U.S. Environmental Protection Agency Portion of the Resource Conservation & Recovery Act Permit Pursuant to the 1984 Hazardous & Solid Waste Amendments EPA I. D. Number: MSD 980 600 084

Permittee	International Paper Company 6400 Poplar Avenue Memphis, Tennessee 38197	**Facility Location:**	International Paper Company 1633 South First Street Wiggins, Mississippi 39577

Pursuant to the Solid Waste Disposal Act, as amended by the Resource Conservation and Recovery Act (RCRA) of 1976, 42 USC Section 6901 *et seq*., and the Hazardous and Solid Waste Amendments (HSWA) of 1984, P.L. 98-616, and regulations promulgated thereunder by the U.S. Environmental Protection Agency (EPA) (codified and to be codified in Title 40 of the Code of Federal Regulations), a Permit is issued to International Paper Company (hereinafter called the "Permittee") for the facility located at 1633 South First Street in Wiggins, Mississippi 39577 at latitude 30° 50' 00" and longitude 89° 07' 30" (the "Facility").

This Permit, in conjunction with the Hazardous Waste Management Permit covering post-closure care and issued by the Mississippi Department of Environmental Quality (MDEQ) ("MDEQ Post-Closure Permit"), constitutes the full RCRA Permit for this Facility. The Permittee, pursuant to this Permit, shall be required to investigate any releases of hazardous waste or hazardous constituents at and from the Facility regardless of the time at which waste was placed in a unit, and to take appropriate corrective action for any such releases. The Permit also requires the Permittee to comply with all RCRA regulations applicable to the Facility.

The Permittee must comply with all terms and conditions of this Permit. This Permit consists of the conditions contained herein (including those in any appendices) and in the applicable regulations contained in 40 CFR Parts 260 through 264, 266, 268, 270, and 124, as specified in this Permit, and the statutory requirements of RCRA, as amended by HSWA. Nothing in this Permit shall preclude the Regional Administrator from reviewing and modifying the Permit at any time during its term in accordance with 40 CFR § 270.41.

This Permit is based on the premise that information and reports submitted by the Permittee prior to issuance of this Permit are complete and accurate. Any inaccuracies found in this information or information submitted as required by this Permit may be grounds for termination or modification of this Permit in accordance with 40 CFR § 270.41, § 270.42, and § 270.43, and potential enforcement action. The Permittee must inform the EPA of any deviation from or changes in the information in the application which would affect the Permittee's ability to comply with the applicable regulations or Permit conditions.

This Permit is effective 10/28/2021, and shall remain in effect for ten (10) years until 10/28/2031, unless revoked and reissued, or terminated under 40 CFR § 270.41 and § 270.43, or continued in accordance with 40 CFR § 270.51(a). All obligations for performance of HSWA provisions required under this Permit are in effect until deemed complete by the Regional Administrator.

If any conditions of this Permit are appealed in accordance with 40 CFR § 124.19, the effective date of the conditions determined to be stayed in accordance with 40 CFR § 124.16 shall be determined by final agency action as specified under 40 CFR § 124.19.

9/28/2021
Issue Date

CESAR ZAPATA
Digitally signed by CESAR ZAPATA
Date: 2021.09.28 15:23:22 -04'00'

Cesar Zapata
Director
Land, Chemicals and Redevelopment Division

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PART I - STANDARD CONDITIONS

I.A. EFFECT OF PERMIT
(40 CFR § 260.10, § 270.4 and § 270.30(g))

The requirements of this Permit extend throughout the Facility property boundary as shown on Figure 1. The Facility is partly owned and currently operated by Baldwin Pole Mississippi, LLC. Figure 1 depicts both the International Paper and Baldwin Pole properties, which collectively comprise the Facility. Figure 2 depicts most of the Solid Waste Management Units (SWMUs) and Areas of Concern (AOCs) subject to the Corrective Action requirements in this Permit. Figure 3 details Treatment Area No.1 and Treatment Area No. 2, and the SWMUs and AOCs associated with these two areas. 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 law or regulations. Compliance with the terms of this Permit does not constitute a defense to any order issued or any action brought pursuant to Sections 3004(u) or (v), 3008(a), 3008(c), 3008(h), 3007, 3013, or 7003 of RCRA; Sections 104, 106(a), or 107 of the Comprehensive Environmental Response, Compensation, and Liability Act of 1980 (42 U.S.C. §§ 9601 *et seq*., commonly known as CERCLA); or any other law providing for protection of public health or the environment.

I.B. PERMIT ACTIONS
(40 CFR § 124.5, § 270.4(a), § 270.30(f), § 270.41, § 270.42, and § 270.43)

This Permit may be modified, revoked and reissued, or terminated for cause as specified in 40 CFR § 270.41, § 270.42, and § 270.43, except for the Corrective Action Schedule of Compliance (Appendix D), which shall be modified in accordance with Condition II.M. of this Permit. The filing of a request for a permit modification, revocation and reissuance, or termination, or the notification of planned changes or anticipated noncompliance on the part of the Permittee, does not stay the applicability or enforceability of any permit condition.

I.C. STAYS OF CONTESTED PERMIT CONDITIONS (SEVERABILITY)
(40 CFR § 124.16)

As specified in 40 CFR § 124.16, if there is a request for review of this Permit, the contested permit conditions shall be stayed. Uncontested conditions which are not severable from those contested shall also be stayed together with the contested conditions. All other conditions of the Permit become fully effective and enforceable thirty (30) calendar days after the Regional Administrator notifies the Environmental Appeals Board, the Permittee, and all other interested parties of this Permit's uncontested (and severable) conditions.

I.D. DUTIES AND REQUIREMENTS

I.D.1. Duty to Comply
(40 CFR § 270.30(a))

The Permittee shall comply with all conditions of this Permit, except to the extent and for the duration such noncompliance is authorized by an emergency permit. Any permit noncompliance, other than noncompliance authorized by an emergency permit, constitutes a violation of RCRA and is grounds for enforcement action, permit termination, revocation and reissuance, modification, or denial of a permit renewal application.

I.D.2. Duty to Reapply
(40 CFR § 270.10(h) and § 270.30(b))

If the Permittee will continue an activity allowed or required by this Permit, after the expiration date of this Permit, the Permittee shall submit a complete application for permit renewal per 40 CFR § 270.30(b), at least one hundred eighty (180) calendar days before this Permit expires, unless permission for a later date has been granted by the Regional Administrator.

I.D.3. Obligation for Corrective Action
(40 CFR § 264.101, § 270.1(c), and § 270.51)

The Permittee is required to continue this Permit for any period necessary to comply with the Corrective Action requirements of this Permit.

I.D.4. Cost Estimate for Corrective Action
(40 CFR § 264.101(c))

I.D.4.a. The Permittee shall prepare a cost estimate for the completion of any Corrective Action required under this Permit for SWMUs or AOCs in order to provide financial assurance for completion of Corrective Action as required under 40 CFR § 264.101. Such cost estimate shall be based upon the cost of assessment of all affected media and the design, installation, operation, inspection, monitoring, and maintenance of the Corrective Action system to meet the requirements of 40 CFR § 264.101 and this Permit to include any treatment system necessary for all affected media. Such cost estimate will include the full cost (100%) of Corrective Action as defined by Condition I.G.3. of this Permit. The cost estimate shall also cover the total third-party cost of implementing the Corrective Action, including any necessary long-term Corrective Action costs. Third-party costs are described in 40 CFR § 264.142(a)(2) and shall include all direct and indirect costs (including contingencies) as described in the EPA Directive No. 9476.00-6 (November 1986), Volume III, Chapter 10. The cost estimate shall contain sufficient details to allow it to be evaluated by the Regional Administrator.

I.D.4.b. The Permittee shall submit the cost estimate for completion of Corrective Action required under 40 CFR § 264.101 and this Permit within one hundred twenty (120) calendar days of the effective date of this Permit.

I.D.4.c. The Permittee shall annually adjust the cost estimate for inflation sixty (60) calendar days prior to the anniversary date of the establishment of the financial assurance mechanism

unless using a financial test or corporate guarantee, in which case the estimate shall be updated thirty (30) calendar days after the close of the Permittee's fiscal year.

I.D.4.d. The Permittee shall submit cost adjustments for modifications to the Corrective Action plan to the Regional Administrator within thirty (30) calendar days after receiving approval of the modification if the change increases the cost of Corrective Action.

I.D.5. Financial Assurance for Corrective Action
(40 CFR § 264.101(c))

I.D.5a. The Permittee shall demonstrate continuous compliance with 40 CFR § 264.101 by providing documentation of financial assurance as described in 40 CFR § 264.140 through § 264.151 in at least the amount of the cost estimate required under Condition I.D.4.

I.D.5.b. The Permittee shall submit financial assurance for the full cost of Corrective Action as required under 40 CFR § 264.90(a)(2) and § 264.101 no later than sixty (60) calendar days after the approval of the cost estimate described in Condition I.D.4. of this Permit.

I.D.5.c. The Permittee may use the mechanisms described in 40 CFR § 264.140 through § 264.151 (include the use of a pay-in period for Trusts) for financial assurance for the Corrective Action. References to regulatory requirements for "closure and/or post-closure care" shall be replaced with the phrase "closure, post-closure care, and/or corrective action." If the Permittee selects a Trust Fund for its financial assurance mechanism, it may use the calculations set forth at 40 CFR § 264.143(a)(3) to facilitate the funding of the Trust Fund on an annual basis.

I.D.6. Need to Halt or Reduce Activity Not a Defense
(40 CFR § 270.30(c))

In the event of an enforcement action, it shall not be a defense that the Permittee must halt or reduce permitted activities in order to maintain compliance with the conditions of this Permit.

I.D.7. Duty to Mitigate
(40 CFR § 270.30(d))

In the event of noncompliance with this Permit, the Permittee shall take all reasonable steps to minimize Releases of Hazardous Waste or Hazardous Constituents to the environment and shall carry out such measures as are reasonable to prevent significant adverse effects on human health or the environment.

I.D.8. Proper Operation and Maintenance
(40 CFR § 270.30(e))

The Permittee shall at all times properly operate and maintain all facilities and systems of treatment and control (and related appurtenances) which are installed or used by the Permittee to achieve compliance with the conditions of this Permit. Proper operation and maintenance include effective performance, adequate funding, adequate operator staffing and training, and adequate laboratory and process controls, including appropriate quality assurance procedures. This provision requires the operation of backup or auxiliary facilities

or similar systems only when necessary to achieve and maintain compliance with the conditions of the Permit.

I.D.9. Duty to Provide Information
(40 CFR § 270.30(h))

The Permittee shall furnish to the Regional Administrator, within a reasonable time, any relevant information which the Regional Administrator may request to determine whether cause exists for modifying, revoking and reissuing, or terminating this Permit, or to determine compliance with this Permit. The Permittee shall also furnish to the Regional Administrator, upon request, copies of any record required to be kept by this Permit or required to be kept per applicable RCRA requirements of 40 CFR Parts 260, 261, 262, 264, 266, and 268.

I.D.10. Inspection and Entry
(40 CFR § 270.30(i))

The Permittee shall allow the Regional Administrator, or an authorized representative, upon the presentation of credentials and other documents as may be required by law to:

a. Enter the Facility property where a RCRA regulated activity is located or conducted, or where records must be kept under the conditions of this Permit and applicable RCRA requirements;
b. Have access to and copy any records that must be kept under the conditions of this Permit and applicable RCRA requirements;
c. Inspect any facilities, equipment (including monitoring and control equipment), practices, or operations regulated, or required under this Permit or subject to RCRA; and
d. Sample or monitor for the purposes of assuring permit compliance or as otherwise authorized by RCRA, any substances or parameters at any location.

I.D.11. Monitoring and Records
(40 CFR § 264.74(b) and § 270.30(j))

I.D.11.a. Samples and measurements taken for the purpose of monitoring shall be representative of the monitored activity. The method used to obtain a representative waste sample to be analyzed must be the appropriate method from Appendix I of 40 CFR Part 261, the EPA Region 4 Field Branches Quality System and Technical Procedures (most recent version), or an equivalent method approved by the Regional Administrator. Procedures for sampling contaminated media must be those identified in the EPA Region 4 Field Branches Quality System and Technical Procedures (most recent version), or an equivalent method approved by the Regional Administrator. Laboratory methods must be those specified in the most recent edition of Test Methods for Evaluating Solid Waste: Physical/Chemical Methods, SW-846, or an equivalent method approved by the Regional Administrator.

I.D.11.b. As provided for in 40 CFR Part 264, the Permittee shall retain at an electronic internet-based location (with full access given to the EPA and MDEQ), or other appropriate location as approved by the Regional Administrator, records of all monitoring information required under the terms of this Permit and applicable monitoring and record keeping required by the applicable requirements of 40 CFR Parts 260, 261, 262, 264, 266, 268,

270, and 124; including all calibration and maintenance records, records of all data used to prepare documents required by this Permit, copies of all reports and records required by this Permit, the certification required by 40 CFR § 264.73(b)(9), and records of all data used to complete the application for this Permit for a period of at least three (3) years from the date of the sample, measurement, report, certification or application, or until Corrective Action is completed, whichever date is later. As a generator of Hazardous Waste, the Permittee shall retain a copy of all notices, certifications, demonstrations, waste analysis data, and other documentation produced pursuant to 40 CFR Part 268 for at least three (3) years from the date that the waste which is the subject of such documentation was last sent for on-site or off-site treatment, storage, or disposal, or until Corrective Action is completed, whichever date is later. These periods may be extended by request of the Regional Administrator at any time and are automatically extended during the course of any unresolved enforcement action regarding this Facility.

I.D.11.c. Records of monitoring information shall specify:

i. The dates, exact place, and times of sampling, or measurements;
ii. The individuals who performed the sampling or measurements;
iii. The dates analyses were performed;
iv. The name of the laboratory which performed the analyses;
v. The analytical techniques or methods used; and
vi. The results of such analyses.

I.D.11.d. All monitoring results and data shall be submitted to the Regional Administrator in accordance with the format specified in the EPA Region 4 "RCRD Data Management and Electronic Data Deliverables (EDD) Policy" (June 21, 2016). Each work plan submitted under this Permit shall identify the EDD format to be used for chemical and geologic data submitted under the terms of this Permit. Upon request, the Permittee shall resubmit previously submitted chemical and geologic data regarding the Facility in the specified EDD format to facilitate work plan and/or report development. Upon such request, the Permittee and Regional Administrator shall identify the scope of the data to be resubmitted and a timeframe for such resubmission.

I.D.12. Reporting Planned Changes
(40 CFR § 270.30(l)(1)-(2))

The Permittee shall give written notice to the Regional Administrator as soon as possible of any planned physical alterations or additions, including Permittee-initiated Interim Measures (IM) under Condition II.F.1.b., which impact known or suspected contamination at or from SWMUs or AOCs referenced in Conditions II.A.1., II.A.2., II.A.3., II.A.4., II.A.5., II.A.6., and II.C. The notice shall include at a minimum, a summary of the planned change, the reason for the planned change, a discussion of the impact(s) the planned change will have on the ability to investigate contamination at or from the SWMU or AOC, and a discussion of the impact(s) the planned change will have on the known or suspected contamination.

I.D.13. Anticipated Noncompliance
(40 CFR § 270.30(l)(2))

The Permittee shall give advance notice to the Regional Administrator of any planned changes in the permitted Facility or activity which may result in noncompliance with the requirements of this Permit.

I.D.14. Transfer of Permit
(40 CFR § 264.12(c), § 270.30(l)(3), and § 270.40)

This Permit may be transferred to a new owner or operator only after notice to the Regional Administrator and only if the Permit is modified or revoked and reissued pursuant to 40 CFR § 270.40(b) or § 270.41(b)(2) to identify the new owner or operator and incorporate such other requirements as may be necessary under RCRA. Before transferring ownership or operation of all or any portion of a facility during its operating life, or of a disposal facility during the post-closure care period, the Permittee shall notify the new owner or operator in writing of the requirements of 40 CFR Parts 264 and 270, HSWA, and this Permit. In conjunction with any transfer of ownership or operation of the Facility or any portion of the Facility, notice must be provided to the Regional Administrator, and the new owner or operator must submit a permit application to the Regional Administrator requesting to be added to the Permit as a Permittee. The Permit shall be modified to reflect the addition of the new Permittee.

I.D.15. Compliance Schedules
(40 CFR § 270.33)

Written notification of compliance or noncompliance with any item identified in the Schedule of Compliance (Appendix D) of this Permit shall be submitted according to each schedule date. If the Permittee does not notify the Regional Administrator within fourteen (14) calendar days of its compliance or noncompliance with the schedule, the Permittee shall be subject to an enforcement action. Submission of a required item according to the schedule constitutes notification of compliance.

I.D.16. Twenty-four Hour Reporting
(40 CFR § 264.56(d), § 270.30(l)(6), and § 270.30(h))

I.D.16.a. The Permittee shall report any noncompliance or any imminent or existing hazard from a Release of Hazardous Waste or Hazardous Constituents which may endanger human health or the environment. Any such information shall be reported orally to the Regional Administrator within twenty-four (24) hours from the time the Permittee becomes aware of the circumstances. This report shall include:

i. Information concerning the Release of any Hazardous Waste or Hazardous Constituents which may endanger public drinking water supplies; and
ii. Information concerning the Release or discharge of any Hazardous Waste or Hazardous Constituents, or of a fire or explosion at the Facility, which could threaten the environment or human health outside the Facility.

I.D.16.b. The description of the occurrence and its cause shall include:

i. Name, address, and telephone number of the owner or operator;
ii. Name, address, and telephone number of the Facility;
iii. Date, time, and type of incident;
iv. Name and quantity of materials involved;
v. The extent of injuries, if any;
vi. An assessment of the actual or potential hazard to the environment and human health outside the Facility; and
vii. Estimated quantity and disposition of recovered material that resulted from the incident.

I.D.16.c. A written report shall also be provided to the Regional Administrator within fifteen (15) calendar days of the time the Permittee becomes aware of the circumstances. The written report shall contain the information specified under Conditions I.D.16.a. and b.; a description of the noncompliance or imminent hazard and its cause; the periods of noncompliance (including exact dates and times); whether the noncompliance or imminent hazard has been corrected; and if not, the anticipated time it is expected to continue; and steps taken or planned to reduce, eliminate, and prevent recurrence of the noncompliance or imminent hazard.

I.D.17. Other Noncompliance
(40 CFR § 270.30(l)(10))

The Permittee shall report all other instances of noncompliance not otherwise required to be reported in accordance with Condition I.D.16. at the time written reports as required by this Permit are submitted. The reports shall contain the information listed in Condition I.D.16., as appropriate.

I.D.18. Other Information
(40 CFR § 270.30(l)(11))

Whenever the Permittee becomes aware that the Permittee failed to submit any relevant facts in a permit application or submitted incorrect information in a permit application or in any report(s) or document(s) submitted to the Regional Administrator, the Permittee shall promptly submit such facts or information.

I.E. SIGNATORY REQUIREMENT
(40 CFR § 270.11 and § 270.30(k))

All applications, reports, or information submitted to the Regional Administrator shall be signed and certified in accordance with 40 CFR § 270.11.

I.F. CONFIDENTIAL INFORMATION
(40 CFR § 270.12 and Part 2)

The Permittee may claim confidential any information required to be submitted by this Permit in accordance with 40 CFR § 270.12.

I.G. DEFINITIONS
(40 CFR Parts 124, 260, 261, 264, and 270 and RCRA, as amended)

For the purposes of this Permit, terms used herein shall have the same meaning as those in RCRA and 40 CFR Parts 124, 260, 261, 264, 268 and 270, unless this Permit specifically provides otherwise. Where terms are not defined in the regulations, the Permit, or the EPA guidelines or publications, the meaning associated with such terms shall be defined by a standard dictionary reference or the generally accepted scientific or industrial meaning of the term.

For purposes of this Permit, the following terms have the meanings set forth below:

I.G.1. The term **"Area of Concern" (AOC)** includes any area having a probable Release of a Hazardous Waste or Hazardous Constituent which is not from a SWMU and is determined by the Regional Administrator to pose a current or potential threat to human health or the environment. Such AOCs may require investigations and remedial action as required under Section 3005(c)(3) of RCRA and 40 CFR § 270.32(b)(2) in order to ensure adequate protection of human health and the environment.

I.G.2. An **"Area of Contamination"** is a discrete contiguous area of generally dispersed contamination that can be considered a RCRA Unit (usually Landfills/soils). Because an Area of Contamination is equated to a RCRA land-based Unit, consolidation and *in situ* treatment of Hazardous Waste within the Area of Contamination do not create a new point of Hazardous Waste generation for purposes of RCRA. An Area of Contamination allows wastes to be consolidated or treated *in situ* within the Area of Contamination without triggering Land Disposal restrictions or minimum technology requirements.

I.G.3. **"Corrective Action"** shall be defined as all activities, including activities conducted beyond the Facility boundary, that are proposed or implemented to facilitate assessment, monitoring, and active or passive remediation of Releases of Hazardous Waste or Hazardous Constituents to soil, groundwater, surface water, sediments, or the atmosphere associated with SWMUs and/or AOCs and/or Areas of Contamination located at the Facility or off-site, as required by 40 CFR § 264.101, or as otherwise required and specified by this Permit.

I.G.4. A **"Corrective Action Management Unit" (CAMU)** means an area, designated by the Regional Administrator within the Facility, used only for managing Remediation Wastes for implementing Corrective Action or cleanup at the Facility.

I.G.5. **"Corrective Measures"** include all Corrective Action necessary to protect human health and the environment for all Releases of Hazardous Waste or Hazardous Constituents from any SWMU or AOC at the Facility, regardless of the time at which waste was placed in the unit, as required by 40 CFR § 264.101. Corrective Measures may address Releases to air, soils, surface water, sediments, or groundwater.

I.G.6. **"Extent of Contamination"** is defined as the horizontal and vertical area in which the concentrations of Hazardous Constituents in the environmental media being investigated are above detection limits or background concentrations indicative of the region, whichever is appropriate as determined by the Regional Administrator.

I.G.7. The **"Facility"** means the property depicted in Figure 1 consisting of approximately 180 acres, and including property currently owned by International Paper Company and Baldwin Pole Mississippi, LLC as of the effective date of this Permit.

I.G.8. The term "**Hazardous Constituents"** shall mean those substances listed in 40 CFR Part 261 Appendix VIII and 40 CFR Part 264 Appendix IX, or any substance deemed appropriate by the Regional Administrator.

I.G.9. **"Hazardous Waste"** means a Solid Waste, or combination of Solid Wastes, which because of its quantity, concentration, or physical, chemical, or infectious characteristics may: (a) cause, or significantly contribute to an increase in mortality or an increase in serious irreversible, or incapacitating reversible, illness; or (b) pose a substantial or potential hazard to human health or the environment when improperly treated, stored, transported, or disposed of or otherwise managed.

I.G.10. **"Institutional Controls"** are non-engineered instruments, such as administrative and legal controls, that help minimize the potential for human exposure to contamination and/or protect the integrity of the Corrective Measures. Institutional Controls include, but are not limited to, Environmental Covenants pursuant to the Mississippi Uniform Environmental Covenants Act ("MUECA"), Miss. Code Ann. §§ 89-23-1 *et seq.*, as well as other mechanisms deemed to be needed to protect human health or the environment (*e.g.*, proprietary controls, other governmental controls, etc.).

I.G.11. **"Interim Measures" (IM)** are actions necessary to minimize or prevent the further migration of contaminants and limit actual or potential human and environmental exposure to contaminants while long-term Corrective Measures are evaluated and, if necessary, implemented.

I.G.12. **"Regional Administrator"** means the Regional Administrator for the EPA Region in which the Facility is located, or his/her designee.

I.G.13. A **"Release"** includes any spilling, leaking, pumping, pouring, emitting, emptying, discharging, injecting, escaping, leaching, dumping, or disposing into the environment of any Hazardous Waste or Hazardous Constituents.

I.G.14. **"Remedy Construction"** shall mean the event when the Regional Administrator acknowledges in writing that the Facility has completed construction of the Facility's remedy that was designed to achieve long-term protection of human health and the environment and that the remedy is fully functional as designed, whether or not final cleanup levels or other requirements have been achieved. Remedy Construction may be site-wide or pertain only to specific areas of the Facility.

I.G.15. A **"Remedy Decision"** shall mean the event by which the Regional Administrator formally selects a remedy designed to meet RCRA Corrective Action long-term goals of protection of human health and the environment. A Remedy Decision may be site-wide or pertain only to specific areas of the Facility.

I.G.16. The term **"Screening Levels"** shall mean health-based or environmental-based concentrations of Hazardous Constituents determined to be indicators for the protection of human health and/or the environment.

I.G.17. **"Solid Waste"** means any garbage, refuse, sludge from a waste treatment plant, water supply treatment plant, or air pollution control facility and other discarded material, including solid, liquid, semisolid, or contained gaseous material resulting from industrial, commercial, mining, and agricultural operations, and from community activities, but does not include solid or dissolved material in domestic sewage, or solid or dissolved materials in irrigation return flows or industrial discharges which are point sources subject to permits under Section 402 of the Federal Water Pollution Control Act, as amended (86 Stat. 880), or source, special nuclear, or by-product material as defined by the Atomic Energy Act of 1954, as amended (68 Stat. 923).

I.G.18. A **"Solid Waste Management Unit" (SWMU)** includes any unit which has been used for the treatment, storage, or disposal of Solid Waste at any time, irrespective of whether the unit is or ever was intended for the management of Solid Waste. RCRA regulated Units are also SWMUs. SWMUs include areas that have been contaminated by routine and systematic Releases of Hazardous Waste or Hazardous Constituents, excluding one-time accidental spills that are immediately remediated and cannot be linked to Solid Waste management activities (*e.g.*, product or process spills).

I.G.19. A **"Statement of Basis"** is a document that describes the process the Regional Administrator uses under RCRA to select measures for containing or cleaning up contamination at a facility. Specific information in the Statement of Basis include: description and environmental setting of the facility, names and concentrations of contaminants detected at the facility and associated exposure pathways, selected remedy, innovative technologies considered in determining the remedy, and public involvement requirements for the Corrective Measures.

I.G.20. A **"Temporary Unit" (TU)** includes any temporary tanks and/or container storage areas used solely for treatment or storage of hazardous Remediation Wastes during specific remediation activities. Designated by the Regional Administrator, such TUs must conform to specific standards, and may only be in operation for a period of time as specified in this Permit.

I.G.21. A **"Unit"** includes, but is not limited to, any Landfill, surface impoundment, waste pile, land treatment unit, incinerator, injection well, tank, container storage area, septic tank, drain field, wastewater treatment unit, elementary neutralization unit, transfer station, recycling unit, boiler, industrial furnace, thermal treatment system, mechanical treatment system, open burn, open detonation, chemical treatment system, or other miscellaneous unit which has been or is used for the management of, or has or is contacting RCRA subject Hazardous Waste or Hazardous Constituents.

PART II - CORRECTIVE ACTION

II.A. APPLICABILITY
(RCRA § 3005(c), 40 CFR Part 264, Subpart F, 40 CFR § 264.101(a), and § 270.32(b)(2))

The Conditions of this Part apply to:

II.A.1. The SWMUs and AOCs identified in Appendix A, Table A-1, which require no further action under Part II of this Permit at this time;

II.A.2. The SWMUs and AOCs identified in Appendix A, Table A-2, which require Confirmatory Sampling (CS);

II.A.3. The SWMUs and AOCs identified in Appendix A, Table A-3, which require a RCRA Facility Investigation (RFI);

II.A.4. The SWMUs and AOCs identified in Appendix A, Table A-4, which require Interim Measures (IM);

II.A.5. The SWMUs and AOCs identified in Appendix A, Table A-5, which require a Corrective Measures Study (CMS);

II.A.6. The SWMUs and AOCs identified in Appendix A, Table A-6, for which a remedy has been selected;

II.A.7. The SWMUs and AOCs identified in Appendix A, Table A-7, which are regulated under the MDEQ Post-Closure Permit;

II.A.8. Any additional SWMUs or AOCs discovered during the course of groundwater monitoring, field investigations, environmental audits, or other means. As used in this Part of the Permit, the terms "discover," "discovery," or "discovered" refer to the date on which the Permittee either: (1) visually observes evidence of a new SWMU or AOC; (2) visually observes evidence of a previously unidentified Release of Hazardous Constituents to the environment; or (3) receives information which suggests the presence of a new Release of Hazardous Waste or Hazardous Constituents to the environment;

II.A.9. Any contamination that has migrated and/or is migrating beyond the Facility boundary. The Permittee shall implement Corrective Actions beyond the Facility boundary where necessary to protect human health and the environment, unless the Permittee demonstrates to the satisfaction of the Regional Administrator that, despite the Permittees' best efforts, as determined by the Regional Administrator, the Permittee was unable to obtain the necessary permission to undertake such actions. The Permittee is not relieved of all responsibility to clean up a Release that has migrated beyond the Facility boundary where off-site access is denied. On-site measures to address such Releases will be determined on a case-by-case basis. Assurances of financial responsibility for completion of such off-site Corrective Action shall be required, consistent with Conditions I.D.4. and I.D.5 of this Permit.

II.B. NEWLY IDENTIFIED SWMUs AND AOCs
(RCRA § 3005(c) and 40 CFR § 270.14(d))

II.B.1. The Permittee shall notify the Regional Administrator in writing, within fifteen (15) calendar days of discovery, of any suspected new AOC as discovered under Condition II.A.8. The notification shall include, at a minimum, the location of the AOC and all available information pertaining to the nature of the Release (*e.g.*, media affected, Hazardous Constituents released, magnitude of Release, etc.). The Regional Administrator may conduct, or require the Permittee to conduct, further assessment (*i.e.*, Confirmatory Sampling as outlined in Condition II.D.) in order to determine the status of the suspected AOC. The Regional Administrator will notify the Permittee in writing of the final determination as to the status of the suspected AOC. If the Regional Administrator determines that further investigation of an AOC is required, the Permittee shall be required to prepare a plan for such investigation as outlined in Condition II.D.2. or Condition II.E.1.b.

II.B.2. The Permittee shall notify the Regional Administrator in writing, within fifteen (15) calendar days of discovery, of any additional SWMU as discovered under Condition II.A.8.

II.B.3. The Permittee shall prepare and submit to the Regional Administrator, within ninety (90) calendar days of notification, a SWMU Assessment Report (SAR) for each SWMU identified under Condition II.B.2. At a minimum, the SAR shall provide the following information:

a. Location of the unit(s) on a topographic map of appropriate scale such as required under 40 CFR § 270.14(b)(19);
b. Designation of type and function of the unit(s);
c. General dimensions, capacities and structural description of the unit(s) (supply any available plans/drawings);
d. Dates that the unit(s) was operated;
e. Specification of all wastes that have been managed at/in the unit(s) to the extent available. Include any available data on Hazardous Constituents in the wastes; and
f. All available information pertaining to any Release of Hazardous Waste or Hazardous Constituents from such unit(s) (to include groundwater data, soil analyses, air, and/or surface water data).

II.B.4. Based on the results of the SAR, the Regional Administrator will determine the need for further investigations at the SWMUs covered in the SAR. If the Regional Administrator determines that such investigations are needed, the Permittee shall be required to prepare a plan for such investigations as outlined in Condition II.D.2. or Condition II.E.1.b.

II.C. NEWLY DISCOVERED RELEASES FROM SWMUs or AOCs
(RCRA § 3005(c) and 40 CFR § 270.14(d))

II.C.1. The Permittee shall notify the Regional Administrator in writing of any newly discovered Release(s) of Hazardous Waste or Hazardous Constituents discovered during the course of groundwater monitoring, field investigations, environmental audits, or other means, within

fifteen (15) calendar days of discovery. Such newly discovered Releases may be from SWMUs or AOCs identified in Condition II.A.1., or SWMUs or AOCs identified in Condition II.A.8. for which further investigation under Conditions II.B.1. or II.B.4. was not required.

II.C.2. If the Regional Administrator determines that further investigation of the SWMUs or AOCs is needed, the Permittee shall be required to prepare a plan for such investigations as outlined in Condition II.D.2. or Condition II.E.1.b.

II.D. CONFIRMATORY SAMPLING (CS)

(40 CFR § 270.14(d))

Confirmatory Sampling (CS) was conducted at the Facility in 1996 and the results were described in a report entitled "Confirmatory Sampling and Structural Integrity Testing Results for Solid Waste Management Units and Areas of Concern," dated April 1997. The CS involved sampling at 37 SWMUs and 2 AOCs.

Additional Confirmatory Sampling is not required at this time. If additional SWMUs or AOCs are identified which require Confirmatory Sampling, then the provisions of this Condition II.D. shall apply.

II.D.1. The Permittee shall prepare and submit a CS Work Plan for each SWMU or AOC identified under Condition II.A.2. for which CS is required but has not yet been implemented. The CS Work Plan shall be submitted within forty-five (45) calendar days from the effective date of this Permit. The CS Work Plan shall include schedules of implementation and completion of specific actions necessary to determine whether or not a Release has occurred. It should also address applicable requirements and affected media. In order to partly or wholly satisfy the CS requirement, previously existing data may be submitted with the work plan for the Regional Administrator's consideration.

II.D.2. Upon notification by the Regional Administrator, the Permittee shall prepare and submit a CS Work Plan for suspected AOCs per Condition II.B.1., or newly identified SWMUs per Condition II.B.4. The work plan shall be submitted within forty-five (45) calendar days of notification by the Regional Administrator that a CS Work Plan is required. The CS Work Plan shall meet the basic requirements listed in Condition II.D.1.

II.D.3. The CS Work Plan must be approved by the Regional Administrator, in accordance with Condition II.O. and in writing, prior to implementation. The Regional Administrator will specify the start date of the CS Work Plan schedule in the letter approving the CS Work Plan.

II.D.4. The Permittee shall implement the CS in accordance with the approved CS Work Plan.

II.D.5. The Permittee shall prepare and submit to the Regional Administrator, in accordance with the schedule in the approved CS Work Plan, a CS Report identifying all SWMUs or AOCs that have released Hazardous Waste or Hazardous Constituents into the environment. The CS Report shall include all data, including raw data and a summary and analysis of the data, that supports the above determination. If submission of the CS Report coincides with submission of the RCRA Facility Investigation (RFI) Report, then the CS Report and the

RFI Report may be combined into one submission at the discretion of the Regional Administrator.

II.D.6. Based on the results of the CS Report, the Regional Administrator will determine the need for further investigations at the SWMUs or AOCs covered in the CS Report. If the Regional Administrator determines that such investigations are needed, the Permittee shall be required to prepare a plan for such investigations as outlined in Condition II.E.1.b. The Regional Administrator will notify the Permittee of any no further action decision.

II.E. RCRA FACILITY INVESTIGATION (RFI)
(40 CFR § 264.101)

A RCRA Facility Investigation (RFI) for the Facility, which included a Human Health Risk Assessment, was completed in 2002 and the results were described in a report entitled "RCRA Facility Investigation, International Paper Treated Wood Products Plant, Wiggins, MS," dated November 12, 2002. The RFI concluded that 14 SWMUs and AOC A had releases that warranted evaluation for possible Corrective Measures. The EPA approved the RFI Report on January 29, 2004. Many additional soil sampling events and waste removal events were conducted by the Permittee at several SWMUs from the 1980s through the early 2000s. Many of these events are documented in the 2002 RFI Report.

In addition to the RFI described above, the Permittee conducted on-site soil sampling for dioxin in 2008 at the EPA's request. A report of such sampling entitled "Dioxin Soil Sampling Report," dated December 23, 2008, revealed that one area of the Facility known as AOC C/SWMU 38 needed Corrective Measures to minimize the potential for on-site worker exposure.

To better organize the SWMUs and AOCs, two areas were created that group geographically close SWMUs and AOCs together for discussion and management purposes. Treatment Area No. 1 and Treatment Area No. 2 cover the SWMUs and AOCs in the active wood treating portion of the Facility currently owned and operated by Baldwin Pole Mississippi, LLC.

The EPA conducted discrete surface soil sampling in Treatment Areas No. 1 and No. 2 in June 2017 and the results indicated pentachlorophenol and arsenic contamination above the Regional Screening Levels for Industrial Soils in these areas. Additional soil investigation is necessary to define the extent of the soil contamination and to ensure the protection of workers while operations are ongoing.

Although groundwater investigation and cleanup has historically focused on the Units regulated under the MDEQ Post-Closure Permit, the Permittee has conducted additional groundwater investigation at the Facility pursuant to a "Data Gap Investigation Work Plan," dated January 29, 2020, and approved by the EPA on February 26, 2020. This investigation focused on potential groundwater contamination downgradient from Treatment Areas No.1 and No.2. The Permittee has submitted a draft "Data Gap Investigation Report" summarizing the results of this investigation. The EPA has completed its review of this Report and will be sending comments to the Permittee regarding whether additional investigation is required.

II.E.1. RFI Work Plan(s)

II.E.1.a. The Permittee shall prepare and submit an RFI Work Plan for each SWMU or AOC identified under Condition II.A.3. for which an RFI is required but has not yet been implemented. The RFI Work Plan(s) shall be submitted to the Regional Administrator

within ninety (90) calendar days of the effective date of this Permit. The Work Plan(s) shall be developed to meet the requirements of Condition II.E.1.c.

If an RFI Work Plan has already been submitted for any SWMUs or AOCs, then Condition II.E.1.d. and beyond govern approval and implementation of the RFI requirements for those units. If an RFI Work Plan for any SWMUs or AOCs has already been approved by the Regional Administrator, then Condition II.E.2. and beyond govern implementation of the RFI requirements for those units.

II.E.1.b. The Permittee shall prepare and submit to the Regional Administrator, within ninety (90) calendar days of notification by the Regional Administrator, an RFI Work Plan for those units identified under Conditions II.B.1., II.B.4., II.C.2., and/or II.D.6. The RFI Work Plan(s) shall be developed to meet the requirements of Condition II.E.1.c.

II.E.1.c. The RFI Work Plan(s) shall meet the requirements as specified in Appendix B of this Permit unless otherwise directed by the Regional Administrator. The RFI Work Plan(s) shall include schedules of implementation and completion of specific actions necessary to determine the nature and extent of contamination and the potential pathways of contaminant releases to the air, soil, surface water, sediments, and groundwater. The Permittee shall provide sufficient justification and associated documentation that a release is not probable or has already been characterized if a SWMU or AOC or a media/pathway associated with a SWMU or AOC (groundwater, surface water, soil, subsurface gas, or air) is not included in the RFI Work Plan(s). Any such deletion(s) of a SWMU or AOC, media, or pathway from the RFI(s) shall be subject to the approval of the Regional Administrator. The Permittee shall provide sufficient written justification for any omissions or deviations from the minimum requirements of Appendix B. Such omissions or deviations shall be subject to the approval of the Regional Administrator. In addition, the scope of the RFI Work Plan(s) shall include all investigations necessary to ensure compliance with 40 CFR § 264.101(c) and plans to comply with Condition I.D.11.d. (Electronic Data Deliverables).

II.E.1.d. The RFI Work Plan(s) must be approved by the Regional Administrator, in accordance with Condition II.O. and in writing, prior to implementation. The Regional Administrator will specify the start date of the RFI Work Plan schedule in the letter approving the RFI Work Plan(s).

<u>II.E.2.</u> RFI Implementation

The Permittee shall implement the RFI(s) in accordance with the approved RFI Work Plan(s). The Permittee shall notify the Regional Administrator at least twenty (20) calendar days prior to any sampling activity.

<u>II.E.3.</u> RFI Report(s)

II.E.3.a. The Permittee shall prepare and submit to the Regional Administrator Draft and Final RFI Report(s) for the investigations conducted pursuant to the RFI Work Plan(s). The Draft RFI Report(s) shall be submitted to the Regional Administrator for review in accordance with the schedule in the approved RFI Work Plan(s). The Final RFI Report(s) shall be submitted to the Regional Administrator within thirty (30) calendar days of receipt of the Regional Administrator's final comments on the Draft RFI Report. The RFI Report(s) shall

include an analysis and summary of all required investigations of SWMUs and AOCs and their results. The summary shall describe the type and Extent of Contamination at the Facility, including sources and migration pathways, identify all Hazardous Constituents present in all media, and describe actual or potential receptors. The RFI Report(s) shall also describe the Extent of Contamination (qualitative/quantitative) in relation to background levels indicative of the area. If the RFI Report is a summary of only the initial phase investigatory work or based on current investigations and further investigation is necessary, an Interim RFI Report summarizing the initial phase investigation shall be submitted incorporating a work plan for the final phase investigatory actions required based on the initial findings. Approval of the final phase work plan shall be carried out in accordance with Condition II.E.1.d. The objective of this task shall be to ensure that the investigation data are sufficient in quality (*e.g.*, quality assurance procedures have been followed) and quantity to describe the nature and Extent of Contamination, potential threat to human health and/or the environment, and to support a Corrective Measures Study (CMS), if necessary.

II.E.3.b. The Permittee shall submit to the Regional Administrator, along with the Interim and Final RFI Report(s), Screening Levels based on the latest the EPA guidance or as otherwise directed by the Regional Administrator for each of the Hazardous Constituents reported in Condition II.E.3.a.

II.E.3.c. The Regional Administrator will review the RFI Report(s), including the Screening Levels described in Condition II.E.3.b. The Regional Administrator will notify the Permittee of the need for further investigative action if necessary and, if appropriate at this stage of the investigation, inform the Permittee, if not already notified, of the need for a CMS to meet the requirements of Condition II.G. and 40 CFR § 264.101. The Regional Administrator will notify the Permittee of any no further action decision. Any further investigative action required by the Regional Administrator shall be prepared and submitted by the Permittee in accordance with a schedule specified by the Regional Administrator and approved in accordance with Condition II.E.1.d.

II.E.3.d. If the time required to conduct the RFI(s) is greater than one hundred eighty (180) calendar days, the Permittee shall provide the Regional Administrator with quarterly RFI Progress Reports (90-day intervals) beginning ninety (90) calendar days from the start date specified by the Regional Administrator in the RFI Work Plan approval letter. The RFI Progress Reports shall contain the following information at a minimum:

i. A description of the portion of the RFI completed;
ii. Summaries of findings;
iii. Summaries of any deviations from the approved RFI Work Plan during the reporting period;
iv. Summaries of any significant contacts with local community public interest groups or State government;
v. Summaries of any problems or potential problems encountered during the reporting period;
vi. Actions taken to rectify problems;
vii. Changes in relevant personnel;
viii. Projected work for the next reporting period; and
ix. Copies of daily reports, inspection reports, data, etc.

II.F. INTERIM MEASURES (IM)
(40 CFR § 264.101)

After the Confirmatory Sampling was completed in 1997, the Permittee conducted Interim Measures at SWMUs 17, 18, 19, and 20. These were clean closure removals that resulted in a No Further Action (NFA) determination for these four SWMUs. The Permittee also implemented Interim Measures at AOC C/SWMU 38 in 2016 to address on-site worker exposure to dioxin in surface soils. These measures consisted of covering the area with geotextile and 4 to 6 inches of compacted gravel and maintaining this coverage to prevent worker exposure to the dioxin contamination. Ongoing maintenance of this cover is required under this Permit.

II.F.1. IM Work Plan(s)

II.F.1.a. The Permittee shall prepare and submit an IM Work Plan for each SWMU, or AOC identified under Condition II.A.4. for which IM are required. The IM Work Plan(s) shall be submitted to the Regional Administrator within thirty (30) calendar days of the effective date of this Permit. The Work Plan(s) shall include the elements listed in Condition II.F.1.d.

If an IM Work Plan has already been submitted for any SWMUs or AOCs, then Condition II.F.1.d. and beyond govern approval and implementation of the IM requirements for those units. If an IM Work Plan for any SWMUs or AOCs has already been approved by the Regional Administrator, then Condition II.F.2. and beyond govern implementation of the IM requirements for those units.

II.F.1.b. Upon notification by the Regional Administrator, the Permittee shall prepare and submit an IM Work Plan for any SWMU or AOC for which the Regional Administrator determines IM are necessary. IM are necessary in order to minimize or prevent the further migration of contaminants and to limit actual or potential human and environmental exposure to contaminants while long-term Corrective Action remedies are evaluated and, if necessary, implemented. The IM Work Plan shall be submitted within thirty (30) calendar days of such notification and shall include the elements listed in Condition II.F.1.d. Such IM may be conducted concurrently with investigations required under the terms of this Permit.

II.F.1.c. The Permittee may initiate IM at a SWMU or AOC by submitting the appropriate notification pursuant to Condition I.D.12. The Regional Administrator will process Permittee-initiated IM by either conditionally approving the IM or imposing an IM Work Plan per Condition II.F.1.b. Permittee-initiated IM shall be considered conditionally approved unless the Regional Administrator specifically imposes an IM Work Plan within thirty (30) calendar days of receipt of notification of the Permittee-initiated IM. The scope and success of Permittee-initiated IM conditionally approved per this Condition II.F.1.c. shall be subject to subsequent in-depth review. The Regional Administrator will either comment on or approve the Permittee-initiated IM. Permittee-initiated IM must follow the progress and final reporting requirements of Condition II.F.3.

II.F.1.d. The IM Work Plan shall ensure that the IM are designed to mitigate any current or potential threat(s) to human health or the environment and are consistent with and integrated into any long-term solution at the Facility. The IM Work Plan shall include: the IM objectives, procedures for implementation (including any designs, plans, or

specifications), schedules for implementation, and plans to comply with Condition I.D.11.d. (Electronic Data Deliverables).

II.F.1.e. The IM Work Plan imposed under Conditions II.F.1.a. or II.F.1.b. must be approved by the Regional Administrator, in accordance with Condition II.O. and in writing, prior to implementation. The Regional Administrator will specify the start date of the IM Work Plan schedule in the letter approving the IM Work Plan.

II.F.2. IM Implementation

II.F.2.a. The Permittee shall implement the IM imposed under Conditions II.F.1.a. or II.F.1.b. in accordance with the approved IM Work Plan.

II.F.2.b. The Permittee shall give notice to the Regional Administrator as soon as possible of any planned changes, reductions or additions to the IM Work Plan imposed under Conditions II.F.1.a. or II.F.1.b., or initiated by the Permittee under Condition II.F.1.c.

II.F.2.c. Final approval of Corrective Action required under 40 CFR § 264.101 which is achieved through IM shall be in accordance with 40 CFR § 270.41 and Condition II.H. as a permit modification.

II.F.3. IM Reports

II.F.3.a. If the time required for completion of IM imposed under Conditions II.F.1.a. or II.F.1.b., or implemented under Condition II.F.1.c., is greater than one year, the Permittee shall provide the Regional Administrator with progress reports at intervals specified in the approved Work Plan or, for Permittee-initiated IM without an approved IM Work Plan, at six (6) month intervals starting 180 calendar days after initiating IM. Such IM Progress Reports shall contain the following information at a minimum:

i. A description of the portion of the IM completed;
ii. Summaries of findings;
iii. Summaries of any deviations from the IM Work Plan during the reporting period;
iv. Summaries of any problems or potential problems encountered during the reporting period; and
v. Projected work for the next reporting period.

II.F.3.b. The Permittee shall prepare and submit for review an IM Report to the Regional Administrator within ninety (90) calendar days of completion of IM conducted under this Permit. The IM Report shall contain the following information at a minimum:

i. A description of IM implemented;
ii. Summaries of results;
iii. Summaries of all problems encountered;
iv. Summaries of accomplishments and/or effectiveness of IM; and
v. Copies of all relevant laboratory/monitoring data, etc. in accordance with Condition I.D.11.

II.G. CORRECTIVE MEASURES STUDY
(40 CFR § 264.101 and § 264.552)

The need for a Corrective Measures Study (CMS) was initially triggered based on the findings from the EPA-approved 2002 RFI Report. A "Preliminary Corrective Measures Study Report for the International Paper, Treated Wood Products Plant" was submitted in November 2005 addressing SWMUs 21 through 29, 32, 33, 37, 38, and 39, as well as AOC B. This Report did not recommend final Corrective Measures for any of these SWMUs and AOC, but it proposed some preliminary remedial concepts. The report never received final approval from the EPA.

Supplemental CMS work was performed in 2015 and 2017. The 2015 "Supplemental CMS Report" included an assessment of soil, sediment, and/or surface water at SWMU 37 and AOC B, including ecological risk screening results. A "Supplemental Corrective Measures Study" was completed in February 2017 which included further investigation and ecological risk assessment of contamination in the water and sediments of Church House Branch (AOC B) and addressed measures to control exposure to contaminated soils at AOC C/SWMU 38. The Supplemental CMS Report recommended no further action for AOC B and institutional controls plus gravel/geotextile cover for AOC C/SWMU 38. Recently, the EPA has requested additional sampling for AOC B to supplement the existing ecological risk assessment. This sampling is currently being conducted by the Permittee and will be presented as an addendum to the 2017 Supplemental CMS Report.

An additional CMS is not required at this time. If additional SWMUs or AOCs are identified which require a CMS, the provisions of this Condition II.G. shall apply.

II.G.1. The Permittee shall prepare and submit to the Regional Administrator a CMS for each SWMU or AOC identified under Condition II.A.5. for which a CMS is required but has not yet been implemented. The CMS shall be submitted to the Regional Administrator within ninety (90) calendar days of the effective date of this Permit. The CMS shall be developed to meet the requirements of Condition II.G.4.

II.G.2. The Permittee shall prepare and submit to the Regional Administrator, within ninety (90) calendar days of notification by the Regional Administrator, a CMS for those SWMUs and AOCs where Hazardous Constituents have come to be located at concentrations exceeding those appropriate for the protection of human health and the environment. The CMS shall be developed to meet the requirements of Condition II.G.4.

II.G.3. The Permittee may seek approval from the Regional Administrator for concurrent RFI/CMS. The CMS may be performed concurrent with the RFI process if the Regional Administrator determines that sufficient investigative details are available to allow concurrent action.

II.G.4. The CMS shall meet the requirements of Appendix C of this Permit at a minimum. The CMS shall include schedules of implementation and completion of specific actions necessary to complete a CMS. The Permittee must provide sufficient justification and/or documentation for any SWMU or AOC deleted from the CMS. Such deletion of a SWMU or AOC is subject to the approval of the Regional Administrator. The scope of the CMS shall include all investigations necessary to ensure compliance with RCRA Section 3005(c)(3) and 40 CFR § 264.101, § 264.552, and § 270.32(b)(2). The Permittee shall implement Corrective Actions beyond the Facility boundary, as set forth in Condition II.A.9.

II.G.5. The Regional Administrator will either approve or disapprove, in accordance with Condition II.O. and in writing, the CMS.

II.H. CORRECTIVE MEASURES (REMEDY) APPROVAL AND PERMIT MODIFICATION
(40 CFR § 264.101, § 264.552, § 270.41, and § 270.42)

A remedy has not yet been selected for the Facility, but future remedy selection will comply with this Condition II.H.

II.H.1. A proposed remedy shall be identified from the remedial alternatives evaluated in the CMS. It will be based at a minimum on protection of human health and the environment, as per specific site conditions and existing regulations. The proposed remedy may include any IM implemented to date.

II.H.2. Pursuant to 40 CFR § 270.41, and after a remedy recommendation has been identified under Condition II.H.I., a permit modification will be initiated by the Regional Administrator. This modification will serve to incorporate a final remedy (see Condition II.I.), including a CAMU if necessary, and remedy implementation schedules (see Condition II.J.) into this Permit. The Regional Administrator will provide the public an opportunity to review and comment on the Statement of Basis and the permit modification during a public comment period. A remedy may also be proposed by the Regional Administrator during a permit renewal. No further action determinations on any SWMUs and AOCs may be noted during either a permit modification for remedy selection or a permit renewal.

II.H.3. Based on comments received during the public comment period, the Regional Administrator may select a final remedy or require the Permittee to revise the CMS Report and/or perform an additional CMS.

II.H.4. The Regional Administrator will notify the Permittee of the Remedy Decision selected by the Regional Administrator in a Final Decision and Response to Comments (FDRTC). The FDRTC is issued with the permit modification or renewal selecting the remedy. The purpose of the FDRTC is to document the selected remedy found in the permit modification or renewal, to present concerns and issues raised during the public comment period, and to provide responses.

II.H.5. Upon the effective date of a permit modification or renewal approving the selected remedy, the Permittee shall implement the approved remedy per the remedy implementation schedule (see Condition II.J.). The Permittee shall submit Corrective Measures Implementation (CMI) and Effectiveness Reports to the Regional Administrator annually.

II.H.6. Within one hundred and twenty (120) calendar days after this Permit has been modified or renewed with a remedy selection, the Permittee shall update the cost estimates and financial assurance for completing the approved remedy, consistent with requirements of Conditions I.D.4. and I.D.5. Thereafter, the Permittee shall review the remedy cost estimates and adjustments to the financial instrument annually, as provided in Condition I.D.4.c. The mechanism shall be one that is described and allowable under Condition I.D.5.

II.I. SELECTED CORRECTIVE MEASURES (REMEDY)
(40 CFR § 264.101, § 264.552, §270.41, and § 270.42)

[Reserved]

II.J. CORRECTIVE MEASURES IMPLEMENTATION (CMI)
(40 CFR § 264.101)

[Reserved]

II.K. INSTITUTIONAL CONTROLS (ICs)
(40 CFR § 264.101)

In accordance with Mississippi post-closure regulations and the MDEQ Post-Closure Permit, the Permittee has implemented ICs in the form of a "Declaration and Notice to the Public of Management of Hazardous Waste Site" filed in Stone County on February 28, 1991. If additional ICs are required as part of a future remedy at the Facility, the selection of such ICs shall comply with this Condition II.K.

II.K.1. The Permittee must consider institutional or other appropriate non-engineering controls for protection of human health and the environment from contamination left in place at any SWMUs or AOCs. Among the ICs to be considered is an environmental covenant pursuant to the Mississippi Uniform Environmental Covenants Act ("UECA"), Miss. Code Ann. §§ 89-23-1 *et seq.*

II.K.2. ICs may be used to protect the Corrective Measures implemented at the Facility if this Permit is terminated at the completion of Corrective Action. ICs should be implemented prior to termination of this Permit.

II.K.3. ICs that are approved as part of the final remedy shall survive the termination of this Permit.

II.K.4. ICs may be placed upon the Facility or on any specifically identified area of SWMUs or AOCs. ICs may restrict the use of the property covered by such IC to commercial and/or industrial land use, as those terms are currently defined, or may be defined in the future, by zoning ordinance(s) of the city, county or any other local governmental entity with jurisdiction and authority to regulate land use at the property.

II.L. COMPLETION OF CORRECTIVE ACTION
(40 CFR § 264.101)

II.L.1. The Corrective Action shall be considered complete when the Regional Administrator determines that: (a) compliance with the media cleanup standards and the cleanup objectives has been achieved; and (b) all actions required to control the source(s) of contamination have been satisfied.

II.L.2. Corrective Action shall be considered complete with or without controls in place where the Permittee has satisfied all obligations under RCRA Sections 3004(u) and (v).

II.L.3. Upon completion of the Corrective Action for the entire Facility, or a portion of the Facility, or any off-site contamination, the Permittee may submit to the Regional Administrator, by certified mail, a request for termination of the Corrective Action Schedule of Compliance according to the procedures for Class 3 modifications in 40 CFR § 270.42. The request shall include a certification that the Corrective Measures have been completed in accordance with the requirements set forth by the Regional Administrator.

II.L.4. When, upon receipt of the certification, and in consideration of public comments and any other relevant information, the Regional Administrator determines that the Corrective Measures have been completed in accordance with the terms and conditions of this Permit and the requirements for completion, the Regional Administrator will: a) terminate the HSWA Permit; or b) modify the Permit to terminate the Corrective Action Schedule of Compliance for SWMUs and AOCs that require no further action at this time. Upon termination of the Permit, or modification of the Permit for completion of Corrective Action at the entire Facility, the EPA will release the Permittee from the financial assurance requirements of this Permit.

II.M. CORRECTIVE ACTION SCHEDULE OF COMPLIANCE MODIFICATION
(40 CFR § 264.101(b) and § 270.41(a)(4))

II.M.1. If at any time the Regional Administrator determines that modification of the Corrective Action Schedule of Compliance in Appendix D is necessary, the Regional Administrator may initiate a modification to the Schedule of Compliance.

II.M.2. Modifications that are initiated and finalized by the Regional Administrator will be in accordance with the applicable provisions of 40 CFR Part 270. The Permittee may also request a permit modification in accordance with 40 CFR Part 270 to change the Schedule of Compliance.

II.N. WORK PLAN AND REPORT REQUIREMENTS
(40 CFR § 270.11 and § 270.30(k))

II.N.l. All work plans and schedules shall be subject to approval by the Regional Administrator prior to implementation to assure that such work plans and schedules are consistent with the requirements of this Permit and with applicable regulations. Any approved schedule of implementation contained in any work plan, addendum, or additional phases becomes part of the Permit. The Permittee shall revise all submissions and schedules as specified by the Regional Administrator. Upon approval, the Permittee shall implement all work plans and schedules as written.

II.N.2. All work plans and reports shall be submitted in accordance with the approved schedule. Extensions of the due date for submissions may be granted by the Regional Administrator based on the Permittees' demonstration that sufficient justification for the extension exists.

II.N.3. If the Permittee or Regional Administrator at any time determines that the SAR information required under Condition II.B., the CS Work Plan under Condition II.D., the Interim Measures Work Plan required under Condition II.F., or RFI Work Plan(s) required under Condition II.E. no longer satisfy the requirements of 40 CFR § 264.101 or this Permit for prior or continuing Releases of Hazardous Waste or Hazardous Constituents

from SWMUs and/or AOCs, the Permittee shall submit an amended Work Plan(s) to the Regional Administrator within ninety (90) calendar days of such determination.

II.N.4. One copy of all reports and work plans and an electronic version of the same reports/work plans shall be provided by the Permittee to the Regional Administrator in care of the RCRA Corrective Action Section Chief at the following address:

U.S. Environmental Protection Agency, Region 4
Attn: Chief, RCRA Corrective Action Section
RCRA Programs and Cleanup Branch
Land, Chemicals and Redevelopment Division
61 Forsyth Street, SW
Atlanta, Georgia 30303

II.O. APPROVAL/DISAPPROVAL OF SUBMISSIONS
(40 CFR § 264.101)

The Regional Administrator or designated representative will review the document, reports, schedules, and other documents ("submissions") which require the Regional Administrator's approval in accordance with the conditions of this Permit. The Regional Administrator or designated representative will notify the Permittee in writing of any submission that is disapproved, and the basis, therefore. If the Regional Administrator disapproves any submission (e.g., work plan, report) required under this Permit, the Regional Administrator will either: (1) notify the Permittee in writing of the submission's deficiencies and specify a due date for submission of a revised document; (2) revise the submission and notify the Permittee of the revisions; or (3) conditionally approve the submission and notify the Permittee of the conditions. Any EPA-revised or modified submission shall be deemed the final. As needed, the Regional Administrator will specify the start date of the document schedule in the letter approving the document. Any modified submission becomes the approved submission to be implemented by the Permittee.

II.P. DISPUTE RESOLUTION
(40 CFR § 264.101)

Notwithstanding any other provision in this Permit, in the event the Permittee disagrees, in whole or in part, with the Regional Administrator's revision of a submission or disapproval of any revised submission required by the Permit, and decides to invoke dispute resolution under this Condition II.P., the following shall apply:

II.P.1. In the event that the Permittee chooses to invoke the provisions of this Condition II.P., the Permittee shall notify the Regional Administrator in writing within thirty (30) calendar days of receipt of the Regional Administrator's revision of a submission or disapproval of a revised submission. Such notice shall set forth the specific matters in dispute, the position the Permittee asserts should be adopted as consistent with the requirements of the Permit, the basis for the Permittees' position, and any matters considered necessary for the Regional Administrator's determination.

II.P.2. The Regional Administrator and the Permittee shall have an additional thirty (30) calendar days from the Regional Administrator's receipt of the notification provided for in Condition II.P.1. to meet or confer to resolve any disagreement.

II.P.3. In the event agreement is reached, the Permittee shall comply with the terms of such agreement or, if appropriate, submit the revised submission and implement the same in accordance with and within the time frame specified in such agreement.

II.P.4. If agreement is not reached within the thirty (30) calendar day period, the Regional Administrator will notify the Permittee in writing of his/her decision on the dispute, and the Permittee shall comply with the terms and conditions of the Regional Administrator's decision in the dispute. For the purposes of this provision in this Permit, the responsibility for making this decision shall not be delegated below the Land, Chemicals and Redevelopment Division (LCRD) Director level.

II.P.5. With the exception of those conditions under dispute, the Permittee shall proceed to take any action required by those portions of the submission and of the Permit that the Regional Administrator determines are not affected by the dispute.

FIGURES

Figure 1 – RCRA Facility Layout

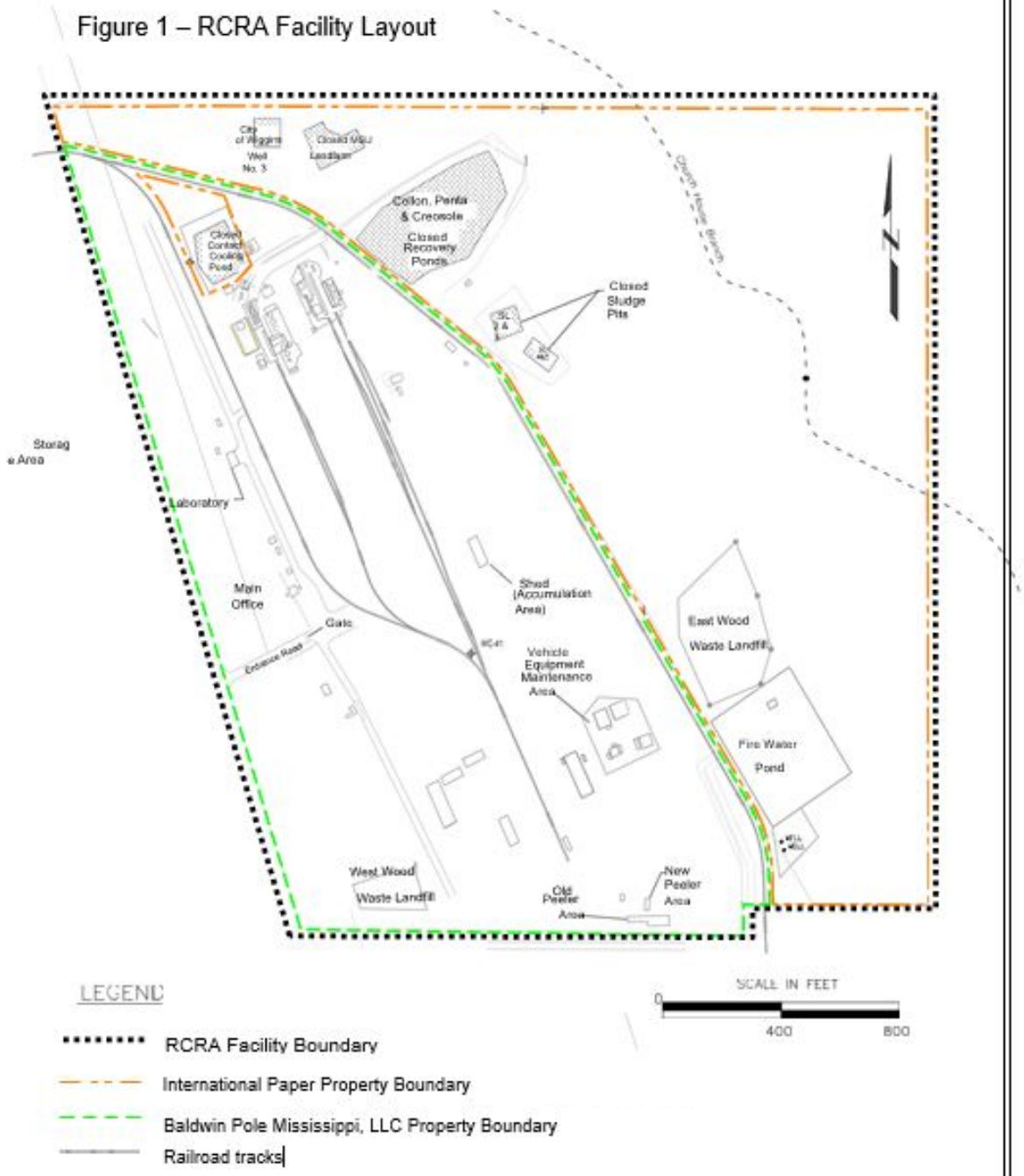
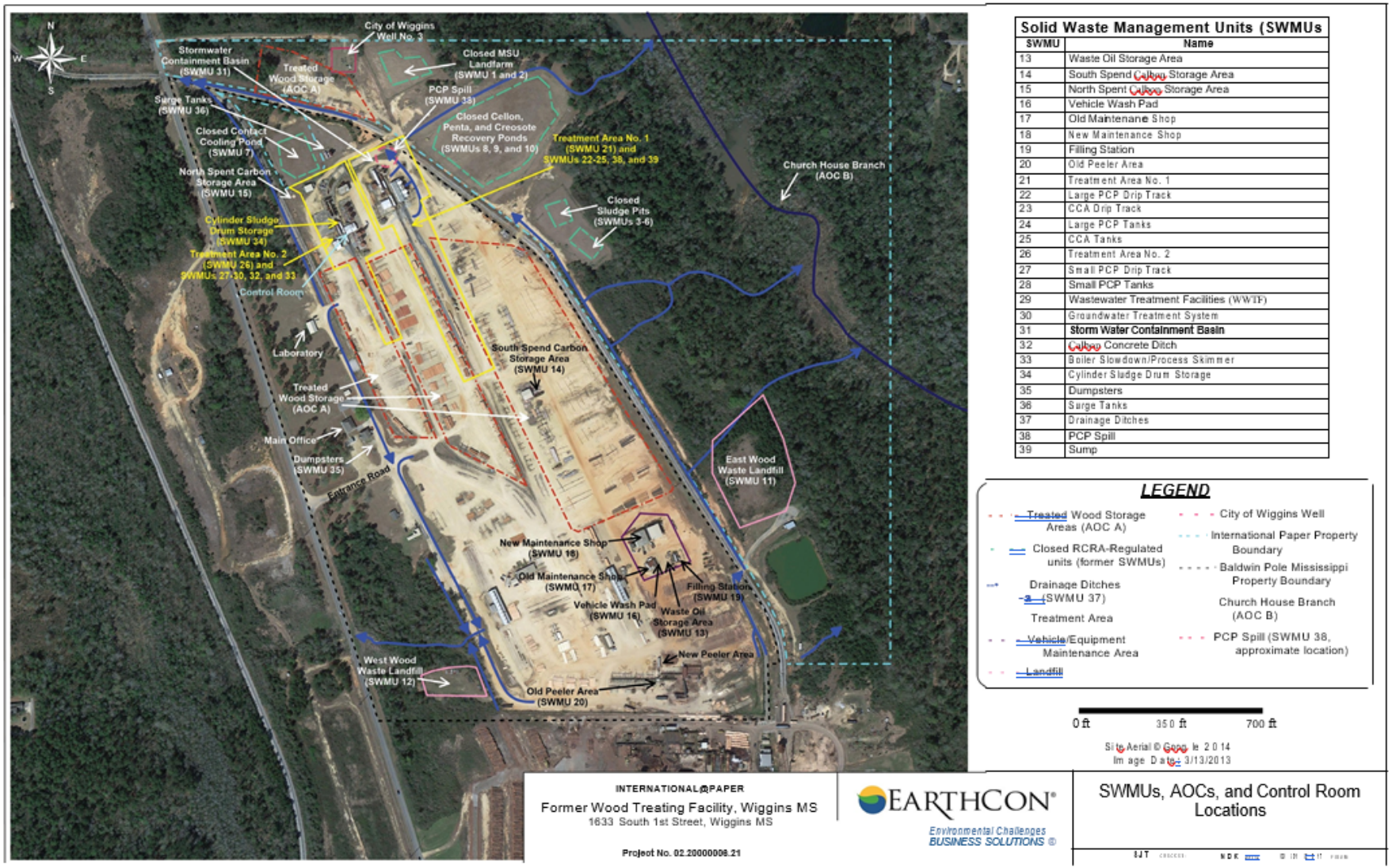
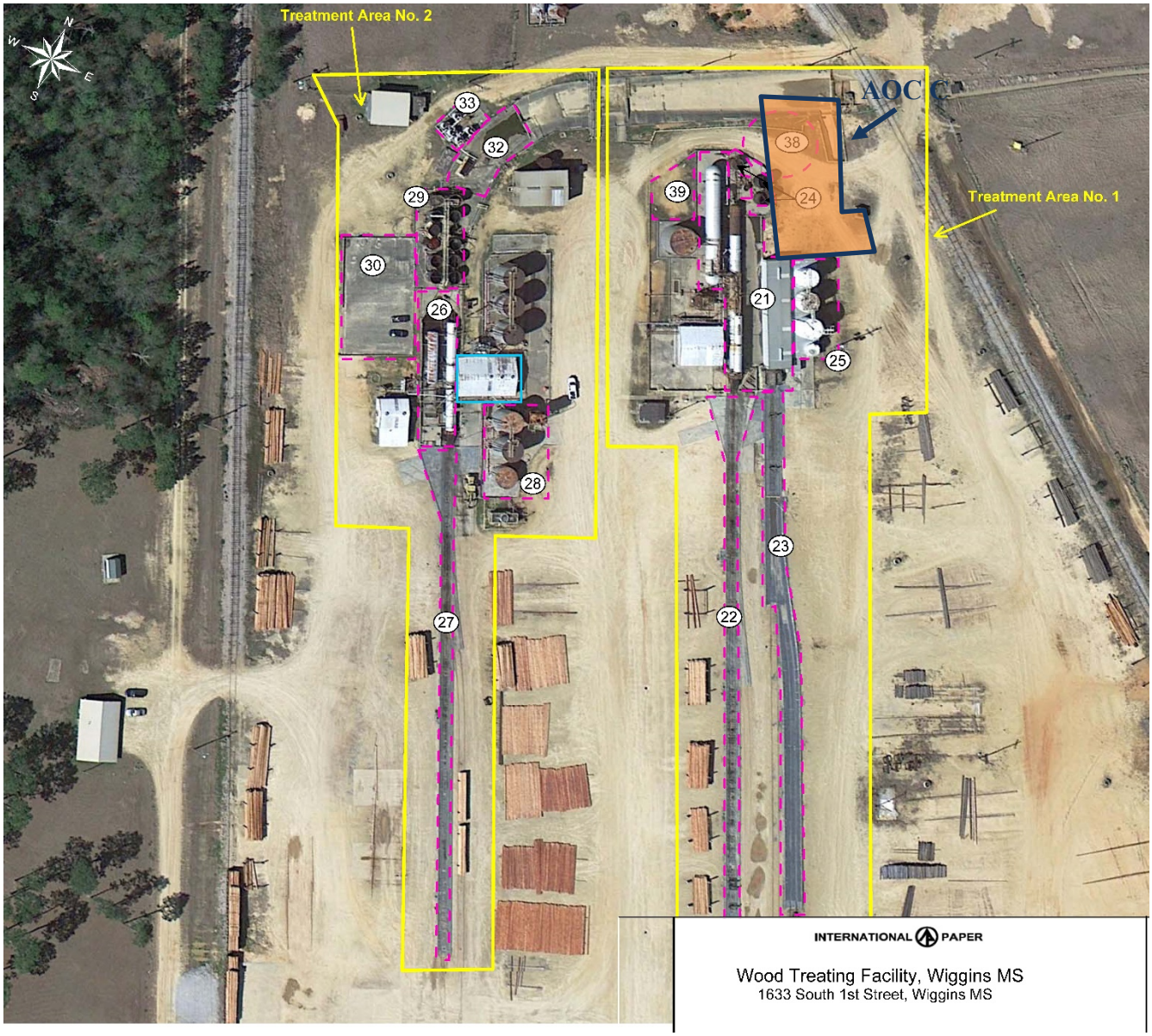


Figure 2: SWMU and AOC locations



SWMU	Name
13	Waste Oil Storage Area
14	South Spend Carbon Storage Area
15	North Spent Carbon Storage Area
16	Vehicle Wash Pad
17	Old Maintenance Shop
18	New Maintenance Shop
19	Filling Station
20	Old Peeler Area
21	Treatment Area No. 1
22	Large PCP Drip Track
23	CCA Drip Track
24	Large PCP Tanks
25	CCA Tanks
26	Treatment Area No. 2
27	Small PCP Drip Track
28	Small PCP Tanks
29	Wastewater Treatment Facilities (WWTF)
30	Groundwater Treatment System
31	**Storm Water Containment Basin**
32	Concrete Ditch
33	Boiler Slowdown/Process Skimmer
34	Cylinder Sludge Drum Storage
35	Dumpsters
36	Surge Tanks
37	Drainage Ditches
38	PCP Spill
39	Sump

Figure No. 3. SWMUs and AOCs in Treatment Areas No. 1 and 2



APPENDIX A: SOLID WASTE MANAGEMENT UNITS/AREAS OF CONCERN SUMMARY

Table A-1. List of Solid Waste Management Units (SWMUs) and Areas of Concern (AOCs) requiring No Further Action (NFA) at this time:

SWMU/ AOC	SWMU/AOC Name	Unit Comment/ Basis for NFA
11	East Wood Waste Landfill	This Solid Waste landfill did not receive hazardous wastes. It was closed in 1991 under a Landfill Closure Plan approved by MDEQ. The 1993 HSWA Corrective Action Permit made an NFA determination for this SWMU.
12	West Wood Waste Landfill	This Solid Waste landfill did not receive hazardous wastes. It was closed in 1991 under a Landfill Closure Plan approved by MDEQ. The 1993 HSWA Corrective Action Permit made an NFA determination for this SWMU.
13	Waste Oil Storage Area	This storage area has been regulated by a National Pollutant Discharge Elimination System (NPDES) Permit issued by MDEQ since April 21, 1984. The 1993 HSWA Corrective Action Permit made an NFA determination for this SWMU.
14	South Spent Carbon Storage Area	Wood waste from this area was removed in 1986 and 1987. The 1993 HSWA Corrective Action Permit made an NFA determination for this SWMU.
15	North Spent Carbon Storage Area	Wood waste removed in 1986, 1987, and 1990. The 1993 HSWA Corrective Action Permit made an NFA determination for this SWMU.
16	Vehicle Wash Pad	Ash waste removed in 1988. Soil sampling July 1990. NFA based on November 2002 RFI, which the EPA approved on January 29, 2004.
17	Old Maintenance Shop	Closed in 1987. Soil sampling March 1990. Removal action in 2001. NFA based on November 2002 RFI, which the EPA approved on January 29, 2004.
18	New Maintenance Shop	Removal action in 2001. NFA based on November 2002 RFI, which the EPA approved on January 29, 2004.
19	Filling Station	Removal action in 2001. NFA based on November 2002 RFI, which the EPA approved on January 29, 2004.
20	Peeler Area	Removal action in 2001. NFA based on November 2002 RFI, which the EPA approved on January 29, 2004.
30	Groundwater Treatment System	The 1993 HSWA Corrective Action Permit made an NFA determination based on lack of evidence of releases.
30A	Pumping Wells	The 1993 HSWA Corrective Action Permit made an NFA determination based on lack of evidence of releases.
30B	Recharge Wells	The 1993 HSWA Corrective Action Permit made an NFA determination based on lack of evidence of releases.
30C	Groundwater Collection Basin	The 1993 HSWA Corrective Action Permit made an NFA determination based on lack of evidence of releases.

Table A-1. List of Solid Waste Management Units (SWMUs) and Areas of Concern (AOCs) requiring No Further Action (NFA) at this time:		
SWMU/ AOC	**SWMU/AOC Name**	**Unit Comment/ Basis for NFA**
30D	Aeration Basin	The 1993 HSWA Corrective Action Permit made an NFA determination based on lack of evidence of releases.
30E	Aeration Basin	The 1993 HSWA Corrective Action Permit made an NFA determination based on lack of evidence of releases.
30F	Clarifier	The 1993 HSWA Corrective Action Permit made an NFA determination based on lack of evidence of releases.
30G	Discharge Tank	The 1993 HSWA Corrective Action Permit made an NFA determination based on lack of evidence of releases.
31	Stormwater Containment Basin	The 1993 HSWA Corrective Action Permit made an NFA determination based on lack of evidence of releases.
34	Cylinder Sludge Drum Storage	The 1993 HSWA Corrective Action Permit made an NFA determination based on lack of evidence of releases.
35	Dumpsters	The 1993 HSWA Corrective Action Permit made an NFA determination based on lack of evidence of releases.
36	Surge Tanks	The 1993 HSWA Corrective Action Permit made an NFA determination based on lack of evidence of releases
40	Former Contaminated Soil Pile	This soil pile was discovered in 2006 and removed by 2007 for off-site treatment as documented in a "Soil Removal Completion Report." Groundwater data and soil data showed no residual contamination. This HSWA Permit makes an NFA determination for this SWMU.
AOC A	Treated Wood Storage Area	The 2002 RFI Report recommended NFA based on the Human Health Risk Assessment that indicated that no site-related contaminants were present at levels that would pose a threat to human health. The January 29, 2004, approval of the RFI confirmed the NFA recommendation.

Table A-2. List of Solid Waste Management Units (SWMUs) and Areas of Concern (AOCs) that require Confirmatory Sampling (CS)		
SWMU/ AOC	**SWMU/AOC Name**	**Unit Comment**
No SWMUs or AOCs require Confirmatory Sampling at this time.		

Table A-3. List of Solid Waste Management Units (SWMUs) and Areas of Concern (AOCs) requiring a RCRA Facility Investigation (RFI) or Supplemental RFI:			
Treatment Area	**SWMU/ AOC No.**	**SWMU/AOC Name**	**Unit Comment/Basis for RFI and RFI Implementation Parameters**
No. 1	21A	Large PCP Cylinder	A. Soils: An RFI was completed in 2002, which included a Human Health Risk Assessment. At the time, levels of soils at Treatment Areas No. 1 and No. 2 were below a cancer risk level of 1 x 10^{-4} and a Hazard Index of 1. During the EPA's June 15, 2017 sampling event, results for pentachlorophenol and arsenic around the Treatment Areas were above the Regional Screening Levels for Industrial Soils at a cancer risk level of 10^{-6} and Hazard Index of 1. Because of the limited number of samples, to fully address this recently discovered elevated soil risk, additional soil sampling is required to determine the extent of the soil contamination above levels appropriate for industrial workers and to evaluate potential Interim Measures, as necessary. As a result, and pursuant to Condition II.E. of this HSWA Permit, a Supplemental RFI for soils around Treatment Areas No. 1 and No. 2 is being required. B. Groundwater: In late 2019, the EPA conducted an analysis of historic groundwater data collected at the Facility and concluded that several data gaps in the groundwater investigation exist, specifically downgradient of the Treatment Areas. On February 26, 2020, the EPA approved the Permittee's "Data Gap Investigation Work Plan," dated January 29, 2020. The Permittee has submitted a "Data Gap Investigation Report" summarizing the results of this investigation. The EPA has completed its review of this Report and will be sending comments to the Permittee regarding whether additional investigation is required. NOTE: The Permittee has conducted extensive groundwater investigation at the Facility pursuant to the MDEQ Post-Closure Permit as noted below in Table A-7 with the focus on groundwater contamination at and from the MDEQ post-closure Units.
	21B	CCA Cylinder	
	21C	CCA Overflow Pit	
	21D	Large PCP Overflow Pit	
	22	Large PCP Drip Track	
	23	CCA Drip Track	
	24	Large PCP Tanks and their Associated Containment	
	24A	Recovery Tank # 1	
	24B	Recovery Tank # 2	
	24C	Recovery Tank # 3	
	25	CCA Tanks and their Associated Containment	
	25A	Overflow Tank	
	25B	CCA Concentrate Tank	
	25C	CCA Effluent Tank	
	25D	CCA Work Tank #1	
	25E	CCA Work Tank #2	
No. 2	26A	Small PCP Cylinder	
	26B	Former Creosote Cylinder	
	26C	Small PCP Collection Pit	
	27	Small PCP Drip Track	
	28	Small PCP Tanks and their Associated Containment	
	28A	Oil Recovery Tank	
	28B	Work Tank	

	29	Wastewater Treatment Facility (WWTF)	
	29A	Spent Carbon Towers	
	29B	Spent Carbon SAA	
	29C	Floc Sludge Tank	
	29D	PCP Sludge Tank	
	29E	Test Sandbed Filter	
	29F	Drum Accumulation Area	
	29G	Floc Tanks	
	32	Carbon Concrete Ditch	
	33	Boiler Blowdown/ Process Skimmer	
	39	Sump – Treating Process Area	
	SWMU 38 / AOC C	PCP Spill/Area of Dioxin Contamination	The EPA acknowledges that extensive work has been done to address soil contamination at SWMU 38/AOC C. (Please see Interim Measures Table A-4.) However, due to the gaps in groundwater assessment, it is not certain if the groundwater impact has been fully assessed. Groundwater impacts from SWMU 38/AOC C are being evaluated in conjunction with the data gap investigation referenced above. The EPA acknowledges that several groundwater corrective action activities have been conducted at the Facility as noted in Table A-7 below.

Table A-4. List of solid waste management units (SWMUs) and areas of concern (AOCs) requiring Interim Measures (IM)):

SWMU/ AOC	SWMU/AOC Name	Unit Comment
38 / AOC C	PCP Spill/Area of Dioxin	Geotextile and gravel cover are in place to address exposure to soil contamination and are to be maintained. This IM is considered

	Contamination	ongoing as it requires ongoing maintenance of the ground cover.

Table A-5. List of Solid Waste Management Units (SWMUs) and Areas of Concern (AOCs) requiring a Corrective Measures Study (CMS):

SWMU/ AOC	SWMU/AOC Name	Unit Comment
37	Drainage Ditches	This SWMU was evaluated in the 2005, 2015, and 2017 CMS Reports. The 2017 Supplemental CMS Report recommended NFA. This CMS has not been finalized or approved by the EPA and further action with respect to this SWMU will be based on the outcome of the additional sampling and ecological risk assessment work at AOC B.
AOC B	Church House Branch	This AOC was evaluated in the 2005, 2015, and 2017 CMS Reports. The 2017 Supplemental CMS Report, dated February 21, 2017, included an ecological risk assessment and investigation of water and sediments in Church House Branch. The EPA has requested additional sampling to further evaluate ecological risk associated with this AOC. This sampling will be included in an Addendum to the 2017 CMS Report.

Table A-6. List of Solid Waste Management Units (SWMUs) and Areas of Concern (AOCs) for which a remedy has been selected:

SWMU/ AOC	SWMU/AOC Name	Unit Comment
No SWMUs or AOCs require a remedy at this time.		

A-7. List of Solid Waste Management Units (SWMUs) subject to the MDEQ Post-Closure Permit.

SWMU/ AOC	SWMU/AOC Name	Unit Comment
1	Land Treatment Demonstration Unit	SWMUs 1 through 10 are regulated under the MDEQ Post-Closure Permit. Closure of these SWMUs was completed in 1989. The MDEQ Post-Closure Permit requires maintenance of the cap installed on these RCRA closed Units, plus long-term groundwater monitoring and remediation, as needed. Additionally, a "Declaration and Notice to the Public of Management of Hazardous Waste Site" was filed with Stone County in 1991. Groundwater corrective action has been ongoing for many years pursuant to MDEQ's Post-Closure Permit. Activities have included: • An on-site extraction & treatment system that operated from 1989-2002. • A Monitored Natural Attenuation (MNA) demonstration/evaluation using the Ricker Plume Stability Method® that was conducted from 2002-2007. • A pilot test consisting of Insitu Chemical Oxidation (ISCO) treatment that was conducted in 2007 at groundwater hot spots in the area of the Closed Creosote, PCP, and Cellon Recovery Ponds (SWMUs 8, 9 and 10). • Expanded ISCO treatment pursuant to a groundwater Corrective Action Plan (CAP) that was approved by MDEQ in the May 4, 2010 renewal of the MDEQ Post-Closure Permit. • Expanded ISCO treatment at over 90 subsurface injection points in 2011. • Ongoing semi-annual groundwater monitoring.
2	Sludge Pit No. 1	
3	Sludge Pit No. 2	
4	Sludge Pit No. 3	
5	Sludge Pit No. 4	
6	Sludge Pit No. 5	
7	Contact Cooling Water Pond	
8	Creosote Recovery Pond	
9	PCP Recovery Pond	
10	Cellon Recovery Pond	

APPENDIX B: RCRA FACILITY INVESTIGATION (RFI) OUTLINE

The purpose of the RCRA Facility Investigation (RFI) portion of the RCRA corrective action process is to evaluate the nature and extent of releases of hazardous wastes and/or hazardous constituents and to gather necessary data to support the Corrective Measures Study (CMS) and/or Interim Measures (IM). Planning for the investigation is best accomplished through a logical progression of tasks:

1. Gather information on the source of the release(s) to the environment (Source Characterization),
2. Gather information on the physical aspects of the environment which will affect the migration and fate of the release and identification of exposure pathways for both humans and non-human members of the environment (Environmental Setting),
3. Use Source Characterization and Environmental Setting to develop a conceptual model of the release which will be used to plan and conduct a program to define the nature, rate and extent of the release (Sampling and Analysis Plan).

An RFI Work Plan and RFI Report are generally required elements of the RCRA corrective action process. The requirements for a full, detailed RFI are listed in this Appendix. The EPA recognizes that each facility is unique. Therefore, the scope and requirements of the RFI shall be focused to fit the complexity of the site-specific situation. The work plan requirements listed in this Appendix in no way limit the site-specific opportunities for a Permittee. For example, the RFI may be implemented in phases. Relevant information contained in previously developed documents, such as a RCRA Part B permit application, may be referenced as appropriate, but must be summarized in either the RFI Work Plan or the RFI Report. In addition, the EPA understands that Risk Assessments are becoming more widely utilized to place characterization information into context and to aid in determining remedial solutions. If a Risk Assessment is expected to be performed in the future, note that Region 4 has developed a series of Risk Bulletins to provide Permittee(s) and their contractor(s) with the general format and process Region 4 expects a Risk Assessment to follow.

In some cases, it may be possible to implement the RFI concurrent with the CMS (also see Appendix C). This approach can save time and money because the earlier in the corrective action process potential remedies can be identified, the more effectively information gathering can be focused. The EPA anticipates that a concurrent RFI/CMS approach may be appropriate in the following types of situations, among others: facilities where removal remedies have been proposed by the owner/operator, facilities with straightforward remedial solutions or where presumptive remedies can be applied, facilities where few remedial options are available, and facilities where the remedy is phased. The EPA will determine on a case-by-case basis if a concurrent RFI/CMS is appropriate. Because of the unique data collection requirements necessary for a remedial solution which includes natural attenuation of contaminants in groundwater, if natural attenuation is expected to be part of the remedial solution, then the Sampling and Analysis Plan should be crafted to include monitoring of specific water quality parameters unique to natural attenuation (*e.g.*, nitrites/nitrates, ferrous iron, sulfides, dissolved oxygen, methane, hydrogen, etc.).

I. RFI WORK PLAN REQUIREMENTS - ELEMENTS OF THE RFI WORK PLAN

The RFI Work Plan shall include, at a minimum, the following elements:

A. Introduction - Summary of any relevant existing assessment data

The Permittee shall describe the purpose or objective of the RFI Work Plan and provide a summary of any existing environmental data which is relevant to the investigation. The summary should provide the following items, at a minimum:

1. Land ownership history,
2. Facility operating dates,
3. Facility's product(s),
4. Raw materials used in facility operations, wastes generated,
5. Nature and extent of any known contamination,
6. Summary of ongoing Interim Measures and past assessments, and
7. Summary of permit objective and how this objective will be satisfied.

B. Environmental Setting

The Permittee shall provide information on the environmental setting at the facility. The Permittee shall characterize the Environmental Setting as it relates to identified sources, pathways and areas of releases of hazardous constituents from Solid Waste Management Units (SWMUs) and/or Areas of Concern (AOCs). Data gaps pertinent to characterization of releases shall be identified and provisions made in Section E of the RFI Work Plan Requirements to obtain the relevant information to fill the data gap. The Environmental Setting shall cover the following items, at a minimum:

1. <u>Hydrogeology</u>

   The Permittee shall provide a summary of the hydrogeologic conditions at the facility. This discussion shall include, but not be limited to, the following information:

   a. A description of the regional and facility specific geologic and hydrogeologic characteristics affecting groundwater flow beneath the facility, including:
      i. Regional and facility specific stratigraphy: description of strata including strike and dip, identification of stratigraphic contacts;
      ii. Structural geology: description of local and regional structural features (*e.g.*, folding, faulting, tilting, jointing, metamorphic foliation, etc.);
      iii. Depositional history;
      iv. Regional and facility specific groundwater flow patterns (porous media, fracture media, karst media); and
      v. Identification and characterization of areas and amounts of recharge and discharge (springs in karst terrain, base level streams and rivers).

   b. An analysis of any topographic features that might influence the groundwater flow system (*e.g.*, sinkholes and sinking streams in karst terrains).

c. Based on any existing field data, tests (*e.g.*, pump tests, tracer tests), and cores, a representative and accurate classification and description of the hydrogeologic units which may be part of the migration pathways at the facility (*i.e.*, the aquifers and any intervening saturated and unsaturated units), including:
    i. Hydraulic conductivity and porosity (total and effective), groundwater flow velocity, groundwater basin discharge;
    ii. Lithology, grain size, sorting, degree of cementation;
    iii. An interpretation of hydraulic interconnections between saturated zones (*i.e.*, aquifers) and surface waters; and
    iv. The attenuation capacity and mechanisms of the natural earth materials (*e.g.*, ion exchange capacity, organic carbon content, mineral content, etc.).

d. Based on data obtained from groundwater monitoring wells and piezometers installed upgradient, water wells and/or springs downgradient of the potential contaminant source, a representative description of water level or fluid pressure monitoring including:
    i. Water level contour and/or potentiometric maps, including seasonal variations;
    ii. Hydrologic cross sections showing vertical gradients;
    iii. The flow system, including the vertical and horizontal components of flow; and
    iv. Any temporal changes in hydraulic gradients, for example, due to tidal or seasonal influences and for karst terrain, storm flow.

e. A description of man-made influences that may affect the hydrology of the site, identifying:
    i. Local water supply and production wells with an approximate schedule of pumping; and
    ii. Man-made hydraulic structures (pipelines, French drains, ditches, roofs, runways, parking lots, etc.).

2. Soils

The Permittee shall provide an explanation of the soil and rock units above the water table in the vicinity of contaminant release(s). This summary may include, but not be limited to, the following types of information as appropriate:

a. Surface soil distribution;
b. Soil profile, including ASTM classification of soils;
c. Transects of soil stratigraphy;
d. Hydraulic conductivity (saturated and unsaturated);
e. Relative permeability;
f. Bulk density;
g. Porosity;
h. Soil sorption capacity;
i. Cation exchange capacity (CEC);
j. Soil organic content;
k. Soil pH;
l. Particle size distribution;

m. Depth of water table;
n. Moisture content;
o. Effect of stratification on unsaturated flow;
p. Infiltration
q. Evapotranspiration;
r. Storage capacity;
s. Vertical flow rate; and
t. Mineral content.

3. Surface Water and Sediment

The Permittee shall provide a description of the surface water bodies in the vicinity of the facility. This summary may include, but not be limited to, the following activities and information:

a. Description of the temporal and permanent surface water bodies including:
    i. For lakes and estuaries: location, elevation, surface area, inflow, outflow, depth, temperature stratification, and volume;
    ii. For impoundments: location, elevation, surface area, depth, volume, freeboard, and construction and purpose;
    iii. For streams, ditches, and channels: location, elevation, flow, velocity, depth, width, seasonal fluctuations, flooding tendencies (*i.e.*, 100-year event), discharge point(s), and general contents.
    iv. Drainage patterns; and
    v. Evapotranspiration.

b. Description of the chemistry of the natural surface water and sediments. This includes determining the pH, total dissolved solids, total suspended solids, biological oxygen demand, alkalinity, conductivity, dissolved oxygen profiles, nutrients, chemical oxygen demand, total organic carbon, specific contaminant concentrations, etc.

c. Description of sediment characteristics including:
    i. Deposition area;
    ii. Thickness profile; and
    iii. Physical and chemical parameters (*e.g.*, grain size, density, organic carbon content, ion exchange capacity, pH, etc.)

4. Air

The Permittee shall provide information characterizing the climate in the vicinity of the facility. Such information may include, but not be limited to:

a. A description of the following parameters:
    i. Annual and monthly rainfall averages;
    ii. Monthly temperature averages and extremes;
    iii. Wind speed and direction;
    iv. Relative humidity/dew point;
    v. Atmospheric pressure;

vi. Evaporation data;
vii. Development of inversions; and
viii. Climate extremes that have been known to occur in the vicinity of the facility, including frequency of occurrence (*i.e.*, hurricanes)

b. A description of topographic and man-made features which affect air flow and emission patterns, including:
   i. Ridges, hills or mountain areas;
   ii. Canyons or valleys
   iii. Surface water bodies (*e.g.*, rivers, lakes, bays, etc.); and
   iv. Buildings.

C. Source Characterization

For those sources from which releases of hazardous constituents have been detected, the Permittee shall provide analytical data to completely characterize the wastes and the areas where wastes have been placed, to the degree that is possible without undue safety risks, including: type, quantity; physical form; disposition (containment or nature of deposits); and facility characteristics affecting release (e.g., facility security, and engineering barriers). Data gaps on source characterization shall be identified and provisions made in Section E to obtain the relevant information to fill the data gap. This summary shall include quantification of the following specific characteristics, at each source area:

1. Unit/Disposal Area Characteristics:

   a. Location of unit/disposal area;
   b. Type of unit/disposal area;
   c. Design features;
   d. Operating practices (past and present)
   e. Period of operation;
   f. Age of unit/disposal area;
   g. General physical conditions; and
   h. Method used to close the unit/disposal area.

2. Waste Characteristics:

   a. Type of wastes placed in the unit;
      i. Hazardous classification (*e.g.*, flammable, reactive, corrosive, oxidizing or reducing agent);
      ii. Quantity; and
      iii. Chemical composition.

   b. Physical and chemical characteristics such as:
      i. Physical form (solid, liquid, gas);
      ii. Physical description (*e.g.*, powder, oily sludge);
      iii. Temperature;
      iv. pH;
      v. General chemical class (*e.g.*, acid, base, solvent);
      vi. Molecular weight;

vii. Density;
viii. Boiling point;
ix. Viscosity;
x. Solubility in water;
xi. Cohesiveness of the waste; and
xii. Vapor pressure.

c. Migration and dispersal characteristics of the waste such as:
   i. Sorption capability;
   ii. Biodegradability, bioconcentration, and biotransformation;
   iii. Photodegradation rates;
   iv. Hydrolysis rates; and
   v. Chemical transformations.

D. Potential Receptors

The Permittee shall provide data describing the human populations and environmental systems that are susceptible to contaminant exposure from the facility. Data gaps pertinent to receptor analysis shall be identified and provisions made in Section E to obtain the relevant information to fill the data gap. The following characteristics shall be identified at a minimum:

1. Current local uses and planned future uses of groundwater:

   a. Type of use (*e.g.*, drinking water source: municipal or residential, agricultural, domestic/non-potable, and industrial);
   b. Location of groundwater users, to include withdrawal and discharge wells and springs, within one mile of the impacted area.

   The above information should also indicate the aquifer or hydrogeologic unit used and/or impacted for each item.

2. Current local uses and planned future uses of surface waters directly impacted by the facility:

   a. Domestic and municipal (*e.g.*, potable and lawn/gardening watering);
   b. Recreational (*e.g.*, swimming, fishing);
   c. Agricultural;
   d. Industrial; and
   e. Environmental (*e.g.*, fish and wildlife propagation).

3. Human use of or access to the facility and adjacent lands, including but not limited to:

   a. Recreation;
   b. Hunting;
   c. Residential;
   d. Commercial; and
   e. Relationship between population locations and prevailing wind direction.

4. A general description of the biota in surface water bodies on, adjacent to, or affected by the facility.

5. A general description of the ecology within the area adjacent to the facility.

6. A general demographic profile of the people who use or have access to the facility and adjacent land, including, but not limited to: age; sex; and sensitive subgroups.

7. A description of any known or documented endangered or threatened species near the facility.

E. Sampling and Analysis Plan(s) for Characterization of Releases of Hazardous Waste/Hazardous Constituents

The Permittee shall prepare a plan to document all monitoring procedures necessary to characterize the extent, fate and transport of releases (*i.e.*, identify sample locations, sample procedures and sample analysis to be performed during the investigation to characterize the environmental setting, source, and releases of hazardous constituents, so as to ensure that all information and data are valid and properly documented). The sampling strategy and procedures shall be in accordance with the EPA Region 4 Field Branches Quality System and Technical Procedures (most recent version). Any deviations from this reference must be requested by the applicant and approved by the EPA. If a Risk Assessment is expected to be performed once release characterization is complete or nearly complete, Data Quality Objectives (DQO) for a Human Health Risk Assessment requires a Data Quality Objective of Level 3 or greater.

The Sampling and Analysis Plan must specifically discuss the following unless the EPA Region 4 Field Branches Quality System and Technical Procedures (most recent version procedures are specifically referenced.

1. Sampling Strategy

   a. Selecting appropriate sampling locations, depths, etc.;
   b. Obtaining all necessary ancillary data;
   c. Determining conditions under which sampling should be conducted;
   d. Determining which media are to be sampled (*e.g.*, groundwater, air, soil, sediment, subsurface gas);
   e. Determining which parameters are to be measured and where;
   f. Selecting the frequency of sampling and length of sampling period;
   g. Selecting the types of samples (*e.g.*, composite vs. grab) and number of samples to be collected.

2. Sampling Procedures

   a. Documenting field sampling operations and procedures, including:
      i. Documentation of procedures for preparation of reagents or supplies which become an integral part of the sample (*e.g.*, filters, preservatives, and absorbing reagents);

ii. Procedures and forms for recording the exact location and specific considerations associated with sample acquisition;
iii. Documentation of specific sample preservation method;
iv. Calibration of field instruments;
v. Submission of appropriate blanks (*e.g.*, field, equipment, trip, etc.);
vi. Potential interferences present at the facility;
vii. Construction materials and techniques, associated with monitoring wells and piezometers;
viii. Field equipment listing and sampling containers;
ix. Sampling order; and
x. Decontamination procedures.

b. Selecting appropriate sample containers;

c. Sampling preservation; and

d. Chain-of-custody, including:
   i. Standardized field tracking reporting forms to establish sample custody in the field prior to shipment;
   ii. Pre-prepared sample labels containing all information necessary for effective sample tracking; and
   iii. Chain-of-custody seals for sample containers and shipping coolers.

3. Sample Analysis

Sample analysis shall be conducted in accordance with SW-846: "Test Methods for Evaluating Solid Waste - Physical/Chemical Methods" (most recent version) or an alternate approved method. The sample analysis section of the Sampling and Analysis Plan shall specify the following:

a. Chain-of-custody procedures, including:
   i. Identification of a responsible party to act as sampling custodian at the laboratory facility authorized to sign for incoming field samples, obtain documents of shipment, and verify the data entered onto the sample custody records;
   ii. Provision for a laboratory sample custody log consisting of serially numbered standard lab tracking report sheets; and
   iii. Specification of laboratory sample custody procedures for sample handling, storage, and dispersal for analysis.

b. Sample storage (*e.g.*, maximum holding times for constituents);

c. Sample preparation methods;

d. Analytical Procedures, including:
   i. Scope and application of the procedure;
   ii. Sample matrix;
   iii. Potential interferences;
   iv. Precision and accuracy of the methodology; and

v. Method Detection Limits; and
vi. Practical Quantitative Limits.

e. Calibration procedures and frequency;

f. Data reduction, validation and reporting;

g. Internal quality control checks, laboratory performance and systems audits and frequency, including:
   i. Method blank(s);
   ii. Laboratory control sample(s);
   iii. Calibration check sample(s);
   iv. Replicate sample(s);
   v. Matrix-spiked sample(s);
   vi. "Blind" quality control sample(s);
   vii. Control charts;
   viii. Surrogate samples;
   ix. Zero and span gases; and
   x. Reagent quality control checks.

h. External quality control checks by the EPA, including:
   i. Spikes and blanks at sampling events for which the EPA or its technical representative provides oversight; and
   ii. The equivalent of a CLP data package for samples split with the EPA or for which the EPA specifically requests the package.

i. Preventive maintenance procedures and schedules;

j. Corrective action (for laboratory problems); and

k. Turnaround time.

F. Data Management Plan

The Permittee shall develop and initiate a Data Management Plan to document and track investigation data and results. This plan shall identify and set up data documentation materials and procedures, project file requirements, and project-related progress reporting procedures and documents. The plan shall also provide the format to be used to present the raw data and conclusions of the investigation.

1. Data Record: The data record shall include the following:

   a. Unique sample or field measurement code;
   b. Sampling or field measurement location and sample or measurement type;
   c. Sampling or field measurement raw data;
   d. Laboratory analysis ID number;
   e. Property or component measures; and
   f. Result of analysis (*e.g.*, concentration, data qualifiers).

2. Tabular Displays: The following data shall be presented in tabular displays:

   a. Unsorted (raw) data;
   b. Results for each medium, or for each constituent monitored;
   c. Data reduction for statistical analysis, as appropriate;
   d. Sorting of data by potential stratification factors (*e.g.*, location, soil layer, topography); and
   e. Summary data.

3. Graphical Displays: The following data shall be presented in graphical formats (*e.g.*, bar graphs, line graphs, area or plan maps, isopleth plots, cross-sectional plots or transects, three dimensional graphs, etc.

   a. Display sampling location and sampling grid:
   b. Indicate boundaries of sampling area, and area where more data are required;
   c. Display geographical extent of contamination, both horizontally and vertically;
   d. Illustrate changes in concentration in relation to distances from the source, time, depth or other parameters; and
   e. Indicate features affecting inter-media transport and show potential receptors.

G. Project Management Plan - Schedule of Implementation

Permittee shall prepare a Project Management Plan which will cover qualifications of personnel categories and the management control structure for the project. The Permittee shall also provide a schedule for completing the planned RFI activities. The schedule shall be as specific as possible (*i.e.*, it should indicate the number of days/weeks/months required for each major work plan task).

II. RFI REPORT REQUIREMENTS - ELEMENTS OF THE RFI REPORT

The RFI Report shall include, at a minimum, the following elements:

A. Introduction

The Permittee shall describe the purpose of the RFI Work Plan and provide a summary description of the project.

B. Environmental Setting

The Permittee shall describe the Environmental Setting in and around the facility. The RFI Work Plan should contain some, if not all, of the information on the Environmental Setting. Any information collected during work plan implementation which clarifies or improves understanding of the Environmental Setting should be provided in this section.

C. Source Characterization

The Permittee shall summarize the sources of contamination and nature of releases identified at the facility. The RCRA Facility Assessment and the RFI Work Plan should contain some, if not all, of the information on Source Characterization. Any information collected during work plan

implementation or obtained from the sources (*e.g.*, voluntarily or from other Environmental Programs) which directly addresses Source Characterization should be provided in this section.

D. Sampling and Analysis Results

The Permittee shall present data results obtained pursuant to the RFI Work Plan. The Permittee shall identify any work plan proposals which were not completed and explain why such actions were not finished. The Permittee shall also present its analysis/interpretation of how the sampling data meet the RFI objective and how the sampling data fits or modifies the contaminant conceptual model. For all analytical data, the Permittee shall discuss the results of data quality/data review.

E. Data Quality Assurance/Data Quality Data Review

The Permittee shall perform a Quality Assurance/Quality Control data review on all data present in the RFI. The Quality Assurance/Quality Control data review shall be in accordance with the USEPA Contract Laboratory Program National Functional Guidelines for Inorganic Data Review (EPA-540/R94-013) and the USEPA Contract Laboratory Program National Functional Guidelines for Organic Data Review (EPA-540/R94-012). The data review shall address the following, at minimum:

1. Holding times;
2. Blanks;
3. Laboratory Control Samples;
4. Field Duplicates;
5. Surrogate Recoveries;
6. Matrix Spike/Matrix Spike Duplicates; and
7. Data Assessment - Data Usability.

F. Risk Assessment

The EPA understands that Risk Assessments are becoming more widely utilized to place characterization information into context and to aid in determining remedial solutions. If a Risk Assessment is expected to be performed in the future, note that Region 4 has developed a series of Risk Bulletins to provide Permittee(s) and their contractor(s) with the general format and process Region 4 expects a Risk Assessment to follow.

Additionally, the EPA has developed guidance for the use of generic regional screening levels (RSLs) for most hazardous constituents of concern to enable simple risk evaluations through comparisons with the actual release concentration measured in the soil or water at the facility SWMUs/AOCs. These generic RSLs are conservative health-based concentrations of hazardous constituents determined to be risk indicators for the protection of human health or the environment. The most current User's Guide and table of RSLs can be found at the following web site:

https://www.epa.gov/risk/regional-screening-levels-rsls

G. Conclusions

The Permittee shall summarize the major conclusions reached after analysis of the environmental setting, source characterization, sampling and analysis results and data quality. Any data gaps, needed to complete characterization of the scope and extent of the releases from SWMUs and/or AOCs or to refine further the contaminant conceptual model, shall be identified and recommendations made in the Recommendations Section of the report.

H. Recommendations

The Permittee shall provide its recommendations on what, if any, further action is needed to complete the characterization of release(s) from SWMUs and/or AOCs.

I. Work Plan for Additional Investigations

If further investigations are determined to be needed to complete the objective of the RFI, then the Permittee shall provide a work plan to complete characterization of the release(s).

APPENDIX C: CORRECTIVE MEASURE STUDY (CMS) OUTLINE

The purpose of the Corrective Measures Study (CMS) portion of the RCRA corrective action process is to identify and evaluate potential remedial alternatives for the releases of hazardous constituents that have been identified at the facility, either through the RCRA Facility Investigation (RFI) or other investigations, to need further evaluation. The scope and requirements of the CMS are balanced with the expeditious initiation of remedies and rapid restoration of contaminated media. The scope and requirements of the CMS should be focused to fit the complexity of the facility-specific situation. It is anticipated that Permittees with facilities with complex environmental problems may need to evaluate a number of technologies and remedial alternatives. For other facilities, however, the evaluation of a single remedial alternative may be adequate. Therefore, a streamlined or focused approach to the CMS may be initiated. Information gathered during any stabilizations or Interim Measures will be used to augment the CMS, and in cases where corrective measure goals are met, may be a substitute for the final CMS.

The detail of a CMS will vary based upon the complexity of the facility, on-going Interim Measures, etc. However, the CMS shall include the following elements, unless otherwise agreed to by the EPA:

A. Introduction/Purpose

The Permittee shall describe the purpose of the CMS and provide a summary description of the project.

B. Description of Current Situation

The Permittee shall submit a summary and an update to the information describing the current status of operations, SWMUs, and AOCs at the facility and the known nature and extent of the contamination, as documented by the RFI Report, Interim Measures reports, or other facility-specific documents. This discussion should concentrate on those issues which could significantly affect the evaluation and selection of the remedial alternative(s). This update shall include information regarding previous response activities and Interim Measures which have, or are being, implemented at the facility. The Permittee shall also make a facility-specific statement of the purpose for the response, which identifies the actual or potential exposure pathways that should be addressed by the remedial action.

C. RCRA Corrective Measure Performance Standards

Each remedial alternative evaluated in the CMS must be compared to the following Corrective Measure Performance Standards. The EPA has established that long-term protection is achieved once a remedy meets the following three criteria (also known as the "remedy threshold criteria"). The Permittee shall use these criteria as the Corrective Measure Performance Standards in the CMS:

1. Protect Human Health and the Environment
2. Attain Media Cleanup Standards
3. Control Sources of Releases

D. Corrective Measure Alternatives Development, Evaluation, Comparison

Step 1: Identification, Screening and Development of Corrective Measure Technologies

1. Identification: The Permittee shall list and briefly describe potentially applicable technologies for each affected media that may be used to achieve the Corrective Measures Performance Standards, and include a table that summarizes the available technologies.

   The Permittee should consider innovative treatment technologies, especially in situations where there are a limited number of applicable remedial technologies.

2. Screening: The Permittee shall screen the remedial technologies to eliminate those that may prove infeasible to implement, that rely on technologies unlikely to perform satisfactorily or reliably, or that do not achieve the Corrective Measure Performance Standards within a reasonable time period. This screening process should focus on eliminating those technologies which have severe limitations for a given set of waste and facility-specific conditions.

   The screening step may also eliminate technologies based on inherent technology limitations. Facility, waste, and technology characteristics which are used to screen inapplicable technologies are described in more detail below:

   a. Facility Characteristics: Facility data should be reviewed to identify conditions that may limit or promote the use of certain technologies. Technologies whose use is clearly precluded by facility characteristics should be eliminated from further consideration.
   b. Waste Characteristics: Identification of waste characteristics that limit the effectiveness or feasibility of technologies is an important part of the screening process. Technologies clearly limited by these waste characteristics should be eliminated from consideration. Waste characteristics particularly affect the feasibility of in-situ methods, direct treatment methods, and Land Disposal (on/off-site).
   c. Technology Limitations: During the screening process, the level of technology development, performance record, and inherent construction, operation, and maintenance problems should be identified for each technology considered. Technologies that are unreliable, perform poorly, or are not fully demonstrated may be eliminated in the screening process. For example, certain treatment methods have been developed to a point where they can be implemented in the field without extensive technology transfer or development.

Step 2: Development of Potential Corrective Measure Alternative(s)

The Permittee shall assemble the technologies that pass the screening step into specific remedial alternative(s) that have the potential to meet the Corrective Measure Performance Standards for each media. Options for addressing less complex facilities could be relatively straight-forward and may only require evaluation of a single or limited number of remedial alternatives. Each potential remedial alternative may consist of an individual technology or a combination used in sequence (i.e., treatment train). Different potential remedial alternatives may be considered for separate areas of the facility, as appropriate.

Step 3: Evaluation of Potential Corrective Measure Alternative(s) Against the Corrective Measure Performance Standards

The Permittee shall provide a detailed description of how/whether each potential remedial alternative will comply with the three Corrective Measure Performance Standards. These performance standards reflect the major technical components of remedies and must be met by every potential remedial alternative. If the potential remedial alternative does not meet any one of these performance standards (barring a finding that a threshold criterion does not apply given a facility-specific situation), then the potential remedial alternative is not viable and should not be considered further in the CMS.

In evaluating the potential remedial alternative or alternatives, the Permittee shall prepare and submit information that documents whether each potential remedial alternative will meet the Corrective Measure Performance Standards. The following general guidance will help in completing this evaluation.

1. Protect Human Health and the Environment: Protecting human health and the environment is a general mandate from the RCRA statute. Remedies must be protective of human health and the environment. Remedies usually meet this criterion by meeting the second (meet cleanup goals) and third (source control) criteria. However, this first criterion also serves to ensure remedies include protective activities that would not necessarily be needed to achieve the other criteria. As such, remedies may include those measures that are needed to be protective, but are not directly related to media cleanup, source control. An example would be a requirement to provide alternative drinking water supplies in order to prevent exposures to releases from an aquifer used for drinking water purposes. Therefore, the Permittee shall provide a discussion of how any short-term activities are necessary to meet this standard, and how the remedial alternative(s) meet this standard.

2. Attain Media Cleanup Standards: As part of the necessary information for satisfying this requirement, the Permittee shall address whether the potential remedy will achieve the chemical-specific cleanup standards for each media, including restoration of groundwater to drinking water standards, or any other standards established by statute. The Permittee shall describe the proposed media cleanup standards. The standards must be either background, promulgated federal and state standards or risk-derived standards. If media cleanup standards are not proposed, then the EPA will unilaterally propose setting media clean-up standards to either background, promulgated federal or state standards, or the most conservative risk-derived standards.

   Selection of cleanup standards also requires the establishment of points of compliance, which represent where the media cleanup levels are to be achieved and a remediation timeframe for the remedy (e.g., the facility-specific schedule for both construction of the remedy and timeframe for achieving cleanup levels at the point of compliance).

3. Control of Sources of Releases: This criterion refers to reducing or eliminating, to the extent practical, further releases that may pose a threat to human health and the environment. This control applies to both the originating source of contamination (e.g., leaking drums, highly contaminated soil, sludge material) and any locations where significant mass of contaminants have migrated (e.g., NAPL). The Permittee shall address the issue of whether source control measures are necessary, and if so, the type of actions that would be appropriate. Any source control measure

proposed should include a discussion on how well the method is anticipated to work given the particular situation at the facility and the known track record of the specific technology.

Step 4: Comparison of Viable Remedial Alternative(s) to Balancing Criteria

When one or more of the potential remedial alternatives appears to be capable of achieving the Corrective Measure Performance Standards, the Permittee shall perform additional analysis on any viable remedial alternative(s) using the following five (5) balancing criteria. Unlike the Corrective Measure Performance Standards, which are threshold criteria that must be met, the balancing criteria are qualitative "scales" that help in evaluating which viable remedial alternatives provide the most appropriate combination of technical measures and management controls to address the environmental problems at the facility. When only one viable remedial alternative exists, the balancing criteria no longer help in distinguishing between viable remedial alternatives; instead, they assist in evaluating if the sole viable remedial alternative contains an acceptable approach to addressing the facility's contamination.

1. Long-term reliability and effectiveness: The Permittee should consider whether the technology, or combination of technologies, has been used effectively under analogous facility conditions, whether failure of any one technology in the alternative would have any immediate impact on receptors, and whether the alternative would have the flexibility to deal with uncontrollable changes at the facility. Operation and maintenance requirements include the frequency and complexity of necessary operation and maintenance. In addition, each remedial alternative should be evaluated in terms of the projected useful life of the overall alternative and of its component technologies. Useful life is defined as the length of time the level of effectiveness can be maintained.

2. Reduction in the toxicity, mobility or volume of wastes: As a general goal, remedies will be preferred that employ techniques that are capable of eliminating or substantially reducing the potential for the wastes in SWMUs and/or contaminated media at the facility to cause future environmental releases. Estimates of how the remedial alternative will reduce toxicity, mobility and/or volume of the waste is required and may be accomplished through a comparison of initial facility conditions to expected post-remedial conditions.

3. Short-term effectiveness: The Permittee shall evaluate each remedial alternative for short-term effectiveness. Possible factors to consider are fire, explosion, exposure to hazardous constituents and potential threats associated with the treatment, excavation, transportation and re-disposal or containment of the waste material.

4. Implementability: Information to consider when assessing implementability includes:

    a. The administrative activities needed to implement the remedial alternative (*e.g.*, permits, rights-of-way, etc.) and the length of time these activities will take;
    b. The constructability, time for implementation, and time for beneficial results;
    c. The availability of adequate off-site treatment, storage capacity, disposal services, needed technical services and materials; and
    d. The availability of prospective technologies for each remedial alternative.

5. Cost: The Permittee shall develop an estimate of the cost of each remedial alternative (and for each phase or segment of the alternative). The cost estimate shall include both capital and operation and maintenance costs. The capital costs shall include, but are not limited to, costs for: engineering, site preparation, construction, materials, labor, sampling/analysis, waste management/disposal, permitting, health and safety measures, etc. The operation and maintenance costs shall include labor, training, sampling and analysis, maintenance materials, utilities, waste disposal and/or treatment, etc. Costs shall be calculated as the net present value of the capital and operation and maintenance costs.

E. Justification and Recommendation of the Remedy

The Permittee shall justify and recommend a remedial alternative for consideration by the EPA. Such a recommendation should include a description and supporting rationale for the preferred alternative that is consistent with the Corrective Measures Performance Standards and the five balancing factors discussed above. In addition, this recommendation shall include summary tables which allow the alternative or alternatives to be understood easily. Trade-offs among health risks, environmental effects, and other pertinent factors shall be highlighted.

From the viable remedial alternatives presented in the CMS and with consideration of the Permittees' recommended remedial alternative, the Regional Administrator will select a remedial alternative to be the proposed remedial alternative that, along with the other viable remedial alternatives discussed in the CMS, will be presented for public review and comment in a Statement of Basis.

APPENDIX D: SCHEDULE OF COMPLIANCE

Schedule of Compliance	Due Date
Cost Estimate for Completion of Corrective Action *See Condition I.D.4.b.*	Within one hundred twenty (120) calendar days of the effective date of the Permit.
Annual Cost Estimate Inflation Adjustment Report *See Condition I.D.4.c.*	Annually
Financial Assurance for Completion of Corrective Action *See Condition I.D.5.b.*	Within sixty (60) calendar days after approval of cost estimate in Condition I.D.4.b.
Notification of Newly Identified SWMUs and AOCs *See Condition II.B.1. and Condition II.B.2.*	Within fifteen (15) calendar days of discovery.
SWMU Assessment Report *See Condition II.B.3.*	Within ninety (90) calendar days of notification.
Notification for Newly Discovered Releases at Previously Identified SWMUs and AOCs *See Condition II.C.1.*	Within fifteen (15) calendar days of discovery.
Confirmatory Sampling Work Plan for SWMUs or AOCs identified under Condition II.A.2. *See Condition II.D.1.*	Within forty-five (45) calendar days of the effective date of the Permit.
Confirmatory Sampling Work Plan for SWMUs identified under Condition II.B.4. or AOCs identified under Condition II.B.1. *See Condition II.D.2.*	Within forty-five (45) calendar days of notification by the Regional Administrator (RA).
Confirmatory Sampling Report *See Condition II.D.5.*	In accordance with the approved CS Work Plan.
RFI Work Plan for SWMUs and AOCs identified under Condition II.A.3. *See Condition II.E.1.a.*	Within ninety (90) calendar days of the effective date of the Permit.
RFI Work Plan for SWMUs and AOCs identified under Conditions II.B.1., II.B.4., II.C.2., or II.D.6. *See Condition II.E.1.b.*	Within ninety (90) calendar days after receipt of notification by the RA which SWMUs or AOCs require an RFI.
Draft RFI Report *See Condition II.E.3.a.*	In accordance with the approved RFI Work Plan.
Final RFI Report *See Condition II.E.3.a.*	Within thirty (30) calendar days after receipt of the RA's final comments on Draft RFI Report.
RFI Progress Reports *See Condition II.E.3.d.*	Quarterly, beginning ninety (90) calendar days from the start date specified by the RA*
Interim Measures Work Plan for SWMUs or AOCs identified under Condition II.A.4. *See Condition II.F.1.a.*	Within thirty (30) calendar days of the effective date of the Permit.
Interim Measures Work Plan for SWMUs or AOCs identified under Condition II.F.1.b. *See Condition II.F.1.b.*	Within thirty (30) calendar days of notification by the RA.
Interim Measures Progress Reports *See Condition II.F.3.a.*	In accordance with the approved IM Work Plan or semi-annually for Permittee-initiated IM**.
Interim Measures Report *See Condition II.F.3.b.*	Within ninety (90) calendar days of completion.
CMS for SWMUs or AOCs identified under Condition II.A.5. *See Condition II.G.1.*	Within ninety (90) calendar days of the effective date of the Permit.
CMS for SWMUs or AOCs identified under Condition II.G.2. *See Condition II.G.2*	Within ninety (90) calendar days of notification by the RA that a CMS is required.

Schedule of Compliance	Due Date
Revised/Final CMS Report *See Condition II.G.5.*	As specified in writing by the RA.
Cost Estimates and Demonstration of Financial Assurance for Final Remedy *See Condition II.H.6.*	Within one hundred twenty (120) calendar days after the Permit has been modified or renewed for remedy selection.
Annual Corrective Measures Implementation and Effectiveness Reports *See Condition II.H.5.*	Annually
Noncompliance/Imminent Hazard Report *See Condition I.D.16.*	Oral within twenty-four (24) hours and written within fifteen (15) calendar days of becoming aware of the hazardous circumstances.

The above reports must be signed and certified in accordance with 40 CFR § 270.11.

* This applies to Work Plan execution that requires more than one hundred eighty (180) calendar days.
** This applies to Work Plan execution that requires more than one year.