for each cell. Table 2.4-2 summarizes the results of the calculations and compares the results to the measured settlement. The average projected settlement results for each cell compares well with the measured settlement for the same period of time. The difference between projected and the measured settlement is between 0.10 feet and 0.30 feet.

#### 2.4.4 Conclusion from Settlement Data Analysis

The settlement measurements appear to have some inaccuracies. Upward movement of the cover is not consistent with the expected movement of the waste. It is more likely that the survey data was collected with varying vertical datum, varying equipment, measuring different location on the settlement plate, taking side shots rather than a closed loop, reduction errors, recording errors or a combination of the above. Due to the minute amount settlement between measurements, the use of accurate and consistent surveying methods and prompt review and validation of the data are critical to gathering useful data for assessment of cover settlement.

Overall, the settlement of the Section I cover does not appear to be excessive and is relatively uniform. Therefore, the cover system condition should not have been impacted significantly due to settlement.

Settlement data plots should be maintained and updated with new data as it is received in order to identify measurement errors and to identify changes in settlement trends.

Additional settlement markers are needed to provide a more uniform distribution of settlement data.

### 2.5 SOIL GAS EVALUATION

AECOM conducted a soil gas investigation over the Section I cover to determine if vapor transmission is occurring through the current cover, which includes a PVC geomembrane, low permeability clay, sandy clay cover soils and top soil. This study used Gore-Sorber<sup>®</sup> modules installed across the 22 acres of the final cover. This study was designed to identify the areas of the cover that may exhibit impact and identify the type of vapor that may be coming up through the cover.

Gore-Sorber<sup>®</sup> modules are passive, sorbent-based samplers that collect volatile and semi-volatile organic compounds present in air, soil, and water. The modules are constructed of a GORETEX<sup>®</sup> membrane tube, which is chemically inert, vapor permeable, and waterproof.

Specially engineered adsorbents with an affinity for a broad range of organic compounds are located in the bottom of a one-foot long membrane tube. Additional information regarding the design and properties of Gore-Sorber<sup>®</sup> modules is available at [www.gore.com/surveys](http://www.gore.com/surveys).

AECOM installed 50 survey points in a grid across the five cells that comprise Section I. The soil gas survey locations are illustrated on Figure 2.5-1. In addition, two background locations were selected along the service road near the east end of the site (near the MW-098 monitoring well vicinity) to provide a comparison to the Section I survey points (Figure 2.5-2). Four modules were selected at random and retained as trip blanks.

Prior to mobilization, the survey locations were marked and staked by Lindler Surveying. The Gore-Sorber<sup>®</sup> modules were installed over a two-day period. At each survey point, a 3/4-inch diameter hole was drilled into the ground to a depth of two feet below land surface using a hammer-drill. A Gore-Sorber<sup>®</sup> module was then tied to an inert polypropylene cord and inserted into the drilled hole using a stainless steel tool supplied by the manufacturer. The cord was then tied to a natural cork and the cork used to plug the top of the hole. Approximately 2 pounds of clean fine-grained sand was poured onto the top of the cork plug to hold it in place.

The Gore-Sorber<sup>®</sup> modules were retrieved 14 days after installation (allowing for the maximum exposure time). The modules were resealed in their respective numbered glass vials after retrieval and shipped back to the manufacturer for laboratory analysis along with completed chain-of-custody documentation.

Each exposed Gore-Sorber<sup>®</sup> module (as well as four trip blank modules and two method blanks) were analyzed by WL Gore & Associates in their in-house laboratory for the A1 suite of volatile and semi-volatile organic compounds by thermal desorption, gas chromatography, and mass spectroscopy via modified United States Environmental Protection Agency (USEPA) methods 8260/8270:

#### Standard Analytical Suite (A1)

MtBE	Benzene	Toluene
Ethylbenzene	m,p-xylene	o-xylene
Octane	Undecane	Tridecane
Pentadecane	1,3,5-TMB	1,2,4-TMB
Naphthalene	2-Methylnaphthalene	trans-1,2-DCE
cis-1,2-DCE	TCE	PCE
1,1-DCA	1,2-DCA	1,1,2-TCA

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1,1,1-TCA	1,1,2,2-TetCA	1,1,1,2-TetCA
Chloroform	Carbon tetrachloride	Chlorobenzene
1,2-DCB	1,3-DCB	1,4-DCB
TPH		

### 2.5.1 Results of Soil Gas Field Study

The soil gas analytical data are reported on Table 2.5-1 as a mass of analyte in micrograms ( $\mu\text{g}$ ) per sample. A copy of WL Gore's report is presented in Appendix 2.5-1. Included in the report are color isoconcentration maps for the following constituents, which were detected most often by the laboratory:

- Total benzene, ethylbenzene, toluene and xylenes (BETX)
- Tetrachloroethene (PCE)
- Trichloroethene (TCE)
- 1,1,1-Trichloroethane (1,1,1-TCA)
- 1,1-Dichloroethane (1,1-DCA)

Results for the background samples indicated low detections of petroleum-related constituents but not chlorinated solvents. None of the four trip blank samples and two method blanks contained target analytes. Thus, the data are deemed valid for the purposes of screening soil gas at the Pinewood Site.

Results of the soil gas study show that petroleum and chlorinated solvent vapors are present in the soils above Section I. As illustrated on the color isoconcentration maps in Appendix 2.5-1, the highest masses of VOC constituents were detected in soils above Cell E. In particular, "hot-spots" seems to occur at in Cell E at location SG-1E-44 and to a lesser extent at location SG-1C-20 in Cell C with all VOC constituents plotted. Total BETX constituents appear more wide-spread across the cover, although at lower constituent masses.

Ambient monitoring during the test pit excavations and test drilling program indicated the presence of VOCs in soils and beneath the geomembrane. The soil gas survey however, was better able to quantify the distribution and relative abundance of VOCs diffusing through the PVC geomembrane and into the clay layer and cover soils. For example, Figure 2.5-3 illustrates the occurrence of 1,1-dichloroethane in soil gas and the concentration of total VOCs in air above immediately above each of the geomembrane perforations. In general, the PID indicated that VOC concentrations measured from the test pits located on the cover were higher than those VOCs measured from the anchor trench test pits at the edge of the landfill, beyond the limits of the waste. This data may indicate that VOCs are not migrating laterally from beneath the cover.

The presence of VOC mass in the cover soils is not unique to the Pinewood Site. Virtually all landfills generate gasses, whether through biodegradation or volatilization.

Virtually all landfill covers allow some portion of the gasses to pass through via diffusion. The Section I cover was constructed using PVC geomembrane rather than the HDPE geomembrane that is commonly used today. Studies indicate that the diffusion rate through a PVC geomembrane is about twice as fast as through a Polyethylene (PE) geomembrane (McWatters and Rowe, 2009). Thus, the presence of VOCs in the cover soils is not unexpected given the high concentrations of solvent-based waste placed within the Section I landfill and the permeability of the 20-mil PVC geomembrane to certain VOCs by diffusion. Based on the field observations and geotechnical testing results, the physical properties of the clay soil layer did not appear to be impacted by the vapors diffusing through the PVC geomembrane. Furthermore, the VOCs in soil gas are not at concentrations that are impacting the vegetative cover of the landfill.

## 2.5.2 Conclusions

Results of the soil gas study show that petroleum and chlorinated solvent vapors are present in the soils above Section I. “Hot-spots” seems to occur at in Cell E at location SG-1E-44 and to a lesser extent at location SG-1C-20 in Cell C with all VOC constituents plotted. Total BETX constituents appear more wide-spread across the cover, although at lower constituent masses.

The soil gas survey was able to quantify the distribution and relative abundance of VOCs diffusing through the PVC geomembrane and into the clay layer and cover soils. PID data from the test pit excavations indicated that VOC concentrations measured from the test pits located on the cover were generally higher than those VOCs measured from the anchor trench test pits at the edge of the landfill, beyond the limits of the waste. This data may indicate that VOCs are not migrating laterally from beneath the cover.

The presence of VOCs in the cover soils is likely due to high concentrations of solvent-based waste placed within the Section I landfill and the permeability of the 20-mil PVC geomembrane to certain VOCs by diffusion through the membrane. However, the physical properties of the clay soil layer did not appear to be impacted by the VOC vapors and the soil gases are not at concentrations that are impacting the vegetative cover of the landfill.

## 2.6 SHALLOW COVER WELLS

### 2.6.1 Summary of Historical Data and Sampling Results

PSCT installed shallow wells directly into the cover of Sections I, II, and III of the landfill to monitor the accumulation of any long term perched water on the landfill clay liner. This was done to detect any residuals from previous spills or leaks on the landfill covers from past activities at the site, and to monitor for the effects on perched water due to gas emissions up through the geosynthetic and clay liners of the

landfill covers. The locations of the shallow cover wells for Section I of the landfill are presented in Figure 2.6-1.

AECOM's observations concerning these shallow cover wells during a site visit on October 26 - 27, 2010 are noted below.

<b>Section I – Shallow Cover Well Information</b>			
Well	Top of Casing Above Ground (feet)	Well Depth from Top Of Casing (feet)	Well Depth From Top of Ground (feet)
SILC-1	3.5	8.32	4.82
SILC-2	2.7	7.2	4.5
SILC-3	4.0	8.7	4.7
SILC-4	3.5	8.2	4.7
SILC-5	3.5	7.05	3.55

Based on these observations, these wells, with a PVC casing diameter of approximately 1 to 1 ½ inches, have a depth from top of ground ranging from approximately 3.6 to 4.8 feet. The total depth of the cover to the PVC geomembrane liner, in the vicinity of the shallow cover wells is approximately 4.5 feet. However, during field investigations of the cover system of Section I in November of 2010, it was determined that this total depth of the cover soils and liner clay varied for the five cells of Section I and ranged from 3.4 to greater than 8 feet, across the landfill cover. Therefore, the above described shallow cover wells for Section I were typically installed at some depth in the clay layer above the geomembrane liner.

The height of the water column in these wells above the well bottoms during the October 26 to 27, 2010 site visit was measured and is presented below:

<b>Section I - Shallow Cover Wells Water Column Height October 26 - 27, 2010</b>	
Well	Water Column Height In Well (feet)
SILC-1	0.61
SILC-2	0.25
SILC-3	Dry
SILC-4	1.63
SILC-5	0.15

Well SILC-3 on that date was dry, and the height of the water column in the other wells ranged from only 0.15 feet to 1.63 feet. Since the wells are so shallow, the height of the water column in the wells is highly variable and dependent on many factors, including the intensity and duration of the most recent rainfall events.

PSCT collected water samples from these wells on May 29, 2009 and October 22, 2009 for VOCs. Semi-volatile organic compounds (SVOCs) and metals were also sampled during the October 22, 2009 event. The analytical results from these sample events are provided in Table 2.6-1. On November 10, 2010, these shallow wells were sampled by AECOM personnel for VOCs. Analytical results of this sampling are also presented in Table 2.6-1. A summary of this analytical data is presented in Table 2.6-2 and shows eight of the constituents that had the highest concentrations during these three separate sampling events. A copy of the laboratory analytical report from the November 2010 sampling event is presented in Appendix 2.6-1.

AECOM personnel planned to sample these wells for other constituents such as metals and SVOCs, but there was not sufficient water in any of these wells for the collection and analyses of samples for these additional constituents. It was AECOM's intent to sample for these additional constituents in an effort to differentiate between any constituents in the water due to gas emissions (VOCs) through the cover and constituents from previous spills or leaks on the landfill cover from past activities at the site (e.g., SVOCs and metals).

#### 2.6.2 Analysis of Shallow Cover Well Water Quality

The sampling and analytical data presented in Tables 2.6-1 and 2.6-2 show the presence of significant concentrations of VOCs in water from these shallow wells; with the highest concentrations detected in shallow cover surface wells SILC-2, SILC-3, and SILC-5. These three wells are located in Cells D and E of Section I of the landfill (Figure 2.6-1). As shown in the above referenced tables:

- methylene chloride ranged from a low of less than detectable to a high of 4,030 ug/l;
- 1,1 dichloroethane ranged from a low of 286 ug/l to a high of 2,210 ug/l;
- chloroform ranged from a low of less than detectable to a high of 1,710 ug/l;
- 1,1,2-trichloroethane ranged from a low of less than detectable to a high of 947 ug/l;
- trichloroethylene ranged from a low of less than detection to a high of 986 ug/l;
- cis-1,2-dichloroethylene ranged from a low of 11.9 ug/l to a high of 803 ug/l;
- tetrachloroethylene ranged from a low of 0.62 ug/l to a high of 253 ug/l;
- 1,1,1 trichloroethane ranged from a low of less than detectable to a high of 248 ug/l.

The highest concentrations of VOCs were observed in SILC-3 located in Cell D of Section I (October 2001, Table 2.6-1). Such concentrations in the Section I shallow subsurface are significantly higher than

concentrations observed in shallow cover surface wells for Sections II and III of the landfill, as presented Table 2.6-3. The highest concentration of any VOC in the shallow cover surface wells for Sections II and III was tetrachloroethylene at 24.3 ug/l for S2LC-04 on December 29, 2009. Most of the VOC concentrations in water from the Section II and III cover wells during 2009 sampling events were low, estimated values (J-flagged).

For the October 22, 2009 sampling event for Section I, two SVOCs were detected in SILC-3 with 1,4 dioxane at 53.9 ug/l and m,p cresols at 8.1 ug/l. Metals were also analyzed and detected in SILC-3 and these results are provided in Table 2.6-1.

Some lower concentrations of VOCs were also observed in shallow cover wells SILC-1, located in the northeast corner in Cell A, and SILC-4, located in the southwest corner of Cell D at the edge of the landfill and near Manhole 5 of the Section I French drain. However, for SILC-1, concentrations ranged from less than detectable to 14.7 ug/l and were more similar to concentrations observed in shallow cover wells for Sections II and III of the landfill, as presented Table 2.6-3. For SILC-4, VOC concentrations ranged from less than detectable to 46.7 ug/l.

It should be noted that due to the low volume of water in these shallow cover wells, typical groundwater sampling procedures could not be followed and standing water was not purged prior to sampling. Any VOCs in the water, regardless of their source from gas emissions or historical leaks or spills of leachate on the landfill cover could skew the significance of the VOC analytical results. Furthermore, given the reported construction methodology for the shallow cover wells (e.g., exploratory excavations that were backfilled while the PVC wells were held in place) the wells may be acting more as shallow collection sumps rather than representing transient water within the cover soils.

### 2.6.3 Conclusions

The sampling and analytical data show the presence of significant concentrations of VOCs in pore water from the shallow cover wells, especially wells SILC-2, SILC-3, and SILC-5, which are located in Cells D and E of Section I. These VOC concentrations are significantly higher than those observed in wells SILC-1 and SILC-4 in Section I and in the shallow cover wells installed in Sections II and III.

Seven of the eight the VOCs with the highest concentrations detected in pore water from the Section I cover wells, were also detected in soil gas on the Section I cover. Therefore, it is apparent that a primary source of the VOCs in the shallow cover well water is due to gas emissions of the VOCs diffusing through the PVC geomembrane and clay layer of Section I.

If constituents such as metals and semi-volatile organics were consistently shown to be present in water samples from the Section I shallow cover wells, contributions of these constituents from other sources would need to be considered. These other sources could include residuals of constituents from previous spills or leaks on the landfill cover. However such data, including data from background shallow wells, is limited at present and not sufficient to make definitive conclusions.

There is some potential for the VOC impacted pore in the water on the Section I cover to enter storm water or French drain systems, discussed below, and then eventually migrating to off-site surface waters from Outfall 001 of Pond A. However, due to the extremely low concentrations of VOCs detected in the French drains (as discussed in Section 2.7, below) and in surface water (as discussed in Section 2.8, below) as compared to the high VOC concentrations observed in perched water on the landfill cover, it appears unlikely that the VOCs in this perched cover water are a source of VOCs in either the French drains or surface waters at the site. This conclusion is further supported by the tight nature of cover soils and the apparent low volume of the perched water on Section I.

## 2.7 FRENCH DRAIN WATER QUALITY EVALUATION

### 2.7.1 Summary of Historical Data and Sampling Results

French drains were installed by the previous owners/operators to lower groundwater tables or levels during the construction of Sections I, II, and III of the landfill and to divert off-site groundwater around the landfill site. There is one perimeter French drain beginning at a location near the old tank farm and extending along the eastern edge of the property toward the entrance road/guard gate and then along the northern edge of the site along the North Road and ending near the intersection of North Road and West Road. There is a breakpoint on this perimeter French drain located near the entrance road/guard gate at which the groundwater collected in the French drain flows by gravity and discharges either into Pond A or Pond B. In one direction from the breakpoint, the groundwater in the French drain flows along the east edge of the site and then into hard piping near the old tank farm and eventually flows or discharges (at the water surface elevation) into Pond A. In the other direction from the breakpoint, the groundwater in the French drain flows for a short distance along the east edge of the site, along the north edge of the site following the North Road, and then into hard piping near the intersection of North Road and West Road and eventually flows or discharges (at the water surface elevation) into Pond B (Figure 2.7-1).

There is an additional French drain that extends along a portion of the east and west sides and along the south end of Section I of the landfill. This French drain was also installed to lower groundwater table during the construction of Section I. Five manholes are installed on the Section I French drain that are used to sample the water from the drain. Groundwater collected in this French drain flows by gravity from Manhole 4 on that French drain into hard piping along the west edge of Section I and eventually flows or discharges (at the water surface elevation) into Pond A in close proximity to the discharge from the perimeter French drain into Pond A (Figure 2.7-1).

The locations of the perimeter French drains around Sections I, II, and III of the landfill and discharge locations from these drains into Ponds A and B are presented on Figure 2.7-1.

The above described French drains, constructed of perforated corrugated plastic piping surrounded by gravel, remain in place and in operation at the site. AECOM personnel collected samples of the three separate French drain discharges at the point of those discharges into Pond A and B on November 10 -



11, 2010 for VOCs. The results of this sampling event are provided in Table 2.7-1 and are discussed below.

PSCT has been monitoring the groundwater within the Section I French drain and perimeter French drain discharges into Pond A and Pond B as one of many measures to monitor for the detection of any leakage or release of waste residuals from the landfill cells. Monitoring has included VOCs and metals. A summary of the results of this monitoring from 2008 through 2010 is provided in Table 2.7-2 and is discussed below.

The discharges from the French drains into Pond A and Pond B were observed by AECOM personnel during the site visit on October 10, 2010. The discharge water at that time was clear with little, if any, visible suspended solids.

#### 2.7.2 Analysis of French Drain Water Quality

As observed from Table 2.7-1, no VOCs were detected in the two discharges from the perimeter French drain discharges into Pond A or Pond B or the Section I French drain discharge into Pond A for those samples collected by AECOM personnel on November 10 - 11, 2010.

A summary of the results of monitoring by the PSCT from 2008 through 2010 is provided in Table 2.7-2. A few VOCs and metals have been detected in the discharges from the perimeter French drains to both Pond A and Pond B and within the manholes of the Section I French drain, but at very low concentrations, Methylene chloride was detected in a February 2008 sample at a concentration of 2.37 ug/l in the primary French drain discharge to Pond A; 2.41 ug/l in the Section I French drain discharge to Pond A; and 2.13 ug/l in Manhole 4 within the Section I French drain. Methylene chloride was not detected in the discharge from the perimeter French drain to Pond B for that sample event. The other VOC that was consistently detected, but again at low concentrations was 1,1-dichloroethane within the Section I French drain manholes ranging from < 1 ug/l to 2.94 ug/l. Other VOCs detected in the manholes within the Section I French drain system include chloromethane and tetrachloroethylene at < 1 ug/l. The only VOC detected in the perimeter French drain discharge to Pond B was chloromethane, also reported at < 1 ug/l. Of these VOCs detected within the French drains or the French drain discharges to Pond A or Pond B, methylene chloride, 1,1-dichloroethane and tetrachloroethylene were detected in either or both the groundwater in the shallow surface cover wells and soil gas samples collected within the Section I landfill.

NPDES Permit No. SC0042170, discussed in more detail in Section 2.8 below, specifies effluent limitations and other requirements for discharges of storm water and water from the French drains to Outfall 001 (discharge from Pond A) and Outfall 002 (discharge from Pond B). However, there are no specific monitoring requirements or effluent limitations specified for VOCs in the existing NPDES Permit. The permit, however, is currently scheduled for re-issuance or renewal.

Metals have been detected, but at low concentrations, in the water samples from the discharges of the French drains to both Pond A and Pond B. These include cadmium, arsenic, lead, and silver. The most

consistently detected metal is cadmium, with detections ranging from 0.2 to 1.23 ug/l. Arsenic concentrations have ranged from 0.06 to 0.4 ug/l. Lead concentrations have ranged from 0.01 to 0.08 ug/l. Silver concentrations have ranged from 0.004 ug/l to 0.009 ug/l. Cadmium concentrations appear to be slightly higher in the discharge from the Section I French drain to Pond A and the perimeter French drain discharge to Pond B than in the discharge from the perimeter French drain to Pond A.

In the current NPDES permit for the site, there is a monthly average and daily maximum effluent limitation for cadmium of 0.34 ug/l and 1.9 ug/l, respectively, for the Outfall 001 discharge from Pond A. As stated previously, cadmium has been detected in the discharges from the perimeter French drain and the Section I French drain ranging from 0.2 ug/l to 1.23 ug/l and is presumably a source of the cadmium in the discharge to Pond and the Outfall 001. However, those cadmium detections are for the influent into Pond A from the French drains and not for the total discharge (including storm water from Pond A) to the 001 Outfall. In the current NPDES permit, there is also a monthly average and daily maximum effluent limitation for lead of 3.4 ug/l and 88 ug/l, respectively, for the discharge from Pond A to the Outfall 001. However, lead concentrations in the French drain discharge (0.01 ug/l to 0.08 ug/l) are well below those permit limits.

### 2.7.3 Conclusions

The sampling and analytical data show the presence of only low detections of a few VOCs and metals in the discharges from the French drains to Pond A, Pond B and within the Section I French drain collection system. The reported concentrations of these constituents are not at significant levels to impact surface water outfalls (001 and 002). [Note: Currently there are no specific monitoring requirements or effluent limitations specified for Outfall 001 or Outfall 002 for VOCs in the NPDES Permit, however the permit is scheduled for re-issuance or renewal.]

No VOCs were detected in the discharge of water from the French drain that flows into Pond B, located primarily around Sections II and III.

Storm water quality (as discussed in Section 2.8, below) does not appear to be a source of contaminants to the Section I French drain system.

The comparison of VOCs from water samples in the Section I French drain are orders of magnitude lower than those measured in pore water on the adjacent Section I cover. Due to the tight nature of soils and the low volume of the perched water on Section I it appears unlikely that the VOCs in this perched cover water are a source of VOCs in the French drains at the site. However, additional sampling will be needed to understand whether the cover soil pore water contributes to the VOCs in the Section I French drain.

The number of Section I French drain sampling events and analytical parameters evaluated are not sufficient to evaluate the source of the contaminants in the Section I French drain (e.g., soil gas vapors or landfill leachate). Additional sampling events and an expanded suite of analytes will be required.

## 2.8 SURFACE WATER QUALITY EVALUATION

### 2.8.1 Description of Surface Water Discharges

Surface water discharges from the site include groundwater collected in the perimeter French drain and the Section I French drain; groundwater collected in a French drain installed to address a Solid Waste Management Unit (SWMU) in the vicinity of the First Flush Basin; and storm water runoff from Sections I, II, and III of the landfill site after rainfall events. As previously described, groundwater collected in the perimeter and Section I French drains flows via underground piping into surface water ponds A or B. Storm water collected on site flows through a series of ditches, pipes, and/or culverts off the covers of Sections I, II, and III of the landfill and other drainage basins around the landfill directly into surface water Pond A or Pond B or into the First Flush Basin. The First Flush Basin discharges to Pond A through a deeply incised influent channel. Additionally, the groundwater from the French drain constructed beneath the First Flush Basin is collected and pumped to one of two aeration basins (termed North and South Aeration Basins) for air stripping of any VOCs (if needed) prior to being directed to the influent channel that leads to Pond A. The combined flow of groundwater and storm water from Pond A or Pond B is then discharged into an un-named tributary of Lake Marion in accordance with effluent limitations and other requirements of NPDES Permit No. SC0042170. A copy of this NPDES Permit is provided in Appendix 2.8-1. The effective date of NPDES Permit SC0042170 was August 1, 2005 and the expiration date was July 31, 2010. Even though the expiration date of the permit has passed, the facility is operating under the effluent limitations of that existing permit until a new permit has been issued.

The potential pathways for any waste constituents to move from the Section I landfill via French drains and eventually to off-site surface waters along with the characteristics of that water in the French drains have previously been discussed in Sections 2.6 and 2.7. These pathways include: 1) the shallow or perched water on the Section I landfill cover, as observed in the shallow surface cover wells, following subsurface drainage contours off of the landfill cover and ultimately infiltrating into the French drains; 2) the condensation of soil gases from Section I within the French drains; or 3) some other pathway between the Section I landfill and French drains. However, due to the extremely low concentrations of VOCs detected in the French drains and in surface water (as discussed below) as compared to the high VOC concentrations observed in perched water on the landfill cover, it appears unlikely that the VOCs in this perched cover water are a source of VOCs in the French drains at the site. This conclusion is further supported by the tight nature of soils and the low volume of the perched water on Section I.

There is also the potential for any VOCs in the groundwater from the French drains at the First Flush Basin to enter Pond A and then discharge to off-site surface waters. The two collection points within that French drain system are designated as SBD#1 and SBD#2, which are pumped to the North and South Aeration Basins for treatment by volatilization/air stripping. NPDES Permit No. SC0042170 requires monitoring and reporting of tetrachloroethylene for the discharge from either the North or South Aeration Basin, as Outfall 01A. Even though there is no specific effluent limitation for tetrachloroethylene, monitoring is required to determine the effectiveness of the air stripping process on VOC removal in the basins.

Another potential pathway for landfill waste constituents to enter surface water is through storm water by contact of that storm water with long term standing or perched shallow groundwater containing VOCs on the Section I landfill cover or any residuals from previous spills or leaks of leachate on the landfill cover from past activities at the site. PSCT has periodically collected storm water samples from within the ditches, piping, and culverts of the storm water collection system for the Section I landfill. The most recent sampling event was in December of 2009. Storm water sampling locations are presented in Figure 2.8-1.

### 2.8.2 Analysis of Water Quality Data

The primary waste constituents in the groundwater from the two collection points designated as SB#1 and SB#2 within the French drain system at the First Flush Basin are summarized in Table 2.8-1. The constituents include:

- tetrachloroethylene ranging from 7.93 to 159 ug/l;
- cis-1,2 dichloroethylene ranging from 5.12 to 46.6 ug/l; and
- trichloroethylene ranging from 2.02 to 24.1 ug/l.

Other VOCs detected in this groundwater include 1,1-dichloroethane; 1,1,2-trichloroethane, 1,1-dichloroethylene; and 1,1,2,2-tetrachloroethylene ranging from less than detectable to 6.45 ug/l.

A summary of the discharge of Outfall 01A from the North and South Aeration Basins is presented in Table 2.8-2. This data shows that tetrachloroethylene concentrations are reduced from a range of 8 to 159 ug/l to less than 1 ug/l via volatilization/air stripping. Even though VOCs are introduced into the aeration basins, the data indicates that the discharge of water from the French drain at the First Flush Basin does not contribute any VOCs to Pond A or off-site surface waters due to the treatment of this groundwater via air stripping. No monitoring of the groundwater from the French drain system at the First Flush Basin is provided for SVOCs, 1,4 dioxane, or metals.

Data from the December 2009 storm water sampling event for Section I of the landfill is presented in Table 2.8-3. Acetone (a possible laboratory artifact) was detected at concentrations of 1.96 ug/l and 1.74 ug/l from storm water sampling stations SI-SW-5 and SI-SW-7, respectively. Chloromethane was the only other VOC constituent detected; less than 1 ug/l at sampling station SI-SW-6. There also was one detection of acetone (1.73 ug/l) at sampling location SI-SW-2 during a November 2009 sampling event. Based on the limited storm water sampling data presented in Table 2.8-3, it does not appear that any waste constituents are being contributed to storm water or to surface water from the Section I landfill area via contact with shallow water on the landfill cover or any waste residuals from past activities at the site.

NPDES Permit No. SC0042170 specifies monitoring and effluent limitations for the discharge from Outfall 001 (Pond A) and Outfall 002 (Pond B). A copy of these monitoring requirements and effluent limitations is provided in the permit in Appendix 2.8-1. Those outfalls or discharges are routinely monitored for

VOCs, pesticides/herbicides, and metals, including mercury. A summary of the results of this monitoring from 2008 to 2010 is provided for Outfalls 001 and 002 in Table 2.8-4. The results of this monitoring show that the characterization of the discharges from both Pond A, which receives groundwater from French drains around Section I and storm water runoff from Section I, and from Pond B, which does not receive any groundwater or storm water runoff from Section I, are similar. These discharges have historically been characterized by low concentrations (less than 1 ug/l) of cadmium, lead, silver, mercury, and arsenic; a few detections of pesticides/herbicides less than 0.1 ug/l; and few detections of VOCs, which could be laboratory artifacts (chloromethane at less than 1 ug/l, acetone at 1.56 to 6.56 ug/l, and acrolein at 2.34 ug/l). No discharge monitoring data was available for 1,4 dioxane.

Even at such low concentrations, the cadmium concentrations have occasionally approached or exceeded the monthly average discharge limitation of 0.34 ug/l for Outfall 001. Similar low concentrations of cadmium have been observed in the perimeter and Section I French drains that eventually discharge into Pond A and Pond B. Cadmium has not been monitored in the storm water discharges from the landfill site, including Section I. Therefore, the contribution of cadmium in the discharges from Outfall 001 and Outfall 002 from storm water, if any, is unknown.

The source of mercury in the discharges from Outfall 001 and Outfall 002 is not known. Mercury has not been monitored in the storm water discharges from the landfill site, including Section I or in French Drains. Therefore, the contribution of mercury from storm water, if any, is unknown. Analysis of quality assurance/quality control (QA/QC) data relating to mercury have indicated that the detections are not statistically significant in that mercury in blank samples was detected at concentrations similar to those being detected in the discharges from Outfall 001 and 002. Some additional evaluation including background data in storm water and groundwater and laboratory methodology is needed to verify the low concentrations of cadmium and mercury being detected at the site.

### 2.8.3 Conclusions

Based on the limited storm water sampling data discussed above, it does not appear that any waste constituents are being contributed to storm water or to surface water discharges from Pond A or Pond B from the Section I landfill area via contact of storm water with shallow water on the landfill cover or any waste residuals from past activities at the site.

Due to the extremely low concentrations of VOCs detected in the French drains and in surface water as compared to the high VOC concentrations observed in perched water on the landfill cover, it is not clear that the VOCs in this perched cover water are a source of VOCs in the French drains at the site.

Even though VOCs are present in the groundwater being pumped from the French drain at the First Flush Basin to the North and South Aeration Basins, those VOCs are being removed by volatilization/air stripping in those basins. Therefore, no VOCs are being contributed to Pond A or to off-site surface water discharges from that source.

The results of these monitoring programs indicate that the characterization of the discharges from both Pond A and from Pond B are similar. These discharges are characterized by low concentrations (less than 1 ug/l) of cadmium, lead, silver, mercury; a few detections of herbicides/pesticides less than 0.1 ug/l; and few detections of VOCs which could be laboratory artifacts (chloromethane at less than 1 ug/l and acetone at 2 to 7 ug/l).

The cadmium concentrations in the discharge from Outfall 001 have approached or exceeded the monthly average discharge limitation of 0.34 ug/l about half of the time. Similar low cadmium concentrations have been observed in the perimeter and Section I French drains, which eventually discharge into Pond A and Pond B. Cadmium has not been monitored in the storm water discharges from the landfill site, including Section I. Therefore, the contribution of cadmium in the discharges from Outfall 001 and Outfall 002 from storm water, if any, is unknown.

In order to verify the low concentrations of cadmium and mercury being detected are valid, additional storm water and groundwater background data is needed as well as an evaluation of laboratory methodologies.

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### **3.0 SECTION I STORM WATER CONVEYANCE EVALUATION**

Project 2 of the 2010 Pinewood Site Improvement Projects is focused on evaluating the condition and adequacy of the Section I storm water conveyance system. The purpose of this effort is to identify any inadequacies that may impact the performance of the cover and recommend corrective measures.

In order to evaluate the system, AECOM first performed field reconnaissance to observe the condition of the conveyance system and inventoried the components. Following the field reconnaissance, surveying was completed to map components that were not identified on existing drawings. Once the mapping was complete, the system was modeled hydraulically to determine the adequacy of the system components during various rainfall events. Following is a more detailed account of the evaluation performed including the results of the evaluation.

#### **3.1 INVENTORY OF STORM WATER SYSTEM COMPONENTS**

A 1-foot topographical map of the Pinewood Section I cover and the surrounding area was prepared in December of 2006 by Glenn Associates Surveying, Inc. The map outlines features such as roads, culverts, swales, and catch basins. A second map of the Pinewood Section I landfill was created in March of 2009 by Kestrel following construction activities associated with the sump and leachate transfer system installation. This map details areas where the cover was re-graded and also provides additional storm water conveyance information; culvert pipe sizing, materials of construction, and culvert invert elevations and storm water flow direction.

##### **3.1.1 Drawing Review**

The Section I leachate transfer system was installed on top of the existing cover and soil was placed over the force main. This additional cover created berms across the top of Section I, which divided the center of the cover into four areas. The center of the cover is relatively flat and is sloped approximately 1.5 percent; it is graded to drain storm water runoff away from the cover. A 12-foot wide road is located on the outer perimeter of the force main berms. This road allows access to the force main system. The landfill cover slopes approximately 5 percent between the access road and the perimeter of the cover. The entire cover is currently grassed.

A series of swales are located along the perimeter of the cover in order to drain storm water runoff off of the cover without flowing over the access road. The swales are grassed and are sloped approximately 2 percent. The topography of the Section I cover, including identified swales, is illustrated on Figure 3.1-1.

Storm water culverts were installed through the leachate transfer system berms at various locations in order to drain runoff away from the cover. These culverts are constructed of 15-inch corrugated plastic pipe and range in slope from 2 percent to 6 percent. Additional culverts are installed near the perimeter of the cover and vary in size from 12-inch to 18-inch. Culvert materials include corrugated metal,

reinforced concrete, and corrugated plastic. The locations of the culverts are also illustrated on Figure 3.1-1.

### 3.1.2 Field Reconnaissance

Field reconnaissance was performed in November 2010. The purpose of the site visit was to verify the location and characteristics of storm water conveyance structures identified using the existing topographical maps. Overgrown grass was noted near the vicinity of many of the culvert inlets during the site visit.

Following a review of available topographical information and data collected from the field reconnaissance, areas where additional information was needed to evaluate the conveyance capability of the Section I cover storm water system were identified. Storm water structures not on the existing maps were located and additional invert elevations were obtained in December 2010 by Lindler Surveying. Storm water features not in close proximity to the Section I cover were assumed to have adequate capacity and, therefore, were not included in the survey request.

## 3.2 MODELING OF EXISTING STORM WATER SYSTEM

The existing storm water conveyance system was modeled to evaluate the system's ability to drain storm water runoff away from the landfill cover. A 10 year, 24 hour and 25 year, 24 hour designed storm event were used in the analysis. The peak flow rates associated with the designed storm events were calculated using PondPack V8i. PondPack is widely used to model storm water systems and calculate flow rate characteristics.

The watershed associated with the cover was delineated using the topological information described above. The acreage was then segregated into drainage areas in order to determine the peak runoff flow rate associated with each storm water conveyance structure, as illustrated on Figure 3.2-1.

The entire cover is grassed; therefore, a curve number of 69 was used in the storm water model. The time of concentration, or the time required for a drop of water to travel from the most hydrologically remote point in the drainage area to the point of collection, was calculated in PondPack using inputs such as curve number, slope, and hydraulic length. Culvert capacities were calculated using CulvertMaster Version 3.1 and channel capacity was calculated using SedCAD 4. Modeling results are provided in Appendix 3.2-1.

### 3.2.1 Summary of Modeling Results

Approximately 6.8 acres of the watershed is located beyond the perimeter of the Section I cover. Runoff from this acreage is directed towards the landfill and consists of a portion of drainage area CM-29 and CM-14 as shown on Figure 3.2-1.



Existing culvert and channel characteristics, including their ability to convey runoff associated with the design storm events, are presented on Table 3.2-1. All channels in the vicinity of the cover are appropriately sized. However, channel CO-89 is positioned directly above the cover on the southernmost portion of the landfill.

### 3.2.2 Conclusions

The Section I cover is generally effective in conveying storm water off of and away from the landfill. The cover was grassed and there were no significant areas of erosion or settlement noted. The soil mounds that cover the leachate piping and utilities prevent direct radial flow of storm water off of the cover. Piping has been installed to convey water from these areas and is generally effective. However, AECOM confirmed that there are areas of surface water ponding on the Section I cover. Some of the culvert inlets were partially blocked with sediment and grass and some were determined to be undersized for the given drainage areas. In addition, the conveyance system is designed to gather water in swales on top of the cover. While this is not a preferred design, it does not seem to be a problem based on the analysis of leakage through the cover (see Section 2.3, above).

Further, there are areas where rainfall is directed onto the cover from the surrounding topography. These areas are low and prone to ponding. Section 4.9 of this document provides specific recommendations for correcting these concerns.

## **4.0 RECOMMENDATIONS**

The following recommendations are provided to the PSCT based on the Project 1 and Project 2 investigations and findings described in this document. These recommendations are also incorporated into the Project 3, Element 2 program, which is presented in Volume 3.

### **4.1 SOIL COVER**

Site personnel should continue to maintain the cover to prevent erosion. There are no specific recommendations related to the cover soil evaluation.

### **4.2 CLAY LAYER AND PVC GEOMEMBRANE**

Although the PVC geomembrane still appears to be performing satisfactorily as an infiltration barrier, due to the loss of plasticizer that has occurred since closure of Section I, it is recommended that samples of the membrane be re-evaluated in five years. There are no specific recommendations related to the clay liner.

### **4.3 LEACHATE GENERATION ANALYSIS**

#### **4.3.1 Leachate Trend Analysis**

Regular monitoring of leachate generation data versus rainfall should be continued. With the improved accuracy of the leachate generation data, trends may emerge that could not be recognized currently. As the Section I cover ages, leakage of precipitation through the cover system may become more likely and the trend plots could help identify if and when this occurs.

Comparing leachate generation data with water table and potentiometric surface variations over time, is recommended to determine if there is a meaningful correlation between the head difference (gradient) between the surrounding aquifers and leachate levels maintained in the landfill. This could shed light on the cause of the increasing leachate generation rates for the Section I landfill. Adequate wells do not currently exist in the water table aquifer to accurately depict the water table surface around the Section I landfill. Volume 3 of this report outlines additional water table monitoring wells that would provide adequate data to accurately depict water levels in and around the Section I landfill.

#### **4.3.2 On-Site Weather Station**

The addition of an on-site weather station would provide more accurate, site specific precipitation data.

#### 4.4 SETTLEMENT ANALYSIS

The settlement plates are not distributed uniformly across the cover. The plates are located only on the high points. More uniform distribution of settlement plates would provide a more accurate understanding of the cover settlement. Recommended locations for additional settlement markers on Section I are presented on Figure 4.4-1.

Monitoring of settlement across the Section I cover can be enhanced and made more useful in identifying trends and significant settlement events by adopting the following:

- Develop a more rigorous and scheduled surveying program to minimize data inconsistencies, and
- Plotting the data expeditiously to validate the values and quickly identify inconsistencies.

A topographic survey was last performed in 2006. A new topographic survey is recommended to identify settlement that may have occurred in areas without settlement markers.

#### 4.5 SOIL GAS MONITORING

The final cover over Section I does not incorporate gas management into its design. VOC “hot spots”, particularly over Cell E, may be reflective of diffusion of the VOCs through the geomembrane and clay, historic surface spills, construction flaws in the cover placement, or a degraded condition of the cover in these particular areas.

Although there is an apparent issue with VOC vapors diffusing through the PVC geomembrane and clay layer, the occurrence of VOCs in the cover soils does not appear to present a problem for the growth of the vegetative cover and VOCs are not detectable by a PID within the breathing zone in ambient air above the cover. Based on the field observations and geotechnical testing results, the physical properties of the clay soil layer did not appear to be impacted by the VOC vapors.

Soil Gas is, however, apparently impacting pore water contained within the cover soils on the landfill. The contribution of these constituents to adjacent groundwater, storm water runoff, and French drain discharge to surface water is unknown.

Soil gas survey points are recommended to monitor the vapors in the cover soils over the landfill on an annual basis. Soil gas survey points are also recommended to be installed at three areas adjacent to the landfill “hot-spots” to evaluate whether vapor emissions may be moving into the soils adjacent to the landfill and beyond the cover. The recommended soil gas survey points should be installed as permanent shallow (2-foot) gas monitoring wells. Permanent soil gas survey points are illustrated on Figure 4.5-1.

Three shallow groundwater monitoring wells are also recommended to be installed adjacent to the “hot-spots”. These wells could be used to evaluate groundwater occurrence and quality near the French

drains. Analysis of water from these wells, compared with the soil gas data may be useful in evaluating the low VOC detections in water from the Section I French drain, particularly at Manhole 5. The wells should be sampled contemporaneously with the soil gas survey points and analyzed for VOCs, including 1,4-dioxane. The presence of chlorinated VOCs in groundwater and absence of 1,4-dioxane could provide an indication that groundwater contaminants are originating from soil gas as opposed to a release of landfill/leachate constituents. The recommended locations of the monitoring wells are illustrated on Figure 4.5-1.

#### 4.6 SHALLOW COVER WELLS

The analytical data from the Section I shallow cover surface wells are highly variable due to shallow depth of these wells and the low volume of water they contain. Given that these wells may be acting more as sumps rather than monitoring transient water, the ongoing need to continue monitoring these shallow cover wells should be re-evaluated. The data collected from these wells should only be used to establish long term trends such as any increasing or decreasing concentrations of constituents in the cover pore water. If PSCT feels the need to continue to monitor these shallow cover wells, the analytical and sampling recommendations for the existing shallow cover surface wells in all landfill sections are noted below:

- All shallow surface cover wells should be sampled for VOCs on an annual basis to establish and monitor long term trends in the characteristics of water in the shallow cover wells on Sections I, II, and III of the landfill. This monitoring should be performed to determine if there are any significant changes in shallow or perched water quality on the landfill covers, such as increases or decreases in VOCs. If any such significant changes are observed, further investigations could be conducted to determine the cause of such changes.
- If such constituents as metals and semi-volatile organics (which would not be expected to be transferred by diffusive migration through a geosynthetic membrane and through the clay layers via gas emissions) were consistently shown to be present in water samples, contributions of these constituents from other sources would need to be considered. These other sources could include residuals of constituents from previous spills or leaks on the landfill cover from past activities at the site. Therefore, the following additional monitoring is recommended:
  - One existing water table well (WT032), located near Section I should be used as a background well for the shallow cover wells. This well should be sampled on an annual basis for VOCs; SVOCs; pesticides/herbicides, 1,4 dioxane and RCRA metals. The location of water table well WT032 in relation to Section I is illustrated on Figure 4.6-1.
  - One shallow cover well in each of the three landfill sections (Sections I, II, and III), should also be sampled on an annual basis for SVOCs, pesticides/herbicides, 1,4 dioxane and RCRA metals. These wells should be selected based on water samples exhibiting the historically highest VOC concentrations. The monitoring data from each shallow cover well should be compared with the results from well WT032.

#### 4.7 FRENCH DRAIN WATER QUALITY MONITORING

Sampling, analytical, and other recommendations for the site-wide system of French drains are noted below:

- The three main discharges from the French drains should be sampled for VOCs, 1,4 dioxane, and RCRA metals on a quarterly basis at the discharge points into Ponds A and B or the first manhole upstream on the French drain piping from the discharge points into Ponds A and B. On an annual basis, these three discharges should also be monitored for SVOCs and pesticides/herbicides. The recommended sampling points are illustrated on Figure 4.7-1.
- At least one groundwater monitoring well should be installed between the edge of the Section I landfill cover and the Section I French drain between manholes 4 and 5 and monitored for VOCs, 1,4 dioxane, and RCRA metals on a quarterly basis in order to determine if any of the water observed in the shallow cover wells on Section I is flowing off of the cover and toward the Section I French drain. The recommended monitoring well location is illustrated on Figure 4.5-1.
- Due to such low concentrations of VOCs and metals in the French drain water discharge to Pond A and Pond B, no additional treatment of this water is deemed necessary or recommended at this time.
- The collection and treatment of this French drain water may need to be considered at some point in the future if cadmium becomes an issue with regard to the NPDES effluent limitations for Outfall 001. Pump stations could be installed to intercept the French drain water and direct it back to the area of the existing aeration basins for VOC removal and metals treatment/removal. However, additional treatment processes would need to be designed, permitted and constructed if metals removal is required. The total volume of all three French drain discharges to either Ponds A or B is estimated to be in the range of 30 to 50 gallons per day (GPD) (0.043 to 0.072 million gallons per day [MGD]) based on observations during site visits in October and November 2010.

#### 4.8 SURFACE WATER QUALITY MONITORING

Sampling, analytical, and other recommendations for the storm water discharges are noted below:

- Storm water sampling should be in accordance with any requirements of a revised Storm Water Pollution Prevention Plan (SWPPP) for the site specified in the revised General NPDES Permit for storm water discharges associated with industrial activity, which became effective January 1, 2011.
- NPDES Permit No. SC0042170 specifies monitoring requirements for various outfalls or discharges from the site. The facility should continue to monitor in accordance with the existing or renewed permit.

- The rationale for the basis of any re-issued NPDES Permit effluent limitations should be thoroughly reviewed before accepting any effluent limitations specified in that permit, especially effluent limitations for any metals such as cadmium and/or mercury.
- It is recommended that storm water sampling at the present storm water sampling stations that discharge into Pond A (Figure 2.8-1) be discontinued.
- For discharges to Pond A, new sampling stations should be established at the following locations:
  - two influent piping locations to the First Flush Basin from the Section I landfill area,
  - the discharge from the First Flush Basin, and
  - the existing storm water sampling location SI-SW-3.
- For discharges to Pond B, new sampling locations should be established at the two influent piping locations to Pond B.

These sampling locations are illustrated on Figure 4.8-1. Monitoring at these new sampling locations should include VOCs, RCRA metals, and 1,4 dioxane on a quarterly basis and SVOCs and pesticides/herbicides on an annual basis.

Mercury has been reported at such low concentrations that it cannot be demonstrated to be a statistically significant contaminant to environmental media at the Pinewood site. No regulatory decisions should be made based on mercury data until any future detections can be demonstrated to be statistically valid with respect to the laboratory analytical methods and quality control procedures. Similarly, some additional evaluation, including background data in storm water and groundwater and laboratory methodology, is needed to verify the low concentrations of cadmium being detected at the site.

## 4.9 STORM WATER MANAGEMENT

### 4.9.1 Culvert Improvements

Various culverts are currently undersized to accommodate runoff from the modeled storm events. Preliminary sizing for replacement culverts is presented in Table 4.9-1. The majority of the replacement culverts are similar in size to those recommended for replacement. For example, culvert J-21 is currently 18-inches in diameter and a 24-inch replacement culvert is required.

Acreage near the inlet of culvert J-43 is currently subject to ponding; this culvert is currently undersized and needs to be replaced. The culvert is currently composed of two 12-inch pipes; two 30-inch pipes are required to accommodate runoff from the designed storm event. The culvert should also be lowered and relocated approximately 60 feet to the southeast in order to ensure positive drainage. The recommended location of culvert J-43 is illustrated on Figure 4.9-1.

#### 4.9.2 Redirecting Drainage Away From the Section I Cover

Allowing storm water to run onto the landfill cover should be avoided whenever possible. Culvert J-43 drains drainage area CM-14. CM-14 is approximately 5.5 acres in size and extends beyond the landfill cover. Re-grading may be possible to reduce the amount of runoff reaching culvert J-43. Reducing the acreage of drainage area CM-14 would in turn reduce the required size of the J-43 replacement culverts. A berm is proposed to divert runoff away from the cap and reduce the size of drainage area CM-14. The location of this berm and the proposed reduction in the drainage area size is illustrated on Figure 4.9-1.

A portion of drainage area CM-29 is also located beyond the cover. A culvert in this drainage area discharges to the high point of channel J-129. This portion of the channel is located on the perimeter of the cover. It may be possible to install a berm to redirect storm water into the channel at a point down gradient of the cover. Proposed measures to reduce the size of drainage area CM-29 are illustrated on Figure 4.9-1.

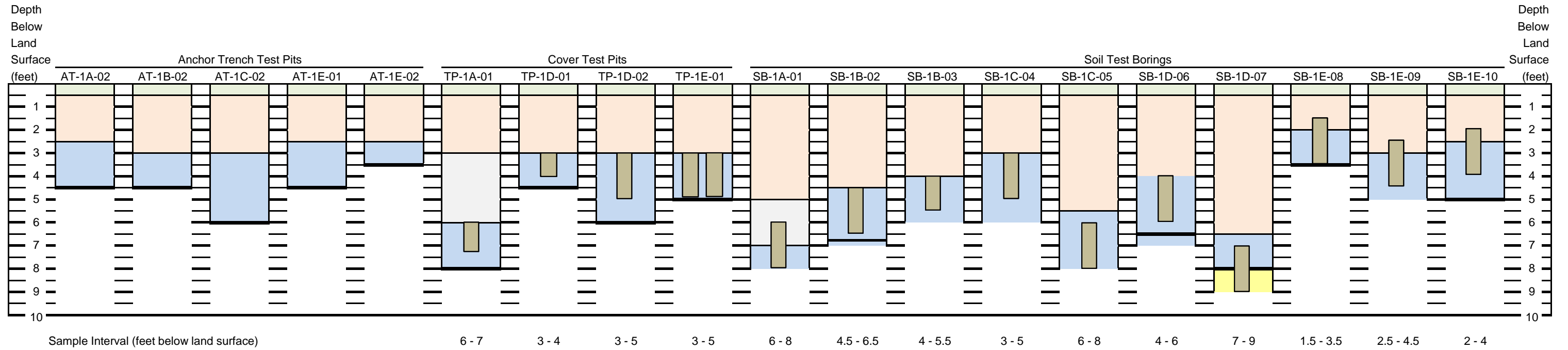
## 5.0 REFERENCES

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## **TABLES**

TABLE 2.2-1  
 Summary of Soil Depths and Thicknesses  
 Section I Cover  
 Pinewood Landfill  
 Pinewood, South Carolina



**Notes:**  
 Thickness and Depth of Soil Layers in Test Pits is illustrated at the Geomembrane Sampling Locations.  
 Depth intervals are rounded to the nearest 0.5 feet for illustrative purposes.

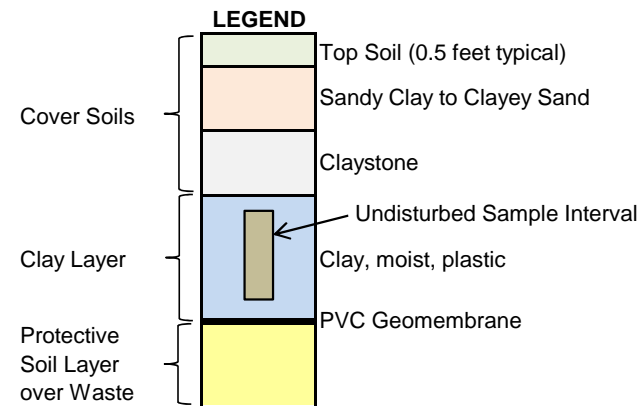


TABLE 2.2-2  
 Summary of Geotechnical Laboratory Tests on Undisturbed Soil Samples  
 Section I Cover  
 Pinewood Landfill  
 Pinewood, South Carolina

	Sample Number	Sample Depth Below Grade (feet)	Date		Atterberg Limits			Moisture Percent	Dry Density (pcf)	Soils Passing P200 Sieve (%)	Soils <0.005 mm (%)	Hydraulic Conductivity (cm/s)	USCS Classification
			Sample Received	Sample Extracted	LL	PL	PI						
Cover Test Pits	TP-1A-01	6-7	12/23/2010	01/04/11	50	23	27	29.2	96.2	79.3	37.8	1.04x10 <sup>-7</sup>	CH
	TP-1D-01	3-4	12/23/2010	01/04/11	46	23	23	21.5		74.7			CL
	TP-1D-02	3-5	12/23/2010	01/04/11	55	23	32	22.8	103.1	81.4	41.9	5.58x10 <sup>-8</sup>	CH
	TP-1E-01A	3-5	12/23/2010	01/04/11	59	21	38	27.6	96.4	78.5	45.0	7.74x10 <sup>-8</sup>	CH
	TP-1E-01B	3-5	12/23/2010	01/04/11				29.6					
Soil Test Borings	SB-1A-01	6-8	12/23/2010	01/04/11				50.7					
	SB-1A-01(A)	6-8	12/23/2010	01/04/11	47	23	24	33.4	87.4	85.8	37.1	1.71x10 <sup>-7</sup>	CL
	SB-1B-2	4.5-6.5	12/23/2010	01/04/11				24.1					
	SB-1B-2(A)	4.5-6.5	12/23/2010	01/04/11	58	25	33	30.2	91.6	90.6	47.7	2.65x10 <sup>-8</sup>	CH
	SB-1B-3	4-5.5	12/23/2010	01/04/11	44	23	21	27.9	99.5	71.1	33.0	1.38x10 <sup>-8</sup>	CL
	SB-1C-04	3-5	12/23/2010	01/05/11				13.4					
	SB-1C-04(A)	3-5	12/23/2010	01/05/11	33	16	17	16.7	108.9	45.8	26.0	8.74x10 <sup>-8</sup>	SC
	SB-1C-05	6-8	12/23/2010	01/05/11				21.5					
	SB-1C-05(A)	6-8	12/23/2010	01/05/11	38	17	21	16.2	112.6	37.2	27.9	1.85x10 <sup>-8</sup>	SC
	SB-1D-06	4-6	12/23/2010	01/05/11	43	21	22	16.9	124.8	36.3	22	2.85x10 <sup>-6</sup>	SC
	SB-1D-06(A)	4-6	12/23/2010	01/05/11				16.9		58.8			CL
	SB-1D-07	7-9	12/23/2010	01/05/11	50	21	29	26.1		77.6			CH
	SB-1D-07(A)*	7-9	12/23/2010	01/05/11				11.6					
	SB-1E-8	1.5-3.5	12/23/2010	01/05/11	57	20	37	22.8	104.8	72.0	46.3	2.33x10 <sup>-6</sup>	CH
	SB-1E-8(A)	1.5-3.5	12/23/2010	01/05/11				18.2					
	SB-1E-9	2.5-4.5	12/23/2010	01/05/11				24.7					SC
SB-1E-9(A)	2.5-4.5	12/23/2010	01/05/11	50	21	29	25.2					CH	
SB-1E-10	2-4	12/23/2010	01/05/11				10.7						
SB-1E-10(A)	2-4	12/23/2010	01/05/11	50	21	29	22.1		73.9			CH	

Notes:

LL = Liquid Limit  
 PL = Plastic Limit  
 PI = Plasticity Index  
 pcf = pounds per cubic foot

cm/s = centimeters per second  
 mm = millimeters  
 USCS = Unified Soil Classification System  
 Unless Noted Otherwise Testing Was Performed on Clay Layer above PVC Geomembrane

(A) ~ denotes the bottom portion of the Shelby tube

Cover Soils above Clay Layer
* ~ soil below PVC geomembrane

TABLE 2.2-3  
 Summary of Geotechnical Laboratory Tests on Bulk Soil Samples  
 Section I Cover  
 Pinewood Landfill  
 Pinewood, South Carolina

	Sample Number	Sample Depth Below Grade (feet)	Date Sample Received	Atterberg Limits			Soils Passing P200 Sieve (%)	USCS Classification
				LL	PL	PI		
<b>Anchor Trench Test Pits</b>	AT-1B-01		12/23/2010	40	28	12	52.2	ML
	AT-1C-01		12/23/2010	40	27	13	43.4	SM
	AT-1E-01		12/23/2010	53	29	24		CH
<b>Soil Test Borings</b>	SB-1A-01	0-2	12/23/2010	34	25	9		SC
	SB-1B-02	2-4	12/23/2010	36	23	13	29.2	SC
	SB-1C-04	2-4	12/23/2010	NP	NP	NP		SM
	SB-1D-06	2-4	12/23/2010	47	36	11	15.5	SM
	SB-1D-07	0-2	12/23/2010	NP	NP	NP	36.6	SM
<b>Cover Test Pits</b>	TP-1A-01		12/23/2010	39	18	21	39.1	SC
	TP-1D-01		12/23/2010	NP	NP	NP	26.4	SM
	TP-1D-02		12/23/2010	NP	NP	NP	27.2	SM
	TP-1E-01	1-2	12/23/2010	25	14	11	18.6	SC
	TP-1E-01	2-2.9	12/23/2010	NP	NP	NP	15.4	SM

Notes:

LL = Liquid Limit

PL = Plastic Limit

PI = Plasticity Index

USCS = Unified Soil Classification System

TABLE 2.2-4  
 Summary of PVC Geomembrane Test Results  
 Section I Cover  
 Pinewood Landfill  
 Pinewood, South Carolina

	Sample No.	Mean Thickness (mils)	Tensile Strength at 100% Strain (ppi)	Break Strength (ppi)	Break Elongation %	Depth Below Grade or Cover Thickness (feet)	Seam Peel Strength @ 100% Peel Incursion (ppi)	Seam Shear Strength @ 100% Shear Elongation (ppi)	Percent Plasticizer %
<b>Anchor Trench Test Pits</b>	AT-1A-01(A)	16.7	54	60	210	4.0			16.3
	AT-1A-01(B)		50	53	178				
	AT-1B-01 (A)	18.2	48	55	198	4.5			
	AT-1B-01 (B)		48	54	209				
	AT-1C-01 (A)	20.2	42	58	270	6.0	18.0	46.0	
	AT-1C-01 (B)		38	52	266				
	AT-1E-01 (A)	19.6	35	44	232	4.5		47.0	
	AT-1E-01 (B)		32	45	263				
	AT-1E-02 (A)	19.2	36	50	278	3.5			
AT-1E-02 (B)	36		53	323					
<b>Cover Test Pits</b>	TP-1A-01(A)	18.6	37	54	302	8.0			
	TP-1A-01(B)		31	46	302				
	TP-1A-01-Lower (A)	18.8	36	51	285	8.0			
	TP-1A-01-Lower (B)		31	50	367				
	TP-1D-01(A)	20.3	31	55	462	4.7			
	TP-1D-01(B)		35	54	362				
	TP-1D-02(A)	18.6	35	57	342	5.8			
	TP-1D-02(B)		32	52	357				
	TP-1E-01(A)	19.9	46	59	337	5.0			
TP-1E-01(B)	31		48	334					

Notes:

mil = one-thousandth of an inch  
 ppi = pounds per inch

**SPECIFICATIONS FOR NEW 20-mil PVC GEOMEMBRANE:**

Thickness ~ 20mils (+/- 1mil)  
 Tensile Strength at 100 percent Strain ~ 20 ppi  
 Break Strength at 100 percent Strain ~ 48 ppi  
 Break Elongation ~ 360 %  
 Peel Strength 12.5 ppi  
 Shear Strength 38.4 ppi  
 Percent Plasticizer ~ 30%

TABLE 2.4-1  
 Summary of Settlement Plate Survey Data - Section I Cover  
 Section I Cover  
 Pinewood Landfill  
 Pinewood, South Carolina

PLATE NUMBER	A-1	B-1	B-2	B-3	C-1	D-1	D-2	D-3	D-4	D-5	E-1	E-2	E-3
DATE													
Apr-83						140.230	144.100	145.880	140.380	139.070			
May-83						141.000	143.930	145.630	141.210	138.900			
Jan-84						140.780	143.780	145.400	141.040	138.710			
Jan-85						140.650	143.660	145.230	140.890	138.560			
Jul-86						140.470	143.450		140.660	138.380			
Aug-87						140.400	143.430		140.630	138.300			
Dec-87						140.390	143.420		140.620				
Jan-88						140.380	143.410		140.620				
Mar-88						140.350	143.380						
Oct-89						140.170	143.280			138.110			
May-90						140.170	143.280			138.110			
Mar-92						140.100	143.220			137.930			
Jan-94						140.400	143.390	145.220	140.620	138.190			
Mar-94						140.390	143.410	145.230	140.640	138.200			
Jun-94						140.360	143.410	145.220	140.640	138.200			
Sep-94						140.330	143.400	145.190	140.630	138.190			
Dec-94						140.310	143.390	145.170	140.630	138.190			
Mar-95						140.320	143.410	145.170	140.650	138.180			
Jun-95						140.290	143.390	145.150	140.630	138.160			
Sep-95						140.260	143.370	145.110	140.600	138.130			
Dec-95						140.250	143.370	145.100	140.600	138.120			
Mar-96						140.290	143.410	145.130	140.640	138.150			
Jun-96						140.270	143.400	145.120	140.630	138.150			
Sep-96						140.240	143.370	145.070	140.600	138.110			
Dec-96						140.230	143.370	145.070	140.610	138.120			
Mar-97						140.240	143.380	145.070	140.620	138.120			
Jun-97						140.220	143.380	145.050	140.600	138.100			
Sep-97						140.220	143.380	145.050	140.600	138.100			
Dec-97						140.190	143.360	145.020	140.540	138.080			
Mar-98						140.180	143.340	144.990	140.480	138.040			
Jun-98						140.130	143.310	144.950	140.420	137.990			
Sep-98						140.120	143.300	144.930	140.390	137.960			
Dec-98						140.160	143.340	144.960	140.430	137.990			
Mar-99						140.170	143.360	144.970	140.430	137.990			
Jun-99						140.150	143.350	144.950	140.400	137.970			
Sep-99						140.105	143.303	144.900	140.344	137.905			
Dec-99						140.142	143.350	144.933	140.370	137.623			
Mar-00						140.122	143.334	144.906	140.348	137.896			
May-00						140.156	143.372	144.934	140.375	137.925			
Sep-00						140.099	143.303	144.864	140.301	137.850			
Dec-00						140.128	143.334	144.887	140.331	137.873			
Mar-01						140.070	143.279	144.829	140.278	137.818			
Jun-01						140.084	143.292	144.832	140.284	137.823			
Sep-01						140.083	143.294	144.827	140.286	137.825			

TABLE 2.4-1  
 Summary of Settlement Plate Survey Data - Section I Cover  
 Section I Cover  
 Pinewood Landfill  
 Pinewood, South Carolina

PLATE NUMBER	A-1	B-1	B-2	B-3	C-1	D-1	D-2	D-3	D-4	D-5	E-1	E-2	E-3
DATE													
Jan-02						140.079	143.296	144.815	140.281	137.812			
Mar-02						140.053	143.271	144.782	140.257	137.787			
Jun-02						140.092	143.312	144.821	140.300	137.831			
Sep-02						140.048	143.269	144.768	140.250	137.778			
Dec-02	132.065	141.269	143.198	138.548	143.692	140.039	143.265	144.756	140.250	137.772	143.259	142.961	141.442
Mar-03	132.067	141.270	143.203	138.551	143.679	140.042	143.272	144.752	140.253	137.769	143.271	142.958	141.447
Jun-03	132.041	141.234	143.178	138.527	143.624	140.008	143.256	144.720	140.235	137.748	143.251	142.938	141.435
Sep-03	132.047	141.233	143.184	138.535	143.604	140.012	143.247	144.705	140.224	137.735	143.249	142.929	141.431
Dec-03	132.045	141.229	143.187	138.536	143.584	140.017	143.256	144.699	140.227	137.731	143.260	142.929	141.437
Mar-04	131.953	141.093	143.063	138.433	143.488		143.206	144.646	140.193	137.688	143.186	142.876	141.367
Jun-04	132.019	141.200	143.184	138.518	143.496		143.238	144.652	140.199	137.693	143.239	142.888	141.423
Sep-04	132.005	141.176	143.165	138.501	143.483		143.219	144.631	140.183	137.675	143.226	142.878	141.408
Mar-05						139.937	143.202	144.602	140.157	137.642			
Aug-05						139.952	143.227	144.597	140.157	137.632			
Sep-05	132.011	141.167	143.188	138.516	143.447	139.982	143.252	144.631	140.204	137.681	143.261	142.893	141.441
Dec-05	132.029	141.182	143.206	138.534	143.456	139.995	143.259	144.636	140.211	137.681	143.270	142.894	141.448
Mar-06	131.988	141.153	143.175	138.494	143.397	139.951	143.219	144.588	140.172	137.636	143.231	142.852	141.412
May-06	132.005	141.149	143.188	138.506	143.403	139.969	143.240	144.600	140.189	137.653	143.252	142.871	141.436
Sep-06	132.034	141.173	143.219	138.535	143.418	139.999	143.270	144.619	140.212	137.676	143.283	142.895	141.465
Nov-06	132.019	141.17	143.215	138.523	143.401	139.986	143.262	144.609	140.209	137.664	143.279	142.879	141.458
Feb-07	132.038	141.181	143.238	138.546	143.405	140.000	143.281	144.615	140.219	137.668	143.290	142.887	141.473
May-07	132.009	141.142	143.214	138.517	143.369	139.966	143.261	144.589	140.192	137.637	143.272	142.867	141.456
Aug-07	131.976	141.133	143.186	138.493	143.339	139.961	143.246	144.567	140.176	137.616	143.258	142.848	141.441
Nov-07	131.964	141.103	143.177	138.48	143.305	139.929	143.221	144.539	140.150	137.584	143.231	142.813	141.413
Mar-08	131.95	141.088	143.169	138.469	143.282	139.927	143.216	144.524	140.140	137.574	143.229	142.802	141.410
May-08	131.944	141.073	143.162	138.459	143.265	139.896	143.193	144.510	140.129	137.553	143.215	142.791	141.405
Aug-08	131.935	141.054	143.154	138.447	143.247	139.878	143.177	144.497	140.123	137.545	143.208	142.779	141.398
Nov-08	131.926	141.072	143.151	138.442	143.23	139.888	143.190	144.480	140.109	137.533	143.219	142.779	141.399
Mar-09	131.918	141.049	143.161	138.448	143.219	139.861	143.175	144.472	140.111	137.519	143.217	142.770	141.400
Jun-09	131.949	141.075	143.185	138.474	143.246	139.893	143.212		140.147	137.548	143.263	142.811	141.451
Oct-09	131.908	141.037	143.155	138.439	143.184	139.831	143.149	144.441	140.098	137.476	143.207	142.750	141.396
Dec-09	131.919	141.052	143.18	138.452	143.201	139.853	143.185	144.470	140.127	137.498	143.250	142.781	141.437
Mar-10	131.875	140.999	143.133	138.405	143.13	139.793	143.126	144.401	140.070		143.188	142.712	141.369
Jun-10	131.896	141.028	143.163	138.442	143.165	139.825	143.163	144.433	140.121	137.473	143.232	142.761	141.423
Oct-10	131.931	141.052	143.195	138.471	143.187	139.864	143.207	144.468	140.158	137.502	143.283	142.794	141.462
Lifetime Total Δ (ft)	-0.13400	-0.21700	-0.00300	-0.07700	-0.50500	-0.36600	-0.89300	-1.41200	-0.22200	-1.56800	0.02400	-0.16700	0.02000
Average Quarterly Δ (ft)	-0.00462	-0.00748	-0.00010	-0.00266	-0.01741	-0.00482	-0.01130	-0.02017	-0.00296	-0.02091	0.00083	-0.00576	0.00069
Maximum	132.07	141.27	143.24	138.55	143.69	141.00	144.10	145.88	141.21	139.07	143.29	142.96	141.47
Minimum	131.88	141.00	143.06	138.41	143.13	139.79	143.13	144.40	140.07	137.47	143.19	142.71	141.37
* Surveyed by Virogroup. All previous elevations were surveyed by Mathis. Virogroup's control system is +0.12 above Mathis' last remaining benchmark on site. All five (5) settlement plates were replaced. The two (2) destroyed plates were reset to last known elevation. The three (3) bent plates were reset by measuring distance from ground to bend and bend to top of casing.													
OUTLIERS REMOVED													
row 57 is start of measurements						row 9 is start of measurements					row 57 is start of measurements		
	132.065	141.269	143.198	138.548	143.692	140.230	144.100	145.880	140.380	139.070	143.259	142.961	141.442
						row 21 was used previously							
						140.400	143.390	145.220	140.620	138.190			

TABLE 2.4-2  
Summary of Projected Settlement  
Section I Cover  
Pinewood Landfill  
Pinewood, South Carolina

<b>Section I Landfill</b>																
<b>Cells</b>	<b>Cell A</b>				<b>Cell B</b>			<b>Cell C</b>			<b>Cell D</b>			<b>Cell E</b>		
<b>Sumps</b>	1A1P	1A2P	1A3P	1A4P	1B1P	1B2P	1B3P	1C1P	1C2P	1C3P	1D1P	1D2P	1D3P	1E1P	1E2P	1E3P
<b>1996</b>	Note 1	Note 1	Note 1	Note 1	Note 1	Note 1	Note 1	Note 1	Note 1	Note 1	Note 2	Note 2	Note 2	Note 1	Note 1	Note 1
<b>1997</b>	Note 1	Note 1	Note 1	Note 1	Note 1	Note 1	Note 1	Note 1	Note 1	Note 1	5,938	16,553	9,075	Note 1	Note 1	Note 1
<b>1998</b>	Note 1	Note 1	Note 1	Note 1	Note 1	Note 1	Note 1	Note 1	Note 1	Note 1	3,231	25,712	10,633	Note 1	Note 1	Note 1
<b>1999</b>	Note 1	Note 1	Note 1	Note 1	Note 1	Note 1	Note 1	Note 1	Note 1	Note 1	4,594	21,972	10,314	Note 1	Note 1	Note 1
<b>2000</b>	Note 1	Note 1	Note 1	Note 1	Note 1	Note 1	Note 1	Note 1	Note 1	Note 1	3,150	29,350	10,612	Note 1	Note 1	Note 1
<b>2001</b>	Note 1	Note 1	Note 1	Note 1	Note 1	Note 1	Note 1	Note 1	Note 1	Note 1	3,012	21,132	11,702	Note 1	Note 1	Note 1
<b>2002</b>	3,626	5,814	2,804	3,331	2,972	4,593	3,233	17,877	10,573	8,012	1,472	15,641	13,068	6,451	7,235	3,102
<b>2003</b>	6,813	8,735	3,341	6,807	5,893	6,711	3,960	9,045	11,182	11,662	1,417	29,798	21,310	8,455	8,613	3,610
<b>2004</b>	4,128	5,039	2,495	3,631	3,865	3,787	2,722	7,189	8,923	8,576	1,418	14,317	24,855	3,554	5,045	4,441
<b>2005</b>	7,114	10,897	5,804	6,924	12,008	11,978	6,935	25,638	18,342	19,353	4,695	33,714	11,594	8,209	10,021	7,074
<b>2006</b>	9,830	11,293	9,503	8,575	15,065	11,591	7,992	16,930	18,541	22,190	4,757	28,425	8,141	9,140	10,967	7,044
<b>2007</b>	9,448	12,858	8,580	17,758	10,565	14,398	7,862	38,622	33,450	43,049	4,057	50,080	28,464	17,047	16,546	12,405
<b>2008</b>	12,995	19,651	8,082	13,678	11,524	14,221	8,846	30,554	32,054	37,087	2,476	46,478	23,148	13,464	18,343	8,330
<b>2009</b>	11,263	18,172	8,774	14,351	12,660	16,155	15,700	27,948	27,023	42,635	8,948	85,901	26,712	12,298	16,123	8,860
<b>2010</b>	9,267	21,657	7,549	11,564	18,046	14,088	8,351	27,143	35,985	41,814	13,083	121,769	24,565	10,892	14,670	7,848
<b>Gallons Leachate Removed</b>	74,484	114,117	56,932	86,620	92,598	97,521	65,601	200,945	196,072	234,376	62,248	540,843	234,193	89,511	107,563	62,714
<b>Cubic Feet Removed</b>	9,958	15,256	7,611	11,580	12,379	13,038	8,770	26,864	26,213	31,334	8,322	72,305	31,309	11,967	14,380	8,384
<b>Surface Area Attributed to Sump (SF)</b>	58,465	42,275	39,620	49,305	40,435	27,920	49,060	56,500	43,465	49,000	59,140	40,040	51,275	120,680	108,365	115,053
<b>Average Projected Settlement (ft)</b>	0.17	0.36	0.19	0.23	0.31	0.47	0.18	0.48	0.60	0.64	0.14	1.81	0.61	0.10	0.13	0.07
<b>Cumulative Settlement at Near-by Marker (ft)</b>	NA	NA	NA	NA	NA	0.22	0.08	NA	0.50	NA	0.38	0.60	0.62	NA	0.17	NA
<b>Gallons Leachate Removed</b>	332,153				255,720			631,393			837,284			259,789		
<b>Cubic Feet Removed</b>	44,405				34,187			84,411			111,936			34,731		
<b>Surface Area Attributed to Cell (SF)</b>	189,665				117,415			148,965			150,455			344,098		
<b>Average Projected Settlement (ft)</b>	0.23				0.29			0.57			0.74			0.10		
<b>Average Cumulative Measured Settlement (ft)</b>	0.13				0.10			0.50			0.45			0.04		

Note 1 - Leachate data not used because settlement data was not available for this time period

Note 2 - Leachate data not available for this time period



TABLE 2.5-1  
Soil Gas Survey Analytical Results  
GORE Standard Target VOCs/SVOCs (A1)  
Section I Cover  
Pinewood Landfill  
Pinewood, South Carolina

DATE ANALYZED	FIELD ID	SAMPLE NAME	TPH	BTEX	BENZ	TOL	EtBENZ	mpXYL	oXYL
		MDL=							
11/19/10	BG-01	648027	16.45	0.26	0.13	0.07	0.02	0.04	bdl
11/19/10	BG-02	648028	0.11	nd	nd	nd	nd	nd	nd
11/18/10	SG-1A-01	648029	0.12	0.06	0.06	nd	nd	nd	nd
11/19/10	SG-1A-02	648030	0.09	nd	nd	nd	nd	nd	nd
11/19/10	SG-1A-03	648031	0.31	nd	nd	nd	nd	nd	nd
11/19/10	SG-1A-04	648032	0.18	0.02	0.02	nd	nd	nd	nd
11/19/10	SG-1A-06	648033	0.19	nd	nd	nd	nd	nd	nd
11/19/10	SG-1A-05	648034	0.16	0.04	0.04	nd	nd	nd	nd
11/19/10	SG-1A-07	648035	0.04	nd	nd	nd	nd	nd	nd
11/20/10	SG-1A-09	648036	0.06	bdl	bdl	nd	nd	nd	nd
11/20/10	SG-1A-08	648037	0.08	nd	nd	nd	nd	nd	nd
11/19/10	SG-1B-10	648038	0.08	0.06	0.06	nd	nd	nd	nd
11/18/10	SG-1C-20	648039	18.29	0.20	0.20	bdl	nd	nd	nd
11/19/10	SG-1B-11	648041	0.20	nd	nd	nd	nd	nd	nd
11/19/10	SG-1B-12	648042	0.02	0.05	0.05	nd	nd	nd	nd
11/18/10	SG-1B-13	648043	0.02	bdl	bdl	nd	nd	nd	nd
11/19/10	SG-1B-14	648044	0.12	0.05	0.05	nd	nd	nd	nd
11/18/10	SG-1B-15	648045	0.05	nd	nd	nd	nd	nd	nd
11/18/10	SG-1B-16	648046	0.05	0.09	0.09	nd	nd	nd	nd
11/19/10	SG-1B-22	648047	0.55	0.02	0.02	nd	nd	nd	nd
11/19/10	SG-1B-24	648048	0.05	0.04	0.04	nd	nd	nd	nd
11/20/10	SG-1B-26	648049	0.59	0.05	0.05	nd	nd	nd	nd
11/19/10	SG-1B-17	648050	0.31	0.03	0.03	nd	nd	nd	nd
11/18/10	SG-1B-18	648051	0.10	0.04	0.04	nd	nd	nd	nd
11/19/10	SG-1C-27	648053	0.08	0.13	0.13	nd	nd	nd	nd
11/18/10	SG-1D-35	648054	49.09	0.70	0.42	0.14	0.05	0.05	0.04
11/19/10	SG-1C-25	648055	0.09	0.02	0.02	nd	nd	nd	nd
11/19/10	SG-1D-33	648056	0.91	0.08	0.05	0.02	nd	nd	bdl
11/19/10	SG-1C-23	648057	2.63	0.13	0.10	0.03	nd	nd	bdl
11/19/10	SG-1C-21	648058	0.23	0.05	0.05	nd	nd	nd	nd
11/19/10	SG-1D-31	648059	1.58	0.04	0.04	nd	nd	nd	nd
11/18/10	SG-1D-30	648060	0.18	0.06	0.06	nd	nd	nd	nd
11/19/10	SG-1D-32	648061	0.47	0.09	0.09	nd	nd	nd	nd
11/19/10	SG-1D-34	648062	0.03	0.03	0.03	nd	nd	nd	nd
11/18/10	SG-1D-36	648063	bdl	nd	nd	nd	nd	nd	nd
11/19/10	SG-1E-49	648064	1.25	0.96	0.16	0.36	0.10	0.19	0.14
11/19/10	SG-1E-48	648065	0.47	0.07	0.05	nd	0.02	bdl	nd
11/19/10	SG-1E-44	648066	8.13	0.73	0.70	nd	nd	nd	0.03
11/19/10	SG-1E-42	648067	0.12	0.05	0.05	nd	nd	nd	nd
11/19/10	SG-1E-40	648068	0.24	nd	nd	nd	nd	nd	nd
11/19/10	SG-1E-39	648069	0.38	0.20	0.20	nd	nd	nd	nd
11/18/10	SG-1E-37	648070	0.47	0.03	0.03	nd	nd	nd	nd
11/19/10	SG-1E-41	648071	0.10	0.02	0.02	nd	nd	nd	nd
11/19/10	SG-1E-43	648072	0.08	0.55	0.52	0.03	nd	nd	nd
11/19/10	SG-1E-46	648073	0.71	1.90	1.58	0.20	nd	0.05	0.06
11/19/10	SG-1E-45	648074	0.39	0.04	0.04	nd	nd	nd	nd
11/19/10	SG-1E-47	648075	0.09	0.09	nd	nd	nd	nd	0.09
11/19/10	SG-1E-50	648076	bdl	0.04	0.04	nd	nd	nd	nd
11/18/10	SG-1E-38	648077	25.83	0.07	0.07	nd	nd	bdl	bdl
11/19/10	SG-1D-28	648078	0.07	nd	nd	nd	nd	nd	nd
11/19/10	SG-1D-29	648079	0.48	0.03	0.03	nd	nd	nd	nd
11/18/10	SG-1C-19	648080	0.53	0.05	0.05	nd	nd	nd	nd
11/19/10	TRIP BLANK-01	648040	nd	nd	nd	nd	nd	nd	nd
11/19/10	TRIP BLANK-02	648052	nd	nd	nd	nd	nd	nd	nd
11/19/10	TRIP BLANK-03	648081	nd	nd	nd	nd	nd	nd	nd
11/19/10	TRIP BLANK-04	648082	nd	nd	nd	nd	nd	nd	nd
11/18/10	method blank	method blank	nd	nd	nd	nd	nd	nd	nd
11/19/10	method blank	method blank	nd	nd	nd	nd	nd	nd	nd

TABLE 2.5-1  
Soil Gas Survey Analytical Results  
GORE Standard Target VOCs/SVOCs (A1)  
Section I Cover  
Pinewood Landfill  
Pinewood, South Carolina

DATE ANALYZED	FIELD ID	SAMPLE NAME	C11, C13, &C15	UNDEC	TRIDEC	PENTADEC	TMBs	124TMB	135TMB
		MDL=							
11/19/10	BG-01	648027	0.07	0.07	nd	nd	bdl	bdl	nd
11/19/10	BG-02	648028	nd	nd	nd	nd	nd	nd	nd
11/18/10	SG-1A-01	648029	nd	nd	nd	nd	nd	nd	nd
11/19/10	SG-1A-02	648030	nd	nd	nd	nd	nd	nd	nd
11/19/10	SG-1A-03	648031	nd	nd	nd	nd	nd	nd	nd
11/19/10	SG-1A-04	648032	nd	nd	nd	nd	nd	nd	nd
11/19/10	SG-1A-06	648033	nd	nd	nd	nd	nd	nd	nd
11/19/10	SG-1A-05	648034	nd	nd	nd	nd	nd	nd	nd
11/19/10	SG-1A-07	648035	nd	nd	nd	nd	nd	nd	nd
11/20/10	SG-1A-09	648036	nd	nd	nd	nd	nd	nd	nd
11/20/10	SG-1A-08	648037	nd	nd	nd	nd	nd	nd	nd
11/19/10	SG-1B-10	648038	nd	nd	nd	nd	nd	nd	nd
11/18/10	SG-1C-20	648039	nd	nd	nd	nd	nd	nd	nd
11/19/10	SG-1B-11	648041	nd	nd	nd	nd	nd	nd	nd
11/19/10	SG-1B-12	648042	nd	nd	nd	nd	nd	nd	nd
11/18/10	SG-1B-13	648043	nd	nd	nd	nd	nd	nd	nd
11/19/10	SG-1B-14	648044	nd	nd	nd	nd	nd	nd	nd
11/18/10	SG-1B-15	648045	nd	nd	nd	nd	nd	nd	nd
11/18/10	SG-1B-16	648046	nd	nd	nd	nd	nd	nd	nd
11/19/10	SG-1B-22	648047	nd	nd	nd	nd	nd	nd	nd
11/19/10	SG-1B-24	648048	nd	nd	nd	nd	nd	nd	nd
11/20/10	SG-1B-26	648049	nd	nd	nd	nd	bdl	nd	bdl
11/19/10	SG-1B-17	648050	nd	nd	nd	nd	nd	nd	nd
11/18/10	SG-1B-18	648051	nd	nd	nd	nd	nd	nd	nd
11/19/10	SG-1C-27	648053	nd	nd	nd	nd	nd	nd	nd
11/18/10	SG-1D-35	648054	0.09	0.09	nd	nd	0.02	0.02	bdl
11/19/10	SG-1C-25	648055	nd	nd	nd	nd	nd	nd	nd
11/19/10	SG-1D-33	648056	nd	nd	nd	nd	nd	nd	nd
11/19/10	SG-1C-23	648057	bdl	bdl	nd	nd	bdl	bdl	bdl
11/19/10	SG-1C-21	648058	nd	nd	nd	nd	nd	nd	nd
11/19/10	SG-1D-31	648059	nd	nd	nd	nd	nd	nd	nd
11/18/10	SG-1D-30	648060	nd	nd	nd	nd	nd	nd	nd
11/19/10	SG-1D-32	648061	nd	nd	nd	nd	nd	nd	nd
11/19/10	SG-1D-34	648062	nd	nd	nd	nd	nd	nd	nd
11/18/10	SG-1D-36	648063	nd	nd	nd	nd	nd	nd	nd
11/19/10	SG-1E-49	648064	nd	nd	nd	nd	bdl	nd	bdl
11/19/10	SG-1E-48	648065	nd	nd	nd	nd	nd	nd	nd
11/19/10	SG-1E-44	648066	bdl	bdl	nd	nd	nd	nd	nd
11/19/10	SG-1E-42	648067	nd	nd	nd	nd	nd	nd	nd
11/19/10	SG-1E-40	648068	nd	nd	nd	nd	nd	nd	nd
11/19/10	SG-1E-39	648069	nd	nd	nd	nd	nd	nd	nd
11/18/10	SG-1E-37	648070	nd	nd	nd	nd	nd	nd	nd
11/19/10	SG-1E-41	648071	nd	nd	nd	nd	nd	nd	nd
11/19/10	SG-1E-43	648072	nd	nd	nd	nd	nd	nd	nd
11/19/10	SG-1E-46	648073	nd	nd	nd	nd	nd	nd	nd
11/19/10	SG-1E-45	648074	nd	nd	nd	nd	nd	nd	nd
11/19/10	SG-1E-47	648075	nd	nd	nd	nd	nd	nd	nd
11/19/10	SG-1E-50	648076	nd	nd	nd	nd	nd	nd	nd
11/18/10	SG-1E-38	648077	0.02	bdl	0.02	bdl	0.04	0.04	bdl
11/19/10	SG-1D-28	648078	nd	nd	nd	nd	nd	nd	nd
11/19/10	SG-1D-29	648079	nd	nd	nd	nd	nd	nd	nd
11/18/10	SG-1C-19	648080	nd	nd	nd	nd	nd	nd	nd
11/19/10	TRIP BLANK-01	648040	nd	nd	nd	nd	nd	nd	nd
11/19/10	TRIP BLANK-02	648052	nd	nd	nd	nd	nd	nd	nd
11/19/10	TRIP BLANK-03	648081	nd	nd	nd	nd	nd	nd	nd
11/19/10	TRIP BLANK-04	648082	nd	nd	nd	nd	nd	nd	nd
11/18/10	method blank	method blank	nd	nd	nd	nd	nd	nd	nd
11/19/10	method blank	method blank	nd	nd	nd	nd	nd	nd	nd

TABLE 2.5-1  
Soil Gas Survey Analytical Results  
GORE Standard Target VOCs/SVOCs (A1)  
Section I Cover  
Pinewood Landfill  
Pinewood, South Carolina

DATE ANALYZED	FIELD ID	SAMPLE NAME	ct12DCE	t12DCE	c12DCE	NAPH&2-MN	NAPH	2MeNAPH	MTBE
		MDL=		0.04	0.03		0.02	0.02	0.03
11/19/10	BG-01	648027	nd	nd	nd	nd	nd	nd	nd
11/19/10	BG-02	648028	nd	nd	nd	nd	nd	nd	nd
11/18/10	SG-1A-01	648029	nd	nd	nd	nd	nd	nd	nd
11/19/10	SG-1A-02	648030	nd	nd	nd	nd	nd	nd	nd
11/19/10	SG-1A-03	648031	nd	nd	nd	nd	nd	nd	nd
11/19/10	SG-1A-04	648032	nd	nd	nd	nd	nd	nd	nd
11/19/10	SG-1A-06	648033	nd	nd	nd	nd	nd	nd	nd
11/19/10	SG-1A-05	648034	nd	nd	nd	nd	nd	nd	nd
11/19/10	SG-1A-07	648035	nd	nd	nd	nd	nd	nd	nd
11/20/10	SG-1A-09	648036	nd	nd	nd	nd	nd	nd	nd
11/20/10	SG-1A-08	648037	nd	nd	nd	nd	nd	nd	nd
11/19/10	SG-1B-10	648038	nd	nd	nd	nd	nd	nd	nd
11/18/10	SG-1C-20	648039	26.33	4.00	22.33	nd	nd	nd	nd
11/19/10	SG-1B-11	648041	nd	nd	nd	nd	nd	nd	nd
11/19/10	SG-1B-12	648042	nd	nd	nd	nd	nd	nd	nd
11/18/10	SG-1B-13	648043	0.22	0.06	0.16	nd	nd	nd	nd
11/19/10	SG-1B-14	648044	nd	nd	nd	nd	nd	nd	nd
11/18/10	SG-1B-15	648045	bdl	bdl	nd	nd	nd	nd	nd
11/18/10	SG-1B-16	648046	1.43	0.68	0.75	nd	nd	nd	nd
11/19/10	SG-1B-22	648047	nd	nd	nd	nd	nd	nd	nd
11/19/10	SG-1B-24	648048	nd	nd	nd	nd	nd	nd	nd
11/20/10	SG-1B-26	648049	bdl	bdl	nd	nd	nd	nd	nd
11/19/10	SG-1B-17	648050	nd	nd	nd	nd	nd	nd	nd
11/18/10	SG-1B-18	648051	0.35	0.14	0.21	nd	nd	nd	nd
11/19/10	SG-1C-27	648053	nd	nd	nd	nd	nd	nd	nd
11/18/10	SG-1D-35	648054	nd	nd	nd	bdl	nd	bdl	nd
11/19/10	SG-1C-25	648055	nd	nd	nd	nd	nd	nd	nd
11/19/10	SG-1D-33	648056	nd	nd	nd	nd	nd	nd	nd
11/19/10	SG-1C-23	648057	nd	nd	nd	nd	nd	nd	nd
11/19/10	SG-1C-21	648058	nd	nd	nd	nd	nd	nd	nd
11/19/10	SG-1D-31	648059	nd	nd	nd	nd	nd	nd	nd
11/18/10	SG-1D-30	648060	0.22	0.04	0.18	nd	nd	nd	nd
11/19/10	SG-1D-32	648061	0.63	nd	0.63	nd	nd	nd	nd
11/19/10	SG-1D-34	648062	nd	nd	nd	nd	nd	nd	nd
11/18/10	SG-1D-36	648063	0.07	bdl	0.07	nd	nd	nd	nd
11/19/10	SG-1E-49	648064	0.47	0.04	0.43	nd	nd	nd	nd
11/19/10	SG-1E-48	648065	bdl	nd	bdl	nd	nd	nd	bdl
11/19/10	SG-1E-44	648066	31.43	1.02	30.41	nd	nd	nd	nd
11/19/10	SG-1E-42	648067	0.45	0.10	0.35	nd	nd	nd	bdl
11/19/10	SG-1E-40	648068	nd	nd	nd	nd	nd	nd	nd
11/19/10	SG-1E-39	648069	0.22	nd	0.22	nd	nd	nd	nd
11/18/10	SG-1E-37	648070	nd	nd	nd	nd	nd	nd	0.04
11/19/10	SG-1E-41	648071	0.60	0.20	0.39	nd	nd	nd	nd
11/19/10	SG-1E-43	648072	14.04	1.08	12.95	nd	nd	nd	nd
11/19/10	SG-1E-46	648073	5.48	0.90	4.57	nd	nd	nd	nd
11/19/10	SG-1E-45	648074	nd	nd	nd	nd	nd	nd	nd
11/19/10	SG-1E-47	648075	0.22	bdl	0.22	nd	nd	nd	bdl
11/19/10	SG-1E-50	648076	nd	nd	nd	nd	nd	nd	nd
11/18/10	SG-1E-38	648077	nd	nd	nd	0.16	0.07	0.10	nd
11/19/10	SG-1D-28	648078	bdl	nd	bdl	nd	nd	nd	nd
11/19/10	SG-1D-29	648079	nd	nd	nd	nd	nd	nd	nd
11/18/10	SG-1C-19	648080	nd	nd	nd	nd	nd	nd	nd
11/19/10	TRIP BLANK-01	648040	nd	nd	nd	nd	nd	nd	nd
11/19/10	TRIP BLANK-02	648052	nd	nd	nd	nd	nd	nd	nd
11/19/10	TRIP BLANK-03	648081	nd	nd	nd	nd	nd	nd	nd
11/19/10	TRIP BLANK-04	648082	nd	nd	nd	nd	nd	nd	nd
11/18/10	method blank	method blank	nd	nd	nd	nd	nd	nd	nd
11/19/10	method blank	method blank	nd	nd	nd	nd	nd	nd	nd

TABLE 2.5-1  
Soil Gas Survey Analytical Results  
GORE Standard Target VOCs/SVOCs (A1)  
Section I Cover  
Pinewood Landfill  
Pinewood, South Carolina

DATE ANALYZED	FIELD ID	SAMPLE NAME	11DCE	11DCA	111TCA	12DCA	TCE	OCT	PCE	14DCB
		MDL=	0.02	0.02	0.03	0.02	0.02	0.02	0.02	0.02
11/19/10	BG-01	648027	nd	nd	nd	nd	nd	bdl	nd	nd
11/19/10	BG-02	648028	nd	nd	nd	nd	nd	nd	nd	nd
11/18/10	SG-1A-01	648029	0.82	13.44	nd	nd	nd	nd	0.23	nd
11/19/10	SG-1A-02	648030	nd	0.09	nd	nd	nd	nd	nd	nd
11/19/10	SG-1A-03	648031	nd	nd	nd	nd	nd	nd	nd	nd
11/19/10	SG-1A-04	648032	nd	0.07	nd	nd	nd	nd	nd	nd
11/19/10	SG-1A-06	648033	nd	0.12	nd	nd	nd	nd	nd	nd
11/19/10	SG-1A-05	648034	nd	nd	nd	nd	nd	nd	nd	nd
11/19/10	SG-1A-07	648035	nd	nd	nd	nd	nd	nd	nd	nd
11/20/10	SG-1A-09	648036	0.24	1.13	nd	nd	nd	nd	nd	nd
11/20/10	SG-1A-08	648037	bdl	0.05	nd	nd	nd	nd	nd	nd
11/19/10	SG-1B-10	648038	0.31	3.72	nd	nd	nd	nd	0.15	nd
11/18/10	SG-1C-20	648039	7.74	20.80	0.04	nd	10.57	nd	0.91	nd
11/19/10	SG-1B-11	648041	0.06	1.51	nd	0.08	bdl	nd	0.03	nd
11/19/10	SG-1B-12	648042	0.10	1.33	nd	nd	nd	nd	nd	nd
11/18/10	SG-1B-13	648043	0.02	0.37	nd	nd	1.17	nd	nd	nd
11/19/10	SG-1B-14	648044	nd	nd	nd	nd	nd	nd	nd	nd
11/18/10	SG-1B-15	648045	0.15	1.56	nd	nd	0.02	nd	0.56	nd
11/18/10	SG-1B-16	648046	0.50	5.70	bdl	0.32	8.76	nd	14.66	nd
11/19/10	SG-1B-22	648047	nd	nd	nd	nd	nd	nd	nd	nd
11/19/10	SG-1B-24	648048	nd	nd	nd	nd	nd	nd	nd	nd
11/20/10	SG-1B-26	648049	1.67	9.19	bdl	0.91	0.10	nd	1.55	nd
11/19/10	SG-1B-17	648050	nd	nd	nd	nd	nd	nd	nd	nd
11/18/10	SG-1B-18	648051	0.05	1.35	nd	0.37	0.59	nd	0.16	nd
11/19/10	SG-1C-27	648053	nd	0.05	nd	nd	nd	nd	nd	nd
11/18/10	SG-1D-35	648054	nd	nd	nd	nd	nd	0.25	0.03	nd
11/19/10	SG-1C-25	648055	nd	nd	nd	nd	nd	nd	0.04	nd
11/19/10	SG-1D-33	648056	0.03	0.31	nd	nd	nd	nd	nd	nd
11/19/10	SG-1C-23	648057	nd	nd	nd	nd	nd	bdl	nd	nd
11/19/10	SG-1C-21	648058	nd	nd	nd	nd	nd	nd	nd	nd
11/19/10	SG-1D-31	648059	nd	nd	nd	nd	nd	nd	nd	nd
11/18/10	SG-1D-30	648060	0.17	6.00	nd	nd	nd	nd	nd	nd
11/19/10	SG-1D-32	648061	nd	35.81	nd	0.23	7.06	nd	0.52	nd
11/19/10	SG-1D-34	648062	0.75	2.67	nd	nd	0.02	nd	nd	nd
11/18/10	SG-1D-36	648063	0.26	2.47	nd	nd	0.02	nd	nd	nd
11/19/10	SG-1E-49	648064	3.45	3.07	11.35	0.45	3.61	bdl	2.24	bdl
11/19/10	SG-1E-48	648065	0.18	0.22	nd	nd	bdl	nd	0.08	nd
11/19/10	SG-1E-44	648066	8.30	35.44	1.35	nd	28.10	0.03	31.33	0.11
11/19/10	SG-1E-42	648067	0.24	7.36	nd	nd	1.60	nd	1.01	nd
11/19/10	SG-1E-40	648068	0.34	1.51	nd	nd	nd	nd	0.41	nd
11/19/10	SG-1E-39	648069	nd	nd	nd	nd	bdl	nd	nd	nd
11/18/10	SG-1E-37	648070	0.07	0.87	nd	nd	nd	nd	nd	nd
11/19/10	SG-1E-41	648071	0.68	15.25	0.06	nd	1.92	nd	11.30	nd
11/19/10	SG-1E-43	648072	1.23	20.93	nd	4.78	27.87	nd	3.08	nd
11/19/10	SG-1E-46	648073	2.33	22.12	0.07	0.23	7.58	nd	3.77	nd
11/19/10	SG-1E-45	648074	bdl	0.75	nd	nd	nd	nd	0.04	nd
11/19/10	SG-1E-47	648075	0.04	2.43	bdl	nd	0.15	nd	0.16	nd
11/19/10	SG-1E-50	648076	nd	0.19	nd	nd	nd	nd	0.03	nd
11/18/10	SG-1E-38	648077	nd	nd	nd	nd	nd	nd	nd	nd
11/19/10	SG-1D-28	648078	nd	0.54	nd	nd	nd	nd	nd	nd
11/19/10	SG-1D-29	648079	0.02	0.89	nd	nd	nd	nd	nd	nd
11/18/10	SG-1C-19	648080	nd	nd	nd	nd	nd	nd	nd	nd
11/19/10	TRIP BLANK-01	648040	nd	nd	nd	nd	nd	nd	nd	nd
11/19/10	TRIP BLANK-02	648052	nd	nd	nd	nd	nd	nd	nd	nd
11/19/10	TRIP BLANK-03	648081	nd	nd	nd	nd	nd	nd	nd	nd
11/19/10	TRIP BLANK-04	648082	nd	nd	nd	nd	nd	nd	nd	nd
11/18/10	method blank	method blank	nd	nd	nd	nd	nd	nd	nd	nd
11/19/10	method blank	method blank	nd	nd	nd	nd	nd	nd	nd	nd

TABLE 2.5-1  
Soil Gas Survey Analytical Results  
GORE Standard Target VOCs/SVOCs (A1)  
Section I Cover  
Pinewood Landfill  
Pinewood, South Carolina

DATE ANALYZED	FIELD ID	SAMPLE NAME	CHCl3	CCl4	112TCA	CIBENZ	1112TetCA	1122TetCA	13DCB	12DCB
		MDL=	0.02	0.03	0.02	0.02	0.03	0.02	0.02	0.02
11/19/10	BG-01	648027	nd	nd	nd	nd	nd	nd	nd	nd
11/19/10	BG-02	648028	nd	nd	nd	nd	nd	nd	nd	nd
11/18/10	SG-1A-01	648029	0.03	nd	nd	nd	nd	nd	nd	nd
11/19/10	SG-1A-02	648030	nd	nd	nd	nd	nd	nd	nd	nd
11/19/10	SG-1A-03	648031	bdl	nd	nd	nd	nd	nd	nd	nd
11/19/10	SG-1A-04	648032	nd	nd	nd	nd	nd	nd	nd	nd
11/19/10	SG-1A-06	648033	nd	nd	nd	nd	nd	nd	nd	nd
11/19/10	SG-1A-05	648034	nd	nd	nd	nd	nd	nd	nd	nd
11/19/10	SG-1A-07	648035	0.04	nd	nd	nd	nd	nd	nd	nd
11/20/10	SG-1A-09	648036	nd	nd	nd	nd	nd	nd	nd	nd
11/20/10	SG-1A-08	648037	0.03	nd	nd	nd	nd	nd	nd	nd
11/19/10	SG-1B-10	648038	nd	nd	nd	nd	nd	nd	nd	nd
11/18/10	SG-1C-20	648039	nd	nd	nd	nd	nd	nd	nd	nd
11/19/10	SG-1B-11	648041	nd	nd	nd	nd	nd	nd	nd	nd
11/19/10	SG-1B-12	648042	0.03	nd	nd	nd	nd	nd	nd	nd
11/18/10	SG-1B-13	648043	nd	nd	nd	nd	nd	nd	nd	nd
11/19/10	SG-1B-14	648044	nd	nd	nd	nd	nd	nd	nd	nd
11/18/10	SG-1B-15	648045	0.04	nd	0.15	nd	nd	nd	nd	nd
11/18/10	SG-1B-16	648046	0.35	nd	0.66	nd	nd	nd	nd	nd
11/19/10	SG-1B-22	648047	nd	nd	nd	nd	nd	nd	nd	nd
11/19/10	SG-1B-24	648048	nd	nd	nd	nd	nd	nd	nd	nd
11/20/10	SG-1B-26	648049	nd	nd	nd	nd	nd	nd	nd	nd
11/19/10	SG-1B-17	648050	nd	nd	nd	nd	nd	nd	nd	nd
11/18/10	SG-1B-18	648051	0.03	nd	nd	nd	nd	nd	nd	nd
11/19/10	SG-1C-27	648053	0.05	nd	nd	nd	nd	nd	nd	nd
11/18/10	SG-1D-35	648054	nd	nd	nd	nd	nd	nd	nd	nd
11/19/10	SG-1C-25	648055	0.05	nd	nd	nd	nd	nd	nd	nd
11/19/10	SG-1D-33	648056	nd	nd	nd	nd	nd	nd	nd	nd
11/19/10	SG-1C-23	648057	nd	nd	nd	nd	nd	nd	nd	nd
11/19/10	SG-1C-21	648058	nd	nd	nd	nd	nd	nd	nd	nd
11/19/10	SG-1D-31	648059	nd	nd	nd	nd	nd	nd	nd	nd
11/18/10	SG-1D-30	648060	nd	nd	nd	nd	nd	nd	nd	nd
11/19/10	SG-1D-32	648061	0.10	nd	0.78	nd	nd	nd	nd	nd
11/19/10	SG-1D-34	648062	nd	nd	nd	nd	nd	nd	nd	nd
11/18/10	SG-1D-36	648063	0.04	nd	nd	nd	nd	nd	nd	nd
11/19/10	SG-1E-49	648064	0.81	nd	0.37	nd	nd	nd	nd	0.05
11/19/10	SG-1E-48	648065	0.02	nd	nd	nd	nd	nd	nd	nd
11/19/10	SG-1E-44	648066	7.67	nd	19.62	0.12	nd	2.44	0.03	0.10
11/19/10	SG-1E-42	648067	0.04	nd	nd	0.05	nd	nd	nd	nd
11/19/10	SG-1E-40	648068	0.47	nd	nd	0.02	nd	nd	nd	0.06
11/19/10	SG-1E-39	648069	nd	nd	nd	nd	nd	nd	nd	nd
11/18/10	SG-1E-37	648070	nd	nd	nd	nd	nd	nd	nd	nd
11/19/10	SG-1E-41	648071	0.10	nd	nd	nd	nd	nd	nd	nd
11/19/10	SG-1E-43	648072	0.08	nd	nd	0.47	nd	nd	nd	0.03
11/19/10	SG-1E-46	648073	2.72	nd	3.26	bdl	nd	0.60	nd	nd
11/19/10	SG-1E-45	648074	nd	nd	nd	nd	nd	nd	nd	nd
11/19/10	SG-1E-47	648075	1.00	nd	nd	0.10	nd	nd	nd	0.09
11/19/10	SG-1E-50	648076	nd	nd	nd	nd	nd	nd	nd	nd
11/18/10	SG-1E-38	648077	nd	nd	nd	nd	nd	nd	nd	nd
11/19/10	SG-1D-28	648078	nd	nd	nd	nd	nd	nd	nd	nd
11/19/10	SG-1D-29	648079	nd	nd	nd	nd	nd	nd	nd	nd
11/18/10	SG-1C-19	648080	nd	nd	nd	nd	nd	nd	nd	nd
11/19/10	TRIP BLANK-01	648040	nd	nd	nd	nd	nd	nd	nd	nd
11/19/10	TRIP BLANK-02	648052	nd	nd	nd	nd	nd	nd	nd	nd
11/19/10	TRIP BLANK-03	648081	nd	nd	nd	nd	nd	nd	nd	nd
11/19/10	TRIP BLANK-04	648082	nd	nd	nd	nd	nd	nd	nd	nd
11/18/10	method blank	method blank	nd	nd	nd	nd	nd	nd	nd	nd
11/19/10	method blank	method blank	nd	nd	nd	nd	nd	nd	nd	nd

Notes:

No mdl is available for summed combinations of analytes. In summed columns (eg., BTEX), the reported values should be considered ESTIMATED if any of the individual compounds were reported as bdl.  
All units are in micrograms (ug), relative mass value.

TABLE 2.5-1  
Soil Gas Survey Analytical Results  
GORE Standard Target VOCs/SVOCs (A1)  
Section I Cover  
Pinewood Landfill  
Pinewood, South Carolina

**KEY TO DATA TABLE**

<b>UNITS</b>	
ug	micrograms, relative mass value
MDL	method detection limit
bdl	below detection limit; compound was observed at level below the MDL
nd	non-detect, compound was not detected at any level
<b>ANALYTES</b>	
TPH	total petroleum hydrocarbons
BTEX	combined masses of benzene, toluene, ethylbenzene and total xylenes (Gasoline Range Aromatics)
BENZ	benzene
TOL	toluene
EtBENZ	ethylbenzene
mpXYL	m-, p-xylene
oXYL	o-xylene
C11,C13&C15	combined masses of undecane, tridecane, and pentadecane (C11+C13+C15) (Diesel Range Alkanes)
UNDEC	undecane
TRIDEC	tridecane
PENTADEC	pentadecane
TMBs	combined masses of 1,3,5-trimethylbenzene and 1,2,4-trimethylbenzene
135TMB	1,3,5-trimethylbenzene
124TMB	1,2,4-trimethylbenzene
MTBE	methyl t-butyl ether
NAPH	naphthalene
2MeNAPH	2-methyl naphthalene
MTBE	methyl t-butyl ether
OCT	octane
ct12DCE	cis- & trans-1,2-dichloroethene
t12DCE	trans-1,2-dichloroethene
c12DCE	cis-1,2-dichloroethene
11DCA	1,1-dichloroethane
CHC13	chloroform
111TCA	1,1,1-trichloroethane
12DCA	1,2-dichloroethane
CC14	carbon tetrachloride
TCE	trichloroethene
PCE	tetrachloroethene
CIBENZ	chlorobenzene
14DCB	1,4-dichlorobenzene
11DCE	1,1-dichloroethene
112TCA	1,1,2-trichloroethane
1112TetCA	1,1,1,2-tetrachloroethane
1122TetCA	1,1,2,2-tetrachloroethane
13DCB	1,3-dichlorobenzene
12DCB	1,2-dichlorobenzene
<b>BLANKS</b>	
method blank	QA/QC module, documents analytical conditions during analysis

TABLE 2.6-1  
Section I Shallow Cover Wells Analytical Data  
Pinewood Landfill  
Pinewood, South Carolina

DATE		MAY 29, 2009					OCTOBER 22, 2009					NOVEMBER 10 - 11, 2010				
CONSTITUENT	WELL ID	SILC-1	SILC-2	SILC-3	SILC-4	SILC-5	SILC-1	SILC-2	SILC-3	SILC-4	SILC-5	SILC-1	SILC-2	SILC-3	SILC-4	SILC-5
<b><i>Volatile Organic Compounds (ug/l)</i></b>																
1,1,1 - Trichloroethane		ND	5.22	149	ND	ND	NA	NA	248	NA	NA	ND	ND	NA	ND	ND
1,1,2,2 - Tetrachloroethane		ND	15.1	43.1	ND	ND	NA	NA	43.1	NA	NA	ND	0.63	NA	ND	ND
1,1,2 - Trichloroethane		ND	947	229	ND	1.51	NA	NA	245	NA	NA	ND	307	NA	ND	ND
1,1 - Dichloroethane		3.52	2210	884	46.7	1860	NA	NA	1070	NA	NA	14.7	305	NA	12.3	286
1,1 - Dichloroethylene		ND	74.3	49.3	2.04	ND	NA	NA	55.7	NA	NA	ND	7.35	NA	0.66	1.35
cis-1,2-Dichloroethylene		4.41	11.9	130	17.4	803	NA	NA	275	NA	NA	ND	NA	NA	NA	NA
1,2 - Dichloroethane		ND	7.98	27.9	ND	71.9	NA	NA	3.02	NA	NA	ND	11.1	NA	ND	6.3
1,2 - Dichloropropane		ND	ND	2.65	ND	6.82	NA	NA	3.24	NA	NA	ND	ND	NA	ND	0.41
2-Chloroethylvinyl ether		ND	ND	ND	ND	ND	NA	NA	NA	NA	NA	ND	ND	NA	ND	ND
Acrolein		ND	ND	ND	ND	ND	NA	NA	NA	NA	NA	ND	ND	NA	ND	ND
Acrylonitrile		ND	ND	ND	ND	ND	NA	NA	NA	NA	NA	ND	ND	NA	ND	ND
Benzene		ND	2.14	14.4	6.97	18.1	NA	NA	19	NA	NA	1.19	0.32	NA	ND	ND
Bromodichloromethane		ND	ND	ND	ND	ND	NA	NA	NA	NA	NA	ND	ND	NA	ND	ND
Bromoform		ND	ND	ND	ND	ND	NA	NA	NA	NA	NA	ND	ND	NA	ND	ND
Bromomethane		ND	ND	ND	ND	ND	NA	NA	NA	NA	NA	ND	ND	NA	ND	ND
Carbon Tetrachloride		ND	ND	ND	ND	ND	NA	NA	NA	NA	NA	ND	ND	NA	ND	ND
Chlorobenzene		ND	ND	20.7	ND	4.39	NA	NA	16.2	NA	NA	ND	ND	NA	ND	ND
Chloroethane		ND	ND	1.92	0.49	3.14	NA	NA	NA	NA	NA	ND	ND	NA	2.08	ND
Chloroform		ND	18.9	1440	0.38	2.27	NA	NA	1710	NA	NA	ND	0.26	NA	ND	ND
Chloromethane		ND	ND	ND	ND	ND	NA	NA	NA	NA	NA	ND	ND	NA	ND	ND
Dibromochloromethane		ND	ND	ND	ND	ND	NA	NA	NA	NA	NA	ND	ND	NA	ND	ND
Ethylbenzene		ND	ND	2.77	0.31	1.82	NA	NA	0.37	NA	NA	ND	ND	NA	ND	ND
Methylene Chloride		ND	774	4030	ND	213	NA	NA	6.59	NA	NA	ND	ND	NA	ND	ND
Tetrachloroethylene		ND	8.98	133	0.62	8.82	NA	NA	253	NA	NA	ND	1.39	NA	ND	1.11
Toluene		ND	3.72	61.8	9.06	86.3	NA	NA	5.46	NA	NA	0.26	ND	NA	ND	ND
Trichloroethylene		ND	60.8	661	1.92	55.6	NA	NA	986	NA	NA	ND	7.05	NA	ND	2.42
Vinyl Chloride		4.36	27.8	23	20.4	17.8	NA	NA	12.1	NA	NA	31.8	5.13	NA	6.29	ND
cis-1,3-Dichloropropylene		ND	ND	ND	ND	ND	NA	NA	NA	NA	NA	ND	ND	NA	ND	ND
trans - 1,2 Dichloroethylene		0.33	0.98	3.47	ND	11.5	NA	NA	4.58	NA	NA	2.2	ND	NA	ND	0.75
trans - 1,3 Dichloropropylene		ND	ND	ND	ND	ND	NA	NA	NA	NA	NA	ND	ND	NA	ND	ND
<b><i>Semi-Volatile Organic Compounds (ug/l)</i></b>																
1, 4 Dioxane		NA	NA	NA	NA	NA	NA	NA	53.9	NA	NA	NA	NA	NA	NA	NA
m,p-Cresols		NA	NA	NA	NA	NA	NA	NA	8.1	NA	NA	NA	NA	NA	NA	NA

TABLE 2.6-1  
Section I Shallow Cover Wells Analytical Data  
Pinewood Landfill  
Pinewood, South Carolina

CONSTITUENT	WELL ID	MAY 29, 2009					OCTOBER 22, 2009					NOVEMBER 10 - 11, 2010				
		SILC-1	SILC-2	SILC-3	SILC-4	SILC-5	SILC-1	SILC-2	SILC-3	SILC-4	SILC-5	SILC-1	SILC-2	SILC-3	SILC-4	SILC-5
<b>Metals (ug/l)</b>																
Arsenic		NA	NA	NA	NA	NA	NA	NA	5.77	NA	NA	NA	NA	NA	NA	NA
Barium		NA	NA	NA	NA	NA	NA	NA	99.7	NA	NA	NA	NA	NA	NA	NA
Beryllium		NA	NA	NA	NA	NA	NA	NA	< 1	NA	NA	NA	NA	NA	NA	NA
Cadmium		NA	NA	NA	NA	NA	NA	NA	< 1	NA	NA	NA	NA	NA	NA	NA
Chromium		NA	NA	NA	NA	NA	NA	NA	5.3	NA	NA	NA	NA	NA	NA	NA
Cobalt		NA	NA	NA	NA	NA	NA	NA	16.8	NA	NA	NA	NA	NA	NA	NA
Copper		NA	NA	NA	NA	NA	NA	NA	6.1	NA	NA	NA	NA	NA	NA	NA
Lead		NA	NA	NA	NA	NA	NA	NA	3.6	NA	NA	NA	NA	NA	NA	NA
Nickel		NA	NA	NA	NA	NA	NA	NA	8.6	NA	NA	NA	NA	NA	NA	NA
Selenium		NA	NA	NA	NA	NA	NA	NA	1.6	NA	NA	NA	NA	NA	NA	NA
Thallium		NA	NA	NA	NA	NA	NA	NA	< 1	NA	NA	NA	NA	NA	NA	NA
Vanadium		NA	NA	NA	NA	NA	NA	NA	4.2	NA	NA	NA	NA	NA	NA	NA
Zinc		NA	NA	NA	NA	NA	NA	NA	31	NA	NA	NA	NA	NA	NA	NA

Notes:

ND - Not Detected

NA - Not Analyzed

ug/l - micrograms per liter



Table 2.6-2  
 Summary of Section I Shallow Cover Wells Analytical Data  
 Pinewood Landfill  
 Pinewood, South Carolina

DATE		MAY 29, 2009					OCTOBER 22, 2009					NOVEMBER 10 - 11, 2010					AVERAGE VALUE	MAXIMUM VALUE	ORDER OF HIGHEST CONCENTRATION
CONSTITUENT	WELL ID	SILC-1	SILC-2	SILC-3	SILC-4	SILC-5	SILC-1	SILC-2	SILC-3	SILC-4	SILC-5	SILC-1	SILC-2	SILC-3	SILC-4	SILC-5			
<i>Volatile Organic Compounds (ug/l)</i>																			
Methylene Chloride		ND	774	4030	ND	213	NA	NA	6.59	NA	NA	ND	ND	NA	ND	ND	1256	4030	1
1,1 - Dichloroethane		3.52	2210	884	46.7	1860	NA	NA	1070	NA	NA	14.7	305	NA	12.3	286	669	2210	2
Chloroform		ND	18.9	1440	0.38	2.27	NA	NA	1710	NA	NA	ND	0.26	NA	ND	ND	529	1710	3
1,1,2 - Trichloroethane		ND	947	229	ND	1.51	NA	NA	245	NA	NA	ND	307	NA	ND	ND	346	947	4
Trichlorethylene		ND	60.8	661	1.92	55.6	NA	NA	986	NA	NA	ND	7.05	NA	ND	2.42	254	986	5
cis-1,2-Dichloroethylene		4.41	11.9	130	17.4	803	NA	NA	275	NA	NA	NA	NA	NA	NA	NA	207	803	6
Tetrachoroethylene		ND	8.98	133	0.62	8.82	NA	NA	253	NA	NA	ND	1.39	NA	ND	1.11	58	253	7
1,1,1 - Trichloroethane		ND	5.22	149	ND	ND	NA	NA	248	NA	NA	ND	ND	NA	ND	ND	134	248	8

Notes:  
 All concentrations reported in ug/l (micrograms per liter).  
 ND - Not Detected  
 NA - Not Analyzed

TABLE 2.6-3  
Summary of Sections II and III Shallow Cover Wells Analytical Data  
Pinewood Landfill  
Pinewood, South Carolina

Date Sample ID	MCL	7/25/2009	10/26/2009	12/15/2009	12/29/2009	12/15/2009	12/29/2009	12/29/2009	7/25/2009	10/5/2009	10/26/2009
		IIC Cover	S2-LC-03	2C-SW-Ditch	S2-LC-03	2D-SW-Trench	S2-LC-04	S2-LC-06	IIG Cover	S2-LC-07	S2-LC-07
<b>Indicator Parameters</b>											
pH (s.u.)		NA	6.83	NA	6.34	NA	5.51	6.01	NA	5.2	5.5
Conductivity (uS/cm)		NA	211	NA	156	NA	52.5	70.2	NA	55.7	152
<b>Volatile Organic Compounds (ug/l)</b>											
1,1,1-Trichloroethane	200	ND	ND	ND	ND	ND	1.31	ND	ND	ND	ND
1,1-Dichloroethane	none	7.5	1.86	0.953 J	3.58	0.660 J	10.8	ND	0.952 J	ND	ND
cis-1,2-Dichloroethylene	70	3.17	0.540 J	0.577 J	2.81	2.76	5.44	ND	ND	ND	ND
trans-1,2-Dichloroethylene	100	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
1,2-Dichloroethane	5	0.452 J	ND	ND	ND	ND	0.680 J	ND	ND	ND	ND
1,4-Dichlorobenzene	75	ND	ND	ND	ND	ND	2.16	ND	ND	ND	ND
Acetone	none	ND	ND	ND	ND	2.46 J	ND	ND	ND	1.71 J	ND
Benzene	5	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Carbon disulfide	none	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Carbon tetrachloride	5	ND	ND	ND	0.320 J	ND	ND	ND	ND	ND	ND
Chloroform	none	0.720 J	ND	ND	0.820 J	ND	0.450 J	ND	ND	ND	ND
Methylene Chloride	none	ND	ND	ND	ND	ND	11.4	ND	ND	ND	ND
Tetrachloroethylene	5	1.44	0.770 J	ND	0.370 J	0.799 J	<b>24.3</b>	ND	ND	ND	ND
Trichloroethylene	5	4.93	2.54	0.495 J	4.55	0.784 J	<b>9.01</b>	ND	ND	ND	ND
Vinyl chloride	2	ND	ND	ND	0.790 J	ND	0.820 J	ND	ND	ND	ND
Xylenes (total)	10,000	ND	ND	ND	ND	ND	0.330 J	ND	ND	ND	ND

TABLE 2.6-3  
 Summary of Sections II and III Shallow Cover Wells Analytical Data  
 Pinewood Landfill  
 Pinewood, South Carolina

Date Sample ID	MCL	12/29/2009	10/26/2009	12/29/2009	10/5/2009	12/29/2009	12/29/2009	12/29/2009	10/26/2009	12/29/2009
		S2-LC-07	S2-LC-08	S2-LC-08	S2-LC-09	S2-LC-09	S3-LC-02	S3-LC-04	S3-LC-06	S3-LC-06
<b>Indicator Parameters</b>										
pH (s.u.)		5.95	5.73	6.24	6.0	6.03	5.99	5.64	5.98	5.64
Conductivity (uS/cm)		181	281	161	218	85.4	132	47.3	55.1	30.1
<b>Volatiles Organic Compounds (ug/l)</b>										
1,1,1-Trichloroethane	200	ND	ND	ND	ND	ND	ND	ND	ND	ND
1,1-Dichloroethane	none	ND	4.58	2.64	ND	3.27	ND	ND	ND	ND
cis-1,2-Dichloroethylene	70	ND	1.03	0.690 J	ND	4.24	ND	ND	ND	ND
trans-1,2-Dichloroethylene	100	ND	ND	ND	ND	1.14	ND	ND	ND	ND
1,2-Dichloroethane	5	ND	ND	ND	ND	<b>13.9</b>	ND	ND	ND	ND
1,4-Dichlorobenzene	75	ND	ND	ND	ND	ND	ND	ND	ND	ND
Acetone	none	ND	ND	ND	1.74 J	ND	ND	ND	ND	ND
Benzene	5	ND	1.52	0.790 J	ND	ND	ND	ND	ND	ND
Carbon disulfide	none	ND	ND	ND	1.91 J	ND	ND	ND	ND	ND
Carbon tetrachloride	5	ND	ND	ND	ND	ND	ND	ND	ND	ND
Chloroform	none	ND	ND	ND	ND	ND	ND	ND	ND	ND
Methylene Chloride	none	ND	ND	ND	ND	ND	ND	ND	ND	ND
Tetrachloroethylene	5	ND	ND	ND	ND	0.590 J	ND	ND	ND	ND
Trichloroethylene	5	ND	ND	ND	ND	2.55	ND	ND	ND	ND
Vinyl chloride	2	ND	ND	ND	ND	0.680 J	ND	ND	ND	ND
Xylenes (total)	10,000	ND	ND	ND	ND	ND	ND	ND	ND	ND

Notes:

All concentrations reported in ug/l (micrograms per liter), unless otherwise noted.

J - estimated concentration

MCL - USEPA Maximum Contaminant Level

NA - Not Analyzed

ND - Not Detected

Bold - exceeds MCL

IIC Cover sample collected from the same area as S2-LC-03

IIG Cover sample collected from the same area as S2-LC-07

TABLE 2.7-1  
 French Drain Analytical Data - November 2010  
 Pinewood Landfill  
 Pinewood, South Carolina

Discharge Point	SAMPLING LOCATION		
	Perimeter French Drain		Section I French Drain
	Pond A	Pond B	Pond A
<b>Volatile Organic Compounds (ug/l)</b>			
1,1,1 - Trichloroethane	ND	ND	ND
1,1,2,2 - Tetrachloroethane	ND	ND	ND
1,1,2 - Trichloroethane	ND	ND	ND
1,1 - Dichloroethane	ND	ND	ND
1,1 - Dichloroethylene	ND	ND	ND
cis-1,2-Dichloroethylene	ND	ND	ND
1,2 - Dichloroethane	ND	ND	ND
1,2 - Dichloropropane	ND	ND	ND
2-Chloroethylvinyl ether	ND	ND	ND
Acrolein	ND	ND	ND
Acrylonitrile	ND	ND	ND
Benzene	ND	ND	ND
Bromodichloromethane	ND	ND	ND
Bromoform	ND	ND	ND
Bromomethane	ND	ND	ND
Carbon Tetrachloride	ND	ND	ND
Chlorobenzene	ND	ND	ND
Chloroethane	ND	ND	ND
Chloroform	ND	ND	ND
Chloromethane	ND	ND	ND
Dibromochloromethane	ND	ND	ND
Ethylbenzene	ND	ND	ND
Methylene Chloride	ND	ND	ND
Tetrachloroethylene	ND	ND	ND
Toluene	ND	ND	ND
Trichloroethylene	ND	ND	ND
Vinyl Chloride	ND	ND	ND
cis-1,3-Dichloropropylene	ND	ND	ND
trans - 1,2 Dichloroethylene	ND	ND	ND
trans - 1,3 Dichloropropylene	ND	ND	ND

Notes:

ND - Not Detected

ug/l - micrograms per liter

TABLE 2.7-2  
 Summary of Historic French Drain Analytical Data  
 Pinewood Landfill  
 Pinewood, South Carolina

	SAMPLING LOCATION	DATE	CONSTITUENT								
			Methylene Chloride	1,1 Dichloro-ethane	Tetrachloro-ethylene	Chloromethane	Cadmium	Arsenic	Lead	Silver	
Perimeter French Drain	Discharge To Pond A	2/27/2008	2.37					0.3			
		5/2/2008		0.2							
		8/8/2008		0.2							
		11/13/2008		0.2							
		2/10/2009		0.2							
		5/8/2009		0.9	0.06	0.01	0.009				
		8/3/2009		0.2							
		11/5/2009		0.2							
	2/12/2010	0.3									
	Discharge to Pond B	2/27/2008					0.7				
		5/2/2008	0.5								
		8/8/2008	0.4								
		11/13/2008	0.4								
		2/10/2009	0.6								
5/8/2009		0.5	0.4	0.06	0.004						
8/3/2009	0.4										
11/5/2009	0.4										
2/12/2010	< 1	0.7									
Section I French Drain	Discharge to Pond A	2/27/2008	2.41					0.9			
		5/2/2008		0.7							
		8/8/2008		0.8							
		11/13/2008		0.6							
		2/10/2009		0.6							
		5/8/2009		0.2	0.4	0.08	0.006				
		8/3/2009		0.7							
		11/5/2009		0.5							
	2/12/2010	1.23									
	Discharge to Pond A - MH2	2/12/2010				< 1					
Discharge to Pond A - MH3	8/3/2009			< 1							
2/12/2010			< 1								
Discharge to Pond A - MH4	2/27/2008	2.13	< 1								
11/13/2008											
Discharge to Pond A - MH5	2/27/2008		< 1								
	5/2/2008										
	8/8/2008	1.74									
	11/13/2008	< 1									
	2/10/2009	< 1									
	5/8/2009	2.94									
	8/3/2009	2.58									
	11/5/2009	< 1									
1/25/2010	< 1										
2/12/2010	< 1										

Notes:  
 All concentrations reported in ug/L (micrograms per liter).  
 MH - man hole

TABLE 2.8-1  
 Summary of First Flush Basin French Drain Analytical Data  
 Pinewood Landfill  
 Pinewood, South Carolina

SAMPLING LOCATION	DATE	CONSTITUENT						
		1,1,2,2-Tetrachloroethane	1,1-Dichloroethane	Tetrachloroethylene	1,1,2-Trichloroethane	cis-1,2-Dichloroethylene	Trichloroethylene	1,1-Dichloroethylene
SB#1 - French Drain Discharge @ First Flush Basin	2/27/2008	ND	1.04	140	ND	37	18.7	NA
	5/6/2008	ND	< 1	98.6	ND	34.7	16.7	NA
	9/8/2008	ND	1.4	159	ND	46.6	24.1	NA
	11/13/2008	NA	NA	106	NA	34.7	19.6	NA
	5/8/2009	2.59	2.54	52.7	6.45	33.7	18.7	NA
	8/3/2009	1.25	1.56	104	2.93	29.6	18.5	1.28
	11/5/2009	ND	1.12	74.2	< 1	24.3	13.6	< 1
	2/12/2010	1.06	1.38	64.7	2.96	17	11.3	1.53
SB#2 - French Drain Discharge @ First Flush Basin	2/27/2008	ND	ND	25	ND	16.7	6.75	NA
	5/6/2008	ND	< 1	64.9	ND	41.1	20.9	NA
	9/8/2008	ND	ND	42.8	ND	29.1	13.9	NA
	11/13/2008	ND	ND	14.6	ND	10.9	5.88	NA
	5/8/2009	ND	ND	35.1	ND	24	11.5	NA
	8/3/2009	ND	< 1	43.1	ND	31.4	16.7	< 1
	11/5/2009	ND	ND	26	ND	19.5	10.2	< 1
	2/12/2010	ND	ND	7.93	ND	5.12	2.02	ND

Notes:  
 All concentrations reported in ug/l (micrograms per liter).  
 NA - Not Analyzed  
 ND - Not Detected

TABLE 2.8-2  
 Summary of Outfall 01A (North and South Basin) Analytical Data  
 Pinewood Landfill  
 Pinewood, South Carolina

SAMPLING LOCATION	DATE	Tetrachloroethylene
North Basin	3/11/2008	< 1
	7/21/2008	ND
	2/18/2009	ND
	5/13/2009	ND
	12/13/2009	ND
	2/20/2010	ND
South Basin	1/31/2008	ND
	5/14/2008	ND
	10/21/2008	ND
	12/28/2008	ND
	3/31/2009	ND
	6/26/2009	ND
	11/11/2009	ND
	1/18/2009	< 1

Notes:

All concentrations reported in ug/l (micrograms per liter).

NA - Not Analyzed

ND - Not Detected

TABLE 2.8-3  
Storm Water Analytical Data - December 18, 2009  
Section I  
Pinewood Landfill  
Pinewood, South Carolina

CONSTITUENT	SAMPLING LOCATION								
	SI-SW-1	SI-SW-2	SI-SW-3	SI-SW-4	SI-SW-5	SI-SW-6	SI-SW-7	SI-SW-8	SI-SW-9
<b><i>Volatile Organic Compounds (ug/l)</i></b>									
1,1,1,2 - Tetrachloroethane	NA	ND	ND	ND	ND	ND	ND	ND	ND
1,1,1 - Trichloroethane	NA	ND	ND	ND	ND	ND	ND	ND	ND
1,1,2,2 - Tetrachloroethane	NA	ND	ND	ND	ND	ND	ND	ND	ND
1,1,2 - Trichloroethane	NA	ND	ND	ND	ND	ND	ND	ND	ND
1,1 - Dichloroethane	NA	ND	ND	ND	ND	ND	ND	ND	ND
1,1 - Dichloroethylene	NA	ND	ND	ND	ND	ND	ND	ND	ND
1,2,3 - Trichloropropane	NA	ND	ND	ND	ND	ND	ND	ND	ND
1,2 - Dibromo-3-chloropropane	NA	ND	ND	ND	ND	ND	ND	ND	ND
1,2 - Dibromomethane	NA	ND	ND	ND	ND	ND	ND	ND	ND
1,2 - Dichloroethane	NA	ND	ND	ND	ND	ND	ND	ND	ND
1,2 - Dichloropropane	NA	ND	ND	ND	ND	ND	ND	ND	ND
1,4 - Dioxane	NA	ND	ND	ND	ND	ND	ND	ND	ND
2 - Butanone	NA	ND	ND	ND	ND	ND	ND	ND	ND
2 - Chloro-1,3-butadiene	NA	ND	ND	ND	ND	ND	ND	ND	ND
2 - Hexanone	NA	ND	ND	ND	ND	ND	ND	ND	ND
4 - Methyl-2-Pentanone	NA	ND	ND	ND	ND	ND	ND	ND	ND
Acetone	NA	ND	ND	ND	1.96	ND	1.74	ND	ND
Acetonitrile	NA	ND	ND	ND	ND	ND	ND	ND	ND
Acrolein	NA	ND	ND	ND	ND	ND	ND	ND	ND
Acrylonitrile	NA	ND	ND	ND	ND	ND	ND	ND	ND
Allyl chloride	NA	ND	ND	ND	ND	ND	ND	ND	ND
Benzene	NA	ND	ND	ND	ND	ND	ND	ND	ND
Bromodichloromethane	NA	ND	ND	ND	ND	ND	ND	ND	ND
Bromoform	NA	ND	ND	ND	ND	ND	ND	ND	ND
Bromomethane	NA	ND	ND	ND	ND	ND	ND	ND	ND
Carbon disulfide	NA	ND	ND	ND	ND	ND	ND	ND	ND
Carbon Tetrachloride	NA	ND	ND	ND	ND	ND	ND	ND	ND
Chlorobenzene	NA	ND	ND	ND	ND	ND	ND	ND	ND
Chloroethane	NA	ND	ND	ND	ND	ND	ND	ND	ND
Chloroform	NA	ND	ND	ND	ND	ND	ND	ND	ND
Chloromethane	NA	ND	ND	ND	ND	0.48	ND	ND	ND
Dibromochloromethane	NA	ND	ND	ND	ND	ND	ND	ND	ND
Dibromomethane	NA	ND	ND	ND	ND	ND	ND	ND	ND
Dichlorodifluoromethane	NA	ND	ND	ND	ND	ND	ND	ND	ND
Ethylbenzene	NA	ND	ND	ND	ND	ND	ND	ND	ND
Idomethane	NA	ND	ND	ND	ND	ND	ND	ND	ND
Isobutyl alcohol	NA	ND	ND	ND	ND	ND	ND	ND	ND
Methacrylonitrile	NA	ND	ND	ND	ND	ND	ND	ND	ND
Methylene Chloride	NA	ND	ND	ND	ND	ND	ND	ND	ND
Propionitrile	NA	ND	ND	ND	ND	ND	ND	ND	ND
Styrene	NA	ND	ND	ND	ND	ND	ND	ND	ND
Tetrachloroethylene	NA	ND	ND	ND	ND	ND	ND	ND	ND
Toluene	NA	ND	ND	ND	ND	ND	ND	ND	ND
Trichloroethylene	NA	ND	ND	ND	ND	ND	ND	ND	ND
Trichlorofluoromethane	NA	ND	ND	ND	ND	ND	ND	ND	ND
Vinyl Acetate	NA	ND	ND	ND	ND	ND	ND	ND	ND
Vinyl Chloride	NA	ND	ND	ND	ND	ND	ND	ND	ND
Xylenes (total)	NA	ND	ND	ND	ND	ND	ND	ND	ND
bis(2-Chloroisopropyl) ether	NA	ND	ND	ND	ND	ND	ND	ND	ND
cis-1,2-Dichloroethylene	NA	ND	ND	ND	ND	ND	ND	ND	ND
cis-1,3-Dichloropropylene	NA	ND	ND	ND	ND	ND	ND	ND	ND
trans - 1,2 Dichloroethylene	NA	ND	ND	ND	ND	ND	ND	ND	ND
trans - 1,3 Dichloropropylene	NA	ND	ND	ND	ND	ND	ND	ND	ND
trans - 1,4 Dichloro-2-butene	NA	ND	ND	ND	ND	ND	ND	ND	ND

Notes:  
 All concentrations reported in ug/l (micrograms per liter).  
 Shaded - Detected concentration  
 ND - Not Detected  
 NA - Not Analyzed



TABLE 2.8-4  
 Summary of Pond A (Outfall 001) and Pond B (Outfall 002) Analytical Data  
 Pinewood Landfill  
 Pinewood, South Carolina

Constituent	METALS								PESTICIDES / HERBICIDES				VOLATILE ORGANIC COMPOUNDS							
	Cadmium (ug/l)		Lead (ug/L)		Silver (ug/l)		Mercury (ug/l)		Arsenic (ug/l)		Heptachlor (ug/l)		2,4,5-TP (ug/l)		Acetone (ug/l)		Acrolein (ug/l)		Chloromethane (ug/l)	
Date	Outfall 001	Outfall 002	Outfall 001	Outfall 002	Outfall 001	Outfall 002	Outfall 001	Outfall 002	Outfall 001	Outfall 002	Outfall 001	Outfall 002	Outfall 001	Outfall 002	Outfall 001	Outfall 002	Outfall 001	Outfall 002	Outfall 001	Outfall 002
1/10/2008	0.39	0.55			0.023	0.087	0.0031	0.0019												
1/21/2008	0.45																			
1/31/2008	0.25																			
2/13/2008	0.84	0.66			0.088	0.15	0.0015	0.0009												
2/27/2008	0.34																			
2/28/2008	0.44																			
3/14/2008	0.54	1.12	0.73		0.011	0.073	0.0039	0.0015												
3/25/2008	0.7																			
3/27/2008	0.53																			
4/15/2008	0.2	1.08			0.011	0.28	0.0022	0.0018												
5/14/2008	0.18	0.29	0.58	0.59	0.011	0.07	0.0043	0.0043												
6/18/2008	0.43	0.19			0.011	0.011	0.0037	0.0025												
6/30/2008	0.16																			
7/17/2008	0.37	0.15			0.011	0.011	0.0035	0.001												
7/31/2008	0.15																			
8/20/2008	0.07	0.04			0.011	0.011	0.0021	0.001												
9/18/2008	0.08	0.07			0.011	0.011	0.0009	0.0009												
10/21/2009	0.07	0.07			0.011	0.011	0.0015	0.0015												
11/18/2008	0.29	0.22	0.66	0.79	0.048	0.07	0.0048	0.0041												
12/18/2008	0.28	0.49			0.012	0.011	0.0444	0.0013												
1/15/2009	0.89	0.52					0.0016	0.0009												
2/10/2009	0.19	0.7					0.0023	0.0007												
3/17/2009	0.61	0.68					0.0025	0.0018												
4/9/2009	0.33	0.33	0.67				0.0049	0.0021										2.34		
5/13/2009	0.14	0.39	0.16	0.06	0.023	0.003	0.0027	0.0017	0.46	0.24										
6/11/2009	0.12	0.27					0.0042	0.0042												
7/21/2009	0.16	0.18					0.0038	0.0029												
8/17/2009	0.4	0.29					0.0023	0.0008	1.7											
9/22/2009	0.25	0.2					0.0013	0.0007												
10/15/2009	0.27	0.18	0.93	0.88			0.0049	0.0049												
11/6/2009	0.16	0.25					0.0002	0.0009												
12/14/2009	0.27	0.39	0.7				0.0058	0.0023												
1/25/2010	0.64	0.79	0.85	1.05			0.0056	0.0039												
2/2/2010																				
2/11/2010	0.81	1.4					0.0042	0.0014					0.0318							
2/25/2010																				
3/4/2010															2.26	6.56				
3/11/2010														5.47	2.49					

TABLE 3.2-1  
Existing Storm Water Conveyance Components  
Section I Cover  
Pinewood Landfill  
Pinewood, South Carolina

Culverts on Section I Cover									
Culvert ID	10 year 24 hr Flow to Culvert (cfs)	25 year 24 hr Flow to Culvert (cfs)	Head on Inlet (feet)	Culvert Capacity (cfs)	Number of Pipes	Pipe Diameter (inches)	Pipe Material	10 year Culvert Capacity Acceptable?	25 year Culvert Capacity Acceptable?
J-13	2.2	2.68	1.25	3.59	1	15	CPP	ok	ok
J-17	0.68	0.83	1.25	3.59	1	15	CPP	ok	ok
J-19	1.44	1.76	1.25	3.59	1	15	CPP	ok	ok
J-21	12.55	15.28	3.14	12.95	1	18	RCP	ok	CULVERT DEFICIENT
J-27	1.2	1.47	1.25	3.59	1	15	CPP	ok	ok
J-31	1.23	1.49	1.25	3.59	1	15	CPP	ok	ok
J-33	6.71	8.19	1.0	4.11	2	12	CPP	CULVERT DEFICIENT	CULVERT DEFICIENT
J-36	3.98	4.86	2.0	2.9	1	12	CMP	CULVERT DEFICIENT	CULVERT DEFICIENT
J-41	3.27	3.98		Pipe sloped Backwards	1	15	CPP	---	---
J-43	22.22	27.05	1	4.11	2	12	CPP	CULVERT DEFICIENT	CULVERT DEFICIENT
J-60	7.64	9.31	1.5	5.66	1	18	RCP	CULVERT DEFICIENT	CULVERT DEFICIENT
J-64	2.53	3.08	1.5	5.66	1	18	RCP	ok	ok

Open Channels on Section I Cover					
Channel ID	25 year 24 hr Flow to Channel (cfs)	25 year 24 hr Max Water Depth (feet)	Bottom Width (feet)	Side Slope	Slope (feet/foot)
J-39	9.75	0.9	0	3	0.019
J-59	9.35	0.4	3	3	0.045
J-129	19.96	1.2	0	3	0.019

Notes:  
 CMP - Corrugated Metal Pipe  
 CPP - Corrugated Plastic Pipe  
 RCP - Reinforced Concrete Pipe  
 cfs - cubic feet per second

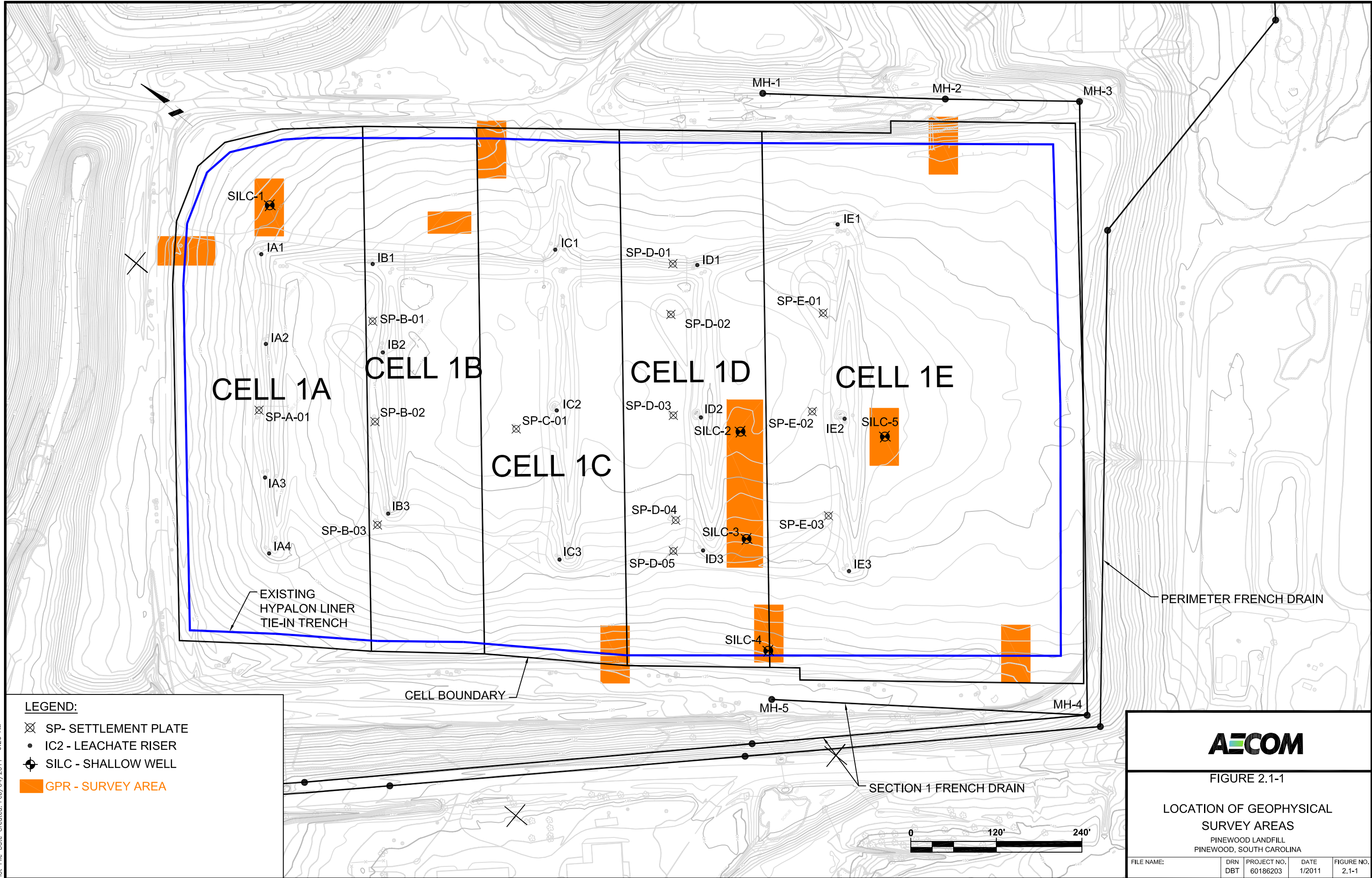
TABLE 4.9-1  
Recommended Improvements to Storm Water Culverts  
Section I Cover  
Pinewood Landfill  
Pinewood, South Carolina

Recommended Improvements to Storm Water Culverts								
Culvert ID	10 year 24 hr Flow to Culvert (cfs)	25 year 24 hr Flow to Culvert (cfs)	New Modeled Head on Inlet (feet)	New Culvert Capacity (cfs)	Number of Pipes	Current Pipe Diameter (inches)	Recommended Pipe Diameter (inches)	Pipe Material
J-21	12.55	15.28	2.5	16.54	1	18	24	RCP
J-33	6.71	8.19	1.5	11.33	2	12	18	CPP
J-36	3.98	4.86	2.0	6.61	1	12	18	CMP
J-41	3.27	3.98	1.5	5.75	1	15	18	CPP
J-43	22.22	27.05	2.5	40.62	2	12	30	CPP
J-60	7.64	9.31	2.0	11.63	1	18	24	RCP

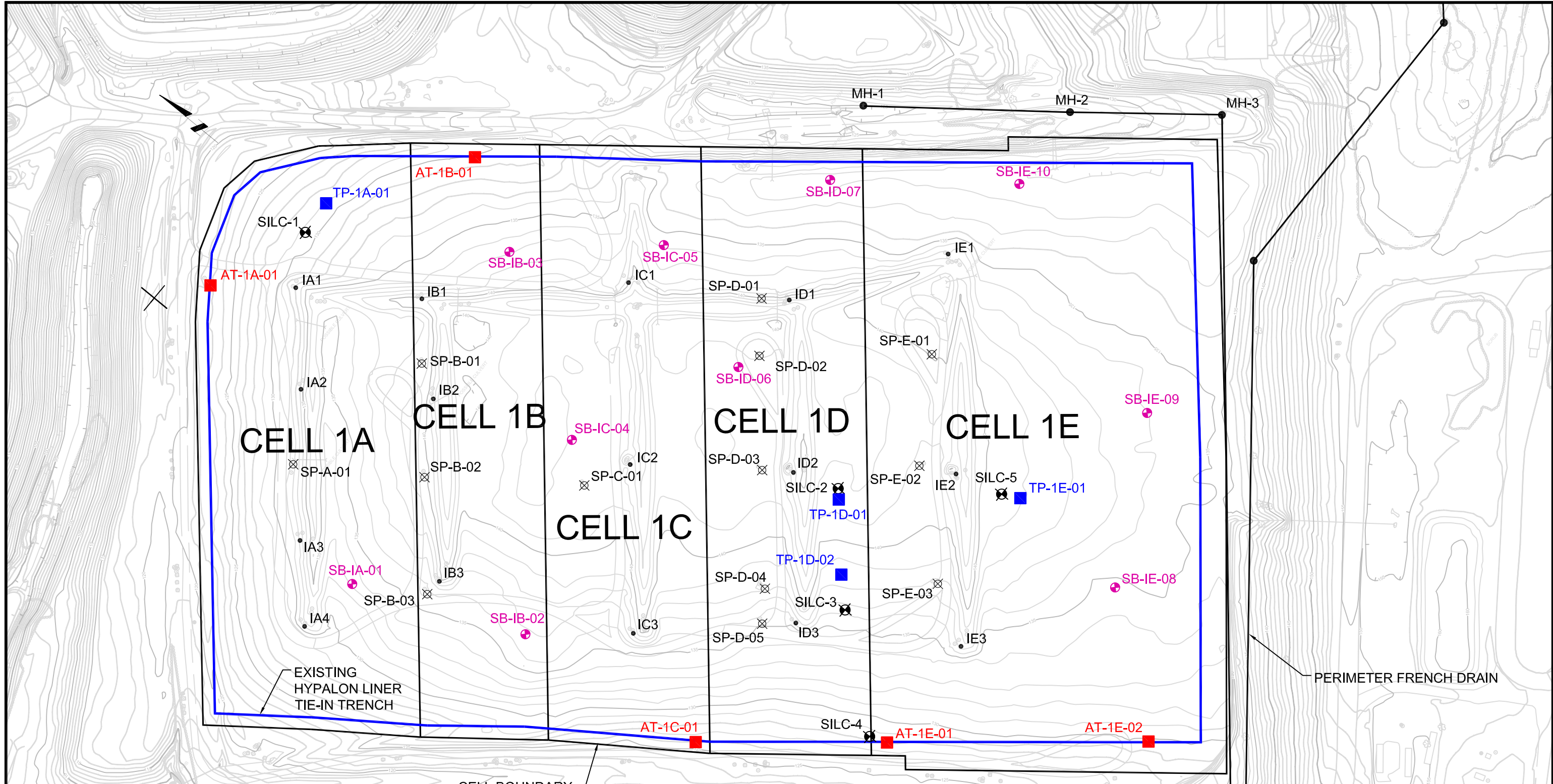
Notes:

- CMP - Corrugated Metal Pipe
- CPP - Corrugated Plastic Pipe
- RCP - Reinforced Concrete Pipe
- cfs - cubic feet per second

## **FIGURES**



Plotted By: liced  
 Layout-Sheet Name: FIGURE 2.1-1  
 Plot File Date Created: Feb/04/2011 9:26 AM



- LEGEND:**
- ⊗ SP- SETTLEMENT PLATE
  - IC2 - LEACHATE RISER
  - ⊕ SILC - SHALLOW WELL
  - TP - TEST PITS
  - AT- ANCHOR TRENCH PITS
  - ⊕ SOIL TEST BORINGS

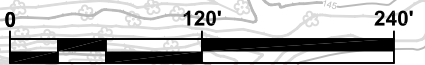
**AECOM**

FIGURE 2.2-1

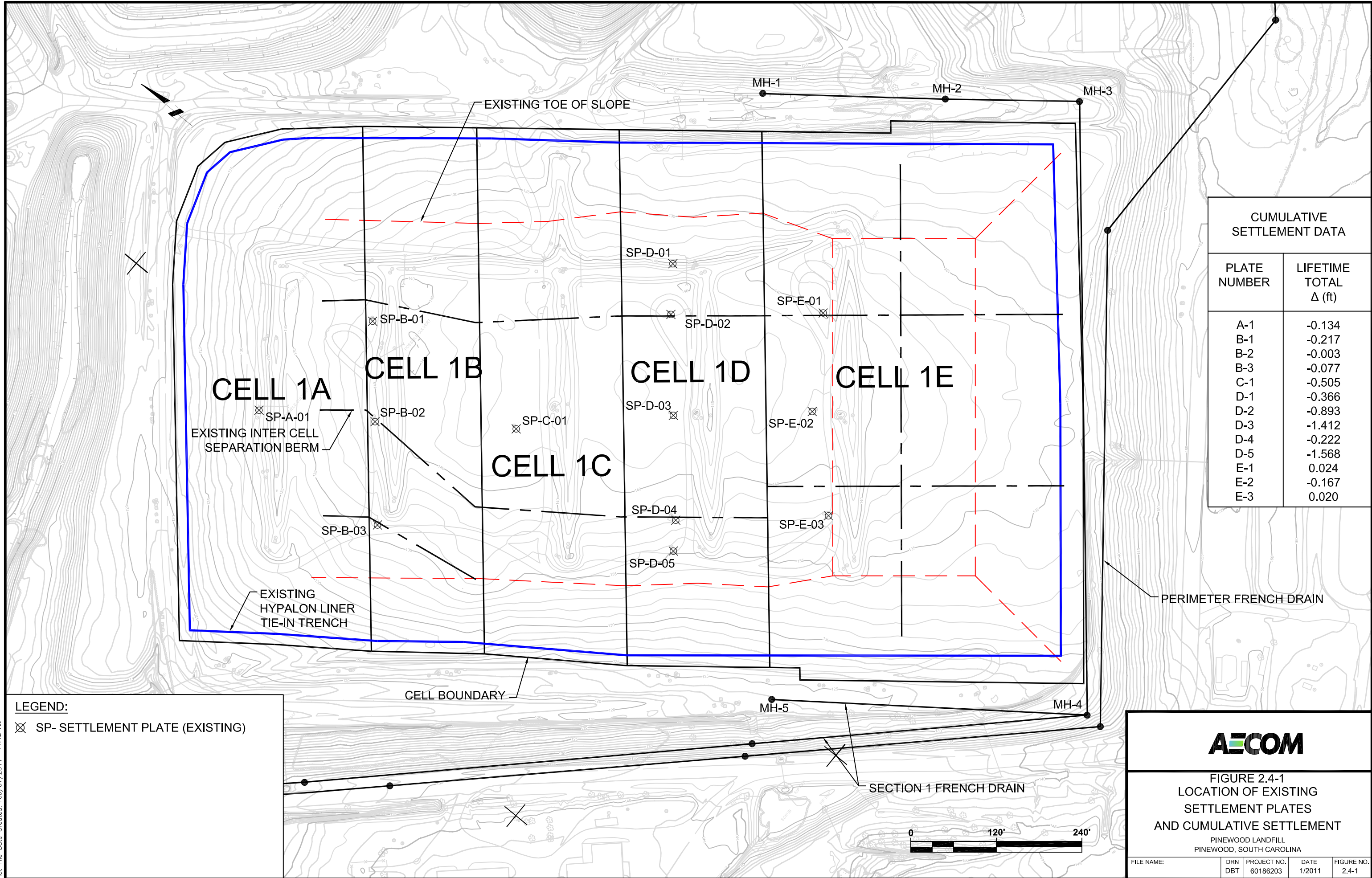
**LOCATION OF TEST PITS AND  
SOIL TEST BORINGS**

PINWOOD LANDFILL  
PINWOOD, SOUTH CAROLINA

FILE NAME:	DRN DBT	PROJECT NO. 60186203	DATE 1/2011	FIGURE NO. 2.2-1
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Plotted By: liced  
 Layout-Sheet Name: FIGURE 2.2-1  
 Plot File Date Created: Feb/04/2011 9:27 AM



CUMULATIVE SETTLEMENT DATA	
PLATE NUMBER	LIFETIME TOTAL Δ (ft)
A-1	-0.134
B-1	-0.217
B-2	-0.003
B-3	-0.077
C-1	-0.505
D-1	-0.366
D-2	-0.893
D-3	-1.412
D-4	-0.222
D-5	-1.568
E-1	0.024
E-2	-0.167
E-3	0.020

**LEGEND:**  
 ✕ SP- SETTLEMENT PLATE (EXISTING)

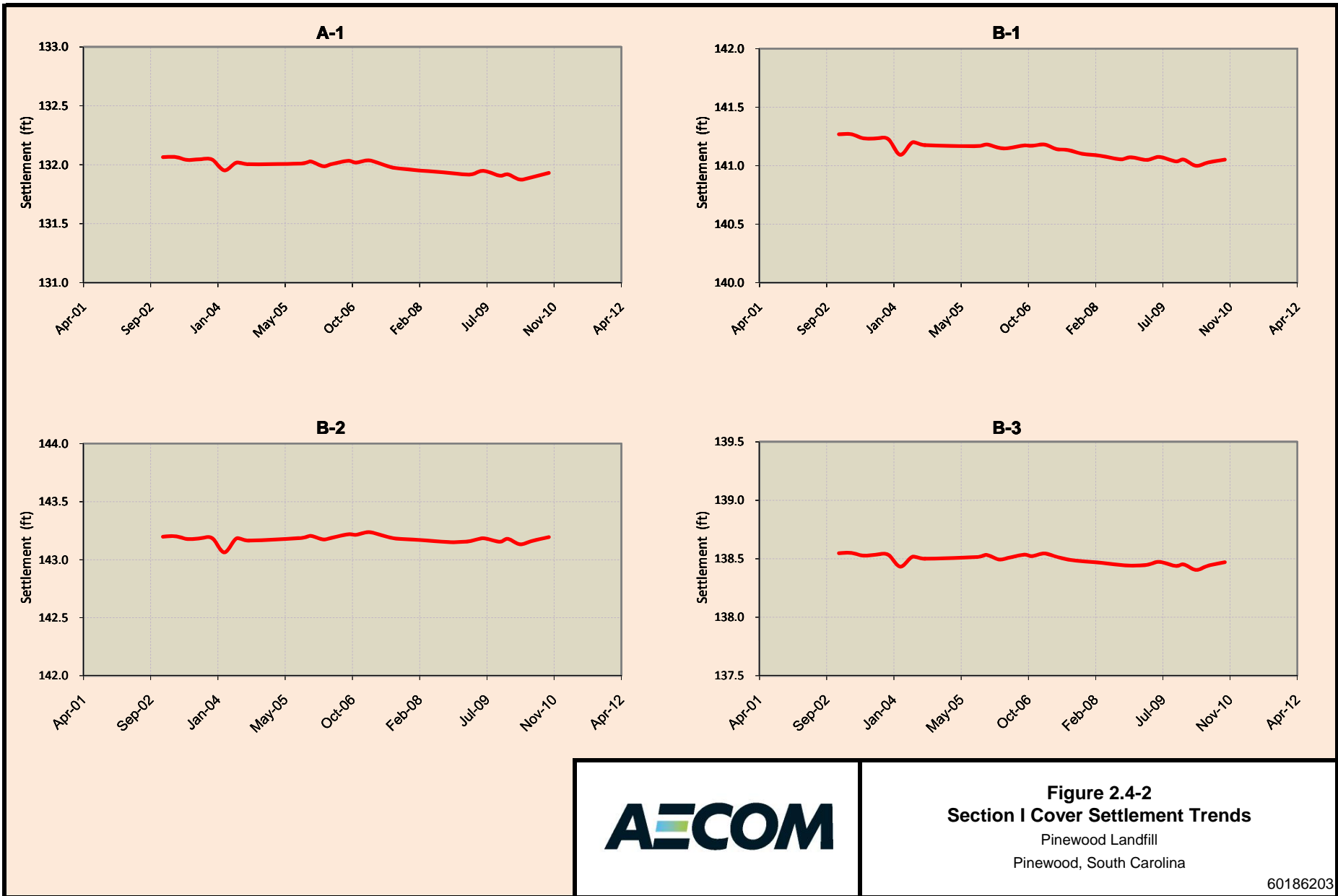


**FIGURE 2.4-1**  
 LOCATION OF EXISTING  
 SETTLEMENT PLATES  
 AND CUMULATIVE SETTLEMENT

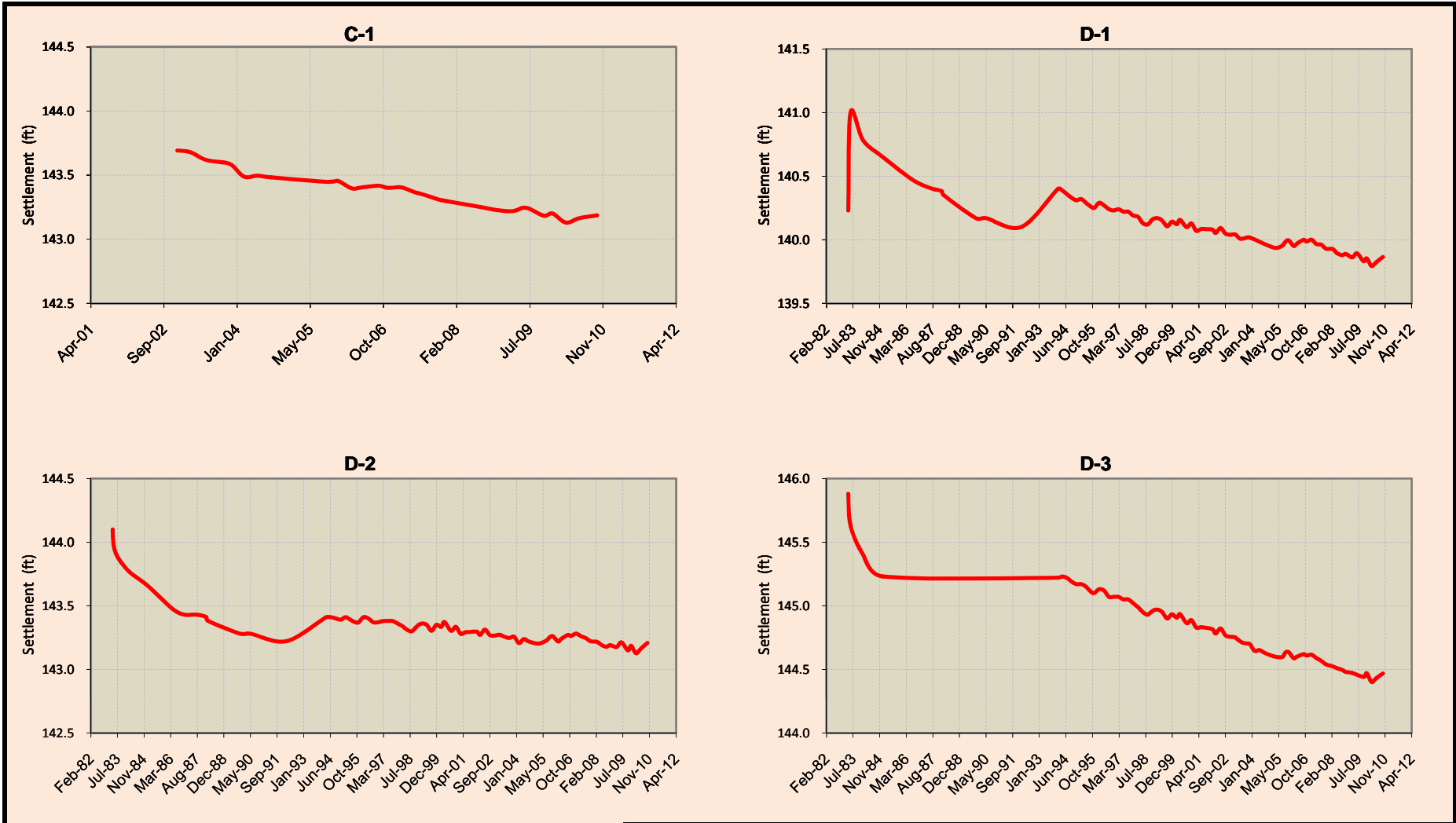
PINEWOOD LANDFILL  
 PINEWOOD, SOUTH CAROLINA

FILE NAME:	DRN DBT	PROJECT NO. 60186203	DATE 1/2011	FIGURE NO. 2.4-1
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Plotted By: TICED  
 Layout-Sheet Name: FIGURE 2.4-1  
 Plot File Date Created: Feb/07/2011 11:42 AM



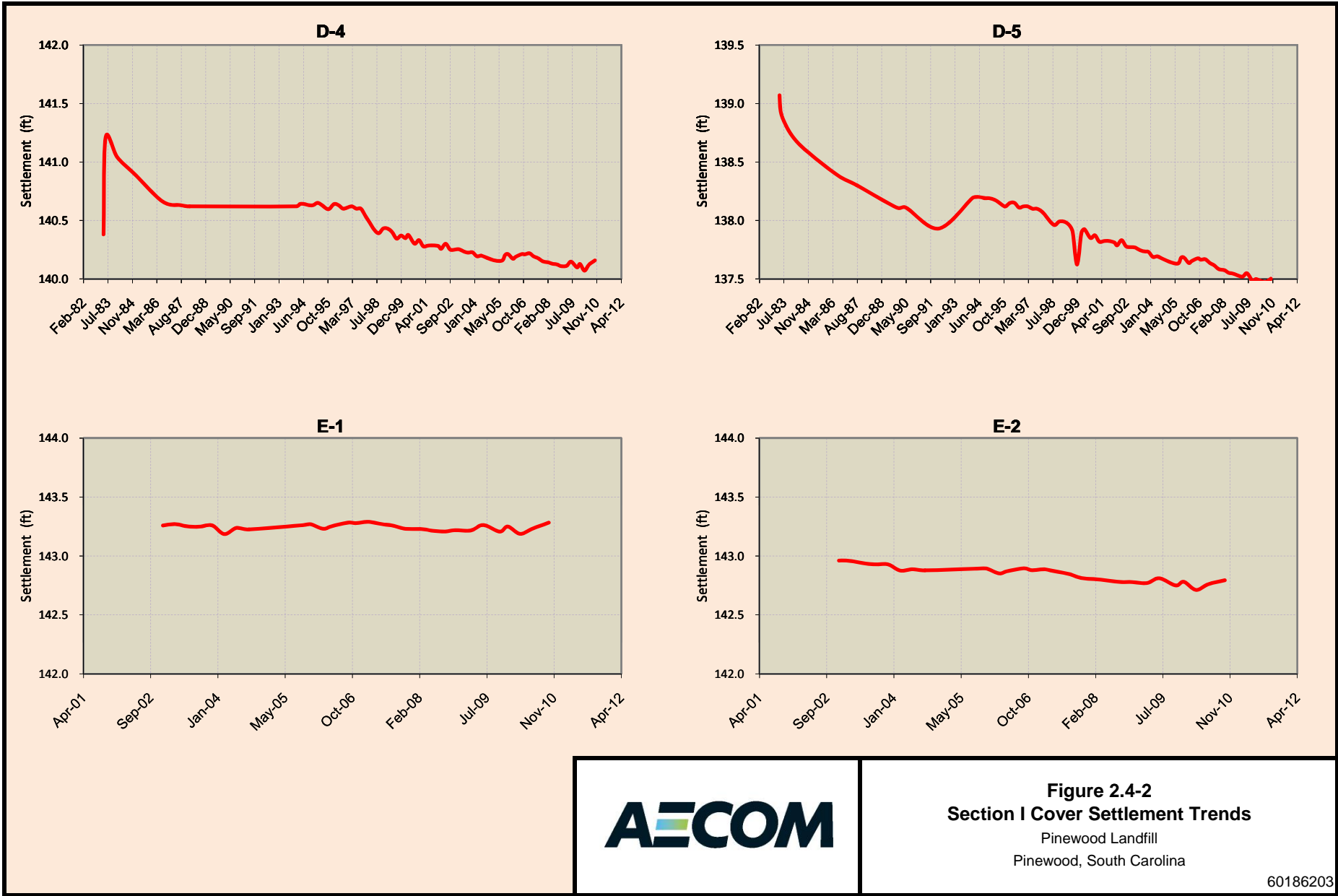




**Figure 2.4-2**  
**Section I Cover Settlement Trends**

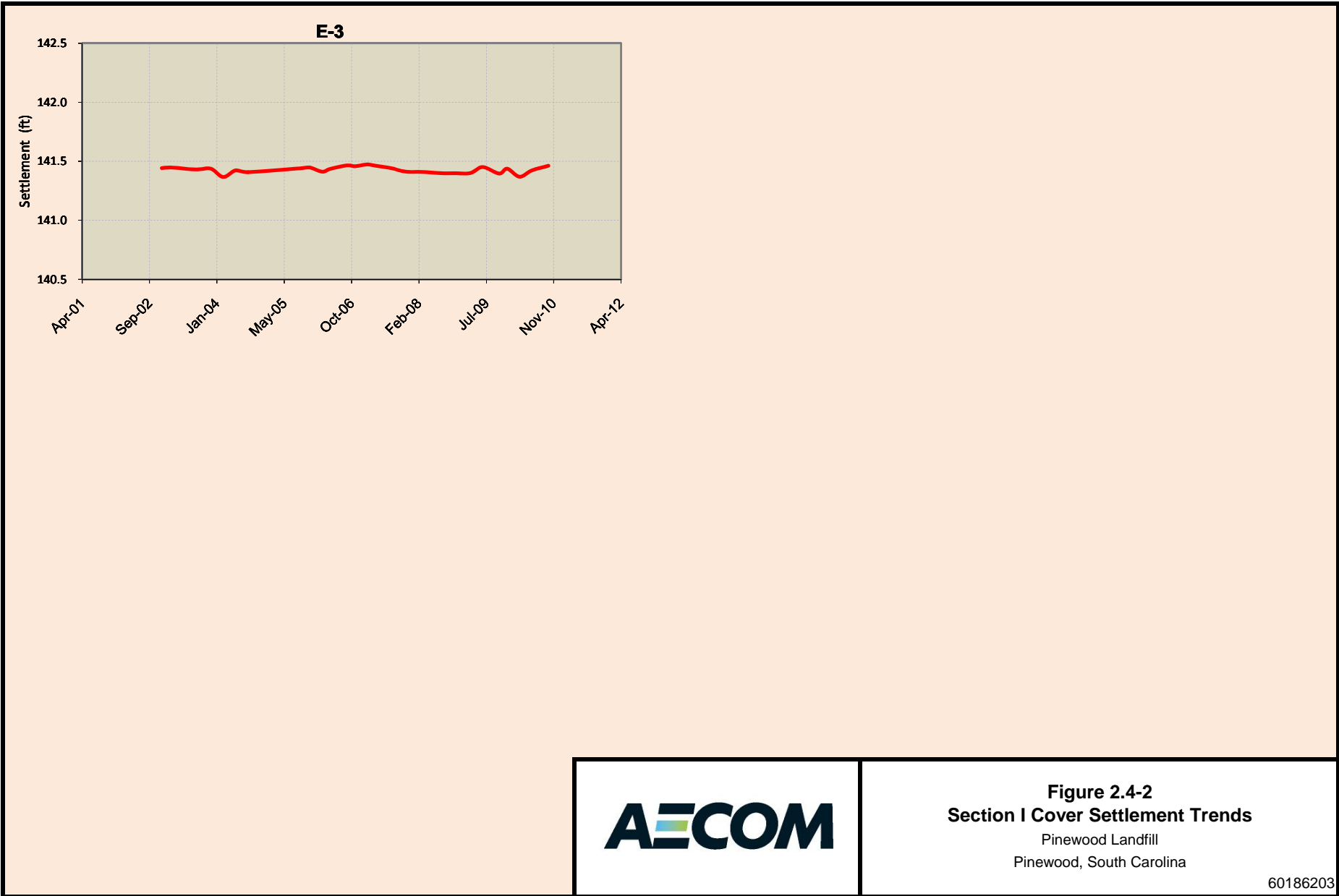
Pinewood Landfill  
 Pinewood, South Carolina

60186203



**Figure 2.4-2**  
**Section I Cover Settlement Trends**  
 Pinewood Landfill  
 Pinewood, South Carolina

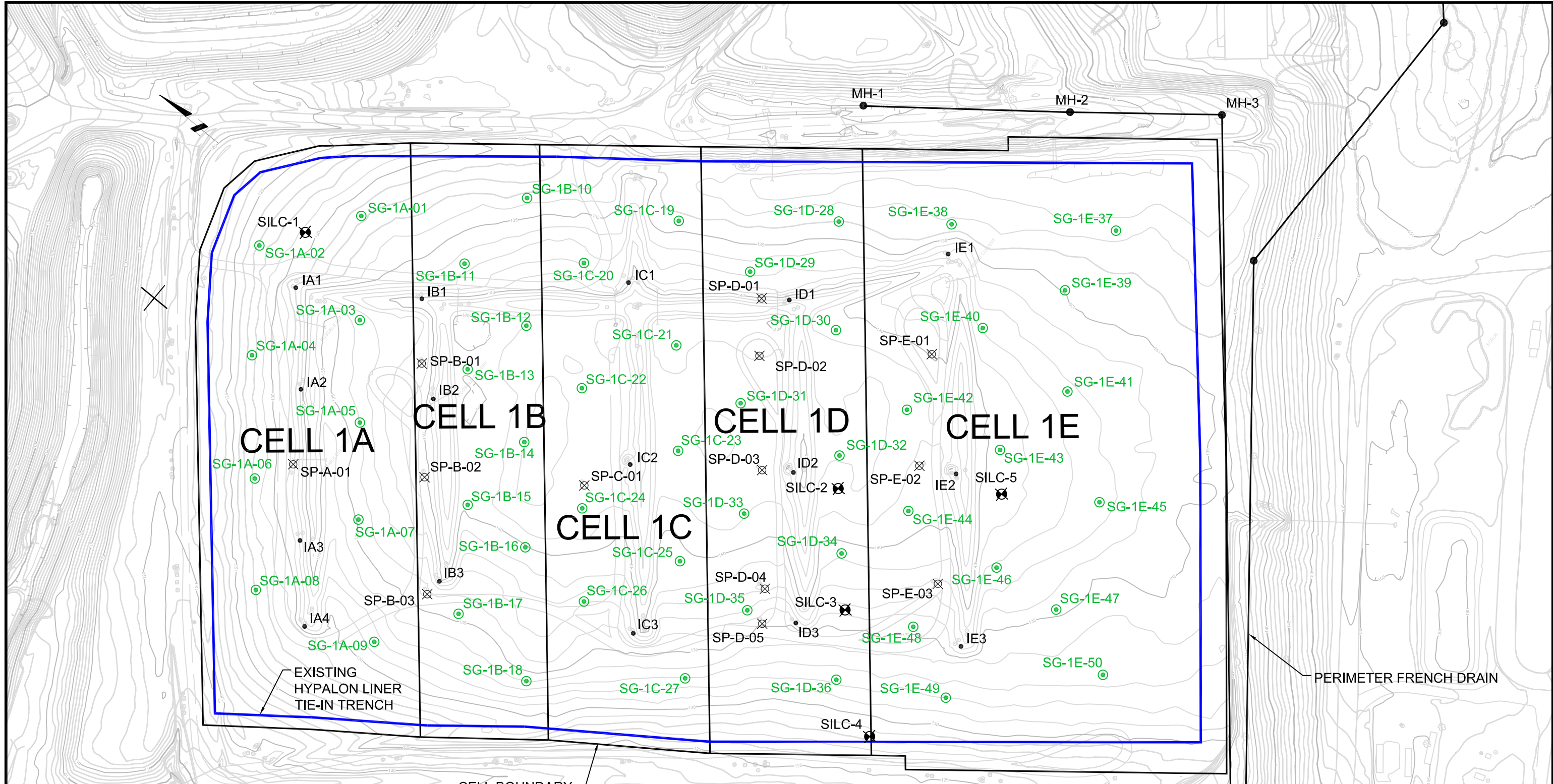
60186203



**Figure 2.4-2**  
**Section I Cover Settlement Trends**

Pinewood Landfill  
 Pinewood, South Carolina

60186203



- LEGEND:**
- ⊗ SP- SETTLEMENT PLATE
  - IC2 - LEACHATE RISER
  - ⊕ SILC - SHALLOW WELL
  - ⊙ SG - SOIL GAS POINTS

**AECOM**

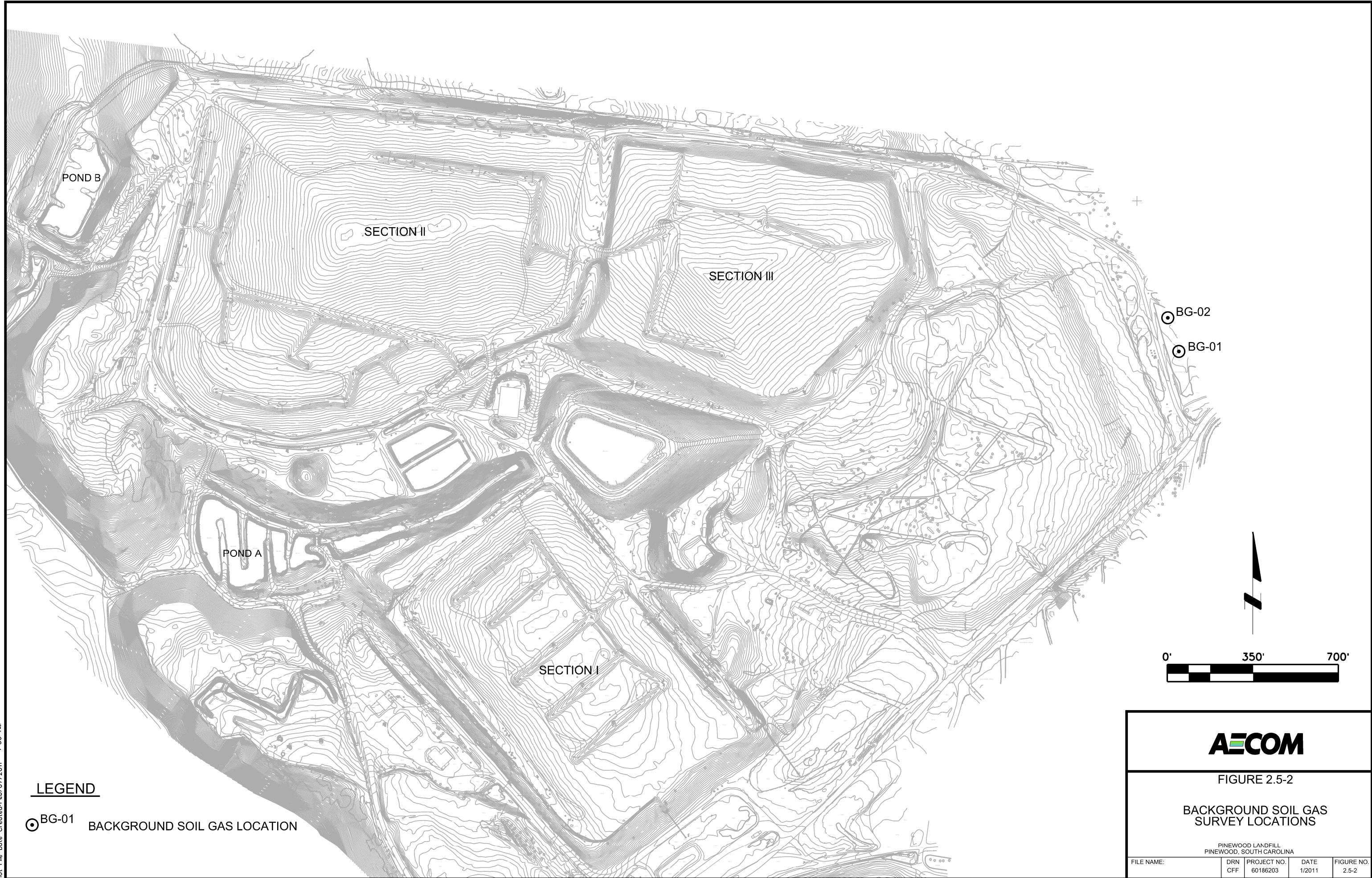
FIGURE 2.5-1

**LOCATION OF SECTION I  
SOIL GAS SURVEY POINTS**

PINWOOD LANDFILL  
PINWOOD, SOUTH CAROLINA

FILE NAME:	DRN DBT	PROJECT NO. 60186203	DATE 1/2011	FIGURE NO. 2.5-1
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Plotted By: liced  
 Layout-Sheet Name: FIGURE 2.5-1  
 Plot File Date Created: Feb/04/2011 2:03 PM



Plotted By: Furmanski  
 Layout-Sheet Name: MODEL  
 Plot File Date Created: Feb/07/2011 7:53 AM

**LEGEND**


 BG-01 BACKGROUND SOIL GAS LOCATION

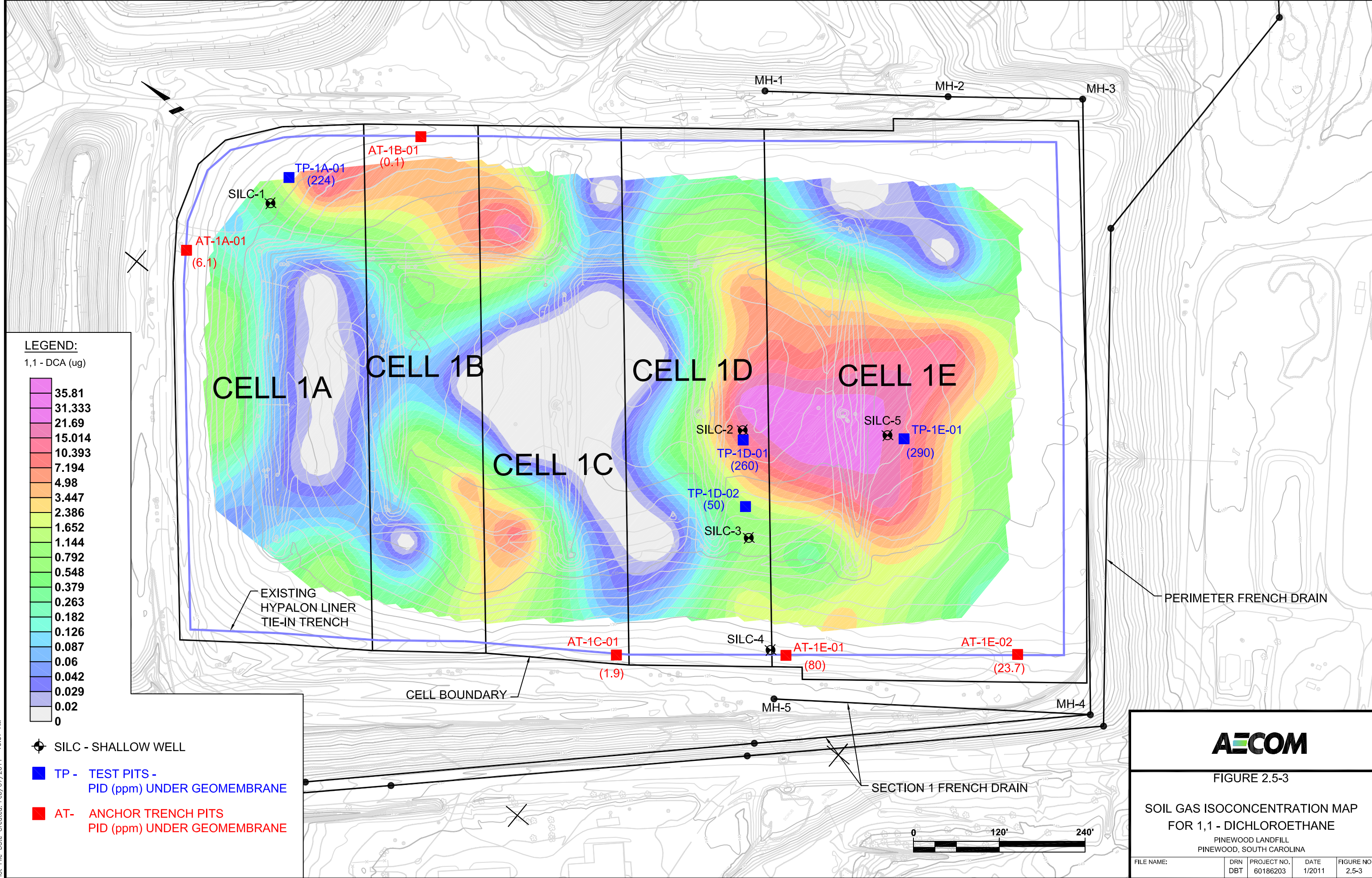


FIGURE 2.5-2

**BACKGROUND SOIL GAS SURVEY LOCATIONS**

PINEWOOD LANDFILL  
PINEWOOD, SOUTH CAROLINA

FILE NAME:	DRN	PROJECT NO.	DATE	FIGURE NO.
	CFF	60186203	1/2011	2.5-2



**AECOM**

FIGURE 2.5-3

SOIL GAS ISOCONCENTRATION MAP  
FOR 1,1 - DICHLOROETHANE

PINEWOOD LANDFILL  
PINEWOOD, SOUTH CAROLINA

FILE NAME:	DRN DBT	PROJECT NO. 60186203	DATE 1/2011	FIGURE NO. 2.5-3
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Plotted By: TICED  
Layout-Sheet Name: FIGURE 2.5-3  
Plot File Date Created: Feb/07/2011 10:07 AM



**LEGEND**

 SILC-4      SHALLOW COVER WELL



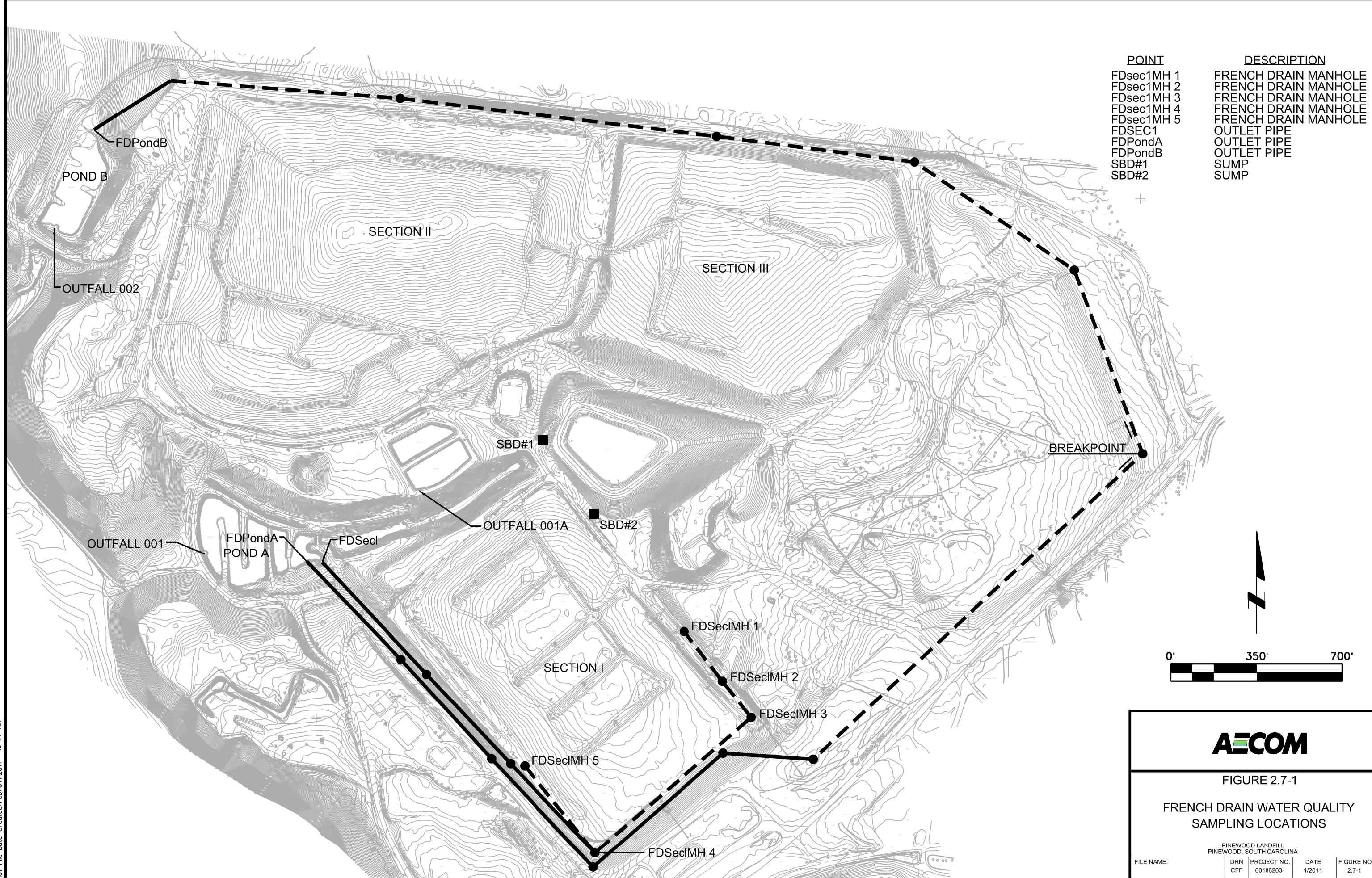
**AECOM**

FIGURE 2.6-1  
 SECTION I  
 SHALLOW COVER WELL LOCATIONS

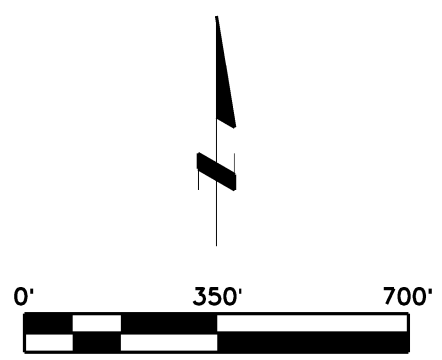
PINEWOOD LANDFILL  
PINEWOOD, SOUTH CAROLINA


FILE NAME:	DRN CFF	PROJECT NO. 60186203	DATE 1/2011	FIGURE NO. 2.6-1
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Plotted By: Furmanski  
 Layout Sheet Name: MODEL  
 Plot File Date Created: Feb/07/2011 7:53 AM



POINT	DESCRIPTION
FDsec1MH 1	FRENCH DRAIN MANHOLE
FDsec1MH 2	FRENCH DRAIN MANHOLE
FDsec1MH 3	FRENCH DRAIN MANHOLE
FDsec1MH 4	FRENCH DRAIN MANHOLE
FDsec1MH 5	FRENCH DRAIN MANHOLE
FDSEC1	OUTLET PIPE
FDPondA	OUTLET PIPE
FDPondB	OUTLET PIPE
SBD#1	SUMP
SBD#2	SUMP





**FIGURE 2.7-1**

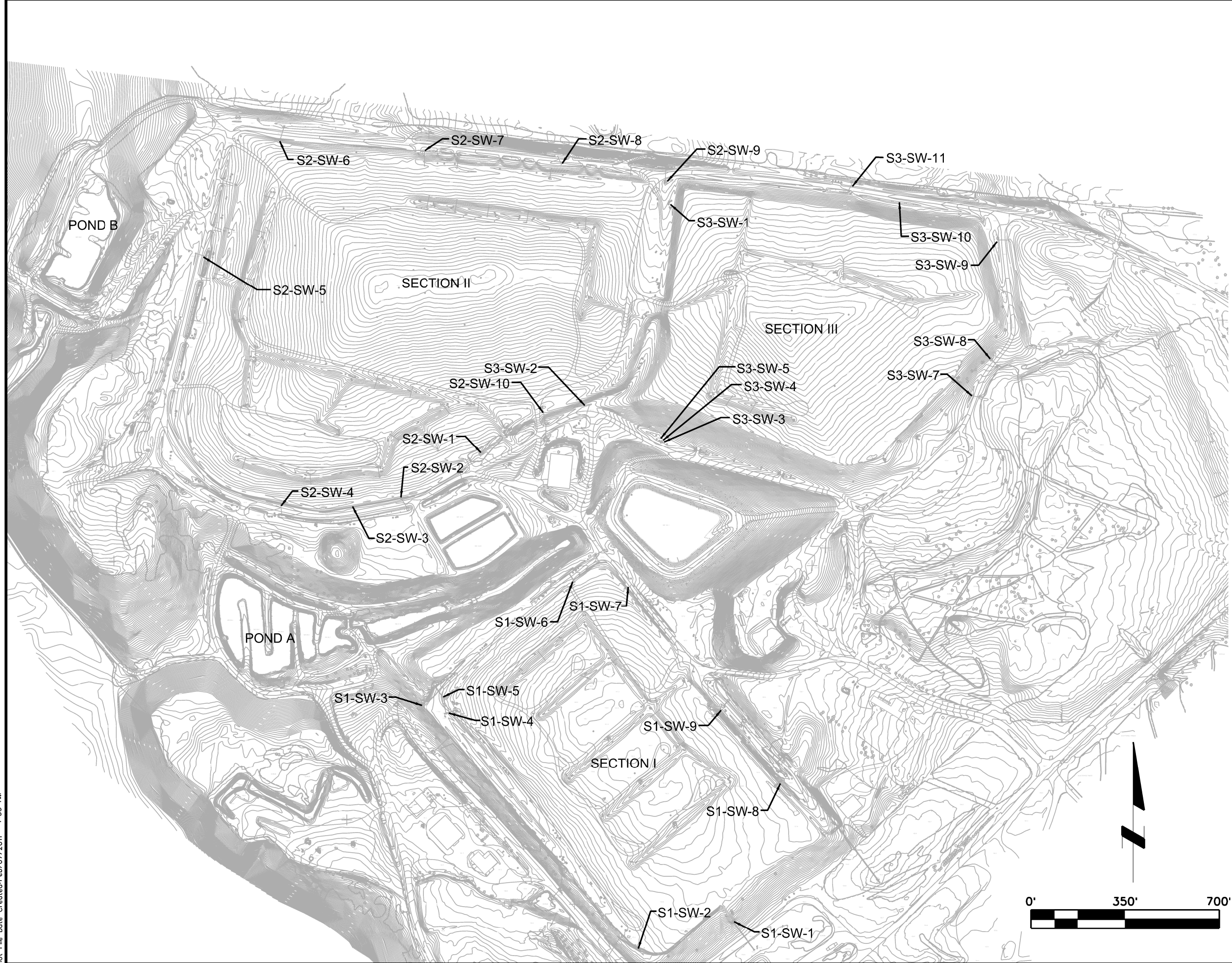
**FRENCH DRAIN WATER QUALITY SAMPLING LOCATIONS**

PINEWOOD LANDFILL  
PINEWOOD, SOUTH CAROLINA

FILE NAME:	DRN CFF	PROJECT NO. 60186203	DATE 1/2011	FIGURE NO. 2.7-1
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Plotted By: furmanski  
 Layout-Sheet Name: MODEL  
 Plot File Date Created: Feb/07/2011 10:44 AM





**SECTION 1**

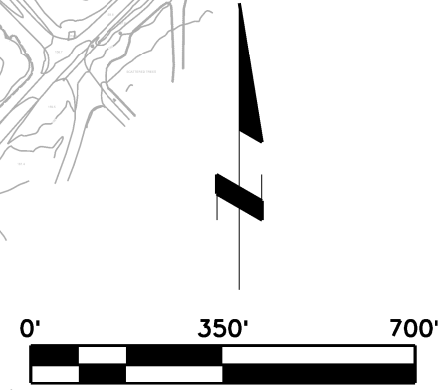
POINT	DESCRIPTION
S1-SW-1	PIPE OUTLET
S1-SW-2	DITCH LINE
S1-SW-3	DITCH LINE
S1-SW-4	DITCH LINE
S1-SW-5	DROP INLET
S1-SW-6	PIPE OUTLET
S1-SW-7	DITCH LINE
S1-SW-8	PIPE OUTLET
S1-SW-9	PIPE OUTLET

**SECTION 2**

POINT	DESCRIPTION
S2-SW-1	DROP INLET
S2-SW-2	PIPE INLET
S2-SW-3	PIPE INLET
S2-SW-4	PIPE INLET
S2-SW-5	PIPE INLET
S2-SW-6	DROP INLET
S2-SW-7	PIPE INLET
S2-SW-8	PIPE INLET
S2-SW-9	PIPE INLET
S2-SW-10	PIPE OUTLOT

**SECTION 3**

POINT	DESCRIPTION
S3-SW-1	SURFACE DRAINAGE FROM EXPOSED GEONET
S3-SW-2	DITCH LINE
S3-SW-3	DITCH LINE AT DROP INLET
S3-SW-4	SECTION 3 TOE DRAIN WEST
S3-SW-5	SECTION 3 TOE DRAIN EAST
S3-SW-6	PIPE INLET
S3-SW-7	PIPE INLET
S3-SW-8	PIPE INLET
S3-SW-9	PIPE INLET
S3-SW-10	PIPE INLET
S3-SW-11	PIPE INLET



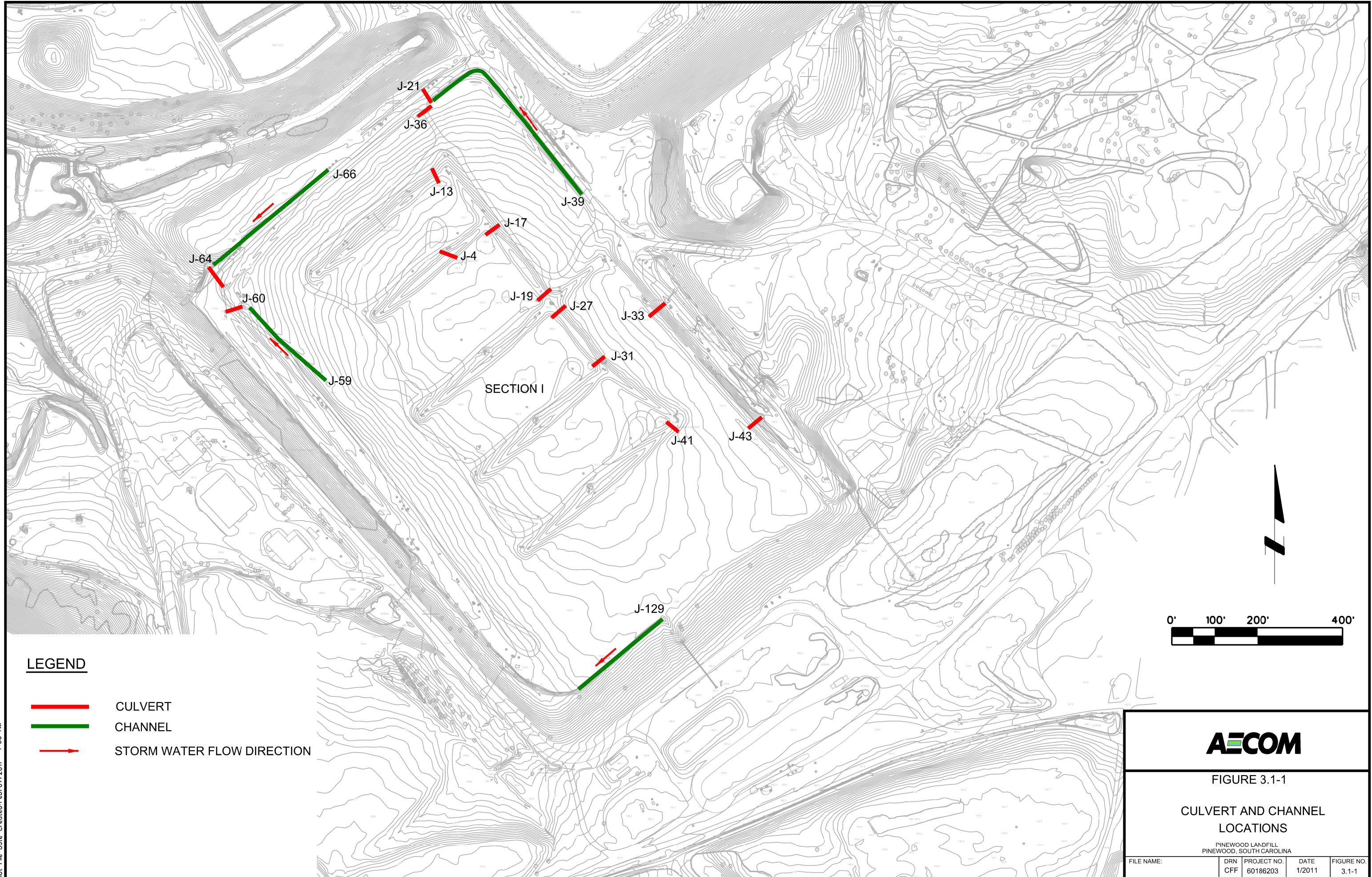
**AECOM**

FIGURE 2.8-1  
EXISTING STORM WATER  
SAMPLING LOCATIONS

PINWOOD LANDFILL  
PINWOOD, SOUTH CAROLINA

FILE NAME:	DRN CFF	PROJECT NO. 60186203	DATE 1/2011	FIGURE NO. 2.8-1
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Plotted By: Furmanskic  
 Layout Sheet Name: MODEL  
 Plot File Date Created: Feb/07/2011 7:53 AM



**LEGEND**

- CULVERT
- CHANNEL
- STORM WATER FLOW DIRECTION



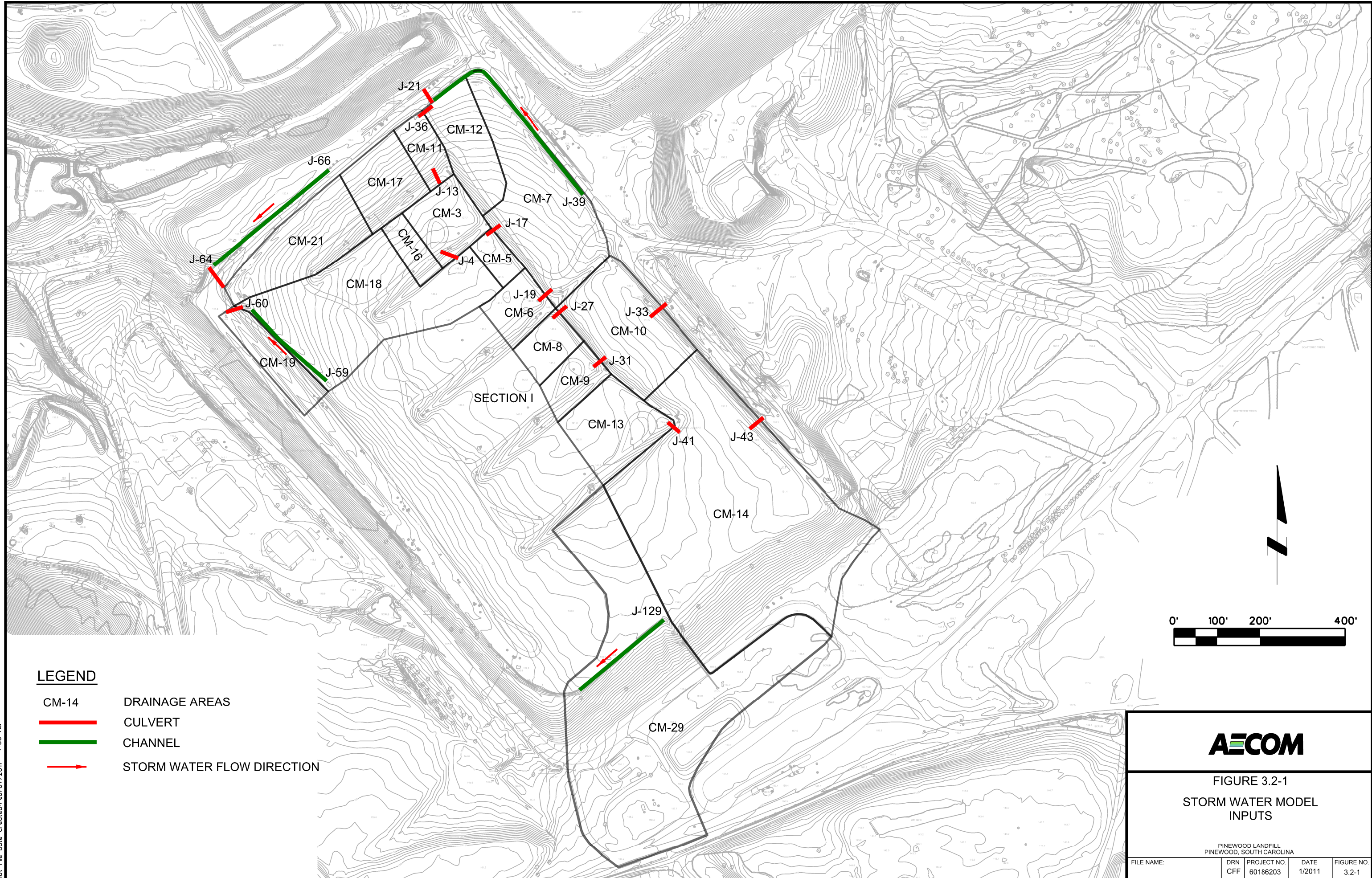
FIGURE 3.1-1

**CULVERT AND CHANNEL LOCATIONS**

PINEWOOD LANDFILL  
PINEWOOD, SOUTH CAROLINA

FILE NAME:	DRN CFF	PROJECT NO. 60186203	DATE 1/2011	FIGURE NO. 3.1-1
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Plotted By: Furmanskic  
 Layout Sheet Name: MODEL  
 Plot File Date Created: Feb/07/2011 7:53 AM



**LEGEND**

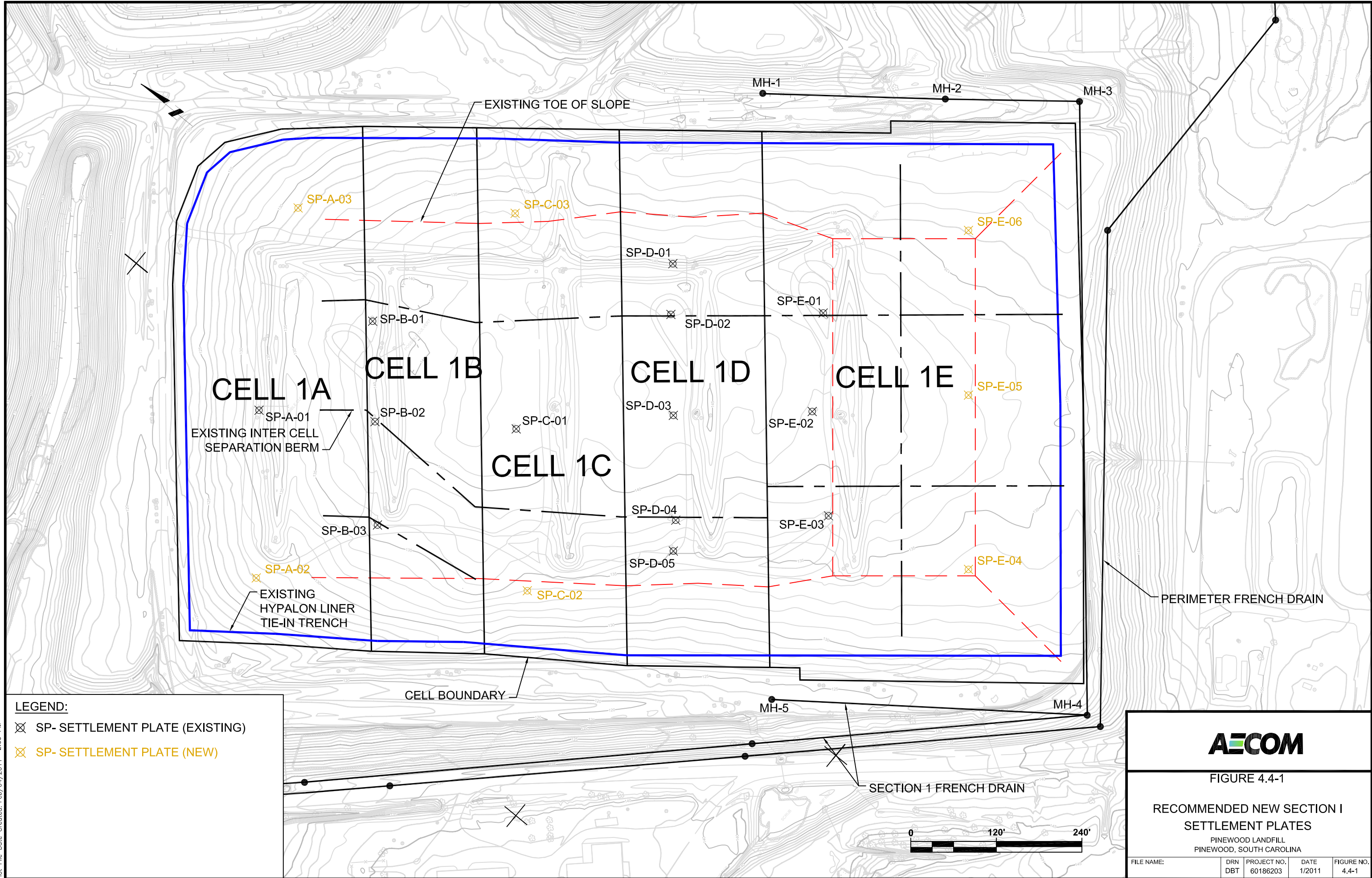
- CM-14 DRAINAGE AREAS
- CULVERT
- CHANNEL
- STORM WATER FLOW DIRECTION



**FIGURE 3.2-1**  
**STORM WATER MODEL**  
**INPUTS**

PINEWOOD LANDFILL  
 PINEWOOD, SOUTH CAROLINA

FILE NAME:	DRN CFF	PROJECT NO. 60186203	DATE 1/2011	FIGURE NO. 3.2-1
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**LEGEND:**

- ⊗ SP- SETTLEMENT PLATE (EXISTING)
- ⊗ SP- SETTLEMENT PLATE (NEW)



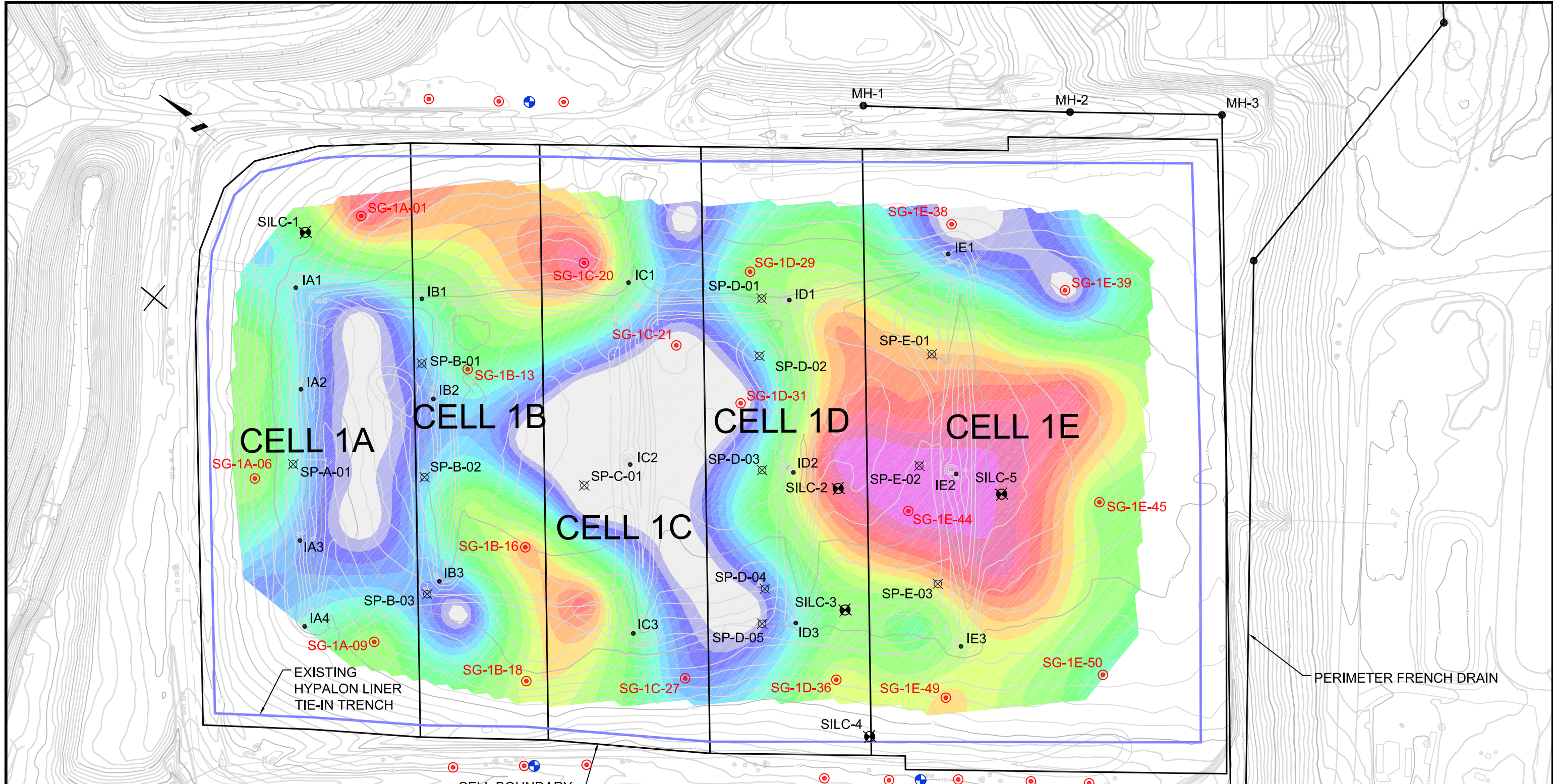
FIGURE 4.4-1

**RECOMMENDED NEW SECTION I  
SETTLEMENT PLATES**

PINEWOOD LANDFILL  
PINEWOOD, SOUTH CAROLINA

FILE NAME:	DRN DBT	PROJECT NO.	DATE	FIGURE NO.
		60186203	1/2011	4.4-1

Plotted By: liced  
 Layout-Sheet Name: FIGURE 4.4-1  
 Plot File Date Created: Feb/04/2011 2:09 PM



**LEGEND:**

- ⊗ SP - SETTLEMENT PLATE
- IC2 - LEACHATE RISER
- ⊕ SILC - SHALLOW WELL
- ⊙ SG - SOIL GAS POINTS (PERMANENT)
- ⊕ WATER TABLE MONITORING WELL (NEW)

EXISTING HYPALON LINER TIE-IN TRENCH

CELL BOUNDARY

PERIMETER FRENCH DRAIN

SECTION 1 FRENCH DRAIN

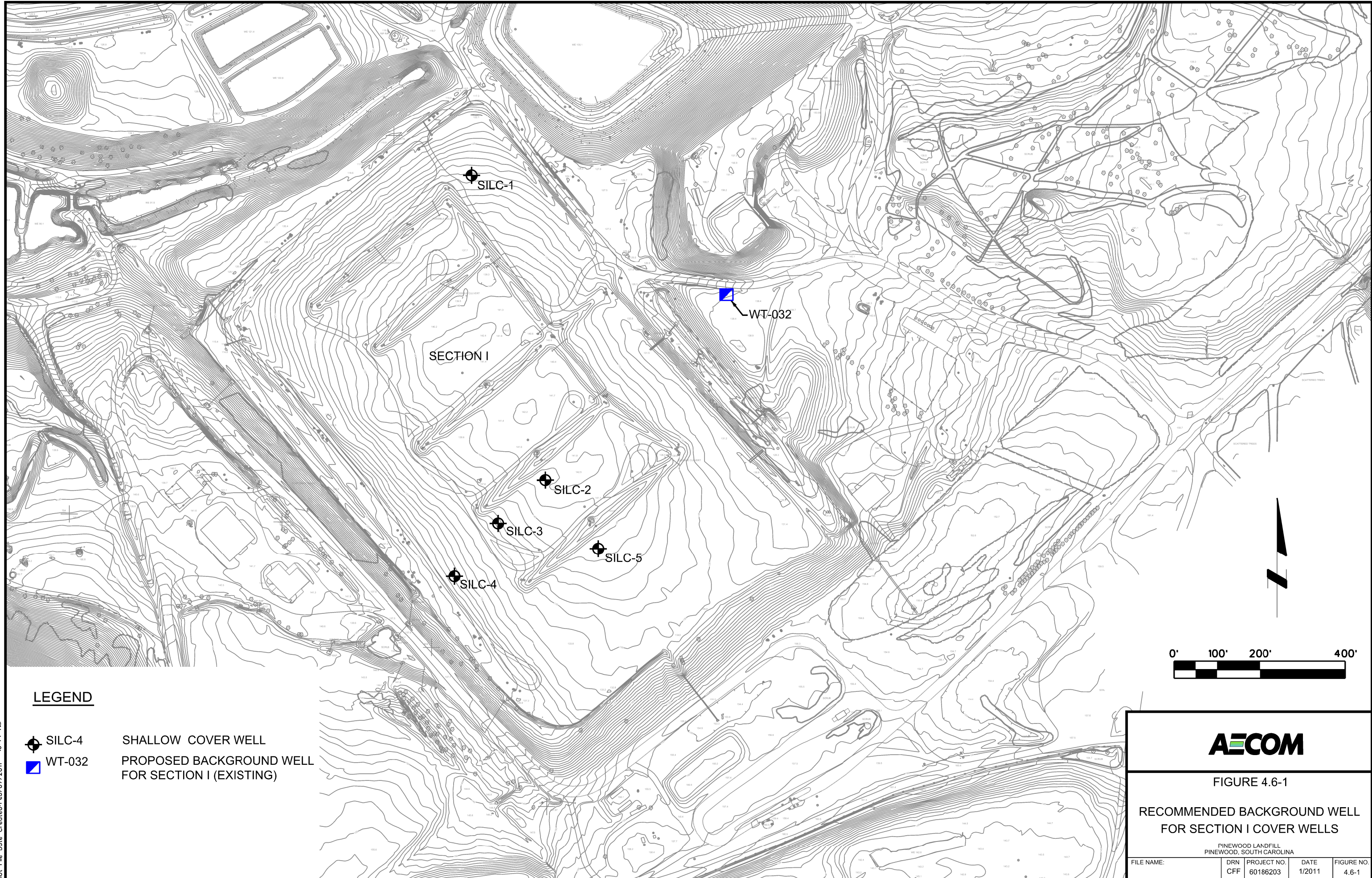


**AECOM**



**FIGURE 4.5-1**  
**RECOMMENDED SOIL GAS AND**  
**SHALLOW GROUND WATER**  
**MONITORING POINTS**  
 PINWOOD LANDFILL  
 PINWOOD, SOUTH CAROLINA

FILE NAME:	DRN DBT	PROJECT NO. 60186203	DATE 1/2011	FIGURE NO. 4.5-1
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Plotted By: TICED  
 Layout-Sheet Name: FIGURE 4.5-1  
 Plot File Date Created: Feb/07/2011 11:25 AM



**LEGEND**

-  SILC-4 SHALLOW COVER WELL
-  WT-032 PROPOSED BACKGROUND WELL FOR SECTION I (EXISTING)

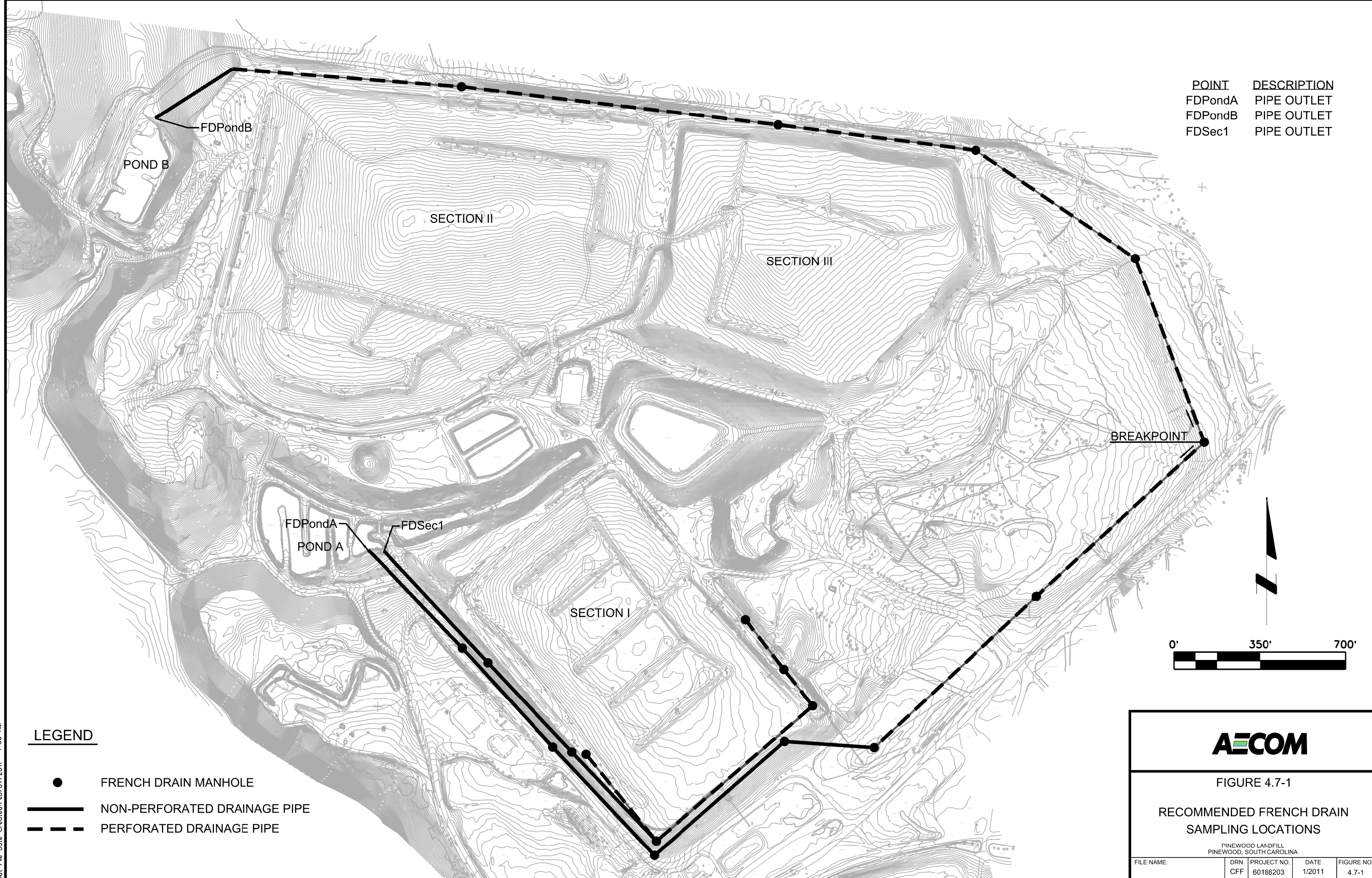


**AECOM**

**FIGURE 4.6-1**  
**RECOMMENDED BACKGROUND WELL**  
**FOR SECTION I COVER WELLS**

PINWOOD LANDFILL PINWOOD, SOUTH CAROLINA				
FILE NAME:	DRN CFF	PROJECT NO. 60186203	DATE 1/2011	FIGURE NO. 4.6-1

Plotted By: furmanskic  
 Layout Sheet Name: MODEL  
 Plot File Date Created: Feb/07/2011 10:44 AM



**LEGEND**

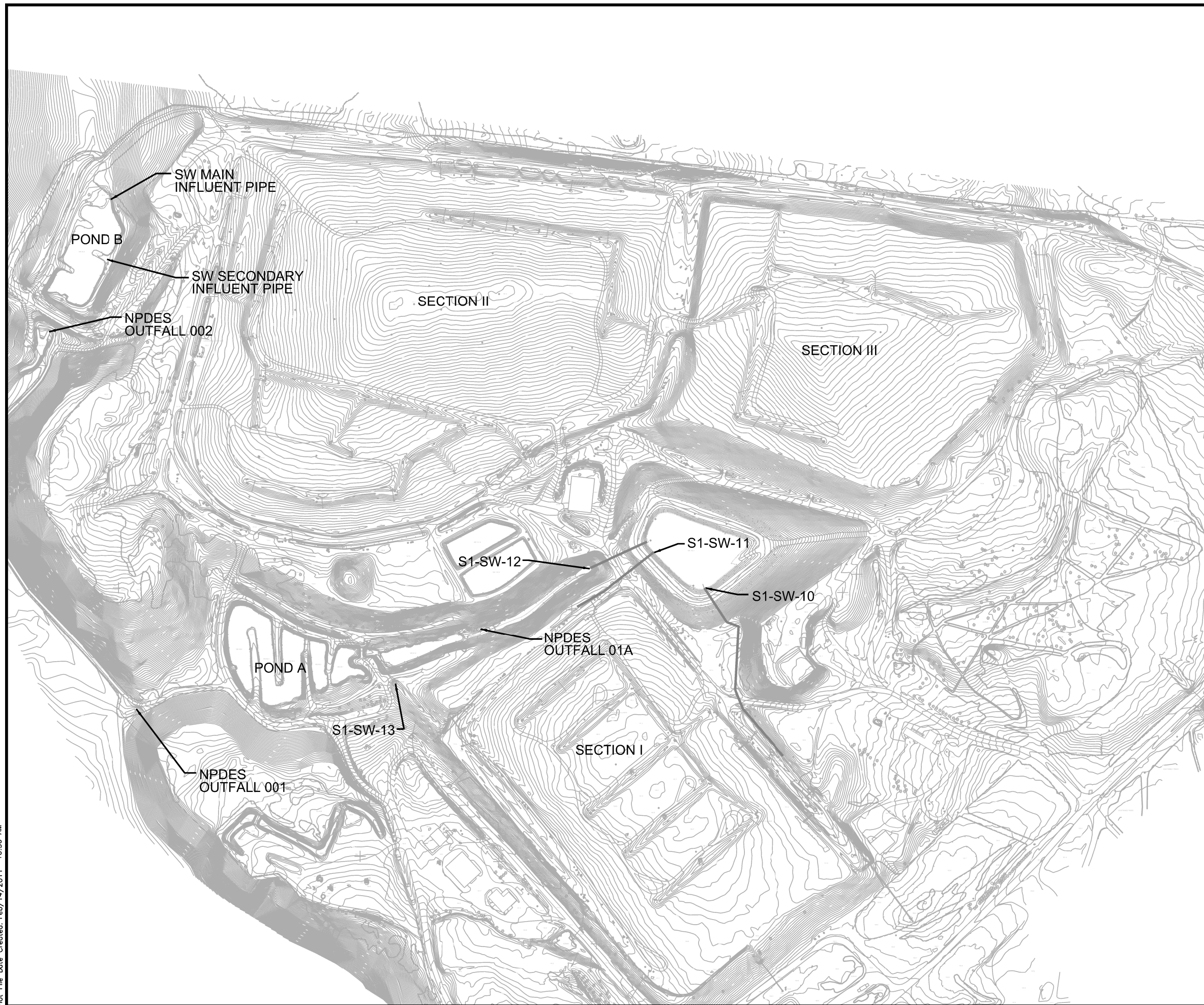
- FRENCH DRAIN MANHOLE
- NON-PERFORATED DRAINAGE PIPE
- - - PERFORATED DRAINAGE PIPE



**FIGURE 4.7-1**  
**RECOMMENDED FRENCH DRAIN**  
**SAMPLING LOCATIONS**

PINewood LANDFILL PINewood, SOUTH CAROLINA				
FILE NAME:	DRN CFF	PROJECT NO. 60186203	DATE 1/2011	FIGURE NO. 4.7-1

Plotted By: Furmanskic  
 Layout-Sheet Name: MODEL  
 Plot File Date Created: Feb/07/2011 7:53 AM



SECTION I

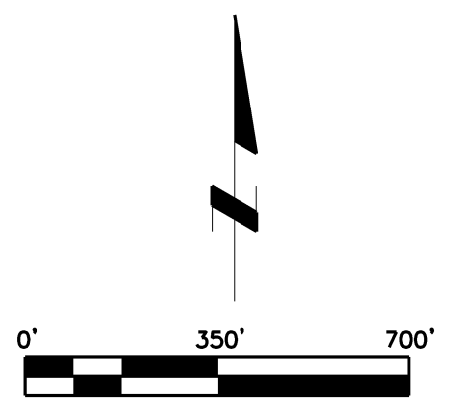
POINT	DESCRIPTION
S1-SW-10	PIPE OUTLET
S1-SW-11	PIPE OUTLET
S1-SW-12	PIPE OUTLET
S1-SW-13	PIPE INLET

SECTION II & III

POINT	DESCRIPTION
SW MAIN INFLUENT PIPE	INLET PIPE
SW SECONDARY INFLUENT PIPE	INLET PIPE

NPDES OUTFALLS

POINT	DESCRIPTION
OUTFALL 001	OUTFALL STRUCTURE
OUTFALL 002	OUTFALL STRUCTURE
OUTFALL 01A	OUTFALL STRUCTURE



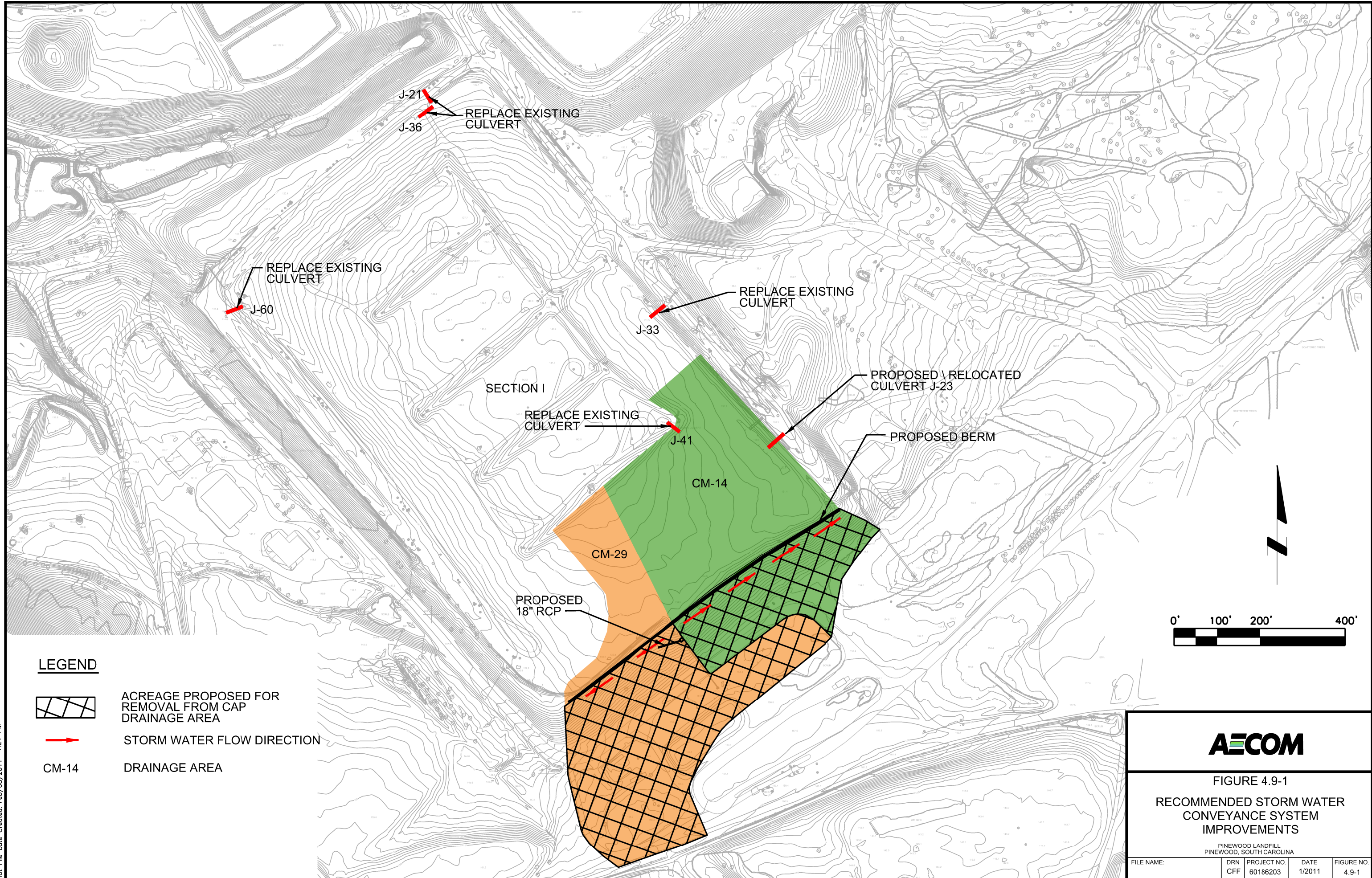
**AECOM**

**FIGURE 4.8-1**  
**RECOMMENDED SECTION I, II & III**  
**STORM WATER SAMPLING LOCATIONS**  
**AND NPDES PERMIT**  
**SAMPLING LOCATIONS**  
 PINEWOOD LANDFILL  
 PINEWOOD, SOUTH CAROLINA

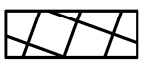


FILE NAME:	DRN CFF	PROJECT NO. 60186203	DATE 1/2011	FIGURE NO. 4.8-1
------------	------------	-------------------------	----------------	---------------------

Plotted By: Furmonska  
 Layout-Sheet Name: MODEL  
 Plot File Date Created: Feb/14/2011 10:30 AM





**LEGEND**

-  ACREAGE PROPOSED FOR REMOVAL FROM CAP DRAINAGE AREA
-  STORM WATER FLOW DIRECTION
-  DRAINAGE AREA



**FIGURE 4.9-1**  
**RECOMMENDED STORM WATER CONVEYANCE SYSTEM IMPROVEMENTS**

PINWOOD LANDFILL  
 PINWOOD, SOUTH CAROLINA

FILE NAME:	DRN CFF	PROJECT NO. 60186203	DATE 1/2011	FIGURE NO. 4.9-1
------------	------------	-------------------------	----------------	---------------------

Plotted By: Furmonska  
 Layout-Sheet Name: MODEL  
 Plot File Date Created: Feb/08/2011 1:21 PM

## **APPENDICES**

## **Appendix 2.1-1**

### **GEL Geophysics Report**

December 6, 2010

[www.gel.com](http://www.gel.com)

Mr. Walter Gerald, P.G.  
AECOM  
10 Patewood Drive  
Building VI, Suite 500  
Greenville, South Carolina 29615

Re: Ground Penetrating Radar Investigation  
Pinewood Landfill  
Pinewood, South Carolina

Dear Mr. Gerald:

GEL Geophysics, LLC performed a ground penetrating radar (GPR) investigation at the referenced site on November 19, 2010, under the direction of Chuck Suddeth, P.G. of AECOM. The investigation was conducted as a pilot study to determine the effectiveness of GPR at the site. AECOM wished to determine whether or not GPR technology could effectively detect and differentiate the various layers of materials overlying the synthetic liner of the landfill, as well as detect the synthetic liner/waste interface. The field procedures and results of our investigation are discussed below.

#### Field Procedures

The GPR investigation was performed using a RAMAC GPR system configured with a 250 MHz antenna array. A brief overview of GPR technology is included as Attachment I. The core study areas consisted of 11 discrete areas selected by AECOM within Cells 1A, 1B, 1C, 1D, and 1E. The individual study areas are listed for each cell below:

- Cell 1A: GPR-1A-01 and AT-1A-01
- Cell 1B: SB-1B-03
- Cell 1C: AT-1C-01 and AT-1B-01
- Cell 1D: GPR-1D-02, GPR-1D-03, and GPR-1D-04
- Cell 1E: GPR-1E-05, GPR-1E-06, and AT-1E-01

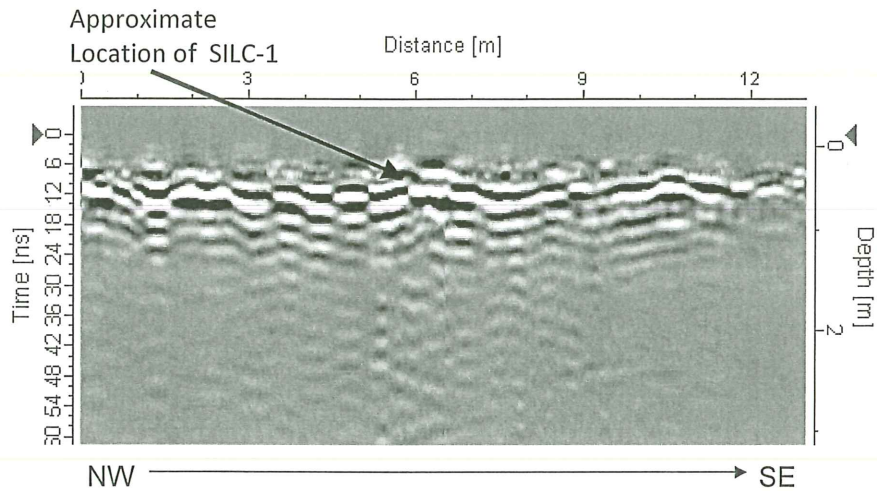
The GPR survey of each consisted of multiple parallel profiles collected in a grid pattern appropriate for the size of the area. The data were processed and interpreted in the field, and also collected for post-processing and analysis. The data were processed using MALA Geoscience's Groundvision software.

#### Results of Investigation

Based on the results of both the field interpretation of data and a review of the post-processed data profiles, it was determined that the subsurface conditions on all five cells investigated are not conducive for GPR. The maximum effective depth of penetration ranged from 1-2 feet below land surface, and only gross differences between the topsoil layer and the first underlying clay layer could be seen in some data profiles. It is understood that some study areas were selected by AECOM because depths of material

layers were known as a result of prior excavations and well installations. As an example, Figure 1 below is a cross-section of a GPR profile in Cell 1A (Area GPR-1A-01) immediately adjacent to well SILC-1, which had been installed in a trench.

**FIGURE 1**  
**Example GPR Cross-Section**



Profile Dat0009.rd3 - Area GPR-1A-01  
Direction: NW-SE directly adjacent to SILC-1

Had GPR been effective, a clearly defined trench feature would have been detectable at the location of SILC-1, which corresponds to the 6-meter distance position on the radargram shown above. However, it is apparent in the data above that GPR did not detect this known feature. Based on a review of all GPR data collected at the site, GPR is not a viable technology for differentiating between overlying soil layers within the landfill cells. Furthermore, GPR technology is not recommended as a method to determine the depth of the synthetic liner overlying the landfill cells.

GEL Geophysics appreciates the opportunity to have assisted AECOM with this investigation. If you have questions regarding this report, please do not hesitate to call me at (843) 769-7379, extension 4415.

Yours very truly,

Scott T. Smith  
Senior Project Manager

enclosures

fc: aeco00210.120610.rpt.doc

## ATTACHMENT I

### EQUIPMENT AND METHODOLOGY

#### Ground Penetrating Radar

GPR is an electromagnetic method that detects interfaces between subsurface materials with differing dielectric constants. The GPR system consists of: an antenna, which houses a transmitter and receiver; a profiling recorder, which processes the received signal and produces a graphic display of the data; and a video display unit, which processes and transmits the GPR signal to a color video display and recording device.

The transmitter radiates repetitive short-duration EM signals into the earth from an antenna moving across the ground surface. Electromagnetic waves are reflected back to the receiver by interfaces between materials with differing dielectric constants. The intensity of the reflected signal is a function of the contrast in the dielectric constant at the interface, the conductivity of the material that the wave is traveling through, and the frequency of the signal. Subsurface features which may cause such reflections are: 1) natural geologic conditions such as changes in sediment composition, bedding and cementation horizons, voids, and water content; or 2) man-introduced materials or changes to the subsurface such as soil backfill, buried debris, tanks, pipelines, and utilities. The profiling recorder receives the signal from the antenna and produces a continuous cross section of the subsurface interface reflections, referred to as “reflectors” or “reflection events.”

Depth of investigation of the GPR signal is highly site specific, and is limited by signal attenuation (absorption) of the subsurface materials. Signal attenuation is dependent upon the electrical conductivity of the subsurface materials. Signal attenuation is greatest in materials with relatively high electrical conductivities such as clays and brackish groundwater, and lowest in relatively low conductivity materials such as unsaturated sand or rock. In addition, the presence of reinforcement bar in concrete structures may severely attenuate the GPR signal such that objects below the slab may be undetectable. Depth of investigation is also dependent on antenna frequency and generally increases with decreasing frequency; however, the ability to identify smaller subsurface features is diminished with decreasing frequency.

GEL Geophysics uses GPR antennas that are internally shielded from above-ground interference sources. Accordingly, the GPR signal is not affected by nearby aboveground conductive objects such as metal fences, overhead power lines, and vehicles. Therefore, no spurious reflection events are generated on the GPR data by aboveground features, which could lead to false interpretation of subsurface anomalies.

**Appendix 2.2-1**  
Photo Log of Extruded Liner Clay Samples, PVC  
Geomembrane and Test Pits

# Photographic Log

## Section I Cover Evaluation Undisturbed Samples of Liner Clay From Test Pits

TP-1A-01

TP-1D-01

TP-1D-02

TP-1E-01





**PHOTOGRAPHIC LOG**

**Project Name:**  
Pinewood Landfill  
Section I Cover Evaluation

**Location:**  
Pinewood, South Carolina

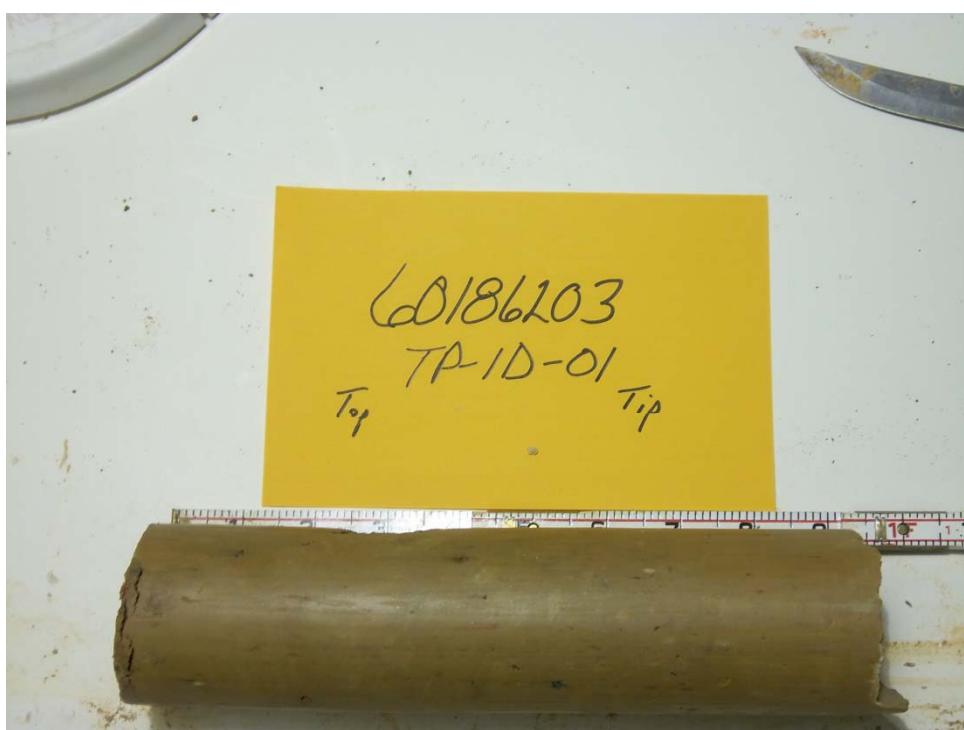
**Date Taken:**

**Picture Number:**

**Photograph by:** AECOM

**Project Number:** 60186203

**Description:**  
Test Pit TP-1A-01  
Liner Clay



**PHOTOGRAPHIC LOG**

**Project Name:**  
Pinewood Landfill  
Section I Cover Evaluation

**Location:**  
Pinewood, South Carolina

**Date Taken:**

**Picture Number:**

**Photograph by:** AECOM

**Project Number:** 60186203

**Description:**  
Test Pit TP-1D-01  
Liner Clay

## PHOTOGRAPHIC LOG

**Project Name:**  
Pinewood Landfill  
Section I Cover Evaluation

**Location:**  
Pinewood, South Carolina

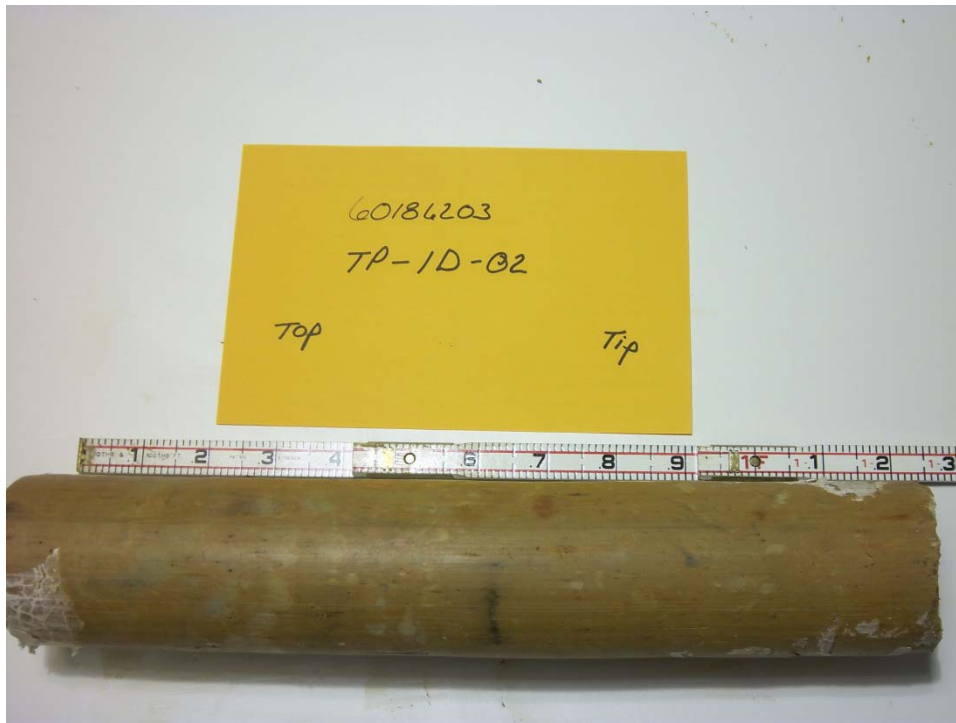
**Date Taken:**

**Picture Number:**

**Photograph by:** AECOM

**Project Number:** 60186203

**Description:**  
Test Pit TP-1D-02  
Liner Clay



## PHOTOGRAPHIC LOG

**Project Name:**  
Pinewood Landfill  
Section I Cover Evaluation

**Location:**  
Pinewood, South Carolina

**Date Taken:**

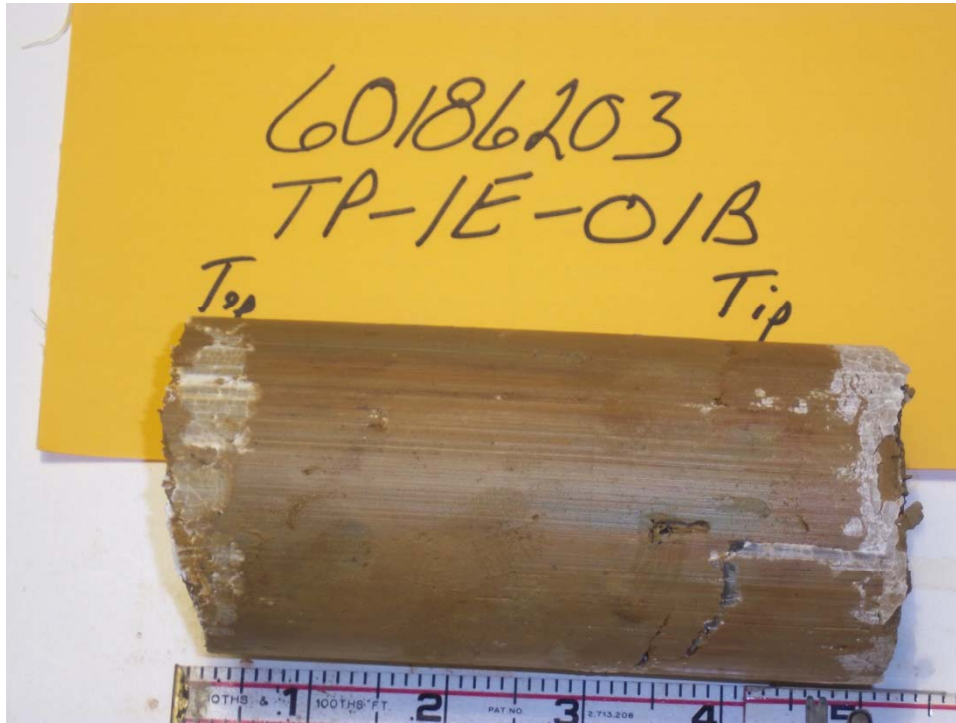
**Picture Number:**

**Photograph by:** AECOM

**Project Number:** 60186203

**Description:**  
Test Pit TP-1E-01  
Liner Clay





## PHOTOGRAPHIC LOG

**Project Name:**  
Pinewood Landfill  
Section I Cover Evaluation

**Location:**  
Pinewood, South Carolina

**Date Taken:**

**Picture Number:**

**Photograph by:** AECOM

**Project Number:** 60186203

**Description:**  
Test Pit TP-1E-01  
Liner Clay

## PHOTOGRAPHIC LOG

**Project Name:**  
Pinewood Landfill  
Section I Cover Evaluation

**Location:**  
Pinewood, South Carolina

**Date Taken:**

**Picture Number:**

**Photograph by:** AECOM

**Project Number:** 60186203

**Description:**

## Photographic Log

### Section I Cover Evaluation Undisturbed Samples of Liner Clay From Soil Test Borings

SB-1A-01

SB-1B-02

SB-1B-03

SB-1C-04

SB-1C-05

SB-1D-06

SB-1D-07

SB-1E-08

SB-1E-09

SB-1E-10



## PHOTOGRAPHIC LOG

**Project Name:**  
Pinewood Landfill  
Section I Cover Evaluation

**Location:**  
Pinewood, South Carolina

**Date Taken:**

**Picture Number:**

**Photograph by:** AECOM

**Project Number:** 60186203

**Description:**  
Soil Boring SB-1A-01  
Liner Clay



## PHOTOGRAPHIC LOG

**Project Name:**  
Pinewood Landfill  
Section I Cover Evaluation

**Location:**  
Pinewood, South Carolina

**Date Taken:**

**Picture Number:**

**Photograph by:** AECOM

**Project Number:** 60186203

**Description:**  
Soil Boring SB-1B-02  
Liner Clay



## PHOTOGRAPHIC LOG

**Project Name:**  
Pinewood Landfill  
Section I Cover Evaluation

**Location:**  
Pinewood, South Carolina

**Date Taken:**

**Picture Number:**

**Photograph by:** AECOM

**Project Number:** 60186203

**Description:**  
Soil Boring SB-1B-03  
Liner Clay



## PHOTOGRAPHIC LOG

**Project Name:**  
Pinewood Landfill  
Section I Cover Evaluation

**Location:**  
Pinewood, South Carolina

**Date Taken:**

**Picture Number:**

**Photograph by:** AECOM

**Project Number:** 60186203

**Description:**  
Soil Boring SB-1C-04  
Liner Clay



## PHOTOGRAPHIC LOG

**Project Name:**  
Pinewood Landfill  
Section I Cover Evaluation

**Location:**  
Pinewood, South Carolina

**Date Taken:**

**Picture Number:**

**Photograph by:** AECOM

**Project Number:** 60186203

**Description:**  
Soil Boring SB-1C-05  
Liner Clay



## PHOTOGRAPHIC LOG

**Project Name:**  
Pinewood Landfill  
Section I Cover Evaluation

**Location:**  
Pinewood, South Carolina

**Date Taken:**

**Picture Number:**

**Photograph by:** AECOM

**Project Number:** 60186203

**Description:**  
Soil Boring SB-1D-06  
Liner Clay



## PHOTOGRAPHIC LOG

**Project Name:**  
Pinewood Landfill  
Section I Cover Evaluation

**Location:**  
Pinewood, South Carolina

**Date Taken:**

**Picture Number:**

**Photograph by:** AECOM

**Project Number:** 60186203

**Description:**  
Soil Boring SB-1D-07  
Liner Clay



## PHOTOGRAPHIC LOG

**Project Name:**  
Pinewood Landfill  
Section I Cover Evaluation

**Location:**  
Pinewood, South Carolina

**Date Taken:**

**Picture Number:**

**Photograph by:** AECOM

**Project Number:** 60186203

**Description:**  
Soil Boring SB-1E-08  
Liner Clay





## PHOTOGRAPHIC LOG

**Project Name:**  
Pinewood Landfill  
Section I Cover Evaluation

**Location:**  
Pinewood, South Carolina

**Date Taken:**

**Picture Number:**

**Photograph by:** AECOM

**Project Number:** 60186203

**Description:**  
Soil Boring SB-1E-09  
Liner Clay



## PHOTOGRAPHIC LOG

**Project Name:**  
Pinewood Landfill  
Section I Cover Evaluation

**Location:**  
Pinewood, South Carolina

**Date Taken:**

**Picture Number:**

**Photograph by:** AECOM

**Project Number:** 60186203

**Description:**  
Soil Boring SB-1E-09  
Liner Clay



## PHOTOGRAPHIC LOG

**Project Name:**  
Pinewood Landfill  
Section I Cover Evaluation

**Location:**  
Pinewood, South Carolina

**Date Taken:**

**Picture Number:**

**Photograph by:** AECOM

**Project Number:** 60186203

**Description:**  
Soil Boring SB-1E-10  
Liner Clay

## PHOTOGRAPHIC LOG

**Project Name:**  
Pinewood Landfill  
Section I Cover Evaluation

**Location:**  
Pinewood, South Carolina

**Date Taken:**

**Picture Number:**

**Photograph by:** AECOM

**Project Number:** 60186203

**Description:**

## Photographic Log

### Section I Cover Evaluation Coupon Samples of PVC Geomembrane Liner From Test Pits

AT-1A-01

AT-1B-01

AT-1C-01

AT-1E-01

AT-1E-02

TP-1A-01

TP-1D-01

TP-1D-02

TP-1E-01



## PHOTOGRAPHIC LOG

**Project Name:**  
Pinewood Landfill  
Section I Cover Evaluation

**Location:**  
Pinewood, South Carolina

**Date Taken:**

**Picture Number:**

**Photograph by:** AECOM

**Project Number:** 60186203

**Description:**  
PVC Geomembrane  
Test Pit AT-1A-01



## PHOTOGRAPHIC LOG

**Project Name:**  
Pinewood Landfill  
Section I Cover Evaluation

**Location:**  
Pinewood, South Carolina

**Date Taken:**

**Picture Number:**

**Photograph by:** AECOM

**Project Number:** 60186203

**Description:**  
PVC Geomembrane  
Test Pit AT-1B-01



## PHOTOGRAPHIC LOG

**Project Name:**  
Pinewood Landfill  
Section I Cover Evaluation

**Location:**  
Pinewood, South Carolina

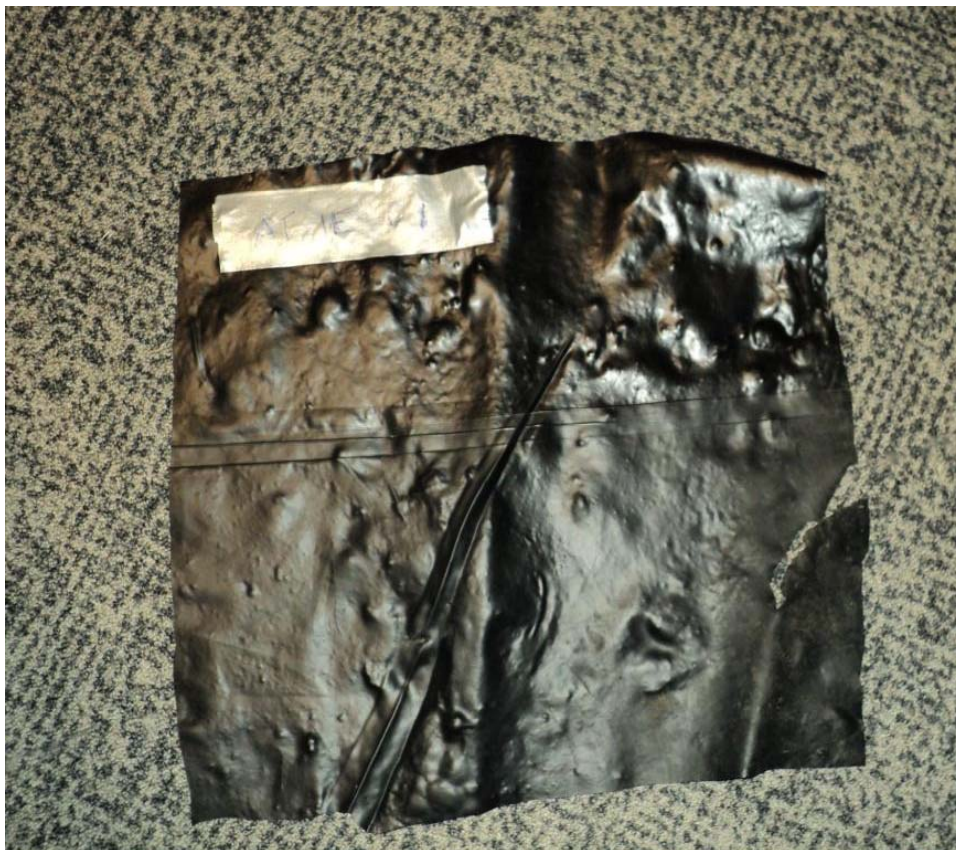
**Date Taken:**

**Picture Number:**

**Photograph by:** AECOM

**Project Number:** 60186203

**Description:**  
PVC Geomembrane  
Test Pit AT-1C-01



## PHOTOGRAPHIC LOG

**Project Name:**  
Pinewood Landfill  
Section I Cover Evaluation

**Location:**  
Pinewood, South Carolina

**Date Taken:**

**Picture Number:**

**Photograph by:** AECOM

**Project Number:** 60186203

**Description:**  
PVC Geomembrane  
Test Pit AT-1E-01



## PHOTOGRAPHIC LOG

**Project Name:**  
Pinewood Landfill  
Section I Cover Evaluation

**Location:**  
Pinewood, South Carolina

**Date Taken:**

**Picture Number:**

**Photograph by:** AECOM

**Project Number:** 60186203

**Description:**  
PVC Geomembrane  
Test Pit AT-1E-02



## PHOTOGRAPHIC LOG

**Project Name:**  
Pinewood Landfill  
Section I Cover Evaluation

**Location:**  
Pinewood, South Carolina

**Date Taken:**

**Picture Number:**

**Photograph by:** AECOM

**Project Number:** 60186203

**Description:**  
PVC Geomembrane  
Test Pit TP-1A-01 Lower Panel



## PHOTOGRAPHIC LOG

**Project Name:**  
Pinewood Landfill  
Section I Cover Evaluation

**Location:**  
Pinewood, South Carolina

**Date Taken:**

**Picture Number:**

**Photograph by:** AECOM

**Project Number:** 60186203

**Description:**  
PVC Geomembrane  
Test Pit TP-1A-01 Upper Panel



## PHOTOGRAPHIC LOG

**Project Name:**  
Pinewood Landfill  
Section I Cover Evaluation

**Location:**  
Pinewood, South Carolina

**Date Taken:**

**Picture Number:**

**Photograph by:** AECOM

**Project Number:** 60186203

**Description:**  
PVC Geomembrane  
Test Pit TP-1D-01



## PHOTOGRAPHIC LOG

**Project Name:**  
Pinewood Landfill  
Section I Cover Evaluation

**Location:**  
Pinewood, South Carolina

**Date Taken:**

**Picture Number:**

**Photograph by:** AECOM

**Project Number:** 60186203

**Description:**  
PVC Geomembrane  
Test Pit TP-1D-02



## PHOTOGRAPHIC LOG

**Project Name:**  
Pinewood Landfill  
Section I Cover Evaluation

**Location:**  
Pinewood, South Carolina

**Date Taken:**

**Picture Number:**

**Photograph by:** AECOM

**Project Number:** 60186203

**Description:**  
PVC Geomembrane  
Test Pit TP-1E-01



# Photographic Log

## Section I Cover Evaluation Representative Anchor Trenches and Test Pit

AT-1A-01

AT-1B-01

AT-1C-01

TP-1D-01



## PHOTOGRAPHIC LOG

**Project Name:**  
Pinewood Landfill  
Section I Cover Evaluation

**Location:**  
Pinewood, South Carolina

**Date Taken:**

**Picture Number:**

**Photograph by:** AECOM

**Project Number:** 60186203

**Description:**  
Anchor Trench Test Pit  
AT-1A-01  
Note PVC Geomembrane Patch



## PHOTOGRAPHIC LOG

**Project Name:**  
Pinewood Landfill  
Section I Cover Evaluation

**Location:**  
Pinewood, South Carolina

**Date Taken:**

**Picture Number:**

**Photograph by:** AECOM

**Project Number:** 60186203

**Description:**  
Anchor Trench Test Pit  
AT-1B-01  
Note PVC Geomembrane Patch



## PHOTOGRAPHIC LOG

**Project Name:**  
Pinewood Landfill  
Section I Cover Evaluation

**Location:**  
Pinewood, South Carolina

**Date Taken:**

**Picture Number:**

**Photograph by:** AECOM

**Project Number:** 60186203

**Description:**  
Anchor Trench Test Pit  
AT-1C-01  
Note PVC Geomembrane Patch



## PHOTOGRAPHIC LOG

**Project Name:**  
Pinewood Landfill  
Section I Cover Evaluation

**Location:**  
Pinewood, South Carolina

**Date Taken:**

**Picture Number:**

**Photograph by:** AECOM

**Project Number:** 60186203

**Description:**  
Cover Soil Test Pit  
TP-1D-01  
Note PVC Geomembrane Patch

## **Appendix 2.2-2**

### **Soil Test Boring Reports**



# Test Boring Report

BORING NO. SB-1A-01  
 PAGE 1 OF 1

PROJECT: Pinewood Landfill Section 1 Cover Evaluation  
 CLIENT: Pinewood Site Custodial Trust  
 CONTRACTOR: Earth Con  
 EQUIPMENT: Mobile B-53

PROJECT NO: 60186203  
 LOCATION: Pinewood, SC  
 ELEVATION: \_\_\_\_\_  
 NORTHING: \_\_\_\_\_  
 EASTING: \_\_\_\_\_  
 DATE START: 12/01/10  
 DATE FINISH: 12/01/10  
 DRILLER: B. Brodie  
 OVERSIGHT: S. Ross

GROUNDWATER			DRILLING INFORMATION						
DATE	HRS AFTER COMP	WATER	DRILL METHOD	HSA	CASING INSTALL	N/A	TEMP / PERM	N/A	
		N/A	HOLE DIA.	6.25"	CASING DIA.	N/A	CASING TYPE	N/A	
			TOTAL DEPTH	8.0'	CASING DEPTH	N/A	GROUT TYPE	N/A	
			SAMPLING	SS	HAMMER WT	N/A	HAMMER FALL	N/A	

DEPTH IN FEET	ORGANIC VAPOR SCREENING (PPM)	SAMPLER BLOWS PER 6 INCHES	SAMPLE NUMBER	SAMPLE DEPTH RANGE	FIELD CLASSIFICATION AND REMARKS	
					SOIL CLASSIFICATION: USCS	
5.0	0.0		1	0 - 2	Topsoil	CLAYEY SAND (SC), reddish brown, mostly medium sand, some clay, stiff, dry.
			2	2 - 4	POORLY GRADED SAND (SP), yellowish brown, mostly fine sand, dense, dry (Chunks of claystone imbedded in this interval).	SANDY CLAY (CL), yellowish red, mostly clay, some medium to coarse sand, few silt, very stiff, dry.
			3	4 - 6	CLAYSTONE, dark gray to black, dense, dry.	
			4	6 - 8	LEAN CLAY (CL), yellowish brown to light brown, mostly clay, few fine sand, medium stiff, moist.	
10.0					Boring terminated at 8.0 ft. Pushed Shelby tube from 6.0 - 8.0 ft in adjacent boring.	
15.0						
20.0						

BLOWS/FT.	DENSITY	BLOWS/FT.	CONSISTENCY	SAMPLER ID.	DESCRIPTIONS	NOTES
0-4	VERY LOOSE	0-2	VERY SOFT	SS SPLIT SPOON	MOSTLY 50-100%	WD WHILE DRILLING
5-10	LOOSE	3-4	SOFT	ST SHELBY TUBE	SOME 30-45%	NE NOT ENCOUNTERED
11-30	MEDIUM DENSE	5-8	MEDIUM STIFF	G GRAB SAMPLE	LITTLE 15-25%	UR NOT READ
31-50	DENSE	9-15	STIFF	MC MACRO-CORE	FEW 5-10%	NR NO RECOVERY
50+	VERY DENSE	16-30	VERY STIFF		TRACE <5%	
		31+	HARD			



# Test Boring Report

BORING NO. SB-1B-02  
 PAGE 1 OF 1

PROJECT: Pinewood Landfill Section 1 Cover Evaluation  
 CLIENT: Pinewood Site Custodial Trust  
 CONTRACTOR: Earth Con  
 EQUIPMENT: Mobile B-53

PROJECT NO: 60186203  
 LOCATION: Pinewood, SC  
 ELEVATION: \_\_\_\_\_  
 NORTHING: \_\_\_\_\_  
 EASTING: \_\_\_\_\_  
 DATE START: 12/01/10  
 DATE FINISH: 12/01/10  
 DRILLER: B. Brodie  
 OVERSIGHT: S. Ross

GROUNDWATER			DRILLING INFORMATION					
DATE	HRS AFTER COMP	WATER	DRILL METHOD	HSA	CASING INSTALL	N/A	TEMP / PERM	N/A
		N/A	HOLE DIA.	6.25"	CASING DIA.	N/A	CASING TYPE	N/A
			TOTAL DEPTH	7.0'	CASING DEPTH	N/A	GROUT TYPE	N/A
			SAMPLING	SS	HAMMER WT	N/A	HAMMER FALL	N/A

DEPTH IN FEET	ORGANIC VAPOR SCREENING (PPM)	SAMPLER BLOWS PER 6 INCHES	SAMPLE NUMBER	SAMPLE DEPTH RANGE	FIELD CLASSIFICATION AND REMARKS	
					SOIL CLASSIFICATION: USCS	
5.0			1	0 - 2	Topsoil	
					SANDY CLAY (CL), reddish brown, mostly clay, little medium to coarse sand, few silt, dense, dry.	
			2	2 - 4	CLAYEY SAND (SC) to LEAN CLAY (CL), reddish brown, mostly clay, few medium to coarse sand, few silt, stiff, dry to slightly moist.	
			3	4 - 6	HIGHLY PLASTIC CLAY (OH), pale brown to yellowish brown, mottled, mostly clay, few medium to fine sand, medium stiff, moist.	
10.0			4	6 - 7	Boring terminated at 7.0 ft. Encountered PVC geomembrane at 6.8 ft. Pushed Shelby tube from 4.5 - 6.5 ft in adjacent boring.	
15.0						
20.0						

BLOWS/FT.	DENSITY	BLOWS/FT.	CONSISTENCY	SAMPLER ID.	DESCRIPTIONS	NOTES
0-4	VERY LOOSE	0-2	VERY SOFT	SS SPLIT SPOON	MOSTLY 50-100%	WD WHILE DRILLING
5-10	LOOSE	3-4	SOFT	ST SHELBY TUBE	SOME 30-45%	NE NOT ENCOUNTERED
11-30	MEDIUM DENSE	5-8	MEDIUM STIFF	G GRAB SAMPLE	LITTLE 15-25%	UR NOT READ
31-50	DENSE	9-15	STIFF	MC MACRO-CORE	FEW 5-10%	NR NO RECOVERY
50+	VERY DENSE	16-30	VERY STIFF		TRACE <5%	
		31+	HARD			



# Test Boring Report

BORING NO. SB-1B-03  
 PAGE 1 OF 1

PROJECT: Pinewood Landfill Section 1 Cover Evaluation  
 CLIENT: Pinewood Site Custodial Trust  
 CONTRACTOR: Earth Con  
 EQUIPMENT: Mobile B-53

PROJECT NO: 60186203  
 LOCATION: Pinewood, SC  
 ELEVATION: \_\_\_\_\_  
 NORTHING: \_\_\_\_\_  
 EASTING: \_\_\_\_\_  
 DATE START: 12/01/10  
 DATE FINISH: 12/01/10  
 DRILLER: B. Brodie  
 OVERSIGHT: S. Ross

GROUNDWATER			DRILLING INFORMATION						
DATE	HRS AFTER COMP	WATER	DRILL METHOD	HSA	CASING INSTALL	N/A	TEMP / PERM	N/A	
		N/A	HOLE DIA.	6.25"	CASING DIA.	N/A	CASING TYPE	N/A	
			TOTAL DEPTH	6.0'	CASING DEPTH	N/A	GROUT TYPE	N/A	
			SAMPLING	SS	HAMMER WT	N/A	HAMMER FALL	N/A	

DEPTH IN FEET	ORGANIC VAPOR SCREENING (PPM)	SAMPLER BLOWS PER 6 INCHES	SAMPLE NUMBER	SAMPLE DEPTH RANGE	FIELD CLASSIFICATION AND REMARKS	
					SOIL CLASSIFICATION: USCS	
5.0			1	0 - 2	Topsoil	
	0.0				CLAYEY SAND (SC), yellowish brown, mostly medium sand, little clay, few silt, trace gravel, dense, dry.	
	0.0		2	2 - 4	Similar to above except yellowish brown to yellowish red, (mottled). Grades to reddish brown in color at 3.0'.	
	0.1				LEAN CLAY (CL), yellowish brown to gray, (mottled), mostly clay, few to trace fine sand, medium stiff, moist.	
	2.6		3	4 - 6	Chemical odor in lower 4" of sample.	
					Boring terminated at 6.0 ft. Pushed Shelby tube from 4.0 - 5.5 ft in adjacent boring.	
10.0						
15.0						
20.0						

BLOWS/FT.	DENSITY	BLOWS/FT.	CONSISTENCY	SAMPLER ID.	DESCRIPTIONS	NOTES
0-4	VERY LOOSE	0-2	VERY SOFT	SS SPLIT SPOON	MOSTLY 50-100%	WD WHILE DRILLING
5-10	LOOSE	3-4	SOFT	ST SHELBY TUBE	SOME 30-45%	NE NOT ENCOUNTERED
11-30	MEDIUM DENSE	5-8	MEDIUM STIFF	G GRAB SAMPLE	LITTLE 15-25%	UR NOT READ
31-50	DENSE	9-15	STIFF	MC MACRO-CORE	FEW 5-10%	NR NO RECOVERY
50+	VERY DENSE	16-30	VERY STIFF		TRACE <5%	
		31+	HARD			



# Test Boring Report

BORING NO. SB-1C-04  
 PAGE 1 OF 1

PROJECT: Pinewood Landfill Section 1 Cover Evaluation  
 CLIENT: Pinewood Site Custodial Trust  
 CONTRACTOR: Earth Con  
 EQUIPMENT: Mobile B-53

PROJECT NO: 60186203  
 LOCATION: Pinewood, SC  
 ELEVATION: \_\_\_\_\_  
 NORTHING: \_\_\_\_\_  
 EASTING: \_\_\_\_\_  
 DATE START: 12/01/10  
 DATE FINISH: 12/01/10  
 DRILLER: B. Brodie  
 OVERSIGHT: S. Ross

GROUNDWATER			DRILLING INFORMATION						
DATE	HRS AFTER COMP	WATER	DRILL METHOD	HSA	CASING INSTALL	N/A	TEMP / PERM	N/A	
		N/A	HOLE DIA.	6.25"	CASING DIA.	N/A	CASING TYPE	N/A	
			TOTAL DEPTH	6.0'	CASING DEPTH	N/A	GROUT TYPE	N/A	
			SAMPLING	SS	HAMMER WT	N/A	HAMMER FALL	N/A	

DEPTH IN FEET	ORGANIC VAPOR SCREENING (PPM)	SAMPLER BLOWS PER 6 INCHES	SAMPLE NUMBER	SAMPLE DEPTH RANGE	FIELD CLASSIFICATION AND REMARKS	
					SOIL CLASSIFICATION: USCS	
					Topsoil	
			1	0 - 2	SLIGHTLY SILTY SAND (SP-SM), pale brown to reddish brown, mostly sand, little gravel, few clay, dense, dry; increasing silt/clay content with depth.	
			2	2 - 4	SILTY SAND (SM) similar to above, reddish brown, few clay, trace gravel.	
5.0			3	4 - 6	CLAYEY SAND (SC), reddish brown to to brown, (mottled), mostly clay, few silt, few medium sand, stiff, dry.	
10.0					Boring terminated at 6.0 ft. Pushed Shelby tube from 3.0 - 5.0 ft in adjacent boring.	
15.0					Boring terminated at 6.0 ft. Pushed Shelby tube from 3.0 - 5.0 ft in adjacent boring.	
20.0					Boring terminated at 6.0 ft. Pushed Shelby tube from 3.0 - 5.0 ft in adjacent boring.	

BLOWS/FT.	DENSITY	BLOWS/FT.	CONSISTENCY	SAMPLER ID.	DESCRIPTIONS	NOTES
0-4	VERY LOOSE	0-2	VERY SOFT	SS SPLIT SPOON	MOSTLY 50-100%	WD WHILE DRILLING
5-10	LOOSE	3-4	SOFT	ST SHELBY TUBE	SOME 30-45%	NE NOT ENCOUNTERED
11-30	MEDIUM DENSE	5-8	MEDIUM STIFF	G GRAB SAMPLE	LITTLE 15-25%	UR NOT READ
31-50	DENSE	9-15	STIFF	MC MACRO-CORE	FEW 5-10%	NR NO RECOVERY
50+	VERY DENSE	16-30	VERY STIFF		TRACE <5%	
		31+	HARD			





# Test Boring Report

BORING NO. SB-1C-05  
 PAGE 1 OF 1

PROJECT: Pinewood Landfill Section 1 Cover Evaluation  
 CLIENT: Pinewood Site Custodial Trust  
 CONTRACTOR: Earth Con  
 EQUIPMENT: Mobile B-53

PROJECT NO: 60186203  
 LOCATION: Pinewood, SC  
 ELEVATION: \_\_\_\_\_  
 NORTHING: \_\_\_\_\_  
 EASTING: \_\_\_\_\_  
 DATE START: 11/30/10  
 DATE FINISH: 11/30/10  
 DRILLER: B. Brodie  
 OVERSIGHT: S. Ross

GROUNDWATER			DRILLING INFORMATION						
DATE	HRS AFTER COMP	WATER	DRILL METHOD	HSA	CASING INSTALL	N/A	TEMP / PERM	N/A	
		N/A	HOLE DIA.	6.25"	CASING DIA.	N/A	CASING TYPE	N/A	
			TOTAL DEPTH	8.0'	CASING DEPTH	N/A	GROUT TYPE	N/A	
			SAMPLING	SS	HAMMER WT	N/A	HAMMER FALL	N/A	

DEPTH IN FEET	ORGANIC VAPOR SCREENING (PPM)	SAMPLER BLOWS PER 6 INCHES	SAMPLE NUMBER	SAMPLE DEPTH RANGE	FIELD CLASSIFICATION AND REMARKS	
					SOIL CLASSIFICATION: USCS	
5.0	0.2		1	0 - 2	Topsoil	
					SILTY SAND (SM), light reddish brown, mostly silt, little medium to coarse sand, few to trace clay, medium dense, dry.	
	0.2		2	2 - 4	Similar to above (SC-SM), grades to yellowish red, mostly silt, little clay, few coarse sand, trace gravel.	
10.0			3	4 - 6	Similar to above, dense, dry.	
	0.2					
			4	6 - 8	CLAYEY SAND (SC), dark red to red, mostly lean clay, little to few coarse sand, few silt, stiff, moist.	
15.0					Boring terminated at 8.0 ft. Pushed Shelby tube from 6.0 - 8.0 ft in adjacent boring.	
20.0						

BLOWS/FT.	DENSITY	BLOWS/FT.	CONSISTENCY	SAMPLER ID.	DESCRIPTIONS	NOTES
0-4	VERY LOOSE	0-2	VERY SOFT	SS SPLIT SPOON	MOSTLY 50-100%	WD WHILE DRILLING
5-10	LOOSE	3-4	SOFT	ST SHELBY TUBE	SOME 30-45%	NE NOT ENCOUNTERED
11-30	MEDIUM DENSE	5-8	MEDIUM STIFF	G GRAB SAMPLE	LITTLE 15-25%	UR NOT READ
31-50	DENSE	9-15	STIFF	MC MACRO-CORE	FEW 5-10%	NR NO RECOVERY
50+	VERY DENSE	16-30	VERY STIFF		TRACE <5%	
		31+	HARD			



# Test Boring Report

BORING NO. SB-1D-06  
 PAGE 1 OF 1

PROJECT: Pinewood Landfill Section 1 Cover Evaluation  
 CLIENT: Pinewood Site Custodial Trust  
 CONTRACTOR: Earth Con  
 EQUIPMENT: Mobile B-53

PROJECT NO: 60186203  
 LOCATION: Pinewood, SC  
 ELEVATION: \_\_\_\_\_  
 NORTHING: \_\_\_\_\_  
 EASTING: \_\_\_\_\_  
 DATE START: 12/01/10  
 DATE FINISH: 12/01/10  
 DRILLER: B. Brodie  
 OVERSIGHT: S. Ross

GROUNDWATER			DRILLING INFORMATION						
DATE	HRS AFTER COMP	WATER	DRILL METHOD	HSA	CASING INSTALL	N/A	TEMP / PERM	N/A	
		N/A	HOLE DIA.	6.25"	CASING DIA.	N/A	CASING TYPE	N/A	
			TOTAL DEPTH	7.0'	CASING DEPTH	N/A	GROUT TYPE	N/A	
			SAMPLING	SS	HAMMER WT	N/A	HAMMER FALL	N/A	

DEPTH IN FEET	ORGANIC VAPOR SCREENING (PPM)	SAMPLER BLOWS PER 6 INCHES	SAMPLE NUMBER	SAMPLE DEPTH RANGE	FIELD CLASSIFICATION AND REMARKS	
					SOIL CLASSIFICATION: USCS	
5.0			1	0 - 2	Topsoil	
	0.0		2	2 - 4	Similar to above, SILTY SAND (SM).	
	0.2					
			3	4 - 6	CLAYEY SAND (SC) to SANDY LEAN CLAY (CL), dark reddish brown, mostly clay, few fine sand, stiff, moist.	
		4	6 - 7	Encountered PVC geomembrane at 6.5' and stopped sampling.		
10.0					Boring terminated at 7.0 ft. Pushed Shelby tube from 4.0 - 6.0 ft in adjacent boring.	
15.0						
20.0						

BLOWS/FT.	DENSITY	BLOWS/FT.	CONSISTENCY	SAMPLER ID.	DESCRIPTIONS	NOTES
0-4	VERY LOOSE	0-2	VERY SOFT	SS SPLIT SPOON	MOSTLY 50-100%	WD WHILE DRILLING
5-10	LOOSE	3-4	SOFT	ST SHELBY TUBE	SOME 30-45%	NE NOT ENCOUNTERED
11-30	MEDIUM DENSE	5-8	MEDIUM STIFF	G GRAB SAMPLE	LITTLE 15-25%	UR NOT READ
31-50	DENSE	9-15	STIFF	MC MACRO-CORE	FEW 5-10%	NR NO RECOVERY
50+	VERY DENSE	16-30	VERY STIFF		TRACE <5%	
		31+	HARD			



# Test Boring Report

BORING NO. SB-1D-07  
 PAGE 1 OF 1

PROJECT: Pinewood Landfill Section 1 Cover Evaluation  
 CLIENT: Pinewood Site Custodial Trust  
 CONTRACTOR: Earth Con  
 EQUIPMENT: Mobile B-53

PROJECT NO: 60186203  
 LOCATION: Pinewood, SC  
 ELEVATION: \_\_\_\_\_  
 NORTHING: \_\_\_\_\_  
 EASTING: \_\_\_\_\_  
 DATE START: 11/30/10  
 DATE FINISH: 11/30/10  
 DRILLER: B. Brodie  
 OVERSIGHT: S. Ross

GROUNDWATER			DRILLING INFORMATION						
DATE	HRS AFTER COMP	WATER	DRILL METHOD	HSA	CASING INSTALL	N/A	TEMP / PERM	N/A	
		N/A	HOLE DIA.	6.25"	CASING DIA.	N/A	CASING TYPE	N/A	
			TOTAL DEPTH	7.5'	CASING DEPTH	N/A	GROUT TYPE	N/A	
			SAMPLING	SS	HAMMER WT	N/A	HAMMER FALL	N/A	

DEPTH IN FEET	ORGANIC VAPOR SCREENING (PPM)	SAMPLER BLOWS PER 6 INCHES	SAMPLE NUMBER	SAMPLE DEPTH RANGE	FIELD CLASSIFICATION AND REMARKS	
					SOIL CLASSIFICATION: USCS	
5.0			1	0 - 2	Topsoil	
					SILTY SAND (SM), brown to pale brown, mostly medium sand, poorly graded, trace coarse sand, trace fine gravel, loose, dry.	
			2	2 - 4	Similar to above except grayish-reddish-brown.	
			3	4 - 6	CLAYEY SAND (SC), reddish brown to yellowish red, mostly medium to coarse sand, few clay, trace medium to coarse gravel, medium dense, dry.	
10.0			4	6 - 7.5	HIGHLY PLASTIC CLAY (CH), pale brown to reddish brown (mottled), mostly clay, few to trace medium to fine sand, medium stiff, moist.	
					Boring terminated at 7.5 ft. Pushed Shelby tube from 7.0 -9.0 ft in adjacent boring. Encountered PVC geomembrane at 8.0 ft.	
15.0						
20.0						

BLOWS/FT.	DENSITY	BLOWS/FT.	CONSISTENCY	SAMPLER ID.	DESCRIPTIONS	NOTES
0-4	VERY LOOSE	0-2	VERY SOFT	SS SPLIT SPOON	MOSTLY 50-100%	WD WHILE DRILLING
5-10	LOOSE	3-4	SOFT	ST SHELBY TUBE	SOME 30-45%	NE NOT ENCOUNTERED
11-30	MEDIUM DENSE	5-8	MEDIUM STIFF	G GRAB SAMPLE	LITTLE 15-25%	UR NOT READ
31-50	DENSE	9-15	STIFF	MC MACRO-CORE	FEW 5-10%	NR NO RECOVERY
50+	VERY DENSE	16-30	VERY STIFF		TRACE <5%	
		31+	HARD			



# Test Boring Report

BORING NO. SB-1E-08  
 PAGE 1 OF 1

PROJECT: Pinewood Landfill Section 1 Cover Evaluation  
 CLIENT: Pinewood Site Custodial Trust  
 CONTRACTOR: Earth Con  
 EQUIPMENT: Mobile B-53

PROJECT NO: 60186203  
 LOCATION: Pinewood, SC  
 ELEVATION: \_\_\_\_\_  
 NORTHING: \_\_\_\_\_  
 EASTING: \_\_\_\_\_  
 DATE START: 11/30/10  
 DATE FINISH: 11/30/10  
 DRILLER: B. Brodie  
 OVERSIGHT: S. Ross

GROUNDWATER			DRILLING INFORMATION						
DATE	HRS AFTER COMP	WATER	DRILL METHOD	HSA	CASING INSTALL	N/A	TEMP / PERM	N/A	
		N/A	HOLE DIA.	6.25"	CASING DIA.	N/A	CASING TYPE	N/A	
			TOTAL DEPTH	3.5'	CASING DEPTH	N/A	GROUT TYPE	N/A	
			SAMPLING	SS	HAMMER WT	N/A	HAMMER FALL	N/A	

DEPTH IN FEET	ORGANIC VAPOR SCREENING (PPM)	SAMPLER BLOWS PER 6 INCHES	SAMPLE NUMBER	SAMPLE DEPTH RANGE	FIELD CLASSIFICATION AND REMARKS	
					SOIL CLASSIFICATION: USCS	
					Topsoil	
			1	0 - 2	CLAYEY SAND (SC), reddish brown, mostly medium to coarse sand, little clay, few silt, medium dense, dry.	
	0.4		2	2 - 3.5	HIGHLY PLASTIC CLAY (CH), pale brown to reddish brown (mottled), mostly clay, few fine sand, medium stiff, moist.	
5.0					Encountered PVC geomembrane at 3.4 ft. Boring terminated at 3.5 ft. Pushed Shelby tube from 1.5 -3.5 ft in adjacent boring.	
10.0						
15.0						
20.0						

BLOWS/FT.	DENSITY	BLOWS/FT.	CONSISTENCY	SAMPLER ID.	DESCRIPTIONS	NOTES
0-4	VERY LOOSE	0-2	VERY SOFT	SS SPLIT SPOON	MOSTLY 50-100%	WD WHILE DRILLING
5-10	LOOSE	3-4	SOFT	ST SHELBY TUBE	SOME 30-45%	NE NOT ENCOUNTERED
11-30	MEDIUM DENSE	5-8	MEDIUM STIFF	G GRAB SAMPLE	LITTLE 15-25%	UR NOT READ
31-50	DENSE	9-15	STIFF	MC MACRO-CORE	FEW 5-10%	NR NO RECOVERY
50+	VERY DENSE	16-30	VERY STIFF		TRACE <5%	
		31+	HARD			



# Test Boring Report

BORING NO. SB-1E-09  
 PAGE 1 OF 1

PROJECT: Pinewood Landfill Section 1 Cover Evaluation  
 CLIENT: Pinewood Site Custodial Trust  
 CONTRACTOR: Earth Con  
 EQUIPMENT: Mobile B-53

PROJECT NO: 60186203  
 LOCATION: Pinewood, SC  
 ELEVATION: \_\_\_\_\_  
 NORTHING: \_\_\_\_\_  
 EASTING: \_\_\_\_\_  
 DATE START: 11/30/10  
 DATE FINISH: 11/30/10  
 DRILLER: B. Brodie  
 OVERSIGHT: S. Ross

GROUNDWATER			DRILLING INFORMATION						
DATE	HRS AFTER COMP	WATER	DRILL METHOD	HSA	CASING INSTALL	N/A	TEMP / PERM	N/A	
		N/A	HOLE DIA.	6.25"	CASING DIA.	N/A	CASING TYPE	N/A	
			TOTAL DEPTH	5.0'	CASING DEPTH	N/A	GROUT TYPE	N/A	
			SAMPLING	SS	HAMMER WT	N/A	HAMMER FALL	N/A	

DEPTH IN FEET	ORGANIC VAPOR SCREENING (PPM)	SAMPLER BLOWS PER 6 INCHES	SAMPLE NUMBER	SAMPLE DEPTH RANGE	FIELD CLASSIFICATION AND REMARKS	
					SOIL CLASSIFICATION: USCS	
5.0			1	0 - 2	Topsoil	
	0.4		2	2 - 4	CLAYEY SAND (SC), yellowish red to reddish brown, mostly medium sand, few clay, few silt, few fine sand, trace gravel, medium dense, dry.	
			2	4 - 5	HIGHLY PLASTIC CLAY (CH), yellowish brown, mostly clay, few fine sand, medium stiff, moist.	
5.0					Boring terminated at 5.0 ft. Pushed Shelby tube from 2.5 - 4.5 ft in adjacent boring.	
10.0						
15.0						
20.0						

BLOWS/FT.	DENSITY	BLOWS/FT.	CONSISTENCY	SAMPLER ID.	DESCRIPTIONS	NOTES
0-4	VERY LOOSE	0-2	VERY SOFT	SS SPLIT SPOON	MOSTLY 50-100%	WD WHILE DRILLING
5-10	LOOSE	3-4	SOFT	ST SHELBY TUBE	SOME 30-45%	NE NOT ENCOUNTERED
11-30	MEDIUM DENSE	5-8	MEDIUM STIFF	G GRAB SAMPLE	LITTLE 15-25%	UR NOT READ
31-50	DENSE	9-15	STIFF	MC MACRO-CORE	FEW 5-10%	NR NO RECOVERY
50+	VERY DENSE	16-30	VERY STIFF		TRACE <5%	
		31+	HARD			



# Test Boring Report

BORING NO. SB-1E-10  
PAGE 1 OF 1PROJECT: Pinewood Landfill Section 1 Cover Evaluation  
CLIENT: Pinewood Site Custodial Trust  
CONTRACTOR: Earth Con  
EQUIPMENT: Mobile B-53PROJECT NO: 60186203  
LOCATION: Pinewood, SC  
ELEVATION: \_\_\_\_\_  
NORTHING: \_\_\_\_\_  
EASTING: \_\_\_\_\_  
DATE START: 11/30/10  
DATE FINISH: 11/30/10  
DRILLER: B. Brodie  
OVERSIGHT: S. Ross**GROUNDWATER****DRILLING INFORMATION**

DATE	HRS AFTER COMP	WATER	DRILL METHOD	HSA	CASING INSTALL	N/A	TEMP / PERM	N/A
		N/A	HOLE DIA.	6.25"	CASING DIA.	N/A	CASING TYPE	N/A
			TOTAL DEPTH	5.0'	CASING DEPTH	N/A	GROUT TYPE	N/A
			SAMPLING	SS	HAMMER WT	N/A	HAMMER FALL	N/A

DEPTH IN FEET	ORGANIC VAPOR SCREENING (PPM)	SAMPLER BLOWS PER 6 INCHES	SAMPLE NUMBER	SAMPLE DEPTH RANGE
0.0			1	0 - 2
			2	2 - 4
			3	4 - 5
5.0				
10.0				
15.0				
20.0				

**FIELD CLASSIFICATION AND REMARKS**SOIL CLASSIFICATION: USCS

Topsoil

CLAYEY SAND (SC), reddish brown, mostly medium sand, few clay, few silt, trace medium gravel, dense, dry.

HIGHLY PLASTIC CLAY (CH), pale brown, mostly clay, few to trace fine sand, stiff, moist.

Encountered PVC geomembrane at 5.0 ft.  
Boring terminated at 5.0 ft.  
Pushed Shelby tube from 2.0 - 4.0 ft in adjacent boring.

BLOWS/FT.	DENSITY	BLOWS/FT.	CONSISTENCY	SAMPLER ID.	DESCRIPTIONS	NOTES
0-4	VERY LOOSE	0-2	VERY SOFT	SS SPLIT SPOON	MOSTLY 50-100%	WD WHILE DRILLING
5-10	LOOSE	3-4	SOFT	ST SHELBY TUBE	SOME 30-45%	NE NOT ENCOUNTERED
11-30	MEDIUM DENSE	5-8	MEDIUM STIFF	G GRAB SAMPLE	LITTLE 15-25%	UR NOT READ
31-50	DENSE	9-15	STIFF	MC MACRO-CORE	FEW 5-10%	NR NO RECOVERY
50+	VERY DENSE	16-30	VERY STIFF		TRACE <5%	
		31+	HARD			

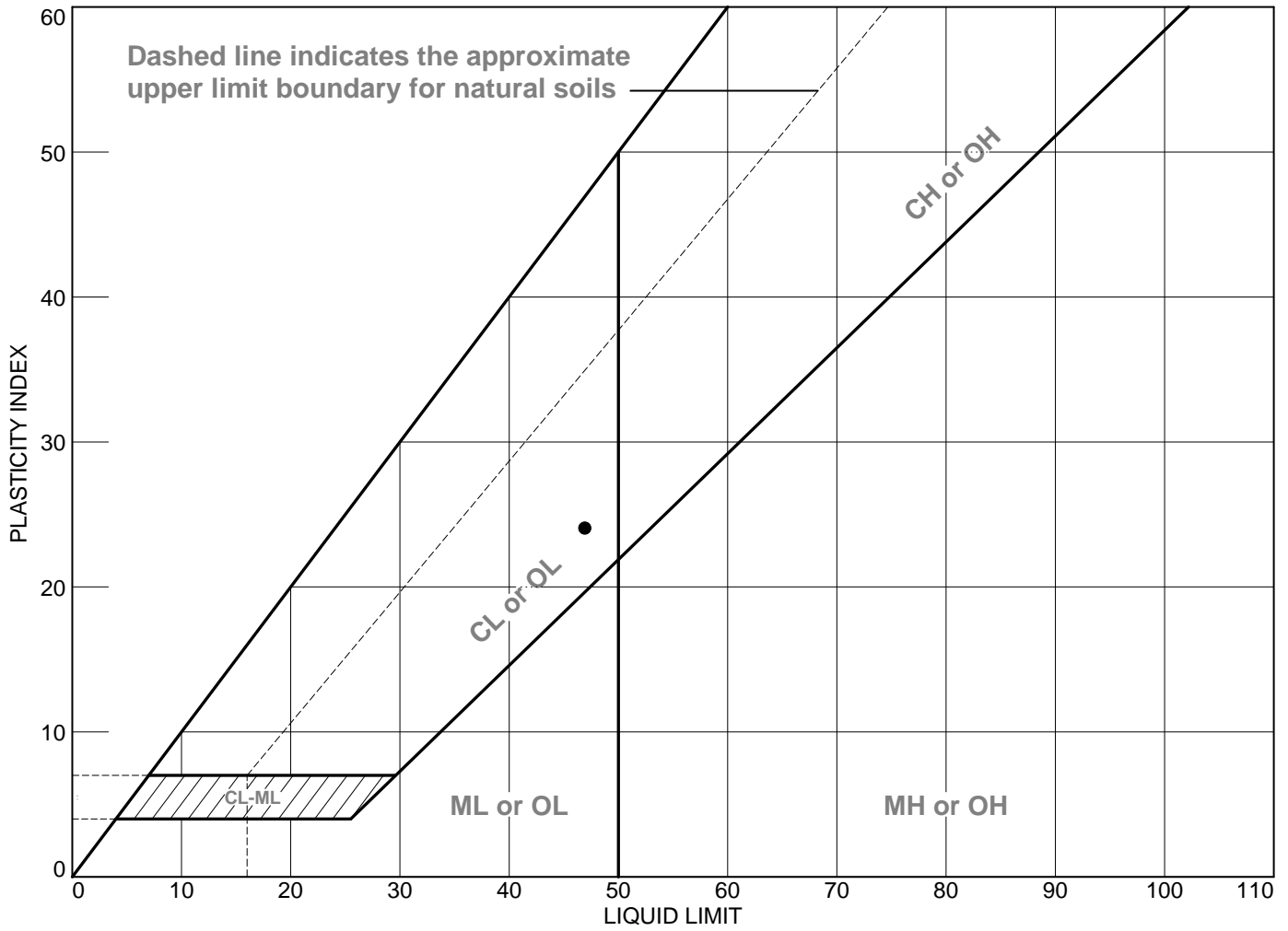
**Appendix 2.2-3**  
**Geotechnical Testing Reports**  
AECOM Technical Services, Inc.  
TRI / Environmental, Inc.

AECOM Technical Services, Inc.  
Undisturbed Soil Samples

Liquid and Plastic Limits Testing  
Particle Size Distribution Testing



# LIQUID AND PLASTIC LIMITS TEST REPORT



## SOIL DATA

SYMBOL	SOURCE	SAMPLE NO.	DEPTH	NATURAL WATER CONTENT (%)	PLASTIC LIMIT (%)	LIQUID LIMIT (%)	PLASTICITY INDEX (%)	USCS
●	ON SITE	SB-1A-1A		33.4	23	47	24	CL



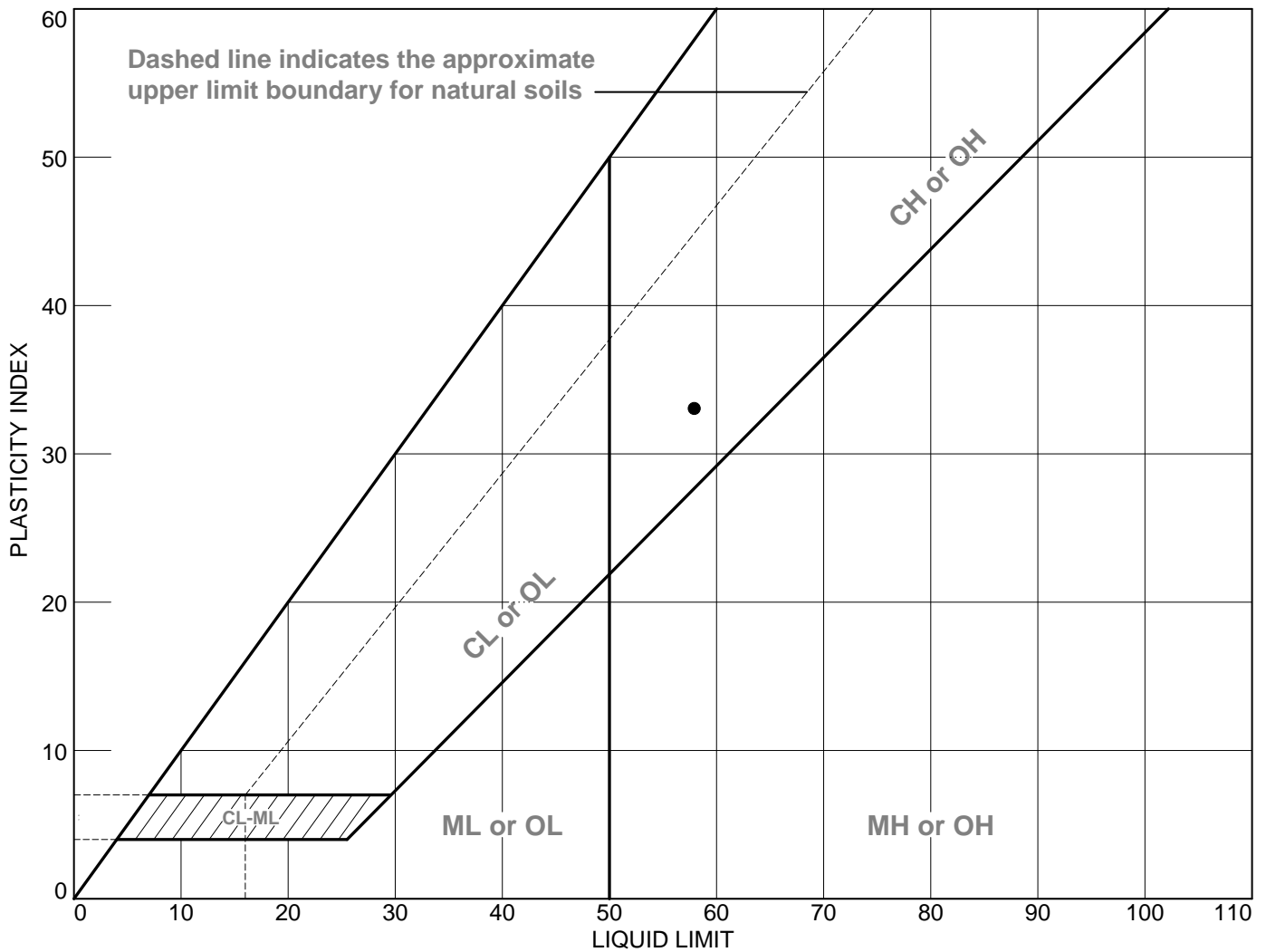
**Client:** KESTREL HORIZONS LLC  
**Project:** PINWOOD SITE IMPROVEMENT

**Project No.:** 60186203

**Figure**

**Tested By:** BOB PEETERS

# LIQUID AND PLASTIC LIMITS TEST REPORT



## SOIL DATA

SYMBOL	SOURCE	SAMPLE NO.	DEPTH	NATURAL WATER CONTENT (%)	PLASTIC LIMIT (%)	LIQUID LIMIT (%)	PLASTICITY INDEX (%)	USCS
●	ON SITE	SB-1B-2A		30.2	25	58	33	CH

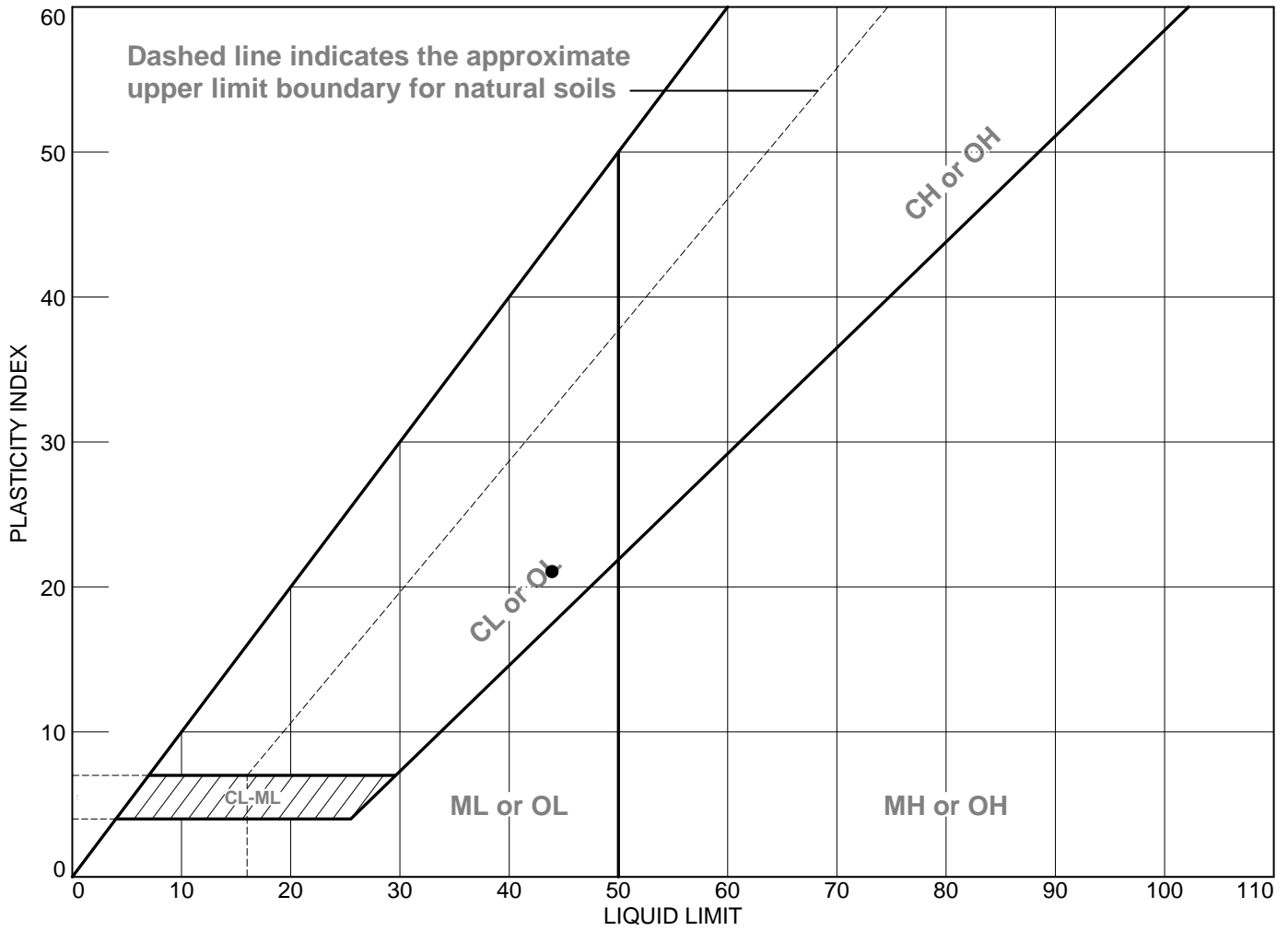


**Client:** KESTREL HORIZONS LLC  
**Project:** PINEWOOD SITE IMPROVEMENT

**Project No.:** 60186203

**Figure**

# LIQUID AND PLASTIC LIMITS TEST REPORT



## SOIL DATA

SYMBOL	SOURCE	SAMPLE NO.	DEPTH	NATURAL WATER CONTENT (%)	PLASTIC LIMIT (%)	LIQUID LIMIT (%)	PLASTICITY INDEX (%)	USCS
●	ON SITE	SB-1B-3		27.9	23	44	21	CL



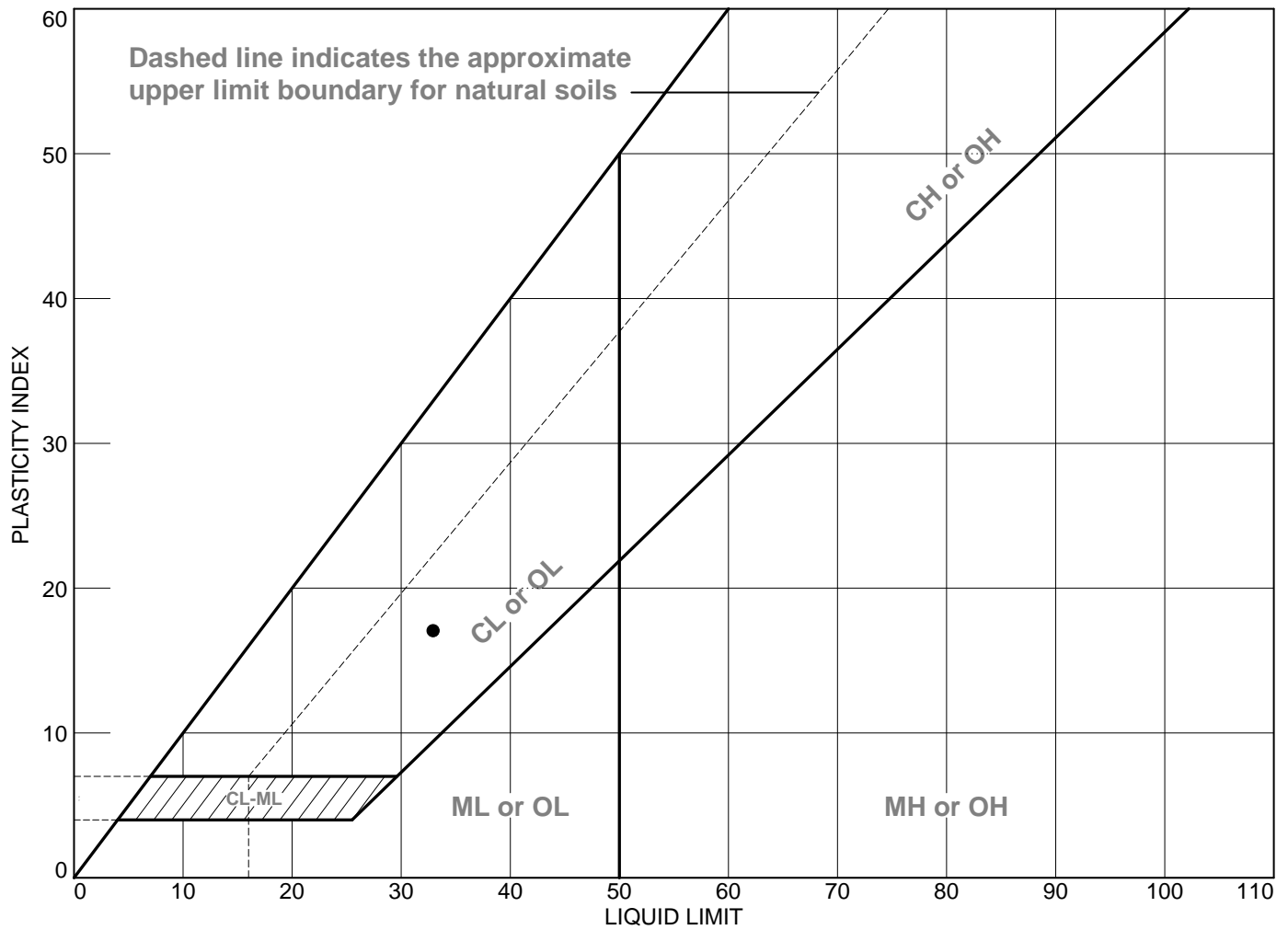
**Client:** KESTREL HORIZONS LLC  
**Project:** PINWOOD SITE IMPROVEMENT

**Project No.:** 60186203

**Figure**

**Tested By:** BOB PEETERS

# LIQUID AND PLASTIC LIMITS TEST REPORT



## SOIL DATA

SYMBOL	SOURCE	SAMPLE NO.	DEPTH	NATURAL WATER CONTENT (%)	PLASTIC LIMIT (%)	LIQUID LIMIT (%)	PLASTICITY INDEX (%)	USCS
●	ON SITE	SB-1C-4A		16.7	16	33	17	SC



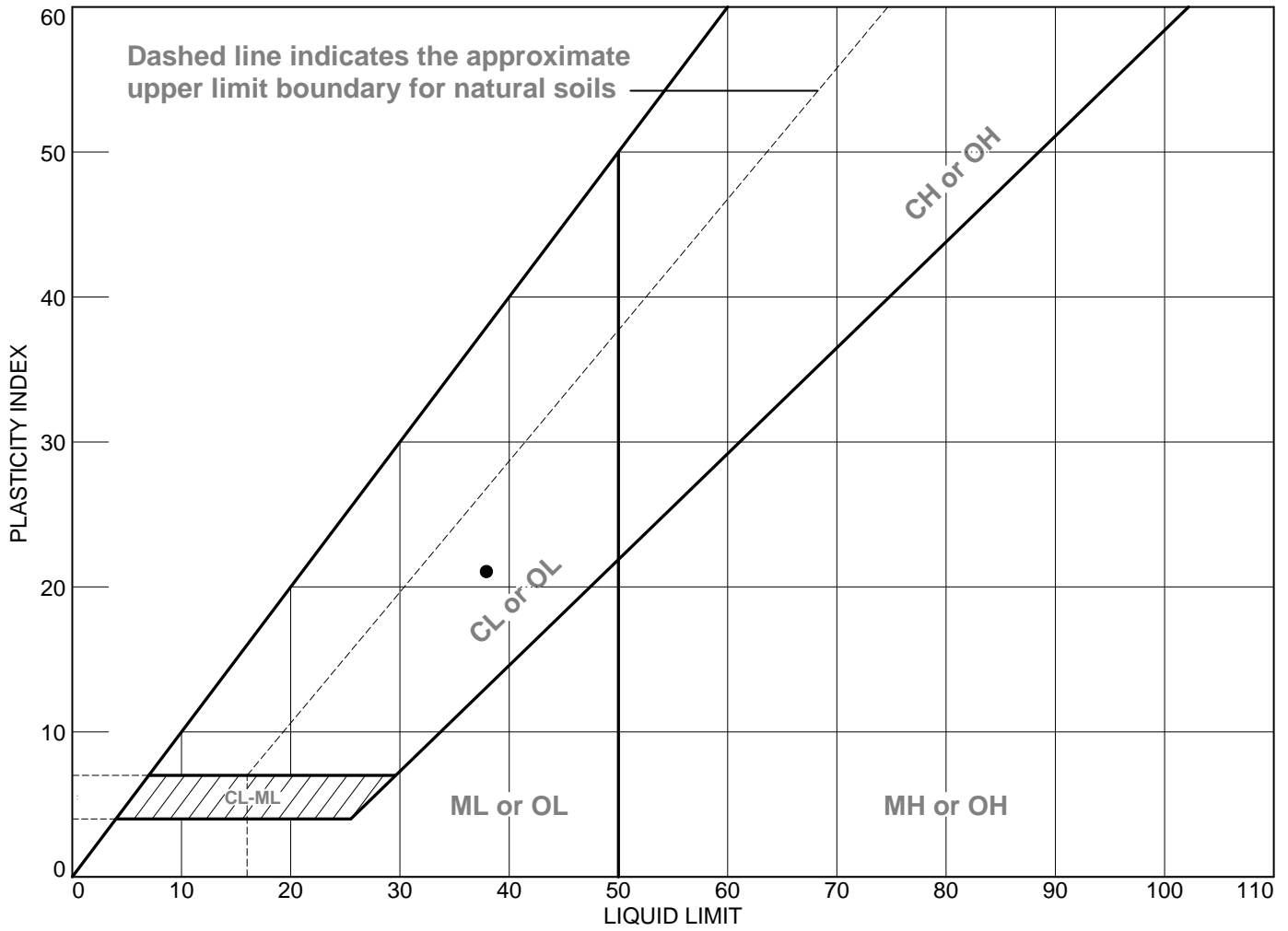
**Client:** KESTREL HORIZONS LLC  
**Project:** PINWOOD SITE IMPROVEMENT

**Project No.:** 60186203

**Figure**

**Tested By:** BOB PEETERS

# LIQUID AND PLASTIC LIMITS TEST REPORT



## SOIL DATA

SYMBOL	SOURCE	SAMPLE NO.	DEPTH	NATURAL WATER CONTENT (%)	PLASTIC LIMIT (%)	LIQUID LIMIT (%)	PLASTICITY INDEX (%)	USCS
●	ON SITE	SB-1C-5A			17	38	21	SC



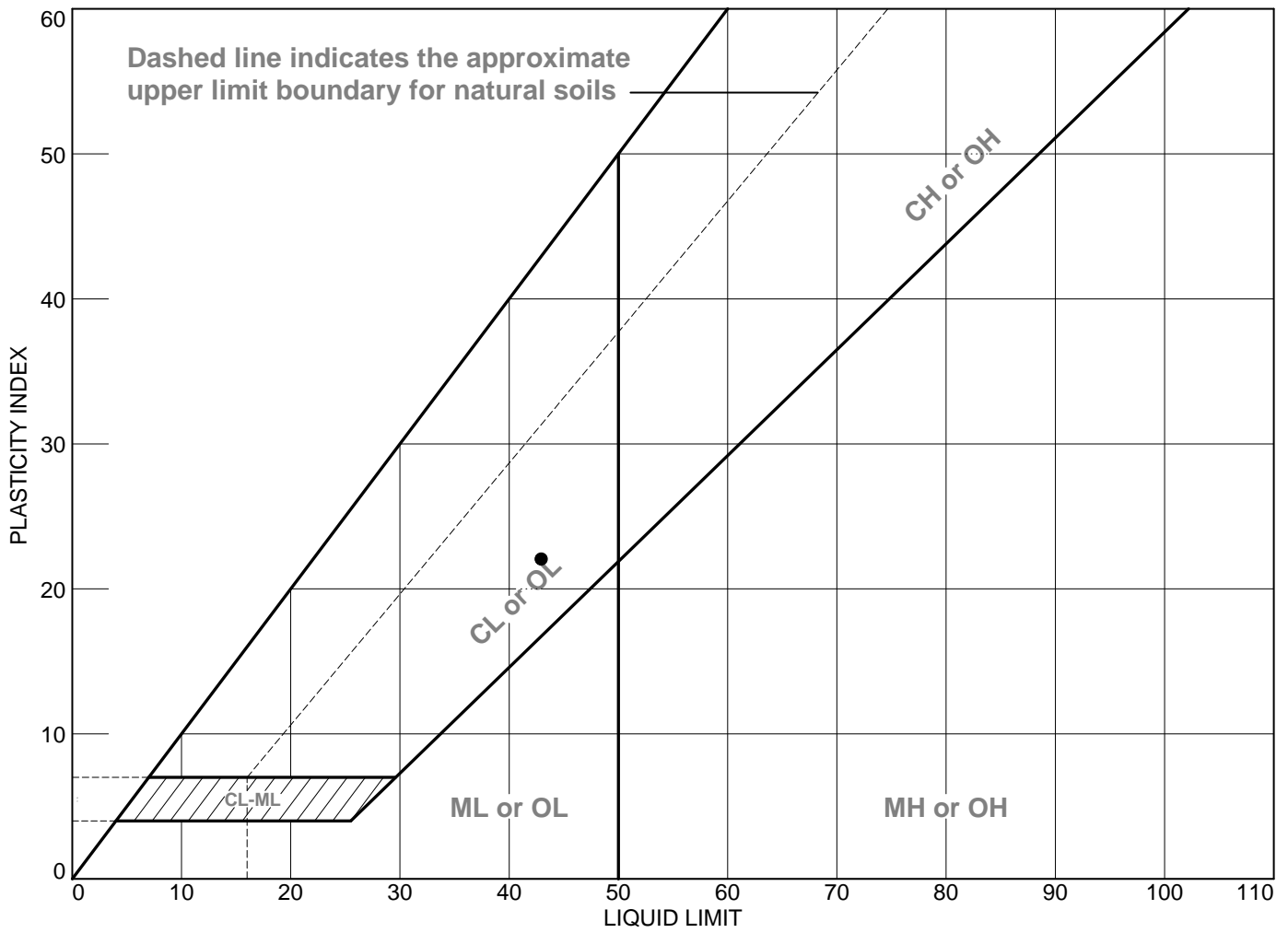
**Client:** KESTREL HORIZONS LLC  
**Project:** PINWOOD SITE IMPROVEMENT

**Project No.:** 60186203

**Figure**

**Tested By:** BOB PEETERS

# LIQUID AND PLASTIC LIMITS TEST REPORT



## SOIL DATA

SYMBOL	SOURCE	SAMPLE NO.	DEPTH	NATURAL WATER CONTENT (%)	PLASTIC LIMIT (%)	LIQUID LIMIT (%)	PLASTICITY INDEX (%)	USCS
●	ON SITE	SB-1D-6		16.9	21	43	22	SC



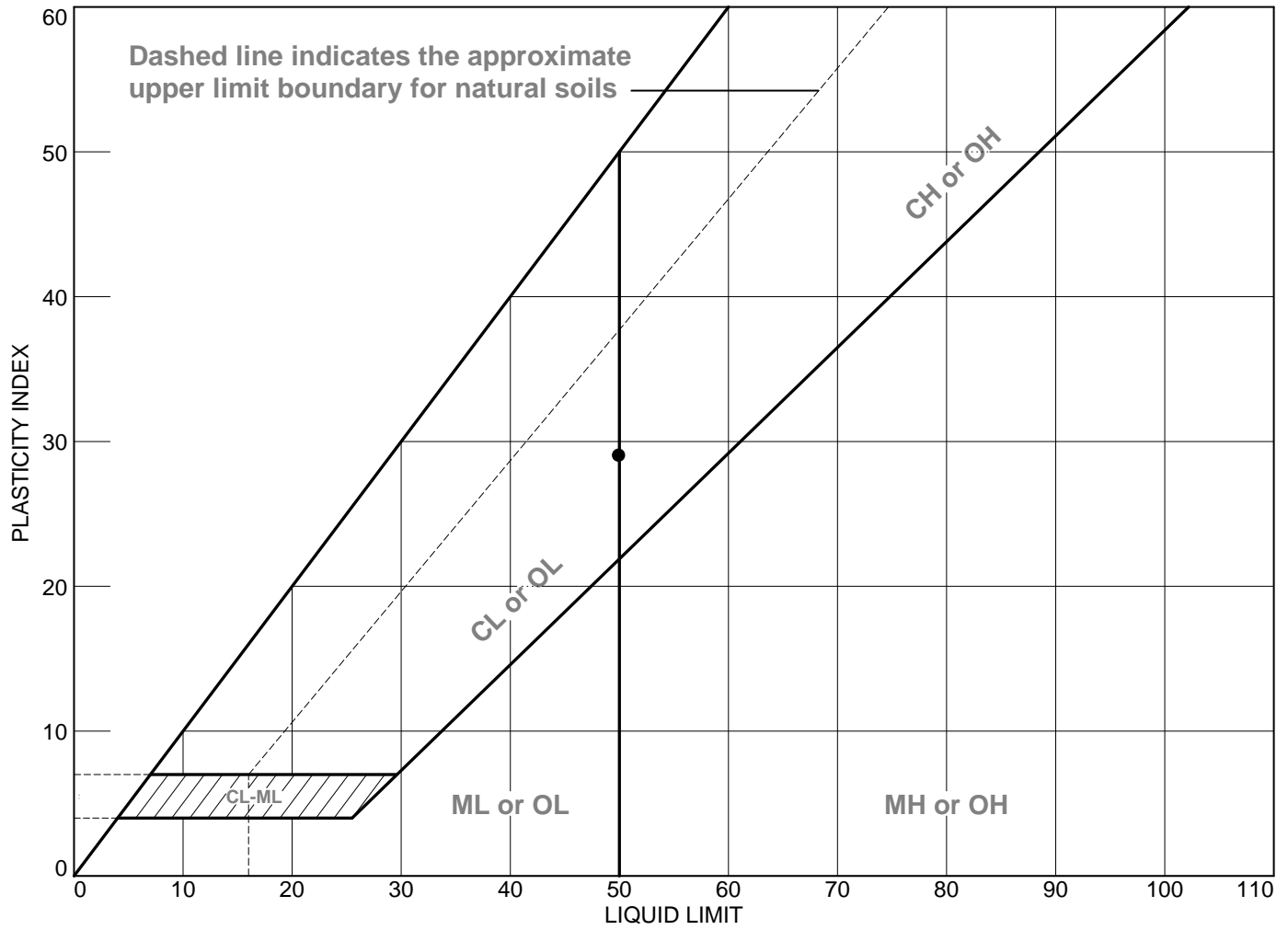
**Client:** KESTREL HORIZONS LLC  
**Project:** PINWOOD SITE IMPROVEMENT

**Project No.:** 60186203

**Figure**

**Tested By:** BOB PEETERS

# LIQUID AND PLASTIC LIMITS TEST REPORT



## SOIL DATA

SYMBOL	SOURCE	SAMPLE NO.	DEPTH	NATURAL WATER CONTENT (%)	PLASTIC LIMIT (%)	LIQUID LIMIT (%)	PLASTICITY INDEX (%)	USCS
●	ON SITE	SB-1D-7		26.1	21	50	29	CH



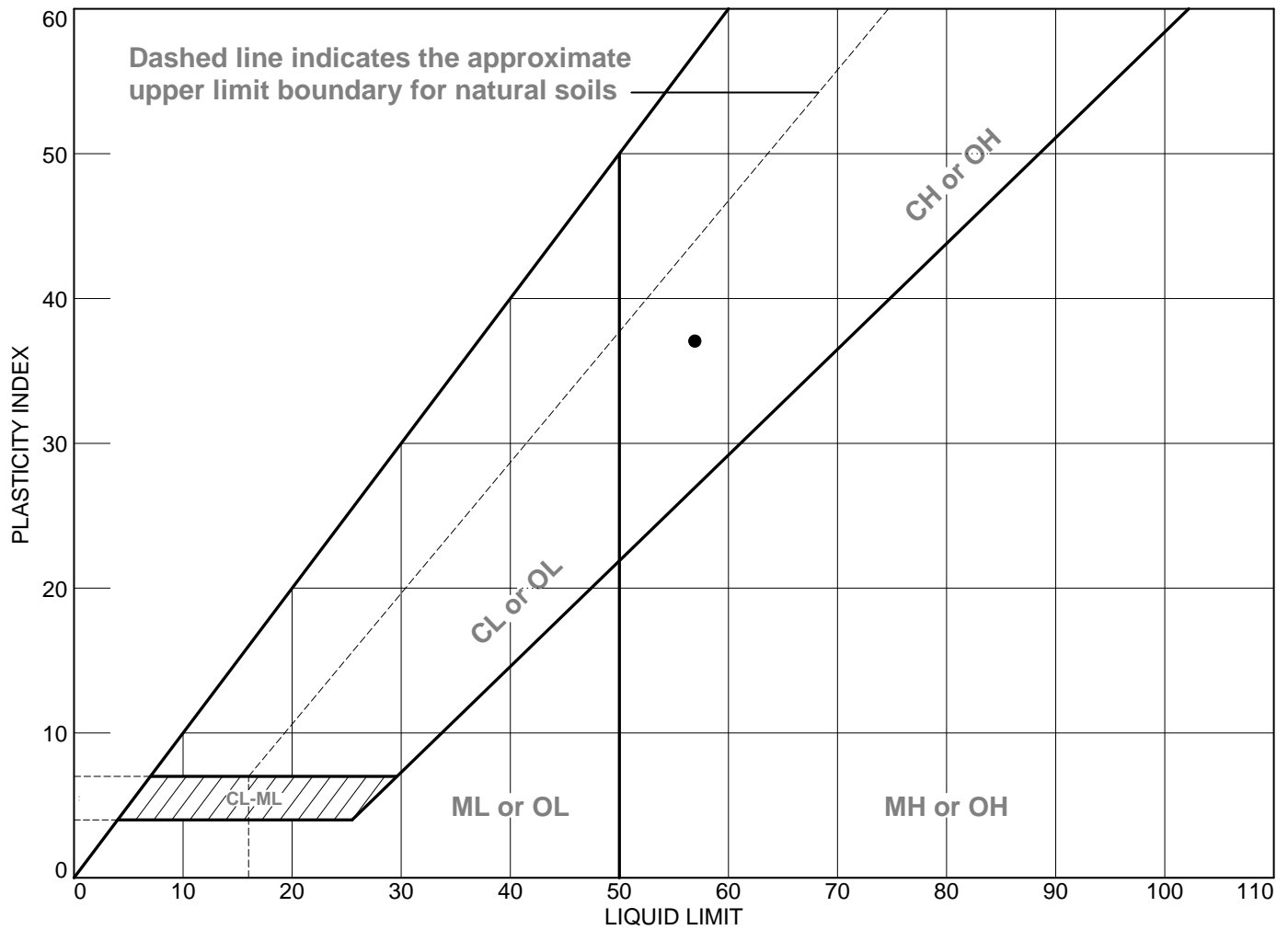
**Client:** KESTREL HORIZONS LLC  
**Project:** PINWOOD SITE IMPROVEMENT

**Project No.:** 60186203

**Figure**

**Tested By:** BOB PEETERS

# LIQUID AND PLASTIC LIMITS TEST REPORT



## SOIL DATA

SYMBOL	SOURCE	SAMPLE NO.	DEPTH	NATURAL WATER CONTENT (%)	PLASTIC LIMIT (%)	LIQUID LIMIT (%)	PLASTICITY INDEX (%)	USCS
●	ON SITE	SB-1E-8		22.8	20	57	37	CH



**Client:** KESTREL HORIZONS LLC  
**Project:** PINWOOD SITE IMPROVEMENT

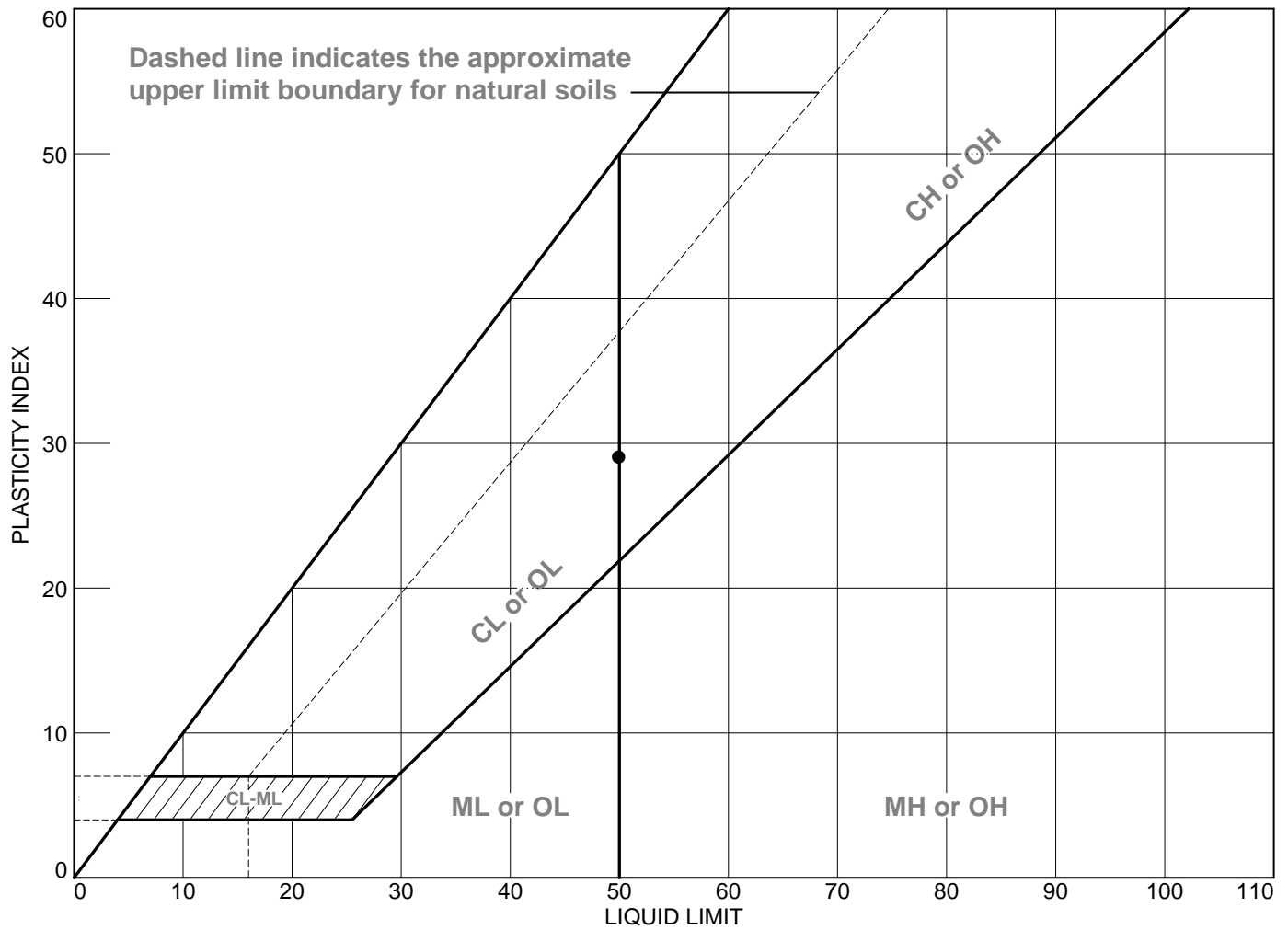
**Project No.:** 60186203

**Figure**

**Tested By:** BOB PEETERS



# LIQUID AND PLASTIC LIMITS TEST REPORT



## SOIL DATA

SYMBOL	SOURCE	SAMPLE NO.	DEPTH	NATURAL WATER CONTENT (%)	PLASTIC LIMIT (%)	LIQUID LIMIT (%)	PLASTICITY INDEX (%)	USCS
●	ON SITE	SB-1E-9A		25.2	21	50	29	



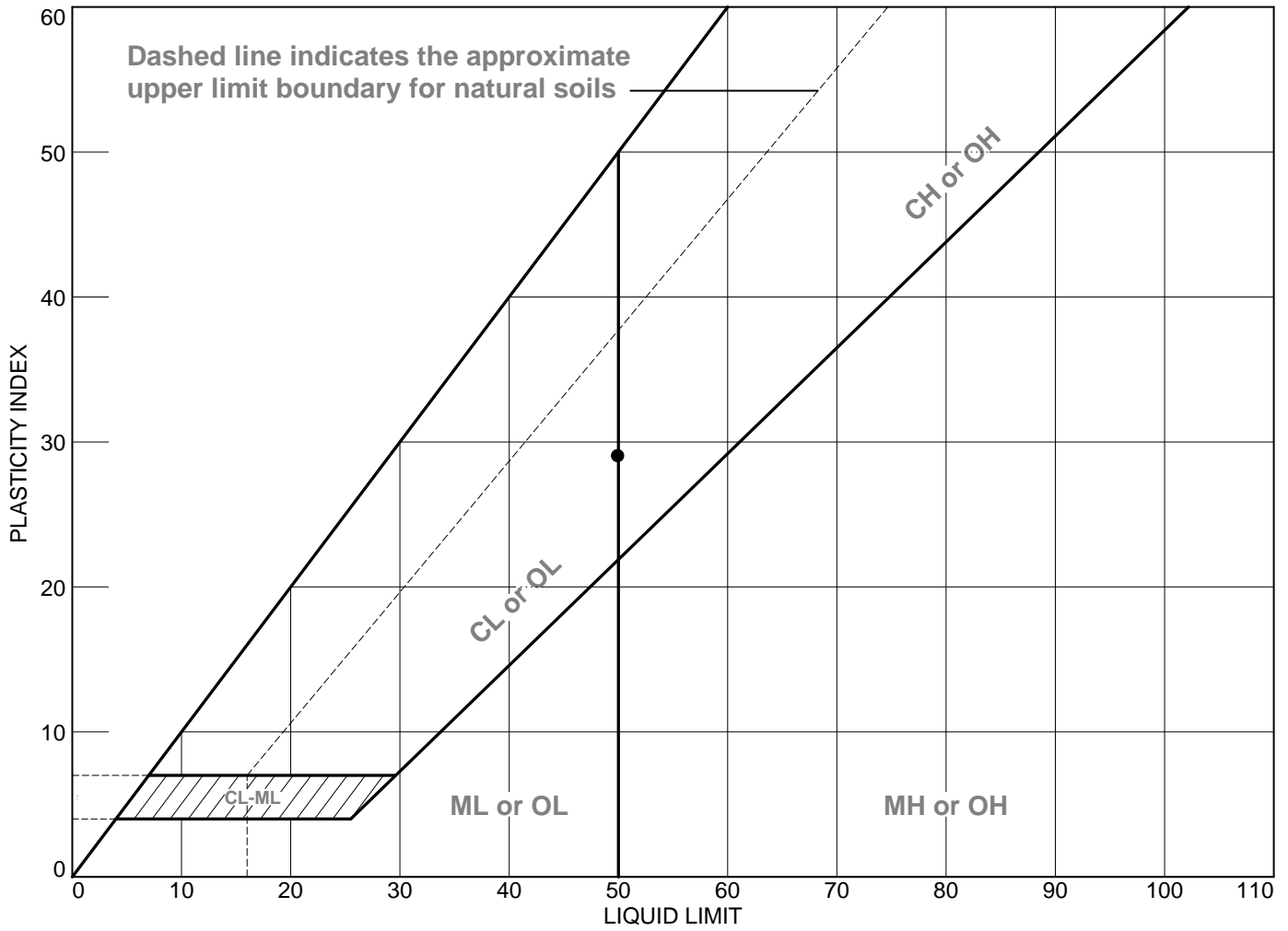
**Client:** KESTREL HORIZONS LLC  
**Project:** PINWOOD SITE IMPROVEMENT

**Project No.:** 60186203

**Figure**

**Tested By:** BOB PEETERS

# LIQUID AND PLASTIC LIMITS TEST REPORT



## SOIL DATA

SYMBOL	SOURCE	SAMPLE NO.	DEPTH	NATURAL WATER CONTENT (%)	PLASTIC LIMIT (%)	LIQUID LIMIT (%)	PLASTICITY INDEX (%)	USCS
●	ON SITE	SB-1E-10A		22.1	21	50	29	CH



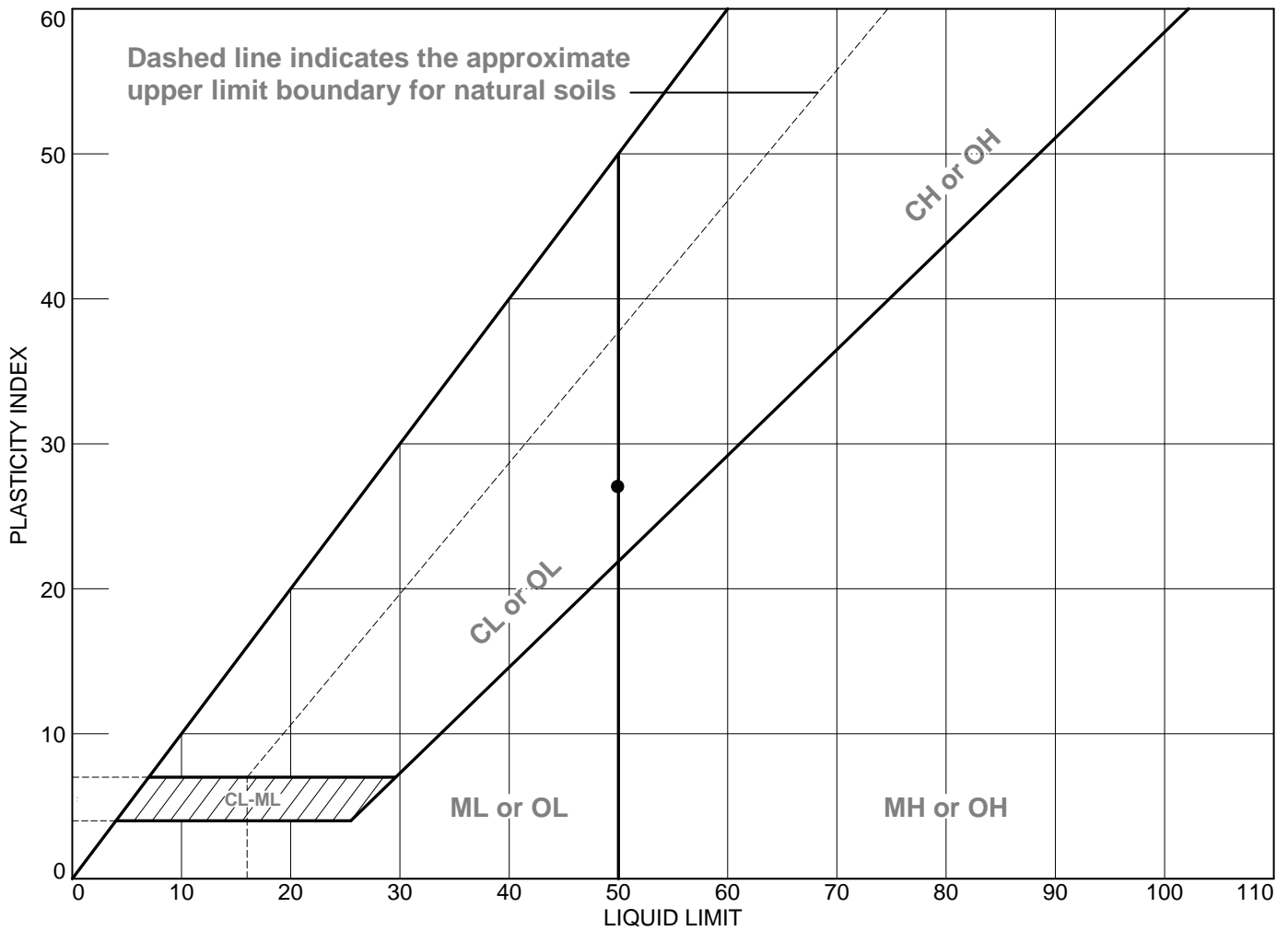
**Client:** KESTREL HORIZONS LLC  
**Project:** PINWOOD SITE IMPROVEMENT

**Project No.:** 60186203

**Figure**

**Tested By:** BOB PEETERS

# LIQUID AND PLASTIC LIMITS TEST REPORT



## SOIL DATA

SYMBOL	SOURCE	SAMPLE NO.	DEPTH	NATURAL WATER CONTENT (%)	PLASTIC LIMIT (%)	LIQUID LIMIT (%)	PLASTICITY INDEX (%)	USCS
●	ON SITE	TP-1A-01		29.2	23	50	27	CH



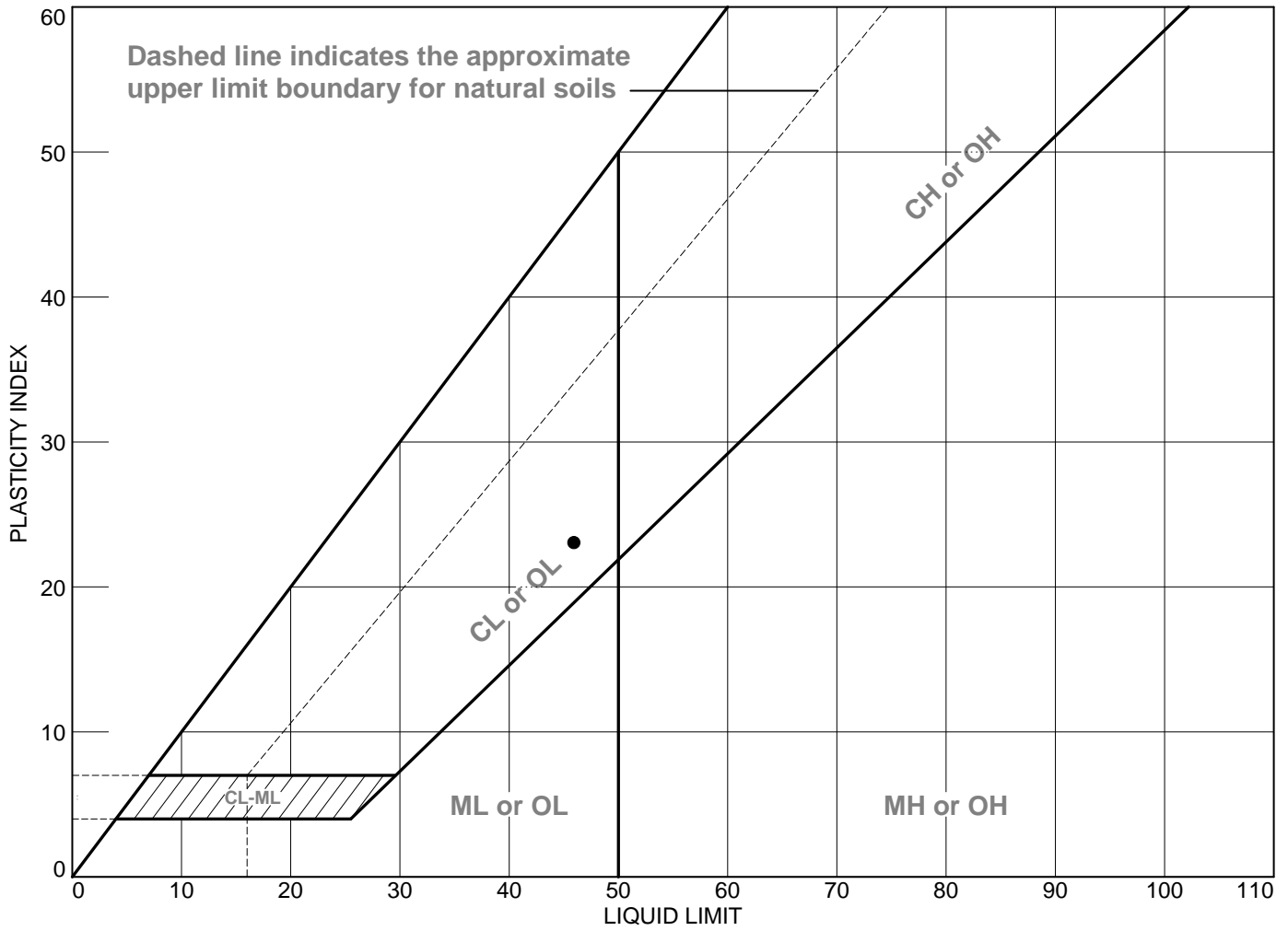
**Client:** KESTREL HORIZONS LLC  
**Project:** PINWOOD SITE IMPROVEMENT

**Project No.:** 60186203

**Figure**

**Tested By:** BOB PEETERS

# LIQUID AND PLASTIC LIMITS TEST REPORT



## SOIL DATA

SYMBOL	SOURCE	SAMPLE NO.	DEPTH	NATURAL WATER CONTENT (%)	PLASTIC LIMIT (%)	LIQUID LIMIT (%)	PLASTICITY INDEX (%)	USCS
●	ON SITE	TP-1D-01		21.5	23	46	23	CL



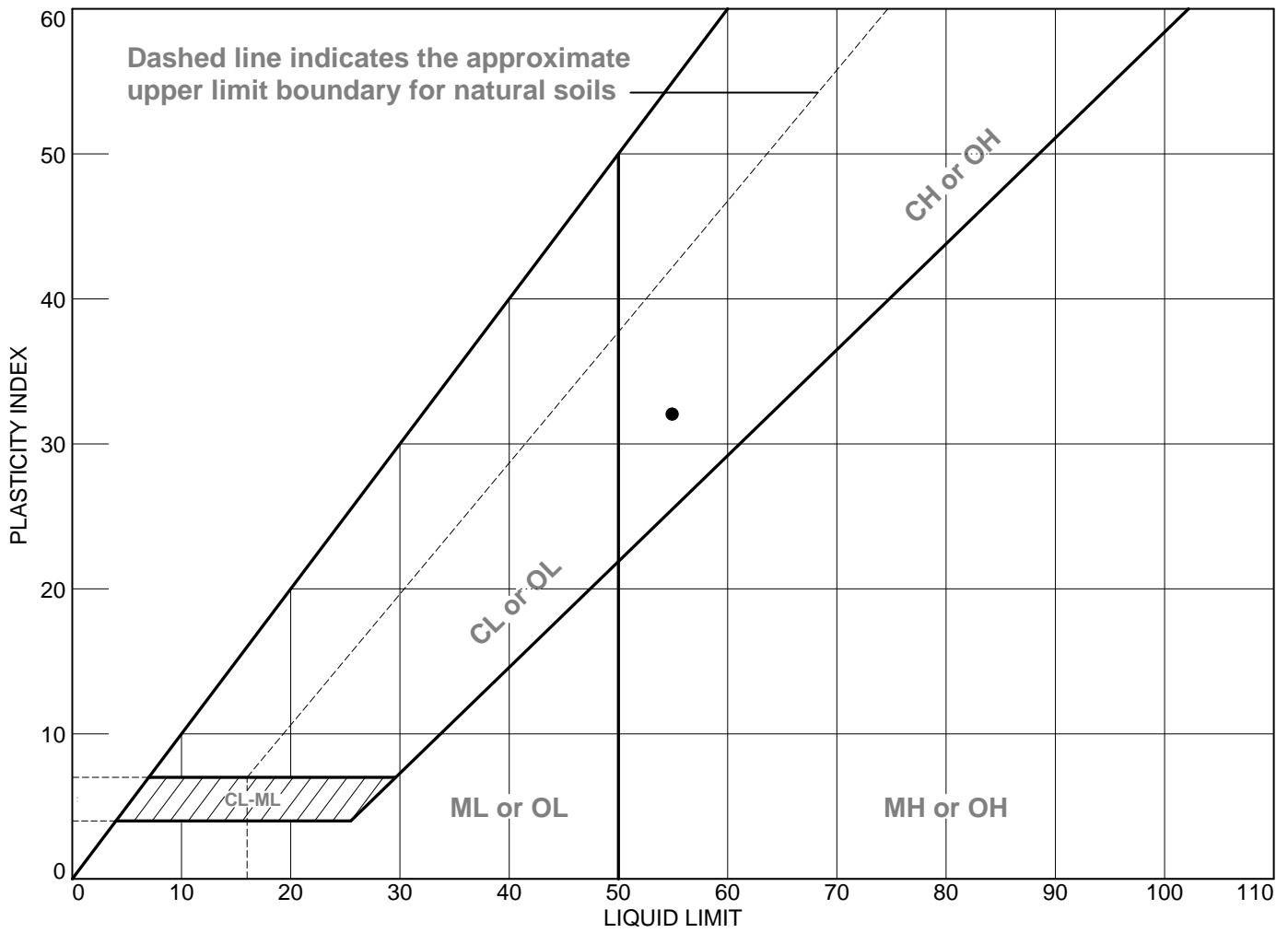
**Client:** KESTREL HORIZONS LLC  
**Project:** PINWOOD SITE IMPROVEMENT

**Project No.:** 60186203

**Figure**

**Tested By:** BOB PEETERS

# LIQUID AND PLASTIC LIMITS TEST REPORT



## SOIL DATA

SYMBOL	SOURCE	SAMPLE NO.	DEPTH	NATURAL WATER CONTENT (%)	PLASTIC LIMIT (%)	LIQUID LIMIT (%)	PLASTICITY INDEX (%)	USCS
●	ON SITE	TP-1D-02		22.8	23	55	32	CH



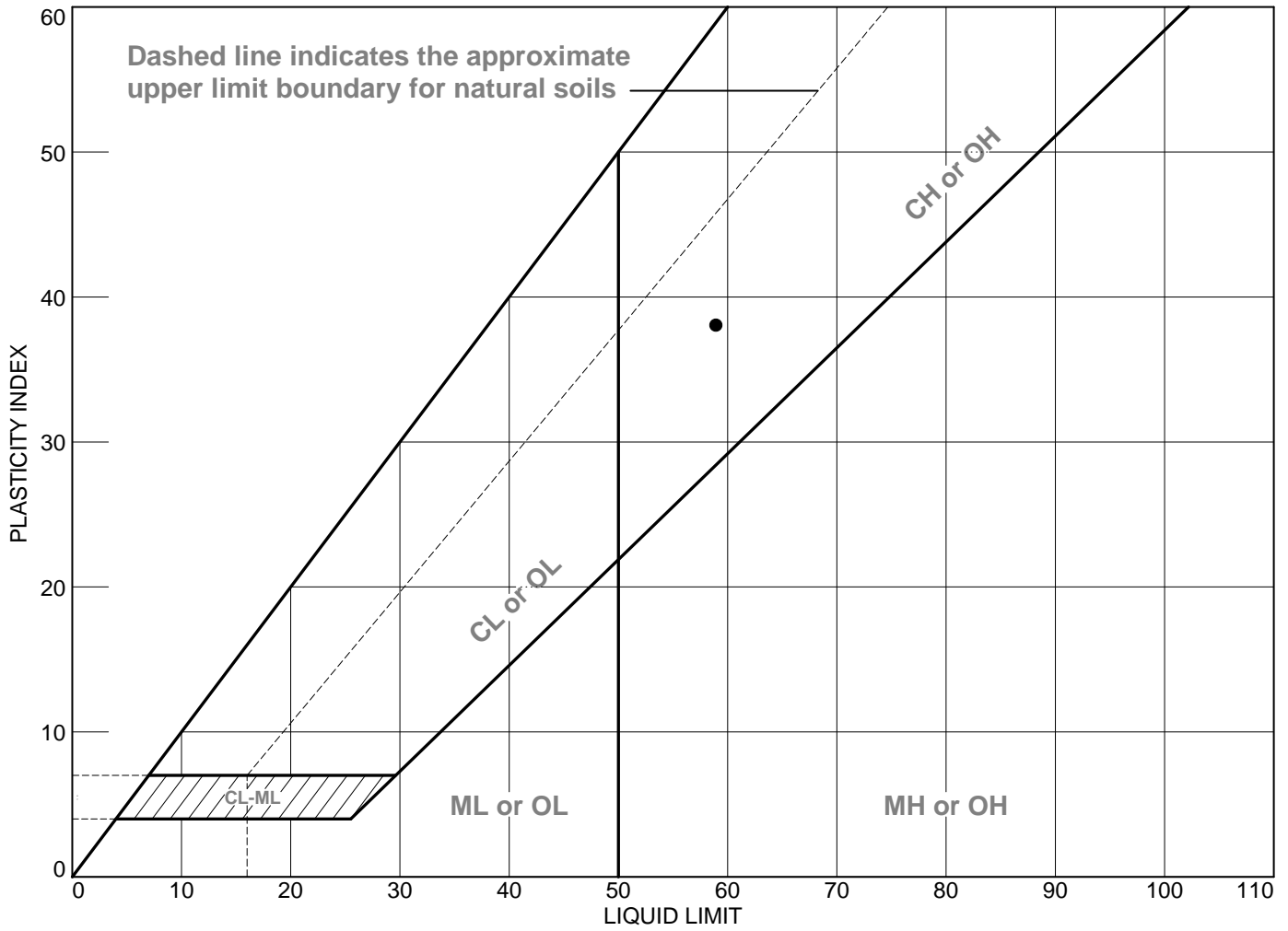
**Client:** KESTREL HORIZONS LLC  
**Project:** PINWOOD SITE IMPROVEMENT

**Project No.:** 60186203

**Figure**

**Tested By:** BOB PEETERS

# LIQUID AND PLASTIC LIMITS TEST REPORT



## SOIL DATA

SYMBOL	SOURCE	SAMPLE NO.	DEPTH	NATURAL WATER CONTENT (%)	PLASTIC LIMIT (%)	LIQUID LIMIT (%)	PLASTICITY INDEX (%)	USCS
●	ON SITE	TP-1E-01A		27.6	21	59	38	CH



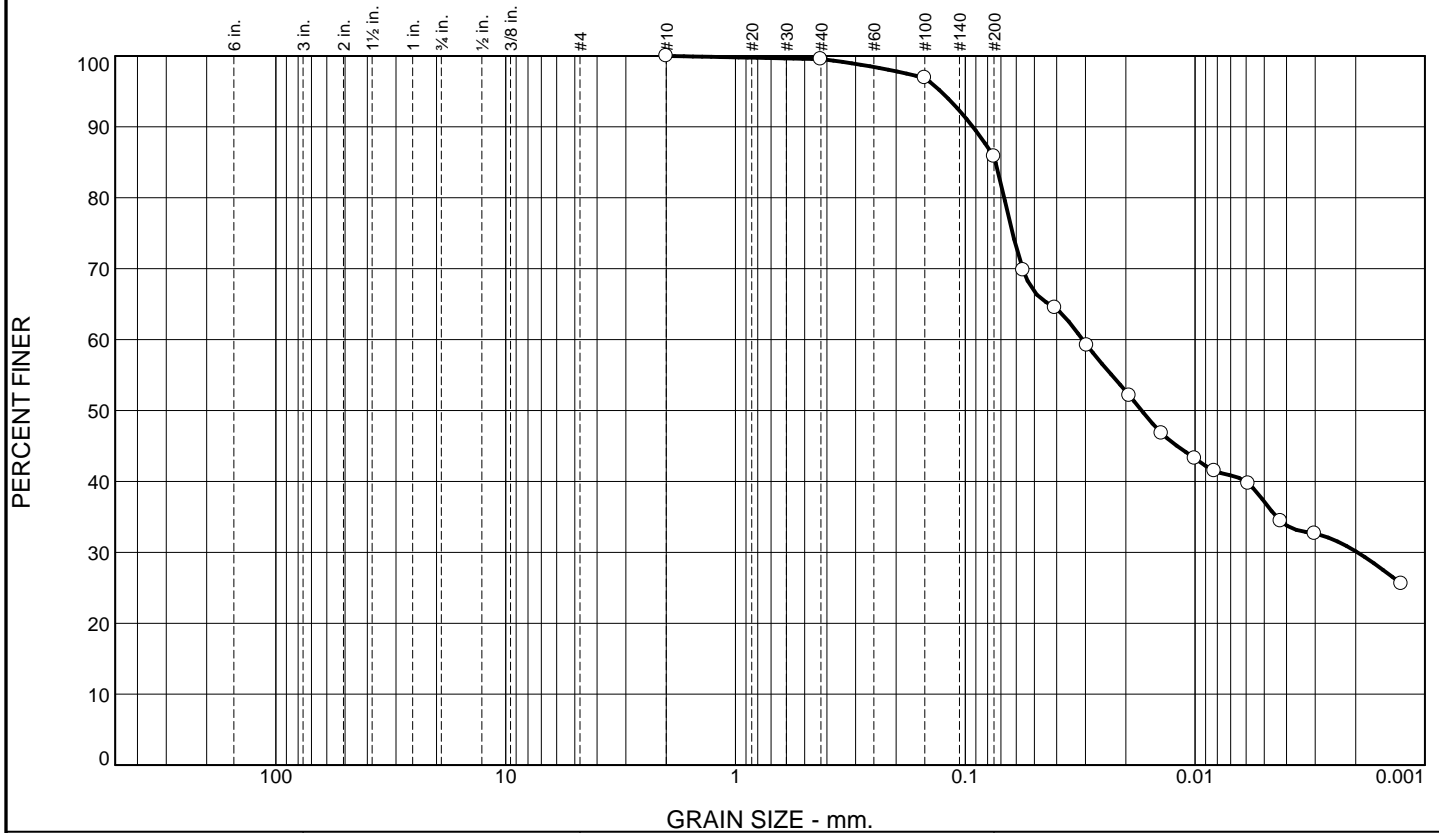
**Client:** KESTREL HORIZONS LLC  
**Project:** PINWOOD SITE IMPROVEMENT

**Project No.:** 60186203

**Figure**

**Tested By:** BOB PEETERS

# Particle Size Distribution Report



% +3"	% Gravel		% Sand			% Fines	
	Coarse	Fine	Coarse	Medium	Fine	Silt	Clay
0.0	0.0	0.0	0.0	0.4	13.8	48.7	37.1

SIEVE SIZE	PERCENT FINER	SPEC.* PERCENT	PASS? (X=NO)
#10	100.0		
#40	99.6		
#100	96.9		
#200	85.8		

**Material Description**  
LIGHT BROWN SILTY CLAY, LITTLE SAND

**Atterberg Limits**  
 PL= 23      LL= 47      PI= 24

**Coefficients**  
 D<sub>90</sub>= 0.0927      D<sub>85</sub>= 0.0738      D<sub>60</sub>= 0.0309  
 D<sub>50</sub>= 0.0171      D<sub>30</sub>= 0.0020      D<sub>15</sub>=  
 D<sub>10</sub>=                  C<sub>u</sub>=                  C<sub>c</sub>=

**Classification**  
 USCS= CL                  AASHTO= A-7-6(22)

**Remarks**

\* (no specification provided)

Source of Sample: ON SITE  
 Sample Number: SB-1A-1A

Date: 01/11/11



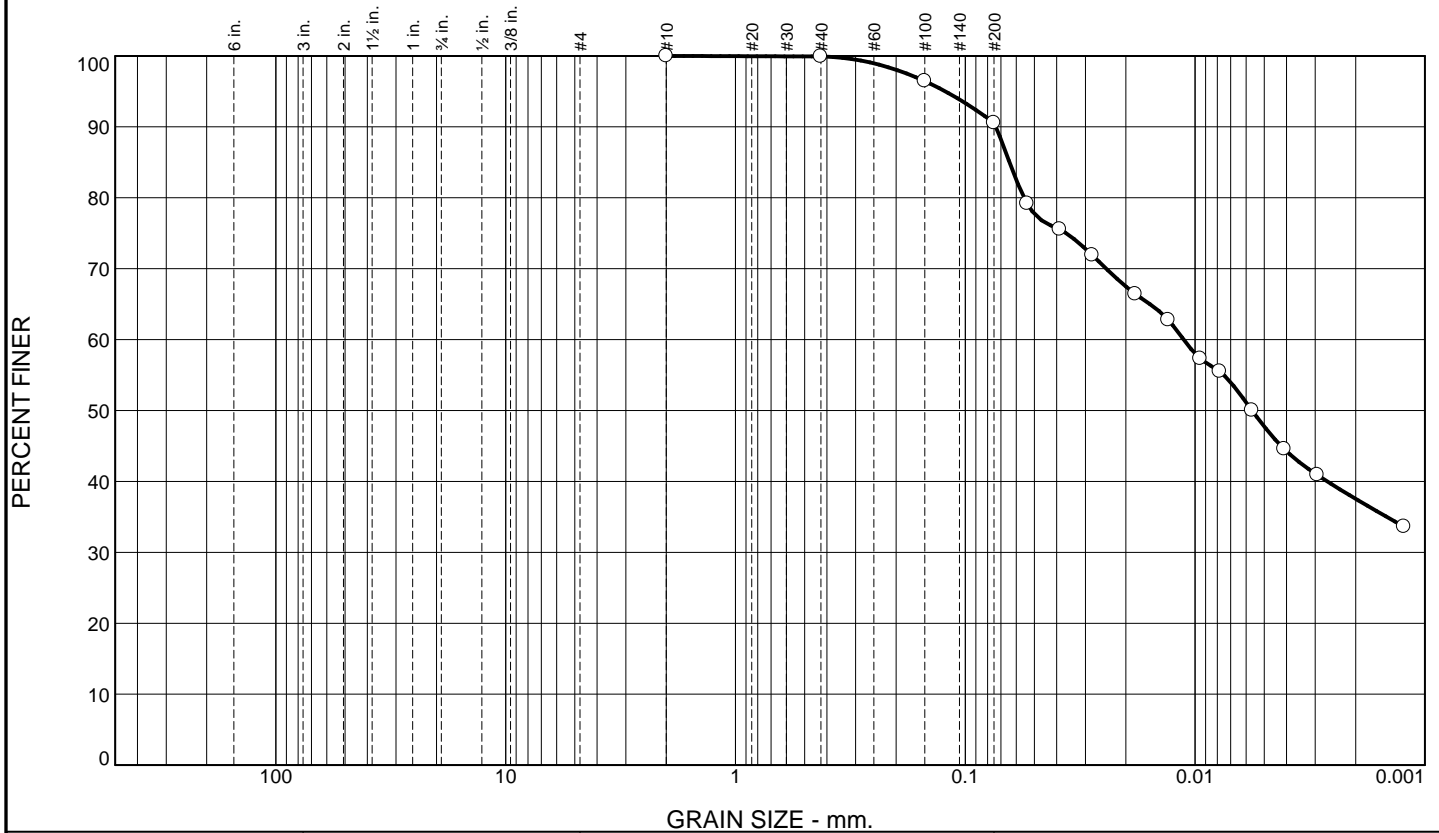
Client: KESTREL HORIZONS LLC  
 Project: PINWOOD SITE IMPROVEMENT

Project No: 60186203

Figure

Tested By: BOB PEETERS

# Particle Size Distribution Report



% +3"	% Gravel		% Sand			% Fines	
	Coarse	Fine	Coarse	Medium	Fine	Silt	Clay
0.0	0.0	0.0	0.0	0.1	9.3	42.9	47.7

SIEVE SIZE	PERCENT FINER	SPEC.* PERCENT	PASS? (X=NO)
#10	100.0		
#40	99.9		
#100	96.4		
#200	90.6		

**Material Description**  
LIGHT BROWN SILTY CLAY, TRACE SAND

**Atterberg Limits**  
 PL= 25      LL= 58      PI= 33

**Coefficients**  
 D<sub>90</sub>= 0.0737      D<sub>85</sub>= 0.0642      D<sub>60</sub>= 0.0112  
 D<sub>50</sub>= 0.0057      D<sub>30</sub>=              D<sub>15</sub>=  
 D<sub>10</sub>=              C<sub>u</sub>=              C<sub>c</sub>=

**Classification**  
 USCS= CH      AASHTO= A-7-6(34)

**Remarks**

\* (no specification provided)

Source of Sample: ON SITE  
 Sample Number: SB-1B-2A

Date: 01/11/11



Client: KESTREL HORIZONS LLC  
 Project: PINWOOD SITE IMPROVEMENT

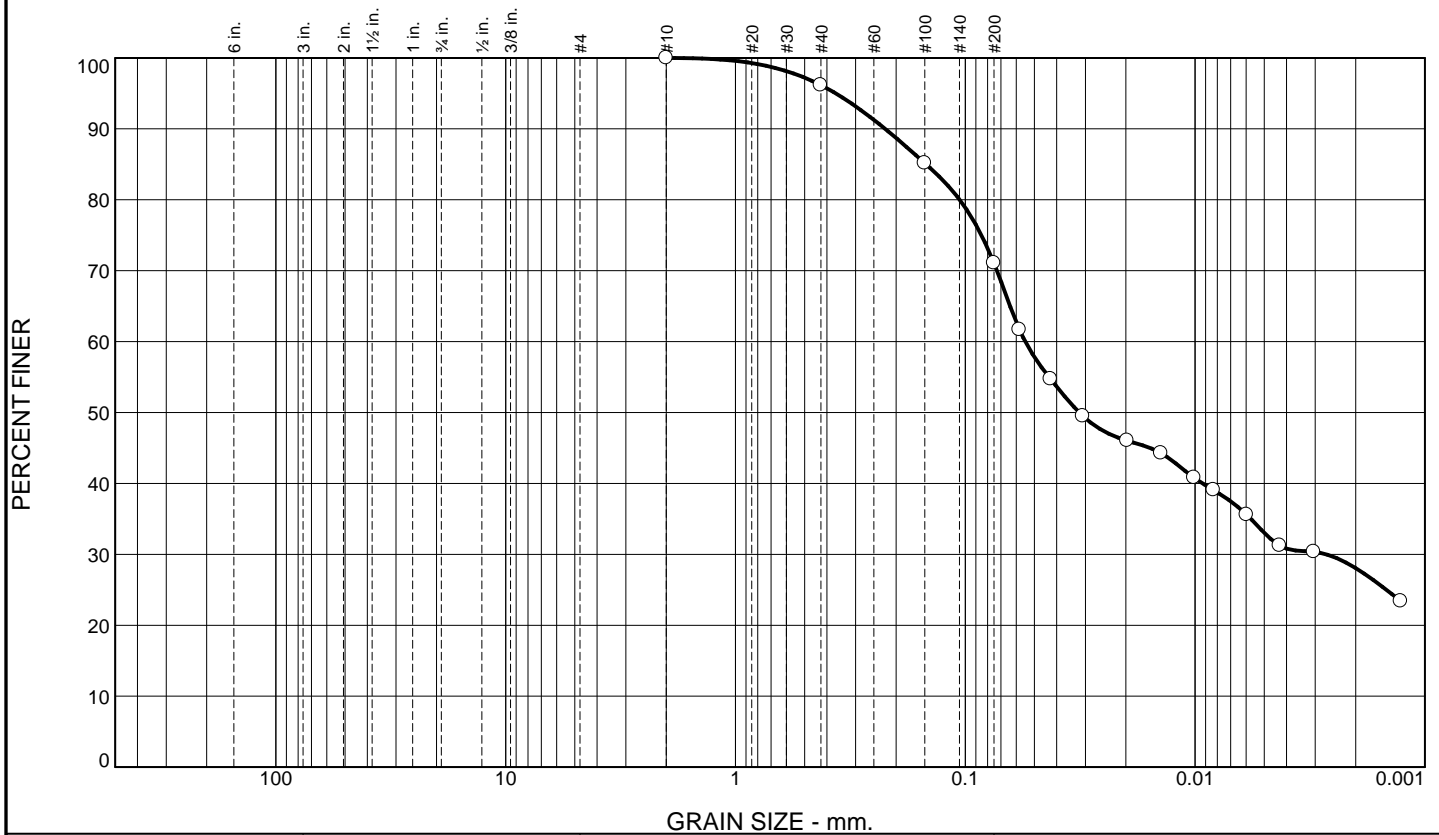
Project No: 60186203

Figure

Tested By: BOB PEETERS



# Particle Size Distribution Report



% +3"	% Gravel		% Sand			% Fines	
	Coarse	Fine	Coarse	Medium	Fine	Silt	Clay
0.0	0.0	0.0	0.0	3.8	25.1	38.1	33.0

SIEVE SIZE	PERCENT FINER	SPEC.* PERCENT	PASS? (X=NO)
#10	100.0		
#40	96.2		
#100	85.2		
#200	71.1		

**Material Description**  
LIGHT REDDISH BROWN SILTY CLAY, SOME SAND

**Atterberg Limits**  
 PL= 23      LL= 44      PI= 21

**Coefficients**  
 D<sub>90</sub>= 0.2233      D<sub>85</sub>= 0.1482      D<sub>60</sub>= 0.0548  
 D<sub>50</sub>= 0.0319      D<sub>30</sub>= 0.0027      D<sub>15</sub>=  
 D<sub>10</sub>=              C<sub>u</sub>=              C<sub>c</sub>=

**Classification**  
 USCS= CL              AASHTO= A-7-6(14)

**Remarks**

\* (no specification provided)

Source of Sample: ON SITE  
 Sample Number: SB-1B-3

Date: 01/11/11



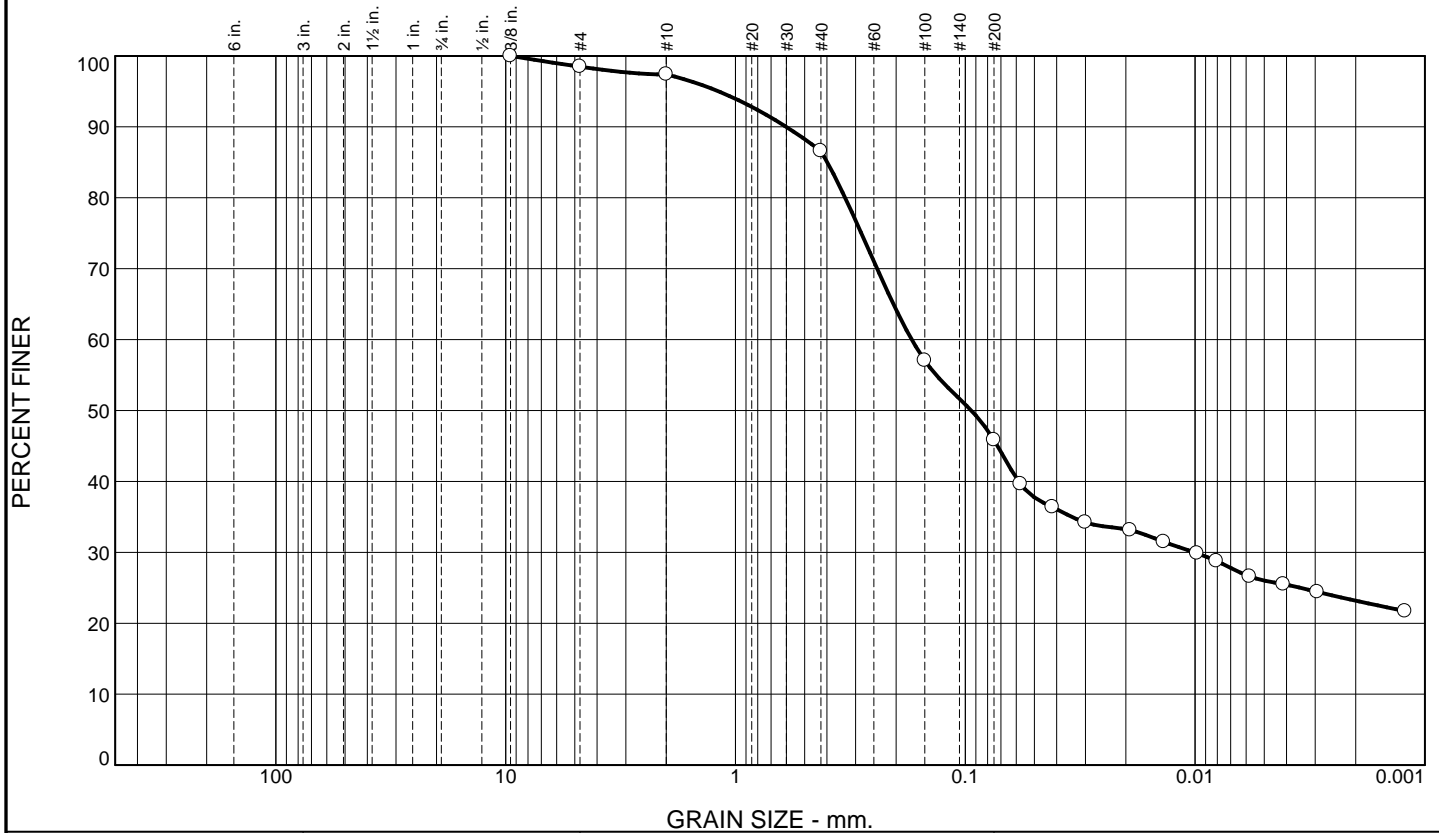
Client: KESTREL HORIZONS LLC  
 Project: PINWOOD SITE IMPROVEMENT

Project No: 60186203

Figure

Tested By: BOB PEETERS

# Particle Size Distribution Report



% +3"	% Gravel		% Sand			% Fines	
	Coarse	Fine	Coarse	Medium	Fine	Silt	Clay
0.0	0.0	1.5	1.1	10.8	40.8	19.8	26.0

SIEVE SIZE	PERCENT FINER	SPEC.* PERCENT	PASS? (X=NO)
.375	100.0		
#4	98.5		
#10	97.4		
#40	86.6		
#100	57.0		
#200	45.8		

**Material Description**  
RED BROWN SANDY CLAY

**Atterberg Limits**  
 PL= 16      LL= 33      PI= 17

**Coefficients**  
 D<sub>90</sub>= 0.6016      D<sub>85</sub>= 0.3984      D<sub>60</sub>= 0.1710  
 D<sub>50</sub>= 0.0942      D<sub>30</sub>= 0.0101      D<sub>15</sub>=  
 D<sub>10</sub>=                      C<sub>u</sub>=                      C<sub>c</sub>=

**Classification**  
 USCS= SC                      AASHTO= A-6(4)

**Remarks**

\* (no specification provided)

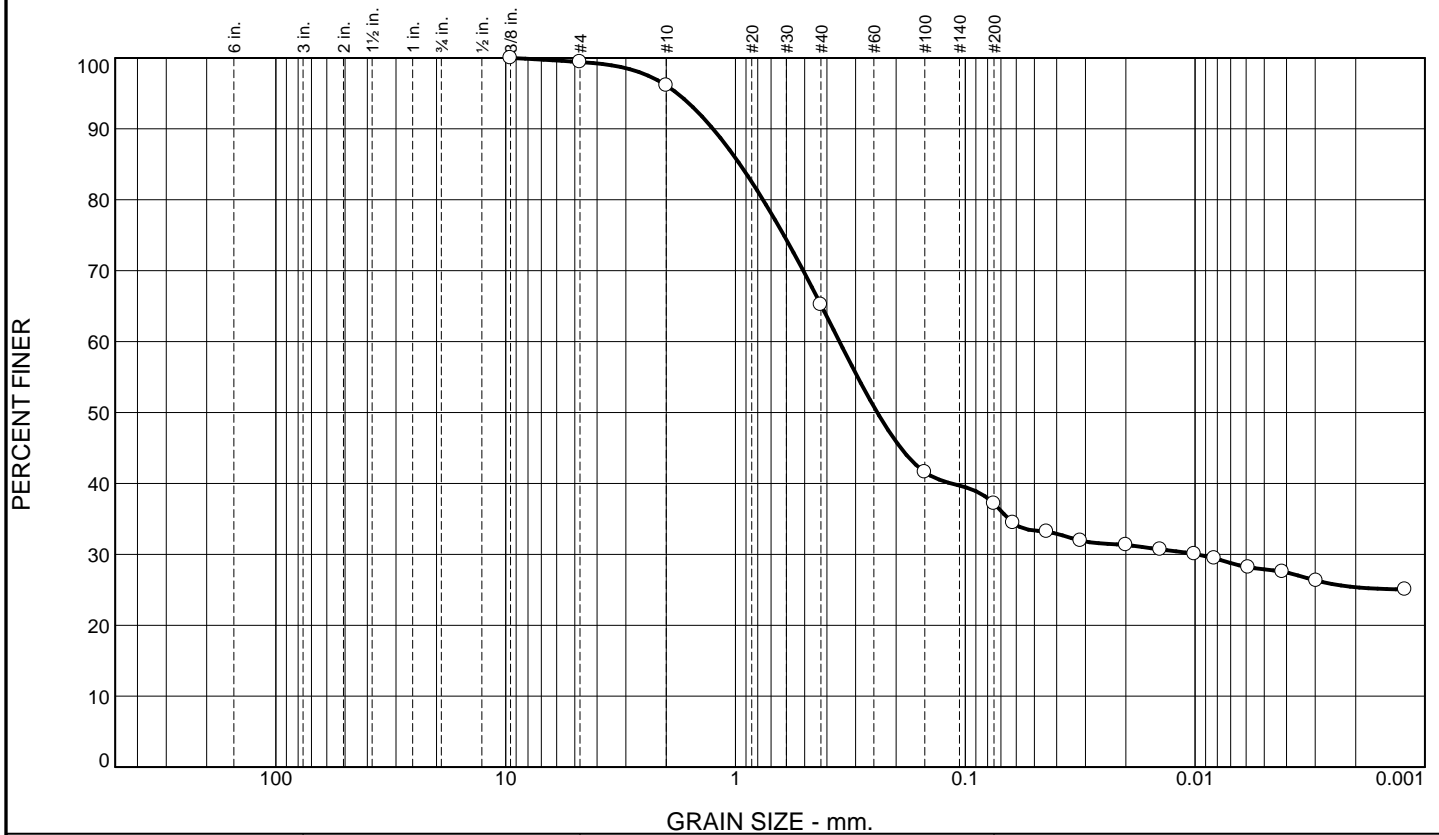
Source of Sample: ON SITE  
 Sample Number: SB-1C-4A

Date: 01/11/11

	<p><b>Client:</b> KESTREL HORIZONS LLC</p> <p><b>Project:</b> PINEWOOD SITE IMPROVEMENT</p> <p><b>Project No:</b> 60186203</p>
<p><b>Figure</b></p>	

Tested By: BOB PEETERS

# Particle Size Distribution Report



% +3"	% Gravel		% Sand			% Fines	
	Coarse	Fine	Coarse	Medium	Fine	Silt	Clay
0.0	0.0	0.6	3.3	30.9	28.0	9.3	27.9

SIEVE SIZE	PERCENT FINER	SPEC.* PERCENT	PASS? (X=NO)
.375	100.0		
#4	99.4		
#10	96.1		
#40	65.2		
#100	41.6		
#200	37.2		

**Material Description**  
REDDISH BROWN SILTY CLAYEY SAND

**Atterberg Limits**  
 PL= 17      LL= 38      PI= 21

**Coefficients**  
 D<sub>90</sub>= 1.2522      D<sub>85</sub>= 0.9564      D<sub>60</sub>= 0.3526  
 D<sub>50</sub>= 0.2416      D<sub>30</sub>= 0.0098      D<sub>15</sub>=  
 D<sub>10</sub>=                      C<sub>u</sub>=                      C<sub>c</sub>=

**Classification**  
 USCS= SC                      AASHTO= A-6(3)

**Remarks**

\* (no specification provided)

Source of Sample: ON SITE  
 Sample Number: SB-1C-5A

Date: 01/11/11



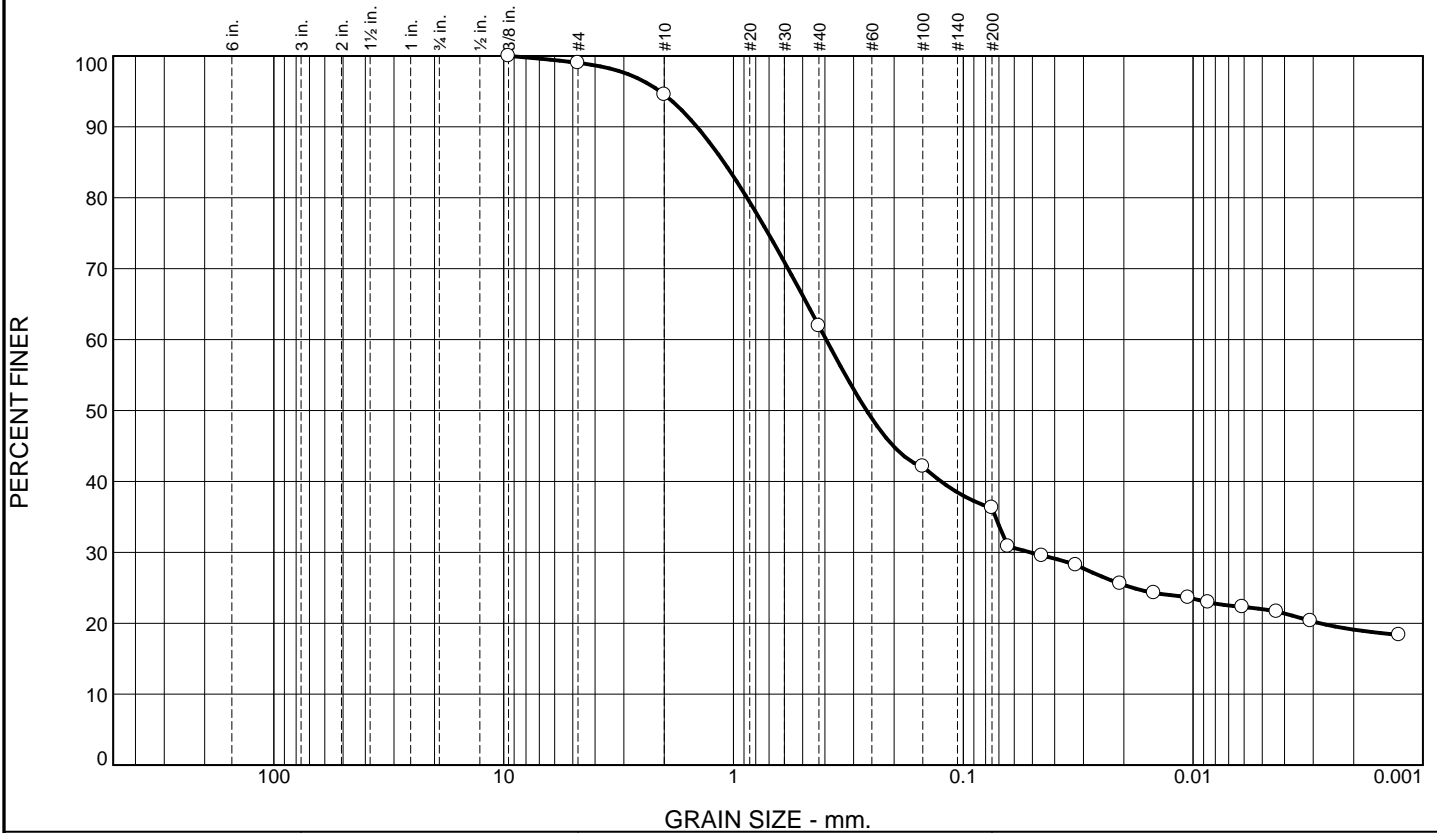
Client: KESTREL HORIZONS LLC  
 Project: PINWOOD SITE IMPROVEMENT

Project No: 60186203

Figure

Tested By: BOB PEETERS

# Particle Size Distribution Report



% +3"	% Gravel		% Sand			% Fines	
	Coarse	Fine	Coarse	Medium	Fine	Silt	Clay
0.0	0.0	1.0	4.5	32.6	25.6	14.3	22.0

SIEVE SIZE	PERCENT FINER	SPEC.* PERCENT	PASS? (X=NO)
.375	100.0		
#4	99.0		
#10	94.5		
#40	61.9		
#100	42.1		
#200	36.3		

**Material Description**

REDDISH BROWN CLAYEY SAND

**Atterberg Limits**

PL= 21      LL= 43      PI= 22

**Coefficients**

D<sub>90</sub>= 1.4417      D<sub>85</sub>= 1.1004      D<sub>60</sub>= 0.3950  
D<sub>50</sub>= 0.2635      D<sub>30</sub>= 0.0513      D<sub>15</sub>=  
D<sub>10</sub>=              C<sub>u</sub>=              C<sub>c</sub>=

**Classification**

USCS= SC              AASHTO= A-7-6(3)

**Remarks**

\* (no specification provided)

Source of Sample: ON SITE  
Sample Number: SB-1D-6

Date: 01/11/11



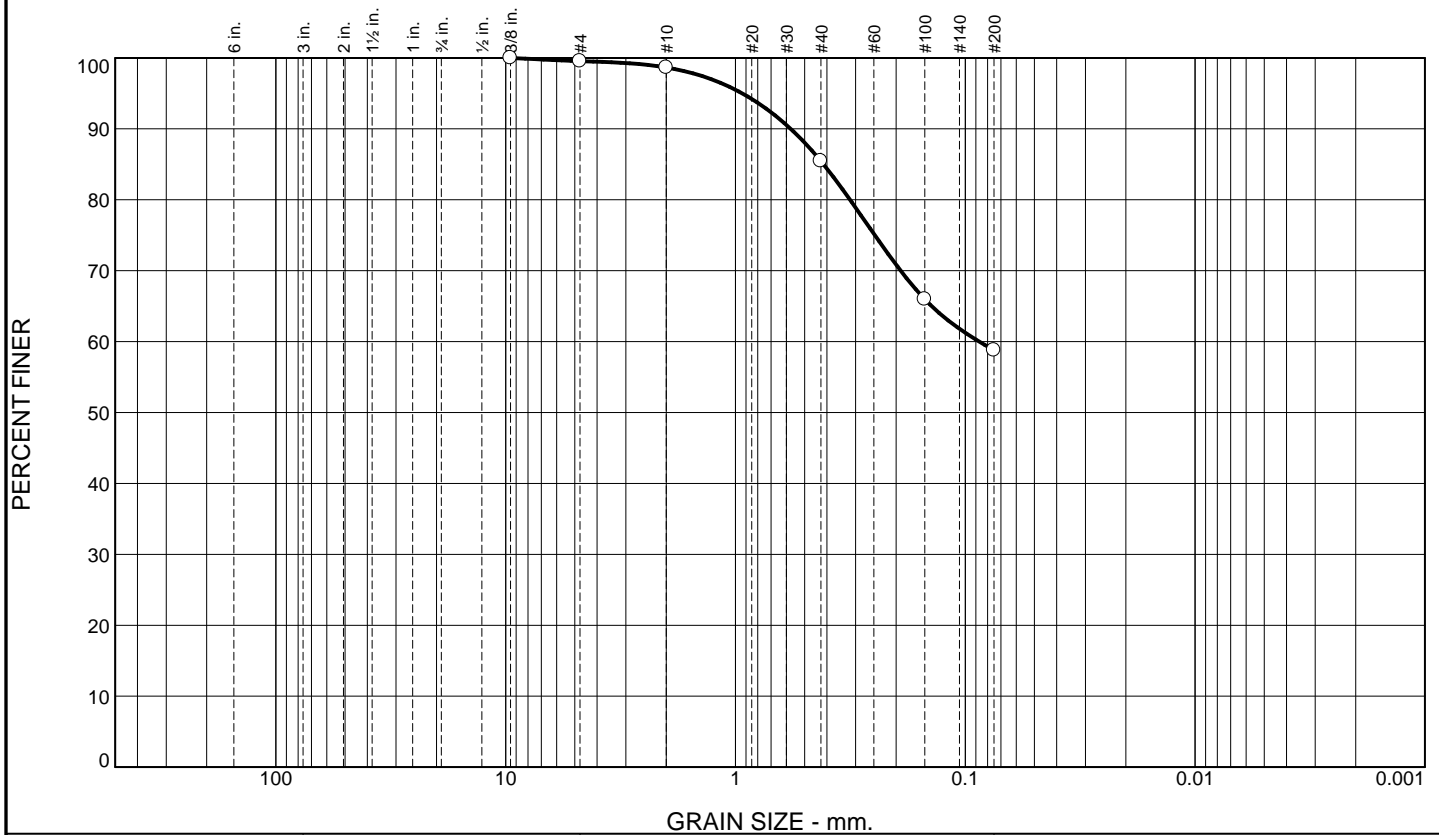
**Client:** KESTREL HORIZONS LLC  
**Project:** PINWOOD SITE IMPROVEMENT

**Project No:** 60186203

**Figure**

Tested By: BOB PEETERS

# Particle Size Distribution Report



% +3"	% Gravel		% Sand			% Fines	
	Coarse	Fine	Coarse	Medium	Fine	Silt	Clay
0.0	0.0	0.4	0.9	13.2	26.7	58.8	

SIEVE SIZE	PERCENT FINER	SPEC.* PERCENT	PASS? (X=NO)
.375	100.0		
#4	99.6		
#10	98.7		
#40	85.5		
#100	66.0		
#200	58.8		

**Material Description**

REDDISH BROWN SILTY SANDY CLAY

**Atterberg Limits**

PL=                      LL=                      PI=

**Coefficients**

D<sub>90</sub>= 0.5752      D<sub>85</sub>= 0.4139      D<sub>60</sub>= 0.0869

D<sub>50</sub>=                      D<sub>30</sub>=                      D<sub>15</sub>=

D<sub>10</sub>=                      C<sub>u</sub>=                      C<sub>c</sub>=

**Classification**

USCS=                      AASHTO=

**Remarks**

\* (no specification provided)

Source of Sample: ON SITE  
 Sample Number: SB-1D-06 (A)

Date: 01/13/11



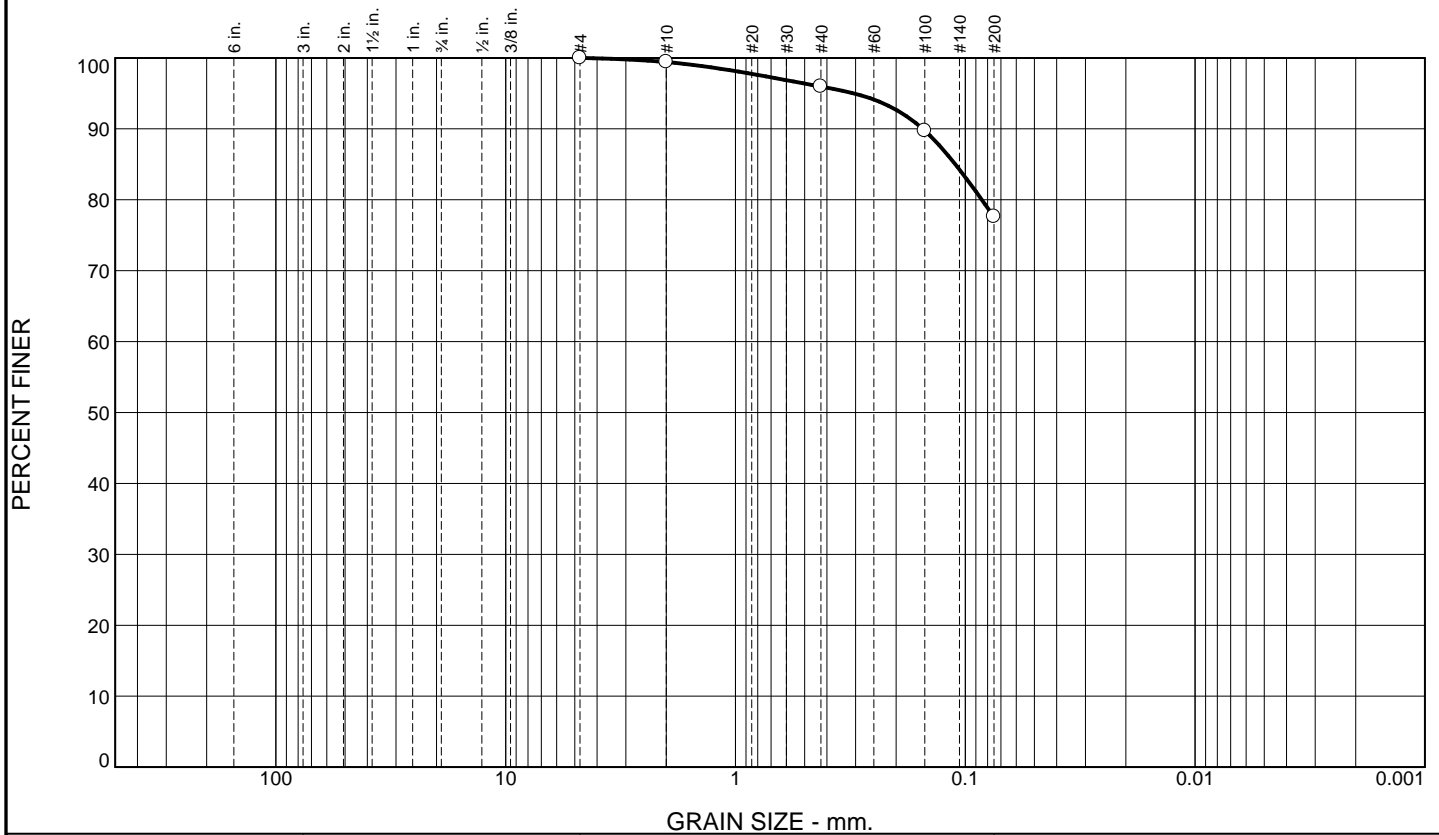
Client: KESTREL HORIZONS LLC  
 Project: PINWOOD SITE IMPROVEMENT

Project No: 60186203

Figure

Tested By: BOB PEETERS

# Particle Size Distribution Report



% +3"	% Gravel		% Sand			% Fines	
	Coarse	Fine	Coarse	Medium	Fine	Silt	Clay
0.0	0.0	0.0	0.6	3.4	18.4	77.6	

SIEVE SIZE	PERCENT FINER	SPEC.* PERCENT	PASS? (X=NO)
#4	100.0		
#10	99.4		
#40	96.0		
#100	89.7		
#200	77.6		

**Material Description**  
LIGHT BROWN SILTY CLAY, SOME SAND

**Atterberg Limits**  
 PL= 21      LL= 50      PI= 29

**Coefficients**  
 D<sub>90</sub>= 0.1531      D<sub>85</sub>= 0.1105      D<sub>60</sub>=  
 D<sub>50</sub>=              D<sub>30</sub>=              D<sub>15</sub>=  
 D<sub>10</sub>=              C<sub>u</sub>=              C<sub>c</sub>=

**Classification**  
 USCS= CH      AASHTO= A-7-6(23)

**Remarks**

\* (no specification provided)

Source of Sample: ON SITE  
 Sample Number: SB-1D-7

Date: 01/11/11



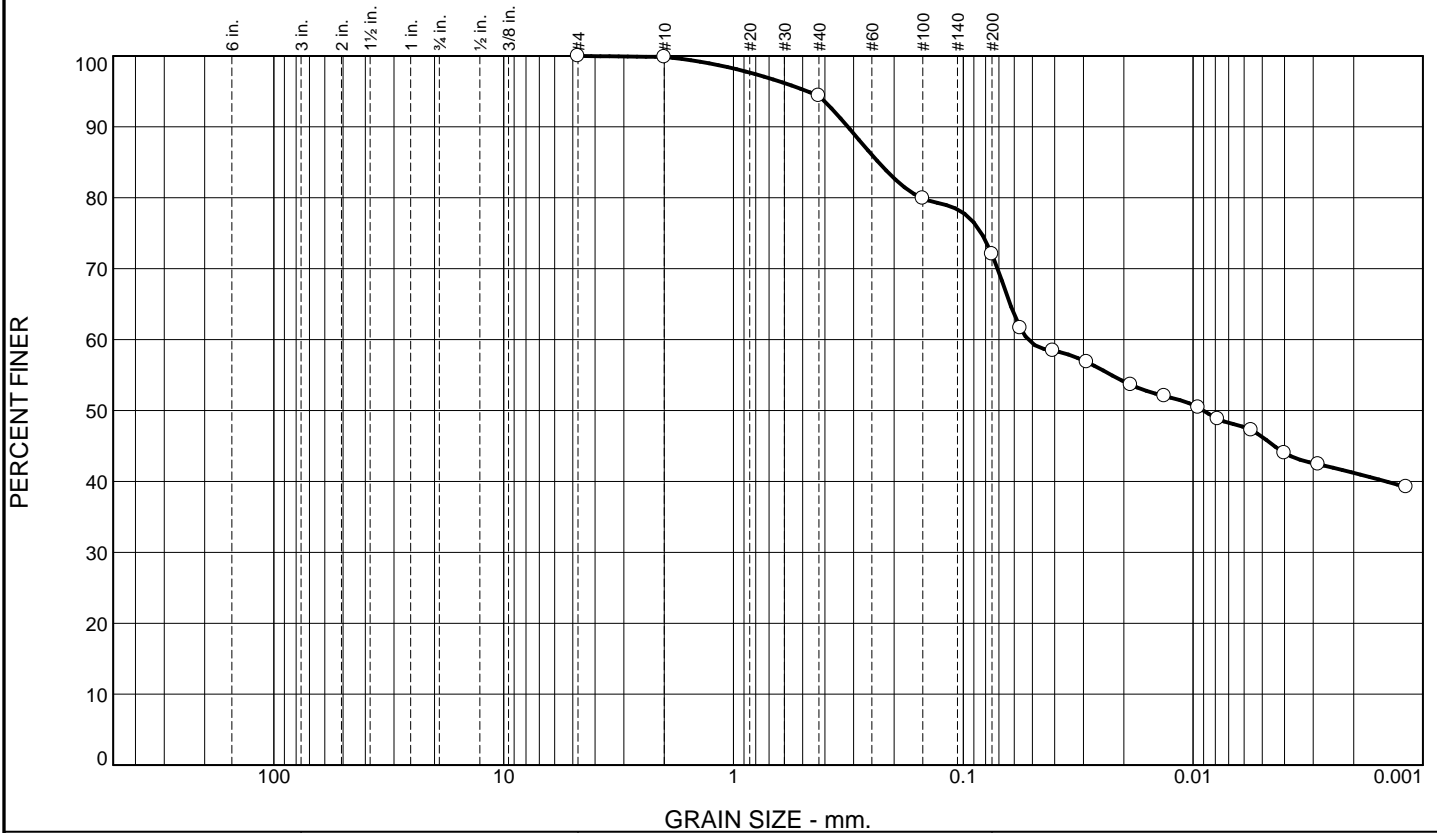
Client: KESTREL HORIZONS LLC  
 Project: PINWOOD SITE IMPROVEMENT

Project No: 60186203

Figure

Tested By: BOB PEETERS

# Particle Size Distribution Report



% +3"	% Gravel		% Sand			% Fines	
	Coarse	Fine	Coarse	Medium	Fine	Silt	Clay
0.0	0.0	0.0	0.1	5.5	22.4	25.7	46.3

SIEVE SIZE	PERCENT FINER	SPEC.* PERCENT	PASS? (X=NO)
#4	100.0		
#10	99.9		
#40	94.4		
#100	79.9		
#200	72.0		

**Material Description**

LIGHT BROWN SILTY CLAY, SOME SAND

**Atterberg Limits**

PL= 20      LL= 57      PI= 37

**Coefficients**

D<sub>90</sub>= 0.3176      D<sub>85</sub>= 0.2338      D<sub>60</sub>= 0.0522  
D<sub>50</sub>= 0.0090      D<sub>30</sub>=              D<sub>15</sub>=  
D<sub>10</sub>=              C<sub>u</sub>=              C<sub>c</sub>=

**Classification**

USCS= CH      AASHTO= A-7-6(26)

**Remarks**

\* (no specification provided)

Source of Sample: ON SITE  
Sample Number: SB-1E-8

Date: 01/11/11



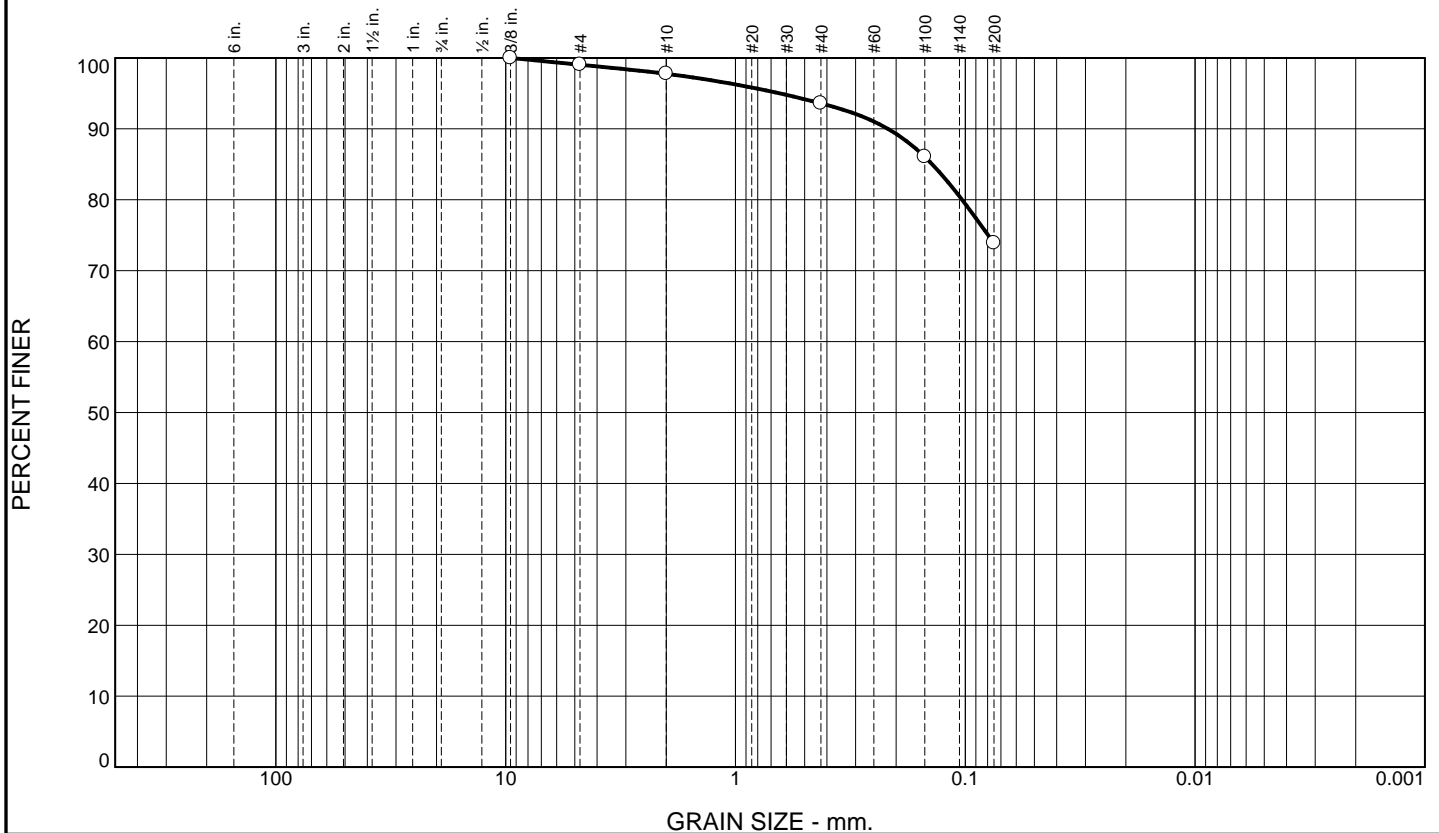
Client: KESTREL HORIZONS LLC  
Project: PINWOOD SITE IMPROVEMENT

Project No: 60186203

Figure

Tested By: BOB PEETERS

# Particle Size Distribution Report



% +3"	% Gravel		% Sand			% Fines	
	Coarse	Fine	Coarse	Medium	Fine	Silt	Clay
0.0	0.0	1.0	1.2	4.2	19.7	73.9	

SIEVE SIZE	PERCENT FINER	SPEC.* PERCENT	PASS? (X=NO)
.375	100.0		
#4	99.0		
#10	97.8		
#40	93.6		
#100	86.1		
#200	73.9		

**Material Description**  
LIGHT BROWN SILTY CLAY, SOME SAND

**Atterberg Limits**  
 PL= 21      LL= 50      PI= 29

**Coefficients**  
 D<sub>90</sub>= 0.2171      D<sub>85</sub>= 0.1392      D<sub>60</sub>=  
 D<sub>50</sub>=              D<sub>30</sub>=              D<sub>15</sub>=  
 D<sub>10</sub>=              C<sub>u</sub>=              C<sub>c</sub>=

**Classification**  
 USCS= CH      AASHTO= A-7-6(21)

**Remarks**

\* (no specification provided)

Source of Sample: ON SITE  
 Sample Number: SB-1E-10A

Date: 01/11/11



Client: KESTREL HORIZONS LLC  
 Project: PINWOOD SITE IMPROVEMENT

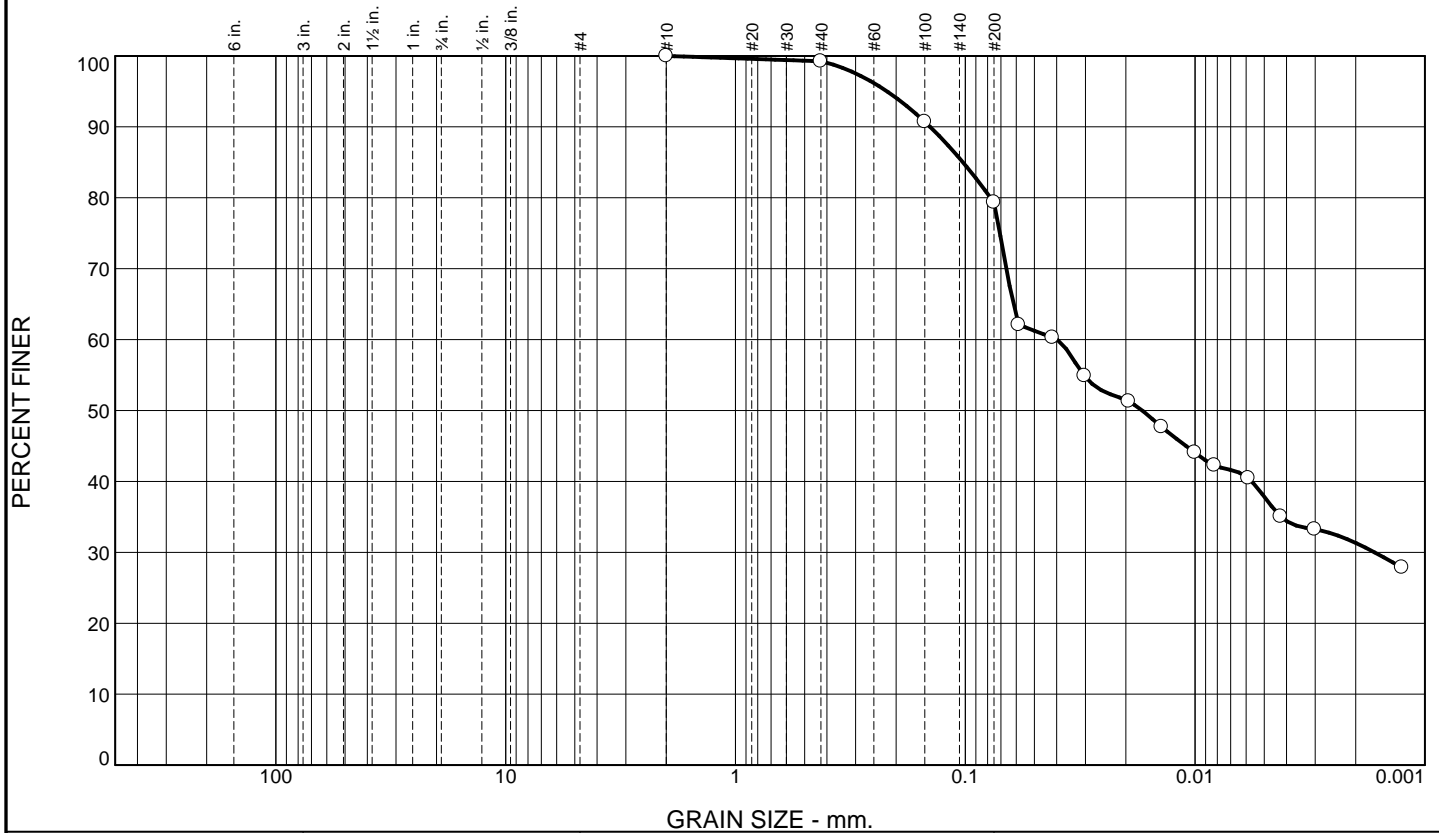
Project No: 60186203

Figure

Tested By: BOB PEETERS



# Particle Size Distribution Report



% +3"	% Gravel		% Sand			% Fines	
	Coarse	Fine	Coarse	Medium	Fine	Silt	Clay
0.0	0.0	0.0	0.0	0.7	20.0	41.5	37.8

SIEVE SIZE	PERCENT FINER	SPEC.* PERCENT	PASS? (X=NO)
#10	100.0		
#40	99.3		
#100	90.7		
#200	79.3		

**Material Description**  
LIGHT BROWN SILTY CLAY, SOME FINE SAND

**Atterberg Limits**  
 PL= 23      LL= 50      PI= 27

**Coefficients**  
 D<sub>90</sub>= 0.1423      D<sub>85</sub>= 0.1024      D<sub>60</sub>= 0.0397  
 D<sub>50</sub>= 0.0170      D<sub>30</sub>= 0.0017      D<sub>15</sub>=  
 D<sub>10</sub>=              C<sub>u</sub>=              C<sub>c</sub>=

**Classification**  
 USCS= CH              AASHTO= A-7-6(22)

**Remarks**

\* (no specification provided)

Source of Sample: ON SITE  
 Sample Number: TP-1A-01

Date: 01/11/11



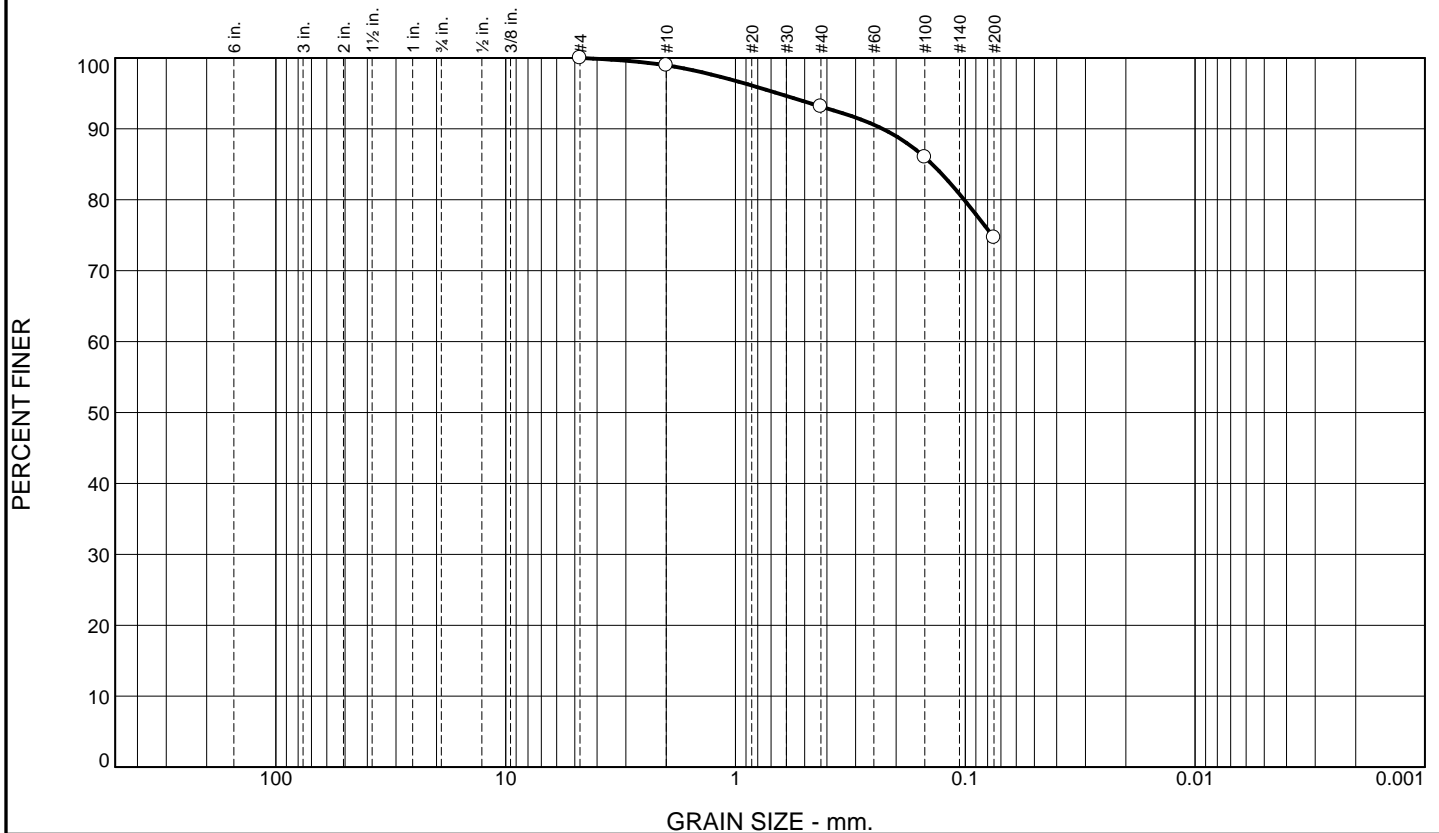
Client: KESTREL HORIZONS LLC  
 Project: PINWOOD SITE IMPROVEMENT

Project No: 60186203

Figure

Tested By: BOB PEETERS

# Particle Size Distribution Report



% +3"	% Gravel		% Sand			% Fines	
	Coarse	Fine	Coarse	Medium	Fine	Silt	Clay
0.0	0.0	0.0	1.0	5.9	18.4	74.7	

SIEVE SIZE	PERCENT FINER	SPEC.* PERCENT	PASS? (X=NO)
#4	100.0		
#10	99.0		
#40	93.1		
#100	86.0		
#200	74.7		

**Material Description**

LIGHT BROWN SILTY CLAY, SOME SAND, TRACE FINE GRAVEL

**Atterberg Limits**

PL= 23      LL= 46      PI= 23

**Coefficients**

D<sub>90</sub>= 0.2288      D<sub>85</sub>= 0.1391      D<sub>60</sub>=  
D<sub>50</sub>=                      D<sub>30</sub>=                      D<sub>15</sub>=  
D<sub>10</sub>=                      C<sub>u</sub>=                      C<sub>c</sub>=

**Classification**

USCS= CL                      AASHTO= A-7-6(17)

**Remarks**

\* (no specification provided)

Source of Sample: ON SITE  
Sample Number: TP-1D-01

Date: 01/11/11



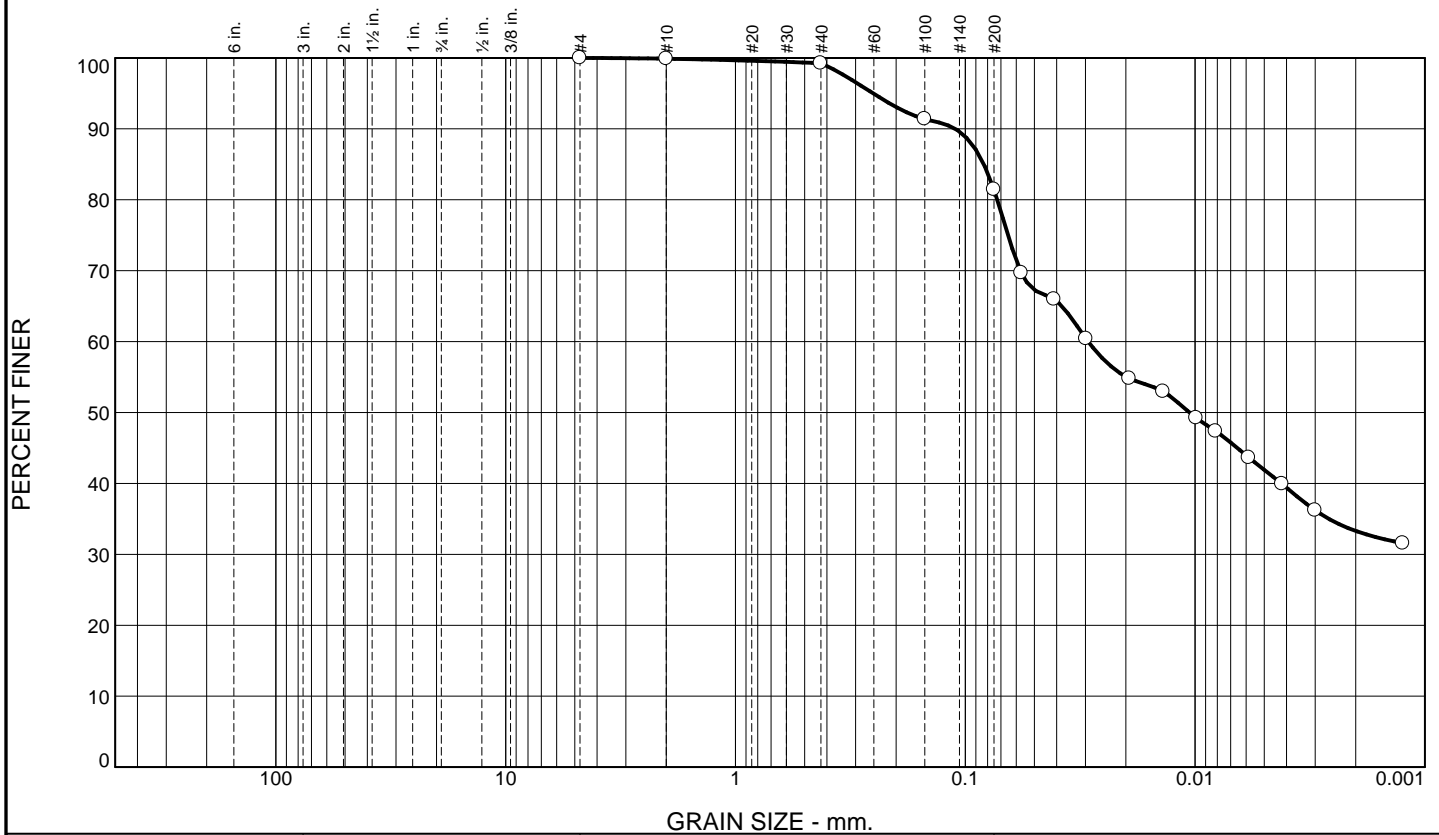
Client: KESTREL HORIZONS LLC  
Project: PINWOOD SITE IMPROVEMENT

Project No: 60186203

Figure

Tested By: BOB PEETERS

# Particle Size Distribution Report



% +3"	% Gravel		% Sand			% Fines	
	Coarse	Fine	Coarse	Medium	Fine	Silt	Clay
0.0	0.0	0.0	0.1	0.6	17.9	39.5	41.9

SIEVE SIZE	PERCENT FINER	SPEC.* PERCENT	PASS? (X=NO)
#4	100.0		
#10	99.9		
#40	99.3		
#100	91.4		
#200	81.4		

**Material Description**  
LIGHT BROWN SILTY CLAY, LITTLE SAND

**Atterberg Limits**  
 PL= 23      LL= 55      PI= 32

**Coefficients**  
 D<sub>90</sub>= 0.1105      D<sub>85</sub>= 0.0830      D<sub>60</sub>= 0.0292  
 D<sub>50</sub>= 0.0106      D<sub>30</sub>=              D<sub>15</sub>=  
 D<sub>10</sub>=              C<sub>u</sub>=              C<sub>c</sub>=

**Classification**  
 USCS= CH      AASHTO= A-7-6(27)

**Remarks**

\* (no specification provided)

Source of Sample: ON SITE  
 Sample Number: TP-1D-02

Date: 01/11/11



Client: KESTREL HORIZONS LLC  
 Project: PINWOOD SITE IMPROVEMENT

Project No: 60186203

Figure

Tested By: BOB PEETERS

# Particle Size Distribution Report



% +3"	% Gravel		% Sand			% Fines	
	Coarse	Fine	Coarse	Medium	Fine	Silt	Clay
0.0	0.0	2.6	0.1	2.3	16.5	33.5	45.0

SIEVE SIZE	PERCENT FINER	SPEC.* PERCENT	PASS? (X=NO)
.5	100.0		
.375	97.4		
#10	97.3		
#40	95.0		
#100	86.4		
#200	78.5		

**Material Description**

LIGHT BROWN SILTY CLAY, LITTLE SAND, TRACE GRAVEL

**Atterberg Limits**

PL= 21      LL= 59      PI= 38

**Coefficients**

D<sub>90</sub>= 0.2599      D<sub>85</sub>= 0.1308      D<sub>60</sub>= 0.0323  
D<sub>50</sub>= 0.0089      D<sub>30</sub>=                      D<sub>15</sub>=  
D<sub>10</sub>=                      C<sub>u</sub>=                      C<sub>c</sub>=

**Classification**

USCS= CH                      AASHTO= A-7-6(30)

**Remarks**

\* (no specification provided)

Source of Sample: ON SITE  
Sample Number: TP-1E-01A

Date: 01/11/11



**Client:** KESTREL HORIZONS LLC  
**Project:** PINWOOD SITE IMPROVEMENT

**Project No:** 60186203

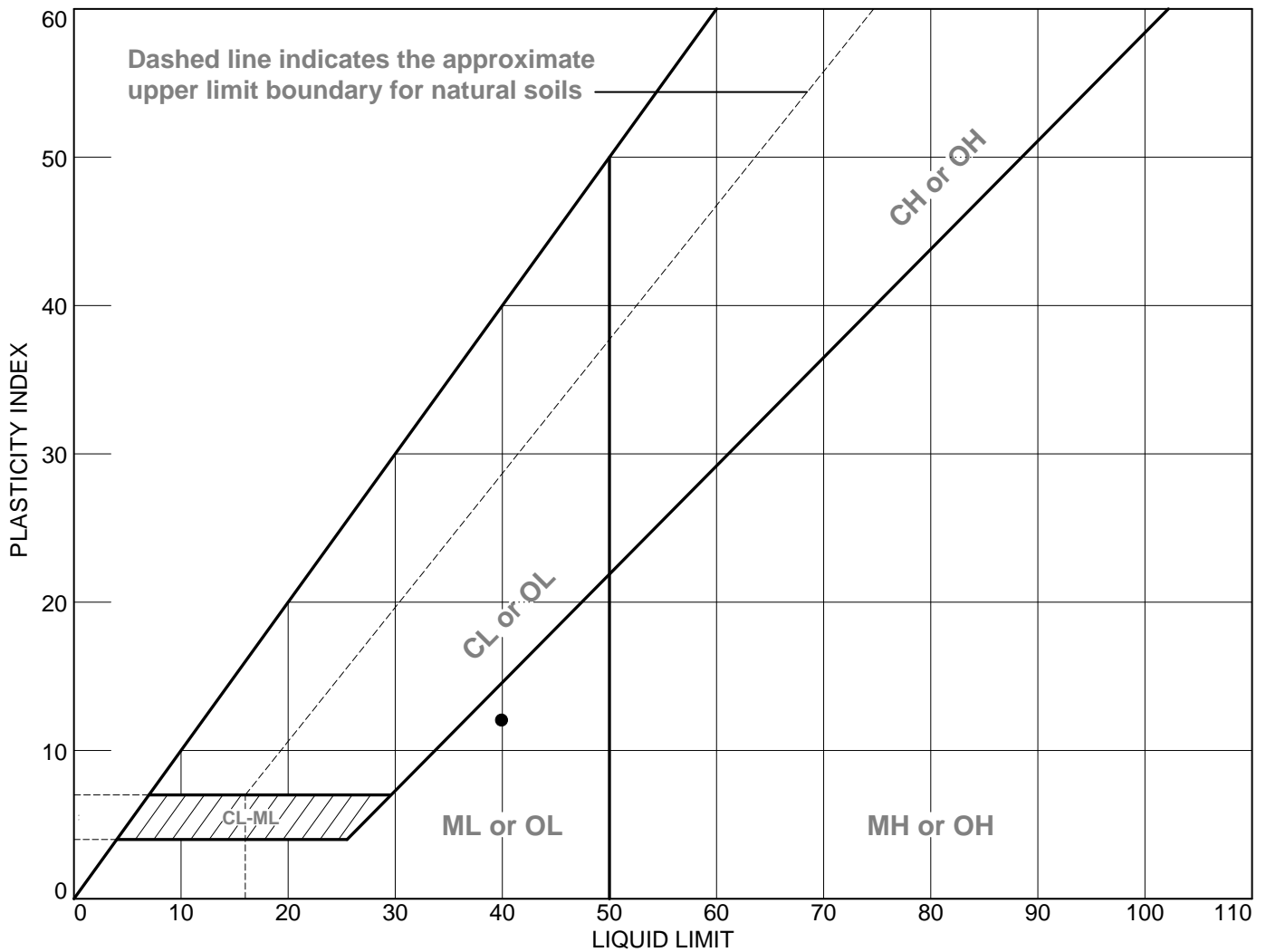
**Figure**

Tested By: BOB PEETERS

AECOM Technical Services, Inc.  
Bulk Soil Samples

Liquid and Plastic Limits Testing  
Particle Size Distribution Testing

# LIQUID AND PLASTIC LIMITS TEST REPORT



## SOIL DATA

SYMBOL	SOURCE	SAMPLE NO.	DEPTH	NATURAL WATER CONTENT (%)	PLASTIC LIMIT (%)	LIQUID LIMIT (%)	PLASTICITY INDEX (%)	USCS
●	BULK SAMPLES	AT-1B-01			28	40	12	ML

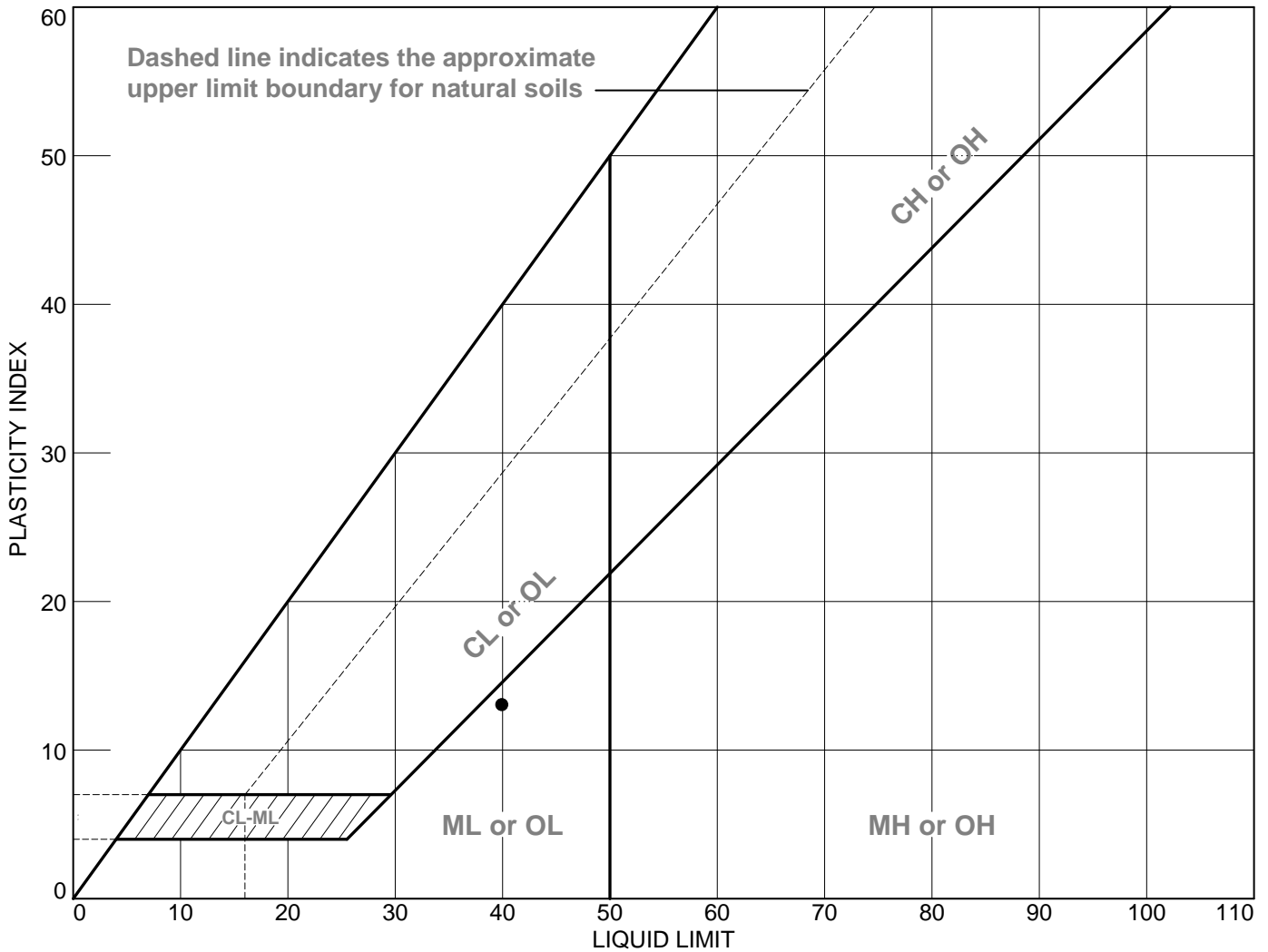


**Client:** KESTREL HORIZONS LLC  
**Project:** PINWOOD SITE IMPROVEMENT

**Project No.:** 60186203

**Figure**

# LIQUID AND PLASTIC LIMITS TEST REPORT



## SOIL DATA

SYMBOL	SOURCE	SAMPLE NO.	DEPTH	NATURAL WATER CONTENT (%)	PLASTIC LIMIT (%)	LIQUID LIMIT (%)	PLASTICITY INDEX (%)	USCS
●	BULK SAMPLES	AT-1C-01			27	40	13	SM

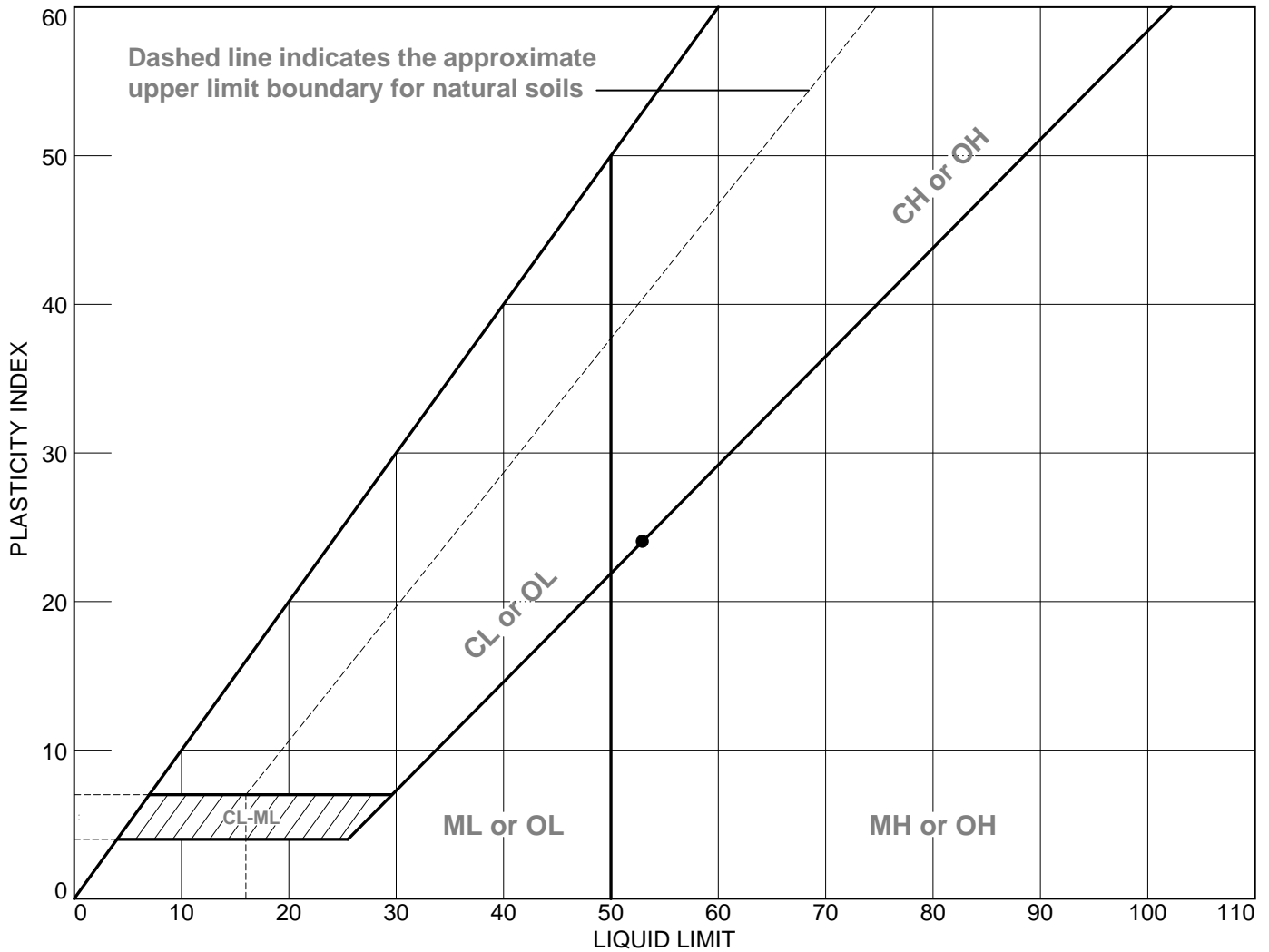


**Client:** KESTREL HORIZONS LLC  
**Project:** PINWOOD SITE IMPROVEMENT

**Project No.:** 60186203

**Figure**

# LIQUID AND PLASTIC LIMITS TEST REPORT



## SOIL DATA

SYMBOL	SOURCE	SAMPLE NO.	DEPTH	NATURAL WATER CONTENT (%)	PLASTIC LIMIT (%)	LIQUID LIMIT (%)	PLASTICITY INDEX (%)	USCS
●	BULK SAMPLES	AT-1E-01			29	53	24	CH



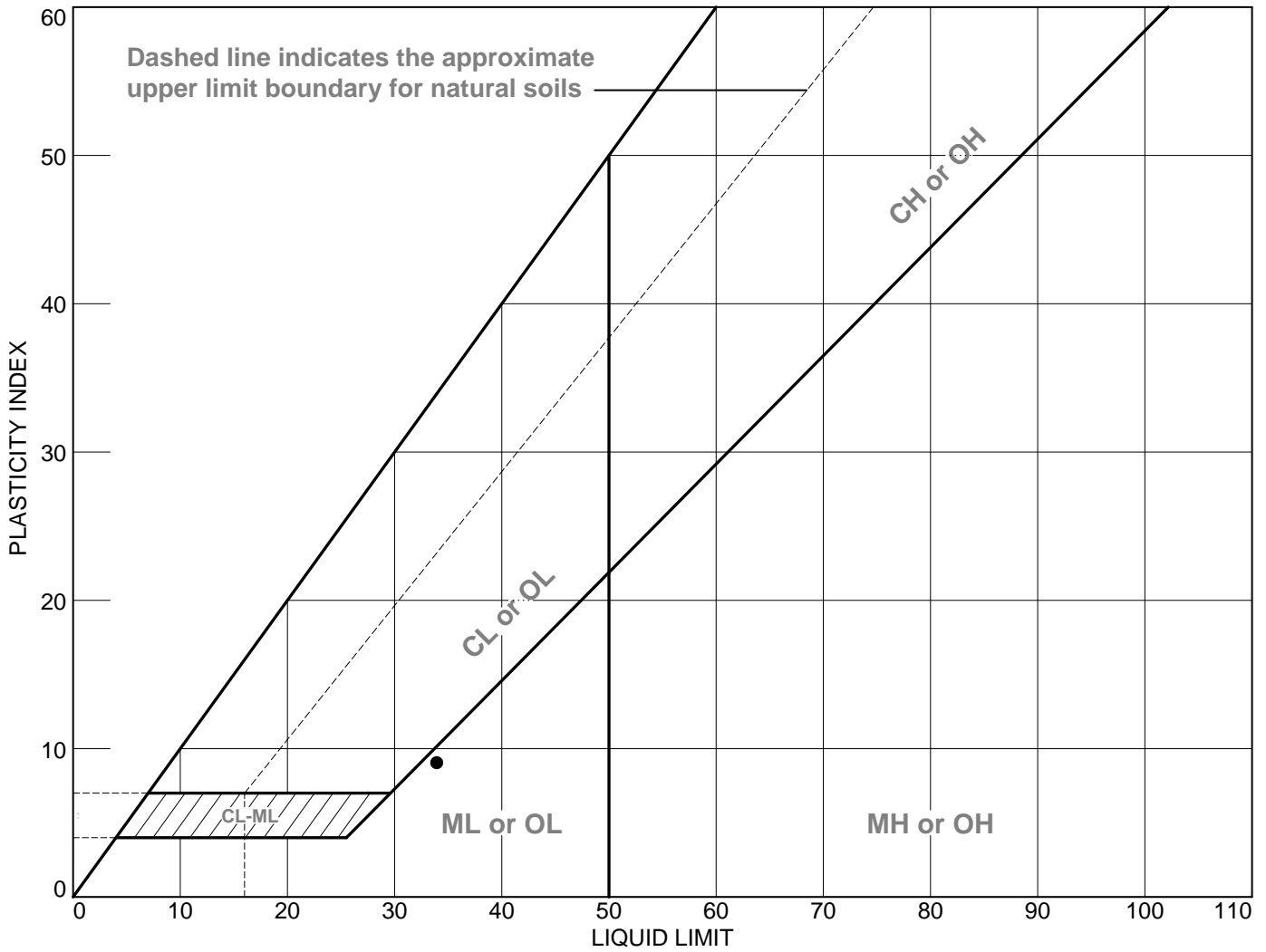
**Client:** KESTREL HORIZONS LLC  
**Project:** PINEWOOD SITE IMPROVEMENT

**Project No.:** 60186203

**Figure**



# LIQUID AND PLASTIC LIMITS TEST REPORT



## SOIL DATA

SYMBOL	SOURCE	SAMPLE NO.	DEPTH	NATURAL WATER CONTENT (%)	PLASTIC LIMIT (%)	LIQUID LIMIT (%)	PLASTICITY INDEX (%)	USCS
●	BULK SAMPLES	SB-1A-01	0.0'-2.0'		25	34	9	ML

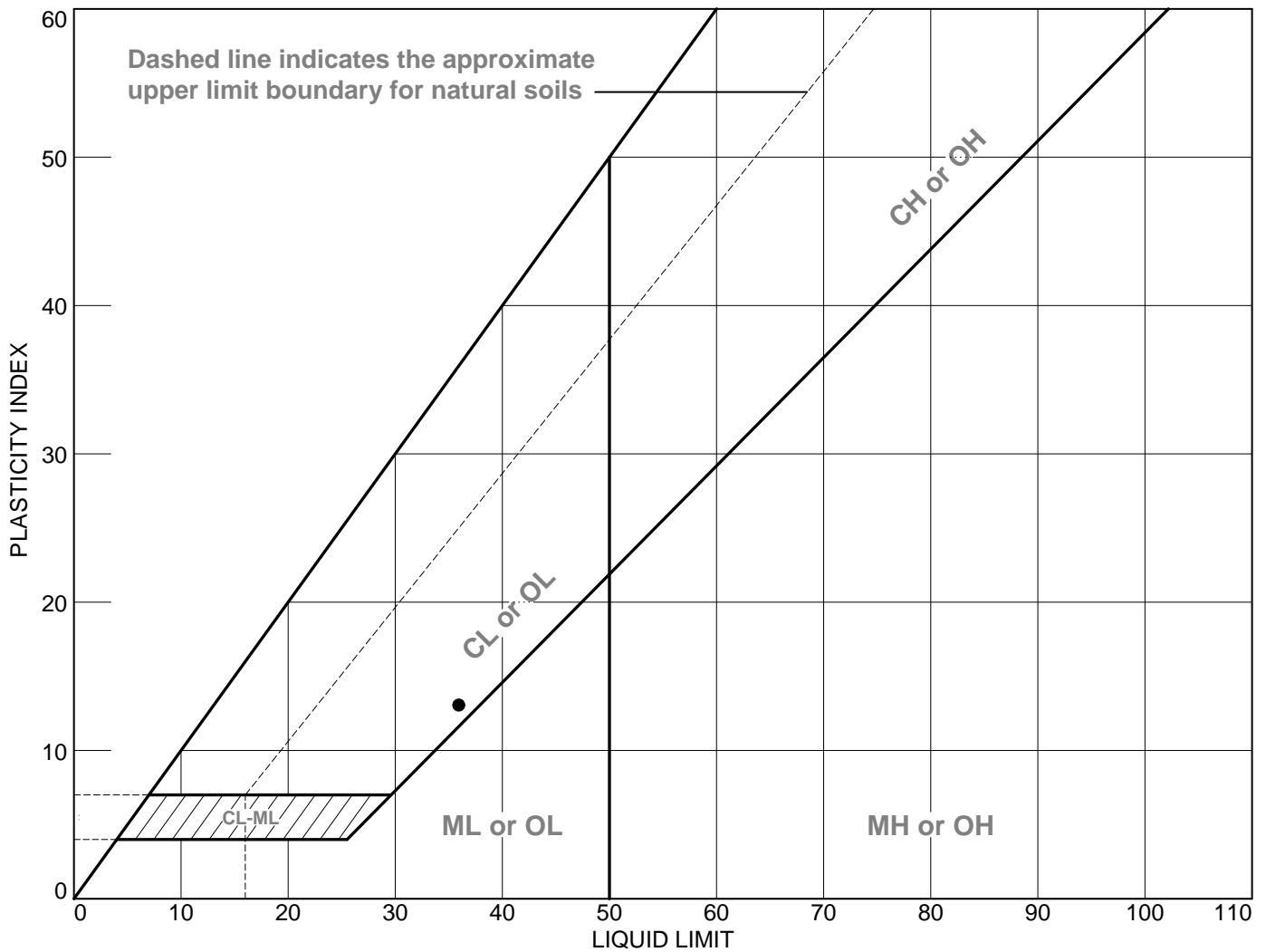


**Client:** KESTREL HORIZONS LLC  
**Project:** PINEWOOD SITE IMPROVEMENT

**Project No.:** 60186203

**Figure**

# LIQUID AND PLASTIC LIMITS TEST REPORT



## SOIL DATA

SYMBOL	SOURCE	SAMPLE NO.	DEPTH	NATURAL WATER CONTENT (%)	PLASTIC LIMIT (%)	LIQUID LIMIT (%)	PLASTICITY INDEX (%)	USCS
●	BULK SAMPLES	SB-1B-02	2.0'-4.0'		23	36	13	SC

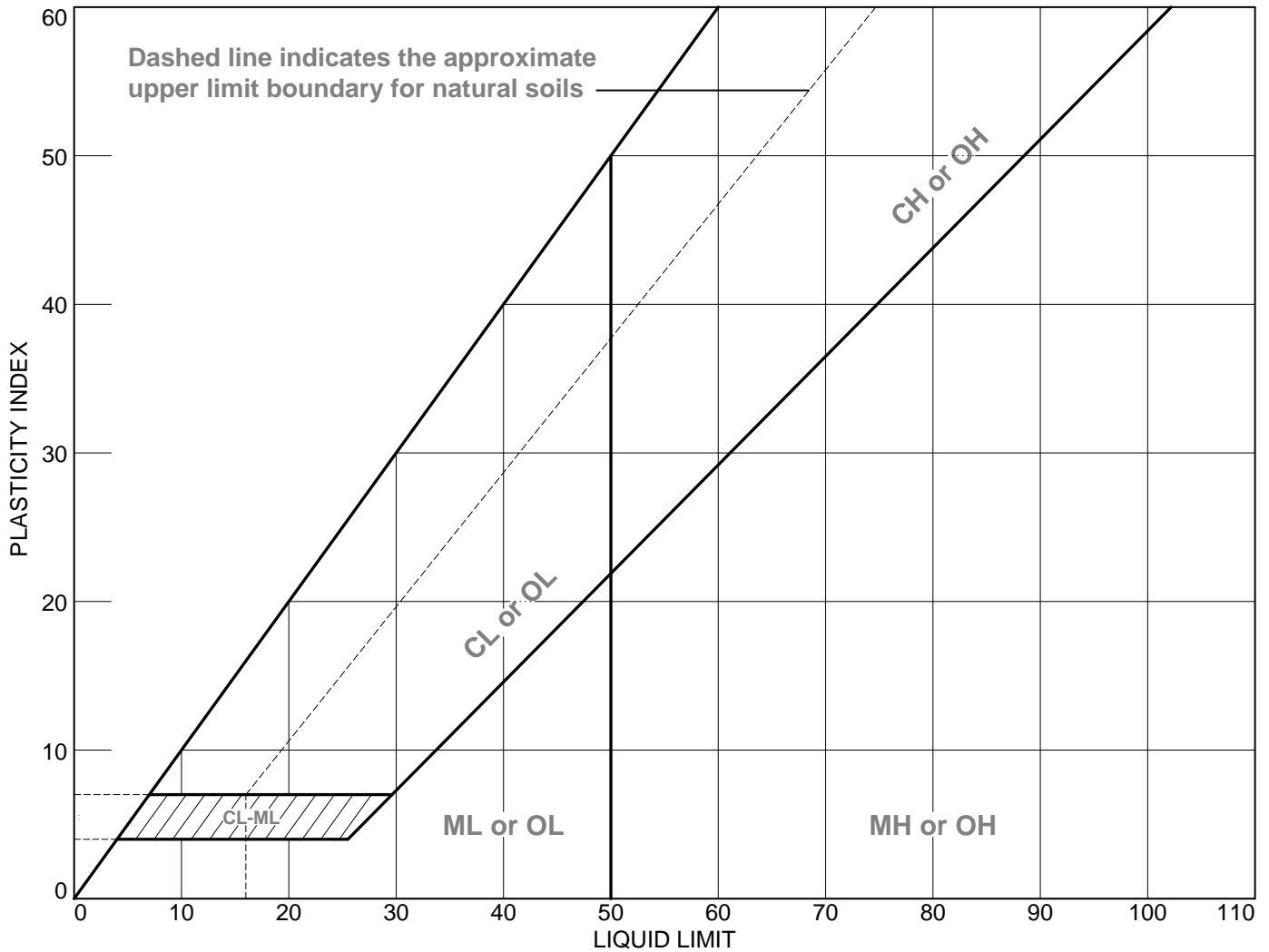


**Client:** KESTREL HORIZONS LLC  
**Project:** PINEWOOD SITE IMPROVEMENT

**Project No.:** 60186203

**Figure**

# LIQUID AND PLASTIC LIMITS TEST REPORT



## SOIL DATA

SYMBOL	SOURCE	SAMPLE NO.	DEPTH	NATURAL WATER CONTENT (%)	PLASTIC LIMIT (%)	LIQUID LIMIT (%)	PLASTICITY INDEX (%)	USCS
●	BULK SAMPLES	SB-1C-04			NP	22	NP	

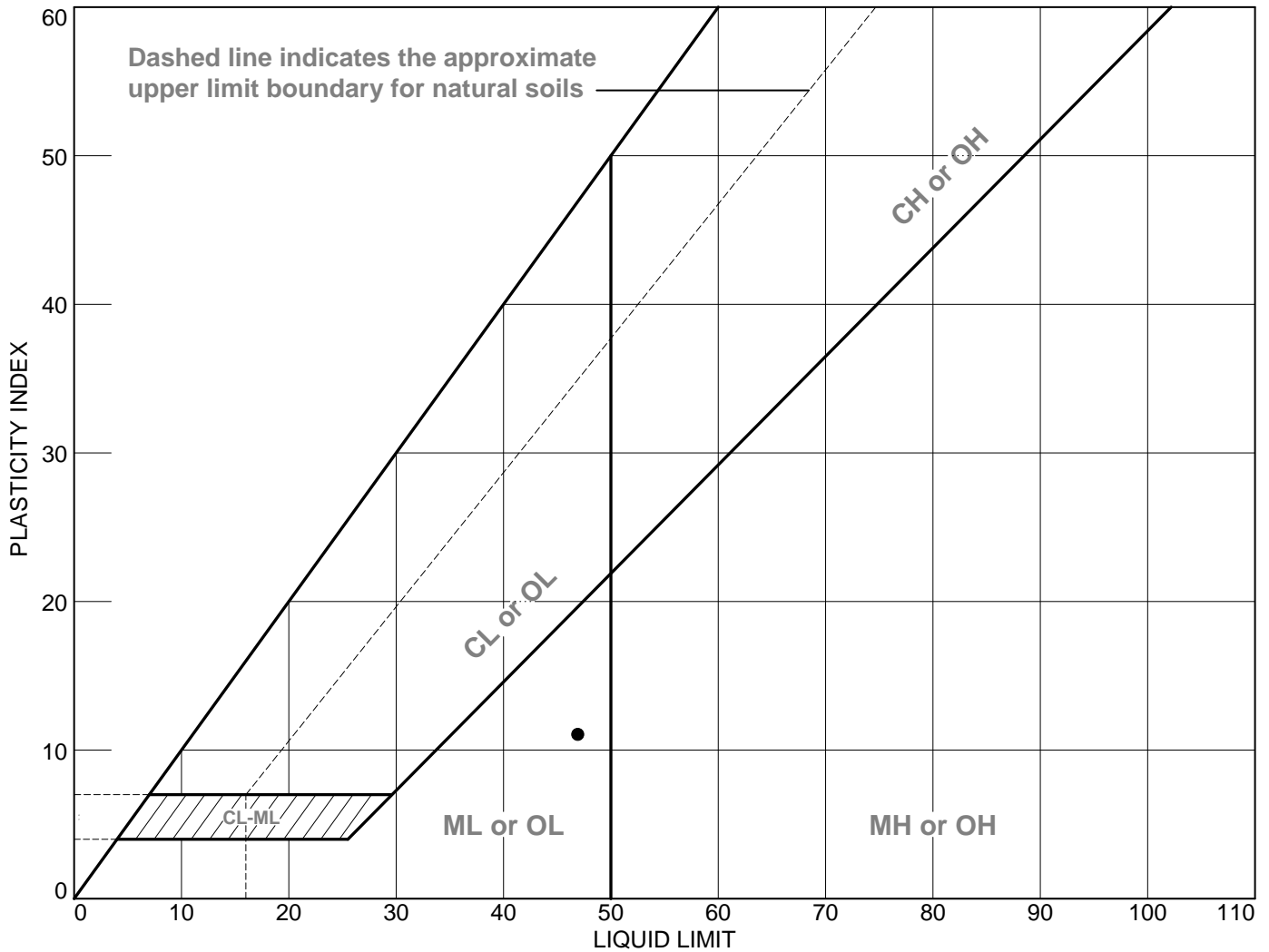


**Client:** KESTREL HORIZONS LLC  
**Project:** PINEWOOD SITE IMPROVEMENT

**Project No.:** 60186203

**Figure**

# LIQUID AND PLASTIC LIMITS TEST REPORT



## SOIL DATA

SYMBOL	SOURCE	SAMPLE NO.	DEPTH	NATURAL WATER CONTENT (%)	PLASTIC LIMIT (%)	LIQUID LIMIT (%)	PLASTICITY INDEX (%)	USCS
●	BULK SAMPLES	SB-1D-06	2.0'-4.0'		36	47	11	ML

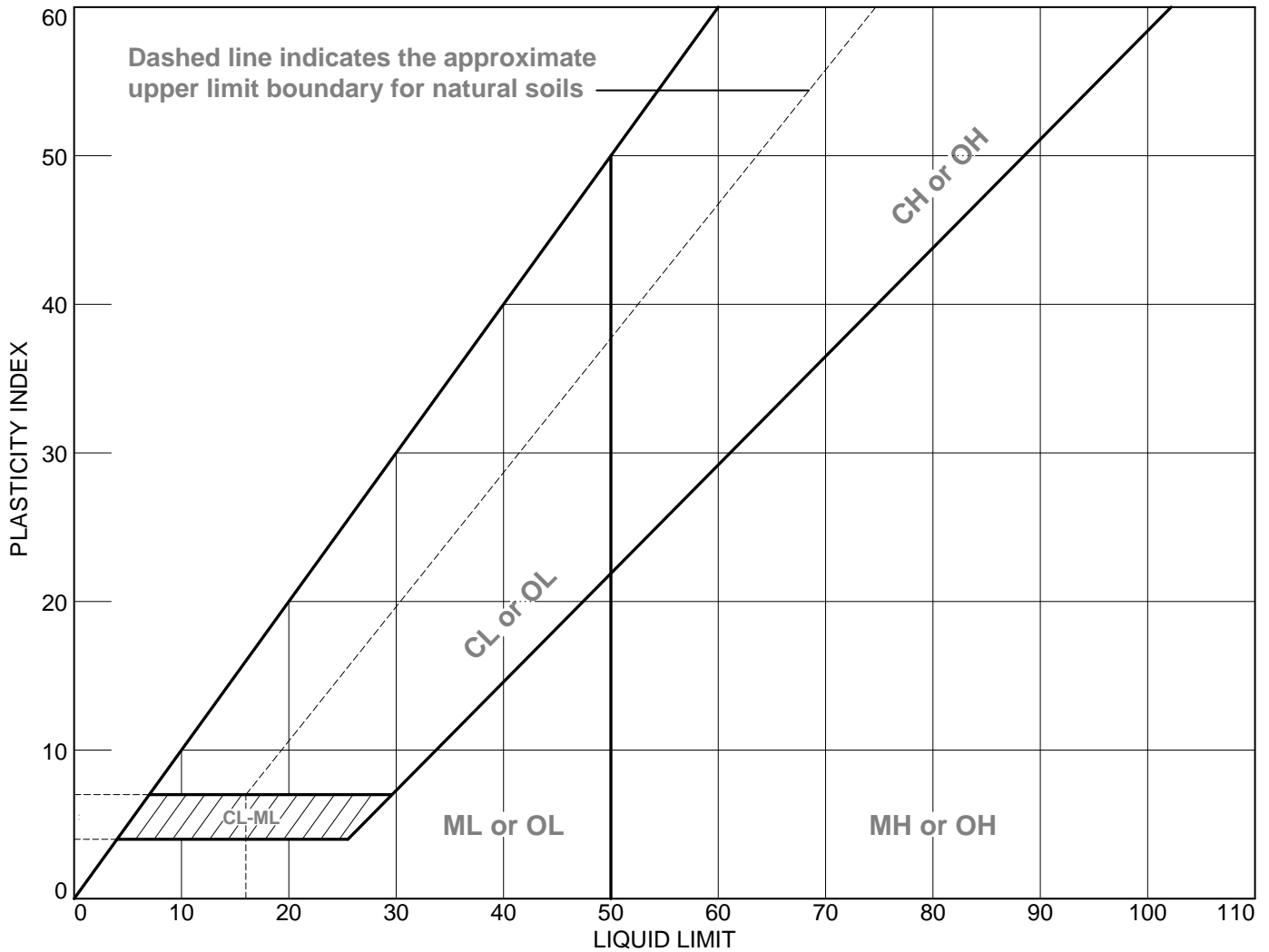


**Client:** KESTREL HORIZONS LLC  
**Project:** PINEWOOD SITE IMPROVEMENT

**Project No.:** 60186203

**Figure**

# LIQUID AND PLASTIC LIMITS TEST REPORT



## SOIL DATA

SYMBOL	SOURCE	SAMPLE NO.	DEPTH	NATURAL WATER CONTENT (%)	PLASTIC LIMIT (%)	LIQUID LIMIT (%)	PLASTICITY INDEX (%)	USCS
●	BULK SAMPLES	SB-1D-07	0.0'-2.0'		NP	22	NP	SM

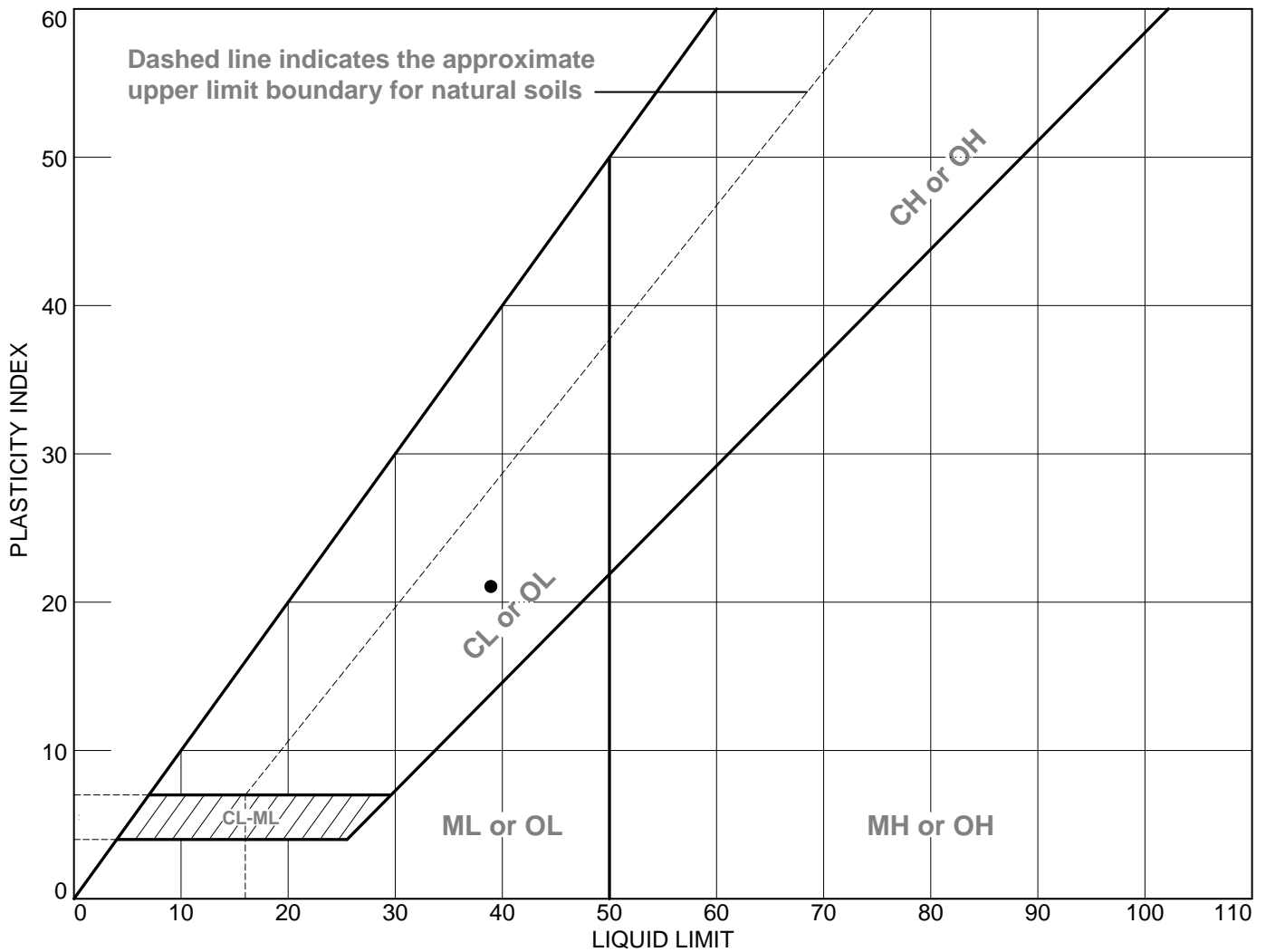


**Client:** KESTREL HORIZONS LLC  
**Project:** PINEWOOD SITE IMPROVEMENT

**Project No.:** 60186203

**Figure**

# LIQUID AND PLASTIC LIMITS TEST REPORT



## SOIL DATA

SYMBOL	SOURCE	SAMPLE NO.	DEPTH	NATURAL WATER CONTENT (%)	PLASTIC LIMIT (%)	LIQUID LIMIT (%)	PLASTICITY INDEX (%)	USCS
●	BULK SAMPLES	TP-1A-01			18	39	21	SC

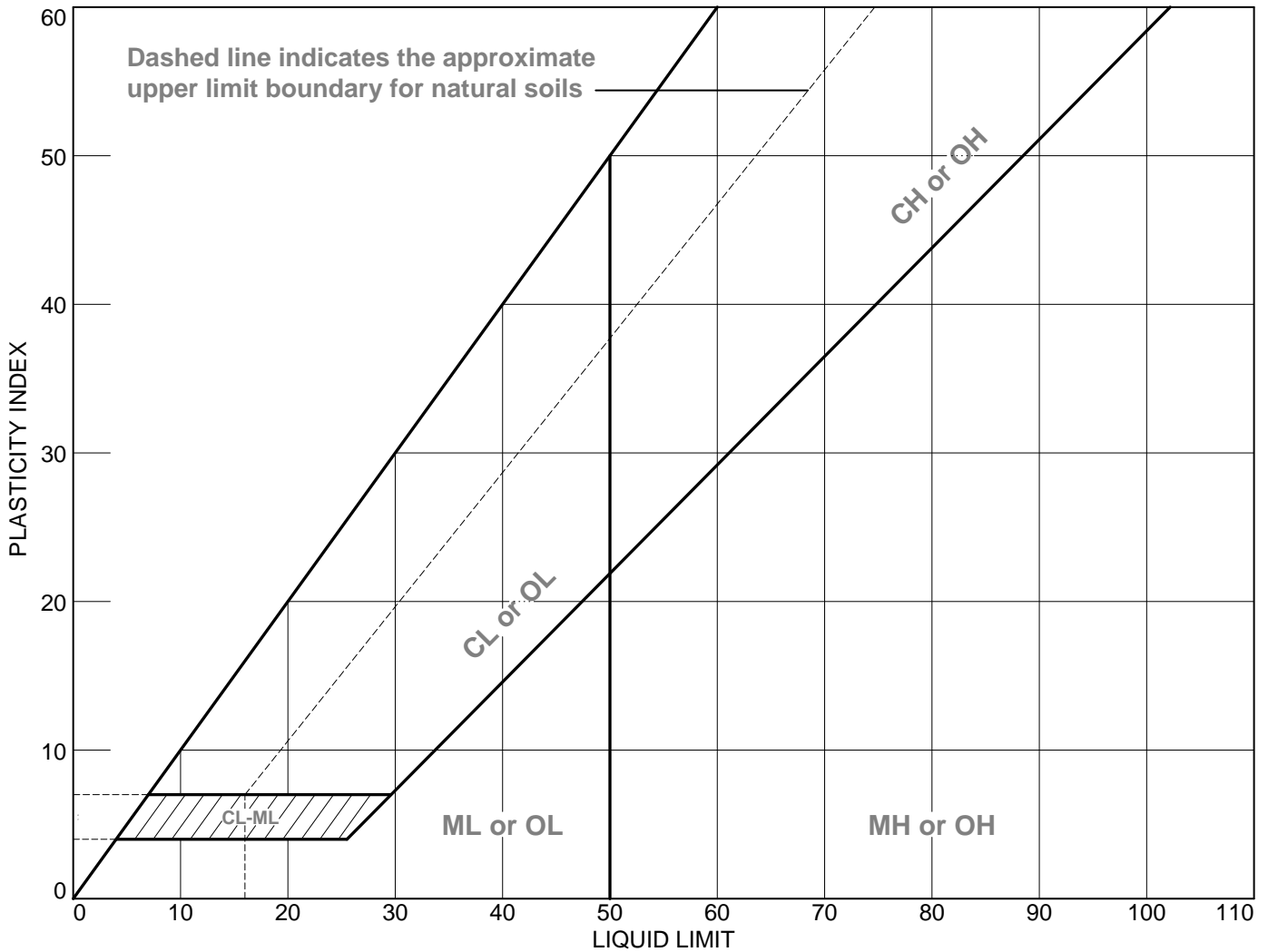


**Client:** KESTREL HORIZONS LLC  
**Project:** PINEWOOD SITE IMPROVEMENT

**Project No.:** 60186203

**Figure**

# LIQUID AND PLASTIC LIMITS TEST REPORT



## SOIL DATA

SYMBOL	SOURCE	SAMPLE NO.	DEPTH	NATURAL WATER CONTENT (%)	PLASTIC LIMIT (%)	LIQUID LIMIT (%)	PLASTICITY INDEX (%)	USCS
●	BULK SAMPLES	TP-1D-01			NP	28	NP	SM

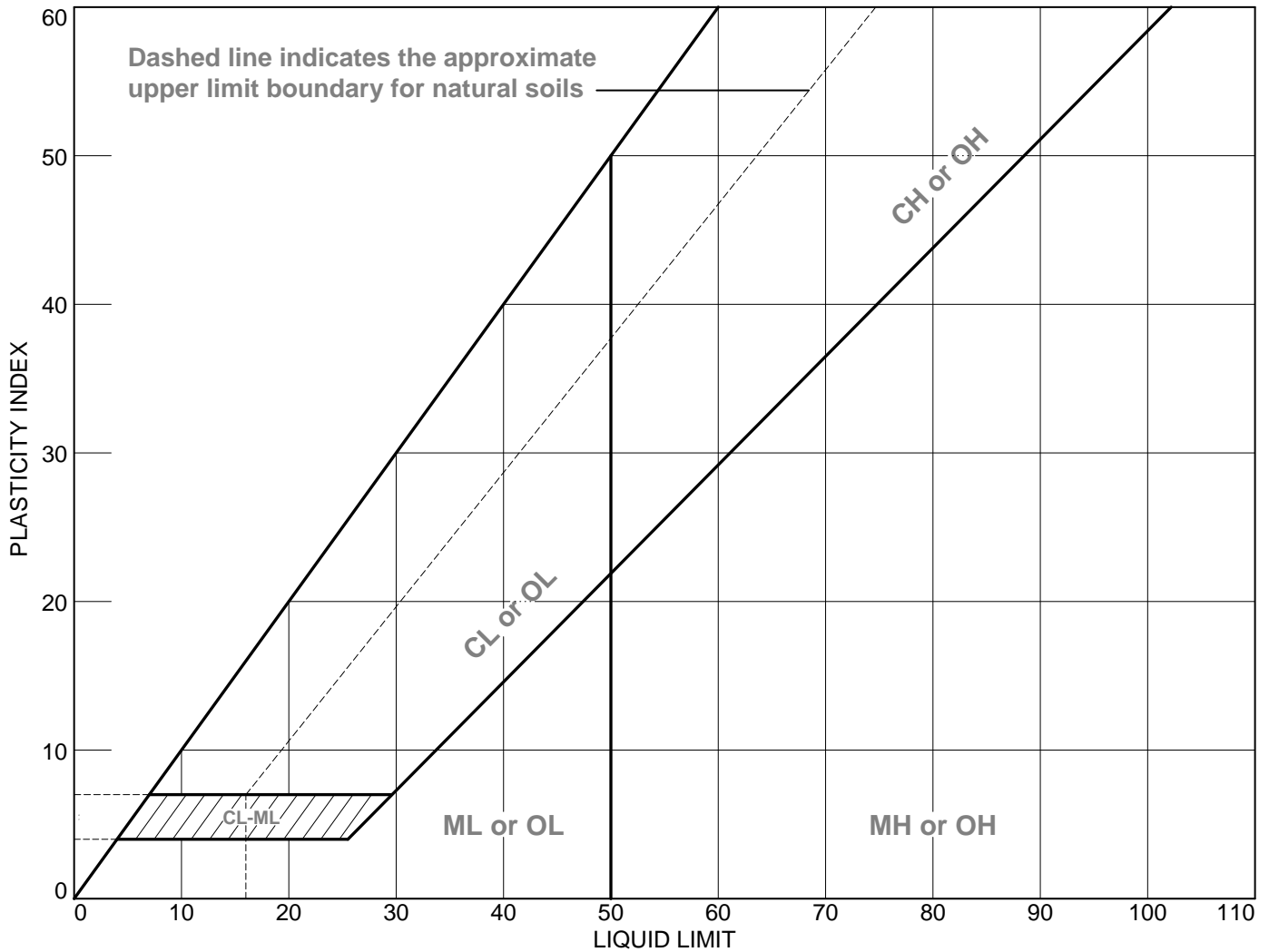


**Client:** KESTREL HORIZONS LLC  
**Project:** PINEWOOD SITE IMPROVEMENT

**Project No.:** 60186203

**Figure**

# LIQUID AND PLASTIC LIMITS TEST REPORT



## SOIL DATA

SYMBOL	SOURCE	SAMPLE NO.	DEPTH	NATURAL WATER CONTENT (%)	PLASTIC LIMIT (%)	LIQUID LIMIT (%)	PLASTICITY INDEX (%)	USCS
●	BULK SAMPLES	TP-1D-02	1.0'-2.0'		NP	15	NP	SM



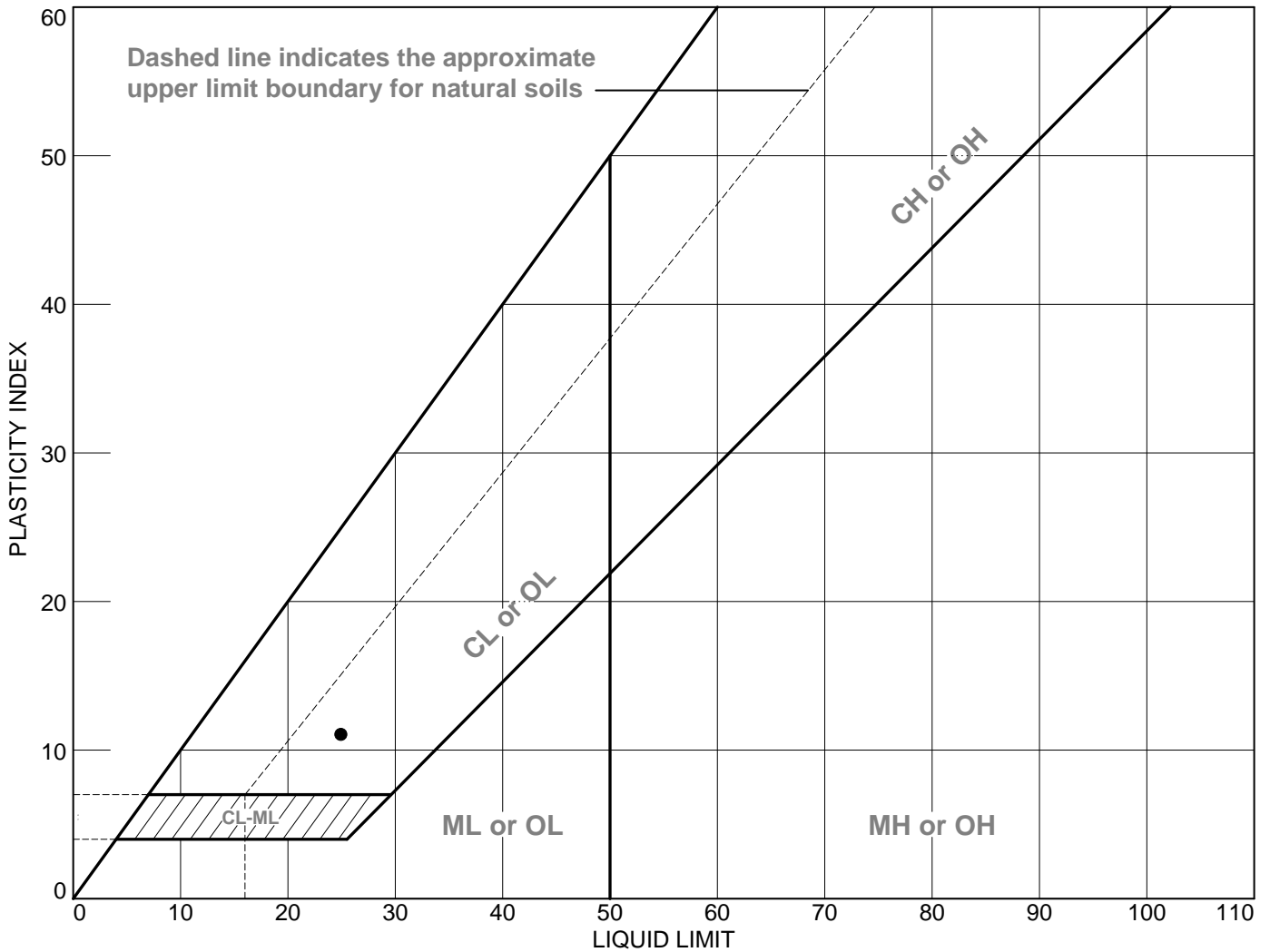
**Client:** KESTREL HORIZONS LLC  
**Project:** PINEWOOD SITE IMPROVEMENT

**Project No.:** 60186203

**Figure**



# LIQUID AND PLASTIC LIMITS TEST REPORT



## SOIL DATA

SYMBOL	SOURCE	SAMPLE NO.	DEPTH	NATURAL WATER CONTENT (%)	PLASTIC LIMIT (%)	LIQUID LIMIT (%)	PLASTICITY INDEX (%)	USCS
●	BULK SAMPLES	TP-1E-01	1.0'-2.0'		14	25	11	SC

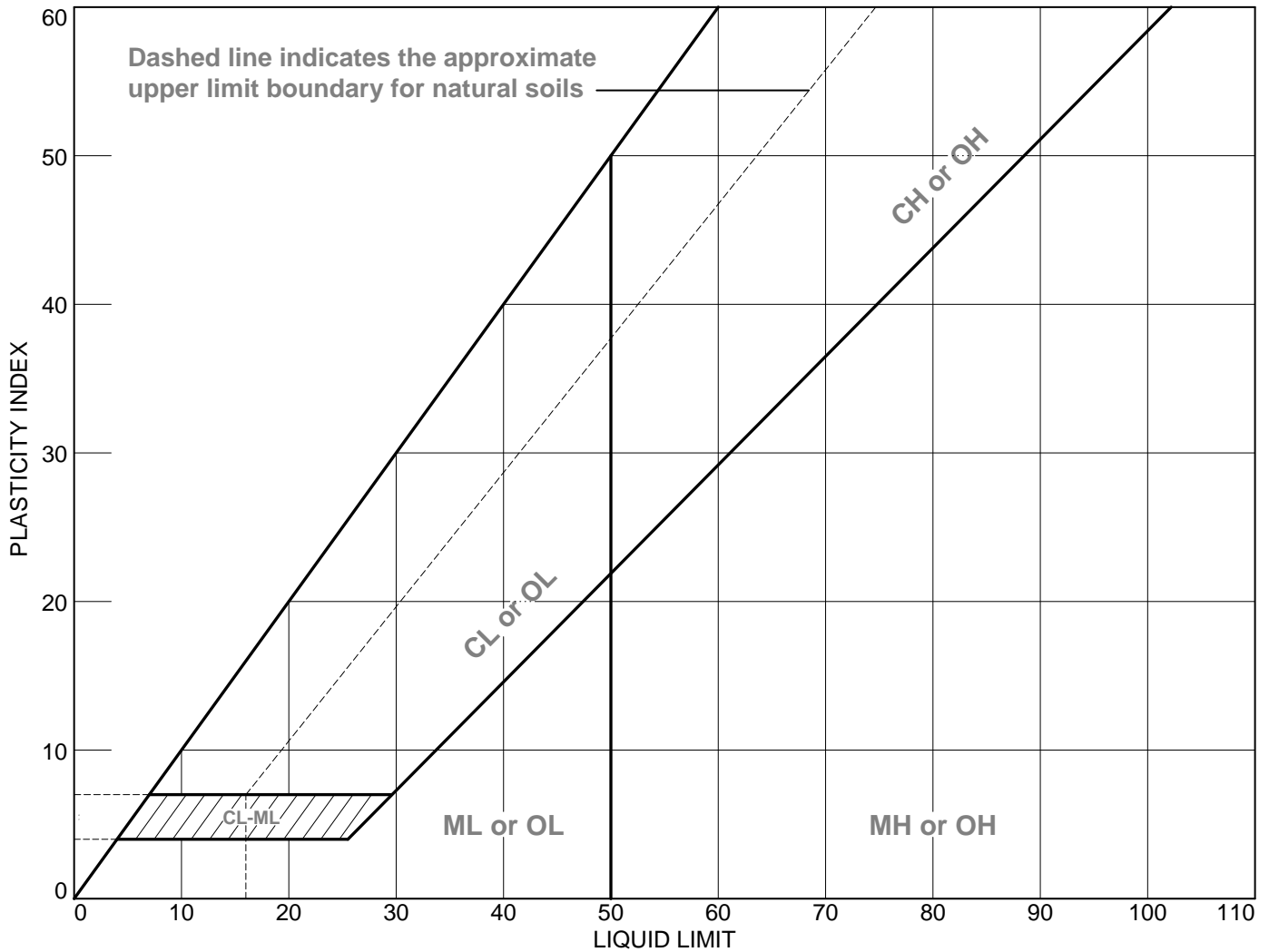


**Client:** KESTREL HORIZONS LLC  
**Project:** PINWOOD SITE IMPROVEMENT

**Project No.:** 60186203

**Figure**

# LIQUID AND PLASTIC LIMITS TEST REPORT



## SOIL DATA

SYMBOL	SOURCE	SAMPLE NO.	DEPTH	NATURAL WATER CONTENT (%)	PLASTIC LIMIT (%)	LIQUID LIMIT (%)	PLASTICITY INDEX (%)	USCS
●	BULK SAMPLES	TP-1E-01	2.0'-2.9'		NP	24	NP	SM

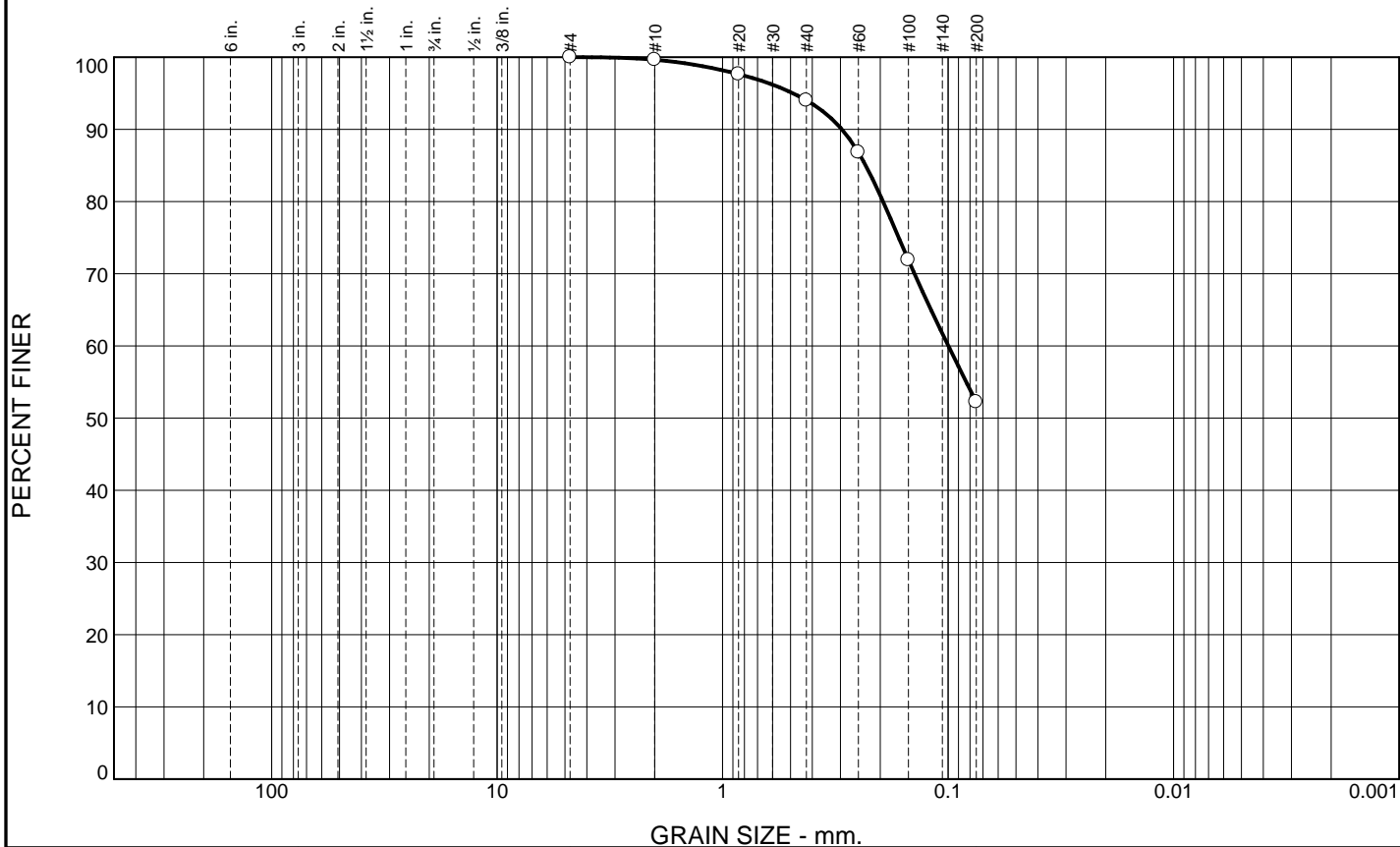


**Client:** KESTREL HORIZONS LLC  
**Project:** PINWOOD SITE IMPROVEMENT

**Project No.:** 60186203

**Figure**

# Particle Size Distribution Report



% +3"	% Gravel		% Sand			% Fines	
	Coarse	Fine	Coarse	Medium	Fine	Silt	Clay
0.0	0.0	0.0	0.4	5.6	41.8	52.2	

SIEVE SIZE	PERCENT FINER	SPEC.* PERCENT	PASS? (X=NO)
#4	100.0		
#10	99.6		
#20	97.7		
#40	94.0		
#60	86.8		
#100	71.9		
#200	52.2		

**Material Description**

SANDY SILT

**Atterberg Limits**

PL= 28      LL= 40      PI= 12

**Coefficients**

D<sub>90</sub>= 0.2958      D<sub>85</sub>= 0.2319      D<sub>60</sub>= 0.0997  
D<sub>50</sub>=                      D<sub>30</sub>=                      D<sub>15</sub>=  
D<sub>10</sub>=                      C<sub>u</sub>=                      C<sub>c</sub>=

**Classification**

USCS= ML                      AASHTO= A-6(4)

**Remarks**

\* (no specification provided)

**Source of Sample:** BULK SAMPLES  
**Sample Number:** AT-1B-01

**Date:** 01/05/11

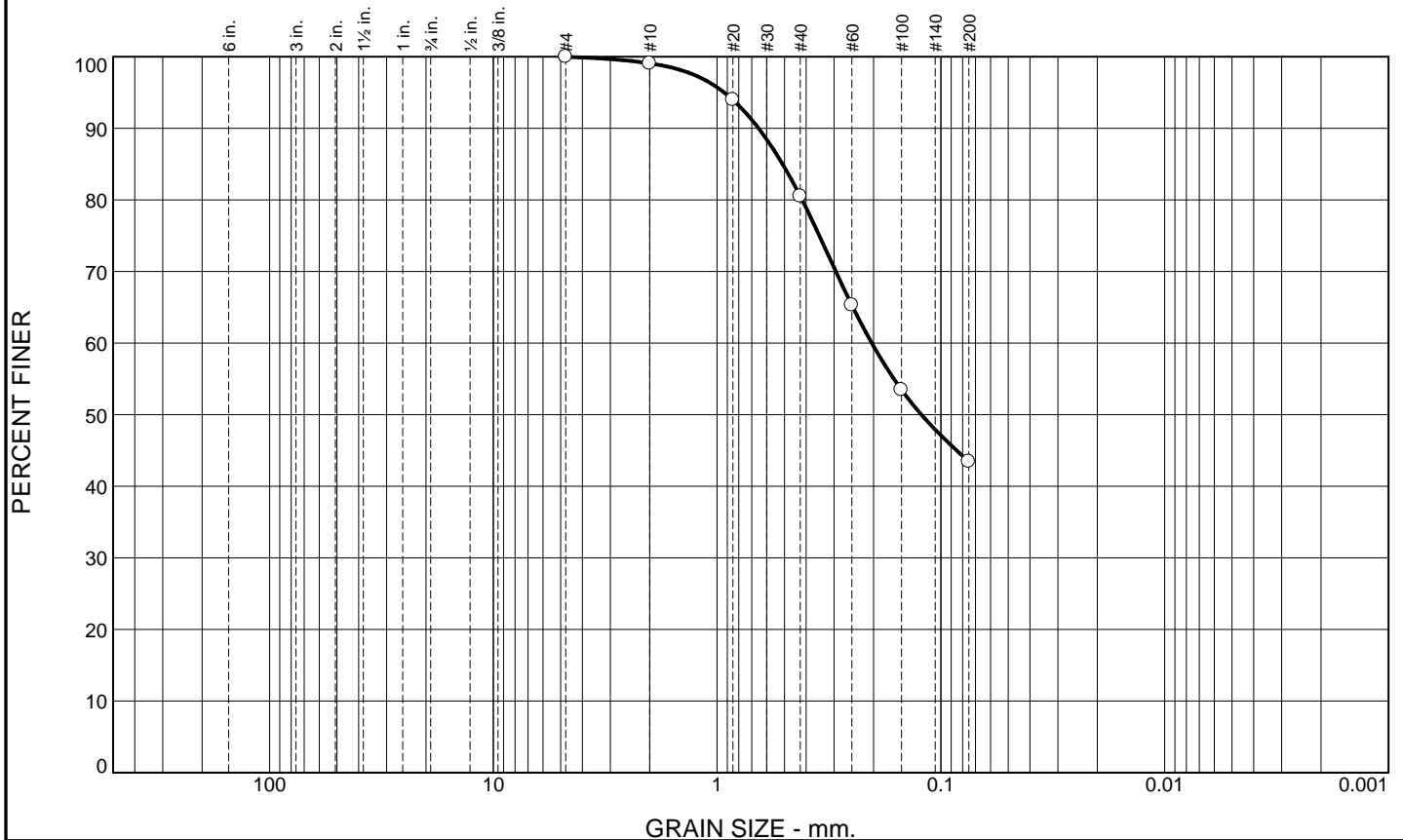


**Client:** KESTREL HORIZONS LLC  
**Project:** PINEWOOD SITE IMPROVEMENT

**Project No:** 60186203

**Figure**

# Particle Size Distribution Report



% +3"	% Gravel		% Sand			% Fines	
	Coarse	Fine	Coarse	Medium	Fine	Silt	Clay
0.0	0.0	0.0	0.9	18.6	37.1	43.4	

SIEVE SIZE	PERCENT FINER	SPEC.* PERCENT	PASS? (X=NO)
#4	100.0		
#10	99.1		
#20	94.0		
#40	80.5		
#60	65.3		
#100	53.5		
#200	43.4		

**Material Description**

SILTY SAND

**Atterberg Limits**

PL= 27      LL= 40      PI= 13

**Coefficients**

D<sub>90</sub>= 0.6522      D<sub>85</sub>= 0.5098      D<sub>60</sub>= 0.2036  
D<sub>50</sub>= 0.1223      D<sub>30</sub>=                      D<sub>15</sub>=  
D<sub>10</sub>=                      C<sub>u</sub>=                      C<sub>c</sub>=

**Classification**

USCS= SM                      AASHTO= A-6(2)

**Remarks**

\* (no specification provided)

**Source of Sample:** BULK SAMPLES  
**Sample Number:** AT-1C-01

**Date:** 01/05/11

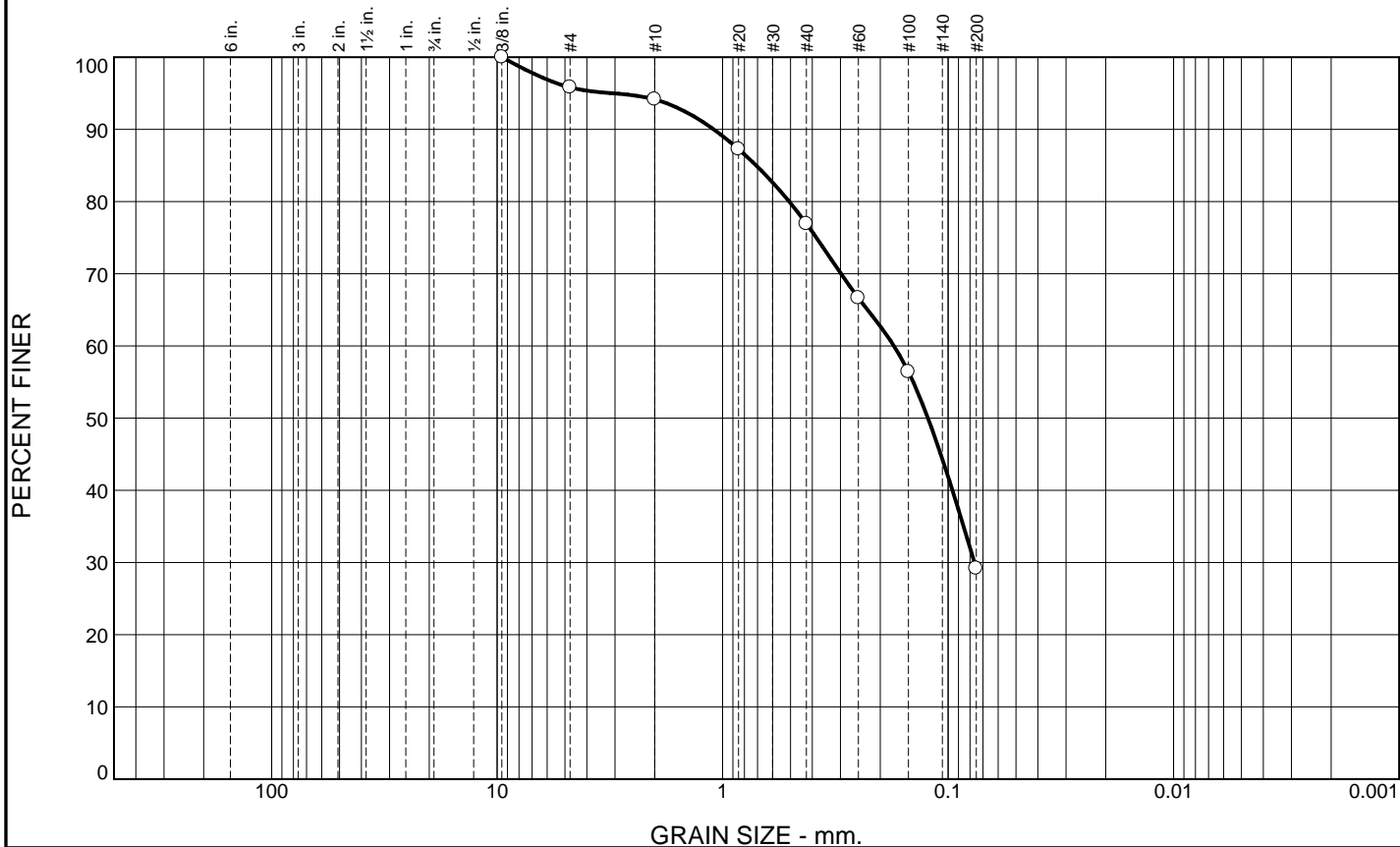


**Client:** KESTREL HORIZONS LLC  
**Project:** PINEWOOD SITE IMPROVEMENT

**Project No:** 60186203

**Figure**

# Particle Size Distribution Report



% +3"	% Gravel		% Sand			% Fines	
	Coarse	Fine	Coarse	Medium	Fine	Silt	Clay
0.0	0.0	4.2	1.7	17.2	47.7	29.2	

SIEVE SIZE	PERCENT FINER	SPEC.* PERCENT	PASS? (X=NO)
.375	100.0		
#4	95.8		
#10	94.1		
#20	87.3		
#40	76.9		
#60	66.7		
#100	56.4		
#200	29.2		

**Material Description**  
SILTY CLAYEY FINE TO MEDIUM SAND, TRACE FINE GRAVEL

**Atterberg Limits**  
 PL= 23      LL= 36      PI= 13

**Coefficients**  
 D<sub>90</sub>= 1.0947      D<sub>85</sub>= 0.7097      D<sub>60</sub>= 0.1739  
 D<sub>50</sub>= 0.1228      D<sub>30</sub>= 0.0764      D<sub>15</sub>=  
 D<sub>10</sub>=                      C<sub>u</sub>=                      C<sub>c</sub>=

**Classification**  
 USCS= SC                      AASHTO= A-2-6(0)

**Remarks**

\* (no specification provided)

Source of Sample: BULK SAMPLES  
 Sample Number: SB-1B-02

Depth: 2.0'-4.0'

Date:

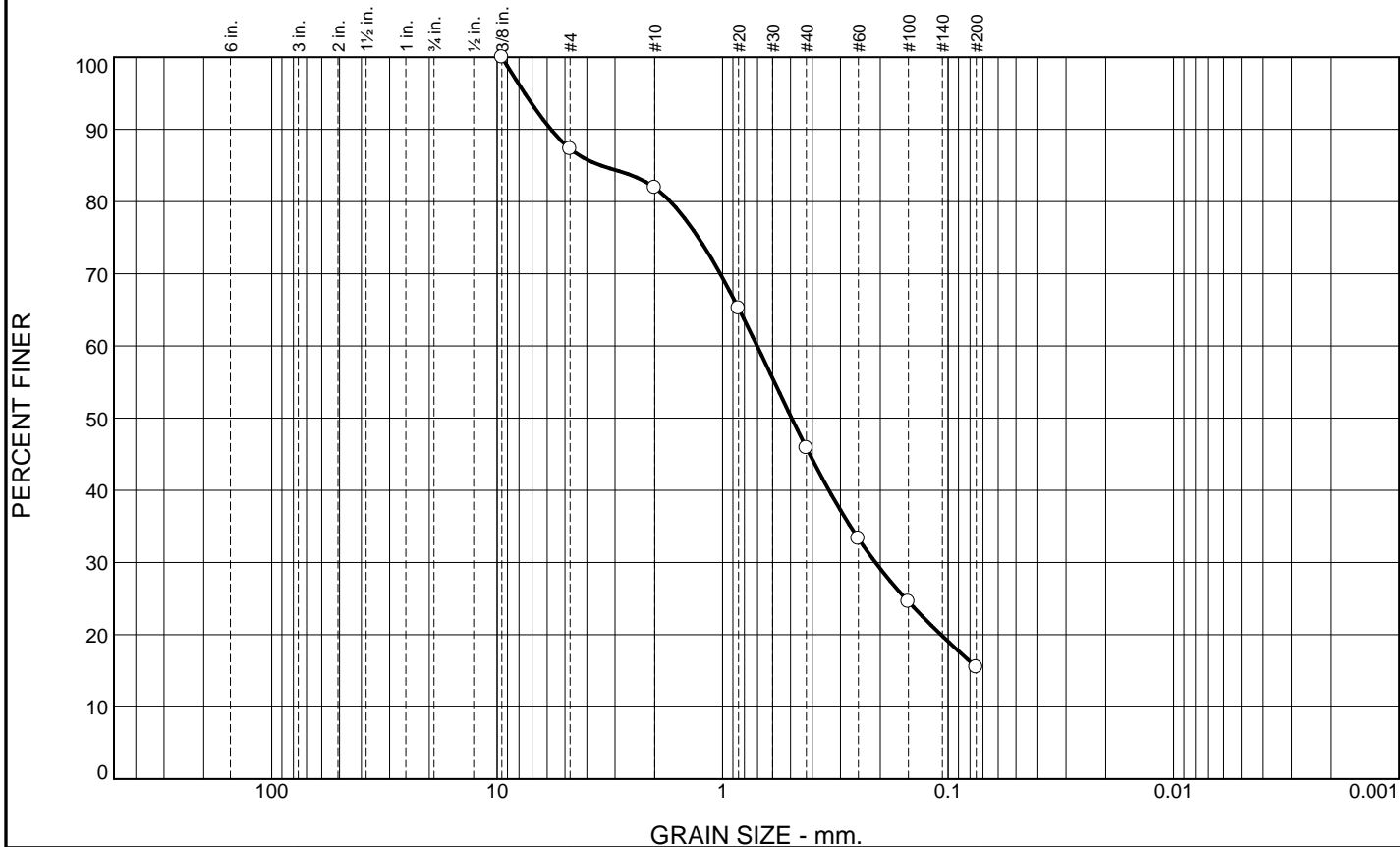


Client: KESTREL HORIZONS LLC  
 Project: PINEWOOD SITE IMPROVEMENT

Project No: 60186203

Figure

# Particle Size Distribution Report



% +3"	% Gravel		% Sand			% Fines	
	Coarse	Fine	Coarse	Medium	Fine	Silt	Clay
0.0	0.0	12.7	5.4	36.0	30.4	15.5	

SIEVE SIZE	PERCENT FINER	SPEC.* PERCENT	PASS? (X=NO)
.375	100.0		
#4	87.3		
#10	81.9		
#20	65.2		
#40	45.9		
#60	33.3		
#100	24.6		
#200	15.5		

**Material Description**  
SILTY FINE TO COARSE SAND, LITTLE FINE GRAVEL

**Atterberg Limits**  
 PL= 36      LL= 47      PI= 11

**Coefficients**  
 D<sub>90</sub>= 5.7743      D<sub>85</sub>= 3.4664      D<sub>60</sub>= 0.7028  
 D<sub>50</sub>= 0.4941      D<sub>30</sub>= 0.2099      D<sub>15</sub>=  
 D<sub>10</sub>=                      C<sub>u</sub>=                      C<sub>c</sub>=

**Classification**  
 USCS= ML                      AASHTO= A-2-7(0)

**Remarks**

\* (no specification provided)

Source of Sample: BULK SAMPLES  
 Sample Number: SB-1D-06

Depth: 2.0'-4.0'

Date: 01/04/11

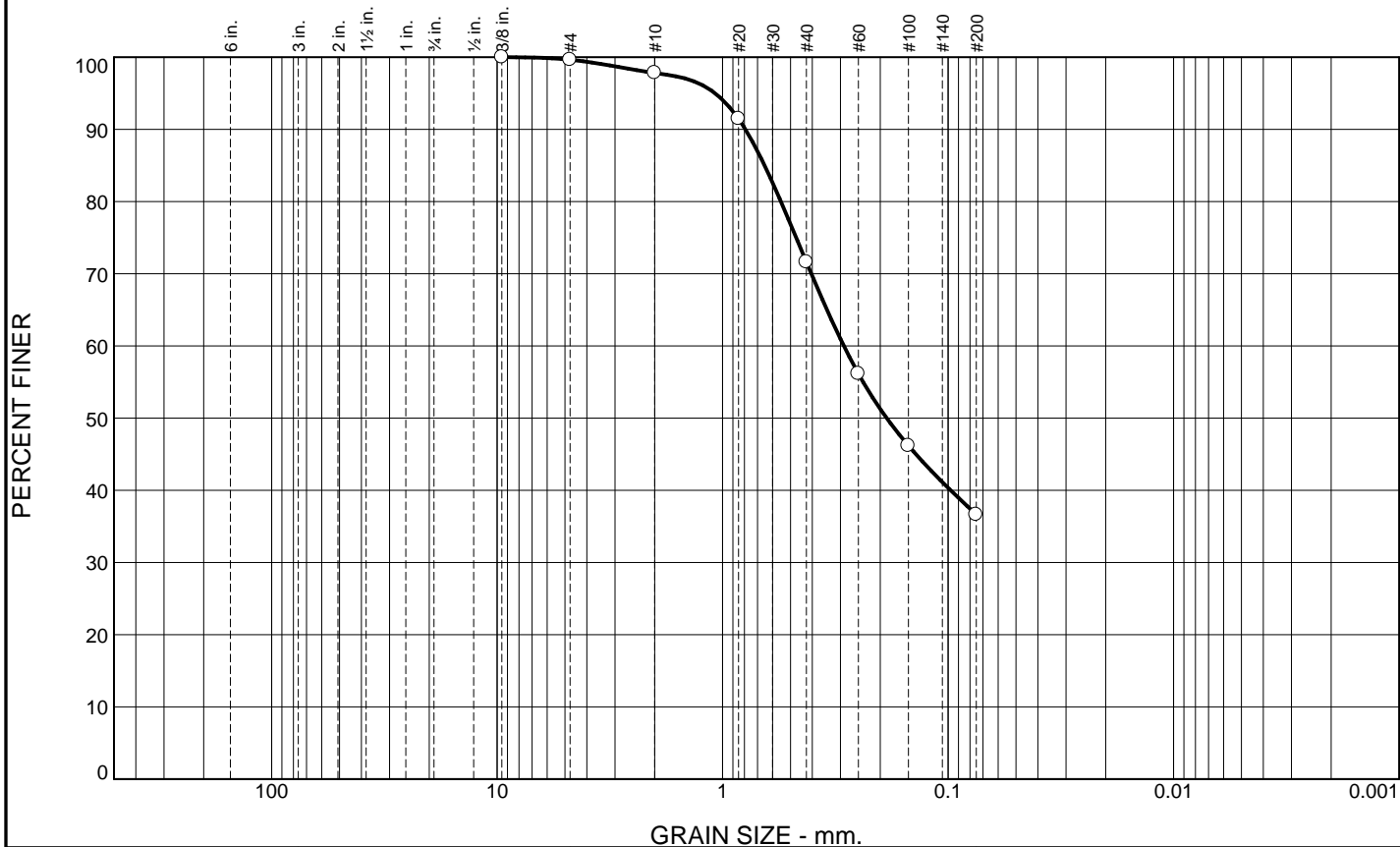


Client: KESTREL HORIZONS LLC  
 Project: PINEWOOD SITE IMPROVEMENT

Project No: 60186203

Figure

# Particle Size Distribution Report



% +3"	% Gravel		% Sand			% Fines	
	Coarse	Fine	Coarse	Medium	Fine	Silt	Clay
0.0	0.0	0.3	1.9	26.2	35.0	36.6	

SIEVE SIZE	PERCENT FINER	SPEC.* PERCENT	PASS? (X=NO)
.375	100.0		
#4	99.7		
#10	97.8		
#20	91.5		
#40	71.6		
#60	56.2		
#100	46.2		
#200	36.6		

**Material Description**

SILTY FINE TO MEDIUM SAND

**Atterberg Limits**

PL= NP      LL= 22      PI= NP

**Coefficients**

D<sub>90</sub>= 0.7919      D<sub>85</sub>= 0.6512      D<sub>60</sub>= 0.2898  
D<sub>50</sub>= 0.1873      D<sub>30</sub>=                      D<sub>15</sub>=  
D<sub>10</sub>=                      C<sub>u</sub>=                      C<sub>c</sub>=

**Classification**

USCS= SM      AASHTO= A-4(0)

**Remarks**

\* (no specification provided)

**Source of Sample:** BULK SAMPLES  
**Sample Number:** SB-1D-07

**Depth:** 0.0'-2.0'

**Date:** 1-26-11

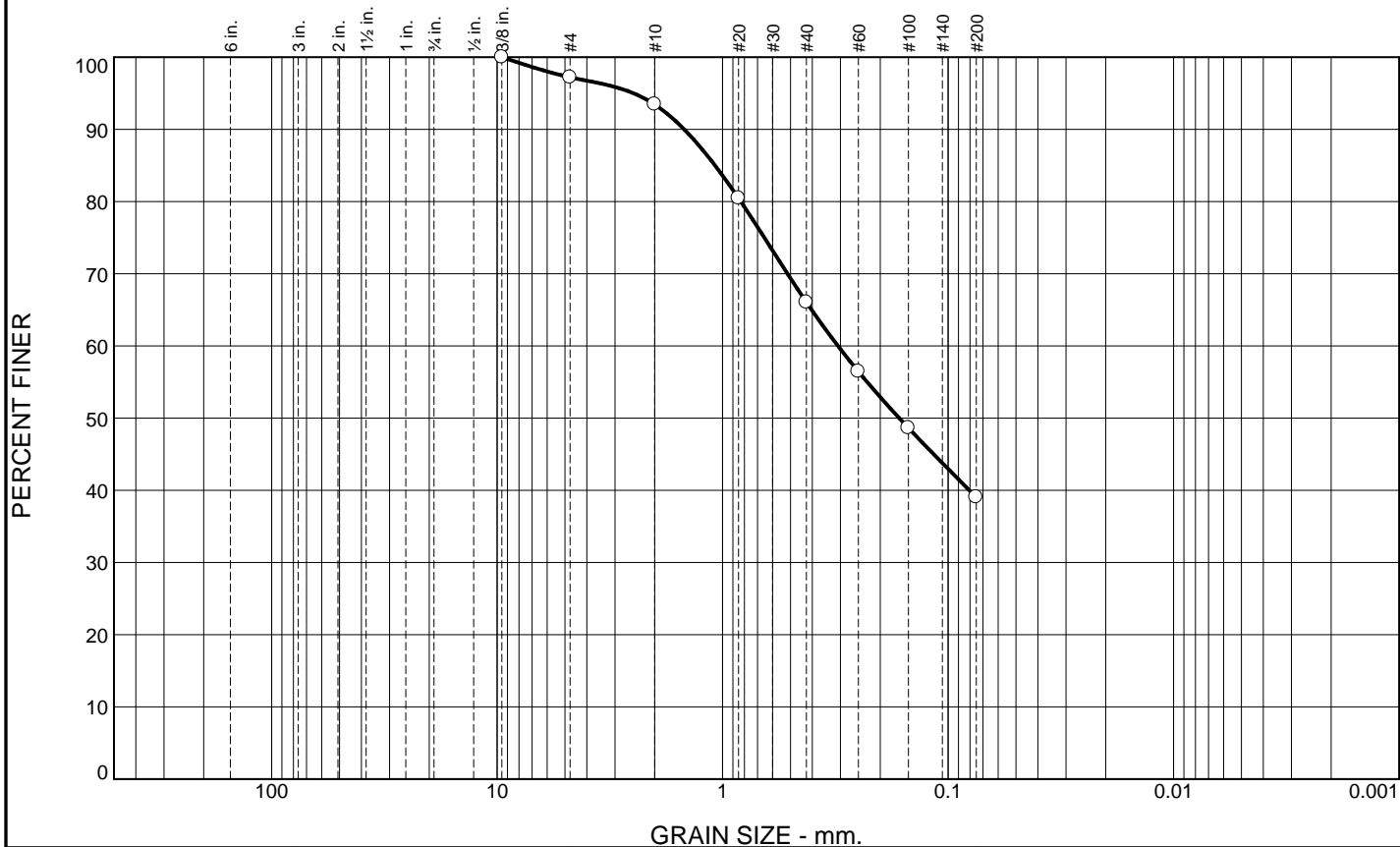


**Client:** KESTREL HORIZONS LLC  
**Project:** PINEWOOD SITE IMPROVEMENT

**Project No:** 60186203

**Figure**

# Particle Size Distribution Report



% +3"	% Gravel		% Sand			% Fines	
	Coarse	Fine	Coarse	Medium	Fine	Silt	Clay
0.0	0.0	2.8	3.7	27.5	26.9	39.1	

SIEVE SIZE	PERCENT FINER	SPEC.* PERCENT	PASS? (X=NO)
.375	100.0		
#4	97.2		
#10	93.5		
#20	80.5		
#40	66.0		
#60	56.5		
#100	48.6		
#200	39.1		

**Material Description**

SILTY FINE TO MEDIUM SAND, TRACE FINE GRAVEL

**Atterberg Limits**

PL= 18      LL= 39      PI= 21

**Coefficients**

D<sub>90</sub>= 1.4796      D<sub>85</sub>= 1.0801      D<sub>60</sub>= 0.3078  
D<sub>50</sub>= 0.1647      D<sub>30</sub>=                      D<sub>15</sub>=  
D<sub>10</sub>=                      C<sub>u</sub>=                      C<sub>c</sub>=

**Classification**

USCS= SC                      AASHTO= A-6(3)

**Remarks**

\* (no specification provided)

**Source of Sample:** BULK SAMPLES  
**Sample Number:** TP-1A-01

**Date:** 1-26-11



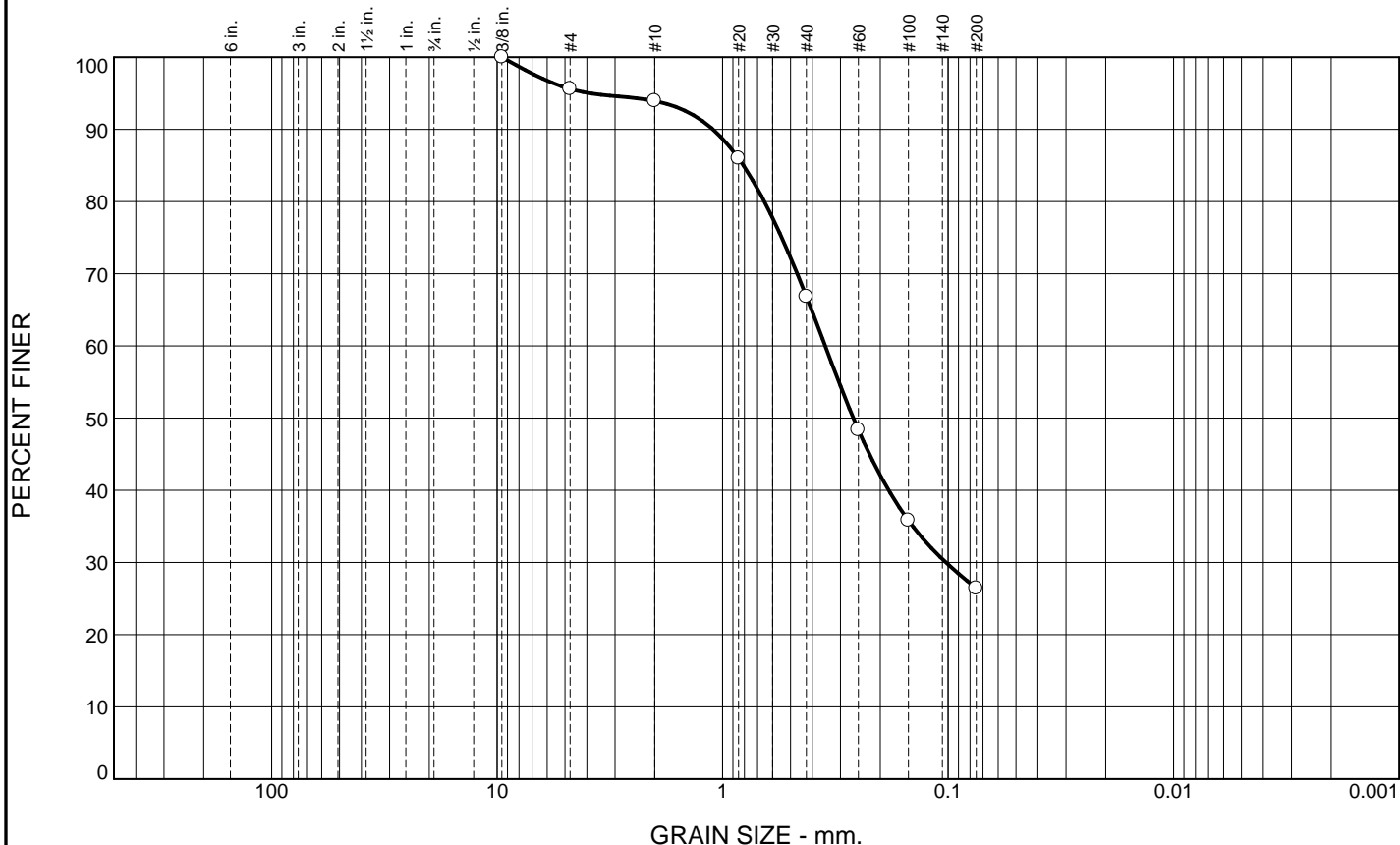
**Client:** KESTREL HORIZONS LLC  
**Project:** PINEWOOD SITE IMPROVEMENT

**Project No:** 60186203

**Figure**



# Particle Size Distribution Report



% +3"	% Gravel		% Sand			% Fines	
	Coarse	Fine	Coarse	Medium	Fine	Silt	Clay
0.0	0.0	4.4	1.7	27.1	40.4	26.4	

SIEVE SIZE	PERCENT FINER	SPEC.* PERCENT	PASS? (X=NO)
.375	100.0		
#4	95.6		
#10	93.9		
#20	86.0		
#40	66.8		
#60	48.4		
#100	35.8		
#200	26.4		

**Material Description**

SILTY FINE TO COARSE SAND, TRACE GRAVEL

**Atterberg Limits**

PL= NP      LL= 28      PI= NP

**Coefficients**

D<sub>90</sub>= 1.1038      D<sub>85</sub>= 0.8084      D<sub>60</sub>= 0.3508  
D<sub>50</sub>= 0.2632      D<sub>30</sub>= 0.1022      D<sub>15</sub>=  
D<sub>10</sub>=                      C<sub>u</sub>=                      C<sub>c</sub>=

**Classification**

USCS= SM                      AASHTO= A-2-4(0)

**Remarks**

\* (no specification provided)

**Source of Sample:** BULK SAMPLES  
**Sample Number:** TP-1D-01

**Date:** 01/19/11

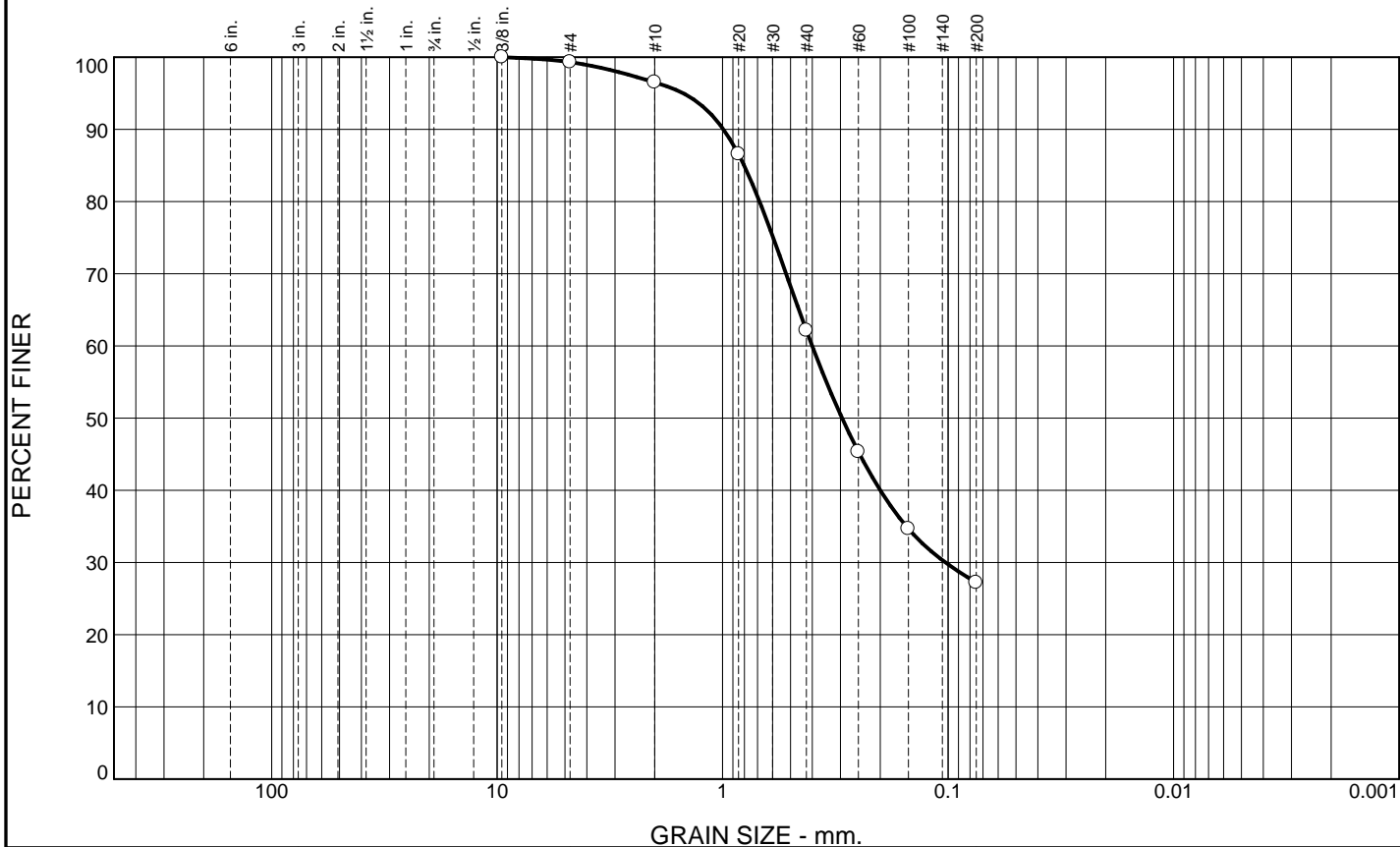


**Client:** KESTREL HORIZONS LLC  
**Project:** PINEWOOD SITE IMPROVEMENT

**Project No:** 60186203

**Figure**

# Particle Size Distribution Report



% +3"	% Gravel		% Sand			% Fines	
	Coarse	Fine	Coarse	Medium	Fine	Silt	Clay
0.0	0.0	0.7	2.8	34.4	34.9	27.2	

SIEVE SIZE	PERCENT FINER	SPEC.* PERCENT	PASS? (X=NO)
.375	100.0		
#4	99.3		
#10	96.5		
#20	86.6		
#40	62.1		
#60	45.3		
#100	34.7		
#200	27.2		

**Material Description**

SILTY FINE TO MEDIUM SAND

**Atterberg Limits**

PL= NP      LL= 15      PI= NP

**Coefficients**

D<sub>90</sub>= 0.9912      D<sub>85</sub>= 0.8026      D<sub>60</sub>= 0.4008  
D<sub>50</sub>= 0.2952      D<sub>30</sub>= 0.1028      D<sub>15</sub>=  
D<sub>10</sub>=                      C<sub>u</sub>=                      C<sub>c</sub>=

**Classification**

USCS= SM                      AASHTO= A-2-4(0)

**Remarks**

\* (no specification provided)

**Source of Sample:** BULK SAMPLES  
**Sample Number:** TP-1D-02

**Depth:** 1.0'-2.0'

**Date:** 1-26-11

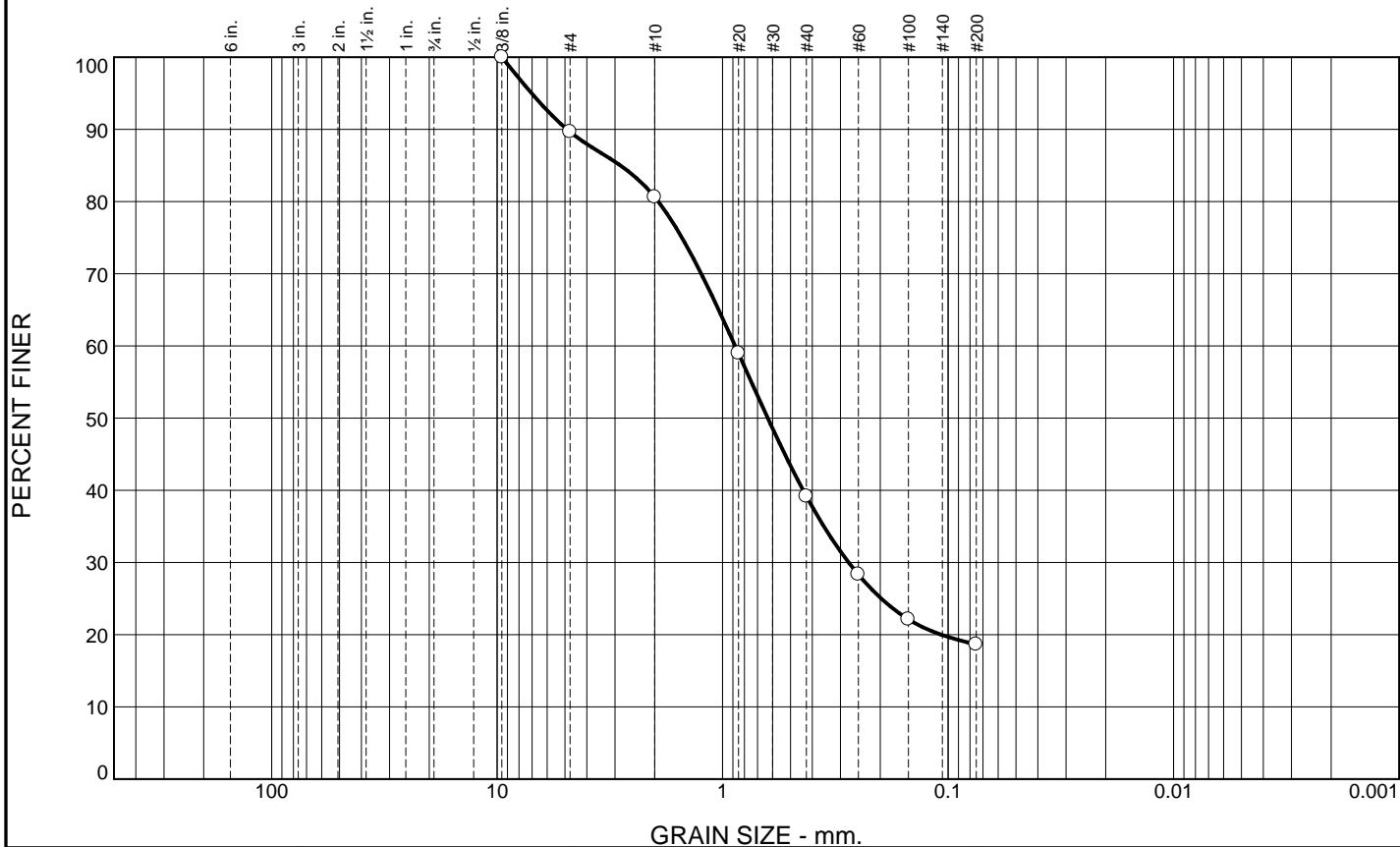


**Client:** KESTREL HORIZONS LLC  
**Project:** PINEWOOD SITE IMPROVEMENT

**Project No:** 60186203

**Figure**

# Particle Size Distribution Report



% +3"	% Gravel		% Sand			% Fines	
	Coarse	Fine	Coarse	Medium	Fine	Silt	Clay
0.0	0.0	10.3	9.1	41.4	20.6	18.6	

SIEVE SIZE	PERCENT FINER	SPEC.* PERCENT	PASS? (X=NO)
.375	100.0		
#4	89.7		
#10	80.6		
#20	59.0		
#40	39.2		
#60	28.3		
#100	22.1		
#200	18.6		

**Material Description**

SILTY FINE TO COARSE SAND, LITTLE FINE GRAVEL

**Atterberg Limits**

PL= 14      LL= 25      PI= 11

**Coefficients**

D<sub>90</sub>= 4.8986      D<sub>85</sub>= 2.8394      D<sub>60</sub>= 0.8796  
D<sub>50</sub>= 0.6302      D<sub>30</sub>= 0.2760      D<sub>15</sub>=  
D<sub>10</sub>=                      C<sub>u</sub>=                      C<sub>c</sub>=

**Classification**

USCS= SC                      AASHTO= A-2-6(0)

**Remarks**

\* (no specification provided)

**Source of Sample:** BULK SAMPLES  
**Sample Number:** TP-1E-01

**Depth:** 1.0'-2.0'

**Date:** 1-26-11

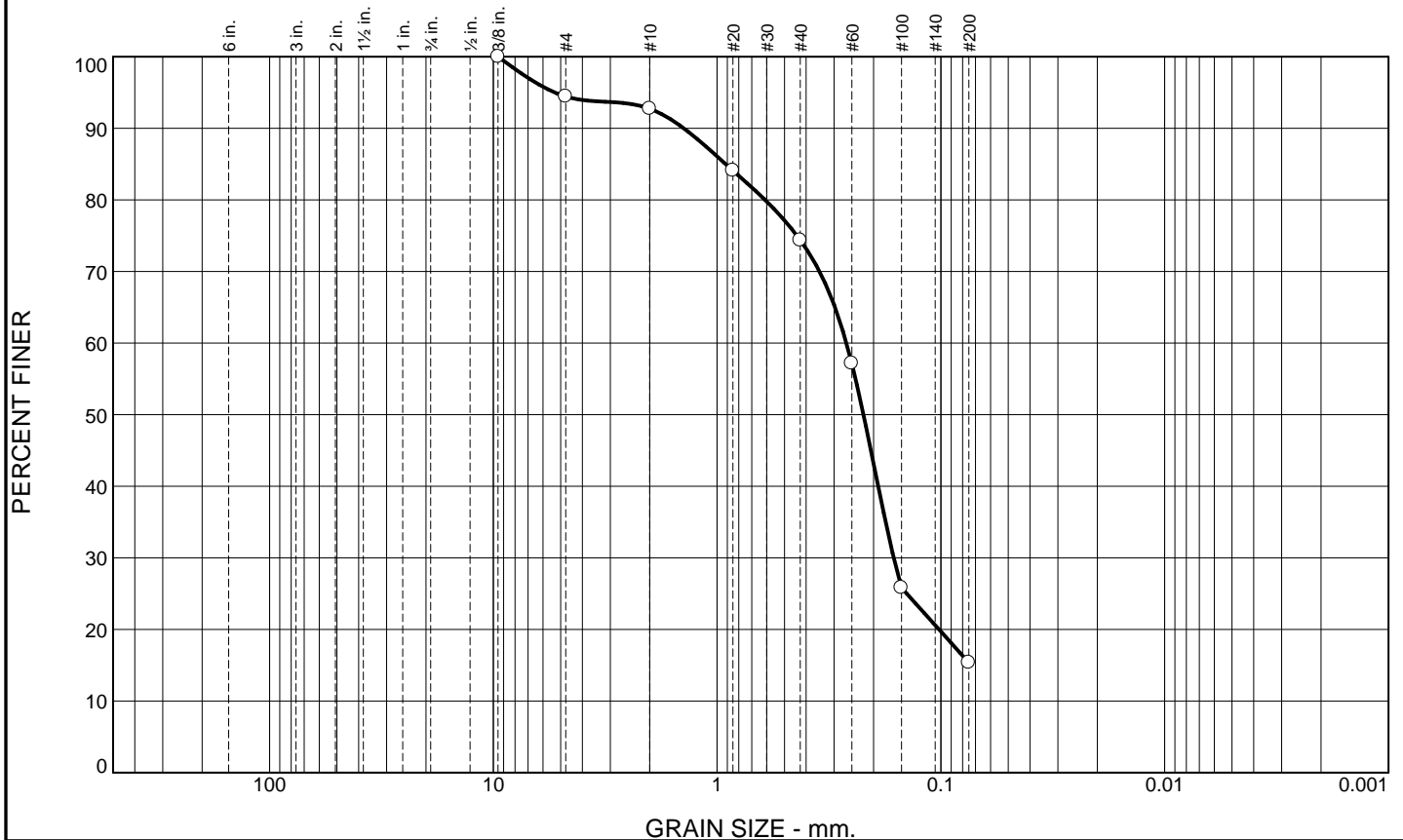


**Client:** KESTREL HORIZONS LLC  
**Project:** PINEWOOD SITE IMPROVEMENT

**Project No:** 60186203

**Figure**

# Particle Size Distribution Report



% +3"	% Gravel		% Sand			% Fines	
	Coarse	Fine	Coarse	Medium	Fine	Silt	Clay
0.0	0.0	5.6	1.7	18.3	59.0	15.4	

SIEVE SIZE	PERCENT FINER	SPEC.* PERCENT	PASS? (X=NO)
.375	100.0		
#4	94.4		
#10	92.7		
#20	84.1		
#40	74.4		
#60	57.2		
#100	25.8		
#200	15.4		

**Material Description**

SILTY FINE TO MEDIUM SAND, TRACE FINE GRAVEL

**Atterberg Limits**

PL= NP      LL= 24      PI= NP

**Coefficients**

D<sub>90</sub>= 1.4097      D<sub>85</sub>= 0.9154      D<sub>60</sub>= 0.2643  
D<sub>50</sub>= 0.2217      D<sub>30</sub>= 0.1625      D<sub>15</sub>=  
D<sub>10</sub>=                      C<sub>u</sub>=                      C<sub>c</sub>=

**Classification**

USCS= SM                      AASHTO= A-2-4(0)

**Remarks**

\* (no specification provided)

**Source of Sample:** BULK SAMPLES  
**Sample Number:** TP-1E-01

**Depth:** 2.0'-2.9'

**Date:** 1-28-11



**Client:** KESTREL HORIZONS LLC  
**Project:** PINEWOOD SITE IMPROVEMENT

**Project No:** 60186203

**Figure**

TRI / Environmental, Inc.



January 18, 2011  
February 8, 2011

Updated with Percent Plasticizer

**Mail To:**

**Attn: Sharon Korleski**  
**AECOM**  
10 Patewood Drive  
Greenville, SC 29615

**Bill To:**

**<= Same**  
**Project # : 60186203**

email: sharon.korleski@aecom.com

Dear Ms. Korleski:

Thank you for consulting TRI/Environmental, Inc. (TRI) for your geosynthetics testing needs. TRI is pleased to submit this final report for laboratory testing.

Project: **Pine Wood, Project # : 60186203**

TRI Job Reference Number: E2352-06-10

Material(s) Tested: 10 Exposed PVC Liners

Test(s) Requested: Thickness (ASTM D 5199)  
Tensile Properties (ASTM D 882)  
Peel & Shear (ASTM D 6392/GRI GM19/D 4437/NSF 54, D6214)  
Updated====> Percent Plasticizer Content ( ASTM D 2124 )

If you have any questions or require any additional information, please call us at 1-800-880-8378.

Sincerely,

Mansukh Patel  
Sr. Laboratory Coordinator  
Geosynthetic Services Division  
[www.GeosyntheticTesting.com](http://www.GeosyntheticTesting.com)



**LABORATORY TEST RESULTS**

TRI Client: AECOM  
Project: Pine Wood, Project # : 60186203

Material: Exposed PVC Liner  
Sample Identification: AT-1B-01  
TRI Log #: E2352-06-10

PARAMETER	TEST REPLICATE NUMBER										MEAN	STD. DEV.
	1	2	3	4	5	6	7	8	9	10		
<b>Thickness (ASTM D 5199)</b>												
Thickness (mils)	18.3	18.2	18.1	16.5	18.1	18.3	18.6	18.9	18.4	18.8	18.2	0.7
											16.5	<< min
<b>Tensile Properties (ASTM D 882, 20 ipm strain rate)</b>												
A Strength @ 100% Strain (ppi)	47.1	47.3	49.1	54.1	44.4						48.4	3.6
B Strength @ 100% Strain (ppi)	46.4	46.7	49.8	47.5	48.4						47.7	1.4
A Break Strength (ppi)	52.6	54.6	55.7	54.9	57.1						55.0	1.6
B Break Strength (ppi)	58.8	55.9	51.2	50.4	52.6						53.8	3.5
A Break Elongation (%)	176	197	196	147	276						198	48
B Break Elongation (%)	334	235	133	139	203						209	82

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



**LABORATORY TEST RESULTS**

TRI Client: AECOM  
 Project: Pine Wood, Project # : 60186203

Material: Exposed PVC Liner  
 Sample Identification: AT-1A-01  
 TRI Log #: E2352-06-10

PARAMETER	TEST REPLICATE NUMBER										MEAN	STD. DEV.
	1	2	3	4	5	6	7	8	9	10		
<b>Thickness (ASTM D 5199)</b>												
Thickness (mils)	17.3	17.0	16.5	17.1	16.5	16.4	15.6	17.9	16.3	16.4	<b>16.7</b>	0.6
											<b>15.6</b>	<< min
<b>Tensile Properties (ASTM D 882, 20 ipm strain rate)</b>												
A Strength @ 100% Strain (ppi)	55.9	52.0	54.5	52.6	55.7						<b>54.1</b>	1.8
B Strength @ 100% Strain (ppi)	48.7	53.4	53.2	50.0	46.1						<b>50.3</b>	3.1
A Break Strength (ppi)	59.5	60.9	61.8	62.6	56.9						<b>60.3</b>	2.2
B Break Strength (ppi)	51.2	53.4	53.2	54.2	50.8						<b>52.6</b>	1.5
A Break Elongation (%)	181	241	228	255	144						<b>210</b>	46
B Break Elongation (%)	175	115	117	268	213						<b>178</b>	65
<b>Plasticizer Content (ASTM D 2124)</b>												
% Plasticizers Content:				16.3							<b>16.3</b>	

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**LABORATORY TEST RESULTS**

TRI Client: AECOM  
Project: Pine Wood, Project # : 60186203

Material: Exposed PVC Liner  
Sample Identification: AT-1C-01  
TRI Log #: E2352-06-10

PARAMETER	TEST REPLICATE NUMBER										MEAN	STD. DEV.
	1	2	3	4	5	6	7	8	9	10		
<b>Thickness (ASTM D 5199)</b>												
Thickness (mils)	20.9	20.0	20.5	20.0	19.8	20.4	20.9	20.4	19.9	19.8	<b>20.2</b>	0.4
											<b>19.8</b>	<< min
<b>Tensile Properties (ASTM D 882, 20 ipm strain rate)</b>												
A Strength @ 100% Strain (ppi)	41.9	40.4	41.4	42.5	42.5						<b>41.7</b>	0.9
B Strength @ 100% Strain (ppi)	37.4	40.4	39.2	37.2	37.0						<b>38.2</b>	1.5
A Break Strength (ppi)	59.3	60.8	61.1	57.7	52.6						<b>58.3</b>	3.4
B Break Strength (ppi)	50.7	47.7	45.4	58.9	58.0						<b>52.2</b>	6.1
A Break Elongation (%)	271	308	285	254	231						<b>270</b>	29
B Break Elongation (%)	241	194	181	364	349						<b>266</b>	86
* Seam panel tested												
<b>Peel and Shear (ASTM D 6392/GRI GM19/D 4437/NSF 54)</b>												
Peel Strength (ppi)				20.7	18.1	17.0	20.5	14.3				<b>18</b>
Peel Incursion (%)				100	100	100	100	100				
Peel Locus of Failure Code				AD	AD	AD	AD	AD				
Peel NSF Failure Code				NON-FTB	NON-FTB	NON-FTB	NON-FTB	NON-FTB				
Shear Strength (ppi)				49.7	47.9	43.6	41.5	45.3				<b>46</b>
Shear Elongation @ Break (%)				>50	>50	>50	>50	>50				

**AD** Adhesion failure (100% Peel)  
**NON-FTB** 100% peel

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



**LABORATORY TEST RESULTS**

TRI Client: AECOM  
Project: Pine Wood, Project # : 60186203

Material: Exposed PVC Liner  
Sample Identification: TP-1D-01  
TRI Log #: E2352-06-10

PARAMETER	TEST REPLICATE NUMBER										MEAN	STD. DEV.
	1	2	3	4	5	6	7	8	9	10		
<b>Thickness (ASTM D 5199)</b>												
Thickness (mils)	20.5	20.3	19.4	19.7	20.3	20.4	20.6	20.7	21.0	20.8	20.3	0.5
											19.4	<< min
<b>Tensile Properties (ASTM D 882, 20 ipm strain rate)</b>												
A Strength @ 100% Strain (ppi)	31.1	31.3	29.5	31.5	32.6						31.2	1.1
B Strength @ 100% Strain (ppi)	35.1	34.5	34.8	35.0	33.7						34.6	0.6
A Break Strength (ppi)	55.1	54.3	56.7	53.3	57.1						55.3	1.6
B Break Strength (ppi)	54.6	57.0	43.8	55.9	57.5						53.8	5.7
A Break Elongation (%)	451	451	525	426	456						462	37
B Break Elongation (%)	350	372	241	380	417						352	67

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



**LABORATORY TEST RESULTS**

TRI Client: AECOM  
Project: Pine Wood, Project # : 60186203

Material: Exposed PVC Liner  
Sample Identification: AT-1E-01  
TRI Log #: E2352-06-10

PARAMETER	TEST REPLICATE NUMBER										MEAN	STD. DEV.
	1	2	3	4	5	6	7	8	9	10		
<b>Thickness (ASTM D 5199)</b>												
Thickness (mils)	18.9	19.1	19.7	20.2	20.1	19.8	19.4	20.2	19.7	19.4	<b>19.6</b>	0.4
											<b>18.9</b>	<< min
<b>Tensile Properties (ASTM D 882, 20 ipm strain rate)</b>												
A Strength @ 100% Strain (ppi)	36.5	34.2	35.3	33.0	33.6						<b>34.5</b>	1.4
B Strength @ 100% Strain (ppi)	34.4	31.8	31.5	32.4	31.5						<b>32.3</b>	1.2
A Break Strength (ppi)	54.0	51.4	47.2	29.7	35.6						<b>43.6</b>	10.5
B Break Strength (ppi)	35.8	48.5	39.9	48.7	49.6						<b>44.5</b>	6.2
A Break Elongation (%)	331	305	237	124	164						<b>232</b>	89
B Break Elongation (%)	137	299	251	300	328						<b>263</b>	76
* Seam panel tested												
<b>Peel and Shear (ASTM D 6392/GRI GM19/D 4437/NSF 54)</b>												
												Shear
Shear Strength (ppi)				46.9	44.2	48.4	46.8	48.9				<b>47</b>
Shear Elongation @ Break (%)				>50	>50	>50	>50	>50				

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



**LABORATORY TEST RESULTS**

TRI Client: AECOM  
Project: Pine Wood, Project # : 60186203

Material: Exposed PVC Liner  
Sample Identification: AT-1E-02  
TRI Log #: E2352-06-10

PARAMETER	TEST REPLICATE NUMBER										MEAN	STD. DEV.
	1	2	3	4	5	6	7	8	9	10		
<b>Thickness (ASTM D 5199)</b>												
Thickness (mils)	19.3	19.1	19.4	18.9	18.9	19.0	19.1	19.5	19.6	19.3	19.2	0.3
											18.9	<< min
<b>Tensile Properties (ASTM D 882, 20 ipm strain rate)</b>												
A Strength @ 100% Strain (ppi)	36.1	37.2	35.7	35.9	36.8						36.4	0.6
B Strength @ 100% Strain (ppi)	35.5	35.9	34.2	35.4	37.9						35.8	1.4
A Break Strength (ppi)	50.2	44.2	52.6	51.3	53.3						50.3	3.6
B Break Strength (ppi)	52.3	50.7	53.9	52.5	54.9						52.9	1.6
A Break Elongation (%)	270	216	308	287	310						278	38
B Break Elongation (%)	325	288	352	310	342						323	25

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



**LABORATORY TEST RESULTS**

TRI Client: AECOM  
 Project: Pine Wood, Project # : 60186203

Material: Exposed PVC Liner  
 Sample Identification: TP-1A-01 - Upper  
 TRI Log #: E2352-06-10

PARAMETER	TEST REPLICATE NUMBER										MEAN	STD. DEV.
	1	2	3	4	5	6	7	8	9	10		
<b>Thickness (ASTM D 5199)</b>												
Thickness (mils)	18.3	18.5	18.2	18.4	18.4	18.4	18.6	19.3	19.0	19.2	<b>18.6</b>	0.4
											<b>18.2</b>	<< min
<b>Tensile Properties (ASTM D 882, 20 ipm strain rate)</b>												
A Strength @ 100% Strain (ppi)	35.4	36.1	37.7	36.9	37.3						<b>36.6</b>	0.9
B Strength @ 100% Strain (ppi)	32.1	31.5	32.8	30.0	29.6						<b>31.2</b>	1.4
A Break Strength (ppi)	52.4	49.3	56.2	52.7	57.7						<b>53.7</b>	3.3
B Break Strength (ppi)	50.4	47.9	46.1	43.6	42.0						<b>46.0</b>	3.3
A Break Elongation (%)	307	243	324	278	356						<b>302</b>	43
B Break Elongation (%)	338	325	285	289	271						<b>302</b>	28

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



**LABORATORY TEST RESULTS**

TRI Client: AECOM  
Project: Pine Wood, Project # : 60186203

Material: Exposed PVC Liner  
Sample Identification: TP-1A-01 - Lower  
TRI Log #: E2352-06-10

PARAMETER	TEST REPLICATE NUMBER										MEAN	STD. DEV.
	1	2	3	4	5	6	7	8	9	10		
<b>Thickness (ASTM D 5199)</b>												
Thickness (mils)	18.6	18.7	18.8	18.9	18.8	18.5	18.9	18.7	18.6	19.6	<b>18.8</b>	0.3
											<b>18.5</b>	<< min
<b>Tensile Properties (ASTM D 882, 20 ipm strain rate)</b>												
A Strength @ 100% Strain (ppi)	35.5	37.4	37.8	34.8	35.6						<b>36.2</b>	1.3
B Strength @ 100% Strain (ppi)	30.4	30.1	30.8	30.3	32.7						<b>30.9</b>	1.0
A Break Strength (ppi)	49.2	51.6	56.2	53.1	44.9						<b>51.0</b>	4.3
B Break Strength (ppi)	51.5	49.2	48.1	50.5	49.2						<b>49.7</b>	1.3
A Break Elongation (%)	261	287	343	316	216						<b>285</b>	49
B Break Elongation (%)	427	368	336	380	322						<b>367</b>	41

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



**LABORATORY TEST RESULTS**

TRI Client: AECOM  
 Project: Pine Wood, Project # : 60186203

Material: Exposed PVC Liner  
 Sample Identification: TP-1E-01  
 TRI Log #: E2352-06-10

PARAMETER	TEST REPLICATE NUMBER										MEAN	STD. DEV.
	1	2	3	4	5	6	7	8	9	10		
<b>Thickness (ASTM D 5199)</b>												
Thickness (mils)	19.8	20.5	20.1	20.5	20.5	20.0	19.5	19.3	19.2	19.4	<b>19.9</b>	0.5
											<b>19.2</b>	<< min
<b>Tensile Properties (ASTM D 882, 20 ipm strain rate)</b>												
A Strength @ 100% Strain (ppi)	37.5	36.6	37.0	35.7	35.2						<b>36.4</b>	0.9
B Strength @ 100% Strain (ppi)	30.3	30.6	31.0	30.1	31.3						<b>30.6</b>	0.5
A Break Strength (ppi)	60.3	60.3	61.1	58.3	52.6						<b>58.5</b>	3.5
B Break Strength (ppi)	44.5	46.0	53.1	47.1	47.9						<b>47.7</b>	3.3
A Break Elongation (%)	347	349	353	346	292						<b>337</b>	26
B Break Elongation (%)	298	310	407	323	331						<b>334</b>	43

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



**LABORATORY TEST RESULTS**

TRI Client: AECOM  
Project: Pine Wood, Project # : 60186203

Material: Exposed PVC Liner  
Sample Identification: TP-1D-02  
TRI Log #: E2352-06-10

PARAMETER	TEST REPLICATE NUMBER										MEAN	STD. DEV.
	1	2	3	4	5	6	7	8	9	10		
<b>Thickness (ASTM D 5199)</b>												
Thickness (mils)	19.3	18.3	18.5	18.3	18.6	18.5	18.5	18.8	18.6	19.0	18.6	0.3
											18.3	<< min
<b>Tensile Properties (ASTM D 882, 20 ipm strain rate)</b>												
A Strength @ 100% Strain (ppi)	36.8	36.2	34.2	34.7	33.2						35.0	1.5
B Strength @ 100% Strain (ppi)	31.8	32.2	32.3	31.3	30.7						31.7	0.7
A Break Strength (ppi)	60.8	55.3	56.9	54.5	55.7						56.6	2.5
B Break Strength (ppi)	54.7	51.7	54.0	44.6	53.3						51.7	4.1
A Break Elongation (%)	354	322	362	319	352						342	20
B Break Elongation (%)	375	348	395	269	400						357	53

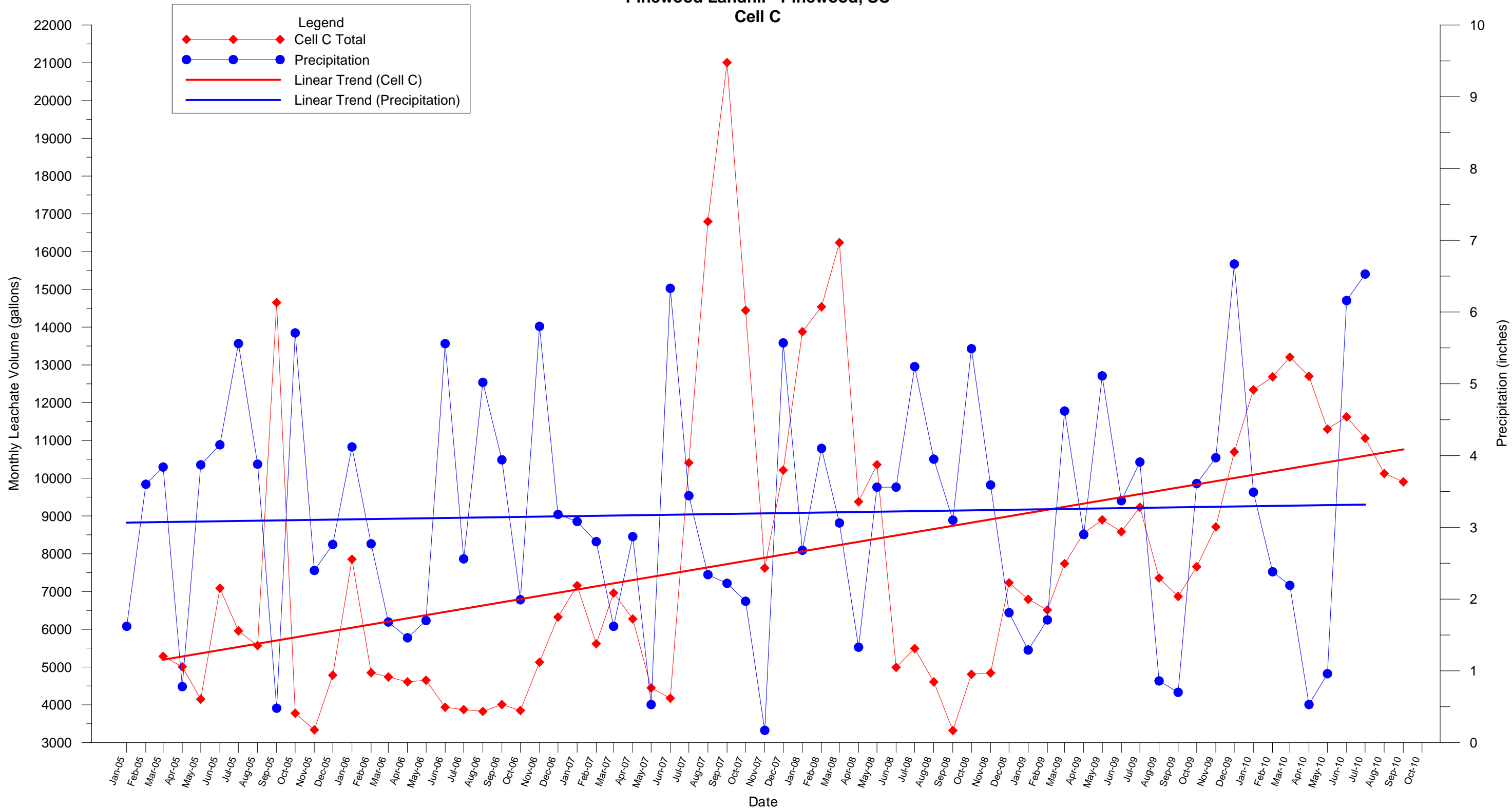
The testing is based upon accepted industry practice as well as the test method listed. Test results reported herein do not apply to samples other than those tested. TRI neither accepts responsibility for nor makes claim as to the final use and purpose of the material. TRI observes and maintains client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



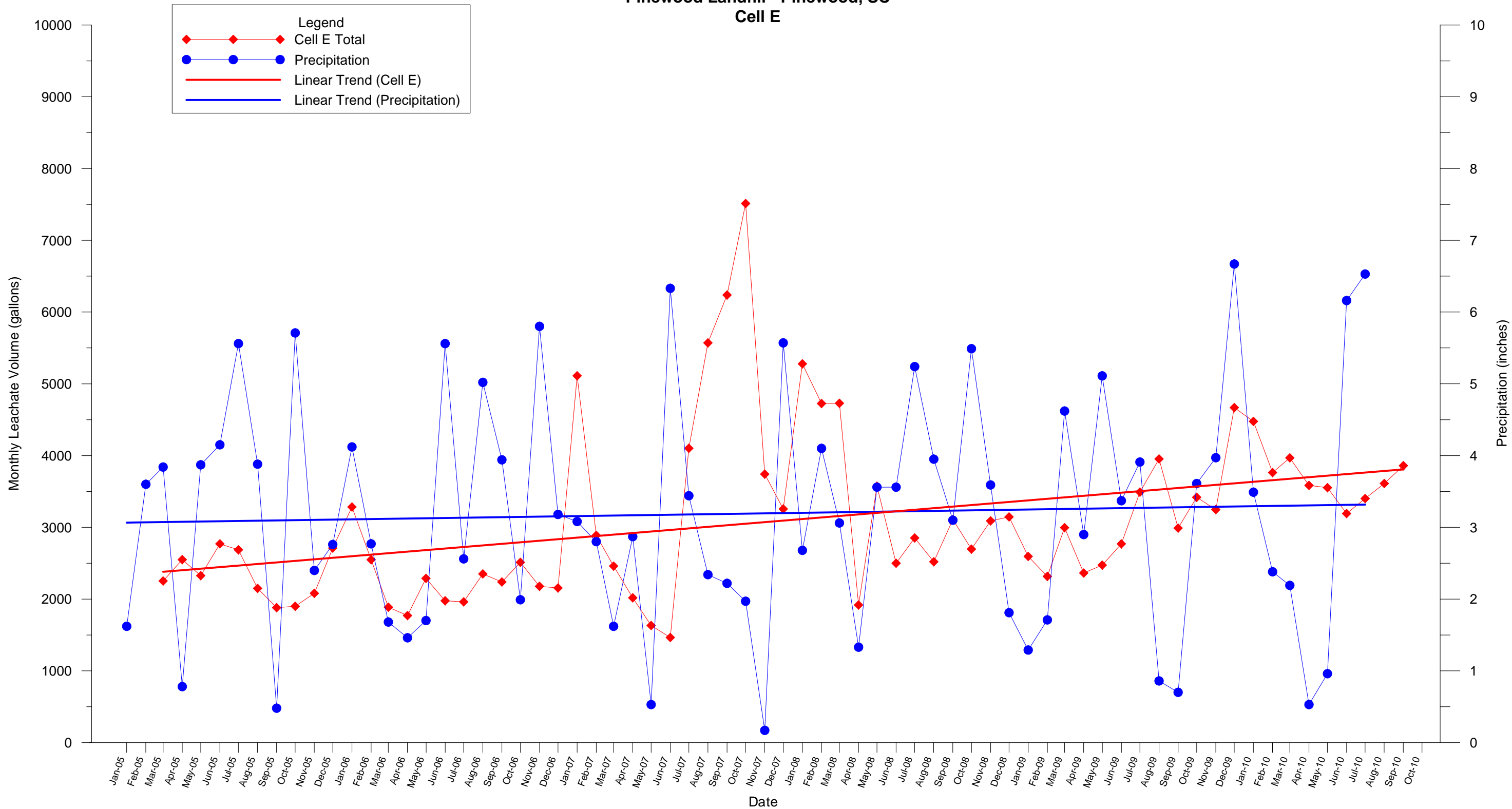
**Appendix 2.3-1**  
**Leachate Evaluation Trend Plots**  
Monthly Rainfall vs. Leachate Production  
5-Month Running Average Rainfall vs. Leachate  
Production  
Rainfall Departure vs. Leachate Trend

## Monthly Rainfall vs. Leachate Production

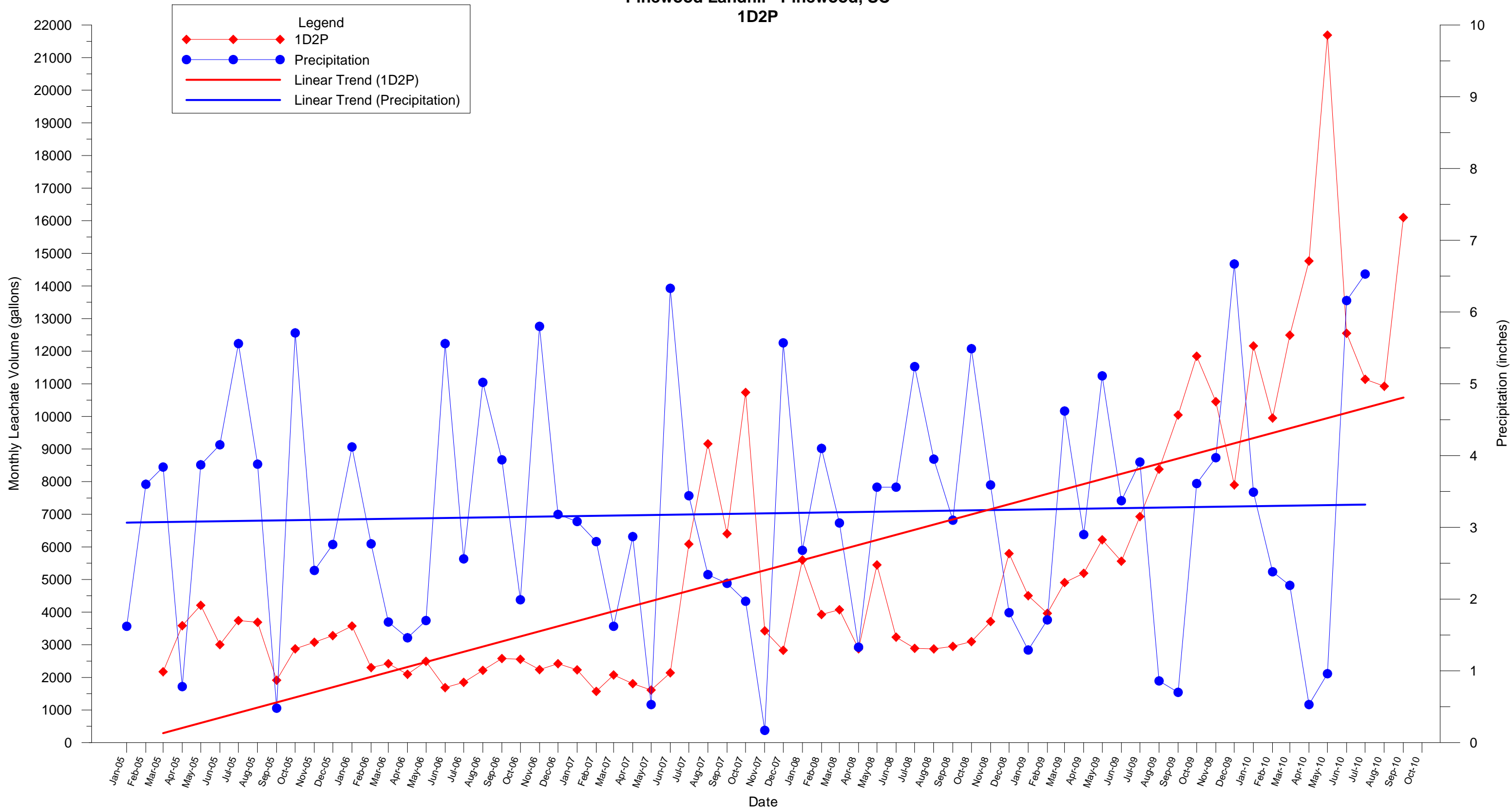
**Section I Primary Leachate Data and Precipitation**  
**March 2005 - September 2010**  
**Pinewood Landfill - Pinewood, SC**  
**Cell C**



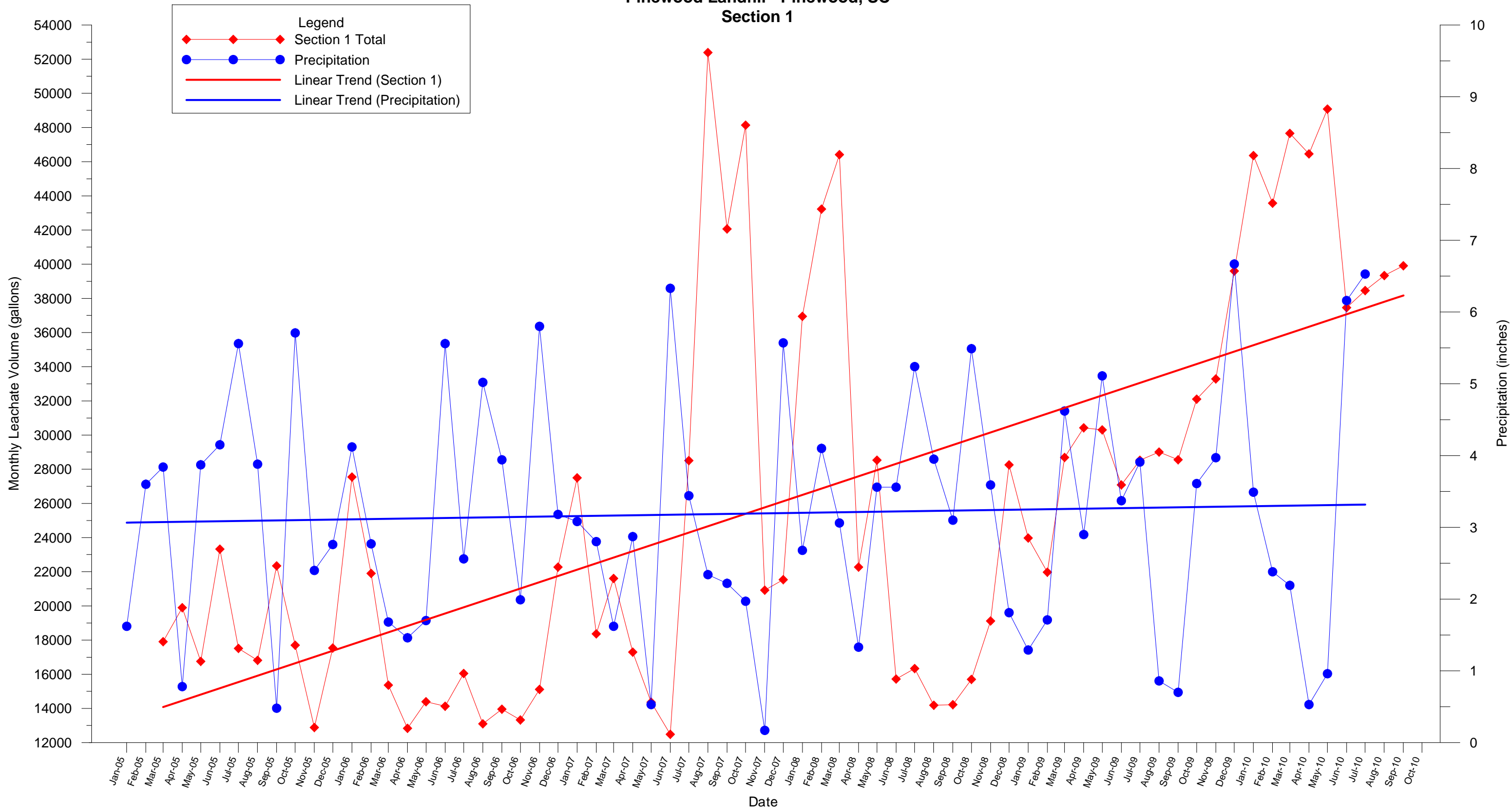
**Section I Primary Leachate Data and Precipitation**  
**March 2005 - September 2010**  
**Pinewood Landfill - Pinewood, SC**  
**Cell E**



**Section I Primary Leachate Data and Precipitation**  
**March 2005 - September 2010**  
**Pinewood Landfill - Pinewood, SC**  
**1D2P**

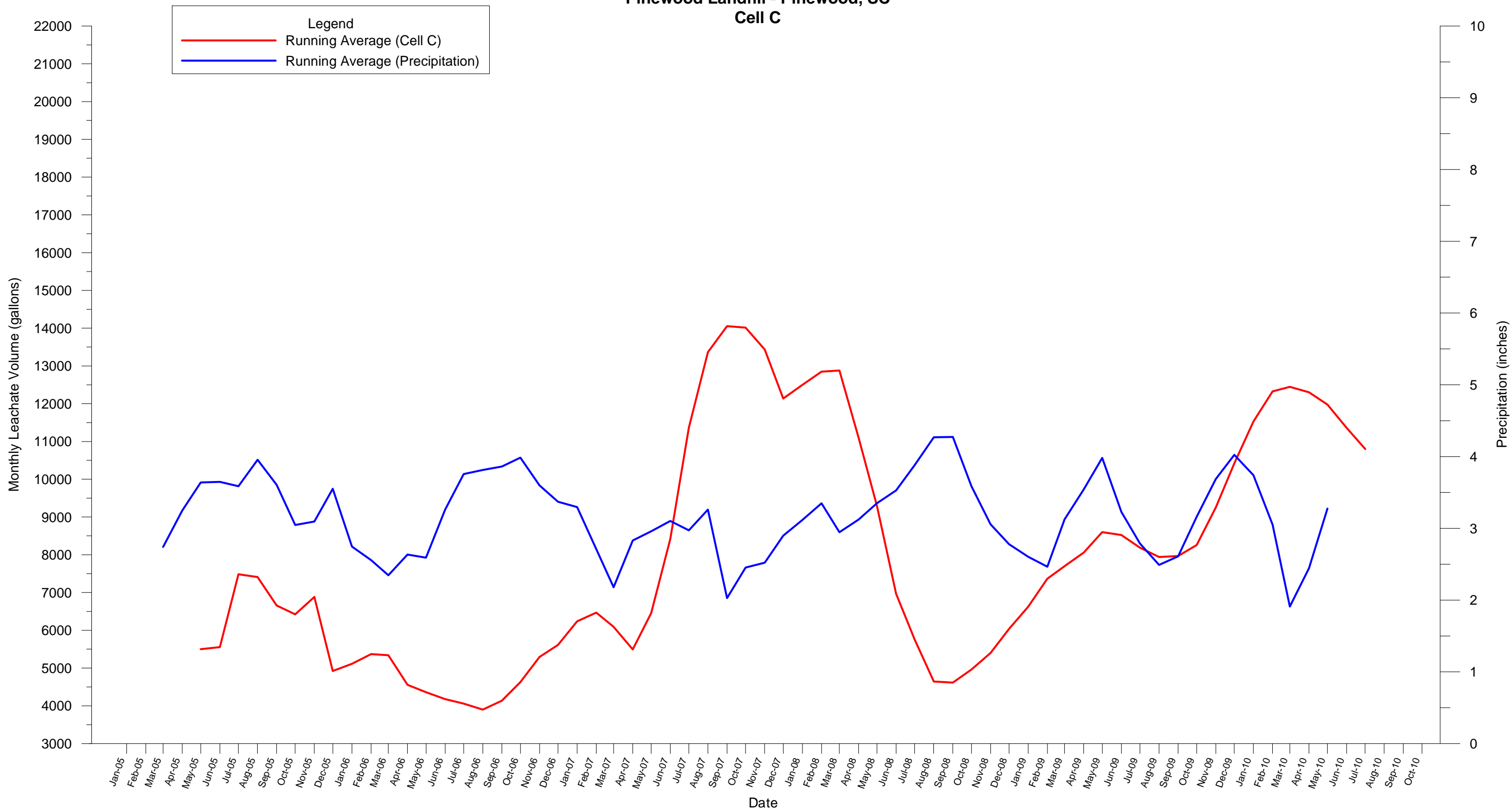


**Section I Primary Leachate Data and Precipitation**  
**March 2005 - September 2010**  
**Pinewood Landfill - Pinewood, SC**  
**Section 1**



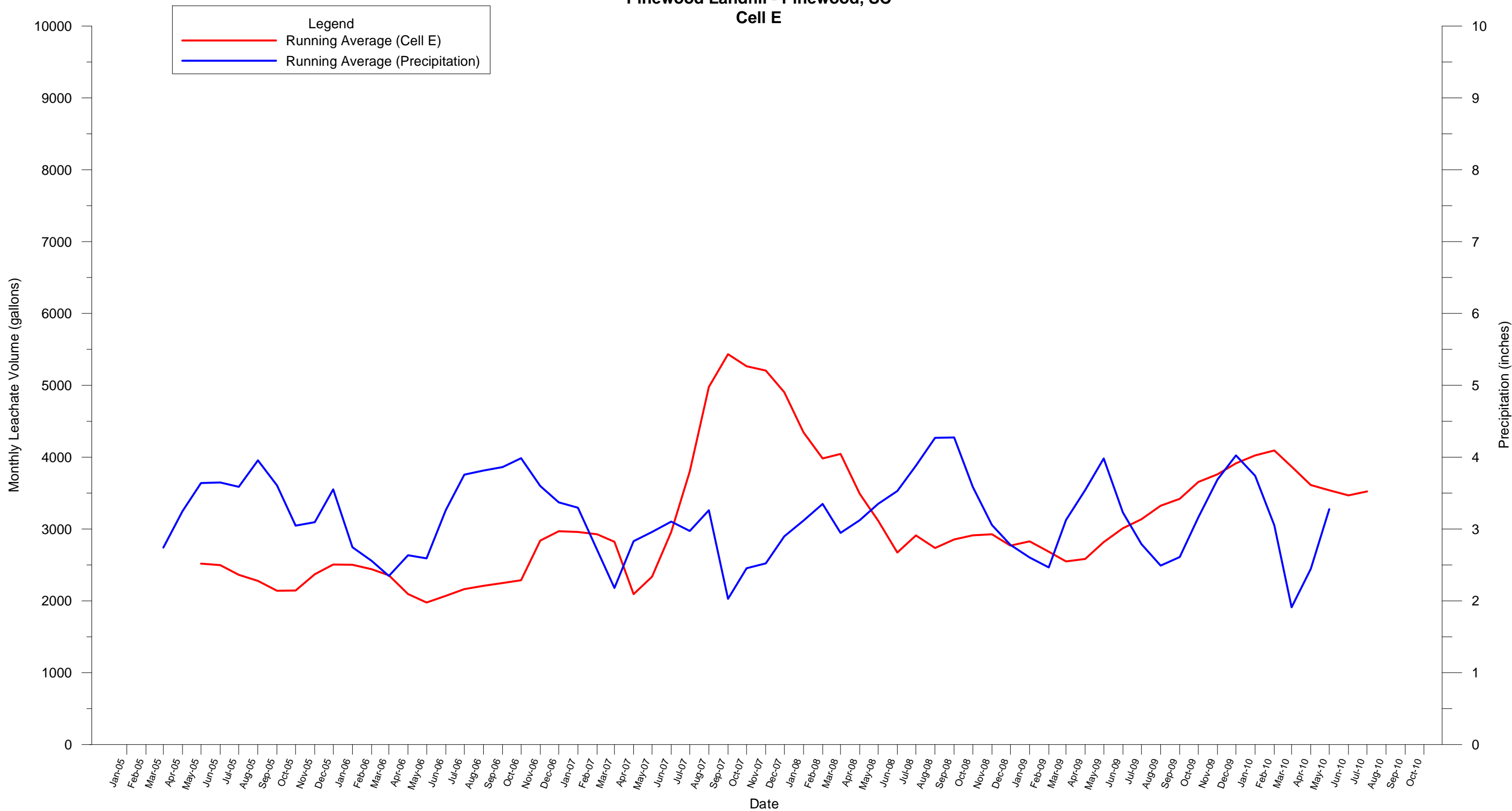
## 5-Month Running Average Rainfall vs. Leachate Production

**Section I Primary Leachate Data and Precipitation**  
**March 2005 - September 2010**  
**Pinewood Landfill - Pinewood, SC**  
**Cell C**

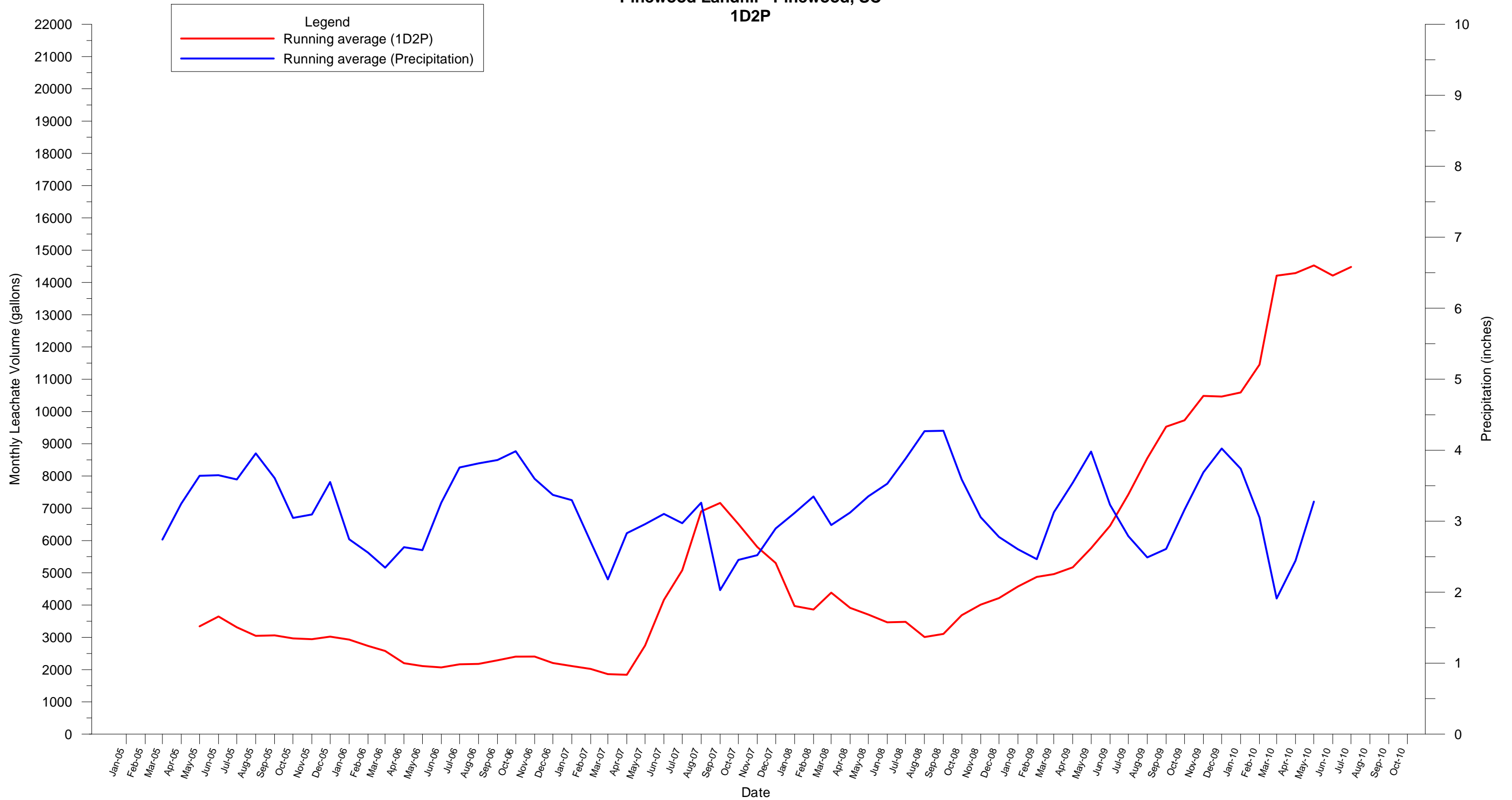




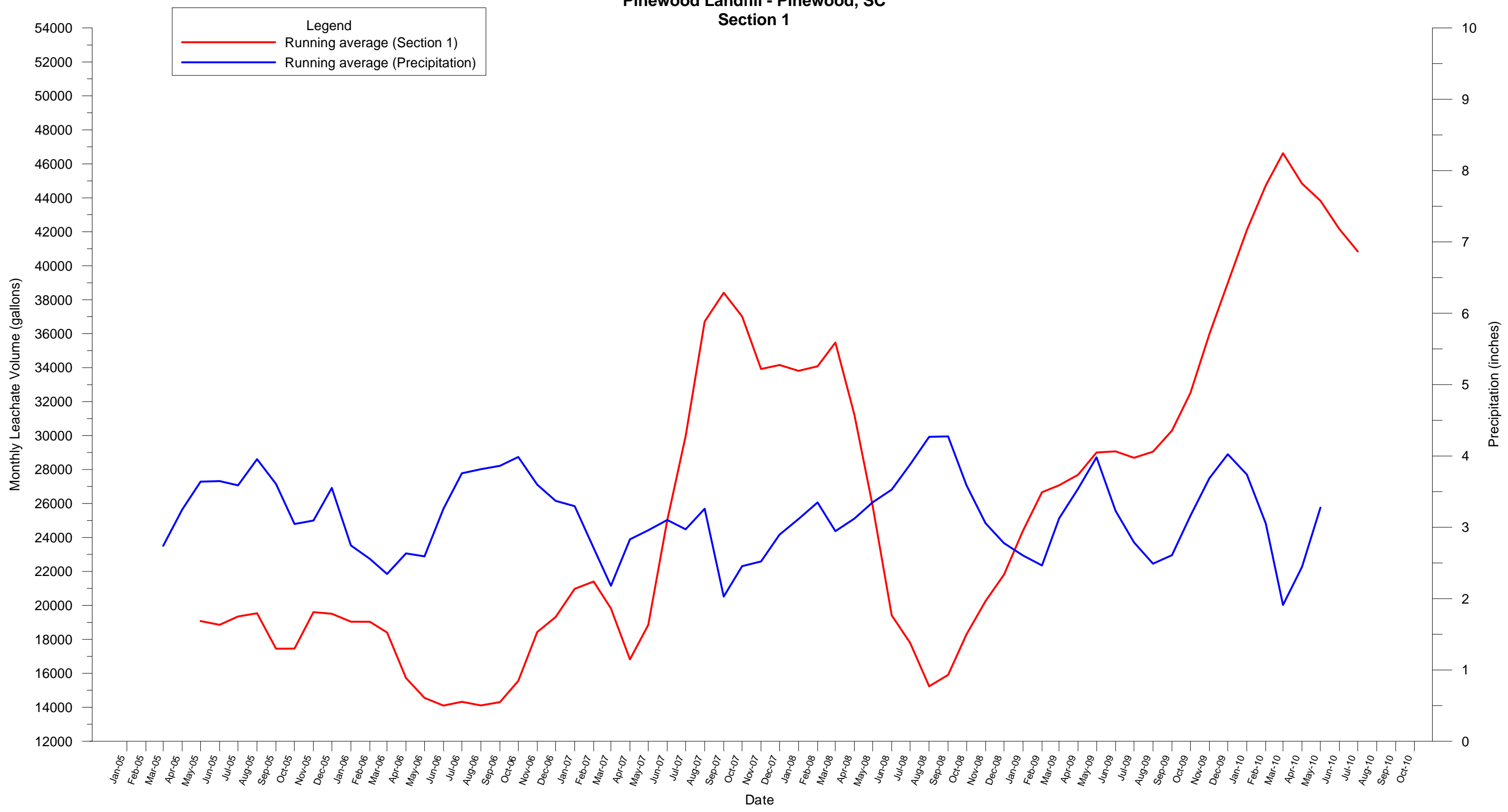
**Section I Primary Leachate Data and Precipitation**  
**March 2005 - September 2010**  
**Pinewood Landfill - Pinewood, SC**  
**Cell E**



**Section I Primary Leachate Data and Precipitation**  
**March 2005 - September 2010**  
**Pinewood Landfill - Pinewood, SC**  
**1D2P**

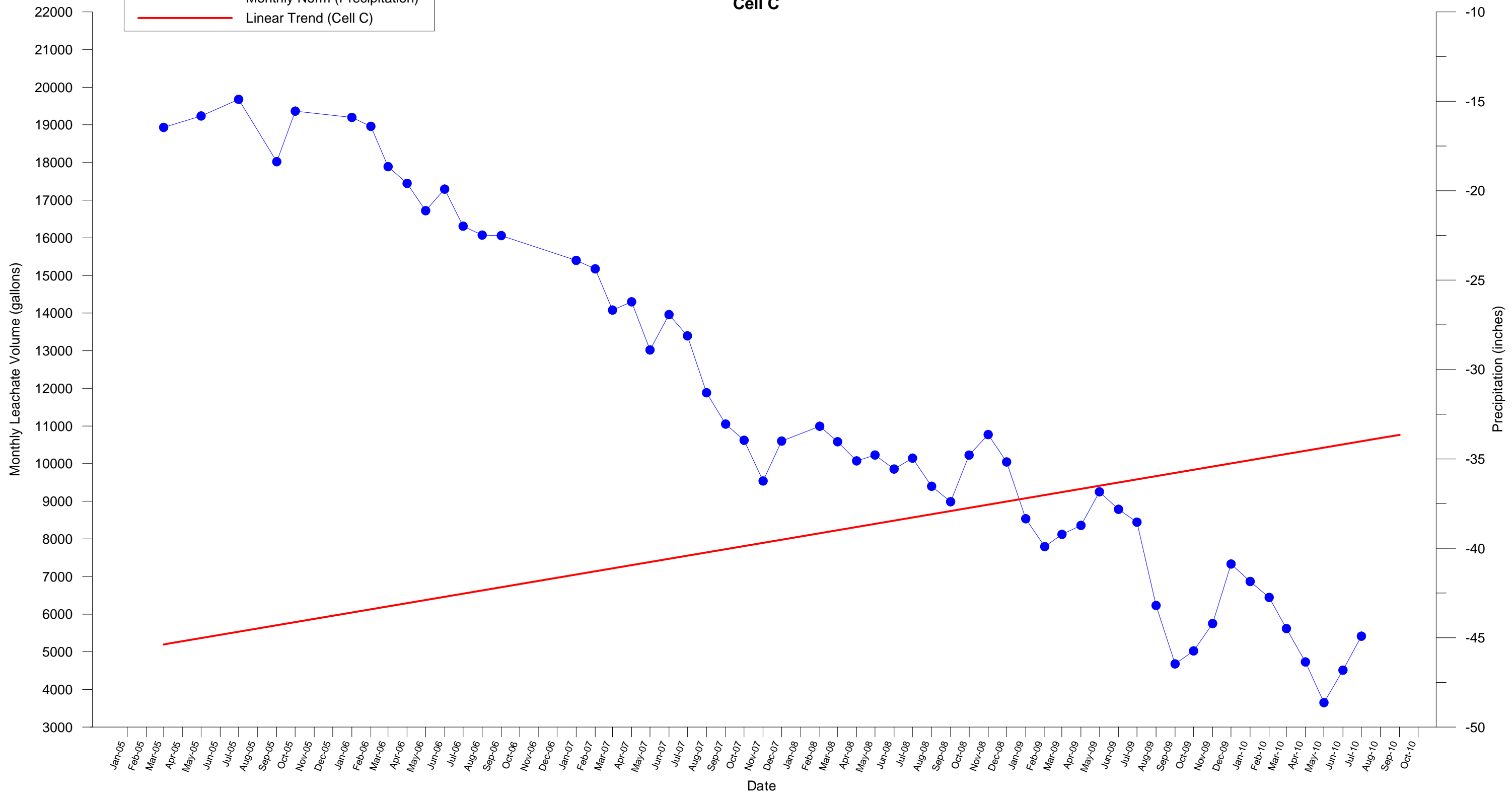
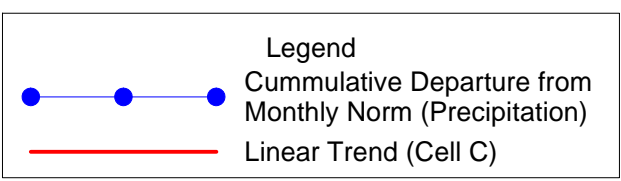


**Section I Primary Leachate Data and Precipitation**  
**March 2005 - September 2010**  
**Pinewood Landfill - Pinewood, SC**  
**Section 1**

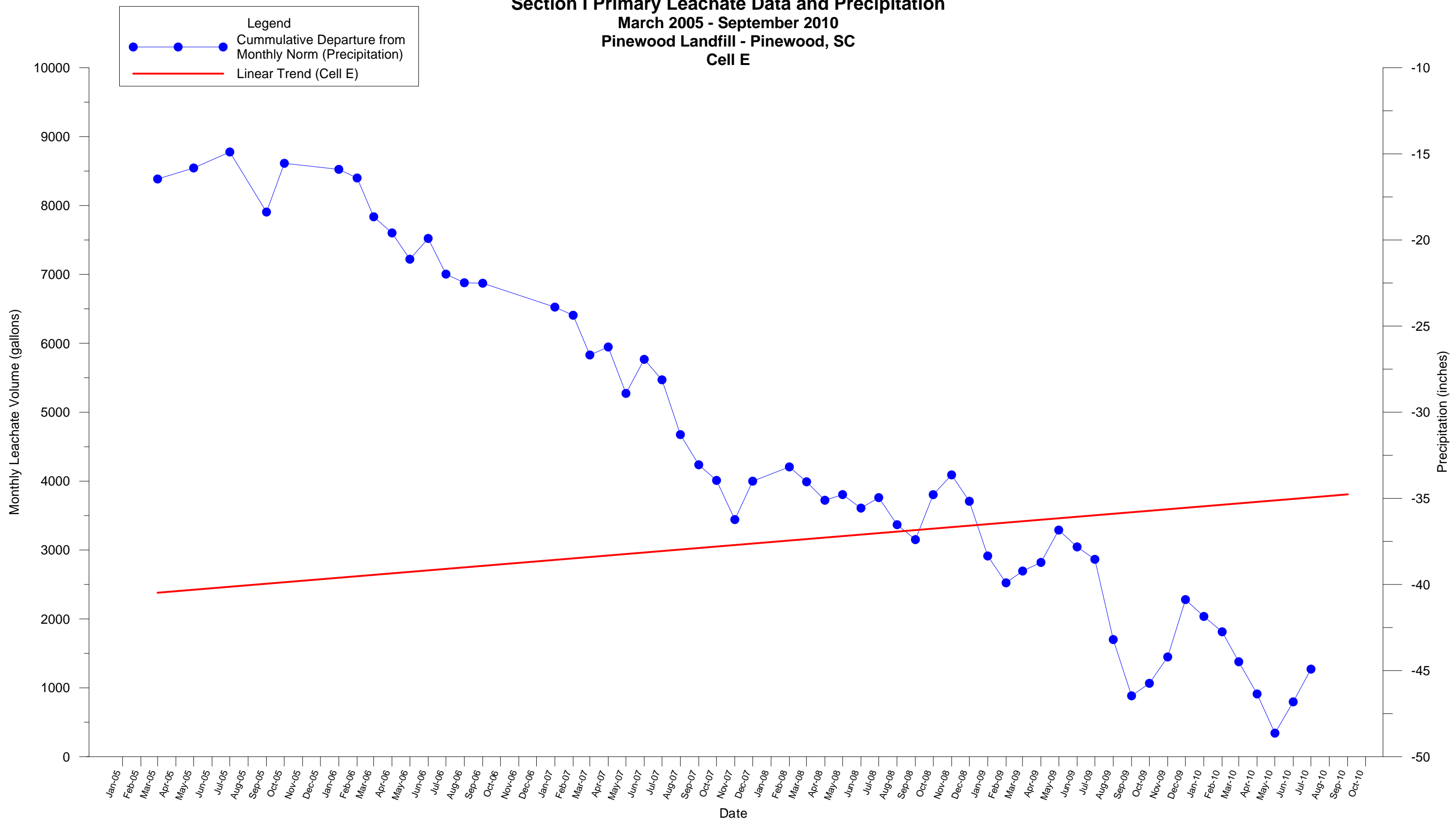


## Rainfall Departure vs. Leachate Trend

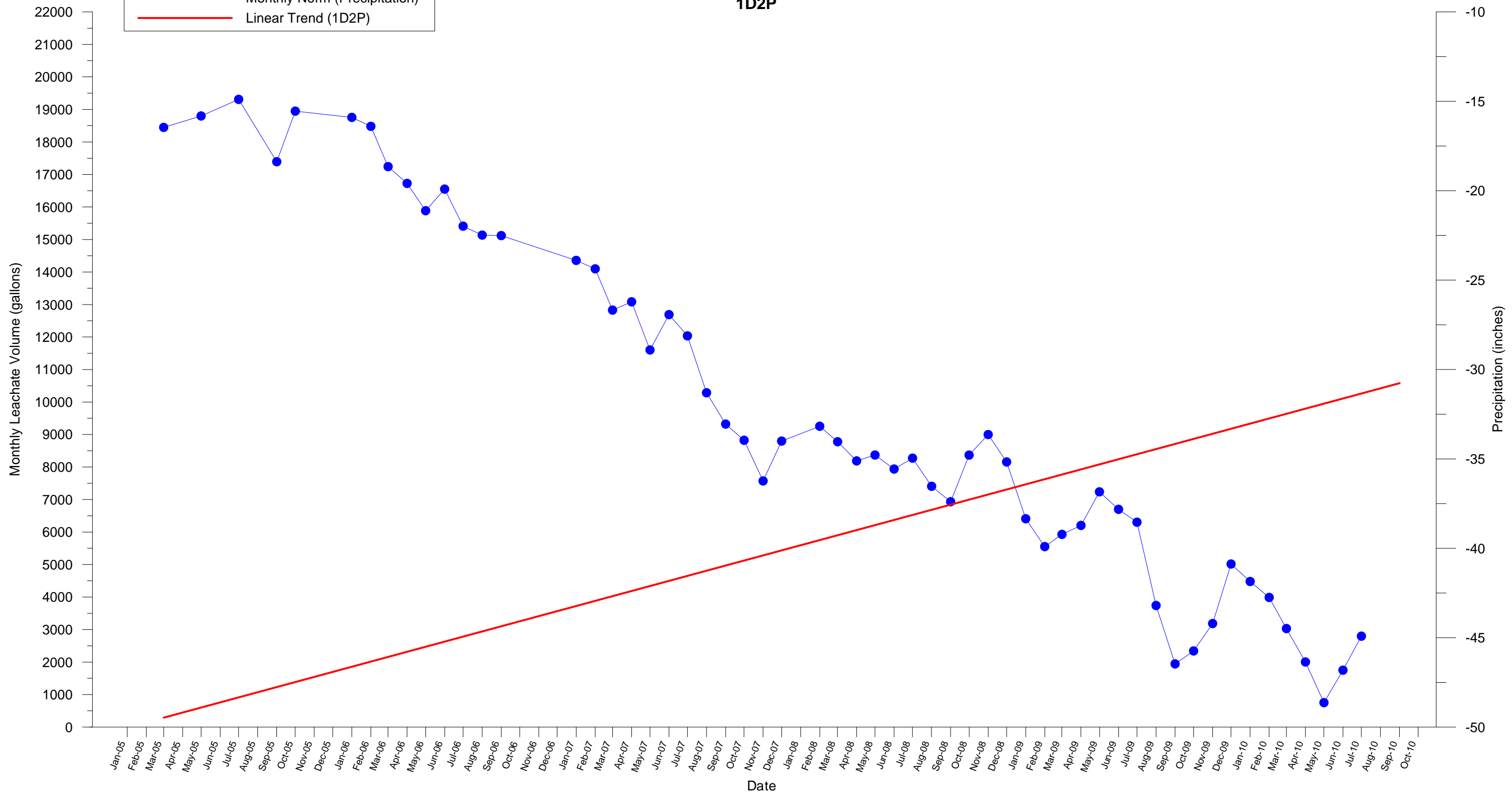
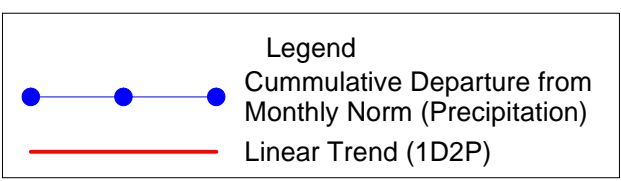
**Section I Primary Leachate Data and Precipitation**  
**March 2005 - September 2010**  
**Pinewood Landfill - Pinewood, SC**  
**Cell C**



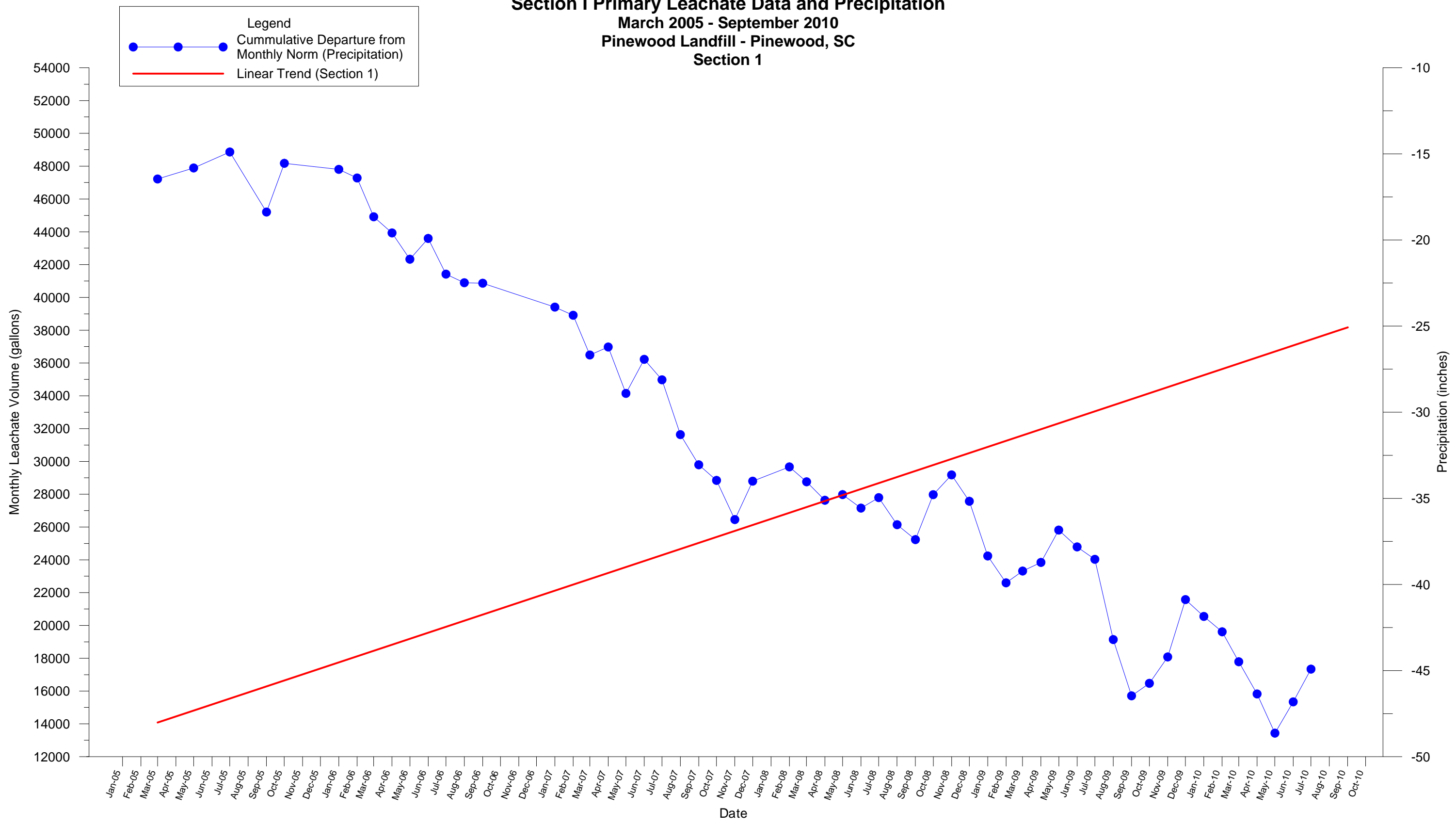
**Section I Primary Leachate Data and Precipitation**  
**March 2005 - September 2010**  
**Pinewood Landfill - Pinewood, SC**  
**Cell E**



**Section I Primary Leachate Data and Precipitation**  
**March 2005 - September 2010**  
**Pinewood Landfill - Pinewood, SC**  
**1D2P**



**Section I Primary Leachate Data and Precipitation**  
**March 2005 - September 2010**  
**Pinewood Landfill - Pinewood, SC**  
**Section 1**





## **Appendix 2.5-1**

### **WL Gore & Associates Report**



# GORE<sup>®</sup> Surveys

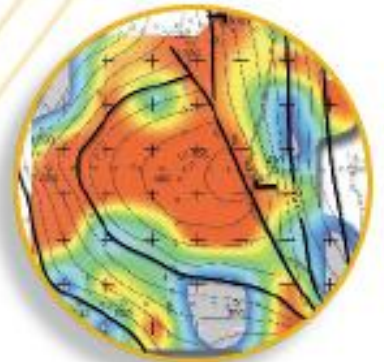
Final Report

Project: PSCT Section I Cover, Pinewood, SC  
Gore Order Number: 20784505  
Date Prepared: December 28, 2010  
Prepared for: AECOM  
10 Patewood Drive  
Bldg. VI, Suite 500  
Greenville, SC 29615

Written/Submitted by  
James E. Whetzel  
Project Manager

Reviewed/Approved by  
Hilary G. Trethewey  
Project Manager

Analytical Data Reviewed by  
Ian McMullen  
Chemist



W.L. Gore & Associates, Inc.  
Survey Products Group

## **GORE® Surveys - Final Report**

**REPORT DATE:** 12/28/2010

**AUTHOR:** JW

### **SITE INFORMATION**

**Site Reference:** PSCT Section I Cover, Pinewood, SC

**Gore Production Order Number:** 20784505

**Gore Site Code:** FRM

### **FIELD PROCEDURES**

**# Modules shipped:** 59

**Installation Date(s):** 10/27/2010

**# Modules Installed:** 55

**Field work performed by:** AECOM

**Retrieval date(s):** 11/10/2010

**# Modules Retrieved:** 52

**# Modules Lost in Field:** 0

**# Modules Not Returned:** 0

**Exposure Time:** 14 [days]

**# Trip Blanks Returned:** 4

**# Unused Modules Returned:** 3

**Date/Time Received by Gore:** 11/12/2010 2:00 PM      **By:** CW

**Chain of Custody Form attached:** Yes

**Chain of Custody discrepancies:** None

**Comments:**

Modules 648040, -052, -081, and -082 were identified as trip blanks.

Modules 648083 to -085 were returned unused.

# GORE<sup>®</sup> Surveys - Final Report

## QUALITY ASSURANCE STATEMENT

**W.L. Gore & Associates' Survey Products' Laboratory operates under the guidelines of ISO Standard 17025, its Quality Assurance Manual, Operating Procedures and Methods. For this project, the analytical method, reported results, and observations reported are considered screening level and do not fall within the scope of W.L. Gore's ISO 17025 accreditation.**

## ANALYTICAL PROCEDURES

Instrumentation consists of state of the art gas chromatographs equipped with mass selective detectors, coupled with automated thermal desorption units. Sample preparation simply involves cutting the tip off the bottom of the sample module and transferring one or more exposed sorbent containers (sorbents, each containing engineered adsorbents) to a thermal desorption tube for analysis. Sorbents remain clean and protected from dirt, soil, and ground water by the insertion/retrieval cord, and require no further sample preparation.

### **Analytical Method Quality Assurance:**

The analytical method employed is a modified EPA method 8260/8270. Before each run sequence, two instrument blanks, a sorber containing 5µg BFB (Bromofluorobenzene), and a method blank are analyzed. The BFB mass spectra must meet the criteria set forth in the method before samples can be analyzed. A method blank and a sorber containing BFB are also analyzed after every 30 samples and/or trip blanks. Standards containing the selected target compounds at five calibration levels are analyzed at the beginning of each run. The criterion for each target compound is less than 25% RSD (relative standard deviation). If this criterion is not met for any target compound, the analyst has the option of generating second- or third-order standard curves, as appropriate. A second-source reference standard, at a level of 10µg per target compound, is analyzed after every ten samples and/or trip blanks, and at the end of the run sequence. Positive identification of target compounds is determined by 1) the presence of the target ion and at least two secondary ions; 2) retention time versus reference standard; and, 3) the analyst's judgment.

**NOTE: All data have been archived. Any replicate sorbents not used in the initial analysis will be discarded fifteen (15) days from the date of analysis.**

**Laboratory analysis:** thermal desorption, gas chromatography, mass selective detection

**Instrument ID:** # 5 **Chemist:** FN/ IM

**Compounds/mixtures requested:** A1

**Deviations from Standard Method:** None

**Comments:** Soil vapor analytes and abbreviations are tabulated in the Data Table Key (page 6). The top 5 tentatively identified compounds were identified using the NIST 2002 Mass Spectral Library. Estimated mass values were quantified using the response factor for undecane.

# GORE® Surveys - Final Report

## DATA TABULATION

# **CONTOUR MAPS ENCLOSED:** Six (6) B-sized color contour maps

**LIST OF MAPS ENCLOSED:**

- Benzene, Toluene, Ethyl benzene, and total Xylenes (BTEX)
- Tetrachloroethene (PCE)
- Trichloroethene (TCE)
- cis- & trans-1,2-Dichloroethene (c-, t-1,2-DCE)
- 1,1,1-Trichloroethane (1,1,1-TCA)
- 1,1-Dichloroethane (1,1-DCA)

**NOTE: All data values presented in Appendix A represent masses of compound(s) desorbed from the GORE® Modules received and analyzed by W.L. Gore & Associates, Inc., as identified in the Chain of Custody (Appendix A). The measurement traceability and instrument performance are reproducible and accurate for the measurement process documented. Semi-quantitation of the compound mass is based on a five-level standard calibration.**

**General Comments:**

- This survey reports soil gas mass levels present in the vapor phase. Vapors are subject to a variety of attenuation factors during migration away from the source concentration to the module. Thus, mass levels reported from the module will often be less than concentrations reported in soil and groundwater matrix data. In most instances, the soil gas masses reported on the modules compare favorably with concentrations reported in the soil or groundwater (e.g., where soil gas levels are reported at greater levels relative to other sampled locations on the site, matrix data should reveal the same pattern, and vice versa). However, due to a variety of factors, a perfect comparison between matrix data and soil gas levels can rarely be achieved.
- Soil gas signals reported by this method cannot be identified specifically to soil adsorbed, groundwater, and/or free-product contamination. The soil gas signal reported from each module can evolve from all of these sources. Differentiation between soil and groundwater contamination can only be achieved with prior knowledge of the site history (i.e., the site is known to have groundwater contamination only).
- Total petroleum hydrocarbon (TPH) values were calculated using the area under the peaks observed in m/z 55 and 57 selected ion chromatograms. Quantitation of the mass value was performed using the response factor a specific alkane (present in the calibration standards).
- TPH values include the entire chromatogram and provide estimates for aliphatic hydrocarbon ranges of C4 to C20.

## GORE<sup>®</sup> Surveys - Final Report

- QA/QC trip blank modules were provided to document potential exposures that were not part of the soil gas signal of interest (i.e., impact during module shipment, installation and retrieval, and storage). The trip blanks are identically manufactured and packaged soil gas modules to those modules placed in the subsurface. However, the trip blanks remain unopened during all phases of the soil gas survey. Levels reported on the trip blanks may indicate potential impact to modules other than the contaminant source of interest.
- Unresolved peak envelopes (UPEs) are represented as a series of compound peaks clustered together around a central gas chromatograph elution time in the total ion chromatogram. Typically, UPEs are indicative of complex fluid mixtures that are present in the subsurface. UPEs observed early in the chromatogram are considered to indicate the presence of more volatile fluids, while UPEs observed later in the chromatogram may indicate the presence of less volatile fluids. Multiple UPEs may indicate the presence of multiple complex fluids.
- Stacked total ion chromatograms (TICs) are included in Appendix A. The six-digit serial number of each module is incorporated into the TIC identification (e.g.: 123456S.D represents module #123456).

### **Project Specific Comments:**

- The minimum (gray) contour level, for each mapped analyte or group of analytes, was set at the maximum blank level observed or the method detection limit, whichever was greater. When target compounds are combined (i.e., BTEX), the contour minimum is arbitrarily set at 0.02 µg or the maximum blank level, whichever is greater. The maximum contour level was set at the maximum value observed.
- No target compounds were detected on the trip blanks and/or the method blanks. Thus, target analyte levels reported for the field-installed modules that exceed trip and method blank levels, and the analyte method detection limit, are more likely to have originated from on-site sources.
- Up to five non-target peaks with the greatest area were identified for each sample using a mass spectral library. Estimated mass values were quantified using the response factor for undecane. Tentative identifications and estimated mass values are included in the appendix.
- The mapped spatial patterns indicated partially defined contaminant plumes in the survey area.

# GORE<sup>®</sup> Surveys - Final Report

## KEY TO DATA TABLE

### UNITS

µg	micrograms, relative mass value
MDL	method detection limit
bdl	below detection limit; compound was observed at level below the MDL
nd	non-detect, compound was not detected at any level

### ANALYTES

TPH	total petroleum hydrocarbons
BTEX	combined masses of benzene, toluene, ethylbenzene and total xylenes (Gasoline Range Aromatics)
BENZ	benzene
TOL	toluene
EtBENZ	ethylbenzene
mpXYL	m-, p-xylene
oXYL	o-xylene
C11,C13&C15	combined masses of undecane, tridecane, and pentadecane (C11+C13+C15) (Diesel Range Alkanes)
UNDEC	undecane
TRIDEC	tridecane
PENTADEC	pentadecane
TMBs	combined masses of 1,3,5-trimethylbenzene and 1,2,4-trimethylbenzene
135TMB	1,3,5-trimethylbenzene
124TMB	1,2,4-trimethylbenzene
ct12DCE	cis- & trans-1,2-dichloroethene
t12DCE	trans-1,2-dichloroethene
c12DCE	cis-1,2-dichloroethene
NAPH&2-MN	combined masses of naphthalene and 2-methyl naphthalene
NAPH	naphthalene
2MeNAPH	2-methyl naphthalene
MTBE	methyl t-butyl ether
11DCA	1,1-dichloroethane
CHCl <sub>3</sub>	chloroform
111TCA	1,1,1-trichloroethane
12DCA	1,2-dichloroethane
CCl <sub>4</sub>	carbon tetrachloride
TCE	trichloroethene
OCT	octane
PCE	tetrachloroethene
CIBENZ	chlorobenzene
14DCB	1,4-dichlorobenzene
112TCA	1,1,2-trichloroethane
1112TetCA	1,1,1,2-tetrachloroethane
1122TetCA	1,1,2,2-tetrachloroethane
13DCB	1,3-dichlorobenzene
12DCB	1,2-dichlorobenzene
11DCE	1,1-dichloroethene

### BLANKS

method blank	QA/QC module, documents analytical conditions during analysis
--------------	---

## **APPENDIX A:**

1. CHAIN OF CUSTODY AND INSTALLATION/ RETRIEVAL LOG
2. DATA TABLE
3. TENTATIVELY IDENTIFIED COMPOUNDS REPORT
4. STACKED TOTAL ION CHROMATOGRAMS
5. CONTOUR MAPS



# GORE-SORBER® Screening Survey Chain of Custody

For W.L. Gore & Associates use only  
Production Order # 20784505



W. L. Gore & Associates, Inc., Survey Products Group

100 Chesapeake Boulevard • Elkton, Maryland 21921 • Tel: (410) 392-7600 • Fax (410) 506-4780

Instructions: Customer must complete ALL shaded cells

P SCT SECTION I COVER

Customer Name: <u>AECOM</u>	Site Name: <u>KESTREL HORIZONS</u>
Address: <u>10 PATEWOOD DRIVE</u> <u>BLDG 6 SUITE 500</u> <u>GREENVILLE SC 29615</u>	Site Address: <u>PINEWOOD, SC</u>
Phone: <u>(864) 234 8925</u>	Project Manager: <u>WALTER GERALD</u>
FAX: _____	Customer Project No.: <u>60186203 1</u>
	Customer P.O. #: <u>10820 ACM</u> Quote #: _____

Serial # of Modules Shipped	# of Modules for Installation	# of Trip Blanks
# 648027 - # 648085	55	4
# - #	Total Modules Shipped: <u>59</u>	Pieces
# - #	Total Modules Received: <u>59</u>	Pieces
# - #	Total Modules Installed: <u>52</u>	Pieces
# - #	Serial # of Trip Blanks (Client Decides)	#
# - #	# <u>648040</u>	#
# - #	# <u>648052</u>	#
# - #	# <u>648081</u>	#
# - #	# <u>648082</u>	#
# - #	#	#
# - #	#	#
# - #	#	#
# - #	#	#
# - #	#	#
# - #	#	#
# - #	#	#
# - #	#	#
# - #	#	#
# - #	#	#
Prepared By: <u>Merrilee Mengel</u>	#	#
Verified By: <u>Chuck Suddeth</u>	#	#

Installation Performed By:	Installation Method(s) (circle those that apply):
Name (please print): <u>ABHISHEK GUPTA / CHUCK SUDDETH</u>	Slide Hammer <input type="checkbox"/> <b>Hammer Drill</b> <input checked="" type="checkbox"/> Auger <input type="checkbox"/>
Company/Affiliation: <u>AECOM</u>	Other: _____

Installation Start Date and Time: 10 / 26 / 2010 : 1339 AM PM

Installation Complete Date and Time: 10 / 27 / 2010 : 1715 AM PM

Retrieval Performed By:	Total Modules Retrieved: <u>52</u>	Pieces
Name (please print): <u>ABHISHEK GUPTA / CHUCK SUDDETH</u>	Total Modules Lost in Field: <u>0</u>	Pieces
Company/Affiliation: <u>AECOM</u>	Total Unused Modules Returned: <u>3</u>	Pieces

Retrieval Start Date and Time: 11 / 10 / 10 : 10:26  AM  PM

Retrieval Complete Date and Time: 11 / 11 / 10 : 12:15 AM  PM

Relinquished By: <u>Merrilee Mengel</u>	Date: <u>10/21/10</u>	Time: <u>2:00</u>	Received By: _____	Date: _____	Time: _____
Affiliation: <u>W.L. Gore &amp; Associates, Inc.</u>			Affiliation: _____		
Relinquished By: <u>Charles K. Suddeth</u>	Date: <u>11/11/10</u>	Time: <u>1900</u>	Received By: _____	Date: _____	Time: _____
Affiliation: <u>AECOM</u>			Affiliation: _____		
Relinquished By: _____	Date: _____	Time: _____	Received By: <u>Charles K. Suddeth</u>	Date: <u>11/12/10</u>	Time: <u>14:00</u>
Affiliation: _____			Affiliation: <u>W.L. Gore &amp; Associates, Inc.</u>		

**GORE-SORBER® Screening Survey**  
**Installation and Retrieval Log**

**SITE NAME & LOCATION**

PSCT SECTION I COVER  
Pinewood, SC

Page 1 of 2

LINE #	MODULE #	INSTALLATION DATE/TIME	RETRIEVAL DATE/TIME	EVIDENCE OF LIQUID HYDROCARBONS (LPH) or HYDROCARBON ODOR (Check as appropriate)			MODULE IN WATER (check one)		COMMENTS
				LPH	ODOR	NONE	YES	NO	
1.	648027	10/26/10 13:39	11/10/10 10:26			✓		✓	BG-01
2.	648028	10/26/10 13:46	11/10/10 10:34			✓		✓	BG-02
3.	648029	10/26/10 14:13	11/10/10 11:08			✓		✓	SG-1A-01
4.	648030	10/26/10 14:26	11/10/10 11:11			✓		✓	SG-1A-02
5.	648031	10/26/10 14:31	11/10/10 11:26			✓		✓	SG-1A-03
6.	648032	10/26/10 14:44	11/10/10 11:14			✓		✓	SG-1A-04
7.	648033	10/26/10 14:52	11/10/10 11:17			✓		✓	SG-1A-06
8.	648034	10/26/10 15:02	11/10/10 11:28			✓		✓	SG-1A-05
9.	648035	10/26/10 15:10	11/10/10 11:31			✓		✓	SG-1A-07
10.	648036	10/26/10 15:15	11/10/10 11:22			✓		✓	SG-1A-09
11.	648037	10/26/10 15:27	11/10/10 11:20			✓		✓	SG-1A-08
12.	648038	10/26/10 15:45	11/10/10 11:03			✓		✓	<del>SG-1B-10</del> SG-1B-10
13.	648039	10/26/10 15:52	11/10/10 11:00			✓		✓	SG-1C-20
14.	648040	10/26/10 16:00	11/10/10 11:04			✓		✓	TRIP BLANK-01
15.	648041	10/26/10 16:01	11/10/10 11:05			✓		✓	SG-1B-11
16.	648042	10/26/10 16:27	11/10/10 11:46			✓		✓	SG-1B-12
17.	648043	10/26/10 16:38	11/10/10 11:49			✓		✓	SG-1B-13
18.	648044	10/26/10 16:45	11/10/10 11:52			✓		✓	SG-1B-14
19.	648045	10/26/10 16:54	11/10/10 11:56			✓		✓	SG-1B-15
20.	648046	10/26/10 16:58	11/10/10 11:58			✓		✓	SG-1B-16
21.	648047	10/26/10 17:07	11/10/10 11:44			✓		✓	SG-1C-22
22.	648048	10/26/10 17:13	11/10/10 12:00			✓		✓	SG-1C-24
23.	648049	10/26/10 17:33	11/10/10 11:41			✓		✓	SG-1C-26
24.	648050	10/26/10 17:38	11/10/10 11:35			✓		✓	SG-1B-17
25.	648051	10/26/10 17:44	11/10/10 11:37			✓		✓	SG-1B-18
26.	648052	10/26/10 17:45	11/10/10 12:05			✓		✓	TRIP BLANK-02
27.	648053	10/27/10 09:29	11/10/10 12:04			✓		✓	SG-1C-27
28.	648054	10/27/10 11:47	11/10/10 12:26			✓		✓	SG-1D-35
29.	648055	10/27/10 10:04	11/10/10 12:22			✓		✓	SG-1C-25
30.	648056	10/27/10 10:10	11/10/10 12:20			✓		✓	SG-1D-33
31.	648057	10/27/10 10:28	11/10/10 12:13			✓		✓	SG-1C-23
32.	648058	10/27/10 10:32	11/10/10 12:10			✓		✓	SG-1C-21
33.	648059	10/27/10 10:49	11/10/10 12:16			✓		✓	SG-1D-31
34.	648060	10/27/10 11:13	11/10/10 12:37			✓		✓	SG-1D-30
35.	648061	10/27/10 11:25	11/10/10 12:43			✓		✓	SG-1D-32
36.	648062	10/27/10 11:33	11/10/10 12:47			✓		✓	SG-1D-34
37.	648063	10/27/10 11:37	11/10/10 12:29			✓		✓	SG-1D-36
38.	648064	10/27/10 13:58	11/10/10 12:32			✓		✓	SG-1E-49
39.	648065	10/27/10 14:05	11/10/10 14:23			✓		✓	SG-1E-48
40.	648066	10/27/10 14:19	11/10/10 13:12			✓		✓	SG-1E-44
41.	648067	10/27/10 14:28	11/10/10 12:40			✓		✓	SG-1E-42
42.	648068	10/27/10 14:38	11/10/10 14:35			✓		✓	SG-1E-40

**GORE-SORBER® Screening Survey**  
**Installation and Retrieval Log**

SITE NAME & LOCATION

P&CT SECTION I COVER  
 Pinewood, SC

Page 2 of 2

LINE #	MODULE #	INSTALLATION DATE/TIME	RETRIEVAL DATE/TIME	EVIDENCE OF LIQUID HYDROCARBONS (LPH) or HYDROCARBON ODOR (Check as appropriate)			MODULE IN WATER (check one)		COMMENTS
				LPH	ODOR	NONE	YES	NO	
43.	648069	10/27/10 1444	11/10/10 1433			✓		✓	SG-1E-39
44.	648070	10/27/10 1448	11/10/10 1430			✓		✓	SG-1E-37
45.	648071	10/27/10 1455	11/10/10 1438			✓		✓	SG-1E-41
46.	648072	10/27/10 1459	11/10/10 1442			✓		✓	SG-1E-43
47.	648073	10/27/10 1505	11/10/10 1451			✓		✓	SG-1E-46
48.	648074	10/27/10 1527	11/10/10 1445			✓		✓	SG-1E-45
49.	648075	10/27/10 1536	11/10/10 1453			✓		✓	SG-1E-47
50.	648076	10/27/10 1540	11/10/10 1455			✓		✓	SG-1E-50
51.	648077	10/27/10 1641	11/10/10 1052 <sup>215</sup>			✓		✓	SG-1E-38
52.	648078	10/27/10 1658	11/10/10 1049			✓		✓	SG-1D-28
53.	648079	10/27/10 1710	11/10/10 1047			✓		✓	SG-1D-29
54.	648080	10/27/10 1714	11/10/10 1043			✓		✓	SG-1C-19
55.	648081	10/27/10 1715	11/10/10 1500			✓		✓	Trip Blank-03
56.	648082	10/27/10 1715	11/10/10 1500			✓		✓	Trip Blank-04
57.	648083								
58.	648084								
59.	648085								
60.									
61.									
62.									
63.									
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84.									

GORE(TM) SURVEYS ANALYTICAL RESULTS  
AECOM, GREENVILLE, SC  
GORE STANDARD TARGET VOCs/SVOCs (A1)  
PSCT, SECTION I COVER, PINWOOD, SC  
SITE FRM - PRODUCTION ORDER #20784505

DATE ANALYZED	FIELD ID	SAMPLE NAME	TPH, ug	BTEX, ug	BENZ, ug	TOL, ug	EtBENZ, ug	mpXYL, ug	oXYL, ug	C11, C13, &C15, ug
		MDL=	0.02		0.02	0.02	0.02	0.03	0.02	
11-19-10	BG-01	648027	16.45	0.26	0.13	0.07	0.02	0.04	bdl	0.07
11-19-10	BG-02	648028	0.11	nd	nd	nd	nd	nd	nd	nd
11-18-10	SG-1A-01	648029	0.12	0.06	0.06	nd	nd	nd	nd	nd
11-19-10	SG-1A-02	648030	0.09	nd	nd	nd	nd	nd	nd	nd
11-19-10	SG-1A-03	648031	0.31	nd	nd	nd	nd	nd	nd	nd
11-19-10	SG-1A-04	648032	0.18	0.02	0.02	nd	nd	nd	nd	nd
11-19-10	SG-1A-06	648033	0.19	nd	nd	nd	nd	nd	nd	nd
11-19-10	SG-1A-05	648034	0.16	0.04	0.04	nd	nd	nd	nd	nd
11-19-10	SG-1A-07	648035	0.04	nd	nd	nd	nd	nd	nd	nd
11-20-10	SG-1A-09	648036	0.06	bdl	bdl	nd	nd	nd	nd	nd
11-20-10	SG-1A-08	648037	0.08	nd	nd	nd	nd	nd	nd	nd
11-19-10	SG-1B-10	648038	0.08	0.06	0.06	nd	nd	nd	nd	nd
11-18-10	SG-1C-20	648039	18.29	0.20	0.20	bdl	nd	nd	nd	nd
11-19-10	SG-1B-11	648041	0.20	nd	nd	nd	nd	nd	nd	nd
11-19-10	SG-1B-12	648042	0.02	0.05	0.05	nd	nd	nd	nd	nd
11-18-10	SG-1B-13	648043	0.02	bdl	bdl	nd	nd	nd	nd	nd
11-19-10	SG-1B-14	648044	0.12	0.05	0.05	nd	nd	nd	nd	nd
11-18-10	SG-1B-15	648045	0.05	nd	nd	nd	nd	nd	nd	nd
11-18-10	SG-1B-16	648046	0.05	0.09	0.09	nd	nd	nd	nd	nd
11-19-10	SG-1B-22	648047	0.55	0.02	0.02	nd	nd	nd	nd	nd
11-19-10	SG-1B-24	648048	0.05	0.04	0.04	nd	nd	nd	nd	nd
11-20-10	SG-1B-26	648049	0.59	0.05	0.05	nd	nd	nd	nd	nd
11-19-10	SG-1B-17	648050	0.31	0.03	0.03	nd	nd	nd	nd	nd
11-18-10	SG-1B-18	648051	0.10	0.04	0.04	nd	nd	nd	nd	nd
11-19-10	SG-1C-27	648053	0.08	0.13	0.13	nd	nd	nd	nd	nd
11-18-10	SG-1D-35	648054	49.09	0.70	0.42	0.14	0.05	0.05	0.04	0.09
11-19-10	SG-1C-25	648055	0.09	0.02	0.02	nd	nd	nd	nd	nd
11-19-10	SG-1D-33	648056	0.91	0.08	0.05	0.02	nd	nd	bdl	nd
11-19-10	SG-1C-23	648057	2.63	0.13	0.10	0.03	nd	nd	bdl	bdl
11-19-10	SG-1C-21	648058	0.23	0.05	0.05	nd	nd	nd	nd	nd
11-19-10	SG-1D-31	648059	1.58	0.04	0.04	nd	nd	nd	nd	nd

No mdl is available for summed combinations of analytes. In summed columns (eg., BTEX), the reported values should be considered ESTIMATED if any of the individual compounds were reported as bdl.

GORE(TM) SURVEYS ANALYTICAL RESULTS  
 AECOM, GREENVILLE, SC  
 GORE STANDARD TARGET VOCs/SVOCs (A1)  
 PSCT, SECTION I COVER, PINWOOD, SC  
 SITE FRM - PRODUCTION ORDER #20784505

DATE ANALYZED	FIELD ID	SAMPLE NAME	TPH, ug	BTEX, ug	BENZ, ug	TOL, ug	EtBENZ, ug	mpXYL, ug	oXYL, ug	C11, C13, &C15, ug
		MDL=	0.02		0.02	0.02	0.02	0.03	0.02	
11-18-10	SG-1D-30	648060	0.18	0.06	0.06	nd	nd	nd	nd	nd
11-19-10	SG-1D-32	648061	0.47	0.09	0.09	nd	nd	nd	nd	nd
11-19-10	SG-1D-34	648062	0.03	0.03	0.03	nd	nd	nd	nd	nd
11-18-10	SG-1D-36	648063	bdl	nd	nd	nd	nd	nd	nd	nd
11-19-10	SG-1E-49	648064	1.25	0.96	0.16	0.36	0.10	0.19	0.14	nd
11-19-10	SG-1E-48	648065	0.47	0.07	0.05	nd	0.02	bdl	nd	nd
11-19-10	SG-1E-44	648066	8.13	0.73	0.70	nd	nd	nd	0.03	bdl
11-19-10	SG-1E-42	648067	0.12	0.05	0.05	nd	nd	nd	nd	nd
11-19-10	SG-1E-40	648068	0.24	nd	nd	nd	nd	nd	nd	nd
11-19-10	SG-1E-39	648069	0.38	0.20	0.20	nd	nd	nd	nd	nd
11-18-10	SG-1E-37	648070	0.47	0.03	0.03	nd	nd	nd	nd	nd
11-19-10	SG-1E-41	648071	0.10	0.02	0.02	nd	nd	nd	nd	nd
11-19-10	SG-1E-43	648072	0.08	0.55	0.52	0.03	nd	nd	nd	nd
11-19-10	SG-1E-46	648073	0.71	1.90	1.58	0.20	nd	0.05	0.06	nd
11-19-10	SG-1E-45	648074	0.39	0.04	0.04	nd	nd	nd	nd	nd
11-19-10	SG-1E-47	648075	0.09	0.09	nd	nd	nd	nd	0.09	nd
11-19-10	SG-1E-50	648076	bdl	0.04	0.04	nd	nd	nd	nd	nd
11-18-10	SG-1E-38	648077	25.83	0.07	0.07	nd	nd	bdl	bdl	0.02
11-19-10	SG-1D-28	648078	0.07	nd	nd	nd	nd	nd	nd	nd
11-19-10	SG-1D-29	648079	0.48	0.03	0.03	nd	nd	nd	nd	nd
11-18-10	SG-1C-19	648080	0.53	0.05	0.05	nd	nd	nd	nd	nd
11-19-10	TRIP BLANK-01	648040	nd	nd	nd	nd	nd	nd	nd	nd
11-19-10	TRIP BLANK-02	648052	nd	nd	nd	nd	nd	nd	nd	nd
11-19-10	TRIP BLANK-03	648081	nd	nd	nd	nd	nd	nd	nd	nd
11-19-10	TRIP BLANK-04	648082	nd	nd	nd	nd	nd	nd	nd	nd
11-18-10	method blank	method blank	nd	nd	nd	nd	nd	nd	nd	nd
11-19-10	method blank	method blank	nd	nd	nd	nd	nd	nd	nd	nd

No mdl is available for summed combinations of analytes. In summed columns (eg., BTEX), the reported values should be considered ESTIMATED if any of the individual compounds were reported as bdl.

GORE(TM) SURVEYS ANALYTICAL RESULTS  
AECOM, GREENVILLE, SC  
GORE STANDARD TARGET VOCs/SVOCs (A1)  
PSCT, SECTION I COVER, PINWOOD, SC  
SITE FRM - PRODUCTION ORDER #20784505

FIELD ID	SAMPLE NAME	UNDEC, ug	TRIDEC, ug	PENTADEC, ug	TMBs, ug	124TMB, ug	135TMB, ug	ct12DCE, ug	t12DCE, ug
	MDL=	0.04	0.02	0.02		0.02	0.03		0.04
BG-01	648027	0.07	nd	nd	bdl	bdl	nd	nd	nd
BG-02	648028	nd	nd	nd	nd	nd	nd	nd	nd
SG-1A-01	648029	nd	nd	nd	nd	nd	nd	nd	nd
SG-1A-02	648030	nd	nd	nd	nd	nd	nd	nd	nd
SG-1A-03	648031	nd	nd	nd	nd	nd	nd	nd	nd
SG-1A-04	648032	nd	nd	nd	nd	nd	nd	nd	nd
SG-1A-06	648033	nd	nd	nd	nd	nd	nd	nd	nd
SG-1A-05	648034	nd	nd	nd	nd	nd	nd	nd	nd
SG-1A-07	648035	nd	nd	nd	nd	nd	nd	nd	nd
SG-1A-09	648036	nd	nd	nd	nd	nd	nd	nd	nd
SG-1A-08	648037	nd	nd	nd	nd	nd	nd	nd	nd
SG-1B-10	648038	nd	nd	nd	nd	nd	nd	nd	nd
SG-1C-20	648039	nd	nd	nd	nd	nd	nd	26.33	4.00
SG-1B-11	648041	nd	nd	nd	nd	nd	nd	nd	nd
SG-1B-12	648042	nd	nd	nd	nd	nd	nd	nd	nd
SG-1B-13	648043	nd	nd	nd	nd	nd	nd	0.22	0.06
SG-1B-14	648044	nd	nd	nd	nd	nd	nd	nd	nd
SG-1B-15	648045	nd	nd	nd	nd	nd	nd	bdl	bdl
SG-1B-16	648046	nd	nd	nd	nd	nd	nd	1.43	0.68
SG-1B-22	648047	nd	nd	nd	nd	nd	nd	nd	nd
SG-1B-24	648048	nd	nd	nd	nd	nd	nd	nd	nd
SG-1B-26	648049	nd	nd	nd	bdl	nd	bdl	bdl	bdl
SG-1B-17	648050	nd	nd	nd	nd	nd	nd	nd	nd
SG-1B-18	648051	nd	nd	nd	nd	nd	nd	0.35	0.14
SG-1C-27	648053	nd	nd	nd	nd	nd	nd	nd	nd
SG-1D-35	648054	0.09	nd	nd	0.02	0.02	bdl	nd	nd
SG-1C-25	648055	nd	nd	nd	nd	nd	nd	nd	nd
SG-1D-33	648056	nd	nd	nd	nd	nd	nd	nd	nd
SG-1C-23	648057	bdl	nd	nd	bdl	bdl	bdl	nd	nd
SG-1C-21	648058	nd	nd	nd	nd	nd	nd	nd	nd
SG-1D-31	648059	nd	nd	nd	nd	nd	nd	nd	nd

No mdl is available for summed combinations of analytes. In summed columns (eg., BTEX), the reported values should be considered ESTIMATED if any of the individual compounds were reported as bdl.

GORE(TM) SURVEYS ANALYTICAL RESULTS  
AECOM, GREENVILLE, SC  
GORE STANDARD TARGET VOCs/SVOCs (A1)  
PSCT, SECTION I COVER, PINWOOD, SC  
SITE FRM - PRODUCTION ORDER #20784505

FIELD ID	SAMPLE NAME	UNDEC, ug	TRIDEC, ug	PENTADEC, ug	TMBs, ug	124TMB, ug	135TMB, ug	ct12DCE, ug	t12DCE, ug
	MDL=	0.04	0.02	0.02		0.02	0.03		0.04
SG-1D-30	648060	nd	nd	nd	nd	nd	nd	0.22	0.04
SG-1D-32	648061	nd	nd	nd	nd	nd	nd	0.63	nd
SG-1D-34	648062	nd	nd	nd	nd	nd	nd	nd	nd
SG-1D-36	648063	nd	nd	nd	nd	nd	nd	0.07	bdl
SG-1E-49	648064	nd	nd	nd	bdl	nd	bdl	0.47	0.04
SG-1E-48	648065	nd	nd	nd	nd	nd	nd	bdl	nd
SG-1E-44	648066	bdl	nd	nd	nd	nd	nd	31.43	1.02
SG-1E-42	648067	nd	nd	nd	nd	nd	nd	0.45	0.10
SG-1E-40	648068	nd	nd	nd	nd	nd	nd	nd	nd
SG-1E-39	648069	nd	nd	nd	nd	nd	nd	0.22	nd
SG-1E-37	648070	nd	nd	nd	nd	nd	nd	nd	nd
SG-1E-41	648071	nd	nd	nd	nd	nd	nd	0.60	0.20
SG-1E-43	648072	nd	nd	nd	nd	nd	nd	14.04	1.08
SG-1E-46	648073	nd	nd	nd	nd	nd	nd	5.48	0.90
SG-1E-45	648074	nd	nd	nd	nd	nd	nd	nd	nd
SG-1E-47	648075	nd	nd	nd	nd	nd	nd	0.22	bdl
SG-1E-50	648076	nd	nd	nd	nd	nd	nd	nd	nd
SG-1E-38	648077	bdl	0.02	bdl	0.04	0.04	bdl	nd	nd
SG-1D-28	648078	nd	nd	nd	nd	nd	nd	bdl	nd
SG-1D-29	648079	nd	nd	nd	nd	nd	nd	nd	nd
SG-1C-19	648080	nd	nd	nd	nd	nd	nd	nd	nd
TRIP BLANK-01	648040	nd	nd	nd	nd	nd	nd	nd	nd
TRIP BLANK-02	648052	nd	nd	nd	nd	nd	nd	nd	nd
TRIP BLANK-03	648081	nd	nd	nd	nd	nd	nd	nd	nd
TRIP BLANK-04	648082	nd	nd	nd	nd	nd	nd	nd	nd
method blank	method blank	nd	nd	nd	nd	nd	nd	nd	nd
method blank	method blank	nd	nd	nd	nd	nd	nd	nd	nd

No mdl is available for summed combinations of analytes. In summed columns (eg., BTEX), the reported values should be considered ESTIMATED if any of the individual compounds were reported as bdl.

GORE(TM) SURVEYS ANALYTICAL RESULTS  
AECOM, GREENVILLE, SC  
GORE STANDARD TARGET VOCs/SVOCs (A1)  
PSCT, SECTION I COVER, PINWOOD, SC  
SITE FRM - PRODUCTION ORDER #20784505

FIELD ID	SAMPLE NAME	c12DCE, ug	NAPH&2-MN, ug	NAPH, ug	2MeNAPH, ug	MTBE, ug	11DCE, ug	11DCA, ug	111TCA, ug
	MDL=	0.03		0.02	0.02	0.03	0.02	0.02	0.03
BG-01	648027	nd	nd	nd	nd	nd	nd	nd	nd
BG-02	648028	nd	nd	nd	nd	nd	nd	nd	nd
SG-1A-01	648029	nd	nd	nd	nd	nd	0.82	13.44	nd
SG-1A-02	648030	nd	nd	nd	nd	nd	nd	0.09	nd
SG-1A-03	648031	nd	nd	nd	nd	nd	nd	nd	nd
SG-1A-04	648032	nd	nd	nd	nd	nd	nd	0.07	nd
SG-1A-06	648033	nd	nd	nd	nd	nd	nd	0.12	nd
SG-1A-05	648034	nd	nd	nd	nd	nd	nd	nd	nd
SG-1A-07	648035	nd	nd	nd	nd	nd	nd	nd	nd
SG-1A-09	648036	nd	nd	nd	nd	nd	0.24	1.13	nd
SG-1A-08	648037	nd	nd	nd	nd	nd	bdl	0.05	nd
SG-1B-10	648038	nd	nd	nd	nd	nd	0.31	3.72	nd
SG-1C-20	648039	22.33	nd	nd	nd	nd	7.74	20.80	0.04
SG-1B-11	648041	nd	nd	nd	nd	nd	0.06	1.51	nd
SG-1B-12	648042	nd	nd	nd	nd	nd	0.10	1.33	nd
SG-1B-13	648043	0.16	nd	nd	nd	nd	0.02	0.37	nd
SG-1B-14	648044	nd	nd	nd	nd	nd	nd	nd	nd
SG-1B-15	648045	nd	nd	nd	nd	nd	0.15	1.56	nd
SG-1B-16	648046	0.75	nd	nd	nd	nd	0.50	5.70	bdl
SG-1B-22	648047	nd	nd	nd	nd	nd	nd	nd	nd
SG-1B-24	648048	nd	nd	nd	nd	nd	nd	nd	nd
SG-1B-26	648049	nd	nd	nd	nd	nd	1.67	9.19	bdl
SG-1B-17	648050	nd	nd	nd	nd	nd	nd	nd	nd
SG-1B-18	648051	0.21	nd	nd	nd	nd	0.05	1.35	nd
SG-1C-27	648053	nd	nd	nd	nd	nd	nd	0.05	nd
SG-1D-35	648054	nd	bdl	nd	bdl	nd	nd	nd	nd
SG-1C-25	648055	nd	nd	nd	nd	nd	nd	nd	nd
SG-1D-33	648056	nd	nd	nd	nd	nd	0.03	0.31	nd
SG-1C-23	648057	nd	nd	nd	nd	nd	nd	nd	nd
SG-1C-21	648058	nd	nd	nd	nd	nd	nd	nd	nd
SG-1D-31	648059	nd	nd	nd	nd	nd	nd	nd	nd

No mdl is available for summed combinations of analytes. In summed columns (eg., BTEX), the reported values should be considered ESTIMATED if any of the individual compounds were reported as bdl.



GORE(TM) SURVEYS ANALYTICAL RESULTS  
AECOM, GREENVILLE, SC  
GORE STANDARD TARGET VOCs/SVOCs (A1)  
PSCT, SECTION I COVER, PINEWOOD, SC  
SITE FRM - PRODUCTION ORDER #20784505

FIELD ID	SAMPLE NAME	c12DCE, ug	NAPH&2-MN, ug	NAPH, ug	2MeNAPH, ug	MTBE, ug	11DCE, ug	11DCA, ug	111TCA, ug
	MDL=	0.03		0.02	0.02	0.03	0.02	0.02	0.03
SG-1D-30	648060	0.18	nd	nd	nd	nd	0.17	6.00	nd
SG-1D-32	648061	0.63	nd	nd	nd	nd	nd	35.81	nd
SG-1D-34	648062	nd	nd	nd	nd	nd	0.75	2.67	nd
SG-1D-36	648063	0.07	nd	nd	nd	nd	0.26	2.47	nd
SG-1E-49	648064	0.43	nd	nd	nd	nd	3.45	3.07	11.35
SG-1E-48	648065	bdl	nd	nd	nd	bdl	0.18	0.22	nd
SG-1E-44	648066	30.41	nd	nd	nd	nd	8.30	35.44	1.35
SG-1E-42	648067	0.35	nd	nd	nd	bdl	0.24	7.36	nd
SG-1E-40	648068	nd	nd	nd	nd	nd	0.34	1.51	nd
SG-1E-39	648069	0.22	nd	nd	nd	nd	nd	nd	nd
SG-1E-37	648070	nd	nd	nd	nd	0.04	0.07	0.87	nd
SG-1E-41	648071	0.39	nd	nd	nd	nd	0.68	15.25	0.06
SG-1E-43	648072	12.95	nd	nd	nd	nd	1.23	20.93	nd
SG-1E-46	648073	4.57	nd	nd	nd	nd	2.33	22.12	0.07
SG-1E-45	648074	nd	nd	nd	nd	nd	bdl	0.75	nd
SG-1E-47	648075	0.22	nd	nd	nd	bdl	0.04	2.43	bdl
SG-1E-50	648076	nd	nd	nd	nd	nd	nd	0.19	nd
SG-1E-38	648077	nd	0.16	0.07	0.10	nd	nd	nd	nd
SG-1D-28	648078	bdl	nd	nd	nd	nd	nd	0.54	nd
SG-1D-29	648079	nd	nd	nd	nd	nd	0.02	0.89	nd
SG-1C-19	648080	nd	nd	nd	nd	nd	nd	nd	nd
TRIP BLANK-01	648040	nd	nd	nd	nd	nd	nd	nd	nd
TRIP BLANK-02	648052	nd	nd	nd	nd	nd	nd	nd	nd
TRIP BLANK-03	648081	nd	nd	nd	nd	nd	nd	nd	nd
TRIP BLANK-04	648082	nd	nd	nd	nd	nd	nd	nd	nd
method blank	method blank	nd	nd	nd	nd	nd	nd	nd	nd
method blank	method blank	nd	nd	nd	nd	nd	nd	nd	nd

No mdl is available for summed combinations of analytes. In summed columns (eg., BTEX), the reported values should be considered ESTIMATED if any of the individual compounds were reported as bdl.

GORE(TM) SURVEYS ANALYTICAL RESULTS  
AECOM, GREENVILLE, SC  
GORE STANDARD TARGET VOCs/SVOCs (A1)  
PSCT, SECTION I COVER, PINWOOD, SC  
SITE FRM - PRODUCTION ORDER #20784505

FIELD ID	SAMPLE NAME	12DCA, ug	TCE, ug	OCT, ug	PCE, ug	14DCB, ug	CHCl3, ug	CCI4, ug	112TCA, ug	CIBENZ, ug	1112TetCA, ug
	MDL=	0.02	0.02	0.02	0.02	0.02	0.02	0.03	0.02	0.02	0.03
BG-01	648027	nd	nd	bdl	nd	nd	nd	nd	nd	nd	nd
BG-02	648028	nd	nd	nd	nd	nd	nd	nd	nd	nd	nd
SG-1A-01	648029	nd	nd	nd	0.23	nd	0.03	nd	nd	nd	nd
SG-1A-02	648030	nd	nd	nd	nd	nd	nd	nd	nd	nd	nd
SG-1A-03	648031	nd	nd	nd	nd	nd	bdl	nd	nd	nd	nd
SG-1A-04	648032	nd	nd	nd	nd	nd	nd	nd	nd	nd	nd
SG-1A-06	648033	nd	nd	nd	nd	nd	nd	nd	nd	nd	nd
SG-1A-05	648034	nd	nd	nd	nd	nd	nd	nd	nd	nd	nd
SG-1A-07	648035	nd	nd	nd	nd	nd	0.04	nd	nd	nd	nd
SG-1A-09	648036	nd	nd	nd	nd	nd	nd	nd	nd	nd	nd
SG-1A-08	648037	nd	nd	nd	nd	nd	0.03	nd	nd	nd	nd
SG-1B-10	648038	nd	nd	nd	0.15	nd	nd	nd	nd	nd	nd
SG-1C-20	648039	nd	10.57	nd	0.91	nd	nd	nd	nd	nd	nd
SG-1B-11	648041	0.08	bdl	nd	0.03	nd	nd	nd	nd	nd	nd
SG-1B-12	648042	nd	nd	nd	nd	nd	0.03	nd	nd	nd	nd
SG-1B-13	648043	nd	1.17	nd	nd	nd	nd	nd	nd	nd	nd
SG-1B-14	648044	nd	nd	nd	nd	nd	nd	nd	nd	nd	nd
SG-1B-15	648045	nd	0.02	nd	0.56	nd	0.04	nd	0.15	nd	nd
SG-1B-16	648046	0.32	8.76	nd	14.66	nd	0.35	nd	0.66	nd	nd
SG-1B-22	648047	nd	nd	nd	nd	nd	nd	nd	nd	nd	nd
SG-1B-24	648048	nd	nd	nd	nd	nd	nd	nd	nd	nd	nd
SG-1B-26	648049	0.91	0.10	nd	1.55	nd	nd	nd	nd	nd	nd
SG-1B-17	648050	nd	nd	nd	nd	nd	nd	nd	nd	nd	nd
SG-1B-18	648051	0.37	0.59	nd	0.16	nd	0.03	nd	nd	nd	nd
SG-1C-27	648053	nd	nd	nd	nd	nd	0.05	nd	nd	nd	nd
SG-1D-35	648054	nd	nd	0.25	0.03	nd	nd	nd	nd	nd	nd
SG-1C-25	648055	nd	nd	nd	0.04	nd	0.05	nd	nd	nd	nd
SG-1D-33	648056	nd	nd	nd	nd	nd	nd	nd	nd	nd	nd
SG-1C-23	648057	nd	nd	bdl	nd	nd	nd	nd	nd	nd	nd
SG-1C-21	648058	nd	nd	nd	nd	nd	nd	nd	nd	nd	nd
SG-1D-31	648059	nd	nd	nd	nd	nd	nd	nd	nd	nd	nd

No mdl is available for summed combinations of analytes. In summed columns (eg., BTEX), the reported values should be considered ESTIMATED if any of the individual compounds were reported as bdl.

GORE(TM) SURVEYS ANALYTICAL RESULTS  
AECOM, GREENVILLE, SC  
GORE STANDARD TARGET VOCs/SVOCs (A1)  
PSCT, SECTION I COVER, PINEWOOD, SC  
SITE FRM - PRODUCTION ORDER #20784505

FIELD ID	SAMPLE NAME	12DCA, ug	TCE, ug	OCT, ug	PCE, ug	14DCB, ug	CHCl3, ug	CCI4, ug	112TCA, ug	CIBENZ, ug	1112TetCA, ug
	MDL=	0.02	0.02	0.02	0.02	0.02	0.02	0.03	0.02	0.02	0.03
SG-1D-30	648060	nd	nd	nd	nd	nd	nd	nd	nd	nd	nd
SG-1D-32	648061	0.23	7.06	nd	0.52	nd	0.10	nd	0.78	nd	nd
SG-1D-34	648062	nd	0.02	nd	nd	nd	nd	nd	nd	nd	nd
SG-1D-36	648063	nd	0.02	nd	nd	nd	0.04	nd	nd	nd	nd
SG-1E-49	648064	0.45	3.61	bdl	2.24	bdl	0.81	nd	0.37	nd	nd
SG-1E-48	648065	nd	bdl	nd	0.08	nd	0.02	nd	nd	nd	nd
SG-1E-44	648066	nd	28.10	0.03	31.33	0.11	7.67	nd	19.62	0.12	nd
SG-1E-42	648067	nd	1.60	nd	1.01	nd	0.04	nd	nd	0.05	nd
SG-1E-40	648068	nd	nd	nd	0.41	nd	0.47	nd	nd	0.02	nd
SG-1E-39	648069	nd	bdl	nd	nd	nd	nd	nd	nd	nd	nd
SG-1E-37	648070	nd	nd	nd	nd	nd	nd	nd	nd	nd	nd
SG-1E-41	648071	nd	1.92	nd	11.30	nd	0.10	nd	nd	nd	nd
SG-1E-43	648072	4.78	27.87	nd	3.08	nd	0.08	nd	nd	0.47	nd
SG-1E-46	648073	0.23	7.58	nd	3.77	nd	2.72	nd	3.26	bdl	nd
SG-1E-45	648074	nd	nd	nd	0.04	nd	nd	nd	nd	nd	nd
SG-1E-47	648075	nd	0.15	nd	0.16	nd	1.00	nd	nd	0.10	nd
SG-1E-50	648076	nd	nd	nd	0.03	nd	nd	nd	nd	nd	nd
SG-1E-38	648077	nd	nd	nd	nd	nd	nd	nd	nd	nd	nd
SG-1D-28	648078	nd	nd	nd	nd	nd	nd	nd	nd	nd	nd
SG-1D-29	648079	nd	nd	nd	nd	nd	nd	nd	nd	nd	nd
SG-1C-19	648080	nd	nd	nd	nd	nd	nd	nd	nd	nd	nd
TRIP BLANK-01	648040	nd	nd	nd	nd	nd	nd	nd	nd	nd	nd
TRIP BLANK-02	648052	nd	nd	nd	nd	nd	nd	nd	nd	nd	nd
TRIP BLANK-03	648081	nd	nd	nd	nd	nd	nd	nd	nd	nd	nd
TRIP BLANK-04	648082	nd	nd	nd	nd	nd	nd	nd	nd	nd	nd
method blank	method blank	nd	nd	nd	nd	nd	nd	nd	nd	nd	nd
method blank	method blank	nd	nd	nd	nd	nd	nd	nd	nd	nd	nd

No mdl is available for summed combinations of analytes. In summed columns (eg., BTEX), the reported values should be considered ESTIMATED if any of the individual compounds were reported as bdl.

GORE(TM) SURVEYS ANALYTICAL RESULTS  
AECOM, GREENVILLE, SC  
GORE STANDARD TARGET VOCs/SVOCs (A1)  
PSCT, SECTION I COVER, PINWOOD, SC  
SITE FRM - PRODUCTION ORDER #20784505

FIELD ID	SAMPLE NAME	1122TetCA, ug	13DCB, ug	12DCB, ug
	MDL=	0.02	0.02	0.02
BG-01	648027	nd	nd	nd
BG-02	648028	nd	nd	nd
SG-1A-01	648029	nd	nd	nd
SG-1A-02	648030	nd	nd	nd
SG-1A-03	648031	nd	nd	nd
SG-1A-04	648032	nd	nd	nd
SG-1A-06	648033	nd	nd	nd
SG-1A-05	648034	nd	nd	nd
SG-1A-07	648035	nd	nd	nd
SG-1A-09	648036	nd	nd	nd
SG-1A-08	648037	nd	nd	nd
SG-1B-10	648038	nd	nd	nd
SG-1C-20	648039	nd	nd	nd
SG-1B-11	648041	nd	nd	nd
SG-1B-12	648042	nd	nd	nd
SG-1B-13	648043	nd	nd	nd
SG-1B-14	648044	nd	nd	nd
SG-1B-15	648045	nd	nd	nd
SG-1B-16	648046	nd	nd	nd
SG-1B-22	648047	nd	nd	nd
SG-1B-24	648048	nd	nd	nd
SG-1B-26	648049	nd	nd	nd
SG-1B-17	648050	nd	nd	nd
SG-1B-18	648051	nd	nd	nd
SG-1C-27	648053	nd	nd	nd
SG-1D-35	648054	nd	nd	nd
SG-1C-25	648055	nd	nd	nd
SG-1D-33	648056	nd	nd	nd
SG-1C-23	648057	nd	nd	nd
SG-1C-21	648058	nd	nd	nd
SG-1D-31	648059	nd	nd	nd

No mdl is available for summed combinations of analytes. In summed columns (eg., BTEX), the reported values should be considered ESTIMATED if any of the individual compounds were reported as bdl.

GORE(TM) SURVEYS ANALYTICAL RESULTS  
AECOM, GREENVILLE, SC  
GORE STANDARD TARGET VOCs/SVOCs (A1)  
PSCT, SECTION I COVER, PINEWOOD, SC  
SITE FRM - PRODUCTION ORDER #20784505

FIELD ID	SAMPLE NAME	1122TetCA, ug	13DCB, ug	12DCB, ug
	MDL=	0.02	0.02	0.02
SG-1D-30	648060	nd	nd	nd
SG-1D-32	648061	nd	nd	nd
SG-1D-34	648062	nd	nd	nd
SG-1D-36	648063	nd	nd	nd
SG-1E-49	648064	nd	nd	0.05
SG-1E-48	648065	nd	nd	nd
SG-1E-44	648066	2.44	0.03	0.10
SG-1E-42	648067	nd	nd	nd
SG-1E-40	648068	nd	nd	0.06
SG-1E-39	648069	nd	nd	nd
SG-1E-37	648070	nd	nd	nd
SG-1E-41	648071	nd	nd	nd
SG-1E-43	648072	nd	nd	0.03
SG-1E-46	648073	0.60	nd	nd
SG-1E-45	648074	nd	nd	nd
SG-1E-47	648075	nd	nd	0.09
SG-1E-50	648076	nd	nd	nd
SG-1E-38	648077	nd	nd	nd
SG-1D-28	648078	nd	nd	nd
SG-1D-29	648079	nd	nd	nd
SG-1C-19	648080	nd	nd	nd
TRIP BLANK-01	648040	nd	nd	nd
TRIP BLANK-02	648052	nd	nd	nd
TRIP BLANK-03	648081	nd	nd	nd
TRIP BLANK-04	648082	nd	nd	nd
method blank	method blank	nd	nd	nd
method blank	method blank	nd	nd	nd

No mdl is available for summed combinations of analytes. In summed columns (eg., BTEX), the reported values should be considered ESTIMATED if any of the individual compounds were reported as bdl.

BLK\_ENV-46297-LSCRPT.TXT  
 Library Search Compound Report

Data File : C:\MSDCHEM\5\20784505FRM\BLK\_ENV-46297.D Vial : 11  
 Acq On : 18 Nov 2010 17:15 Operator: LIMS import  
 Sample : METHOD BLANK Samples Inst : UC-SPG5-D  
 Misc : Multiplr: 1.00  
 MS Integration Params: jwint.p  
 Quant Method : C:\MSDCHEM\1\METHODS\LIMS\_A1\_5.M (RTE Integrator)  
 Title : Gore Expanded Target VOCs/SVOCs  
 Library : C:\DATABASE\NI ST02.L

\*\*\*\*\*  
 Peak Number 1 Ethene, 1,2-difluoro- Concentration Rank 1

R.T.	EstConc	Area	Relative to ISTD	R.T.
2.52	0.22 ug	22530	External Standard	0.00

Hit#	of	Tentative ID	MW	Mol Form	CAS#	Qual
1	4	Ethene, 1,1-difluoro-	64	C2H2F2	000075-38-7	3
2		Ethene, 1,1-difluoro-	64	C2H2F2	000075-38-7	3
3		Ethene, 1,2-difluoro-	64	C2H2F2	001691-13-0	3
4		Ethene, 1,1-difluoro-	64	C2H2F2	000075-38-7	3

BLK\_ENV-46297.D LIMS\_A1\_5.M Tue Dec 21 12:07:00 2010 D.00.00

BLK\_ENV-46303-LSCRPT.TXT  
 Library Search Compound Report

Data File : C:\MSDCHEM\5\20784505FRM\BLK\_ENV-46303.D Vial : 47  
 Acq On : 19 Nov 2010 10:01 Operator: LIMS import  
 Sample : METHOD BLANK Samples Inst : UC-SPG5-D  
 Misc : Multiplr: 1.00  
 MS Integration Params: jwint.p  
 Quant Method : C:\MSDCHEM\1\METHODS\LIMS\_A1\_5.M (RTE Integrator)  
 Title : Gore Expanded Target VOCs/SVOCs  
 Library : C:\DATABASE\NI ST02.L

\*\*\*\*\*  
 Peak Number 1 Ethene, 1,1-difluoro- Concentration Rank 1

R.T.	EstConc	Area	Relative to ISTD	R.T.
2.47	0.26 ug	26054	External Standard	0.00

Hit# of	Tentative ID	MW	Mol Form	CAS#	Qual
1	Ethene, 1,1-difluoro-	64	C2H2F2	000075-38-7	3
2	Ethene, 1,1-difluoro-	64	C2H2F2	000075-38-7	3
3	Ethene, 1,2-difluoro-	64	C2H2F2	001691-13-0	3
4	Ethene, 1,1-difluoro-	64	C2H2F2	000075-38-7	3

BLK\_ENV-46303.D LIMS\_A1\_5.M Tue Dec 21 12:04:55 2010 D.00.00

0648027-LSCRPT. TXT  
Library Search Compound Report

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Data File : C:\MSDCHEM\5\20784505FRM\0648027.D          Vi al : 55
Acq On   : 19 Nov 2010  13:44                        Operator: LIMS import
Sample   :                                             Inst  : UC-SPG5-D
Misc     :                                             Mul ti pl r: 1.00
MS Integrati on Params: jwi nt. p
Quant Method : C:\MSDCHEM\1\METHODS\LI MS_A1_5.M (RTE Integrator)
Title    : Gore Expanded Target VOCs/SVOCs
Library  : C:\DATABASE\NI ST02.L
  
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Peak Number	1	Sul fur di oxi de	Concentrati on		Rank	5
R. T.	EstConc	Area	Rel ative to ISTD		R. T.	
2.47	9.20 ug	938750	External Standard		0.00	
Hi t# of	4	Tentati ve ID	MW	Mol Form	CAS#	Qual
1		Sul fur di oxi de	64	O2S	007446-09-5	90
2		Sul fur di oxi de	64	O2S	007446-09-5	83
3		Ami nomethanesul foni c aci d	111	CH5N03S	013881-91-9	74
4		Ami nomethanesul foni c aci d	111	CH5N03S	013881-91-9	64

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Peak Number	2	Cycl opentene, 3-i sopropenyl ...	Concentrati on		Rank	4
R. T.	EstConc	Area	Rel ative to ISTD		R. T.	
5.95	9.97 ug	1016560	External Standard		0.00	
Hi t# of	4	Tentati ve ID	MW	Mol Form	CAS#	Qual
1		Cycl opentene, 3-i sopropenyl -5, 5-...	136	C10H16	1000162-25-4	70
2		Bi cycl o[2.2.1]hept-2-ene, 1,7,7-...	136	C10H16	000464-17-5	55
3		Cycl ohexene, 1-methyl -4-(1-methyl...	136	C10H16	000586-62-9	49
4		Bi cycl o[2.2.2]oct-5-en-2-one	122	C8H10O	002220-40-8	46

\*\*\*\*\*

Peak Number	3	1R-. al pha. -Pi nene	Concentrati on		Rank	1
R. T.	EstConc	Area	Rel ative to ISTD		R. T.	
6.25	454.47 ug	46356100	External Standard		0.00	
Hi t# of	4	Tentati ve ID	MW	Mol Form	CAS#	Qual
1		1R-. al pha. -Pi nene	136	C10H16	007785-70-8	97
2		1R-. al pha. -Pi nene	136	C10H16	007785-70-8	96
3		. al pha. -Pi nene	136	C10H16	000080-56-8	96
4		Tri cycl o[2.2.1.0(2,6)]heptane, 1...	136	C10H16	000488-97-1	95

\*\*\*\*\*

Peak Number	4	Camphene	Concentrati on		Rank	2
R. T.	EstConc	Area	Rel ative to ISTD		R. T.	
6.40	188.51 ug	19228300	External Standard		0.00	



0648027-LSCRPT. TXT

Hit# of	Tentative ID	MW	Mol Form	CAS#	Qual
1	Camphene	136	C10H16	000079-92-5	97
2	Camphene	136	C10H16	000079-92-5	97
3	Camphene	136	C10H16	000079-92-5	97
4	Bicyclo[2.2.1]heptane, 2,2-dimet...	136	C10H16	005794-04-7	97

\*\*\*\*\*

Peak Number 5 .beta.-Pinenene Concentration Rank 3

R. T.	EstConc	Area	Relative to ISTD	R. T.
6.63	46.60 ug	4753480	External Standard	0.00

Hit# of	Tentative ID	MW	Mol Form	CAS#	Qual
1	Bicyclo[3.1.1]heptane, 6,6-dimet...	136	C10H16	018172-67-3	97
2	.beta.-Pinenene	136	C10H16	000127-91-3	97
3	.beta.-Pinenene	136	C10H16	000127-91-3	96
4	.beta.-Pinenene	136	C10H16	000127-91-3	95

0648027.D LIMS\_A1\_5.M Tue Dec 21 12:02:43 2010 D.00.00

0648028-LSCRPT.TXT  
Library Search Compound Report

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Data File : C:\MSDCHEM\5\20784505FRM\0648028.D      Vi al : 39
Acq On   : 19 Nov 2010   6:18                      Operator: LIMS import
Sample   :                                               Inst   : UC-SPG5-D
Misc     :                                               Multipl r: 1.00
MS Integrati on Params: jwi nt. p
Quant Method : C:\MSDCHEM\1\METHODS\LI MS_A1_5.M (RTE Integrator)
Title    : Gore Expanded Target VOCs/SVOCs
Library  : C:\DATABASE\NI ST02.L
    
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*****
Peak Number 1 Carbon di oxide                      Concentrati on Rank 4
-----
R. T.   EstConc      Area      Relati ve to ISTD      R. T.
-----
2.39    0.37 ug      38003    External Standard      0.00

Hit# of 4 Tentati ve ID      MW  Mol Form      CAS#      Qual
-----
1 Carbon di oxide          44  CO2          000124-38-9 2
2 Ni trous Oxi de          44  N2O          010024-97-2 2
3 Ethyne, fluoro-         44  C2HF         002713-09-9 2
4 Ni trous Oxi de          44  N2O          010024-97-2 2
    
```

```

*****
Peak Number 2 Sul fur di oxi de                      Concentrati on Rank 2
-----
R. T.   EstConc      Area      Relati ve to ISTD      R. T.
-----
2.45    1.56 ug      158852    External Standard      0.00

Hit# of 4 Tentati ve ID      MW  Mol Form      CAS#      Qual
-----
1 Sul fur di oxi de          64  O2S          007446-09-5 74
2 Sul fur di oxi de          64  O2S          007446-09-5 74
3 Ami nomethanesul foni c aci d  111 CH5NO3S    013881-91-9 74
4 Ami nomethanesul foni c aci d  111 CH5NO3S    013881-91-9 64
    
```

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*****
Peak Number 3 1R-. al pha. -Pi nene                      Concentrati on Rank 1
-----
R. T.   EstConc      Area      Relati ve to ISTD      R. T.
-----
6.21    3.40 ug      346361    External Standard      0.00

Hit# of 4 Tentati ve ID      MW  Mol Form      CAS#      Qual
-----
1 1R-. al pha. -Pi nene      136 C10H16      007785-70-8 96
2 . al pha. -Pi nene         136 C10H16      000080-56-8 96
3 1R-. al pha. -Pi nene      136 C10H16      007785-70-8 95
4 Bi cycl o[3. 1. 1]hept-2-ene, 3, 6, 6-. . . 136 C10H16      004889-83-2 94
    
```

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*****
Peak Number 4 Camphene                      Concentrati on Rank 3
-----
R. T.   EstConc      Area      Relati ve to ISTD      R. T.
-----
6.38    1.40 ug      142885    External Standard      0.00
    
```

0648028-LSCRPT. TXT

Hit# of	Tentative ID	MW	Mol Form	CAS#	Qual
1	Camphene	136	C10H16	000079-92-5	95
2	Bicyclo[2.2.1]heptane, 2,2-dimethyl-	136	C10H16	005794-04-7	95
3	Camphene	136	C10H16	000079-92-5	95
4	Camphene	136	C10H16	000079-92-5	94

\*\*\*\*\*

Peak Number 5 Butane, 2,2-dimethyl - Concentration Rank 5

R. T.	EstConc	Area	Relative to ISTD	R. T.
6.62	0.15 ug	15539	External Standard	0.00

Hit# of	Tentative ID	MW	Mol Form	CAS#	Qual
1	Butane, 2,2-dimethyl -	86	C6H14	000075-83-2	9
2	Butane, 2,2-dimethyl -	86	C6H14	000075-83-2	9
3	Butanal	72	C4H8O	000123-72-8	7
4	1-Propene, 3-methoxy-	72	C4H8O	000627-40-7	7

\*\*\*\*\*

Peak Number 6 Butane, 2,2-dimethyl - Concentration Rank 6

R. T.	EstConc	Area	Relative to ISTD	R. T.
6.62	0.15 ug	15539	External Standard	0.00

Hit# of	Tentative ID	MW	Mol Form	CAS#	Qual
1	Butane, 2,2-dimethyl -	86	C6H14	000075-83-2	90
2	Butane, 2,2-dimethyl -	86	C6H14	000075-83-2	90
3	Butane, 2,2-dimethyl -	86	C6H14	000075-83-2	78
4	Butane, 2,2-dimethyl -	86	C6H14	000075-83-2	72

0648028.D LIMS\_A1\_5.M Fri Dec 17 11:23:34 2010 D.00.00

0648070-LSCRPT.TXT  
Library Search Compound Report

```
Data File : C:\MSDCHEM\5\20784505FRM\0648070.D          Vial : 12
Acq On   : 18 Nov 2010 17:43                          Operator: LIMS import
Sample   :                                               Inst  : UC-SPG5-D
Misc     :                                               Multiplr: 1.00
MS Integrati on Params: jwint.p
Quant Method : C:\MSDCHEM\1\METHODS\LIMS_A1_5.M (RTE Integrator)
Title    : Gore Expanded Target VOCs/SVOCs
Library  : C:\DATABASE\NI ST02.L
```

```
*****
Peak Number 1 Carbon di oxide                               Concentration Rank 5

  R.T.   EstConc      Area      Relative to ISTD      R.T.
-----
  2.43   0.30 ug      30826   External Standard      0.00

Hit# of 4 Tentative ID           MW Mol Form      CAS#      Qual
-----
  1 Carbon di oxide             44 CO2          000124-38-9 2
  2 Nitrous Oxide              44 N2O          010024-97-2 2
  3 Carbon di oxide            44 CO2          000124-38-9 2
  4 Ethyne, fluoro-
```

```
*****
Peak Number 2 Aminomethanesulfonic acid                  Concentration Rank 4

  R.T.   EstConc      Area      Relative to ISTD      R.T.
-----
  2.50   0.43 ug      44019   External Standard      0.00

Hit# of 4 Tentative ID           MW Mol Form      CAS#      Qual
-----
  1 Sulfur dioxide             64 O2S          007446-09-5 74
  2 Aminomethanesulfonic acid  111 CH5NO3S     013881-91-9 74
  3 Aminomethanesulfonic acid  111 CH5NO3S     013881-91-9 64
  4 Aminomethanesulfonic acid  111 CH5NO3S     013881-91-9 9
```

```
*****
Peak Number 3 Trimethylsilyl fluoride                    Concentration Rank 1

  R.T.   EstConc      Area      Relative to ISTD      R.T.
-----
  2.58   2.22 ug      226692   External Standard      0.00

Hit# of 4 Tentative ID           MW Mol Form      CAS#      Qual
-----
  1 Trimethylsilyl fluoride     92 C3H9FSi      000420-56-4 91
  2 Trimethylsilyl fluoride     92 C3H9FSi      000420-56-4 90
  3 Propane, 2-chloro-2-nitro-  123 C3H6ClNO2   000594-71-8 9
  4 Trimethyl phosphine oxide   92 C3H9OP        000676-96-0 4
```

```
*****
Peak Number 4 2-Methyl-1-butene                          Concentration Rank 3

  R.T.   EstConc      Area      Relative to ISTD      R.T.
-----
  2.75   0.97 ug      99254   External Standard      0.00
```

0648070-LSCRPT. TXT

Hit# of	Tentative ID	MW	Mol Form	CAS#	Qual
1	2-Pentene, (Z)-	70	C5H10	000627-20-3	47
2	2-Methyl-1-butene	70	C5H10	000563-46-2	47
3	Cyclopropane, ethyl-	70	C5H10	001191-96-4	43
4	Cyclopropane, 1,2-dimethyl-, cis-	70	C5H10	000930-18-7	43

\*\*\*\*\*

Peak Number 5 Disiloxane, hexamethyl- Concentration Rank 2

R. T.	EstConc	Area	Relative to ISTD	R. T.
3.74	1.03 ug	105366	External Standard	0.00

Hit# of	Tentative ID	MW	Mol Form	CAS#	Qual
1	Disiloxane, hexamethyl-	162	C6H18OSi2	000107-46-0	90
2	Disiloxane, hexamethyl-	162	C6H18OSi2	000107-46-0	83
3	Disiloxane, hexamethyl-	162	C6H18OSi2	000107-46-0	78
4	Butyl semithiocarbamide	147	C5H13N3S	006610-31-7	64

0648070.D LIMS\_A1\_5.M Tue Dec 21 11:32:57 2010 D.00.00

0648071-LSCRPT. TXT  
Library Search Compound Report

Data File : C:\MSDCHEM\5\20784505FRM\0648071.D	Vial : 64
Acq On : 19 Nov 2010 18:01	Operator: LIMS import
Sample :	Inst : UC-SPG5-D
Misc :	Multiplier: 1.00
MS Integration Params: jwint.p	
Quant Method : C:\MSDCHEM\1\METHODS\LIMS_A1_5.M (RTE Integrator)	
Title : Gore Expanded Target VOCs/SVOCs	
Library : C:\DATABASE\NI ST02.L	

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Peak Number	1 Carbon di oxide		Concentration	Rank	5
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R. T.	EstConc	Area	Relative to ISTD	R. T.
2.41	0.38 ug	39235	External Standard	0.00

Hit# of	4	Tentative ID	MW	Mol Form	CAS#	Qual
1		Carbon di oxide	44	C02	000124-38-9	2
2		Nitrous Oxide	44	N2O	010024-97-2	2
3		Carbon di oxide	44	C02	000124-38-9	2
4		Ethyne, fluoro-	44	C2HF	002713-09-9	2

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Peak Number	2 Ethene, chlorotri fluoro-		Concentration	Rank	2
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R. T.	EstConc	Area	Relative to ISTD	R. T.
2.46	0.71 ug	72213	External Standard	0.00

Hit# of	4	Tentative ID	MW	Mol Form	CAS#	Qual
1		Ethene, chlorotri fluoro-	116	C2ClF3	000079-38-9	97
2		Ethene, chlorotri fluoro-	116	C2ClF3	000079-38-9	96
3		5-Chloro-1-methylimidazole	116	C4H5ClN2	000872-49-1	9
4		3-Ethylthiolane	116	C6H12S	062184-67-2	9

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Peak Number	3 Phosphine, ethyl-		Concentration	Rank	3
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R. T.	EstConc	Area	Relative to ISTD	R. T.
2.52	0.53 ug	54349	External Standard	0.00

Hit# of	4	Tentative ID	MW	Mol Form	CAS#	Qual
1		1,2-Ethanedithiol	62	C2H6O2	000107-21-1	3
2		Phosphine, ethyl-	62	C2H7P	000593-68-0	3
3		Ethanedithiol	62	C2H6S	000075-08-1	3
4		Ethene, chloro-	62	C2H3Cl	000075-01-4	3

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Peak Number	4 Ethene, 1,1-dichloro-2,2-di...		Concentration	Rank	1
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R. T.	EstConc	Area	Relative to ISTD	R. T.
2.63	1.20 ug	122413	External Standard	0.00

0648071-LSCRPT. TXT

Hit#	of	Tentative ID	MW	Mol Form	CAS#	Qual
1	4	Ethene, 1,1-dichloro-2,2-difluoro-	132	C2Cl2F2	000079-35-6	90
2		Ethene, 1,1-dichloro-2,2-difluoro-	132	C2Cl2F2	000079-35-6	38
3		Chloral Hydrate	164	C2H3Cl3O2	000302-17-0	22
4		Trichloroacetic Acid	162	C2HCl3O2	000076-03-9	12

\*\*\*\*\*

Peak Number 5 trans-1,4-Hexadiene Concentration Rank 4

R. T.	EstConc	Area	Relative to ISTD	R. T.
2.69	0.44 ug	44426	External Standard	0.00

Hit#	of	Tentative ID	MW	Mol Form	CAS#	Qual
1	4	Cyclopropane, 1,2-dimethyl-3-methyl-	82	C6H10	062338-02-7	9
2		1,4-Pentadiene, 2-methyl-	82	C6H10	000763-30-4	9
3		Ethenamine, N-methyl-N-nitroso-	86	C3H6N2O	004549-40-0	9
4		trans-1,4-Hexadiene	82	C6H10	007319-00-8	9

0648071.D LIMS\_A1\_5.M Tue Dec 21 11:34:32 2010 D.00.00

0648072-LSCRPT. TXT  
Library Search Compound Report

Data File : C:\MSDCHEM\5\20784505FRM\0648072.D                      Vial : 31  
Acq On : 19 Nov 2010 2:34    Operator: LIMS import  
Sample :   Inst : UC-SPG5-D  
Misc :    Multiplr: 1.00  
MS Integration Params: jwint.p  
Quant Method : C:\MSDCHEM\1\METHODS\LIMS\_A1\_5.M (RTE Integrator)  
Title : Gore Expanded Target VOCs/SVOCs  
Library : C:\DATABASE\NI STD2.L

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Peak Number	1	Ami nomethanesul foni c aci d	Concentrati on Rank	3
R. T.	EstConc	Area	Relati ve to ISTD	R. T.
-----				
2.44	1.38 ug	140667	External Standard	0.00
Hi t# of	4	Tentati ve ID	MW Mol Form	CAS# Qual
-----				
1	Ami nomethanesul foni c aci d		111 CH5N03S	013881-91-9 83
2	Sul fur di oxi de		64 O2S	007446-09-5 74
3	Sul fur di oxi de		64 O2S	007446-09-5 74
4	Ami nomethanesul foni c aci d		111 CH5N03S	013881-91-9 74

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Peak Number	2	Phosphi ne, ethyl -	Concentrati on Rank	4
R. T.	EstConc	Area	Relati ve to ISTD	R. T.
-----				
2.49	0.89 ug	90906	External Standard	0.00
Hi t# of	4	Tentati ve ID	MW Mol Form	CAS# Qual
-----				
1	Ethene, chl oro-		62 C2H3Cl	000075-01-4 78
2	Ethene, chl oro-		62 C2H3Cl	000075-01-4 9
3	Phosphi ne, ethyl -		62 C2H7P	000593-68-0 9
4	Ethanethi ol		62 C2H6S	000075-08-1 7

\*\*\*\*\*

Peak Number	3	Ethene, 1, 1-di chl oro-2, 2-di . . .	Concentrati on Rank	1
R. T.	EstConc	Area	Relati ve to ISTD	R. T.
-----				
2.60	3.10 ug	315766	External Standard	0.00
Hi t# of	4	Tentati ve ID	MW Mol Form	CAS# Qual
-----				
1	Ethene, 1, 1-di chl oro-2, 2-di fl uoro-		132 C2Cl 2F2	000079-35-6 92
2	Ethene, 1, 1-di chl oro-2, 2-di fl uoro-		132 C2Cl 2F2	000079-35-6 46
3	1H-Puri ne, 2-methyl -		134 C6H6N4	000934-23-6 9
4	1, 2, 3-Tri fl uorobenzene		132 C6H3F3	001489-53-8 9

\*\*\*\*\*

Peak Number	4	Ethane, 1, 2-di chl oro-1, 1, 2-. . .	Concentrati on Rank	2
R. T.	EstConc	Area	Relati ve to ISTD	R. T.
-----				
2.67	2.19 ug	222968	External Standard	0.00



0648072-LSCRPT. TXT

Hit# of	Tentative ID	MW	Mol Form	CAS#	Qual
1	Ethane, 1, 2-dichloro-1, 1, 2-trifluoroethane	152	C2HCl2F3	000354-23-4	68
2	1-Butyne, 3-methyl-	68	C5H8	000598-23-2	10
3	1, 1'-Bicyclopropyl	82	C6H10	005685-46-1	10
4	2-Butyne	54	C4H6	000503-17-3	10

\*\*\*\*\*

Peak Number 5 Methylene Chloride Concentration Rank 5

R. T.	EstConc	Area	Relative to ISTD	R. T.
2.83	0.66 ug	66816	External Standard	0.00

Hit# of	Tentative ID	MW	Mol Form	CAS#	Qual
1	Methylene Chloride	84	CH2Cl2	000075-09-2	91
2	Methylene Chloride	84	CH2Cl2	000075-09-2	91
3	Methylene Chloride	84	CH2Cl2	000075-09-2	91
4	Methylene Chloride	84	CH2Cl2	000075-09-2	90

0648072.D LIMS\_A1\_5.M Tue Dec 21 11:35:48 2010 D.00.00

0648073-LSCRPT. TXT  
Library Search Compound Report

Data File : C:\MSDCHEM\5\20784505FRM\0648073.D  
 Acq On : 19 Nov 2010 9:05  
 Sample :  
 Misc :  
 MS Integration Params: jwint.p  
 Quant Method : C:\MSDCHEM\1\METHODS\LIMS\_A1\_5.M (RTE Integrator)  
 Title : Gore Expanded Target VOCs/SVOCs  
 Library : C:\DATABASE\NI ST02.L

Vial : 45  
 Operator: LIMS import  
 Inst : UC-SPG5-D  
 Multiplr: 1.00

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*****
```

Peak Number 1 Ethyl Chloride		Concentration Rank 5				
R. T.	EstConc	Area	Relative to ISTD		R. T.	
2.44	2.19 ug	222949	External Standard		0.00	
Hit# of	4	Tentative ID	MW	Mol Form	CAS#	Qual
1		Ethyl Chloride	64	C2H5Cl	000075-00-3	45
2		Ethyl Chloride	64	C2H5Cl	000075-00-3	38
3		Ethyl Chloride	64	C2H5Cl	000075-00-3	38
4		(N-(-2-Acetamido))-2-aminoethane...	182	C4H10N2O4S	007365-82-4	33

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*****
```

Peak Number 2 Ethene, chloro-		Concentration Rank 4				
R. T.	EstConc	Area	Relative to ISTD		R. T.	
2.49	2.65 ug	269967	External Standard		0.00	
Hit# of	4	Tentative ID	MW	Mol Form	CAS#	Qual
1		Ethene, chloro-	62	C2H3Cl	000075-01-4	64
2		Ethene, chloro-	62	C2H3Cl	000075-01-4	64
3		Ethane, 1,2-dichloro-	98	C2H4Cl2	000107-06-2	9
4		Peroxide, dimethyl	62	C2H6O2	000690-02-8	7

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*****
```

Peak Number 3 Ethene, 1,1-dichloro-2,2-di...		Concentration Rank 3				
R. T.	EstConc	Area	Relative to ISTD		R. T.	
2.60	3.49 ug	355993	External Standard		0.00	
Hit# of	4	Tentative ID	MW	Mol Form	CAS#	Qual
1		Ethene, 1,1-dichloro-2,2-difluoro-	132	C2Cl2F2	000079-35-6	42
2		Ethene, 1,1-dichloro-2,2-difluoro-	132	C2Cl2F2	000079-35-6	42
3		Methyl methyl phosphonofluoride	112	C2H6FO2P	000353-88-8	14
4		n-Propyl phosphonic dichloride	160	C3H7Cl2OP	004708-04-7	10

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*****
```

Peak Number 4 2-Butyne		Concentration Rank 2			
R. T.	EstConc	Area	Relative to ISTD		R. T.
2.67	3.55 ug	362059	External Standard		0.00

0648073-LSCRPT. TXT

Hit# of	Tentative ID	MW	Mol Form	CAS#	Qual
1	2-Butyne	54	C4H6	000503-17-3	80
2	2-Butyne	54	C4H6	000503-17-3	80
3	2-Butyne	54	C4H6	000503-17-3	80
4	1-Butyne	54	C4H6	000107-00-6	72

\*\*\*\*\*

Peak Number 5 Ethyl ether Concentration Rank 1

R. T.	EstConc	Area	Relative to ISTD	R. T.
2.71	12.56 ug	1281370	External Standard	0.00

Hit# of	Tentative ID	MW	Mol Form	CAS#	Qual
1	Ethyl ether	74	C4H10O	000060-29-7	90
2	Ethyl ether	74	C4H10O	000060-29-7	90
3	Ethyl ether	74	C4H10O	000060-29-7	90
4	Ethane, 1,2-diethoxy-	118	C6H14O2	000629-14-1	78

0648073.D LIMS\_A1\_5.M Tue Dec 21 11:41:06 2010 D.00.00

0648074-LSCRPT. TXT  
Library Search Compound Report

```

Data File : C:\MSDCHEM\5\20784505FRM\0648074.D          Vial : 37
Acq On   : 19 Nov 2010  5:21                          Operator: LIMS import
Sample   :                                             Inst  : UC-SPG5-D
Misc     :                                             Multiplr: 1.00
MS Integrati on Params: jwint.p
Quant Method : C:\MSDCHEM\1\METHODS\LIMS_A1_5.M (RTE Integrator)
Title    : Gore Expanded Target VOCs/SVOCs
Library  : C:\DATABASE\NI ST02.L
  
```

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*****
Peak Number  1  Carbon di oxide                      Concentrati on Rank  2
-----
R. T.    EstConc      Area      Relati ve to ISTD      R. T.
-----
  2.41    0.38 ug      38436    External Standard      0.00

Hit# of  4  Tentati ve ID                          MW  Mol Form      CAS#      Qual
-----
  1 Carbon di oxide                      44  CO2           000124-38-9  2
  2 Ni trous Oxi de                       44  N2O           010024-97-2  2
  3 Carbon di oxide                      44  CO2           000124-38-9  2
  4 Ethyne, fluoro-                       44  C2HF          002713-09-9  2
  
```

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*****
Peak Number  2  Sul fur di oxide                      Concentrati on Rank  1
-----
R. T.    EstConc      Area      Relati ve to ISTD      R. T.
-----
  2.47    0.69 ug      70805    External Standard      0.00

Hit# of  4  Tentati ve ID                          MW  Mol Form      CAS#      Qual
-----
  1 Sul fur di oxide                      64  O2S           007446-09-5  74
  2 Sul fur di oxide                      64  O2S           007446-09-5  74
  3 Ami nomethanesul foni c aci d        111 CH5N03S    013881-91-9  64
  4 Cysteic aci d                        169 C3H7N05S   1000131-23-1  64
  
```

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*****
Peak Number  3  Indol i zi ne                      Concentrati on Rank  3
-----
R. T.    EstConc      Area      Relati ve to ISTD      R. T.
-----
  2.68    0.24 ug      24940    External Standard      0.00

Hit# of  4  Tentati ve ID                          MW  Mol Form      CAS#      Qual
-----
  1 Indol i zi ne                          117 C8H7N       000274-40-8  4
  2 Chl ori ne di oxide                   67  ClO2          010049-04-4  4
  3 Indol e                                117 C8H7N       000120-72-9  2
  4 Benzoni tri le, 2-methyl -            117 C8H7N       000529-19-1  2
  
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0648074.D LIMS\_A1\_5.M Tue Dec 21 11:42:21 2010 D.00.00

0648076-LSCRPT. TXT  
Library Search Compound Report

Data File : C:\MSDCHEM\5\20784505FRM\0648076.D                      Vial : 44  
 Acq On : 19 Nov 2010 8:37    Operator: LIMS import  
 Sample :   Inst : UC-SPG5-D  
 Misc :   Multiplr: 1.00  
 MS Integrati on Params: jwi nt. p  
 Quant Method : C:\MSDCHEM\1\METHODS\LI MS\_A1\_5. M (RTE Integrator)  
 Title : Gore Expanded Target VOCs/SVOCs  
 Li brary : C:\DATABASE\NI ST02. L

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Peak Number	1	Carbon di oxi de	Concentrati on Rank	2
R. T.	EstConc	Area	Relati ve to ISTD	R. T.
2.39	0.30 ug	30220	External Standard	0.00
Hi t# of	4	Tentati ve ID	MW Mol Form	CAS# Qual
1	Carbon di oxi de	44	C02	000124-38-9 2
2	Ni trous Oxi de	44	N2O	010024-97-2 2
3	Carbon di oxi de	44	C02	000124-38-9 2
4	Ethyne, fluoro-	44	C2HF	002713-09-9 2

\*\*\*\*\*

Peak Number	2	Sul fur di oxi de	Concentrati on Rank	1
R. T.	EstConc	Area	Relati ve to ISTD	R. T.
2.44	0.71 ug	72430	External Standard	0.00
Hi t# of	4	Tentati ve ID	MW Mol Form	CAS# Qual
1	Sul fur di oxi de	64	O2S	007446-09-5 74
2	Sul fur di oxi de	64	O2S	007446-09-5 74
3	L-Al ani ne, 3-sul fo-	169	C3H7N05S	000498-40-8 9
4	Ami nomethanesul foni c aci d	111	CH5N03S	013881-91-9 9

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Peak Number	3	Oxetane, 2,4-di methyl -, trans-	Concentrati on Rank	3
R. T.	EstConc	Area	Relati ve to ISTD	R. T.
2.69	0.14 ug	14054	External Standard	0.00
Hi t# of	4	Tentati ve ID	MW Mol Form	CAS# Qual
1	Oxetane, 2,4-di methyl -, trans-	86	C5H10O	029424-94-0 4
2	Fluoroaceti c aci d	78	C2H3FO2	000144-49-0 2
3	1-Propanol, 2-methyl -	74	C4H10O	000078-83-1 2
4	Butaneni tri le, 2,3-di oxo-, di oxi ...	211	C8H9N3O4	339246-62-7 1

0648076.D LIMS\_A1\_5.M Tue Dec 21 11:45:17 2010 D.00.00

0648075-LSCRPT. TXT  
Library Search Compound Report

Data File : C:\MSDCHEM\5\20784505FRM\0648075.D	Vial : 50
Acq On : 19 Nov 2010 11:25	Operator: LIMS import
Sample :	Inst : UC-SPG5-D
Misc :	Multiplr: 1.00
MS Integration Params: jwint.p	
Quant Method : C:\MSDCHEM\1\METHODS\LIMS_A1_5.M (RTE Integrator)	
Title : Gore Expanded Target VOCs/SVOCs	
Library : C:\DATABASE\NI ST02.L	

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Peak Number	1 Carbon di oxide		Concentration Rank	5
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R. T.	EstConc	Area	Relative to ISTD	R. T.
2.39	0.26 ug	26144	External Standard	0.00

Hit# of	Tentative ID	MW	Mol Form	CAS#	Qual
1	Carbon di oxide	44	CO2	000124-38-9	2
2	Nitrous Oxide	44	N2O	010024-97-2	2
3	Carbon di oxide	44	CO2	000124-38-9	2
4	Ethyne, fluoro-	44	C2HF	002713-09-9	2

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Peak Number	2 Aminomethanesulfonic acid		Concentration Rank	2
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R. T.	EstConc	Area	Relative to ISTD	R. T.
2.45	0.63 ug	64169	External Standard	0.00

Hit# of	Tentative ID	MW	Mol Form	CAS#	Qual
1	Sulfur dioxide	64	O2S	007446-09-5	64
2	Sulfur dioxide	64	O2S	007446-09-5	64
3	Aminomethanesulfonic acid	111	CH5NO3S	013881-91-9	64
4	Cysteic acid	169	C3H7NO5S	1000131-23-1	64

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Peak Number	3 1-Propene, 2-methyl -		Concentration Rank	3
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R. T.	EstConc	Area	Relative to ISTD	R. T.
2.50	0.51 ug	52190	External Standard	0.00

Hit# of	Tentative ID	MW	Mol Form	CAS#	Qual
1	1-Propene, 2-methyl -	56	C4H8	000115-11-7	45
2	1-Propene, 2-methyl -	56	C4H8	000115-11-7	42
3	1-Butene	56	C4H8	000106-98-9	33
4	1-Butene	56	C4H8	000106-98-9	33

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Peak Number	4 1-Propanol, 2-methyl -		Concentration Rank	4
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R. T.	EstConc	Area	Relative to ISTD	R. T.
2.70	0.47 ug	48175	External Standard	0.00

0648075-LSCRPT. TXT

Hit#	of	Tentative ID	MW	Mol Form	CAS#	Qual
1	4	1,3-Dioxepin, 4,7-dihydro-	100	C5H8O2	005417-32-3	12
2		Acetic acid, trifluoro-, pentyl ...	184	C7H11F3O2	000327-70-8	10
3		1-Propanol, 2-methyl -	74	C4H10O	000078-83-1	9
4		1-Propanol, 2-methyl -	74	C4H10O	000078-83-1	9

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Peak Number 5 Benzene, 1-chloro-2-methyl - Concentration Rank 1

R. T.	EstConc	Area	Relative to ISTD	R. T.
6.38	24.77 ug	2526340	External Standard	0.00

Hit#	of	Tentative ID	MW	Mol Form	CAS#	Qual
1	4	Benzene, 1-chloro-2-methyl -	126	C7H7Cl	000095-49-8	97
2		Benzene, 1-chloro-2-methyl -	126	C7H7Cl	000095-49-8	96
3		Benzene, 1-chloro-2-methyl -	126	C7H7Cl	000095-49-8	95
4		Benzene, 1-chloro-2-methyl -	126	C7H7Cl	000095-49-8	95

0648075.D LIMS\_A1\_5.M Tue Dec 21 11:44:00 2010 D.00.00

0648078-LSCRPT. TXT  
Library Search Compound Report

Data File :	C:\MSDCHEM\5\20784505FRM\0648078.D	Vial :	57
Acq On :	19 Nov 2010 14:40	Operator:	LIMS import
Sample :		Inst :	UC-SPG5-D
Misc :		Multiplr:	1.00
MS Integrati on Params:	jwint.p		
Quant Method :	C:\MSDCHEM\1\METHODS\LI MS_A1_5.M (RTE Integrator)		
Title :	Gore Expanded Target VOCs/SVOCs		
Li brary :	C:\DATABASE\NI ST02.L		

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Peak Number	1	Carbon di oxide		Concentrati on Rank	3
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R. T.	EstConc	Area	Relati ve to ISTD	R. T.
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2.41	0.47 ug	47535	External Standard	0.00
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Hi t# of	4	Tentati ve ID	MW	Mol Form	CAS#	Qual
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1	Carbon di oxide	44	CO2	000124-38-9	2
2	Ni trous Oxi de	44	N2O	010024-97-2	2
3	Ethyne, fluoro-	44	C2HF	002713-09-9	2
4	Ni trous Oxi de	44	N2O	010024-97-2	2

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Peak Number	2	Sul fur di oxide		Concentrati on Rank	1
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R. T.	EstConc	Area	Relati ve to ISTD	R. T.
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2.47	1.02 ug	104477	External Standard	0.00
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Hi t# of	4	Tentati ve ID	MW	Mol Form	CAS#	Qual
----------	---	---------------	----	----------	------	------

1	Sul fur di oxide	64	O2S	007446-09-5	74
2	Sul fur di oxide	64	O2S	007446-09-5	74
3	Ami nomethanesul foni c aci d	111	CH5NO3S	013881-91-9	9
4	Ami nomethanesul foni c aci d	111	CH5NO3S	013881-91-9	9

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Peak Number	3	1-Propene, 2-methyl -		Concentrati on Rank	2
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R. T.	EstConc	Area	Relati ve to ISTD	R. T.
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2.52	0.53 ug	53977	External Standard	0.00
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Hi t# of	4	Tentati ve ID	MW	Mol Form	CAS#	Qual
----------	---	---------------	----	----------	------	------

1	1-Propene, 2-methyl -	56	C4H8	000115-11-7	7
2	2-Butene	56	C4H8	000107-01-7	7
3	1-Propene, 2-methyl -	56	C4H8	000115-11-7	7
4	1-Propene, 2-methyl -	56	C4H8	000115-11-7	7

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Peak Number	4	Ethyl eni mi ne		Concentrati on Rank	5
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R. T.	EstConc	Area	Relati ve to ISTD	R. T.
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2.64	0.14 ug	13845	External Standard	0.00
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Hit# of	Tentative ID	MW	Mol Form	CAS#	Qual
1	Ethyl eni mi ne	43	C2H5N	000151-56-4	5
2	Ethyl eni mi ne	43	C2H5N	000151-56-4	5
3	Ethyl eni mi ne	43	C2H5N	000151-56-4	5
4	Cycl opropane	42	C3H6	000075-19-4	4

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Peak Number 5 1-Butanol Concentration Rank 4

R. T.	EstConc	Area	Relative to ISTD	R. T.
2.71	0.34 ug	34213	External Standard	0.00

Hit# of	Tentative ID	MW	Mol Form	CAS#	Qual
1	Propene	42	C3H6	000115-07-1	37
2	Propene	42	C3H6	000115-07-1	37
3	1-Butanol	74	C4H10O	000071-36-3	2
4	Propane, 1-chl oro-2-methyl -	92	C4H9Cl	000513-36-0	2

0648078.D LIMS\_A1\_5.M Tue Dec 21 11:48:42 2010 D.00.00

0648077-LSCRPT. TXT  
Library Search Compound Report

Data File : C:\MSDCHEM\5\20784505FRM\0648077. D  
Acq On : 18 Nov 2010 19:08  
Sample :  
Misc :

Vial : 15  
Operator: LIMS import  
Inst : UC-SPG5-D  
Multiplier: 1.00

MS Integrati on Params: jwi nt. p  
Quant Method : C:\MSDCHEM\1\METHODS\LI MS\_A1\_5. M (RTE Integrator)  
Title : Gore Expanded Target VOCs/SVOCs  
Library : C:\DATABASE\NI ST02. L

\*\*\*\*\*  
Peak Number 1 Ami nomethanesul foni c aci d Concentrati on Rank 3

R. T.	EstConc	Area	Relati ve to ISTD	R. T.
2.48	0.82 ug	83837	External Standard	0.00

Hi t# of	Tentati ve ID	MW	Mol Form	CAS#	Qual
1	Ami nomethanesul foni c aci d	111	CH5N03S	013881-91-9	74
2	Sul fur di oxi de	64	O2S	007446-09-5	74
3	L-Al ani ne, 3-sul fo-	169	C3H7N05S	000498-40-8	9
4	Ami nomethanesul foni c aci d	111	CH5N03S	013881-91-9	9

\*\*\*\*\*  
Peak Number 2 1-Propene, 2-methyl - Concentrati on Rank 1

R. T.	EstConc	Area	Relati ve to ISTD	R. T.
2.53	3.15 ug	321604	External Standard	0.00

Hi t# of	Tentati ve ID	MW	Mol Form	CAS#	Qual
1	1-Propene, 2-methyl -	56	C4H8	000115-11-7	83
2	1-Propene, 2-methyl -	56	C4H8	000115-11-7	83
3	1-Butene	56	C4H8	000106-98-9	80
4	2-Butene, (Z)-	56	C4H8	000590-18-1	72

\*\*\*\*\*  
Peak Number 3 Cycl opropane, ethyl - Concentrati on Rank 2

R. T.	EstConc	Area	Relati ve to ISTD	R. T.
2.72	3.12 ug	318054	External Standard	0.00

Hi t# of	Tentati ve ID	MW	Mol Form	CAS#	Qual
1	Cycl opropane, ethyl -	70	C5H10	001191-96-4	74
2	2-Pentene	70	C5H10	000109-68-2	62
3	2-Pentene, (Z)-	70	C5H10	000627-20-3	58
4	3-Buten-1-ol	72	C4H8O	000627-27-0	52

\*\*\*\*\*  
Peak Number 4 Cycl opropane, 1,1-di methyl - Concentrati on Rank 5

R. T.	EstConc	Area	Relati ve to ISTD	R. T.
2.79	0.57 ug	58164	External Standard	0.00

0648077-LSCRPT. TXT

Hit# of	Tentative ID	MW	Mol Form	CAS#	Qual
1	2-Pentene, (E)-	70	C5H10	000646-04-8	9
2	2-Pentene	70	C5H10	000109-68-2	9
3	2-Pentene, (Z)-	70	C5H10	000627-20-3	9
4	Cycl propane, 1, 1-di methyl -	70	C5H10	001630-94-0	7

\*\*\*\*\*

Peak Number 5 1-Pentene, 4-methyl - Concentration Rank 4

R. T.	EstConc	Area	Relative to ISTD	R. T.
3.17	0.60 ug	61247	External Standard	0.00

Hit# of	Tentative ID	MW	Mol Form	CAS#	Qual
1	1-Pentene, 4-methyl -	84	C6H12	000691-37-2	52
2	1-Pentene, 4-methyl -	84	C6H12	000691-37-2	50
3	Hexane	86	C6H14	000110-54-3	43
4	1-Pentene, 4-methyl -	84	C6H12	000691-37-2	38

0648077.D LIMS\_A1\_5.M Tue Dec 21 11:46:51 2010 D.00.00

0648079-LSCRPT. TXT  
Library Search Compound Report

```
Data File : C:\MSDCHEM\5\20784505FRM\0648079.D           Vial : 30
Acq On   : 19 Nov 2010   2:06                         Operator: LIMS import
Sample   :                                                    Inst  : UC-SPG5-D
Misc     :                                                    Multipl r: 1.00
MS Integrati on Params: jwint.p
Quant Method : C:\MSDCHEM\1\METHODS\LIMS_A1_5.M (RTE Integrator)
Title     : Gore Expanded Target VOCs/SVOCs
Library   : C:\DATABASE\NI ST02.L
```

```
*****
Peak Number  1  Carbon di oxide                               Concentration Rank  4

  R. T.   EstConc           Area           Relative to ISTD           R. T.
-----
  2.39    0.28 ug          28242      External Standard           0.00

Hit# of  4  Tentative ID                               MW  Mol Form           CAS#           Qual
-----
1 Carbon di oxide                               44  CO2                000124-38-9  2
2 Nitrous Oxide                               44  N2O                010024-97-2  2
3 Carbon di oxide                               44  CO2                000124-38-9  2
4 Ethyne, fluoro-

```

```
*****
Peak Number  2  Amiomethanesul fonic acid                   Concentration Rank  3

  R. T.   EstConc           Area           Relative to ISTD           R. T.
-----
  2.45    0.29 ug          29300      External Standard           0.00

Hit# of  4  Tentative ID                               MW  Mol Form           CAS#           Qual
-----
1 Sul fur di oxide                               64  O2S                007446-09-5  74
2 Amiomethanesul fonic acid                   111  CH5N03S           013881-91-9  64
3 2-Ami noethyl hydrogen sul fate            141  C2H7N04S           000926-39-6  9
4 L-Al anine, 3-sul fo-

```

```
*****
Peak Number  3  1-Propene, 2-methyl -                               Concentration Rank  2

  R. T.   EstConc           Area           Relative to ISTD           R. T.
-----
  2.50    1.19 ug          120937      External Standard           0.00

Hit# of  4  Tentative ID                               MW  Mol Form           CAS#           Qual
-----
1 1-Butene                                       56  C4H8                000106-98-9  64
2 1-Propene, 2-methyl -                         56  C4H8                000115-11-7  64
3 1-Propene, 2-methyl -                         56  C4H8                000115-11-7  59
4 2-Butene, (Z)-                               56  C4H8                000590-18-1  58

```

```
*****
Peak Number  4  Cycl opropane, ethyl -                               Concentration Rank  1

  R. T.   EstConc           Area           Relative to ISTD           R. T.
-----
  2.69    1.19 ug          121690      External Standard           0.00
```

0648079-LSCRPT. TXT

Hit# of	Tentative ID	MW	Mol Form	CAS#	Qual
1	Pentane	72	C5H12	000109-66-0	59
2	Cyclopropane, ethyl -	70	C5H10	001191-96-4	58
3	Cyclopropane, ethyl -	70	C5H10	001191-96-4	58
4	Cyclopropane, ethyl -	70	C5H10	001191-96-4	53

\*\*\*\*\*

Peak Number 5 Hexane Concentration Rank 5

R. T.	EstConc	Area	Relative to ISTD	R. T.
3.14	0.27 ug	27815	External Standard	0.00

Hit# of	Tentative ID	MW	Mol Form	CAS#	Qual
1	Tetrahydropyran	86	C5H10O	000142-68-7	9
2	Hexane	86	C6H14	000110-54-3	9
3	Propanal, 2,2-dimethyl -	86	C5H10O	000630-19-3	7
4	Hexane	86	C6H14	000110-54-3	7

0648079.D LIMS\_A1\_5.M Tue Dec 21 11:50:53 2010 D.00.00

0648081-LSCRPT.TXT  
Library Search Compound Report

Data File : C:\MSDCHEM\5\20784505FRM\0648081.D      Vial : 74  
 Acq On : 19 Nov 2010 22:41      Operator: LIMS import  
 Sample :      Inst : UC-SPG5-D  
 Misc :      Multiplr: 1.00  
 MS Integrati on Params: jwi nt. p  
 Quant Method : C:\MSDCHEM\1\METHODS\LIMS\_A1\_5.M (RTE Integrator)  
 Title : Gore Expanded Target VOCs/SVOCs  
 Library : C:\DATABASE\NI ST02.L

\*\*\*\*\*  
 Peak Number 1 Ethene, 1,2-di fluoro-      Concentrati on Rank 1  
 R. T.      EstConc      Area      Relati ve to ISTD      R. T.  
 -----  
 2.47      0.94 ug      95946      External Standard      0.00  
 Hit# of 4      Tentati ve ID      MW      Mol Form      CAS#      Qual  
 -----  
 1 Ethene, 1,1-di fluoro-      64      C2H2F2      000075-38-7      7  
 2 Ethene, 1,2-di fluoro-      64      C2H2F2      001691-13-0      5  
 3 Ethene, 1,1-di fluoro-      64      C2H2F2      000075-38-7      3  
 4 Ethene, 1,1-di fluoro-      64      C2H2F2      000075-38-7      3

\*\*\*\*\*  
 Peak Number 2 Acetone      Concentrati on Rank 2  
 R. T.      EstConc      Area      Relati ve to ISTD      R. T.  
 -----  
 2.72      0.12 ug      12508      External Standard      0.00  
 Hit# of 4      Tentati ve ID      MW      Mol Form      CAS#      Qual  
 -----  
 1 Acetone      58      C3H6O      000067-64-1      3  
 2 Ethyl ami ne      45      C2H7N      000075-04-7      3  
 3 Acetone      58      C3H6O      000067-64-1      3  
 4 Acetone      58      C3H6O      000067-64-1      3

0648081.D LIMS\_A1\_5.M Tue Dec 21 11:53:28 2010 D.00.00

0648080-LSCRPT. TXT  
Library Search Compound Report

```
Data File : C:\MSDCHEM\5\20784505FRM\0648080.D           Vial : 18
Acq On   : 18 Nov 2010  20:31                          Operator: LIMS import
Sample   :                                                Inst  : UC-SPG5-D
Misc     :                                                Multiplr: 1.00
MS Integrati on Params: jwi nt. p
Quant Method : C:\MSDCHEM\1\METHODS\LI MS_A1_5.M (RTE Integrator)
Title    : Gore Expanded Target VOCs/SVOCs
Library  : C:\DATABASE\NI ST02.L
```

```
*****
Peak Number  1  Carbon di oxide                        Concentrati on Rank  4

  R. T.   EstConc           Area           Relati ve to ISTD           R. T.
-----
  2.39    0.34 ug           34665          External Standard           0.00

Hit# of  4   Tentati ve ID                MW  Mol Form           CAS#           Qual
-----
1 Carbon di oxide                44  CO2                000124-38-9  2
2 Ni trous Oxi de                44  N2O                010024-97-2  2
3 Carbon di oxide                44  CO2                000124-38-9  2
4 Ethyne, fluoro-                44  C2HF              002713-09-9  2
```

```
*****
Peak Number  2  Sul fur di oxide                        Concentrati on Rank  1

  R. T.   EstConc           Area           Relati ve to ISTD           R. T.
-----
  2.44    1.79 ug           182220         External Standard           0.00

Hit# of  4   Tentati ve ID                MW  Mol Form           CAS#           Qual
-----
1 Sul fur di oxide                64  O2S                007446-09-5  90
2 Sul fur di oxide                64  O2S                007446-09-5  83
3 Ami nomethanesul foni c aci d   111 CH5NO3S         013881-91-9  74
4 Ami nomethanesul foni c aci d   111 CH5NO3S         013881-91-9  64
```

```
*****
Peak Number  3  1-Propene, 2-methyl -                          Concentrati on Rank  2

  R. T.   EstConc           Area           Relati ve to ISTD           R. T.
-----
  2.50    1.24 ug           126949         External Standard           0.00

Hit# of  4   Tentati ve ID                MW  Mol Form           CAS#           Qual
-----
1 1-Propene, 2-methyl -           56  C4H8              000115-11-7  59
2 1-Propene, 2-methyl -           56  C4H8              000115-11-7  50
3 2-Butene, (E)-                  56  C4H8              000624-64-6  16
4 1-Propene, 2-methyl -           56  C4H8              000115-11-7  9
```

```
*****
Peak Number  4  Butane, 2-methyl -                          Concentrati on Rank  3

  R. T.   EstConc           Area           Relati ve to ISTD           R. T.
-----
  2.69    1.16 ug           118521         External Standard           0.00
```

0648080-LSCRPT. TXT

Hit# of	Tentative ID	MW	Mol Form	CAS#	Qual
1	Butane, 2-methyl -	72	C5H12	000078-78-4	59
2	Butane, 2-methyl -	72	C5H12	000078-78-4	59
3	Pentane	72	C5H12	000109-66-0	59
4	3-Buten-1-ol	72	C4H8O	000627-27-0	53

\*\*\*\*\*

Peak Number 5 1-Pentene, 3-methyl - Concentration Rank 5

R. T.	EstConc	Area	Relative to ISTD	R. T.
2.92	0.26 ug	26783	External Standard	0.00

Hit# of	Tentative ID	MW	Mol Form	CAS#	Qual
1	1-Pentene, 3-methyl -	84	C6H12	000760-20-3	47
2	1-Pentene, 3-methyl -	84	C6H12	000760-20-3	43
3	1-Pentene, 3-methyl -	84	C6H12	000760-20-3	43
4	Cyclopropane, 1-ethyl -2-methyl -, ...	84	C6H12	019781-68-1	38

0648080.D LIMS\_A1\_5.M Tue Dec 21 11:52:28 2010 D.00.00



0648082-LSCRPT.TXT  
Library Search Compound Report

Data File : C:\MSDCHEM\5\20784505FRM\0648082.D  
Acq On : 19 Nov 2010 8:09  
Sample :  
Misc :  
MS Integration Params: jwint.p  
Quant Method : C:\MSDCHEM\1\METHODS\LIMS\_A1\_5.M (RTE Integrator)  
Title : Gore Expanded Target VOCs/SVOCs  
Library : C:\DATABASE\NI ST02.L

Vial : 43  
Operator: LIMS import  
Inst : UC-SPG5-D  
Multiplier: 1.00

\*\*\*\*\*  
Peak Number 1 Propene, hexafluoro- Concentration Rank 1

R.T.	EstConc	Area	Relative to ISTD	R.T.
2.42	0.31 ug	31250	External Standard	0.00

Hit# of 4 Tentative ID MW Mol Form CAS# Qual

1	Propene, hexafluoro-	150	C3F6	000116-15-4	47
2	2-Butenoic acid, methyl ester, (Z)-	100	C5H8O2	004358-59-2	5
3	Propene, hexafluoro-	150	C3F6	000116-15-4	4
4	Butane, 1-(ethenyl oxy)-	100	C6H12O	000111-34-2	4

\*\*\*\*\*  
Peak Number 2 Ethene, 1,2-difluoro- Concentration Rank 2

R.T.	EstConc	Area	Relative to ISTD	R.T.
2.49	0.23 ug	23734	External Standard	0.00

Hit# of 4 Tentative ID MW Mol Form CAS# Qual

1	Ethene, 1,2-difluoro-	64	C2H2F2	001691-13-0	5
2	Ethene, 1,1-difluoro-	64	C2H2F2	000075-38-7	5
3	Ethene, 1,1-difluoro-	64	C2H2F2	000075-38-7	3
4	Ethene, 1,1-difluoro-	64	C2H2F2	000075-38-7	3

0648082.D LIMS\_A1\_5.M Tue Dec 21 11:55:18 2010 D.00.00

0648029-LSCRPT. TXT  
Library Search Compound Report

```
Data File : C:\MSDCHEM\5\20784505FRM\0648029.D           Vial : 14
Acq On   : 18 Nov 2010  18:40                         Operator: LIMS import
Sample   :                                               Inst  : UC-SPG5-D
Misc     :                                               Multiplr: 1.00
MS Integrati on Params: jwint.p
Quant Method : C:\MSDCHEM\1\METHODS\LI MS_A1_5.M (RTE Integrator)
Title    : Gore Expanded Target VOCs/SVOCs
Library  : C:\DATABASE\NI ST02.L
```

```
*****
Peak Number  1  Carbon di oxide                               Concentrati on Rank  4

  R. T.    EstConc          Area          Relati ve to ISTD          R. T.
-----
  2.42     0.32 ug         32749      External Standard          0.00

Hit# of  4  Tentati ve ID          MW  Mol Form          CAS#          Qual
-----
  1 Carbon di oxide                44  CO2              000124-38-9  3
  2 Ethyne, fl uoro-                44  C2HF             002713-09-9  3
  3 Carbon di oxide                44  CO2              000124-38-9  3
  4 Ethylene oxi de                44  C2H4O           000075-21-8  3
*****
```

```
*****
Peak Number  2  Hexane, tetradecafl uoro-                   Concentrati on Rank  1

  R. T.    EstConc          Area          Relati ve to ISTD          R. T.
-----
  2.50     2.50 ug         254597      External Standard          0.00

Hit# of  4  Tentati ve ID          MW  Mol Form          CAS#          Qual
-----
  1 Hexane, tetradecafl uoro-       338  C6F14           000355-42-0  72
  2 Heptane, hexadecafl uoro-      388  C7F16           000335-57-9  72
  3 Heptane, hexadecafl uoro-      388  C7F16           000335-57-9  64
  4 Hexane, tetradecafl uoro-       338  C6F14           000355-42-0  59
*****
```

```
*****
Peak Number  3  Perfl uoro[1, 2-bi s(tetrahydr. . .)                  Concentrati on Rank  2

  R. T.    EstConc          Area          Relati ve to ISTD          R. T.
-----
  2.52     2.16 ug         220215      External Standard          0.00

Hit# of  4  Tentati ve ID          MW  Mol Form          CAS#          Qual
-----
  1 Perfl uoro[1, 2-bi s(tetrahydrofury. . . 458  C10H2F16O2     1000222-75-5  38
  2 [2, 2, 3, 3, 4, 4-Hexafl uoro-4-(fl uor. . . 367  C5HF12NO2S     091940-19-1  23
  3 2H-Imidazole-2-thione, 1, 3-di hydro- 100  C3H4N2S        000872-35-5  9
  4 3, 3-Di (tri fl uoromethyl )di azi ri ne 178  C3F6N2         003024-50-8  9
*****
```

```
*****
Peak Number  4  Pentane                               Concentrati on Rank  3

  R. T.    EstConc          Area          Relati ve to ISTD          R. T.
-----
  2.72     0.36 ug         37117      External Standard          0.00
*****
```

0648029-LSCRPT. TXT						
Hit#	of	Tentative ID	MW	Mol Form	CAS#	Qual
1		Pentane	72	C5H12	000109-66-0	64
2		Pentane	72	C5H12	000109-66-0	64
3		Pentane	72	C5H12	000109-66-0	50
4		1-Butanol	74	C4H10O	000071-36-3	43

0648029.D LIMS\_A1\_5.M Fri Dec 17 11:26:37 2010 D.00.00

0648030-LSCRPT. TXT  
Library Search Compound Report

Data File : C:\MSDCHEM\5\20784505FRM\0648030.D Vial : 33  
 Acq On : 19 Nov 2010 3:30 Operator: LIMS import  
 Sample : Inst : UC-SPG5-D  
 Misc : Multipl r: 1.00  
 MS Integrati on Params: jwi nt. p  
 Quant Method : C:\MSDCHEM\1\METHODS\LI MS\_A1\_5.M (RTE Integrator)  
 Title : Gore Expanded Target VOCs/SVOCs  
 Li brary : C:\DATABASE\NI ST02.L

\*\*\*\*\*  
 Peak Number 1 Carbon di oxide Concentrati on Rank 3

R. T.	EstConc	Area	Relati ve to ISTD	R. T.
2.41	0.24 ug	24514	External Standard	0.00

Hi t# of	Tentati ve ID	MW	Mol Form	CAS#	Qual
1	Ethyl ene oxi de	44	C2H4O	000075-21-8	2
2	Acetal dehyde	44	C2H4O	000075-07-0	2
3	Carbon di oxi de	44	CO2	000124-38-9	2
4	Ethyne, flu oro-	44	C2HF	002713-09-9	2

\*\*\*\*\*  
 Peak Number 2 1-Propene, 2-methyl - Concentrati on Rank 1

R. T.	EstConc	Area	Relati ve to ISTD	R. T.
2.51	0.61 ug	62413	External Standard	0.00

Hi t# of	Tentati ve ID	MW	Mol Form	CAS#	Qual
1	1-Propene, 2-methyl -	56	C4H8	000115-11-7	25
2	1-Propene, 2-methyl -	56	C4H8	000115-11-7	22
3	1-Propene, 2-methyl -	56	C4H8	000115-11-7	22
4	1-Butene	56	C4H8	000106-98-9	9

\*\*\*\*\*  
 Peak Number 3 Cycl opropane Concentrati on Rank 4

R. T.	EstConc	Area	Relati ve to ISTD	R. T.
2.64	0.12 ug	12155	External Standard	0.00

Hi t# of	Tentati ve ID	MW	Mol Form	CAS#	Qual
1	Cycl opropane	42	C3H6	000075-19-4	7
2	Cycl opropane	42	C3H6	000075-19-4	7
3	Cyanami de	42	CH2N2	000420-04-2	2
4	Ketene	42	C2H2O	000463-51-4	2

\*\*\*\*\*  
 Peak Number 4 1-Pentanol Concentrati on Rank 2

R. T.	EstConc	Area	Relati ve to ISTD	R. T.
2.71	0.31 ug	31223	External Standard	0.00

0648030-LSCRPT. TXT

Hit#	of	Tentative ID	MW	Mol Form	CAS#	Qual
1	4	Acetic acid, trifluoro-, pentyl ...	184	C7H11F3O2	000327-70-8	23
2		1-Pentanol	88	C5H12O	000071-41-0	17
3		Pentane	72	C5H12	000109-66-0	9
4		Pentane	72	C5H12	000109-66-0	9

\*\*\*\*\*

Peak Number 5 Butane, 2,3-dimethyl - Concentration Rank 5

R. T.	EstConc	Area	Relative to ISTD	R. T.
2.97	0.11 ug	11291	External Standard	0.00

Hit#	of	Tentative ID	MW	Mol Form	CAS#	Qual
1	4	Butane, 2,3-dimethyl -	86	C6H14	000079-29-8	4
2		cis-1,3-Cyclohexanedi amine	114	C6H14N2	026772-34-9	4
3		n-Propyl chl oride	78	C3H7Cl	000540-54-5	3
4		n-Propyl chl oride	78	C3H7Cl	000540-54-5	3

0648030.D LIMS\_A1\_5.M Fri Dec 17 11:32:41 2010 D.00.00

0648031-LSCRPT.TXT  
Library Search Compound Report

Data File : C:\MSDCHEM\5\20784505FRM\0648031.D      Vial : 70  
Acq On : 19 Nov 2010 20:49      Operator: LIMS import  
Sample :      Inst : UC-SPG5-D  
Misc :      Multiplr: 1.00  
MS Integrati on Params: jwi nt. p  
Quant Method : C:\MSDCHEM\1\METHODS\LI MS\_A1\_5.M (RTE Integrator)  
Title : Gore Expanded Target VOCs/SVOCs  
Library : C:\DATABASE\NI ST02.L

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Peak Number	Carbon di oxide			Concentration Rank
R. T.	EstConc	Area	Relative to ISTD	R. T.
2.40	0.29 ug	29396	External Standard	0.00

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```

Hit# of	Tentative ID	MW	Mol Form	CAS#	Qual
1	Ethylene oxide	44	C2H4O	000075-21-8	2
2	Acetaldehyde	44	C2H4O	000075-07-0	2
3	Carbon di oxide	44	CO2	000124-38-9	2
4	Ethyne, fluoro-	44	C2HF	002713-09-9	2

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*****
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Peak Number	Sul fur di oxide			Concentration Rank
R. T.	EstConc	Area	Relative to ISTD	R. T.
2.46	0.45 ug	45580	External Standard	0.00

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Hit# of	Tentative ID	MW	Mol Form	CAS#	Qual
1	Sul fur di oxide	64	O2S	007446-09-5	74
2	Aminomethanesulfonic acid	111	CH5NO3S	013881-91-9	74
3	Sul fur di oxide	64	O2S	007446-09-5	74
4	Aminomethanesulfonic acid	111	CH5NO3S	013881-91-9	64

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*****
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Peak Number	1-Butene			Concentration Rank
R. T.	EstConc	Area	Relative to ISTD	R. T.
2.51	0.56 ug	57471	External Standard	0.00

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Hit# of	Tentative ID	MW	Mol Form	CAS#	Qual
1	1-Butene	56	C4H8	000106-98-9	9
2	1-Butene	56	C4H8	000106-98-9	9
3	1-Propene, 2-methyl-	56	C4H8	000115-11-7	9
4	1-Propene, 2-methyl-	56	C4H8	000115-11-7	9

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*****
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Peak Number	Pentane			Concentration Rank
R. T.	EstConc	Area	Relative to ISTD	R. T.
2.70	0.54 ug	54659	External Standard	0.00

Hit# of	Tentative ID	MW	Mol Form	CAS#	Qual
1	Pentane	72	C5H12	000109-66-0	49
2	Di aziridine, 3, 3-dimethyl -	72	C3H8N2	004901-76-2	38
3	Di aziridine, 3, 3-dimethyl -	72	C3H8N2	004901-76-2	35
4	Cyclopropane, ethyl -	70	C5H10	001191-96-4	16

\*\*\*\*\*

Peak Number 5 Acetamide, 2-fluoro- Concentration Rank 5

R. T.	EstConc	Area	Relative to ISTD	R. T.
2.97	0.22 ug	22434	External Standard	0.00

Hit# of	Tentative ID	MW	Mol Form	CAS#	Qual
1	2-Propenamide	71	C3H5NO	000079-06-1	5
2	2-Propenamide	71	C3H5NO	000079-06-1	5
3	Acetamide, 2-fluoro-	77	C2H4FNO	000640-19-7	4
4	2-Propenamide	71	C3H5NO	000079-06-1	4

0648031.D envdef.m Mon Dec 20 12:01:43 2010 D.00.00

0648032-LSCRPT. TXT  
Library Search Compound Report

Data File : C:\MSDCHEM\5\20784505FRM\0648032. D	Vial : 41
Acq On : 19 Nov 2010 7:13	Operator: LIMS import
Sample :	Inst : UC-SPG5-D
Misc :	Multiplier: 1.00
MS Integration Params: jwint.p	
Quant Method : C:\MSDCHEM\1\METHODS\LIMS_A1_5.M (RTE Integrator)	
Title : Gore Expanded Target VOCs/SVOCs	
Library : C:\DATABASE\NI ST02.L	

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Peak Number 1	Ethyne, fluoro-	Concentration Rank 3
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R. T.	EstConc	Area	Relative to ISTD	R. T.
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2.38	0.24 ug	24932	External Standard	0.00
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Hit# of 4	Tentative ID	MW	Mol Form	CAS#	Qual
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1	Acetaldehyde	44	C2H4O	000075-07-0	3
2	Ethylene oxide	44	C2H4O	000075-21-8	3
3	Acetaldehyde	44	C2H4O	000075-07-0	3
4	Ethyne, fluoro-	44	C2HF	002713-09-9	3

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Peak Number 2	Aminomethanesulfonic acid	Concentration Rank 4
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R. T.	EstConc	Area	Relative to ISTD	R. T.
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2.44	0.19 ug	18947	External Standard	0.00
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Hit# of 4	Tentative ID	MW	Mol Form	CAS#	Qual
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1	Sulfur dioxide	64	O2S	007446-09-5	74
2	Sulfur dioxide	64	O2S	007446-09-5	74
3	Aminomethanesulfonic acid	111	CH5NO3S	013881-91-9	64
4	Cysteic acid	169	C3H7NO5S	1000131-23-1	64

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Peak Number 3	1-Propene, 2-methyl -	Concentration Rank 1
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R. T.	EstConc	Area	Relative to ISTD	R. T.
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2.49	0.50 ug	51314	External Standard	0.00
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Hit# of 4	Tentative ID	MW	Mol Form	CAS#	Qual
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1	1-Propene, 2-methyl -	56	C4H8	000115-11-7	58
2	1-Butene	56	C4H8	000106-98-9	53
3	1-Propene, 2-methyl -	56	C4H8	000115-11-7	53
4	1-Butene	56	C4H8	000106-98-9	53

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Peak Number 4	Pentane	Concentration Rank 2
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R. T.	EstConc	Area	Relative to ISTD	R. T.
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2.68	0.30 ug	30663	External Standard	0.00
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0648032-LSCRPT. TXT

Hit# of	Tentative ID	MW	Mol Form	CAS#	Qual
1	Aziri dine, 2, 2-dimethyl -	71	C4H9N	002658-24-4	25
2	Pentane	72	C5H12	000109-66-0	9
3	Oxirane, ethyl -	72	C4H8O	000106-88-7	9
4	Pentane	72	C5H12	000109-66-0	9

\*\*\*\*\*

Peak Number 5 Cyclopropane Concentration Rank 5

R. T.	EstConc	Area	Relative to ISTD	R. T.
3.12	0.11 ug	11660	External Standard	0.00

Hit# of	Tentative ID	MW	Mol Form	CAS#	Qual
1	2-Propen-1-amine	57	C3H7N	000107-11-9	4
2	Cyclopropane	42	C3H6	000075-19-4	4
3	Cyclopropane	42	C3H6	000075-19-4	4
4	Ethylamine	43	C2H5N	000151-56-4	4

0648032.D envdef.m Mon Dec 20 12:05:32 2010 D.00.00

0648033-LSCRPT.TXT  
Library Search Compound Report

Data File : C:\MSDCHEM\5\20784505FRM\0648033.D                      Vial : 59  
Acq On : 19 Nov 2010 15:36    Operator: LIMS import  
Sample :    Inst : UC-SPG5-D  
Misc :    Multiplr: 1.00  
MS Integration Params: jwint.p  
Quant Method : C:\MSDCHEM\1\METHODS\LIMS\_A1\_5.M (RTE Integrator)  
Title : Gore Expanded Target VOCs/SVOCs  
Library : C:\DATABASE\NI ST02.L

\*\*\*\*\*

Peak Number	1	Carbon di oxide	Concentration	Rank	4	
R. T.	EstConc	Area	Relative to ISTD	R. T.		
2.41	0.39 ug	39610	External Standard	0.00		
Hit# of	4	Tentative ID	MW	Mol Form	CAS#	Qual
1		Carbon di oxide	44	CO2	000124-38-9	2
2		Nitrous Oxide	44	N2O	010024-97-2	2
3		Ethylene oxide	44	C2H4O	000075-21-8	2
4		Carbon di oxide	44	CO2	000124-38-9	2

\*\*\*\*\*

Peak Number	2	Aminomethanesulfonic acid	Concentration	Rank	3	
R. T.	EstConc	Area	Relative to ISTD	R. T.		
2.47	0.51 ug	51947	External Standard	0.00		
Hit# of	4	Tentative ID	MW	Mol Form	CAS#	Qual
1		Aminomethanesulfonic acid	111	CH5NO3S	013881-91-9	74
2		Sulfur dioxide	64	O2S	007446-09-5	74
3		Aminomethanesulfonic acid	111	CH5NO3S	013881-91-9	64
4		Aminomethanesulfonic acid	111	CH5NO3S	013881-91-9	64

\*\*\*\*\*

Peak Number	3	1-Propene, 2-methyl -	Concentration	Rank	2	
R. T.	EstConc	Area	Relative to ISTD	R. T.		
2.52	0.58 ug	59241	External Standard	0.00		
Hit# of	4	Tentative ID	MW	Mol Form	CAS#	Qual
1		1-Propene, 2-methyl -	56	C4H8	000115-11-7	50
2		1-Propene, 2-methyl -	56	C4H8	000115-11-7	50
3		1-Butene	56	C4H8	000106-98-9	9
4		1-Propene, 2-methyl -	56	C4H8	000115-11-7	9

\*\*\*\*\*

Peak Number	4	Pentane	Concentration	Rank	1
R. T.	EstConc	Area	Relative to ISTD	R. T.	
2.72	0.67 ug	67898	External Standard	0.00	

0648033-LSCRPT. TXT

Hit# of	Tentative ID	MW	Mol Form	CAS#	Qual
1	Pentane	72	C5H12	000109-66-0	43
2	Pentane	72	C5H12	000109-66-0	43
3	Cyclopropane, ethyl -	70	C5H10	001191-96-4	9
4	Butane, 2-methyl -	72	C5H12	000078-78-4	9

\*\*\*\*\*

Peak Number 5 1-Propene, 2-methyl - Concentration Rank 5

R. T.	EstConc	Area	Relative to ISTD	R. T.
2.94	0.16 ug	16486	External Standard	0.00

Hit# of	Tentative ID	MW	Mol Form	CAS#	Qual
1	1-Octanamine	129	C8H19N	000111-86-4	9
2	1-Propene, 2-methyl -	56	C4H8	000115-11-7	7
3	Propene	42	C3H6	000115-07-1	7
4	1-Propene, 2-methyl -	56	C4H8	000115-11-7	4

0648033.D envdef.m Mon Dec 20 12:07:17 2010 D.00.00

0648034-LSCRPT.TXT  
Library Search Compound Report

Data File : C:\MSDCHEM\5\20784505FRM\0648034.D                      Vial : 42  
 Acq On : 19 Nov 2010 7:41    Operator: LIMS import  
 Sample :    Inst : UC-SPG5-D  
 Misc :   Multiplr: 1.00  
 MS Integration Params: jwint.p  
 Quant Method : C:\MSDCHEM\1\METHODS\LI MS\_A1\_5.M (RTE Integrator)  
 Title : Gore Expanded Target VOCs/SVOCs  
 Library : C:\DATABASE\NI ST02.L

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Peak Number	1	Carbon di oxide	Concentration	Rank	4	
R. T.	EstConc	Area	Relative to ISTD	R. T.		
2.39	0.35 ug	35950	External Standard	0.00		
Hit# of	4	Tentative ID	MW	Mol Form	CAS#	Qual
1		Carbon di oxide	44	CO2	000124-38-9	2
2		Nitrous Oxide	44	N2O	010024-97-2	2
3		Ethylene oxide	44	C2H4O	000075-21-8	2
4		Carbon di oxide	44	CO2	000124-38-9	2

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Peak Number	2	Aminomethanesulfonic acid	Concentration	Rank	1	
R. T.	EstConc	Area	Relative to ISTD	R. T.		
2.44	0.72 ug	73677	External Standard	0.00		
Hit# of	4	Tentative ID	MW	Mol Form	CAS#	Qual
1		Aminomethanesulfonic acid	111	CH5NO3S	013881-91-9	74
2		Sulfur dioxide	64	O2S	007446-09-5	74
3		Sulfur dioxide	64	O2S	007446-09-5	74
4		Aminomethanesulfonic acid	111	CH5NO3S	013881-91-9	64

\*\*\*\*\*

Peak Number	3	1-Propene, 2-methyl -	Concentration	Rank	2	
R. T.	EstConc	Area	Relative to ISTD	R. T.		
2.50	0.62 ug	63271	External Standard	0.00		
Hit# of	4	Tentative ID	MW	Mol Form	CAS#	Qual
1		1-Propene, 2-methyl -	56	C4H8	000115-11-7	43
2		1-Propene, 2-methyl -	56	C4H8	000115-11-7	37
3		1-Propene, 2-methyl -	56	C4H8	000115-11-7	37
4		Propane, 1-nitro-	89	C3H7NO2	000108-03-2	12

\*\*\*\*\*

Peak Number	4	Cyclopropane	Concentration	Rank	5
R. T.	EstConc	Area	Relative to ISTD	R. T.	
2.63	0.21 ug	20991	External Standard	0.00	

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Hit# of	Tentative ID	MW	Mol Form	CAS#	Qual
1	Propene	42	C3H6	000115-07-1	7
2	Cyclopropane	42	C3H6	000075-19-4	7
3	Cyclopropane	42	C3H6	000075-19-4	4
4	Cyclobutane	56	C4H8	000287-23-0	4

\*\*\*\*\*

Peak Number 5 Pentane Concentration Rank 3

R. T.	EstConc	Area	Relative to ISTD	R. T.
2.69	0.44 ug	45193	External Standard	0.00

Hit# of	Tentative ID	MW	Mol Form	CAS#	Qual
1	Pentane	72	C5H12	000109-66-0	47
2	Pentane	72	C5H12	000109-66-0	46
3	Pentane	72	C5H12	000109-66-0	43
4	Pentane	72	C5H12	000109-66-0	43

0648034.D envdef.m Mon Dec 20 12:08:58 2010 D.00.00

0648036-LSCRPT. TXT  
Library Search Compound Report

Data File : C:\MSDCHEM\5\20784505FRM\0648036.D                      Vial : 79  
Acq On : 20 Nov 2010  1:00                                        Operator: LIMS import  
Sample :   Inst : UC-SPG5-D  
Misc :   Multiplr: 1.00  
MS Integrati on Params: jwi nt. p  
Quant Method : C:\MSDCHEM\1\METHODS\LI MS\_A1\_5. M (RTE Integrator)  
Title : Gore Expanded Target VOCs/SVOCs  
Library : C:\DATABASE\NI ST02. L

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Peak Number	1	Carbon di oxide	Concentrati on Rank		2	
R. T.	EstConc	Area	Relati ve to ISTD		R. T.	
2.42	0.33 ug	33623	External Standard		0.00	
Hi t# of	4	Tentati ve ID	MW	Mol Form	CAS#	Qual
1		Carbon di oxide	44	CO2	000124-38-9	2
2		Ni trous Oxi de	44	N2O	010024-97-2	2
3		Carbon di oxide	44	CO2	000124-38-9	2
4		Ethyne, fl uoro-	44	C2HF	002713-09-9	2

\*\*\*\*\*

Peak Number	2	Ami nomethanesul foni c aci d	Concentrati on Rank		4	
R. T.	EstConc	Area	Relati ve to ISTD		R. T.	
2.47	0.25 ug	25607	External Standard		0.00	
Hi t# of	4	Tentati ve ID	MW	Mol Form	CAS#	Qual
1		Sul fur di oxide	64	O2S	007446-09-5	74
2		Ami nomethanesul foni c aci d	111	CH5NO3S	013881-91-9	74
3		Ami nomethanesul foni c aci d	111	CH5NO3S	013881-91-9	64
4		Ami nomethanesul foni c aci d	111	CH5NO3S	013881-91-9	9

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Peak Number	3	2-Butene, (Z)-	Concentrati on Rank		1	
R. T.	EstConc	Area	Relati ve to ISTD		R. T.	
2.52	0.38 ug	39154	External Standard		0.00	
Hi t# of	4	Tentati ve ID	MW	Mol Form	CAS#	Qual
1		2-Butene, (Z)-	56	C4H8	000590-18-1	5
2		2-Butene, (E)-	56	C4H8	000624-64-6	5
3		2-Butene, (E)-	56	C4H8	000624-64-6	5
4		2-Butene, (Z)-	56	C4H8	000590-18-1	5

\*\*\*\*\*

Peak Number	4	Butane, 2-methyl -	Concentrati on Rank		3
R. T.	EstConc	Area	Relati ve to ISTD		R. T.
2.72	0.25 ug	25759	External Standard		0.00

Hit# of	Tentative ID	MW	Mol Form	CAS#	Qual
1	Ethyl eni mi ne	43	C2H5N	000151-56-4	5
2	Butane, 2-methyl -	72	C5H12	000078-78-4	4
3	Ethyl eni mi ne	43	C2H5N	000151-56-4	4
4	Cyanami de	42	CH2N2	000420-04-2	3

\*\*\*\*\*

Peak Number 5 Ketene Concentration Rank 5

R. T.	EstConc	Area	Relative to ISTD	R. T.
2.99	0.14 ug	14385	External Standard	0.00

Hit# of	Tentative ID	MW	Mol Form	CAS#	Qual
1	Ketene	42	C2H2O	000463-51-4	3
2	Cyanami de	42	CH2N2	000420-04-2	3
3	Methane, di azo-	42	CH2N2	000334-88-3	3
4	1-Butanol	74	C4H10O	000071-36-3	2

0648036.D envdef.m Mon Dec 20 12:12:29 2010 D.00.00

0648035-LSCRPT.TXT  
Library Search Compound Report

Data File : C:\MSDCHEM\5\20784505FRM\0648035.D                      Vial : 52  
 Acq On : 19 Nov 2010 12:20    Operator: LIMS import  
 Sample :    Inst : UC-SPG5-D  
 Misc :    Multiplr: 1.00  
 MS Integration Params: jwint.p  
 Quant Method : C:\MSDCHEM\1\METHODS\LIMS\_A1\_5.M (RTE Integrator)  
 Title : Gore Expanded Target VOCs/SVOCs  
 Library : C:\DATABASE\NI ST02.L

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Peak Number	1	Carbon di oxide			Concentration Rank	2
R. T.	EstConc	Area	Relative to ISTD		R. T.	
2.40	0.44 ug	44960	External Standard		0.00	
Hit# of	4	Tentative ID	MW	Mol Form	CAS#	Qual
1		Carbon di oxide	44	CO2	000124-38-9	2
2		Nitrous Oxide	44	N2O	010024-97-2	2
3		Ethylene oxide	44	C2H4O	000075-21-8	2
4		Carbon di oxide	44	CO2	000124-38-9	2

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Peak Number	2	Aminomethanesulfonic acid			Concentration Rank	1
R. T.	EstConc	Area	Relative to ISTD		R. T.	
2.47	0.64 ug	65473	External Standard		0.00	
Hit# of	4	Tentative ID	MW	Mol Form	CAS#	Qual
1		Aminomethanesulfonic acid	111	CH5NO3S	013881-91-9	74
2		Sulfur dioxide	64	O2S	007446-09-5	74
3		Sulfur dioxide	64	O2S	007446-09-5	74
4		L-Alanine, 3-sulfo-	169	C3H7NO5S	000498-40-8	9

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*****
```

Peak Number	3	2-Butene, (Z)-			Concentration Rank	3
R. T.	EstConc	Area	Relative to ISTD		R. T.	
2.52	0.38 ug	39264	External Standard		0.00	
Hit# of	4	Tentative ID	MW	Mol Form	CAS#	Qual
1		2-Butene, (Z)-	56	C4H8	000590-18-1	9
2		2-Butene, (E)-	56	C4H8	000624-64-6	9
3		2-Butene, (Z)-	56	C4H8	000590-18-1	9
4		2-Butene	56	C4H8	000107-01-7	9

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Peak Number	4	Pentanal, 2-methyl-			Concentration Rank	4
R. T.	EstConc	Area	Relative to ISTD		R. T.	
2.71	0.32 ug	32682	External Standard		0.00	



0648035-LSCRPT. TXT						
Hit# of	4	Tentative ID	MW	Mol Form	CAS#	Qual
1		Acetone	58	C3H6O	000067-64-1	7
2		Acetone	58	C3H6O	000067-64-1	7
3		Butane	58	C4H10	000106-97-8	4
4		Pentanal, 2-methyl -	100	C6H12O	000123-15-9	4

\*\*\*\*\*  
 Peak Number 5 1,3-Cycl opentadi ene, 1,2-di... Concentrati on Rank 5

R. T.	EstConc	Area	Relati ve to ISTD	R. T.
2.90	0.15 ug	15247	External Standard	0.00

Hit# of	4	Tentative ID	MW	Mol Form	CAS#	Qual
1		1,4-Cycl ohexadi ene, 1-methyl -	94	C7H10	004313-57-9	9
2		1,3,5-Hexatri ene, 3-methyl -, (E) -	94	C7H10	024587-26-6	9
3		1,3-Cycl opentadi ene, 1,2-di methyl -	94	C7H10	004784-86-5	9
4		Ethene, 1,2-di fl uoro-	64	C2H2F2	001691-13-0	5

0648035.D envdef.m Mon Dec 20 12:10:26 2010 D.00.00

0648037-LSCRPT. TXT  
Library Search Compound Report

```

Data File : C:\MSDCHEM\5\20784505FRM\0648037. D           Vial : 78
Acq On    : 20 Nov 2010  00:33                          Operator: LIMS import
Sample    :                                               Inst  : UC-SPG5-D
Misc      :                                               Multiplr: 1.00
MS Integrati on Params: jwint.p
Quant Method : C:\MSDCHEM\1\METHODS\LI MS_A1_5.M (RTE Integrator)
Title     : Gore Expanded Target VOCs/SVOCs
Library   : C:\DATABASE\NI ST02.L
  
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*****
Peak Number 1 Carbon di oxide                               Concentration Rank 2
  
```

R. T.	EstConc	Area	Relative to ISTD	R. T.
2.41	0.27 ug	27317	External Standard	0.00

Hit# of	Tentative ID	MW	Mol Form	CAS#	Qual
1	Carbon di oxide	44	CO2	000124-38-9	2
2	Nitrous Oxide	44	N2O	010024-97-2	2
3	Carbon di oxide	44	CO2	000124-38-9	2
4	Ethyne, fluoro-	44	C2HF	002713-09-9	2

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*****
Peak Number 2 Aminomethanesulfonic acid                   Concentration Rank 1
  
```

R. T.	EstConc	Area	Relative to ISTD	R. T.
2.46	0.38 ug	39260	External Standard	0.00

Hit# of	Tentative ID	MW	Mol Form	CAS#	Qual
1	Sulfur dioxide	64	O2S	007446-09-5	74
2	Aminomethanesulfonic acid	111	CH5NO3S	013881-91-9	74
3	Aminomethanesulfonic acid	111	CH5NO3S	013881-91-9	64
4	Aminomethanesulfonic acid	111	CH5NO3S	013881-91-9	9

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*****
Peak Number 3 2-Butene, (E)-                               Concentration Rank 3
  
```

R. T.	EstConc	Area	Relative to ISTD	R. T.
2.51	0.23 ug	23653	External Standard	0.00

Hit# of	Tentative ID	MW	Mol Form	CAS#	Qual
1	2-Butene, (E)-	56	C4H8	000624-64-6	5
2	Cyclobutane	56	C4H8	000287-23-0	5
3	2-Butene, (Z)-	56	C4H8	000590-18-1	5
4	Cyclobutane	56	C4H8	000287-23-0	4

```

*****
Peak Number 4 Cyclopropane                                 Concentration Rank 4
  
```

R. T.	EstConc	Area	Relative to ISTD	R. T.
2.71	0.18 ug	18654	External Standard	0.00

Hit# of	Tentative ID	MW	Mol Form	CAS#	Qual
1	Cyclopropane	42	C3H6	000075-19-4	4
2	Cyclopropane	42	C3H6	000075-19-4	4
3	Cyclopropane	42	C3H6	000075-19-4	4
4	Ethanamine, N-methylene-	57	C3H7N	043729-97-1	4

\*\*\*\*\*

Peak Number 5 Ethylamine Concentration Rank 5

R. T.	EstConc	Area	Relative to ISTD	R. T.
3.15	0.12 ug	12525	External Standard	0.00

Hit# of	Tentative ID	MW	Mol Form	CAS#	Qual
1	Ethylamine	43	C2H5N	000151-56-4	4
2	Azidine	57	C3H7N	000503-29-7	4
3	Ethylamine	43	C2H5N	000151-56-4	4
4	Ethylamine	43	C2H5N	000151-56-4	4

0648037.D envdef.m Mon Dec 20 12:13:53 2010 D.00.00

0648038-LSCRPT. TXT  
Library Search Compound Report

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Data File : C:\MSDCHEM\5\20784505FRM\0648038.D          Vial : 56
Acq On   : 19 Nov 2010  14:12                          Operator: LIMS import
Sample   :                                               Inst  : UC-SPG5-D
Misc     :                                               Multiplr: 1.00
MS Integrati on Params: jwint.p
Quant Method : C:\MSDCHEM\1\METHODS\LI MS_A1_5.M (RTE Integrator)
Title    : Gore Expanded Target VOCs/SVOCs
Library  : C:\DATABASE\NI ST02.L
```

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*****
Peak Number  1  Carbon di oxide                               Concentration Rank  3
-----
R. T.   EstConc          Area      Relative to ISTD      R. T.
-----
  2.40   0.46 ug         46615   External Standard    0.00

Hit# of  4   Tentative ID          MW  Mol Form      CAS#      Qual
-----
  1 Carbon di oxide                44  CO2           000124-38-9  3
  2 Ethyne, fluoro-                 44  C2HF          002713-09-9  3
  3 Carbon di oxide                44  CO2           000124-38-9  3
  4 Ethylene oxide                 44  C2H4O         000075-21-8  3
*****
```

```
*****
Peak Number  2  Sul fur di oxide                               Concentration Rank  1
-----
R. T.   EstConc          Area      Relative to ISTD      R. T.
-----
  2.46   0.85 ug         86533   External Standard    0.00

Hit# of  4   Tentative ID          MW  Mol Form      CAS#      Qual
-----
  1 2-Aminoethyl hydrogen sulfate   141  C2H7NO4S     000926-39-6  74
  2 Aminomethanesulfonic acid       111  CH5NO3S      013881-91-9  74
  3 Sul fur di oxide                 64  O2S           007446-09-5  74
  4 Sul fur di oxide                 64  O2S           007446-09-5  74
*****
```

```
*****
Peak Number  3  Pyri di ne, pentafluoro-                               Concentration Rank  2
-----
R. T.   EstConc          Area      Relative to ISTD      R. T.
-----
  2.50   0.70 ug         71156   External Standard    0.00

Hit# of  4   Tentative ID          MW  Mol Form      CAS#      Qual
-----
  1 Carbamic chloride, diethyl-     135  C5H10ClNO    000088-10-8  9
  2 2-Propanone, dimethyl hydrazone  100  C5H12N2      013483-31-3  5
  3 Pyri di ne, pentafluoro-        169  C5F5N         000700-16-3  5
  4 8-Fluoro-6-methyl tetrazolo[1,5-c... 169  C5H4FN5O     144877-46-3  4
*****
```

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*****
Peak Number  4  Butane                                                       Concentration Rank  5
-----
R. T.   EstConc          Area      Relative to ISTD      R. T.
-----
  2.70   0.30 ug         31068   External Standard    0.00
*****
```

Hit# of	Tentative ID	MW	Mol Form	CAS#	Qual
1	Butane	58	C4H10	000106-97-8	7
2	Butane	58	C4H10	000106-97-8	7
3	Butane	58	C4H10	000106-97-8	4
4	1-Butanol	74	C4H10O	000071-36-3	4

\*\*\*\*\*

Peak Number 5 Pyridine, 2-chloro- Concentration Rank 4

R. T.	EstConc	Area	Relative to ISTD	R. T.
6.25	0.35 ug	36189	External Standard	0.00

Hit# of	Tentative ID	MW	Mol Form	CAS#	Qual
1	Pyridine, 2-chloro-	113	C5H4ClN	000109-09-1	91
2	Pyridine, 2-chloro-	113	C5H4ClN	000109-09-1	91
3	Pyridine, 3-chloro-	113	C5H4ClN	000626-60-8	91
4	Pyridine, 4-chloro-	113	C5H4ClN	000626-61-9	91

0648038.D envdef.m Mon Dec 20 12:16:15 2010 D.00.00

0648039-LSCRPT. TXT  
Library Search Compound Report

Data File : C:\MSDCHEM\5\20784505FRM\0648039.D	Vial : 21
Acq On : 18 Nov 2010 21:55	Operator: LIMS import
Sample :	Inst : UC-SPG5-D
Misc :	Multiplr: 1.00
MS Integration Params: jwint.p	
Quant Method : C:\MSDCHEM\1\METHODS\LIMS_A1_5.M (RTE Integrator)	
Title : Gore Expanded Target VOCs/SVOCs	
Library : C:\DATABASE\NI ST02.L	

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*****
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Peak Number 1	Hexane, tetradecafluoro-	Concentration Rank 1
---------------	--------------------------	----------------------

R. T.	EstConc	Area	Relative to ISTD	R. T.
2.52	241.02 ug	24583900	External Standard	0.00

Hit# of	4	Tentative ID	MW	Mol Form	CAS#	Qual
1		Hexane, tetradecafluoro-	338	C6F14	000355-42-0	40
2		Perfluorooctane	438	C8F18	000307-34-6	37
3		Butanoic acid, heptafluoro-, eth...	242	C6H5F7O2	000356-27-4	36
4		Hexane, tetradecafluoro-	338	C6F14	000355-42-0	35

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*****
```

Peak Number 2	Pentane	Concentration Rank 5
---------------	---------	----------------------

R. T.	EstConc	Area	Relative to ISTD	R. T.
2.71	3.28 ug	334067	External Standard	0.00

Hit# of	4	Tentative ID	MW	Mol Form	CAS#	Qual
1		Pentane	72	C5H12	000109-66-0	80
2		Pentane	72	C5H12	000109-66-0	78
3		Pentane	72	C5H12	000109-66-0	78
4		Pentane	72	C5H12	000109-66-0	64

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*****
```

Peak Number 3	Hexane	Concentration Rank 2
---------------	--------	----------------------

R. T.	EstConc	Area	Relative to ISTD	R. T.
3.15	11.18 ug	1140310	External Standard	0.00

Hit# of	4	Tentative ID	MW	Mol Form	CAS#	Qual
1		Hexane	86	C6H14	000110-54-3	91
2		Hexane	86	C6H14	000110-54-3	91
3		Hexane	86	C6H14	000110-54-3	91
4		Pentane, 2, 2, 3, 4-tetramethyl -	128	C9H20	001186-53-4	42

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*****
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Peak Number 4	Heptane, 3-ethyl -	Concentration Rank 4
---------------	--------------------	----------------------

R. T.	EstConc	Area	Relative to ISTD	R. T.
3.82	4.57 ug	466275	External Standard	0.00

Hit# of	Tentative ID	MW	Mol Form	CAS#	Qual
1	Heptane, 2,5-dimethyl -	128	C9H20	002216-30-0	53
2	Heptane, 2,2,3,5-tetramethyl -	156	C11H24	061868-42-6	50
3	Pentane, 2,2,4-trimethyl -	114	C8H18	000540-84-1	47
4	Heptane, 3-ethyl -	128	C9H20	015869-80-4	47

\*\*\*\*\*

Peak Number 5 Cyclohexane, methyl - Concentration Rank 3

R. T.	EstConc	Area	Relative to ISTD	R. T.
4.19	6.49 ug	662489	External Standard	0.00

Hit# of	Tentative ID	MW	Mol Form	CAS#	Qual
1	Cyclohexane, methyl -	98	C7H14	000108-87-2	96
2	Cyclohexane, methyl -	98	C7H14	000108-87-2	93
3	Cyclohexane, methyl -	98	C7H14	000108-87-2	91
4	Cyclohexane, methyl -	98	C7H14	000108-87-2	91

0648039.D envdef.m Mon Dec 20 12:17:22 2010 D.00.00

0648040-LSCRPT.TXT  
Library Search Compound Report

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Data File : C:\MSDCHEM\5\20784505FRM\0648040.D          Vial : 32
Acq On   : 19 Nov 2010  3:02                          Operator: LIMS import
Sample   :                                               Inst  : UC-SPG5-D
Misc     :                                               Multiplr: 1.00
MS Integrati on Params: jwint.p
Quant Method : C:\MSDCHEM\1\METHODS\LI MS_A1_5.M (RTE Integrator)
Title    : Gore Expanded Target VOCs/SVOCs
Library  : C:\DATABASE\NI ST02.L
  
```

\*\*\*\*\*  
Peak Number 1 (N-(-2-Acetami do))-2-ami noe... Concentrati on Rank 1

R. T.	EstConc	Area	Relati ve to ISTD	R. T.
2.46	0.35 ug	35213	External Standard	0.00
Hi t# of	4	Tentati ve ID	MW Mol Form	CAS# Qual
1		(N-(-2-Acetami do))-2-ami noethane...	182 C4H10N2O4S	007365-82-4 9
2		Sul fur di oxi de	64 O2S	007446-09-5 7
3		Ethyl ene oxi de	44 C2H4O	000075-21-8 4
4		2, 3-Di methyl amphetami ne	163 C11H17N	075659-60-8 4

\*\*\*\*\*  
Peak Number 2 Sul fur di oxi de Concentrati on Rank 2

R. T.	EstConc	Area	Relati ve to ISTD	R. T.
2.51	0.28 ug	28145	External Standard	0.00
Hi t# of	4	Tentati ve ID	MW Mol Form	CAS# Qual
1		Ethene, 1, 1-di fl uoro-	64 C2H2F2	000075-38-7 5
2		Ethene, 1, 2-di fl uoro-	64 C2H2F2	001691-13-0 5
3		Sul fur di oxi de	64 O2S	007446-09-5 3
4		Ethene, 1, 1-di fl uoro-	64 C2H2F2	000075-38-7 3

0648040.D envdef.m Mon Dec 20 12:19:29 2010 D.00.00



0648041-LSCRPT. TXT  
Library Search Compound Report

Data File : C:\MSDCHEM\5\20784505FRM\0648041.D      Vial : 62  
Acq On : 19 Nov 2010 17:05      Operator: LIMS import  
Sample :      Inst : UC-SPG5-D  
Misc :      Multiplier: 1.00  
MS Integration Params: jwint.p  
Quant Method : C:\MSDCHEM\1\METHODS\LIMS\_A1\_5.M (RTE Integrator)  
Title : Gore Expanded Target VOCs/SVOCs  
Library : C:\DATABASE\NI ST02.L

\*\*\*\*\*

Peak Number	Carbon di oxide		Concentration		Rank	
R. T.	EstConc	Area	Relative to ISTD		R. T.	
2.40	0.29 ug	29243	External Standard		0.00	
Hit# of	4	Tentative ID	MW	Mol Form	CAS#	Qual
1	Carbon di oxide		44	CO2	000124-38-9	2
2	Nitrous Oxide		44	N2O	010024-97-2	2
3	Carbon di oxide		44	CO2	000124-38-9	2
4	Ethyne, fluoro-		44	C2HF	002713-09-9	2

\*\*\*\*\*

Peak Number	Sulfur di oxide		Concentration		Rank	
R. T.	EstConc	Area	Relative to ISTD		R. T.	
2.46	0.60 ug	61415	External Standard		0.00	
Hit# of	4	Tentative ID	MW	Mol Form	CAS#	Qual
1	Sulfur di oxide		64	O2S	007446-09-5	74
2	Sulfur di oxide		64	O2S	007446-09-5	74
3	Aminomethanesulfonic acid		111	CH5NO3S	013881-91-9	64
4	Aminomethanesulfonic acid		111	CH5NO3S	013881-91-9	64

\*\*\*\*\*

Peak Number	1-Propene, 2-methyl -		Concentration		Rank	
R. T.	EstConc	Area	Relative to ISTD		R. T.	
2.51	0.40 ug	41235	External Standard		0.00	
Hit# of	4	Tentative ID	MW	Mol Form	CAS#	Qual
1	1-Propene, 2-methyl -		56	C4H8	000115-11-7	38
2	1-Propene, 2-methyl -		56	C4H8	000115-11-7	32
3	2-Butenal, 2-ethenyl -		96	C6H8O	020521-42-0	12
4	Heptafluorobutyric acid, 2-methy...		270	C8H9F7O2	049669-71-8	12

\*\*\*\*\*

Peak Number	Pentane, 1-chloro-		Concentration		Rank
R. T.	EstConc	Area	Relative to ISTD		R. T.
2.70	0.37 ug	37839	External Standard		0.00

0648041-LSCRPT. TXT						
Hit# of	4	Tentative ID	MW	Mol Form	CAS#	Qual
1		Pentane, 1-chloro-	106	C5H11Cl	000543-59-9	9
2		Cyclopropane	42	C3H6	000075-19-4	4
3		Cyclopropane	42	C3H6	000075-19-4	4
4		Cyclopropanecarboxaldehyde	70	C4H6O	001489-69-6	4

\*\*\*\*\*

Peak Number 5 1,4-Dioxane Concentration Rank 1

R. T.	EstConc	Area	Relative to ISTD	R. T.
4.03	1.09 ug	111352	External Standard	0.00

Hit# of	4	Tentative ID	MW	Mol Form	CAS#	Qual
1		1,4-Dioxane	88	C4H8O2	000123-91-1	91
2		1,4-Dioxane	88	C4H8O2	000123-91-1	91
3		1,4-Dioxane	88	C4H8O2	000123-91-1	90
4		1,4-Dioxane	88	C4H8O2	000123-91-1	83

0648041.D envdef.m Mon Dec 20 12:22:23 2010 D.00.00

0648042-LSCRPT.TXT  
Library Search Compound Report

Data File : C:\MSDCHEM\5\20784505FRM\0648042.D                      Vial : 67  
Acq On : 19 Nov 2010 19:25    Operator: LIMS import  
Sample :    Inst : UC-SPG5-D  
Misc :    Multiplr: 1.00  
MS Integration Params: jwint.p  
Quant Method : C:\MSDCHEM\1\METHODS\LIMS\_A1\_5.M (RTE Integrator)  
Title : Gore Expanded Target VOCs/SVOCs  
Library : C:\DATABASE\NI ST02.L

\*\*\*\*\*

Peak Number	1	Carbon di oxide	Concentration	Rank	3	
R. T.	EstConc	Area	Relative to ISTD	R. T.		
2.41	0.36 ug	36451	External Standard	0.00		
Hit# of	4	Tentative ID	MW	Mol Form	CAS#	Qual
1		Carbon di oxide	44	CO2	000124-38-9	2
2		Nitrous Oxide	44	N2O	010024-97-2	2
3		Ethylene oxide	44	C2H4O	000075-21-8	2
4		Carbon di oxide	44	CO2	000124-38-9	2

\*\*\*\*\*

Peak Number	2	Perfluoro[1,2-bis(tetrahydr...	Concentration	Rank	1	
R. T.	EstConc	Area	Relative to ISTD	R. T.		
2.51	5.51 ug	562221	External Standard	0.00		
Hit# of	4	Tentative ID	MW	Mol Form	CAS#	Qual
1		Perfluoro(2-methyl pentane)	338	C6F14	000355-04-4	53
2		Perfluoro[1,2-bis(tetrahydrofury...	458	C10H2F16O2	1000222-75-5	52
3		Perfluorooctane	438	C8F18	000307-34-6	47
4		Perfluorooctane	438	C8F18	000307-34-6	40

\*\*\*\*\*

Peak Number	3	Propene	Concentration	Rank	5	
R. T.	EstConc	Area	Relative to ISTD	R. T.		
2.64	0.11 ug	10803	External Standard	0.00		
Hit# of	4	Tentative ID	MW	Mol Form	CAS#	Qual
1		Propene	42	C3H6	000115-07-1	7
2		Cyclopropanecarboxaldehyde	70	C4H6O	001489-69-6	4
3		Furan, 2,5-dihydro-	70	C4H6O	001708-29-8	4
4		Isobutyl nitrite	103	C4H9NO2	000542-56-3	2

\*\*\*\*\*

Peak Number	4	Benzyl nitrite	Concentration	Rank	2
R. T.	EstConc	Area	Relative to ISTD	R. T.	
2.68	0.36 ug	37025	External Standard	0.00	

0648042-LSCRPT. TXT

Hit# of	Tentative ID	MW	Mol Form	CAS#	Qual
1	Benzyl nitrile	117	C8H7N	000140-29-4	7
2	Benzyl nitrile	117	C8H7N	000140-29-4	5
3	Benzene, (isocyanomethyl)-	117	C8H7N	010340-91-7	5
4	2-Thio-2,4-oxazolidinedione	117	C3H3N02S	002346-24-9	4

\*\*\*\*\*

Peak Number 5 Formamide, N-methylthio Concentration Rank 4

R. T.	EstConc	Area	Relative to ISTD	R. T.
2.98	0.20 ug	20456	External Standard	0.00

Hit# of	Tentative ID	MW	Mol Form	CAS#	Qual
1	Formamide, N-methylthio	75	C2H5NS	018952-41-5	7
2	Glycine	75	C2H5NO2	000056-40-6	4
3	Silanol, trimethyl-	90	C3H10OSi	001066-40-6	4
4	Propane, 1,1-dimethoxy-	104	C5H12O2	004744-10-9	4

0648042.D envdef.m Mon Dec 20 12:23:38 2010 D.00.00

0648043-LSCRPT. TXT  
Library Search Compound Report

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Data File : C:\MSDCHEM\5\20784505FRM\0648043.D          Vial : 24
Acq On   : 18 Nov 2010  23:19                          Operator: LIMS import
Sample   :                                               Inst  : UC-SPG5-D
Misc     :                                               Multiplr: 1.00
MS Integrati on Params: jwint.p
Quant Method : C:\MSDCHEM\1\METHODS\LI MS_A1_5.M (RTE Integrator)
Title    : Gore Expanded Target VOCs/SVOCs
Library  : C:\DATABASE\NI ST02.L
    
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*****
Peak Number  1  Carbon di oxide                      Concentrati on Rank  1

  R. T.   EstConc      Area      Relati ve to ISTD      R. T.
-----
  2.41    0.37 ug      38213   External Standard      0.00

Hit# of  4   Tentati ve ID              MW  Mol Form      CAS#      Qual
-----
  1 Carbon di oxide                      44  CO2          000124-38-9  2
  2 Ni trous Oxi de                      44  N2O          010024-97-2  2
  3 Carbon di oxide                      44  CO2          000124-38-9  2
  4 Ethyne, fl uoro-                      44  C2HF         002713-09-9  2
    
```

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*****
Peak Number  2  Ethene, 1,1-di fl uoro-             Concentrati on Rank  3

  R. T.   EstConc      Area      Relati ve to ISTD      R. T.
-----
  2.47    0.21 ug      21799   External Standard      0.00

Hit# of  4   Tentati ve ID              MW  Mol Form      CAS#      Qual
-----
  1 Ethene, 1,1-di fl uoro-              64  C2H2F2       000075-38-7  3
  2 Ethene, 1,1-di fl uoro-              64  C2H2F2       000075-38-7  3
  3 Ethene, 1,2-di fl uoro-              64  C2H2F2       001691-13-0  3
  4 Ethene, 1,1-di fl uoro-              64  C2H2F2       000075-38-7  3
    
```

```

*****
Peak Number  3  2-Butene                          Concentrati on Rank  2

  R. T.   EstConc      Area      Relati ve to ISTD      R. T.
-----
  2.52    0.27 ug      27735   External Standard      0.00

Hit# of  4   Tentati ve ID              MW  Mol Form      CAS#      Qual
-----
  1 2-Butene, (E)-                       56  C4H8         000624-64-6  9
  2 2-Butene, (E)-                       56  C4H8         000624-64-6  9
  3 2-Butene                             56  C4H8         000107-01-7  9
  4 2-Butene, (Z)-                       56  C4H8         000590-18-1  9
    
```

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*****
Peak Number  4  Pentane                          Concentrati on Rank  4

  R. T.   EstConc      Area      Relati ve to ISTD      R. T.
-----
  2.72    0.18 ug      18147   External Standard      0.00
    
```

		0648043-LSCRPT. TXT				
Hi t#	of	Tentati ve ID	MW	Mol Form	CAS#	Qual
1		Di azi ri di ne, 3, 3-di methyl -	72	C3H8N2	004901-76-2	9
2		Cycl opropane	42	C3H6	000075-19-4	5
3		Cycl opropane	42	C3H6	000075-19-4	5
4		Pentane	72	C5H12	000109-66-0	4

0648043. D envdef. m Mon Dec 20 12: 25: 58 2010 D. 00. 00

0648044-LSCRPT.TXT  
Library Search Compound Report

Data File : C:\MSDCHEM\5\20784505FRM\0648044.D      Vial : 68  
Acq On : 19 Nov 2010 19:53      Operator: LIMS import  
Sample :      Inst : UC-SPG5-D  
Misc :      Multiplier: 1.00  
MS Integration Params: jwint.p  
Quant Method : C:\MSDCHEM\1\METHODS\LI MS\_A1\_5.M (RTE Integrator)  
Title : Gore Expanded Target VOCs/SVOCs  
Library : C:\DATABASE\NI ST02.L

\*\*\*\*\*

Peak Number	1	Carbon di oxide	Concentration	Rank	4	
R. T.	EstConc	Area	Relative to ISTD	R. T.		
2.41	0.48 ug	48678	External Standard	0.00		
Hit# of	4	Tentative ID	MW	Mol Form	CAS#	Qual
1		Carbon di oxide	44	CO2	000124-38-9	2
2		Nitrous Oxide	44	N2O	010024-97-2	2
3		Ethylene oxide	44	C2H4O	000075-21-8	2
4		Carbon di oxide	44	CO2	000124-38-9	2

\*\*\*\*\*

Peak Number	2	Aminomethanesulfonic acid	Concentration	Rank	1	
R. T.	EstConc	Area	Relative to ISTD	R. T.		
2.47	1.16 ug	118764	External Standard	0.00		
Hit# of	4	Tentative ID	MW	Mol Form	CAS#	Qual
1		Aminomethanesulfonic acid	111	CH5NO3S	013881-91-9	74
2		Sulfur dioxide	64	O2S	007446-09-5	74
3		Sulfur dioxide	64	O2S	007446-09-5	74
4		Aminomethanesulfonic acid	111	CH5NO3S	013881-91-9	64

\*\*\*\*\*

Peak Number	3	3-Methyl-3-butenolic acid	Concentration	Rank	2	
R. T.	EstConc	Area	Relative to ISTD	R. T.		
2.52	0.71 ug	72870	External Standard	0.00		
Hit# of	4	Tentative ID	MW	Mol Form	CAS#	Qual
1		3-Methyl-3-butenolic acid	100	C5H8O2	001617-31-8	38
2		Furan, 2,5-dihydro-3-methyl-	84	C5H8O	001708-31-2	23
3		Spiro [6,6]-dodecane-2,3-diazobicyclo[2.2.1]heptane	136	C8H12N2	135485-30-2	12
4		Bis(3-methylbutyl)fluorene-2,7-dione	466	C23H30O6S2	253664-95-8	12

\*\*\*\*\*

Peak Number	4	Propene	Concentration	Rank	5
R. T.	EstConc	Area	Relative to ISTD	R. T.	
2.62	0.16 ug	15851	External Standard	0.00	

Hit# of	Tentative ID	MW	Mol Form	CAS#	Qual
1	Propene	42	C3H6	000115-07-1	7
2	Propane	44	C3H8	000074-98-6	3
3	Propane	44	C3H8	000074-98-6	3
4	Ethylene oxide	44	C2H4O	000075-21-8	2

\*\*\*\*\*

Peak Number 5 Propene Concentration Rank 3

R. T.	EstConc	Area	Relative to ISTD	R. T.
2.72	0.50 ug	51279	External Standard	0.00

Hit# of	Tentative ID	MW	Mol Form	CAS#	Qual
1	Cyclopropanecarboxaldehyde	70	C4H6O	001489-69-6	25
2	Propene	42	C3H6	000115-07-1	7
3	1-Butene, 3-methyl-	70	C5H10	000563-45-1	5
4	1-Butene, 3-methyl-	70	C5H10	000563-45-1	5

0648044.D envdef.m Mon Dec 20 12:27:15 2010 D.00.00



0648045-LSCRPT.TXT  
Library Search Compound Report

Data File : C:\MSDCHEM\5\20784505FRM\0648045.D                      Vial : 25  
Acq On : 18 Nov 2010 23:47    Operator: LIMS import  
Sample :    Inst : UC-SPG5-D  
Misc :    Multiplr: 1.00  
MS Integration Params: jwint.p  
Quant Method : C:\MSDCHEM\1\METHODS\LI MS\_A1\_5.M (RTE Integrator)  
Title : Gore Expanded Target VOCs/SVOCs  
Library : C:\DATABASE\NI ST02.L

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Peak Number	1	Carbon di oxide				Concentration Rank	3
R. T.	EstConc	Area	Relative to ISTD		R. T.		
2.40	0.28 ug	28087	External Standard			0.00	
Hit# of	4	Tentative ID	MW	Mol Form	CAS#	Qual	
1		Carbon di oxide	44	CO2	000124-38-9	2	
2		Nitrous Oxide	44	N2O	010024-97-2	2	
3		Carbon di oxide	44	CO2	000124-38-9	2	
4		Ethyne, fluoro-	44	C2HF	002713-09-9	2	

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Peak Number	2	Sul fur di oxide				Concentration Rank	1
R. T.	EstConc	Area	Relative to ISTD		R. T.		
2.47	0.32 ug	32810	External Standard			0.00	
Hit# of	4	Tentative ID	MW	Mol Form	CAS#	Qual	
1		Sul fur di oxide	64	O2S	007446-09-5	74	
2		Sul fur di oxide	64	O2S	007446-09-5	74	
3		Aminomethanesulfonic acid	111	CH5NO3S	013881-91-9	64	
4		L-Alanine, 3-sulfo-	169	C3H7NO5S	000498-40-8	9	

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*****
```

Peak Number	3	2-Butene				Concentration Rank	2
R. T.	EstConc	Area	Relative to ISTD		R. T.		
2.51	0.29 ug	29682	External Standard			0.00	
Hit# of	4	Tentative ID	MW	Mol Form	CAS#	Qual	
1		2-Butene	56	C4H8	000107-01-7	9	
2		2-Butene	56	C4H8	000107-01-7	7	
3		1-Propene, 2-methyl-	56	C4H8	000115-11-7	7	
4		1-Propene, 2-methyl-	56	C4H8	000115-11-7	7	

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*****
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Peak Number	4	Vinyl Ether				Concentration Rank	5
R. T.	EstConc	Area	Relative to ISTD		R. T.		
2.71	0.17 ug	17558	External Standard			0.00	

0648045-LSCRPT. TXT

Hit# of	Tentative ID	MW	Mol Form	CAS#	Qual
1	Vinyl Ether	70	C4H6O	000109-93-3	4
2	1,4-Butanedi amine	88	C4H12N2	000110-60-1	4
3	Ethyl amine	45	C2H7N	000075-04-7	4
4	Ethyl amine	45	C2H7N	000075-04-7	3

\*\*\*\*\*

Peak Number 5 Durohydroquinone Concentration Rank 4

R. T.	EstConc	Area	Relative to ISTD	R. T.
9.29	0.21 ug	21444	External Standard	0.00

Hit# of	Tentative ID	MW	Mol Form	CAS#	Qual
1	Benzaldehyde, 2,3-dimethoxy-	166	C9H10O3	000086-51-1	58
2	Benzaldehyde, 2,3-dimethoxy-	166	C9H10O3	000086-51-1	52
3	Benzaldehyde, 2,5-dimethoxy-	166	C9H10O3	000093-02-7	50
4	Durohydroquinone	166	C10H14O2	000527-18-4	47

0648045.D envdef.m Mon Dec 20 12:29:54 2010 D.00.00

0648047-LSCRPT. TXT  
Library Search Compound Report

Data File : C:\MSDCHEM\5\20784505FRM\0648047.D  
Acq On : 19 Nov 2010 18:29  
Sample :  
Misc :  
MS Integration Params: jwint.p  
Quant Method : C:\MSDCHEM\1\METHODS\LIMS\_A1\_5.M (RTE Integrator)  
Title : Gore Expanded Target VOCs/SVOCs  
Library : C:\DATABASE\NI STD2.L  
Vial : 65  
Operator: LIMS import  
Inst : UC-SPG5-D  
Multiplier: 1.00

\*\*\*\*\*

Peak Number	1	Carbon di oxide	Concentration		Rank	5
R. T.	EstConc	Area	Relative to ISTD		R. T.	
2.41	0.36 ug	36487	External Standard		0.00	
Hit# of	4	Tentative ID	MW	Mol Form	CAS#	Qual
1	Carbon di oxide		44	CO2	000124-38-9	2
2	Nitrous Oxide		44	N2O	010024-97-2	2
3	Carbon di oxide		44	CO2	000124-38-9	2
4	Ethyne, fluoro-		44	C2HF	002713-09-9	2

\*\*\*\*\*

Peak Number	2	Aminomethanesulfonic acid	Concentration		Rank	3
R. T.	EstConc	Area	Relative to ISTD		R. T.	
2.47	0.48 ug	49258	External Standard		0.00	
Hit# of	4	Tentative ID	MW	Mol Form	CAS#	Qual
1	Sulfur dioxide		64	O2S	007446-09-5	74
2	Aminomethanesulfonic acid		111	CH5NO3S	013881-91-9	64
3	Aminomethanesulfonic acid		111	CH5NO3S	013881-91-9	64
4	L-Alanine, 3-sulfo-		169	C3H7NO5S	000498-40-8	9

\*\*\*\*\*

Peak Number	3	1-Butene	Concentration		Rank	2
R. T.	EstConc	Area	Relative to ISTD		R. T.	
2.52	1.08 ug	109734	External Standard		0.00	
Hit# of	4	Tentative ID	MW	Mol Form	CAS#	Qual
1	1-Butene		56	C4H8	000106-98-9	80
2	1-Propene, 2-methyl-		56	C4H8	000115-11-7	80
3	2-Butene, (Z)-		56	C4H8	000590-18-1	72
4	1-Propene, 2-methyl-		56	C4H8	000115-11-7	72

\*\*\*\*\*

Peak Number	4	Butane, 2-methyl-	Concentration		Rank	4
R. T.	EstConc	Area	Relative to ISTD		R. T.	
2.65	0.38 ug	39067	External Standard		0.00	

0648047-LSCRPT. TXT

Hit# of	Tentative ID	MW	Mol Form	CAS#	Qual
1	Butane, 2-methyl -	72	C5H12	000078-78-4	40
2	Butane, 2-methyl -	72	C5H12	000078-78-4	40
3	Butane, 2-methyl -	72	C5H12	000078-78-4	39
4	Propane, 2-methyl -1-nitro-	103	C4H9NO2	000625-74-1	9

\*\*\*\*\*

Peak Number 5 Pentane Concentration Rank 1

R. T.	EstConc	Area	Relative to ISTD	R. T.
2.72	1.17 ug	119307	External Standard	0.00

Hit# of	Tentative ID	MW	Mol Form	CAS#	Qual
1	Pentane	72	C5H12	000109-66-0	72
2	Cyclopropane, ethyl -	70	C5H10	001191-96-4	46
3	Pentane	72	C5H12	000109-66-0	45
4	Cyclopropane, ethyl -	70	C5H10	001191-96-4	43

0648047.D envdef.m Mon Dec 20 12:38:38 2010 D.00.00

0648046-LSCRPT.TXT  
Library Search Compound Report

Data File : C:\MSDCHEM\5\20784505FRM\0648046.D      Vial : 17  
Acq On : 18 Nov 2010 20:03      Operator: LIMS import  
Sample :      Inst : UC-SPG5-D  
Misc :      Multiplr: 1.00  
MS Integrati on Params: jwint.p  
Quant Method : C:\MSDCHEM\1\METHODS\LI MS\_A1\_5.M (RTE Integrator)  
Title : Gore Expanded Target VOCs/SVOCs  
Library : C:\DATABASE\NI ST02.L

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*****
```

Peak Number	1	Acetaldehyde	Concentration	Rank	4	
R. T.	EstConc	Area	Relative to ISTD	R. T.		
2.39	0.33 ug	33649	External Standard	0.00		
Hit# of	4	Tentative ID	MW	Mol Form	CAS#	Qual
1		Acetaldehyde	44	C2H4O	000075-07-0	3
2		Ethyne, fluoro-	44	C2HF	002713-09-9	3
3		Acetaldehyde	44	C2H4O	000075-07-0	3
4		Carbon dioxide	44	CO2	000124-38-9	3

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*****
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Peak Number	2	Sulfur dioxide	Concentration	Rank	1	
R. T.	EstConc	Area	Relative to ISTD	R. T.		
2.44	1.87 ug	190316	External Standard	0.00		
Hit# of	4	Tentative ID	MW	Mol Form	CAS#	Qual
1		Sulfur dioxide	64	O2S	007446-09-5	90
2		Sulfur dioxide	64	O2S	007446-09-5	74
3		Aminomethanesulfonic acid	111	CH5NO3S	013881-91-9	74
4		Cysteic acid	169	C3H7NO5S	1000131-23-1	74

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*****
```

Peak Number	3	Fluorodichloromethane	Concentration	Rank	2	
R. T.	EstConc	Area	Relative to ISTD	R. T.		
2.59	0.62 ug	63320	External Standard	0.00		
Hit# of	4	Tentative ID	MW	Mol Form	CAS#	Qual
1		Fluorodichloromethane	102	CHCl2F	000075-43-4	47
2		Cyclopentene, 3-methyl-	82	C6H10	001120-62-3	38
3		Fluorodichloromethane	102	CHCl2F	000075-43-4	37
4		1,4-Hexadiene, (Z)-	82	C6H10	007318-67-4	9

```
*****
```

Peak Number	4	Cyclopropane, 1,2-dimethyl-	Concentration	Rank	3
R. T.	EstConc	Area	Relative to ISTD	R. T.	
2.66	0.51 ug	51592	External Standard	0.00	

Hit# of	Tentative ID	MW	Mol Form	CAS#	Qual
1	Cyclopropane, 1,2-dimethyl-3-methyl-	82	C6H10	062338-02-7	43
2	1,4-Pentadiene, 3-methyl-	82	C6H10	001115-08-8	9
3	Isopropenyl cyclopropane	82	C6H10	004663-22-3	9
4	1,3-Pentadiene, 3-methyl-, (Z)-	82	C6H10	002787-45-3	9

\*\*\*\*\*

Peak Number 5 Ethene, chloro- Concentration Rank 5

R. T.	EstConc	Area	Relative to ISTD	R. T.
5.31	0.22 ug	22321	External Standard	0.00

Hit# of	Tentative ID	MW	Mol Form	CAS#	Qual
1	Ethene, chloro-	62	C2H3Cl	000075-01-4	9
2	Ethene, chloro-	62	C2H3Cl	000075-01-4	9
3	Peroxide, dimethyl	62	C2H6O2	000690-02-8	4
4	Peroxide, dimethyl	62	C2H6O2	000690-02-8	4

0648046.D envdef.m Mon Dec 20 12:31:50 2010 D.00.00

0648048-LSCRPT. TXT  
Library Search Compound Report

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Data File : C:\MSDCHEM\5\20784505FRM\0648048.D          Vi al : 71
Acq On   : 19 Nov 2010  21:17                          Operator: LIMS import
Sample   :                                               Inst   : UC-SPG5-D
Misc     :                                               Multipl r: 1.00
MS Integrati on Params: jwint.p
Quant Method : C:\MSDCHEM\1\METHODS\LI MS_A1_5.M (RTE Integrator)
Title    : Gore Expanded Target VOCs/SVOCs
Library  : C:\DATABASE\NI ST02.L
  
```

```

*****
Peak Number  1  Carbon di oxide                               Concentrati on Rank  3
  
```

R. T.	EstConc	Area	Relati ve to ISTD	R. T.
2.41	0.29 ug	29556	External Standard	0.00

Hi t# of	Tentati ve ID	MW	Mol Form	CAS#	Qual
1	Carbon di oxide	44	CO2	000124-38-9	2
2	Nitrous Oxide	44	N2O	010024-97-2	2
3	Carbon di oxide	44	CO2	000124-38-9	2
4	Ethyne, fluoro-	44	C2HF	002713-09-9	2

```

*****
Peak Number  2  Sul fur di oxide                               Concentrati on Rank  2
  
```

R. T.	EstConc	Area	Relati ve to ISTD	R. T.
2.47	0.31 ug	31784	External Standard	0.00

Hi t# of	Tentati ve ID	MW	Mol Form	CAS#	Qual
1	Sul fur di oxide	64	O2S	007446-09-5	74
2	Sul fur di oxide	64	O2S	007446-09-5	74
3	Cysteic acid	169	C3H7NO5S	1000131-23-1	9
4	Ami nomethanesul foni c aci d	111	CH5NO3S	013881-91-9	9

```

*****
Peak Number  3  1-Propene, 2-methyl -                         Concentrati on Rank  1
  
```

R. T.	EstConc	Area	Relati ve to ISTD	R. T.
2.52	0.43 ug	43644	External Standard	0.00

Hi t# of	Tentati ve ID	MW	Mol Form	CAS#	Qual
1	1-Propene, 2-methyl -	56	C4H8	000115-11-7	9
2	1-Propene, 2-methyl -	56	C4H8	000115-11-7	7
3	2-Butene, (Z)-	56	C4H8	000590-18-1	5
4	Cycl obutane	56	C4H8	000287-23-0	5

```

*****
Peak Number  4  Cycl opropane                                   Concentrati on Rank  4
  
```

R. T.	EstConc	Area	Relati ve to ISTD	R. T.
2.71	0.27 ug	27813	External Standard	0.00

Hit# of	Tentative ID	MW	Mol Form	CAS#	Qual
1	Cycl opropane	42	C3H6	000075-19-4	9
2	Cycl opropane	42	C3H6	000075-19-4	9
3	Cycl opropane	42	C3H6	000075-19-4	9
4	Cycl opropanecarboxyl i c aci d	86	C4H6O2	001759-53-1	9

\*\*\*\*\*

Peak Number 5 Cycl opropene, 3-methyl -3-vi ... Concentrati on Rank 5

R. T.	EstConc	Area	Relati ve to ISTD	R. T.
2.89	0.16 ug	16703	External Standard	0.00

Hit# of	Tentative ID	MW	Mol Form	CAS#	Qual
1	Mercaptami ne	77	C2H7NS	000060-23-1	3
2	1, 2, 5-Hexatri ene	80	C6H8	003642-18-0	2
3	Mercaptami ne	77	C2H7NS	000060-23-1	2
4	Cycl opropene, 3-methyl -3-vi nyl -	80	C6H8	071153-30-5	1

0648048.D envdef.m Mon Dec 20 12: 40: 09 2010 D. 00. 00



0648049-LSCRPT.TXT  
Library Search Compound Report

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Data File : C:\MSDCHEM\5\20784505FRM\0648049.D           Vi al : 77
Acq On   : 20 Nov 2010  00:05                          Operator: LIMS import
Sample   :                                               Inst   : UC-SPG5-D
Misc     :                                               Multipl r: 1.00
MS Integrati on Params: jwint.p
Quant Method : C:\MSDCHEM\1\METHODS\LI MS_A1_5.M (RTE Integrator)
Title    : Gore Expanded Target VOCs/SVOCs
Library  : C:\DATABASE\NI ST02.L
  
```

```

*****
Peak Number  1  Carbon di oxide                               Concentrati on Rank  4
  
```

R. T.	EstConc	Area	Relati ve to ISTD	R. T.
2.42	0.39 ug	39315	External Standard	0.00

```

-----
Hi t# of  4  Tentati ve ID                               MW  Mol Form  CAS#  Qual
-----
1 Carbon di oxide                               44  CO2      000124-38-9  2
2 Carbon di oxide                               44  CO2      000124-38-9  2
3 Ni trous Oxi de                               44  N2O      010024-97-2  2
4 Ethyl ene oxi de                               44  C2H4O    000075-21-8  2
  
```

```

*****
Peak Number  2  Ami nomethanesul foni c aci d               Concentrati on Rank  3
  
```

R. T.	EstConc	Area	Relati ve to ISTD	R. T.
2.47	0.81 ug	82254	External Standard	0.00

```

-----
Hi t# of  4  Tentati ve ID                               MW  Mol Form  CAS#  Qual
-----
1 Ami nomethanesul foni c aci d                 111 CH5NO3S  013881-91-9  74
2 Sul fur di oxi de                             64  O2S      007446-09-5  74
3 Sul fur di oxi de                             64  O2S      007446-09-5  74
4 2-Ami noethyl hydrogen sul fate              141 C2H7NO4S  000926-39-6  9
  
```

```

*****
Peak Number  3  1, 2-Di methyl cycl opropene               Concentrati on Rank  2
  
```

R. T.	EstConc	Area	Relati ve to ISTD	R. T.
2.53	0.91 ug	92783	External Standard	0.00

```

-----
Hi t# of  4  Tentati ve ID                               MW  Mol Form  CAS#  Qual
-----
1 Methyl enecycl opropane                       54  C4H6     006142-73-0  52
2 Cycl obutene                                   54  C4H6     000822-35-5  40
3 1, 2-Di methyl cycl opropene                  68  C5H8     014309-32-1  27
4 1, 3-Butadi ene                               54  C4H6     000106-99-0  9
  
```

```

*****
Peak Number  4  Cycl opropane, ethyl -                       Concentrati on Rank  1
  
```

R. T.	EstConc	Area	Relati ve to ISTD	R. T.
2.72	1.08 ug	110396	External Standard	0.00

0648049-LSCRPT. TXT

Hit# of	Tentative ID	MW	Mol Form	CAS#	Qual
1	Cyclopropane, ethyl -	70	C5H10	001191-96-4	52
2	3-Buten-1-ol	72	C4H8O	000627-27-0	47
3	Pentane	72	C5H12	000109-66-0	46
4	3-Buten-1-ol	72	C4H8O	000627-27-0	43

\*\*\*\*\*

Peak Number 5 3-Penten-1-yne, (E)- Concentration Rank 5

R. T.	EstConc	Area	Relative to ISTD	R. T.
2.88	0.30 ug	30235	External Standard	0.00

Hit# of	Tentative ID	MW	Mol Form	CAS#	Qual
1	3-Penten-1-yne, (E)-	66	C5H6	002004-69-5	14
2	1-Buten-3-yne, 2-methyl -	66	C5H6	000078-80-8	14
3	3-Penten-1-yne, (E)-	66	C5H6	002004-69-5	14
4	3-Penten-1-yne	66	C5H6	002206-23-7	10

0648049.D envdef.m Mon Dec 20 12:40:56 2010 D.00.00

0648050-LSCRPT.TXT  
Library Search Compound Report

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Data File : C:\MSDCHEM\5\20784505FRM\0648050.D          Vial : 53
Acq On   : 19 Nov 2010 12:48                          Operator: LIMS import
Sample   :                                              Inst  : UC-SPG5-D
Misc     :                                              Multiplr: 1.00
MS Integrati on Params: jwint.p
Quant Method : C:\MSDCHEM\1\METHODS\LIMS_A1_5.M (RTE Integrator)
Title    : Gore Expanded Target VOCs/SVOCs
Library  : C:\DATABASE\NI ST02.L
  
```

```

*****
Peak Number 1 Carbon di oxide                      Concentration Rank 4
-----
R. T.   EstConc      Area      Relative to ISTD      R. T.
-----
2.40    0.43 ug      43373    External Standard     0.00

Hit# of 4 Tentative ID                               MW Mol Form      CAS#      Qual
-----
1 Carbon di oxide                44 CO2          000124-38-9 2
2 Nitrous Oxide                  44 N2O          010024-97-2 2
3 Ethylene oxide                 44 C2H4O        000075-21-8 2
4 Carbon di oxide                44 CO2          000124-38-9 2
  
```

```

*****
Peak Number 2 Sul fur di oxide                      Concentration Rank 2
-----
R. T.   EstConc      Area      Relative to ISTD      R. T.
-----
2.46    0.79 ug      80594    External Standard     0.00

Hit# of 4 Tentative ID                               MW Mol Form      CAS#      Qual
-----
1 Sul fur di oxide                64 O2S          007446-09-5 74
2 Sul fur di oxide                64 O2S          007446-09-5 74
3 Amiomethanesulfonic acid       111 CH5NO3S     013881-91-9 64
4 L-Alanine, 3-sulfo-            169 C3H7NO5S    000498-40-8 9
  
```

```

*****
Peak Number 3 1-Propene, 2-methyl -                Concentration Rank 1
-----
R. T.   EstConc      Area      Relative to ISTD      R. T.
-----
2.51    0.88 ug      90245    External Standard     0.00

Hit# of 4 Tentative ID                               MW Mol Form      CAS#      Qual
-----
1 1-Propene, 2-methyl -           56 C4H8         000115-11-7 72
2 1-Propene, 2-methyl -           56 C4H8         000115-11-7 64
3 1-Propene, 2-methyl -           56 C4H8         000115-11-7 64
4 1-Butene                       56 C4H8         000106-98-9 64
  
```

```

*****
Peak Number 4 2-Butene, (Z)-                      Concentration Rank 5
-----
R. T.   EstConc      Area      Relative to ISTD      R. T.
-----
2.64    0.15 ug      15806    External Standard     0.00
  
```

Hit# of	Tentative ID	MW	Mol Form	CAS#	Qual
1	2-Butene, (Z)-	56	C4H8	000590-18-1	5
2	2-Butene, (E)-	56	C4H8	000624-64-6	5
3	Methane, isocyanato-	57	C2H3NO	000624-83-9	4
4	Cycl propane	42	C3H6	000075-19-4	4

\*\*\*\*\*

Peak Number 5 Di azi ri di ne, 3, 3-di methyl - Concentrati on Rank 3

R. T.	EstConc	Area	Relati ve to ISTD	R. T.
2.71	0.62 ug	63334	External Standard	0.00

Hit# of	Tentative ID	MW	Mol Form	CAS#	Qual
1	Di azi ri di ne, 3, 3-di methyl -	72	C3H8N2	004901-76-2	23
2	Di azi ri di ne, 3, 3-di methyl -	72	C3H8N2	004901-76-2	23
3	Oxi rane, ethyl -	72	C4H8O	000106-88-7	12
4	Cycl obutanol	72	C4H8O	002919-23-5	9

0648050.D envdef.m Mon Dec 20 14: 24: 08 2010 D. 00. 00

0648051-LSCRPT.TXT  
Library Search Compound Report

Data File : C:\MSDCHEM\5\20784505FRM\0648051.D  
 Acq On : 18 Nov 2010 18:11  
 Sample :  
 Misc :  
 MS Integration Params: jwint.p  
 Quant Method : C:\MSDCHEM\1\METHODS\LI MS\_A1\_5.M (RTE Integrator)  
 Title : Gore Expanded Target VOCs/SVOCs  
 Library : C:\DATABASE\NI ST02.L  
 Vial : 13  
 Operator: LIMS import  
 Inst : UC-SPG5-D  
 Multiplr: 1.00

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Peak Number	1	Carbon di oxide			Concentration	Rank	4
R. T.	EstConc	Area	Relative to ISTD		R. T.		
2.41	0.37 ug	37513	External Standard			0.00	
Hit# of	4	Tentative ID	MW	Mol Form	CAS#	Qual	
1	Carbon di oxide		44	CO2	000124-38-9	2	
2	Nitrous Oxide		44	N2O	010024-97-2	2	
3	Carbon di oxide		44	CO2	000124-38-9	2	
4	Ethyne, fluoro-		44	C2HF	002713-09-9	2	

\*\*\*\*\*

Peak Number	2	Sulfur di oxide			Concentration	Rank	2
R. T.	EstConc	Area	Relative to ISTD		R. T.		
2.47	1.08 ug	109672	External Standard			0.00	
Hit# of	4	Tentative ID	MW	Mol Form	CAS#	Qual	
1	Sulfur di oxide		64	O2S	007446-09-5	74	
2	Sulfur di oxide		64	O2S	007446-09-5	74	
3	Aminomethanesulfonic acid		111	CH5NO3S	013881-91-9	74	
4	Aminomethanesulfonic acid		111	CH5NO3S	013881-91-9	64	

\*\*\*\*\*

Peak Number	3	Phosphine, ethyl-			Concentration	Rank	3
R. T.	EstConc	Area	Relative to ISTD		R. T.		
2.51	0.48 ug	49160	External Standard			0.00	
Hit# of	4	Tentative ID	MW	Mol Form	CAS#	Qual	
1	Phosphine, ethyl-		62	C2H7P	000593-68-0	5	
2	Isobutylamine		73	C4H11N	000078-81-9	4	
3	Ethene, chloro-		62	C2H3Cl	000075-01-4	3	
4	Ethene, chloro-		62	C2H3Cl	000075-01-4	3	

\*\*\*\*\*

Peak Number	4	Ethene, 1,1-dichloro-2,2-di...			Concentration	Rank	5
R. T.	EstConc	Area	Relative to ISTD		R. T.		
2.62	0.35 ug	35214	External Standard			0.00	

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Hit# of	Tentative ID	MW	Mol Form	CAS#	Qual
1	Ethene, 1,1-dichloro-2,2-difluoro-	132	C2Cl2F2	000079-35-6	43
2	Ethene, 1,1-dichloro-2,2-difluoro-	132	C2Cl2F2	000079-35-6	38
3	n-Propyl phosphonic dichloride	160	C3H7Cl2OP	004708-04-7	22
4	Spiropentanoic acid, methyl ester	126	C7H10O2	033447-49-3	12

\*\*\*\*\*

Peak Number 5 Ethane, 1,2-dichloro-1,1,2-trifluoro- Concentration Rank 1

R. T.	EstConc	Area	Relative to ISTD	R. T.
2.69	1.33 ug	135427	External Standard	0.00

Hit# of	Tentative ID	MW	Mol Form	CAS#	Qual
1	Ethane, 1,2-dichloro-1,1,2-trifluoro-	152	C2HCl2F3	000354-23-4	91
2	Cyclopropane, 1,2-dimethyl-3-methoxy-	82	C6H10	062338-02-7	12
3	1,4-Pentadiene, 2-methyl-	82	C6H10	000763-30-4	9
4	1-Butyne, 3,3-dimethyl-	82	C6H10	000917-92-0	9

0648051.D envdef.m Mon Dec 20 14:48:09 2010 D.00.00

0648052-LSCRPT.TXT  
Library Search Compound Report

Data File : C:\MSDCHEM\5\20784505FRM\0648052.D                      Vial : 63  
 Acq On : 19 Nov 2010 17:33    Operator: LIMS import  
 Sample :    Inst : UC-SPG5-D  
 Misc :    Multiplr: 1.00  
 MS Integrati on Params: jwint.p  
 Quant Method : C:\MSDCHEM\1\METHODS\LIMS\_A1\_5.M (RTE Integrator)  
 Title : Gore Expanded Target VOCs/SVOCs  
 Library : C:\DATABASE\NI ST02.L

\*\*\*\*\*

Peak Number	1	Ami nomethanesul foni c aci d	Concentrati on	Rank	1	
R. T.	EstConc	Area	Relati ve to ISTD	R. T.		
2.47	1.11 ug	112981	External Standard	0.00		
Hit# of	4	Tentati ve ID	MW	Mol Form	CAS#	Qual
1		Ami nomethanesul foni c aci d	111	CH5N03S	013881-91-9	78
2		Sul fur di oxi de	64	O2S	007446-09-5	64
3		Ami nomethanesul foni c aci d	111	CH5N03S	013881-91-9	43
4		Ami nomethanesul foni c aci d	111	CH5N03S	013881-91-9	43

\*\*\*\*\*

Peak Number	2	Acetone	Concentrati on	Rank	2	
R. T.	EstConc	Area	Relati ve to ISTD	R. T.		
2.72	0.12 ug	11907	External Standard	0.00		
Hit# of	4	Tentati ve ID	MW	Mol Form	CAS#	Qual
1		Acetone	58	C3H6O	000067-64-1	4
2		Acetone	58	C3H6O	000067-64-1	4
3		Acetone	58	C3H6O	000067-64-1	4
4		Acetone	58	C3H6O	000067-64-1	4

0648052.D envdef.m Mon Dec 20 14:48:52 2010 D.00.00

0648053-LSCRPT. TXT  
Library Search Compound Report

Data File : C:\MSDCHEM\5\20784505FRM\0648053.D           Vial : 38  
Acq On : 19 Nov 2010 5:50                                Operator: LIMS import  
Sample :   Inst : UC-SPG5-D  
Misc :    Multipl r: 1.00  
MS Integration Params: jwint.p  
Quant Method : C:\MSDCHEM\1\METHODS\LIMS\_A1\_5.M (RTE Integrator)  
Title : Gore Expanded Target VOCs/SVOCs  
Library : C:\DATABASE\NI STD2.L

\*\*\*\*\*

Peak Number	1	Carbon di oxide			Concentration Rank	2
R. T.	EstConc	Area	Relative to ISTD		R. T.	
2.40	0.38 ug	38794	External Standard		0.00	
Hit# of	4	Tentative ID	MW	Mol Form	CAS#	Qual
1		Carbon di oxide	44	CO2	000124-38-9	2
2		Nitrous Oxide	44	N2O	010024-97-2	2
3		Carbon di oxide	44	CO2	000124-38-9	2
4		Ethyne, fluoro-	44	C2HF	002713-09-9	2

\*\*\*\*\*

Peak Number	2	Sul fur di oxide			Concentration Rank	3
R. T.	EstConc	Area	Relative to ISTD		R. T.	
2.46	0.35 ug	36151	External Standard		0.00	
Hit# of	4	Tentative ID	MW	Mol Form	CAS#	Qual
1		Sul fur di oxide	64	O2S	007446-09-5	74
2		Aminomethanesulfonic acid	111	CH5NO3S	013881-91-9	74
3		L-Alanine, 3-sulfo-	169	C3H7NO5S	000498-40-8	9
4		Aminomethanesulfonic acid	111	CH5NO3S	013881-91-9	9

\*\*\*\*\*

Peak Number	3	1-Propene, 2-methyl -			Concentration Rank	1
R. T.	EstConc	Area	Relative to ISTD		R. T.	
2.51	0.50 ug	51152	External Standard		0.00	
Hit# of	4	Tentative ID	MW	Mol Form	CAS#	Qual
1		1-Propene, 2-methyl -	56	C4H8	000115-11-7	72
2		1-Propene, 2-methyl -	56	C4H8	000115-11-7	59
3		2-Butene, (Z)-	56	C4H8	000590-18-1	59
4		1-Propene, 2-methyl -	56	C4H8	000115-11-7	53

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Peak Number	4	Cyclopropane			Concentration Rank	5
R. T.	EstConc	Area	Relative to ISTD		R. T.	
2.64	0.15 ug	15191	External Standard		0.00	



0648053-LSCRPT. TXT

Hit# of	Tentative ID	MW	Mol Form	CAS#	Qual
1	Aziri dine, 1-methyl -	57	C3H7N	001072-44-2	4
2	Aziri dine, 1-methyl -	57	C3H7N	001072-44-2	4
3	Cycl opropane	42	C3H6	000075-19-4	4
4	Cycl opropane	42	C3H6	000075-19-4	4

\*\*\*\*\*

Peak Number 5 1-Pentanol Concentration Rank 4

R. T.	EstConc	Area	Relative to ISTD	R. T.
2.70	0.32 ug	32430	External Standard	0.00

Hit# of	Tentative ID	MW	Mol Form	CAS#	Qual
1	1-Pentanol	88	C5H12O	000071-41-0	9
2	1-Pentanol	88	C5H12O	000071-41-0	9
3	Cycl opropane	42	C3H6	000075-19-4	7
4	Cycl obutane, methyl -	70	C5H10	000598-61-8	7

0648053.D envdef.m Mon Dec 20 14: 50: 22 2010 D. 00. 00

0648054-LSCRPT. TXT  
Library Search Compound Report

Data File : C:\MSDCHEM\5\20784505FRM\0648054. D                      Vial : 20  
 Acq On : 18 Nov 2010 21:27    Operator: LIMS import  
 Sample :    Inst : UC-SPG5-D  
 Misc :    Multiplr: 1.00  
 MS Integrati on Params: jwi nt. p  
 Quant Method : C:\MSDCHEM\1\METHODS\LI MS\_A1\_5. M (RTE Integrator)  
 Title : Gore Expanded Target VOCs/SVOCs  
 Li brary : C:\DATABASE\NI ST02. L

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Peak Number	1	Sul fur di oxi de			Concentrati on Rank	5
R. T.	EstConc	Area	Relati ve to ISTD		R. T.	
2.45	7.56 ug	770779	External Standard			0.00
Hi t# of	4	Tentati ve ID	MW	Mol Form	CAS#	Qual
1		Sul fur di oxi de	64	O2S	007446-09-5	90
2		Sul fur di oxi de	64	O2S	007446-09-5	83
3		L-Al ani ne, 3-sul fo-	169	C3H7N05S	000498-40-8	64
4		Ami nomethanesul foni c aci d	111	CH5N03S	013881-91-9	64

\*\*\*\*\*

Peak Number	2	1-Propene, 2-methyl -			Concentrati on Rank	2
R. T.	EstConc	Area	Relati ve to ISTD		R. T.	
2.51	14.04 ug	1432020	External Standard			0.00
Hi t# of	4	Tentati ve ID	MW	Mol Form	CAS#	Qual
1		1-Propene, 2-methyl -	56	C4H8	000115-11-7	72
2		1-Propene, 2-methyl -	56	C4H8	000115-11-7	59
3		2-Butene, (Z)-	56	C4H8	000590-18-1	49
4		2-Butene, (E)-	56	C4H8	000624-64-6	46

\*\*\*\*\*

Peak Number	3	1-Pentene			Concentrati on Rank	1
R. T.	EstConc	Area	Relati ve to ISTD		R. T.	
2.68	29.30 ug	2988800	External Standard			0.00
Hi t# of	4	Tentati ve ID	MW	Mol Form	CAS#	Qual
1		1-Pentene	70	C5H10	000109-67-1	81
2		Cycl opropane, ethyl -	70	C5H10	001191-96-4	76
3		Cycl obutane, methyl -	70	C5H10	000598-61-8	72
4		Cycl opropane, ethyl -	70	C5H10	001191-96-4	72

\*\*\*\*\*

Peak Number	4	2-Pentene, (Z)-			Concentrati on Rank	3
R. T.	EstConc	Area	Relati ve to ISTD		R. T.	
2.76	8.06 ug	822284	External Standard			0.00

0648054-LSCRPT. TXT						
Hit# of	4	Tentative ID	MW	Mol Form	CAS#	Qual
1		2-Pentene, (Z)-	70	C5H10	000627-20-3	78
2		2-Pentene, (E)-	70	C5H10	000646-04-8	78
3		2-Pentene	70	C5H10	000109-68-2	78
4		Cyclopropane, 1,2-dimethyl-, trans-	70	C5H10	002402-06-4	72

\*\*\*\*\*

Peak Number 5 Pentane, 2-methyl - Concentration Rank 4

R. T.	EstConc	Area	Relative to ISTD	R. T.
2.97	7.79 ug	794983	External Standard	0.00

Hit# of	4	Tentative ID	MW	Mol Form	CAS#	Qual
1		Pentane, 2-methyl -	86	C6H14	000107-83-5	80
2		Pentane, 2-methyl -	86	C6H14	000107-83-5	80
3		Butane, 2,3-dimethyl -	86	C6H14	000079-29-8	43
4		Pentane, 2-bromo-	150	C5H11Br	000107-81-3	38

0648054. D LIMS\_A1\_5. M Mon Dec 20 15: 10: 49 2010 D. 00. 00

0648055-LSCRPT.TXT  
Library Search Compound Report

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Data File : C:\MSDCHEM\5\20784505FRM\0648055.D           Vial : 66
Acq On   : 19 Nov 2010 18:57                          Operator: LIMS import
Sample   :                                             Inst  : UC-SPG5-D
Misc     :                                             Multiplr: 1.00
MS Integrati on Params: jwint.p
Quant Method : C:\MSDCHEM\1\METHODS\LI MS_A1_5.M (RTE Integrator)
Title    : Gore Expanded Target VOCs/SVOCs
Library  : C:\DATABASE\NI ST02.L
  
```

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*****
Peak Number 1 Carbon di oxide                               Concentrati on Rank 4
R. T.      EstConc      Area      Relati ve to ISTD      R. T.
-----
2.40      0.33 ug      33667      External Standard      0.00

Hit# of 4 Tentati ve ID      MW Mol Form      CAS#      Qual
-----
1 Carbon di oxide      44 CO2      000124-38-9 2
2 Ni trous Oxi de      44 N2O      010024-97-2 2
3 Carbon di oxide      44 CO2      000124-38-9 2
4 Ethyne, fluoro-      44 C2HF      002713-09-9 2
  
```

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*****
Peak Number 2 Sul fur di oxi de                               Concentrati on Rank 1
R. T.      EstConc      Area      Relati ve to ISTD      R. T.
-----
2.46      0.64 ug      65337      External Standard      0.00

Hit# of 4 Tentati ve ID      MW Mol Form      CAS#      Qual
-----
1 Sul fur di oxi de      64 O2S      007446-09-5 74
2 Sul fur di oxi de      64 O2S      007446-09-5 74
3 Ami nomethanesul foni c aci d      111 CH5N03S      013881-91-9 64
4 L-Al ani ne, 3-sul fo-      169 C3H7N05S      000498-40-8 9
  
```

```

*****
Peak Number 3 2-Butene                               Concentrati on Rank 2
R. T.      EstConc      Area      Relati ve to ISTD      R. T.
-----
2.51      0.57 ug      57936      External Standard      0.00

Hit# of 4 Tentati ve ID      MW Mol Form      CAS#      Qual
-----
1 Methacrol ei n      70 C4H6O      000078-85-3 17
2 1-Propene, 2-methyl -      56 C4H8      000115-11-7 9
3 2-Butene      56 C4H8      000107-01-7 9
4 1-Propene, 2-methyl -      56 C4H8      000115-11-7 9
  
```

```

*****
Peak Number 4 1-Hepten-4-ol                               Concentrati on Rank 5
R. T.      EstConc      Area      Relati ve to ISTD      R. T.
-----
2.60      0.12 ug      12665      External Standard      0.00
  
```

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Hit# of	Tentative ID	MW	Mol Form	CAS#	Qual
1	Propane, 1-nitro-	89	C3H7NO2	000108-03-2	2
2	Hydrogen azide	43	HN3	007782-79-8	1
3	1-Hepten-4-ol	114	C7H14O	003521-91-3	1
4	Propane, 2-nitro-	89	C3H7NO2	000079-46-9	1

\*\*\*\*\*

Peak Number 5 Cyclobutane, methyl - Concentration Rank 3

R. T.	EstConc	Area	Relative to ISTD	R. T.
2.70	0.36 ug	36474	External Standard	0.00

Hit# of	Tentative ID	MW	Mol Form	CAS#	Qual
1	Acetic acid, trifluoro-, pentyl ...	184	C7H11F3O2	000327-70-8	9
2	Cyclopropane	42	C3H6	000075-19-4	7
3	Cyclobutane, methyl -	70	C5H10	000598-61-8	7
4	Cyclopropane	42	C3H6	000075-19-4	7

0648055.D LIMS\_A1\_5.M Mon Dec 20 15:13:26 2010 D.00.00

0648057-LSCRPT. TXT  
Library Search Compound Report

```

Data File : C:\MSDCHEM\5\20784505FRM\0648057.D           Vial : 75
Acq On   : 19 Nov 2010 23:09                           Operator: LIMS import
Sample   :                                               Inst  : UC-SPG5-D
Misc     :                                               Multiplr: 1.00
MS Integrati on Params: jwint.p
Quant Method : C:\MSDCHEM\1\METHODS\LI MS_A1_5.M (RTE Integrator)
Title    : Gore Expanded Target VOCs/SVOCs
Library  : C:\DATABASE\NI ST02.L
  
```

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*****
Peak Number 1 Sul fur di oxi de                               Concentrati on Rank 3
  
```

R. T.	EstConc	Area	Relati ve to ISTD	R. T.
2.46	1.59 ug	162258	External Standard	0.00

Hi t# of	Tentati ve ID	MW	Mol Form	CAS#	Qual
1	Sul fur di oxi de	64	O2S	007446-09-5	90
2	Sul fur di oxi de	64	O2S	007446-09-5	83
3	Ami nomethanesul foni c aci d	111	CH5N03S	013881-91-9	74
4	Ami nomethanesul foni c aci d	111	CH5N03S	013881-91-9	74

```

*****
Peak Number 2 1-Propene, 2-methyl -                          Concentrati on Rank 2
  
```

R. T.	EstConc	Area	Relati ve to ISTD	R. T.
2.52	2.44 ug	249270	External Standard	0.00

Hi t# of	Tentati ve ID	MW	Mol Form	CAS#	Qual
1	1-Propene, 2-methyl -	56	C4H8	000115-11-7	59
2	1-Propene, 2-methyl -	56	C4H8	000115-11-7	50
3	2-Butene, (Z)-	56	C4H8	000590-18-1	43
4	2-Butene, (E)-	56	C4H8	000624-64-6	38

```

*****
Peak Number 3 Cycl opropane, ethyl -                          Concentrati on Rank 1
  
```

R. T.	EstConc	Area	Relati ve to ISTD	R. T.
2.71	2.85 ug	290335	External Standard	0.00

Hi t# of	Tentati ve ID	MW	Mol Form	CAS#	Qual
1	Cycl opropane, ethyl -	70	C5H10	001191-96-4	64
2	Cycl opropane, ethyl -	70	C5H10	001191-96-4	59
3	3-Buten-1-ol	72	C4H8O	000627-27-0	53
4	Pentane	72	C5H12	000109-66-0	52

```

*****
Peak Number 4 2-Pentene                                       Concentrati on Rank 5
  
```

R. T.	EstConc	Area	Relati ve to ISTD	R. T.
2.77	0.68 ug	69392	External Standard	0.00

0648057-LSCRPT. TXT

Hit# of	Tentative ID	MW	Mol Form	CAS#	Qual
1	2-Pentene	70	C5H10	000109-68-2	50
2	2-Pentene, (Z)-	70	C5H10	000627-20-3	50
3	2-Pentene, (E)-	70	C5H10	000646-04-8	42
4	2-Pentene, (E)-	70	C5H10	000646-04-8	40

\*\*\*\*\*

Peak Number 5 Pentane, 2-methyl - Concentration Rank 4

R. T.	EstConc	Area	Relative to ISTD	R. T.
2.97	0.77 ug	79049	External Standard	0.00

Hit# of	Tentative ID	MW	Mol Form	CAS#	Qual
1	Pentane, 2-methyl -	86	C6H14	000107-83-5	64
2	Pentane, 2-methyl -	86	C6H14	000107-83-5	64
3	Pentane, 2-bromo-	150	C5H11Br	000107-81-3	42
4	Butane, 2, 3-di methyl -	86	C6H14	000079-29-8	9

0648057.D LIMS\_A1\_5.M Mon Dec 20 15:15:06 2010 D.00.00

0648056-LSCRPT. TXT  
Library Search Compound Report

Data File : C:\MSDCHEM\5\20784505FRM\0648056.D  
 Acq On : 19 Nov 2010 15:08  
 Sample :  
 Misc :  
 MS Integration Params: jwint.p  
 Quant Method : C:\MSDCHEM\1\METHODS\LIMS\_A1\_5.M (RTE Integrator)  
 Title : Gore Expanded Target VOCs/SVOCs  
 Library : C:\DATABASE\NI ST02.L

Vial : 58  
 Operator: LIMS import  
 Inst : UC-SPG5-D  
 Multiplr: 1.00

\*\*\*\*\*  
 Peak Number 1 Amiomethanesulfonic acid Concentration Rank 3

R. T.	EstConc	Area	Relative to ISTD	R. T.	
2.47	0.84 ug	85535	External Standard	0.00	
Hit# of	Tentative ID	MW	Mol Form	CAS#	Qual
1	Amiomethanesulfonic acid	111	CH5N03S	013881-91-9	74
2	Sulfur dioxide	64	O2S	007446-09-5	74
3	Sulfur dioxide	64	O2S	007446-09-5	74
4	L-Alanine, 3-sulfo-	169	C3H7NO5S	000498-40-8	9

\*\*\*\*\*  
 Peak Number 2 1-Propene, 2-methyl - Concentration Rank 2

R. T.	EstConc	Area	Relative to ISTD	R. T.	
2.52	1.66 ug	169162	External Standard	0.00	
Hit# of	Tentative ID	MW	Mol Form	CAS#	Qual
1	1-Propene, 2-methyl -	56	C4H8	000115-11-7	50
2	1-Propene, 2-methyl -	56	C4H8	000115-11-7	50
3	1-Propene, 2-methyl -	56	C4H8	000115-11-7	50
4	1-Butene	56	C4H8	000106-98-9	35

\*\*\*\*\*  
 Peak Number 3 Cyclopropane, ethyl - Concentration Rank 1

R. T.	EstConc	Area	Relative to ISTD	R. T.	
2.71	1.77 ug	180481	External Standard	0.00	
Hit# of	Tentative ID	MW	Mol Form	CAS#	Qual
1	Cyclopropane, ethyl -	70	C5H10	001191-96-4	64
2	2-Pentene, (Z)-	70	C5H10	000627-20-3	53
3	2-Pentene, (E)-	70	C5H10	000646-04-8	53
4	2-Pentene	70	C5H10	000109-68-2	53

\*\*\*\*\*  
 Peak Number 4 3-Hexene, (Z)- Concentration Rank 4

R. T.	EstConc	Area	Relative to ISTD	R. T.
2.94	0.45 ug	46316	External Standard	0.00



0648056-LSCRPT. TXT

Hit# of	Tentative ID	MW	Mol Form	CAS#	Qual
1	3-Hexene, (Z)-	84	C6H12	007642-09-3	64
2	2-Hexene, (Z)-	84	C6H12	007688-21-3	59
3	1-Pentene, 3-methyl-	84	C6H12	000760-20-3	52
4	3-Hexene, (E)-	84	C6H12	013269-52-8	50

\*\*\*\*\*

Peak Number 5 Cyclopropane, ethyl - Concentration Rank 5

R. T.	EstConc	Area	Relative to ISTD	R. T.
2.97	0.39 ug	39396	External Standard	0.00

Hit# of	Tentative ID	MW	Mol Form	CAS#	Qual
1	Acetic acid, trifluoro-, pentyl ...	184	C7H11F3O2	000327-70-8	28
2	2-Carbomethoxyaziridine	101	C4H7N2O2	005950-34-5	25
3	1-Butanol	74	C4H10O	000071-36-3	23
4	Cyclopropane, ethyl -	70	C5H10	001191-96-4	9

0648056.D LIMS\_A1\_5.M Mon Dec 20 15:14:13 2010 D.00.00

0648058-LSCRPT.TXT  
Library Search Compound Report

Data File : C:\MSDCHEM\5\20784505FRM\0648058.D                   Vial : 26  
Acq On : 19 Nov 2010 00:14                                   Operator: LIMS import  
Sample :   Inst : UC-SPG5-D  
Misc :   Multiplr: 1.00  
MS Integration Params: jwint.p  
Quant Method : C:\MSDCHEM\1\METHODS\LIMS\_A1\_5.M (RTE Integrator)  
Title : Gore Expanded Target VOCs/SVOCs  
Library : C:\DATABASE\NI STD2.L

\*\*\*\*\*

Peak Number	1	Carbon di oxide	Concentration	Rank	3	
R. T.	EstConc	Area	Relative to ISTD	R. T.		
2.40	0.33 ug	33589	External Standard	0.00		
Hit# of	4	Tentative ID	MW	Mol Form	CAS#	Qual
1		Carbon di oxide	44	CO2	000124-38-9	2
2		Nitrous Oxide	44	N2O	010024-97-2	2
3		Carbon di oxide	44	CO2	000124-38-9	2
4		Ethyne, fluoro-	44	C2HF	002713-09-9	2

\*\*\*\*\*

Peak Number	2	Sulfur dioxide	Concentration	Rank	4	
R. T.	EstConc	Area	Relative to ISTD	R. T.		
2.47	0.26 ug	26916	External Standard	0.00		
Hit# of	4	Tentative ID	MW	Mol Form	CAS#	Qual
1		Sulfur dioxide	64	O2S	007446-09-5	74
2		Aminomethanesulfonic acid	111	CH5NO3S	013881-91-9	74
3		Sulfur dioxide	64	O2S	007446-09-5	74
4		Aminomethanesulfonic acid	111	CH5NO3S	013881-91-9	64

\*\*\*\*\*

Peak Number	3	1-Propene, 2-methyl -	Concentration	Rank	1	
R. T.	EstConc	Area	Relative to ISTD	R. T.		
2.52	0.68 ug	69092	External Standard	0.00		
Hit# of	4	Tentative ID	MW	Mol Form	CAS#	Qual
1		1-Propene, 2-methyl -	56	C4H8	000115-11-7	53
2		1-Propene, 2-methyl -	56	C4H8	000115-11-7	42
3		2-Butene, (E)-	56	C4H8	000624-64-6	9
4		2-Butene, (Z)-	56	C4H8	000590-18-1	9

\*\*\*\*\*

Peak Number	4	Cyclopropane, ethyl -	Concentration	Rank	2
R. T.	EstConc	Area	Relative to ISTD	R. T.	
2.71	0.62 ug	63695	External Standard	0.00	

0648058-LSCRPT. TXT

Hit# of	Tentative ID	MW	Mol Form	CAS#	Qual
1	Cyclopropane, ethyl -	70	C5H10	001191-96-4	59
2	1-Butanol, 3-methyl -	88	C5H12O	000123-51-3	53
3	1-Butanol, 3-methyl -	88	C5H12O	000123-51-3	50
4	3-Buten-1-ol	72	C4H8O	000627-27-0	50

\*\*\*\*\*

Peak Number 5 Pentane, 3-methyl ene- Concentration Rank 5

R. T.	EstConc	Area	Relative to ISTD	R. T.
2.97	0.15 ug	15302	External Standard	0.00

Hit# of	Tentative ID	MW	Mol Form	CAS#	Qual
1	Pentane, 3-methyl ene-	84	C6H12	000760-21-4	10
2	2-Pentene, 2-methyl -	84	C6H12	000625-27-4	9
3	3-Penten-2-one	84	C5H8O	000625-33-2	9
4	2-Pentene, 3-methyl -	84	C6H12	000922-61-2	9

0648058.D LIMS\_A1\_5.M Mon Dec 20 15:16:01 2010 D.00.00

0648059-LSCRPT. TXT  
Library Search Compound Report

```

Data File : C:\MSDCHEM\5\20784505FRM\0648059.D           Vial : 27
Acq On   : 19 Nov 2010  00:42                         Operator: LIMS import
Sample   :                                             Inst  : UC-SPG5-D
Misc     :                                             Multiplr: 1.00
MS Integrati on Params: jwint.p
Quant Method : C:\MSDCHEM\1\METHODS\LI MS_A1_5.M (RTE Integrator)
Title    : Gore Expanded Target VOCs/SVOCs
Library  : C:\DATABASE\NI ST02.L
  
```

```

*****
Peak Number  1  Ami nomethanesul foni c aci d           Concentrati on Rank  3
-----
R. T.   EstConc           Area           Relati ve to ISTD           R. T.
-----
  2.45   0.76 ug           77383           External Standard           0.00

Hit# of  4   Tentati ve ID           MW   Mol Form           CAS#           Qual
-----
  1 Ami nomethanesul foni c aci d           111 CH5NO3S           013881-91-9 74
  2 Ami nomethanesul foni c aci d           111 CH5NO3S           013881-91-9 64
  3 Sul fur di oxi de           64 O2S           007446-09-5 64
  4 Sul fur di oxi de           64 O2S           007446-09-5 64
  
```

```

*****
Peak Number  2  1-Propene, 2-methyl -           Concentrati on Rank  1
-----
R. T.   EstConc           Area           Relati ve to ISTD           R. T.
-----
  2.51   3.36 ug           343125           External Standard           0.00

Hit# of  4   Tentati ve ID           MW   Mol Form           CAS#           Qual
-----
  1 1-Butene           56 C4H8           000106-98-9 86
  2 1-Propene, 2-methyl -           56 C4H8           000115-11-7 86
  3 1-Propene, 2-methyl -           56 C4H8           000115-11-7 86
  4 2-Butene, (Z)-           56 C4H8           000590-18-1 80
  
```

```

*****
Peak Number  3  Cycl opropane, ethyl -           Concentrati on Rank  2
-----
R. T.   EstConc           Area           Relati ve to ISTD           R. T.
-----
  2.70   2.55 ug           260205           External Standard           0.00

Hit# of  4   Tentati ve ID           MW   Mol Form           CAS#           Qual
-----
  1 Cycl opropane, ethyl -           70 C5H10           001191-96-4 64
  2 Cycl opropane, ethyl -           70 C5H10           001191-96-4 46
  3 1-Butene, 3-methyl -           70 C5H10           000563-45-1 46
  4 Cycl opropane, ethyl -           70 C5H10           001191-96-4 43
  
```

```

*****
Peak Number  4  Cycl opropane, 1,1-di methyl -           Concentrati on Rank  4
-----
R. T.   EstConc           Area           Relati ve to ISTD           R. T.
-----
  2.77   0.72 ug           73931           External Standard           0.00
  
```

0648059-LSCRPT. TXT

Hit# of	Tentative ID	MW	Mol Form	CAS#	Qual
1	Cyclopropane, 1,1-dimethyl -	70	C5H10	001630-94-0	64
2	2-Pentene, (E) -	70	C5H10	000646-04-8	9
3	2-Pentene, (Z) -	70	C5H10	000627-20-3	7
4	2-Pentene	70	C5H10	000109-68-2	7

\*\*\*\*\*

Peak Number 5 1-Butene, 2,3-dimethyl - Concentration Rank 5

R. T.	EstConc	Area	Relative to ISTD	R. T.
2.97	0.64 ug	65602	External Standard	0.00

Hit# of	Tentative ID	MW	Mol Form	CAS#	Qual
1	Cyclopropane, ethyl -	70	C5H10	001191-96-4	9
2	Cyclopropane, ethyl -	70	C5H10	001191-96-4	9
3	2-Pentene, 2-methyl -	84	C6H12	000625-27-4	9
4	1-Butene, 2,3-dimethyl -	84	C6H12	000563-78-0	9

0648059.D LIMS\_A1\_5.M Mon Dec 20 15:17:45 2010 D.00.00

0648060-LSCRPT.TXT  
Library Search Compound Report

```

Data File   : C:\MSDCHEM\5\20784505FRM\0648060.D          Vial : 19
Acq On     : 18 Nov 2010 20:59                            Operator: LIMS import
Sample    :                                                Inst  : UC-SPG5-D
Misc      :                                                Multiplr: 1.00
MS Integrati on Params: jwint.p
Quant Method : C:\MSDCHEM\1\METHODS\LIMS_A1_5.M (RTE Integrator)
Title     : Gore Expanded Target VOCs/SVOCs
Library   : C:\DATABASE\NI ST02.L

```

```

*****
Peak Number 1  Sul fur di oxi de                      Concentrati on Rank 4

R. T.      EstConc      Area          Rel ative to ISTD      R. T.
-----
2.45      0.61 ug        61979         External Standard      0.00

Hi t# of 4  Tentati ve ID                        MW  Mol Form      CAS#        Qual
-----
1 2-Ami noethyl hydrogen sul fate              141 C2H7N04S      000926-39-6 74
2 Sul fur di oxi de                             64 O2S           007446-09-5 74
3 Ami nomethanesul foni c aci d                111 CH5N03S      013881-91-9 9
4 Ami nomethanesul foni c aci d                111 CH5N03S      013881-91-9 9

```

```

*****
Peak Number 2  Ethene, chl oro-                      Concentrati on Rank 1

R. T.      EstConc      Area          Rel ative to ISTD      R. T.
-----
2.49      0.85 ug        86201         External Standard      0.00

Hi t# of 4  Tentati ve ID                        MW  Mol Form      CAS#        Qual
-----
1 Ethene, chl oro-                             62 C2H3Cl        000075-01-4 56
2 Ethanethi ol                               62 C2H6S         000075-08-1 5
3 Ethanethi ol                               62 C2H6S         000075-08-1 5
4 Ethanethi ol                               62 C2H6S         000075-08-1 5

```

```

*****
Peak Number 3  1,3-Butadi ene, 2-ethyl -            Concentrati on Rank 2

R. T.      EstConc      Area          Rel ative to ISTD      R. T.
-----
2.67      0.80 ug        82105         External Standard      0.00

Hi t# of 4  Tentati ve ID                        MW  Mol Form      CAS#        Qual
-----
1 1,3-Butadi ene, 2-ethyl -                   82 C6H10        003404-63-5 9
2 Chl ori ne di oxi de                         67 Cl O2        010049-04-4 7
3 1H-Pyrrol e-2,5-di carboni tri le           117 C6H3N3      059215-66-6 4
4 Oxazol e, 4,5-di hydro-2-methyl -           85 C4H7NO       001120-64-5 4

```

```

*****
Peak Number 4  Carbon di sul fi de                  Concentrati on Rank 3

R. T.      EstConc      Area          Rel ative to ISTD      R. T.
-----
2.86      0.62 ug        62756         External Standard      0.00

```

0648060-LSCRPT. TXT

Hit#	of	Tentative ID	MW	Mol Form	CAS#	Qual
1	4	Carbon di sul fi de	76	CS2	000075-15-0	74
2		Carbon di sul fi de	76	CS2	000075-15-0	9
3		Thi ourea	76	CH4N2S	000062-56-6	7
4		Thi ourea	76	CH4N2S	000062-56-6	5

\*\*\*\*\*

Peak Number 5 1-Propanol, 2-(1-methyl etho... Concentrati on Rank 5

R. T.	EstConc	Area	Relati ve to ISTD	R. T.
3.15	0.50 ug	51094	External Standard	0.00

Hit#	of	Tentative ID	MW	Mol Form	CAS#	Qual
1	4	1-Propanol, 2-(1-methyl ethoxy)-	118	C6H14O2	003944-37-4	83
2		Di isopropyl ether	102	C6H14O	000108-20-3	83
3		Di isopropyl ether	102	C6H14O	000108-20-3	83
4		Di isopropyl ether	102	C6H14O	000108-20-3	83

0648060.D LIMS\_A1\_5.M Mon Dec 20 15:18:59 2010 D.00.00

0648061-LSCRPT. TXT  
Library Search Compound Report

Data File : C:\MSDCHEM\5\20784505FRM\0648061.D	Vial : 51
Acq On : 19 Nov 2010 11:53	Operator: LIMS import
Sample :	Inst : UC-SPG5-D
Misc :	Multiplr: 1.00

MS Integrati on Params: jwi nt. p  
Quant Method : C:\MSDCHEM\1\METHODS\LI MS\_A1\_5.M (RTE Integrator)  
Title : Gore Expanded Target VOCs/SVOCs  
Library : C:\DATABASE\NI ST02.L

```
*****
```

Peak Number	1	Sul fur di oxi de	Concentrati on Rank	3
-------------	---	-------------------	---------------------	---

R. T.	EstConc	Area	Relati ve to ISTD	R. T.
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2.44	2.77 ug	282617	External Standard	0.00
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Hit# of	4	Tentati ve ID	MW	Mol Form	CAS#	Qual
---------	---	---------------	----	----------	------	------

---

1	Sul fur di oxi de	64	O2S	007446-09-5	90
2	Sul fur di oxi de	64	O2S	007446-09-5	83
3	2-Ami noethyl hydrogen sul fate	141	C2H7N04S	000926-39-6	74
4	Ami nomethanesul foni c aci d	111	CH5N03S	013881-91-9	64

```
*****
```

Peak Number	2	1-Propene, 2-methyl -	Concentrati on Rank	4
-------------	---	-----------------------	---------------------	---

R. T.	EstConc	Area	Relati ve to ISTD	R. T.
-------	---------	------	-------------------	-------

---

2.49	1.45 ug	148105	External Standard	0.00
------	---------	--------	-------------------	------

Hit# of	4	Tentati ve ID	MW	Mol Form	CAS#	Qual
---------	---	---------------	----	----------	------	------

---

1	1-Propene, 2-methyl -	56	C4H8	000115-11-7	10
2	1-Propene, 2-methyl -	56	C4H8	000115-11-7	10
3	1-Butene	56	C4H8	000106-98-9	10
4	2-Butene	56	C4H8	000107-01-7	10

```
*****
```

Peak Number	3	Fl uorodi chl oromethane	Concentrati on Rank	5
-------------	---	--------------------------	---------------------	---

R. T.	EstConc	Area	Relati ve to ISTD	R. T.
-------	---------	------	-------------------	-------

---

2.59	1.22 ug	124787	External Standard	0.00
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Hit# of	4	Tentati ve ID	MW	Mol Form	CAS#	Qual
---------	---	---------------	----	----------	------	------

---

1	Fl uorodi chl oromethane	102	CHCl 2F	000075-43-4	91
2	Fl uorodi chl oromethane	102	CHCl 2F	000075-43-4	91
3	Fl uorodi chl oromethane	102	CHCl 2F	000075-43-4	90
4	Methanami ne, N, N-di fl uoro-	67	CH3F2N	000753-58-2	5

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*****
```

Peak Number	4	3-Pentyn-1-ol	Concentrati on Rank	2
-------------	---	---------------	---------------------	---

R. T.	EstConc	Area	Relati ve to ISTD	R. T.
-------	---------	------	-------------------	-------

---

2.67	2.91 ug	296570	External Standard	0.00
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0648061-LSCRPT. TXT

Hit#	of	Tentative ID	MW	Mol Form	CAS#	Qual
1	4	3-Pentyn-1-ol	84	C5H8O	010229-10-4	83
2		1,2-Butadiene	54	C4H6	000590-19-2	80
3		2-Butyne	54	C4H6	000503-17-3	78
4		3-Pentyn-1-ol	84	C5H8O	010229-10-4	78

\*\*\*\*\*

Peak Number 5 Ethene, 1,1-dichloro- Concentration Rank 1

R. T.	EstConc	Area	Relative to ISTD	R. T.
2.75	36.13 ug	3685610	External Standard	0.00

Hit#	of	Tentative ID	MW	Mol Form	CAS#	Qual
1	4	Ethene, 1,1-dichloro-	96	C2H2Cl2	000075-35-4	97
2		Ethene, 1,1-dichloro-	96	C2H2Cl2	000075-35-4	97
3		Ethene, 1,2-dichloro-, (E)-	96	C2H2Cl2	000156-60-5	94
4		Ethene, 1,2-dichloro-, (Z)-	96	C2H2Cl2	000156-59-2	94

0648061.D LIMS\_A1\_5.M Mon Dec 20 15:20:03 2010 D.00.00

0648063-LSCRPT. TXT  
Library Search Compound Report

Data File : C:\MSDCHEM\5\20784505FRM\0648063.D                   Vial : 16  
Acq On : 18 Nov 2010 19:35                   Operator: LIMS import  
Sample :                   Inst : UC-SPG5-D  
Misc :                   Multiplr: 1.00  
MS Integration Params: jwint.p  
Quant Method : C:\MSDCHEM\1\METHODS\LI MS\_A1\_5.M (RTE Integrator)  
Title : Gore Expanded Target VOCs/SVOCs  
Library : C:\DATABASE\NI ST02.L

```
*****
Peak Number 1 Carbon di oxide Concentration Rank 4
-----
R. T. EstConc Area Relati ve to ISTD R. T.
-----
2.39 0.30 ug 30503 External Standard 0.00

Hit# of 4 Tentati ve ID MW Mol Form CAS# Qual
-----
1 Carbon di oxide 44 CO2 000124-38-9 2
2 Ni trous Oxi de 44 N2O 010024-97-2 2
3 Carbon di oxide 44 CO2 000124-38-9 2
4 Ethyne, fluoro- 44 C2HF 002713-09-9 2
```

```
*****
Peak Number 2 Sul fur di oxide Concentration Rank 3
-----
R. T. EstConc Area Relati ve to ISTD R. T.
-----
2.46 0.31 ug 31475 External Standard 0.00

Hit# of 4 Tentati ve ID MW Mol Form CAS# Qual
-----
1 Cystei c aci d 169 C3H7NO5S 1000131-23-1 74
2 Ami nomethanesul foni c aci d 111 CH5NO3S 013881-91-9 74
3 Sul fur di oxide 64 O2S 007446-09-5 74
4 Sul fur di oxide 64 O2S 007446-09-5 74
```

```
*****
Peak Number 3 Ethanethi ol Concentration Rank 2
-----
R. T. EstConc Area Relati ve to ISTD R. T.
-----
2.50 0.37 ug 37655 External Standard 0.00

Hit# of 4 Tentati ve ID MW Mol Form CAS# Qual
-----
1 Ethanethi ol 62 C2H6S 000075-08-1 3
2 Ethanethi ol 62 C2H6S 000075-08-1 3
3 Ethene, chl oro- 62 C2H3Cl 000075-01-4 3
4 Phosphi ne, ethyl - 62 C2H7P 000593-68-0 3
```

```
*****
Peak Number 4 Ethane, 1,2-di chl oro-1,1,2-... Concentration Rank 1
-----
R. T. EstConc Area Relati ve to ISTD R. T.
-----
2.67 0.39 ug 39287 External Standard 0.00
```

0648063-LSCRPT. TXT

Hit# of	Tentative ID	MW	Mol Form	CAS#	Qual
1	Ethane, 1,2-dichloro-1,1,2-trifluoroethane	152	C2HCl2F3	000354-23-4	86
2	Benzyl nitrile	117	C8H7N	000140-29-4	7
3	Benzene, (3-chloro-1-propenyl)-	152	C9H9Cl	002687-12-9	7
4	Benzyl nitrile	117	C8H7N	000140-29-4	7

\*\*\*\*\*

Peak Number 5 1,2,5-Hexatriene Concentration Rank 5

R. T.	EstConc	Area	Relative to ISTD	R. T.
2.87	0.20 ug	20750	External Standard	0.00

Hit# of	Tentative ID	MW	Mol Form	CAS#	Qual
1	1,2,5-Hexatriene	80	C6H8	003642-18-0	7
2	Cyclopropane, ethenyl methyl ene-	80	C6H8	019995-92-7	4
3	Cyclopropane, 3-methyl-3-vinyl-	80	C6H8	071153-30-5	4
4	2-Hexen-4-yne	80	C6H8	014092-20-7	3

0648063.D LIMS\_A1\_5.M Mon Dec 20 15:23:08 2010 D.00.00

0648062-LSCRPT. TXT  
Library Search Compound Report

```

Data File : C:\MSDCHEM\5\20784505FRM\0648062.D          Vi al : 69
Acq On   : 19 Nov 2010  20: 21                        Operator: LIMS import
Sample   :                                               Inst   : UC-SPG5-D
Misc     :                                               Multipl r: 1.00
MS Integrati on Params: jwint.p
Quant Method : C:\MSDCHEM\1\METHODS\LI MS_A1_5.M (RTE Integrator)
Title    : Gore Expanded Target VOCs/SVOCs
Library  : C:\DATABASE\NI ST02.L
  
```

```

*****
Peak Number  1  Carbon di oxi de                               Concentrati on Rank  3
-----
R. T.      EstConc      Area      Relati ve to ISTD      R. T.
-----
  2.41      0.38 ug      39010      External Standard      0.00

Hit# of  4  Tentati ve ID      MW  Mol Form      CAS#      Qual
-----
  1 Carbon di oxi de      44  CO2      000124-38-9  2
  2 Ni trous Oxi de      44  N2O      010024-97-2  2
  3 Ethyl ene oxi de      44  C2H4O      000075-21-8  2
  4 Carbon di oxi de      44  CO2      000124-38-9  2
  
```

```

*****
Peak Number  2  Sul fur di oxi de                               Concentrati on Rank  1
-----
R. T.      EstConc      Area      Relati ve to ISTD      R. T.
-----
  2.47      0.68 ug      69288      External Standard      0.00

Hit# of  4  Tentati ve ID      MW  Mol Form      CAS#      Qual
-----
  1 Sul fur di oxi de      64  O2S      007446-09-5  74
  2 Ami nomethanesul foni c aci d      111 CH5N03S      013881-91-9  74
  3 Sul fur di oxi de      64  O2S      007446-09-5  74
  4 Ami nomethanesul foni c aci d      111 CH5N03S      013881-91-9  64
  
```

```

*****
Peak Number  3  2, 3-Di azabi cycl o[2. 2. 1]-hep. . .          Concentrati on Rank  4
-----
R. T.      EstConc      Area      Relati ve to ISTD      R. T.
-----
  2.61      0.15 ug      15413      External Standard      0.00

Hit# of  4  Tentati ve ID      MW  Mol Form      CAS#      Qual
-----
  1 Pyrrole      67  C4H5N      000109-97-7  9
  2 2, 3-Di azabi cycl o[2. 2. 1]-hept-2-ene      96  C5H8N2      002721-32-6  9
  3 Cycl opropene      40  C3H4      002781-85-3  5
  4 Cycl opropane, ethyl i dene-      68  C5H8      018631-83-9  4
  
```

```

*****
Peak Number  4  2, 4-Hexadi ene, (E, Z)-                               Concentrati on Rank  2
-----
R. T.      EstConc      Area      Relati ve to ISTD      R. T.
-----
  2.69      0.47 ug      47963      External Standard      0.00
  
```

0648062-LSCRPT. TXT

Hit# of	Tentative ID	MW	Mol Form	CAS#	Qual
1	1,4-Pentadiene, 2-methyl-	82	C6H10	000763-30-4	9
2	Cyclopropane, 1,2-dimethyl-3-met...	82	C6H10	005070-00-8	9
3	Cyclopropane, 1,2-dimethyl-3-met...	82	C6H10	004866-55-1	9
4	2,4-Hexadiene, (E,Z)-	82	C6H10	005194-50-3	9

\*\*\*\*\*

Peak Number 5 Mercaptamine Concentration Rank 5

R. T.	EstConc	Area	Relative to ISTD	R. T.
2.89	0.13 ug	13710	External Standard	0.00

Hit# of	Tentative ID	MW	Mol Form	CAS#	Qual
1	Mercaptamine	77	C2H7NS	000060-23-1	4
2	Mercaptamine	77	C2H7NS	000060-23-1	2
3	Methane, nitroso-	45	CH3NO	000865-40-7	2
4	2-Chloroethylamine	79	C2H6ClN	000689-98-5	2

0648062.D LIMS\_A1\_5.M Mon Dec 20 15:21:32 2010 D.00.00

0648064-LSCRPT. TXT  
Library Search Compound Report

Data File : C:\MSDCHEM\5\20784505FRM\0648064. D  
 Acq On : 19 Nov 2010 1:38  
 Sample :  
 Misc :  
 MS Integrati on Params: jwi nt. p  
 Quant Method : C:\MSDCHEM\1\METHODS\LI MS\_A1\_5. M (RTE Integrator)  
 Title : Gore Expanded Target VOCs/SVOCs  
 Li brary : C:\DATABASE\NI ST02. L

Vial : 29  
 Operator: LI MS i mport  
 Inst : UC-SPG5-D  
 Mul ti pl r: 1.00

\*\*\*\*\*  
 Peak Number 1 Ethene, chl oro tri fl uoro- Concentrati on Rank 4  
 R. T. EstConc Area Relati ve to ISTD R. T.  
 -----  
 2.44 0.92 ug 93726 External Standard 0.00  
 Hit# of 4 Tentati ve ID MW Mol Form CAS# Qual  
 -----  
 1 Ethene, chl oro tri fl uoro- 116 C2Cl F3 000079-38-9 96  
 2 Ethene, chl oro tri fl uoro- 116 C2Cl F3 000079-38-9 87  
 3 5-Chl oro-1-methyl i mi dazol e 116 C4H5Cl N2 000872-49-1 9  
 4 1-Propene, 1-(ethyl thi o)-2-methyl - 116 C6H12S 027482-14-0 9

\*\*\*\*\*  
 Peak Number 2 1-Propene, 2-methyl - Concentrati on Rank 3  
 R. T. EstConc Area Relati ve to ISTD R. T.  
 -----  
 2.50 1.80 ug 183510 External Standard 0.00  
 Hit# of 4 Tentati ve ID MW Mol Form CAS# Qual  
 -----  
 1 1-Propene, 2-methyl - 56 C4H8 000115-11-7 53  
 2 1-Butene 56 C4H8 000106-98-9 49  
 3 1-Propene, 2-methyl - 56 C4H8 000115-11-7 46  
 4 2-Butene, (E)- 56 C4H8 000624-64-6 46

\*\*\*\*\*  
 Peak Number 3 Pentane Concentrati on Rank 1  
 R. T. EstConc Area Relati ve to ISTD R. T.  
 -----  
 2.70 2.51 ug 256518 External Standard 0.00  
 Hit# of 4 Tentati ve ID MW Mol Form CAS# Qual  
 -----  
 1 Pentane 72 C5H12 000109-66-0 43  
 2 Cycl opropane 42 C3H6 000075-19-4 38  
 3 Pentane 72 C5H12 000109-66-0 38  
 4 Pentane 72 C5H12 000109-66-0 38

\*\*\*\*\*  
 Peak Number 4 Methyl ene Chl ori de Concentrati on Rank 2  
 R. T. EstConc Area Relati ve to ISTD R. T.  
 -----  
 2.84 2.11 ug 215177 External Standard 0.00

0648064-LSCRPT. TXT

Hit#	of	Tentative ID	MW	Mol Form	CAS#	Qual
1	4	Methylene Chloride	84	CH2Cl 2	000075-09-2	94
2		Methylene Chloride	84	CH2Cl 2	000075-09-2	91
3		Methylene Chloride	84	CH2Cl 2	000075-09-2	91
4		Methylene Chloride	84	CH2Cl 2	000075-09-2	52

\*\*\*\*\*

Peak Number 5 Hexane Concentration Rank 5

R. T.	EstConc	Area	Relative to ISTD	R. T.
3.14	0.51 ug	51790	External Standard	0.00

Hit#	of	Tentative ID	MW	Mol Form	CAS#	Qual
1	4	Hexane	86	C6H14	000110-54-3	78
2		Hexane	86	C6H14	000110-54-3	45
3		Hexane	86	C6H14	000110-54-3	28
4		1-Pentene, 4-methyl -	84	C6H12	000691-37-2	9

0648064.D LIMS\_A1\_5.M Mon Dec 20 15:23:52 2010 D.00.00

0648066-LSCRPT. TXT  
Library Search Compound Report

Data File : C:\MSDCHEM\5\20784505FRM\0648066.D	Vial : 76
Acq On : 19 Nov 2010 23:37	Operator: LIMS import
Sample :	Inst : UC-SPG5-D
Misc :	Multiplic: 1.00
MS Integration Params: jwint.p	
Quant Method : C:\MSDCHEM\1\METHODS\LI MS_A1_5.M (RTE Integrator)	
Title : Gore Expanded Target VOCs/SVOCs	
Library : C:\DATABASE\NI ST02.L	

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Peak Number 1	Ethene, chl oro tri fl uoro-	Concentration Rank 2
---------------	------------------------------	----------------------

R. T.	EstConc	Area	Relative to ISTD	R. T.
2.45	5.39 ug	549600	External Standard	0.00

Hit# of	Tentative ID	MW	Mol Form	CAS#	Qual
1	Ethene, chl oro tri fl uoro-	116	C2Cl F3	000079-38-9	96
2	Ethene, chl oro tri fl uoro-	116	C2Cl F3	000079-38-9	86
3	3-Ethyl thi ol ane	116	C6H12S	062184-67-2	22
4	5-Chl oro-1-methyl i mi dazol e	116	C4H5Cl N2	000872-49-1	9

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Peak Number 2	1-Propene, 2-methyl -	Concentration Rank 3
---------------	-----------------------	----------------------

R. T.	EstConc	Area	Relative to ISTD	R. T.
2.52	4.82 ug	491564	External Standard	0.00

Hit# of	Tentative ID	MW	Mol Form	CAS#	Qual
1	1-Propene, 2-methyl -	56	C4H8	000115-11-7	52
2	1-Propene, 2-methyl -	56	C4H8	000115-11-7	43
3	2-Butene	56	C4H8	000107-01-7	43
4	1-Butene	56	C4H8	000106-98-9	38

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Peak Number 3	Ethene, 1, 1-di chl oro-2, 2-di fl uoro-	Concentration Rank 5
---------------	--	----------------------

R. T.	EstConc	Area	Relative to ISTD	R. T.
2.62	2.78 ug	283323	External Standard	0.00

Hit# of	Tentative ID	MW	Mol Form	CAS#	Qual
1	Ethene, 1, 1-di chl oro-2, 2-di fl uoro-	132	C2Cl 2F2	000079-35-6	89
2	Ethene, 1, 1-di chl oro-2, 2-di fl uoro-	132	C2Cl 2F2	000079-35-6	60
3	1, 3-Pentadi ene, 3-methyl -, (E)-	82	C6H10	002787-43-1	38
4	1, 3-Pentadi ene, 2-methyl -, (E)-	82	C6H10	000926-54-5	38

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Peak Number 4	1, 2-Butadi ene	Concentration Rank 1
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R. T.	EstConc	Area	Relative to ISTD	R. T.
2.70	10.07 ug	1026700	External Standard	0.00



0648066-LSCRPT. TXT

Hit# of	Tentative ID	MW	Mol Form	CAS#	Qual
1	1, 2-Butadi ene	54	C4H6	000590-19-2	80
2	2-Butyne	54	C4H6	000503-17-3	72
3	1-Butyne	54	C4H6	000107-00-6	72
4	2-Butyne	54	C4H6	000503-17-3	64

\*\*\*\*\*

Peak Number 5 1, 4-Di oxane Concentration Rank 4

R. T.	EstConc	Area	Relative to ISTD	R. T.
4.03	3.36 ug	343131	External Standard	0.00

Hit# of	Tentative ID	MW	Mol Form	CAS#	Qual
1	1, 4-Di oxane	88	C4H8O2	000123-91-1	91
2	1, 4-Di oxane	88	C4H8O2	000123-91-1	90
3	1, 4-Di oxane	88	C4H8O2	000123-91-1	83
4	1, 4-Di oxane	88	C4H8O2	000123-91-1	83

0648066.D LIMS\_A1\_5.M Mon Dec 20 15:26:26 2010 D.00.00

0648065-LSCRPT. TXT  
Library Search Compound Report

Data File : C:\MSDCHEM\5\20784505FRM\0648065.D	Vial : 28
Acq On : 19 Nov 2010 1:10	Operator: LIMS import
Sample :	Inst : UC-SPG5-D
Miss :	Multiplr: 1.00
MS Integration Params: jwint.p	
Quant Method : C:\MSDCHEM\1\METHODS\LIMS_A1_5.M (RTE Integrator)	
Title : Gore Expanded Target VOCs/SVOCs	
Library : C:\DATABASE\NI ST02.L	

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Peak Number 1	Carbon di oxide	Concentration Rank 5			
R. T.	EstConc	Area	Relative to ISTD	R. T.	
-----					
2.39	0.21 ug	21795	External Standard	0.00	
Hit# of 4	Tentative ID	MW	Mol Form	CAS#	Qual
-----					
1	Carbon di oxide	44	CO2	000124-38-9	2
2	Nitrous Oxide	44	N2O	010024-97-2	2
3	Carbon di oxide	44	CO2	000124-38-9	2
4	Ethyne, fluoro-	44	C2HF	002713-09-9	2

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Peak Number 2	Sulfur dioxide	Concentration Rank 3			
R. T.	EstConc	Area	Relative to ISTD	R. T.	
-----					
2.44	0.76 ug	77769	External Standard	0.00	
Hit# of 4	Tentative ID	MW	Mol Form	CAS#	Qual
-----					
1	Sulfur dioxide	64	O2S	007446-09-5	9
2	Aminomethanesulfonic acid	111	CH5NO3S	013881-91-9	9
3	Aminomethanesulfonic acid	111	CH5NO3S	013881-91-9	9
4	Sulfur dioxide	64	O2S	007446-09-5	7

\*\*\*\*\*

Peak Number 3	1-Propene, 2-methyl -	Concentration Rank 2			
R. T.	EstConc	Area	Relative to ISTD	R. T.	
-----					
2.51	0.88 ug	90182	External Standard	0.00	
Hit# of 4	Tentative ID	MW	Mol Form	CAS#	Qual
-----					
1	1-Propene, 2-methyl -	56	C4H8	000115-11-7	42
2	1-Propene, 2-methyl -	56	C4H8	000115-11-7	9
3	1-Butene	56	C4H8	000106-98-9	9
4	1-Butene	56	C4H8	000106-98-9	9

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Peak Number 4	Cyclopropane, ethyl -	Concentration Rank 1		
R. T.	EstConc	Area	Relative to ISTD	R. T.
-----				
2.70	0.99 ug	101026	External Standard	0.00

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Hit# of	Tentative ID	MW	Mol Form	CAS#	Qual
1	Cyclopropane, ethyl -	70	C5H10	001191-96-4	64
2	3-Buten-1-ol	72	C4H8O	000627-27-0	53
3	Cyclopropane, 1,2-dimethyl -, cis-	70	C5H10	000930-18-7	50
4	Pentane	72	C5H12	000109-66-0	47

\*\*\*\*\*

Peak Number 5 2-Butene, (E)- Concentration Rank 4

R. T.	EstConc	Area	Relative to ISTD	R. T.
3.15	0.25 ug	25330	External Standard	0.00

Hit# of	Tentative ID	MW	Mol Form	CAS#	Qual
1	2-Butene, (E)-	56	C4H8	000624-64-6	9
2	2-Butene	56	C4H8	000107-01-7	5
3	2-Butene, (Z)-	56	C4H8	000590-18-1	5
4	Cyclobutane	56	C4H8	000287-23-0	5

0648065.D LIMS\_A1\_5.M Mon Dec 20 15:25:03 2010 D.00.00

0648068-LSCRPT. TXT  
Library Search Compound Report

Data File : C:\MSDCHEM\5\20784505FRM\0648068.D  
Acq On : 19 Nov 2010 4:53  
Sample :  
Misc :  
MS Integrati on Params: jwi nt. p  
Quant Method : C:\MSDCHEM\1\METHODS\LI MS\_A1\_5.M (RTE Integrator)  
Title : Gore Expanded Target VOCs/SVOCs  
Library : C:\DATABASE\NI ST02.L

Vial : 36  
Operator: LIMS i mport  
Inst : UC-SPG5-D  
Mul ti pl r: 1.00

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Peak Number 1 Cysteic acid Concentration Rank 4

R. T.	EstConc	Area	Relati ve to ISTD	R. T.
2.46	0.37 ug	37319	External Standard	0.00

Hi t# of	Tentati ve ID	MW	Mol Form	CAS#	Qual
1	Sul fur di oxi de	64	O2S	007446-09-5	74
2	Sul fur di oxi de	64	O2S	007446-09-5	74
3	Cysteic aci d	169	C3H7N05S	1000131-23-1	64
4	Ami nomethanesul foni c aci d	111	CH5N03S	013881-91-9	64

\*\*\*\*\*  
Peak Number 2 1-Propene, 2-methyl - Concentration Rank 1

R. T.	EstConc	Area	Relati ve to ISTD	R. T.
2.51	0.61 ug	62019	External Standard	0.00

Hi t# of	Tentati ve ID	MW	Mol Form	CAS#	Qual
1	1-Propene, 2-methyl -	56	C4H8	000115-11-7	9
2	1-Propene, 2-methyl -	56	C4H8	000115-11-7	7
3	1-Propene, 2-methyl -	56	C4H8	000115-11-7	5
4	1-Butene	56	C4H8	000106-98-9	4

\*\*\*\*\*  
Peak Number 3 Silane, tetramethyl - Concentration Rank 3

R. T.	EstConc	Area	Relati ve to ISTD	R. T.
2.60	0.47 ug	48037	External Standard	0.00

Hi t# of	Tentati ve ID	MW	Mol Form	CAS#	Qual
1	Silane, tetramethyl -	88	C4H12Si	000075-76-3	72
2	1-Propene-1-thi ol	74	C3H6S	000925-89-3	72
3	Silane, tetramethyl -	88	C4H12Si	000075-76-3	59
4	Silane, tetramethyl -	88	C4H12Si	000075-76-3	56

\*\*\*\*\*  
Peak Number 4 Pentane Concentration Rank 2

R. T.	EstConc	Area	Relati ve to ISTD	R. T.
2.71	0.58 ug	59158	External Standard	0.00

0648068-LSCRPT. TXT

Hit# of	Tentative ID	MW	Mol Form	CAS#	Qual
1	Pentane	72	C5H12	000109-66-0	53
2	Pentane	72	C5H12	000109-66-0	53
3	Pentane	72	C5H12	000109-66-0	40
4	1-Butanol	74	C4H10O	000071-36-3	36

\*\*\*\*\*

Peak Number 5 Diisopropyl ether Concentration Rank 5

R. T.	EstConc	Area	Relative to ISTD	R. T.
3.16	0.33 ug	33932	External Standard	0.00

Hit# of	Tentative ID	MW	Mol Form	CAS#	Qual
1	Diisopropyl ether	102	C6H14O	000108-20-3	40
2	Diisopropyl ether	102	C6H14O	000108-20-3	40
3	2-Hexanol, 3-methyl -	116	C7H16O	002313-65-7	38
4	2-Pentanol, 3-chloro-4-methyl -, ...	136	C6H13ClO	074685-47-5	9

0648068.D LIMS\_A1\_5.M Tue Dec 21 11:29:54 2010 D.00.00

0648067-LSCRPT. TXT  
Library Search Compound Report

Data File :	C:\MSDCHEM\5\20784505FRM\0648067.D	Vial :	54
Acq On :	19 Nov 2010 13:16	Operator:	LIMS import
Sample :		Inst :	UC-SPG5-D
Misc :		Multiplic:	1.00
MS Integration Params: jwint.p			
Quant Method :	C:\MSDCHEM\1\METHODS\LIMS_A1_5.M (RTE Integrator)		
Title :	Gore Expanded Target VOCs/SVOCs		
Library :	C:\DATABASE\NI ST02.L		

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Peak Number 1 Sul fur di oxi de Concentrati on Rank 2

R. T.	EstConc	Area	Relati ve to ISTD	R. T.
2.45	1.04 ug	106376	External Standard	0.00

Hi t# of	Tentati ve ID	MW	Mol Form	CAS#	Qual
1	Sul fur di oxi de	64	O2S	007446-09-5	74
2	Ami nomethanesul foni c aci d	111	CH5N03S	013881-91-9	74
3	Ami nomethanesul foni c aci d	111	CH5N03S	013881-91-9	74
4	Sul fur di oxi de	64	O2S	007446-09-5	74

\*\*\*\*\*  
Peak Number 2 Ethanethi ol Concentrati on Rank 5

R. T.	EstConc	Area	Relati ve to ISTD	R. T.
2.50	0.56 ug	56614	External Standard	0.00

Hi t# of	Tentati ve ID	MW	Mol Form	CAS#	Qual
1	Ethanethi ol	62	C2H6S	000075-08-1	56
2	Ethanethi ol	62	C2H6S	000075-08-1	9
3	Ethanethi ol	62	C2H6S	000075-08-1	9
4	Phosphi ne, ethyl -	62	C2H7P	000593-68-0	9

\*\*\*\*\*  
Peak Number 3 Fl uorodi chl oromethane Concentrati on Rank 1

R. T.	EstConc	Area	Relati ve to ISTD	R. T.
2.61	1.49 ug	151959	External Standard	0.00

Hi t# of	Tentati ve ID	MW	Mol Form	CAS#	Qual
1	Fl uorodi chl oromethane	102	CHCl 2F	000075-43-4	68
2	Fl uorodi chl oromethane	102	CHCl 2F	000075-43-4	59
3	Fl uorodi chl oromethane	102	CHCl 2F	000075-43-4	43
4	3-Heptyn-1-ol	112	C7H12O	014916-79-1	9

\*\*\*\*\*  
Peak Number 4 1,2-Butadi ene Concentrati on Rank 4

R. T.	EstConc	Area	Relati ve to ISTD	R. T.
2.68	0.71 ug	72150	External Standard	0.00

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Hit# of	Tentative ID	MW	Mol Form	CAS#	Qual
1	1, 2-Butadiene	54	C4H6	000590-19-2	53
2	1, 2-Butadiene	54	C4H6	000590-19-2	42
3	2-Butyne	54	C4H6	000503-17-3	42
4	3-Pentyn-1-ol	84	C5H8O	010229-10-4	38

\*\*\*\*\*

Peak Number 5 1, 4-Dioxane Concentration Rank 3

R. T.	EstConc	Area	Relative to ISTD	R. T.
4.02	0.77 ug	78155	External Standard	0.00

Hit# of	Tentative ID	MW	Mol Form	CAS#	Qual
1	1, 4-Dioxane	88	C4H8O2	000123-91-1	91
2	1, 4-Dioxane	88	C4H8O2	000123-91-1	91
3	1, 4-Dioxane	88	C4H8O2	000123-91-1	90
4	1, 4-Dioxane	88	C4H8O2	000123-91-1	90

0648067.D LIMS\_A1\_5.M Tue Dec 21 11:28:24 2010 D.00.00

0648069-LSCRPT. TXT  
Library Search Compound Report

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Acq On   : 19 Nov 2010  6:45                          Operator: LIMS import
Sample   :                                               Inst  : UC-SPG5-D
Misc     :                                               Multiplr: 1.00
MS Integrati on Params: jwint.p
Quant Method : C:\MSDCHEM\1\METHODS\LI MS_A1_5.M (RTE Integrator)
Title    : Gore Expanded Target VOCs/SVOCs
Library  : C:\DATABASE\NI ST02.L
    
```

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*****
Peak Number  1  Sul fur di oxi de                      Concentrati on Rank  3
-----
R. T.    EstConc          Area          Relati ve to ISTD          R. T.
-----
  2.43    1.52 ug          155015    External Standard          0.00

Hit# of  4  Tentati ve ID          MW  Mol Form          CAS#          Qual
-----
  1 Sul fur di oxi de          64  O2S          007446-09-5  74
  2 Sul fur di oxi de          64  O2S          007446-09-5  74
  3 Ethene, 1,1-di fl uoro-          64  C2H2F2          000075-38-7  9
  4 Ami nomethanesul foni c aci d    111  CH5N03S          013881-91-9  9
    
```

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*****
Peak Number  2  Tri methyl si lyl fl uori de          Concentrati on Rank  2
-----
R. T.    EstConc          Area          Relati ve to ISTD          R. T.
-----
  2.51    1.79 ug          182910    External Standard          0.00

Hit# of  4  Tentati ve ID          MW  Mol Form          CAS#          Qual
-----
  1 Tri methyl si lyl fl uori de          92  C3H9FSi          000420-56-4  91
  2 Tri methyl si lyl fl uori de          92  C3H9FSi          000420-56-4  49
  3 Propane, 2-chl oro-2-ni tro-          123  C3H6Cl N02          000594-71-8  9
  4 Tri methyl phosphi ne oxi de          92  C3H9OP          000676-96-0  4
    
```

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*****
Peak Number  3  2-Butyne                      Concentrati on Rank  4
-----
R. T.    EstConc          Area          Relati ve to ISTD          R. T.
-----
  2.66    0.81 ug          82242    External Standard          0.00

Hit# of  4  Tentati ve ID          MW  Mol Form          CAS#          Qual
-----
  1 1,2-Butadi ene          54  C4H6          000590-19-2  86
  2 2-Butyne          54  C4H6          000503-17-3  86
  3 2-Butyne          54  C4H6          000503-17-3  86
  4 1,2-Butadi ene          54  C4H6          000590-19-2  72
    
```

```

*****
Peak Number  4  Ethyl ether                      Concentrati on Rank  5
-----
R. T.    EstConc          Area          Relati ve to ISTD          R. T.
-----
  2.70    0.74 ug          75124    External Standard          0.00
    
```



0648069-LSCRPT. TXT

Hit# of	Tentative ID	MW	Mol Form	CAS#	Qual
1	Ethyl ether	74	C4H10O	000060-29-7	90
2	Ethyl ether	74	C4H10O	000060-29-7	83
3	Ethane, 1,2-diethoxy-	118	C6H14O2	000629-14-1	56
4	Hydrazine, trimethyl-	74	C3H10N2	001741-01-1	9

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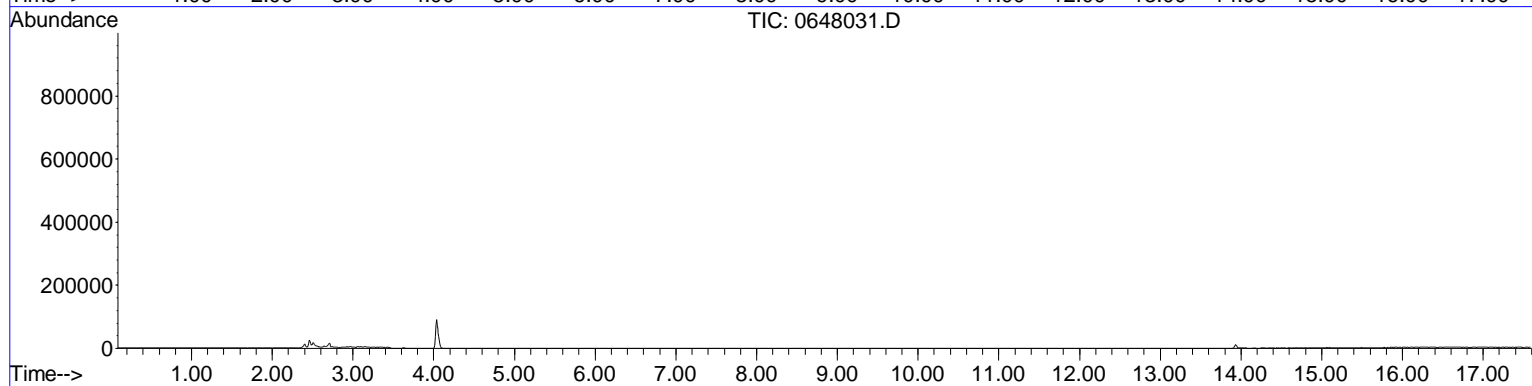
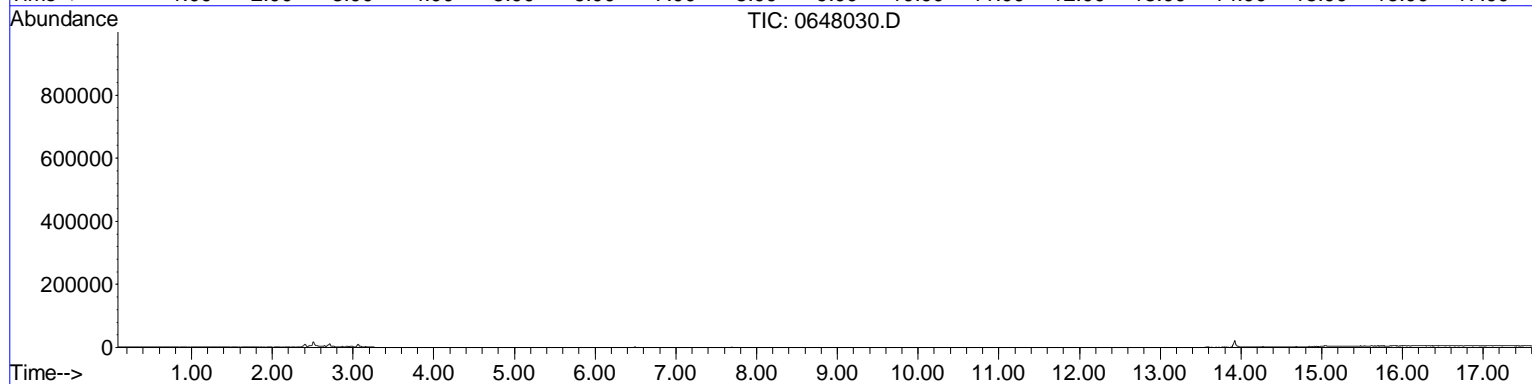
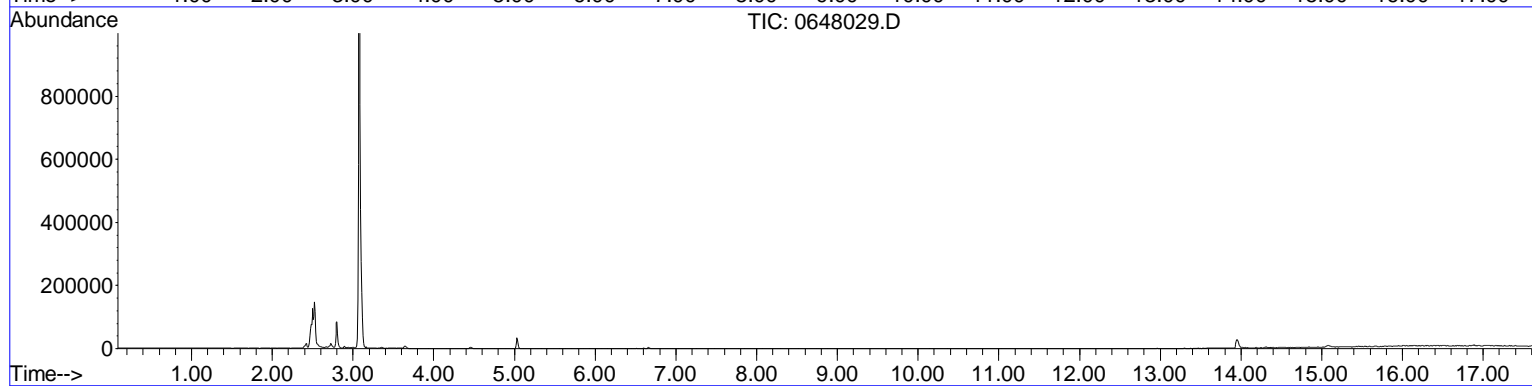
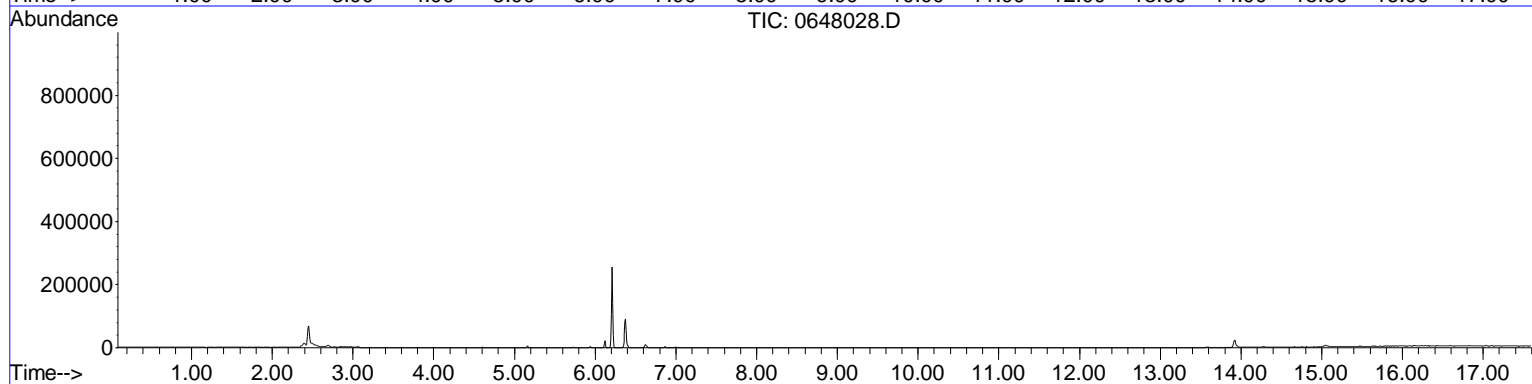
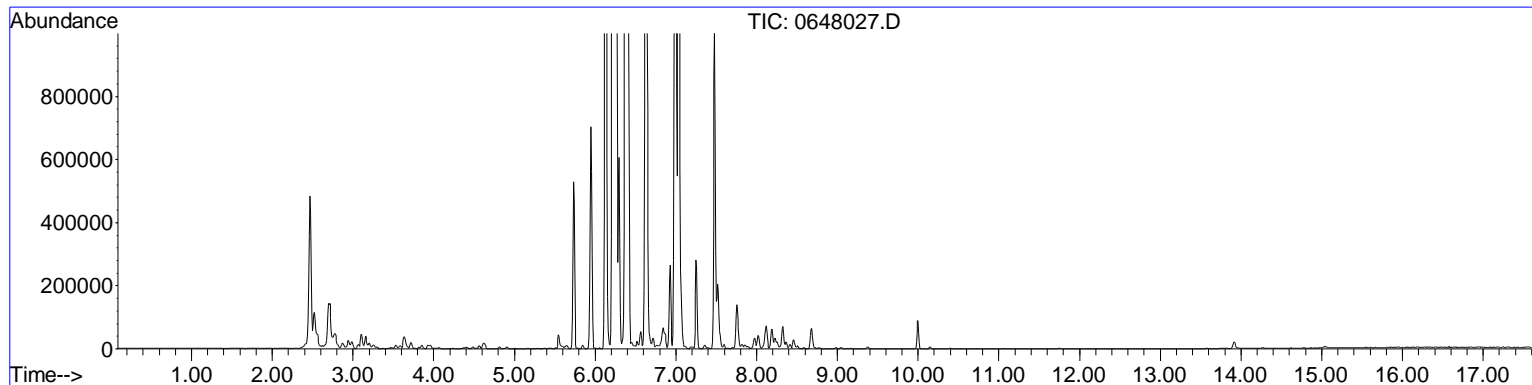
Peak Number 5 Silanol, trimethyl- Concentration Rank 1

R. T.	EstConc	Area	Relative to ISTD	R. T.
2.95	11.02 ug	1124020	External Standard	0.00

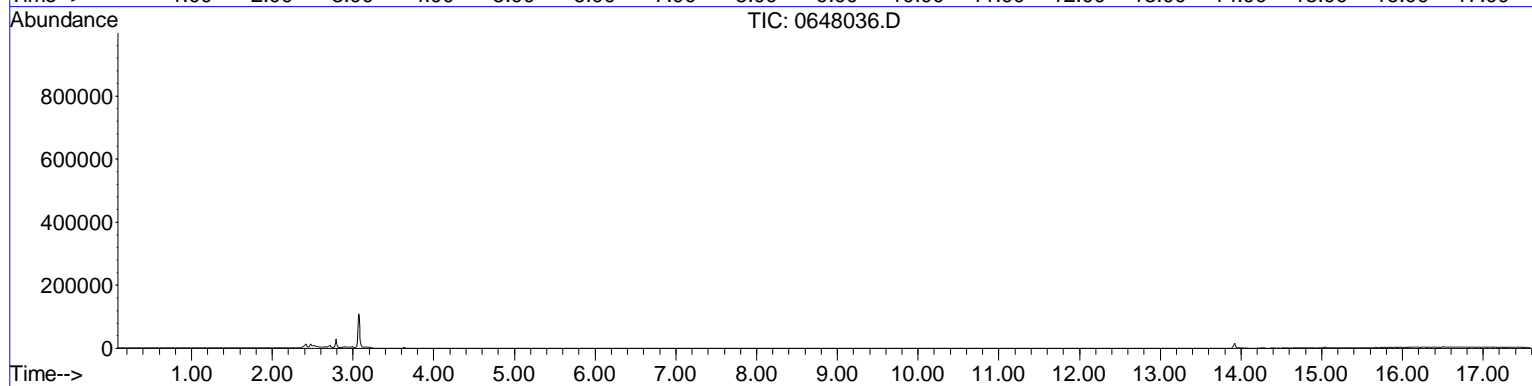
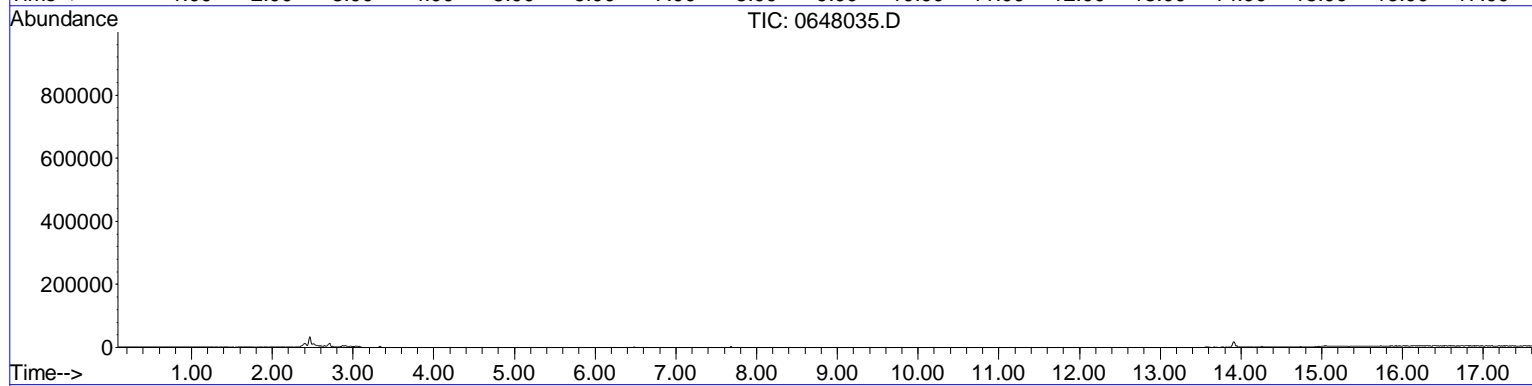
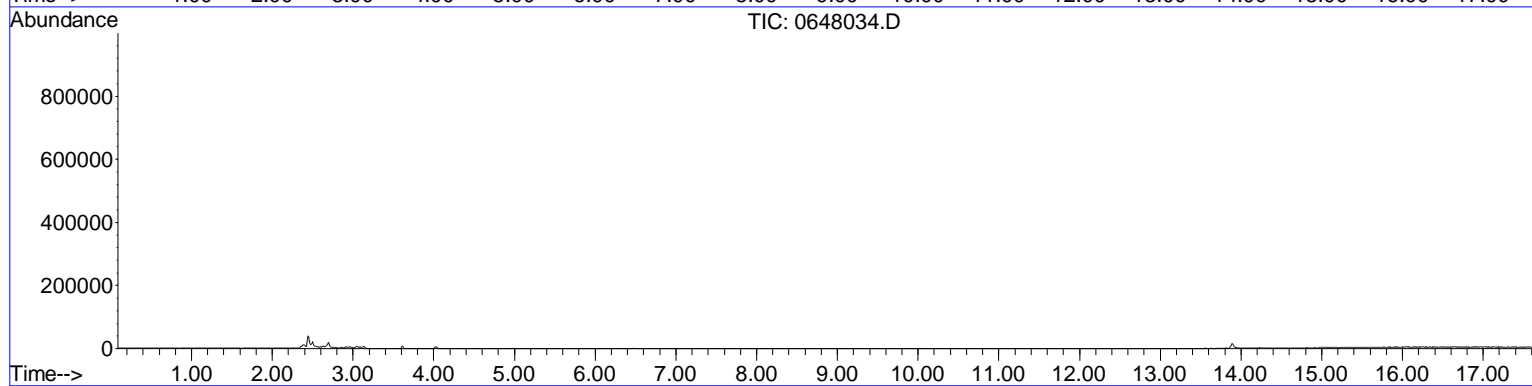
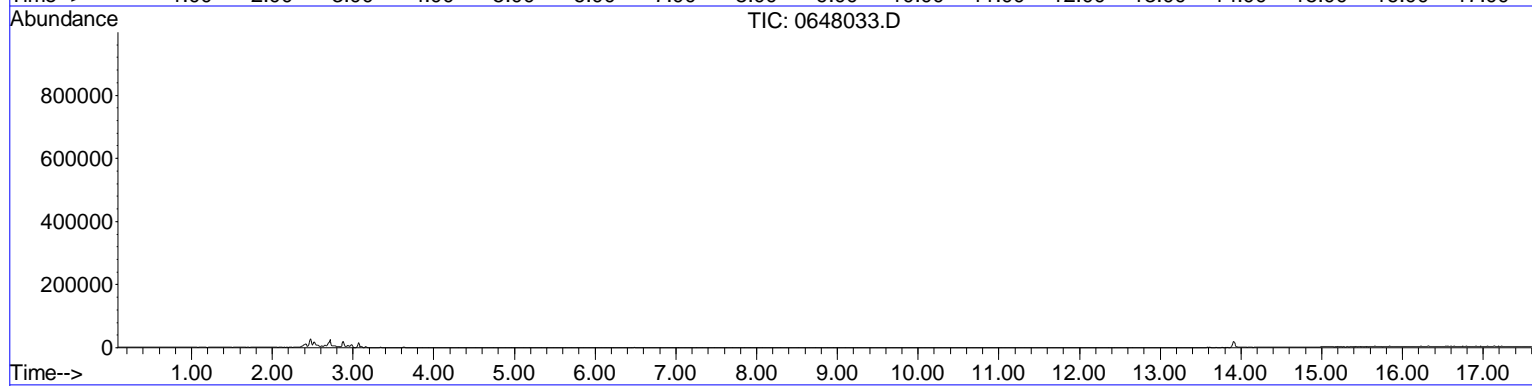
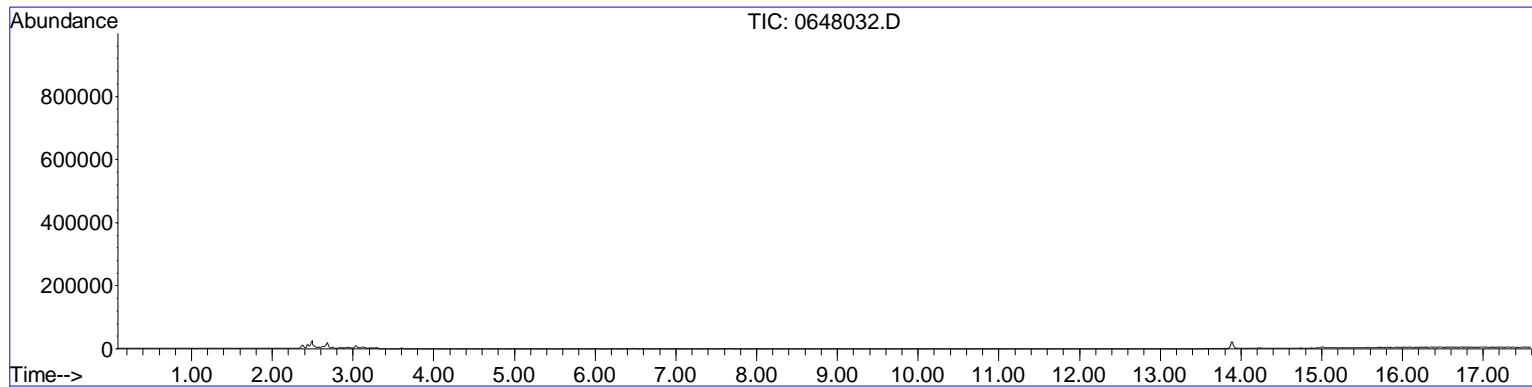
Hit# of	Tentative ID	MW	Mol Form	CAS#	Qual
1	tert-Butyl dimethyl silanol	132	C6H16OSi	018173-64-3	83
2	Silanol, dimethyl (1,1,2-trimethy...	160	C8H20OSi	055644-10-5	78
3	Silanol, trimethyl-	90	C3H10OSi	001066-40-6	64
4	Silanol, trimethyl-	90	C3H10OSi	001066-40-6	60

0648069.D LIMS\_A1\_5.M Tue Dec 21 11:31:58 2010 D.00.00

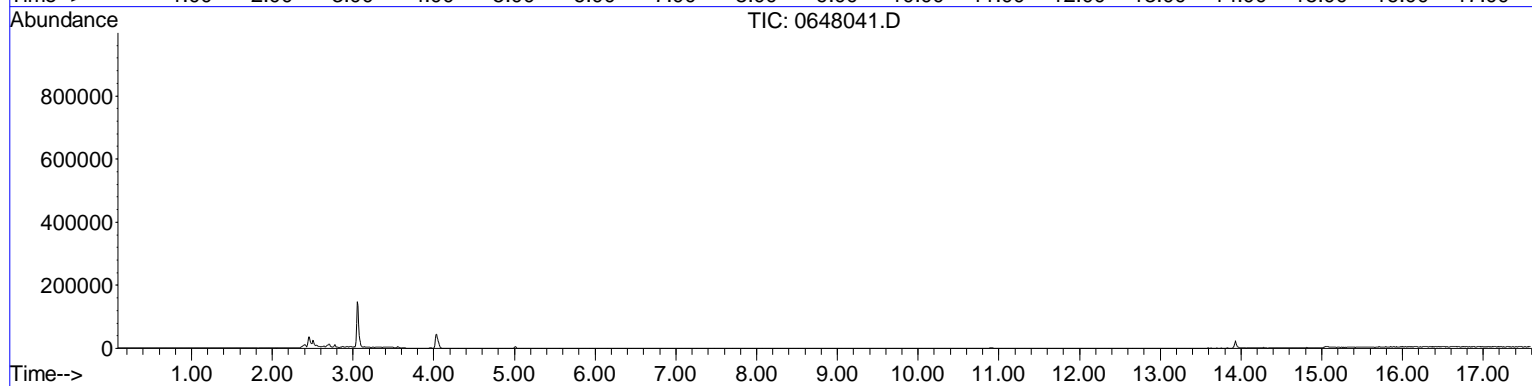
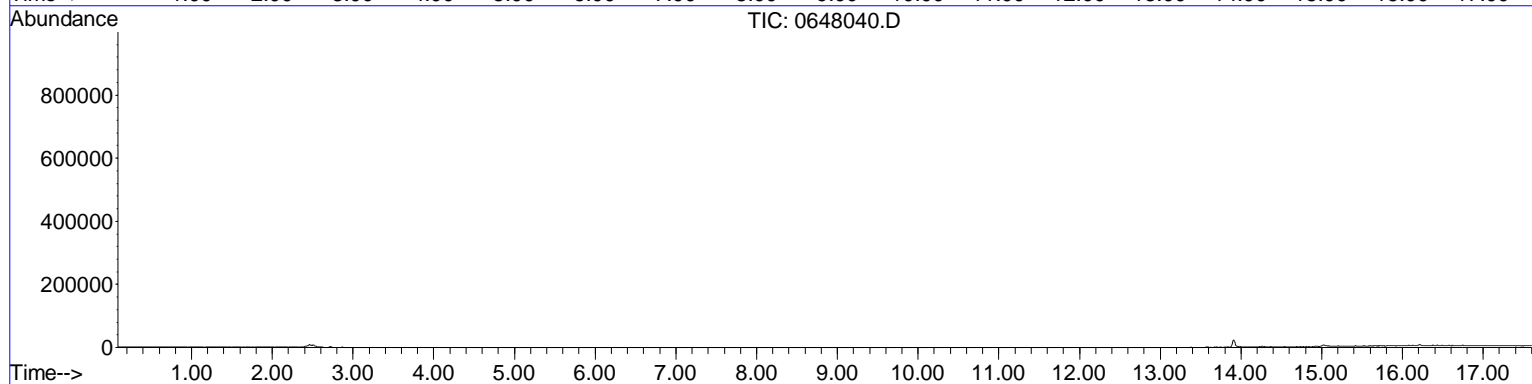
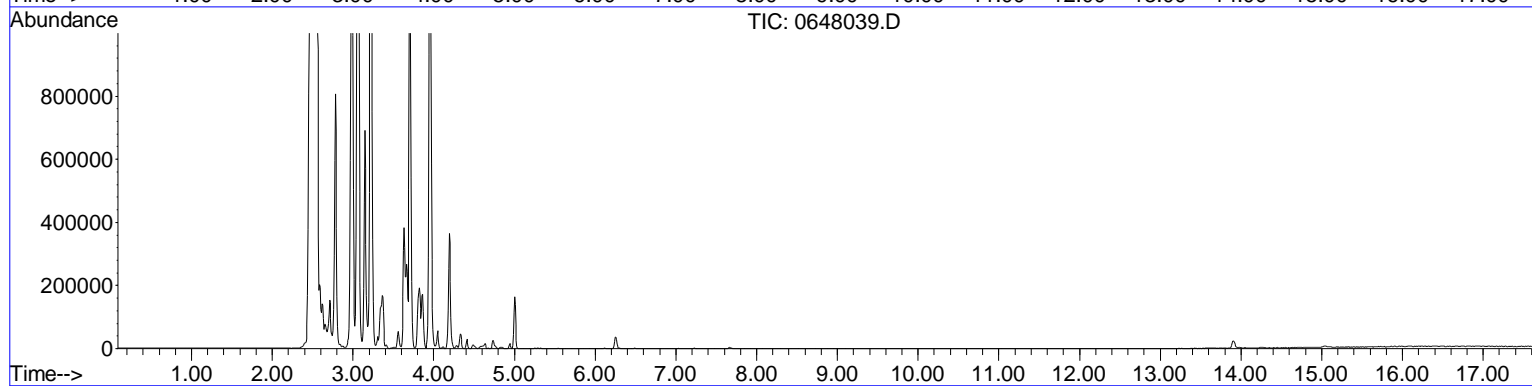
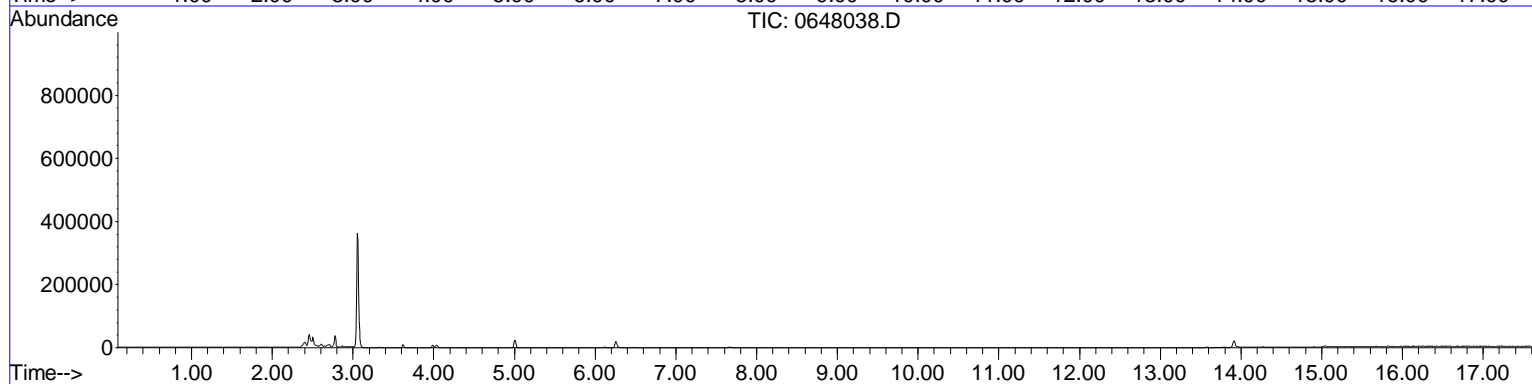
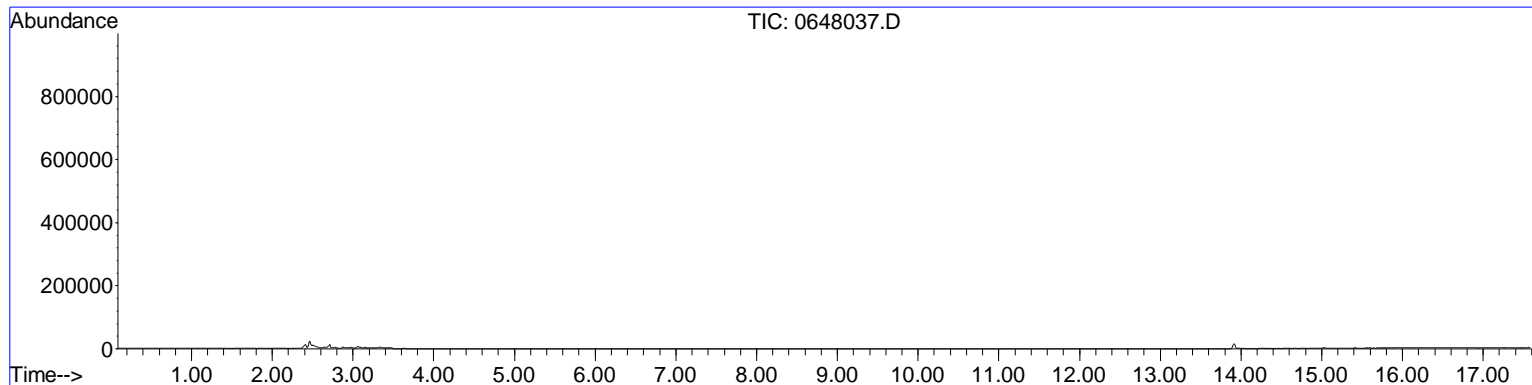
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IN NUMERICAL ORDER



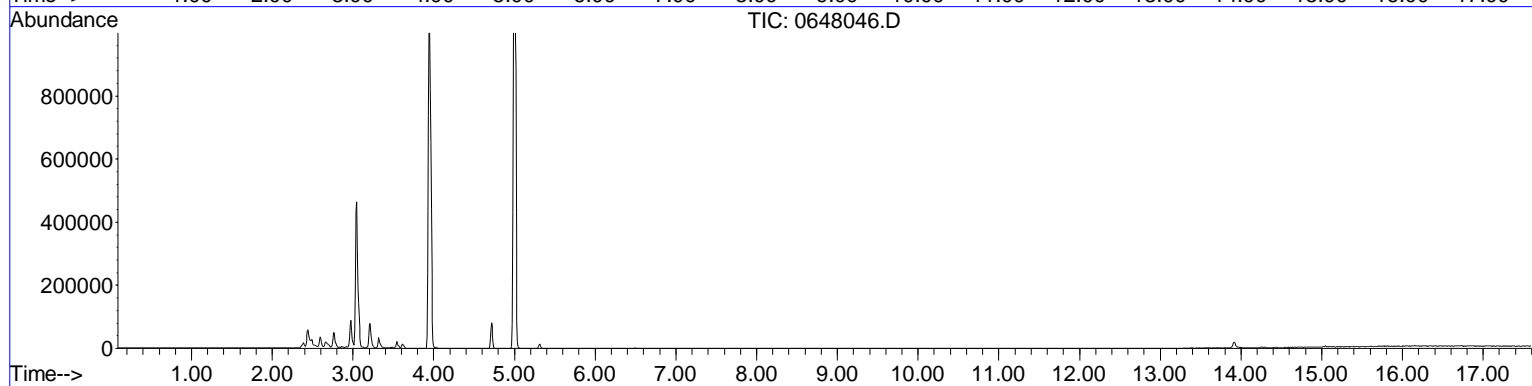
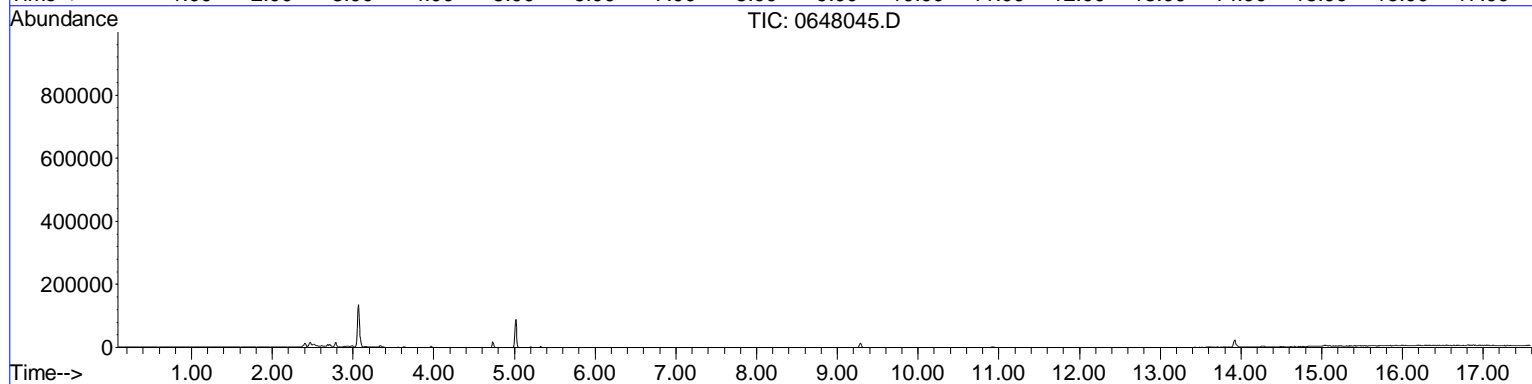
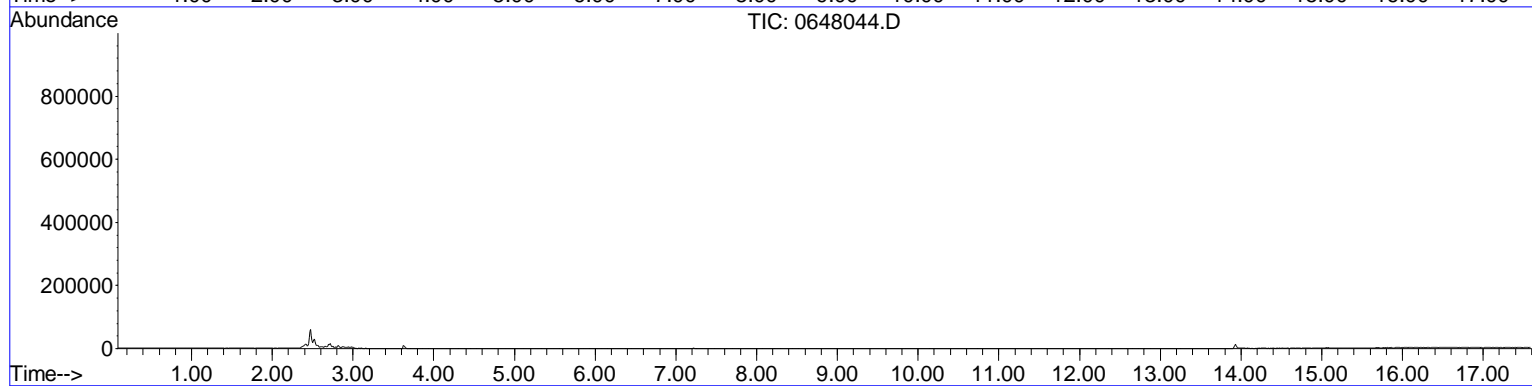
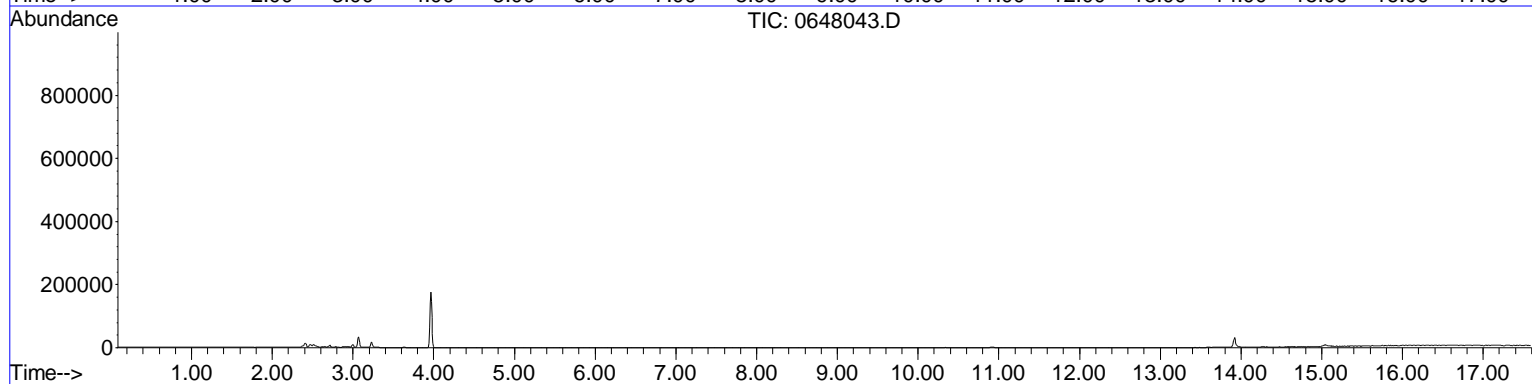
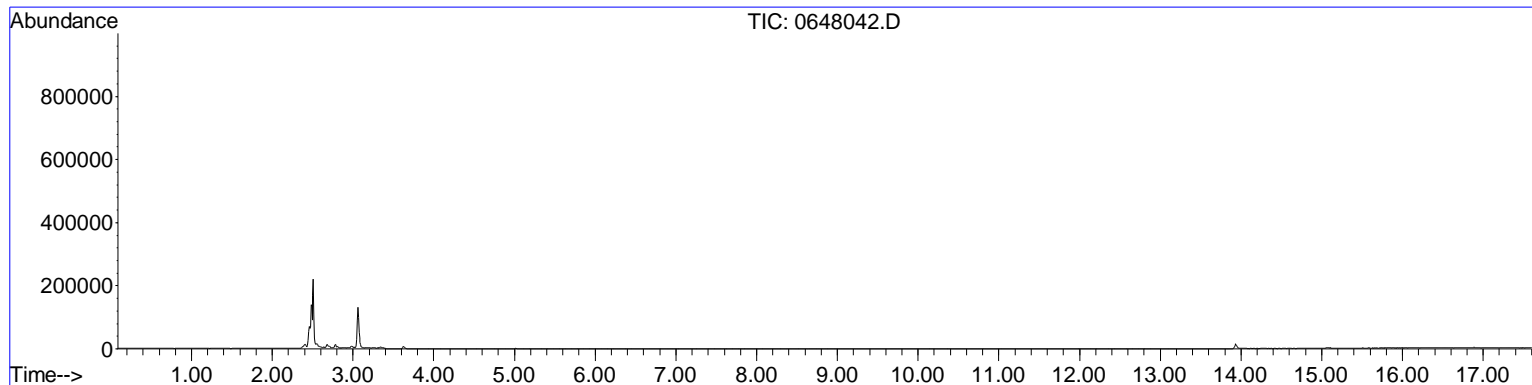
TICS - SITE FRM - PRODUCTION ORDER NUMBER:20784505  
IN NUMERICAL ORDER



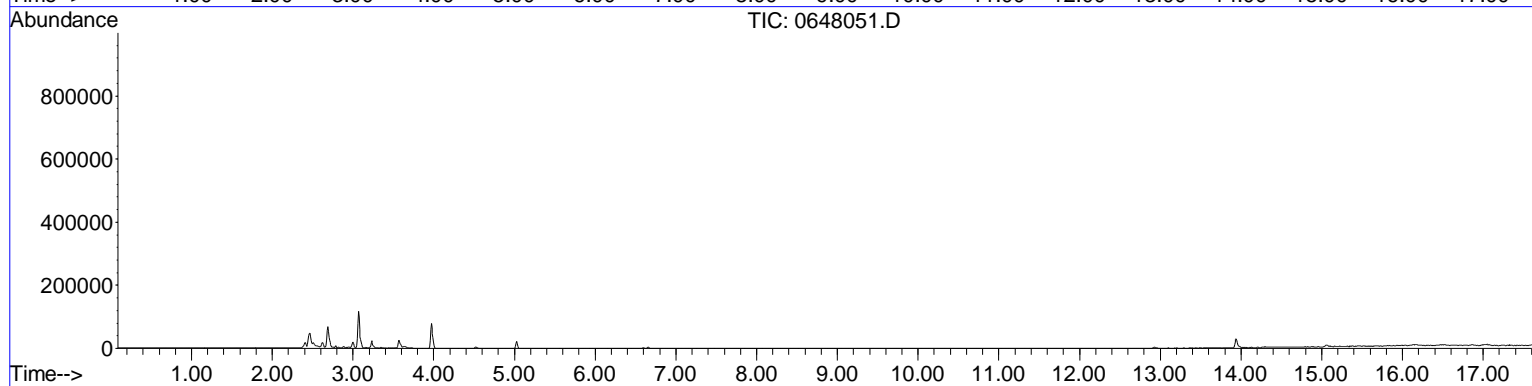
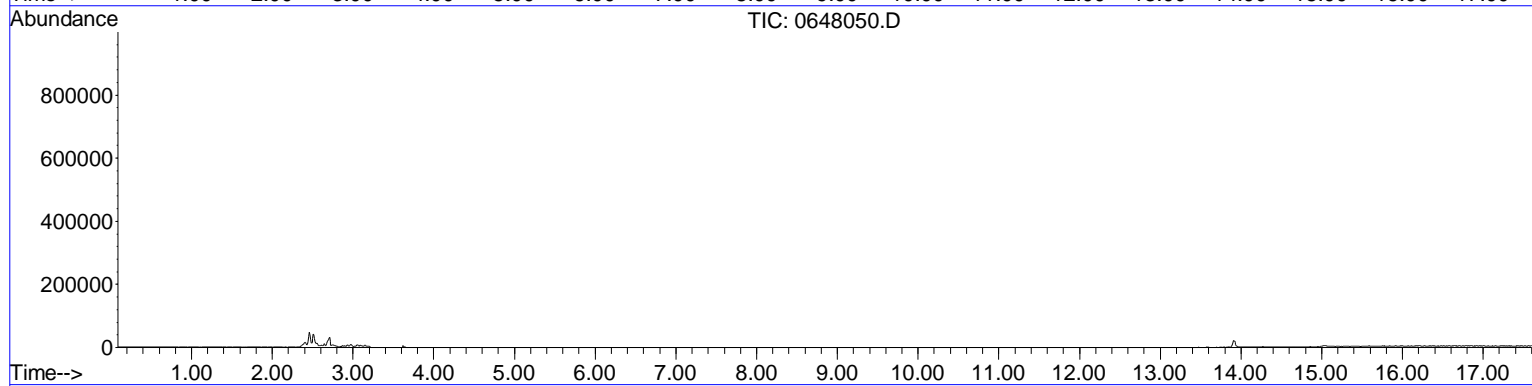
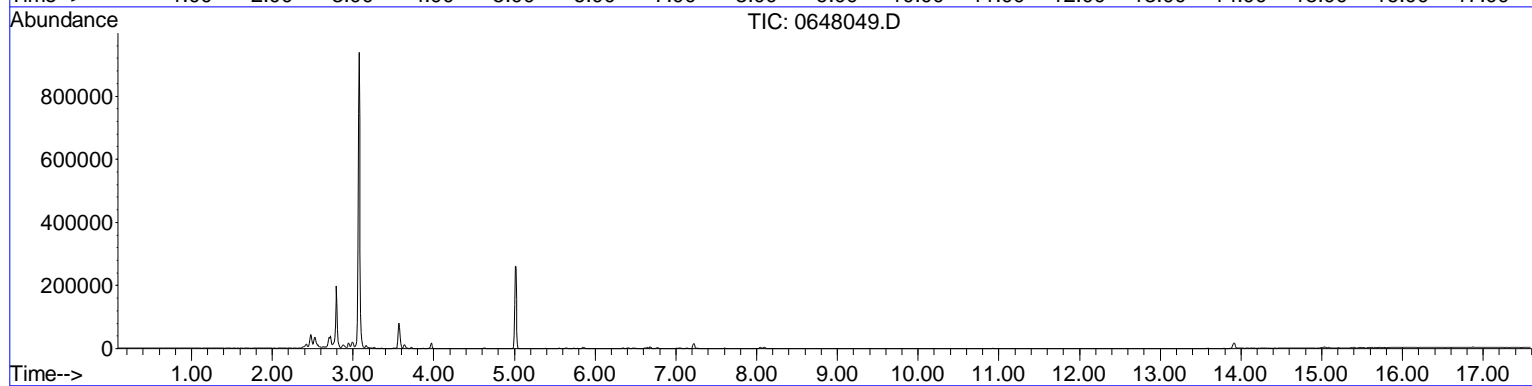
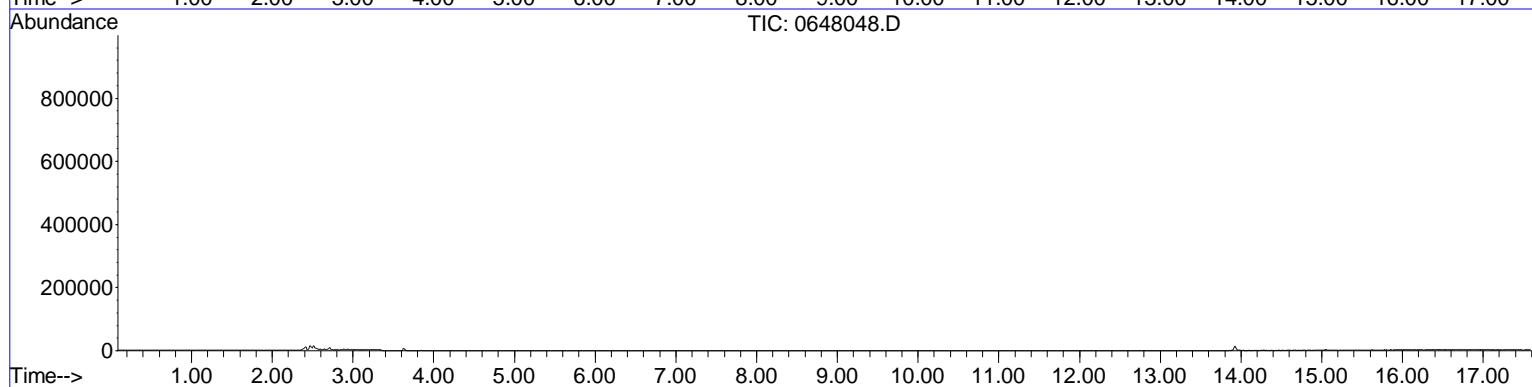
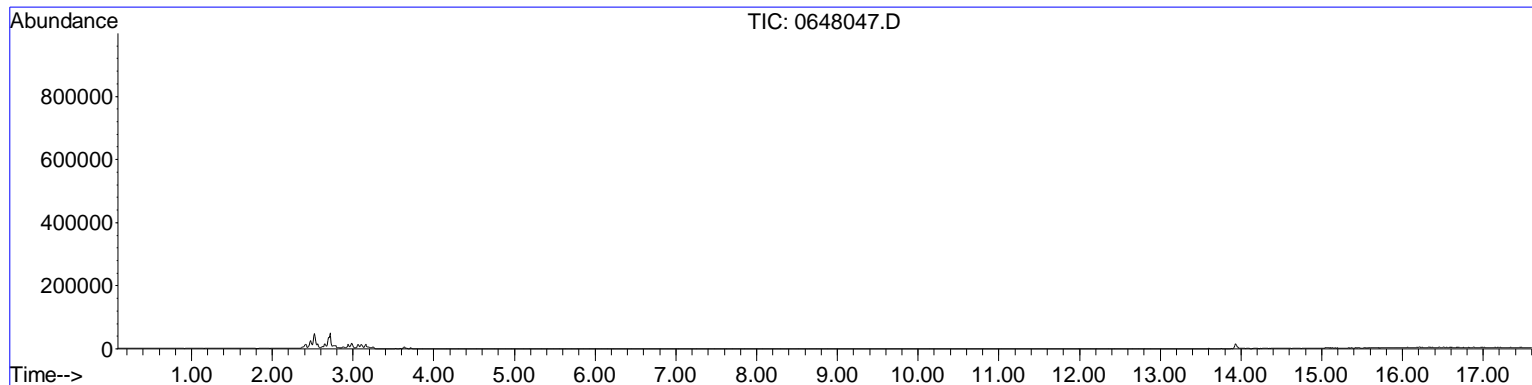
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IN NUMERICAL ORDER



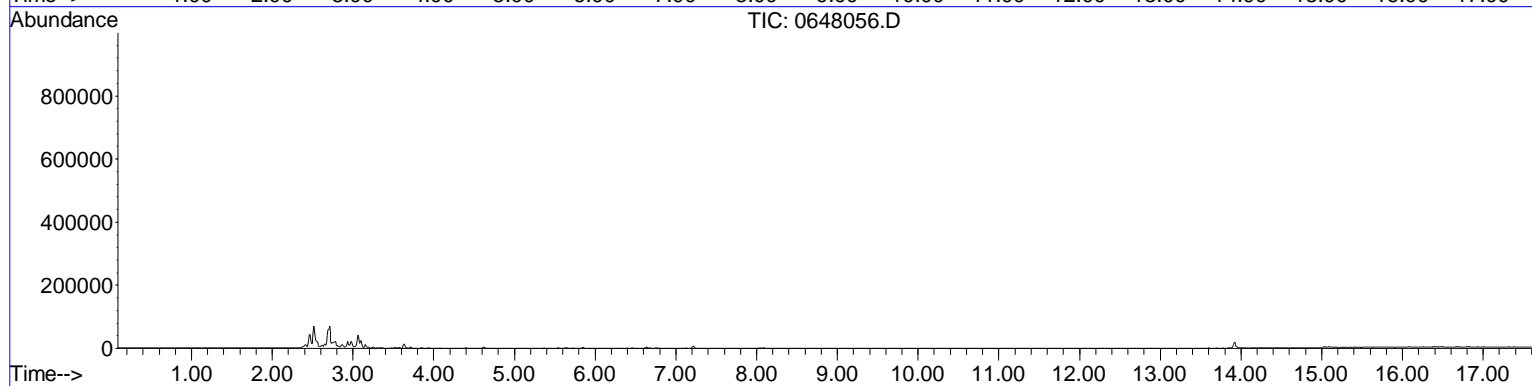
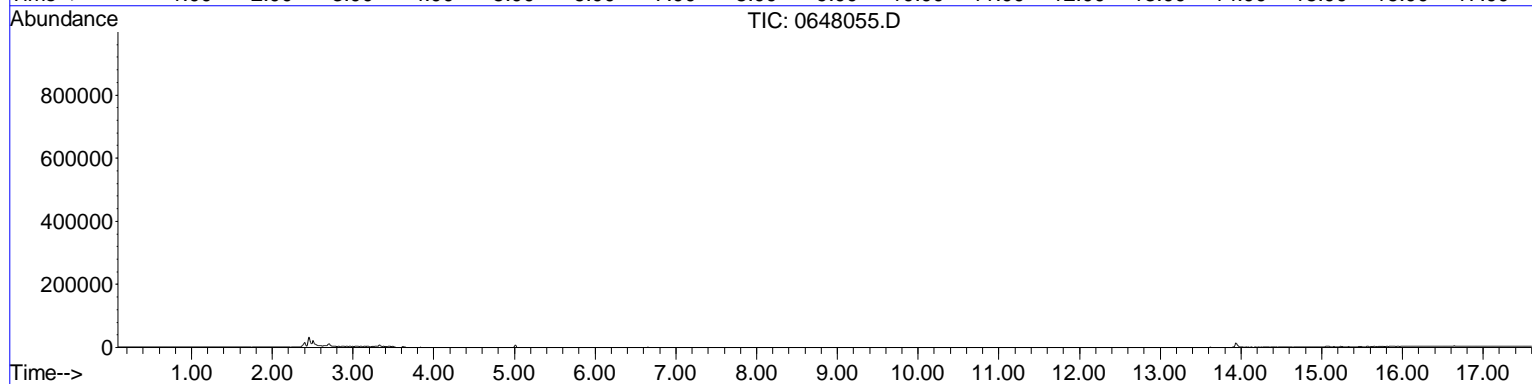
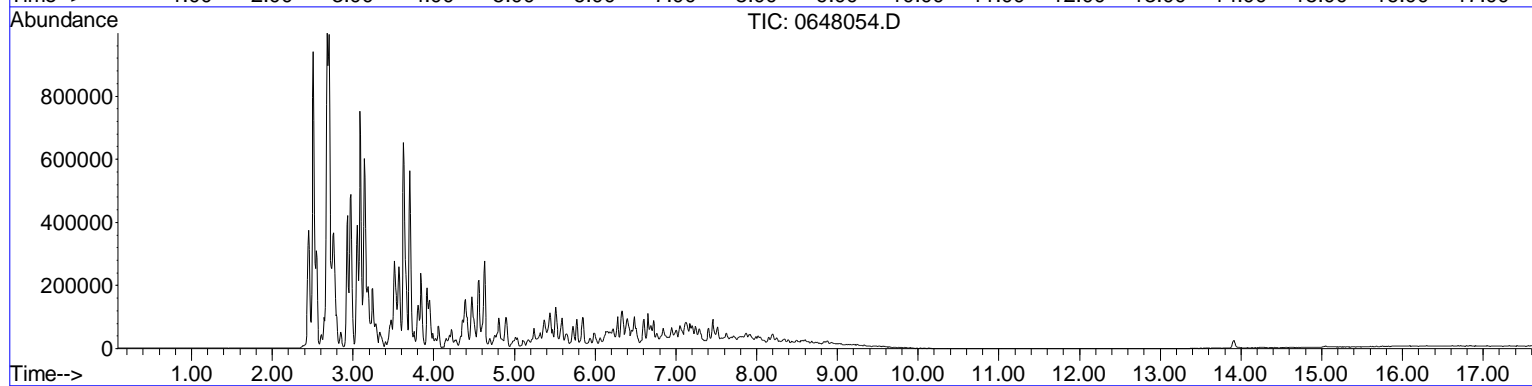
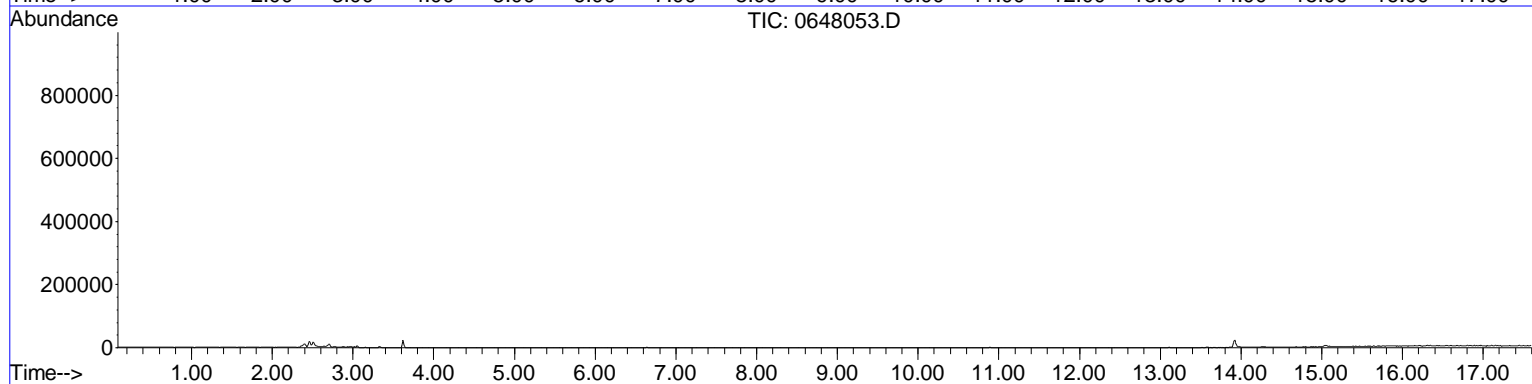
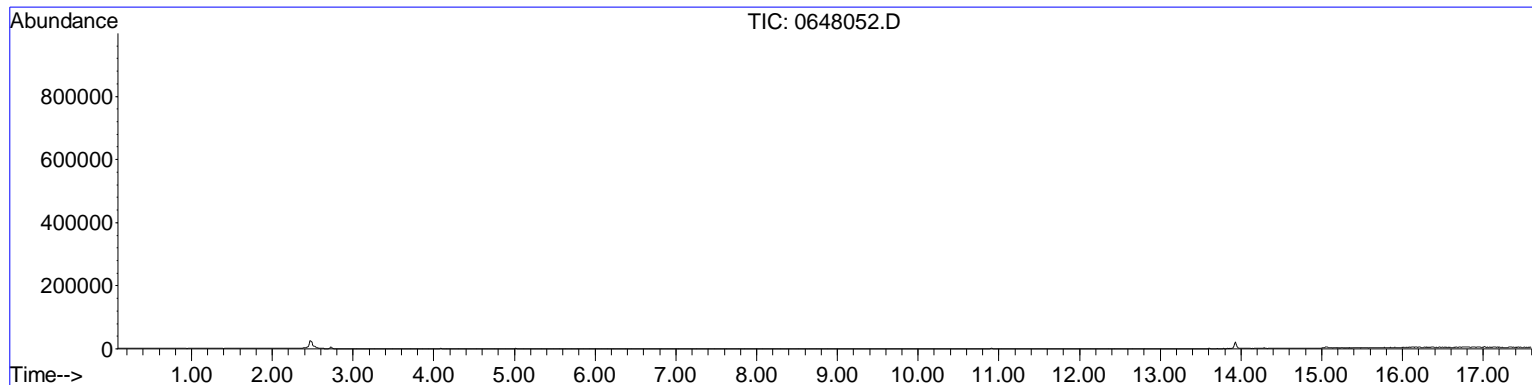
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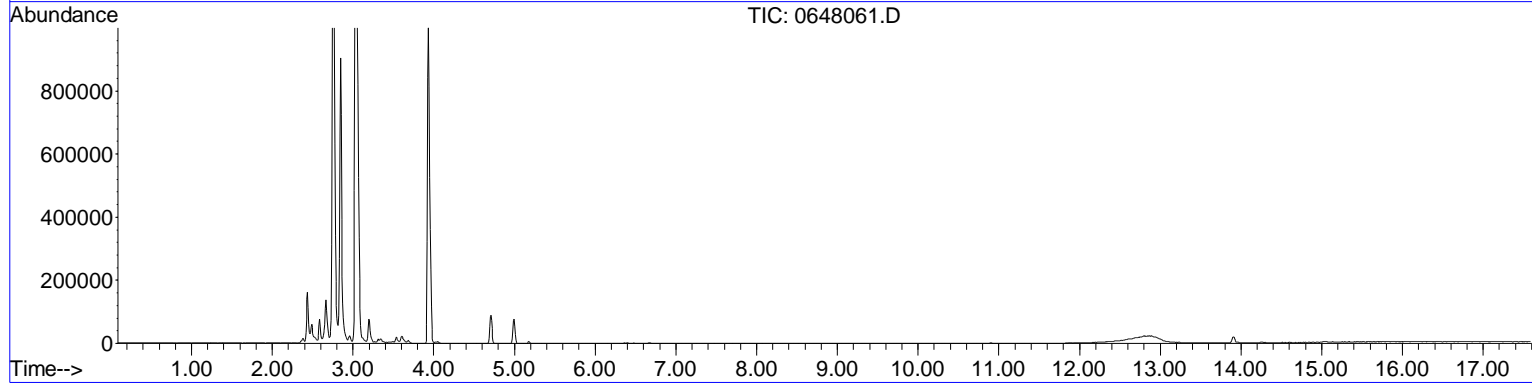
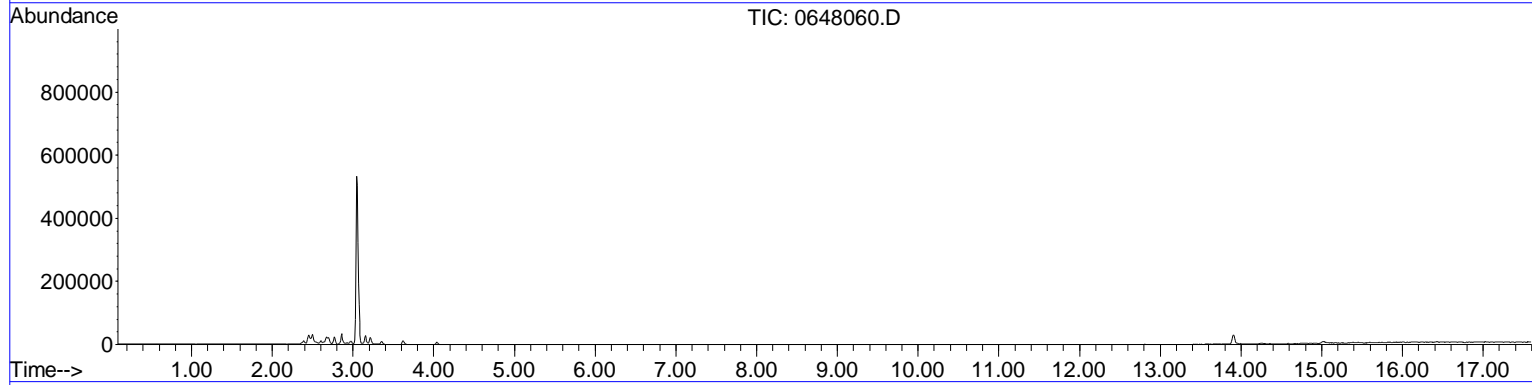
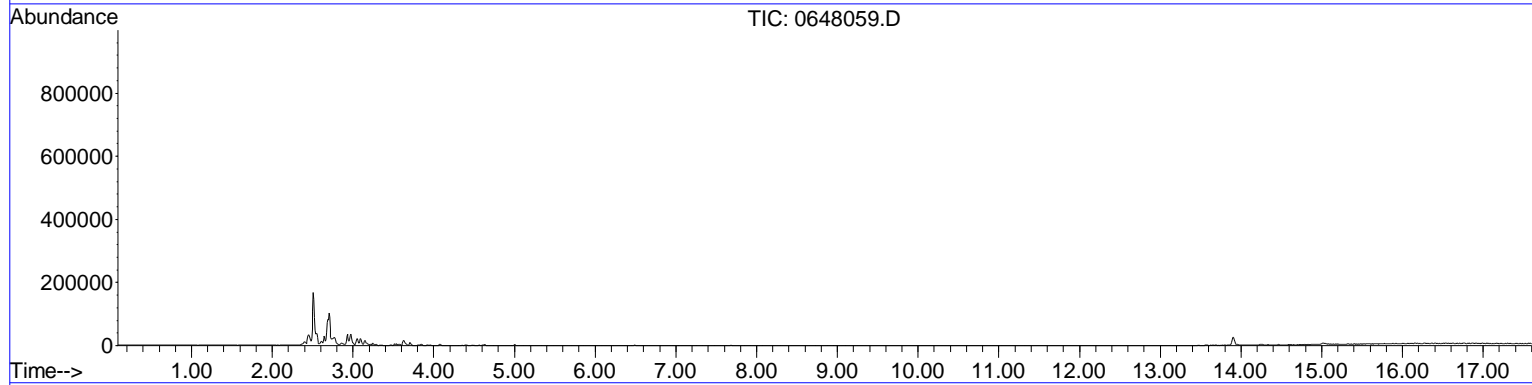
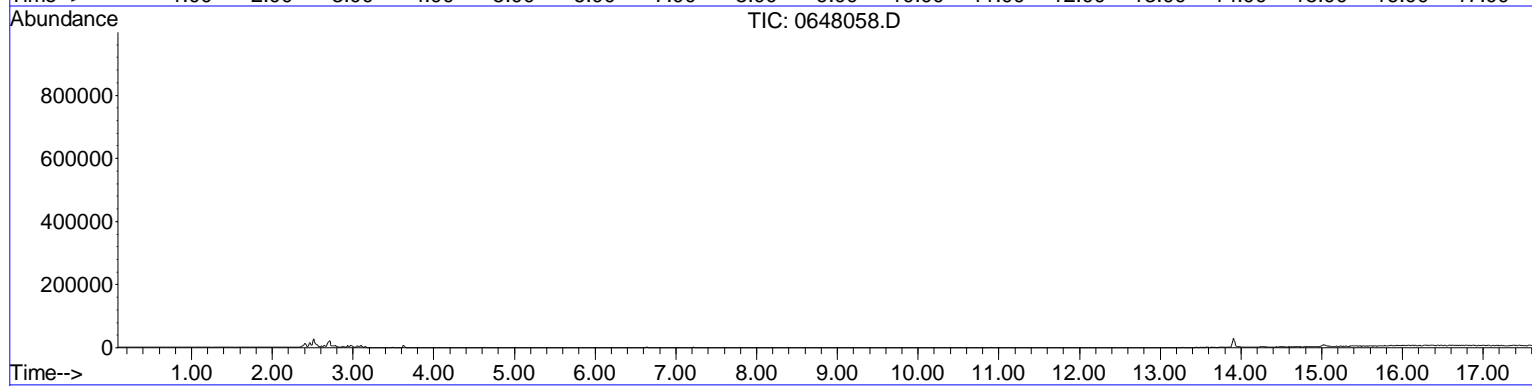
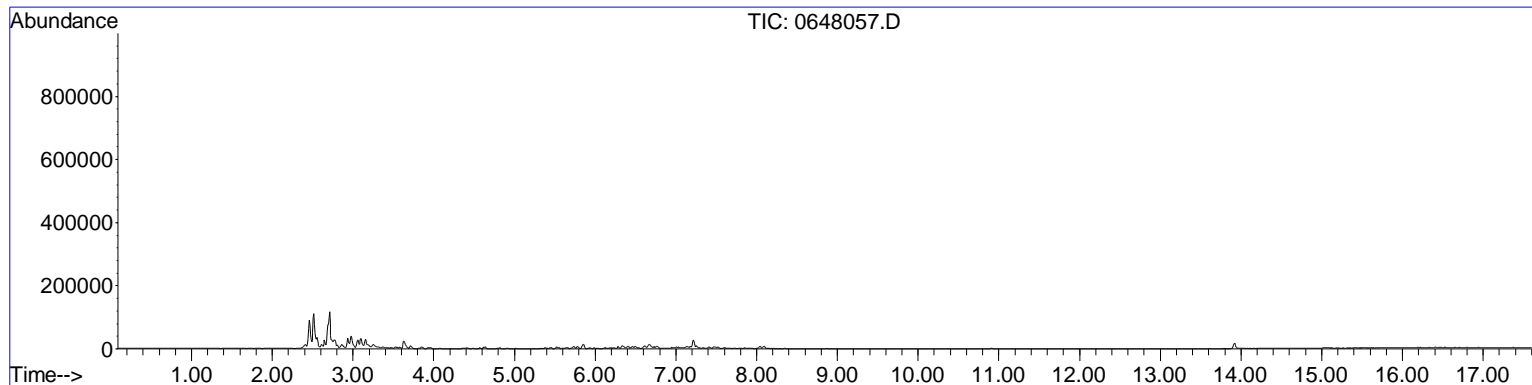
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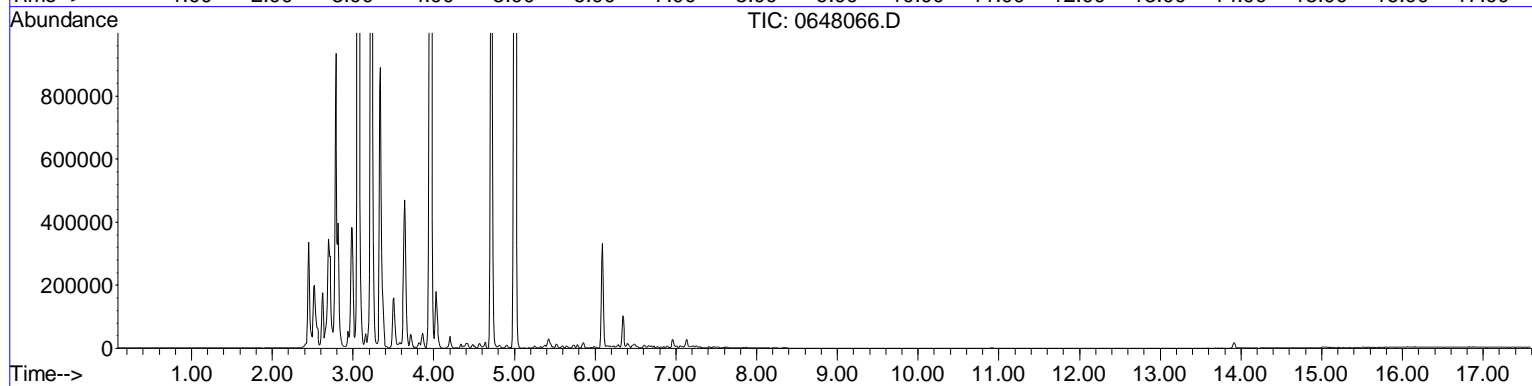
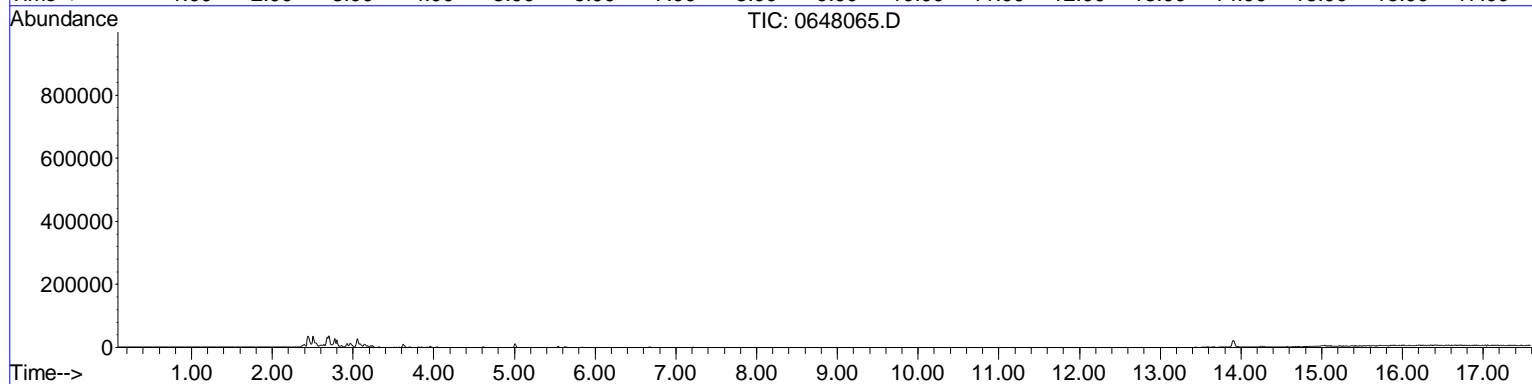
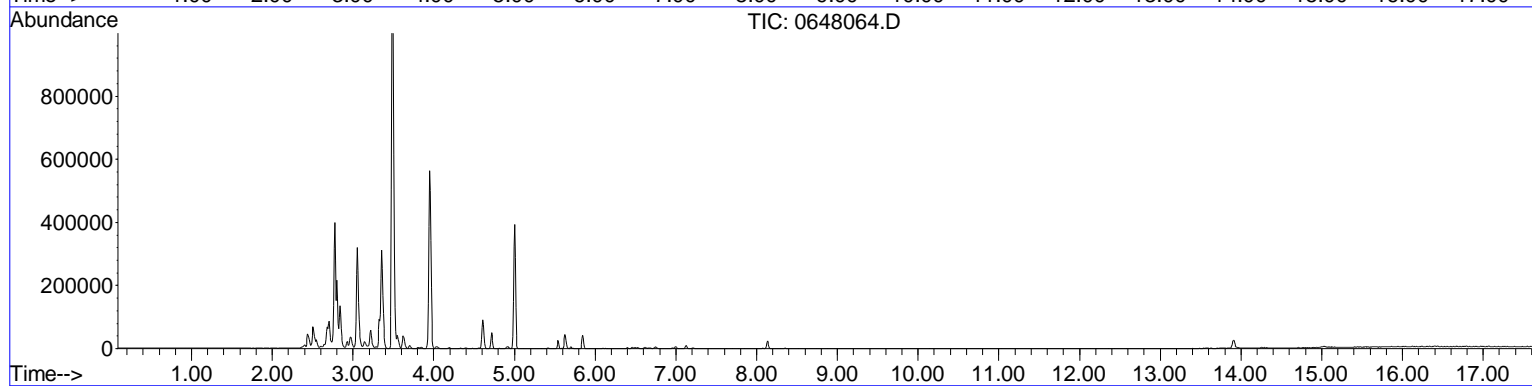
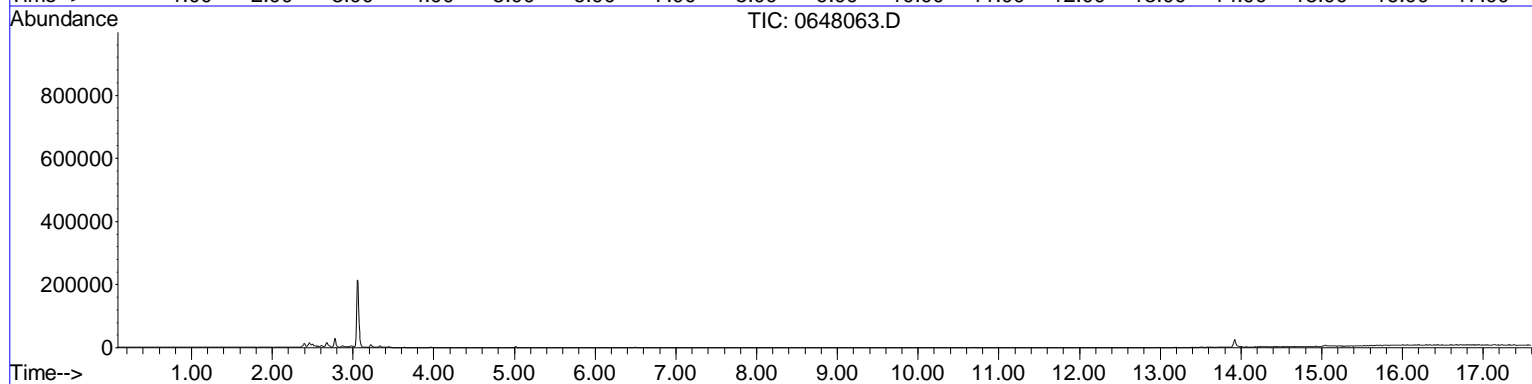
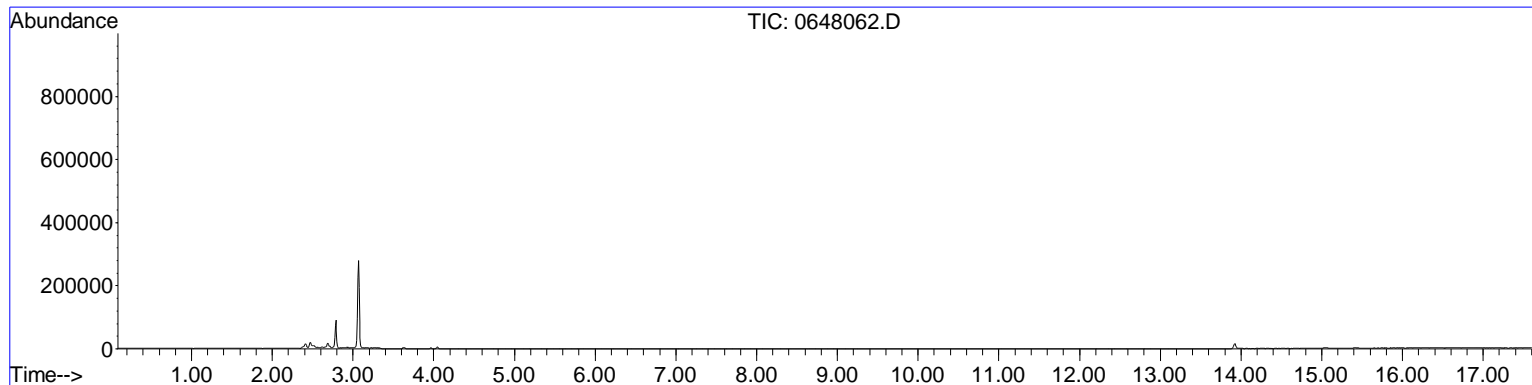


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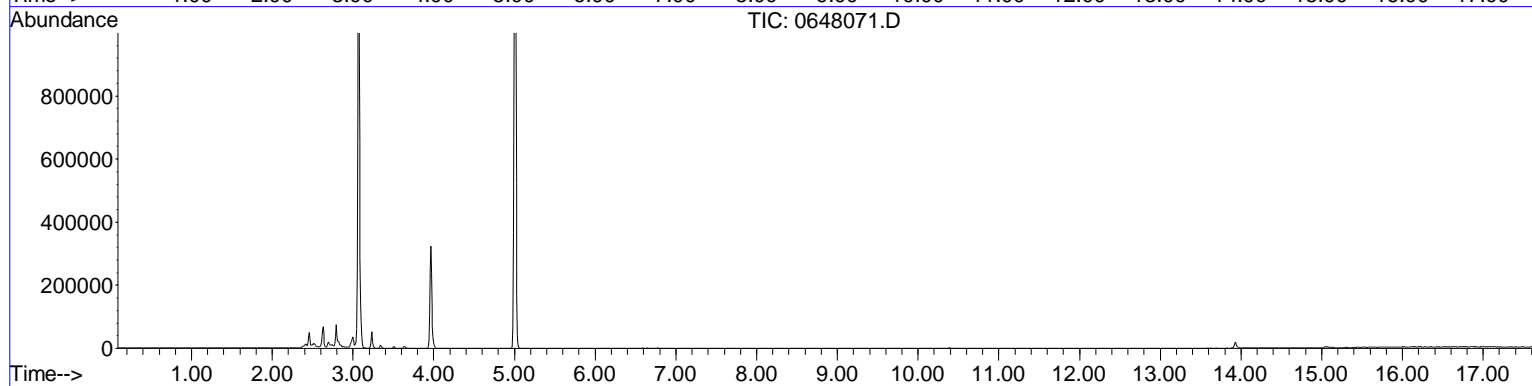
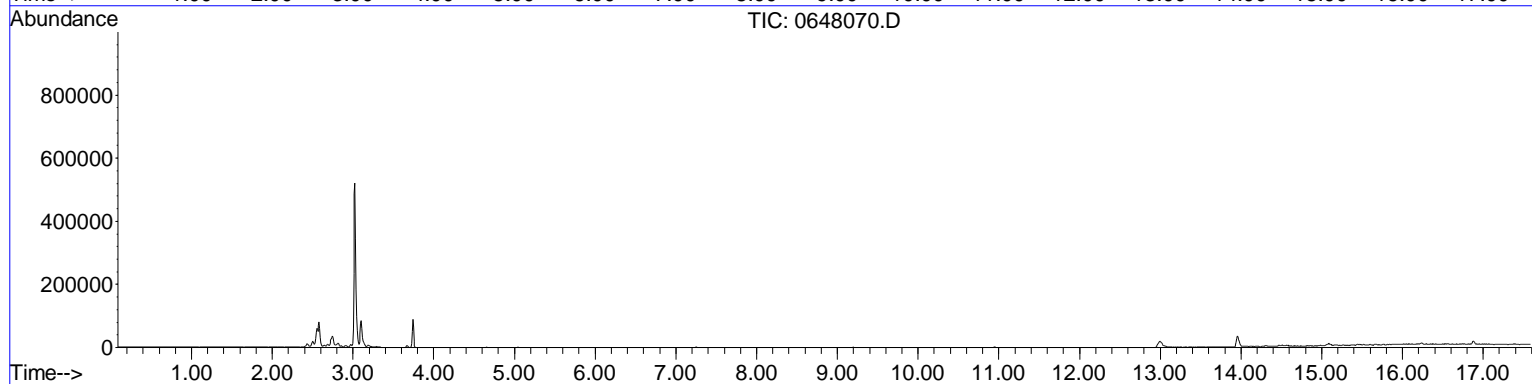
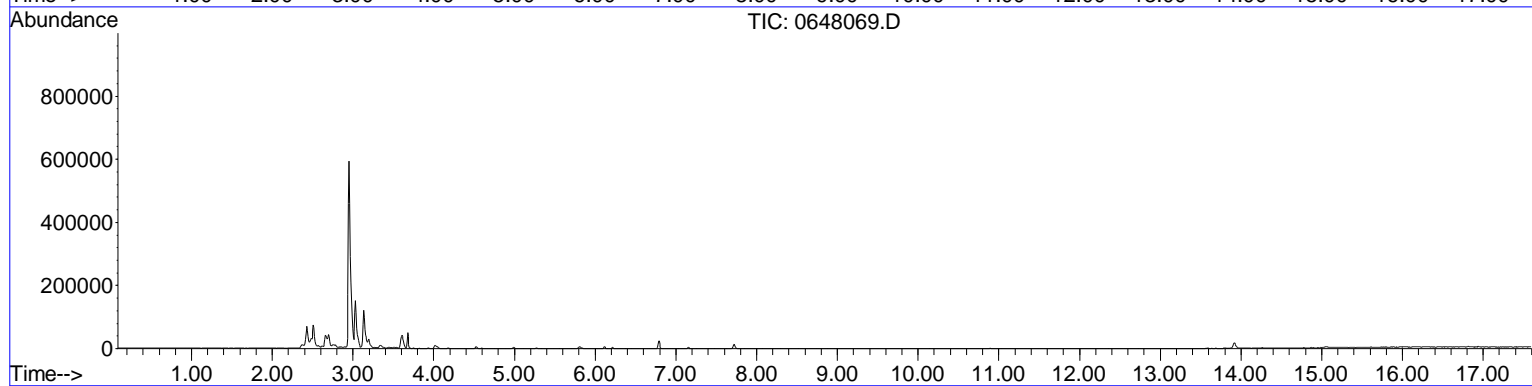
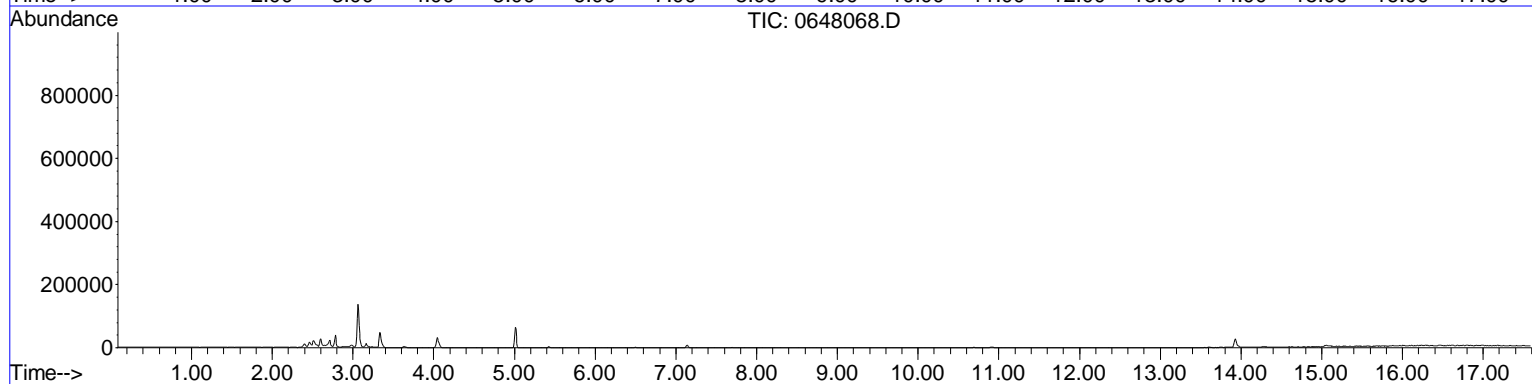
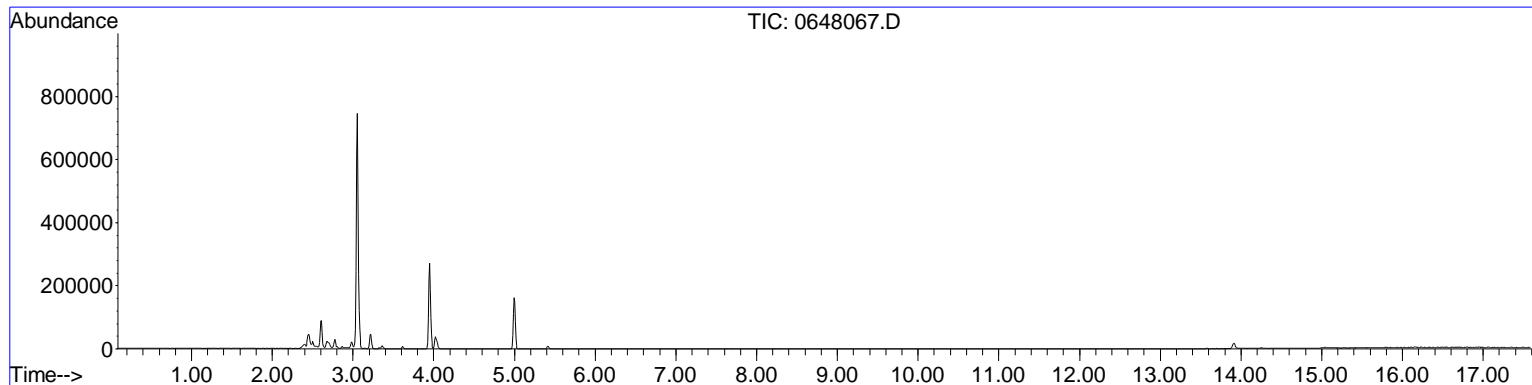




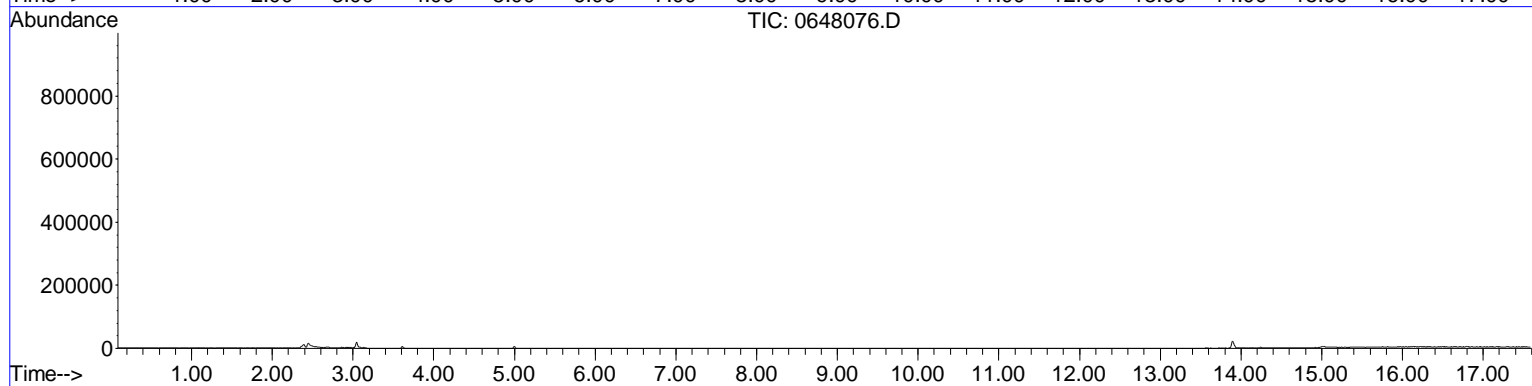
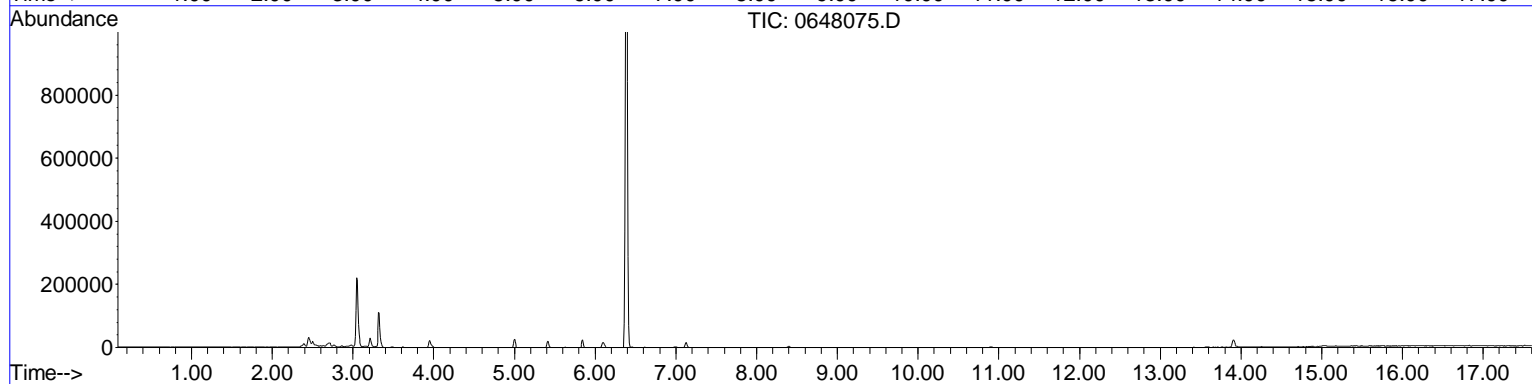
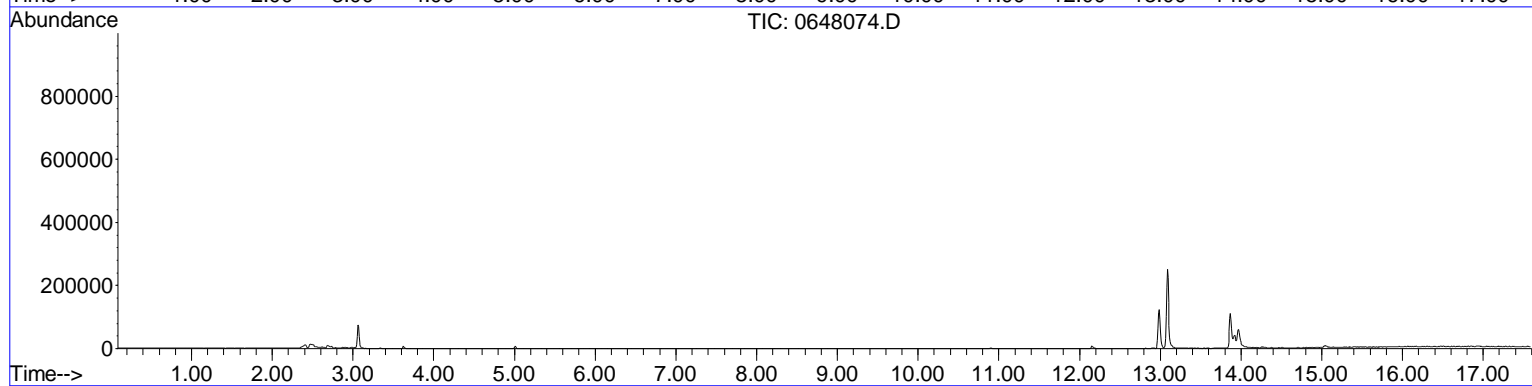
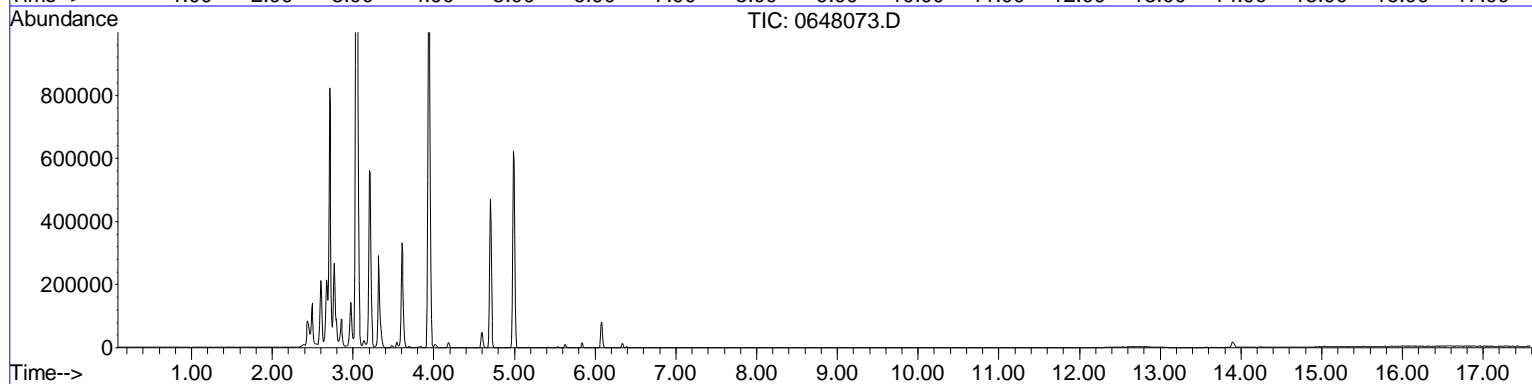
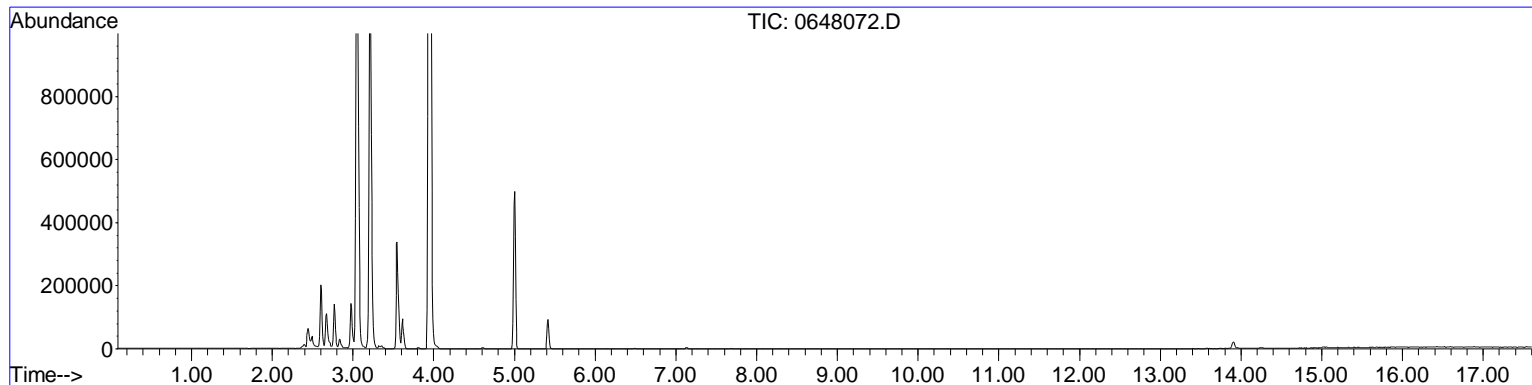
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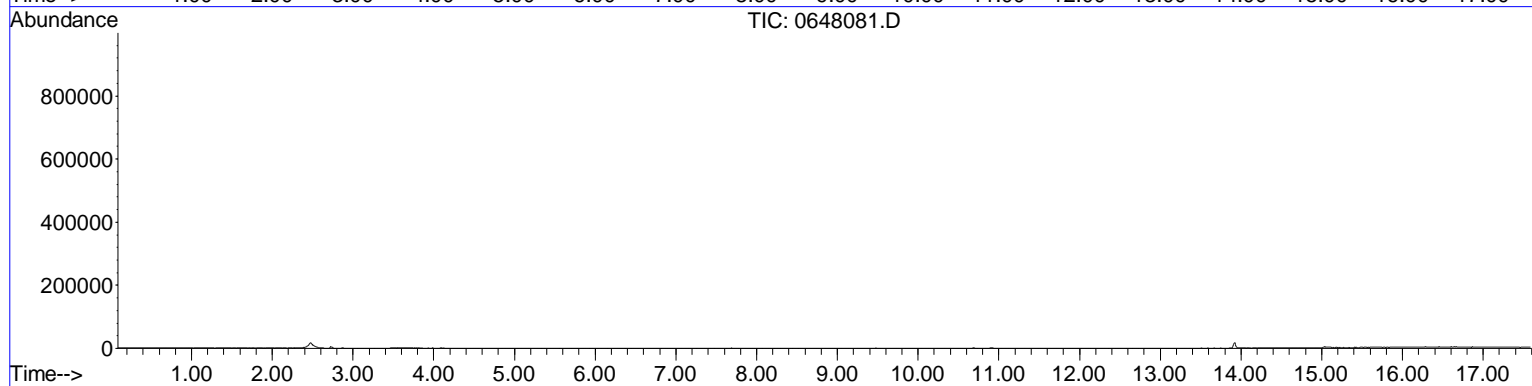
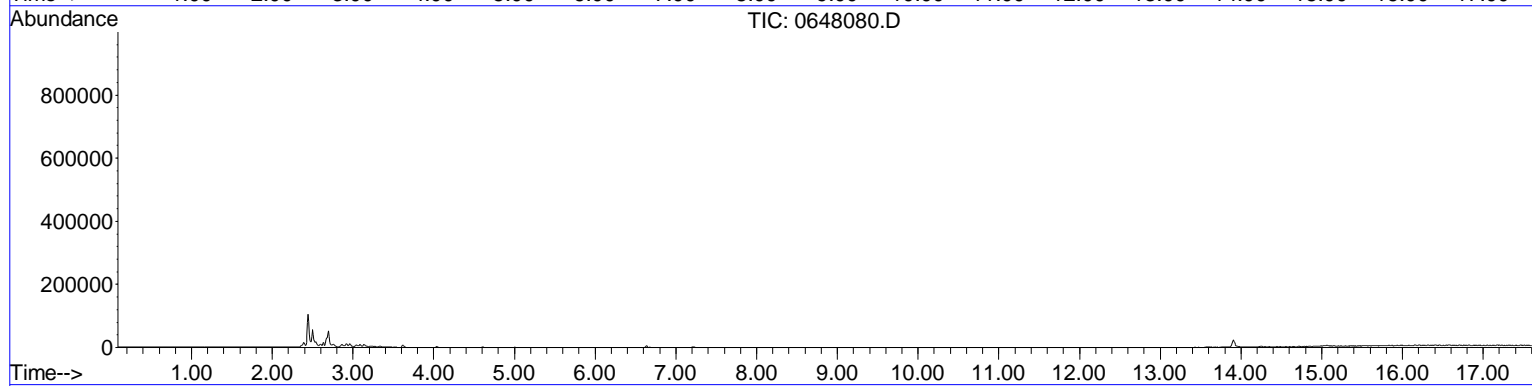
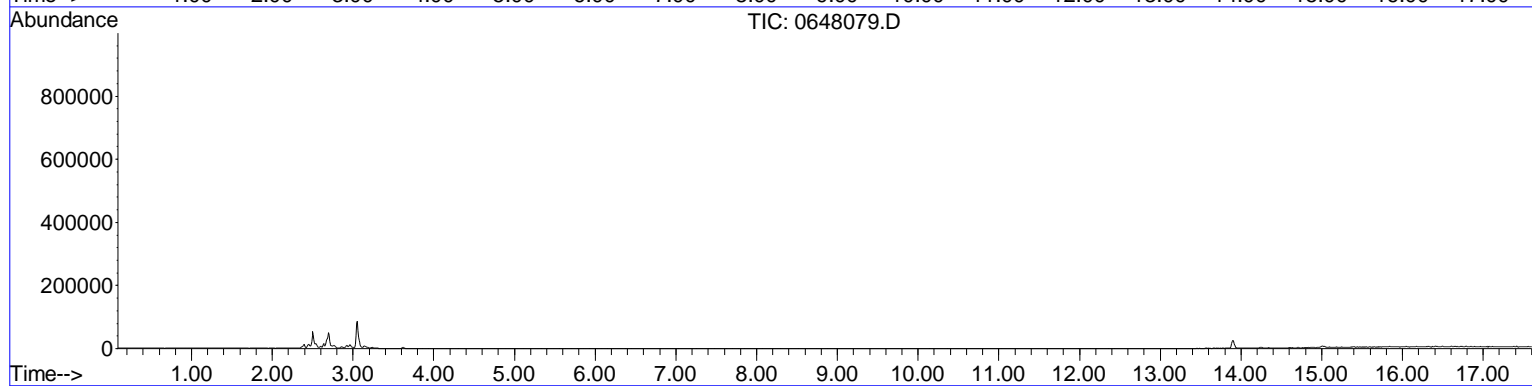
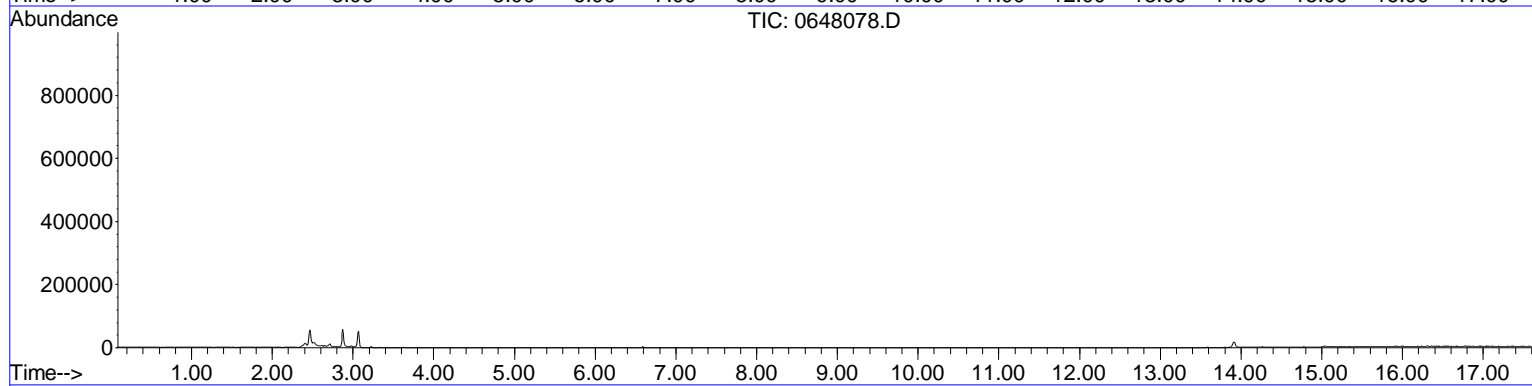
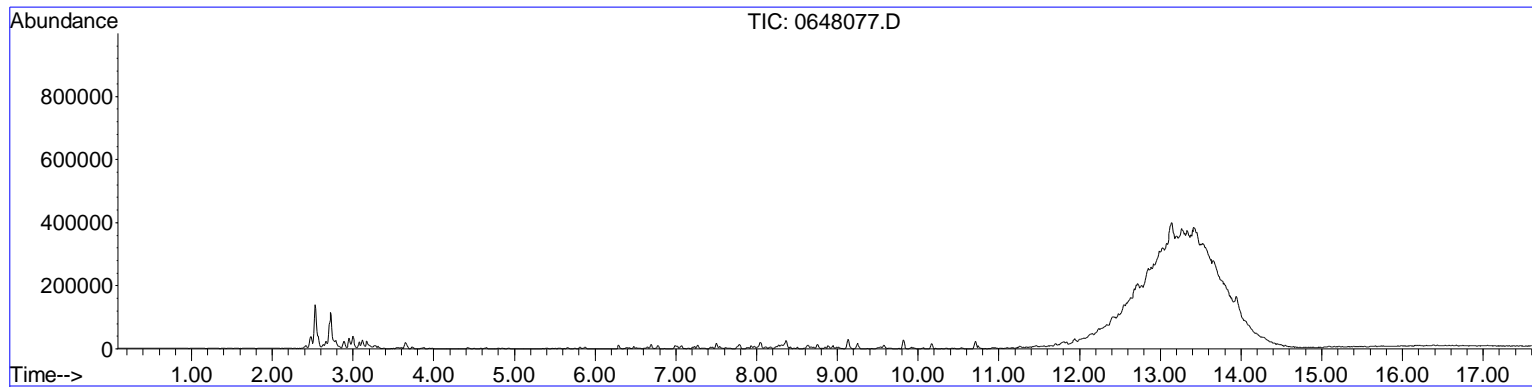
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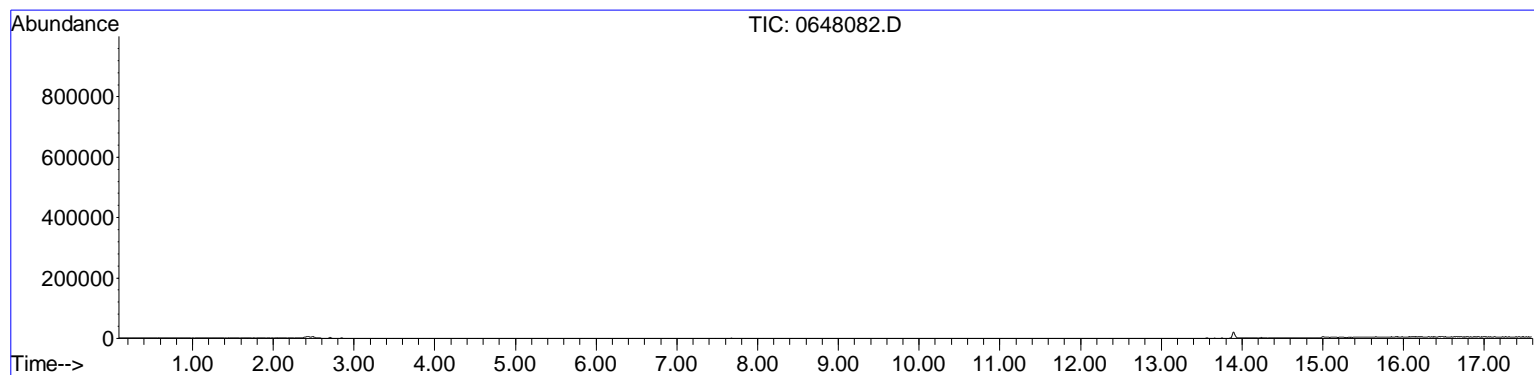
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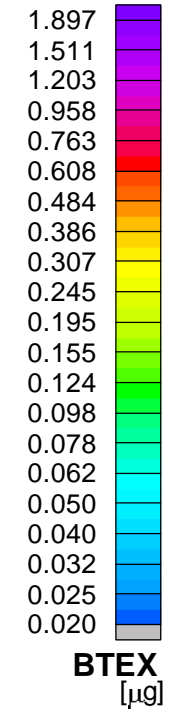
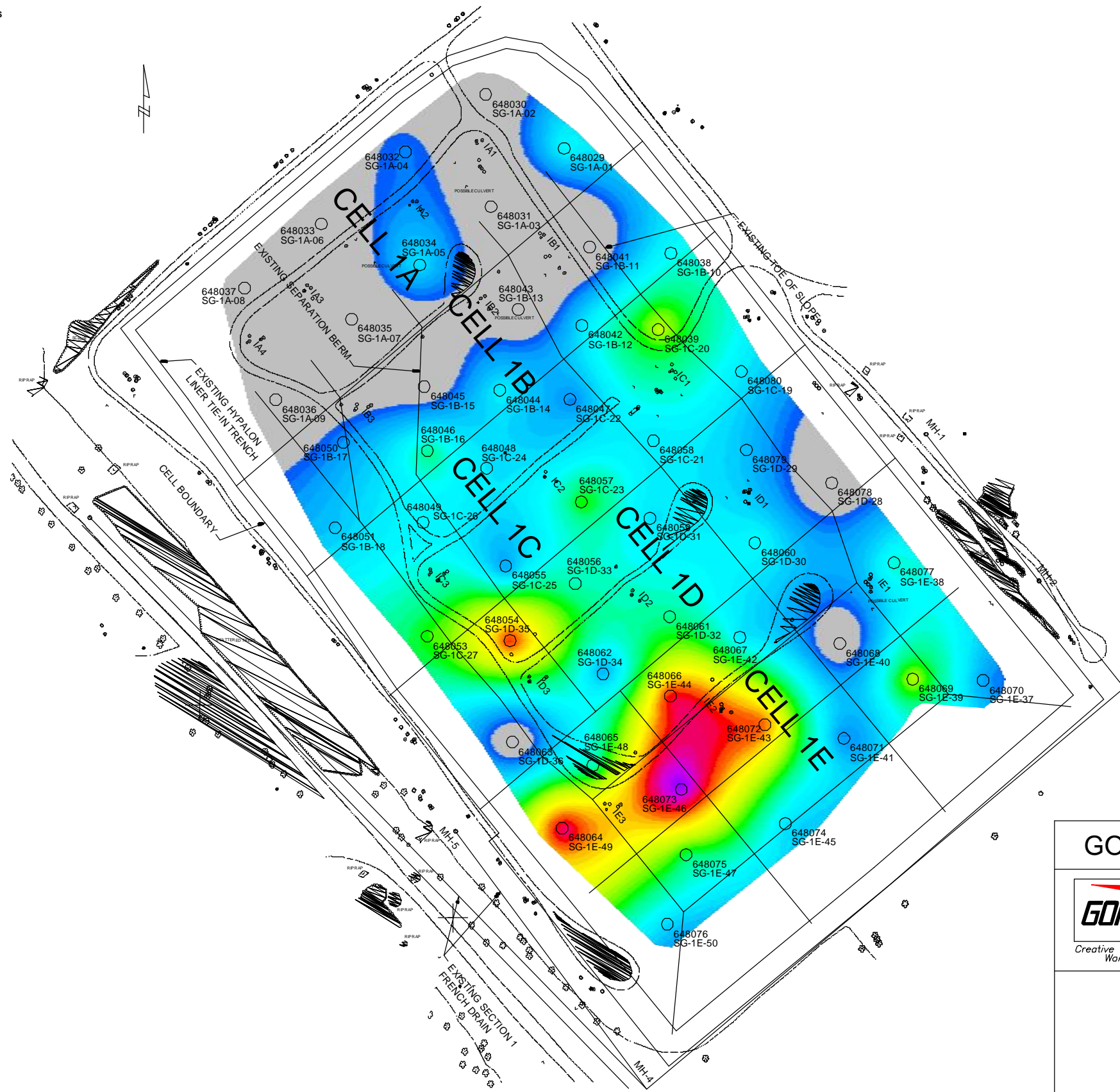


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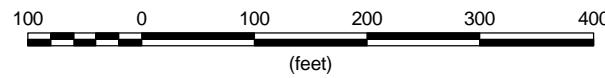


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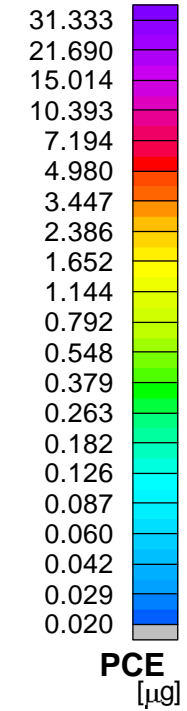
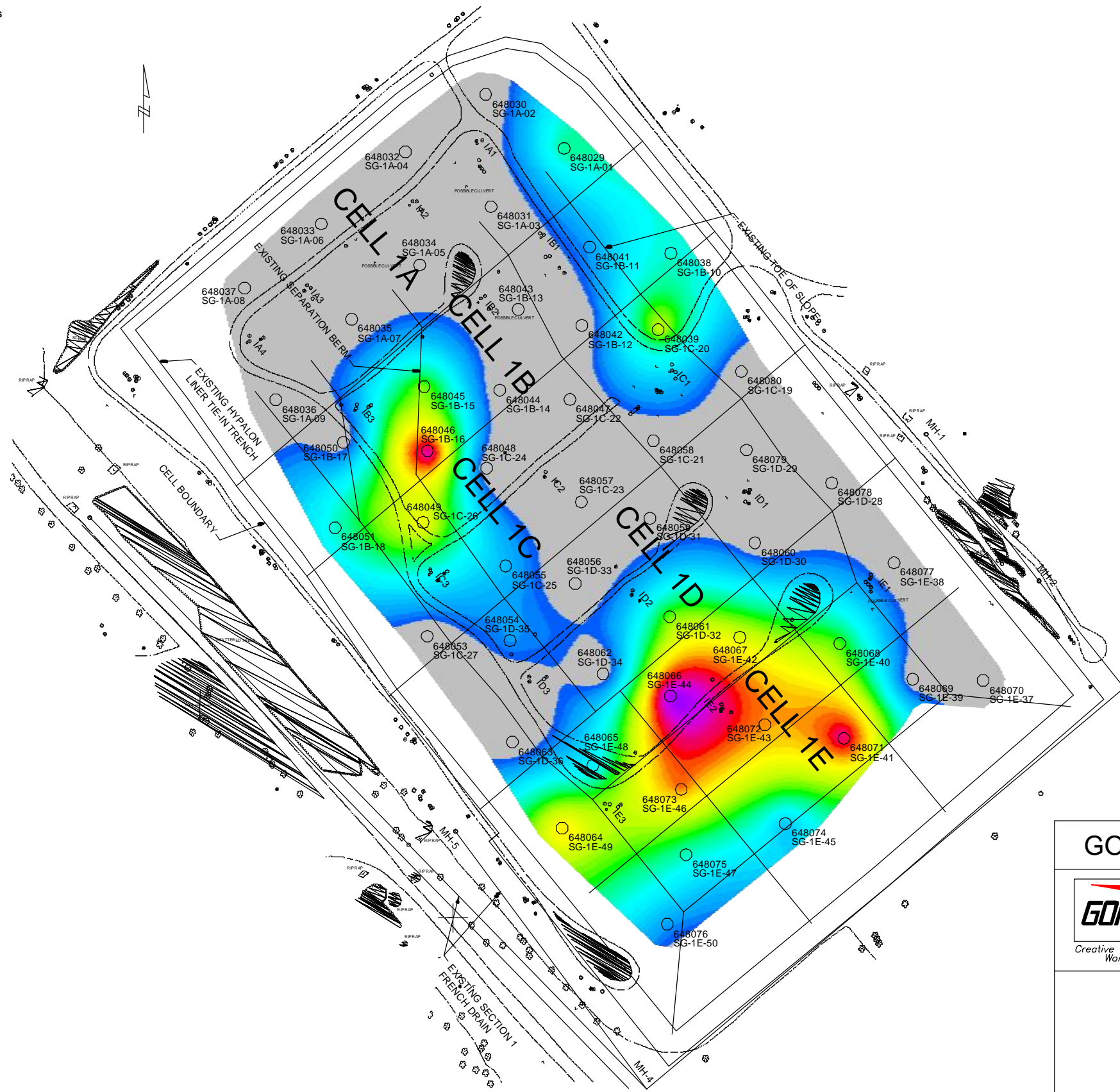


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 PSCT Section I Cover, Pinewood, SC  
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REV. DATE:	REV. #:	PROJECT NUMBER: 20784505	



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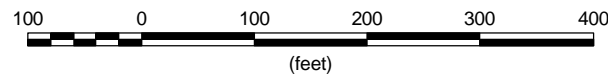


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Tetrachloroethene

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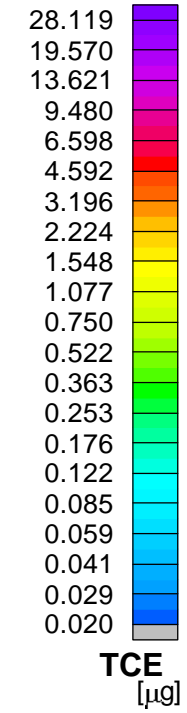
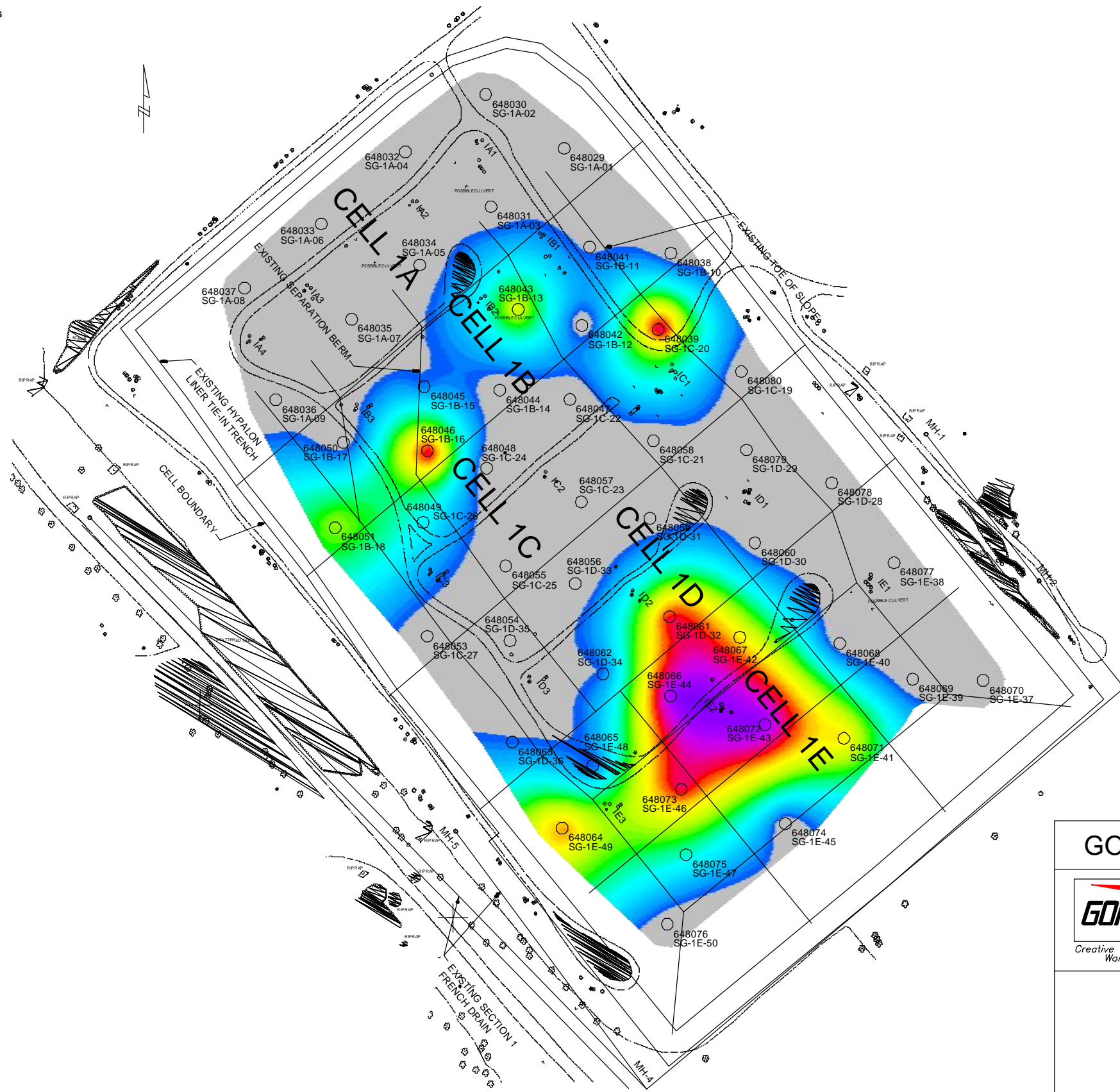
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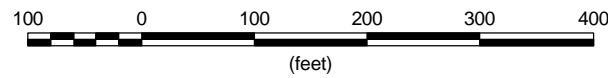
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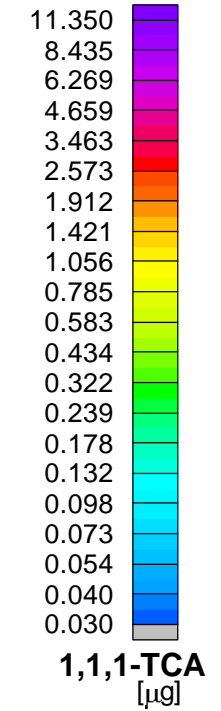
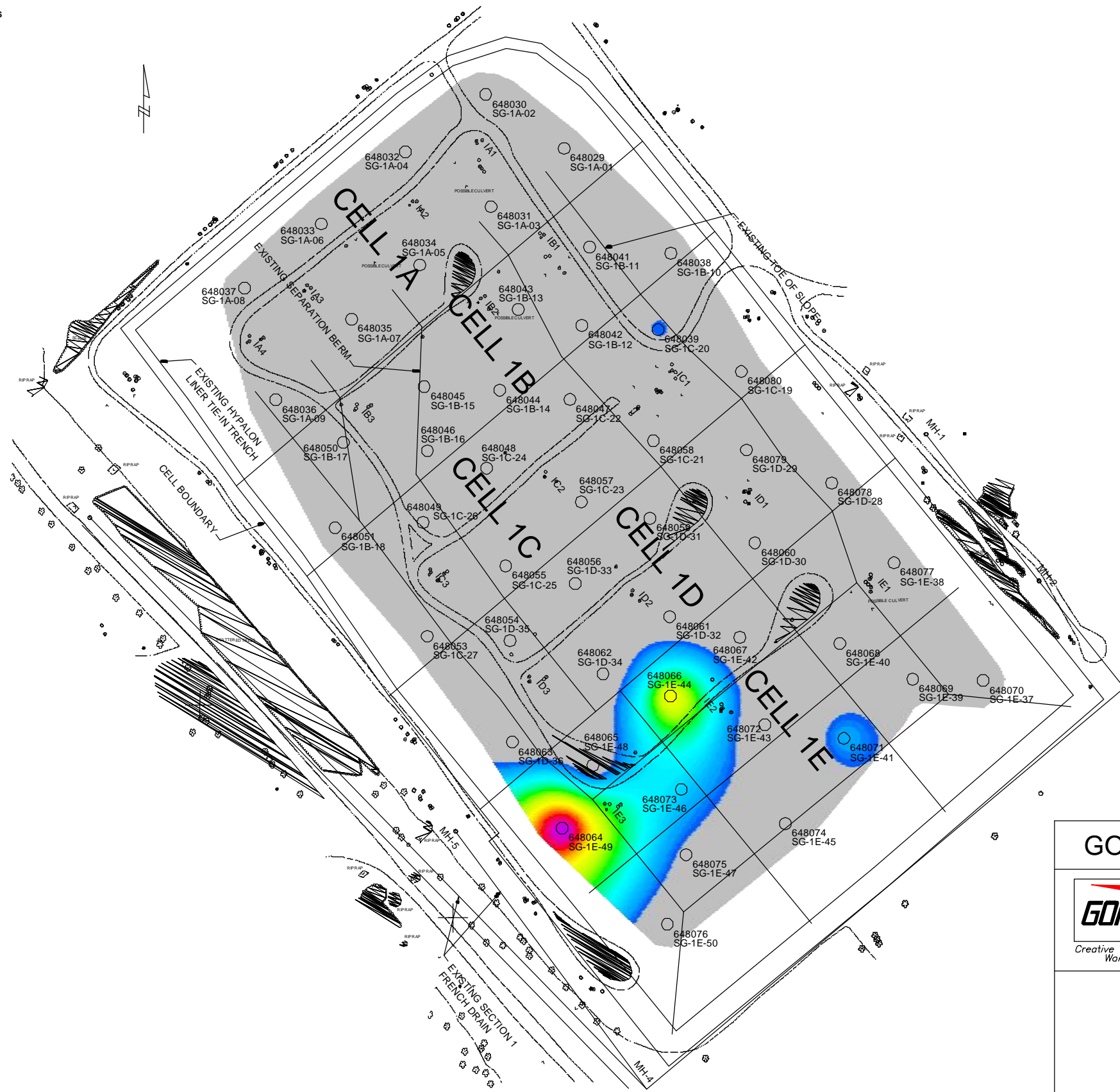
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Trichloroethene

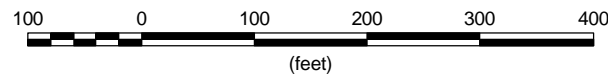
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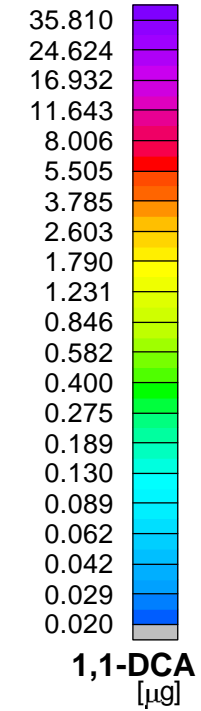
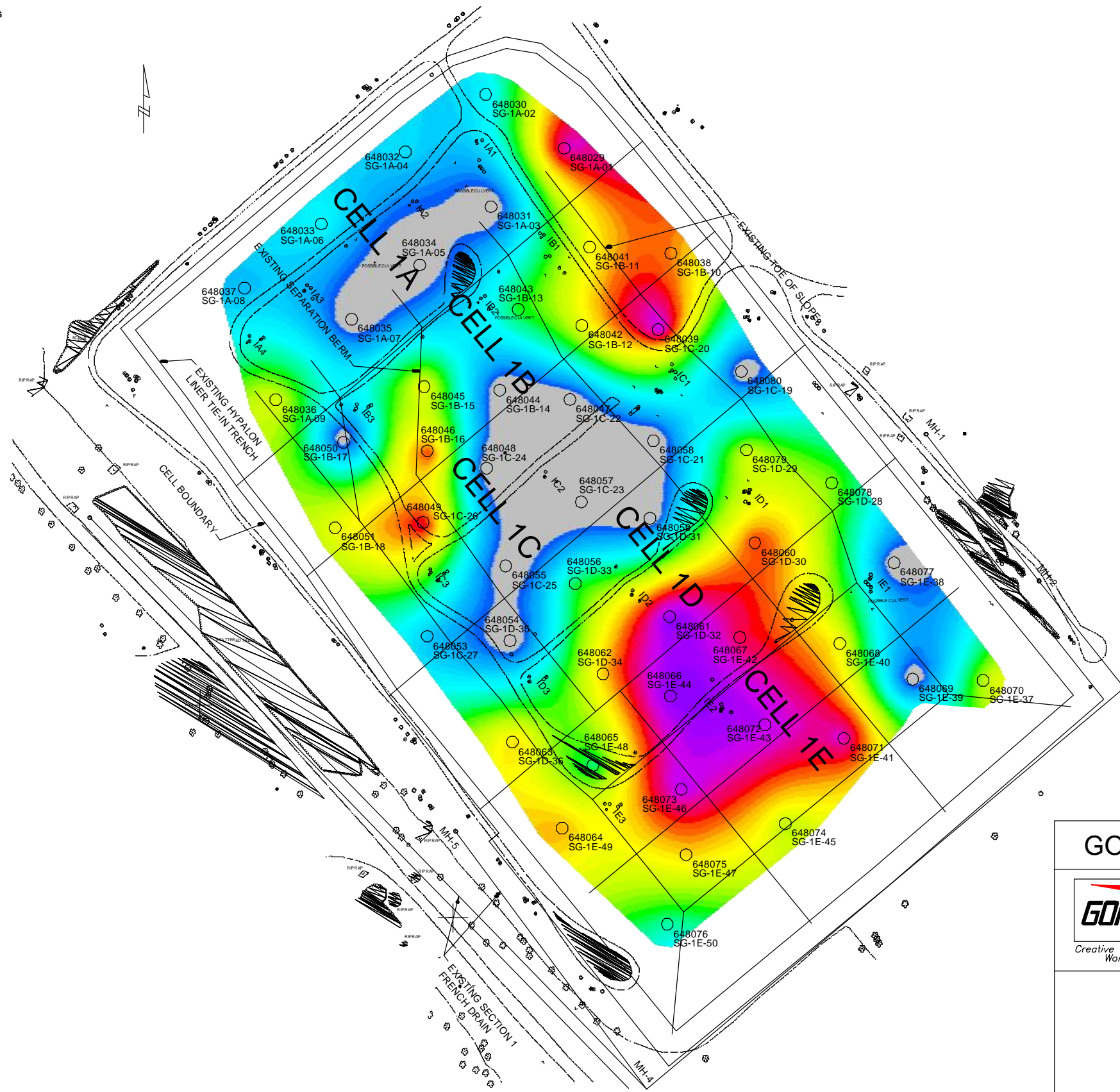
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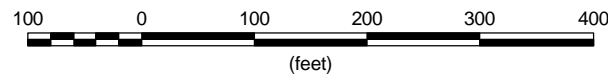
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REV. DATE:

REV. #:

PROJECT NUMBER: 20784505

**W. L. GORE & ASSOCIATES, INC.**  
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Elkton, MD 21922-0010  
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[gore.com/surveys](http://gore.com/surveys)

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San Francisco: 415.648.0438  
Email: [environmental@wlgore.com](mailto:environmental@wlgore.com)



**Appendix 2.6-1**  
GEL Laboratories, LLC Analytical Report



November 29, 2010

Mr. David M. Welch  
AECOM Water  
10 Patewood Drive  
Building VI, Suite 500  
Greenville, South Carolina 29615

Re: Pinewood  
Work Order: 266958

Dear Mr. Welch:

GEL Laboratories, LLC (GEL) appreciates the opportunity to provide the enclosed analytical results for the sample(s) we received on November 12, 2010. This original data report has been prepared and reviewed in accordance with GEL's standard operating procedures.

Our policy is to provide high quality, personalized analytical services to enable you to meet your analytical needs on time every time. We trust that you will find everything in order and to your satisfaction. If you have any questions, please do not hesitate to call me at (843) 556-8171, ext. 4300.

Sincerely,

Client Services Team  
Project Manager

Enclosures

## GEL LABORATORIES LLC

2040 Savage Road Charleston SC 29407 – (843) 556–8171 – www.gel.com

### Certificate of Analysis Report for

AECM001 AECOM (P.O. 4561ACM)

Client SDG: 266958 GEL Work Order: 266958

**The Qualifiers in this report are defined as follows:**

- \* A quality control analyte recovery is outside of specified acceptance criteria
- \*\* Analyte is a surrogate compound
- B For General Chemistry and Organic analysis the target analyte was detected in the associated blank.
- E Organics—Concentration of the target analyte exceeds the instrument calibration range
- J Value is estimated
- U Analyte was analyzed for, but not detected above the MDL, MDA, or LOD.

Where the analytical method has been performed under NELAP certification, the analysis has met all of the requirements of the NELAC standard unless qualified on the Certificate of Analysis.

The designation ND, if present, appears in the result column when the analyte concentration is not detected above the detection limit.

This data report has been prepared and reviewed in accordance with GEL Laboratories LLC standard operating procedures. Please direct any questions to your Project Manager, Client Services Team.

Reviewed by \_\_\_\_\_



# GEL LABORATORIES LLC

2040 Savage Road Charleston SC 29407 - (843) 556-8171 - www.gel.com

## Certificate of Analysis

Company : AECOM Water  
 Address : 10 Patewood Drive  
 Building VI, Suite 500  
 Greenville, South Carolina 29615  
 Contact: Mr. David M. Welch  
 Project: Pinewood

Report Date: November 29, 2010

Client Sample ID: SILC-1	Project: AECM00101
Sample ID: 266958001	Client ID: AECM001
Matrix: Ground Water	
Collect Date: 10-NOV-10 16:19	
Receive Date: 12-NOV-10	
Collector: Client	

Parameter	Qualifier	Result	DL	RL	Units	DF	AnalystDate	Time	Batch	Method
<b>Volatile Organics</b>										
<i>EPA 624 TTO Liquid "As Received"</i>										
1,1,1-Trichloroethane	U	ND	0.325	1.00	ug/L	1	RXD1 11/16/10	0003	1048933	1
1,1,2,2-Tetrachloroethane	U	ND	0.250	1.00	ug/L	1				
1,1,2-Trichloroethane	U	ND	0.250	1.00	ug/L	1				
1,1-Dichloroethane		14.7	0.300	1.00	ug/L	1				
1,1-Dichloroethylene	U	ND	0.300	1.00	ug/L	1				
1,2-Dichloroethane	U	ND	0.250	1.00	ug/L	1				
1,2-Dichloropropane	U	ND	0.250	1.00	ug/L	1				
2-Chloroethylvinyl ether	U	ND	1.50	5.00	ug/L	1				
Acrolein	U	ND	1.25	5.00	ug/L	1				
Acrylonitrile	U	ND	1.00	5.00	ug/L	1				
Benzene		1.19	0.300	1.00	ug/L	1				
Bromodichloromethane	U	ND	0.250	1.00	ug/L	1				
Bromoform	U	ND	0.250	1.00	ug/L	1				
Bromomethane	U	ND	0.300	1.00	ug/L	1				
Carbon tetrachloride	U	ND	0.300	1.00	ug/L	1				
Chlorobenzene	U	ND	0.250	1.00	ug/L	1				
Chloroethane	U	ND	0.300	1.00	ug/L	1				
Chloroform	U	ND	0.250	1.00	ug/L	1				
Chloromethane	U	ND	0.300	1.00	ug/L	1				
Dibromochloromethane	U	ND	0.300	1.00	ug/L	1				
Ethylbenzene	U	ND	0.250	1.00	ug/L	1				
Methylene chloride	U	ND	2.00	2.00	ug/L	1				
Tetrachloroethylene	U	ND	0.300	1.00	ug/L	1				
Toluene	BJ	0.260	0.250	1.00	ug/L	1				
Trichloroethylene	U	ND	0.250	1.00	ug/L	1				
Vinyl chloride		31.8	0.500	1.00	ug/L	1				
cis-1,3-Dichloropropylene	U	ND	0.250	1.00	ug/L	1				
trans-1,2-Dichloroethylene		2.20	0.300	1.00	ug/L	1				
trans-1,3-Dichloropropylene	U	ND	0.250	1.00	ug/L	1				

**The following Analytical Methods were performed**

Method	Description	Analyst Comments
1	EPA 624 SC_NPDES	

Surrogate/Tracer recovery	Test	Result	Nominal	Recovery%	Acceptable Limits
1,2-Dichloroethane-d4	EPA 624 TTO Liquid "As Received"	53.4 ug/L	50.0	107	(71%-130%)

# GEL LABORATORIES LLC

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## Certificate of Analysis

Company : AECOM Water  
Address : 10 Patewood Drive  
Building VI, Suite 500  
Greenville, South Carolina 29615  
Contact: Mr. David M. Welch  
Project: Pinewood

Report Date: November 29, 2010

Client Sample ID: SILC-1

Project: AECM00101

Sample ID: 266958001

Client ID: AECM001

Parameter	Qualifier	Result	DL	RL	Units	DF	AnalystDate	Time	Batch	Method
Bromofluorobenzene	EPA 624 TTO Liquid "As Received"			48.6 ug/L		50.0	97.2			(80%-120%)
Toluene-d8	EPA 624 TTO Liquid "As Received"			49.3 ug/L		50.0	98.6			(80%-120%)



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## Certificate of Analysis

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 Greenville, South Carolina 29615  
 Contact: Mr. David M. Welch  
 Project: Pinewood

Report Date: November 29, 2010

Client Sample ID:	SILC-2	Project:	AECM00101
Sample ID:	266958002	Client ID:	AECM001
Matrix:	Ground Water		
Collect Date:	10-NOV-10 15:50		
Receive Date:	12-NOV-10		
Collector:	Client		

Parameter	Qualifier	Result	DL	RL	Units	DF	AnalystDate	Time	Batch	Method
<b>Volatile Organics</b>										
<i>EPA 624 TTO Liquid "As Received"</i>										
1,1,1-Trichloroethane	U	ND	0.325	1.00	ug/L	1	RXD1 11/16/10	0057	1048933	1
1,1,2,2-Tetrachloroethane	J	0.630	0.250	1.00	ug/L	1				
1,1-Dichloroethylene		7.35	0.300	1.00	ug/L	1				
1,2-Dichloroethane		11.1	0.250	1.00	ug/L	1				
1,2-Dichloropropane	U	ND	0.250	1.00	ug/L	1				
2-Chloroethylvinyl ether	U	ND	1.50	5.00	ug/L	1				
Acrolein	U	ND	1.25	5.00	ug/L	1				
Acrylonitrile	U	ND	1.00	5.00	ug/L	1				
Benzene	J	0.320	0.300	1.00	ug/L	1				
Bromodichloromethane	U	ND	0.250	1.00	ug/L	1				
Bromoform	U	ND	0.250	1.00	ug/L	1				
Bromomethane	U	ND	0.300	1.00	ug/L	1				
Carbon tetrachloride	U	ND	0.300	1.00	ug/L	1				
Chlorobenzene	U	ND	0.250	1.00	ug/L	1				
Chloroethane	U	ND	0.300	1.00	ug/L	1				
Chloroform	J	0.260	0.250	1.00	ug/L	1				
Chloromethane	U	ND	0.300	1.00	ug/L	1				
Dibromochloromethane	U	ND	0.300	1.00	ug/L	1				
Ethylbenzene	U	ND	0.250	1.00	ug/L	1				
Methylene chloride	U	ND	2.00	2.00	ug/L	1				
Tetrachloroethylene		1.39	0.300	1.00	ug/L	1				
Toluene	U	ND	0.250	1.00	ug/L	1				
Trichloroethylene		7.05	0.250	1.00	ug/L	1				
Vinyl chloride		5.13	0.500	1.00	ug/L	1				
cis-1,3-Dichloropropylene	U	ND	0.250	1.00	ug/L	1				
trans-1,2-Dichloroethylene	U	ND	0.300	1.00	ug/L	1				
trans-1,3-Dichloropropylene	U	ND	0.250	1.00	ug/L	1				
1,1,2-Trichloroethane		307	1.25	5.00	ug/L	5	RXD1 11/16/10	1332	1048933	2
1,1-Dichloroethane		305	1.50	5.00	ug/L	5				

**The following Analytical Methods were performed**

Method	Description	Analyst Comments
1	EPA 624 SC_NPDES	
2	EPA 624 SC_NPDES	

Surrogate/Tracer recovery	Test	Result	Nominal	Recovery%	Acceptable Limits

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## Certificate of Analysis

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 Greenville, South Carolina 29615  
 Contact: Mr. David M. Welch  
 Project: Pinewood

Report Date: November 29, 2010

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Client Sample ID: SILC-2	Project: AECM00101
Sample ID: 266958002	Client ID: AECM001

Parameter	Qualifier	Result	DL	RL	Units	DF	AnalystDate	Time	Batch	Method
<b>Surrogate/Tracer recovery</b>	<b>Test</b>			<b>Result</b>	<b>Nominal</b>	<b>Recovery%</b>		<b>Acceptable Limits</b>		
1,2-Dichloroethane-d4	EPA 624 TTO Liquid "As Received"			52.6 ug/L	50.0	105		(71%-130%)		
Bromofluorobenzene	EPA 624 TTO Liquid "As Received"			49.1 ug/L	50.0	98.1		(80%-120%)		
Toluene-d8	EPA 624 TTO Liquid "As Received"			48.6 ug/L	50.0	97.2		(80%-120%)		

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 Contact: Mr. David M. Welch  
 Project: Pinewood

Report Date: November 29, 2010

Client Sample ID: SILC-4	Project: AECM00101
Sample ID: 266958003	Client ID: AECM001
Matrix: Ground Water	
Collect Date: 10-NOV-10 16:00	
Receive Date: 12-NOV-10	
Collector: Client	

Parameter	Qualifier	Result	DL	RL	Units	DF	AnalystDate	Time	Batch	Method
<b>Volatile Organics</b>										
<i>EPA 624 TTO Liquid "As Received"</i>										
1,1,1-Trichloroethane	U	ND	0.325	1.00	ug/L	1	RXD1 11/16/10	1304	1048933	1
1,1,2,2-Tetrachloroethane	U	ND	0.250	1.00	ug/L	1				
1,1,2-Trichloroethane	U	ND	0.250	1.00	ug/L	1				
1,1-Dichloroethane		12.3	0.300	1.00	ug/L	1				
1,1-Dichloroethylene	J	0.660	0.300	1.00	ug/L	1				
1,2-Dichloroethane	U	ND	0.250	1.00	ug/L	1				
1,2-Dichloropropane	U	ND	0.250	1.00	ug/L	1				
2-Chloroethylvinyl ether	U	ND	1.50	5.00	ug/L	1				
Acrolein	U	ND	1.25	5.00	ug/L	1				
Acrylonitrile	U	ND	1.00	5.00	ug/L	1				
Benzene	U	ND	0.300	1.00	ug/L	1				
Bromodichloromethane	U	ND	0.250	1.00	ug/L	1				
Bromoform	U	ND	0.250	1.00	ug/L	1				
Bromomethane	U	ND	0.300	1.00	ug/L	1				
Carbon tetrachloride	U	ND	0.300	1.00	ug/L	1				
Chlorobenzene	U	ND	0.250	1.00	ug/L	1				
Chloroethane		2.08	0.300	1.00	ug/L	1				
Chloroform	U	ND	0.250	1.00	ug/L	1				
Chloromethane	U	ND	0.300	1.00	ug/L	1				
Dibromochloromethane	U	ND	0.300	1.00	ug/L	1				
Ethylbenzene	U	ND	0.250	1.00	ug/L	1				
Methylene chloride	U	ND	2.00	2.00	ug/L	1				
Tetrachloroethylene	U	ND	0.300	1.00	ug/L	1				
Toluene	U	ND	0.250	1.00	ug/L	1				
Trichloroethylene	U	ND	0.250	1.00	ug/L	1				
Vinyl chloride		6.29	0.500	1.00	ug/L	1				
cis-1,3-Dichloropropylene	U	ND	0.250	1.00	ug/L	1				
trans-1,2-Dichloroethylene	U	ND	0.300	1.00	ug/L	1				
trans-1,3-Dichloropropylene	U	ND	0.250	1.00	ug/L	1				

**The following Analytical Methods were performed**

Method	Description	Analyst Comments
1	EPA 624 SC_NPDES	

Surrogate/Tracer recovery	Test	Result	Nominal	Recovery%	Acceptable Limits
1,2-Dichloroethane-d4	EPA 624 TTO Liquid "As Received"	52.8 ug/L	50.0	106	(71%-130%)

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Contact: Mr. David M. Welch  
Project: Pinewood

Report Date: November 29, 2010

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Client Sample ID: SILC-4    Project:      AECM00101  
Sample ID:      266958003    Client ID:      AECM001

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<u>Parameter</u>	<u>Qualifier</u>	<u>Result</u>	<u>DL</u>	<u>RL</u>	<u>Units</u>	<u>DF</u>	<u>AnalystDate</u>	<u>Time</u>	<u>Batch</u>	<u>Method</u>
Bromofluorobenzene	EPA 624 TTO Liquid "As Received"			48.3 ug/L		50.0	96.5		(80%-120%)	
Toluene-d8	EPA 624 TTO Liquid "As Received"			48.7 ug/L		50.0	97.4		(80%-120%)	

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 Project: Pinewood

Report Date: November 29, 2010

Client Sample ID: SILC-5	Project: AECM00101
Sample ID: 266958004	Client ID: AECM001
Matrix: Ground Water	
Collect Date: 10-NOV-10 15:17	
Receive Date: 12-NOV-10	
Collector: Client	

Parameter	Qualifier	Result	DL	RL	Units	DF	AnalystDate	Time	Batch	Method
<b>Volatile Organics</b>										
<i>EPA 624 TTO Liquid "As Received"</i>										
1,1,1-Trichloroethane	U	ND	0.325	1.00	ug/L	1	RXD1 11/16/10	0153	1048933	1
1,1,2,2-Tetrachloroethane	U	ND	0.250	1.00	ug/L	1				
1,1,2-Trichloroethane	U	ND	0.250	1.00	ug/L	1				
1,1-Dichloroethylene		1.35	0.300	1.00	ug/L	1				
1,2-Dichloroethane		6.30	0.250	1.00	ug/L	1				
1,2-Dichloropropane	J	0.410	0.250	1.00	ug/L	1				
2-Chloroethylvinyl ether	U	ND	1.50	5.00	ug/L	1				
Acrolein	U	ND	1.25	5.00	ug/L	1				
Acrylonitrile	U	ND	1.00	5.00	ug/L	1				
Benzene	U	ND	0.300	1.00	ug/L	1				
Bromodichloromethane	U	ND	0.250	1.00	ug/L	1				
Bromoform	U	ND	0.250	1.00	ug/L	1				
Bromomethane	U	ND	0.300	1.00	ug/L	1				
Carbon tetrachloride	U	ND	0.300	1.00	ug/L	1				
Chlorobenzene	U	ND	0.250	1.00	ug/L	1				
Chloroethane	U	ND	0.300	1.00	ug/L	1				
Chloroform	U	ND	0.250	1.00	ug/L	1				
Chloromethane	U	ND	0.300	1.00	ug/L	1				
Dibromochloromethane	U	ND	0.300	1.00	ug/L	1				
Ethylbenzene	U	ND	0.250	1.00	ug/L	1				
Methylene chloride	U	ND	2.00	2.00	ug/L	1				
Tetrachloroethylene		1.11	0.300	1.00	ug/L	1				
Toluene	U	ND	0.250	1.00	ug/L	1				
Trichloroethylene		2.42	0.250	1.00	ug/L	1				
Vinyl chloride	U	ND	0.500	1.00	ug/L	1				
cis-1,3-Dichloropropylene	U	ND	0.250	1.00	ug/L	1				
trans-1,2-Dichloroethylene	J	0.750	0.300	1.00	ug/L	1				
trans-1,3-Dichloropropylene	U	ND	0.250	1.00	ug/L	1				
1,1-Dichloroethane		286	1.50	5.00	ug/L	5	RXD1 11/16/10	1400	1048933	2

**The following Analytical Methods were performed**

Method	Description	Analyst Comments
1	EPA 624 SC_NPDES	
2	EPA 624 SC_NPDES	

Surrogate/Tracer recovery	Test	Result	Nominal	Recovery%	Acceptable Limits

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Company : AECOM Water  
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Contact: Mr. David M. Welch  
Project: Pinewood

Report Date: November 29, 2010

Client Sample ID: SILC-5  
Sample ID: 266958004

Project: AECM00101  
Client ID: AECM001

Parameter	Qualifier	Result	DL	RL	Units	DF	AnalystDate	Time	Batch	Method
<b>Surrogate/Tracer recovery</b>	<b>Test</b>			<b>Result</b>	<b>Nominal</b>	<b>Recovery%</b>		<b>Acceptable Limits</b>		
1,2-Dichloroethane-d4	EPA 624 TTO Liquid "As Received"			53.2 ug/L	50.0	106		(71%-130%)		
Bromofluorobenzene	EPA 624 TTO Liquid "As Received"			48.6 ug/L	50.0	97.1		(80%-120%)		
Toluene-d8	EPA 624 TTO Liquid "As Received"			49.5 ug/L	50.0	99.1		(80%-120%)		

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 Contact: Mr. David M. Welch  
 Project: Pinewood

Report Date: November 29, 2010

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Client Sample ID: PBFD-1	Project: AECM00101
Sample ID: 266958005	Client ID: AECM001
Matrix: Ground Water	
Collect Date: 10-NOV-10 17:09	
Receive Date: 12-NOV-10	
Collector: Client	

Parameter	Qualifier	Result	DL	RL	Units	DF	AnalystDate	Time	Batch	Method
<b>Volatile Organics</b>										
<i>EPA 624 TTO Liquid "As Received"</i>										
1,1,1-Trichloroethane	U	ND	0.325	1.00	ug/L	1	RXD1 11/16/10	0220	1048933	1
1,1,2,2-Tetrachloroethane	U	ND	0.250	1.00	ug/L	1				
1,1,2-Trichloroethane	U	ND	0.250	1.00	ug/L	1				
1,1-Dichloroethane	U	ND	0.300	1.00	ug/L	1				
1,1-Dichloroethylene	U	ND	0.300	1.00	ug/L	1				
1,2-Dichloroethane	U	ND	0.250	1.00	ug/L	1				
1,2-Dichloropropane	U	ND	0.250	1.00	ug/L	1				
2-Chloroethylvinyl ether	U	ND	1.50	5.00	ug/L	1				
Acrolein	U	ND	1.25	5.00	ug/L	1				
Acrylonitrile	U	ND	1.00	5.00	ug/L	1				
Benzene	U	ND	0.300	1.00	ug/L	1				
Bromodichloromethane	U	ND	0.250	1.00	ug/L	1				
Bromoform	U	ND	0.250	1.00	ug/L	1				
Bromomethane	U	ND	0.300	1.00	ug/L	1				
Carbon tetrachloride	U	ND	0.300	1.00	ug/L	1				
Chlorobenzene	U	ND	0.250	1.00	ug/L	1				
Chloroethane	U	ND	0.300	1.00	ug/L	1				
Chloroform	U	ND	0.250	1.00	ug/L	1				
Chloromethane	U	ND	0.300	1.00	ug/L	1				
Dibromochloromethane	U	ND	0.300	1.00	ug/L	1				
Ethylbenzene	U	ND	0.250	1.00	ug/L	1				
Methylene chloride	U	ND	2.00	2.00	ug/L	1				
Tetrachloroethylene	U	ND	0.300	1.00	ug/L	1				
Toluene	U	ND	0.250	1.00	ug/L	1				
Trichloroethylene	U	ND	0.250	1.00	ug/L	1				
Vinyl chloride	U	ND	0.500	1.00	ug/L	1				
cis-1,3-Dichloropropylene	U	ND	0.250	1.00	ug/L	1				
trans-1,2-Dichloroethylene	U	ND	0.300	1.00	ug/L	1				
trans-1,3-Dichloropropylene	U	ND	0.250	1.00	ug/L	1				

**The following Analytical Methods were performed**

Method	Description	Analyst Comments
1	EPA 624 SC_NPDES	

Surrogate/Tracer recovery	Test	Result	Nominal	Recovery%	Acceptable Limits
1,2-Dichloroethane-d4	EPA 624 TTO Liquid "As Received"	51.6 ug/L	50.0	103	(71%-130%)

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## Certificate of Analysis

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Contact: Mr. David M. Welch  
Project: Pinewood

Report Date: November 29, 2010

Client Sample ID: PBFD-1  
Sample ID: 266958005

Project: AECM00101  
Client ID: AECM001

Parameter	Qualifier	Result	DL	RL	Units	DF	AnalystDate	Time	Batch	Method
Bromofluorobenzene	EPA 624 TTO Liquid "As Received"			48.4 ug/L		50.0	96.7			(80%-120%)
Toluene-d8	EPA 624 TTO Liquid "As Received"			49.6 ug/L		50.0	99.1			(80%-120%)



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Contact: Mr. David M. Welch  
Project: Pinewood

Report Date: November 29, 2010

Client Sample ID: PAFD-1  
Sample ID: 266958006  
Matrix: Ground Water  
Collect Date: 10-NOV-10 17:25  
Receive Date: 12-NOV-10  
Collector: Client  
Project: AECM00101  
Client ID: AECM001

Parameter	Qualifier	Result	DL	RL	Units	DF	Analyst	Date	Time	Batch	Method
<b>Volatile Organics</b>											
<i>EPA 624 TTO Liquid "As Received"</i>											
1,1,1-Trichloroethane	U	ND	0.325	1.00	ug/L	1	RXD1	11/16/10	0248	1048933	1
1,1,2,2-Tetrachloroethane	U	ND	0.250	1.00	ug/L	1					
1,1,2-Trichloroethane	U	ND	0.250	1.00	ug/L	1					
1,1-Dichloroethane	U	ND	0.300	1.00	ug/L	1					
1,1-Dichloroethylene	U	ND	0.300	1.00	ug/L	1					
1,2-Dichloroethane	U	ND	0.250	1.00	ug/L	1					
1,2-Dichloropropane	U	ND	0.250	1.00	ug/L	1					
2-Chloroethylvinyl ether	U	ND	1.50	5.00	ug/L	1					
Acrolein	U	ND	1.25	5.00	ug/L	1					
Acrylonitrile	U	ND	1.00	5.00	ug/L	1					
Benzene	U	ND	0.300	1.00	ug/L	1					
Bromodichloromethane	U	ND	0.250	1.00	ug/L	1					
Bromoform	U	ND	0.250	1.00	ug/L	1					
Bromomethane	U	ND	0.300	1.00	ug/L	1					
Carbon tetrachloride	U	ND	0.300	1.00	ug/L	1					
Chlorobenzene	U	ND	0.250	1.00	ug/L	1					
Chloroethane	U	ND	0.300	1.00	ug/L	1					
Chloroform	U	ND	0.250	1.00	ug/L	1					
Chloromethane	U	ND	0.300	1.00	ug/L	1					
Dibromochloromethane	U	ND	0.300	1.00	ug/L	1					
Ethylbenzene	U	ND	0.250	1.00	ug/L	1					
Methylene chloride	U	ND	2.00	2.00	ug/L	1					
Tetrachloroethylene	U	ND	0.300	1.00	ug/L	1					
Toluene	U	ND	0.250	1.00	ug/L	1					
Trichloroethylene	U	ND	0.250	1.00	ug/L	1					
Vinyl chloride	U	ND	0.500	1.00	ug/L	1					
cis-1,3-Dichloropropylene	U	ND	0.250	1.00	ug/L	1					
trans-1,2-Dichloroethylene	U	ND	0.300	1.00	ug/L	1					
trans-1,3-Dichloropropylene	U	ND	0.250	1.00	ug/L	1					

### The following Analytical Methods were performed

Method	Description	Analyst	Comments
1	EPA 624 SC_NPDES		

Surrogate/Tracer recovery	Test	Result	Nominal	Recovery%	Acceptable Limits
1,2-Dichloroethane-d4	EPA 624 TTO Liquid "As Received"	52.4 ug/L	50.0	105	(71%-130%)

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Contact: Mr. David M. Welch  
Project: Pinewood

Report Date: November 29, 2010

Client Sample ID: PAFD-1  
Sample ID: 266958006

Project: AECM00101  
Client ID: AECM001

Parameter	Qualifier	Result	DL	RL	Units	DF	AnalystDate	Time	Batch	Method
Bromofluorobenzene	EPA 624 TTO Liquid "As Received"			47.9 ug/L		50.0	95.9		(80%-120%)	
Toluene-d8	EPA 624 TTO Liquid "As Received"			49.7 ug/L		50.0	99.4		(80%-120%)	

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## Certificate of Analysis

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Address : 10 Patewood Drive  
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Contact: Mr. David M. Welch  
Project: Pinewood

Report Date: November 29, 2010

Client Sample ID: PAFD-2 Project: AECM00101  
Sample ID: 266958007 Client ID: AECM001  
Matrix: Ground Water  
Collect Date: 10-NOV-10 14:15  
Receive Date: 12-NOV-10  
Collector: Client

Parameter	Qualifier	Result	DL	RL	Units	DF	AnalystDate	Time	Batch	Method
<b>Volatile Organics</b>										
<i>EPA 624 TTO Liquid "As Received"</i>										
1,1,1-Trichloroethane	U	ND	0.325	1.00	ug/L	1	RXD1 11/16/10	0316	1048933	1
1,1,2,2-Tetrachloroethane	U	ND	0.250	1.00	ug/L	1				
1,1,2-Trichloroethane	U	ND	0.250	1.00	ug/L	1				
1,1-Dichloroethane	U	ND	0.300	1.00	ug/L	1				
1,1-Dichloroethylene	U	ND	0.300	1.00	ug/L	1				
1,2-Dichloroethane	U	ND	0.250	1.00	ug/L	1				
1,2-Dichloropropane	U	ND	0.250	1.00	ug/L	1				
2-Chloroethylvinyl ether	U	ND	1.50	5.00	ug/L	1				
Acrolein	U	ND	1.25	5.00	ug/L	1				
Acrylonitrile	U	ND	1.00	5.00	ug/L	1				
Benzene	U	ND	0.300	1.00	ug/L	1				
Bromodichloromethane	U	ND	0.250	1.00	ug/L	1				
Bromoform	U	ND	0.250	1.00	ug/L	1				
Bromomethane	U	ND	0.300	1.00	ug/L	1				
Carbon tetrachloride	U	ND	0.300	1.00	ug/L	1				
Chlorobenzene	U	ND	0.250	1.00	ug/L	1				
Chloroethane	U	ND	0.300	1.00	ug/L	1				
Chloroform	U	ND	0.250	1.00	ug/L	1				
Chloromethane	U	ND	0.300	1.00	ug/L	1				
Dibromochloromethane	U	ND	0.300	1.00	ug/L	1				
Ethylbenzene	U	ND	0.250	1.00	ug/L	1				
Methylene chloride	U	ND	2.00	2.00	ug/L	1				
Tetrachloroethylene	U	ND	0.300	1.00	ug/L	1				
Toluene	U	ND	0.250	1.00	ug/L	1				
Trichloroethylene	U	ND	0.250	1.00	ug/L	1				
Vinyl chloride	U	ND	0.500	1.00	ug/L	1				
cis-1,3-Dichloropropylene	U	ND	0.250	1.00	ug/L	1				
trans-1,2-Dichloroethylene	U	ND	0.300	1.00	ug/L	1				
trans-1,3-Dichloropropylene	U	ND	0.250	1.00	ug/L	1				

### The following Analytical Methods were performed

Method	Description	Analyst Comments
1	EPA 624 SC_NPDES	

Surrogate/Tracer recovery	Test	Result	Nominal	Recovery%	Acceptable Limits
1,2-Dichloroethane-d4	EPA 624 TTO Liquid "As Received"	51.9 ug/L	50.0	104	(71%-130%)

# GEL LABORATORIES LLC

2040 Savage Road Charleston SC 29407 - (843) 556-8171 - www.gel.com

## Certificate of Analysis

Company : AECOM Water  
Address : 10 Patewood Drive  
Building VI, Suite 500  
Greenville, South Carolina 29615  
Contact: Mr. David M. Welch  
Project: Pinewood

Report Date: November 29, 2010

Client Sample ID: PAFD-2

Project: AECM00101

Sample ID: 266958007

Client ID: AECM001

Parameter	Qualifier	Result	DL	RL	Units	DF	AnalystDate	Time	Batch	Method
Bromofluorobenzene	EPA 624 TTO Liquid "As Received"			48.2 ug/L		50.0	96.5			(80%-120%)
Toluene-d8	EPA 624 TTO Liquid "As Received"			49.1 ug/L		50.0	98.2			(80%-120%)

# GEL LABORATORIES LLC

2040 Savage Road Charleston, SC 29407 - (843) 556-8171 - www.gel.com

## QC Summary

Report Date: November 29, 2010

Page 1 of 5

**AECOM Water**  
**10 Patewood Drive**  
**Building VI, Suite 500**  
**Greenville, South Carolina**

**Contact: Mr. David M. Welch**

**Workorder: 266958**

Parmname	NOM	Sample	Qual	QC	Units	RPD%	REC%	Range	Anlst	Date	Time
<b>Volatile-GC/MS</b>											
Batch	1048933										
QC1202264666	266958001 DUP										
1,1,1-Trichloroethane	U	ND	U	ND	ug/L	N/A			RXD1	11/16/10	00:30
1,1,2,2-Tetrachloroethane	U	ND	U	ND	ug/L	N/A					
1,1,2-Trichloroethane	U	ND	U	ND	ug/L	N/A					
1,1-Dichloroethane		14.7		14.5	ug/L	1.65					
1,1-Dichloroethylene	U	ND	U	ND	ug/L	N/A					
1,2-Dichloroethane	U	ND	U	ND	ug/L	N/A					
1,2-Dichloropropane	U	ND	U	ND	ug/L	N/A					
2-Chloroethylvinyl ether	U	ND	U	ND	ug/L	N/A					
Acrolein	U	ND	U	ND	ug/L	N/A					
Acrylonitrile	U	ND	U	ND	ug/L	N/A					
Benzene		1.19		1.16	ug/L	2.55 ^		(+/-1.00)			
Bromodichloromethane	U	ND	U	ND	ug/L	N/A					
Bromoform	U	ND	U	ND	ug/L	N/A					
Bromomethane	U	ND	U	ND	ug/L	N/A					
Carbon tetrachloride	U	ND	U	ND	ug/L	N/A					
Chlorobenzene	U	ND	U	ND	ug/L	N/A					
Chloroethane	U	ND	U	ND	ug/L	N/A					
Chloroform	U	ND	U	ND	ug/L	N/A					
Chloromethane	U	ND	U	ND	ug/L	N/A					
Dibromochloromethane	U	ND	U	ND	ug/L	N/A					
Ethylbenzene	U	ND	U	ND	ug/L	N/A					
Methylene chloride	U	ND	U	ND	ug/L	N/A					
Tetrachloroethylene	U	ND	U	ND	ug/L	N/A					
Toluene	BJ	0.260	U	ND	ug/L	N/A ^					
Trichloroethylene	U	ND	U	ND	ug/L	N/A					
Vinyl chloride		31.8		30.5	ug/L	3.95					
cis-1,3-Dichloropropylene	U	ND	U	ND	ug/L	N/A					
trans-1,2-Dichloroethylene		2.20		2.13	ug/L	3.23 ^		(+/-1.00)			
trans-1,3-Dichloropropylene	U	ND	U	ND	ug/L	N/A					
**1,2-Dichloroethane-d4	50.0	53.4		53.5	ug/L		107	(71%-130%)			
**Bromofluorobenzene	50.0	48.6		48.4	ug/L		96.8	(80%-120%)			
**Toluene-d8	50.0	49.3		49.3	ug/L		98.6	(80%-120%)			
QC1202264665	MB										
1,1,1-Trichloroethane			U	ND	ug/L					11/15/10	13:15
1,1,2,2-Tetrachloroethane			U	ND	ug/L						
1,1,2-Trichloroethane			U	ND	ug/L						
1,1-Dichloroethane			U	ND	ug/L						

# GEL LABORATORIES LLC

2040 Savage Road Charleston, SC 29407 - (843) 556-8171 - www.gel.com

## QC Summary

Workorder: 266958

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Parmname	NOM	Sample	Qual	QC	Units	RPD%	REC%	Range	Anlst	Date	Time
<b>Volatile-GC/MS</b>											
Batch	1048933										
1,1-Dichloroethylene			U	ND	ug/L						
1,2-Dichloroethane			U	ND	ug/L				RXD1	11/15/10	13:15
1,2-Dichloropropane			U	ND	ug/L						
2-Chloroethylvinyl ether			U	ND	ug/L						
Acrolein			U	ND	ug/L						
Acrylonitrile			U	ND	ug/L						
Benzene			U	ND	ug/L						
Bromodichloromethane			U	ND	ug/L						
Bromoform			U	ND	ug/L						
Bromomethane			U	ND	ug/L						
Carbon tetrachloride			U	ND	ug/L						
Chlorobenzene			U	ND	ug/L						
Chloroethane			U	ND	ug/L						
Chloroform			U	ND	ug/L						
Chloromethane			U	ND	ug/L						
Dibromochloromethane			U	ND	ug/L						
Ethylbenzene			U	ND	ug/L						
Methylene chloride			U	ND	ug/L						
Tetrachloroethylene			U	ND	ug/L						
Toluene			J	0.300	ug/L						
Trichloroethylene			U	ND	ug/L						
Vinyl chloride			U	ND	ug/L						
cis-1,3-Dichloropropylene			U	ND	ug/L						
trans-1,2-Dichloroethylene			U	ND	ug/L						
trans-1,3-Dichloropropylene			U	ND	ug/L						
**1,2-Dichloroethane-d4	50.0			52.8	ug/L		106	(71%-130%)			
**Bromofluorobenzene	50.0			48.4	ug/L		96.8	(80%-120%)			
**Toluene-d8	50.0			49.3	ug/L		98.6	(80%-120%)			
QC1202265445		MB									
1,1,1-Trichloroethane			U	ND	ug/L					11/16/10	12:36
1,1,2,2-Tetrachloroethane			U	ND	ug/L						
1,1,2-Trichloroethane			U	ND	ug/L						
1,1-Dichloroethane			U	ND	ug/L						
1,1-Dichloroethylene			U	ND	ug/L						
1,2-Dichloroethane			U	ND	ug/L						
1,2-Dichloropropane			U	ND	ug/L						
2-Chloroethylvinyl ether			U	ND	ug/L						
Acrolein			U	ND	ug/L						
Acrylonitrile			U	ND	ug/L						
Benzene			U	ND	ug/L						
Bromodichloromethane			U	ND	ug/L						
Bromoform			U	ND	ug/L						

# GEL LABORATORIES LLC

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## QC Summary

Workorder: 266958

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Parmname	NOM	Sample	Qual	QC	Units	RPD%	REC%	Range	Anlst	Date	Time
<b>Volatile-GC/MS</b>											
Batch	1048933										
Bromomethane			U	ND	ug/L						
Carbon tetrachloride			U	ND	ug/L				RXD1	11/16/10	12:36
Chlorobenzene			U	ND	ug/L						
Chloroethane			U	ND	ug/L						
Chloroform			U	ND	ug/L						
Chloromethane			U	ND	ug/L						
Dibromochloromethane			U	ND	ug/L						
Ethylbenzene			U	ND	ug/L						
Methylene chloride			U	ND	ug/L						
Tetrachloroethylene			U	ND	ug/L						
Toluene			U	ND	ug/L						
Trichloroethylene			U	ND	ug/L						
Vinyl chloride			U	ND	ug/L						
cis-1,3-Dichloropropylene			U	ND	ug/L						
trans-1,2-Dichloroethylene			U	ND	ug/L						
trans-1,3-Dichloropropylene			U	ND	ug/L						
**1,2-Dichloroethane-d4	50.0			52.9	ug/L		106	(71%-130%)			
**Bromofluorobenzene	50.0			48.6	ug/L		97.2	(80%-120%)			
**Toluene-d8	50.0			49.2	ug/L		98.3	(80%-120%)			
QC1202264667 266958001 PS											
1,1,1-Trichloroethane	50.0	U	ND	47.7	ug/L		95.4	(67%-127%)		11/16/10	03:44
1,1,2,2-Tetrachloroethane	50.0	U	ND	45.8	ug/L		91.6	(59%-129%)			
1,1,2-Trichloroethane	50.0	U	ND	48.3	ug/L		96.7	(67%-121%)			
1,1-Dichloroethane	50.0		14.7	65.1	ug/L		101	(70%-120%)			
1,1-Dichloroethylene	50.0	U	ND	44.4	ug/L		88.7	(61%-123%)			
1,2-Dichloroethane	50.0	U	ND	52.1	ug/L		104	(65%-126%)			
1,2-Dichloropropane	50.0	U	ND	52.7	ug/L		105	(70%-121%)			
2-Chloroethylvinyl ether	250	U	ND	171	ug/L		68.3	(30%-191%)			
Benzene	50.0		1.19	49.2	ug/L		96	(68%-117%)			
Bromodichloromethane	50.0	U	ND	52.8	ug/L		106	(72%-128%)			
Bromoform	50.0	U	ND	42.3	ug/L		84.5	(66%-131%)			
Bromomethane	50.0	U	ND	44.2	ug/L		88.4	(56%-135%)			
Carbon tetrachloride	50.0	U	ND	49.4	ug/L		98.8	(66%-133%)			
Chlorobenzene	50.0	U	ND	48.3	ug/L		96.5	(72%-115%)			
Chloroethane	50.0	U	ND	44.1	ug/L		88.2	(65%-120%)			
Chloroform	50.0	U	ND	49.6	ug/L		99.1	(69%-121%)			
Chloromethane	50.0	U	ND	50.7	ug/L		101	(46%-129%)			
Dibromochloromethane	50.0	U	ND	52.1	ug/L		104	(73%-128%)			
Ethylbenzene	50.0	U	ND	45.9	ug/L		91.8	(64%-123%)			
Methylene chloride	50.0	U	ND	49.1	ug/L		98.2	(64%-125%)			
Tetrachloroethylene	50.0	U	ND	45.9	ug/L		91.8	(64%-117%)			
Toluene	50.0	BJ	0.260	45.3	ug/L		90.1	(63%-118%)			

# GEL LABORATORIES LLC

2040 Savage Road Charleston, SC 29407 - (843) 556-8171 - www.gel.com

## QC Summary

Workorder: 266958

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Parmname	NOM	Sample	Qual	QC	Units	RPD%	REC%	Range	Anlst	Date	Time
<b>Volatile-GC/MS</b>											
Batch	1048933										
Trichloroethylene	50.0	U	ND	46.4	ug/L		92.7	(61%-128%)			
Vinyl chloride	50.0		31.8	74.0	ug/L		84.5	(53%-132%)	RXD1	11/16/10	03:44
cis-1,3-Dichloropropylene	50.0	U	ND	52.8	ug/L		106	(70%-124%)			
trans-1,2-Dichloroethylene	50.0		2.20	50.2	ug/L		95.9	(65%-121%)			
trans-1,3-Dichloropropylene	50.0	U	ND	51.4	ug/L		103	(68%-129%)			
**1,2-Dichloroethane-d4	50.0		53.4	52.5	ug/L		105	(71%-130%)			
**Bromofluorobenzene	50.0		48.6	47.0	ug/L		94	(80%-120%)			
**Toluene-d8	50.0		49.3	49.6	ug/L		99.3	(80%-120%)			

### Notes:

The Qualifiers in this report are defined as follows:

- \*\* Analyte is a surrogate compound
- < Result is less than value reported
- > Result is greater than value reported
- A The TIC is a suspected aldol-condensation product
- B For General Chemistry and Organic analysis the target analyte was detected in the associated blank.
- C Analyte has been confirmed by GC/MS analysis
- D Results are reported from a diluted aliquot of the sample
- E Organics--Concentration of the target analyte exceeds the instrument calibration range
- F Estimated Value
- H Analytical holding time was exceeded
- J Value is estimated
- JNX Non Calibrated Compound
- M Matrix Related Failure
- N Organics--Presumptive evidence based on mass spectral library search to make a tentative identification of the analyte (TIC). Quantitation is based on nearest internal standard response factor
- N/A RPD or %Recovery limits do not apply.
- ND Analyte concentration is not detected above the detection limit
- NJ Consult Case Narrative, Data Summary package, or Project Manager concerning this qualifier
- P Organics--The concentrations between the primary and confirmation columns/detectors is >40% different. For HPLC, difference is also <70%
- Q One or more quality control criteria have not been met. Refer to the applicable narrative or DER.
- R Sample results are rejected
- U Analyte was analyzed for, but not detected above the MDL, MDA, or LOD.
- X Consult Case Narrative, Data Summary package, or Project Manager concerning this qualifier
- Y QC Samples were not spiked with this compound
- ^ RPD of sample and duplicate evaluated using +/-RL. Concentrations are <5X the RL. Qualifier Not Applicable for Radiochemistry.
- h Preparation or preservation holding time was exceeded



# GEL LABORATORIES LLC

2040 Savage Road Charleston, SC 29407 - (843) 556-8171 - www.gel.com

## QC Summary

Workorder: 266958

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Parmname	NOM	Sample	Qual	QC	Units	RPD%	REC%	Range	Anlst	Date	Time
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N/A indicates that spike recovery limits do not apply when sample concentration exceeds spike conc. by a factor of 4 or more.

^ The Relative Percent Difference (RPD) obtained from the sample duplicate (DUP) is evaluated against the acceptance criteria when the sample is greater than five times (5X) the contract required detection limit (RL). In cases where either the sample or duplicate value is less than 5X the RL, a control limit of +/- the RL is used to evaluate the DUP result.

\* Indicates that a Quality Control parameter was not within specifications.

For PS, PSD, and SDILT results, the values listed are the measured amounts, not final concentrations.

Where the analytical method has been performed under NELAP certification, the analysis has met all of the requirements of the NELAC standard unless qualified on the QC Summary.

**There are no "Data Exception Reports" associated with this analytical report.**

26101171096

# GEL Chain of Custody and Analytical Request

GEL Laboratories, LLC  
2040 Savage Road  
Charleston, SC 29407  
Phone: (843) 556-8171  
Fax: (843) 766-1178

Page: 1 of 2  
Project #: ~~AK04~~ AECM00101  
GEL Quote #:  
COC Number (1):  
PO Number:

GEL Work Order Number: 266958  
Client Name: AECOM Water  
Phone #: (864) 234-3000  
Project/Site Name: Pinewood  
Fax #:

Address: 10 Patewood Dr, Bldg VI, Suite 500, Greenville, SC 29615  
Collected by: A. Gupta / C. Subbath  
Send Results To: David Welch

Sample Analysis Requested (5) (Fill in the number of containers for each test)

Sample ID	*Date Collected (mm-dd-yy)	*Time Collected (Military) (hhmm)	QC Code (3)	Field Filtered (4)	Sample Matrix (4)	Should this sample be considered:		Total number of containers	HA	Preservative Type (6)	Comments
						Radioactive	TSCA Regulated				
SILC-1	11/10/10	1619	G	N	GW	N	N	4	2		Note: extra sample is required for sample specific QC
SILC-2	11/10/10	1550	G	N	GW	N	N	2	2		
SILC-4	11/10/10	1600	G	N	GW	N	N	4	2		
SILC-5	11/10/10	1517	G	N	GW	N	N	3	1		
PBFD-1	11/10/10	1709	G	N	SW	N	N	4	2		
PAFD-1	11/10/10	1725	G	N	SW	N	N	4	2		
PAFD-2	11/11/10	1415	G	N	SW	N	N	4	2		

TAT Requested: Normal:  Rush: Specify: (Subject to Surcharge) Fax Results: Yes / No  
 Circle Deliverable: C of A / QC Summary / Level 1 / Level 2 / Level 3 / Level 4  
 Sample Collection Time Zone:  Eastern  Pacific  Other \_\_\_\_\_  
 Sample Shipping and Delivery Details

Chain of Custody Signatures

Relinquished By (Signed)	Date	Time	Received by (signed)	Date	Time
Charles K. Subbath	11/11/10	1630	Steve Rucker	11/11/10	1630
[Signature]	11/12/10		Jana M	11/21/10	1415

GEL PM: \_\_\_\_\_  
 Method of Shipment: \_\_\_\_\_ Date Shipped: \_\_\_\_\_  
 Airbill #: \_\_\_\_\_  
 Airbill #: \_\_\_\_\_

1) Chain of Custody Number = Client Determined  
 2) QC Codes: N = Normal Sample, TB = Trip Blank, FD = Field Duplicate, EB = Equipment Blank, MS = Matrix Spike Sample, MSD = Matrix Spike Duplicate Sample, G = Grab, C = Composite  
 3) Field Filtered: For liquid matrices, indicate with a - Y - for yes the sample was field filtered or - N - for sample was not field filtered.  
 4) Matrix Codes: DW=Drinking Water, GW=Groundwater, SW=Surface Water, WW=Waste Water, W=Water, SO=Soil, SD=Sediment, SL=Sludge, SS=Solid Waste, O=Oil, F=Filter, P=Wipe, U=Urine, F=Fecal, N=Nasal  
 5) Sample Analysis Requested: Analytical method requested (i.e. 8260B, 6010B/7470A) and number of containers provided for each (i.e. 8260B - 3, 6010B/7470A - 1).  
 6) Preservative Type: HA = Hydrochloric Acid, NI = Nitric Acid, SH = Sodium Hydroxide, SA = Sulfuric Acid, AA = Ascorbic Acid, HX = Hexane, ST = Sodium Thiosulfate. If no preservative is added = leave field blank

For Lab Receiving Use Only  
 Custody Seal Intact?  
 YES NO  
 Cooler Temp:  
 5 C

WHITE = LABORATORY  
 YELLOW = FILE  
 PINK = CLIENT



SAMPLE RECEIPT & REVIEW FORM

Client: <u>AECDM</u>		SDG/AR/COC/Work Order: <u>266958</u>	
Received By: <u>tg</u>		Date Received: <u>11/2/10</u>	
Suspected Hazard Information	Yes <input type="checkbox"/>	No <input type="checkbox"/>	*If Counts > x2 area background on samples not marked "radioactive", contact the Radiation Safety Group of further investigation.
COC/Samples marked as radioactive?	<input type="checkbox"/>	<input checked="" type="checkbox"/>	Maximum Counts Observed*: <u>10</u>
Classified Radioactive II or III by RSO?	<input type="checkbox"/>	<input checked="" type="checkbox"/>	
COC/Samples marked containing PCBs?	<input type="checkbox"/>	<input checked="" type="checkbox"/>	
Shipped as a DOT Hazardous?	<input type="checkbox"/>	<input checked="" type="checkbox"/>	Hazard Class Shipped: _____ UN#: _____
Samples identified as Foreign Soil?	<input type="checkbox"/>	<input checked="" type="checkbox"/>	

Sample Receipt Criteria		Yes	NA	No	Comments/Qualifiers (Required for Non-Conforming Items)
1	Shipping containers received intact and sealed?	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	Circle Applicable: Seals broken Damaged container Leaking container Other (describe)
2	Samples requiring cold preservation within (0 ≤ 6 deg. C)?	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	Preservation Method: <u>5</u> Ice bags Blue ice Dry ice None Other (describe)
2a	Daily check performed and passed on IR temperature gun?	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	Temperature Device Serial #: Secondary Temperature Device Serial # (If Applicable): <u>91050004</u>
3	Chain of custody documents included with shipment?	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	
4	Sample containers intact and sealed?	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	Circle Applicable: Seals broken Damaged container Leaking container Other (describe)
5	Samples requiring chemical preservation at proper pH?	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	Sample ID's, containers affected and observed pH: If Preservation added, Lot#:
6	VOA vials free of headspace (defined as < 6mm bubble)?	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	Sample ID's and containers affected:
7	Are Encore containers present?	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	(If yes, immediately deliver to Volatiles laboratory)
8	Samples received within holding time?	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	ID's and tests affected:
9	Sample ID's on COC match ID's on bottles?	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	Sample ID's and containers affected:
10	Date & time on COC match date & time on bottles?	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	Sample ID's affected:
11	Number of containers received match number indicated on COC?	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	Sample ID's affected:
12	COC form is properly signed in relinquished/received sections?	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	
13	Carrier and tracking number.	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	Circle Applicable: FedEx Air FedEx Ground UPS Field Services Courier Other

Comments (Use Continuation Form if needed):

**List of current GEL Certifications as of 29 November 2010**

<b>State</b>	<b>Certification</b>
Arizona	AZ0668
Arkansas	88-0651
CLIA	42D0904046
California – NELAP	01151CA
Colorado	GEL
Connecticut	PH-0169
Dept. of Navy	NFESC 413
EPA Region 5	WG-15J
Florida – NELAP	E87156
Georgia	E87156 (FL/NELAP)
Georgia DW	967
Hawaii	N/A
ISO 17025	2567.01
Idaho	SC00012
Illinois – NELAP	200029
Indiana	C-SC-01
Kansas – NELAP	E-10332
Kentucky	90129
Louisiana – NELAP	03046
Maryland	270
Massachusetts	M-SC012
Nevada	SC00012
New Jersey – NELAP	SC002
New Mexico	FL NELAP E87156
New York – NELAP	11501
North Carolina	233
North Carolina DW	45709
Oklahoma	9904
Pennsylvania – NELAP	68-00485
South Carolina	10120001/10120002
Tennessee	TN 02934
Texas – NELAP	T104704235-07B-TX
U.S. Dept. of Agriculture	S-52597
Utah – NELAP	GEL
Vermont	VT87156
Virginia	00151
Washington	C1641

**Appendix 2.8-1**  
NPDES Permit No. SC0042170

BOARD:  
Elizabeth M. Hagood  
Chairman  
Edwin H. Cooper, III  
Vice Chairman  
L. Michael Blackmon  
Secretary



C. Earl Hunter, Commissioner

*Promoting and protecting the health of the public and the environment.*

P S C T 06.50

BOARD:  
Carl L. Brazell  
Steven G. Kisner  
Paul C. Aughtry, III  
Coleman F. Buckhouse, MD

**CERTIFIED MAIL/RETURN RECEIPT REQUESTED**

June 22, 2005

Mr. Thomas W. Devine  
Principal  
Kestrel Horizons, LLC  
20-B Creekview Court  
Greenville, SC 29615

Re: NPDES Permit No. SC0042170  
Pinewood Site Custodial Trust  
Sumter County

Dear Mr. Devine:

Enclosed is the National Pollutant Discharge Elimination system (NPDES) Permit for the above referenced facility. The Department of Health and Environmental Control (DHEC) will enforce all the provisions of the permit in an equitable and timely manner.

In order that you understand your responsibilities included in the provisions of this permit, particular attention should be given to the following sections:

1. PART III: This section contains all listings of effluent characteristics, discharge limitations, and groundwater, soil and sludge monitoring.
2. PART II.L.4: This section contains your responsibilities for reporting monitoring results. Preprinted Discharge Monitoring Report (DMR) and groundwater monitoring forms will be provided at a later date by DHEC for reporting monitoring results.
3. PART II.L.3: This section describes the specific requirements for an SC permit to be transferred to another party.
4. PART II.E: This section contains responsibilities for the proper operation and maintenance of your facility.
5. PART V: This section contains all the special requirements relative to your permit. Such items in this section include the certified operator required to operate your wastewater treatment plant, the day of the week on which monitoring shall occur, and sludge disposal requirements.

This permit, as issued, will become effective on the effective date specified on the permit, provided no appeal for an adjudicatory hearing is made. The issuance of this permit represents a final staff decision that may be appealed to the Administrative Law Court (ALC). Such appeal must be made pursuant to the amended Rules of Procedure for the Administrative Law Court that became effective on May 1, 2005. Pursuant to Rule 11 of the amended ALC Rules of Procedure, such appeal must be made by filing a request for a contested case hearing with the Clerk of the ALC within thirty (30) days after notice of this decision at the following address:

Clerk, Administrative Law Court  
1205 Pendleton Street, Suite 224  
PO Box 11667  
Columbia, SC 29211

(2)

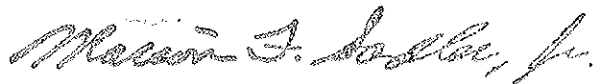
Pursuant to Rule 11(D), the following elements must, at a minimum, be included within the request:

1. The name of the party requesting the hearing and the issue(s) for which the hearing is requested;
2. The caption or other information sufficient to identify the decision, order, letter, determination, action, or inaction which is subject to the hearing;
3. A copy of the written agency decision, order, letter or determination, if any, which gave rise to the request;
4. The relief requested.

Furthermore, pursuant to ALC Rule 71, the Administrative Law Court requires that a party requesting a contested case hearing must submit a filing fee in the amount of \$250.00 with the Administrative Law Court. A copy of a request for the contested case hearing must also be served on each party, including but not limited to, DHEC. Copies of a request for a contested case hearing should be mailed to the Clerk of the Board, DHEC, 2600 Bull Street, Columbia, SC 29201, (803) 898-3300.

If you have any questions about the technical aspects of this permit, please contact Mr. Butch Swygert (803) 898-4235. Information pertaining to adjudicatory matters may be obtained by contacting the Legal Office, SCDHEC, 2600 Bull Street, Columbia, SC 29201, or by calling them at (803)898-3350.

Sincerely,



Marion F. Sadler, Jr., Director  
Industrial, Agricultural, and  
Storm Water Permitting Division

Enclosure

cc: EPA  
Ronnie Driggers, Wateree  
Jaime Teraoka, WP Enforcement  
Florence EQC Lab  
Butch Swygert, BOW  
NPDES Administration





South Carolina Department of Health  
and Environmental Control

# *National Pollutant Discharge Elimination System Permit*

for Discharge to Surface Waters

This Permit Certifies That

***PINEWOOD SITE CUSTODIAL TRUST***

has been granted permission to discharge from a facility located at

***8430 Camp MacBoykin Road  
Pinewood, South Carolina  
Sumter County***

to receiving waters named

***Unnamed Tributary to Lake Marion***

in accordance with limitations, monitoring requirements and other conditions set forth herein. This permit is issued in accordance with the provisions of the Pollution Control Act of South Carolina (S.C. Code Sections 48-1-10 *et seq.*, 1976), Regulation 61-9 and with the provisions of the Federal Clean Water Act (PL 92-500), as amended, 33 U.S.C. 1251 *et seq.*, the "Act."

**Marion F. Sadler, Jr., Director  
Industrial, Agricultural, and Storm Water Permitting Division  
Bureau of Water**

***Issue Date: June 22, 2005***

***Expiration Date: July 31, 2010***

***Effective Date: August 1, 2005***

***Permit No.: SC0042170***

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## **PART I. Definitions**

Any term not defined in this Part has the definition stated in the Pollution Control Act or in "Water Pollution Control Permits", R.61-9 or its normal meaning.

- A. The "Act", or CWA, shall refer to the Clean Water Act (Formerly referred to as the Federal Water Pollution Control Act) Public Law 92-500, as amended.
- B. "Adverse Impact" means a significant negative impact to land, water and associated resources resulting from a land disturbing activity. The negative impact includes increased risk of flooding; degradation of water quality; increased sedimentation; reduced groundwater recharge; negative impacts on aquatic organisms; negative impacts on wildlife and other resources; and threatened public health.
- C. The "average" or "arithmetic mean" of any set of values is the summation of the individual values divided by the number of individual values.
- D. "Basin" (or "Lagoon") means any in-ground or earthen structure designed to receive, treat, store, temporarily retain and/or allow for the infiltration/evaporation of wastewater.
- E. "Best Management Practices" ("BMPs") means schedules of activities, prohibitions of practices, maintenance procedures, and other management practices to prevent or reduce the pollution of waters of South Carolina. BMPs also include treatment requirements, operating procedures, and practices to control plant site runoff, spillage or leaks, sludge or waste disposal, or drainage from raw material storage.
- F. "Bypass" means the intentional diversion of waste streams from any portion of a treatment facility.
- G. A "composite sample" shall be defined as one of the following four types:
  1. An influent or effluent portion collected continuously over a specified period of time at a rate proportional to the flow.
  2. A combination of not less than 8 influent or effluent grab samples collected at regular (equal) intervals over a specified period of time and composited by increasing the volume of each aliquot in proportion to flow. If continuous flow measurement is not used to composite in proportion to flow, the following method will be used: An instantaneous flow measurement should be taken each time a grab sample is collected. At the end of the sampling period, the instantaneous flow measurements should be summed to obtain a total flow. The instantaneous flow measurement can then be divided by the total flow to determine the percentage of each grab sample to be combined. These combined samples form the composite sample.
  3. A combination of not less than 8 influent or effluent grab samples of equal volume but at variable time intervals that are inversely proportional to the volume of the flow. In other words, the time interval between aliquots is reduced as the volume of flow increases.
  4. If the effluent flow varies by less than 15 percent, a combination of not less than 8 influent or effluent grab samples of constant (equal) volume collected at regular (equal) time intervals over a specified period of time.

All samples shall be properly preserved in accordance with Part II.J.4. Continuous flow or the sum of instantaneous flows measured and averaged for the specified compositing time period shall be used with composite results to calculate mass.

- H. "Construction Activity" is defined as any land disturbing activity that is related to the operation and closure of the landfill cells, construction and maintenance of the first surge basin and demolition of existing wastewater structures.
- I. "Daily maximum" is the highest average value recorded of samples collected on any single day during the calendar month.
- J. "Daily minimum" is the lowest average value recorded of samples collected on any single day during the calendar month.
- K. The "Department" or "DHEC" shall refer to the South Carolina Department of Health and Environmental Control.
- L. "Final Stabilization" means the installation of vegetative or structural measures to establish a soil cover to reduce soil erosion by storm water runoff, wind, ice and gravity.
- M. The "geometric mean" of any set of values is the Nth root of the product of the individual values where N is equal to the number of individual values. The geometric mean is equivalent to the antilog of the arithmetic mean of the logarithms of the individual values. For purposes of calculating the geometric mean, values of zero (0) shall be considered to be one (1).
- N. A "grab sample" is an individual, discrete or single influent or effluent portion of at least 100 milliliters collected at a time representative of the discharge and over a period not exceeding 15 minutes and retained separately for analysis. Instantaneous flow measured at the time of grab sample collection shall be used to calculate quantity, unless a totalizer is used.
- O. "Groundwater" means the water below the land surface found in fractured rock or various soil strata.
- P. "Land Disturbing Activity" means any use of the land by any person that results in a change in the natural cover or topography that may cause erosion and contribute to sediment and alter the quality and quantity of storm water runoff.
- Q. The "maximum or minimum" is the highest or lowest value, respectively, recorded of all samples collected during the calendar month. These terms may also be known as the instantaneous maximum or minimum.
- R. The "monthly average", other than for fecal coliform, is the arithmetic mean of all samples collected in a calendar month period. The monthly average for fecal coliform bacteria is the geometric mean of all samples collected in a calendar month period. The monthly average loading is the arithmetic average of all individual loading determinations made during the month.
- S. The "PCA" shall refer to the Pollution Control Act (Chapter 1, Title 48, Code of Laws of South Carolina).
- T. The "practical quantitation limit" (PQL) is the concentration at which the entire analytical system must give a recognizable signal and acceptable calibration point. It is the concentration in a sample that is equivalent to the

concentration of the lowest calibration standard analyzed by a specific analytical procedure, assuming that all the method-specific sample weights, volumes, and processing steps have been followed.

- U. "Quarter" is defined as the first three calendar months beginning with the month that this permit becomes effective and each group of three calendar months thereafter.
- V. "Quarterly average" is the arithmetic mean of all samples collected in a quarter.
- W. "Runoff coefficient" means the fraction of total rainfall that will appear at the conveyance as runoff.
- X. "Severe property damage" means substantial physical damage to property, damage to the treatment facilities which causes them to become inoperable, or substantial and permanent loss of natural resources which can reasonably be expected to occur in the absence of a bypass. Severe property damage does not mean economic loss caused by delays in production.
- Y. "Sludge" means industrial sludge. Industrial sludge is a solid, semi-solid, or liquid residue generated during the treatment of industrial wastewater in a treatment works. Industrial sludge includes, but is not limited to, industrial septage; scum or solids removed in primary, secondary, or advanced wastewater treatment processes; and a material derived from industrial sludge. Industrial sludge does not include ash generated during the firing of industrial sludge in an industrial sludge incinerator or grit and screenings generated during preliminary treatment of industrial wastewater in a treatment works. Industrial sludge by definition does not include sludge covered under 40 CFR Part 503 or R.61-9.503.
- Z. "Storm Water" means storm water runoff, snow melt runoff, and surface runoff and drainage.
- AA. "Storm water Management" means, for:
1. quantitative control, a system of vegetative or structural measures, or both, that control the increased volume and rate of storm water runoff caused by manmade changes to the land;
  2. qualitative control, a system of vegetative, structural, or other measures that reduce or eliminate pollutants that might otherwise be carried by storm water runoff.
- BB. "Upset" means an exceptional incident in which there is unintentional and temporary noncompliance with technology based permit effluent limitations because of factors beyond the reasonable control of the permittee. An upset does not include noncompliance to the extent caused by operational error, improperly designed treatment facilities, inadequate treatment facilities, lack of preventive maintenance, or careless or improper operation.
- CC. "Wastewater" means industrial wastewater. Industrial wastewater is wastewater generated from a federal facility, commercial or industrial process, including waste and wastewater from humans when generated at an industrial facility.

## **PART II. Standard Conditions**

### **A. Duty to comply**

The permittee must comply with all conditions of the permit. Any permit noncompliance constitutes a violation of the Clean Water Act and the Pollution Control Act and is grounds for enforcement action; for permit termination, revocation and reissuance, or modification; or denial of a permit renewal application. The Department's approval of wastewater facility plans and specifications does not relieve the permittee of responsibility to meet permit limits.

1. The permittee shall comply with effluent standards or prohibitions established under section 307(a) of the Clean Water Act for toxic pollutants and with standards for sewage sludge use or disposal established under section 405(d) of the CWA within the time provided in the regulations that establish these standards or prohibitions or standards for sewage sludge use or disposal, even if the permit has not yet been modified to incorporate the requirement.
2. Failure to comply with permit conditions or the provisions of this permit may subject the permittee to civil penalties under S.C. Code Section 48-1-330 or criminal sanctions under S.C. Code Section 48-1-320. Sanctions for violations of the Federal Clean Water Act may be imposed in accordance with the provisions of 40 CFR Part 122.41(a)(2) and (3).
3. A person who violates any provision of this permit, a term, condition or schedule of compliance contained within this NPDES permit, or the State law is subject to the actions defined in the State law.

### **B. Duty to reapply**

If the permittee wishes to continue an activity regulated by this permit after the expiration date of this permit, the permittee must apply for and obtain a new permit. A permittee with a currently effective permit shall submit a new application 180 days before the existing permit expires, unless permission for a later date has been granted by the Department. The Department shall not grant permission for applications to be submitted later than the expiration date of the existing permit.

### **C. Need to halt or reduce activity not a defense**

It shall not be a defense for a permittee in an enforcement action that it would have been necessary to halt or reduce the permitted activity in order to maintain compliance with the conditions of this permit.

### **D. Duty to mitigate**

The permittee shall take all reasonable steps to minimize or prevent any discharge or sludge use or disposal in violation of this permit which has a reasonable likelihood of adversely affecting human health or the environment.

### **E. Proper operation and maintenance**

1. The permittee shall at all times properly operate and maintain in good working order and operate as efficiently as possible all facilities and systems of treatment and control (and related appurtenances) which are installed or used by the permittee to achieve compliance with the terms and conditions of this permit. Proper operation and maintenance includes effective performance based on design facility removals, adequate funding, adequate operator staffing and training and also includes adequate laboratory controls and appropriate quality assurance procedures. This provision requires the operation of back-up or auxiliary facilities or similar systems which are installed by a permittee only when the operation is necessary to achieve compliance with the conditions of the permit.
2. Power Failures. In order to maintain compliance with effluent limitations and prohibitions of this permit, the permittee shall either:
  - a. provide an alternative power source sufficient to operate the wastewater control facilities;
  - b. or have a plan of operation which will halt, reduce, or otherwise control production and/or all discharges upon the reduction, loss, or failure of the primary source of power to the wastewater control facilities.
3. The permittee shall develop and maintain at the facility a complete Operations and Maintenance Manual for the waste treatment facilities and/or land application system. The manual shall be made available for on-site review during normal working hours. The manual shall contain operation and maintenance instructions for all equipment and appurtenances associated with the waste treatment facilities and land application system. The manual shall contain a general description of the treatment process(es), the operational procedures to meet the requirements of E.1 above, and the corrective action to be taken should operating difficulties be encountered.
4. The permittee shall provide for the performance of weekly treatment facility inspections by a certified operator of the appropriate grade as defined in Part V.E.3 of this permit. The Department made exceptions to the daily operator requirement in accordance with R.61-9.122.41(e)(3)(ii). The inspections shall include, but should not necessarily be limited to, areas which require visual observation to determine efficient operation and for which immediate corrective measures can be taken using the O & M manual as a guide. All inspections shall be recorded and shall include the date, time, and name of the person making the inspection, corrective measures taken, and routine equipment maintenance, repair, or replacement performed. The permittee shall maintain all records of inspections at the permitted facility as required by the permit, and the records shall be made available for on-site review during normal working hours.
5. The name and grade of the operator of record shall be submitted to DHEC/Bureau of Water/Water Enforcement Division prior to placing the facility into operation. A roster of operators associated with the facility's operation and their certification grades shall also be submitted with the name of the "operator-in-charge." Any changes in operator or operators shall be submitted to the Department as they occur.

#### F. Permit actions

This permit may be modified, revoked and reissued, or terminated for cause. The filing of a request by the permittee for a permit modification, revocation and reissuance, or termination, or a notification of planned changes or anticipated noncompliance does not stay any permit condition.

G. Property rights

This permit does not convey any property rights of any sort, or any exclusive privilege nor does it authorize any injury to persons or property or invasion of other private rights, or any infringement of State or local law or regulations.

H. Duty to provide information

The permittee shall furnish to the Department, within a reasonable time, any information which the Department may request to determine whether cause exists for modifying, revoking and reissuing, or terminating this permit or to determine compliance with this permit. The permittee shall also furnish to the Department upon request, copies of records required to be kept by this permit.

I. Inspection and entry

The permittee shall allow the Department, or an authorized representative (including an authorized contractor acting as a representative of the Department), upon presentation of credentials and other documents as may be required by law, to:

1. Enter upon the permittee's premises where a regulated facility or activity is located or conducted, or where records must be kept under the conditions of this permit;
2. Have access to and copy, at reasonable times, any records that must be kept under the conditions of this permit;
3. Inspect at reasonable times any facilities, equipment (including monitoring and control equipment), practices, or operations regulated or required under this permit; and
4. Sample or monitor at reasonable times, for the purposes of assuring permit compliance or as otherwise authorized by the Clean Water Act and Pollution Control Act, any substances or parameters at any location.

J. Monitoring and records

1. a. (1) Samples and measurements taken for the purpose of monitoring shall be representative of the monitored activity.  
(2) Samples shall be reasonably distributed in time, while maintaining representative sampling.  
(3) No analysis, which is otherwise valid, shall be terminated for the purpose of preventing the analysis from showing a permit or water quality violation.
- b. Flow Measurements.
  - (1) Where primary flow meters are required, appropriate flow measurement devices and methods consistent with accepted scientific practices shall be present and used to ensure the accuracy and reliability of measurements of the volume of monitored discharges. The devices shall be installed,



calibrated and maintained to ensure that the accuracy of the measurements are consistent with the accepted capability of that type of device. Devices selected shall be capable of measuring flows with a maximum deviation of less than 10% from the true discharge rates throughout the range of expected discharge volumes. The primary flow device, where required, must be accessible to the use of a continuous flow recorder.

- (2) Where permits require an estimate of flow, the permittee shall maintain at the permitted facility a record of the method(s) used in estimating the discharge flow (e.g., pump curves, production charts, water use records) for the outfall(s) designated on limits pages to monitor flow by an estimate.
  - (3) Records of any necessary calibrations must be kept.
2. Except for records of monitoring information required by this permit related to the permittee's sewage sludge use and disposal activities, which shall be retained for a period of at least five years (or longer as required by R.61-9.503 or R.61-9.504), the permittee shall retain records of all monitoring information, including all calibration and maintenance records and all original strip chart recordings for continuous monitoring instrumentation, copies of all reports required by this permit, and records of all data used to complete the application for this permit, for a period of at least 3 years from the date of the sample, measurement, report or application. This period may be extended by request of the Department at any time.
  3. Records of monitoring information shall include:
    - a. The date, exact place, and time of sampling or measurements;
    - b. The individual(s) who performed the sampling or measurements;
    - c. The date(s) analyses were performed;
    - d. The individual(s) who performed the analyses;
    - e. The analytical techniques or methods used; and
    - f. The results of such analyses.
  4. a. Analyses for required monitoring must be conducted according to test procedures approved under 40 CFR Part 136, equivalent test procedures approved by DHEC's Division of Laboratory Certification or other test procedures that have been specified in the permit.

In the case of sludge use or disposal, analysis for required monitoring must be conducted according to test procedures approved under 40 CFR Part 136, test procedures specified in R.61-9.503 or R.61-9.504, equivalent test procedures approved by DHEC's Division of Laboratory Certification or other test procedures that have been specified in the permit.

- b. Unless addressed elsewhere in this permit, the permittee shall use a sufficiently sensitive analytical method that achieves a value below the derived permit limit stated in Part III. If more than one method of analysis is approved for use, the Department recommends for reasonable potential determinations that the permittee use the method having the lowest practical quantitation limit (PQL) unless otherwise

specified in Part V of the permit. For the purposes of reporting analytical data on the Discharge Monitoring Report (DMR):

- (1) Analytical results below the PQL conducted using a method in accordance with Part II.J.4.a above shall be reported as zero (0). Zero (0) shall also be used to average results which are below the PQL. When zero (0) is reported or used to average results, the permittee shall report, in the "Comment Section" or in an attachment to the DMR, the analytical method used, the PQL achieved, and the number of times results below the PQL were reported as zero (0).
- (2) Analytical results above the PQL conducted using a method in accordance with Part II.J.4.a shall be reported as the value achieved. When averaging results using a value containing a "less than," the average shall be calculated using the value and reported as "less than" the average of all results collected.
- (3) Mass values shall be calculated using the flow taken at the time of the sample and either the concentration value actually achieved or the value as determined from the procedures in (1) or (2) above, as appropriate.

5. The PCA provides that any person who falsifies, tampers with, or knowingly renders inaccurate any monitoring device or method required to be maintained under this permit shall, upon conviction, be punished by a fine of not more than \$25,000 or by imprisonment for not more than 2 years, or both. If a conviction of a person is for a violation committed after a first conviction of such person under this paragraph, punishment provided by the Clean Water Act is also by imprisonment of not more than 4 years.

K. Signatory requirement.

1. All applications, reports, or information submitted to the Department shall be signed and certified.
  - a. Applications. All permit applications shall be signed as follows:
    - (1) For a corporation: by a responsible corporate officer. For the purpose of this section, a responsible corporate officer means:
      - (a) A president, secretary, treasurer, or vice-president of the corporation in charge of a principal business function, or any other person who performs similar policy or decision-making functions for the corporation, or
      - (b) The manager of one or more manufacturing, production, or operating facilities, provided the manager is authorized to make management decisions which govern the operation of the regulated facility including having the explicit or implicit duty of making major capital investment recommendations, and initiating and directing other comprehensive measures to assure long term environmental compliance with environmental laws and regulations; the manager can ensure that the necessary systems are established or actions taken to gather complete and accurate information for permit application requirements; and where authority to sign documents has been assigned or delegated to the manager in accordance with corporate procedures.

- (2) For a partnership or sole proprietorship: by a general partner or the proprietor, respectively; or
  - (3) For a municipality, State, Federal, or other public agency or public facility: By either a principal executive officer, mayor, or other duly authorized employee or ranking elected official. For purposes of this section, a principal executive officer of a Federal agency includes:
    - (a) The chief executive officer of the agency, or
    - (b) A senior executive officer having responsibility for the overall operations of a principal geographic unit of the agency (e.g., Regional Administrator, Region IV, EPA).
- b. All reports required by permits, and other information requested by the Department, shall be signed by a person described in Part II.K.1.a of this section, or by a duly authorized representative of that person. A person is a duly authorized representative only if:
- (1) The authorization is made in writing by a person described in Part II.K.1.a of this section;
  - (2) The authorization specifies either an individual or a position having responsibility for the overall operation of the regulated facility or activity such as the position of plant manager, operator of a well or a well field, superintendent, position of equivalent responsibility, or an individual or position having overall responsibility for environmental matters for the company. (A duly authorized representative may thus be either a named individual or any individual occupying a named position.) and,
  - (3) The written authorization is submitted to the Department.
- c. Changes to authorization. If an authorization under Part II.K.1.b of this section is no longer accurate because a different individual or position has responsibility for the overall operation of the facility, a new authorization satisfying the requirements of Part II.K.1.b of this section must be submitted to the Department prior to or together with any reports, information, or applications to be signed by an authorized representative.
- d. Certification. Any person signing a document under Part II.K.1.a or b of this section shall make the following certification: "I certify under penalty of law that this document and all attachments were prepared under my direction or supervision in accordance with a system designed to assure that qualified personnel properly gather and evaluate the information submitted. Based on my inquiry of the person or persons who manage the system, or those persons directly responsible for gathering the information, the information submitted is, to the best of my knowledge and belief, true, accurate, and complete. I am aware that there are significant penalties for submitting false information, including the possibility of fine and imprisonment for knowing violations."
2. The PCA provides that any person who knowingly makes any false statement, representation, or certification in any record or other document submitted or required to be maintained under this permit, including monitoring reports or reports of compliance or non-compliance shall, upon conviction, be punished by a fine of not more than \$25,000 per violation, or by imprisonment for not more than two years per violation, or by both.

L. Reporting requirements

1. Planned changes.

The permittee shall give written notice to DHEC/Bureau of Water/Industrial, Agricultural and Storm Water Permitting Division as soon as possible of any planned physical alterations or additions to the permitted facility. Notice is required only when:

- a. The alteration or addition to a permitted facility may meet one of the criteria for determining whether a facility is a new source in R 61-9.122.29(b); or
- b. The alteration or addition could significantly change the nature or increase the quantity of pollutants discharged. This notification applies to pollutants which are subject neither to effluent limitations in the permit, nor to notification requirements under Part II.L.8 of this section.
- c. The alteration or addition results in a significant change in the permittee's sewage sludge or industrial sludge use or disposal practices, and such alteration, addition, or change may justify the application of permit conditions that are different from or absent in the existing permit, including notification of additional use or disposal sites not reported during the permit application process or not reported pursuant to an approved land application plan (included in the NPDES permit directly or by reference);

2. Anticipated noncompliance.

The permittee shall give advance notice to the DHEC/Bureau of Water/Water Enforcement Division of any planned changes in the permitted facility or activity which may result in noncompliance with permit requirements.

3. Transfers.

This permit is not transferable to any person except after written notice to the DHEC/Bureau of Water/NPDES Administration. The Department may require modification or revocation and reissuance of the permit to change the name of permittee and incorporate such other requirements as may be necessary under the Pollution Control Act and the Clean Water Act.

- a. Transfers by modification. Except as provided in paragraph b of this section, a permit may be transferred by the permittee to a new owner or operator only if the permit has been modified or revoked and reissued (under R.61-9.122.62(e)(2)), or a minor modification made (under R.61-9.122.63(d)), to identify the new permittee and incorporate such other requirements as may be necessary under CWA.
- b. Other transfers. As an alternative to transfers under paragraph a of this section, any NPDES permit may be transferred to a new permittee if:

- (1) The current permittee notifies the Department at least 30 days in advance of the proposed transfer date in Part II.L.3.b(2) of this section;

- (2) The notice includes U.S. EPA NPDES Application Form 1 and a written agreement between the existing and new permittees containing a specific date for transfer of permit responsibility, coverage, and liability between them; and
- (3) Permits are non-transferable except with prior consent of the Department. A modification under this section is a minor modification which does not require public notice.

4. Monitoring reports. Monitoring results shall be reported at the intervals specified elsewhere in this permit.

a. Monitoring results must be reported on a Discharge Monitoring Report (DMR) or forms provided or specified by the Department for reporting results of monitoring of sludge use or disposal practices including the following:

- (1) Effluent Monitoring: Effluent monitoring results obtained at the required frequency shall be reported on a Discharge Monitoring Report Form (EPA Form 3320-1). The DMR is due postmarked no later than the 28th day of the month following the end of the monitoring period. One original and one copy of the Discharge Monitoring Reports (DMRs) shall be submitted to:

S.C. Department of Health and Environmental Control  
Bureau of Water/Compliance Assurance Division  
Permit and Data Administration Section  
2600 Bull Street  
Columbia, South Carolina 29201

- (2) Sludge, Biosolids and/or Soil Monitoring: Sludge, biosolids and/or soil monitoring results obtained at the required frequency shall be reported in a laboratory format postmarked no later than the 28th day of the month following the end of the monitoring period. Two copies of these results shall be submitted to:

S.C. Department of Health and Environmental Control  
Bureau of Water/Water Enforcement Division  
Water Pollution Enforcement Section  
2600 Bull Street  
Columbia, South Carolina 29201

- (3) All other reports required by this permit shall be submitted at the frequency specified elsewhere in the permit to:

S.C. Department of Health and Environmental Control  
Bureau of Water/Water Enforcement Division  
Water Pollution Enforcement Section  
2600 Bull Street  
Columbia, South Carolina 29201

b. If the permittee monitors any pollutant more frequently than required by the permit using test procedures approved under 40 CFR Part 136 or, in the case of sludge use or disposal, approved under 40 CFR Part 136 unless otherwise specified in R.61-9.503 or R.61-9.504, or as specified in the permit, all valid results of this monitoring shall be included in the calculation and reporting of the data submitted in the

DMR or sludge reporting form specified by the Department. The permittee has sole responsibility for scheduling analyses, other than for the sample date specified in Part V, so as to ensure there is sufficient opportunity to complete and report the required number of valid results for each monitoring period.

- c. Calculations for all limitations which require averaging of measurements shall utilize an arithmetic mean unless otherwise specified by the Department in the permit.

5. Twenty-four hour reporting

- a. The permittee shall report any non-compliance, which may endanger health or the environment. Any information shall be provided orally to local DHEC office within 24 hours from the time the permittee becomes aware of the circumstances. During normal working hours call:

County	EQC District	Phone No.
Anderson, Oconee	Appalachia I	864-260-5569
Greenville, Pickens	Appalachia II	864-241-1090
Cherokee, Spartanburg, Union	Appalachia III	864-596-3800
Chester, Lancaster, York	Catawba	803-285-7461
Fairfield, Lexington, Newberry, Richland	Central Midlands	803-896-0620
Aiken, Allendale, Bamberg, Barnwell, Calhoun, Orangeburg	Edisto Savannah	803-641-7670
Beaufort, Colleton, Hampton, Jasper	Low Country	843-846-1030
Chesterfield, Darlington, Dillon, Florence, Marion, Marlboro	Pee Dee	843-661-4825
Berkeley, Charleston, Dorchester	Trident	843-740-1590
Abbeville, Edgefield, Greenwood, Laurens, McCormick, Saluda	Upper Savannah	864-223-0333
Georgetown, Horry, Williamsburg	Waccamaw	843-238-4378
Clarendon, Kershaw, Lee, Sumter	Wateree	803-778-1531

\*After-hour reporting should be made to the 24-Hour Emergency Response telephone number 803-253-6488 or 1-888-481-0125 outside of the Columbia area.

A written submission shall also be provided to the address in Part II.L.4.a(4) within 5 days of the time the permittee becomes aware of the circumstances. The written submission shall contain a description of

the noncompliance and its cause; the period of noncompliance, including exact dates and times, and if the noncompliance has not been corrected, the anticipated time it is expected to continue; and steps taken or planned to reduce, eliminate, and prevent reoccurrence of the noncompliance.

b. The following shall be included as information which must be reported within 24 hours under this paragraph.

(1) Any unanticipated bypass which exceeds any effluent limitation in the permit. (See R.61-9.122.44(g)).

(2) Any upset which exceeds any effluent limitation in the permit.

(3) Violation of a maximum daily discharge limitation for any of the pollutants listed by the Department in the permit to be reported within 24 hours (See R 61-9.122.44(g)). If the permit contains maximum limitations for any of the pollutants listed below, a violation of the maximum limitations shall be reported orally to the DHEC/Bureau of Water/Water Enforcement Division within 24 hours or the next business day.

(a) Whole Effluent Toxicity (WET),

(b) tributyl tin (TBT), and

(c) any of the following bioaccumulative pollutants:

$\alpha$ BHC	Mercury
$\beta$ BHC	Mirex
$\delta$ BHC (Lindane)	Octachlorostyrene
BHC	PCBs
Chlordane	Pentachlorobenzene
DDD	Photomirex
DDE	1,2,3,4-Tetrachlorobenzene
DDT	1,2,4,5-Tetrachlorobenzene
Dieldrin	2,3,7,8-TCDD
Hexachlorobenzene	Toxaphene
Hexachlorobutadiene	

c. The Department may waive the written report on a case-by-case basis for reports under Part II.L.5.b of this section if the oral report has been received within 24 hours.

6. Other noncompliance.

The permittee shall report all instances of noncompliance not reported under Part II.L.4 and 5 of this section and Part IV at the time monitoring reports are submitted. The reports shall contain the information listed in Part II.L.5 of this section.

7. Other information.

Where the permittee becomes aware that it failed to submit any relevant facts in a permit application, or submitted incorrect information in a permit application or in any report to the Department, it shall promptly submit such facts or information to the Industrial, Agricultural and Storm Water Permitting Division. This

information may result in permit modification, revocation and reissuance, or termination in accordance with Regulation 61-9.

8. Existing manufacturing, commercial, mining, and silvicultural dischargers.

In addition to the reporting requirements under Part II.L.1-7 of this section, all existing manufacturing, commercial, mining, and silvicultural dischargers must notify the DHEC/Bureau of Water/Water Enforcement Division of the Department as soon as they know or have reason to believe:

- a. That any activity has occurred or will occur which would result in the discharge on a routine or frequent basis, of any toxic pollutant which is not limited in the permit, if that discharge will exceed the highest of the following "notification levels":
  - (1) One hundred micrograms per liter (100  $\mu\text{g/l}$ );
  - (2) Two hundred micrograms per liter (200  $\mu\text{g/l}$ ) for acrolein and acrylonitrile; five hundred micrograms per liter (500  $\mu\text{g/l}$ ) for 2,4-dinitrophenol and for 2-methyl-4,6-dinitrophenol; and one milligram per liter (1  $\text{mg/l}$ ) for antimony;
  - (3) Five (5) times the maximum concentration value reported for that pollutant in the permit application;  
or
  - (4) The level established by the Department in accordance with section R.61-9.122.44(f).
- b. That any activity has occurred or will occur which would result in any discharge, on a non-routine or infrequent basis, of a toxic pollutant which is not limited in the permit, if that discharge will exceed in the highest of the following "notification levels":
  - (1) Five hundred micrograms per liter (500  $\mu\text{g/l}$ );
  - (2) One milligram per liter (1  $\text{mg/l}$ ) for antimony;
  - (3) Ten (10) times the maximum concentration value reported for that pollutant in the permit application in accordance with R.61-9.122.21(g)(7).
  - (4) The level established by the Department in accordance with section R.61-9.122.44(f).

M. Bypass

1. Bypass not exceeding limitations. The permittee may allow any bypass to occur which does not cause effluent limitations to be exceeded but only if it also is for essential maintenance to assure efficient operation. These bypasses are not subject to the provisions of Part II.M.2 and 3 of this section.
2. Notice.
  - a. Anticipated bypass. If the permittee knows in advance of the need for a bypass, it shall submit prior notice, if possible, at least ten days before the date of the bypass to the DHEC/Bureau of Water/Industrial, Agricultural and Storm Water Permitting Division.



- b. Unanticipated bypass. The permittee shall submit notice of an unanticipated bypass as required in Part II.L.5 of this section.

3. Prohibition of bypass

- a. Bypass is prohibited, and the Department may take enforcement action against a permittee for bypass, unless:

- (1) Bypass was unavoidable to prevent loss of life, personal injury, or severe property damage;

- (2) There were no feasible alternatives to the bypass, such as the use of auxiliary treatment facilities, retention of untreated wastes, or maintenance during normal periods of equipment downtime. This condition is not satisfied if adequate back-up equipment should have been installed in the exercise of reasonable engineering judgment to prevent a bypass which occurred during normal periods of equipment downtime or preventive maintenance; and

- (3) The permittee submitted notices as required under Part II.M.2 of this section.

- b. The Department may approve an anticipated bypass, after considering its adverse effects, if the Department determines that it will meet the three conditions listed above in Part II.M.3.a of this section.

N. Upset

1. Effect of an upset. An upset constitutes an affirmative defense to an action brought for noncompliance with such technology based permit effluent limitations if the requirements of Part II.N.2 of this section are met. No determination made during administrative review of claims that noncompliance was caused by upset, and before an action for noncompliance, is final administrative action subject to judicial review.
2. Conditions necessary for a demonstration of upset. A permittee who wishes to establish the affirmative defense of upset shall demonstrate, through properly signed, contemporaneous operating logs, or other relevant evidence that:
  - a. An upset occurred and that the permittee can identify the cause(s) of the upset;
  - b. The permitted facility was at the time being properly operated; and
  - c. The permittee submitted notice of the upset as required in Part II.L.5.b(2) of this section.
  - d. The permittee complied with any remedial measures required under Part II.D of this section.
3. Burden of proof. In any enforcement proceeding, the permittee seeking to establish the occurrence of an upset has the burden of proof.

O. Misrepresentation of Information

1. Any person making application for a NPDES discharge permit or filing any record, report, or other document pursuant to a regulation of the Department, shall certify that all information contained in such document is true. All application facts certified to by the applicant shall be considered valid conditions of the permit issued pursuant to the application.
2. Any person who knowingly makes any false statement, representation, or certification in any application, record, report, or other documents filed with the Department pursuant to the State law, and the rules and regulations pursuant to that law, shall be deemed to have violated a permit condition and shall be subject to the penalties provided for pursuant to 48-1-320 or 48-1-330.

**Part III. Limitations and Monitoring Requirements**

**A. Effluent Limitations and Monitoring Requirements**

**1. Outfall 001/Interim Limits**

- a. During the period beginning on the effective date of this permit and lasting through July 31, 2007, the permittee is authorized to discharge from outfall serial number 001: Storm water runoff from sub-watersheds 101, 102, 103, 105, 106, 107, 109, 111, 112, 115B, 116 and 121 and groundwater from French drains.

Such discharge shall be limited and monitored by the permittee as specified below:

EFFLUENT CHARACTERISTICS	DISCHARGE LIMITATIONS				MONITORING REQUIREMENTS		
	Mass		Concentration		Sampling Frequency	Sample Type	
	Monthly Average	Daily Maximum	Monthly Average	Daily Maximum			
Flow	MR <sup>1</sup> , MGD	MR <sup>1</sup> , MGD	-	-	1/Month	Instantaneous <sup>2</sup>	
pH	-	-	Min MR <sup>1</sup> su, Max MR <sup>1</sup> su <sup>3</sup>	-	1/Month	Grab	
Total Suspended Solids	-	-	MR <sup>1</sup> mg/l	MR <sup>1</sup> mg/l	1/Month	Grab	
Total Arsenic <sup>4</sup>	-	-	MR <sup>1</sup> µg/l	MR <sup>1</sup> µg/l	1/Month	Grab	
Total Cadmium <sup>4</sup>	-	-	MR <sup>1</sup> µg/l	MR <sup>1</sup> µg/l	1/Month	Grab	
Total Lead <sup>4</sup>	-	-	MR <sup>1</sup> µg/l	MR <sup>1</sup> µg/l	1/Month	Grab	
Total Mercury <sup>4</sup>	-	-	MR <sup>1</sup> µg/l	MR <sup>1</sup> µg/l	1/Month	Grab	
Total Silver <sup>4</sup>	-	-	MR <sup>1</sup> µg/l	MR <sup>1</sup> µg/l	1/Month	Grab	
Chlordane <sup>4</sup>	-	-	MR <sup>1</sup> µg/l	MR <sup>1</sup> µg/l	1/Month	Grab	
Heptachlor <sup>4</sup>	-	-	MR <sup>1</sup> µg/l	MR <sup>1</sup> µg/l	1/Month	Grab	
Toxaphene <sup>4</sup>	-	-	MR <sup>1</sup> µg/l	MR <sup>1</sup> µg/l	1/Month	Grab	
Endrin <sup>4</sup>	-	-	MR <sup>1</sup> µg/l	MR <sup>1</sup> µg/l	1/Month	Grab	

Outfall 001/Interim Limits Con't

EFFLUENT CHARACTERISTICS	DISCHARGE LIMITATIONS					MONITORING REQUIREMENTS	
	Mass			Concentration		Sampling Frequency	Sample Type
	Monthly Average	Daily Maximum	Monthly Average	Daily Maximum			
Lindane <sup>4</sup>	-	-	MR <sup>1</sup> µg/l	MR <sup>1</sup> µg/l	1/Month	Grab	
Methoxychlor <sup>4</sup>	-	-	MR <sup>1</sup> µg/l	MR <sup>1</sup> µg/l	1/Month	Grab	
2,4-Dichlorophenoxyacetic acid <sup>4</sup>	-	-	MR <sup>1</sup> µg/l	MR <sup>1</sup> µg/l	1/Month	Grab	
2,4,5-Trichlorophenoxyacetic acid <sup>4</sup>	-	-	MR <sup>1</sup> µg/l	MR <sup>1</sup> µg/l	1/Month	Grab	

<sup>1</sup>MR: Monitor and Report

<sup>2</sup>See Part II.J.1

<sup>3</sup>See Part I.Q.

<sup>4</sup>See Part V.A.4.

Samples taken in compliance with the monitoring requirements specified above shall be taken at the following location(s): after treatment in Pond A but prior to mixing with the receiving stream. All samples shall be taken during the occurrence of a discharge from the outfall structure, but need not be more than once per month.

Outfall 001/Final Limits

b. During the period beginning on or before August 1, 2007 and lasting through the expiration date, the permittee is authorized to discharge from outfall serial number 001: Storm water runoff from sub-watersheds 101, 102, 103, 105, 106, 107, 109, 111, 112, 115B, 116 and 121 and groundwater from French drains.

Such discharge shall be limited and monitored by the permittee as specified below:

EFFLUENT CHARACTERISTICS	DISCHARGE LIMITATIONS					MONITORING REQUIREMENTS		
	Mass		Concentration			Sampling Frequency	Sample Type	
	Monthly Average	Daily Maximum	Monthly Average	Daily Maximum				
Flow	MR <sup>1</sup> , MGD	MR <sup>1</sup> , MGD	-	-	1/Month	Instantaneous <sup>2</sup>		
pH	-	-	Min MR <sup>1</sup> su, Max MR <sup>1</sup> su <sup>3</sup>	-	1/Month	Grab		
Total Suspended Solids	-	-	MR <sup>1</sup> mg/l	MR <sup>1</sup> mg/l	1/Month	Grab		
Total Arsenic <sup>4</sup>	-	-	MR <sup>1</sup> µg/l	MR <sup>1</sup> µg/l	1/Month	Grab		
Total Cadmium <sup>4</sup>	-	-	0.34 µg/l	1.9 µg/l	1/Month	Grab		
Total Lead <sup>4</sup>	-	-	3.4 µg/l	88 µg/l	1/Month	Grab		
Total Mercury <sup>4</sup>	-	-	MR <sup>1</sup> µg/l	MR <sup>1</sup> µg/l	1/Month	Grab		
Total Silver <sup>4</sup>	-	-	MR <sup>1</sup> µg/l	0.19 µg/l	1/Month	Grab		
Chlordane <sup>4</sup>	-	-	MR <sup>1</sup> µg/l	MR <sup>1</sup> µg/l	1/Month	Grab		
Heptachlor <sup>4</sup>	-	-	MR <sup>1</sup> µg/l	MR <sup>1</sup> µg/l	1/Month	Grab		
Toxaphene <sup>4</sup>	-	-	MR <sup>1</sup> µg/l	MR <sup>1</sup> µg/l	1/Month	Grab		
Endrin <sup>4</sup>	-	-	MR <sup>1</sup> µg/l	MR <sup>1</sup> µg/l	1/Month	Grab		

EFFLUENT CHARACTERISTICS	DISCHARGE LIMITATIONS					MONITORING REQUIREMENTS	
	Mass			Concentration		Sampling Frequency	Sample Type
	Monthly Average	Daily Maximum	Monthly Average	Daily Maximum			
Lindane <sup>4</sup>	-	-	MR <sup>1</sup> µg/l	MR <sup>1</sup> µg/l	1/Month	Grab	
Methoxychlor <sup>4</sup>	-	-	MR <sup>1</sup> µg/l	MR <sup>1</sup> µg/l	1/Month	Grab	
2,4-Dichlorophenoxyacetic acid <sup>4</sup>	-	-	MR <sup>1</sup> µg/l	MR <sup>1</sup> µg/l	1/Month	Grab	
2,4,5-Trichlorophenoxyacetic acid <sup>4</sup>	-	-	MR <sup>1</sup> µg/l	MR <sup>1</sup> µg/l	1/Month	Grab	

<sup>1</sup>MR: Monitor and Report

<sup>2</sup>See Part II.J.1

<sup>3</sup>See Part I.Q.

<sup>4</sup>See Part V.A.4

Samples taken in compliance with the monitoring requirements specified above shall be taken at the following location(s): after treatment in Pond A but prior to mixing with the receiving stream. All samples shall be taken during the occurrence of a discharge from the outfall structure, but need not be more than once per month.

2. Outfall 01A/Final Limits

- a. During the period beginning on the effective date of this permit and lasting through the expiration date, the permittee is authorized to discharge from outfall serial number 01A: Treated groundwater from French drains and treated storm water.

Such discharge shall be limited and monitored by the permittee as specified below:

EFFLUENT CHARACTERISTICS	DISCHARGE LIMITATIONS			MONITORING REQUIREMENTS		
	Mass			Concentration		
	Monthly Average	Daily Maximum	Monthly Average	Daily Maximum	Sampling Frequency	Sample Type
Flow	MR <sup>1</sup> , MGD	MR <sup>1</sup> , MGD	-	-	1/Month	Estimate <sup>2</sup>
Tetrachloroethylene	-	-	MR <sup>1</sup> µg/l	17 µg/l	1/Month	Grab

*REGULAR 7/29/05*

<sup>1</sup>MR: Monitor and Report

Samples taken in compliance with the monitoring requirements specified above shall be taken at the following location(s): after treatment in the air stripper but prior to mixing with any other waste streams.

2. Outfall 01A/Final Limits

- a. During the period beginning on the effective date of this permit and lasting through the expiration date, the permittee is authorized to discharge from outfall serial number 01A: Treated groundwater from French drains and treated storm water.

Such discharge shall be limited and monitored by the permittee as specified below:

EFFLUENT CHARACTERISTICS	DISCHARGE LIMITATIONS				MONITORING REQUIREMENTS		
	Mass		Concentration		Sampling Frequency	Sample Type	
	Monthly Average	Daily Maximum	Monthly Average	Daily Maximum			
Flow	MR <sup>1</sup> , MGD	MR <sup>1</sup> , MGD	-	-	1/Month	Estimate <sup>2</sup>	
Tetrachloroethylene	-	-	MR <sup>1</sup> µg/l	17 µg/l	1/Month	Grab	

<sup>1</sup>MR: Monitor and Report

Samples taken in compliance with the monitoring requirements specified above shall be taken at the following location(s): after treatment in the air stripper/aerated ponds but prior to mixing with any other waste streams.



Outfall 002/Final Limits

b. During the period beginning on the effective date of this permit and lasting through the expiration date, the permittee is authorized to discharge from outfall serial number 002: Storm water runoff from sub-watersheds 108, 114, 115A, 119 and 123 and groundwater from French drains.

Such discharge shall be limited and monitored by the permittee as specified below:

EFFLUENT CHARACTERISTICS	DISCHARGE LIMITATIONS				MONITORING REQUIREMENTS		
	Mass		Concentration		Sampling Frequency	Sample Type	
	Monthly Average	Daily Maximum	Monthly Average	Daily Maximum			
Flow	MR <sup>1</sup> , MGD	MR <sup>1</sup> , MGD	-	-	1/Month	Instantaneous <sup>2</sup>	
PH	-	-	Min MR <sup>1</sup> su, Max MR <sup>1</sup> su <sup>3</sup>	-	1/Month	Grab	
Total Suspended Solids	-	-	MR <sup>1</sup> mg/l	MR <sup>1</sup> mg/l	1/Month	Grab	
Total Arsenic <sup>4</sup>	-	-	MR <sup>1</sup> µg/l	MR <sup>1</sup> µg/l	1/Month	Grab	
Total Cadmium <sup>4</sup>	-	-	MR <sup>1</sup> µg/l	MR <sup>1</sup> µg/l	1/Month	Grab	
Total Lead <sup>4</sup>	-	-	MR <sup>1</sup> µg/l	MR <sup>1</sup> µg/l	1/Month	Grab	
Total Mercury <sup>4</sup>	-	-	MR <sup>1</sup> µg/l	MR <sup>1</sup> µg/l	1/Month	Grab	
Total Silver <sup>4</sup>	-	-	MR <sup>1</sup> µg/l	MR <sup>1</sup> µg/l	1/Month	Grab	
Chlordane <sup>4</sup>	-	-	MR <sup>1</sup> µg/l	MR <sup>1</sup> µg/l	1/Month	Grab	
Heptachlor <sup>4</sup>	-	-	MR <sup>1</sup> µg/l	MR <sup>1</sup> µg/l	1/Month	Grab	
Toxaphene <sup>4</sup>	-	-	MR <sup>1</sup> µg/l	MR <sup>1</sup> µg/l	1/Month	Grab	
Endrin <sup>4</sup>	-	-	MR <sup>1</sup> µg/l	MR <sup>1</sup> µg/l	1/Month	Grab	
Lindane <sup>4</sup>	-	-	MR <sup>1</sup> µg/l	MR <sup>1</sup> µg/l	1/Month	Grab	
Methoxychlor <sup>4</sup>	-	-	MR <sup>1</sup> µg/l	MR <sup>1</sup> µg/l	1/Month	Grab	
2,4-Dichlorophenoxyacetic acid <sup>4</sup>	-	-	MR <sup>1</sup> µg/l	MR <sup>1</sup> µg/l	1/Month	Grab	
2,4,5-Trichlorophenoxyacetic acid <sup>4</sup>	-	-	MR <sup>1</sup> µg/l	MR <sup>1</sup> µg/l	1/Month	Grab	

Outfall 002/Final Limits Con't

<sup>1</sup>MR: Monitor and Report

<sup>2</sup>See Part II.J.1

<sup>3</sup>See Part I.Q.

<sup>4</sup>See Part V.A.4

Samples taken in compliance with the monitoring requirements specified above shall be taken at the following location(s): after treatment in Pond B but prior to mixing with the receiving stream. All samples shall be taken during the occurrence of a discharge from the outfall structure, but need not be more than once per month.

3. Outfall 02A/Final Limits

- a. During the period beginning on the effective date of this permit and lasting through the effective date of this permit, the permittee is authorized to discharge from outfall serial number 02A: Storm water runoff from sub-watershed 120 and off-site runoff through Touchberry Creek.

Such discharge shall be limited and monitored by the permittee as specified below:

EFFLUENT CHARACTERISTICS	DISCHARGE LIMITATIONS					MONITORING REQUIREMENTS		
	Mass			Concentration		Sampling Frequency	Sample Type	
	Monthly Average	Daily Maximum	Monthly Average	Daily Maximum				
Flow	MR <sup>1</sup> , MGD	MR <sup>1</sup> , MGD	-	-	-	1/Quarter	Instantaneous <sup>2</sup>	
PH	-	-	Min MR <sup>1</sup> su, Max MR <sup>1</sup> su <sup>3</sup>	MR <sup>1</sup> mg/l	MR <sup>1</sup> mg/l	1/Quarter	Grab	
Total Suspended Solids	-	-	MR <sup>1</sup> mg/l	MR <sup>1</sup> mg/l	MR <sup>1</sup> mg/l	1/Quarter	Grab	
Total Arsenic <sup>4</sup>	-	-	MR <sup>1</sup> µg/l	MR <sup>1</sup> µg/l	MR <sup>1</sup> µg/l	1/Quarter	Grab	
Total Cadmium <sup>4</sup>	-	-	MR <sup>1</sup> µg/l	MR <sup>1</sup> µg/l	MR <sup>1</sup> µg/l	1/Quarter	Grab	
Total Lead <sup>4</sup>	-	-	MR <sup>1</sup> µg/l	MR <sup>1</sup> µg/l	MR <sup>1</sup> µg/l	1/Quarter	Grab	
Total Mercury <sup>4</sup>	-	-	MR <sup>1</sup> µg/l	MR <sup>1</sup> µg/l	MR <sup>1</sup> µg/l	1/Quarter	Grab	
Total Silver <sup>4</sup>	-	-	MR <sup>1</sup> µg/l	MR <sup>1</sup> µg/l	MR <sup>1</sup> µg/l	1/Quarter	Grab	
Chlordane <sup>4</sup>	-	-	MR <sup>1</sup> µg/l	MR <sup>1</sup> µg/l	MR <sup>1</sup> µg/l	1/Quarter	Grab	
Heptachlor <sup>4</sup>	-	-	MR <sup>1</sup> µg/l	MR <sup>1</sup> µg/l	MR <sup>1</sup> µg/l	1/Quarter	Grab	
Toxaphene <sup>4</sup>	-	-	MR <sup>1</sup> µg/l	MR <sup>1</sup> µg/l	MR <sup>1</sup> µg/l	1/Quarter	Grab	
Endrin <sup>4</sup>	-	-	MR <sup>1</sup> µg/l	MR <sup>1</sup> µg/l	MR <sup>1</sup> µg/l	1/Quarter	Grab	

Outfall 02A/Final Limits Con't

EFFLUENT CHARACTERISTICS	DISCHARGE LIMITATIONS				MONITORING REQUIREMENTS		
	Mass		Concentration		Sampling Frequency	Sample Type	
	Monthly Average	Daily Maximum	Monthly Average	Daily Maximum			
Lindane <sup>4</sup>	-	-	MR <sup>1</sup> µg/l	MR <sup>1</sup> µg/l	1/Quarter	Grab	
Methoxychlor <sup>4</sup>	-	-	MR <sup>1</sup> µg/l	MR <sup>1</sup> µg/l	1/Quarter	Grab	
2,4-Dichlorophenoxyacetic acid <sup>4</sup>	-	-	MR <sup>1</sup> µg/l	MR <sup>1</sup> µg/l	1/Quarter	Grab	
2,4,5-Trichlorophenoxyacetic acid <sup>4</sup>	-	-	MR <sup>1</sup> µg/l	MR <sup>1</sup> µg/l	1/Quarter	Grab	

<sup>1</sup>MR: Monitor and Report

<sup>2</sup>See Part II.J.1

<sup>3</sup>See Part I.Q.

<sup>4</sup>See Part V.A.4

Samples taken in compliance with the monitoring requirements specified above shall be taken at the following location(s): at or near the outfall, but prior to mixing with storm water from sub-watersheds 117 and 118.

B. Whole Effluent Toxicity and Other Biological Limitations and Monitoring Requirements

1. See Part V.B.1.

C. Groundwater Monitoring Requirements

N/A

D. Sludge Monitoring Requirements

N/A

E. Soil Monitoring Requirements

N/A

## Part IV. Schedule of Compliance

### A. Schedule(s)

1. For the final limits at Outfalls 001, 002, and 02A:

- a. On or before August 1, 2005, the permittee shall submit three (3) copies of a Preliminary Engineering Report (PER), in accordance with South Carolina Regulation 61-67 (*Standards for Wastewater Facility Construction*), which describes how the facility will attain compliance with the limitations set forth for in the final limits for discharges 001, 002 and 02A. The limit may be met simply using the BMPs and/or other measures being used to remove or reduce pollutant concentrations as required in Part V of this permit.

The permittee has notified the Department that the landfill closure will be completed within the next twenty-four months. In lieu of the PER, the permittee may submit a letter detailing the close out schedule and any remaining wastewater or storm water discharges that may require permitting after closure.

- b. On or before August 1, 2006 and after receiving PER approval from the Department, the permittee shall submit three (3) copies of the Final Engineering Report (FER), three (3) complete copies of the Construction Permit Application for Wastewater Treatment facilities, and three (3) copies of the plans and specifications along with supporting calculations, in accordance with South Carolina Regulation 61-67 describing how the facility will attain compliance with the final limitations set forth for discharges 001, 002 and 02A or the permittee may submit a progress report on the close out of the facility. If the information supplied in the PER required above does not require a construction permit, this item becomes void.
- c. On or before August 1, 2007, the permittee shall comply with the final limitations of this permit.
- d. Submit interim reports of progress describing the events taking place to remove or reduce pollutant concentrations shall be submitted to the Department every nine (9) months after the permit effective date until final limits are complied with. The last date may not be a full nine months.

- B. Reports of compliance or noncompliance with, or any progress reports on, interim and final requirements contained in any compliance schedule of this permit shall be submitted no later than 14 days following each scheduled date.

**Part V. Other Requirements**

**A. Effluent Requirements**

1. There shall be no discharge of floating solids or visible foam in other than trace amounts, nor shall the effluent cause a visible sheen on the receiving waters.
2. Pinewood Site Custodial Trust has permission to transport and dispose of contaminated storm water and groundwater to the Berkeley County Water & Sanitation Authority's Goose Creek Lower Berkeley Regional Plant (NPDES Permit No. SC0046060). The permittee must notify the Department prior to discontinuing disposing contaminated storm water and groundwater to the above reference POTW in order to obtain approval for a new disposal site.
3. The permittee has received pilot study approval to treat contaminated groundwater from French drains located on site. Approval is valid until July 1, 2005 unless the permittee obtains a Permit To Construct for this WWTP prior to July 1, 2005. The concentration of tetrachloroethylene (PCE) in the air stripper effluent must not exceed 17 ppb. The treated effluent will be combined with the storm water entering treatment Pond A (Outfall 001). Quarterly reports of treatability data must be submitted until the pilot project is abandoned.
4. The permittee shall use a sufficiently sensitive analytical method that achieves a value below the derived permit limit stated in Part III. The Department recommends that the permittee use a method that will achieve the PQL specified below or a lower PQL. Use of the appropriate PQL may lend value in demonstration of "no reasonable potential" later based on the statistics used to determine reasonable potential. The permittee must use the PQL specified below or a lower PQL to show permit compliance where either
  - a. the derived permit limit in Part III for the parameter of concern is at or below the PQL specified below, or
  - b. Part III contains only monitoring and reporting (MR) for the parameter of concern.

<u>Parameter</u>	<u>Analytical Method</u>	<u>PQL</u>
Total Arsenic	EPA Method 200.8 or 200.9 Standard method 3113B	0.0050 mg/l
Total Cadmium	EPA Method 200.8 or 200.9 Standard method 3113B	0.00010 mg/l
Total Lead	EPA Method 200.8 or 200.9 Standard method 3113B	0.0020 mg/l
Total Silver	EPA Method 200.8 or 200.9 Standard Method 3113B	0.0050 mg/l
Total Mercury	EPA Method 1669/1631C	0.0005 ug/l

Chlordane	EPA Method 608 or 8081A	0.50 µg/l
Heptachlor	EPA Method 608 or 8081A	0.050 µg/l
Toxaphene	EPA Method 608 or 8081A	0.50 µg/l
Endrin	EPA Method 608 or 8081A	0.050 µg/l
Lindane	EPA Method 608 or 8081A	0.050 µg/l
Methoxychlor	EPA Method 608 or 8081A	0.50 µg/l
Tetrachloroethylene (PCE)	EPA Method 624, 1624B or 8260B	2.0 µg/l
2,4-Dichlorophenoxyacetic acid	EPA Method 6640B or 8151A	0.050 µg/l
2,4,5-Trichlorophenoxyacetic acid	EPA Method 6640B or 8151A	0.025 µg/l

## B. Whole Effluent Toxicity and Other Biological Requirements

### 1. Instream Macroinvertebrate Assessment

a. The permittee shall conduct an instream macroinvertebrate survey twice per year.

(1) Instream macroinvertebrate assessments are used to detect biological impacts due to point source discharges or to determine ambient instream conditions, including non-point source impacts. The permittee shall use the following documents as guidance for writing proposed biological studies:

(a) EPA publication entitled, "Revision to Rapid Bioassessment Protocols for Use in Streams and Rivers: Periphyton, Benthic Macroinvertebrates, and Fish," by Barbour M.T., J. Gerritsen, B.D. Snyder, and J.B. Stribling (EPA 841-B-99-002) and

(b) "South Carolina Department of Health and Environmental/Control Standard Operating and Quality Control Procedures for Macroinvertebrate Sampling," Water Monitoring, Assessment, and Protection Division, Aquatic Biology Section, Columbia, SC, SCDHEC Document #004-98.

(2) The assessments should be conducted during late summer (mid-August thru September) and late winter (February thru mid-March).

c. The results of the instream assessments must be submitted to the Department within 90 days after completion of the sampling.

## C. Groundwater Requirements

N/A



D. Sludge Requirements

N/A

E. Other Conditions

1. The permittee shall maintain an all weather access road to the air stripper, storm water ponds and appurtenances at all times.
2. All waste oil and solid and hazardous waste shall be disposed of in accordance with the rules and regulations of SCDHEC's Bureau of Land & Waste Management.
3. The air stripper has been assigned a classification of Group I-PC (Physical/Chemical) in Permit to Construct No. 18,920-IW issued by the Department on February 11, 2005. This classification corresponds to an operator with a Grade D-PC.
4. In order to eliminate sampling at Outfall 02A, the permittee may choose to sample at a location prior to the point at which the flow from sub-watershed 120 or any other discharge generated on the landfill site combines with Touchberry Creek. If that sampling data shows that the water coming from off-site contains the same pollutants at the similar levels, sampling for those parameters may be discontinued for this outfall. If the decision is made to pursue this option,
  - a. Prior to any off-site sampling, the permittee shall submit to the Department for approval
    - (1) the location of the off-site sample point, including a map showing the location of the existing and proposed discharges and
    - (2) a plan for timing of the sampling of the existing discharge and the proposed discharge which will take into account the time of travel between the two points and the size of the rain event needed to generate a discharge to make the best correlation between the two points.
  - b. The permittee shall provide at least 10 samples spread over a full year from each sampling location. Any sampling conducted at Outfall 02A more frequently than required by Part III of this permit must be reported on the DMRs in accordance with Part II.L.4(b).
  - c. Upon completion of the sampling, the permittee may submit the summarized data with a request for permit modification for those parameters that are present due to the off-site water.
  - d. If this additional sampling is not provided or if it does not demonstrate that the pollutants come from off-site, then the final limits will go into effect after the time allowed in the schedule of compliance in Part IV of this permit.
  - e. If the sampling data shows that sampling may be discontinued for any parameters or if the data shows that additional requirements are needed, this permit may be reopened to remove or add conditions.

F. Storm Water Related to Landfill Construction Activity

1. Storm Water Pollution Prevention Plan (SWPPP)

- a. A SWPPP must be developed for all landfill closure construction activities. A qualified individual must prepare such SWPPP in accordance with good engineering practices. The SWPPP must be prepared, amended when necessary, certified, and stamped by a qualified individual who is licensed as follows:

Registered professional engineers as described in Title 40, Chapter 22;  
Registered landscape architects as described in Title 40, Chapter 28, Section 10, item (b);  
Tier B land surveyors as described in Title 40, Chapter 22; or  
Federal government employees as described by Title 40, Chapter 22, Section 280(A)(3).

b. Contractors

- (1) The SWPPP must clearly identify for each measure identified in the plan, the contractor(s) and/or subcontractor(s) that will implement the measure. All contractors and subcontractors identified in the plan must sign a copy of the certification statement below. All signed certifications must be included in the SWPPP.

- (2) Certification Statement. All contractors and subcontractors whose activities at the landfill may impact storm water discharges or controls at the site along the duration of the landfill closure construction activities, shall sign a copy of the certification statement given below:

"I certify by my signature below that I have read and accept the terms and conditions of the Storm Water Pollution Prevention Plan (SWPPP) as required by this NPDES permit for which I have been contracted to perform construction-related professional services. I understand that I, and my company, as the case may be, are legally accountable to the SC Department of Health and Environmental Control (DHEC), under the authorities of the CWA and the SC Pollution Control Act, to ensure compliance with the terms and conditions of the SWPPP."

- (3) The date of the signature, the title of the person providing the signature, and the name, address, and telephone number of the contracted firm, shall also be provided. In the event the SWPPP is amended, such amendments should be incorporated into the plan and the contractors and subcontractors should acknowledge by signature and date.

- (4) Copies of all contractor certifications shall be retained with the SWPPP.

c. Contents of Plan. The SWPPP shall include the following items:

- (1) Site Description. The SWPPP shall provide a description of pollutant sources and other information as indicated:

- (a) Estimates of the total area of the site and the total area of the site that is expected to be disturbed by excavation, grading, or other construction activities; and  
(b) A legible site map, showing the entire site, identifying:

- (1) Direction(s) of storm water flow and approximate slopes anticipated after major grading activities;
  - (2) Areas of soil disturbance and areas that will not be disturbed;
  - (3) Locations of structural and nonstructural BMPs identified in the SWPPP;
  - (4) Locations where stabilization practices are expected to occur;
  - (5) Except for rollofs, locations of off-site material, waste, borrow or construction equipment storage areas;
  - (6) Locations of all waters of the state of South Carolina (including wetlands);
  - (7) Locations where storm water discharges to a surface water; and
  - (8) Areas where final stabilization has been accomplished.
- (2) Controls. The SWPPP shall include a description of all pollution control measures (i.e., BMPs) that will be implemented at the landfill related to construction activity. The plan will clearly describe for each major activity appropriate control measures and the general sequence during the construction process in which the measures will be implemented. The SWPPP shall include the following minimum components:
- (a) A description of interim and permanent stabilization practices, including site-specific scheduling of the implementation of the practices. Site plans should ensure that disturbed portions of the site are stabilized. Stabilization practices may include: temporary seeding, permanent seeding, mulching, geotextiles, sod stabilization, vegetative buffer strips, protection of trees, preservation of mature vegetation, and other appropriate measures. A record of the dates when major grading activities occur, when construction activities temporarily or permanently cease on a portion of the site, and when stabilization measures are initiated shall be included in the plan. Stabilization measures shall be initiated as soon as practicable in portions of the site where construction activities have temporarily or permanently ceased
  - (b) A description of structural practices to divert flows from exposed soils, retain/detain flows or otherwise limit runoff and the discharge of pollutants from exposed areas of the site. Such practices may include silt fences, earth dikes, drainage swales, sediment traps, check dams, subsurface drains, pipe slope drains, level spreaders, storm drain inlet protection, rock outlet protection, reinforced soil retaining systems, gabions, and temporary or permanent sediment basins. Structural practices should be placed on upland soils to the degree attainable. The installation of these devices may be subject to Section 404 of the CWA.
- (1) Sediment Basins: For common drainage locations that serve an area with 10 or more acres disturbed at one time, a temporary (or permanent) sediment basin that provides storage for a calculated volume of runoff from the drainage area from at least a 10-year, 24-hour storm, or equivalent control measures, must be provided where attainable until final stabilization of the site. Where no such calculation has been performed, a temporary (or permanent) sediment basin providing at least 3,600 cubic feet of storage per acre drained, or equivalent control measures, must be provided where attainable until final stabilization of the site. When computing the number of acres draining into a common location, it is not necessary to include flows from offsite areas and flows from on-site areas that are either undisturbed or

have undergone final stabilization where such flows are diverted around both the disturbed area and the sediment basin. In determining whether installing a sediment basin is attainable, factors such as site soils, slope, available area on-site, etc. shall be considered.

- (2) For drainage locations that serve 10 or more disturbed acres at one time where a temporary sediment basin or equivalent controls are not attainable, smaller sediment basins and/or sediment traps should be used. At a minimum, silt fences, vegetative buffer strips, or equivalent sediment controls are required for all down slope boundaries (and for those side slope boundaries deemed appropriate as dictated by individual site conditions).
  - (3) For drainage locations that serve less than 10 acres, smaller sediment basins and/or sediment traps, silt fences or equivalent sediment controls are required for all sideslope and downslope boundaries of the construction area unless a sediment basin providing storage for 3,600 cubic feet of storage per acre drained is provided.
  - (4) Velocity dissipation devices shall be placed at discharge locations and along the length of any outfall channel as necessary to provide a non-erosive velocity flow from the structure to a water course so that the natural physical and biological characteristics and functions are maintained and protected (e.g. no significant changes in the hydrological regime of the receiving water).
- (c) A description of measures that will be installed during the landfill closure construction to control pollutants in storm water discharges that will occur after construction operations have been completed. Structural measures should be placed on upland soils to the degree attainable. The installation of these devices may be subject to Section 404 of the CWA.
  - (d) Off-site vehicle tracking of sediments and the generation of dust shall be minimized.
  - (e) The plan shall address the proper application rates and methods for the use of fertilizers and pesticides at the construction site and set forth how these procedures will be implemented and enforced.
  - (f) If sediment escapes the construction site, off-site accumulations of sediment must be removed at a frequency sufficient to minimize off-site impacts unless DHEC agrees that it is appropriate to leave the off-site accumulations in place.

## 2. Maintenance of Controls

- (a) All erosion and sediment control measures and other protective measures identified in the SWPPP must be maintained in effective operating condition. If site inspections identify Best Management Practices (BMPs) that are not operating effectively, maintenance must be performed as soon as possible and before the next storm event whenever practicable to maintain the continued effectiveness of storm water controls.

- (b) If existing BMPs need to be modified or if additional BMPs are necessary for any reason, implementation must be completed before the next storm event whenever practicable. If implementation before the next storm event is impracticable, the situation must be documented in the SWPPP and alternative BMPs must be implemented as soon as possible.
- (c) Sediment from sediment traps or sedimentation ponds must be removed as indicated in the SWPPP or when design capacity has been reduced by 50 percent, whichever comes first.

### 3. Other Applicable Programs

The SWPPP must be consistent with all applicable federal, state, or local requirements for soil and erosion control and storm water management, including updates to the SWPPP as necessary to reflect any revisions to applicable federal, state, or local requirements for soil and erosion control.

### 4. Inspections

- (a) Inspections must be conducted at a minimum in accordance with one of the two schedules listed below. You must specify in your SWPPP which schedule you will be following.
  - (1) At least once every 7 calendar days, or
  - (2) At least once every 14 calendar days and within 24 hours of the end of a storm event of 0.5 inches or greater.
- (b) Inspection frequency may be reduced to at least once every month if the entire site is temporarily stabilized.
- (c) Inspections must be conducted by qualified personnel. "Qualified personnel" means a person(s) knowledgeable in the principles and practice of erosion and sediment controls who possesses the skills to assess conditions at the construction site that could impact storm water quality and to assess the effectiveness of any sediment and erosion control measures selected to control the quality of storm water discharges from the construction activity. This person must be either the preparer of the SWPPP or an individual who is under the direct supervision of the preparer of the approved SWPPP and who meets the requirements in this paragraph or an individual who has been certified under Clemson University's Certified Storm Water Construction Inspection Program. Inspections may also be conducted by a person with a registration equivalent to the registration of the preparer of the SWPPP and who meets the qualifications of this paragraph or an individual who is under the direct supervision of the equivalent person and who meets the requirements in this paragraph.
- (d) Inspections must include all areas of the site disturbed by construction activity and areas used for storage of materials that are exposed to precipitation. Inspectors must look for evidence of, or the potential for, pollutants entering the storm water conveyance system. Sedimentation and erosion control measures identified in the SWPPP must be observed to ensure proper operation. Discharge locations must be inspected to ascertain whether erosion control measures are effective in preventing significant impacts to waters of the state of South Carolina, where accessible. Where discharge locations are inaccessible, nearby downstream locations must be inspected to the extent that such inspections are practicable. Locations where vehicles enter or exit the site must be inspected for

evidence of off-site sediment tracking.

- (e) For each inspection required above, you must complete an inspection report. At a minimum, the inspection report must include:
- (1) The inspection date;
  - (2) Names, titles, and, if not previously given in an inspection report, the qualifications of personnel making the inspection unless they have changed;
  - (3) Weather information for the period since the last inspection (or since commencement of construction activity if the first inspection) including a best estimate of the beginning of each storm event, duration of each storm event, approximate amount of rainfall for each storm event (in inches), and whether you know if any discharges occurred;
  - (4) Weather information and a description of any discharges occurring at the time of the inspection;
  - (5) Location(s) of discharges of sediment or other pollutants from the site;
  - (6) Location(s) of BMPs that need maintenance;
  - (7) Location(s) of BMPs that failed to operate as designed or proved inadequate for a particular location;
  - (8) Location(s) where additional BMPs are needed that did not exist at the time of inspection; and
  - (9) Corrective action required including any changes to the SWPPP necessary and implementation dates.

A record of each inspection and of any actions taken in accordance with this Part must be retained as part of the SWPPP for at least three years. The inspection reports must identify any incidents of non-compliance with the permit conditions. Where a report does not identify any incidents of non-compliance, the report must contain a certification that the construction areas are in compliance with the SWPPP and the permit. The report must be signed in accordance with §122.22 of SC Regulation 61-9.

- (f) A quarterly report must be submitted which includes the following information, at a minimum:
- (1) A summary of the results of the inspections conducted during the quarter;
  - (2) A listing of all deficiencies noted during inspections with the date the deficiency was noted;
  - (3) For each deficiency noted that required corrective action:
    - (a) A listing of the name(s), address(es), and telephone number(s) of the party or parties responsible; and
    - (b) A statement whether this deficiency was listed in the previous quarterly report;

- (4) A listing of the corrective actions that were taken to remedy any deficiencies noted and the date the corrective actions were completed;
- (5) A statement on whether or not the SWPPP was updated to deal with any deficiencies noted;
- (6) A copy of each inspection conducted during the quarter attached in an appendix to the quarterly report; and
- (7) A copy of the signed and dated certifications by all contractors involved in site landfill construction activities with each contractor's responsibilities indicated.

#### 5. Maintaining an Updated SWPPP

- (a) The SWPPP, including the site map, must be amended whenever there is a change in design, construction, operation, or maintenance at the site that has or could have a significant effect on the discharge of pollutants to the waters of the state of South Carolina that has not been previously addressed in the SWPPP.
- (b) The SWPPP must be amended if, during inspections or investigations by site staff, or by local, state, or federal officials, it is determined that the SWPPP is ineffective in eliminating or significantly minimizing pollutants in storm water discharges from the construction site.
- (c) Based on the results of an inspection, the SWPPP must be modified as necessary to include additional or modified BMPs designed to correct problems identified. Revisions to the SWPPP must be completed within seven (7) calendar days following the inspection. Implementation of these additional or modified BMPs must be accomplished as described in F.3 above.

#### 6. Signature, Review and Making SWPPPs Available

- (a) A copy of the SWPPP must be retained at the landfill until the date of final stabilization.
- (b) SWPPPs must be made available upon request by EPA; DHEC; any local agency approving sediment and erosion plans, grading plans, or storm water management plans; and local government officials. The copy of the SWPPP that is required to be kept on-site or locally available must be made available, in its entirety, to DHEC or the EPA staff for review and copying at the time of an on-site inspection.
- (c) All SWPPPs must be signed and certified in accordance with §122.22 of SC Regulation 61-9.

#### 7. Final Stabilization

Where a site has been finally stabilized and all storm water discharges from landfill closure construction activities are eliminated, the permittee must submit a letter to the Department signed in accordance with §122.22 of SC Regulation 61-9. The letter shall include the following information:

- (a) The NPDES Permit Number, Name of the Permittee and County of the Discharges,





**Appendix 3.2-1**  
**Storm Water Modeling Results**  
Culvert Master  
Pond Pack – 10 Year Event  
Pond Pack – 25 Year Event

## Culvert Master

# Culvert Calculator Report

## J-13 (Existing)

Solve For: Discharge

Culvert Summary			
Allowable HW Elevation	133.19 ft	Headwater Depth/Height	1.00
Computed Headwater Elevation	133.19 ft	Discharge	3.59 cfs
Inlet Control HW Elev.	133.07 ft	Tailwater Elevation	0.00 ft
Outlet Control HW Elev.	133.19 ft	Control Type	Entrance Control
Grades			
Upstream Invert	131.94 ft	Downstream Invert	130.05 ft
Length	30.00 ft	Constructed Slope	0.063000 ft/ft
Hydraulic Profile			
Profile	S2	Depth, Downstream	0.41 ft
Slope Type	Steep	Normal Depth	0.38 ft
Flow Regime	Supercritical	Critical Depth	0.77 ft
Velocity Downstream	10.23 ft/s	Critical Slope	0.005491 ft/ft
Section			
Section Shape	Circular	Mannings Coefficient	0.012
Section Material	Corrugated HDPE (Smooth Interior)	Span	1.25 ft
Section Size	15 inch	Rise	1.25 ft
Number Sections	1		
Outlet Control Properties			
Outlet Control HW Elev.	133.19 ft	Upstream Velocity Head	0.32 ft
Ke	0.50	Entrance Loss	0.16 ft
Inlet Control Properties			
Inlet Control HW Elev.	133.07 ft	Flow Control	N/A
Inlet Type	Square edge w/headwall	Area Full	1.2 ft <sup>2</sup>
K	0.00980	HDS 5 Chart	1
M	2.00000	HDS 5 Scale	1
C	0.03980	Equation Form	1
Y	0.67000		

# Culvert Calculator Report

## J-17 (Existing)

Solve For: Discharge

Culvert Summary			
Allowable HW Elevation	137.00 ft	Headwater Depth/Height	1.00
Computed Headwater Elevation	137.00 ft	Discharge	3.59 cfs
Inlet Control HW Elev.	136.91 ft	Tailwater Elevation	0.00 ft
Outlet Control HW Elev.	137.00 ft	Control Type	Entrance Control

Grades			
Upstream Invert	135.75 ft	Downstream Invert	134.90 ft
Length	40.00 ft	Constructed Slope	0.021250 ft/ft

Hydraulic Profile			
Profile	S2	Depth, Downstream	0.53 ft
Slope Type	Steep	Normal Depth	0.51 ft
Flow Regime	Supercritical	Critical Depth	0.77 ft
Velocity Downstream	7.28 ft/s	Critical Slope	0.005491 ft/ft

Section			
Section Shape	Circular	Mannings Coefficient	0.012
Section Material	Corrugated HDPE (Smooth Interior)	Span	1.25 ft
Section Size	15 inch	Rise	1.25 ft
Number Sections	1		

Outlet Control Properties			
Outlet Control HW Elev.	137.00 ft	Upstream Velocity Head	0.32 ft
Ke	0.50	Entrance Loss	0.16 ft

Inlet Control Properties			
Inlet Control HW Elev.	136.91 ft	Flow Control	N/A
Inlet Type	Square edge w/headwall	Area Full	1.2 ft <sup>2</sup>
K	0.00980	HDS 5 Chart	1
M	2.00000	HDS 5 Scale	1
C	0.03980	Equation Form	1
Y	0.67000		

# Culvert Calculator Report

## J-19 (Existing)

Solve For: Discharge

Culvert Summary			
Allowable HW Elevation	138.46 ft	Headwater Depth/Height	1.00
Computed Headwater Elevation	138.46 ft	Discharge	3.59 cfs
Inlet Control HW Elev.	138.36 ft	Tailwater Elevation	0.00 ft
Outlet Control HW Elev.	138.46 ft	Control Type	Entrance Control

Grades			
Upstream Invert	137.21 ft	Downstream Invert	135.55 ft
Length	40.00 ft	Constructed Slope	0.041500 ft/ft

Hydraulic Profile			
Profile	S2	Depth, Downstream	0.44 ft
Slope Type	Steep	Normal Depth	0.43 ft
Flow Regime	Supercritical	Critical Depth	0.77 ft
Velocity Downstream	9.19 ft/s	Critical Slope	0.005491 ft/ft

Section			
Section Shape	Circular	Mannings Coefficient	0.012
Section Material	Corrugated HDPE (Smooth Interior)	Span	1.25 ft
Section Size	15 inch	Rise	1.25 ft
Number Sections	1		

Outlet Control Properties			
Outlet Control HW Elev.	138.46 ft	Upstream Velocity Head	0.32 ft
Ke	0.50	Entrance Loss	0.16 ft

Inlet Control Properties			
Inlet Control HW Elev.	138.36 ft	Flow Control	N/A
Inlet Type	Square edge w/headwall	Area Full	1.2 ft <sup>2</sup>
K	0.00980	HDS 5 Chart	1
M	2.00000	HDS 5 Scale	1
C	0.03980	Equation Form	1
Y	0.67000		

# Culvert Calculator Report

## J-21 (Existing)

Solve For: Discharge

Culvert Summary			
Allowable HW Elevation	119.75 ft	Headwater Depth/Height	2.09
Computed Headwater Elevation	119.75 ft	Discharge	12.95 cfs
Inlet Control HW Elev.	119.75 ft	Tailwater Elevation	0.00 ft
Outlet Control HW Elev.	119.71 ft	Control Type	Inlet Control

Grades			
Upstream Invert	116.61 ft	Downstream Invert	116.52 ft
Length	33.00 ft	Constructed Slope	0.002727 ft/ft

Hydraulic Profile			
Profile	CompositeM2PressureProfile	Depth, Downstream	1.35 ft
Slope Type	Mild	Normal Depth	N/A ft
Flow Regime	Subcritical	Critical Depth	1.35 ft
Velocity Downstream	7.73 ft/s	Critical Slope	0.013384 ft/ft

Section			
Section Shape	Circular	Mannings Coefficient	0.013
Section Material	Concrete	Span	1.50 ft
Section Size	18 inch	Rise	1.50 ft
Number Sections	1		

Outlet Control Properties			
Outlet Control HW Elev.	119.71 ft	Upstream Velocity Head	0.83 ft
Ke	0.50	Entrance Loss	0.42 ft

Inlet Control Properties			
Inlet Control HW Elev.	119.75 ft	Flow Control	N/A
Inlet Type	Square edge w/headwall	Area Full	1.8 ft <sup>2</sup>
K	0.00980	HDS 5 Chart	1
M	2.00000	HDS 5 Scale	1
C	0.03980	Equation Form	1
Y	0.67000		

# Culvert Calculator Report

## J-21 (Proposed)

Solve For: Discharge

Culvert Summary			
Allowable HW Elevation	119.11 ft	Headwater Depth/Height	1.25
Computed Headwater Elevation	119.11 ft	Discharge	16.54 cfs
Inlet Control HW Elev.	119.06 ft	Tailwater Elevation	0.00 ft
Outlet Control HW Elev.	119.11 ft	Control Type	Outlet Control

Grades			
Upstream Invert	116.61 ft	Downstream Invert	116.52 ft
Length	33.00 ft	Constructed Slope	0.002727 ft/ft

Hydraulic Profile			
Profile	M2	Depth, Downstream	1.47 ft
Slope Type	Mild	Normal Depth	N/A ft
Flow Regime	Subcritical	Critical Depth	1.47 ft
Velocity Downstream	6.70 ft/s	Critical Slope	0.006785 ft/ft

Section			
Section Shape	Circular	Mannings Coefficient	0.013
Section Material	Concrete	Span	2.00 ft
Section Size	24 inch	Rise	2.00 ft
Number Sections	1		

Outlet Control Properties			
Outlet Control HW Elev.	119.11 ft	Upstream Velocity Head	0.50 ft
Ke	0.50	Entrance Loss	0.25 ft

Inlet Control Properties			
Inlet Control HW Elev.	119.06 ft	Flow Control	Transition
Inlet Type	Square edge w/headwall	Area Full	3.1 ft <sup>2</sup>
K	0.00980	HDS 5 Chart	1
M	2.00000	HDS 5 Scale	1
C	0.03980	Equation Form	1
Y	0.67000		

# Culvert Calculator Report

## J-27 (Existing)

Solve For: Discharge

Culvert Summary			
Allowable HW Elevation	138.46 ft	Headwater Depth/Height	1.00
Computed Headwater Elevation	138.46 ft	Discharge	3.59 cfs
Inlet Control HW Elev.	138.37 ft	Tailwater Elevation	0.00 ft
Outlet Control HW Elev.	138.46 ft	Control Type	Entrance Control

Grades			
Upstream Invert	137.21 ft	Downstream Invert	136.30 ft
Length	40.00 ft	Constructed Slope	0.022750 ft/ft

Hydraulic Profile			
Profile	S2	Depth, Downstream	0.52 ft
Slope Type	Steep	Normal Depth	0.50 ft
Flow Regime	Supercritical	Critical Depth	0.77 ft
Velocity Downstream	7.45 ft/s	Critical Slope	0.005491 ft/ft

Section			
Section Shape	Circular	Mannings Coefficient	0.012
Section Material	Corrugated HDPE (Smooth Interior)	Span	1.25 ft
Section Size	15 inch	Rise	1.25 ft
Number Sections	1		

Outlet Control Properties			
Outlet Control HW Elev.	138.46 ft	Upstream Velocity Head	0.32 ft
Ke	0.50	Entrance Loss	0.16 ft

Inlet Control Properties			
Inlet Control HW Elev.	138.37 ft	Flow Control	N/A
Inlet Type	Square edge w/headwall	Area Full	1.2 ft <sup>2</sup>
K	0.00980	HDS 5 Chart	1
M	2.00000	HDS 5 Scale	1
C	0.03980	Equation Form	1
Y	0.67000		



# Culvert Calculator Report

## J-31 (Existing)

Solve For: Discharge

Culvert Summary			
Allowable HW Elevation	138.08 ft	Headwater Depth/Height	1.00
Computed Headwater Elevation	138.08 ft	Discharge	3.59 cfs
Inlet Control HW Elev.	137.99 ft	Tailwater Elevation	0.00 ft
Outlet Control HW Elev.	138.08 ft	Control Type	Entrance Control

Grades			
Upstream Invert	136.83 ft	Downstream Invert	135.98 ft
Length	40.00 ft	Constructed Slope	0.021250 ft/ft

Hydraulic Profile			
Profile	S2	Depth, Downstream	0.53 ft
Slope Type	Steep	Normal Depth	0.51 ft
Flow Regime	Supercritical	Critical Depth	0.77 ft
Velocity Downstream	7.28 ft/s	Critical Slope	0.005491 ft/ft

Section			
Section Shape	Circular	Mannings Coefficient	0.012
Section Material	Corrugated HDPE (Smooth Interior)	Span	1.25 ft
Section Size	15 inch	Rise	1.25 ft
Number Sections	1		

Outlet Control Properties			
Outlet Control HW Elev.	138.08 ft	Upstream Velocity Head	0.32 ft
Ke	0.50	Entrance Loss	0.16 ft

Inlet Control Properties			
Inlet Control HW Elev.	137.99 ft	Flow Control	N/A
Inlet Type	Square edge w/headwall	Area Full	1.2 ft <sup>2</sup>
K	0.00980	HDS 5 Chart	1
M	2.00000	HDS 5 Scale	1
C	0.03980	Equation Form	1
Y	0.67000		

# Culvert Calculator Report

## J-33 (Existing)

Solve For: Discharge

Culvert Summary			
Allowable HW Elevation	131.18 ft	Headwater Depth/Height	1.00
Computed Headwater Elevation	131.18 ft	Discharge	4.11 cfs
Inlet Control HW Elev.	131.07 ft	Tailwater Elevation	0.00 ft
Outlet Control HW Elev.	131.18 ft	Control Type	Entrance Control

Grades			
Upstream Invert	130.18 ft	Downstream Invert	126.27 ft
Length	40.00 ft	Constructed Slope	0.097750 ft/ft

Hydraulic Profile			
Profile	S2	Depth, Downstream	0.28 ft
Slope Type	Steep	Normal Depth	0.28 ft
Flow Regime	Supercritical	Critical Depth	0.61 ft
Velocity Downstream	11.46 ft/s	Critical Slope	0.005918 ft/ft

Section			
Section Shape	Circular	Mannings Coefficient	0.012
Section Material	Corrugated HDPE (Smooth Interior)	Span	1.00 ft
Section Size	12 inch	Rise	1.00 ft
Number Sections	2		

Outlet Control Properties			
Outlet Control HW Elev.	131.18 ft	Upstream Velocity Head	0.26 ft
Ke	0.50	Entrance Loss	0.13 ft

Inlet Control Properties			
Inlet Control HW Elev.	131.07 ft	Flow Control	N/A
Inlet Type	Square edge w/headwall	Area Full	1.6 ft <sup>2</sup>
K	0.00980	HDS 5 Chart	1
M	2.00000	HDS 5 Scale	1
C	0.03980	Equation Form	1
Y	0.67000		

# Culvert Calculator Report

## J-33 (Proposed)

Solve For: Discharge

Culvert Summary			
Allowable HW Elevation	131.68 ft	Headwater Depth/Height	1.00
Computed Headwater Elevation	131.68 ft	Discharge	11.33 cfs
Inlet Control HW Elev.	131.51 ft	Tailwater Elevation	0.00 ft
Outlet Control HW Elev.	131.68 ft	Control Type	Entrance Control

Grades			
Upstream Invert	130.18 ft	Downstream Invert	126.27 ft
Length	40.00 ft	Constructed Slope	0.097750 ft/ft

Hydraulic Profile			
Profile	S2	Depth, Downstream	0.43 ft
Slope Type	Steep	Normal Depth	0.40 ft
Flow Regime	Supercritical	Critical Depth	0.92 ft
Velocity Downstream	13.61 ft/s	Critical Slope	0.005162 ft/ft

Section			
Section Shape	Circular	Mannings Coefficient	0.012
Section Material	Corrugated HDPE (Smooth Interior)	Span	1.50 ft
Section Size	18 inch	Rise	1.50 ft
Number Sections	2		

Outlet Control Properties			
Outlet Control HW Elev.	131.68 ft	Upstream Velocity Head	0.39 ft
Ke	0.50	Entrance Loss	0.19 ft

Inlet Control Properties			
Inlet Control HW Elev.	131.51 ft	Flow Control	Unsubmerged
Inlet Type	Square edge w/headwall	Area Full	3.5 ft <sup>2</sup>
K	0.00980	HDS 5 Chart	1
M	2.00000	HDS 5 Scale	1
C	0.03980	Equation Form	1
Y	0.67000		

# Culvert Calculator Report

## J-36 (Existing)

Solve For: Discharge

Culvert Summary			
Allowable HW Elevation	121.54 ft	Headwater Depth/Height	2.00
Computed Headwater Elevation	121.54 ft	Discharge	2.90 cfs
Inlet Control HW Elev.	120.86 ft	Tailwater Elevation	0.00 ft
Outlet Control HW Elev.	121.54 ft	Control Type	Outlet Control

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Grades			
Upstream Invert	119.54 ft	Downstream Invert	119.38 ft
Length	40.00 ft	Constructed Slope	0.004000 ft/ft

---

Hydraulic Profile			
Profile	CompositeM2PressureProfile	Depth, Downstream	0.73 ft
Slope Type	Mild	Normal Depth	N/A ft
Flow Regime	Subcritical	Critical Depth	0.73 ft
Velocity Downstream	4.72 ft/s	Critical Slope	0.028936 ft/ft

---

Section			
Section Shape	Circular	Mannings Coefficient	0.024
Section Material	CMP	Span	1.00 ft
Section Size	12 inch	Rise	1.00 ft
Number Sections	1		

---

Outlet Control Properties			
Outlet Control HW Elev.	121.54 ft	Upstream Velocity Head	0.21 ft
Ke	0.90	Entrance Loss	0.19 ft

---

Inlet Control Properties			
Inlet Control HW Elev.	120.86 ft	Flow Control	N/A
Inlet Type	Projecting	Area Full	0.8 ft <sup>2</sup>
K	0.03400	HDS 5 Chart	2
M	1.50000	HDS 5 Scale	3
C	0.05530	Equation Form	1
Y	0.54000		

# Culvert Calculator Report

## J-36 (Proposed)

Solve For: Discharge

Culvert Summary			
Allowable HW Elevation	121.54 ft	Headwater Depth/Height	1.33
Computed Headwater Elevation	121.54 ft	Discharge	6.61 cfs
Inlet Control HW Elev.	121.24 ft	Tailwater Elevation	0.00 ft
Outlet Control HW Elev.	121.54 ft	Control Type	Outlet Control
Grades			
Upstream Invert	119.54 ft	Downstream Invert	119.38 ft
Length	40.00 ft	Constructed Slope	0.004000 ft/ft
Hydraulic Profile			
Profile	CompositeM2PressureProfile	Depth, Downstream	0.99 ft
Slope Type	Mild	Normal Depth	N/A ft
Flow Regime	Subcritical	Critical Depth	0.99 ft
Velocity Downstream	5.31 ft/s	Critical Slope	0.022303 ft/ft
Section			
Section Shape	Circular	Mannings Coefficient	0.024
Section Material	CMP	Span	1.50 ft
Section Size	18 inch	Rise	1.50 ft
Number Sections	1		
Outlet Control Properties			
Outlet Control HW Elev.	121.54 ft	Upstream Velocity Head	0.22 ft
Ke	0.90	Entrance Loss	0.20 ft
Inlet Control Properties			
Inlet Control HW Elev.	121.24 ft	Flow Control	Unsubmerged
Inlet Type	Projecting	Area Full	1.8 ft <sup>2</sup>
K	0.03400	HDS 5 Chart	2
M	1.50000	HDS 5 Scale	3
C	0.05530	Equation Form	1
Y	0.54000		

# Culvert Calculator Report

## J-41 (Proposed)

Solve For: Discharge

Culvert Summary			
Allowable HW Elevation	135.16 ft	Headwater Depth/Height	1.00
Computed Headwater Elevation	135.16 ft	Discharge	5.75 cfs
Inlet Control HW Elev.	135.08 ft	Tailwater Elevation	0.00 ft
Outlet Control HW Elev.	135.16 ft	Control Type	Outlet Control

Grades			
Upstream Invert	133.66 ft	Downstream Invert	133.56 ft
Length	40.00 ft	Constructed Slope	0.002500 ft/ft

Hydraulic Profile			
Profile	M2	Depth, Downstream	0.93 ft
Slope Type	Mild	Normal Depth	1.24 ft
Flow Regime	Subcritical	Critical Depth	0.93 ft
Velocity Downstream	5.03 ft/s	Critical Slope	0.005202 ft/ft

Section			
Section Shape	Circular	Mannings Coefficient	0.012
Section Material	Corrugated HDPE (Smooth Interior)	Span	1.50 ft
Section Size	18 inch	Rise	1.50 ft
Number Sections	1		

Outlet Control Properties			
Outlet Control HW Elev.	135.16 ft	Upstream Velocity Head	0.27 ft
Ke	0.50	Entrance Loss	0.13 ft

Inlet Control Properties			
Inlet Control HW Elev.	135.08 ft	Flow Control	Unsubmerged
Inlet Type	Square edge w/headwall	Area Full	1.8 ft <sup>2</sup>
K	0.00980	HDS 5 Chart	1
M	2.00000	HDS 5 Scale	1
C	0.03980	Equation Form	1
Y	0.67000		

# Culvert Calculator Report

## J-43 (Existing)

Solve For: Discharge

Culvert Summary			
Allowable HW Elevation	130.85 ft	Headwater Depth/Height	1.00
Computed Headwater Elevation	130.85 ft	Discharge	4.11 cfs
Inlet Control HW Elev.	130.76 ft	Tailwater Elevation	0.00 ft
Outlet Control HW Elev.	130.85 ft	Control Type	Entrance Control
Grades			
Upstream Invert	129.85 ft	Downstream Invert	127.73 ft
Length	40.00 ft	Constructed Slope	0.053000 ft/ft
Hydraulic Profile			
Profile	S2	Depth, Downstream	0.33 ft
Slope Type	Steep	Normal Depth	0.33 ft
Flow Regime	Supercritical	Critical Depth	0.61 ft
Velocity Downstream	9.07 ft/s	Critical Slope	0.005918 ft/ft
Section			
Section Shape	Circular	Mannings Coefficient	0.012
Section Material	Corrugated HDPE (Smooth Interior)	Span	1.00 ft
Section Size	12 inch	Rise	1.00 ft
Number Sections	2		
Outlet Control Properties			
Outlet Control HW Elev.	130.85 ft	Upstream Velocity Head	0.26 ft
Ke	0.50	Entrance Loss	0.13 ft
Inlet Control Properties			
Inlet Control HW Elev.	130.76 ft	Flow Control	N/A
Inlet Type	Square edge w/headwall	Area Full	1.6 ft <sup>2</sup>
K	0.00980	HDS 5 Chart	1
M	2.00000	HDS 5 Scale	1
C	0.03980	Equation Form	1
Y	0.67000		

# Culvert Calculator Report

## J-43 (Proposed)

Solve For: Discharge

Culvert Summary			
Allowable HW Elevation	132.35 ft	Headwater Depth/Height	1.00
Computed Headwater Elevation	132.35 ft	Discharge	40.62 cfs
Inlet Control HW Elev.	132.13 ft	Tailwater Elevation	0.00 ft
Outlet Control HW Elev.	132.35 ft	Control Type	Entrance Control

Grades			
Upstream Invert	129.85 ft	Downstream Invert	127.73 ft
Length	40.00 ft	Constructed Slope	0.053000 ft/ft

Hydraulic Profile			
Profile	S2	Depth, Downstream	0.88 ft
Slope Type	Steep	Normal Depth	0.76 ft
Flow Regime	Supercritical	Critical Depth	1.53 ft
Velocity Downstream	13.10 ft/s	Critical Slope	0.004356 ft/ft

Section			
Section Shape	Circular	Mannings Coefficient	0.012
Section Material	Corrugated HDPE (Smooth Interior)	Span	2.50 ft
Section Size	30 inch	Rise	2.50 ft
Number Sections	2		

Outlet Control Properties			
Outlet Control HW Elev.	132.35 ft	Upstream Velocity Head	0.65 ft
Ke	0.50	Entrance Loss	0.32 ft

Inlet Control Properties			
Inlet Control HW Elev.	132.13 ft	Flow Control	Unsubmerged
Inlet Type	Square edge w/headwall	Area Full	9.8 ft <sup>2</sup>
K	0.00980	HDS 5 Chart	1
M	2.00000	HDS 5 Scale	1
C	0.03980	Equation Form	1
Y	0.67000		



# Culvert Calculator Report

## J-60 (Existing)

Solve For: Discharge

Culvert Summary			
Allowable HW Elevation	117.62 ft	Headwater Depth/Height	1.00
Computed Headwater Elevation	117.62 ft	Discharge	5.66 cfs
Inlet Control HW Elev.	117.43 ft	Tailwater Elevation	0.00 ft
Outlet Control HW Elev.	117.62 ft	Control Type	Entrance Control

Grades			
Upstream Invert	116.12 ft	Downstream Invert	110.99 ft
Length	40.00 ft	Constructed Slope	0.128250 ft/ft

Hydraulic Profile			
Profile	S2	Depth, Downstream	0.41 ft
Slope Type	Steep	Normal Depth	0.39 ft
Flow Regime	Supercritical	Critical Depth	0.92 ft
Velocity Downstream	14.63 ft/s	Critical Slope	0.006064 ft/ft

Section			
Section Shape	Circular	Mannings Coefficient	0.013
Section Material	Concrete	Span	1.50 ft
Section Size	18 inch	Rise	1.50 ft
Number Sections	1		

Outlet Control Properties			
Outlet Control HW Elev.	117.62 ft	Upstream Velocity Head	0.39 ft
Ke	0.50	Entrance Loss	0.19 ft

Inlet Control Properties			
Inlet Control HW Elev.	117.43 ft	Flow Control	N/A
Inlet Type	Square edge w/headwall	Area Full	1.8 ft <sup>2</sup>
K	0.00980	HDS 5 Chart	1
M	2.00000	HDS 5 Scale	1
C	0.03980	Equation Form	1
Y	0.67000		

# Culvert Calculator Report

## J-60 (Proposed)

Solve For: Discharge

Culvert Summary			
Allowable HW Elevation	118.12 ft	Headwater Depth/Height	1.00
Computed Headwater Elevation	118.12 ft	Discharge	11.63 cfs
Inlet Control HW Elev.	117.87 ft	Tailwater Elevation	0.00 ft
Outlet Control HW Elev.	118.12 ft	Control Type	Entrance Control

Grades			
Upstream Invert	116.12 ft	Downstream Invert	110.99 ft
Length	40.00 ft	Constructed Slope	0.128250 ft/ft

Hydraulic Profile			
Profile	S2	Depth, Downstream	0.56 ft
Slope Type	Steep	Normal Depth	0.51 ft
Flow Regime	Supercritical	Critical Depth	1.22 ft
Velocity Downstream	16.30 ft/s	Critical Slope	0.005510 ft/ft

Section			
Section Shape	Circular	Mannings Coefficient	0.013
Section Material	Concrete	Span	2.00 ft
Section Size	24 inch	Rise	2.00 ft
Number Sections	1		

Outlet Control Properties			
Outlet Control HW Elev.	118.12 ft	Upstream Velocity Head	0.52 ft
Ke	0.50	Entrance Loss	0.26 ft

Inlet Control Properties			
Inlet Control HW Elev.	117.87 ft	Flow Control	Unsubmerged
Inlet Type	Square edge w/headwall	Area Full	3.1 ft <sup>2</sup>
K	0.00980	HDS 5 Chart	1
M	2.00000	HDS 5 Scale	1
C	0.03980	Equation Form	1
Y	0.67000		

# Culvert Calculator Report

## J-64 (Existing)

Solve For: Discharge

Culvert Summary			
Allowable HW Elevation	115.70 ft	Headwater Depth/Height	1.00
Computed Headwater Elevation	115.70 ft	Discharge	5.66 cfs
Inlet Control HW Elev.	115.57 ft	Tailwater Elevation	0.00 ft
Outlet Control HW Elev.	115.70 ft	Control Type	Entrance Control

Grades			
Upstream Invert	114.20 ft	Downstream Invert	112.44 ft
Length	40.00 ft	Constructed Slope	0.044000 ft/ft

Hydraulic Profile			
Profile	S2	Depth, Downstream	0.54 ft
Slope Type	Steep	Normal Depth	0.52 ft
Flow Regime	Supercritical	Critical Depth	0.92 ft
Velocity Downstream	9.82 ft/s	Critical Slope	0.006064 ft/ft

Section			
Section Shape	Circular	Mannings Coefficient	0.013
Section Material	Concrete	Span	1.50 ft
Section Size	18 inch	Rise	1.50 ft
Number Sections	1		

Outlet Control Properties			
Outlet Control HW Elev.	115.70 ft	Upstream Velocity Head	0.39 ft
Ke	0.50	Entrance Loss	0.19 ft

Inlet Control Properties			
Inlet Control HW Elev.	115.57 ft	Flow Control	N/A
Inlet Type	Square edge w/headwall	Area Full	1.8 ft <sup>2</sup>
K	0.00980	HDS 5 Chart	1
M	2.00000	HDS 5 Scale	1
C	0.03980	Equation Form	1
Y	0.67000		

## Pond Pack – 10 Year Event

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Subsection: Master Network Summary

**Catchments Summary**

Label	Scenario	Return Event (years)	Hydrograph Volume (ac-ft)	Time to Peak (hours)	Peak Flow (ft <sup>3</sup> /s)
CM-10	Pre Dev 10 yr	10	0.244	11.940	4.45
CM-11	Pre Dev 10 yr	10	0.095	11.925	1.78
CM-12	Pre Dev 10 yr	10	0.089	11.935	1.63
CM-13	Pre Dev 10 yr	10	0.203	12.010	3.27
CM-14	Pre Dev 10 yr	10	1.169	12.010	18.96
CM-16	Pre Dev 10 yr	10	0.054	11.935	1.00
CM-17	Pre Dev 10 yr	10	0.132	12.120	1.48
CM-18	Pre Dev 10 yr	10	0.464	11.995	7.67
CM-19	Pre Dev 10 yr	10	0.095	11.995	1.58
CM-21	Pre Dev 10 yr	10	0.158	12.005	2.55
CM-29	Pre Dev 10 yr	10	1.117	12.050	16.38
CM-3	Pre Dev 10 yr	10	0.118	11.930	2.20
CM-5	Pre Dev 10 yr	10	0.036	11.930	0.68
CM-6	Pre Dev 10 yr	10	0.085	11.970	1.44
CM-7	Pre Dev 10 yr	10	0.401	12.030	6.11
CM-8	Pre Dev 10 yr	10	0.070	11.960	1.20
CM-9	Pre Dev 10 yr	10	0.076	12.000	1.23

**Node Summary**

Label	Scenario	Return Event (years)	Hydrograph Volume (ac-ft)	Time to Peak (hours)	Peak Flow (ft <sup>3</sup> /s)
J-129	Pre Dev 10 yr	10	1.117	12.050	16.38
J-13	Pre Dev 10 yr	10	0.118	11.930	2.20
J-17	Pre Dev 10 yr	10	0.036	11.930	0.68
J-18	Pre Dev 10 yr	10	0.036	11.930	0.68
J-19	Pre Dev 10 yr	10	0.085	11.970	1.44
J-20	Pre Dev 10 yr	10	0.085	11.970	1.44
J-21	Pre Dev 10 yr	10	0.822	12.015	12.55
J-27	Pre Dev 10 yr	10	0.070	11.960	1.20
J-28	Pre Dev 10 yr	10	0.070	11.960	1.20
J-31	Pre Dev 10 yr	10	0.076	12.000	1.23
J-32	Pre Dev 10 yr	10	0.076	12.000	1.23
J-33	Pre Dev 10 yr	10	0.390	11.950	6.71
J-35	Pre Dev 10 yr	10	0.118	11.930	2.20
J-36	Pre Dev 10 yr	10	0.212	11.925	3.98
J-39	Pre Dev 10 yr	10	0.522	12.025	8.01
J-41	Pre Dev 10 yr	10	0.203	12.010	3.27
J-42	Pre Dev 10 yr	10	0.203	12.010	3.27
J-43	Pre Dev 10 yr	10	1.372	12.010	22.22
J-52	Pre Dev 10 yr	10	0.054	11.935	1.00
J-53	Pre Dev 10 yr	10	0.054	11.935	1.00
J-59	Pre Dev 10 yr	10	0.464	11.995	7.67
J-60	Pre Dev 10 yr	10	0.463	12.005	7.64

Subsection: Master Network Summary

**Node Summary**

Label	Scenario	Return Event (years)	Hydrograph Volume (ac-ft)	Time to Peak (hours)	Peak Flow (ft <sup>3</sup> /s)
J-62	Pre Dev 10 yr	10	0.559	12.005	9.21
J-64	Pre Dev 10 yr	10	0.158	12.025	2.53
J-66	Pre Dev 10 yr	10	0.158	12.005	2.55
O-10	Pre Dev 10 yr	10	0.158	12.025	2.53
O-12	Pre Dev 10 yr	10	0.390	11.950	6.71
O-13	Pre Dev 10 yr	10	1.372	12.010	22.22
O-14	Pre Dev 10 yr	10	1.116	12.060	16.26
O-5	Pre Dev 10 yr	10	0.822	12.015	12.55
O-8	Pre Dev 10 yr	10	0.186	12.025	2.02
O-9	Pre Dev 10 yr	10	0.559	12.005	9.21



## Subsection: Unit Hydrograph Equations

### Unit Hydrograph Method (Computational Notes)

#### Definition of Terms

At	Total area (acres): $A_t = A_i + A_p$
Ai	Impervious area (acres)
Ap	Pervious area (acres)
CNi	Runoff curve number for impervious area
CNp	Runoff curve number for pervious area
fLoss	f loss constant infiltration (depth/time)
gKs	Saturated Hydraulic Conductivity (depth/time)
Md	Volumetric Moisture Deficit
Psi	Capillary Suction (length)
hK	Horton Infiltration Decay Rate ( $\text{time}^{-1}$ )
fo	Initial Infiltration Rate (depth/time)
fc	Ultimate(capacity) Infiltration Rate (depth/time)
la	Initial Abstraction (length)
dt	Computational increment (duration of unit excess rainfall) Default dt is smallest value of $0.1333T_c$ , $r_{tm}$ , and $t_h$ (Smallest dt is then adjusted to match up with $T_p$ )
UDdt	User specified override computational main time increment (only used if UDdt is $\Rightarrow .1333T_c$ )
D(t)	Point on distribution curve (fraction of P) for time step t
K	$2 / (1 + (T_r/T_p))$ : default K = 0.75: (for $T_r/T_p = 1.67$ )
Ks	Hydrograph shape factor = Unit Conversions * K: = $((1\text{hr}/3600\text{sec}) * (1\text{ft}/12\text{in}) * ((5280\text{ft})^2/\text{sq.mi})) * K$ Default $K_s = 645.333 * 0.75 = 484$
Lag	Lag time from center of excess runoff (dt) to $T_p$ : $\text{Lag} = 0.6T_c$
P	Total precipitation depth, inches
Pa(t)	Accumulated rainfall at time step t
Pi(t)	Incremental rainfall at time step t
qp	Peak discharge (cfs) for 1in. runoff, for 1hr, for 1 sq.mi. = $(K_s * A * Q) / T_p$ (where $Q = 1\text{in. runoff}$ , $A = \text{sq.mi.}$ )
Qu(t)	Unit hydrograph ordinate (cfs) at time step t
Q(t)	Final hydrograph ordinate (cfs) at time step t
Rai(t)	Accumulated runoff (inches) at time step t for impervious area
Rap(t)	Accumulated runoff (inches) at time step t for pervious area
Rii(t)	Incremental runoff (inches) at time step t for impervious area
Rip(t)	Incremental runoff (inches) at time step t for pervious area
R(t)	Incremental weighted total runoff (inches)
Rtm	Time increment for rainfall table
Si	S for impervious area: $S_i = (1000/CNi) - 10$
Sp	S for pervious area: $S_p = (1000/CNp) - 10$
t	Time step (row) number
Tc	Time of concentration
Tb	Time (hrs) of entire unit hydrograph: $T_b = T_p + T_r$
Tp	Time (hrs) to peak of a unit hydrograph: $T_p = (dt/2) + \text{Lag}$
Tr	Time (hrs) of receding limb of unit hydrograph: $T_r = \text{ratio of } T_p$

Subsection: Unit Hydrograph Equations

## Unit Hydrograph Method

### Computational Notes

#### Precipitation

Column (1)	Time for time step t
Column (2)	$D(t)$ = Point on distribution curve for time step t
Column (3)	$P_i(t) = P_a(t) - P_a(t-1)$ : Col.(4) - Preceding Col.(4)
Column (4)	$P_a(t) = D(t) \times P$ : Col.(2) x P

#### Pervious Area Runoff (using SCS Runoff CN Method)

Column (5)	$R_{ap}(t)$ = Accumulated pervious runoff for time step t If $(P_a(t) \text{ is } \leq 0.2S_p)$ then use: $R_{ap}(t) = 0.0$ If $(P_a(t) \text{ is } > 0.2S_p)$ then use:  $R_{ap}(t) = (Col.(4) - 0.2S_p)^{**2} / (Col.(4) + 0.8S_p)$
Column (6)	$R_{ip}(t)$ = Incremental pervious runoff for time step t $R_{ip}(t) = R_{ap}(t) - R_{ap}(t-1)$ $R_{ip}(t) = Col.(5) \text{ for current row} - Col.(5) \text{ for preceding row.}$

#### Impervious Area Runoff

Column (7 & 8)...	Did not specify to use impervious areas.
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#### Incremental Weighted Runoff

Column (9)	$R(t) = (A_p/A_t) \times R_{ip}(t) + (A_i/A_t) \times R_{ii}(t)$ $R(t) = (A_p/A_t) \times Col.(6) + (A_i/A_t) \times Col.(8)$
------------	--

#### SCS Unit Hydrograph Method

Column (10)	$Q(t)$ is computed with the SCS unit hydrograph method using $R(t)$ and $Q_u(t)$ .
-------------	--

Subsection: Unit Hydrograph Summary  
 Label: CM-10

Return Event: 10 years  
 Storm Event: 10 yr

Storm Event	10 yr
Return Event	10 years
Duration	24.000 hours
Depth	5.8 in
Time of Concentration (Composite)	0.101 hours
Scaled Area	1.148 acres

Computational Time Increment	0.013 hours
Time to Peak (Computed)	11.940 hours
Flow (Peak, Computed)	4.45 ft <sup>3</sup> /s
Output Increment	0.005 hours
Time to Flow (Peak Interpolated Output)	11.940 hours
Flow (Peak Interpolated Output)	4.45 ft <sup>3</sup> /s

<b>Drainage Area</b>	
SCS CN (Composite)	69.000
Scaled Area	1.148 acres
Maximum Retention (Pervious)	4.5 in
Maximum Retention (Pervious, 20 percent)	0.9 in

<b>Cumulative Runoff</b>	
Cumulative Runoff Depth (Pervious)	2.6 in
Runoff Volume (Pervious)	0.245 ac-ft

<b>Hydrograph Volume (Area under Hydrograph curve)</b>	
Volume	0.244 ac-ft

<b>SCS Unit Hydrograph Parameters</b>	
Time of Concentration (Composite)	0.101 hours
Computational Time Increment	0.013 hours
Unit Hydrograph Shape Factor	483.432
K Factor	0.749
Receding/Rising, Tr/Tp	1.670
Unit peak, qp	12.90 ft <sup>3</sup> /s
Unit peak time, Tp	0.067 hours

Subsection: Unit Hydrograph Summary  
Label: CM-10

Return Event: 10 years  
Storm Event: 10 yr

---

SCS Unit Hydrograph Parameters

---

Unit receding limb, Tr	0.269 hours
Total unit time, Tb	0.336 hours

---

Subsection: Unit Hydrograph Summary  
 Label: CM-11

Return Event: 10 years  
 Storm Event: 10 yr

Storm Event	10 yr
Return Event	10 years
Duration	24.000 hours
Depth	5.8 in
Time of Concentration (Composite)	0.083 hours
Scaled Area	0.445 acres

Computational Time Increment	0.011 hours
Time to Peak (Computed)	11.922 hours
Flow (Peak, Computed)	1.78 ft <sup>3</sup> /s
Output Increment	0.005 hours
Time to Flow (Peak Interpolated Output)	11.925 hours
Flow (Peak Interpolated Output)	1.78 ft <sup>3</sup> /s

<b>Drainage Area</b>	
SCS CN (Composite)	69.000
Scaled Area	0.445 acres
Maximum Retention (Pervious)	4.5 in
Maximum Retention (Pervious, 20 percent)	0.9 in

<b>Cumulative Runoff</b>	
Cumulative Runoff Depth (Pervious)	2.6 in
Runoff Volume (Pervious)	0.095 ac-ft

<b>Hydrograph Volume (Area under Hydrograph curve)</b>	
Volume	0.095 ac-ft

<b>SCS Unit Hydrograph Parameters</b>	
Time of Concentration (Composite)	0.083 hours
Computational Time Increment	0.011 hours
Unit Hydrograph Shape Factor	483.432
K Factor	0.749
Receding/Rising, Tr/Tp	1.670
Unit peak, qp	6.05 ft <sup>3</sup> /s
Unit peak time, Tp	0.056 hours

Subsection: Unit Hydrograph Summary  
Label: CM-11

Return Event: 10 years  
Storm Event: 10 yr

---

SCS Unit Hydrograph Parameters

---

Unit receding limb, Tr	0.222 hours
Total unit time, Tb	0.278 hours

---

Subsection: Unit Hydrograph Summary  
 Label: CM-12

Return Event: 10 years  
 Storm Event: 10 yr

Storm Event	10 yr
Return Event	10 years
Duration	24.000 hours
Depth	5.8 in
Time of Concentration (Composite)	0.096 hours
Scaled Area	0.416 acres

Computational Time Increment	0.013 hours
Time to Peak (Computed)	11.936 hours
Flow (Peak, Computed)	1.63 ft <sup>3</sup> /s
Output Increment	0.005 hours
Time to Flow (Peak Interpolated Output)	11.935 hours
Flow (Peak Interpolated Output)	1.63 ft <sup>3</sup> /s

<b>Drainage Area</b>	
SCS CN (Composite)	69.000
Scaled Area	0.416 acres
Maximum Retention (Pervious)	4.5 in
Maximum Retention (Pervious, 20 percent)	0.9 in

<b>Cumulative Runoff</b>	
Cumulative Runoff Depth (Pervious)	2.6 in
Runoff Volume (Pervious)	0.089 ac-ft

<b>Hydrograph Volume (Area under Hydrograph curve)</b>	
Volume	0.089 ac-ft

<b>SCS Unit Hydrograph Parameters</b>	
Time of Concentration (Composite)	0.096 hours
Computational Time Increment	0.013 hours
Unit Hydrograph Shape Factor	483.432
K Factor	0.749
Receding/Rising, Tr/Tp	1.670
Unit peak, qp	4.93 ft <sup>3</sup> /s
Unit peak time, Tp	0.064 hours

Subsection: Unit Hydrograph Summary  
Label: CM-12

Return Event: 10 years  
Storm Event: 10 yr

---

SCS Unit Hydrograph Parameters

---

Unit receding limb, Tr	0.255 hours
Total unit time, Tb	0.319 hours

---



Subsection: Unit Hydrograph Summary  
 Label: CM-13

Return Event: 10 years  
 Storm Event: 10 yr

Storm Event	10 yr
Return Event	10 years
Duration	24.000 hours
Depth	5.8 in
Time of Concentration (Composite)	0.182 hours
Scaled Area	0.955 acres

Computational Time Increment	0.024 hours
Time to Peak (Computed)	12.012 hours
Flow (Peak, Computed)	3.27 ft <sup>3</sup> /s
Output Increment	0.005 hours
Time to Flow (Peak Interpolated Output)	12.010 hours
Flow (Peak Interpolated Output)	3.27 ft <sup>3</sup> /s

<b>Drainage Area</b>	
SCS CN (Composite)	69.000
Scaled Area	0.955 acres
Maximum Retention (Pervious)	4.5 in
Maximum Retention (Pervious, 20 percent)	0.9 in

<b>Cumulative Runoff</b>	
Cumulative Runoff Depth (Pervious)	2.6 in
Runoff Volume (Pervious)	0.204 ac-ft

<b>Hydrograph Volume (Area under Hydrograph curve)</b>	
Volume	0.203 ac-ft

<b>SCS Unit Hydrograph Parameters</b>	
Time of Concentration (Composite)	0.182 hours
Computational Time Increment	0.024 hours
Unit Hydrograph Shape Factor	483.432
K Factor	0.749
Receding/Rising, Tr/Tp	1.670
Unit peak, qp	5.94 ft <sup>3</sup> /s
Unit peak time, Tp	0.121 hours

Subsection: Unit Hydrograph Summary  
Label: CM-13

Return Event: 10 years  
Storm Event: 10 yr

---

SCS Unit Hydrograph Parameters

---

Unit receding limb, Tr	0.485 hours
Total unit time, Tb	0.607 hours

---

Subsection: Unit Hydrograph Summary  
 Label: CM-14

Return Event: 10 years  
 Storm Event: 10 yr

Storm Event	10 yr
Return Event	10 years
Duration	24.000 hours
Depth	5.8 in
Time of Concentration (Composite)	0.177 hours
Scaled Area	5.502 acres

Computational Time Increment	0.024 hours
Time to Peak (Computed)	12.009 hours
Flow (Peak, Computed)	18.97 ft <sup>3</sup> /s
Output Increment	0.005 hours
Time to Flow (Peak Interpolated Output)	12.010 hours
Flow (Peak Interpolated Output)	18.96 ft <sup>3</sup> /s

<b>Drainage Area</b>	
SCS CN (Composite)	69.000
Scaled Area	5.502 acres
Maximum Retention (Pervious)	4.5 in
Maximum Retention (Pervious, 20 percent)	0.9 in

<b>Cumulative Runoff</b>	
Cumulative Runoff Depth (Pervious)	2.6 in
Runoff Volume (Pervious)	1.173 ac-ft

<b>Hydrograph Volume (Area under Hydrograph curve)</b>	
Volume	1.169 ac-ft

<b>SCS Unit Hydrograph Parameters</b>	
Time of Concentration (Composite)	0.177 hours
Computational Time Increment	0.024 hours
Unit Hydrograph Shape Factor	483.432
K Factor	0.749
Receding/Rising, Tr/Tp	1.670
Unit peak, qp	35.23 ft <sup>3</sup> /s
Unit peak time, Tp	0.118 hours

Subsection: Unit Hydrograph Summary  
Label: CM-14

Return Event: 10 years  
Storm Event: 10 yr

---

SCS Unit Hydrograph Parameters

---

Unit receding limb, Tr	0.472 hours
Total unit time, Tb	0.590 hours

---

Subsection: Unit Hydrograph Summary  
 Label: CM-16

Return Event: 10 years  
 Storm Event: 10 yr

Storm Event	10 yr
Return Event	10 years
Duration	24.000 hours
Depth	5.8 in
Time of Concentration (Composite)	0.093 hours
Scaled Area	0.255 acres

Computational Time Increment	0.012 hours
Time to Peak (Computed)	11.936 hours
Flow (Peak, Computed)	1.00 ft <sup>3</sup> /s
Output Increment	0.005 hours
Time to Flow (Peak Interpolated Output)	11.935 hours
Flow (Peak Interpolated Output)	1.00 ft <sup>3</sup> /s

<b>Drainage Area</b>	
SCS CN (Composite)	69.000
Scaled Area	0.255 acres
Maximum Retention (Pervious)	4.5 in
Maximum Retention (Pervious, 20 percent)	0.9 in

<b>Cumulative Runoff</b>	
Cumulative Runoff Depth (Pervious)	2.6 in
Runoff Volume (Pervious)	0.054 ac-ft

<b>Hydrograph Volume (Area under Hydrograph curve)</b>	
Volume	0.054 ac-ft

<b>SCS Unit Hydrograph Parameters</b>	
Time of Concentration (Composite)	0.093 hours
Computational Time Increment	0.012 hours
Unit Hydrograph Shape Factor	483.432
K Factor	0.749
Receding/Rising, Tr/Tp	1.670
Unit peak, qp	3.09 ft <sup>3</sup> /s
Unit peak time, Tp	0.062 hours

Subsection: Unit Hydrograph Summary  
Label: CM-16

Return Event: 10 years  
Storm Event: 10 yr

---

SCS Unit Hydrograph Parameters

---

Unit receding limb, Tr	0.249 hours
Total unit time, Tb	0.311 hours

---

Subsection: Unit Hydrograph Summary  
 Label: CM-17

Return Event: 10 years  
 Storm Event: 10 yr

Storm Event	10 yr
Return Event	10 years
Duration	24.000 hours
Depth	5.8 in
Time of Concentration (Composite)	0.417 hours
Scaled Area	0.622 acres

Computational Time Increment	0.056 hours
Time to Peak (Computed)	12.116 hours
Flow (Peak, Computed)	1.48 ft <sup>3</sup> /s
Output Increment	0.005 hours
Time to Flow (Peak Interpolated Output)	12.120 hours
Flow (Peak Interpolated Output)	1.48 ft <sup>3</sup> /s

<b>Drainage Area</b>	
SCS CN (Composite)	69.000
Scaled Area	0.622 acres
Maximum Retention (Pervious)	4.5 in
Maximum Retention (Pervious, 20 percent)	0.9 in

<b>Cumulative Runoff</b>	
Cumulative Runoff Depth (Pervious)	2.6 in
Runoff Volume (Pervious)	0.132 ac-ft

<b>Hydrograph Volume (Area under Hydrograph curve)</b>	
Volume	0.132 ac-ft

<b>SCS Unit Hydrograph Parameters</b>	
Time of Concentration (Composite)	0.417 hours
Computational Time Increment	0.056 hours
Unit Hydrograph Shape Factor	483.432
K Factor	0.749
Receding/Rising, Tr/Tp	1.670
Unit peak, qp	1.69 ft <sup>3</sup> /s
Unit peak time, Tp	0.278 hours

Subsection: Unit Hydrograph Summary  
Label: CM-17

Return Event: 10 years  
Storm Event: 10 yr

---

SCS Unit Hydrograph Parameters

---

Unit receding limb, Tr	1.112 hours
Total unit time, Tb	1.389 hours

---



Subsection: Unit Hydrograph Summary  
 Label: CM-18

Return Event: 10 years  
 Storm Event: 10 yr

Storm Event	10 yr
Return Event	10 years
Duration	24.000 hours
Depth	5.8 in
Time of Concentration (Composite)	0.163 hours
Scaled Area	2.182 acres

Computational Time Increment	0.022 hours
Time to Peak (Computed)	11.996 hours
Flow (Peak, Computed)	7.68 ft <sup>3</sup> /s
Output Increment	0.005 hours
Time to Flow (Peak Interpolated Output)	11.995 hours
Flow (Peak Interpolated Output)	7.67 ft <sup>3</sup> /s

<b>Drainage Area</b>	
SCS CN (Composite)	69.000
Scaled Area	2.182 acres
Maximum Retention (Pervious)	4.5 in
Maximum Retention (Pervious, 20 percent)	0.9 in

<b>Cumulative Runoff</b>	
Cumulative Runoff Depth (Pervious)	2.6 in
Runoff Volume (Pervious)	0.465 ac-ft

<b>Hydrograph Volume (Area under Hydrograph curve)</b>	
Volume	0.464 ac-ft

<b>SCS Unit Hydrograph Parameters</b>	
Time of Concentration (Composite)	0.163 hours
Computational Time Increment	0.022 hours
Unit Hydrograph Shape Factor	483.432
K Factor	0.749
Receding/Rising, Tr/Tp	1.670
Unit peak, qp	15.20 ft <sup>3</sup> /s
Unit peak time, Tp	0.108 hours

Subsection: Unit Hydrograph Summary  
Label: CM-18

Return Event: 10 years  
Storm Event: 10 yr

---

SCS Unit Hydrograph Parameters

---

Unit receding limb, Tr	0.434 hours
Total unit time, Tb	0.542 hours

---

Subsection: Unit Hydrograph Summary  
 Label: CM-19

Return Event: 10 years  
 Storm Event: 10 yr

Storm Event	10 yr
Return Event	10 years
Duration	24.000 hours
Depth	5.8 in
Time of Concentration (Composite)	0.163 hours
Scaled Area	0.449 acres

Computational Time Increment	0.022 hours
Time to Peak (Computed)	11.996 hours
Flow (Peak, Computed)	1.58 ft <sup>3</sup> /s
Output Increment	0.005 hours
Time to Flow (Peak Interpolated Output)	11.995 hours
Flow (Peak Interpolated Output)	1.58 ft <sup>3</sup> /s

<b>Drainage Area</b>	
SCS CN (Composite)	69.000
Scaled Area	0.449 acres
Maximum Retention (Pervious)	4.5 in
Maximum Retention (Pervious, 20 percent)	0.9 in

<b>Cumulative Runoff</b>	
Cumulative Runoff Depth (Pervious)	2.6 in
Runoff Volume (Pervious)	0.096 ac-ft

<b>Hydrograph Volume (Area under Hydrograph curve)</b>	
Volume	0.095 ac-ft

<b>SCS Unit Hydrograph Parameters</b>	
Time of Concentration (Composite)	0.163 hours
Computational Time Increment	0.022 hours
Unit Hydrograph Shape Factor	483.432
K Factor	0.749
Receding/Rising, Tr/Tp	1.670
Unit peak, qp	3.13 ft <sup>3</sup> /s
Unit peak time, Tp	0.108 hours

Subsection: Unit Hydrograph Summary  
Label: CM-19

Return Event: 10 years  
Storm Event: 10 yr

---

SCS Unit Hydrograph Parameters

---

Unit receding limb, Tr	0.434 hours
Total unit time, Tb	0.542 hours

---

Subsection: Unit Hydrograph Summary  
 Label: CM-21

Return Event: 10 years  
 Storm Event: 10 yr

Storm Event	10 yr
Return Event	10 years
Duration	24.000 hours
Depth	5.8 in
Time of Concentration (Composite)	0.182 hours
Scaled Area	0.744 acres

Computational Time Increment	0.024 hours
Time to Peak (Computed)	12.005 hours
Flow (Peak, Computed)	2.55 ft <sup>3</sup> /s
Output Increment	0.005 hours
Time to Flow (Peak Interpolated Output)	12.005 hours
Flow (Peak Interpolated Output)	2.55 ft <sup>3</sup> /s

<b>Drainage Area</b>	
SCS CN (Composite)	69.000
Scaled Area	0.744 acres
Maximum Retention (Pervious)	4.5 in
Maximum Retention (Pervious, 20 percent)	0.9 in

<b>Cumulative Runoff</b>	
Cumulative Runoff Depth (Pervious)	2.6 in
Runoff Volume (Pervious)	0.159 ac-ft

<b>Hydrograph Volume (Area under Hydrograph curve)</b>	
Volume	0.158 ac-ft

<b>SCS Unit Hydrograph Parameters</b>	
Time of Concentration (Composite)	0.182 hours
Computational Time Increment	0.024 hours
Unit Hydrograph Shape Factor	483.432
K Factor	0.749
Receding/Rising, Tr/Tp	1.670
Unit peak, qp	4.64 ft <sup>3</sup> /s
Unit peak time, Tp	0.121 hours

Subsection: Unit Hydrograph Summary  
Label: CM-21

Return Event: 10 years  
Storm Event: 10 yr

---

SCS Unit Hydrograph Parameters

---

Unit receding limb, Tr	0.485 hours
Total unit time, Tb	0.606 hours

---

Subsection: Unit Hydrograph Summary  
 Label: CM-29

Return Event: 10 years  
 Storm Event: 10 yr

Storm Event	10 yr
Return Event	10 years
Duration	24.000 hours
Depth	5.8 in
Time of Concentration (Composite)	0.244 hours
Scaled Area	5.261 acres

Computational Time Increment	0.032 hours
Time to Peak (Computed)	12.052 hours
Flow (Peak, Computed)	16.40 ft <sup>3</sup> /s
Output Increment	0.005 hours
Time to Flow (Peak Interpolated Output)	12.050 hours
Flow (Peak Interpolated Output)	16.38 ft <sup>3</sup> /s

<b>Drainage Area</b>	
SCS CN (Composite)	69.000
Scaled Area	5.261 acres
Maximum Retention (Pervious)	4.5 in
Maximum Retention (Pervious, 20 percent)	0.9 in

<b>Cumulative Runoff</b>	
Cumulative Runoff Depth (Pervious)	2.6 in
Runoff Volume (Pervious)	1.121 ac-ft

<b>Hydrograph Volume (Area under Hydrograph curve)</b>	
Volume	1.117 ac-ft

<b>SCS Unit Hydrograph Parameters</b>	
Time of Concentration (Composite)	0.244 hours
Computational Time Increment	0.032 hours
Unit Hydrograph Shape Factor	483.432
K Factor	0.749
Receding/Rising, Tr/Tp	1.670
Unit peak, qp	24.46 ft <sup>3</sup> /s
Unit peak time, Tp	0.162 hours

Subsection: Unit Hydrograph Summary  
Label: CM-29

Return Event: 10 years  
Storm Event: 10 yr

---

SCS Unit Hydrograph Parameters	
Unit receding limb, Tr	0.650 hours
Total unit time, Tb	0.812 hours

---



Subsection: Unit Hydrograph Summary  
 Label: CM-3

Return Event: 10 years  
 Storm Event: 10 yr

Storm Event	10 yr
Return Event	10 years
Duration	24.000 hours
Depth	5.8 in
Time of Concentration (Composite)	0.086 hours
Scaled Area	0.553 acres

Computational Time Increment	0.012 hours
Time to Peak (Computed)	11.928 hours
Flow (Peak, Computed)	2.20 ft <sup>3</sup> /s
Output Increment	0.005 hours
Time to Flow (Peak Interpolated Output)	11.930 hours
Flow (Peak Interpolated Output)	2.20 ft <sup>3</sup> /s

<b>Drainage Area</b>	
SCS CN (Composite)	69.000
Scaled Area	0.553 acres
Maximum Retention (Pervious)	4.5 in
Maximum Retention (Pervious, 20 percent)	0.9 in

<b>Cumulative Runoff</b>	
Cumulative Runoff Depth (Pervious)	2.6 in
Runoff Volume (Pervious)	0.118 ac-ft

<b>Hydrograph Volume (Area under Hydrograph curve)</b>	
Volume	0.118 ac-ft

<b>SCS Unit Hydrograph Parameters</b>	
Time of Concentration (Composite)	0.086 hours
Computational Time Increment	0.012 hours
Unit Hydrograph Shape Factor	483.432
K Factor	0.749
Receding/Rising, Tr/Tp	1.670
Unit peak, qp	7.26 ft <sup>3</sup> /s
Unit peak time, Tp	0.058 hours

Subsection: Unit Hydrograph Summary  
Label: CM-3

Return Event: 10 years  
Storm Event: 10 yr

---

SCS Unit Hydrograph Parameters

---

Unit receding limb, Tr	0.230 hours
Total unit time, Tb	0.288 hours

---

Subsection: Unit Hydrograph Summary  
 Label: CM-5

Return Event: 10 years  
 Storm Event: 10 yr

Storm Event	10 yr
Return Event	10 years
Duration	24.000 hours
Depth	5.8 in
Time of Concentration (Composite)	0.089 hours
Scaled Area	0.171 acres

Computational Time Increment	0.012 hours
Time to Peak (Computed)	11.929 hours
Flow (Peak, Computed)	0.68 ft <sup>3</sup> /s
Output Increment	0.005 hours
Time to Flow (Peak Interpolated Output)	11.930 hours
Flow (Peak Interpolated Output)	0.68 ft <sup>3</sup> /s

<b>Drainage Area</b>	
SCS CN (Composite)	69.000
Scaled Area	0.171 acres
Maximum Retention (Pervious)	4.5 in
Maximum Retention (Pervious, 20 percent)	0.9 in

<b>Cumulative Runoff</b>	
Cumulative Runoff Depth (Pervious)	2.6 in
Runoff Volume (Pervious)	0.036 ac-ft

<b>Hydrograph Volume (Area under Hydrograph curve)</b>	
Volume	0.036 ac-ft

<b>SCS Unit Hydrograph Parameters</b>	
Time of Concentration (Composite)	0.089 hours
Computational Time Increment	0.012 hours
Unit Hydrograph Shape Factor	483.432
K Factor	0.749
Receding/Rising, Tr/Tp	1.670
Unit peak, qp	2.18 ft <sup>3</sup> /s
Unit peak time, Tp	0.059 hours

Subsection: Unit Hydrograph Summary  
Label: CM-5

Return Event: 10 years  
Storm Event: 10 yr

---

SCS Unit Hydrograph Parameters

---

Unit receding limb, Tr	0.237 hours
Total unit time, Tb	0.296 hours

---

Subsection: Unit Hydrograph Summary  
 Label: CM-6

Return Event: 10 years  
 Storm Event: 10 yr

Storm Event	10 yr
Return Event	10 years
Duration	24.000 hours
Depth	5.8 in
Time of Concentration (Composite)	0.142 hours
Scaled Area	0.399 acres

Computational Time Increment	0.019 hours
Time to Peak (Computed)	11.967 hours
Flow (Peak, Computed)	1.44 ft <sup>3</sup> /s
Output Increment	0.005 hours
Time to Flow (Peak Interpolated Output)	11.970 hours
Flow (Peak Interpolated Output)	1.44 ft <sup>3</sup> /s

<b>Drainage Area</b>	
SCS CN (Composite)	69.000
Scaled Area	0.399 acres
Maximum Retention (Pervious)	4.5 in
Maximum Retention (Pervious, 20 percent)	0.9 in

<b>Cumulative Runoff</b>	
Cumulative Runoff Depth (Pervious)	2.6 in
Runoff Volume (Pervious)	0.085 ac-ft

<b>Hydrograph Volume (Area under Hydrograph curve)</b>	
Volume	0.085 ac-ft

<b>SCS Unit Hydrograph Parameters</b>	
Time of Concentration (Composite)	0.142 hours
Computational Time Increment	0.019 hours
Unit Hydrograph Shape Factor	483.432
K Factor	0.749
Receding/Rising, Tr/Tp	1.670
Unit peak, qp	3.19 ft <sup>3</sup> /s
Unit peak time, Tp	0.095 hours

Subsection: Unit Hydrograph Summary  
Label: CM-6

Return Event: 10 years  
Storm Event: 10 yr

---

SCS Unit Hydrograph Parameters

---

Unit receding limb, Tr	0.378 hours
Total unit time, Tb	0.473 hours

---

Subsection: Unit Hydrograph Summary  
 Label: CM-7

Return Event: 10 years  
 Storm Event: 10 yr

Storm Event	10 yr
Return Event	10 years
Duration	24.000 hours
Depth	5.8 in
Time of Concentration (Composite)	0.222 hours
Scaled Area	1.886 acres

Computational Time Increment	0.030 hours
Time to Peak (Computed)	12.030 hours
Flow (Peak, Computed)	6.11 ft <sup>3</sup> /s
Output Increment	0.005 hours
Time to Flow (Peak Interpolated Output)	12.030 hours
Flow (Peak Interpolated Output)	6.11 ft <sup>3</sup> /s

<b>Drainage Area</b>	
SCS CN (Composite)	69.000
Scaled Area	1.886 acres
Maximum Retention (Pervious)	4.5 in
Maximum Retention (Pervious, 20 percent)	0.9 in

<b>Cumulative Runoff</b>	
Cumulative Runoff Depth (Pervious)	2.6 in
Runoff Volume (Pervious)	0.402 ac-ft

<b>Hydrograph Volume (Area under Hydrograph curve)</b>	
Volume	0.401 ac-ft

<b>SCS Unit Hydrograph Parameters</b>	
Time of Concentration (Composite)	0.222 hours
Computational Time Increment	0.030 hours
Unit Hydrograph Shape Factor	483.432
K Factor	0.749
Receding/Rising, Tr/Tp	1.670
Unit peak, qp	9.64 ft <sup>3</sup> /s
Unit peak time, Tp	0.148 hours

Subsection: Unit Hydrograph Summary  
Label: CM-7

Return Event: 10 years  
Storm Event: 10 yr

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SCS Unit Hydrograph Parameters

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Unit receding limb, Tr	0.591 hours
Total unit time, Tb	0.739 hours

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Subsection: Unit Hydrograph Summary  
 Label: CM-8

Return Event: 10 years  
 Storm Event: 10 yr

Storm Event	10 yr
Return Event	10 years
Duration	24.000 hours
Depth	5.8 in
Time of Concentration (Composite)	0.129 hours
Scaled Area	0.327 acres

Computational Time Increment	0.017 hours
Time to Peak (Computed)	11.960 hours
Flow (Peak, Computed)	1.20 ft <sup>3</sup> /s
Output Increment	0.005 hours
Time to Flow (Peak Interpolated Output)	11.960 hours
Flow (Peak Interpolated Output)	1.20 ft <sup>3</sup> /s

<b>Drainage Area</b>	
SCS CN (Composite)	69.000
Scaled Area	0.327 acres
Maximum Retention (Pervious)	4.5 in
Maximum Retention (Pervious, 20 percent)	0.9 in

<b>Cumulative Runoff</b>	
Cumulative Runoff Depth (Pervious)	2.6 in
Runoff Volume (Pervious)	0.070 ac-ft

<b>Hydrograph Volume (Area under Hydrograph curve)</b>	
Volume	0.070 ac-ft

<b>SCS Unit Hydrograph Parameters</b>	
Time of Concentration (Composite)	0.129 hours
Computational Time Increment	0.017 hours
Unit Hydrograph Shape Factor	483.432
K Factor	0.749
Receding/Rising, Tr/Tp	1.670
Unit peak, qp	2.86 ft <sup>3</sup> /s
Unit peak time, Tp	0.086 hours

Subsection: Unit Hydrograph Summary  
Label: CM-8

Return Event: 10 years  
Storm Event: 10 yr

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SCS Unit Hydrograph Parameters

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Unit receding limb, Tr	0.345 hours
Total unit time, Tb	0.431 hours

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Subsection: Unit Hydrograph Summary  
 Label: CM-9

Return Event: 10 years  
 Storm Event: 10 yr

Storm Event	10 yr
Return Event	10 years
Duration	24.000 hours
Depth	5.8 in
Time of Concentration (Composite)	0.180 hours
Scaled Area	0.357 acres

Computational Time Increment	0.024 hours
Time to Peak (Computed)	11.998 hours
Flow (Peak, Computed)	1.23 ft <sup>3</sup> /s
Output Increment	0.005 hours
Time to Flow (Peak Interpolated Output)	12.000 hours
Flow (Peak Interpolated Output)	1.23 ft <sup>3</sup> /s

<b>Drainage Area</b>	
SCS CN (Composite)	69.000
Scaled Area	0.357 acres
Maximum Retention (Pervious)	4.5 in
Maximum Retention (Pervious, 20 percent)	0.9 in

<b>Cumulative Runoff</b>	
Cumulative Runoff Depth (Pervious)	2.6 in
Runoff Volume (Pervious)	0.076 ac-ft

<b>Hydrograph Volume (Area under Hydrograph curve)</b>	
Volume	0.076 ac-ft

<b>SCS Unit Hydrograph Parameters</b>	
Time of Concentration (Composite)	0.180 hours
Computational Time Increment	0.024 hours
Unit Hydrograph Shape Factor	483.432
K Factor	0.749
Receding/Rising, Tr/Tp	1.670
Unit peak, qp	2.25 ft <sup>3</sup> /s
Unit peak time, Tp	0.120 hours

Subsection: Unit Hydrograph Summary  
Label: CM-9

Return Event: 10 years  
Storm Event: 10 yr

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SCS Unit Hydrograph Parameters

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Unit receding limb, Tr	0.480 hours
Total unit time, Tb	0.600 hours

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**Solution to Manning's Open Channel Flow Equation  
 (Computed values are based on normal depth.)**

$$Q = (k/n) * A * (R^{**2/3}) * (S^{**1/2})$$

where:	English Units	SI units
Q = Channel Flow	cfs	cms
k = Manning's Constant	1.485919	1.0
n = Manning's n	no units	no units
R = Hydraulic radius, A/WP	feet	meter
A = X-section flow area	ft^2	m^2
WP = Wetted perimeter	feet	meter
S = Slope	ft/ft	m/m

**Additional Output Variables:**

$$Vel = Q/A$$

$$Hd = A/TpW$$

$$F = Vel / (g * Hd)^{**1/2}$$

where:	English Units	SI units
Q = Channel Flow	cfs	cms
k = Manning's Constant	1.485919	1.0
n = Manning's n	no units	no units
R = Hydraulic radius, A/WP	feet	meter
A = X-section flow area	ft^2	m^2
WP = Wetted perimeter	feet	meter
S = Slope	ft/ft	m/m

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 (Computed values are based on normal depth.)**

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 (Computed values are based on normal depth.)**

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Q = Channel Flow	cfs	cms
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n = Manning's n	no units	no units
R = Hydraulic radius, A/WP	feet	meter
A = X-section flow area	ft^2	m^2
WP = Wetted perimeter	feet	meter
S = Slope	ft/ft	m/m

**Additional Output Variables:**

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$$Hd = A/TpW$$

$$F = Vel / (g * Hd)^{**1/2}$$

where:	English Units	SI units
Q = Channel Flow	cfs	cms
k = Manning's Constant	1.485919	1.0
n = Manning's n	no units	no units
R = Hydraulic radius, A/WP	feet	meter
A = X-section flow area	ft^2	m^2
WP = Wetted perimeter	feet	meter
S = Slope	ft/ft	m/m

**Solution to Manning's Open Channel Flow Equation  
 (Computed values are based on normal depth.)**

$$Q = (k/n) * A * (R^{**2/3}) * (S^{**1/2})$$

where:	English Units	SI units
Q = Channel Flow	cfs	cms
k = Manning's Constant	1.485919	1.0
n = Manning's n	no units	no units
R = Hydraulic radius, A/WP	feet	meter
A = X-section flow area	ft^2	m^2
WP = Wetted perimeter	feet	meter
S = Slope	ft/ft	m/m

**Additional Output Variables:**

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$$Hd = A/TpW$$

$$F = Vel / (g * Hd)^{**1/2}$$

where:	English Units	SI units
Q = Channel Flow	cfs	cms
k = Manning's Constant	1.485919	1.0
n = Manning's n	no units	no units
R = Hydraulic radius, A/WP	feet	meter
A = X-section flow area	ft^2	m^2
WP = Wetted perimeter	feet	meter
S = Slope	ft/ft	m/m



Subsection: Elevation-Volume-Flow Table (Channel)  
 Label: CO-28

Return Event: 10 years  
 Storm Event: 10 yr

**Modified Puls Results Summary**

Length (Channel)	524.75 ft
Travel Time (Channel)	0.058 hours
Number of Sections	12
Length (Section)	43.73 ft
Flow (Weighted)	2.73 ft <sup>3</sup> /s
Overflow Channel	No Overflow Data
Elevation (Overflow)	132.00 ft

**Infiltration**

Infiltration Method (Computed)	No Infiltration
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**Initial Conditions**

Elevation (Starting Water Surface)	130.00 ft
Volume (Starting, per section)	0.000 ac-ft
Flow (Out Starting)	0.00 ft <sup>3</sup> /s
Infiltration (Starting, per section)	0.00 ft <sup>3</sup> /s
Flow (Total Out Starting)	0.00 ft <sup>3</sup> /s
Time Increment	0.005 hours

**Number of sections = 12  
 Storage, Area, Infiltration (per 43.73 ft section)**

Elevation (ft)	Outflow (ft <sup>3</sup> /s)	Storage (ac-ft)	Area (acres)	Infiltration (ft <sup>3</sup> /s)	Flow (Total) (ft <sup>3</sup> /s)	2S/t + O (ft <sup>3</sup> /s)
130.00	0.00	0.000	0.000	0.00	0.00	0.00
130.01	0.01	0.000	0.003	0.00	0.01	0.16
130.04	0.10	0.000	0.003	0.00	0.10	0.70
130.08	0.31	0.000	0.003	0.00	0.31	1.57
130.12	0.62	0.000	0.004	0.00	0.62	2.58
130.16	1.02	0.001	0.004	0.00	1.02	3.73
130.20	1.50	0.001	0.004	0.00	1.50	5.00
130.24	2.07	0.001	0.004	0.00	2.07	6.41
130.28	2.72	0.001	0.005	0.00	2.72	7.95
130.32	3.46	0.001	0.005	0.00	3.46	9.62
130.36	4.28	0.001	0.005	0.00	4.28	11.42
130.40	5.19	0.002	0.005	0.00	5.19	13.35
130.44	6.19	0.002	0.006	0.00	6.19	15.43
130.48	7.28	0.002	0.006	0.00	7.28	17.63
130.52	8.46	0.002	0.006	0.00	8.46	19.98
130.56	9.74	0.003	0.006	0.00	9.74	22.47
130.60	11.11	0.003	0.007	0.00	11.11	25.10
130.64	12.58	0.003	0.007	0.00	12.58	27.88

Subsection: Elevation-Volume-Flow Table (Channel)  
 Label: CO-28

Return Event: 10 years  
 Storm Event: 10 yr

**Number of sections = 12**  
**Storage, Area, Infiltration (per 43.73 ft section)**

Elevation (ft)	Outflow (ft <sup>3</sup> /s)	Storage (ac-ft)	Area (acres)	Infiltration (ft <sup>3</sup> /s)	Flow (Total) (ft <sup>3</sup> /s)	2S/t + O (ft <sup>3</sup> /s)
130.68	14.15	0.003	0.007	0.00	14.15	30.81
130.72	15.83	0.004	0.007	0.00	15.83	33.88
130.76	17.61	0.004	0.008	0.00	17.61	37.10
130.80	19.49	0.004	0.008	0.00	19.49	40.48
130.84	21.48	0.005	0.008	0.00	21.48	44.01
130.88	23.59	0.005	0.008	0.00	23.59	47.70
130.92	25.80	0.005	0.009	0.00	25.80	51.55
130.96	28.13	0.006	0.009	0.00	28.13	55.56
131.00	30.58	0.006	0.009	0.00	30.58	59.73
131.04	33.14	0.006	0.009	0.00	33.14	64.07
131.08	35.83	0.007	0.010	0.00	35.83	68.57
131.12	38.63	0.007	0.010	0.00	38.63	73.24
131.16	41.56	0.008	0.010	0.00	41.56	78.09
131.20	44.62	0.008	0.010	0.00	44.62	83.10
131.24	47.80	0.008	0.010	0.00	47.80	88.29
131.28	51.12	0.009	0.011	0.00	51.12	93.66
131.32	54.56	0.009	0.011	0.00	54.56	99.20
131.36	58.14	0.010	0.011	0.00	58.14	104.93
131.40	61.86	0.010	0.011	0.00	61.86	110.84
131.44	65.71	0.011	0.012	0.00	65.71	116.93
131.48	69.71	0.011	0.012	0.00	69.71	123.21
131.52	73.84	0.012	0.012	0.00	73.84	129.67
131.56	78.12	0.012	0.012	0.00	78.12	136.33
131.60	82.54	0.013	0.013	0.00	82.54	143.17
131.64	87.10	0.013	0.013	0.00	87.10	150.21
131.68	91.82	0.014	0.013	0.00	91.82	157.45
131.72	96.69	0.014	0.013	0.00	96.69	164.88
131.76	101.71	0.015	0.014	0.00	101.71	172.51
131.80	106.88	0.015	0.014	0.00	106.88	180.34
131.84	112.21	0.016	0.014	0.00	112.21	188.38
131.88	117.69	0.016	0.014	0.00	117.69	196.62
131.92	123.34	0.017	0.015	0.00	123.34	205.06
131.96	129.14	0.017	0.015	0.00	129.14	213.71
132.00	135.11	0.018	0.015	0.00	135.11	222.57

Subsection: Elevation-Volume-Flow Table (Channel)  
 Label: CO-45

Return Event: 10 years  
 Storm Event: 10 yr

**Modified Puls Results Summary**

Length (Channel)	245.95 ft
Travel Time (Channel)	0.020 hours
Number of Sections	1
Length (Section)	245.95 ft
Flow (Weighted)	2.59 ft <sup>3</sup> /s
Overflow Channel	No Overflow Data
Elevation (Overflow)	131.00 ft

**Infiltration**

Infiltration Method (Computed)	No Infiltration
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**Initial Conditions**

Elevation (Starting Water Surface)	129.00 ft
Volume (Starting, per section)	0.000 ac-ft
Flow (Out Starting)	0.00 ft <sup>3</sup> /s
Infiltration (Starting, per section)	0.00 ft <sup>3</sup> /s
Flow (Total Out Starting)	0.00 ft <sup>3</sup> /s
Time Increment	0.005 hours

**Number of sections = 1  
 Storage, Area, Infiltration (per 245.95 ft section)**

Elevation (ft)	Outflow (ft <sup>3</sup> /s)	Storage (ac-ft)	Area (acres)	Infiltration (ft <sup>3</sup> /s)	Flow (Total) (ft <sup>3</sup> /s)	2S/t + O (ft <sup>3</sup> /s)
129.00	0.00	0.000	0.000	0.00	0.00	0.00
129.01	0.01	0.000	0.017	0.00	0.01	0.84
129.04	0.15	0.001	0.018	0.00	0.15	3.56
129.08	0.48	0.001	0.020	0.00	0.48	7.56
129.12	0.95	0.002	0.021	0.00	0.95	11.97
129.16	1.56	0.003	0.022	0.00	1.56	16.78
129.20	2.30	0.004	0.024	0.00	2.30	21.98
129.24	3.17	0.005	0.025	0.00	3.17	27.57
129.28	4.17	0.006	0.026	0.00	4.17	33.55
129.32	5.30	0.007	0.028	0.00	5.30	39.93
129.36	6.56	0.008	0.029	0.00	6.56	46.70
129.40	7.95	0.009	0.030	0.00	7.95	53.86
129.44	9.48	0.011	0.032	0.00	9.48	61.43
129.48	11.15	0.012	0.033	0.00	11.15	69.39
129.52	12.96	0.013	0.035	0.00	12.96	77.76
129.56	14.92	0.015	0.036	0.00	14.92	86.54
129.60	17.02	0.016	0.037	0.00	17.02	95.73
129.64	19.28	0.018	0.039	0.00	19.28	105.33

Subsection: Elevation-Volume-Flow Table (Channel)  
 Label: CO-45

Return Event: 10 years  
 Storm Event: 10 yr

**Number of sections = 1**  
**Storage, Area, Infiltration (per 245.95 ft section)**

Elevation (ft)	Outflow (ft <sup>3</sup> /s)	Storage (ac-ft)	Area (acres)	Infiltration (ft <sup>3</sup> /s)	Flow (Total) (ft <sup>3</sup> /s)	2S/t + O (ft <sup>3</sup> /s)
129.68	21.68	0.019	0.040	0.00	21.68	115.34
129.72	24.25	0.021	0.041	0.00	24.25	125.78
129.76	26.97	0.023	0.043	0.00	26.97	136.63
129.80	29.86	0.024	0.044	0.00	29.86	147.91
129.84	32.91	0.026	0.045	0.00	32.91	159.62
129.88	36.13	0.028	0.047	0.00	36.13	171.77
129.92	39.53	0.030	0.048	0.00	39.53	184.34
129.96	43.10	0.032	0.049	0.00	43.10	197.35
130.00	46.84	0.034	0.051	0.00	46.84	210.81
130.04	50.77	0.036	0.052	0.00	50.77	224.71
130.08	54.88	0.038	0.054	0.00	54.88	239.05
130.12	59.18	0.040	0.055	0.00	59.18	253.84
130.16	63.67	0.042	0.056	0.00	63.67	269.09
130.20	68.36	0.045	0.058	0.00	68.36	284.79
130.24	73.23	0.047	0.059	0.00	73.23	300.95
130.28	78.31	0.049	0.060	0.00	78.31	317.57
130.32	83.59	0.052	0.062	0.00	83.59	334.66
130.36	89.08	0.054	0.063	0.00	89.08	352.21
130.40	94.77	0.057	0.064	0.00	94.77	370.23
130.44	100.67	0.060	0.066	0.00	100.67	388.72
130.48	106.79	0.062	0.067	0.00	106.79	407.70
130.52	113.12	0.065	0.068	0.00	113.12	427.15
130.56	119.67	0.068	0.070	0.00	119.67	447.08
130.60	126.44	0.070	0.071	0.00	126.44	467.49
130.64	133.44	0.073	0.072	0.00	133.44	488.39
130.68	140.67	0.076	0.074	0.00	140.67	509.79
130.72	148.12	0.079	0.075	0.00	148.12	531.67
130.76	155.81	0.082	0.077	0.00	155.81	554.05
130.80	163.74	0.085	0.078	0.00	163.74	576.93
130.84	171.90	0.089	0.079	0.00	171.90	600.31
130.88	180.30	0.092	0.081	0.00	180.30	624.19
130.92	188.95	0.095	0.082	0.00	188.95	648.58
130.96	197.84	0.098	0.083	0.00	197.84	673.47
131.00	206.99	0.102	0.085	0.00	206.99	698.88

Subsection: Elevation-Volume-Flow Table (Channel)  
 Label: CO-49

Return Event: 10 years  
 Storm Event: 10 yr

**Modified Puls Results Summary**

Length (Channel)	156.30 ft
Travel Time (Channel)	0.024 hours
Number of Sections	1
Length (Section)	156.30 ft
Flow (Weighted)	0.86 ft <sup>3</sup> /s
Overflow Channel	No Overflow Data
Elevation (Overflow)	121.00 ft

**Infiltration**

Infiltration Method (Computed)	No Infiltration
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**Initial Conditions**

Elevation (Starting Water Surface)	120.00 ft
Volume (Starting, per section)	0.000 ac-ft
Flow (Out Starting)	0.00 ft <sup>3</sup> /s
Infiltration (Starting, per section)	0.00 ft <sup>3</sup> /s
Flow (Total Out Starting)	0.00 ft <sup>3</sup> /s
Time Increment	0.005 hours

**Number of sections = 1  
 Storage, Area, Infiltration (per 156.30 ft section)**

Elevation (ft)	Outflow (ft <sup>3</sup> /s)	Storage (ac-ft)	Area (acres)	Infiltration (ft <sup>3</sup> /s)	Flow (Total) (ft <sup>3</sup> /s)	2S/t + O (ft <sup>3</sup> /s)
120.00	0.00	0.000	0.000	0.00	0.00	0.00
120.01	0.00	0.000	0.000	0.00	0.00	0.01
120.02	0.00	0.000	0.000	0.00	0.00	0.02
120.04	0.00	0.000	0.001	0.00	0.00	0.09
120.06	0.01	0.000	0.001	0.00	0.01	0.19
120.08	0.01	0.000	0.002	0.00	0.01	0.35
120.10	0.02	0.000	0.002	0.00	0.02	0.54
120.12	0.04	0.000	0.003	0.00	0.04	0.79
120.14	0.05	0.000	0.003	0.00	0.05	1.08
120.16	0.08	0.000	0.003	0.00	0.08	1.41
120.18	0.11	0.000	0.004	0.00	0.11	1.79
120.20	0.14	0.000	0.004	0.00	0.14	2.22
120.22	0.18	0.001	0.005	0.00	0.18	2.70
120.24	0.23	0.001	0.005	0.00	0.23	3.23
120.26	0.28	0.001	0.006	0.00	0.28	3.80
120.28	0.34	0.001	0.006	0.00	0.34	4.43
120.30	0.41	0.001	0.006	0.00	0.41	5.10
120.32	0.49	0.001	0.007	0.00	0.49	5.82

Subsection: Elevation-Volume-Flow Table (Channel)  
 Label: CO-49

Return Event: 10 years  
 Storm Event: 10 yr

**Number of sections = 1**  
**Storage, Area, Infiltration (per 156.30 ft section)**

Elevation (ft)	Outflow (ft <sup>3</sup> /s)	Storage (ac-ft)	Area (acres)	Infiltration (ft <sup>3</sup> /s)	Flow (Total) (ft <sup>3</sup> /s)	2S/t + O (ft <sup>3</sup> /s)
120.34	0.58	0.001	0.007	0.00	0.58	6.60
120.36	0.67	0.001	0.008	0.00	0.67	7.42
120.38	0.77	0.002	0.008	0.00	0.77	8.30
120.40	0.89	0.002	0.009	0.00	0.89	9.22
120.42	1.01	0.002	0.009	0.00	1.01	10.20
120.44	1.14	0.002	0.009	0.00	1.14	11.23
120.46	1.29	0.002	0.010	0.00	1.29	12.31
120.48	1.44	0.002	0.010	0.00	1.44	13.45
120.50	1.61	0.003	0.011	0.00	1.61	14.64
120.52	1.79	0.003	0.011	0.00	1.79	15.88
120.54	1.98	0.003	0.012	0.00	1.98	17.17
120.56	2.18	0.003	0.012	0.00	2.18	18.52
120.58	2.39	0.004	0.012	0.00	2.39	19.92
120.60	2.62	0.004	0.013	0.00	2.62	21.37
120.62	2.86	0.004	0.013	0.00	2.86	22.88
120.64	3.11	0.004	0.014	0.00	3.11	24.45
120.66	3.38	0.005	0.014	0.00	3.38	26.07
120.68	3.66	0.005	0.015	0.00	3.66	27.75
120.70	3.95	0.005	0.015	0.00	3.95	29.48
120.72	4.26	0.006	0.016	0.00	4.26	31.27
120.74	4.58	0.006	0.016	0.00	4.58	33.11
120.76	4.92	0.006	0.016	0.00	4.92	35.01
120.78	5.27	0.007	0.017	0.00	5.27	36.97
120.80	5.64	0.007	0.017	0.00	5.64	38.98
120.82	6.02	0.007	0.018	0.00	6.02	41.05
120.84	6.42	0.008	0.018	0.00	6.42	43.18
120.86	6.84	0.008	0.019	0.00	6.84	45.37
120.88	7.27	0.008	0.019	0.00	7.27	47.62
120.90	7.72	0.009	0.019	0.00	7.72	49.92
120.92	8.19	0.009	0.020	0.00	8.19	52.28
120.94	8.67	0.010	0.020	0.00	8.67	54.70
120.96	9.17	0.010	0.021	0.00	9.17	57.18
120.98	9.69	0.010	0.021	0.00	9.69	59.72
121.00	10.22	0.011	0.022	0.00	10.22	62.32

Subsection: Elevation-Volume-Flow Table (Channel)  
 Label: CO-89

Return Event: 10 years  
 Storm Event: 10 yr

**Modified Puls Results Summary**

Length (Channel)	312.17 ft
Travel Time (Channel)	0.025 hours
Number of Sections	1
Length (Section)	312.17 ft
Flow (Weighted)	5.65 ft <sup>3</sup> /s
Overflow Channel	No Overflow Data
Elevation (Overflow)	134.00 ft

**Infiltration**

Infiltration Method (Computed)	No Infiltration
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**Initial Conditions**

Elevation (Starting Water Surface)	132.00 ft
Volume (Starting, per section)	0.000 ac-ft
Flow (Out Starting)	0.00 ft <sup>3</sup> /s
Infiltration (Starting, per section)	0.00 ft <sup>3</sup> /s
Flow (Total Out Starting)	0.00 ft <sup>3</sup> /s
Time Increment	0.005 hours

**Number of sections = 1  
 Storage, Area, Infiltration (per 312.17 ft section)**

Elevation (ft)	Outflow (ft <sup>3</sup> /s)	Storage (ac-ft)	Area (acres)	Infiltration (ft <sup>3</sup> /s)	Flow (Total) (ft <sup>3</sup> /s)	2S/t + O (ft <sup>3</sup> /s)
132.00	0.00	0.000	0.000	0.00	0.00	0.00
132.01	0.00	0.000	0.000	0.00	0.00	0.01
132.04	0.00	0.000	0.002	0.00	0.00	0.17
132.08	0.01	0.000	0.003	0.00	0.01	0.68
132.12	0.04	0.000	0.005	0.00	0.04	1.54
132.16	0.09	0.001	0.007	0.00	0.09	2.76
132.20	0.17	0.001	0.009	0.00	0.17	4.33
132.24	0.28	0.001	0.010	0.00	0.28	6.27
132.28	0.42	0.002	0.012	0.00	0.42	8.58
132.32	0.60	0.002	0.014	0.00	0.60	11.26
132.36	0.82	0.003	0.015	0.00	0.82	14.31
132.40	1.09	0.003	0.017	0.00	1.09	17.74
132.44	1.40	0.004	0.019	0.00	1.40	21.55
132.48	1.77	0.005	0.021	0.00	1.77	25.74
132.52	2.19	0.006	0.022	0.00	2.19	30.33
132.56	2.67	0.007	0.024	0.00	2.67	35.30
132.60	3.21	0.008	0.026	0.00	3.21	40.67
132.64	3.81	0.009	0.028	0.00	3.81	46.43

Subsection: Elevation-Volume-Flow Table (Channel)  
 Label: CO-89

Return Event: 10 years  
 Storm Event: 10 yr

**Number of sections = 1**  
**Storage, Area, Infiltration (per 312.17 ft section)**

Elevation (ft)	Outflow (ft <sup>3</sup> /s)	Storage (ac-ft)	Area (acres)	Infiltration (ft <sup>3</sup> /s)	Flow (Total) (ft <sup>3</sup> /s)	2S/t + O (ft <sup>3</sup> /s)
132.68	4.48	0.010	0.029	0.00	4.48	52.60
132.72	5.22	0.011	0.031	0.00	5.22	59.16
132.76	6.03	0.012	0.033	0.00	6.03	66.13
132.80	6.91	0.014	0.034	0.00	6.91	73.51
132.84	7.87	0.015	0.036	0.00	7.87	81.29
132.88	8.91	0.017	0.038	0.00	8.91	89.49
132.92	10.03	0.018	0.040	0.00	10.03	98.11
132.96	11.24	0.020	0.041	0.00	11.24	107.14
133.00	12.53	0.022	0.043	0.00	12.53	116.59
133.04	13.91	0.023	0.045	0.00	13.91	126.46
133.08	15.38	0.025	0.046	0.00	15.38	136.76
133.12	16.95	0.027	0.048	0.00	16.95	147.48
133.16	18.61	0.029	0.050	0.00	18.61	158.63
133.20	20.37	0.031	0.052	0.00	20.37	170.22
133.24	22.24	0.033	0.053	0.00	22.24	182.23
133.28	24.20	0.035	0.055	0.00	24.20	194.69
133.32	26.27	0.037	0.057	0.00	26.27	207.58
133.36	28.45	0.040	0.058	0.00	28.45	220.91
133.40	30.73	0.042	0.060	0.00	30.73	234.69
133.44	33.13	0.045	0.062	0.00	33.13	248.90
133.48	35.64	0.047	0.064	0.00	35.64	263.57
133.52	38.27	0.050	0.065	0.00	38.27	278.68
133.56	41.01	0.052	0.067	0.00	41.01	294.25
133.60	43.88	0.055	0.069	0.00	43.88	310.27
133.64	46.87	0.058	0.071	0.00	46.87	326.74
133.68	49.98	0.061	0.072	0.00	49.98	343.67
133.72	53.21	0.064	0.074	0.00	53.21	361.05
133.76	56.58	0.067	0.076	0.00	56.58	378.90
133.80	60.07	0.070	0.077	0.00	60.07	397.22
133.84	63.70	0.073	0.079	0.00	63.70	415.99
133.88	67.46	0.076	0.081	0.00	67.46	435.24
133.92	71.35	0.079	0.083	0.00	71.35	454.95
133.96	75.38	0.083	0.084	0.00	75.38	475.13
134.00	79.56	0.086	0.086	0.00	79.56	495.79



**Time vs. Elevation (ft)**

**Output Time increment = 0.005 hours**  
**Time on left represents time for first value in each row.**

Time (hours)	Elevation (ft)	Elevation (ft)	Elevation (ft)	Elevation (ft)	Elevation (ft)
0.000	130.00	130.03	130.03	130.03	130.03
0.025	130.03	130.03	130.03	130.03	130.03
0.050	130.03	130.03	130.03	130.03	130.03
0.075	130.03	130.03	130.03	130.03	130.03
0.100	130.02	130.02	130.02	130.02	130.02
0.125	130.02	130.02	130.02	130.02	130.02
0.150	130.02	130.02	130.01	130.01	130.01
0.175	130.01	130.01	130.01	130.01	130.01
0.200	130.01	130.01	130.01	130.01	130.01
0.225	130.01	130.01	130.01	130.01	130.01
0.250	130.01	130.01	130.01	130.01	130.01
0.275	130.01	130.01	130.01	130.01	130.01
0.300	130.01	130.01	130.01	130.01	130.01
0.325	130.01	130.01	130.01	130.01	130.01
0.350	130.01	130.01	130.01	130.01	130.01
0.375	130.01	130.01	130.01	130.01	130.01
0.400	130.01	130.01	130.01	130.01	130.01
0.425	130.01	130.01	130.01	130.01	130.01
0.450	130.01	130.00	130.00	130.00	130.00
0.475	130.00	130.00	130.00	130.00	130.00
0.500	130.00	130.00	130.00	130.00	130.00
0.525	130.00	130.00	130.00	130.00	130.00
0.550	130.00	130.00	130.00	130.00	130.00
0.575	130.00	130.00	130.00	130.00	130.00
0.600	130.00	130.00	130.00	130.00	130.00
0.625	130.00	130.00	130.00	130.00	130.00
0.650	130.00	130.00	130.00	130.00	130.00
0.675	130.00	130.00	130.00	130.00	130.00
0.700	130.00	130.00	130.00	130.00	130.00
0.725	130.00	130.00	130.00	130.00	130.00
0.750	130.00	130.00	130.00	130.00	130.00
0.775	130.00	130.00	130.00	130.00	130.00
0.800	130.00	130.00	130.00	130.00	130.00
0.825	130.00	130.00	130.00	130.00	130.00
0.850	130.00	130.00	130.00	130.00	130.00
0.875	130.00	130.00	130.00	130.00	130.00
0.900	130.00	130.00	130.00	130.00	130.00
0.925	130.00	130.00	130.00	130.00	130.00
0.950	130.00	130.00	130.00	130.00	130.00
0.975	130.00	130.00	130.00	130.00	130.00
1.000	130.00	130.00	130.00	130.00	130.00
1.025	130.00	130.00	130.00	130.00	130.00
1.050	130.00	130.00	130.00	130.00	130.00

**Time vs. Elevation (ft)**

**Output Time increment = 0.005 hours**  
**Time on left represents time for first value in each row.**

Time (hours)	Elevation (ft)	Elevation (ft)	Elevation (ft)	Elevation (ft)	Elevation (ft)
1.075	130.00	130.00	130.00	130.00	130.00
1.100	130.00	130.00	130.00	130.00	130.00
1.125	130.00	130.00	130.00	130.00	130.00
1.150	130.00	130.00	130.00	130.00	130.00
1.175	130.00	130.00	130.00	130.00	130.00
1.200	130.00	130.00	130.00	130.00	130.00
1.225	130.00	130.00	130.00	130.00	130.00
1.250	130.00	130.00	130.00	130.00	130.00
1.275	130.00	130.00	130.00	130.00	130.00
1.300	130.00	130.00	130.00	130.00	130.00
1.325	130.00	130.00	130.00	130.00	130.00
1.350	130.00	130.00	130.00	130.00	130.00
1.375	130.00	130.00	130.00	130.00	130.00
1.400	130.00	130.00	130.00	130.00	130.00
1.425	130.00	130.00	130.00	130.00	130.00
1.450	130.00	130.00	130.00	130.00	130.00
1.475	130.00	130.00	130.00	130.00	130.00
1.500	130.00	130.00	130.00	130.00	130.00
1.525	130.00	130.00	130.00	130.00	130.00
1.550	130.00	130.00	130.00	130.00	130.00
1.575	130.00	130.00	130.00	130.00	130.00
1.600	130.00	130.00	130.00	130.00	130.00
1.625	130.00	130.00	130.00	130.00	130.00
1.650	130.00	130.00	130.00	130.00	130.00
1.675	130.00	130.00	130.00	130.00	130.00
1.700	130.00	130.00	130.00	130.00	130.00
1.725	130.00	130.00	130.00	130.00	130.00
1.750	130.00	130.00	130.00	130.00	130.00
1.775	130.00	130.00	130.00	130.00	130.00
1.800	130.00	130.00	130.00	130.00	130.00
1.825	130.00	130.00	130.00	130.00	130.00
1.850	130.00	130.00	130.00	130.00	130.00
1.875	130.00	130.00	130.00	130.00	130.00
1.900	130.00	130.00	130.00	130.00	130.00
1.925	130.00	130.00	130.00	130.00	130.00
1.950	130.00	130.00	130.00	130.00	130.00
1.975	130.00	130.00	130.00	130.00	130.00
2.000	130.00	130.00	130.00	130.00	130.00
2.025	130.00	130.00	130.00	130.00	130.00
2.050	130.00	130.00	130.00	130.00	130.00
2.075	130.00	130.00	130.00	130.00	130.00
2.100	130.00	130.00	130.00	130.00	130.00
2.125	130.00	130.00	130.00	130.00	130.00

**Time vs. Elevation (ft)**

**Output Time increment = 0.005 hours**  
**Time on left represents time for first value in each row.**

Time (hours)	Elevation (ft)	Elevation (ft)	Elevation (ft)	Elevation (ft)	Elevation (ft)
2.150	130.00	130.00	130.00	130.00	130.00
2.175	130.00	130.00	130.00	130.00	130.00
2.200	130.00	130.00	130.00	130.00	130.00
2.225	130.00	130.00	130.00	130.00	130.00
2.250	130.00	130.00	130.00	130.00	130.00
2.275	130.00	130.00	130.00	130.00	130.00
2.300	130.00	130.00	130.00	130.00	130.00
2.325	130.00	130.00	130.00	130.00	130.00
2.350	130.00	130.00	130.00	130.00	130.00
2.375	130.00	130.00	130.00	130.00	130.00
2.400	130.00	130.00	130.00	130.00	130.00
2.425	130.00	130.00	130.00	130.00	130.00
2.450	130.00	130.00	130.00	130.00	130.00
2.475	130.00	130.00	130.00	130.00	130.00
2.500	130.00	130.00	130.00	130.00	130.00
2.525	130.00	130.00	130.00	130.00	130.00
2.550	130.00	130.00	130.00	130.00	130.00
2.575	130.00	130.00	130.00	130.00	130.00
2.600	130.00	130.00	130.00	130.00	130.00
2.625	130.00	130.00	130.00	130.00	130.00
2.650	130.00	130.00	130.00	130.00	130.00
2.675	130.00	130.00	130.00	130.00	130.00
2.700	130.00	130.00	130.00	130.00	130.00
2.725	130.00	130.00	130.00	130.00	130.00
2.750	130.00	130.00	130.00	130.00	130.00
2.775	130.00	130.00	130.00	130.00	130.00
2.800	130.00	130.00	130.00	130.00	130.00
2.825	130.00	130.00	130.00	130.00	130.00
2.850	130.00	130.00	130.00	130.00	130.00
2.875	130.00	130.00	130.00	130.00	130.00
2.900	130.00	130.00	130.00	130.00	130.00
2.925	130.00	130.00	130.00	130.00	130.00
2.950	130.00	130.00	130.00	130.00	130.00
2.975	130.00	130.00	130.00	130.00	130.00
3.000	130.00	130.00	130.00	130.00	130.00
3.025	130.00	130.00	130.00	130.00	130.00
3.050	130.00	130.00	130.00	130.00	130.00
3.075	130.00	130.00	130.00	130.00	130.00
3.100	130.00	130.00	130.00	130.00	130.00
3.125	130.00	130.00	130.00	130.00	130.00
3.150	130.00	130.00	130.00	130.00	130.00
3.175	130.00	130.00	130.00	130.00	130.00
3.200	130.00	130.00	130.00	130.00	130.00

**Time vs. Elevation (ft)**

**Output Time increment = 0.005 hours**  
**Time on left represents time for first value in each row.**

Time (hours)	Elevation (ft)	Elevation (ft)	Elevation (ft)	Elevation (ft)	Elevation (ft)
3.225	130.00	130.00	130.00	130.00	130.00
3.250	130.00	130.00	130.00	130.00	130.00
3.275	130.00	130.00	130.00	130.00	130.00
3.300	130.00	130.00	130.00	130.00	130.00
3.325	130.00	130.00	130.00	130.00	130.00
3.350	130.00	130.00	130.00	130.00	130.00
3.375	130.00	130.00	130.00	130.00	130.00
3.400	130.00	130.00	130.00	130.00	130.00
3.425	130.00	130.00	130.00	130.00	130.00
3.450	130.00	130.00	130.00	130.00	130.00
3.475	130.00	130.00	130.00	130.00	130.00
3.500	130.00	130.00	130.00	130.00	130.00
3.525	130.00	130.00	130.00	130.00	130.00
3.550	130.00	130.00	130.00	130.00	130.00
3.575	130.00	130.00	130.00	130.00	130.00
3.600	130.00	130.00	130.00	130.00	130.00
3.625	130.00	130.00	130.00	130.00	130.00
3.650	130.00	130.00	130.00	130.00	130.00
3.675	130.00	130.00	130.00	130.00	130.00
3.700	130.00	130.00	130.00	130.00	130.00
3.725	130.00	130.00	130.00	130.00	130.00
3.750	130.00	130.00	130.00	130.00	130.00
3.775	130.00	130.00	130.00	130.00	130.00
3.800	130.00	130.00	130.00	130.00	130.00
3.825	130.00	130.00	130.00	130.00	130.00
3.850	130.00	130.00	130.00	130.00	130.00
3.875	130.00	130.00	130.00	130.00	130.00
3.900	130.00	130.00	130.00	130.00	130.00
3.925	130.00	130.00	130.00	130.00	130.00
3.950	130.00	130.00	130.00	130.00	130.00
3.975	130.00	130.00	130.00	130.00	130.00
4.000	130.00	130.00	130.00	130.00	130.00
4.025	130.00	130.00	130.00	130.00	130.00
4.050	130.00	130.00	130.00	130.00	130.00
4.075	130.00	130.00	130.00	130.00	130.00
4.100	130.00	130.00	130.00	130.00	130.00
4.125	130.00	130.00	130.00	130.00	130.00
4.150	130.00	130.00	130.00	130.00	130.00
4.175	130.00	130.00	130.00	130.00	130.00
4.200	130.00	130.00	130.00	130.00	130.00
4.225	130.00	130.00	130.00	130.00	130.00
4.250	130.00	130.00	130.00	130.00	130.00
4.275	130.00	130.00	130.00	130.00	130.00

**Time vs. Elevation (ft)**

**Output Time increment = 0.005 hours**  
**Time on left represents time for first value in each row.**

Time (hours)	Elevation (ft)	Elevation (ft)	Elevation (ft)	Elevation (ft)	Elevation (ft)
4.300	130.00	130.00	130.00	130.00	130.00
4.325	130.00	130.00	130.00	130.00	130.00
4.350	130.00	130.00	130.00	130.00	130.00
4.375	130.00	130.00	130.00	130.00	130.00
4.400	130.00	130.00	130.00	130.00	130.00
4.425	130.00	130.00	130.00	130.00	130.00
4.450	130.00	130.00	130.00	130.00	130.00
4.475	130.00	130.00	130.00	130.00	130.00
4.500	130.00	130.00	130.00	130.00	130.00
4.525	130.00	130.00	130.00	130.00	130.00
4.550	130.00	130.00	130.00	130.00	130.00
4.575	130.00	130.00	130.00	130.00	130.00
4.600	130.00	130.00	130.00	130.00	130.00
4.625	130.00	130.00	130.00	130.00	130.00
4.650	130.00	130.00	130.00	130.00	130.00
4.675	130.00	130.00	130.00	130.00	130.00
4.700	130.00	130.00	130.00	130.00	130.00
4.725	130.00	130.00	130.00	130.00	130.00
4.750	130.00	130.00	130.00	130.00	130.00
4.775	130.00	130.00	130.00	130.00	130.00
4.800	130.00	130.00	130.00	130.00	130.00
4.825	130.00	130.00	130.00	130.00	130.00
4.850	130.00	130.00	130.00	130.00	130.00
4.875	130.00	130.00	130.00	130.00	130.00
4.900	130.00	130.00	130.00	130.00	130.00
4.925	130.00	130.00	130.00	130.00	130.00
4.950	130.00	130.00	130.00	130.00	130.00
4.975	130.00	130.00	130.00	130.00	130.00
5.000	130.00	130.00	130.00	130.00	130.00
5.025	130.00	130.00	130.00	130.00	130.00
5.050	130.00	130.00	130.00	130.00	130.00
5.075	130.00	130.00	130.00	130.00	130.00
5.100	130.00	130.00	130.00	130.00	130.00
5.125	130.00	130.00	130.00	130.00	130.00
5.150	130.00	130.00	130.00	130.00	130.00
5.175	130.00	130.00	130.00	130.00	130.00
5.200	130.00	130.00	130.00	130.00	130.00
5.225	130.00	130.00	130.00	130.00	130.00
5.250	130.00	130.00	130.00	130.00	130.00
5.275	130.00	130.00	130.00	130.00	130.00
5.300	130.00	130.00	130.00	130.00	130.00
5.325	130.00	130.00	130.00	130.00	130.00
5.350	130.00	130.00	130.00	130.00	130.00

**Time vs. Elevation (ft)**

**Output Time increment = 0.005 hours**  
**Time on left represents time for first value in each row.**

Time (hours)	Elevation (ft)	Elevation (ft)	Elevation (ft)	Elevation (ft)	Elevation (ft)
5.375	130.00	130.00	130.00	130.00	130.00
5.400	130.00	130.00	130.00	130.00	130.00
5.425	130.00	130.00	130.00	130.00	130.00
5.450	130.00	130.00	130.00	130.00	130.00
5.475	130.00	130.00	130.00	130.00	130.00
5.500	130.00	130.00	130.00	130.00	130.00
5.525	130.00	130.00	130.00	130.00	130.00
5.550	130.00	130.00	130.00	130.00	130.00
5.575	130.00	130.00	130.00	130.00	130.00
5.600	130.00	130.00	130.00	130.00	130.00
5.625	130.00	130.00	130.00	130.00	130.00
5.650	130.00	130.00	130.00	130.00	130.00
5.675	130.00	130.00	130.00	130.00	130.00
5.700	130.00	130.00	130.00	130.00	130.00
5.725	130.00	130.00	130.00	130.00	130.00
5.750	130.00	130.00	130.00	130.00	130.00
5.775	130.00	130.00	130.00	130.00	130.00
5.800	130.00	130.00	130.00	130.00	130.00
5.825	130.00	130.00	130.00	130.00	130.00
5.850	130.00	130.00	130.00	130.00	130.00
5.875	130.00	130.00	130.00	130.00	130.00
5.900	130.00	130.00	130.00	130.00	130.00
5.925	130.00	130.00	130.00	130.00	130.00
5.950	130.00	130.00	130.00	130.00	130.00
5.975	130.00	130.00	130.00	130.00	130.00
6.000	130.00	130.00	130.00	130.00	130.00
6.025	130.00	130.00	130.00	130.00	130.00
6.050	130.00	130.00	130.00	130.00	130.00
6.075	130.00	130.00	130.00	130.00	130.00
6.100	130.00	130.00	130.00	130.00	130.00
6.125	130.00	130.00	130.00	130.00	130.00
6.150	130.00	130.00	130.00	130.00	130.00
6.175	130.00	130.00	130.00	130.00	130.00
6.200	130.00	130.00	130.00	130.00	130.00
6.225	130.00	130.00	130.00	130.00	130.00
6.250	130.00	130.00	130.00	130.00	130.00
6.275	130.00	130.00	130.00	130.00	130.00
6.300	130.00	130.00	130.00	130.00	130.00
6.325	130.00	130.00	130.00	130.00	130.00
6.350	130.00	130.00	130.00	130.00	130.00
6.375	130.00	130.00	130.00	130.00	130.00
6.400	130.00	130.00	130.00	130.00	130.00
6.425	130.00	130.00	130.00	130.00	130.00

**Time vs. Elevation (ft)**

**Output Time increment = 0.005 hours**  
**Time on left represents time for first value in each row.**

Time (hours)	Elevation (ft)	Elevation (ft)	Elevation (ft)	Elevation (ft)	Elevation (ft)
6.450	130.00	130.00	130.00	130.00	130.00
6.475	130.00	130.00	130.00	130.00	130.00
6.500	130.00	130.00	130.00	130.00	130.00
6.525	130.00	130.00	130.00	130.00	130.00
6.550	130.00	130.00	130.00	130.00	130.00
6.575	130.00	130.00	130.00	130.00	130.00
6.600	130.00	130.00	130.00	130.00	130.00
6.625	130.00	130.00	130.00	130.00	130.00
6.650	130.00	130.00	130.00	130.00	130.00
6.675	130.00	130.00	130.00	130.00	130.00
6.700	130.00	130.00	130.00	130.00	130.00
6.725	130.00	130.00	130.00	130.00	130.00
6.750	130.00	130.00	130.00	130.00	130.00
6.775	130.00	130.00	130.00	130.00	130.00
6.800	130.00	130.00	130.00	130.00	130.00
6.825	130.00	130.00	130.00	130.00	130.00
6.850	130.00	130.00	130.00	130.00	130.00
6.875	130.00	130.00	130.00	130.00	130.00
6.900	130.00	130.00	130.00	130.00	130.00
6.925	130.00	130.00	130.00	130.00	130.00
6.950	130.00	130.00	130.00	130.00	130.00
6.975	130.00	130.00	130.00	130.00	130.00
7.000	130.00	130.00	130.00	130.00	130.00
7.025	130.00	130.00	130.00	130.00	130.00
7.050	130.00	130.00	130.00	130.00	130.00
7.075	130.00	130.00	130.00	130.00	130.00
7.100	130.00	130.00	130.00	130.00	130.00
7.125	130.00	130.00	130.00	130.00	130.00
7.150	130.00	130.00	130.00	130.00	130.00
7.175	130.00	130.00	130.00	130.00	130.00
7.200	130.00	130.00	130.00	130.00	130.00
7.225	130.00	130.00	130.00	130.00	130.00
7.250	130.00	130.00	130.00	130.00	130.00
7.275	130.00	130.00	130.00	130.00	130.00
7.300	130.00	130.00	130.00	130.00	130.00
7.325	130.00	130.00	130.00	130.00	130.00
7.350	130.00	130.00	130.00	130.00	130.00
7.375	130.00	130.00	130.00	130.00	130.00
7.400	130.00	130.00	130.00	130.00	130.00
7.425	130.00	130.00	130.00	130.00	130.00
7.450	130.00	130.00	130.00	130.00	130.00
7.475	130.00	130.00	130.00	130.00	130.00
7.500	130.00	130.00	130.00	130.00	130.00

**Time vs. Elevation (ft)**

**Output Time increment = 0.005 hours**  
**Time on left represents time for first value in each row.**

Time (hours)	Elevation (ft)	Elevation (ft)	Elevation (ft)	Elevation (ft)	Elevation (ft)
7.525	130.00	130.00	130.00	130.00	130.00
7.550	130.00	130.00	130.00	130.00	130.00
7.575	130.00	130.00	130.00	130.00	130.00
7.600	130.00	130.00	130.00	130.00	130.00
7.625	130.00	130.00	130.00	130.00	130.00
7.650	130.00	130.00	130.00	130.00	130.00
7.675	130.00	130.00	130.00	130.00	130.00
7.700	130.00	130.00	130.00	130.00	130.00
7.725	130.00	130.00	130.00	130.00	130.00
7.750	130.00	130.00	130.00	130.00	130.00
7.775	130.00	130.00	130.00	130.00	130.00
7.800	130.00	130.00	130.00	130.00	130.00
7.825	130.00	130.00	130.00	130.00	130.00
7.850	130.00	130.00	130.00	130.00	130.00
7.875	130.00	130.00	130.00	130.00	130.00
7.900	130.00	130.00	130.00	130.00	130.00
7.925	130.00	130.00	130.00	130.00	130.00
7.950	130.00	130.00	130.00	130.00	130.00
7.975	130.00	130.00	130.00	130.00	130.00
8.000	130.00	130.00	130.00	130.00	130.00
8.025	130.00	130.00	130.00	130.00	130.00
8.050	130.00	130.00	130.00	130.00	130.00
8.075	130.00	130.00	130.00	130.00	130.00
8.100	130.00	130.00	130.00	130.00	130.00
8.125	130.00	130.00	130.00	130.00	130.00
8.150	130.00	130.00	130.00	130.00	130.00
8.175	130.00	130.00	130.00	130.00	130.00
8.200	130.00	130.00	130.00	130.00	130.00
8.225	130.00	130.00	130.00	130.00	130.00
8.250	130.00	130.00	130.00	130.00	130.00
8.275	130.00	130.00	130.00	130.00	130.00
8.300	130.00	130.00	130.00	130.00	130.00
8.325	130.00	130.00	130.00	130.00	130.00
8.350	130.00	130.00	130.00	130.00	130.00
8.375	130.00	130.00	130.00	130.00	130.00
8.400	130.00	130.00	130.00	130.00	130.00
8.425	130.00	130.00	130.00	130.00	130.00
8.450	130.00	130.00	130.00	130.00	130.00
8.475	130.00	130.00	130.00	130.00	130.00
8.500	130.00	130.00	130.00	130.00	130.00
8.525	130.00	130.00	130.00	130.00	130.00
8.550	130.00	130.00	130.00	130.00	130.00
8.575	130.00	130.00	130.00	130.00	130.00



**Time vs. Elevation (ft)**

**Output Time increment = 0.005 hours**  
**Time on left represents time for first value in each row.**

Time (hours)	Elevation (ft)	Elevation (ft)	Elevation (ft)	Elevation (ft)	Elevation (ft)
8.600	130.00	130.00	130.00	130.00	130.00
8.625	130.00	130.00	130.00	130.00	130.00
8.650	130.00	130.00	130.00	130.00	130.00
8.675	130.00	130.00	130.00	130.00	130.00
8.700	130.00	130.00	130.00	130.00	130.00
8.725	130.00	130.00	130.00	130.00	130.00
8.750	130.00	130.00	130.00	130.00	130.00
8.775	130.00	130.00	130.00	130.00	130.00
8.800	130.00	130.00	130.00	130.00	130.00
8.825	130.00	130.00	130.00	130.00	130.00
8.850	130.00	130.00	130.00	130.00	130.00
8.875	130.00	130.00	130.00	130.00	130.00
8.900	130.00	130.00	130.00	130.00	130.00
8.925	130.00	130.00	130.00	130.00	130.00
8.950	130.00	130.00	130.00	130.00	130.00
8.975	130.00	130.00	130.00	130.00	130.00
9.000	130.00	130.00	130.00	130.00	130.00
9.025	130.00	130.00	130.00	130.00	130.00
9.050	130.00	130.00	130.00	130.00	130.00
9.075	130.00	130.00	130.00	130.00	130.00
9.100	130.00	130.00	130.00	130.00	130.00
9.125	130.00	130.00	130.00	130.00	130.00
9.150	130.00	130.00	130.00	130.00	130.00
9.175	130.00	130.00	130.00	130.00	130.00
9.200	130.00	130.00	130.00	130.00	130.00
9.225	130.00	130.00	130.00	130.00	130.00
9.250	130.00	130.00	130.00	130.00	130.00
9.275	130.00	130.00	130.00	130.00	130.00
9.300	130.00	130.00	130.00	130.00	130.00
9.325	130.00	130.00	130.00	130.00	130.00
9.350	130.00	130.00	130.00	130.00	130.00
9.375	130.00	130.00	130.00	130.00	130.00
9.400	130.00	130.00	130.00	130.00	130.00
9.425	130.00	130.00	130.00	130.00	130.00
9.450	130.00	130.00	130.00	130.00	130.00
9.475	130.00	130.00	130.00	130.00	130.00
9.500	130.00	130.00	130.00	130.00	130.00
9.525	130.00	130.00	130.00	130.00	130.00
9.550	130.00	130.00	130.00	130.00	130.00
9.575	130.00	130.00	130.00	130.00	130.00
9.600	130.00	130.00	130.00	130.00	130.00
9.625	130.00	130.00	130.00	130.00	130.00
9.650	130.00	130.00	130.00	130.00	130.00

**Time vs. Elevation (ft)**

**Output Time increment = 0.005 hours**  
**Time on left represents time for first value in each row.**

Time (hours)	Elevation (ft)	Elevation (ft)	Elevation (ft)	Elevation (ft)	Elevation (ft)
9.675	130.00	130.00	130.00	130.00	130.00
9.700	130.00	130.00	130.00	130.00	130.00
9.725	130.00	130.00	130.00	130.00	130.00
9.750	130.00	130.00	130.00	130.00	130.00
9.775	130.00	130.00	130.00	130.00	130.00
9.800	130.00	130.00	130.00	130.00	130.00
9.825	130.00	130.00	130.00	130.00	130.00
9.850	130.00	130.00	130.00	130.00	130.00
9.875	130.00	130.00	130.00	130.00	130.00
9.900	130.00	130.00	130.00	130.00	130.00
9.925	130.00	130.00	130.01	130.01	130.01
9.950	130.01	130.01	130.01	130.01	130.01
9.975	130.01	130.01	130.01	130.01	130.01
10.000	130.01	130.01	130.01	130.01	130.01
10.025	130.01	130.01	130.01	130.01	130.01
10.050	130.01	130.01	130.01	130.01	130.01
10.075	130.01	130.01	130.01	130.01	130.01
10.100	130.01	130.01	130.02	130.02	130.02
10.125	130.02	130.02	130.02	130.02	130.02
10.150	130.02	130.02	130.02	130.02	130.02
10.175	130.02	130.02	130.02	130.02	130.02
10.200	130.02	130.02	130.02	130.02	130.02
10.225	130.02	130.02	130.02	130.02	130.02
10.250	130.02	130.02	130.02	130.02	130.02
10.275	130.02	130.02	130.02	130.02	130.02
10.300	130.02	130.02	130.02	130.02	130.02
10.325	130.02	130.02	130.02	130.02	130.02
10.350	130.02	130.02	130.02	130.02	130.02
10.375	130.02	130.02	130.02	130.02	130.02
10.400	130.02	130.02	130.02	130.02	130.02
10.425	130.02	130.02	130.02	130.02	130.02
10.450	130.02	130.02	130.02	130.02	130.02
10.475	130.02	130.02	130.02	130.02	130.02
10.500	130.02	130.03	130.03	130.03	130.03
10.525	130.03	130.03	130.03	130.03	130.03
10.550	130.03	130.03	130.03	130.03	130.03
10.575	130.03	130.03	130.03	130.03	130.03
10.600	130.03	130.03	130.03	130.03	130.03
10.625	130.03	130.03	130.03	130.03	130.03
10.650	130.03	130.03	130.03	130.03	130.03
10.675	130.03	130.03	130.03	130.03	130.03
10.700	130.03	130.03	130.03	130.03	130.03
10.725	130.03	130.03	130.03	130.03	130.03

Subsection: Time vs. Elevation  
 Label: CO-28

Return Event: 10 years  
 Storm Event: 10 yr

**Time vs. Elevation (ft)**

**Output Time increment = 0.005 hours**  
**Time on left represents time for first value in each row.**

Time (hours)	Elevation (ft)	Elevation (ft)	Elevation (ft)	Elevation (ft)	Elevation (ft)
10.750	130.03	130.03	130.03	130.03	130.03
10.775	130.04	130.04	130.04	130.04	130.04
10.800	130.04	130.04	130.04	130.04	130.04
10.825	130.04	130.04	130.04	130.04	130.04
10.850	130.04	130.04	130.04	130.04	130.04
10.875	130.04	130.04	130.04	130.04	130.04
10.900	130.04	130.04	130.04	130.04	130.04
10.925	130.04	130.04	130.04	130.04	130.04
10.950	130.04	130.04	130.04	130.05	130.05
10.975	130.05	130.05	130.05	130.05	130.05
11.000	130.05	130.05	130.05	130.05	130.05
11.025	130.05	130.05	130.05	130.05	130.05
11.050	130.05	130.05	130.05	130.05	130.05
11.075	130.05	130.05	130.05	130.05	130.05
11.100	130.05	130.05	130.05	130.05	130.05
11.125	130.05	130.05	130.05	130.05	130.05
11.150	130.05	130.05	130.05	130.05	130.05
11.175	130.05	130.05	130.05	130.05	130.05
11.200	130.05	130.06	130.06	130.06	130.06
11.225	130.06	130.06	130.06	130.06	130.06
11.250	130.06	130.06	130.06	130.06	130.06
11.275	130.06	130.06	130.06	130.06	130.06
11.300	130.06	130.06	130.06	130.06	130.06
11.325	130.06	130.06	130.06	130.06	130.06
11.350	130.06	130.07	130.07	130.07	130.07
11.375	130.07	130.07	130.07	130.07	130.07
11.400	130.07	130.07	130.07	130.07	130.07
11.425	130.07	130.07	130.07	130.07	130.07
11.450	130.07	130.07	130.07	130.08	130.08
11.475	130.08	130.08	130.08	130.08	130.08
11.500	130.08	130.08	130.08	130.08	130.08
11.525	130.08	130.08	130.08	130.08	130.08
11.550	130.08	130.08	130.09	130.09	130.09
11.575	130.09	130.09	130.09	130.09	130.09
11.600	130.09	130.09	130.09	130.09	130.10
11.625	130.10	130.10	130.10	130.10	130.10
11.650	130.11	130.11	130.11	130.11	130.11
11.675	130.12	130.12	130.13	130.13	130.13
11.700	130.13	130.14	130.14	130.15	130.15
11.725	130.15	130.16	130.16	130.17	130.17
11.750	130.18	130.18	130.18	130.19	130.19
11.775	130.20	130.20	130.21	130.21	130.22
11.800	130.22	130.23	130.24	130.24	130.25

Subsection: Time vs. Elevation  
 Label: CO-28

Return Event: 10 years  
 Storm Event: 10 yr

**Time vs. Elevation (ft)**

**Output Time increment = 0.005 hours**  
**Time on left represents time for first value in each row.**

Time (hours)	Elevation (ft)	Elevation (ft)	Elevation (ft)	Elevation (ft)	Elevation (ft)
11.825	130.25	130.26	130.26	130.27	130.28
11.850	130.28	130.29	130.29	130.30	130.31
11.875	130.32	130.32	130.33	130.34	130.35
11.900	130.36	130.36	130.37	130.38	130.39
11.925	130.40	130.41	130.41	130.42	130.43
11.950	130.44	130.44	130.45	130.46	130.46
11.975	130.47	130.47	130.48	130.48	130.48
12.000	130.49	130.49	130.49	130.50	130.50
12.025	130.50	130.50	130.50	130.50	130.50
12.050	130.50	130.50	130.50	130.50	130.50
12.075	130.50	130.49	130.49	130.49	130.48
12.100	130.48	130.47	130.47	130.46	130.46
12.125	130.45	130.45	130.44	130.44	130.43
12.150	130.42	130.42	130.41	130.40	130.40
12.175	130.39	130.38	130.38	130.37	130.37
12.200	130.36	130.35	130.35	130.34	130.34
12.225	130.33	130.33	130.32	130.32	130.31
12.250	130.31	130.30	130.30	130.29	130.29
12.275	130.28	130.28	130.28	130.27	130.27
12.300	130.27	130.26	130.26	130.26	130.25
12.325	130.25	130.25	130.25	130.24	130.24
12.350	130.24	130.24	130.23	130.23	130.23
12.375	130.23	130.23	130.22	130.22	130.22
12.400	130.22	130.22	130.21	130.21	130.21
12.425	130.21	130.21	130.21	130.20	130.20
12.450	130.20	130.20	130.20	130.20	130.20
12.475	130.20	130.19	130.19	130.19	130.19
12.500	130.19	130.19	130.19	130.19	130.18
12.525	130.18	130.18	130.18	130.18	130.18
12.550	130.18	130.18	130.17	130.17	130.17
12.575	130.17	130.17	130.17	130.17	130.17
12.600	130.17	130.17	130.17	130.16	130.16
12.625	130.16	130.16	130.16	130.16	130.16
12.650	130.16	130.16	130.16	130.16	130.16
12.675	130.15	130.15	130.15	130.15	130.15
12.700	130.15	130.15	130.15	130.15	130.15
12.725	130.15	130.15	130.15	130.15	130.15
12.750	130.15	130.14	130.14	130.14	130.14
12.775	130.14	130.14	130.14	130.14	130.14
12.800	130.14	130.14	130.14	130.14	130.14
12.825	130.14	130.14	130.14	130.14	130.14
12.850	130.14	130.14	130.14	130.14	130.14
12.875	130.14	130.14	130.14	130.13	130.13

Subsection: Time vs. Elevation  
 Label: CO-28

Return Event: 10 years  
 Storm Event: 10 yr

**Time vs. Elevation (ft)**

**Output Time increment = 0.005 hours**  
**Time on left represents time for first value in each row.**

Time (hours)	Elevation (ft)	Elevation (ft)	Elevation (ft)	Elevation (ft)	Elevation (ft)
12.900	130.13	130.13	130.13	130.13	130.13
12.925	130.13	130.13	130.13	130.13	130.13
12.950	130.13	130.13	130.13	130.13	130.13
12.975	130.13	130.13	130.13	130.13	130.13
13.000	130.13	130.13	130.13	130.13	130.13
13.025	130.13	130.13	130.13	130.13	130.13
13.050	130.13	130.13	130.13	130.13	130.13
13.075	130.13	130.12	130.12	130.12	130.12
13.100	130.12	130.12	130.12	130.12	130.12
13.125	130.12	130.12	130.12	130.12	130.12
13.150	130.12	130.12	130.12	130.12	130.12
13.175	130.12	130.12	130.12	130.12	130.12
13.200	130.12	130.12	130.12	130.12	130.12
13.225	130.12	130.12	130.12	130.12	130.12
13.250	130.12	130.12	130.12	130.12	130.12
13.275	130.12	130.12	130.12	130.12	130.12
13.300	130.12	130.12	130.12	130.12	130.12
13.325	130.11	130.11	130.11	130.11	130.11
13.350	130.11	130.11	130.11	130.11	130.11
13.375	130.11	130.11	130.11	130.11	130.11
13.400	130.11	130.11	130.11	130.11	130.11
13.425	130.11	130.11	130.11	130.11	130.11
13.450	130.11	130.11	130.11	130.11	130.11
13.475	130.11	130.11	130.11	130.11	130.11
13.500	130.11	130.11	130.11	130.11	130.11
13.525	130.11	130.11	130.11	130.11	130.11
13.550	130.11	130.11	130.11	130.11	130.11
13.575	130.11	130.11	130.11	130.11	130.11
13.600	130.11	130.11	130.10	130.10	130.10
13.625	130.10	130.10	130.10	130.10	130.10
13.650	130.10	130.10	130.10	130.10	130.10
13.675	130.10	130.10	130.10	130.10	130.10
13.700	130.10	130.10	130.10	130.10	130.10
13.725	130.10	130.10	130.10	130.10	130.10
13.750	130.10	130.10	130.10	130.10	130.10
13.775	130.10	130.10	130.10	130.10	130.10
13.800	130.10	130.10	130.10	130.10	130.10
13.825	130.10	130.10	130.10	130.10	130.10
13.850	130.10	130.10	130.10	130.10	130.10
13.875	130.10	130.10	130.10	130.10	130.10
13.900	130.10	130.10	130.10	130.10	130.10
13.925	130.10	130.10	130.10	130.10	130.10
13.950	130.10	130.10	130.10	130.10	130.09

**Time vs. Elevation (ft)**

**Output Time increment = 0.005 hours**  
**Time on left represents time for first value in each row.**

Time (hours)	Elevation (ft)	Elevation (ft)	Elevation (ft)	Elevation (ft)	Elevation (ft)
13.975	130.09	130.09	130.09	130.09	130.09
14.000	130.09	130.09	130.09	130.09	130.09
14.025	130.09	130.09	130.09	130.09	130.09
14.050	130.09	130.09	130.09	130.09	130.09
14.075	130.09	130.09	130.09	130.09	130.09
14.100	130.09	130.09	130.09	130.09	130.09
14.125	130.09	130.09	130.09	130.09	130.09
14.150	130.09	130.09	130.09	130.09	130.09
14.175	130.09	130.09	130.09	130.09	130.09
14.200	130.09	130.09	130.09	130.09	130.09
14.225	130.09	130.09	130.09	130.09	130.09
14.250	130.09	130.09	130.09	130.09	130.09
14.275	130.09	130.09	130.09	130.09	130.09
14.300	130.09	130.09	130.09	130.09	130.09
14.325	130.09	130.09	130.09	130.09	130.09
14.350	130.09	130.09	130.09	130.09	130.09
14.375	130.09	130.09	130.09	130.09	130.09
14.400	130.09	130.09	130.09	130.09	130.09
14.425	130.09	130.09	130.09	130.09	130.09
14.450	130.09	130.09	130.09	130.09	130.09
14.475	130.09	130.09	130.09	130.09	130.09
14.500	130.09	130.09	130.09	130.09	130.09
14.525	130.09	130.09	130.09	130.09	130.09
14.550	130.09	130.09	130.09	130.09	130.09
14.575	130.09	130.09	130.09	130.09	130.09
14.600	130.09	130.09	130.09	130.09	130.09
14.625	130.09	130.09	130.09	130.09	130.08
14.650	130.08	130.08	130.08	130.08	130.08
14.675	130.08	130.08	130.08	130.08	130.08
14.700	130.08	130.08	130.08	130.08	130.08
14.725	130.08	130.08	130.08	130.08	130.08
14.750	130.08	130.08	130.08	130.08	130.08
14.775	130.08	130.08	130.08	130.08	130.08
14.800	130.08	130.08	130.08	130.08	130.08
14.825	130.08	130.08	130.08	130.08	130.08
14.850	130.08	130.08	130.08	130.08	130.08
14.875	130.08	130.08	130.08	130.08	130.08
14.900	130.08	130.08	130.08	130.08	130.08
14.925	130.08	130.08	130.08	130.08	130.08
14.950	130.08	130.08	130.08	130.08	130.08
14.975	130.08	130.08	130.08	130.08	130.08
15.000	130.08	130.08	130.08	130.08	130.08
15.025	130.08	130.08	130.08	130.08	130.08

**Time vs. Elevation (ft)**

**Output Time increment = 0.005 hours**  
**Time on left represents time for first value in each row.**

Time (hours)	Elevation (ft)	Elevation (ft)	Elevation (ft)	Elevation (ft)	Elevation (ft)
15.050	130.08	130.08	130.08	130.08	130.08
15.075	130.08	130.08	130.08	130.08	130.08
15.100	130.08	130.08	130.08	130.08	130.08
15.125	130.08	130.08	130.08	130.08	130.08
15.150	130.08	130.08	130.08	130.08	130.08
15.175	130.08	130.08	130.08	130.08	130.08
15.200	130.08	130.08	130.08	130.08	130.08
15.225	130.08	130.08	130.08	130.08	130.08
15.250	130.08	130.08	130.08	130.08	130.08
15.275	130.08	130.08	130.08	130.08	130.08
15.300	130.08	130.08	130.08	130.08	130.08
15.325	130.08	130.08	130.08	130.08	130.08
15.350	130.08	130.08	130.08	130.08	130.08
15.375	130.08	130.08	130.08	130.08	130.08
15.400	130.08	130.08	130.08	130.08	130.08
15.425	130.08	130.08	130.08	130.08	130.08
15.450	130.08	130.08	130.08	130.08	130.08
15.475	130.08	130.08	130.08	130.08	130.08
15.500	130.08	130.08	130.08	130.08	130.08
15.525	130.08	130.08	130.08	130.08	130.08
15.550	130.08	130.08	130.08	130.08	130.08
15.575	130.08	130.08	130.08	130.08	130.08
15.600	130.08	130.08	130.08	130.08	130.08
15.625	130.08	130.08	130.08	130.07	130.07
15.650	130.07	130.07	130.07	130.07	130.07
15.675	130.07	130.07	130.07	130.07	130.07
15.700	130.07	130.07	130.07	130.07	130.07
15.725	130.07	130.07	130.07	130.07	130.07
15.750	130.07	130.07	130.07	130.07	130.07
15.775	130.07	130.07	130.07	130.07	130.07
15.800	130.07	130.07	130.07	130.07	130.07
15.825	130.07	130.07	130.07	130.07	130.07
15.850	130.07	130.07	130.07	130.07	130.07
15.875	130.07	130.07	130.07	130.07	130.07
15.900	130.07	130.07	130.07	130.07	130.07
15.925	130.07	130.07	130.07	130.07	130.07
15.950	130.07	130.07	130.07	130.07	130.07
15.975	130.07	130.07	130.07	130.07	130.07
16.000	130.07	130.07	130.07	130.07	130.07
16.025	130.07	130.07	130.07	130.07	130.07
16.050	130.07	130.07	130.07	130.07	130.07
16.075	130.07	130.07	130.07	130.07	130.07
16.100	130.07	130.07	130.07	130.07	130.07

**Time vs. Elevation (ft)**

**Output Time increment = 0.005 hours**  
**Time on left represents time for first value in each row.**

Time (hours)	Elevation (ft)	Elevation (ft)	Elevation (ft)	Elevation (ft)	Elevation (ft)
16.125	130.07	130.07	130.07	130.07	130.07
16.150	130.07	130.07	130.07	130.07	130.07
16.175	130.07	130.07	130.07	130.07	130.07
16.200	130.07	130.07	130.07	130.07	130.07
16.225	130.07	130.07	130.07	130.07	130.07
16.250	130.07	130.07	130.07	130.07	130.07
16.275	130.07	130.07	130.07	130.07	130.07
16.300	130.07	130.07	130.07	130.07	130.07
16.325	130.07	130.07	130.07	130.07	130.07
16.350	130.07	130.07	130.07	130.07	130.07
16.375	130.07	130.07	130.07	130.07	130.07
16.400	130.07	130.07	130.07	130.07	130.07
16.425	130.07	130.07	130.07	130.07	130.07
16.450	130.07	130.07	130.07	130.07	130.07
16.475	130.07	130.07	130.07	130.07	130.07
16.500	130.07	130.07	130.07	130.07	130.07
16.525	130.07	130.07	130.07	130.07	130.07
16.550	130.07	130.07	130.07	130.07	130.07
16.575	130.07	130.07	130.07	130.07	130.07
16.600	130.07	130.07	130.07	130.07	130.07
16.625	130.07	130.07	130.07	130.07	130.07
16.650	130.07	130.07	130.07	130.07	130.07
16.675	130.07	130.07	130.07	130.07	130.07
16.700	130.07	130.06	130.06	130.06	130.06
16.725	130.06	130.06	130.06	130.06	130.06
16.750	130.06	130.06	130.06	130.06	130.06
16.775	130.06	130.06	130.06	130.06	130.06
16.800	130.06	130.06	130.06	130.06	130.06
16.825	130.06	130.06	130.06	130.06	130.06
16.850	130.06	130.06	130.06	130.06	130.06
16.875	130.06	130.06	130.06	130.06	130.06
16.900	130.06	130.06	130.06	130.06	130.06
16.925	130.06	130.06	130.06	130.06	130.06
16.950	130.06	130.06	130.06	130.06	130.06
16.975	130.06	130.06	130.06	130.06	130.06
17.000	130.06	130.06	130.06	130.06	130.06
17.025	130.06	130.06	130.06	130.06	130.06
17.050	130.06	130.06	130.06	130.06	130.06
17.075	130.06	130.06	130.06	130.06	130.06
17.100	130.06	130.06	130.06	130.06	130.06
17.125	130.06	130.06	130.06	130.06	130.06
17.150	130.06	130.06	130.06	130.06	130.06
17.175	130.06	130.06	130.06	130.06	130.06



**Time vs. Elevation (ft)**

**Output Time increment = 0.005 hours**  
**Time on left represents time for first value in each row.**

Time (hours)	Elevation (ft)	Elevation (ft)	Elevation (ft)	Elevation (ft)	Elevation (ft)
17.200	130.06	130.06	130.06	130.06	130.06
17.225	130.06	130.06	130.06	130.06	130.06
17.250	130.06	130.06	130.06	130.06	130.06
17.275	130.06	130.06	130.06	130.06	130.06
17.300	130.06	130.06	130.06	130.06	130.06
17.325	130.06	130.06	130.06	130.06	130.06
17.350	130.06	130.06	130.06	130.06	130.06
17.375	130.06	130.06	130.06	130.06	130.06
17.400	130.06	130.06	130.06	130.06	130.06
17.425	130.06	130.06	130.06	130.06	130.06
17.450	130.06	130.06	130.06	130.06	130.06
17.475	130.06	130.06	130.06	130.06	130.06
17.500	130.06	130.06	130.06	130.06	130.06
17.525	130.06	130.06	130.06	130.06	130.06
17.550	130.06	130.06	130.06	130.06	130.06
17.575	130.06	130.06	130.06	130.06	130.06
17.600	130.06	130.06	130.06	130.06	130.06
17.625	130.06	130.06	130.06	130.06	130.06
17.650	130.06	130.06	130.06	130.06	130.06
17.675	130.06	130.06	130.06	130.06	130.06
17.700	130.06	130.06	130.06	130.06	130.06
17.725	130.06	130.06	130.06	130.06	130.06
17.750	130.06	130.06	130.06	130.06	130.06
17.775	130.06	130.06	130.06	130.06	130.06
17.800	130.06	130.06	130.06	130.06	130.06
17.825	130.06	130.06	130.06	130.06	130.06
17.850	130.06	130.06	130.06	130.06	130.06
17.875	130.06	130.06	130.06	130.06	130.06
17.900	130.06	130.06	130.06	130.06	130.06
17.925	130.06	130.06	130.06	130.06	130.06
17.950	130.06	130.06	130.06	130.06	130.06
17.975	130.06	130.06	130.06	130.06	130.06
18.000	130.06	130.06	130.06	130.06	130.06
18.025	130.06	130.06	130.06	130.06	130.06
18.050	130.06	130.06	130.06	130.06	130.06
18.075	130.06	130.06	130.06	130.06	130.06
18.100	130.06	130.06	130.06	130.06	130.06
18.125	130.06	130.06	130.06	130.06	130.06
18.150	130.06	130.06	130.06	130.06	130.06
18.175	130.06	130.06	130.06	130.06	130.06
18.200	130.06	130.06	130.06	130.06	130.06
18.225	130.06	130.06	130.06	130.06	130.06
18.250	130.06	130.06	130.06	130.06	130.06

Subsection: Time vs. Elevation  
 Label: CO-28

Return Event: 10 years  
 Storm Event: 10 yr

**Time vs. Elevation (ft)**

**Output Time increment = 0.005 hours**  
**Time on left represents time for first value in each row.**

Time (hours)	Elevation (ft)	Elevation (ft)	Elevation (ft)	Elevation (ft)	Elevation (ft)
18.275	130.06	130.06	130.06	130.06	130.06
18.300	130.06	130.06	130.06	130.06	130.06
18.325	130.06	130.06	130.06	130.06	130.06
18.350	130.06	130.06	130.06	130.06	130.06
18.375	130.06	130.06	130.06	130.06	130.06
18.400	130.06	130.06	130.06	130.06	130.06
18.425	130.06	130.06	130.06	130.06	130.06
18.450	130.06	130.06	130.06	130.06	130.06
18.475	130.06	130.06	130.06	130.06	130.06
18.500	130.06	130.06	130.06	130.06	130.06
18.525	130.06	130.06	130.06	130.06	130.06
18.550	130.06	130.06	130.06	130.06	130.06
18.575	130.06	130.06	130.06	130.06	130.06
18.600	130.06	130.06	130.06	130.06	130.06
18.625	130.06	130.06	130.06	130.06	130.06
18.650	130.06	130.06	130.06	130.06	130.06
18.675	130.06	130.06	130.06	130.06	130.06
18.700	130.06	130.06	130.06	130.06	130.06
18.725	130.06	130.06	130.06	130.06	130.06
18.750	130.06	130.06	130.06	130.06	130.06
18.775	130.06	130.06	130.06	130.06	130.06
18.800	130.06	130.06	130.06	130.06	130.06
18.825	130.06	130.06	130.06	130.06	130.06
18.850	130.06	130.06	130.05	130.05	130.05
18.875	130.05	130.05	130.05	130.05	130.05
18.900	130.05	130.05	130.05	130.05	130.05
18.925	130.05	130.05	130.05	130.05	130.05
18.950	130.05	130.05	130.05	130.05	130.05
18.975	130.05	130.05	130.05	130.05	130.05
19.000	130.05	130.05	130.05	130.05	130.05
19.025	130.05	130.05	130.05	130.05	130.05
19.050	130.05	130.05	130.05	130.05	130.05
19.075	130.05	130.05	130.05	130.05	130.05
19.100	130.05	130.05	130.05	130.05	130.05
19.125	130.05	130.05	130.05	130.05	130.05
19.150	130.05	130.05	130.05	130.05	130.05
19.175	130.05	130.05	130.05	130.05	130.05
19.200	130.05	130.05	130.05	130.05	130.05
19.225	130.05	130.05	130.05	130.05	130.05
19.250	130.05	130.05	130.05	130.05	130.05
19.275	130.05	130.05	130.05	130.05	130.05
19.300	130.05	130.05	130.05	130.05	130.05
19.325	130.05	130.05	130.05	130.05	130.05

**Time vs. Elevation (ft)**

**Output Time increment = 0.005 hours**  
**Time on left represents time for first value in each row.**

Time (hours)	Elevation (ft)	Elevation (ft)	Elevation (ft)	Elevation (ft)	Elevation (ft)
19.350	130.05	130.05	130.05	130.05	130.05
19.375	130.05	130.05	130.05	130.05	130.05
19.400	130.05	130.05	130.05	130.05	130.05
19.425	130.05	130.05	130.05	130.05	130.05
19.450	130.05	130.05	130.05	130.05	130.05
19.475	130.05	130.05	130.05	130.05	130.05
19.500	130.05	130.05	130.05	130.05	130.05
19.525	130.05	130.05	130.05	130.05	130.05
19.550	130.05	130.05	130.05	130.05	130.05
19.575	130.05	130.05	130.05	130.05	130.05
19.600	130.05	130.05	130.05	130.05	130.05
19.625	130.05	130.05	130.05	130.05	130.05
19.650	130.05	130.05	130.05	130.05	130.05
19.675	130.05	130.05	130.05	130.05	130.05
19.700	130.05	130.05	130.05	130.05	130.05
19.725	130.05	130.05	130.05	130.05	130.05
19.750	130.05	130.05	130.05	130.05	130.05
19.775	130.05	130.05	130.05	130.05	130.05
19.800	130.05	130.05	130.05	130.05	130.05
19.825	130.05	130.05	130.05	130.05	130.05
19.850	130.05	130.05	130.05	130.05	130.05
19.875	130.05	130.05	130.05	130.05	130.05
19.900	130.05	130.05	130.05	130.05	130.05
19.925	130.05	130.05	130.05	130.05	130.05
19.950	130.05	130.05	130.05	130.05	130.05
19.975	130.05	130.05	130.05	130.05	130.05
20.000	130.05	130.05	130.05	130.05	130.05
20.025	130.05	130.05	130.05	130.05	130.05
20.050	130.05	130.05	130.05	130.05	130.05
20.075	130.05	130.05	130.05	130.05	130.05
20.100	130.05	130.05	130.05	130.05	130.05
20.125	130.05	130.05	130.05	130.05	130.05
20.150	130.05	130.05	130.05	130.05	130.05
20.175	130.05	130.05	130.05	130.05	130.05
20.200	130.05	130.05	130.05	130.05	130.05
20.225	130.05	130.05	130.05	130.05	130.05
20.250	130.05	130.05	130.05	130.05	130.05
20.275	130.05	130.05	130.05	130.05	130.05
20.300	130.05	130.05	130.05	130.05	130.05
20.325	130.05	130.05	130.05	130.05	130.05
20.350	130.05	130.05	130.05	130.05	130.05
20.375	130.05	130.05	130.05	130.05	130.05
20.400	130.05	130.05	130.05	130.05	130.05

**Time vs. Elevation (ft)**

**Output Time increment = 0.005 hours**  
**Time on left represents time for first value in each row.**

Time (hours)	Elevation (ft)	Elevation (ft)	Elevation (ft)	Elevation (ft)	Elevation (ft)
20.425	130.05	130.05	130.05	130.05	130.05
20.450	130.05	130.05	130.05	130.05	130.05
20.475	130.05	130.05	130.05	130.05	130.05
20.500	130.05	130.05	130.05	130.05	130.05
20.525	130.05	130.05	130.05	130.05	130.05
20.550	130.05	130.05	130.05	130.05	130.05
20.575	130.05	130.05	130.05	130.05	130.05
20.600	130.05	130.05	130.05	130.05	130.05
20.625	130.05	130.05	130.05	130.05	130.05
20.650	130.05	130.05	130.05	130.05	130.05
20.675	130.05	130.05	130.05	130.05	130.05
20.700	130.05	130.05	130.05	130.05	130.05
20.725	130.05	130.05	130.05	130.05	130.05
20.750	130.05	130.05	130.05	130.05	130.05
20.775	130.05	130.05	130.05	130.05	130.05
20.800	130.05	130.05	130.05	130.05	130.05
20.825	130.05	130.05	130.05	130.05	130.05
20.850	130.05	130.05	130.05	130.05	130.05
20.875	130.05	130.05	130.05	130.05	130.05
20.900	130.05	130.05	130.05	130.05	130.05
20.925	130.05	130.05	130.05	130.05	130.05
20.950	130.05	130.05	130.05	130.05	130.05
20.975	130.05	130.05	130.05	130.05	130.05
21.000	130.05	130.05	130.05	130.05	130.05
21.025	130.05	130.05	130.05	130.05	130.05
21.050	130.05	130.05	130.05	130.05	130.05
21.075	130.05	130.05	130.05	130.05	130.05
21.100	130.05	130.05	130.05	130.05	130.05
21.125	130.05	130.05	130.05	130.05	130.05
21.150	130.05	130.05	130.05	130.05	130.05
21.175	130.05	130.05	130.05	130.05	130.05
21.200	130.05	130.05	130.05	130.05	130.05
21.225	130.05	130.05	130.05	130.05	130.05
21.250	130.05	130.05	130.05	130.05	130.05
21.275	130.05	130.05	130.05	130.05	130.05
21.300	130.05	130.05	130.05	130.05	130.05
21.325	130.05	130.05	130.05	130.05	130.05
21.350	130.05	130.05	130.05	130.05	130.05
21.375	130.05	130.05	130.05	130.05	130.05
21.400	130.05	130.05	130.05	130.05	130.05
21.425	130.05	130.05	130.05	130.05	130.05
21.450	130.05	130.05	130.05	130.05	130.05
21.475	130.05	130.05	130.05	130.05	130.05

**Time vs. Elevation (ft)**

**Output Time increment = 0.005 hours**  
**Time on left represents time for first value in each row.**

Time (hours)	Elevation (ft)	Elevation (ft)	Elevation (ft)	Elevation (ft)	Elevation (ft)
21.500	130.05	130.05	130.05	130.05	130.05
21.525	130.05	130.05	130.05	130.05	130.05
21.550	130.05	130.05	130.05	130.05	130.05
21.575	130.05	130.05	130.05	130.05	130.05
21.600	130.05	130.05	130.05	130.05	130.05
21.625	130.05	130.05	130.05	130.05	130.05
21.650	130.05	130.05	130.05	130.05	130.05
21.675	130.05	130.05	130.05	130.05	130.05
21.700	130.05	130.05	130.05	130.05	130.05
21.725	130.05	130.05	130.05	130.05	130.05
21.750	130.05	130.05	130.05	130.05	130.05
21.775	130.05	130.05	130.05	130.05	130.05
21.800	130.05	130.05	130.05	130.05	130.05
21.825	130.05	130.05	130.05	130.05	130.05
21.850	130.05	130.05	130.05	130.05	130.05
21.875	130.05	130.05	130.05	130.05	130.05
21.900	130.05	130.05	130.05	130.05	130.05
21.925	130.05	130.05	130.05	130.05	130.05
21.950	130.05	130.05	130.05	130.05	130.05
21.975	130.05	130.05	130.05	130.05	130.05
22.000	130.05	130.05	130.05	130.05	130.05
22.025	130.05	130.05	130.05	130.05	130.05
22.050	130.05	130.05	130.05	130.05	130.05
22.075	130.05	130.05	130.05	130.05	130.05
22.100	130.05	130.05	130.05	130.05	130.05
22.125	130.05	130.05	130.05	130.05	130.05
22.150	130.05	130.05	130.05	130.05	130.05
22.175	130.05	130.05	130.05	130.05	130.05
22.200	130.05	130.05	130.05	130.05	130.05
22.225	130.05	130.05	130.05	130.05	130.05
22.250	130.05	130.05	130.05	130.05	130.05
22.275	130.05	130.05	130.05	130.05	130.05
22.300	130.05	130.05	130.05	130.05	130.05
22.325	130.05	130.05	130.05	130.05	130.05
22.350	130.05	130.05	130.05	130.05	130.05
22.375	130.05	130.05	130.05	130.05	130.05
22.400	130.05	130.05	130.05	130.05	130.05
22.425	130.05	130.05	130.05	130.05	130.05
22.450	130.05	130.05	130.05	130.05	130.05
22.475	130.05	130.05	130.05	130.05	130.05
22.500	130.05	130.05	130.05	130.05	130.05
22.525	130.05	130.05	130.05	130.05	130.05
22.550	130.05	130.05	130.05	130.05	130.05

Subsection: Time vs. Elevation  
 Label: CO-28

Return Event: 10 years  
 Storm Event: 10 yr

**Time vs. Elevation (ft)**

**Output Time increment = 0.005 hours**  
**Time on left represents time for first value in each row.**

Time (hours)	Elevation (ft)	Elevation (ft)	Elevation (ft)	Elevation (ft)	Elevation (ft)
22.575	130.05	130.05	130.05	130.05	130.05
22.600	130.05	130.05	130.05	130.05	130.05
22.625	130.05	130.05	130.05	130.05	130.05
22.650	130.05	130.05	130.05	130.05	130.05
22.675	130.05	130.05	130.05	130.05	130.05
22.700	130.05	130.05	130.05	130.05	130.05
22.725	130.05	130.05	130.05	130.05	130.05
22.750	130.05	130.05	130.05	130.05	130.05
22.775	130.05	130.05	130.05	130.05	130.05
22.800	130.05	130.05	130.05	130.05	130.05
22.825	130.05	130.05	130.05	130.05	130.05
22.850	130.05	130.05	130.05	130.05	130.05
22.875	130.05	130.05	130.05	130.05	130.05
22.900	130.05	130.05	130.05	130.05	130.05
22.925	130.05	130.05	130.05	130.05	130.05
22.950	130.05	130.05	130.05	130.05	130.05
22.975	130.05	130.05	130.05	130.05	130.05
23.000	130.05	130.05	130.05	130.05	130.05
23.025	130.05	130.05	130.05	130.05	130.05
23.050	130.05	130.05	130.05	130.05	130.05
23.075	130.05	130.05	130.05	130.05	130.05
23.100	130.05	130.05	130.05	130.05	130.05
23.125	130.05	130.05	130.05	130.05	130.05
23.150	130.05	130.05	130.05	130.05	130.05
23.175	130.05	130.05	130.05	130.05	130.05
23.200	130.05	130.05	130.05	130.05	130.05
23.225	130.05	130.05	130.05	130.05	130.05
23.250	130.05	130.05	130.05	130.05	130.05
23.275	130.05	130.05	130.05	130.05	130.05
23.300	130.05	130.05	130.05	130.05	130.05
23.325	130.05	130.05	130.05	130.05	130.05
23.350	130.05	130.05	130.05	130.05	130.05
23.375	130.05	130.05	130.05	130.05	130.05
23.400	130.05	130.05	130.05	130.05	130.05
23.425	130.05	130.05	130.05	130.05	130.05
23.450	130.05	130.05	130.05	130.05	130.05
23.475	130.05	130.05	130.05	130.05	130.05
23.500	130.05	130.05	130.05	130.05	130.05
23.525	130.05	130.05	130.05	130.05	130.05
23.550	130.05	130.05	130.05	130.05	130.05
23.575	130.05	130.05	130.05	130.05	130.05
23.600	130.05	130.05	130.05	130.05	130.05
23.625	130.05	130.05	130.05	130.05	130.05

Subsection: Time vs. Elevation  
 Label: CO-28

Return Event: 10 years  
 Storm Event: 10 yr

**Time vs. Elevation (ft)**

**Output Time increment = 0.005 hours**  
**Time on left represents time for first value in each row.**

Time (hours)	Elevation (ft)	Elevation (ft)	Elevation (ft)	Elevation (ft)	Elevation (ft)
23.650	130.05	130.05	130.05	130.05	130.05
23.675	130.05	130.05	130.05	130.05	130.05
23.700	130.05	130.05	130.05	130.05	130.05
23.725	130.05	130.05	130.05	130.05	130.05
23.750	130.05	130.05	130.05	130.05	130.05
23.775	130.05	130.05	130.05	130.05	130.05
23.800	130.05	130.05	130.05	130.05	130.05
23.825	130.05	130.05	130.05	130.04	130.04
23.850	130.04	130.04	130.04	130.04	130.04
23.875	130.04	130.04	130.04	130.04	130.04
23.900	130.04	130.04	130.04	130.04	130.04
23.925	130.04	130.04	130.04	130.04	130.04
23.950	130.04	130.04	130.04	130.04	130.04
23.975	130.04	130.04	130.04	130.04	130.04
24.000	130.04	(N/A)	(N/A)	(N/A)	(N/A)

Subsection: Time vs. Elevation  
 Label: CO-45

Return Event: 10 years  
 Storm Event: 10 yr

**Time vs. Elevation (ft)**

**Output Time increment = 0.005 hours**  
**Time on left represents time for first value in each row.**

Time (hours)	Elevation (ft)	Elevation (ft)	Elevation (ft)	Elevation (ft)	Elevation (ft)
0.000	129.00	129.00	129.00	129.00	129.00
0.025	129.00	129.00	129.00	129.00	129.00
0.050	129.00	129.00	129.00	129.00	129.00
0.075	129.00	129.00	129.00	129.00	129.00
0.100	129.00	129.00	129.00	129.00	129.00
0.125	129.00	129.00	129.00	129.00	129.00
0.150	129.00	129.00	129.00	129.00	129.00
0.175	129.00	129.00	129.00	129.00	129.00
0.200	129.00	129.00	129.00	129.00	129.00
0.225	129.00	129.00	129.00	129.00	129.00
0.250	129.00	129.00	129.00	129.00	129.00
0.275	129.00	129.00	129.00	129.00	129.00
0.300	129.00	129.00	129.00	129.00	129.00
0.325	129.00	129.00	129.00	129.00	129.00
0.350	129.00	129.00	129.00	129.00	129.00
0.375	129.00	129.00	129.00	129.00	129.00
0.400	129.00	129.00	129.00	129.00	129.00
0.425	129.00	129.00	129.00	129.00	129.00
0.450	129.00	129.00	129.00	129.00	129.00
0.475	129.00	129.00	129.00	129.00	129.00
0.500	129.00	129.00	129.00	129.00	129.00
0.525	129.00	129.00	129.00	129.00	129.00
0.550	129.00	129.00	129.00	129.00	129.00
0.575	129.00	129.00	129.00	129.00	129.00
0.600	129.00	129.00	129.00	129.00	129.00
0.625	129.00	129.00	129.00	129.00	129.00
0.650	129.00	129.00	129.00	129.00	129.00
0.675	129.00	129.00	129.00	129.00	129.00
0.700	129.00	129.00	129.00	129.00	129.00
0.725	129.00	129.00	129.00	129.00	129.00
0.750	129.00	129.00	129.00	129.00	129.00
0.775	129.00	129.00	129.00	129.00	129.00
0.800	129.00	129.00	129.00	129.00	129.00
0.825	129.00	129.00	129.00	129.00	129.00
0.850	129.00	129.00	129.00	129.00	129.00
0.875	129.00	129.00	129.00	129.00	129.00
0.900	129.00	129.00	129.00	129.00	129.00
0.925	129.00	129.00	129.00	129.00	129.00
0.950	129.00	129.00	129.00	129.00	129.00
0.975	129.00	129.00	129.00	129.00	129.00
1.000	129.00	129.00	129.00	129.00	129.00
1.025	129.00	129.00	129.00	129.00	129.00
1.050	129.00	129.00	129.00	129.00	129.00



Subsection: Time vs. Elevation  
 Label: CO-45

Return Event: 10 years  
 Storm Event: 10 yr

**Time vs. Elevation (ft)**

**Output Time increment = 0.005 hours**  
**Time on left represents time for first value in each row.**

Time (hours)	Elevation (ft)	Elevation (ft)	Elevation (ft)	Elevation (ft)	Elevation (ft)
1.075	129.00	129.00	129.00	129.00	129.00
1.100	129.00	129.00	129.00	129.00	129.00
1.125	129.00	129.00	129.00	129.00	129.00
1.150	129.00	129.00	129.00	129.00	129.00
1.175	129.00	129.00	129.00	129.00	129.00
1.200	129.00	129.00	129.00	129.00	129.00
1.225	129.00	129.00	129.00	129.00	129.00
1.250	129.00	129.00	129.00	129.00	129.00
1.275	129.00	129.00	129.00	129.00	129.00
1.300	129.00	129.00	129.00	129.00	129.00
1.325	129.00	129.00	129.00	129.00	129.00
1.350	129.00	129.00	129.00	129.00	129.00
1.375	129.00	129.00	129.00	129.00	129.00
1.400	129.00	129.00	129.00	129.00	129.00
1.425	129.00	129.00	129.00	129.00	129.00
1.450	129.00	129.00	129.00	129.00	129.00
1.475	129.00	129.00	129.00	129.00	129.00
1.500	129.00	129.00	129.00	129.00	129.00
1.525	129.00	129.00	129.00	129.00	129.00
1.550	129.00	129.00	129.00	129.00	129.00
1.575	129.00	129.00	129.00	129.00	129.00
1.600	129.00	129.00	129.00	129.00	129.00
1.625	129.00	129.00	129.00	129.00	129.00
1.650	129.00	129.00	129.00	129.00	129.00
1.675	129.00	129.00	129.00	129.00	129.00
1.700	129.00	129.00	129.00	129.00	129.00
1.725	129.00	129.00	129.00	129.00	129.00
1.750	129.00	129.00	129.00	129.00	129.00
1.775	129.00	129.00	129.00	129.00	129.00
1.800	129.00	129.00	129.00	129.00	129.00
1.825	129.00	129.00	129.00	129.00	129.00
1.850	129.00	129.00	129.00	129.00	129.00
1.875	129.00	129.00	129.00	129.00	129.00
1.900	129.00	129.00	129.00	129.00	129.00
1.925	129.00	129.00	129.00	129.00	129.00
1.950	129.00	129.00	129.00	129.00	129.00
1.975	129.00	129.00	129.00	129.00	129.00
2.000	129.00	129.00	129.00	129.00	129.00
2.025	129.00	129.00	129.00	129.00	129.00
2.050	129.00	129.00	129.00	129.00	129.00
2.075	129.00	129.00	129.00	129.00	129.00
2.100	129.00	129.00	129.00	129.00	129.00
2.125	129.00	129.00	129.00	129.00	129.00

Subsection: Time vs. Elevation  
 Label: CO-45

Return Event: 10 years  
 Storm Event: 10 yr

**Time vs. Elevation (ft)**

**Output Time increment = 0.005 hours**  
**Time on left represents time for first value in each row.**

Time (hours)	Elevation (ft)	Elevation (ft)	Elevation (ft)	Elevation (ft)	Elevation (ft)
2.150	129.00	129.00	129.00	129.00	129.00
2.175	129.00	129.00	129.00	129.00	129.00
2.200	129.00	129.00	129.00	129.00	129.00
2.225	129.00	129.00	129.00	129.00	129.00
2.250	129.00	129.00	129.00	129.00	129.00
2.275	129.00	129.00	129.00	129.00	129.00
2.300	129.00	129.00	129.00	129.00	129.00
2.325	129.00	129.00	129.00	129.00	129.00
2.350	129.00	129.00	129.00	129.00	129.00
2.375	129.00	129.00	129.00	129.00	129.00
2.400	129.00	129.00	129.00	129.00	129.00
2.425	129.00	129.00	129.00	129.00	129.00
2.450	129.00	129.00	129.00	129.00	129.00
2.475	129.00	129.00	129.00	129.00	129.00
2.500	129.00	129.00	129.00	129.00	129.00
2.525	129.00	129.00	129.00	129.00	129.00
2.550	129.00	129.00	129.00	129.00	129.00
2.575	129.00	129.00	129.00	129.00	129.00
2.600	129.00	129.00	129.00	129.00	129.00
2.625	129.00	129.00	129.00	129.00	129.00
2.650	129.00	129.00	129.00	129.00	129.00
2.675	129.00	129.00	129.00	129.00	129.00
2.700	129.00	129.00	129.00	129.00	129.00
2.725	129.00	129.00	129.00	129.00	129.00
2.750	129.00	129.00	129.00	129.00	129.00
2.775	129.00	129.00	129.00	129.00	129.00
2.800	129.00	129.00	129.00	129.00	129.00
2.825	129.00	129.00	129.00	129.00	129.00
2.850	129.00	129.00	129.00	129.00	129.00
2.875	129.00	129.00	129.00	129.00	129.00
2.900	129.00	129.00	129.00	129.00	129.00
2.925	129.00	129.00	129.00	129.00	129.00
2.950	129.00	129.00	129.00	129.00	129.00
2.975	129.00	129.00	129.00	129.00	129.00
3.000	129.00	129.00	129.00	129.00	129.00
3.025	129.00	129.00	129.00	129.00	129.00
3.050	129.00	129.00	129.00	129.00	129.00
3.075	129.00	129.00	129.00	129.00	129.00
3.100	129.00	129.00	129.00	129.00	129.00
3.125	129.00	129.00	129.00	129.00	129.00
3.150	129.00	129.00	129.00	129.00	129.00
3.175	129.00	129.00	129.00	129.00	129.00
3.200	129.00	129.00	129.00	129.00	129.00

Subsection: Time vs. Elevation  
 Label: CO-45

Return Event: 10 years  
 Storm Event: 10 yr

**Time vs. Elevation (ft)**

**Output Time increment = 0.005 hours**  
**Time on left represents time for first value in each row.**

Time (hours)	Elevation (ft)	Elevation (ft)	Elevation (ft)	Elevation (ft)	Elevation (ft)
3.225	129.00	129.00	129.00	129.00	129.00
3.250	129.00	129.00	129.00	129.00	129.00
3.275	129.00	129.00	129.00	129.00	129.00
3.300	129.00	129.00	129.00	129.00	129.00
3.325	129.00	129.00	129.00	129.00	129.00
3.350	129.00	129.00	129.00	129.00	129.00
3.375	129.00	129.00	129.00	129.00	129.00
3.400	129.00	129.00	129.00	129.00	129.00
3.425	129.00	129.00	129.00	129.00	129.00
3.450	129.00	129.00	129.00	129.00	129.00
3.475	129.00	129.00	129.00	129.00	129.00
3.500	129.00	129.00	129.00	129.00	129.00
3.525	129.00	129.00	129.00	129.00	129.00
3.550	129.00	129.00	129.00	129.00	129.00
3.575	129.00	129.00	129.00	129.00	129.00
3.600	129.00	129.00	129.00	129.00	129.00
3.625	129.00	129.00	129.00	129.00	129.00
3.650	129.00	129.00	129.00	129.00	129.00
3.675	129.00	129.00	129.00	129.00	129.00
3.700	129.00	129.00	129.00	129.00	129.00
3.725	129.00	129.00	129.00	129.00	129.00
3.750	129.00	129.00	129.00	129.00	129.00
3.775	129.00	129.00	129.00	129.00	129.00
3.800	129.00	129.00	129.00	129.00	129.00
3.825	129.00	129.00	129.00	129.00	129.00
3.850	129.00	129.00	129.00	129.00	129.00
3.875	129.00	129.00	129.00	129.00	129.00
3.900	129.00	129.00	129.00	129.00	129.00
3.925	129.00	129.00	129.00	129.00	129.00
3.950	129.00	129.00	129.00	129.00	129.00
3.975	129.00	129.00	129.00	129.00	129.00
4.000	129.00	129.00	129.00	129.00	129.00
4.025	129.00	129.00	129.00	129.00	129.00
4.050	129.00	129.00	129.00	129.00	129.00
4.075	129.00	129.00	129.00	129.00	129.00
4.100	129.00	129.00	129.00	129.00	129.00
4.125	129.00	129.00	129.00	129.00	129.00
4.150	129.00	129.00	129.00	129.00	129.00
4.175	129.00	129.00	129.00	129.00	129.00
4.200	129.00	129.00	129.00	129.00	129.00
4.225	129.00	129.00	129.00	129.00	129.00
4.250	129.00	129.00	129.00	129.00	129.00
4.275	129.00	129.00	129.00	129.00	129.00

Subsection: Time vs. Elevation  
 Label: CO-45

Return Event: 10 years  
 Storm Event: 10 yr

**Time vs. Elevation (ft)**

**Output Time increment = 0.005 hours**  
**Time on left represents time for first value in each row.**

Time (hours)	Elevation (ft)	Elevation (ft)	Elevation (ft)	Elevation (ft)	Elevation (ft)
4.300	129.00	129.00	129.00	129.00	129.00
4.325	129.00	129.00	129.00	129.00	129.00
4.350	129.00	129.00	129.00	129.00	129.00
4.375	129.00	129.00	129.00	129.00	129.00
4.400	129.00	129.00	129.00	129.00	129.00
4.425	129.00	129.00	129.00	129.00	129.00
4.450	129.00	129.00	129.00	129.00	129.00
4.475	129.00	129.00	129.00	129.00	129.00
4.500	129.00	129.00	129.00	129.00	129.00
4.525	129.00	129.00	129.00	129.00	129.00
4.550	129.00	129.00	129.00	129.00	129.00
4.575	129.00	129.00	129.00	129.00	129.00
4.600	129.00	129.00	129.00	129.00	129.00
4.625	129.00	129.00	129.00	129.00	129.00
4.650	129.00	129.00	129.00	129.00	129.00
4.675	129.00	129.00	129.00	129.00	129.00
4.700	129.00	129.00	129.00	129.00	129.00
4.725	129.00	129.00	129.00	129.00	129.00
4.750	129.00	129.00	129.00	129.00	129.00
4.775	129.00	129.00	129.00	129.00	129.00
4.800	129.00	129.00	129.00	129.00	129.00
4.825	129.00	129.00	129.00	129.00	129.00
4.850	129.00	129.00	129.00	129.00	129.00
4.875	129.00	129.00	129.00	129.00	129.00
4.900	129.00	129.00	129.00	129.00	129.00
4.925	129.00	129.00	129.00	129.00	129.00
4.950	129.00	129.00	129.00	129.00	129.00
4.975	129.00	129.00	129.00	129.00	129.00
5.000	129.00	129.00	129.00	129.00	129.00
5.025	129.00	129.00	129.00	129.00	129.00
5.050	129.00	129.00	129.00	129.00	129.00
5.075	129.00	129.00	129.00	129.00	129.00
5.100	129.00	129.00	129.00	129.00	129.00
5.125	129.00	129.00	129.00	129.00	129.00
5.150	129.00	129.00	129.00	129.00	129.00
5.175	129.00	129.00	129.00	129.00	129.00
5.200	129.00	129.00	129.00	129.00	129.00
5.225	129.00	129.00	129.00	129.00	129.00
5.250	129.00	129.00	129.00	129.00	129.00
5.275	129.00	129.00	129.00	129.00	129.00
5.300	129.00	129.00	129.00	129.00	129.00
5.325	129.00	129.00	129.00	129.00	129.00
5.350	129.00	129.00	129.00	129.00	129.00

Subsection: Time vs. Elevation  
 Label: CO-45

Return Event: 10 years  
 Storm Event: 10 yr

**Time vs. Elevation (ft)**

**Output Time increment = 0.005 hours**  
**Time on left represents time for first value in each row.**

Time (hours)	Elevation (ft)	Elevation (ft)	Elevation (ft)	Elevation (ft)	Elevation (ft)
5.375	129.00	129.00	129.00	129.00	129.00
5.400	129.00	129.00	129.00	129.00	129.00
5.425	129.00	129.00	129.00	129.00	129.00
5.450	129.00	129.00	129.00	129.00	129.00
5.475	129.00	129.00	129.00	129.00	129.00
5.500	129.00	129.00	129.00	129.00	129.00
5.525	129.00	129.00	129.00	129.00	129.00
5.550	129.00	129.00	129.00	129.00	129.00
5.575	129.00	129.00	129.00	129.00	129.00
5.600	129.00	129.00	129.00	129.00	129.00
5.625	129.00	129.00	129.00	129.00	129.00
5.650	129.00	129.00	129.00	129.00	129.00
5.675	129.00	129.00	129.00	129.00	129.00
5.700	129.00	129.00	129.00	129.00	129.00
5.725	129.00	129.00	129.00	129.00	129.00
5.750	129.00	129.00	129.00	129.00	129.00
5.775	129.00	129.00	129.00	129.00	129.00
5.800	129.00	129.00	129.00	129.00	129.00
5.825	129.00	129.00	129.00	129.00	129.00
5.850	129.00	129.00	129.00	129.00	129.00
5.875	129.00	129.00	129.00	129.00	129.00
5.900	129.00	129.00	129.00	129.00	129.00
5.925	129.00	129.00	129.00	129.00	129.00
5.950	129.00	129.00	129.00	129.00	129.00
5.975	129.00	129.00	129.00	129.00	129.00
6.000	129.00	129.00	129.00	129.00	129.00
6.025	129.00	129.00	129.00	129.00	129.00
6.050	129.00	129.00	129.00	129.00	129.00
6.075	129.00	129.00	129.00	129.00	129.00
6.100	129.00	129.00	129.00	129.00	129.00
6.125	129.00	129.00	129.00	129.00	129.00
6.150	129.00	129.00	129.00	129.00	129.00
6.175	129.00	129.00	129.00	129.00	129.00
6.200	129.00	129.00	129.00	129.00	129.00
6.225	129.00	129.00	129.00	129.00	129.00
6.250	129.00	129.00	129.00	129.00	129.00
6.275	129.00	129.00	129.00	129.00	129.00
6.300	129.00	129.00	129.00	129.00	129.00
6.325	129.00	129.00	129.00	129.00	129.00
6.350	129.00	129.00	129.00	129.00	129.00
6.375	129.00	129.00	129.00	129.00	129.00
6.400	129.00	129.00	129.00	129.00	129.00
6.425	129.00	129.00	129.00	129.00	129.00

**Time vs. Elevation (ft)**

**Output Time increment = 0.005 hours**  
**Time on left represents time for first value in each row.**

Time (hours)	Elevation (ft)	Elevation (ft)	Elevation (ft)	Elevation (ft)	Elevation (ft)
6.450	129.00	129.00	129.00	129.00	129.00
6.475	129.00	129.00	129.00	129.00	129.00
6.500	129.00	129.00	129.00	129.00	129.00
6.525	129.00	129.00	129.00	129.00	129.00
6.550	129.00	129.00	129.00	129.00	129.00
6.575	129.00	129.00	129.00	129.00	129.00
6.600	129.00	129.00	129.00	129.00	129.00
6.625	129.00	129.00	129.00	129.00	129.00
6.650	129.00	129.00	129.00	129.00	129.00
6.675	129.00	129.00	129.00	129.00	129.00
6.700	129.00	129.00	129.00	129.00	129.00
6.725	129.00	129.00	129.00	129.00	129.00
6.750	129.00	129.00	129.00	129.00	129.00
6.775	129.00	129.00	129.00	129.00	129.00
6.800	129.00	129.00	129.00	129.00	129.00
6.825	129.00	129.00	129.00	129.00	129.00
6.850	129.00	129.00	129.00	129.00	129.00
6.875	129.00	129.00	129.00	129.00	129.00
6.900	129.00	129.00	129.00	129.00	129.00
6.925	129.00	129.00	129.00	129.00	129.00
6.950	129.00	129.00	129.00	129.00	129.00
6.975	129.00	129.00	129.00	129.00	129.00
7.000	129.00	129.00	129.00	129.00	129.00
7.025	129.00	129.00	129.00	129.00	129.00
7.050	129.00	129.00	129.00	129.00	129.00
7.075	129.00	129.00	129.00	129.00	129.00
7.100	129.00	129.00	129.00	129.00	129.00
7.125	129.00	129.00	129.00	129.00	129.00
7.150	129.00	129.00	129.00	129.00	129.00
7.175	129.00	129.00	129.00	129.00	129.00
7.200	129.00	129.00	129.00	129.00	129.00
7.225	129.00	129.00	129.00	129.00	129.00
7.250	129.00	129.00	129.00	129.00	129.00
7.275	129.00	129.00	129.00	129.00	129.00
7.300	129.00	129.00	129.00	129.00	129.00
7.325	129.00	129.00	129.00	129.00	129.00
7.350	129.00	129.00	129.00	129.00	129.00
7.375	129.00	129.00	129.00	129.00	129.00
7.400	129.00	129.00	129.00	129.00	129.00
7.425	129.00	129.00	129.00	129.00	129.00
7.450	129.00	129.00	129.00	129.00	129.00
7.475	129.00	129.00	129.00	129.00	129.00
7.500	129.00	129.00	129.00	129.00	129.00

Subsection: Time vs. Elevation  
 Label: CO-45

Return Event: 10 years  
 Storm Event: 10 yr

**Time vs. Elevation (ft)**

**Output Time increment = 0.005 hours**  
**Time on left represents time for first value in each row.**

Time (hours)	Elevation (ft)	Elevation (ft)	Elevation (ft)	Elevation (ft)	Elevation (ft)
7.525	129.00	129.00	129.00	129.00	129.00
7.550	129.00	129.00	129.00	129.00	129.00
7.575	129.00	129.00	129.00	129.00	129.00
7.600	129.00	129.00	129.00	129.00	129.00
7.625	129.00	129.00	129.00	129.00	129.00
7.650	129.00	129.00	129.00	129.00	129.00
7.675	129.00	129.00	129.00	129.00	129.00
7.700	129.00	129.00	129.00	129.00	129.00
7.725	129.00	129.00	129.00	129.00	129.00
7.750	129.00	129.00	129.00	129.00	129.00
7.775	129.00	129.00	129.00	129.00	129.00
7.800	129.00	129.00	129.00	129.00	129.00
7.825	129.00	129.00	129.00	129.00	129.00
7.850	129.00	129.00	129.00	129.00	129.00
7.875	129.00	129.00	129.00	129.00	129.00
7.900	129.00	129.00	129.00	129.00	129.00
7.925	129.00	129.00	129.00	129.00	129.00
7.950	129.00	129.00	129.00	129.00	129.00
7.975	129.00	129.00	129.00	129.00	129.00
8.000	129.00	129.00	129.00	129.00	129.00
8.025	129.00	129.00	129.00	129.00	129.00
8.050	129.00	129.00	129.00	129.00	129.00
8.075	129.00	129.00	129.00	129.00	129.00
8.100	129.00	129.00	129.00	129.00	129.00
8.125	129.00	129.00	129.00	129.00	129.00
8.150	129.00	129.00	129.00	129.00	129.00
8.175	129.00	129.00	129.00	129.00	129.00
8.200	129.00	129.00	129.00	129.00	129.00
8.225	129.00	129.00	129.00	129.00	129.00
8.250	129.00	129.00	129.00	129.00	129.00
8.275	129.00	129.00	129.00	129.00	129.00
8.300	129.00	129.00	129.00	129.00	129.00
8.325	129.00	129.00	129.00	129.00	129.00
8.350	129.00	129.00	129.00	129.00	129.00
8.375	129.00	129.00	129.00	129.00	129.00
8.400	129.00	129.00	129.00	129.00	129.00
8.425	129.00	129.00	129.00	129.00	129.00
8.450	129.00	129.00	129.00	129.00	129.00
8.475	129.00	129.00	129.00	129.00	129.00
8.500	129.00	129.00	129.00	129.00	129.00
8.525	129.00	129.00	129.00	129.00	129.00
8.550	129.00	129.00	129.00	129.00	129.00
8.575	129.00	129.00	129.00	129.00	129.00

**Time vs. Elevation (ft)**

**Output Time increment = 0.005 hours**  
**Time on left represents time for first value in each row.**

Time (hours)	Elevation (ft)	Elevation (ft)	Elevation (ft)	Elevation (ft)	Elevation (ft)
8.600	129.00	129.00	129.00	129.00	129.00
8.625	129.00	129.00	129.00	129.00	129.00
8.650	129.00	129.00	129.00	129.00	129.00
8.675	129.00	129.00	129.00	129.00	129.00
8.700	129.00	129.00	129.00	129.00	129.00
8.725	129.00	129.00	129.00	129.00	129.00
8.750	129.00	129.00	129.00	129.00	129.00
8.775	129.00	129.00	129.00	129.00	129.00
8.800	129.00	129.00	129.00	129.00	129.00
8.825	129.00	129.00	129.00	129.00	129.00
8.850	129.00	129.00	129.00	129.00	129.00
8.875	129.00	129.00	129.00	129.00	129.00
8.900	129.00	129.00	129.00	129.00	129.00
8.925	129.00	129.00	129.00	129.00	129.00
8.950	129.00	129.00	129.00	129.00	129.00
8.975	129.00	129.00	129.00	129.00	129.00
9.000	129.00	129.00	129.00	129.00	129.00
9.025	129.00	129.00	129.00	129.00	129.00
9.050	129.00	129.00	129.00	129.00	129.00
9.075	129.00	129.00	129.00	129.00	129.00
9.100	129.00	129.00	129.00	129.00	129.00
9.125	129.00	129.00	129.00	129.00	129.00
9.150	129.00	129.00	129.00	129.00	129.00
9.175	129.00	129.00	129.00	129.00	129.00
9.200	129.00	129.00	129.00	129.00	129.00
9.225	129.00	129.00	129.00	129.00	129.00
9.250	129.00	129.00	129.00	129.00	129.00
9.275	129.00	129.00	129.00	129.00	129.00
9.300	129.00	129.00	129.00	129.00	129.00
9.325	129.00	129.00	129.00	129.00	129.00
9.350	129.00	129.00	129.00	129.00	129.00
9.375	129.00	129.00	129.00	129.00	129.00
9.400	129.00	129.00	129.00	129.00	129.00
9.425	129.00	129.00	129.00	129.00	129.00
9.450	129.00	129.00	129.00	129.00	129.00
9.475	129.00	129.00	129.00	129.00	129.00
9.500	129.00	129.00	129.00	129.00	129.00
9.525	129.00	129.00	129.00	129.00	129.00
9.550	129.00	129.00	129.00	129.00	129.00
9.575	129.00	129.00	129.00	129.00	129.00
9.600	129.00	129.00	129.00	129.00	129.00
9.625	129.00	129.00	129.00	129.00	129.00
9.650	129.00	129.00	129.00	129.00	129.00



Subsection: Time vs. Elevation  
 Label: CO-45

Return Event: 10 years  
 Storm Event: 10 yr

**Time vs. Elevation (ft)**

**Output Time increment = 0.005 hours**  
**Time on left represents time for first value in each row.**

Time (hours)	Elevation (ft)	Elevation (ft)	Elevation (ft)	Elevation (ft)	Elevation (ft)
9.675	129.00	129.00	129.00	129.00	129.00
9.700	129.00	129.00	129.00	129.00	129.01
9.725	129.01	129.01	129.01	129.01	129.01
9.750	129.01	129.01	129.01	129.01	129.01
9.775	129.01	129.01	129.01	129.01	129.01
9.800	129.01	129.01	129.01	129.01	129.01
9.825	129.01	129.01	129.01	129.01	129.01
9.850	129.01	129.01	129.01	129.01	129.01
9.875	129.01	129.01	129.01	129.01	129.01
9.900	129.01	129.01	129.01	129.01	129.01
9.925	129.01	129.01	129.01	129.01	129.01
9.950	129.01	129.01	129.01	129.01	129.01
9.975	129.01	129.01	129.01	129.01	129.01
10.000	129.01	129.01	129.01	129.01	129.01
10.025	129.01	129.01	129.01	129.01	129.01
10.050	129.01	129.01	129.01	129.01	129.01
10.075	129.01	129.01	129.01	129.01	129.01
10.100	129.01	129.01	129.01	129.01	129.01
10.125	129.01	129.01	129.01	129.01	129.01
10.150	129.01	129.01	129.01	129.01	129.01
10.175	129.01	129.01	129.01	129.01	129.01
10.200	129.01	129.01	129.01	129.01	129.01
10.225	129.01	129.01	129.02	129.02	129.02
10.250	129.02	129.02	129.02	129.02	129.02
10.275	129.02	129.02	129.02	129.02	129.02
10.300	129.02	129.02	129.02	129.02	129.02
10.325	129.02	129.02	129.02	129.02	129.02
10.350	129.02	129.02	129.02	129.02	129.02
10.375	129.02	129.02	129.02	129.02	129.02
10.400	129.02	129.02	129.02	129.02	129.02
10.425	129.02	129.02	129.02	129.02	129.02
10.450	129.02	129.02	129.02	129.02	129.02
10.475	129.02	129.02	129.02	129.02	129.02
10.500	129.02	129.02	129.02	129.02	129.02
10.525	129.02	129.02	129.02	129.02	129.02
10.550	129.02	129.02	129.02	129.02	129.02
10.575	129.02	129.02	129.02	129.02	129.02
10.600	129.02	129.02	129.02	129.02	129.02
10.625	129.02	129.02	129.02	129.02	129.02
10.650	129.02	129.02	129.02	129.02	129.02
10.675	129.02	129.02	129.02	129.02	129.02
10.700	129.02	129.02	129.03	129.03	129.03
10.725	129.03	129.03	129.03	129.03	129.03

**Time vs. Elevation (ft)**

**Output Time increment = 0.005 hours**  
**Time on left represents time for first value in each row.**

Time (hours)	Elevation (ft)	Elevation (ft)	Elevation (ft)	Elevation (ft)	Elevation (ft)
10.750	129.03	129.03	129.03	129.03	129.03
10.775	129.03	129.03	129.03	129.03	129.03
10.800	129.03	129.03	129.03	129.03	129.03
10.825	129.03	129.03	129.03	129.03	129.03
10.850	129.03	129.03	129.03	129.03	129.03
10.875	129.03	129.03	129.03	129.03	129.03
10.900	129.03	129.03	129.03	129.03	129.03
10.925	129.03	129.03	129.03	129.03	129.03
10.950	129.03	129.03	129.03	129.03	129.03
10.975	129.03	129.03	129.03	129.04	129.04
11.000	129.04	129.04	129.04	129.04	129.04
11.025	129.04	129.04	129.04	129.04	129.04
11.050	129.04	129.04	129.04	129.04	129.04
11.075	129.04	129.04	129.04	129.04	129.04
11.100	129.04	129.04	129.04	129.04	129.04
11.125	129.04	129.04	129.04	129.04	129.04
11.150	129.04	129.04	129.04	129.04	129.04
11.175	129.04	129.04	129.04	129.04	129.04
11.200	129.04	129.04	129.04	129.04	129.05
11.225	129.05	129.05	129.05	129.05	129.05
11.250	129.05	129.05	129.05	129.05	129.05
11.275	129.05	129.05	129.05	129.05	129.05
11.300	129.05	129.05	129.05	129.05	129.05
11.325	129.05	129.05	129.05	129.05	129.05
11.350	129.05	129.05	129.05	129.05	129.05
11.375	129.05	129.05	129.05	129.05	129.05
11.400	129.05	129.05	129.05	129.05	129.06
11.425	129.06	129.06	129.06	129.06	129.06
11.450	129.06	129.06	129.06	129.06	129.06
11.475	129.06	129.06	129.06	129.06	129.06
11.500	129.06	129.06	129.06	129.06	129.06
11.525	129.06	129.06	129.06	129.06	129.06
11.550	129.07	129.07	129.07	129.07	129.07
11.575	129.07	129.07	129.07	129.08	129.08
11.600	129.08	129.08	129.08	129.08	129.09
11.625	129.09	129.09	129.09	129.09	129.10
11.650	129.10	129.10	129.10	129.11	129.11
11.675	129.11	129.11	129.12	129.12	129.12
11.700	129.13	129.13	129.13	129.14	129.14
11.725	129.14	129.15	129.15	129.15	129.16
11.750	129.16	129.17	129.17	129.17	129.18
11.775	129.18	129.19	129.19	129.19	129.20
11.800	129.20	129.21	129.21	129.22	129.22

Subsection: Time vs. Elevation  
 Label: CO-45

Return Event: 10 years  
 Storm Event: 10 yr

**Time vs. Elevation (ft)**

**Output Time increment = 0.005 hours**  
**Time on left represents time for first value in each row.**

Time (hours)	Elevation (ft)	Elevation (ft)	Elevation (ft)	Elevation (ft)	Elevation (ft)
11.825	129.22	129.23	129.23	129.24	129.24
11.850	129.25	129.25	129.26	129.27	129.27
11.875	129.28	129.29	129.29	129.30	129.31
11.900	129.31	129.32	129.33	129.33	129.34
11.925	129.35	129.35	129.36	129.36	129.37
11.950	129.37	129.37	129.38	129.38	129.38
11.975	129.39	129.39	129.39	129.39	129.39
12.000	129.39	129.39	129.39	129.39	129.39
12.025	129.39	129.39	129.39	129.38	129.38
12.050	129.38	129.38	129.37	129.37	129.37
12.075	129.36	129.36	129.35	129.34	129.34
12.100	129.33	129.33	129.32	129.31	129.31
12.125	129.30	129.29	129.28	129.28	129.27
12.150	129.27	129.26	129.25	129.25	129.24
12.175	129.24	129.23	129.23	129.22	129.22
12.200	129.21	129.21	129.21	129.20	129.20
12.225	129.20	129.19	129.19	129.19	129.18
12.250	129.18	129.18	129.18	129.17	129.17
12.275	129.17	129.17	129.17	129.17	129.16
12.300	129.16	129.16	129.16	129.16	129.16
12.325	129.16	129.15	129.15	129.15	129.15
12.350	129.15	129.15	129.15	129.15	129.15
12.375	129.14	129.14	129.14	129.14	129.14
12.400	129.14	129.14	129.14	129.14	129.14
12.425	129.14	129.13	129.13	129.13	129.13
12.450	129.13	129.13	129.13	129.13	129.13
12.475	129.13	129.13	129.13	129.13	129.13
12.500	129.12	129.12	129.12	129.12	129.12
12.525	129.12	129.12	129.12	129.12	129.12
12.550	129.12	129.12	129.12	129.12	129.12
12.575	129.12	129.11	129.11	129.11	129.11
12.600	129.11	129.11	129.11	129.11	129.11
12.625	129.11	129.11	129.11	129.11	129.11
12.650	129.11	129.11	129.11	129.11	129.11
12.675	129.10	129.10	129.10	129.10	129.10
12.700	129.10	129.10	129.10	129.10	129.10
12.725	129.10	129.10	129.10	129.10	129.10
12.750	129.10	129.10	129.10	129.10	129.10
12.775	129.10	129.10	129.10	129.10	129.10
12.800	129.10	129.10	129.10	129.10	129.10
12.825	129.10	129.10	129.10	129.10	129.10
12.850	129.10	129.10	129.10	129.10	129.10
12.875	129.09	129.09	129.09	129.09	129.09

**Time vs. Elevation (ft)**

**Output Time increment = 0.005 hours**  
**Time on left represents time for first value in each row.**

Time (hours)	Elevation (ft)	Elevation (ft)	Elevation (ft)	Elevation (ft)	Elevation (ft)
12.900	129.09	129.09	129.09	129.09	129.09
12.925	129.09	129.09	129.09	129.09	129.09
12.950	129.09	129.09	129.09	129.09	129.09
12.975	129.09	129.09	129.09	129.09	129.09
13.000	129.09	129.09	129.09	129.09	129.09
13.025	129.09	129.09	129.09	129.09	129.09
13.050	129.09	129.09	129.09	129.09	129.09
13.075	129.09	129.09	129.09	129.09	129.09
13.100	129.09	129.09	129.09	129.09	129.09
13.125	129.09	129.09	129.09	129.09	129.09
13.150	129.09	129.09	129.09	129.09	129.09
13.175	129.08	129.08	129.08	129.08	129.08
13.200	129.08	129.08	129.08	129.08	129.08
13.225	129.08	129.08	129.08	129.08	129.08
13.250	129.08	129.08	129.08	129.08	129.08
13.275	129.08	129.08	129.08	129.08	129.08
13.300	129.08	129.08	129.08	129.08	129.08
13.325	129.08	129.08	129.08	129.08	129.08
13.350	129.08	129.08	129.08	129.08	129.08
13.375	129.08	129.08	129.08	129.08	129.08
13.400	129.08	129.08	129.08	129.08	129.08
13.425	129.08	129.08	129.08	129.08	129.08
13.450	129.08	129.08	129.08	129.08	129.08
13.475	129.08	129.08	129.08	129.08	129.08
13.500	129.08	129.08	129.08	129.08	129.08
13.525	129.08	129.08	129.08	129.08	129.08
13.550	129.08	129.08	129.08	129.08	129.08
13.575	129.08	129.08	129.08	129.08	129.07
13.600	129.07	129.07	129.07	129.07	129.07
13.625	129.07	129.07	129.07	129.07	129.07
13.650	129.07	129.07	129.07	129.07	129.07
13.675	129.07	129.07	129.07	129.07	129.07
13.700	129.07	129.07	129.07	129.07	129.07
13.725	129.07	129.07	129.07	129.07	129.07
13.750	129.07	129.07	129.07	129.07	129.07
13.775	129.07	129.07	129.07	129.07	129.07
13.800	129.07	129.07	129.07	129.07	129.07
13.825	129.07	129.07	129.07	129.07	129.07
13.850	129.07	129.07	129.07	129.07	129.07
13.875	129.07	129.07	129.07	129.07	129.07
13.900	129.07	129.07	129.07	129.07	129.07
13.925	129.07	129.07	129.07	129.07	129.07
13.950	129.07	129.07	129.07	129.07	129.07

**Time vs. Elevation (ft)**

**Output Time increment = 0.005 hours**  
**Time on left represents time for first value in each row.**

Time (hours)	Elevation (ft)	Elevation (ft)	Elevation (ft)	Elevation (ft)	Elevation (ft)
13.975	129.07	129.07	129.07	129.07	129.07
14.000	129.07	129.07	129.07	129.07	129.07
14.025	129.07	129.07	129.07	129.07	129.07
14.050	129.06	129.06	129.06	129.06	129.06
14.075	129.06	129.06	129.06	129.06	129.06
14.100	129.06	129.06	129.06	129.06	129.06
14.125	129.06	129.06	129.06	129.06	129.06
14.150	129.06	129.06	129.06	129.06	129.06
14.175	129.06	129.06	129.06	129.06	129.06
14.200	129.06	129.06	129.06	129.06	129.06
14.225	129.06	129.06	129.06	129.06	129.06
14.250	129.06	129.06	129.06	129.06	129.06
14.275	129.06	129.06	129.06	129.06	129.06
14.300	129.06	129.06	129.06	129.06	129.06
14.325	129.06	129.06	129.06	129.06	129.06
14.350	129.06	129.06	129.06	129.06	129.06
14.375	129.06	129.06	129.06	129.06	129.06
14.400	129.06	129.06	129.06	129.06	129.06
14.425	129.06	129.06	129.06	129.06	129.06
14.450	129.06	129.06	129.06	129.06	129.06
14.475	129.06	129.06	129.06	129.06	129.06
14.500	129.06	129.06	129.06	129.06	129.06
14.525	129.06	129.06	129.06	129.06	129.06
14.550	129.06	129.06	129.06	129.06	129.06
14.575	129.06	129.06	129.06	129.06	129.06
14.600	129.06	129.06	129.06	129.06	129.06
14.625	129.06	129.06	129.06	129.06	129.06
14.650	129.06	129.06	129.06	129.06	129.06
14.675	129.06	129.06	129.06	129.06	129.06
14.700	129.06	129.06	129.06	129.06	129.06
14.725	129.06	129.06	129.06	129.06	129.06
14.750	129.06	129.06	129.06	129.06	129.06
14.775	129.06	129.06	129.06	129.06	129.06
14.800	129.06	129.06	129.06	129.06	129.06
14.825	129.06	129.06	129.06	129.06	129.06
14.850	129.06	129.06	129.06	129.06	129.06
14.875	129.06	129.06	129.06	129.06	129.06
14.900	129.06	129.06	129.06	129.06	129.06
14.925	129.06	129.06	129.06	129.06	129.06
14.950	129.06	129.06	129.06	129.06	129.06
14.975	129.06	129.06	129.06	129.06	129.06
15.000	129.06	129.06	129.06	129.06	129.06
15.025	129.06	129.06	129.06	129.06	129.06

Subsection: Time vs. Elevation  
 Label: CO-45

Return Event: 10 years  
 Storm Event: 10 yr

**Time vs. Elevation (ft)**

**Output Time increment = 0.005 hours**  
**Time on left represents time for first value in each row.**

Time (hours)	Elevation (ft)	Elevation (ft)	Elevation (ft)	Elevation (ft)	Elevation (ft)
15.050	129.06	129.06	129.06	129.06	129.06
15.075	129.06	129.06	129.06	129.06	129.06
15.100	129.06	129.06	129.06	129.06	129.06
15.125	129.06	129.06	129.06	129.06	129.06
15.150	129.06	129.06	129.06	129.06	129.06
15.175	129.06	129.06	129.06	129.06	129.06
15.200	129.06	129.06	129.06	129.06	129.06
15.225	129.06	129.06	129.05	129.05	129.05
15.250	129.05	129.05	129.05	129.05	129.05
15.275	129.05	129.05	129.05	129.05	129.05
15.300	129.05	129.05	129.05	129.05	129.05
15.325	129.05	129.05	129.05	129.05	129.05
15.350	129.05	129.05	129.05	129.05	129.05
15.375	129.05	129.05	129.05	129.05	129.05
15.400	129.05	129.05	129.05	129.05	129.05
15.425	129.05	129.05	129.05	129.05	129.05
15.450	129.05	129.05	129.05	129.05	129.05
15.475	129.05	129.05	129.05	129.05	129.05
15.500	129.05	129.05	129.05	129.05	129.05
15.525	129.05	129.05	129.05	129.05	129.05
15.550	129.05	129.05	129.05	129.05	129.05
15.575	129.05	129.05	129.05	129.05	129.05
15.600	129.05	129.05	129.05	129.05	129.05
15.625	129.05	129.05	129.05	129.05	129.05
15.650	129.05	129.05	129.05	129.05	129.05
15.675	129.05	129.05	129.05	129.05	129.05
15.700	129.05	129.05	129.05	129.05	129.05
15.725	129.05	129.05	129.05	129.05	129.05
15.750	129.05	129.05	129.05	129.05	129.05
15.775	129.05	129.05	129.05	129.05	129.05
15.800	129.05	129.05	129.05	129.05	129.05
15.825	129.05	129.05	129.05	129.05	129.05
15.850	129.05	129.05	129.05	129.05	129.05
15.875	129.05	129.05	129.05	129.05	129.05
15.900	129.05	129.05	129.05	129.05	129.05
15.925	129.05	129.05	129.05	129.05	129.05
15.950	129.05	129.05	129.05	129.05	129.05
15.975	129.05	129.05	129.05	129.05	129.05
16.000	129.05	129.05	129.05	129.05	129.05
16.025	129.05	129.05	129.05	129.05	129.05
16.050	129.05	129.05	129.05	129.05	129.05
16.075	129.05	129.05	129.05	129.05	129.05
16.100	129.05	129.05	129.05	129.05	129.05

Subsection: Time vs. Elevation  
 Label: CO-45

Return Event: 10 years  
 Storm Event: 10 yr

**Time vs. Elevation (ft)**

**Output Time increment = 0.005 hours**  
**Time on left represents time for first value in each row.**

Time (hours)	Elevation (ft)	Elevation (ft)	Elevation (ft)	Elevation (ft)	Elevation (ft)
16.125	129.05	129.05	129.05	129.05	129.05
16.150	129.05	129.05	129.05	129.05	129.05
16.175	129.05	129.05	129.05	129.05	129.05
16.200	129.05	129.05	129.05	129.05	129.05
16.225	129.05	129.05	129.05	129.05	129.05
16.250	129.05	129.05	129.05	129.05	129.05
16.275	129.05	129.05	129.05	129.05	129.05
16.300	129.05	129.05	129.05	129.05	129.05
16.325	129.05	129.05	129.05	129.05	129.05
16.350	129.05	129.05	129.05	129.05	129.05
16.375	129.05	129.05	129.05	129.05	129.05
16.400	129.05	129.05	129.05	129.05	129.05
16.425	129.05	129.05	129.05	129.05	129.05
16.450	129.05	129.05	129.05	129.05	129.05
16.475	129.05	129.05	129.05	129.05	129.05
16.500	129.05	129.05	129.05	129.05	129.05
16.525	129.05	129.05	129.05	129.05	129.05
16.550	129.05	129.05	129.05	129.05	129.05
16.575	129.05	129.05	129.05	129.05	129.05
16.600	129.05	129.05	129.05	129.05	129.05
16.625	129.05	129.05	129.05	129.05	129.05
16.650	129.05	129.05	129.05	129.05	129.05
16.675	129.05	129.05	129.05	129.05	129.05
16.700	129.05	129.05	129.05	129.05	129.05
16.725	129.05	129.05	129.05	129.05	129.05
16.750	129.05	129.05	129.05	129.05	129.05
16.775	129.05	129.05	129.05	129.05	129.05
16.800	129.05	129.05	129.05	129.05	129.05
16.825	129.05	129.05	129.05	129.05	129.05
16.850	129.05	129.05	129.05	129.05	129.05
16.875	129.05	129.05	129.05	129.05	129.05
16.900	129.05	129.05	129.05	129.05	129.05
16.925	129.05	129.05	129.05	129.05	129.05
16.950	129.05	129.05	129.05	129.05	129.05
16.975	129.05	129.05	129.05	129.05	129.05
17.000	129.05	129.05	129.05	129.05	129.05
17.025	129.05	129.05	129.05	129.05	129.05
17.050	129.05	129.05	129.05	129.05	129.05
17.075	129.05	129.05	129.05	129.05	129.05
17.100	129.05	129.05	129.05	129.05	129.05
17.125	129.05	129.05	129.05	129.05	129.05
17.150	129.05	129.05	129.05	129.05	129.05
17.175	129.05	129.05	129.05	129.05	129.05

**Time vs. Elevation (ft)**

**Output Time increment = 0.005 hours**  
**Time on left represents time for first value in each row.**

Time (hours)	Elevation (ft)	Elevation (ft)	Elevation (ft)	Elevation (ft)	Elevation (ft)
17.200	129.05	129.05	129.05	129.05	129.05
17.225	129.05	129.05	129.05	129.05	129.05
17.250	129.05	129.05	129.05	129.05	129.05
17.275	129.05	129.05	129.05	129.05	129.05
17.300	129.05	129.05	129.05	129.05	129.05
17.325	129.05	129.05	129.04	129.04	129.04
17.350	129.04	129.04	129.04	129.04	129.04
17.375	129.04	129.04	129.04	129.04	129.04
17.400	129.04	129.04	129.04	129.04	129.04
17.425	129.04	129.04	129.04	129.04	129.04
17.450	129.04	129.04	129.04	129.04	129.04
17.475	129.04	129.04	129.04	129.04	129.04
17.500	129.04	129.04	129.04	129.04	129.04
17.525	129.04	129.04	129.04	129.04	129.04
17.550	129.04	129.04	129.04	129.04	129.04
17.575	129.04	129.04	129.04	129.04	129.04
17.600	129.04	129.04	129.04	129.04	129.04
17.625	129.04	129.04	129.04	129.04	129.04
17.650	129.04	129.04	129.04	129.04	129.04
17.675	129.04	129.04	129.04	129.04	129.04
17.700	129.04	129.04	129.04	129.04	129.04
17.725	129.04	129.04	129.04	129.04	129.04
17.750	129.04	129.04	129.04	129.04	129.04
17.775	129.04	129.04	129.04	129.04	129.04
17.800	129.04	129.04	129.04	129.04	129.04
17.825	129.04	129.04	129.04	129.04	129.04
17.850	129.04	129.04	129.04	129.04	129.04
17.875	129.04	129.04	129.04	129.04	129.04
17.900	129.04	129.04	129.04	129.04	129.04
17.925	129.04	129.04	129.04	129.04	129.04
17.950	129.04	129.04	129.04	129.04	129.04
17.975	129.04	129.04	129.04	129.04	129.04
18.000	129.04	129.04	129.04	129.04	129.04
18.025	129.04	129.04	129.04	129.04	129.04
18.050	129.04	129.04	129.04	129.04	129.04
18.075	129.04	129.04	129.04	129.04	129.04
18.100	129.04	129.04	129.04	129.04	129.04
18.125	129.04	129.04	129.04	129.04	129.04
18.150	129.04	129.04	129.04	129.04	129.04
18.175	129.04	129.04	129.04	129.04	129.04
18.200	129.04	129.04	129.04	129.04	129.04
18.225	129.04	129.04	129.04	129.04	129.04
18.250	129.04	129.04	129.04	129.04	129.04



Subsection: Time vs. Elevation  
 Label: CO-45

Return Event: 10 years  
 Storm Event: 10 yr

**Time vs. Elevation (ft)**

**Output Time increment = 0.005 hours**  
**Time on left represents time for first value in each row.**

Time (hours)	Elevation (ft)	Elevation (ft)	Elevation (ft)	Elevation (ft)	Elevation (ft)
18.275	129.04	129.04	129.04	129.04	129.04
18.300	129.04	129.04	129.04	129.04	129.04
18.325	129.04	129.04	129.04	129.04	129.04
18.350	129.04	129.04	129.04	129.04	129.04
18.375	129.04	129.04	129.04	129.04	129.04
18.400	129.04	129.04	129.04	129.04	129.04
18.425	129.04	129.04	129.04	129.04	129.04
18.450	129.04	129.04	129.04	129.04	129.04
18.475	129.04	129.04	129.04	129.04	129.04
18.500	129.04	129.04	129.04	129.04	129.04
18.525	129.04	129.04	129.04	129.04	129.04
18.550	129.04	129.04	129.04	129.04	129.04
18.575	129.04	129.04	129.04	129.04	129.04
18.600	129.04	129.04	129.04	129.04	129.04
18.625	129.04	129.04	129.04	129.04	129.04
18.650	129.04	129.04	129.04	129.04	129.04
18.675	129.04	129.04	129.04	129.04	129.04
18.700	129.04	129.04	129.04	129.04	129.04
18.725	129.04	129.04	129.04	129.04	129.04
18.750	129.04	129.04	129.04	129.04	129.04
18.775	129.04	129.04	129.04	129.04	129.04
18.800	129.04	129.04	129.04	129.04	129.04
18.825	129.04	129.04	129.04	129.04	129.04
18.850	129.04	129.04	129.04	129.04	129.04
18.875	129.04	129.04	129.04	129.04	129.04
18.900	129.04	129.04	129.04	129.04	129.04
18.925	129.04	129.04	129.04	129.04	129.04
18.950	129.04	129.04	129.04	129.04	129.04
18.975	129.04	129.04	129.04	129.04	129.04
19.000	129.04	129.04	129.04	129.04	129.04
19.025	129.04	129.04	129.04	129.04	129.04
19.050	129.04	129.04	129.04	129.04	129.04
19.075	129.04	129.04	129.04	129.04	129.04
19.100	129.04	129.04	129.04	129.04	129.04
19.125	129.04	129.04	129.04	129.04	129.04
19.150	129.04	129.04	129.04	129.04	129.04
19.175	129.04	129.04	129.04	129.04	129.04
19.200	129.04	129.04	129.04	129.04	129.04
19.225	129.04	129.04	129.04	129.04	129.04
19.250	129.04	129.04	129.04	129.04	129.04
19.275	129.04	129.04	129.04	129.04	129.04
19.300	129.04	129.04	129.04	129.04	129.04
19.325	129.04	129.04	129.04	129.04	129.04

**Time vs. Elevation (ft)**

**Output Time increment = 0.005 hours**  
**Time on left represents time for first value in each row.**

Time (hours)	Elevation (ft)	Elevation (ft)	Elevation (ft)	Elevation (ft)	Elevation (ft)
19.350	129.04	129.04	129.04	129.04	129.04
19.375	129.04	129.04	129.04	129.04	129.04
19.400	129.04	129.04	129.04	129.04	129.04
19.425	129.04	129.04	129.04	129.04	129.04
19.450	129.04	129.04	129.04	129.04	129.04
19.475	129.04	129.04	129.04	129.04	129.04
19.500	129.04	129.04	129.04	129.04	129.04
19.525	129.04	129.04	129.04	129.04	129.04
19.550	129.04	129.04	129.04	129.04	129.04
19.575	129.04	129.04	129.04	129.04	129.04
19.600	129.04	129.04	129.04	129.04	129.04
19.625	129.04	129.04	129.04	129.04	129.04
19.650	129.04	129.04	129.04	129.04	129.04
19.675	129.04	129.04	129.04	129.04	129.04
19.700	129.04	129.04	129.04	129.04	129.04
19.725	129.04	129.04	129.04	129.04	129.04
19.750	129.04	129.04	129.04	129.04	129.04
19.775	129.04	129.04	129.04	129.04	129.04
19.800	129.04	129.04	129.04	129.04	129.04
19.825	129.04	129.04	129.04	129.04	129.04
19.850	129.04	129.04	129.04	129.04	129.04
19.875	129.04	129.04	129.04	129.04	129.04
19.900	129.04	129.04	129.04	129.04	129.04
19.925	129.04	129.04	129.04	129.04	129.04
19.950	129.04	129.04	129.04	129.04	129.04
19.975	129.04	129.04	129.04	129.04	129.04
20.000	129.04	129.04	129.04	129.04	129.04
20.025	129.04	129.04	129.04	129.04	129.04
20.050	129.04	129.04	129.04	129.04	129.04
20.075	129.04	129.04	129.04	129.04	129.04
20.100	129.04	129.04	129.04	129.04	129.04
20.125	129.04	129.04	129.04	129.04	129.04
20.150	129.04	129.04	129.04	129.04	129.04
20.175	129.04	129.03	129.03	129.03	129.03
20.200	129.03	129.03	129.03	129.03	129.03
20.225	129.03	129.03	129.03	129.03	129.03
20.250	129.03	129.03	129.03	129.03	129.03
20.275	129.03	129.03	129.03	129.03	129.03
20.300	129.03	129.03	129.03	129.03	129.03
20.325	129.03	129.03	129.03	129.03	129.03
20.350	129.03	129.03	129.03	129.03	129.03
20.375	129.03	129.03	129.03	129.03	129.03
20.400	129.03	129.03	129.03	129.03	129.03

Subsection: Time vs. Elevation  
 Label: CO-45

Return Event: 10 years  
 Storm Event: 10 yr

**Time vs. Elevation (ft)**

**Output Time increment = 0.005 hours**  
**Time on left represents time for first value in each row.**

Time (hours)	Elevation (ft)	Elevation (ft)	Elevation (ft)	Elevation (ft)	Elevation (ft)
20.425	129.03	129.03	129.03	129.03	129.03
20.450	129.03	129.03	129.03	129.03	129.03
20.475	129.03	129.03	129.03	129.03	129.03
20.500	129.03	129.03	129.03	129.03	129.03
20.525	129.03	129.03	129.03	129.03	129.03
20.550	129.03	129.03	129.03	129.03	129.03
20.575	129.03	129.03	129.03	129.03	129.03
20.600	129.03	129.03	129.03	129.03	129.03
20.625	129.03	129.03	129.03	129.03	129.03
20.650	129.03	129.03	129.03	129.03	129.03
20.675	129.03	129.03	129.03	129.03	129.03
20.700	129.03	129.03	129.03	129.03	129.03
20.725	129.03	129.03	129.03	129.03	129.03
20.750	129.03	129.03	129.03	129.03	129.03
20.775	129.03	129.03	129.03	129.03	129.03
20.800	129.03	129.03	129.03	129.03	129.03
20.825	129.03	129.03	129.03	129.03	129.03
20.850	129.03	129.03	129.03	129.03	129.03
20.875	129.03	129.03	129.03	129.03	129.03
20.900	129.03	129.03	129.03	129.03	129.03
20.925	129.03	129.03	129.03	129.03	129.03
20.950	129.03	129.03	129.03	129.03	129.03
20.975	129.03	129.03	129.03	129.03	129.03
21.000	129.03	129.03	129.03	129.03	129.03
21.025	129.03	129.03	129.03	129.03	129.03
21.050	129.03	129.03	129.03	129.03	129.03
21.075	129.03	129.03	129.03	129.03	129.03
21.100	129.03	129.03	129.03	129.03	129.03
21.125	129.03	129.03	129.03	129.03	129.03
21.150	129.03	129.03	129.03	129.03	129.03
21.175	129.03	129.03	129.03	129.03	129.03
21.200	129.03	129.03	129.03	129.03	129.03
21.225	129.03	129.03	129.03	129.03	129.03
21.250	129.03	129.03	129.03	129.03	129.03
21.275	129.03	129.03	129.03	129.03	129.03
21.300	129.03	129.03	129.03	129.03	129.03
21.325	129.03	129.03	129.03	129.03	129.03
21.350	129.03	129.03	129.03	129.03	129.03
21.375	129.03	129.03	129.03	129.03	129.03
21.400	129.03	129.03	129.03	129.03	129.03
21.425	129.03	129.03	129.03	129.03	129.03
21.450	129.03	129.03	129.03	129.03	129.03
21.475	129.03	129.03	129.03	129.03	129.03

Subsection: Time vs. Elevation  
 Label: CO-45

Return Event: 10 years  
 Storm Event: 10 yr

**Time vs. Elevation (ft)**

**Output Time increment = 0.005 hours**  
**Time on left represents time for first value in each row.**

Time (hours)	Elevation (ft)	Elevation (ft)	Elevation (ft)	Elevation (ft)	Elevation (ft)
21.500	129.03	129.03	129.03	129.03	129.03
21.525	129.03	129.03	129.03	129.03	129.03
21.550	129.03	129.03	129.03	129.03	129.03
21.575	129.03	129.03	129.03	129.03	129.03
21.600	129.03	129.03	129.03	129.03	129.03
21.625	129.03	129.03	129.03	129.03	129.03
21.650	129.03	129.03	129.03	129.03	129.03
21.675	129.03	129.03	129.03	129.03	129.03
21.700	129.03	129.03	129.03	129.03	129.03
21.725	129.03	129.03	129.03	129.03	129.03
21.750	129.03	129.03	129.03	129.03	129.03
21.775	129.03	129.03	129.03	129.03	129.03
21.800	129.03	129.03	129.03	129.03	129.03
21.825	129.03	129.03	129.03	129.03	129.03
21.850	129.03	129.03	129.03	129.03	129.03
21.875	129.03	129.03	129.03	129.03	129.03
21.900	129.03	129.03	129.03	129.03	129.03
21.925	129.03	129.03	129.03	129.03	129.03
21.950	129.03	129.03	129.03	129.03	129.03
21.975	129.03	129.03	129.03	129.03	129.03
22.000	129.03	129.03	129.03	129.03	129.03
22.025	129.03	129.03	129.03	129.03	129.03
22.050	129.03	129.03	129.03	129.03	129.03
22.075	129.03	129.03	129.03	129.03	129.03
22.100	129.03	129.03	129.03	129.03	129.03
22.125	129.03	129.03	129.03	129.03	129.03
22.150	129.03	129.03	129.03	129.03	129.03
22.175	129.03	129.03	129.03	129.03	129.03
22.200	129.03	129.03	129.03	129.03	129.03
22.225	129.03	129.03	129.03	129.03	129.03
22.250	129.03	129.03	129.03	129.03	129.03
22.275	129.03	129.03	129.03	129.03	129.03
22.300	129.03	129.03	129.03	129.03	129.03
22.325	129.03	129.03	129.03	129.03	129.03
22.350	129.03	129.03	129.03	129.03	129.03
22.375	129.03	129.03	129.03	129.03	129.03
22.400	129.03	129.03	129.03	129.03	129.03
22.425	129.03	129.03	129.03	129.03	129.03
22.450	129.03	129.03	129.03	129.03	129.03
22.475	129.03	129.03	129.03	129.03	129.03
22.500	129.03	129.03	129.03	129.03	129.03
22.525	129.03	129.03	129.03	129.03	129.03
22.550	129.03	129.03	129.03	129.03	129.03

Subsection: Time vs. Elevation  
 Label: CO-45

Return Event: 10 years  
 Storm Event: 10 yr

**Time vs. Elevation (ft)**

**Output Time increment = 0.005 hours**  
**Time on left represents time for first value in each row.**

Time (hours)	Elevation (ft)	Elevation (ft)	Elevation (ft)	Elevation (ft)	Elevation (ft)
22.575	129.03	129.03	129.03	129.03	129.03
22.600	129.03	129.03	129.03	129.03	129.03
22.625	129.03	129.03	129.03	129.03	129.03
22.650	129.03	129.03	129.03	129.03	129.03
22.675	129.03	129.03	129.03	129.03	129.03
22.700	129.03	129.03	129.03	129.03	129.03
22.725	129.03	129.03	129.03	129.03	129.03
22.750	129.03	129.03	129.03	129.03	129.03
22.775	129.03	129.03	129.03	129.03	129.03
22.800	129.03	129.03	129.03	129.03	129.03
22.825	129.03	129.03	129.03	129.03	129.03
22.850	129.03	129.03	129.03	129.03	129.03
22.875	129.03	129.03	129.03	129.03	129.03
22.900	129.03	129.03	129.03	129.03	129.03
22.925	129.03	129.03	129.03	129.03	129.03
22.950	129.03	129.03	129.03	129.03	129.03
22.975	129.03	129.03	129.03	129.03	129.03
23.000	129.03	129.03	129.03	129.03	129.03
23.025	129.03	129.03	129.03	129.03	129.03
23.050	129.03	129.03	129.03	129.03	129.03
23.075	129.03	129.03	129.03	129.03	129.03
23.100	129.03	129.03	129.03	129.03	129.03
23.125	129.03	129.03	129.03	129.03	129.03
23.150	129.03	129.03	129.03	129.03	129.03
23.175	129.03	129.03	129.03	129.03	129.03
23.200	129.03	129.03	129.03	129.03	129.03
23.225	129.03	129.03	129.03	129.03	129.03
23.250	129.03	129.03	129.03	129.03	129.03
23.275	129.03	129.03	129.03	129.03	129.03
23.300	129.03	129.03	129.03	129.03	129.03
23.325	129.03	129.03	129.03	129.03	129.03
23.350	129.03	129.03	129.03	129.03	129.03
23.375	129.03	129.03	129.03	129.03	129.03
23.400	129.03	129.03	129.03	129.03	129.03
23.425	129.03	129.03	129.03	129.03	129.03
23.450	129.03	129.03	129.03	129.03	129.03
23.475	129.03	129.03	129.03	129.03	129.03
23.500	129.03	129.03	129.03	129.03	129.03
23.525	129.03	129.03	129.03	129.03	129.03
23.550	129.03	129.03	129.03	129.03	129.03
23.575	129.03	129.03	129.03	129.03	129.03
23.600	129.03	129.03	129.03	129.03	129.03
23.625	129.03	129.03	129.03	129.03	129.03

Subsection: Time vs. Elevation  
 Label: CO-45

Return Event: 10 years  
 Storm Event: 10 yr

**Time vs. Elevation (ft)**

**Output Time increment = 0.005 hours**  
**Time on left represents time for first value in each row.**

Time (hours)	Elevation (ft)	Elevation (ft)	Elevation (ft)	Elevation (ft)	Elevation (ft)
23.650	129.03	129.03	129.03	129.03	129.03
23.675	129.03	129.03	129.03	129.03	129.03
23.700	129.03	129.03	129.03	129.03	129.03
23.725	129.03	129.03	129.03	129.03	129.03
23.750	129.03	129.03	129.03	129.03	129.03
23.775	129.03	129.03	129.03	129.03	129.03
23.800	129.03	129.03	129.03	129.03	129.03
23.825	129.03	129.03	129.03	129.03	129.03
23.850	129.03	129.03	129.03	129.03	129.03
23.875	129.03	129.03	129.03	129.03	129.03
23.900	129.03	129.03	129.03	129.03	129.03
23.925	129.03	129.03	129.03	129.03	129.03
23.950	129.03	129.03	129.03	129.03	129.03
23.975	129.03	129.03	129.03	129.03	129.03
24.000	129.03	(N/A)	(N/A)	(N/A)	(N/A)

Subsection: Time vs. Elevation  
 Label: CO-49

Return Event: 10 years  
 Storm Event: 10 yr

**Time vs. Elevation (ft)**

**Output Time increment = 0.005 hours**  
**Time on left represents time for first value in each row.**

Time (hours)	Elevation (ft)	Elevation (ft)	Elevation (ft)	Elevation (ft)	Elevation (ft)
0.000	120.00	120.00	120.00	120.00	120.00
0.025	120.00	120.00	120.00	120.00	120.00
0.050	120.00	120.00	120.00	120.00	120.00
0.075	120.00	120.00	120.00	120.00	120.00
0.100	120.00	120.00	120.00	120.00	120.00
0.125	120.00	120.00	120.00	120.00	120.00
0.150	120.00	120.00	120.00	120.00	120.00
0.175	120.00	120.00	120.00	120.00	120.00
0.200	120.00	120.00	120.00	120.00	120.00
0.225	120.00	120.00	120.00	120.00	120.00
0.250	120.00	120.00	120.00	120.00	120.00
0.275	120.00	120.00	120.00	120.00	120.00
0.300	120.00	120.00	120.00	120.00	120.00
0.325	120.00	120.00	120.00	120.00	120.00
0.350	120.00	120.00	120.00	120.00	120.00
0.375	120.00	120.00	120.00	120.00	120.00
0.400	120.00	120.00	120.00	120.00	120.00
0.425	120.00	120.00	120.00	120.00	120.00
0.450	120.00	120.00	120.00	120.00	120.00
0.475	120.00	120.00	120.00	120.00	120.00
0.500	120.00	120.00	120.00	120.00	120.00
0.525	120.00	120.00	120.00	120.00	120.00
0.550	120.00	120.00	120.00	120.00	120.00
0.575	120.00	120.00	120.00	120.00	120.00
0.600	120.00	120.00	120.00	120.00	120.00
0.625	120.00	120.00	120.00	120.00	120.00
0.650	120.00	120.00	120.00	120.00	120.00
0.675	120.00	120.00	120.00	120.00	120.00
0.700	120.00	120.00	120.00	120.00	120.00
0.725	120.00	120.00	120.00	120.00	120.00
0.750	120.00	120.00	120.00	120.00	120.00
0.775	120.00	120.00	120.00	120.00	120.00
0.800	120.00	120.00	120.00	120.00	120.00
0.825	120.00	120.00	120.00	120.00	120.00
0.850	120.00	120.00	120.00	120.00	120.00
0.875	120.00	120.00	120.00	120.00	120.00
0.900	120.00	120.00	120.00	120.00	120.00
0.925	120.00	120.00	120.00	120.00	120.00
0.950	120.00	120.00	120.00	120.00	120.00
0.975	120.00	120.00	120.00	120.00	120.00
1.000	120.00	120.00	120.00	120.00	120.00
1.025	120.00	120.00	120.00	120.00	120.00
1.050	120.00	120.00	120.00	120.00	120.00

**Time vs. Elevation (ft)**

**Output Time increment = 0.005 hours**  
**Time on left represents time for first value in each row.**

Time (hours)	Elevation (ft)	Elevation (ft)	Elevation (ft)	Elevation (ft)	Elevation (ft)
1.075	120.00	120.00	120.00	120.00	120.00
1.100	120.00	120.00	120.00	120.00	120.00
1.125	120.00	120.00	120.00	120.00	120.00
1.150	120.00	120.00	120.00	120.00	120.00
1.175	120.00	120.00	120.00	120.00	120.00
1.200	120.00	120.00	120.00	120.00	120.00
1.225	120.00	120.00	120.00	120.00	120.00
1.250	120.00	120.00	120.00	120.00	120.00
1.275	120.00	120.00	120.00	120.00	120.00
1.300	120.00	120.00	120.00	120.00	120.00
1.325	120.00	120.00	120.00	120.00	120.00
1.350	120.00	120.00	120.00	120.00	120.00
1.375	120.00	120.00	120.00	120.00	120.00
1.400	120.00	120.00	120.00	120.00	120.00
1.425	120.00	120.00	120.00	120.00	120.00
1.450	120.00	120.00	120.00	120.00	120.00
1.475	120.00	120.00	120.00	120.00	120.00
1.500	120.00	120.00	120.00	120.00	120.00
1.525	120.00	120.00	120.00	120.00	120.00
1.550	120.00	120.00	120.00	120.00	120.00
1.575	120.00	120.00	120.00	120.00	120.00
1.600	120.00	120.00	120.00	120.00	120.00
1.625	120.00	120.00	120.00	120.00	120.00
1.650	120.00	120.00	120.00	120.00	120.00
1.675	120.00	120.00	120.00	120.00	120.00
1.700	120.00	120.00	120.00	120.00	120.00
1.725	120.00	120.00	120.00	120.00	120.00
1.750	120.00	120.00	120.00	120.00	120.00
1.775	120.00	120.00	120.00	120.00	120.00
1.800	120.00	120.00	120.00	120.00	120.00
1.825	120.00	120.00	120.00	120.00	120.00
1.850	120.00	120.00	120.00	120.00	120.00
1.875	120.00	120.00	120.00	120.00	120.00
1.900	120.00	120.00	120.00	120.00	120.00
1.925	120.00	120.00	120.00	120.00	120.00
1.950	120.00	120.00	120.00	120.00	120.00
1.975	120.00	120.00	120.00	120.00	120.00
2.000	120.00	120.00	120.00	120.00	120.00
2.025	120.00	120.00	120.00	120.00	120.00
2.050	120.00	120.00	120.00	120.00	120.00
2.075	120.00	120.00	120.00	120.00	120.00
2.100	120.00	120.00	120.00	120.00	120.00
2.125	120.00	120.00	120.00	120.00	120.00



**Time vs. Elevation (ft)**

**Output Time increment = 0.005 hours**  
**Time on left represents time for first value in each row.**

Time (hours)	Elevation (ft)	Elevation (ft)	Elevation (ft)	Elevation (ft)	Elevation (ft)
2.150	120.00	120.00	120.00	120.00	120.00
2.175	120.00	120.00	120.00	120.00	120.00
2.200	120.00	120.00	120.00	120.00	120.00
2.225	120.00	120.00	120.00	120.00	120.00
2.250	120.00	120.00	120.00	120.00	120.00
2.275	120.00	120.00	120.00	120.00	120.00
2.300	120.00	120.00	120.00	120.00	120.00
2.325	120.00	120.00	120.00	120.00	120.00
2.350	120.00	120.00	120.00	120.00	120.00
2.375	120.00	120.00	120.00	120.00	120.00
2.400	120.00	120.00	120.00	120.00	120.00
2.425	120.00	120.00	120.00	120.00	120.00
2.450	120.00	120.00	120.00	120.00	120.00
2.475	120.00	120.00	120.00	120.00	120.00
2.500	120.00	120.00	120.00	120.00	120.00
2.525	120.00	120.00	120.00	120.00	120.00
2.550	120.00	120.00	120.00	120.00	120.00
2.575	120.00	120.00	120.00	120.00	120.00
2.600	120.00	120.00	120.00	120.00	120.00
2.625	120.00	120.00	120.00	120.00	120.00
2.650	120.00	120.00	120.00	120.00	120.00
2.675	120.00	120.00	120.00	120.00	120.00
2.700	120.00	120.00	120.00	120.00	120.00
2.725	120.00	120.00	120.00	120.00	120.00
2.750	120.00	120.00	120.00	120.00	120.00
2.775	120.00	120.00	120.00	120.00	120.00
2.800	120.00	120.00	120.00	120.00	120.00
2.825	120.00	120.00	120.00	120.00	120.00
2.850	120.00	120.00	120.00	120.00	120.00
2.875	120.00	120.00	120.00	120.00	120.00
2.900	120.00	120.00	120.00	120.00	120.00
2.925	120.00	120.00	120.00	120.00	120.00
2.950	120.00	120.00	120.00	120.00	120.00
2.975	120.00	120.00	120.00	120.00	120.00
3.000	120.00	120.00	120.00	120.00	120.00
3.025	120.00	120.00	120.00	120.00	120.00
3.050	120.00	120.00	120.00	120.00	120.00
3.075	120.00	120.00	120.00	120.00	120.00
3.100	120.00	120.00	120.00	120.00	120.00
3.125	120.00	120.00	120.00	120.00	120.00
3.150	120.00	120.00	120.00	120.00	120.00
3.175	120.00	120.00	120.00	120.00	120.00
3.200	120.00	120.00	120.00	120.00	120.00

**Time vs. Elevation (ft)**

**Output Time increment = 0.005 hours**  
**Time on left represents time for first value in each row.**

Time (hours)	Elevation (ft)	Elevation (ft)	Elevation (ft)	Elevation (ft)	Elevation (ft)
3.225	120.00	120.00	120.00	120.00	120.00
3.250	120.00	120.00	120.00	120.00	120.00
3.275	120.00	120.00	120.00	120.00	120.00
3.300	120.00	120.00	120.00	120.00	120.00
3.325	120.00	120.00	120.00	120.00	120.00
3.350	120.00	120.00	120.00	120.00	120.00
3.375	120.00	120.00	120.00	120.00	120.00
3.400	120.00	120.00	120.00	120.00	120.00
3.425	120.00	120.00	120.00	120.00	120.00
3.450	120.00	120.00	120.00	120.00	120.00
3.475	120.00	120.00	120.00	120.00	120.00
3.500	120.00	120.00	120.00	120.00	120.00
3.525	120.00	120.00	120.00	120.00	120.00
3.550	120.00	120.00	120.00	120.00	120.00
3.575	120.00	120.00	120.00	120.00	120.00
3.600	120.00	120.00	120.00	120.00	120.00
3.625	120.00	120.00	120.00	120.00	120.00
3.650	120.00	120.00	120.00	120.00	120.00
3.675	120.00	120.00	120.00	120.00	120.00
3.700	120.00	120.00	120.00	120.00	120.00
3.725	120.00	120.00	120.00	120.00	120.00
3.750	120.00	120.00	120.00	120.00	120.00
3.775	120.00	120.00	120.00	120.00	120.00
3.800	120.00	120.00	120.00	120.00	120.00
3.825	120.00	120.00	120.00	120.00	120.00
3.850	120.00	120.00	120.00	120.00	120.00
3.875	120.00	120.00	120.00	120.00	120.00
3.900	120.00	120.00	120.00	120.00	120.00
3.925	120.00	120.00	120.00	120.00	120.00
3.950	120.00	120.00	120.00	120.00	120.00
3.975	120.00	120.00	120.00	120.00	120.00
4.000	120.00	120.00	120.00	120.00	120.00
4.025	120.00	120.00	120.00	120.00	120.00
4.050	120.00	120.00	120.00	120.00	120.00
4.075	120.00	120.00	120.00	120.00	120.00
4.100	120.00	120.00	120.00	120.00	120.00
4.125	120.00	120.00	120.00	120.00	120.00
4.150	120.00	120.00	120.00	120.00	120.00
4.175	120.00	120.00	120.00	120.00	120.00
4.200	120.00	120.00	120.00	120.00	120.00
4.225	120.00	120.00	120.00	120.00	120.00
4.250	120.00	120.00	120.00	120.00	120.00
4.275	120.00	120.00	120.00	120.00	120.00

**Time vs. Elevation (ft)**

**Output Time increment = 0.005 hours**  
**Time on left represents time for first value in each row.**

Time (hours)	Elevation (ft)	Elevation (ft)	Elevation (ft)	Elevation (ft)	Elevation (ft)
4.300	120.00	120.00	120.00	120.00	120.00
4.325	120.00	120.00	120.00	120.00	120.00
4.350	120.00	120.00	120.00	120.00	120.00
4.375	120.00	120.00	120.00	120.00	120.00
4.400	120.00	120.00	120.00	120.00	120.00
4.425	120.00	120.00	120.00	120.00	120.00
4.450	120.00	120.00	120.00	120.00	120.00
4.475	120.00	120.00	120.00	120.00	120.00
4.500	120.00	120.00	120.00	120.00	120.00
4.525	120.00	120.00	120.00	120.00	120.00
4.550	120.00	120.00	120.00	120.00	120.00
4.575	120.00	120.00	120.00	120.00	120.00
4.600	120.00	120.00	120.00	120.00	120.00
4.625	120.00	120.00	120.00	120.00	120.00
4.650	120.00	120.00	120.00	120.00	120.00
4.675	120.00	120.00	120.00	120.00	120.00
4.700	120.00	120.00	120.00	120.00	120.00
4.725	120.00	120.00	120.00	120.00	120.00
4.750	120.00	120.00	120.00	120.00	120.00
4.775	120.00	120.00	120.00	120.00	120.00
4.800	120.00	120.00	120.00	120.00	120.00
4.825	120.00	120.00	120.00	120.00	120.00
4.850	120.00	120.00	120.00	120.00	120.00
4.875	120.00	120.00	120.00	120.00	120.00
4.900	120.00	120.00	120.00	120.00	120.00
4.925	120.00	120.00	120.00	120.00	120.00
4.950	120.00	120.00	120.00	120.00	120.00
4.975	120.00	120.00	120.00	120.00	120.00
5.000	120.00	120.00	120.00	120.00	120.00
5.025	120.00	120.00	120.00	120.00	120.00
5.050	120.00	120.00	120.00	120.00	120.00
5.075	120.00	120.00	120.00	120.00	120.00
5.100	120.00	120.00	120.00	120.00	120.00
5.125	120.00	120.00	120.00	120.00	120.00
5.150	120.00	120.00	120.00	120.00	120.00
5.175	120.00	120.00	120.00	120.00	120.00
5.200	120.00	120.00	120.00	120.00	120.00
5.225	120.00	120.00	120.00	120.00	120.00
5.250	120.00	120.00	120.00	120.00	120.00
5.275	120.00	120.00	120.00	120.00	120.00
5.300	120.00	120.00	120.00	120.00	120.00
5.325	120.00	120.00	120.00	120.00	120.00
5.350	120.00	120.00	120.00	120.00	120.00

**Time vs. Elevation (ft)**

**Output Time increment = 0.005 hours**  
**Time on left represents time for first value in each row.**

Time (hours)	Elevation (ft)	Elevation (ft)	Elevation (ft)	Elevation (ft)	Elevation (ft)
5.375	120.00	120.00	120.00	120.00	120.00
5.400	120.00	120.00	120.00	120.00	120.00
5.425	120.00	120.00	120.00	120.00	120.00
5.450	120.00	120.00	120.00	120.00	120.00
5.475	120.00	120.00	120.00	120.00	120.00
5.500	120.00	120.00	120.00	120.00	120.00
5.525	120.00	120.00	120.00	120.00	120.00
5.550	120.00	120.00	120.00	120.00	120.00
5.575	120.00	120.00	120.00	120.00	120.00
5.600	120.00	120.00	120.00	120.00	120.00
5.625	120.00	120.00	120.00	120.00	120.00
5.650	120.00	120.00	120.00	120.00	120.00
5.675	120.00	120.00	120.00	120.00	120.00
5.700	120.00	120.00	120.00	120.00	120.00
5.725	120.00	120.00	120.00	120.00	120.00
5.750	120.00	120.00	120.00	120.00	120.00
5.775	120.00	120.00	120.00	120.00	120.00
5.800	120.00	120.00	120.00	120.00	120.00
5.825	120.00	120.00	120.00	120.00	120.00
5.850	120.00	120.00	120.00	120.00	120.00
5.875	120.00	120.00	120.00	120.00	120.00
5.900	120.00	120.00	120.00	120.00	120.00
5.925	120.00	120.00	120.00	120.00	120.00
5.950	120.00	120.00	120.00	120.00	120.00
5.975	120.00	120.00	120.00	120.00	120.00
6.000	120.00	120.00	120.00	120.00	120.00
6.025	120.00	120.00	120.00	120.00	120.00
6.050	120.00	120.00	120.00	120.00	120.00
6.075	120.00	120.00	120.00	120.00	120.00
6.100	120.00	120.00	120.00	120.00	120.00
6.125	120.00	120.00	120.00	120.00	120.00
6.150	120.00	120.00	120.00	120.00	120.00
6.175	120.00	120.00	120.00	120.00	120.00
6.200	120.00	120.00	120.00	120.00	120.00
6.225	120.00	120.00	120.00	120.00	120.00
6.250	120.00	120.00	120.00	120.00	120.00
6.275	120.00	120.00	120.00	120.00	120.00
6.300	120.00	120.00	120.00	120.00	120.00
6.325	120.00	120.00	120.00	120.00	120.00
6.350	120.00	120.00	120.00	120.00	120.00
6.375	120.00	120.00	120.00	120.00	120.00
6.400	120.00	120.00	120.00	120.00	120.00
6.425	120.00	120.00	120.00	120.00	120.00

**Time vs. Elevation (ft)**

**Output Time increment = 0.005 hours**  
**Time on left represents time for first value in each row.**

Time (hours)	Elevation (ft)	Elevation (ft)	Elevation (ft)	Elevation (ft)	Elevation (ft)
6.450	120.00	120.00	120.00	120.00	120.00
6.475	120.00	120.00	120.00	120.00	120.00
6.500	120.00	120.00	120.00	120.00	120.00
6.525	120.00	120.00	120.00	120.00	120.00
6.550	120.00	120.00	120.00	120.00	120.00
6.575	120.00	120.00	120.00	120.00	120.00
6.600	120.00	120.00	120.00	120.00	120.00
6.625	120.00	120.00	120.00	120.00	120.00
6.650	120.00	120.00	120.00	120.00	120.00
6.675	120.00	120.00	120.00	120.00	120.00
6.700	120.00	120.00	120.00	120.00	120.00
6.725	120.00	120.00	120.00	120.00	120.00
6.750	120.00	120.00	120.00	120.00	120.00
6.775	120.00	120.00	120.00	120.00	120.00
6.800	120.00	120.00	120.00	120.00	120.00
6.825	120.00	120.00	120.00	120.00	120.00
6.850	120.00	120.00	120.00	120.00	120.00
6.875	120.00	120.00	120.00	120.00	120.00
6.900	120.00	120.00	120.00	120.00	120.00
6.925	120.00	120.00	120.00	120.00	120.00
6.950	120.00	120.00	120.00	120.00	120.00
6.975	120.00	120.00	120.00	120.00	120.00
7.000	120.00	120.00	120.00	120.00	120.00
7.025	120.00	120.00	120.00	120.00	120.00
7.050	120.00	120.00	120.00	120.00	120.00
7.075	120.00	120.00	120.00	120.00	120.00
7.100	120.00	120.00	120.00	120.00	120.00
7.125	120.00	120.00	120.00	120.00	120.00
7.150	120.00	120.00	120.00	120.00	120.00
7.175	120.00	120.00	120.00	120.00	120.00
7.200	120.00	120.00	120.00	120.00	120.00
7.225	120.00	120.00	120.00	120.00	120.00
7.250	120.00	120.00	120.00	120.00	120.00
7.275	120.00	120.00	120.00	120.00	120.00
7.300	120.00	120.00	120.00	120.00	120.00
7.325	120.00	120.00	120.00	120.00	120.00
7.350	120.00	120.00	120.00	120.00	120.00
7.375	120.00	120.00	120.00	120.00	120.00
7.400	120.00	120.00	120.00	120.00	120.00
7.425	120.00	120.00	120.00	120.00	120.00
7.450	120.00	120.00	120.00	120.00	120.00
7.475	120.00	120.00	120.00	120.00	120.00
7.500	120.00	120.00	120.00	120.00	120.00

Subsection: Time vs. Elevation  
 Label: CO-49

Return Event: 10 years  
 Storm Event: 10 yr

**Time vs. Elevation (ft)**

**Output Time increment = 0.005 hours**  
**Time on left represents time for first value in each row.**

Time (hours)	Elevation (ft)	Elevation (ft)	Elevation (ft)	Elevation (ft)	Elevation (ft)
7.525	120.00	120.00	120.00	120.00	120.00
7.550	120.00	120.00	120.00	120.00	120.00
7.575	120.00	120.00	120.00	120.00	120.00
7.600	120.00	120.00	120.00	120.00	120.00
7.625	120.00	120.00	120.00	120.00	120.00
7.650	120.00	120.00	120.00	120.00	120.00
7.675	120.00	120.00	120.00	120.00	120.00
7.700	120.00	120.00	120.00	120.00	120.00
7.725	120.00	120.00	120.00	120.00	120.00
7.750	120.00	120.00	120.00	120.00	120.00
7.775	120.00	120.00	120.00	120.00	120.00
7.800	120.00	120.00	120.00	120.00	120.00
7.825	120.00	120.00	120.00	120.00	120.00
7.850	120.00	120.00	120.00	120.00	120.00
7.875	120.00	120.00	120.00	120.00	120.00
7.900	120.00	120.00	120.00	120.00	120.00
7.925	120.00	120.00	120.00	120.00	120.00
7.950	120.00	120.00	120.00	120.00	120.00
7.975	120.00	120.00	120.00	120.00	120.00
8.000	120.00	120.00	120.00	120.00	120.00
8.025	120.00	120.00	120.00	120.00	120.00
8.050	120.00	120.00	120.00	120.00	120.00
8.075	120.00	120.00	120.00	120.00	120.00
8.100	120.00	120.00	120.00	120.00	120.00
8.125	120.00	120.00	120.00	120.00	120.00
8.150	120.00	120.00	120.00	120.00	120.00
8.175	120.00	120.00	120.00	120.00	120.00
8.200	120.00	120.00	120.00	120.00	120.00
8.225	120.00	120.00	120.00	120.00	120.00
8.250	120.00	120.00	120.00	120.00	120.00
8.275	120.00	120.00	120.00	120.00	120.00
8.300	120.00	120.00	120.00	120.00	120.00
8.325	120.00	120.00	120.00	120.00	120.00
8.350	120.00	120.00	120.00	120.00	120.00
8.375	120.00	120.00	120.00	120.00	120.00
8.400	120.00	120.00	120.00	120.00	120.00
8.425	120.00	120.00	120.00	120.00	120.00
8.450	120.00	120.00	120.00	120.00	120.00
8.475	120.00	120.00	120.00	120.00	120.00
8.500	120.00	120.00	120.00	120.00	120.00
8.525	120.00	120.00	120.00	120.00	120.00
8.550	120.00	120.00	120.00	120.00	120.00
8.575	120.00	120.00	120.00	120.00	120.00

**Time vs. Elevation (ft)**

**Output Time increment = 0.005 hours**  
**Time on left represents time for first value in each row.**

Time (hours)	Elevation (ft)	Elevation (ft)	Elevation (ft)	Elevation (ft)	Elevation (ft)
8.600	120.00	120.00	120.00	120.00	120.00
8.625	120.00	120.00	120.00	120.00	120.00
8.650	120.00	120.00	120.00	120.00	120.00
8.675	120.00	120.00	120.00	120.00	120.00
8.700	120.00	120.00	120.00	120.00	120.00
8.725	120.00	120.00	120.00	120.00	120.00
8.750	120.00	120.00	120.00	120.00	120.00
8.775	120.00	120.00	120.00	120.00	120.00
8.800	120.00	120.00	120.00	120.00	120.00
8.825	120.00	120.00	120.00	120.00	120.00
8.850	120.00	120.00	120.00	120.00	120.00
8.875	120.00	120.00	120.00	120.00	120.00
8.900	120.00	120.00	120.00	120.00	120.00
8.925	120.00	120.00	120.00	120.00	120.00
8.950	120.00	120.00	120.00	120.00	120.00
8.975	120.00	120.00	120.00	120.00	120.00
9.000	120.00	120.00	120.00	120.00	120.00
9.025	120.00	120.00	120.00	120.00	120.00
9.050	120.00	120.00	120.00	120.00	120.00
9.075	120.00	120.00	120.00	120.00	120.00
9.100	120.00	120.00	120.00	120.00	120.00
9.125	120.00	120.00	120.00	120.00	120.00
9.150	120.00	120.00	120.00	120.00	120.00
9.175	120.00	120.00	120.00	120.00	120.00
9.200	120.00	120.00	120.00	120.00	120.00
9.225	120.00	120.00	120.00	120.00	120.00
9.250	120.00	120.00	120.00	120.00	120.00
9.275	120.00	120.00	120.00	120.00	120.00
9.300	120.00	120.00	120.00	120.00	120.00
9.325	120.00	120.00	120.00	120.00	120.00
9.350	120.00	120.00	120.00	120.00	120.00
9.375	120.01	120.01	120.01	120.01	120.01
9.400	120.01	120.01	120.01	120.01	120.01
9.425	120.01	120.01	120.01	120.01	120.02
9.450	120.02	120.02	120.02	120.02	120.02
9.475	120.02	120.02	120.02	120.02	120.02
9.500	120.02	120.02	120.02	120.02	120.02
9.525	120.03	120.03	120.03	120.03	120.03
9.550	120.03	120.03	120.03	120.03	120.03
9.575	120.03	120.03	120.03	120.03	120.03
9.600	120.03	120.03	120.04	120.04	120.04
9.625	120.04	120.04	120.04	120.04	120.04
9.650	120.04	120.04	120.04	120.04	120.04

Subsection: Time vs. Elevation  
 Label: CO-49

Return Event: 10 years  
 Storm Event: 10 yr

**Time vs. Elevation (ft)**

**Output Time increment = 0.005 hours**  
**Time on left represents time for first value in each row.**

Time (hours)	Elevation (ft)	Elevation (ft)	Elevation (ft)	Elevation (ft)	Elevation (ft)
9.675	120.04	120.04	120.04	120.04	120.04
9.700	120.04	120.04	120.04	120.05	120.05
9.725	120.05	120.05	120.05	120.05	120.05
9.750	120.05	120.05	120.05	120.05	120.05
9.775	120.05	120.05	120.05	120.05	120.05
9.800	120.05	120.05	120.05	120.05	120.05
9.825	120.05	120.05	120.05	120.05	120.06
9.850	120.06	120.06	120.06	120.06	120.06
9.875	120.06	120.06	120.06	120.06	120.06
9.900	120.06	120.06	120.06	120.06	120.06
9.925	120.06	120.06	120.06	120.06	120.06
9.950	120.06	120.06	120.06	120.06	120.06
9.975	120.06	120.06	120.06	120.06	120.07
10.000	120.07	120.07	120.07	120.07	120.07
10.025	120.07	120.07	120.07	120.07	120.07
10.050	120.07	120.07	120.07	120.07	120.07
10.075	120.07	120.07	120.07	120.07	120.07
10.100	120.07	120.07	120.07	120.07	120.07
10.125	120.07	120.07	120.07	120.07	120.07
10.150	120.07	120.07	120.07	120.08	120.08
10.175	120.08	120.08	120.08	120.08	120.08
10.200	120.08	120.08	120.08	120.08	120.08
10.225	120.08	120.08	120.08	120.08	120.08
10.250	120.08	120.08	120.08	120.08	120.08
10.275	120.08	120.08	120.08	120.08	120.08
10.300	120.08	120.08	120.08	120.08	120.08
10.325	120.08	120.09	120.09	120.09	120.09
10.350	120.09	120.09	120.09	120.09	120.09
10.375	120.09	120.09	120.09	120.09	120.09
10.400	120.09	120.09	120.09	120.09	120.09
10.425	120.09	120.09	120.09	120.09	120.09
10.450	120.09	120.09	120.09	120.09	120.09
10.475	120.09	120.09	120.09	120.09	120.09
10.500	120.10	120.10	120.10	120.10	120.10
10.525	120.10	120.10	120.10	120.10	120.10
10.550	120.10	120.10	120.10	120.10	120.10
10.575	120.10	120.10	120.10	120.10	120.10
10.600	120.10	120.10	120.10	120.10	120.10
10.625	120.10	120.10	120.10	120.10	120.10
10.650	120.10	120.10	120.11	120.11	120.11
10.675	120.11	120.11	120.11	120.11	120.11
10.700	120.11	120.11	120.11	120.11	120.11
10.725	120.11	120.11	120.11	120.11	120.11



**Time vs. Elevation (ft)**

**Output Time increment = 0.005 hours**  
**Time on left represents time for first value in each row.**

Time (hours)	Elevation (ft)	Elevation (ft)	Elevation (ft)	Elevation (ft)	Elevation (ft)
10.750	120.11	120.11	120.11	120.11	120.11
10.775	120.11	120.11	120.11	120.11	120.11
10.800	120.11	120.11	120.12	120.12	120.12
10.825	120.12	120.12	120.12	120.12	120.12
10.850	120.12	120.12	120.12	120.12	120.12
10.875	120.12	120.12	120.12	120.12	120.12
10.900	120.12	120.12	120.12	120.12	120.12
10.925	120.12	120.12	120.12	120.12	120.12
10.950	120.13	120.13	120.13	120.13	120.13
10.975	120.13	120.13	120.13	120.13	120.13
11.000	120.13	120.13	120.13	120.13	120.13
11.025	120.13	120.13	120.13	120.13	120.13
11.050	120.13	120.13	120.13	120.13	120.13
11.075	120.13	120.13	120.14	120.14	120.14
11.100	120.14	120.14	120.14	120.14	120.14
11.125	120.14	120.14	120.14	120.14	120.14
11.150	120.14	120.14	120.14	120.14	120.14
11.175	120.14	120.14	120.14	120.14	120.14
11.200	120.15	120.15	120.15	120.15	120.15
11.225	120.15	120.15	120.15	120.15	120.15
11.250	120.15	120.15	120.15	120.15	120.15
11.275	120.15	120.15	120.15	120.15	120.16
11.300	120.16	120.16	120.16	120.16	120.16
11.325	120.16	120.16	120.16	120.16	120.16
11.350	120.16	120.16	120.16	120.16	120.16
11.375	120.16	120.17	120.17	120.17	120.17
11.400	120.17	120.17	120.17	120.17	120.17
11.425	120.17	120.17	120.17	120.17	120.17
11.450	120.17	120.17	120.17	120.17	120.18
11.475	120.18	120.18	120.18	120.18	120.18
11.500	120.18	120.18	120.18	120.18	120.18
11.525	120.18	120.18	120.18	120.19	120.19
11.550	120.19	120.19	120.19	120.19	120.19
11.575	120.19	120.20	120.20	120.20	120.20
11.600	120.20	120.21	120.21	120.21	120.22
11.625	120.22	120.22	120.22	120.23	120.23
11.650	120.23	120.24	120.24	120.24	120.25
11.675	120.25	120.26	120.26	120.26	120.27
11.700	120.27	120.28	120.28	120.29	120.29
11.725	120.30	120.30	120.30	120.31	120.31
11.750	120.32	120.32	120.33	120.33	120.34
11.775	120.34	120.35	120.35	120.36	120.36
11.800	120.37	120.37	120.38	120.38	120.39

**Time vs. Elevation (ft)**

**Output Time increment = 0.005 hours**  
**Time on left represents time for first value in each row.**

Time (hours)	Elevation (ft)	Elevation (ft)	Elevation (ft)	Elevation (ft)	Elevation (ft)
11.825	120.40	120.40	120.41	120.41	120.42
11.850	120.42	120.43	120.44	120.44	120.45
11.875	120.46	120.46	120.47	120.48	120.49
11.900	120.49	120.50	120.51	120.51	120.52
11.925	120.53	120.53	120.54	120.55	120.55
11.950	120.56	120.56	120.57	120.57	120.57
11.975	120.58	120.58	120.58	120.59	120.59
12.000	120.59	120.59	120.59	120.59	120.59
12.025	120.59	120.59	120.59	120.59	120.59
12.050	120.59	120.59	120.58	120.58	120.58
12.075	120.57	120.57	120.57	120.56	120.56
12.100	120.55	120.54	120.54	120.53	120.53
12.125	120.52	120.51	120.51	120.50	120.49
12.150	120.49	120.48	120.47	120.47	120.46
12.175	120.45	120.45	120.44	120.43	120.43
12.200	120.42	120.42	120.41	120.41	120.40
12.225	120.40	120.39	120.39	120.39	120.38
12.250	120.38	120.38	120.37	120.37	120.37
12.275	120.36	120.36	120.36	120.35	120.35
12.300	120.35	120.35	120.34	120.34	120.34
12.325	120.34	120.33	120.33	120.33	120.33
12.350	120.33	120.33	120.32	120.32	120.32
12.375	120.32	120.32	120.32	120.31	120.31
12.400	120.31	120.31	120.31	120.31	120.31
12.425	120.30	120.30	120.30	120.30	120.30
12.450	120.30	120.30	120.30	120.30	120.29
12.475	120.29	120.29	120.29	120.29	120.29
12.500	120.29	120.29	120.28	120.28	120.28
12.525	120.28	120.28	120.28	120.28	120.28
12.550	120.28	120.28	120.27	120.27	120.27
12.575	120.27	120.27	120.27	120.27	120.27
12.600	120.27	120.27	120.27	120.26	120.26
12.625	120.26	120.26	120.26	120.26	120.26
12.650	120.26	120.26	120.26	120.26	120.26
12.675	120.26	120.26	120.25	120.25	120.25
12.700	120.25	120.25	120.25	120.25	120.25
12.725	120.25	120.25	120.25	120.25	120.25
12.750	120.25	120.25	120.25	120.25	120.25
12.775	120.25	120.25	120.25	120.25	120.24
12.800	120.24	120.24	120.24	120.24	120.24
12.825	120.24	120.24	120.24	120.24	120.24
12.850	120.24	120.24	120.24	120.24	120.24
12.875	120.24	120.24	120.24	120.24	120.24

**Time vs. Elevation (ft)**

**Output Time increment = 0.005 hours**  
**Time on left represents time for first value in each row.**

Time (hours)	Elevation (ft)	Elevation (ft)	Elevation (ft)	Elevation (ft)	Elevation (ft)
12.900	120.24	120.24	120.24	120.24	120.24
12.925	120.24	120.24	120.24	120.24	120.24
12.950	120.24	120.23	120.23	120.23	120.23
12.975	120.23	120.23	120.23	120.23	120.23
13.000	120.23	120.23	120.23	120.23	120.23
13.025	120.23	120.23	120.23	120.23	120.23
13.050	120.23	120.23	120.23	120.23	120.23
13.075	120.23	120.23	120.23	120.23	120.23
13.100	120.23	120.23	120.23	120.23	120.22
13.125	120.22	120.22	120.22	120.22	120.22
13.150	120.22	120.22	120.22	120.22	120.22
13.175	120.22	120.22	120.22	120.22	120.22
13.200	120.22	120.22	120.22	120.22	120.22
13.225	120.22	120.22	120.22	120.22	120.22
13.250	120.22	120.22	120.22	120.22	120.22
13.275	120.22	120.22	120.22	120.22	120.22
13.300	120.22	120.22	120.22	120.22	120.22
13.325	120.22	120.22	120.22	120.22	120.21
13.350	120.21	120.21	120.21	120.21	120.21
13.375	120.21	120.21	120.21	120.21	120.21
13.400	120.21	120.21	120.21	120.21	120.21
13.425	120.21	120.21	120.21	120.21	120.21
13.450	120.21	120.21	120.21	120.21	120.21
13.475	120.21	120.21	120.21	120.21	120.21
13.500	120.21	120.21	120.21	120.21	120.21
13.525	120.21	120.21	120.21	120.21	120.21
13.550	120.21	120.21	120.21	120.21	120.21
13.575	120.21	120.21	120.21	120.21	120.21
13.600	120.20	120.20	120.20	120.20	120.20
13.625	120.20	120.20	120.20	120.20	120.20
13.650	120.20	120.20	120.20	120.20	120.20
13.675	120.20	120.20	120.20	120.20	120.20
13.700	120.20	120.20	120.20	120.20	120.20
13.725	120.20	120.20	120.20	120.20	120.20
13.750	120.20	120.20	120.20	120.20	120.20
13.775	120.20	120.20	120.20	120.20	120.20
13.800	120.20	120.20	120.20	120.20	120.20
13.825	120.20	120.20	120.20	120.20	120.20
13.850	120.20	120.20	120.20	120.20	120.20
13.875	120.20	120.20	120.20	120.19	120.19
13.900	120.19	120.19	120.19	120.19	120.19
13.925	120.19	120.19	120.19	120.19	120.19
13.950	120.19	120.19	120.19	120.19	120.19

Subsection: Time vs. Elevation  
 Label: CO-49

Return Event: 10 years  
 Storm Event: 10 yr

**Time vs. Elevation (ft)**

**Output Time increment = 0.005 hours**  
**Time on left represents time for first value in each row.**

Time (hours)	Elevation (ft)	Elevation (ft)	Elevation (ft)	Elevation (ft)	Elevation (ft)
13.975	120.19	120.19	120.19	120.19	120.19
14.000	120.19	120.19	120.19	120.19	120.19
14.025	120.19	120.19	120.19	120.19	120.19
14.050	120.19	120.19	120.19	120.19	120.19
14.075	120.19	120.19	120.19	120.19	120.19
14.100	120.19	120.19	120.19	120.19	120.19
14.125	120.19	120.19	120.19	120.19	120.19
14.150	120.19	120.19	120.19	120.19	120.19
14.175	120.19	120.19	120.19	120.19	120.19
14.200	120.19	120.19	120.19	120.19	120.19
14.225	120.19	120.18	120.18	120.18	120.18
14.250	120.18	120.18	120.18	120.18	120.18
14.275	120.18	120.18	120.18	120.18	120.18
14.300	120.18	120.18	120.18	120.18	120.18
14.325	120.18	120.18	120.18	120.18	120.18
14.350	120.18	120.18	120.18	120.18	120.18
14.375	120.18	120.18	120.18	120.18	120.18
14.400	120.18	120.18	120.18	120.18	120.18
14.425	120.18	120.18	120.18	120.18	120.18
14.450	120.18	120.18	120.18	120.18	120.18
14.475	120.18	120.18	120.18	120.18	120.18
14.500	120.18	120.18	120.18	120.18	120.18
14.525	120.18	120.18	120.18	120.18	120.18
14.550	120.18	120.18	120.18	120.18	120.18
14.575	120.18	120.18	120.18	120.18	120.18
14.600	120.18	120.18	120.18	120.18	120.18
14.625	120.18	120.18	120.18	120.18	120.18
14.650	120.18	120.18	120.18	120.18	120.18
14.675	120.18	120.18	120.18	120.18	120.18
14.700	120.18	120.18	120.18	120.18	120.18
14.725	120.18	120.18	120.18	120.18	120.18
14.750	120.18	120.18	120.18	120.18	120.18
14.775	120.18	120.18	120.18	120.18	120.18
14.800	120.18	120.18	120.18	120.18	120.18
14.825	120.18	120.18	120.18	120.18	120.18
14.850	120.18	120.18	120.18	120.18	120.18
14.875	120.18	120.18	120.18	120.18	120.18
14.900	120.18	120.18	120.18	120.18	120.18
14.925	120.18	120.18	120.18	120.18	120.18
14.950	120.18	120.18	120.18	120.18	120.18
14.975	120.18	120.18	120.17	120.17	120.17
15.000	120.17	120.17	120.17	120.17	120.17
15.025	120.17	120.17	120.17	120.17	120.17

**Time vs. Elevation (ft)**

**Output Time increment = 0.005 hours**  
**Time on left represents time for first value in each row.**

Time (hours)	Elevation (ft)	Elevation (ft)	Elevation (ft)	Elevation (ft)	Elevation (ft)
15.050	120.17	120.17	120.17	120.17	120.17
15.075	120.17	120.17	120.17	120.17	120.17
15.100	120.17	120.17	120.17	120.17	120.17
15.125	120.17	120.17	120.17	120.17	120.17
15.150	120.17	120.17	120.17	120.17	120.17
15.175	120.17	120.17	120.17	120.17	120.17
15.200	120.17	120.17	120.17	120.17	120.17
15.225	120.17	120.17	120.17	120.17	120.17
15.250	120.17	120.17	120.17	120.17	120.17
15.275	120.17	120.17	120.17	120.17	120.17
15.300	120.17	120.17	120.17	120.17	120.17
15.325	120.17	120.17	120.17	120.17	120.17
15.350	120.17	120.17	120.17	120.17	120.17
15.375	120.17	120.17	120.17	120.17	120.17
15.400	120.17	120.17	120.17	120.17	120.17
15.425	120.17	120.17	120.17	120.17	120.17
15.450	120.17	120.17	120.17	120.17	120.17
15.475	120.17	120.17	120.17	120.17	120.17
15.500	120.17	120.17	120.17	120.17	120.17
15.525	120.17	120.17	120.17	120.17	120.17
15.550	120.17	120.17	120.17	120.17	120.17
15.575	120.17	120.17	120.17	120.17	120.17
15.600	120.17	120.17	120.17	120.17	120.17
15.625	120.17	120.17	120.17	120.17	120.17
15.650	120.17	120.17	120.17	120.17	120.16
15.675	120.16	120.16	120.16	120.16	120.16
15.700	120.16	120.16	120.16	120.16	120.16
15.725	120.16	120.16	120.16	120.16	120.16
15.750	120.16	120.16	120.16	120.16	120.16
15.775	120.16	120.16	120.16	120.16	120.16
15.800	120.16	120.16	120.16	120.16	120.16
15.825	120.16	120.16	120.16	120.16	120.16
15.850	120.16	120.16	120.16	120.16	120.16
15.875	120.16	120.16	120.16	120.16	120.16
15.900	120.16	120.16	120.16	120.16	120.16
15.925	120.16	120.16	120.16	120.16	120.16
15.950	120.16	120.16	120.16	120.16	120.16
15.975	120.16	120.16	120.16	120.16	120.16
16.000	120.16	120.16	120.16	120.16	120.16
16.025	120.16	120.16	120.16	120.16	120.16
16.050	120.16	120.16	120.16	120.16	120.16
16.075	120.16	120.16	120.16	120.16	120.16
16.100	120.16	120.16	120.16	120.16	120.16

Subsection: Time vs. Elevation  
 Label: CO-49

Return Event: 10 years  
 Storm Event: 10 yr

**Time vs. Elevation (ft)**

**Output Time increment = 0.005 hours**  
**Time on left represents time for first value in each row.**

Time (hours)	Elevation (ft)	Elevation (ft)	Elevation (ft)	Elevation (ft)	Elevation (ft)
16.125	120.16	120.16	120.16	120.16	120.16
16.150	120.16	120.16	120.16	120.16	120.16
16.175	120.16	120.16	120.16	120.16	120.16
16.200	120.16	120.16	120.16	120.16	120.16
16.225	120.16	120.16	120.16	120.16	120.16
16.250	120.16	120.16	120.16	120.16	120.16
16.275	120.16	120.16	120.16	120.16	120.16
16.300	120.16	120.16	120.16	120.16	120.16
16.325	120.16	120.16	120.16	120.16	120.16
16.350	120.16	120.16	120.16	120.16	120.16
16.375	120.16	120.16	120.16	120.16	120.16
16.400	120.16	120.16	120.16	120.16	120.16
16.425	120.16	120.16	120.16	120.16	120.16
16.450	120.16	120.16	120.16	120.16	120.16
16.475	120.15	120.15	120.15	120.15	120.15
16.500	120.15	120.15	120.15	120.15	120.15
16.525	120.15	120.15	120.15	120.15	120.15
16.550	120.15	120.15	120.15	120.15	120.15
16.575	120.15	120.15	120.15	120.15	120.15
16.600	120.15	120.15	120.15	120.15	120.15
16.625	120.15	120.15	120.15	120.15	120.15
16.650	120.15	120.15	120.15	120.15	120.15
16.675	120.15	120.15	120.15	120.15	120.15
16.700	120.15	120.15	120.15	120.15	120.15
16.725	120.15	120.15	120.15	120.15	120.15
16.750	120.15	120.15	120.15	120.15	120.15
16.775	120.15	120.15	120.15	120.15	120.15
16.800	120.15	120.15	120.15	120.15	120.15
16.825	120.15	120.15	120.15	120.15	120.15
16.850	120.15	120.15	120.15	120.15	120.15
16.875	120.15	120.15	120.15	120.15	120.15
16.900	120.15	120.15	120.15	120.15	120.15
16.925	120.15	120.15	120.15	120.15	120.15
16.950	120.15	120.15	120.15	120.15	120.15
16.975	120.15	120.15	120.15	120.15	120.15
17.000	120.15	120.15	120.15	120.15	120.15
17.025	120.15	120.15	120.15	120.15	120.15
17.050	120.15	120.15	120.15	120.15	120.15
17.075	120.15	120.15	120.15	120.15	120.15
17.100	120.15	120.15	120.15	120.15	120.15
17.125	120.15	120.15	120.15	120.15	120.15
17.150	120.15	120.15	120.15	120.15	120.15
17.175	120.15	120.15	120.15	120.15	120.15

**Time vs. Elevation (ft)**

**Output Time increment = 0.005 hours**  
**Time on left represents time for first value in each row.**

Time (hours)	Elevation (ft)	Elevation (ft)	Elevation (ft)	Elevation (ft)	Elevation (ft)
17.200	120.15	120.15	120.15	120.15	120.15
17.225	120.15	120.15	120.15	120.15	120.15
17.250	120.15	120.15	120.15	120.15	120.15
17.275	120.15	120.15	120.15	120.15	120.15
17.300	120.15	120.15	120.15	120.15	120.15
17.325	120.15	120.15	120.15	120.15	120.15
17.350	120.15	120.15	120.15	120.15	120.15
17.375	120.15	120.15	120.15	120.15	120.15
17.400	120.15	120.15	120.15	120.15	120.15
17.425	120.15	120.15	120.15	120.15	120.15
17.450	120.15	120.15	120.15	120.15	120.15
17.475	120.15	120.15	120.15	120.15	120.15
17.500	120.15	120.15	120.15	120.15	120.15
17.525	120.15	120.15	120.15	120.15	120.15
17.550	120.15	120.15	120.15	120.15	120.15
17.575	120.15	120.15	120.15	120.15	120.15
17.600	120.15	120.15	120.15	120.15	120.15
17.625	120.15	120.15	120.15	120.15	120.15
17.650	120.15	120.15	120.15	120.15	120.15
17.675	120.15	120.15	120.15	120.15	120.15
17.700	120.15	120.15	120.15	120.15	120.15
17.725	120.15	120.15	120.15	120.15	120.15
17.750	120.15	120.15	120.15	120.15	120.15
17.775	120.15	120.15	120.15	120.15	120.15
17.800	120.15	120.15	120.15	120.15	120.15
17.825	120.15	120.15	120.15	120.15	120.15
17.850	120.15	120.15	120.15	120.15	120.15
17.875	120.15	120.15	120.15	120.15	120.15
17.900	120.15	120.15	120.15	120.15	120.15
17.925	120.15	120.15	120.15	120.15	120.15
17.950	120.15	120.15	120.15	120.15	120.15
17.975	120.15	120.15	120.15	120.15	120.15
18.000	120.15	120.15	120.15	120.15	120.14
18.025	120.14	120.14	120.14	120.14	120.14
18.050	120.14	120.14	120.14	120.14	120.14
18.075	120.14	120.14	120.14	120.14	120.14
18.100	120.14	120.14	120.14	120.14	120.14
18.125	120.14	120.14	120.14	120.14	120.14
18.150	120.14	120.14	120.14	120.14	120.14
18.175	120.14	120.14	120.14	120.14	120.14
18.200	120.14	120.14	120.14	120.14	120.14
18.225	120.14	120.14	120.14	120.14	120.14
18.250	120.14	120.14	120.14	120.14	120.14

**Time vs. Elevation (ft)**

**Output Time increment = 0.005 hours**  
**Time on left represents time for first value in each row.**

Time (hours)	Elevation (ft)	Elevation (ft)	Elevation (ft)	Elevation (ft)	Elevation (ft)
18.275	120.14	120.14	120.14	120.14	120.14
18.300	120.14	120.14	120.14	120.14	120.14
18.325	120.14	120.14	120.14	120.14	120.14
18.350	120.14	120.14	120.14	120.14	120.14
18.375	120.14	120.14	120.14	120.14	120.14
18.400	120.14	120.14	120.14	120.14	120.14
18.425	120.14	120.14	120.14	120.14	120.14
18.450	120.14	120.14	120.14	120.14	120.14
18.475	120.14	120.14	120.14	120.14	120.14
18.500	120.14	120.14	120.14	120.14	120.14
18.525	120.14	120.14	120.14	120.14	120.14
18.550	120.14	120.14	120.14	120.14	120.14
18.575	120.14	120.14	120.14	120.14	120.14
18.600	120.14	120.14	120.14	120.14	120.14
18.625	120.14	120.14	120.14	120.14	120.14
18.650	120.14	120.14	120.14	120.14	120.14
18.675	120.14	120.14	120.14	120.14	120.14
18.700	120.14	120.14	120.14	120.14	120.14
18.725	120.14	120.14	120.14	120.14	120.14
18.750	120.14	120.14	120.14	120.14	120.14
18.775	120.14	120.14	120.14	120.14	120.14
18.800	120.14	120.14	120.14	120.14	120.14
18.825	120.14	120.14	120.14	120.14	120.14
18.850	120.14	120.14	120.14	120.14	120.14
18.875	120.14	120.14	120.14	120.14	120.14
18.900	120.14	120.14	120.14	120.14	120.14
18.925	120.14	120.14	120.14	120.14	120.14
18.950	120.14	120.14	120.14	120.14	120.14
18.975	120.14	120.14	120.14	120.14	120.14
19.000	120.14	120.14	120.14	120.14	120.14
19.025	120.14	120.14	120.14	120.14	120.14
19.050	120.14	120.14	120.14	120.14	120.14
19.075	120.14	120.14	120.14	120.14	120.14
19.100	120.14	120.14	120.14	120.14	120.14
19.125	120.14	120.14	120.14	120.14	120.14
19.150	120.14	120.14	120.14	120.14	120.14
19.175	120.14	120.14	120.14	120.14	120.14
19.200	120.14	120.14	120.14	120.14	120.14
19.225	120.14	120.14	120.14	120.14	120.14
19.250	120.14	120.14	120.14	120.14	120.14
19.275	120.14	120.14	120.14	120.14	120.14
19.300	120.14	120.14	120.14	120.14	120.14
19.325	120.14	120.14	120.14	120.14	120.14



Subsection: Time vs. Elevation  
 Label: CO-49

Return Event: 10 years  
 Storm Event: 10 yr

**Time vs. Elevation (ft)**

**Output Time increment = 0.005 hours**  
**Time on left represents time for first value in each row.**

Time (hours)	Elevation (ft)	Elevation (ft)	Elevation (ft)	Elevation (ft)	Elevation (ft)
19.350	120.13	120.13	120.13	120.13	120.13
19.375	120.13	120.13	120.13	120.13	120.13
19.400	120.13	120.13	120.13	120.13	120.13
19.425	120.13	120.13	120.13	120.13	120.13
19.450	120.13	120.13	120.13	120.13	120.13
19.475	120.13	120.13	120.13	120.13	120.13
19.500	120.13	120.13	120.13	120.13	120.13
19.525	120.13	120.13	120.13	120.13	120.13
19.550	120.13	120.13	120.13	120.13	120.13
19.575	120.13	120.13	120.13	120.13	120.13
19.600	120.13	120.13	120.13	120.13	120.13
19.625	120.13	120.13	120.13	120.13	120.13
19.650	120.13	120.13	120.13	120.13	120.13
19.675	120.13	120.13	120.13	120.13	120.13
19.700	120.13	120.13	120.13	120.13	120.13
19.725	120.13	120.13	120.13	120.13	120.13
19.750	120.13	120.13	120.13	120.13	120.13
19.775	120.13	120.13	120.13	120.13	120.13
19.800	120.13	120.13	120.13	120.13	120.13
19.825	120.13	120.13	120.13	120.13	120.13
19.850	120.13	120.13	120.13	120.13	120.13
19.875	120.13	120.13	120.13	120.13	120.13
19.900	120.13	120.13	120.13	120.13	120.13
19.925	120.13	120.13	120.13	120.13	120.13
19.950	120.13	120.13	120.13	120.13	120.13
19.975	120.13	120.13	120.13	120.13	120.13
20.000	120.13	120.13	120.13	120.13	120.13
20.025	120.13	120.13	120.13	120.13	120.13
20.050	120.13	120.13	120.13	120.13	120.13
20.075	120.13	120.13	120.13	120.13	120.13
20.100	120.13	120.13	120.13	120.13	120.13
20.125	120.13	120.13	120.13	120.13	120.13
20.150	120.13	120.13	120.13	120.13	120.13
20.175	120.13	120.13	120.13	120.13	120.13
20.200	120.13	120.13	120.13	120.13	120.13
20.225	120.13	120.13	120.13	120.13	120.13
20.250	120.13	120.13	120.13	120.13	120.13
20.275	120.13	120.13	120.13	120.13	120.13
20.300	120.13	120.13	120.13	120.13	120.13
20.325	120.13	120.13	120.13	120.13	120.13
20.350	120.13	120.13	120.13	120.13	120.13
20.375	120.13	120.13	120.13	120.13	120.13
20.400	120.13	120.13	120.13	120.13	120.13

Subsection: Time vs. Elevation  
 Label: CO-49

Return Event: 10 years  
 Storm Event: 10 yr

**Time vs. Elevation (ft)**

**Output Time increment = 0.005 hours**  
**Time on left represents time for first value in each row.**

Time (hours)	Elevation (ft)	Elevation (ft)	Elevation (ft)	Elevation (ft)	Elevation (ft)
20.425	120.13	120.13	120.13	120.13	120.13
20.450	120.13	120.13	120.13	120.13	120.13
20.475	120.13	120.13	120.13	120.13	120.13
20.500	120.13	120.13	120.13	120.13	120.13
20.525	120.13	120.13	120.13	120.13	120.13
20.550	120.13	120.13	120.13	120.13	120.13
20.575	120.13	120.13	120.13	120.13	120.13
20.600	120.13	120.13	120.13	120.13	120.13
20.625	120.13	120.13	120.13	120.13	120.13
20.650	120.13	120.13	120.13	120.13	120.13
20.675	120.13	120.13	120.13	120.13	120.13
20.700	120.13	120.13	120.13	120.13	120.13
20.725	120.13	120.13	120.13	120.13	120.13
20.750	120.13	120.13	120.13	120.13	120.13
20.775	120.13	120.13	120.13	120.13	120.13
20.800	120.13	120.13	120.13	120.13	120.13
20.825	120.13	120.13	120.13	120.13	120.13
20.850	120.13	120.13	120.13	120.13	120.13
20.875	120.13	120.13	120.13	120.13	120.13
20.900	120.13	120.13	120.13	120.13	120.13
20.925	120.13	120.13	120.13	120.13	120.13
20.950	120.13	120.13	120.13	120.13	120.13
20.975	120.13	120.13	120.13	120.13	120.13
21.000	120.13	120.13	120.13	120.13	120.13
21.025	120.13	120.13	120.13	120.13	120.13
21.050	120.13	120.13	120.13	120.13	120.13
21.075	120.13	120.13	120.13	120.13	120.13
21.100	120.13	120.13	120.13	120.13	120.13
21.125	120.13	120.13	120.13	120.13	120.13
21.150	120.13	120.13	120.13	120.13	120.13
21.175	120.13	120.13	120.13	120.13	120.13
21.200	120.13	120.13	120.13	120.13	120.13
21.225	120.13	120.13	120.13	120.13	120.13
21.250	120.13	120.13	120.13	120.13	120.13
21.275	120.13	120.13	120.13	120.13	120.13
21.300	120.13	120.13	120.13	120.13	120.13
21.325	120.13	120.13	120.13	120.13	120.13
21.350	120.13	120.13	120.13	120.13	120.13
21.375	120.13	120.13	120.13	120.13	120.13
21.400	120.13	120.13	120.13	120.13	120.13
21.425	120.13	120.13	120.13	120.13	120.13
21.450	120.13	120.13	120.13	120.13	120.13
21.475	120.13	120.13	120.13	120.13	120.13

**Time vs. Elevation (ft)**

**Output Time increment = 0.005 hours**  
**Time on left represents time for first value in each row.**

Time (hours)	Elevation (ft)	Elevation (ft)	Elevation (ft)	Elevation (ft)	Elevation (ft)
21.500	120.13	120.13	120.13	120.13	120.13
21.525	120.13	120.13	120.13	120.13	120.13
21.550	120.13	120.13	120.13	120.13	120.13
21.575	120.13	120.13	120.13	120.13	120.13
21.600	120.13	120.13	120.13	120.13	120.13
21.625	120.13	120.13	120.13	120.13	120.13
21.650	120.13	120.13	120.13	120.13	120.13
21.675	120.13	120.13	120.13	120.13	120.13
21.700	120.13	120.13	120.13	120.13	120.13
21.725	120.13	120.13	120.13	120.13	120.13
21.750	120.13	120.13	120.13	120.13	120.13
21.775	120.13	120.13	120.13	120.13	120.13
21.800	120.13	120.13	120.13	120.13	120.13
21.825	120.13	120.13	120.13	120.13	120.13
21.850	120.13	120.13	120.13	120.13	120.13
21.875	120.13	120.13	120.13	120.13	120.12
21.900	120.12	120.12	120.12	120.12	120.12
21.925	120.12	120.12	120.12	120.12	120.12
21.950	120.12	120.12	120.12	120.12	120.12
21.975	120.12	120.12	120.12	120.12	120.12
22.000	120.12	120.12	120.12	120.12	120.12
22.025	120.12	120.12	120.12	120.12	120.12
22.050	120.12	120.12	120.12	120.12	120.12
22.075	120.12	120.12	120.12	120.12	120.12
22.100	120.12	120.12	120.12	120.12	120.12
22.125	120.12	120.12	120.12	120.12	120.12
22.150	120.12	120.12	120.12	120.12	120.12
22.175	120.12	120.12	120.12	120.12	120.12
22.200	120.12	120.12	120.12	120.12	120.12
22.225	120.12	120.12	120.12	120.12	120.12
22.250	120.12	120.12	120.12	120.12	120.12
22.275	120.12	120.12	120.12	120.12	120.12
22.300	120.12	120.12	120.12	120.12	120.12
22.325	120.12	120.12	120.12	120.12	120.12
22.350	120.12	120.12	120.12	120.12	120.12
22.375	120.12	120.12	120.12	120.12	120.12
22.400	120.12	120.12	120.12	120.12	120.12
22.425	120.12	120.12	120.12	120.12	120.12
22.450	120.12	120.12	120.12	120.12	120.12
22.475	120.12	120.12	120.12	120.12	120.12
22.500	120.12	120.12	120.12	120.12	120.12
22.525	120.12	120.12	120.12	120.12	120.12
22.550	120.12	120.12	120.12	120.12	120.12

**Time vs. Elevation (ft)**

**Output Time increment = 0.005 hours**  
**Time on left represents time for first value in each row.**

Time (hours)	Elevation (ft)	Elevation (ft)	Elevation (ft)	Elevation (ft)	Elevation (ft)
22.575	120.12	120.12	120.12	120.12	120.12
22.600	120.12	120.12	120.12	120.12	120.12
22.625	120.12	120.12	120.12	120.12	120.12
22.650	120.12	120.12	120.12	120.12	120.12
22.675	120.12	120.12	120.12	120.12	120.12
22.700	120.12	120.12	120.12	120.12	120.12
22.725	120.12	120.12	120.12	120.12	120.12
22.750	120.12	120.12	120.12	120.12	120.12
22.775	120.12	120.12	120.12	120.12	120.12
22.800	120.12	120.12	120.12	120.12	120.12
22.825	120.12	120.12	120.12	120.12	120.12
22.850	120.12	120.12	120.12	120.12	120.12
22.875	120.12	120.12	120.12	120.12	120.12
22.900	120.12	120.12	120.12	120.12	120.12
22.925	120.12	120.12	120.12	120.12	120.12
22.950	120.12	120.12	120.12	120.12	120.12
22.975	120.12	120.12	120.12	120.12	120.12
23.000	120.12	120.12	120.12	120.12	120.12
23.025	120.12	120.12	120.12	120.12	120.12
23.050	120.12	120.12	120.12	120.12	120.12
23.075	120.12	120.12	120.12	120.12	120.12
23.100	120.12	120.12	120.12	120.12	120.12
23.125	120.12	120.12	120.12	120.12	120.12
23.150	120.12	120.12	120.12	120.12	120.12
23.175	120.12	120.12	120.12	120.12	120.12
23.200	120.12	120.12	120.12	120.12	120.12
23.225	120.12	120.12	120.12	120.12	120.12
23.250	120.12	120.12	120.12	120.12	120.12
23.275	120.12	120.12	120.12	120.12	120.12
23.300	120.12	120.12	120.12	120.12	120.12
23.325	120.12	120.12	120.12	120.12	120.12
23.350	120.12	120.12	120.12	120.12	120.12
23.375	120.12	120.12	120.12	120.12	120.12
23.400	120.12	120.12	120.12	120.12	120.12
23.425	120.12	120.12	120.12	120.12	120.12
23.450	120.12	120.12	120.12	120.12	120.12
23.475	120.12	120.12	120.12	120.12	120.12
23.500	120.12	120.12	120.12	120.12	120.12
23.525	120.12	120.12	120.12	120.12	120.12
23.550	120.12	120.12	120.12	120.12	120.12
23.575	120.12	120.12	120.12	120.12	120.12
23.600	120.12	120.12	120.12	120.12	120.12
23.625	120.12	120.12	120.12	120.12	120.12

Subsection: Time vs. Elevation  
Label: CO-49

Return Event: 10 years  
Storm Event: 10 yr

**Time vs. Elevation (ft)**

**Output Time increment = 0.005 hours**  
**Time on left represents time for first value in each row.**

Time (hours)	Elevation (ft)	Elevation (ft)	Elevation (ft)	Elevation (ft)	Elevation (ft)
23.650	120.12	120.12	120.12	120.12	120.12
23.675	120.12	120.12	120.12	120.12	120.12
23.700	120.12	120.12	120.12	120.12	120.12
23.725	120.12	120.12	120.12	120.12	120.12
23.750	120.12	120.12	120.12	120.12	120.12
23.775	120.12	120.12	120.12	120.12	120.12
23.800	120.12	120.12	120.12	120.12	120.12
23.825	120.12	120.12	120.12	120.12	120.12
23.850	120.12	120.12	120.12	120.12	120.12
23.875	120.12	120.12	120.12	120.12	120.12
23.900	120.12	120.12	120.12	120.12	120.12
23.925	120.12	120.12	120.12	120.12	120.12
23.950	120.12	120.12	120.12	120.12	120.12
23.975	120.12	120.12	120.12	120.12	120.12
24.000	120.12	(N/A)	(N/A)	(N/A)	(N/A)

Subsection: Time vs. Elevation  
 Label: CO-89

Return Event: 10 years  
 Storm Event: 10 yr

**Time vs. Elevation (ft)**

**Output Time increment = 0.005 hours**  
**Time on left represents time for first value in each row.**

Time (hours)	Elevation (ft)	Elevation (ft)	Elevation (ft)	Elevation (ft)	Elevation (ft)
0.000	132.00	132.00	132.00	132.00	132.00
0.025	132.00	132.00	132.00	132.00	132.00
0.050	132.00	132.00	132.00	132.00	132.00
0.075	132.00	132.00	132.00	132.00	132.00
0.100	132.00	132.00	132.00	132.00	132.00
0.125	132.00	132.00	132.00	132.00	132.00
0.150	132.00	132.00	132.00	132.00	132.00
0.175	132.00	132.00	132.00	132.00	132.00
0.200	132.00	132.00	132.00	132.00	132.00
0.225	132.00	132.00	132.00	132.00	132.00
0.250	132.00	132.00	132.00	132.00	132.00
0.275	132.00	132.00	132.00	132.00	132.00
0.300	132.00	132.00	132.00	132.00	132.00
0.325	132.00	132.00	132.00	132.00	132.00
0.350	132.00	132.00	132.00	132.00	132.00
0.375	132.00	132.00	132.00	132.00	132.00
0.400	132.00	132.00	132.00	132.00	132.00
0.425	132.00	132.00	132.00	132.00	132.00
0.450	132.00	132.00	132.00	132.00	132.00
0.475	132.00	132.00	132.00	132.00	132.00
0.500	132.00	132.00	132.00	132.00	132.00
0.525	132.00	132.00	132.00	132.00	132.00
0.550	132.00	132.00	132.00	132.00	132.00
0.575	132.00	132.00	132.00	132.00	132.00
0.600	132.00	132.00	132.00	132.00	132.00
0.625	132.00	132.00	132.00	132.00	132.00
0.650	132.00	132.00	132.00	132.00	132.00
0.675	132.00	132.00	132.00	132.00	132.00
0.700	132.00	132.00	132.00	132.00	132.00
0.725	132.00	132.00	132.00	132.00	132.00
0.750	132.00	132.00	132.00	132.00	132.00
0.775	132.00	132.00	132.00	132.00	132.00
0.800	132.00	132.00	132.00	132.00	132.00
0.825	132.00	132.00	132.00	132.00	132.00
0.850	132.00	132.00	132.00	132.00	132.00
0.875	132.00	132.00	132.00	132.00	132.00
0.900	132.00	132.00	132.00	132.00	132.00
0.925	132.00	132.00	132.00	132.00	132.00
0.950	132.00	132.00	132.00	132.00	132.00
0.975	132.00	132.00	132.00	132.00	132.00
1.000	132.00	132.00	132.00	132.00	132.00
1.025	132.00	132.00	132.00	132.00	132.00
1.050	132.00	132.00	132.00	132.00	132.00

**Time vs. Elevation (ft)**

**Output Time increment = 0.005 hours**  
**Time on left represents time for first value in each row.**

Time (hours)	Elevation (ft)	Elevation (ft)	Elevation (ft)	Elevation (ft)	Elevation (ft)
1.075	132.00	132.00	132.00	132.00	132.00
1.100	132.00	132.00	132.00	132.00	132.00
1.125	132.00	132.00	132.00	132.00	132.00
1.150	132.00	132.00	132.00	132.00	132.00
1.175	132.00	132.00	132.00	132.00	132.00
1.200	132.00	132.00	132.00	132.00	132.00
1.225	132.00	132.00	132.00	132.00	132.00
1.250	132.00	132.00	132.00	132.00	132.00
1.275	132.00	132.00	132.00	132.00	132.00
1.300	132.00	132.00	132.00	132.00	132.00
1.325	132.00	132.00	132.00	132.00	132.00
1.350	132.00	132.00	132.00	132.00	132.00
1.375	132.00	132.00	132.00	132.00	132.00
1.400	132.00	132.00	132.00	132.00	132.00
1.425	132.00	132.00	132.00	132.00	132.00
1.450	132.00	132.00	132.00	132.00	132.00
1.475	132.00	132.00	132.00	132.00	132.00
1.500	132.00	132.00	132.00	132.00	132.00
1.525	132.00	132.00	132.00	132.00	132.00
1.550	132.00	132.00	132.00	132.00	132.00
1.575	132.00	132.00	132.00	132.00	132.00
1.600	132.00	132.00	132.00	132.00	132.00
1.625	132.00	132.00	132.00	132.00	132.00
1.650	132.00	132.00	132.00	132.00	132.00
1.675	132.00	132.00	132.00	132.00	132.00
1.700	132.00	132.00	132.00	132.00	132.00
1.725	132.00	132.00	132.00	132.00	132.00
1.750	132.00	132.00	132.00	132.00	132.00
1.775	132.00	132.00	132.00	132.00	132.00
1.800	132.00	132.00	132.00	132.00	132.00
1.825	132.00	132.00	132.00	132.00	132.00
1.850	132.00	132.00	132.00	132.00	132.00
1.875	132.00	132.00	132.00	132.00	132.00
1.900	132.00	132.00	132.00	132.00	132.00
1.925	132.00	132.00	132.00	132.00	132.00
1.950	132.00	132.00	132.00	132.00	132.00
1.975	132.00	132.00	132.00	132.00	132.00
2.000	132.00	132.00	132.00	132.00	132.00
2.025	132.00	132.00	132.00	132.00	132.00
2.050	132.00	132.00	132.00	132.00	132.00
2.075	132.00	132.00	132.00	132.00	132.00
2.100	132.00	132.00	132.00	132.00	132.00
2.125	132.00	132.00	132.00	132.00	132.00

**Time vs. Elevation (ft)**

**Output Time increment = 0.005 hours**  
**Time on left represents time for first value in each row.**

Time (hours)	Elevation (ft)	Elevation (ft)	Elevation (ft)	Elevation (ft)	Elevation (ft)
2.150	132.00	132.00	132.00	132.00	132.00
2.175	132.00	132.00	132.00	132.00	132.00
2.200	132.00	132.00	132.00	132.00	132.00
2.225	132.00	132.00	132.00	132.00	132.00
2.250	132.00	132.00	132.00	132.00	132.00
2.275	132.00	132.00	132.00	132.00	132.00
2.300	132.00	132.00	132.00	132.00	132.00
2.325	132.00	132.00	132.00	132.00	132.00
2.350	132.00	132.00	132.00	132.00	132.00
2.375	132.00	132.00	132.00	132.00	132.00
2.400	132.00	132.00	132.00	132.00	132.00
2.425	132.00	132.00	132.00	132.00	132.00
2.450	132.00	132.00	132.00	132.00	132.00
2.475	132.00	132.00	132.00	132.00	132.00
2.500	132.00	132.00	132.00	132.00	132.00
2.525	132.00	132.00	132.00	132.00	132.00
2.550	132.00	132.00	132.00	132.00	132.00
2.575	132.00	132.00	132.00	132.00	132.00
2.600	132.00	132.00	132.00	132.00	132.00
2.625	132.00	132.00	132.00	132.00	132.00
2.650	132.00	132.00	132.00	132.00	132.00
2.675	132.00	132.00	132.00	132.00	132.00
2.700	132.00	132.00	132.00	132.00	132.00
2.725	132.00	132.00	132.00	132.00	132.00
2.750	132.00	132.00	132.00	132.00	132.00
2.775	132.00	132.00	132.00	132.00	132.00
2.800	132.00	132.00	132.00	132.00	132.00
2.825	132.00	132.00	132.00	132.00	132.00
2.850	132.00	132.00	132.00	132.00	132.00
2.875	132.00	132.00	132.00	132.00	132.00
2.900	132.00	132.00	132.00	132.00	132.00
2.925	132.00	132.00	132.00	132.00	132.00
2.950	132.00	132.00	132.00	132.00	132.00
2.975	132.00	132.00	132.00	132.00	132.00
3.000	132.00	132.00	132.00	132.00	132.00
3.025	132.00	132.00	132.00	132.00	132.00
3.050	132.00	132.00	132.00	132.00	132.00
3.075	132.00	132.00	132.00	132.00	132.00
3.100	132.00	132.00	132.00	132.00	132.00
3.125	132.00	132.00	132.00	132.00	132.00
3.150	132.00	132.00	132.00	132.00	132.00
3.175	132.00	132.00	132.00	132.00	132.00
3.200	132.00	132.00	132.00	132.00	132.00



**Time vs. Elevation (ft)**

**Output Time increment = 0.005 hours**  
**Time on left represents time for first value in each row.**

Time (hours)	Elevation (ft)	Elevation (ft)	Elevation (ft)	Elevation (ft)	Elevation (ft)
3.225	132.00	132.00	132.00	132.00	132.00
3.250	132.00	132.00	132.00	132.00	132.00
3.275	132.00	132.00	132.00	132.00	132.00
3.300	132.00	132.00	132.00	132.00	132.00
3.325	132.00	132.00	132.00	132.00	132.00
3.350	132.00	132.00	132.00	132.00	132.00
3.375	132.00	132.00	132.00	132.00	132.00
3.400	132.00	132.00	132.00	132.00	132.00
3.425	132.00	132.00	132.00	132.00	132.00
3.450	132.00	132.00	132.00	132.00	132.00
3.475	132.00	132.00	132.00	132.00	132.00
3.500	132.00	132.00	132.00	132.00	132.00
3.525	132.00	132.00	132.00	132.00	132.00
3.550	132.00	132.00	132.00	132.00	132.00
3.575	132.00	132.00	132.00	132.00	132.00
3.600	132.00	132.00	132.00	132.00	132.00
3.625	132.00	132.00	132.00	132.00	132.00
3.650	132.00	132.00	132.00	132.00	132.00
3.675	132.00	132.00	132.00	132.00	132.00
3.700	132.00	132.00	132.00	132.00	132.00
3.725	132.00	132.00	132.00	132.00	132.00
3.750	132.00	132.00	132.00	132.00	132.00
3.775	132.00	132.00	132.00	132.00	132.00
3.800	132.00	132.00	132.00	132.00	132.00
3.825	132.00	132.00	132.00	132.00	132.00
3.850	132.00	132.00	132.00	132.00	132.00
3.875	132.00	132.00	132.00	132.00	132.00
3.900	132.00	132.00	132.00	132.00	132.00
3.925	132.00	132.00	132.00	132.00	132.00
3.950	132.00	132.00	132.00	132.00	132.00
3.975	132.00	132.00	132.00	132.00	132.00
4.000	132.00	132.00	132.00	132.00	132.00
4.025	132.00	132.00	132.00	132.00	132.00
4.050	132.00	132.00	132.00	132.00	132.00
4.075	132.00	132.00	132.00	132.00	132.00
4.100	132.00	132.00	132.00	132.00	132.00
4.125	132.00	132.00	132.00	132.00	132.00
4.150	132.00	132.00	132.00	132.00	132.00
4.175	132.00	132.00	132.00	132.00	132.00
4.200	132.00	132.00	132.00	132.00	132.00
4.225	132.00	132.00	132.00	132.00	132.00
4.250	132.00	132.00	132.00	132.00	132.00
4.275	132.00	132.00	132.00	132.00	132.00

**Time vs. Elevation (ft)**

**Output Time increment = 0.005 hours**  
**Time on left represents time for first value in each row.**

Time (hours)	Elevation (ft)	Elevation (ft)	Elevation (ft)	Elevation (ft)	Elevation (ft)
4.300	132.00	132.00	132.00	132.00	132.00
4.325	132.00	132.00	132.00	132.00	132.00
4.350	132.00	132.00	132.00	132.00	132.00
4.375	132.00	132.00	132.00	132.00	132.00
4.400	132.00	132.00	132.00	132.00	132.00
4.425	132.00	132.00	132.00	132.00	132.00
4.450	132.00	132.00	132.00	132.00	132.00
4.475	132.00	132.00	132.00	132.00	132.00
4.500	132.00	132.00	132.00	132.00	132.00
4.525	132.00	132.00	132.00	132.00	132.00
4.550	132.00	132.00	132.00	132.00	132.00
4.575	132.00	132.00	132.00	132.00	132.00
4.600	132.00	132.00	132.00	132.00	132.00
4.625	132.00	132.00	132.00	132.00	132.00
4.650	132.00	132.00	132.00	132.00	132.00
4.675	132.00	132.00	132.00	132.00	132.00
4.700	132.00	132.00	132.00	132.00	132.00
4.725	132.00	132.00	132.00	132.00	132.00
4.750	132.00	132.00	132.00	132.00	132.00
4.775	132.00	132.00	132.00	132.00	132.00
4.800	132.00	132.00	132.00	132.00	132.00
4.825	132.00	132.00	132.00	132.00	132.00
4.850	132.00	132.00	132.00	132.00	132.00
4.875	132.00	132.00	132.00	132.00	132.00
4.900	132.00	132.00	132.00	132.00	132.00
4.925	132.00	132.00	132.00	132.00	132.00
4.950	132.00	132.00	132.00	132.00	132.00
4.975	132.00	132.00	132.00	132.00	132.00
5.000	132.00	132.00	132.00	132.00	132.00
5.025	132.00	132.00	132.00	132.00	132.00
5.050	132.00	132.00	132.00	132.00	132.00
5.075	132.00	132.00	132.00	132.00	132.00
5.100	132.00	132.00	132.00	132.00	132.00
5.125	132.00	132.00	132.00	132.00	132.00
5.150	132.00	132.00	132.00	132.00	132.00
5.175	132.00	132.00	132.00	132.00	132.00
5.200	132.00	132.00	132.00	132.00	132.00
5.225	132.00	132.00	132.00	132.00	132.00
5.250	132.00	132.00	132.00	132.00	132.00
5.275	132.00	132.00	132.00	132.00	132.00
5.300	132.00	132.00	132.00	132.00	132.00
5.325	132.00	132.00	132.00	132.00	132.00
5.350	132.00	132.00	132.00	132.00	132.00

**Time vs. Elevation (ft)**

**Output Time increment = 0.005 hours**  
**Time on left represents time for first value in each row.**

Time (hours)	Elevation (ft)	Elevation (ft)	Elevation (ft)	Elevation (ft)	Elevation (ft)
5.375	132.00	132.00	132.00	132.00	132.00
5.400	132.00	132.00	132.00	132.00	132.00
5.425	132.00	132.00	132.00	132.00	132.00
5.450	132.00	132.00	132.00	132.00	132.00
5.475	132.00	132.00	132.00	132.00	132.00
5.500	132.00	132.00	132.00	132.00	132.00
5.525	132.00	132.00	132.00	132.00	132.00
5.550	132.00	132.00	132.00	132.00	132.00
5.575	132.00	132.00	132.00	132.00	132.00
5.600	132.00	132.00	132.00	132.00	132.00
5.625	132.00	132.00	132.00	132.00	132.00
5.650	132.00	132.00	132.00	132.00	132.00
5.675	132.00	132.00	132.00	132.00	132.00
5.700	132.00	132.00	132.00	132.00	132.00
5.725	132.00	132.00	132.00	132.00	132.00
5.750	132.00	132.00	132.00	132.00	132.00
5.775	132.00	132.00	132.00	132.00	132.00
5.800	132.00	132.00	132.00	132.00	132.00
5.825	132.00	132.00	132.00	132.00	132.00
5.850	132.00	132.00	132.00	132.00	132.00
5.875	132.00	132.00	132.00	132.00	132.00
5.900	132.00	132.00	132.00	132.00	132.00
5.925	132.00	132.00	132.00	132.00	132.00
5.950	132.00	132.00	132.00	132.00	132.00
5.975	132.00	132.00	132.00	132.00	132.00
6.000	132.00	132.00	132.00	132.00	132.00
6.025	132.00	132.00	132.00	132.00	132.00
6.050	132.00	132.00	132.00	132.00	132.00
6.075	132.00	132.00	132.00	132.00	132.00
6.100	132.00	132.00	132.00	132.00	132.00
6.125	132.00	132.00	132.00	132.00	132.00
6.150	132.00	132.00	132.00	132.00	132.00
6.175	132.00	132.00	132.00	132.00	132.00
6.200	132.00	132.00	132.00	132.00	132.00
6.225	132.00	132.00	132.00	132.00	132.00
6.250	132.00	132.00	132.00	132.00	132.00
6.275	132.00	132.00	132.00	132.00	132.00
6.300	132.00	132.00	132.00	132.00	132.00
6.325	132.00	132.00	132.00	132.00	132.00
6.350	132.00	132.00	132.00	132.00	132.00
6.375	132.00	132.00	132.00	132.00	132.00
6.400	132.00	132.00	132.00	132.00	132.00
6.425	132.00	132.00	132.00	132.00	132.00

**Time vs. Elevation (ft)**

**Output Time increment = 0.005 hours**  
**Time on left represents time for first value in each row.**

Time (hours)	Elevation (ft)	Elevation (ft)	Elevation (ft)	Elevation (ft)	Elevation (ft)
6.450	132.00	132.00	132.00	132.00	132.00
6.475	132.00	132.00	132.00	132.00	132.00
6.500	132.00	132.00	132.00	132.00	132.00
6.525	132.00	132.00	132.00	132.00	132.00
6.550	132.00	132.00	132.00	132.00	132.00
6.575	132.00	132.00	132.00	132.00	132.00
6.600	132.00	132.00	132.00	132.00	132.00
6.625	132.00	132.00	132.00	132.00	132.00
6.650	132.00	132.00	132.00	132.00	132.00
6.675	132.00	132.00	132.00	132.00	132.00
6.700	132.00	132.00	132.00	132.00	132.00
6.725	132.00	132.00	132.00	132.00	132.00
6.750	132.00	132.00	132.00	132.00	132.00
6.775	132.00	132.00	132.00	132.00	132.00
6.800	132.00	132.00	132.00	132.00	132.00
6.825	132.00	132.00	132.00	132.00	132.00
6.850	132.00	132.00	132.00	132.00	132.00
6.875	132.00	132.00	132.00	132.00	132.00
6.900	132.00	132.00	132.00	132.00	132.00
6.925	132.00	132.00	132.00	132.00	132.00
6.950	132.00	132.00	132.00	132.00	132.00
6.975	132.00	132.00	132.00	132.00	132.00
7.000	132.00	132.00	132.00	132.00	132.00
7.025	132.00	132.00	132.00	132.00	132.00
7.050	132.00	132.00	132.00	132.00	132.00
7.075	132.00	132.00	132.00	132.00	132.00
7.100	132.00	132.00	132.00	132.00	132.00
7.125	132.00	132.00	132.00	132.00	132.00
7.150	132.00	132.00	132.00	132.00	132.00
7.175	132.00	132.00	132.00	132.00	132.00
7.200	132.00	132.00	132.00	132.00	132.00
7.225	132.00	132.00	132.00	132.00	132.00
7.250	132.00	132.00	132.00	132.00	132.00
7.275	132.00	132.00	132.00	132.00	132.00
7.300	132.00	132.00	132.00	132.00	132.00
7.325	132.00	132.00	132.00	132.00	132.00
7.350	132.00	132.00	132.00	132.00	132.00
7.375	132.00	132.00	132.00	132.00	132.00
7.400	132.00	132.00	132.00	132.00	132.00
7.425	132.00	132.00	132.00	132.00	132.00
7.450	132.00	132.00	132.00	132.00	132.00
7.475	132.00	132.00	132.00	132.00	132.00
7.500	132.00	132.00	132.00	132.00	132.00

Subsection: Time vs. Elevation  
 Label: CO-89

Return Event: 10 years  
 Storm Event: 10 yr

**Time vs. Elevation (ft)**

**Output Time increment = 0.005 hours**  
**Time on left represents time for first value in each row.**

Time (hours)	Elevation (ft)	Elevation (ft)	Elevation (ft)	Elevation (ft)	Elevation (ft)
7.525	132.00	132.00	132.00	132.00	132.00
7.550	132.00	132.00	132.00	132.00	132.00
7.575	132.00	132.00	132.00	132.00	132.00
7.600	132.00	132.00	132.00	132.00	132.00
7.625	132.00	132.00	132.00	132.00	132.00
7.650	132.00	132.00	132.00	132.00	132.00
7.675	132.00	132.00	132.00	132.00	132.00
7.700	132.00	132.00	132.00	132.00	132.00
7.725	132.00	132.00	132.00	132.00	132.00
7.750	132.00	132.00	132.00	132.00	132.00
7.775	132.00	132.00	132.00	132.00	132.00
7.800	132.00	132.00	132.00	132.00	132.00
7.825	132.00	132.00	132.00	132.00	132.00
7.850	132.00	132.00	132.00	132.00	132.00
7.875	132.00	132.00	132.00	132.00	132.00
7.900	132.00	132.00	132.00	132.00	132.00
7.925	132.00	132.00	132.00	132.00	132.00
7.950	132.00	132.00	132.00	132.00	132.00
7.975	132.00	132.00	132.00	132.00	132.00
8.000	132.00	132.00	132.00	132.00	132.00
8.025	132.00	132.00	132.00	132.00	132.00
8.050	132.00	132.00	132.00	132.00	132.00
8.075	132.00	132.00	132.00	132.00	132.00
8.100	132.00	132.00	132.00	132.00	132.00
8.125	132.00	132.00	132.00	132.00	132.00
8.150	132.00	132.00	132.00	132.00	132.00
8.175	132.00	132.00	132.00	132.00	132.00
8.200	132.00	132.00	132.00	132.00	132.00
8.225	132.00	132.00	132.00	132.00	132.00
8.250	132.00	132.00	132.00	132.00	132.00
8.275	132.00	132.00	132.00	132.00	132.00
8.300	132.00	132.00	132.00	132.00	132.00
8.325	132.00	132.00	132.00	132.00	132.00
8.350	132.00	132.00	132.00	132.00	132.00
8.375	132.00	132.00	132.00	132.00	132.00
8.400	132.00	132.00	132.00	132.00	132.00
8.425	132.00	132.00	132.00	132.00	132.00
8.450	132.00	132.00	132.00	132.00	132.00
8.475	132.00	132.00	132.00	132.00	132.00
8.500	132.00	132.00	132.00	132.00	132.00
8.525	132.00	132.00	132.00	132.00	132.00
8.550	132.00	132.00	132.00	132.00	132.00
8.575	132.00	132.00	132.00	132.00	132.00

**Time vs. Elevation (ft)**

**Output Time increment = 0.005 hours**  
**Time on left represents time for first value in each row.**

Time (hours)	Elevation (ft)	Elevation (ft)	Elevation (ft)	Elevation (ft)	Elevation (ft)
8.600	132.00	132.00	132.00	132.00	132.00
8.625	132.00	132.00	132.00	132.00	132.00
8.650	132.00	132.00	132.00	132.00	132.00
8.675	132.00	132.00	132.00	132.00	132.00
8.700	132.00	132.00	132.00	132.00	132.00
8.725	132.00	132.00	132.00	132.00	132.00
8.750	132.00	132.00	132.00	132.00	132.00
8.775	132.00	132.00	132.00	132.00	132.00
8.800	132.00	132.00	132.00	132.00	132.00
8.825	132.00	132.00	132.00	132.00	132.00
8.850	132.00	132.00	132.00	132.00	132.00
8.875	132.00	132.00	132.00	132.00	132.00
8.900	132.00	132.00	132.00	132.00	132.00
8.925	132.00	132.00	132.00	132.00	132.00
8.950	132.00	132.00	132.00	132.00	132.00
8.975	132.00	132.00	132.00	132.00	132.00
9.000	132.00	132.00	132.00	132.00	132.00
9.025	132.00	132.00	132.00	132.00	132.00
9.050	132.00	132.00	132.00	132.00	132.00
9.075	132.00	132.00	132.00	132.00	132.00
9.100	132.00	132.00	132.00	132.00	132.00
9.125	132.00	132.00	132.00	132.00	132.00
9.150	132.00	132.00	132.00	132.00	132.00
9.175	132.00	132.00	132.00	132.00	132.00
9.200	132.00	132.00	132.00	132.00	132.00
9.225	132.00	132.00	132.00	132.00	132.00
9.250	132.00	132.00	132.00	132.00	132.00
9.275	132.00	132.00	132.00	132.00	132.00
9.300	132.00	132.00	132.00	132.00	132.00
9.325	132.00	132.00	132.00	132.00	132.00
9.350	132.00	132.01	132.01	132.01	132.01
9.375	132.01	132.01	132.01	132.01	132.01
9.400	132.01	132.01	132.01	132.01	132.02
9.425	132.02	132.02	132.02	132.02	132.02
9.450	132.02	132.02	132.02	132.02	132.03
9.475	132.03	132.03	132.03	132.03	132.03
9.500	132.04	132.04	132.04	132.04	132.04
9.525	132.04	132.04	132.04	132.04	132.05
9.550	132.05	132.05	132.05	132.05	132.05
9.575	132.05	132.05	132.05	132.05	132.05
9.600	132.06	132.06	132.06	132.06	132.06
9.625	132.06	132.06	132.06	132.06	132.07
9.650	132.07	132.07	132.07	132.07	132.07

**Time vs. Elevation (ft)**

**Output Time increment = 0.005 hours**  
**Time on left represents time for first value in each row.**

Time (hours)	Elevation (ft)	Elevation (ft)	Elevation (ft)	Elevation (ft)	Elevation (ft)
9.675	132.07	132.07	132.07	132.08	132.08
9.700	132.08	132.08	132.08	132.08	132.08
9.725	132.08	132.08	132.08	132.08	132.09
9.750	132.09	132.09	132.09	132.09	132.09
9.775	132.09	132.09	132.09	132.09	132.09
9.800	132.09	132.09	132.09	132.09	132.10
9.825	132.10	132.10	132.10	132.10	132.10
9.850	132.10	132.10	132.10	132.10	132.10
9.875	132.10	132.10	132.10	132.11	132.11
9.900	132.11	132.11	132.11	132.11	132.11
9.925	132.11	132.11	132.11	132.11	132.11
9.950	132.11	132.11	132.12	132.12	132.12
9.975	132.12	132.12	132.12	132.12	132.12
10.000	132.12	132.12	132.12	132.12	132.12
10.025	132.12	132.12	132.12	132.13	132.13
10.050	132.13	132.13	132.13	132.13	132.13
10.075	132.13	132.13	132.13	132.13	132.13
10.100	132.13	132.13	132.13	132.13	132.13
10.125	132.13	132.14	132.14	132.14	132.14
10.150	132.14	132.14	132.14	132.14	132.14
10.175	132.14	132.14	132.14	132.14	132.14
10.200	132.14	132.14	132.14	132.14	132.15
10.225	132.15	132.15	132.15	132.15	132.15
10.250	132.15	132.15	132.15	132.15	132.15
10.275	132.15	132.15	132.15	132.15	132.15
10.300	132.16	132.16	132.16	132.16	132.16
10.325	132.16	132.16	132.16	132.16	132.16
10.350	132.16	132.16	132.16	132.16	132.16
10.375	132.16	132.16	132.17	132.17	132.17
10.400	132.17	132.17	132.17	132.17	132.17
10.425	132.17	132.17	132.17	132.17	132.17
10.450	132.17	132.17	132.17	132.17	132.17
10.475	132.18	132.18	132.18	132.18	132.18
10.500	132.18	132.18	132.18	132.18	132.18
10.525	132.18	132.18	132.18	132.18	132.18
10.550	132.18	132.18	132.18	132.19	132.19
10.575	132.19	132.19	132.19	132.19	132.19
10.600	132.19	132.19	132.19	132.19	132.19
10.625	132.19	132.19	132.19	132.19	132.20
10.650	132.20	132.20	132.20	132.20	132.20
10.675	132.20	132.20	132.20	132.20	132.20
10.700	132.20	132.20	132.20	132.20	132.20
10.725	132.21	132.21	132.21	132.21	132.21

**Time vs. Elevation (ft)**

**Output Time increment = 0.005 hours**  
**Time on left represents time for first value in each row.**

Time (hours)	Elevation (ft)	Elevation (ft)	Elevation (ft)	Elevation (ft)	Elevation (ft)
10.750	132.21	132.21	132.21	132.21	132.21
10.775	132.21	132.21	132.21	132.21	132.21
10.800	132.21	132.22	132.22	132.22	132.22
10.825	132.22	132.22	132.22	132.22	132.22
10.850	132.22	132.22	132.22	132.22	132.22
10.875	132.22	132.23	132.23	132.23	132.23
10.900	132.23	132.23	132.23	132.23	132.23
10.925	132.23	132.23	132.23	132.23	132.23
10.950	132.24	132.24	132.24	132.24	132.24
10.975	132.24	132.24	132.24	132.24	132.24
11.000	132.24	132.24	132.24	132.24	132.24
11.025	132.25	132.25	132.25	132.25	132.25
11.050	132.25	132.25	132.25	132.25	132.25
11.075	132.25	132.25	132.25	132.25	132.26
11.100	132.26	132.26	132.26	132.26	132.26
11.125	132.26	132.26	132.26	132.26	132.26
11.150	132.26	132.26	132.27	132.27	132.27
11.175	132.27	132.27	132.27	132.27	132.27
11.200	132.27	132.27	132.27	132.28	132.28
11.225	132.28	132.28	132.28	132.28	132.28
11.250	132.28	132.28	132.28	132.28	132.29
11.275	132.29	132.29	132.29	132.29	132.29
11.300	132.29	132.29	132.29	132.29	132.30
11.325	132.30	132.30	132.30	132.30	132.30
11.350	132.30	132.30	132.30	132.30	132.31
11.375	132.31	132.31	132.31	132.31	132.31
11.400	132.31	132.31	132.31	132.32	132.32
11.425	132.32	132.32	132.32	132.32	132.32
11.450	132.32	132.32	132.33	132.33	132.33
11.475	132.33	132.33	132.33	132.33	132.33
11.500	132.33	132.34	132.34	132.34	132.34
11.525	132.34	132.34	132.34	132.34	132.35
11.550	132.35	132.35	132.35	132.35	132.36
11.575	132.36	132.36	132.36	132.37	132.37
11.600	132.37	132.38	132.38	132.38	132.39
11.625	132.39	132.39	132.40	132.40	132.41
11.650	132.41	132.42	132.42	132.43	132.44
11.675	132.44	132.45	132.45	132.46	132.47
11.700	132.47	132.48	132.49	132.50	132.50
11.725	132.51	132.52	132.53	132.53	132.54
11.750	132.55	132.56	132.57	132.58	132.59
11.775	132.59	132.60	132.61	132.62	132.63
11.800	132.64	132.65	132.66	132.67	132.68



Subsection: Time vs. Elevation  
 Label: CO-89

Return Event: 10 years  
 Storm Event: 10 yr

**Time vs. Elevation (ft)**

**Output Time increment = 0.005 hours**  
**Time on left represents time for first value in each row.**

Time (hours)	Elevation (ft)	Elevation (ft)	Elevation (ft)	Elevation (ft)	Elevation (ft)
11.825	132.69	132.70	132.71	132.72	132.73
11.850	132.74	132.75	132.76	132.77	132.78
11.875	132.80	132.81	132.82	132.83	132.84
11.900	132.86	132.87	132.88	132.89	132.90
11.925	132.92	132.93	132.94	132.95	132.96
11.950	132.97	132.99	133.00	133.01	133.01
11.975	133.02	133.03	133.04	133.05	133.06
12.000	133.06	133.07	133.07	133.08	133.08
12.025	133.09	133.09	133.10	133.10	133.10
12.050	133.10	133.10	133.10	133.10	133.10
12.075	133.10	133.10	133.09	133.09	133.09
12.100	133.08	133.08	133.07	133.07	133.06
12.125	133.05	133.05	133.04	133.03	133.02
12.150	133.01	133.00	133.00	132.99	132.98
12.175	132.97	132.96	132.95	132.94	132.93
12.200	132.92	132.91	132.90	132.89	132.88
12.225	132.87	132.86	132.86	132.85	132.84
12.250	132.83	132.82	132.81	132.80	132.80
12.275	132.79	132.78	132.77	132.77	132.76
12.300	132.75	132.75	132.74	132.74	132.73
12.325	132.72	132.72	132.71	132.71	132.70
12.350	132.70	132.69	132.69	132.68	132.68
12.375	132.68	132.67	132.67	132.66	132.66
12.400	132.65	132.65	132.65	132.64	132.64
12.425	132.64	132.63	132.63	132.63	132.62
12.450	132.62	132.62	132.61	132.61	132.61
12.475	132.61	132.60	132.60	132.60	132.59
12.500	132.59	132.59	132.59	132.58	132.58
12.525	132.58	132.58	132.57	132.57	132.57
12.550	132.57	132.56	132.56	132.56	132.56
12.575	132.55	132.55	132.55	132.55	132.54
12.600	132.54	132.54	132.54	132.54	132.53
12.625	132.53	132.53	132.53	132.53	132.52
12.650	132.52	132.52	132.52	132.52	132.52
12.675	132.51	132.51	132.51	132.51	132.51
12.700	132.51	132.50	132.50	132.50	132.50
12.725	132.50	132.50	132.50	132.49	132.49
12.750	132.49	132.49	132.49	132.49	132.49
12.775	132.49	132.49	132.49	132.48	132.48
12.800	132.48	132.48	132.48	132.48	132.48
12.825	132.48	132.48	132.48	132.48	132.47
12.850	132.47	132.47	132.47	132.47	132.47
12.875	132.47	132.47	132.47	132.47	132.47

**Time vs. Elevation (ft)**

**Output Time increment = 0.005 hours**  
**Time on left represents time for first value in each row.**

Time (hours)	Elevation (ft)	Elevation (ft)	Elevation (ft)	Elevation (ft)	Elevation (ft)
12.900	132.47	132.47	132.47	132.46	132.46
12.925	132.46	132.46	132.46	132.46	132.46
12.950	132.46	132.46	132.46	132.46	132.46
12.975	132.46	132.46	132.46	132.46	132.45
13.000	132.45	132.45	132.45	132.45	132.45
13.025	132.45	132.45	132.45	132.45	132.45
13.050	132.45	132.45	132.45	132.45	132.45
13.075	132.45	132.44	132.44	132.44	132.44
13.100	132.44	132.44	132.44	132.44	132.44
13.125	132.44	132.44	132.44	132.44	132.44
13.150	132.44	132.44	132.44	132.44	132.43
13.175	132.43	132.43	132.43	132.43	132.43
13.200	132.43	132.43	132.43	132.43	132.43
13.225	132.43	132.43	132.43	132.43	132.43
13.250	132.43	132.43	132.43	132.43	132.42
13.275	132.42	132.42	132.42	132.42	132.42
13.300	132.42	132.42	132.42	132.42	132.42
13.325	132.42	132.42	132.42	132.42	132.42
13.350	132.42	132.42	132.42	132.42	132.42
13.375	132.42	132.42	132.42	132.41	132.41
13.400	132.41	132.41	132.41	132.41	132.41
13.425	132.41	132.41	132.41	132.41	132.41
13.450	132.41	132.41	132.41	132.41	132.41
13.475	132.41	132.41	132.41	132.41	132.41
13.500	132.41	132.41	132.41	132.41	132.41
13.525	132.40	132.40	132.40	132.40	132.40
13.550	132.40	132.40	132.40	132.40	132.40
13.575	132.40	132.40	132.40	132.40	132.40
13.600	132.40	132.40	132.40	132.40	132.40
13.625	132.40	132.40	132.40	132.40	132.40
13.650	132.40	132.40	132.39	132.39	132.39
13.675	132.39	132.39	132.39	132.39	132.39
13.700	132.39	132.39	132.39	132.39	132.39
13.725	132.39	132.39	132.39	132.39	132.39
13.750	132.39	132.39	132.39	132.39	132.39
13.775	132.39	132.39	132.39	132.39	132.39
13.800	132.38	132.38	132.38	132.38	132.38
13.825	132.38	132.38	132.38	132.38	132.38
13.850	132.38	132.38	132.38	132.38	132.38
13.875	132.38	132.38	132.38	132.38	132.38
13.900	132.38	132.38	132.38	132.38	132.38
13.925	132.38	132.38	132.38	132.38	132.38
13.950	132.38	132.37	132.37	132.37	132.37

**Time vs. Elevation (ft)**

**Output Time increment = 0.005 hours**  
**Time on left represents time for first value in each row.**

Time (hours)	Elevation (ft)	Elevation (ft)	Elevation (ft)	Elevation (ft)	Elevation (ft)
13.975	132.37	132.37	132.37	132.37	132.37
14.000	132.37	132.37	132.37	132.37	132.37
14.025	132.37	132.37	132.37	132.37	132.37
14.050	132.37	132.37	132.37	132.37	132.37
14.075	132.37	132.37	132.37	132.37	132.37
14.100	132.37	132.37	132.37	132.37	132.36
14.125	132.36	132.36	132.36	132.36	132.36
14.150	132.36	132.36	132.36	132.36	132.36
14.175	132.36	132.36	132.36	132.36	132.36
14.200	132.36	132.36	132.36	132.36	132.36
14.225	132.36	132.36	132.36	132.36	132.36
14.250	132.36	132.36	132.36	132.36	132.36
14.275	132.36	132.36	132.36	132.36	132.36
14.300	132.36	132.36	132.36	132.36	132.36
14.325	132.36	132.36	132.36	132.36	132.36
14.350	132.36	132.36	132.35	132.35	132.35
14.375	132.35	132.35	132.35	132.35	132.35
14.400	132.35	132.35	132.35	132.35	132.35
14.425	132.35	132.35	132.35	132.35	132.35
14.450	132.35	132.35	132.35	132.35	132.35
14.475	132.35	132.35	132.35	132.35	132.35
14.500	132.35	132.35	132.35	132.35	132.35
14.525	132.35	132.35	132.35	132.35	132.35
14.550	132.35	132.35	132.35	132.35	132.35
14.575	132.35	132.35	132.35	132.35	132.35
14.600	132.35	132.35	132.35	132.35	132.35
14.625	132.35	132.35	132.35	132.35	132.35
14.650	132.35	132.35	132.35	132.35	132.35
14.675	132.35	132.35	132.35	132.35	132.35
14.700	132.35	132.35	132.35	132.35	132.35
14.725	132.35	132.35	132.34	132.34	132.34
14.750	132.34	132.34	132.34	132.34	132.34
14.775	132.34	132.34	132.34	132.34	132.34
14.800	132.34	132.34	132.34	132.34	132.34
14.825	132.34	132.34	132.34	132.34	132.34
14.850	132.34	132.34	132.34	132.34	132.34
14.875	132.34	132.34	132.34	132.34	132.34
14.900	132.34	132.34	132.34	132.34	132.34
14.925	132.34	132.34	132.34	132.34	132.34
14.950	132.34	132.34	132.34	132.34	132.34
14.975	132.34	132.34	132.34	132.34	132.34
15.000	132.34	132.34	132.34	132.34	132.34
15.025	132.34	132.34	132.34	132.34	132.34

**Time vs. Elevation (ft)**

**Output Time increment = 0.005 hours**  
**Time on left represents time for first value in each row.**

Time (hours)	Elevation (ft)	Elevation (ft)	Elevation (ft)	Elevation (ft)	Elevation (ft)
15.050	132.34	132.34	132.34	132.34	132.34
15.075	132.34	132.34	132.34	132.34	132.34
15.100	132.34	132.34	132.34	132.34	132.33
15.125	132.33	132.33	132.33	132.33	132.33
15.150	132.33	132.33	132.33	132.33	132.33
15.175	132.33	132.33	132.33	132.33	132.33
15.200	132.33	132.33	132.33	132.33	132.33
15.225	132.33	132.33	132.33	132.33	132.33
15.250	132.33	132.33	132.33	132.33	132.33
15.275	132.33	132.33	132.33	132.33	132.33
15.300	132.33	132.33	132.33	132.33	132.33
15.325	132.33	132.33	132.33	132.33	132.33
15.350	132.33	132.33	132.33	132.33	132.33
15.375	132.33	132.33	132.33	132.33	132.33
15.400	132.33	132.33	132.33	132.33	132.33
15.425	132.33	132.33	132.33	132.33	132.33
15.450	132.33	132.33	132.33	132.33	132.33
15.475	132.33	132.33	132.33	132.33	132.33
15.500	132.32	132.32	132.32	132.32	132.32
15.525	132.32	132.32	132.32	132.32	132.32
15.550	132.32	132.32	132.32	132.32	132.32
15.575	132.32	132.32	132.32	132.32	132.32
15.600	132.32	132.32	132.32	132.32	132.32
15.625	132.32	132.32	132.32	132.32	132.32
15.650	132.32	132.32	132.32	132.32	132.32
15.675	132.32	132.32	132.32	132.32	132.32
15.700	132.32	132.32	132.32	132.32	132.32
15.725	132.32	132.32	132.32	132.32	132.32
15.750	132.32	132.32	132.32	132.32	132.32
15.775	132.32	132.32	132.32	132.32	132.32
15.800	132.32	132.32	132.32	132.32	132.32
15.825	132.32	132.32	132.32	132.31	132.31
15.850	132.31	132.31	132.31	132.31	132.31
15.875	132.31	132.31	132.31	132.31	132.31
15.900	132.31	132.31	132.31	132.31	132.31
15.925	132.31	132.31	132.31	132.31	132.31
15.950	132.31	132.31	132.31	132.31	132.31
15.975	132.31	132.31	132.31	132.31	132.31
16.000	132.31	132.31	132.31	132.31	132.31
16.025	132.31	132.31	132.31	132.31	132.31
16.050	132.31	132.31	132.31	132.31	132.31
16.075	132.31	132.31	132.31	132.31	132.31
16.100	132.31	132.31	132.31	132.31	132.31

**Time vs. Elevation (ft)**

**Output Time increment = 0.005 hours**  
**Time on left represents time for first value in each row.**

Time (hours)	Elevation (ft)	Elevation (ft)	Elevation (ft)	Elevation (ft)	Elevation (ft)
16.125	132.31	132.31	132.31	132.31	132.30
16.150	132.30	132.30	132.30	132.30	132.30
16.175	132.30	132.30	132.30	132.30	132.30
16.200	132.30	132.30	132.30	132.30	132.30
16.225	132.30	132.30	132.30	132.30	132.30
16.250	132.30	132.30	132.30	132.30	132.30
16.275	132.30	132.30	132.30	132.30	132.30
16.300	132.30	132.30	132.30	132.30	132.30
16.325	132.30	132.30	132.30	132.30	132.30
16.350	132.30	132.30	132.30	132.30	132.30
16.375	132.30	132.30	132.30	132.30	132.30
16.400	132.30	132.30	132.30	132.30	132.30
16.425	132.30	132.30	132.30	132.30	132.30
16.450	132.30	132.30	132.30	132.30	132.30
16.475	132.30	132.30	132.30	132.30	132.30
16.500	132.30	132.30	132.30	132.30	132.30
16.525	132.30	132.30	132.30	132.30	132.30
16.550	132.30	132.30	132.30	132.30	132.30
16.575	132.30	132.30	132.30	132.30	132.30
16.600	132.30	132.30	132.30	132.30	132.30
16.625	132.30	132.30	132.30	132.30	132.30
16.650	132.30	132.30	132.30	132.30	132.30
16.675	132.30	132.30	132.30	132.30	132.30
16.700	132.30	132.30	132.30	132.30	132.30
16.725	132.30	132.30	132.30	132.30	132.30
16.750	132.30	132.30	132.30	132.30	132.30
16.775	132.30	132.30	132.30	132.30	132.30
16.800	132.30	132.30	132.30	132.30	132.30
16.825	132.30	132.30	132.29	132.29	132.29
16.850	132.29	132.29	132.29	132.29	132.29
16.875	132.29	132.29	132.29	132.29	132.29
16.900	132.29	132.29	132.29	132.29	132.29
16.925	132.29	132.29	132.29	132.29	132.29
16.950	132.29	132.29	132.29	132.29	132.29
16.975	132.29	132.29	132.29	132.29	132.29
17.000	132.29	132.29	132.29	132.29	132.29
17.025	132.29	132.29	132.29	132.29	132.29
17.050	132.29	132.29	132.29	132.29	132.29
17.075	132.29	132.29	132.29	132.29	132.29
17.100	132.29	132.29	132.29	132.29	132.29
17.125	132.29	132.29	132.29	132.29	132.29
17.150	132.29	132.29	132.29	132.29	132.29
17.175	132.29	132.29	132.29	132.29	132.29

**Time vs. Elevation (ft)**

**Output Time increment = 0.005 hours**  
**Time on left represents time for first value in each row.**

Time (hours)	Elevation (ft)	Elevation (ft)	Elevation (ft)	Elevation (ft)	Elevation (ft)
17.200	132.29	132.29	132.29	132.29	132.29
17.225	132.29	132.29	132.29	132.29	132.29
17.250	132.29	132.29	132.29	132.29	132.29
17.275	132.29	132.29	132.29	132.29	132.29
17.300	132.29	132.29	132.29	132.29	132.29
17.325	132.29	132.29	132.29	132.29	132.29
17.350	132.29	132.29	132.29	132.29	132.29
17.375	132.29	132.29	132.29	132.29	132.29
17.400	132.29	132.29	132.29	132.29	132.29
17.425	132.29	132.29	132.29	132.29	132.29
17.450	132.29	132.29	132.29	132.29	132.29
17.475	132.29	132.29	132.29	132.29	132.29
17.500	132.29	132.29	132.29	132.29	132.29
17.525	132.29	132.29	132.29	132.29	132.29
17.550	132.29	132.29	132.29	132.29	132.29
17.575	132.29	132.29	132.29	132.29	132.29
17.600	132.29	132.29	132.29	132.29	132.29
17.625	132.29	132.29	132.29	132.29	132.29
17.650	132.29	132.29	132.29	132.29	132.29
17.675	132.29	132.29	132.29	132.28	132.28
17.700	132.28	132.28	132.28	132.28	132.28
17.725	132.28	132.28	132.28	132.28	132.28
17.750	132.28	132.28	132.28	132.28	132.28
17.775	132.28	132.28	132.28	132.28	132.28
17.800	132.28	132.28	132.28	132.28	132.28
17.825	132.28	132.28	132.28	132.28	132.28
17.850	132.28	132.28	132.28	132.28	132.28
17.875	132.28	132.28	132.28	132.28	132.28
17.900	132.28	132.28	132.28	132.28	132.28
17.925	132.28	132.28	132.28	132.28	132.28
17.950	132.28	132.28	132.28	132.28	132.28
17.975	132.28	132.28	132.28	132.28	132.28
18.000	132.28	132.28	132.28	132.28	132.28
18.025	132.28	132.28	132.28	132.28	132.28
18.050	132.28	132.28	132.28	132.28	132.28
18.075	132.28	132.28	132.28	132.28	132.28
18.100	132.28	132.28	132.28	132.28	132.28
18.125	132.28	132.28	132.28	132.28	132.28
18.150	132.28	132.28	132.28	132.28	132.28
18.175	132.28	132.28	132.28	132.28	132.28
18.200	132.28	132.28	132.28	132.28	132.28
18.225	132.28	132.28	132.28	132.28	132.28
18.250	132.28	132.28	132.28	132.28	132.28

**Time vs. Elevation (ft)**

**Output Time increment = 0.005 hours**  
**Time on left represents time for first value in each row.**

Time (hours)	Elevation (ft)	Elevation (ft)	Elevation (ft)	Elevation (ft)	Elevation (ft)
18.275	132.28	132.28	132.28	132.28	132.28
18.300	132.28	132.28	132.28	132.28	132.28
18.325	132.28	132.28	132.28	132.28	132.28
18.350	132.28	132.28	132.28	132.28	132.28
18.375	132.28	132.28	132.28	132.28	132.28
18.400	132.28	132.28	132.28	132.28	132.28
18.425	132.28	132.28	132.28	132.27	132.27
18.450	132.27	132.27	132.27	132.27	132.27
18.475	132.27	132.27	132.27	132.27	132.27
18.500	132.27	132.27	132.27	132.27	132.27
18.525	132.27	132.27	132.27	132.27	132.27
18.550	132.27	132.27	132.27	132.27	132.27
18.575	132.27	132.27	132.27	132.27	132.27
18.600	132.27	132.27	132.27	132.27	132.27
18.625	132.27	132.27	132.27	132.27	132.27
18.650	132.27	132.27	132.27	132.27	132.27
18.675	132.27	132.27	132.27	132.27	132.27
18.700	132.27	132.27	132.27	132.27	132.27
18.725	132.27	132.27	132.27	132.27	132.27
18.750	132.27	132.27	132.27	132.27	132.27
18.775	132.27	132.27	132.27	132.27	132.27
18.800	132.27	132.27	132.27	132.27	132.27
18.825	132.27	132.27	132.27	132.27	132.27
18.850	132.27	132.27	132.27	132.27	132.27
18.875	132.27	132.27	132.27	132.27	132.27
18.900	132.27	132.27	132.27	132.27	132.27
18.925	132.27	132.27	132.27	132.27	132.27
18.950	132.27	132.27	132.27	132.27	132.27
18.975	132.27	132.27	132.27	132.27	132.27
19.000	132.27	132.27	132.27	132.27	132.27
19.025	132.27	132.27	132.27	132.27	132.27
19.050	132.27	132.27	132.27	132.27	132.27
19.075	132.27	132.26	132.26	132.26	132.26
19.100	132.26	132.26	132.26	132.26	132.26
19.125	132.26	132.26	132.26	132.26	132.26
19.150	132.26	132.26	132.26	132.26	132.26
19.175	132.26	132.26	132.26	132.26	132.26
19.200	132.26	132.26	132.26	132.26	132.26
19.225	132.26	132.26	132.26	132.26	132.26
19.250	132.26	132.26	132.26	132.26	132.26
19.275	132.26	132.26	132.26	132.26	132.26
19.300	132.26	132.26	132.26	132.26	132.26
19.325	132.26	132.26	132.26	132.26	132.26

**Time vs. Elevation (ft)**

**Output Time increment = 0.005 hours**  
**Time on left represents time for first value in each row.**

Time (hours)	Elevation (ft)	Elevation (ft)	Elevation (ft)	Elevation (ft)	Elevation (ft)
19.350	132.26	132.26	132.26	132.26	132.26
19.375	132.26	132.26	132.26	132.26	132.26
19.400	132.26	132.26	132.26	132.26	132.26
19.425	132.26	132.26	132.26	132.26	132.26
19.450	132.26	132.26	132.26	132.26	132.26
19.475	132.26	132.26	132.26	132.26	132.26
19.500	132.26	132.26	132.26	132.26	132.26
19.525	132.26	132.26	132.26	132.26	132.26
19.550	132.26	132.26	132.26	132.26	132.26
19.575	132.26	132.26	132.26	132.26	132.26
19.600	132.26	132.26	132.26	132.26	132.26
19.625	132.26	132.26	132.26	132.26	132.26
19.650	132.26	132.26	132.26	132.26	132.26
19.675	132.26	132.26	132.26	132.26	132.26
19.700	132.26	132.26	132.26	132.26	132.25
19.725	132.25	132.25	132.25	132.25	132.25
19.750	132.25	132.25	132.25	132.25	132.25
19.775	132.25	132.25	132.25	132.25	132.25
19.800	132.25	132.25	132.25	132.25	132.25
19.825	132.25	132.25	132.25	132.25	132.25
19.850	132.25	132.25	132.25	132.25	132.25
19.875	132.25	132.25	132.25	132.25	132.25
19.900	132.25	132.25	132.25	132.25	132.25
19.925	132.25	132.25	132.25	132.25	132.25
19.950	132.25	132.25	132.25	132.25	132.25
19.975	132.25	132.25	132.25	132.25	132.25
20.000	132.25	132.25	132.25	132.25	132.25
20.025	132.25	132.25	132.25	132.25	132.25
20.050	132.25	132.25	132.25	132.25	132.25
20.075	132.25	132.25	132.25	132.25	132.25
20.100	132.25	132.25	132.25	132.25	132.25
20.125	132.25	132.25	132.25	132.25	132.25
20.150	132.25	132.25	132.25	132.25	132.25
20.175	132.25	132.25	132.25	132.25	132.25
20.200	132.25	132.25	132.25	132.25	132.25
20.225	132.25	132.25	132.25	132.25	132.25
20.250	132.25	132.25	132.25	132.25	132.25
20.275	132.25	132.25	132.25	132.25	132.25
20.300	132.25	132.25	132.25	132.25	132.25
20.325	132.25	132.25	132.25	132.25	132.25
20.350	132.25	132.25	132.25	132.25	132.25
20.375	132.25	132.25	132.25	132.25	132.25
20.400	132.25	132.25	132.25	132.25	132.25



**Time vs. Elevation (ft)**

**Output Time increment = 0.005 hours**  
**Time on left represents time for first value in each row.**

Time (hours)	Elevation (ft)	Elevation (ft)	Elevation (ft)	Elevation (ft)	Elevation (ft)
20.425	132.25	132.25	132.25	132.25	132.25
20.450	132.25	132.25	132.25	132.25	132.25
20.475	132.25	132.25	132.25	132.25	132.25
20.500	132.25	132.25	132.25	132.25	132.25
20.525	132.25	132.25	132.25	132.25	132.25
20.550	132.25	132.25	132.25	132.25	132.25
20.575	132.25	132.25	132.25	132.25	132.25
20.600	132.25	132.25	132.25	132.25	132.25
20.625	132.25	132.25	132.25	132.25	132.25
20.650	132.25	132.25	132.25	132.25	132.25
20.675	132.25	132.25	132.25	132.25	132.25
20.700	132.25	132.25	132.25	132.25	132.25
20.725	132.25	132.25	132.25	132.25	132.25
20.750	132.25	132.25	132.25	132.25	132.25
20.775	132.25	132.25	132.25	132.25	132.25
20.800	132.25	132.25	132.25	132.25	132.25
20.825	132.25	132.25	132.25	132.25	132.25
20.850	132.25	132.25	132.25	132.24	132.24
20.875	132.24	132.24	132.24	132.24	132.24
20.900	132.24	132.24	132.24	132.24	132.24
20.925	132.24	132.24	132.24	132.24	132.24
20.950	132.24	132.24	132.24	132.24	132.24
20.975	132.24	132.24	132.24	132.24	132.24
21.000	132.24	132.24	132.24	132.24	132.24
21.025	132.24	132.24	132.24	132.24	132.24
21.050	132.24	132.24	132.24	132.24	132.24
21.075	132.24	132.24	132.24	132.24	132.24
21.100	132.24	132.24	132.24	132.24	132.24
21.125	132.24	132.24	132.24	132.24	132.24
21.150	132.24	132.24	132.24	132.24	132.24
21.175	132.24	132.24	132.24	132.24	132.24
21.200	132.24	132.24	132.24	132.24	132.24
21.225	132.24	132.24	132.24	132.24	132.24
21.250	132.24	132.24	132.24	132.24	132.24
21.275	132.24	132.24	132.24	132.24	132.24
21.300	132.24	132.24	132.24	132.24	132.24
21.325	132.24	132.24	132.24	132.24	132.24
21.350	132.24	132.24	132.24	132.24	132.24
21.375	132.24	132.24	132.24	132.24	132.24
21.400	132.24	132.24	132.24	132.24	132.24
21.425	132.24	132.24	132.24	132.24	132.24
21.450	132.24	132.24	132.24	132.24	132.24
21.475	132.24	132.24	132.24	132.24	132.24

**Time vs. Elevation (ft)**

**Output Time increment = 0.005 hours**  
**Time on left represents time for first value in each row.**

Time (hours)	Elevation (ft)	Elevation (ft)	Elevation (ft)	Elevation (ft)	Elevation (ft)
21.500	132.24	132.24	132.24	132.24	132.24
21.525	132.24	132.24	132.24	132.24	132.24
21.550	132.24	132.24	132.24	132.24	132.24
21.575	132.24	132.24	132.24	132.24	132.24
21.600	132.24	132.24	132.24	132.24	132.24
21.625	132.24	132.24	132.24	132.24	132.24
21.650	132.24	132.24	132.24	132.24	132.24
21.675	132.24	132.24	132.24	132.24	132.24
21.700	132.24	132.24	132.24	132.24	132.24
21.725	132.24	132.24	132.24	132.24	132.24
21.750	132.24	132.24	132.24	132.24	132.24
21.775	132.24	132.24	132.24	132.24	132.24
21.800	132.24	132.24	132.24	132.24	132.24
21.825	132.24	132.24	132.24	132.24	132.24
21.850	132.24	132.24	132.24	132.24	132.24
21.875	132.24	132.24	132.24	132.24	132.24
21.900	132.24	132.24	132.24	132.24	132.24
21.925	132.24	132.24	132.24	132.24	132.24
21.950	132.24	132.24	132.24	132.24	132.24
21.975	132.24	132.24	132.24	132.24	132.24
22.000	132.24	132.24	132.24	132.24	132.24
22.025	132.24	132.24	132.24	132.24	132.24
22.050	132.24	132.24	132.24	132.24	132.24
22.075	132.24	132.24	132.24	132.24	132.24
22.100	132.24	132.24	132.24	132.24	132.24
22.125	132.24	132.24	132.24	132.24	132.24
22.150	132.24	132.24	132.24	132.24	132.24
22.175	132.24	132.24	132.24	132.24	132.24
22.200	132.24	132.24	132.24	132.24	132.24
22.225	132.24	132.24	132.24	132.24	132.24
22.250	132.24	132.24	132.24	132.24	132.24
22.275	132.24	132.24	132.24	132.24	132.24
22.300	132.24	132.24	132.24	132.24	132.24
22.325	132.24	132.24	132.24	132.24	132.24
22.350	132.24	132.24	132.24	132.24	132.24
22.375	132.24	132.24	132.24	132.24	132.24
22.400	132.24	132.24	132.24	132.24	132.24
22.425	132.24	132.24	132.24	132.24	132.24
22.450	132.24	132.24	132.24	132.24	132.24
22.475	132.24	132.24	132.24	132.24	132.24
22.500	132.24	132.24	132.24	132.24	132.24
22.525	132.24	132.24	132.24	132.24	132.24
22.550	132.24	132.24	132.24	132.24	132.24

**Time vs. Elevation (ft)**

**Output Time increment = 0.005 hours**  
**Time on left represents time for first value in each row.**

Time (hours)	Elevation (ft)	Elevation (ft)	Elevation (ft)	Elevation (ft)	Elevation (ft)
22.575	132.24	132.24	132.24	132.24	132.24
22.600	132.24	132.24	132.24	132.24	132.24
22.625	132.24	132.24	132.24	132.24	132.24
22.650	132.24	132.24	132.24	132.24	132.24
22.675	132.24	132.24	132.24	132.24	132.24
22.700	132.24	132.24	132.24	132.24	132.24
22.725	132.24	132.24	132.24	132.24	132.24
22.750	132.24	132.24	132.24	132.24	132.24
22.775	132.24	132.24	132.24	132.24	132.24
22.800	132.24	132.24	132.24	132.24	132.24
22.825	132.24	132.24	132.24	132.24	132.24
22.850	132.24	132.24	132.24	132.24	132.24
22.875	132.24	132.24	132.24	132.24	132.24
22.900	132.24	132.24	132.24	132.24	132.24
22.925	132.24	132.24	132.24	132.24	132.24
22.950	132.24	132.24	132.24	132.24	132.24
22.975	132.24	132.24	132.24	132.24	132.24
23.000	132.24	132.24	132.24	132.24	132.24
23.025	132.24	132.24	132.24	132.24	132.24
23.050	132.24	132.24	132.24	132.24	132.24
23.075	132.24	132.24	132.24	132.24	132.24
23.100	132.24	132.24	132.24	132.24	132.24
23.125	132.24	132.24	132.24	132.24	132.24
23.150	132.24	132.24	132.24	132.24	132.24
23.175	132.24	132.24	132.24	132.24	132.24
23.200	132.24	132.24	132.24	132.24	132.24
23.225	132.24	132.24	132.24	132.24	132.24
23.250	132.24	132.24	132.24	132.24	132.24
23.275	132.24	132.24	132.24	132.24	132.24
23.300	132.24	132.24	132.24	132.24	132.24
23.325	132.24	132.24	132.24	132.24	132.24
23.350	132.24	132.24	132.24	132.24	132.24
23.375	132.24	132.24	132.24	132.24	132.24
23.400	132.24	132.24	132.24	132.24	132.24
23.425	132.24	132.24	132.24	132.24	132.24
23.450	132.24	132.24	132.24	132.24	132.24
23.475	132.24	132.24	132.24	132.24	132.24
23.500	132.24	132.24	132.24	132.24	132.24
23.525	132.24	132.24	132.24	132.24	132.24
23.550	132.24	132.24	132.24	132.24	132.24
23.575	132.24	132.24	132.24	132.24	132.24
23.600	132.24	132.24	132.24	132.24	132.24
23.625	132.24	132.24	132.24	132.24	132.24

Subsection: Time vs. Elevation  
 Label: CO-89

Return Event: 10 years  
 Storm Event: 10 yr

**Time vs. Elevation (ft)**

**Output Time increment = 0.005 hours**  
**Time on left represents time for first value in each row.**

Time (hours)	Elevation (ft)	Elevation (ft)	Elevation (ft)	Elevation (ft)	Elevation (ft)
23.650	132.24	132.24	132.24	132.24	132.24
23.675	132.24	132.24	132.24	132.24	132.24
23.700	132.24	132.24	132.24	132.24	132.24
23.725	132.24	132.24	132.24	132.24	132.24
23.750	132.24	132.24	132.24	132.24	132.24
23.775	132.24	132.24	132.24	132.24	132.24
23.800	132.24	132.24	132.24	132.24	132.24
23.825	132.24	132.24	132.24	132.24	132.23
23.850	132.23	132.23	132.23	132.23	132.23
23.875	132.23	132.23	132.23	132.23	132.23
23.900	132.23	132.23	132.23	132.23	132.23
23.925	132.23	132.23	132.23	132.23	132.23
23.950	132.23	132.23	132.23	132.23	132.23
23.975	132.23	132.23	132.23	132.23	132.23
24.000	132.23	(N/A)	(N/A)	(N/A)	(N/A)

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Subsection: Master Network Summary

**Catchments Summary**

Label	Scenario	Return Event (years)	Hydrograph Volume (ac-ft)	Time to Peak (hours)	Peak Flow (ft <sup>3</sup> /s)
CM-10	Base	25	0.297	11.940	5.42
CM-11	Base	25	0.115	11.925	2.17
CM-12	Base	25	0.108	11.935	1.98
CM-13	Base	25	0.247	12.010	3.98
CM-14	Base	25	1.421	12.010	23.07
CM-16	Base	25	0.066	11.935	1.22
CM-17	Base	25	0.160	12.120	1.81
CM-18	Base	25	0.507	11.995	8.40
CM-19	Base	25	0.116	11.995	1.92
CM-2	Base	25	0.059	11.925	1.11
CM-21	Base	25	0.192	12.005	3.11
CM-29	Base	25	1.358	12.050	19.96
CM-3	Base	25	0.143	11.930	2.68
CM-5	Base	25	0.044	11.930	0.83
CM-6	Base	25	0.103	11.970	1.76
CM-7	Base	25	0.487	12.030	7.45
CM-8	Base	25	0.085	11.960	1.47
CM-9	Base	25	0.092	12.000	1.49

**Node Summary**

Label	Scenario	Return Event (years)	Hydrograph Volume (ac-ft)	Time to Peak (hours)	Peak Flow (ft <sup>3</sup> /s)
J-10	Base	25	0.059	11.925	1.11
J-129	Base	25	1.358	12.050	19.96
J-13	Base	25	0.202	11.925	3.79
J-17	Base	25	0.044	11.930	0.83
J-18	Base	25	0.044	11.930	0.83
J-19	Base	25	0.103	11.970	1.76
J-20	Base	25	0.103	11.970	1.76
J-21	Base	25	1.058	12.010	16.22
J-27	Base	25	0.085	11.960	1.47
J-28	Base	25	0.085	11.960	1.47
J-31	Base	25	0.092	12.000	1.49
J-32	Base	25	0.092	12.000	1.49
J-33	Base	25	0.474	11.950	8.19
J-35	Base	25	0.202	11.925	3.79
J-36	Base	25	0.317	11.925	5.97
J-39	Base	25	0.634	12.025	9.75
J-4	Base	25	0.059	11.925	1.11
J-41	Base	25	0.247	12.010	3.98
J-42	Base	25	0.247	12.010	3.98
J-43	Base	25	1.668	12.010	27.05
J-52	Base	25	0.066	11.935	1.22

Subsection: Master Network Summary

**Node Summary**

Label	Scenario	Return Event (years)	Hydrograph Volume (ac-ft)	Time to Peak (hours)	Peak Flow (ft <sup>3</sup> /s)
J-53	Base	25	0.066	11.935	1.22
J-59	Base	25	0.507	11.995	8.40
J-60	Base	25	0.506	12.000	8.36
J-62	Base	25	0.622	12.000	10.28
J-64	Base	25	0.192	12.020	3.08
J-66	Base	25	0.192	12.005	3.11
O-10	Base	25	0.192	12.020	3.08
O-12	Base	25	0.474	11.950	8.19
O-13	Base	25	1.668	12.010	27.05
O-14	Base	25	1.356	12.055	19.84
O-5	Base	25	1.058	12.010	16.22
O-8	Base	25	0.226	12.025	2.48
O-9	Base	25	0.622	12.000	10.28

## Subsection: Unit Hydrograph Equations

### Unit Hydrograph Method (Computational Notes)

#### Definition of Terms

At	Total area (acres): $A_t = A_i + A_p$
Ai	Impervious area (acres)
Ap	Pervious area (acres)
CNi	Runoff curve number for impervious area
CNp	Runoff curve number for pervious area
fLoss	f loss constant infiltration (depth/time)
gKs	Saturated Hydraulic Conductivity (depth/time)
Md	Volumetric Moisture Deficit
Psi	Capillary Suction (length)
hK	Horton Infiltration Decay Rate ( $\text{time}^{-1}$ )
fo	Initial Infiltration Rate (depth/time)
fc	Ultimate(capacity) Infiltration Rate (depth/time)
la	Initial Abstraction (length)
dt	Computational increment (duration of unit excess rainfall) Default dt is smallest value of $0.1333T_c$ , $r_{tm}$ , and $t_h$ (Smallest dt is then adjusted to match up with $T_p$ )
UDdt	User specified override computational main time increment (only used if UDdt is $\Rightarrow .1333T_c$ )
D(t)	Point on distribution curve (fraction of P) for time step t
K	$2 / (1 + (T_r/T_p))$ : default K = 0.75: (for $T_r/T_p = 1.67$ )
Ks	Hydrograph shape factor = Unit Conversions * K: = $((1\text{hr}/3600\text{sec}) * (1\text{ft}/12\text{in}) * ((5280\text{ft})^2/\text{sq.mi})) * K$ Default $K_s = 645.333 * 0.75 = 484$
Lag	Lag time from center of excess runoff (dt) to $T_p$ : $\text{Lag} = 0.6T_c$
P	Total precipitation depth, inches
Pa(t)	Accumulated rainfall at time step t
Pi(t)	Incremental rainfall at time step t
qp	Peak discharge (cfs) for 1in. runoff, for 1hr, for 1 sq.mi. = $(K_s * A * Q) / T_p$ (where $Q = 1\text{in. runoff}$ , $A = \text{sq.mi.}$ )
Qu(t)	Unit hydrograph ordinate (cfs) at time step t
Q(t)	Final hydrograph ordinate (cfs) at time step t
Rai(t)	Accumulated runoff (inches) at time step t for impervious area
Rap(t)	Accumulated runoff (inches) at time step t for pervious area
Rii(t)	Incremental runoff (inches) at time step t for impervious area
Rip(t)	Incremental runoff (inches) at time step t for pervious area
R(t)	Incremental weighted total runoff (inches)
Rtm	Time increment for rainfall table
Si	S for impervious area: $S_i = (1000/CNi) - 10$
Sp	S for pervious area: $S_p = (1000/CNp) - 10$
t	Time step (row) number
Tc	Time of concentration
Tb	Time (hrs) of entire unit hydrograph: $T_b = T_p + T_r$
Tp	Time (hrs) to peak of a unit hydrograph: $T_p = (dt/2) + \text{Lag}$
Tr	Time (hrs) of receding limb of unit hydrograph: $T_r = \text{ratio of } T_p$

Subsection: Unit Hydrograph Equations

## Unit Hydrograph Method

### Computational Notes

#### Precipitation

Column (1)	Time for time step t
Column (2)	$D(t)$ = Point on distribution curve for time step t
Column (3)	$P_i(t) = P_a(t) - P_a(t-1)$ : Col.(4) - Preceding Col.(4)
Column (4)	$P_a(t) = D(t) \times P$ : Col.(2) x P

#### Pervious Area Runoff (using SCS Runoff CN Method)

Column (5)	$R_{ap}(t)$ = Accumulated pervious runoff for time step t If $(P_a(t))$ is $\leq 0.2S_p$ then use: $R_{ap}(t) = 0.0$ If $(P_a(t))$ is $> 0.2S_p$ then use:  $R_{ap}(t) = (Col.(4) - 0.2S_p)^{**2} / (Col.(4) + 0.8S_p)$
Column (6)	$R_{ip}(t)$ = Incremental pervious runoff for time step t $R_{ip}(t) = R_{ap}(t) - R_{ap}(t-1)$ $R_{ip}(t) = Col.(5)$ for current row - $Col.(5)$ for preceding row.

#### Impervious Area Runoff

Column (7 & 8)...	Did not specify to use impervious areas.
-------------------	--

#### Incremental Weighted Runoff

Column (9)	$R(t) = (A_p/A_t) \times R_{ip}(t) + (A_i/A_t) \times R_{ii}(t)$ $R(t) = (A_p/A_t) \times Col.(6) + (A_i/A_t) \times Col.(8)$
------------	--

#### SCS Unit Hydrograph Method

Column (10)	$Q(t)$ is computed with the SCS unit hydrograph method using $R(t)$ and $Q_u(t)$ .
-------------	--

Subsection: Unit Hydrograph Summary  
 Label: CM-10

Return Event: 25 years  
 Storm Event: 25 yr

Storm Event	25 yr
Return Event	25 years
Duration	24.000 hours
Depth	6.5 in
Time of Concentration (Composite)	0.101 hours
Scaled Area	1.148 acres

Computational Time Increment	0.013 hours
Time to Peak (Computed)	11.940 hours
Flow (Peak, Computed)	5.42 ft <sup>3</sup> /s
Output Increment	0.005 hours
Time to Flow (Peak Interpolated Output)	11.940 hours
Flow (Peak Interpolated Output)	5.42 ft <sup>3</sup> /s

<b>Drainage Area</b>	
SCS CN (Composite)	69.000
Scaled Area	1.148 acres
Maximum Retention (Pervious)	4.5 in
Maximum Retention (Pervious, 20 percent)	0.9 in

<b>Cumulative Runoff</b>	
Cumulative Runoff Depth (Pervious)	3.1 in
Runoff Volume (Pervious)	0.297 ac-ft

<b>Hydrograph Volume (Area under Hydrograph curve)</b>	
Volume	0.297 ac-ft

<b>SCS Unit Hydrograph Parameters</b>	
Time of Concentration (Composite)	0.101 hours
Computational Time Increment	0.013 hours
Unit Hydrograph Shape Factor	483.432
K Factor	0.749
Receding/Rising, Tr/Tp	1.670
Unit peak, qp	12.90 ft <sup>3</sup> /s
Unit peak time, Tp	0.067 hours

Subsection: Unit Hydrograph Summary  
Label: CM-10

Return Event: 25 years  
Storm Event: 25 yr

---

SCS Unit Hydrograph Parameters

---

Unit receding limb, Tr	0.269 hours
Total unit time, Tb	0.336 hours

---



Subsection: Unit Hydrograph Summary  
 Label: CM-11

Return Event: 25 years  
 Storm Event: 25 yr

Storm Event	25 yr
Return Event	25 years
Duration	24.000 hours
Depth	6.5 in
Time of Concentration (Composite)	0.083 hours
Scaled Area	0.445 acres

Computational Time Increment	0.011 hours
Time to Peak (Computed)	11.922 hours
Flow (Peak, Computed)	2.18 ft <sup>3</sup> /s
Output Increment	0.005 hours
Time to Flow (Peak Interpolated Output)	11.925 hours
Flow (Peak Interpolated Output)	2.17 ft <sup>3</sup> /s

<b>Drainage Area</b>	
SCS CN (Composite)	69.000
Scaled Area	0.445 acres
Maximum Retention (Pervious)	4.5 in
Maximum Retention (Pervious, 20 percent)	0.9 in

<b>Cumulative Runoff</b>	
Cumulative Runoff Depth (Pervious)	3.1 in
Runoff Volume (Pervious)	0.115 ac-ft

<b>Hydrograph Volume (Area under Hydrograph curve)</b>	
Volume	0.115 ac-ft

<b>SCS Unit Hydrograph Parameters</b>	
Time of Concentration (Composite)	0.083 hours
Computational Time Increment	0.011 hours
Unit Hydrograph Shape Factor	483.432
K Factor	0.749
Receding/Rising, Tr/Tp	1.670
Unit peak, qp	6.05 ft <sup>3</sup> /s
Unit peak time, Tp	0.056 hours

Subsection: Unit Hydrograph Summary  
Label: CM-11

Return Event: 25 years  
Storm Event: 25 yr

---

SCS Unit Hydrograph Parameters

---

Unit receding limb, Tr	0.222 hours
Total unit time, Tb	0.278 hours

---

Subsection: Unit Hydrograph Summary  
 Label: CM-12

Return Event: 25 years  
 Storm Event: 25 yr

Storm Event	25 yr
Return Event	25 years
Duration	24.000 hours
Depth	6.5 in
Time of Concentration (Composite)	0.096 hours
Scaled Area	0.416 acres

Computational Time Increment	0.013 hours
Time to Peak (Computed)	11.936 hours
Flow (Peak, Computed)	1.99 ft <sup>3</sup> /s
Output Increment	0.005 hours
Time to Flow (Peak Interpolated Output)	11.935 hours
Flow (Peak Interpolated Output)	1.98 ft <sup>3</sup> /s

<b>Drainage Area</b>	
SCS CN (Composite)	69.000
Scaled Area	0.416 acres
Maximum Retention (Pervious)	4.5 in
Maximum Retention (Pervious, 20 percent)	0.9 in

<b>Cumulative Runoff</b>	
Cumulative Runoff Depth (Pervious)	3.1 in
Runoff Volume (Pervious)	0.108 ac-ft

<b>Hydrograph Volume (Area under Hydrograph curve)</b>	
Volume	0.108 ac-ft

<b>SCS Unit Hydrograph Parameters</b>	
Time of Concentration (Composite)	0.096 hours
Computational Time Increment	0.013 hours
Unit Hydrograph Shape Factor	483.432
K Factor	0.749
Receding/Rising, Tr/Tp	1.670
Unit peak, qp	4.93 ft <sup>3</sup> /s
Unit peak time, Tp	0.064 hours

Subsection: Unit Hydrograph Summary  
Label: CM-12

Return Event: 25 years  
Storm Event: 25 yr

---

SCS Unit Hydrograph Parameters

---

Unit receding limb, Tr	0.255 hours
Total unit time, Tb	0.319 hours

---

Subsection: Unit Hydrograph Summary  
 Label: CM-13

Return Event: 25 years  
 Storm Event: 25 yr

Storm Event	25 yr
Return Event	25 years
Duration	24.000 hours
Depth	6.5 in
Time of Concentration (Composite)	0.182 hours
Scaled Area	0.955 acres

Computational Time Increment	0.024 hours
Time to Peak (Computed)	12.012 hours
Flow (Peak, Computed)	3.98 ft <sup>3</sup> /s
Output Increment	0.005 hours
Time to Flow (Peak Interpolated Output)	12.010 hours
Flow (Peak Interpolated Output)	3.98 ft <sup>3</sup> /s

<b>Drainage Area</b>	
SCS CN (Composite)	69.000
Scaled Area	0.955 acres
Maximum Retention (Pervious)	4.5 in
Maximum Retention (Pervious, 20 percent)	0.9 in

<b>Cumulative Runoff</b>	
Cumulative Runoff Depth (Pervious)	3.1 in
Runoff Volume (Pervious)	0.247 ac-ft

<b>Hydrograph Volume (Area under Hydrograph curve)</b>	
Volume	0.247 ac-ft

<b>SCS Unit Hydrograph Parameters</b>	
Time of Concentration (Composite)	0.182 hours
Computational Time Increment	0.024 hours
Unit Hydrograph Shape Factor	483.432
K Factor	0.749
Receding/Rising, Tr/Tp	1.670
Unit peak, qp	5.94 ft <sup>3</sup> /s
Unit peak time, Tp	0.121 hours

Subsection: Unit Hydrograph Summary  
Label: CM-13

Return Event: 25 years  
Storm Event: 25 yr

---

SCS Unit Hydrograph Parameters

---

Unit receding limb, Tr	0.485 hours
Total unit time, Tb	0.607 hours

---

Subsection: Unit Hydrograph Summary  
 Label: CM-14

Return Event: 25 years  
 Storm Event: 25 yr

Storm Event	25 yr
Return Event	25 years
Duration	24.000 hours
Depth	6.5 in
Time of Concentration (Composite)	0.177 hours
Scaled Area	5.502 acres

Computational Time Increment	0.024 hours
Time to Peak (Computed)	12.009 hours
Flow (Peak, Computed)	23.09 ft <sup>3</sup> /s
Output Increment	0.005 hours
Time to Flow (Peak Interpolated Output)	12.010 hours
Flow (Peak Interpolated Output)	23.07 ft <sup>3</sup> /s

<b>Drainage Area</b>	
SCS CN (Composite)	69.000
Scaled Area	5.502 acres
Maximum Retention (Pervious)	4.5 in
Maximum Retention (Pervious, 20 percent)	0.9 in

<b>Cumulative Runoff</b>	
Cumulative Runoff Depth (Pervious)	3.1 in
Runoff Volume (Pervious)	1.425 ac-ft

<b>Hydrograph Volume (Area under Hydrograph curve)</b>	
Volume	1.421 ac-ft

<b>SCS Unit Hydrograph Parameters</b>	
Time of Concentration (Composite)	0.177 hours
Computational Time Increment	0.024 hours
Unit Hydrograph Shape Factor	483.432
K Factor	0.749
Receding/Rising, Tr/Tp	1.670
Unit peak, qp	35.23 ft <sup>3</sup> /s
Unit peak time, Tp	0.118 hours

Subsection: Unit Hydrograph Summary  
Label: CM-14

Return Event: 25 years  
Storm Event: 25 yr

---

SCS Unit Hydrograph Parameters

---

Unit receding limb, Tr	0.472 hours
Total unit time, Tb	0.590 hours

---



Subsection: Unit Hydrograph Summary  
 Label: CM-16

Return Event: 25 years  
 Storm Event: 25 yr

Storm Event	25 yr
Return Event	25 years
Duration	24.000 hours
Depth	6.5 in
Time of Concentration (Composite)	0.093 hours
Scaled Area	0.255 acres

Computational Time Increment	0.012 hours
Time to Peak (Computed)	11.936 hours
Flow (Peak, Computed)	1.22 ft <sup>3</sup> /s
Output Increment	0.005 hours
Time to Flow (Peak Interpolated Output)	11.935 hours
Flow (Peak Interpolated Output)	1.22 ft <sup>3</sup> /s

<b>Drainage Area</b>	
SCS CN (Composite)	69.000
Scaled Area	0.255 acres
Maximum Retention (Pervious)	4.5 in
Maximum Retention (Pervious, 20 percent)	0.9 in

<b>Cumulative Runoff</b>	
Cumulative Runoff Depth (Pervious)	3.1 in
Runoff Volume (Pervious)	0.066 ac-ft

<b>Hydrograph Volume (Area under Hydrograph curve)</b>	
Volume	0.066 ac-ft

<b>SCS Unit Hydrograph Parameters</b>	
Time of Concentration (Composite)	0.093 hours
Computational Time Increment	0.012 hours
Unit Hydrograph Shape Factor	483.432
K Factor	0.749
Receding/Rising, Tr/Tp	1.670
Unit peak, qp	3.09 ft <sup>3</sup> /s
Unit peak time, Tp	0.062 hours

Subsection: Unit Hydrograph Summary  
Label: CM-16

Return Event: 25 years  
Storm Event: 25 yr

---

SCS Unit Hydrograph Parameters

---

Unit receding limb, Tr	0.249 hours
Total unit time, Tb	0.311 hours

---

Subsection: Unit Hydrograph Summary  
 Label: CM-17

Return Event: 25 years  
 Storm Event: 25 yr

Storm Event	25 yr
Return Event	25 years
Duration	24.000 hours
Depth	6.5 in
Time of Concentration (Composite)	0.417 hours
Scaled Area	0.622 acres

Computational Time Increment	0.056 hours
Time to Peak (Computed)	12.116 hours
Flow (Peak, Computed)	1.81 ft <sup>3</sup> /s
Output Increment	0.005 hours
Time to Flow (Peak Interpolated Output)	12.120 hours
Flow (Peak Interpolated Output)	1.81 ft <sup>3</sup> /s

<b>Drainage Area</b>	
SCS CN (Composite)	69.000
Scaled Area	0.622 acres
Maximum Retention (Pervious)	4.5 in
Maximum Retention (Pervious, 20 percent)	0.9 in

<b>Cumulative Runoff</b>	
Cumulative Runoff Depth (Pervious)	3.1 in
Runoff Volume (Pervious)	0.161 ac-ft

<b>Hydrograph Volume (Area under Hydrograph curve)</b>	
Volume	0.160 ac-ft

<b>SCS Unit Hydrograph Parameters</b>	
Time of Concentration (Composite)	0.417 hours
Computational Time Increment	0.056 hours
Unit Hydrograph Shape Factor	483.432
K Factor	0.749
Receding/Rising, Tr/Tp	1.670
Unit peak, qp	1.69 ft <sup>3</sup> /s
Unit peak time, Tp	0.278 hours

Subsection: Unit Hydrograph Summary  
Label: CM-17

Return Event: 25 years  
Storm Event: 25 yr

---

SCS Unit Hydrograph Parameters

---

Unit receding limb, Tr	1.112 hours
Total unit time, Tb	1.389 hours

---

Subsection: Unit Hydrograph Summary  
 Label: CM-18

Return Event: 25 years  
 Storm Event: 25 yr

Storm Event	25 yr
Return Event	25 years
Duration	24.000 hours
Depth	6.5 in
Time of Concentration (Composite)	0.163 hours
Scaled Area	1.960 acres

Computational Time Increment	0.022 hours
Time to Peak (Computed)	11.996 hours
Flow (Peak, Computed)	8.40 ft <sup>3</sup> /s
Output Increment	0.005 hours
Time to Flow (Peak Interpolated Output)	11.995 hours
Flow (Peak Interpolated Output)	8.40 ft <sup>3</sup> /s

<b>Drainage Area</b>	
SCS CN (Composite)	69.000
Scaled Area	1.960 acres
Maximum Retention (Pervious)	4.5 in
Maximum Retention (Pervious, 20 percent)	0.9 in

<b>Cumulative Runoff</b>	
Cumulative Runoff Depth (Pervious)	3.1 in
Runoff Volume (Pervious)	0.508 ac-ft

<b>Hydrograph Volume (Area under Hydrograph curve)</b>	
Volume	0.507 ac-ft

<b>SCS Unit Hydrograph Parameters</b>	
Time of Concentration (Composite)	0.163 hours
Computational Time Increment	0.022 hours
Unit Hydrograph Shape Factor	483.432
K Factor	0.749
Receding/Rising, Tr/Tp	1.670
Unit peak, qp	13.65 ft <sup>3</sup> /s
Unit peak time, Tp	0.108 hours

Subsection: Unit Hydrograph Summary  
Label: CM-18

Return Event: 25 years  
Storm Event: 25 yr

---

SCS Unit Hydrograph Parameters

---

Unit receding limb, Tr	0.434 hours
Total unit time, Tb	0.542 hours

---

Subsection: Unit Hydrograph Summary  
 Label: CM-19

Return Event: 25 years  
 Storm Event: 25 yr

Storm Event	25 yr
Return Event	25 years
Duration	24.000 hours
Depth	6.5 in
Time of Concentration (Composite)	0.163 hours
Scaled Area	0.449 acres

Computational Time Increment	0.022 hours
Time to Peak (Computed)	11.996 hours
Flow (Peak, Computed)	1.92 ft <sup>3</sup> /s
Output Increment	0.005 hours
Time to Flow (Peak Interpolated Output)	11.995 hours
Flow (Peak Interpolated Output)	1.92 ft <sup>3</sup> /s

<b>Drainage Area</b>	
SCS CN (Composite)	69.000
Scaled Area	0.449 acres
Maximum Retention (Pervious)	4.5 in
Maximum Retention (Pervious, 20 percent)	0.9 in

<b>Cumulative Runoff</b>	
Cumulative Runoff Depth (Pervious)	3.1 in
Runoff Volume (Pervious)	0.116 ac-ft

<b>Hydrograph Volume (Area under Hydrograph curve)</b>	
Volume	0.116 ac-ft

<b>SCS Unit Hydrograph Parameters</b>	
Time of Concentration (Composite)	0.163 hours
Computational Time Increment	0.022 hours
Unit Hydrograph Shape Factor	483.432
K Factor	0.749
Receding/Rising, Tr/Tp	1.670
Unit peak, qp	3.13 ft <sup>3</sup> /s
Unit peak time, Tp	0.108 hours

Subsection: Unit Hydrograph Summary  
Label: CM-19

Return Event: 25 years  
Storm Event: 25 yr

---

SCS Unit Hydrograph Parameters

---

Unit receding limb, Tr	0.434 hours
Total unit time, Tb	0.542 hours

---



Subsection: Unit Hydrograph Summary  
 Label: CM-2

Return Event: 25 years  
 Storm Event: 25 yr

Storm Event	25 yr
Return Event	25 years
Duration	24.000 hours
Depth	6.5 in
Time of Concentration (Composite)	0.083 hours
Scaled Area	0.227 acres

Computational Time Increment	0.011 hours
Time to Peak (Computed)	11.922 hours
Flow (Peak, Computed)	1.11 ft <sup>3</sup> /s
Output Increment	0.005 hours
Time to Flow (Peak Interpolated Output)	11.925 hours
Flow (Peak Interpolated Output)	1.11 ft <sup>3</sup> /s

<b>Drainage Area</b>	
SCS CN (Composite)	69.000
Scaled Area	0.227 acres
Maximum Retention (Pervious)	4.5 in
Maximum Retention (Pervious, 20 percent)	0.9 in

<b>Cumulative Runoff</b>	
Cumulative Runoff Depth (Pervious)	3.1 in
Runoff Volume (Pervious)	0.059 ac-ft

<b>Hydrograph Volume (Area under Hydrograph curve)</b>	
Volume	0.059 ac-ft

<b>SCS Unit Hydrograph Parameters</b>	
Time of Concentration (Composite)	0.083 hours
Computational Time Increment	0.011 hours
Unit Hydrograph Shape Factor	483.432
K Factor	0.749
Receding/Rising, Tr/Tp	1.670
Unit peak, qp	3.09 ft <sup>3</sup> /s
Unit peak time, Tp	0.056 hours

Subsection: Unit Hydrograph Summary  
Label: CM-2

Return Event: 25 years  
Storm Event: 25 yr

---

SCS Unit Hydrograph Parameters

---

Unit receding limb, Tr	0.222 hours
Total unit time, Tb	0.278 hours

---

Subsection: Unit Hydrograph Summary  
 Label: CM-21

Return Event: 25 years  
 Storm Event: 25 yr

Storm Event	25 yr
Return Event	25 years
Duration	24.000 hours
Depth	6.5 in
Time of Concentration (Composite)	0.182 hours
Scaled Area	0.744 acres

Computational Time Increment	0.024 hours
Time to Peak (Computed)	12.005 hours
Flow (Peak, Computed)	3.11 ft <sup>3</sup> /s
Output Increment	0.005 hours
Time to Flow (Peak Interpolated Output)	12.005 hours
Flow (Peak Interpolated Output)	3.11 ft <sup>3</sup> /s

<b>Drainage Area</b>	
SCS CN (Composite)	69.000
Scaled Area	0.744 acres
Maximum Retention (Pervious)	4.5 in
Maximum Retention (Pervious, 20 percent)	0.9 in

<b>Cumulative Runoff</b>	
Cumulative Runoff Depth (Pervious)	3.1 in
Runoff Volume (Pervious)	0.193 ac-ft

<b>Hydrograph Volume (Area under Hydrograph curve)</b>	
Volume	0.192 ac-ft

<b>SCS Unit Hydrograph Parameters</b>	
Time of Concentration (Composite)	0.182 hours
Computational Time Increment	0.024 hours
Unit Hydrograph Shape Factor	483.432
K Factor	0.749
Receding/Rising, Tr/Tp	1.670
Unit peak, qp	4.64 ft <sup>3</sup> /s
Unit peak time, Tp	0.121 hours

Subsection: Unit Hydrograph Summary  
Label: CM-21

Return Event: 25 years  
Storm Event: 25 yr

---

SCS Unit Hydrograph Parameters

---

Unit receding limb, Tr	0.485 hours
Total unit time, Tb	0.606 hours

---

Subsection: Unit Hydrograph Summary  
 Label: CM-29

Return Event: 25 years  
 Storm Event: 25 yr

Storm Event	25 yr
Return Event	25 years
Duration	24.000 hours
Depth	6.5 in
Time of Concentration (Composite)	0.244 hours
Scaled Area	5.261 acres

Computational Time Increment	0.032 hours
Time to Peak (Computed)	12.052 hours
Flow (Peak, Computed)	19.98 ft <sup>3</sup> /s
Output Increment	0.005 hours
Time to Flow (Peak Interpolated Output)	12.050 hours
Flow (Peak Interpolated Output)	19.96 ft <sup>3</sup> /s

<b>Drainage Area</b>	
SCS CN (Composite)	69.000
Scaled Area	5.261 acres
Maximum Retention (Pervious)	4.5 in
Maximum Retention (Pervious, 20 percent)	0.9 in

<b>Cumulative Runoff</b>	
Cumulative Runoff Depth (Pervious)	3.1 in
Runoff Volume (Pervious)	1.363 ac-ft

<b>Hydrograph Volume (Area under Hydrograph curve)</b>	
Volume	1.358 ac-ft

<b>SCS Unit Hydrograph Parameters</b>	
Time of Concentration (Composite)	0.244 hours
Computational Time Increment	0.032 hours
Unit Hydrograph Shape Factor	483.432
K Factor	0.749
Receding/Rising, Tr/Tp	1.670
Unit peak, qp	24.46 ft <sup>3</sup> /s
Unit peak time, Tp	0.162 hours

Subsection: Unit Hydrograph Summary  
Label: CM-29

Return Event: 25 years  
Storm Event: 25 yr

---

SCS Unit Hydrograph Parameters

---

Unit receding limb, Tr	0.650 hours
Total unit time, Tb	0.812 hours

---

Subsection: Unit Hydrograph Summary  
 Label: CM-3

Return Event: 25 years  
 Storm Event: 25 yr

Storm Event	25 yr
Return Event	25 years
Duration	24.000 hours
Depth	6.5 in
Time of Concentration (Composite)	0.086 hours
Scaled Area	0.553 acres

Computational Time Increment	0.012 hours
Time to Peak (Computed)	11.928 hours
Flow (Peak, Computed)	2.69 ft <sup>3</sup> /s
Output Increment	0.005 hours
Time to Flow (Peak Interpolated Output)	11.930 hours
Flow (Peak Interpolated Output)	2.68 ft <sup>3</sup> /s

<b>Drainage Area</b>	
SCS CN (Composite)	69.000
Scaled Area	0.553 acres
Maximum Retention (Pervious)	4.5 in
Maximum Retention (Pervious, 20 percent)	0.9 in

<b>Cumulative Runoff</b>	
Cumulative Runoff Depth (Pervious)	3.1 in
Runoff Volume (Pervious)	0.143 ac-ft

<b>Hydrograph Volume (Area under Hydrograph curve)</b>	
Volume	0.143 ac-ft

<b>SCS Unit Hydrograph Parameters</b>	
Time of Concentration (Composite)	0.086 hours
Computational Time Increment	0.012 hours
Unit Hydrograph Shape Factor	483.432
K Factor	0.749
Receding/Rising, Tr/Tp	1.670
Unit peak, qp	7.26 ft <sup>3</sup> /s
Unit peak time, Tp	0.058 hours

Subsection: Unit Hydrograph Summary  
Label: CM-3

Return Event: 25 years  
Storm Event: 25 yr

---

SCS Unit Hydrograph Parameters

---

Unit receding limb, Tr	0.230 hours
Total unit time, Tb	0.288 hours

---



Subsection: Unit Hydrograph Summary  
 Label: CM-5

Return Event: 25 years  
 Storm Event: 25 yr

Storm Event	25 yr
Return Event	25 years
Duration	24.000 hours
Depth	6.5 in
Time of Concentration (Composite)	0.089 hours
Scaled Area	0.171 acres

Computational Time Increment	0.012 hours
Time to Peak (Computed)	11.929 hours
Flow (Peak, Computed)	0.83 ft <sup>3</sup> /s
Output Increment	0.005 hours
Time to Flow (Peak Interpolated Output)	11.930 hours
Flow (Peak Interpolated Output)	0.83 ft <sup>3</sup> /s

<b>Drainage Area</b>	
SCS CN (Composite)	69.000
Scaled Area	0.171 acres
Maximum Retention (Pervious)	4.5 in
Maximum Retention (Pervious, 20 percent)	0.9 in

<b>Cumulative Runoff</b>	
Cumulative Runoff Depth (Pervious)	3.1 in
Runoff Volume (Pervious)	0.044 ac-ft

<b>Hydrograph Volume (Area under Hydrograph curve)</b>	
Volume	0.044 ac-ft

<b>SCS Unit Hydrograph Parameters</b>	
Time of Concentration (Composite)	0.089 hours
Computational Time Increment	0.012 hours
Unit Hydrograph Shape Factor	483.432
K Factor	0.749
Receding/Rising, Tr/Tp	1.670
Unit peak, qp	2.18 ft <sup>3</sup> /s
Unit peak time, Tp	0.059 hours

Subsection: Unit Hydrograph Summary  
Label: CM-5

Return Event: 25 years  
Storm Event: 25 yr

---

SCS Unit Hydrograph Parameters

---

Unit receding limb, Tr	0.237 hours
Total unit time, Tb	0.296 hours

---

Subsection: Unit Hydrograph Summary  
 Label: CM-6

Return Event: 25 years  
 Storm Event: 25 yr

Storm Event	25 yr
Return Event	25 years
Duration	24.000 hours
Depth	6.5 in
Time of Concentration (Composite)	0.142 hours
Scaled Area	0.399 acres

Computational Time Increment	0.019 hours
Time to Peak (Computed)	11.967 hours
Flow (Peak, Computed)	1.76 ft <sup>3</sup> /s
Output Increment	0.005 hours
Time to Flow (Peak Interpolated Output)	11.970 hours
Flow (Peak Interpolated Output)	1.76 ft <sup>3</sup> /s

<b>Drainage Area</b>	
SCS CN (Composite)	69.000
Scaled Area	0.399 acres
Maximum Retention (Pervious)	4.5 in
Maximum Retention (Pervious, 20 percent)	0.9 in

<b>Cumulative Runoff</b>	
Cumulative Runoff Depth (Pervious)	3.1 in
Runoff Volume (Pervious)	0.103 ac-ft

<b>Hydrograph Volume (Area under Hydrograph curve)</b>	
Volume	0.103 ac-ft

<b>SCS Unit Hydrograph Parameters</b>	
Time of Concentration (Composite)	0.142 hours
Computational Time Increment	0.019 hours
Unit Hydrograph Shape Factor	483.432
K Factor	0.749
Receding/Rising, Tr/Tp	1.670
Unit peak, qp	3.19 ft <sup>3</sup> /s
Unit peak time, Tp	0.095 hours

Subsection: Unit Hydrograph Summary  
Label: CM-6

Return Event: 25 years  
Storm Event: 25 yr

---

SCS Unit Hydrograph Parameters	
Unit receding limb, Tr	0.378 hours
Total unit time, Tb	0.473 hours

---

Subsection: Unit Hydrograph Summary  
 Label: CM-7

Return Event: 25 years  
 Storm Event: 25 yr

Storm Event	25 yr
Return Event	25 years
Duration	24.000 hours
Depth	6.5 in
Time of Concentration (Composite)	0.222 hours
Scaled Area	1.886 acres

Computational Time Increment	0.030 hours
Time to Peak (Computed)	12.030 hours
Flow (Peak, Computed)	7.45 ft <sup>3</sup> /s
Output Increment	0.005 hours
Time to Flow (Peak Interpolated Output)	12.030 hours
Flow (Peak Interpolated Output)	7.45 ft <sup>3</sup> /s

<b>Drainage Area</b>	
SCS CN (Composite)	69.000
Scaled Area	1.886 acres
Maximum Retention (Pervious)	4.5 in
Maximum Retention (Pervious, 20 percent)	0.9 in

<b>Cumulative Runoff</b>	
Cumulative Runoff Depth (Pervious)	3.1 in
Runoff Volume (Pervious)	0.489 ac-ft

<b>Hydrograph Volume (Area under Hydrograph curve)</b>	
Volume	0.487 ac-ft

<b>SCS Unit Hydrograph Parameters</b>	
Time of Concentration (Composite)	0.222 hours
Computational Time Increment	0.030 hours
Unit Hydrograph Shape Factor	483.432
K Factor	0.749
Receding/Rising, Tr/Tp	1.670
Unit peak, qp	9.64 ft <sup>3</sup> /s
Unit peak time, Tp	0.148 hours

Subsection: Unit Hydrograph Summary  
Label: CM-7

Return Event: 25 years  
Storm Event: 25 yr

---

SCS Unit Hydrograph Parameters

---

Unit receding limb, Tr	0.591 hours
Total unit time, Tb	0.739 hours

---

Subsection: Unit Hydrograph Summary  
 Label: CM-8

Return Event: 25 years  
 Storm Event: 25 yr

Storm Event	25 yr
Return Event	25 years
Duration	24.000 hours
Depth	6.5 in
Time of Concentration (Composite)	0.129 hours
Scaled Area	0.327 acres

Computational Time Increment	0.017 hours
Time to Peak (Computed)	11.960 hours
Flow (Peak, Computed)	1.47 ft <sup>3</sup> /s
Output Increment	0.005 hours
Time to Flow (Peak Interpolated Output)	11.960 hours
Flow (Peak Interpolated Output)	1.47 ft <sup>3</sup> /s

<b>Drainage Area</b>	
SCS CN (Composite)	69.000
Scaled Area	0.327 acres
Maximum Retention (Pervious)	4.5 in
Maximum Retention (Pervious, 20 percent)	0.9 in

<b>Cumulative Runoff</b>	
Cumulative Runoff Depth (Pervious)	3.1 in
Runoff Volume (Pervious)	0.085 ac-ft

<b>Hydrograph Volume (Area under Hydrograph curve)</b>	
Volume	0.085 ac-ft

<b>SCS Unit Hydrograph Parameters</b>	
Time of Concentration (Composite)	0.129 hours
Computational Time Increment	0.017 hours
Unit Hydrograph Shape Factor	483.432
K Factor	0.749
Receding/Rising, Tr/Tp	1.670
Unit peak, qp	2.86 ft <sup>3</sup> /s
Unit peak time, Tp	0.086 hours

Subsection: Unit Hydrograph Summary  
Label: CM-8

Return Event: 25 years  
Storm Event: 25 yr

---

SCS Unit Hydrograph Parameters

---

Unit receding limb, Tr	0.345 hours
Total unit time, Tb	0.431 hours

---



Subsection: Unit Hydrograph Summary  
 Label: CM-9

Return Event: 25 years  
 Storm Event: 25 yr

Storm Event	25 yr
Return Event	25 years
Duration	24.000 hours
Depth	6.5 in
Time of Concentration (Composite)	0.180 hours
Scaled Area	0.357 acres

Computational Time Increment	0.024 hours
Time to Peak (Computed)	11.998 hours
Flow (Peak, Computed)	1.50 ft <sup>3</sup> /s
Output Increment	0.005 hours
Time to Flow (Peak Interpolated Output)	12.000 hours
Flow (Peak Interpolated Output)	1.49 ft <sup>3</sup> /s

<b>Drainage Area</b>	
SCS CN (Composite)	69.000
Scaled Area	0.357 acres
Maximum Retention (Pervious)	4.5 in
Maximum Retention (Pervious, 20 percent)	0.9 in

<b>Cumulative Runoff</b>	
Cumulative Runoff Depth (Pervious)	3.1 in
Runoff Volume (Pervious)	0.093 ac-ft

<b>Hydrograph Volume (Area under Hydrograph curve)</b>	
Volume	0.092 ac-ft

<b>SCS Unit Hydrograph Parameters</b>	
Time of Concentration (Composite)	0.180 hours
Computational Time Increment	0.024 hours
Unit Hydrograph Shape Factor	483.432
K Factor	0.749
Receding/Rising, Tr/Tp	1.670
Unit peak, qp	2.25 ft <sup>3</sup> /s
Unit peak time, Tp	0.120 hours

Subsection: Unit Hydrograph Summary  
Label: CM-9

Return Event: 25 years  
Storm Event: 25 yr

---

SCS Unit Hydrograph Parameters

---

Unit receding limb, Tr	0.480 hours
Total unit time, Tb	0.600 hours

---

**Solution to Manning's Open Channel Flow Equation  
 (Computed values are based on normal depth.)**

$$Q = (k/n) * A * (R^{**2/3}) * (S^{**1/2})$$

where:	English Units	SI units
Q = Channel Flow	cfs	cms
k = Manning's Constant	1.485919	1.0
n = Manning's n	no units	no units
R = Hydraulic radius, A/WP	feet	meter
A = X-section flow area	ft^2	m^2
WP = Wetted perimeter	feet	meter
S = Slope	ft/ft	m/m

**Additional Output Variables:**

$$Vel = Q/A$$

$$Hd = A/TpW$$

$$F = Vel / (g * Hd)^{**1/2}$$

where:	English Units	SI units
Q = Channel Flow	cfs	cms
k = Manning's Constant	1.485919	1.0
n = Manning's n	no units	no units
R = Hydraulic radius, A/WP	feet	meter
A = X-section flow area	ft^2	m^2
WP = Wetted perimeter	feet	meter
S = Slope	ft/ft	m/m

**Solution to Manning's Open Channel Flow Equation  
 (Computed values are based on normal depth.)**

$$Q = (k/n) * A * (R^{**2/3}) * (S^{**1/2})$$

where:	English Units	SI units
Q = Channel Flow	cfs	cms
k = Manning's Constant	1.485919	1.0
n = Manning's n	no units	no units
R = Hydraulic radius, A/WP	feet	meter
A = X-section flow area	ft^2	m^2
WP = Wetted perimeter	feet	meter
S = Slope	ft/ft	m/m

**Additional Output Variables:**

$$Vel = Q/A$$

$$Hd = A/TpW$$

$$F = Vel / (g * Hd)^{**1/2}$$

where:	English Units	SI units
Q = Channel Flow	cfs	cms
k = Manning's Constant	1.485919	1.0
n = Manning's n	no units	no units
R = Hydraulic radius, A/WP	feet	meter
A = X-section flow area	ft^2	m^2
WP = Wetted perimeter	feet	meter
S = Slope	ft/ft	m/m

**Solution to Manning's Open Channel Flow Equation  
 (Computed values are based on normal depth.)**

$$Q = (k/n) * A * (R^{**2/3}) * (S^{**1/2})$$

where:	English Units	SI units
Q = Channel Flow	cfs	cms
k = Manning's Constant	1.485919	1.0
n = Manning's n	no units	no units
R = Hydraulic radius, A/WP	feet	meter
A = X-section flow area	ft^2	m^2
WP = Wetted perimeter	feet	meter
S = Slope	ft/ft	m/m

**Additional Output Variables:**

$$Vel = Q/A$$

$$Hd = A/TpW$$

$$F = Vel / (g * Hd)^{**1/2}$$

where:	English Units	SI units
Q = Channel Flow	cfs	cms
k = Manning's Constant	1.485919	1.0
n = Manning's n	no units	no units
R = Hydraulic radius, A/WP	feet	meter
A = X-section flow area	ft^2	m^2
WP = Wetted perimeter	feet	meter
S = Slope	ft/ft	m/m

**Solution to Manning's Open Channel Flow Equation  
 (Computed values are based on normal depth.)**

$$Q = (k/n) * A * (R^{**2/3}) * (S^{**1/2})$$

where:	English Units	SI units
Q = Channel Flow	cfs	cms
k = Manning's Constant	1.485919	1.0
n = Manning's n	no units	no units
R = Hydraulic radius, A/WP	feet	meter
A = X-section flow area	ft^2	m^2
WP = Wetted perimeter	feet	meter
S = Slope	ft/ft	m/m

**Additional Output Variables:**

$$Vel = Q/A$$

$$Hd = A/TpW$$

$$F = Vel / (g * Hd)^{**1/2}$$

where:	English Units	SI units
Q = Channel Flow	cfs	cms
k = Manning's Constant	1.485919	1.0
n = Manning's n	no units	no units
R = Hydraulic radius, A/WP	feet	meter
A = X-section flow area	ft^2	m^2
WP = Wetted perimeter	feet	meter
S = Slope	ft/ft	m/m

Subsection: Elevation-Volume-Flow Table (Channel)  
 Label: CO-28

Return Event: 25 years  
 Storm Event: 25 yr

**Modified Puls Results Summary**

Length (Channel)	524.51 ft
Travel Time (Channel)	0.054 hours
Number of Sections	11
Length (Section)	47.68 ft
Flow (Weighted)	3.35 ft <sup>3</sup> /s
Overflow Channel	No Overflow Data
Elevation (Overflow)	132.00 ft

**Infiltration**

Infiltration Method (Computed)	No Infiltration
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**Initial Conditions**

Elevation (Starting Water Surface)	130.00 ft
Volume (Starting, per section)	0.000 ac-ft
Flow (Out Starting)	0.00 ft <sup>3</sup> /s
Infiltration (Starting, per section)	0.00 ft <sup>3</sup> /s
Flow (Total Out Starting)	0.00 ft <sup>3</sup> /s
Time Increment	0.005 hours

**Number of sections = 11  
 Storage, Area, Infiltration (per 47.68 ft section)**

Elevation (ft)	Outflow (ft <sup>3</sup> /s)	Storage (ac-ft)	Area (acres)	Infiltration (ft <sup>3</sup> /s)	Flow (Total) (ft <sup>3</sup> /s)	2S/t + O (ft <sup>3</sup> /s)
130.00	0.00	0.000	0.000	0.00	0.00	0.00
130.01	0.01	0.000	0.003	0.00	0.01	0.17
130.04	0.10	0.000	0.004	0.00	0.10	0.76
130.08	0.31	0.000	0.004	0.00	0.31	1.69
130.12	0.62	0.000	0.004	0.00	0.62	2.76
130.16	1.02	0.001	0.004	0.00	1.02	3.97
130.20	1.50	0.001	0.005	0.00	1.50	5.32
130.24	2.07	0.001	0.005	0.00	2.07	6.80
130.28	2.72	0.001	0.005	0.00	2.72	8.42
130.32	3.46	0.001	0.005	0.00	3.46	10.17
130.36	4.28	0.002	0.006	0.00	4.28	12.06
130.40	5.19	0.002	0.006	0.00	5.19	14.09
130.44	6.19	0.002	0.006	0.00	6.19	16.26
130.48	7.28	0.002	0.006	0.00	7.28	18.57
130.52	8.46	0.003	0.007	0.00	8.46	21.03
130.56	9.74	0.003	0.007	0.00	9.74	23.63
130.60	11.11	0.003	0.007	0.00	11.11	26.37
130.64	12.59	0.003	0.007	0.00	12.59	29.27

Subsection: Elevation-Volume-Flow Table (Channel)  
 Label: CO-28

Return Event: 25 years  
 Storm Event: 25 yr

**Number of sections = 11**  
**Storage, Area, Infiltration (per 47.68 ft section)**

Elevation (ft)	Outflow (ft <sup>3</sup> /s)	Storage (ac-ft)	Area (acres)	Infiltration (ft <sup>3</sup> /s)	Flow (Total) (ft <sup>3</sup> /s)	2S/t + O (ft <sup>3</sup> /s)
130.68	14.16	0.004	0.008	0.00	14.16	32.32
130.72	15.83	0.004	0.008	0.00	15.83	35.52
130.76	17.61	0.004	0.008	0.00	17.61	38.87
130.80	19.50	0.005	0.009	0.00	19.50	42.38
130.84	21.49	0.005	0.009	0.00	21.49	46.05
130.88	23.59	0.005	0.009	0.00	23.59	49.89
130.92	25.81	0.006	0.009	0.00	25.81	53.88
130.96	28.14	0.006	0.010	0.00	28.14	58.04
131.00	30.58	0.007	0.010	0.00	30.58	62.37
131.04	33.15	0.007	0.010	0.00	33.15	66.87
131.08	35.83	0.007	0.010	0.00	35.83	71.54
131.12	38.64	0.008	0.011	0.00	38.64	76.38
131.16	41.57	0.008	0.011	0.00	41.57	81.40
131.20	44.63	0.009	0.011	0.00	44.63	86.59
131.24	47.81	0.009	0.011	0.00	47.81	91.96
131.28	51.13	0.010	0.012	0.00	51.13	97.52
131.32	54.58	0.010	0.012	0.00	54.58	103.25
131.36	58.16	0.011	0.012	0.00	58.16	109.17
131.40	61.87	0.011	0.012	0.00	61.87	115.28
131.44	65.73	0.012	0.013	0.00	65.73	121.57
131.48	69.72	0.012	0.013	0.00	69.72	128.06
131.52	73.86	0.013	0.013	0.00	73.86	134.74
131.56	78.13	0.013	0.014	0.00	78.13	141.61
131.60	82.56	0.014	0.014	0.00	82.56	148.68
131.64	87.12	0.014	0.014	0.00	87.12	155.94
131.68	91.84	0.015	0.014	0.00	91.84	163.40
131.72	96.71	0.015	0.015	0.00	96.71	171.07
131.76	101.73	0.016	0.015	0.00	101.73	178.94
131.80	106.90	0.017	0.015	0.00	106.90	187.01
131.84	112.23	0.017	0.015	0.00	112.23	195.29
131.88	117.72	0.018	0.016	0.00	117.72	203.78
131.92	123.37	0.018	0.016	0.00	123.37	212.48
131.96	129.17	0.019	0.016	0.00	129.17	221.38
132.00	135.14	0.020	0.016	0.00	135.14	230.51



Subsection: Channel Routing Summary  
 Label: CO-28

Return Event: 25 years  
 Storm Event: 25 yr

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**Modified Puls Results Summary**

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Length (Channel)	524.51 ft
Travel Time (Channel)	0.054 hours
Number of Sections	11
Length (Section)	47.68 ft
Flow (Weighted)	3.35 ft <sup>3</sup> /s
Overflow Channel	No Overflow Data
Elevation (Overflow)	132.00 ft

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**Infiltration**

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Infiltration Method (Computed)	No Infiltration
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**Initial Conditions**

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Elevation (Starting Water Surface)	130.00 ft
Volume (Starting, per section)	0.000 ac-ft
Flow (Out Starting)	0.00 ft <sup>3</sup> /s
Infiltration (Starting, per section)	0.00 ft <sup>3</sup> /s
Flow (Total Out Starting)	0.00 ft <sup>3</sup> /s
Time Increment	0.005 hours

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**Inflow/Outflow Hydrograph Summary**

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Flow (Peak In)	9.75 ft <sup>3</sup> /s	Time to Peak (In)	12.025 hours
Flow (Peak Out)	9.74 ft <sup>3</sup> /s	Time to Peak (Out)	12.045 hours

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**Mass Balance (ac-ft)**

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Volume (Initial)	0.000 ac-ft
Volume (Total Inflow)	0.634 ac-ft
Volume (Total Infiltration)	0.000 ac-ft
Volume (Total Outlet Outflow)	0.634 ac-ft
Volume (Retained)	0.001 ac-ft
Volume (Unrouted)	0.001 ac-ft
Error (Mass Balance)	0.1 %

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Subsection: Elevation-Volume-Flow Table (Channel)  
 Label: CO-45

Return Event: 25 years  
 Storm Event: 25 yr

**Modified Puls Results Summary**

Length (Channel)	245.95 ft
Travel Time (Channel)	0.020 hours
Number of Sections	1
Length (Section)	245.95 ft
Flow (Weighted)	2.85 ft <sup>3</sup> /s
Overflow Channel	No Overflow Data
Elevation (Overflow)	131.00 ft

**Infiltration**

Infiltration Method (Computed)	No Infiltration
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**Initial Conditions**

Elevation (Starting Water Surface)	129.00 ft
Volume (Starting, per section)	0.000 ac-ft
Flow (Out Starting)	0.00 ft <sup>3</sup> /s
Infiltration (Starting, per section)	0.00 ft <sup>3</sup> /s
Flow (Total Out Starting)	0.00 ft <sup>3</sup> /s
Time Increment	0.005 hours

**Number of sections = 1  
 Storage, Area, Infiltration (per 245.95 ft section)**

Elevation (ft)	Outflow (ft <sup>3</sup> /s)	Storage (ac-ft)	Area (acres)	Infiltration (ft <sup>3</sup> /s)	Flow (Total) (ft <sup>3</sup> /s)	2S/t + O (ft <sup>3</sup> /s)
129.00	0.00	0.000	0.000	0.00	0.00	0.00
129.01	0.01	0.000	0.017	0.00	0.01	0.84
129.04	0.15	0.001	0.018	0.00	0.15	3.56
129.08	0.48	0.001	0.020	0.00	0.48	7.56
129.12	0.95	0.002	0.021	0.00	0.95	11.97
129.16	1.56	0.003	0.022	0.00	1.56	16.78
129.20	2.30	0.004	0.024	0.00	2.30	21.98
129.24	3.17	0.005	0.025	0.00	3.17	27.57
129.28	4.17	0.006	0.026	0.00	4.17	33.55
129.32	5.30	0.007	0.028	0.00	5.30	39.93
129.36	6.56	0.008	0.029	0.00	6.56	46.70
129.40	7.95	0.009	0.030	0.00	7.95	53.86
129.44	9.48	0.011	0.032	0.00	9.48	61.43
129.48	11.15	0.012	0.033	0.00	11.15	69.39
129.52	12.96	0.013	0.035	0.00	12.96	77.76
129.56	14.92	0.015	0.036	0.00	14.92	86.54
129.60	17.02	0.016	0.037	0.00	17.02	95.73
129.64	19.28	0.018	0.039	0.00	19.28	105.33

Subsection: Elevation-Volume-Flow Table (Channel)  
 Label: CO-45

Return Event: 25 years  
 Storm Event: 25 yr

**Number of sections = 1**  
**Storage, Area, Infiltration (per 245.95 ft section)**

Elevation (ft)	Outflow (ft <sup>3</sup> /s)	Storage (ac-ft)	Area (acres)	Infiltration (ft <sup>3</sup> /s)	Flow (Total) (ft <sup>3</sup> /s)	2S/t + O (ft <sup>3</sup> /s)
129.68	21.68	0.019	0.040	0.00	21.68	115.34
129.72	24.25	0.021	0.041	0.00	24.25	125.78
129.76	26.97	0.023	0.043	0.00	26.97	136.63
129.80	29.86	0.024	0.044	0.00	29.86	147.91
129.84	32.91	0.026	0.045	0.00	32.91	159.62
129.88	36.13	0.028	0.047	0.00	36.13	171.77
129.92	39.53	0.030	0.048	0.00	39.53	184.34
129.96	43.10	0.032	0.049	0.00	43.10	197.35
130.00	46.84	0.034	0.051	0.00	46.84	210.81
130.04	50.77	0.036	0.052	0.00	50.77	224.71
130.08	54.88	0.038	0.054	0.00	54.88	239.05
130.12	59.18	0.040	0.055	0.00	59.18	253.84
130.16	63.67	0.042	0.056	0.00	63.67	269.09
130.20	68.36	0.045	0.058	0.00	68.36	284.79
130.24	73.23	0.047	0.059	0.00	73.23	300.95
130.28	78.31	0.049	0.060	0.00	78.31	317.57
130.32	83.59	0.052	0.062	0.00	83.59	334.66
130.36	89.08	0.054	0.063	0.00	89.08	352.21
130.40	94.77	0.057	0.064	0.00	94.77	370.23
130.44	100.67	0.060	0.066	0.00	100.67	388.72
130.48	106.79	0.062	0.067	0.00	106.79	407.70
130.52	113.12	0.065	0.068	0.00	113.12	427.15
130.56	119.67	0.068	0.070	0.00	119.67	447.08
130.60	126.44	0.070	0.071	0.00	126.44	467.49
130.64	133.44	0.073	0.072	0.00	133.44	488.39
130.68	140.67	0.076	0.074	0.00	140.67	509.79
130.72	148.12	0.079	0.075	0.00	148.12	531.67
130.76	155.81	0.082	0.077	0.00	155.81	554.05
130.80	163.74	0.085	0.078	0.00	163.74	576.93
130.84	171.90	0.089	0.079	0.00	171.90	600.31
130.88	180.30	0.092	0.081	0.00	180.30	624.19
130.92	188.95	0.095	0.082	0.00	188.95	648.58
130.96	197.84	0.098	0.083	0.00	197.84	673.47
131.00	206.99	0.102	0.085	0.00	206.99	698.88

Subsection: Channel Routing Summary  
 Label: CO-45

Return Event: 25 years  
 Storm Event: 25 yr

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**Modified Puls Results Summary**

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Length (Channel)	245.95 ft
Travel Time (Channel)	0.020 hours
Number of Sections	1
Length (Section)	245.95 ft
Flow (Weighted)	2.85 ft <sup>3</sup> /s
Overflow Channel	No Overflow Data
Elevation (Overflow)	131.00 ft

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**Infiltration**

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Infiltration Method (Computed)	No Infiltration
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**Initial Conditions**

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Elevation (Starting Water Surface)	129.00 ft
Volume (Starting, per section)	0.000 ac-ft
Flow (Out Starting)	0.00 ft <sup>3</sup> /s
Infiltration (Starting, per section)	0.00 ft <sup>3</sup> /s
Flow (Total Out Starting)	0.00 ft <sup>3</sup> /s
Time Increment	0.005 hours

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**Inflow/Outflow Hydrograph Summary**

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Flow (Peak In)	8.40 ft <sup>3</sup> /s	Time to Peak (In)	11.995 hours
Flow (Peak Out)	8.36 ft <sup>3</sup> /s	Time to Peak (Out)	12.000 hours

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**Mass Balance (ac-ft)**

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Volume (Initial)	0.000 ac-ft
Volume (Total Inflow)	0.507 ac-ft
Volume (Total Infiltration)	0.000 ac-ft
Volume (Total Outlet Outflow)	0.506 ac-ft
Volume (Retained)	0.001 ac-ft
Volume (Unrouted)	0.000 ac-ft
Error (Mass Balance)	0.0 %

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Subsection: Elevation-Volume-Flow Table (Channel)  
 Label: CO-49

Return Event: 25 years  
 Storm Event: 25 yr

**Modified Puls Results Summary**

Length (Channel)	156.31 ft
Travel Time (Channel)	0.022 hours
Number of Sections	1
Length (Section)	156.31 ft
Flow (Weighted)	1.06 ft <sup>3</sup> /s
Overflow Channel	No Overflow Data
Elevation (Overflow)	121.00 ft

**Infiltration**

Infiltration Method (Computed)	No Infiltration
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**Initial Conditions**

Elevation (Starting Water Surface)	120.00 ft
Volume (Starting, per section)	0.000 ac-ft
Flow (Out Starting)	0.00 ft <sup>3</sup> /s
Infiltration (Starting, per section)	0.00 ft <sup>3</sup> /s
Flow (Total Out Starting)	0.00 ft <sup>3</sup> /s
Time Increment	0.005 hours

**Number of sections = 1  
 Storage, Area, Infiltration (per 156.31 ft section)**

Elevation (ft)	Outflow (ft <sup>3</sup> /s)	Storage (ac-ft)	Area (acres)	Infiltration (ft <sup>3</sup> /s)	Flow (Total) (ft <sup>3</sup> /s)	2S/t + O (ft <sup>3</sup> /s)
120.00	0.00	0.000	0.000	0.00	0.00	0.00
120.01	0.00	0.000	0.000	0.00	0.00	0.01
120.02	0.00	0.000	0.000	0.00	0.00	0.02
120.04	0.00	0.000	0.001	0.00	0.00	0.09
120.06	0.01	0.000	0.001	0.00	0.01	0.19
120.08	0.01	0.000	0.002	0.00	0.01	0.35
120.10	0.02	0.000	0.002	0.00	0.02	0.54
120.12	0.04	0.000	0.003	0.00	0.04	0.79
120.14	0.05	0.000	0.003	0.00	0.05	1.08
120.16	0.08	0.000	0.003	0.00	0.08	1.41
120.18	0.11	0.000	0.004	0.00	0.11	1.79
120.20	0.14	0.000	0.004	0.00	0.14	2.22
120.22	0.18	0.001	0.005	0.00	0.18	2.70
120.24	0.23	0.001	0.005	0.00	0.23	3.23
120.26	0.28	0.001	0.006	0.00	0.28	3.80
120.28	0.34	0.001	0.006	0.00	0.34	4.43
120.30	0.41	0.001	0.006	0.00	0.41	5.10
120.32	0.49	0.001	0.007	0.00	0.49	5.83

Subsection: Elevation-Volume-Flow Table (Channel)  
 Label: CO-49

Return Event: 25 years  
 Storm Event: 25 yr

**Number of sections = 1**  
**Storage, Area, Infiltration (per 156.31 ft section)**

Elevation (ft)	Outflow (ft <sup>3</sup> /s)	Storage (ac-ft)	Area (acres)	Infiltration (ft <sup>3</sup> /s)	Flow (Total) (ft <sup>3</sup> /s)	2S/t + O (ft <sup>3</sup> /s)
120.34	0.58	0.001	0.007	0.00	0.58	6.60
120.36	0.67	0.001	0.008	0.00	0.67	7.42
120.38	0.77	0.002	0.008	0.00	0.77	8.30
120.40	0.89	0.002	0.009	0.00	0.89	9.22
120.42	1.01	0.002	0.009	0.00	1.01	10.20
120.44	1.14	0.002	0.009	0.00	1.14	11.23
120.46	1.29	0.002	0.010	0.00	1.29	12.31
120.48	1.44	0.002	0.010	0.00	1.44	13.45
120.50	1.61	0.003	0.011	0.00	1.61	14.64
120.52	1.79	0.003	0.011	0.00	1.79	15.88
120.54	1.98	0.003	0.012	0.00	1.98	17.17
120.56	2.18	0.003	0.012	0.00	2.18	18.52
120.58	2.39	0.004	0.012	0.00	2.39	19.92
120.60	2.62	0.004	0.013	0.00	2.62	21.37
120.62	2.86	0.004	0.013	0.00	2.86	22.89
120.64	3.11	0.004	0.014	0.00	3.11	24.45
120.66	3.38	0.005	0.014	0.00	3.38	26.07
120.68	3.66	0.005	0.015	0.00	3.66	27.75
120.70	3.95	0.005	0.015	0.00	3.95	29.48
120.72	4.26	0.006	0.016	0.00	4.26	31.27
120.74	4.58	0.006	0.016	0.00	4.58	33.11
120.76	4.92	0.006	0.016	0.00	4.92	35.01
120.78	5.27	0.007	0.017	0.00	5.27	36.97
120.80	5.64	0.007	0.017	0.00	5.64	38.98
120.82	6.02	0.007	0.018	0.00	6.02	41.06
120.84	6.42	0.008	0.018	0.00	6.42	43.19
120.86	6.84	0.008	0.019	0.00	6.84	45.37
120.88	7.27	0.008	0.019	0.00	7.27	47.62
120.90	7.72	0.009	0.019	0.00	7.72	49.92
120.92	8.18	0.009	0.020	0.00	8.18	52.28
120.94	8.67	0.010	0.020	0.00	8.67	54.71
120.96	9.17	0.010	0.021	0.00	9.17	57.19
120.98	9.69	0.010	0.021	0.00	9.69	59.73
121.00	10.22	0.011	0.022	0.00	10.22	62.33

Subsection: Channel Routing Summary  
 Label: CO-49

Return Event: 25 years  
 Storm Event: 25 yr

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**Modified Puls Results Summary**

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Length (Channel)	156.31 ft
Travel Time (Channel)	0.022 hours
Number of Sections	1
Length (Section)	156.31 ft
Flow (Weighted)	1.06 ft <sup>3</sup> /s
Overflow Channel	No Overflow Data
Elevation (Overflow)	121.00 ft

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**Infiltration**

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Infiltration Method (Computed)	No Infiltration
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**Initial Conditions**

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Elevation (Starting Water Surface)	120.00 ft
Volume (Starting, per section)	0.000 ac-ft
Flow (Out Starting)	0.00 ft <sup>3</sup> /s
Infiltration (Starting, per section)	0.00 ft <sup>3</sup> /s
Flow (Total Out Starting)	0.00 ft <sup>3</sup> /s
Time Increment	0.005 hours

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**Inflow/Outflow Hydrograph Summary**

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Flow (Peak In)	3.11 ft <sup>3</sup> /s	Time to Peak (In)	12.005 hours
Flow (Peak Out)	3.08 ft <sup>3</sup> /s	Time to Peak (Out)	12.020 hours

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**Mass Balance (ac-ft)**

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Volume (Initial)	0.000 ac-ft
Volume (Total Inflow)	0.192 ac-ft
Volume (Total Infiltration)	0.000 ac-ft
Volume (Total Outlet Outflow)	0.192 ac-ft
Volume (Retained)	0.000 ac-ft
Volume (Unrouted)	0.000 ac-ft
Error (Mass Balance)	0.0 %

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Subsection: Elevation-Volume-Flow Table (Channel)  
 Label: CO-89

Return Event: 25 years  
 Storm Event: 25 yr

**Modified Puls Results Summary**

Length (Channel)	312.17 ft
Travel Time (Channel)	0.024 hours
Number of Sections	1
Length (Section)	312.17 ft
Flow (Weighted)	6.93 ft <sup>3</sup> /s
Overflow Channel	No Overflow Data
Elevation (Overflow)	134.00 ft

**Infiltration**

Infiltration Method (Computed)	No Infiltration
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**Initial Conditions**

Elevation (Starting Water Surface)	132.00 ft
Volume (Starting, per section)	0.000 ac-ft
Flow (Out Starting)	0.00 ft <sup>3</sup> /s
Infiltration (Starting, per section)	0.00 ft <sup>3</sup> /s
Flow (Total Out Starting)	0.00 ft <sup>3</sup> /s
Time Increment	0.005 hours

**Number of sections = 1  
 Storage, Area, Infiltration (per 312.17 ft section)**

Elevation (ft)	Outflow (ft <sup>3</sup> /s)	Storage (ac-ft)	Area (acres)	Infiltration (ft <sup>3</sup> /s)	Flow (Total) (ft <sup>3</sup> /s)	2S/t + O (ft <sup>3</sup> /s)
132.00	0.00	0.000	0.000	0.00	0.00	0.00
132.01	0.00	0.000	0.000	0.00	0.00	0.01
132.04	0.00	0.000	0.002	0.00	0.00	0.17
132.08	0.01	0.000	0.003	0.00	0.01	0.68
132.12	0.04	0.000	0.005	0.00	0.04	1.54
132.16	0.09	0.001	0.007	0.00	0.09	2.76
132.20	0.17	0.001	0.009	0.00	0.17	4.33
132.24	0.28	0.001	0.010	0.00	0.28	6.27
132.28	0.42	0.002	0.012	0.00	0.42	8.58
132.32	0.60	0.002	0.014	0.00	0.60	11.26
132.36	0.82	0.003	0.015	0.00	0.82	14.31
132.40	1.09	0.003	0.017	0.00	1.09	17.74
132.44	1.40	0.004	0.019	0.00	1.40	21.55
132.48	1.77	0.005	0.021	0.00	1.77	25.74
132.52	2.19	0.006	0.022	0.00	2.19	30.33
132.56	2.67	0.007	0.024	0.00	2.67	35.30
132.60	3.21	0.008	0.026	0.00	3.21	40.67
132.64	3.81	0.009	0.028	0.00	3.81	46.43



Subsection: Elevation-Volume-Flow Table (Channel)  
 Label: CO-89

Return Event: 25 years  
 Storm Event: 25 yr

**Number of sections = 1**  
**Storage, Area, Infiltration (per 312.17 ft section)**

Elevation (ft)	Outflow (ft <sup>3</sup> /s)	Storage (ac-ft)	Area (acres)	Infiltration (ft <sup>3</sup> /s)	Flow (Total) (ft <sup>3</sup> /s)	2S/t + O (ft <sup>3</sup> /s)
132.68	4.48	0.010	0.029	0.00	4.48	52.60
132.72	5.22	0.011	0.031	0.00	5.22	59.16
132.76	6.03	0.012	0.033	0.00	6.03	66.13
132.80	6.91	0.014	0.034	0.00	6.91	73.51
132.84	7.87	0.015	0.036	0.00	7.87	81.29
132.88	8.91	0.017	0.038	0.00	8.91	89.49
132.92	10.03	0.018	0.040	0.00	10.03	98.11
132.96	11.24	0.020	0.041	0.00	11.24	107.14
133.00	12.53	0.022	0.043	0.00	12.53	116.59
133.04	13.91	0.023	0.045	0.00	13.91	126.46
133.08	15.38	0.025	0.046	0.00	15.38	136.76
133.12	16.95	0.027	0.048	0.00	16.95	147.48
133.16	18.61	0.029	0.050	0.00	18.61	158.63
133.20	20.37	0.031	0.052	0.00	20.37	170.22
133.24	22.24	0.033	0.053	0.00	22.24	182.23
133.28	24.20	0.035	0.055	0.00	24.20	194.69
133.32	26.27	0.037	0.057	0.00	26.27	207.58
133.36	28.45	0.040	0.058	0.00	28.45	220.91
133.40	30.73	0.042	0.060	0.00	30.73	234.69
133.44	33.13	0.045	0.062	0.00	33.13	248.90
133.48	35.64	0.047	0.064	0.00	35.64	263.57
133.52	38.27	0.050	0.065	0.00	38.27	278.68
133.56	41.01	0.052	0.067	0.00	41.01	294.25
133.60	43.88	0.055	0.069	0.00	43.88	310.27
133.64	46.87	0.058	0.071	0.00	46.87	326.74
133.68	49.98	0.061	0.072	0.00	49.98	343.67
133.72	53.21	0.064	0.074	0.00	53.21	361.05
133.76	56.58	0.067	0.076	0.00	56.58	378.90
133.80	60.07	0.070	0.077	0.00	60.07	397.22
133.84	63.70	0.073	0.079	0.00	63.70	415.99
133.88	67.46	0.076	0.081	0.00	67.46	435.24
133.92	71.35	0.079	0.083	0.00	71.35	454.95
133.96	75.38	0.083	0.084	0.00	75.38	475.13
134.00	79.56	0.086	0.086	0.00	79.56	495.79

Subsection: Channel Routing Summary  
 Label: CO-89

Return Event: 25 years  
 Storm Event: 25 yr

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**Modified Puls Results Summary**

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Length (Channel)	312.17 ft
Travel Time (Channel)	0.024 hours
Number of Sections	1
Length (Section)	312.17 ft
Flow (Weighted)	6.93 ft <sup>3</sup> /s
Overflow Channel	No Overflow Data
Elevation (Overflow)	134.00 ft

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**Infiltration**

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Infiltration Method (Computed)	No Infiltration
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**Initial Conditions**

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Elevation (Starting Water Surface)	132.00 ft
Volume (Starting, per section)	0.000 ac-ft
Flow (Out Starting)	0.00 ft <sup>3</sup> /s
Infiltration (Starting, per section)	0.00 ft <sup>3</sup> /s
Flow (Total Out Starting)	0.00 ft <sup>3</sup> /s
Time Increment	0.005 hours

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**Inflow/Outflow Hydrograph Summary**

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Flow (Peak In)	19.96 ft <sup>3</sup> /s	Time to Peak (In)	12.050 hours
Flow (Peak Out)	19.84 ft <sup>3</sup> /s	Time to Peak (Out)	12.055 hours

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**Mass Balance (ac-ft)**

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Volume (Initial)	0.000 ac-ft
Volume (Total Inflow)	1.358 ac-ft
Volume (Total Infiltration)	0.000 ac-ft
Volume (Total Outlet Outflow)	1.356 ac-ft
Volume (Retained)	0.001 ac-ft
Volume (Unrouted)	0.000 ac-ft
Error (Mass Balance)	0.0 %

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**Time vs. Elevation (ft)**

**Output Time increment = 0.005 hours**  
**Time on left represents time for first value in each row.**

Time (hours)	Elevation (ft)	Elevation (ft)	Elevation (ft)	Elevation (ft)	Elevation (ft)
0.000	130.00	130.03	130.03	130.03	130.03
0.025	130.03	130.03	130.03	130.03	130.03
0.050	130.03	130.03	130.03	130.03	130.03
0.075	130.03	130.03	130.03	130.03	130.03
0.100	130.03	130.03	130.03	130.02	130.02
0.125	130.02	130.02	130.02	130.02	130.02
0.150	130.02	130.02	130.02	130.01	130.01
0.175	130.01	130.01	130.01	130.01	130.01
0.200	130.01	130.01	130.01	130.01	130.01
0.225	130.01	130.01	130.01	130.01	130.01
0.250	130.01	130.01	130.01	130.01	130.01
0.275	130.01	130.01	130.01	130.01	130.01
0.300	130.01	130.01	130.01	130.01	130.01
0.325	130.01	130.01	130.01	130.01	130.01
0.350	130.01	130.01	130.01	130.01	130.01
0.375	130.01	130.01	130.01	130.01	130.01
0.400	130.01	130.01	130.01	130.01	130.01
0.425	130.01	130.01	130.01	130.01	130.01
0.450	130.01	130.00	130.00	130.00	130.00
0.475	130.00	130.00	130.00	130.00	130.00
0.500	130.00	130.00	130.00	130.00	130.00
0.525	130.00	130.00	130.00	130.00	130.00
0.550	130.00	130.00	130.00	130.00	130.00
0.575	130.00	130.00	130.00	130.00	130.00
0.600	130.00	130.00	130.00	130.00	130.00
0.625	130.00	130.00	130.00	130.00	130.00
0.650	130.00	130.00	130.00	130.00	130.00
0.675	130.00	130.00	130.00	130.00	130.00
0.700	130.00	130.00	130.00	130.00	130.00
0.725	130.00	130.00	130.00	130.00	130.00
0.750	130.00	130.00	130.00	130.00	130.00
0.775	130.00	130.00	130.00	130.00	130.00
0.800	130.00	130.00	130.00	130.00	130.00
0.825	130.00	130.00	130.00	130.00	130.00
0.850	130.00	130.00	130.00	130.00	130.00
0.875	130.00	130.00	130.00	130.00	130.00
0.900	130.00	130.00	130.00	130.00	130.00
0.925	130.00	130.00	130.00	130.00	130.00
0.950	130.00	130.00	130.00	130.00	130.00
0.975	130.00	130.00	130.00	130.00	130.00
1.000	130.00	130.00	130.00	130.00	130.00
1.025	130.00	130.00	130.00	130.00	130.00
1.050	130.00	130.00	130.00	130.00	130.00

**Time vs. Elevation (ft)**

**Output Time increment = 0.005 hours**  
**Time on left represents time for first value in each row.**

Time (hours)	Elevation (ft)	Elevation (ft)	Elevation (ft)	Elevation (ft)	Elevation (ft)
1.075	130.00	130.00	130.00	130.00	130.00
1.100	130.00	130.00	130.00	130.00	130.00
1.125	130.00	130.00	130.00	130.00	130.00
1.150	130.00	130.00	130.00	130.00	130.00
1.175	130.00	130.00	130.00	130.00	130.00
1.200	130.00	130.00	130.00	130.00	130.00
1.225	130.00	130.00	130.00	130.00	130.00
1.250	130.00	130.00	130.00	130.00	130.00
1.275	130.00	130.00	130.00	130.00	130.00
1.300	130.00	130.00	130.00	130.00	130.00
1.325	130.00	130.00	130.00	130.00	130.00
1.350	130.00	130.00	130.00	130.00	130.00
1.375	130.00	130.00	130.00	130.00	130.00
1.400	130.00	130.00	130.00	130.00	130.00
1.425	130.00	130.00	130.00	130.00	130.00
1.450	130.00	130.00	130.00	130.00	130.00
1.475	130.00	130.00	130.00	130.00	130.00
1.500	130.00	130.00	130.00	130.00	130.00
1.525	130.00	130.00	130.00	130.00	130.00
1.550	130.00	130.00	130.00	130.00	130.00
1.575	130.00	130.00	130.00	130.00	130.00
1.600	130.00	130.00	130.00	130.00	130.00
1.625	130.00	130.00	130.00	130.00	130.00
1.650	130.00	130.00	130.00	130.00	130.00
1.675	130.00	130.00	130.00	130.00	130.00
1.700	130.00	130.00	130.00	130.00	130.00
1.725	130.00	130.00	130.00	130.00	130.00
1.750	130.00	130.00	130.00	130.00	130.00
1.775	130.00	130.00	130.00	130.00	130.00
1.800	130.00	130.00	130.00	130.00	130.00
1.825	130.00	130.00	130.00	130.00	130.00
1.850	130.00	130.00	130.00	130.00	130.00
1.875	130.00	130.00	130.00	130.00	130.00
1.900	130.00	130.00	130.00	130.00	130.00
1.925	130.00	130.00	130.00	130.00	130.00
1.950	130.00	130.00	130.00	130.00	130.00
1.975	130.00	130.00	130.00	130.00	130.00
2.000	130.00	130.00	130.00	130.00	130.00
2.025	130.00	130.00	130.00	130.00	130.00
2.050	130.00	130.00	130.00	130.00	130.00
2.075	130.00	130.00	130.00	130.00	130.00
2.100	130.00	130.00	130.00	130.00	130.00
2.125	130.00	130.00	130.00	130.00	130.00

**Time vs. Elevation (ft)**

**Output Time increment = 0.005 hours**  
**Time on left represents time for first value in each row.**

Time (hours)	Elevation (ft)	Elevation (ft)	Elevation (ft)	Elevation (ft)	Elevation (ft)
2.150	130.00	130.00	130.00	130.00	130.00
2.175	130.00	130.00	130.00	130.00	130.00
2.200	130.00	130.00	130.00	130.00	130.00
2.225	130.00	130.00	130.00	130.00	130.00
2.250	130.00	130.00	130.00	130.00	130.00
2.275	130.00	130.00	130.00	130.00	130.00
2.300	130.00	130.00	130.00	130.00	130.00
2.325	130.00	130.00	130.00	130.00	130.00
2.350	130.00	130.00	130.00	130.00	130.00
2.375	130.00	130.00	130.00	130.00	130.00
2.400	130.00	130.00	130.00	130.00	130.00
2.425	130.00	130.00	130.00	130.00	130.00
2.450	130.00	130.00	130.00	130.00	130.00
2.475	130.00	130.00	130.00	130.00	130.00
2.500	130.00	130.00	130.00	130.00	130.00
2.525	130.00	130.00	130.00	130.00	130.00
2.550	130.00	130.00	130.00	130.00	130.00
2.575	130.00	130.00	130.00	130.00	130.00
2.600	130.00	130.00	130.00	130.00	130.00
2.625	130.00	130.00	130.00	130.00	130.00
2.650	130.00	130.00	130.00	130.00	130.00
2.675	130.00	130.00	130.00	130.00	130.00
2.700	130.00	130.00	130.00	130.00	130.00
2.725	130.00	130.00	130.00	130.00	130.00
2.750	130.00	130.00	130.00	130.00	130.00
2.775	130.00	130.00	130.00	130.00	130.00
2.800	130.00	130.00	130.00	130.00	130.00
2.825	130.00	130.00	130.00	130.00	130.00
2.850	130.00	130.00	130.00	130.00	130.00
2.875	130.00	130.00	130.00	130.00	130.00
2.900	130.00	130.00	130.00	130.00	130.00
2.925	130.00	130.00	130.00	130.00	130.00
2.950	130.00	130.00	130.00	130.00	130.00
2.975	130.00	130.00	130.00	130.00	130.00
3.000	130.00	130.00	130.00	130.00	130.00
3.025	130.00	130.00	130.00	130.00	130.00
3.050	130.00	130.00	130.00	130.00	130.00
3.075	130.00	130.00	130.00	130.00	130.00
3.100	130.00	130.00	130.00	130.00	130.00
3.125	130.00	130.00	130.00	130.00	130.00
3.150	130.00	130.00	130.00	130.00	130.00
3.175	130.00	130.00	130.00	130.00	130.00
3.200	130.00	130.00	130.00	130.00	130.00

**Time vs. Elevation (ft)**

**Output Time increment = 0.005 hours**  
**Time on left represents time for first value in each row.**

Time (hours)	Elevation (ft)	Elevation (ft)	Elevation (ft)	Elevation (ft)	Elevation (ft)
3.225	130.00	130.00	130.00	130.00	130.00
3.250	130.00	130.00	130.00	130.00	130.00
3.275	130.00	130.00	130.00	130.00	130.00
3.300	130.00	130.00	130.00	130.00	130.00
3.325	130.00	130.00	130.00	130.00	130.00
3.350	130.00	130.00	130.00	130.00	130.00
3.375	130.00	130.00	130.00	130.00	130.00
3.400	130.00	130.00	130.00	130.00	130.00
3.425	130.00	130.00	130.00	130.00	130.00
3.450	130.00	130.00	130.00	130.00	130.00
3.475	130.00	130.00	130.00	130.00	130.00
3.500	130.00	130.00	130.00	130.00	130.00
3.525	130.00	130.00	130.00	130.00	130.00
3.550	130.00	130.00	130.00	130.00	130.00
3.575	130.00	130.00	130.00	130.00	130.00
3.600	130.00	130.00	130.00	130.00	130.00
3.625	130.00	130.00	130.00	130.00	130.00
3.650	130.00	130.00	130.00	130.00	130.00
3.675	130.00	130.00	130.00	130.00	130.00
3.700	130.00	130.00	130.00	130.00	130.00
3.725	130.00	130.00	130.00	130.00	130.00
3.750	130.00	130.00	130.00	130.00	130.00
3.775	130.00	130.00	130.00	130.00	130.00
3.800	130.00	130.00	130.00	130.00	130.00
3.825	130.00	130.00	130.00	130.00	130.00
3.850	130.00	130.00	130.00	130.00	130.00
3.875	130.00	130.00	130.00	130.00	130.00
3.900	130.00	130.00	130.00	130.00	130.00
3.925	130.00	130.00	130.00	130.00	130.00
3.950	130.00	130.00	130.00	130.00	130.00
3.975	130.00	130.00	130.00	130.00	130.00
4.000	130.00	130.00	130.00	130.00	130.00
4.025	130.00	130.00	130.00	130.00	130.00
4.050	130.00	130.00	130.00	130.00	130.00
4.075	130.00	130.00	130.00	130.00	130.00
4.100	130.00	130.00	130.00	130.00	130.00
4.125	130.00	130.00	130.00	130.00	130.00
4.150	130.00	130.00	130.00	130.00	130.00
4.175	130.00	130.00	130.00	130.00	130.00
4.200	130.00	130.00	130.00	130.00	130.00
4.225	130.00	130.00	130.00	130.00	130.00
4.250	130.00	130.00	130.00	130.00	130.00
4.275	130.00	130.00	130.00	130.00	130.00

**Time vs. Elevation (ft)**

**Output Time increment = 0.005 hours**  
**Time on left represents time for first value in each row.**

Time (hours)	Elevation (ft)	Elevation (ft)	Elevation (ft)	Elevation (ft)	Elevation (ft)
4.300	130.00	130.00	130.00	130.00	130.00
4.325	130.00	130.00	130.00	130.00	130.00
4.350	130.00	130.00	130.00	130.00	130.00
4.375	130.00	130.00	130.00	130.00	130.00
4.400	130.00	130.00	130.00	130.00	130.00
4.425	130.00	130.00	130.00	130.00	130.00
4.450	130.00	130.00	130.00	130.00	130.00
4.475	130.00	130.00	130.00	130.00	130.00
4.500	130.00	130.00	130.00	130.00	130.00
4.525	130.00	130.00	130.00	130.00	130.00
4.550	130.00	130.00	130.00	130.00	130.00
4.575	130.00	130.00	130.00	130.00	130.00
4.600	130.00	130.00	130.00	130.00	130.00
4.625	130.00	130.00	130.00	130.00	130.00
4.650	130.00	130.00	130.00	130.00	130.00
4.675	130.00	130.00	130.00	130.00	130.00
4.700	130.00	130.00	130.00	130.00	130.00
4.725	130.00	130.00	130.00	130.00	130.00
4.750	130.00	130.00	130.00	130.00	130.00
4.775	130.00	130.00	130.00	130.00	130.00
4.800	130.00	130.00	130.00	130.00	130.00
4.825	130.00	130.00	130.00	130.00	130.00
4.850	130.00	130.00	130.00	130.00	130.00
4.875	130.00	130.00	130.00	130.00	130.00
4.900	130.00	130.00	130.00	130.00	130.00
4.925	130.00	130.00	130.00	130.00	130.00
4.950	130.00	130.00	130.00	130.00	130.00
4.975	130.00	130.00	130.00	130.00	130.00
5.000	130.00	130.00	130.00	130.00	130.00
5.025	130.00	130.00	130.00	130.00	130.00
5.050	130.00	130.00	130.00	130.00	130.00
5.075	130.00	130.00	130.00	130.00	130.00
5.100	130.00	130.00	130.00	130.00	130.00
5.125	130.00	130.00	130.00	130.00	130.00
5.150	130.00	130.00	130.00	130.00	130.00
5.175	130.00	130.00	130.00	130.00	130.00
5.200	130.00	130.00	130.00	130.00	130.00
5.225	130.00	130.00	130.00	130.00	130.00
5.250	130.00	130.00	130.00	130.00	130.00
5.275	130.00	130.00	130.00	130.00	130.00
5.300	130.00	130.00	130.00	130.00	130.00
5.325	130.00	130.00	130.00	130.00	130.00
5.350	130.00	130.00	130.00	130.00	130.00

**Time vs. Elevation (ft)**

**Output Time increment = 0.005 hours**  
**Time on left represents time for first value in each row.**

Time (hours)	Elevation (ft)	Elevation (ft)	Elevation (ft)	Elevation (ft)	Elevation (ft)
5.375	130.00	130.00	130.00	130.00	130.00
5.400	130.00	130.00	130.00	130.00	130.00
5.425	130.00	130.00	130.00	130.00	130.00
5.450	130.00	130.00	130.00	130.00	130.00
5.475	130.00	130.00	130.00	130.00	130.00
5.500	130.00	130.00	130.00	130.00	130.00
5.525	130.00	130.00	130.00	130.00	130.00
5.550	130.00	130.00	130.00	130.00	130.00
5.575	130.00	130.00	130.00	130.00	130.00
5.600	130.00	130.00	130.00	130.00	130.00
5.625	130.00	130.00	130.00	130.00	130.00
5.650	130.00	130.00	130.00	130.00	130.00
5.675	130.00	130.00	130.00	130.00	130.00
5.700	130.00	130.00	130.00	130.00	130.00
5.725	130.00	130.00	130.00	130.00	130.00
5.750	130.00	130.00	130.00	130.00	130.00
5.775	130.00	130.00	130.00	130.00	130.00
5.800	130.00	130.00	130.00	130.00	130.00
5.825	130.00	130.00	130.00	130.00	130.00
5.850	130.00	130.00	130.00	130.00	130.00
5.875	130.00	130.00	130.00	130.00	130.00
5.900	130.00	130.00	130.00	130.00	130.00
5.925	130.00	130.00	130.00	130.00	130.00
5.950	130.00	130.00	130.00	130.00	130.00
5.975	130.00	130.00	130.00	130.00	130.00
6.000	130.00	130.00	130.00	130.00	130.00
6.025	130.00	130.00	130.00	130.00	130.00
6.050	130.00	130.00	130.00	130.00	130.00
6.075	130.00	130.00	130.00	130.00	130.00
6.100	130.00	130.00	130.00	130.00	130.00
6.125	130.00	130.00	130.00	130.00	130.00
6.150	130.00	130.00	130.00	130.00	130.00
6.175	130.00	130.00	130.00	130.00	130.00
6.200	130.00	130.00	130.00	130.00	130.00
6.225	130.00	130.00	130.00	130.00	130.00
6.250	130.00	130.00	130.00	130.00	130.00
6.275	130.00	130.00	130.00	130.00	130.00
6.300	130.00	130.00	130.00	130.00	130.00
6.325	130.00	130.00	130.00	130.00	130.00
6.350	130.00	130.00	130.00	130.00	130.00
6.375	130.00	130.00	130.00	130.00	130.00
6.400	130.00	130.00	130.00	130.00	130.00
6.425	130.00	130.00	130.00	130.00	130.00



Subsection: Time vs. Elevation  
 Label: CO-28

Return Event: 25 years  
 Storm Event: 25 yr

**Time vs. Elevation (ft)**

**Output Time increment = 0.005 hours**  
**Time on left represents time for first value in each row.**

Time (hours)	Elevation (ft)	Elevation (ft)	Elevation (ft)	Elevation (ft)	Elevation (ft)
6.450	130.00	130.00	130.00	130.00	130.00
6.475	130.00	130.00	130.00	130.00	130.00
6.500	130.00	130.00	130.00	130.00	130.00
6.525	130.00	130.00	130.00	130.00	130.00
6.550	130.00	130.00	130.00	130.00	130.00
6.575	130.00	130.00	130.00	130.00	130.00
6.600	130.00	130.00	130.00	130.00	130.00
6.625	130.00	130.00	130.00	130.00	130.00
6.650	130.00	130.00	130.00	130.00	130.00
6.675	130.00	130.00	130.00	130.00	130.00
6.700	130.00	130.00	130.00	130.00	130.00
6.725	130.00	130.00	130.00	130.00	130.00
6.750	130.00	130.00	130.00	130.00	130.00
6.775	130.00	130.00	130.00	130.00	130.00
6.800	130.00	130.00	130.00	130.00	130.00
6.825	130.00	130.00	130.00	130.00	130.00
6.850	130.00	130.00	130.00	130.00	130.00
6.875	130.00	130.00	130.00	130.00	130.00
6.900	130.00	130.00	130.00	130.00	130.00
6.925	130.00	130.00	130.00	130.00	130.00
6.950	130.00	130.00	130.00	130.00	130.00
6.975	130.00	130.00	130.00	130.00	130.00
7.000	130.00	130.00	130.00	130.00	130.00
7.025	130.00	130.00	130.00	130.00	130.00
7.050	130.00	130.00	130.00	130.00	130.00
7.075	130.00	130.00	130.00	130.00	130.00
7.100	130.00	130.00	130.00	130.00	130.00
7.125	130.00	130.00	130.00	130.00	130.00
7.150	130.00	130.00	130.00	130.00	130.00
7.175	130.00	130.00	130.00	130.00	130.00
7.200	130.00	130.00	130.00	130.00	130.00
7.225	130.00	130.00	130.00	130.00	130.00
7.250	130.00	130.00	130.00	130.00	130.00
7.275	130.00	130.00	130.00	130.00	130.00
7.300	130.00	130.00	130.00	130.00	130.00
7.325	130.00	130.00	130.00	130.00	130.00
7.350	130.00	130.00	130.00	130.00	130.00
7.375	130.00	130.00	130.00	130.00	130.00
7.400	130.00	130.00	130.00	130.00	130.00
7.425	130.00	130.00	130.00	130.00	130.00
7.450	130.00	130.00	130.00	130.00	130.00
7.475	130.00	130.00	130.00	130.00	130.00
7.500	130.00	130.00	130.00	130.00	130.00

**Time vs. Elevation (ft)**

**Output Time increment = 0.005 hours**  
**Time on left represents time for first value in each row.**

Time (hours)	Elevation (ft)	Elevation (ft)	Elevation (ft)	Elevation (ft)	Elevation (ft)
7.525	130.00	130.00	130.00	130.00	130.00
7.550	130.00	130.00	130.00	130.00	130.00
7.575	130.00	130.00	130.00	130.00	130.00
7.600	130.00	130.00	130.00	130.00	130.00
7.625	130.00	130.00	130.00	130.00	130.00
7.650	130.00	130.00	130.00	130.00	130.00
7.675	130.00	130.00	130.00	130.00	130.00
7.700	130.00	130.00	130.00	130.00	130.00
7.725	130.00	130.00	130.00	130.00	130.00
7.750	130.00	130.00	130.00	130.00	130.00
7.775	130.00	130.00	130.00	130.00	130.00
7.800	130.00	130.00	130.00	130.00	130.00
7.825	130.00	130.00	130.00	130.00	130.00
7.850	130.00	130.00	130.00	130.00	130.00
7.875	130.00	130.00	130.00	130.00	130.00
7.900	130.00	130.00	130.00	130.00	130.00
7.925	130.00	130.00	130.00	130.00	130.00
7.950	130.00	130.00	130.00	130.00	130.00
7.975	130.00	130.00	130.00	130.00	130.00
8.000	130.00	130.00	130.00	130.00	130.00
8.025	130.00	130.00	130.00	130.00	130.00
8.050	130.00	130.00	130.00	130.00	130.00
8.075	130.00	130.00	130.00	130.00	130.00
8.100	130.00	130.00	130.00	130.00	130.00
8.125	130.00	130.00	130.00	130.00	130.00
8.150	130.00	130.00	130.00	130.00	130.00
8.175	130.00	130.00	130.00	130.00	130.00
8.200	130.00	130.00	130.00	130.00	130.00
8.225	130.00	130.00	130.00	130.00	130.00
8.250	130.00	130.00	130.00	130.00	130.00
8.275	130.00	130.00	130.00	130.00	130.00
8.300	130.00	130.00	130.00	130.00	130.00
8.325	130.00	130.00	130.00	130.00	130.00
8.350	130.00	130.00	130.00	130.00	130.00
8.375	130.00	130.00	130.00	130.00	130.00
8.400	130.00	130.00	130.00	130.00	130.00
8.425	130.00	130.00	130.00	130.00	130.00
8.450	130.00	130.00	130.00	130.00	130.00
8.475	130.00	130.00	130.00	130.00	130.00
8.500	130.00	130.00	130.00	130.00	130.00
8.525	130.00	130.00	130.00	130.00	130.00
8.550	130.00	130.00	130.00	130.00	130.00
8.575	130.00	130.00	130.00	130.00	130.00

**Time vs. Elevation (ft)**

**Output Time increment = 0.005 hours**  
**Time on left represents time for first value in each row.**

Time (hours)	Elevation (ft)	Elevation (ft)	Elevation (ft)	Elevation (ft)	Elevation (ft)
8.600	130.00	130.00	130.00	130.00	130.00
8.625	130.00	130.00	130.00	130.00	130.00
8.650	130.00	130.00	130.00	130.00	130.00
8.675	130.00	130.00	130.00	130.00	130.00
8.700	130.00	130.00	130.00	130.00	130.00
8.725	130.00	130.00	130.00	130.00	130.00
8.750	130.00	130.00	130.00	130.00	130.00
8.775	130.00	130.00	130.00	130.00	130.00
8.800	130.00	130.00	130.00	130.00	130.00
8.825	130.00	130.00	130.00	130.00	130.00
8.850	130.00	130.00	130.00	130.00	130.00
8.875	130.00	130.00	130.00	130.00	130.00
8.900	130.00	130.00	130.00	130.00	130.00
8.925	130.00	130.00	130.00	130.00	130.00
8.950	130.00	130.00	130.00	130.00	130.00
8.975	130.00	130.00	130.00	130.00	130.00
9.000	130.00	130.00	130.00	130.00	130.00
9.025	130.00	130.00	130.00	130.00	130.00
9.050	130.00	130.00	130.00	130.00	130.00
9.075	130.00	130.00	130.00	130.00	130.00
9.100	130.00	130.00	130.00	130.00	130.00
9.125	130.00	130.00	130.00	130.00	130.00
9.150	130.00	130.00	130.00	130.00	130.00
9.175	130.00	130.00	130.00	130.00	130.00
9.200	130.00	130.00	130.00	130.00	130.00
9.225	130.00	130.00	130.00	130.00	130.00
9.250	130.00	130.00	130.00	130.00	130.00
9.275	130.00	130.00	130.00	130.00	130.00
9.300	130.00	130.00	130.00	130.00	130.00
9.325	130.00	130.00	130.00	130.00	130.00
9.350	130.00	130.00	130.00	130.00	130.00
9.375	130.01	130.01	130.01	130.01	130.01
9.400	130.01	130.01	130.01	130.01	130.01
9.425	130.01	130.01	130.01	130.01	130.01
9.450	130.01	130.01	130.01	130.01	130.01
9.475	130.01	130.01	130.01	130.01	130.01
9.500	130.01	130.01	130.01	130.01	130.01
9.525	130.01	130.01	130.01	130.01	130.01
9.550	130.01	130.01	130.01	130.01	130.02
9.575	130.02	130.02	130.02	130.02	130.02
9.600	130.02	130.02	130.02	130.02	130.02
9.625	130.02	130.02	130.02	130.02	130.02
9.650	130.02	130.02	130.02	130.02	130.02

**Time vs. Elevation (ft)**

**Output Time increment = 0.005 hours**  
**Time on left represents time for first value in each row.**

Time (hours)	Elevation (ft)	Elevation (ft)	Elevation (ft)	Elevation (ft)	Elevation (ft)
9.675	130.02	130.02	130.02	130.02	130.02
9.700	130.02	130.02	130.02	130.02	130.02
9.725	130.02	130.02	130.02	130.02	130.02
9.750	130.02	130.02	130.02	130.02	130.02
9.775	130.02	130.02	130.02	130.02	130.02
9.800	130.02	130.02	130.02	130.02	130.02
9.825	130.02	130.02	130.02	130.02	130.02
9.850	130.02	130.02	130.02	130.02	130.02
9.875	130.02	130.02	130.02	130.02	130.02
9.900	130.02	130.02	130.02	130.02	130.02
9.925	130.02	130.02	130.02	130.02	130.02
9.950	130.02	130.02	130.02	130.02	130.02
9.975	130.02	130.02	130.02	130.02	130.02
10.000	130.02	130.02	130.02	130.02	130.02
10.025	130.02	130.02	130.02	130.02	130.02
10.050	130.02	130.02	130.02	130.02	130.02
10.075	130.02	130.03	130.03	130.03	130.03
10.100	130.03	130.03	130.03	130.03	130.03
10.125	130.03	130.03	130.03	130.03	130.03
10.150	130.03	130.03	130.03	130.03	130.03
10.175	130.03	130.03	130.03	130.03	130.03
10.200	130.03	130.03	130.03	130.03	130.03
10.225	130.03	130.03	130.03	130.03	130.03
10.250	130.03	130.03	130.03	130.03	130.03
10.275	130.03	130.03	130.03	130.03	130.03
10.300	130.03	130.03	130.03	130.03	130.03
10.325	130.03	130.03	130.03	130.03	130.03
10.350	130.03	130.03	130.03	130.03	130.03
10.375	130.03	130.03	130.03	130.03	130.03
10.400	130.04	130.04	130.04	130.04	130.04
10.425	130.04	130.04	130.04	130.04	130.04
10.450	130.04	130.04	130.04	130.04	130.04
10.475	130.04	130.04	130.04	130.04	130.04
10.500	130.04	130.04	130.04	130.04	130.04
10.525	130.04	130.04	130.04	130.04	130.04
10.550	130.04	130.04	130.04	130.04	130.04
10.575	130.04	130.04	130.04	130.04	130.04
10.600	130.04	130.04	130.04	130.04	130.04
10.625	130.04	130.04	130.04	130.04	130.04
10.650	130.05	130.05	130.05	130.05	130.05
10.675	130.05	130.05	130.05	130.05	130.05
10.700	130.05	130.05	130.05	130.05	130.05
10.725	130.05	130.05	130.05	130.05	130.05

**Time vs. Elevation (ft)**

**Output Time increment = 0.005 hours**  
**Time on left represents time for first value in each row.**

Time (hours)	Elevation (ft)	Elevation (ft)	Elevation (ft)	Elevation (ft)	Elevation (ft)
10.750	130.05	130.05	130.05	130.05	130.05
10.775	130.05	130.05	130.05	130.05	130.05
10.800	130.05	130.05	130.05	130.05	130.05
10.825	130.05	130.05	130.05	130.05	130.05
10.850	130.05	130.05	130.05	130.05	130.05
10.875	130.05	130.05	130.05	130.05	130.05
10.900	130.05	130.05	130.05	130.05	130.06
10.925	130.06	130.06	130.06	130.06	130.06
10.950	130.06	130.06	130.06	130.06	130.06
10.975	130.06	130.06	130.06	130.06	130.06
11.000	130.06	130.06	130.06	130.06	130.06
11.025	130.06	130.06	130.06	130.06	130.06
11.050	130.06	130.06	130.06	130.06	130.06
11.075	130.06	130.06	130.06	130.06	130.06
11.100	130.06	130.06	130.06	130.06	130.06
11.125	130.07	130.07	130.07	130.07	130.07
11.150	130.07	130.07	130.07	130.07	130.07
11.175	130.07	130.07	130.07	130.07	130.07
11.200	130.07	130.07	130.07	130.07	130.07
11.225	130.07	130.07	130.07	130.07	130.07
11.250	130.07	130.07	130.07	130.07	130.08
11.275	130.08	130.08	130.08	130.08	130.08
11.300	130.08	130.08	130.08	130.08	130.08
11.325	130.08	130.08	130.08	130.08	130.08
11.350	130.08	130.08	130.08	130.08	130.09
11.375	130.09	130.09	130.09	130.09	130.09
11.400	130.09	130.09	130.09	130.09	130.09
11.425	130.09	130.09	130.09	130.09	130.09
11.450	130.09	130.09	130.09	130.09	130.09
11.475	130.09	130.09	130.09	130.10	130.10
11.500	130.10	130.10	130.10	130.10	130.10
11.525	130.10	130.10	130.10	130.10	130.10
11.550	130.10	130.10	130.10	130.10	130.10
11.575	130.10	130.11	130.11	130.11	130.11
11.600	130.11	130.11	130.11	130.11	130.12
11.625	130.12	130.12	130.12	130.13	130.13
11.650	130.13	130.13	130.14	130.14	130.14
11.675	130.14	130.15	130.15	130.15	130.16
11.700	130.16	130.17	130.17	130.18	130.18
11.725	130.19	130.19	130.19	130.20	130.21
11.750	130.21	130.21	130.22	130.22	130.23
11.775	130.23	130.24	130.25	130.25	130.26
11.800	130.26	130.27	130.28	130.28	130.29

**Time vs. Elevation (ft)**

**Output Time increment = 0.005 hours**  
**Time on left represents time for first value in each row.**

Time (hours)	Elevation (ft)	Elevation (ft)	Elevation (ft)	Elevation (ft)	Elevation (ft)
11.825	130.29	130.30	130.31	130.31	130.32
11.850	130.33	130.33	130.34	130.35	130.36
11.875	130.36	130.37	130.38	130.39	130.40
11.900	130.41	130.42	130.42	130.43	130.44
11.925	130.45	130.46	130.47	130.48	130.48
11.950	130.49	130.50	130.51	130.51	130.52
11.975	130.52	130.53	130.53	130.54	130.54
12.000	130.54	130.55	130.55	130.55	130.55
12.025	130.56	130.56	130.56	130.56	130.56
12.050	130.56	130.56	130.56	130.56	130.55
12.075	130.55	130.55	130.54	130.54	130.53
12.100	130.53	130.52	130.52	130.51	130.51
12.125	130.50	130.49	130.49	130.48	130.47
12.150	130.47	130.46	130.45	130.44	130.44
12.175	130.43	130.42	130.42	130.41	130.40
12.200	130.40	130.39	130.38	130.38	130.37
12.225	130.36	130.36	130.35	130.35	130.34
12.250	130.34	130.33	130.33	130.32	130.32
12.275	130.31	130.31	130.30	130.30	130.30
12.300	130.29	130.29	130.29	130.28	130.28
12.325	130.28	130.27	130.27	130.27	130.27
12.350	130.26	130.26	130.26	130.25	130.25
12.375	130.25	130.25	130.25	130.24	130.24
12.400	130.24	130.24	130.24	130.23	130.23
12.425	130.23	130.23	130.23	130.23	130.22
12.450	130.22	130.22	130.22	130.22	130.22
12.475	130.21	130.21	130.21	130.21	130.21
12.500	130.21	130.21	130.21	130.20	130.20
12.525	130.20	130.20	130.20	130.20	130.20
12.550	130.20	130.19	130.19	130.19	130.19
12.575	130.19	130.19	130.19	130.19	130.19
12.600	130.18	130.18	130.18	130.18	130.18
12.625	130.18	130.18	130.18	130.18	130.17
12.650	130.17	130.17	130.17	130.17	130.17
12.675	130.17	130.17	130.17	130.17	130.17
12.700	130.17	130.17	130.16	130.16	130.16
12.725	130.16	130.16	130.16	130.16	130.16
12.750	130.16	130.16	130.16	130.16	130.16
12.775	130.16	130.16	130.16	130.16	130.16
12.800	130.16	130.16	130.16	130.15	130.15
12.825	130.15	130.15	130.15	130.15	130.15
12.850	130.15	130.15	130.15	130.15	130.15
12.875	130.15	130.15	130.15	130.15	130.15

**Time vs. Elevation (ft)**

**Output Time increment = 0.005 hours**  
**Time on left represents time for first value in each row.**

Time (hours)	Elevation (ft)	Elevation (ft)	Elevation (ft)	Elevation (ft)	Elevation (ft)
12.900	130.15	130.15	130.15	130.15	130.15
12.925	130.15	130.15	130.15	130.15	130.15
12.950	130.15	130.14	130.14	130.14	130.14
12.975	130.14	130.14	130.14	130.14	130.14
13.000	130.14	130.14	130.14	130.14	130.14
13.025	130.14	130.14	130.14	130.14	130.14
13.050	130.14	130.14	130.14	130.14	130.14
13.075	130.14	130.14	130.14	130.14	130.14
13.100	130.14	130.14	130.14	130.14	130.13
13.125	130.13	130.13	130.13	130.13	130.13
13.150	130.13	130.13	130.13	130.13	130.13
13.175	130.13	130.13	130.13	130.13	130.13
13.200	130.13	130.13	130.13	130.13	130.13
13.225	130.13	130.13	130.13	130.13	130.13
13.250	130.13	130.13	130.13	130.13	130.13
13.275	130.13	130.13	130.13	130.13	130.13
13.300	130.13	130.13	130.13	130.13	130.13
13.325	130.13	130.13	130.13	130.13	130.13
13.350	130.13	130.13	130.13	130.12	130.12
13.375	130.12	130.12	130.12	130.12	130.12
13.400	130.12	130.12	130.12	130.12	130.12
13.425	130.12	130.12	130.12	130.12	130.12
13.450	130.12	130.12	130.12	130.12	130.12
13.475	130.12	130.12	130.12	130.12	130.12
13.500	130.12	130.12	130.12	130.12	130.12
13.525	130.12	130.12	130.12	130.12	130.12
13.550	130.12	130.12	130.12	130.12	130.12
13.575	130.12	130.12	130.12	130.12	130.12
13.600	130.12	130.12	130.12	130.12	130.12
13.625	130.12	130.12	130.12	130.12	130.12
13.650	130.12	130.11	130.11	130.11	130.11
13.675	130.11	130.11	130.11	130.11	130.11
13.700	130.11	130.11	130.11	130.11	130.11
13.725	130.11	130.11	130.11	130.11	130.11
13.750	130.11	130.11	130.11	130.11	130.11
13.775	130.11	130.11	130.11	130.11	130.11
13.800	130.11	130.11	130.11	130.11	130.11
13.825	130.11	130.11	130.11	130.11	130.11
13.850	130.11	130.11	130.11	130.11	130.11
13.875	130.11	130.11	130.11	130.11	130.11
13.900	130.11	130.11	130.11	130.11	130.11
13.925	130.11	130.11	130.11	130.11	130.11
13.950	130.11	130.11	130.10	130.10	130.10

**Time vs. Elevation (ft)**

**Output Time increment = 0.005 hours**  
**Time on left represents time for first value in each row.**

Time (hours)	Elevation (ft)	Elevation (ft)	Elevation (ft)	Elevation (ft)	Elevation (ft)
13.975	130.10	130.10	130.10	130.10	130.10
14.000	130.10	130.10	130.10	130.10	130.10
14.025	130.10	130.10	130.10	130.10	130.10
14.050	130.10	130.10	130.10	130.10	130.10
14.075	130.10	130.10	130.10	130.10	130.10
14.100	130.10	130.10	130.10	130.10	130.10
14.125	130.10	130.10	130.10	130.10	130.10
14.150	130.10	130.10	130.10	130.10	130.10
14.175	130.10	130.10	130.10	130.10	130.10
14.200	130.10	130.10	130.10	130.10	130.10
14.225	130.10	130.10	130.10	130.10	130.10
14.250	130.10	130.10	130.10	130.10	130.10
14.275	130.10	130.10	130.10	130.10	130.10
14.300	130.10	130.10	130.10	130.10	130.10
14.325	130.10	130.10	130.10	130.10	130.10
14.350	130.10	130.10	130.10	130.10	130.10
14.375	130.10	130.10	130.10	130.10	130.10
14.400	130.10	130.10	130.10	130.10	130.10
14.425	130.10	130.10	130.10	130.10	130.10
14.450	130.09	130.09	130.09	130.09	130.09
14.475	130.09	130.09	130.09	130.09	130.09
14.500	130.09	130.09	130.09	130.09	130.09
14.525	130.09	130.09	130.09	130.09	130.09
14.550	130.09	130.09	130.09	130.09	130.09
14.575	130.09	130.09	130.09	130.09	130.09
14.600	130.09	130.09	130.09	130.09	130.09
14.625	130.09	130.09	130.09	130.09	130.09
14.650	130.09	130.09	130.09	130.09	130.09
14.675	130.09	130.09	130.09	130.09	130.09
14.700	130.09	130.09	130.09	130.09	130.09
14.725	130.09	130.09	130.09	130.09	130.09
14.750	130.09	130.09	130.09	130.09	130.09
14.775	130.09	130.09	130.09	130.09	130.09
14.800	130.09	130.09	130.09	130.09	130.09
14.825	130.09	130.09	130.09	130.09	130.09
14.850	130.09	130.09	130.09	130.09	130.09
14.875	130.09	130.09	130.09	130.09	130.09
14.900	130.09	130.09	130.09	130.09	130.09
14.925	130.09	130.09	130.09	130.09	130.09
14.950	130.09	130.09	130.09	130.09	130.09
14.975	130.09	130.09	130.09	130.09	130.09
15.000	130.09	130.09	130.09	130.09	130.09
15.025	130.09	130.09	130.09	130.09	130.09



**Time vs. Elevation (ft)**

**Output Time increment = 0.005 hours**  
**Time on left represents time for first value in each row.**

Time (hours)	Elevation (ft)	Elevation (ft)	Elevation (ft)	Elevation (ft)	Elevation (ft)
15.050	130.09	130.09	130.09	130.09	130.09
15.075	130.09	130.09	130.09	130.09	130.09
15.100	130.09	130.09	130.09	130.09	130.09
15.125	130.09	130.09	130.09	130.09	130.09
15.150	130.09	130.09	130.09	130.09	130.09
15.175	130.09	130.09	130.09	130.09	130.09
15.200	130.09	130.09	130.09	130.09	130.09
15.225	130.09	130.09	130.09	130.09	130.09
15.250	130.09	130.09	130.09	130.09	130.09
15.275	130.09	130.09	130.09	130.09	130.09
15.300	130.09	130.09	130.09	130.09	130.09
15.325	130.09	130.09	130.09	130.09	130.09
15.350	130.09	130.09	130.09	130.09	130.09
15.375	130.09	130.09	130.09	130.09	130.09
15.400	130.09	130.09	130.09	130.09	130.08
15.425	130.08	130.08	130.08	130.08	130.08
15.450	130.08	130.08	130.08	130.08	130.08
15.475	130.08	130.08	130.08	130.08	130.08
15.500	130.08	130.08	130.08	130.08	130.08
15.525	130.08	130.08	130.08	130.08	130.08
15.550	130.08	130.08	130.08	130.08	130.08
15.575	130.08	130.08	130.08	130.08	130.08
15.600	130.08	130.08	130.08	130.08	130.08
15.625	130.08	130.08	130.08	130.08	130.08
15.650	130.08	130.08	130.08	130.08	130.08
15.675	130.08	130.08	130.08	130.08	130.08
15.700	130.08	130.08	130.08	130.08	130.08
15.725	130.08	130.08	130.08	130.08	130.08
15.750	130.08	130.08	130.08	130.08	130.08
15.775	130.08	130.08	130.08	130.08	130.08
15.800	130.08	130.08	130.08	130.08	130.08
15.825	130.08	130.08	130.08	130.08	130.08
15.850	130.08	130.08	130.08	130.08	130.08
15.875	130.08	130.08	130.08	130.08	130.08
15.900	130.08	130.08	130.08	130.08	130.08
15.925	130.08	130.08	130.08	130.08	130.08
15.950	130.08	130.08	130.08	130.08	130.08
15.975	130.08	130.08	130.08	130.08	130.08
16.000	130.08	130.08	130.08	130.08	130.08
16.025	130.08	130.08	130.08	130.08	130.08
16.050	130.08	130.08	130.08	130.08	130.08
16.075	130.08	130.08	130.08	130.08	130.08
16.100	130.08	130.08	130.08	130.08	130.08

**Time vs. Elevation (ft)**

**Output Time increment = 0.005 hours**  
**Time on left represents time for first value in each row.**

Time (hours)	Elevation (ft)	Elevation (ft)	Elevation (ft)	Elevation (ft)	Elevation (ft)
16.125	130.08	130.08	130.08	130.08	130.08
16.150	130.08	130.08	130.08	130.08	130.08
16.175	130.08	130.08	130.08	130.08	130.08
16.200	130.08	130.08	130.08	130.08	130.08
16.225	130.08	130.08	130.08	130.08	130.08
16.250	130.08	130.08	130.08	130.08	130.07
16.275	130.07	130.07	130.07	130.07	130.07
16.300	130.07	130.07	130.07	130.07	130.07
16.325	130.07	130.07	130.07	130.07	130.07
16.350	130.07	130.07	130.07	130.07	130.07
16.375	130.07	130.07	130.07	130.07	130.07
16.400	130.07	130.07	130.07	130.07	130.07
16.425	130.07	130.07	130.07	130.07	130.07
16.450	130.07	130.07	130.07	130.07	130.07
16.475	130.07	130.07	130.07	130.07	130.07
16.500	130.07	130.07	130.07	130.07	130.07
16.525	130.07	130.07	130.07	130.07	130.07
16.550	130.07	130.07	130.07	130.07	130.07
16.575	130.07	130.07	130.07	130.07	130.07
16.600	130.07	130.07	130.07	130.07	130.07
16.625	130.07	130.07	130.07	130.07	130.07
16.650	130.07	130.07	130.07	130.07	130.07
16.675	130.07	130.07	130.07	130.07	130.07
16.700	130.07	130.07	130.07	130.07	130.07
16.725	130.07	130.07	130.07	130.07	130.07
16.750	130.07	130.07	130.07	130.07	130.07
16.775	130.07	130.07	130.07	130.07	130.07
16.800	130.07	130.07	130.07	130.07	130.07
16.825	130.07	130.07	130.07	130.07	130.07
16.850	130.07	130.07	130.07	130.07	130.07
16.875	130.07	130.07	130.07	130.07	130.07
16.900	130.07	130.07	130.07	130.07	130.07
16.925	130.07	130.07	130.07	130.07	130.07
16.950	130.07	130.07	130.07	130.07	130.07
16.975	130.07	130.07	130.07	130.07	130.07
17.000	130.07	130.07	130.07	130.07	130.07
17.025	130.07	130.07	130.07	130.07	130.07
17.050	130.07	130.07	130.07	130.07	130.07
17.075	130.07	130.07	130.07	130.07	130.07
17.100	130.07	130.07	130.07	130.07	130.07
17.125	130.07	130.07	130.07	130.07	130.07
17.150	130.07	130.07	130.07	130.07	130.07
17.175	130.07	130.07	130.07	130.07	130.07

**Time vs. Elevation (ft)**

**Output Time increment = 0.005 hours**  
**Time on left represents time for first value in each row.**

Time (hours)	Elevation (ft)	Elevation (ft)	Elevation (ft)	Elevation (ft)	Elevation (ft)
17.200	130.07	130.07	130.07	130.07	130.07
17.225	130.07	130.07	130.07	130.07	130.07
17.250	130.07	130.07	130.07	130.07	130.07
17.275	130.07	130.07	130.07	130.07	130.07
17.300	130.07	130.07	130.07	130.07	130.07
17.325	130.07	130.07	130.07	130.07	130.07
17.350	130.07	130.07	130.07	130.07	130.07
17.375	130.07	130.07	130.07	130.07	130.07
17.400	130.07	130.07	130.07	130.07	130.07
17.425	130.07	130.07	130.07	130.07	130.07
17.450	130.07	130.07	130.07	130.07	130.07
17.475	130.07	130.07	130.07	130.07	130.07
17.500	130.07	130.07	130.07	130.07	130.07
17.525	130.07	130.07	130.07	130.07	130.07
17.550	130.07	130.07	130.07	130.07	130.07
17.575	130.07	130.07	130.07	130.07	130.07
17.600	130.07	130.07	130.07	130.07	130.07
17.625	130.07	130.07	130.07	130.07	130.07
17.650	130.07	130.07	130.07	130.07	130.07
17.675	130.07	130.07	130.07	130.07	130.07
17.700	130.07	130.07	130.07	130.07	130.07
17.725	130.07	130.07	130.07	130.07	130.07
17.750	130.07	130.07	130.07	130.07	130.07
17.775	130.07	130.07	130.07	130.07	130.07
17.800	130.07	130.07	130.07	130.07	130.07
17.825	130.07	130.07	130.07	130.07	130.07
17.850	130.07	130.07	130.07	130.07	130.07
17.875	130.07	130.07	130.07	130.07	130.07
17.900	130.07	130.07	130.07	130.07	130.07
17.925	130.07	130.07	130.07	130.07	130.07
17.950	130.07	130.07	130.07	130.07	130.07
17.975	130.07	130.07	130.07	130.07	130.07
18.000	130.07	130.07	130.07	130.07	130.07
18.025	130.07	130.07	130.07	130.07	130.07
18.050	130.07	130.07	130.07	130.07	130.06
18.075	130.06	130.06	130.06	130.06	130.06
18.100	130.06	130.06	130.06	130.06	130.06
18.125	130.06	130.06	130.06	130.06	130.06
18.150	130.06	130.06	130.06	130.06	130.06
18.175	130.06	130.06	130.06	130.06	130.06
18.200	130.06	130.06	130.06	130.06	130.06
18.225	130.06	130.06	130.06	130.06	130.06
18.250	130.06	130.06	130.06	130.06	130.06

**Time vs. Elevation (ft)**

**Output Time increment = 0.005 hours**  
**Time on left represents time for first value in each row.**

Time (hours)	Elevation (ft)	Elevation (ft)	Elevation (ft)	Elevation (ft)	Elevation (ft)
18.275	130.06	130.06	130.06	130.06	130.06
18.300	130.06	130.06	130.06	130.06	130.06
18.325	130.06	130.06	130.06	130.06	130.06
18.350	130.06	130.06	130.06	130.06	130.06
18.375	130.06	130.06	130.06	130.06	130.06
18.400	130.06	130.06	130.06	130.06	130.06
18.425	130.06	130.06	130.06	130.06	130.06
18.450	130.06	130.06	130.06	130.06	130.06
18.475	130.06	130.06	130.06	130.06	130.06
18.500	130.06	130.06	130.06	130.06	130.06
18.525	130.06	130.06	130.06	130.06	130.06
18.550	130.06	130.06	130.06	130.06	130.06
18.575	130.06	130.06	130.06	130.06	130.06
18.600	130.06	130.06	130.06	130.06	130.06
18.625	130.06	130.06	130.06	130.06	130.06
18.650	130.06	130.06	130.06	130.06	130.06
18.675	130.06	130.06	130.06	130.06	130.06
18.700	130.06	130.06	130.06	130.06	130.06
18.725	130.06	130.06	130.06	130.06	130.06
18.750	130.06	130.06	130.06	130.06	130.06
18.775	130.06	130.06	130.06	130.06	130.06
18.800	130.06	130.06	130.06	130.06	130.06
18.825	130.06	130.06	130.06	130.06	130.06
18.850	130.06	130.06	130.06	130.06	130.06
18.875	130.06	130.06	130.06	130.06	130.06
18.900	130.06	130.06	130.06	130.06	130.06
18.925	130.06	130.06	130.06	130.06	130.06
18.950	130.06	130.06	130.06	130.06	130.06
18.975	130.06	130.06	130.06	130.06	130.06
19.000	130.06	130.06	130.06	130.06	130.06
19.025	130.06	130.06	130.06	130.06	130.06
19.050	130.06	130.06	130.06	130.06	130.06
19.075	130.06	130.06	130.06	130.06	130.06
19.100	130.06	130.06	130.06	130.06	130.06
19.125	130.06	130.06	130.06	130.06	130.06
19.150	130.06	130.06	130.06	130.06	130.06
19.175	130.06	130.06	130.06	130.06	130.06
19.200	130.06	130.06	130.06	130.06	130.06
19.225	130.06	130.06	130.06	130.06	130.06
19.250	130.06	130.06	130.06	130.06	130.06
19.275	130.06	130.06	130.06	130.06	130.06
19.300	130.06	130.06	130.06	130.06	130.06
19.325	130.06	130.06	130.06	130.06	130.06

**Time vs. Elevation (ft)**

**Output Time increment = 0.005 hours**  
**Time on left represents time for first value in each row.**

Time (hours)	Elevation (ft)	Elevation (ft)	Elevation (ft)	Elevation (ft)	Elevation (ft)
19.350	130.06	130.06	130.06	130.06	130.06
19.375	130.06	130.06	130.06	130.06	130.06
19.400	130.06	130.06	130.06	130.06	130.06
19.425	130.06	130.06	130.06	130.06	130.06
19.450	130.06	130.06	130.06	130.06	130.06
19.475	130.06	130.06	130.06	130.06	130.06
19.500	130.06	130.06	130.06	130.06	130.06
19.525	130.06	130.06	130.06	130.06	130.06
19.550	130.06	130.06	130.06	130.06	130.06
19.575	130.06	130.06	130.06	130.06	130.06
19.600	130.06	130.06	130.06	130.06	130.06
19.625	130.06	130.06	130.06	130.06	130.06
19.650	130.06	130.06	130.06	130.06	130.06
19.675	130.06	130.06	130.06	130.06	130.06
19.700	130.06	130.06	130.06	130.06	130.06
19.725	130.06	130.06	130.06	130.06	130.06
19.750	130.06	130.06	130.06	130.06	130.06
19.775	130.06	130.06	130.06	130.06	130.06
19.800	130.06	130.06	130.06	130.06	130.06
19.825	130.06	130.06	130.06	130.06	130.05
19.850	130.05	130.05	130.05	130.05	130.05
19.875	130.05	130.05	130.05	130.05	130.05
19.900	130.05	130.05	130.05	130.05	130.05
19.925	130.05	130.05	130.05	130.05	130.05
19.950	130.05	130.05	130.05	130.05	130.05
19.975	130.05	130.05	130.05	130.05	130.05
20.000	130.05	130.05	130.05	130.05	130.05
20.025	130.05	130.05	130.05	130.05	130.05
20.050	130.05	130.05	130.05	130.05	130.05
20.075	130.05	130.05	130.05	130.05	130.05
20.100	130.05	130.05	130.05	130.05	130.05
20.125	130.05	130.05	130.05	130.05	130.05
20.150	130.05	130.05	130.05	130.05	130.05
20.175	130.05	130.05	130.05	130.05	130.05
20.200	130.05	130.05	130.05	130.05	130.05
20.225	130.05	130.05	130.05	130.05	130.05
20.250	130.05	130.05	130.05	130.05	130.05
20.275	130.05	130.05	130.05	130.05	130.05
20.300	130.05	130.05	130.05	130.05	130.05
20.325	130.05	130.05	130.05	130.05	130.05
20.350	130.05	130.05	130.05	130.05	130.05
20.375	130.05	130.05	130.05	130.05	130.05
20.400	130.05	130.05	130.05	130.05	130.05

**Time vs. Elevation (ft)**

**Output Time increment = 0.005 hours**  
**Time on left represents time for first value in each row.**

Time (hours)	Elevation (ft)	Elevation (ft)	Elevation (ft)	Elevation (ft)	Elevation (ft)
20.425	130.05	130.05	130.05	130.05	130.05
20.450	130.05	130.05	130.05	130.05	130.05
20.475	130.05	130.05	130.05	130.05	130.05
20.500	130.05	130.05	130.05	130.05	130.05
20.525	130.05	130.05	130.05	130.05	130.05
20.550	130.05	130.05	130.05	130.05	130.05
20.575	130.05	130.05	130.05	130.05	130.05
20.600	130.05	130.05	130.05	130.05	130.05
20.625	130.05	130.05	130.05	130.05	130.05
20.650	130.05	130.05	130.05	130.05	130.05
20.675	130.05	130.05	130.05	130.05	130.05
20.700	130.05	130.05	130.05	130.05	130.05
20.725	130.05	130.05	130.05	130.05	130.05
20.750	130.05	130.05	130.05	130.05	130.05
20.775	130.05	130.05	130.05	130.05	130.05
20.800	130.05	130.05	130.05	130.05	130.05
20.825	130.05	130.05	130.05	130.05	130.05
20.850	130.05	130.05	130.05	130.05	130.05
20.875	130.05	130.05	130.05	130.05	130.05
20.900	130.05	130.05	130.05	130.05	130.05
20.925	130.05	130.05	130.05	130.05	130.05
20.950	130.05	130.05	130.05	130.05	130.05
20.975	130.05	130.05	130.05	130.05	130.05
21.000	130.05	130.05	130.05	130.05	130.05
21.025	130.05	130.05	130.05	130.05	130.05
21.050	130.05	130.05	130.05	130.05	130.05
21.075	130.05	130.05	130.05	130.05	130.05
21.100	130.05	130.05	130.05	130.05	130.05
21.125	130.05	130.05	130.05	130.05	130.05
21.150	130.05	130.05	130.05	130.05	130.05
21.175	130.05	130.05	130.05	130.05	130.05
21.200	130.05	130.05	130.05	130.05	130.05
21.225	130.05	130.05	130.05	130.05	130.05
21.250	130.05	130.05	130.05	130.05	130.05
21.275	130.05	130.05	130.05	130.05	130.05
21.300	130.05	130.05	130.05	130.05	130.05
21.325	130.05	130.05	130.05	130.05	130.05
21.350	130.05	130.05	130.05	130.05	130.05
21.375	130.05	130.05	130.05	130.05	130.05
21.400	130.05	130.05	130.05	130.05	130.05
21.425	130.05	130.05	130.05	130.05	130.05
21.450	130.05	130.05	130.05	130.05	130.05
21.475	130.05	130.05	130.05	130.05	130.05

**Time vs. Elevation (ft)**

**Output Time increment = 0.005 hours**  
**Time on left represents time for first value in each row.**

Time (hours)	Elevation (ft)	Elevation (ft)	Elevation (ft)	Elevation (ft)	Elevation (ft)
21.500	130.05	130.05	130.05	130.05	130.05
21.525	130.05	130.05	130.05	130.05	130.05
21.550	130.05	130.05	130.05	130.05	130.05
21.575	130.05	130.05	130.05	130.05	130.05
21.600	130.05	130.05	130.05	130.05	130.05
21.625	130.05	130.05	130.05	130.05	130.05
21.650	130.05	130.05	130.05	130.05	130.05
21.675	130.05	130.05	130.05	130.05	130.05
21.700	130.05	130.05	130.05	130.05	130.05
21.725	130.05	130.05	130.05	130.05	130.05
21.750	130.05	130.05	130.05	130.05	130.05
21.775	130.05	130.05	130.05	130.05	130.05
21.800	130.05	130.05	130.05	130.05	130.05
21.825	130.05	130.05	130.05	130.05	130.05
21.850	130.05	130.05	130.05	130.05	130.05
21.875	130.05	130.05	130.05	130.05	130.05
21.900	130.05	130.05	130.05	130.05	130.05
21.925	130.05	130.05	130.05	130.05	130.05
21.950	130.05	130.05	130.05	130.05	130.05
21.975	130.05	130.05	130.05	130.05	130.05
22.000	130.05	130.05	130.05	130.05	130.05
22.025	130.05	130.05	130.05	130.05	130.05
22.050	130.05	130.05	130.05	130.05	130.05
22.075	130.05	130.05	130.05	130.05	130.05
22.100	130.05	130.05	130.05	130.05	130.05
22.125	130.05	130.05	130.05	130.05	130.05
22.150	130.05	130.05	130.05	130.05	130.05
22.175	130.05	130.05	130.05	130.05	130.05
22.200	130.05	130.05	130.05	130.05	130.05
22.225	130.05	130.05	130.05	130.05	130.05
22.250	130.05	130.05	130.05	130.05	130.05
22.275	130.05	130.05	130.05	130.05	130.05
22.300	130.05	130.05	130.05	130.05	130.05
22.325	130.05	130.05	130.05	130.05	130.05
22.350	130.05	130.05	130.05	130.05	130.05
22.375	130.05	130.05	130.05	130.05	130.05
22.400	130.05	130.05	130.05	130.05	130.05
22.425	130.05	130.05	130.05	130.05	130.05
22.450	130.05	130.05	130.05	130.05	130.05
22.475	130.05	130.05	130.05	130.05	130.05
22.500	130.05	130.05	130.05	130.05	130.05
22.525	130.05	130.05	130.05	130.05	130.05
22.550	130.05	130.05	130.05	130.05	130.05

**Time vs. Elevation (ft)**

**Output Time increment = 0.005 hours**  
**Time on left represents time for first value in each row.**

Time (hours)	Elevation (ft)	Elevation (ft)	Elevation (ft)	Elevation (ft)	Elevation (ft)
22.575	130.05	130.05	130.05	130.05	130.05
22.600	130.05	130.05	130.05	130.05	130.05
22.625	130.05	130.05	130.05	130.05	130.05
22.650	130.05	130.05	130.05	130.05	130.05
22.675	130.05	130.05	130.05	130.05	130.05
22.700	130.05	130.05	130.05	130.05	130.05
22.725	130.05	130.05	130.05	130.05	130.05
22.750	130.05	130.05	130.05	130.05	130.05
22.775	130.05	130.05	130.05	130.05	130.05
22.800	130.05	130.05	130.05	130.05	130.05
22.825	130.05	130.05	130.05	130.05	130.05
22.850	130.05	130.05	130.05	130.05	130.05
22.875	130.05	130.05	130.05	130.05	130.05
22.900	130.05	130.05	130.05	130.05	130.05
22.925	130.05	130.05	130.05	130.05	130.05
22.950	130.05	130.05	130.05	130.05	130.05
22.975	130.05	130.05	130.05	130.05	130.05
23.000	130.05	130.05	130.05	130.05	130.05
23.025	130.05	130.05	130.05	130.05	130.05
23.050	130.05	130.05	130.05	130.05	130.05
23.075	130.05	130.05	130.05	130.05	130.05
23.100	130.05	130.05	130.05	130.05	130.05
23.125	130.05	130.05	130.05	130.05	130.05
23.150	130.05	130.05	130.05	130.05	130.05
23.175	130.05	130.05	130.05	130.05	130.05
23.200	130.05	130.05	130.05	130.05	130.05
23.225	130.05	130.05	130.05	130.05	130.05
23.250	130.05	130.05	130.05	130.05	130.05
23.275	130.05	130.05	130.05	130.05	130.05
23.300	130.05	130.05	130.05	130.05	130.05
23.325	130.05	130.05	130.05	130.05	130.05
23.350	130.05	130.05	130.05	130.05	130.05
23.375	130.05	130.05	130.05	130.05	130.05
23.400	130.05	130.05	130.05	130.05	130.05
23.425	130.05	130.05	130.05	130.05	130.05
23.450	130.05	130.05	130.05	130.05	130.05
23.475	130.05	130.05	130.05	130.05	130.05
23.500	130.05	130.05	130.05	130.05	130.05
23.525	130.05	130.05	130.05	130.05	130.05
23.550	130.05	130.05	130.05	130.05	130.05
23.575	130.05	130.05	130.05	130.05	130.05
23.600	130.05	130.05	130.05	130.05	130.05
23.625	130.05	130.05	130.05	130.05	130.05



Subsection: Time vs. Elevation  
 Label: CO-28

Return Event: 25 years  
 Storm Event: 25 yr

**Time vs. Elevation (ft)**

**Output Time increment = 0.005 hours**  
**Time on left represents time for first value in each row.**

Time (hours)	Elevation (ft)	Elevation (ft)	Elevation (ft)	Elevation (ft)	Elevation (ft)
23.650	130.05	130.05	130.05	130.05	130.05
23.675	130.05	130.05	130.05	130.05	130.05
23.700	130.05	130.05	130.05	130.05	130.05
23.725	130.05	130.05	130.05	130.05	130.05
23.750	130.05	130.05	130.05	130.05	130.05
23.775	130.05	130.05	130.05	130.05	130.05
23.800	130.05	130.05	130.05	130.05	130.05
23.825	130.05	130.05	130.05	130.05	130.05
23.850	130.05	130.05	130.05	130.05	130.05
23.875	130.05	130.05	130.05	130.05	130.05
23.900	130.05	130.05	130.05	130.05	130.05
23.925	130.05	130.05	130.05	130.05	130.05
23.950	130.05	130.05	130.05	130.05	130.05
23.975	130.05	130.05	130.05	130.05	130.05
24.000	130.05	(N/A)	(N/A)	(N/A)	(N/A)

Subsection: Time vs. Elevation  
 Label: CO-45

Return Event: 25 years  
 Storm Event: 25 yr

**Time vs. Elevation (ft)**

**Output Time increment = 0.005 hours**  
**Time on left represents time for first value in each row.**

Time (hours)	Elevation (ft)	Elevation (ft)	Elevation (ft)	Elevation (ft)	Elevation (ft)
0.000	129.00	129.00	129.00	129.00	129.00
0.025	129.00	129.00	129.00	129.00	129.00
0.050	129.00	129.00	129.00	129.00	129.00
0.075	129.00	129.00	129.00	129.00	129.00
0.100	129.00	129.00	129.00	129.00	129.00
0.125	129.00	129.00	129.00	129.00	129.00
0.150	129.00	129.00	129.00	129.00	129.00
0.175	129.00	129.00	129.00	129.00	129.00
0.200	129.00	129.00	129.00	129.00	129.00
0.225	129.00	129.00	129.00	129.00	129.00
0.250	129.00	129.00	129.00	129.00	129.00
0.275	129.00	129.00	129.00	129.00	129.00
0.300	129.00	129.00	129.00	129.00	129.00
0.325	129.00	129.00	129.00	129.00	129.00
0.350	129.00	129.00	129.00	129.00	129.00
0.375	129.00	129.00	129.00	129.00	129.00
0.400	129.00	129.00	129.00	129.00	129.00
0.425	129.00	129.00	129.00	129.00	129.00
0.450	129.00	129.00	129.00	129.00	129.00
0.475	129.00	129.00	129.00	129.00	129.00
0.500	129.00	129.00	129.00	129.00	129.00
0.525	129.00	129.00	129.00	129.00	129.00
0.550	129.00	129.00	129.00	129.00	129.00
0.575	129.00	129.00	129.00	129.00	129.00
0.600	129.00	129.00	129.00	129.00	129.00
0.625	129.00	129.00	129.00	129.00	129.00
0.650	129.00	129.00	129.00	129.00	129.00
0.675	129.00	129.00	129.00	129.00	129.00
0.700	129.00	129.00	129.00	129.00	129.00
0.725	129.00	129.00	129.00	129.00	129.00
0.750	129.00	129.00	129.00	129.00	129.00
0.775	129.00	129.00	129.00	129.00	129.00
0.800	129.00	129.00	129.00	129.00	129.00
0.825	129.00	129.00	129.00	129.00	129.00
0.850	129.00	129.00	129.00	129.00	129.00
0.875	129.00	129.00	129.00	129.00	129.00
0.900	129.00	129.00	129.00	129.00	129.00
0.925	129.00	129.00	129.00	129.00	129.00
0.950	129.00	129.00	129.00	129.00	129.00
0.975	129.00	129.00	129.00	129.00	129.00
1.000	129.00	129.00	129.00	129.00	129.00
1.025	129.00	129.00	129.00	129.00	129.00
1.050	129.00	129.00	129.00	129.00	129.00

**Time vs. Elevation (ft)**

**Output Time increment = 0.005 hours**  
**Time on left represents time for first value in each row.**

Time (hours)	Elevation (ft)	Elevation (ft)	Elevation (ft)	Elevation (ft)	Elevation (ft)
1.075	129.00	129.00	129.00	129.00	129.00
1.100	129.00	129.00	129.00	129.00	129.00
1.125	129.00	129.00	129.00	129.00	129.00
1.150	129.00	129.00	129.00	129.00	129.00
1.175	129.00	129.00	129.00	129.00	129.00
1.200	129.00	129.00	129.00	129.00	129.00
1.225	129.00	129.00	129.00	129.00	129.00
1.250	129.00	129.00	129.00	129.00	129.00
1.275	129.00	129.00	129.00	129.00	129.00
1.300	129.00	129.00	129.00	129.00	129.00
1.325	129.00	129.00	129.00	129.00	129.00
1.350	129.00	129.00	129.00	129.00	129.00
1.375	129.00	129.00	129.00	129.00	129.00
1.400	129.00	129.00	129.00	129.00	129.00
1.425	129.00	129.00	129.00	129.00	129.00
1.450	129.00	129.00	129.00	129.00	129.00
1.475	129.00	129.00	129.00	129.00	129.00
1.500	129.00	129.00	129.00	129.00	129.00
1.525	129.00	129.00	129.00	129.00	129.00
1.550	129.00	129.00	129.00	129.00	129.00
1.575	129.00	129.00	129.00	129.00	129.00
1.600	129.00	129.00	129.00	129.00	129.00
1.625	129.00	129.00	129.00	129.00	129.00
1.650	129.00	129.00	129.00	129.00	129.00
1.675	129.00	129.00	129.00	129.00	129.00
1.700	129.00	129.00	129.00	129.00	129.00
1.725	129.00	129.00	129.00	129.00	129.00
1.750	129.00	129.00	129.00	129.00	129.00
1.775	129.00	129.00	129.00	129.00	129.00
1.800	129.00	129.00	129.00	129.00	129.00
1.825	129.00	129.00	129.00	129.00	129.00
1.850	129.00	129.00	129.00	129.00	129.00
1.875	129.00	129.00	129.00	129.00	129.00
1.900	129.00	129.00	129.00	129.00	129.00
1.925	129.00	129.00	129.00	129.00	129.00
1.950	129.00	129.00	129.00	129.00	129.00
1.975	129.00	129.00	129.00	129.00	129.00
2.000	129.00	129.00	129.00	129.00	129.00
2.025	129.00	129.00	129.00	129.00	129.00
2.050	129.00	129.00	129.00	129.00	129.00
2.075	129.00	129.00	129.00	129.00	129.00
2.100	129.00	129.00	129.00	129.00	129.00
2.125	129.00	129.00	129.00	129.00	129.00

**Time vs. Elevation (ft)**

**Output Time increment = 0.005 hours**  
**Time on left represents time for first value in each row.**

Time (hours)	Elevation (ft)	Elevation (ft)	Elevation (ft)	Elevation (ft)	Elevation (ft)
2.150	129.00	129.00	129.00	129.00	129.00
2.175	129.00	129.00	129.00	129.00	129.00
2.200	129.00	129.00	129.00	129.00	129.00
2.225	129.00	129.00	129.00	129.00	129.00
2.250	129.00	129.00	129.00	129.00	129.00
2.275	129.00	129.00	129.00	129.00	129.00
2.300	129.00	129.00	129.00	129.00	129.00
2.325	129.00	129.00	129.00	129.00	129.00
2.350	129.00	129.00	129.00	129.00	129.00
2.375	129.00	129.00	129.00	129.00	129.00
2.400	129.00	129.00	129.00	129.00	129.00
2.425	129.00	129.00	129.00	129.00	129.00
2.450	129.00	129.00	129.00	129.00	129.00
2.475	129.00	129.00	129.00	129.00	129.00
2.500	129.00	129.00	129.00	129.00	129.00
2.525	129.00	129.00	129.00	129.00	129.00
2.550	129.00	129.00	129.00	129.00	129.00
2.575	129.00	129.00	129.00	129.00	129.00
2.600	129.00	129.00	129.00	129.00	129.00
2.625	129.00	129.00	129.00	129.00	129.00
2.650	129.00	129.00	129.00	129.00	129.00
2.675	129.00	129.00	129.00	129.00	129.00
2.700	129.00	129.00	129.00	129.00	129.00
2.725	129.00	129.00	129.00	129.00	129.00
2.750	129.00	129.00	129.00	129.00	129.00
2.775	129.00	129.00	129.00	129.00	129.00
2.800	129.00	129.00	129.00	129.00	129.00
2.825	129.00	129.00	129.00	129.00	129.00
2.850	129.00	129.00	129.00	129.00	129.00
2.875	129.00	129.00	129.00	129.00	129.00
2.900	129.00	129.00	129.00	129.00	129.00
2.925	129.00	129.00	129.00	129.00	129.00
2.950	129.00	129.00	129.00	129.00	129.00
2.975	129.00	129.00	129.00	129.00	129.00
3.000	129.00	129.00	129.00	129.00	129.00
3.025	129.00	129.00	129.00	129.00	129.00
3.050	129.00	129.00	129.00	129.00	129.00
3.075	129.00	129.00	129.00	129.00	129.00
3.100	129.00	129.00	129.00	129.00	129.00
3.125	129.00	129.00	129.00	129.00	129.00
3.150	129.00	129.00	129.00	129.00	129.00
3.175	129.00	129.00	129.00	129.00	129.00
3.200	129.00	129.00	129.00	129.00	129.00

**Time vs. Elevation (ft)**

**Output Time increment = 0.005 hours**  
**Time on left represents time for first value in each row.**

Time (hours)	Elevation (ft)	Elevation (ft)	Elevation (ft)	Elevation (ft)	Elevation (ft)
3.225	129.00	129.00	129.00	129.00	129.00
3.250	129.00	129.00	129.00	129.00	129.00
3.275	129.00	129.00	129.00	129.00	129.00
3.300	129.00	129.00	129.00	129.00	129.00
3.325	129.00	129.00	129.00	129.00	129.00
3.350	129.00	129.00	129.00	129.00	129.00
3.375	129.00	129.00	129.00	129.00	129.00
3.400	129.00	129.00	129.00	129.00	129.00
3.425	129.00	129.00	129.00	129.00	129.00
3.450	129.00	129.00	129.00	129.00	129.00
3.475	129.00	129.00	129.00	129.00	129.00
3.500	129.00	129.00	129.00	129.00	129.00
3.525	129.00	129.00	129.00	129.00	129.00
3.550	129.00	129.00	129.00	129.00	129.00
3.575	129.00	129.00	129.00	129.00	129.00
3.600	129.00	129.00	129.00	129.00	129.00
3.625	129.00	129.00	129.00	129.00	129.00
3.650	129.00	129.00	129.00	129.00	129.00
3.675	129.00	129.00	129.00	129.00	129.00
3.700	129.00	129.00	129.00	129.00	129.00
3.725	129.00	129.00	129.00	129.00	129.00
3.750	129.00	129.00	129.00	129.00	129.00
3.775	129.00	129.00	129.00	129.00	129.00
3.800	129.00	129.00	129.00	129.00	129.00
3.825	129.00	129.00	129.00	129.00	129.00
3.850	129.00	129.00	129.00	129.00	129.00
3.875	129.00	129.00	129.00	129.00	129.00
3.900	129.00	129.00	129.00	129.00	129.00
3.925	129.00	129.00	129.00	129.00	129.00
3.950	129.00	129.00	129.00	129.00	129.00
3.975	129.00	129.00	129.00	129.00	129.00
4.000	129.00	129.00	129.00	129.00	129.00
4.025	129.00	129.00	129.00	129.00	129.00
4.050	129.00	129.00	129.00	129.00	129.00
4.075	129.00	129.00	129.00	129.00	129.00
4.100	129.00	129.00	129.00	129.00	129.00
4.125	129.00	129.00	129.00	129.00	129.00
4.150	129.00	129.00	129.00	129.00	129.00
4.175	129.00	129.00	129.00	129.00	129.00
4.200	129.00	129.00	129.00	129.00	129.00
4.225	129.00	129.00	129.00	129.00	129.00
4.250	129.00	129.00	129.00	129.00	129.00
4.275	129.00	129.00	129.00	129.00	129.00

**Time vs. Elevation (ft)**

**Output Time increment = 0.005 hours**  
**Time on left represents time for first value in each row.**

Time (hours)	Elevation (ft)	Elevation (ft)	Elevation (ft)	Elevation (ft)	Elevation (ft)
4.300	129.00	129.00	129.00	129.00	129.00
4.325	129.00	129.00	129.00	129.00	129.00
4.350	129.00	129.00	129.00	129.00	129.00
4.375	129.00	129.00	129.00	129.00	129.00
4.400	129.00	129.00	129.00	129.00	129.00
4.425	129.00	129.00	129.00	129.00	129.00
4.450	129.00	129.00	129.00	129.00	129.00
4.475	129.00	129.00	129.00	129.00	129.00
4.500	129.00	129.00	129.00	129.00	129.00
4.525	129.00	129.00	129.00	129.00	129.00
4.550	129.00	129.00	129.00	129.00	129.00
4.575	129.00	129.00	129.00	129.00	129.00
4.600	129.00	129.00	129.00	129.00	129.00
4.625	129.00	129.00	129.00	129.00	129.00
4.650	129.00	129.00	129.00	129.00	129.00
4.675	129.00	129.00	129.00	129.00	129.00
4.700	129.00	129.00	129.00	129.00	129.00
4.725	129.00	129.00	129.00	129.00	129.00
4.750	129.00	129.00	129.00	129.00	129.00
4.775	129.00	129.00	129.00	129.00	129.00
4.800	129.00	129.00	129.00	129.00	129.00
4.825	129.00	129.00	129.00	129.00	129.00
4.850	129.00	129.00	129.00	129.00	129.00
4.875	129.00	129.00	129.00	129.00	129.00
4.900	129.00	129.00	129.00	129.00	129.00
4.925	129.00	129.00	129.00	129.00	129.00
4.950	129.00	129.00	129.00	129.00	129.00
4.975	129.00	129.00	129.00	129.00	129.00
5.000	129.00	129.00	129.00	129.00	129.00
5.025	129.00	129.00	129.00	129.00	129.00
5.050	129.00	129.00	129.00	129.00	129.00
5.075	129.00	129.00	129.00	129.00	129.00
5.100	129.00	129.00	129.00	129.00	129.00
5.125	129.00	129.00	129.00	129.00	129.00
5.150	129.00	129.00	129.00	129.00	129.00
5.175	129.00	129.00	129.00	129.00	129.00
5.200	129.00	129.00	129.00	129.00	129.00
5.225	129.00	129.00	129.00	129.00	129.00
5.250	129.00	129.00	129.00	129.00	129.00
5.275	129.00	129.00	129.00	129.00	129.00
5.300	129.00	129.00	129.00	129.00	129.00
5.325	129.00	129.00	129.00	129.00	129.00
5.350	129.00	129.00	129.00	129.00	129.00

**Time vs. Elevation (ft)**

**Output Time increment = 0.005 hours**  
**Time on left represents time for first value in each row.**

Time (hours)	Elevation (ft)	Elevation (ft)	Elevation (ft)	Elevation (ft)	Elevation (ft)
5.375	129.00	129.00	129.00	129.00	129.00
5.400	129.00	129.00	129.00	129.00	129.00
5.425	129.00	129.00	129.00	129.00	129.00
5.450	129.00	129.00	129.00	129.00	129.00
5.475	129.00	129.00	129.00	129.00	129.00
5.500	129.00	129.00	129.00	129.00	129.00
5.525	129.00	129.00	129.00	129.00	129.00
5.550	129.00	129.00	129.00	129.00	129.00
5.575	129.00	129.00	129.00	129.00	129.00
5.600	129.00	129.00	129.00	129.00	129.00
5.625	129.00	129.00	129.00	129.00	129.00
5.650	129.00	129.00	129.00	129.00	129.00
5.675	129.00	129.00	129.00	129.00	129.00
5.700	129.00	129.00	129.00	129.00	129.00
5.725	129.00	129.00	129.00	129.00	129.00
5.750	129.00	129.00	129.00	129.00	129.00
5.775	129.00	129.00	129.00	129.00	129.00
5.800	129.00	129.00	129.00	129.00	129.00
5.825	129.00	129.00	129.00	129.00	129.00
5.850	129.00	129.00	129.00	129.00	129.00
5.875	129.00	129.00	129.00	129.00	129.00
5.900	129.00	129.00	129.00	129.00	129.00
5.925	129.00	129.00	129.00	129.00	129.00
5.950	129.00	129.00	129.00	129.00	129.00
5.975	129.00	129.00	129.00	129.00	129.00
6.000	129.00	129.00	129.00	129.00	129.00
6.025	129.00	129.00	129.00	129.00	129.00
6.050	129.00	129.00	129.00	129.00	129.00
6.075	129.00	129.00	129.00	129.00	129.00
6.100	129.00	129.00	129.00	129.00	129.00
6.125	129.00	129.00	129.00	129.00	129.00
6.150	129.00	129.00	129.00	129.00	129.00
6.175	129.00	129.00	129.00	129.00	129.00
6.200	129.00	129.00	129.00	129.00	129.00
6.225	129.00	129.00	129.00	129.00	129.00
6.250	129.00	129.00	129.00	129.00	129.00
6.275	129.00	129.00	129.00	129.00	129.00
6.300	129.00	129.00	129.00	129.00	129.00
6.325	129.00	129.00	129.00	129.00	129.00
6.350	129.00	129.00	129.00	129.00	129.00
6.375	129.00	129.00	129.00	129.00	129.00
6.400	129.00	129.00	129.00	129.00	129.00
6.425	129.00	129.00	129.00	129.00	129.00

**Time vs. Elevation (ft)**

**Output Time increment = 0.005 hours**  
**Time on left represents time for first value in each row.**

Time (hours)	Elevation (ft)	Elevation (ft)	Elevation (ft)	Elevation (ft)	Elevation (ft)
6.450	129.00	129.00	129.00	129.00	129.00
6.475	129.00	129.00	129.00	129.00	129.00
6.500	129.00	129.00	129.00	129.00	129.00
6.525	129.00	129.00	129.00	129.00	129.00
6.550	129.00	129.00	129.00	129.00	129.00
6.575	129.00	129.00	129.00	129.00	129.00
6.600	129.00	129.00	129.00	129.00	129.00
6.625	129.00	129.00	129.00	129.00	129.00
6.650	129.00	129.00	129.00	129.00	129.00
6.675	129.00	129.00	129.00	129.00	129.00
6.700	129.00	129.00	129.00	129.00	129.00
6.725	129.00	129.00	129.00	129.00	129.00
6.750	129.00	129.00	129.00	129.00	129.00
6.775	129.00	129.00	129.00	129.00	129.00
6.800	129.00	129.00	129.00	129.00	129.00
6.825	129.00	129.00	129.00	129.00	129.00
6.850	129.00	129.00	129.00	129.00	129.00
6.875	129.00	129.00	129.00	129.00	129.00
6.900	129.00	129.00	129.00	129.00	129.00
6.925	129.00	129.00	129.00	129.00	129.00
6.950	129.00	129.00	129.00	129.00	129.00
6.975	129.00	129.00	129.00	129.00	129.00
7.000	129.00	129.00	129.00	129.00	129.00
7.025	129.00	129.00	129.00	129.00	129.00
7.050	129.00	129.00	129.00	129.00	129.00
7.075	129.00	129.00	129.00	129.00	129.00
7.100	129.00	129.00	129.00	129.00	129.00
7.125	129.00	129.00	129.00	129.00	129.00
7.150	129.00	129.00	129.00	129.00	129.00
7.175	129.00	129.00	129.00	129.00	129.00
7.200	129.00	129.00	129.00	129.00	129.00
7.225	129.00	129.00	129.00	129.00	129.00
7.250	129.00	129.00	129.00	129.00	129.00
7.275	129.00	129.00	129.00	129.00	129.00
7.300	129.00	129.00	129.00	129.00	129.00
7.325	129.00	129.00	129.00	129.00	129.00
7.350	129.00	129.00	129.00	129.00	129.00
7.375	129.00	129.00	129.00	129.00	129.00
7.400	129.00	129.00	129.00	129.00	129.00
7.425	129.00	129.00	129.00	129.00	129.00
7.450	129.00	129.00	129.00	129.00	129.00
7.475	129.00	129.00	129.00	129.00	129.00
7.500	129.00	129.00	129.00	129.00	129.00



**Time vs. Elevation (ft)**

**Output Time increment = 0.005 hours**  
**Time on left represents time for first value in each row.**

Time (hours)	Elevation (ft)	Elevation (ft)	Elevation (ft)	Elevation (ft)	Elevation (ft)
7.525	129.00	129.00	129.00	129.00	129.00
7.550	129.00	129.00	129.00	129.00	129.00
7.575	129.00	129.00	129.00	129.00	129.00
7.600	129.00	129.00	129.00	129.00	129.00
7.625	129.00	129.00	129.00	129.00	129.00
7.650	129.00	129.00	129.00	129.00	129.00
7.675	129.00	129.00	129.00	129.00	129.00
7.700	129.00	129.00	129.00	129.00	129.00
7.725	129.00	129.00	129.00	129.00	129.00
7.750	129.00	129.00	129.00	129.00	129.00
7.775	129.00	129.00	129.00	129.00	129.00
7.800	129.00	129.00	129.00	129.00	129.00
7.825	129.00	129.00	129.00	129.00	129.00
7.850	129.00	129.00	129.00	129.00	129.00
7.875	129.00	129.00	129.00	129.00	129.00
7.900	129.00	129.00	129.00	129.00	129.00
7.925	129.00	129.00	129.00	129.00	129.00
7.950	129.00	129.00	129.00	129.00	129.00
7.975	129.00	129.00	129.00	129.00	129.00
8.000	129.00	129.00	129.00	129.00	129.00
8.025	129.00	129.00	129.00	129.00	129.00
8.050	129.00	129.00	129.00	129.00	129.00
8.075	129.00	129.00	129.00	129.00	129.00
8.100	129.00	129.00	129.00	129.00	129.00
8.125	129.00	129.00	129.00	129.00	129.00
8.150	129.00	129.00	129.00	129.00	129.00
8.175	129.00	129.00	129.00	129.00	129.00
8.200	129.00	129.00	129.00	129.00	129.00
8.225	129.00	129.00	129.00	129.00	129.00
8.250	129.00	129.00	129.00	129.00	129.00
8.275	129.00	129.00	129.00	129.00	129.00
8.300	129.00	129.00	129.00	129.00	129.00
8.325	129.00	129.00	129.00	129.00	129.00
8.350	129.00	129.00	129.00	129.00	129.00
8.375	129.00	129.00	129.00	129.00	129.00
8.400	129.00	129.00	129.00	129.00	129.00
8.425	129.00	129.00	129.00	129.00	129.00
8.450	129.00	129.00	129.00	129.00	129.00
8.475	129.00	129.00	129.00	129.00	129.00
8.500	129.00	129.00	129.00	129.00	129.00
8.525	129.00	129.00	129.00	129.00	129.00
8.550	129.00	129.00	129.00	129.00	129.00
8.575	129.00	129.00	129.00	129.00	129.00

Subsection: Time vs. Elevation  
 Label: CO-45

Return Event: 25 years  
 Storm Event: 25 yr

**Time vs. Elevation (ft)**

**Output Time increment = 0.005 hours**  
**Time on left represents time for first value in each row.**

Time (hours)	Elevation (ft)	Elevation (ft)	Elevation (ft)	Elevation (ft)	Elevation (ft)
8.600	129.00	129.00	129.00	129.00	129.00
8.625	129.00	129.00	129.00	129.00	129.00
8.650	129.00	129.00	129.00	129.00	129.00
8.675	129.00	129.00	129.00	129.00	129.00
8.700	129.00	129.00	129.00	129.00	129.00
8.725	129.00	129.00	129.00	129.00	129.00
8.750	129.00	129.00	129.00	129.00	129.00
8.775	129.00	129.00	129.00	129.00	129.00
8.800	129.00	129.00	129.00	129.00	129.00
8.825	129.00	129.00	129.00	129.00	129.00
8.850	129.00	129.00	129.00	129.00	129.00
8.875	129.00	129.00	129.00	129.00	129.00
8.900	129.00	129.00	129.00	129.00	129.00
8.925	129.00	129.00	129.00	129.00	129.00
8.950	129.00	129.00	129.00	129.00	129.00
8.975	129.00	129.00	129.00	129.00	129.00
9.000	129.00	129.00	129.00	129.00	129.00
9.025	129.00	129.00	129.00	129.00	129.00
9.050	129.00	129.00	129.00	129.00	129.00
9.075	129.00	129.00	129.00	129.00	129.00
9.100	129.00	129.00	129.00	129.00	129.00
9.125	129.00	129.00	129.00	129.00	129.00
9.150	129.00	129.00	129.00	129.00	129.00
9.175	129.00	129.01	129.01	129.01	129.01
9.200	129.01	129.01	129.01	129.01	129.01
9.225	129.01	129.01	129.01	129.01	129.01
9.250	129.01	129.01	129.01	129.01	129.01
9.275	129.01	129.01	129.01	129.01	129.01
9.300	129.01	129.01	129.01	129.01	129.01
9.325	129.01	129.01	129.01	129.01	129.01
9.350	129.01	129.01	129.01	129.01	129.01
9.375	129.01	129.01	129.01	129.01	129.01
9.400	129.01	129.01	129.01	129.01	129.01
9.425	129.01	129.01	129.01	129.01	129.01
9.450	129.01	129.01	129.01	129.01	129.01
9.475	129.01	129.01	129.01	129.01	129.01
9.500	129.01	129.01	129.01	129.01	129.01
9.525	129.01	129.01	129.01	129.01	129.01
9.550	129.01	129.01	129.01	129.01	129.01
9.575	129.01	129.01	129.01	129.01	129.01
9.600	129.01	129.01	129.01	129.01	129.01
9.625	129.01	129.01	129.01	129.01	129.01
9.650	129.01	129.01	129.01	129.01	129.01

Subsection: Time vs. Elevation  
 Label: CO-45

Return Event: 25 years  
 Storm Event: 25 yr

**Time vs. Elevation (ft)**

**Output Time increment = 0.005 hours**  
**Time on left represents time for first value in each row.**

Time (hours)	Elevation (ft)	Elevation (ft)	Elevation (ft)	Elevation (ft)	Elevation (ft)
9.675	129.01	129.01	129.01	129.01	129.01
9.700	129.01	129.01	129.01	129.01	129.01
9.725	129.01	129.01	129.01	129.01	129.01
9.750	129.01	129.01	129.01	129.01	129.01
9.775	129.01	129.01	129.01	129.01	129.01
9.800	129.01	129.01	129.01	129.01	129.01
9.825	129.01	129.01	129.01	129.01	129.01
9.850	129.02	129.02	129.02	129.02	129.02
9.875	129.02	129.02	129.02	129.02	129.02
9.900	129.02	129.02	129.02	129.02	129.02
9.925	129.02	129.02	129.02	129.02	129.02
9.950	129.02	129.02	129.02	129.02	129.02
9.975	129.02	129.02	129.02	129.02	129.02
10.000	129.02	129.02	129.02	129.02	129.02
10.025	129.02	129.02	129.02	129.02	129.02
10.050	129.02	129.02	129.02	129.02	129.02
10.075	129.02	129.02	129.02	129.02	129.02
10.100	129.02	129.02	129.02	129.02	129.02
10.125	129.02	129.02	129.02	129.02	129.02
10.150	129.02	129.02	129.02	129.02	129.02
10.175	129.02	129.02	129.02	129.02	129.02
10.200	129.02	129.02	129.02	129.02	129.02
10.225	129.02	129.02	129.02	129.02	129.02
10.250	129.02	129.02	129.02	129.02	129.02
10.275	129.02	129.02	129.02	129.02	129.02
10.300	129.02	129.02	129.02	129.02	129.02
10.325	129.02	129.02	129.02	129.02	129.02
10.350	129.02	129.02	129.02	129.02	129.02
10.375	129.02	129.02	129.02	129.02	129.02
10.400	129.02	129.02	129.02	129.02	129.02
10.425	129.03	129.03	129.03	129.03	129.03
10.450	129.03	129.03	129.03	129.03	129.03
10.475	129.03	129.03	129.03	129.03	129.03
10.500	129.03	129.03	129.03	129.03	129.03
10.525	129.03	129.03	129.03	129.03	129.03
10.550	129.03	129.03	129.03	129.03	129.03
10.575	129.03	129.03	129.03	129.03	129.03
10.600	129.03	129.03	129.03	129.03	129.03
10.625	129.03	129.03	129.03	129.03	129.03
10.650	129.03	129.03	129.03	129.03	129.03
10.675	129.03	129.03	129.03	129.03	129.03
10.700	129.03	129.03	129.03	129.03	129.03
10.725	129.03	129.03	129.03	129.03	129.03

Subsection: Time vs. Elevation  
 Label: CO-45

Return Event: 25 years  
 Storm Event: 25 yr

**Time vs. Elevation (ft)**

**Output Time increment = 0.005 hours**  
**Time on left represents time for first value in each row.**

Time (hours)	Elevation (ft)	Elevation (ft)	Elevation (ft)	Elevation (ft)	Elevation (ft)
10.750	129.03	129.03	129.03	129.04	129.04
10.775	129.04	129.04	129.04	129.04	129.04
10.800	129.04	129.04	129.04	129.04	129.04
10.825	129.04	129.04	129.04	129.04	129.04
10.850	129.04	129.04	129.04	129.04	129.04
10.875	129.04	129.04	129.04	129.04	129.04
10.900	129.04	129.04	129.04	129.04	129.04
10.925	129.04	129.04	129.04	129.04	129.04
10.950	129.04	129.04	129.04	129.04	129.04
10.975	129.04	129.04	129.04	129.04	129.04
11.000	129.04	129.04	129.04	129.04	129.04
11.025	129.04	129.04	129.04	129.04	129.04
11.050	129.04	129.04	129.05	129.05	129.05
11.075	129.05	129.05	129.05	129.05	129.05
11.100	129.05	129.05	129.05	129.05	129.05
11.125	129.05	129.05	129.05	129.05	129.05
11.150	129.05	129.05	129.05	129.05	129.05
11.175	129.05	129.05	129.05	129.05	129.05
11.200	129.05	129.05	129.05	129.05	129.05
11.225	129.05	129.05	129.05	129.05	129.05
11.250	129.05	129.05	129.05	129.05	129.05
11.275	129.05	129.05	129.06	129.06	129.06
11.300	129.06	129.06	129.06	129.06	129.06
11.325	129.06	129.06	129.06	129.06	129.06
11.350	129.06	129.06	129.06	129.06	129.06
11.375	129.06	129.06	129.06	129.06	129.06
11.400	129.06	129.06	129.06	129.06	129.06
11.425	129.06	129.06	129.06	129.06	129.07
11.450	129.07	129.07	129.07	129.07	129.07
11.475	129.07	129.07	129.07	129.07	129.07
11.500	129.07	129.07	129.07	129.07	129.07
11.525	129.07	129.07	129.07	129.07	129.07
11.550	129.07	129.08	129.08	129.08	129.08
11.575	129.08	129.08	129.08	129.09	129.09
11.600	129.09	129.09	129.09	129.09	129.10
11.625	129.10	129.10	129.10	129.10	129.11
11.650	129.11	129.11	129.12	129.12	129.12
11.675	129.12	129.13	129.13	129.13	129.14
11.700	129.14	129.14	129.15	129.15	129.16
11.725	129.16	129.16	129.17	129.17	129.17
11.750	129.18	129.18	129.19	129.19	129.19
11.775	129.20	129.20	129.21	129.21	129.22
11.800	129.22	129.22	129.23	129.23	129.24

Subsection: Time vs. Elevation  
 Label: CO-45

Return Event: 25 years  
 Storm Event: 25 yr

**Time vs. Elevation (ft)**

**Output Time increment = 0.005 hours**  
**Time on left represents time for first value in each row.**

Time (hours)	Elevation (ft)	Elevation (ft)	Elevation (ft)	Elevation (ft)	Elevation (ft)
11.825	129.24	129.25	129.25	129.26	129.26
11.850	129.27	129.27	129.28	129.29	129.29
11.875	129.30	129.31	129.31	129.32	129.33
11.900	129.33	129.34	129.35	129.35	129.36
11.925	129.37	129.37	129.38	129.38	129.39
11.950	129.39	129.40	129.40	129.40	129.40
11.975	129.41	129.41	129.41	129.41	129.41
12.000	129.41	129.41	129.41	129.41	129.41
12.025	129.41	129.41	129.41	129.40	129.40
12.050	129.40	129.39	129.39	129.39	129.38
12.075	129.38	129.37	129.37	129.36	129.35
12.100	129.35	129.34	129.33	129.33	129.32
12.125	129.31	129.30	129.30	129.29	129.28
12.150	129.28	129.27	129.26	129.26	129.25
12.175	129.25	129.24	129.24	129.23	129.23
12.200	129.22	129.22	129.21	129.21	129.21
12.225	129.20	129.20	129.20	129.20	129.19
12.250	129.19	129.19	129.18	129.18	129.18
12.275	129.18	129.18	129.17	129.17	129.17
12.300	129.17	129.17	129.17	129.16	129.16
12.325	129.16	129.16	129.16	129.16	129.16
12.350	129.16	129.15	129.15	129.15	129.15
12.375	129.15	129.15	129.15	129.15	129.15
12.400	129.15	129.14	129.14	129.14	129.14
12.425	129.14	129.14	129.14	129.14	129.14
12.450	129.14	129.14	129.14	129.13	129.13
12.475	129.13	129.13	129.13	129.13	129.13
12.500	129.13	129.13	129.13	129.13	129.13
12.525	129.13	129.13	129.12	129.12	129.12
12.550	129.12	129.12	129.12	129.12	129.12
12.575	129.12	129.12	129.12	129.12	129.12
12.600	129.12	129.12	129.12	129.11	129.11
12.625	129.11	129.11	129.11	129.11	129.11
12.650	129.11	129.11	129.11	129.11	129.11
12.675	129.11	129.11	129.11	129.11	129.11
12.700	129.11	129.11	129.11	129.11	129.11
12.725	129.11	129.11	129.10	129.10	129.10
12.750	129.10	129.10	129.10	129.10	129.10
12.775	129.10	129.10	129.10	129.10	129.10
12.800	129.10	129.10	129.10	129.10	129.10
12.825	129.10	129.10	129.10	129.10	129.10
12.850	129.10	129.10	129.10	129.10	129.10
12.875	129.10	129.10	129.10	129.10	129.10

**Time vs. Elevation (ft)**

**Output Time increment = 0.005 hours**  
**Time on left represents time for first value in each row.**

Time (hours)	Elevation (ft)	Elevation (ft)	Elevation (ft)	Elevation (ft)	Elevation (ft)
12.900	129.10	129.10	129.10	129.10	129.10
12.925	129.10	129.10	129.10	129.10	129.10
12.950	129.10	129.10	129.10	129.09	129.09
12.975	129.09	129.09	129.09	129.09	129.09
13.000	129.09	129.09	129.09	129.09	129.09
13.025	129.09	129.09	129.09	129.09	129.09
13.050	129.09	129.09	129.09	129.09	129.09
13.075	129.09	129.09	129.09	129.09	129.09
13.100	129.09	129.09	129.09	129.09	129.09
13.125	129.09	129.09	129.09	129.09	129.09
13.150	129.09	129.09	129.09	129.09	129.09
13.175	129.09	129.09	129.09	129.09	129.09
13.200	129.09	129.09	129.09	129.09	129.09
13.225	129.09	129.09	129.09	129.09	129.09
13.250	129.09	129.09	129.09	129.09	129.09
13.275	129.09	129.09	129.09	129.09	129.09
13.300	129.08	129.08	129.08	129.08	129.08
13.325	129.08	129.08	129.08	129.08	129.08
13.350	129.08	129.08	129.08	129.08	129.08
13.375	129.08	129.08	129.08	129.08	129.08
13.400	129.08	129.08	129.08	129.08	129.08
13.425	129.08	129.08	129.08	129.08	129.08
13.450	129.08	129.08	129.08	129.08	129.08
13.475	129.08	129.08	129.08	129.08	129.08
13.500	129.08	129.08	129.08	129.08	129.08
13.525	129.08	129.08	129.08	129.08	129.08
13.550	129.08	129.08	129.08	129.08	129.08
13.575	129.08	129.08	129.08	129.08	129.08
13.600	129.08	129.08	129.08	129.08	129.08
13.625	129.08	129.08	129.08	129.08	129.08
13.650	129.08	129.08	129.08	129.08	129.08
13.675	129.08	129.08	129.08	129.08	129.08
13.700	129.08	129.08	129.08	129.07	129.07
13.725	129.07	129.07	129.07	129.07	129.07
13.750	129.07	129.07	129.07	129.07	129.07
13.775	129.07	129.07	129.07	129.07	129.07
13.800	129.07	129.07	129.07	129.07	129.07
13.825	129.07	129.07	129.07	129.07	129.07
13.850	129.07	129.07	129.07	129.07	129.07
13.875	129.07	129.07	129.07	129.07	129.07
13.900	129.07	129.07	129.07	129.07	129.07
13.925	129.07	129.07	129.07	129.07	129.07
13.950	129.07	129.07	129.07	129.07	129.07

**Time vs. Elevation (ft)**

**Output Time increment = 0.005 hours**  
**Time on left represents time for first value in each row.**

Time (hours)	Elevation (ft)	Elevation (ft)	Elevation (ft)	Elevation (ft)	Elevation (ft)
13.975	129.07	129.07	129.07	129.07	129.07
14.000	129.07	129.07	129.07	129.07	129.07
14.025	129.07	129.07	129.07	129.07	129.07
14.050	129.07	129.07	129.07	129.07	129.07
14.075	129.07	129.07	129.07	129.07	129.07
14.100	129.07	129.07	129.07	129.07	129.07
14.125	129.07	129.07	129.07	129.07	129.07
14.150	129.07	129.07	129.07	129.07	129.07
14.175	129.07	129.07	129.07	129.07	129.07
14.200	129.07	129.06	129.06	129.06	129.06
14.225	129.06	129.06	129.06	129.06	129.06
14.250	129.06	129.06	129.06	129.06	129.06
14.275	129.06	129.06	129.06	129.06	129.06
14.300	129.06	129.06	129.06	129.06	129.06
14.325	129.06	129.06	129.06	129.06	129.06
14.350	129.06	129.06	129.06	129.06	129.06
14.375	129.06	129.06	129.06	129.06	129.06
14.400	129.06	129.06	129.06	129.06	129.06
14.425	129.06	129.06	129.06	129.06	129.06
14.450	129.06	129.06	129.06	129.06	129.06
14.475	129.06	129.06	129.06	129.06	129.06
14.500	129.06	129.06	129.06	129.06	129.06
14.525	129.06	129.06	129.06	129.06	129.06
14.550	129.06	129.06	129.06	129.06	129.06
14.575	129.06	129.06	129.06	129.06	129.06
14.600	129.06	129.06	129.06	129.06	129.06
14.625	129.06	129.06	129.06	129.06	129.06
14.650	129.06	129.06	129.06	129.06	129.06
14.675	129.06	129.06	129.06	129.06	129.06
14.700	129.06	129.06	129.06	129.06	129.06
14.725	129.06	129.06	129.06	129.06	129.06
14.750	129.06	129.06	129.06	129.06	129.06
14.775	129.06	129.06	129.06	129.06	129.06
14.800	129.06	129.06	129.06	129.06	129.06
14.825	129.06	129.06	129.06	129.06	129.06
14.850	129.06	129.06	129.06	129.06	129.06
14.875	129.06	129.06	129.06	129.06	129.06
14.900	129.06	129.06	129.06	129.06	129.06
14.925	129.06	129.06	129.06	129.06	129.06
14.950	129.06	129.06	129.06	129.06	129.06
14.975	129.06	129.06	129.06	129.06	129.06
15.000	129.06	129.06	129.06	129.06	129.06
15.025	129.06	129.06	129.06	129.06	129.06

**Time vs. Elevation (ft)**

**Output Time increment = 0.005 hours**  
**Time on left represents time for first value in each row.**

Time (hours)	Elevation (ft)	Elevation (ft)	Elevation (ft)	Elevation (ft)	Elevation (ft)
15.050	129.06	129.06	129.06	129.06	129.06
15.075	129.06	129.06	129.06	129.06	129.06
15.100	129.06	129.06	129.06	129.06	129.06
15.125	129.06	129.06	129.06	129.06	129.06
15.150	129.06	129.06	129.06	129.06	129.06
15.175	129.06	129.06	129.06	129.06	129.06
15.200	129.06	129.06	129.06	129.06	129.06
15.225	129.06	129.06	129.06	129.06	129.06
15.250	129.06	129.06	129.06	129.06	129.06
15.275	129.06	129.06	129.06	129.06	129.06
15.300	129.06	129.06	129.06	129.06	129.06
15.325	129.06	129.06	129.06	129.06	129.06
15.350	129.06	129.06	129.06	129.06	129.06
15.375	129.06	129.06	129.06	129.06	129.06
15.400	129.06	129.06	129.06	129.06	129.06
15.425	129.06	129.06	129.06	129.06	129.06
15.450	129.06	129.06	129.06	129.06	129.06
15.475	129.05	129.05	129.05	129.05	129.05
15.500	129.05	129.05	129.05	129.05	129.05
15.525	129.05	129.05	129.05	129.05	129.05
15.550	129.05	129.05	129.05	129.05	129.05
15.575	129.05	129.05	129.05	129.05	129.05
15.600	129.05	129.05	129.05	129.05	129.05
15.625	129.05	129.05	129.05	129.05	129.05
15.650	129.05	129.05	129.05	129.05	129.05
15.675	129.05	129.05	129.05	129.05	129.05
15.700	129.05	129.05	129.05	129.05	129.05
15.725	129.05	129.05	129.05	129.05	129.05
15.750	129.05	129.05	129.05	129.05	129.05
15.775	129.05	129.05	129.05	129.05	129.05
15.800	129.05	129.05	129.05	129.05	129.05
15.825	129.05	129.05	129.05	129.05	129.05
15.850	129.05	129.05	129.05	129.05	129.05
15.875	129.05	129.05	129.05	129.05	129.05
15.900	129.05	129.05	129.05	129.05	129.05
15.925	129.05	129.05	129.05	129.05	129.05
15.950	129.05	129.05	129.05	129.05	129.05
15.975	129.05	129.05	129.05	129.05	129.05
16.000	129.05	129.05	129.05	129.05	129.05
16.025	129.05	129.05	129.05	129.05	129.05
16.050	129.05	129.05	129.05	129.05	129.05
16.075	129.05	129.05	129.05	129.05	129.05
16.100	129.05	129.05	129.05	129.05	129.05



**Time vs. Elevation (ft)**

**Output Time increment = 0.005 hours**  
**Time on left represents time for first value in each row.**

Time (hours)	Elevation (ft)	Elevation (ft)	Elevation (ft)	Elevation (ft)	Elevation (ft)
16.125	129.05	129.05	129.05	129.05	129.05
16.150	129.05	129.05	129.05	129.05	129.05
16.175	129.05	129.05	129.05	129.05	129.05
16.200	129.05	129.05	129.05	129.05	129.05
16.225	129.05	129.05	129.05	129.05	129.05
16.250	129.05	129.05	129.05	129.05	129.05
16.275	129.05	129.05	129.05	129.05	129.05
16.300	129.05	129.05	129.05	129.05	129.05
16.325	129.05	129.05	129.05	129.05	129.05
16.350	129.05	129.05	129.05	129.05	129.05
16.375	129.05	129.05	129.05	129.05	129.05
16.400	129.05	129.05	129.05	129.05	129.05
16.425	129.05	129.05	129.05	129.05	129.05
16.450	129.05	129.05	129.05	129.05	129.05
16.475	129.05	129.05	129.05	129.05	129.05
16.500	129.05	129.05	129.05	129.05	129.05
16.525	129.05	129.05	129.05	129.05	129.05
16.550	129.05	129.05	129.05	129.05	129.05
16.575	129.05	129.05	129.05	129.05	129.05
16.600	129.05	129.05	129.05	129.05	129.05
16.625	129.05	129.05	129.05	129.05	129.05
16.650	129.05	129.05	129.05	129.05	129.05
16.675	129.05	129.05	129.05	129.05	129.05
16.700	129.05	129.05	129.05	129.05	129.05
16.725	129.05	129.05	129.05	129.05	129.05
16.750	129.05	129.05	129.05	129.05	129.05
16.775	129.05	129.05	129.05	129.05	129.05
16.800	129.05	129.05	129.05	129.05	129.05
16.825	129.05	129.05	129.05	129.05	129.05
16.850	129.05	129.05	129.05	129.05	129.05
16.875	129.05	129.05	129.05	129.05	129.05
16.900	129.05	129.05	129.05	129.05	129.05
16.925	129.05	129.05	129.05	129.05	129.05
16.950	129.05	129.05	129.05	129.05	129.05
16.975	129.05	129.05	129.05	129.05	129.05
17.000	129.05	129.05	129.05	129.05	129.05
17.025	129.05	129.05	129.05	129.05	129.05
17.050	129.05	129.05	129.05	129.05	129.05
17.075	129.05	129.05	129.05	129.05	129.05
17.100	129.05	129.05	129.05	129.05	129.05
17.125	129.05	129.05	129.05	129.05	129.05
17.150	129.05	129.05	129.05	129.05	129.05
17.175	129.05	129.05	129.05	129.05	129.05

Subsection: Time vs. Elevation  
 Label: CO-45

Return Event: 25 years  
 Storm Event: 25 yr

**Time vs. Elevation (ft)**

**Output Time increment = 0.005 hours**  
**Time on left represents time for first value in each row.**

Time (hours)	Elevation (ft)	Elevation (ft)	Elevation (ft)	Elevation (ft)	Elevation (ft)
17.200	129.05	129.05	129.05	129.05	129.05
17.225	129.05	129.05	129.05	129.05	129.05
17.250	129.05	129.05	129.05	129.05	129.05
17.275	129.05	129.05	129.05	129.05	129.05
17.300	129.05	129.05	129.05	129.05	129.05
17.325	129.05	129.05	129.05	129.05	129.05
17.350	129.05	129.05	129.05	129.05	129.05
17.375	129.05	129.05	129.05	129.05	129.05
17.400	129.05	129.05	129.05	129.05	129.05
17.425	129.05	129.05	129.05	129.05	129.05
17.450	129.05	129.05	129.05	129.05	129.05
17.475	129.05	129.05	129.05	129.05	129.05
17.500	129.05	129.05	129.05	129.05	129.05
17.525	129.05	129.05	129.05	129.05	129.05
17.550	129.05	129.05	129.05	129.05	129.05
17.575	129.05	129.05	129.05	129.05	129.05
17.600	129.05	129.05	129.05	129.05	129.05
17.625	129.05	129.05	129.05	129.05	129.05
17.650	129.05	129.05	129.05	129.05	129.05
17.675	129.05	129.05	129.05	129.05	129.05
17.700	129.05	129.05	129.05	129.05	129.05
17.725	129.05	129.05	129.05	129.05	129.05
17.750	129.05	129.05	129.04	129.04	129.04
17.775	129.04	129.04	129.04	129.04	129.04
17.800	129.04	129.04	129.04	129.04	129.04
17.825	129.04	129.04	129.04	129.04	129.04
17.850	129.04	129.04	129.04	129.04	129.04
17.875	129.04	129.04	129.04	129.04	129.04
17.900	129.04	129.04	129.04	129.04	129.04
17.925	129.04	129.04	129.04	129.04	129.04
17.950	129.04	129.04	129.04	129.04	129.04
17.975	129.04	129.04	129.04	129.04	129.04
18.000	129.04	129.04	129.04	129.04	129.04
18.025	129.04	129.04	129.04	129.04	129.04
18.050	129.04	129.04	129.04	129.04	129.04
18.075	129.04	129.04	129.04	129.04	129.04
18.100	129.04	129.04	129.04	129.04	129.04
18.125	129.04	129.04	129.04	129.04	129.04
18.150	129.04	129.04	129.04	129.04	129.04
18.175	129.04	129.04	129.04	129.04	129.04
18.200	129.04	129.04	129.04	129.04	129.04
18.225	129.04	129.04	129.04	129.04	129.04
18.250	129.04	129.04	129.04	129.04	129.04

**Time vs. Elevation (ft)**

**Output Time increment = 0.005 hours**  
**Time on left represents time for first value in each row.**

Time (hours)	Elevation (ft)	Elevation (ft)	Elevation (ft)	Elevation (ft)	Elevation (ft)
18.275	129.04	129.04	129.04	129.04	129.04
18.300	129.04	129.04	129.04	129.04	129.04
18.325	129.04	129.04	129.04	129.04	129.04
18.350	129.04	129.04	129.04	129.04	129.04
18.375	129.04	129.04	129.04	129.04	129.04
18.400	129.04	129.04	129.04	129.04	129.04
18.425	129.04	129.04	129.04	129.04	129.04
18.450	129.04	129.04	129.04	129.04	129.04
18.475	129.04	129.04	129.04	129.04	129.04
18.500	129.04	129.04	129.04	129.04	129.04
18.525	129.04	129.04	129.04	129.04	129.04
18.550	129.04	129.04	129.04	129.04	129.04
18.575	129.04	129.04	129.04	129.04	129.04
18.600	129.04	129.04	129.04	129.04	129.04
18.625	129.04	129.04	129.04	129.04	129.04
18.650	129.04	129.04	129.04	129.04	129.04
18.675	129.04	129.04	129.04	129.04	129.04
18.700	129.04	129.04	129.04	129.04	129.04
18.725	129.04	129.04	129.04	129.04	129.04
18.750	129.04	129.04	129.04	129.04	129.04
18.775	129.04	129.04	129.04	129.04	129.04
18.800	129.04	129.04	129.04	129.04	129.04
18.825	129.04	129.04	129.04	129.04	129.04
18.850	129.04	129.04	129.04	129.04	129.04
18.875	129.04	129.04	129.04	129.04	129.04
18.900	129.04	129.04	129.04	129.04	129.04
18.925	129.04	129.04	129.04	129.04	129.04
18.950	129.04	129.04	129.04	129.04	129.04
18.975	129.04	129.04	129.04	129.04	129.04
19.000	129.04	129.04	129.04	129.04	129.04
19.025	129.04	129.04	129.04	129.04	129.04
19.050	129.04	129.04	129.04	129.04	129.04
19.075	129.04	129.04	129.04	129.04	129.04
19.100	129.04	129.04	129.04	129.04	129.04
19.125	129.04	129.04	129.04	129.04	129.04
19.150	129.04	129.04	129.04	129.04	129.04
19.175	129.04	129.04	129.04	129.04	129.04
19.200	129.04	129.04	129.04	129.04	129.04
19.225	129.04	129.04	129.04	129.04	129.04
19.250	129.04	129.04	129.04	129.04	129.04
19.275	129.04	129.04	129.04	129.04	129.04
19.300	129.04	129.04	129.04	129.04	129.04
19.325	129.04	129.04	129.04	129.04	129.04

Subsection: Time vs. Elevation  
 Label: CO-45

Return Event: 25 years  
 Storm Event: 25 yr

**Time vs. Elevation (ft)**

**Output Time increment = 0.005 hours**  
**Time on left represents time for first value in each row.**

Time (hours)	Elevation (ft)	Elevation (ft)	Elevation (ft)	Elevation (ft)	Elevation (ft)
19.350	129.04	129.04	129.04	129.04	129.04
19.375	129.04	129.04	129.04	129.04	129.04
19.400	129.04	129.04	129.04	129.04	129.04
19.425	129.04	129.04	129.04	129.04	129.04
19.450	129.04	129.04	129.04	129.04	129.04
19.475	129.04	129.04	129.04	129.04	129.04
19.500	129.04	129.04	129.04	129.04	129.04
19.525	129.04	129.04	129.04	129.04	129.04
19.550	129.04	129.04	129.04	129.04	129.04
19.575	129.04	129.04	129.04	129.04	129.04
19.600	129.04	129.04	129.04	129.04	129.04
19.625	129.04	129.04	129.04	129.04	129.04
19.650	129.04	129.04	129.04	129.04	129.04
19.675	129.04	129.04	129.04	129.04	129.04
19.700	129.04	129.04	129.04	129.04	129.04
19.725	129.04	129.04	129.04	129.04	129.04
19.750	129.04	129.04	129.04	129.04	129.04
19.775	129.04	129.04	129.04	129.04	129.04
19.800	129.04	129.04	129.04	129.04	129.04
19.825	129.04	129.04	129.04	129.04	129.04
19.850	129.04	129.04	129.04	129.04	129.04
19.875	129.04	129.04	129.04	129.04	129.04
19.900	129.04	129.04	129.04	129.04	129.04
19.925	129.04	129.04	129.04	129.04	129.04
19.950	129.04	129.04	129.04	129.04	129.04
19.975	129.04	129.04	129.04	129.04	129.04
20.000	129.04	129.04	129.04	129.04	129.04
20.025	129.04	129.04	129.04	129.04	129.04
20.050	129.04	129.04	129.04	129.04	129.04
20.075	129.04	129.04	129.04	129.04	129.04
20.100	129.04	129.04	129.04	129.04	129.04
20.125	129.04	129.04	129.04	129.04	129.04
20.150	129.04	129.04	129.04	129.04	129.04
20.175	129.04	129.04	129.04	129.04	129.04
20.200	129.04	129.04	129.04	129.04	129.04
20.225	129.04	129.04	129.04	129.04	129.04
20.250	129.04	129.04	129.04	129.04	129.04
20.275	129.04	129.04	129.04	129.04	129.04
20.300	129.04	129.04	129.04	129.04	129.04
20.325	129.04	129.04	129.04	129.04	129.04
20.350	129.04	129.04	129.04	129.04	129.04
20.375	129.04	129.04	129.04	129.04	129.04
20.400	129.04	129.04	129.04	129.04	129.04

**Time vs. Elevation (ft)**

**Output Time increment = 0.005 hours**  
**Time on left represents time for first value in each row.**

Time (hours)	Elevation (ft)	Elevation (ft)	Elevation (ft)	Elevation (ft)	Elevation (ft)
20.425	129.04	129.04	129.04	129.04	129.04
20.450	129.04	129.04	129.04	129.04	129.04
20.475	129.04	129.04	129.04	129.04	129.04
20.500	129.04	129.04	129.04	129.04	129.04
20.525	129.04	129.04	129.04	129.04	129.04
20.550	129.04	129.04	129.04	129.04	129.04
20.575	129.04	129.04	129.04	129.04	129.04
20.600	129.04	129.04	129.04	129.04	129.04
20.625	129.04	129.04	129.04	129.04	129.04
20.650	129.04	129.04	129.04	129.04	129.04
20.675	129.04	129.04	129.04	129.04	129.04
20.700	129.04	129.04	129.04	129.04	129.04
20.725	129.04	129.04	129.04	129.04	129.04
20.750	129.04	129.04	129.04	129.04	129.04
20.775	129.04	129.04	129.04	129.04	129.04
20.800	129.04	129.04	129.04	129.04	129.04
20.825	129.04	129.04	129.04	129.04	129.04
20.850	129.04	129.04	129.04	129.04	129.04
20.875	129.04	129.04	129.04	129.04	129.04
20.900	129.04	129.04	129.04	129.04	129.04
20.925	129.04	129.04	129.04	129.04	129.04
20.950	129.04	129.04	129.04	129.04	129.04
20.975	129.04	129.04	129.04	129.04	129.04
21.000	129.04	129.04	129.04	129.04	129.04
21.025	129.04	129.04	129.04	129.04	129.04
21.050	129.04	129.04	129.04	129.04	129.04
21.075	129.04	129.04	129.04	129.04	129.04
21.100	129.04	129.04	129.04	129.04	129.04
21.125	129.04	129.04	129.04	129.04	129.04
21.150	129.04	129.04	129.04	129.04	129.04
21.175	129.04	129.04	129.04	129.04	129.04
21.200	129.04	129.04	129.04	129.04	129.04
21.225	129.04	129.04	129.04	129.04	129.04
21.250	129.04	129.04	129.04	129.04	129.04
21.275	129.04	129.04	129.04	129.04	129.04
21.300	129.04	129.04	129.04	129.04	129.04
21.325	129.04	129.04	129.04	129.04	129.04
21.350	129.04	129.04	129.04	129.04	129.04
21.375	129.04	129.04	129.04	129.04	129.04
21.400	129.03	129.03	129.03	129.03	129.03
21.425	129.03	129.03	129.03	129.03	129.03
21.450	129.03	129.03	129.03	129.03	129.03
21.475	129.03	129.03	129.03	129.03	129.03

Subsection: Time vs. Elevation  
 Label: CO-45

Return Event: 25 years  
 Storm Event: 25 yr

**Time vs. Elevation (ft)**

**Output Time increment = 0.005 hours**  
**Time on left represents time for first value in each row.**

Time (hours)	Elevation (ft)	Elevation (ft)	Elevation (ft)	Elevation (ft)	Elevation (ft)
21.500	129.03	129.03	129.03	129.03	129.03
21.525	129.03	129.03	129.03	129.03	129.03
21.550	129.03	129.03	129.03	129.03	129.03
21.575	129.03	129.03	129.03	129.03	129.03
21.600	129.03	129.03	129.03	129.03	129.03
21.625	129.03	129.03	129.03	129.03	129.03
21.650	129.03	129.03	129.03	129.03	129.03
21.675	129.03	129.03	129.03	129.03	129.03
21.700	129.03	129.03	129.03	129.03	129.03
21.725	129.03	129.03	129.03	129.03	129.03
21.750	129.03	129.03	129.03	129.03	129.03
21.775	129.03	129.03	129.03	129.03	129.03
21.800	129.03	129.03	129.03	129.03	129.03
21.825	129.03	129.03	129.03	129.03	129.03
21.850	129.03	129.03	129.03	129.03	129.03
21.875	129.03	129.03	129.03	129.03	129.03
21.900	129.03	129.03	129.03	129.03	129.03
21.925	129.03	129.03	129.03	129.03	129.03
21.950	129.03	129.03	129.03	129.03	129.03
21.975	129.03	129.03	129.03	129.03	129.03
22.000	129.03	129.03	129.03	129.03	129.03
22.025	129.03	129.03	129.03	129.03	129.03
22.050	129.03	129.03	129.03	129.03	129.03
22.075	129.03	129.03	129.03	129.03	129.03
22.100	129.03	129.03	129.03	129.03	129.03
22.125	129.03	129.03	129.03	129.03	129.03
22.150	129.03	129.03	129.03	129.03	129.03
22.175	129.03	129.03	129.03	129.03	129.03
22.200	129.03	129.03	129.03	129.03	129.03
22.225	129.03	129.03	129.03	129.03	129.03
22.250	129.03	129.03	129.03	129.03	129.03
22.275	129.03	129.03	129.03	129.03	129.03
22.300	129.03	129.03	129.03	129.03	129.03
22.325	129.03	129.03	129.03	129.03	129.03
22.350	129.03	129.03	129.03	129.03	129.03
22.375	129.03	129.03	129.03	129.03	129.03
22.400	129.03	129.03	129.03	129.03	129.03
22.425	129.03	129.03	129.03	129.03	129.03
22.450	129.03	129.03	129.03	129.03	129.03
22.475	129.03	129.03	129.03	129.03	129.03
22.500	129.03	129.03	129.03	129.03	129.03
22.525	129.03	129.03	129.03	129.03	129.03
22.550	129.03	129.03	129.03	129.03	129.03

**Time vs. Elevation (ft)**

**Output Time increment = 0.005 hours**  
**Time on left represents time for first value in each row.**

Time (hours)	Elevation (ft)	Elevation (ft)	Elevation (ft)	Elevation (ft)	Elevation (ft)
22.575	129.03	129.03	129.03	129.03	129.03
22.600	129.03	129.03	129.03	129.03	129.03
22.625	129.03	129.03	129.03	129.03	129.03
22.650	129.03	129.03	129.03	129.03	129.03
22.675	129.03	129.03	129.03	129.03	129.03
22.700	129.03	129.03	129.03	129.03	129.03
22.725	129.03	129.03	129.03	129.03	129.03
22.750	129.03	129.03	129.03	129.03	129.03
22.775	129.03	129.03	129.03	129.03	129.03
22.800	129.03	129.03	129.03	129.03	129.03
22.825	129.03	129.03	129.03	129.03	129.03
22.850	129.03	129.03	129.03	129.03	129.03
22.875	129.03	129.03	129.03	129.03	129.03
22.900	129.03	129.03	129.03	129.03	129.03
22.925	129.03	129.03	129.03	129.03	129.03
22.950	129.03	129.03	129.03	129.03	129.03
22.975	129.03	129.03	129.03	129.03	129.03
23.000	129.03	129.03	129.03	129.03	129.03
23.025	129.03	129.03	129.03	129.03	129.03
23.050	129.03	129.03	129.03	129.03	129.03
23.075	129.03	129.03	129.03	129.03	129.03
23.100	129.03	129.03	129.03	129.03	129.03
23.125	129.03	129.03	129.03	129.03	129.03
23.150	129.03	129.03	129.03	129.03	129.03
23.175	129.03	129.03	129.03	129.03	129.03
23.200	129.03	129.03	129.03	129.03	129.03
23.225	129.03	129.03	129.03	129.03	129.03
23.250	129.03	129.03	129.03	129.03	129.03
23.275	129.03	129.03	129.03	129.03	129.03
23.300	129.03	129.03	129.03	129.03	129.03
23.325	129.03	129.03	129.03	129.03	129.03
23.350	129.03	129.03	129.03	129.03	129.03
23.375	129.03	129.03	129.03	129.03	129.03
23.400	129.03	129.03	129.03	129.03	129.03
23.425	129.03	129.03	129.03	129.03	129.03
23.450	129.03	129.03	129.03	129.03	129.03
23.475	129.03	129.03	129.03	129.03	129.03
23.500	129.03	129.03	129.03	129.03	129.03
23.525	129.03	129.03	129.03	129.03	129.03
23.550	129.03	129.03	129.03	129.03	129.03
23.575	129.03	129.03	129.03	129.03	129.03
23.600	129.03	129.03	129.03	129.03	129.03
23.625	129.03	129.03	129.03	129.03	129.03

Subsection: Time vs. Elevation  
Label: CO-45

Return Event: 25 years  
Storm Event: 25 yr

**Time vs. Elevation (ft)**

**Output Time increment = 0.005 hours**  
**Time on left represents time for first value in each row.**

Time (hours)	Elevation (ft)	Elevation (ft)	Elevation (ft)	Elevation (ft)	Elevation (ft)
23.650	129.03	129.03	129.03	129.03	129.03
23.675	129.03	129.03	129.03	129.03	129.03
23.700	129.03	129.03	129.03	129.03	129.03
23.725	129.03	129.03	129.03	129.03	129.03
23.750	129.03	129.03	129.03	129.03	129.03
23.775	129.03	129.03	129.03	129.03	129.03
23.800	129.03	129.03	129.03	129.03	129.03
23.825	129.03	129.03	129.03	129.03	129.03
23.850	129.03	129.03	129.03	129.03	129.03
23.875	129.03	129.03	129.03	129.03	129.03
23.900	129.03	129.03	129.03	129.03	129.03
23.925	129.03	129.03	129.03	129.03	129.03
23.950	129.03	129.03	129.03	129.03	129.03
23.975	129.03	129.03	129.03	129.03	129.03
24.000	129.03	(N/A)	(N/A)	(N/A)	(N/A)



Subsection: Time vs. Elevation  
 Label: CO-49

Return Event: 25 years  
 Storm Event: 25 yr

**Time vs. Elevation (ft)**

**Output Time increment = 0.005 hours**  
**Time on left represents time for first value in each row.**

Time (hours)	Elevation (ft)	Elevation (ft)	Elevation (ft)	Elevation (ft)	Elevation (ft)
0.000	120.00	120.00	120.00	120.00	120.00
0.025	120.00	120.00	120.00	120.00	120.00
0.050	120.00	120.00	120.00	120.00	120.00
0.075	120.00	120.00	120.00	120.00	120.00
0.100	120.00	120.00	120.00	120.00	120.00
0.125	120.00	120.00	120.00	120.00	120.00
0.150	120.00	120.00	120.00	120.00	120.00
0.175	120.00	120.00	120.00	120.00	120.00
0.200	120.00	120.00	120.00	120.00	120.00
0.225	120.00	120.00	120.00	120.00	120.00
0.250	120.00	120.00	120.00	120.00	120.00
0.275	120.00	120.00	120.00	120.00	120.00
0.300	120.00	120.00	120.00	120.00	120.00
0.325	120.00	120.00	120.00	120.00	120.00
0.350	120.00	120.00	120.00	120.00	120.00
0.375	120.00	120.00	120.00	120.00	120.00
0.400	120.00	120.00	120.00	120.00	120.00
0.425	120.00	120.00	120.00	120.00	120.00
0.450	120.00	120.00	120.00	120.00	120.00
0.475	120.00	120.00	120.00	120.00	120.00
0.500	120.00	120.00	120.00	120.00	120.00
0.525	120.00	120.00	120.00	120.00	120.00
0.550	120.00	120.00	120.00	120.00	120.00
0.575	120.00	120.00	120.00	120.00	120.00
0.600	120.00	120.00	120.00	120.00	120.00
0.625	120.00	120.00	120.00	120.00	120.00
0.650	120.00	120.00	120.00	120.00	120.00
0.675	120.00	120.00	120.00	120.00	120.00
0.700	120.00	120.00	120.00	120.00	120.00
0.725	120.00	120.00	120.00	120.00	120.00
0.750	120.00	120.00	120.00	120.00	120.00
0.775	120.00	120.00	120.00	120.00	120.00
0.800	120.00	120.00	120.00	120.00	120.00
0.825	120.00	120.00	120.00	120.00	120.00
0.850	120.00	120.00	120.00	120.00	120.00
0.875	120.00	120.00	120.00	120.00	120.00
0.900	120.00	120.00	120.00	120.00	120.00
0.925	120.00	120.00	120.00	120.00	120.00
0.950	120.00	120.00	120.00	120.00	120.00
0.975	120.00	120.00	120.00	120.00	120.00
1.000	120.00	120.00	120.00	120.00	120.00
1.025	120.00	120.00	120.00	120.00	120.00
1.050	120.00	120.00	120.00	120.00	120.00

**Time vs. Elevation (ft)**

**Output Time increment = 0.005 hours**  
**Time on left represents time for first value in each row.**

Time (hours)	Elevation (ft)	Elevation (ft)	Elevation (ft)	Elevation (ft)	Elevation (ft)
1.075	120.00	120.00	120.00	120.00	120.00
1.100	120.00	120.00	120.00	120.00	120.00
1.125	120.00	120.00	120.00	120.00	120.00
1.150	120.00	120.00	120.00	120.00	120.00
1.175	120.00	120.00	120.00	120.00	120.00
1.200	120.00	120.00	120.00	120.00	120.00
1.225	120.00	120.00	120.00	120.00	120.00
1.250	120.00	120.00	120.00	120.00	120.00
1.275	120.00	120.00	120.00	120.00	120.00
1.300	120.00	120.00	120.00	120.00	120.00
1.325	120.00	120.00	120.00	120.00	120.00
1.350	120.00	120.00	120.00	120.00	120.00
1.375	120.00	120.00	120.00	120.00	120.00
1.400	120.00	120.00	120.00	120.00	120.00
1.425	120.00	120.00	120.00	120.00	120.00
1.450	120.00	120.00	120.00	120.00	120.00
1.475	120.00	120.00	120.00	120.00	120.00
1.500	120.00	120.00	120.00	120.00	120.00
1.525	120.00	120.00	120.00	120.00	120.00
1.550	120.00	120.00	120.00	120.00	120.00
1.575	120.00	120.00	120.00	120.00	120.00
1.600	120.00	120.00	120.00	120.00	120.00
1.625	120.00	120.00	120.00	120.00	120.00
1.650	120.00	120.00	120.00	120.00	120.00
1.675	120.00	120.00	120.00	120.00	120.00
1.700	120.00	120.00	120.00	120.00	120.00
1.725	120.00	120.00	120.00	120.00	120.00
1.750	120.00	120.00	120.00	120.00	120.00
1.775	120.00	120.00	120.00	120.00	120.00
1.800	120.00	120.00	120.00	120.00	120.00
1.825	120.00	120.00	120.00	120.00	120.00
1.850	120.00	120.00	120.00	120.00	120.00
1.875	120.00	120.00	120.00	120.00	120.00
1.900	120.00	120.00	120.00	120.00	120.00
1.925	120.00	120.00	120.00	120.00	120.00
1.950	120.00	120.00	120.00	120.00	120.00
1.975	120.00	120.00	120.00	120.00	120.00
2.000	120.00	120.00	120.00	120.00	120.00
2.025	120.00	120.00	120.00	120.00	120.00
2.050	120.00	120.00	120.00	120.00	120.00
2.075	120.00	120.00	120.00	120.00	120.00
2.100	120.00	120.00	120.00	120.00	120.00
2.125	120.00	120.00	120.00	120.00	120.00

**Time vs. Elevation (ft)**

**Output Time increment = 0.005 hours**  
**Time on left represents time for first value in each row.**

Time (hours)	Elevation (ft)	Elevation (ft)	Elevation (ft)	Elevation (ft)	Elevation (ft)
2.150	120.00	120.00	120.00	120.00	120.00
2.175	120.00	120.00	120.00	120.00	120.00
2.200	120.00	120.00	120.00	120.00	120.00
2.225	120.00	120.00	120.00	120.00	120.00
2.250	120.00	120.00	120.00	120.00	120.00
2.275	120.00	120.00	120.00	120.00	120.00
2.300	120.00	120.00	120.00	120.00	120.00
2.325	120.00	120.00	120.00	120.00	120.00
2.350	120.00	120.00	120.00	120.00	120.00
2.375	120.00	120.00	120.00	120.00	120.00
2.400	120.00	120.00	120.00	120.00	120.00
2.425	120.00	120.00	120.00	120.00	120.00
2.450	120.00	120.00	120.00	120.00	120.00
2.475	120.00	120.00	120.00	120.00	120.00
2.500	120.00	120.00	120.00	120.00	120.00
2.525	120.00	120.00	120.00	120.00	120.00
2.550	120.00	120.00	120.00	120.00	120.00
2.575	120.00	120.00	120.00	120.00	120.00
2.600	120.00	120.00	120.00	120.00	120.00
2.625	120.00	120.00	120.00	120.00	120.00
2.650	120.00	120.00	120.00	120.00	120.00
2.675	120.00	120.00	120.00	120.00	120.00
2.700	120.00	120.00	120.00	120.00	120.00
2.725	120.00	120.00	120.00	120.00	120.00
2.750	120.00	120.00	120.00	120.00	120.00
2.775	120.00	120.00	120.00	120.00	120.00
2.800	120.00	120.00	120.00	120.00	120.00
2.825	120.00	120.00	120.00	120.00	120.00
2.850	120.00	120.00	120.00	120.00	120.00
2.875	120.00	120.00	120.00	120.00	120.00
2.900	120.00	120.00	120.00	120.00	120.00
2.925	120.00	120.00	120.00	120.00	120.00
2.950	120.00	120.00	120.00	120.00	120.00
2.975	120.00	120.00	120.00	120.00	120.00
3.000	120.00	120.00	120.00	120.00	120.00
3.025	120.00	120.00	120.00	120.00	120.00
3.050	120.00	120.00	120.00	120.00	120.00
3.075	120.00	120.00	120.00	120.00	120.00
3.100	120.00	120.00	120.00	120.00	120.00
3.125	120.00	120.00	120.00	120.00	120.00
3.150	120.00	120.00	120.00	120.00	120.00
3.175	120.00	120.00	120.00	120.00	120.00
3.200	120.00	120.00	120.00	120.00	120.00

**Time vs. Elevation (ft)**

**Output Time increment = 0.005 hours**  
**Time on left represents time for first value in each row.**

Time (hours)	Elevation (ft)	Elevation (ft)	Elevation (ft)	Elevation (ft)	Elevation (ft)
3.225	120.00	120.00	120.00	120.00	120.00
3.250	120.00	120.00	120.00	120.00	120.00
3.275	120.00	120.00	120.00	120.00	120.00
3.300	120.00	120.00	120.00	120.00	120.00
3.325	120.00	120.00	120.00	120.00	120.00
3.350	120.00	120.00	120.00	120.00	120.00
3.375	120.00	120.00	120.00	120.00	120.00
3.400	120.00	120.00	120.00	120.00	120.00
3.425	120.00	120.00	120.00	120.00	120.00
3.450	120.00	120.00	120.00	120.00	120.00
3.475	120.00	120.00	120.00	120.00	120.00
3.500	120.00	120.00	120.00	120.00	120.00
3.525	120.00	120.00	120.00	120.00	120.00
3.550	120.00	120.00	120.00	120.00	120.00
3.575	120.00	120.00	120.00	120.00	120.00
3.600	120.00	120.00	120.00	120.00	120.00
3.625	120.00	120.00	120.00	120.00	120.00
3.650	120.00	120.00	120.00	120.00	120.00
3.675	120.00	120.00	120.00	120.00	120.00
3.700	120.00	120.00	120.00	120.00	120.00
3.725	120.00	120.00	120.00	120.00	120.00
3.750	120.00	120.00	120.00	120.00	120.00
3.775	120.00	120.00	120.00	120.00	120.00
3.800	120.00	120.00	120.00	120.00	120.00
3.825	120.00	120.00	120.00	120.00	120.00
3.850	120.00	120.00	120.00	120.00	120.00
3.875	120.00	120.00	120.00	120.00	120.00
3.900	120.00	120.00	120.00	120.00	120.00
3.925	120.00	120.00	120.00	120.00	120.00
3.950	120.00	120.00	120.00	120.00	120.00
3.975	120.00	120.00	120.00	120.00	120.00
4.000	120.00	120.00	120.00	120.00	120.00
4.025	120.00	120.00	120.00	120.00	120.00
4.050	120.00	120.00	120.00	120.00	120.00
4.075	120.00	120.00	120.00	120.00	120.00
4.100	120.00	120.00	120.00	120.00	120.00
4.125	120.00	120.00	120.00	120.00	120.00
4.150	120.00	120.00	120.00	120.00	120.00
4.175	120.00	120.00	120.00	120.00	120.00
4.200	120.00	120.00	120.00	120.00	120.00
4.225	120.00	120.00	120.00	120.00	120.00
4.250	120.00	120.00	120.00	120.00	120.00
4.275	120.00	120.00	120.00	120.00	120.00

**Time vs. Elevation (ft)**

**Output Time increment = 0.005 hours**  
**Time on left represents time for first value in each row.**

Time (hours)	Elevation (ft)	Elevation (ft)	Elevation (ft)	Elevation (ft)	Elevation (ft)
4.300	120.00	120.00	120.00	120.00	120.00
4.325	120.00	120.00	120.00	120.00	120.00
4.350	120.00	120.00	120.00	120.00	120.00
4.375	120.00	120.00	120.00	120.00	120.00
4.400	120.00	120.00	120.00	120.00	120.00
4.425	120.00	120.00	120.00	120.00	120.00
4.450	120.00	120.00	120.00	120.00	120.00
4.475	120.00	120.00	120.00	120.00	120.00
4.500	120.00	120.00	120.00	120.00	120.00
4.525	120.00	120.00	120.00	120.00	120.00
4.550	120.00	120.00	120.00	120.00	120.00
4.575	120.00	120.00	120.00	120.00	120.00
4.600	120.00	120.00	120.00	120.00	120.00
4.625	120.00	120.00	120.00	120.00	120.00
4.650	120.00	120.00	120.00	120.00	120.00
4.675	120.00	120.00	120.00	120.00	120.00
4.700	120.00	120.00	120.00	120.00	120.00
4.725	120.00	120.00	120.00	120.00	120.00
4.750	120.00	120.00	120.00	120.00	120.00
4.775	120.00	120.00	120.00	120.00	120.00
4.800	120.00	120.00	120.00	120.00	120.00
4.825	120.00	120.00	120.00	120.00	120.00
4.850	120.00	120.00	120.00	120.00	120.00
4.875	120.00	120.00	120.00	120.00	120.00
4.900	120.00	120.00	120.00	120.00	120.00
4.925	120.00	120.00	120.00	120.00	120.00
4.950	120.00	120.00	120.00	120.00	120.00
4.975	120.00	120.00	120.00	120.00	120.00
5.000	120.00	120.00	120.00	120.00	120.00
5.025	120.00	120.00	120.00	120.00	120.00
5.050	120.00	120.00	120.00	120.00	120.00
5.075	120.00	120.00	120.00	120.00	120.00
5.100	120.00	120.00	120.00	120.00	120.00
5.125	120.00	120.00	120.00	120.00	120.00
5.150	120.00	120.00	120.00	120.00	120.00
5.175	120.00	120.00	120.00	120.00	120.00
5.200	120.00	120.00	120.00	120.00	120.00
5.225	120.00	120.00	120.00	120.00	120.00
5.250	120.00	120.00	120.00	120.00	120.00
5.275	120.00	120.00	120.00	120.00	120.00
5.300	120.00	120.00	120.00	120.00	120.00
5.325	120.00	120.00	120.00	120.00	120.00
5.350	120.00	120.00	120.00	120.00	120.00

**Time vs. Elevation (ft)**

**Output Time increment = 0.005 hours**  
**Time on left represents time for first value in each row.**

Time (hours)	Elevation (ft)	Elevation (ft)	Elevation (ft)	Elevation (ft)	Elevation (ft)
5.375	120.00	120.00	120.00	120.00	120.00
5.400	120.00	120.00	120.00	120.00	120.00
5.425	120.00	120.00	120.00	120.00	120.00
5.450	120.00	120.00	120.00	120.00	120.00
5.475	120.00	120.00	120.00	120.00	120.00
5.500	120.00	120.00	120.00	120.00	120.00
5.525	120.00	120.00	120.00	120.00	120.00
5.550	120.00	120.00	120.00	120.00	120.00
5.575	120.00	120.00	120.00	120.00	120.00
5.600	120.00	120.00	120.00	120.00	120.00
5.625	120.00	120.00	120.00	120.00	120.00
5.650	120.00	120.00	120.00	120.00	120.00
5.675	120.00	120.00	120.00	120.00	120.00
5.700	120.00	120.00	120.00	120.00	120.00
5.725	120.00	120.00	120.00	120.00	120.00
5.750	120.00	120.00	120.00	120.00	120.00
5.775	120.00	120.00	120.00	120.00	120.00
5.800	120.00	120.00	120.00	120.00	120.00
5.825	120.00	120.00	120.00	120.00	120.00
5.850	120.00	120.00	120.00	120.00	120.00
5.875	120.00	120.00	120.00	120.00	120.00
5.900	120.00	120.00	120.00	120.00	120.00
5.925	120.00	120.00	120.00	120.00	120.00
5.950	120.00	120.00	120.00	120.00	120.00
5.975	120.00	120.00	120.00	120.00	120.00
6.000	120.00	120.00	120.00	120.00	120.00
6.025	120.00	120.00	120.00	120.00	120.00
6.050	120.00	120.00	120.00	120.00	120.00
6.075	120.00	120.00	120.00	120.00	120.00
6.100	120.00	120.00	120.00	120.00	120.00
6.125	120.00	120.00	120.00	120.00	120.00
6.150	120.00	120.00	120.00	120.00	120.00
6.175	120.00	120.00	120.00	120.00	120.00
6.200	120.00	120.00	120.00	120.00	120.00
6.225	120.00	120.00	120.00	120.00	120.00
6.250	120.00	120.00	120.00	120.00	120.00
6.275	120.00	120.00	120.00	120.00	120.00
6.300	120.00	120.00	120.00	120.00	120.00
6.325	120.00	120.00	120.00	120.00	120.00
6.350	120.00	120.00	120.00	120.00	120.00
6.375	120.00	120.00	120.00	120.00	120.00
6.400	120.00	120.00	120.00	120.00	120.00
6.425	120.00	120.00	120.00	120.00	120.00

**Time vs. Elevation (ft)**

**Output Time increment = 0.005 hours**  
**Time on left represents time for first value in each row.**

Time (hours)	Elevation (ft)	Elevation (ft)	Elevation (ft)	Elevation (ft)	Elevation (ft)
6.450	120.00	120.00	120.00	120.00	120.00
6.475	120.00	120.00	120.00	120.00	120.00
6.500	120.00	120.00	120.00	120.00	120.00
6.525	120.00	120.00	120.00	120.00	120.00
6.550	120.00	120.00	120.00	120.00	120.00
6.575	120.00	120.00	120.00	120.00	120.00
6.600	120.00	120.00	120.00	120.00	120.00
6.625	120.00	120.00	120.00	120.00	120.00
6.650	120.00	120.00	120.00	120.00	120.00
6.675	120.00	120.00	120.00	120.00	120.00
6.700	120.00	120.00	120.00	120.00	120.00
6.725	120.00	120.00	120.00	120.00	120.00
6.750	120.00	120.00	120.00	120.00	120.00
6.775	120.00	120.00	120.00	120.00	120.00
6.800	120.00	120.00	120.00	120.00	120.00
6.825	120.00	120.00	120.00	120.00	120.00
6.850	120.00	120.00	120.00	120.00	120.00
6.875	120.00	120.00	120.00	120.00	120.00
6.900	120.00	120.00	120.00	120.00	120.00
6.925	120.00	120.00	120.00	120.00	120.00
6.950	120.00	120.00	120.00	120.00	120.00
6.975	120.00	120.00	120.00	120.00	120.00
7.000	120.00	120.00	120.00	120.00	120.00
7.025	120.00	120.00	120.00	120.00	120.00
7.050	120.00	120.00	120.00	120.00	120.00
7.075	120.00	120.00	120.00	120.00	120.00
7.100	120.00	120.00	120.00	120.00	120.00
7.125	120.00	120.00	120.00	120.00	120.00
7.150	120.00	120.00	120.00	120.00	120.00
7.175	120.00	120.00	120.00	120.00	120.00
7.200	120.00	120.00	120.00	120.00	120.00
7.225	120.00	120.00	120.00	120.00	120.00
7.250	120.00	120.00	120.00	120.00	120.00
7.275	120.00	120.00	120.00	120.00	120.00
7.300	120.00	120.00	120.00	120.00	120.00
7.325	120.00	120.00	120.00	120.00	120.00
7.350	120.00	120.00	120.00	120.00	120.00
7.375	120.00	120.00	120.00	120.00	120.00
7.400	120.00	120.00	120.00	120.00	120.00
7.425	120.00	120.00	120.00	120.00	120.00
7.450	120.00	120.00	120.00	120.00	120.00
7.475	120.00	120.00	120.00	120.00	120.00
7.500	120.00	120.00	120.00	120.00	120.00

**Time vs. Elevation (ft)**

**Output Time increment = 0.005 hours**  
**Time on left represents time for first value in each row.**

Time (hours)	Elevation (ft)	Elevation (ft)	Elevation (ft)	Elevation (ft)	Elevation (ft)
7.525	120.00	120.00	120.00	120.00	120.00
7.550	120.00	120.00	120.00	120.00	120.00
7.575	120.00	120.00	120.00	120.00	120.00
7.600	120.00	120.00	120.00	120.00	120.00
7.625	120.00	120.00	120.00	120.00	120.00
7.650	120.00	120.00	120.00	120.00	120.00
7.675	120.00	120.00	120.00	120.00	120.00
7.700	120.00	120.00	120.00	120.00	120.00
7.725	120.00	120.00	120.00	120.00	120.00
7.750	120.00	120.00	120.00	120.00	120.00
7.775	120.00	120.00	120.00	120.00	120.00
7.800	120.00	120.00	120.00	120.00	120.00
7.825	120.00	120.00	120.00	120.00	120.00
7.850	120.00	120.00	120.00	120.00	120.00
7.875	120.00	120.00	120.00	120.00	120.00
7.900	120.00	120.00	120.00	120.00	120.00
7.925	120.00	120.00	120.00	120.00	120.00
7.950	120.00	120.00	120.00	120.00	120.00
7.975	120.00	120.00	120.00	120.00	120.00
8.000	120.00	120.00	120.00	120.00	120.00
8.025	120.00	120.00	120.00	120.00	120.00
8.050	120.00	120.00	120.00	120.00	120.00
8.075	120.00	120.00	120.00	120.00	120.00
8.100	120.00	120.00	120.00	120.00	120.00
8.125	120.00	120.00	120.00	120.00	120.00
8.150	120.00	120.00	120.00	120.00	120.00
8.175	120.00	120.00	120.00	120.00	120.00
8.200	120.00	120.00	120.00	120.00	120.00
8.225	120.00	120.00	120.00	120.00	120.00
8.250	120.00	120.00	120.00	120.00	120.00
8.275	120.00	120.00	120.00	120.00	120.00
8.300	120.00	120.00	120.00	120.00	120.00
8.325	120.00	120.00	120.00	120.00	120.00
8.350	120.00	120.00	120.00	120.00	120.00
8.375	120.00	120.00	120.00	120.00	120.00
8.400	120.00	120.00	120.00	120.00	120.00
8.425	120.00	120.00	120.00	120.00	120.00
8.450	120.00	120.00	120.00	120.00	120.00
8.475	120.00	120.00	120.00	120.00	120.00
8.500	120.00	120.00	120.00	120.00	120.00
8.525	120.00	120.00	120.00	120.00	120.00
8.550	120.00	120.00	120.00	120.00	120.00
8.575	120.00	120.00	120.00	120.00	120.00



**Time vs. Elevation (ft)**

**Output Time increment = 0.005 hours**  
**Time on left represents time for first value in each row.**

Time (hours)	Elevation (ft)	Elevation (ft)	Elevation (ft)	Elevation (ft)	Elevation (ft)
8.600	120.00	120.00	120.00	120.00	120.00
8.625	120.00	120.00	120.00	120.00	120.00
8.650	120.00	120.00	120.00	120.00	120.00
8.675	120.00	120.00	120.00	120.00	120.00
8.700	120.00	120.00	120.00	120.00	120.00
8.725	120.00	120.00	120.00	120.00	120.00
8.750	120.00	120.00	120.00	120.00	120.00
8.775	120.00	120.00	120.00	120.00	120.00
8.800	120.00	120.00	120.00	120.00	120.00
8.825	120.00	120.00	120.01	120.01	120.01
8.850	120.01	120.01	120.01	120.01	120.01
8.875	120.01	120.01	120.01	120.01	120.01
8.900	120.01	120.02	120.02	120.02	120.02
8.925	120.02	120.02	120.02	120.02	120.02
8.950	120.02	120.02	120.02	120.02	120.02
8.975	120.02	120.03	120.03	120.03	120.03
9.000	120.03	120.03	120.03	120.03	120.03
9.025	120.03	120.03	120.03	120.03	120.03
9.050	120.03	120.04	120.04	120.04	120.04
9.075	120.04	120.04	120.04	120.04	120.04
9.100	120.04	120.04	120.04	120.04	120.04
9.125	120.04	120.04	120.04	120.04	120.04
9.150	120.05	120.05	120.05	120.05	120.05
9.175	120.05	120.05	120.05	120.05	120.05
9.200	120.05	120.05	120.05	120.05	120.05
9.225	120.05	120.05	120.05	120.05	120.05
9.250	120.05	120.05	120.05	120.05	120.05
9.275	120.05	120.06	120.06	120.06	120.06
9.300	120.06	120.06	120.06	120.06	120.06
9.325	120.06	120.06	120.06	120.06	120.06
9.350	120.06	120.06	120.06	120.06	120.06
9.375	120.06	120.06	120.06	120.06	120.06
9.400	120.06	120.06	120.06	120.06	120.06
9.425	120.06	120.06	120.06	120.06	120.06
9.450	120.06	120.07	120.07	120.07	120.07
9.475	120.07	120.07	120.07	120.07	120.07
9.500	120.07	120.07	120.07	120.07	120.07
9.525	120.07	120.07	120.07	120.07	120.07
9.550	120.07	120.07	120.07	120.07	120.07
9.575	120.07	120.07	120.07	120.07	120.07
9.600	120.07	120.07	120.07	120.07	120.07
9.625	120.07	120.07	120.07	120.07	120.07
9.650	120.07	120.07	120.07	120.07	120.07

**Time vs. Elevation (ft)**

**Output Time increment = 0.005 hours**  
**Time on left represents time for first value in each row.**

Time (hours)	Elevation (ft)	Elevation (ft)	Elevation (ft)	Elevation (ft)	Elevation (ft)
9.675	120.07	120.08	120.08	120.08	120.08
9.700	120.08	120.08	120.08	120.08	120.08
9.725	120.08	120.08	120.08	120.08	120.08
9.750	120.08	120.08	120.08	120.08	120.08
9.775	120.08	120.08	120.08	120.08	120.08
9.800	120.08	120.08	120.08	120.08	120.08
9.825	120.08	120.08	120.08	120.08	120.08
9.850	120.08	120.08	120.08	120.08	120.08
9.875	120.08	120.08	120.08	120.09	120.09
9.900	120.09	120.09	120.09	120.09	120.09
9.925	120.09	120.09	120.09	120.09	120.09
9.950	120.09	120.09	120.09	120.09	120.09
9.975	120.09	120.09	120.09	120.09	120.09
10.000	120.09	120.09	120.09	120.09	120.09
10.025	120.09	120.09	120.09	120.09	120.09
10.050	120.09	120.09	120.09	120.09	120.09
10.075	120.09	120.09	120.09	120.09	120.10
10.100	120.10	120.10	120.10	120.10	120.10
10.125	120.10	120.10	120.10	120.10	120.10
10.150	120.10	120.10	120.10	120.10	120.10
10.175	120.10	120.10	120.10	120.10	120.10
10.200	120.10	120.10	120.10	120.10	120.10
10.225	120.10	120.10	120.10	120.10	120.10
10.250	120.10	120.10	120.10	120.10	120.10
10.275	120.10	120.10	120.11	120.11	120.11
10.300	120.11	120.11	120.11	120.11	120.11
10.325	120.11	120.11	120.11	120.11	120.11
10.350	120.11	120.11	120.11	120.11	120.11
10.375	120.11	120.11	120.11	120.11	120.11
10.400	120.11	120.11	120.11	120.11	120.11
10.425	120.11	120.11	120.11	120.11	120.11
10.450	120.11	120.11	120.11	120.12	120.12
10.475	120.12	120.12	120.12	120.12	120.12
10.500	120.12	120.12	120.12	120.12	120.12
10.525	120.12	120.12	120.12	120.12	120.12
10.550	120.12	120.12	120.12	120.12	120.12
10.575	120.12	120.12	120.12	120.12	120.12
10.600	120.12	120.12	120.12	120.12	120.12
10.625	120.12	120.12	120.12	120.13	120.13
10.650	120.13	120.13	120.13	120.13	120.13
10.675	120.13	120.13	120.13	120.13	120.13
10.700	120.13	120.13	120.13	120.13	120.13
10.725	120.13	120.13	120.13	120.13	120.13

Subsection: Time vs. Elevation  
 Label: CO-49

Return Event: 25 years  
 Storm Event: 25 yr

**Time vs. Elevation (ft)**

**Output Time increment = 0.005 hours**  
**Time on left represents time for first value in each row.**

Time (hours)	Elevation (ft)	Elevation (ft)	Elevation (ft)	Elevation (ft)	Elevation (ft)
10.750	120.13	120.13	120.13	120.13	120.13
10.775	120.13	120.13	120.13	120.14	120.14
10.800	120.14	120.14	120.14	120.14	120.14
10.825	120.14	120.14	120.14	120.14	120.14
10.850	120.14	120.14	120.14	120.14	120.14
10.875	120.14	120.14	120.14	120.14	120.14
10.900	120.14	120.14	120.14	120.14	120.14
10.925	120.14	120.15	120.15	120.15	120.15
10.950	120.15	120.15	120.15	120.15	120.15
10.975	120.15	120.15	120.15	120.15	120.15
11.000	120.15	120.15	120.15	120.15	120.15
11.025	120.15	120.15	120.15	120.15	120.15
11.050	120.15	120.15	120.15	120.15	120.16
11.075	120.16	120.16	120.16	120.16	120.16
11.100	120.16	120.16	120.16	120.16	120.16
11.125	120.16	120.16	120.16	120.16	120.16
11.150	120.16	120.16	120.16	120.16	120.16
11.175	120.16	120.17	120.17	120.17	120.17
11.200	120.17	120.17	120.17	120.17	120.17
11.225	120.17	120.17	120.17	120.17	120.17
11.250	120.17	120.17	120.17	120.17	120.17
11.275	120.18	120.18	120.18	120.18	120.18
11.300	120.18	120.18	120.18	120.18	120.18
11.325	120.18	120.18	120.18	120.18	120.18
11.350	120.18	120.18	120.19	120.19	120.19
11.375	120.19	120.19	120.19	120.19	120.19
11.400	120.19	120.19	120.19	120.19	120.19
11.425	120.19	120.19	120.19	120.19	120.20
11.450	120.20	120.20	120.20	120.20	120.20
11.475	120.20	120.20	120.20	120.20	120.20
11.500	120.20	120.20	120.20	120.20	120.20
11.525	120.21	120.21	120.21	120.21	120.21
11.550	120.21	120.21	120.21	120.22	120.22
11.575	120.22	120.22	120.22	120.23	120.23
11.600	120.23	120.23	120.24	120.24	120.24
11.625	120.24	120.25	120.25	120.25	120.26
11.650	120.26	120.27	120.27	120.27	120.28
11.675	120.28	120.29	120.29	120.29	120.30
11.700	120.30	120.31	120.31	120.32	120.32
11.725	120.33	120.33	120.34	120.34	120.35
11.750	120.35	120.36	120.36	120.37	120.37
11.775	120.38	120.38	120.39	120.40	120.40
11.800	120.41	120.41	120.42	120.42	120.43

**Time vs. Elevation (ft)**

**Output Time increment = 0.005 hours**  
**Time on left represents time for first value in each row.**

Time (hours)	Elevation (ft)	Elevation (ft)	Elevation (ft)	Elevation (ft)	Elevation (ft)
11.825	120.44	120.44	120.45	120.45	120.46
11.850	120.47	120.47	120.48	120.49	120.49
11.875	120.50	120.51	120.51	120.52	120.53
11.900	120.54	120.55	120.55	120.56	120.57
11.925	120.57	120.58	120.59	120.59	120.60
11.950	120.60	120.61	120.61	120.62	120.62
11.975	120.62	120.63	120.63	120.63	120.63
12.000	120.64	120.64	120.64	120.64	120.64
12.025	120.64	120.64	120.64	120.64	120.63
12.050	120.63	120.63	120.63	120.62	120.62
12.075	120.62	120.61	120.61	120.60	120.60
12.100	120.59	120.58	120.58	120.57	120.56
12.125	120.56	120.55	120.54	120.54	120.53
12.150	120.52	120.51	120.51	120.50	120.49
12.175	120.48	120.48	120.47	120.46	120.46
12.200	120.45	120.45	120.44	120.44	120.43
12.225	120.43	120.42	120.42	120.41	120.41
12.250	120.40	120.40	120.40	120.39	120.39
12.275	120.39	120.38	120.38	120.38	120.37
12.300	120.37	120.37	120.37	120.36	120.36
12.325	120.36	120.36	120.36	120.35	120.35
12.350	120.35	120.35	120.35	120.34	120.34
12.375	120.34	120.34	120.34	120.34	120.33
12.400	120.33	120.33	120.33	120.33	120.33
12.425	120.33	120.32	120.32	120.32	120.32
12.450	120.32	120.32	120.32	120.31	120.31
12.475	120.31	120.31	120.31	120.31	120.31
12.500	120.31	120.30	120.30	120.30	120.30
12.525	120.30	120.30	120.30	120.30	120.30
12.550	120.29	120.29	120.29	120.29	120.29
12.575	120.29	120.29	120.29	120.29	120.29
12.600	120.28	120.28	120.28	120.28	120.28
12.625	120.28	120.28	120.28	120.28	120.28
12.650	120.28	120.28	120.27	120.27	120.27
12.675	120.27	120.27	120.27	120.27	120.27
12.700	120.27	120.27	120.27	120.27	120.27
12.725	120.27	120.27	120.27	120.27	120.27
12.750	120.26	120.26	120.26	120.26	120.26
12.775	120.26	120.26	120.26	120.26	120.26
12.800	120.26	120.26	120.26	120.26	120.26
12.825	120.26	120.26	120.26	120.26	120.26
12.850	120.26	120.26	120.26	120.26	120.26
12.875	120.26	120.25	120.25	120.25	120.25

**Time vs. Elevation (ft)**

**Output Time increment = 0.005 hours**  
**Time on left represents time for first value in each row.**

Time (hours)	Elevation (ft)	Elevation (ft)	Elevation (ft)	Elevation (ft)	Elevation (ft)
12.900	120.25	120.25	120.25	120.25	120.25
12.925	120.25	120.25	120.25	120.25	120.25
12.950	120.25	120.25	120.25	120.25	120.25
12.975	120.25	120.25	120.25	120.25	120.25
13.000	120.25	120.25	120.25	120.25	120.25
13.025	120.25	120.25	120.24	120.24	120.24
13.050	120.24	120.24	120.24	120.24	120.24
13.075	120.24	120.24	120.24	120.24	120.24
13.100	120.24	120.24	120.24	120.24	120.24
13.125	120.24	120.24	120.24	120.24	120.24
13.150	120.24	120.24	120.24	120.24	120.24
13.175	120.24	120.24	120.24	120.24	120.24
13.200	120.24	120.23	120.23	120.23	120.23
13.225	120.23	120.23	120.23	120.23	120.23
13.250	120.23	120.23	120.23	120.23	120.23
13.275	120.23	120.23	120.23	120.23	120.23
13.300	120.23	120.23	120.23	120.23	120.23
13.325	120.23	120.23	120.23	120.23	120.23
13.350	120.23	120.23	120.23	120.23	120.23
13.375	120.23	120.23	120.23	120.23	120.23
13.400	120.23	120.23	120.23	120.23	120.23
13.425	120.23	120.23	120.22	120.22	120.22
13.450	120.22	120.22	120.22	120.22	120.22
13.475	120.22	120.22	120.22	120.22	120.22
13.500	120.22	120.22	120.22	120.22	120.22
13.525	120.22	120.22	120.22	120.22	120.22
13.550	120.22	120.22	120.22	120.22	120.22
13.575	120.22	120.22	120.22	120.22	120.22
13.600	120.22	120.22	120.22	120.22	120.22
13.625	120.22	120.22	120.22	120.22	120.22
13.650	120.22	120.22	120.22	120.22	120.22
13.675	120.21	120.21	120.21	120.21	120.21
13.700	120.21	120.21	120.21	120.21	120.21
13.725	120.21	120.21	120.21	120.21	120.21
13.750	120.21	120.21	120.21	120.21	120.21
13.775	120.21	120.21	120.21	120.21	120.21
13.800	120.21	120.21	120.21	120.21	120.21
13.825	120.21	120.21	120.21	120.21	120.21
13.850	120.21	120.21	120.21	120.21	120.21
13.875	120.21	120.21	120.21	120.21	120.21
13.900	120.21	120.21	120.21	120.21	120.21
13.925	120.21	120.21	120.21	120.21	120.21
13.950	120.21	120.20	120.20	120.20	120.20

**Time vs. Elevation (ft)**

**Output Time increment = 0.005 hours**  
**Time on left represents time for first value in each row.**

Time (hours)	Elevation (ft)	Elevation (ft)	Elevation (ft)	Elevation (ft)	Elevation (ft)
13.975	120.20	120.20	120.20	120.20	120.20
14.000	120.20	120.20	120.20	120.20	120.20
14.025	120.20	120.20	120.20	120.20	120.20
14.050	120.20	120.20	120.20	120.20	120.20
14.075	120.20	120.20	120.20	120.20	120.20
14.100	120.20	120.20	120.20	120.20	120.20
14.125	120.20	120.20	120.20	120.20	120.20
14.150	120.20	120.20	120.20	120.20	120.20
14.175	120.20	120.20	120.20	120.20	120.20
14.200	120.20	120.20	120.20	120.20	120.20
14.225	120.20	120.20	120.20	120.20	120.20
14.250	120.20	120.20	120.20	120.20	120.20
14.275	120.20	120.20	120.20	120.20	120.20
14.300	120.20	120.20	120.20	120.20	120.20
14.325	120.20	120.20	120.19	120.19	120.19
14.350	120.19	120.19	120.19	120.19	120.19
14.375	120.19	120.19	120.19	120.19	120.19
14.400	120.19	120.19	120.19	120.19	120.19
14.425	120.19	120.19	120.19	120.19	120.19
14.450	120.19	120.19	120.19	120.19	120.19
14.475	120.19	120.19	120.19	120.19	120.19
14.500	120.19	120.19	120.19	120.19	120.19
14.525	120.19	120.19	120.19	120.19	120.19
14.550	120.19	120.19	120.19	120.19	120.19
14.575	120.19	120.19	120.19	120.19	120.19
14.600	120.19	120.19	120.19	120.19	120.19
14.625	120.19	120.19	120.19	120.19	120.19
14.650	120.19	120.19	120.19	120.19	120.19
14.675	120.19	120.19	120.19	120.19	120.19
14.700	120.19	120.19	120.19	120.19	120.19
14.725	120.19	120.19	120.19	120.19	120.19
14.750	120.19	120.19	120.19	120.19	120.19
14.775	120.19	120.19	120.19	120.19	120.19
14.800	120.19	120.19	120.19	120.19	120.19
14.825	120.19	120.19	120.19	120.19	120.19
14.850	120.19	120.19	120.19	120.19	120.19
14.875	120.19	120.19	120.19	120.19	120.19
14.900	120.19	120.19	120.19	120.19	120.19
14.925	120.19	120.19	120.19	120.19	120.19
14.950	120.19	120.19	120.19	120.19	120.19
14.975	120.19	120.19	120.19	120.19	120.19
15.000	120.19	120.19	120.19	120.19	120.19
15.025	120.19	120.19	120.19	120.19	120.18

**Time vs. Elevation (ft)**

**Output Time increment = 0.005 hours**  
**Time on left represents time for first value in each row.**

Time (hours)	Elevation (ft)	Elevation (ft)	Elevation (ft)	Elevation (ft)	Elevation (ft)
15.050	120.18	120.18	120.18	120.18	120.18
15.075	120.18	120.18	120.18	120.18	120.18
15.100	120.18	120.18	120.18	120.18	120.18
15.125	120.18	120.18	120.18	120.18	120.18
15.150	120.18	120.18	120.18	120.18	120.18
15.175	120.18	120.18	120.18	120.18	120.18
15.200	120.18	120.18	120.18	120.18	120.18
15.225	120.18	120.18	120.18	120.18	120.18
15.250	120.18	120.18	120.18	120.18	120.18
15.275	120.18	120.18	120.18	120.18	120.18
15.300	120.18	120.18	120.18	120.18	120.18
15.325	120.18	120.18	120.18	120.18	120.18
15.350	120.18	120.18	120.18	120.18	120.18
15.375	120.18	120.18	120.18	120.18	120.18
15.400	120.18	120.18	120.18	120.18	120.18
15.425	120.18	120.18	120.18	120.18	120.18
15.450	120.18	120.18	120.18	120.18	120.18
15.475	120.18	120.18	120.18	120.18	120.18
15.500	120.18	120.18	120.18	120.18	120.18
15.525	120.18	120.18	120.18	120.18	120.18
15.550	120.18	120.18	120.18	120.18	120.18
15.575	120.18	120.18	120.18	120.18	120.18
15.600	120.18	120.18	120.18	120.18	120.18
15.625	120.18	120.18	120.18	120.18	120.18
15.650	120.18	120.18	120.18	120.18	120.18
15.675	120.18	120.18	120.17	120.17	120.17
15.700	120.17	120.17	120.17	120.17	120.17
15.725	120.17	120.17	120.17	120.17	120.17
15.750	120.17	120.17	120.17	120.17	120.17
15.775	120.17	120.17	120.17	120.17	120.17
15.800	120.17	120.17	120.17	120.17	120.17
15.825	120.17	120.17	120.17	120.17	120.17
15.850	120.17	120.17	120.17	120.17	120.17
15.875	120.17	120.17	120.17	120.17	120.17
15.900	120.17	120.17	120.17	120.17	120.17
15.925	120.17	120.17	120.17	120.17	120.17
15.950	120.17	120.17	120.17	120.17	120.17
15.975	120.17	120.17	120.17	120.17	120.17
16.000	120.17	120.17	120.17	120.17	120.17
16.025	120.17	120.17	120.17	120.17	120.17
16.050	120.17	120.17	120.17	120.17	120.17
16.075	120.17	120.17	120.17	120.17	120.17
16.100	120.17	120.17	120.17	120.17	120.17

Subsection: Time vs. Elevation  
 Label: CO-49

Return Event: 25 years  
 Storm Event: 25 yr

**Time vs. Elevation (ft)**

**Output Time increment = 0.005 hours**  
**Time on left represents time for first value in each row.**

Time (hours)	Elevation (ft)	Elevation (ft)	Elevation (ft)	Elevation (ft)	Elevation (ft)
16.125	120.17	120.17	120.17	120.17	120.17
16.150	120.17	120.17	120.17	120.17	120.17
16.175	120.17	120.17	120.17	120.17	120.17
16.200	120.17	120.17	120.17	120.17	120.17
16.225	120.17	120.17	120.17	120.17	120.17
16.250	120.17	120.17	120.17	120.17	120.17
16.275	120.17	120.17	120.17	120.17	120.17
16.300	120.17	120.17	120.17	120.17	120.17
16.325	120.17	120.17	120.17	120.17	120.17
16.350	120.17	120.17	120.17	120.17	120.17
16.375	120.17	120.17	120.17	120.17	120.17
16.400	120.16	120.16	120.16	120.16	120.16
16.425	120.16	120.16	120.16	120.16	120.16
16.450	120.16	120.16	120.16	120.16	120.16
16.475	120.16	120.16	120.16	120.16	120.16
16.500	120.16	120.16	120.16	120.16	120.16
16.525	120.16	120.16	120.16	120.16	120.16
16.550	120.16	120.16	120.16	120.16	120.16
16.575	120.16	120.16	120.16	120.16	120.16
16.600	120.16	120.16	120.16	120.16	120.16
16.625	120.16	120.16	120.16	120.16	120.16
16.650	120.16	120.16	120.16	120.16	120.16
16.675	120.16	120.16	120.16	120.16	120.16
16.700	120.16	120.16	120.16	120.16	120.16
16.725	120.16	120.16	120.16	120.16	120.16
16.750	120.16	120.16	120.16	120.16	120.16
16.775	120.16	120.16	120.16	120.16	120.16
16.800	120.16	120.16	120.16	120.16	120.16
16.825	120.16	120.16	120.16	120.16	120.16
16.850	120.16	120.16	120.16	120.16	120.16
16.875	120.16	120.16	120.16	120.16	120.16
16.900	120.16	120.16	120.16	120.16	120.16
16.925	120.16	120.16	120.16	120.16	120.16
16.950	120.16	120.16	120.16	120.16	120.16
16.975	120.16	120.16	120.16	120.16	120.16
17.000	120.16	120.16	120.16	120.16	120.16
17.025	120.16	120.16	120.16	120.16	120.16
17.050	120.16	120.16	120.16	120.16	120.16
17.075	120.16	120.16	120.16	120.16	120.16
17.100	120.16	120.16	120.16	120.16	120.16
17.125	120.16	120.16	120.16	120.16	120.16
17.150	120.16	120.16	120.16	120.16	120.16
17.175	120.16	120.16	120.16	120.16	120.16



**Time vs. Elevation (ft)**

**Output Time increment = 0.005 hours**  
**Time on left represents time for first value in each row.**

Time (hours)	Elevation (ft)	Elevation (ft)	Elevation (ft)	Elevation (ft)	Elevation (ft)
17.200	120.16	120.16	120.16	120.16	120.16
17.225	120.16	120.16	120.16	120.16	120.16
17.250	120.16	120.16	120.16	120.16	120.16
17.275	120.16	120.16	120.16	120.16	120.16
17.300	120.16	120.16	120.16	120.16	120.16
17.325	120.16	120.16	120.16	120.16	120.16
17.350	120.16	120.16	120.16	120.16	120.16
17.375	120.16	120.16	120.16	120.16	120.16
17.400	120.16	120.16	120.16	120.16	120.16
17.425	120.16	120.16	120.16	120.16	120.16
17.450	120.16	120.16	120.16	120.16	120.16
17.475	120.16	120.16	120.16	120.16	120.16
17.500	120.16	120.16	120.16	120.16	120.16
17.525	120.16	120.16	120.16	120.16	120.16
17.550	120.16	120.16	120.16	120.16	120.16
17.575	120.16	120.16	120.16	120.16	120.16
17.600	120.16	120.16	120.16	120.16	120.16
17.625	120.16	120.16	120.16	120.16	120.16
17.650	120.16	120.16	120.16	120.16	120.16
17.675	120.16	120.16	120.16	120.16	120.16
17.700	120.16	120.16	120.16	120.16	120.16
17.725	120.16	120.16	120.16	120.16	120.16
17.750	120.16	120.16	120.16	120.16	120.16
17.775	120.16	120.16	120.16	120.16	120.16
17.800	120.16	120.16	120.16	120.16	120.16
17.825	120.16	120.16	120.16	120.16	120.16
17.850	120.16	120.16	120.16	120.15	120.15
17.875	120.15	120.15	120.15	120.15	120.15
17.900	120.15	120.15	120.15	120.15	120.15
17.925	120.15	120.15	120.15	120.15	120.15
17.950	120.15	120.15	120.15	120.15	120.15
17.975	120.15	120.15	120.15	120.15	120.15
18.000	120.15	120.15	120.15	120.15	120.15
18.025	120.15	120.15	120.15	120.15	120.15
18.050	120.15	120.15	120.15	120.15	120.15
18.075	120.15	120.15	120.15	120.15	120.15
18.100	120.15	120.15	120.15	120.15	120.15
18.125	120.15	120.15	120.15	120.15	120.15
18.150	120.15	120.15	120.15	120.15	120.15
18.175	120.15	120.15	120.15	120.15	120.15
18.200	120.15	120.15	120.15	120.15	120.15
18.225	120.15	120.15	120.15	120.15	120.15
18.250	120.15	120.15	120.15	120.15	120.15

**Time vs. Elevation (ft)**

**Output Time increment = 0.005 hours**  
**Time on left represents time for first value in each row.**

Time (hours)	Elevation (ft)	Elevation (ft)	Elevation (ft)	Elevation (ft)	Elevation (ft)
18.275	120.15	120.15	120.15	120.15	120.15
18.300	120.15	120.15	120.15	120.15	120.15
18.325	120.15	120.15	120.15	120.15	120.15
18.350	120.15	120.15	120.15	120.15	120.15
18.375	120.15	120.15	120.15	120.15	120.15
18.400	120.15	120.15	120.15	120.15	120.15
18.425	120.15	120.15	120.15	120.15	120.15
18.450	120.15	120.15	120.15	120.15	120.15
18.475	120.15	120.15	120.15	120.15	120.15
18.500	120.15	120.15	120.15	120.15	120.15
18.525	120.15	120.15	120.15	120.15	120.15
18.550	120.15	120.15	120.15	120.15	120.15
18.575	120.15	120.15	120.15	120.15	120.15
18.600	120.15	120.15	120.15	120.15	120.15
18.625	120.15	120.15	120.15	120.15	120.15
18.650	120.15	120.15	120.15	120.15	120.15
18.675	120.15	120.15	120.15	120.15	120.15
18.700	120.15	120.15	120.15	120.15	120.15
18.725	120.15	120.15	120.15	120.15	120.15
18.750	120.15	120.15	120.15	120.15	120.15
18.775	120.15	120.15	120.15	120.15	120.15
18.800	120.15	120.15	120.15	120.15	120.15
18.825	120.15	120.15	120.15	120.15	120.15
18.850	120.15	120.15	120.15	120.15	120.15
18.875	120.15	120.15	120.15	120.15	120.15
18.900	120.15	120.15	120.15	120.15	120.15
18.925	120.15	120.15	120.15	120.15	120.15
18.950	120.15	120.15	120.15	120.15	120.15
18.975	120.15	120.15	120.15	120.15	120.15
19.000	120.15	120.15	120.15	120.15	120.15
19.025	120.15	120.15	120.15	120.15	120.15
19.050	120.15	120.15	120.15	120.15	120.15
19.075	120.15	120.15	120.15	120.15	120.15
19.100	120.15	120.15	120.15	120.15	120.15
19.125	120.15	120.15	120.14	120.14	120.14
19.150	120.14	120.14	120.14	120.14	120.14
19.175	120.14	120.14	120.14	120.14	120.14
19.200	120.14	120.14	120.14	120.14	120.14
19.225	120.14	120.14	120.14	120.14	120.14
19.250	120.14	120.14	120.14	120.14	120.14
19.275	120.14	120.14	120.14	120.14	120.14
19.300	120.14	120.14	120.14	120.14	120.14
19.325	120.14	120.14	120.14	120.14	120.14

**Time vs. Elevation (ft)**

**Output Time increment = 0.005 hours**  
**Time on left represents time for first value in each row.**

Time (hours)	Elevation (ft)	Elevation (ft)	Elevation (ft)	Elevation (ft)	Elevation (ft)
19.350	120.14	120.14	120.14	120.14	120.14
19.375	120.14	120.14	120.14	120.14	120.14
19.400	120.14	120.14	120.14	120.14	120.14
19.425	120.14	120.14	120.14	120.14	120.14
19.450	120.14	120.14	120.14	120.14	120.14
19.475	120.14	120.14	120.14	120.14	120.14
19.500	120.14	120.14	120.14	120.14	120.14
19.525	120.14	120.14	120.14	120.14	120.14
19.550	120.14	120.14	120.14	120.14	120.14
19.575	120.14	120.14	120.14	120.14	120.14
19.600	120.14	120.14	120.14	120.14	120.14
19.625	120.14	120.14	120.14	120.14	120.14
19.650	120.14	120.14	120.14	120.14	120.14
19.675	120.14	120.14	120.14	120.14	120.14
19.700	120.14	120.14	120.14	120.14	120.14
19.725	120.14	120.14	120.14	120.14	120.14
19.750	120.14	120.14	120.14	120.14	120.14
19.775	120.14	120.14	120.14	120.14	120.14
19.800	120.14	120.14	120.14	120.14	120.14
19.825	120.14	120.14	120.14	120.14	120.14
19.850	120.14	120.14	120.14	120.14	120.14
19.875	120.14	120.14	120.14	120.14	120.14
19.900	120.14	120.14	120.14	120.14	120.14
19.925	120.14	120.14	120.14	120.14	120.14
19.950	120.14	120.14	120.14	120.14	120.14
19.975	120.14	120.14	120.14	120.14	120.14
20.000	120.14	120.14	120.14	120.14	120.14
20.025	120.14	120.14	120.14	120.14	120.14
20.050	120.14	120.14	120.14	120.14	120.14
20.075	120.14	120.14	120.14	120.14	120.14
20.100	120.14	120.14	120.14	120.14	120.14
20.125	120.14	120.14	120.14	120.14	120.14
20.150	120.14	120.14	120.14	120.14	120.14
20.175	120.14	120.14	120.14	120.14	120.14
20.200	120.14	120.14	120.14	120.14	120.14
20.225	120.14	120.14	120.14	120.14	120.14
20.250	120.14	120.14	120.14	120.14	120.14
20.275	120.14	120.14	120.14	120.14	120.14
20.300	120.14	120.14	120.14	120.14	120.14
20.325	120.14	120.14	120.14	120.14	120.14
20.350	120.14	120.14	120.14	120.14	120.14
20.375	120.14	120.14	120.14	120.14	120.14
20.400	120.14	120.14	120.14	120.14	120.14

**Time vs. Elevation (ft)**

**Output Time increment = 0.005 hours**  
**Time on left represents time for first value in each row.**

Time (hours)	Elevation (ft)	Elevation (ft)	Elevation (ft)	Elevation (ft)	Elevation (ft)
20.425	120.14	120.14	120.14	120.14	120.14
20.450	120.14	120.14	120.14	120.14	120.14
20.475	120.14	120.14	120.14	120.14	120.14
20.500	120.14	120.14	120.14	120.14	120.13
20.525	120.13	120.13	120.13	120.13	120.13
20.550	120.13	120.13	120.13	120.13	120.13
20.575	120.13	120.13	120.13	120.13	120.13
20.600	120.13	120.13	120.13	120.13	120.13
20.625	120.13	120.13	120.13	120.13	120.13
20.650	120.13	120.13	120.13	120.13	120.13
20.675	120.13	120.13	120.13	120.13	120.13
20.700	120.13	120.13	120.13	120.13	120.13
20.725	120.13	120.13	120.13	120.13	120.13
20.750	120.13	120.13	120.13	120.13	120.13
20.775	120.13	120.13	120.13	120.13	120.13
20.800	120.13	120.13	120.13	120.13	120.13
20.825	120.13	120.13	120.13	120.13	120.13
20.850	120.13	120.13	120.13	120.13	120.13
20.875	120.13	120.13	120.13	120.13	120.13
20.900	120.13	120.13	120.13	120.13	120.13
20.925	120.13	120.13	120.13	120.13	120.13
20.950	120.13	120.13	120.13	120.13	120.13
20.975	120.13	120.13	120.13	120.13	120.13
21.000	120.13	120.13	120.13	120.13	120.13
21.025	120.13	120.13	120.13	120.13	120.13
21.050	120.13	120.13	120.13	120.13	120.13
21.075	120.13	120.13	120.13	120.13	120.13
21.100	120.13	120.13	120.13	120.13	120.13
21.125	120.13	120.13	120.13	120.13	120.13
21.150	120.13	120.13	120.13	120.13	120.13
21.175	120.13	120.13	120.13	120.13	120.13
21.200	120.13	120.13	120.13	120.13	120.13
21.225	120.13	120.13	120.13	120.13	120.13
21.250	120.13	120.13	120.13	120.13	120.13
21.275	120.13	120.13	120.13	120.13	120.13
21.300	120.13	120.13	120.13	120.13	120.13
21.325	120.13	120.13	120.13	120.13	120.13
21.350	120.13	120.13	120.13	120.13	120.13
21.375	120.13	120.13	120.13	120.13	120.13
21.400	120.13	120.13	120.13	120.13	120.13
21.425	120.13	120.13	120.13	120.13	120.13
21.450	120.13	120.13	120.13	120.13	120.13
21.475	120.13	120.13	120.13	120.13	120.13

**Time vs. Elevation (ft)**

**Output Time increment = 0.005 hours**  
**Time on left represents time for first value in each row.**

Time (hours)	Elevation (ft)	Elevation (ft)	Elevation (ft)	Elevation (ft)	Elevation (ft)
21.500	120.13	120.13	120.13	120.13	120.13
21.525	120.13	120.13	120.13	120.13	120.13
21.550	120.13	120.13	120.13	120.13	120.13
21.575	120.13	120.13	120.13	120.13	120.13
21.600	120.13	120.13	120.13	120.13	120.13
21.625	120.13	120.13	120.13	120.13	120.13
21.650	120.13	120.13	120.13	120.13	120.13
21.675	120.13	120.13	120.13	120.13	120.13
21.700	120.13	120.13	120.13	120.13	120.13
21.725	120.13	120.13	120.13	120.13	120.13
21.750	120.13	120.13	120.13	120.13	120.13
21.775	120.13	120.13	120.13	120.13	120.13
21.800	120.13	120.13	120.13	120.13	120.13
21.825	120.13	120.13	120.13	120.13	120.13
21.850	120.13	120.13	120.13	120.13	120.13
21.875	120.13	120.13	120.13	120.13	120.13
21.900	120.13	120.13	120.13	120.13	120.13
21.925	120.13	120.13	120.13	120.13	120.13
21.950	120.13	120.13	120.13	120.13	120.13
21.975	120.13	120.13	120.13	120.13	120.13
22.000	120.13	120.13	120.13	120.13	120.13
22.025	120.13	120.13	120.13	120.13	120.13
22.050	120.13	120.13	120.13	120.13	120.13
22.075	120.13	120.13	120.13	120.13	120.13
22.100	120.13	120.13	120.13	120.13	120.13
22.125	120.13	120.13	120.13	120.13	120.13
22.150	120.13	120.13	120.13	120.13	120.13
22.175	120.13	120.13	120.13	120.13	120.13
22.200	120.13	120.13	120.13	120.13	120.13
22.225	120.13	120.13	120.13	120.13	120.13
22.250	120.13	120.13	120.13	120.13	120.13
22.275	120.13	120.13	120.13	120.13	120.13
22.300	120.13	120.13	120.13	120.13	120.13
22.325	120.13	120.13	120.13	120.13	120.13
22.350	120.13	120.13	120.13	120.13	120.13
22.375	120.13	120.13	120.13	120.13	120.13
22.400	120.13	120.13	120.13	120.13	120.13
22.425	120.13	120.13	120.13	120.13	120.13
22.450	120.13	120.13	120.13	120.13	120.13
22.475	120.13	120.13	120.13	120.13	120.13
22.500	120.13	120.13	120.13	120.13	120.13
22.525	120.13	120.13	120.13	120.13	120.13
22.550	120.13	120.13	120.13	120.13	120.13

**Time vs. Elevation (ft)**

**Output Time increment = 0.005 hours**  
**Time on left represents time for first value in each row.**

Time (hours)	Elevation (ft)	Elevation (ft)	Elevation (ft)	Elevation (ft)	Elevation (ft)
22.575	120.13	120.13	120.13	120.13	120.13
22.600	120.13	120.13	120.13	120.13	120.13
22.625	120.13	120.13	120.13	120.13	120.13
22.650	120.13	120.13	120.13	120.13	120.13
22.675	120.13	120.13	120.13	120.13	120.13
22.700	120.13	120.13	120.13	120.13	120.13
22.725	120.13	120.13	120.13	120.13	120.13
22.750	120.13	120.13	120.13	120.13	120.13
22.775	120.13	120.13	120.13	120.13	120.13
22.800	120.13	120.13	120.13	120.13	120.13
22.825	120.13	120.13	120.13	120.13	120.13
22.850	120.13	120.13	120.13	120.13	120.13
22.875	120.13	120.13	120.13	120.13	120.13
22.900	120.13	120.13	120.13	120.13	120.13
22.925	120.13	120.13	120.13	120.13	120.13
22.950	120.13	120.13	120.13	120.13	120.13
22.975	120.13	120.13	120.13	120.13	120.13
23.000	120.13	120.13	120.13	120.13	120.13
23.025	120.13	120.13	120.13	120.13	120.13
23.050	120.13	120.13	120.13	120.13	120.13
23.075	120.13	120.13	120.13	120.13	120.13
23.100	120.13	120.13	120.13	120.13	120.13
23.125	120.13	120.13	120.13	120.13	120.13
23.150	120.13	120.13	120.13	120.13	120.13
23.175	120.13	120.13	120.13	120.13	120.13
23.200	120.13	120.13	120.13	120.13	120.13
23.225	120.13	120.13	120.13	120.13	120.13
23.250	120.13	120.13	120.13	120.13	120.13
23.275	120.13	120.13	120.13	120.13	120.13
23.300	120.13	120.13	120.13	120.13	120.13
23.325	120.13	120.13	120.13	120.13	120.13
23.350	120.13	120.13	120.13	120.13	120.13
23.375	120.13	120.13	120.13	120.13	120.13
23.400	120.13	120.13	120.13	120.13	120.13
23.425	120.13	120.13	120.13	120.13	120.13
23.450	120.13	120.13	120.13	120.13	120.13
23.475	120.13	120.13	120.13	120.13	120.13
23.500	120.13	120.13	120.13	120.13	120.13
23.525	120.13	120.13	120.13	120.13	120.13
23.550	120.13	120.13	120.13	120.13	120.13
23.575	120.13	120.13	120.13	120.13	120.13
23.600	120.13	120.13	120.13	120.13	120.13
23.625	120.13	120.13	120.13	120.13	120.13

Subsection: Time vs. Elevation  
Label: CO-49

Return Event: 25 years  
Storm Event: 25 yr

**Time vs. Elevation (ft)**

**Output Time increment = 0.005 hours**  
**Time on left represents time for first value in each row.**

Time (hours)	Elevation (ft)	Elevation (ft)	Elevation (ft)	Elevation (ft)	Elevation (ft)
23.650	120.13	120.13	120.13	120.13	120.13
23.675	120.13	120.13	120.13	120.13	120.13
23.700	120.13	120.13	120.13	120.13	120.13
23.725	120.13	120.13	120.13	120.13	120.13
23.750	120.13	120.13	120.13	120.13	120.13
23.775	120.13	120.13	120.13	120.13	120.13
23.800	120.13	120.13	120.13	120.13	120.13
23.825	120.13	120.13	120.13	120.13	120.13
23.850	120.13	120.13	120.13	120.13	120.13
23.875	120.13	120.13	120.13	120.13	120.13
23.900	120.13	120.13	120.13	120.13	120.13
23.925	120.13	120.13	120.13	120.13	120.13
23.950	120.13	120.13	120.13	120.13	120.13
23.975	120.13	120.13	120.13	120.13	120.13
24.000	120.13	(N/A)	(N/A)	(N/A)	(N/A)

**Time vs. Elevation (ft)**

**Output Time increment = 0.005 hours**  
**Time on left represents time for first value in each row.**

Time (hours)	Elevation (ft)	Elevation (ft)	Elevation (ft)	Elevation (ft)	Elevation (ft)
0.000	132.00	132.00	132.00	132.00	132.00
0.025	132.00	132.00	132.00	132.00	132.00
0.050	132.00	132.00	132.00	132.00	132.00
0.075	132.00	132.00	132.00	132.00	132.00
0.100	132.00	132.00	132.00	132.00	132.00
0.125	132.00	132.00	132.00	132.00	132.00
0.150	132.00	132.00	132.00	132.00	132.00
0.175	132.00	132.00	132.00	132.00	132.00
0.200	132.00	132.00	132.00	132.00	132.00
0.225	132.00	132.00	132.00	132.00	132.00
0.250	132.00	132.00	132.00	132.00	132.00
0.275	132.00	132.00	132.00	132.00	132.00
0.300	132.00	132.00	132.00	132.00	132.00
0.325	132.00	132.00	132.00	132.00	132.00
0.350	132.00	132.00	132.00	132.00	132.00
0.375	132.00	132.00	132.00	132.00	132.00
0.400	132.00	132.00	132.00	132.00	132.00
0.425	132.00	132.00	132.00	132.00	132.00
0.450	132.00	132.00	132.00	132.00	132.00
0.475	132.00	132.00	132.00	132.00	132.00
0.500	132.00	132.00	132.00	132.00	132.00
0.525	132.00	132.00	132.00	132.00	132.00
0.550	132.00	132.00	132.00	132.00	132.00
0.575	132.00	132.00	132.00	132.00	132.00
0.600	132.00	132.00	132.00	132.00	132.00
0.625	132.00	132.00	132.00	132.00	132.00
0.650	132.00	132.00	132.00	132.00	132.00
0.675	132.00	132.00	132.00	132.00	132.00
0.700	132.00	132.00	132.00	132.00	132.00
0.725	132.00	132.00	132.00	132.00	132.00
0.750	132.00	132.00	132.00	132.00	132.00
0.775	132.00	132.00	132.00	132.00	132.00
0.800	132.00	132.00	132.00	132.00	132.00
0.825	132.00	132.00	132.00	132.00	132.00
0.850	132.00	132.00	132.00	132.00	132.00
0.875	132.00	132.00	132.00	132.00	132.00
0.900	132.00	132.00	132.00	132.00	132.00
0.925	132.00	132.00	132.00	132.00	132.00
0.950	132.00	132.00	132.00	132.00	132.00
0.975	132.00	132.00	132.00	132.00	132.00
1.000	132.00	132.00	132.00	132.00	132.00
1.025	132.00	132.00	132.00	132.00	132.00
1.050	132.00	132.00	132.00	132.00	132.00



**Time vs. Elevation (ft)**

**Output Time increment = 0.005 hours**  
**Time on left represents time for first value in each row.**

Time (hours)	Elevation (ft)	Elevation (ft)	Elevation (ft)	Elevation (ft)	Elevation (ft)
1.075	132.00	132.00	132.00	132.00	132.00
1.100	132.00	132.00	132.00	132.00	132.00
1.125	132.00	132.00	132.00	132.00	132.00
1.150	132.00	132.00	132.00	132.00	132.00
1.175	132.00	132.00	132.00	132.00	132.00
1.200	132.00	132.00	132.00	132.00	132.00
1.225	132.00	132.00	132.00	132.00	132.00
1.250	132.00	132.00	132.00	132.00	132.00
1.275	132.00	132.00	132.00	132.00	132.00
1.300	132.00	132.00	132.00	132.00	132.00
1.325	132.00	132.00	132.00	132.00	132.00
1.350	132.00	132.00	132.00	132.00	132.00
1.375	132.00	132.00	132.00	132.00	132.00
1.400	132.00	132.00	132.00	132.00	132.00
1.425	132.00	132.00	132.00	132.00	132.00
1.450	132.00	132.00	132.00	132.00	132.00
1.475	132.00	132.00	132.00	132.00	132.00
1.500	132.00	132.00	132.00	132.00	132.00
1.525	132.00	132.00	132.00	132.00	132.00
1.550	132.00	132.00	132.00	132.00	132.00
1.575	132.00	132.00	132.00	132.00	132.00
1.600	132.00	132.00	132.00	132.00	132.00
1.625	132.00	132.00	132.00	132.00	132.00
1.650	132.00	132.00	132.00	132.00	132.00
1.675	132.00	132.00	132.00	132.00	132.00
1.700	132.00	132.00	132.00	132.00	132.00
1.725	132.00	132.00	132.00	132.00	132.00
1.750	132.00	132.00	132.00	132.00	132.00
1.775	132.00	132.00	132.00	132.00	132.00
1.800	132.00	132.00	132.00	132.00	132.00
1.825	132.00	132.00	132.00	132.00	132.00
1.850	132.00	132.00	132.00	132.00	132.00
1.875	132.00	132.00	132.00	132.00	132.00
1.900	132.00	132.00	132.00	132.00	132.00
1.925	132.00	132.00	132.00	132.00	132.00
1.950	132.00	132.00	132.00	132.00	132.00
1.975	132.00	132.00	132.00	132.00	132.00
2.000	132.00	132.00	132.00	132.00	132.00
2.025	132.00	132.00	132.00	132.00	132.00
2.050	132.00	132.00	132.00	132.00	132.00
2.075	132.00	132.00	132.00	132.00	132.00
2.100	132.00	132.00	132.00	132.00	132.00
2.125	132.00	132.00	132.00	132.00	132.00

**Time vs. Elevation (ft)**

**Output Time increment = 0.005 hours**  
**Time on left represents time for first value in each row.**

Time (hours)	Elevation (ft)	Elevation (ft)	Elevation (ft)	Elevation (ft)	Elevation (ft)
2.150	132.00	132.00	132.00	132.00	132.00
2.175	132.00	132.00	132.00	132.00	132.00
2.200	132.00	132.00	132.00	132.00	132.00
2.225	132.00	132.00	132.00	132.00	132.00
2.250	132.00	132.00	132.00	132.00	132.00
2.275	132.00	132.00	132.00	132.00	132.00
2.300	132.00	132.00	132.00	132.00	132.00
2.325	132.00	132.00	132.00	132.00	132.00
2.350	132.00	132.00	132.00	132.00	132.00
2.375	132.00	132.00	132.00	132.00	132.00
2.400	132.00	132.00	132.00	132.00	132.00
2.425	132.00	132.00	132.00	132.00	132.00
2.450	132.00	132.00	132.00	132.00	132.00
2.475	132.00	132.00	132.00	132.00	132.00
2.500	132.00	132.00	132.00	132.00	132.00
2.525	132.00	132.00	132.00	132.00	132.00
2.550	132.00	132.00	132.00	132.00	132.00
2.575	132.00	132.00	132.00	132.00	132.00
2.600	132.00	132.00	132.00	132.00	132.00
2.625	132.00	132.00	132.00	132.00	132.00
2.650	132.00	132.00	132.00	132.00	132.00
2.675	132.00	132.00	132.00	132.00	132.00
2.700	132.00	132.00	132.00	132.00	132.00
2.725	132.00	132.00	132.00	132.00	132.00
2.750	132.00	132.00	132.00	132.00	132.00
2.775	132.00	132.00	132.00	132.00	132.00
2.800	132.00	132.00	132.00	132.00	132.00
2.825	132.00	132.00	132.00	132.00	132.00
2.850	132.00	132.00	132.00	132.00	132.00
2.875	132.00	132.00	132.00	132.00	132.00
2.900	132.00	132.00	132.00	132.00	132.00
2.925	132.00	132.00	132.00	132.00	132.00
2.950	132.00	132.00	132.00	132.00	132.00
2.975	132.00	132.00	132.00	132.00	132.00
3.000	132.00	132.00	132.00	132.00	132.00
3.025	132.00	132.00	132.00	132.00	132.00
3.050	132.00	132.00	132.00	132.00	132.00
3.075	132.00	132.00	132.00	132.00	132.00
3.100	132.00	132.00	132.00	132.00	132.00
3.125	132.00	132.00	132.00	132.00	132.00
3.150	132.00	132.00	132.00	132.00	132.00
3.175	132.00	132.00	132.00	132.00	132.00
3.200	132.00	132.00	132.00	132.00	132.00

**Time vs. Elevation (ft)**

**Output Time increment = 0.005 hours**  
**Time on left represents time for first value in each row.**

Time (hours)	Elevation (ft)	Elevation (ft)	Elevation (ft)	Elevation (ft)	Elevation (ft)
3.225	132.00	132.00	132.00	132.00	132.00
3.250	132.00	132.00	132.00	132.00	132.00
3.275	132.00	132.00	132.00	132.00	132.00
3.300	132.00	132.00	132.00	132.00	132.00
3.325	132.00	132.00	132.00	132.00	132.00
3.350	132.00	132.00	132.00	132.00	132.00
3.375	132.00	132.00	132.00	132.00	132.00
3.400	132.00	132.00	132.00	132.00	132.00
3.425	132.00	132.00	132.00	132.00	132.00
3.450	132.00	132.00	132.00	132.00	132.00
3.475	132.00	132.00	132.00	132.00	132.00
3.500	132.00	132.00	132.00	132.00	132.00
3.525	132.00	132.00	132.00	132.00	132.00
3.550	132.00	132.00	132.00	132.00	132.00
3.575	132.00	132.00	132.00	132.00	132.00
3.600	132.00	132.00	132.00	132.00	132.00
3.625	132.00	132.00	132.00	132.00	132.00
3.650	132.00	132.00	132.00	132.00	132.00
3.675	132.00	132.00	132.00	132.00	132.00
3.700	132.00	132.00	132.00	132.00	132.00
3.725	132.00	132.00	132.00	132.00	132.00
3.750	132.00	132.00	132.00	132.00	132.00
3.775	132.00	132.00	132.00	132.00	132.00
3.800	132.00	132.00	132.00	132.00	132.00
3.825	132.00	132.00	132.00	132.00	132.00
3.850	132.00	132.00	132.00	132.00	132.00
3.875	132.00	132.00	132.00	132.00	132.00
3.900	132.00	132.00	132.00	132.00	132.00
3.925	132.00	132.00	132.00	132.00	132.00
3.950	132.00	132.00	132.00	132.00	132.00
3.975	132.00	132.00	132.00	132.00	132.00
4.000	132.00	132.00	132.00	132.00	132.00
4.025	132.00	132.00	132.00	132.00	132.00
4.050	132.00	132.00	132.00	132.00	132.00
4.075	132.00	132.00	132.00	132.00	132.00
4.100	132.00	132.00	132.00	132.00	132.00
4.125	132.00	132.00	132.00	132.00	132.00
4.150	132.00	132.00	132.00	132.00	132.00
4.175	132.00	132.00	132.00	132.00	132.00
4.200	132.00	132.00	132.00	132.00	132.00
4.225	132.00	132.00	132.00	132.00	132.00
4.250	132.00	132.00	132.00	132.00	132.00
4.275	132.00	132.00	132.00	132.00	132.00

**Time vs. Elevation (ft)**

**Output Time increment = 0.005 hours**  
**Time on left represents time for first value in each row.**

Time (hours)	Elevation (ft)	Elevation (ft)	Elevation (ft)	Elevation (ft)	Elevation (ft)
4.300	132.00	132.00	132.00	132.00	132.00
4.325	132.00	132.00	132.00	132.00	132.00
4.350	132.00	132.00	132.00	132.00	132.00
4.375	132.00	132.00	132.00	132.00	132.00
4.400	132.00	132.00	132.00	132.00	132.00
4.425	132.00	132.00	132.00	132.00	132.00
4.450	132.00	132.00	132.00	132.00	132.00
4.475	132.00	132.00	132.00	132.00	132.00
4.500	132.00	132.00	132.00	132.00	132.00
4.525	132.00	132.00	132.00	132.00	132.00
4.550	132.00	132.00	132.00	132.00	132.00
4.575	132.00	132.00	132.00	132.00	132.00
4.600	132.00	132.00	132.00	132.00	132.00
4.625	132.00	132.00	132.00	132.00	132.00
4.650	132.00	132.00	132.00	132.00	132.00
4.675	132.00	132.00	132.00	132.00	132.00
4.700	132.00	132.00	132.00	132.00	132.00
4.725	132.00	132.00	132.00	132.00	132.00
4.750	132.00	132.00	132.00	132.00	132.00
4.775	132.00	132.00	132.00	132.00	132.00
4.800	132.00	132.00	132.00	132.00	132.00
4.825	132.00	132.00	132.00	132.00	132.00
4.850	132.00	132.00	132.00	132.00	132.00
4.875	132.00	132.00	132.00	132.00	132.00
4.900	132.00	132.00	132.00	132.00	132.00
4.925	132.00	132.00	132.00	132.00	132.00
4.950	132.00	132.00	132.00	132.00	132.00
4.975	132.00	132.00	132.00	132.00	132.00
5.000	132.00	132.00	132.00	132.00	132.00
5.025	132.00	132.00	132.00	132.00	132.00
5.050	132.00	132.00	132.00	132.00	132.00
5.075	132.00	132.00	132.00	132.00	132.00
5.100	132.00	132.00	132.00	132.00	132.00
5.125	132.00	132.00	132.00	132.00	132.00
5.150	132.00	132.00	132.00	132.00	132.00
5.175	132.00	132.00	132.00	132.00	132.00
5.200	132.00	132.00	132.00	132.00	132.00
5.225	132.00	132.00	132.00	132.00	132.00
5.250	132.00	132.00	132.00	132.00	132.00
5.275	132.00	132.00	132.00	132.00	132.00
5.300	132.00	132.00	132.00	132.00	132.00
5.325	132.00	132.00	132.00	132.00	132.00
5.350	132.00	132.00	132.00	132.00	132.00

**Time vs. Elevation (ft)**

**Output Time increment = 0.005 hours**  
**Time on left represents time for first value in each row.**

Time (hours)	Elevation (ft)	Elevation (ft)	Elevation (ft)	Elevation (ft)	Elevation (ft)
5.375	132.00	132.00	132.00	132.00	132.00
5.400	132.00	132.00	132.00	132.00	132.00
5.425	132.00	132.00	132.00	132.00	132.00
5.450	132.00	132.00	132.00	132.00	132.00
5.475	132.00	132.00	132.00	132.00	132.00
5.500	132.00	132.00	132.00	132.00	132.00
5.525	132.00	132.00	132.00	132.00	132.00
5.550	132.00	132.00	132.00	132.00	132.00
5.575	132.00	132.00	132.00	132.00	132.00
5.600	132.00	132.00	132.00	132.00	132.00
5.625	132.00	132.00	132.00	132.00	132.00
5.650	132.00	132.00	132.00	132.00	132.00
5.675	132.00	132.00	132.00	132.00	132.00
5.700	132.00	132.00	132.00	132.00	132.00
5.725	132.00	132.00	132.00	132.00	132.00
5.750	132.00	132.00	132.00	132.00	132.00
5.775	132.00	132.00	132.00	132.00	132.00
5.800	132.00	132.00	132.00	132.00	132.00
5.825	132.00	132.00	132.00	132.00	132.00
5.850	132.00	132.00	132.00	132.00	132.00
5.875	132.00	132.00	132.00	132.00	132.00
5.900	132.00	132.00	132.00	132.00	132.00
5.925	132.00	132.00	132.00	132.00	132.00
5.950	132.00	132.00	132.00	132.00	132.00
5.975	132.00	132.00	132.00	132.00	132.00
6.000	132.00	132.00	132.00	132.00	132.00
6.025	132.00	132.00	132.00	132.00	132.00
6.050	132.00	132.00	132.00	132.00	132.00
6.075	132.00	132.00	132.00	132.00	132.00
6.100	132.00	132.00	132.00	132.00	132.00
6.125	132.00	132.00	132.00	132.00	132.00
6.150	132.00	132.00	132.00	132.00	132.00
6.175	132.00	132.00	132.00	132.00	132.00
6.200	132.00	132.00	132.00	132.00	132.00
6.225	132.00	132.00	132.00	132.00	132.00
6.250	132.00	132.00	132.00	132.00	132.00
6.275	132.00	132.00	132.00	132.00	132.00
6.300	132.00	132.00	132.00	132.00	132.00
6.325	132.00	132.00	132.00	132.00	132.00
6.350	132.00	132.00	132.00	132.00	132.00
6.375	132.00	132.00	132.00	132.00	132.00
6.400	132.00	132.00	132.00	132.00	132.00
6.425	132.00	132.00	132.00	132.00	132.00

**Time vs. Elevation (ft)**

**Output Time increment = 0.005 hours**  
**Time on left represents time for first value in each row.**

Time (hours)	Elevation (ft)	Elevation (ft)	Elevation (ft)	Elevation (ft)	Elevation (ft)
6.450	132.00	132.00	132.00	132.00	132.00
6.475	132.00	132.00	132.00	132.00	132.00
6.500	132.00	132.00	132.00	132.00	132.00
6.525	132.00	132.00	132.00	132.00	132.00
6.550	132.00	132.00	132.00	132.00	132.00
6.575	132.00	132.00	132.00	132.00	132.00
6.600	132.00	132.00	132.00	132.00	132.00
6.625	132.00	132.00	132.00	132.00	132.00
6.650	132.00	132.00	132.00	132.00	132.00
6.675	132.00	132.00	132.00	132.00	132.00
6.700	132.00	132.00	132.00	132.00	132.00
6.725	132.00	132.00	132.00	132.00	132.00
6.750	132.00	132.00	132.00	132.00	132.00
6.775	132.00	132.00	132.00	132.00	132.00
6.800	132.00	132.00	132.00	132.00	132.00
6.825	132.00	132.00	132.00	132.00	132.00
6.850	132.00	132.00	132.00	132.00	132.00
6.875	132.00	132.00	132.00	132.00	132.00
6.900	132.00	132.00	132.00	132.00	132.00
6.925	132.00	132.00	132.00	132.00	132.00
6.950	132.00	132.00	132.00	132.00	132.00
6.975	132.00	132.00	132.00	132.00	132.00
7.000	132.00	132.00	132.00	132.00	132.00
7.025	132.00	132.00	132.00	132.00	132.00
7.050	132.00	132.00	132.00	132.00	132.00
7.075	132.00	132.00	132.00	132.00	132.00
7.100	132.00	132.00	132.00	132.00	132.00
7.125	132.00	132.00	132.00	132.00	132.00
7.150	132.00	132.00	132.00	132.00	132.00
7.175	132.00	132.00	132.00	132.00	132.00
7.200	132.00	132.00	132.00	132.00	132.00
7.225	132.00	132.00	132.00	132.00	132.00
7.250	132.00	132.00	132.00	132.00	132.00
7.275	132.00	132.00	132.00	132.00	132.00
7.300	132.00	132.00	132.00	132.00	132.00
7.325	132.00	132.00	132.00	132.00	132.00
7.350	132.00	132.00	132.00	132.00	132.00
7.375	132.00	132.00	132.00	132.00	132.00
7.400	132.00	132.00	132.00	132.00	132.00
7.425	132.00	132.00	132.00	132.00	132.00
7.450	132.00	132.00	132.00	132.00	132.00
7.475	132.00	132.00	132.00	132.00	132.00
7.500	132.00	132.00	132.00	132.00	132.00

**Time vs. Elevation (ft)**

**Output Time increment = 0.005 hours**  
**Time on left represents time for first value in each row.**

Time (hours)	Elevation (ft)	Elevation (ft)	Elevation (ft)	Elevation (ft)	Elevation (ft)
7.525	132.00	132.00	132.00	132.00	132.00
7.550	132.00	132.00	132.00	132.00	132.00
7.575	132.00	132.00	132.00	132.00	132.00
7.600	132.00	132.00	132.00	132.00	132.00
7.625	132.00	132.00	132.00	132.00	132.00
7.650	132.00	132.00	132.00	132.00	132.00
7.675	132.00	132.00	132.00	132.00	132.00
7.700	132.00	132.00	132.00	132.00	132.00
7.725	132.00	132.00	132.00	132.00	132.00
7.750	132.00	132.00	132.00	132.00	132.00
7.775	132.00	132.00	132.00	132.00	132.00
7.800	132.00	132.00	132.00	132.00	132.00
7.825	132.00	132.00	132.00	132.00	132.00
7.850	132.00	132.00	132.00	132.00	132.00
7.875	132.00	132.00	132.00	132.00	132.00
7.900	132.00	132.00	132.00	132.00	132.00
7.925	132.00	132.00	132.00	132.00	132.00
7.950	132.00	132.00	132.00	132.00	132.00
7.975	132.00	132.00	132.00	132.00	132.00
8.000	132.00	132.00	132.00	132.00	132.00
8.025	132.00	132.00	132.00	132.00	132.00
8.050	132.00	132.00	132.00	132.00	132.00
8.075	132.00	132.00	132.00	132.00	132.00
8.100	132.00	132.00	132.00	132.00	132.00
8.125	132.00	132.00	132.00	132.00	132.00
8.150	132.00	132.00	132.00	132.00	132.00
8.175	132.00	132.00	132.00	132.00	132.00
8.200	132.00	132.00	132.00	132.00	132.00
8.225	132.00	132.00	132.00	132.00	132.00
8.250	132.00	132.00	132.00	132.00	132.00
8.275	132.00	132.00	132.00	132.00	132.00
8.300	132.00	132.00	132.00	132.00	132.00
8.325	132.00	132.00	132.00	132.00	132.00
8.350	132.00	132.00	132.00	132.00	132.00
8.375	132.00	132.00	132.00	132.00	132.00
8.400	132.00	132.00	132.00	132.00	132.00
8.425	132.00	132.00	132.00	132.00	132.00
8.450	132.00	132.00	132.00	132.00	132.00
8.475	132.00	132.00	132.00	132.00	132.00
8.500	132.00	132.00	132.00	132.00	132.00
8.525	132.00	132.00	132.00	132.00	132.00
8.550	132.00	132.00	132.00	132.00	132.00
8.575	132.00	132.00	132.00	132.00	132.00

**Time vs. Elevation (ft)**

**Output Time increment = 0.005 hours**  
**Time on left represents time for first value in each row.**

Time (hours)	Elevation (ft)	Elevation (ft)	Elevation (ft)	Elevation (ft)	Elevation (ft)
8.600	132.00	132.00	132.00	132.00	132.00
8.625	132.00	132.00	132.00	132.00	132.00
8.650	132.00	132.00	132.00	132.00	132.00
8.675	132.00	132.00	132.00	132.00	132.00
8.700	132.00	132.00	132.00	132.00	132.00
8.725	132.00	132.00	132.00	132.00	132.00
8.750	132.00	132.00	132.00	132.00	132.00
8.775	132.00	132.00	132.00	132.00	132.00
8.800	132.00	132.00	132.00	132.01	132.01
8.825	132.01	132.01	132.01	132.01	132.01
8.850	132.01	132.01	132.01	132.01	132.01
8.875	132.01	132.01	132.02	132.02	132.02
8.900	132.02	132.02	132.02	132.02	132.02
8.925	132.02	132.03	132.03	132.03	132.03
8.950	132.03	132.03	132.04	132.04	132.04
8.975	132.04	132.04	132.04	132.04	132.04
9.000	132.05	132.05	132.05	132.05	132.05
9.025	132.05	132.05	132.05	132.05	132.05
9.050	132.06	132.06	132.06	132.06	132.06
9.075	132.06	132.06	132.06	132.06	132.06
9.100	132.07	132.07	132.07	132.07	132.07
9.125	132.07	132.07	132.08	132.08	132.08
9.150	132.08	132.08	132.08	132.08	132.08
9.175	132.08	132.08	132.09	132.09	132.09
9.200	132.09	132.09	132.09	132.09	132.09
9.225	132.09	132.09	132.09	132.09	132.09
9.250	132.09	132.10	132.10	132.10	132.10
9.275	132.10	132.10	132.10	132.10	132.10
9.300	132.10	132.10	132.10	132.10	132.10
9.325	132.11	132.11	132.11	132.11	132.11
9.350	132.11	132.11	132.11	132.11	132.11
9.375	132.11	132.11	132.11	132.11	132.11
9.400	132.12	132.12	132.12	132.12	132.12
9.425	132.12	132.12	132.12	132.12	132.12
9.450	132.12	132.12	132.12	132.12	132.12
9.475	132.12	132.12	132.12	132.12	132.13
9.500	132.13	132.13	132.13	132.13	132.13
9.525	132.13	132.13	132.13	132.13	132.13
9.550	132.13	132.13	132.13	132.13	132.13
9.575	132.13	132.13	132.13	132.13	132.13
9.600	132.13	132.13	132.13	132.13	132.14
9.625	132.14	132.14	132.14	132.14	132.14
9.650	132.14	132.14	132.14	132.14	132.14



**Time vs. Elevation (ft)**

**Output Time increment = 0.005 hours**  
**Time on left represents time for first value in each row.**

Time (hours)	Elevation (ft)	Elevation (ft)	Elevation (ft)	Elevation (ft)	Elevation (ft)
9.675	132.14	132.14	132.14	132.14	132.14
9.700	132.14	132.14	132.14	132.14	132.14
9.725	132.14	132.14	132.14	132.15	132.15
9.750	132.15	132.15	132.15	132.15	132.15
9.775	132.15	132.15	132.15	132.15	132.15
9.800	132.15	132.15	132.15	132.15	132.15
9.825	132.15	132.15	132.15	132.16	132.16
9.850	132.16	132.16	132.16	132.16	132.16
9.875	132.16	132.16	132.16	132.16	132.16
9.900	132.16	132.16	132.16	132.16	132.16
9.925	132.16	132.16	132.16	132.16	132.17
9.950	132.17	132.17	132.17	132.17	132.17
9.975	132.17	132.17	132.17	132.17	132.17
10.000	132.17	132.17	132.17	132.17	132.17
10.025	132.17	132.17	132.17	132.17	132.17
10.050	132.17	132.17	132.18	132.18	132.18
10.075	132.18	132.18	132.18	132.18	132.18
10.100	132.18	132.18	132.18	132.18	132.18
10.125	132.18	132.18	132.18	132.18	132.18
10.150	132.18	132.18	132.18	132.19	132.19
10.175	132.19	132.19	132.19	132.19	132.19
10.200	132.19	132.19	132.19	132.19	132.19
10.225	132.19	132.19	132.19	132.19	132.19
10.250	132.19	132.19	132.20	132.20	132.20
10.275	132.20	132.20	132.20	132.20	132.20
10.300	132.20	132.20	132.20	132.20	132.20
10.325	132.20	132.20	132.20	132.20	132.20
10.350	132.21	132.21	132.21	132.21	132.21
10.375	132.21	132.21	132.21	132.21	132.21
10.400	132.21	132.21	132.21	132.21	132.21
10.425	132.21	132.21	132.21	132.21	132.21
10.450	132.21	132.22	132.22	132.22	132.22
10.475	132.22	132.22	132.22	132.22	132.22
10.500	132.22	132.22	132.22	132.22	132.22
10.525	132.22	132.22	132.22	132.22	132.23
10.550	132.23	132.23	132.23	132.23	132.23
10.575	132.23	132.23	132.23	132.23	132.23
10.600	132.23	132.23	132.23	132.23	132.23
10.625	132.23	132.24	132.24	132.24	132.24
10.650	132.24	132.24	132.24	132.24	132.24
10.675	132.24	132.24	132.24	132.24	132.24
10.700	132.24	132.24	132.24	132.25	132.25
10.725	132.25	132.25	132.25	132.25	132.25

**Time vs. Elevation (ft)**

**Output Time increment = 0.005 hours**  
**Time on left represents time for first value in each row.**

Time (hours)	Elevation (ft)	Elevation (ft)	Elevation (ft)	Elevation (ft)	Elevation (ft)
10.750	132.25	132.25	132.25	132.25	132.25
10.775	132.25	132.25	132.25	132.25	132.25
10.800	132.26	132.26	132.26	132.26	132.26
10.825	132.26	132.26	132.26	132.26	132.26
10.850	132.26	132.26	132.26	132.26	132.26
10.875	132.27	132.27	132.27	132.27	132.27
10.900	132.27	132.27	132.27	132.27	132.27
10.925	132.27	132.27	132.27	132.27	132.28
10.950	132.28	132.28	132.28	132.28	132.28
10.975	132.28	132.28	132.28	132.28	132.28
11.000	132.28	132.28	132.28	132.29	132.29
11.025	132.29	132.29	132.29	132.29	132.29
11.050	132.29	132.29	132.29	132.29	132.29
11.075	132.29	132.29	132.29	132.30	132.30
11.100	132.30	132.30	132.30	132.30	132.30
11.125	132.30	132.30	132.30	132.30	132.30
11.150	132.30	132.31	132.31	132.31	132.31
11.175	132.31	132.31	132.31	132.31	132.31
11.200	132.31	132.31	132.32	132.32	132.32
11.225	132.32	132.32	132.32	132.32	132.32
11.250	132.32	132.32	132.33	132.33	132.33
11.275	132.33	132.33	132.33	132.33	132.33
11.300	132.33	132.33	132.34	132.34	132.34
11.325	132.34	132.34	132.34	132.34	132.34
11.350	132.34	132.35	132.35	132.35	132.35
11.375	132.35	132.35	132.35	132.35	132.35
11.400	132.36	132.36	132.36	132.36	132.36
11.425	132.36	132.36	132.36	132.37	132.37
11.450	132.37	132.37	132.37	132.37	132.37
11.475	132.37	132.37	132.38	132.38	132.38
11.500	132.38	132.38	132.38	132.38	132.38
11.525	132.38	132.39	132.39	132.39	132.39
11.550	132.39	132.40	132.40	132.40	132.40
11.575	132.40	132.41	132.41	132.41	132.42
11.600	132.42	132.42	132.43	132.43	132.43
11.625	132.44	132.44	132.45	132.45	132.46
11.650	132.46	132.47	132.48	132.48	132.49
11.675	132.49	132.50	132.51	132.52	132.52
11.700	132.53	132.54	132.55	132.55	132.56
11.725	132.57	132.58	132.59	132.60	132.60
11.750	132.61	132.62	132.63	132.64	132.65
11.775	132.66	132.67	132.68	132.69	132.70
11.800	132.71	132.72	132.73	132.74	132.75

Subsection: Time vs. Elevation  
 Label: CO-89

Return Event: 25 years  
 Storm Event: 25 yr

**Time vs. Elevation (ft)**

**Output Time increment = 0.005 hours**  
**Time on left represents time for first value in each row.**

Time (hours)	Elevation (ft)	Elevation (ft)	Elevation (ft)	Elevation (ft)	Elevation (ft)
11.825	132.76	132.77	132.78	132.79	132.80
11.850	132.81	132.82	132.84	132.85	132.86
11.875	132.87	132.88	132.90	132.91	132.92
11.900	132.94	132.95	132.96	132.97	132.99
11.925	133.00	133.01	133.02	133.04	133.05
11.950	133.06	133.07	133.08	133.09	133.10
11.975	133.11	133.12	133.13	133.14	133.14
12.000	133.15	133.16	133.16	133.17	133.17
12.025	133.18	133.18	133.18	133.18	133.19
12.050	133.19	133.19	133.19	133.19	133.19
12.075	133.18	133.18	133.18	133.17	133.17
12.100	133.16	133.16	133.15	133.15	133.14
12.125	133.13	133.12	133.11	133.11	133.10
12.150	133.09	133.08	133.07	133.06	133.05
12.175	133.04	133.03	133.02	133.01	133.00
12.200	132.99	132.98	132.97	132.96	132.94
12.225	132.93	132.93	132.92	132.91	132.90
12.250	132.89	132.88	132.87	132.86	132.85
12.275	132.84	132.84	132.83	132.82	132.81
12.300	132.81	132.80	132.79	132.79	132.78
12.325	132.77	132.77	132.76	132.76	132.75
12.350	132.75	132.74	132.74	132.73	132.73
12.375	132.72	132.72	132.71	132.71	132.70
12.400	132.70	132.70	132.69	132.69	132.68
12.425	132.68	132.68	132.67	132.67	132.67
12.450	132.66	132.66	132.66	132.65	132.65
12.475	132.65	132.64	132.64	132.64	132.63
12.500	132.63	132.63	132.62	132.62	132.62
12.525	132.62	132.61	132.61	132.61	132.61
12.550	132.60	132.60	132.60	132.60	132.59
12.575	132.59	132.59	132.59	132.58	132.58
12.600	132.58	132.58	132.57	132.57	132.57
12.625	132.57	132.57	132.56	132.56	132.56
12.650	132.56	132.56	132.55	132.55	132.55
12.675	132.55	132.55	132.54	132.54	132.54
12.700	132.54	132.54	132.54	132.53	132.53
12.725	132.53	132.53	132.53	132.53	132.53
12.750	132.52	132.52	132.52	132.52	132.52
12.775	132.52	132.52	132.52	132.52	132.51
12.800	132.51	132.51	132.51	132.51	132.51
12.825	132.51	132.51	132.51	132.51	132.51
12.850	132.50	132.50	132.50	132.50	132.50
12.875	132.50	132.50	132.50	132.50	132.50

**Time vs. Elevation (ft)**

**Output Time increment = 0.005 hours**  
**Time on left represents time for first value in each row.**

Time (hours)	Elevation (ft)	Elevation (ft)	Elevation (ft)	Elevation (ft)	Elevation (ft)
12.900	132.50	132.50	132.50	132.49	132.49
12.925	132.49	132.49	132.49	132.49	132.49
12.950	132.49	132.49	132.49	132.49	132.49
12.975	132.49	132.49	132.49	132.49	132.48
13.000	132.48	132.48	132.48	132.48	132.48
13.025	132.48	132.48	132.48	132.48	132.48
13.050	132.48	132.48	132.48	132.48	132.47
13.075	132.47	132.47	132.47	132.47	132.47
13.100	132.47	132.47	132.47	132.47	132.47
13.125	132.47	132.47	132.47	132.47	132.47
13.150	132.46	132.46	132.46	132.46	132.46
13.175	132.46	132.46	132.46	132.46	132.46
13.200	132.46	132.46	132.46	132.46	132.46
13.225	132.46	132.46	132.46	132.45	132.45
13.250	132.45	132.45	132.45	132.45	132.45
13.275	132.45	132.45	132.45	132.45	132.45
13.300	132.45	132.45	132.45	132.45	132.45
13.325	132.45	132.45	132.45	132.45	132.45
13.350	132.45	132.44	132.44	132.44	132.44
13.375	132.44	132.44	132.44	132.44	132.44
13.400	132.44	132.44	132.44	132.44	132.44
13.425	132.44	132.44	132.44	132.44	132.44
13.450	132.44	132.44	132.44	132.44	132.44
13.475	132.44	132.43	132.43	132.43	132.43
13.500	132.43	132.43	132.43	132.43	132.43
13.525	132.43	132.43	132.43	132.43	132.43
13.550	132.43	132.43	132.43	132.43	132.43
13.575	132.43	132.43	132.43	132.43	132.42
13.600	132.42	132.42	132.42	132.42	132.42
13.625	132.42	132.42	132.42	132.42	132.42
13.650	132.42	132.42	132.42	132.42	132.42
13.675	132.42	132.42	132.42	132.42	132.42
13.700	132.42	132.42	132.42	132.42	132.42
13.725	132.41	132.41	132.41	132.41	132.41
13.750	132.41	132.41	132.41	132.41	132.41
13.775	132.41	132.41	132.41	132.41	132.41
13.800	132.41	132.41	132.41	132.41	132.41
13.825	132.41	132.41	132.41	132.41	132.41
13.850	132.41	132.41	132.41	132.41	132.40
13.875	132.40	132.40	132.40	132.40	132.40
13.900	132.40	132.40	132.40	132.40	132.40
13.925	132.40	132.40	132.40	132.40	132.40
13.950	132.40	132.40	132.40	132.40	132.40

**Time vs. Elevation (ft)**

**Output Time increment = 0.005 hours**  
**Time on left represents time for first value in each row.**

Time (hours)	Elevation (ft)	Elevation (ft)	Elevation (ft)	Elevation (ft)	Elevation (ft)
13.975	132.40	132.40	132.40	132.40	132.40
14.000	132.40	132.40	132.40	132.40	132.39
14.025	132.39	132.39	132.39	132.39	132.39
14.050	132.39	132.39	132.39	132.39	132.39
14.075	132.39	132.39	132.39	132.39	132.39
14.100	132.39	132.39	132.39	132.39	132.39
14.125	132.39	132.39	132.39	132.39	132.39
14.150	132.39	132.39	132.39	132.38	132.38
14.175	132.38	132.38	132.38	132.38	132.38
14.200	132.38	132.38	132.38	132.38	132.38
14.225	132.38	132.38	132.38	132.38	132.38
14.250	132.38	132.38	132.38	132.38	132.38
14.275	132.38	132.38	132.38	132.38	132.38
14.300	132.38	132.38	132.38	132.38	132.38
14.325	132.38	132.38	132.38	132.38	132.38
14.350	132.38	132.38	132.38	132.38	132.38
14.375	132.38	132.38	132.38	132.38	132.38
14.400	132.38	132.38	132.38	132.38	132.38
14.425	132.37	132.37	132.37	132.37	132.37
14.450	132.37	132.37	132.37	132.37	132.37
14.475	132.37	132.37	132.37	132.37	132.37
14.500	132.37	132.37	132.37	132.37	132.37
14.525	132.37	132.37	132.37	132.37	132.37
14.550	132.37	132.37	132.37	132.37	132.37
14.575	132.37	132.37	132.37	132.37	132.37
14.600	132.37	132.37	132.37	132.37	132.37
14.625	132.37	132.37	132.37	132.37	132.37
14.650	132.37	132.37	132.37	132.37	132.37
14.675	132.37	132.37	132.37	132.37	132.37
14.700	132.37	132.37	132.37	132.37	132.37
14.725	132.37	132.37	132.37	132.37	132.37
14.750	132.37	132.37	132.37	132.37	132.37
14.775	132.37	132.37	132.37	132.37	132.37
14.800	132.37	132.37	132.37	132.36	132.36
14.825	132.36	132.36	132.36	132.36	132.36
14.850	132.36	132.36	132.36	132.36	132.36
14.875	132.36	132.36	132.36	132.36	132.36
14.900	132.36	132.36	132.36	132.36	132.36
14.925	132.36	132.36	132.36	132.36	132.36
14.950	132.36	132.36	132.36	132.36	132.36
14.975	132.36	132.36	132.36	132.36	132.36
15.000	132.36	132.36	132.36	132.36	132.36
15.025	132.36	132.36	132.36	132.36	132.36

**Time vs. Elevation (ft)**

**Output Time increment = 0.005 hours**  
**Time on left represents time for first value in each row.**

Time (hours)	Elevation (ft)	Elevation (ft)	Elevation (ft)	Elevation (ft)	Elevation (ft)
15.050	132.36	132.36	132.36	132.36	132.36
15.075	132.36	132.36	132.36	132.36	132.36
15.100	132.36	132.36	132.36	132.36	132.36
15.125	132.36	132.36	132.36	132.36	132.36
15.150	132.36	132.36	132.36	132.36	132.36
15.175	132.35	132.35	132.35	132.35	132.35
15.200	132.35	132.35	132.35	132.35	132.35
15.225	132.35	132.35	132.35	132.35	132.35
15.250	132.35	132.35	132.35	132.35	132.35
15.275	132.35	132.35	132.35	132.35	132.35
15.300	132.35	132.35	132.35	132.35	132.35
15.325	132.35	132.35	132.35	132.35	132.35
15.350	132.35	132.35	132.35	132.35	132.35
15.375	132.35	132.35	132.35	132.35	132.35
15.400	132.35	132.35	132.35	132.35	132.35
15.425	132.35	132.35	132.35	132.35	132.35
15.450	132.35	132.35	132.35	132.35	132.35
15.475	132.35	132.35	132.35	132.34	132.34
15.500	132.34	132.34	132.34	132.34	132.34
15.525	132.34	132.34	132.34	132.34	132.34
15.550	132.34	132.34	132.34	132.34	132.34
15.575	132.34	132.34	132.34	132.34	132.34
15.600	132.34	132.34	132.34	132.34	132.34
15.625	132.34	132.34	132.34	132.34	132.34
15.650	132.34	132.34	132.34	132.34	132.34
15.675	132.34	132.34	132.34	132.34	132.34
15.700	132.34	132.34	132.34	132.34	132.34
15.725	132.34	132.34	132.34	132.34	132.34
15.750	132.34	132.34	132.34	132.34	132.34
15.775	132.34	132.34	132.34	132.34	132.34
15.800	132.34	132.34	132.33	132.33	132.33
15.825	132.33	132.33	132.33	132.33	132.33
15.850	132.33	132.33	132.33	132.33	132.33
15.875	132.33	132.33	132.33	132.33	132.33
15.900	132.33	132.33	132.33	132.33	132.33
15.925	132.33	132.33	132.33	132.33	132.33
15.950	132.33	132.33	132.33	132.33	132.33
15.975	132.33	132.33	132.33	132.33	132.33
16.000	132.33	132.33	132.33	132.33	132.33
16.025	132.33	132.33	132.33	132.33	132.33
16.050	132.33	132.33	132.33	132.33	132.33
16.075	132.33	132.33	132.33	132.33	132.33
16.100	132.33	132.33	132.33	132.33	132.33

**Time vs. Elevation (ft)**

**Output Time increment = 0.005 hours**  
**Time on left represents time for first value in each row.**

Time (hours)	Elevation (ft)	Elevation (ft)	Elevation (ft)	Elevation (ft)	Elevation (ft)
16.125	132.32	132.32	132.32	132.32	132.32
16.150	132.32	132.32	132.32	132.32	132.32
16.175	132.32	132.32	132.32	132.32	132.32
16.200	132.32	132.32	132.32	132.32	132.32
16.225	132.32	132.32	132.32	132.32	132.32
16.250	132.32	132.32	132.32	132.32	132.32
16.275	132.32	132.32	132.32	132.32	132.32
16.300	132.32	132.32	132.32	132.32	132.32
16.325	132.32	132.32	132.32	132.32	132.32
16.350	132.32	132.32	132.32	132.32	132.32
16.375	132.32	132.32	132.32	132.32	132.32
16.400	132.32	132.32	132.32	132.32	132.32
16.425	132.32	132.32	132.32	132.32	132.32
16.450	132.32	132.32	132.32	132.32	132.32
16.475	132.32	132.32	132.32	132.32	132.32
16.500	132.32	132.32	132.32	132.32	132.32
16.525	132.32	132.32	132.32	132.32	132.32
16.550	132.32	132.32	132.32	132.32	132.32
16.575	132.32	132.32	132.32	132.32	132.32
16.600	132.32	132.32	132.32	132.32	132.32
16.625	132.32	132.32	132.32	132.32	132.32
16.650	132.32	132.32	132.32	132.32	132.32
16.675	132.32	132.32	132.32	132.32	132.32
16.700	132.32	132.32	132.32	132.32	132.32
16.725	132.32	132.32	132.31	132.31	132.31
16.750	132.31	132.31	132.31	132.31	132.31
16.775	132.31	132.31	132.31	132.31	132.31
16.800	132.31	132.31	132.31	132.31	132.31
16.825	132.31	132.31	132.31	132.31	132.31
16.850	132.31	132.31	132.31	132.31	132.31
16.875	132.31	132.31	132.31	132.31	132.31
16.900	132.31	132.31	132.31	132.31	132.31
16.925	132.31	132.31	132.31	132.31	132.31
16.950	132.31	132.31	132.31	132.31	132.31
16.975	132.31	132.31	132.31	132.31	132.31
17.000	132.31	132.31	132.31	132.31	132.31
17.025	132.31	132.31	132.31	132.31	132.31
17.050	132.31	132.31	132.31	132.31	132.31
17.075	132.31	132.31	132.31	132.31	132.31
17.100	132.31	132.31	132.31	132.31	132.31
17.125	132.31	132.31	132.31	132.31	132.31
17.150	132.31	132.31	132.31	132.31	132.31
17.175	132.31	132.31	132.31	132.31	132.31

**Time vs. Elevation (ft)**

**Output Time increment = 0.005 hours**  
**Time on left represents time for first value in each row.**

Time (hours)	Elevation (ft)	Elevation (ft)	Elevation (ft)	Elevation (ft)	Elevation (ft)
17.200	132.31	132.31	132.31	132.31	132.31
17.225	132.31	132.31	132.31	132.31	132.31
17.250	132.31	132.31	132.31	132.31	132.31
17.275	132.31	132.31	132.31	132.31	132.31
17.300	132.31	132.31	132.31	132.31	132.31
17.325	132.31	132.31	132.31	132.31	132.31
17.350	132.31	132.31	132.31	132.31	132.31
17.375	132.31	132.31	132.31	132.31	132.31
17.400	132.31	132.31	132.31	132.31	132.31
17.425	132.31	132.31	132.31	132.31	132.31
17.450	132.31	132.31	132.30	132.30	132.30
17.475	132.30	132.30	132.30	132.30	132.30
17.500	132.30	132.30	132.30	132.30	132.30
17.525	132.30	132.30	132.30	132.30	132.30
17.550	132.30	132.30	132.30	132.30	132.30
17.575	132.30	132.30	132.30	132.30	132.30
17.600	132.30	132.30	132.30	132.30	132.30
17.625	132.30	132.30	132.30	132.30	132.30
17.650	132.30	132.30	132.30	132.30	132.30
17.675	132.30	132.30	132.30	132.30	132.30
17.700	132.30	132.30	132.30	132.30	132.30
17.725	132.30	132.30	132.30	132.30	132.30
17.750	132.30	132.30	132.30	132.30	132.30
17.775	132.30	132.30	132.30	132.30	132.30
17.800	132.30	132.30	132.30	132.30	132.30
17.825	132.30	132.30	132.30	132.30	132.30
17.850	132.30	132.30	132.30	132.30	132.30
17.875	132.30	132.30	132.30	132.30	132.30
17.900	132.30	132.30	132.30	132.30	132.30
17.925	132.30	132.30	132.30	132.30	132.30
17.950	132.30	132.30	132.30	132.30	132.30
17.975	132.30	132.30	132.30	132.30	132.30
18.000	132.30	132.30	132.30	132.30	132.30
18.025	132.30	132.30	132.30	132.30	132.30
18.050	132.30	132.30	132.30	132.30	132.30
18.075	132.30	132.30	132.30	132.30	132.30
18.100	132.30	132.30	132.30	132.30	132.30
18.125	132.30	132.30	132.30	132.30	132.30
18.150	132.30	132.30	132.30	132.30	132.29
18.175	132.29	132.29	132.29	132.29	132.29
18.200	132.29	132.29	132.29	132.29	132.29
18.225	132.29	132.29	132.29	132.29	132.29
18.250	132.29	132.29	132.29	132.29	132.29



**Time vs. Elevation (ft)**

**Output Time increment = 0.005 hours**  
**Time on left represents time for first value in each row.**

Time (hours)	Elevation (ft)	Elevation (ft)	Elevation (ft)	Elevation (ft)	Elevation (ft)
18.275	132.29	132.29	132.29	132.29	132.29
18.300	132.29	132.29	132.29	132.29	132.29
18.325	132.29	132.29	132.29	132.29	132.29
18.350	132.29	132.29	132.29	132.29	132.29
18.375	132.29	132.29	132.29	132.29	132.29
18.400	132.29	132.29	132.29	132.29	132.29
18.425	132.29	132.29	132.29	132.29	132.29
18.450	132.29	132.29	132.29	132.29	132.29
18.475	132.29	132.29	132.29	132.29	132.29
18.500	132.29	132.29	132.29	132.29	132.29
18.525	132.29	132.29	132.29	132.29	132.29
18.550	132.29	132.29	132.29	132.29	132.29
18.575	132.29	132.29	132.29	132.29	132.29
18.600	132.29	132.29	132.29	132.29	132.29
18.625	132.29	132.29	132.29	132.29	132.29
18.650	132.29	132.29	132.29	132.29	132.29
18.675	132.29	132.29	132.29	132.29	132.29
18.700	132.29	132.29	132.29	132.29	132.29
18.725	132.29	132.29	132.29	132.29	132.29
18.750	132.29	132.29	132.29	132.29	132.29
18.775	132.29	132.29	132.29	132.29	132.29
18.800	132.29	132.29	132.29	132.29	132.29
18.825	132.29	132.29	132.29	132.29	132.29
18.850	132.29	132.29	132.29	132.29	132.28
18.875	132.28	132.28	132.28	132.28	132.28
18.900	132.28	132.28	132.28	132.28	132.28
18.925	132.28	132.28	132.28	132.28	132.28
18.950	132.28	132.28	132.28	132.28	132.28
18.975	132.28	132.28	132.28	132.28	132.28
19.000	132.28	132.28	132.28	132.28	132.28
19.025	132.28	132.28	132.28	132.28	132.28
19.050	132.28	132.28	132.28	132.28	132.28
19.075	132.28	132.28	132.28	132.28	132.28
19.100	132.28	132.28	132.28	132.28	132.28
19.125	132.28	132.28	132.28	132.28	132.28
19.150	132.28	132.28	132.28	132.28	132.28
19.175	132.28	132.28	132.28	132.28	132.28
19.200	132.28	132.28	132.28	132.28	132.28
19.225	132.28	132.28	132.28	132.28	132.28
19.250	132.28	132.28	132.28	132.28	132.28
19.275	132.28	132.28	132.28	132.28	132.28
19.300	132.28	132.28	132.28	132.28	132.28
19.325	132.28	132.28	132.28	132.28	132.28

**Time vs. Elevation (ft)**

**Output Time increment = 0.005 hours**  
**Time on left represents time for first value in each row.**

Time (hours)	Elevation (ft)	Elevation (ft)	Elevation (ft)	Elevation (ft)	Elevation (ft)
19.350	132.28	132.28	132.28	132.28	132.28
19.375	132.28	132.28	132.28	132.28	132.28
19.400	132.28	132.28	132.28	132.28	132.28
19.425	132.28	132.28	132.28	132.28	132.28
19.450	132.28	132.28	132.28	132.28	132.28
19.475	132.28	132.28	132.28	132.27	132.27
19.500	132.27	132.27	132.27	132.27	132.27
19.525	132.27	132.27	132.27	132.27	132.27
19.550	132.27	132.27	132.27	132.27	132.27
19.575	132.27	132.27	132.27	132.27	132.27
19.600	132.27	132.27	132.27	132.27	132.27
19.625	132.27	132.27	132.27	132.27	132.27
19.650	132.27	132.27	132.27	132.27	132.27
19.675	132.27	132.27	132.27	132.27	132.27
19.700	132.27	132.27	132.27	132.27	132.27
19.725	132.27	132.27	132.27	132.27	132.27
19.750	132.27	132.27	132.27	132.27	132.27
19.775	132.27	132.27	132.27	132.27	132.27
19.800	132.27	132.27	132.27	132.27	132.27
19.825	132.27	132.27	132.27	132.27	132.27
19.850	132.27	132.27	132.27	132.27	132.27
19.875	132.27	132.27	132.27	132.27	132.27
19.900	132.27	132.27	132.27	132.27	132.27
19.925	132.27	132.27	132.27	132.27	132.27
19.950	132.27	132.27	132.27	132.27	132.27
19.975	132.27	132.27	132.27	132.27	132.27
20.000	132.27	132.27	132.27	132.27	132.27
20.025	132.27	132.26	132.26	132.26	132.26
20.050	132.26	132.26	132.26	132.26	132.26
20.075	132.26	132.26	132.26	132.26	132.26
20.100	132.26	132.26	132.26	132.26	132.26
20.125	132.26	132.26	132.26	132.26	132.26
20.150	132.26	132.26	132.26	132.26	132.26
20.175	132.26	132.26	132.26	132.26	132.26
20.200	132.26	132.26	132.26	132.26	132.26
20.225	132.26	132.26	132.26	132.26	132.26
20.250	132.26	132.26	132.26	132.26	132.26
20.275	132.26	132.26	132.26	132.26	132.26
20.300	132.26	132.26	132.26	132.26	132.26
20.325	132.26	132.26	132.26	132.26	132.26
20.350	132.26	132.26	132.26	132.26	132.26
20.375	132.26	132.26	132.26	132.26	132.26
20.400	132.26	132.26	132.26	132.26	132.26

**Time vs. Elevation (ft)**

**Output Time increment = 0.005 hours**  
**Time on left represents time for first value in each row.**

Time (hours)	Elevation (ft)	Elevation (ft)	Elevation (ft)	Elevation (ft)	Elevation (ft)
20.425	132.26	132.26	132.26	132.26	132.26
20.450	132.26	132.26	132.26	132.26	132.26
20.475	132.26	132.26	132.26	132.26	132.26
20.500	132.26	132.26	132.26	132.26	132.26
20.525	132.26	132.26	132.26	132.26	132.26
20.550	132.26	132.26	132.26	132.26	132.26
20.575	132.26	132.26	132.26	132.26	132.26
20.600	132.26	132.26	132.26	132.26	132.26
20.625	132.26	132.26	132.26	132.26	132.26
20.650	132.26	132.26	132.26	132.26	132.26
20.675	132.26	132.26	132.26	132.26	132.26
20.700	132.26	132.26	132.26	132.26	132.26
20.725	132.26	132.26	132.26	132.26	132.26
20.750	132.26	132.26	132.26	132.26	132.26
20.775	132.26	132.26	132.26	132.26	132.26
20.800	132.26	132.26	132.26	132.26	132.26
20.825	132.26	132.26	132.26	132.26	132.26
20.850	132.26	132.26	132.26	132.26	132.26
20.875	132.26	132.26	132.26	132.26	132.26
20.900	132.26	132.26	132.26	132.26	132.26
20.925	132.26	132.26	132.26	132.26	132.26
20.950	132.26	132.26	132.26	132.26	132.26
20.975	132.26	132.26	132.26	132.26	132.26
21.000	132.26	132.26	132.26	132.26	132.26
21.025	132.26	132.26	132.26	132.26	132.26
21.050	132.26	132.26	132.26	132.26	132.26
21.075	132.26	132.26	132.26	132.26	132.26
21.100	132.26	132.26	132.26	132.26	132.26
21.125	132.26	132.26	132.26	132.26	132.26
21.150	132.26	132.26	132.26	132.26	132.26
21.175	132.26	132.26	132.26	132.26	132.26
21.200	132.26	132.26	132.26	132.26	132.26
21.225	132.26	132.26	132.26	132.26	132.26
21.250	132.26	132.26	132.26	132.26	132.26
21.275	132.26	132.26	132.26	132.26	132.26
21.300	132.26	132.26	132.26	132.26	132.26
21.325	132.26	132.26	132.26	132.26	132.26
21.350	132.26	132.26	132.26	132.26	132.26
21.375	132.26	132.26	132.26	132.26	132.26
21.400	132.26	132.26	132.26	132.26	132.26
21.425	132.26	132.26	132.26	132.26	132.26
21.450	132.26	132.26	132.26	132.26	132.26
21.475	132.26	132.26	132.26	132.26	132.26

**Time vs. Elevation (ft)**

**Output Time increment = 0.005 hours**  
**Time on left represents time for first value in each row.**

Time (hours)	Elevation (ft)	Elevation (ft)	Elevation (ft)	Elevation (ft)	Elevation (ft)
21.500	132.26	132.26	132.26	132.26	132.26
21.525	132.26	132.26	132.26	132.26	132.26
21.550	132.26	132.26	132.26	132.26	132.26
21.575	132.26	132.26	132.26	132.26	132.26
21.600	132.26	132.26	132.26	132.26	132.26
21.625	132.26	132.26	132.26	132.26	132.26
21.650	132.26	132.26	132.26	132.26	132.26
21.675	132.26	132.26	132.26	132.26	132.26
21.700	132.26	132.26	132.26	132.26	132.26
21.725	132.26	132.26	132.26	132.26	132.26
21.750	132.26	132.26	132.26	132.26	132.26
21.775	132.26	132.26	132.26	132.26	132.26
21.800	132.26	132.26	132.26	132.26	132.26
21.825	132.26	132.26	132.26	132.26	132.26
21.850	132.26	132.26	132.26	132.26	132.26
21.875	132.26	132.26	132.26	132.26	132.26
21.900	132.26	132.26	132.26	132.26	132.26
21.925	132.26	132.26	132.26	132.26	132.26
21.950	132.26	132.26	132.26	132.26	132.26
21.975	132.26	132.26	132.26	132.26	132.26
22.000	132.26	132.26	132.26	132.26	132.26
22.025	132.26	132.25	132.25	132.25	132.25
22.050	132.25	132.25	132.25	132.25	132.25
22.075	132.25	132.25	132.25	132.25	132.25
22.100	132.25	132.25	132.25	132.25	132.25
22.125	132.25	132.25	132.25	132.25	132.25
22.150	132.25	132.25	132.25	132.25	132.25
22.175	132.25	132.25	132.25	132.25	132.25
22.200	132.25	132.25	132.25	132.25	132.25
22.225	132.25	132.25	132.25	132.25	132.25
22.250	132.25	132.25	132.25	132.25	132.25
22.275	132.25	132.25	132.25	132.25	132.25
22.300	132.25	132.25	132.25	132.25	132.25
22.325	132.25	132.25	132.25	132.25	132.25
22.350	132.25	132.25	132.25	132.25	132.25
22.375	132.25	132.25	132.25	132.25	132.25
22.400	132.25	132.25	132.25	132.25	132.25
22.425	132.25	132.25	132.25	132.25	132.25
22.450	132.25	132.25	132.25	132.25	132.25
22.475	132.25	132.25	132.25	132.25	132.25
22.500	132.25	132.25	132.25	132.25	132.25
22.525	132.25	132.25	132.25	132.25	132.25
22.550	132.25	132.25	132.25	132.25	132.25

Subsection: Time vs. Elevation  
 Label: CO-89

Return Event: 25 years  
 Storm Event: 25 yr

**Time vs. Elevation (ft)**

**Output Time increment = 0.005 hours**  
**Time on left represents time for first value in each row.**

Time (hours)	Elevation (ft)	Elevation (ft)	Elevation (ft)	Elevation (ft)	Elevation (ft)
22.575	132.25	132.25	132.25	132.25	132.25
22.600	132.25	132.25	132.25	132.25	132.25
22.625	132.25	132.25	132.25	132.25	132.25
22.650	132.25	132.25	132.25	132.25	132.25
22.675	132.25	132.25	132.25	132.25	132.25
22.700	132.25	132.25	132.25	132.25	132.25
22.725	132.25	132.25	132.25	132.25	132.25
22.750	132.25	132.25	132.25	132.25	132.25
22.775	132.25	132.25	132.25	132.25	132.25
22.800	132.25	132.25	132.25	132.25	132.25
22.825	132.25	132.25	132.25	132.25	132.25
22.850	132.25	132.25	132.25	132.25	132.25
22.875	132.25	132.25	132.25	132.25	132.25
22.900	132.25	132.25	132.25	132.25	132.25
22.925	132.25	132.25	132.25	132.25	132.25
22.950	132.25	132.25	132.25	132.25	132.25
22.975	132.25	132.25	132.25	132.25	132.25
23.000	132.25	132.25	132.25	132.25	132.25
23.025	132.25	132.25	132.25	132.25	132.25
23.050	132.25	132.25	132.25	132.25	132.25
23.075	132.25	132.25	132.25	132.25	132.25
23.100	132.25	132.25	132.25	132.25	132.25
23.125	132.25	132.25	132.25	132.25	132.25
23.150	132.25	132.25	132.25	132.25	132.25
23.175	132.25	132.25	132.25	132.25	132.25
23.200	132.25	132.25	132.25	132.25	132.25
23.225	132.25	132.25	132.25	132.25	132.25
23.250	132.25	132.25	132.25	132.25	132.25
23.275	132.25	132.25	132.25	132.25	132.25
23.300	132.25	132.25	132.25	132.25	132.25
23.325	132.25	132.25	132.25	132.25	132.25
23.350	132.25	132.25	132.25	132.25	132.25
23.375	132.25	132.25	132.25	132.25	132.25
23.400	132.25	132.25	132.25	132.25	132.25
23.425	132.25	132.25	132.25	132.25	132.25
23.450	132.25	132.25	132.25	132.25	132.25
23.475	132.25	132.25	132.25	132.25	132.25
23.500	132.25	132.25	132.25	132.25	132.25
23.525	132.25	132.25	132.25	132.25	132.25
23.550	132.25	132.25	132.25	132.25	132.25
23.575	132.25	132.25	132.25	132.25	132.25
23.600	132.25	132.25	132.25	132.25	132.25
23.625	132.25	132.25	132.25	132.25	132.25

Subsection: Time vs. Elevation  
 Label: CO-89

Return Event: 25 years  
 Storm Event: 25 yr

**Time vs. Elevation (ft)**

**Output Time increment = 0.005 hours**  
**Time on left represents time for first value in each row.**

Time (hours)	Elevation (ft)	Elevation (ft)	Elevation (ft)	Elevation (ft)	Elevation (ft)
23.650	132.25	132.25	132.25	132.25	132.25
23.675	132.25	132.25	132.25	132.25	132.25
23.700	132.25	132.25	132.25	132.25	132.25
23.725	132.25	132.25	132.25	132.25	132.25
23.750	132.25	132.25	132.25	132.25	132.25
23.775	132.25	132.25	132.25	132.25	132.25
23.800	132.25	132.25	132.25	132.25	132.25
23.825	132.25	132.25	132.25	132.25	132.25
23.850	132.25	132.25	132.25	132.25	132.25
23.875	132.25	132.25	132.25	132.25	132.25
23.900	132.25	132.25	132.25	132.25	132.25
23.925	132.25	132.25	132.25	132.25	132.25
23.950	132.25	132.25	132.25	132.25	132.25
23.975	132.25	132.25	132.25	132.25	132.25
24.000	132.25	(N/A)	(N/A)	(N/A)	(N/A)

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