

PRELIMINARY DETERMINATION

PERMIT RENEWAL AND MODIFICATION

Weyerhaeuser NR Company
14715 Highway 96
Millport, Alabama 35576

Weyerhaeuser NR Company Landfill
Permit No. 38-06

October 8, 2026

Weyerhaeuser NR Company has submitted to the Alabama Department of Environmental Management an application to renew and modify the Solid Waste Disposal Facility Permit for an industrial landfill known as the Weyerhaeuser NR Company Landfill (Permit No. 38-06). The proposed modification includes an increase of maximum average daily volume from 25 to 75 cubic yards per day. The Permittee has also requested a variance from ADEM Admin. Code 335-13-4-.23(1)(a)1 requiring weekly cover. The Permittee would be required to cover waste monthly with compacted earth at the end of each month when disposal activities have occurred. The waste stream for the Weyerhaeuser NR Company Landfill would remain non-hazardous bark, wood chips, log yard debris, wood waste, fly ash from wood fired boiler, dirt, metal bands and special waste approved by ADEM. The service area for the Weyerhaeuser Company NR Landfill would remain the Weyerhaeuser NR Company Millport Wood Products Facility in Millport, Alabama. All conditions of the current permit for the Weyerhaeuser NR Company Landfill including previously approved variances and special conditions have been requested and would be granted in the renewed permit.

Weyerhaeuser NR Company Landfill is described as being located in Section 32, Township 17 South, Range 14 West in Lamar County, Alabama. The Weyerhaeuser NR Company Landfill consists of 18 acres with 16 acres approved for disposal.

The Land Division has determined that the permit application meets the requirements of ADEM's Administrative Code Division 13 regulations.

Technical Contact:

Hunter Baker
Solid Waste Engineering Section
Land Division



SOLID WASTE DISPOSAL FACILITY PERMIT

PERMITTEE: Weyerhaeuser NR Company

FACILITY NAME: Weyerhaeuser NR Company Landfill

FACILITY LOCATION: Section 32, Township 17 South, Range 14 West in Lamar County, Alabama.
The total permitted facility area is approximately 18 acres with the 16 acres approved for disposal.

PERMIT NUMBER: 38-06

PERMIT TYPE: Industrial Landfill

WASTE APPROVED FOR DISPOSAL: Non-hazardous bark, wood chips, log yard debris, wood waste, fly ash from continuous dry kiln, dirt, metal bands and special waste approved by ADEM.

APPROVED WASTE VOLUME: Average Daily Volume of 75 cubic yards per day

APPROVED SERVICE AREA: Weyerhaeuser NR Company Millport Wood Products Facility in Millport, Alabama

In accordance with and subject to the provisions of the Alabama Solid Wastes and Recyclable Materials Management Act, as amended, Code of Alabama 1975, SS 22-27-1 to 22-27-27 ("SWRMMA"), the Alabama Environmental Management Act, as amended, Code of Alabama 1975, SS 22-22A-1 to 22-22A-15, and rules and regulations adopted thereunder, and subject further to the conditions set forth in this permit, the Permittee is hereby authorized to dispose of the above-described solid wastes at the above-described facility location.

ISSUANCE DATE: Date???

EFFECTIVE DATE: Date???

EXPIRATION DATE: Date???

Alabama Department of Environmental Management

**ALABAMA DEPARTMENT OF ENVIRONMENTAL MANAGEMENT
SOLID WASTE PERMIT**

Permittee: Weyerhaeuser NR Company
14715 Highway 96
Millport, Alabama 35576

Landfill Name: Weyerhaeuser NR Company Landfill

Landfill Location: Section 32, Township 17 South, Range 14 West in Lamar County, Alabama

Permit Number: 38-06

Landfill Type: Industrial

Pursuant to the Solid Wastes & Recyclable Materials Management Act, Code of Alabama 1975, Section 22-27-1, *et seq.*, as amended, and attendant regulations promulgated thereunder by the Alabama Department of Environmental Management (ADEM or Department), this permit is issued to Weyerhaeuser Company NR (hereinafter called the Permittee), to operate a solid waste disposal facility, known as the Weyerhaeuser Company NR Landfill.

The Permittee must comply with all terms and conditions of this permit. This permit consists of the conditions set forth herein (including those in any attachments), and the applicable regulations contained in Chapters 335-13-1 through 335-13-16 of the ADEM Administrative Code (hereinafter referred to as the "ADEM Admin. Code"). Rules cited are set forth in this document for the purpose of Permittee reference. Any Rule that is cited incorrectly in this document does not constitute grounds for noncompliance on the part of the Permittee. Applicable ADEM Administrative Codes are those that are in effect on the date of issuance of this permit or any revisions approved after permit issuance.

This permit is based on the information submitted to ADEM on March 21, 2022, for permit renewal and modification, and as amended, and is known as the Permit Application (hereby incorporated by reference and hereinafter referred to as the Application). Any inaccuracies found in this information could lead to the termination or modification of this permit and potential enforcement action. The Permittee must inform ADEM of any deviation from or changes in the information in the Application that would affect the Permittee's ability to comply with the applicable ADEM Admin. Code or permit conditions.

This permit is effective as of ??????? and shall remain in effect until ???????, unless suspended or revoked.

Alabama Department of Environmental Management

Date Signed

SECTION I. STANDARD CONDITIONS

- A. Effect of Permit. The Permittee is allowed to dispose of nonhazardous solid waste in accordance with the conditions of this permit and ADEM Admin. Code 335-13. Issuance of this permit does not convey property rights of any sort or any exclusive privilege, nor does it authorize any injury to persons or property, any invasion of other private rights, or any infringement of state or local laws or regulations. Except for actions brought under Code of Alabama 1975, Section 22-27-1, *et seq.*, as amended, compliance with the conditions of this permit shall be deemed to be compliance with applicable requirements in effect as of the date of issuance of this permit and any future revisions.
- B. Permit Actions. This permit may be suspended, revoked or modified for cause. The filing of a request for a permit modification or the notification of planned changes or anticipated noncompliance on the part of the Permittee, and the suspension or revocation does not stay the applicability or enforceability of any permit condition.
- C. Severability. The provisions of this permit are severable, and if any provision of this permit, or the application of any provision of this permit to any circumstance, is held invalid, the application of such provision to other circumstances, and the remainder of this permit, shall not be affected thereby.
- D. Definitions. For the purpose of this permit, terms used herein shall have the same meaning as those in ADEM Admin. Code 335-13, unless this permit specifically provides otherwise; where terms are not otherwise defined, the meaning associated with such terms shall be as defined by a standard dictionary reference or the generally accepted scientific or industrial meaning of the term.
1. "EPA" for purposes of this permit means the United States Environmental Protection Agency.
 2. "Permit Application" for the purposes of this permit, means all permit application forms, design plans, operational plans, closure plans, technical data, reports, specifications, plats, geological and hydrological reports, and other materials which are submitted to the Department in pursuit of a solid waste disposal permit.
- E. Duties and Requirements.
1. Duty to Comply. The Permittee must comply with all conditions of this permit except to the extent and for the duration such noncompliance is authorized by a variance granted by the Department. Any permit noncompliance constitutes a violation of Code of Alabama 1975, Section 22-27-1 *et seq.*, as amended, and is grounds for enforcement action, permit suspension, revocation, modification, and/or denial of a permit renewal application.
 2. 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. The renewal application must be submitted to the Department at least 180 days before this permit expires.
 3. Permit Expiration. This permit and all conditions therein will remain in effect beyond the permit's expiration date if the Permittee has submitted a timely, complete application as required by Section I.,E.,2., and, through no fault of the Permittee, the Department has not made a final decision regarding the renewal application.
 4. Need to Halt or Reduce Activity Not A Defense. It shall not be a defense for the Permittee in an enforcement action that it would have been necessary to halt or reduce the permitted activity to maintain compliance with the conditions of this permit.
 5. Duty to Mitigate. In the event of noncompliance with this permit, the Permittee shall take all reasonable steps to minimize releases to the environment, and shall carry out such measures as are reasonable to prevent significant adverse impacts on human health or the environment.

6. Proper Operation and Maintenance. The Permittee shall at all times properly operate and maintain all facilities and systems of control (and related appurtenances) that are installed or used by the Permittee to achieve compliance with the conditions of this permit.
7. Duty to Provide Information. If requested, the Permittee shall furnish to ADEM, within a reasonable time, any information that ADEM may reasonably need to determine whether cause exists for denying, suspending, revoking, or modifying this permit, or to determine compliance with this permit. If requested, the Permittee shall also furnish the Department with copies of records kept as a requirement of this permit.
8. Inspection and Entry. Upon presentation of credentials and other documents as may be required by law, the Permittee shall allow the employees of the Department or their authorized representative to:
 - a. Enter at reasonable times the Permittee's premises where the regulated facility or activity is located or conducted, or where records must be kept under the conditions of this permit.
 - b. Have access to and copy, at reasonable times, any records that must be kept under the conditions of this permit.
 - c. Inspect, at reasonable times, any facilities, equipment (including monitoring and control equipment), practices, or operations regulated or required under this permit.
 - d. Sample or monitor, at reasonable times, any substances or parameters at any location for the purposes of assuring permit compliance or as otherwise authorized by Code of Alabama 1975, Section 22-27-1 *et seq.*
9. Monitoring, Corrective Actions, and Records.
 - a. Samples and measurements taken for the purpose of monitoring or corrective action shall be representative of the monitored activity. The methods used to obtain representative samples to be analyzed must be the appropriate method from ADEM Admin. Code 335-13-4 or the methods as specified in the Application attached hereto and incorporated by reference. Laboratory methods must be those specified in Standard Methods for the Examination of Water and Wastewater (American Public Health Association, latest edition), Methods for Chemical Analysis of Water and Wastes (EPA-600/4-79-020), Test Methods for Evaluating Solid Waste, Physical/Chemical Methods (EPA Publication SW-846, latest edition), other appropriate EPA methods, or as specified in the Application. All field tests must be conducted using approved EPA test kits and procedures.
 - b. The Permittee shall retain records, at the location specified in Section I.,I., of all monitoring, or corrective action information, including all calibration and maintenance records, copies of all reports and records required by this permit, and records of all data used to complete the application for this permit for a period of at least three years from the date of the sample, measurement, report or record or for periods elsewhere specified in this permit. These periods may be extended by the request of the Department at any time and are automatically extended during the course of any unresolved enforcement action regarding this facility.
 - c. Records of monitoring and corrective action information shall include.
 - i. The exact place, date, and time of sampling or measurement.
 - ii. The individual(s) and company who performed the sampling or measurements.
 - iii. The date(s) analyses were performed.
 - iv. The individual(s) and company who performed the analyses.

- v. The analytical techniques or methods used.
 - vi. The results of such analyses.
- d. The Permittee shall submit all monitoring and corrective action results at the interval specified elsewhere in this permit.
- 10. Reporting Planned Changes. The Permittee shall notify the Department, in the form of a request for permit modification, at least 120 days prior to any change in the permitted service area, increase in the waste received, or change in the design or operating procedure as described in this permit, including any planned changes in the permitted facility or activity which may result in noncompliance with permit requirements.
- 11. Transfer of Permit. This permit may be transferred to a new owner or operator. All requests for transfer of permits shall be submitted electronically via the Department-approved electronic system. Before transferring ownership or operation of the facility during its operating life, the Permittee shall notify the new owner or operator in writing of the requirements of this permit.
- 12. Certification of Construction. Before the Permittee may commence disposal of waste in any new cell or phase:
 - a. The Permittee must submit a letter to the Department signed by both the Permittee and a professional engineer stating that the facility has been constructed in compliance with this permit.
 - b. The Department must inspect the new cells or phases unless the Permittee is notified that the Department will waive the inspection.
 - c. The Permittee may not commence disposal activities in any new cells or phases until approval of the new cells or phases is granted by the Department.
- 13. Noncompliance. The Permittee shall report all instances of noncompliance with the permit at the time noncompliance is discovered.
- 14. Other Information. If the Permittee becomes aware that information required by the Application was not submitted or was incorrect in the Application or in any report to the Department, the Permittee shall promptly submit such facts or information. In addition, upon request, the Permittee shall furnish to the Department, within a reasonable time, information related to compliance with the permit.
- F. Design and Operation of Facility. The Permittee shall maintain and operate the facility to minimize the possibility of a fire, explosion, or any unplanned sudden or nonsudden release of contaminants (including leachate and explosive gases) to air, soil, groundwater, or surface water, which could threaten human health or the environment.
- G. Inspection Requirements.
 - 1. The Permittee shall comply with all requirements of ADEM Admin. Code 335-13-4-.21(1)(b).
 - 2. The Permittee shall conduct random inspections of incoming loads.
 - 3. Records of all inspections shall be included in the operating record.
- H. Recordkeeping and Reporting.
 - 1. The Permittee shall maintain a written operating record at the location specified in Section I.,I. The operating record shall include:

- a. Documentation of inspection and maintenance activities.
 - b. Daily Volume reports.
 - c. Personnel training documents and records.
 - d. Solid/Hazardous Waste Determination Forms for Industrial Wastes, and associated ADEM disposal approval correspondence for industrial waste and special waste.
 - e. Groundwater monitoring records.
 - f. Explosive gas monitoring records.
 - g. Surface water and leachate monitoring records.
 - h. Copies of this Permit and the Application.
 - i. Copies of all variances granted by the Department, including copies of all approvals of special operating conditions.
2. Quarterly Volume Report. Beginning with the effective date of this permit, the Permittee shall submit, within thirty (30) days after the end of each calendar quarter, a report summarizing the daily waste receipts for the previous (just ended) quarter. Copies of the quarterly reports shall be maintained in the operating record.
3. Monitoring and Corrective Action Reports. The Permittee shall submit reports on all monitoring and corrective action activities conducted pursuant to the requirements of this permit, including, but not limited to, groundwater, surface water, explosive gas and leachate monitoring. The groundwater monitoring shall be conducted in March and September of each year, or as directed by ADEM, and the reports shall be submitted at least semi-annually, or as directed by ADEM. The reports should contain all monitoring results and conclusions from samples and measurements conducted during the sampling period. Explosive gas monitoring must be conducted once each year, or as directed by ADEM, and the reports should be submitted to the department and placed in the operating record within 30 days of the monitoring event, or as directed by ADEM. Copies of the groundwater and explosive gas monitoring reports shall be maintained in the operating record.
4. Availability, Retention, and Disposition of Records.
- a. All records, including plans, required under this permit or ADEM Admin. Code 335-13 must be furnished upon request, and made available at reasonable times for inspection by any officer, employee, or representative of the Department.
 - b. All records, including plans, required under this permit or ADEM Admin. Code 335-13 shall be retained by the Permittee for a period of at least three years. The retention period for all records is extended automatically during the course of any unresolved enforcement action regarding the facility, or as requested by the Department.
 - c. A copy of records of waste disposal locations and quantities must be submitted to the Department and local land authority upon closure of the facility.
- I. Documents to be Maintained by the Permittee. The Permittee shall maintain, at the Weyerhaeuser Company NR located in Lamar County, Alabama, the following documents and amendments, revisions and modifications to these documents until an engineer certifies closure of the permitted landfill.
- 1. Operating record.
 - 2. Closure Plan.

- J. Submissions. All reports, notifications, or other submissions which are required by this permit should be submitted electronically via the Department-approved electronic system. The electronic submittal shall contain all required information and be formatted in an electronic file format approved by the Department.
- K. Signatory Requirement. All applications, reports or information required by this permit, or otherwise submitted to the Department, shall be signed and certified electronically by a responsible official under the following conditions:
1. If an individual, by the applicant.
 2. If a city, county, or other municipality or governmental entity, by the ranking elected official, or by a duly authorized representative of that person.
 3. If a corporation, organization, or other legal entity, by a principal executive officer, of at least the level of Vice President, or by a duly authorized representative of that person.
- Any document submitted electronically is considered by the Department to have been submitted on behalf of the responsible official.
- The applicant assumes the responsibility of assuring himself that any electronic document submitted on his behalf would have been certified by his written signature.
- L. Confidential Information. The Permittee may claim information submitted as confidential pursuant to ADEM Admin. Code 335-1-1-.06.
- M. State Laws and Regulations. Nothing in this permit shall be construed to preclude the initiation of any legal action or to relieve the Permittee from any responsibilities, liabilities, or penalties established pursuant to any applicable state law or regulation.

SECTION II. GENERAL OPERATING CONDITIONS

- A. Operation of Facility. The Permittee shall operate and maintain the disposal facility consistent with the Application, this permit, and ADEM Admin. Code 335-13.
- B. Open Burning. The Permittee shall not allow open burning without prior written approval from the Department and other appropriate agencies. A burn request should be submitted electronically to the Department via the Department-approved electronic system, outlining why that burn request should be granted. This request should include, but not be limited to, specifically what areas will be utilized, types of waste to be burned, the projected starting and completion dates for the project, and the projected days and hours of operation. The approval, if granted, shall be included in the operating record.
- C. Prevention of Unauthorized Disposal. The Permittee shall follow the approved procedures, as provided in the Application, for detecting and preventing the disposal of free liquids, regulated hazardous waste, regulated PCB waste, regulated medical waste, and other unauthorized waste streams at the facility.
- D. Unauthorized Discharge. The Permittee shall operate the disposal facility in such a manner that there will be no water pollution or unauthorized discharge. Any discharge from the disposal facility or practice thereof may require a National Pollutant Discharge Elimination System permit under the Alabama Water Pollution Control Act.
- E. Industrial Waste Disposal. The Permittee shall dispose of industrial waste as required by ADEM Admin. Code 335-13-4-.21(1)(c), and as specified in the Application.
- F. Boundary Markers. The Permittee shall ensure that the facility is identified with a sufficient number of permanent boundary markers that are at least visible from one marker to the next.

SECTION III. SPECIFIC REQUIREMENTS FOR INDUSTRIAL WASTE LANDFILLS

A. Waste Identification and Management.

1. Subject to the terms of this permit, the Permittee may accept for disposal the nonhazardous solid wastes listed in III.,B. Disposal of any other wastes is prohibited, except waste granted a temporary or one-time waiver by the Director.
2. The total permitted facility area for the Weyerhaeuser NR Company Landfill is approximately 18 acres with the 16 acres approved for disposal.
3. The maximum average daily volume of waste disposed at the facility shall not exceed 75 cubic yards per day. Should the average daily volume exceed this value by 20% or 100 cubic yards/day, whichever is less, for two (2) consecutive quarters the permittee shall be required to modify the permit in accordance with ADEM Admin. Code 335-13-5-.06(2)(b)2. The average daily volume shall be computed as specified by ADEM Admin. Code 335-13-4-.23(2)(f).

B. Waste Streams. The Permittee may accept for disposal non-hazardous bark, wood chips, log yard debris, wood waste, fly ash from continuous dry kiln, dirt, metal bands and special waste approved by ADEM.

C. Service Area. The Permittee is allowed to accept waste for disposal from Weyerhaeuser NR Company Millport Wood Products in Millport, Alabama.

D. Waste Placement, Compaction, and Cover. All waste shall be confined to an area as small as possible within a single working face and placed onto an appropriate slope not to exceed 4 to 1 (25%). All waste shall be spread in layers two feet or less in thickness and thoroughly compacted weekly with adequate landfill equipment prior to placing additional layers of waste or placing cover. A minimum of six inches of compacted earth or other alternative cover material approved by the Department and listed in Section VIII shall be added at the conclusion of each month's operation (See Section VIII.).

E. Liner Requirements. The Permittee shall not be required to install a composite liner system at this time. The base of the landfill shall be a minimum of five (5) feet above the highest measured groundwater level as determined by ADEM Admin. Code 335-13-4-.11(2)(a).

F. Security. The Permittee shall provide artificial and/or natural barriers, which prevent entry of unauthorized vehicular traffic to the facility.

G. All Weather Access Roads. The Permittee shall provide an all-weather access road to the dumping face that is wide enough to allow passage of collection vehicles.

H. Adverse Weather Disposal. The Permittee shall provide for disposal activities in adverse weather conditions.

I. Personnel. The Permittee shall maintain adequate personnel to ensure continued and smooth operation of the facility.

J. Environmental Monitoring and Treatment Structures. The Permittee shall provide protection and proper maintenance of environmental monitoring and treatment structures.

K. Vector Control. The Permittee shall provide for vector control as required by ADEM Admin. Code 335-13.

L. Bulk or Non-Containerized Liquid Waste. The Permittee shall not dispose of bulk or noncontainerized liquid waste, or containers capable of holding liquids, unless the conditions of ADEM Admin. Code 335-13-4-.23(1)(j) are met.

M. Empty Containers. Empty containers larger than 10 gallons in size must be rendered unsuitable for holding liquids prior to disposal in the landfill unless otherwise approved by the Department.

- N. Other Requirements. The Department may enhance or reduce any requirements for operating and maintaining the landfill as deemed necessary by the Land Division.
- O. Other Permits. The Permittee shall operate the landfill according to this and any other applicable permits.
- P. Scavenging and Salvaging Operations. The Permittee shall prevent scavenging and salvaging operations, except as part of a controlled recycling effort. Any recycling operation must be in accordance with plans submitted and approved by the Department.
- Q. Signs. If the landfill is available to the public or commercial haulers, the Permittee shall provide a sign outlining instructions for use of the site. The sign shall be posted and have the information required by ADEM Admin. Code 335-13-4-.23(1)(f).
- R. Litter Control. The Permittee shall control litter.
- S. Fire Control. The Permittee shall provide fire control measures.

SECTION IV. GROUNDWATER MONITORING REQUIREMENTS

- A. The Permittee shall install and/or maintain a groundwater monitoring system, as specified below.
 - 1. The permittee shall maintain the groundwater monitoring wells and piezometers identified in Table IV.1. at the locations specified in the Application, and any other groundwater monitoring wells which are added (Section IV.,A.,3.) during the active life and the post closure care period.
 - 2. The Permittee shall maintain groundwater monitoring well MW-1 as the background groundwater monitoring well for the entire facility.
 - 3. The Permittee shall install and maintain additional groundwater monitoring wells as necessary to assess changes in the rate and extent of any plume of contamination or as otherwise deemed necessary to maintain compliance with the ADEM Admin. Code 335-13.
 - 4. Prior to installing any additional groundwater monitoring wells, the Permittee shall submit a plan to the Department with a permit modification request specifying the design, location and installation of any additional monitoring wells. This plan shall be submitted within one-hundred and twenty (120) days prior to the installation which, at a minimum, shall include.
 - a. Well construction techniques including proposed casing depths, proposed total depth, and proposed screened interval of well(s);
 - b. Well development method(s);
 - c. A complete analysis of well construction materials;
 - d. A schedule of implementation for construction; and
 - e. Provisions for determining the lithologic characteristics, hydraulic conductivity and grain-size distribution for the applicable aquifer unit(s) at the location of the new well(s).
- B. Groundwater Monitoring Requirements.
 - 1. The Permittee shall determine the groundwater surface elevation at each monitoring well and piezometer identified in Table IV.1. each time the well or piezometer is sampled and at least semi-annually throughout the active life and post-closure care period.

2. The Permittee shall determine the groundwater flow rate and direction in the first zone of saturation at least annually or each time groundwater is sampled and submit as required by ADEM Admin. Code 335-13.
 3. Prior to the initial receipt of waste at the facility, the Permittee shall sample, and analyze for the parameters listed in Appendix I of ADEM Admin. Code 335-13-4-.27, and/or any other parameters specified by the Department to establish background water quality and/or as directed by ADEM Admin. Code 335-13-4-.27(2)(j) and 335-13-4-.27(2)(a)(1). The records and results of this sampling and analysis activity shall be submitted to the Department, within sixty (60) days of the date of sampling.
 4. The Permittee shall sample, and analyze all monitoring wells identified in Table IV.1 for the parameters listed in Appendix I of ADEM Admin. Code 335-13-4-.27(3), and/or any other parameters specified by the Department in Table IV.2, on a semi-annual basis throughout the active life of the facility and the post-closure care period in accordance with ADEM Admin. Code 335-13-4-.27(3). Sampling shall be conducted during March and September of each year, beginning with the effective date of this permit. The records and results of this sampling and analysis activity shall be submitted to ADEM, within ninety (90) days of the date of sampling.
 5. In addition to the requirements of Section IV., B.,1., B.,2., B.,3. and B.,4., the Permittee shall record water levels, mean sea level elevation measuring point, depth to water, and the results of field tests for pH and specific conductance at the time of sampling for each well.
- C. Sampling and Analysis Procedures. The Permittee shall use the following techniques and procedures when obtaining and analyzing samples from the groundwater monitoring wells described in Section IV.,A. to provide a reliable indication of the quality of the groundwater.
1. Samples shall be collected, preserved, and shipped (when shipped off-site for analysis) in accordance with the procedures specified in the Application. Monitoring wells shall be bailed or pumped to remove at least four times the well volume of water. Slow recharge wells shall be bailed until dry. Wells shall be allowed to recharge prior to sampling.
 2. Samples shall be analyzed according to the procedures specified of the Application, Standard Methods for the Examination of Water and Wastewater (American Public Health Association, latest edition), Methods for Chemical Analysis of Water and Wastes (EPA-600/4-79-020), Test Methods for Evaluating Solid Waste, Physical/Chemical Methods (EPA Publication SW-846, latest edition), or other appropriate methods approved by this Department. All field tests must be conducted using approved EPA test kits and procedures.
 3. Interwell statistical analysis will be performed to test for statistically significant increases.
 4. Samples shall be tracked and controlled using the chain-of-custody and QA\QC procedures specified in the Application.
- D. Recordkeeping and Reporting Requirements.
1. Recording of Results. For each sample and/or measurement taken pursuant to the requirements of this permit, the Permittee shall record the information required by Section I.,E.,9.,c.
 2. Recordkeeping. Records and results of all groundwater monitoring, sampling, and analysis activities conducted pursuant to the requirements of this permit shall be included in the operating record required by Section I.,I.,1.
- E. Permit Modification. If at any time the Permittee or the Department determines that the groundwater monitoring system no longer satisfies the requirements of ADEM Admin. Code 335-13-4-.14 or Section

IV.,A. of this permit, the Permittee must, within 120 days, submit an application for a permit modification to make any necessary and/or appropriate changes to the system.

TABLE IV.1.
GROUNDWATER MONITORING WELLS

Monitoring Well Number	Top of Casing (feet msl)	Part Monitoring
UPGRADIENT/BACKGROUND MONITORING WELL		
MW-1	483.52	Entire Landfill
DOWNGRAIENT MONITORING WELLS		
MW-2	409.90	Entire Landfill
MW-3	396.93	Entire Landfill
MW-4	405.76	Entire Landfill

TABLE IV.2.
SEMI-ANNUAL GROUNDWATER MONITORING PARAMETERS

NOTE: The parameters to be monitored for in this Table are those listed in Appendix I of ADEM Admin. Code 335-13-4 , and/or any other waste stream specific parameters.

SECTION V. GAS MONITORING REQUIREMENTS

The Department has granted a variance from gas monitoring at the Weyerhaeuser NR Company Landfill. (See Section VIII. 1.) If at any time the Department determines that an explosive gas monitoring system is deemed necessary for the protection of human health and the environment, the Permittee must, within 90 days, submit an application for permit modification for the installation of an explosive gas monitoring system that meets the proper regulatory requirements of the Alabama Department of Environmental Management.

SECTION VI. SURFACE WATER MANAGEMENT REQUIREMENTS

The Permittee shall construct and maintain run-on and run-off control structures. Any discharges from drainage control structures shall be permitted through a discharge permit issued by the ADEM Water Division.

SECTION VII. CLOSURE AND POST-CLOSURE REQUIREMENTS

The Permittee shall close the landfill and perform post-closure care of the landfill in accordance with ADEM Admin. Code 335-13.

- A. Final Cover. The Permittee shall grade final soil cover such that surface water does not pond over the permitted area as specified in the Application. The final cover system shall comply with ADEM Admin. Code 335-13.

- B. Vegetative Cover. The Permittee shall establish a vegetative or other appropriate cover, as approved by the Department, within 90 days after completion of final grading requirements in the Application. Preparation of a vegetative cover shall include, but not be limited to, the placement of seed, fertilizer, mulch, and water.
- C. Notice of Intent. The Permittee shall place in the operating record and notify the Department of their intent to close the landfill prior to beginning closure.
- D. Completion of Closure Activities. The Permittee must complete closure activities of each landfill unit in accordance with the Closure Plan within 180 days of the last known receipt of waste.
- E. Certification of Closure. Following closure of each unit, the Permittee must submit to the Department a certification, signed by a registered professional engineer, verifying the closure has been completed according to the Closure Plan.
- F. Post-Closure Care Period. Post-closure care activities shall be conducted after closure of each unit throughout the life of this permit and continuing for a period of a minimum of thirty (30) years following closure of the facility. The Department may shorten or extend the post-closure care period applicable to the solid waste disposal facility.
- G. Post-Closure Maintenance. The Permittee shall provide post closure maintenance of the facility to include regularly scheduled inspections. This shall include maintenance of the cover, vegetation, monitoring devices and pollution control equipment and correction of other deficiencies that may be observed by ADEM. Monitoring requirements shall continue throughout the post closure period as determined by the Department unless all waste is removed and no unpermitted discharge to waters of the State have occurred.
- H. Post-Closure Use of Property. The Permittee shall ensure that post closure use of the property never be allowed to disturb the integrity of the final cover, liner, or any other component of the containment system. This shall preclude the growing of deep-rooted vegetation on the closed area.
- I. Certification of Post-Closure. Following post-closure of each unit, the Permittee must submit to the Department a certification, signed by an independent registered professional engineer, verifying the post-closure has been completed according to the Post-Closure Plan.
- J. Recording Instrument. The Permittee must provide documentation of compliance with the requirements of the Uniform Environmental Covenants Program in ADEM Admin. Code 335-5 and shall execute the following:
 - 1. Record a notation onto the land deed within 90 days from the certification of closure. This notation shall state that the land has been used as a solid waste disposal facility, the name of the Permittee, type of disposal activity, location of the disposal facility, and beginning and closure dates of the disposal activity.
 - 2. File the covenant at the courthouse where the land deed is held within thirty (30) days of receipt of the covenant signed by ADEM's Land Division Chief.
 - 3. The Permittee shall submit a certified copy of the recording instrument to ADEM within 120 days after permit expiration, revocation, or as directed by ADEM as described in the application.
- K. Removal of Waste. If the Permittee, or any other person(s), wishes to remove waste, waste residues, or any liner or contaminated soils, the owner must request and receive prior approval from the Department.

SECTION VIII. VARIANCES

- 1. The Permittee has been granted a variance from ADEM Admin. Code 335-13-4-.16 requiring explosive gas monitoring. (See Section V.)

2. The Permittee is granted a variance from ADEM Admin. Code 335-13-4-.23(1)(a)1. requiring weekly cover. All exposed waste shall be covered by the conclusion of each month's activities. (See Section III. D.).

Any variance granted by the Department may be terminated by the Department whenever the Department finds, after notice and opportunity for hearing, that the petitioner is in violation of any requirement, condition, schedule, limitation or any other provision of the variance, or that operation under the variance does not meet the minimum requirements established by state and federal laws and regulations or is unreasonably threatening the public health.

Permit Application

March 17, 2022

Mr. Hunter Baker
Solid Waste Engineering Section
Alabama Department of Environmental Management
1400 Coliseum Blvd
Montgomery, Alabama 36130-

Received
MAR 21 2022
Land Division

Re: Weyerhaeuser NR Company
Millport Wood Products Facility
Industrial Landfill Solid Waste Permit Renewal Application

Dear Mr. Baker:

Enclosed is Weyerhaeuser NR Company's (Weyerhaeuser) completed solid waste permit renewal application to continue the operation of the industrial landfill at our Millport, Alabama facility. The application has been prepared in triplicate and signed by our Facility Unit Manager who is the Responsible Official/Duly Authorized Representative. Additionally, enclosed is a check for \$8,150 to cover the cost of the renewal application processing fee, along with a list of adjacent property owners.

Please note that Weyerhaeuser is seeking to modify our permit to include a maximum daily average of 75 Cubic Yards per Day. This modification is noted in the Solid Waste Renewal Application on Form 439 Section 9. Also, Weyerhaeuser is modifying our Plan of Operation to include the following:

- **Disposal Site Access** – This section was modified to change the maximum daily average from 25 cubic yards to 75 cubic yards.
- **Covering and Maintenance** – This section was modified to change the minimum daily cover from three (3) inches to six (6) inches. Also, this section specifies that the site will utilize "Green Waste" as an Alternative Daily Cover (ADC) to supplement soil cover material. The "Green Waste" will include non-treated shavings, green sawdust, bark nuggets and mulch generated on-site which do not meet specification to be sold. The "Green Waste" materials listed above meet the requirements for daily cover as listed in Section 2.6 of the EPA Guidance Document *Alternate Daily Cover Material for Municipal Solid Waste Landfills*.

As indicated in 335-1-6-.07 Fee Schedule Solid Waste Permits/Registration, these are modifications as included in ADEM Admin Code Rule 335-13-5-.06(2) and an additional check of \$1,460 has been included to cover the cost to process the Minor Modification.

Prior to submittal of this renewal application a site inspection was conducted that indicated the landfill boundaries are clearly denoted and no significant erosion has taken place that would

undermine the effectiveness of the vegetative cover and that there were no other issues noted at the landfill.

Since Weyerhaeuser has submitted a timely (i.e., at least 180 days prior to permit expiration date) and complete permit renewal application, we understand that the permit and all permit conditions shall remain in effect beyond the permit's expiration date, should ADEM not make a final determination regarding the permit reissuance prior to expiration. Consequently, we request that ADEM grant the renewal of this permit for another permit term, as allowed by ADEM Administrative Code Division 13.

Should you have any questions, please contact Nick Harmon at (205) 596-1197 or (662) 242-2916, or via email at Nick.Harmon@weyerhaeuser.com.

Sincerely,



Brian Harrison
Unit Manager

Enclosure

WEYERHAEUSER NR COMPANY

MILLPORT, ALABAMA

**INDUSTRIAL LANDFILL
PERMIT RENEWAL APPLICATION**

March 2022

Prepared By:

FC&E Engineering, LLC

917 Marquette Road

Brandon, Mississippi 39042

(601) 824-1860



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- FIGURE 2 – AERIAL MAP

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- PROPERTY OWNER AERIAL MAP
- LIST OF ADJACENT PROPERTY OWNERS

ADEM FORM 439

SOLID WASTE APPLICATION

**PERMIT APPLICATION
SOLID WASTE DISPOSAL FACILITY
ALABAMA DEPARTMENT OF ENVIRONMENTAL MANAGEMENT
(Submit in Triplicate)**

1. Facility type: ☐ Municipal Solid Waste Landfill (MSWLF)
☒ Industrial Landfill (ILF)
☐ Construction and Demolition Landfill (C/DLF)
☐ CCR Landfill (CCRLF)
☐ CCR Surface Impoundment (CCRSI)
☐ Other (explain) _____

2. Facility Name Weyerhaeuser NR Company Industrial Landfill

3. Applicant/Permittee: Renewal for Permit #38-06

Name: Weyerhaeuser NR Company

Address: 14715 Highway 96
Millport, Alabama 35576

Telephone: 205-596-1197

If applicant/permittee is a Corporation, please list officers:

Devin Stockfish - President, CEO

Brian Chaney - Senior Vice President Wood Products

4. Location: (include county highway map or USGS map)

Township	<u>17 South</u>	Range	<u>14 West</u>
Section	<u>32</u>	County	<u>Lamar</u>

5. Land Owner:

Name: Weyerhaeuser NR Company

Address: 14715 Highway 96
Millport, Alabama 35576

Telephone: 205-596-1197

(Attach copy of agreement from landowner if applicable.)

Solid Waste Permit Application
Page 2

6. Contact Person:

Name Chase Garner

Position or
Affiliation Facility Environmental Manager

Address: 14715 Highway 96
Millport, Alabama 35576

Telephone: 205-391-8757

7. Size of Facility:

Approximately 18 Acres

Size of Disposal Area(s):

Approximately 16 Acres

8. Identify proposed service area or specific industry that waste will be received from:

This Landfill will only receive industrial waste

generated from the Weyerhaeuser Millport facility

9. Proposed maximum average daily volume to be received at landfill (choose one):

 Tons/Day 75 Cubic Yards/Day

10. List all waste streams to be accepted at the facility (i.e., household solid waste, wood boiler ash, tires, trees, limbs, stumps, etc.):

Non-hazardous waste to consist of bark, wood chips, log yard

debris wood waste, fly ash from CDK, metal bands, dirt, and special

waste approved by ADEM

SIGNATURE (Responsible official of permit applicant):

Brian Harrison

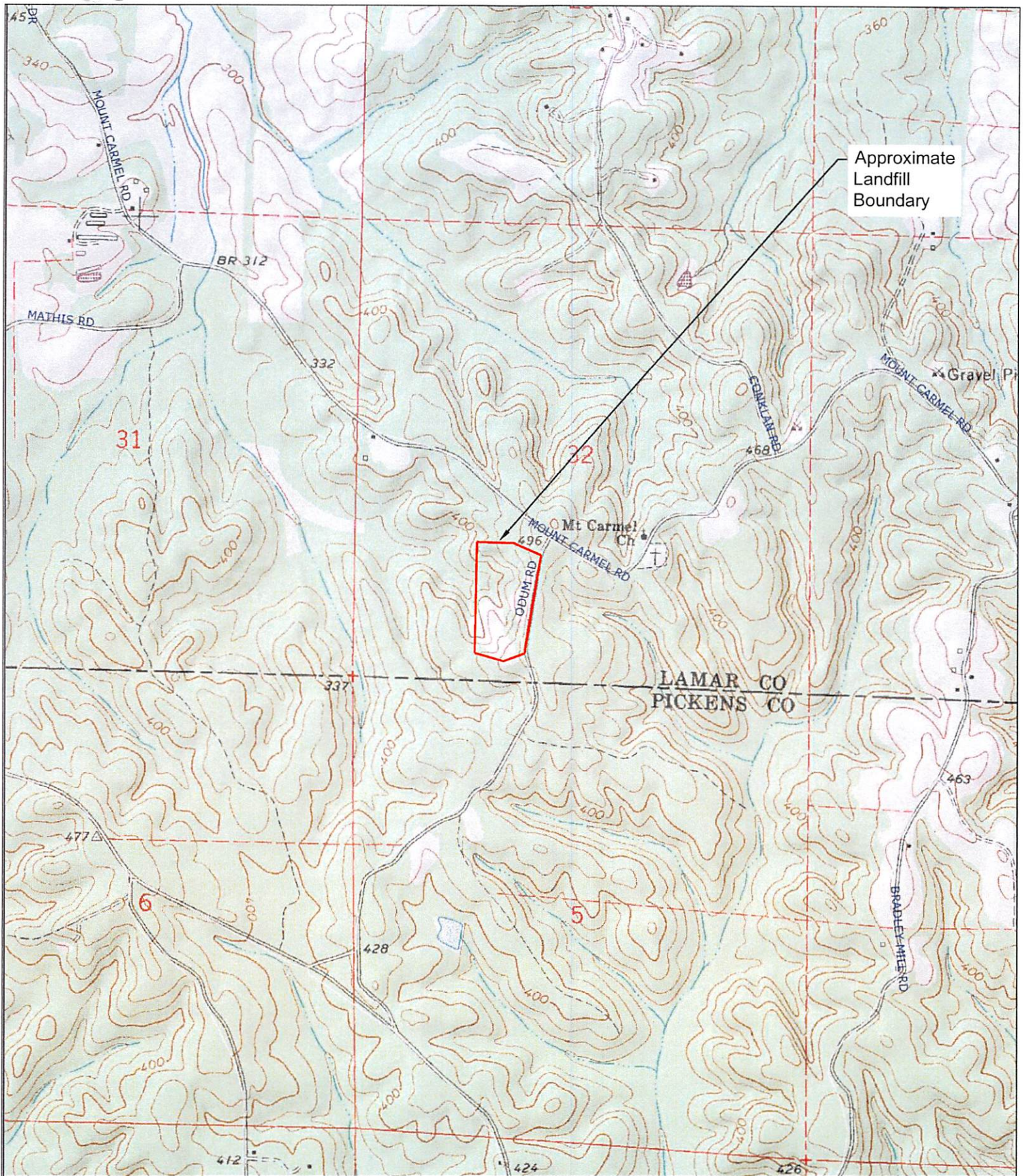
TITLE: Unit Manager

Brian Harrison

(please print or type name)

DATE: 7/28/2025

FIGURES



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0 2000 Ft

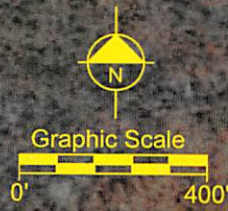
Map Info:
USGS Quad Map
Millport, AL 1985



FC&E Engineering, LLC
917 Marquette Road
Brandon, Mississippi
www.fce-engineering.com

Weyerhaeuser NR Company
Millport Wood Waste Landfill
Millport, Lamar County, Alabama

Figure Number: 1
Figure Name: Site Location Map
Project: Industrial Landfill Renewal Application
Drawn By: WS
Date Drawn: 2/1/22



Approximate
Landfill
Boundary



Map Info:
Google Earth
Image Date: 1/17/2013

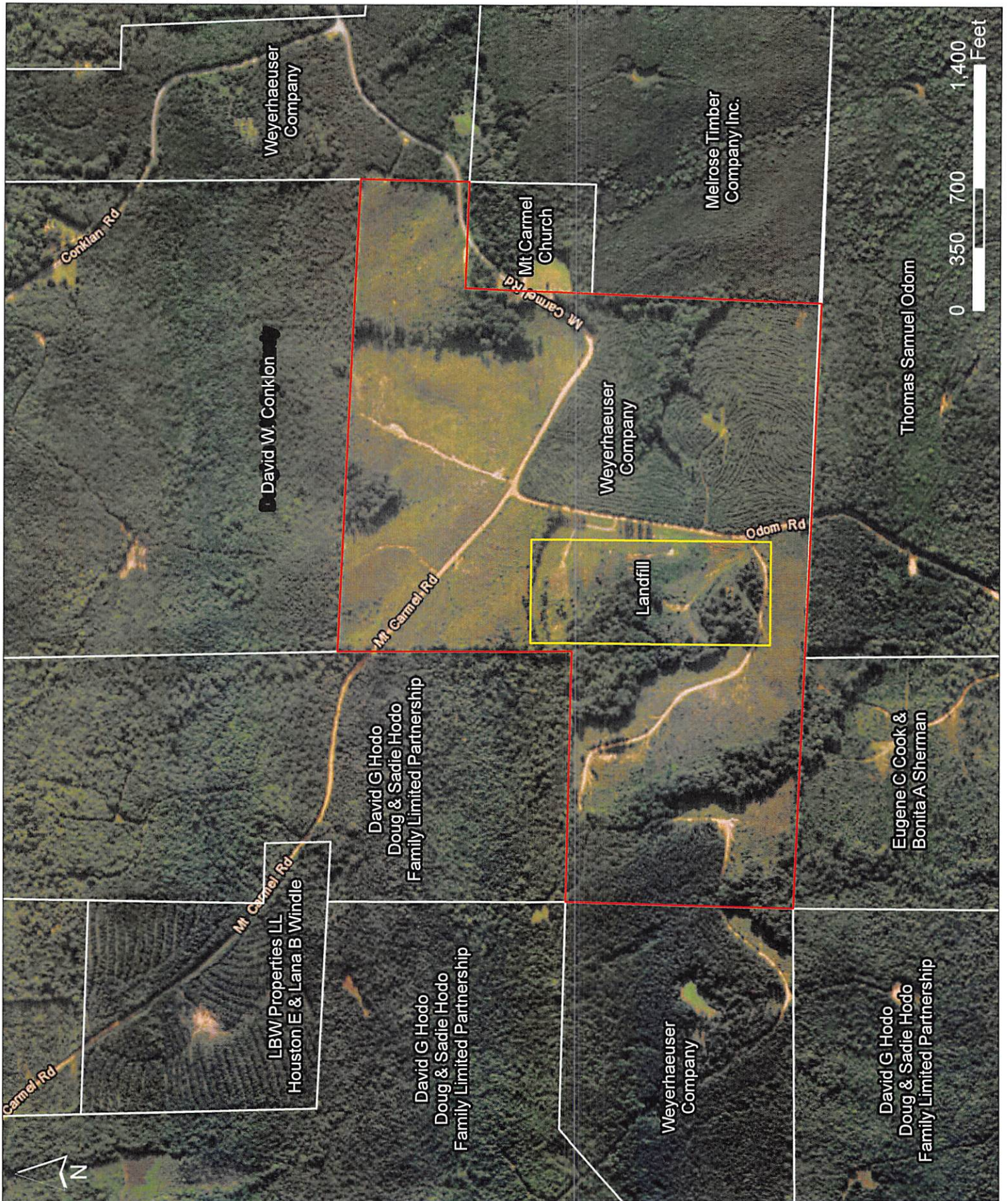


FC&E Engineering, LLC
917 Marquette Road
Brandon, Mississippi
www.fce-engineering.com

Weyerhaeuser NR Company
Millport Wood Waste Landfill
Millport, Lamar County, Alabama

Figure Number: 2
Figure Name: Aerial Map
Project: Industrial Landfill Renewal Application
Drawn By: WS
Date Drawn: 2/1/22

**ADJACENT LANDOWNER
INFORMATION**



Pickens County

David G Hodo/Doug & Sadie Hodo Family Limited Partnership
1104 Concord Ave Amory, Ms 38821
Parcel 54 04 01 11 0 000 009.000

Eugene Cosby Cook & Bonita A Shennan C/O Eugene C Cook
3010 Jasmine Rd Montgomery, Al 36111
Parcel 54 02 03 05 0 000 002.000

Thomas Samuel Odom
222 Ardmount Rd Columbia, Sc 29212
Parcel 54 02 03 05 0 000 001.000

MACAP-AL
54 02 03 06 0 000 002.000

Lamar County

Edwin Conklan
903 Foster Dr Kennedy, Al 35576
Parcel 4020 09 32 0 000 003.000 0

LBW Properties LLC Houston E. & Lana B. Windle Lana 8. Windle
34520 Hwy 17 Millport; Al 35576
Parcel 40 20 09 31 0 000 0003.000 0

Mt. Carmel Church Baptist Faith
Kennedy, Al 35574
Parcel 40 20 09 32 0 000 006000

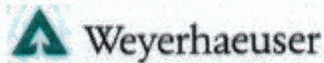
David G Hodo/Doug & Sadie Hodo Family Limited Partnership
1104 Concord Ave Amory, Ms 38821
Parcel 40 20 09 32 0 000 004.000 0

Melrose Timber Company, Inc.
P.O. Box 27 McShan, Al 35471
Parcel 40 20 09 32 0 000 007.000 0

Standard Operating Procedures

Weyerhaeuser Company NR- Millport, AL

Solid Waste Landfill



Alabama Permit Number 38-06R Issue

Date: July 21, 2025

Expiration Date: September 25, 2022

Purpose:

The purpose of this plan is to standardize procedures for the "Solid Waste Disposal Facility, Permit# 38-06R, for Weyerhaeuser Company NR Landfill located at Section 32, Township 17 South, Range 14 West in Lamar County Alabama.

All procedures shall be coordinated by the site environmental Manager, or designee, who is responsible for the solid waste operations. Should changes occur which require revisions to this plan and training; these will be managed and implemented by the site Environmental Manager.

A handwritten signature in black ink, appearing to read 'Brian Harrison', written over a horizontal line.

Brian Harrison
Unit Manager

A handwritten signature in black ink, appearing to read 'Chase Garner', written over a horizontal line.

Chase Garner
Facility Environmental Manager

A handwritten date '5/22/2026' in black ink, written over a horizontal line.

Date

A handwritten date '5/22/2026' in black ink, written over a horizontal line.

Date

Standard Operating Procedures

Weyerhaeuser Company NR- Millport, AL

Solid Waste Landfill

The permitted waste streams which are approved to be disposed of at this site are:

- Non-hazardous bark
- Wood chips
- Log yard debris
- Wood waste
- Ash
- Dirt
- Metal bands
- Special wastes as approved by the Alabama Department of Environmental management

The site environmental manager shall ensure that all wastes leaving the facility for disposal at this site are inspected periodically to ensure no unauthorized disposals are placed here.

Disposal Site Access:

Disposal site has two (2) access gates which remain locked at all times except when disposals are being transported from the facility to here. The only time the gate is authorized to be left open is back-to-back disposals are being transported to the landfill. When these disposals are completed, the truck driver is responsible for ensuring the gate is secured and locked before leaving the site.

The site is permitted to dispose of an average of 75 cubic yards of debris per day. Supporting disposal records, if disposals occur, shall be maintained in the environmental files.

Working Units:

A working unit is the area of the landfill where disposals are being placed. All disposals shall be maintained to one working unit at a time. The working unit location and/or change shall be managed and communicated by the site environmental manager.

Should ash be disposed of at this site, covering shall be applied to this area within 24 hours. The working unit shall be sloped on a 4:1 ratio with step filling beginning at the bottom of the slope. Proper measures must be taken and maintained to allow drainage and run-off to prevent erosion. The existing working unit must be completed prior to moving to establishing another working.

Covering and Maintenance:

All debris disposed of at this site shall be covered monthly with a minimum of six (6) inches of compacted material as approved by the permit and the site environmental manager.

Standard Operating Procedures

Weyerhaeuser Company NR- Millport, AL

Solid Waste Landfill

The site will utilize soil or equivalent for cover material.

Explosive Gas Monitoring and Reporting:

Explosive gas monitoring was approved to be discontinued at the site per ADEM letter dated June 7, 2017 with all variance request continued per the Facility Permit. The variance letter is kept on file at the main office building.

Monitoring Wells and Reporting:

Four (4) monitoring wells are located at the landfill. The wells are sampled semi-annually each year. During each monitoring sequence, the groundwater surface elevation and piezometer at each well must be identified. The groundwater flow rate and direction in the first zone of saturation must be identified each time wells are monitored.

Wells shall be monitored for parameters listed in Appendix I of rule 335-13-4-.27(3) and/or parameters specified by ADEM in Table IV3. In addition to these parameters, the facility shall record water levels, mean sea level elevation measuring points, depth to water, and field test results for pH and specific conductance at the time of sampling.

Samples shall be collected, preserved, and shipped offsite in accordance with the procedures specified in application. All field tests must be conducted using EPA approved test kits and procedures. Monitoring well MW-1 data shall be used as background for all other wells located at this site.

Inspections:

During disposal activities, this site is monitored and weekly inspections are documented. Inspections are placed in environmental files.

Close out working areas:

When a working unit has been evaluated and deemed for closure, this closure must include the following:

- Closure inspection by the site environmental manager
- Intermediate and/or final soil covering shall be applied so that:
 - Surface water does not pond in the area
 - Cover of 6" and a final grade slope of 4:1
 - Slopes longer than 20 feet shall require horizontal terracing of sufficient width for equipment operation and use of erosion measures
 - A minimal final grade for disposal site shall be 5% (formal closure)
- Vegetation cover to minimize erosion shall be established with preparation to be started 60 days of reaching final grade.

Standard Operating Procedures

Weyerhaeuser Company NR- Millport, AL

Solid Waste Landfill

Landfill Closure:

When final closure of the landfill is determined procedures listed in the June 1996, Operating and Closure/Post-Closure plan will be followed in accordance to ADEM code 335-13-4.20

September 9, 2026

Mr. Hunter Baker
Solid Waste Engineering Section
Alabama Department of Environmental Management
1400 Coliseum Blvd
Montgomery, Alabama 36130-

Re: Weyerhaeuser NR Company
Millport Wood Products Facility
Industrial Landfill Solid Waste Permit #38-06 Renewal

Dear Mr. Baker:

Enclosed is Weyerhaeuser NR Company's (Weyerhaeuser) revised Standard Operating Procedures for the solid waste permit renewal application, previously submitted July 22, 2025. As requested by ADEM, Weyerhaeuser has removed "green waste" as a cover material.

ADEM Admin code 335-13-4-.23(1)(a)(1) *A minimum of six inches of compacted earth or other alternative cover material that is approved by the Department shall be added at the conclusion of each week's operation or as otherwise specified by the Department to control disease vectors, fires, odors, blown litter and scavenging.*

Weyerhaeuser requests a variance to modify the frequency of cover application from weekly to monthly for the industrial landfill. This request is based on the operational nature of landfill use at the facility. Waste is transported to the landfill during episodic haul events that occur during forecasted dry weather conditions. These hauling events may extend over a period of up to two weeks to transport the permitted volume of material. During these events, waste placement and grading activities occur continuously within the active working area. As such, monthly cover application more accurately reflects actual operating conditions while maintaining compliance with the intent of the regulation.

The approved waste streams are non-hazardous and consist of bark, wood chips, log yard debris, wood waste, ash, dirt, and metal bands. These materials are predominantly organic and unprocessed natural materials and do not present significant potential for the following:

Disease Vectors – The landfill accepts only materials authorized under Permit No. 38-06, including wood waste, bark, dirt, and rocks. These materials are naturally occurring and do not present the same vector attraction potential as municipal solid waste or other highly putrescible waste streams. Monthly cover is adequate to control potential disease vectors, and the nature of

the landfilled material results in a low likelihood of vector propagation, or related nuisance conditions.

Odors – Sawmill wood waste such as pine bark, wood chips, dirt from log yard, ash, wood chips, do not generate odors. All materials landfilled are naturally occurring in the surrounding area. Monthly cover is adequate for controlling odors as landfilled material has a low likelihood of generating odors.

Fire Prevention – Fire risks will be controlled through the application of cover material in accordance with ADEM Admin. Code 335-13-4-.23(1)(a)(1). Monthly cover is adequate because waste placement occurs intermittently, and the active disposal area is covered at the conclusion of a hauling event. The landfill receives only untreated sawmill wood waste and related natural woody materials. These materials are consistent with the vegetation and organic matter naturally present within the surrounding forested landscape and do not introduce fuels with a higher fire potential than those already existing in the area. Consequently, the fire risk associated with the landfill is comparable to the background fire risk of the surrounding environment, and the application of cover material provides an additional measure to minimize ignition potential.

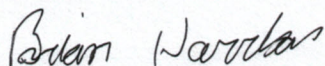
Blown Litter – Material landfilled is inherently bulky wood residuals compared to municipal waste such as paper, plastic, or other light materials. The potential for blown litter is low as these materials are not subject to becoming airborne. Monthly cover is adequate for controlling blown litter as the landfill does not accept material that could become blown litter.

Access to the landfill is controlled by a perimeter fence and locked gate, which minimizes the potential for scavenging or unauthorized dumping. Additionally, the landfill is located in a remote area, and the appearance of disposed materials is consistent with surrounding natural conditions, minimizing aesthetic concerns.

Given the nature of the waste streams, site controls, and operational practices, reducing cover frequency from weekly to monthly will not adversely impact public health or the environment, nor will it diminish the effectiveness of controls required under Admin. Code 335-13-4-.23(1)(a)(1).

Should you have any questions, please contact Chase Garner at (205) 391-8757 or via email at chase.garner@weyerhaeuser.com

Sincerely,



Brian Harrison
Unit Manager

May 22, 2017

Mr. Shane Lovett
Solid Waste Engineering Section
Alabama Department of Environmental Management
1400 Coliseum Blvd
Montgomery, Alabama 36130-

Re: Weyerhaeuser NR Company
Millport Wood Products Facility
Solid Waste Permit 38-06
Industrial Landfill Solid Waste Permit Renewal Application

Dear Mr. Lovett:

Weyerhaeuser NR Company recently submitted a solid waste permit renewal application to continue the potential operation of the industrial landfill at our Millport, Alabama facility. Since the submittal of the renewal application, Weyerhaeuser submitted a variance request to discontinue gas monitoring at the industrial landfill.

Weyerhaeuser is requesting that all previously approved variances be included in the referenced solid waste permit renewal permit.

Should you have any questions, please contact Christopher Hopf at (205) 596-1197 or (662) 408-5766, or via email at Christopher.Hopf@weyerhaeuser.com.

Sincerely,



Steve Higdon
Mill Manager

May 10, 2017

Mr. Shane Lovett
Solid Waste Engineering Section
Alabama Department of Environmental Management
1400 Coliseum Blvd
Montgomery, Alabama 36130

Re: Weyerhaeuser NR Company
Millport Wood Products Facility
Solid Waste Permit 38-06
Petition for Variance

Dear Mr. Lovett:

Per Alabama Department of Environmental Management (ADEM) Admin. Code **335-13-8, Procedures for Variances**, Weyerhaeuser NR Company (Weyerhaeuser) is petitioning for a variance of Requirement **335-13-4.16 Explosive Gases** for the Weyerhaeuser Millport Facility, specifically, discontinuing the monitoring and reporting for explosive gases at the Industrial Solid Waste Landfill. Weyerhaeuser previously submitted a Gas Monitoring Plan to ADEM as part of the Solid Waste Permit Application. Weyerhaeuser has conducted explosive gas monitoring at the landfill per the approved Gas Monitoring Plan. Results of the explosive gas monitoring events for 2011 through 2016 were all non-detect.

The following is a list of all waste streams accepted at the Millport facility:

- Bark
- Wood Chips
- Log-Yard Debris
- Wood Waste
- Fly Ash
- Dirt
- Metal Bands
- Special Waste Approved by ADEM

The waste accepted in the landfill is predominately wood waste, no putrescible or readily decomposable materials are disposed in the landfill. Minor amounts of methane are expected to be produced by the decomposition of wood wastes in the fill.

Based on the characteristics of the waste disposed at the Millport facility and previous monitoring results, Weyerhaeuser believes a variance from the provisions of Admin. Code **335-13-4.16** will not threaten the public health or unreasonably create environmental pollution.

The requested gas monitoring variance will have no affect on operations at the facility. Weyerhaeuser will continue to operate and maintain the Industrial Solid Waste Landfill in a

manner consistent with the Application, Solid Waste Permit 38-06, and ADEM Admin. Code Division 13. Additionally, enclosed is a check for **\$1,460.00** to cover the cost of the review of this variance request as provided in Fee Schedule E. Should you have any questions or require additional information, please contact Christopher Hopf at (205) 596-1197 or (662) 408-57666, or via email at Christopher.Hopf@weyerhaeuser.com.

Sincerely,

A handwritten signature in black ink, appearing to read "Steve Higdon". The signature is fluid and cursive, with the first name "Steve" and last name "Higdon" clearly distinguishable.

Steve Higdon
Mill Manager

Enclosure



GROUNDWATER MONITORING AND ANALYSIS PLAN

WEYERHAEUSER COMPANY LANDFILL
MILLPORT, ALABAMA

Prepared for:

WEYERHAEUSER COMPANY
Millport, Alabama

Prepared by:



Lybrand Consulting, LLC
P.O. Box 571
Hot Springs, Arkansas 71902
Phone: (501) 580-3189

Rev. July 2025

A handwritten signature in blue ink, appearing to read "Mike S. Lybrand", written over a horizontal line.

Mike S. Lybrand, P.G.
Lybrand Consulting, LLC
Alabama Professional Geologist License No. 622



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1.0 INTRODUCTION

The Alabama Department of Environmental Management (ADEM) requires operators of Division 13 Landfills to monitor groundwater for contaminants. Operators regulated under ADEM landfill permits are required to conduct routine groundwater monitoring and statistical analyses to determine if *statistically significant increases* (SSIs) in monitored constituents have occurred from a release at the landfill. Weyerhaeuser Company (Weyerhaeuser) operates a wood waste disposal facility (ADEM Permit No. 38-06) near their lumber mill in Millport, Alabama. This permit requires Weyerhaeuser to conduct semi-annual groundwater sampling events at the wood waste disposal facility and perform statistical analysis of the analytical data. Results of the semi-annual monitoring events are reported to ADEM in *Groundwater Monitoring Reports* (GWMRs).

Weyerhaeuser's *Groundwater Monitoring and Analysis Plan* (GWMP) for the landfill has been revised as part of the landfill permit renewal process. Monitor well MW-4 was installed in September 2024 to go along with the three older wells (MW-1 through MW-3) at the Weyerhaeuser site. This plan was revised to include MW-4 in the landfill's groundwater monitoring program.

In general, this GWMP includes:

- The landfill site location and description (Section 2.0);
- A summary of the site geology and hydrogeology (Section 3.0);
- A description of Weyerhaeuser's current groundwater monitoring system (Section 4.0);
- A summary of historical groundwater monitoring data for the site (Section 5.0);
- Procedures for groundwater sampling and laboratory analyses (Section 6.0);
- Statistical methods established for evaluating the groundwater data (Section 7.0); and
- ADEM reporting procedures (Section 8.0).

2.0 SITE LOCATION AND DESCRIPTION

Weyerhaeuser's wood waste disposal facility is located approximately 2.5 miles south of their lumber mill near Millport, Alabama, in SW¼, Section 32, Township 17 South, Range 14 West. A Site Location Map is shown on Figure 1, and a Site Plan Map is included on Figure 2. The site has been operating since approximately 1975 and has received industrial wood debris from the nearby mill, including bark, chips, short logs, butt trimmings, scrap plywood, fixed treated wood debris, metal bands, and veneer pieces. Plywood manufacturing and copper/chromium/arsenic (CCA) wood treating operations at the mill were discontinued in the past.

The disposal site is located within a remote area and is surrounded by undeveloped, forested properties. The nearest resident is roughly one mile from the landfill facility. The landfill entrance is along the eastern site boundary via Odom Road (see Figure 2). Two locked gates along the gravel roadway allow secured access, and barbed wire fencing is in place restricting public access. Access roadways exist along the northern and eastern site boundaries. Weyerhaeuser's landfill encompasses approximately 18 acres, with 16 acres approved for disposal.

3.0 SITE GEOLOGY AND HYDROGEOLOGY

3.1 Physical Setting

The site's topography slopes moderately westward, with elevations ranging from approximately 370 to 485 feet above national geodetic vertical datum (NGVD). The current site topography (August 2022) is shown on Figure 3. The permitted landfill area is generally open and covered with native grasses. Trees that had established within the landfill footprint were removed from the site during 2012, as requested by ADEM. There are no surface water bodies on the landfill property. Surface runoff during rain events exists as sheetflow, with runoff flowing generally westward across the site. A drainage ditch exists along the northern access roadway to divert runoff away from the active landfill area. Surface water discharge from the landfill facility enters an intermittent tributary along the western site boundary (see Figure 2). This tributary flows northwestward and eventually discharges into perennial Rushing Creek at a point roughly 0.75-miles northwest of the landfill site.

3.2 Geology and Hydrogeology

Lamar County, Alabama is generally underlain by unconsolidated Coastal Plain sediments of Cretaceous age. Surface geology at the site consists of the Gordo Formation (Mancini, 1988). The Gordo typically contains massive beds of cross-bedded sands, gravelly sands, and local lenticular beds of red to purple clays. Gordo sands are typically fine- to coarse-grained and yellowish-orange to gray in color. In Lamar County, the formation ranges in thickness from 55 feet in the eastern portion of the county up to 275 feet in the southwestern portion (GSA, 2009). The Gordo Formation is underlain by the Coker Formation, which generally consists of light-colored micaceous sands, varicolored clays, and few thin gravel beds.

Groundwater resources for the Millport area are generally derived from the permeable sand and gravel deposits of the Gordo Formation. Water well depths within the Gordo range from 17 feet below land surface (bls) near the outcrop to over 2,700 feet bls downdip in the formation (Tew, Jr., 2018). Depth to static groundwater ranges from +2 feet (artesian) to 442 feet bls. Groundwater yield in the wells evaluated range from 3 gallons per minute (GPM) in domestic wells near the outcrop area to over 1,800 GPM in public supply wells downdip in the formation. Recharge of the Gordo sands occurs primarily from rainfall infiltration along outcrop exposures throughout most of Lamar County, east and northeast of the landfill site (Tew, Jr., 2018). The

regional groundwater flow direction for the Gordo aquifer is west-southwestward, similar to surface topography (Norman, 2016).

Site borings completed in 1996 during well installation activities (Eco-Systems, Inc., 1997) ranged in depth from 35 to 105 feet bls. The large discrepancy in depth was due to the moderately steep topography between upgradient well MW-1 and downgradient compliance wells MW-2 and MW-3 (see Figure 2). The deep background boring (MW-1) contained silty sands near the surface that graded into clean sands and gravelly sands at depth. MW-2 was installed within the cleaner sands that corresponded in elevation to the lower portion of the MW-1 boring. It is believed that these sand deposits are part of the Gordo Formation. MW-3, installed at still a lower elevation, contained the same Gordo sands near the surface with a gravel layer at a depth of 13 feet. The sand/gravel zone was underlain by stiff, multi-colored clays and silty clays, also thought to be part of the Gordo Formation. The MW-3 boring extended roughly 27 feet into the clay zone, indicating the competence of the underlying aquitard below the landfill site. Cross-sections that illustrate the lithology across the site are shown on Figure 4. Well MW-4 was installed in September 2024. Lithology at this locale included silts from surface to 2.5 feet and then sands to at least 30.5 feet bls. Boring logs for MW-1 through MW-4 are included in Appendix A.

Geotechnical testing conducted during the 1996 investigation included two hydraulic conductivity (K) tests for the water-bearing sand zone. Both tests revealed K values on the order of 10^{-4} centimeters per second (cm/sec). The K test on a sample of the underlying clay unit revealed a K value of 1.42×10^{-9} cm/sec. This extremely low vertical permeability suggests that the clay unit serves as a competent aquitard below the landfill site. Slug testing conducted on wells MW-1 and MW-2 in 1996 resulted in estimated K values of 10^{-3} cm/sec for the water-bearing zone. Recent slug testing at wells MW-1 and MW-3 revealed K values on the order of 10^{-4} to 10^{-3} cm/sec (Lybrand Consulting, 2020). Based on average K values, groundwater gradient, and effective porosity of the water bearing zone, groundwater flow rate (i.e., velocity) at the site was estimated at approximately 5×10^{-5} cm/sec. Estimated groundwater flow rate will be calculated as part of each monitoring event and included in the GWMR.

3.3 Uppermost Aquifer

The Gordo sand has been identified as the uppermost aquifer below the site. The massive sand unit is laterally continuous across the site, and all four monitor wells are screened within the formation (see cross-sections, Figure 4).

3.4 Groundwater Flow Interpretation

Depth to groundwater ranges significantly across the site due to the disparity in surface elevation. Groundwater depth is approximately nine feet bls at lower compliance well MW-3 and roughly 91 feet bls at upgradient well MW-1. The lateral groundwater gradient across the site is approximately 0.006 (see cross-sections on Figure 4). Groundwater flow patterns across the site are generally westward, similar to surface topography. This flow direction has been consistent both historically and seasonally. The potentiometric surface map for the most recent sampling event (S1 25) is shown on Figure 5. Groundwater flow patterns will be determined as part of each semi-annual sampling event and included in the GWMR.

4.0 GROUNDWATER MONITORING SYSTEM

4.1 Monitor Wells

Well MW-1 has been established as the background well for Weyerhaeuser’s landfill facility (see Figure 2). This well was installed near the eastern property boundary within the highest topographic area onsite. According to the 1997 boring log (see Appendix A), the well was installed through a thin layer of sandy clay containing black cinder and bark which could be landfill waste. Areas further upgradient (across Odom Road) consist of undeveloped forested land. Wells MW-2, MW-3, and MW-4 serve as the downgradient compliance wells for the landfill. These wells are located directly downgradient from the landfill unit and provide adequate sampling points to evaluate potential releases from wastes disposed in the landfill. All four monitor wells are installed within the uppermost water-bearing zone below the site and are interconnected via the massive Gordo sand unit. Based on the previous well completion reports (see Appendix A), construction details for the monitor wells are included below in Table 1.

Table 1
Monitor Well Construction Details

Well No.	Hydraulic Location	Well Depth (feet bls)	Screened Interval (feet bls)	Top of Casing Elevation (feet NGVD)*
MW-1	Upgradient	103.3	88.0 – 103.0	483.52
MW-2	Downgradient	34.5	24.2 – 34.2	409.90
MW-3	Downgradient	14.7	9.4 – 14.4	396.93
MW-4	Downgradient	28.4	17.9 – 27.9	405.76

Notes:

bls = Below land surface.

See Figure 5 for well locations and most recent potentiometric surface map for the site.

* Elevations based on new survey conducted October 2024 [Cook Surveying and Mapping].

4.2 Well Replacement and Abandonment

In the event a monitor well is destroyed or damaged such that the well’s integrity is in question, the well will be replaced. The replacement monitor well will be installed in the same vicinity in a similar manner (depth, screened interval) as the original well. In this event, the original monitor well will be properly abandoned. Well installation and well abandonment activities will be in accordance with ADEM Admin. Code r. 335-13-4-.27(2)(c) and (e).

5.0 GROUNDWATER MONITORING HISTORY

5.1 Monitoring Data

Groundwater monitoring commenced at the Weyerhaeuser landfill facility in October 1996, and a total of 60 sampling events have been conducted to date. Laboratory analytical data are maintained in excel spreadsheet format and uploaded to data management software, as needed. A summary of the groundwater monitoring data to date (as of S1 25) is included in Appendix B. Historical data summaries will be updated and included in each GWMR.

5.2 Groundwater Flow Patterns

Static groundwater elevation data for the sampling events are maintained in excel spreadsheet format. A potentiometric surface map illustrating groundwater flow patterns will be prepared following each sampling event and included in the GWMR. The most recent potentiometric surface map (S1 25), which illustrates the normal westward groundwater flow patterns below the site, is included as Figure 5.

6.0 GROUNDWATER SAMPLING AND ANALYSIS

6.1 General

In general, all field procedures will be conducted in accordance with the AEIRG (ADEM, 2017). Groundwater sampling and analyses will be performed in accordance with ADEM Admin. Code r. 335-13-4-.27. This work plan addresses ADEM comments regarding Weyerhaeuser's groundwater monitoring program, dated January 3, 2020, August 2, 2022, and May 15, 2023. Procedures for specific groundwater monitoring tasks are summarized in the following sections. Groundwater sampling will be conducted on a semi-annual basis during March and September.

6.2 Sample Collection Procedures

Groundwater purging and sampling will be performed using submersible pumps. Dedicated pumps and tubing will be used in each monitor well to minimize the possibility of cross-contamination. Prior to purging/sampling, depth to static water level will be measured using an electronic water level indicator capable of measuring to the nearest 0.01 foot. Purging will continue until at least four well volumes of groundwater have been removed and field parameters (pH, conductivity, temperature, and turbidity) have stabilized. The groundwater will be considered representative once consistent readings are obtained (pH within 0.1 standard units, specific conductance within 10 percent, temperature constant for three consecutive readings, and turbidity constant or below 10 NTUs). Water level depth will be monitored during purging to assure that water level stabilizes and the well does not run dry. Once the proper volume has been purged and field parameters/drawdown has stabilized, a grab groundwater sample will be collected in laboratory-supplied containers. Groundwater purging and sampling information will be recorded on Groundwater Sample Collection Report forms (see Appendix C).

6.3 Sample Preservation and Handling

Sample containers will be provided by the designated laboratory. For those analyses requiring preservatives, containers with pre-filled preservatives will be provided, as applicable per method. Samples for analysis of volatile organic compounds (VOCs) will be properly collected in 40-ml vials to assure no headspace (i.e., air bubbles) in the samples. Following sampling the containers will be properly labeled using pre-printed labels supplied by the laboratory. The sample labels will include date and time of sampling, sample identification number, preservatives, sampler name, and requested analysis. The labeled samples will be immediately placed on ice in an ice chest.

6.4 Chain of Custody

A sample chain-of-custody will be completed for the samples collected and submitted to the designated laboratory for analyses. The chain-of-custody provides chronological documentation, or a paper trail, showing the collection, custody, control, transfer, analysis, and disposition of the samples. Information on the chain-of-custody will include: general project information, personnel contact information, sample code identification, date and time of sampling, sample type, containers, preservatives, requested analyses, sampler signature, and shipping/delivery information. A sample chain-of-custody is included in Appendix C. The signed chain-of-custody will be sealed within the sample ice chest and formally transferred to the designated laboratory upon delivery.

6.5 Sample Packaging/Shipping

New ice will be added to the ice chest prior to shipping, as needed. Each glass sample container will be secured in bubble wrap to assure that the containers are not broken during transport to the laboratory. Tamper-evident custody seals will be signed, dated, and secured on the sample ice chest. The ice chest will be shipped via overnight courier to the designated laboratory for requested analyses.

6.6 Field Records

Field notes will be kept in a bound logbook using indelible ink. Information to be recorded will generally include: date, weather, site personnel, sampling equipment, equipment calibration, site conditions, sample location and ID codes, time of sampling, record of onsite arrival and departure, explanation of photographs, visual observations, sample handling procedures, and any other pertinent site or project information. Any deviations from the GWMP will be noted in the logbook, along with justification for the variance. Any abnormal site conditions, such as damaged wells, will be documented and photographed.

6.7 Equipment Decontamination

As discussed in Section 6.2, dedicated submersible pumps and tubing will be used for each monitor well. The pumps and tubing will be decontaminated between events, as follows. Hot soapy (Liquinox) water will be used to flush through the pump unit and tubing and scrub the exterior of the pump/tubing. A sufficient amount of tap water will be poured over and flushed

through the pump unit and tubing to remove the soapy water. A sufficient amount of analyte-free water will then be poured over and flushed through the pump and tubing. The pump and tubing will be placed into a clean polyethylene bag for storage until next use at the landfill site.

6.8 Laboratory Analytical Procedures

The project samples will be shipped under proper chain of custody to the designated laboratory for analysis of parameters required under Weyerhaeuser's permit. Table 2 below summarizes analytical methods, sample containers, preservatives, and holding times for the Appendix I parameter list.

Table 2
Analytical Methods, Sample Containers, and Preservatives

Analytical Parameter	Analytical Method	Sample Container	Preservatives	Holding Times
VOCs	EPA 8260B/ EPA 8011*	40-ml vial	HCl/NaThio, 4° C	14 days
Antimony	EPA 6010B	250-ml HDPE	HNO ₃ , 4° C	6 months
Arsenic	EPA 6010B	250-ml HDPE	HNO ₃ , 4° C	6 months
Barium	EPA 6010B	250-ml HDPE	HNO ₃ , 4° C	6 months
Beryllium	EPA 6010B	250-ml HDPE	HNO ₃ , 4° C	6 months
Cadmium	EPA 6010B	250-ml HDPE	HNO ₃ , 4° C	6 months
Chromium	EPA 6010B	250-ml HDPE	HNO ₃ , 4° C	6 months
Cobalt	EPA 6010B	250-ml HDPE	HNO ₃ , 4° C	6 months
Copper	EPA 6010B	250-ml HDPE	HNO ₃ , 4° C	6 months
Lead	EPA 6010B	250-ml HDPE	HNO ₃ , 4° C	6 months
Nickel	EPA 6010B	250-ml HDPE	HNO ₃ , 4° C	6 months
Mercury	EPA 7470A	250-ml HDPE	HNO ₃ , 4° C	28 days
Selenium	EPA 6010B	250-ml HDPE	HNO ₃ , 4° C	6 months
Silver	EPA 6010B	250-ml HDPE	HNO ₃ , 4° C	6 months
Thallium	EPA 6010B	250-ml HDPE	HNO ₃ , 4° C	6 months
Vanadium	EPA 6010B	250-ml HDPE	HNO ₃ , 4° C	6 months
Zinc	EPA 6010B	250-ml HDPE	HNO ₃ , 4° C	6 months
Chloride	EPA 9056A	125-ml HPDE	4° C	28 days
Nitrate as N	EPA 9056A	125-ml HPDE	4° C	48 hours
Sulfate	EPA 9056A	125-ml HPDE	4° C	28 days

Notes:

ml = Milliliters

HCl = Hydrochloric acid.

NaThio = Sodium Thiosulfate.

HNO₃ = Nitric acid.

HDPE = High density polyethylene.

* Method 8011 used for VOCs Ethylene Dibromide and 1,2-Dibromo-3-Chloropropane.

In addition to the above parameters submitted for laboratory analyses, the parameters pH and specific conductance are measured in the field during sampling activities via field meter. The meter is calibrated per manufacturer procedures prior to use (see Calibration Log, Appendix C). Any additional parameters submitted for laboratory analysis (e.g., Appendix II parameters) will be tested using EPA-approved methods.

Please note that multiple laboratories were contacted to achieve reporting limits that meet or exceed EPA's Maximum Contaminant Level (MCL) for project parameters, if applicable, or the respective Regional Screening Level (RSL). As a result of the review, Weyerhaeuser changed laboratories to decrease reporting limits for many parameters. Most of the quantitation limits were achieved to meet or exceed the respective regulatory screening levels; however, the minuscule regulatory screening levels for a small number of uncommon parameters could not be met using best available technology. Based on Weyerhaeuser's research and change in analytical laboratory, any practical quantitation limit (pql) used in the statistical methods will be the lowest concentration level available within specified limits of precision and accuracy during routine laboratory operating conditions.

6.9 Quality Assurance/Quality Control (QA/QC)

QA/QC protocol have been established for the Weyerhaeuser project to assure suitability for intended use of the data. The data quality criteria include precision, accuracy, representativeness, comparability, and completeness. Field QA/QC procedures implemented to minimize the potential for cross-contamination include: use of dedicated pump and tubing for each monitor well, placement of plastic below work area during sampling, changing of nitrile gloves between well locations, decontamination of submersible pumps and individual tubing between sampling events, and conducting sampling in order from "clean to dirty" well locations.

Field QC samples to be collected during the groundwater monitoring events include a *blind* field duplicate sample and trip blank sample. A field duplicate is an identical sample collected from the same location, at the same time, under identical conditions as the investigative sample. The field duplicate sample is analyzed along with the corresponding investigative sample to ascertain procedural precision and inherent source variability. One *blind* (i.e., sampling location not disclosed) field duplicate will be collected during each semi-annual sampling event. A trip blank,

which is prepared by the analytical laboratory, is a sample container filled with organic-free water that is transported along with the investigative samples throughout onsite handling and shipping. It is opened in the laboratory and analyzed for VOCs along with the investigative samples.

Laboratory QC samples will include laboratory method blanks, laboratory control samples (LCS) and LCS duplicates, matrix spike (MS) and MS duplicates, laboratory duplicates, and surrogate recoveries. Weyerhaeuser will conduct an independent review of the data package to assure the data meet QA/QC standards. The data review summary will be included in the GWMRs.

7.0 STATISTICAL TESTING

7.1 General

The goal of statistical analysis is to provide a quantified means to evaluate whether the landfill unit has released contaminants into groundwater below the site. Following the collection of groundwater monitoring data, detected inorganic constituents will be statistically evaluated to identify if an SSI above background has occurred. Statistical methods will be applied in accordance with EPA's Unified Guidance Document (EPA, 2009) and ADEM's Solid Waste Regulations (335-13-4-.27). Groundwater statistical software (e.g., ChemStat, Sanitas, or similar) will be used to conduct statistical analysis of groundwater analytical data collected. As groundwater monitoring continues, use of the selected statistical methods and tests will be subject to ongoing review. Weyerhaeuser reserves the right to use other statistical tests/methods if better suited for analysis of future results, upon ADEM approval. Methods utilized will be specified in each GWMR.

7.2 Statistical Approach

EPA's Unified Guidance Document and ADEM Solid Waste Regulations include a list of statistical methods from which to choose for evaluating groundwater monitoring data. The statistical test chosen must be conducted separately for each hazardous constituent in each monitor well. These options include:

- A parametric analysis of variance followed by multiple comparison.
- An analysis of variance based on ranks followed by multiple comparison procedures.
- A tolerance or prediction interval procedure, in which an interval for each constituent is established from the distribution of the background data and the level of each constituent in each compliance well is compared to the upper tolerance or prediction limit.
- A control chart approach that gives control limits for each constituent.
- Another statistical test method that meets the performance of 40 CFR §257.93(g).

Statistical methods for determining if an SSI above background has occurred include *interwell* and *intra-well* comparisons. *Interwell* methods compare background and compliance data collected from distinct spatial locations (i.e., upgradient versus downgradient across the site), while *intra-well* tests compare current data with historical data from a single well.

It is anticipated that *interwell* statistical methods will be used at Weyerhaeuser's Millport, Alabama landfill to evaluate SSIs above background concentrations. Based on the site's existing groundwater monitoring system and hydrogeological data, the site is well suited for *interwell* analysis as indicated by the following conditions:

- The facility's upgradient well is screened within the same aquifer as downgradient wells.
- The four wells are properly positioned to detect a potential release from landfill unit.
- The moderate hydraulic conductivity of the sandy aquifer provides sufficient groundwater flow velocity to observe a potential release over a reasonable time period.
- The groundwater flow patterns do not change due to seasonal variability.

Interwell upper prediction limits (UPLs) will be used to statistically evaluate SSIs over background for inorganic constituents, in accordance with Weyerhaeuser's permit (Appendix I parameters summarized in Table 2). As discussed above, use of statistical methods and tests will be subject to ongoing review, and different methods may be utilized if better suited in the future, upon ADEM approval.

Trend analysis will be conducted for detected constituents to evaluate whether changes in groundwater geochemistry have occurred over time. Trends in background violate the key assumption that concentration distributions are stationary over time, and trends in compliance wells can be used to clarify compliance concerns. Trend testing will be conducted in accordance with the Unified Guidance Document.

7.3 Data Testing

Data for each sampling and analysis event will be reviewed for outliers and trends. The Dixon test (sample size of 25 or less) or Rosner test (sample size greater than 25) will be used to identify possible outliers. If the data is determined to be an outlier, the data point may be replaced with a corrected value, discarded from statistical calculations, or left "as is" in the database. Unless the data point can clearly be shown as an error, it will be retained "as is" for all calculations.

Statistical analysis will be completed in accordance with the data's distribution type, normal/parametric or non-normal/non-parametric. The Shapiro-Wilk test for normality will be

performed for each combination of well and constituent. During the normality test, non-detect values are identified as a function of percent non-detect. If the percentage of non-detects is less than 50%, the non-detect value will be replaced with one-half of the laboratory reporting limit. If the percent of non-detects is 50% or higher, a non-parameter test will be used in lieu of parametric testing. Analytical results between the reporting limit and method detection limit (i.e. “J-flagged” values) will be entered into the database, if provided by the laboratory, but will not be considered statistically significant detections.

Duplicate samples are collected in the field as part of the facility’s QA/QC program (Section 6.9). Results from these samples will be used strictly for QA/QC evaluation and will not be used for statistical analysis.

7.4 Updating Background Data

As recommended in the Unified Guidance Document, background data for upgradient well MW-1 will be updated every four to eight measurements (i.e., every two to four years since samples are collected semi-annually). New background data will be evaluated against the existing background dataset, as appropriate. If the new background data does not indicate a statistically significant difference, the new data will be combined with the existing background data to calculate an updated UPL. Increasing the background dataset will increase the power of subsequent statistical tests. If the new background data does indicate a significant difference between the two populations, the data will be reviewed to evaluate the cause of the difference. Background data sets for compliance wells MW-2, MW-3, and MW-4 will be maintained and properly updated if *intra*well statistical methods are used in the future.

7.5 Detection Monitoring

The Appendix I monitoring results for compliance wells MW-2, MW-3, and MW-4 will be statistically compared to MW-1 background levels through *inter*well statistical methods to determine if there is an SSI above background concentrations. Any SSIs will be reported in the GWMR submitted to ADEM. A copy of the GWMRs will also be filed at the Weyerhaeuser mill site as part of the operating record.

If one or more constituents exhibits an SSI over background, Weyerhaeuser must establish an assessment monitoring program (see below) within 90 days or otherwise demonstrate that a source other than the landfill unit caused the contamination.

7.6 Assessment Monitoring

Assessment monitoring is required whenever an SSI over background has been detected for one or more of the Appendix I constituents. Wells are then sampled for Appendix II constituents within 90 days unless a demonstration is made within that same timeframe that the statistical exceedance resulted from a source other than the landfill unit or was the result of an error in sampling, analysis, statistical evaluation, or natural variation in groundwater. The Appendix II parameter list is included as Appendix D.

When Appendix II constituents are sampled, detected constituents are added to the list of constituents sampled semi-annually, and concentrations are compared to Groundwater Protection Standards (GWPS) through the use of confidence intervals. The GWPS will be established using applicable MCLs and RSLs for the constituents. Alternate contaminant levels (ACLs) may be established from upgradient wells when groundwater concentrations upgradient of the facility are higher than the established GWPS. On an annual basis, all Appendix II constituents will be sampled and newly detected constituents added to the list of constituents sampled semi-annually.

After receiving the Appendix II parameter results, Weyerhaeuser must within 14 days notify ADEM and place a notice within the operating record identifying the Appendix II constituents detected. For any Appendix II constituent detected, a minimum of four independent samples from each well (background and compliance) must be collected and analyzed to establish background for the new constituents. If any Appendix II constituent is detected at a statistically significant level exceeding the GWPS, Weyerhaeuser must initiate an assessment of corrective actions in accordance with ADEM Solid Waste Regulations (335-13-4-.27).

8.0 REPORTING

A GWMR will be prepared following each semi-annual monitoring event and submitted to ADEM.

In general, the GWMR will include:

- Summary of the groundwater monitoring activities;
- Tabular summary of groundwater water elevation measurement data;
- Groundwater sampling field forms;
- Potentiometric surface map illustrating groundwater flow patterns;
- Calculations for estimated groundwater flow rate;
- Laboratory analytical data sheets and chain-of-custody;
- Updated historical sampling results and water level elevations for each monitor well;
- Background groundwater quality data used in statistical evaluation;
- Description and results of statistical methodology and testing;
- A description and tabular summary of any SSIs determined during the event;
- Trend testing results and conclusions;
- A summary of the sampling event and monitoring evaluation results; and
- Recommended actions, if any, based on the results.

9.0 REFERENCES

The following references were used in preparation of this GWMP:

ADEM Land Division – Solid Waste Program (Division 13). 2016 Revision. Alabama Department of Environmental Quality. Montgomery, Alabama.

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Lamar County Request for Information Concerning Potential Sites for Additional Groundwater Supply Source Development. 2009. Geological Survey of Alabama. Tuscaloosa, Alabama.

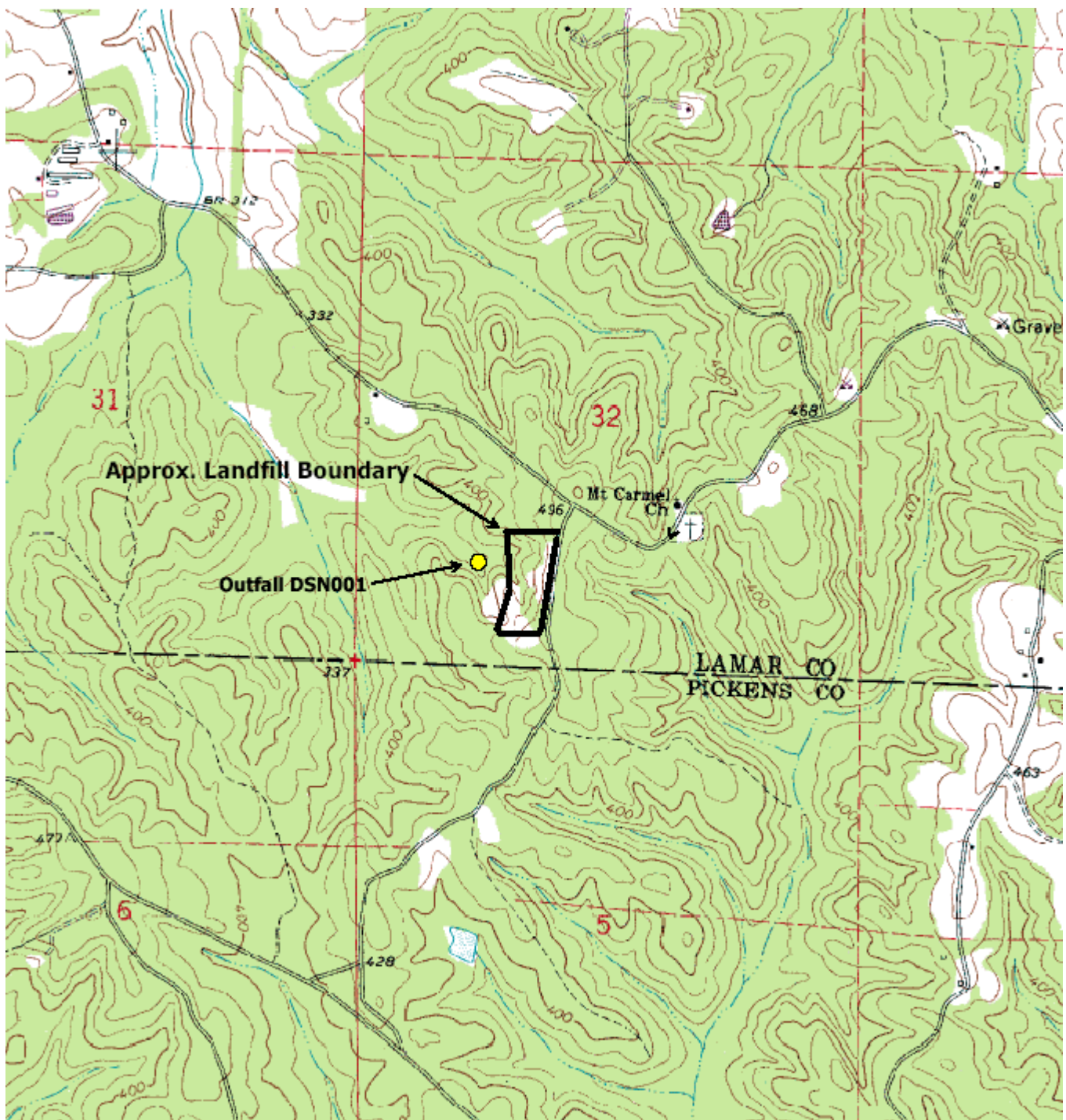
Mancini, Ernest. 1988. *Geologic Map of Alabama.* Geologic Survey of Alabama. Tuscaloosa, Alabama.

Norman, Ralph. 2016. *Potentiometric Surface for the Gordo Aquifer, Alabama.* Geologic Survey of Alabama. Tuscaloosa, Alabama.

Statistical Analysis of Groundwater Monitoring Data at RCRA Facilities Unified Guidance. 2009. Environmental Protection Agency. Washington, D.C.

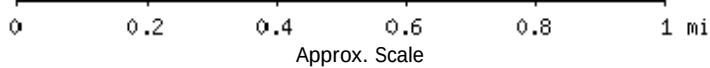
Tew, Jr., Barry. *Assessment of Groundwater Resources in Alabama, 2010-2016 (Bulletin 186).* 2018. Geologic Survey of Alabama. Tuscaloosa, Alabama.

Figures



Source:

Millport, AL
7.5-Minute
Quadrangle
USGS Map
(1984)



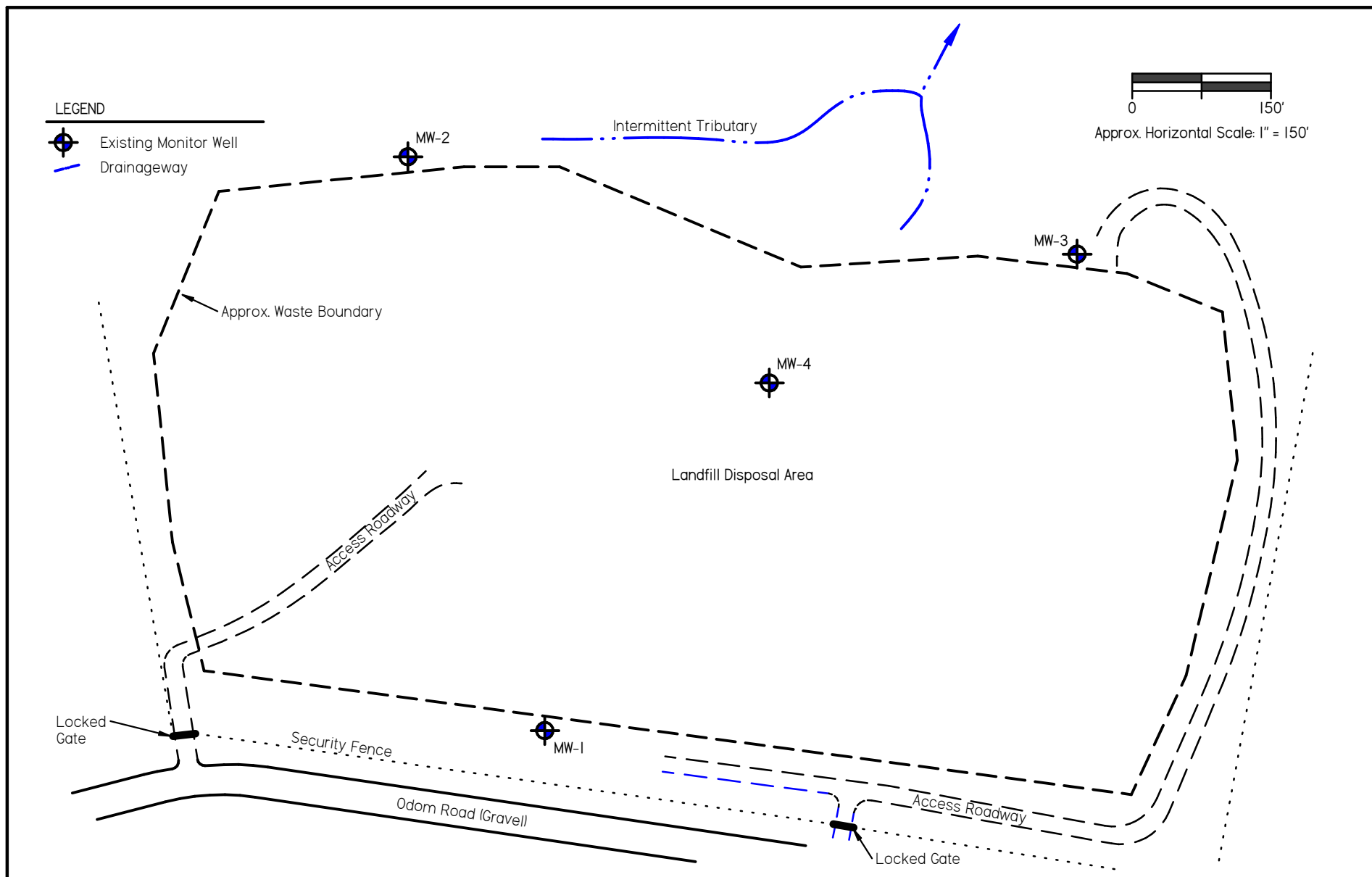
 **Lybrand Consulting, LLC**
ENVIRONMENTAL CONSULTING

P. O. Box 571
Hot Springs, AR 71902
(501) 321-8243

**FIGURE 1
SITE LOCATION**

 **Weyerhaeuser**

**WOOD WASTE
LANDFILL
WEYERHAEUSER CO.
MILLPORT, AL**



Lybrand Consulting, LLC
ENVIRONMENTAL CONSULTING

Lybrand Consulting, LLC
P.O. Box 571
Hot Springs, Arkansas 71902
Phone : 501-580-3189

Figure 2
Site Plan Map

Weyerhaeuser Industrial Landfill
Millport, Alabama



Scale: 1" = 50'
North is based on GPS observations (Static Survey and OPUS solution) in the Alabama West State Plane Coordinate System - NAD 83
Elevations based on NAVD 88 Vertical Datum. Geoid is Geoid 18
Contour Interval = 2'
DATE OF ORIGINAL SURVEY: 9-14-22 UPDATED SURVEY 10-2-24

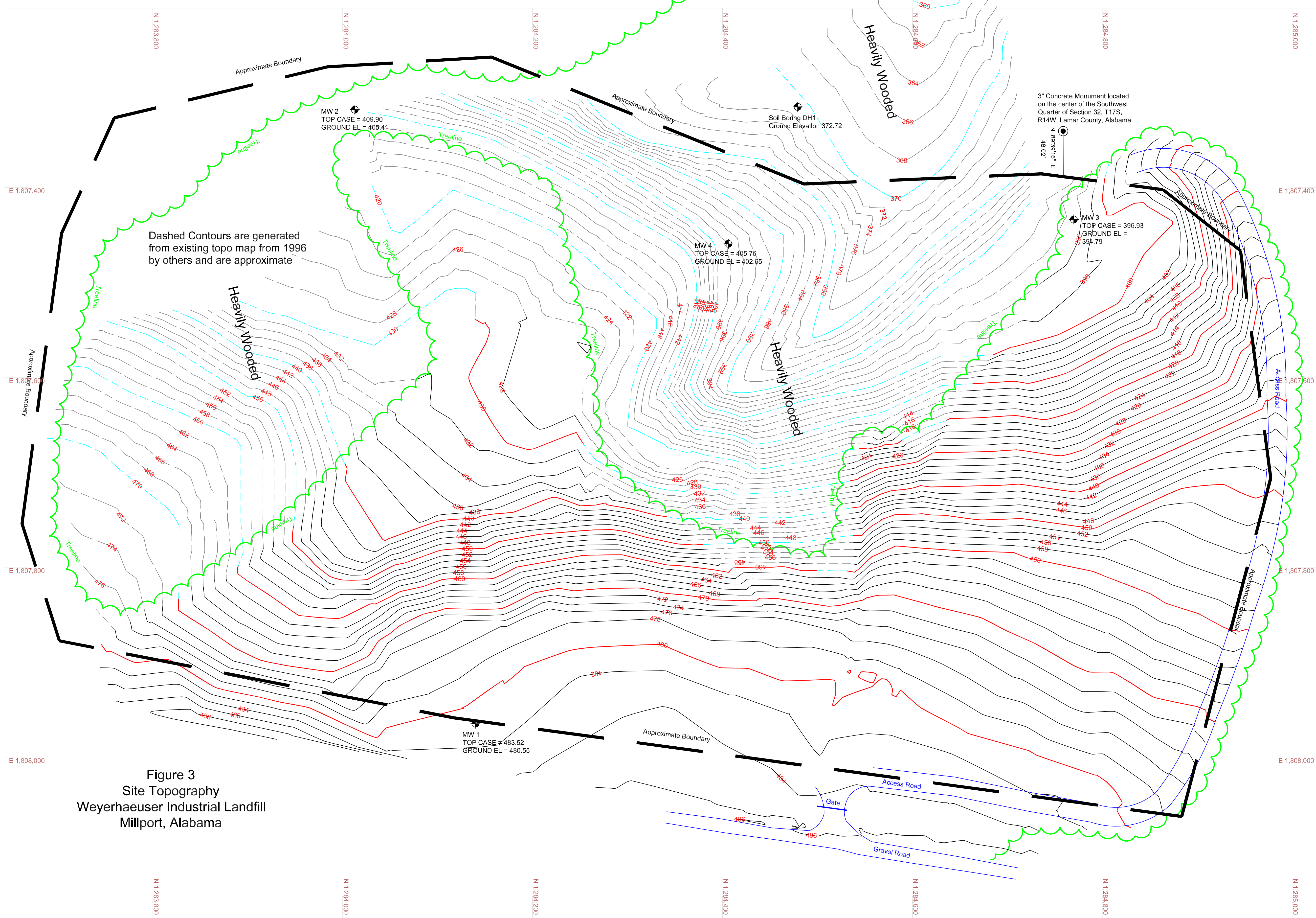
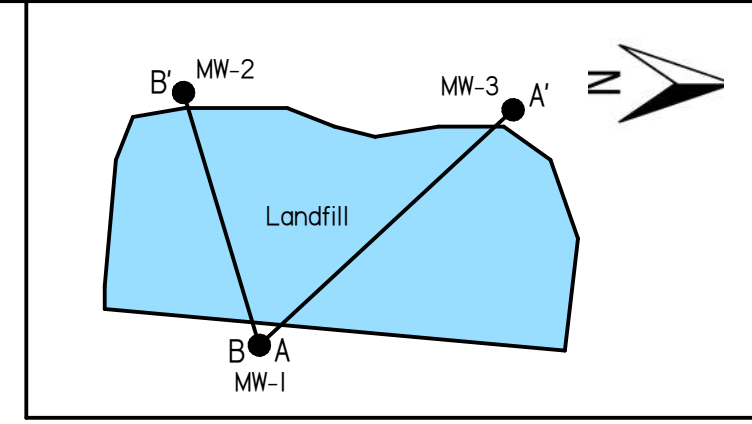
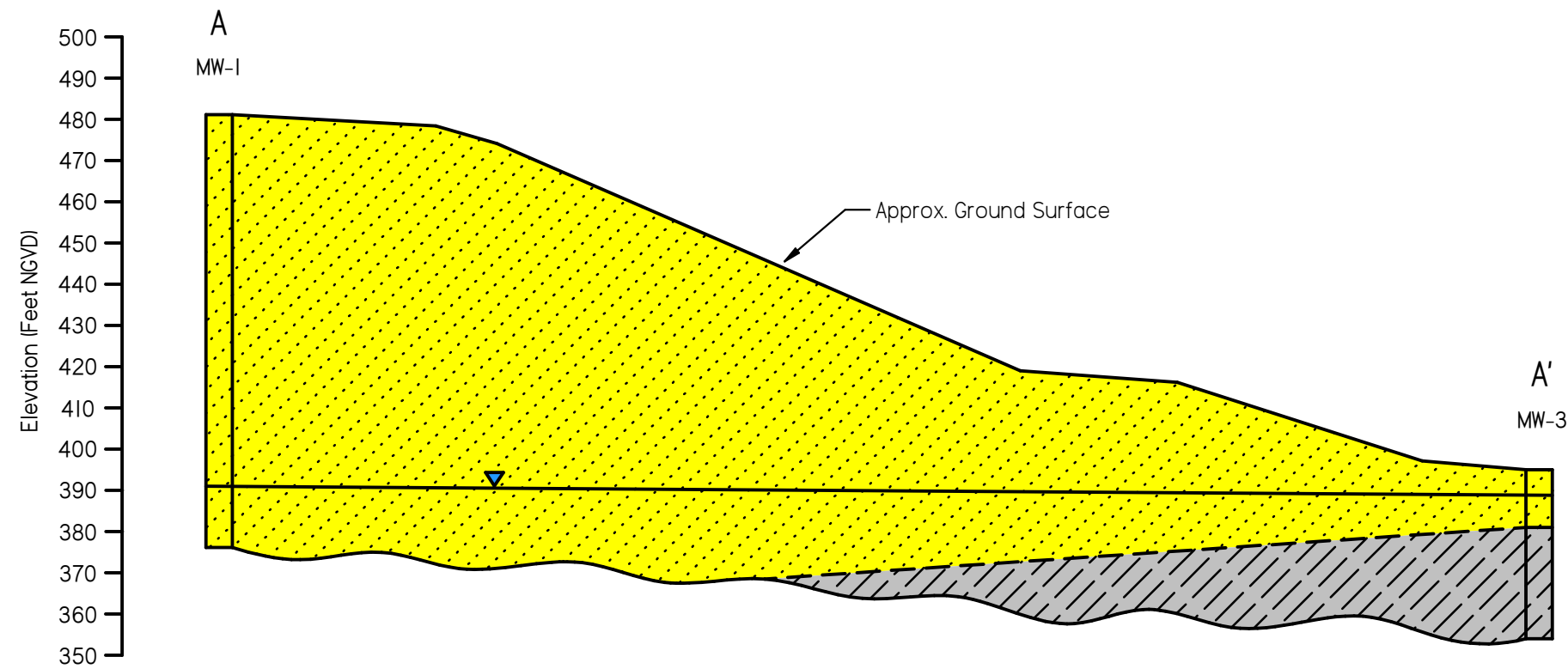


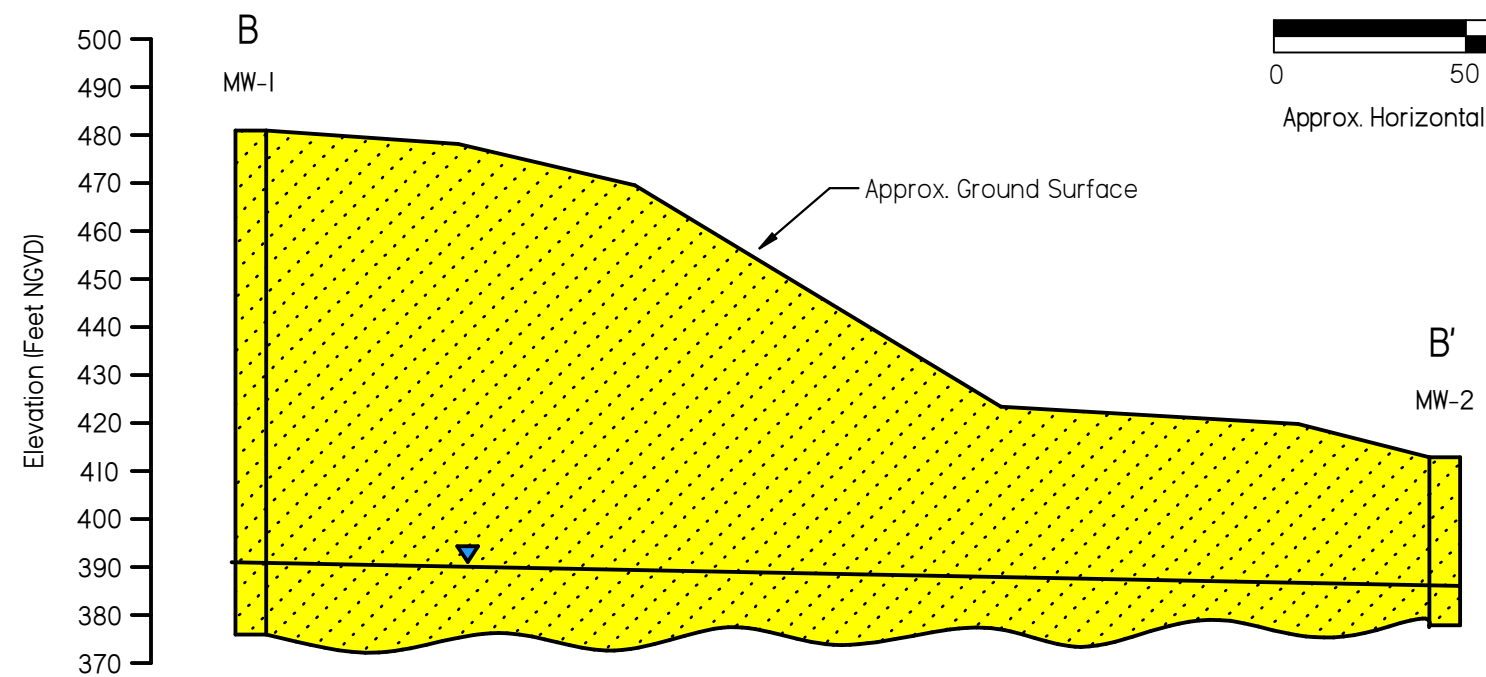
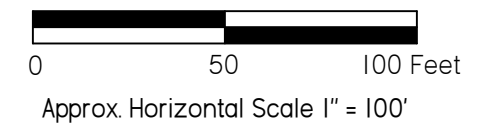
Figure 3
Site Topography
Weyerhaeuser Industrial Landfill
Millport, Alabama

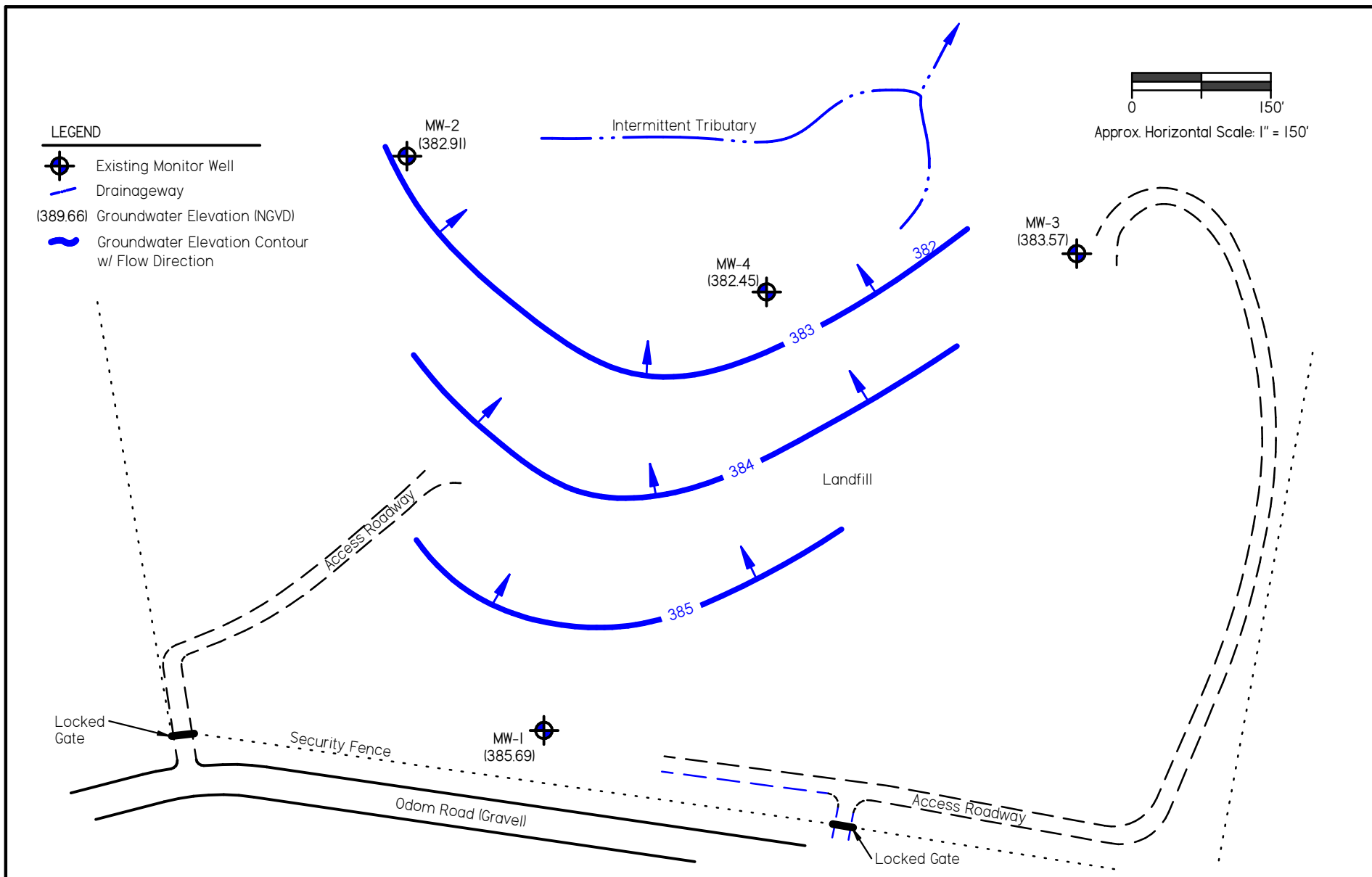


Cross-Section A-A' and B-B' Layout

LEGEND

- Mostly Sands
- Basal Clay Aquitard
- Approx. Static Water Level





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Figure 5
Potentiometric Surface Map (SI 25)

Weyerhaeuser Industrial Landfill
Millport, Alabama

Appendix A
Monitor Well Information

BORING LOG

SHEET 1 OF 4

PROJECT NAME <u>Milport GW Forest</u>	BORING IDENTIFICATION <u>JB-1</u>
PROJECT LOCATION <u>Milport, AL</u>	BORE HOLE DIAMETER <u>8 1/4</u>
PROJECT NUMBER <u>WEY-9611</u>	
GEOLOGIST <u>RYAN</u>	BORING START TIME <u>1220</u> DATE <u>9-30-96</u>
CLASSIFICATION SCHEME <u>Unified</u>	
DRILLER <u>WHE - (Morren)</u>	BORING COMPLETED TIME <u>1104</u> DATE <u>10-1-96</u>
DRILL METHOD <u>Hollow Stem</u>	
WEATHER <u>Cloudy + warm</u>	FINAL BORING DEPTH <u>105'</u>

RECOVERY (INCHES)	DEPTH IN FEET	SYMBOL <i>Blow/6"</i>	LITHOLOGY	GROUNDWATER		FREE PRODUCT	
				INITIAL DEPTH	DEPTH AFTER _____ MINUTES	THICKNESS	VOLUME
	2	NS	NS	DRY, v. Loose, tan, SiSa, (0-0.5')			
	4			MOIST, firm, olive brown (S&C w/ black cinder/bark. (No odor) 0.5'-			
9"	6	2/1 1/2		MOIST, firm, Med. brown, SiSa w/ c 0.5-5.6'			
	8	5/12 13		RED-brown, S/Sa (f-med) 5.6'-			
19"	10	5/12 13/15		DAMP-bl. moist, Loose, RED-orange, SiSa trace clay w/ minor Sil interbeds.			
	12						
	14	4/10		DAMP, Dense, orange Sa w/ interbed purple Sil. 14-15.5'			
Full	16	21/18		Dense, orange-brown, Sa (f-med) 15.5-16'			
	18						
Full	20	8/9		DAMP, Very Loose, orange-brown Sa (med.) 19-19.8'			
	22			Loose, white tan, v. f-f Sa (micaceous) interbed w/ 1/4" purple Sil (19.8-21)			
	24						
Full	26			DAMP, Loose-v. loose, yellow-tan, Sa (med. graded) w/ minor H-brown, plastic clays seams			
	28						
19"	30	15/30		DAMP, Dense, buff Sa (f-med) orange (30.3')			
	31	24/35					

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BORING LOG

SHEET 2 OF 4

PROJECT NAME <u>LANDFILL GW INVESTIGATION</u>	BORING IDENTIFICATION <u>SB-1</u>
PROJECT LOCATION <u>Millport, AL (WEYCO)</u>	BORE HOLE DIAMETER <u>8 1/4</u>
PROJECT NUMBER <u>WEY-9611</u>	
GEOLOGIST <u>RYAN</u>	BORING START TIME <u>1220/720</u> DATE <u>9-30-96</u>
CLASSIFICATION SCHEME <u>Unified</u>	
DRILLER <u>WHE</u>	BORING COMPLETED TIME <u>1104</u> DATE <u>10-1-96</u>
DRILL METHOD <u>Hollow Stem</u>	
WEATHER <u>Cloudy</u>	FINAL BORING DEPTH <u>105'</u>

RECOVERY (INCHES)	DEPTH IN FEET	SYMBOL Blows/6"	LITHOLOGY	GROUNDWATER		FREE PRODUCT	
				INITIAL DEPTH	DEPTH AFTER _____ MINUTES	THICKNESS	VOLUME
	30						
	32						
Full	34	21/28		DAMP, dense-v. dense, tan-brown, Sa (med. gr) w/ trace SiCl seams (1/4" 3/4")			
	36	38/19					
	38						
Full	40	30/22 29/42		As above (clean sand).			
	42						
	44	18/20		As above, trace clay.			
Full	46	40/60					
	48						
12"	50	14/50 50/6"		DAMP, v. dense, orange-brown, Sa trace silt (fines)			
	52						
Full	54			DAMP, vari-colored med. gr sand interbd w/ clay-gray (1/4-1/2" ea.) DRT, DENSE, TAN & white, fine, sugary sand (54-55.4')			
	56						
	58						
Full	60			v. DAMP-MOIST, vari-colored (tan-salmon-white) Sa w/ Si w/ interbd laminae gray-salmon SiCl (55.4-56.5')			
	61						

BORING LOG

SHEET 3 OF 4

PROJECT NAME <u>Millport GW Invest.</u>	BORING IDENTIFICATION <u>SR-1</u>
PROJECT LOCATION <u>WEYCO LANDFILL, Millport, AL</u>	BORE HOLE DIAMETER <u>8 1/4</u>
PROJECT NUMBER <u>WEY-9611</u>	
GEOLOGIST <u>RYAN</u>	BORING START TIME <u>1220 / 720</u> DATE <u>9/30/96</u>
CLASSIFICATION SCHEME <u>Unified</u>	
DRILLER <u>WHE (Morren)</u>	BORING COMPLETED TIME <u>1104</u> DATE <u>10/1/96</u>
DRILL METHOD <u>Hollow Stem</u>	
WEATHER <u>Cloudy w/ Interm Showers</u>	FINAL BORING DEPTH <u>105'</u>

RECOVERY (INCHES)	DEPTH IN FEET	SYMBOL Blows/6"	LITHOLOGY	GROUNDWATER		FREE PRODUCT	
				INITIAL DEPTH	DEPTH AFTER _____ MINUTES	THICKNESS	VOLUME
	60						
	62						
16"	64	Push		DRY-DAMP, Loose, tan-brown, Sand (Med-grn) w/ fine 1/4" gray-mgrassy clay. (2" layer of plastic clay @ 65')			
	66						
	68						
18"	70	30/25 18/19		DRY-DAMP, Loose-Med-dense, gray-tan, f-med Sa. minor clay laminae			
	72						
	74						
18"	76	25/55 20/-		DRY-DAMP, Dense-v., SA 93 above f-snd			
	78						
	80						
18"	82	20/45 47/30		DRY-DAMP, v. dense, tan-white, v.f-f grn Sand.			
	84						
	86						
20"	88	30/38 45/40		DAMP-MOIST, dense, orange-brown (unit.) f-Med-grn (Med-well sorted)			
	90						
	92						
Full	94	35/41 45/41		DAMP-MOIST, dense, brown, SAND-Med gramp			
	96						



BORING LOG

SHEET 4 OF 4

PROJECT NAME <u>WEYCO GW Investigation</u>	BORING IDENTIFICATION <u>SB-1</u>
PROJECT LOCATION <u>MILLPORT, AL</u>	BORE HOLE DIAMETER <u>8 1/4"</u>
PROJECT NUMBER <u>WEV-9611</u>	
GEOLOGIST <u>RYAN</u>	BORING START TIME <u>1220/1120</u> DATE <u>10-1-96</u>
CLASSIFICATION SCHEME <u>Unified</u>	
DRILLER <u>WHE (Morren)</u>	BORING COMPLETED TIME <u>1104</u> DATE <u>10-1-96</u>
DRILL METHOD <u>Follow Stem</u>	
WEATHER <u>Cloudy</u>	FINAL BORING DEPTH <u>105'</u>

RECOVERY (INCHES)	DEPTH IN FEET	SYMBOL <i>Blows/6"</i>	LITHOLOGY	GROUNDWATER	FREE PRODUCT
				INITIAL DEPTH <u>~93' b/s</u>	THICKNESS _____
				DEPTH AFTER _____ MINUTES _____	VOLUME _____
	90				
	92				
	94	15/28	•••••	<u>SAT</u> , Very Dense, brown-yellow, SAND well-sorted w/ Med + trace coarse sand	
Full	96	35/30	•••••		
	98				
Fill	100	9/15	•••••	<u>SAT</u> , AS above	
	102	19/25	•••••		
	104			driller relay - 6" of Gravel-Sand @ base 103'	
	106			- Drilled out to 105' b/s. TD=105' - Installed MW-1 from 88'-103' b/s. - Collect composite bag sample of representative sand and send for physical property testing.	
	10				
	15				

BORING LOG

SHEET 1 OF

PROJECT NAME WEYCO GW Investigation BORING IDENTIFICATION SB-2
 PROJECT LOCATION Millport, AL Landfill BORE HOLE DIAMETER 8 1/4"
 PROJECT NUMBER WEY-9611
 GEOLOGIST RYAN BORING START TIME 815 DATE 10-2-96
 CLASSIFICATION SCHEME Unified
 DRILLER WHE (Morren) BORING COMPLETED TIME 940 DATE 10-2-96
 DRILL METHOD Hollow Stem
 WEATHER Cloudy w/ Mist 80° FINAL BORING DEPTH 35'

RECOVERY (INCHES)	DEPTH IN FEET	SYMBOL Blows/6"	LITHOLOGY	GROUNDWATER		FREE PRODUCT
				INITIAL DEPTH	DEPTH AFTER	THICKNESS
				<u>~ 25' b/s</u>	MINUTES	VOLUME
	2			LANDFILL Debris; Bark & brown c/sa (0 -)		
	4			No Sample (Landfill)		
	6			(More c/sa @ 6')		
	8					
6"	10			Bark w/ Light gray-brown, plastic silt. 9.5'		
	12					
	14					
6"	16	25/34		Moist, dense-r. dense, brown-orange, med-grw, Sa trace cl.		
	18	40/3"		Drillers says hitting something hard (May be gravel) (16.5-17.5)		
12"	20	8/16		DAMP, Med. dense-dense, tan & white variegated, Sa w/ gravel (orange @ 20.2') (rounded)		
	22					
	24	16/36		SAT, Dense, tan-white, f-med poorly sorted, Sa w/ gravel is reg-white silt & rounded chert gravel		
18"	26	30/32				
	28					
19"	30	8/16		SAT, Med dense-dense, tan, med-f grw, Med-silt, Sa trace gravel		
	32	30/30				
	35'			• Drilled out to 35' b/s. • Install MW-2		

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TD = 35'

BORING LOG

SHEET 1 OF 2

PROJECT NAME <u>WEYCO GW Investigation</u>	BORING IDENTIFICATION <u>SB-3</u>
PROJECT LOCATION <u>MILLPORT, AL Landfill</u>	BORE HOLE DIAMETER <u>8 1/4"</u>
PROJECT NUMBER <u>WEY-9611</u>	
GEOLOGIST <u>RYAN</u>	BORING START TIME <u>1311</u> DATE <u>10-2-96</u>
CLASSIFICATION SCHEME <u>Unified</u>	
DRILLER <u>WHE (Morris)</u>	BORING COMPLETED TIME <u>1548</u> DATE <u>10-2-96</u>
DRILL METHOD <u>Hollow Stem</u>	
WEATHER <u>Cloudy</u>	FINAL BORING DEPTH <u>41'</u>

RECOVERY (INCHES)	DEPTH IN FEET	SYMBOL <i>Blows/6"</i>	LITHOLOGY	GROUNDWATER	FREE PRODUCT	
				INITIAL DEPTH <u>~11.5' b/s</u>	THICKNESS _____	
				DEPTH AFTER _____ MINUTES _____	VOLUME _____	
20"	2			DAMP, or MED-DENSE, orange brown - tan, C/Sa - mottled, Sa w/CL		
	4					
	6					
	8					
17"	10	2/2 10/10		MOIST, LOOSE-MED DENSE, orange-brown, Sa w/ trace coarseening down from fine-MED/CLS Hit gravelly material @ (13 - 13.5'). DAMP, stiff, plastic, brown-gray mottled, minor dark red Darker says out of clay @ -17'	(14-17' Silt trace w/ Sa (matrix))	
	12					
	14	2/2 7/9				
	16					
21"	18			DAMP (plastic), firm, -stiff, gray, clay w/ silt.		
	20	2/4 8/10				
	22					
	24					
Full	26	8/12 15/15		DRY-DAMP, stiff-u-stiff, dk gray w/ dno gray, mottled. Minor dr red laminae		
	28					
	30					
	32					
0"	30	10/20 30/30		DRY-damp, stiff-hazo, - NO RECOVERY - clay		
	34					

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BORING LOG

SHEET 1 OF 2

PROJECT NAME <u>WEYCO GW Investigation</u>	BORING IDENTIFICATION <u>SB-3</u>
PROJECT LOCATION <u>Millport, AL Landfill</u>	BORE HOLE DIAMETER <u>8 1/4"</u>
PROJECT NUMBER <u>WEY-9611</u>	
GEOLOGIST <u>RYAN</u>	BORING START TIME <u>1311</u> DATE <u>10-2-96</u>
CLASSIFICATION SCHEME <u>Unified</u>	
DRILLER <u>WHE (Morren)</u>	BORING COMPLETED TIME <u>1548</u> DATE <u>10-2-96</u>
DRILL METHOD <u>Hollow Stem</u>	
WEATHER <u>Cloudy</u>	FINAL BORING DEPTH <u>41'</u>

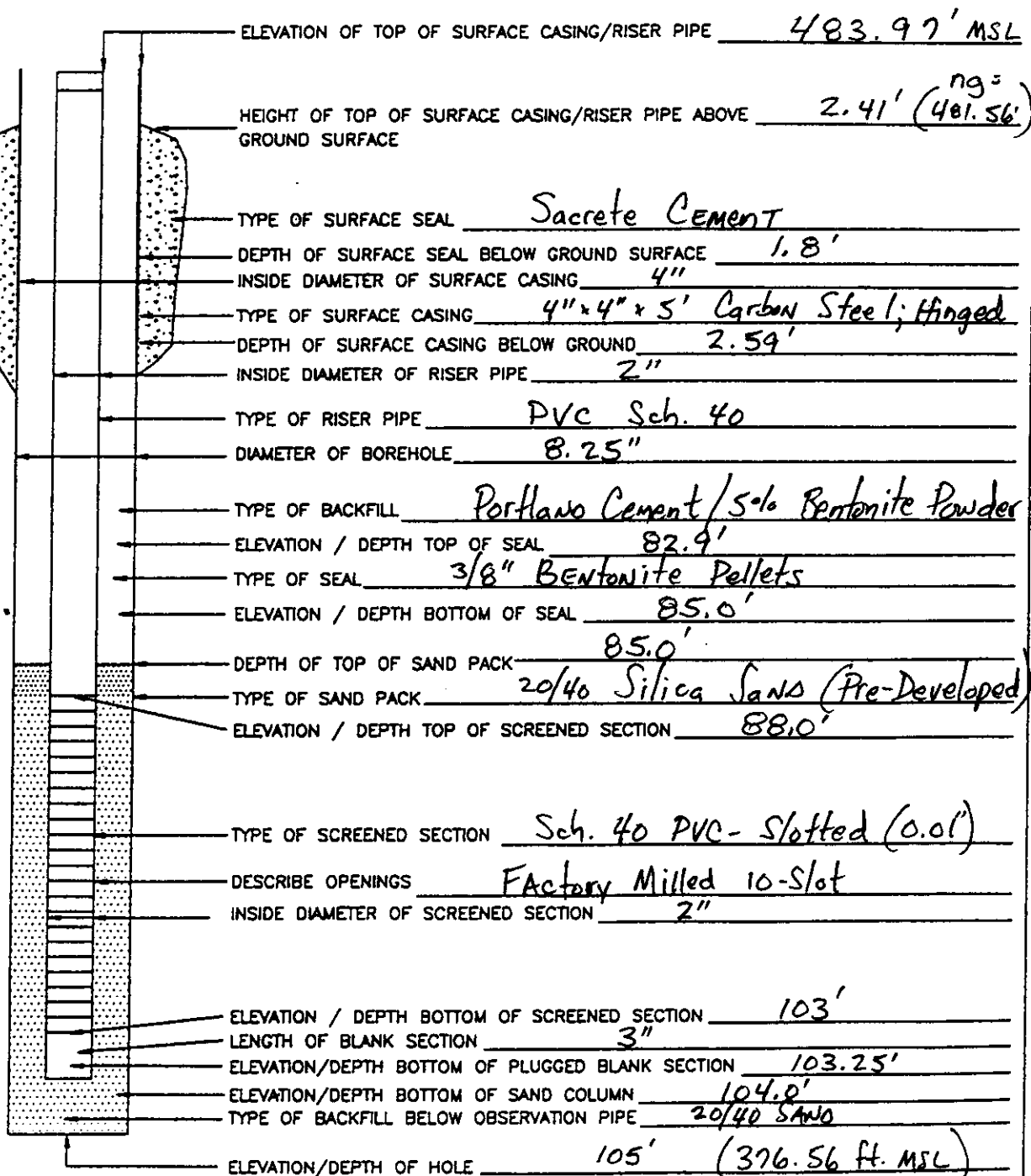
RECOVERY (INCHES)	DEPTH IN FEET	SYMBOL Blows/6"	LITHOLOGY	GROUNDWATER		FREE PRODUCT	
				INITIAL DEPTH	DEPTH AFTER	THICKNESS	VOLUME
	30						
Full	32	10/15 23/26	///	DRY-DAMP, v. stiff-hard, olive- to gray, clay trace Si w/ clay w/ fine grv laminae I I purple gray w/ intbd, clay w/ sa; blue-green SiSa laminae			
Full	34	22/22	///				
	36	30/29	///				
	38						
Full	40	8/10 15/20	///	DRY-DAMP, v. stiff, purple-gray w/ rust-colored alteration, Cl w/ Si in center			
	42			• offset 5' to north TD = 41' • Drill out to 15' b/s. to install MW-3. • Grout 41' borehole from bottom to top. • Screen MW-3 from 9.7'-14.7' b/s. • Collect bas sample (10-14') of water-bearing zone for Geotech. Testing. • Collect clay sample (19-21') for " " • Collect clay sample (34-36') " " "			
	-10-						
	-15-						

MONITORING WELL COMPLETION FORM

PROJECT NAME Mill Port GW Investigation
 LOCATION Millport, AL
 DATE COMPLETED 10-1-96 ORIGINAL DEPTH 105'
 DRILLER WHE-Morren DRILL METHOD Hollow Stem
 GEOLOGIST RYAN DATE 11-12-96

PAGE 1 OF 1
 WELL NO. MW-1
 ORIGINAL WATER LEVEL ~93'
 DEPTH INTERVAL 88'-103'

SEE BORING LOG FOR STRATIGRAPHY

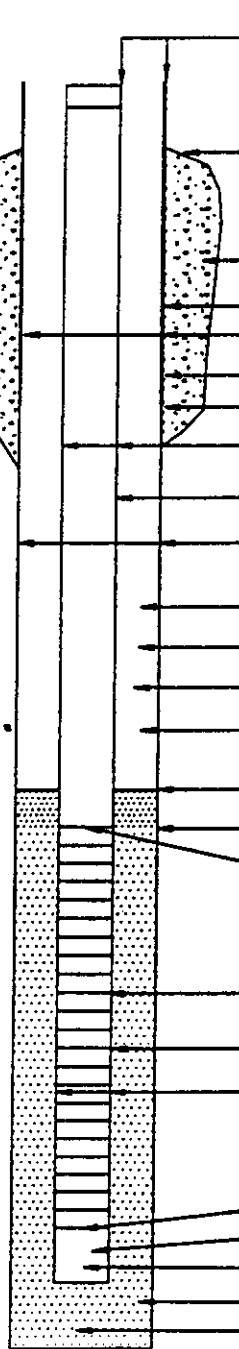


MONITORING WELL COMPLETION FORM

PROJECT NAME Millport GW Investigation
 LOCATION Millport, AL
 DATE COMPLETED 10-2-96 ORIGINAL DEPTH 35'
 DRILLER WHE (Morrien) DRILL METHOD Hollow Stem
 GEOLOGIST RYAN DATE 11-12-96

PAGE 1 OF 1
 WELL NO. MW-2
 ORIGINAL WATER LEVEL ~24'
 DEPTH INTERVAL 24.2-34.2

SEE BORING LOG FOR STRATIGRAPHY



ELEVATION OF TOP OF SURFACE CASING/RISER PIPE 412.44'

HEIGHT OF TOP OF SURFACE CASING/RISER PIPE ABOVE GROUND SURFACE 2.75' (409.69')^{ng =}

TYPE OF SURFACE SEAL Sacrete Cement

DEPTH OF SURFACE SEAL BELOW GROUND SURFACE 2.1'

INSIDE DIAMETER OF SURFACE CASING 4"

TYPE OF SURFACE CASING 4x4"x5' Carbon Steel (Hinged)

DEPTH OF SURFACE CASING BELOW GROUND 2.9'

INSIDE DIAMETER OF RISER PIPE 2"

TYPE OF RISER PIPE Sch. 40 PVC

DIAMETER OF BOREHOLE 8.25"

TYPE OF BACKFILL Portland Cement / Powderder Bent.

ELEVATION / DEPTH TOP OF SEAL 20'

TYPE OF SEAL 3/8" Bentonite Seal

ELEVATION / DEPTH BOTTOM OF SEAL 22'

DEPTH OF TOP OF SAND PACK 22.0'

TYPE OF SAND PACK 20/40 Silica Sand (Pre-Developed)

ELEVATION / DEPTH TOP OF SCREENED SECTION 24.2'

TYPE OF SCREENED SECTION Sch. 40 PVC - Slotted

DESCRIBE OPENINGS Factory-Milled 10-Slot (0.01")

INSIDE DIAMETER OF SCREENED SECTION 2"

ELEVATION / DEPTH BOTTOM OF SCREENED SECTION 34.2'

LENGTH OF BLANK SECTION 3"

ELEVATION/DEPTH BOTTOM OF PLUGGED BLANK SECTION 34.5'

ELEVATION/DEPTH BOTTOM OF SAND COLUMN 35.0'

TYPE OF BACKFILL BELOW OBSERVATION PIPE SAND

ELEVATION/DEPTH OF HOLE 35.0 (374.69')
MSL

MONITORING WELL COMPLETION FORM

PROJECT NAME Millport GW Investigation
 LOCATION MILLPORT, AL
 DATE COMPLETED 10-2-96 ORIGINAL DEPTH 13.7'
 DRILLER WHE (Morren) DRILL METHOD Hollow Stem
 GEOLOGIST RYAN DATE 11-12-96

PAGE 1 OF 1
 WELL NO. MW-3
 ORIGINAL WATER LEVEL ~12'
 DEPTH INTERVAL 9.45'-14.45'

SEE BORING LOG FOR STRATIGRAPHY

ELEVATION OF TOP OF SURFACE CASING/RISER PIPE 397.20'

HEIGHT OF TOP OF SURFACE CASING/RISER PIPE ABOVE GROUND SURFACE 2.34' (^{mg =} 394.86')

TYPE OF SURFACE SEAL Sacrete Concrete

DEPTH OF SURFACE SEAL BELOW GROUND SURFACE 1.8'

INSIDE DIAMETER OF SURFACE CASING 4"

TYPE OF SURFACE CASING 4" x 4" x 5' Hinged, Carbon Steel

DEPTH OF SURFACE CASING BELOW GROUND 2.4'

INSIDE DIAMETER OF RISER PIPE 2"

TYPE OF RISER PIPE Sch. 40 PVC

DIAMETER OF BOREHOLE 8.25"

TYPE OF BACKFILL Portland Cement / Powdered Bentonite

ELEVATION / DEPTH TOP OF SEAL 5.1'

TYPE OF SEAL 3/8" Bentonite Pellets

ELEVATION / DEPTH BOTTOM OF SEAL 7.3'

DEPTH OF TOP OF SAND PACK 7.3'

TYPE OF SAND PACK 20/40 Silica Sand

ELEVATION / DEPTH TOP OF SCREENED SECTION 9.45'

TYPE OF SCREENED SECTION Sch. 40 PVC-Slotted

DESCRIBE OPENINGS Factory-Milled 10-Slot (0.01")

INSIDE DIAMETER OF SCREENED SECTION 2"

ELEVATION / DEPTH BOTTOM OF SCREENED SECTION 14.45'

LENGTH OF BLANK SECTION 3"

ELEVATION/DEPTH BOTTOM OF PLUGGED BLANK SECTION 14.7'

ELEVATION/DEPTH BOTTOM OF SAND COLUMN 15.0'

TYPE OF BACKFILL BELOW OBSERVATION PIPE 20/40 Sand

ELEVATION/DEPTH OF HOLE 15.0' (379.86 ft. MSL)

LOG OF BORING MW-4

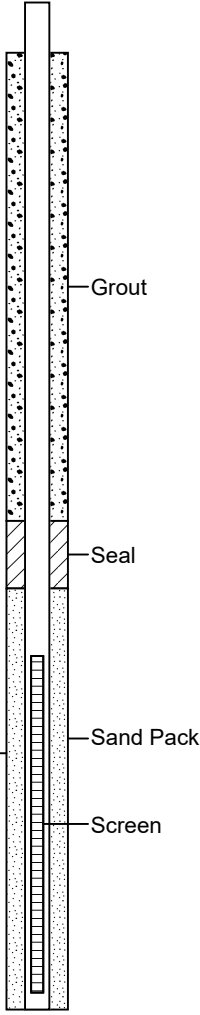
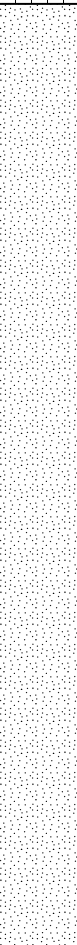
(Page 1 of 1)

Weyerhaeuser Company Landfill
Millport, Alabama

Date Started : 9/4/24
Date Completed : 9/5/24
Hole Diameter : Approx. 8.0 in.
Drilling Method : Hollow-Stem Auger
Sampling Method : 2-ft. Split-Spoon Sampler

Northing Coord. :
Easting Coord. :
Drilling Company : TTL, Inc.
Logged By : M. Lybrand, P.G.
Company : Lybrand Consulting

New Monitor Well Installation

Depth in Feet	USCS	GRAPHIC	DESCRIPTION	SPT (blow count)	REMARKS	
0	ML		Tan to buff SANDY SILT, dry, firm but friable.	2/4/7/10		Well: MW-4 Elev.: 405.76 (TOC)  Grout Seal Sand Pack Screen
5			Red fine- to med.-grained SAND, dry, dense, micaceous.	13/18/20/22		
10			Damp, firm, w/ sparse gravel.	9/9/9/12		
15			No gravel.	7/9/11/14		
20	SP		Orange to tan fine- to med.-grained SAND, damp to moist, firm.	4/7/9/10	Static water level @ 20.8 ft. BLS (9/4/24).	
25			Wet to saturated.	3/7/9/24		
30			Tan.	10/16/23/14		
35					Sampling depth to 30.5 ft. Two-inch PVC monitor well (MW-4) installed (well depth 28.4 ft.). Monitor well consisted of 10-ft. slotted well screen and bottom cap, 20/40 silica sand to 2 ft. above screen, 2-ft. bentonite seal, and cement/bentonite grout to surface. Surface completion included concrete well pad, lockable metal surface casing, protective metals posts, and well cap.	
40						

Appendix B
Historical Monitoring Data

Historical Groundwater Monitoring Results
October 1996 to March 2025
Weyerhaeuser Company
Millport, Alabama

MW-1 (U.G.) (mg/l)	Sampling Events																														
	22-Oct-96	22-Oct-96	22-Oct-96	22-Oct-96	30-Sep-97	17-Mar-98	29-Sep-98	17-Mar-99	30-Sep-99	22-Mar-00	26-Sep-00	14-Mar-01	11-Sep-01	5-Mar-02	9-Oct-02	4-Mar-03	3-Sep-03	9-Mar-04	7-Sep-04	2-Mar-05	1-Sep-05	9-Mar-06	6-Sep-06	8-Mar-07	6-Sep-07	6-Mar-08	18-Sep-08	4-Mar-09	31-Aug-09	15-Mar-10	29-Sep-10
Arsenic	<0.010	<0.010	<0.010	<0.010	0.2	<0.04	<0.010	0.12	0.066	0.052	<0.05	<0.05	0.15	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	0.011	0.0024	<0.001
Barium	<0.200	<0.200	<0.200	<0.200	0.27	0.27	<0.050	0.20	0.091	0.15	0.075	0.092	0.49	0.094	0.065	0.021	0.018	0.018	0.019	0.018	0.015	0.015	0.018	0.015	0.012	0.019	0.017	0.016	0.025	0.023	0.016
Beryllium	<0.005	<0.005	<0.005	<0.005	0.0032	0.0025	<0.001	0.0020	0.00084	0.0016	0.00040	0.0016	0.0061	0.00087	0.00071	<0.0003	<0.0003	<0.0003	<0.0003	<0.0003	<0.0003	<0.0003	<0.0003	<0.0003	<0.0003	<0.0003	<0.0003	<0.0003	<0.0003	<0.0003	<0.0003
Chromium	<0.005	<0.005	<0.005	<0.005	0.084	0.083	<0.050	0.056	0.023	0.092	0.016	0.033	0.13	0.025	0.024	<0.007	0.012	<0.007	<0.007	<0.007	<0.007	<0.007	0.010	<0.007	<0.007	0.0077	0.016	<0.007	<0.007	0.0078	0.012
Cobalt	<0.050	<0.050	<0.050	<0.050	0.05	0.056	<0.050	0.035	0.013	0.021	<0.007	0.0077	0.085	0.0098	0.0083	<0.007	<0.007	<0.007	<0.007	<0.007	<0.007	<0.007	<0.007	<0.007	<0.007	<0.007	<0.007	<0.007	<0.007	<0.007	<0.007
Copper	<0.025	<0.025	<0.025	<0.025	0.09	0.060	<0.050	0.043	0.017	0.044	0.013	0.016	0.12	0.022	0.021	0.0096	0.0089	<0.006	<0.006	<0.006	<0.006	<0.006	0.0063	<0.006	<0.006	<0.006	<0.006	<0.006	<0.006	<0.006	0.0082
Lead	0.0260	0.0230	0.0240	0.0170	0.17	0.18	0.100	0.14	0.058	0.080	0.037	0.042	0.27	0.041	0.031	0.0029	0.0031	0.0027	0.0030	0.0040	0.0032	0.0016	0.0027	0.0018	<0.001	0.0015	<0.001	<0.001	0.0043	0.0038	0.0017
Nickel	<0.040	<0.040	<0.040	<0.040	0.02	<0.01	<0.050	0.014	<0.01	0.014	<0.01	0.019	0.031	0.011	<0.01	<0.01	0.018	<0.01	<0.01	0.011	<0.01	<0.01	0.013	<0.01	<0.01	<0.01	0.012	0.010	<0.01	<0.01	0.011
Selenium	<0.005	<0.005	<0.005	<0.005	<0.002	<0.002	<0.010	<0.002	<0.002	<0.002	0.0034	<0.002	0.0040	<0.002	<0.002	<0.002	<0.002	--	<0.002	<0.002	<0.002	<0.002	<0.002	<0.002	<0.002	<0.002	<0.002	<0.002	<0.002	<0.002	<0.002
Thallium	<0.010	<0.010	<0.010	<0.010	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	0.0014	0.0023	<0.001	0.0019	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001
Vanadium	<0.050	<0.050	<0.050	<0.050	0.29	0.28	<0.050	0.28	0.081	0.14	0.12	0.21	0.44	0.062	0.053	<0.008	<0.008	<0.008	<0.008	<0.008	<0.008	<0.008	<0.008	<0.008	<0.008	<0.008	<0.008	0.0088	<0.008	<0.008	<0.008
Zinc	0.0480	0.0520	0.0360	0.0260	0.088	0.090	<0.050	0.066	0.035	0.098	0.050	0.039	0.19	0.071	0.048	0.022	0.035	0.012	0.012	0.012	0.0040	0.016	0.013	0.024	0.014	0.023	0.018	0.0079	0.011	0.012	0.012
Chloride	<5.00	--	--	--	1.9	2.2	4.17	<0.2	1.7	1.8	3.5	2.2	2.1	2.6	2.2	1.9	1.8	1.7	1.7	1.6	2.0	1.8	2.0	1.6	2.1	1.7	1.8	7.5	2.0	2.4	2.0
Nitrate as N	0.109	--	--	--	<0.05	0.11	0.27	<0.05	0.44	0.20	1.3	0.22	0.17	0.24	0.50	0.80	0.68	0.72	0.71	0.61	0.43	0.36	0.51	0.32	0.51	0.67	0.73	0.86	0.68	1.2	0.93
Sulfate	<10.0	--	--	--	<0.2	0.55	10.1	0.61	0.55	0.5	0.24	0.52	0.33	0.31	0.30	0.32	0.42	0.53	0.60	0.44	0.49	0.40	0.61	<0.2	0.53	0.54	0.30	<2.0	0.45	0.38	0.53

MW-2 (D.G.) (mg/l)	Sampling Events																															
	22-Oct-96	22-Oct-96	22-Oct-96	22-Oct-96	30-Sep-97	17-Mar-98	29-Sep-98	17-Mar-99	30-Sep-99	22-Mar-00	26-Sep-00	14-Mar-01	11-Sep-01	5-Mar-02	9-Oct-02	4-Mar-03	3-Sep-03	9-Mar-04	7-Sep-04	2-Mar-05	1-Sep-05	9-Mar-06	6-Sep-06	8-Mar-07	6-Sep-07	6-Mar-08	18-Sep-08	4-Mar-09	31-Aug-09	15-Mar-10	29-Sep-10	
Antimony	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	0.0079	<0.003	<0.003	<0.003	<0.003
Arsenic	0.0400	0.0370	0.0360	0.0420	0.27	0.13	0.0736	0.15	0.21	0.86	4.8	<0.05	<0.05	0.095	0.11	<0.05	<0.05	<0.05	0.11	0.050	0.088	<0.05	0.027	0.024	0.11	0.28	0.093	0.034	0.069	0.016	0.056	
Barium	0.375	0.343	0.338	0.383	0.33	0.76	0.428	0.92	0.42	0.75	0.68	0.12	0.42	1.3	0.51	1.1	1.4	0.69	0.44	0.25	0.24	0.19	0.38	0.70	0.51	0.60	0.37	0.37	1.1	0.92	0.68	
Beryllium	<0.005	<0.005	<0.005	<0.005	0.0015	0.00067	<0.001	0.00065	0.00040	0.0015	0.0019	0.00038	0.00034	<0.0003	0.00037	<0.0003	<0.0003	<0.0003	<0.0003	<0.0003	<0.0003	<0.0003	<0.0003	<0.0003	<0.0003	<0.0003	<0.0003	<0.0003	<0.0003	<0.0003	<0.0003	
Cadmium	<0.004	<0.004	<0.004	<0.004	<0.004	<0.004	0.00643	<0.004	<0.004	<0.004	<0.004	<0.004	<0.004	<0.004	<0.004	<0.004	<0.004	<0.004	<0.004	<0.004	<0.004	<0.004	<0.004	<0.004	<0.004	<0.004	<0.004	<0.004	<0.004	<0.004	<0.004	
Chromium	<0.005	<0.005	<0.005	<0.005	0.03	0.021	<0.050	0.012	0.0093	0.032	0.014	0.018	<0.007	<0.007	<0.007	<0.007	<0.007	<0.007	<0.007	<0.007	<0.007	<0.007	<0.007	<0.007	<0.007	<0.007	<0.007	<0.007	<0.007	<0.007	<0.007	
Cobalt	0.0860	0.0790	0.0780	0.0900	0.056	0.059	0.0518	0.040	0.049	0.061	0.093	0.064	0.033	0.094	0.046	0.071	0.089	0.055	0.047	0.031	0.016	0.021	0.051	0.031	0.047	0.045	0.038	0.028	0.077	0.053	0.044	
Copper	<0.025	<0.025	<0.025	<0.025	0.046	0.0070	<0.050	0.0072	<0.006	0.029	0.019	0.019	0.0073	0.014	0.024	<0.006	<0.006	<0.006	<0.006	<0.006	<0.006	<0.006	<0.006	<0.006	<0.006	<0.006	<0.006	<0.006	<0.006	<0.006	<0.006	
Lead	0.0720	0.0580	0.0610	0.0690	0.055	0.029	0.0206	0.016	0.011	0.028	0.020	0.0056	0.0015	0.0021	0.0095	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	0.0010	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	
Nickel	<0.040	<0.040	<0.040	<0.040	0.015	<0.01	<0.050	<0.01	<0.01	0.011	<0.01	0.016	0.025	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	
Selenium	0.0160	0.0160	0.0160	0.0140	<0.002	<0.002	<0.010	<0.002	<0.002	<0.002	0.0053	<0.002	<0.002	<0.002	<0.002	<0.002	--	<0.002	<0.002	<0.002	<0.002	<0.002	0.0021	<0.002	<0.002	<0.002	<0.002	<0.002	0.0024	<0.002	<0.002	
Thallium	<0.010	<0.010	<0.010	<0.010	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	0.0016	0.0011	0.0019	0.002	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	0.0040	<0.001	
Vanadium	0.0700	0.0570	0.0610	0.0700	0.1	0.062	<0.050	0.13	0.025	0.085	0.15	0.068	<0.008	<0.008	0.011	<0.008	<0.008	<0.008	<0.008	<0.008	<0.008	<0.008	<0.008	<0.008	<0.008	<0.008	<0.008	<0.008	<0.008	<0.008	<0.008	
Zinc	0.0590	0.0300	0.0320	0.0450	0.039	0.016	<0.050	0.015	0.019	0.085	0.10	0.048	0.030	0.069	0.061	0.031	<0.002	0.012	0.022	0.013	0.30	0.0095	<0.002	0.035	0.014	0.021	0.0075	0.0044	0.0074	0.0032	0.012	
Chloride	<5.00	--	--	--	2.4	1.8	4.49	<0.2	<0.2	0.58	2.5	4.5	<0.2	1.9	2.3	2	2.1	2.3	1.9	2.3	2.0	2.4	2.7	1.2	1.7	1.6	2.1	6.3	1.4	1.2	1.4	
Nitrate as N	<0.050	--	--	--	<0.05	0.060	<0.10	<0.05	<0.05	0.13	<0.05	<0.05	<0.05	0.68	0.19	0.31	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	0.66	<0.05	<0.05	
Sulfate	10.3	--	--	--	1.4	1.5	3.42	<0.2	<0.2	1.7	3.2	17	1.0	2.9	2.9	2.3	1.5	1.7	0.64	<0.2	<0.2	0.32	1.0	<2	1.0	1.5	2.7	6.3	0.72	0.54	1.1	

MW-3 (D.G.) (mg/l)	Sampling Events																															
	22-Oct-96	22-Oct-96	22-Oct-96	22-Oct-96	30-Sep-97	17-Mar-98	29-Sep-98	17-Mar-99	30-Sep-99	22-Mar-00	26-Sep-00	14-Mar-01	11-Sep-01	5-Mar-02	9-Oct-02	4-Mar-03	3-Sep-03	9-Mar-04	7-Sep-04	2-Mar-05	1-Sep-05	9-Mar-06	6-Sep-06	8-Mar-07	6-Sep-07	6-Mar-08	28-Sep-08	4-Mar-09	31-Aug-09	15-Mar-10	29-Sep-10	
Antimony	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	0.022	<0.003	<0.003	0.0039	<0.003	<0.003	<0.003	<0.003	<0.003
Arsenic	<0.010	<0.010	<0.010	<0.010	<0.05	<0.04	0.0155	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	
Barium	<0.200	<0.200	<0.200	<0.200	0.034	0.13	<0.050	0.071	0.098	0.18	0.17	0.11	0.14	0.20	0.16	0.12	0.072	0.059	0.14	0.16	0.18	0.17	0.55	0.47	0.70	0.80	0.94	0.84	0.73	0.14	0.26	
Beryllium	<0.005	<0.005	<0.005	<0.005	<0.0003	0.0010	<0.001	0.00054	0.00072	0.0016	0.00046	<0.0003	0.00064	0.00084	<0.0003	<0.0003	<0.0003	<0.0003	<0.0003	<0.0003	<0.0003	<0.0003	<0.0003	<0.0003	<0.0003	<0.0003	<0.0003	<0.0003	<0.0003	<0.0003	<0.0003	
Cadmium	<0.004	<0.004	<0.004	<0.004	<0.004	<0.004	<0.004	<0.004	<0.004	<0.004	<0.004	<0.004	<0.004	<0.004	<0.004	<0.004	<0.004	<0.004	<0.004	<0.004	<0.004	<0.004	<0.004	<0.004	1.0	<0.004	<0.004	<0.004	<0.004	<0.004	<0.004	
Chromium	0.0140	0.0120	0.0160	0.0130	0.012	0.048	<0.050	0.021	0.024	0.21	0.032	0.0094	0.029	0.045	0.014	<0.007	<0.007	<0.007	<0.007	<0.007	<0.007	<0.007	<0.007	<0.007	<0.007	<0.007	<0.007	<0.007	<0.007	<0.007	<0.007	<0.007
Cobalt	<0.050	<0.050	<0.050	<0.050	0.025	0.061	<0.050	0.053	0.084	0.13	0.13	0.068	0.11	0.13	0.099	0.05	0.026	0.0076	0.036	0.047	0.041	0.043	0.15	0.13	0.20	0.22	0.28	0.21	0.19	0.032	0.061	
Copper	<0.025	<0.025	<0.025	<0.025	<0.006	0.012	<0.050	0.009	0.0068	0.035	0.018	0.013	0.020	0.023	0.016	<0.006	<0.006	<0.006	<0.006	<0.006	<0.006	<0.006	<0.006	<0.006	<0.006	<0.006	<0.006	<0.006	<0.006	<0.006	<0.006	
Lead	0.00600	0.00500	0.00600	0.00400	0.0026	0.028	0.00603	0.0087	0.012	0.029	0.021	0.0028	0.0095	0.017	0.0037	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	
Nickel	<0.040	<0.040	<0.040	<0.040	0.14	<0.01	<0.050	0.013	0.011	0.029	0.021	0.016	0.017	0.024	0.014	<0.01	<0.01	0.017	<0.01	0.011	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01
Selenium	<0.005	<0.005	<0.005	<0.005	<0.002	<0.002	<0.0175	<0.002	<0.002	<0.002	0.0039	<0.002	<0.002	0.0040	0.0029	<0.002	<0.002	--	<0.002	0.0002	<0.002	<0.002	<0.002	<0.002	<0.002	<0.002	<0.002	<0.002	<0.002	<0.002	<0.002	<0.002
Thallium	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	0.0013	0.0014	0.002	0.0013	0.0022	<0.001	<0.001	
Vanadium	<0.050	<0.050	<0.050	<0.050	<0.008	0.087	<0.050	0.058	0.051	0.13	0.28	0.027	0.033	0.063	0.013	<0.008	<0.008	0.0008	<0.008	<0.008	<0.008	<0.008	<0.008	<0.008	<0.008	<0.008	<0.008	<0.008	<0.008	<0.008	<0.008	
Zinc	0.0690	0.0520	0.0650	0.0940	Zinc	0.038	0.032	<0.050	0.024	0.032	0.13	0.24	0.044	0.048	0.045	0.042	0.01	0.016	0.0072	0.0072	0.0077	0.0031	0.013	0.0085	0.035	0.015	0.015	0.015	0.0030	0.0073	0.0049	0.0069
Chloride	6.97	--	--	--	8.3	6.8	5.45	<0.2	6.1	0.72	6.3	4.8	4.2	4.5	3.9	2.9	2.7	4	2.5	3.3	3.9	3.9	4.8	3.1	3.4	2.8	3.2	7.1	2.3	1.7	2.1	
Nitrate as N	<0.050	--	--	--	<0.05	<0.05	<0.10	<0.05	<0.05	0.14	<0.05	<0.05	<0.05	<0.05	0.056	0.98	1.1	1.6	0.92	0.94	0.24	0.99	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	
Sulfate	<10.0	--	--	--	7.5	6.5	11.3	<0.2	13	1.7	15	17	14	14	14	6.8	5.2	1.5	4.3	4.7	10	7.3	15	14	10	13	11	9.0	8.7	3.6	4.6	

Historical Groundwater Monitoring Results
October 1996 to March 2025
Weyerhaeuser Company
Milliport, Alabama

MW-1 (U.G.) (mg/l)	Sampling Events (Cont.)																												
	21-Mar-11	7-Sep-11	5-Mar-12	11-Sep-12	25-Mar-13	4-Sep-13	5-Mar-14	23-Sep-14	24-Feb-15	9-Sep-15	3-Mar-16	31-Aug-16	16-Mar-17	26-Sep-17	19-Apr-18	20-Sep-18	5-Mar-19	6-Oct-19	29-Apr-20	23-Sep-20	13-Apr-21	14-Oct-21	17-May-22	19-Sep-22	7-Mar-23	20-Sep-23	13-Mar-24	26-Sep-24	20-Mar-25
Arsenic	0.001	0.0014	<0.001	0.0013	0.0010	0.0010	<0.001	<0.001	0.00062	0.0011	0.00090	0.002	0.0062	0.0034	<0.0005	0.0026	0.001	0.0056	<0.00440	<0.00440	0.00459	<0.00645	<0.00440	0.000555	<0.00440	<0.00440	<0.00440	0.00937	<0.00783
Barium	0.016	0.016	0.013	0.014	0.014	0.012	0.011	0.016	0.015	0.015	0.015	0.016	0.018	0.018	0.019	0.031	0.021	0.018	0.0132	0.0143	0.0145	0.0142	0.0228	0.0125	0.0377	0.0144	0.017	0.0169	0.0173
Beryllium	<0.0003	<0.0003	<0.0003	<0.0003	<0.0003	<0.0003	<0.0003	<0.0003	<0.0003	<0.0003	<0.0003	<0.0003	<0.0003	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.00046	<0.000460	<0.000330	<0.000401	<0.00033	<0.00019	<0.00033	<0.000330	<0.000330	<0.000330	<0.000501
Chromium	0.0098	0.011	0.0076	0.0090	0.0096	0.0099	<0.007	<0.007	<0.007	0.01	0.011	0.028	0.043	<0.01	<0.01	<0.01	0.011	<0.05	<0.00500	<0.00500	0.00258	<0.00163	0.00914	0.00219	<0.00140	<0.00140	<0.00140	<0.00140	<0.00151
Cobalt	<0.007	<0.007	<0.007	<0.007	<0.007	<0.007	<0.007	<0.007	<0.007	<0.007	<0.007	<0.007	<0.007	<0.01	<0.01	<0.01	<0.01	<0.01	<0.000477	<0.000807	0.00141	0.00119	0.0168	0.000904	<0.00084	0.00158	0.000890	0.000987	<0.00141
Copper	<0.006	<0.006	<0.006	<0.006	<0.006	<0.006	<0.006	<0.006	<0.006	0.023	<0.006	<0.006	<0.006	<0.006	<0.006	<0.01	0.012	<0.01	<0.00469	<0.00469	0.00495	<0.00226	0.00415	0.00364	0.0132	<0.00368	<0.00368	<0.00368	<0.00226
Lead	0.0021	0.0026	0.0012	0.0014	0.0013	0.0016	0.0011	0.0011	0.0018	0.0011	0.00079	0.0016	0.0028	0.0030	0.0028	0.0055	0.0028	0.0021	<0.00295	<0.00295	0.00474	<0.00227	0.00641	0.00149	<0.00299	<0.00299	<0.00299	<0.00299	<0.00243
Nickel	<0.01	<0.01	<0.01	<0.01	0.010	0.010	<0.01	0.011	<0.01	0.012	<0.01	0.013	0.031	<0.01	<0.01	0.012	<0.01	<0.01	<0.00298	<0.00298	0.00238	<0.00182	0.00566	0.00196	0.00188	<0.00161	<0.00161	<0.00161	<0.00196
Selenium	<0.002	<0.002	<0.002	0.0025	0.0031	<0.002	<0.002	<0.002	<0.002	0.004	<0.002	<0.002	<0.002	<0.002	<0.002	<0.002	<0.002	<0.002	<0.00735	<0.00735	<0.00735	<0.00616	<0.00735	<0.00030	<0.00735	<0.00735	<0.00735	<0.00735	<0.00616
Thallium	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.00431	<0.00431	<0.00431	<0.00460	<0.00431	<0.00012	<0.00431	<0.00431	<0.00431	<0.00431	<0.00663
Vanadium	<0.008	<0.008	<0.008	<0.008	<0.008	<0.008	<0.008	<0.008	<0.008	<0.008	<0.008	<0.008	<0.008	<0.01	<0.01	<0.01	0.012	<0.05	<0.00634	<0.00634	<0.00499	<0.00662	0.00624	0.00177	<0.00499	<0.00499	<0.00499	<0.00499	<0.00564
Zinc	0.0036	0.0053	0.0031	0.0056	0.012	0.0090	0.023	0.016	0.0075	0.0037	0.0036	0.0083	0.0069	0.018	0.015	<0.01	0.014	0.014	<0.00916	<0.00916	0.00953	<0.00578	0.0114	0.0231	0.0334	<0.00652	0.0125	<0.00652	<0.00467
Chloride	2.4	1.8	3.0	2.0	2.0	1.8	1.8	1.8	2.2	2.3	2.2	2.6	1.8	2.0	2.1	2.3	2.2	2.1	2.81	2.23	1.89	1.87	2.51	2.41	3.07	2.26	2.47	2.94	2.57
Nitrate as N	1.0	0.84	0.90	0.66	0.58	0.72	0.62	0.65	0.56	0.49	0.41	0.59	0.39	0.39	0.54	0.51	0.50	0.47	0.505	0.529	0.778	0.671	0.683	0.525	0.566	0.451	0.617	0.801	0.678
Sulfate	0.40	2.1	0.20	0.35	0.43	0.49	0.34	<0.2	0.46	<0.2	0.71	0.21	0.47	0.64	0.30	0.45	0.66	0.39	7.7	0.744	0.801	0.696	0.806	1.00	0.74	<0.594	0.881	<0.637	<0.637

MW-2 (D.G.) (mg/l)	Sampling Events (Cont.)																												
	21-Mar-11	7-Sep-11	5-Mar-12	11-Sep-12	25-Mar-13	4-Sep-13	5-Mar-14	23-Sep-14	24-Feb-15	9-Sep-15	3-Mar-16	31-Aug-16	16-Mar-17	26-Sep-17	19-Apr-18	20-Sep-18	5-Mar-19	6-Oct-19	29-Apr-20	23-Sep-20	13-Apr-21	14-Oct-21	17-May-22	19-Sep-22	7-Mar-23	20-Sep-23	13-Mar-24	26-Sep-24	20-Mar-25
Antimony	<0.003	<0.003	<0.003	<0.003	<0.003	<0.003	<0.003	<0.003	<0.003	<0.003	<0.003	<0.003	<0.004	<0.005	<0.005	<0.005	<0.005	<0.005	<0.00430	<0.00430	<0.00430	<0.00398	<0.00430	<0.00103	<0.00430	<0.00430	0.00805	0.00811	<0.00506
Arsenic	0.048	0.042	0.036	0.037	0.027	0.028	0.019	0.029	0.020	0.035	0.022	0.033	0.025	0.038	0.035	0.029	0.025	0.011	0.0144	0.0466	0.0232	0.0210	0.0184	0.0345	0.0161	0.0279	0.0341	0.0477	0.0178
Barium	0.37	0.31	0.23	0.23	0.15	0.34	0.17	0.38	0.17	0.27	0.15	0.38	0.17	0.20	0.22	0.25	0.23	0.90	0.767	0.333	0.249	0.211	0.187	0.19	0.168	0.196	0.136	0.227	0.166
Beryllium	<0.0003	<0.0003	<0.0003	<0.0003	<0.0003	<0.0003	<0.0003	<0.0003	<0.0003	<0.0003	<0.0003	<0.0003	<0.0003	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.000460	<0.000460	0.000686	<0.000401	<0.00033	<0.00019	<0.00033	<0.000330	<0.000330	<0.000330	<0.000501
Cadmium	<0.004	<0.004	<0.004	<0.004	<0.004	<0.004	<0.004	<0.004	<0.004	<0.004	<0.004	<0.004	<0.004	<0.004	<0.004	<0.004	<0.004	<0.004	<0.000563	<0.000563	<0.000479	<0.000552	<0.00047	<0.00015	<0.00047	<0.000479	<0.000479	<0.000479	0.000732
Chromium	<0.007	<0.007	<0.007	<0.007	<0.007	<0.007	<0.007	<0.007	<0.007	<0.007	<0.007	<0.007	<0.007	<0.01	<0.01	<0.01	<0.01	<0.01	<0.00500	<0.00500	0.00188	<0.00163	<0.00140	0.00169	<0.00140	<0.00140	<0.00140	<0.00140	<0.00151
Cobalt	0.036	0.025	0.023	0.023	0.017	0.024	0.013	0.023	0.013	0.016	0.012	0.017	0.013	0.014	0.017	<0.01	<0.01	0.045	0.0389	0.0325	0.0201	0.0213	0.0182	0.0261	0.0197	0.0216	0.0142	0.0250	0.0153
Copper	<0.006	<0.006	<0.006	<0.006	<0.006	<0.006	<0.006	<0.006	<0.006	0.008	<0.006	<0.006	<0.006	<0.006	<0.006	<0.01	<0.01	<0.05	0.005	<0.00469	0.00494	<0.00226	<0.00368	<0.00151	<0.00368	<0.00368	<0.00368	<0.00368	<0.00226
Lead	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	0.0013	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.003	0.00351	0.00304	0.00599	0.00356	0.00508	0.00119	0.00577	<0.00299	0.00991	0.00652	0.00345
Nickel	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.05	0.00413	<0.00298	0.00372	0.00211	<0.00161	0.00174	0.00216	<0.00161	<0.00161	<0.00161	<0.00196
Selenium	<0.002	<0.002	<0.002	0.035	0.027	0.0036	<0.002	0.033	0.014	0.0046	<0.002	0.0023	<0.002	<0.002	0.0034	0.0023	<0.002	<0.002	<0.00735	0.00825	<0.00735	<0.00616	<0.00735	0.00038	<0.00735	<0.00735	<0.00735	<0.00735	<0.00616
Thallium	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	0.00058	<0.0005	<0.0005	<0.003	<0.00431	<0.00431	<0.00431	<0.00460	<0.00431	0.000257	<0.00431	<0.00431	<0.00431	<0.00431	<0.00663
Vanadium	<0.008	<0.008	<0.008	<0.008	<0.008	<0.008	<0.008	<0.008	<0.008	<0.008	<0.008	<0.008	<0.008	<0.01	<0.01	<0.01	<0.01	<0.01	<0.00634	<0.00634	<0.00499	<0.00662	<0.00499	0.00125	<0.00499	<0.00499	<0.00499	<0.00499	<0.00564
Zinc	0.0037	0.0035	0.0190	0.0050	0.0086	0.010	0.013	0.016	0.0024	<0.002	<0.002	<0.002	<0.004	<0.01	<0.01	<0.01	<0.01	0.014	<0.00916	<0.00916	0.0114	<0.00578	<0.00652	0.00383	<0.00652	<0.00652	<0.00652	<0.00652	0.00699
Chloride	2.1	1.7	2.1	1.4	1.5	1.7	2.0	1.6	1.7	1.5	1.9	1.8	1.8	2.0	2.0	2.6	1.9	2.1	1.29	1.22	1.40	1.35	1.34	1.42	1.4	1.39	5.90	1.83	1.41
Nitrate as N	<0.05	<0.05	<0.05	0.24	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	0.16	<0.05	<0.0480	<0.0480	<0.0480	<0.0480	<0.0480	0.12	<0.0480	0.0542	<0.0480	0.400	0.139
Sulfate	0.85	0.73	<0.2	0.45	<0.2	<0.2	0.29	<0.2	<0.2	<0.2	0.34	0.20	0.55	0.62	1.2	0.93	1.6	0.42	0.714	0.696	<0.594	<0.594	<0.594	1.58	<0.594	<0.594	7.13	1.71	1.06

Appendix C
Sampling Field Forms

FIELD METER CALIBRATION LOG

Date: _____

Project: _____

Site Location: _____

Personnel: _____

Equipment: _____

Equipment Model: _____

Calibration Solution: _____

Time Calibrated: _____

Comments: _____

Equipment: _____

Equipment Model: _____

Calibration Solution: _____

Time Calibrated: _____

Comments: _____

Equipment: _____

Equipment Model: _____

Calibration Solution: _____

Time Calibrated: _____

Comments: _____

Personnel Signature

Date

GROUNDWATER SAMPLE COLLECTION REPORT

General Information

Project Name: _____
Location: _____
Sampling Quarter: ☐ First ☐ Second ☐ Third ☐ Fourth Year: _____ ☐ Other: _____
Sampling Date: _____
Personnel: _____
Weather Conditions: _____
Ambient Temperature: _____
Comments: _____

Monitor Well Information

Well Identification: _____
Well Location: _____
Well Diameter: ☐ 2-inch ☐ 4-inch ☐ Other: _____
Top of Casing Elevation (TOC) _____ (ft)
Total Well Depth (TD) _____ (ft)
Static Water Level _____ (ft)
Water Column _____ (ft)
Well Volume _____ (gal)
(one well volume)

Static Groundwater Elevation _____

Comments: _____

Monitor Well Evacuation

Time Started: _____
Method:
☐ Dedicated Stainless Steel Bailer
☐ Peristaltic Pump (Dedicated Tubing)
☐ Other: _____
Total Gallons Evacuated: _____

Comments: _____

Monitor Well Sampling

Sampling Collection Time: _____
Method:
☐ Dedicated Stainless Steel Bailer
☐ Peristaltic Pump
☐ Other: _____
Sample Identification: _____

QA/QC Sample Information:

☐ Not Applicable

☐ Blind Duplicate: _____ ☐ Split Sample: ☐ Yes ☐ No

☐ Matrix Spike: _____ ☐ Matrix Spike Dup _____

Total No. of Containers Collected: ☐ 1 ☐ 2 ☐ 3 ☐ 4 ☐ 5

In-Situ Testing:

	1	2	3	4	5	6	7	8
Volume Evacuated (gallons):	_____	_____	_____	_____	_____	_____	_____	_____
PH (units):	_____	_____	_____	_____	_____	_____	_____	_____
Conductivity: (μ mhos)	_____	_____	_____	_____	_____	_____	_____	_____
Water Temperature: ($^{\circ}$ C)	_____	_____	_____	_____	_____	_____	_____	_____
Odor: (yes/no)	_____	_____	_____	_____	_____	_____	_____	_____
Comments:	_____	_____	_____	_____	_____	_____	_____	_____



Ph. (501) 321-8243 Fax (501) 321-8251

CHAIN OF CUSTODY RECORD

PAGE _____ OF _____

PROJECT/JOB NO: _____

COC NO: _____

PO NO: _____

REL NO: _____

LAB NAME: _____

CLIENT _____ PROJECT MANAGER _____

LOCATION _____ TELE/FAX NO. _____

SAMPLERS: (SIGNATURE) _____

[illegible]

Appendix D

Appendix II Parameter List

335-13-4-APPENDIX II LIST OF HAZARDOUS INORGANIC AND ORGANIC CONSTITUENTS¹

Common Name ²	CAS Number ³	Chemical Abstracts Service Index Name ⁴	Suggested Methods ⁵	PQL (µg/L) ⁶
Acenaphthene	83-32-9	Acenaphthylene, 1,2-dihydro-	8100 8270	200 10
Acenaphthylene	208-96-8	Acenaphthylene	8100 8270	200 10
Acetone	67-64-1	2-Propanone	8260	100
Acetonitrile; Methyl cyanide	75-05-8	Acetonitrile	8015	100
Acetophenone	98-86-2	Ethanone, 1-phenyl-	8270	10
2-Acetylaminofluorene; 2-AAF	53-96-3	Acetamide, N-9H-fluoren-2-yl-	8270	20
Acrolein	107-02-8	2-Propenal	8030 8260	5 100
Acrylonitrile	107-13-1	2-Propenenitrile	8030 8260	5 200
Aldrin	309-00-2	1,4,5,8,-Dimethanonaphthalene 1,2,3,4,10,10-hexachloro-1,4,4a,5,8,8a-hexahydro-(1a,4a, 4aß,5a,8a,8aß)-	8080 8270	0.05 10
Allyl chloride	107-05-1	1-Propene, 3-chloro-	8010 8260	5 10
4-Aminobiphenyl	92-67-1	[1,1'-Biphenyl]-4-amine	8270	20
Anthracene	120-12-7	Anthracene	8100 8270	200 10
Antimony	(Total)	Antimony	6010 7040 7041	300 2000 30
Arsenic	(Total)	Arsenic	6010 7060 7061	500 10 20
Barium	(Total)	Barium	6010 7080	20 1000
Benzene	71-43-2	Benzene	8020 8021 8260	2 0.1 5
Benzo[a]anthracene; Benzanthracene	56-55-3	Benz[a]anthracene	8100 8270	200 10
Benzo[b]fluoranthene	205-99-2	Benz[e]acephenanthrylene	8100 8270	200 10
Benzo[k]fluoranthene	207-08-9	Benzo[k]fluoranthene	8100 8270	200 10
Benzo[ghi]perylene	191-24-2	Benzo[ghi]perylene	8100 8270	200 10
Benzo[a]pyrene	50-32-8	Benzo[a]pyrene	8100 8270	200 10
Benzyl alcohol	100-51-6	Benzenemethanol	8270	20
Beryllium	(Total)	Beryllium	6010 7090 7091	3 50 2
alpha-BHC	319-84-6	Cyclohexane, 1,2,3,4,5,6-hexachloro- (1a,2a,3ß,4a,5ß,6ß)-	8080 8270	0.05 10
beta-BHC	319-85-7	Cyclohexane, 1,2,3,4,5,6-hexachloro- (1a,2ß,3a,4ß,5a,6ß)-	8080 8270	0.05 20
delta-BHC	319-86-8	Cyclohexane, 1,2,3,4,5,6-hexachloro-(1a,2a,3a,4ß,5a,6ß)-	8080 8270	0.1 20
gamma-BHC; Lindane	58-89-9	Cyclohexane, 1,2,3,4,5,6-hexachloro- (1a,2a,3ß,4a,5a,6ß)-	8080 8270	0.05 20
Bis(2-chloroethoxy)methane	111-91-1	Ethane, 1,1'-[methylenebis(oxy)] bis[2-chloro-	8110 8270	5 10
Bis(2-chloroethyl) ether;	111-44-4	Ethane, 1,1'-oxybis[2-chloro-	8110	3

Common Name ²	CAS Number ³	Chemical Abstracts Service Index Name ⁴	Suggested Methods ⁵	PQL (µg/L) ⁶
Dichloroethyl ether			8270	10
Bis(2-chloro-1-methylethyl) ether 2,21-Dichlorodisopropyl ether; DCIP, See note 7	108-60-1	Propane, 2,2'-oxybis[1-chloro-	8110 8270	10 10
Bis(2-ethylhexyl) phthalate	117-81-7	1,2-Benzenedicarboxylic acid, bis(2-ethylhexyl) ester	8060	20
Bromochloromethane; Chlorobromomethane	74-97-5	Methane, bromochloro-	8021 8260	0.1 5
Bromodichloromethane; Dibromochloromethane	75-27-4	Methane, bromodichloro-	8010 8021 8260	1 0.2 5
Bromoform; Tribromomethane	75-25-2	Methane, tribromo-	8010 8021 8260	2 15 5
4-Bromophenyl phenyl ether	101-55-3	Benzene, 1-bromo-4-phenoxy-	8110 8270	25 10
Butyl benzyl phthalate; Benzyl butyl phthalate	85-68-7	1,2-Benzenedicarboxylic acid, butyl phenylmethyl ester	8060 8270	5 10
Cadmium	(Total)	Cadmium	6010 7130 7131	40 50 1
Carbon disulfide	75-15-0	Carbon disulfide	8260	100
Carbon tetrachloride	56-23-5	Methane, tetrachloro-	8010 8021 8260	1 0.1 10
Chlordane	See note 8	4,7-Methano-1H-indene, 1,2,4,5,6,7,8,8- octachloro-2,3,3a,4,7,7a-hexahydro-	8080 8270	0.1 50
p-Chloroaniline	106-47-8	Benzenamine, 4-chloro-	8270	20
Chlorobenzene	108-90-7	Benzene, chloro-	8010 8020 8021 8260	2 2 0.1 5
Chlorobenzilate	510-15-6	Benzeneacetic acid, 4-chloro-a-(4-chlorophenyl)-a-hydroxy-ethyl ester	8270	10
p-Chloro-m-cresol; 4-Chloro-3-methylphenol	59-50-7	Phenol, 4-chloro-3-methyl-	8040 8270	5 20
Chloroethane; Ethyl chloride	75-00-3	Ethane, chloro-	8010 8021 8260	5 1 10
Chloroform; Trichloromethane	67-66-3	Methane, trichloro-	8010 8021 8260	0.5 0.2 5
2-Chloronaphthalene	91-58-7	Naphthalene, 2-chloro-	8120 8270	10 10
2-Chlorophenol	95-57-8	Phenol, 2-chloro-	8040 8270	5 10
4-Chlorophenyl phenyl ether	7005-72-3	Benzene, 1-chloro-4-phenoxy-	8110 8270	40 10
Chloroprene	126-99-8	1,3-Butadiene, 2-chloro-	8010 8260	50 20
Chromium	(Total)	Chromium	6010 7190 7191	70 500 10
Chrysene	218-01-9	Chrysene	8100 8270	200 10
Cobalt	(Total)	Cobalt	6010 7200 7201	70 500 10
Copper	(Total)	Copper	6010 7210 7211	60 200 10

Common Name ²	CAS Number ³	Chemical Abstracts Service Index Name ⁴	Suggested Methods ⁵	PQL (µg/L) ⁶
m-Cresol; 3-methylphenol	108-39-4	Phenol, 3-methyl-	8270	10
o-Cresol; 2-methylphenol	95-48-7	Phenol, 2-methyl-	8270	10
p-Cresol; 4-methylphenol	106-44-5	Phenol, 4-methyl-	8270	10
Cyanide	57-12-5	Cyanide	8270	10
2,4-D; 2,4-Dichlorophenoxyacetic acid	94-75-7	Acetic acid, (2,4-dichlorophenoxy)-	8150	10
4,4 ¹ -DDD	72-54-8	Benzene, 1,1 ¹ -(2,2-dichloroethylidene) bis[4-chloro-	8080 8270	0.1 10
4,4 ¹ -DDE	72-55-9	Benzene, 1,1 ¹ -(dichloroethylenylidene)bis[4-chloro-	8080 8270	0.05 10
4,4 ¹ -DDT	50-29-3	Benzene, 1,1 ¹ -(2,2,2-trichloroethylidene)bis[4-chloro-	8080 8270	0.1 10
Diallate	2303-16-4	Carbamothioic acid, bis(1-methyl ethyl)-,S-(2,3-dichloro-2-propenyl) ester	8270	10
Dibenz[a,h]anthracene	53-70-3	Dibenz[a,h]anthracene	8100 8270	200 10
Dibenzofuran	132-64-9	Dibenzofuran	8270	10
Dibromochloromethane; Chlorodibromomethane	124-48-1	Methane, dibromochloro-	8010 8021 8260	1 0.3 5
1,2-Dibromo-3-chloropropane; DBCP	96-12-8	Propane, 1,2-dibromo-3-chloro-	8011 8021 8260	0.1 30 25
1,2-Dibromoethane; Ethylene dibromide; EDB	106-93-4	Ethane, 1,2-dibromo-	8011 8021 8260	0.1 10 5
Di-n-butyl phthalate	84-74-2	1,2-Benzenedicarboxylic acid, dibutyl ester	8060 8270	5 10
o-Dichlorobenzene; 1,2-Dichlorobenzene	95-50-1	Benzene, 1,2-dichloro-	8010 8020 8021 8120 8260 8270	2 5 0.5 10 5 10
m-Dichlorobenzene; 1,3-Dichlorobenzene	541-73-1	Benzene, 1,3-Dichloro-	8010 8020 8021 8120 8260 8270	5 5 0.2 10 5 10
p-Dichlorobenzene; 1,4-Dichlorobenzene	106-46-7	Benzene, 1,4-dichloro-	8010 8020 8021 8120 8260 8270	2 5 0.1 15 5 10
3,3 ¹ -Dichlorobenzidine	91-94-1	[1,1 ¹ -Biphenyl]-4,4 ¹ -diamine, 3,3 ¹ -dichloro-	8270	20
trans-1,4-Dichloro-2-butene	110-57-6	2-Butene, 1,4-dichloro-, (E)-	8260	100
Dichlorodifluoromethane; CFC-12	75-71-8	Methane, dichlorodifluoro-	8021 8260	0.5 5

1,1-Dichloroethane; Ethyldiene chloride	75-34-3	Ethane, 1,1-dichloro-	8010 8021 8260	1 0.5 5
1,2-Dichloroethane; Ethylene dichloride	107-06-2	Ethane, 1,1-dichloro-	8010 8021 8260	0.5 0.3 5
1,1-Dichloroethylene; 1,1-Dichloroethene; Vinylidene chloride	75-35-4	Ethene, 1,1-dichloro-	8010 8021 8260	1 0.5 5
cis-1,2-Dichloroethylene; cis-	156-59-2	Ethene, 1,2-dichloro-, (Z)-	8021	0.2

Common Name ²	CAS Number ³	Chemical Abstracts Service Index Name ⁴	Suggested Methods ⁵	PQL (µg/L) ⁶
1,2- Dichloroethene			8260	5
trans-1,2-Dichloroethylene	156-60-5	Ethene, 1,2-dichloro-, (E)-	8010	1
trans-1,2- Dichloroethene			8021	0.5
			8260	5
2,4-Dichlorophenol	120-83-2	Phenol, 2,4-dichloro-	8040	5
			8270	10
2,6-Dichlorophenol	87-65-0	Phenol, 2,6-dichloro-	8270	10
1,2-Dichloropropane;	78-87-5	Propane, 1,2-dichloro-	8010	0.5
Propylene dichloride			8021	0.05
			8260	5
1,3-Dichloropropane;	142-28-9	Propane, 1,3-dichloro-	8021	0.3
Trimethylene dichloride			8260	5
2,2-Dichloropropane;	594-20-7	Propane, 2,2-dichloro-	8021	0.5
Isopropylidene chloride			8260	15
1,1-Dichloropropene	563-58-6	1-Propene, 1,1-dichloro-	8021	0.2
			8260	5
cis-1,3-Dichloropropene	10061-01-5	1-Propene, 1,3-dichloro-, (Z)-	8010	20
			8260	10
trans-1,3-Dichloropropene	10061-02-6	1-Propene, 1,3-dichloro-, (E)-	8010	5
			8260	10
Dieldrin	60-57-1	2,7:3,6-Dimethanonaphth[2,3-b] oxirene, 3,4,5,6,9,9-hexa, chloro-1a, 2,2a,3,6,6a,7,7a-octahydro-, (1aa, 2ß, 2aa, 3ß, 6ß, 6aa, 7ß, 7aa)-	8080	0.05
			8270	10
Diethyl phthalate	84-66-2	1,2-Benzenedicarboxylic acid, diethyl ester	8060	5
			8270	10
0,0-Diethyl 0-2-pyrazinyl;	297-97-2	Phosphorothioic acid, 0,0-diethyl 0-pyrazinyl ester	8141	5
phosphorothioate Thionazin			8270	20
Dimethoate	60-51-5	Phosphorodithioic acid, 0,0-dimethyl S-[2-(methylamino)-2-oxoethyl] ester.	8141	3
			8270	20
p-(Dimethylamino)azobenzene	60-11-7	Benzenamine, N,N-dimethyl-4-(phenylazo)-	8270	10
7,12-Dimethylbenz[a]anthracene	57-97-6	Benz[a]anthracene, 7,12-dimethyl-	8270	10
3,3'-Dimethylbenzidine	119-93-7	[1,1'-Biphenyl]-4,4'-diamine, 3,3'-dimethyl-	8270	10
2,4-Dimethylphenol; m-Xylenol	105-67-9	Phenol, 2,4-dimethyl-	8040	5
			8270	10
Dimethyl phthalate	131-11-3	1,2-Benzenedicarboxylic acid, dimethyl ester	8060	5
			8270	10
m-Dinitrobenzene	99-65-0	Benzene, 1,3-dinitro-	8270	20
4,6-Dinitro-o-cresol 4,6-Dinitro- 2-methylphenol	534-52-1	Phenol, 2-methyl-4,6-dinitro-	8040	150
			8270	50
2,4-Dinitrophenol	51-28-5	Phenol, 2,4-dinitro-	8040	150
			8270	50
2,4-Dinitrotoluene	121-14-2	Benzene, 1-methyl-2,4-dinitro-	8090	0.2
			8270	10
2,6-Dinitrotoluene	606-20-2	Benzene, 2-methyl-1,3-dinitro-	8090	0.1
			8270	10
Dinoseb; DNB; 2-sec-Butyl-4,6-dinitrophenol	88-85-7	Phenol, 2-(1-methylpropyl)-4,6-dinitro-	8150	1
			8270	20
Di-n-octyl phthalate	117-84-0	1,2-Benzenedicarboxylic acid, dioctyl ester	8060	30
			8270	10
Diphenylamine	122-39-4	Benzenamine, N-phenyl-	8270	10
Disulfoton	298-04-4	Phosphorodithioic acid, 0,0-diethyl S-[2-(ethylthio)ethyl] ester	8140	2
			8141	0.5
			8270	10
Endosulfan I	959-98-8	6,9-Methano-2,4,3-benzodioxathi epin, 6,7,8,9,10,10- hexachloro-1, 5,5a, 6,9,9a-hexahydro-, 3-oxide,	8080	0.1
			8270	20

Common Name ²	CAS Number ³	Chemical Abstracts Service Index Name ⁴	Suggested Methods ⁵	PQL (µg/L) ⁶
Endosulfan II	33213-65-9	6,9-Methano-2,4,3-benzodioxathi	8080	0.05
		epin, 6,7,8,9,10,10-hexachloro-1,5,5a,6,9,9a-hexahydro-,3-oxide,(3a, 5aa, 6ß,9ß,9aa)-	8270	20
Endosulfan sulfate	1031-07-8	6,9-Methano-2,4,3-benzodioxathi	8080	0.5
		epin,6,7,8,9,10,10-hexachloro-1,5,5a, 6,9,9a-hexahydro-3-3-dioxide.	8270	10
Endrin	72-20-8	2,7:3,6-Dimethanonaphth[2,3-b]	8080	0.1
		oxirene, 3,4,5,6,9,9-hexachloro-1a,2,2a,3,6,6a,7,7a-octahydro-, (1aa,2ß,2aß,3a,6a,6aß,7ß,7aa)-	8270	20
Endrin aldehyde	7421-93-4	1,2,4-Methenocyclopenta	8080	0.2
		cd]penta [lene-5-carboxaldehyde, 2,2a,3,3,4, 7-hexachlorodeca hydro-, (1a,2ß, 2aß, 4ß,4aß,5ß, 6aß,6bß,7R*)-	8270	10
Ethylbenzene	100-41-4	Benzene, ethyl-	8020	2
			8221	0.05
			8260	5
Ethyl methacrylate	97-63-2	2-Propenoic acid, 2-methyl, ethyl ester	8015	5
			8260	10
			8270	10
Ethyl methanesulfonate	62-50-0	Methanesulfonic acid, ethyl ester	8270	20
Famphur	52-85-7	Phosphorothioic acid, O-[4-	8270	20
		[(dimethylamino)sulfonyl]phenyl] O,0-dimethyl ester		
Fluoranthene	206-44-0	Fluoranthene	8100	200
			8270	10
Fluorene	86-73-7	9H-Fluorene	8100	200
			8270	10
Heptachlor	76-44-8	4,7-Methano-1H-indene, 1,4,5,6,7,8, 8-heptachloro-3a,4,7,7a-tetrahydro-	8080	0.05
			8270	10
Heptachlor epoxide	1024-57-3	2,5-Methano-2H-indeno[1,2-b]oxirene, 2,3,4,5,6,7,7-heptachloro-1a, 1b,5,5a,6,6a-hexahydro-,(1aa,1bß, 2a,5a, 5aß,6ß,6aa)	8080	1
			8270	10
Hexachlorobenzene	118-74-1	Benzene, hexachloro-	8120	0.5
			8270	10
Hexachlorobutadiene	87-68-3	1,3-Butadiene, 1,1,2,3,4,4-hexachloro-	8021	0.5
			8120	5
			8260	10
			8270	10
Hexachlorocyclopentadiene	77-47-4	1,3-Cyclopentadiene, 1,2,3,4,5,5-hexachloro-	8120	5
			8270	10
Hexachloroethane	67-72-1	Ethane, hexachloro-	8120	0.5
			8260	10
			8270	10
Hexachloropropene	1888-71-7	1-Propene, 1,1,2,3,3,3-hexachloro-	8270	10
2-Hexanone; Methyl butyl ketone	591-78-6	2-Hexanone	8260	50
Indeno(1,2,3-cd)pyrene	193-39-5	Indeno(1,2,3-cd)pyrene	8100	200
			8270	10
Isobutyl alcohol	78-83-1	1-Propanol, 2-methyl-	8015	50

Common Name ²	CAS Number ³	Chemical Abstracts Service Index Name ⁴	Suggested Methods ⁵	PQL (µg/L) ⁶
			8240	100
Isodrin	465-73-6	1,4,5,8-Dimethanonaphthalene, 1,2,3,4,10,10- hexachloro-1,4,4a,5,8,8a hexahydro-(1a,4a,4aß,5ß,8ß,8aß)-	8270 8260	20 10
Isophorone	78-59-1	2-Cyclohexen-1-one, 3,5,5-trimethyl-	8090 8270	60 10
Isosafrole	120-58-1	1,3-Benzodioxole, 5-(1-propenyl)-	8270	10
Kepone	143-50-0	1,3,4-Metheno-2H-cyclobuta[cd]pentalen-2-one, 1,1a,3,3a,4,5,5,5a, 5b,6-decachlorooctahydro-	8270	20
Lead	(Total)	Lead	6010 7420 7421	400 1000 10
Mercury	(Total)	Mercury	7470	2
Methacrylonitrile	126-98-7	2-Propenenitrile, 2-methyl-	8015 8260	5 100
Methapyrilene	91-80-5	1,2-ethanediamine,N.N.-dimethyl-N ¹ -2-pyridinyl-N1/2-thienyl-methyl-	8270	100
Methoxychlor	72-43-5	Benzene,1,1 ¹ -(1,2,2, trichloroethylidene) bis[4-methoxy-	8080 8270	2 10
Methyl bromide; Bromomethane	74-83-9	Methane, bromo-	8010 8021	20 10
Methyl chloride; Chloromethane	74-87-3	Methane, chloro-	8010 8021	1 0.3
3-Methylcholanthrene	56-49-5	Benz[<i>j</i>]aceanthrylene, 1,2-dihydro-3- methyl-	8270	10
Methyl ethyl ketone; MEK; 2-Butanone	78-93-3	2-Butanone	8015 8260	10 100
Methyl iodide; iodomethane	74-88-4	Methane,iodo-	8010 8260	40 10
Methyl methacrylate	80-62-6	2-Propenoic acid, 2-methyl-, methyl ester	8015 8260	2 30
Methyl methanesulfonate	66-27-3	Methanesulfonic acid, methyl ester	8270	10
2-Methylnaphthalene	91-57-6	Naphthalene, 2-methyl-	8270	10
Methyl parathion;Parathion methyl	298-00-0	Phosphorothioic acid, 0,0-dimethyl 0-(4-nitrophenyl) ester	8140 8141 8270	0.5 1 10
4-Methyl-2-pentanone; Methyl isobutyl ketone	108-10-1	2-Pentanone, 4-methyl-	8015 8260	5 100
Methylene bromide; Dibromomethane	74-95-3	Methane, dibromo-	8010 8021 8260	15 20 10
Methylene chloride; Dichloromethane	75-09-2	Methane, dichloro-	8010 8021 8260	5 0.2 10
Naphthalene	91-20-3	Naphthalene	8021 8100 8260 8270	0.5 200 5 10
1,4-Naphthoquinone	130-15-4	1,4-Naphthalenedione	8270	10
1-Naphthylamine	134-32-7	1-Naphthalenamine	8270	10
2-Naphthylamine	91-59-8	2-Naphthalenamine	8270	10
Nickel	(Total)	Nickel	6010 7520	150 400

Common Name ²	CAS Number ³	Chemical Abstracts Service Index Name ⁴	Suggested Methods ⁵	PQL (µg/L) ⁶
o-Nitroaniline; 2-Nitroaniline	88-74-4	Benzenamine, 2-nitro-	8270	50
m-Nitroaniline; 3-Nitroaniline	99-09-2	Benzenamine, 3-nitro-	8270	50
p-Nitroaniline; 4-Nitroaniline	100-01-6	Benzenamine, 4-nitro	8270	20
Nitrobenzene	98-95-3	Benzene, nitro-	8090 8270	40 10
o-Nitrophenol; 2-Nitrophenol	88-75-5	Phenol, 2-nitro-	8040 8270	5 10
p-Nitrophenol; 4-Nitrophenol	100-02-7	Phenol, 4-nitro-	8040 8270	10 50
N-Nitrosodi-n-butylamine	924-16-3	1-Butanamine, N-butyl-N-nitroso-	8270	10
N-Nitrosodiethylamine	55-18-5	Ethanamine, N-ethyl-N-nitroso-	8270	20
N-Nitrosodimethylamine	62-75-9	Methanamine, N-methyl-N-nitroso-	8070	2
N-Nitrosodiphenylamine	86-30-6	Benzenamine, N-nitroso-N-phenyl-	8070	5
N-Nitrosodipropylamine; N-Nitroso- N- dipropylamine; Di-n-propylnitrosamine	621-64-7	1-Propanamine, N-nitroso-N-propyl-	8070	10
N-Nitrosomethylethylamine	10595-95-6	Ethanamine, N-methyl-N-nitroso-	8270	10
N-Nitrosopiperidine	100-75-4	Piperidine, 1-nitroso-	8270	20
N-Nitrosopyrrolidine	930-55-2	Pyrrolidine, 1-nitroso-	8270	40
5-Nitro-o-toluidine	99-55-8	Benzenamine, 2-methyl-5-nitro-	8270	10
Parathion	56-38-2	Phosphorothioic acid, O,O-diethyl O-(4-nitrophenyl) ester	8141 8270	0.5 10
Pentachlorobenzene	608-93-5	Benzene, pentachloro-	8270	10
Pentachloronitrobenzene	82-68-8	Benzene, pentachloronitro-	8270	20
Pentachlorophenol	87-86-5	Phenol, pentachloro-	8040 8270	5 50
Phenacetin	62-44-2	Acetamide, N-(4-ethoxyphenyl)	8270	20
Phenanthrene	85-01-8	Phenanthrene	8100 8270	200 10
Phenol	108-95-2	Phenol	8040	1
p-Phenylenediamine	106-50-3	1,4-Benzenediamine	8270	10
Phorate	298-02-2	Phosphorodithioic acid, O,O-diethyl-S-[(ethylthio)methyl] ester	8140 8141 8270	2 0.5 10
Polychlorinated biphenyls; PCBs;Aroclors	See Note 9	1,1'-Biphenyl, chloro derivatives	8080 8270	50 200
Pronamide	23950-58-5	Benzamide, 3,5-dichloro-N-(1,1-dimethyl-2-propynyl)-	8270	10
Propionitrile; Ethyl cyanide	107-12-0	Propanenitrile	8015 8260	60 150
Pyrene	129-00-0	Pyrene	8100 8270	200 10
Safrole	94-59-1	1,3-Benzodioxole, 5-(2-propenyl)-	8270	10
Selenium	(Total)	Selenium	6010 7740 7741	750 20 20
Silver	(Total)	Silver	6010 7760 7761	70 100 10
Silvex; 2,4,5-TP	93-72-1	Propanoic acid, 2-(2,4,5-trichlorophenoxy)-	8150	2
Styrene	100-42-5	Benzene, ethenyl-	8020 8021 8260	1 0.1 10
Sulfide	18496-25-8	Sulfide	9030	4000

Common Name ²	CAS Number ³	Chemical Abstracts Service Index Name ⁴	Suggested Methods ⁵	PQL (µg/L) ⁶
2,4,5-T; 2,4,5-Trichlorophenoxyacetic acid	93-76-5	Acetic acid, (2,4,5-trichlorophenoxy)-	8150	2
1,2,4,5-Tetrachlorobenzene	95-94-3	Benzene, 1,2,4,5-tetrachloro-	8270	10
1,1,1,2-Tetrachloroethane	630-20-6	Ethane, 1,1,1,2-tetrachloro-	8010 8021 8260	5 0.05 5
1,1,2,2-Tetrachloroethane	79-34-5	Ethane, 1,1,2,2-tetrachloro-	8010 8021 8260	0.5 0.1 5
Tetrachloroethylene; Tetrachloroethene; Perchloroethylene	127-18-4	Ethene, tetrachloro-	8010	0.5
2,3,4,6-Tetrachlorophenol	58-90-2	Phenol, 2,3,4,6-tetrachloro-	8270	10
Thallium	(Total)	Thallium	6010 7840 7841	400 1000 10
Tin	(Total)	Tin	6010	40
Toluene	108-88-3	Benzene, methyl-	8020 8021 8260	2 0.1 5
o-Toluidine	95-53-4	Benzenamine, 2-methyl-	8270	10
Toxaphene	See Note 10	Toxaphene	8080	2
1,2,4-Trichlorobenzene	120-82-1	Benzene, 1,2,4-trichloro-	8021 8120 8260 8270	0.3 0.5 10 10
1,1,1-Trichloroethane; Methylchloroform	71-55-6	Ethane, 1,1,1-trichloro-	8010 8021 8260	0.3 0.3 5
1,1,2-Trichloroethane	79-00-5	Ethane, 1,1,2-trichloro-	8010 8260	0.2 5
Trichloroethylene; Trichloroethene	79-01-6	Ethane, trichloro-	8010 8021 8260	1 0.2 5
Trichlorofluoromethane; CFC-11	75-69-4	Methane, trichlorofluoro-	8010 8021 8260	10 0.3 5
2,4,5-Trichlorophenol	95-95-4	Phenol, 2,4,5-trichloro-	8270	10
2,4,6-Trichlorophenol	88-06-2	Phenol, 2,4,6-trichloro-	8040 8270	5 10
1,2,3-Trichloropropane	96-18-4	Propane, 1,2,3-trichloro-	8010 8021 8260	10 5 15
O,O,O-Triethyl phosphorothioate	126-68-1	Phosphorothioic acid, 0,0,0-triethylester	8270	10
sym-Trinitrobenzene	99-35-4	Benzene, 1,3,5-trinitro-	8270	10
Vanadium	(Total)	Vanadium	6010 7910 7911	80 2000 40
Vinyl acetate	108-05-4	Acetic acid, ethenyl ester	8260	50
Vinyl chloride; Chloroethene	75-01-4	Ethene, chloro-	8010 8021 8260	2 0.4 10
Xylene (total)	See Note 11	Benzene, dimethyl-	8020 8021 8260	5 0.2 5
Zinc	(Total)	Zinc	6010 7950 7951	20 50 0.5

Notes

- ¹ The regulatory requirements pertain only to the list of substances; the right hand columns (Methods and PQL) are given for informational purposes only. See also footnotes 5 and 6.
- ² Common names are those widely used in government regulations, scientific publications, and commerce; synonyms exist for many chemicals.
- ³ Chemical Abstracts Service registry number. Where "Total" is entered, all species in the groundwater that contain this element are included.
- ⁴ CAS index are those used in the 9th Collective Index.
- ⁵ Suggested Methods refer to analytical procedure numbers used in EPA Report SW-846 "Test Methods for Evaluating Solid Waste", third edition, November 1986, as revised, December 1987. Analytical details can be found in SW-846 and in documentation on file at the agency. CAUTION: The methods listed are representative SW-846 procedures and may not always be the most suitable method(s) for monitoring an analyte under the regulations.
- ⁶ Practical Quantitation Limits (PQLs) are the lowest concentrations of analytes in groundwaters that can be reliably determined within specified limits of precision and accuracy by the indicated methods under routine laboratory operating conditions. The PQLs listed are generally stated to one significant figure. PQLs are based on 5 mL samples for volatile organics and 1 L samples for semivolatile organics. CAUTION: The PQL values in many cases are based only on a general estimate for the method and not on a determination for individual compounds; PQLs are not a part of the regulation.
- ⁷ This substance is often called Bis(2-chloroisopropyl) ether, the name Chemical Abstracts Service applies to its noncommercial isomer, Propane, 2,2"-oxybis[2-chloro- (CAS RN 39638-32-9).
- ⁸ Chlordane: This entry includes alpha-chlordane (CAS RN 5103-71-9), beta-chlordane (CAS RN 5103-74-2), gamma-chlordane (CAS RN 5566-34-7), and constituents of chlordane (CAS RN 57-74-9 and CAS RN 12789-03-6). PQL shown is for technical chlordane. PQLs of specific isomers are about 20 µg/L by method 8270.
- ⁹ Polychlorinated biphenyls (CAS RN 1336-36-3); this category contains congener chemicals, including constituents of Aroclor 1016 (CAS RN 12674-11-2), Aroclor 1221 (CAS RN 11104-28-2), Aroclor 1232 (CAS RN 11141-16-5), Aroclor 1242 (CAS RN 53469-21-9), Aroclor 1248 (CAS RN 12672-29-6), Aroclor 1254 (CAS RN 11097-69-1), and Aroclor 1260 (CAS RN 11096-82-5). The PQL shown is an average value for PCB congeners.
- ¹⁰ Toxaphene: This entry includes congener chemicals contained in technical toxaphene (CAS RN 8001-35-2), i.e., chlorinated camphene.
- ¹¹ Xylene (total): This entry includes o-xylene (CAS RN 96-47-6), m-xylene (CAS RN 108-38-3), p-xylene (CAS RN 106-42-3), and unspecified xylenes (dimethylbenzenes) (CAS RN 1330-20-7). PQLs for method 8021 are 0.2 for o-xylene and 0.1 for m- or p-xylene. The PQL for m-xylene is 2.0 µg/L by method 8020 or 8260.

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