

ALABAMA DEPARTMENT OF ENVIRONMENTAL MANAGEMENT

IN THE MATTER OF:

GULF STATES STEEL, INC.
174 SOUTH 26th STREET
GADSDEN, ALABAMA

EPA ID NO.: ALD 004 014 973

ORDER NO. 00-073-HW

PART I

A. FINDINGS

Pursuant to the provisions of the Alabama Environmental Management Act, Code of Alabama 1975, §§ 22-22A-1 through 22-22A-16, as amended, the Alabama Hazardous Wastes Management and Minimization Act of 1978, Code of Alabama 1975, §§ 22-30-1 through 22-30-24, as amended, and the ADEM Administrative Code of Regulations ("ADEM Admin. Code R.") promulgated pursuant thereto, the Alabama Department of Environmental Management ("the Department") makes the following FINDINGS:

1. Gulf States Steel operates an integrated rolled steel making facility located in Gadsden, Alabama. Operating units at the Gulf States Steel facility include a coke plant, blast furnace, and basic oxygen furnace. The Gulf States Steel facility has been assigned EPA ID Number ALD 004 014 973.
2. An inspection of Gulf States Steel was conducted from September 9, 1997 to September 10, 1997 ("September 1997 inspection"). This inspection revealed several violations of the ADEM Admin. Code R. Division 14 regulations that caused a release of a hazardous waste (K062) to the environment and posed an imminent threat of further releases. The release of K062 was from a unit (accumulation tank) where releases into containment had been noted during ADEM

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inspections on May 20, 1996 ("May 1996 inspection") and September 9-10, 1996 ("September 1996 inspection"). During the September 1997 inspection, a review of hazardous waste manifests indicated a third release into containment had occurred prior to March 5, 1997. The September 1997 inspection also revealed a patched hole through the base of the wall of the containment. The soil on the exterior of the hole was stained and eroded in a pattern consistent with liquid flowing from the patched hole. The interior of the containment area was severely eroded. Hazardous waste (K062) was observed in the adjacent containment area around pumps that are used to pump the spent pickle liquor waste into tanker trucks.

3. As a result of the September 1997 inspection, it was determined that the following violations had occurred or were continuing to occur:
 - a. ADEM Admin. Code Rs. 335-14-3-.03(5)(a)1.(ii) and 335-14-6-.10(3)(g) require generators who store hazardous waste in tanks to obtain and keep on file at the facility written statements by those persons required to certify the design of the tank system and supervise the installation of the tank system that the tank system was properly designed and installed. These written statements must also include the certification statement as required in ADEM Admin. Code R. 335-14-8-.02(2)(d). The required certifications were not available at Gulf States Steel for the tank used to store chromic acid waste at the galvanizing line (uncontained tank) or the tank used to store chromic acid waste next to the holding pond (contained tank).
 - b. ADEM Admin. Code R. 335-14-3-.03(5)(a)3. requires that, while being accumulated on-site each container and tank is labeled or marked clearly with the words "Hazardous Waste" and the EPA hazardous waste number. The hazardous waste tank outside the galvanizing line building and the tank next to the holding pond were not marked with the words "Hazardous Waste" or the EPA hazardous waste number.
 - c. ADEM Admin. Code Rs. 335-14-3-.03(5)(a)1.(ii) and 335-14-6-.10(4)(a)1. require that in order to prevent the release of hazardous waste or hazardous constituents to the environment, secondary containment that meets the requirements of ADEM Admin. Code R. 335-14-6-.10 must be provided for

all new tank systems or components, prior to their being put into service. No secondary containment was provided for one of the tanks used to store chromic acid waste from the galvanizing line.

- d. ADEM Admin. Code Rs. 335-14-3-.03(5)(a)1.(ii) and 335-14-6-.10(6)(a)2. require a generator of hazardous waste who stores the waste in a tank to inspect, at least once each operating day, above ground portions of the tank system to detect corrosion or releases of waste. The tanks used to store chromic acid waste from the galvanizing line were not inspected once each operating day.
- e. ADEM Admin. Code Rs. 335-14-3-.03(5)(a)4. and 335-14-5-.03(2) require that facilities must be designed, constructed, maintained, and operated to minimize the possibility of a fire, explosion, or any unplanned sudden or non-sudden release of hazardous waste or hazardous waste constituents to air, soil, groundwater, or surface water which could threaten human health or the environment.
 - (i) The containment around the waste pickle liquor tanks in the old acid regeneration area was severely eroded. The area appeared to have a patched hole where pickle liquor had eaten completely through the concrete at the base of a wall and escaped into the soil. Gulf States Steel was cited in a Notice of Violation dated September 29, 1995 for failure to remove spent pickle liquor from the containment within 24 hours. Spent pickle liquor was again observed in containment during the May 1996 inspection conducted by ADEM and USEPA. During the September 1996 inspection, spent pickle liquor was observed for a third time in the containment area. A review of hazardous waste manifests indicated a fourth release into the containment had occurred prior to March 5, 1997.
 - (ii) Hazardous waste had escaped from the north unit that collects K087 waste. The waste had accumulated on chutes that feed several collection bags.

- (iii) Hazardous waste was dripping from the south unit that collects K087 waste. The waste was dripping as a liquid but had solidified on a chute feeding a collection bag.
- f. ADEM Admin. Code R. 335-14-3-.01(2) requires a person who generates a solid waste, as defined in ADEM Admin. Code R. 335-14-2-.01(2), to determine if that waste is a hazardous waste.
 - (i) No waste determination had been conducted on one (1) drum of rags in the paint area; and
 - (ii) No waste determination had been conducted on waste and discolored soil under two (2) K142 collection points.
- g. ADEM Admin. Code R. 335-14-3-.03(5)(a)1.(ii) requires that spilled or leaked waste and accumulated precipitation must be removed from the secondary containment system within 24 hours or in as timely a manner as is possible to prevent harm to human health and the environment. Spilled waste pickle liquor in the containment system surrounding the pumps to the waste pickle liquor tanks at the old acid regeneration plant had not been removed within 24 hours.
- h. ADEM Admin. Code R. 335-14-8-.01(1)(c) requires a permit for post-closure care of regulated hazardous waste management units unless closure by removal is demonstrated as provided under ADEM Admin. Code R. 335-14-8-.01(1)(c)5. Waste pickle liquor (K062) was disposed of on the ground at the old acid regeneration area, having escaped from unit containment through a hole eroded in the base of a wall.
- i. ADEM Admin. Code Rs. 335-14-3-.03(5)(a)4. and 335-14-5-.04(7)(j) require generators of hazardous waste to note in the operating record the time, date, and details of any incident that requires implementation of the contingency plan. Within fifteen (15) days after the incident, the generator must submit a written report on the incident to the Department. Gulf States Steel did not notify the Department in writing that K062 waste had been released to the soil at the old acid regeneration plant.

4. An inspection of Gulf States Steel was conducted from September 17, 1998 to September 18, 1998 ("September 1998 inspection"). As a result of the September 1998 inspection, it was determined that the following violations had occurred or were continuing to occur:
- a. ADEM Admin. Code Rs. 335-14-3-.03(5)(a)4. and 335-14-5-.03(2) require that facilities must be designed, constructed, maintained, and operated to minimize the possibility of a fire, explosion, or any unplanned sudden or non-sudden release of hazardous waste or hazardous waste constituents to air, soil, groundwater, or surface water which could threaten human health or the environment. The secondary containment for the new spent pickle liquor waste tanks had open drainpipes. The containment area was eroded around the drainpipes and soil was stained for 50-75 feet from the drainpipe on the exterior of the containment. The tanks in the containment area were labeled spent pickle liquor and Gulf States Steel personnel stated that the tanks contained spent pickle liquor. Gulf States Steel subsequently submitted information that showed the tanks were not operational at the time of the inspection.
 - b. ADEM Admin. Code R. 335-14-3-.01(2) requires a person who generates a solid waste, as defined in ADEM Admin. Code R. 335-14-2-.01(2) must determine if that waste is a hazardous waste. No hazardous waste determination had been conducted on waste and discolored soil under two (2) K142 collection points.
 - c. ADEM Admin. Code R. 335-14-11-.02(5)(a) requires that each universal waste battery or a container in which such batteries are contained, must be labeled or marked clearly with any one of the following phrases: "Universal Waste-Battery(ies)", or "Waste Battery(ies)", or "Used Battery(ies)". Twelve (12) pallets and two (2) racks of nicad batteries being managed as universal waste were not labeled correctly.
 - d. ADEM Admin. Code R. 335-14-11-.02(5)(c) requires that a small quantity handler of universal waste who accumulates universal waste must be able to demonstrate the length of time that the universal waste has been accumulated.

Twelve (12) pallets and two (2) racks of nicad batteries being managed as universal waste were not dated as required.

- e. ADEM Admin. Code Rs. 335-14-3-.03(5)(a)1.(i) and 335-14-6-.09(4)(a) require that a container holding hazardous waste must always be closed during storage, except when it is necessary to add or remove waste. Two (2) pails of hazardous waste (K087) were open.
 - f. ADEM Admin. Code R. 335-14-6-.06(2)(c) requires that all monitoring wells must have functional key or combination locks on the wellhead covers to prevent unauthorized access. The wellhead covers on five (5) monitoring wells were not securely locked.
 - g. ADEM Admin. Code Rs. 335-14-3-.03(5)(a)4. and 335-14-5-.04(5)(c) require that the contingency plan must be reviewed, and immediately amended, if necessary, whenever the facility changes in its design, construction, operation, maintenance, or other circumstances in a way that materially increases the potential for releases of hazardous waste or hazardous waste constituents, or changes the response necessary in an emergency. The contingency plan had not been updated as required to reflect changes in the handling of hazardous waste. The current plan did not list management of waste in tanks.
5. In a letter dated November 3, 1998, Gulf States Steel states that the waste observed on the ground under the two (2) K142 collection points during the September 1998 inspection by ADEM was hazardous waste (K142).
6. Gulf States Steel operates under a Consent Decree filed by the Department of Justice on September 26, 1994. As required by the Consent Decree, Gulf States Steel submitted various documents associated with closure of the Wastewater Ditch System, and was required to enter into RCRA Corrective Action, including submittal of a RCRA Facility Investigation (RFI) Work Plan for certain facility Solid Waste Management Units and Areas of Concern. Since issuance of the 1994 Consent Decree, Gulf States Steel has:
- a. Submitted the required Wastewater Ditch System documents in 1994;
 - b. Achieved certified and approved clean closure of the Wastewater Ditch System in 1998;

- c. Asserted it has fulfilled all obligations under the 1994 Consent Decree leading to entry into RCRA Corrective Action;
 - d. Submitted the RFI Work Plan upon notification by EPA that the RCRA Facility Assessment, performed by EPA, was complete and final (in 1999). The RFI Work Plan was subsequently submitted to ADEM and is under review.
- 7. The assessment of civil penalties for violations of the Department's rules and regulations, and for violations of any order, permit condition, license, certification or variance issued by the Department is authorized by Code of Alabama (1975), § 22-22A-5(18), as amended. The statute also authorizes that the penalty amount may range from \$100 to \$25,000 per day for each violation, so long as the penalty amount does not exceed \$250,000 in any given order. Each day a violation continues constitutes a separate violation. In addition to the foregoing "FINDINGS," the Department has considered the factors detailed in the aforementioned statute in determining the appropriate penalty amount in this particular instance. Those factors are listed as follows:
 - a. The seriousness of the violation, including any irreparable harm to the environment and any threat to the health or safety of the public;
 - b. The standard of care manifested by the violator;
 - c. The economic benefit which delayed compliance may have conferred upon the violator;
 - d. The nature, extent and degree of success of the violator's efforts to minimize or mitigate the effects of such violations upon the environment;
 - e. The violator's history of previous violations; and
 - f. The violator's ability to pay the assessed penalty.

B. ORDER

Based on the foregoing FINDINGS and pursuant to Code of Alabama 1975, §§ 22-22A-5(10), 22-22A-5(18), 22-30-20 and 22-30-19(a) and (b), as amended, it is hereby ORDERED:

1. That, immediately upon receipt of notice of this Administrative Order, and continuing each and every day thereafter, Gulf States Steel shall not release to the environment spent pickle liquor. The spent pickle liquor system(s) shall be operated in such a manner as to prevent any migration of wastes or accumulated liquid out of the system to the soil, groundwater, or surface water at any time during the use of the tank system.
2. That Gulf States Steel shall, immediately upon receipt of notice of this Administrative Order, not store additional hazardous waste in the storage tanks at the galvanizing line building. Gulf States Steel has submitted to the Department a closure plan for the galvanizing line chromic acid storage tank in accordance with the requirements of ADEM Admin. Code R. 335-14-6-.10(8).
3. That Gulf States Steel has, prior to receipt of notice of this Administrative Order, labeled or marked the hazardous waste storage tanks at the galvanizing line building and holding pond with the words "Hazardous Waste" and the correct EPA hazardous waste numbers (D002, D007, and D008). Gulf States Steel shall continue to label or mark hazardous waste storage tanks as required in ADEM Admin. Code R. 335-14-3-.03(5)(a)3.
4. That Gulf States Steel shall, immediately upon receipt of notice of this Administrative Order, and continuing thereafter until closure, continue to inspect at least once each operating day the aboveground portions of the hazardous waste storage tanks at the galvanizing line building and holding pond. The inspections shall meet all the requirements specified in ADEM Admin. Code R. 335-14-6-.10(6).
5. That Gulf States Steel has, prior to receipt of notice of this Administrative Order, replaced all chutes on the south unit that collects K087 waste in the coke plant area. Gulf States Steel shall maintain the unit so that future releases do not occur.
6. That Gulf States Steel has, prior to receipt of notice of this Administrative Order, replaced all chutes on the north unit that collects K087 waste in the coke plant area. Gulf States Steel shall maintain the unit so that future releases do not occur.

7. That Gulf States Steel shall, immediately upon receipt of notice of this Administrative Order, and continuing thereafter, submit a written report to the Department on any incident that requires implementing the contingency plan.
8. That Gulf States Steel shall, immediately upon receipt of notice of this Administrative Order, and continuing thereafter, properly and promptly respond to any correspondence, including NOD's and NOV's, from the Department.
9. That Gulf States Steel has, prior to receipt of notice of this Administrative Order, conducted a hazardous waste determination in accordance with ADEM Admin. Code R. 335-14-3-.01(2) on the wastes listed below:

- A. One (1) 55-gallon drum of waste rags in the paint area (which were manifested to a permitted hazardous waste treatment, storage and disposal facility); and
- B. Waste and discolored soil beneath the two (2) collection points for K142 waste (which were determined by generator's knowledge to be a hazardous waste and recycled as K142 waste).

Gulf States Steel shall continue to make hazardous waste determinations as required by ADEM Admin. Code R. 335-14-3-.01(2).

10. That Gulf States Steel shall continue to label and date universal waste as required in ADEM Admin. Code R. 335-14-11.
11. That Gulf States Steel shall continue to keep hazardous waste containers closed except when it is necessary add or remove waste.
12. That Gulf States Steel shall continue to keep wellhead covers for monitoring wells locked with a functional key or combination lock.
13. That Gulf States Steel shall, after having already updated the contingency plan for the current conditions, continue to immediately update the facility's contingency plan whenever required by ADEM Admin. Code Rs. 335-14-3-.03(5)(a)4. and 335-14-5-.04(5)(c).
14. That, not later than thirty (30) calendar days after the date of receipt of notice of this Administrative Order, GSS shall pay to the Department a civil penalty in the amount of eighty thousand dollars (\$80,000). for the violations cited herein. This

penalty shall be made payable by certified or cashier's check to ADEM and shall be remitted to:

Office of General Counsel
Alabama Department of Environmental Management
Post Office Box 301463
Montgomery, Alabama 36130-1463

The check shall reference Gulf States Steel's name and address, and the ADEM Administrative Order number of this action.

15. That, not later than fourteen (14) calendar days after the receipt of notice of this Administrative Order, GSS shall provide a copy of this Administrative Order to all contractors, laboratories, and consultants retained to conduct or monitor any portion of the work performed pursuant to this Administrative Order or the retention of such person(s), whichever occurs later, and shall condition all such contracts on compliance with the terms of this Administrative Order.
16. That, upon the date of receipt of notice of this Administrative Order, GSS shall comply with the provisions of Parts I through V of this Administrative Order until a determination is made in writing by the Department, pursuant to Condition II.F. that all obligations have been or are, fulfilled and this Administrative Order is terminated. This Administrative Order is issued in lieu of a Post-Closure Permit pursuant to ADEM Admin. Code R. 335-14-8, therefore references to ADEM Admin. Code R. 335-14-8 permit requirements shall be applicable to this Administrative Order.
17. That, not later than fifteen (15) calendar days after the date of receipt of notice of this Administrative Order, GSS shall submit revised Closure Plans for the spent pickle liquor containment area and the waste chromic acid uncontained and contained tank systems to the Department for review and approval in accordance with the requirements of ADEM Admin. Code Rs. 335-14-5-.07(2) through 335-14-5-.07(6), and 335-14-5-.14(11). The revised Closure Plans shall address all comments in the Department's Notice of Deficiency dated August 31, 1999, and should include associated areas of soil and/or groundwater contamination.
18. That, not later than one hundred and eighty (180) calendar days after the date of receipt of notice of the Department's approval of the Closure Plans, GSS shall have

completed the closure activities for the spent pickle liquor containment area and the waste chromic acid uncontained and contained tank systems in accordance with the approved Closure Plans.

19. That within sixty (60) calendar days after completion of closure of each hazardous waste management unit in accordance with the Closure Plans, GSS shall submit to the Department all certifications and notices of closure in accordance with all of the requirements of ADEM Admin. Code Rs. 335-14-5-.07(6), 335-14-5-.07(7), and 335-14-5-.07(10).
20. That, not later than sixty (60) calendar days after the date of receipt of notice of this Administrative Order, GSS shall submit a Post-Closure Plan for the K087 Wastepile to the Department for its review and approval in accordance with the requirements of ADEM Admin. Code Rs. 335-14-5-.07(8) through 335-14-5-.07(11), and 335-14-5-.14(11). The Post-Closure Plan should also contain inspection schedules and inspection logs as required by ADEM Admin. Code R. 335-14-5-.02(6), a Groundwater Monitoring Plan as required by ADEM Admin. Code R. 335-14-5-.06, and all appropriate data and records as required by ADEM Admin. Code R. 335-14-5-.07.
21. That, not later than sixty (60) calendar days after a determination by GSS or by the Department that clean closure of any of the regulated hazardous waste management units listed in Condition I.B.17. has not been attained in accordance with Condition I.B.17. of this Administrative Order, GSS shall submit a Post-Closure Plan to the Department for its review and approval in accordance with the requirements of ADEM Admin. Code Rs. 335-14-5-.07(8) through 335-14-5-.07(11), and 335-14-5-.14(11). The Post-Closure Plan should also contain inspection schedules and inspection logs as required by ADEM Admin. Code R. 335-14-5-.02(6), a Groundwater Monitoring Plan as required by ADEM Admin. Code R. 335-14-5-.06, and all appropriate data and records as required by ADEM Admin. Code R. 335-14-5-.07. Upon a determination pursuant to this condition that post-closure care is required, additional fees may be required, as well as modification to Parts II, III and IV to include appropriate provisions for post-closure care, groundwater monitoring and corrective action.

22. That, not later than sixty (60) calendar days after the date of receipt of notice of this Administrative Order, GSS shall submit a Corrective Action Plan for the K087 Wastepile to the Department for its review and approval in accordance with the requirements of ADEM Admin. Code R. 335-14-5-.06(12).
23. That, not later than sixty (60) calendar days after a determination by GSS or by the Department that clean closure of any of the regulated hazardous waste management units listed in Condition I.B.17. has not been attained in accordance with Condition I.B.17. of this Administrative Order, GSS shall submit a Corrective Action Plan to the Department for its review and approval in accordance with the requirements of ADEM Admin. Code R. 335-14-5-.06(12). Upon a determination pursuant to this condition that corrective action is required, additional fees may be required, as well as modification to Part V to include appropriate provisions for post-closure care, groundwater monitoring and corrective action.
24. That, not later than thirty (30) calendar days after the date of receipt of notice of this Administrative Order, GSS shall pay to the Department the sum of thirty-five thousand dollars (\$35,000) for the cost of reviewing the Post Closure Care and SWMU Corrective Action portions of this Administrative Order.
25. That, not later than thirty (30) calendar days after the receipt of notice of the Department's approval of the Post-Closure Plan as may be required by Conditions I.B.20. or 21. of this Administrative Order, GSS shall have implemented post-closure activities at all hazardous waste management units in accordance with the approved Post-Closure Plan.
26. That, not later than thirty (30) calendar days after the receipt of notice of the Department's approval of the Corrective Action Plan as may be required by Conditions I.B.22. or 23. of this Administrative Order, GSS shall have implemented corrective action activities at all hazardous waste management units in accordance with the approved Corrective Action Plan.
27. That failure to comply with the provisions of this Administrative Order shall constitute cause for commencement of legal action by the Department against Gulf States Steel for recovery of additional civil penalties, criminal fines, or other appropriate sanctions or relief.

INTRODUCTION

At the time of the issuance of this Administrative Order, Parts I and II of the Administrative Order apply to the Spent Pickle Liquor Containment System (SWMU 39), the Contained Tank System (SWMU 9) and the Uncontained Tank System; Parts I, II, III and IV of the Administrative Order apply to the K087 Wastepile (SWMU 17B); and Parts I, II and V of the Administrative Order apply to the Solid Waste Management Units that are listed in Appendix A and described in Part V of the Administrative Order. In the event that either or both of the units listed in Condition I.B.17. of this Administrative Order cannot obtain clean closure, the Administrative Order shall be modified to indicate that the unit(s) unable to clean close are also subject to Parts I, II, III and IV of the Administrative Order.

TABLE I.1.**REGULATED UNITS COVERED BY THIS ORDER**

UNIT NAME	UNIT DESCRIPTION	CLOSED-IN-PLACE CAPACITY (QUANTITY)	DESCRIPTION/ LOCATION OF UNIT*
Contained Tank System (Same unit as SWMU 9—Waste Oil Tank South of Lagoon)	10,000 gallon horizontal steel tank surrounded by concrete secondary containment.	---	Waste Chromic Acid Tank Systems Closure Plan (dated April 1999); also facility RFA Report (dated December 30, 1994)
Uncontained Tank System (not included in facility RFA)	7000 gallon vertical plastic tank supported by steel base plate located near Galvanize Line. No secondary containment.	---	Waste Chromic Acid Tank Systems Closure Plan (dated April 1999)
K087 Wastepile (same as SWMU 17B—Closed Hazardous Wastepile)	Former K087 wastepile closed under existing regulations in 1987 with possible contamination remaining in place. Clean closure equivalency attempted and denied in 1999.	Unknown	Clean Closure Equivalency Demonstration for the Former K087 Waste Pile (dated February 1998)
Spent Pickle Liquor Containment Area (same as SWMU 39—Spent Pickle Liquor Loading Area)	Secondary containment area around spent pickle liquor tanks. The tanks themselves are not regulated units because the spent liquor is used as a substitute for a commercial chemical product; however, releases from these tanks are regulated as a K062 waste.	---	Spent Pickle Liquor Containment Area Closure Plan (dated April 1999); also facility RFA Report (dated December 30, 1994)

* Document containing description (text), location (figure) of unit.

PART II

STANDARD AND GENERAL FACILITY CONDITIONS

II.A. EFFECT OF ADMINISTRATIVE ORDER

The Facility is required to conduct closure, post-closure care and corrective action in accordance with the conditions of this Administrative Order. Issuance of this Administrative Order does not 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 Administrative Order does not constitute a defense to any action brought under the AHWMMMA, or any other law governing protection of public health or the environment, for any imminent and substantial endangerment to human health, welfare, or the environment (ADEM Admin. Code R. 335-14-8-.01(4)).

II.B. SEVERABILITY

The provisions of this Administrative Order are severable and if any provision of this Administrative Order, or the application of any provision of this Administrative Order to any circumstance, is held invalid, the application of such provision to other circumstances and the remainder of this Administrative Order shall not be affected thereby.

II.C. DUTIES AND REQUIREMENTS

1. Duty to Comply

The Facility shall comply with all conditions of this Administrative Order, except to the extent and for the duration such noncompliance is authorized by an emergency permit. Any Administrative Order noncompliance, other than noncompliance authorized by an emergency permit, constitutes a violation of the AHWMMMA, and is grounds for enforcement action.

2. Duty to Reapply (RESERVED)

3. Need to Halt or Reduce Activity Not A Defense

It shall not be a defense for the Facility in an enforcement action that it would have been necessary to halt or reduce the Ordered activity in order to maintain

compliance with the conditions of this Administrative Order (ADEM Admin. Code R. 335-14-8-.03(1)(c)).

4. Duty to Mitigate

In the event of noncompliance with the Administrative Order, the Facility shall take all reasonable steps to minimize releases to the environment, and shall carry out such measures as are reasonable to prevent significant adverse impacts on human health or the environment (ADEM Admin. Code R. 335-14-8-.03(1)(d)).

5. Proper Operation and Maintenance

The Facility shall at all times properly operate and maintain all facilities and systems of treatment, monitoring, and control (and related appurtenances) which are installed or used by the Facility to achieve compliance with the conditions of this Administrative Order. Proper operation and maintenance includes 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 compliance with the conditions of the Administrative Order (ADEM Admin. Code R. 335-14-8-.03(1)(e)).

6. Administrative Order Actions

This Administrative Order may be modified, revoked and reissued, or terminated for cause as specified in ADEM Admin. Code R. 335-14-8-.04(2), 335-14-8-.04(3) and 335-14-8-.04(4). The filing of a request for modification, revocation and reissuance, or termination of the Administrative Order, or the notification of planned changes or anticipated noncompliance on the part of the Facility does not stay the applicability or enforceability of any Administrative Order condition (ADEM Admin. Code R. 335-14-8-.03(1)(f)).

7. Property Rights

Issuance of this Administrative Order does not convey any property rights of any sort, nor any exclusive privilege (ADEM Admin. Code R. 335-14-8-.03(1)(g)).

8. Duty to Provide Information

The Facility shall furnish to the Department, within a reasonable time as determined by the Department, any relevant information which the Department may request to

determine whether cause exists for modifying, revoking and reissuing, or terminating this Administrative Order, or to determine compliance with this Administrative Order. The Facility shall also furnish to the Department, upon request, copies of records required to be kept by this Administrative Order (ADEM Admin. Code R. 335-14-8-.03(1)(h)).

9. Inspection and Entry

The Facility shall allow duly designated officers and employees of the Department, or an authorized representative, upon the presentation of credentials and other documents as may be required by law to (ADEM Admin. Code R. 335-14-8-.03(1)(i)):

- a. Enter at reasonable times upon the Facility's premises where a regulated facility or activity is located or conducted, or where records must be kept under the conditions of this Administrative Order;
- b. Have access to and copy, at reasonable times, any records that must be kept under the conditions of this Administrative Order;
- c. Inspect at reasonable times any facilities, equipment (including monitoring and control equipment), practices, or operations regulated or required under this Administrative Order; and
- d. Sample or monitor, at reasonable times, for the purposes of assuring Administrative Order compliance or as otherwise authorized by the AHWMMA, any substances or parameters at any location. The Facility shall have the opportunity to split samples during sampling.

10. Monitoring and Records

- a. Samples and measurements taken for the purpose of monitoring shall be representative of the monitored activity. The method used to obtain a representative sample of the waste to be analyzed must be the appropriate method from ADEM Admin. Code R. 335-14-2-Appendix I or the methods specified in the Post-Closure Plan. Laboratory methods must be those specified in Test Methods for Evaluating Solid Waste: Physical/Chemical Methods SW-846, (latest edition), Methods for Chemical Analysis of Water and Wastes (EPA-600/4-79-020), Standard Methods for the Examination of

Water and Wastewater (latest edition), the methods specified in Post-Closure Plan, or an alternative method approved by ADEM (ADEM Admin. Code R. 335-14-8-.03(1)(j)1.).

- b. The Facility shall maintain at the facility records of all monitoring information, including all calibration and maintenance records, records of all data used to prepare documents required by this Administrative Order and copies of all reports required by this Administrative Order for a period of at least three (3) years from the date of the sample, measurement, report or record, or until corrective action is completed, whichever date is later. This period may be extended by the Department at any time and is automatically extended during the course of any unresolved enforcement action regarding this facility (ADEM Admin. Code R. 335-14-5-.05(5)(b) and 335-14-8-.03(1)(j)2.).
- c. The Facility shall maintain at the facility records for all groundwater monitoring wells and piezometers and associated groundwater surface elevations throughout the post-closure care period. These records shall include the surveyed location, surveyed elevation, surveyed elevation reference point, total depth, screened interval, construction details, well log, and all other pertinent information for each well and piezometer.
- d. Records of monitoring information shall include (ADEM Admin. Code R. 335-14-8-.03(1)(j)3.):
 - i. The dates, exact place, and times of sampling or measurements;
 - ii. The individuals who performed the sampling or measurements;
 - iii. The dates on which analyses were performed;
 - iv. The individuals who performed the analyses;
 - v. The analytical techniques or methods used; and
 - vi. The results of such analyses.
- e. The following documents and information shall be maintained throughout the post-closure period at the facility as required by ADEM Admin. Code R. 335-14-5-.07 and this Administrative Order:
 - i. Complete copy of this Administrative Order and all attachments.

- ii. Operating record as required by ADEM Admin. Code R. 335-14-5-.05 (4) and this Administrative Order.
- iii. Inspection schedules and inspection logs as required by ADEM Admin. Code R. 335-14-5-.02(6) and this Administrative Order.
- iv. Groundwater Monitoring Plan and all appropriate data and records required by ADEM Admin. Code R. 335-14-5-.07 and this Administrative Order.
- v. Corrective Action Plans and Reports required by ADEM. Admin Code R. 335-14-5-.06 and this Administrative Order.
- vi. Cost estimates for post-closure care required by ADEM Admin. Code R. 335-14-5-.07 and this Administrative Order.
- vii. Post-Closure Plan(s) as required by ADEM Admin. Code R. 335-14-5-.07 and this Administrative Order.
- viii. Documentation of compliance with ADEM Admin. Code R. 335-14-5-.07 and this Administrative Order.
- ix. A survey plat and record of the type, location and quantity of hazardous waste or hazardous waste constituents disposed of within each cell or area of the facility (to include solid waste management units) as required by ADEM Admin Code R. 335-14-5-.07 and this Administrative Order.
- x. All reports and documentation of compliance with ADEM Admin. Code R. 335-14-5-.07 and this Administrative Order during the post-closure care period.
- xi. Cost estimates for completion of corrective action as required by ADEM Admin. Code R. 335-14-5-.08(6) and this Administrative Order.
- xii. Workplans, reports, data, and other information pertaining to SWMUs and AOCs.
- xiii. Copy of all certification(s) of closure and post-closure, survey plat(s), and notice(s) in deed(s) to property as required by ADEM Admin. Code R. 335-14-5-.07 and this Administrative Order.
- xiv. Copy of financial assurance instrument(s) for post-closure and corrective action.

xv. All other documents required by Condition II.C. of this Administrative Order.

- f. All amendments, revisions and modifications to any plan or cost estimates required by this Administrative Order shall be submitted to the Department for approval and Administrative Order modification as necessary.

11. Signatory Requirements

All applications, reports or information submitted to the Department shall be signed and certified in accordance with ADEM Admin. Code R. 335-14-8-.02(2) and ADEM Admin. Code R. 335-14-8-.03(1)(k).

12. Reporting Requirements

a. Planned Changes

The Facility shall give notice to the Department as soon as possible of any planned physical alterations or additions to the Ordered facility and any solid waste management units identified under Part V of this Administrative Order (ADEM Admin. Code R. 335-14-8-.03(1)(l)1.).

b. Anticipated Noncompliance

The Facility shall give advance notice to the Department of any planned changes in the Ordered facility or activity that may result in noncompliance with Administrative Order requirements (ADEM Admin. Code R. 335-14-8-.03(1)(l)2.).

c. Transfer of Orders

This Administrative Order may be transferred to a new owner or operator only if it is modified or revoked and reissued pursuant to ADEM Admin. Code R. 335-14-8-.04(1) or ADEM Admin. Code R. 335-14-8-.04(3)(a)1.(vii). Before transferring ownership or operation of the facility during its post-closure period, the Facility shall notify the new owner or operator, in writing, of the requirements of ADEM Admin. Code R. 335-14-5 and 335-14-8 and this Administrative Order (ADEM Admin. Code R. 335-14-8-.03(1)(l)3.).

d. Monitoring Reports

Monitoring results shall be reported at the intervals specified elsewhere in this Administrative Order (ADEM Admin. Code R. 335-14-8-.03(1)(l)4.).

e. Compliance Schedules

Reports of compliance or noncompliance with, or any progress reports on, interim and final requirements contained in any compliance schedule of this Administrative Order shall be submitted no later than fourteen (14) calendar days following each schedule date (ADEM Admin. Code R. 335-14-8-.03(1)(l)5.).

f. 24-Hour Reporting

i. The Facility shall report to the Department any noncompliance with the Administrative Order that may endanger human health or the environment. Any such information shall be reported orally within twenty-four (24) hours from the time the Facility becomes aware of the circumstances. This report shall include, but is not limited to, the following (ADEM Admin. Code R. 335-14-8-.03(1)(l)6.(i)):

- (I) Information concerning the release of any hazardous waste which may endanger public drinking water supplies; and
- (II) Information concerning the release or discharge of any hazardous waste, or hazardous waste constituents, or of a fire or explosion at the facility, which could threaten the environment or human health outside the facility.

ii. The description of the occurrence and its cause shall include (ADEM Admin. Code R. 335-14-8-.03(1)(l)6.(ii)):

- (I) Name, address, and telephone number of the owner or operator;
- (II) Name, address, telephone number, and EPA Identification Number of the facility;
- (III) Date, time, and type of incident;
- (IV) Name and quantity of material(s) involved;
- (V) The extent of injuries, if any;
- (VI) An assessment of actual or potential hazards to the environment and human health outside the facility, where this is applicable; and
- (VII) Estimated quantity and disposition of recovered material that resulted from the accident.

iii. A written submission shall also be provided within five (5) calendar days of the time the Facility becomes aware of the circumstances. The written submission shall contain a description of the noncompliance and its cause; the periods of noncompliance (including exact dates and times); whether the noncompliance 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 (ADEM Admin. Code R. 335-14-8-.03(1)(l)6.(iii)).

g. Other Noncompliance

The Facility shall report to the Department all instances of noncompliance not otherwise required by Conditions II.C.12.d., II.C.12.e., or II.C.12.f. of this Administrative Order at the time any other reports required by this Administrative Order are submitted (ADEM Admin. Code R. 335-14-8-.03(1)(l)10.). The reports shall contain the information required by ADEM Admin. Code R. 335-14-8-.03(1)(l)6.

h. Other Information

When the Facility becomes aware that it failed to submit any relevant facts in an Administrative Order application, or submitted incorrect information in an Administrative Order or in any report to the Department, it shall promptly submit such facts or information. In addition, upon request, the Facility shall furnish to the Department any information related to compliance with this Administrative Order (ADEM Admin. Code R. 335-14-8-.03(1)(l)11.).

13. Construction Quality Assurance (CQA)

The Facility shall implement a CQA program that complies with the requirements of ADEM Admin. Code R. 335-14-5-.02(10). The certification by the CQA officer required by ADEM Admin. Code R. 335-14-5-.02(10)(d) shall be included in the certification of construction documentation required by Condition II.C.14. of this Administrative Order.

14. Certification of Construction

The Facility may not commence treatment, storage or disposal of hazardous waste at any new or modified portion of the facility or corrective action for contaminated

groundwater until the Facility has submitted to the Department by certified mail or hand-delivery a letter (together with the certification by the CQA officer required in Condition II.C.13. of this Order and any other certifications required by this Administrative Order or ADEM Admin. Code 335-14) signed by the Facility and a registered professional engineer stating that the facility has been constructed or modified in compliance with the Administrative Order where appropriate; and,

- a. The Department has inspected the modified or newly constructed facility and finds it is in compliance with the conditions of the Administrative Order; or
- b. The Department has either waived the inspection or has not notified the Facility, within fifteen (15) calendar days of the notification from the Facility, of its intent to inspect (ADEM Admin. Code R. 335-14-8-.03(1)(1)2.).

15. Obligation for Corrective Action

This Administrative Order shall remain in effect throughout the post-closure care period (specified in Condition III.A.3.), and for any period necessary to comply with the SWMU corrective action requirements (Part V) of this Administrative Order.

II.D. CONFIDENTIAL INFORMATION

The Facility may claim confidential any information required to be submitted by this Administrative Order if the information is protectable under Code of Alabama 1975, §22-30-18, as amended. The term “trade secret” as used in §22-30-18 is defined in Code of Alabama 1975, §22-30-3(12) (ADEM Admin. Code R. 335-14-8-.02(3)).

II.E. DEFINITIONS

For the purposes of this Administrative Order, terms used herein shall have the same meaning as those in ADEM Admin. Code R. 335-14-1, 335-14-2, 335-14-5, and 335-14-8, unless this Administrative Order specifically provides otherwise; where terms are not defined in the regulations or this Administrative Order, 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.

1. "Action levels" for the purposes of this Administrative Order are health-based concentrations of hazardous constituents determined to be indicators for the protection of human health and/or the environment.
2. "Area of concern" (AOC) for the purposes of this Administrative Order includes any area having a probable release of a hazardous waste or hazardous constituent which is not from a solid waste management unit and is determined by the Department to pose a current or potential threat to human health or the environment. Such areas of concern may require investigations and remedial action as required under Section 3005(c)(3) of the Resource Conservation and Recovery Act and ADEM Admin. Code R. 335-14-8-.03(3)(b)2. in order to ensure adequate protection of human health and the environment.
3. "Contamination" for the purposes of this Administrative Order refers to the presence of any hazardous constituent in a concentration that exceeds the naturally occurring concentration of that constituent in the immediate vicinity of the facility (in areas not affected by the facility).
4. "Corrective action" for the purposes of this Administrative Order may include all corrective measures necessary to protect human health and the environment for all releases of hazardous waste or hazardous constituents from any solid waste management unit at the facility, regardless of the time at which waste was placed in the unit, as required by ADEM Admin. Code R. 335-14-5-.06(12). Corrective action may address releases to air, soils, surface water, or groundwater.
5. A "corrective action management unit" (CAMU) for the purposes of this Administrative Order, includes any area within a facility that is designated by the Department under ADEM Admin. Code R. 335-14-5-.19 for the purpose of implementing corrective action requirements under ADEM Admin. Code R. 335-14-5-.06(12) , 22-30-19 et seq., Code of Alabama 1975, and/or RCRA section 3008(h). A CAMU shall only be used for the management of remediation wastes pursuant to implementing such corrective action requirements at the facility.
6. "Corrective measures" for the purposes of this Administrative Order, include all corrective action necessary to protect human health and the environment for all releases of hazardous waste or hazardous constituents from any solid waste

management unit at the facility, regardless of the time at which waste was placed in the unit, as required under ADEM Admin. Code R. 335-14-5-.06(12).

7. "Extent of contamination" for the purposes of this Administrative Order 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 Department.
8. "Facility" for the purposes of this Administrative Order includes all contiguous land, and structures, other appurtenances, and improvements on the land, used for treating, storing, or disposing of hazardous waste. A facility may consist of several treatment, storage, or disposal operational units (e.g. one or more landfills, surface impoundments, or combination of them). For the purposes of implementing corrective action under ADEM Admin. Code R. 335-14-5-.06(12) a facility includes all contiguous property under the control of the owner or operator.
9. A "hazardous constituent" for the purposes of this Administrative Order is one of the substances listed in ADEM Admin. Code R. 335-14-2- Appendix VIII and/or ADEM Admin. Code 335-14-5-Appendix IX and include hazardous constituents released from solid waste, hazardous waste, and hazardous waste constituents that are reaction by-products.
10. "Interim measures" for the purposes of this Administrative Order 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 action remedies are evaluated and, if necessary, implemented.
11. "Land disposal" for the purposes of this Administrative Order and ADEM Admin. Code Chapter 335-14-9 means placement in or on the land and includes, but is not limited to, placement in a landfill, surface impoundment, waste pile, injection well, land treatment facility, salt dome formation, salt bed formation, underground mine or cave, or concrete vault or bunker intended for disposal purposes.
12. "Landfill" for the purposes of this Administrative Order includes any disposal facility or part of a facility where hazardous waste is placed in or on the land and which is not a pile, a land treatment facility, a surface impoundment, an

underground injection well, a salt dome formation, a salt bed formation, an underground mine, a cave, or a corrective action management unit.

13. A "release" for the purposes of this Administrative Order includes any spilling, leaking, pouring, emitting, emptying, discharging, injecting, escaping, leaching, pumping, or disposing into the environment of any hazardous waste or hazardous constituent.
14. "Remediation waste" for the purposes of this Administrative Order includes all solid and hazardous wastes, and all media (including groundwater, surface water, soils, and sediments) and debris, which contain listed hazardous wastes or which themselves exhibit a hazardous waste characteristic, that are managed for the purpose of implementing corrective action requirements under ADEM Admin. Code R. 335-14-5-.06(12) and RCRA Section 3008(h). For a given facility, remediation wastes may originate only from within the facility boundary, but may include waste managed in implementing RCRA Sections 3004(v) or 3008(h) for releases beyond the facility boundary.
15. "Solid waste" for the purposes of this Administrative Order means any garbage, refuse, sludge from a waste treatment plant, water supply treatment plant, or air pollution control facility and other discarded materials, including solid, liquid, semisolid, or contained gaseous materials 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 Orders 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).
16. A "solid waste management unit" (SWMU) for the purposes of this Administrative Order 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 hazardous waste management units are also solid waste management units. 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).

17. A "storm event" for the purposes of this Administrative Order is defined as a one (1)-year, twenty-four (24)-hour storm event, or a rainfall event which measures one (1) inch or greater in one (1) hour or less. Rainfall measurements may be taken at the site, or the closest official weather monitoring station may be used.
18. A "temporary unit" (TU) for the purposes of this Administrative Order 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 Department, such units must conform to specific standards, and may only be in operation for a period of time as specified in this Administrative Order.
19. A "unit" for the purposes of this Administrative Order 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, or recycling unit.

II.F. EXPIRATION AND CONTINUATION OF ORDER

This Administrative Order shall continue until all obligations contained herein have been fulfilled, as determined in writing by the Department. This Administrative Order shall be reviewed by the Department five (5) years after the date of issuance or reissuance and shall be modified as necessary as provided in ADEM Admin. Code R. 335-14-8-.05(1)(d).

II.G. CONDITIONS RELATED TO COMPLIANCE WITH GENERAL FACILITY STANDARDS

1. The Facility shall maintain continuous compliance with the following regulations:
 - a. Post-closure care and use of property (ADEM Admin. Code R. 335-14-5-.07(8)).
 - b. Post-Closure Plan, Amendment of Plan (ADEM Admin. Code R. 335-14-5-.07(9)).

- c. Notice to local land authority and in deed to property (ADEM Admin. Code R. 335-14-5-.07(10)).
2. The Facility must comply with ADEM Admin. Code R. 335-14-5-.08(9) (Incapacity of Owners or Operators, Guarantors, or Financial Institutions) whenever necessary.

II.H. LAND DISPOSAL RESTRICTIONS

1. General Restrictions

ADEM Admin. Code 335-14-9 identifies hazardous wastes that are restricted from land disposal and defines those limited circumstances which an otherwise prohibited waste may continue to be placed on or in a land treatment, storage or disposal unit. The Facility shall maintain compliance with the requirements of ADEM Admin. Code 335-14-9. Where the Facility has applied for an extension, waiver or variance under ADEM Admin. Code 335-14-9 the Facility shall comply with all restrictions on land disposal under this Part once the effective date for the waste has been reached pending final approval of such application.

2. Land Disposal Prohibitions and Treatment Standards

- a. A restricted waste identified in ADEM Admin. Code R. 335-14-9-.03 may not be placed in a land disposal unit without further treatment unless the requirements of ADEM Admin. Code R. 335-14-9-.03 and/or .04 are met.
- b. The storage of hazardous wastes restricted from land disposal under ADEM Admin. Code 335-14-9 is prohibited unless the requirements of ADEM Admin. Code R. 335-14-9-.05 are met.

II.I. ORGANIC AIR EMISSION REQUIREMENTS

1. General Introduction

a. Process Vents and Equipment

Phase I Organic Air Emission Standards consist of ADEM Admin. Code R. 335-14-5-.27 and 335-14-5-.28 for hazardous waste treatment, storage and disposal (TSD) facilities. ADEM Admin. Code R. 335-14-5-.27 contains emissions standards for process vents associated with distillation, fractionation, thin-film evaporation, solvent extraction, and air or steam

stripping operations that process hazardous waste with an annual average total organic concentration of at least ten (10) parts per million by weight (ppmw). ADEM Admin. Code R. 335-14-5-.28 contains emission standards that address leaks from specific equipment (i.e., pumps, valves, compressors, etc.) that contains or contacts hazardous waste that has a total organic concentration of at least ten (10) percent by weight.

b. Tanks, Containers, Surface Impoundments, and Miscellaneous Units

The Phase II Organic Emission Standards consist of ADEM Admin. Code R. 335-14-5-.29 for hazardous waste TSD facilities including certain hazardous waste generators accumulating waste on-site in RCRA permit-exempt (ninety (90)-day) tanks and containers. In general, under these standards, air emission controls must be used for tanks, surface impoundments, containers and miscellaneous units which contact hazardous waste containing an average organic concentration greater than five hundred (500) ppmw at the point of origination determined by the procedures outlined in ADEM Admin. Code R. 335-14-5-.29(4), except as specifically exempted under ADEM Admin. Code R. 335-14-5-.29(1) and 335-14-5-.29(3).

2. Notification of New Units

- a. Prior to constructing any equipment with process vents subject to the requirements of ADEM Admin. Code R. 335-14-5-.27 or installing any additional equipment subject to the requirements of ADEM Admin. Code R. 335-14-5-.28, or prior to modifying a current process such that existing equipment previously not subject to the requirement of ADEM Admin. Code R. 335-14-5-.28 becomes subject to the requirement, the Facility shall supply the specific information required pursuant to ADEM Admin. Code R. 335-14-8-.02(15) and 335-14-8-.02(16) as applicable, and shall obtain an Administrative Order modification under ADEM Admin. Code R. 335-14-8-.04(2), and provide specific information required under ADEM Admin. Code R. 335-14-8-.02(5) [40 CFR § 270.14-17 and § 270.27], as applicable, with the modification request.

- b. Tanks, Containers, Surface Impoundments and Miscellaneous Units
Prior to installing any tank, container, surface impoundment or miscellaneous unit subject to ADEM Admin. Code R. 335-14-5-.29, or modifying an existing process waste handling or tank, container, surface impoundment or miscellaneous unit such that the unit(s) will become subject to ADEM Admin. Code R. 335-14-5-.29 the Facility shall apply for an Administrative Order modification under ADEM Admin. Code R. 335-14-8-.04(2), and provide specific information required under ADEM Admin. Code R. 335-14-8-.02(5), as applicable, with the modification request.

II.J. COST ESTIMATES

1. Closure

Within thirty (30) days from the date of receipt of notice of this Administrative Order the Facility shall maintain a detailed written closure cost estimate, in current dollars, at the facility and on file with the Department in accordance with ADEM Admin. Code R. 335-14-5-.08(3). The Facility shall maintain and submit the cost estimate in the form designated by the Department.

- a. The Facility shall adjust the closure cost estimate for inflation within sixty (60) calendar days prior to the anniversary of the effective date of this Administrative Order as required by ADEM Admin. Code R. 335-14-5-.08(3)(b).
- b. The Facility must revise the closure cost estimate whenever there is a change in the facility's Closure Plan as required by ADEM Admin. Code R. 335-14-5-.08(3)(c).
- c. The Facility must keep at the facility the latest closure cost estimate as required by ADEM Admin. Code R. 335-14-8-.08(3)(d).
- d. The Facility must submit the latest closure cost estimate to the Department in accordance with ADEM Admin. Code R. 335-14-5-.07 and .08.

2. Post-Closure

Within thirty (30) days from the date of receipt of notice of this Administrative Order the Facility shall maintain a detailed written post-closure cost estimate, in

current dollars, at the facility and on file with ADEM in accordance with ADEM Admin. Code R. 335-14-5-.08(5)(a) and (d). The cost estimate shall be maintained and submitted in the form designated by the Department. Also, the Facility must update the post-closure cost estimate no later than thirty (30) calendar days after the Department has approved a modification to the Administrative Order, if the change in the Administrative Order increases the cost of Post-Closure care (ADEM Admin. Code R. 335-14-5-.08(5)(c)).

II.K. FINANCIAL ASSURANCE REQUIREMENTS

1. Closure

- a. The Facility shall demonstrate continuous compliance with ADEM Admin. Code R. 335-14-5-.08(4) by providing documentation of financial assurance, as required by ADEM Admin. Code R. 335-14-5-.08(4) in at least the amount of the cost estimates required by Administrative Order Condition II.J. Changes in financial assurance mechanisms must be approved by the Department pursuant to ADEM Admin. Code R. 335-14-5-.08 (4).
- b. Financial Mechanism
The Facility shall establish a mechanism to ensure closure pursuant to ADEM Admin. Code R. 335-14-5-.08.

2. Post-Closure

- a. The Facility shall demonstrate continuous compliance with ADEM Admin. Code R. 335-14-5-.08(6) by providing documentation of financial assurance in at least the amount of the post-closure cost estimates required by Condition II.J. of this Administrative Order. Changes in financial assurance mechanisms must be approved by ADEM pursuant to ADEM Admin. Code R. 335-14-5-.08(6).
- b. Financial Mechanism
The Facility shall establish a mechanism to ensure post-closure care pursuant to ADEM Admin. Code R. 335-14-5-.08.

II.L. WASTE MINIMIZATION

1. Certification Requirements

Pursuant to ADEM Admin. Code R. 335-14-5-.05(4)(b)9., and Section 3005(h) of RCRA, 42 U.S.C. 6925(h), the Facility must certify, no less often than every three hundred and sixty-five (365) calendar days, that:

- a. The Facility has a program in place to reduce the volume and toxicity of hazardous waste to the degree determined by the Facility to be economically practicable; and
- b. The proposed method of treatment, storage or disposal is the most practicable method available to the facility which minimizes the present and future threat to human health and the environment.

2. Recording Requirements

If Condition II.L. is applicable, then the Facility shall maintain copies of this certification in the facility operating record as required by ADEM Admin. Code R. 335-14-5-.05(4).

II.M. REPORTS, NOTIFICATIONS, AND SUBMISSIONS TO THE DEPARTMENT

All reports, notifications, or other submissions that are required by this Administrative Order should be transmitted via certified mail or hand-delivery to:

Wm. Gerald Hardy, Chief
Land Division
Alabama Department of Environmental Management
P.O. Box 301463 (Zip 36130-1463)
1400 Coliseum Blvd. (Zip 36110-2059)
Montgomery, Alabama

PART III

POST-CLOSURE CARE

III.A. POST-CLOSURE CARE

1. **Unit Identification**

The Facility shall provide post-closure care for the hazardous waste management unit(s) listed in Table III.1. The post-closure care shall be conducted in accordance with the applicable requirements of ADEM Admin. Code R. 335-14-5-.07, and 335-14-5-.14(11), at the closure site as described in the Administrative Order. The units are subject to the terms and conditions of this Administrative Order.

2. **Waste Identification**

The Facility has disposed of hazardous waste K087 in a waste pile. The unit was closed under existing regulations in 1987 with some contamination remaining in place. Clean closure equivalency for the unit was pursued but denied in 1999 due to groundwater contamination around the closed unit.

3. **Post-Closure Care Period**

The post-closure care period shall extend for a period of thirty (30) years from the effective date of the Administrative Order unless shortened or extended pursuant to ADEM Admin. Code R. 335-14-5-.07(8). The post-closure care period shall automatically extend through the end of the compliance period specified in Condition IV.B.4. of this Administrative Order.

III.B. POST-CLOSURE PROCEDURES AND USE OF PROPERTY

1. **Post-Closure Activities**

The Facility shall conduct post-closure care as required by ADEM Admin. Code R. 335-14-5-.07 and 335-14-5-.14(11)(d), for each hazardous waste management unit listed in Table III.1. Post-closure care shall commence upon execution of this Administrative Order and shall continue throughout the post-closure care period.

2. **Groundwater Monitoring**

The Facility shall conduct groundwater monitoring as specified in Part IV of this Administrative Order throughout the post-closure care period.

3. Security

The Facility shall comply with the security provisions of ADEM Admin. Code R. 335-14-5-.02(5)(b) and (c).

4. Disturbance of Closed Unit(s)

The Facility shall not allow the disturbance of the integrity of the final cover, liners, any components of the containment system, or the function of the facility's monitoring systems during the post-closure care period for any unit identified in Condition III.A.

5. The Facility shall implement the Post-Closure Plan required by Condition I.B.20. and 21., as approved by the Department. All post-closure care activities must be conducted in accordance with the provisions of the Post-Closure Plan (ADEM Admin. Code R. 335-14-5-.07(8) and (9)).

6. The Facility shall comply with the requirements for landfills, as follows (ADEM Admin. Code R. 335-14-5-.14(11)(b)):

- a. Maintain the integrity and effectiveness of the final cover, including making repairs to the cap, as necessary, to correct the effects of settling, subsidence, erosion, or other events;
- b. Maintain and monitor the groundwater monitoring system and comply with all other applicable requirements of ADEM Admin. Code R. 335-14-5-.06 and Part IV of this Administrative Order;
- c. Prevent run-on and run-off from eroding or otherwise damaging the final cover; and
- d. Protect and maintain surveyed benchmarks used in complying with the surveying and recordkeeping requirements of ADEM Admin. Code R. 335-14-5-.14(10)).

III.C. INSPECTIONS

1. The Facility shall inspect the components, structures, and equipment at the site in accordance with the inspection schedule as described in the Post-Closure Plan, and as required by ADEM Admin. Code R. 335-14-5-.07.

2. Monitoring and Inspection

The Facility shall inspect the closed hazardous waste management units listed in Table III.1. at least once every seven (7) days and after storms to detect any evidence of deterioration or improper operation as required under ADEM Admin. Code R. 335-14-5-.07 and ADEM Admin. Code R. 335-14-5-.14. The inspections shall specifically include evaluation of the following items:

- a. Integrity of the final cover (erosion, ponding, subsidence, cracking, etc.);
- b. Growth and stabilization of vegetative cover;
- c. Run-on and run-off control system;
- d. Groundwater monitoring wells; and,
- e. Survey benchmarks.

III.D. NOTICES AND CERTIFICATION

1. No later than sixty (60) calendar days after certification of closure of each hazardous waste disposal unit, the owner or operator must submit to the local zoning authority, or the authority with jurisdiction over local land use, and to the Department a record of the type, location, and quantity of hazardous wastes disposed of within each cell or other disposal unit of the facility. For hazardous wastes disposed of before January 12, 1981, the owner or operator must identify the type, location, and quantity of the hazardous wastes to the best of his knowledge and in accordance with any records he has kept.
2. Within sixty (60) calendar days of certification of closure of the first hazardous waste disposal unit and within sixty (60) calendar days of certification of closure of the last hazardous waste disposal unit, the owner or operator must:
 - a. Record, in accordance with state law, a notation on the deed to the facility property or on some other instrument that is normally examined during title search that will in perpetuity notify any potential purchaser of the property that:
 - i. The land has been used to manage hazardous wastes; and
 - ii. Its use is restricted under the ADEM Admin. Code R. 335-14-5-.07; and

- iii. The survey plat and record of the type, location, and quantity of hazardous wastes disposed of within each cell or other hazardous waste disposal unit of the facility required by ADEM Admin. Code R. 335-14-5-.07(7) and 335-14-5-.07(10)(a) have been filed with the local zoning authority or the authority with jurisdiction over local land use and with the Department; and
 - b. Submit a certification, signed by the owner or operator, that a notation has been recorded as specified in Condition III.D.2.a. of this Administrative Order, including a copy of the document in which the notation has been placed, to the Department.
- 3. If the owner or operator or any subsequent owner or operator of the land upon which a hazardous waste disposal unit is located wishes to remove hazardous wastes and hazardous waste residues, the liner, if any, or contaminated soils, a modification to the Administrative Order must be requested in accordance with the applicable requirements in ADEM Admin. Code 335-14-8. The owner or operator must demonstrate that the removal of hazardous wastes will satisfy the criteria of ADEM Admin. Code R. 335-14-5-.07(8)(c). By removing hazardous waste, the owner or operator may become a generator of hazardous waste and must manage it in accordance with all applicable requirements of ADEM Admin Code 335-14. If granted a modification or otherwise granted approval to conduct such removal activities, the owner or operator may request that the Department approve either:
 - a. The removal of the notation on the deed to the facility property or other instrument normally examined during title search; or
 - b. The addition of a notation to the deed or instrument indicating the removal of the hazardous waste.
- 4. No later than sixty (60) calendar days after completion of the established post-closure care period for each hazardous waste disposal unit, the owner or operator must submit to the Department, by registered mail, a certification that the post-closure care period for the hazardous waste disposal unit was performed in accordance with the specifications in the approved Post-Closure Plan. The certification must be signed by the owner or operator and an independent registered

professional engineer. Documentation supporting the independent registered professional engineer's certification must be furnished to the Department upon request until the Department releases the owner or operator from the financial assurance requirements for post-closure care under ADEM Admin. Code R. 335-14-5-.08(6)(i).

III.E. FINANCIAL ASSURANCE

1. The Facility shall maintain financial assurance throughout the post-closure period and comply with all applicable requirements of ADEM Admin. Code R. 335-14-5-.08.
2. The Facility shall demonstrate to the Department that the value of the financial assurance mechanism equals or exceeds the cost of thirty (30) years of post-closure care throughout the post-closure care period.
3. The Facility shall submit itemized statements for all capital expenditures and a complete, revised post-closure cost estimate to the Department when requesting approval for a reduction in the financial assurance mechanism for post-closure care.

III.F. POST-CLOSURE ORDER MODIFICATIONS

1. The Facility shall request a modification to the Administrative Order whenever changes in operating plans or facility design affect the approved post-closure plan or the post-closure activities required by this Administrative Order. The Facility must submit a written request for a modification to the Administrative Order at least sixty (60) calendar days prior to the proposed change in facility design or operation.
2. The request for changes in post-closure care required by Condition III.F.1. of this Administrative Order shall be submitted to the Department as an application for a Administrative Order modification pursuant to the requirements of ADEM Admin. Code R. 335-14-8-.04(2).

III.G. DUTY OF FACILITY

The Facility shall assure that all post-closure care measures necessary to maintain and/or achieve compliance with all applicable requirements of ADEM Admin. Code R. 335-14-5-.07., and 335-14-5-.14(11) are taken during the post-closure period.

III.H. SUMMARY OF DEADLINES

The summary information provided herein is intended only as a guide to the requirements of Part III of this Administrative Order. It is not intended to be all inclusive; nor is it intended to be used as a substitute for the full text of this Administrative Order.

ITEM	DUE DATE
Inspect closed unit(s). Condition III.C.	At least every seven (7) days, after storms; and in accordance with the inspection schedule established in the Post-Closure Plan.
File hazardous waste disposal records with local zoning and/or land use authority. Condition III.D.1.	Within sixty (60) calendar days of certification of closure of each hazardous waste management unit.
Record notation on deed to property. Condition III.D.2.	Within sixty (60) calendar days of certification of closure of the first hazardous waste management unit and within sixty (60) calendar days after certification of closure of the last hazardous waste management unit.
Submit certification of completion of post-closure care. Condition III.D.4.	Within sixty (60) calendar days after completion of post-closure care period.

TABLE III.1.

POST-CLOSURE CARE UNITS

UNIT NAME	UNIT DESCRIPTION	CLOSED-IN-PLACE CAPACITY (QUANTITY)	DESCRIPTION/ LOCATION OF UNIT*
K087 Wastepile (same as SWMU 17B—Closed Hazardous Wastepile)	Former K087 wastepile closed under existing regulations in 1987 with possible contamination remaining in place. Clean closure equivalency attempted and denied in 1999.	Unknown	Clean Closure Equivalency Demonstration for the Former K087 Waste Pile (dated February 1998)

* Document containing description (text), location (figure) of unit.

PART IV
GROUNDWATER MONITORING AND CORRECTIVE ACTION

IV.A. REQUIRED PROGRAM(S)

1. The Facility shall conduct groundwater monitoring throughout the post-closure care period for the hazardous waste management unit(s) listed in Table III.1.
2. Groundwater monitoring shall consist of the General Groundwater Monitoring Program of Condition IV.B. of this Administrative Order and the appropriate specific groundwater monitoring programs of Conditions IV.C., IV.D., and IV.E. of this Administrative Order, as applicable.
3. The specific groundwater monitoring program applicable at the time of issuance of this Administrative Order is the Corrective Action Monitoring Program contained in Condition IV.E. of this Administrative Order.
4. The Facility shall commence groundwater monitoring as required by this Administrative Order not later than one hundred and twenty (120) calendar days after the date of receipt of notice of this Administrative Order.

IV.B. GENERAL GROUNDWATER MONITORING PROGRAM

1. Well Location, Installation and Construction

The Facility shall install and/or maintain a groundwater monitoring system to comply with the requirements of ADEM Admin. Code R. 335-14-5-.06(8), 335-14-5-.06(9), 335-14-5-.06(10), and 335-14-5-.06(11) as applicable and as specified below:

- a. The Facility shall maintain all groundwater monitoring wells at the facility as identified in Table IV.1. of this Administrative Order, at the locations specified in the Post-Closure Plan, and any other groundwater monitoring wells specified by Condition IV.B.1.d. of this Administrative Order.
 - i. All groundwater monitoring wells shall be maintained in accordance with the plans and specifications presented in Post-Closure Plan of the Administrative Order and in accordance with ADEM Admin. Code R. 335-14-5-.06.

- ii. A groundwater monitoring well shall not be removed from any monitoring program specified in this Administrative Order without an approved Administrative Order modification pursuant to Condition IV.F. of this Administrative Order.
- iii. If a groundwater monitoring well is damaged, the Facility shall immediately notify the Department in writing and repair the well within thirty (30) calendar days. Within thirty (30) calendar days after the well is repaired, the Facility shall submit a report to the Department that includes a detailed description of the well repair activities conducted.
[Note: Monitoring well abandonments and replacements must be approved by the Department.]
- iv. If a groundwater monitoring well is deleted from the monitoring program(s) required by this Administrative Order in accordance with Conditions IV.B.1.a.ii. and IV.F. of this Administrative Order, it shall be plugged and abandoned within ninety (90) calendar days after deletion using procedures to be approved by the ADEM Groundwater Branch. Within thirty (30) calendar days after the well is abandoned, the Facility shall submit a report to the Department that includes a detailed description of the well abandonment activities conducted.
- b. Groundwater monitoring well(s) that define the point of compliance for the Hazardous Waste Unit listed in Table IV.1. shall be designated in the Post-Closure Plan required by Conditions I.B.20. and 21.
- c. Background monitoring well(s) for the entire facility shall be specified in the Post-Closure Plan required by Conditions I.B.20. and 21.
- d. The Facility shall install and maintain additional groundwater monitoring wells as necessary to assess changes in the rate and extent of any plume of contamination or as otherwise deemed necessary to maintain compliance with ADEM Admin. Code R. 335-14-5-.06(6), 335-14-5-.06(8), 335-14-5-.06(9), 335-14-5-.06(10), and 335-14-5-.06(11), as applicable. A plan in the form of a Post-Closure Plan modification request specifying the design, location and installation of any additional monitoring wells shall be submitted within

ninety (90) calendar days prior to installation which, at a minimum, shall include:

- i. Well construction techniques including casing depths and proposed total depth of well(s);
 - ii. Well development method(s);
 - iii. A complete description of well construction materials;
 - iv. A schedule of implementation for construction; and
 - v. Provisions for determining the lithologic characteristics, hydraulic conductivity, grain size distribution, and porosity for the applicable aquifer unit(s) at the location of the new well(s).
- e. The Facility shall install any additional wells specified in the Post-Closure Plan using procedures to be approved in the Post-Closure Plan. After the installation of the wells is completed, the Facility shall submit to the Department a detailed description of the well installation activities. The Report should contain the surveyed location and elevation, surveyed elevation reference point, total depth, screened interval, well log, and other pertinent information for each well installed. All location and elevation data shall be surveyed by a professional surveyor licensed in the State of Alabama. Elevation data shall be recorded and reported as mean sea level (MSL) and referenced to an appropriate NGVD benchmark. Location data shall include latitude and longitude.

2. General Groundwater Monitoring Requirements

- a. The Facility shall determine the groundwater surface elevation from all monitoring wells at least every ninety (90) calendar days and each time a sampling event is conducted. The results of these determinations shall be submitted in accordance with Condition IV.B.6. of this Administrative Order. Elevation data shall be recorded and reported as mean sea level (MSL) and referenced to an appropriate NGVD benchmark (ADEM Admin. Code R. 335-14-5-.06(8)(f)).
- b. The Facility shall determine the groundwater flow rate and direction in the underlying aquifer(s) at least once every three hundred and sixty-five (365)

calendar days and submit the results in accordance with Condition IV.B.6. of this Administrative Order (ADEM Admin. Code R. 335-14-5-.06(9)(e), 335-14-5-.06(10)(e), and 335-14-5-.06(11)(d)).

- c. The Facility shall determine background concentrations of hazardous constituents and other chemical parameters required to be monitored by this Administrative Order in accordance with the Post-Closure Plan and ADEM Admin. Code R. 335-14-5-.06(8)(g).

3. Groundwater Protection Standard

- a. The groundwater protection standard, as required under ADEM Admin. Code R. 335-14-5-.06(3), shall consist of Table IV.4 of this Administrative Order which lists the hazardous constituents and their respective concentration limits as required under ADEM Admin. Code R. 335-14-5-.06(4) and 335-14-5-.06(5), respectively.
- b. The groundwater protection standard applies to all hazardous waste or hazardous constituent releases as deemed appropriate by the Department to protect human health and the environment.

4. Compliance Period

- a. The compliance period during which the groundwater protection standard specified in Condition IV.B.3. of this Administrative Order applies shall begin at the time of the first sampling event of the compliance monitoring program (Condition IV.D. of this Administrative Order), or the corrective action monitoring program (Condition IV.E. of this Administrative Order), whichever is earlier.
- b. The compliance period is defined as continuing (after beginning pursuant to Condition IV.B.4.a. of this Administrative Order) until the groundwater protection standard as defined by Condition IV.B.3.a. of this Administrative Order has not been exceeded for a period of three (3) consecutive years.
- c. If the Facility is (or has) engaged in a corrective action program pursuant to Condition of IV.E. of this Administrative Order, the compliance period shall continue as required by ADEM Admin. Code R. 335-14-5-.06(7)(c) until the groundwater protection standard has not been exceeded for a period of three

consecutive years after corrective action has been terminated and applicable documents have been modified, in accordance with Condition IV. F. of this Administrative Order, to implement a compliance monitoring program pursuant to Condition IV.D. of this Administrative Order, or a detection monitoring program pursuant to Condition IV.C. of this Administrative Order, as required by ADEM Admin. Code R. 335-14-5-.06(11)(f).

5. Sampling and Analysis Procedures

The Facility shall use the following techniques and procedures when obtaining and analyzing samples from the groundwater monitoring wells described in Condition IV.B.1. of this Administrative Order to provide a reliable indication of the quality of the groundwater as required under ADEM Admin. Code R. 335-14-5-.06(8)(d), (e), and (g):

- a. Samples shall be collected, preserved, and shipped (when shipped off-site for analysis) in accordance with the procedures specified in Post-Closure Plan.
- b. Samples shall be analyzed according to the procedures specified in Post-Closure Plan, or the most recent edition of SW-846 or other appropriate methods approved by this Department.
- c. Samples shall be tracked and controlled using the chain-of-custody procedures specified in Post-Closure Plan.
- d. Statistical analyses used to evaluate groundwater monitoring data shall be as described in the Post-Closure Plan and ADEM Admin. Code R. 335-14-5-.06(8)(h).
- e. Samples shall not be filtered prior to analysis.

6. Recordkeeping and Reporting

- a. The Facility shall keep and maintain all monitoring, testing, and analytical data obtained in accordance with Conditions IV.B., IV.C., IV.D., and IV.E. of this Administrative Order as required by Condition II.C.10. of this Administrative Order.
- b. The Facility shall submit to the Department a report to include all analytical sampling data, established background values, statistical evaluations, groundwater elevations and the annual groundwater flow rate and direction

determinations. The analytical method and the method detection limit (MDL) for each constituent must be integrated into all reports of analysis. The report shall be submitted within sixty (60) calendar days after the first sampling event and on at least once every three hundred and sixty five (365) days thereafter. Copies of this report shall be kept at the facility in accordance with Conditions II.C.10.c. and II.C.10.e. of this Administrative Order.

- c. The Facility shall submit progress reports to the Department describing implementation of groundwater monitoring and/or corrective action activities at the site as required by Part IV of this Administrative Order at least every ninety (90) calendar days. The first progress report shall be submitted to the Department within ninety (90) calendar days after the approval of the Post-Closure Plan. The progress reports shall continue until such time as the required monitoring and/or corrective action systems and activities required by this Administrative Order are fully constructed and operational. In the event that additional monitoring and/or corrective action requirements are imposed through a modification to the Order, then the quarterly reporting requirement shall resume, commencing upon the date of receipt of notice of this Administrative Order modification and continuing until the required monitoring and/or corrective action systems and activities are again fully constructed and operational.

IV.C. DETECTION MONITORING PROGRAM (RESERVED)

IV.D. COMPLIANCE MONITORING PROGRAM (RESERVED)

IV.E. CORRECTIVE ACTION MONITORING PROGRAM

The requirements of this condition are applicable to the entire facility. Except as specified otherwise in this Administrative Order, the Corrective Action Monitoring Program shall be implemented in accordance with the Corrective Action Plan submitted according to Conditions I.B.22. and I.B.23. of the Administrative Order and ADEM Admin. Code R. 335-14-5-.06(11).

1. Monitoring Systems

In addition to the point of compliance and background well monitoring systems identified in Conditions IV.B.1.b. and IV.B.1.c. of this Administrative Order, the Facility shall maintain wells as needed to monitor the boundary of any plume(s) of contamination, to monitor the effectiveness of the corrective action program and to recover and/or treat contaminated groundwater. These wells shall be designated in the Corrective Action Plan required by Conditions I.B.22 and 23.

2. Corrective Action Program

- a. The Facility shall implement a Corrective Action Program to ensure that all regulated units are in compliance with the groundwater protection standard under Condition IV.B.3. of this Administrative Order.
- b. The Facility shall conduct a Corrective Action Program, as described in the Corrective Action Plan required by Conditions I.B.22. and 23. of this Administrative Order, to remove or treat in place all hazardous constituents that exceed their respective concentration limits in the groundwater:
 - i. At the point of compliance in accordance with ADEM Admin. Code R. 335-14-5-.06(11)(b);
 - ii. Between the point of compliance and the downgradient facility property boundary in accordance with ADEM Admin. Code R. 335-14-5-.06(11)(e)1.; and
 - iii. Beyond the facility boundary in accordance with ADEM Admin. Code R. 335-14-5-.06(11)(e)2.
- c. Pursuant to ADEM Admin. Code R. 335-14-5-.06(11)(c) and 335-14-5-.06(11)(e)3., the Facility shall implement the corrective action program as outlined in the Corrective Action Plan. The Facility shall handle/treat groundwater in accordance the Post-Closure Care Plan and with the applicable requirements of NPDES, UIC permit number, and Air Division permit numbers.
- d. Corrective action measures implemented pursuant to Condition IV.E.2.b. of this Administrative Order may be terminated once the concentration of all hazardous constituents listed in Table IV.4. of this Administrative Order are

reduced to levels below their respective concentration limits under Condition IV.B.3. of this Administrative Order. However:

- i. The Facility must continue corrective action measures during the compliance period to the extent necessary to ensure that groundwater protection standards are not exceeded. Prior to terminating corrective action pursuant to this Condition, the Facility shall apply for and obtain modifications to applicable documents pursuant to Condition IV.F. of this Administrative Order to implement detection monitoring or compliance monitoring pursuant to Conditions IV.C. or IV.D. and ADEM Admin. Code R. 335-14-5-.06(9) or 335-14-5-.06(10), respectively, of this Administrative Order.
- ii. If the Facility is conducting corrective action at the end of the compliance period, he or she must continue that corrective action for as long as necessary to achieve compliance with the groundwater protection standard. The Facility may terminate corrective action measures taken beyond the period equal to the active life of the waste management area (including the closure period):
 - (I) If the Facility can demonstrate, based on data from the groundwater monitoring program(s) conducted pursuant to this Administrative Order, that the groundwater protection standard defined in Condition IV.B.3. of this Administrative Order has not been exceeded for a period of three (3) consecutive years; and
 - (II) After such demonstration has been determined adequate by the Department, the owner/operator has applied for and obtained a modification to the Corrective Action Plan(s) pursuant to Condition IV.F. of this Administrative Order to implement detection monitoring or compliance monitoring pursuant to Conditions IV.C. or IV.D. and ADEM Admin. Code R. 335-14-5-.06(9) or 335-14-5-.06(10), respectively, of this Administrative Order.

3. Monitoring Requirements

In addition to the general groundwater monitoring requirements specified in Condition IV.B.2. of this Administrative Order, the Facility shall:

- a. Sample and analyze for the constituents listed in Table IV.2., all effectiveness, point of compliance, and upgradient monitoring wells shown on Table IV.1. as specified in the Corrective Action Plan required by Conditions I.B.22. and 23. of this Administrative Order. The Corrective Action Sampling Plan should be implemented within one hundred and twenty (120) calendar days of the approval of the Corrective Action Plan and continue through the end of the compliance period.
- b. Sample and analyze for the constituents listed in Table IV.4., all effectiveness, point of compliance, boundary and upgradient monitoring wells shown on Table IV.1. as specified in the Corrective Action Plan required by Condition I.B.22. and 23. of this Administrative Order. The Corrective Action Sampling Plan should be implemented within one hundred and twenty (120) calendar days of the approval of the Corrective Action Plan and continue through the end of the compliance period.
- c. Sample and analyze for field parameters listed in Table IV.3., all effectiveness, point of compliance, boundary and upgradient monitoring wells shown on Table IV.1. locations each time the well is sampled beginning with the initial sampling event and continuing through the end of the post-closure period. The field data obtained should be submitted as raw data in the reports required by Condition IV.B.6.
- d. When evaluating the monitoring results to determine the effects of corrective action measures, in accordance with Condition IV.E.4., the Facility shall:
 - i. Determine if the pumping system effectively captures and addresses the entire plume of contamination;
 - ii. Determine if the hazardous constituents are decrease (pH increase or decrease toward neutrality, as applicable) in the effectiveness wells specified in Condition IV.A.1.;

- iii. Determine if hazardous waste or hazardous constituents are being released into the environment; and
- iv. Determine if hazardous constituents have been detected in the boundary wells specified in Condition IV.A.1.

4. Reporting and Response Requirements

In addition to the recordkeeping and reporting requirements specified in Condition IV.B.6. of this Administrative Order,:

- a. The Facility shall report the effectiveness of corrective action at least every one hundred and eighty (180) calendar days, as required by ADEM Admin. Code R. 335-14-5-.06(11)(g). These reports shall be submitted within sixty (60) calendar days of each groundwater sampling event required by Condition IV.E.3. after corrective action is initiated and continue until corrective action is completed. The Facility must provide data from groundwater monitoring along with an analysis of that data and any conclusions regarding the effectiveness of the program. If analysis of the data warrants any change to the corrective action program, the Facility must include these revisions in the semi-annual report and must request a modification to the Corrective Action Plan(s) to make appropriate changes within ninety (90) calendar days in accordance with Condition IV.F. and ADEM Admin. Code R. 335-14-5-.06(11)(h)).
- b. If corrective action is terminated under Condition IV.B.4.b. of this Administrative Order, the Facility must sample all background, point of compliance, effectiveness and boundary sampling locations for the compounds found in ADEM Admin. Code R. 335-14-5-Appendix IX. Based upon the results, the Facility may petition the Department, in accordance with Condition IV.F. of this Administrative Order, for a modification to the Corrective Action Plan to implement either a detection monitoring program or a compliance monitoring program.
- c. If at any time the Facility determines that the corrective action monitoring program no longer satisfies the requirements of Condition IV.E. of this Administrative Order or ADEM Admin. Code R. 335-14-5-.06(11), he or she

must, within ninety (90) calendar days, submit an application for a Corrective Action Plan modification pursuant to Condition IV.F. of this Administrative Order to make any appropriate changes to the program.

- d. The Facility shall conduct a detailed evaluation of the corrective action system within sixty (60) calendar days after the third anniversary of the effective date of this Administrative Order. The evaluation must determine if the corrective action system complies with ADEM Admin. Code R. 335-14-5-.06(3), (5), (6), (7), (8), and (11). If the Facility determines the corrective action system does not comply with of ADEM Admin. Code R. 335-14-5-.06(3), (5), (6), (7), (8), and (11), a request to modify the Corrective Action Plan must be submitted within ninety (90) calendar days of such determination.

IV.F. MODIFICATIONS

1. If at any time the Facility or the Department determines that the groundwater monitoring and/or corrective action program(s) specified in Conditions IV.B., IV.C., IV.D., or IV.E. of this Administrative Order no longer satisfy the applicable requirements of ADEM Admin. Code R. 335-14-5-.06 or this Administrative Order for releases of hazardous waste or hazardous constituents originating from the regulated unit(s), the Facility must, within ninety (90) calendar days, submit a request for a modification to any applicable documents (Corrective Action Plan, Post-Closure Plan, etc.) required by this Administrative Order to make any appropriate changes in the program(s).
2. The request for changes in the monitoring and/or corrective action program(s) required by Condition IV.F.1. of this Administrative Order shall be submitted as an application for a modification pursuant to the requirements of ADEM Admin. Code R. 335-14-8-.04(2).

IV.G. DUTY OF FACILITY

1. The Facility shall assure that all groundwater monitoring and/or corrective action measures necessary to maintain and/or achieve compliance with all applicable

requirements of ADEM Admin. Code R. 335-14-5-.06 are taken during the post-closure care period.

2. In the event that circumstances beyond the Facility's control arise to prevent achievement of any deadline set for this Administrative Order, the Facility may immediately upon the occurrence thereof request an extension by sending a written request to the Department explaining the need for the extension. The Department may, after consideration of the circumstances, grant the extension. Requests for extensions shall be processed as modifications to the Closure, Post-Closure and/or Corrective Action Plans pursuant to ADEM Admin. Code R. 335-14-8-.04(2).

IV.H. SUMMARY OF DEADLINES

The summary information provided herein is intended only as a guide to the requirements of Part IV of this Administrative Order. It is not intended to be all inclusive; nor is it intended to be used as a substitute for the full text of this Administrative Order.

ITEM	DUE DATE
Notification of damaged groundwater monitoring wells. Condition IV.B.1.a.iii.	Immediately in writing. The well must be repaired within thirty (30) calendar days of damage, and repair report must be submitted within thirty (30) calendar days of repair.
Install additional groundwater monitoring wells Condition IV.B.1.d.	As necessary to assess changes in the rate and extent of any plume of contamination, or as otherwise deemed necessary. Note: a modification request must be submitted within ninety (90) calendar days prior to installation of additional groundwater monitoring well(s).
Install wells Condition IV.B.1.e.	Within one hundred and twenty (120) calendar days after approval of the Post-Closure Plan. Submit final report within sixty (60) calendar days of completion of closure activities.
Determine groundwater surface elevation. Condition IV.B.2.a.	At least once every ninety (90) calendar days and each time a well is sampled.
Determine groundwater flow rate and direction. Condition IV.B.2.b.	At least once every three hundred and sixty five (365) calendar days.

Annual groundwater monitoring report Condition IV.B.6.b.	Within sixty (60) calendar days of the first sampling event and at least once every three hundred and sixty five (365) calendar days thereafter.
Quarterly progress reports. Condition IV.B.6.c.	Within ninety (90) calendar days after the approval of the Post-Closure Plan and at least every ninety (90) calendar days thereafter. See Administrative Order condition for start/stop/resume provisions.
Implement Corrective Action Plan Condition IV.E.2.c.	As outlined in the Corrective Action Plan required under Condition I.B.22. and I.B.23.
Semi-annual sampling for constituents on Table IV.2. Condition IV.E.3.a.	Within one hundred and twenty (120) calendar days after approval of the Post-Closure Plan and at least once every 180 calendar days thereafter.
Annual sampling for field parameters on Table IV.3. Condition IV.E.3.c.	Within thirty (30) calendar days after approval of the Post-Closure Plan and at least once every three hundred and sixty five (365) calendar days thereafter.
Submit modification request to upgrade groundwater monitoring program. Conditions IV.E.4.a. and c. Condition IV F.1.	Within ninety (90) calendar days of determination that the current monitoring program no longer satisfies the requirements of Condition IV.E. of this Administrative Order or ADEM Admin. Code R. 335-14-5-.06(11).
Conduct detailed evaluation of corrective action system Condition III.E.4.d.	Within sixty (60) calendar days after the third anniversary of the implementation date of the Administrative Order. If changes are needed, an application for a modification to the Corrective Action Plan must follow within ninety (90) calendar days of evaluation.

TABLE IV.1.
MONITORING WELL DESIGNATIONS

WELL NUMBER	WELL TYPE *	UNIT(S) MONITOR ED	WELL DEPT H (ft)	GROUND ELEVATI ON (ft. ASL)	TOP-OF- CASING ELEVATI ON (ft. ASL)	SCREEN ED INTERVA L (ft. BGS)	MONITOR ED ZONE	SAMPLING FREQUEN CY	LAT/LON G
WWTFMW -1	PGM* *	K087 Wastepile	21	541.7	541.42	15.0-20.0	Shallow		
WWTFMW -2	PGM* *	K087 Wastepile	21	541.3	541.01	15.0-20.0	Shallow		
WWTFMW -3	BKG	K087 Wastepile	21	543.6	543.24	15.0-20.0	Shallow		
WWTFMW -4	PGM* *	K087 Wastepile	21	542.4	542.10	15.0-20.0	Shallow		

* Well Type
 POC - Point of Compliance Wells
 EFF - Effectiveness Monitoring Wells
 PGM - Piezometers and/or General Monitoring Wells
 BKG - Background Wells
 BDY - Boundary Monitoring Wells
 BGS - Below Ground Surface
 ASL - Above Sea Level
 MSL - Mean Sea Level
 Ft - Feet

** This information may change, and missing/changed information will be provided in the Post-Closure Care and Corrective Action Plans. Missing information and any applicable changes will be added to the Administrative Order by an Administrative Order Modification according to Conditions III.F. and/or IV.F.

TABLE IV.2. *

GROUNDWATER QUALITY MONITORING CONSTITUENTS

HAZARDOUS CONSTITUENT	CONCENTRATION LIMIT (mg/L)#	UNIT
Lead	0.005	K087 Wastepile
Benzene	15	K087 Wastepile

- * Additional information may be provided in the Post-Closure Care and Corrective Action Plans. Any additional information will be added to the Administrative Order by an Administrative Order Modification according to Conditions III.F. and/or IV.F.
- # Concentration limit is the higher of limits listed below and the Method Detection Limit (MDL). The MDL for a specific constituent must not exceed the Drinking Water MCL if one exists for that constituent.

TABLE IV.3.

ADDITIONAL MONITORING PARAMETERS

PARAMETER	UNIT OF MEASURE	LOCATION
Temperature	(degrees F or C)	Field*
Specific Conductance	(Mhos/cm)	Field*
PH	(S.U.) Standard Units	Field*

* To be submitted as raw data in the annual reports required by Condition IV.B.6.b.

TABLE IV.4*

GROUNDWATER PROTECTION STANDARD

HAZARDOUS CONSTITUENT	CONCENTRATION LIMIT (mg/L)#	UNIT
Lead	0.005	K087 Wastepile
Benzene	15	K087 Wastepile

- * Additional information may be provided in the Post-Closure Care and Corrective Action Plans. Any additional information will be added to the Administrative Order by an Administrative Order Modification according to Conditions III.F. and/or IV.F.
- # Concentration limit is the higher of limits listed below and the Method Detection Limit (MDL). The MDL for a specific constituent must not exceed the Drinking Water MCL if one exists for that constituent.

PART V
SOLID WASTE MANAGEMENT UNITS

V.A. APPLICABILITY

The Conditions of this Part apply to:

1. The solid waste management units (SWMUs) and areas of concern (AOCs) identified in Appendix A-1, which require a RCRA Facility Investigation (RFI);
2. The SWMUs identified in Appendix A-2, which require no further investigation under this Administrative Order at this time;
3. The SWMUs and AOCs identified in Appendix A-3, which require confirmatory sampling;
4. The SWMUS and AOCs identified in Appendix A-4 that are regulated by this Administrative Order;
5. Any additional SWMUs or AOCs discovered during the course of groundwater monitoring, field investigations, environmental audits, or other means;
6. Contamination beyond the facility boundary, if applicable. The Facility shall implement corrective actions beyond the facility boundary where necessary to protect human health and the environment, unless the Facility demonstrates to the satisfaction of the Department that, despite the Facility's best efforts, as determined by the Department, the Facility was unable to obtain the necessary permission to undertake such actions. The Facility 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 will be required.

V.B. NOTIFICATION AND ASSESSMENT REQUIREMENTS FOR NEWLY IDENTIFIED SWMUS AND AOCS

1. The Facility shall notify the Department in writing, within fifteen (15) calendar days of discovery, of any additional AOCs as discovered under Condition V.A.5. 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.). If the Department determines that further investigation of an AOC is required, the Administrative Order will be modified in accordance with ADEM Admin. Code R. 335-14-8-.04(2).

2. The Facility shall notify the Department in writing, within fifteen (15) calendar days of discovery, of any additional SWMUs as discovered under Condition V.A.5.
3. The Facility shall prepare and submit to the Department, within ninety (90) calendar days of notification, a SWMU Assessment Report (SAR) for each SWMU identified under Condition V.B.2. At a minimum, the SAR shall provide the following information:
 - a. Location of unit(s) on a topographic map of appropriate scale such as required under ADEM Admin. Code R. 335-14-8-.02(5)(b)19.
 - b. Designation of type and function of unit(s).
 - c. General dimensions, capacities and structural description of 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.
 - 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).
4. Based on the results of the SAR, the Department shall determine the need for further investigations at the SWMUs covered in the SAR. If the Department determines that such investigations are needed, the Facility shall be required to prepare a plan for such investigations as outlined in Condition V.D.1. or V.E.1.b

**V.C. NOTIFICATION REQUIREMENTS FOR NEWLY DISCOVERED RELEASES
AT PREVIOUSLY IDENTIFIED SWMUS OR AOCs**

1. The Facility shall notify the Department 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 V.A.2. or SWMU or AOCs identified in Condition V.A.4. for which further investigation under Condition V.B.4. was not required.
2. If the Department determines that further investigation of the SWMUs or AOCs is needed, the Facility shall be required to prepare a plan for such investigations as outlined in Condition V.E.1.b.

V.D. CONFIRMATORY SAMPLING (CS)

1. The Facility shall prepare and submit to the Department, within forty-five (45) calendar days of the effective date of this Administrative Order or notification by the Department for a newly identified SWMU, a CS Workplan to determine any release from SWMUs or AOCs identified in Condition V.A.3. and Appendix A-3 or Condition V.B.4. The CS Workplan 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. The CS/RFI Workplan dated May 1999 which was submitted to the Department on January 14, 2000 prior to the issuance of this Administrative Order shall be deemed to have met the initial submittal requirements in compliance with this paragraph.
2. The CS Workplan must be approved by the Department, in writing, prior to implementation. The Department shall specify the start date of the CS Workplan schedule in the letter approving the CS Work Plan. If the Department disapproves the CS Workplan, the Department shall either:
 - a. Notify the Facility in writing of the CS Workplan's deficiencies and specify a due date of not less than thirty (30) days for submission of a revised CS Workplan,

- b. Revise the CS Workplan and notify the Facility of the revisions, or
 - c. Conditionally approve the CS Workplan and notify the Facility of the conditions.
- 3. The Facility shall implement the confirmatory sampling in accordance with the approved CS Workplan.
- 4. The Facility shall prepare and submit to the Department in accordance with the schedule in the approved CS Workplan, a CS Report identifying those SWMUs or AOCs listed in Condition V.A.3 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.
- 5. Based on the results of the CS Report, the Department shall determine the need for further investigations at the SWMUs or AOCs covered in the CS Report. If the Department determines that such investigations are needed, the Facility shall be required to prepare a plan for such investigations as outlined in Condition V.E.1.b. The Department will notify the Facility of any no further action decision.

V.E. RCRA FACILITY INVESTIGATION (RFI)

- 1. RFI Workplan(s)
 - a. The Facility shall prepare and submit to the Department, within ninety (90) calendar days of the effective date of this Administrative Order, an RFI Workplan(s) for those units identified in Condition V.A.1. This Workplan shall be developed to meet the requirements of Condition V.E.1.c. . The CS/RFI Workplan dated May 1999 which was submitted to the Department on January 14, 2000 prior to the issuance of this Administrative Order shall be deemed to have met the initial submittal requirements in compliance with this paragraph.
 - b. The Facility shall prepare and submit to the Department, within ninety (90) calendar days of notification by the Department, an RFI Workplan for those units identified under Condition V.B.4., Condition V.C.2., or Condition

V.D.5. The RFI Workplan(s) shall be developed to meet the requirements of Condition V.E.1.c.

- c. The RFI Workplan(s) shall meet the applicable requirements of Appendix B. The RFI Workplan(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, land, surface water, and groundwater. The Facility must provide sufficient justification and associated documentation that a release is not probable or has already been characterized if a unit or a media/pathway associated with a unit (groundwater, surface water, soil, subsurface gas, or air) is not included in the RFI Workplan(s). Such deletions of a unit, media or pathway from the RFI(s) are subject to the approval of the Department. The Facility shall provide sufficient written justification for any omissions or deviations from the minimum requirements of Appendix B. Such omissions or deviations are subject to the approval of the Department. In addition, the scope of the RFI Workplan(s) shall include all investigations necessary to ensure compliance with ADEM Admin. Code R. 335-14-5-.06(12)(c).
- d. The RFI Workplan(s) must be approved by the Department, in writing, prior to implementation. The Department shall specify the start date of the RFI Workplan schedule in the letter approving the RFI Workplan(s). If the Department disapproves the RFI Workplan(s), the Department shall either:
 - i. Notify the Facility in writing of the RFI Workplan's deficiencies and specify a due date of not less than thirty (30) days for submission of a revised RFI Workplan,
 - ii. Revise the RFI Workplan and notify the Facility of the revisions and the start date of the schedule within the approved RFI Workplan, or
 - iii. Conditionally approve the RFI Workplan and notify the Facility of the conditions.

2. RFI Implementation

The Facility shall implement the RFI(s) in accordance with the approved RFI Workplan(s) and Appendix B. The Facility shall notify the Department within twenty (20) calendar days prior to any sampling activity.

3. RFI Reports

- a. If the time required to conduct the RFI(s) is greater than one hundred and eighty (180) calendar days, the Facility shall provide the Department with quarterly RFI Progress Reports (ninety (90) day intervals) beginning ninety (90) calendar days from the start date specified by the Department in the RFI Workplan approval letter. The 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 Workplan during the reporting period;
 - iv. Summaries of all 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, laboratory/monitoring data, etc.
- b. The Facility shall prepare and submit to the Department Draft and Final RFI Report(s) for the investigations conducted pursuant to the RFI Workplan(s) submitted under Condition V.E.1. The Draft RFI Report(s) shall be submitted to the Department for review in accordance with the schedule in the approved RFI Workplan(s). The Final RFI Report(s) shall be submitted to the Department within thirty (30) calendar days of receipt of the Department 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 Draft RFI Report is a summary of the initial phase investigatory work, the report shall include a workplan for the final phase investigatory actions required based on the initial findings. Approval of the final phase workplan shall be carried out in accordance with Condition V.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, if necessary.

- c. The Facility shall prepare and submit to the Department along with the Draft and Final RFI Report(s), action levels for each of the hazardous constituents reported in Condition V.E.3.b. Action levels shall be calculated as specified in Appendix F of this Administrative Order.
- d. The Department will review the Final RFI Report(s), including the action levels described in Condition V.E.3.c., and notify the Facility of the need for further investigative action and/or the need for a Corrective Measures Study to meet the requirements of V.G. and ADEM Admin. Code R. 335-14-5-.06(12). The Department will notify the Facility of any no further action decision. Any further investigative action required by the Department shall be prepared and submitted in accordance with a schedule specified by the Department (of not less than thirty (30) days) and approved in accordance with Condition V.E.1.d. The Department may require a Corrective Measures Study if action levels are exceeded.

V.F. INTERIM MEASURES (IM)

1. IM Workplan(s)

- a. Upon notification by the Department, the Facility shall prepare and submit an IM Workplan for any SWMU or AOC that the Department determines is necessary. IM are necessary in an Administrative Order to minimize or prevent the further migration of contaminants and limit human and environmental exposure to contaminants while long-term corrective action remedies are evaluated and, if necessary, implemented. The IM Workplan shall be submitted within thirty (30) calendar days of such notification and shall include the elements listed in V.F.1.b. Such IM may be conducted concurrently with investigations required under the terms of this Administrative Order. The Facility may initiate IM by submitting an IM Workplan for approval and reporting in accordance with the requirements under Condition V.F.
- b. The IM Workplan shall ensure that the IM are designed to mitigate any current or potential threat(s) to human health or the environment and is consistent with and integrated into any long-term solution at the facility. The IM Workplan shall include: the IM objectives, procedures for implementation (including any designs, plans, or specifications), and schedules for implementation.
- c. The IM Workplan must be approved by the Department, in writing, prior to implementation. The Department shall specify the start date of the IM Workplan schedule in the letter approving the IM Workplan. If the Department disapproves the IM Workplan, the Department shall either:
 - i. Notify the Facility in writing of the IM Workplan's deficiencies and specify a due date for submission of a revised IM Workplan,
 - ii. Revise the IM Workplan and notify the Facility of the revisions and the start date of the schedule within the approved IM Workplan, or
 - iii. Conditionally approve the IM Workplan and notify the Facility of the conditions.

2. IM Implementation

- a. The Facility shall implement the IM in accordance with the approved IM Workplan.

- b. The Facility shall give notice to the Department as soon as possible of any planned changes, reductions or additions to the IM Workplan.
- c. Final approval of corrective action required under ADEM Admin. Code R. 335-14-5-.06(12) which is achieved through IM shall be in accordance with ADEM Admin. Code R. 335-14-8-.04(2) and Condition V.H.

3. IM Reports

- a. If the time required for completion of IM is greater than one year, the Facility shall provide the Department with progress reports at intervals specified in the approved workplan. The Progress Reports shall contain the following information at a minimum:
 - i. A description of the portion of the IM completed;
 - ii. Summaries of any deviations from the IM Workplan during the reporting period;
 - iii. Summaries of any problems or potential problems encountered during the reporting period;
 - iv. Projected work for the next reporting period; and
 - v. Copies of laboratory/monitoring data.
- b. The Facility shall prepare and submit to the Department, within ninety (90) calendar days of completion of IM conducted under Condition V.F., an IM Report. 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 II.C.10.

V.G. CORRECTIVE MEASURES STUDY (CMS)

1. CMS Workplan(s)

- a. The Facility shall prepare and submit a CMS Workplan for those units requiring a CMS within ninety (90) calendar days of notification by the

Department that a CMS is required. This CMS Workplan shall be developed to meet the requirements of Condition V.G.1.b.

- b. The CMS Workplan shall meet the requirements of Appendix C at a minimum. The CMS Workplan shall include schedules of implementation and completion of specific actions necessary to complete a CMS. The Facility must provide sufficient justification and/or documentation for any unit deleted from the CMS Workplan. Such deletion of a unit is subject to the approval of the Department. The CMS shall be conducted in accordance with the approved CMS Workplan. The Facility shall provide sufficient written justification for any omissions or deviations from the minimum requirements of Appendix C. Such omissions or deviations are subject to the approval of the Department. The scope of the CMS Workplan shall include all investigations necessary to ensure compliance with ADEM Admin. Code R. 335-14-5-.06(12) and 335-14-8-.03(3)(b)2. The Facility shall implement corrective actions beyond the facility boundary, as set forth in Condition V.A.6.
- c. The Department shall either approve or disapprove, in writing, the CMS Workplan. If the Department disapproves the CMS Workplan, the Department shall either:
 - i. Notify the Facility in writing of the CMS Workplan's deficiencies and specify a due date of not less than thirty (30) days for submittal of a revised CMS Workplan,
 - ii. Revise the CMS Workplan and notify the Facility of the revisions, or
 - iii. Conditionally approve the CMS Workplan and notify the Facility of the conditions. This modified CMS Workplan becomes the approved CMS Workplan.

2. CMS Implementation

The Facility shall begin to implement the CMS according to the schedules specified in the CMS Workplan, no later than fifteen (15) calendar days after the Facility has received written approval from the Department for the CMS Workplan. Pursuant to

Administrative Order Condition V.G.1.b. the CMS shall be conducted in accordance with the approved CMS Workplan.

3. CMS Reports

- a. The Facility shall prepare and submit to the Department a draft and final CMS Report for the study conducted pursuant to the approved CMS Workplan. The draft CMS Report shall be submitted to the Department in accordance with the schedule in the approved CMS Workplan. The final CMS Report shall be submitted to the Department within thirty (30) calendar days of receipt of the Department's comments on the draft CMS Report. The CMS Report shall summarize any bench-scale or pilot tests conducted. The CMS Report must include an evaluation of each remedial alternative. If a remedial alternative requires the use of a CAMU, the CMS report shall include all information necessary to establish and implement the CAMU. The CMS Report shall present all information gathered under the approved CMS Workplan. The CMS Final Report must contain adequate information to support the Department's decision on the recommended remedy, described under Administrative Order Condition V.H.
- b. If the Department determines that the CMS Final Report does not fully satisfy the information requirements specified under Administrative Order Condition V.G.3.a., the Department may disapprove the CMS Final Report. If the Department disapproves the CMS Final Report, the Department shall notify the Facility in writing of deficiencies in the CMS Final Report and specify a due date of not less than thirty (30) days for submittal of a revised CMS Final Report. The Department will notify the Facility of any no further action decision.
- c. As specified under Administrative Order Condition V.G.3.b., based on preliminary results and the CMS Final Report, the Department may require the Facility to evaluate additional remedies or particular elements of one or more proposed remedies.

V.H. REMEDY APPROVAL AND MODIFICATION TO THE ADMINISTRATIVE ORDER

1. A remedy shall be selected 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, existing regulations, and guidance. The selected remedy may include any interim measures implemented to date.
2. Pursuant to ADEM Admin. Code R. 335-14-8-.04(2), a modification to the Administrative Order will be initiated by the Department after recommendation of a remedy under Condition V.H.1. This modification will serve to incorporate a final remedy, including a CAMU if necessary, into this Administrative Order.
3. Within one hundred and twenty (120) calendar days after this Administrative Order has been modified, the Facility shall demonstrate financial assurance for completing the approved remedy.

V.I. MODIFICATION OF THE CORRECTIVE ACTION SCHEDULE OF COMPLIANCE

1. If at any time the Department determines that modification of the Corrective Action Schedule of Compliance is necessary, the Department may initiate a modification to the Schedule of Compliance (Appendix D).
2. Modifications that are initiated and finalized by the Department will be in accordance with the applicable provisions of ADEM Admin. Code R. 335-14-8-.04(2). The Facility may also request a modification to the Administrative Order in accordance with ADEM Admin. Code R. 335-14-8-.04(2)(a) to change the Schedule of Compliance.

V.J. IMMINENT HAZARDS

1. The Facility shall report to the Department any imminent or existing hazard to public health or the environment from any release of hazardous waste or hazardous constituents. Such information shall be reported orally within 24 hours from such time the Facility becomes aware of the circumstances.

2. A written report shall also be provided to the Department within fifteen (15) calendar days of the time the Facility becomes aware of the circumstances. The written report shall contain a description of the release and its cause; the period of the release; whether the release has been stopped; and if not, the anticipated time it is expected to continue; and steps taken or planned to reduce, eliminate, and prevent recurrence of the release.

V.K. WORKPLAN AND REPORT REQUIREMENTS

1. All workplans and schedules shall be subject to approval by the Department prior to implementation to assure that such workplans and schedules are consistent with the requirements of this Administrative Order and with applicable regulations and guidance. Reports, workplans, and closure plans for units addressed by this Administrative Order and submitted prior to the issuance of this Administrative Order shall be deemed to have met the initial submittal requirements in compliance with this Administrative Order. The Facility shall revise all submittals and schedules as specified by the Department. Upon approval the Facility shall implement all workplans and schedules as written.
2. All workplans and reports shall be submitted in accordance with the approved schedule. Extensions of the due date for submittals may be granted by the Department based on the Facility's demonstration that sufficient justification for the extension exists.
3. If the Facility at any time determines that the SAR information required under Condition V.B., the CS Workplan under Condition V.D., or RFI Workplan(s) required under Condition V.E. no longer satisfy the requirements of ADEM Admin. Code R. 335-14-5-.06(12) or this Administrative Order for prior or continuing releases of hazardous waste or hazardous constituents from solid waste management units and/or areas of concern, the Facility shall submit an amended document to the Department within ninety (90) calendar days of such determination.
4. All reports shall be signed and certified in accordance with ADEM Admin. Code R. 335-14-8-.02(2).

5. All reports, notifications, or other submissions that are required by this Administrative Order should be transmitted via certified mail or hand-delivery to:

Chief, Land Division
Alabama Department of Environmental Management
P. O. Box 301463 (Zip 36130-1463)
1400 Coliseum Boulevard (Zip 36110-2059)
Montgomery, Alabama

V.L. APPROVAL/DISAPPROVAL OF SUBMITTALS

The Department will review the workplans, reports, schedules, and other documents ("submittals") which require the Department's approval in accordance with the conditions of this Administrative Order. The Department will notify the Facility in writing of any submittal that is disapproved, and the basis therefore. Condition V.M. shall apply only to submittals that have been disapproved and revised by the Department, or that have been disapproved by the Department, then revised and resubmitted by the Facility, and again disapproved by the Department.

V.M. DISPUTE RESOLUTION

Notwithstanding any other provision in this Administrative Order, in the event the Facility disagrees, in whole or in part, with the Department's revision of a submittal or disapproval of any revised submittal required by the Administrative Order, the following may, at the Facility's discretion apply:

1. In the event that the Facility chooses to invoke the provisions of this section, the Facility shall notify the Department in writing within thirty (30) calendar days of receipt of the Department's revision of a submittal or disapproval of a revised submittal. Such notice shall set forth the specific matters in dispute, the position the Facility asserts should be adopted as consistent with the requirements of the Administrative Order, the basis for the Facility's position, and any matters considered necessary for the Department's determination.
2. The Department and the Facility shall have an additional thirty (30) calendar days from Department's receipt of the notification provided for in Condition V.M.1. to meet or confer to resolve any disagreement.

3. In the event agreement is reached, the Facility shall submit the revised submittal and implement the same in accordance with and within the time frame specified in such agreement.
4. If agreement is not reached within the thirty (30) day period, the Department will notify the Facility in writing of it's decision on the dispute, and the Facility shall comply with the terms and conditions of the Department's decision in the dispute. For the purposes of this provision in this Administrative Order, the responsibility for making this decision shall not be delegated below the Land Division Chief.
5. With the exception of those conditions under dispute, the Facility shall proceed to take any action required by those portions of the submission and of the Administrative Order that the Department determines are not affected by the dispute.

V.N. RESERVATION OF RIGHTS

1. ADEM reserves all of its statutory and regulatory powers, authorities, rights, and remedies, both legal and equitable, which may pertain to the Facility's failure to comply with any of the requirements of this Administrative Order, including without limitation the assessment of penalties under Code of Alabama 1975, as amended, §22-22A-5(18). This Administrative Order shall not be construed as a covenant not to sue, release, waiver, or limitation of any rights, remedies, powers, and/or authorities, civil or criminal, which ADEM has under AHWMMMA, RCRA, CERCLA, or any other statutory, regulatory, or common law authority of the United States or the State of Alabama except that, to the extent that the Facility is in compliance with the terms of this Administrative Order, ADEM shall bring no action against the Facility for activities covered under the terms of this Administrative Order.
2. ADEM reserves the right to disapprove of work performed by the Facility pursuant to this Administrative Order and to Administrative Order that the Facility perform additional tasks.
3. If ADEM determines that activities in compliance or noncompliance with this Administrative Order have caused or may cause a release of hazardous waste or

hazardous constituent(s) which is a threat to human health and/or the environment, or that the Facility is not capable of undertaking any of the work ordered, ADEM may order the Facility to stop further implementation of this Administrative Order for such period of time as ADEM determines may be needed to abate any such release or threat and/or to undertake any action which ADEM determines is necessary to abate such release or threat.

4. Compliance by the Facility with the terms of this Administrative Order shall not relieve the Facility of its obligations to comply with RCRA or any other applicable local, State, or federal laws and regulations.
5. In any subsequent administrative or judicial proceeding initiated by the State of Alabama for injunctive or other appropriate relief relating to the Facility for violations associated with the performance or nonperformance of the terms of this Administrative Order, GSS shall not assert, and may not maintain, any defense or claim based upon the principles of waiver, res judicata, collateral estoppel, issue preclusion, claim-splitting, or other defenses based upon any contention that the claims raised by the State of Alabama in the subsequent proceeding were or should have been raised in the present matter.
6. Nothing in this Administrative Order shall be considered an admission of liability on the part of GSS. This Administrative Order shall not be admissible in any state or Federal judicial or administrative proceeding except proceedings to enforce this Administrative Order. Further, GSS does not admit and expressly denies the statements of fact and conclusions of law expressed herein and reserves the right to contest same in any future administrative or judicial proceedings except proceedings to enforce this Administrative Order.

APPENDIX A

SOLID WASTE MANAGEMENT UNIT SUMMARY

APPENDIX A-1

Solid Waste Management Unit (SWMU) and/or Area of Concern (AOC) numbers and descriptions will correspond with those noted in the RCRA Facility Assessment (RFA) Report. Where discrepancies exist, the Administrative Order shall take precedence.

List of SWMUs and AOCs requiring a RCRA Facility Investigation (RFI):

SWMU NUMBER	SWMU NAME	SWMU DESCRIPTION
SWMU 6	Lagoon	Unlined Surface Impoundment managing wastewater, excess raw water and stormwater runoff from the process.
SWMU 7	Lagoon Dredging Impoundment	Unlined Surface Impoundment managing wastewater, excess raw water and stormwater runoff from the process.
SWMU 36 A-H	Underground Storage Tank Areas	Underground Storage Tanks/Systematic Release Areas formerly managing gasoline, fuel oil, diesel fuel, hydraulic fluid and motor oil.
SWMU 46	Mercury Spill Area	Release Area from gas-metering instrumentation near ALAGASCO natural gas pipeline.
AOC A	Black Creek	Creek/Impacted Downstream Areas which receive or have received wastewater and stormwater from the facility.

APPENDIX A-2

Solid Waste Management Unit (SWMU) and/or Area of Concern (AOC) numbers and descriptions will correspond with those noted in the RCRA Facility Assessment (RFA) Report. Where discrepancies exist, the Administrative Order shall take precedence.

List of SWMUs and AOCs requiring no further action at this time:

SWMU NUMBER	SWMU NAME	SWMU DESCRIPTION
SWMU 1	Surge Tank	Aboveground Tank managing wastewater from ammonia distillation unit.
SWMU 2	Cooling Tanks	Aboveground Tanks managing wastewater from ammonia distillation unit.
SWMU 4	Regulated Earthen Surface Impoundment	Unlined Surface Impoundment managing contact and noncontact cooling waters, stormwater, untreated wastewater and excess process water. Clean closed in 1998.
SWMU 15	Kipen Area	Open-Topped Container with curbed containment that contains waste oils and grease.
SWMU 17A	Closed Hazardous Wastepile	Closed Wastepile at Dredging Area formerly managing K087 wastes. Closed by removal in 1982
SWMU 19	Blast Furnace WWTP	Wastewater Treatment Plant managing scrubber water from the blast furnace.
SWMU 20	Galvanizing Line WWTP	Wastewater Treatment Plant treating wastewaters from the Galvanizing Line.
SWMU 23	Asbestos Landfill	Landfill containing blast furnace brick disposed from 1980 to 1982.
SWMU 24	North Landfill	Landfill disposing of non-hazardous solid wastes from 1965 to present.
SWMU 25	South Landfill	Landfill disposing of non-hazardous solid wastes from the late 1950's to present.
SWMU 29	PCB Storage Area	Lined Storage Area containing used transformers and 55 gallon drums of PCB waste.
SWMU 31	Former Drum Storage Areas	Unlined Drum Storage Areas (14 total) located around the facility and used for storing various wastes including oil, grease, spent hydraulic fluid, non-hazardous mill scale and empty product drums.
SWMU 32	Galvanizing Line Dross Containers	Open-Topped Containers used to collect waste from the Galvanizing Line.

SWMU 33	Praxair Container Storage Area	Lined Storage Area used by neighboring Praxair (leasing their property from GSS) for storage of maintenance and cleaning wastes.
SWMU 34	Vulcan Waste Oil Storage Area	Lined Storage Area used for collecting waste oils in a steel tank and in 55 gallon drums.
SWMU 40	Former Acid Regeneration Plant Containment Area	Containment Area that recycled spent pickle liquor. At the time of the RFA, the area was used for generator storage of spent pickle liquor.
SWMU 41	Parts Washers	Parts Washers (thirty (30) to forty (40)) located around the facility maintained by Safety-Kleen. Each used in building on concrete floor.
SWMU 42	Spent Paint Thinner Storage Area	Generator Storage Area storing liquid paint and paint-thinning wastes with concrete containment.
SWMU 43	Dumpsters	Dumpsters (approximately one hundred and thirty (130)) used by the facility to collect solid wastes from the office buildings, other non-hazardous solid wastes, recyclable material and industrial wastes.
SWMU 44	Medical Waste Containers	Containers managing infectious wastes from the GSS infirmary.
SWMU 45	Air Emissions Control Devices/Baghouses	Baghouses/Dust Collectors used to collect dust to avoid emission to the ambient air.

APPENDIX A-3

Solid Waste Management Unit (SWMU) and/or Area of Concern (AOC) numbers and descriptions will correspond with those noted in the RCRA Facility Assessment (RFA) Report. Where discrepancies exist, the Administrative Order shall take precedence.

List of SWMUs and AOCs requiring confirmatory sampling:

SWMU NUMBER	SWMU NAME	SWMU DESCRIPTION
SWMU 3	Coke Plant WWTP	Wastewater Treatment Plant treating contact and non-contact waste from the Coke Plant By-Products Plant and Blast Furnace Blowdown.
SWMU 5	Wastewater System	Wastewater System of ditches running through the facility (includes SWMU 4 above).
SWMU 8	Waste Oil Tank North of Lagoon	Aboveground Tank that manages waste oil skimmed from the surface of the Lagoon (SWMU 6).
SWMU 10	Plate Mill Lagoon	Unlined Surface Impoundment that receives oily wastes, cooling water and process water.
SWMU 11	Plate Mill Lagoon Waste Oil Tank	Aboveground Tank managing waste oil skimmed from the Plate Mill Lagoon (SWMU 10).
SWMU 12	Former Waste Oil Reclamation Area	Oil Reclamation Equipment and Systematic Release Area located inside unlined concrete containment areas.
SWMU 13	Coal Preparation Waste Oil Tank	Aboveground Tank managing waste oil reclaimed at SWMU 12.
SWMU 14	Coal Preparation Area	Systematic Release Area where coal is prepared for the coke ovens by coating with the reclaimed waste oil from SWMU 12.
SWMU 16	K087 Waste Decanter Area	Systematic Release Area managing K087 waste from the K087 waste decanter.
SWMU 18	K142 Collection Areas	Waste Collection Units and Systematic Release Area managing K142 waste from the ammonia distillation system.
SWMU 21	Vulcan Slag Storage Area	Wastepile managing discarded Blast Furnace slag.
SWMU 22	Heckett Slag Storage Areas	Wastepiles managing discarded BOF slag.
SWMU 26	South Landfill Runoff Impoundment	Unlined Surface Impoundment that manages stormwater from the South Landfill (SWMU 25) and quenching water.

SWMU 27	Stormwater Outfall at Hickory Street	Unlined Ditch receiving stormwater leachate from the South Landfill (SWMU 25).
SWMU 28	Stormwater Outfall at Chesnut Street	Lined and Unlined Ditch managing stormwater from the northeast portion of the facility.
SWMU 30	Drum Handling Area	Unlined Drum Storage Area managing 55 gallon and smaller containers of grease, debris and tar wastes, and empty containers.
SWMU 35	Fuel Storage Area	Systematic Release Area located near the Fuel Storage Tank Farm, which stores product fuel.
SWMU 37	Coil Carrier Fuelling Area	Systematic Release Area located near the Coil Carrier maintenance area. Manages diesel fuel and motor oil.
SWMU 38	Locomotive Fuelling Area	Systematic Release Area located where facility-owned locomotives are fueled and maintained.

APPENDIX A-4

Solid Waste Management Unit (SWMU) and/or Area of Concern (AOC) numbers and descriptions will correspond with those noted in the RCRA Facility Assessment (RFA) Report. Where discrepancies exist, the Administrative Order shall take precedence.

List of SWMUs and AOCs regulated by Parts II – IV of this Administrative Order:

SWMU NUMBER	SWMU NAME	SWMU DESCRIPTION
SWMU 9	Waste Oil Tank South of Lagoon	Aboveground Tank that formerly managed waste oils from the Lagoon (SWMU 6). More recently managed waste chromic acid.
SWMU 17B	Closed Hazardous Wastepile	Closed Wastepile at Coke Plant WWTP formerly managing K087 wastes. Closed in 1987.
SWMU 39	Spent Pickle Liquor Loading Area	Systematic Release Area near the spent pickle liquor area.

- * One additional tank that was not identified in the RFA was also used to manage waste chromic acid. See Table I.1 for more information.

APPENDIX B

RCRA FACILITY INVESTIGATION (RFI) WORKPLAN OUTLINE

APPENDIX B

RCRA FACILITY INVESTIGATION (RFI) WORKPLAN OUTLINE

I. RFI WORKPLAN REQUIREMENTS

The Facility shall prepare a RCRA Facility Investigation (RFI) Workplan that meets the requirements of Part II of this appendix and the RFI Guidance, EPA-530/SW-89-031. This workplan shall also include the development of the following plans, which shall be prepared concurrently:

A. Project Management Plan

The Facility shall prepare a Project Management Plan, which will include a discussion of the technical approach, schedules and personnel. The Project Management Plan will also include a description of qualifications of personnel performing or directing the RFI, including contractor personnel. This plan shall also document the overall management approach to the RCRA Facility Investigation.

B. Sampling and Analysis Plan(s)

The Facility shall prepare a plan to document all monitoring procedures: field sampling, sampling procedures and sample analysis 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 EPA Region IV Environmental Compliance Branch's Standard Operating Procedure and Quality Assurance Manual (SOP) (most recent version). Any deviations from this reference must be requested by the applicant and approved by ADEM. The Sampling and Analysis Plan must specifically discuss the following unless the SOP 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., composites vs. grabs) 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 field-biased blanks, where appropriate;
 - vi. Potential interference 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; and
 - ii. Pre-prepared sample labels containing all information necessary for effective sample tracking.

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). 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 disbursement for analysis.
- b. Sample storage;
- c. Sample preparation methods;
- d. Analytical Procedures, including:
 - i. Scope and application of the procedure;
 - ii. Sample matrix;
 - iii. Potential interference;
 - iv. Precision and accuracy of the methodology; and
 - v. Method detection 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. Calibrations check sample(s);
 - iv. Replicate sample(s);
 - v. Matrix-spiked sample(s);
 - vi. Control charts;
 - vii. Surrogate samples;
 - viii. Zero and span gases; and

- ix. Reagent quality control checks.
- h. External quality control checks by the Department, including:
 - i. Spikes and blanks at sampling events for which the Department or its technical representative provides oversight; and
 - ii. The equivalent of a CLP data package for samples split with the Department or for which the Department specifically requests the package.
- i. Preventive maintenance procedures and schedules;
- j. Corrective action (for laboratory problems); and
- k. Turnaround time.

C. Data Management Plan

The Facility 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).

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 transits, 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;
 - 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.

II. RCRA FACILITY INVESTIGATION (RFI) REQUIREMENTS

RCRA Facility Investigation:

The Facility shall conduct those investigations necessary to characterize the facility (Environmental Setting); define the source (Source Characterization); define the degree and extent of release of hazardous constituents (Contamination Characterization); and identify actual or potential receptors. The investigations should result in data of adequate technical content and quality to support the development and evaluation of the corrective action plan if necessary. The information contained in previously developed documents such as a RCRA Part B Administrative Order application and/or RCRA Section 3019 Exposure Information Report may be referenced as appropriate, but must be summarized in both the RFI Workplan and RFI Report.

All sampling and analyses shall be conducted in accordance with the Sampling and Analysis Plan. All sampling locations shall be documented in a log and identified on a detailed site map.

A. Environmental Setting

The Facility shall collect information to supplement and/or verify Part B information on the environmental setting at the facility. The Facility shall characterize the

following as they relate to identified sources, pathways and areas of releases of hazardous constituents from Solid Waste Management Units.

1. Hydrogeology

The Facility shall conduct a program to evaluate hydrogeologic conditions at the facility. This program shall provide 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, etc.);
 - iii. Depositional history;
 - iv. Regional and facility specific groundwater flow patterns; and
 - v. Identification and characterization of areas and amounts of recharge and discharge, including surface groundwater seeps in and around the facility.
- b. An analysis of any topographic features that might influence the groundwater flow system.
- c. Based on field data, 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);
 - ii. Lithology, grain size, sorting, degree of cementation;
 - iii. An interpretation of hydraulic interconnections between saturated zones; 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 and 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;
 - 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.
- 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, etc.).

2. Soils

The Facility shall conduct a program to characterize the soil and rock units above the water table in the vicinity of contaminant release(s). Such characterization 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 Facility shall conduct a program to characterize the surface water bodies in the vicinity of the facility. Such characterization 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 Facility 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 airflow 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.

B. Source Characterization

For those sources from which releases of hazardous constituents have been detected the Facility shall collect 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). This 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, biotransformation;
- iii. Photodegradation rates;
- iv. Hydrolysis rates; and
- v. Chemical transformations.

The Facility shall document the procedures used in making the above determinations.

C. Characterization of Releases of Hazardous Constituents

The Facility shall collect analytical data on groundwater, soils, surface water, sediment, and subsurface gas contamination in the vicinity of the facility in accordance with the sampling and analysis plan as required above. These data shall be sufficient to define the extent, origin, direction, and rate of movement of contamination. Data shall include time and location of sampling, media sampled, concentrations found, conditions during sampling, and the identity of the individuals performing the sampling and analysis. The Facility shall address the following types of contamination at the facility:

1. Groundwater Contamination

The Facility shall conduct a groundwater investigation to characterize any plumes of contamination detected at the facility. This investigation shall at a minimum provide the following information:

- a. A description of the horizontal and vertical extent of any plume(s) of hazardous constituents originating from or within the facility;
- b. The horizontal and vertical direction of contamination movement;
- c. The velocity of contaminant movement;
- d. The horizontal and vertical concentration profiles of hazardous constituents in the plume(s);
- e. An evaluation of factors influencing the plume movement; and
- f. An extrapolation of future contaminant movement.

The Facility shall document the procedures used in making the above determinations (e. g., well design, well construction, geophysics, modeling, etc.).

2. Soil Contamination

The Facility shall conduct an investigation to characterize the contamination of the soil and rock units above the saturated zone in the vicinity of any contaminant release. The investigation may include the following information:

- a. A description of the vertical and horizontal extent of contamination;
- b. A description of appropriate contaminant and soil chemical properties within the contaminant source area and plume. This may include contaminant solubility, speciation, absorption, leachability, exchange capacity, biodegradability, hydrolysis, photolysis, oxidation and other factors that might affect contaminant migration and transformation;
- c. Specific contaminant concentrations;
- d. The velocity and direction of contaminant movement; and
- e. An extrapolation of future contaminant movement.

The Facility shall document the procedures used in making the above determinations.

3. Surface Water and Sediment Contamination

The Facility shall conduct a surface water investigation to characterize contamination in surface water bodies resulting from releases of hazardous constituents at the facility. The investigation may include, but not be limited to, the following information:

- a. A description of the horizontal and vertical extent of any plume(s) originating from the facility, and the extent of contamination in underlying sediments;
- b. The horizontal and vertical direction of contaminant movement;
- c. The contaminant velocity;
- d. An evaluation of the physical, biological and chemical factors influencing contaminant movement;
- e. An extrapolation of future contaminant movement; and
- f. A description of the chemistry of the contaminated surface waters and sediments. This includes determining the pH, total dissolved solids, specific contaminant concentrations, etc.

4. Air Contamination

The Facility shall conduct an investigation to characterize gaseous releases of hazardous constituents into the atmosphere or any structures or buildings. This investigation may provide the following information:

- a. A description of the horizontal and vertical direction and velocity of contaminant movement;
- b. The rate and amount of the release; and
- c. The chemical and physical composition of the contaminant(s) released, including horizontal and vertical concentration profiles.

The Facility shall document the procedures used in making the above determinations.

D. Potential Receptors

The Facility shall collect data describing the human populations and environmental systems that are susceptible to contaminant exposure from the facility. Chemical analysis of biological samples and/or data on observable effects in ecosystems may also be obtained as appropriate. The following characteristics shall be identified:

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); and
 - b. Location of groundwater users, to include withdrawal and discharge wells, 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.

APPENDIX C

CORRECTIVE MEASURE STUDY (CMS) WORKPLAN OUTLINE

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CORRECTIVE MEASURE STUDY (CMS) WORKPLAN OUTLINE

I. IDENTIFICATION AND DEVELOPMENT OF THE CORRECTIVE MEASURES ALTERNATIVES

Based on the results of the RCRA Facility Investigation and consideration of the identified potential corrective measure technologies, the Facility shall identify, screen and develop the alternatives for removal, containment, treatment and/or other remediation of the contamination based on the objectives established for the corrective action.

A. Description of Current Situation

The Facility shall submit an update to the information describing the current situation at the facility and the known nature and extent of the contamination as documented by the RCRA Facility Investigation (RFI) Report. The Facility shall provide an update to information presented in the RFI regarding previous response activities and interim measures that have or are being implemented at the facility. The Facility shall also make a facility-specific statement of the purpose for the response, based on the results of the RFI. The statement of purpose should identify the actual or potential exposure pathways that should be addressed by corrective measures.

B. Establishment of Corrective Action Objectives

The Facility shall propose facility-specific objectives for the corrective action. These objectives shall be based on public health and environmental criteria, information gathered during the RFI, EPA guidance, and the requirements of any applicable State and Federal statutes. At a minimum, all corrective actions concerning groundwater releases from regulated units must be consistent with, and as stringent as, those required under ADEM Admin. Code R. 335-14-5-.06(11).

C. Screening of Corrective Measure Technologies

The Facility shall review the results of the RFI and assess the technologies that are applicable at the facility. The Facility shall screen the corrective measure 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 objective within a reasonable time period. This screening process

focuses on eliminating those technologies that have severe limitations for a given set of waste and site-specific conditions. The screening step may also eliminate technologies based on inherent technology limitations.

Site, waste, and technology characteristics that are used to screen inapplicable technologies are described in more detail below:

1. Site Characteristics

Site data should be reviewed to identify conditions that may limit or promote the use of certain technologies. Technologies whose use is clearly precluded by site characteristics should be eliminated from further consideration.

2. 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).

3. 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.

- D. Identification of the Corrective Measure Alternatives

The Facility shall develop the Corrective Measure alternatives based on the corrective action objectives and analysis of potential corrective measure technologies. The Facility shall rely on engineering practice to determine which of the previously identified technologies appear most suitable for the site. Technologies can be combined to form the overall corrective action alternatives. The alternatives developed should represent a workable number of option(s) that each appears to address adequately all site problems and corrective action objectives. Each

alternative may consist of an individual technology or a combination of technologies.
The Facility shall document the reasons for excluding technologies.

II. EVALUATION OF THE CORRECTIVE MEASURE ALTERNATIVES

The Facility shall describe each Corrective Measure Alternative that passes through the initial screening and evaluate each Corrective Measure Alternative and its components. The evaluation shall be based on technical, environmental, human health and institutional concerns. The Facility shall also develop cost estimates of each corrective measure.

A. Technical/Environmental/Human Health/Institutional

The Facility shall provide a description of each Corrective Measure Alternative that includes but is not limited to the following: preliminary process flow sheets; preliminary sizing and type of construction for buildings and structures; and rough quantities of utilities required. The Facility shall evaluate each alternative in the four following areas:

1. Technical

The Facility shall evaluate each Corrective Measure Alternative based on performance, reliability, implementability and safety.

a. The Facility shall evaluate performance based on the effectiveness and useful life of the corrective measure:

- i. Effectiveness shall be evaluated in terms of the ability to perform intended functions, such as containment, diversion, removal, destruction, or treatment. The effectiveness of each corrective measure shall be determined either through design specifications or by performance evaluation. Any specific waste or site characteristics that could potentially impede effectiveness shall be considered. The evaluation should also consider the effectiveness of combinations of technologies; and**
- ii. Useful life is defined as the length of time the level of desired effectiveness can be maintained. Most corrective measure technologies, with the exception of destruction, deteriorate with time. Often, deterioration can be slowed through proper system**

operation and maintenance, but the technology eventually may require replacement. Each corrective measure shall be evaluated in terms of the projected service lives of its component technologies. Resource availability in the future life of the technology, as well as appropriateness of the technologies, must be considered in estimating the useful life of the project.

- b. The Facility shall provide information on the reliability of each corrective measure including their operation and maintenance requirements and their demonstrated reliability:
 - i. Operation and maintenance requirements include the frequency and complexity of necessary operation and maintenance. Technologies requiring frequent or complex operation and maintenance activities should be regarded as less reliable than technologies requiring little or straightforward operation and maintenance. The availability of labor and materials to meet these requirements shall also be considered; and
 - ii. Demonstrated and expected reliability is a way of measuring the risk and effect of failure. The Respondent should evaluate whether the technologies have been used effectively under analogous conditions; whether the combination of technologies have been used together effectively; whether failure of any one technology has an immediate impact on receptors; and whether the corrective measure has the flexibility to deal with uncontrollable changes at the site.
- c. The Facility shall describe the implementability of each corrective measure including the relative ease of installation (constructability) and the time required to achieve a given level of response:
 - i. Constructability is determined by conditions both internal and external to the facility conditions and includes such items as location of underground utilities, depth to water table, heterogeneity of subsurface materials, and location of the facility (i.e., remote location vs. a congested urban area). The Facility shall evaluate

what measures can be taken to facilitate construction under these conditions. External factors which affect implementation include the need for special Orders or agreements, equipment availability, and the location of suitable off-site treatment or disposal facilities; and

- ii. Time has two components that shall be addressed: the time it takes to implement a corrective measure and the time it takes to actually see beneficial results. Beneficial results are defined as the reduction of contaminants to some acceptable, pre-established level.
- d. The Facility shall evaluate each Corrective Measure Alternative with regard to safety. This evaluation shall include threats to the safety of nearby communities and environments as well as those to workers during implementation. Factors to consider are fire, explosion, and exposure to hazardous substances.

2. Environmental

The Facility shall perform an Environmental Assessment for each alternative. The Environmental Assessment shall focus on the facility conditions and pathways of contamination actually addressed by each alternative. The Environmental Assessment for each alternative will include, at a minimum, an evaluation of: the short- and long-term beneficial and adverse effects of the response alternative; any adverse effects on environmentally sensitive areas; and an analysis of measures to mitigate adverse effects.

3. Human Health

The Facility shall assess each alternative in terms of the extent to which it mitigates short- and long-term potential exposure to any residual contamination and protects human health both during and after implementation of the corrective measure. The assessment will describe the concentrations and characteristics of the contaminants on-site, potential exposure routes, and potentially affected population. Each alternative will be evaluated to determine the level of exposure to contaminants and the reduction over time. For management of mitigation measures, the relative reduction of impact will be

determined by comparing residual levels of each alternative with existing criteria, standards, or guidelines acceptable to EPA.

4. Institutional

The Facility shall assess relevant institutional needs for each alternative.

Specifically, the effects of Federal, state and local environmental and public health standards, regulations, guidance, advisories, ordinances, or community relations on the design, operation, and timing of each alternative. If the selected remedy is capping and closure in place, a notation must be made in the land deed.

B. Cost Estimate

The Facility shall develop an estimate of the cost of each Corrective Measure Alternative (and for each phase or segment of the alternative). The cost estimate shall include both capital and operation and maintenance costs.

1. Capital costs consist of direct (construction) and indirect (non-construction and overhead) costs.

a. Direct capital costs include:

- i. Construction costs: Costs of materials, labor (including fringe benefits and worker's compensation), and equipment required to install the corrective measure.
- ii. Equipment costs: Costs of treatment, containment, disposal and/or service equipment necessary to implement the action; these materials remain until the corrective action is complete;
- iii. Land and site-development costs: Expenses associated with purchase of land and development of existing property; and
- iv. Buildings and services costs: Costs of process and non-process buildings, utility connections, purchased services, and disposal costs.

b. Indirect capital costs include:

- i. Engineering expenses: Costs of administration, design, construction supervision, drafting, testing of Corrective Measure Alternatives;

- ii. Legal fees and license or permit costs: Administrative and technical costs necessary to obtain licenses and permits for installation and operation;
 - iii. Start-up and shakedown costs: Costs incurred during corrective measure start-up; and
 - iv. Contingency allowances: Funds to cover costs resulting from unforeseen circumstances, such as adverse weather conditions, strikes, and inadequate facility characterization.
2. Operation and maintenance costs are post-construction costs necessary to ensure continued effectiveness of a corrective measure. The Facility shall consider the following operation and maintenance cost components:
- a. Operating labor costs: Wages, salaries, training, overhead, and fringe benefits associated with the labor needed for post-construction operations;
 - b. Maintenance materials and labor costs: Costs for labor, parts, and other resources required for routine maintenance of facilities and equipment;
 - c. Auxiliary materials and energy: Costs of such items as chemicals and electricity for treatment plant operations, water and sewer service, and fuel;
 - d. Purchased services: Sampling costs, laboratory fees, and professional fees for which the need can be predicted;
 - e. Disposal and treatment costs: Costs of transporting, treating, and disposing of waste materials, such as treatment plant residues, generated during operations;
 - f. Administrative costs: Costs associated with administration of corrective measure operation and maintenance not included under other categories;
 - g. Insurance, taxes, and licensing costs: Costs of such items as liability and sudden accident insurance; real estate taxes on purchased land or right-of-way; licensing fees for certain technologies; and permit renewal and reporting costs;
 - h. Maintenance reserve and contingency funds: Annual payments into escrow funds to cover (1) costs of anticipated replacement or rebuilding of

equipment and (2) any large unanticipated operation and maintenance costs; and

- i. Other costs: Items that do not fit any of the above categories.

III. JUSTIFICATION AND RECOMMENDATION OF THE CORRECTIVE MEASURE OR MEASURES

The Facility shall justify and recommend a Corrective Measure Alternative using technical, human health, and environmental criteria. This recommendation shall include summary tables that allow the alternative or alternatives to be understood easily. Trade-offs among health risks, environmental effects, and other pertinent factors shall be highlighted. The Department will select the Corrective Measure Alternative or alternatives to be implemented based on the results obtained from work completed under Sections II and III. At a minimum, the following criteria will be used to justify the final corrective measure or measures.

A. Technical

1. Performance - corrective measure or measures which are most effective at performing their intended functions and maintaining the performance over extended periods of time will be given preference;
2. Reliability - corrective measure or measures which do not require frequent or complex operation and maintenance activities and that have proved effective under waste and facility conditions similar to those anticipated will be given preference;
3. Implementability - corrective measure or measures which can be constructed and operated to reduce levels of contamination to attain or exceed applicable standards in the shortest period of time will be preferred; and
4. Safety - corrective measure or measures that pose the least threat to the safety of nearby residents and environments as well as workers during implementation will be preferred.

B. Human Health

The corrective measure(s) must comply with existing ADEM criteria, standards, or guidelines for the protection of human health. Corrective measures that provide the

minimum level of exposure to contaminants and the maximum reduction in exposure with time are preferred.

C. Environmental

The corrective measure(s) posing the least adverse impact (or greatest improvement) over the shortest period of time on the environment will be favored.

IV. REPORTS

The Facility shall prepare a Corrective Measure Study Report presenting the results obtained from Sections I through III and recommending a Corrective Measure Alternative. Copies of the preliminary report shall be provided by the Facility to the Department for review and approval.

A. Draft

Copies of the draft report shall be provided by the Facility to ADEM. The draft Report shall at a minimum include:

1. A description of the facility to include site topographic map and preliminary layouts.
2. A summary of the corrective measure(s) and rationale for selection;
 - a. Description of the corrective measure(s) and rationale for selection;
 - b. Performance expectations;
 - c. Preliminary design criteria and rationale;
 - d. General operation and maintenance requirements; and
 - e. Long-term monitoring requirements.
3. A summary of the RCRA Facility Investigation and impact on the selected corrective measure or measures;
 - a. Field studies (groundwater, surface water, soil, air); and
 - b. Laboratory studies (bench scale, pilot scale).
4. Design and Implementation Precautions;
 - a. Special technical problems;
 - b. Additional engineering data required;
 - c. Permits and regulatory requirements;
 - d. Access, easements, right-of-way;

- e. Health and safety requirements; and
 - f. Community relations activities.
- 5. Cost Estimates and Schedules;
 - a. Capitol cost estimate;
 - b. Operation and maintenance cost estimate; and
 - c. Project schedule (design, construction, and operation).
- B. Final

The Facility shall finalize the Corrective Measure Study Report incorporating comments received from ADEM on the Draft Corrective Measure Study Report. The report shall become final upon approval by the Department.
- C. Public Review and Final Selection of Corrective Measures

Upon receipt of the Final Corrective Measure Study Report, the Department shall announce its availability to the public for review and comment. At the end of the comment period, the Department shall review the comments and then inform the Facility of the final decision as to the approved Corrective Measures to be implemented.

APPENDIX D

- CORRECTIVE ACTION SCHEDULE OF COMPLIANCE

APPENDIX D

CORRECTIVE ACTION SCHEDULE OF COMPLIANCE

ITEM	DUE DATE
Notification of Newly Identified SWMUs & AOCs Condition V.B.1 and Condition V.B.2	Within fifteen (15) calendar days of discovery
SWMU Assessment Report Condition V.B.3.	Within ninety (90) calendar days of notification
Notification for Newly Discovered Releases at Previously Identified SWMUs and AOCs Condition V.C.1.	Within fifteen (15) calendar days of discovery
Confirmatory Sampling Workplan for SWMUs and AOCs identified in Appendix A-3 Condition V.D.1.	Within forty-five (45) calendar days after effective date of Administrative Order
Confirmatory Sampling Report Condition V.D.4.	In accordance with the approved CS Workplan
RFI Workplan for SWMUs and AOCs identified under Condition V.A.1.	Within ninety (90) calendar days from effective date of Administrative Order
RFI Workplan for SWMUs and AOCs identified under Condition V.B.4., Condition V.C.2., Condition V.D.5.	Within ninety (90) calendar days of receipt of notification by Department of which SWMUs or AOCs require an RFI
RFI Progress Reports Condition V.E.3.a.	At least once every ninety (90) calendar days, beginning ninety (90) calendar days from a start date specified by the Department
Draft RFI Report Condition V.E.3.b.	In accordance with the approved RFI Workplan
Final RFI Report Condition V.E.3.b.	Within thirty (30) calendar days after receipt of Department comments on Draft RFI Report
Interim Measures Workplan Condition V.F.1.a.	Within thirty (30) calendar days of notification by Department
Interim Measures Progress Reports Condition V.F.3.a.	In accordance with the approved Interim Measure Workplan
Interim Measures Report Condition V.F.3.b.	Within ninety (90) calendar days of completion
CMS Plan Condition V.G.1.a.	Within ninety (90) calendar days of notification by Department that a CMS is required
Draft CMS Report Condition V.G.3.a.	In accordance with the Schedule in the approved CMS Workplan
Final CMS Report Condition V.G.3.a.	Within thirty (30) calendar days of Department's comments on draft CMS Report
Demonstration of Financial Assurance Condition V.H.3.	Within one hundred and twenty (120) calendar days after order modification for remedy
Imminent Hazard Report Condition V.J.1. and V.J.2.	Oral within twenty-four (24) hours & written within fifteen (15) calendar days of becoming aware of

	hazardous circumstances
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APPENDIX E

WASTE MINIMIZATION OBJECTIVES

APPENDIX E

WASTE MINIMIZATION CERTIFICATION OBJECTIVES

The Waste Minimization Program should include the following elements:

I. TOP MANAGEMENT SUPPORT

- A. Dated and signed policy describing management support for waste minimization and for implementation of a waste minimization plan.
- B. Description of employee awareness and training programs designed to involve employees in waste minimization planning and implementation to the maximum extent feasible.
- C. Description of how a waste minimization plan has been incorporated into management practices so as to ensure ongoing efforts with respect to product design, capital planning, production operations, and maintenance.

II. CHARACTERIZATION OF WASTE GENERATION

Identification of types, amounts, and hazardous constituents of waste streams, with the source and date of generation.

III. PERIODIC WASTE MINIMIZATION ASSESSMENTS

- A. Identification of all points in a process where materials can be prevented from becoming a waste, or can be recycled.
- B. Identification of potential waste reduction and recycling techniques applicable to each waste, with a cost estimate for capital investment and implementation.
- C. Description of technically and economically practical waste reduction/recycling options to be implemented, and a planned schedule for implementation.
- D. Specific performance goals, preferably quantitative, for the source reduction of waste by stream. Whenever possible, goals should be stated as weight of waste generated per standard unit of production, as defined by the generator.

IV. COST ALLOCATION SYSTEM

- A. Identification of waste management costs for each waste, factoring in liability, transportation, recordkeeping, personnel, pollution control, treatment, disposal, compliance and oversight costs to the extent feasible.
- B. Description of how departments are held accountable for the wastes they generate.
- C. Comparison of waste management costs with costs of potential reduction and recycling techniques applicable to each waste.

V. TECHNOLOGY TRANSFER

Description of efforts to seek and exchange technical information on waste minimization from other parts of the company, other firms, trade associations, technical assistance programs, and professional consultants.

VI. PROGRAM EVALUATION

- A. Description of types and amounts of hazardous waste reduced or recycled.
- B. Analysis and quantification of progress made relative to each performance goal established and each reduction technique to be implemented.
- C. Amendments to waste minimization plan and explanation.
- D. Explanation and documentation of reduction efforts completed or in progress before development of the waste minimization plan.
- E. Explanation and documentation regarding impediments to hazardous waste reduction specific to the individual facility.

References:

"Draft Guidance to Hazardous Waste Generators on the Elements of a Waste Minimization Program", 54 FR 25056, June 12, 1989.

"Waste Minimization Opportunity Assessment Manual", EPA/625/7-88/003, July 1988.

APPENDIX F

ACTION LEVELS

APPENDIX F

ACTION LEVELS

I. DEFINITION

Action levels are conservative health-based concentrations of hazardous constituents determined to be indicators for the protection of human health or the environment. Action levels shall be set for all hazardous constituents, a subset of hazardous wastes, identified in the RFI Report(s) or for those hazardous constituents which the Department has reason to believe may have been released from a solid waste management unit (SWMU) or Area of Concern (AOC) at the facility. Should the concentration of a hazardous constituent(s) in an aquifer, surface water, soils, or air exceed its action level for any environmental medium, the Department may require the Facility to conduct a Corrective Measure Study (CMS) to meet the requirements of Administrative Order Condition IV.G., Appendix C, and ADEM Admin. Code R. 335-14-5-.06(12). If the Department determines that a constituent(s) released from a SWMU or AOC in quantities below its respective action level(s) may pose a threat to human health or the environment, given site-specific exposure conditions, cumulative effects, ecological concerns, etc., then the Department has the authority to require a CMS to meet the requirements of Condition IV.G. of this Administrative Order, Appendix C of this Administrative Order, and ADEM Admin. Code R. 335-14-5-.06(12).

A. Action levels shall be concentration levels that satisfy the following criteria:

1. Is derived in a manner consistent with ADEM/EPA guidelines for assessing human and environmental health risks from hazardous constituents; and
2. Is based on scientifically valid studies conducted in accordance with the Toxic Substances Control Act (TSCA) Good Laboratory Practice Standards, or equivalent; and
3. For human health action levels to address carcinogens, represents a concentration associated with an excess upper bound lifetime cancer risk of 1×10^{-6} for carcinogens due to continuous constant lifetime exposure; and

4. For human health action levels to address systemic toxicants, represents a concentration to which the human population (including sensitive subgroups) could be exposed on a daily basis that is likely to be without appreciable risk of deleterious effects during a lifetime.
- B. For constituent(s) detected in groundwater, air, surface water, or soils, for which a concentration level that meets the criteria specified in sections I.A.1. through I.A.4. of this appendix is not available or possible, the action level for the constituent(s) shall be the background concentration of the constituent(s).

II. GROUNDWATER

- A. Action levels for constituents in groundwater shall be concentrations specified as:
 1. MCLs; or
 2. For constituents for which MCLs have not been promulgated, a concentration that satisfies the criteria specified in sections I.A.1. through I.A.4. of this appendix shall be calculated.
- B. In deriving human health action levels for constituents for which MCLs have not been promulgated, the recommended equations/assumptions shall be that followed by USEPA Region 3 in its Semi-annual Risk-Based Concentration Tables. Because the science of risk assessment is in flux and technical criteria/opinion of today (e.g., content of standardized equations, use of default exposure assumptions, etc.) may change, the Department reserves that right to revise the above recommended equations/assumptions as needed to meet the criteria listed in sections I.A.1. through I.A.4. of this appendix.

III. SURFACE WATER

- A. Action levels for constituents in surface water shall be concentrations specified as:
 1. Water Quality Standards established pursuant to the Clean Water Act by Department, where such standards are expressed as numeric values; or
 2. Numeric interpretations of Department narrative water quality standards where water quality standards expressed as numeric values have not been established by the Department; or

3. MCLs for constituents in surface water designated by the Department for drinking water supply, where numeric values or numeric interpretations, described in sections III.A.1. and III.A.2. of this appendix, are not available; or
 4. For constituents in surface waters designated by the Department for drinking water supply for which numeric values, numeric interpretations, or MCLs are not available, a concentration that meets the criteria specified in sections I.A.1. through I.A.4. of this appendix shall be calculated assuming exposure through consumption of the water contaminated with the constituent; or
 5. For constituents in surface waters designated for use or uses other than drinking water supply and for which numeric values or numeric interpretations have not been established, a concentration established by the Department which meets the criteria specified in sections I.A.1. through I.A.4. of this appendix shall be calculated.
- B. In deriving human health action levels for constituents in surface water, the recommended equations/assumptions shall be that followed by USEPA Region 3 in its Semi-annual Risk-Based Concentration Tables. Because the science of risk assessment is in flux and technical criteria/opinion of today (e.g., content of standardized equations, use of default exposure assumptions, etc.) may change, the Department reserves that right to revise the above recommended equations/assumptions as needed to meet the criteria listed in sections I.A.1. through I.A.4. of this appendix.

IV. AIR

- A. Action levels for constituents in air shall be defined as concentrations which meet the criteria specified in sections I.A.1. through I.A.4. of this appendix. The action levels for air shall be measured or estimated at the facility boundary, or another location closer to the unit if necessary to protect human health and the environment.
- B. In deriving human health action levels for constituents in air, the RfC should be utilized as the action level, where available. The RfC includes exposure assumptions, and no calculations are necessary to calculate an action level. If a RfC is not available, the recommended methodology/assumptions shall be that followed in the

USEPA Region 3 Semi-annual Risk-Based Concentration Tables. Because the science of risk assessment is in flux and technical criteria/opinion of today (e.g., content of standardized equations, use of default exposure assumptions, etc.) may change, the Department reserves that right to revise the above recommended equations/assumptions as needed to meet the criteria listed in sections I.A.1. through I.A.4. of this appendix.

V. SOILS

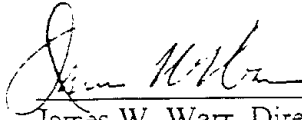
- A. Action levels for constituents in soils shall be concentrations which meet the criteria specified in sections I.A.1. through I.A.4. of this appendix.
- B. The calculation of human health action levels for soil includes several specific exposure routes that must be evaluated individually: 1) ingestion, 2) inhalation and 3) leachability to groundwater. In deriving action levels to address ingestion, inhalation and leaching, the methodology/assumptions found in the most recent Soil Screening Level Guidance should be reviewed for appropriate equations and assumptions. Because the science of risk assessment is in flux and technical criteria/opinion of today (e.g., content of standardized equations, use of default exposure assumptions, etc.) may change, the Department reserves that right to revise the above recommended equations/assumptions as needed to meet the criteria listed in sections I.A.1. through I.A.4. of this appendix.

VI. SEDIMENT

Action levels for constituents in sediment shall be based on whether human health or ecological health is the major concern. If ecological concerns are deemed to predominate, then action levels for constituents in sediment shall be concentrations based on the latest sediment screening values as calculated by USEPA Region 4. Because the science of risk assessment is in flux and technical criteria/opinion of today (e.g., content of standardized equations, use of default exposure assumptions, etc.) may change, the Department reserves that right to revise the above recommended equations/assumptions as needed to meet the criteria listed in sections I.A.1. through I.A.4. of this appendix.

If an ecological sediment screening value for a constituent of concern has not been generated by USEPA Region 4 and cannot be generated using the criteria in sections I.A.1. and I.A.2. of this appendix, then the ecological action level for sediment shall be background. If human health is the prevailing concern, then the human health action level for sediment shall address all applicable exposures.

ORDERED and ISSUED this 7th day of February, 2000.

A handwritten signature in black ink, appearing to read "James W. Warr", is written over a horizontal line.

James W. Warr, Director
Alabama Department of
Environmental Management
1400 Coliseum Boulevard
Montgomery, AL 36110-2059
(334) 271-7700

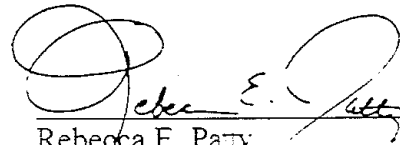
CERTIFICATE OF SERVICE

I, Rebecca E. Patty, hereby certify that I have served the foregoing Administrative Order
No. 00-073-HW upon Gulf States Steel, Inc. as follows:

Certified Mail Z422406753

Ken Means
Gulf States Steel, Inc.
174 South 26th Street
Gadsden, AL 35901

DONE this 7 day of February, 2000.



Rebecca E. Patty
Associate General Counsel